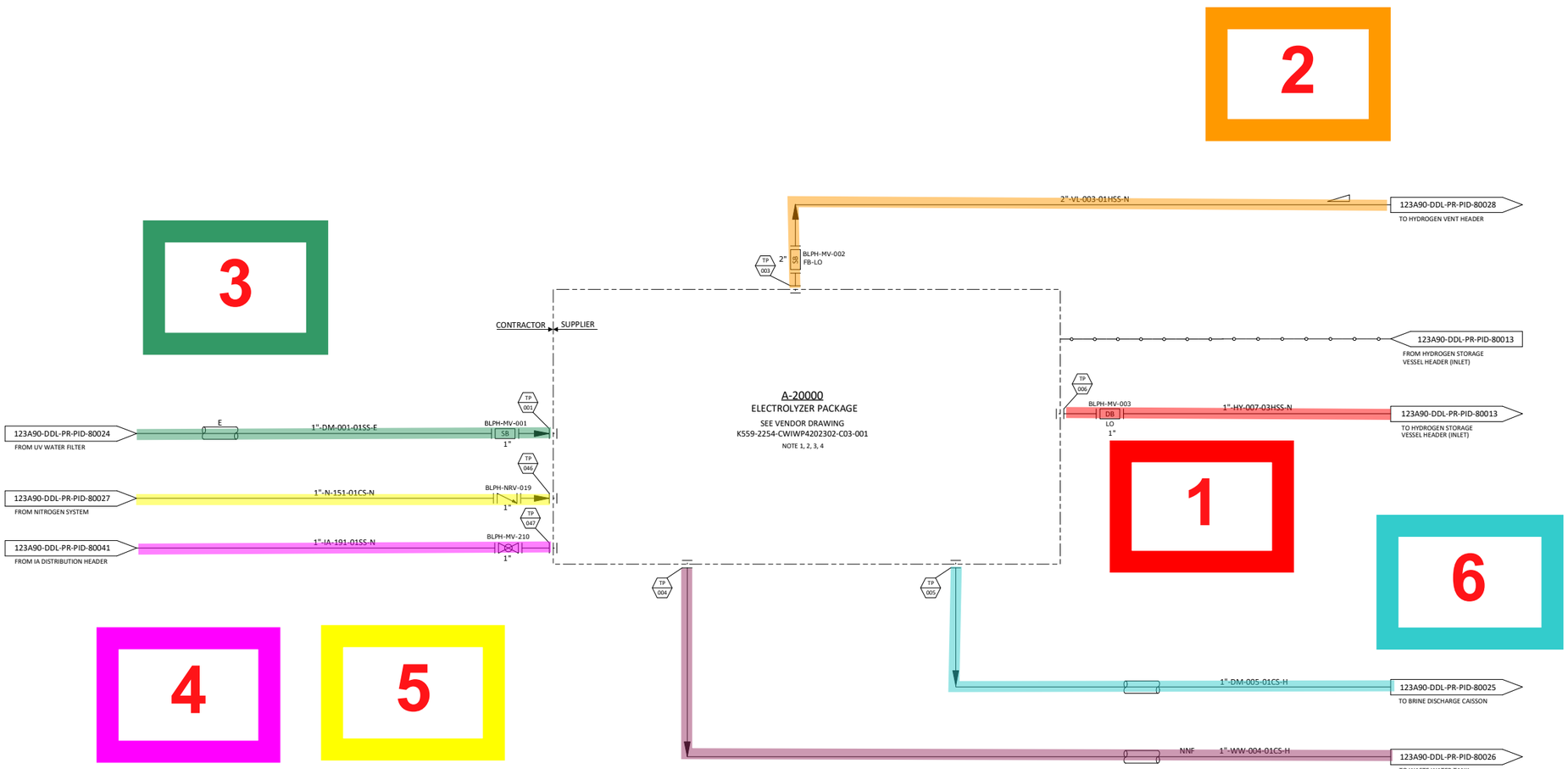
DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. PACKAGE SUPPLIED WITH POWER FROM THE BLPH ELECTRICAL SYSTEM.
2. PACKAGE VENDOR TO DEFINE DRAINAGE REQUIREMENTS.
3. PACKAGE DATA TO BE CONFIRMED BY VENDOR.
4. PACKAGE VENDOR TO DEFINE INTERFACE WITH CONTRACTOR AND CCS CONNECTION REQUIREMENTS.

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

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
ELECTROLYSER PACKAGE

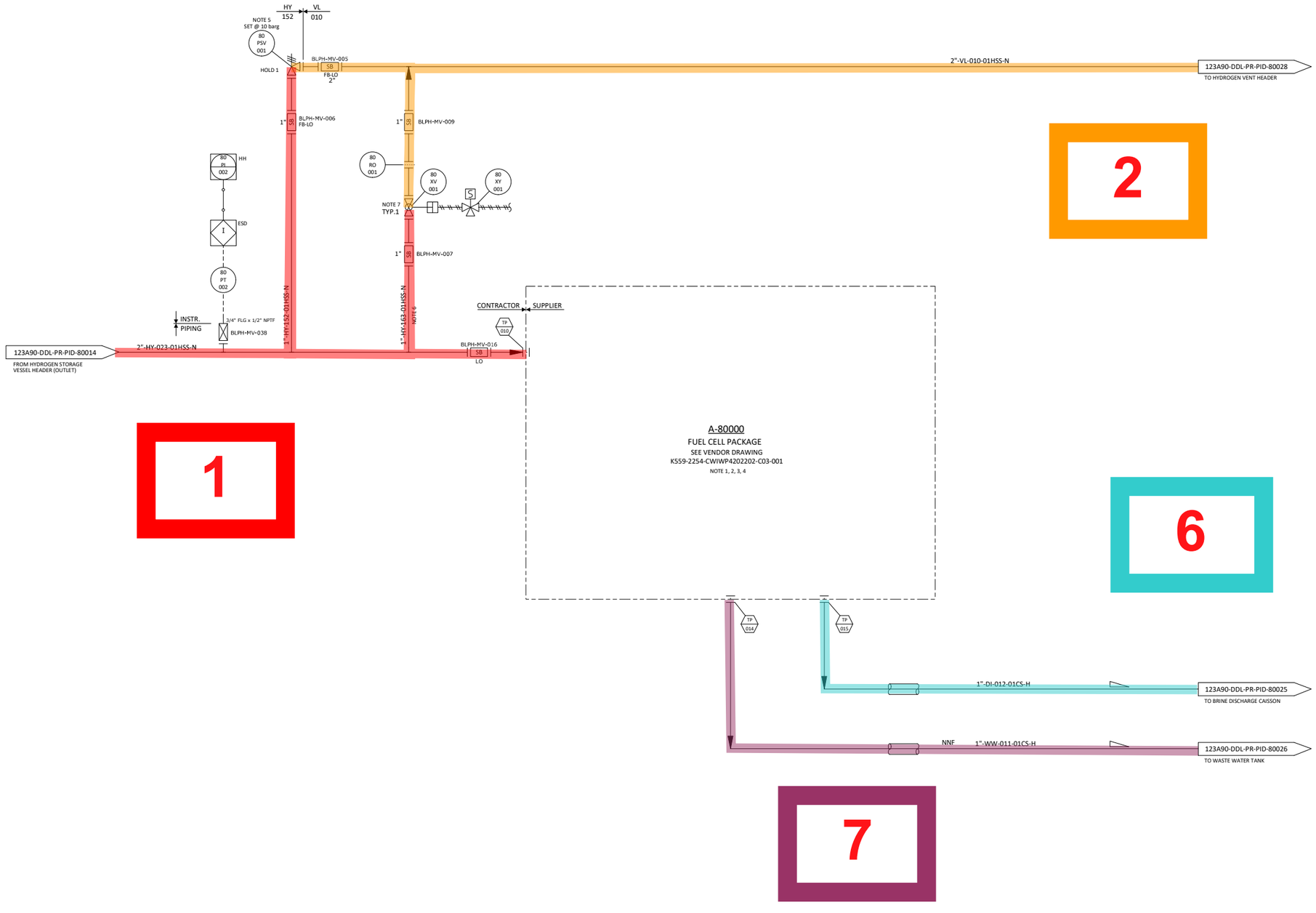
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO.	SHEET	REV.
	123A90-DDL-PR-PID-80011	001	00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. THE VENDOR PACKAGE WILL CONTAIN AIR INTAKE AND EXHAUST, SUITABLY SAFEGUARDED AND SEPARATED.
2. PACKAGE VENDOR TO DEFINE DRAINAGE REQUIREMENTS.
3. PACKAGE DATA TO BE CONFIRMED BY VENDOR.
4. PACKAGE VENDOR TO DEFINE INTERFACE WITH CONTRACTOR AND CCS CONNECTION REQUIREMENTS.
5. ONE UNINSTALLED SPARE PSV SHALL BE AVAILABLE.
6. LINE REQUIRED FOR PURGING OF PIPING WORK.
7. TIGHT SHUT-OFF VALVE.

