Stella Passage Development and Navigation Safety Assessment

Prepared by: Phil Julian, Senior Pilot, POTL

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NAVIGATION AND THE STELLA PASSAGE DEVELOPMENT

Introduction

1. This assessment considers the effects of the Stella Passage Development (**Development**) on navigation safety and harbour users and covers the following topics:

   (a) My qualifications and experience;

   (b) The development proposal;

   (c) The existing environment;

   (d) Changes in the number and sizes of ships; and

   (e) Navigational effects.

2. I have considered the impact of the dredging activities, the predicted changes to tidal movement, as well as the structures and reclamations proposed as part of the Development.

3. My involvement in this consent application has been to provide expert advice on the Development's various stages and the extent of dredging required to complement the wharf infrastructure needed to accommodate the larger ships and growth in volume, on which Port of Tauranga Limited's (**POTL**) application is based. My involvement has also included providing advice on the possible effects of the Development on those that currently use the harbour in the area.

4. The changes in the number and sizes of ships visiting the harbour have been assessed based on the trends currently being experienced by POTL, international trends and the physical constraint of the proposed wharf extensions. I note that the application does not propose changes in the procedures for loading and unloading of vessels, which dictate the length of time a vessel is in port occupying a berth.

5. The same navigational risks associated with the existing Port of Tauranga (**Port**) operations and dredging will be present as a consequence of the Development. The Port already has measures in place to deal with these risks. While the frequency of vessels in the channel may increase by one or two vessels a day above the current levels of operations, the number of vessels transiting the channel will remain below the peak of vessel traffic experienced in 2012. That peak was generated by the high volumes of traffic associated with the *Rena* grounding and response, and was safely managed.

6. To mitigate the navigation risk of dredges operating in the shipping channels and transiting to the deposition sites it is recommended the following actions area carried out:

   (a) prior to any dredging works, harbour users are notified of the presence of dredging vessels;

   (b) dredging vessels to operate under the same operational controls as the vessels currently transiting the shipping channels; and

   (c) dredging vessels to adhere to the applicable international and local maritime rules and regulations.

Qualifications and experience

7. I hold a Foreign Going Masters Certificate of Competency. This is a marine qualification issued by Maritime New Zealand and qualifies me to be the captain of a ship trading worldwide.

8. I was formerly the Marine Manager for POTL and currently perform the role of Senior Pilot.

9. I have been employed at POTL since 2003, firstly as a Harbour Pilot and then progressing to Senior Pilot. Pilots at POTL board ships before they are allowed to enter or leave the harbour and, after consultation with the Captain of the ship, take control of the ship for its safe navigation through the channels of the Tauranga Harbour. The Captain and other members of the bridge team assist the pilot by acting on any orders given by the pilot. During my time as a pilot, I have guided approximately 3,500 ships in and out of the Tauranga Harbour, the largest being a 110,000 tonne, 10,000 TEU (twenty-foot equivalent unit) container vessel. Currently as a Senior Pilot, I pilot approximately 350 ships per year and during my time in the role as the Marine Manager, I piloted approximately 150 ships per year.

10. My role as Marine Manager involved having an overview of all nautical matters POTL was involved with. Specific areas that I was responsible for included:

    (a) Procedures for safe ship transits into and out of the harbour;

    (b) The provision of pilotage services;

    (c) Pilot launches;

    (d) Tugs, operations maintenance and suitability;

    (e) Determining channel depths and dredging requirements for safe navigation;

    (f) Channel marking;

    (g) Accident/incident investigation; and

    (h) Liaising with the Harbour Master, other harbour users, stevedores, marshallers, and shipping agents.

11. In all of my roles at POTL I have been closely involved in ensuring the safe navigation of shipping into and out of the Tauranga Harbour. This has involved work on simulators to determine best

practice in ship handling and the design of the shipping channel, towage and tug capabilities for the Port and dredging requirements to ensure safe under-keel clearances are maintained. I have determined the placement of navigational marks and other aids to navigation in the Tauranga Harbour.

