

Other Documents:

ST David Specific Training Tug008

TBT008

RS STD008

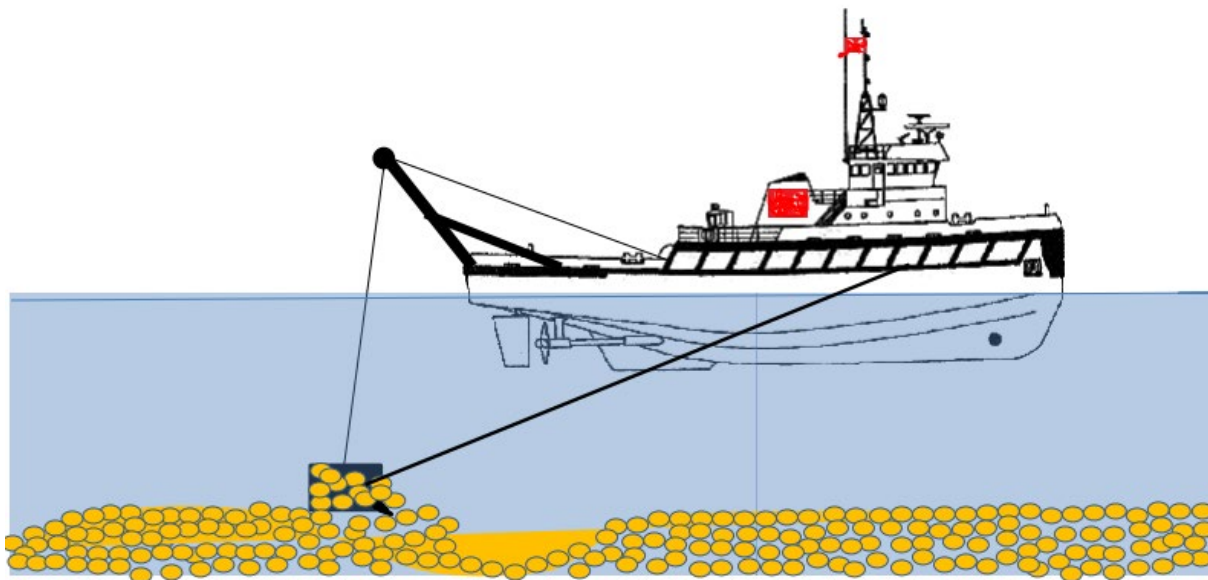
STENA LINE PORTS LIMITED

Seabed levelling is a dredging technique used in many ports and harbours. A plough is towed behind a tug along the seabed levelling high spots and ridges, moving the material to nearby low spots. Also built up material can be removed from berths and other inaccessible areas into the tidal stream or operating area of a trailer suction dredger. Material is relocated from one place to another along the seabed and the sediment is not raised from the surface of the water.

The plough is fitted with teeth to cut into the seabed material and is very efficient in moving material over short distances. The shorter the distance, the quicker the turn round time, the more material is removed per tide. Types of material that can be moved by seabed levelling are clay, sand, silt and gravel. The more cohesive the material the more power the tug will need to relocate it.

Ploughing will level shoaling areas. Sediment can be relocated from inaccessible and confined places to deeper areas prior to maintenance dredging. The plough has proven itself as an efficient dredging tool, cutting the amount of tides a trailer suction dredger is required.

Bed levelling alongside a trailer suction hopper dredger improves the efficiency of the dredger. The peaks the hopper dredger produces can be levelled; this ensures that the draghead is always fully in the bed material.



The St David is capable of being fitted with an A Frame to enable her to carry out seabed levelling with a plough. This vessel is fitted with deck brackets and pad eyes to enable the fitting of the A Frame and associated solid and wire stays and chains.

Prior to commencing the fitting of the A Frame and stays please refer to Risk Assessment RA STD008 'Fitting and Operating A Frame and Plough'.

