Base Load Power Hub (BLPH)

Sub-System Boundary Limit Diagrams

Document Number: 123A90-PML-COM-DG-03012

Document Class: CLASS 2

00	06/06/2024	Issue for Review (IFR)	A.J. IVESON	A.J. IVESON	M. BRUNELLI
Rev.	Date	Description	Prepared	Reviewed	Approved

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1	Cover	X							
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4	SYSTEM + SUBSYSTEM ELE-SLD BOUNDARY MARK-UPS rev.00	X							
5	SYSTEM + SUBSYSTEM PROCESS BOUNDARY MARK UPS rev.00	X							

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Revision / Change Log

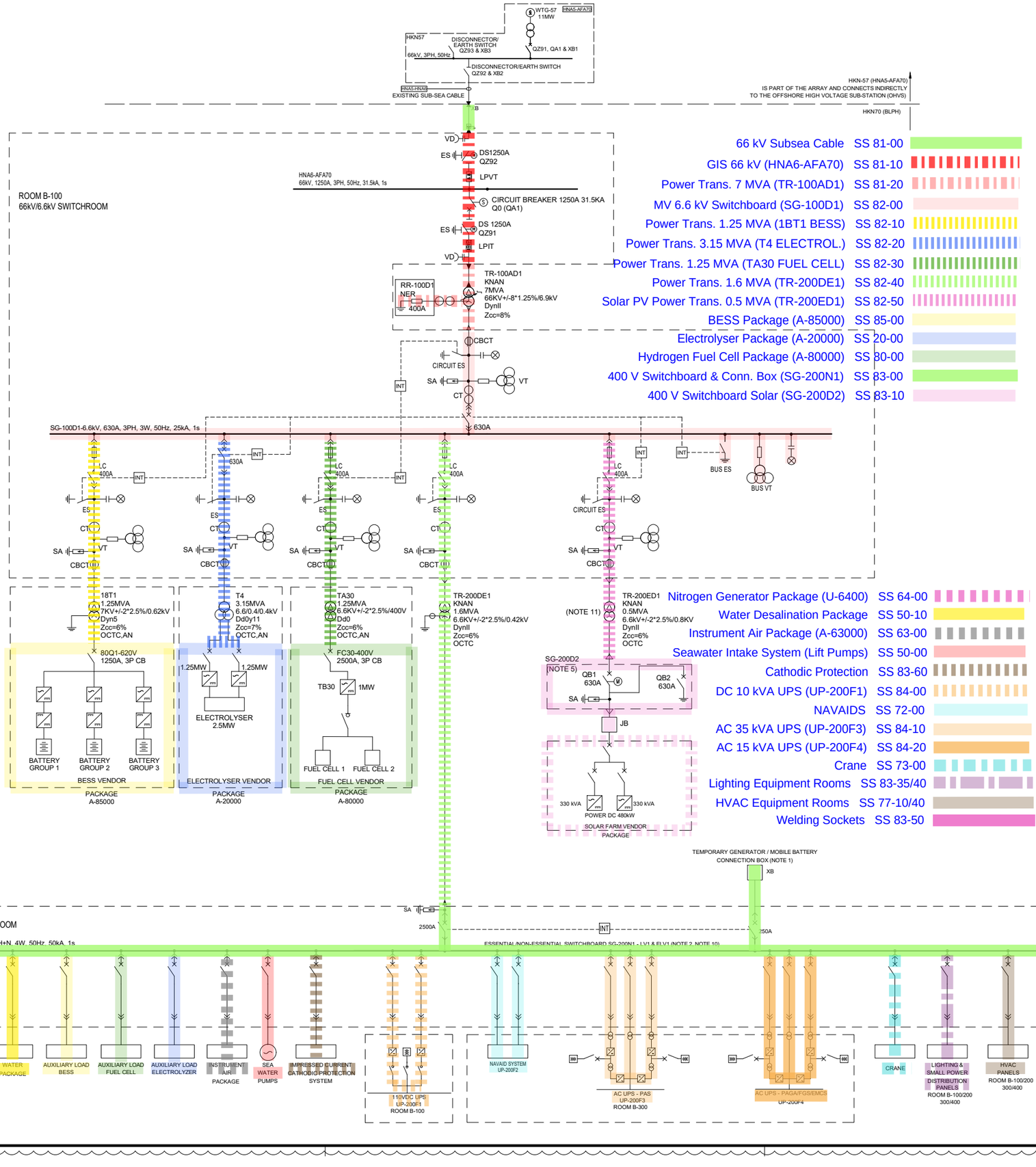
Rev.	Description
00	ISSUE FOR REVIEW (IFR)

HOLDS LIST

No.	Description
1.	Awaiting Eng. Design Freeze to Finalize Boundary Mark-Ups on CCS and EMCS Systems
2.	
3.	
4.	

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DRAWING NO. 123A90-DDL-EL-DG-20158 REV. 01



SYMBOL LEGEND:

- VOLTAGE DETECTOR
- EARTHING SWITCH DISCONNECTOR
- MOTORIZED EARTHING SWITCH
- CIRCUIT BREAKER
- FUSE
- CONTACTOR
- THREE-PHASE TRANSFORMER WITH TAP CHANGER
- THREE-PHASE TRANSFORMER
- CURRENT TRANSFORMER
- THREE-PHASE TRANSFORMER, WITH THREE WINDINGS
- NEUTRAL EARTHING RESISTOR
- SURGE ARRESTER
- CORE BALANCE CURRENT TRANSFORMER
- SURGE ARRESTOR FOR T-CONNECTOR (N.1 FOR EACH PHASE)
- VOLTAGE & CURRENT TRANSFORMER (3Ø X 2) (LPIT TYPE)
- VOLTAGE TRANSFORMER (3Ø X 2) (LPVT TYPE)
- VOLTAGE TRANSFORMER
- CABLE BOX
- T-CONNECTOR CABLE TERMINATION
- CABLE AIR TERMINATION

OLTC	= ON LOAD TAP CHANGER
OCTC	= OPEN CIRCUIT TAP CHANGER
KNAN	= NON-MINERAL OIL NATURAL AIR COOLED
AN	= AIR NATURAL
XB	= CABLE BOX
QZ	= DISCONNECT SWITCH & EARTH SWITCH
QA	= CIRCUIT BREAKER
LC	= LATCHED FUSED CONTACTOR (400A)
INT	= INTERLOCK SYSTEM
SA	= SURGE ARRESTER
CBCT	= CORE BALANCE CURRENT TRANSFORMER
ES	=EARTHING SWITCH
VD	=VOLTAGE DETECTOR
LCP	=LOCAL CONTROL PANEL
LPVT	=LOW POWER VOLTAGE TRANSFORMER
LPCT	=LOW POWER CURRENT TRANSFORMER
LPIT	=LOW POWER INSTRUMENT TRANSFORMER
JB	=JUNCTION BOX

NOTES:

1. TEMPORARY POWER SUPPLY CONNECTION BOX LOCATED ON OUTSIDE WALL OF LV SWITCHROOM / CONTAINER.
2. LOAD DEFINITION 'ESSENTIAL' / 'NON-ESSENTIAL' IS SHOWN IN THE LOAD LIST. THE CCS, EMCS AND 'SMART' SWITCHGEAR WILL OPEN / CLOSE CIRCUIT BREAKERS AS REQUIRED.
3. A COMBINED CCS/EMCS SYSTEM COMPRISES A MICROPROCESSOR BASED SYSTEM, ASSOCIATED SOFTWARE AND REQUIRED PERIPHERALS FOR MONITORING AND CONTROLLING OF ELECTRICAL POWER NETWORK. ALL ELECTRICAL EQUIPMENT AND PACKAGE UNITS SHALL BE CONNECTED TO THE CENTRAL CONTROL SYSTEM .
4. IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM SUPPLIED BY COMPANY.
5. THE SOLAR FARM IN-FEED POWER CIRCUIT BREAKERS PANEL IS LOCATED INSIDE THE LV SWITCHGEAR ROOM B-200.
6. DELETED.
7. DELETED.
8. DELETED.
9. CROSSWIND SHALL BE ABLE TO CONTROL THE BLPH 66KV MOTORISED CIRCUIT BREAKER Q0 (QA1) & MOTORISED ELECTRICAL DISCONNECTOR / EARTH SWITCH (QZ92, TYPE B) USING THEIR 'HV-SCADA' SYSTEM. THIS BACK-UP / REDUNDANT CONTROL SHALL BE ADDITIONAL TO THAT PROVIDED BY THE CCS AND BE OF HIGHER PRIORITY OVER A SEPARATE FIBRE OPTIC CABLE (FOC). THE CCS OPERATOR AND 'HV-SCADA' SHALL BOTH BE KEPT FULLY AWARE OF EQUIPMENT STATUS AT ALL TIMES. INTERTRIPPING, INHIBITS & INTERLOCKING FOR BLPH 66KV EQUIPMENT SHALL BE AS PER THE WIND FARM.
10. THE LOADS IN THE LOW VOLTAGE SWITCHGEAR AND THE CURRENT VALUES OF THE CIRCUIT BREAKERS ARE ONLY INDICATIVE.
11. NEUTRAL POINT OF TR-200ED1 SHALL NOT BE GROUNDED AS REQUIRED BY SOLAR FARM SUPPLIER IN 123A90-PML-PM-TQ-00040.

REFERENCES:

1. 123A90-DDL-EL-DG-20014 ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
2. 123A90-DDL-EL-DG-20015 ELECTRICAL SINGLE LINE DIAGRAM 6.6kV SYSTEMS
3. 123A90-DDL-EL-DG-20159 ELECTRICAL SINGLE LINE DIAGRAMS LV SYSTEM
4. 123A90-DDL-EL-DG-20160 ELECTRICAL SINGLE LINE DIAGRAMS AC UPS SYSTEMS
5. 123A90-DDL-EL-DG-20161 ELECTRICAL SINGLE LINE DIAGRAMS DC UPS SYSTEMS
6. 123A90-DDL-EL-DG-20185 ELECTRICAL SINGLE LINE DIAGRAM HV SYSTEMS
7. 123A90-DDL-EL-DL-20104 ELECTRICAL EQUIPMENT LAYOUT - HV SWITCHROOM
8. 123A90-DDL-EL-DL-20105 ELECTRICAL EQUIPMENT LAYOUT - LV SWITCHROOM
9. 123A90-DDL-EL-LIS-20016 ELECTRICAL LOAD LIST and BALANCE -CCS MODE CHARGING-
10. 123A90-DDL-EL-RE-20152 ELECTRICAL EQUIPMENT SIZING CCALCULATION REPORT
11. 123A90-DDL-EL-RE-20170 ELECTRICAL SYSTEM STUDY REPORT - LOAD FLOW
12. 123A90-DDL-EL-RE-20171 ELECTRICAL SYSTEM STUDY REPORT - SHORT CIRCUIT
13. 123A90-DDL-EL-RE-20172 ELECTRICAL SYSTEM STUDY REPORT - ARC FLASH ENERGY CALCULATION
14. 123A90-DDL-EL-RE-20173 ELECTRICAL SYSTEM STUDY REPORT - HARMONICS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	02/11/2023	DSF	CB/AMA	OYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE :

OVERALL/KEY SINGLE LINE DIAGRAM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE N/A
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 26/03/2023
A1	DRAWING NO. 123A90-DDL-EL-DG-20158	SHEET 001	REV. 01

01

File Name : 123A90-DDL-EL-DG-20158_REV01.dwg

DRAWING NO. DRAWING_NO.

REV. REV

Instrument Air Distribution Network SS 63-30

Waste Water Brine Discharge System SS 55-01

Water Desalination & Distribution System SS 50-10

Waste Water Disposal System SS 55-00

Seawater Intake System System SS 50-00

Electrochlorinated Water SS 50-11

A-50003
SEA WATER COARSE FILTER PACKAGE
CAPACITY : 3 m³/h

A-50002
ELECTRO-CHLORINATION PACKAGE
DOSING CAPACITY : 6 m³/h

WATER TREATMEN PACKAGE HOLD 6

CONTRACTOR SUPPLIER

SUCTION 50 PI 003 | DISCHARGE 50 PI 004 | COMMON ALARM 50 XA 005 | MCC DEVICE COMMS FAIL 50 XI 005 | AVAILABLE STATUS 50 XI 006 | RUN/STOP STATUS 50 XI 007 | SHUTDOWN STATUS 50 XI 008 | SHUTDOWN ALARM 50 XA 006 | ESD

123A90-DDL-PR-PID-80025
TO 50-TDT-002

50 TI 001

50 TT 001 | 50 TE 001

123A90-DDL-PR-PID-80021
FROM SEA WATER LIFT PUMP

E 4"x1.1/2" ECC. RED. | 1.1/2" | 4"x1.1/2" ECC. RED.

1-1/2"-SWS-035-01SD-E

BLPH-MV-241 3/4"

123A90-DDL-PR-PID-80041
FROM IA DISTRIBUTION HEADER

1"-IA-192-01SS-N 1"

BLPH-MV-242

TP 018 | TP 017

A-50003
SEA WATER COARSE FILTER PACKAGE
SEE VENDOR DIAGRAM DOC. NUMBER HOLD 3
HOLD 2

TP 021

1-1/2"-SWS-037-01SD-E

BLPH-NRV-026

3/4"

BLPH-MV-246

1"-SWS-036-01SD-E

E

BLPH-NRV-011

BLPH-MV-061 0.75"

TP 022

TP 019 | TP 020

CONTRACTOR SUPPLIER

A-50002
ELECTRO-CHLORINATION PACKAGE
SEE VENDOR DIAGRAM DOC. NUMBER HOLD 3
HOLD 2, 5
NOTE 1

1"-SWR-149-01SD-H

123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80023

50 FIC 005A | NOTE 5 50 HS 005 | 50 FIC 005B

50 FV 005A | FC TYP 7 HOLD 1 | 50 FT 005A | 50 FE 005A | NOTE 4 HOLD 4

123A90-DDL-PR-PID-80023
TO ULTRA FILTRATION UNIT

PIP. INSTR. PIP.

50 FV 005B | FC TYP 7 HOLD 1 | 50 FT 005B | 50 FE 005B | NOTE 4 HOLD 4

1.1/2"

PIP. INSTR. PIP.

SUCTION 50 PI 005 | DISCHARGE 50 PI 006 | COMMON ALARM 50 XA 007 | MCC DEVICE COMMS FAIL 50 XI 009 | AVAILABLE STATUS 50 XI 010 | RUN/STOP STATUS 50 XI 011 | SHUTDOWN STATUS 50 XI 012 | SHUTDOWN ALARM 50 XA 008 | ESD

TP 026

1"-CI-029-01CP-E

E

123A90-DDL-PR-PID-80021
TO SEA WATER LIFT PUMP AND LIFT PUMP CAISSONS

1" BLPH-MV-062

E

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80023

1"-CI-043-01CP-E

123A90-DDL-PR-PID-80026
TO WASTE WATER TANK

SUPPLIER CONTRACTOR

TP 044 | TP 025

1"-WW-131-01CP-H

1"-SWR-044-01CP-H

NNF 01CP 01CS

1"-SWR-045-01CS-H

123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON

01CP 01CS

NNF 1"-WW-038-01CS-H

123A90-DDL-PR-PID-80026
TO WASTE WATER TANK

NOTES

1. DESIGNED FOR CONTINUOUS DOSING OF THE SEAWATER SUPPLY AND INTERMITTENT DOSING OF THE RUNNING SEAWATER AND STAND-BY SEAWATER LIFT PUMP CAISSONS.
2. DELETED.
3. DELETED. 01
4. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
5. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).

