Brightlingsea Harbour Pilots

Report and Risk Assessment into the Proposed Extension of Morgan Marine

PREAMBLE

The Brightlingsea Pilot Corps consists of one retired experienced Master living locally and two Class 1 Unrestricted Pilots from other Districts (Harwich & London). The Pilots are not direct employees of Brightlingsea Harbour Commissioners (BHC) but are ostensibly self-employed, being Authorised by BHC with BHC acting as Agents for allocation and payment.

The Pilots are not affiliated in any way to Morgan Marine or any competitor yard, as it is outside our scope of representing commercial interest. We therefore hold that this report is independent, objective and is concerned only with navigational safety for commercial vessels operating in Brightlingsea Creek. In many respects we can see the advantages of developing and upgrading the facilities at Morgans Marine and would offer our support for this as long as such development does not compromise navigational safety or freedoms.

Whilst not statutory consultees for the Tendring District Council Permanent Planning Application, the Pilots would like to draw attention to the requirement that navigation in the Creek for all vessels is required to be Risk Assessed by BHC for the proposed situation after the development. We would point out that the basic tenet of Risk Assessment is that it is completed by persons experienced in undertaking the task. We would – with respect – point out that no Commissioner or Harbourmaster has any commercial Command experience, commercial ship handling experience nor has ever undertaken Conduct of a Pilotage Act within Brightlingsea Creek. Therefore the Pilots hold that should BHC's Risk Assessment differ from the one presented, we will exercise the right to submit this report independently to the Marine Management Organisation as part of the licensing process, to allow consideration by the Maritime and Coastguard Agency as Statutory Consultees on navigational safety.

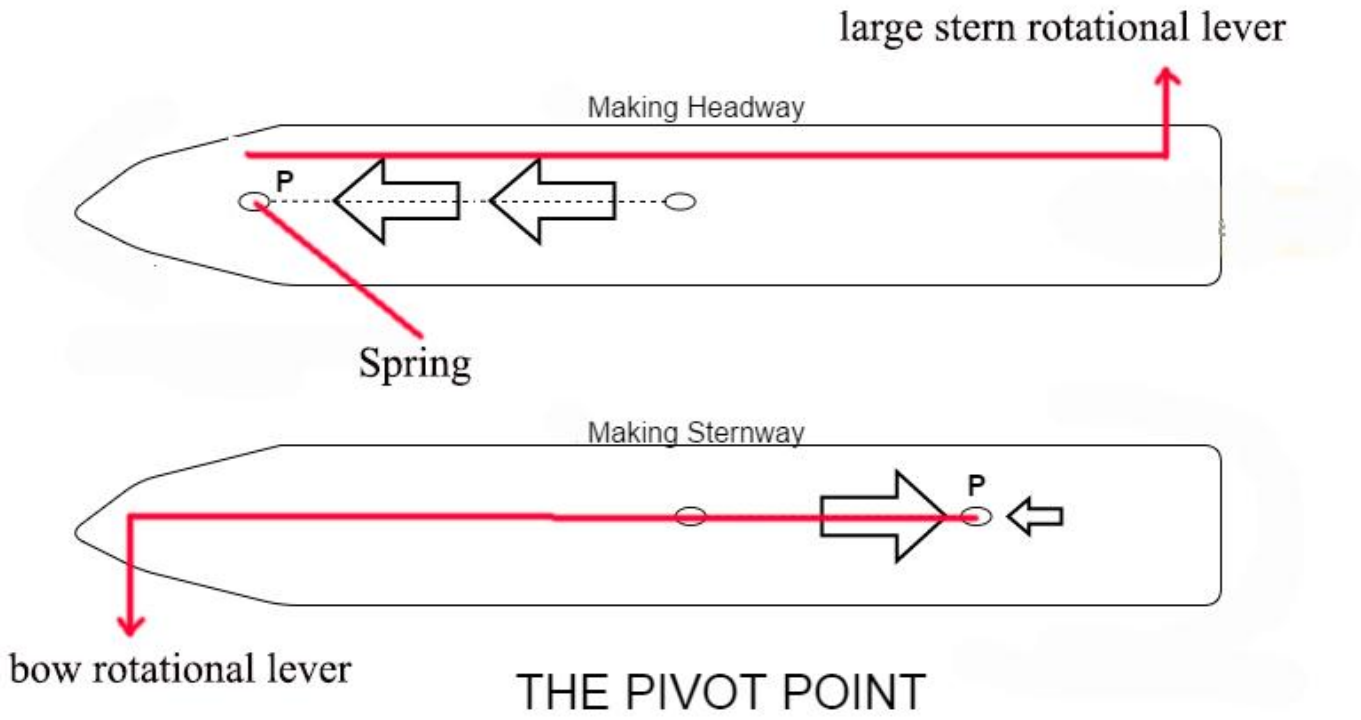
The Pilots recognise that Brightlingsea is a unique harbour with many different maritime sectors represented in a small area, the key to the current good relations is good communication, therefore we will make this report publically available to the wider harbour community, Tendering District Council, the management of Oliver's Wharf, as well as to BHC.

