

Gate 3

Liverpool Cruise Terminal



October 2019

LIVERPOOL CRUISE TERMINAL

Potential Impact of Pile Installation on Fishing Activities

Review of Evidence

Undertaken by
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1.0 Introduction

This report provides a review of available evidence with regard to the potential impact of underwater noise associated with rotary drilling on fishing activity in the Mersey. Information is presented in the context of the pile installation activities proposed as part of the redevelopment of the Liverpool Cruise Terminal (“The Development”).

The following information is included in this document:

- Background information;
- A description of the level of attenuation of noise from rotary drilling with distance from the source;
- Information on the distribution of fishing grounds in the Mersey, based on details provided by charter vessel operators and commercial fishermen during consultation and current regulations with regards to fishing and anchoring in the Mersey;
- An outline of other considerations of relevance when evaluating the potential interaction between noise from rotary drilling and fishing activity in the Mersey;
- Conclusion.

2.0 Background Information

The Development is located on the east bank of the Mersey, in Liverpool's waterfront in an area where the river is approximately 970m wide. The location of the Development is illustrated in Figure 1.



Figure 1 Location of the Development

Various charter vessel operators and commercial fishermen have raised concerns that underwater noise associated with construction works at the Development may affect their ability to earn a living. Their initial concerns related to the piling methodology originally proposed for the installation of piles at the Development (vibro piling and pile driving) and the perception that noise associated with piling activities would scare fish away from the Mersey.

It should be noted, however, that taking account of stakeholders' concerns and in order to minimise underwater noise levels, the pile installation methodology has been changed to rotary drilling and socketing, a much quieter method. The use of vibro-piling and pile-driving is no longer being considered.

As described in the ES Addendum (2019), construction works at the Development are anticipated to result in impacts of negligible significance on fish species. With this in mind, and in view of the location and extent of grounds used by charter vessels and commercial fishermen in the Mersey, the assessment presented in the ES Addendum (2019) concluded that fishing activity in the Mersey would not be significantly affected by the proposed works.

Despite of the change in the pile installation methodology and the evidence presented in the ES Addendum (2019), some local charter vessel operators and commercial fishermen are still of the view that the proposed works would affect their ability to earn a living in the Mersey. In order to address their concerns, additional information to that presented in the ES Addendum (2019) on underwater noise attenuation levels associated with rotary drilling was compiled (Hobbs Associates, 2019a¹). This was submitted to the MMO in August 2019 and presented to commercial fishermen and charter vessel operators concerned about the Development during two consultation meetings held on 20th September and 2nd October 2019, respectively.

¹ Hobbs Associates (2019a) Underwater Sound Propagation at New Liverpool Cruise Terminal. 8th August 2019.

3.0 Underwater Noise Attenuation - Rotary Drilling

When evaluating the potential implications of underwater noise from drilling, it is important to note that rotary drilling produces a continuous sound rather than a transient impulsive sound such as that generated by pile driving.

Taking account of available measurements of underwater noise levels from drilling activities at other projects, and considering the specific machinery likely required at the Development, noise levels at source associated with drilling have been estimated by Hobbs Associates (2019b²) at SPL 166.36dB re. 1 μ Pa.

An indication of the anticipated attenuation of this noise level with distance from the source was provided in the technical note submitted to the MMO in August 2019 and presented to charter vessel operators and commercial fishermen during the meetings held on 20th September and 2nd October (Hobbs Associates, 2019a). This is outlined in Table 1 and illustrated in Figure 2.

In order to provide context, noise levels associated with shipping, an activity that also generates continuous sound and that is already taking place in the Estuary, including in areas in the immediate proximity of the Development, has been plotted against drilling noise in Figure 2.

As shown in Figure 2, at source, noise levels from drilling would be within the range of those expected from a large ship and at a distance of 50m from the source, the noise would decrease to levels well below those expected from large or medium size ships. At 100m from the source, noise levels would decrease considerably being expected to reach levels similar to background noise at a busy harbour (126.36 dB re. 1 μ Pa) (Hobbs Associates, 2019a).

