The RRS Sir David Attenborough

Randy Sliester June 22, 2016

NEW POLAR RESEARCH VESSEL

British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

CAMMELL LAIRD

UKSBS
Shared Business Services

NERC
SCIENCE OF THE ENVIRONMENT

Success Criteria

The new ship must deliver:

Enhanced polar marine science capability and capacity.

Logistics support to the polar research stations.

Long term cost savings for government*. est 103 million over life of the ship

UK commercial involvement.

UK presence in polar regions.

Technical Specification

- **Length128m, breadth 24m, draught 7m***
- **Scientific cargo volume of approximately 900 cu metres;**
- **Endurance for up to 60 days (Polar Regions)**
- **Range 19,000nm at 13 knots transit**
- **Ice breaking capability – up to 1m thick at 3 knots (PC4)**
- **29 crew and officers**
- **60 scientists and support staff**
- **Heli-deck and hangar**
- **Science Hangar**
- **Moonpool**
- **Long (≤42m) piston coring**

***JCR* = length 99m, breadth 19m, draught 6.4m**

Science days at Sea

Science days at sea (Scenario F): 154 (c.f. JCR 180 days)

Table 1. Days for main types of activity in six hypothetical 2019/20 itineraries for the new vessel that are based on different assumptions regarding how logistic commitments will be met. See notes below and Appendix 1 for further details.

Scenario	Port calls	Base logistics	Transits	Science	Maintenance
A	52	26	107	140	30
B	51	21	110	140	30
C	80	22	95	132	30
D	60	9	62	180	30
E	48	32	139	116	30
F	47	20	102	154	30

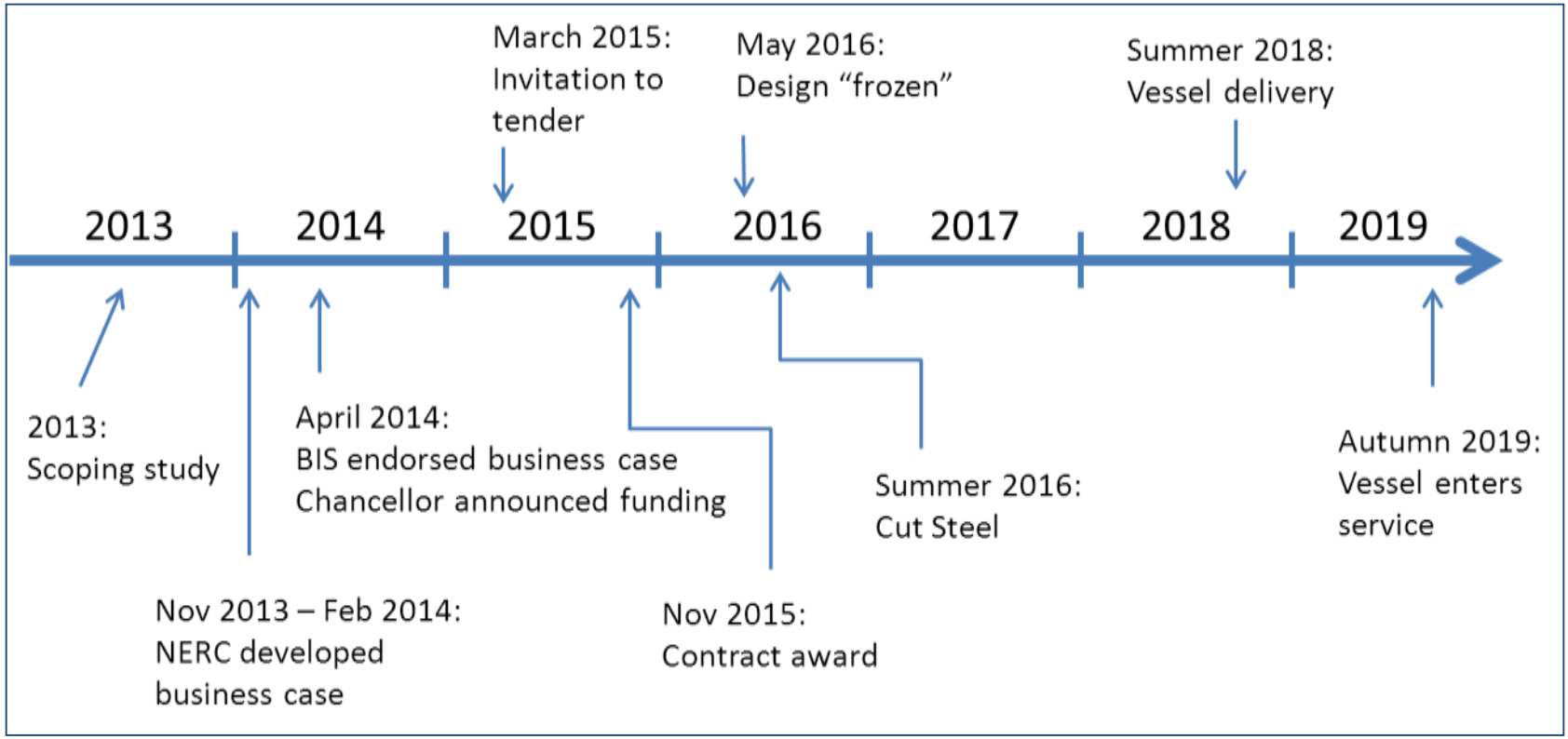
Scenario D: Assumes two calls at Rothera, but none at other research stations, for which alternative arrangements or commercial charter will be required for resupply.

Scenario E: Assumes two calls at Rothera, Halley and each island research station.

Scenario F: Assumes one call at Rothera, one call at Halley and two calls at each island research station, and will require a second call to Rothera to be arranged through commercial charter*.

* £30m over the next 30 years?

NPRV Programme Timeline



Commercial Procurement

Two stage procurement via restricted procedure route:

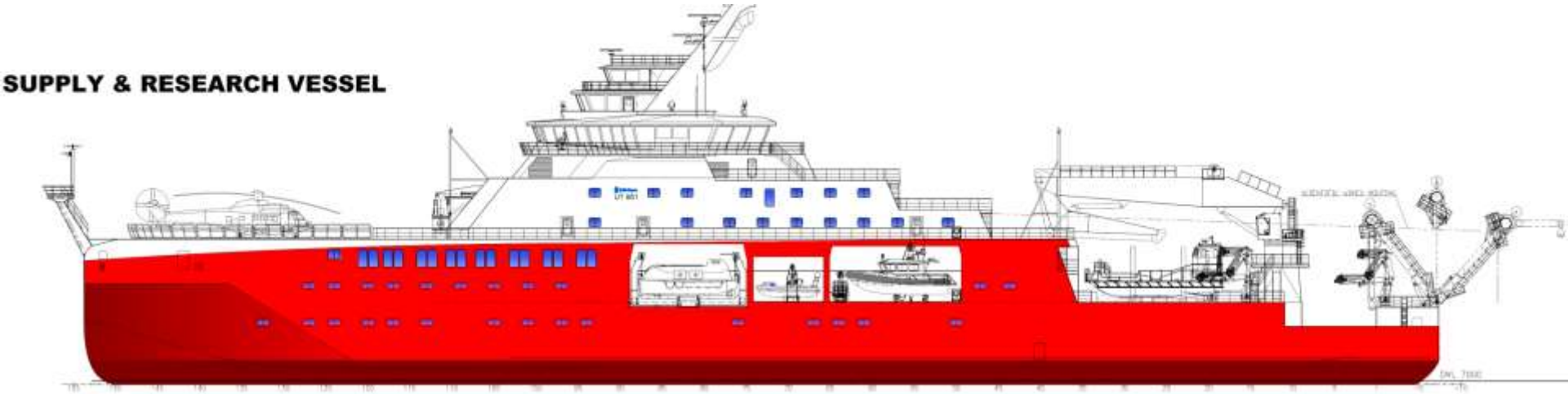
28 Yards submitted Expressions of Interest
8 ship yards shortlisted
6 submitted bids (Korea, Norway, Singapore, Spain, UK)

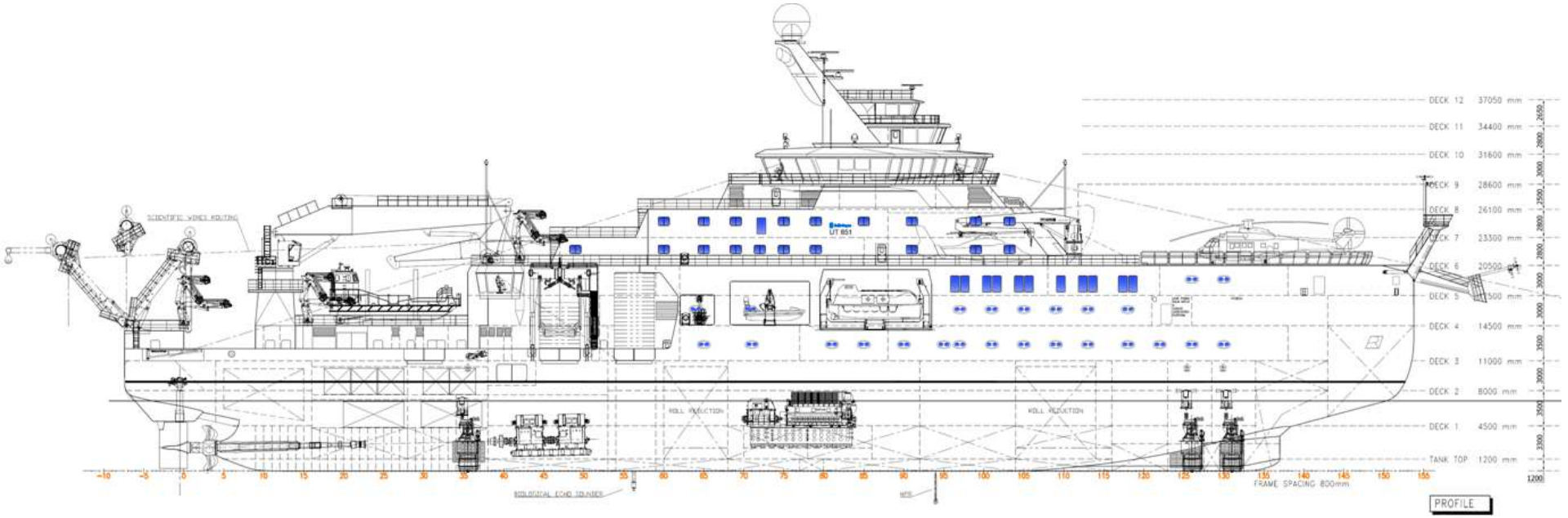
Bids were evaluated against 3 main headings:

