



British  
Waterways  
Scotland

# SKIPPER'S GUIDE

## FORTH & CLYDE AND UNION CANALS



## **PASSAGE OF THE RIVER CARRON – TIDES AND CURRENTS**

### **GENERAL**

- 1] Yacht skippers are reminded to keep clear of commercial traffic in the approaches to Grangemouth.
- 2] The following information is offered for guidance only, as the tidal regime in the Carron estuary is not yet fully monitored or predictable. Skippers must use care and discretion, and remember that they navigate entirely at their own risk.
- 3] At all times follow the charted directions in the Skipper's Guide.
- 4] Entry to the sea lock must be pre booked, and skippers should keep in touch with the sea lock during their approach passage (VHF Ch 74 - "Carron Sea Lock" / 01324 483034 / 01781 0794468).
- 5] Ensure that you know your vessel's draft and required headroom accurately, and have a reliable motor of sufficient power to give a minimum water speed of 4 knots against a chop and head wind.
- 6] Navigation of the River Carron as far as Grangemouth YC is straightforward, given sufficient rise of tide. The notes that follow apply to the river from this point to the Sea Lock.

### **RIVER CARRON - TIDAL REGIME**

As in many estuaries and confined bodies of water, the tidal pattern in the Forth and Carron estuaries is not predictable with great accuracy. Typically, it has a 'stand' at most high and low tides, with the rise and fall being compressed into a shorter time as a result. At spring tides the level is rising at around 1.6m per hour and the ebb will fall at up to 2.0m per hour. The combination of rapidly changing levels and strong currents makes accurate timing of passagemaking during spring tides important. During neap tides the pattern is similar, but as the

range is less, and one will be navigating near HW rather than at half tide, the problem is much less acute. In general this is the easiest and safest time to make the passage.

The tidal current in the river may be up to 2 knots on a spring flood and more, depending on river conditions, on the ebb.

During spates and/or some spring tides navigation may be suspended for a time, so it is essential to have pre-booked one's arrival and confirmed it a short time beforehand.

Currents at the sea lock are a little slacker than down river. Skippers should use the area upstream of the sea lock (which has adequate depth at least as far as the overhead cables) to manoeuvre, prepare for entering the lock area, or to prepare for a downstream passage. There are also waiting pontoons outside the lock.

### **HEIGHT AND DEPTH LIMITS**

Navigation is constrained by the headroom under the 4 fixed bridges over the R Carron, and by the depth of water at shallow points between the sea and the sea lock.

There is approximately 1.8m depth and 3.0m air draft (headroom) under this bridge - these being the canal dimensions - when the rise of tide is 4.15m above Chart Datum (CD), but to simplify matters depth and air draft gauges have been installed at various points on the river (see chart). **THEY ARE ALL CALIBRATED TO THE CHANNEL DIMENSIONS AT THE KERSE ROAD BRIDGE.** This means that both depth and headroom available at this critical point can be checked at the sea lock, near Grangemouth YC, and close to the bridges, before committing to the passage.

The river depth is shown in white figures on the black lower part of the column. The Kerse Bridge headroom is shown in black figures on the white upper part. The boundary between black and white is at **OPTIMUM TIDE LEVEL (+4.15CD = 1.8m depth and 3.0m air draft)**. To aid visual checking of headroom the column tops are at the same height as the underside of the Kerse Road Bridge.

Skippers should not hesitate to contact the sea lock keeper for information on water levels or general guidance if in any doubt about making a safe passage.

## **GOING UPSTREAM**

### **FORTH ESTUARY TO CARRON SEA LOCK**

**NEAP TIDES** (less than 5.0m, HW occurring around 0900/2100 UT)

The optimum tide level will probably occur between 1.5 and 2.5 hours before HW, and again approximately 1.0 hour after HW. Tidal current will be slight.

As a general rule skippers should begin the up river passage on a flood tide as soon as they consider that there is sufficient depth. The river bed is mud and gravel, so touching it on a rising neap tide should not cause concern.

Passage upstream on a falling tide should only be considered by skippers of vessels of relatively small draft able to make good speed under power.

**SPRING TIDES** (more than 5.0m, HW occurring around 0300/1500 UT)

The optimum tide level will probably occur between 3.0 and 3.5 hours before HW, and again approximately 2.0 hours after HW. Tidal current will be strong.

Skippers going upstream on the flood should be prepared for a strong following current of up to 2.0 knots, which could cause problems if early passage resulted in a grounding, particularly if near a bridge. On the other hand, late passage will mean rapidly diminishing headroom and the possibility of being trapped between bridges, necessitating anchoring or holding station for some hours.

Passage on a falling spring tide should be regarded as potentially hazardous.

**TIDES AROUND 5.0m**

The above times can be interpolated.

## **GOING DOWNSTREAM**

### **CARRON SEA LOCK TO FORTH ESTUARY**

**NEAP TIDES**

The above time information applies. Skippers should begin their down river passage as soon as they have adequate headroom on the ebb, or as early as there is sufficient depth on the flood.

Note that the downstream pipe bridge is almost as low as the Kerse Bridge. If making the downstream passage on a rising tide make sure that you pass under both bridges without delay.

**SPRING TIDES**

The above time information applies. Large spring tides will mean a strong adverse current and rapidly rising levels on the flood. On the ebb, the current may be even stronger, plus the hazard of very rapidly reducing depth.

Skippers should ensure that they have adequate time to make the passage before running out of depth or headroom, and should consult the sea lock keeper if they are in any doubt.

Passage on a falling spring tide should be regarded as potentially hazardous.

## **EMERGENCIES**

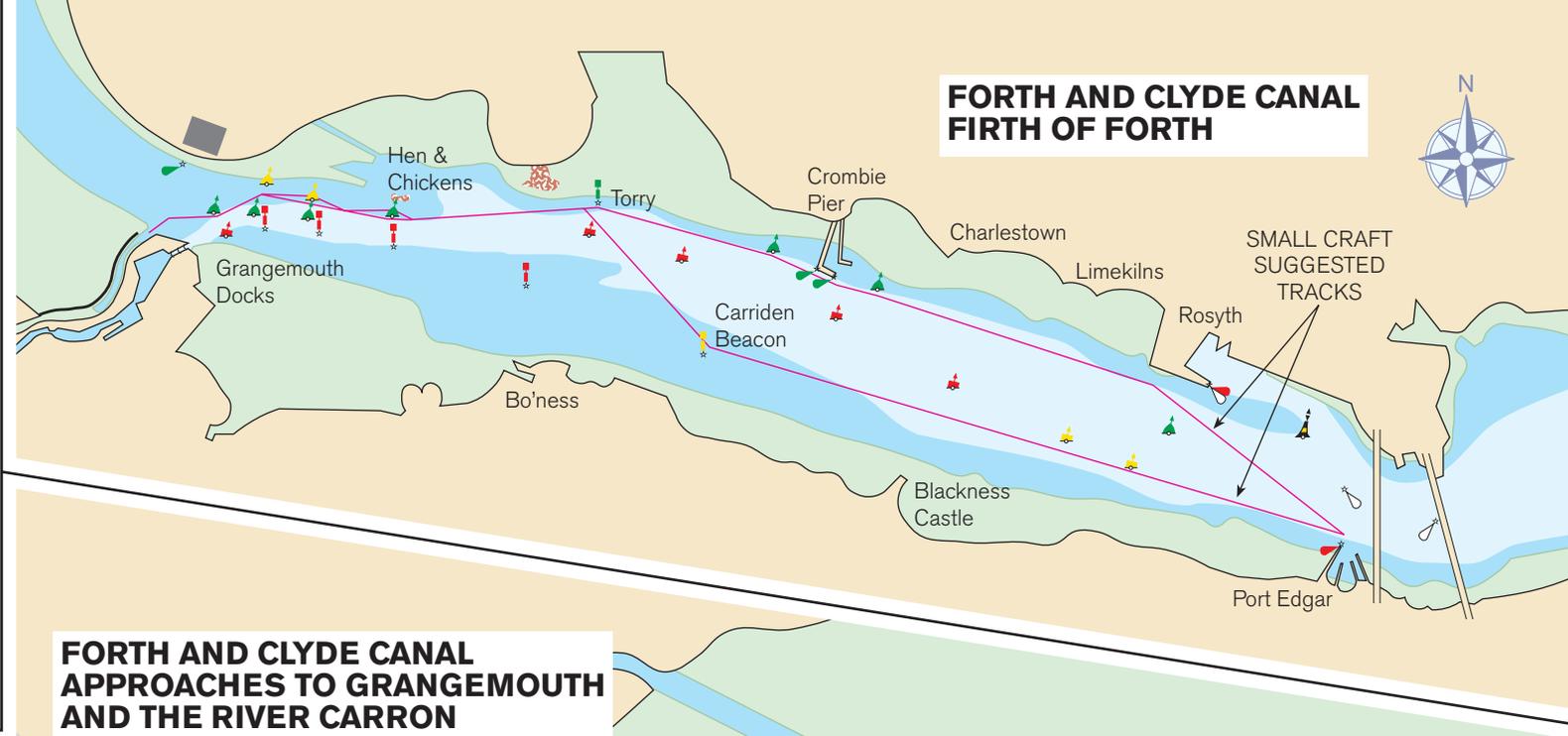
**British Waterways does not provide an emergency service. Should an emergency occur contact the Coastguard on VHF Channel 16.**

**For this reason it is advisable that all craft carry an emergency VHF aerial to use when their mast is unstepped.**

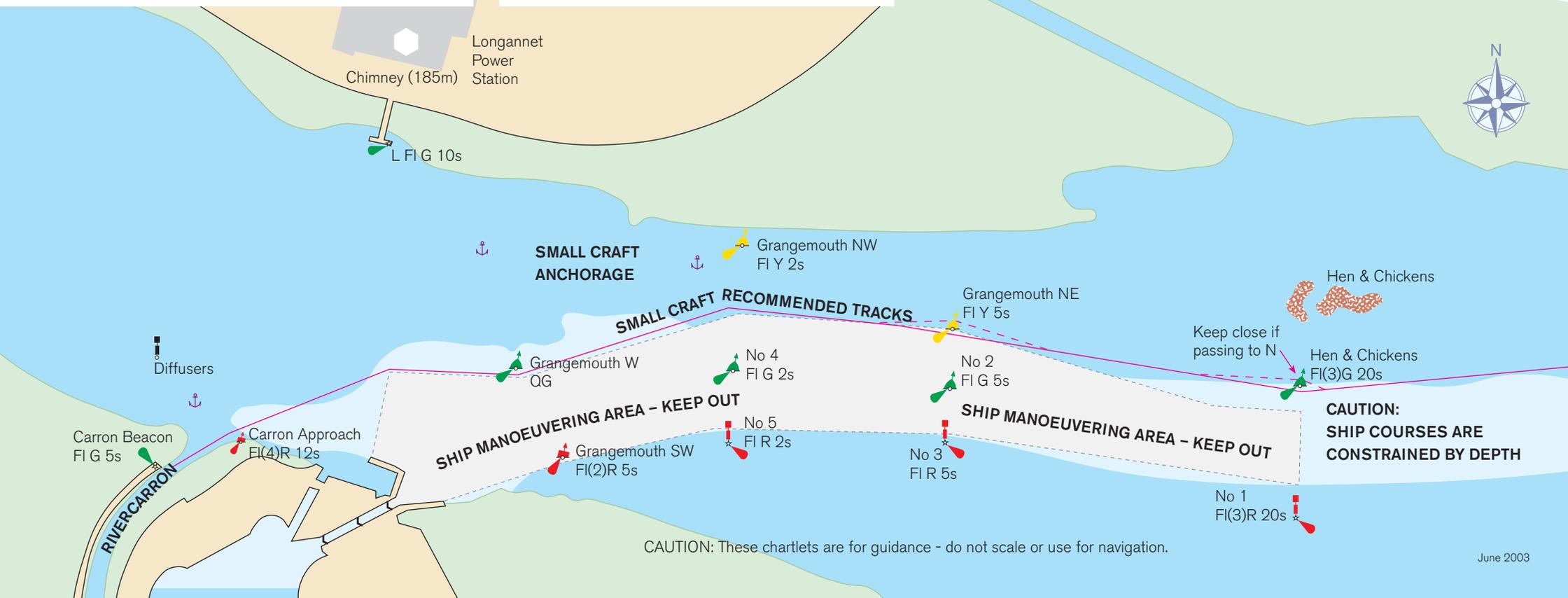
## PILOTAGE NOTES

- Passage from the River Carron entrance to the Forth & Clyde Canal Sea Lock is restricted by depth and overhead obstructions. Consult the Tides and Currents Information page, and the Tidal Predictions for Carron Sea Lock.
- Once the Carron access time window has been established, allow sufficient time for the passage (10 miles from Forth Road Bridge/ Port Edgar) to the river mouth, and then to the Sea Lock (a further 2.5 miles).
- Passage from Port Edgar/ Forth Bridges to the Torry Beacon may be made either on the north or south side of the main shipping channel.
- West of the Hen & Chickens the N side must be used.
- Vessels should monitor Grangemouth Locks on VHF Ch 14, but do not need to report, except in case of emergency or difficulty.
- Hen & Chickens Buoy, and Grangemouth NE Buoy, may be passed close to the north if ship traffic demands.
- Small craft may anchor in the positions shown, or in the mouth of the River Carron as depth permits, to await the tide.
- Charts: Admiralty Chart 737 and/or Imray Chart C27. Pilot: Forth Yacht Clubs' Assoc Pilot Handbook.

