Forth Ports Limited

Marine Procedures, Guidelines and Information

5th April 2024

PRE –AMBLE

This document contains procedures, guidelines and information for vessels operating on the River Forth and its Ports & Terminals within the jurisdiction. To determine the nature of the text it shall be labelled with a (P) – Procedure, (G) – Guideline or (I) – Information.

Any deviation from this document shall be conducted with the appropriate required consultation and with the permission of the Chief Harbourmaster or with his/her delegated authority.

Procedure (P) – a mandatory action to be conducted in a certain order or manner.

Guideline (G) – a general rule, principle or advise forming the basis of a sound decision.

Information (I) – informative material or facts.

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	1.5 Leith added to anchorages. 'The Harbourmaster' replaced with 'FTNS'	11
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	1.14 'Cold Stack at Anchor (Forth) Form added	22
	1.16 'instruction' replaced with 'direction'	24
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	2.9 Maximum size of loaded tanker updated to include displacement	34
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	3.8 Movements in Imperial Dock During Spooling.	43
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	6.3 Crombie guidelines updated – towage requirements, standby towage, and anemometer for wind parameter	55/56

	7.1 Tug Fleet updated	57
22/04/2022	6.3 Crombie Standby Towage updated	55/56
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15/07/2022	2.2.1 / 3.3.1 / 4.7 First time caller 2nd Pilot requirements added	31/41/51
08/08/2022	1.14 Cold Stack (Forth) Form to be submitted for all cold lay-up vessels.	22
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GLOSSARY

UKC Under Keel Clearance
VTS Vessel Traffic Service
FTNS Forth and Tay Navigation Service
ETA Estimated Time of Arrival
LOA Length Overall
VHF Very High Frequency Radio
ACD Admiralty Chart Datum
HW High Water
LW Low Water
BT British Telecom
PST Port Side Too
SST Starboard Side Too
J (2/3) Jetty
BP Bollard Pull
LPG Liquid Petroleum Gas
DWT Deadweight
PEC Pilot Exemption Certificate
GC Gantry Crane
FL Flash
G Green
O Occulting
IPOS Integrated Port Operating System
LAT Lowest Astronomical Tide
ASD Azimuth Stern Drive

RIVER FORTH

1.1 Forth Rail and Road Bridges Allowable Clearance Heights (P)

The transit of the bridges by vessels with restricted airdrafts will be reported to the respective bridge authorities. A `restricted airdraft` vessel means any vessel with an airdraft, which may prevent her from transiting the bridges at any state of the tide.

The cruise liner programme will be forwarded to the respective bridge authorities at the start of the season.

Scheduling will be carried out using Rosyth tidal data.

Forth Rail Bridge

Height of Bridge above Chart Datum	52.06 m
Deflection due to Live Load	0.15 m
Net Height above Chart Datum	51.91 m
Clearance Margin	2.00 m
Allowable Height above Chart Datum	49.91 m

Gantry Position - The clearance height is with the disused gantry in the stowed position which is to the North of the navigable span.
If a vessel cannot remain clear of the gantry then the allowable height above Chart Datum will be reduced by a further 1.3m.

Forth Road Bridge

Height of Bridge above Chart Datum	55.26 m
Deflection due to Live Load	3.16 m
Net Height of Bridge above Chart Datum	52.10 m
Clearance Margin	2.00 m
Allowable Height above Chart Datum	50.10 m
Curvature to red and green light	0.9 m
Normal Allowable Height above Chart Datum	49.20 m

Gantry Position - The clearance height is with painting and maintenance platform removed, which is the normal situation. If the platform is in place, allowable height above Chart Datum will be reduced by a further 2.7 m.

The calculation for airdrafts takes into account the red and green light reduction at the road bridge of 0.9 m in the first instance. A further assessment will be made in the case of any vessel, which is otherwise able to make the transit.

Queensferry Crossing

Allowable height above Chart Datum 50.8 m

Please note the above heights include allowances for maintenance gantry and includes a safety clearance of no less than 2 m in both navigational envelopes (between green and red lights of both channels)

1.2 Forth Rail Bridge South Arch (P)

The South Arch should only be used in exceptional circumstances.

Exceptional circumstances are out of the normal situations, which mitigate a potentially hazardous occurrence. Agreement must be sought from FTNS and the Pilot/Master of vessels concerned. VTS should advise local craft by means of a broadcast on channel 71 and the vessel wishing to undertake the passage must not exceed 100m. Should exceptional circumstances arise pilots will require being familiar with the route. In order to undertake familiarisation trips pilots should comply with the following:

- Before embarkation the pilot is to contact VTS to intimate his intentions.
- Vessel must not exceed 100m overall length.
- On embarkation pilot will discuss the intended route with the master and incorporate into the passage plan.
- Pilot will advise VTS that the passage plan has been discussed and agreed which includes passage through the South Arch.
- Information broadcast will be made on Channel 71 by VTS in order to advise local traffic of the intended route and an ETA.
- Vessel must not undertake the trip whilst:
  - A Hound Point vessel is manoeuvring onto or off the terminal.
  - A vessel is moored alongside at Hound Point 1
  - A vessel is anchored at the Hound Point Anchorage
  - Attention is drawn to General Direction 8

1.3 Use of Boatmen (P)

Introduction

This procedure outlines the requirements for vessels with regards the use of licensed boatmen and the handling of ships moorings within the Ports owned and operated by Forth Ports Limited Ports. The berth / terminal operator of those facilities not operated by Forth ports should have their own procedures which should be adhered to.

Berthing and Unberthing Operations

Mooring and unmooring of vessels must be undertaken by trained and licensed mooring gangs. It is not permitted for ship's crew to embark or disembark the vessel without appropriate gangway being rigged and therefore crew are not permitted to catch or release mooring lines from the quay.

The practice of putting mooring lines out on a bight in order that they can be slipped is also not permitted.

Shifting Operations

Vessels should ensure that the latest edition of the Pilotage Direction is consulted and adhered to when shifting.

Vessels requiring compulsory pilotage must ensure that a pilot is utilised if letting all ropes go to facilitate shifting.

If the vessel requires shifting more than a ships length licensed boatmen are required.

If a ship is moving less than a ships length and utilising the vessel crew to handle moorings the following criteria must be adhered to;

- Permission from VTS or Grangemouth Locks on the appropriate VHF channel. The vessels should also seek permission from ops prior to moving.
- Vessel must confirm on that it has appropriate risk assessments and procedures in place to safely carry out the operation, including safe manning requirements. RA's and procedures must be available on the vessel for Port Authority to view if required. Forth Ports FPS PMSC F 39_01 Self-Mooring Notification Forth & Tay should also be completed
- All crew landed ashore must do so using a safe means of access and adhere to Port H&S requirements (i.e. Lifejackets and PPE) – See port welcome packs.
- Wind Speed ≤15kts
- On commencement and completion of the operation the vessel must inform VTS or Grangemouth Locks on the appropriate VHF channel.

1.4 Testing Engines Astern Before Berthing at any Port, Harbour, Dock or Terminal (P)

All vessels should test their engines astern before entering any lock system or berthing at any port, harbour, dock or terminal.

Any defects or failure of the engine to go astern should be reported to Grangemouth Locks or VTS and the berthing/docking aborted.

Testing Engine and Bridge Controls

Mariners are advised of the following precautions to be exercised prior to and when testing engines.

- Ensure gangway is tended and access prohibited during test or removed
- Cease cargo operations (tankers should disconnect and shore cranes boomed clear)
- Cease bunkering operations (disconnect)
- If necessary inform stevedores
- Test pitch at each console before engaging engines
- Ensure mooring lines are out and fast before engines are tested under load
- Tend mooring lines
- Consider proximity of other vessels and in particular small craft (tugs, mooring boats etc.) Ensure full understanding of the Emergency Stop procedure and be prepared to activate if any fault is discovered whilst testing.

1.5 Cruise Liners Tender Operations at Anchor

Anchorages are available in the vicinity of South Queensferry and Newhaven,

VTS will advise other river users of the cruise vessels location through VHF broadcasts. Transiting traffic should agree safe passage with the anchored vessel and keep VTS appraised of intentions.

Passenger tenders operating from the cruise liner should be appropriately crewed by trained and experienced personnel. The cruise vessel should have an appropriate risk assessment and method statement/operational procedure document for these tenders prior to arrival.

Tender operations in restricted visibility

The suitability of the conditions for tender operations should be reassessed by the vessels Master, and suitable mitigations (which may include but are not limited to the use of navigational lights, sound signalling, radar, chart plotters and extra lookouts) put in place if:

- For Newhaven tender operations – The Leith Approach Buoy cannot be seen from the Leith Harbour Office
- For South Queensferry tender operations – The visibility is less than 0.5nm.

If the vessels Master deems it safe to continue operations. The additional mitigations that have been put in place should be discussed with the Duty Harbourmaster.

1.5.1 South Queensferry Anchorage

- Vessels that anchor in the South Queensferry Anchorage will tender into Hawes Pier.

- The position of the anchorage and any additional requirements for these vessels will be published annually in a Notice to Mariners Firth of Forth.

- Any vessel which cannot comply with the requirements of the Notice to Mariners should notify the Harbour Master prior to the vessels arrival and ideally prior to, or at the time of booking.

- A pilot will remain onboard throughout to ensure, when requested to do so by transiting traffic, that the vessel remains parallel to and clear of the main navigational channel. Additionally, the pilot will ensure that the cruise vessel remains two cables clear of No 19 Buoy at all times. VHF communication should be maintained throughout both with VTS and passing traffic.

- All cruise vessels destined for South Queensferry Anchorage require an escort tug from 1nm west of Oxcars to the anchorage.

- All vessels over 300m LOA will require one tug to be fast throughout. All other vessels require one tug fast aft unless due to the manoeuvring characteristics of the vessel, and weather, visibility, traffic density on the day it is deemed it is not required. The tug however, must remain in standby mode and be available for immediate deployment if required.

- This will be determined by the Pilot, Master and Duty Harbourmaster whilst on route to the anchorage and during the time at anchor.

- VTS will advise other river users of the cruise vessels location through VHF broadcasts as well as notification of periods when the cruise vessel may be swinging into the navigational channel. Transiting traffic will normally pass to the north of the anchored cruise vessel if it is safe and practical to do so and should approach no closer than 200 metres at any time.

- Passenger tenders operating from the cruise liner should be appropriately crewed by trained and experienced personnel. The cruise vessel should have suitable risk assessments and method statement/operational procedure document for tender operations. Tenders should not approach within 100 metres of Hound Point or vessels moored at Hound Point and all terminal regulations must be respected.

1.5.2 Newhaven Anchorage

- Vessels that anchor in the Lima Anchorage will tender into the Newhaven Harbour.

- The position of the anchorage and any additional requirements for these vessels will be published annually in a Notice to Mariners Firth of Forth.

- Any vessel which cannot comply with the requirements of the Notice to Mariners should notify FTNS prior to the vessels arrival and ideally prior to, or at the time of booking.

- A pilot will remain on board throughout to ensure, when required that the vessel remains within the deep water of the anchorage and clear of passing traffic bound for Leith. VHF communication should be maintained throughout with VTS and passing traffic.

1.6 Vessels without Appropriate Navigational Charts (P)

For a vessel to comply with the General Directions it is mandatory that vessels should have the appropriate charts before commencing the river passage.

Pilots boarding vessels which do not have the appropriate charts should, for inbound vessels, put the vessel to the nearest and most appropriate anchorage, and for sailing vessels not leave the berth.

Electronic Charts must be approved and have a back up (either a second approved electronic system or charts).

Foreign charts are acceptable if they conform to the international numbering system. Russian charts do not conform to the above standard but are recognised by the Hydrographic Office.

1.7 Hound Point Maximum Departure Draft (P)

A vessel on departure from Hound Point Marine Terminal must pass over the 18.4m (below ACD) patch north of the Terminal and the bar NE of Inchkeith Island (19.5m below ACD). The current respective UKC's are 2.1m and 2.5m. Leith tide tables are used in respect of calculations for the bar NE of Inchkeith and Rosyth tide tables for Hound Point Terminal.

The tanker must pass over the bar at a time of (HW Leith). This necessitates a departure from the Terminal of 2 hours earlier. Thus the most critical UKC is that when passing over the 18.5m patch north of the Terminal.

