

Glen Sannox & Hull 802 Monthly Report – [September 2022]

1.0 General

Executive Summary

This assessment of the overall progress for each vessel is made against the programme dates and building sequence set out within the FMPG letter to the NZET committee on the 28th of September 2022. This indicates target for completion of 801 in April 2023, with LNG commissioning in May 2023 and a handover date in Q1/2024 for 802. As the update from the yard was received at the end of the month before the publishing of this monthly update it is too early to make a full assessment of its progress.

For Glen Sannox (Hull 801) the main drive for work onboard is hotwork completion and commissioning. For hotwork the teams are working to close out below 3-deck from aft to forward and in outfit areas from 7-deck down to 5-deck, which is customary practice in shipbuilding. This sequence seems logical and in line with system/areas completion in preparation of commissioning activities.

There is slippage in the electrical programme to meet priority dates for main commissioning activities. This is being closely monitored by the Shipyards senior management.

The capacity for main equipment suppliers to mobilise resources to meet the yard planning dates for commissioning activities is on the critical path. The situation is being closely monitored by the yard.

Outstanding owners' observation issues and technical design office queries remain under the scrutiny of senior management. There are still a significant number OORs to resolve at this stage in the build.

Key Challenges for the Shipyard

Hull 801 - Key known Challenges for the shipyard to meet the programme:

- Installation and termination of the ship's cables. Particularly in line with commissioning.
- Completion of pipework to meet commissioning dates, including addressing pipe clashes.
- Close out of OORs.
- Closure of design gaps.
- Unknown and emerging rework.
- Delivery and completion of production drawings and accuracy of production drawings.
- Availability of experienced supervisors and managers.
- Shortage of experience trades.
- Availability of OEM for commissioning engineers.
- Coordination of multiple activities in busy compartments such as the engine room.
- Availability of materials.
- Verify Hull 801 Deadweight.
- Commissioning of LNG System.

- Lack of familiarity with final stages of finishing the vessels, surveys, documentation, certification.

Owners Observation Reports 801

The information below has been updated in conjunction with FMPG to reflect the joint review conducted during this reporting period. Significant efforts have been made to ensure that the scope of all issues, as well as the cost of implementation and the impact on the programme are fully understood.

	All Categories	Category 1	Category 2	Category 3
Total Raised	605	368	224	13
Total Closed	466	276	184	6
Total Committed	48	39	8	1
Total to close when work complete	48	38	8	2
Total still to resolve	43	15	24	5

Figures updated by Yard 30th September 2022

Cat 1 - Items, which relate to Safety, Quality, Maintainability and Specification requirements.

Cat 2 – Item, which relate to poor design, quality or production.

Cat 3 – General snagging and workmanship

2.0 Changes to Site Supervision Team

The core head count remains the same. Additional CalMac crew now onsite.

3.0 Design Changes Approved

Ongoing design changes and legacy issues are still affecting the constructability of the vessels. CMAL are now daily assisting the design process due to poor legacy design. Assistance is also being given to Fergusons in meeting criteria to gain approval from class and ^[Redacted]. Closure of final design gaps is needed, which at this late stage of the project remains a significant risk to the project.

4.0 Agreed Changes to Delivery Date

Updated programme delivery dates are set out in section one above.

5.0 Agreed Changes to Price

(Note of changes; changes to be authorised & recorded in Contract Variation Register)

6.0 Changes Awaiting the Owner's Approval

(Note of changes outstanding for approval by the Owner in excess of Buyer's Representative authority as stated in Consultancy Agreement Cl. 3.4)