METHODOLOGY

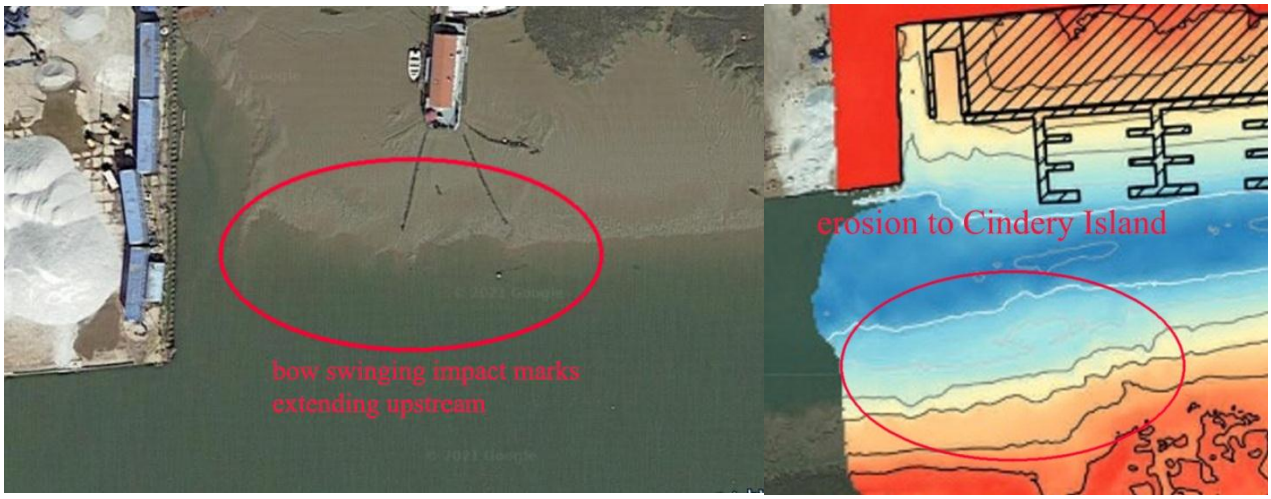
In this report we will firstly examine what happens with regard to Commercial Vessel movements with Brightlingsea Creek currently, the science behind why that happens and the navigational options available to us as Pilots. We will then examine the impact of the new proposed infrastructure and finally Risk Assess that impact before drawing conclusions. Evidence for our assertions will be presented where available and we will concentrate on swinging the vessel and contingencies, as these are the two areas of Pilotage affected by the proposed development. We'll not waste time by dwelling on observational evidence of perfect swings achieved in perfect environmental conditions, by daylight, with the current infrastructure. We have looked to apply science (tempered with experience on parameters), so what happens with the new must be the priority.

THE CURRENT SWING

At the time of writing the procedure as outlined in the Pilotage Directions, is that vessels of up to 105m can be swung upstream of Oliver's Wharf in the 'gut' area. Prior to commencing the swinging manoeuvre, a bow spring line is run to the corner of the jetty to achieve two aims. Firstly to force the bow of the vessel into the gut (a gut is an area of deeper water) so increasing the area of deeper water available for the swing, secondly to force the pivot point of the vessel rotation to act at the stem of the vessel, so achieving the maximum rotational lever for the stern from the flood tide and engine movements. As the vessel head comes into the tide, it will begin to drop astern and upstream, so the vessels pivot point moves aft allowing the swing to be completed by maximising the rotational lever of the bowthrust and minimising the stern movement towards the current moorings at Morgan Marine. This allows what is currently a safe distance to work the engines ahead without danger to boats and their crews on these moorings. In addition the Pilot Boat will manage traffic through this swing and use the upstream area as a 'holding area' for leisure traffic.



