Cromarty Bridge

Method Statement

Contents

1.0 Document Status Record

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This sheet records the issued documents and their revision number. If only a few revisions are made, only the new or revised pages are issued. For convenience, the nature of the revision is briefly noted under “Remarks”, but these remarks are not part of the document.

Revision Code	Date Revised	Chapter / Section / Page Revised, Plus Any Remarks	Signatures		
			Originator	Checked	Approved
1	12/01/21	Initial Draft	RO	AG	
2	18/01/21	Minor amendments as highlighted	AG	RO	

2.0 Description of work

This document describes the method that will be used for the scour work activities in the Cromarty Firth, where approx. 4,000m3 of material is required to be excavated and redeposited on site and 3,500m3 of rock armour to be placed.

The main activities include:

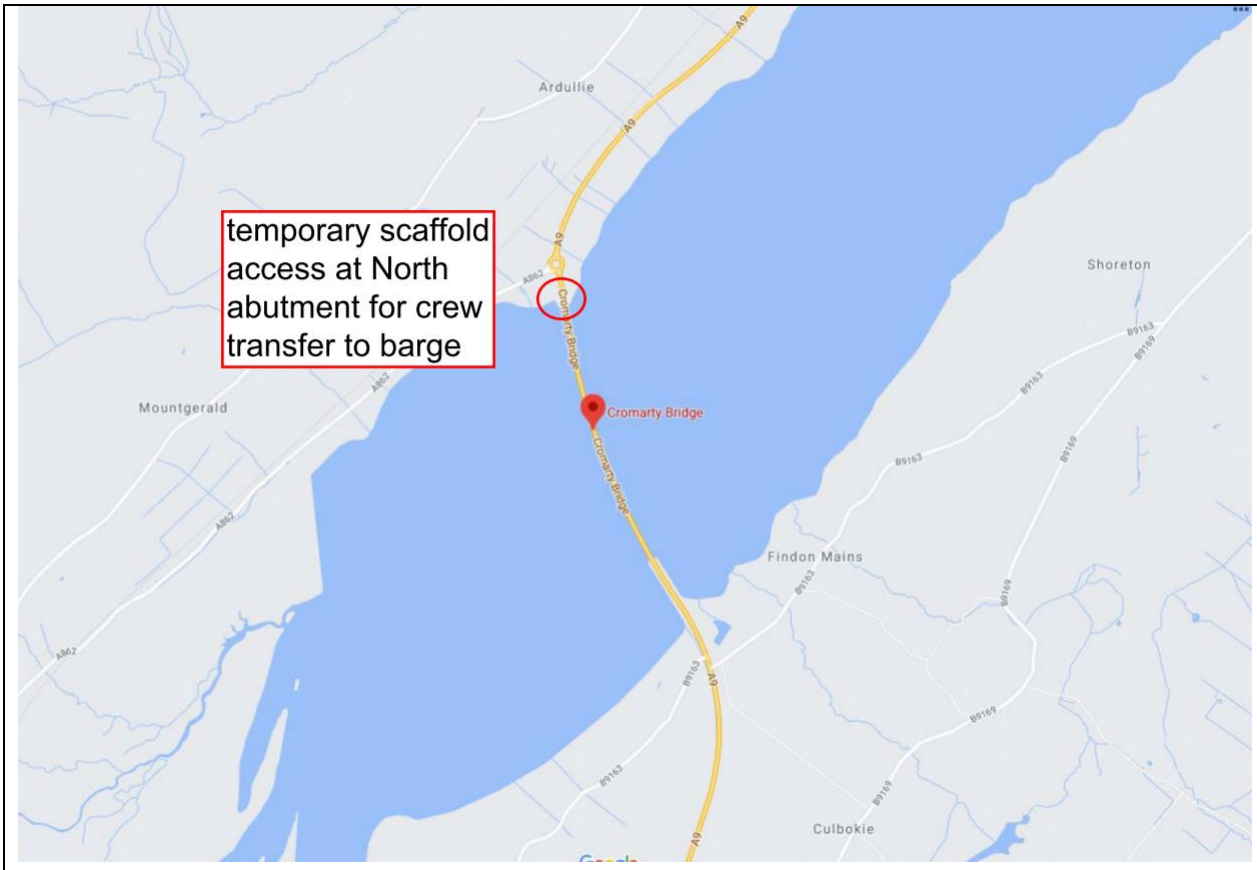
- Mob/Demob.
- Gain access to the work area.
- Dredging works at bridge piers.
- Side cast dredged material and reprofile where necessary.
- Placement of rock armour to piers.
- All other works by John Paul Construction (John Paul).

This document is intended for use as a guide for RAO personnel. RAO is carrying out the works under a labour and plant only contract and as such all work will be carried out inline with John Paul supervision, method of works and directions on site.

3.0 Method of Access and Egress to the work area:

(i.e. Ladders/MEWPS/Scaffold/Trestles/Step Ladder, etc)

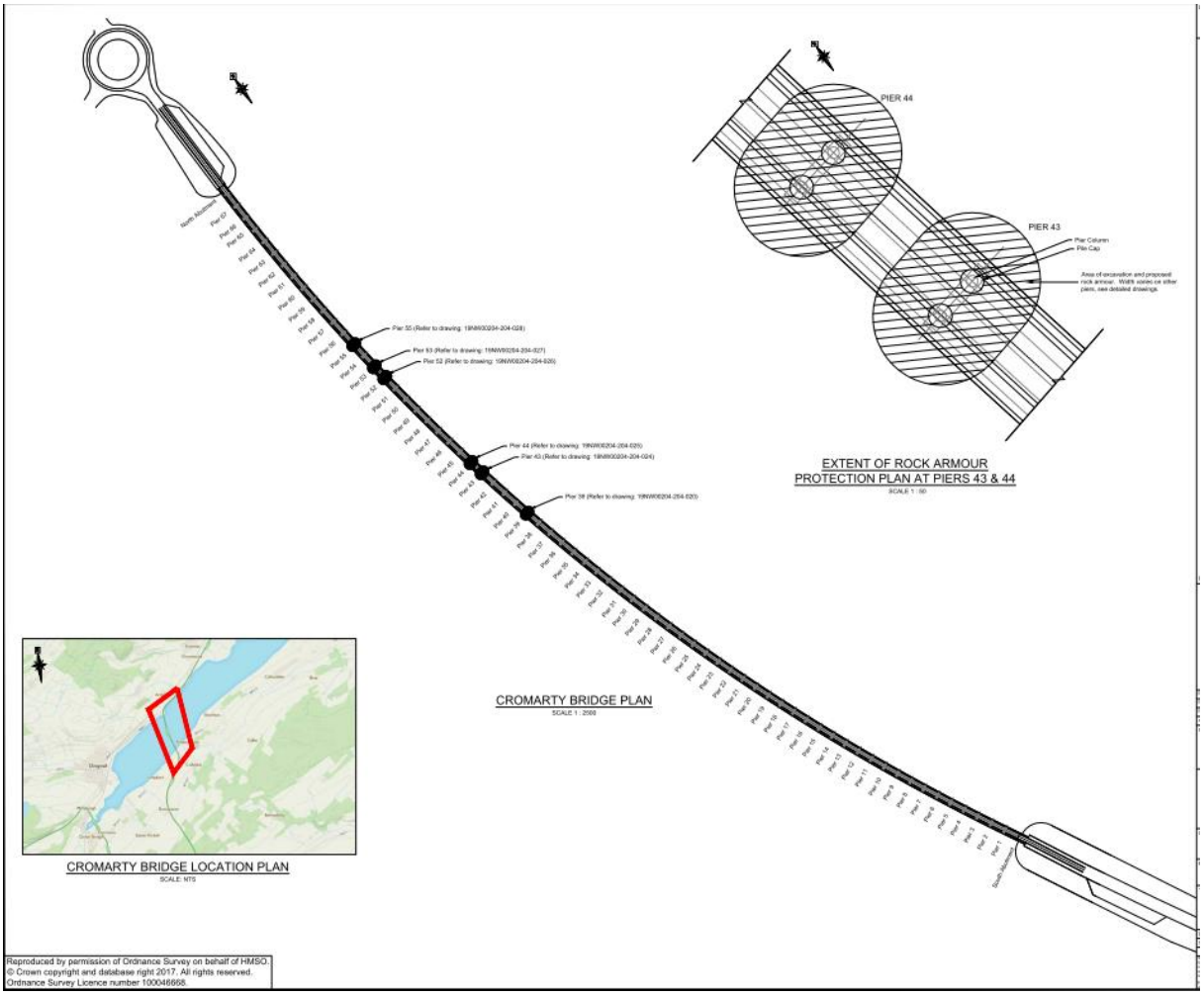
- Mobilisation of floating plant will be carried out off site at the Port of Invergordon, Queens dock.
- Access to the work area will be via the main access road, A9, to the works site North of the Cromarty Bridge. Ardullie Roundabout, Dingwall, IV15 9TS where a temporary scaffold access system, as below, will be set up by John Paul to allow crew transfer to and from floating plant.
- The below image shows the location of the site:



Primary access for the dredging works will be via the John Paul works site.

Scaffold access as per the below photograph will be created by John Paul to allow access to the work boat which in turn will transport personnel to the floating plant. Crew transfer will be carried out in line with the RAO'Neill Crew Transfer Procedure (CTP):

Works locations are at pier numbers 39,43,44,52,53 & 55 as show below:



4.0 Work method

Constraints/Marine liaison/Considerations

1. RAO to supply crane onsite to offload the equipment and transfer the equipment to the water within the works site at Queens Dock, Port of Invergordon.
2. All floating plant is based from UK waters.
3. Crane lifts carried out with appointed person/crane supervisor in attendance and under the details of the lift plan (contract lift) for the works (see Stoddart crane hire lift plan).
4. A site induction will be carried out by JOHN PAUL and the RA O'Neill plant hire (RAO) supervisor with all personnel involved in the works prior to the works commencing any questions/thoughts regarding the works will be welcome.
5. Toolbox talks will be carried out to address other site specific issues during the course of the project, cognisance on TBT reference 'working with otters'.
6. Work will be carried out in line with JOHN PAUL permits if required.
7. Notice To Mariners (NTM) and Marine Licence applied by JOHN PAUL as required.
8. An assessment of the suitability of the Met-ocean (Weather, tides, wind, current) conditions will be continually carried out during all tasks. The Barge/Vessel Master will monitor wave and weather conditions for operations, and has the final decision in the safe operations at all times.
9. Radio contact to be maintained between all vessels and the Harbour Master where required via VHF Radio, with other operatives also supplied with VHF.
10. Daily liaison with Cromarty Firth Port Authority Port Control and Harbour Master carried out and vessel movements agreed in advance.
11. Cromarty Firth port authority – Entry and Departure Guidelines for Vessels.
12. The Barge/Vessel Master will monitor wave and weather conditions for operations, and has the final decision in the safe operations at all times.
13. All works will be carried out during shipping movements and priority will be given to the Cromarty Firth Port Authority (CF) staff at all times in order that any disruption to the normal operations of this Port are minimised.
14. Site Supervisor to liaise with MCA (coastguard VHF 16) and other authorities as required.
15. All Plant Items to be certified and fit for purpose, with all plant daily inspections completed at the start of each shift by plant operators.
16. Consider noise and traffic for local residents and business at all times when operating plant or equipment.
17. Designated person ashore (DPA).
18. Operatives to ensure that all waste materials are disposed of in the correct manner by way of the Client procedures.
19. JOHN PAUL to carry out all monitoring of the dredging activities. If the suspended solids levels etc reach the defined limits then works must cease until the acceptable level is achieved.
20. Welfare facilities will be shared with JOHN PAUL, however a canteen and toilet, supplied by RAO Ltd., will also be located on the spud-leg barge.

All Tasks

- The person in charge of the work must be in possession of a valid Method Statement and risk assessment specific to the works that are being carried out.
- All operatives must have signed up to these RAMS and complete the contractors Site induction detailing Site emergency procedures, before the start of the works. Inductions will be held online, with a brief familiarisation briefing completed on site prior to work starting.
- Access will be gained via as below:
    - Mobilisation of floating plant will be carried out off site at the Port of Invergordon, Queens dock.
    - Access to the work area will be via the main access road, A9, to the works site North of the Cromarty Bridge. Ardullie Roundabout, Dingwall, IV15 9TS where a temporary scaffold access system, as below, will be set up by John Paul to allow crew transfer to and from floating plant.
- Site Working Hours will be as follows where possible:
  Monday – Saturday 07:00am to 19:00pm
- All personnel must present a valid CPCS / CSCS / CSR/ STCW Card during the site induction process, as required.
- Only trained and competent persons will be permitted to operate plant on site.
- Plant Items to be delivered direct to site, access the designated work site in line with any permits

required.

- All operatives to wear the mandatory PPE during the works including lifejackets when working over water or within 3m of the waters edge.
- Only suitably trained RAO personnel will be involved in the operation of lifting equipment.
- The Lift Equipment – 'Safe Working Load' (SWL) shall not be exceeded at any time.
- No plant or lifting equipment will be operated without the required inspection certification.
- All deliveries of plant or support materials are to be programmed and delivered during normal working hours.
- Turning area will be required for lorries to gain access.
- A visual barrier will also be in place at the works area to delineate the sheet piled wall edge to the shore operators to ensure they do not encroach this area.
- Follow Emergency response procedure (ERP) for dealing with any incidents on site.
- Follow Crew transfer procedure (CTP) for transferring personnel to and from the barge where this is required.
- Barge sections range from 12/13 ton each and 8 No. in total. Making 25m long x 12m wide x 1.2 deep barge. **LENA**
- Spud legs 2 no. 10m long x .610 Dia. Approx. 5 ton each with 4m bolted extension to allow transfer below bridge when required.
- Deck equipment 8 lifts approximately 2/3 ton each.
- All equipment has certified and tested lifting eyes.

- Workboat 14 ton. 9 m long x 3m wide 1.2m deep. **VOLGA**
- 9 M x 3 M (1 meter draft)
- 250 HP
- 3.5 tonne bollard pull
- Certificate for UK and Ireland waters. RYA category 3 certificate. Department of Marine P4 certificate.