HOLDS

1. PSV SIZE (BY VENDOR).
2. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.

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

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
FUEL CELL PACKAGE

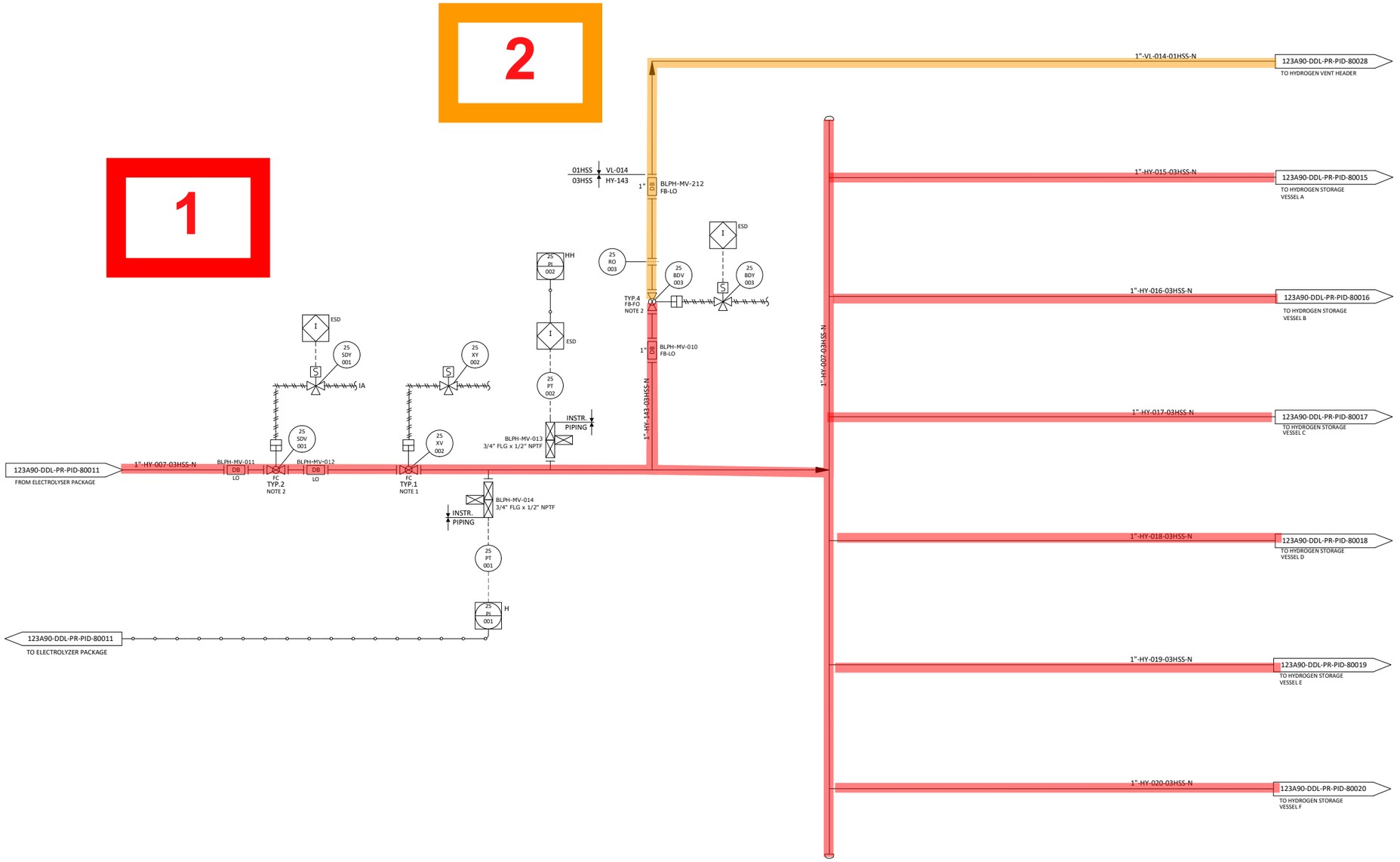
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE

	DRAWING NO.	SHEET	REV.
A1	123A90-DDL-PR-PID-80012	001	00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



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 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

HOLDS

1. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.

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

CROSSWIND

ROSETTI MARINO

TITLE :

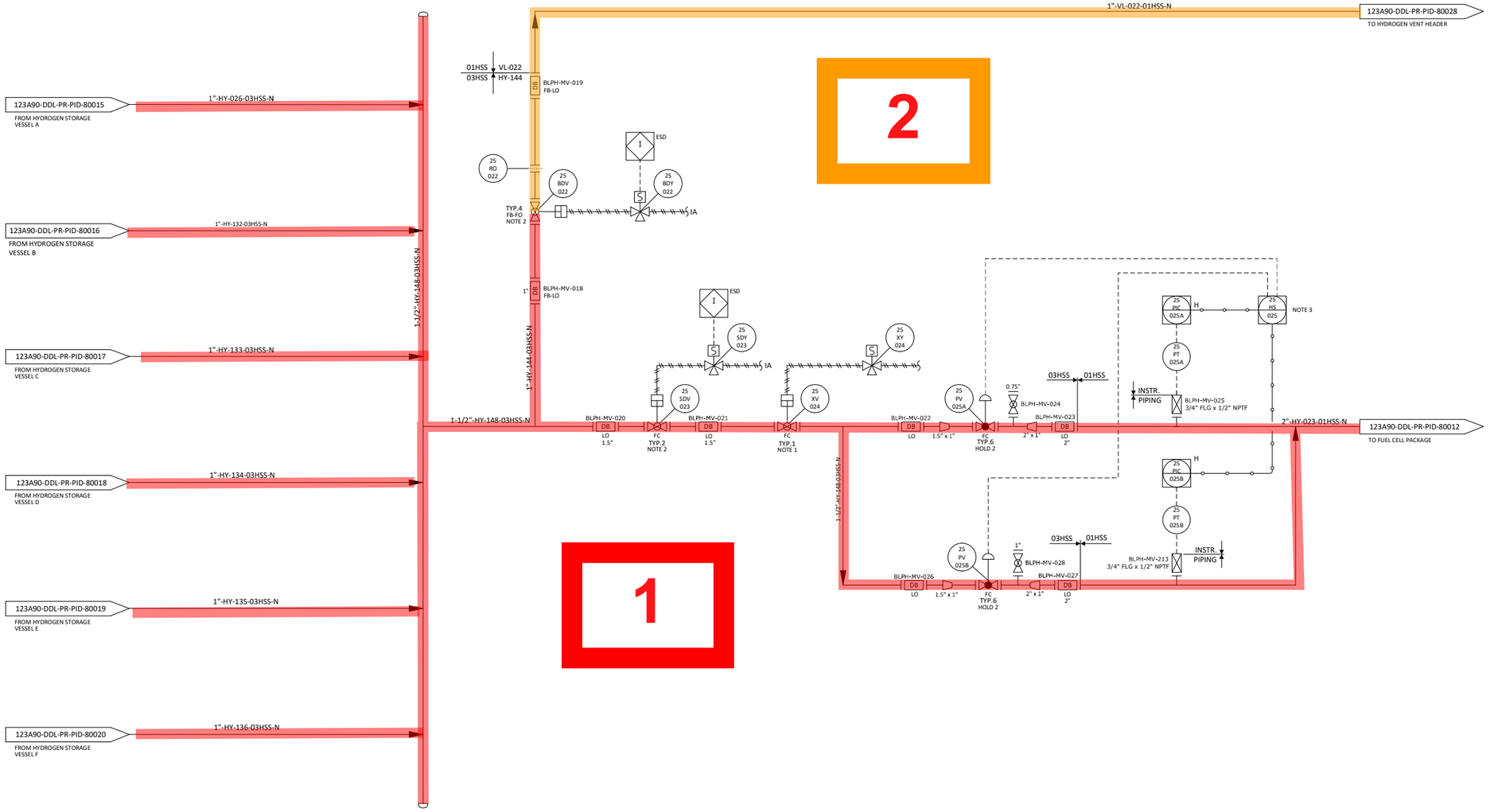
BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSELS HEADER (INLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80013	SHEET 001	REV. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



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 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
3. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).

HOLDS

1. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.
2. CONTROL VALVE SIZE (BY VENDOR).

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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
A1	DRAWING NO. 123A90-DDL-PR-PID-80014	SHEET 001	REV. 00

File Name : FILE_NAME

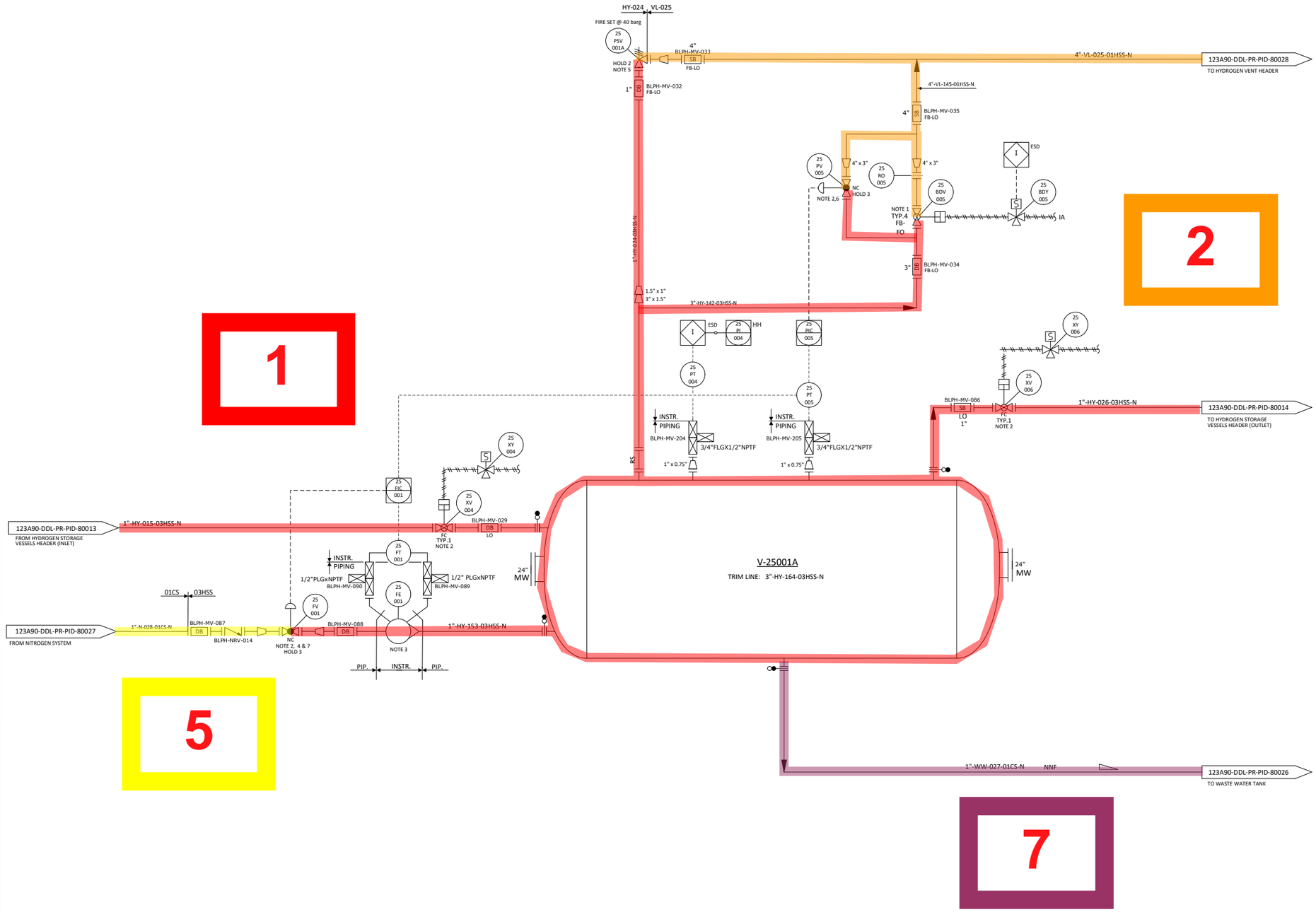
DRAWING NO. DRAWING_NO.

REV. REV

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



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.

HOLDS

1. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.
2. PSV SIZE (BY VENDOR).
3. CONTROL VALVE SIZE (BY VENDOR).

