



Risk Assessment and Method Statement

2023

Neyland Outfall Cleaning
Works & Flapvalve
Installation Works

Document Control Sheet

Title		Document No.					
Risk Assessment and Method Statement – Neyland Outfall		KM-DCWW-NEYLAND-RAMS					
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Issue Date	Document Description	Status/Revision					
12/04/23	This document details the method of works covering the cleaning of the existing outfall pipe for DCWW, and the installation of a new flapvalve.	Draft	Site Issue	1	2	3	4
Copy No.	Issued to						
1	DCWW	a				x	
2	Kaymac Site Manager	a				x	
3	Kaymac Marine Records	a				x	
4	APEM					x	
5							
Revision Amendments							
2	Amendments for HRA and WFD					12/04/2023	

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Section 1.0	Introduction
1.1	Description & Purpose of Project

The purpose of this method statement is to outline the process for cleaning an outfall pipe and installing a new tideflex valve for Welsh Water, to be undertaken by Kaymac Marine & Civil Engineering.

The outfall pipe is situated in Llanstadwell, Neyland, with the approximate line of the buried pipeline shown below.



The internal condition of the existing pipe is currently unknown, with an assumption that there is a partial blockage at some point within the pipe between the outlet and the onshore manhole chamber.

Kaymac will undertake the works around a low spring tidal period, with access to the works area by way of a multicat vessel travelling from Pembroke Dock and landing adjacent to the works area on the falling tide.

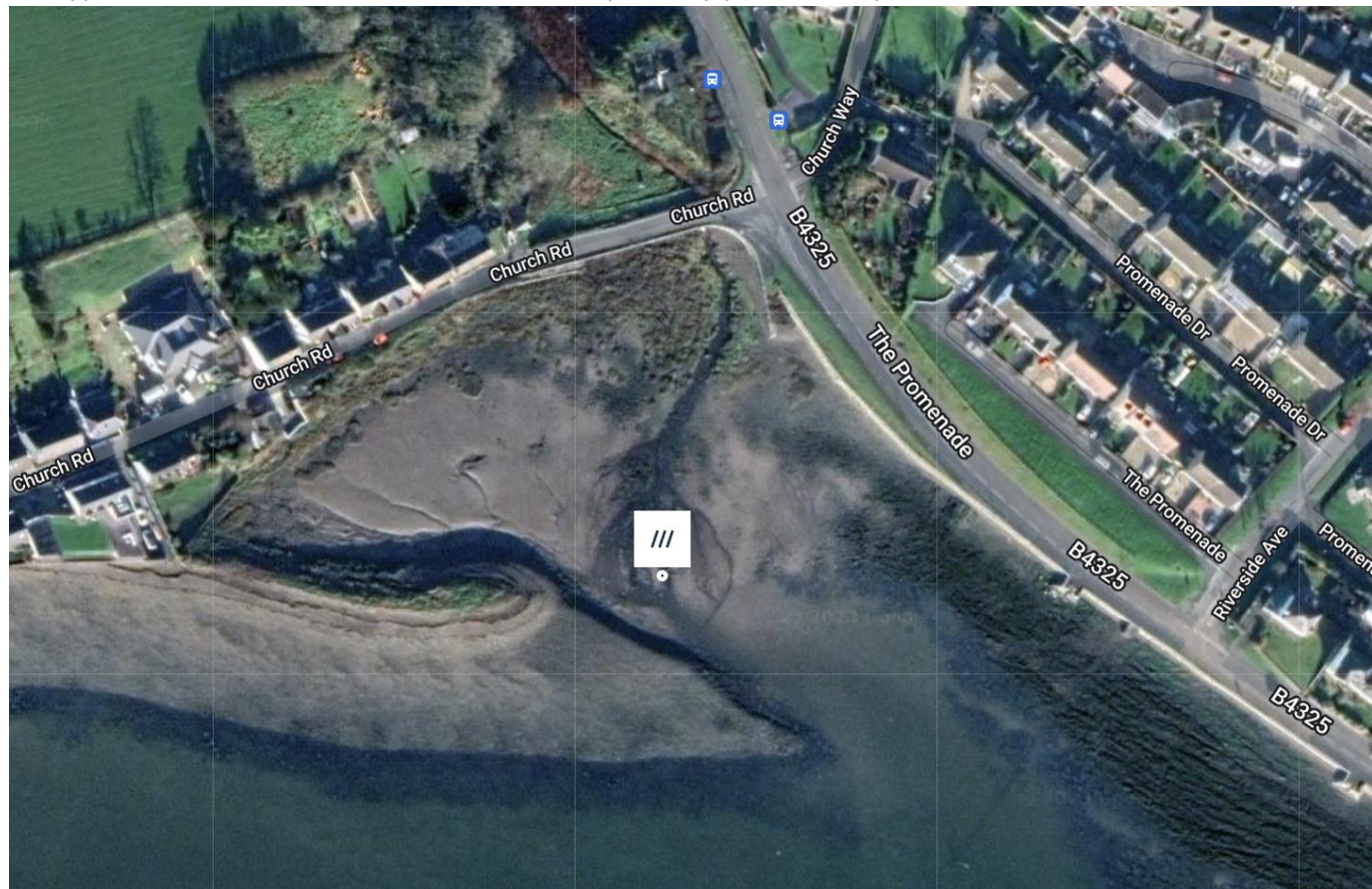
Kaymacs site team will undertake internal cleaning of the pipe using jetting equipment, and once effectively cleaned, a CCTV survey will be undertaken to confirm there are no blockages/debris remaining.

Following this, a new flap valve will be installed to the outlet, and fixed to the existing concrete surround.



Section 2.0	Site Location
2.1	Project Site Location Details
Address	Church Road, Llanstadwell, Neyland, Pembrokeshire, Wales
Post Code	SA73 1EB
OSGB	SM 95866 05037
what3words	///marshes.distorts.repeats
2.2	Site Location Map

The approximate location of the structure is indicated by the drop pin on the map below.



2.3	Site Access
Access to the works area for all operatives and plant will be via the Willtango Multicat Vessel travelling from Pembroke Dock and landing on the falling tide adjacent to the offshore outlet. A designated area within Williams Shipping Yard will also be in place for the vessel and equipment to return to between the working windows.	

Section 3.0	Legislative and Site-Specific Compliance
3.1	Statutory Legislation
This document has been prepared to comply with, as far as reasonably practicable, the following current relevant legislation: • The Health & Safety at Work etc. Act 1974 • The Management of Health & Safety at Work Regulations 1999 • The Health & Safety (First Aid) Regulations 1981 • The Lifting Operations and Lifting Equipment Regulations 1998 • The Work at Height Regulations 2005 • The Personal Protective Equipment at Work Regulations 1992 • The Manual Handling Regulations 2002 • The Control of Substances Hazardous to Health Regulations 2002 • The Reporting of Injuries, Diseases & Dangerous Occurrences (RIDDOR) Regulations 2013 • The Environmental Protection Act 1990 • The Diving at Work Regulations 1997	
3.2	Additional Site-Specific Compliance
Dynamic Risk Assessments will be carried out prior to any element of the works taking place if the circumstances on site have changed or different work methods have been adopted other than those included in this document. All Kaymac site personnel, subcontractors and visitors will be required to undertake a site induction before being allowed on site. All Kaymac site personnel, subcontractors and visitors will be required to sign in on the site register each day before starting work, and to sign out at the end of each shift.	

