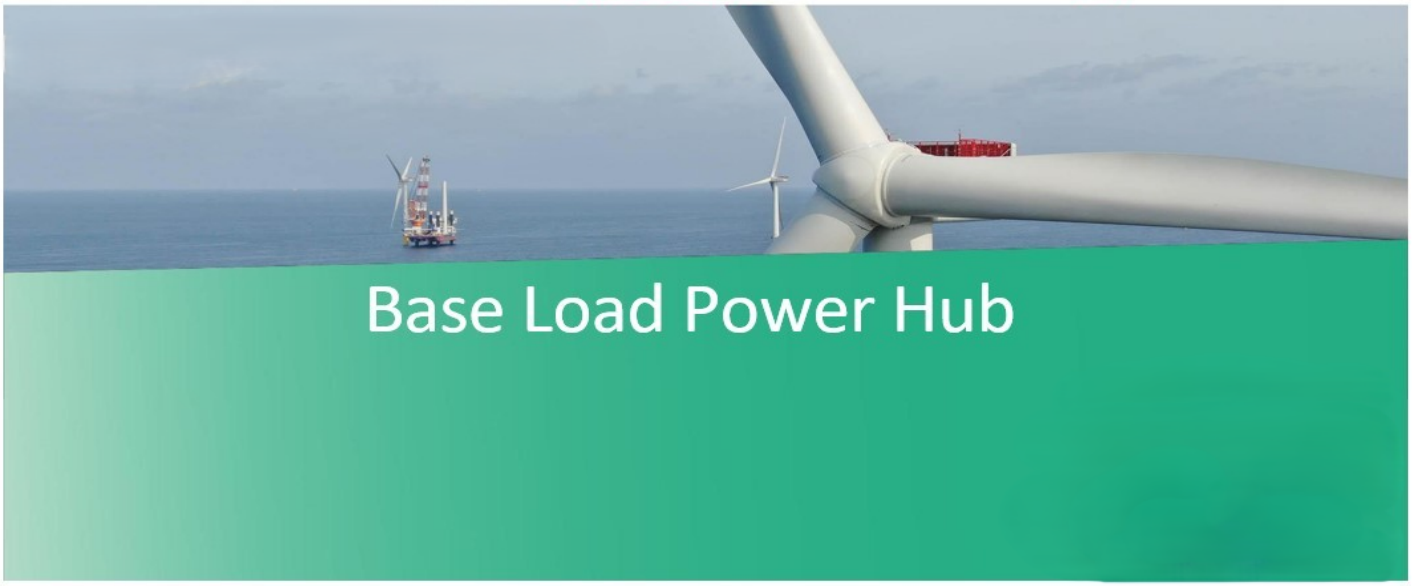
CROSSWIND

ROSETTI MARINO

PROVERLIS

PROJECT **123A90 - HOLLANDSE KUST NOORD WIND PARK**
BLPH Project



MECHANICAL COMPLETION DOSSIER (ONSHORE)

SYSTEM	83 Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-60 Cathodic Protection

CROSSWIND	123A90 - HOLLANDSE KUST NOORD WIND PARK BLPH Project MECHANICAL COMPLETION DOSSIER INDEX	ROSETTI MARINO

Sub System N°:	83-60	Tick as appropriate	ONSHORE	O
Description:	Cathodic Protection		OFFSHORE	NA

1.	***READY FOR COMMISSIONING CERTIFICATE*** *Ready For Commissioning Certificate (RFC)*	O
2.	***CONSOLIDATED PUNCH LISTS*** *Cleared and Residual Items*	O
3.	***SYSTEM/SUB-SYSTEM LIMIT DRAWINGS*** *Mark-up drawings showing the limits of the relevant System/Sub-System*	O
4.	***MECHANICAL COMPLETION STATUS INDEX – BUILDING DISCIPLINE*** *Building Sub-System Status Index (Print out) and Check/Test sheets*	NA
5.	***MECHANICAL COMPLETION STATUS INDEX – ELECTRICAL DISCIPLINE*** *Electrical Sub-System Status Index (Print out) and Check/Test Sheets* *Hazardous Area Equipment Detailed Inspection*	O
6.	***MECHANICAL COMPLETION STATUS INDEX - INSTRUMENTAL DISCIPLINE*** *Instrumental Sub-System Status Index (Print out) and Check/Test Sheets*	NA
7.	***MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE*** *Mechanical SubSystem Status Index (Print out) and Check/Test Sheets*	NA
8.	***MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE*** *Telecommunication Sub-System Status Index (Print out) and Check/Test Sheets*	NA
9.	***MECHANICAL COMPLETION STATUS INDEX - HVAC DISCIPLINE*** *HVAC Sub-System Status Index (Print out) and Check/Test Sheets*	NA
10.	***MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE*** *Piping Sub-System Status Index and Check/Test Sheets*	NA
11.	***MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE*** *Safety Sub-System Status Index (Print out) and Check/Test Sheets*	NA
12.	***FAT / VENDOR REPORTS*** *Fat reports issued by vendors and/or vendor reports*	NA
13.	***MECHANICAL COMPLETION CHANGES / MARK-UPS*** *A copy of the changes initiated during the Mechanical Completion process pertaining to the relevant Sub-System will be incorporated in this section*	NA

Note: Under the generic terminology “Building” are also covered the following disciplines: **Structural, Painting**

Under the generic terminology “Instrumental” is also covered the following discipline: **Fire & Gas**

ROSETTI MARINO

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

CROSSWIND

Ready For Commissioning (RFC) Certificate

COMPLETE	●	PARTIAL	

Revision:	2		Issued on:	2025-04-22	
System:	83	/	Main Power Distribution Low Voltage 440 V		
SubSystem:	83-60	/	Cathodic Protection		

1	COMPANY has, at its option and if required, reviewed the mechanical completion associated with the above-named system/sub-system of the SCOPE and observed that such functional sub-system has been brought into readiness for commencement of the associated pre-commissioning and commissioning activities, but for the outstanding punch list items, if any, attached and referred in this Certificate.
2	Issuance of this Certificate shall not release CONTRACTOR from any of his obligations, responsibilities or liabilities under the CONTRACT.
3	Mechanical Completion Status Index attached (per Discipline) Punch List report attached (Outstanding and Cleared)

PUNCH LIST	PENDING POINTS	
Note: All Category "A" Items must be cleared prior to issue a Ready For Commissioning (RFC) Certificate	A	B
	'0	'0

REMARKS: ONSHORE SOW completed, n. 4 outstanding tasks to be cleared in OFFSHORE phase.