- Safety Boat/Crew transfer vessel – **PIONEER**
- Pioneer multi polyethene construction Length 5.05m / Breadth 1.95m. Mercury 60hp 4 stroke ooutboard. 1350kg deck load. Road transportable. Drop down bow door ramp. 8 person capacity.

Limiting Constraints

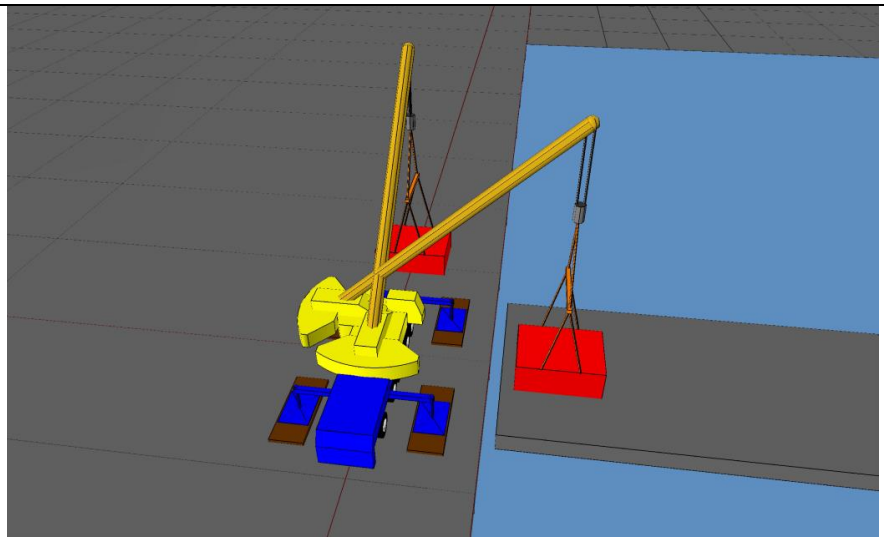
- Lifts may be affected by limiting conditions such as strong winds and gusts. However other environmental conditions can also affect operations, in particular (but not limited to) visibility.
- The Barge/Vessel Master will monitor wave and weather conditions for operations, and has the final decision in the safe operations at all times.
- All works will be carried out during shipping movements and priority will be given to the Cromarty Firth Port Authority (CF) staff at all times in order that any disruption to the normal operations of this Port are minimised.
- After consultation with Port Control and the Harbour Master “No berthing” signs and red lights will be positioned along the working area as required.

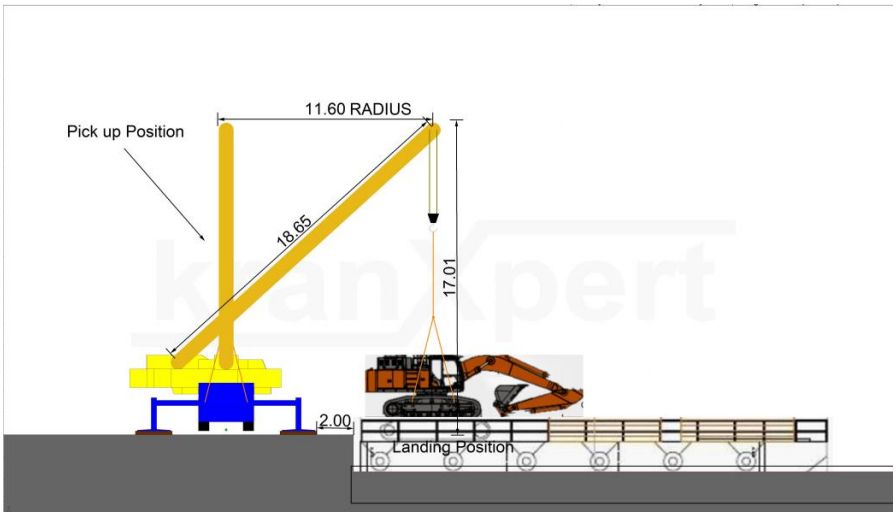
Recording the Brief

A record of the briefing shall be held by RAO on the MSRA, which can be forwarded to other parties upon request.

Mobilisation

1. RAO Personnel will advise JOHN PAUL management in advance of day / date / time for the transit of the site support equipment.
2. Lorry will be met and escorted to site.
3. Delivery vehicles will be held at designated hold point (to be confirmed), each vehicle will be escorted in sequence to the Queens dock, Port of Invergordon by RAO for off-loading.
4. The Ravestein spud leg barge, LENA, shall arrive in 8 No sections along with spud legs and associated deck equipment and three crew on the barge. It is a 8 section barge with 10 meter spud legs. Barge comes with timber deck mats, hand rails, fenders, bunded fuel bowsers, spill kit, hydraulic power pack, 10 Kva generator, signage and Nav lights, welfare hut.
5. Barge sections range from 12/13 ton each. 8 No. 25m long x 12m wide x 1.2 deep when fully built. Spud legs 2 no. 10m long x .61 Dia. 5 ton each. Workboat 14 ton. 9 m long x 3m wide 1.2m deep. Deck equipment 8 lifts approximately 2/3 ton each.
6. All equipment has certified and tested lifting eyes.
7. A 60 tonne long reach excavator with Trimble earthworks GPS dig system, circa 35T excavator (load out rock armour to John Paul barge prior to transfer), 25T long reach excavator (only required during 'passing' of rock below bridge from rock barge), work boat and crew/safety workboat (9 meter coded workboat with skipper) will be transported by road on 40ft flatbed lorries to Queens dock.
8. RAO to supply a hired in crane, AP/crane supervisor and slinger to be onsite to offload the equipment and transfer the equipment to the water. Lifting operations will be undertaken by RAO in conjunction with their contract lift specialist Stoddart crane hire.
9. All lifts to be carried out inline with the Stoddart crane hire lift plan.
10. The exact location of the hired in crane and delivery area for flatbed lorries is to be agreed with the Port of Invergordon and RAO prior to mobilisation.
11. Planned lifts will then begin with the safety boat being lifted into the water and berthed.
12. A secure area will be delinated around the lorry and the lift area.
13. The sections of the spud leg barge shall be lifted onto the water, at the sheet piled wall, one at a time with each section secured to its predecessor before another section is lifted into place. Safety boat to be manned at this time.
14. Slings will be attached to the lifting points of the pontoon.
15. Slinger will ensure that all tag lines are connected and free from entanglement.
16. Signaller with the crew assistance will guide the pontoon with the tag lines as required.
17. The pontoon will then be lifted directly from Lorry trailer & into the water.
18. All operatives must be clear of the lifting area, no lifting over personnel.
19. The designated signaller will indicate when the lift is complete and instruct the crane to manoeuvre pontoon to nearside quay ladder.
20. Slinger will descend ladder & onto pontoon.
21. Pontoon will be secured to the quay (via quay side bollards) & slinger will disconnect the lifting gear from the Slings.
22. Slinger will then communicate to crane operator that lift is complete & lifting gear will be retracted.
23. The barge will be constructed in accordance with the pontoon manufacturers Manual.
24. The spud barge will be a modular pontoon.
25. Personnel on the barge sections shall wear life vests at all times.
26. Once all barge sections are on the water and connected, the decking, edge protection, spud leg lifters, spud legs, bowser, power packs and welfare hut shall be located and secured.
27. After construction of spud leg barge has been completed RAO will then move the barge to the loading location for the excavator, where RAO will proceed to lift the 60 tonne long reach excavator onto the Barge. During this operation the spud leg barge will have the spudlegs penetrated so as it cannot move from its position. The sheet piled wall will have rubber belting placed to prevent damage to the structure where required.
28. When the excavator is in the correct position on the deck, four chains will fasten the excavator securely to the lashing eyes on the deck. All lashing equipment will be certified.

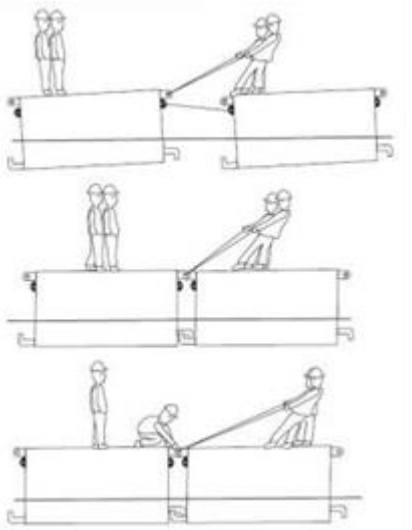




Detailed sequence of works are shown below;

1. The banksman shall direct the mobile crane towards the pontoon delivery lorries.
2. The pontoons shall be slung and lifted over the sheet piled edge.
3. Once the pontoon is lowered and placed in the water, it shall remain attached to the crane.
4. An operative shall descend the quay access ladder on the sheet piled wall to the pontoon whilst wearing a life vest.
5. The operatives on the quay shall make fast the pontoon by securing mooring ropes to quay side bollards.
6. Once descended to pontoon level the operative shall disconnect the crane from the pontoon and the banksman shall direct the crane to lift the second and following pontoons.
7. The second pontoon shall then be picked up and lowered into the water adjacent to the first pontoon.
8. The crane shall again remain attached to the second pontoon until it is locked into the first pontoon.
9. The sequence of works shall continue with each pontoon section lowered into the water and connected to the adjacent pontoon.
10. Each pontoon will be secured to its predecessor by sliding the pontoons together into the dovetail coupling, once aligned and tight together (use chain blocks if required) a pin is placed to secure the pontoons together.
11. Once all pontoons are locked together, the spud legs shall be lowered into the spud cans and lowered to bed level, the spud legs are manually manoeuvred into exact location and slowly lowered by the crane until the legs engage with the bed. Chains are then released.
12. When locating pins to allow lowering and raising of spud legs operatives are aware that the leg lifters are only be engaged once the pins are in place and all personnel are clear of the lifters.
13. 2 No leg lifters/winches shall be located over the spuds legs, again by crane and lowered until the

lifters rest on the barge deck and tested for operation. Leg lifters are powered by hydraulic power pack, located and secured on the barge. Cables and hoses shall be arranged to ensure the deck area around the lifters is clear.



14. Once the spud legs are installed and tested the spud legs shall be raised, and the pontoon positioned using the work boat and moored in place by dropping the spud legs to bed level. The tug can then be disconnected.

    Lowering spud legs

    a. The bottom pin is located in the leg lifter and the top pin removed to allow the leg to lower until the bottom pin rests on the lower point of the lifter. The top pin is then put back in place and the lower pin removed and located to the top point of the lifter. This process is repeated until the spud legs engages with the bed below the barge. Both pins are now removed to allow the barge to move up and down the spud leg freely. Operatives must ensure that when the spud legs rest on the bed the lifters are kept in the up position in order to remove the bottom pin. The lifter can then be lowered to the down position and the top pin removed.

    Raising spud legs

    b. When the barge is to be moved the spud legs need to be raised. The lower pin shall be located in the lifter and the spud leg lifted up hydraulically. The top pin shall be engaged to ensure the spud leg cannot drop down. The lower pin shall then be removed and inserted to the lower point within the lifter, the top pin then removed and the spud leg lifted again. The process shall be repeated as necessary.

15. Once all the barge sections are on the water and connected, the barge deck, edge protection, fuel bowser, power packs and welfare hut shall be lifted individually from the lorries, located onto the barge and secured.
16. NOTE:The Slinger / Banksman and Crane Operator will maintain constant visual/audio contact.
17. Finally, the workboat, Volga, will be lifted into the water and berthed. All operatives must be wearing lifejackets when working within 3m of the waters edge or over water.

Loading plant onto spud barge – c. 60T long reach excavator

1. The excavator shall be transported to the work site via low loader transporter and escorted onto the works area.
2. The low loader will be reversed into the temporary demarcated area adjacent to the designated loading area.
3. The workboat will move the spud leg barge to the correct location for the crane lift. The spud legs will then be secured on the bed.
4. The excavator will be lifted onto the barge inline with the Stoddart crane hire lift plan.
5. During this operation the spud leg barge will have the spudlegs penetrated so as it cannot move from its position.
6. Rubber belting will be placed at the works site to ensure the works are not damaged when tracking the excavator onto the barge, if required.

7. The excavator will position itself as per the restrictions in place on the stability check for the barge.
8. When the excavator is in the correct position on the deck, four chains will fasten the excavator securely to the lashing eyes on the deck prior to departing the quayside as required and to the satisfaction of the barge master. All lashing equipment will be certified.

Mooring & Positioning barge/pontoon. (Including Tow)

1. For tow and positioning tide times are critical to the operation and slack tides should always be used where possible.
2. Arrangements for the barge tow will be made with Cromarty Firth Port Authority as required.
3. The Harbour Master shall be consulted and permission sought prior to the planned transition from the Port of Invergordon to the worksite.
4. The Vessel Master will liaise with Port Control/Harbour Master and the RAO safety boat to check vessel movements within the Cromarty Firth.
5. Caledonian towage to undertake passage plan for Cromarty Firth port authority if deemed required, 7.6 nautical miles. Tide timings to be reviewed to allow maximum draft of vessel for the operation.
6. As with all passage plans the waypoints listed may alter due to local traffic density and weather conditions at the time of carrying out the passage.
7. Based on the information gathered for the weather forecast the Tug Master will decide if there is a sufficient weather “window” to safely proceed with the tow.

8. The tow vessel (Caledonian towage) will be connected and secured to the spud barge with the hydraulic winch wire rope and securely lashed.
9. The wire rope is attached to the tow points on the barge.
10. The tow wires shall be pulled tight by the winches in such a fashion to ensure The tug boat and

modular pontoon remain firmly lashed together.