Table 1 Calculation of Noise Attenuation with distance from Source (Hobbs Associates, 2019a)

Distance from the Source (m)	SPL (dB re. 1 μ Pa)
100	126.36
200	120.34
300	116.80
400	114.31
500	112.38
1,000	106.36

² Hobbs Associates (2019b) Noise and Vibration Impact Assessment of Piling Work at the New Liverpool Cruise Terminal. Revision B. July 2019.

Graph of Noise Reduction

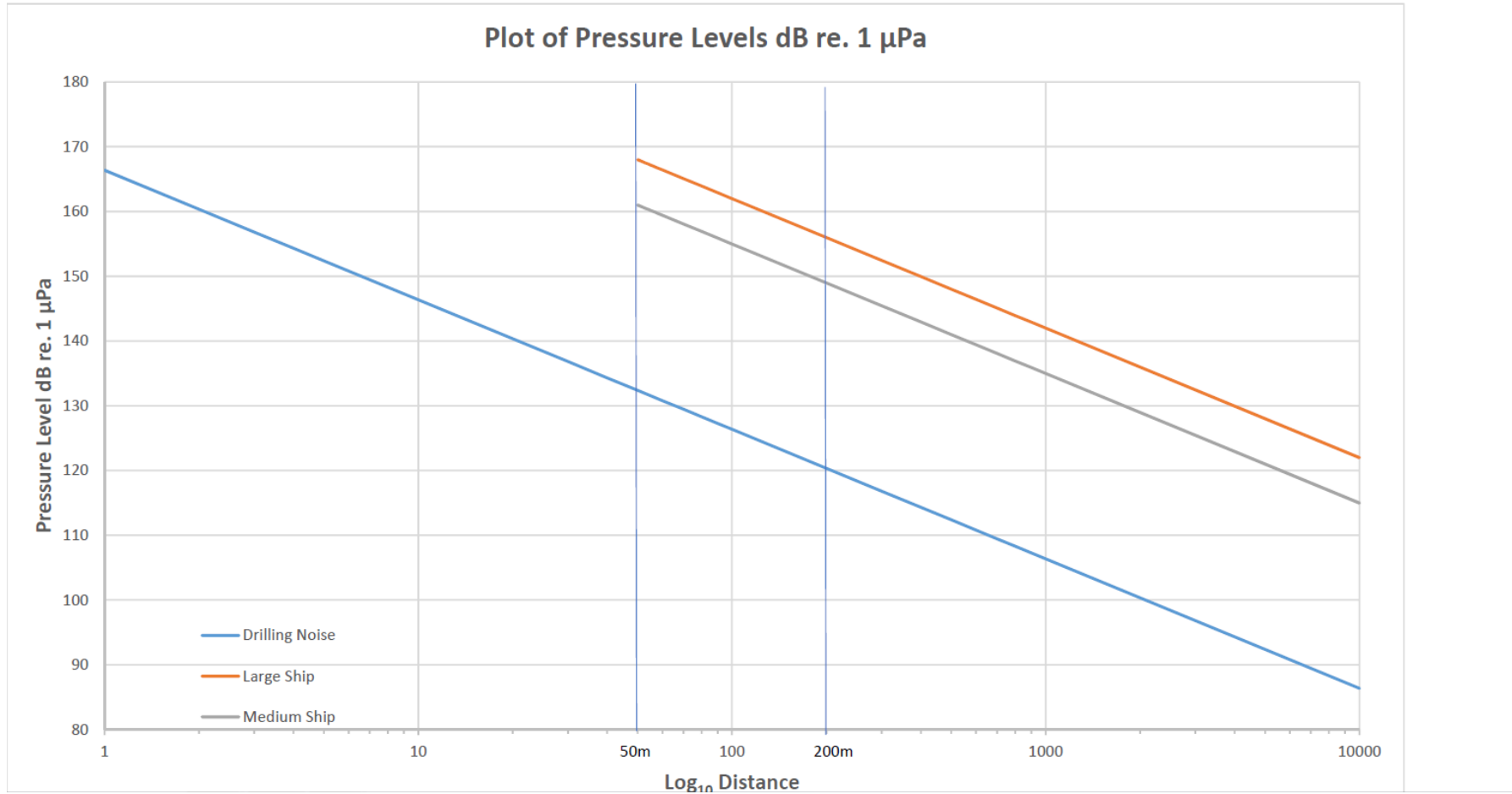


Figure 2 Attenuation of Drilling Noise with Distance from Source and Comparison with Noise Levels from a Large and a Medium Ship (Source: Hobbs Associated, 2019a)

4.0 Fishing Grounds in the Mersey

The location of fishing grounds within the Mersey, as identified during consultation with charter vessel operators and commercial fishermen, is illustrated in Figure 3 and Figure 4, respectively.

