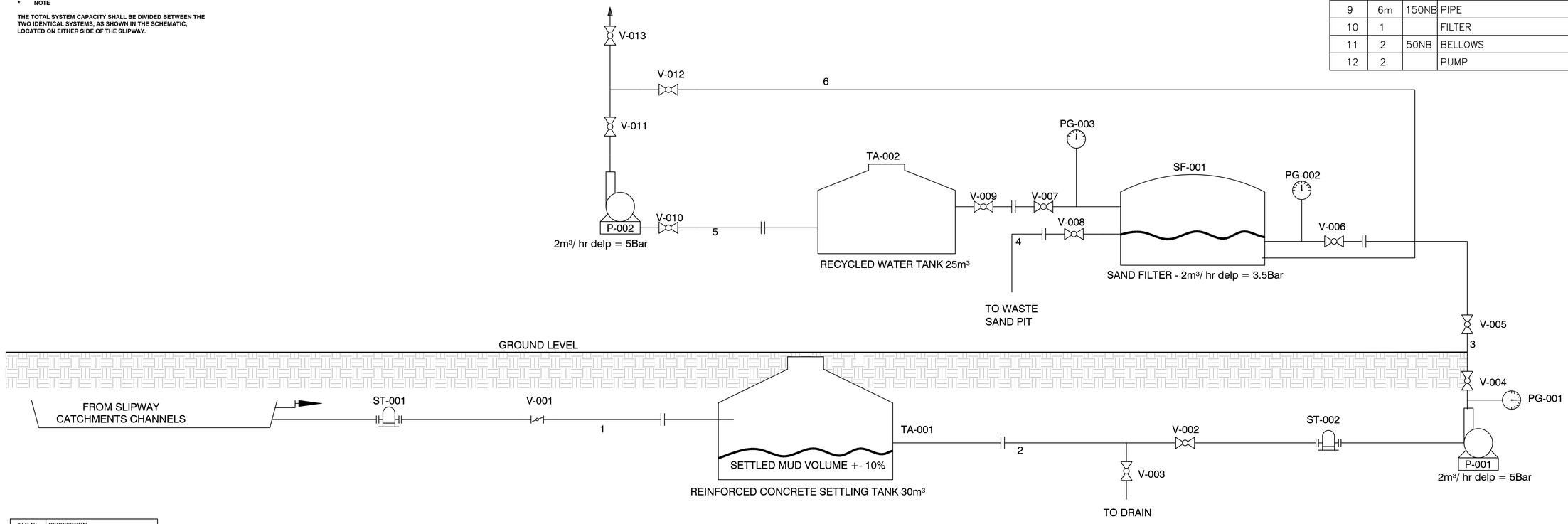
SYSTEM FLOWS		
DESIGN VESSEL SURFACE AREA	880	(m^2)
GRIT QUANTITY	10,4	(kg/m^2)
WATER QUANTITY REQUIRED FOR WASH	15	($1/m^2$)
DENSITY OF GRIT	4000	(kg/m^3)
TOTAL GRIT VOLUME	2,288	(m^3)
TOTAL WATER LOAD	57,2	(m^3)
TOTAL SYSTEM CAPACITY	**58,488**	**(m^3)**

* **NOTE**

THE TOTAL SYSTEM CAPACITY SHALL BE DIVIDED BETWEEN THE TWO IDENTICAL SYSTEMS, AS SHOWN IN THE SCHEMATIC, LOCATED ON EITHER SIDE OF THE SLIPWAY.

ITEM	QTY.	SIZE	DESCRIPTION
1	1	150NB	GATE TYPE REMOVABLE STRAINER
2	1	150NB	BUTTERFLY VALVE
3	7	50NB	BALL VALVE
4	3	25NB	BALL VALVE
5	1	25NB	GATE TYPE REMOVABLE STRAINER
6	3	20NB	PRESSURE GAUGE
7	2	50NB	NON RETURN VALVE
8	200m	50NB	PIPE
9	6m	150NB	PIPE
10	1		FILTER
11	2	50NB	BELLOWS
12	2		PUMP



TAG No.	DESCRIPTION
ST-001	GATE TYPE REMOVABLE STRAINER
V-001	150NB BUTTERFLY VALVE
TA-001	30m³ SETTLING TANK
V-002	50NB BALL VALVE
V-003	25NB BALL VALVE
ST-002	REMOVABLE BASKET STRAINER
P-001	CENTRIFUGAL PUMP
PG-001	PRESSURE GAUGE
V-004	50NB NON-RETURNE VALVE
V-005	50NB BALL VALVE
PG-002	PRESSURE GAUGE
SF-001	SAND FILTER
PG-003	PRESSURE GAUGE
V-006	50NB BALL VALVE
TA-002	25m³ RECYCLED WATER TANK
V-007	25NB BALL VALVE
P-002	CENTRIFUGAL PUMP
V-008	25NB BALL VALVE
V-009	50NB BALL VALVE
V-010	50NB BALL VALVE
V-011	50NB NON-RETURNE VALVE
V-012	50NB BALL VALVE
V-013	50NB BALL VALVE

SYSTEM OPERATION

BASED ON THE LARGEST PERMISSIBLE VESSEL ACCOMMODATED ON THE CRADLE WITH DIMENSIONS ; LENGTH = 42m, BEAM = 8m AND DEPTH = 5m, THIS EQUATES TO A SQUARE WORK SURFACE AREA OF 1100m^2 AND ADJUSTED FOR HULL FORM BY FACTOR OF 20% RESULTING IN A TOTAL WORK SURFACE AREA OF 880m^2.