Section 4.0	Project Resources
4.1	Kaymac Site Personnel
	• Site Manager (SMSTS, CSCS, CPCS) • Site Supervisor (SSSTS, CSCS) • Kaymac Site Operatives (CSCS)
4.2	Site Welfare & Storage
	Welfare will be provided by Kaymac within Williams Shipping Yard at Pembroke Dock, with welfare facilities also available on the vessel.
4.3	Site Plant & Equipment
	• 110v generator • Small hand tools i.e., shovels etc. • Pneumatic & hydraulic underwater tools and equipment • Fuel Bowser • Navi Mats • Cat Geny • Dect Comms • Drilling and fixing equipment • Superjet jetting equipment • Hydrainer pumping equipment • Discharge hoses • Wiltango Multicat Vessel • Diving equipment • CCTV equipment
4.4	Materials/Consumables
	• Tideflex valve • Fixings
4.5	Personal Protective Equipment (PPE)
	The <u>minimum</u> PPE requirements for the site will be: • Safety Helmet to BS EN397:2012; • Safety Boots (or Wellington Boots) to ISO 20345:2011; • High Visibility Jacket/waistcoat and trousers to EN471:2003; • Safety Glasses to EN166. • Cut 5 rated Gloves to EN388 Additional appropriate task-based PPE will be required as a result of risk assessment (See section 8.0)
4.6	Programme of Works
	We envisage the works to take approximately 6-8 days at this stage. During the scheme, Kaymac will liaise with the Client to co-ordinate working windows around a low spring tidal period and with the Client ensuring the outlet does not discharge flows of more than 25l/s during these times. There may be a requirement to work alternate weekends but this will require some flexibility around forecasted weather conditions each week.

Section 5.0	Project Directory	
5.1	General Contact Numbers	
DCWW – Jamie Dalton		07774150262
Kaymac Site Supervisor		TBC
Kaymac Site Manager		TBC
Kaymac Project Engineer – Charley Hawkins		07984981676
Kaymac Project Manager - Jon Colcombe		07771803693
Kaymac Marine & Civil Engineering Ltd - Swansea Office		01792 301818
Kaymac Projects Director - Rhys Colcombe		07950501774
Kaymac Operations Director - Jeff Lippiett		07971 880029
5.2	Emergency Contact Numbers	
A&E Hospital – Withybush General Hospital		01437 764545
HSE Incident Contact Centre		0845 3009923
HSE Infoline		08701 545500
Kaymac Health & Safety Manager - Gareth Crees		07971 880028
Ambulance, Police or Fire & Rescue Service		999

Section 6.0	Method Statement
<u>Licences and Permissions</u> We understand that prior to the commencement of the works, several licences and permissions are required. Kaymac have made allowance to assist DCWW in the procurement of these requirements through providing detailed written documentation and plan drawings highlighting our intended methods of working. At this stage, we are aware of the potential for the following licenses and permits to be obtained: • Band 2 Marine Licence. • Habitat Regulations Assessment (HRA) • Water Framework Directive (WFD) Assessment <u>Site Induction</u> All Kaymac Personnel will report to the Williams Shipping yard (to board the vessel) on the start date agreed with the Client and per the project programme. All operatives involved in the project will be site inducted by the Site Manager to ensure they are aware of: • The site layout • The planned works • Hazards and risks involved in carrying out the works • Environmental considerations and site constraints • Methods of water quality management • Emergency arrangements in the event of an incident, including location of the nearest hospital All Kaymac and any sub-contract Personnel will be required to sign the site attendance register prior to starting work each day, and to sign out at the end of each shift. Our Site Manager/Supervisor will be responsible for briefing the site-specific Method Statement and Risk Assessments appertaining to the project tasks to the site team. <u>Mobilisation and Site Establishment</u> Kaymac will: • Establish access to the worksite prior to Kaymac mobilising personnel, plant, equipment, and materials. • Establish welfare facilities, and areas for laydown of materials etc. The watercourse will be monitored daily using the local Monitoring Stations and site measurements and a member of the Kaymac site team will receive alerts of any adverse weather warnings. The site team will receive in-depth instructions on how to react to these alerts and which equipment/materials/plant, etc should be re-located in the event of severe weather. Ahead of any clearing works, a CCTV survey will be undertaken along the full length of the pipe, with the CCTV equipment being installed on the landward side of the outfall. <u>Installation of Pollution Mitigation Measures</u> Spillkits will be available on the multicat vessel as an environmental safety measure in the case of a pollution incident. These measures will be checked daily by the site management team and maintained, replaced, or renewed as appropriate through the lifetime of the project. Kaymac plan to carry out the works utilising practical pollution prevention control methods and best practices. Environmental protection measures include: • All plant to be fitted with bio-degradable hydraulic oil where possible. • All plant and equipment will be pressure washed ahead of working within the water and upon completion of the works and prior to demobilisation from site to help prevent any cross contamination. • The vessel will be locally stationed and so there will be minimal risk of invasive species. • Any small items of plant (generators, small pumps, etc) will be placed within plant nappies/drip trays. • Refuelling to only be undertaken at the dock, no refuelling to be undertaken on the vessel. • Floodlighting of construction areas close to the water will be avoided where possible and if unavoidable (due to health and safety implications), directional lighting will be adopted (with shields, hoods or limiting the height of lighting columns). Further general Pollution Prevention techniques we will adopt are shown below.	

Area of Concern	Mitigation Measures
Waste	- Working areas will be inspected daily. - Any waste will be stored at the Williams Shipping Yard, in segregated, labelled skips. - Waste materials will be removed from site on a regular basis. - Disposal of waste will be undertaken in accordance with the Waste Management Licensing Regulations.
Re-fuelling	- Designated refuellers only. - Re-fuelling in line with Kaymacs re-fuelling procedure. - All plant and equipment will have spill kits. - Additional spill kits present on the vessel. - All personnel trained in the spill response procedure. - All plant well maintained and inspected daily. - Refuelling to only be undertaken at the dock, no refuelling to be undertaken on the vessel.
Chemical & fuel storage	- All chemical storage will be in a bunded, padlocked COSHH cabinet and will be stored at the Williams Shipping Yard. - All chemical and fuel storage will comply with Control of Substances Hazardous to Health Regulations 2002.
Leaking or vandalised equipment	- All plant and equipment will have spill kits. - Additional spill kits present at the Williams Shipping Yard. - All personnel trained in spill response. - All plant, equipment either removed from site daily or stored in a secure location.