HOLDS

1. CONTROL VALVE SIZING (BY VENDOR).
2. CONTROL INTERFACES SHOWN FOR THE PACKAGES ARE IN HOLD UNTIL ALL DETAILS ARE PROVIDED BY THE RESPECTIVE VENDORS AND CONFIRMED VALVE SIZING (BY VENDOR).
3. VENDOR DOCUMENT NUMBER.
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).
5. H2 VENT LINE FROM THE PACKAGE A-50002 IS IN HOLD, DEPENDING BY THE SELECTED TECHNOLOGY THAT WILL PRODUCE HYPOCHLORITE SOLUTION.
6. WATER TREATMENT SYSTEM DESIGN TO BE CONFIRMED BY VENDOR.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
SEA-WATER INTAKE SYSTEM SHEET 2

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80022	SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

A-50005
ULTRA FILTRATION UNIT
CAPACITY : 2 m³/h

T-50006
FILTERED SEA WATER TANK
SIZE : 1600 mm (ID) x 2500 mm (H T/T)
CAPACITY : 5 m³
DESIGN P/T : ATM / 80°C
MATERIAL : GPR

A-50007
DESALINATION UNIT
CAPACITY : 1 m³/h

WATER TREATMEN PACKAGE HOLD 4

CONTRACTOR SUPPLIER

SUPPLIER CONTRACTOR

Waste Water Brine Discharge System SS 55-01

Water Desalination & Distribution System SS 50-10

Waste Water Disposal System SS 55-00

50 LV 006A — TYP 7 — HOLD 1

50 LV 006B — TYP 7

50 HS 006

ESD

BLPH-MV-105 3/4"

1"-AV-217-01CS-N

50 LIC 006A — SP 0035

SUCTION 50 PI 007 | DISCHARGE 50 PI 008 | COMMON ALARM 50 XA 009 | MCC DEVICE COMMS FAIL 50 XI 013 | AVAILABLE STATUS 50 XI 014 | RUN/STOP STATUS 50 XI 015 | SHUTDOWN STATUS 50 XI 016 | SHUTDOWN ALARM 50 XA 010

1-1/2"-SWS-046-01SD-E

RS

PIPING INSTR.

BLPH-MV-267 SB — 50 UT 006A — 1"

BLPH-MV-268 SB — 50 UT 006B — 1"

50 LIC 006B

1"-SWR-155-01SD-N — OVERBOARD

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80024

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80022

1-1/2"-SWS-037-01SD-E — TP 028 — 123A90-DDL-PR-PID-80022 — FROM SEA WATER COARSE FILTER PACKAGE

BLPH-MV-249 3/4"

A-50005
ULTRA FILTRATION UNIT
SEE VENDOR DIAGRAM DOC. NUMBER HOLD 3
HOLD 2

TP 031 — BLPH-MV-100 3/4"

T-50006
TRIM LINE: 1.5"-SWS-199-01SD-E
NOTE 5

50 LI 002 LL — ESD

BLPH-MV-109 3/4"

123A90-DDL-PR-PID-80024 FROM LIC-007A/B

BLPH-MV-443 1" SB — CONC. RED. 1"x1/2" — BLPH-MV-265 1/2" — SAMPLE CONNECTION

PIPING INSTR. — BLPH-MV-444 SB — 50 LT 002

24" MW

TP 029 | TP 030

CONTRACTOR SUPPLIER

BLPH-MV-263

1-1/2"-SWS-049-01SD-H

SUCTION 50 PI 009 | DISCHARGE 50 PI 010 | COMMON ALARM 50 XA 011 | MCC DEVICE COMMS FAIL 50 XI 017 | AVAILABLE STATUS 50 XI 018 | RUN/STOP STATUS 50 XI 019 | SHUTDOWN STATUS 50 XI 020 | SHUTDOWN ALARM 50 XA 012

BLPH-MV-110 3/4"

SUPPLIER CONTRACTOR

A-50007
DESALINATION UNIT
SEE VENDOR DIAGRAM DOC. NUMBER HOLD 3
NOTE 1
HOLD 2

CONTRACTOR SUPPLIER — TP 032

1"-SWR-048-01CS-H

TP 033 — 1"-WW-051-01CS-H

TP 034 — 1"-CB-052-01CS-H

TP 035 — BLPH-MV-111 3/4" — 1"-DM-050-01SS-E — 123A90-DDL-PR-PID-80024 TO FRESH WATER TANK

NNF

1"-SWR-053-01CS-H — 123A90-DDL-PR-PID-80025 TO BRINE DISCHARGE CAISSON

NNF 1"-WW-054-01CS-H — 123A90-DDL-PR-PID-80026 TO WASTE WATER TANK

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80024

NOTES

1. RELEVANT CHEMICAL DOSING WILL BE CONTAINED WITHIN THE PACKAGE.
2. DELETED.
3. DELETED.
4. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).
5. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TDS - TANK T-5600 - FILTERED SEAWATER TANK, DOC. N. 123A90-DDL-MAC-DS-50003

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)
2. CONTROL INTERFACES SHOWN FOR THE PACKAGES ARE IN HOLD UNTIL ALL DETAILS ARE PROVIDE BY THE RESPECTIVE VENDORS AND CONFIRMED VALVE SIZING (BY VENDOR).
3. VENDOR DOCUMENT NUMBER.
4. WATER TREATMENT SYSTEM DESIGN TO BE CONFIRMED BY VENDOR.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER TREATMENT PLANT SHEET 1

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80023	SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

T-50008
FRESH WATER TANK NOTE 6 01
SIZE : 1125 mm (ID) x 2200 mm (H T/T)
CAPACITY : 2.2 m3
DESIGN P/T : ATM / 80°C
MATERIAL : GRP
01

P-50009 A/B
FRESH WATER PUMPS
FLOW : 1 m3/h
DIFF. PRESSURE : 4.8 barg
DESIGN P/T : 10 barg / 80°C
INSTALLED POWER : 0.2 KW

S-50010
UV WATER FILTER
CAPACITY : 1 m³/h

Waste Water Brine Discharge System SS 55-01

Water Desalination & Distribution System SS 50-10

01

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80023 01

123A90-DDL-PR-PID-80023 TO DESALINATION UNIT

1"-DM-050-01SS-E

123A90-DDL-PR-PID-80023 FROM DESALINATION UNIT

WATER TREATMEN PACKAGE HOLD 5

SUPPLIER CONTRACTOR 01

50 HS 007

50 LV 007A

50 LV 007B

FC TYP.7

50 HS 013 NOTE 5

50 PV 013A

50 PV 013B

1"-DM-162-01SS-E

1"-DM-161-01SS-E

50 LIC 007A H L

50 LIC 007B H L

SP 0036

BLPH-MV-121 3/4"

BLPH-MV-122 3/4"

HOLD 4"-AV-218-01CS-N

RS

50 PIC 013B

50 PIC 013A

50 PT 013B

50 PT 013A

C X B

1"-DM-156-01SS-N

PIPING INSTR.

L3 E BLPH-MV-445 SB 50 LIT 007A

L2 E BLPH-MV-461 SB 50 LIT 007B

OVERBOARD

ESD I

1"-DM-059-01SS-E

TP 036

BLPH-MV-135 3/4"

S-50010
UV WATER FILTER
SEE VENDOR DIAGRAM 01

TP 038

BLPH-MV-286 3/4" FLG x 1/2" NPTF

INSTR. PIPING BLPH-MV-128 3/4" FLG x 1/2" NPTF

123A90-DDL-PR-PID-80011 TO ELECTROLYSER PACKAGE

1"-DM-001-01SS-E

BLPH-MV-127

BLPH-MV-284 3/4"

CONC. RED. 3/4"x1/2"

BLPH-MV-285 1/2"

SAMPLE CONNECTION

T-50008
TRIM LINE: 1"-DM-198-01SS-E

START/ STOP 50 HS 003

RUNNING/ STOPPED 50 XI 021

AUTO START READY 50 XI 022

TRIPPED/ FAULT 50 XA 013

SHUTDOWN ALARM 50 XA 014

BLPH-MV-136

BLPH-NRV-016

50 PI 011 H L

50 PIT 011

1"-DM-060-01SS-E

I 50 LL 004

PIPING INSTR.

BLPH-MV-280 SB E 1" SA L1 E 1" BLPH-MV-279 SB 1" 50 LT 004

CONC. RED. 1"x1/2"

BLPH-MV-281 1/2"

SAMPLE CONNECTION

M1 MW 24"

A

O

RS

1"-DM-057-01SS-E

BLPH-MV-132

MCC

3/4" BLPH-MV-137

E BLPH-MV-138 3/4" FLG x 1/2" NPTF

PIPING INSTR.

1"x1/2" HOLD 1

BLPH-MV-141 SB

BLPH-NRV-017

3/4" BLPH-MV-140

50 PI 012 H L

50 PIT 012

1"-DM-061-01CS-H

BLPH-MV-139

INSTR. PIPING 3/4" FLG x 1/2" NPTF

1" BLPH-MV-287

E-01SS N-01CS

1" SB BLPH-MV-131

SP 001A

1"x1/2" HOLD 1

BLPH-MV-130 1/2"

P-50009A
NOTE 1 & 7

START/ STOP 50 HS 004

RUNNING/ STOPPED 50 XI 023

AUTO START READY 50 XI 024

TRIPPED/ FAULT 50 XA 015

SHUTDOWN ALARM 50 XA 016

ESD I

MCC

1"-DM-058-01SS-E

SP 001B

BLPH-MV-134 SB RS

1"x1/2" HOLD 1

BLPH-MV-133 0.5"

P-50009B
NOTE 1 & 7

NNE

SUPPLIER CONTRACTOR 01

1"-DM-056-01CS-H

123A90-DDL-PR-PID-80025 TO BRINE DISCHARGE CAISSON

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80023 01

NOTES

1. FRESH WATER PUMPS ARE RATED 2 X 100%.
2. AUTO START OF DESIGNATED STANDBY PUMP ON LOSS OF RUNNING STATUS OF DUTY PUMP.
3. DELETED.
4. DELETED. 01
5. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).
6. FOR DESCRIPTION AND SPECIFICATION OF TANK NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET: DOC. N. 123A9-DDL-MAC-DS-50004.
7. LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A AND B PUMPS IS PROVIDED.

01

HOLDS

1. SUCTION AND DISCHARGE NOZZLE SIZE TO BE CONFIRMED BY VENDOR.
2. CONTROL INTERFACES SHOWN FOR THE PACKAGES ARE IN HOLD UNTIL ALL DETAILS ARE PROVIDE BY THE RESPECTIVE VENDORS AND CONFIRMED VALVE SIZING (BY VENDOR).
3. VENDOR DOCUMENT NUMBER.
4. VENT LINE SIZE.
5. WATER TREATMENT SYSTEM DESIGN TO BE CONFIRMED BY VENDOR..

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER TREATMENT PLANT SHEET 2

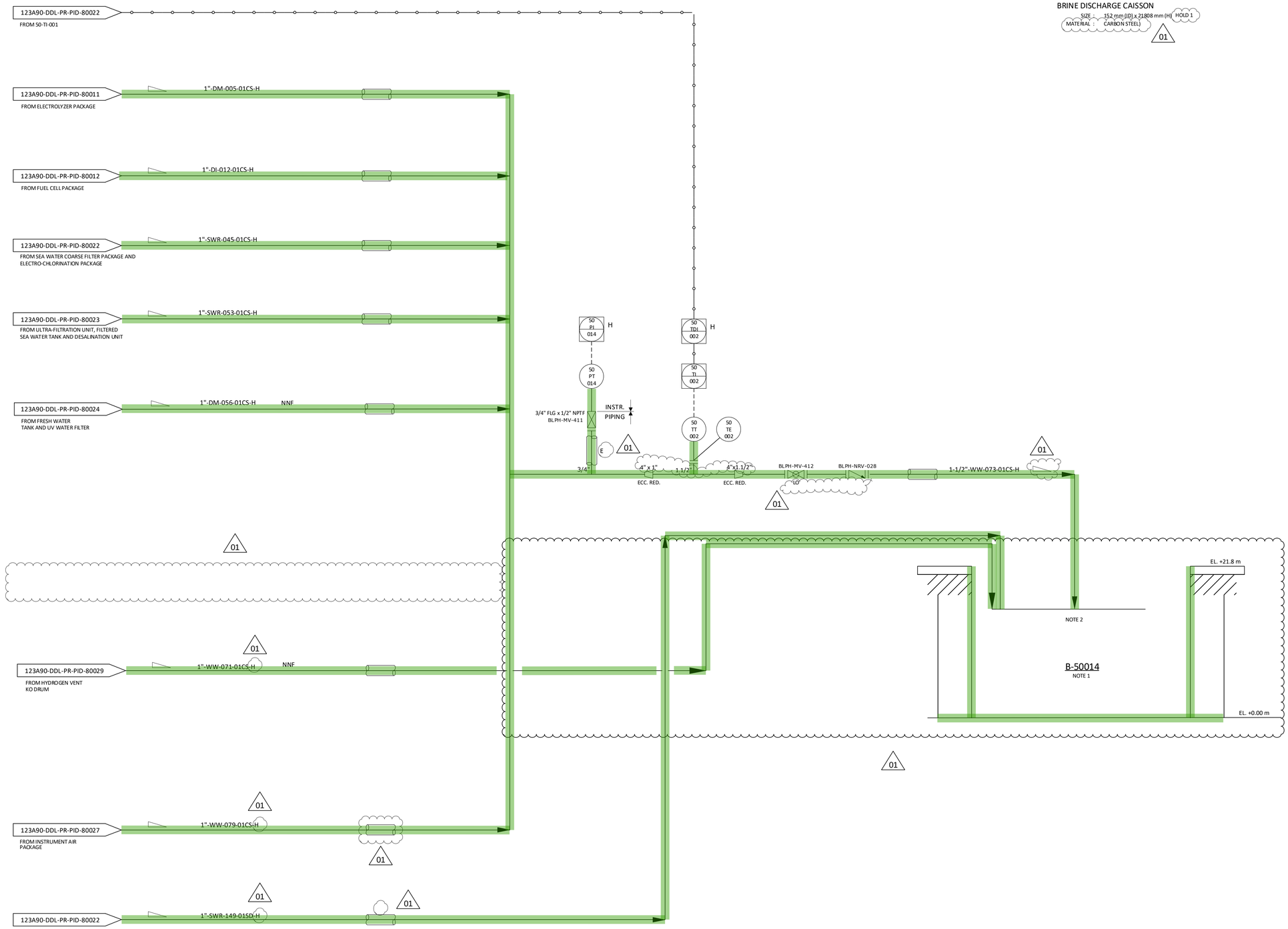
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80024	SHEET 001	REV. 01

File Name - FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Waste Water Brine Discharge System SS 55-01



NOTES

1. CAISSON IS OPEN TOPPED.
2. ALL OVERBOARD LINES TO TERMINATE APPROXIMATLEY 5000 mm INSIDE CAISSON.

HOLDS

1. BRINE CAISSON INTERNAL DIAMETER. 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER DISPOSAL SHEET 1

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO. 123A90-DDL-PR-PID-80025	SHEET 001	REV. 01