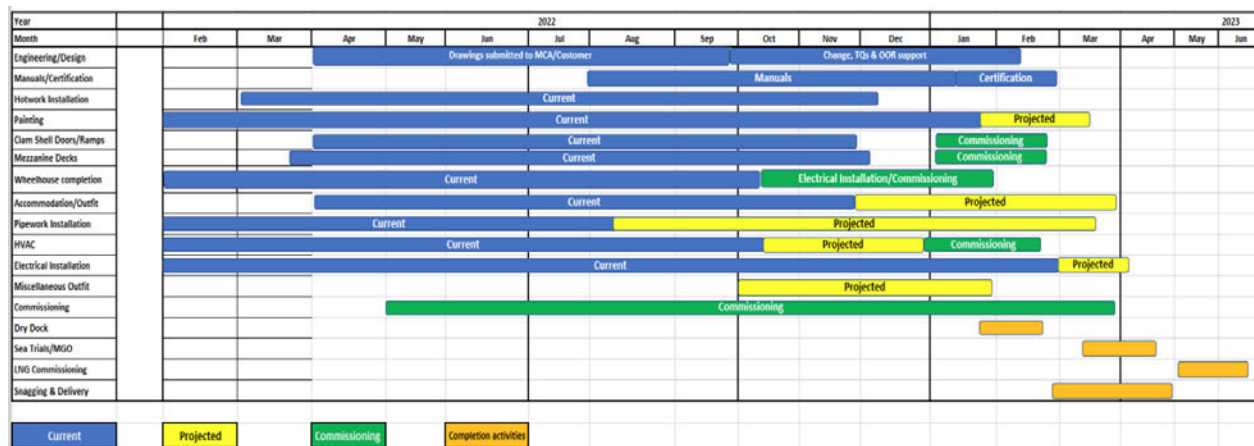
7.0 Surveys / Inspections

Verification surveys of the as-built standard are listed below.

No	Survey Inspection	Comment:
0	Week 35&36	
1	801 OOR survey checks with the view to closing have been limited over Wk35/6 week but hopefully this will again start to pick up from Wk37 onwards.	Accepted
2	801 Port Pilot door Hyd-piping pressure test with [Redacted] and CMAL	Accepted
3	801 Part areas surveys continue in 05/06k areas for fitting of Insulation.	Accepted
4	802 P&S Anti-tipping shellside plates welding inspection by [Redacted] and ourselves.	Accepted
5	802 Unit 89/90 surveyed by [Redacted] and CMAL	Accepted
6	802 Side shell OBD shell pipe penetrations set up before welding continues and witnessed by [Redacted].	Accepted
0	Week 37	
7	801 MGO P&S FO tanks (final clean and oil-wipe can proceed)	Accepted
8	801 Double btm Tanks piping survey in Eng-rm (comments being addressed)	Accepted
9	801 Hyd Ro-Ro system part installation survey of Port Aft system (minor comments to address)	Accepted
10	801 Part checks on Start-air system piping to Harb/gen and Main-engines.	Accepted
11	801 Part areas surveys continue in 05/06k areas for fitting of Insulation continues.	Accepted
12	801 Port LNG Bunker station door hyd-piping installation checks before pressure testing Wk38	Accepted
13	802 P&S Anti-tipping shellside plates welding inspection by [Redacted] and ourselves.	Accepted
14	802 Side shell OBD shell pipe penetrations set up before welding continues and witnessed by [Redacted].	Accepted
0	Week 38	
15	801 Part areas surveys continue for both Fire and Thermal insulation on 05/06k areas.	Accepted
16	802 Side shell OBD shell pipe penetrations set up before welding continues and witnessed by [Redacted].	Accepted
17	802 Ally Unit A11-5 surveyed by [Redacted] and ourselves.	Accepted
18	802 Minor comments now addressed on previously surveyed units 89/90	Accepted