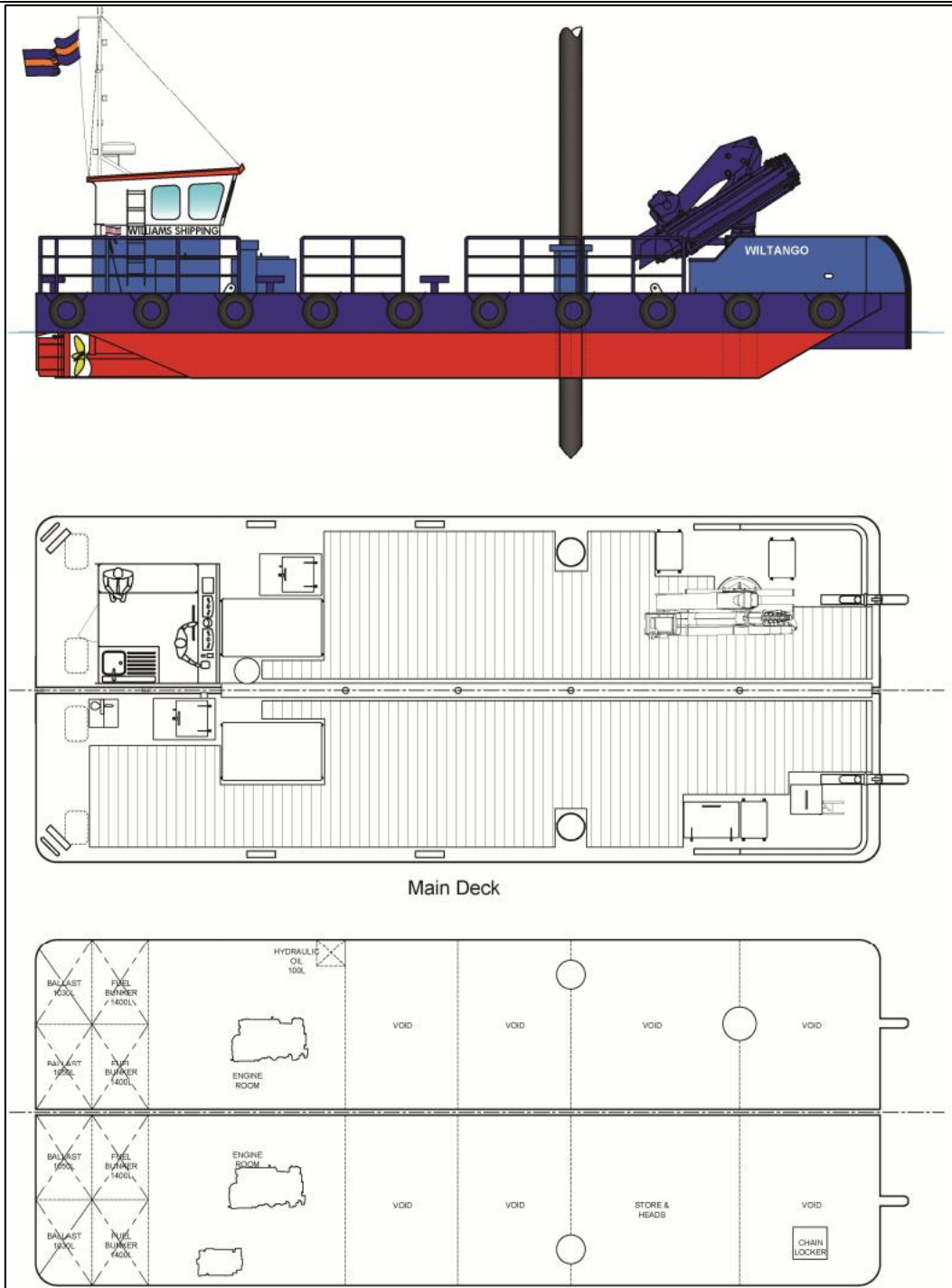
Construction Methodology

The works will be planned around a low spring tidal period to allow sufficient access to the outfall outlet. Kaymacs Site Manager will liaise with the DCWW representative to ensure the flows through the outlet are no higher than 25l/s. If flows are higher than 25l/s, no works will be undertaken to the outlet until this flow has been reduced.

Once a suitable timeframe has been agreed with the Client, Kaymacs site team will mobilise to Williams Shipping Yard at Pembroke Dock. All the necessary equipment will then be loaded onto the vessel, including but not limited to:

- Diving equipment
- Superjet jetting equipment
- Towable water bowser – approx. 500litre capacity
- Hydrainer pumping equipment
- Discharge hoses
- Navi mats
- Handheld drills
- M16 fixings and Hilti resin

The vessel used is expected to be the Wiltango, Meercat RT15, as below.



ROAD-TRANSPORTABLE WORKBOAT

WILTANGO



GENERAL

Type of Vessel: Meercat RT15
Builder: Meercat Workboats Ltd, UK
Build Date, Place: 2009, UK
Certification: MCA Workboat Code Cat 3 (20 miles) 2 crew, 8 pax

DIMENSIONS

Length O.A.: 15.5m
Beam O.A.: 6.0m
Depth at Sides: 1.5m
Draft Aft: 0.8m
Working Air Draft: 3.4m

PERFORMANCE

Free Running Speed: 8 knots (approx)
Ballard Pull: 3t (approx)
Deck Carrying Capacity: 25t

PROPULSION SYSTEM

Main Engines: 2x Doosan Daewoo L136 (keel cooled)
Total Power: 320HP/235Kw @ 2200rpm
Marine transmissions: Dong-I DMT 90AH 2.45:1
Propulsion: 2x 700mm 5-blade fixed pitch props

AUXILIARY EQUIPMENT

Generator Sets: Beta Marine – 9Kva (keel cooled)
Fuel Transfer Pumps: 52lpm
Electrical System: 24V DC / 220V shore connection

DECK EQUIPMENT

Hydraulic Crane: Palfinger PK23500(M)C – 23t.m (with pedestal)
Capacity: 4.8t@4.2m / 1.6t@12.1m
Anchor Windlass: Electric
Tow Post
Wooden Deck Protection
Removable Bow Boards
Winch: North Sea Winches 7t (100m @ 20mm)

OPTIONAL EQUIPMENT

Spud Legs (x2): 10.5m long x 439mm diameter
Burning / Cutting Gear: Optional
Compressors: Optional
Containers and Cabins: Optional (6ft to 20ft)

TANK CAPACITIES

Fuel Bunkers: 4000ltr

ACCOMMODATION

Wheelhouse with bench seat and galley unit including sink and hot water supply. Sanitary space below deck.

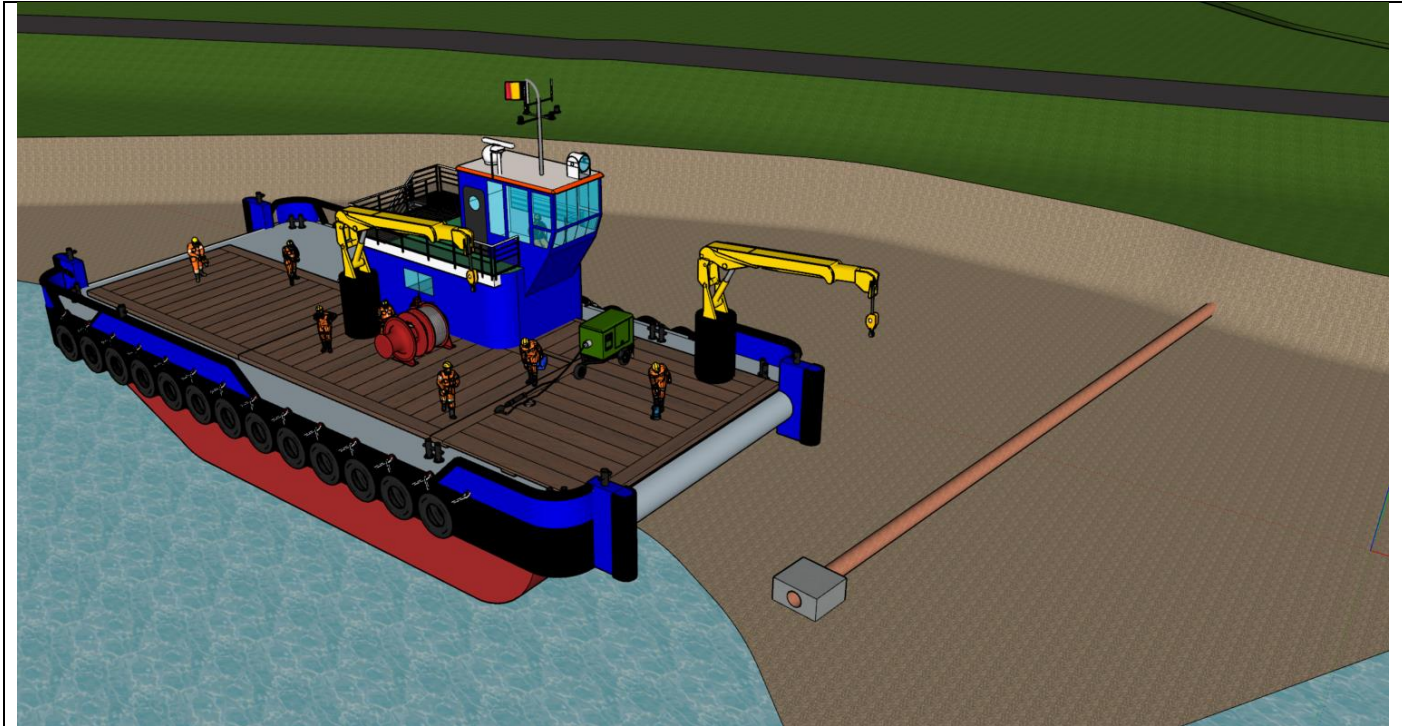
NAVIGATION & COMMUNICATION EQUIPMENT

Searchlight: ITT Jabco
Compass: Plastimo Olympic
Radar/Plotter: Furuno GD1920C
GPS: Furuno GP30
Echo Sounder: Raymarine ST40
VHF Radio: Icom IC-M411
Handheld VHF: Icom IC-M71
Phone: Motorola GSM
AIS: Comar Class B