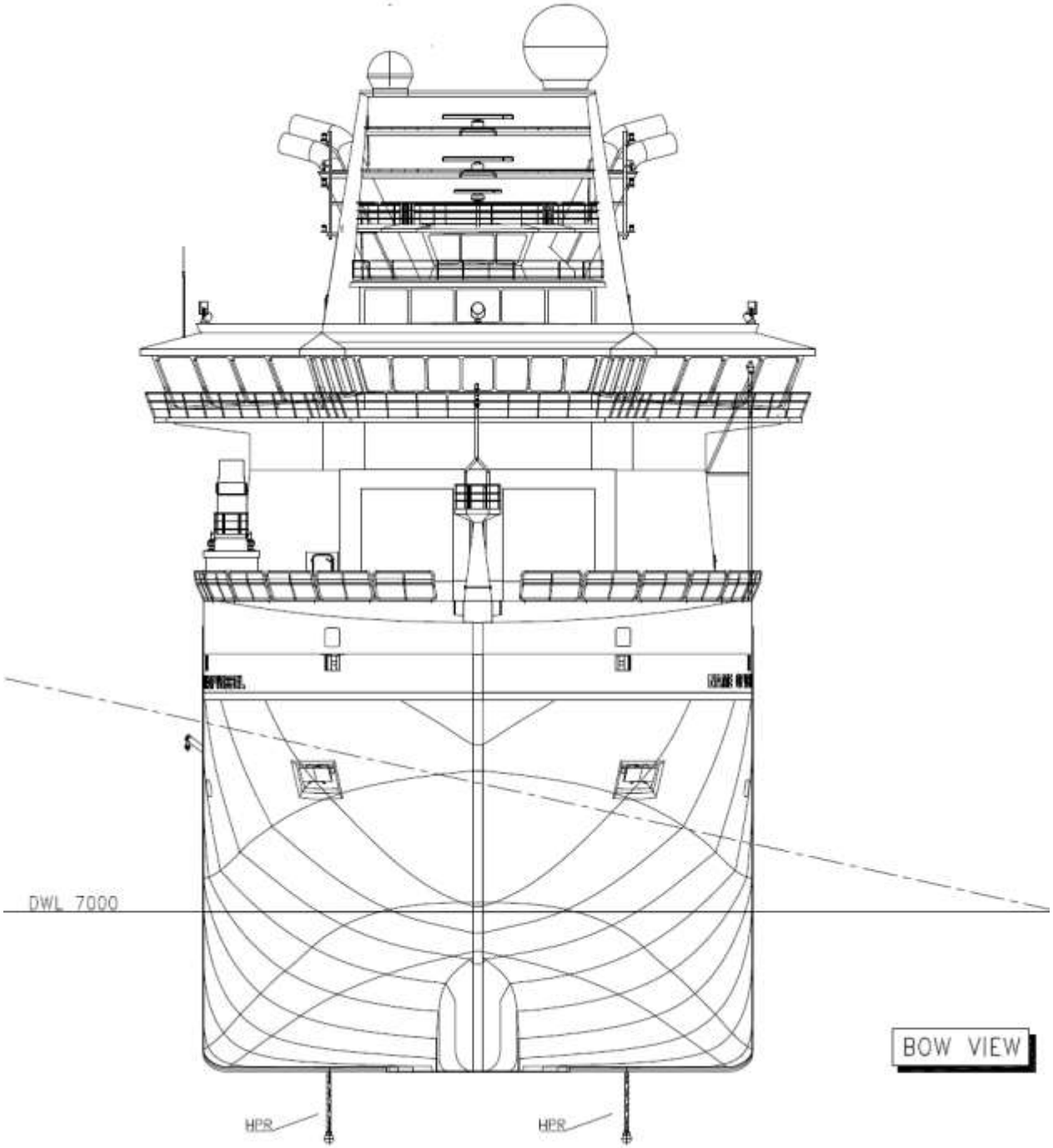
70% - technical, quality, conformance and compliance 20% - fuel efficiency (over the lifetime of the vessel)
10% - acquisition cost

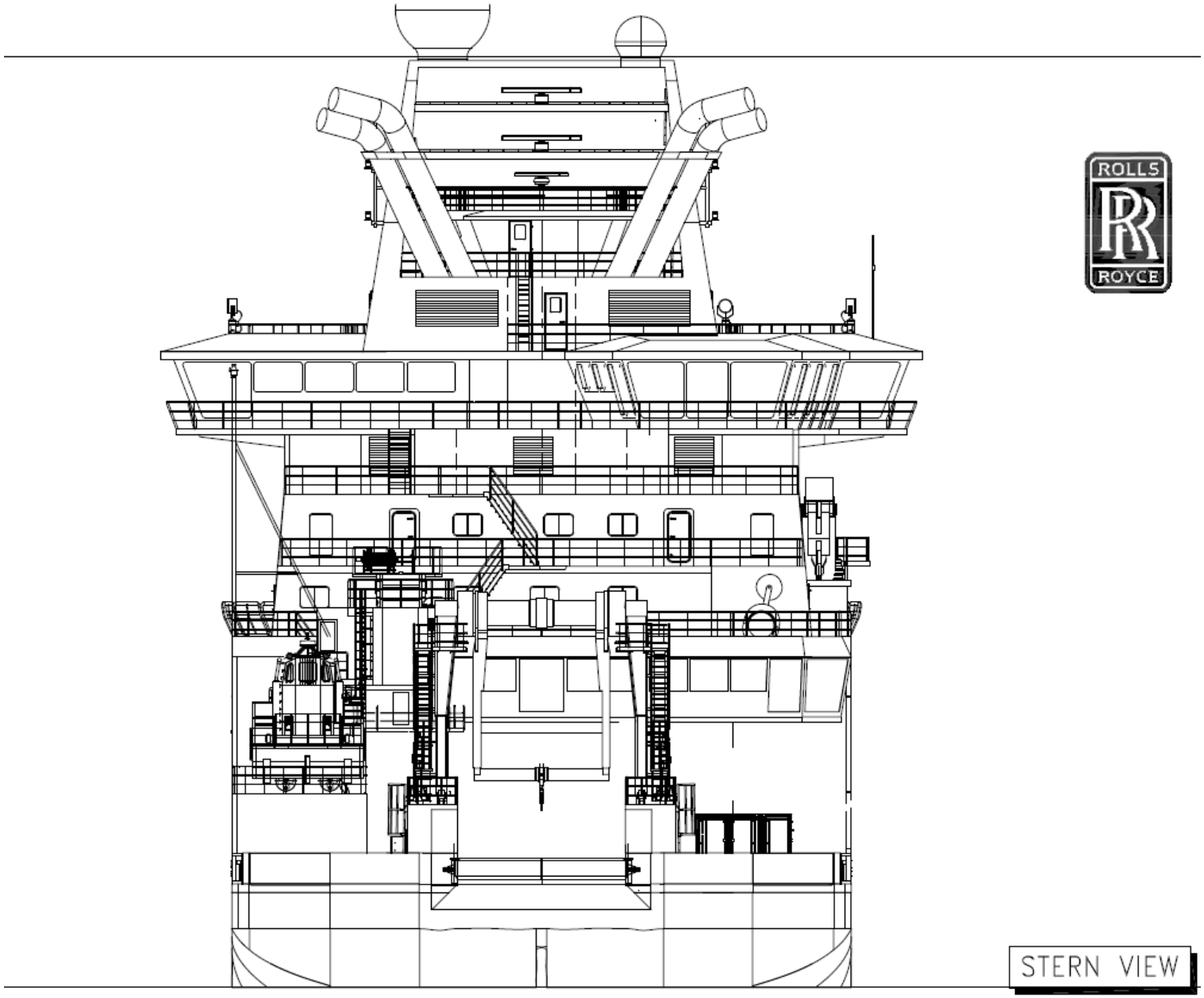
Cammell Laird, Liverpool, chosen as preferred bidder and awarded contract based on Rolls Royce design.