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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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File Name : FILE_NAME

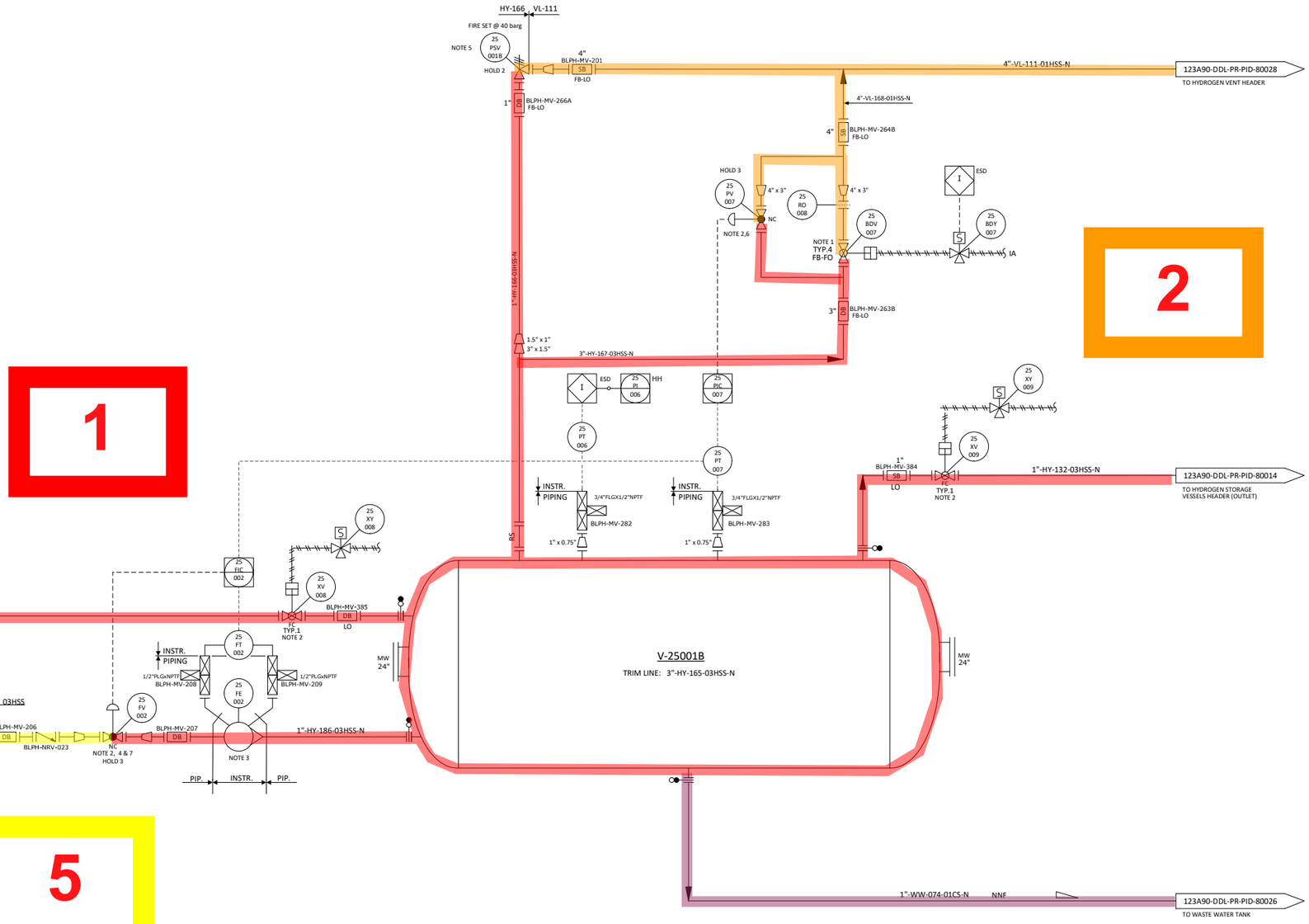
DRAWING NO. DRAWING_NO.

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



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.

HOLDS

1. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.
2. PSV SIZE (BY VENDOR).
3. CONTROL VALVE SIZE (BY VENDOR).

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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

A1	DRAWING NO.	SHEET	REV.
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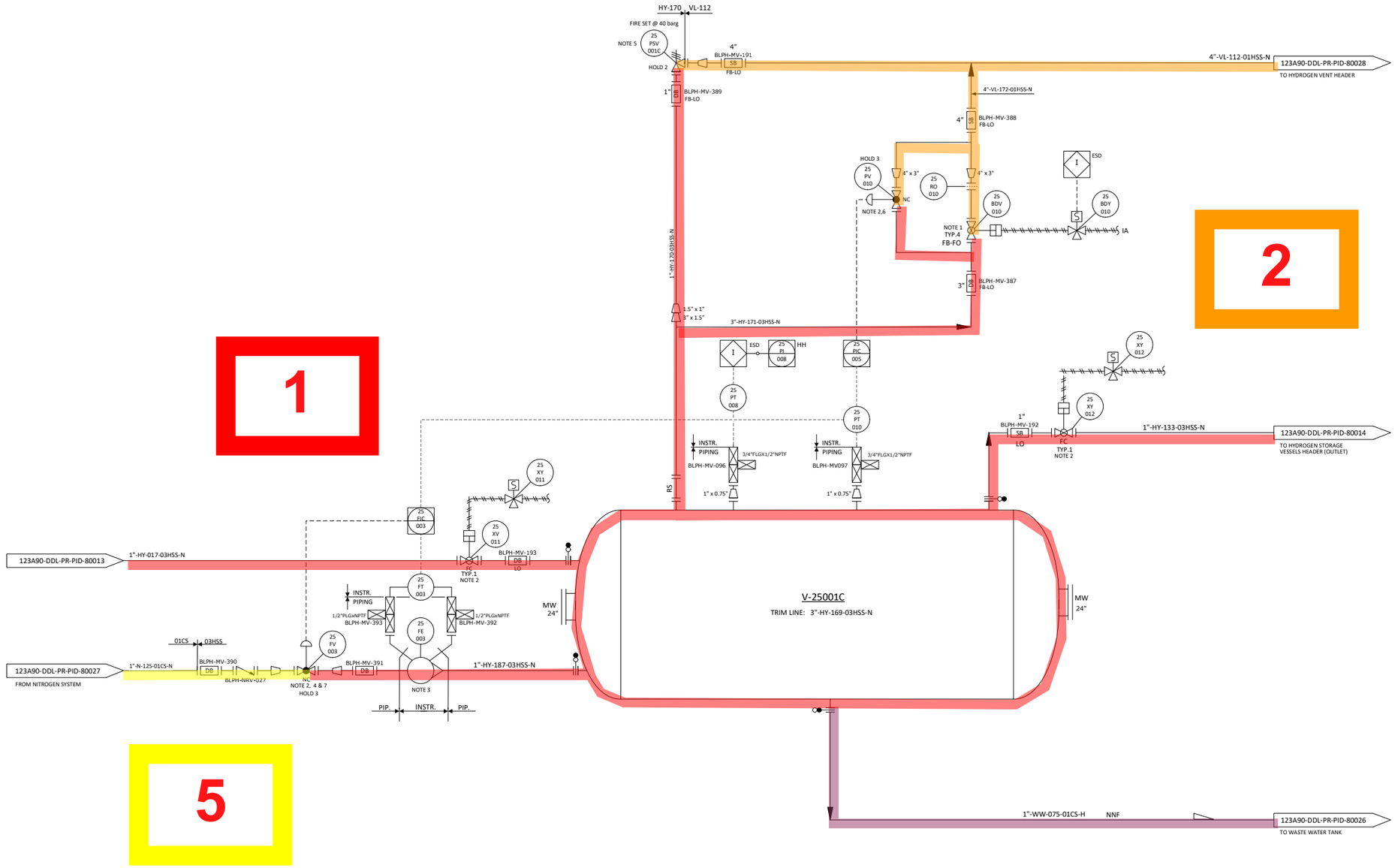
DRAWING NO. DRAWING_NO.

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



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.

HOLDS

1. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.
2. PSV SIZE (BY VENDOR).
3. CONTROL VALVE SIZE (BY VENDOR).

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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	
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File Name : FILE_NAME

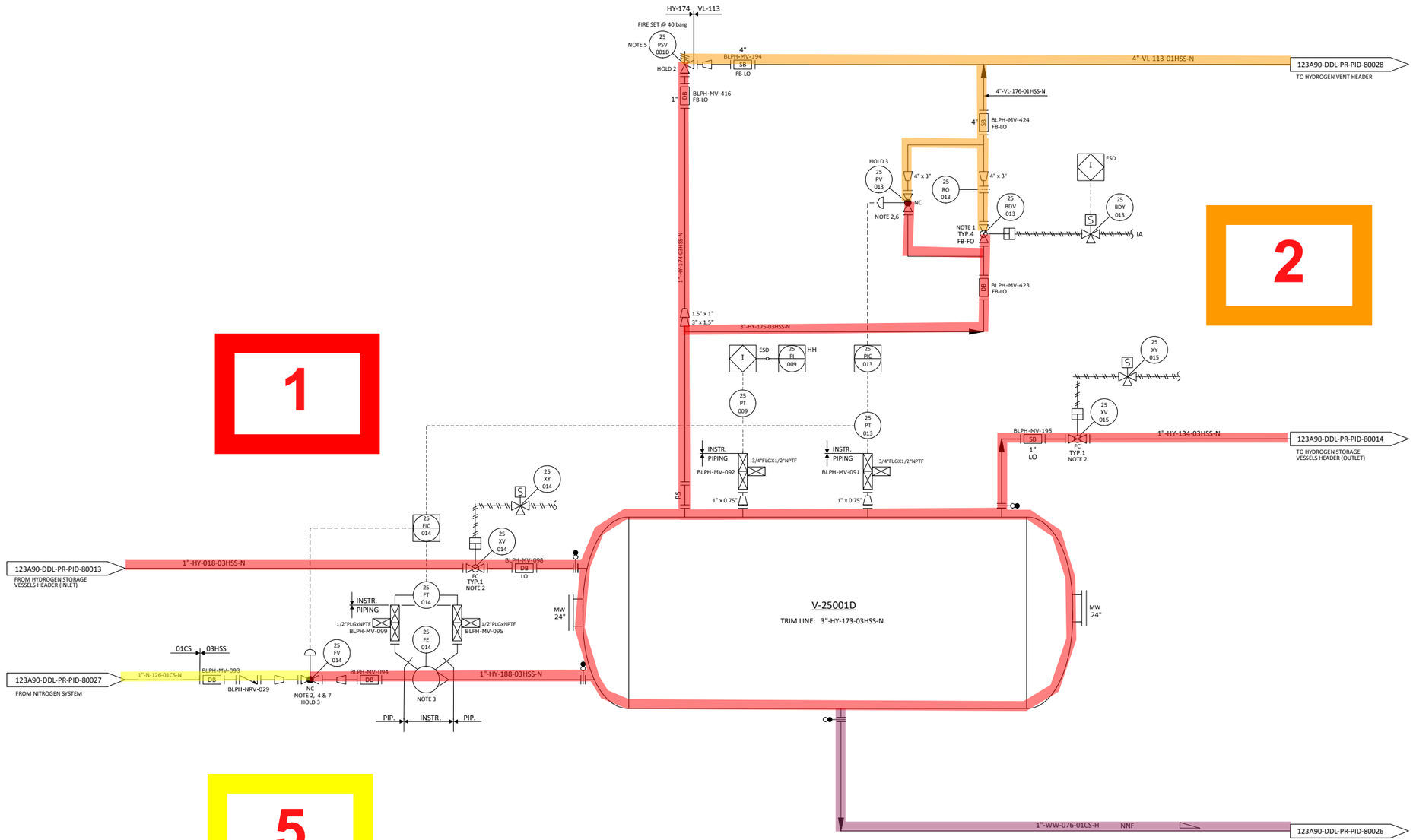
DRAWING NO. DRAWING_NO.