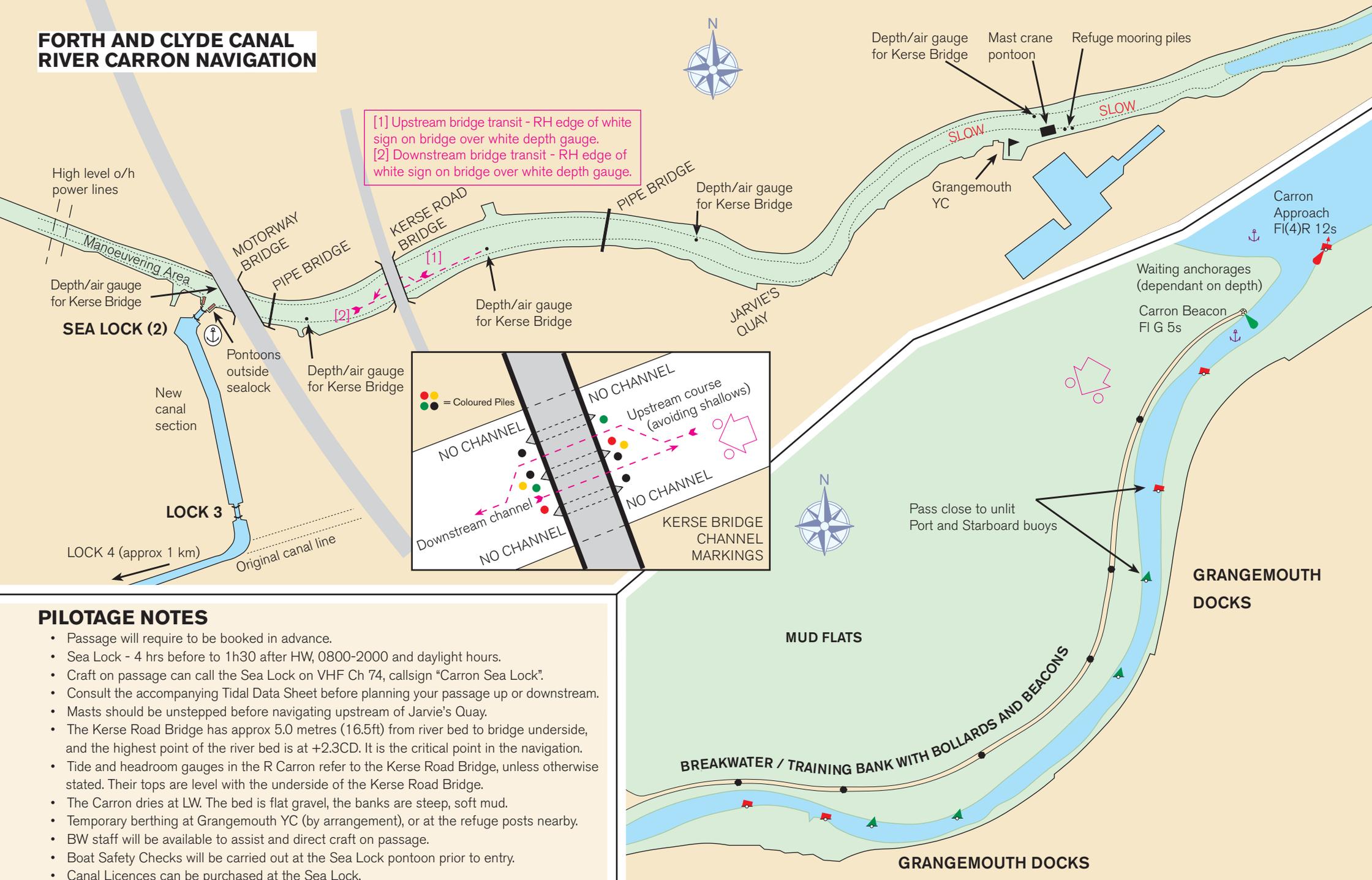
## FORTH AND CLYDE CANAL FIRTH OF FORTH



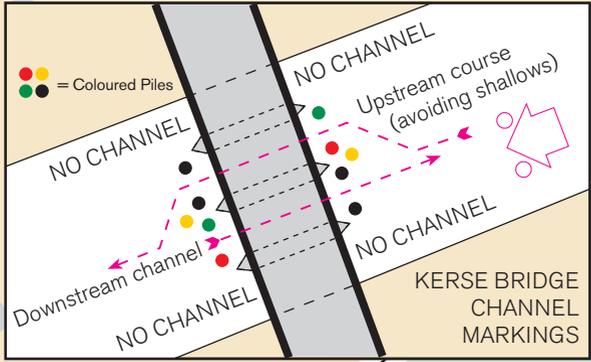
## FORTH AND CLYDE CANAL APPROACHES TO GRANGEMOUTH AND THE RIVER CARRON



# FORTH AND CLYDE CANAL RIVER CARRON NAVIGATION



[1] Upstream bridge transit - RH edge of white sign on bridge over white depth gauge.  
 [2] Downstream bridge transit - RH edge of white sign on bridge over white depth gauge.

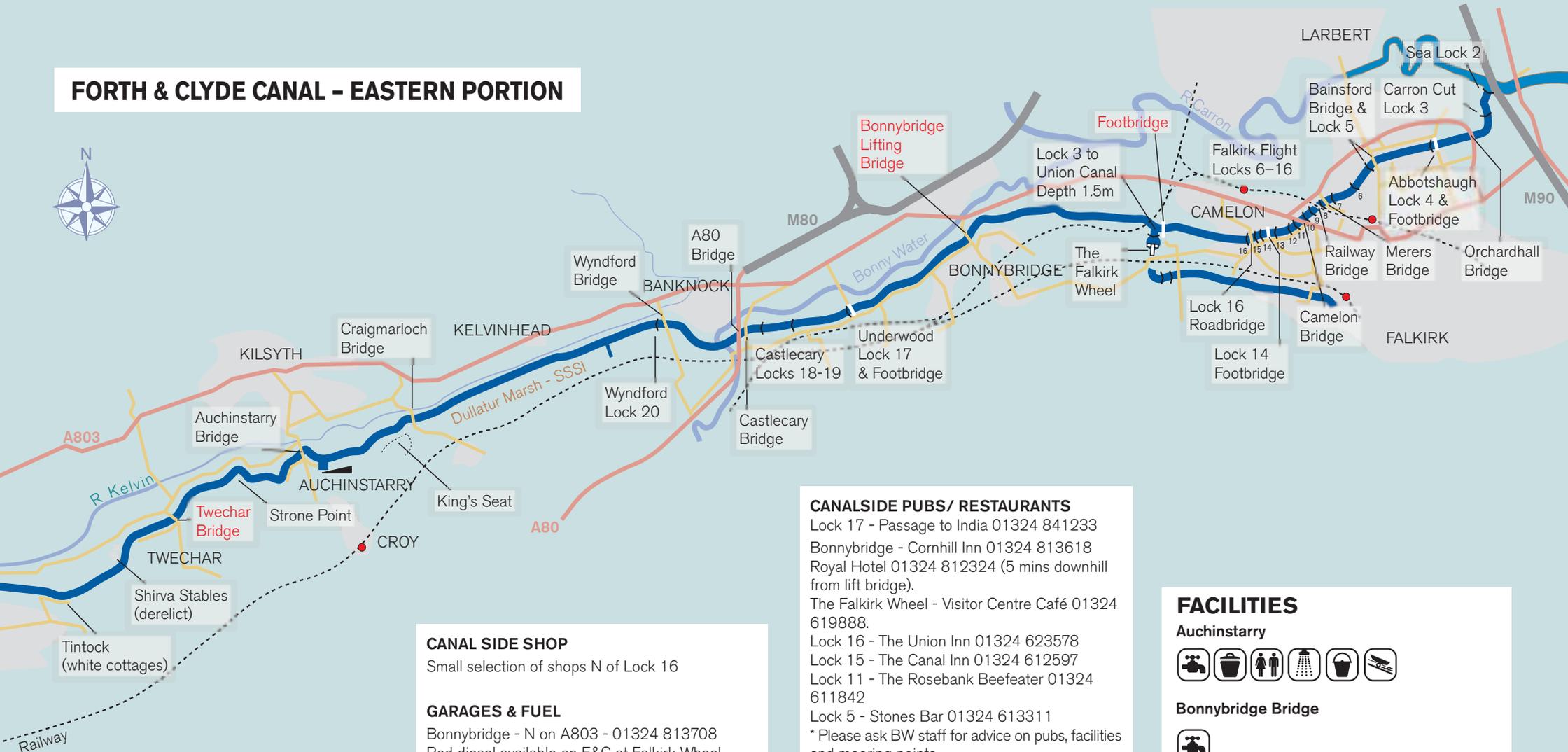


## PILOTAGE NOTES

- Passage will require to be booked in advance.
- Sea Lock - 4 hrs before to 1h30 after HW, 0800-2000 and daylight hours.
- Craft on passage can call the Sea Lock on VHF Ch 74, callsign "Carron Sea Lock".
- Consult the accompanying Tidal Data Sheet before planning your passage up or downstream.
- Masts should be unstepped before navigating upstream of Jarvie's Quay.
- The Kerse Road Bridge has approx 5.0 metres (16.5ft) from river bed to bridge underside, and the highest point of the river bed is at +2.3CD. It is the critical point in the navigation.
- Tide and headroom gauges in the R Carron refer to the Kerse Road Bridge, unless otherwise stated. Their tops are level with the underside of the Kerse Road Bridge.
- The Carron dries at LW. The bed is flat gravel, the banks are steep, soft mud.
- Temporary berthing at Grangemouth YC (by arrangement), or at the refuge posts nearby.
- BW staff will be available to assist and direct craft on passage.
- Boat Safety Checks will be carried out at the Sea Lock pontoon prior to entry.
- Canal Licences can be purchased at the Sea Lock.
- For further details see General Information Card.

CAUTION: These chartlets are for guidance - do not scale or use for navigation.

# FORTH & CLYDE CANAL - EASTERN PORTION



## VISITOR MOORINGS

(W to E) Auchinstarry, Craigmarnloch, Bonnybridge, Falkirk Wheel (by prior arrangement), Lock 16, Lock 5, Lock 2.

## CASH POINT, POST OFFICE, SHOPS

Within 10 minutes walk.

Auchinstarry Basin - in Kilsyth (20 min walk).  
Bonnybridge - N on A803. Lock 16 - N on Camelon Main Street. Lock 5 - S into Falkirk town centre. Lock 2 - service station shop at M9 junction.