To determine the maximum permitted departure draft:

Look up terminal departure time which is (HW - 2) at Leith.
Calculate the height of tide at Rosyth for this time.
Ruling depth = 18.4m below ACD
Underkeel clearance = 2.1m
Maximum Permitted draft = (Height of tide Rosyth + Ruling Depth) - UKC

Quick Reference Table

Item	Value
Ruling Depth	18.5m
Height of Tide Rosyth (At HW Leith – 2hrs)	
Less Underkeel Clearance	-2.1m
Maximum Permitted Draft	

Vessels of Maximum draft should have a departure time no later than 2 hours before High Water at Leith in order to be at No 1 Buoy at High Water (Leith).

N.B. Departure time is the time of last rope gone and is regarded as occurring 30 minutes after Pilot on board Time.

1.8 Navigating in Passage South of Oxcars Light (P)

The passage South of Oxcars light is not marked as a navigational channel.

This passage, except for dredgers going to the spoil ground, should only be used in exceptional circumstances.

Exceptional circumstances are out of the normal situations, which mitigate a potentially hazardous occurrence. Agreement must be sought from FTNS and the Pilot/Master of vessels concerned. VTS should advise local craft by means of a broadcast on Channel 71.

Should exceptional circumstances arise, pilots will require being familiar with the route. In order to undertake familiarisation trips pilots should comply with the following:

- Before embarkation, the pilot is to contact VTS to intimate his intentions.
- On embarkation, the pilot will discuss the intended route with the Master and incorporate into the passage plan.
- Pilot will advise VTS that the passage plan has been discussed and agreed which includes passage south of Oxcars light.
- Information broadcast will be made on Channel 71 by VTS in order to advise local traffic of the intended route and an ETA.
- Attention is drawn to General Direction 10.

1.9 Emergency Use of an Anchor in Locks (P)

The only time an anchor should be deployed in a lock or approaching the sill of a lock is in an emergency situation. Such an emergency is likely to be circumstances whereby the ship's engine has failed and there is an imminent danger of the vessel breaching the lock gates.

The dropping of an anchor in such emergency situations should only be used as an absolute last resort when all other options have failed.

Pilots and Masters should be aware that dropping an anchor in such circumstances however, is unlikely to have any significant effect as the base of the lock is made of reinforced concrete and there is no holding ground for an anchor to catch and arrest the forward motion of a ship, unless the anchor catches on the sill.

The sill is a raised concrete step on the lock floor which the gates close against, forming a seal to prevent loss of water. If the lock sill was damaged the gate would not form a seal and significant water loss would occur. Repairs to the Outer or Inner Sill would result in the gates being removed and restricting ships to either the Inner or Outer chambers. Damage to the Middle Sill would restrict the lock to full chambers. The lock would be closed for periods to install and remove gates and to deploy a "Habitat". A habitat is a caisson to enclose the sill in order to undertake repairs without draining the lock.

In conclusion - dropping an anchor in a lock must at all times be avoided and only considered in extreme situations as an absolute last resort. Pilots and Masters should in light of the above information ensure that vessels enter lock systems at an appropriate and controllable speed.

1.10 Submerged Power and Data Cables (I)

The table below details the locations of submerged power and data cables in docks and at berths on the Forth. These are in addition to the main cables running across the Forth which are marked on the Admiralty charts.

To avoid fouling and damaging these cables the use of anchors in these areas should be avoided unless in emergency situations. In such situations this should only be used as an absolute last resort when all other options have failed.

Port	Location	Description
Leith	Albert Passage	Main Forth Ports Data Cable Electrical Cable BT Lines x 2
Leith	Under Edinburgh Bridge	BT Lines
Methil	Entrance to No.1 Dock	Electrical Power Cables
Burntisland	Entrance to East Dock	Power and Control Cables
Burntisland	Entrance to Outer Harbour	Power Cables
Burntisland	Approaches to West Dock	Power Cable
Grangemouth	No.2 Bridge, Carron Dock	Cables in Conduits
Grangemouth	West Bridge Cut, Carron Dock	Cables in Conduits

1.11 Abort Practice (P)

The criteria set out within this document have been agreed following risk assessment and consultation with the appropriate parties. There may however be occasions when masters or pilots have concerns over the prevailing conditions. They may therefore consider that it would be prudent to abort the operation before the limits in these Guidelines are reached. These decisions can only be made at the time by the master and pilot after assessing the situation and the circumstances of any particular case. Masters and pilots are reminded that discussion and agreement of an appropriate abort position is an integral part of every passage plan.

1.12 Vessel Operator Restrictions (P)

Vessels are scheduled into / out of ports on the Forth & Tay in accordance with the under keel clearance and scheduling criteria specified in this document.

Vessel operators who require additional restrictions such as increased under keel clearance margins (See Forth Ports – Ruling depth and UKC Document Forth) , over and above those required by the port, must ensure that these requirements are specified to FTNS at the time of booking the vessel's arrival / departure. This is to ensure that vessels are booked for the correct time, and to ensure that unnecessary delays / impacts to the shipping schedule are avoided.

Agents are advised to ascertain vessel specific scheduling requirements prior to making arrival / departure bookings through FTNS.

1.13 Bunkering Procedures River Forth (P)

See Forth Ports Bunkering Procedure (Scotland)

1.14 Requirements for Vessels & Rigs to Cold Lay-up in the Firth of Forth & Ports Contained Therein (P)

See Cold Stack (Forth) Form

1.15 First time caller reports

Pilots should report to FTNS on vessel manoeuvrability then complete and submit a first time caller report after first visit to allow additional information to be entered into IPOS.

Pilots will report to FTNS on vessel manoeuvrability after the first visit with a recommendation that a vessel is allocated a class (Grangemouth only), tug requirements, weather parameters, any other considerations and scheduling parameters.

This will be added to the vessel`s data in IPOS together with any tug requirements and date of notation.

E.g. “dd/mm/yyyy Class D One tug in; sail without”

1.16 **Docking and Sailing Guidelines and Voluntary Tug Code Introduction (G)**

The Guidelines form part of the formal risk assessment process and are continuously under review in the light of operational experience. There has been extensive consultation between the Port Authority and the Forth Pilots while producing these Guidelines.

It is not intended that these Guidelines are a rigid set of regulations or rules to be followed on all occasions, they are intended as guide to ships masters, agents, pilots and the Port Authority to allow safe and effective scheduling of vessels.

Further discussions on some occasions may be required between the Duty Pilot, Forth and Tay Navigation Service and the vessel's Master, taking into account the prevailing weather and tidal conditions and any other special circumstances.

The final decision on the number of tugs required rest with the Master of the vessel, in consultation with the pilot.

However the Port Authority reserves the right to require a vessel to take a tug or comply with any special direction which may be considered necessary according to the particular circumstances of the case.

The following assumptions have been made in preparing these guidelines:

- Standard Ship – single screw with no bow/stern thrusters, high efficiency rudder or other manoeuvring aids.
- Favourable weather conditions.
- Tidal Ranges within predicted limits.
- No adverse local activity and/or conditions.

Non-standard vessel will be assessed on an individual basis.

The Guidelines are presented in a tabular form, the tables contain an identification letter indicating tidal constraints followed by a numerical indication of the number of tugs recommended.

For ports with lock entrances the Guidelines refers to the requirement to enter/leave the locks. Further consideration to tug requirement may need to be given depending on berth location, side to, proximity of other berthed vessels.

Considerations for towage in adverse weather

- The wind is gusting to a speed at which a particular vessel would require a tug or additional tug

Consultation must take place between Pilot, Master and Duty Harbour Master.

After consideration of the following factors (but not limited to these):

- Wind direction and speed
- Vessel windage area
- Marine guidelines
- Forecast
- Berth alignment
- Berth occupation
- Tug availability
- Visibility
- Tidal conditions
- Manoeuvring Aids
- Vessel characteristics

All parties must agree if the operation is to proceed.

If, after consultation, the Duty Harbour Master is not satisfied that the vessel has sufficient towage, he will exercise his authority to issue a Special Direction to the Master to require a tug or additional tugs to be made fast before the vessel is given permission to move.

1.17 Safe Access and Self Mooring (P)

The Master of any vessel should ensure there is safe access before allowing anyone to step ashore. This is applicable irrespective of the form of mooring operation conducted.

1.17.1 Safe Access

Safe Access to vessels must be maintained at all times as per the guidelines contained in MGN 533 and The Code of Safe Working Practices Chapter 22. Vessel Gangways should be manned at all times and monitored to ensure that safe access remains in place taking into account vessel movements and during any adjustments of mooring lines.

Angles of gangways or accommodation ladders must be within the prescribed limits they have been designed for and in any case not greater than 30 degrees for a gangway and 55 degrees for an accommodation ladder. It is the Masters responsibility to ensure that safe access including angles of inclination are maintained within limits. This includes ensuring safe access throughout operations taking into account draft and trim of the vessel.

No embarkation/disembarkation is to take place unless via an approved means such as a gangway or accommodation ladder which have been rigged securely. Adequate PPE, including lifejackets and safety harnessless are to be worn when rigging or adjusting the means of access.

No Forth Ports owned port has an area specifically designed to ensure safe access to and from small vessels.

Vessel operators should ensure they give notice of arrival to allow a berth to be allocated and the most suitable means of access to be identified and risk assessed. The industry's recommended hierarchy of access arrangements for small craft, starting with the safest first, is as follows:

- Gangway between small craft and the quay, quay steps, quay wall, pier or other vessel/small craft.
- Stepping directly (short step, level access) between the small craft and the quay, quay steps, quay wall, pier, other vessel/small craft or pontoon.
- Fixed ladder from the quay, quay wall, pier or jetty.
- *Portable ladder between the small craft and the quay, quay wall, pier or jetty.

*Only permitted where no other safe means of access is reasonably practicable.
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1.17.2 **Self Mooring**

See Self-Mooring Notification Form

1.18 **Departure Clearances**

Vessels of 50 GRT or more, berthed or anchored within the Forth Ports Statutory harbour area will be required to request clearance **prior** to sailing, from Forth Navigation / Leith Harbour / Grangemouth Locks, as laid out in Forth General Direction 4(c)2:

4(c)2 The master of the vessel which proposes to commence navigating must obtain a clearance from the Duty Officer of the Forth Navigation Service before the vessel commences to navigate.

- For vessels under pilotage the pilot is to request clearance to depart.

- When clearance is granted to a vessel it will be valid for a 15minute period. If a vessel does not leave the dock or anchorage within 15 minutes then clearance must be requested again.

- If for any reason a vessel is not granted clearance, the vessel will be instructed to stay alongside and will be asked to call back after a specified period of time.

Clearance being granted does not relieve any vessel of their responsibilities under the **International Regulations for Preventing Collisions at Sea 1972**

2 PORT OF GRANGEMOUTH

2.1 Arrival Departure Guidelines (G)

These guidelines should be regarded purely as a starting point for discussions with the Port Authority, Duty Pilot, Master and Agent on tug allocation and scheduling. Actual tug allocation may be increased or reduced as appropriate. The guidelines should not be construed as any form of regulations.

The information detailed below refers to STANDARD SHIPS, which are single screw with no bowthruster. Standard meteorological conditions of maximum wind gusts not exceeding 15 knots and good visibility also apply.

U Unrestricted **F** Not during ebb **A** HW Slack only **B** HW or LW slack

Numerical value indicates tug numbers

Draft (m)	**Length overall in metres**							
	<100		**100 – 120**		**120-145**		**145-165**	**>165**
	Spring	**Neap**	**Spring**	**Neap**	**Spring**	**Neap**		
Docking								
<6	U0	U0	B0*	B0*/ U1	B1*	B1*/F2	B2	B2
>6	B0/U0	U0	B1	B0*	B2	B1*	B2	B2
>7	A1	B0/U1	A1*	B1*	A2	A2	A2	A2
>8			A1*	A1*	A2	A2	A2	A2
>9			A2	A2	A2	A2	A2	A2
Sailing								
<6	U0	U0	F0*	U0*	F1*	F1*	F2	F2
>6	U0	U0	F1	U0*	F2	F2	F2	F2
>7	F0*	U0*	F1*	F1*	F2	F2	F2	F2
>8			F1*	F1*	F2	F2	F2	F2
>9			F1*	F1*	F2	F2	F2	F2

* An additional tug may be required e.g. first arrival, vessel at upper end of length band, berth position or heading, and other vessels within the dock

N.B.
Vessels with LOA >150 m and PST on J2 & J3 depart berth no later than 2 hrs before HW. Lock-Max Tankers (e.g. Dragon class) on Departure should depart berth no later than 1¾ hrs before HW.