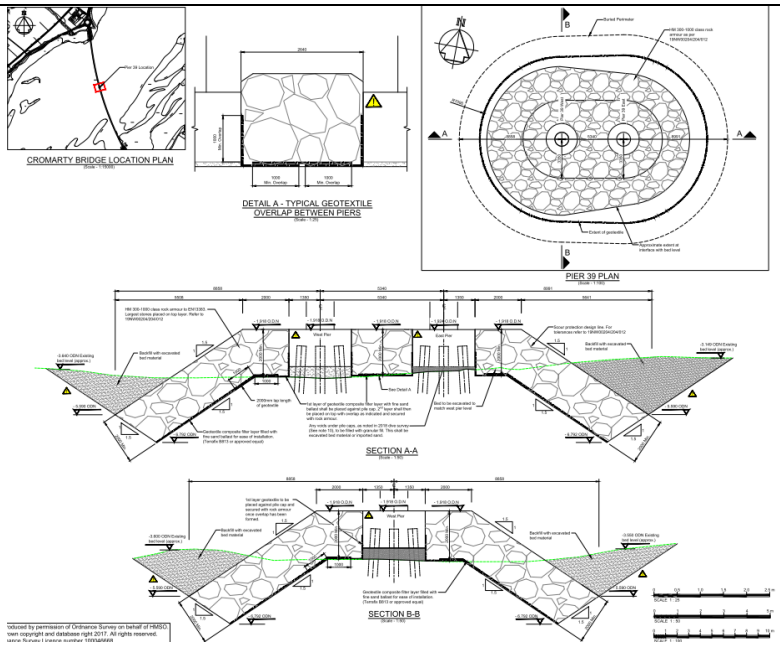
11. Before any towing, the Barge Master will complete a pre-tow check of both the barge and tug boat, including tow lines and connections.
12. Tug Boat Skipper, Harbour Master and Barge Master will remain in communications during the tow.
13. Barge Master will extract spud legs prior to communicating instruction to tug boat skipper.
14. The pontoon will be moved to the worksite position. Throughout the move, the Barge Master and deckhand will constantly monitor for other users of the Firth.
15. The spud legs shall be dropped to bed level and the Modular pontoon shall then be moored.
16. Once moored the tow wires can be disconnected from the Modular Pontoon.
17. If at any anytime the tug boat suffers engine failure/loss of power the work boat operator will immediately inform the Barge Master, who will lower the spud legs to the riverbed to secure the barge.

For movements at the work site between piers the below method will be undertook:

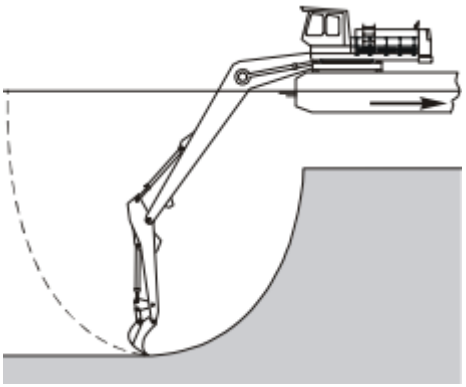
1. Arrangements for the barge positioning will be made with Cromarty Firth Port Authority as required.
2. The Harbour Master shall be consulted and permission sought prior to the planned transition from the bridge piers at the work site.
3. The Barge Master will liaise with Port Control/Harbour Master and the RAO safety boat to check vessel movements within the Cromarty Firth.
4. The work boat will be connected and secured to the spud barge with the hydraulic winch wire rope and securely lashed.
5. The wire rope is attached to the tow points on the barge.
6. The tow wires shall be pulled tight by the winches in such a fashion to ensure The Work boat and modular pontoon remain firmly lashed together.
7. Before any towing, the Barge Master will complete a pre-tow check of both the barge and workboat, including tow lines and connections.
9. Work Boat Skipper, Harbour Master and Barge Master will remain in communications during the repositioning.
10. Barge Master will extract spud legs prior to communicating instruction to work boat skipper.
11. The pontoon will be moved to the worksite position. Throughout the move, the Barge Master and deckhand will constantly monitor for other river users.
12. The spud legs shall be dropped to bed level and the Modular pontoon shall then be moored.
13. Once moored the tow wires can be disconnected from the Modular Pontoon.
14. If at any anytime the workboat suffers engine failure/loss of power the work boat operator will immediately inform the Barge Master, who will lower the spud legs to the riverbed to secure the barge.
15. The pontoon will be moored at the pier locations when not in use.
16. After consultation with Port Control and the Harbour Master “No berthing” signs and red lights will be positioned along the working area as required.

Dredging

1. Obtain permits in advance of commencing works.
2. Bathymetric survey to be completed/provided prior to the start of works with a survey vessel and results plotted to enable Trimble GPS system to be setup for the site which will allow excavation of the profiles to be obtained at each pier location to the corresponding construction drawing. This survey will serve as the baseline for the dredging works. Dredging works will vary from pier to pier but generally follow the below profile.

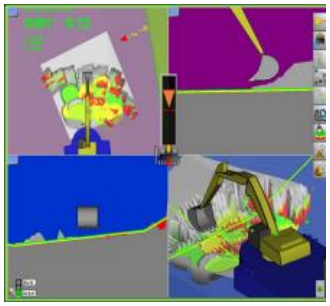


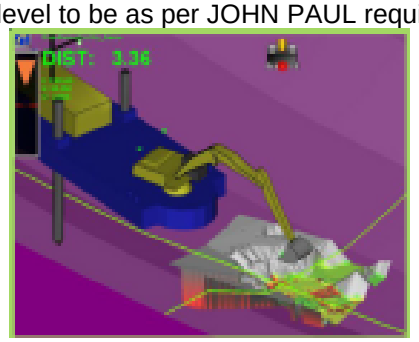
3. The works will take place sequentially, following a logical order from pier to pier.
4. The base station required for the GPS dig system will be set up in a suitable location and checked for function each day.
5. Locate Spud barge at site location using on board GPS system. Once in position, the spud legs will be lowered to the sea bed.
6. To ensure stability and counter the digging forces of the dredger at work, the dredger is “anchored” with the use of the spud legs, and its position maintained by the spud legs.
7. Dredging will be carried out with the excavator and bucket, the bucket will be retracted in a smooth and gradual manor prior to discharging on site (side cast) to be reprofiled as required. (no environmental bucket or silt curtain is to be used during the works).
8. Turbidity and other specialist monitoring (MMO etc) carried out by JOHN PAUL as required.
9. The excavator bucket will be lowered through the water to the river bed excavating a series of passes from left to right side casting as works progress.
10. These passes will continue until the dredge level is achieved, which the operator will be monitoring at all times on the screen on the GPS dig system. Areas in which the dredge level is achieved will be shaded on the screen as complete.



11. Due to the operational requirement of the long reach on the barge, there is an area at the front of the barge that does not have edge protection. This area is classed as an exclusion zone and operatives are not to enter this area unless absolutely necessary.
12. This area will be segregated from the edge protected area by a red/white chain that only the excavator operator is permitted to pass. The excavator operator should also ensure that the door to the machine is always facing the back of the barge when entering/exiting.

13. No treatment or special measures of the material prior to side casting is deemed necessary.
14. When the excavator has cleared an area, and requires a small movement, it will position the bucket to the bed and the spud legs will be raised, then the excavator will push the barge to the new dredge position and the spud legs lowered back to the bed once again. Dredging will then resume as above.
15. When moving the barge over longer distances, the workboat will be winched to the stern of the barge to push it to the required location as per the positioning method.
16. One deck hand and excavator operator will be on board at all times during operations on the spud leg barge.
17. All excavators and boats have a VHF radio fitted and will keep a constant listen on channel 12 for contact with the harbour radio.
18. Crew will monitor channel 12 and keep watch for passing vessels and operations will cease until any passing vessels have passed safely.
19. After working hours, the spud leg barge will be berthed/moored at positions agreed with the Cromarty Firth Port Authority. Navigation lights and day signals will be on the barge.
20. All mooring lines will be checked regularly and particularly at the end of each shift.
21. Fire extinguishers, first aid kits and spill kits will be available on all manned vessels.
22. The excavator, barge hydraulics and safety boat run on bio hydraulic oil.
23. Level and position control will be established during dredging works with the aid of the GPS 3D computer system fitted to the excavator. Excavated level to be as per JOHN PAUL requirements.





24. The operator can follow the excavation operation on two video screens, one for horizontal bucket position and the other for vertical bucket position. The system will enable the dredge operator to follow the exact movements and the depth of the bucket, and facilitates digging in a controlled manner to the designed limits.
25. In this system the required dredging levels and slope angles can be pre-set in the computer so the operator can see the digging lines as well as the bucket position, in relation to the pre-set limits, on his video screens.
26. The GPS system will be checked off a baseline on the quay edge as required during the works.
27. Post dredge survey to ascertain dredging has been excavated to specification if required by John Paul.

Movement below Cromarty bridge

1. To prevent the spud legs having to be lifted over the Cromarty the bridge a 4m section of the spud legs can be unbolted to allow the barge to then pass under the bridge.
2. Once at the other side of the bridge the 4m extension piece will then be rebolted and torqued to the required setting prior to the spudlegs penetrating the bed.
3. Work boat to remain securely lashed to the barge during this operation with the excavator bucket also being used to the steady the barge as required.
4. To enable the removal and reattachment of the extension piece on the other side of the bridge John Paul will provide suitable plant to carry out this operation. Expected weight of the extension piece is ¾T.
5. A combination of a MEWP and hyab on a multicat/vessel (or similar equipment capable of lifting the extension piece) is expected to be used.

Rock load out.

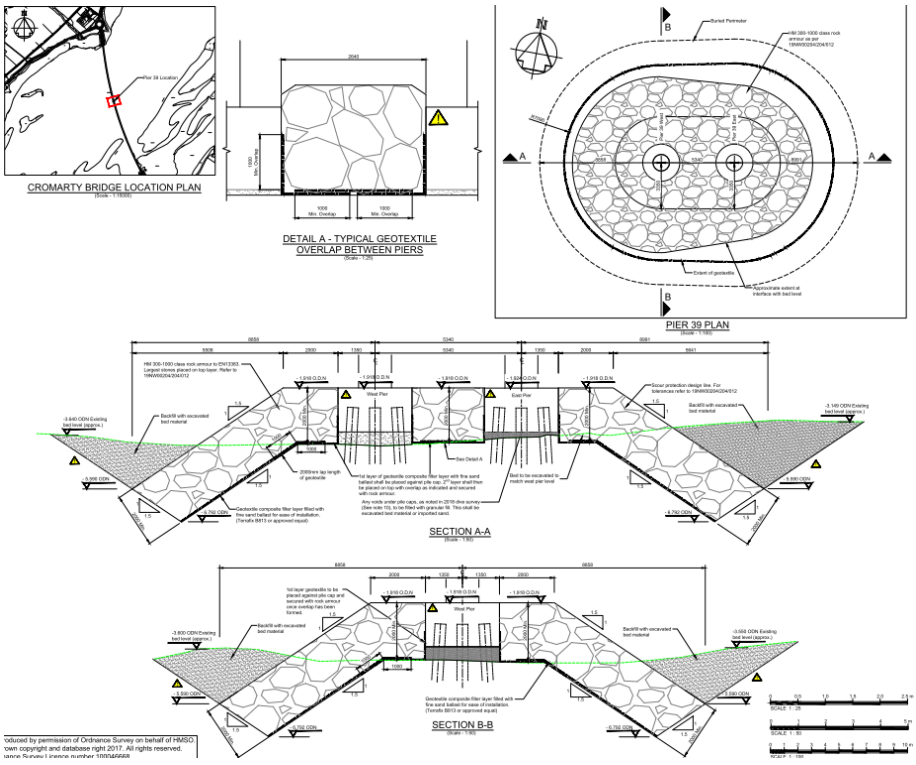
1. A temporary storage area will be agreed with John Paul and Caldive.
2. The land based 35t excavator will load out rock to the rock barge provided by John Paul when required.
3. Rock load out will be carried out at the Caldive slipway location.
4. The excavator operator will use gradual steady movements when using the excavator to move rock

from the shore side to the barge.

5. Where edge protection is deemed required this will be created by using the rock armour delivered to the site.
6. Personnel to adhere to plant safety zones at all times.

Rock armour placement

1. The geotextile and any voids under the pile caps will be filled with granular fill by John Paul.
2. RAO can undertake a survey with the use of the onboard GPS system prior to placement of the rock to ensure the correct ground profile has been created.
3. Barge to arrive at placement location by John Paul.
4. Level and position control of the rock armour placement will be carried out with the use of the onboard GPS system.
5. 60t long reach excavator will remove the rock from the rock barge and place as per the construction drawings, ensuring correct placement with the onboard GPS system.
6. Once the rock has been placed with the use of the onboard GPS system a final survey can be undertook to show the profile of the finished rock armour protection.
7. General layout will be as below with 300-1000 class rock against an installed geotextile (geotextile installed by John Paul) largest stones placed as top layer.
8. Rock will be placed at the toe first and built up to the underside of the pile cap in one layer.
9. Once the first layer has been placed the larger rock will then be placed to the design level.



10. Once the rock armour has been placed the tie in locations with the existing ground will be filled in with previously dredged material to ‘lock’ in the toe of the rock armour.

Passing rock below bridge

1. 25t long reach to be used for this operation.
2. 25t long reach to be positioned on rock barge and ‘pass’ rock below the bridge to the RAO 60t long reach excavator located on the barge.
3. Bucket on the 25t long reach will be reversed to allow the passing of the rock armour.
4. No personnel to be present between the excavators during this operation.
5. If goal posts are required during this operation these will be installed by John Paul.

Obstructions

6. During the dredging process, if obstructions are discovered above the design dredge depth this information will be relayed back to JOHN PAUL and if RAO receives confirmation to remove these obstructions then the below method will be used.
7. The obstructions will be removed using the 60t long reach from the spud leg barge. The excavator will be used to locate the obstruction and pull it from the riverbed.
8. This can be done with both a ripper tooth and the excavator bucket. The ripper tooth will be used predominantly to loosen/pull the obstruction free and the bucket will be used to recover the obstruction as necessary.
9. Should the obstruction prove difficult to remove, local excavation may be required to further expose the obstruction before it is pulled free.
10. Once free from the bed, the obstruction must be recovered placed on either the deck of the barge or the riverbank ready for disposal. It is critical that the obstructions are removed from the river and are not allowed to escape the works area and into the river channel and beyond.
11. If the excavator operator believes that an obstruction has come free and not been recovered, the obstruction removal operation must cease, and all attention switched to the recovery of the obstruction. RAO will also immediately inform JOHN PAUL and The Cromarty Firth Port Authority that an obstruction may not have been recovered. The excavator bucket should be used to sweep the area of riverbed looking for the obstruction, whilst other operatives watch the surface of the water for any floating debris.
12. The work boat should also be informed immediately and should aid the Pioneer Safety/Crew boat in patrolling the river looking for debris and recovering any floating obstructions. After the obstruction has been located, it should be removed from the river.