	CONTRACTOR Construction Manager	**CONTRACTOR** Commissioning Manager	**COMPANY** Construction Lead (if required)	**COMPANY** Commissioning Lead (if required)
Name	Wolmer Borghi	Anthony Iveson	CPY NOT PRESENT	CPY NOT PRESENT
Date	2025-04-24	2025-04-26	2025-04-28	2025-04-28
Signature	PROVERLIS Digitaly signed by Wolmer Borghi 2025-04-24T11:31:42.027Z	PROVERLIS Digitaly signed by Anthony Iveson 2025-04-26T07:46:33.438Z	PROVERLIS Digitaly signed by CPY NOT PRESEN 2025-04-28T06:34:32.808Z	PROVERLIS Digitaly signed by CPY NOT PRESEN 2025-04-28T06:34:37.612Z

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 83-60 & process: MC

Electrical	83-60 Cathodic Protection						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
5W2.1	Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL	ONSHORE	C10001799	CPX10	100	2025-02-20	-
		OFFSHORE	C10004681	CPX10	0	-	-
6W2.1	Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL	ONSHORE	C10001800	CPX10	100	2025-02-20	-
		OFFSHORE	C10004682	CPX10	0	-	-
7WD3	Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL	ONSHORE	C10001801	CPX09	100	2025-02-20	-
		OFFSHORE	C10004683	CPX09	0	-	-
7WD6.1	Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL	ONSHORE	C10001802	CPX09	100	2025-02-20	-
		OFFSHORE	C10004684	CPX09	0	-	-
83027-CEL	LV Switchgear / Impressed Current Cathodic Protection (ICCP) System	ONSHORE	C10000552	CPX09	100	2024-10-24	RFC 2
CN-200N1	ICCP PANEL	ONSHORE	C10000875	CPX32	100	2024-09-09	RFC 2
EAJ-200-01	ICCP Junction Box	ONSHORE	C10001857	CPX31	100	2025-04-22	RFC 2
EAJ-200-02	ICCP Junction Box	ONSHORE	C10001856	CPX31	100	2025-04-22	RFC 2

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	83	Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-60	Cathodic Protection

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000260	B	83027-CEL C10000552	Wrong core identification tag on both cable's termination	-		Gtangianu 2024-10-24	2025-01-31	Gtangianu 2025-01-31	2025-01-31
C30004038	B	5W2.1 C10001799	Missing cores identification tag. Cabinet side CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)	.		APolo 2025-02-20	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004039	B	5W2.1 C10001799	Missing cables tag , inside cabinet CN-200N1	.		APolo 2025-02-20	2025-03-07	JKrizanic 2025-03-07	2025-03-07
C30004040	B	6W2.1 C10001800	Missing cores identification tag. inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)	.		APolo 2025-02-20	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30004041	B	6W2.1 C10001800	Missing cables tag , cabinet inside CN-200N1	.		APolo 2025-02-20	2025-03-07	JKrizanic 2025-03-07	2025-03-07
C30004042	B	7WD3 C10001801	Missing core identification tag. Cabinet inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)	.		APolo 2025-02-20	2025-04-07	Gtangianu 2025-04-07	2025-04-07
C30004043	B	7WD3 C10001801	Missing cables tag , cabinet inside CN-200N1	.		APolo 2025-02-20	2025-03-07	JKrizanic 2025-03-07	2025-03-07
C30004044	B	7WD6.1 C10001802	Missing cores identification tag. Cabinet inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)	.		APolo 2025-02-20	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004045	B	7WD6.1 C10001802	Missing cable tag , cabinet inside CN-200N1	.		APolo 2025-02-20	2025-03-07	JKrizanic 2025-03-07	2025-03-07

Section 2 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	83	Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-60	Cathodic Protection

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000260	B	83027-CEL C10000552	Wrong core identification tag on both cable's termination	-		Gtangianu 2024-10-24	2025-01-31	Gtangianu 2025-01-31	2025-01-31
C30004038	B	5W2.1 C10001799	Missing cores identification tag. Cabinet side CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)	.		APolo 2025-02-20	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004039	B	5W2.1 C10001799	Missing cables tag , inside cabinet CN-200N1	.		APolo 2025-02-20	2025-03-07	JKrizanic 2025-03-07	2025-03-07
C30004040	B	6W2.1 C10001800	Missing cores identification tag. inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)	.		APolo 2025-02-20	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30004041	B	6W2.1 C10001800	Missing cables tag , cabinet inside CN-200N1	.		APolo 2025-02-20	2025-03-07	JKrizanic 2025-03-07	2025-03-07
C30004042	B	7WD3 C10001801	Missing core identification tag. Cabinet inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)	.		APolo 2025-02-20	2025-04-07	Gtangianu 2025-04-07	2025-04-07
C30004043	B	7WD3 C10001801	Missing cables tag , cabinet inside CN-200N1	.		APolo 2025-02-20	2025-03-07	JKrizanic 2025-03-07	2025-03-07
C30004044	B	7WD6.1 C10001802	Missing cores identification tag. Cabinet inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)	.		APolo 2025-02-20	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004045	B	7WD6.1 C10001802	Missing cable tag , cabinet inside CN-200N1	.		APolo 2025-02-20	2025-03-07	JKrizanic 2025-03-07	2025-03-07

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004044

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001802	1.4 Discipline	Electrical
1.2 Item	7WD6.1		Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Missing cores identification tag. Cabinet inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)

Name: Alessio Polo
Date: 2025-02-20
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed

Name: Giovanni Tangianu
Date: 2025-03-26
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


-7T13
-7T16
302
Silica gel
Meets MIL-D-3464
DO NOT EAT
D&F techniek
www.dftechniek.nl

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004045

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001802	1.4 Discipline	Electrical
1.2 Item	7WD6.1		Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Missing cable tag , cabinet inside CN-200N1

Name: Alessio Polo

Date: 2025-02-20

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


-7T13
-7T16
302
Silica gel
Meets MIL-D-3464
DO NOT EAT
D&F techniek
www.dftechniek.nl

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000260

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000552	1.4 Discipline	Electrical
1.2 Item	83027-CEL		LV Switchgear / Impressed Current Cathodic Protection (ICCP) System
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Wrong core identification tag on both cable's termination

Name: Giovanni Tangianu

Date: 2024-10-24

Signature:

3 - DEFECT ASSESSMENT

-

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-10-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-01-31

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004038

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001799	1.4 Discipline	Electrical
1.2 Item	5W2.1		Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Missing cores identification tag. Cabinet side CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)

Name: Alessio Polo
Date: 2025-02-20
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed

Name: Giovanni Tangianu
Date: 2025-03-26
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

123
122
121
293
291
193
191
N
L3
L2
L1
PE
L1/X0/L1
L2/X0/L2
L3/X0/L3
N/X0/N

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004039

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001799	1.4 Discipline	Electrical
1.2 Item	5W2.1		Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Missing cables tag , inside cabinet CN-200N1

Name: Alessio Polo

Date: 2025-02-20

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004040

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001800	1.4 Discipline	Electrical
1.2 Item	6W2.1		Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Missing cores identification tag. inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)

Name: Alessio Polo
Date: 2025-02-20
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

Name:
Date: 08/04/2025
Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

6- CLEARANCE APPROVAL

Name:
Date: 2025-04-08
Signature:

123
122
121
293
291
193
191
N
L3
L2
L1
PE
L1/X0/L1
L2/X0/L2
L3/X0/L3
N/X0/N

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004041

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001800	1.4 Discipline	Electrical
1.2 Item	6W2.1		Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Missing cables tag , cabinet inside CN-200N1

Name: Alessio Polo

Date: 2025-02-20

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004042

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001801	1.4 Discipline	Electrical
1.2 Item	7WD3		Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Missing core identification tag. Cabinet inside CN-200N1 . (see document 123A90-DDL-EL-DD-20092 sh.7-8)

Name: Alessio Polo
Date: 2025-02-20
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

Name:
Date: 2025-04-07
Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-07
Signature:

6- CLEARANCE APPROVAL

Name:
Date: 2025-04-07
Signature:


-7T13
-7T16
302
Silica gel
Meets MIL-D-3464
DO NOT EAT
D&F techniek
www.dftechniek.nl

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004043

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001801	1.4 Discipline	Electrical
1.2 Item	7WD3		Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL
1.3 Subsystem	83-60		Cathodic Protection

2 - OBSERVATION

Missing cables tag , cabinet inside CN-200N1

Name: Alessio Polo

Date: 2025-02-20

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

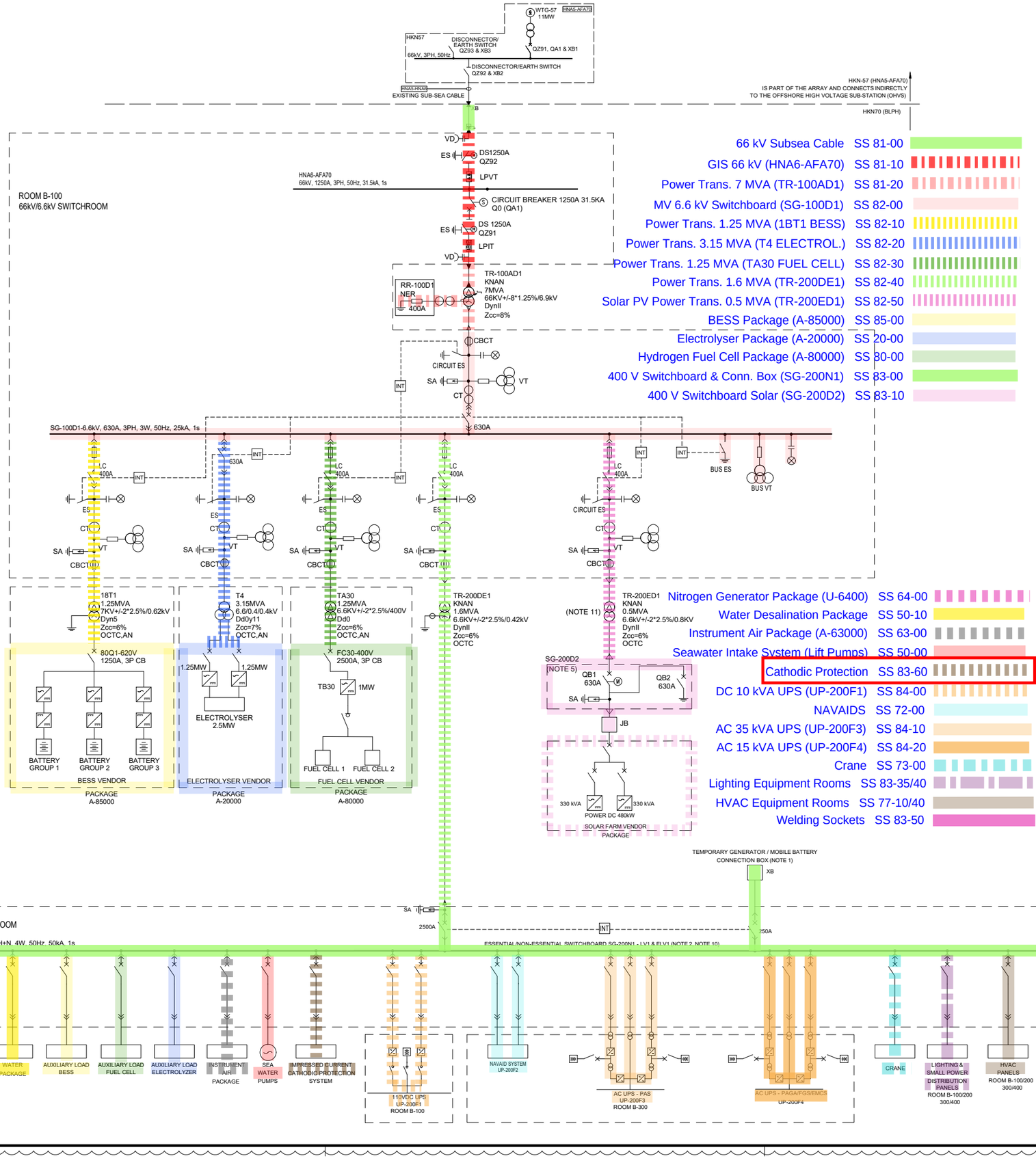
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Date:

Signature:


-7T13
-7T16
302
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D&F techniek
www.dftechniek.nl

Section 3 SYSTEM,SUB-SYSTEM LIMIT DRAWINGS



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 :