Ensure required PPE is worn (Hard hats, Safety boots, overalls, Work gloves)

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Visually inspect all items of ploughing equipment prior to lifting and fitting.

A Frame, stays, wires, deck fittings.

- Check to ensure that all welds and joints are intact and that no cracks are apparent in the A Frame or stays.
- Check to ensure the A Frame body and stays are not twisted or bent, no significant dents, no cracks or split in the A Frame or stay tubes.
- Check A Frame and stay deck brackets for security, no cracks or bends in the brackets, securing pins in place with split pins/mousing wire.
- Check wires to ensure no damage, broken strands, serious corrosion.
- Check wires to ensure all ferrules/sleeves are swaged correctly and secure, no cracks.
- Ensure all thimbles are secure within the wire eyes and are not cracked, have not suffered excessive distortion or damage.
- Check shackles for damage or serious corrosion.
- Check any Sheave blocks to be used for damage or serious corrosion.

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Examples of Brackets and pins used with St David A Frame equipment

Plough, Towing wires and chains, Tow chain cheeks

- Check plough for bent framework or internal support bracing, broken welds, bent/missing teeth, damaged shackle suspension lugs.
 - Check wires to ensure no damage, broken strands, excessive corrosion.
 - Check wires to ensure all ferrules/sleeves are swaged correctly and secure, no cracks.
 - Check chains for damage, bends, serious corrosion.
 - Check shackles for damage or serious corrosion. Ensure they have a certificate and are in date for their inspections.
 - Check Tow chain cheeks for damage, deformation, serious corrosion.
- *INSERT PICTURES*

Examples of a type of plough and Tow chain cheek in use on St David

Plough Suspension chains

- Check chains for damage, bends, serious corrosion.
- Ensure safe working load is sufficient.
- Check shackles/Hammerlocks for damage or serious corrosion.

INSERT PICTURES

4 leg chain sling connected to plough suspension lugs

Lifting and rigging A Frame and Plough

***Ensure that any 3rd party (shore) crane to be used to assist in fitting the A Frame and Plough:**

- Is in a safe condition to be used. This should also include any lifting gear. (If 3rd party crane is used then their lifting equipment is to be used)
- Has a Safe Working Load sufficient to enable it to lift the equipment safely. This should also include any lifting gear.
- Is operated by a qualified, competent person.

Ensure required PPE is worn (Hard hats, Safety boots, overalls, Work gloves)

- Ensure vessel is secure alongside.
- Ensure Lift is planned and all taking part understand procedure and safety requirements. (Refer to Risk Assessment RA 7 Lifting Operations)

- Remove Sea Fastenings for any equipment transported on deck.
- Check condition of Plough and A Frame to ensure safe to lift.
- Ensure banksman appointed to control lift.
- Connect crane to A Frame.
- Ensure Weight of A Frame is kept supported by the crane while attachments to the deck are being made. (Fore and Aft Stays)
- Run wire over A Frame. (route wire through block 1st)
- Connect crane to plough.
- Ensure weight of plough is kept supported by the crane while the wire is connected.
- Take up tension in wire to take the weight of the plough.
- Disconnect the crane from the plough.
- Attach Tow chains and wires.

Ploughing Operation

- Ascertain the area required to be ploughed and any obstructions/areas to be avoided. Communicate with the Surveyor.
- Carry out Toolbox talk with all taking part.
- Depth of water to be ploughed will be predetermined and the towing chains/wires set to the required length for the depth.
- Tugger wire and any other lashings to be disconnected.
- All crew to stay clear of the deck during ploughing operations.
- Lift wire can be marked with paint or tape to indicate the increments required during ploughing.
- Plough lowered to the designated depth using the calibration on the lifting wire.
- Lift wire is lowered per increment, per pass along ploughing area.
- Use a reference point on the A Frame to monitor the increments being lowered or raised.
- The vessel will proceed over the dredging area at the slowest speed to maintain headway. RPM will be increased as the plough meets resistance.