ROAD SPECIFICATION

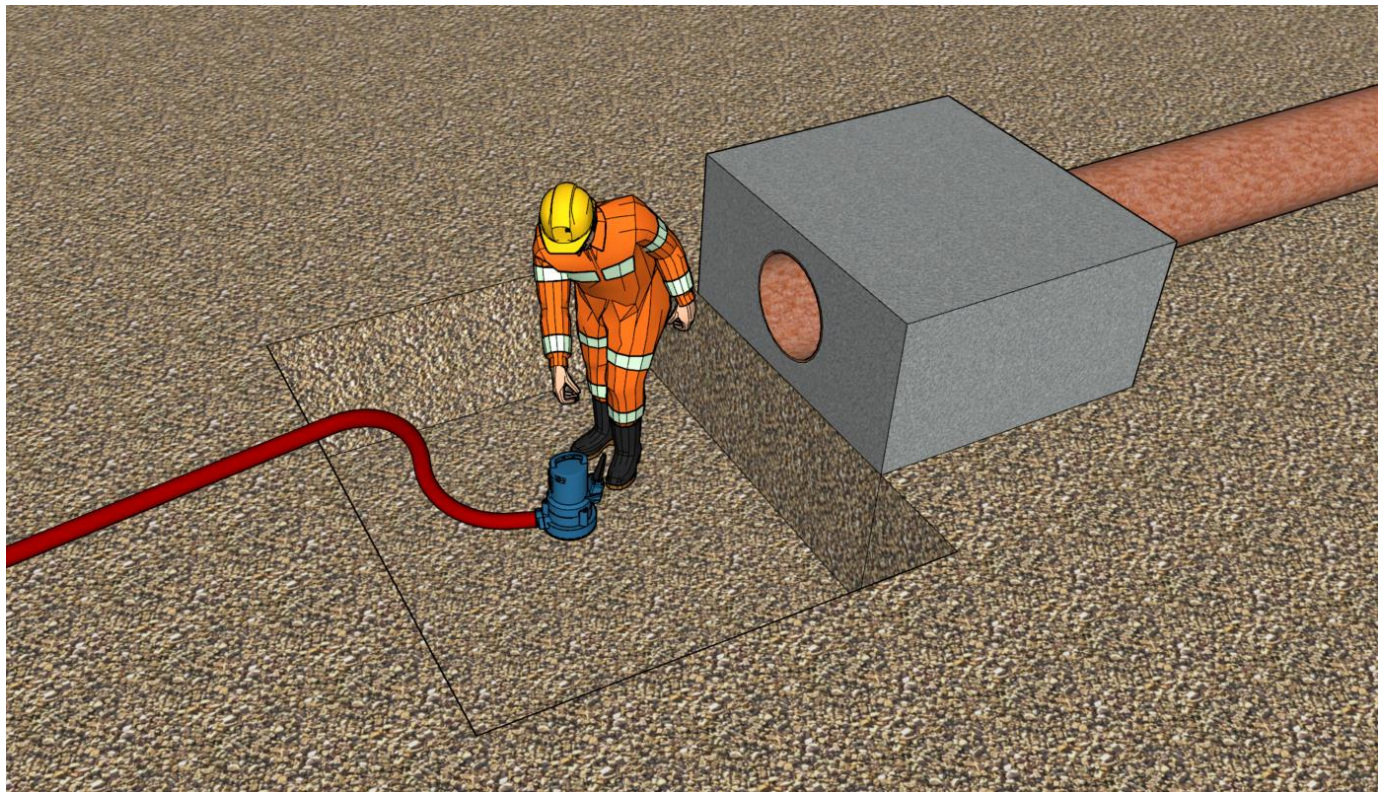
Length x Breadth: 2 hulls @ 15.5m x 3m
Air Draft: Port Hull: 3.97m / S'board Hull 2.89m
Transport Weight: Port Hull: 25t / S'board Hull 23t

With all equipment loaded onto the vessel, Kaymacs site team will board the vessel and travel to site. The vessel will then be positioned on a falling tide directly adjacent to the outlet, minimising the distance the plant and equipment need to travel to the works area. Navi mats will be placed only if the dynamic risk assessment deems them a requirement to be used to enable operative access to the outfall outlet, and the crane on the vessel will be used to place the mats.

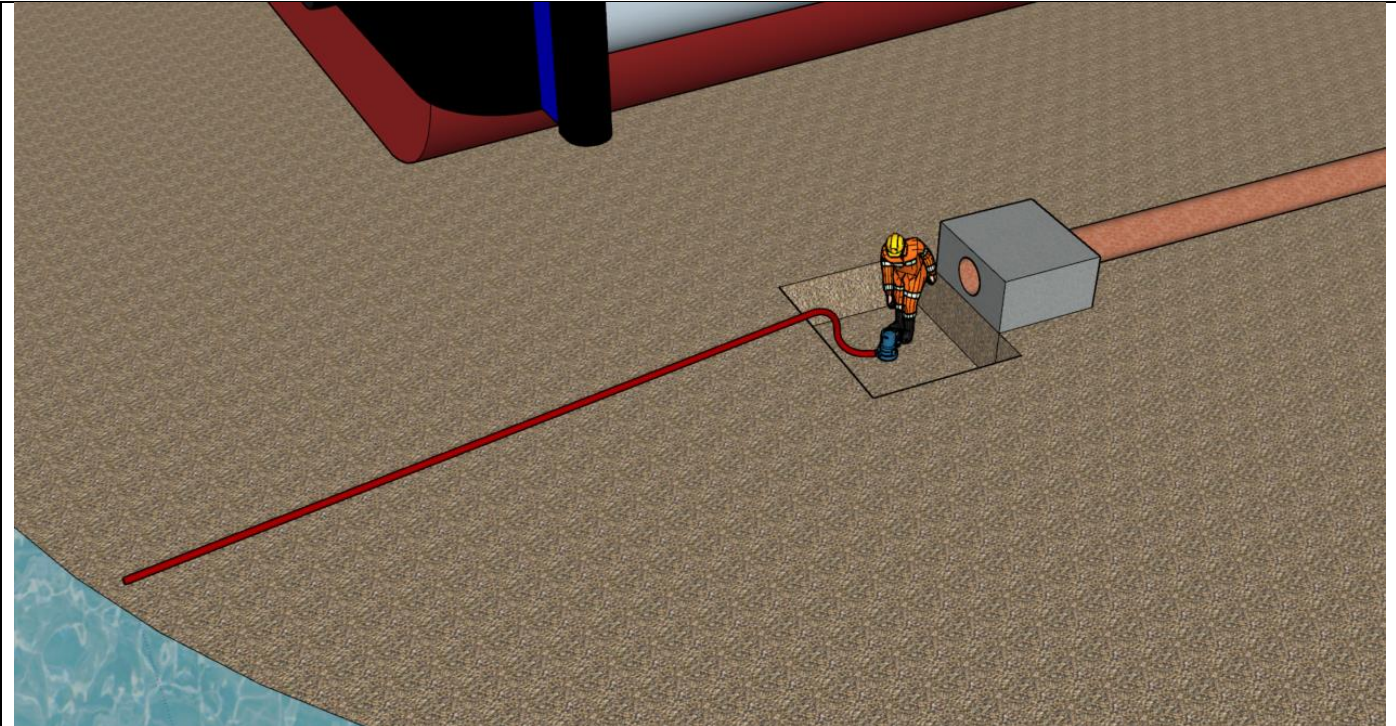


Plant and equipment mobilised to site with vessel landing in works area on falling tide – shown indicatively.