File Name : FILE_NAME

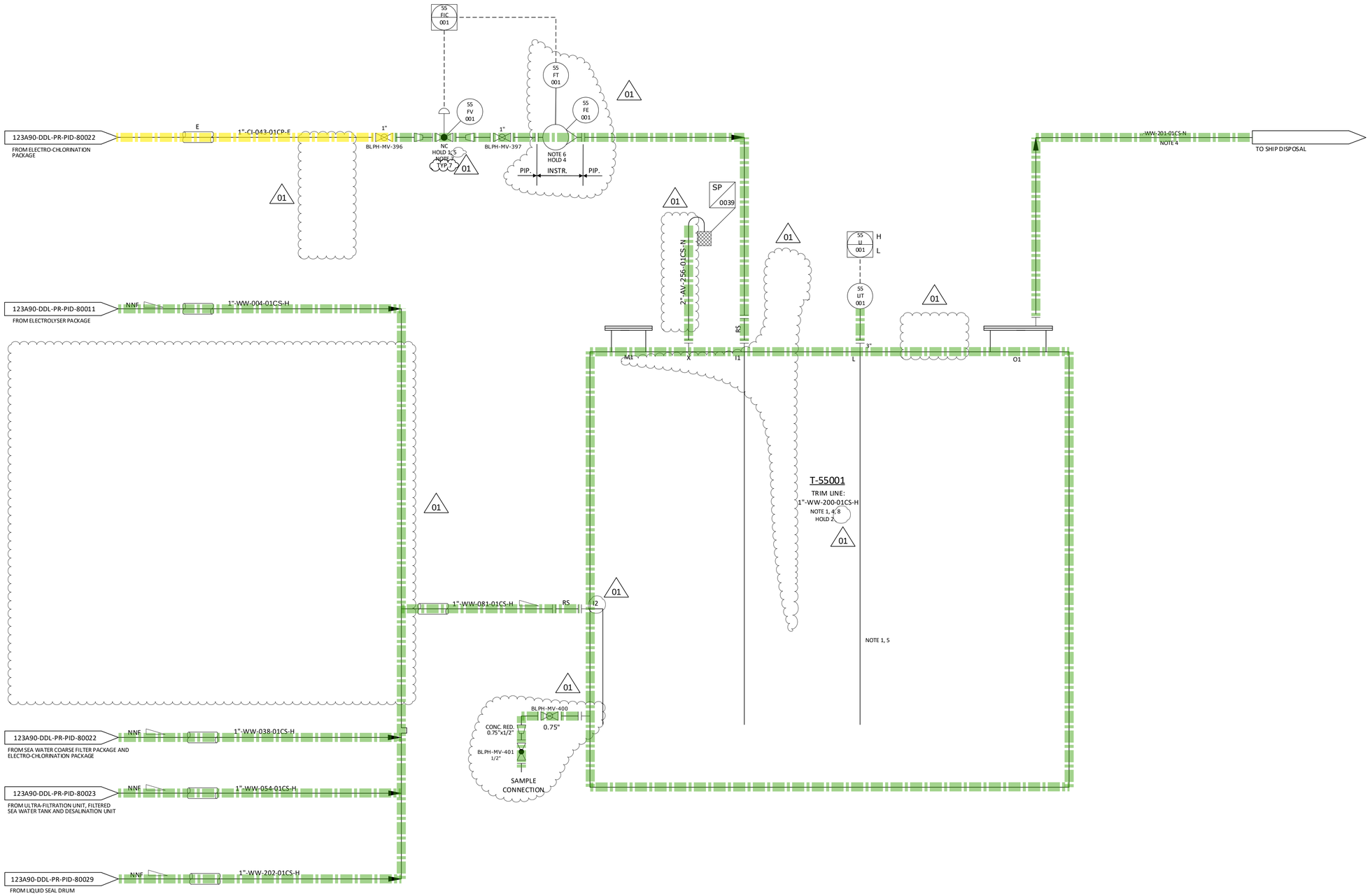
DRAWING NO. DRAWING_NO.

REV. REV

Waste Water Disposal System SS 55-00

Electrochlorinated Water SS 50-11

T-55001
WASTE WATER TANK
SIZE : 4000 mm (L) x 4000 mm (W) x 1000 mm (H)
CAPACITY : 16 m3
DESIGN P/T : 3.5 barg / 80°C
MATERIAL : CARBON STEEL
01



NOTES

1. ALL STILLING TUBES AND DIP PIPES SHALL BE SUPER DUPLEX.
2. DELETED.
3. LOCATE VENT DISCHARGE AWAY FROM WALKWAYS ETC.
4. IN DECK TANK WITH EXAMPLE EXPORT LINE SHOWN FOR CLARITY.
5. PERFORATED STILLING TUBE.
6. VARIABLE AREA FLOW METER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
7. FOR PERIODIC DOSING OF THE WASTE WATER TANK.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR WASTE WATER TANK - T-55001, DOC. N. "123A90-DDL-MAC-DS-50008"

01

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)
2. METHODOLOGY FOR EMPTIYNG THE WASTE WATER TANK.
3. DELETED.
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).
5. CONTROL LOOP IS IN HOLD. DEPENDING ON TYPE OF ELECTRO-CHLORINATION PUMPS.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER DISPOSAL SHEET 2

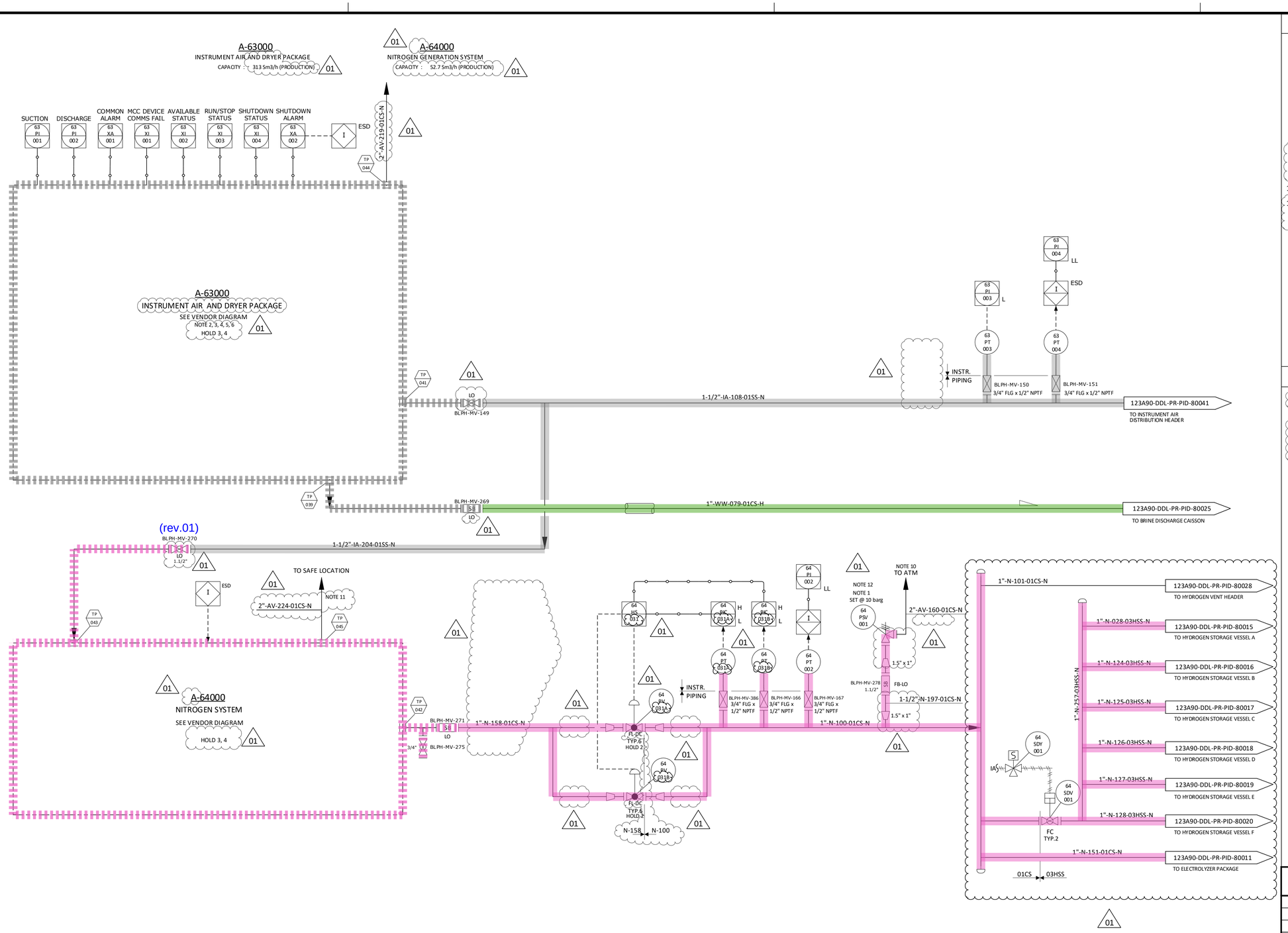
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

	DRAWING NO.	SHEET	REV.
A1	123A90-DDL-PR-PID-80026	001	01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. ONE UNINSTALLED SPARE PSV SHALL BE AVAILABLE.
2. COMPRESSORS AND DRIERS DESIGNED FOR 2 X 100% CONFIGURATION. INSTRUMENT AIR RECEIVER DESIGNED FOR 1 X 100%.
3. VENDOR TO PROVIDE NECESSARY CONTROLS, INSTRUMENTATIONS AND ISOLATIONS IN ORDER TO OPERATE THE PLANT IN SAFE MANNER.
4. COMPRESSORS WILL OPERATE ON THE BASIS OF ONE WORKING AND ONE ON STANDBY.
5. COMPRESSORS TO BE SCREW TYPE OIL FREE.
6. AIR COMPRESSOR INLET TO BE LOCATED AWAY FROM ANY VENTS.
7. DELETED.
8. DELETED.
9. DELETED.

01

10. TO SAFE LOCATION, ROUTED AWAY FROM WALKWAYS.
11. THE LINE 2"-AV-224-01CS-N IS PREDOMINATELY OXYGEN.
12. 64PSV001 SIZED FOR UPSTREAM CV FAILURE..

01

HOLDS

1. DELETED.

01

2. CONTROL VALVE SIZE (BY VENDOR).
3. CONTROL INTERFACES SHOWN FOR THE PACKAGES ARE IN HOLD UNTIL ALL DETAILS ARE PROVIDE BY THE RESPECTIVE VENDORS AND CONFIRMED.
4. VENDOR DOCUMENT NUMBER.

01

Waste Water Brine Discharge System — SS 55-01
Instrument Air Package — SS 63-00
Instrument Air Distribution Network — SS 63-30
Nitrogen Generator Package — SS 64-00
Nitrogen Distribution Network — SS 64-10

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
INSTRUMENT AIR PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80027		SHEET 001	REV. 01

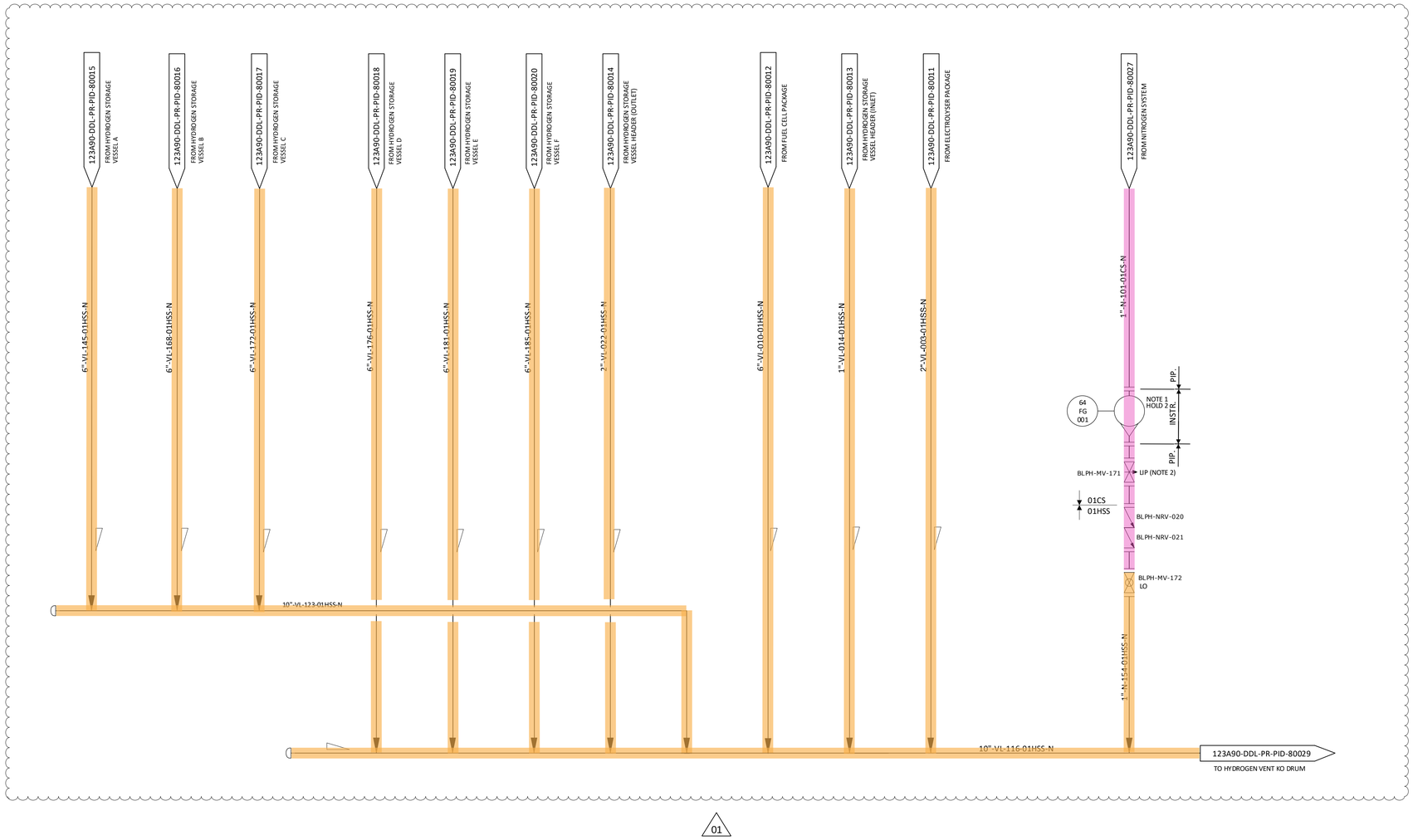
File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Vent Header & Drum System SS 43-00

Nitrogen Distribution Network SS 64-10



01

NOTES

1. FLOW METER 64-FG-001 SHALL BE READABLE FROM MANUAL VALVE MV-171.
2. VALVE BLPH-MV-171 TO BE LOCKED IN PLACE.

01

HOLDS

1. DELETED.
2. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT HEADER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80028		SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Vent Header & Drum System SS 43-00

