A18.0 Navigation

A18.1 Methodology

A18.1.1 Data sources

The understanding of the existing environment from a navigation perspective has been informed through consultation with the Harbour Master and Maritime Director at F.I.G. as part of the stakeholder engagement exercise undertaken in September 2020.

The number of vessel movements within the Harbour and calls to FIPASS has been sourced from data provided by the current operators of FIPASS covering the period 2015 to 2020. Information has also been drawn from a Navigation Study (**Ref. 17**) which was undertaken through agreement with the Harbour Master.

A18.1.2 Approach to impact assessment

As agreed with F.I.G. Planning and Building Services via the environmental scoping process, a formal navigation risk assessment has not been undertaken as this is not considered necessary to inform the impact assessment as we are so close to the existing facility. The assessment of impacts from a navigation perspective has therefore been undertaken in a qualitative manner, in accordance with the methodology detailed in **Section A6.0**.

A18.2 Baseline conditions

A18.2.1 Navigation route

Access to Stanley Harbour from the open sea is via the bay of Port William, which provides a wide and deep access route. From Port William, vessels are required to transit through the Narrows which provides the only route in and out of Stanley Harbour.

The Narrows is bordered on the western side by Navy Point, and on the eastern side by Engineer Point. The Narrows has a width of approximately 80m between the 10m depth contour on either side. Water depths within Stanley Harbour are generally in the order of 6m CD, with the bed of the harbour (as defined on the Admiralty Chart) comprised of mud. The width of The Narrows defines the maximum beam vessel for vessels looking to gain access into Stanley Harbour.

A18.2.2 Pilotage and towage

Pilotage with the harbour used to be voluntary and was only recommended for Masters who were unfamiliar with Stanley Harbour. However, following an incident at FIPASS in 2019, a Notice to Mariners with a temporary pilotage direction was issued. The notice requires all vessels wishing to berth at FIPASS to take a pilot; it is understood that this temporary direction is still in place at the time of writing and will remain in place for the foreseeable future. The Port Regulations are currently being revisited and will include compulsory pilotage with the possibility to obtain a pilot exemption certificate.

A18.2.3 Aids to Navigation

There are existing Aids to Navigation at Stanley Harbour as illustrated on the Admiralty Chart. These comprise the following:

- Leading line with lights indicating the entry passage through the Narrows.
- Fixed markers with lights on Navy Point and Engineer Point.

- Fixed markers on the seaward corners of FIPASS.
- Exit leading line with day marker indicating the exit passage through the Narrows.

It is understood that there are functionality issues with some of the navigation lighting; the Harbour Information suggests that vessels that intend to manoeuvre during the hours of darkness do check the operability of the Aids to Navigation.

A18.2.4 Size and type of vessels calling at FIPASS

FIPASS recorded a throughput of 115,000 tonnes in 2018 and 110,000 tonnes in 2019 (**Ref. 2**). This throughput was comprised of containerised cargo (approximately 43%), liquid bulks (35%) and conventional, non-containerised cargo (22%) (**Ref. 2**). Approximately 50% of the total throughput at FIPASS is linked to the fish industry (fish, bait, stores, bunkering).

In addition to commercial vessels using FIPASS, small recreational vessels use the eastern part of Stanley Harbour. The adjacent area of Boxer Bridge (at the entrance to the Canache, to the east of the proposed scheme footprint) is used as a marine berthing area for small numbers of recreational yachts (Royal HaskoningDHV, 2013).

Table 18.1 provides further detail regarding the use of Stanley Harbour and FIPASS by various types of vessels.