The Development

12. At a high level, POTL's proposal is to undertake an expansion of the Sulphur Point and Mount Maunganui Wharves. Both expansions involve reclamation, construction of wharf structures and associated dredging. The Development is proposed to be undertaken over at least two stages. More specifically, the Development will include the following activities:

    (a) Dredging of 10.55ha and 1.5Mm³ in Stella Passage (stage one 6.1ha and 0.85Mm³ and stage two 4.45ha and 0.65Mm³);

    (b) Reclamation of 0.88ha of land at Sulphur Point as part of stage one, and then a further reclamation of 0.93ha as part of stage two;

    (c) Extension of the Sulphur Point wharf by 385m;

    (d) Reclamation of 1.77ha at the Mount Maunganui Wharves;

    (e) Extension of the Mount Maunganui Wharves by 315m;

    (f) Installation of mooring and breasting dolphins; and

    (g) Development of minor structures at Butters Landing.

Existing Environment

Site conditions

13. Stella Passage is a relatively sheltered location. The Development is an extension to the existing channel and wharves. Therefore, local wind and wave conditions should be identical to those already experienced by vessels handled in Stella Passage.

Aids to navigation

14. The existing yellow special purpose beacon indicates the end of the shipping channel. At this location the harbour transitions from the dredged shipping channel, currently 14.5m below Chart Datum to approximately 4m of water depth. While the change in depth would not be a concern for recreational vessels, the end of the shipping channel is required to be clearly marked for the ships calling at the Port. The shape and colour of the beacon is in accordance with the International Association of Marine Aids to Navigation and Lighthouse Authorities (**IALA**).

Port Control

15. POTL's Port Control plays a pivotal part in coordinating the safe transit of all vessels through the Port. Port Control is a 24 hour 7 day a week operation. For both a Trailer Suction Hopper Dredge (**TSHD**) and Back Hoe Dredge (**BHD**) undertaking dredging, a high degree of communication with the POTL's Port Control is required to be maintained throughout any

dredging campaign to minimise navigation risk. As for previous dredging campaigns, this communication would occur every day, in the course of co-ordinating shipping into and out of the port.

Existing Legislative Controls

16. All vessels are subject to maritime legislation, regulations and rules. Those controls such as appropriate lighting of vessels and how to safely conduct a vessel is controlled by the International Regulations for the Prevention of Collision at Sea (**COLREGS**). At a national level, Maritime New Zealand set the Maritime Rules that give effect to the COLREGS. Among others, the following Maritime Rules are relevant to this application:

    (a) Part 19 Maritime Transport Operator – Certification and Responsibilities.

    (b) Part 20 Operating Limits.

    (c) Part 21 Safe Ship Management.

    (d) Part 22 Collison Prevention.

    (e) Part 23 Operational Procedures & Training.

17. Dredgers are required to show special lights and shapes while working, to show to other mariners the nature of the activity and hence its manoeuvring constraints, and the need to maintain a safe distance. In New Zealand this is required under the Maritime Rules Part 22 : Collision Prevention.

18. At a local level, the Bay of Plenty Regional Navigation Safety Bylaw (**Bylaw**) is set by the Bay of Plenty Regional Council in line with the Maritime Rules under sections 33M and 33R of the Maritime Transport Act 1994. The following rules are relevant to this application:

    (a) Duty of Master of a Vessel under 500 Gross Tonnage.

    (b) Moving Prohibited Zone.

    (c) Compulsory pilotage.

19. Maritime Rules Part 90 make Pilotage compulsory for vessels over 500 gross tonnage in the Tauranga pilotage area. The Bay of Plenty Regional Navigational Safety Bylaw sets out these rules at a local level and Section 6 and Schedule 8 of the Bylaw are specific to the Tauranga Pilotage Area and harbour approach. As a dredging vessel is usually over 500 gross tonnage, the Master of a dredge will typically apply for an exemption to the Pilotage rule and is required to undertake an exam and observations by a Pilot before any approvals are granted.

20. All vessels associated with the Development will be required to comply with the Maritime Rules and Bylaw as is standard practice for any shipping movements.

Changes in numbers and sizes of ships

Sulphur Point

21. Attached as Appendix 1 is a series of drawings for Sulphur Point showing the current berthing situation for ships, and some hypothetical future scenarios based on trends of shipping POTL is experiencing and which are occurring internationally:

    (a) Drawing 341-227-4 Current, Sulphur Point.

    (b) Drawing 341-227-5 Future 285m Extension, Sulphur Point.

    (c) Drawing 341-227-3 Future 385m Extension, Sulphur Point.