Once the flow rate through the outlet has reduced to below 25l/s, Kaymac operatives in divers drysuits will setup the hydrainer pumping equipment to create a sump at the outlet, with the discharge hoses setup to remove the material approximately 20m away offshore.



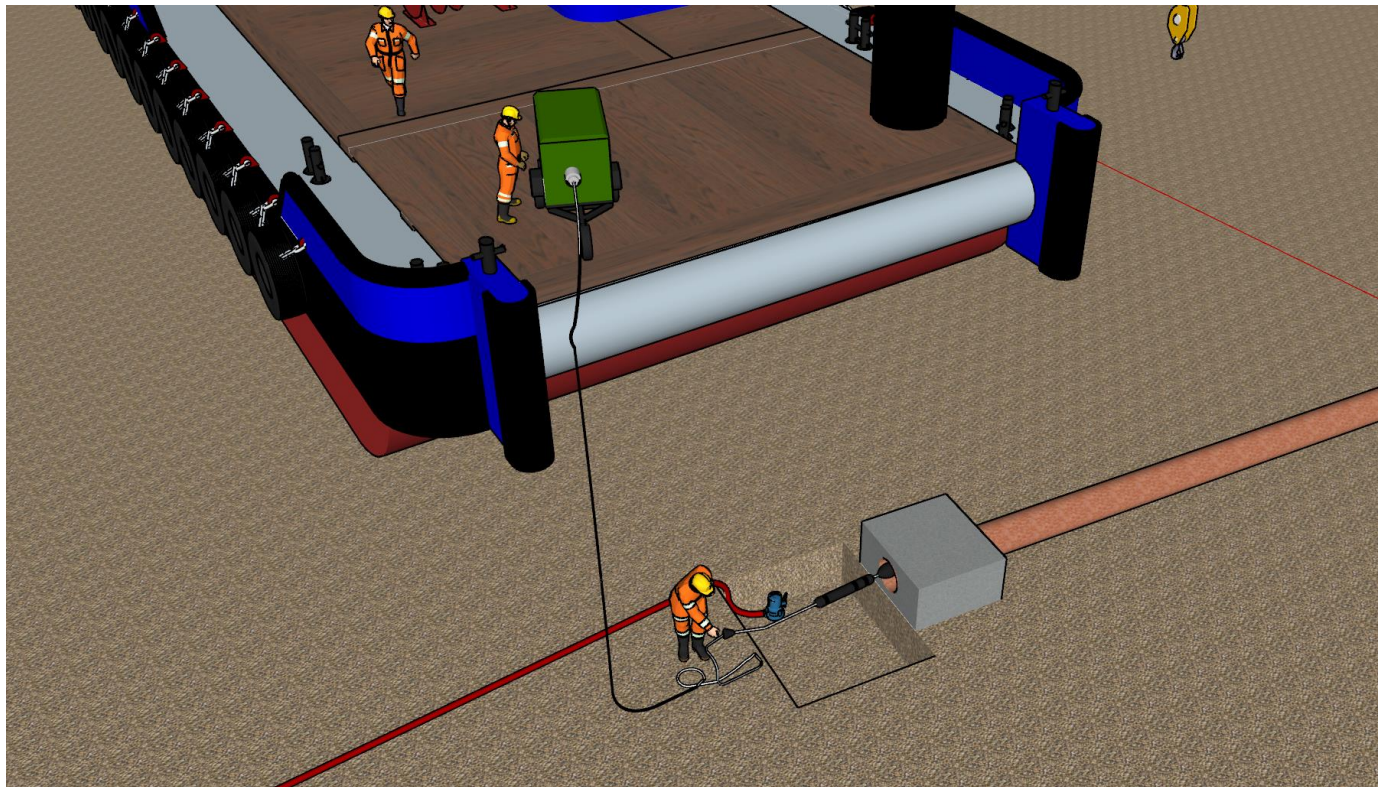
Sump created and Hydrainer pump installed – shown indicatively.



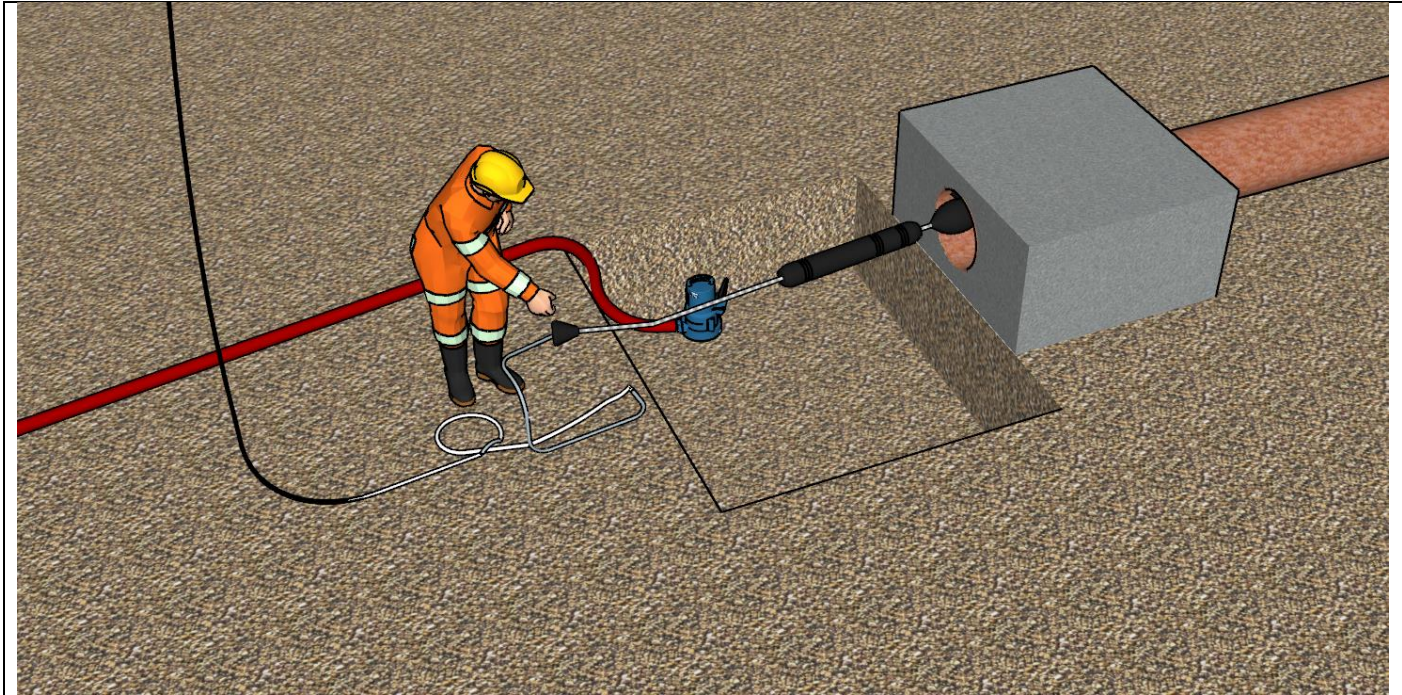
Discharge hoses setup to remove material away from sump – shown indicatively.