This is a perfect manoeuvre, in practice this is achieved only 50% of the time. Due to a number of factors, either ship characteristics, environmental conditions or a combination thereof; it is not achievable to get the vessels bow to swing in the gut. Generally the vessels transfer (sideways movement) is greater than the advance (ahead movement) and instead the bow will make contact with the mudbank upstream of the gut. This is not an issue with the current infrastructure at Morgan Marine, a grounded bow will have the same effect as a spring to the shore with regards to the Pivot Point and as can be clearly seen from the Bathymetry, the swinging has eroded Cindery Island slightly to enlarge the available safe swinging area.



CURRENT ABORT OPTIONS AVAILABLE

Before going any further, the following paragraph must be read in the context that BHC does not have any salvage or towage capacity or expertise beyond the Pilot body, therefore in the event of an onboard vessel systems failure, incapacitating propulsion or steering, the earliest opportunity to effect remedial action would be the following high water, with assistance from assets from either Harwich or London.

In the event of the vessel being unable to stop off the wharf for whatever reason (most likely failure to start engines astern), it is the currently accepted contingency to continue to 'The Folly' and swing there before returning to Oliver's Wharf, if possible. Proceeding to the Folly allows the vessel to have a second chance of safely turning or turning with no fear of contacting property or grounding without contacting property on soft mud. This has happened only once but it is not unforeseeable that it will happen again.

In the event of onboard system failure during the swing or shortly afterwards, the vessel cannot be held head to tide by the spring acting as headline…it will break in short order. Therefore the vessel must run an anchor to replace this and prepare to take ground if the failure cannot be rectified in a timely manner.

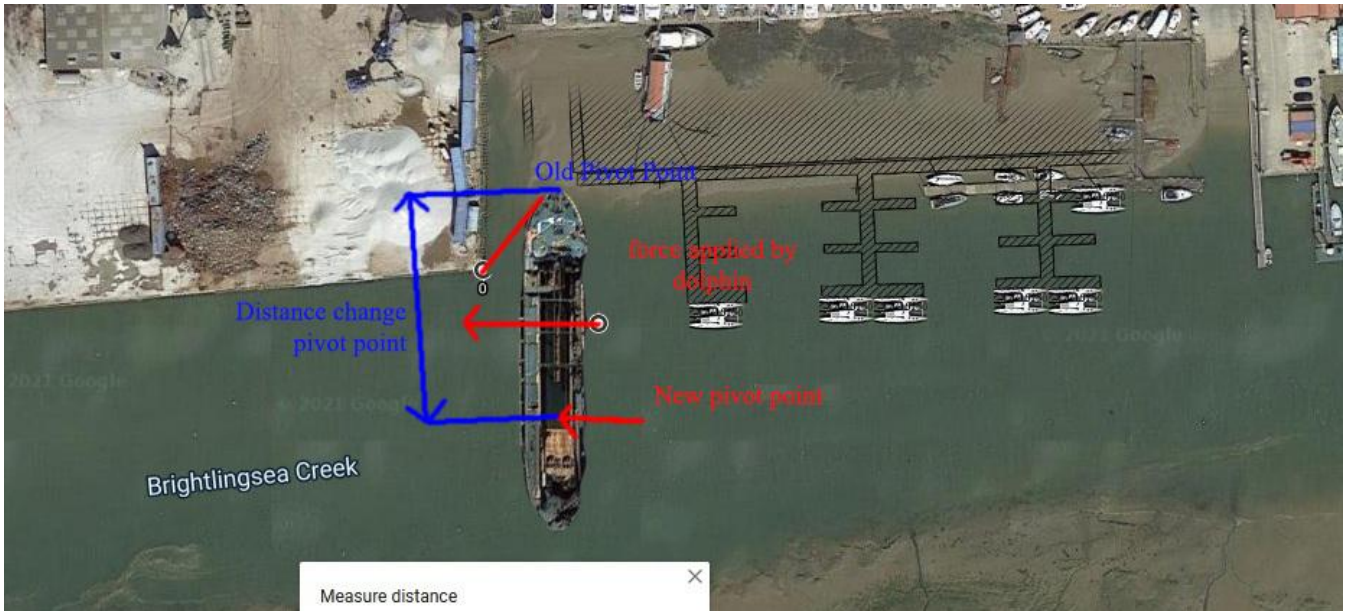
Therefore Brightlingsea Creek can be regarded as per the following diagram with the safety envelope zone measured as for a 105m length vessel and assuming one shackle of anchor cable laid out, length overall 132m, from the upstream bow impact mark. An uncontrolled vessel will also yaw, so we have assumed with a typical beam of 12m, the yawing envelope would be one beams width in addition to the half beam, i.e. width overall 36m. Note there is a General Direction that restricts crew remaining onboard vessel docked at the outer pontoon at Morgan's, the safety envelope calculated, reaffirms that wisdom.