22. The size of the vessels shown in the drawings for the future scenarios are not too dissimilar to those currently calling. However the restriction to two vessels is removed with the additional wharf length. The longest vessel currently calling at Sulphur Point is 347m, and the next vessel size up would be 366m. The modelling carried out by POTL to date suggests that these large container vessels would not need any additional deepening and widening to transit the existing harbour channels than currently consented and therefore have been considered when determining the appropriate stage 1 extension.

23. The proposed stage one extension to Sulphur Point of 285m will enable a return of the Sulphur Point wharves to a true three berth operation, which is what it was originally constructed to be before ship sizes increased. Accordingly, the number of vessels will not cause a dramatic change to the number of vessel calls, albeit the vessels will be larger.

24. Due to the current constrained berthing capacity at Sulphur Point the number of vessels will, however, increase from the current observed marine traffic. One additional container vessel a day would equate to an increased ship presence above today's levels of 30 mins twice daily in the Stella Passage. This equates to the time taken for an in and out movement from the berth.

Mount Maunganui

25. The attached Drawing 341-236 (Appendix 1), shows the current berthing situation and some future scenarios for the Mount Maunganui Wharves based on trends of shipping POTL is experiencing and which are occurring internationally. The 230m Bulk/Log ships currently call, but are rare. The 200m Bulk/Log ships also call occasionally but not as frequently as the 180m long vessel.

26. With respect to the Mount Maunganui Wharves, allowing for vessel size increase over time, the Development would allow one additional vessel to berth compared to the current scenario. Due to the longer dwell time of these types of vessels at berth the increase in shipping traffic within the inner harbour would be 30 mins, four times a week.

27. Following the completion of a wharf extension, there is unlikely to be a sudden jump in shipping volume. The volume of shipping will increase in step with the cargo volume growth. Furthermore, the number of vessels calling has not always been uniform.

Total Increase

28. To help assess any cumulative effects associated with increased shipping traffic at the Port, Figure 1 and 2 below show the number of vessels visiting the Mount Maunganui and Sulphur Point wharves. The data is grouped into monthly totals. It should be noted that ship movements occur throughout the day and night as the only constraint is the tidal flows through the entrance.