SUPPLY & RESEARCH VESSEL

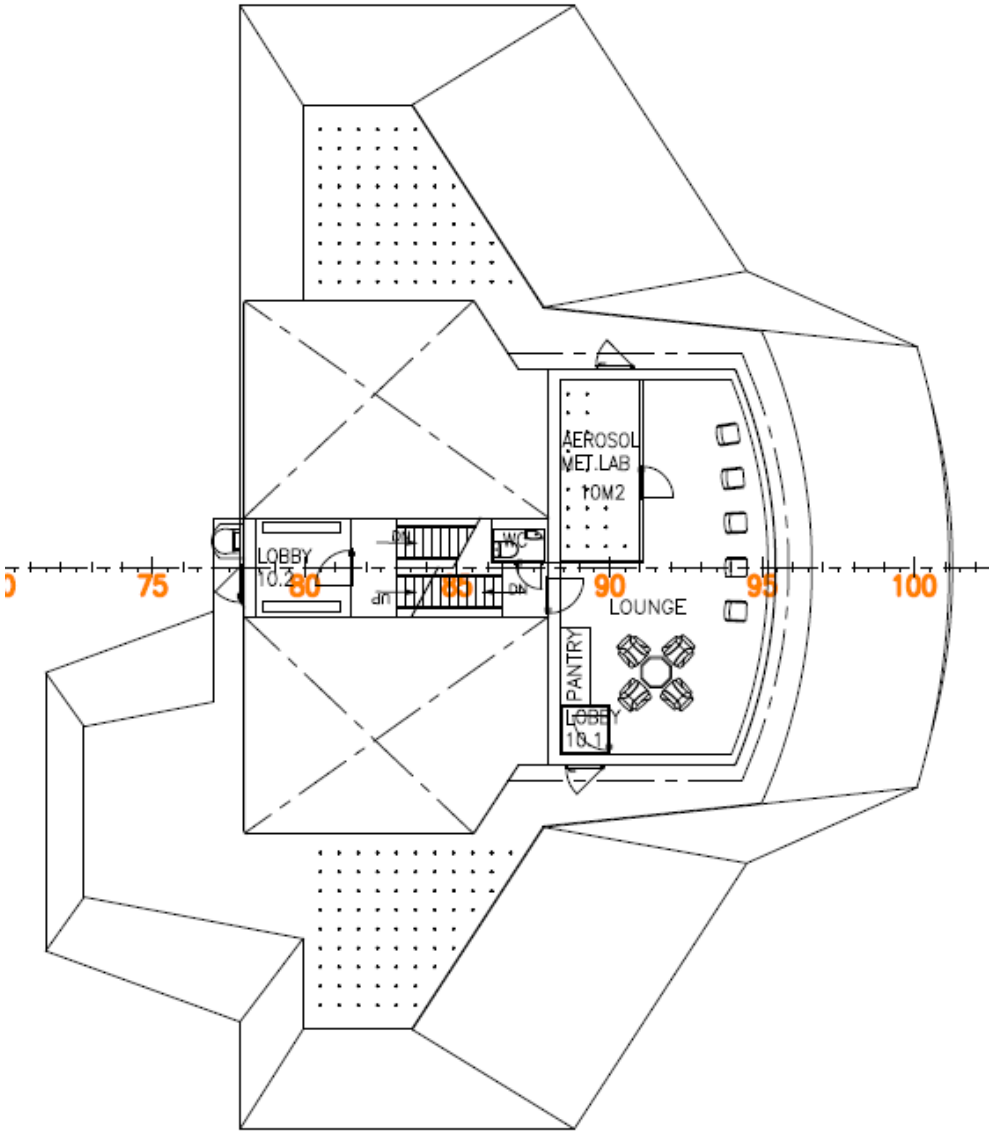




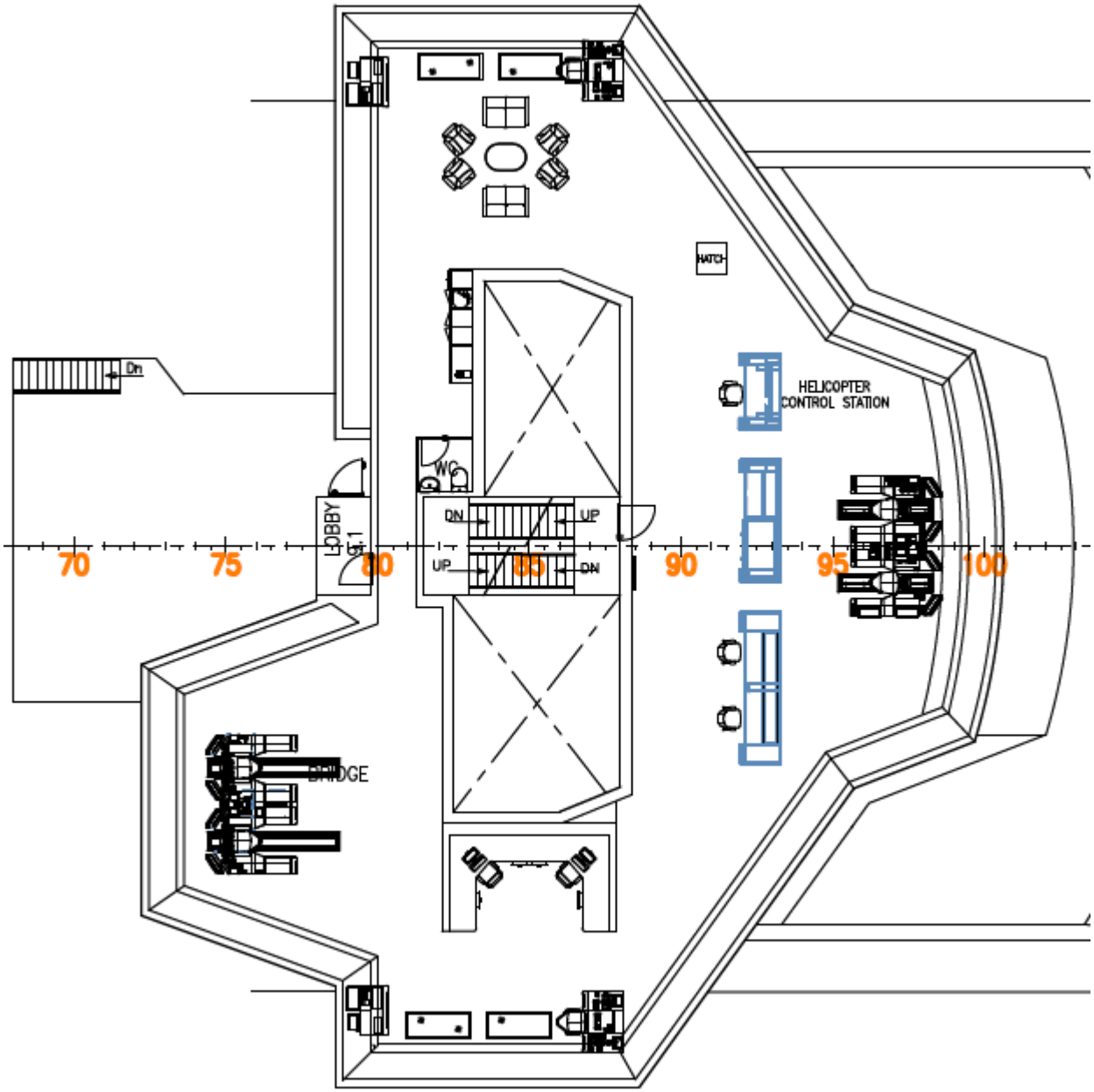

DWL 7000
HPR
HPR
BOW VIEW


ROLLS
ROYCE
STERN VIEW

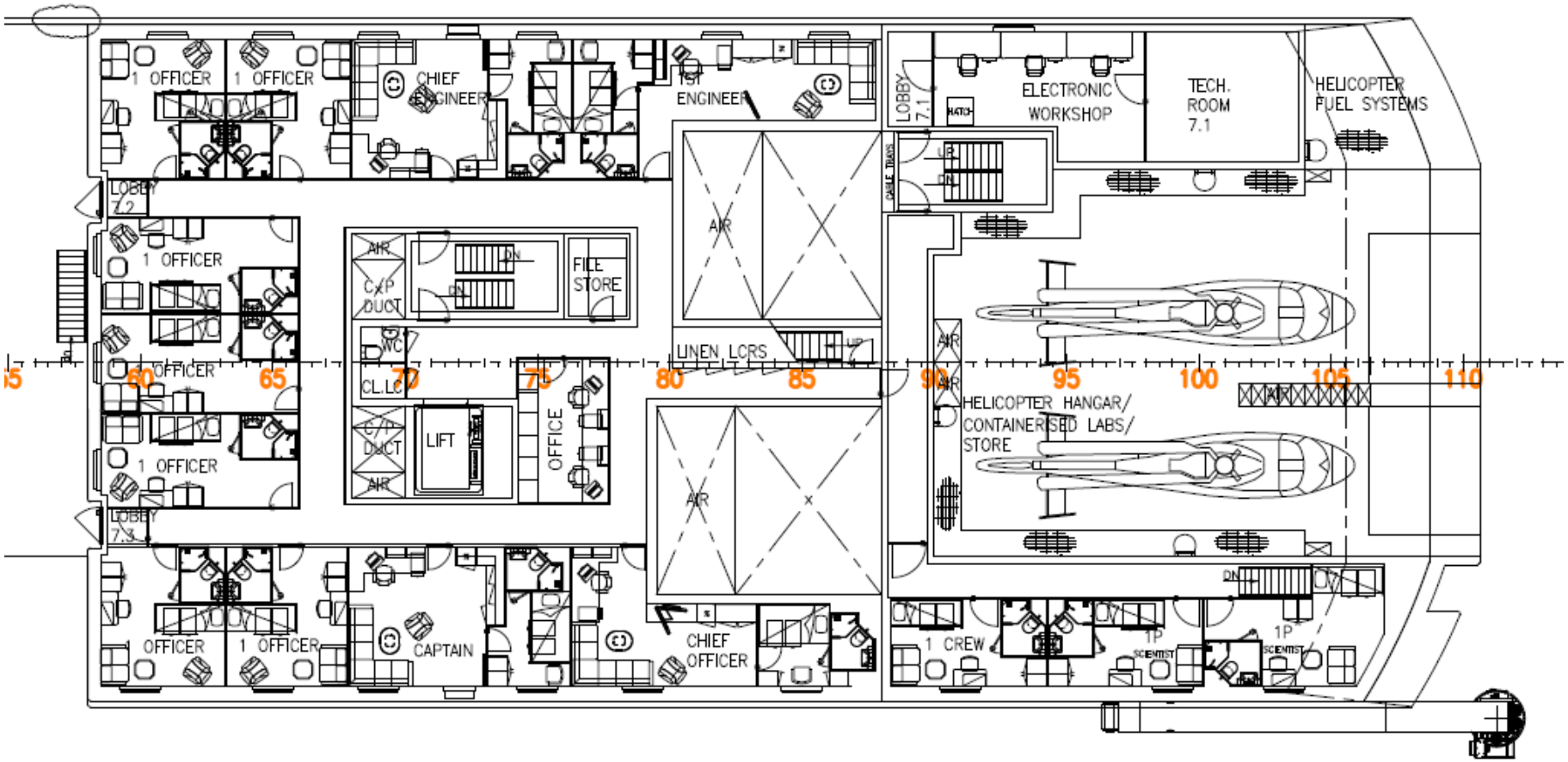
Deck 10


75
80
85
90
95
100
LOBBY
10.2
UP
DN
WC
DN
AEROSOL
MET.LAB
10M2
LOUNGE
PANTRY
LOBBY
10.1

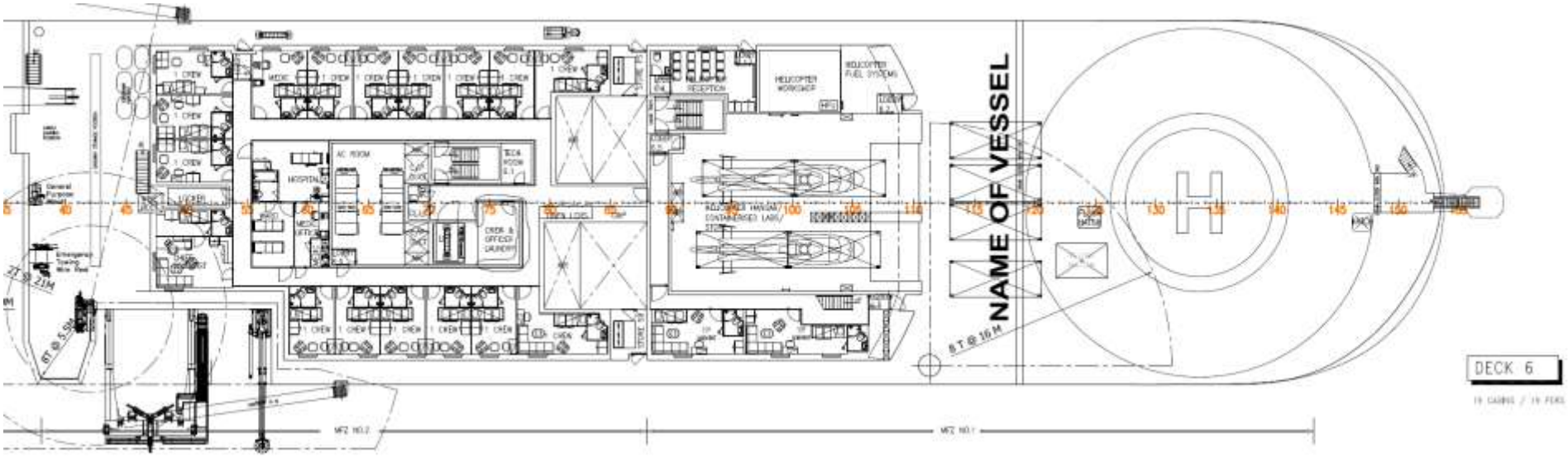
Deck 8 (Bridge)

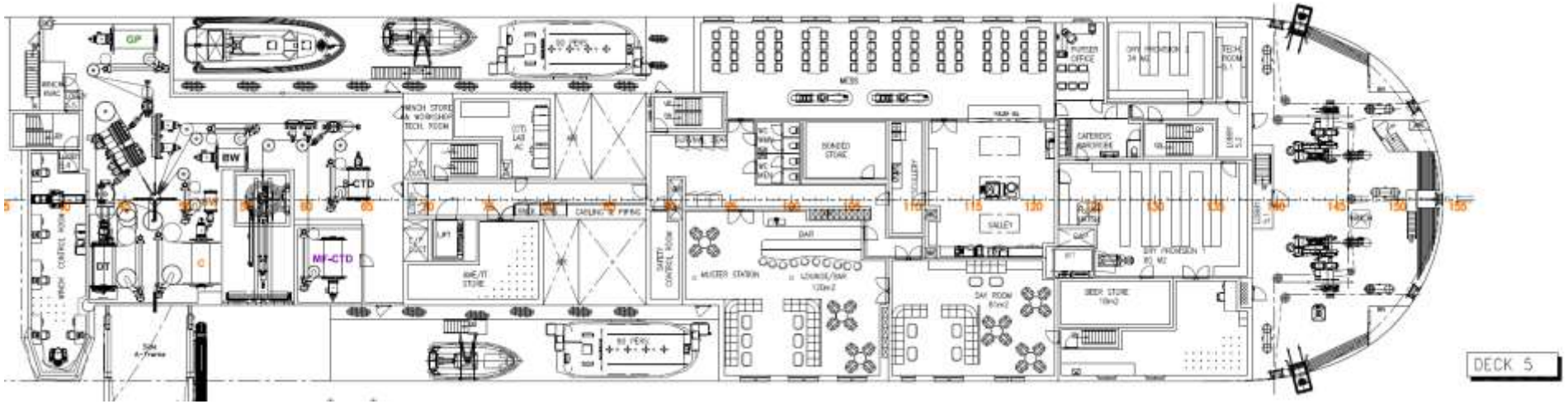