## CANAL SIDE SHOP

Small selection of shops N of Lock 16

## GARAGES & FUEL

Bonnybridge - N on A803 - 01324 813708  
Red diesel available on F&C at Falkirk Wheel

## ACCIDENT & EMERGENCY

Falkirk Royal Infirmary 01324 624000

## TRANSPORT INFORMATION

First Bus 01324 613777  
National Rail 08457 484950

## CANALSIDE PUBS/ RESTAURANTS

Lock 17 - Passage to India 01324 841233  
Bonnybridge - Cornhill Inn 01324 813618  
Royal Hotel 01324 812324 (5 mins downhill from lift bridge).  
The Falkirk Wheel - Visitor Centre Café 01324 619888.  
Lock 16 - The Union Inn 01324 623578  
Lock 15 - The Canal Inn 01324 612597  
Lock 11 - The Rosebank Beefeater 01324 611842  
Lock 5 - Stones Bar 01324 613311  
\* Please ask BW staff for advice on pubs, facilities and mooring points.

## BOAT REPAIRS AND SERVICES

Forth Yacht Marina, Grangemouth. 01324 665071  
FCS (Scotland), Grangemouth. 01324 953288 & 07833 953288

## FACILITIES

### Auchinstarry



### Bonnybridge Bridge



### At The Falkirk Wheel



### Lock 16



### Lock 2



## FACILITIES

### Bowling \*



### Drop Lock



### Lock 35



### Lock 27



\* De-masting facilities available at Bowling are included in licence fee.

## VISITOR MOORINGS

Bowling; Drop Lock; W of Lock 27; Applecross St; E of Balmuildy Bridge; E of Cadder Bridge; E of Southbank Slipway (Kirkintilloch).

### CASH POINT, POST OFFICE, SHOPS

Within 10 minutes walk.

Drop Lock - east on Dumbarton Road.

Argyle Road Bridge, Clydebank (shopping complex).

Lock 35 - Canalside shop.

Bard Ave Bascule Br - Canalside shop.

Lock 27 - S along Crow Rd to safeway and Anniesland shops.

Applecross St - 15 mins walk to Glasgow centre.

Kirkintilloch - all main street shops adjacent to canal.

### FUEL ADJACENT TO CANAL

Red diesel available from BW at Bowling Basin.

Service stations near Drop Lock, Argyle Rd

Clydebank, Lock 27.

### ACCIDENT & EMERGENCY

Bowling to Lock 36 - Vale of Leven 01389 754121

E of Lock 36 - Western Infirmary 0141 211 2000;

Glasgow Royal Infirmary 0141 211 4000; Stobhill

Hospital 0141 201 3000.

## TRANSPORT INFORMATION

Traveline 0870 6082608

National Rail 08457 484950

### CANALSIDE PUBS/ RESTAURANTS

Clydebank - McMonagle's Sail Thru' Fish & Chips

0141 951 2444. Also Pizza Hut / MacDonalds

within Clydebank Retail Park.

Temple - Lock 27 0141 958 0853 and The

Canal 0141 954 5333

Glasgow Road Bridge - The Stables 0141 777

6088 (Closed for refurbishment: opens Jul '03)

### PUBS WITHIN A FEW MINUTES WALK

Bowling - The Railway Inn 01389 875833 & The

Littlemill Inn 01389 875833

Applecross St - 15 mins walk to Glasgow centre.

Kirkintilloch - Bar Bliss 0141 776 0988

### BOAT REPAIRS AND SERVICES

Chandlers - Hulley Marine, Dumbarton 01389

742438 & Duncan Yacht Chandlers, Glasgow

0141 429 6044

Boat repairs - John S Hill, Clyde River Boatyard

0141 886 5974.

Engine repairs - J N Macdonald & Co 0141 334

6171

## FACILITIES

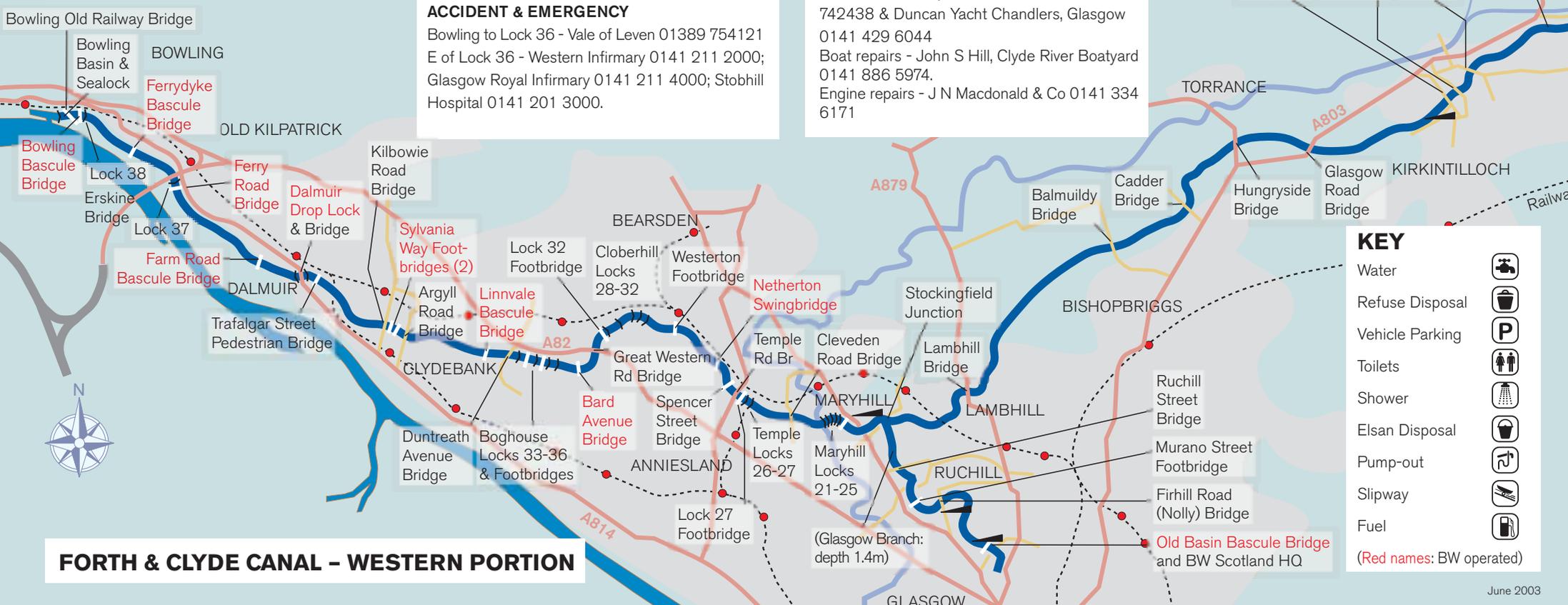
### Applecross Street



### Glasgow Road Bridge



### Townhead Bridge, Kirkintilloch



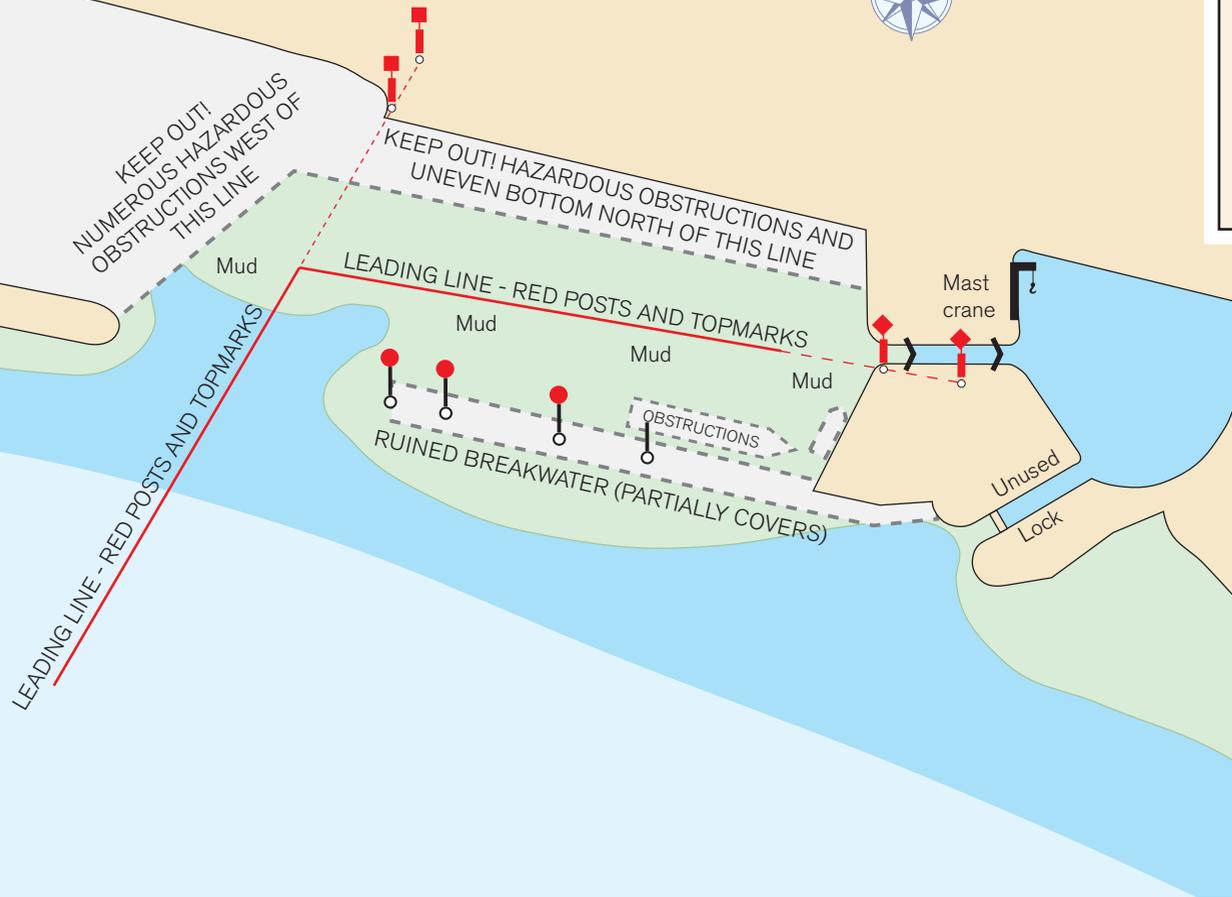
### KEY

- Water
- Refuse Disposal
- Vehicle Parking
- Toilets
- Shower
- Elsan Disposal
- Pump-out
- Slipway
- Fuel

(Red names: BW operated)

# FORTH & CLYDE CANAL - WESTERN PORTION

# FORTH AND CLYDE CANAL BOWLING HARBOUR NAVIGATION

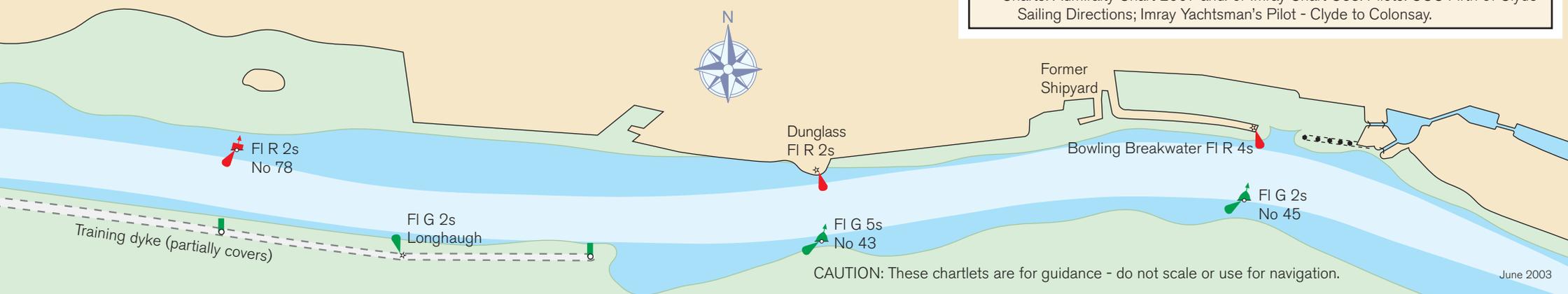


## BOWLING INFORMATION

- Radio: VHF Ch 16/74 "Bowling Basin" during sealock opening hours 2h-HW-2h only. Otherwise telephone: 01389 877969. Locking should be booked in advance.
- Bowling harbour is hazardous due to a large number of unmarked wrecks. Keep strictly to leading lines.
- Follow lock keepers instructions when entering lock, normally mooring on the port side. Two long warps and 3-4 fenders will be needed. A canvas sheet between the fenders and the hull will help reduce scuffing. BW staff will operate the lock.
- BW operated mast unstepping and stepping facilities are available at Bowling.
- Boat Safety Checks will be carried out at the Sea Lock prior to entry.
- Canal Licences can be purchased at the Sea Lock.
- For further details see General Information Card.