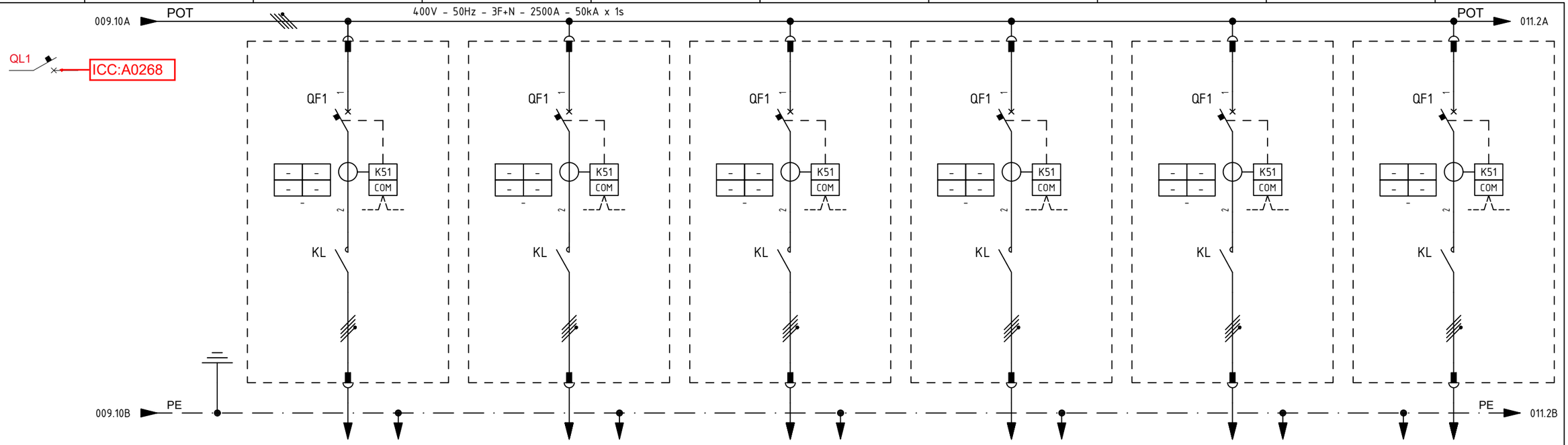
OVERALL/KEY SINGLE LINE DIAGRAM

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

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

File Name : 123A90_DDL-EL_DG-20158_REV01.dwg

01



ITEM			1	SPARE		B200-HSB-001		B300-HSB-001		B400-HSB-001		CN-200N1		SPARE	
UTILITY			2	SPARE		HVAC PANELS - LV ROOM		HVAC PANELS - UPS ROOM		HVAC PANELS - ITER		IMPRESSED CURR. CATHODIC PROTECTION (ICCP) SYSTEM		SPARE	
COLUMN/CUBICLE			3	A5 / +01		A5 / +02		A5 / +03		A5 / +04		A5 / +05		A5 / +06	
RATED POWER | RATED CURRENT			4/5	15 kW	24.0 A	18 kW	34.1 A	35,75 kW	61 A	35,75 kW	61 A	14 kVA	23.8 A	- kW	- A
TYPICAL FUNCTIONAL			6	LK1-40		LK1-40		LK1-63		LK1-63		LK1-40		LK1-40	
CIRCUIT BREAKER (ABB)	TYPE		7	XT2S - 160		XT2S - 160		XT2S - 160		XT2S - 160		XT2S - 160		XT2S - 160	
	VERSION		8	4P - FIXED		4P - FIXED		4P - FIXED		4P - FIXED		4P - FIXED		4P - FIXED	
	TRIP UNITS		9	EKIP HI TOUCH LSIG (In = 40A)		EKIP HI TOUCH LSIG (In = 40A)		EKIP HI TOUCH LSIG (In = 63A)		EKIP HI TOUCH LSIG (In = 63A)		EKIP HI TOUCH LSIG (In = 40A)		EKIP HI TOUCH LSIG (In = 40A)	
	Icu	KA	10	50 kA		50 kA		50 kA		50 kA		50 kA		50 kA	
OVERLOAD	L	Range A	11	(0.4 - 1) x In		(0.4 - 1) x In		(0.4 - 1) x In		(0.4 - 1) x In		(0.4 - 1) x In		(0.4 - 1) x In	
		Range t	12	k/I^2		k/I^2		k/I^2		k/I^2		k/I^2		k/I^2	
SEL. SHORT-CIRCUIT	S	Range A	13	(0.6 - 10) x In		(0.6 - 10) x In		(0.6 - 10) x In		(0.6 - 10) x In		(0.6 - 10) x In		(0.6 - 10) x In	
		Range t	14	0.05 - 0,4 sec / k/I^2		0.05 - 0,4 sec / k/I^2		0.05 - 0,4 sec / k/I^2		0.05 - 0,4 sec / k/I^2		0.05 - 0,4 sec / k/I^2		0.05 - 0,4 sec / k/I^2	
INST. SHORT-CIRCUIT	I	Range A	15	(1.5 - 15) x In		(1.5 - 15) x In		(1.5 - 15) x In		(1.5 - 15) x In		(1.5 - 15) x In		(1.5 - 15) x In	
		Range t	16	instantaneous		instantaneous		instantaneous		instantaneous		instantaneous		instantaneous	
EARTH FAULT PROTECTION	G	Range A	17	(0.1 - 1) x In		(0.1 - 1) x In		(0.1 - 1) x In		(0.1 - 1) x In		(0.1 - 1) x In		(0.1 - 1) x In	
		Range t	18	t=k / t=k/I^2		t=k / t=k/I^2		t=k / t=k/I^2		t=k / t=k/I^2		t=k / t=k/I^2		t=k / t=k/I^2	
CONTACTOR (ABB)			19	AF40-40-00-13 (70A-AC1); 100-250VAC/DC		AF40-40-00-13 (70A-AC1); 100-250VAC/DC		AF52-40-00-13 (100A-AC1); 100-250VAC/DC		AF52-40-00-13 (100A-AC1); 100-250VAC/DC		AF40-40-00-13 (70A-AC1); 100-250VAC/DC		AF40-40-00-13 (70A-AC1); 100-250VAC/DC	
THERMAL OVERLOAD RELAY (ABB)			20	-		-		-		-		-		-	
SURGE ARRESTER (DEHN)			21	-		-		-		-		-		-	
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-		-		-		-		-		-	
FUSE HOLDER (ITALWEBER)			23	SUBSISTEM 83.00		SUBSISTEM 77.20		SUBSISTEM 77.30		SUBSISTEM 77.40		SUBSISTEM 83.60		SUBSISTEM 83.00	
INDIRECT PROTECTION (ABB)			24												
VOLTMETER			25												
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-		-		-		-		-		-	
	PERFORMANCE/CLASS		27	-		-		-		-		-		-	
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-		-		-		-		-		-	
	PERFORMANCE/CLASS		29	-		-		-		-		-		-	
LOCK-OUT RELAY (-)			30	-		-		-		-		-		-	
POWER CONDUCTOR		mmq	31	-		5G16		5G16		5G16		5G16		-	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
2	03/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	28/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

DWG n° : 231298/SD/11
Item n° : PF1002983/26

TITLE : "SG-200N1"
SINGLE LINE DIAGRAM
Single Line Drawing

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00011 | SHEET 010 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00011 Rev. 03

Section 4 MECHANICAL COMPLETION STATUS INDEX - BUILDING DISCIPLINE

NOT APPLICABLE

Section 5 MECHANICAL COMPLETION STATUS INDEX - ELECTRICAL DISCIPLINE

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 83-60 & process: MC & discipline : E

Electrical	83-60 Cathodic Protection						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
5W2.1	Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL	ONSHORE	C10001799	CPX10	100	2025-02-20	-
		OFFSHORE	C10004681	CPX10	0	-	-
6W2.1	Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL	ONSHORE	C10001800	CPX10	100	2025-02-20	-
		OFFSHORE	C10004682	CPX10	0	-	-
7WD3	Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL	ONSHORE	C10001801	CPX09	100	2025-02-20	-
		OFFSHORE	C10004683	CPX09	0	-	-
7WD6.1	Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL	ONSHORE	C10001802	CPX09	100	2025-02-20	-
		OFFSHORE	C10004684	CPX09	0	-	-
83027-CEL	LV Switchgear / Impressed Current Cathodic Protection (ICCP) System	ONSHORE	C10000552	CPX09	100	2024-10-24	RFC 2
CN-200N1	ICCP PANEL	ONSHORE	C10000875	CPX32	100	2025-05-06	RFC 2
EAJ-200-01	ICCP Junction Box	ONSHORE	C10001857	CPX31	100	2025-04-22	RFC 2
EAJ-200-02	ICCP Junction Box	ONSHORE	C10001856	CPX31	100	2025-04-22	RFC 2