8.0 Progress Against Programme

Glen Sannox

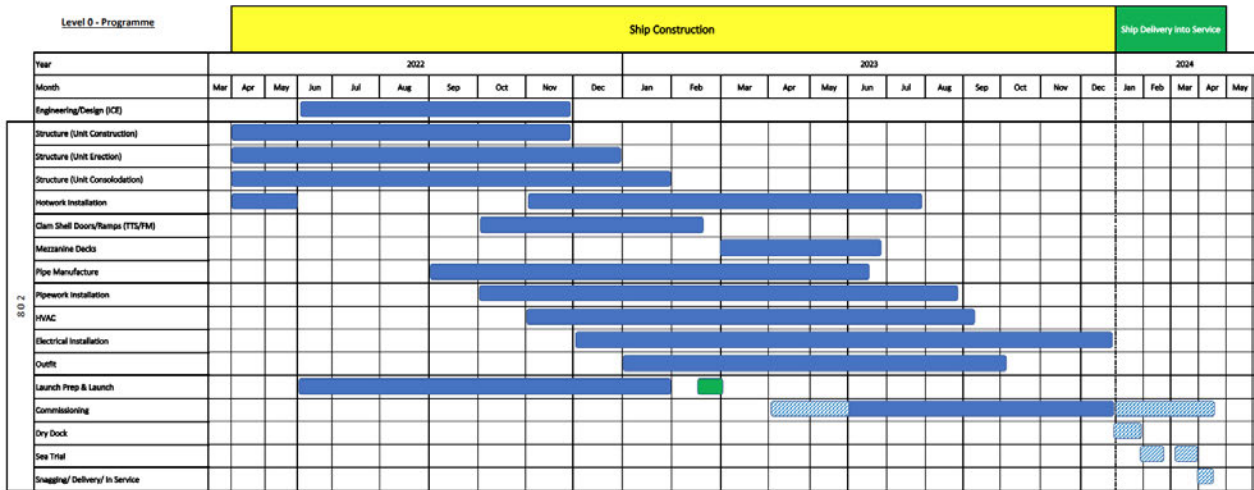


Reference – September 2022 FMPG Project Report.

The 801 project is making progress toward its objectives aligning with the new dates provided in this month's schedule update. The common theme of completing background outfitting, cable installation, pipe installation and pre-commissioning activities remains intensely time-consuming.

Commissioning is underway but behind schedule in the majority of areas.

Progress Against Programme – 802



Reference - September 2022 FMPG Project Report. (**Confirmed launch date still under review**)

The overall programme for 802 has been reviewed recently and the dates shown above are now being worked to by all personnel onsite. Main sub-contractors are yet to commence work on hull 802.

Hull 801 Pipe Spool Installation

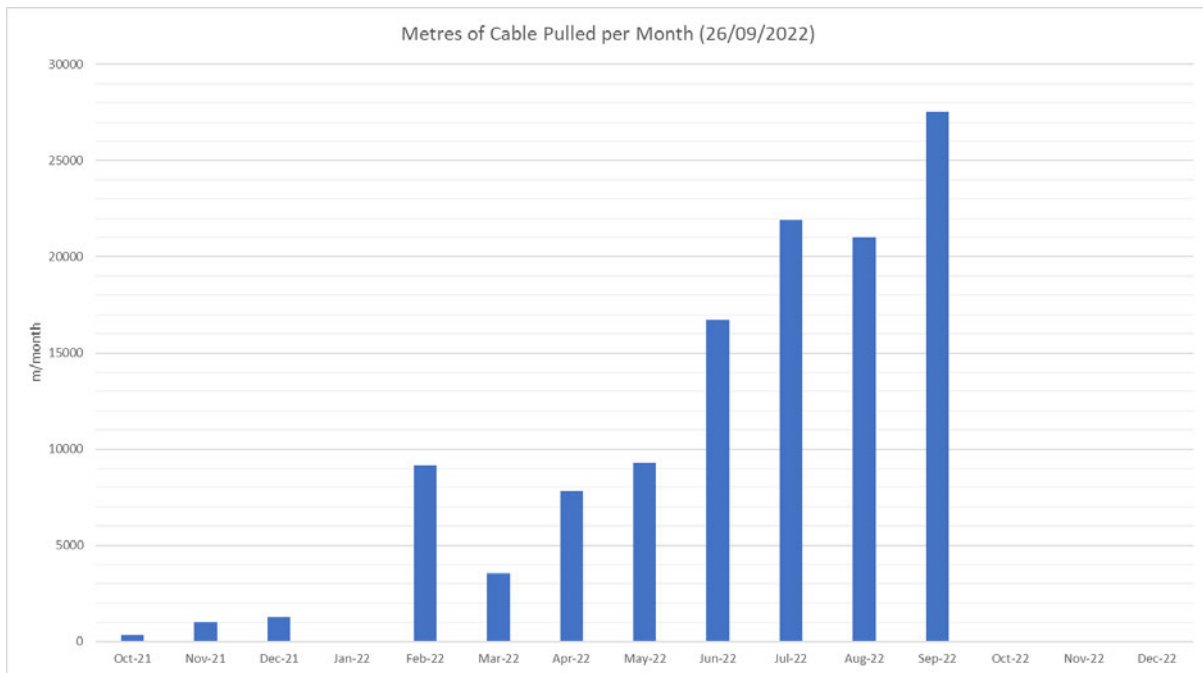
Installation of pipework spools is behind schedule. The rate of installation of pipework requires to be increased to meet planned completion dates. FMPG pipefitting rate is down in September due to rework on systems previously fitted. Attributed to the necessary alterations to previous systems to allow commissioning to take place. The yard remains on target to complete all spools fitting by the end of the calendar year.