## ESTUARY INFORMATION

- Vessels intending to proceed to or from Bowling Harbour via the River Clyde are required to contact Estuary Control (VHF Ch 12 or 01475 726221).  
Arriving from seaward: Contact Estuary Control Tower (ECT) prior to arrival at No 1 River Buoy off Greenock Container Terminal.  
Arriving from any other location on the River Clyde east of No 1 buoy (ie between Greenock and Glasgow): Contact ECT before leaving your berth or before entering the River Clyde Channel.
- Departing Bowling Harbour: Contact ECT prior to departure.
- Keep to the buoyed Clyde navigation channel, and maintain a look-out for shipping.
- Monitor VHF Ch 12.
- Charts: Admiralty Chart 2007 and/or Imray Chart C63. Pilots: CCC Firth of Clyde Sailing Directions; Imray Yachtsman's Pilot - Clyde to Colonsay.





Welcome to the Falkirk Interchange.  
This information will help you through the Wheel smoothly and safely.

**VOYAGING THROUGH THE FALKIRK WHEEL**

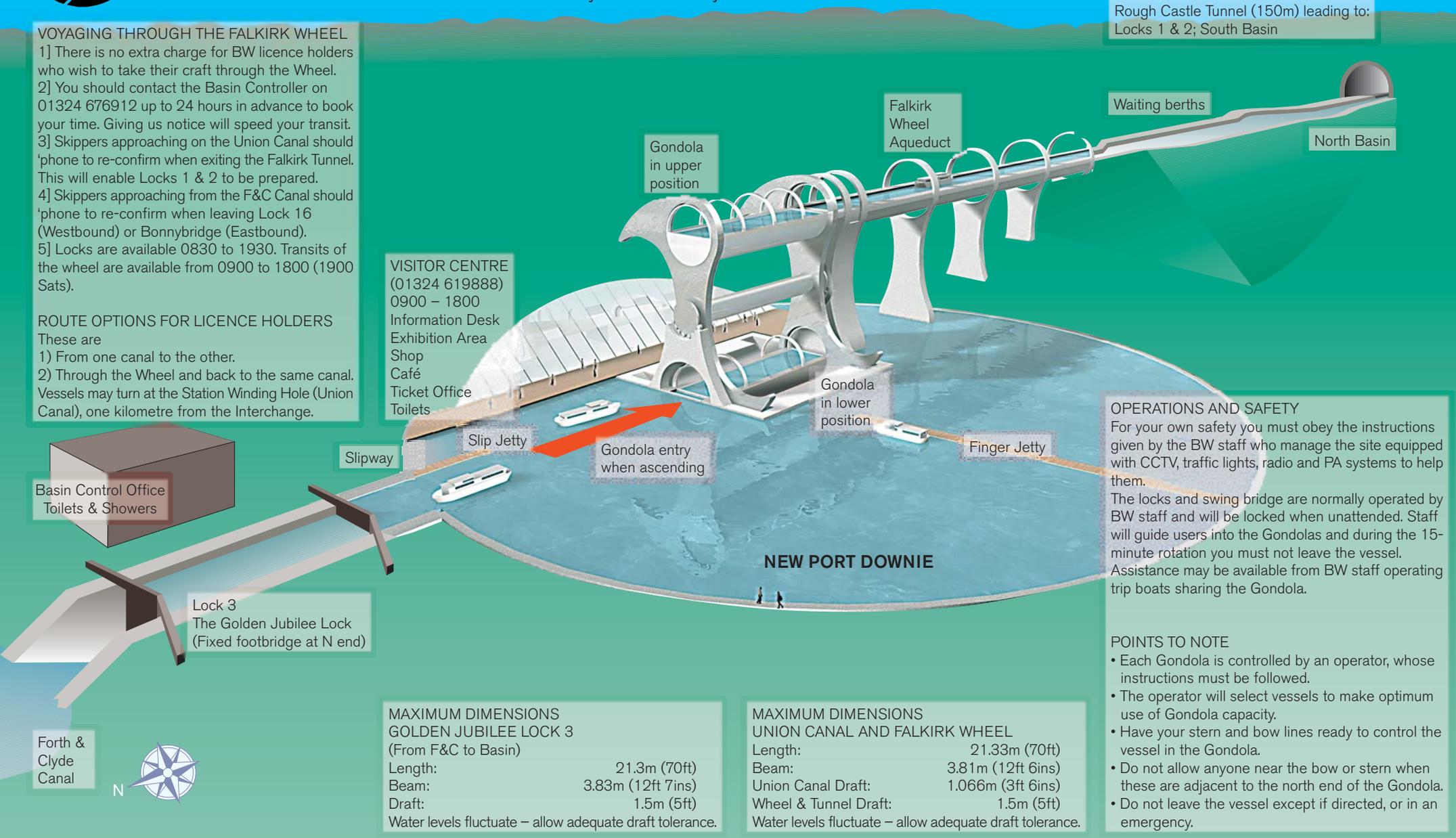
- 1) There is no extra charge for BW licence holders who wish to take their craft through the Wheel.
- 2) You should contact the Basin Controller on 01324 676912 up to 24 hours in advance to book your time. Giving us notice will speed your transit.
- 3) Skippers approaching on the Union Canal should 'phone to re-confirm when exiting the Falkirk Tunnel. This will enable Locks 1 & 2 to be prepared.
- 4) Skippers approaching from the F&C Canal should 'phone to re-confirm when leaving Lock 16 (Westbound) or Bonnybridge (Eastbound).
- 5) Locks are available 0830 to 1930. Transits of the wheel are available from 0900 to 1800 (1900 Sats).

**ROUTE OPTIONS FOR LICENCE HOLDERS**

- These are
- 1) From one canal to the other.
  - 2) Through the Wheel and back to the same canal.
- Vessels may turn at the Station Winding Hole (Union Canal), one kilometre from the Interchange.

**VISITOR CENTRE**  
(01324 619888)  
0900 – 1800  
Information Desk  
Exhibition Area  
Shop  
Café  
Ticket Office  
Toilets

Rough Castle Tunnel (150m) leading to:  
Locks 1 & 2; South Basin



**OPERATIONS AND SAFETY**  
For your own safety you must obey the instructions given by the BW staff who manage the site equipped with CCTV, traffic lights, radio and PA systems to help them.  
The locks and swing bridge are normally operated by BW staff and will be locked when unattended. Staff will guide users into the Gondolas and during the 15-minute rotation you must not leave the vessel. Assistance may be available from BW staff operating trip boats sharing the Gondola.

- POINTS TO NOTE**
- Each Gondola is controlled by an operator, whose instructions must be followed.
  - The operator will select vessels to make optimum use of Gondola capacity.
  - Have your stern and bow lines ready to control the vessel in the Gondola.
  - Do not allow anyone near the bow or stern when these are adjacent to the north end of the Gondola.
  - Do not leave the vessel except if directed, or in an emergency.

**MAXIMUM DIMENSIONS GOLDEN JUBILEE LOCK 3 (From F&C to Basin)**

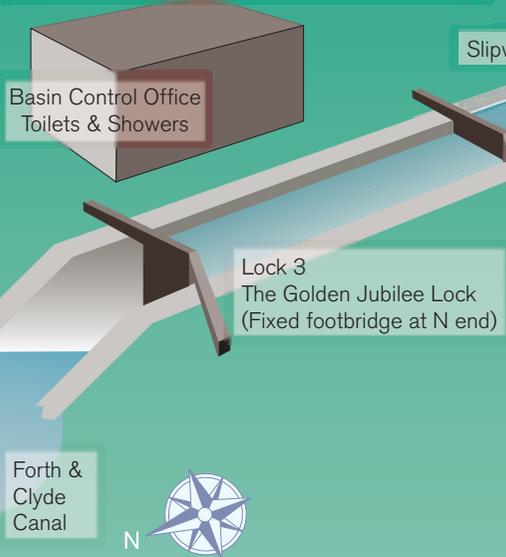
Length:	21.3m (70ft)
Beam:	3.83m (12ft 7ins)
Draft:	1.5m (5ft)

Water levels fluctuate – allow adequate draft tolerance.

**MAXIMUM DIMENSIONS UNION CANAL AND FALKIRK WHEEL**

Length:	21.33m (70ft)
Beam:	3.81m (12ft 6ins)
Union Canal Draft:	1.066m (3ft 6ins)
Wheel & Tunnel Draft:	1.5m (5ft)

Water levels fluctuate – allow adequate draft tolerance.



# UNION CANAL - WESTERN PORTION



## FACILITIES

### Linlithgow (LUCS)\*



### Greenbank



### Below The Falkirk Wheel



\* LUCS – please 'phone ahead (01506 671215) if you require services. Local charges will apply.

## VISITOR MOORINGS

Linlithgow – E of Bridge 43; Brightons – W of Br 54; Grange Centre – E of Br 55 (from July '03); Above Lock 3 at Falkirk Wheel.

## CASH POINT, POST OFFICE, SHOPS

Within 10 minutes walk.  
 Linlithgow - N of Manse Rd Basin.  
 Brightons - S of Bridge 54.  
 Falkirk Town Centre - 1.2km from Walkers Bridge (62), or bus from Falkirk Wheel.

## CANAL SIDE SHOP

Linlithgow Union Canal Society (LUCS): Tearoom, Shop and Museum at Manse Road Basin.

**CAUTION:**  
Causewayend Basin Entrance

## GARAGES & FUEL

Linlithgow - red diesel available ('phone ahead) through LUCS at Manse Rd Basin.

## ACCIDENT & EMERGENCY

Falkirk Royal Infirmary 01324 624000

## TRANSPORT INFORMATION

Traveline (Bus) 08706082608  
 National Rail 08457 484950

\* Please ask BW staff for advice on pubs, facilities and mooring points.

## SOME PUBS WITHIN 10 MINS WALK

Linlithgow  
 The Star & Garter Hotel 01506 843362  
 The Auld Hole 'The Wa' 01506 844591  
 Polmont & Brightons  
 Gadgersbrae 01324 720726  
 Beancross Farm 01324 718333  
 Falkirk  
 Numerous pubs, cafés and restaurants in town centre.

## BOAT REPAIRS AND SERVICES

Forth Yacht Marina, Grangemouth. 01324 665071  
 FCS (Scotland), Grangemouth. 01324 953288  
 LUCS, Linlithgow. See facilities panel.

## UNION CANAL – EASTERN PORTION

### VISITOR MOORINGS

Leamington Lift Bridge; Ashley Terrace; Prince Charles Aqueduct; E of Bells Mill Bridge No 31; E of Ratho Bridge 15; Port Buchan W of Bridge.

### CASH POINT, POST OFFICE, SHOPS

Within 10 minutes walk  
N of Ashley Terrace Bridge; Wester Hailes Shell Garage S of Br 7; Ratho; Winchburgh High St (N of Br 32); Port Buchan (S of Br).