Deck 7

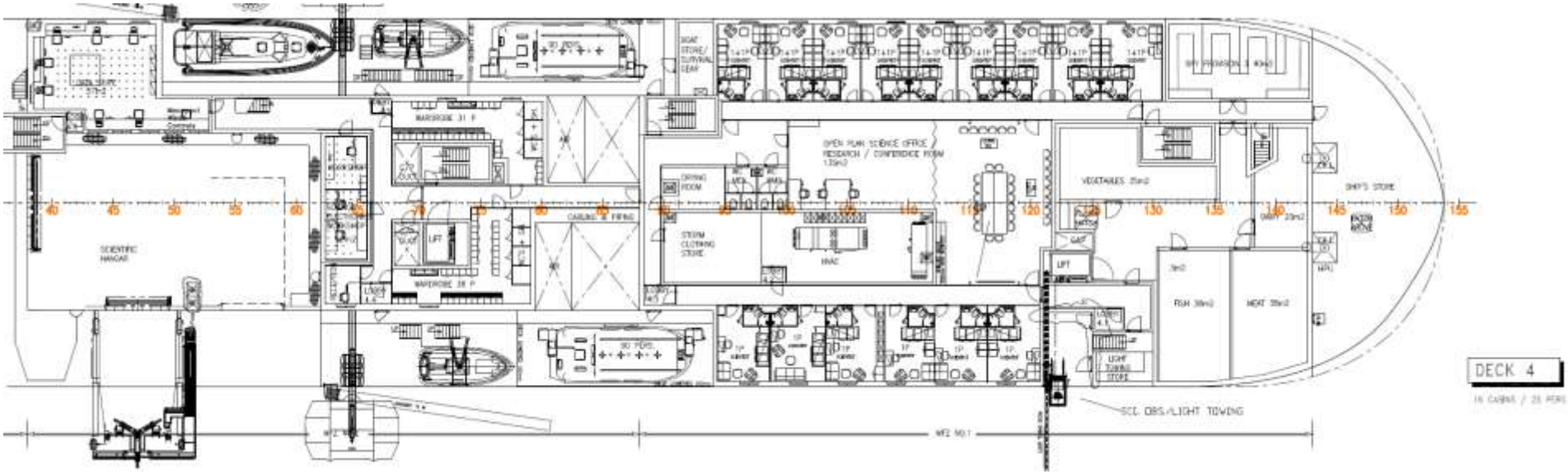

1 OFFICER
1 OFFICER
CHIEF ENGINEER
1ST ENGINEER
LOBBY 7.1
ELECTRONIC WORKSHOP
TECH. ROOM 7.1
HELICOPTER FUEL SYSTEMS
LOBBY 7.2
1 OFFICER
AIR
C/P DUCT
FILE STORE
LINEN LCRS
OFFICER
WC
CL.LC
LIFT
OFFICE
HELICOPTER HANGAR/ CONTAINERISED LABS/ STORE
1 OFFICER
LOBBY 7.3
OFFICER
1 OFFICER
CAPTAIN
CHIEF OFFICER
1 CREW
1P SCIENTIST
60
65
70
75
80
85
90
95
100
105
110