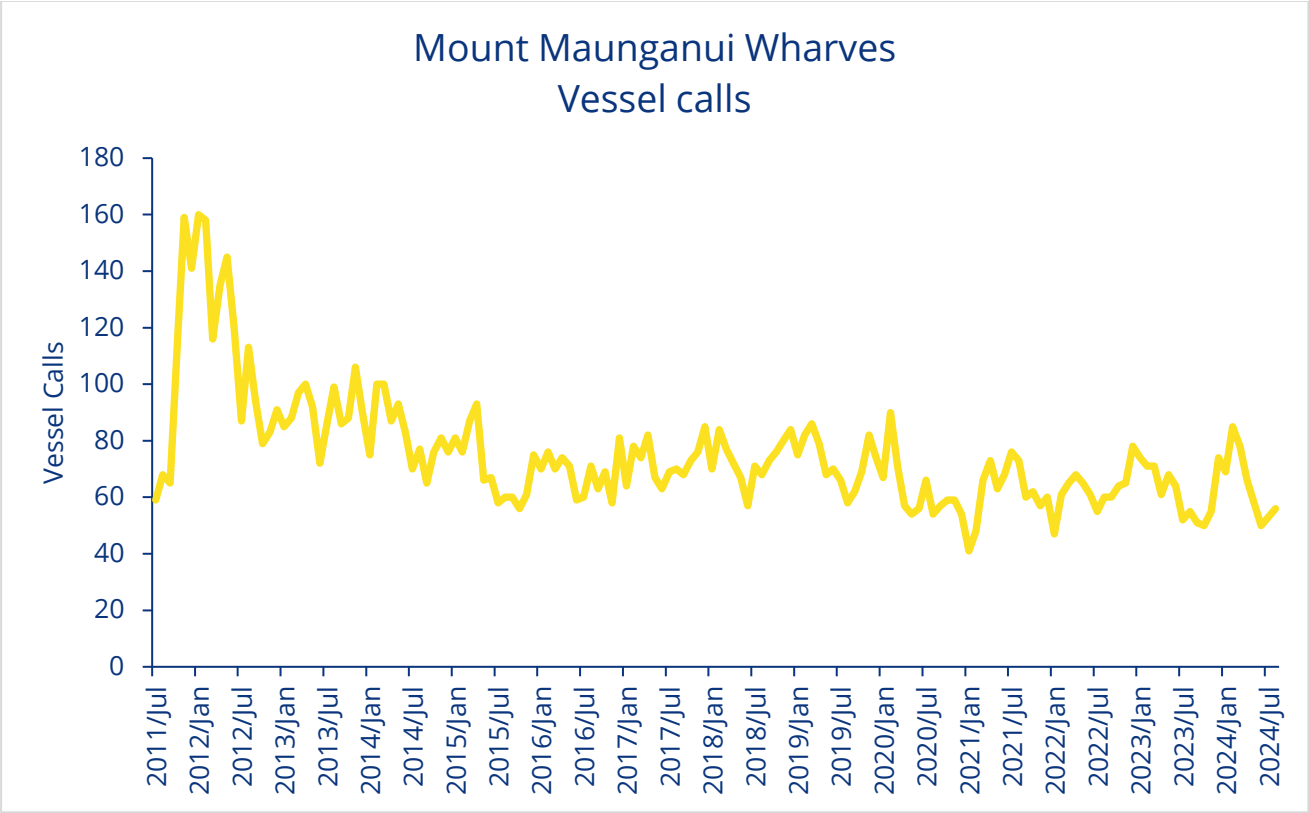

Figure 1: Vessel Calls to Mount Maunganui Wharves

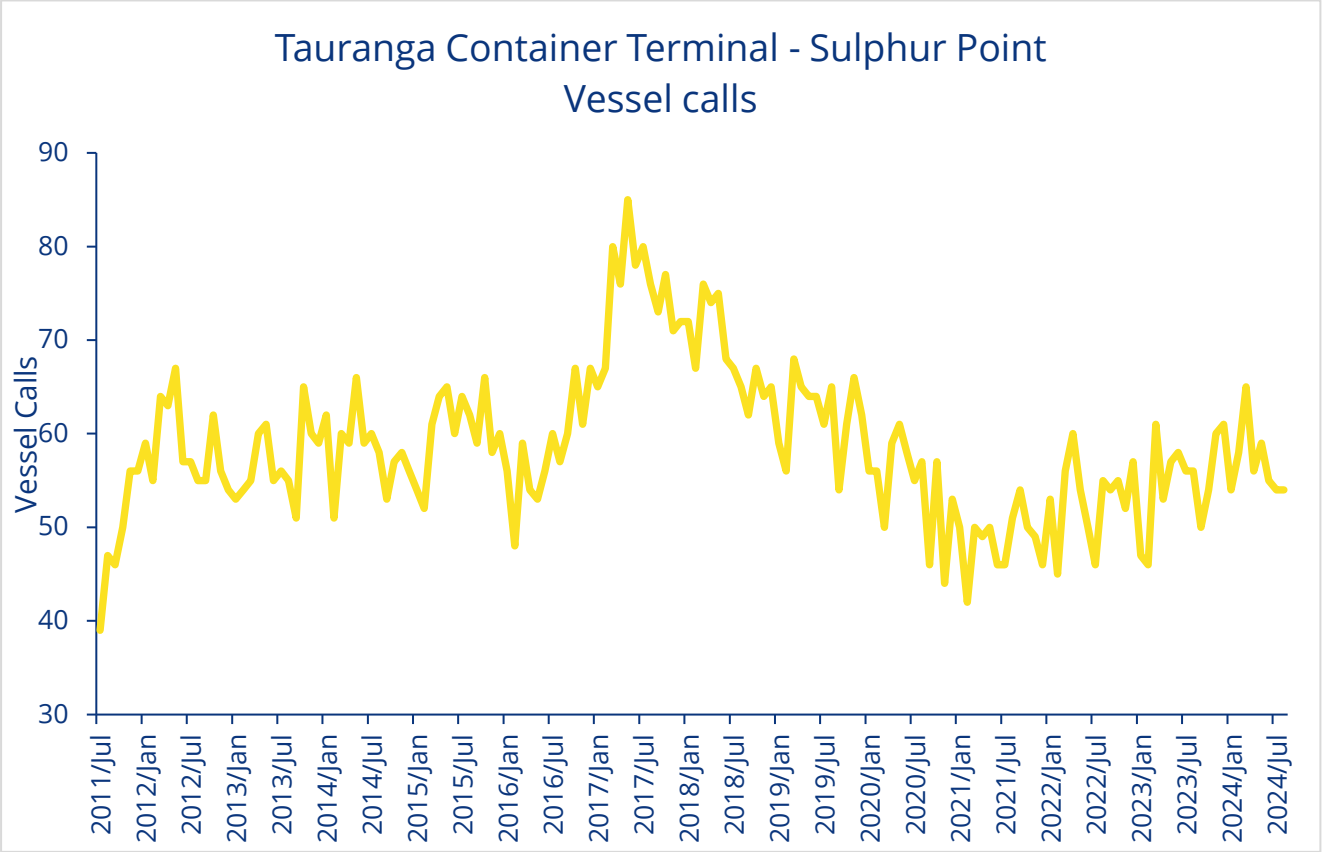

Figure 2: Vessel Calls to Tauranga Container Terminal – Sulphur Point

29. The spike around 2012 on the Mount Maunganui Wharves reflects the increase in vessel movements associated with the *Rena* incident that predominately utilised berth 6 on the Mount Maunganui Wharves at that point in time.

30. The 2017-18 increase at Sulphur Point shows the immediate impact of additional coastal shipping calling at Sulphur Point to aggregate cargo and utilise the larger vessels for the international leg of the journey, made possible by the Channel Deepening and Widening completed in 2016. The reduced vessel calls at Sulphur Point since then are due to the step increase in vessel size and consequential berth length constraints, congestion issues at Port of Auckland impacting ships calling at POTL off schedule (with implications for waiting times at sea and at terminal for loading and unloading of cargo), COVID congestion issues on a global scale, and more recently, the economic downturn and reduction in imports.

31. When considering the impacts of any additional shipping traffic at Sulphur Point, it is reasonable to consider the baseline as comprising the period from July 2011 to January 2020 in Figure 2 which ignores the more recent COVID and economic downturn that has resulted in lower container volumes and container vessels. This would assume vessels call on their proforma scheduled window (rather than as they arrive, which has caused congestion). The number of vessels per week would therefore be 18 at Sulphur Point which correlates with the peak in 2017.

32. With respect to the Mount Maunganui Wharves, while for the past four years only one month has had more than 80 vessels (February 2024 had 85), the maximum in the last five years has been 90 vessels in a month. Therefore for this assessment a total of 90 vessels per month is considered an appropriate baseline.

33. It is noted that the differing trends between container and bulk cargo mean that differing time spans have been combined to create an appropriate conservative baseline of ship visits to the Sulphur Point and Mount Maunganui Wharves.