Demobilisation

1. The barge will be towed to Queens dock, Port of Invergordon.
2. The spudlegs will be lowered to the sea bed once at the crane lift location.
3. When the barge master is happy that all is secure the lashing chains will be removed from the excavator and the excavator will be lifted from the barge inline with the crane lift plan for the works.
4. The spud legs will be lifted from the sea bed and the barge removed by using the crane onto the lorries in the reverse of the mobilisation sequencing.
5. Planned lifts using a crane will then see the barge deck equipment being lifted from the water to the transport and secured.
6. The barge will then be split, one section at a time, and each section lifted individually from the water and onto a flatbed lorry. Once all the sections are out of the water, the workboat and safety/crew boat will be lifted and loaded onto the transport.

Re-Fuelling

1. The Barge Master must monitor and indicate when refuelling has to take place.
2. The main fuel bowser will be located on the deck of the spud leg barge
3. The fuel bowser will be both bunded and liftable.
4. When plant requires refuelling, a competent refuelling operative will unlock the main fuel bowser and place the refuelling hose from the bowser into the excavator/workboat.
5. The operative will only use the correct hose and nozzle from the bowser.
6. The fuel pump will then be turned on and the fuel tank filled until full.
7. The fuel hose will be removed from the excavator and stored back in the bunded bowser.
8. The fuel bowser will then be locked.
9. A plant nappy will be positioned between the bowser and the item of plant being filled.
10. Spill kits and fire extinguishers will be on hand at all times in case of emergencies.
11. Follow ERP for fuel spills if they occur.

Filling the Bowser on board the Barge

1. Fuel will be transferred from the shore/sheet piled wall to the barge using a liftable bunded fuel bowser.
2. When the bowser needs refilling, the JOHN PAUL crane/long reach excavator will lift the bowser from the barge to the shore.
3. The bowser will then be refilled whilst on the shore.
4. Once re-filled, the bowser will once again be lifted by the long reach excavator or JOHN PAUL crane

and relocated on the spud leg barge.
5. A plant nappy will be positioned between the bowser and the refuelling vehicle.
6. Follow ERP for fuel spills if they occur.

Re-Fuelling vessel

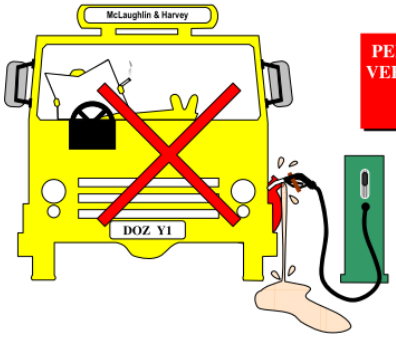
1. An assessment of the suitability of the Weather, tides, wind and current conditions.
2. Refuelled in accordance with the Cromarty Firth Port Authority procedures at their refuelling area in Port and in accordance with the vessels bunkering procedure.
3. The receiving Vessel must be securely moored to the sheet piled wall or transfer vessel.
4. The transfer of bunkers will only be permitted if weather and other conditions are considered suitable. The Harbour Master may, at his discretion, order the cessation of the Bunkering Operation and this order must be complied with immediately.
5. Receiving Vessel must ensure that they have adequate capacity for the expected delivery.
6. Vessels must comply at all times with the provisions of the Dangerous Substances in Harbour Area Regulations 1987 and must exhibit the warning signals required by Section 8, namely:
    - By day – A red flag (International Code Flag “B”);
    - By night – An all-round red light.
7. Night transfer Bunkering operations shall be avoided where possible.
8. The Master of the receiving Vessel must contact the Harbour Master before bunkering transfer begins, confirming that an appropriate bunker checklist has been completed stating that all checks and precautions have been made.
9. Notifications shall comply with port requirements.
10. The Master must inform the Harbour Master when the operation has been successfully completed and all hoses and other gear disconnected.
11. Follow ERP for fuel spills if they occur.

Shore plant Refuelling

1. Refuelling at only the designated locations. Drip trays and spill kits will be in place during the refuelling operation.
2. When refuelling the plant must be static and turned off.
3. Gloves to be worn during the refuelling operation.
4. Banksman to be with machine when manoeuvring into position.
5. All plant must be turned off during refuelling operations.
6. Drip tray and spill kits to be in place during the refuelling.
7. Once refuelling has stopped the transfer pump will be removed and stored with the fuel bowser after use.

ISO 14001

FUELLING



PERSON FUELLING VEHICLE MUST NOT LEAVE FUEL NOZZLE

NO SMOKING

WEAR PPE

MONITOR FUELLING AT ALL TIMES. AVOID SPLASHBACK

TARGET = ZERO SPILLS

JAMMING NOZZLE IN OPEN POSITION PROHIBITED

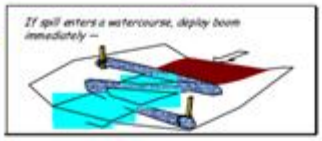
ENSURE NOZZLE IS COMPLETELY DRAINED INTO TANK BEFORE REPLACING

IF A SPILL OCCURS IT SHOULD BE REPORTED TO THE SITE FOREMAN AND ALL EMERGENCY RESPONSE INSTRUCTIONS FOLLOWED IMMEDIATELY

ISO 14001

ENVIRONMENTAL EMERGENCY SPILL RESPONSE FUEL OILS AND CHEMICALS

MAJOR SPILL OCCURS!



- CONTAMINATED ABSOSBENT MATERIAL SHOULD BE MOVED TO A COVERED AREA PRIOR TO DISPOSAL TO PREVENT FURTHER SPREAD BY RAIN.
- CONTAMINATED MATERIAL MUST BE DISPOSED OF AS A SPECIAL WASTE USING A LICENCED WASTE DISPOSAL CONTRACTOR
- A DUTY OF CARE TRANSFER NOTE MUST BE COMPLETED FOR EACH TRANSFER.

ON DISCOVERY -

① IDENTIFY MATERIAL SPILLED AND OBTAIN COSHH ASSESSMENT TO ENSURE THAT HANDLING PPE REQUIREMENTS ARE UNDERSTOOD.
IF IT IS POSSIBLE AND SAFE TO DO SO - STOP OR REDUCE THE FLOW OF MATERIAL BY PLUGGING HOLE. CLOSING VALVES ETC.

② CONTAIN SPILLAGE USING SPILL ABSORBING MATERIALS
- PREVENT SPILL ENTERING DRAINS OR WATER COURSES
- (REFER TO SITE ECO-MAP FOR LOCATION OF SPILL KITS AND SITE DRAINAGE SYSTEM)

③ REPORT INCIDENT IMMEDIATELY TO FOREMAN OR ENVIRONMENTAL MANAGER

4 FOREMAN CONCERNED ASSESSES SERIOUSNESS OF SPILL AND CONTACTS EMERGECY HOTLINE AND OTHER LOCAL INTERESTED PARTIES AS REQUIRED.
5 CONTAINMENT MEASURES FULLY IMPLEMENTED
6 CLEAN UP AND DISPOSAL OF CONTAMINATED MATERIAL ARRANGED
7 RECORD THE INCIDENT ON A NCR FORM AND FORWARD A COPY TO THE CONTRACTS MANAGER

DEALING WITH MINOR SPILLS

Spill occurs | Absorb spill using absorbent material | Shovel up used absorbent into plastic bag | Take bag, label and place in *designated area for special wastes for disposal

Manual handling:

1. Lifting and carrying different sized tools and equipment from around site but only lift what you are capable of and if you are manual handling trained.
2. All operatives will have received Manual Handling Training. Operatives will request assistance where an assessment reveals that an item to be lifted is beyond their capability.
3. Operatives will be inducted in the specific site procedures to be followed.
4. Operatives will be courteous to staff and members of the public in the event of there being any necessary communication.
5. Operatives will report immediately any hazard or unsafe situation that may arise.

Planning:

1. All loads weights are to identified before lifting and alternative methods incorporated if reasonable practicable. The operative must be fit and free from any injury before lifting operation starts.
2. A suitable and sufficient manual handling assessments need to be carried out on all loads if reasonably practicable, and reassessed if there as been a significant change in the manual handling technique

Physical:

1. Before starting ensure that the following is adhered to if at all reasonable practicable;-
2. The Task (Do they involve) - Is the load going too carried at distance from the body, is the person going to twist at the trunk, stooping, or reaching upwards. Is there going to be excessive movement of the load especially, lifting or lowering, excessive carrying distance, pulling and pushing or sudden movement of the load. Is the person going to get insufficient rest periods or is a rate of work imposed on the person.
3. The Load (Are there) – Are the loads, heavy, bulky or unwieldy, difficult to grasp, instable, or which is likely to shift. Are there sharp, hot or otherwise potentially damaging items, objects.
4. The Working Environment (Are there) – Is there space constraints preventing good posture. Is the surface uneven, slippery, or unstable, variation in level of floors and work level. Is there an extreme of temperature of humidity, or ventilation problems, poor lighting conditions.
5. Individual Capacity (Does the job) – Does the load require unusual strength, height etc. Does it create hazards to those who might reasonably be considered to or have a health problem. Does it require special information or training.
6. Other Factors – Is the movement hindered by personal protective equipment.
7. Ensure that all operative make full and proper use of any system or work provided for his or her use.
8. PPE shall be worn at all times whilst on a construction site (safety footwear, safety helmets, high visibility jackets and gloves or any other safety equipment as specified by the construction site).

If there is any change from this agreed working method. The work must cease immediately. An alternative safe working method must be agreed and documented on site with a representative from RAO before work can recommence.

If it is not SAFE don't do it.

3.0 Plant & Equipment

The equipment for the operation consists primarily of the following main plant and tools:

- ❑ Small tools
- ❑ Ravestein road transportable spud leg barge, 8 No sections plus deck equipment. LENA
- ❑ Deck equipment.
- ❑ 40ft flat bed lorry
- ❑ Crew/safety boat. Pioneer
- ❑ Work Boat - Volga
- ❑ 60t long reach excavator.
- ❑ C. 35t excavator (load out rock).
- ❑ 25t long reach ('pass' rock under bridge)
- ❑ Trimble GPS.
- ❑ Fire extinguishers, first aid kits and spill kits will be available on all manned vessels.

* All plant operators to have current operator's tickets and have signed off the current method statement for the works.
# Additional items may be required

4.0 Materials

* All personnel to consult MSDS for materials being used to make sure adequate PPE is being used.

All COSHH substances must be kept in a designated locked container. Once the substance has been used from the store it must be returned. On site there will be several materials that will need to be kept in the approved lockable COSHH store:

- Petrol
- Bio Oil
- Diesel
- Two stroke oil
- Hydraulic oil

All of the above will have their own COSHH assessment/data sheets available in the office and they must be read and understood prior to the use of the substance.

Hazardous Substances : (Attach MSDS if required)							
	Very Toxic	Harmful/ Irritant	Corrosive	Dangerous For the environment	Oxidising	Highly flammable	Explosives
Applicable:	Y	Y	N	Y	N	Y	N

5.0 Personnel

** All operatives will have signed off on the approved method statement and be made aware of the risks involved
It is the responsibility of all personnel to adhere to the above procedures and to ensure their own safety.

Personnel	Duty	Organisation	Contact Details
Rodney O'Neill	Site Supervisor	RAO	[redacted]
Andrew Smith	Vessel Master	RAO	
Rodney O'Neill Philip Shields	Exc operators	RAO	

	Ruairi Campbell				
	Tim Donaghy	Deckhand	RAO		

6.0 Environmental Limits

The following environmental conditions are the limiting criteria for the operation:

- ❑ Daylight or sufficient flood lighting to be provided.
- ❑ Plant from UK waters.
- ❑ Spill Kits to be on hand for machinery when in use.
- ❑ Fuel to be stored and pumped from double skinned, fully bunded bowsers.
- ❑ Drip trays to be used during refuelling operations.
- ❑ Bunker checklist to be completed prior to refuelling vessels.
- ❑ All plant to have bio oil installed.
- ❑ Biosecurity management plan.

7.0Temporary works needed to facilitate the works:

- ❑ By others if required.

8.0 Fall Protection & Rescue Measures: (Where work at height cannot be eliminated – consider both Personnel & Materials)

(i.e. Guard Rails/Toe Boards/Brick Guard/Safety Harnesses/Exclusion Zones, etc.)

- ❑ A visual barrier will also be in place at the works area to delineate the quay bedge to the shore operators to ensure they do not encroach this area.

9.0 Details of Permits to Work:

- ❑ As required by JOHN PAUL
- ❑ Permit to Excavate/Dredge

10.0 Other MS / RA / Documents that should be consulted	Yes	✓	No	

- ❑ JOHN PAUL site/project rules
- ❑ RA for works
- ❑ JOHN PAUL permits
- ❑ Marine Licence 06793/19/0
- ❑ NTM
- ❑ Pontoon manufacturer details
- ❑ Tidal data - Close attention will be paid to tide tables to ensure all operatives, plant and materials are not put at risk while at work.
- ❑ ERP
- ❑ CTP
- ❑ Stability reports/analysis
- ❑ COVID 19 SSOW RAO document
- ❑ COVID 19- return to work procedure:131
- ❑ Construction (Design and Management) Regulations 2015. Pre-construction Phase Information Pack.18/NW/1203/003. A9 1360 Cromarty Bridge Scour Repairs
- ❑ Env record of determination.
- ❑ John Paul Site environmental management plan.