ITEM	Tag	83027-CEL	: LV Switchgear / Impressed Current Cathodic Protection (ICCP) System		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	83-60	: Cathodic Protection		Module	LD_B-200	
TASK	code	C10000552	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form	CPX09	LV Power Cable

CABLE DATA

Type Cu Cl.2/EPR/LSZH Cores/Size mm² 5G16 mm2 Color Grey

From SG-200N1 To CN-200N1

1	Confirm cable is as specified in project cable schedule	OK
2	Visual Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to project specification.	OK
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Check gland plate for single core cables is non ferrous (non -magnetic).	NA
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	OK
10	Check cable earthing against lastest drawings.	OK
11	Check cores marking are in accordance with termination diagram	PL
12	Check terminations are in accordance with latest termination diagram	OK
13	If required produce Red Line Mark Up for "AS BUILT"	

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	83027-CEL	: LV Switchgear / Impressed Current Cathodic Protection (ICCP) System		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	83-60	: Cathodic Protection		Module	LD_B-200	
TASK	code	C10000552	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form	CPX09	LV Power Cable

CONTINUITY				
5	CORE CONTINUITY Ω	PH 1	0.3	
6		PH 2	0.3	
7		PH 3	0.3	
8	ARMOUR CONTINUITY Ω		NA	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		0.3	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>999	
11		PH2 / PH1-PH3-A-E	>999	
12		PH3 / PH1-PH2-A-E	>999	
13	CABLE IS CORRECTLY RE-CONNECTED.		Yes	

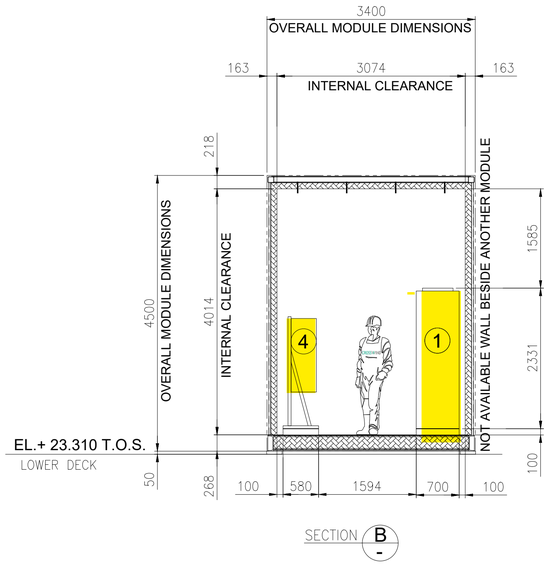
TESTING INSTRUMENTS USED

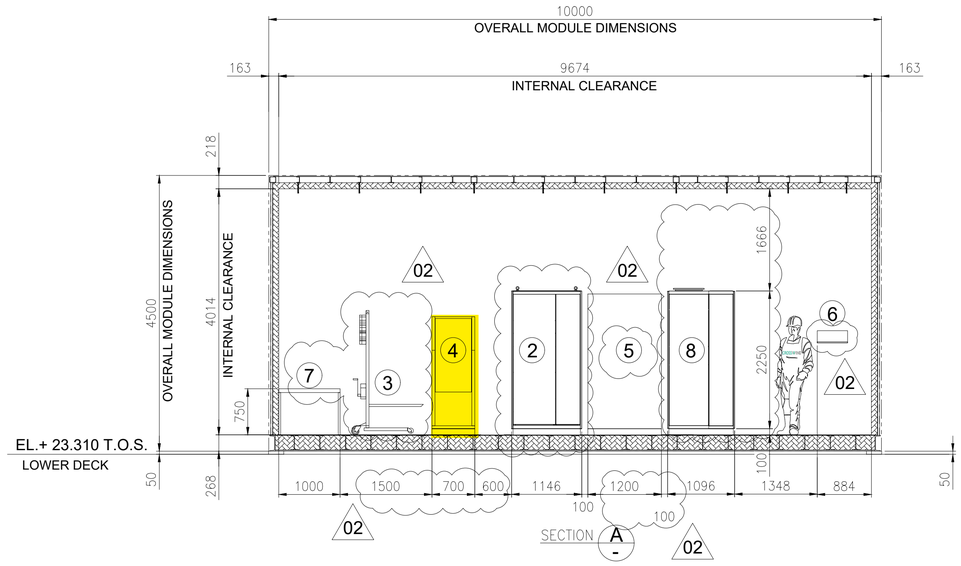
TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207	TYPE / SERIAL N° :	MULTIMETER: FLUKE 175 SERIAL:AW1/018(17140769)
Calibration certificate N° and date:	N°7722/24 _ 10/07/2024	Calibration certificate N° and date:	N°7715/24 _ 10/07/2024

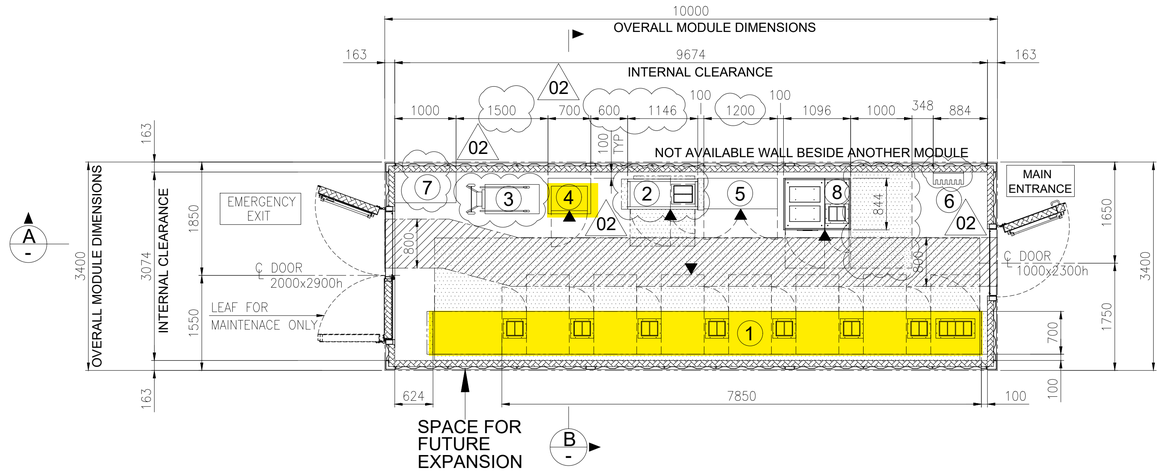
Comments:
CORE CONTINUITY PH 4= 0.3
CORES / ARMOUR+EARTH INS. PH 4 = >999 M