It is important to note that outside of the winter cod season (October to March), when fishing activity tends to be more dependent on grounds within the Mersey, fishing also takes place in offshore grounds outside of the Estuary, and therefore beyond the areas shown in Figure 3 and Figure 4.

From the information provided by charter vessel operators and commercial fishermen, it is apparent that although they work grounds in the proximity of the Development, a range of other areas are also used for fishing in the Mersey (Figure 3 and Figure 4).

With specific reference to the potential for fishing activity to take place in the proximity of the Development, it is important to note that as illustrated in the admiralty charts included in Figure 3 and Figure 4, in areas immediately in front of the Liverpool Cruise Terminal, vessels are currently prohibited from anchoring and fishing³. In addition, under Rule 20 (1) (b) of the General Directions for Navigation in the Port of Liverpool (Peel Ports, 2012⁴) “no vessel shall, except in an emergency or with the prior permission of the Harbour Master, approach within 50 metres of any river stage in the Port of Liverpool unless berthing at that stage”. The Liverpool Cruise Terminal constitutes a “stage” of the river, and as such, fishing should not be undertaken within 50m from the Terminal.

³ Prohibited anchoring and fishing area as defined in Notice to Mariners 15/2014 and illustrated on admiralty chart BA3490. Vessels are prohibited from anchoring, fishing, kedging and dropping up on the tide with the anchor a trip in the area bounded by the imaginary lines.

⁴ Peel Ports (2012) General Directions for Navigation in the Port of Liverpool 2012. Available online: <https://www.peelports.com/media/3263/lrg1-mdhc-general-directions-2012.pdf>. Accessed 09/10/2019.