- Tidal range: Spring ≥4.0m, Neap <4.0m
- Scheduled times are: Inbound - Hen & Chickens, Departure – from berth
- HW slack: Spring HW-2 to HW, Neap HW-3 to HW. Arrival slots are based upon individual vessel classes.
- LW slack: HW-6

Pilots should report to FTNS on vessel manoeuvrability then complete and submit a first time caller report after first visit to allow additional information to be entered into IPOS.

2.1.1 Grangemouth Vessel Class Guidelines (G)

The departure times indicated are those at which the vessel must be ready to depart from the lock. An appropriate time interval must be allowed to cover transit from berth to lock and running down in lock. In many cases this will be 45m but more may be required depending on the vessel`s manoeuvrability and position within the port e.g.

- **Class D vessel SST on J2** **required interval 45 mins**
  Sailing window closes HW-30m latest off berth **HW –1hr 15m**

- **Baltic Tanker on E1** **required interval 1 hour**
  Sailing window closes HW-45m latest off berth **HW –1 hr 45m**

- **Class E tanker PST on J2 or J3** **required interval 1hr 15m**
  Sailing window closes HW-45m latest off berth **HW –2 hr**

- **Class F Containership** **required interval 1hr 15m**
  Sailing window closes HW-45m latest off berth **HW –2 hr**

- **Dragon Class SST** **required interval 1hr 15m**
  Sailing window closes HW-45m latest off berth HW -2 hrs

- **Dragon Class PST** **required interval 1hr 45m**
  Sailing window closes HW-45m latest off berth HW-2 hrs 30m

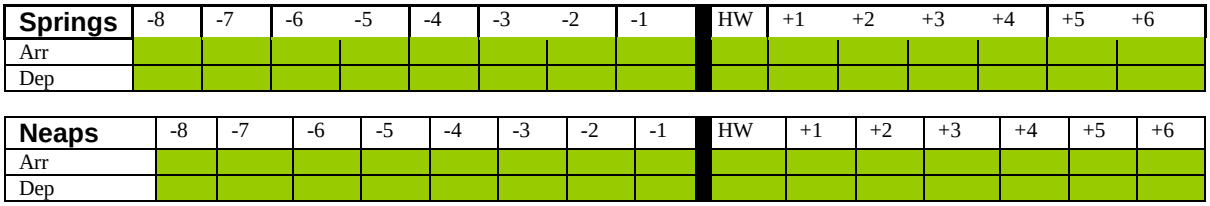
- When calculating the max. Acceptable draught for a LW slack docking, the predicted tide height at actual LW is to be used.

- Calculate times to the nearest High Water

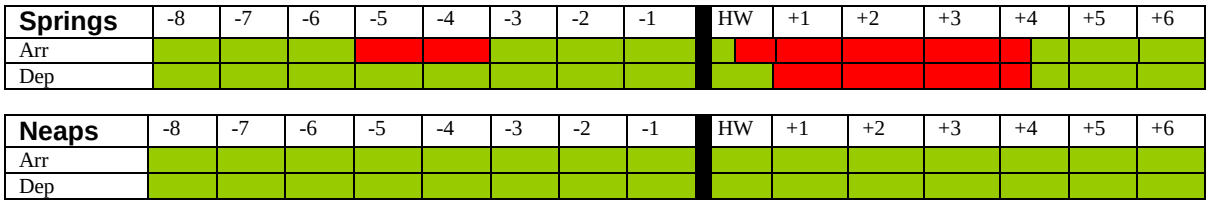
- The Neap / Spring Interface is 4.0m with the exception of ‘Class B’ where it is 4.5m

Vessel Class Guidelines

Class A - Unrestricted



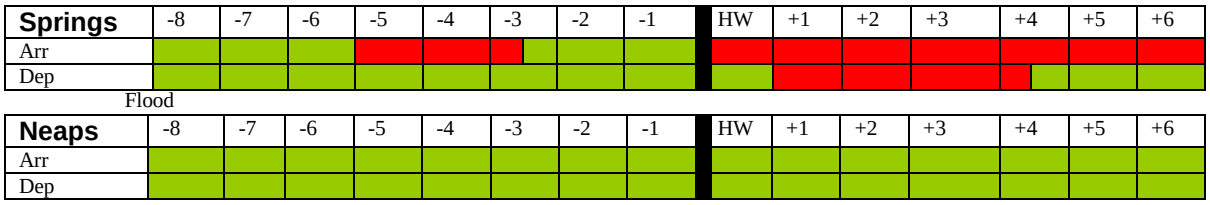
Class B – Guide 112m circa 4500DWT



Class C – Guide 120m circa 7000DWT

Lock Times

Lock Times



Flood

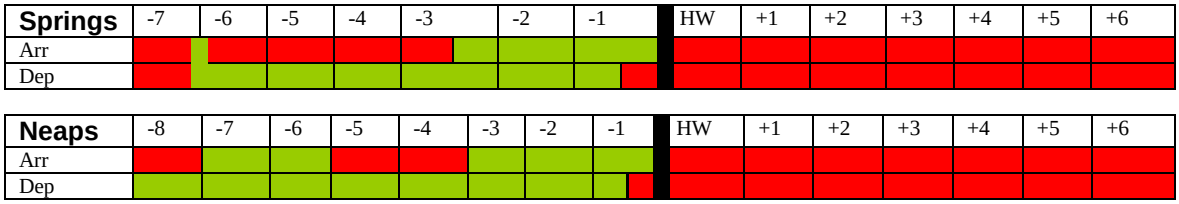
Class D – Guide 120m to 145m

HC Time for Arrival

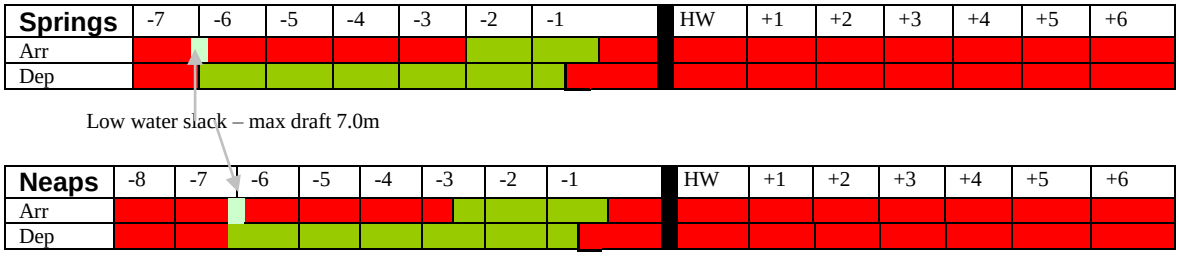
`Ready to leave lock` for departure

HC Time for Arrival

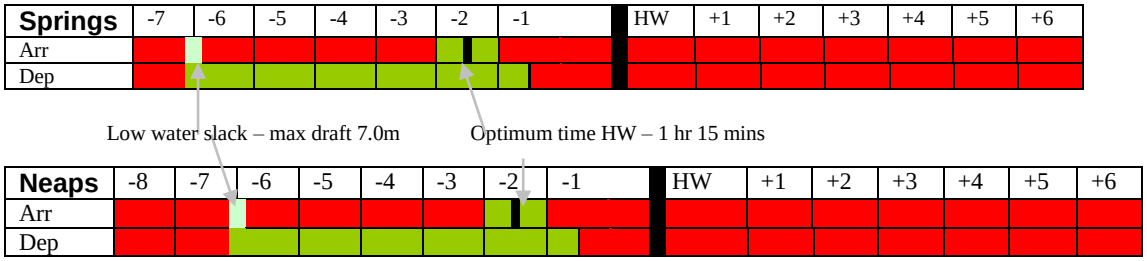
`Ready to leave lock` for departure



Class E – Guide 145m to 160m Example 16,000 DWT Product tankers



Class F – Guide 160m to Lock Maximum



2.1.2 Lock Approach (P)

- Ensure that the position and timing of other traffic is taken into account when using the Diversionary Channel or approaching the locks as per *General Direction 11 Movements of Selected Vessels bound to or form Grangemouth*.
- Pilots should ensure that when entering the Diversionary Channel or approaching the lock entrance safe speed is maintained ensuring that the pilot has con of the vessel.
- Pilots should ensure that they have made tugs fast in a timely manner at an appropriate location. Under normal circumstances, an inbound vessel will not plan to proceed past No 4 Buoy without its tugs in attendance.
- The allocation and position of tugs should be the pilot's decision based on the effective location to ensure maximum control and the highest safety.

2.2 Towage for First Time Calls (non-standard vessels) (P)

Non-standard ships (vessels with one or a combination of: bow/stern thruster; twin screw; Becker rudder etc.) have to be considered on a case by case basis.
First time callers will require an assessment in order to determine the vessel's manoeuvring characteristics. First time callers with an LOA of 100m and over will therefore be required to take at least one tug. For a sister ship of a vessel that has previously called the Duty Harbour Master and Duty Pilot should be consulted regarding towage.

Vessels less than 100m will not normally be allocated a tug. Should Masters however, require towage, they are encouraged to be pro-active and request a tug in advance to avoid delays.

2.2.1 Pilotage for First Time Callers with a LOA of 170m and over (P)

All vessels ≥170m LOA which are first time callers are required to take 2 pilots.

An assessment will then be carried out, and a report submitted to the marine team. The outcome will then be entered into IPOS and used for pilot allocation going forward. The requirements going forward could be 1 or 2 pilots, and could be specific to certain conditions i.e. arrival/departure, weather, deck cargo etc.

2.2.2 Towage Minimum Bollard Pull Requirement (G)

The following table is a guide to the minimum combined bollard pull requirement for tug allocation in conjunction with the "Forth Ports Docking and Sailing Guidelines and Voluntary Tug Code". As with the Code this table is a guideline and is not intended as a rigid set of rules and regulations.

The Port of Grangemouth is normally served by two licensed harbour tugs with a bollard pull between 37 and 60 tons. The table is intended primarily to give guidance when other licensed harbour tugs of different capacities may be deployed to the port. This might be the case over a busy high water period or during dry docking of the harbour tugs normally based at the port.

When allocating two or more tugs to a job consideration must be given to the mix of tugs to ensure that there is an appropriate balance with the tugs employed.

	1 Tug	**2 Tugs**
< 100m	19t	38t
100m - 120m	19t	38t
120m – 145m	19t	38t
145m – 165m	30t	45t
> 165m	N/A	66t

2.3 Towage Bridles (P)

A bridle towage arrangement is available when required. Vessels over 160m LOA will be assessed on a case by case basis taking into account the beam, type of propulsion including availability and power of bow thruster, weather, status of tide, previous assessments or previous incidents. Vessels that are deemed to require a bridle are to provide a plan of their forward mooring arrangements ahead of arrival to ensure pre planning can be carried out.

Prior to use of a bridle there should be a clear understanding of its limitations of with a focus on the maximum angles on the bow that the tug can pull from. A tool box talk between Pilot and Tug should take place to ensure these limits are understood.

On arrival, the tug/s will meet the vessel in the vicinity of Crombie Jetty

Forward tug will remain on the bridle for the entire manoeuvre (either with the bridle legs separated for lock entry or together through centre lead forward for arrival swing).

2.4 Visibility Parameters (P)

Vessels are not permitted to enter the Port when the outer end of the East Lead in Jetty cannot be seen from the Harbour Office.

Vessels are not permitted to leave the lock, berth or jetty in the Dock when No.2 Jetty cannot be seen from the Harbour Office.

2.5 Wind Parameters (G)

The table below shows the limiting mean wind speeds as indicated on the FTNS Grangemouth anemometer.

Wind Direction	**Eastern Channel Vessels >175m Limiting Wind Speeds Docking (undocking)**	**LPG Berth Limiting Wind Speeds Docking (undocking)**	**All other Eastern Channel berths Limiting Wind Speeds Docking (undocking)**	**Eastern Channel Limiting Wind Speeds For Mandatory consultation Docking (undocking)**
040 – 080	15 knots (25) knots	20 knots (30) knots	35 knots (35) knots	15 knots (25) knots
080 – 220	20 knots (20) knots	25 knots (25) knots	35 knots (35) knots	20 knots (20) knots
220 – 260	25 knots (25) knots	30 knots (30) knots	35 knots (35) knots	25 knots (25) knots
260 - 040	20 knots (20) knots	25 knots (25) knots	35 knots (35) knots	20 knots (20) knots

2.5.1 Wind Parameters for vessels alongside

In periods of strong winds it may be deemed necessary to take extra precautions to ensure vessels stay safely alongside. This should be after consultation with the Harbour Master and vessel Master.