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



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.

HOLDS

1. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.
2. PSV SIZE (BY VENDOR).
3. CONTROL VALVE SIZE (BY VENDOR).

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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	
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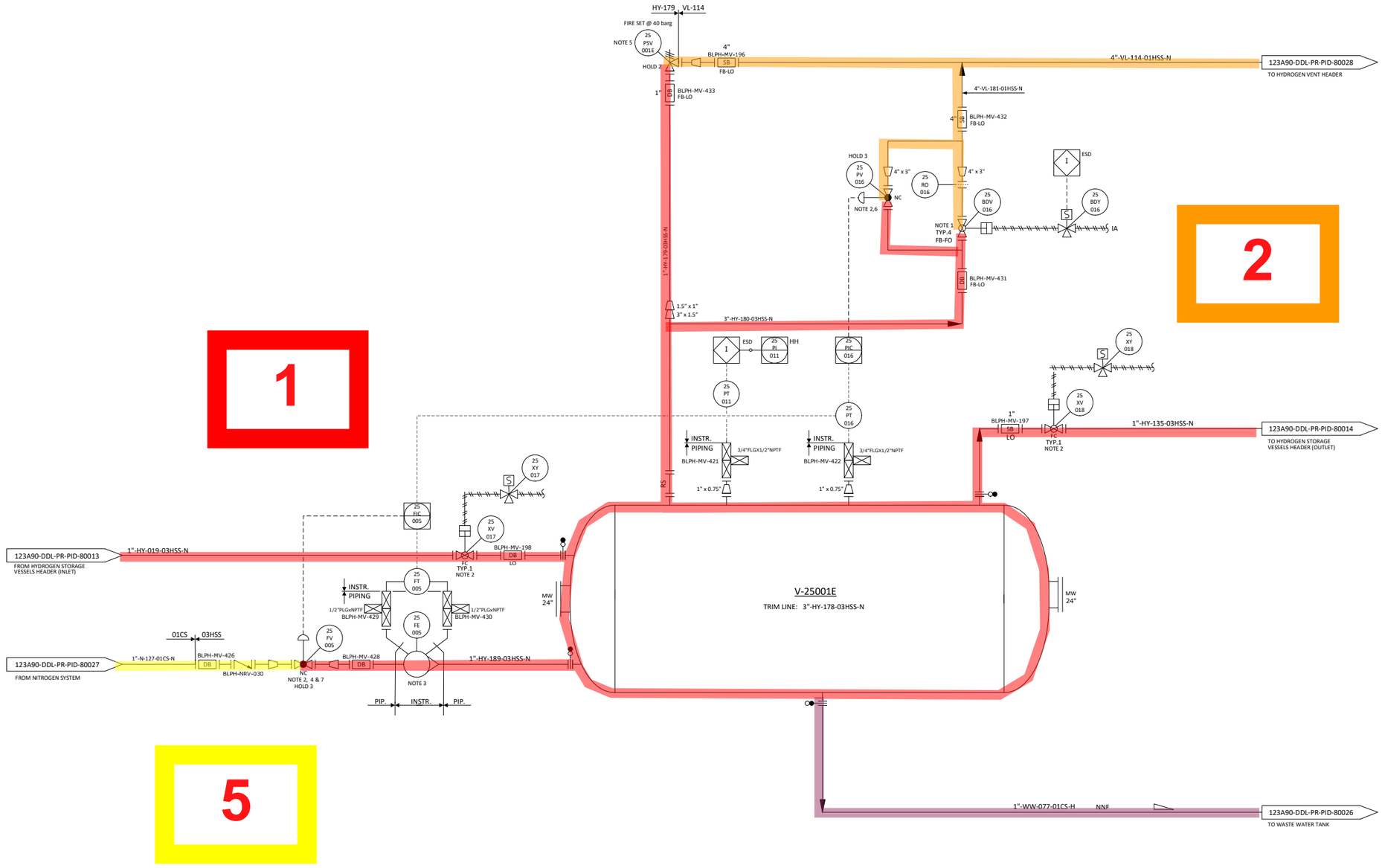
DRAWING NO. DRAWING_NO.

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



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.

HOLDS

1. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.
2. PSV SIZE (BY VENDOR).
3. CONTROL VALVE SIZE (BY VENDOR).

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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

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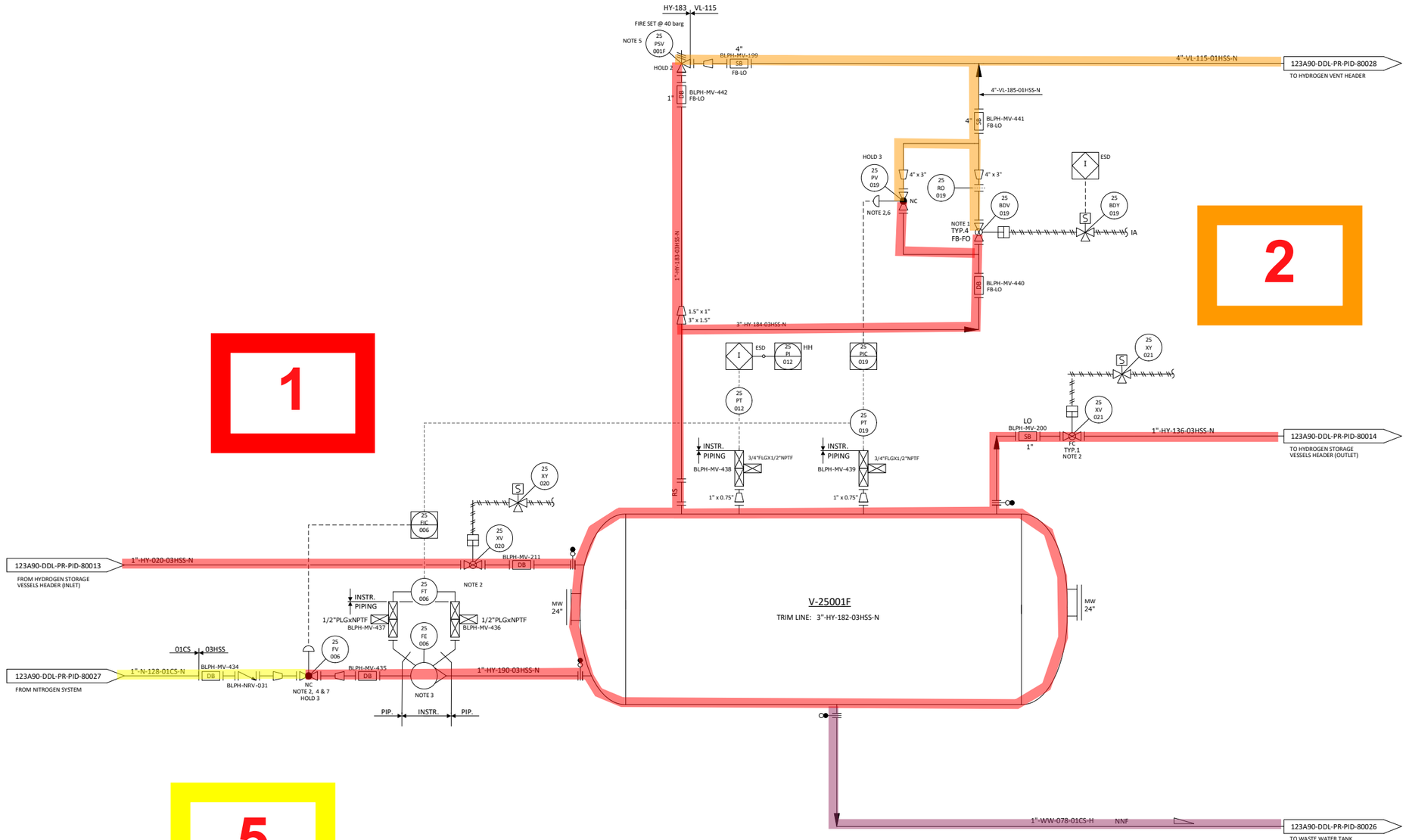
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REV. REV

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



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.

HOLDS

1. SIZE OF LINES UPSTREAM AND DOWNSTREAM PSV AND ORIFICE ARE IN HOLD.
2. PSV SIZE (BY VENDOR).
3. CONTROL VALVE SIZE (BY VENDOR).

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

CROSSWIND

ROSETTI MARINO

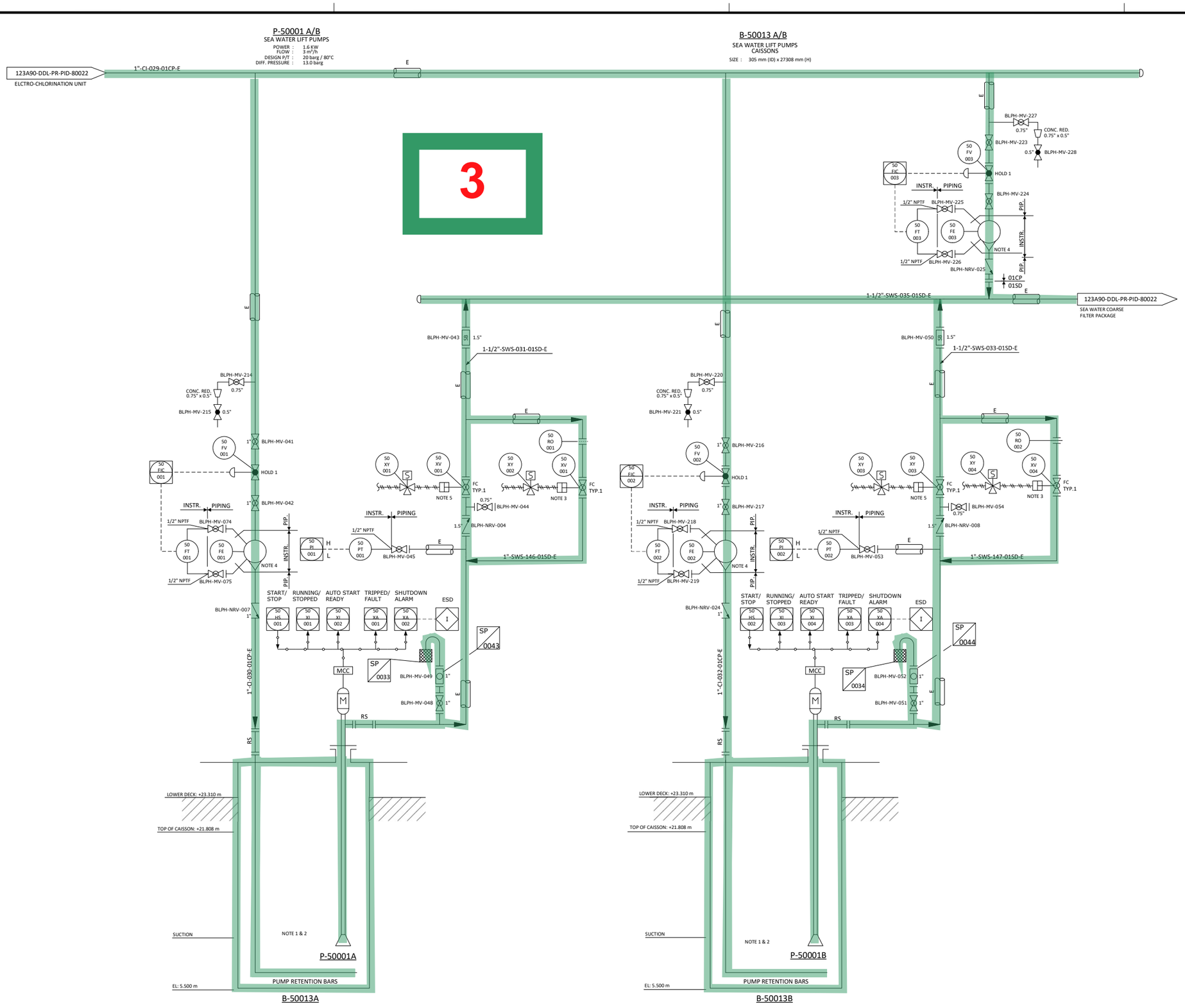
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BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL F