During this time, a detailed survey of the outlet will be undertaken to obtain dimensions of the pipe (diameters, wall thicknesses, concrete surround etc.) which will enable a suitable tideflex valve to be ordered.

Once a sump has been created, Kaymacs site team will setup the superjet jetting equipment and clean the line from the outlet up to the onshore side. This process will be repeated over several tides until the pipeline is clear, note however that the current condition of the outfall is unknown, and therefore any damage cause by the jetting equipment cannot be accounted for. DCWW is also to confirm the maximum allowable pressure within the pipe to enable the most suitable jetting equipment to be used. *Note that the water bowsers will remain on the vessel at all times.*



Superjet equipment setup in works area – shown indicatively.



Pipe cleaning procedure repeated multiple times until pipe is sufficiently clean – shown indicatively.

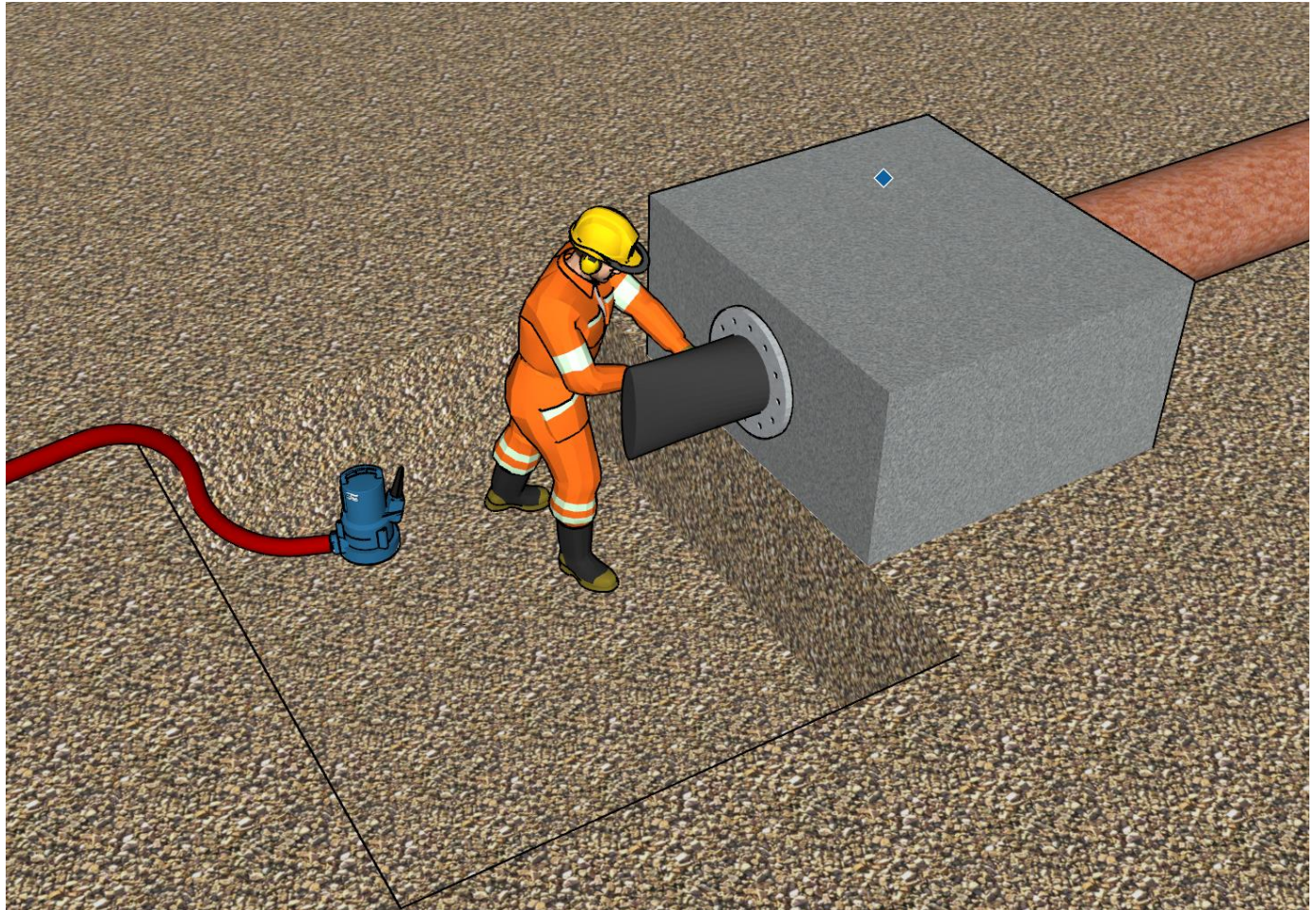
Once the full pipeline has been effectively cleared, a CCTV survey will be undertaken from the onshore manhole to the offshore outlet to confirm no more cleaning is required.



CCTV survey of pipe undertaken similar to previous survey shown here, from onshore chamber working offshore.

On approval from the Client, Kaymacs site team will commence installation of the new tideflex valve to the outlet. This will consist of cutting back the end of the pipe so that it is flush with the existing concrete and cleaning the existing concrete of any obstructive material.

Handheld drills will then be used to create holes in preparation for the new M16 fixings. Hilti resin will then be installed within the holes, the tideflex valve lifted into position, and the M16 fixings installed to an embedment depth of approx. 100mm, ensuring a tight fit between the tideflex valve and existing concrete.