Table 18.1 Description of how vessels use Stanley Harbour and FIPASS (Premier Oil, 2018)

Vessel type	Description of use
Fishing vessels	Regular visitors to Stanley Harbour throughout the year, with the degree to which the Harbour is used heavily influenced by vessel type and target species. The main catch seasons are, however, understood to be during the second and third quarter of each year. Approximately 13% of the total Falkland Islands fish landings is unloaded at FIPASS. Fishing vessels undergo licence inspections, crew transfers and transfer catch in the Harbour. Most jiggers anchor within the Harbour, with very few visits to FIPASS recorded.
Fishery patrol vessels	Regular visitors to the Harbour and berth at FIPASS when space is available.
Cargo vessels	Regular visitors to the Harbour and require a berth at FIPASS to transfer cargo ashore.
Cruise ships	The majority of cruise ships visiting Stanley anchor in the Harbour or at Port William, from where they ferry passengers to the shore in tenders. Some smaller cruise ships do make use of FIPASS, however only approximately 10% of the cruise vessels calling at the Falkland Islands made use of FIPASS between 2015/16 and 2019/20.
Reefers	Such vessels rarely enter Stanley Harbour, preferring to anchor in Port William or Berkeley Sound.
Tankers	It is reported that up to 20 tankers visit FIPASS annually to transfer fuel.
Yachts and pleasure craft	Yachts and pleasure craft were reported to use the Harbour in 2014, usually mooring at the Public Jetty or East Jetty, or anchoring in the Harbour.
Research vessels	Research vessels dock at FIPASS in order to re-supply and change crew.

A18.2.5 Vessel numbers

FIPASS currently offers some 200m of berthing space, with two main operational berths (central and eastern berths). The western 100m of berthing space has not been available for berthing since November 2018 (**Ref. 18**). An additional auxiliary berth is present at the eastern end of the pontoons, directly at the end of the access link bridge which is known as the eastern Ro-Ro berth; this is not currently in use as a Ro-Ro due to structural capacity concerns (**Ref. 18**).

Data provided by the current operators of FIPASS has been reviewed as part of the Demand Study (**Ref. 2**) to understand the existing throughput at FIPASS. It is evident from the data that the number of vessel calls to FIPASS peaked during 2010 and 2011, with the vessel calls generally decreasing since that point. This is reported to be a result of platform supply vessels (PSV) and offshore supply vessels (OSV) ceasing calls to FIPASS during the second quarter of 2016 (although some vessels were handled during the first half of 2019), as well as a general reduction in the number of other types of vessel calls (**Ref. 2**).

Based on berth utilisation rates provided by the operators of FIPASS, the average number of vessel calls per year from 1999 to 2019 was approximately 300. The share of fishing vessels berthing at FIPASS gradually increased from 35% in 2000 to 53% in 2019. The number of vessels (by type) berthing at FIPASS per year is illustrated visually in **Figure 18.1**.

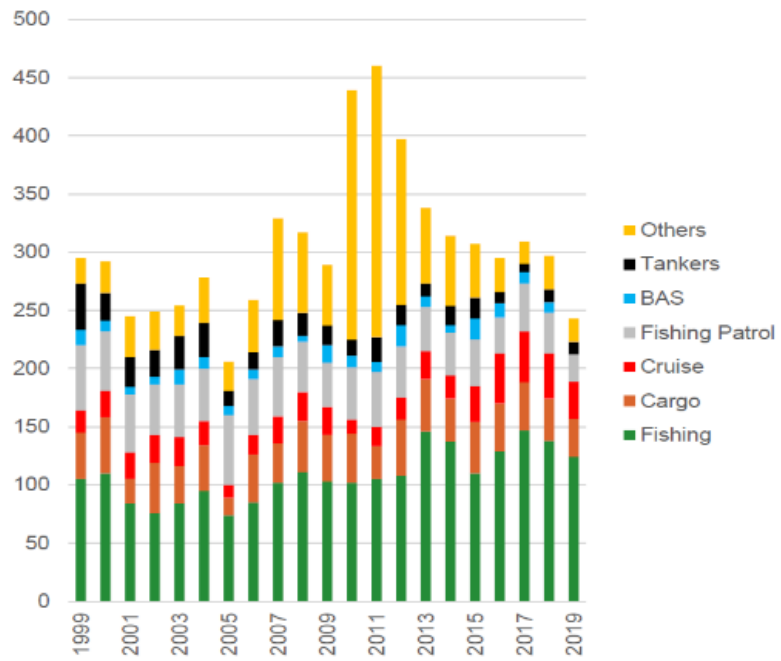

Figure 18.1 **Number of vessels calls to FIPASS from 1999 to 2019**

A18.2.6 Berth occupancy

A study has been undertaken to determine the berth occupancy at FIPASS (**Ref. 18**); a summary of the findings is presented in **Table 18.2**. On average, the 2019 total FIPASS berth occupancy rate across the two berths was 50%, with the eastern Ro-Ro berth only being used for re-supply purposes for a combined duration of 44 days (which represents 12% berth utilisation).