11.0 Appendices

A. Plant Safe Zones
B. Pontoon manufacturer details
C. Working near water – life jacket

D. Work Boat check

12.0 Personal Protective Equipment Required

- ❑ Hard hat
- ❑ Hi-Vis Jacket and trousers
- ❑ Steel toe capped boots.
- ❑ Safety glasses / goggles where necessary
- ❑ Gloves
- ❑ JOHN PAUL standard PPE compliance including mandatory wearing of covering, safety boots, gloves, hardhat, glasses and hi-visibility vest at all times.
- ❑ Buoyancy aid/Life jacket 150N to be used when working over water or alongside waters edge. Weekly and daily inspection. 12 month test.

Required Personnel Protective Equip.:	 Safety Boots	 Hard Hats	 Safety Gloves	 Hearing Protection	 Eye Protection	 Respiratory Protection	Other: 1. Hi-Viz 2. 3.
Applicable	Y	Y	Y	N	N	Y	

13.0 Emergency Contact Numbers

A&E **Raigmore Hospital** **Old Perth Rd, Inverness IV2 3UJ**	**999** **+441463704000**
Fire Brigade **16 Harbour Rd, Inverness IV1 1TB**	**+441463227000**
Police **6 Burnett Rd, Inverness IV1 1RL**	**+441463228411**
RNLI **7 Shore Rd, Invergordon IV18 0ER**	**+441349853915**
Nominated First Aiders on Site: 	**Rodney O'Neill** **First Aid Box Location: Barge, Work boat and site office.**

Emergency Situations

In the event of an emergency:

All major incidents and accidents in the first instance will be reported immediately to the RAO supervisor

- ❑ In the event of an emergency, a member of JOHN PAUL staff will be contacted. If a member is not immediately available then use a mobile phone or proceed to the site offices and utilise the phone system to contact the emergency services.
- ❑ First aid facilities are available in the supervisors van, barge, work boat and site office.
- ❑ Always check for surrounding danger before approaching a casualty.
- ❑ For the emergency services, VHF Channel 16 or dial 999/112 from a mobile phone and follow instructions given to you.
- ❑ The emergency action plan on this site is as follows:-
  - Contact a member of RAO who will then notify the relevant emergency service.
  - Follow all instructions given by a member of the RAO team.

- All personnel to go to the designated muster area.
- Designated First Aider's to attend incident.

- If necessary call the Emergency Services by dialling **999**;

First Aid Arrangements

The Site Supervisor will identify the first aider as part of the Safety Brief prior to commencement of work. The nearest accident and emergency hospital shall be briefed as part of the pre-site briefing.

Any accident reporting or investigation will be undertaken in accordance with RA O'Neill Accident Reporting Procedure, which ensures RA O'Neill Plant Hire compliance with:

- RIDDOR 2013 and associated guidance.
- All applicable work-related incidents will be reported to HSE.

Muster stations are located at:
As detailed during JOHN PAUL induction.

14.0 Accident Reporting:

Refer to Emergency response procedure and below;

RA O'Neill Plant Hire Ltd is responsible for complying with the requirements of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013, generally known as "R.I.D.D.O.R."

To ensure that the group fulfils its responsibilities, the following procedure must be followed:- The Site Manager must ensure that all accidents, however minor, are reported to him, and details are recorded in the site Accident Book and must also report any dangerous occurrences ("near misses") that happens, such as collapse of a scaffold, a wall falling, trench collapse etc. These events must be reported even if there has been no injury to persons.

The Site Manager must arrange for any injured party to receive first aid treatment from a qualified First Aider, and if necessary arrange transportation to hospital. Following the above the Site Manager must immediately report details of the incident, by telephone, to the Health and Safety advisor. The Health and Safety advisor will carry out a full investigation of the incident, and prepare an Accident Report. To ensure that the reporting procedure is carried out effectively, all concerned parties must co-operate fully with the Health and Safety advisor and the enforcing authority.

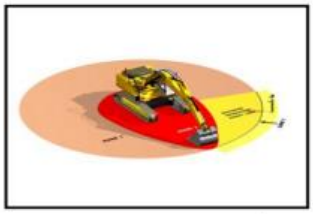
15.0 Welfare

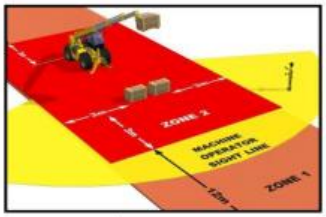
- Welfare to be provided by JOHN PAUL for landside works.

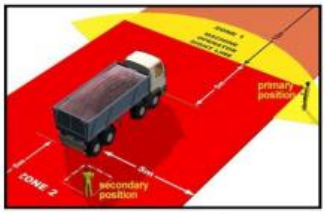
Appendix A

Plant Safe Zones

The diagrams below give an understanding of the safe zones applicable to a range of plant machinery likely to be used on site.

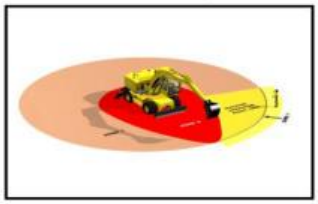




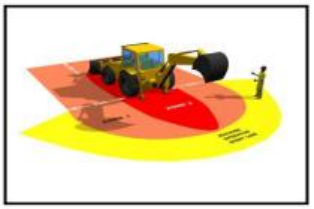


Zone 1 - Always signal the plant operator and receive a positive response before entering Zone 1

Zone 2 - Keep out of at all times



Safety zones are also relevant for the use of a crane. Only a trained banksman can give directions to the crane and a trained slinger to attach loads to be lifted.



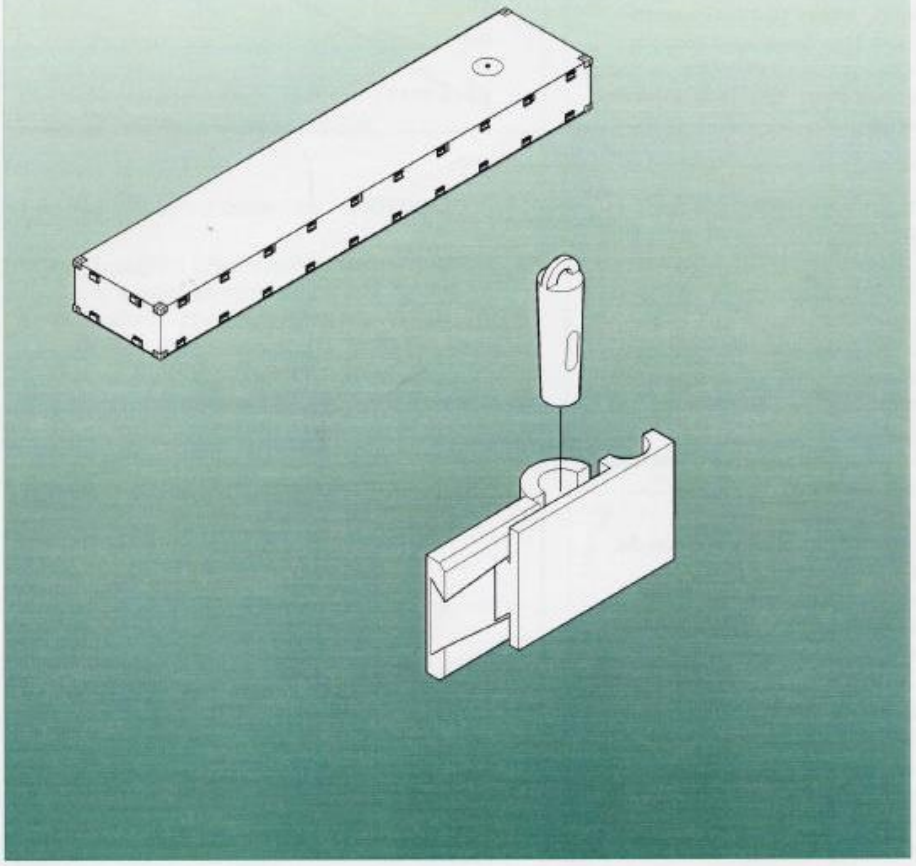
Anyone approaching plant must make eye contact with the operator and wait until signalled

Plant operators are to ensure that safety levers are activated, machines are switched off and buckets (or attachments) are grounded before people approach

Appendix B

ASSEMBLY INSTRUCTIONS

Ravestein Container Pontoon b.v.



CP 4084

Made in the Netherlands !

01 0998 EN

TAKE THE TIME TO CAREFULLY READ THROUGH THIS DOCUMENT BEFORE USING THE PRODUCT.
ALWAYS STORE THIS DOCUMENT IN THE VICINITY OF THE PRODUCT.

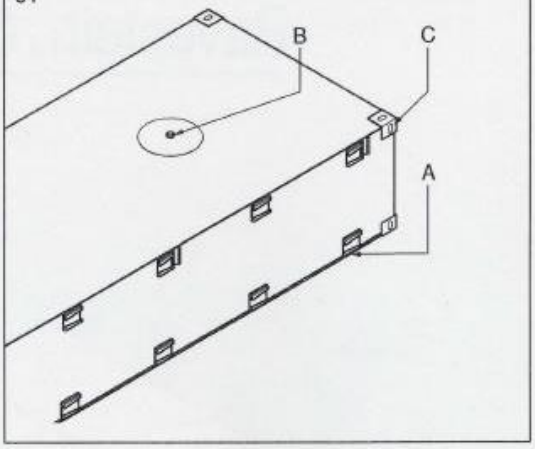
THIS DOCUMENT

This document is intended as an assembly manual with which authorised persons can safely place, couple, assemble and disassemble container pontoons.

SERVICE AND TECHNICAL SUPPORT

For information concerning specific settings, maintenance or repair work that falls outside the realm of this document, please contact Ravestein Container Pontoon b.v. They are always ready to assist you. Be sure that you have the pontoon number handy when you contact them. You will find this on the deck of the pontoon.

01



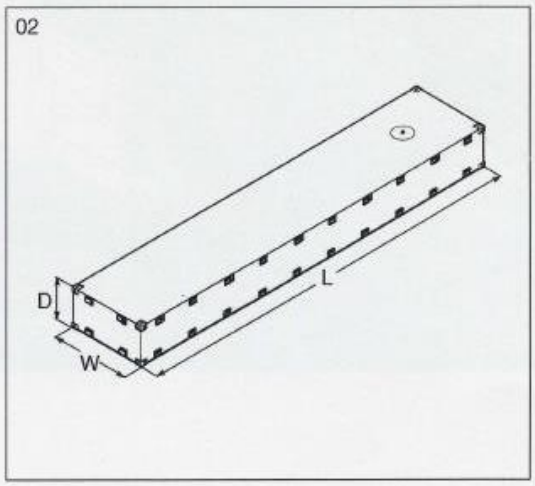
GENERAL SAFETY INSTRUCTIONS ON THE ASSEMBLY AND DISASSEMBLY OF PONTOONS

- Make sure the pontoons are properly ventilated before entering.
- See to it that the pontoon is empty. Remove any possible residual ballast water or other materials.
- Clean the couplings (fig. 01A). Remove sand and other soil.
- Close the manhole cover (fig. 01B). Do this using open-end spanner no. 36.
- Use the proper tools:
  - 1 hammer (approx. 8 kg) with long handle;
  - 1 guide rope per pontoon;
  - 2 pieces two link chain with proper length.
  - 1 set (7x) of assembly and disassembly pins. The pin model number is engraved under the wing.
- Hoist the pontoons only on the corner casting (fig. 01C). Use only suitable hoisting equipment with sufficient capacity and in perfect condition. Fastening the load and instructing persons who will operate the hoist is strictly the domain of experienced personnel. For weights, see the technical specifications further in this document.
- Take care not to loose any tools, assembly or disassembly pins. After use, store them carefully right away.

TECHNICAL SPECIFICATIONS

Model	: CP 4084
Dimensions (l x w x d)	: 12.190 x 2.436 x 1.219
Weight	: 8.500 kg

02



TP CP 4084-01-0998 EN

LAUNCHING

- Fasten the hoisting hooks through the corner castings. Use two pieces two link chain with proper length.
- Fasten the guide rope to one of the corner castings. With the help of the guide rope the pontoon can be controlled and fixed in place both **during** and **after** launching.
- Hoist the pontoon and control it with the help of the guide rope.
- Launch the pontoon and fix it with the help of the guide rope.

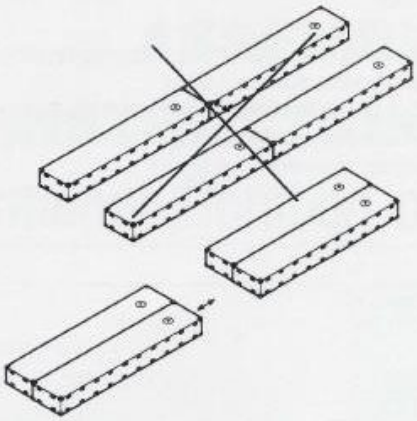
COUPLING THE PONTOONS

- Launch the next pontoon in the manner described above.
- Pull the pontoons together with the help of the guide rope.
- Couple the pontoons by sliding the male and female couplings together (fig. 03).

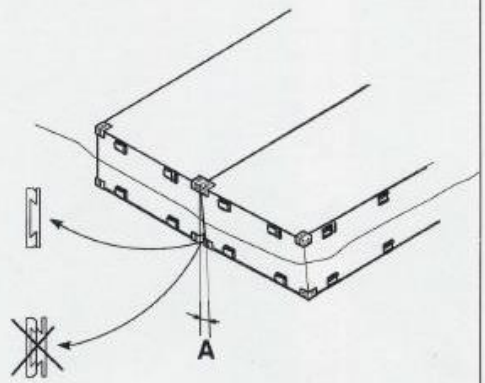
MAKING LARGER COMBINED PONTOONS

- Avoid coupling great lengths. First put together blocks; blocks are more stable (see fig. 04).
- Verify whether the couplings that are under the water are correctly connected. To do this check whether the space (fig. 05A) between the pontoons is even at the top and bottom. If this is not the case, unhook the pontoons and re-couple them. Exert pressure in such a manner on the outside of the pontoon that the undermost coupling parts come to lie against each other (see fig. 06).