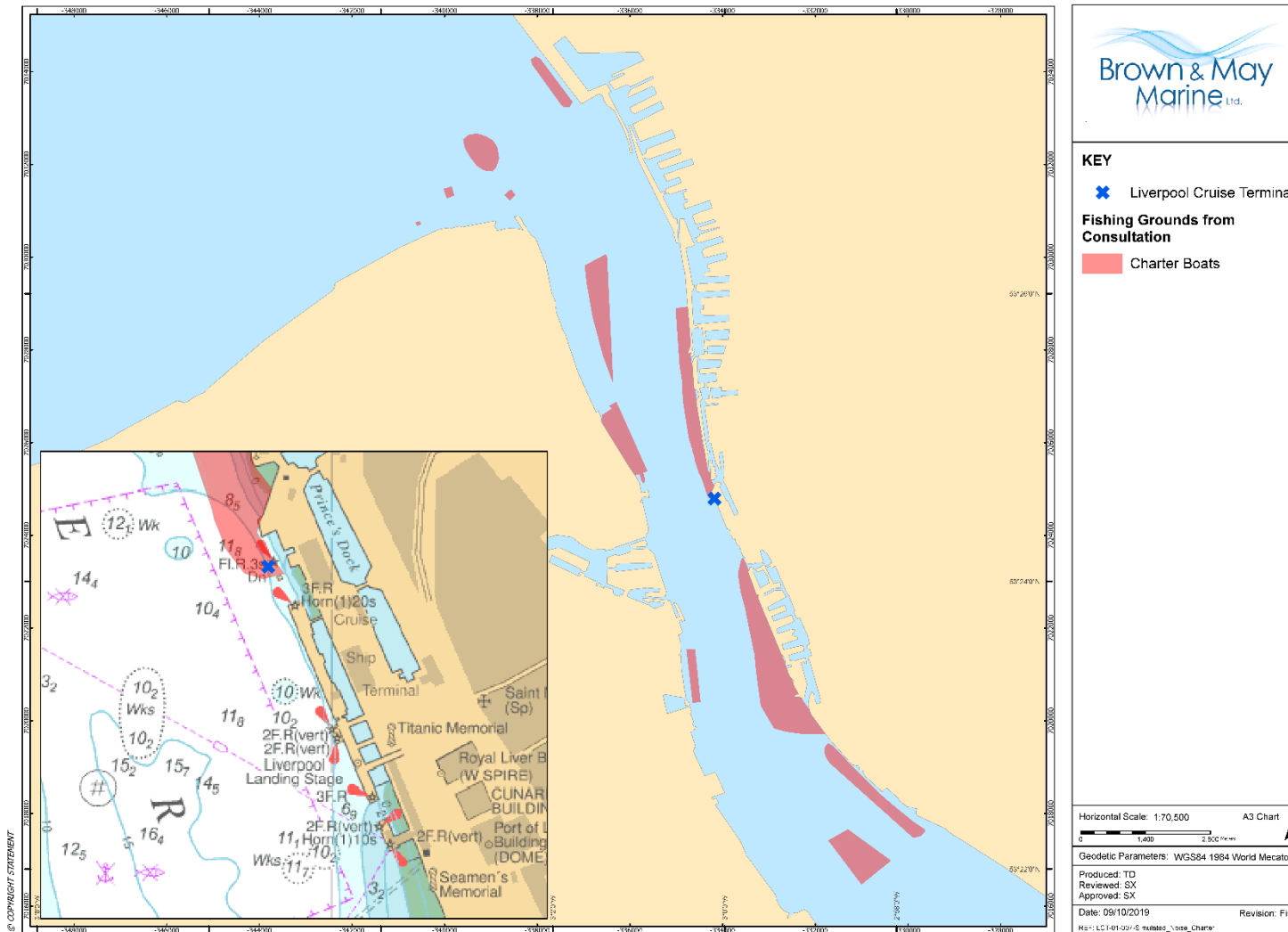


Figure 3 Fishing Grounds identified by Charter Vessel Operators during consultation in November 2018 and close up showing no anchoring/no fishing zone in front of the Cruise Terminal