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE	NTS
DRAWN	CHECKED	APPROVED		DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80020			SHEET 001	REV. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV.



NOTES

1. SEAWATER LIFT PUMPS ARE RATED 2 X 100%
2. AUTO START OF DESIGNATED STANDBY PUMP ON LOSS OF RUNNING STATUS 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.

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)

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

CROSSWIND

ROSETTI MARINO

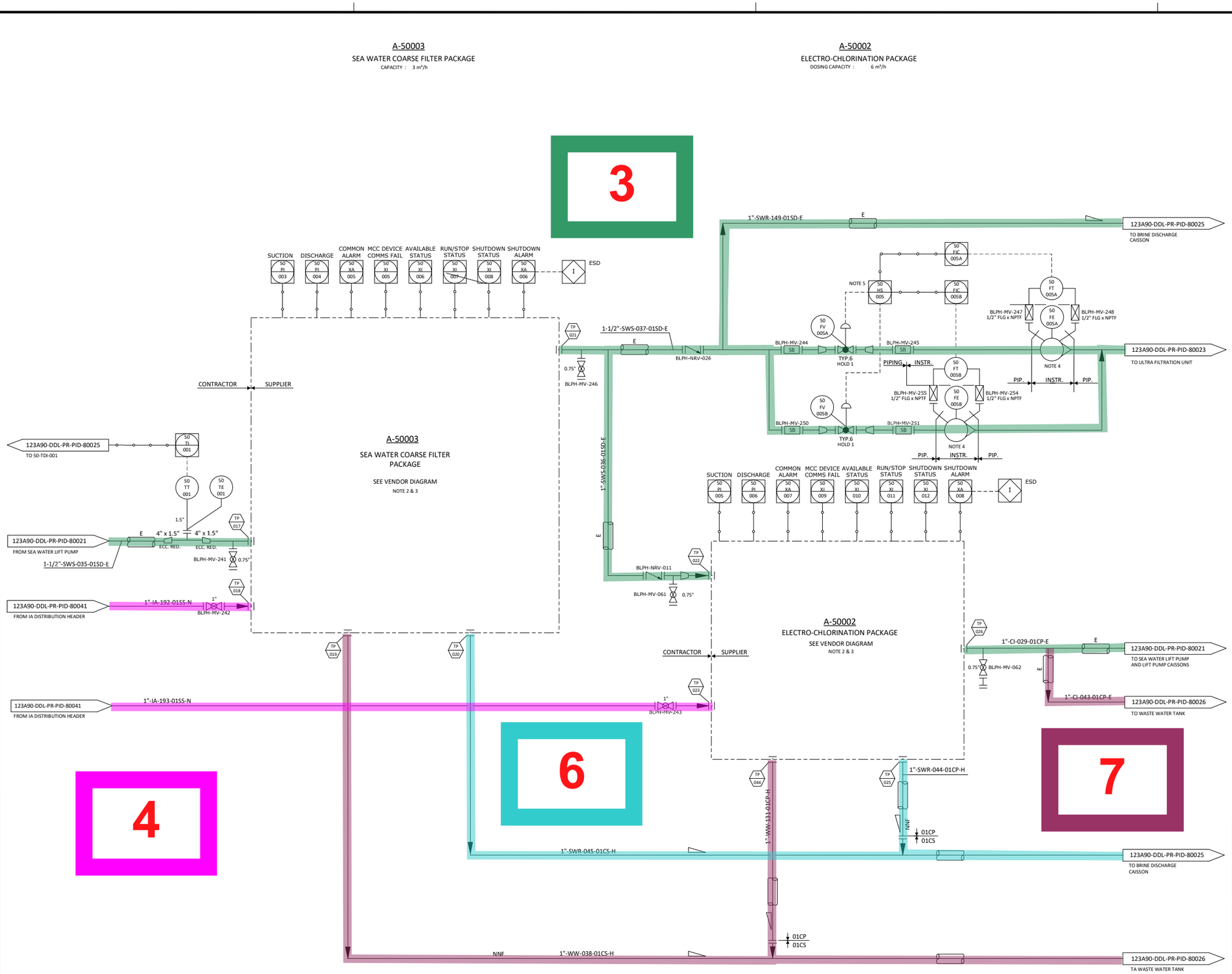
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BLPH PIPING AND INSTRUMENTATION DIAGRAM
SEA-WATER INTAKE SYSTEM SHEET 1

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. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



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. PACKAGE DATA AND DESIGN TO BE CONFIRMED BY VENDOR AND DRAWING MADE AVAILABLE.
3. PACKAGE VENDOR TO DEFINE INTERFACE WITH CONTRACTOR AND CCS CONNECTION REQUIREMENTS.
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).

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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.	SHEET	REV.
	123A90-DDL-PR-PID-80022	001	00

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 : 3.5 barg / 80°C

A-50007
DESALINATION UNIT
CAPACITY : 1 m³/h

50 LV 006A
BLPH-MV-101 SB
BLPH-MV-102 SB
FC TYP.6 HOLD 1
50 LV 006B
BLPH-MV-103 SB
BLPH-MV-104 SB
FC TYP.6 HOLD 1
E
ESD I
NOTE 4
50 HS 006
BLPH-MV-105 0.75"
50 LIC 006A H L
SP 0035
RS

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"-IA-194-01SS-N
TP 027
1" BLPH-MV-256
123A90-DDL-PR-PID-80041
FROM IA DISTRIBUTION HEADER
CONTRACTOR SUPPLIER
1-1/2"-SWS-037-01SD-E
TP 028
E
123A90-DDL-PR-PID-80022
FROM SEA WATER COARSE FILTER PACKAGE
BLPH-MV-249 0.75"
1-1/2"-SWS-046-01SD-E
TP 031
BLPH-MV-100 0.75"

A-50005
ULTRA FILTRATION UNIT
SEE VENDOR DIAGRAM
NOTE 1, 2 & 3

PIPING INSTR.
E 1" BLPH-MV-267 SB
50 LIT 006A
1"-SWR-155-01SD-N
OVERBOARD
PIPING INSTR.
E 1" BLPH-MV-268 SB
50 LIT 006B
50 LIC 006B H L

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

RS
50 LI 002 LL
ESD I
BLPH-MV-109 0.75"
PIPING INSTR.
BLPH-MV-264 SB 1" 1"
CONC. RED. 1" x 0.5"
BLPH-MV-265 0.5"
SAMPLE CONNECTION
E 1" BLPH-MV-266 SB
50 LT 002
24" MW
BLPH-MV-269

123A90-DDL-PR-PID-80024
FROM LIC-007A/B
ESD I
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
1-1/2"-SWS-009-01SD-H
SUPPLIER CONTRACTOR
BLPH-MV-110 0.75"

A-50007
DESALINATION UNIT
SEE VENDOR DIAGRAM
NOTE 1, 2 & 3

TP 045
BLPH-MV-257 1"
1"-IA-195-01SS-N
123A90-DDL-PR-PID-80041
FROM IA DISTRIBUTION HEADER
1"-SWR-048-01CS-H
NNF
TP 033
TP 034
TP 035
1"-WW-051-01CS-H
1"-CB-052-01CS-H
NNF
E
1"-DM-050-01SS-E
BLPH-MV-111 0.75"
123A90-DDL-PR-PID-80024
TO FRESH WATER TANK
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
TP 029
TP 030

3
4
6
7

NOTES

1. RELEVANT CHEMICAL DOSING WILL BE CONTAINED WITHIN THE PACKAGE.
2. PACKAGE DATA AND DESIGN TO BE CONFIRMED BY VENDOR AND DRAWING MADE AVAILABLE.
3. PACKAGE VENDOR TO DEFINE INTERFACE WITH CONTRACTOR AND CCS CONNECTION REQUIREMENTS.
5. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

T-50008
FRESH WATER TANK
SIZE : 1125 mm (ID) x 2200 mm (H T/T)
CAPACITY : 2.2 m3
DESIGN P/T : 3.5 barg / 80°C

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

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

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

1"-DM-050-01SS-E

50 HS 007

50 LV 007A

50 LV 007B

BLPH-MV-119 SB

BLPH-MV-120 SB

BLPH-MV-117 SB

BLPH-MV-118 SB

FC TYP.6

TYP.6

50 LIC 007A H L

50 LIC 007B H L

SP 0036

1"-DM-162-01SS-E

1"-DM-161-01SS-E

50 HS 013B
NOTE 5

50 PV 013A

50 PV 013B

BLPH-MV-124 SB

BLPH-MV-123 SB

BLPH-MV-125 SB

BLPH-MV-126 SB

BLPH-MV-121 0.75"

BLPH-MV-122 0.75"

RS

1"-DM-156-01SS-N

OVERBOARD

PIPING INSTR.