Weeks in September	Spools Fitted	Spools fitted Running Total
2236	50	10446
2237	13	10459
2238	74	10533
2239	45	10578

Hull 801 Electrical Works

Cable pulling has continued throughout the vessel in both the machinery and passenger accommodation areas. Additional labour has been brought onsite as part of the effort to meet the schedule. Exact numbers of cables required and cables installed onboard to date has gone through a rigorous reconcile period and FMPG are now in agreeance with the cabling contractor in regard to the reported numbers. The shipyard reports that **48.7%** of all ships cabled have now been pulled in with a total metreage of 119,849m. The average installed per month since May has been just over 21,000m. Following this trend all remaining cables will be installed by wk. 5 2023. Termination of cables is sitting at 13.9% for A-ends and 6.8% for Z-Ends. Installed cables currently tested is sitting at 6.5%.

There is slippage in the electrical programme to meet priority dates for main commissioning activities.



Reference – September update on CMALs records.

Hull 801 Clam Shell Doors

Renewed focus has been put on the clam shell doors and all TTS equipment onboard. A small project team has been assigned with CMAL now present to drive the scope to completion.

Hull 801 Bonded Windows

After considerable design and fabrication work, the installation of the ships fwd. bonded windows has been completed. Specialist sub-contractor **[Redacted]** were onsite week 39 and successfully fitted the 13 windows.

Hull 801 LNG System

In line with other small projects onboard, the LNG system install, integration and commissioning has been appointed a composite project team. The team includes the main stakeholders includes FM, CMAL and **[Redacted]** and **[Redacted]**. This team will now drive the completion of the project to complete in line with the new project dates.

Hull 801 Commissioning

- Three off sea water pumps. VSD's programmed and pumps ran sea to sea through the plate coolers.
- Emergency generator back feed to the main switchboard checked.
- Alarm system and PMS software updated.
- Both alarm system operator stations in the ECR operational.
- Switchboard Alarms and remote control of circuit breakers checks have started.
- All switchboards and MCC's have been energised except 690V switchboard.
- Main and emergency 415/230V transformer have been energised.
- 2 alarm system ups energised.

- 2 24v dc ups energised.

Hull 801 - Accommodation Outfitting

- Background/Deckhead insulation works in bridge area continues.
- Joiner's linings framework has commenced in the bridge
- 07dk & 06dk – Ceiling perimeters in cabins and passageways now complete.
- 06dk – Crew mess and req room taking shape
- 06dk – Vertical panels first install complete in the gym and changing room.
- 05dk – Fwd passenger lough perimeters install has commenced.
- 05dk – Galley doors and passenger sliding doors currently being fitted.

Hull 801 HVAC Installation

Contractor performing okay, sequencing of fit seems to be the recurring issue with HVAC. The first fix is now largely complete on decks 5,6 and 7. The standard of installation remains satisfactory. Below 3 deck works continuing where possible certain areas await outfitting and commissioning of major machinery before HVAC can be installed.

Hull 802 Block Fabrication and Erection

- Consolidation work to complete erection joints of Bow Units 49/50/51 continues.
- Initial fit up now complete for the port and starboard 'A' frame brackets.
- Fabrication of aluminium unit A7-6 and A10-6 is well underway in the bottom sheds
- Funnel units 97, 98, 99 and 100 are currently in module shed awaiting pre-outfitting.
- A11-5 now erected. All 5 deck units now onboard with unit link-ups well underway.

Hull 802 Hot Works

Structural Works Continue in the following areas:

- Sub-assemblies have been put on hold whilst final design review process takes place with the principal design contractor.
- Ongoing modifications to bulkhead L11 are in progress.
- Pipe pens and routes being progressed to prepare for pipe install commencing.
- Final windows on 5 deck to be fitted once A11-5 faired in place.

9.0 Next Stage Payment Due

N/A

10.0 Forthcoming Period Events

N/A

11.0 Tests & Trials Due

Hull 801

- Load Test Emergency Generator.
- First run Generator No.03 (^[Redacted] due onsite 18/10)
- Load test Emergency generator 17/10.
- Fill HT/LT system

- Test Quick closing valves on fuel tanks
- Gearbox flushing
- Testing of quick closing valves on fuel tanks.

12.0 Risk Register Update

CMAL attended the shipyard monthly project risk review meeting on Monday 05 September.

13.0 Safety & Environmental

No issue to report this period

Print **[Redacted]**

[Redacted]

10 October 2022]