### GARAGES & FUEL

Esso N of Bridge 4; Shell N of Br 7; red diesel from Bridge Inn at Ratho (phone in advance 0131 333 1320)

### ACCIDENT & EMERGENCY

Royal Infirmary of Edinburgh 0131 536 1000

### SOME PUBS WITHIN 10 MINS WALK

Edinburgh: Leamington Lift Bridge, or short bus journey into city centre.  
Winchburgh: Tally Ho Inn 01508 890221.  
Port Buchan: The Grenadier Bar 01508 856327.

### CANALSIDE PUB

Ratho: The Bridge Inn.

### TRANSPORT INFORMATION

Traveline (Bus) 08706082608  
National Rail 08457 484950

### BOAT REPAIRS AND SERVICES

Bridge Inn, Ratho provides the following facilities:  
Fuel, Gas, Pump-out.  
Phone 0131 333 1320 in advance.  
The Bosun's Locker, Port Edgar 0131 331 4496  
Sea Span, Granton 0131 552 2224

### FACILITIES

#### Harrison Park



#### Ratho (Phone: 0131 333 1320)



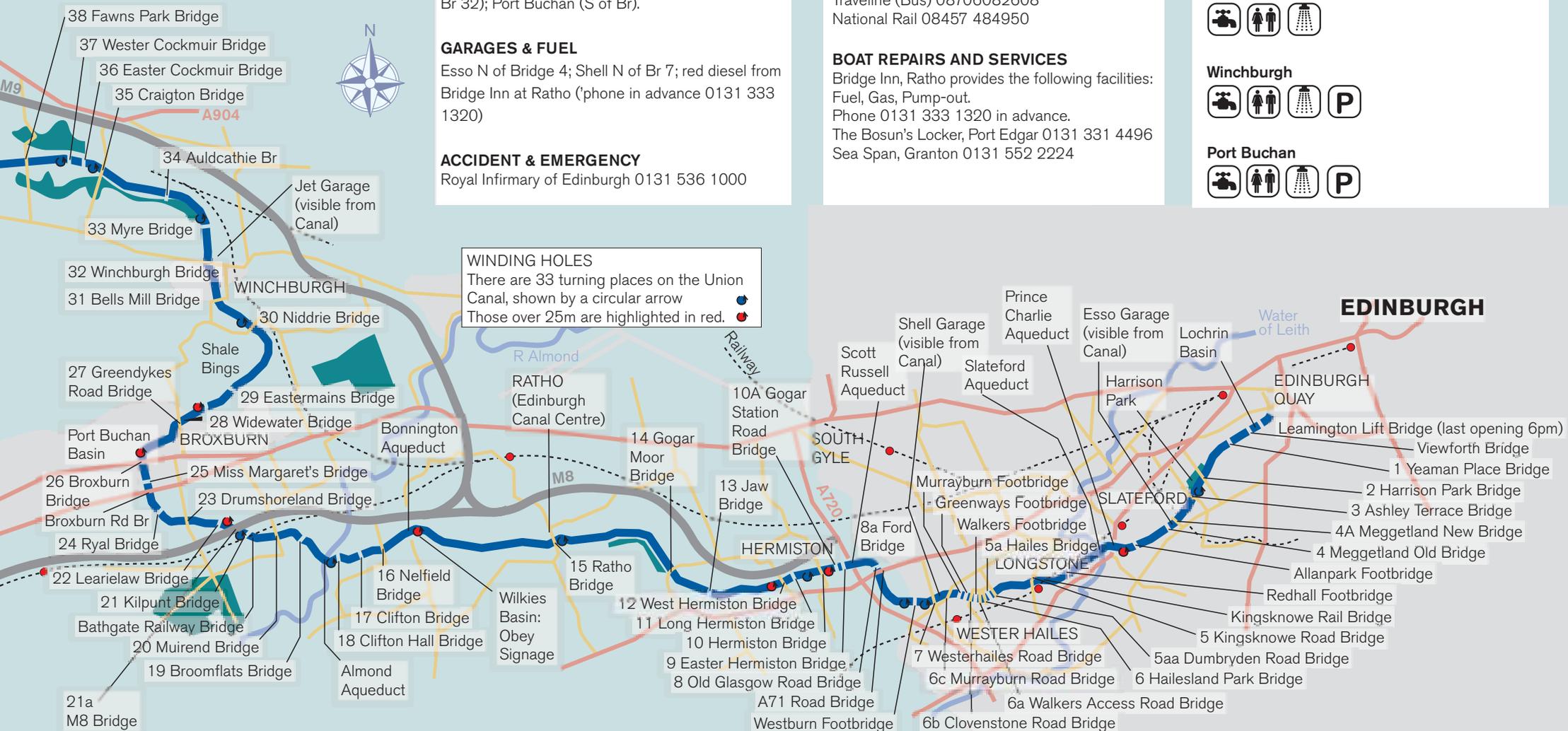
#### Drumshoreland



#### Winchburgh



#### Port Buchan

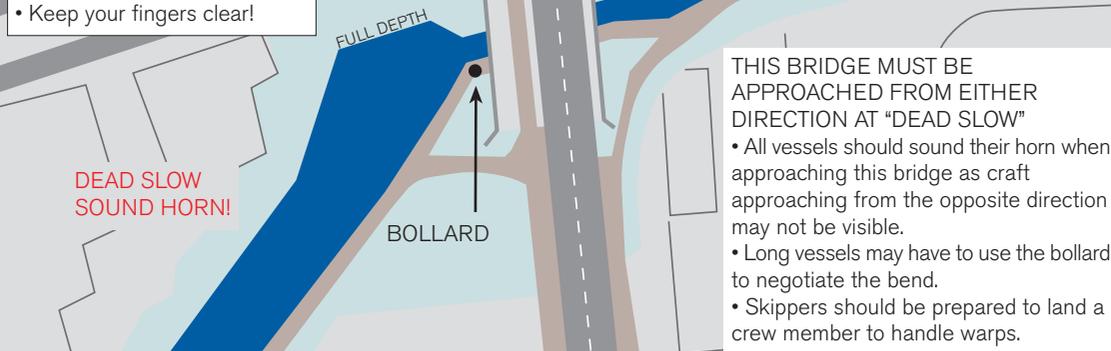


## GREENDYKES ROAD BRIDGE 27

### CAUTION

Take care when using bollard for swinging a vessel!

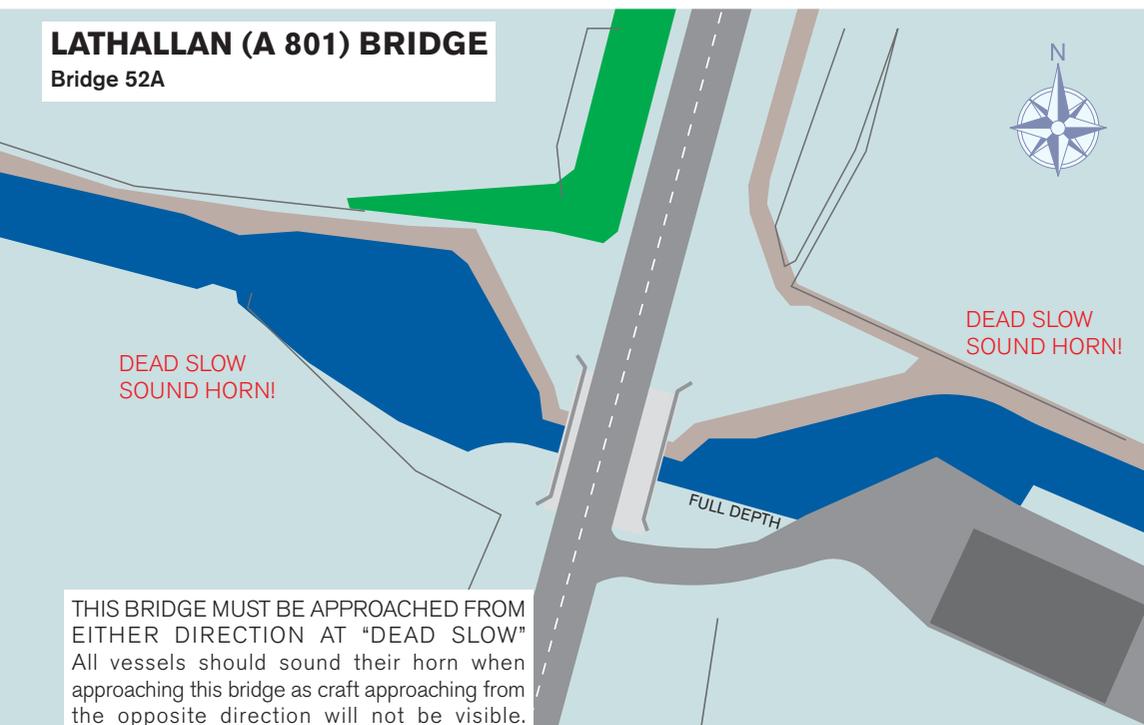
- Someone should land to handle the warp (rope).
- Wrap the warp round the bollard a few times - do not tie a knot.
- Control the friction with the bollard to control the boat – more load, more turns.
- Keep your fingers clear!



THIS BRIDGE MUST BE APPROACHED FROM EITHER DIRECTION AT "DEAD SLOW"

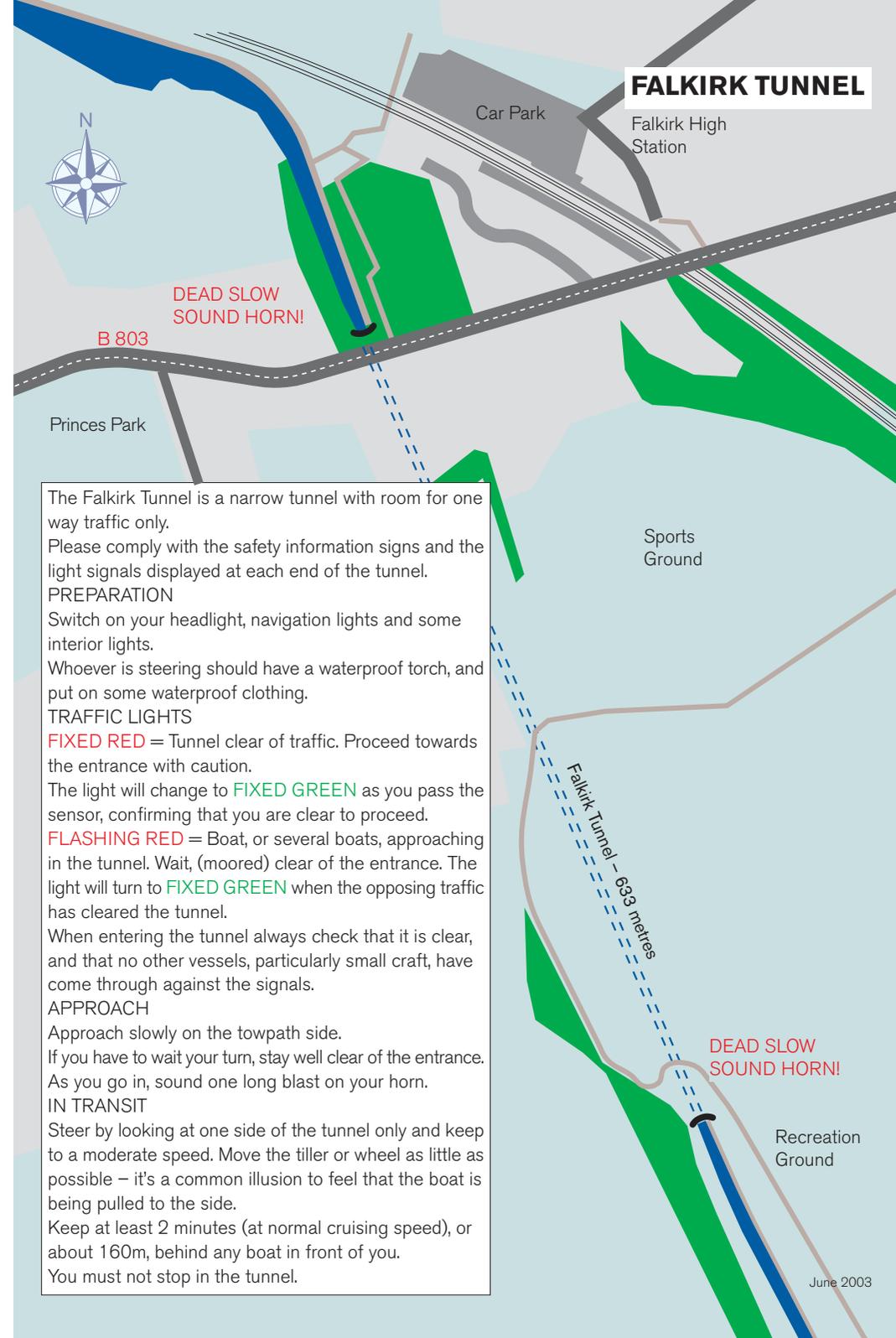
- All vessels should sound their horn when approaching this bridge as craft approaching from the opposite direction may not be visible.
- Long vessels may have to use the bollard to negotiate the bend.
- Skippers should be prepared to land a crew member to handle warps.