Deck 5 & 6

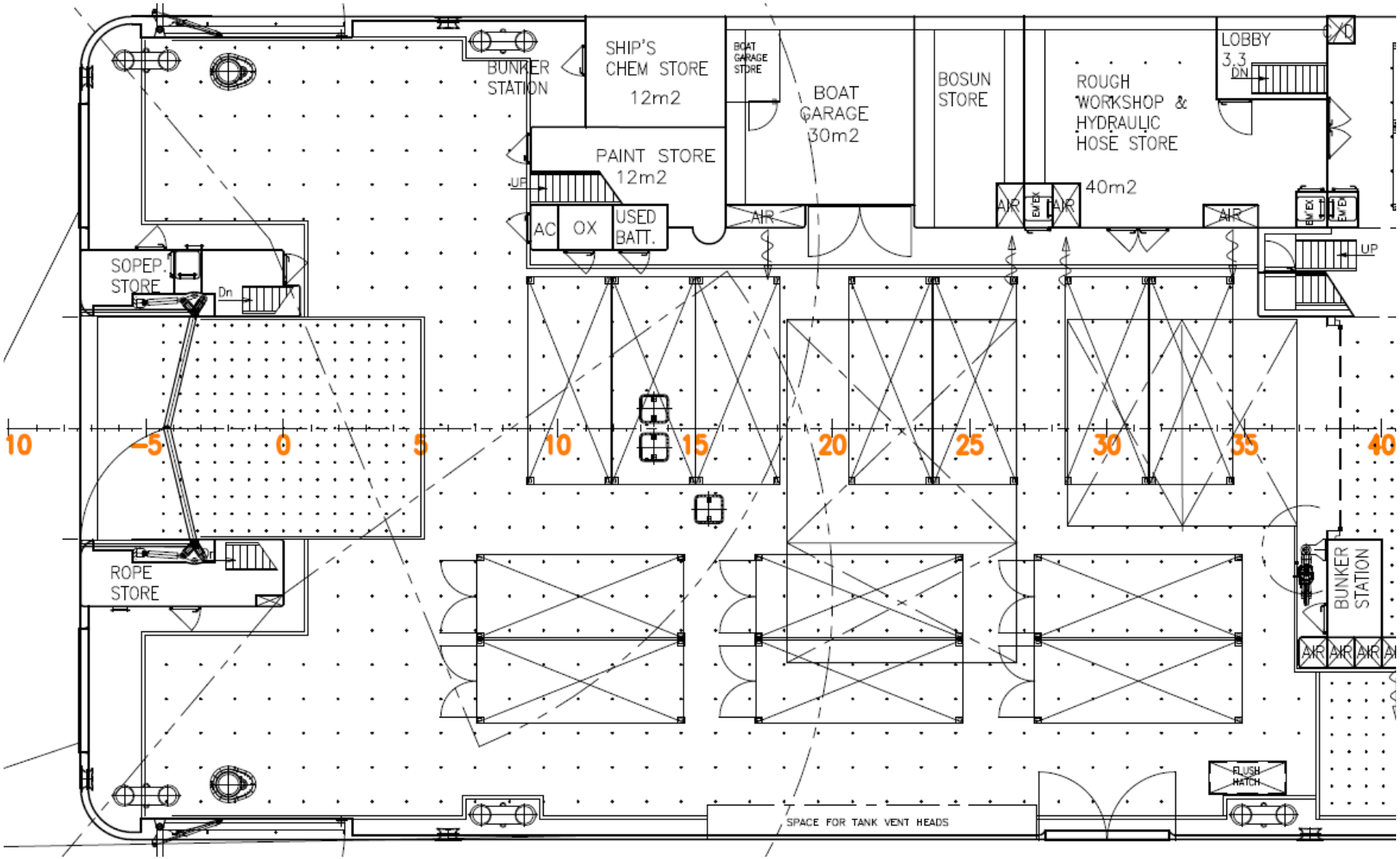




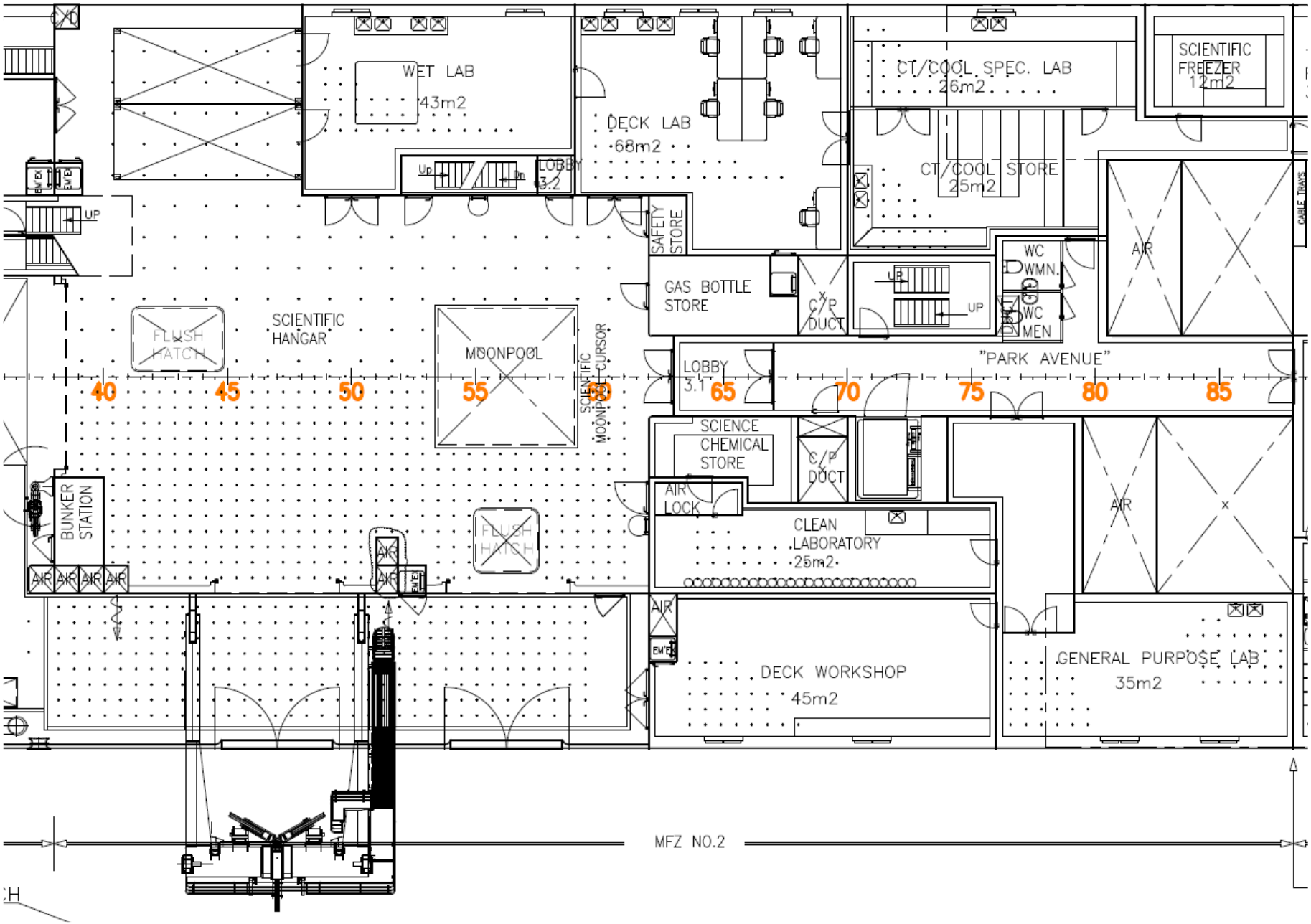
Deck 4


DECK 4
SCIENTIFIC HANGAR
WARDROBE 31 P
WARDROBE 28 P
LIFT
CABLING & FIRING
BOAT STORE/ SURVIVAL GEAR
OPEN PLAN SCIENCE OFFICE / RESEARCH / CONFERENCE ROOM
DRYING ROOM
STORM CLOTHING STORE
HVAC
VOLATILES
SHIP'S STORE
FISH
MEAT
LIGHT TOWING STORE
SCL OBS/LIGHT TOWING
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
155

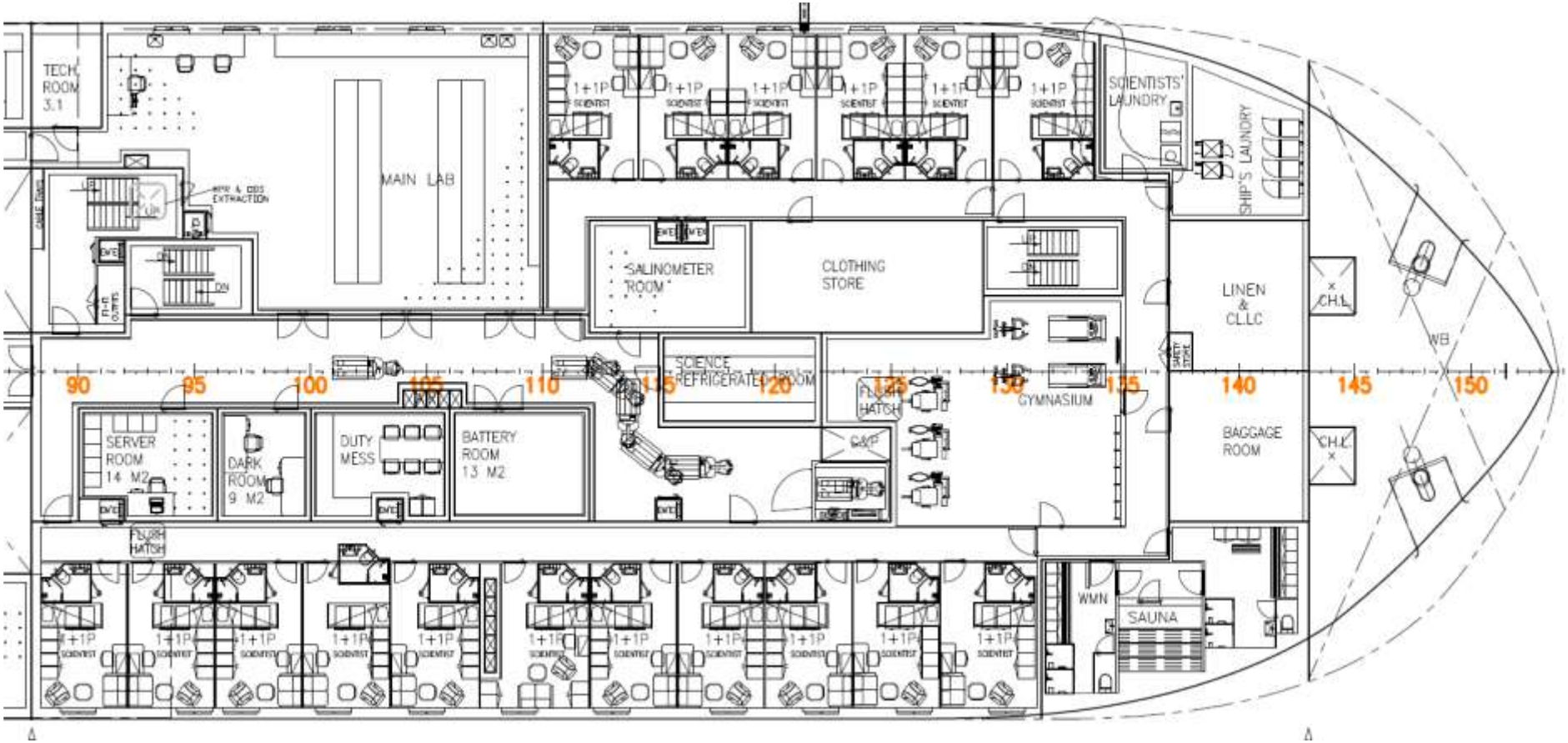
Deck 3


BUNKER STATION
SHIP'S CHEM STORE
12m2
BOAT GARAGE STORE
BOAT GARAGE 30m2
BOSUN STORE
ROUGH WORKSHOP & HYDRAULIC HOSE STORE
40m2
LOBBY 3.3
DN
UP
PAINT STORE 12m2
AC
OX
USED BATT.
AIR
EM'EX
SOPEP. STORE
Dn
ROPE STORE
BUNKER STATION
FLUSH HATCH
SPACE FOR TANK VENT HEADS
10
-5
0
5
10
15
20
25
30
35
40