04



05



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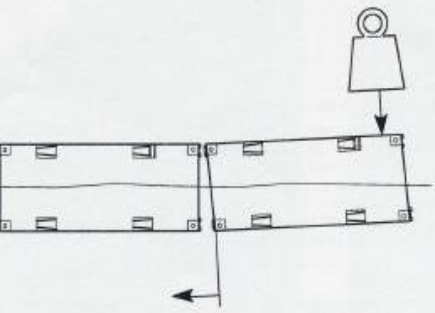

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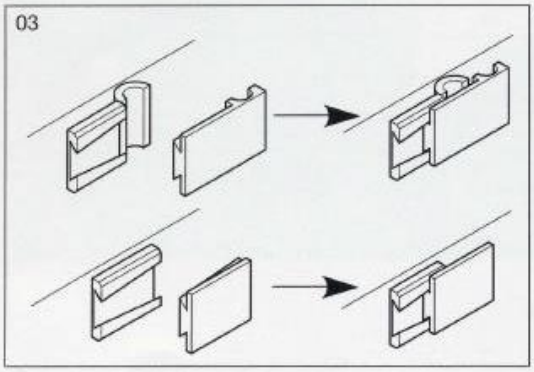


ASSEMBLY

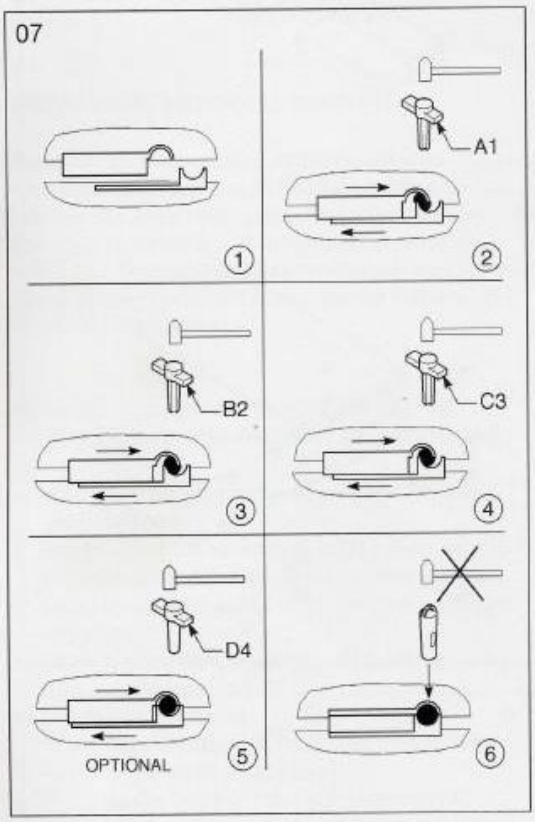
After sliding the male and female couplings together, the assembly pins must be placed.

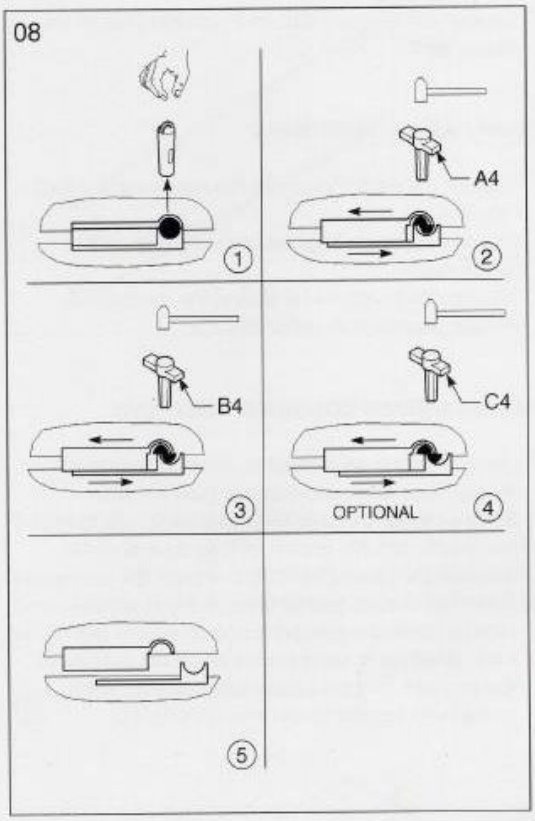
- Use the proper assembly pins to do this (see the model number under the wing) and install them in the proper sequence. See fig. 07.

DISASSEMBLY

Disassembly is done as indicated in fig. 08. Note the following:

- Make sure the pontoons are properly ventilated before entering.
- First remove all materials on or in the pontoons.
- Remove any possible ballast water that may be present.





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Appendix C

WORKING NEAR WATER

Lifejackets will be provided to and worn by all operatives with risk of falling into water

1. JOHN PAUL requirements state that lifejackets must be worn within 3m of the waters edge.
2. Lifejackets should be thoroughly checked by the user before each use.
3. The lifejackets will be inspected weekly and recorded on the Life Jacket Inspection Register.
4. The lifejackets should be properly maintained in a good serviceable condition according to the manufacturer's instructions.
5. All lifejackets should be serviced annually and records maintained on the maintenance and calibration register.
6. If you lifejacket requires an annual inspection please report to your supervisor.
7. Life rings will be provided on the barge deck and inspected weekly to ensure serviceable condition.
8. Excavator operator on the barge to wear a manual inflate lifejacket.

LIFE JACKET INSPECTION & MAINTENANCE

Lifejacket Weekly Check

PLEASE NOTE : THIS CHECK PROCEDURE DOES NOT REPLACE ANNUAL SERVICING PROCEDURE

THE FOLLOWING LIFEJACKET PARTS / AREAS SHOULD BE CHECKED:

1. **GENERAL MATERIALS / WEBBINGS / BUCKLES / CRUTCH-STRAP**
   Check for damage / tears/ missing items on all materials / component parts / trims and accessories.

2. **GENERAL STITCHING**
   Check all stitching is intact and secure.

3. **ZIP & VELCRO FASTENINGS**
   Check all zips and velcro fastenings are intact and secure.
4. **REFLECTIVE TAPES**
   Check all reflective tapes are intact and adhered securely to the inflatable chambers.

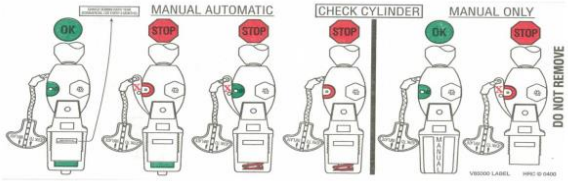
5. **AUTOMATIC EMERGENCY LIGHT**
   Check light function by switching on manually & / or immersing in water and ensure light is securely fastened to inflatable chambers.

6. **WHISTLE**
   Check whistle is securely fastened to inflatable chambers and is functional.

7. **AUTOMATIC FIRING MECHANISMS**

HALKEY ROBERTS

1. Check salt bobbin appearance and that it is not starting to crack/ crumble.
2. Check salt bobbin has not been installed for more than 12 months.
3. Check that the lower indicator is green and not red
4. Check that the green manual firing clip is in place
5. Check there is no damage to the mechanism pull handle and green pin.
6. Check there is no damage to the mechanism body.



HAMMAR

1. Check date of mechanism has not expired.
2. Check that the mechanism window is not showing red.
3. Check that the manual pull handle has not been removed or partially pulled.
4. Check there is no damage to the mechanism body and back assembly.

Manual/Automatic:

- Check that the single point indicator is green
- Check that expiry date is within the limit.
- Check that red handle is attached.

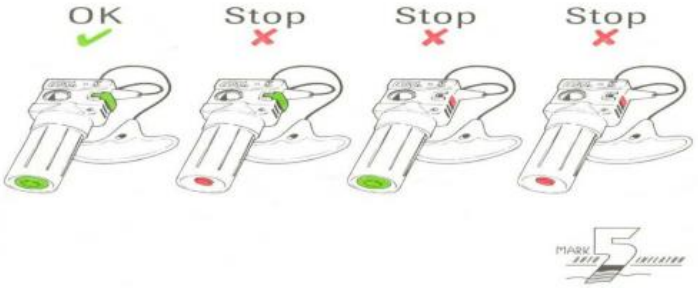
Manual:

- Check that red handle is attached.

UNITED MOULDERS MARK 5

1. Check date of cartridge has not expired

2. Check bottom indicator is green and not red
3. Check that the green manual firing clip is in place
4. Check there is no damage to the mechanism pull handle and green pin.
5. Check there is no damage to the mechanism body.



8. CO^2 GAS CYLINDERS

1. Check that the gas cylinder is not pierced or empty (weigh cylinder).
2. Check the cylinder is not loose and is screwed into the mechanism head as tightly as possible
3. Check that the cylinder is not heavily corroded or damaged

9. GENERAL MAINTENANCE & CLEANING

- If the lifejacket has been in contact with salt water, wipe clean with a damp cloth
- To prevent corrosion the gas cylinder and metal parts on the inflation system can also be wiped clean with a damp cloth and then with a dry cloth immediately afterwards
- Oil and dirt can be removed by wiping with a damp cloth and soapy water
- Always allow the lifejacket to dry naturally
- Do not expose to direct heat – eg. radiators
- Do not put in washing machine
- Do not tumble dry
- Do not dry clean
- Do not iron
- Do not expose to chemicals or paint, hydrocarbon fumes, oils, greases or concentrated ozone
- Store in a well -ventilated room not subject to extremes in temperature or extended periods of bright sunlight. The storage conditions should not be damp or humid

- Do not stow any objects on top of the vest
- Do not use as a cushion

YOUR LIFEJACKET IS A CRITICAL PIECE OF LIFE-SAVING EQUIPMENT RESPECT IT AND IT WILL RESPECT YOU - LOOK AFTER IT WELL AND IT WILL LOOK AFTER YOUYOUR LIFE MAY DEPEND ON IT

How to Don a Lifejacket

Step 1
Loosen all buckles and straps and don the lifejacket like a waist coat.

Step 2
Close the waist buckle at the front. If you have a waist loop fitted, pass the right buckle through the loop first.

Step 3
Tighten the waist belt by pulling backwards at the side adjuster.

Step 4
Attached the crotch strap to the waist belt, tighten to a comfortable fit and pull the excess through the adjuster.

Step 5
The lifejacket is ready to use. It should automatically inflate should you fall into water.

Appendix D

Work Boat Weekly Checklist

Project		**Project Number**	
Vessel Name		**The Skipper is responsible for ensuring that all tasks are completed. Any identified problems not dealt with on board must be notified to the office.**	

Task	OK	Defect
Check Battery Water Levels		
Test Fire Alarms / Test CO^2 Alarms		
Test General Alarms		
Test Engine Alarms		
Test Bilge Alarm		
Test Fire Fighting Pump		
Test Bilge Pump		
Test General Services Pump		
Grease all Hatches, Latches, Catches and Water Tight Door Seals		
Visual Inspection of all Hatch and Water Tight Door Seals		
Grease Crane, Winches and Running Blocks		
Grease Rudder Stocks		
Grease Towing Hook Release and Check for Proper Operation		
Check Hydraulic Oil in Steering Pump		
Visual Inspection of Anchor and Mooring Equipment		
Test Emergency Lighting		
Check and Record Engine Running Hours		
Test Anchor Windlass		
Check Ventilation for Correct Operation		
Check Fire Flaps and Closures for Correct Operation		
Check Oily Water Seperator for Correct Operation		
Check Heat Exchanges for Leaks and Correct Operation		
Check Strum Box for Obstructions		
Check and Record Fuel Levels		
Check Oil, Fuel and Air Filters, Replace as necessary		
Visually Inspect all Lifting Equipment		
Check Condition of Engine Coolant		
Skipper Signature	**Date**	

Site or Location: (Code/Site)	Cromarty Firth Port Authority	**Risk Assessment No:**	RA-MS01
Description of Activity / Task:	**Dredging Operation**		
Prepared by:	AG	**Prepared Date:**	12/01/21
Checked by:	RAO	**Review Date:**	12/01/21

Risk Matrix

Severity / Likelihood	1 – Very Minor Injury	2 – First Aid Injury	3 – Lost Time Injury	4 – Hospital Treatment	5 – Fatality / Major Injury
1– Extremely Unlikely	Low	Low	Low	Low	Low
2 – Unlikely	Low	Low	Med	Med	Med
3 – Possible	Low	Med	Med	Med	High
4 – Likely	Low	Med	Med	High	High
5 – Very Likely	Low	Med	High	High	High

Risk = Severity x Likelihood

15 - 25 Unacceptable
10 – 14 Tolerable (Look to Improve)
5 - 9 Adequate
1 – 4 Acceptable

Step 1

Using the risk matrix, carry out an initial assessment to determine the risk rating of hazards(s) of the work activity (note this is without any control measures).

Step 2

Using the matrix results from step 1 if the risk rating is (a) High (H) then the hazard must be eliminated and / or work activity prohibited of the risk rating is (b) Medium (M) then additional safety control are required.

Step 3

Following the results from step 2 if the risk rating remains medium then you must provide alternatives and or additional safety controls until the risk rating enters into the low category.

Step 4

The safety control measures should be numbered and recorded against the particular hazard as indicated in the box below.