34. Combining the proforma Sulphur Point vessel schedule prior to the recent downturn with the maximum number of vessels in the last five years for the Mount Maunganui Wharves, gives a realistic conservative upper bound of 162 ship visits a month, based on a four week month.

35. While shipping proforma windows and the vessels deployed by the shipping lines change, to enable the consideration of the impact from increased shipping associated with the Development, for Sulphur Point the increase in vessel numbers shall be from comparing the proforma window to the 285m extension scenario, refer drawings 341-227-4 and 341-227-5. In this scenario there would be an increase from 15 vessels a week to 19 per week, or 16 additional vessels per month. For the Mount Wharves when allowing for the longer dwell time the increase would be eight vessels per month. The combined hypothetical future increase being 24 vessels a month. When considering the future total number of vessels adding the additional 24 vessels a month to the base of 162, which assumed a combination of time periods to build a conservative baseline, gives 186 vessels per month.

Navigations Effects

Increase in vessels

36. The increase in the number of vessel visits per day would be in the order of 1 to 2 vessels a

day, but not necessarily every day. As was seen during the peak in 2012 associated with the *Rena* incident, this number of vessels has been managed in the past without incident. Furthermore, during the 2012 peak, the mix of vessels was comparatively more complex than the additional vessels enabled as a consequence of the Development. The increased traffic during the *Rena* incident comprised a lot of transits that involved the towing of large barges. These transits inherently require a greater level of oversight and introduce additional risks. The additional vessel traffic generated by the Development will consist of relatively large and slow moving (especially during turning and berthing manoeuvres) vessels. Therefore the avoidance of these vessels should not be an issue to other harbour users. Consequently, the effects of the increased shipping traffic on vessel navigation undertaken by other harbour users will be negligible.