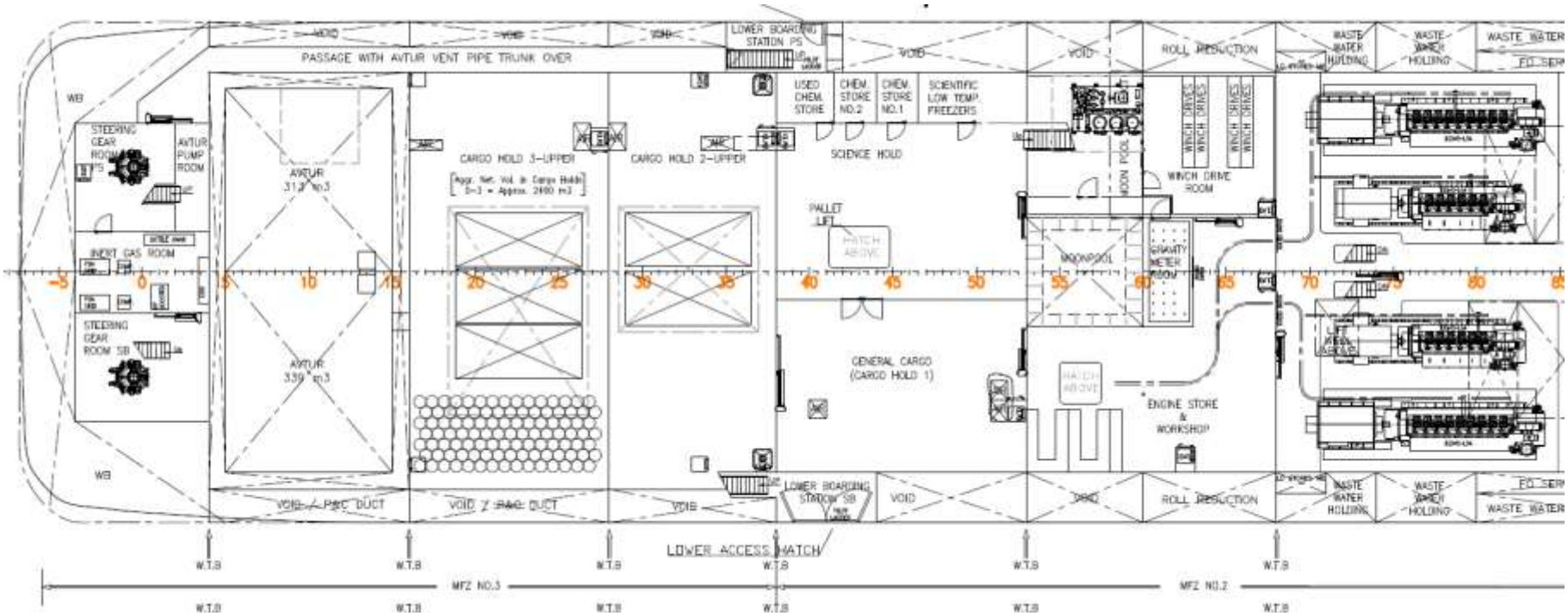
Deck 3

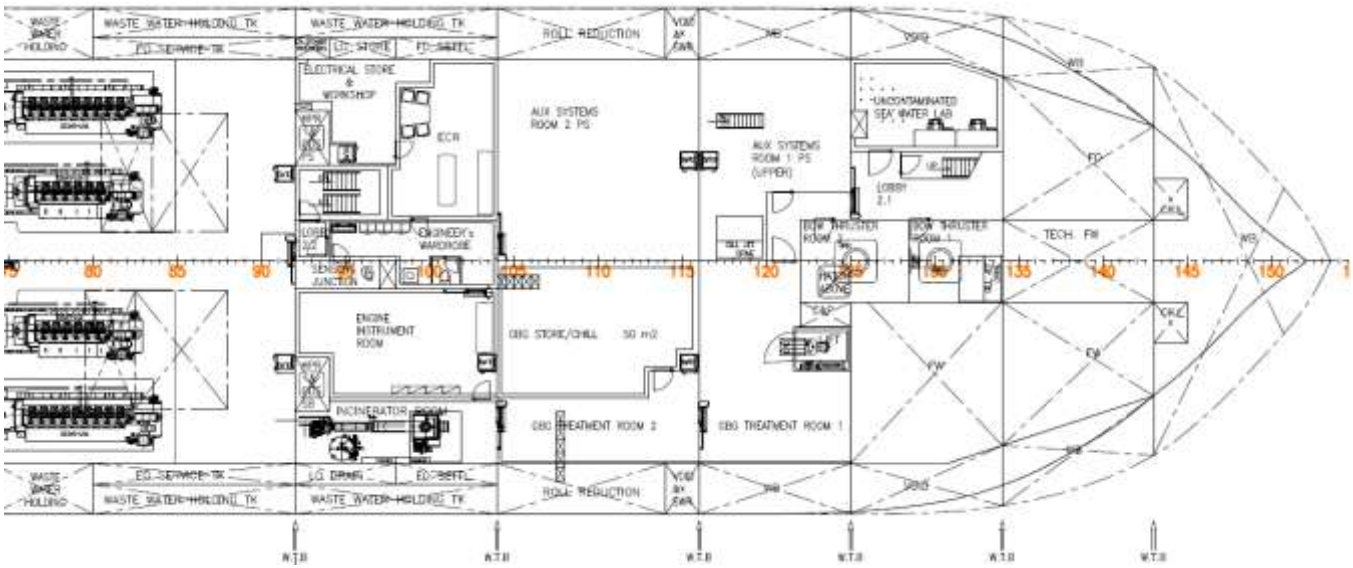

WET LAB
43m2
DECK LAB
68m2
LOBBY
3.2
CT/COOL SPEC. LAB
26m2
SCIENTIFIC
FREEZER
12m2
CT/COOL STORE
25m2
SAFETY
STORE
GAS BOTTLE
STORE
C/P
DUCT
WC
WMN.
WC
MEN
AIR
CABLE TRAYS
SCIENTIFIC
HANGAR
FLUSH
HATCH
MOONPOOL
SCIENTIFIC
MOONPOOL CURSOR
LOBBY
3.1
"PARK AVENUE"
40
45
50
55
60
65
70
75
80
85
SCIENCE
CHEMICAL
STORE
C/P
DUCT
AIR
LOCK
CLEAN
LABORATORY
25m2
BUNKER
STATION
DECK WORKSHOP
45m2
GENERAL PURPOSE LAB
35m2
MFZ NO.2

Deck 3

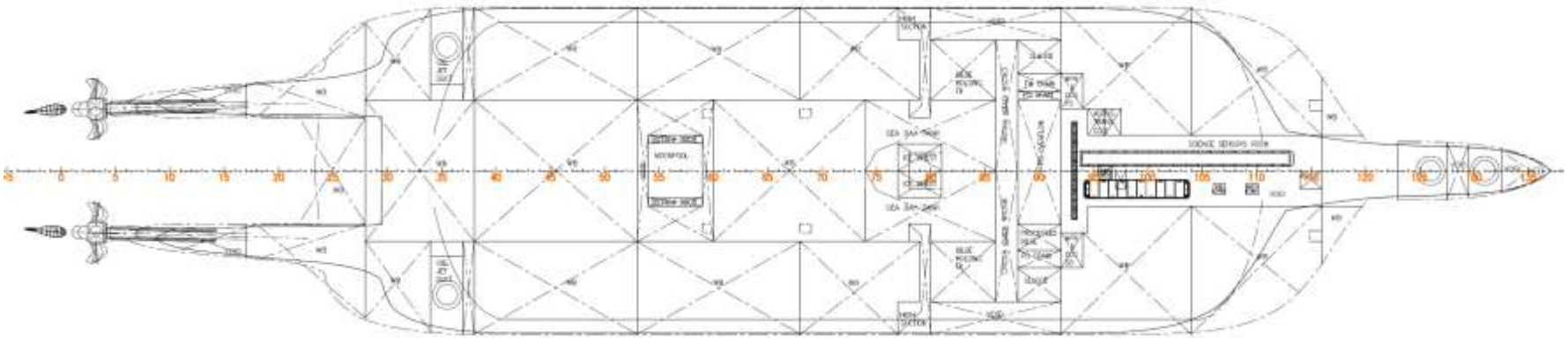

TECH ROOM 3.1
MAIN LAB
1+1P SCIENTIST
SCIENTISTS' LAUNDRY
SHIP'S LAUNDRY
SALINOMETER ROOM
CLOTHING STORE
LINEN & CLLC
CHL
WB
90
95
100
105
110
115
120
125
130
135
140
145
150
SERVER ROOM 14 M2
DARK ROOM 9 M2
DUTY MESS
BATTERY ROOM 13 M2
SCIENCE REFRIGERATED ROOM
FLOOR HATCH
C&P
GYMNASIUM
BAGGAGE ROOM
WMN
SAUNA