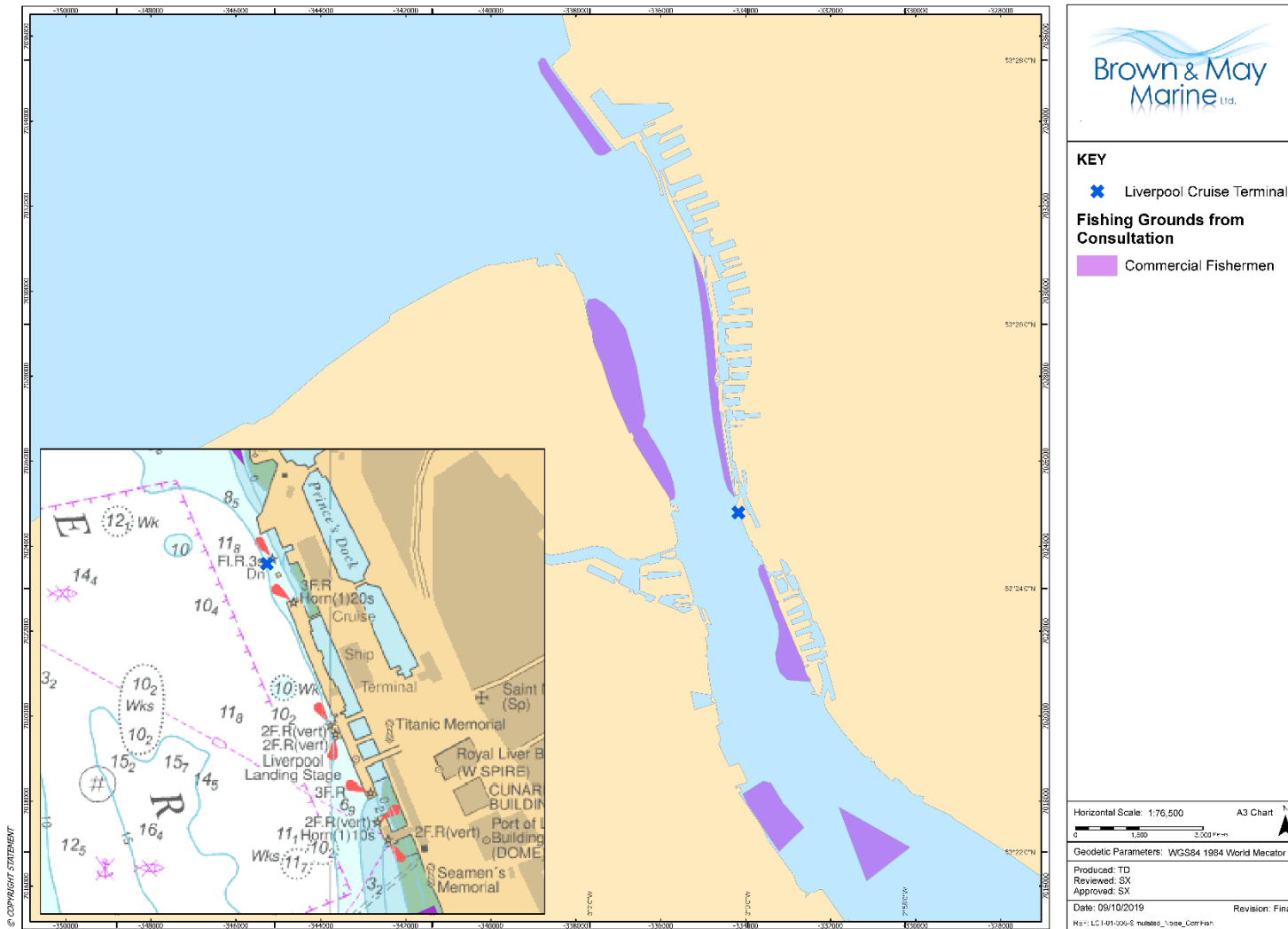


Figure 4 Fishing grounds identified by commercial fishermen during consultation in November 2018 and close up showing the no anchoring/no fishing zone in front of the Cruise Terminal

5.0 Other Considerations

In addition to issues around noise propagation and the location and extent of fishing grounds, when evaluating the potential for noise associated with pile installation at the Development to result in detrimental effects on fishing activities, the following considerations should also be taken account of:

- The nature and levels of underwater noise associated with rotary drilling are comparable with noise from shipping. As discussed in Section 3.0, at 50m from the source, noise levels from rotary drilling would be reduced well below noise levels associated with the transit of large or medium ships and at 100m from the source noise would decrease to levels in line with background noise at a busy harbour. In this context it is important to recognise the existing level of vessel movements that the Mersey currently supports; it is understood that there are over 15,000 vessel transits into Liverpool per year (Peel Ports, pers. comm. 12.09.2019). Fish are present in the Estuary, and support the current levels of fishing activity despite of the existing shipping activity and associated underwater noise.
- No drilling works would be undertaken between the hours of 19:00 and 07:00 and over the 12 hour working period, rotary drilling would only be expected to be undertaken for a period of around 3 to 4 hours per day.
- The conclusions that impacts on fish species would be of negligible significance and that fisheries would not be significantly affected are supported by the advice provided in respect of the ES Addendum (2019) by the Centre for Environment Fisheries and Aquaculture Science (CEFAS) scientific advisors.
- In order to ensure that appropriate communication channels with fisheries stakeholders are in place a Fisheries Liaison Officer will be appointed during marine piling works.

6.0 Conclusion

As previously mentioned, despite the change in pile installation methodology from pile driving to rotary drilling, some charter vessel operators and commercial fishermen remain concerned that noise associated with pile installation will prevent them from earning a living in the Mersey.

Given the nature and noise levels associated with rotary drilling and the location and extent of grounds targeted in the Mersey, however, and in line with the findings of the ES Addendum (2019) and the advice from CEFAS scientific advisors, it is not expected that fishing activities will be significantly affected by the proposed work.

In this context it is important to note that, to date, charter vessel operators and commercial fishermen have not provided any evidence in support of their claims that pile installation using rotary drilling will result in impacts which would prevent them from earning a living in the Mersey.