All wind speeds referenced in this guidance are based on the Grangemouth Lock anemometer and refer to observed sustained wind or Grangemouth forecast. In circumstances where gusts that are significantly higher than the sustained wind speed are experienced, the Harbour Master may require earlier intervention due to the potential impact on the vessel's moorings. Vessel Masters and Terminal should also make earlier interventions if local sustained wind speed or gusts deem this necessary, any concerns or actions should be relayed to FTNS.

<u>All Berths/Jetties except E1 with Daughter Vessel:</u>

≥ 30 knots – Extra moorings to be run

≥ 35 knots – No vessel movements in the Eastern Channel

≥ 40 knots – Cargo operations to cease. Cargo arms/hoses to be disconnected and safely stowed. Container terminal cargo ops will cease at 72km/h as per crane manufacturers guidelines.

≥ 40 knots and/or frequent gusts of ≥ 55 knots – Tugs to be fully crewed up and available to be on site at short notice.

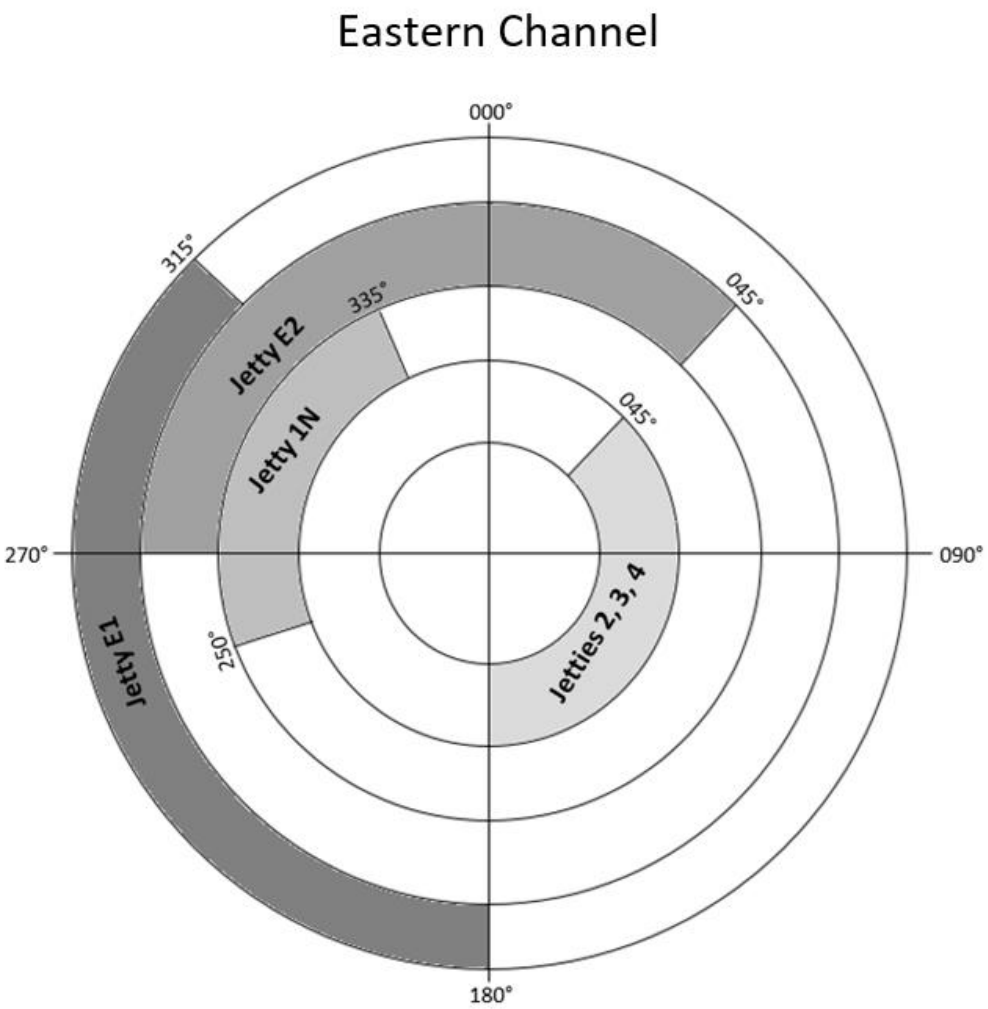
≥ 45 knots and/or frequent gusts of ≥ 60 knots – Tug to push on or make fast. (Dependant on wind direction. See diagram)

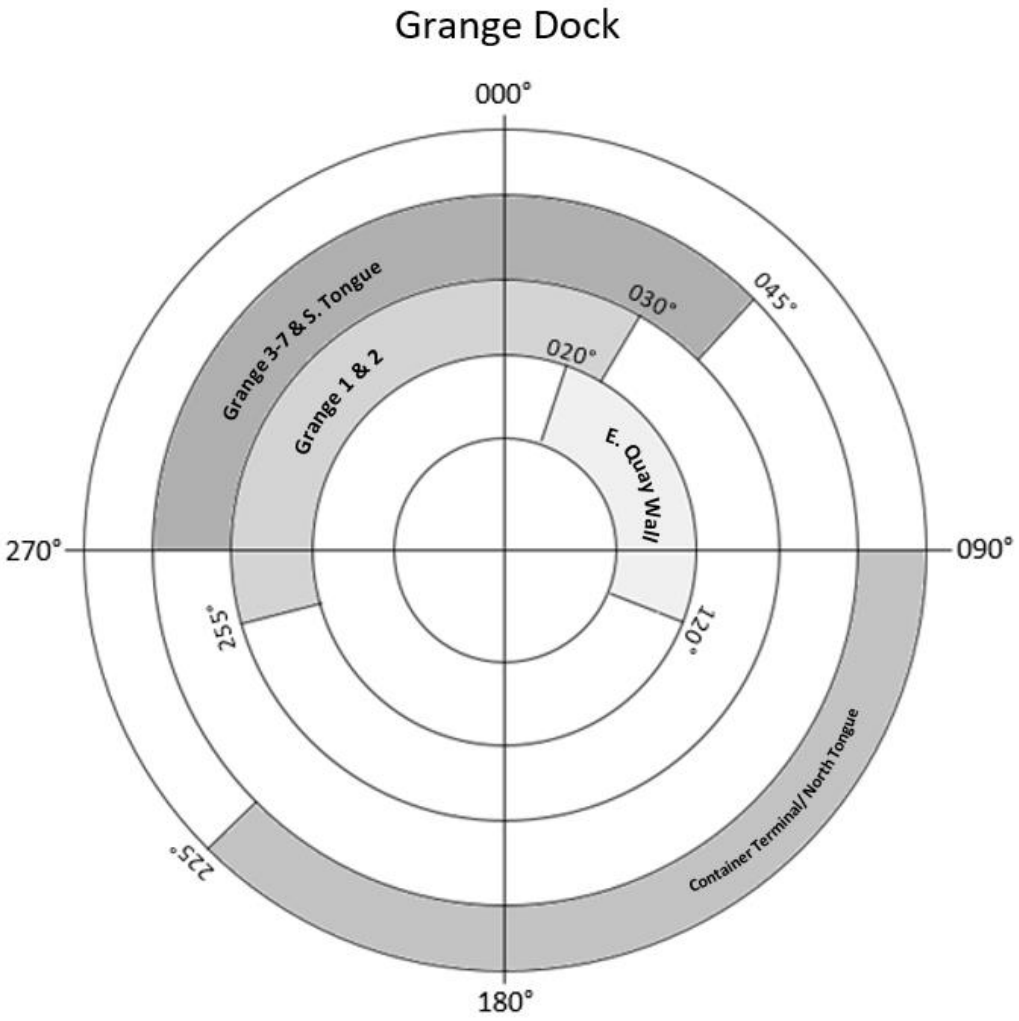
If a situation arises where 3 or more vessels require standby tugs; Grangemouth HM or deputy to be consulted and tugs allocated on a priority basis. Additional tugs can be requested if required.

Jetty E1 FSU with Daughter Vessel

If sustained wind speeds are forecast in excess of 40 knots, the daughter vessel to sail or be moved to alternative berth in advance of un-berthing/berthing limits being reached. If no alternative berth is available then discussion to be had with Grangemouth HM or deputy about other options including sailing from Port if tidal slot available.

Diagrams below are to be used as a guide for determining the wind directions that each berth/jetty will be most affected by wind.





2.5.2 Lock Transit (G)

Consultation should take place between Duty Harbour Master and Lock Foreman in advance of any lock movement, if mean wind speed is in excess of 35 knots. Maximum mean wind speed for lock transit is 40 knots. (Measured at Grangemouth anemometer.)

2.6 Eastern Channel Jetties – Passing Distance (G)

In planning a vessel movement which involves proceeding past another vessel moored at a jetty in the Eastern Channel, the pilot and/or Master (PEC Holder) should provide for as great a separation distance as reasonable under the prevailing circumstances.

However, in any event, such a separation should be a distance of not less than the beam of the passing vessel.

If it should appear during the planning of the pilotage movement that the maintenance of such a separation distance is impossible, the pilot and/or Master (PEC holder) should consult with the Harbour Master regarding berthing plans.

2.7 Vessels In Excess of 175m LOA (G)

These guidelines apply to all vessels calling at Grangemouth in excess of 175m and 25m beam.

Vessels with a LOA of 180m and above that are required to berth SST at J2 or to depart the berth from PST must have E2 berth clear.

Scheduling

- Hen and Chicken time should be HW- 1 Hour 15 Minutes
- Last booking for an outbound sailing (using tugs) should be 1 hours 30 minutes before Hen & Chicks time of the arriving vessel (> 175m)
- Vessel should berth SST unless previously agreed with the terminal and Duty AHM, or due to safety concerns i.e. meteorological conditions or mechanical issues.
- For the vessel to berth SST at J2 or to depart the berth from PST, E2 must be clear.
- No vessels are to be scheduled for departure between the tugs for a >175m tanker leaving the lock and the completion of the docking. Other vessels may be scheduled to sail with the tugs.
- The Duty AHM should have a conversation with the duty pilot / pilot prior to boarding in order to review the weather forecast if conditions are marginal.
- The departure times indicated are those at which the vessel must be ready to depart from the lock. An appropriate time interval must be allowed to cover transit from berth to lock and running down in lock. The appropriate time should be predetermined via conversation between the AHM and Duty Pilot.

2.8 LPG Berth (P)

- Vessels for LPG berth with LOA >100m will be required to take 2 tugs if the wind exceeds a mean speed of 20 knots.
- All vessels of 92 m LOA or over are to have a minimum of one tug made fast for berthing and sailing (unless warping directly into the berth from the locks).
- The Harbour Manoeuvring Plan will take account of the specific nature of the LPG berth.
- The Berth Operator requires vessels calling at the LPG Berth to have an operational bow thruster. Exceptionally, vessels without a bow thruster may be

considered on a case by case basis, in consultation with FTNS, Pilots and Berth Operator.

- Note different criteria for arrival and departure

Wind Direction	LPG Berth Limiting Wind Speeds Docking (undocking)
010 – 050	20 knots (30) knots
050 – 190	25 knots (25) knots
190 – 230	30 knots (30) knots
230 – 010	25 knots (25) knots

2.9 Floating Storage Unit/Daughter Vessel Operational Parameters (P)

Detailed below are the operational parameters for vessels docking and undocking in the Eastern Channel whilst the Floating Storage Unit (FSU) is berthed at E1.

- Pilot and Person in Overall Advisory Control (POAC) to confirm FSU is ready to receive Daughter vessel before Daughter vessel departs lock.
- Wind and visibility as per the Marine Guidelines
- Daughter Vessel - All dockings will be Port Side Too
- Towage for Daughter Vessel:
- On arrival will be standard towage for that vessel plus one tug, up to a maximum of two tugs:
  - Standard 0 tugs – Tug to meet inside dock
  - Standard 1 tug – First tug meet at H&C's and second to meet inside the dock
  - Standard 2 tugs – 2 tugs to meet at H&C's
- On departure normal towage plus one tug.
- On shifting to E1 normal arrival towage plus one
- On shifting from E1 normal departure towage plus one

Berth	Other Eastern Channel Berths	Docking	Undocking
E1 - Daughter Vessel	Vessel on E2	>150m - E2 to be clear	>150m - E2 to be clear
1N	Vessels on J2, E2 and Daughter vessel simultaneously	SST - No restriction PST - <150m*	PST – No restriction SST - >150m no sail unless one berth clear*
J3	Vessels on J2, E2 and Daughter vessel simultaneously	PST – No restriction SST - >150m one berth to be clear	SST – No restriction PST – >150m no sail unless one berth clear*
J2		No restrictions	No restrictions
E2		No restrictions	No restrictions
LPG		No restrictions	No restrictions
J4		No restrictions	No restrictions
TRANSIT		No restrictions	No restrictions
* Vessel may swing in Grange Dock with the following provisions:			

- Draft ≤7.7m and not a selected vessel
- Agreed in advance with Operations
- If necessary container gantry booms to be raised East of 13 bollard.