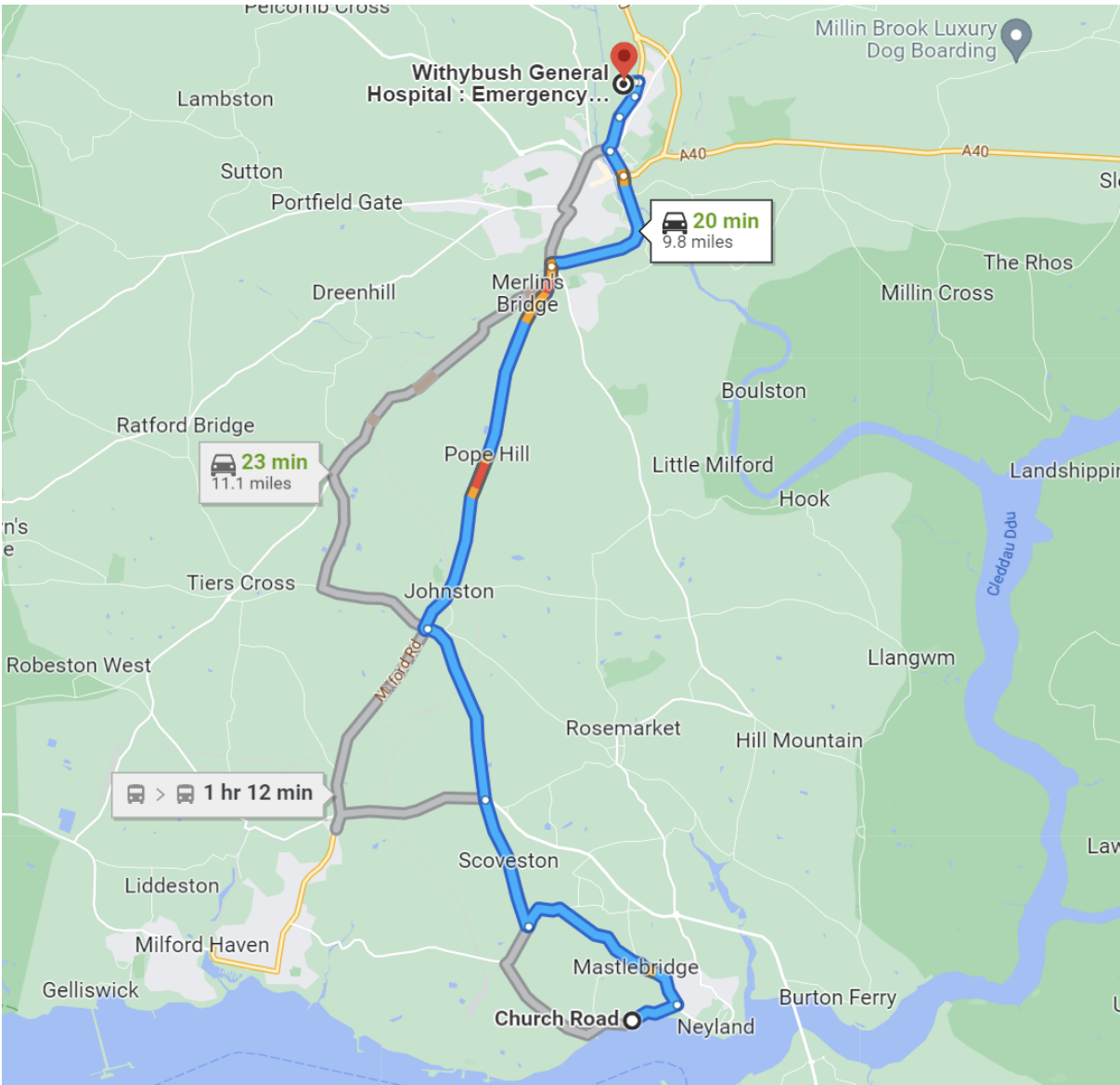
New tideflex valve installed to end of existing pipe – shown indicatively.

Site Clearance and Demobilisation

Upon completion of the works any further reinstatement required will be carried out in agreement with the Client.

A litter sweep will be conducted at the site, removing any debris arising from the works.

Following this, the site will be fully demobilised of plant, materials, and personnel.

Section 7.0	Emergency Procedure
7.1	Local Hospital
The nearest hospital with a 24-hour accident and emergency unit has been identified as the Withybush General Hospital. Transfer time by road is approx. 20 minutes (distance: 9.8 miles).	
7.2	Hospital Location Maps
	
7.3	Action on Minor Injuries
Administer First Aid on site. From here the company vehicle will transport the injured person to the local casualty department at the above hospital. A record of the accident is to be entered with all details in the Company Accident Book and notify the client's responsible person.	
7.4	Action on Major Injuries
Administer First Aid on site, and then contact the emergency services requesting an ambulance to the site address (see Section 2.0 of this document), quoting the what3words location identified above (///marshes.distorts.repeats) as the access point to site. A record of the accident is to be entered with all details in the Company Accident Book, and notify the client's responsible person. Kaymac Site Manager or his deputy will record on the accident on Kaymac Accident & Incident Report form QPF11 and pass on Kaymac Health and Safety manager who will ensure H.S.E. is informed by way of form F2508.	
7.5	Emergency Evacuation Procedure
In the event of an accident or incident at the worksite, the following Emergency Evacuation Procedure will be followed; • Administer immediate First Aid on site; • All personnel to assist casualty from worksite to the either the Pembroke Dock compound area, multicat vessel, or Church Road (whichever is most suitable) if it is deemed safe to do so by a trained first aider following assessment;	

	otherwise make the area safe and the casualty comfortable and monitor until the arrival of the emergency services if necessary. If the area becomes unsafe, for example, rising water levels, the casualty will need to be removed to a position of safety. All personnel will assist in transferring the casualty under the direction of the first aider.
7.6	Reporting Accidents, Work Related Diseases and Dangerous Occurrences
	<u>Reporting Procedures</u> The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) require that certain accidents that happen on site must be reported to the Health and Safety Executive. Any of the following types of accidents that occur on site have to be reported in the first instance to the company Safety Officer or Safety Manager who will then notify the H. S. E. <u>Fatal or Specified Injuries</u> Fatal or Specified Injuries (see www.hse.gov.uk/riddor/specified-injuries.htm for further details) should be reported by completing the appropriate form at www.hse.gov.uk/riddor/report.htm as soon as possible or by telephone by calling the Incident Contact Centre on 0345 300 9923 (Monday to Friday 08.30 to 17:00). A report must be received within 10 days of the incident. The list of 'specified injuries' in RIDDOR 2013 (regulation 4) are: - fractures, other than to fingers, thumbs, and toes - amputations - any injury likely to lead to permanent loss of sight or reduction in sight - any crush injury to the head or torso causing damage to the brain or internal organs - serious burns (including scalding) which: - covers more than 10% of the body - causes significant damage to the eyes, respiratory system or other vital organs - any scalping requiring hospital treatment - any loss of consciousness caused by head injury or asphyxia - any other injury arising from working in an enclosed space which: - leads to hypothermia or heat-induced illness requires resuscitation or admittance to hospital for more than 24 hours <u>Over-Seven-Day Incapacitation of a Worker</u> Accidents must be reported where they result in an employee or self-employed person being away from work, or unable to perform their normal work duties, for more than seven consecutive days as the result of their injury. This seven-day period does not include the day of the accident, but does include weekends and rest days. The report must be made within 15 days of the accident. <u>Over-Three-Day Incapacitation</u> Accidents must be recorded, but not reported where they result in a worker being incapacitated for more than three consecutive days. <u>Non-Fatal Accidents to Non-Workers (E.G. Members of The Public)</u> Accidents to members of the public or others who are not at work must be reported if they result in an injury and the person is taken directly from the scene of the accident to hospital for treatment to that injury. Examinations and diagnostic tests do not constitute 'treatment' in such circumstances. A report must be received within 10 days of the incident. <u>Dangerous Occurrence</u> Any Dangerous Occurrence should be reported as soon as possible at www.hse.gov.uk/riddor/report.htm by completing the appropriate form. A report must be received within 10 days of the incident. <u>Occupational Disease</u> An occupational disease should be reported as soon as possible at www.hse.gov.uk/riddor/report.htm by completing the appropriate form. A report must be received within 10 days of the incident. <u>Keeping Records</u> A record must be kept of any reportable injury, disease, or dangerous occurrence. This must include the date and method of reporting; the date, time and place of the event, personal details of those involved and a brief description of the nature of the event or disease. The record can be kept in any form preferred, but each site is supplied with a copy of the Accident Book BI 510 issued by the HSE, and this is the company's preferred method of keeping such records.