Based on a review of data from 2019, the operations at FIPASS are on the limit of operational efficiency and suffer from occasional delays and long waiting times for vessels monthly during the peak periods. Based on the results of stakeholder engagement undertaken in September 2020, it is apparent that if the berths at FIPASS are occupied, fishing boat captains can tranship their catch at sea to reefer vessels.

Table 18.2 Berth occupancy rates at FIPASS in 2019

Vessel type	Total vessel calls in 2019	Duration at berth (hours)	Peak season	Average berth occupancy (%)
Cruise	32	12	October to April	2
Fishing (transhipment)	78	23	Occurs throughout the year, but peaks in April to September	9
Container cargo	32	32	Not applicable – generally occur every month	10
Research	10	45	Not applicable – no set schedule	3
Conventional cargo (fishing vessels discharge and loading)	67	30	Not applicable – generally occur every month	14
Oil tankers	14	20		2
Non-cargo (includes maintenance vessels or special events like Remembrance Day)	18	74	Not applicable – no set schedule	1

A18.2.7 Vessel management

It is understood that the operators of FIPASS utilise a booking system and radio based VHF communication to manage ship arrivals to FIPASS. It is also understood that an Automatic Identification System (AIS) is used to compliment the radio system to determine where vessels are located.

A18.2.8 Future evolution of the baseline in the absence of the proposed scheme

In the absence of the proposed scheme, commercial navigation within the harbour would continue to utilise FIPASS. However, given the deteriorating condition of FIPASS, it is considered that, in the short-term, vessels would no longer be able to safely berth at FIPASS. This would likely result in difficulties with the import and export of products to and from the Falkland Islands.

A18.3 Potential impacts during construction

A18.3.1 Conflict between construction activities and navigation into and within Stanley Harbour

The proposed scheme footprint is located within and adjacent to FIPASS, and is adjacent to the TDF; there is therefore the potential for the proposed scheme to result in conflict between construction activities and existing navigation within the harbour. Such potential conflict could take a number of forms, including delays to shipping, increased collision risk, obscuring navigational aids and the prevention/interference of activities of other operators that are present in the vicinity of the proposed scheme. This potential conflict exists for the duration of the construction phase which is predicted to last for a period of approximately 2.5 years overall.

It should be noted, however, that the vast majority of the proposed construction works are to be undertaken using land-based plant, which significantly reduces the potential for conflict between construction-related activities and existing navigation within the harbour. The only construction phase activities predicted to utilise a vessel are the removal of surficial silt and the dismantling of FIPASS.

Consultation with the Harbour Master in January 2021 confirmed that in relation to vessel manoeuvring, the increased volume of vessels due to construction activities is low and, therefore, a navigation model on the temporary phasing of the construction phase of the proposed scheme (**Section A 4.2**) was not required. This indicates that the risk of collision was considered by the Harbour Master to be sufficiently low not to warrant further analysis.

It is envisaged that any potential conflicts would be managed in the same way as other construction activities which have previously been undertaken within the harbour, specifically through coordination between F.I.G., the current operators of FIPASS, the contractor and the Harbour Master. The contractor will liaise with the Harbour Master and FIPASS operator to discuss the construction programme (including the dismantling of FIPASS) and identify suitable mitigation measures.