THE RUNOFF (GRIT/ WATER MIX AND WASH WATER ie. TOTAL SYSTEM LOAD) IS EXPECTED TO ACCUMULATE IN THE SETTLING TANK OVER THE COURSE OF 12 DAY PERIOD (CALCULATED TIME TAKEN TO COMPLETE AN 880m^2 VESSEL) BASED ON THE ABOVE MENTIONED WORK SURFACE AREA. NATURAL GRAVITATION SETTLING SHALL OCCUR DURING THIS PERIOD.

DURING THE SETTLING PERIOD THE SETTLING TANK DISCHARGE VALVE V-002 SHELL BE CLOSED. THE SETTLING TANK DISCHARGE LINE IS POSITIONED 300mm ABOVE THE EXPECTED SETTLED MUD VOLUME LEVEL. ONCE THE SETTLING TANK HAS REACHED IT CAPACITY AND ALLOWED TO LIE IN STEADY STATE WITHOUT FURTHER INFILL FOR A 4hr. PERIOD, THE PROCESS OF FILTRATE DRAW DOWN COMMENCES. V-002 IS MANUALLY CRACKED OPEN 15% TO CHARGE THE PUMP SUCTION LINE WITH THE PUMP OFF. AFTER 5min V-002 IS FULLY OPENED FOLLOWED BY THE STARTING OF PUMP P-001. THE FILTRATE IS SIPHONED, PRESSURISED AND PUMPED THROUGH THE SAND FILTER WITH V-006 IN THE "OPEN" POSITION. THIS PROCESS IS CONTINUOUSLY OPERATED FOR A PERIOD OF 10-12hrs WITH TANK LEVEL MONITORED. THE OUTPUT FROM THE SAND FILTER IS TERMED "RECYCLED WATER" AND IS STORED IN A STORAGE TANK FOR FURTHER RETICULATION AT THE SITE. AFTER THE 12hrs HAVE PASSED, V-006 MUST BE SWITCHED TO CLOSED POSITION AND P-001 IS STOPPED. TO BACKWASH, V-009 AND V-007 ARE CLOSED WHILE V-010 AND V-012 ARE OPENED. P-002 IS STARTED AND THE SYSTEM RUN FOR AN ADDITIONAL 10-15min. THE BACKWASH SHOULD BE DISCHARGED IN A SUITABLE SIZED OPEN, MULTILAYER SANDPIT, DRAINING TO THE STORM WATER SYSTEM.

GENERAL NOTES:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS.
2. ALL DIMENSIONS AND HEIGHTS ARE TO BE CHECK ON SITE BEFORE WORK COMMENCEMENT.
3. REPORT DISCREPANCIES TO ARCHITECT OR ENGINEER.
4. THIS DRAWING MUST NOT BE USED TO SCALE OFF. USE ONLY WRITTEN DIMENSIONS. CONTACT THE ENGINEER OR ARCHITECT WHERE CLARITY IS SOUGHT.
5. FOR SETTING OUT DATA, SETTING OUT POINTS AND DATUM LEVELS REFER TO SURVEY INFORMATION AND ARCHITECT'S DRAWINGS.
6. STRUCTURAL WORKS IS TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT SPECIFICATION AND THE RELEVANT S.A.N.S SPECIFICATIONS.
7. CONSULT RELEVANT ARCHITECT'S, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS AND DETAILS AS RELEVANT FOR DRAINAGE, STORMWATER OUTLET, RWDPS AND HOLES AND SLEEVES FOR THESE SERVICES. NO HOLES ARE TO BE CORED WITHOUT ENGINEERS WRITTEN APPROVAL.

DRAWING NO.	REFERENCE

REFERENCE DRAWINGS

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
2	ISSUED FOR CONSTRUCTION	SM	RC	RC	29-01-2026
A	ISSUED FOR CONSTRUCTION	LM	RC	RC	17-10-2017
1	ISSUED FOR CLIENT APPROVAL	FPC	RC	RC	26-09-2017

REVISIONS / ISSUE AUTHORIZATION

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CLIENT LOGO

TRANSNET national ports authority

CLIENT

TITLE	NAME	DATE

MAIN CONSULTANT

TITLE	NAME	DATE
DRAWN	S MEMELA	29-01-2026
	CHECKED	
ENG. COORD	R. CHABILAL	29-01-2026
ARCHITECT		
ELEC. ENG.		
MECH. ENG.	R. CHABILAL	29-01-2026
STRUCT. ENG.		
CIVIL. ENG.		
INSTRU. ENG.		
PROC. ENG.		

APPROVED BY

NAME	R. CHABILAL	DATE
SIGNATURE		29-01-2026
REG. NUMBER	20120449	

EST. 2015
LODEMANN

TNPA/2022/09/1121/12742/RFP:
REHABILITATION OF EXISTING SHIP REPAIR FACILITY AT THE PORT OF MOSSEL BAY

PROCESS FLOW DIAGRAM
P&ID

SCALE	DATE	Drawing Number	Discipline	Rev.	Sheet size	Status.
1 : 250	21-09-17	1002-011-4214	MECHANICAL	2	A1	ISSUED FOR CONSTRUCTION