BLPH-DM-001 SB

50 LIT 007A

BLPH-DM-002 SB

50 LIT 007B

E 1"

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

50 LI 004 LL

BLPH-MV-279 SB

50 LT 004

BLPH-MV-280 SB

CONC. RED. 1" x 0.5"

BLPH-MV-281 0.5"

SAMPLE CONNECTION

MW 24"

0" BLPH-MV-287

01SS
01CS

ESD

1"-DM-059-01SS-E

TP 036

BLPH-MV-135 0.75"

S-50010
UV WATER FILTER
SEE VENDOR DIAGRAM
NOTE 3 & 4

50 PIC 013B

50 PIC 013A

50 PT 013B

50 PT 013A

INSTR. PIPING

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

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

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

1"-DM-001-01SS-E-1

TP 038

BLPH-MV-127 0.75"

BLPH-MV-284 0.75"

CONC. RED. 0.75" x 0.5"

BLPH-MV-285 0.5"

SAMPLE CONNECTION

TP 037

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 SB

BLPH-NRV-016

50 PI 011 H L

50 PIT 011

0.75" BLPH-MV-137

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

PIPING INSTR.

1" x 0.5" HOLD 1

1"-DM-057-01SS-E

MCC

1"-DM-060-01SS-E

BLPH-MV-132 0.75"

BLPH-MV-131 1" SB

RS

1" x 0.5" HOLD 1

BLPH-MV-130 0.5"

P-50009A
NOTE 1 & 2

BLPH-MV-141 SB

50 PI 012 H L

50 PIT 012

BLPH-NRV-017

0.75" BLPH-MV-140

BLPH-MV-139 1"

INSTR. PIPING

3/4" FLG x 1/2" NPTF

1"-DM-061-01CS-H

NNF

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

MCC

1"-DM-058-01SS-E

1" x 0.5" HOLD 1

BLPH-MV-134 SB

BLPH-MV-133 0.5"

P-50009B
NOTE 1 & 2

NNF

1"-DM-056-01CS-H

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

3

6

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. PACKAGE DATA AND DESIGN TO BE CONFIRMED BY VENDOR AND DRAWING MADE AVAILABLE.
4. PACKAGE VENDOR TO DEFINE INTERFACE WITH CONTRACTOR AND CCS CONNECTION REQUIREMENTS.
5. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).

HOLDS

1. SUCTION AND DISCHARGE NOZZLE SIZE TO BE CONFIRMED BY VENDOR.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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

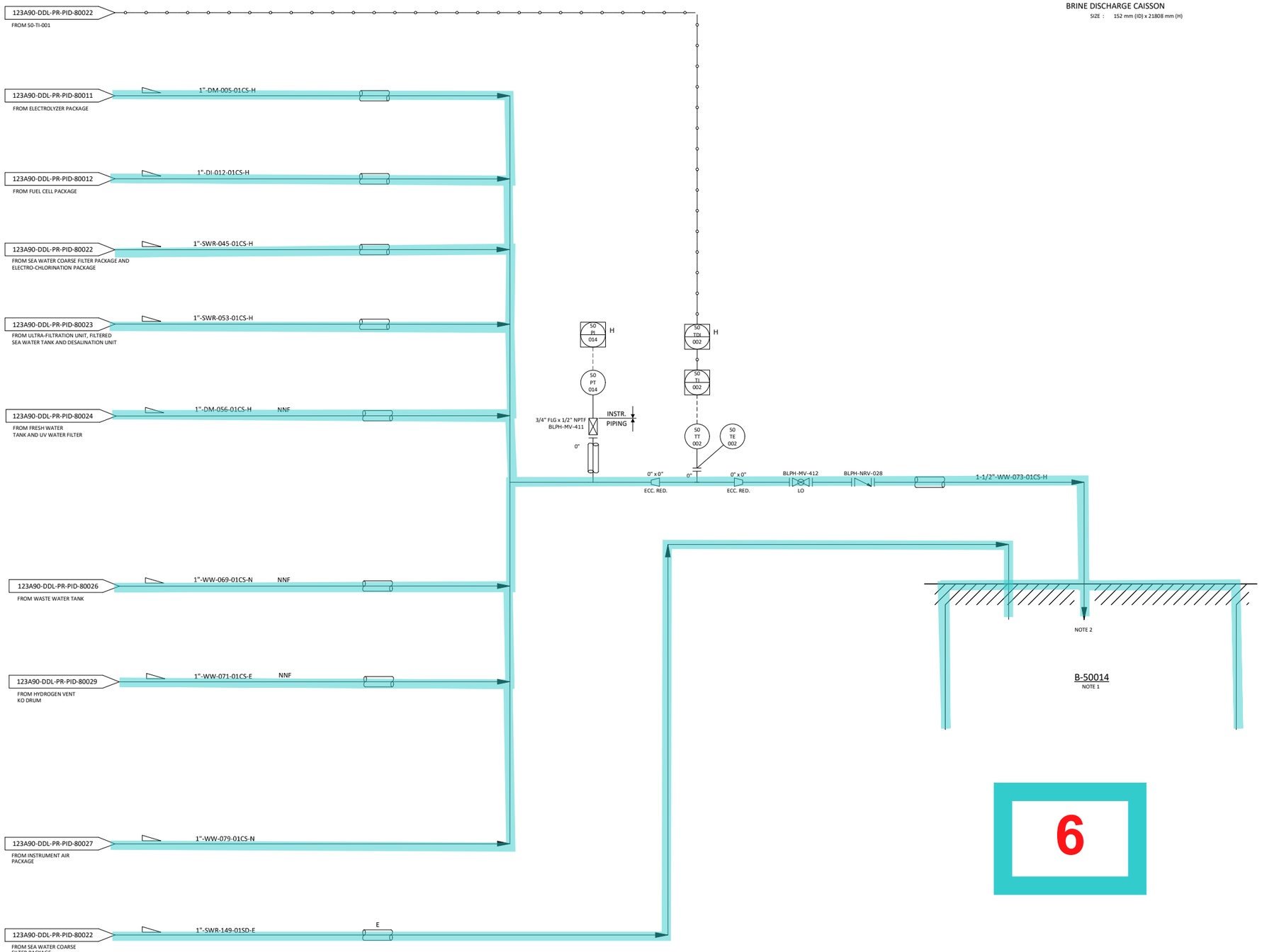
SHEET 001

REV. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

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

6

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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

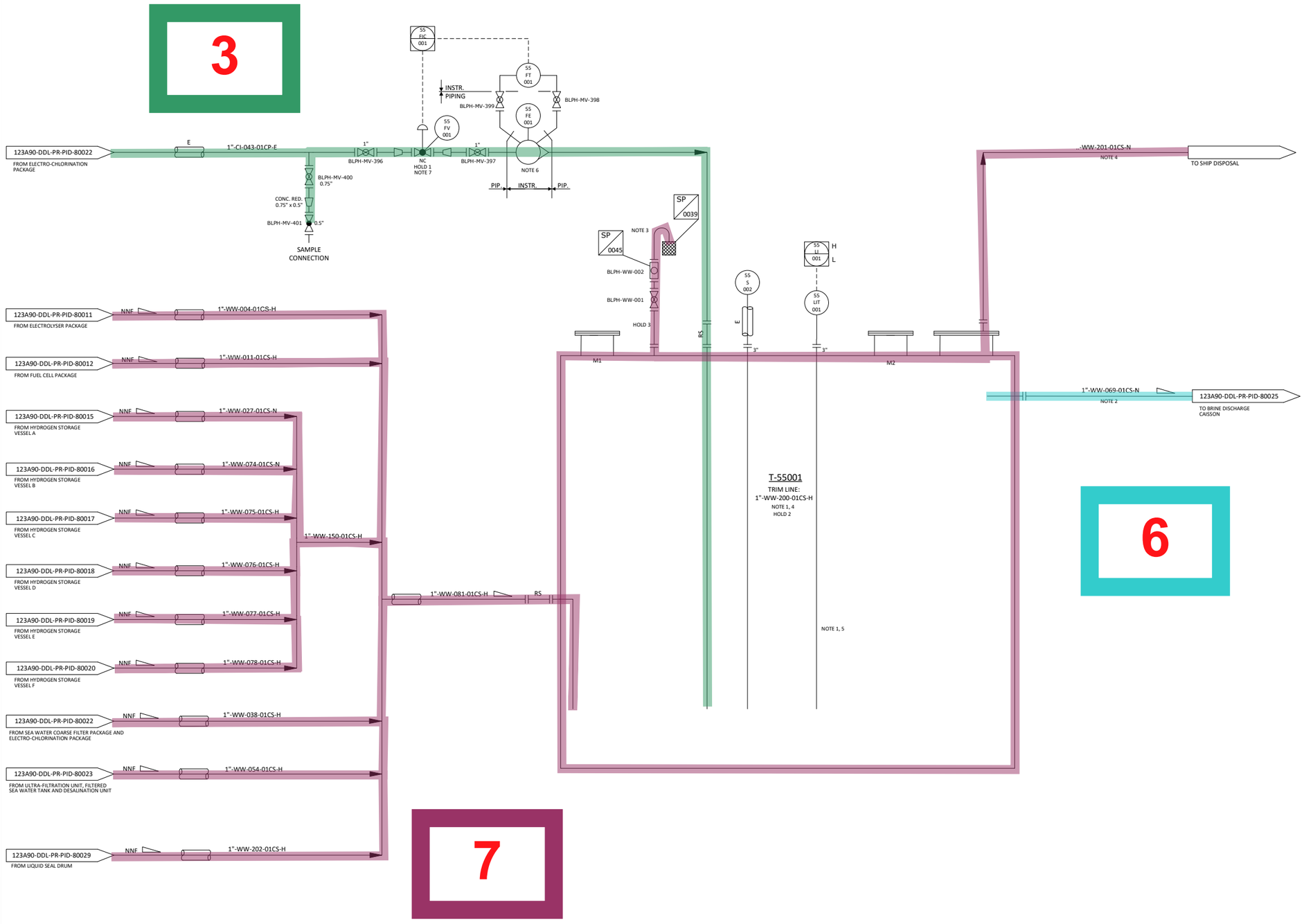
A1	DRAWING NO.	SHEET	REV.
	123A90-DDL-PR-PID-80025	001	00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

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



NOTES

1. ALL STILLING TUBES AND DIP PIPES SHALL BE SUPER DUPLEX.
2. OVERFLOW TO RISE ABOVE DECK TO MAXIMISE TANK WORKING CAPACITY.
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.

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)
2. METHODOLOGY FOR EMPTIYNG THE WASTE WATER TANK.
3. VENT LINE DIAMETER.

