

Gorgon - Pilotage - Passage Plan – Port Limits North to PBG - WAPET Departure



1.0 Introduction

Vessels transiting within port limits from Port Limits North to the Barrow Island Pilot Boarding Ground (PBG), including WAPET, require an approved passage plan which can be shared between Pilots and vessel Masters. This work instruction has been compiled in accordance with documents *GOR-COP-0187 - Pilot Passage Plan Guideline* and approved according to *GOR-COP-0186 - Passage Plan Approval Procedure*.

1.1 Purpose

This Work Instruction details the navigation route between Port Limits North and the PBG (via WAPET), providing Pilots, Masters and Bridge Navigation Teams sufficient information to conduct a vessel along the route in a safe and controlled manner, whilst minimising risk to personnel, environment and property.

1.2 Scope

This Work Instruction begins when a vessel arrives at Port Limits North inbound, departs an assigned berth or LCT ramp at WAPET or departs B2 Anchorage and concludes when it reaches the PBG.



CAUTION:

This passage plan is tidally restricted for all vessels calling at WAPET. Likewise, this passage plan may be tidally restricted for vessels transiting to the PBG with drafts greater than 3.4m. All vessels must maintain a UKC in accordance with *ABU110700304 - Port of Barrow Island – Port Information Guide*.

Caution must be taken when using buoys for navigation, particularly post severe storm/cyclone activity.

Vessels may not have the controlling draft and therefore the drafts of any assist vessels must be considered.

1.3 Target Audience

This work instruction is primarily intended for use by ABU Marine Pilots, vessel Masters and vessel Bridge Navigation Teams.

1.4 Acronyms and Abbreviations

The below table defines the acronyms and abbreviations used in this document

Acronym/Abbreviation	Meaning
AMSA	Australian Maritime Safety Authority
BWI	Barrow Island
CBM	Conventional Buoy Mooring
CD	Clearing Distance
ECDIS	Electronic Chart Display and Information System
JHA	Job Hazard Analysis

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Acronym/Abbreviation	Meaning
kts	knots
m	metres
MOF	Materials Offloading Facility
MPX	Master Pilot Exchange
nm	Nautical miles
OOW	Officer of the Watch
PBG	Pilot Board Ground
Pilot	ABU Marine Pilot
PI	Parallel index
SOLAS	International Convention for Safety Of Life At Sea
UKC	Under Keel Clearance
XTE	Cross Track Error

2.0 Waypoint Bank

Waypoint	Reference	Latitude	Longitude
WP001	PBG	20°48.60'S	115°36.00'E
WP002	SW South Cardinal	20°48.00'S	115°30.25'E
WP003	West Cardinal	20°47.20'S	115°29.67'E
WP004	Double Island	20°44.05'S	115°30.00'E
WP005	Mushroom Island	20°43.43'S	115°28.76'E
WP006	WAPET Landing	20°43.45'S	115°28.50'E
WP007	Ant Point	20°42.80'S	115°29.30'E
WP008	Surf Point	20°39.70'S	115°29.20'E
WP009	B2 Anchorage	20°42.10'S	115°29.60'E
WP010	East Mushroom Island	20°43.54'S	115°29.72'E
WP011	Berth	Various	Various

3.0 Route Bank

Route	Waypoint Sequence
4.1 Port Limits North to Double Island	WP008, WP007, WP004
4.2 WAPET (LCT Ramp and LBW) to Double Island	WP011, WP006, WP005, WP004
4.3 Double Island to PBG	WP004, WP003, WP002, WP001
4.4 B2 Anchorage to Double Island	WP009, WP007, WP004
4.5 WAPET (LCT Ramp and LBW) to B2 Anchorage	WP011, WP006, WP005, WP010, WP007, WP009

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4.0 Passage Plan – Port Limits North to PBG - WAPET Departure