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ISC IMPIANTI	RM (Rosetti Marino)	
Name	Carmelo Bongiovanni	Giovanni Tangianu	
Date	2024-10-22	2024-10-24	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-10-22T11:56:53.512Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2024-10-24T11:51:19.944Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02





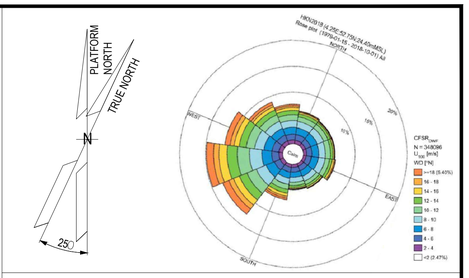


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

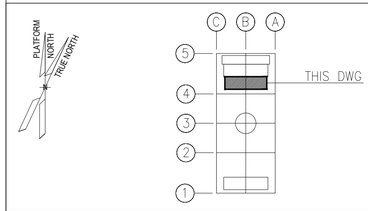
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20105**

REV.:	DATE:	SIGNATURE:
2_A	08/08/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

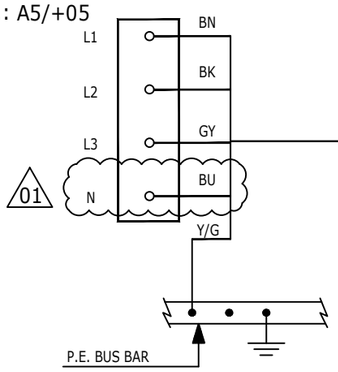
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

File Name : 123A90-DDL-EL-DL-20105_REV02.dwg

FROM	TO

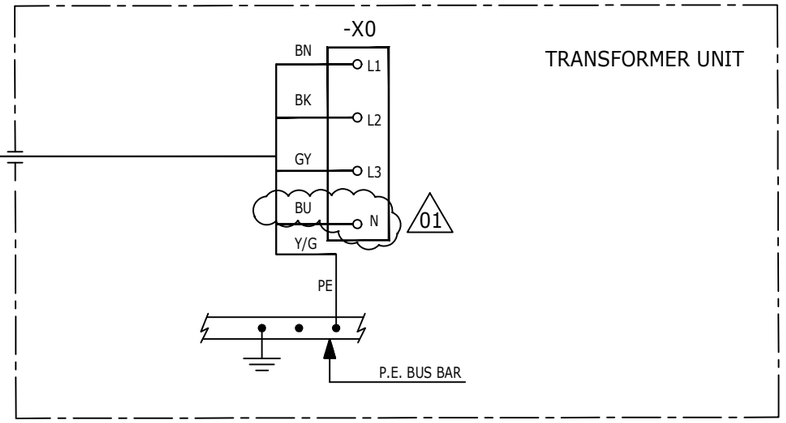
DESCRIPTION: LV Switchgear
TAG NUMBER: SG-200N1

COLUMN/CUBIC.: A5/+05

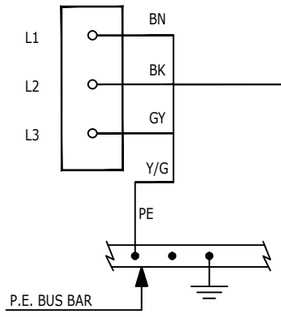


83027-CEL
5G16 mm²
01

DESCRIPTION: IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEM
TAG NUMBER: CN-200N1

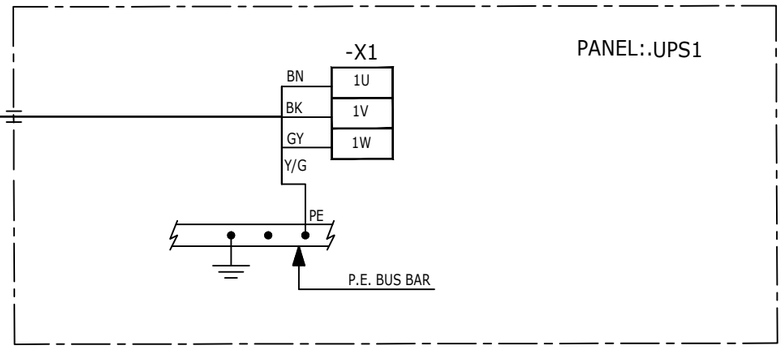


COLUMN/CUBIC.: A3/+01

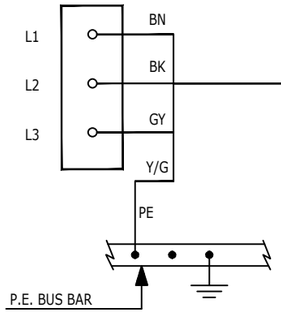


83028-CEL
4G35 mm²

DESCRIPTION: AC UPS PAS - 30MIN - LINE A
TAG NUMBER: UP-200F3

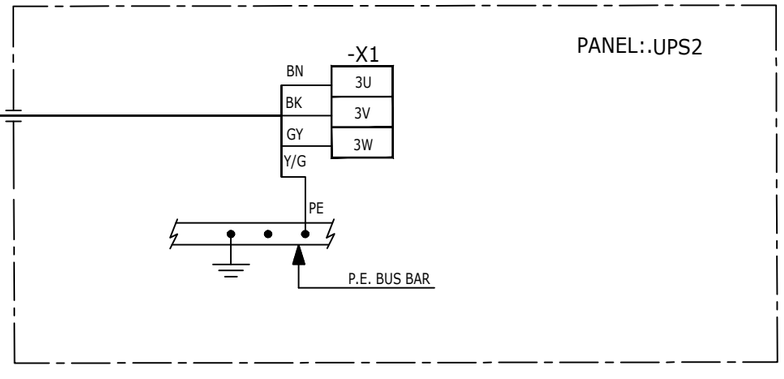


COLUMN/CUBIC.: A4/+01



83029-CEL
4G35 mm²

DESCRIPTION: AC UPS PAS - 30MIN - LINE B
TAG NUMBER: UP-200F3



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20149**

REV.:	DATE:	SIGNATURE:
1_A	17/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LV SWITCHGEAR SG-200N1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