2.10 Common User Oil Jetty (CUOJ) (G)

The CUOJ is located in the Eastern Channel. The maximum vessel length for the Jetty is 180m. Wind and towage requirements will be in accordance with the parameters as laid down elsewhere within these guidelines.

All mention of deadweight and displacement in this section are loaded rather than summer figures.

The maximum size of a loaded tanker permitted is 21960t displacement.

Large vessels will normally berth SST owing to the depths towards the East Cut.

Larger vessels requiring one or two tugs are to be positioned parallel to the berth on a heading of either 210º or 030º and be manoeuvred so as to land squarely on all fenders, with an approach speed not exceeding the maximum velocity detailed in the table below.

Deadweight	Displacement	Berthing velocity m/s
10000	13100	0.21
15000	19200	0.17
18000	21960	0.15

Mooring Requirements

The use of mooring lines of dissimilar materials in parallel duty is prohibited. The minimum number of mooring lines to be used at each end of the vessel is as follows:

Up to 4000 DWT 4
4000 - 10000 DWT 5
Over 10000 DWT 6

In the event of adverse weather additional moorings may be required.

The bollards at the Common User Oil Jetty have a capacity of not less than 50 tons.

2.11 Docking and Undocking Procedures for Vessels at the Container Terminal Berth (P)

In order to maintain the highest standard of safety when vessels are docking or undocking in the vicinity of the transporter cranes in the container terminal at Grangemouth Docks all parties are required to adhere to the following:

Gantry Crane Position

	West **5 - 11 Pole**	**Centre** **11 - 15 Pole**	**East** **15 - 21 Pole**
1	**Vessel Docking/Undocking** The boom of the transporter crane adjacent to the berth is to be lifted. No personnel to be on the crane.	**Vessel Working** Boom is to be lifted and crane traversed to the midships section of the vessel. No personnel are to be in or on any part of the crane.	**Vessel Alongside** Crane to be positioned to the East of 17 bollard.
2	**Vessel Docking/Undocking** The boom of the transporter crane adjacent to the berth is to be lifted. No personnel to be on the crane.	**No Vessel Alongside** Boom is to be lifted and no personnel are to be in or on any part of the crane.	**Vessel Alongside** Crane to be positioned to the East of 17 bollard.
3	**Vessel Working Alongside** Crane to be positioned at the West end of the vessel.	**Vessel Docking/Undocking** The boom of the transporter crane adjacent to the berth is to be lifted. No personnel to on the crane.	**Vessel Working Alongside** Crane to be positioned to the East of 17 bollard.
4	**Vessel Working Alongside** Crane to be positioned at the West end of the vessel.	**Vessel Docking/Undocking** The boom of the transporter crane adjacent to the berth is to be lifted. No personnel to on the crane.	**No Vessel Alongside** Boom is to be lifted and no personnel are to be in or on any part of the crane.
5	**Not affected**	**Vessel Working Alongside** Crane to be positioned at the West end of the vessel	**Vessel Docking/Undocking** The boom of the transporter crane adjacent to the berth is to be lifted. No personnel to be on the crane.

Any parameters concerning "crane" also apply to a second / third crane.

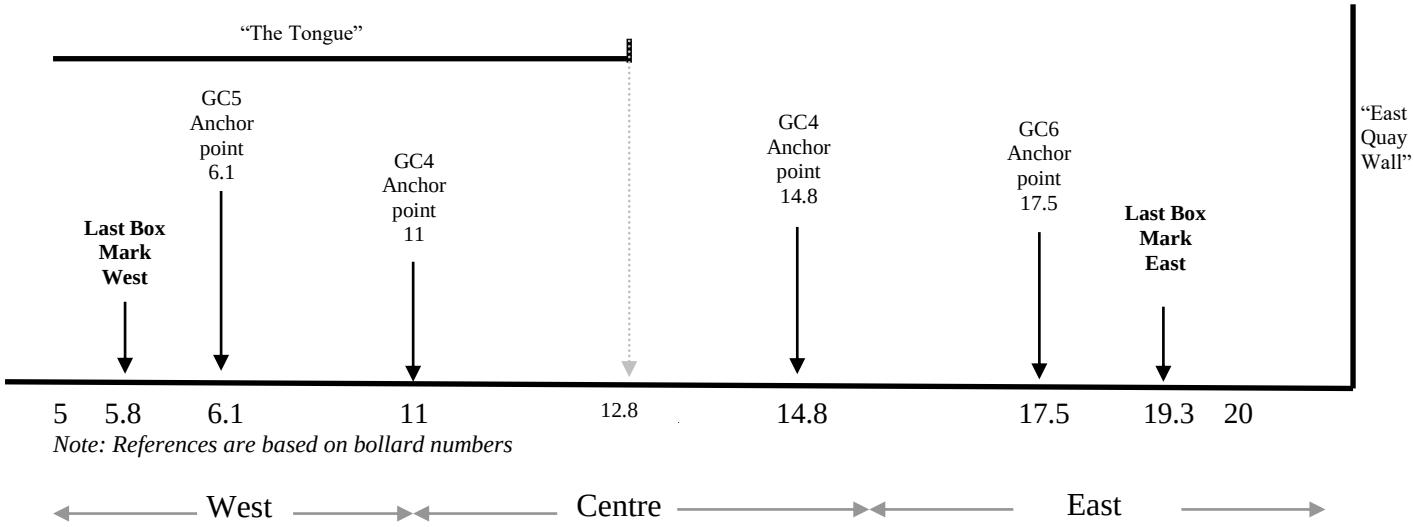
Notes

1. Prior to any movement, the FTNS Duty Harbour Master will contact the Operations Supervisor for confirmation that the conditions in the above table have been met and that clearance can be given for the vessel movement to take place.

2. Should Operations Staff, FTNS and Pilot/Master agree, the in-bound vessels may proceed from the lock on the understanding the conditions in the above table will be achieved by the time the vessel reaches the East Cut, **and**, a layby berth has been allocated and agreed. If no clearance has been given docking vessels should not leave the lock unless directed to a lay-by berth and undocking vessels must not commence singling up.

3. These controls also apply when engineering staff are carrying out maintenance work on a gantry crane or if crane training or any other activity involving the cranes is taking place.

4. **Container Berth Position Reference Schematic:**



Note: References are based on bollard numbers

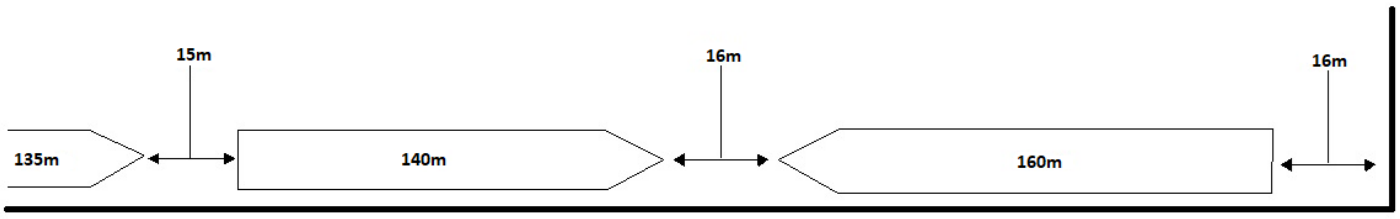
5. A vessel will be berthed with reference to the appropriate Last Box Mark – East or West, or, the bow and stern positions with reference to bollard positions.

6. Storm Anchor Point - Whenever possible the gantry cranes will be located in their storm anchor positions. Clear of, or mid-ships of, manoeuvring vessels.

7. Weather - A pilot or master may require additional measures to be taken according to the individual circumstances of each case.

8. Berthing space between vessels to be as follows:

   - For vessels up to 150m LOA there is to be a minimum of 15 metres (half a bollard) gap to the next vessel on the quay. The minimum gap of 15 metres applies at both ends of the vessel.
   - For vessels in excess of 150m LOA the total berthing space is to be the vessels length plus 20 percent of the largest vessel, meaning a gap of at least 10 percent of the vessels length at each end. For example, a 160m vessel requires a gap of 16 metres to the next vessel on the quay, a 170 metres vessel requires a gap of 17 metres. See diagram below for visual representation.



9. **Additional measures for Container vessels ≥160m LOA:** These vessels should always be scheduled on the East berth. If due to operational reasons there is a requirement to go to the West or Centre berth then additional measures may be applied to ensure safe manoeuvring, this may include but not be limited to a larger total berthing space being required. GCE, East Quay Wall and Grange 1/2 should be unoccupied when swinging vessels ≥160m in Grange Dock.

2.12 Carron Dock Manoeuvring Restrictions

Ship movements through the Western Cut into/from Carron Dock are restricted to daylight hours only and will be booked as such. Maximum vessel dimensions normally accepted for Carron Dock berths are 90m x 14 metres. Vessels that exceed these dimensions may be considered after detailed planning between Duty Pilot and FTNS.

2.13 Management Plan (P)

The following should be confirmed before manoeuvring in the Port of Grangemouth.

- That a harbour manoeuvre plan has been prepared and agreed (where appropriate) with the pilot.
- That any defects, which may affect the safe navigation or manoeuvrability of the vessel, are reported.
- The maximum draft.

The following procedures should be adopted.

Inbound

On transferring from Channel 71 to Channel 14 to communicate with Grangemouth, please pass the following information:

- A harbour manoeuvre plan from the Hen & Chickens to the berth has been agreed.
- The maximum draft.

Outbound

On seeking permission to depart from the berth please pass the following information:

- A harbour manoeuvre plan has been agreed from the berth to the Hen & Chickens.
- Any defects.
- Maximum draft.

3 PORT OF LEITH (G)

3.1 Guidelines (G)

The information detailed below refers to STANDARD SHIPS, which are single screw with no Bowthrust. Standard meteorological conditions of maximum wind gusts not exceeding 15 knots and good visibility also apply.

U Unrestricted **F** Not during ebb **A** HW Slack only **B** HW or LW slack
Numerical indicates tug numbers

These guidelines should be regarded purely as a starting point for discussions with the Port Authority, Duty Pilot, Master and Agent on tug allocation and scheduling. Actual tug allocation may be increased or reduced as appropriate.

The guidelines should not be construed as any form of regulations.

Draft (m)	**Length overall in metres**												
	<60		**60-100**		**100 – 120**		**120-145**		**145-165**		**165-185**		**>185**
	Neap	**Spring**	**Spring**	**Neap**	**Spring**	**Neap**	**Spring**	**Neap**	**Spring**	**Neap**	**Spring**	**Neap**	
Dock													
<6	U0	U0	U0**(1)**	U0**(1)**	B1**(1)**	F0*** (1)**	B1***(1)**	F1***(1)**	B2	F2#	A2	B2	A3
>6	B0/U0	U0	B0**(1)**/ U1**(1)**	U0**(1)**	B1**(1)**	F1**(1)**	B2	B1**(1)*** /F2	B2	F2#	A2*	A2	A3
>7			B1**(1)**	B0**(1)**/ U1**(1)**	B1**(1)**	F1**(1)**	B2	B1**(1)*** /F2	A2	A2	A2*	A2	A3
>8					A1***(1)**	F1* **(1)**	A2	A2	A2	A2	A2*	A2*	A3
>9					A2	A2	A2	A2	A2	A2	A3	A3	A3
Sail													
<6	U0	U0	U0	U0	U0*	U0*	U1***(1)**	U1**(1)***	F2	F2	F2#	F2#	F2*#
>6	U0	U0	U0	U0	F0*	U0*	F1***(1)**	F1***(1)**	F2	F2	F2#	F2#	A2#
>7			F0**(1)**	U0**(1)**	F1**(1)**	F1**(1)**	F2	F2	F2	F2	A2	A2	A2*
>8					F1***(1)**	F1* **(1)**	F2	F2	A2	F2	A2	A2	A3
>9					A1***(1)**	A1* **(1)**	A2	A2	A2	A2	A2*	A2*	A3

Number in brackets denote number of additional tugs that will be required for transiting the area of water between the Leith Approach Buoy and Leith Locks only.