4.1 Port Limits North to Double Island

Waypoint	WP008 (Surf Point)	<ul style="list-style-type: none"> Pilot will embark in the vicinity of port limits, subject to environmental conditions and Pilot's discretion (this area often experiences unfavourable swell, making Pilot embarkation difficult). Be aware of Tringa Rock (and associated breakers) North of Surf Point, just outside port limits. Be aware of the submerged pipeline to the North of the track. The Flood tide sets to the South. The Ebb tide sets to the North. Pilot will normally embark by Pilot Boat. The vessel is to follow any instruction from the Pilot Boat in regards to the rigging of the ladder. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat. Pilot, Master and Bridge team will conduct MPX fully explaining No Go Zones, abort points and other relevant information. Anchors are to be cleared away and ready for letting go prior to entering port limits. Call the Port of Barrow on VHF Ch10 when crossing port limits. Parallel indexing to be setup and utilised throughout passage. At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. In the event of any failure, the vessel will (if possible) return to port limits or anchor (being aware of obstructions). <p>If approaching B2 Anchorage:</p> <ul style="list-style-type: none"> Note the 4.4m patch within the designated boundaries of the B2 Anchorage. Call Port of Barrow on VHF Ch10 immediately prior to anchoring to confirm position. Call Port of Barrow on VHF Ch10 once the vessel is brought up to her anchor. Pilot will disembark by Pilot Boat. The vessel is to follow any instruction from the Pilot Boat in regards to the rigging of the ladder. The ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat.
Latitude	20°39.70'S	
Longitude	115°29.20'E	
Course	178°T	
Speed	~6 to 10kts	
Leg Distance	3.1nm	
Minimum Depth at CD	5.0m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	Surf Point at 1.0nm	

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Waypoint	WP007 (Ant Point)	<ul style="list-style-type: none"> The Flood tide sets to the South. The Ebb tide sets to the North. Tidal streams can be very strong (~3 to 4kts at times) around the northern end of Double Island. No Go Zones exist to both the West and East of the track. Extra caution to be taken in the vicinity of Mushroom Island due to traffic congestion to/from WAPET. At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. Double Island (WP004): Lat 20°44.05'S, Long 115°30.00'E.
Latitude	20°42.80'S	
Longitude	115°29.30'E	
Course	152°T	
Speed	~6 to 10kts	
Leg Distance	1.4nm	
Minimum Depth at CD	5.0m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	Mushroom Island at 0.44nm	

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4.2 WAPET (LCT Ramp and LBW) to Double Island

Waypoint	WP011 (Berth)	<ul style="list-style-type: none"> • Pilot will normally embark by Pilot Boat. The vessel is to follow any instruction from the Pilot Boat in regards to the rigging of the ladder. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat. • The Pilot will detail the manoeuvring of the vessel out of the berth or LCT ramp, including un-mooring arrangements as part of the MPX. • Pilot will brief the Master on contingency plans, No Go Zones and abort points as part of the MPX. • The Pilot will have completed all necessary UKC calculations. • A minimum UKC is to be maintained as per <i>ABU110700304 - Port of Barrow Island – Port Information Guide</i>. • Call Port of Barrow on VHF Ch10 with last line time. • Be aware of strong tidal streams and prevailing winds affecting the vessel. • Be aware of shallows to the North of the LCT ramps. • Ensure adequate clearing distances are maintained between the vessel and any obstruction, such as other vessels, navigational marks and mooring dolphins. • At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required.
Latitude	Various	
Longitude	Various	
Course	Various	
Speed	<1kts	
Leg Distance	Various	
Minimum Depth at CD	Various	
Maximum Cross Track Error	N/A	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	N/A	

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Waypoint	WP006 (WAPET Landing)	<ul style="list-style-type: none"> The Flood tide sets to the South. The Ebb tide sets to the North. A minimum UKC of 0.5m must be maintained throughout the transit. Be aware of dangers to the South of the track and shallows to the North of the track. At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. Reverse leads bear 086°(T).
Latitude	20°43.45'S	
Longitude	115°28.50'E	
Course	086°T	
Speed	~3kts	
Leg Distance	0.2nm	
Minimum Depth at CD	0.9m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index		

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Waypoint	WP005 (Mushroom Island)	<ul style="list-style-type: none"> The Flood tide sets to the South. The Ebb tide sets to the North. Tidal streams can be very strong (~3 to 4kts at times) around the northern end of Double Island. A minimum UKC of 0.5m must be maintained throughout the transit. Ensure adequate clearing distances are maintained between the vessel and any navigational danger, obstruction and/or navigation mark. At night, visual references are very limited. It is recommended, in addition to keeping a proper lookout, that assist vessels use their navigation equipment to help with position awareness. Be aware of dangers in the vicinity of Mushroom Island and the GBB. Call the Port of Barrow on VHF Ch10 when North of Double Island and request a traffic update. Be aware of converging traffic from the South. Note: Courses stipulated in this document may need to be varied on occasion to counteract the strong effect of prevailing tidal/weather conditions experienced at WAPET. Double Island (WP004): Lat 20°44.05'S, Long 115°30.00'E.
Latitude	20°43.43'S	
Longitude	115°28.76'E	
Course	118°T	
Speed	~3 to 6kts	
Leg Distance	1.3nm	
Minimum Depth at CD	0.4m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	Double Island at 0.11nm	