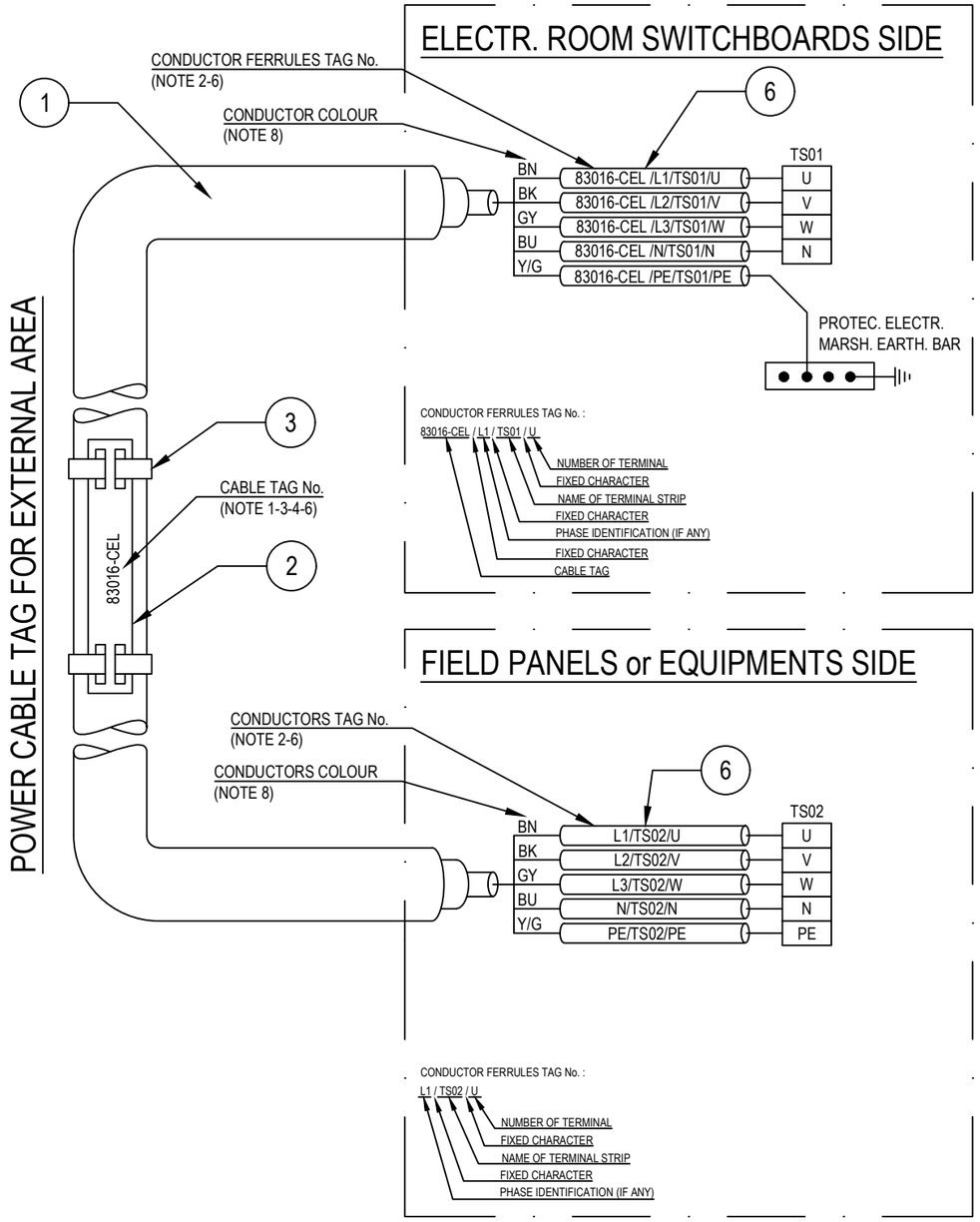
SHEET 027

REV. 01

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20162 Rev. 01

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

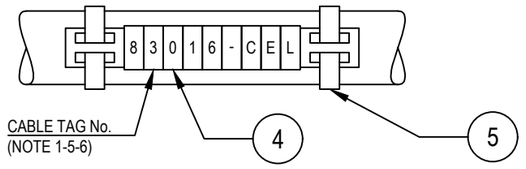
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DD-20092
REV.: 2_A | DATE: 28/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

F.to UNI A3: 420mmx297mm

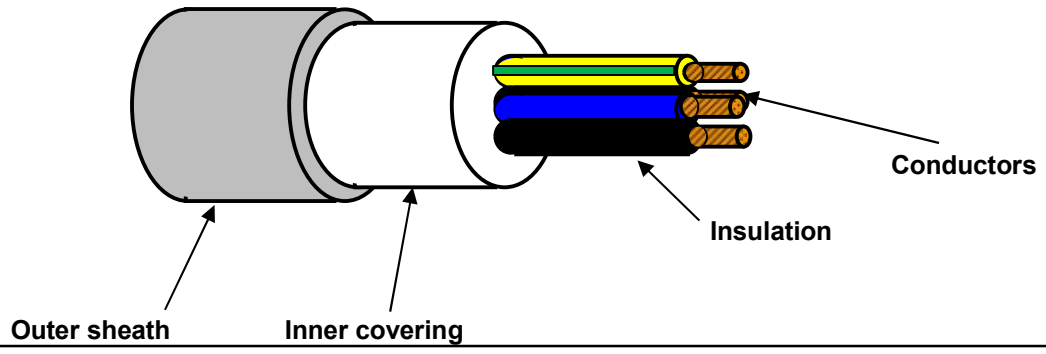
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
83027-CEL	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	CN-200N1	Impressed Current Cathodic Protection (ICCP) System	Lower Deck (B-200)	ELECV15-5G16	Cable Cu Cl.2/EPR/LSZH 0,6/1kV 5G16mm² - Grey	M32	n.a.			T1_M32_Single				L-450-101-LVT-026 / L-600-101-LVT-017 / L-600-101-LVT-018 / L-600-101-LVT-020 / L-300-101-LVT-031

FLEI s.r.l.

Cu Cl.2/EPR/LSZH 0,6/1 KV

5G16 - L.V. POWER CABLE - Flame Retardant



TECHNICAL FEATURES

Conductors :	**STRANDED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	EPR compound, quality to IEC 60092.360, Nominal Thickness 1,0 mm	
Cores colour code :	**Black - Brown - Grey - Blue - Yellow/Green**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not Required	
Total Assembling :	Cores layed up with optimal lay length	
Overall Wrapping:	Not required	
Drain wire :	Not required	
Overall Shield:	Not required	
Inner covering :	Extruded LSZH compound, Average Thickness 1,0 mm	
Inner covering color code:	**Black or Natural**	
Armour :	Not required	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,4 mm	
Outer sheath color code:	**Grey**	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 1000V - 5G16 SQMM - EPR/LSZH - 0,6/1 KV - IEC 60332.1.2 - IEC 60332.3.22 -**	
	Year of Manufacture - CE + Meter Marking	
Outer diameter :	(24,0 ± 10%) mm	
Bending radius :	cable outer diameter x 10	(in fixed installation)
Voltage test :	3,5 kV a.c. for 5' (Between Cores)	
Conductors DC Resistance :		IEC 60228 Class 2
Insulation Resistance :	≥ 530 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.353**	
ON COMPLETE CABLE		
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Temperature Range :		
ON INSULATION	(max +90°C)	(max continuous operation temperature of conductors)
	(max +250°C)	(max conductors temperature during short-circuit for 5 seconds)
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C)	(in fixed installation)
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner covering together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/03/2024	Messa			
Checked :	29/03/2024	Spaccasassi			
Approved :	29/03/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