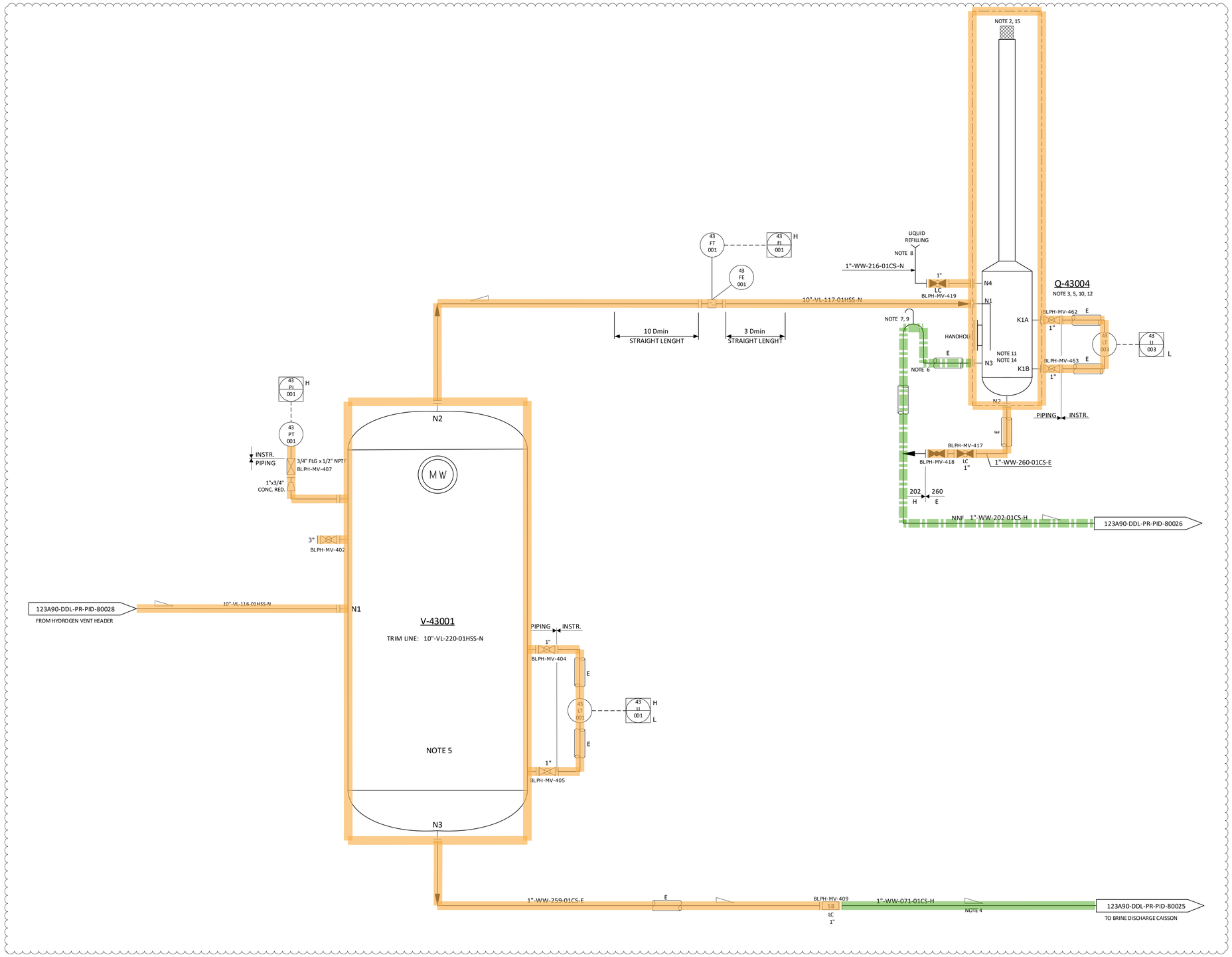
Waste Water Disposal System SS 55-00

Waste Water Brine Discharge System SS 55-01

V-43001
HYDROGEN VENT KO DRUM
SIZE : 600 mm (ID) x 2350 mm (H)
DESIGN P/T : 3.5 barg / -10 / 80°C
MATERIAL : LCTS + 3 mm CA
01

Q-43004
HYDROGEN VENT NOTE 1
SIZE : 254 mm (ID)
DESIGN P/T : 3.5 barg / -10 / 80°C
01

01



NOTES

1. VENT TO SAFE LOCATION SEGREGATED FROM OTHER VENTS.
2. VENT TO BE EQUIPPED WITH FLAME ARRESTOR AND BIRD SCREEN.
3. LIQUID SEAL DRUM IS PART OF THE VENT SYSTEM.
4. LIQUID DRAINLINES TO BE ROUTED TO ENSURE GRAVITY DRAIN.
5. HYDROGEN VENT KO DRUM BOOT AND LIQUID SEAL DRUM TO BE HEAT TRACING.
6. SEAL LEG WILL BE DETERMINATED ON THE MAXIMUM BACK PRESSURE IN THE VENT.
7. SEAL VENT TO BE PLACED INTO A SAFE POSITION.
8. FILLING LINE TO BE PLACED IN AN ACCESSIBLE POSITION.
9. TRACED FROM NOZZLE N3 UP TO SWAN NECK.
10. LIQUID SEAL DRUM I.D. 590 mm, HEIGHT 2350 mm (T/T). TBC BY H2 VENT VENDOR.
11. INLET DIP LEG SUBMERSION HEIGHT OF 0.2 m (TBC BY VENDOR).
12. FLUID HEIGHT OF 1.5 m FROM BOTTOM T.L. (TBC BY VENDOR).
13. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 VENT KOD.
14. LIQUID INSIDE SEAL DRUM IS A WATER - GLYCOL MIXTURE WITH 40% VOLUME OF GLYCOLE.
15. TOP OF TIP OF H2 VENT SHALL BE AT AS MINIMUM 6.2 m FROM HIGHEST REACHABLE PLATFORM.

01

01

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT DRUM

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80029		SHEET 001	REV. 01

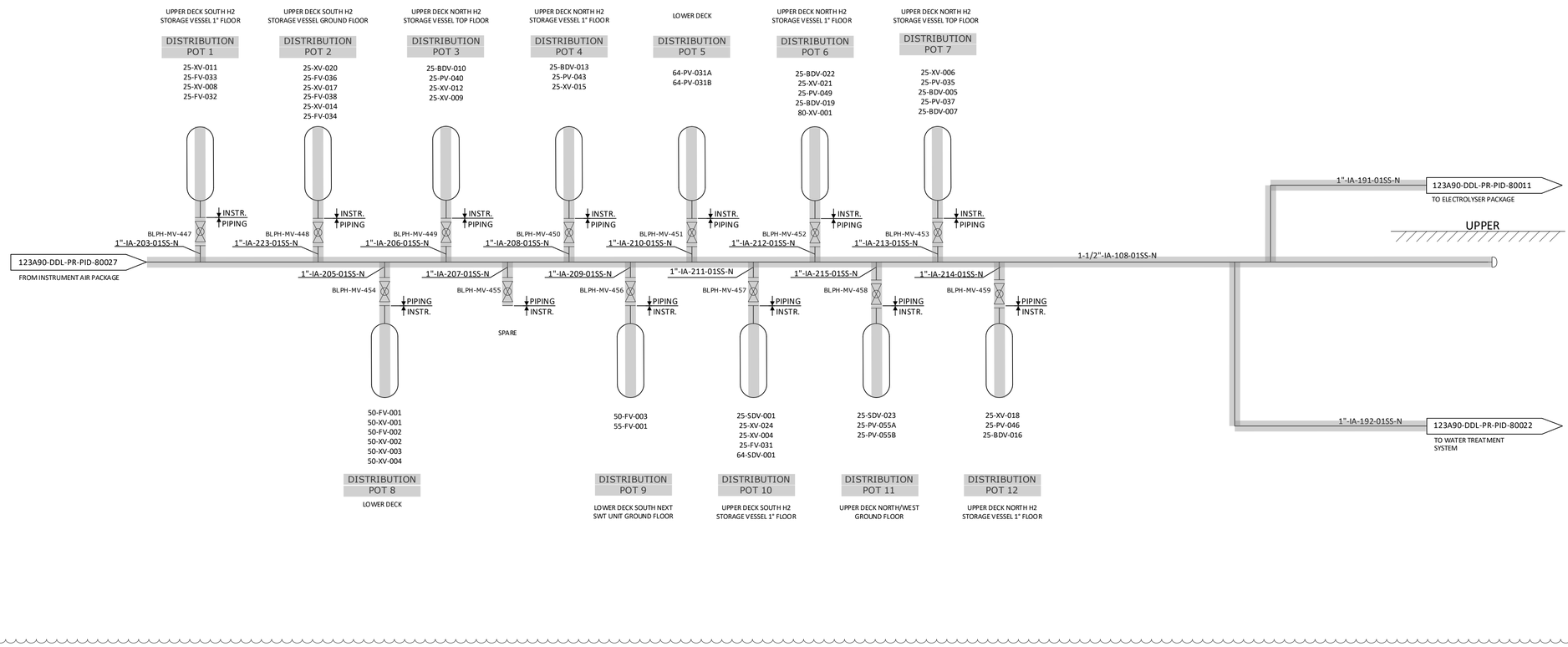
File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Instrument Air Distribution Network SS 63-30

01



NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
INSTRUMENT AIR DISTRIBUTION HEADER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO. 123A90-DDL-PR-PID-80041	SHEET 001	REV. 01

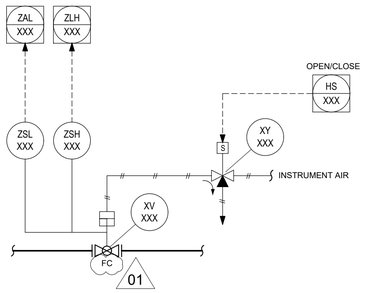
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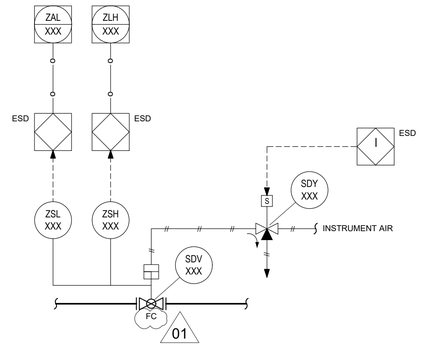
REV. 00

TYPICAL INSTRUMENTATION VALVE

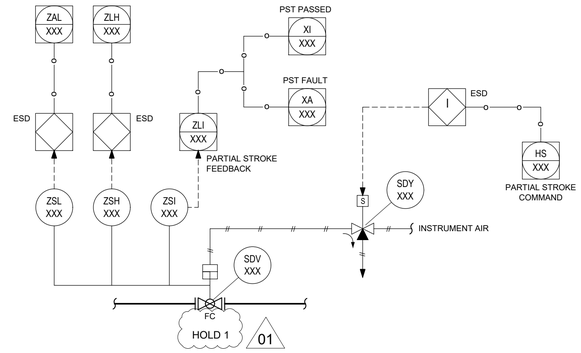
TYP.1 (XV - ON OFF VALVES)



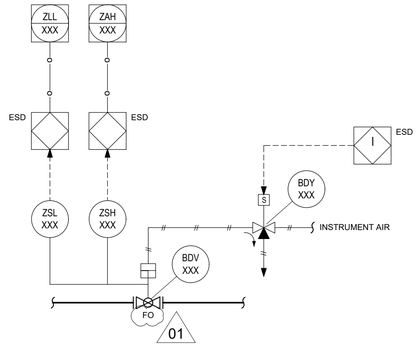
TYP.2 (SDV - SAFETY NO CRITICAL VALVES)



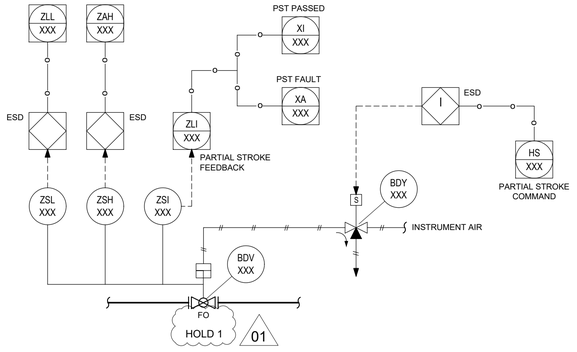
TYP.3 (SDV - SAFETY CRITICAL VALVES WITH PARTIAL STROKE)



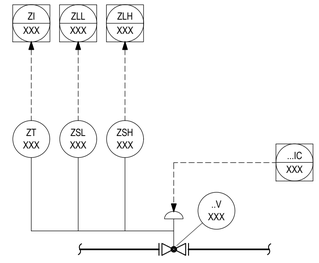
TYP.4 (BDV - SAFETY NO CRITICAL VALVES)



TYP.5 (BDV - SAFETY CRITICAL VALVES WITH PARTIAL STROKE)



TYP.6 (CONTROL VALVES - CRITICAL) 01



INSTRUMENT SYMBOLOGY DEFINITION

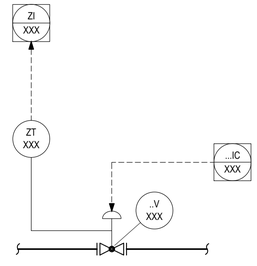
MEANINGS OF IDENTIFICATION LETTERS
THIS TABLE APPLIES TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS

	FIRST- LETTER		SUCCEEDING-LETTER		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
C				CONTROL	
E			SENSOR (PRIMARY ELEMENT) ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G			GLASS VIEWING DEVICE		
H	HAND				HIGH
I			INDICATE		
L	LEVEL				LOW
O			ORIFICE, OPEN		
P	PRESSURE, VACUUM				
R		RELIEF			
S		SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
V				VALVE, DAMPER, LOUVER	
X	UNCLASSIFIED				
Y				AUXILIARY DEVICES	
Z	POSITION DIMENSION				

01

NOTE: FOR FURTHER EXPLANATORY NOTES, REFER TO ANSI/ISA-5.1

TYP.7 (CONTROL VALVES - NOT CRITICAL)



01

NOTES

1. FOR GENERAL NOTES AND PIPING SYMBOLOGY SEE DRAWINGS: 123A90-DDL-PR-PID-80009 AND 123A90-DDL-PR-PID-80010.
2. DELETED. 01

HOLDS

1. THE TYPICAL WILL BE CONFIRMED. 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
INSTRUMENTATION SYMBOLOGY

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80042		SHEET 001 / REV. 01

File Name :

DRAWING NO. DRAWING_NO.

REV. REV

GENERAL NOTES

1. ALL VENTS AND DRAINS SHOWN BY THE FOLLOWING SYMBOLS REPRESENT A 3/4" VALVE.

   EXCEPT AS NOTED.

   VENT/DRAIN
   WITH BLIND FLANGE

2. ALL VALVED CONNECTION TO ATMOSPHERE IN PROCESS SERVICE WILL BE PLUGGED OR BLIND FLANGED.
3. HIGH POINT VENTS AND LOW POINT DRAINS USED FOR HYDROTEST PURPOSES ONLY ARE PROVIDED BUT ARE NOT SHOWN ON P&Ids.
4. FOR GENERAL PIPING REQUIREMENTS SEE THE RELEVANT DESIGN SPECIFICATION.
5. DEFINITIONS:

   SLOPE ⟶ ELEVATION CHANGES ARE CONSTANTLY DOWNWARD ONLY, NO POCKETS ARE PERMITTED. SPECIFIC SLOPES REQUIRED ARE SHOWN BY SYMBOLS.

   WHERE NO GRADIENT IS SHOWN IT IS ASSUMED THAT THE MINIMUM PREFERED GRADIENT OF 1:100 IS USED.

   I / X

   WHERE X HAS UNITS THE SAME AS I

   GRAVITY DRAINING ELEVATION CHANGES ARE DOWNWARD ONLY. NO POCKETS ARE PERMITTED.