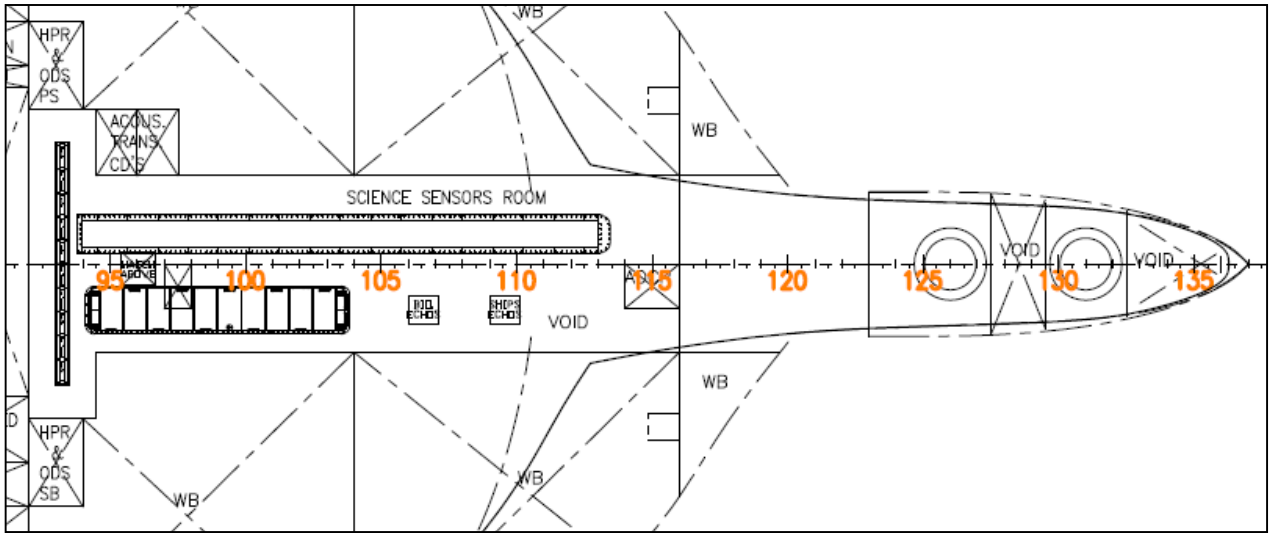
Deck 2


PASSAGE WITH AVTUR VENT PIPE TRUNK OVER
LOWER BOARDING STATION PS
VOID
ROLL REDUCTION
WASTE WATER HOLDING
WASTE WATER
STEERING GEAR ROOM PS
AVTUR PUMP ROOM
AVTUR 31.3 m3
CARGO HOLD 3-UPPER
CARGO HOLD 2-UPPER
USED CHEM. STORE
CHEM. STORE NO.2
CHEM. STORE NO.1
SCIENTIFIC LOW TEMP. FREEZERS
SCIENCE HOLD
WINCH DRIVE ROOM
PALLET LIFT
MOONPOOL
GRAVITY METER ROOM
INERT GAS ROOM
STEERING GEAR ROOM SB
AVTUR 339 m3
GENERAL CARGO (CARGO HOLD 1)
ENGINE STORE & WORKSHOP
VOID 1 PMC DUCT
VOID 2 PMC DUCT
LOWER ACCESS HATCH
W.T.B
MFZ NO.3
MFZ NO.2


WASTE WATER HOLDING TK
ROLL REDUCTION
ELECTRICAL STORE & WORKSHOP
ECR
AUX SYSTEMS ROOM 2 PS
AUX SYSTEMS ROOM 1 PS (UPPER)
UNCONTAMINATED SEA WATER LAB
LOBBY 2.1
ENGINEER'S WARDROBE
BOW THRUSTER ROOM
TECH. FW
ENGINE INSTRUMENT ROOM
OBG STORE/CHILL 50 m2
INCINERATOR
OBG TREATMENT ROOM 2
OBG TREATMENT ROOM 1
W.T.B

Deck "-2"

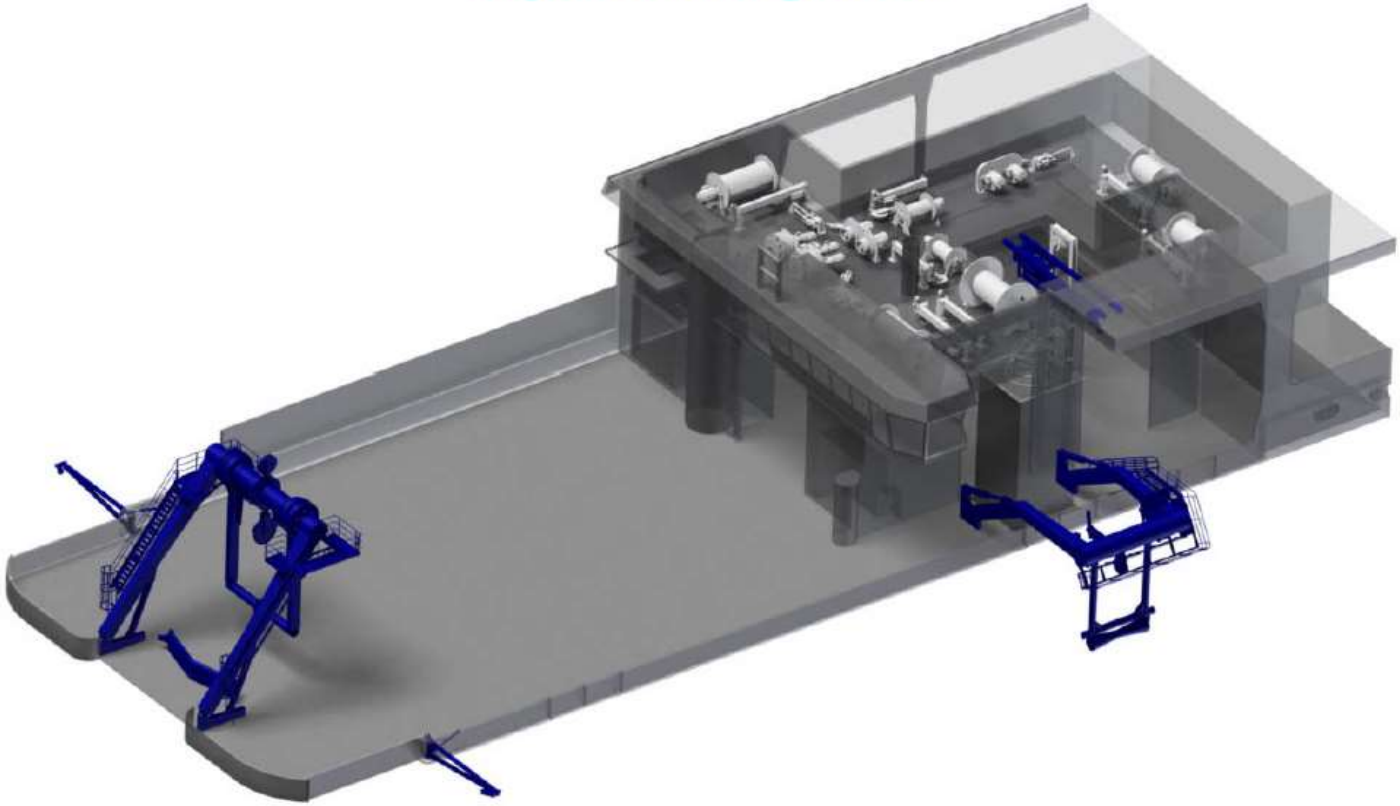



HPR & ODS PS
ACOUS. TRANS CDS
SCIENCE SENSORS ROOM
WB
WB
VOID
VOID
VOID
95
100
105
110
115
120
125
130
135
HPR & ODS SB
WB
WB
WB