## LATHALLAN (A 801) BRIDGE Bridge 52A



THIS BRIDGE MUST BE APPROACHED FROM EITHER DIRECTION AT "DEAD SLOW"  
All vessels should sound their horn when approaching this bridge as craft approaching from the opposite direction will not be visible.

## FALKIRK TUNNEL



The Falkirk Tunnel is a narrow tunnel with room for one way traffic only. Please comply with the safety information signs and the light signals displayed at each end of the tunnel.

### PREPARATION

Switch on your headlight, navigation lights and some interior lights.

Whoever is steering should have a waterproof torch, and put on some waterproof clothing.

### TRAFFIC LIGHTS

**FIXED RED** = Tunnel clear of traffic. Proceed towards the entrance with caution.

The light will change to **FIXED GREEN** as you pass the sensor, confirming that you are clear to proceed.

**FLASHING RED** = Boat, or several boats, approaching in the tunnel. Wait, (moored) clear of the entrance. The light will turn to **FIXED GREEN** when the opposing traffic has cleared the tunnel.

When entering the tunnel always check that it is clear, and that no other vessels, particularly small craft, have come through against the signals.

### APPROACH

Approach slowly on the towpath side.

If you have to wait your turn, stay well clear of the entrance. As you go in, sound one long blast on your horn.

### IN TRANSIT

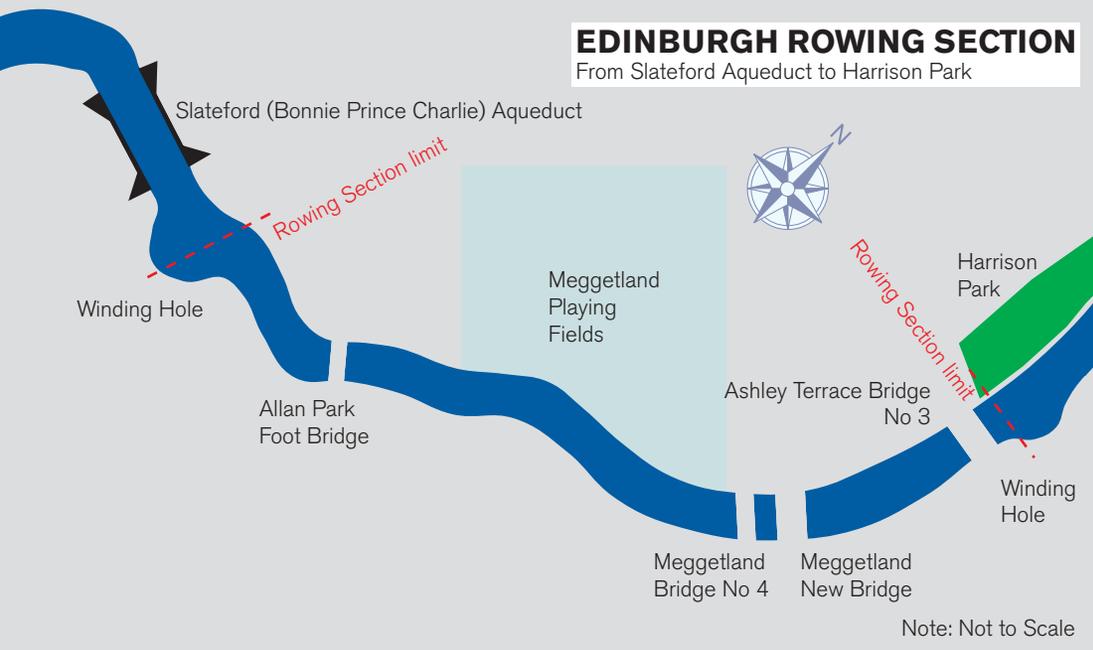
Steer by looking at one side of the tunnel only and keep to a moderate speed. Move the tiller or wheel as little as possible – it's a common illusion to feel that the boat is being pulled to the side.

Keep at least 2 minutes (at normal cruising speed), or about 160m, behind any boat in front of you.

You must not stop in the tunnel.

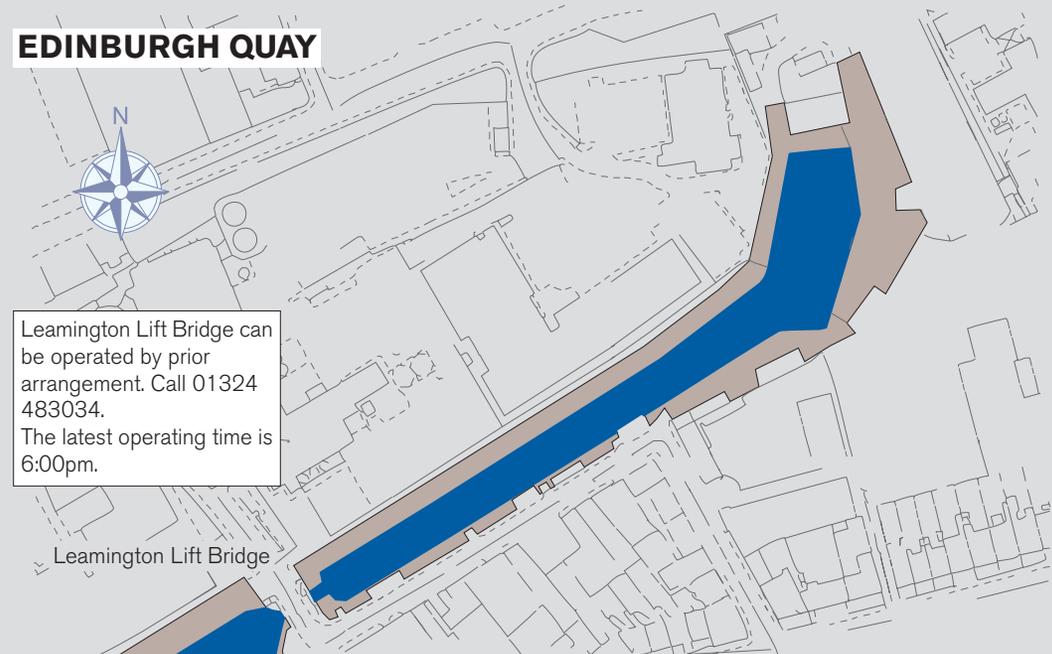
## EDINBURGH ROWING SECTION

From Slateford Aqueduct to Harrison Park



## EDINBURGH QUAY

Leamington Lift Bridge can be operated by prior arrangement. Call 01324 483034. The latest operating time is 6:00pm.



## ROWING

Rowing clubs use the canal between Slateford (Prince Charlie) Aqueduct and Harrison Park (which is between Ashley Terrace Bridge and Harrison Park Bridge). Please refer to the sketch chart above.

There are caution signs 500 metres east and west of the limits of this section to warn boaters that they are about to enter the rowing section.

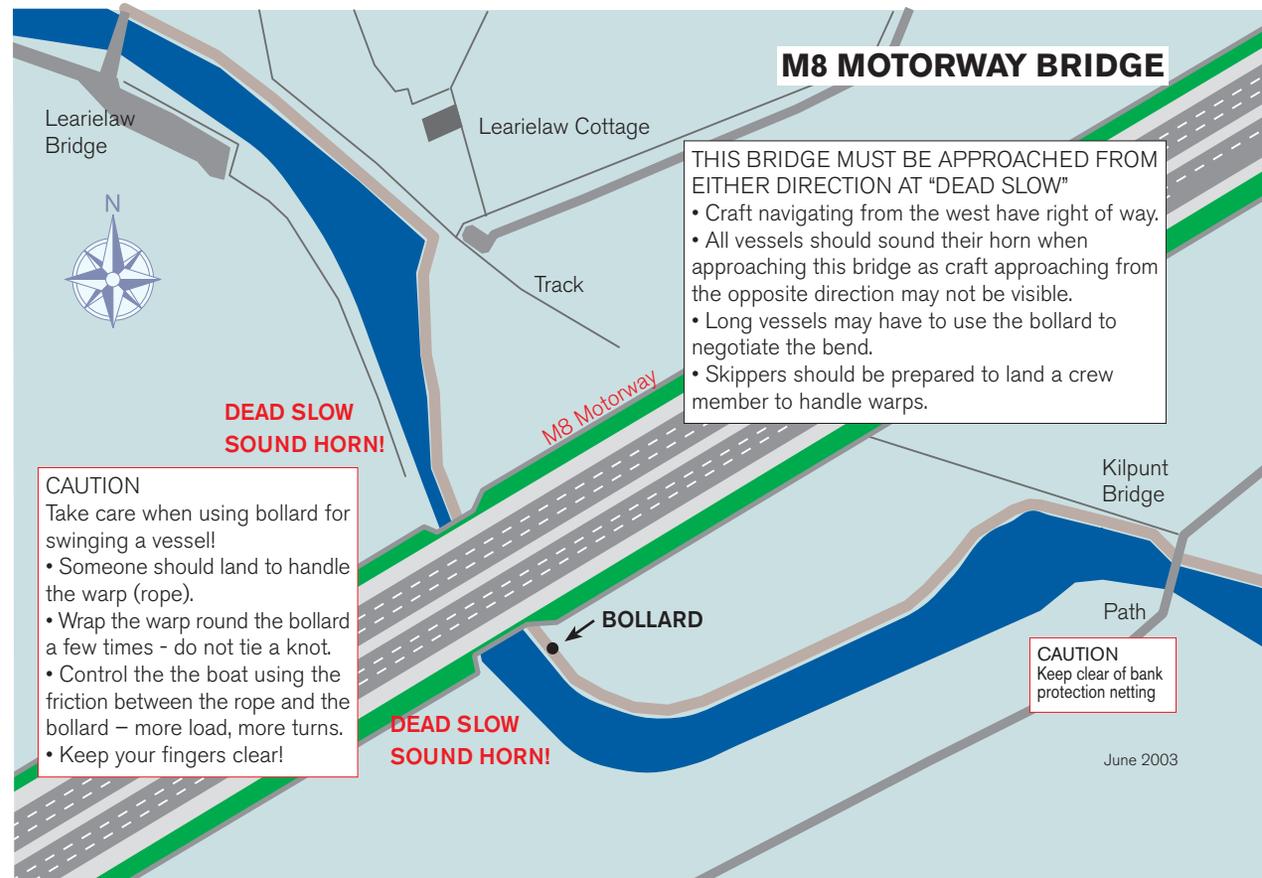
There is free access for all users to operate on this section of the canal at all times apart from during school term as follows: September to June, Monday to Friday, 3.15pm to 5.15pm. No restrictions apply during the months of July and August.

Commercial craft will have access through the rowing section during school term. The operator must 'phone in advance and inform the rowers when access through is required. The appropriate contact 'phone numbers are indicated on the signs at each end of the rowing section, as follows: No 1: 'phone 07952 811738. No 2: 'phone 07952 811739.

Pleasure craft: if through passage is urgent between 3.15 and 5.15 please 'phone in advance to be allocated a time slot. Telephone numbers as above.