6. INLET LINES TO PRESSURE RELIEF DEVICES EXCEEDING 15 m IN LENGTH OR HAVING MORE THAN TWO ELBOWS, UNLESS OTHERWISE NOTED, MUST BE APPROVED BY PROCESS ENGINEERING.
7. ALL CLOSED PRESSURE RELIEF VALVE DISCHARGE LINES SHALL BE FREE DRAINING FROM THE PRESSURE RELIEF VALVE TO THE TOP OF THE DISCHARGE HEADER. EACH LINE IS TO BE CHECKED FOR A DOWNWARD SLOPE AFTER CONSTRUCTION.
8. ALL PRESSURE RELIEF VALVES DISCHARGING TO ATMOSPHERE AT SAFE LOCATION SHALL CONFORM TO THE RELEVANT DESIGN SPECIFICATION.
9. FOR UNSPARED PRESSURE RELIEVING DEVICES, WHEN AN INLET BLOCK VALVE IS PROVIDED BETWEEN A VESSEL AND ITS PRESSURE RELIEVING DEVICE OR WHEN A DISCHARGE BLOCK VALVE IS PROVIDED BETWEEN A PRESSURE RELIEVING DEVICE AND A COMMON DISCHARGE HEADER, THE BLOCK VALVE SHALL BE ARRANGED SO THAT IT CAN BE LOCKED OR SEALED OPEN. UNDER NO CONDITION SHALL A DISCHARGE BLOCK VALVE BE CLOSED, WHILE THE VESSEL IS IN OPERATION, BEFORE THE INLET BLOCK VALVE IS CLOSED. THE OWNER ASSUMES RESPONSIBILITY FOR ADMINISTRATIVE CONTROL OF THESE VALVES IN STRICT ACCORDANCE WITH ASME SECTION VIII, APPENDIX M.
10. SPACE AND ACCESS IS REQUIRED FOR ON-LINE SET-POINT VERIFICATION (OLSPV) OF ALL PSV's.
11. WHEN PIPE STRAINERS ARE INDICATED, THE STRAINER BODY, SCREEN AND SIZE OF OPENINGS ARE AS SPECIFIED BY THE RELEVANT SPECIFICATION.
12. FOR PRESSURE RELIEF VALVE AND RUPTURE DISC DISCHARGING TO ATMOSPHERE 6 MM WEEP HOLES ARE PROVIDED AT LOW POINTS OF THE DISCHARGE LINES (01)
13. REDUCERS IN PRESSURE RELIEF VALVE INLET OR OUTLET PIPING SHALL BE MINIMUM DISTANCE FROM THE PRESSURE RELIEF VALVES.
14. DOCUMENTED ADMINSTRATIVE PROCEDURES SHALL ENSURE THAT WHENEVER SELECTED EQUIPMENT ITEMS (FOR EXAMPLE, EXCHANGERS OR FILTERS) ARE ISOLATED FOR MAINTENANCE, THEY SHALL BE VENTED AND DRAINED IMMEDIATELY.
15. LOCAL START-STOP SWITCH AT THE MOTOR ARE NOT SHOWN. DCS START-STOP FUNCTIONS ARE SHOWN AS REQUIRED.
16. TSO FOR A CONTROL VALVE WILL RESULT IN CLASS V MINIMUM SHUT OFF. ON-OFF VALVES WILL MEET API598.
17. OWNER AND ROSETTI MARINO CONTRACTOR SHALL DESIGN THE SAFETY INSTRUMENTED SYSTEM (SIS) IN ACCORDANCE WITH APPLICABLE PROCESS INDUSTRY STANDARDS, SUCH AS ISA S84, IEC 61511 AND IEC 61508. OWNER AND ROSETTI MARINO CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DEVELOPING AND IMPLEMENTING THE SAFETY INSTRUMENTED FUNCTIONS (SIF) AND PERFORMING SAFETY INTEGRITY LEVEL (SIL) DETERMINATION TO ALL SAFETY INSTRUMENTED FUNCTIONS IN ACCORDANCE WITH OWNER'S RISK MANAGEMENT POLICY. (01)
18. DELETED. (01)
19. THE OWNER IS RESPONSIBLE FOR ESTABLISHING ADMINISTRATIVE CONTROLS AND PROCEDURES OF USE OF ANY SHUTDOWN SYSTEM BYPASS FEATURES FOR TESTING OR MAINTENANCE OF THE SYSTEM. ANY PROCESS INTERLOCK OF SAFETY INTEGRITY LEVEL SIL-3 SHALL NOT BE BYPASSED UNDER ANY CIRCUMSTANCES.
20. ALL THERMOWELL CONNECTIONS ARE FLANGED CONNECTIONS UNLESS OTHERWISE NOTED.
21. DELETED. (01)

LINE SERVICE

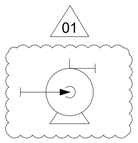
AV	ATMOSPHERIC VENT
CB	CONCENTRATED BRINE
CI	CHEMICAL INJECTION
DI	DEIONISED WATER
DM	DEMINERALIZED WATER
HY	HYDROGEN
IA	INSTRUMENT AIR
N	NITROGEN GAS
SWR	SEA WATER RETURN
SWS	SEA WATER SUPPLY
VL	LP VENT
WW	WASTE WATER

ABBREVIATIONS

ATM.	ATMOSPHERE
BDV	BLOWDOWN VALVE
BRS	BIRDSCREEN
CCS	CENTRAL CONTROL SERVICE
DIFF.	DIFFERENTIAL
DWG	DRAWING
ESD	EMERGENCY SHUTDOWN
FB	FULL BORE
FC	FAIL CLOSED ON LOSS OF MOTIVE POWER OR SIGNAL
FO	FAIL OPEN ON LOSS OF MOTIVE POWER OR SIGNAL
FGS	FIRE & GAS SYSTEM
GVC	GOOSENECK VENT
HH	HIGH HIGH ALARM TRIP
H	HIGH ALARM
ID	INSIDE DIAMETER
IA	INSTRUMENT AIR
L	LOW ALARM
LIP	LOCKED IN PLACE
LL	LOW LOW ALARM AND TRIP
LO	LOCKED OPEN
LP	LOW PRESSURE
M	ELECTRIC MOTOR
MCC	MOTOR CONTROL CENTER
NC	NORMALLY CLOSED
NNF	NORMALLY NO FLOW (01)
NO	NORMALLY OPEN
NPS	NOMINAL PIPE SIZE
PSV	PRESSURE SAFETY VALVE
P/T	PRESSURE/TEMPERATUE
RO	RESTRICTION ORIFICE
RS	REMOVABLE SPOOL
SAM	SAMPLE CONNECTION
SP	SPECIALITY PIPING ITEM
SPB	SPECTACLE BLIND
STR	STRAINER
TSO	TIGHT SHUT-OFF
T/T	TANGENT TO TANGENT
VB	VORTEX BREAKER

EQUIPMENT

PUMPS

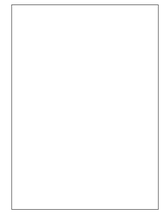


CENTRIFUGAL PUMP



LIFT INLINE

STORAGE TANK



TANK

VESSEL



HORIZONTAL VESSEL (01)

MISCELLANEOUS



MOTOR

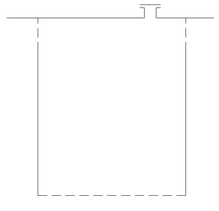


MOTOR



PACKAGE ITEM

OTHERS



CAISSON



CAISSON



VENT STACK

NOTES

1. FOR PIPING AND INSTRUMENTATION SYMBOLOGY, SEE DRAWINGS: 123A90-DDL-PR-PID-80010 AND 123A90-DDL-PR-PID-80042, RESPECTIVELY. (01)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
GENERAL NOTES

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE

	DRAWING NO.	SHEET	REV.
A1	123A90-DDL-PR-PID-80009	001	01

File Name : DRAWING_NO.

DRAWING NO. DRAWING_NO.

REV. REV

PIPING SYMBOLS

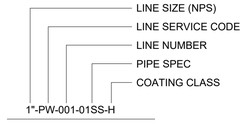
PRIMARY PIPING

SECONDARY PIPING

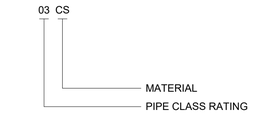
INSULATED PIPING

E — ELECTRICALLY HEAT TRACED PIPING

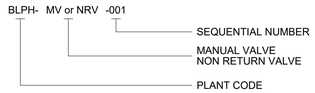
LINE NOMENCLATURE



PIPING SPECIFICATION (NOTE 4)



VALVE IDENTIFICATION CODE



PIPE CLASS RATING

01	CLASS 150# ACCORDING TO ASME B31.3
03	CLASS 300# ACCORDING TO ASME B31.3
06	CLASS 600# ACCORDING TO ASME B31.3
01H	CLASS 150# ACCORDING TO ASME B31.12
03H	CLASS 300# ACCORDING TO ASME B31.12

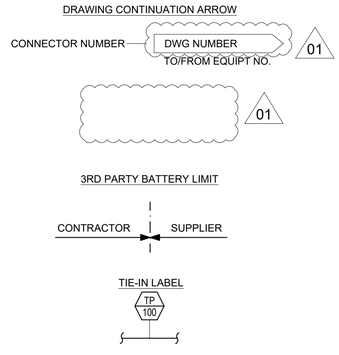
MATERIAL

CS	CARBON STEEL
SS	STAINLESS STEEL
SD	SUPER DUPLEX STAINLESS STEEL
GRP	GLASS REINFORCED PLASTIC 01

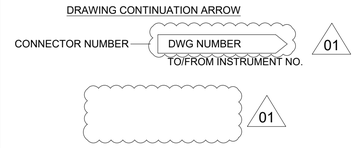
INSULATION CLASS

H	HEAT CONSERVATION
P	PERSONNEL PROTECTION
E	ELECTRICALLY HEAT TRACED
N	NOT INSULATED (PAINTED)

PIPING CONNECTORS



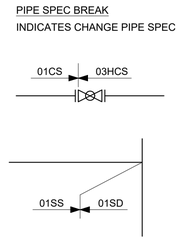
INSTRUMENTATION CONNECTOR



VALVES, CONTROL VALVES AND RELIEF VALVES

SYMBOL	DESCRIPTION
	CHECK VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	NEEDLE VALVE
	BALL VALVE
	ANGLE VALVE
	GATE
	3-WAY
	PRESSURE RELIEF VALVE
DB	DOUBLE BLOCK AND BLEED VALVE
SB	SINGLE BLOCK AND BLEED VALVE
	SINGLE BLOCK AND BLEED VALVE (MONOFLANGE)
	DOUBLE BLOCK AND BLEED VALVE (MONOFLANGE)

PIPING SEGMENT BREAKS & LABELS



SPECIALTY LABELS

SP / 0001 ← 0001 = SP SEQUENCE NO.

FITTINGS

	FLANGE
	CAP
	CONCENTRIC REDUCER
01	ECCENTRIC REDUCER
	HOSE CONNECTION

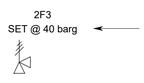
SPECIALTY ITEMS

BRS		BIRD SCREEN
STR		Y-TYPE STRAINER
	RS	REMOVABLE SPOOL
SAM	S	SAMPLE CONNECTION (SAM) SAMPLE STATION NOTE 3
GVC		GOOSENECK VENT W/MESH NOTE 3
RO		RESTRICTION ORIFICE NOTE 3
SPS		SPECTACLE BLIND (BOTTOM CIRCLE DENOTES NORMAL POSITION)
VB		VORTEX BREAKER NOTE 2
01 MV		AIR RELEASE VALVE

EQUIPMENT NOZZLE CONNECTIONS

	FLANGED NOZZLE
	FLANGED NOZZLE ON SIDE OF VESSEL
MW	MANWAY
	MANWAY

INSTRUMENT LABELS



ACTUATORS

	DIAPHRAGM ACTUATOR
	SINGLE/DOUBLE ACTING CYLINDER ACTUATOR
S	SINGLE SOLENOID ACTUATOR
S	OFF-LINE 3-WAY SOLENOID VALVE WITH SINGLE ACTUATOR

INSTRUMENT SIGNAL LINES

01

	INSTRUMENT TO PROCESS
	ELECTRIC
// //	PNEUMATIC
o o o	SOFTWARE OR CCS LINK

PRIMARY INLINE ELEMENT SYMBOLS

	VARIABLE AREA METER
	ULTRASONIC
01	DIAPHRAGM SEAL WITH CAPILLARY

OTHER INSTRUMENTATION

	INSTRUMENT COMPONENT LABEL SYMBOL WITH NO DATA
10 PV 100 A	10 = UNIT NUMBER P = MEASURED VARIABLE CODE V = INSTRUMENT TYPE MODIFIER 100 = INSTRUMENT SEQUENCE NUMBER A = SUFFIX
FV	CONTROL VALVE LABEL
2" FO	CONTROL VALVE WITH NOMINAL DIAMETER AND FAIL ACTION LABEL
HH H FIC L LL	ALARM HIGH HIGH LABEL ALARM HIGH LABEL ALARM LOW LABEL ALARM LOW LOW LABEL
FT M	IF PRIMARY ELEMENT HAS INTEGRAL TRANSMITTER SHOW FT INSTEAD OF FE INSIDE OF TAG

INSTRUMENT OR FUNCTION SYMBOLS

	FIELD MOUNTED INSTRUMENT
	INSTRUMENT MOUNTED ON CENTRAL CONTROL ROOM PANEL
	DCS DISPLAY ACCESSIBLE TO OPERATOR
	CRITICAL INTERLOCK

NOTES

1. FOR GENERAL NOTES AND INSTRUMENTATION SIMBOLOGY SEE DRAWINGS: 123A90-DDL-PR-PID-80009 AND 123A90-DDL-PR-PID-80042 RESPECTIVELY.
2. ITEMS ARE SHOWN UNDER SPECIALTY ITEMS FOR SYMBOLOGY REFERENCE ONLY. ITEMS ARE NOT SP ITEMS.
3. ITEMS ARE NOT SPECIALTY ITEMS UNLESS OTHERWISE SPECIFIED.
4. PIPE SPECIFICATION AND PIPING MATERIAL CLASS INDEX AS PER PIPE MATERIAL CLASSES (DOC. N. 123A90-DDL-PP-SP-70000) 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
PIPING SYMBOLOGY

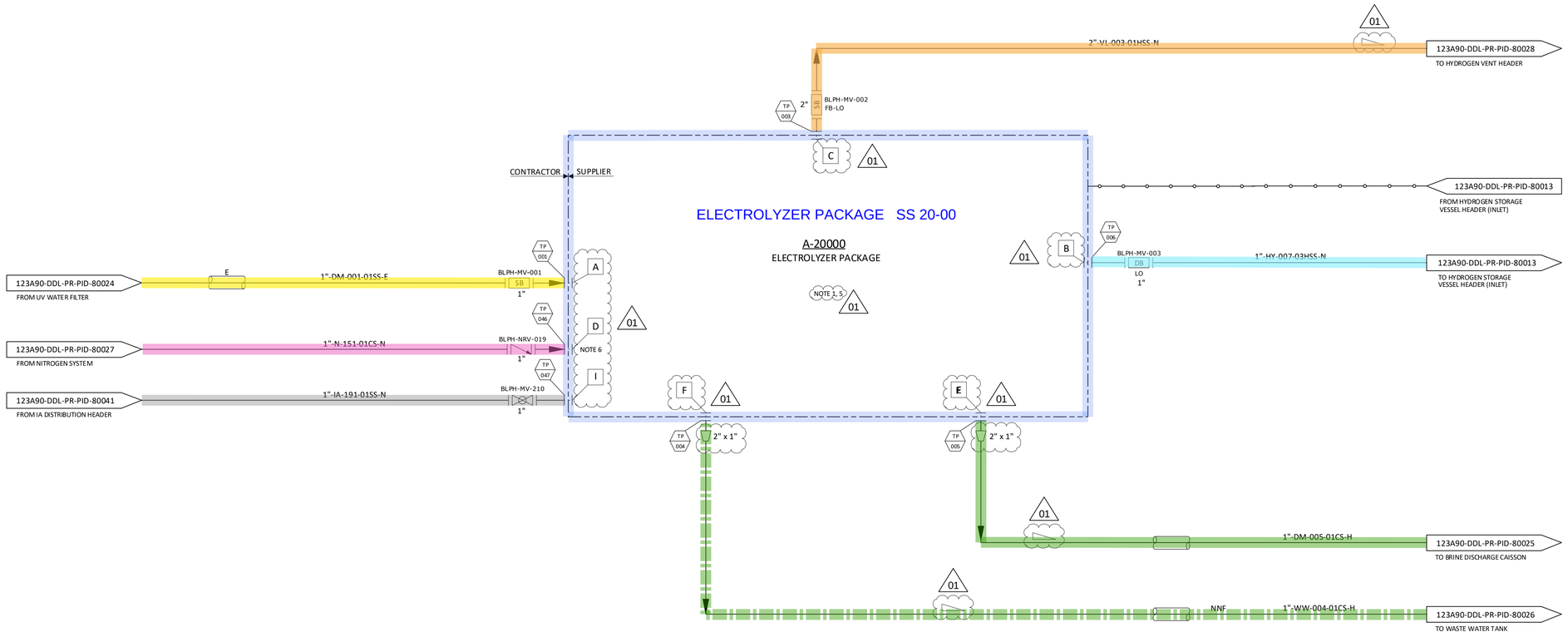
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80010	SHEET 001	REV. 01

File Name : DRAWING_NO.