*Additional towage may be required. e.g. first arrival, vessel at upper end of length band, berth position or heading, and other vessels within the dock.
Generally these vessels will move at slack water but further consideration will be necessary if two large vessels are required to move on the tide for a follow-on.

Section 3.1.2 should be consulted towage requirements

- Tidal range: Spring ≥3½m, Neap <3½m
- Scheduled times are: Inbound - Leith Approach Buoy, Outbound – from berth

- Under Keel Clearance: Flood 1m, Ebb 1.5m and 0.5m in dock
- HW slack: Docking – Leith Roads no later than HW-2; Sailing – Leave lock no later than HW-1.5
- HW slack Leith is about 1 to 1½ prior to HW
- LW Slack = HW-6
- Recommended Bollard Pull will be catered for in a separate document

3.1.1 Pilotage for First Time Callers with a LOA of 170m and over (P)

All vessels (except cruise and passenger vessels) ≥170m LOA which are first time callers are required to take 2 pilots. For FTC cruise and passenger vessels ≥200m LOA will be required to take 2 pilots.

An assessment will then be carried out, and a report submitted to the marine team. The outcome will then be entered into IPOS and used for pilot allocation going forward. The requirements going forward could be 1 or 2 pilots, and could be specific to certain conditions i.e. arrival/departure, weather, deck cargo etc.

3.1.2 Towage Requirements during Leith Outer Berth Project (P)

Inbound vessels LOA >60m and outbound vessels LOA >120m and/or Draft >7m shall be subject to compulsory towage in the **area between the Leith Approach Buoy and Leith Locks** in the interests of maintaining navigational safety during the Leith Outer Berth Project.

Inbound offshore vessels up to 100m LOA will be assessed on a case by case basis.

3.2 Towage Minimum Bollard Pull Requirement (G

The following table is a guide to the minimum combined bollard pull requirement for tug allocation in conjunction with the "Forth Ports Docking and Sailing Guidelines and Voluntary Tug Code". As with the Code this table is a guideline and is not intended as a rigid set of rules and regulations.

These guidelines should be regarded purely as a starting point for discussions with the Port Authority, Duty Pilot, Master and Agent on tug allocation and scheduling. Actual tug allocation may be increased or reduced as appropriate. The guidelines should not be construed as any form of regulations.

When allocating 2 or more tugs to a job consideration must be given to the mix of tugs to ensure that there is an appropriate balance with the tugs employed.

	1 Tug	**2 Tugs**	**3 Tugs**	**4 Tugs**
< 100m	19t	38t	N/A	N/A
100m – 120m	19t	38t	N/A	N/A
120m - 145m	30t	38t	N/A	N/A
145m – 165m	30t	45t	N/A	N/A
165m – 185m	N/A	75t	80t	N/A
> 185m	N/A	80t	95t*	95t

***** If Beam equal to or less than 28.5m the bollard pull can be reduced to 85t.
**On Vessels>185m LOA, for all tug allocations, one tug must be minimum 50t BP.

3.3 Passenger Ship Guidelines (G)

A passenger vessel is assumed to have a bow thruster, twin screw & rudders or Azipods.

Vessels not meeting these criteria will be categorised according to the Cruise Liner Information Form which should be completed and returned before submission on a Proposed Vessel Movement (PVM) Form.

The following guidelines are based on Cruise Vessels with **no tugs**, further consideration/discussions can be given to scheduling arrival & departure times should a tug(s) be utilised. They are also subject to meteorological conditions with maximum wind gusts of 15 knots.

Tides: Neap < 3.5m Range Spring ≥ 3.5m range.

Minimum Underkeel Clearance in Approach Channel: Flood tide 1.0m
Ebb tide 1.5m.

Designations:

A HW Slack Only
HW Slack = HW-2

B HW or LW Slack
HW Slack = HW-2
LW Slack = HW -6

C Neap HW or LW Slack
HW Slack = HW -3 to -1
LW Slack = HW-7 to -5

U Unrestricted

F Not during ebb
Depart berth HW -7½ to HW -1½
F** Depart berth HW -7½ to HW -2

Leith Times
Arrival: at Leith Approach Buoy
Departure: Depart Berth

LOA	<115m		115 – 125m		125 – 135m		135 – 145m		146 – 165m		>165m	
	Spring	Neap	Spring	Neap	Spring	Neap	Spring	Neap	Spring	Neap	Spring	Neap
Arr	**U**	**U**	**B**	**U**	**B**	**C**	**B**	**C**	**A**	**C**	**A**	**A**
Dep'	**U**	**U**	**U**	**U**	**F**	**U**	**F**	**F**	**F**	**F**	**F****	**F**

Towage requirements as per pre-cruise discussions between two Pilots and Harbour Master. Pilots should report to FTNS on vessel manoeuvrability after first visit for comment entry into IPOS.

Length < 115m – Passenger Ships

Arr	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Dep’	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Length 115m to 125m – Passenger Ships

Arr	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Dep’	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Length 125m to 135m – Passenger Ships

Arr	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Dep’	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Length 135m to 145m – Passenger Ships

Arr	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Dep’	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Length 145m to 165m – Passenger Ships

Arr	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Dep’	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Length >165m – Passenger Ships

Arr	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

Dep’	-8	-7	-6	-5	-4	-3	-2	-1	HW	+1	+2	+3	+4	+5	+6
Neap <3.5m															
Spring≥3.5m															

3.4 Wind Parameters (P)

The port will be closed to vessel movements when the mean wind speed measured on the Leith anemometer is 15 knots or over from a westerly to southerly direction or 40 knots and over from all other directions.

3.5 Visibility Parameter (P)

Vessels are not permitted to enter the Port when the lead in light (FL red 6 sec) cannot be seen from the Harbour Office.

Vessels are not permitted to enter the lock from the Dock when No.3 Gate cannot be seen from the Harbour Office.

3.6 Management Plan (P)

The following should be confirmed to VTS before manoeuvring in the Port of Leith.

- That a harbour manoeuvre plan has been prepared and agreed (where appropriate) with the pilot.
- That any defects, which may affect the safe navigation or manoeuvrability of the vessel, are reported.
- The maximum draft.

The following procedures should be adopted

Inbound

Prior to passing Leith Approach Buoy the following should be communicated to VTS:

- A harbour manoeuvre plan from the Leith Approach Buoy to berth has been agreed.
- The maximum draft.

Outbound

On seeking permission from VTS to depart from the berth, please pass the following information:

- A harbour manoeuvre plan has been agreed from the berth to the Leith Approach Buoy.
- Any defects (as in 8.1.2).
- Maximum draft.

3.7 Imperial Dock Movements (P)

- For all arrival and departures for vessels requiring 3 tugs or vessels ≥150m, the South Side Imperial berth should be free of shipping for 100m measured from the Imperial Cut.

- For the arrival and departures of vessels <150m the berth may be occupied provided that the vessel berthed has a maximum beam of 18m.

3.8 Movements in Imperial Dock during Spooling (P)

When a vessel is alongside a standoff platform on North Imperial for the purposes of spooling, all movements in and out of the Imperial Dry Dock will be piloted.

PORT OF ROSYTH

4.1 Arrival Departure Guidelines (G)

The information detailed below refers to STANDARD SHIPS, which are single screw with no bowthruster. Standard meteorological conditions of maximum wind gusts not exceeding 15 knots and good visibility also apply.

U Unrestricted **F** Not during ebb **A** HW Slack only **B** HW or LW slack

Numerical indicates tug numbers

These guidelines should be regarded purely as a starting point for discussions with the Port Authority, Duty Pilot, Master and Agent on tug allocation and scheduling. Actual tug allocation may be increased or reduced as appropriate. The guidelines should not be construed as any form of regulations.

Draft (m)	**Length overall in metres**			
	<120	**120-150**	**150-180**	**>180**
Docking				
<6	U0	U0*	B2	B2*
>6	U0	U1*	B2	B2*
>7	U0	U1*	B2	A2*
>8	U0*	U1*	B2	A2*
>9	U0*	U1*	B2*	A2*
Sailing				
<6	U0	U0*	U2	U2*
>6	U0	U1	U2	U2*
>7	U0	U1	U2	U2*
>8	U*	U1*	F2	F2*
>9	U*	U1*	F2*	F2*

***** An additional tug may be required e.g. first arrival, vessel at upper end of length band, berth position or heading and other vessels in the vicinity.

- Scheduled times are: Inbound – Rail Bridge, Departure – from berth
- Under Keel Clearance: 0.5m on berth (large vessels may be required to have 1.0m)
- HW slack: @ Bridge: (HW - 2¼ hr) ~ (HW)
- LW slack: LW ± 1hr

4.2 Towage Minimum Bollard Pull Requirements (I)

The following table is a guide to the minimum combined bollard pull requirement for tug allocation in conjunction with the "Forth Ports Docking and Sailing Guidelines and Voluntary Tug Code". As with the Code this table is a guideline and is not intended as a rigid set of rules and regulations.

When allocating 2 or more tugs to a job, consideration must be given to the mix of tugs to ensure that there is an appropriate balance with the tugs employed.

	1 Tug	**2 Tugs`**	**3 Tugs**
< 120m	19t	38t	N/A
120m – 150m	19t	38t	N/A
150m - 180m	30t	45t	65t
> 180m	N/A	75t	85t

4.3 Passenger Ship Guidelines (G)

A passenger vessel is assumed to have a bow thruster, twin screw & rudders or Azipods.

Vessels not meeting these criteria will be categorised according to the Cruise Liner Information Form which should be completed and returned before submission on a Proposed Vessel Movement (PVM) Form.

The following guidelines are based on Cruise Vessels with **no tugs**, further consideration/discussions can be given to scheduling arrival & departure times should a tug(s) be utilised. They are also subject to meteorological conditions with maximum wind gusts of **20** knots**.**
The table below sets out the tidal restrictions on arrivals and departures of cruise vessels at Rosyth;

A No transit HW -4.5 to HW -2.5 on Flood

B No transit HW -5 to HW-2 on Flood

HW +1 to HW+3.5 on Ebb

C No transit HW -4.5 to HW -2.5 on Flood

HW +2 to HW +4 on Ebb

D No transit HW -4.5 to HW -2.5 on Flood

HW +1.5 to HW +4 on Ebb

E No transit HW -5 to HW-2 on Flood

HW +1 to HW +4 on Ebb

U Unrestricted

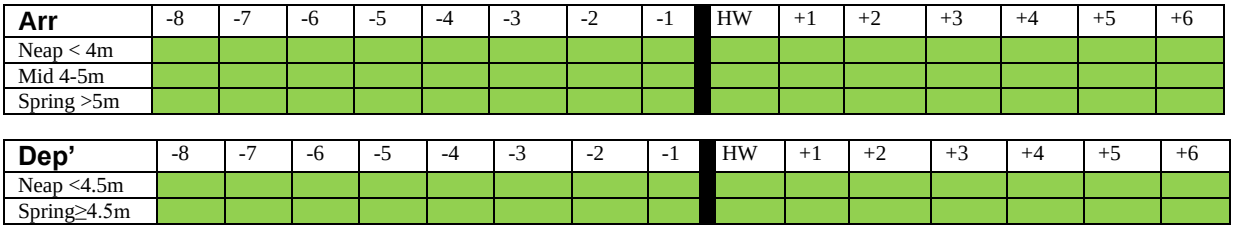
LOA	**Length <160m**			**Length 160-180m**			**Length >180m**		
Tide	**Spring >5m**	**Mid 4-5m**	**Neap <4m**	**Spring >5m**	**Mid 4-5m**	**Neap <4m**	**Spring >5m**	**Mid 4-5m**	**Neap <4m**
ARR	U	U	U	B	A	U	E	D	C
Tide	**Spring ≥ 4.5m**	**Neap < 4.5m**		**Spring ≥ 4.5m**	**Neap < 4.5m**		**Spring ≥ 4.5m**	**Neap < 4.5m**	
DEP	U	U		U*	U		U*	U	

*Dictates the possible need for this vessel to transit West of the Beamer, and the possibility of tugs being required to achieve this. This decision should be made in consultation between Harbour Master, pilot and if necessary the Vessel.