It would be greatly appreciated by the rowing groups if your journey could be planned with the above restrictions in mind.

## M8 MOTORWAY BRIDGE



**THIS BRIDGE MUST BE APPROACHED FROM EITHER DIRECTION AT "DEAD SLOW"**

- Craft navigating from the west have right of way.
- All vessels should sound their horn when approaching this bridge as craft approaching from the opposite direction may not be visible.
- Long vessels may have to use the bollard to negotiate the bend.
- Skippers should be prepared to land a crew member to handle warps.

**CAUTION**  
Take care when using bollard for swinging a vessel!

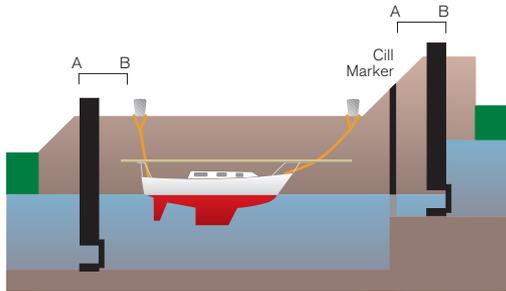
- Someone should land to handle the warp (rope).
- Wrap the warp round the bollard a few times - do not tie a knot.
- Control the the boat using the friction between the rope and the bollard - more load, more turns.
- Keep your fingers clear!

**CAUTION**  
Keep clear of bank protection netting

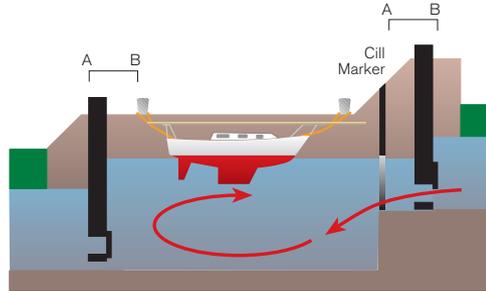
## LOCK OPERATION

Follow these tips for a trouble free canal experience. You will find more information in the Boaters Handbook, available free to all licence holders from the sea locks and the waterway office. Note that locks and bridges are currently operated by BW staff, who nevertheless will welcome assistance.

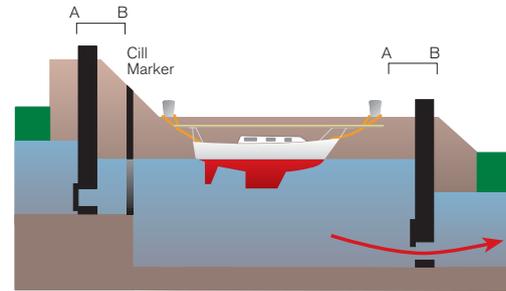
### LOCKING UP - PREPARATION



### LOCKING UP - IN PROGRESS



### LOCKING DOWN - IN PROGRESS



#### LOCKING UPWARDS

- 1 If a boat is approaching the lock in a downward direction wait until it has locked through.
- 2 Make sure that the top gates and sluices are closed.
- 3 If the lock is full, empty it by raising the bottom gate sluices. If alone in the lock stay as far back in the chamber as possible to avoid turbulence, keeping clear of the lower gate walkway during lock filling and also downstream of the Cill Markers.
- 4 Secure the bow and stern ropes ashore. Shore crew should not hold the warps as forces can be considerable.
- 5 Close the bottom gates and sluices.
- 6 When all craft are secure and crews are ready, commence to flood the lock by progressively opening one of the top gate sluices (initially on the same side as a single moored craft), then both. Crews on board should adjust the warps as the vessel rises.
- 7 When the lock is full open the sluices fully to make opening the gates easier.
- 8 Open the lock gates and sail out.
- 9 To ensure the lock is ready for the next vessel close the gates and sluices, unless you see a craft approaching from the opposite direction.

#### REMEMBER THE THRIFT CODE

- Get two or more boats in a lock when possible.
- Shut all gates and paddles after use.
- Report leaks or damage to BW staff.
- If a lock is set against you, let opposing craft through first.
- Follow advice from BW staff.
- Save water by 'lock wheeling'.

#### LOCK WHEELING

Where there are short pounds between locks (ie not continuous flights), prepare the next lock and save water in one move, as follows:

#### LOCKING UP

- 1 Open the top gate paddles of the lock you are in.
- 2 Then open the bottom gate paddles of the lock above you.

#### LOCKING DOWN

- 1 Open the top paddles of the lock below you.
- 2 Then open the bottom paddles of the lock you are in.

This fills one lock from another, instead of allowing the pound to overflow.

#### LOCKING DOWNWARDS

Downward locking is much less turbulent than upward.

- 1 If the lock is empty and you see a craft approaching from the other direction allow it to use the lock first.
- 2 Otherwise, ensure that the bottom gates and sluices are closed and fill it by opening the top sluices.
- 3 When the lock chamber is full open the gates by leaning on the swing bar. The gate will only move once the water pressure has equalised, so leave the sluices open and apply gentle pressure until you feel the gate move.
- 4 The craft may now enter the lock.
- 5 Secure the vessel by bow and stern ropes using the bollards provided. Keep clear of the cill marker and bottom gate walkway.
- 6 Close the top gates and the top sluices.
- 7 Slowly open the bottom sluices when the boats and crew are ready. Crew positioned at bow and stern should pay out ropes as the water level drops, otherwise the boat could be 'hung up'. If this, or any other problem, occurs the shore crew must immediately close the sluices and the advice of a lock keeper sought.
- 7 When the chamber is empty open the bottom gates and exit the lock.
- 8 Close gates and sluices after use unless another craft is approaching the lock from downstream.

#### GENERAL

- If possible share the lock chamber with other craft to reduce the work load and save water.
- When approaching, berth at the nearest transit jetty whilst your shore crew open the gates ready for entry.
- The sluices are operated by fitting the key (provided by BW) onto the spindle marked with up and down directions. As you rotate the handle the indicator on the sluice case or rack bar will move either up or down, indicating the position of the sluice. If the sluice will not move, do not attempt to force it - instead try the sluice on the adjacent gate.
- If you have difficulty, seek the help of a lock keeper.

#### RECOMMENDED EQUIPMENT

You will need:

- 1 Two good quality ropes of at least 12 metres length.
- 2 At least 3, and preferably 5, large fenders per side to protect your topsides. You can also lace a canvas sheet between the hull and fenders to avoid scuffing, and/or to use a fender plank. Place several extra fenders at water level to protect lower topsides when locks are very full.
- 3 Life jackets for all crew.
- 4 A footmat or piece of carpet on the side deck will help minimise the amount of grit and dirt carried aboard.
- 5 A long (3m+) boathook or punting pole.
- 6 Debris may cause engine cooling problems. Be prepared to quickly clean the coolant filter, and carry a flexible rod to clear the inlet seacock.

#### LOCKING TIPS

Crew on board need to control the craft during the locking process, as follows:

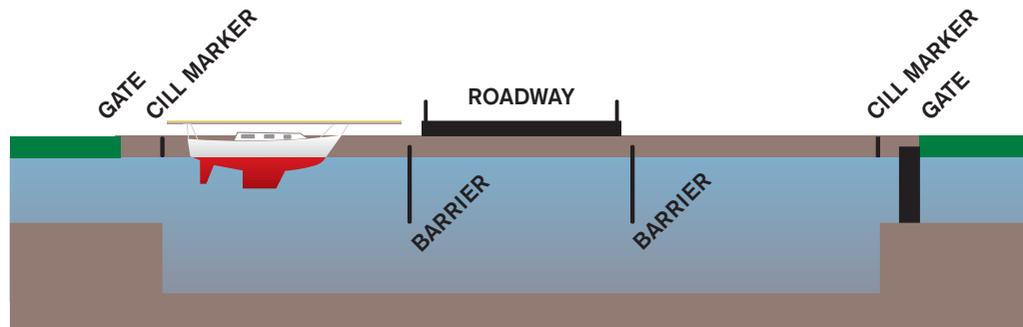
- 1 Approach the lock slowly and steadily.
- 2 Have one crew member positioned at bow and stern to manage ropes.
- 3 Ensure ropes can run cleanly through fairleads or stemhead roller.
- 4 Double the ropes back aboard for easy casting off.

#### CILL MARKERS

To avoid contact with the lock cill ensure your vessel keeps clear of the Cill Marker on the lock wall, and the lock gangways (A-B on diagram).

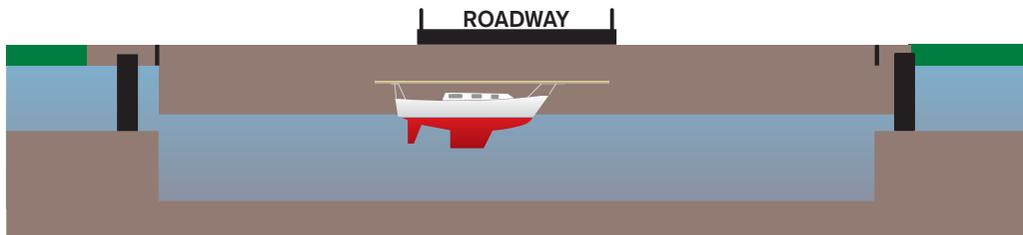
## DROP LOCK OPERATION

The UK's first drop lock allows boats to pass under Dumbarton Road at Dalmuir, without disrupting traffic, by temporarily lowering the water level beneath the road to give sufficient headroom.

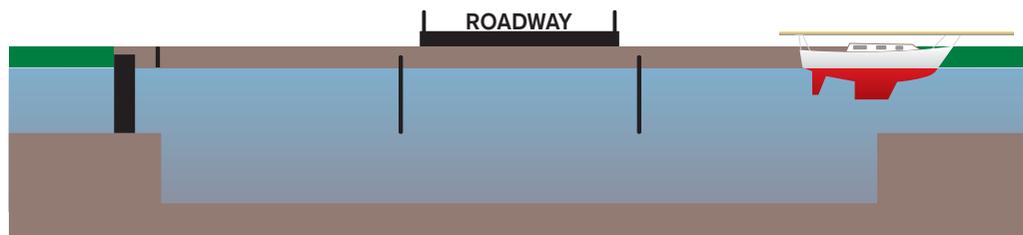


### DROP LOCK OPERATION

- 1 As a vessel approaches the lock, all gates and barriers will be closed.
- 2 The lock keeper will open the entry lock gate.
- 3 The vessel can then enter the lock chamber, stopping short of the barrier near the bridge parapet.
- 4 The entry gate will be closed, and the vessel should then be moored.



- 5 The lock keeper will then commence the controlled lowering of water level in the lock.
- 6 When the water level has been lowered, the barriers within the lock chamber will be raised, allowing the vessel to proceed under the roadway.
- 7 The vessel should then proceed forward to the exit chamber, ensuring that any aft projection, such as the mast, is clear of the barrier position.
- 8 The barriers will then be lowered to the closed position, and the vessel should be moored.



- 9 The lock keeper will commence the controlled raising of the water level to once again match that of the canal.
- 10 The exit lock gate will be opened.
- 11 The vessel can now exit the lock and continue her voyage.

When a boat has entered the lock chamber 2,000 cubic metres of water are pumped out to increase the air draft to 3.0m. The process takes around 20 minutes.

This lock will be permanently manned by BW staff.

## GENERAL INFORMATION

### BOATERS HANDBOOK

All licence holders are entitled to a free copy of our Boaters Handbook. Keep it on board the boat and encourage all crew members to follow it. Please ask for a copy at the sea lock or at the waterway office. The handbook contains information common to inland waterways generally, not locally specific information.

### OPERATING TIMES

The Lowland Canals operate 7 days a week in spring, summer & autumn (1st April to 14th October), between the hours of 08.00 and 20.00. Winter hours are 08.00 to 16.00.

Late lockings can be arranged at the Forth & Clyde Canal Sea Locks (additional charge)

For more information contact: Grangemouth Sea Lock: 01324 483034 or Bowling Sea Lock: 01389 877969.

Tide Tables for Bowling and Grangemouth are available from the Lock Keeper at a cost of 50p.