It is considered that the use of the existing vessel tracking system (i.e. AIS and radio communication) would provide a satisfactory mechanism for the effective management of shipping traffic within the area during construction. F.I.G. would liaise with the Harbour Master to ensure that Notices to Mariners are issued at the appropriate times to inform other users of the proposed construction works. In addition, any vessels to be used during construction would use appropriate signals as required by International Regulations to allow safe navigation. Navigation lighting on FIPASS would remain during the phased dismantling of FIPASS; this would be repositioned in a phased manner to accord with the phased removal of the FIPASS barges. Likewise navigational lighting will be temporarily installed on the developing scheme as the piling and revetment face is installed.

Based on the above, the magnitude of impact is predicted to be very low on a medium sensitivity receptor. The proposed scheme is therefore predicted to have an impact of **negligible** significance on commercial navigation during construction.

A18.3.1.1 Mitigation and residual impact

All possible mitigation measures have been embedded into the proposed scheme design and therefore no further measures are required or practicable. As a result, the residual impact is of **negligible** significance.

A18.3.2 Disruption to existing users of FIPASS as it is dismantled

The FIPASS facility will need to be dismantled as part of the construction phase; this has potential to result in disruption to existing users of FIPASS. The potential disruption could take a number of forms, including delays to shipping, obscuring navigational aids, prevention/interference of activities of other operators that are present in the vicinity of the proposed quay and reducing berthing capacity in Stanley Harbour.

In order to minimise disruption to the existing users of FIPASS, a number of embedded mitigation measures have been built into the scheme design. The main embedded mitigation is that the dismantling of FIPASS and construction of the new quay is to be undertaken in a phased manner. This approach will ensure that adequate berthing facilities are available at all times during construction, either at FIPASS or at the new quay. This will ensure that there is no loss of berthing capability for vessels entering Stanley Harbour as a result of the proposed construction phase.

To both support the transition for the existing users of FIPASS onto the proposed new quay and to prevent disruption, the following measures have also been embedded into the proposed scheme design:

- The contractor will make their equipment and resources available to port users where practical.
- The contractor will provide their own mooring and storage to avoid impact on port facilities and ensuring plant, equipment and mooring lines do not impede on port operations.
- The contractor will agree delivery and unloading times and times and schedules with the port.

- The contractor will create a detailed port transfer strategy (rolling decant plan) through the design and construction process. Consultation with the port operator will occur in relation to the port transfer strategy to ensure any of their comments are incorporated into the final transition plan.

During the construction phase, the contractors will continue collaborative discussion and agreement on the phased approach to construction with the port operators to ensure FIPASS remains open and operational to provide adequate berthing facilities whilst the new quay is being constructed.

Based on the above, an impact of **negligible** significance is predicted to the current users of FIPASS during the construction phase.

A18.3.2.1 Mitigation and residual impact

All possible mitigation measures have been embedded into the proposed scheme design and therefore no further measures are required or practicable. As a result, the residual risk is **negligible**.

A18.4 Potential impacts during operation

A18.4.1 Increased collision risk due to the predicted increased vessel traffic during operation

As detailed in **Section A4.3**, the proposed scheme is intended to result in an increased number of vessels (including larger vessels) berthing at the new quay during the operational phase. It is predicted that approximately 490 vessels per year will berth at the new quay during the assessed operational phase year; this is an increase of approximately 200 vessels per year compared to the average number of vessels which berthed at FIPASS on an annual basis from 1999 to 2019.

An increased number of larger sized vessels has potential to result in an increase in collision risk during operation. However, the studies undertaken to inform the design have concluded that the proposed scheme is suitable for the forecasted growth in vessel numbers (both in terms of capacity and berth occupancy).

Building A will contain a vessel traffic service (VTS) which will provide a mechanism for the management of any operational phase conflict between vessels.

Based on the above, it is evident that there are measures embedded into the proposed scheme design which will provide a satisfactory mechanism for the management of operational phase collision risk due to the predicted increase in vessel traffic. An impact of **negligible** significance is predicted.

A18.4.1.1 Mitigation and residual impact

All possible mitigation measures have been embedded into the proposed scheme design and therefore no further measures are required or practicable. As a result, the residual risk is **negligible**.