SWING WITH NEW INFRASTRUCTURE

It is interesting to note that the planning application concentrates on a perfect swing, with a Dolphin located to avoid contact, so nullifying the need to consider modelling or simulation for considering the effect (and risk) of the new infrastructure to the swinging manoeuvre. As previously stated this is not guaranteed and with a calculated clearance of between 10.6 – 4.5m, it is inevitable that the Dolphin is going to be landed upon - on a regular basis.

Generally when a ship is required to swing in a tightly confined space, accepted berth design is to build a training arm, such as on the approaches to locks. A continuous face means that the impact force of a vessel is move evenly distributed, a series of dolphins can be substituted but this is sub-optimal as impact force is concentrated on very small areas leading to damage both to dolphins and vessels over time. As the number of dolphins reduces, so the likelihood of damage increases. **One dolphin is therefore the most questionable attempt to modify vessel behaviour during a swing. It is a fulcrum, not a barrier.**

As can be seen in the diagram below the dolphin sits offshore and in the middle of the current mudbank used for swinging as 'option B'. A vessel otherwise swinging well but swept slightly upstream will make contact with the dolphin, this force will move the Pivot Point instantly astern and fundamentally change the nature of the swing. Unless sternway is put on much earlier than normal the change to a greater arc of radius of the Bow could lead to it getting wedged into the jetty.



Headway cannot be put on until the vessel is head to (or almost) to tide and it is likely that stronger winds from a Western or Southerly quadrant would negate any use of bowthrust therefore leading to the following pictured scenario with the vessel still alongside the dolphin. It should also be considered that in a Southerly quadrant wind over 15 knots, the vessel would continue to rotate to Port as it 'seeks' the wind, this force being stronger than the creek tide. Even if life threatening contact could be avoided with the outer pontoons by lifting off the stern, the aggressiveness of the ahead engine movements to do so, would certainly cause damage anyway

If this wasn't bad enough a further, an even worse scenario must be considered…the trapped spring leading to a snubbed bow that cannot be released due to tension. As consideration of the distance of the upstream 'bow nibble' shows, it is not impossible for the vessel to commencing swinging with the bow to the East of the dolphin. Risk to Life, environment and property can be summed up in word…catastrophic.

ABORT OPTIONS WITH NEW INFRASTRUCTURE

By using the same parameters for emergency anchoring during and after the swing, we can see that the worst case anchor down position is well clear to the East of the dolphin, so this will not affect anchoring, however that is not true of the Western end of the development as shown by the following overlay. Anchoring would lead to catastrophic damage and therefore this abort option is now unavailable in emergency.

Access to the contingency point at the Folly can now be considered. A ‘swept path’ can be calculated for a vessel that is off course for many reasons, for yawing with a vessel that may be very difficult to control, windage or squat and interaction with the channel edges. For a typical length/breath ratio on a ship the calculation is defined as ‘*Sp = (beam+LOA) x sin α’* and assuming a vessel of 105 x 15 m with a yaw of 15 degrees, the swept envelope will be 31.05 m, more than double the beam! Even for a 90 x 12m vessel the envelope is 26.4m. From the submitted ‘Safe Navigation’ (sic) poster from Morgan Marine post-development.