UT 851 – RRM DMSS

Scientific Winch System & Over-side Handling Equipment

Layout / Arrangement

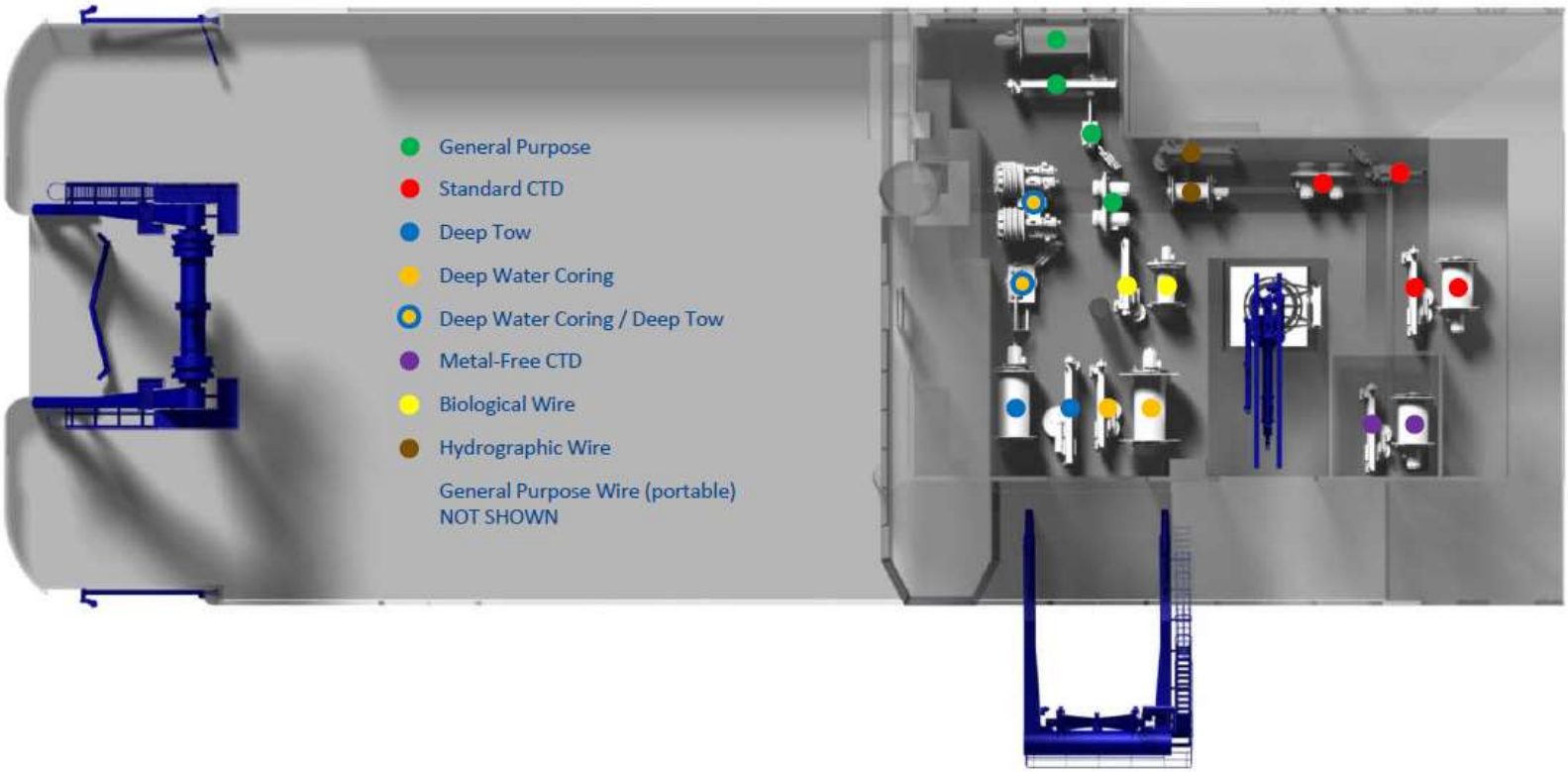


Rolls-Royce

UT 851 – RRM DMSS

Scientific Winch System & Over-side Handling Equipment

Layout / Arrangement



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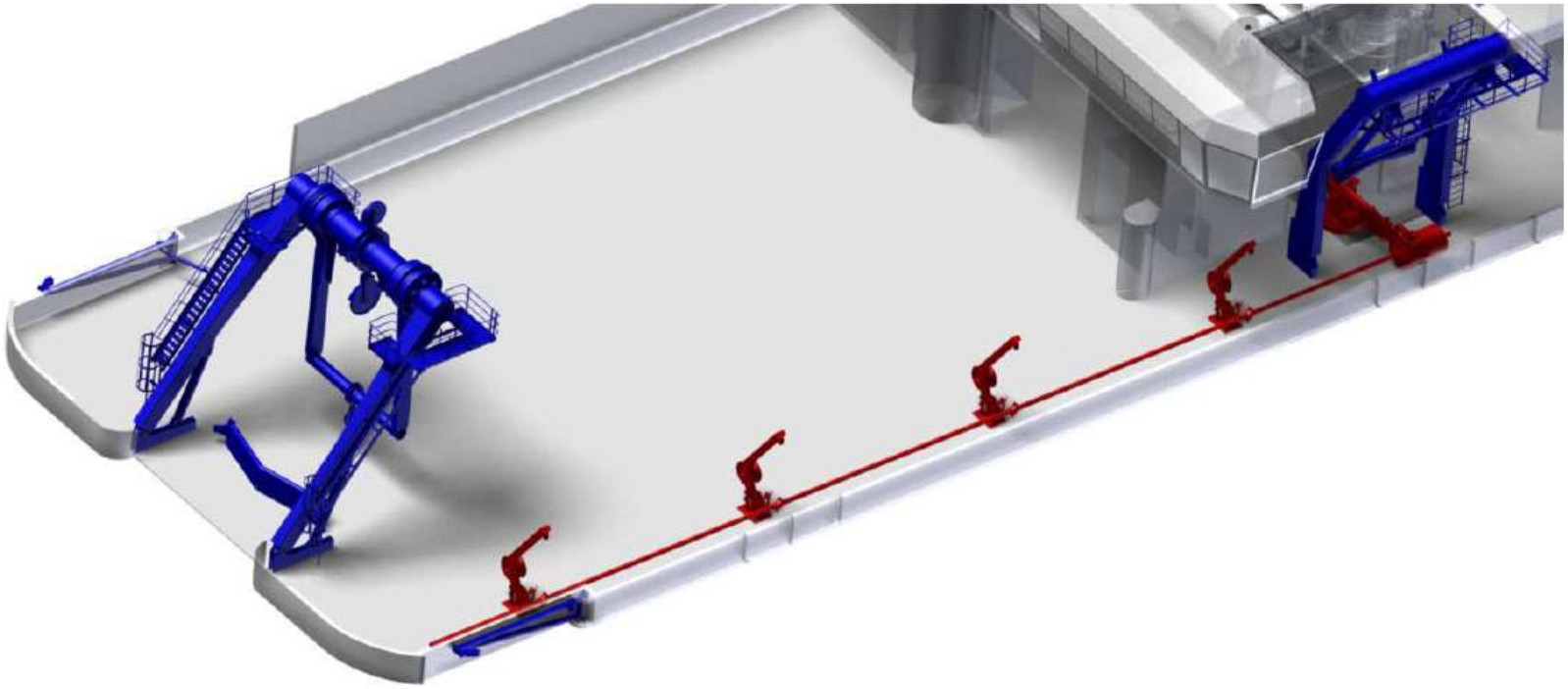
Scientific Winch System & Over-side Handling Equipment

Layout / Arrangement



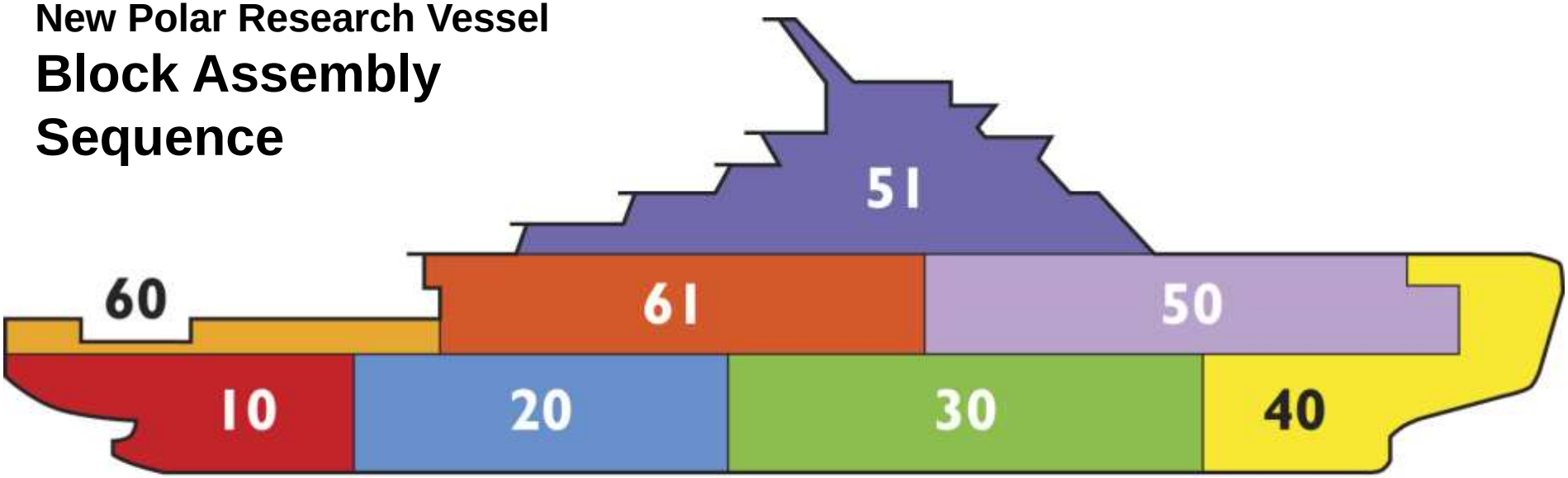
Rolls-Royce

Cammell Laird

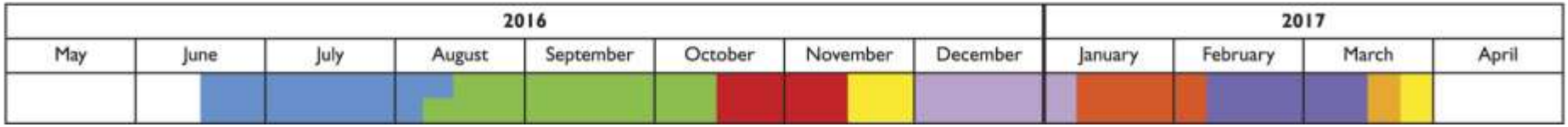
Construction Hall

New Polar Research Vessel

Block Assembly Sequence



20	June 2016 - August 2016	50	December 2016 - January 2017
30	August 2016 - October 2016	61	January 2017 - February 2017
10	October 2016 - November 2016	51	February 2017 - March 2017
40	November 2016 (top section March 2017)	60	March 2017



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SCIENCE OF THE ENVIRONMENT

NPRV Associated Projects

Programme of enabling works to modernise some of the UK Antarctic research bases to support a one ship operational model:

- Ship's science equipment, this will be kit that is dedicated to the ship.
- IT infrastructure will be procured late in the build to ensure latest technology.
- Science Lab Vans
- Logistics: upgrade base container/fuel handling & storage
- Marine infrastructure: upgrade base wharfs and jetties
- Buildings: upgrade base warehousing and waste storage
- Energy efficiency: reduce base fuel consumption