- Any turns will be made as slowly as possible and during the turn the weight on the lifting wire and the angle of heel will be monitored closely. If necessary the engines will be stopped and the plough lifted when directly under the A frame roller until vessel is in position for another run.
- Pay close attention to shackles and mousing wires to ensure nothing comes loose.
- If ploughing heavier material raise the plough every 2 or 3 runs to check if the plough is clogged with clay or packed with stones.
- If the plough contacts a solid obstruction the engines should be stopped and the plough lifted to the surface and checked for damage.
- Should there be any suspicious object in the plough that could be an unexploded munition all operations must cease and the appropriate authorities contacted. The vessel shall not proceed back to her berth and no attempt should be made to displace the object.
- When raising the plough softer material can be washed off by allowing the plough to hang in the vessels wake while under way.
- Take care when raising the plough when the vessel is under way. If the speed of the vessel is cut dramatically there is a danger of the plough swinging into the stern or the rudders of the vessel.
- Take care when turning with the plough raised as the plough may lift to one side and swing into the stern of the vessel causing damage, it is also possible to impart a spin onto the plough with the possibility of causing damage to the vessel or the ploughing equipment.
- Visually check the plough, A Frame, stays, Shackles, Tow chains, wire spelter sockets every morning before commencing ploughing.
- Ensure that the wire socket is not pulled onto the roller as this will crush the socket or damage the wire.

De rigging, lowering/removing A Frame and plough

***Ensure that any 3rd party (shore) crane to be used to assist in fitting the A Frame and Plough:**

- Is in a safe condition to be used. This should also include any lifting gear. (If 3rd party crane is used then their lifting equipment is to be used)
- Has a Safe Working Load sufficient to enable it to lift the equipment safely. This should also include any lifting gear.
- Is operated by a qualified, competent person.

Ensure required PPE is worn (Hard hats, Safety boots, overalls, Work gloves)

- Ensure vessel is secure alongside.
- Ensure Lift is planned and all taking part understand procedure and safety requirements. (Refer to Risk Assessment RA SRD 008 Lifting Operations)
- Disconnect Tow chains and wires.
- Connect crane to the plough.
- Take weight of the plough with shore crane.
- Release the tension on the wire.
- Disconnect plough from A Frame.
- Connect crane to A frame.
- Ensure Weight of A Frame is kept supported by the crane while attachments to the deck are disconnected and Fore and Aft stays removed. (remove Sheave block)
- Lower A Frame to deck/Remove if required.
- Stow Plough and Sea Fasten A Frame and plough to ensure secure for passage.

Sea Fastening A Frame and plough in preparation for passaging.

***Ensure that any 3rd party (shore) crane to be used to assist in lifting the A Frame and Plough:**

- Is in a safe condition to be used. This should also include any lifting gear. (If 3rd party crane is used then their lifting equipment is to be used)
- Has a Safe Working Load sufficient to enable it to lift the equipment safely. This should also include any lifting gear.
- Is operated by a qualified, competent person.

Ensure required PPE is worn (Hard hats, Safety boots, overalls, Work gloves)

- Stow plough on deck with teeth uppermost. (Plough will not sit level with teeth on deck and there is a risk of damage to the deck)
- Rest plough on wooden battens.
- Use ratchet straps to attach to heavy duty fixed points. (Crucifix, bollards, stanchions)
- If possible lower A Frame onto plough and secure with wire running over the A Frame to a fixed point, take tension up on wire to prevent movement of A Frame and plough.
- If Passaging with A Frame lowered onto deck rest A Frame on wooden battens and secure with wire running over the A Frame to a fixed point, take tension up on wire to prevent

movement of A Frame.

- Ensure equipment does not prevent access to any of the vessels safety equipment or fire fighting equipment, or impede access to any of the vessel entrances/exits.

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