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Storage Vessels Header (Inlet)	SS 25-07
Hydrogen Vent Header & Drum System	SS 43-00
Waste Water Disposal System	SS 55-00
Waste Water Brine Discharge System	SS 55-01
Water Desalination & Distribution System	SS 50-10
Nitrogen Distribution Network	SS 64-11
Instrument Air Distribution Network	SS 63-30
Electrolyzer Package	SS 20-00



NOTES

1. PACKAGE SUPPLIED WITH POWER FROM THE BLPH ELECTRICAL SYSTEM.
2. DELETED.
3. DELETED.
4. DELETED.
5. ELECTROLYSER PACKAGE INCLUDES AN OXYGEN VENT LINE WHICH IS IN THE SCOPE OF SUPPLY OF THE ELECTROLYSER PACKAGE UP TO THE ATMOSPHERE. NO PHYSICAL INTERFACE IS PRESENT BETWEEN ELECTROLYSER PACKAGE AND CONTRACTOR ON THIS LINE.
6. AN ISOLATION VALVE DOWNSTREAM THE CHECK VALVE NRV-019 IS PROVIDED WITHIN THE PACKAGE A-20000.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM ELECTROLYSER PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80011	SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

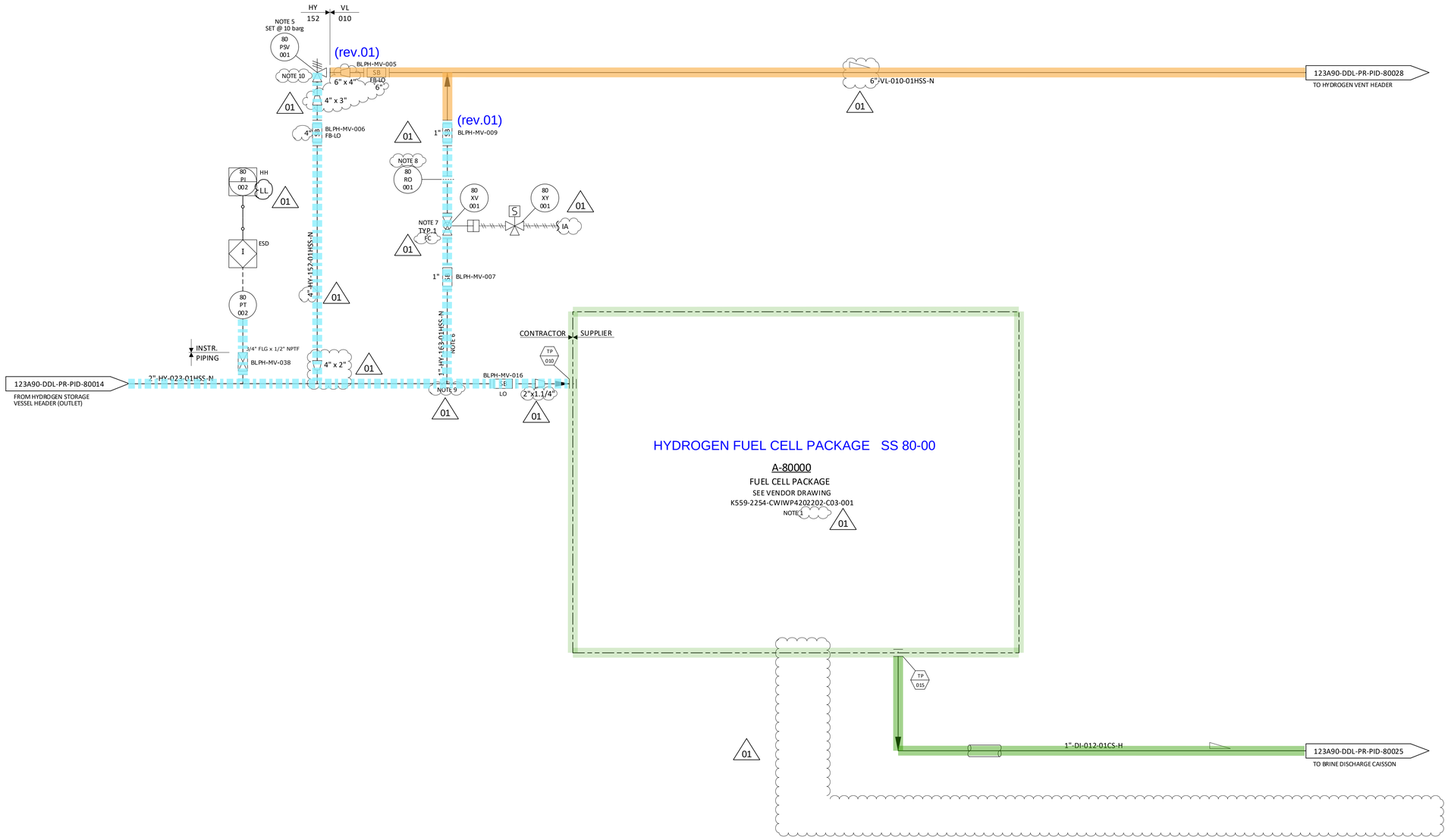
REV. REV

Hydrogen Storage Vessels Header (Outlet) SS 25-08

Hydrogen Vent Header & Drum System SS 43-00

Waste Water Brine Discharge System SS 55-01

Hydrogen Fuel Cell Package SS 80-00



NOTES

1. THE VENDOR PACKAGE WILL CONTAIN AIR INTAKE AND EXHAUST, SUITABLY SAFEGUARDED AND SEPARATED.
2. DELETED.
3. DELETED.
4. DELETED

01

5. ONE UNINSTALLED SPARE PSV SHALL BE AVAILABLE.
6. LINE REQUIRED FOR PURGING OF PIPING WORK.
7. TIGHT SHUT-OFF VALVE.
8. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
9. LINE 1"-HY-163-01HSS-N WILL BE LOCATED AS CLOSE TO THE PACKAGE AS POSSIBLE TO ENSURE COMPLETE PURGING OF THE LINE.
10. 80PSV001 SIZED FOR CV FAILURE OF UPSTREAM CONTROL VAVE 25PV055A/B.

01

HOLDS

1. DELETED.
2. DELETED.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
FUEL CELL PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO.	SHEET	REV.
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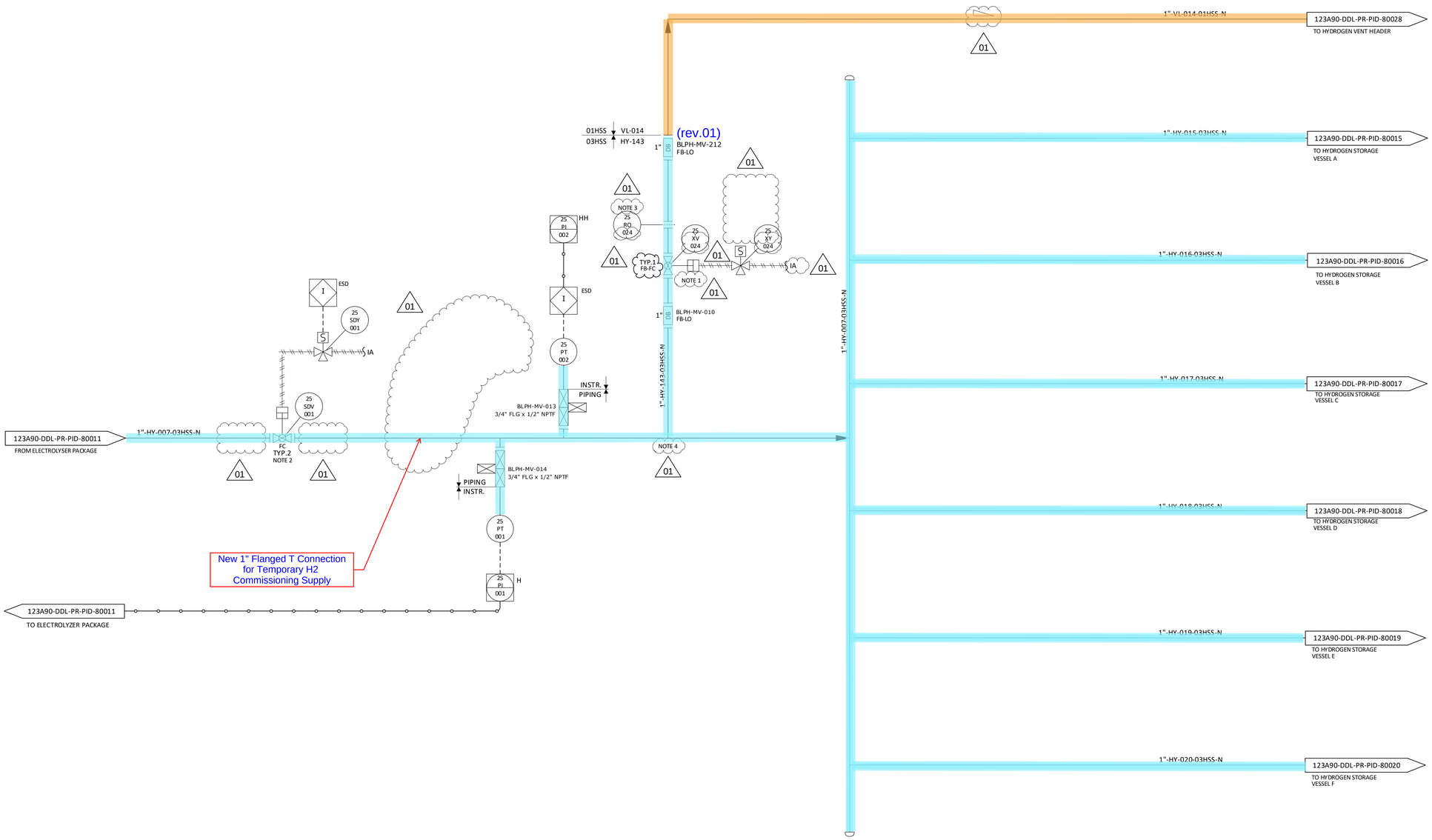
File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Storage Vessels Header (Inlet) SS 25-07

Hydrogen Vent Header & Drum System SS 43-00



NOTES

1. TIGHT SHUT OFF XV.
2. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV.
3. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
4. PIPING CONNECTION TO 25-XV-003 SHALL BE AS CLOSE TO THE MANIFOLD AS POSSIBLE, TO ENSURE COMPLETE PURGING OF FEED LINE.

01

HOLDS

1. DELETED. 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (INLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
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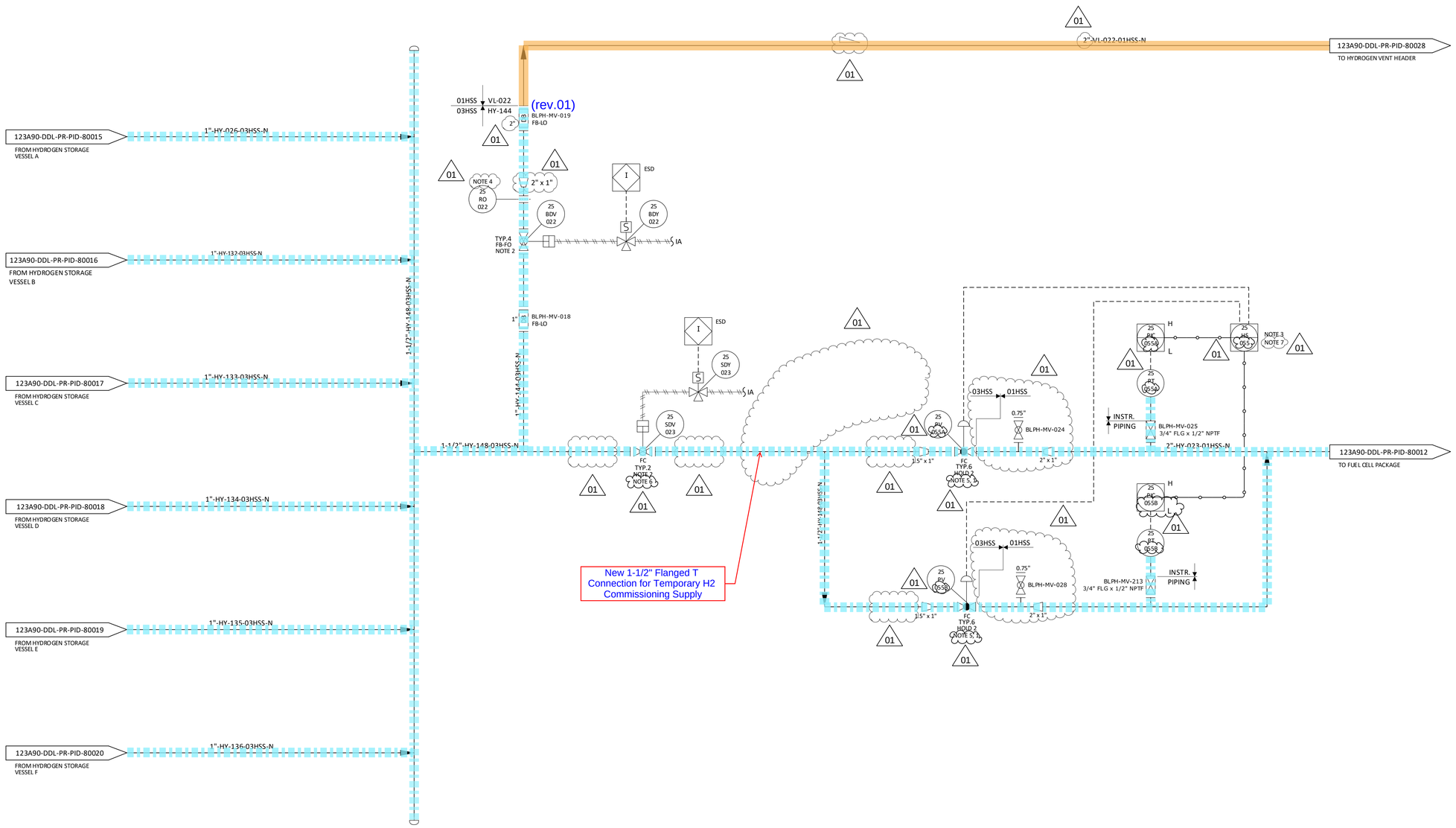
File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Storage Vessels Header (Outlet) SS 25-08

Hydrogen Vent Header & Drum System SS 43-00



NOTES

1. DELETED.
2. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
3. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).
4. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
5. SOFTWARE INTERLOCK PREVENTS OPENING OF THE CONTROL VALVES 25-PV-055A/B IN CASE FUEL CELL PACKAGE (A-80000) IS NOT RUNNING.
6. SDV VALVE 25-SDV-023 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE CONTROL VALVES 25-PV-055A/B.
7. HS INCLUDES SOFTWARE INTERLOCK TO PREVENT BOTH VALVES TO BE ONLINE SIMULTANEOUSLY. SOFTWARE INTERLOCK PREVENTS VALVE 25PV055B TO OPEN IF VALVE 25PV055A IS NOT CLOSED.