### MAXIMUM CHANNEL DIMENSIONS

All measured from the water surface. Add 10cm (4inches) to your sea water draught to compensate for reduced buoyancy in fresh water, and allow for the weight of extra equipment, fuel and water which may increase your draught. Leave a safety margin for underkeel clearance. Allow adequate tolerance for fluctuating water levels, which may effect channel depth and headroom. The headroom at the railway bridge below Lock 9, and at Merer's Bridge between Locks 7 & 8, may be reduced due to increases in water flows from locks in operation upstream. Check the depth/headroom gauges located at these bridges before navigating under them.

#### **Forth & Clyde:**

Lock Length:	20.88m (68ft 6in)*
Width / Beam:	6.00m (19ft 8in)
Channel Depth:	1.83m (6ft)

Maximum Headroom	3.00m (9ft 10in)
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\* Vessels over 19.2m (63ft) should contact BW before arranging their passage.

#### **Forth & Clyde Canal, Glasgow Branch:**

Lock Length:	20.88m (68ft 6in)
Width / Beam:	5.02m (16ft 6in)
Channel Depth:	1.4m (4ft 6in)
Maximum Headroom:	2.74m (9ft)

Note: Planned dredging will increase channel depth to 1.83m (6ft)

#### **Union Canal & The Falkirk Wheel:**

Lock Length:	21.33m (70ft)
Width:	3.81m (12ft 6in)
Channel Depth:	1.06m (3ft 6in)
Maximum Headroom:	2.7m (8ft 10 in)

#### **Wheel and New Tunnel**

Channel Depth	1.5m (5ft)
Maximum Headroom:	2.7m (8ft 10 in)

#### **Golden Jubilee Lock: (Lock 3: F&C into basin)**

Length:	21.33m (70ft)
Width / Beam:	3.83m (12ft 6in)
Channel Depth:	1.5m (5ft)

### SHOWERS, TOILETS, WATER, REFUSE POINTS & SHORE POWER

Available at locations throughout the waterway. Please refer to canal map for details.

Access is via a British Waterways passkey, which is available from the Waterway Office or the Sea Locks. A refundable deposit is required.

### PUMP OUT FACILITIES

The use of sea toilets within the waterway is prohibited. Vessels with holding tanks can use the pump-out facilities (chargeable) located at locations throughout the waterway. Please refer to maps.

### FUEL

Marine diesel is available at Bowling, Lock 2, the Falkirk Wheel (on F&C) and Ratho.

Petrol & Derv can be obtained from local garages (refer

to maps).

We would remind owners to exercise care during refuelling to avoid risk of fire or pollution.

### CANAL LICENSES

All craft using the canals must have an up to date licence on display at all times.

For more information please refer to the accompanying Licence / Mooring Permit information sheet, or visit [www.scottishcanals.co.uk](http://www.scottishcanals.co.uk)

### PASSAGE TIMES – A GUIDE

The Forth & Clyde Canal is 56km (31 nautical miles) from the River Carron Sea Lock on the Firth of Forth, to Bowling on the Firth of Clyde, and there are 39 locks to negotiate.

Skippers should allow a minimum of 21 hours underway, divided approximately as follows (east to west)

Carron Sea Lock (no 2) to Lock 16	6 hours
Lock 16 to Auchinstarry Basin	3 hours
Auchinstarry Basin to Lock 27	6 hours
Lock 27 to Bowling Sea lock	6 hours

Sufficient time should be allowed for passage from Port Edgar and negotiation of the River Carron to the Sea Lock.

#### **The Union Canal**

This canal is 51km long (31.5 nautical miles) from Lochrin Basin in Edinburgh to just above The Falkirk Wheel. It is a contour canal with only one moving structure – Leamington Lift Bridge in Edinburgh. This can be negotiated by prior arrangement with the Waterway Office, and the last operating time is 6.00pm.

Skippers should allow a minimum of 12 hours underway, divided as follows:

Lochrin Basin to Gogar Br (no 14)	2.5 hours
Gogar Br to Muirend Br (no 20)	2 hours
Muirend Br to Craigton Br (no 35)	2 hours
Craigton Br to Manse Rd Basin	2 hours
Manse Rd Basin to Brightons Br	2 hours
Brightons Br (no 54) to Falkirk	2 hours

### CREWING REQUIREMENTS

British Waterways staff will be on hand to assist at all locks and bridges on the Forth & Clyde Canal, but craft must have sufficient crew to assist staff with lockings. Faster progress will be made if each craft has more than one spare person available to

work ashore.

If you require further information on the working and manning of locks other than is provided in this guide, please contact the Waterway Office. See the Bowling and River Carron sailing Instructions for further information on assistance in the approaches to the canal and in the Sea Locks.

### DALMUIR DROP LOCK

This lock is situated near the western end of the canal at Dalmuir, and provides passage below Dumbarton Road. Its operation is described elsewhere in this Guide. The lock is situated on a sharp bend on the canal and care should be taken whilst approaching from either direction. Moor outside the lock to await instructions from British Waterways staff.

### FALKIRK TUNNEL

The tunnel is narrow with room for one way traffic only. Please comply with the safety information displayed on the signs located at the tunnel entrances, and with the light signals.

You must not stop in the tunnel, and unpowered craft may not navigate the tunnel.

Please consult the Falkirk Tunnel diagram and notes in this Guide.

### ROUGHCASTLE TUNNEL

As above, but as BW staff are on hand at this location, please also accept their verbal instructions.

### SKIPPER'S GUIDE - NOTE

This document is for the general guidance of waterway users, and should not be treated as Navigation Rules or Bye-laws. General or local instructions published by BW, and directions given by BW staff, should be followed.

**The Skipper has sole responsibility for safe navigation of the vessel through the canal. Specifically, the skipper is responsible for the safe passage of the vessel under bridges, and through tunnels and locks. No warranty, assurance, undertaking or representation is given or made by or on behalf of the Board regarding the safe passage of a vessel through the canal. This does not affect your statutory or common law rights.**

## **SAFETY INFORMATION**

### **BOAT SAFETY SCHEME**

All users of the waterway must have an up to date Boat Safety Certificate and provide evidence of insurance for £1,000,000 (one million Pounds Sterling) Third Party Liability.

An information pack is available from the Waterway Office, Sea Locks or from the Boat Safety Scheme web site – [www.boatsafetyScheme.com](http://www.boatsafetyScheme.com)

Craft entering the system by sea and berthing for no more than 28 consecutive days do not require a Boat Safety Certificate. Instead, they will be subject to a Dangerous Boat Check of gas and fuel systems, and will be required to complete a boat condition declaration.

### **GENERAL CREW SAFETY**

Canals are potentially hazardous environments, care should be exercised at all times. Skippers should maintain safety awareness in the canal, just as they would at sea. The ideal procedure is for life jackets to be worn at all times by all persons.

### **SWIMMING**

Although the canal may look inviting, please do not swim in it, as there may be underwater obstructions, and the banks can be steep.

### **VHF**

Sea Locks may be contacted on VHF Channel 16 / 74.

Call signs "Bowling Basin" and "Carron Sea Lock". There is no consistent VHF coverage on inland reaches.

### **RADAR**

Skippers must ensure that radar scanners are switched off while craft are in the canal, and when entering sea locks.

### **SPEED LIMIT**

All craft must observe the 4mph speed limit on the waterway to avoid bank erosion due to excessive

wash.

Please minimise disturbance to others by passing moored craft slowly.

### **CAUTION – MAST PROJECTION**

Skippers of sea craft are reminded that most masts will project beyond bow and stern. Care should be taken to leave side decks as clear of spreaders and shrouds as possible to facilitate handling warps in lock chambers. Please take extra care at bends whilst on passage.

### **LOCKS and BRIDGES**

#### **Forth & Clyde Canal**

Bowling Sea Lock (No 40) and the River Carron Sea Lock (No 2) are operated by British Waterways staff. At all other locks British Waterways staff will be on hand. See the General Information page overleaf for crewing recommendations.

### **MAIN OPENING BRIDGES**

Erskine Ferry, Sylvannia Way footbridge, Hillhead, Twechar and Bonnybridge bridges are hydraulically actuated, and operated by British Waterways staff. All bridges (except Sylvannia Way footbridge) will open twice per hour, on a scheduled basis, if there is boat traffic waiting to transit.

Bridge openings will not take place during peak road traffic times on week days. These times are displayed at each bridge.

Automated road bridge operation is expected to take in the region of 5 to 6 minutes for the complete sequence.

### **PEDESTRIAN BRIDGES**

There are a number of pedestrian opening bridges customers will have to operate. These are all on the western end of the canal between Lock 27 and Bowling and consist of 5 Bascule Bridges, and one Swing Bridge.

The Bascule Bridges are double leafed and require a

person on each side of the canal to operate.

The Swing Bridge is at Netherton, near Anniesland, the bridge is swung to the open position by pushing on a small swing bar.

British Waterways staff will be on hand to assist crews with the operation of these bridges.

### **Union Canal Locks and Bridges**

British Waterways staff will operate the two new locks above The Falkirk Wheel. Contact number 01324 676912. Mooring ropes must be used in both locks.

Leamington Lift Bridge near Lochrin Basin, Edinburgh. British Waterways staff will operate this bridge by prior arrangement – call 07801 049833 or 07808 786778. Latest opening time is 6.00pm.

### **USE OF LOCKS BY PORTABLE CRAFT**

When unpowered and portable craft are considered to large to portage round locks they may transit through the locks. They must be warped through on ropes with no-one on board. Whenever possible such craft will be encouraged to portage round locks for safety and water economy reasons.

### **THE ENVIRONMENT**

British Waterways operates a Port Waste Management Plan, agreed with the Maritime Coastguard Agency and SEPA.

Please help us to keep the Lowland Canals tidy by disposing of rubbish in a thoughtful manner. In particular, plastic bags thrown overboard could block water intakes, or foul propellers.

Note that it is an offence to discharge oil, or oily bilge water, into the canal, or its adjacent waters. Any contravention of this rule will be reported to the Marine Coastguard Agency.

If you require to empty bilges please contact British Waterways, who may be able to arrange for specialist contractors (at additional cost).

### **EMERGENCIES**

In the event of an emergency summon assistance by whatever means is available – such as mobile 'phone, public telephone, or by enlisting the help of others.

### **EMERGENCY NUMBERS**

Emergency Number (inc Coastguard) 999  
BW Emerg. (non office hours) 0800 47 999 47

### **Other Useful Numbers**

Lowland Canals Waterway Office 01324 671217  
BW Scotland Head Office 0141 3326936  
Falkirk Wheel Basin Controller 01324 676912  
or 07876 035143  
Falkirk Wheel Visitor Centre 01324 619888

### **ROWING**

Rowing clubs use the section of Union Canal from Slateford (Prince Charlie) Aqueduct to Harrison Park (between Ashley Terrace Bridge and Harrison Park Bridge). Signs cautioning boaters have been erected 500 metres E & W of this section. Please refer to the diagram and procedure detailed elsewhere in this Skipper's Guide.

### **SAFETY AT GRANGEMOUTH**

The River Carron comes within the safety zone for the Grangemouth Petroleum and Chemical Complex.

In the event of a major escape of toxic gas public warning sirens will be sounded, as follows:

The Alert Siren will have a Two-tone Sound operating continuously for 5 minutes, followed by 1 minute off. This alert cycle will be repeated for as long as it is considered necessary.

The All Clear will be a Single Tone Sound and will last for 5 minutes.

Anyone hearing the sirens, or without warning is affected to the point of discomfort by any gas, should immediately extinguish all naked lights and go inside shutting all doors, windows and vents.

If you are under way on the River Carron, proceed to the nearest mooring point (see sailing instructions) and then follow the above procedure.

### **British Waterways Lowland Canals**

**Rosebank House**

**Main Street**

**Camelon**

**FALKIRK**

**FK1 4DS**

**Tel: 01324 671217 Fax: 01324 671225**

[www.scottishcanals.co.uk](http://www.scottishcanals.co.uk)

**Price: £2**