No.	Hazard	Consequence	Persons Affected	Initial Risk			Control Measures	Residual Risk			Person responsible for control & monitoring
				S	L	R		S	L	R	
	Environmental Factors (Sea, Wind, Weather, etc.)										
	Weather / Sea Conditions (Visibility, Wind Speed, Wind Gust and Heavy Rainfall)	being blown ashore, due to failure and/or loss of mooring gear. Dangerous to work, Serious physical trauma or fatality (Including damage to vessels)	ALL	5	4	**20**	1. Works Supervisor/Master of Vessel will have to review weather forecasts at regular intervals. Supervisor to assess conditions, and stop works if dangerous. 2. **NEVER** exceeds parameters for the vessel. 3. Dredging operation must be carried out daylight (during the daytime) or with provision of sufficient lighting 4. Wind speed to be checked before any lifting commences. Check river levels before starting work. 5. Do not work near/over water in severe weather or severe flood. 6. No boat/barge movements to occur is severe weather. Vessels to seek shelter in the port basin if severe weather is likely. 7. Experienced vessel masters. **Note:** *Weather and sea conditions MUST be monitored Constantly. Site Supervisors to restrict the dredging operations to certain tidal conditions (flood/ebb, spring/neap) or avoid operations during tidal extremes. Only move during slack tides where possible.*	2	2	**4**	Site Supervisor
	Site Specific Hazards (Transport, Access, Stakeholders, etc.)										
	Downtime: Interfering with vessel movements Collision, (barge/hopper moored to sheet piled wall for unloading dredged sediments)	Physical injury, Damage to vessels, Barge/hopper	ALL	3	5	**15**	1. Site management/works supervisor always to liaise and maintain communication with the harbour Master prior to the commencement of operations. 2. Visual watch of all vessels to be maintained 3. Appropriate signage/lights displayed to warn other vessels	3	3	**9**	Site Supervisor
	Dredge activities	Grounding – Damage to dredge equipment.	ALL	5	3	**15**	1. Exc operator to accurately operate the bucket removing materials in a controlled manner, in layers and with the bucket working away from structures 2. Barge Master to ensure that the dredger is manoeuvred in line with water depth, in line with tide to maximise output to the entire operation 3. Do not enter crush/exclusion zones. 4. Only trained and competent personnel to operate plant.	5	1	**5**	Site Sup.

							5. Plant inspected daily before use to check for component defects - any defects reported immediately. 6. All plant on the barge must be securely fixed in position. All 7. Plant run on biodegradable oil.				
	Working on vessel in marine environment; Getting Wet Hypothermia Seasickness, leading to falling Overboard from Vessels	Serious physical trauma or fatality. Nausea, vomiting, Major Injury	ALL	4	4	**16**	1. The appropriate PPE worn at all time 2. All crewmembers to be trained in man overboard procedures 3. Dredging operation to be performed when river conditions make it safe to do so 4. All visitors **MUST** be inducted and must wear appropriate PPE prior to accessing the works perimeter. 5. All employees wear buoyancy aids at all times. 6. Rescue boat is present for all working on water. No lone working is allowed. 7. Edge protection in place. Barge moored or spud legs located. 8. Deck areas kept clean and are not allowed to become slippery, timber mats located on decks. Barges checked for water tightness prior to each job. 9. All on site are instructed on emergency procedures. For working over water a rescue boat is available at all times.	4	2	**8**	Barge Master
	Operational Hazards (Equipment, Lifting, Access, COSHH, Fire, Biological, Individual etc.)										
	Fire on Vessel	Major Injury Possible fatality and lose of vessel.	ALL	5	4	**20**	1. Crewmembers Vessel Induction to cover – Fire Emergency Procedure for Vessel and, the use of portable firefighting equipment, to have the knowledge of their proper use 2. Fire Point and Muster Points clearly identified. 3. Fire Extinguishers / Blankets to be available and in-date. 4. Crew to check against overheating of electrical/mechanical motors attached to shore and marine vessels	5	1	**5**	Barge Master

							5. No smoking in cabs of excavators, designated smoking area to be defined for each job. Plant fuel kept in double skinned bowser away from ignition sources. 6. Equipment allowed to cool before refuelling. 7. Fire extinguishers are located on barges and all vessels. 8. Follow ERP.				
	Mechanical failure	Delay and downtime to the entire dredging operation. Mechanical or fatigue failure of Vessel/Plant	ALL	5	3	**15**	1. Prior to the commencement of operation, crewmembers to check and carry out visual inspection to all plant. Oiling and lubricating should also be checked especially for the dredger. 2. Team on ground to respond to any mechanical issues beyond the crew. **NOTE:** *Site management to ensure that personnel is assigned to Inspect and maintain equipment (Vessel/Shore Plant) to ensure they are all in good working condition. A good, proactive maintenance programme will prevent operational disruptions and reduce potential environmental consequences.*	2	2	**4**	Site Sup
	Interference of Mammals within the working zone, especially during dredging operation.	Downtime and progress delay.		5	3	**15**	1. JOHN PAUL to ensure the MMO observer is present during the process if required. 2. Site management to ensure that the operation is planned in compliance with the requirements of the MMO procedures	5	1	**5**	Site Sup
	Person falling overboard	Drowning/Hypothermia/ Unconsciousness Effects of swallowing polluted or contaminated water. Major injury	ALL	5	3	**15**	1. Crewmembers to be trained in man overboard procedures PPE shall be worn at all times, including Personal Flotation Devices (PFD). 2. Sufficient lifebuoys and rescue lines should be available on vessels. 3. Visual should be maintained on individual, until they have been recovered. 4. Safety boat in attendance during works. 5. Follow ERP.	5	1	**5**	Works Supervisor/ Barge Master
	Manual Handling	Minor or Major Back Injury as result of dropping load.	ALL	4	4	**16**	1. Manual handling is to be minimised, loads to be assessed prior to lifting. Two man lift if applicable. 2. Mechanical means to be used. 3. Operatives trained in manual handling techniques. Toolbox talks on site before work commences. Mechanical aids where possible (excavator, crane etc.) 4. No lifting of objects above 25kg or whatever the operative is comfortable with.	4	1	**4**	Works Supervisor

							5. Tandem lifts as necessary. Keep the work area clear. 6. Ensure people with muscle or joint/frame problems are not involved in manual handling tasks. Correct and appropriate PPE worn at all times. 7. All employees are trained in manual handling activities and know to lift only what they can, comfortably. All plant and equipment is lifted by crane onto barges prior to commencement of the works.				
	Over excavation	Damage to Structures	ALL	4	4	**16**	GPS dig system to control levels on site. Dig level to be provided prior to start of works.	4	1	**4**	Works Supervisor
	Environmental Impacts (Noise, Vibration, Light, Dust etc.)										
	Spillage due to Increased sediment suspension during the raising up of the bucket and/or Spillage throughout the complete height of the water column	Water Contamination occur	ALL	4	4	**16**	1. The Excavator operator to limit such by reducing the speed of the bucket movement. 2. Must also maintain the optimal horizontal position in order to prevent spillage 3. If spills occur by accident, spill kits will be available, and should have been practiced on a regular basis by the trained personnel	4	1	**4**	Barge Master
	Sunlight light- Eye reflection, Impairing vision	Collision, damage to vessels, physical injury or fatality to works personnel	ALL	4	4	**16**	1. All crewmembers must establish and use various communication method (Verbal, Visual and VHF etc)	4	1	**8**	
	Other Factors/Hazards (Work Hours, Public, Individual, etc.)										
	Public / Stakeholders	Serious physical trauma or fatality	ALL	5	3	**15**	1. Access to the working area during dredging, transporting and treatment operations must be restricted. 2. The work area must be delineated and where appropriate, advisory signage erected. 3. Obtain from stakeholder (Port Authority/JOHN PAUL) 'Permit to Work' for the operation in line with procedures. 4. When establishing site RA O'Neill Plant Hire Ltd shall ensure that only those authorised to be in the work area are permitted. 5. When plant has to move from one position to another this shall only be done with the assistance of a banksman.	5	1	**5**	Site Sup

	Interaction with other sea / port / waterway users	Drowning / Hypothermia / Effects of swallowing contaminated water	ALL	5	2	**10**	1. Ensure Notice to Mariners is issued for the project. (If Applicable) 2. VHF and Radio Communication equipment to be available on Vessel. 3. Frequent communications with relevant Stakeholders (Port Authority). 4. Monitoring of VHF Channel 12 for port operations. Liaison with POB Control ahead of significant barge moves (outside of normal working areas). 5. Up and down stream buoy channel markers to guide public users around working area. Barge to display Day Shapes for vessel 'Restricted in ability to manoeuvre'. 6. General river lighting of works area during darkness hours.	3	1	**3**	**Vessel Master**
	Plant Refuelling	• Environmental Pollution Fire	Plant Operator / ALL	4	4	**16**	1. All fuel to be stored in secure bunded containers. 2. Operatives to be familiar with spill kit locations and the spill response procedure. 1. Fire Emergency Arrangements to be addressed and discussed during Daily Brief 2. All hydraulic systems operate with biodegradable hydraulic oil. Spill containment/clean-up kit positioned in close proximity to working areas. 3. All dredging barge equipment runs on diesel and will be fuelled directly from storage bowser with distribution hose. Float gauge on excavator for visual level guide. Drip tray will be positioned under the point of distribution. Fuelling should be paused if other vessels pass to avoid spills due to barge motion. 4. When refuelling on the barge the nozzle of the hose from the bowser (double skinned) shall be contained in a container to avoid spillage when moving to plant location and back. 5. Spill kits are located on the barge for any spillages. Booms also available if fuel was to get into the water. 6. Regular inspections of decks carried out to ensure all is clean and clear of debris.	4	2	**8**	**Site Sup**

	Hydraulic oil spill	Pollution/Downtime	Plant Operator	4	4	**16**	1. Biodegradable oil to be used 2. Daily plant checks to note any defects prior to starting works. 3. Spill kits to be with machine at all times. 4. Use spill kits, drip trays and double bunded fuel storage tanks. Environmental awareness tool box talks. 5. Plant and machinery to be checked daily for leaks or loose pipe work. Any fluid spillages contained and not allowed to enter the water course to protect river wildlife (fish etc.) 6. Operatives to remain vigilant for local wildlife, such as seals, and stop work if they enter the dredge area. 7. Any spillage recorded and reported to the relevant body. 8. All plant run on biodegradable oil.	4	2	**8**	**Plant Operator**
	Exposure to marine environment weather	Exposure to heat or low temperatures on the body.	ALL	4	3	**12**	1. Workers will be provided with suitable PPE 2. Welfare facilities provided, for rest and food consumption.	3	3	**9**	**Vessel Master**
	Collision with uncontrolled vessel	Shipping / Navigational hazard. Severe Incident Injury (Serious or Minor)		5	3	15	1. Vessel Skipper to review position of vessels in local area before / during tow operations. 2. Manager to ensure all relevant local authorities are informed in advance of operations. Monitoring of VHF Channel 12 for port operations. Liaison with POB Control ahead of significant barge moves (outside of normal working areas). Up and down stream buoy channel markers to guide public users around working area. Barge to display Day Shapes for vessel 'Restricted in ability to manoeuvre'. General river lighting of works area during darkness hours.	5	2	10	Vessel Skipper
	Loading of equipment in harbour	• Collision with vehicle, member of the public. Major Injury.	All	5	3	15	• Banksmen to escort all delivery vehicles to the area for unloading. • Banksman in attendance to control pedestrians. Delivery vehicles will be escorted from works area when vacating the site by banksman back onto the public highway.	4	2	8	Banksman

							All plant and equipment shall be lifting onto the spud leg barge only when barge is secured and edge protection has been put in place. Lifting to be carried out by crane. Contract lifts may be employed. All lifting equipment and lifting accessories have been thoroughly examined and tested with in date certification. All lifting shall be carried out in compliance with LOLER. Once plant and equipment has been loaded onto the barge all shall be secured to the barge.				
	Trips/Slips/Falls on Barge.	Personal Injury/cause injury. *Fall to water* - Hypothermia. Drowning. Physical effects of swallowing polluted or contaminated water; Injury (Severe & Minor)	ALL	3	4	12	1. Suitable means of access to the point of work should be provided. 2. Handholds and guardrails should be provided where appropriate. 3. No Lone Working - workers should work in pairs so one can raise the alarm if the other falls in. 5. PPE shall be worn at all times, including Personal Flotation Devices (PFD). Sufficient lifebuoys and rescue lines should be available. Constant review of work areas to minimise slipping and tripping hazards. All work areas must be clear of tools and equipment and debris. Edge protection provided to edges of barge, buoyancy aids to be worn at all times	3	3	9	Site Sup
	Person falling overboard during operation	Drowning/Hypothermia/Effects of swallowing polluted or contaminated water	ALL	5	3	15	1. Suitable means of access to the point of work should be provided. 2. Workers should work in pairs so one can raise the alarm if the other falls in. 3. PPE shall be worn at all times, including Personal Flotation Devices (PFD). 4. Sufficient lifebuoys and rescue lines should be available. 5. Rescue facilities should be available, i.e. a safety boat when the depth of water is deep enough to operate. Only trained personnel will be permitted to access boats for transfers. All on site are instructed on emergency procedures. For	4	3	12	Site Sup/Master

							working over water a safety boat is available at all times.				
	Use of excavator	Serious physical trauma or fatality from broken bones Serious Damage to Excavator components	ALL	5	3	15	Only authorised, trained and competent persons will be permitted to operate plant (excavators). Test and thorough examination certificates for the excavator and lifting gear will be retained on site. Banksman to check the lifting gear before its use each day. Permit to dig to be issued for operations as requried. Only trained & competent persons with a proven track record on similar schemes to operate plant. Plant to be checked daily and "Record of Plant Inspection" sheet filled in, any problems to be reported directly to the Supervisor. All excavators to conform to PUWER and LOLER regulations where applicable, licenses to be checked on a regular basis with copies kept in site office. Never leave unattended plant running. Keys to be removed when operator leaves cab. Operator to not wear seatbelt whilst working on the barge. When the excavator is working beside water or on barges on the water the excavator operator shall wear a buoyancy aid at all times. Rescue boat in position at all times. All plant operators to be regularly briefed on the hazards of slewing and ensure that at no time does any machine slew and encroach within the 600mm safety zone Before approaching excavator, ensure the driver is aware of your presence and has placed his bucket on the ground, engaged his dead man and signaled that it is safe to approach. When people are approaching the excavator, lock the hydraulics and indicate that it is safe to approach. Excavator to have flashing beacon on when working and, where possible, track forward; if this is not possible a	3	1	3	Plant Operator/Banksman

							banksman is to monitor all movements. All operatives to wear high visibility clothing whilst operating plant. Excavators working on barges are to be secured to the barge. At the end of the day the barge shall be secured safely. When positioning the excavator on land beside water the area around the excavator and designated space left for lorries turning shall be identified with JOHN PAUL and a banksman will warn others of the ongoing works. Where required, alternative routes shall be provided for pedestrians and vehicles. Long reach excavators are fitted with fully automatic quick hitches and no physical activity is required when changing buckets.				
	Working over water	Drowning/Hypothermia/Effects of swallowing polluted or contaminated water	ALL	3	3	9	Edge protection to be provided on water edges where possible. Do not enter exclusion zone at the front of the barge unless absolutely necessary. Always wear a life jacket when working over or adjacent (within 3m) to water with no edge protection. Rescue/safety boat present throughout works with overboard procedure briefed to all personnel. No lone working is allowed. Frequent checks on numbers of personnel on site. The emergency procedures and arrangements for summoning assistance are published and briefed out to all personnel. Ensure that a trained boatman operates the boat. When the excavator is working beside water or on barges on the water the excavator operator shall wear a manual inflate lifejacket.	1	3	3	ALL