01

HOLDS

1. DELETED.
2. CONTROL VALVE SIZE (BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSELS HEADER (OUTLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
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File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Storage Vessels Header (Inlet) SS 25-07

Hydrogen Storage Vessels Header (Outlet) SS 25-08

Hydrogen Storage Vessel A (V-25001A) SS 25-01

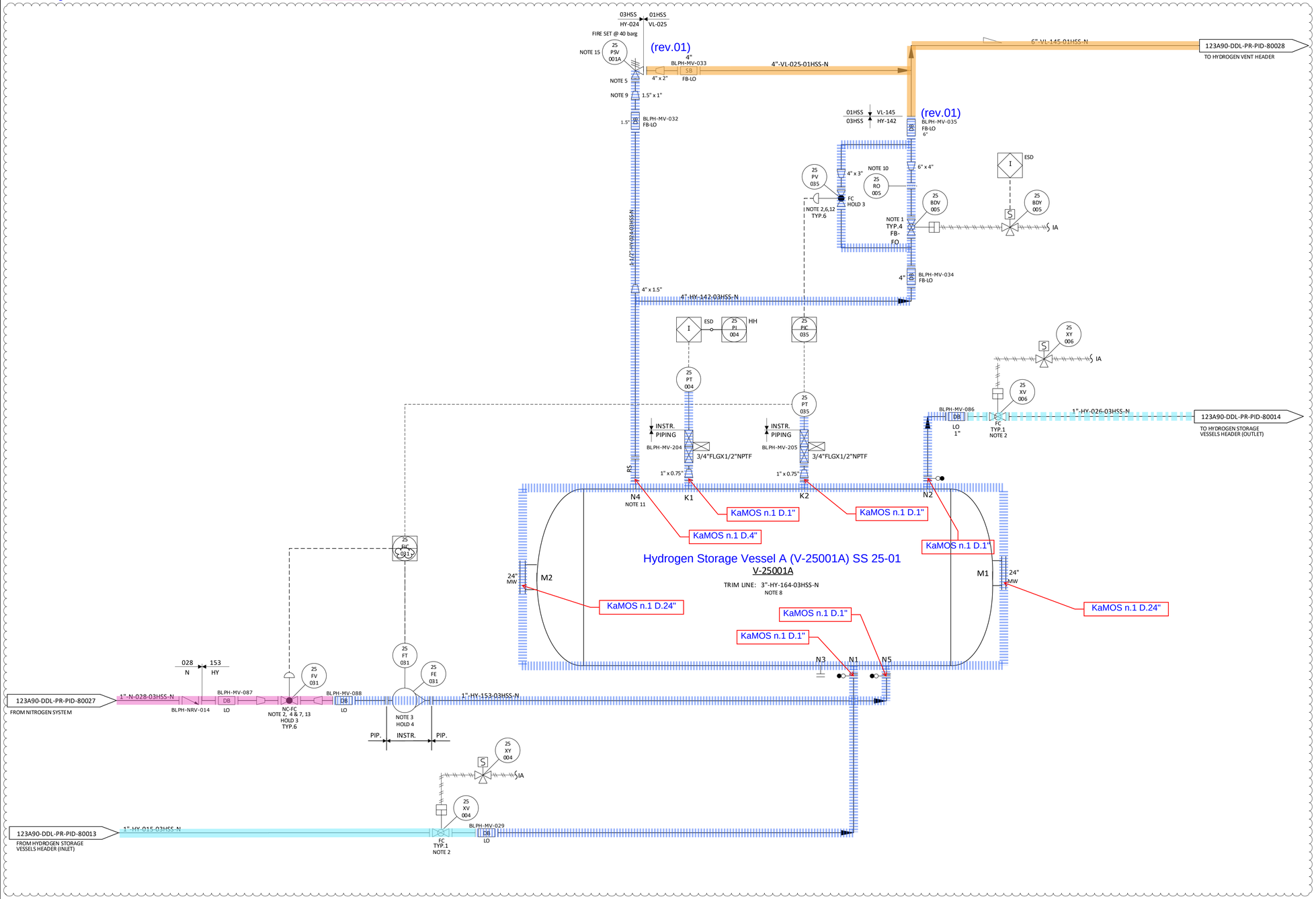
Hydrogen Vent Header & Drum System SS 43-00

Nitrogen Distribution Network SS 64-10

V-25001 A

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg /AMB



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN. 01
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV035 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV035 IS USED ONLY IN CASE OF VESSEL PURGING.
13. SOFTWARE INTERLOCK TO PREVENT 25FV031 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV035 HAS FAILED TO CLOSE.
15. 25PSV001A SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED. 01
3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL A

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

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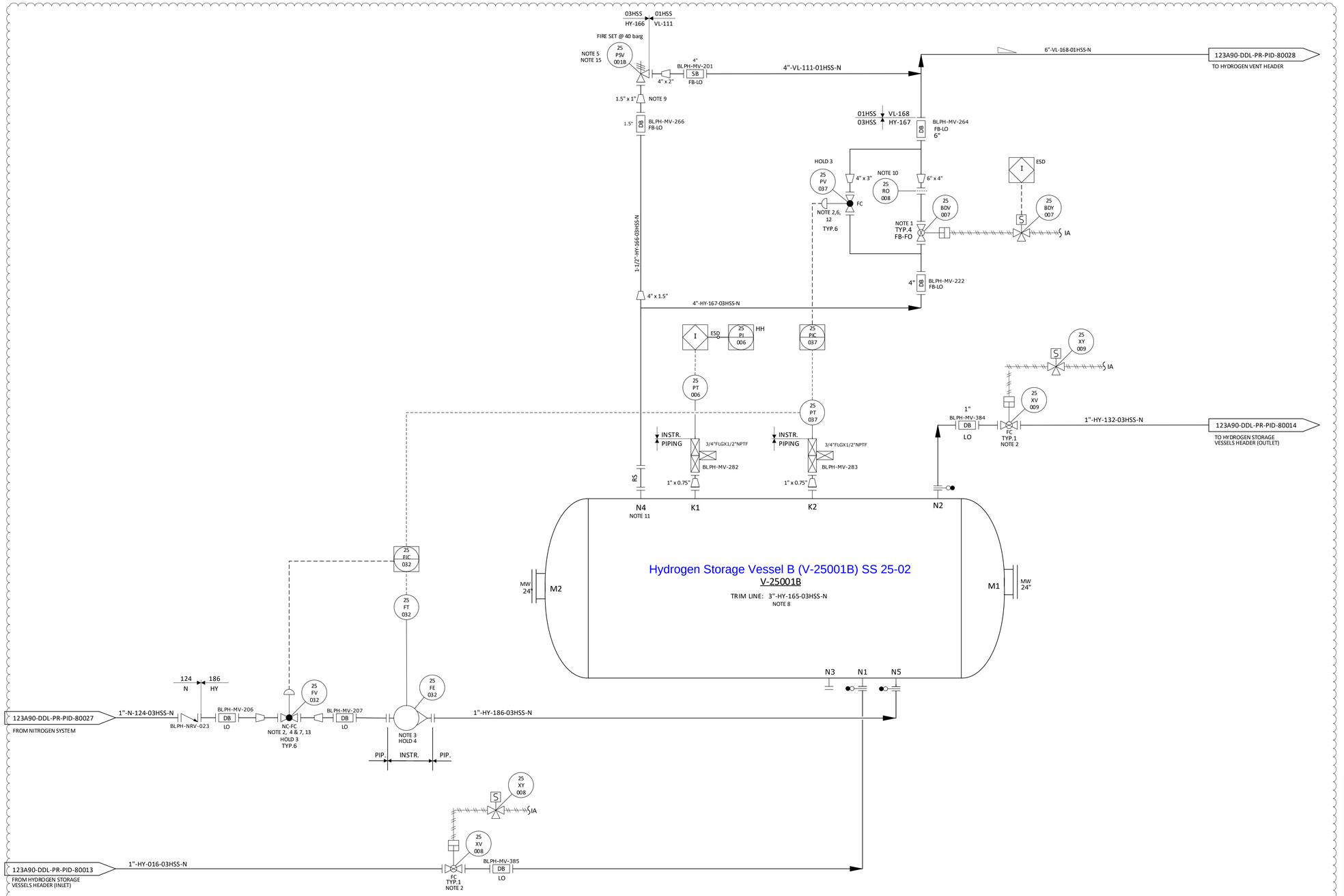
REV. REV

V-25001_B

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB

SEE MARK-UP ...-PR-PID-80015



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN. 01
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV037 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV037 IS USED ONLY IN CASE OF VESSEL PURGING.
13. SOFTWARE INTERLOCK TO PREVENT 25FV032 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV037 HAS FAILED TO CLOSE.
15. 25PSV001B SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED. 01
3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL B

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
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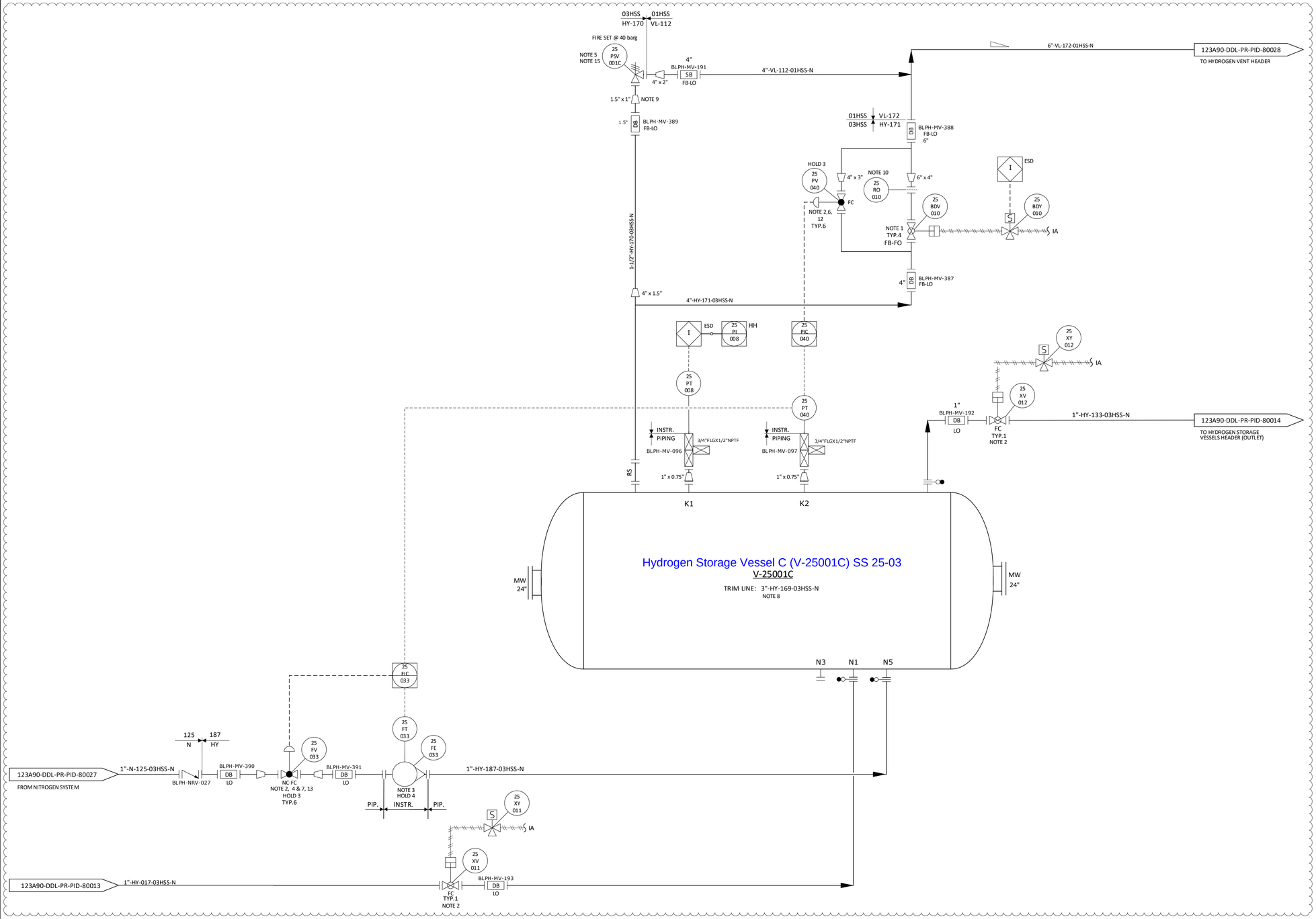
REV. REV

V-25001_C

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB

SEE MARK-UP ...-PR-PID-80015



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.

01

8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV040 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV040 IS USED ONLY IN CASE OF VESSEL PURGING.
13. SOFTWARE INTERLOCK TO PREVENT 25FV033 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV040 HAS FAILED TO CLOSE.
15. 25PSV001C SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.

01

3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL C

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80017		SHEET 001	REV. 01

File Name = FILE_NAME

DRAWING NO. DRAWING_NO.

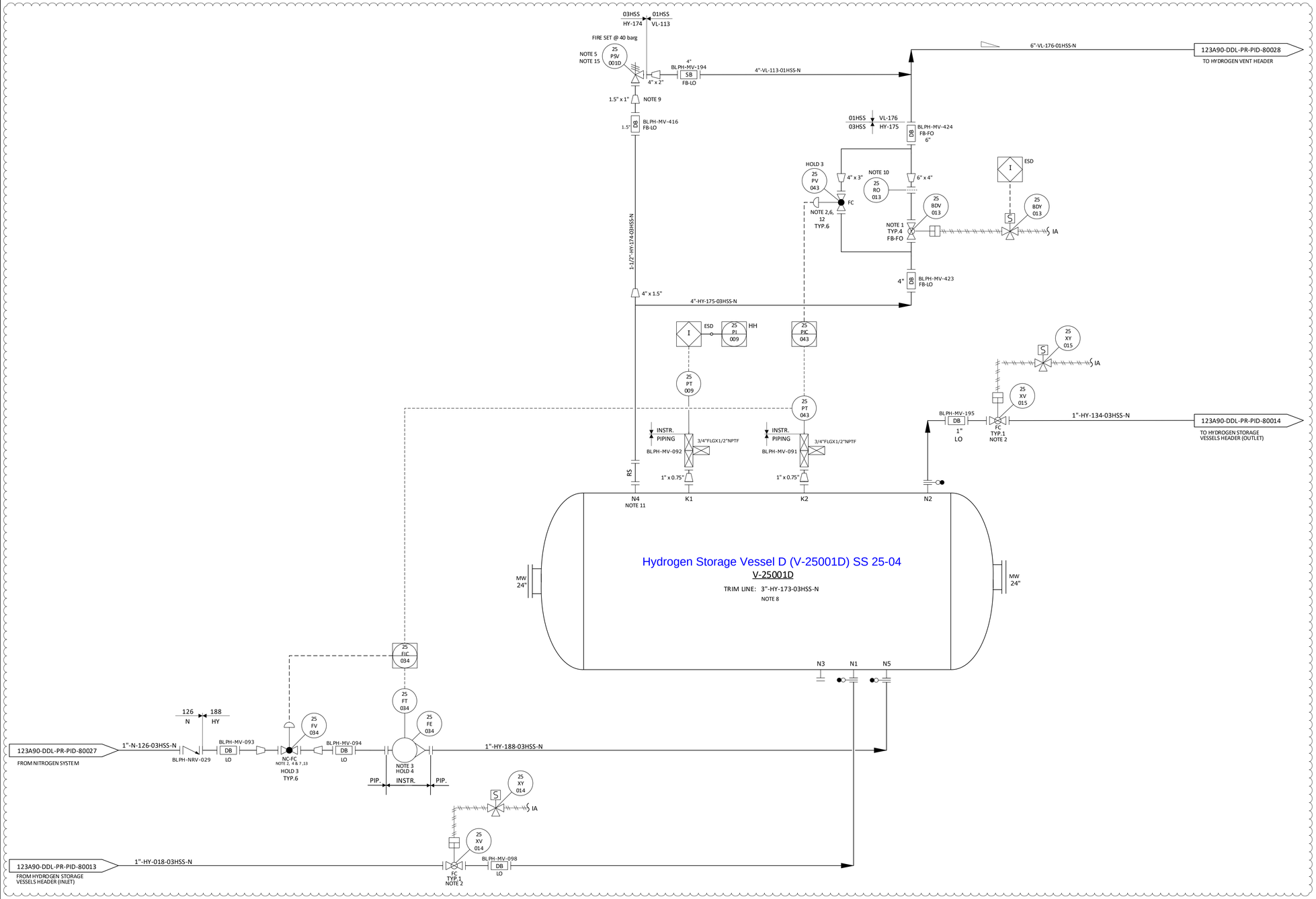
REV. REV

V-25001_D

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB

SEE MARK-UP ...-PR-PID-80015



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ENY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LAPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN. 01
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV043 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV043 IS USED ONLY IN CASE OF VESSEL PURGING
13. SOFTWARE INTERLOCK TO PREVENT 25FV034 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV043 HAS FAILED TO CLOSE.
15. 25PSV001D SIZED FOR FIRE.