Dredging

37. Dredging operations present a potential navigational risk to other ships using the shipping channel. However this is nothing new as the same risks for capital dredging arise and are managed when maintenance dredging occurs in the existing harbour channel every year. While the proposed capital dredging will occur beyond the existing shipping channel, the navigation risks are the same and the existing, proven controls will remain in place.

38. The TSHD, upon filling its hopper, will transit the existing channel to the offshore disposal site as would any vessel obeying maritime law. As per previous dredging campaigns, potential conflict between vessels can be minimised by the TSHD coordinating transits of the shipping channel behind other vessels, which also reduces delays to dredging operations.

39. A BHD and associated barges are stationary objects which other vessels have to navigate around, much like other anchored vessels. Harbour users are accustomed to these features. Any work carried out by BHD will have to be planned around ship sailing times. Tidal restrictions mean large vessels must transit on high or low tide due to reduced tidal flow. As such, there is a reasonable level of work continuity for a BHD. The barges being towed to the deposition ground must co-ordinate their transit of the shipping channel, much like the TSHD.

40. The TSHD and BHD will be fitted with precision navigations systems which allow the dredge operator to know their exact location in the channel at all times.

41. During the dredging activities, recreational users of the area are a potential navigational risk. The navigational risk of the dredge to other vessels using the shipping channel is controlled by the rules set out in the Maritime Transport Act 1994 and the local Bylaws controlled by the Bay of Plenty Regional Council. There are various risk mitigation measures that will be used to reduce the potential navigation hazards. Consistent with past dredging campaigns, POTL proposes that a resource consent condition will require POTL to issue notices to mariners. POTL proposes that the following notifications be carried out prior to the commencement of dredging activities:

    (a) Advertisements in the local paper;

    (b) Notification of the Harbour Master;

    (c) Notification of the Coast Guard;

    (d) Notification of marinas; and

(e) Installation of signs at local boat ramps.

42. The notification will inform of the work being carried out, the vessels involved, the duration of the work and give a 24 hour 7 day a week contact number for POTL's Port Control. Details of the dredging activities will also be made available on POTL's website.

43. During the summer months of the most recent capital dredging campaign in 2015/2016, recreational craft anchored in the shipping channel to fish and were not always ready or willing to move. This had the potential to cause a hazard for all large vessels transiting the shipping channels. Under Rules 3.8 Restricted Anchorages and 8.10 Tauranga Port – Restricted Anchorages, anchorage within the Shipping Channel is allowed in emergencies or if the vessel is kept ready to make immediate departure with an anchor watch maintained at all times. By providing signage at the boat ramps and communicating with the Marinas, POTL was able to raise awareness and ensure there were no incidents. It is considered that similar notification of the Development will appropriately minimise this potential risk. Enforcement by the Harbour Master is a final recourse that can be employed in relation to illegally anchored vessels if necessary.

Changes to the shipping channel

44. The existing yellow special purpose beacon indicating the end of the shipping channel and used as a transit marker will be shifted as the shipping channel is modified to match the staged development. POTL proposes that a consent condition be included requiring the proposed site for relocation of the special purpose beacon is to be approved by the Bay of Plenty Regional Council's Harbour Master prior to the relocation of the beacon.

45. The location of the extension to the shipping channel will generate a minor increase in potential risk due to the introduction of ships in an area otherwise largely limited to recreational users. However these are the same risks that already exist for the rest of the shipping channel, only now start further south. The increase in the number and size of vessels are not introducing any new navigational risks and there are good controls and practices in place. These controls and practices are listed in paragraph 14 to 20 above and their implementation will mitigate the minor increase in potential risk to a negligible level.

46. The change in tidal flow within the extension to the existing channel as a result of the Development is not expected to introduce any new navigational hazard to those which already exist in Stella Passage.

Conclusion and recommendation

47. POTL's proposed Stella Passage Development consists of dredging, the construction of wharf extensions and associated reclamation and occupation of the coastal marine area.

48. Navigational risks for recreational vessels such as dredging or container vessels operating in an area not previously encountered could arise during dredging and post-completion.

49. These effects can be managed by following the existing well established shipping operational controls, informing harbour users of the presence of dredging operations and all harbour users following the existing regulations and rules. With the recommended mitigation in place, the effects of the Development on navigation safety will be negligible.

50. Any incremental increase in the number of vessels transiting the harbour as an effect of the

Development, when added to representative historic shipping trends and compared to the peak in 2012, will be negligible.