Section 8.0			RISK ASSESSMENT RECORD											Page 1 of 3	
HARM	RISK CALCULATION MATRIX						GUIDE BOX				RISK RATING, REVIEW AND ACTION REQUIREMENTS				
	5	5	10	15	20	25		CATEGORY	HARM	LIKELIHOOD	RISK RATING	Risk rating obtained at intersection of harm and likelihood in Calculation Matrix			
	4	4	8	12	16	20		1	NON-INJURY	ALMOST IMPOSSIBLE		Review period	Action		
	3	3	6	9	12	15		2	FIRST AID	UNLIKELY	1-4	12 months	No further immediate action. Review annually.		
	2	2	4	6	8	10		3	< 7 DAYS	POSSIBLE	5-9	6 months	No further immediate action. Re-assess during next review.		
	1	1	2	3	4	5		4	> 7 DAYS	LIKELY	10-16	3 months	Reduce risk and re-assess within review period.		
		1	2	3	4	5		5	MAJOR INJURY	ALMOST CERTAIN	17-25	Immediate	Stop-reduce risks/mitigate effects, re-assess immediately.		
	LIKELIHOOD														
Hazard Identified		Persons at Risk		Risk		Initial Risk Rating		Controls in Place			Residual Risk Rating		Actions to Further Reduce Risk		
Increase in outlet flow		Kaymac Site Operatives/ Murlac Site Operatives		Increased risk of drowning or injury.		12		DCWW to ensure the flows are limited during the working windows in place			3		Work will stop if flow rates increase above 25l/s, creating hazardous conditions.		
Working in restricted area with heavy plant items		Kaymac Site Operatives		Plant striking personnel when moving around works area resulting in severe injuries or even fatalities		25		All plant will consist of a trained and competent operator and banksman. The banksman will position their self in an area where they are out of the radius of the plant when working, and clearly visible to the operator.			4		Plant operators will be CPCS qualified and competent for the plant they are operating. High visibility PPE will be worn when working at all times.		

Use of lifting equipment while delivering equipment, plant or materials to site.	Kaymac Site Operatives crane arm operator	Persons being crushed by falling or moving loads resulting in severe injuries or even fatality.	10	Lift plan for the lifting operation provided by the hire/delivery company, lift plan to be briefed to all persons involved in the lifting operations. Crane arm operator's CPCS card to be checked and a copy made. Certificate of thorough examination for crane arm checked, certificates for lifting chains and slings checked, copies taken of both documents. Tag lines to be fitted to load when lifting. Personnel to stay clear of the crane and load during lifting operations, footpath will be marshalled at all times by Kaymac personnel. Tag lines will be used to control loads.	3	Designated unloading area for plant, equipment, and materials to be established by principal contractor segregated from pedestrian access.
Manual Handling; back injuries.	Kaymac Site Operatives/ Murlac Site Operatives	Musculoskeletal injuries.	9	Wherever possible, mechanical lifting should be used for lifting loads. If manual lifting is necessary, carry out a Manual Handling Assessment where necessary, use kinetic lifting techniques, share the load if possible; ensure ground is level and stable.	3	
Falling from level/ height into water.	Kaymac Site Operatives/ Murlac Site Operatives	Drowning; hypothermia, ingestion of contaminated water	10	Personnel to use designated walkways where possible to the works area. If necessary, temporary handrails will be erected to facilitate access.	4	Lifejackets to be worn on vessel.
Working in/around non-potable water.	Kaymac Site Operatives. Other Site Operatives	Working in area with high possibility of water borne infections including Leptospirosis.	20	Cover any cuts or abrasions with waterproof dressing prior to work. Wear gloves! Wash and disinfect hands prior to eating or drinking; report any injuries immediately to site management. Kaymac guidance notes on Leptospirosis to be available to personnel.	5	
Working in/around water	Kaymac Site Operatives. Murlac Site Operatives	Operatives losing their footing; being swept downstream/impact injuries, hypothermia, ingestion of water/drowning	15	Operatives working in the water will wear diver's dry suits, which have insulation and flotation properties.	4	
Hazardous Substances.	Kaymac Site Operatives	Acute injuries to eyes, lungs skin; chronic illnesses from use of hazardous substances.	10	COSHH assessments will be provided to all employees working with hazardous substances; the appropriate PPE will be used when handling and using hazardous substances, adequate site storage will be provided, training in use will be given, safety data sheets will accompany COSHH assessments for the relevant substance.	4	

Noise; use of noisy plant or tools	Kaymac Site Operatives	Work induced hearing loss.	7	Identify noise hazards and chose plant and equipment with low decibel outputs where possible; estimate likely exposure to noise and ensure legal limits on noise exposure are not exceeded; establish zones where hearing protection is required at 85dB and provide mandatory appropriate PPE for operatives; provide noise reduction screens to protect other site personnel if required.	3	
Dust; some activities may generate dust, such as drilling into concrete, mixing cementitious compounds etc.	Kaymac Site Operatives	Breathing in dust could lead to respiratory illness.	5	Identify processes that may produce dust, use of dust suppression techniques, for example, water spray on circular saws or when drilling into concrete. Use appropriate PPE when mixing products that come in powder form, such as cement-based mortars; these would include dust mask/respirator, goggles and overalls to protect arms and body from cement burns, these should be washed to remove residual dust.	3	
Slips, trip or falls.	Kaymac Site Operatives	Musculoskeletal injuries.	10	All personnel will use the designated access arrangements, which will be highlighted in the site briefing. Appropriate footwear to be worn. Be aware that riverbanks will be slippery following rain. Remove any trip hazards and clear up any spills.	4	
Other contractors working on site; conflicting operations resulting in risks to all parties.	Kaymac Site Operatives. Other Site Operatives.	Various injuries	5	The Kaymac Site Manager and client's Site Manager will coordinate the works in such a way as to avoid overlapping operations between different contractors on site.	2	
Vehicles accessing site (deliveries etc).	Kaymac Site Operatives/ members of public	Possible injuries to personnel being struck by vehicle.	9	A Banksman will oversee vehicles accessing and leaving site. Site marshals will be used while vehicles off load to avoid conflict or injury to the public using the footpath.	3	
Use of electrical equipment.	Kaymac Site Operatives	Electrical shock/burns, heart attack, risk of fire.	12	Personnel to be trained and competent in the use of electrical equipment; 110v equipment only to be used for work on site (apart from welding); equipment to be checked daily by supervisor and result entered onto PUWER check sheet; operators to carry out visual checks on electrical equipment prior to each use.	5	
Use of drilling equipment.	Kaymac Site Operatives	Cuts to hands/arms, eye injuries as a result of ejected materials.	10	Personnel to be trained and competent in the use of such equipment; checks to be carried out by operator prior to each use, including correct selection and fitting of drill bits; wear appropriate PPE for the task including gloves and goggles.	4	

Use of circular saws, angle grinders.	Kaymac Site Operatives	Cuts to hands/arms, eye injuries as a result of ejected materials.	10	Personnel to be trained and competent in the use of such equipment; checks to be carried out by operator prior to each use, including condition and correct selection of blade type; wear appropriate PPE for the task including gloves and goggles/face mask; cut so sparks are not ejected onto other personnel or possible sources of ignition; erect barriers to prevent sparks or ejected materials from cutting process crossing into other contractors work areas.	5	
Working with vibrating equipment.	Kaymac Site Operatives	Hand/Arm Vibration Syndrome-nerve or circulatory damage to hands and/or fingers.	6	The lowest vibration tool that is suitable and can do the work efficiently will be selected. The use of high-vibration tools wherever possible will be strictly limited and controlled. The exposure limit for the equipment should be obtained and this should not be exceeded. The use of good quality gloves will be used to encourage good blood circulation which should help protect operatives from developing vibration white finger, but these should not be relied upon to provide protection from vibration.	3	
Diving Operations	Kaymac Site Operatives	Diving Risks	12	No diving operations to be undertaken, all works to be undertaken around low spring tidal periods with the multicat vessel landing adjacent to the works on the falling tide. Any works in the wet environment will be undertaken by operatives in diver dry suits where applicable.	5	
Environmental Hazard – spillage from re-fuelling operations	Environmental Risk	Contamination of the environment	4	Comprehensive spill kits to be provided along with training in its deployment. Refuelling operations ONLY to take place over supplied drip-trays.	2	
Working at height	Kaymac site operatives	Falling from height	10	Use of ladders to be minimised.	4	

[illegible]