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4.3 Double Island to PBG

Waypoint	WP004 (Double Island)	<ul style="list-style-type: none"> • Call Port of Barrow on VHF Ch10 when passing Double Island southbound. • The Flood tide sets to the South. The Ebb tide sets to the North. Tidal streams can be very strong (~3 to 4kts at times) around the northern end of Double Island. • No Go Zones exist to both the West and East of the track.
Latitude	20°44.05'S	
Longitude	115°30.00'E	
Course	186°T	
Speed	~6 to 10kts	
Leg Distance	3.2nm	
Minimum Depth at CD	5.0m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	Channel Rock at 0.16nm	

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Waypoint	WP003 (West Cardinal)	<ul style="list-style-type: none"> • A No Go Zone exists to the East of the track. • Be aware of converging traffic from the South. • Be aware of traffic departing the MOF. • The Flood tide sets to the South. The Ebb tide sets to the North. • Extra caution to be taken in the vicinity of the South Cardinal Mark due to the potential for converging traffic.
Latitude	20°47.20'S	
Longitude	115°29.67'E	
Course	146°T	
Speed	~6 to 10kts	
Leg Distance	1.0nm	
Minimum Depth at CD	5.2m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	West Cardinal at 0.3nm	

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Waypoint	WP002 (SW South Cardinal)	<ul style="list-style-type: none"> Be aware of the CBM oil pipeline in the vicinity of the South Cardinal Mark. Be aware of converging traffic in the vicinity of the South Cardinal Mark. The CBM to the South of the track is considered a No Go Zone. A No Go Zone exists to the North of the track until clear of the Lowendal Shoal. Call the Port of Barrow on VHF Ch10 when crossing port limits outbound. Extra caution to be taken in vicinity of the PBG due to the potential for converging traffic. At the PBG, the Flood tide sets to the South West. The Ebb tide sets to the North East. PBG (WP001): Lat 20o48.60'S, Long 115o36.00'E. Vessel and Pilot Boat are to discuss and agree on vessel speed and heading prior to transfer, ensuring a good lee is provided for disembarkation. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat.
Latitude	20°48.00'S	
Longitude	115°30.25'E	
Course	096°T	
Speed	~6 to 10kts	
Leg Distance	5.4nm	
Minimum Depth at CD	6.1m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	South Cardinal at 0.2nm	

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4.4 B2 Anchorage to Double Island

Waypoint	WP009 (B2 Anchorage)	<ul style="list-style-type: none"> • Pilot will embark by Pilot Boat. The vessel is to follow any instruction from the Pilot Boat in regards to the rigging of the ladder. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat. • Note the 4.4m patch within the designated boundaries of the B2 Anchorage. • The Flood tide sets to the South. The Ebb tide sets to the North. • A No Go Zone exists to the East of the track. • Call Port of Barrow on VHF Ch10 when heaving anchor and again when anchor is aweigh. • At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required.
Latitude	20°42.10'S	
Longitude	115°29.60'E	
Course	202°T	
Speed	~3 to 6kts	
Leg Distance	0.8nm	
Minimum Depth at CD	4.4m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index		

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Waypoint	WP007 (Ant Point)	<ul style="list-style-type: none"> • The Flood tide sets to the South. The Ebb tide sets to the North. • No Go Zones exist to both the East and West of the track. • At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. • A minimum UKC of 0.5m must be maintained throughout the transit. • Double Island (WP004): Lat 20°44.05'S, Long 115°30.00'E.
Latitude	20°42.80'S	
Longitude	115°29.30'E	
Course	152°T	
Speed	~6kts	
Leg Distance	1.4nm	
Minimum Depth at CD	5.0m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	Mushroom Island at 0.44m	

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4.5 WAPET (LCT Ramp and LBW) to B2 Anchorage