							Deck areas kept clean and are not allowed to become slippery, timber mats located on decks. Barges checked for water tightness prior to each job.				
	Barge integrity/Stability	Capsize, sinking, Drowning. Instability of equipment, capsize, sinking, drowning	ALL	2	3	6	Barges checked for correct construction and equipment following mobilisation. Daily Barge Check Sheets to be completed during daily inspection. MCA coded vessels only. Modular barge with multiple individual hulls and bulkheads to maintain buoyancy in the event of local impact/damage. As above. Stability assessment of dredging barge for configuration of use. Daily Barge Checks to include review of equipment position and use to ensure stability report remains applicable. Sea fastening of equipment on deck (excavator, generator, hydraulic power-pack, etc.).	1	3	3	Barge Master
	Spud leg system, hydraulic failure	Unable to lift/lower spud legs, capsize	ALL	2	3	6	Daily inspection and function checks on spud lifting system and hydraulics. Tug to be in towing configuration on barge before spuds lifted, so positional control assured if failure. Barge to be moved to hopper discharge location for floating mooring if legs cannot be lowered safely. Competent personnel familiar with operation only to lift/lower spud legs. Daily inspection of leg lifters to ensure good function and operation. Hydraulic system to operate leg lifters remote from moving parts. Leg lifter to be static during spud pin removal/replacement.	1	3	3	Barge Master
	Locating spud legs	RAO employees, sub contractors and members of the public	ALL	3	3	9	Edge protection installed prior to commencement of the work. All on the barge to be wearing buoyancy aids.	1	2	2	Barge Master

		Struck by/crushing/falling					Spud legs lifted into place by crane or long reach excavator. All lifting equipment shall comply with LOLER. All plant and lifting accessories are thoroughly tested and examined with in date certificate. All those operating plant are competent and authorised to operate the equipment. Where ladders are required to access height to locate spud legs these shall be in good condition and be secured to ensure no movement. Rescue boat on site at all times. Only those whom are authorised shall be allowed to access the work areas, both landward and on water. Site shall be cordoned off to prevent unauthorised entry. Signage shall be displayed to inform others of the ongoing works. The area around the spud wells is to remain clear of equipment and debris at all times. When locating holding pins operative must stand back from the leg lifter to operate the lifting mechanism. No-one is in the vicinity of the leg lifter when in operation.				
	Barge delivery/assembly	Injury to members of the public/occupiers/RAO employees	ALL	2	3	6	Barges arrive on site by way of flat bed lorries. Barge sections lifted off flat bed lorries and onto water by crane, supplied by client) by securing crane chains to lifting points on barge section. Access for attaching chains is by way of secured ladder. If operative has to stand on top of the barge on the flat bed lorry a harness and restraint lanyard to be worn attached to crane hook. Rescue boat and work boat will be in position prior to placing onto water. All employees on the water shall wear buoyancy aids. Barge sections shall be secured by RA O'Neill employees when on the water from work boat. Once barge sections are attached edge protection shall be fixed. Site supervisor to inspect security measures regularly.	1	3	3	Barge Master

							Ensure safe access and egress for all vehicles coming onto and going off site. When the barge sections are in the water sections shall be attached to each other by operatives in the work boat. All shall wear buoyancy aids at all times.				
	Barge towing & tugs, loss of power, engine failure	Loss of control, impact with structures, capsize	ALL	2	3	6	Barge will be moored on spud legs. Pre-tow inspection by Barge Master. In the event of tow failure, spud legs to be lowered to stop barge movement and secure until tug can be resolved. Excavator bucket lowered to seabed to halt movement if necessary. Second crew/safety boat for personnel evacuation for barge if necessary. Daily Inspection of tug to ensure good serviceable conditions, fuel and lubricant levels and tow gear condition.	1	3	3	Vessel Master/Barge Master
	Mooring of barges - ropes parting, stability during rise/fall of tide	Parting ropes, snap-back injury, uncontrolled vessel movement, capsize	ALL	2	3	6	Competent marine crew for moor barges. Ropes to be visually inspected before use. Hoppers NOT to be left on sheet piled wall overnight (moored alongside dredge barge). Hopper mooring ropes to be monitored and adjusted throughout falling tide. Dredging barge moors on spud legs - no rope mooring. NOTE: Spud legs are gravity type only, not jacked. Therefore riverbed damage will be minimal. Mooring of hopper barges to be carried out from crew/safety boat where possible. Operatives only to access/walk on hopper barges as a last resort - lifejackets worn at all times. No lone working.	1	3	3	Vessel Master/Barge Master
	Towing outside the working area - wet dock to site	Collision, restricted movement, passing vessel *wash*	ALL	3	3	9	Pre-tow inspection by Barge Master to ensure barge is configured as stability report, sea fastenings are installed and towing arrangement is correct with all tow equipment in good order. Excavator boom to be down and secured for tow. Good communication between Barge Master and tug Skipper.	1	3	3	Vessel Master/Barge Master

	Using mechanical/power tools and small tools	Entrapment, equipment failure, flying particles, cuts	ALL	3	3	9	Trained and competent personnel. Keep hands, limbs etc away from rotating and moving parts. Tested and certified equipment. Pre-use inspection to ensure guards are present and function correctly. Do not wear loose items of clothing that may get entangled in rotating machinery (toggles, loose straps etc.). Wear impact resistant goggles and cut resistant gloves. All power tools battery or 110v only. All equipment PAT tested with date stickers displayed.	1	3	3	Site Sup
	Electrical systems	Fire, electrocution	ALL	2	3	6	Barge powered from generator - daily inspection of generator, leads, cables, etc. to ensure good function and safe condition. 240v to welfare only, plug and play. 110v for deck lighting and equipment. Generator to be powered down overnight (no battery charging overnight). PAT for welfare appliances and any deck equipment.	1	2	2	Site Sup
	Barge generator	Fuelling, spills, leaks	ALL	2	2	4	Generator to have self contained bund, or drip try under to prevent fuel leaks on to deck. Fuelling direct form bowser with correct distribution spout. Drip tray under point of distribution. Spill containment/clean-up kit present on deck. Fuel stored separately (remote) from generator in suitable/secure area. Fire extinguishers suitable for electrical and fuel fires in close proximity.	1	2	2	Barge Master
	Ladder access to floating plant in the river	Falls, injury, death	ALL	2	3	6	Ladders to be visually inspected ahead of use - from from mud/debris. Operatives to maintain three points of contact at all times during ladder use - NO JUMPING. Go up the ladder forwards and down the ladder backwards.	1	3	3	Barge Master/ Site Sup
	Contaminated water / land	Diseases	ALL	2	2	4	Leptospirosis (Weils) briefing/toolbox talks. Good hygiene practices - e.g. washing before eating, designated eating	1	3	3	Site Sup

							areas. Wear suitable PPE - e.g. gloves etc. Cover cuts and abrasions with waterproof plasters. If contaminated ground encountered, stop work. Inform Site Management immediately. Wear appropriate PPE such as impervious gloves and boots. Employees have been briefed on Weils disease and use appropriate PPE. Welfare facilities are available on site and all are instructed to wash hands, arms and face prior to eating or drinking anything.				
	Electricity	Burns, shock, electrocution death	ALL	2	2	4	Do not tamper with electric supplies - trained and competent personnel only work with electric. All site supplies and equipment to be 110V, except welfare unit (240v plug & play). All equipment to be PAT and checked prior to use for damage.	1	2	2	Site Sup
	Excessive noise	Damage to hearing	ALL	2	3	6	Wear hearing protection when working around excessive noise (>80db). Avoid close contact with plant that produce excessive noise where possible. Toolbox talks on excessive noise.	1	2	2	Site Sup
	Unexploded ordnance	Explosions	ALL	3	3	9	Client to confirm that UXO risk has been eliminated in dredge areas – ALARP Cert. JOHN PAUL to issue a permit to Dig before dredging commences. All personnel to remain vigilant during the works. If anything suspected of being ordnance is found, the area is to be immediately vacated, made safe, and the Site Manager informed. No personnel are to re-enter the work area until told it is safe to do so by the Site Manager.	1	3	3	Site Sup
	Debris from obstruction removal	Damage to vessels	ALL	3	3	9	Operatives briefed on the importance of obstruction debris recovery. All operatives to remain vigilant for floating debris throughout obstruction removal. If debris is suspected, stop all other works until debris is recovered.	3	2	6	Barge Master/ Site Sup

							Pioneer Safety/Crew boat to be available as the primary search/recovery boat during obstruction removal operations. JOHN PAUL guard boat to assist in search/recovery operations if available. 60t long reach never to work in isolation when attempting obstruction removal. Inform both JOHN PAUL & Cromarty Firth Port Authority if an obstruction is thought to have escaped the work area.				
	Lifting operations	Failure of lift, falling loads, crushing	ALL	3	4	12	Trained and competent personnel, including Lift Supervisor, Slinger/Signaller and Appointed Person (NOTE JOHN PAUL controlling all lifting operations). Ensure Lift Plan is in place and all lifting appliances and tackle are certificated and in date, and showing no signs of wear and tear. Slinger signaller to perform all slinging and banking operations. Ensure that there are no underground obstructions or chambers when setting up the outriggers, and that the formation is secure. Ensure no overhead services. All loads to be slung must have tag lines fitted. All equipment and tackle to be entered on site plant and equipment register and inspected prior to each shift. If damaged, quarantine immediately and report to the Lift Supervisor. Do not lift over people. Ensure chains and lifting gear is all certified and in date.	1	2	2	Site Sup
	Underground/water services	Damage to services, electrocution, pollution	ALL	3	3	9	Client to confirm there are no underground services in the dredge location prior to dredging. Permit to Excavate to be issued by JOHN PAUL. PC/Client has responsibility to ensure all services have been made safe prior to RA O'Neill operations beginning.	1	3	3	Site Sup
	Hazardous substances	Immediate and long term health effects to persons in contact with these substances	ALL	3	3	9	COSHH Risk Assessments and material MSDS are available for substances used by RAO on site.	1	2	2	Site Sup
	Work boats	RAO employees, sub contractors collision, drowning, falling	ALL				Only those who are competent and authorised to use work boats. Those named above have adequate training to operate work boats safely.				Vessel Master/ Site Sup

							Operators shall inspect the boat before use daily to ensure that no components are defective. Any defect is to be reported to RA O'Neill immediately. At the end of the day the boat shall be moored safely. Boats are regularly maintained by RA O'Neill Plant Hire Ltd and a weekly checklist is also completed. When on the work boat all employees shall wear buoyancy aids at all times. Rescue boat in position at all times. Supervisor to ensure operations are only carried out in adequate weather conditions. Boat Masters have extensive experience of working on water in various weather conditions and shall, upon consultation with the Barge Master, suspend operations in extreme weather conditions. The Barge Master/Boat Masters consult with XC Weather Forecast continually throughout the work shifts to ensure early warning of extreme weather advancing. When work boat is in transit the Boat Master and any crew shall be located within the wheelhouse. All onboard shall wear life jackets which shall have been inspected within the last 12 months. Crew shall only come on deck to moor the boat to the sheet piled wall or to the spud leg barge.				
	Emergencies	Various injuries arising from emergencies	ALL	3	3	9	All on site are instructed on emergency procedures in accordance with the Emergency Response Procedure.. For working on water a rescue boat is available at all times. In the event of an emergency evacuation this shall be by rescue boat.	1	2	2	
	Covid19	risk of covid19 disease on site	ALL	4	3	12	Operatives should be provided with adequate welfare facilities. Operatives should wash/sanitise hands before eating, drinking or smoking and more often than usual. First aid facilities must be made available through site managers. Always wash hands well before eating. Follow notes and points on Covid19 SSOW. Adhere to JOHN PAUL restrictions in place. Adhere to 2m social distance as much as reasonably practical. Follow PHE guidelines at all times.	1	2	2	

Site or Location: (Code/Site)		**Risk Assessment No:**	Dynamic risk assessment -
Description of Activity / Task:			
Prepared by:		**Prepared Date:**	
Checked by:		**Review Date:**	

Risk Matrix

Severity / Likelihood	1 – Very Minor Injury	2 – First Aid Injury	3 – Lost Time Injury	4 – Hospital Treatment	5 – Fatality / Major Injury
1– Extremely Unlikely	Low	Low	Low	Low	Low
2 – Unlikely	Low	Low	Med	Med	Med
3 – Possible	Low	Med	Med	Med	High
4 – Likely	Low	Med	Med	High	High
5 – Very Likely	Low	Med	High	High	High

Risk = Severity x Likelihood

15 - 25 Unacceptable **10 – 14 Tolerable (Look to Improve)**
5 - 9 Adequate **1 – 4 Acceptable**

Step 1

Using the risk matrix, carry out an initial assessment to determine the risk rating of hazards(s) of the work activity (note this is without any control measures).

Step 2

Using the matrix results from step 1 if the risk rating is (a) High (H) then the hazard must be eliminated and / or work activity prohibited of the risk rating is (b) Medium (M) then additional safety control are required.

Step 3

Following the results from step 2 if the risk rating remains medium then you must provide alternatives and or additional safety controls until the risk rating enters into the low category.

Step 4

The safety control measures should be numbered and recorded against the particular hazard as indicated in the box below.

No.	Hazard	Consequence	Persons Affected	Initial Risk			Control Measures	Residual Risk			Person responsible for control & monitoring
				S	L	R		S	L	R	

Signed by operatives after instruction given by: _____

(insert name of person providing briefing)

Name	Signature	Company	Date