HOLDS

1. DELETED. 01
2. DELETED.
3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL D

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO.	SHEET	REV.
	123A90-DDL-PR-PID-80018	001	01

File Name : FILE_NAME

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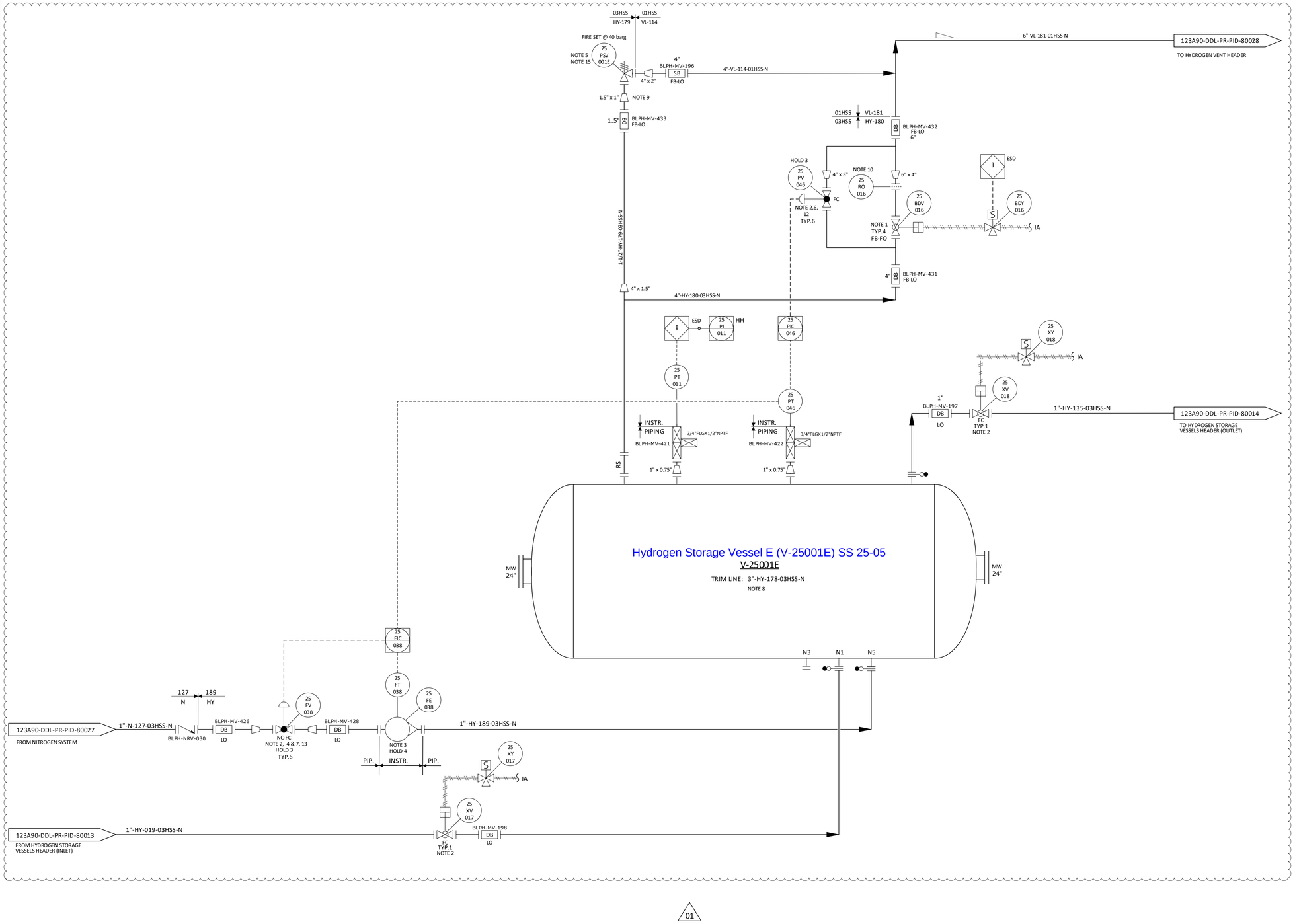
REV. REV

V-25001 E

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB

SEE MARK-UP ...-PR-PID-80015



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ENY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LAPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN. 01
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV046 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV046 IS USED ONLY IN CASE OF VESSEL PURGING
13. SOFTWARE INTERLOCK TO PREVENT 25FV038 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV046 HAS FAILED TO CLOSE.
15. 25PSV001E SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED. 01
3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL E

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO.	SHEET	REV.
	123A90-DDL-PR-PID-80019	001	01

File Name : FILE_NAME

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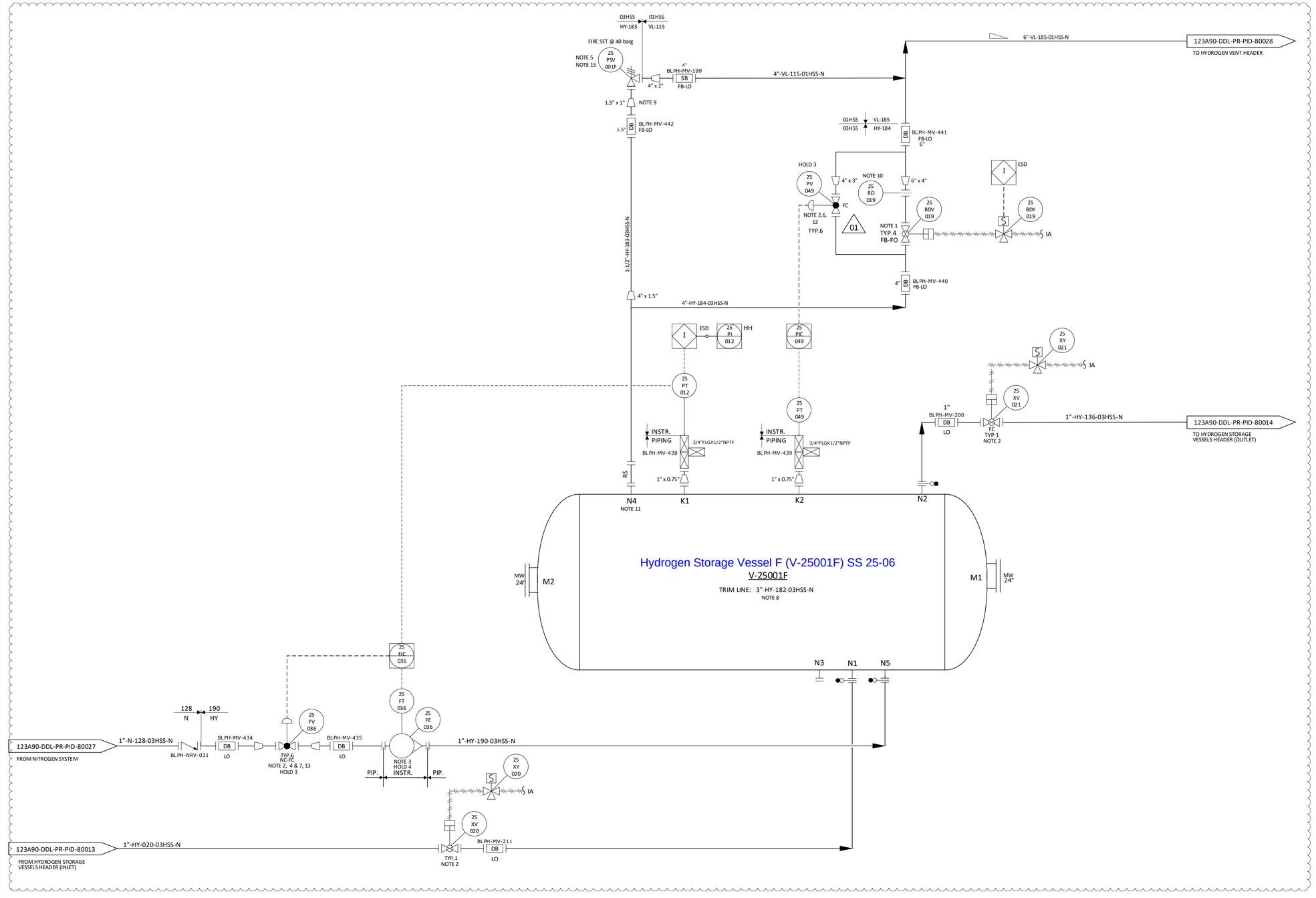
REV. REV

V-25001_F

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB

SEE MARK-UP ...-PR-PID-80015



NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ENY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LAPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN. 01
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027.
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV049 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV049 IS USED ONLY IN CASE OF VESSEL PURGING.
13. SOFTWARE INTERLOCK TO PREVENT 25FV036 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV049 HAS FAILED TO CLOSE.
15. 25PSV001F SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED. 01
3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR HAZOP (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL F

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO.	SHEET	REV.
	123A90-DDL-PR-PID-80020	001	00

File Name = FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

P-50001 A/B
SEA WATER LIFT PUMPS
POWER : 1.6 KW
FLOW : 3 m³/h
DESIGN P/T : 17.7 barg (HOLD 5) / 80°C
DIFF. PRESSURE : 13.0 barg
MATERIAL : 25% Cr SDSS

B-50013 A/B
SEA WATER LIFT PUMPS
CAISSONS
SIZE : 305 mm (ID) x 27308 mm (H)
MATERIAL : CS+ CA

123A90-DDL-PR-PID-80022
ELCTRO-CHLORINATION UNIT

1"-CI-029-01CP-E

3/4" BLPH-MV-214
3/4"x1/2" 1/2"
CONC. RED. BLPH-MV-215

Seawater Intake System System SS 50-00
Electrochlorinated Water SS 50-11

1"-CI-196-01CP-E

BLPH-MV-223 (rev.01)

50 FV 003
50 FIC 003
HOLD 1, 3 TYP.7 FO
BLPH-MV-224
50 FT 003
50 FE 003
NOTE 4 HOLD 4
BLPH-NRV-025
PIP.
INSTR.
01CP
01SD

1-1/2"-SWS-035-01SD-E

123A90-DDL-PR-PID-80022
SEA WATER COARSE FILTER PACKAGE

BLPH-MV-043 SB 1.1/2"
1-1/2"-SWS-031-01SD-E

BLPH-MV-050 SB 1.1/2"
1-1/2"-SWS-033-01SD-E

50 FV 001
50 FIC 001
1" BLPH-MV-041
HOLD 1, 3 TYP.7 FO
1" BLPH-MV-042

50 FV 002
50 FIC 002
1" BLPH-MV-216
HOLD 1, 3 TYP.7 FO
1" BLPH-MV-217

50 RO 001
50 RO 002
NOTE 7

50 XV 001
50 XV 002
50 XV 003
50 XV 004
IA
S
NOTE 5
NOTE 3
FC TYP.1
3/4" BLPH-MV-044
3/4" BLPH-MV-054

1.1/2" BLPH-NRV-004
1.1/2" BLPH-NRV-008

INSTR. PIPING
PIP.
INSTR.
50 FT 001
50 PI 001
50 PT 001
50 FE 001
50 FT 002
50 PI 002
50 PT 002
50 FE 002
H
L
2" x 1.5"
BLPH-MV-464
BLPH-MV-465
NOTE 4 HOLD 4

1"-SWS-146-01SD-E
1"-SWS-147-01SD-E

START/ STOP
RUNNING/ STOPPED
AUTO START READY
TRIPPED/ FAULT
SHUTDOWN ALARM
ESD
50 HS 001
50 XI 001
50 XI 002
50 XA 001
50 XA 002
50 HS 002
50 XI 003
50 XI 004
50 XA 003
50 XA 004
I

BLPH-NRV-007
BLPH-NRV-024

SP 0043
SP 0044
SP 0033
SP 0034
MCC
M
1"-SWS-222-01SD-E
1"-SWS-221-01SD-E
BLPH-MV-048
BLPH-MV-051
RS

1"-CI-030-01CP-E
1"-CI-032-01CP-E

Attention: Missing ref. for HOOK-UP

Attention: Missing ref. for HOOK-UP

LOWER DECK: +23.310 m
TOP OF CAISSON: +21.808 m
HOLD 2
SUCTION
NOTE 1 & 2
P-50001A
P-50001B
EL: 5.500 m
PUMP RETENTION BARS
B-50013A
B-50013B
NOTE 6

NOTES

1. SEAWATER LIFT PUMPS ARE RATED 2 X 100%
2. AUTO START OF DESIGNATED STANDBY PUMP ON LOSS OF RUNNING STATUS AND DISCHARGE LOW PRESSURE ALARM OF DUTY PUMP.
3. VALVE TO BE OPENED WHEN PUMP IS OFFLINE TO DOSE CAISSON WITH TREATED SEAWATER TO PREVENT BIOLOGICAL GROWTH.
4. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
5. SOFTWARE INTERLOCK PREVENTS PUMPS FROM STARTING UNLESS DISCHARGE XV IS FULLY CLOSED.
6. CAISSONS ARE OPEN TOPPED.
7. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "123A90-DDL-IN-DS-40054 - TECHNICAL DATASHEET FOR RESTRICTION ORIFICE".

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)
2. CAISSON DIAMETER IS IN HOLD. WILL BE FIXED WHEN ACTUAL PUMP DIMENSION INFORMATION IS AVAILABLE FROM VENDOR.
3. CONTROL LOOP IS IN HOLD. DEPENDING ON TYPE OF ELECTRO-CHLORINATION PUMPS.
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).
5. DESIGN PRESSURE PENDING FROM VENDOR INFORMATION

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
SEA-WATER INTAKE SYSTEM SHEET 1

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80021	SHEET 001	REV. 01

File Name : FILE_NAME