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

CROSSWIND

ROSETTI MARINO

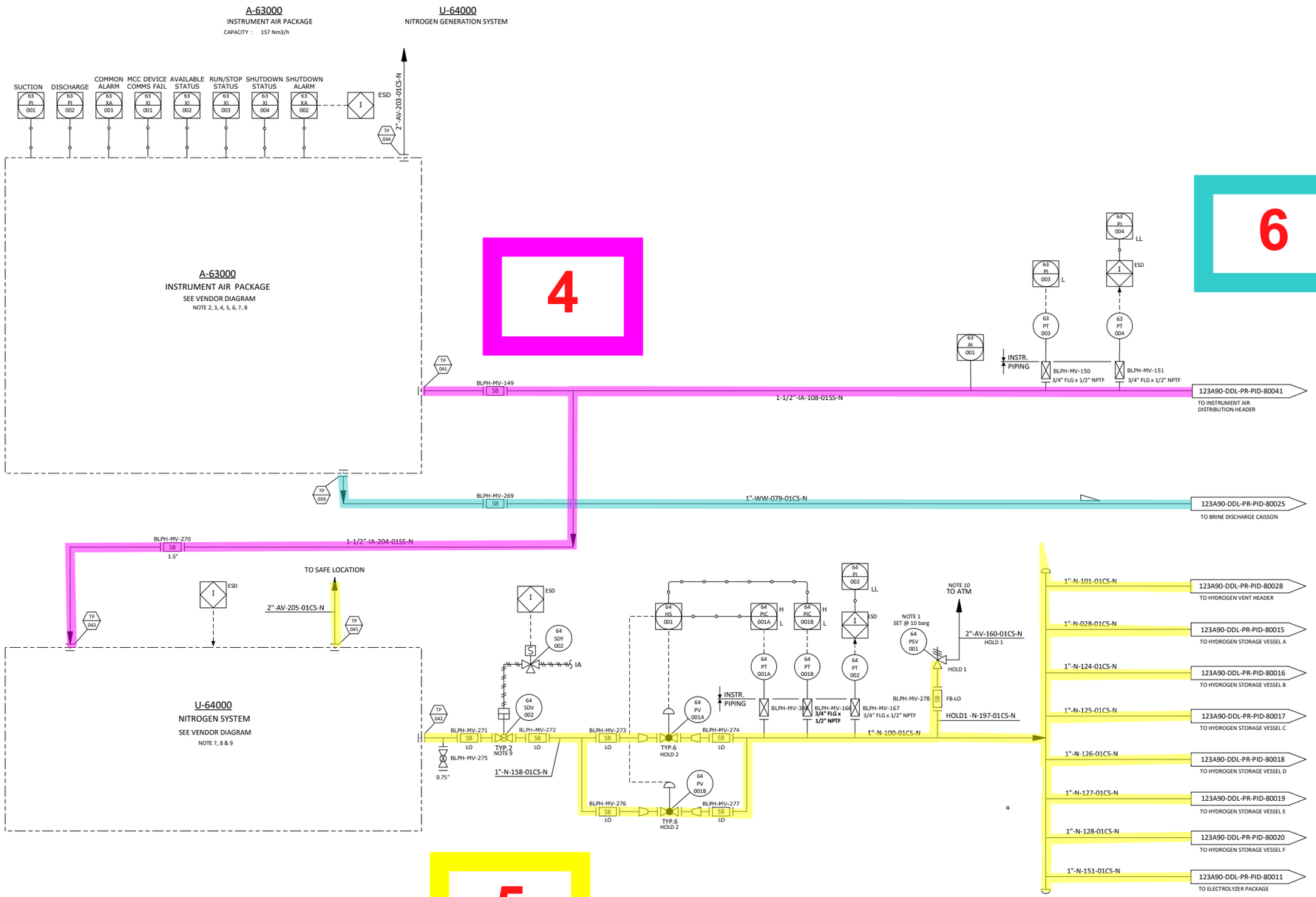
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER DISPOSAL SHEET 2

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80026	SHEET 001	REV. 00

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. PACKAGE DATA AND DESIGN TO BE CONFIRMED BY VENDOR AND DRAWING MADE AVAILABLE.
8. PACKAGE VENDOR TO DEFINE INTERFACE WITH CONTRACTOR AND CCS CONNECTION REQUIREMENTS.
9. 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
10. TO SAFE LOCATION, ROUTED AWAY FROM WALKWAYS.

HOLDS

1. PSV AND LINE SIZE.
2. CONTROL VALVE SIZE (BY VENDOR).

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

CROSSWIND

ROSETTI MARINO

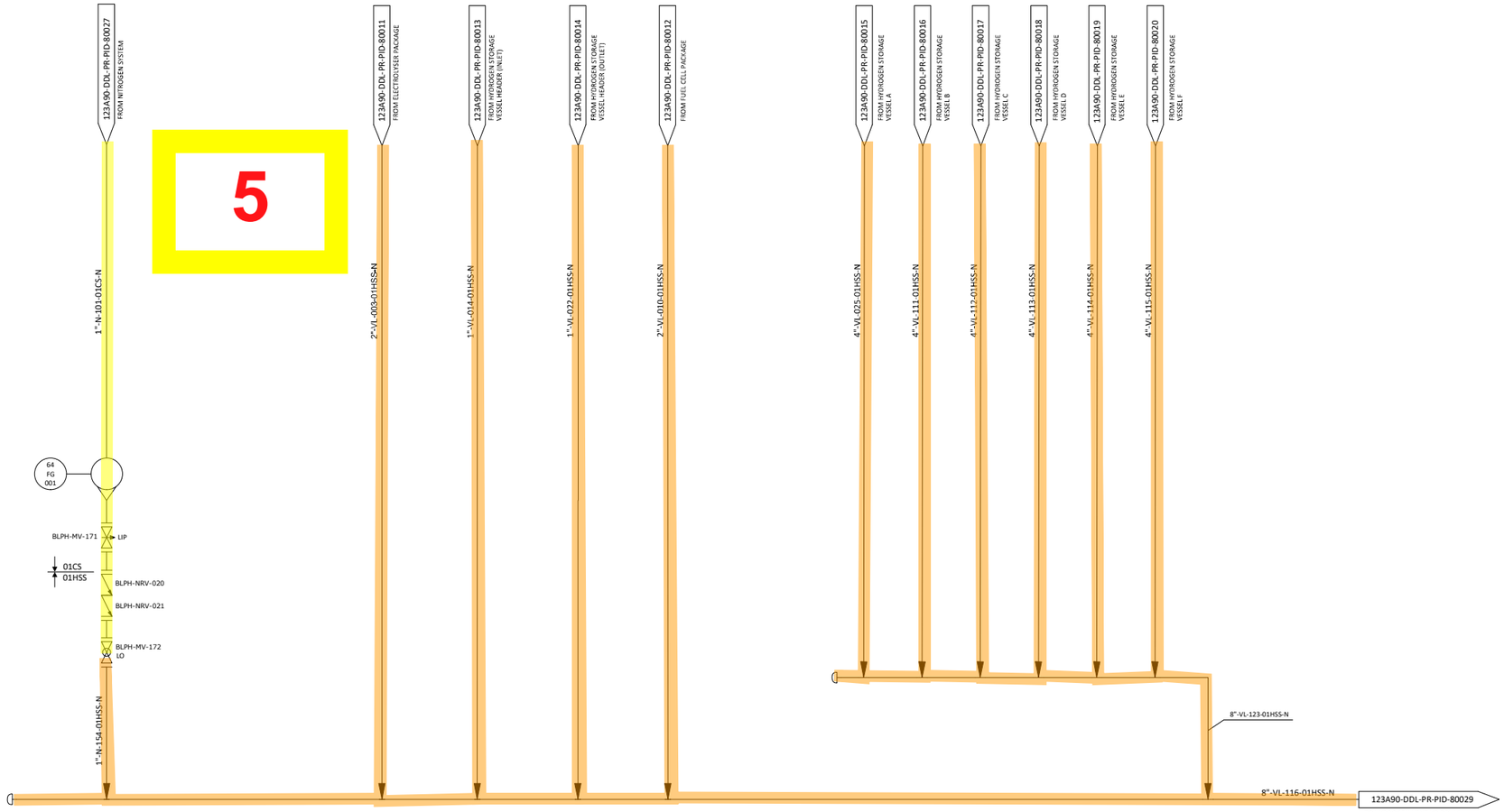
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
INSTRUMENT AIR PACKAGE

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. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



5

2

NOTES

HOLDS

1. VENT LINES DIAMETER.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

V-43001

HYDROGEN VENT KO DRUM

SIZE : 1000 mm (ID) X 3000 mm (H)

DESIGN P/T : 3.5 barg / -10 / 80°C

Q-43004

HYDROGEN VENT NOTE 1

SIZE : 254 mm (ID) x 14690 mm (H)

DESIGN P/T : 3.5 barg / -10 / 80°C

2

7

6

123A90-DDL-PR-PID-80028

FROM HYDROGEN VENT HEADER

8"-VL-116-01HSS-N

BLPH-MV-402

43 PI 001 H

43 PT 001

INSTR. PIPING

3/4" FLG x 1/2" NPTF

BLPH-MV-407

1" x 0.75" CONC. RED.

V-43001

TRIM LINE: 8"-VL-220-01HSS-N

MW

2"

BLPH-MV-403

LO

PIPING INSTR.

1"

BLPH-MV-404

1"

BLPH-MV-405

2"

BLPH-MV-406

LO

NOTE 5

43 FT 001

43 PI 001 H

43 FE 001

8"-VL-117-01HSS-N

43 LT 002

I

43 LI 002 HH LL

INSTR.

3" PIPING

3" HOLD 3

43 LT 001

43 LIC 001 H

3" x 2"

2" x 0.75"

BLPH-MV-408 0.75"

43 LV 001

E

BLPH-MV-409 SB

HOLD 2

BLPH-MV-410 SB

NOTE 4

1"-WW-071-01CS-E

123A90-DDL-PR-PID-80025

TO BRINE DISCHARGE CAISSON

Q-43004

NOTE 2

LIQUID REFILLING

NOTE 8

1"

BLPH-MV-419

NOTE 7

NOTE 9

HANDHOLE

NOTE 6

NOTE 11

NOTE 3, 5, 10, 12

E

E

BLPH-MV-417

BLPH-MV-418

LC 1"

1"-WW-202-01CS-E

NNF

123A90-DDL-PR-PID-80026

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 FOR 1.5 m, INSULATED UP TO THE BEND.
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.
12. FLUID HEIGHT OF 1.5 m FROM BOTTOM T.L.