Waypoint	WP011 (Berth)	<ul style="list-style-type: none"> • Pilot will normally embark by Pilot Boat. The vessel is to follow any instruction from the Pilot Boat in regards to the rigging of the ladder. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat. • The Pilot will detail the manoeuvring of the vessel out of the berth or LCT ramp, including un-mooring arrangements as part of the MPX. • Pilot will brief the Master on contingency plans, No Go Zones and abort points as part of the MPX. • The Pilot will have completed all necessary UKC calculations. • A minimum UKC is to be maintained as per <i>ABU110700304 - Port of Barrow Island – Port Information Guide</i>. • Call Port of Barrow on VHF Ch10 with last line time. • Be aware of strong tidal streams and prevailing winds affecting the vessel. • Be aware of shallows to the North of the LCT ramps. • Ensure adequate clearing distances are maintained between the vessel and any obstruction, such as other vessels, navigational marks and mooring dolphins. • At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required.
Latitude	Various	
Longitude	Various	
Course	Various	
Speed	<1kts	
Leg Distance	Various	
Minimum Depth at CD	Various	
Maximum Cross Track Error	N/A	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	N/A	

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Waypoint	WP006 (WAPET Landing)	<ul style="list-style-type: none"> The Flood tide sets to the South. The Ebb tide sets to the North. A minimum UKC of 0.5m must be maintained throughout the transit. Be aware of dangers to the South of the track and shallows to the North of the track. At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. Reverse leads bear 086°(T).
Latitude	20°43.45'S	
Longitude	115°28.50'E	
Course	086°T	
Speed	~3kts	
Leg Distance	0.2nm	
Minimum Depth at CD	0.9m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index		

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Waypoint	WP005 (Mushroom Island)	<ul style="list-style-type: none"> The Flood tide sets to the South. The Ebb tide sets to the North. A minimum UKC of 0.5m must be maintained throughout the transit. A No Go Zone exists to North of the track in the vicinity of Mushroom Island. Be aware of dangers in the vicinity of Mushroom Island and the GBB. Ensure adequate clearing distances are maintained between the vessel and any navigational danger, obstruction and/or navigation mark. At night, visual references are very limited. It is recommended, in addition to keeping a proper lookout, that assist vessels use their navigation equipment to help with position awareness. Be aware of converging traffic from the South. Note: Courses stipulated in this document may need to be varied on occasion to counteract the strong effect of prevailing tidal/weather conditions experienced at WAPET.
Latitude	20°43.43'S	
Longitude	115°28.76'E	
Course	097°T	
Speed	~3 to 6kts	
Leg Distance	0.9nm	
Minimum Depth at CD	0.4m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	Mushroom Island at 0.08m	

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Waypoint	WP010 (East Mushroom Is)	<ul style="list-style-type: none"> The Flood tide sets to the South. The Ebb tide sets to the North. No Go Zones exist to both the East and West of the track. At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. A minimum UKC of 0.5m must be maintained throughout the transit.
Latitude	20°43.54'S	
Longitude	115°29.72'E	
Course	332°T	
Speed	~6kts	
Leg Distance	0.8nm	
Minimum Depth at CD	5.0m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	Mushroom Island at 0.44m	

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Waypoint	WP007 (Ant Point)	<ul style="list-style-type: none"> Note the 4.4m patch within the designated boundaries of the B2 Anchorage. The Flood tide sets to the South. The Ebb tide sets to the North. A No Go Zone exists to the East of the track. Call Port of Barrow on VHF Ch10 immediately prior to anchoring to confirm position. Call Port of Barrow on VHF Ch10 once the vessel is brought up to her anchor and in all regards secure. At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. B2 Anchorage (WP009): Lat 20°42.10'S, Long 115°29.60'E. Pilot will disembark by Pilot Boat. The vessel is to follow any instruction from the Pilot Boat in regards to the rigging of the ladder. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat.
Latitude	20°42.80'S	
Longitude	115°29.30'E	
Course	022°T	
Speed	~3 to 5kts	
Leg Distance	0.8nm	
Minimum Depth at CD	4.4m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index		