With an available channel width of 20.4 (declared by Morgan) it is obvious that the Eastern development will block access to the Folly and this contingency will be unavailable.

Post development any commercial vessel that has entered Brightlingsea Creek and subsequently develops a problem, will have no abort, no contingency & no option, other than to cause injury and damage.

NAVIGATIONAL RISK ASSESSMENT, SWING AND ABORTS

The International Maritime Organisation outlines risk assessment thus:

1. What might go wrong? = identification of hazards (a list of all relevant accident scenarios with potential causes and outcomes)
2. How bad and how likely? = assessment of risks (evaluation of risk factors);
3. Can matters be improved? = risk control options (devising regulatory measures to control and reduce the identified risks)

Therefore we will Risk Assess using this methodology both before and after the proposed marina development.

SWING BEFORE DEVELOPMENT

Hazard	Uncontrolled Severity	Uncontrolled Likelyhood	Risk Factor	Control Measures	Controlled Severity	Controlled Likelyhood	Controlled Risk Factor
Overshooting Swing Area	High	Likely	High	Use of Upstream mud to swing Use of Folly	Nil	Likely	Low
Loss of machinery during swiing	High	Low	Moder ate	Anchoring Available No persons present on current Pontoon	Low	Low	Low
Proximity to moored vessels	Low	Low	Low	No moored vessel nearby			
Grounding	Moderate	Low	Low	Unencumbered Turning Circle with space to spare			
Proximity to vessels underway	High	Likely	High	Space available for Pilot boat to marshal upstream	High	Very Low	Low
Parting spring	High	Low	Moder ate	Anchoring Available No persons present on current Pontoon	Low	Low	Low

SWING AFTER DEVELOPMENT

Hazard	Uncontrolled Severity	Uncontrolled Likelyhood	Risk Factor	Control Measures	Controlled Severity	Controlled Likelyhood	Controlled Risk Factor
Overshooting Swing Area	High	Likely	High	Dolphin	High	Likely	High
Loss of machinery during swiing	High	Low	Moder ate	Dolphin	High	Low	Moderate
Proximity to moored vessels	High	High	High	Dolphin	High	High	High
Grounding	Moderate	Low	Low	Unknown as no manoeuvring modelling available			
Proximity to vessels underway	High	Likely	High	Restricted Space available for Pilot boat to marshal upstream	High	Low	Moderate
Parting spring	High	Low	Moder ate	Dolphin	High	Low	Moderate

CONCLUSIONS

It is hard to predict the anticipated behaviour of a commercial vessel swinging with the new dolphin without modelling or simulation, which would be the usual course of competent action taken by both planning proposer and SHA prior to submission/decision. However we have anticipated future movements to the best of our limited means and what is clear from our Risk Assessment is that the presence of the safety dolphin is not a sufficient mitigating factor for hazards arising at Brightlingsea for commercial vessels. **The reliance of Morgan Marine upon this feature at the cost of all the established abort/contingencies that have been established for decades is flawed, faulty and negligent**.

We would also remind BHC of their liabilities under the 1987 Pilotage Act, as individuals we are only liable for the first £1000 of any claims arising; BHC is liable for the rest, however an individuals and/or a corporate body such as BHCs liability is much higher in the event of criminal or civil action. None of the pilots are prepared to risk the consequences of causing injury to anyone, damage to property or the environment. Therefore a succession of incidents and claims at Morgan's could seriously undermine BHC's financial position, to the point of cuts to services that affect the harbour community as a whole. BHC should consider - very carefully - assuming such a massive rise in liability on behalf of a private enterprise, who would then be using that liability against them.

We would also point out to BHC the confirmation from the St Oysth Estate about their firm intention to reintroduce commercial traffic. This in itself should ensure that BHC regulate and decline any incursion into the navigable channel.

Overall one question must be asked , with the results of our Risk Assessment, is there still a case for vessels to be brought into Brightlingsea Creek safely? The answer to this is no. We must also weigh that against our legal and moral duty which is to serve the Master of a commercial vessel entering the Colne and uphold the highest standards of navigational safety. We are not employees of BHC and are under no contract. With the objectivity that confers, we've taken the decision together that we would not offer our services for Pilotage post-development of this dangerous application. We have made this decision –with much regret - as a final resort as we stand unified behind our findings.