HOLDS

1. VENT LINES DIAMETER.
2. CONTROL VALVE SIZE (BY VENDOR).
3. TO BE CONFIRMED.

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

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT DRUM

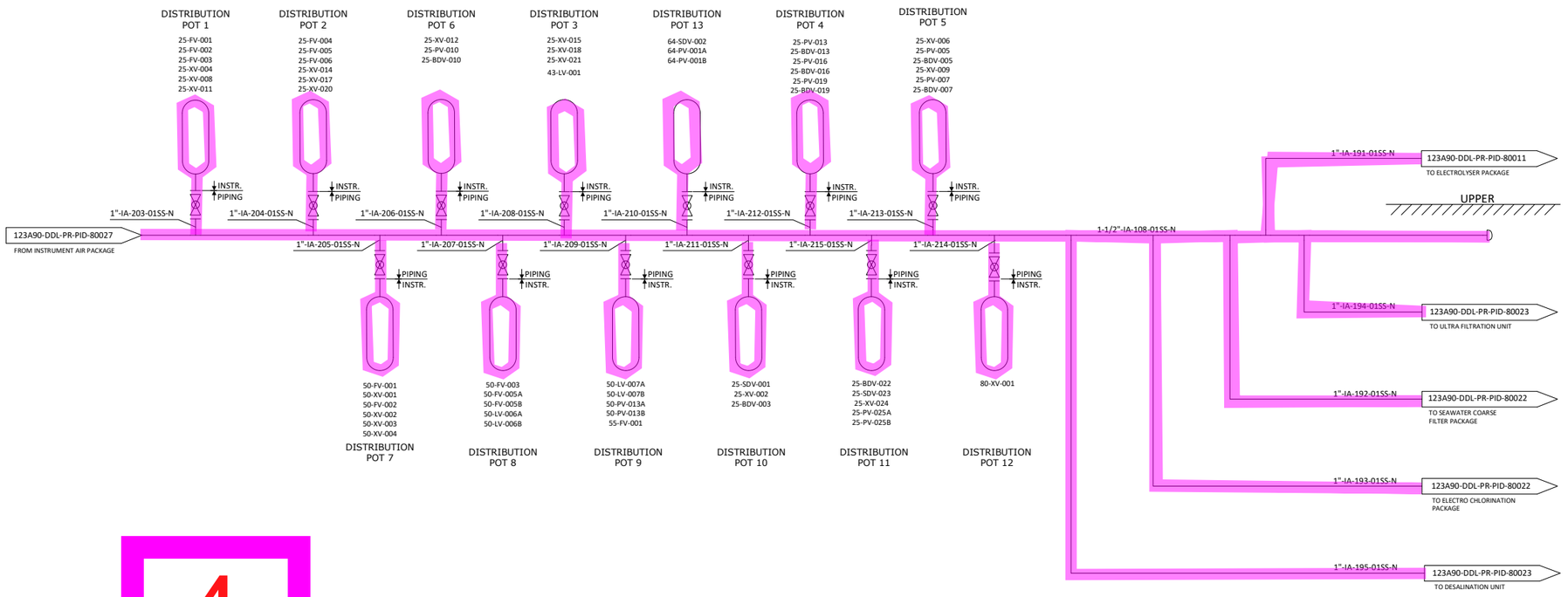
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO. 123A90-DDL-PR-PID-80029	SHEET 001	REV. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



4

NOTES

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

CROSSWIND

ROSETTI MARINO

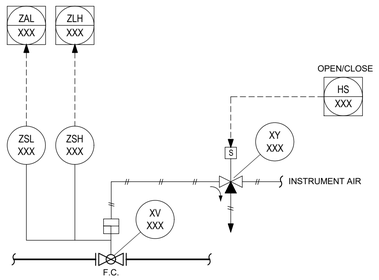
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
INSTRUMENT AIR DISTRIBUTION HEADER

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. 00

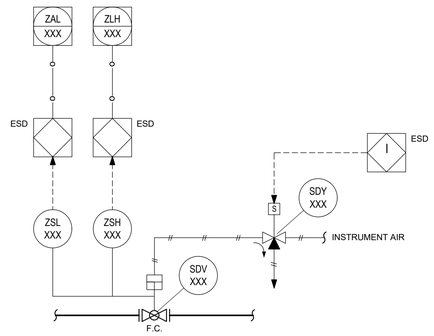
File Name : FILE_NAME

TYPICAL INSTRUMENTATION VALVE

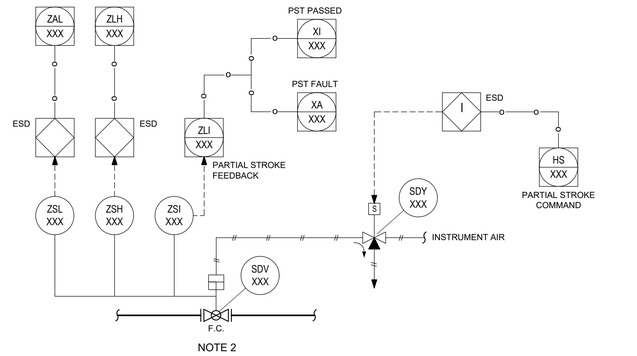
TYP.1 (XV - ON OFF VALVES)



TYP.2 (SDV - SAFETY NO CRITICAL VALVES)

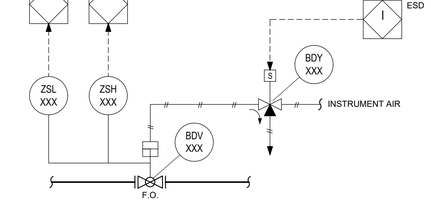


TYP.3 (SDV - SAFETY CRITICAL VALVES WITH PARTIAL STROKE)

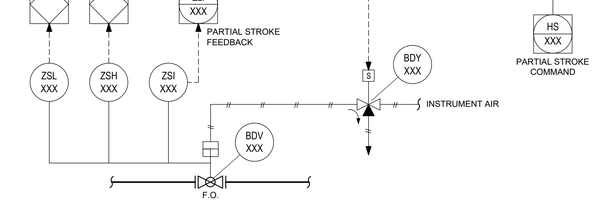


NOTE 2

TYP.4 (BDV - SAFETY NO CRITICAL VALVES)

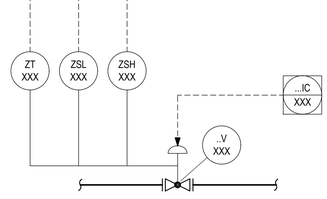


TYP.5 (BDV - SAFETY CRITICAL VALVES WITH PARTIAL STROKE)



NOTE 2

TYP.6 (CONTROL VALVE WITH POSITION TRANSMITTER)



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	

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

NOTES

1. FOR GENERAL NOTES AND PIPING SIMBOLOGY SEE DRAWINGS: 123A90-DDL-PR-PID-80009 AND 123A90-DDL-PR-PID-80010.
2. THE TYPICAL WILL BE CONFIRMED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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. 00

DOCUMENT NO.

REV. 00

File Name :

DRAWING_NO.

REV.

GENERAL NOTES

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

   EXPECT 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
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 LEADS 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 LEADS SHALL BE FREE DRAINING FROM THE PRESSURE RELIEF VALVE TO THE TOP OF THE DISCHARGE HEADER. EACH LEAD 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. 6 MM WEEP HOLES ARE PROVIDED AT LOW POINTS OF PRESSURE RELIEF VALVE AND RUPTURE DISC DISCHARGE LINES TO ATMOSPHERE.
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 DETAILED ENGINEERING 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 DETAILED ENGINEERING 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.
18. THE DETAILS PROVIDED BY KBR ARE TO BE CONSIDERED AS "FOR INFORMATION ONLY" AND IS NOT REPRESENTED BY KBR TO BE IN COMPLIANCE WITH THE OWNER'S RISK MANAGEMENT CRITERIA, OR ISA S84 OR THE APPLICABLE IEC DOCUMENTS.
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. NEITHER FLOW INDUCED VIBRATION (FIV) NOR ACOUSTIC INDUCED VIBRATION (AIV) HAVE BEEN CONSIDERED AS A PART OF BASIC ENGINEERING DESIGN. THESE DESIGN ASPECTS ARE TO BE CONSIDERED DURING THE DETAIL ENGINEERING DESIGN PHASE.

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
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

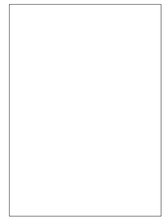


CENTRIFUGAL PUMP



LIFT INLINE

STORAGE TANK



TANK

VESSEL



HORIZONTAL TANK

MISCELLANEOUS



MOTOR

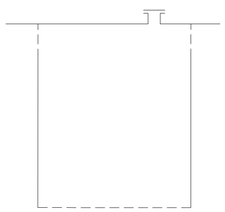


MOTOR



PACKAGE ITEM

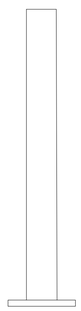
OTHERS



CAISSON



CAISSON



VENT STACK

NOTES

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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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

A1	DRAWING NO.	SHEET	REV.
	123A90-DDL-PR-PID-80009	001	00

File Name : DRAWING_NO.

DRAWING NO. DRAWING_NO.

REV. REV

PIPING SYMBOLS

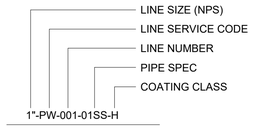
PRIMARY PIPING

SECONDARY PIPING

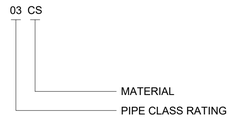
INSULATED PIPING

E — ELECTRICALLY HEAT TRACED PIPING

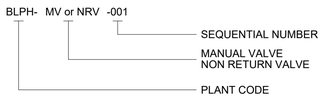
LINE NOMENCLATURE



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

INSULATION CLASS

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

PIPING CONNECTORS

DRAWING CONTINUATION ARROW

CONNECTOR NUMBER — XXXX | DWG NUMBER
TO/FROM EQUIPT NO.

DWG NUMBER
TO/FROM EQUIPT NO.

3RD PARTY BATTERY LIMIT

CONTRACTOR — SUPPLIER

TIE-IN LABEL

TP 100

INSTRUMENTATION CONNECTOR

DRAWING CONTINUATION ARROW

CONNECTOR NUMBER — XXXX | DWG NUMBER
TO/FROM INSTRUMENT NO.

DWG NUMBER
TO/FROM INSTRUMENT NO.

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

PIPE SPEC BREAK
INDICATES CHANGE PIPE SPEC

01CS — 03HCS

01SS — 01SD

SPECIALTY LABELS

SP 0001 — 0001 = SP SEQUENCE NO.

FITTINGS

	FLANGE
	CAP
	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

EQUIPMENT NOZZLE CONNECTIONS

	FLANGED NOZZLE
	FLANGED NOZZLE ON SIDE OF VESSEL
MW	MANWAY
	MANWAY

INSTRUMENT LABELS

2F3
SET @ 40 barg — SET PRESSURE

PRV SIZE (INLET, ORIFICE, OUTLET)

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

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

PRIMARY INLINE ELEMENT SYMBOLS

	VARIABLE AREA METER
	ULTRASONIC

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
FV, 2" FO	CONTROL VALVE WITH NOMINAL DIAMETER AND FAIL ACTION LABEL
FIC — HH, H, 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
2. ITEMS ARE SHOWN UNDER SPECIALITY ITEMS FOR SYMBOLOGY REFERENCE ONLY. ITEMS ARE NOT SP ITEMS.
3. ITEMS ARE NOT SPECIALITY ITEMS UNLESS OTHERWISE SPECIFIED.
4. PIPE SPECIFICATION AND PIPING MATERIAL CLASS INDEX TO BE CONFIRMED IN NEXT PHASE.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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
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A1	DRAWING NO. 123A90-DDL-PR-PID-80010	SHEET 001	REV. 00

File Name : DRAWING_NO.