5.0 Execution of Passage Plan – Expectations

5.1 Notes for Master and Bridge Team

- Prior to commencing the passage outbound, the Master is to review the passage plan and plot the plan onto the appropriate charts or ECDIS system, briefing his/her Bridge teams accordingly. Any concerns or questions are to be raised with the Pilot prior to commencing the passage.
- In accordance with AMSA regulations, all charts (paper and electronic) and navigational publications must be corrected to the latest edition of the Australian and Western Australian Notices to Mariners, including any applicable Temporary Notices to Mariners that may be in force. Additionally, the vessel is to have available and understand the BWI Marine Notices that are in force. BWI Marine Notices and other relevant port information are located on the Port of Barrow Island website.
<https://www.chevronaustralia.com/our-businesses/barrow-island/barrow-island-port>
- Charts required for the passage are the latest editions of Australian Hydrographic charts AUS 62, AUS 65, AUS 66 and AUS 67.
- Any deficiencies that may affect the vessel's operating performance are to be reported to the Pilot at the first available opportunity prior to commencing the passage outbound.
- All bridge navigational equipment must be switched on and functioning correctly prior to the Pilot boarding. All navigation systems, including paper charts, are to be arranged and displayed so that the Pilot can quickly determine the vessel position, course and speed at any time during the passage.
- Anchors are to be cleared away and ready for letting go prior to the Pilot boarding.
- A MPX involving the Pilot, Master and Bridge team will be conducted after the Pilot has arrived on the bridge. The Pilot will take conduct of the vessel at the conclusion of the MPX.
- To ensure an appropriate level of BRM, Pilots utilise a "Closed Loop" system of communications for the relay of orders. The Master/OOW is to ensure the bridge is managed such that all orders can be clearly heard, understood and responded to. The Master/OOW is to monitor course, helm orders and engine settings to ensure compliance with the Pilot's directions.
- Pilotage is compulsory for the Port of BWI and the Pilot will have the conduct of the vessel at all times whilst manoeuvring within port limits. It is acknowledged however, that the Master always remains in overall command of his vessel. Adhering to good BRM principles, Pilots actively encourage a "Challenge and Response" environment. If at any time the Master/OOW is unsure of the actions being taken, they are to challenge the Pilot and vice versa.
- Ship's position, proximity to dangers and UKC should be continuously monitored by the Master/OOW and cross-referenced with the passage plan. If the Master leaves the bridge, the OOW must always seek clarification from the Pilot when in any doubt as to the Pilot's actions or intentions.
- It is important to keep formal records of all navigational activities and any incidents in the appropriate Bridge Movement logbook. Information recorded should be of an

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appropriate standard so that the vessel's progress out of the Port can be reconstructed at a later date.

5.2 Notes for the Pilot

- Conduct of the vessel will be assumed by the Pilot in an unambiguous manner.
- The Pilot will assist the Bridge team to ensure radar conspicuous points, parallel indexing and any clearing bearings/ranges are properly understood.
- For each leg of the passage the Pilot is to brief the Master on the required fixing interval and methods used to determine ship's position. In determining the most appropriate fixing method and interval the following will be taken into consideration:
 - The state of wind, sea and weather
 - Proximity to navigational dangers
 - Traffic density
 - Manoeuvring characteristics of the vessel
 - Navigational equipment available, and
 - How position data is displayed, i.e. ECDIS or paper charts
- The Pilot will ensure tug and communication protocols are explained fully.
- The Pilot is to ensure all navigation hazards (e.g. No Go Zones) are clearly marked on the chartlet.
- If for any reason prior to commencing the passage plan, there is a need to deviate from the standard passage plan, a revised passage plan will be formulated and agreed between the Pilot and Master; any additional hazards will be identified and any mitigations/controls shall be detailed in an appropriate JHA.
- When manoeuvring vessels such that they are closing to within 50 metres of a fixed jetty, wharf or other moored vessel, approach speeds are to be less than 1.0 knot in order that all way can be taken off the vessel quickly and in a controlled manner, preventing any unplanned close quarters contact with said shore facilities or vessels.

If there is a need to deviate from the passage plan for any reason, the Bridge team must be fully briefed as to the Pilot's intentions, and the Pilot should make every opportunity to return to the passage plan as soon as possible.

6.0 Document Control

6.1 Ownership

Document Author	Cameron Crampton	Owner	Brad Ryman
Reviewer List	Michael Birchall		

6.2 Revision History

Rev	Description	Date	Prepared By	Approved By
1.0	Approved for Use	29 April 2016	Cameron Crampton	Brad Ryman