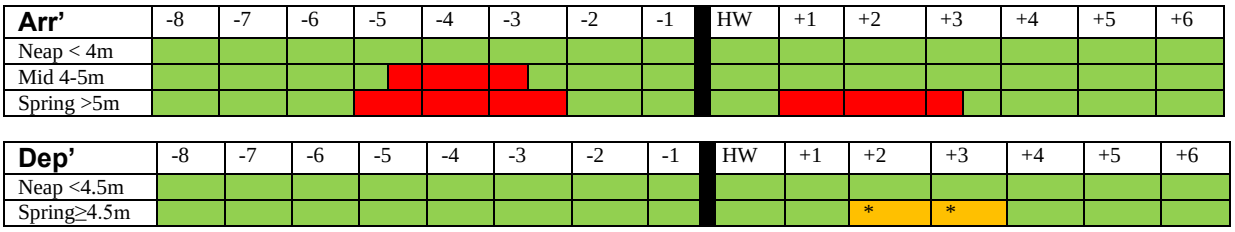
Rosyth Times

Arrival: at the Bridges
Departure: Depart Berth

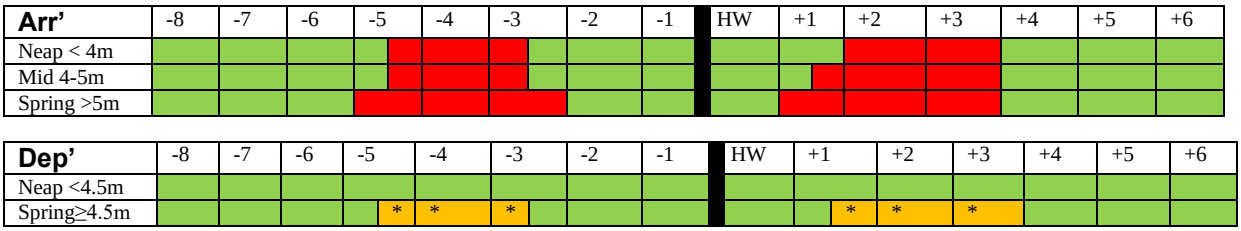
Length < 160m – Passenger Ships



Length 160m to 180m – Passenger Ships



Length > 180m – Passenger Ships



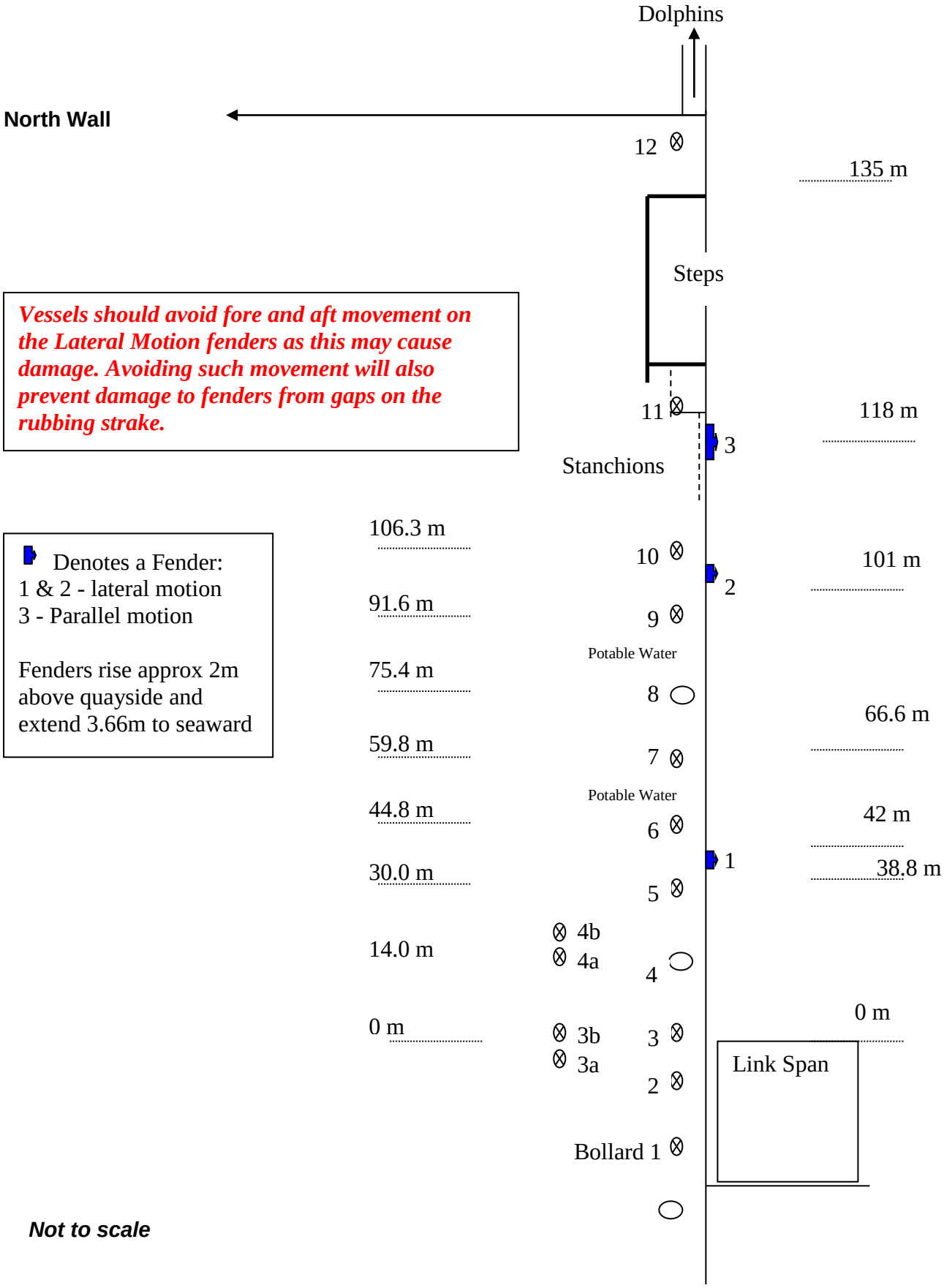
***Amber Segments dictate the possible need for this vessel to transit west of the beamer, and the possibility of tugs being required to achieve this. This decision should be made in consultation between Harbour Master, Pilot and if necessary the Vessel.**

For vessels/tides which are borderline, consult Harbour Master/PMC Pilot

4.3.1 Passenger Vessel Towage

Towage requirements as per pre-cruise discussions between Pilots and Harbour Master. Pilots should report to FTNS on vessel manoeuvrability after first visit for comment entry into IPOS.

4.4 Fender Information for "T" Berth (I)



4.5 Wind Parameters (G)

The port will be closed to vessel movements when the mean wind speed measured on the Rosyth anemometer is 40 knots and over.

4.6 Visibility Parameters (P)

The Port is closed to vessel movements if the visibility is reduced to 5 cables or less.

4.7 Babcock - Pilotage for First Time Callers with a LOA of 170m and over (P)

All vessels ≥170m LOA which are first time callers to Babcock are required to take 2 pilots.

An assessment will then be carried out, and a report submitted to the marine team. The outcome will then be entered into IPOS and used for pilot allocation going forward. The requirements going forward could be 1 or 2 pilots, and could be specific to certain conditions i.e. arrival/departure, weather, deck cargo etc.

5 PORTS OF BURNTISLAND, METHIL, KIRKCALDY, INVERKEITHING

5.1 Burntisland (G)

5.1.1 West Dock

Dockings and sailings can take place as soon as the dock gate is open and the vessel has sufficient water, with the specified underkeel clearance.
The West dock gate is opens around 1.5 hour before high water and must be closed at high water.

5.1.2 East Dock

Dockings can take place as soon as there is sufficient water for the vessel to berth safely on the flood tide with the specified underkeel clearance. Consideration should be given to the weather conditions and the potential for vessels to have to manoeuvre in the outer harbour.

Sailings can take place as soon as the dock gate is open and vessel has sufficient water to depart safely on the flood tide with the specified underkeel clearance.
The East dock gate is open unless a vessel berth that requires the gates to be closed due to its draft. The gate opens around 2 hour before high water and must be closed at high water.

5.1.3 Larger vessels berthing at Burntisland East Dock

The normal maximum length ship at Burntisland East Dock is circa 100m.
Larger Vessels i.e. >110m may be accepted however the following parameters may apply

<u>Arrival</u>

- Up to 15kts - 1 tug
- Over 15kts - 2 tugs.

Where possible, vessels of such length should be berthed SST. Recommendations for swinging:

- In less than 10kts the vessel may swing inside for SST.
- In 10kts or over, swing outside and back in from the river.

The final decision rests with Master/Pilot

<u>Departure</u>

If berthed SST – no tug
If berthed PST:

- Up to 15kts – 1 tug
- Over 15kts – 2 tugs.

5.1.4 Burntisland Wind Parameters (G)

Maximum wind speed 35 knots on Inchcolm anemometer (owned by Shell, Braefoot). Leith anemometer to be used as backup.

5.1.5 Burntisland Visibility Parameters (P)

Vessels are not permitted to enter or leave the Port when the outer end of the East Breakwater (Fl (2) G sec) cannot be seen from the Harbour Office on the north side of the Dock Gates.

5.2 Methil (G)

Dockings and sailings carried out between HW –2 and HW providing there is sufficient water.

A vessel may be allowed to sail shortly after HW if she is close to completing cargo work and no other vessel is in port.

Vessels stemmed for Methil do not normally require tugs.

5.2.1 Methil Port Wind Parameters (G)

Maximum wind speed 35 knots but reduced to 25 knots should there been an easterly element to the direction. Measured on the Methil anemometer.

Swell conditions to be determined by pre-assessment.

5.2.2 Methil Port Visibility Parameters (P)

Vessels are not permitted to enter or leave the Port when the outer end of the breakwater (Oc G 6 sec) cannot be seen from the Harbour office at No.2 Dockhead.

5.3 Methil Energy Park (G)

Piloted vessels will only be permitted to berth at the Methil Energy Park facility if up to date surveys have been conducted and that the quay including ladder are maintained in a safe condition.

Guidance on Methil Energy Park Berths can be found in the Quayside Regulations.

5.3.1 Energy Park Berth Wind Parameters (G)

Refer to latest edition of Energy Park Fife Quayside Regulations. Methil anemometer to be used.

Barges – as per agreed parameters on the Barge Method Statement.
Vessels – to be determined by pre-assessment of swell conditions.

5.3.2 Energy Park Fife Visibility Parameters (P)

Vessels are not permitted to berth or depart when southern end of West Berth cannot be seen from the northern end of East Berth

5.4 Kirkcaldy (G)

The berth at Kirkcaldy is a NAABSA Berth (Not Always Afloat but Safely Aground).

FTNS to be immediately advised by telephone in the event of any items, however small that has entered the water. This is necessary to prevent any channel obstruction or vessel damage.

Scheduling will be carried out using Methil tidal data.

Dockings can take place as soon as there is sufficient water for the vessel to berth safely on the flood tide with the specified underkeel clearance.

Sailings can take place as soon as the vessel has sufficient water for the vessel to depart safely on the flood tide with the specified underkeel clearance.

- Lock gates are no longer in use
- Vessels stemmed for Kirkcaldy do not normally require tugs.
- Pilot will board in Kirkcaldy Roads.
- Main entrance is 15.2 metres wide.
- Vessels are required to have an operational bow thruster.
- Vessels will berth port side alongside as the preferred side on the Carr Mills berth.
- Admiralty Chart Datum (LAT) is 3.55 below Ordnance Datum, Newlyn

5.4.1 Kirkcaldy Wind Parameters (P)

Maximum wind speed 20 knots, restrictions may be put in place with vessels LOA greater than 80m. Methil anemometer to be used.

Wind and swell conditions to be determined by pre-assessment.

5.4.2 Kirkcaldy Visibility Parameters (P)

Vessels are not permitted to enter or leave the port when the outer breakwater (F1.R 5s) cannot be seen from the Carrs Mill berth.

5.5 Inverkeithing (P)

The main operational berths in Inverkeithing are operated by RM Recycling and Forth Bridge Stevedoring Limited.

Scheduling will be carried out using Rosyth tidal data.

Dockings can take place as soon as there is sufficient water for the vessel to berth safely on the flood tide with the specified underkeel clearance.

Sailings can take place as soon as the vessel has sufficient water for the vessel to depart safely on the flood tide with the specified underkeel clearance.

5.5.1 Berthing at Timber Jetty - East Ness Pier

Following a general visual inspection of the berths at Inverkeithing it has been declared unsafe for pilots to berth or sail vessels from the timber jetty lay-by berth at East Ness Pier due to its unsound condition.

As a consequence the owners/operators of this facility have been advised that vessels will not be piloted either onto or off this jetty. The owners/operators have been further advised that this jetty is within compulsory pilotage waters and any vessel berthing or sailing from the jetty without a pilot will be in breach of the Pilotage Directions.

5.5.2 Inverkeithing Wind Parameters (G)

Maximum wind speed 35 knots on Inchcolm anemometer (owned by Shell, Braefoot). Leith anemometer to be used as backup.

5.5.3 Inverkeithing Visibility Parameters (P)

The harbour is closed to vessel movements if the visibility is reduced to 2 cables or less.

6 Marine Terminals

6.1 Hound Point Marine Terminal (I)

Hound Point Marine Terminal consists of three interconnected island structures situated east of the Forth Bridge and is operated by INEOS. The terminal has 3 berths, HP3 accommodates the vapour recovery and processing plant equipment, while HP1 & HP2 are utilised for the export of Forties Blend Crude Oil and capable of accommodating vessels from 50,000 dwt up to VLCC's at approx. 350,000 dwt. Hound Point is presently the largest exporting facility in Scotland.

Transit to the terminal is via the Forth Deep Water Channel. Vessels transiting the river to berth at Hound Point will be assisted by towage from the Hound Point Tug Fleet. The tug fleet is normally stationed at dedicated moorings in close proximity to Hound Point Marine Terminal. These tugs are designed to provide a timely response to an emergency at the terminal or vessels alongside.

Hound Point Marine Guidelines is a controlled document produced by INEOS. This document contains information such as tidal and weather parameters, berthing arrangements and manoeuvring plans and other pertinent information relating to the transit and berthing of vessels at Hound Point.

For further information please refer to the latest edition of INEOS. **Forties Pipeline System – Hound Point Marine guidelines.**

6.2 Braefoot Bay (I)

The Braefoot Marine Terminal consists of two jetties, located on the north shore north of Inchcolm Island. Products produced at the Mossmoran Plant in Fife are exported at the Braefoot Marine Terminal. The west jetty, operated by Shell, handles Propane, Butane and Natural Gasoline with vessels up to 60,000m^3 being accommodated. The smaller east jetty, operated by Exxon, exports condensate and ethylene in vessels up to 20,000 tonnes deadweight.

Transit to and from the terminal is via the Forth Deep Water and Mortimer's Deep. Vessels transiting to Braefoot Bay will be assisted by tugs (including a standby tug during the time a vessel is berthed) supplied by Forth Estuary Towage. Shell Marine duty personnel organize and operate the marine activities at both Shell and Exxon Jetties on behalf of Shell and Exxon respectively.

Braefoot Bay Marine Terminal Jetty Regulations & Information is a controlled document produced by Shell Braefoot. This document contains information such as tidal and weather parameters, berthing arrangements and maneuvering plans and other pertinent information relating to the transit and berthing of vessels at Barefoot Bay Marine Terminal.

For further information please refer to the latest edition of Braefoot Bay Marine Terminal - Jetty Regulations & Information.

6.3 Crombie (I)

Crombie is located on the North side of the river between Rosyth and Grangemouth. The jetty is operated by the Ministry of Defence The South berth with a ruling depth of 12 metres. There is an annual Hydrographic survey undertaken and dredging is arranged as required to maintain minimum depths. Visiting ships are mostly naval or Fleet Auxiliary. Bridge transit time for larger vessels will determine the berthing time. Side too will be determined by the tidal state.

All port visits are preceded by signal LOGREQ (Logistics Requirement), giving 7 days' notice. This will list all vessel requirements including Pilotage, tugs and line handlers.

Crombie jetty operates on VHF channel 74 – call sign Crombie jetty.

When a ship is alongside there is a speed restriction of 10 knots for passing vessels as per General Direction 17.

6.3.1 Crombie Wind Parameters (G)

Maximum wind speed 30 knots, measured at the Grangemouth anemometer.

6.3.2 Crombie Visibility Parameters (P)

Movements on and off the jetty will not be permitted unless the visibility of the jetty is a minimum of 1 nautical mile.

6.3.3 Standby Towage – Crombie (P)

- When a bulk ammunition ship e.g. Point Class, Wave Class, Fort Class or Tide class is berthed at Crombie and explosives or ammunition are being embarked/disembarked/handled on board or present on the jetty, a standby tug **is** required.
- Stand-by Tugs **are** required for all vessels when bunkering or discharging oily waste or waste water
- Stand by tugs **may** be required for Naval vessels and other vessels depending on class and capabilities when explosives or ammunition is being embarked/disembarked/handled on board or present on the jetty. The Ministry of defence will make arrangements standby tugs as and when required.

If a standby tug is required then it shall be the same minimum bollard pull as listed in the table from section 6.3.4. If the requirement in the table is 2 tugs then the standby tug must have the bollard pull of the larger tug specified.

6.3.4 Towage Minimum Bollard Pull Requirements – Crombie (G)

The following table is a guide to the minimum combined bollard pull requirement for tug allocation in conjunction with the "Forth Ports Docking and Sailing Guidelines and Voluntary Tug Code". As with the Code this table is a guideline and is not intended as a rigid set of rules and regulations. Other factors such as weather, obstructions, defects etc. must be considered.

When allocating 2 or more tugs to a job consideration must be given to the mix of tugs to ensure that there is an appropriate balance with the tugs employed.

Vessel	**Towage (min. BP)**
AFSH's (Fort Austin/Rosalie)	1x30t + 1x50t
AOR's (Fort Victoria)	1x30t + 2x50t
Fleet Tankers/Wave class (Wave Knight/Ruler)	1x30t + 1x50t
Tide Class (Tidespring/Tiderace/Tidesurge/Tideforce)	1x30t + 2x50t
Bay class (Lyme Bay/Mounts Bay/Cardigan Bay)	1x30t + 1x50t
RFA Argus	1x30t + 1x50t
Point Class (Hurst Point, Eddystone, Hartland Point, Anvil Point)	1x30t for swinging
Lewis and Clark Class (Robert E. Peary, Medgar Evers)	1x30t + 1x50t
Type 23 Frigates	1x30t + 1x50t

7 TOWAGE

7.1 Tug Fleet (I)

The following tugs operate on the Forth:

Company	Tug Name	Bollard Pull	Type	LOA	Beam	Draft
Targe Towing	Fidra	50t	Voith	30.0m	11.0m	5.3m
	Craigleith	70t	ASD	28.2m	12.6m	5.5m
	Inchcolm	70t	ASD	22m	11.4m	5.3m
	Kittiwake	62t	ASD	24.4m	11.3m	5.1m
	Petrel	70t	ASD	24.4m	11.3m	5.5m
INEOS FPS /Targe Towing – Hound Point	Hopetoun	124t	ASD	43.5m	13.5m	6.7m
	Balmerino	70t	ASD	25.3m	12.0m	6.6m
	Corringham	70t	ASD	32.2m	11.6m	5.8m
	Queensferry	70t	ASD	24.4m	11.25m	5.6m
Svitzer Towage - Grangemouth	Svitzer Alma	61t	Voith	30.0m	11.0m	5.5m
	Svitzer Lyndhurst	42t	Voith	30.0m	11.0m	5.6m
	Roseberry Cross	37t	Voith	30.6 m	9.8m	4.5m

These tugs provide the main towage for vessels utilising ports on the Forth. Other smaller licensed tugs are also available for barge operations together with tugs that may be licensed for specific construction projects from time to time.

7.2 Towage Guidelines (G)

Guidelines for towage operations on the Forth and Tay are detailed on the Forth Ports website.

8 PILOTAGE

8.1 Pilot Vessel Operations in Restricted Visibility (P)

Forth Ports and terminal operators have parameters in place which require ports, docks or terminals to be closed to shipping movements during periods of restricted visibility. However, there will be times when despite ports, docks or terminals being closed to vessel movements Pilot Vessel operations will still be conducted in the river.

Restricted visibility is all circumstances where visibility is, or is expected to, reduce to a distance where the Pilot Vessels normal ability to perform may be impaired. Such restrictions in visibility could be due to fog, mist, snow, rain, sleet or any other conditions that impair visibility. In circumstances where restricted visibility exists, or is likely to exist, the Pilot Vessel Coxswain shall as part of the passage plan and risk assessment process decide how the operation will be conducted, what dangers are associated with operating the Pilot Vessel in restricted visibility and what risk reduction measures should be applied. When completing this assessment the following points should be considered, along with others as deemed necessary in the circumstances:

- Allocation of extra time for the Pilot Vessel operation.
- Conduct of the Pilot Vessel at a safe and appropriate speed.
- Posting of additional lookout(s) onboard the Pilot Vessel.
- Ensuring appropriate setup of navigational equipment on the Pilot Vessel.
- Alteration of passage plan to incorporate increased passing distances.
- Heightened risk when coming alongside a vessel.
- Heightened communication with both VTS and the attended vessel.

The Pilot Vessel Coxswain will inform the Pilot/Master of any concerns that he may have as to the safety of his vessel and the boarding/disembarking operation. If necessary, the Pilot Vessel Coxswain should, in consultation with the Duty Pilot or at night the next pilot on turn, abort the operation in conjunction with the "Suspension of Operations" procedure in the Pilotage Code of Practice. As per this procedure, the situation should be reviewed every hour to assess whether conditions are static, deteriorating or improving.

Single manned vessel operations should be suspended when visibility falls below 1.5 cables (280m - Pilot Station to the Northern tip of the East Breakwater).

8.2 Pilot Boat Operations – Submarines (G)

Submarines are difficult to board owing to the nature of their construction and how they lie in the water. Maneuvering the pilot cutter and transferring the pilot should be pre-determined. Guidelines for boarding are as follows:

- Agent/Navy Liaison to confirm the boarding procedure and boarding position in advance, when at all possible.

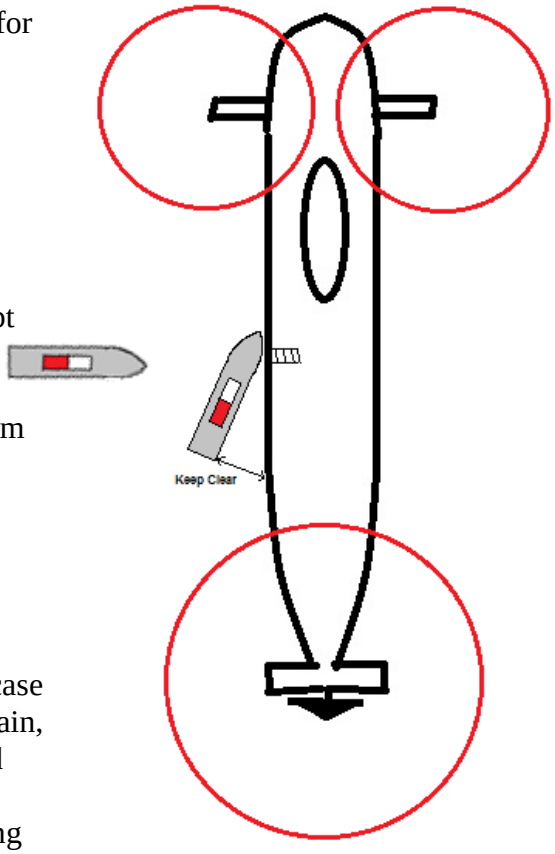
- Navy Liaison to endeavor to provide details of the submarines underwater profile (such as shape of the hull and positions of planes etc.)

- There is to be a pre-boarding discussion between cutter and submarine.

- Confirmation from submarine that there is a suitably prepared person on board to assist pilot as required.

- Submarine to be stopped in the water in order for the transfer to take place.

- The pilot ladder should be approached at right angles to the vessel in order to stay clear of submarines danger areas (see diagram)



- Forward shoulder of pilot vessel to be used for the transfer. Pilot vessel stern (props) to be kept well clear, as if the pilot vessel goes fully alongside the submarine, then there is a risk of damage to the props when moving away from the submarine.

- In adverse weather, the decision whether the transfer takes place is made by the pilot vessel coxswain. If due to weather the transfer is deemed to hold too much risk, then a case by case decision to be made, in consultation with Captain, Marine Services manager, Harbour Master and Pilots, if action is to be taken, such as disembarkation of pilot in the locks or arranging the boarding to take place in the lee of Inchkeith or other.

Note-Pilot vessels with stabiliser fins outboard to the props and rudders which could easily be damaged by a submarines hull should not generally be used.