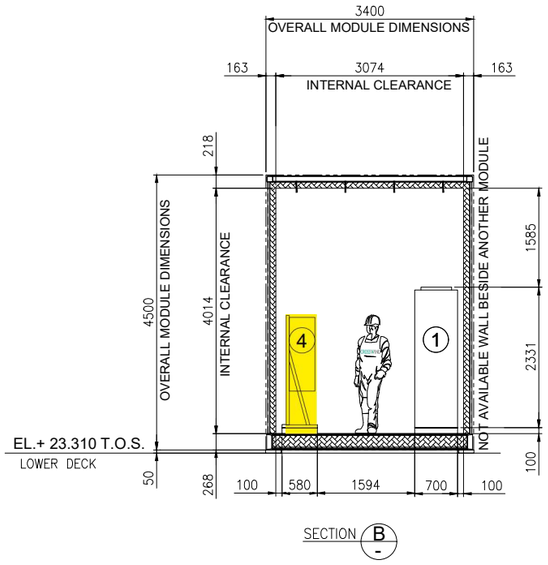
ITEM	Tag	CN-200N1	: ICCP PANEL			Dwg	123A90-DDL-EL-DL-20105
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200
TASK	code	C10000875		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX32 Console / Control Panel

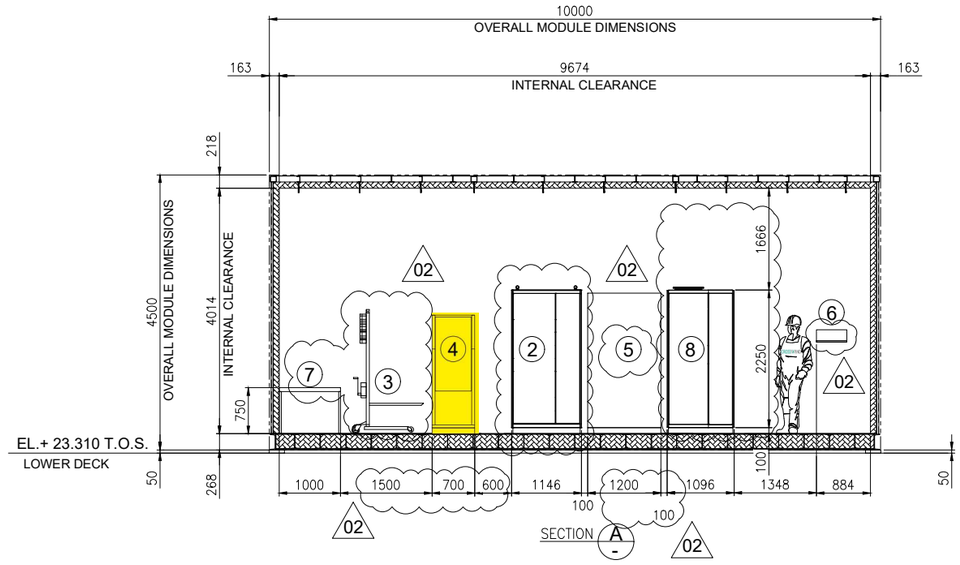
1	Check panel is correctly installed in accordance with layout drawing.	OK
2	Check if equipment design is in accordance with project specifications.	OK
3	Check that panel is undamaged and that all components are in good condition.	OK
4	Check panel earthing and bonding are in accordance with project specifications.	OK
5	Check that internal wiring (visual check) is correctly loomed and clearly identified.	OK
6	Check that the equipment is correcly tagged.	OK
7	Check that all stop plugs are properly installed	OK
8	Check that all mechanical selectors/lights are not damaged and properly work	OK
9	If required produce Red Line Mark Up for "AS BUILT"	●

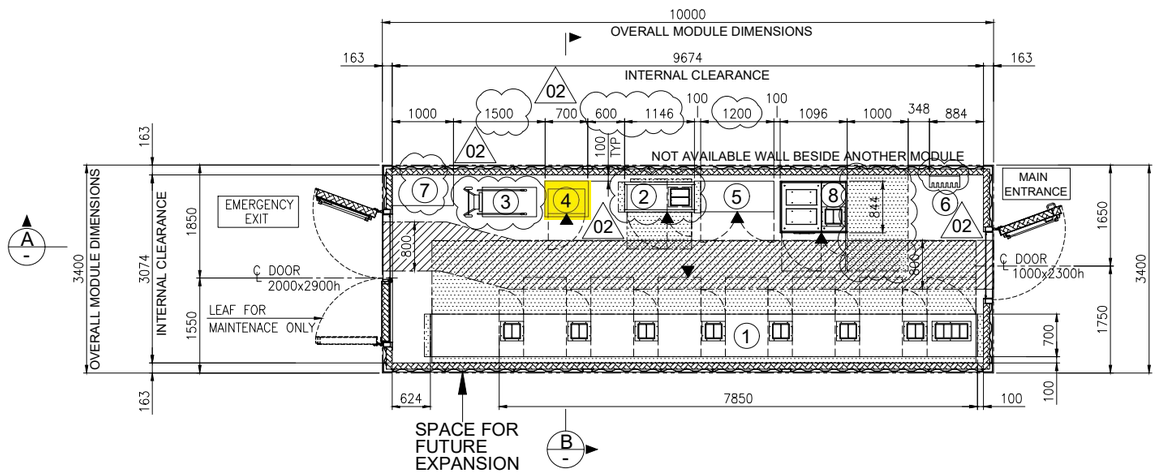
Comments Note: Item provided by company.

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-05-06	2025-05-06	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-05-06T07:14:14.656Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-05-06T09:08:29.127Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 | REV. 02





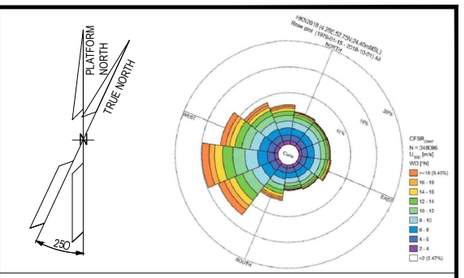


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

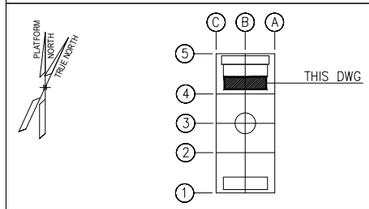
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20105**

REV.:	DATE:	SIGNATURE:
2_A	08/08/24	G.Randi

ROSETTI MARINO SpA

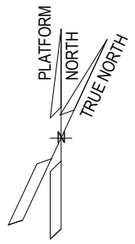
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	OYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

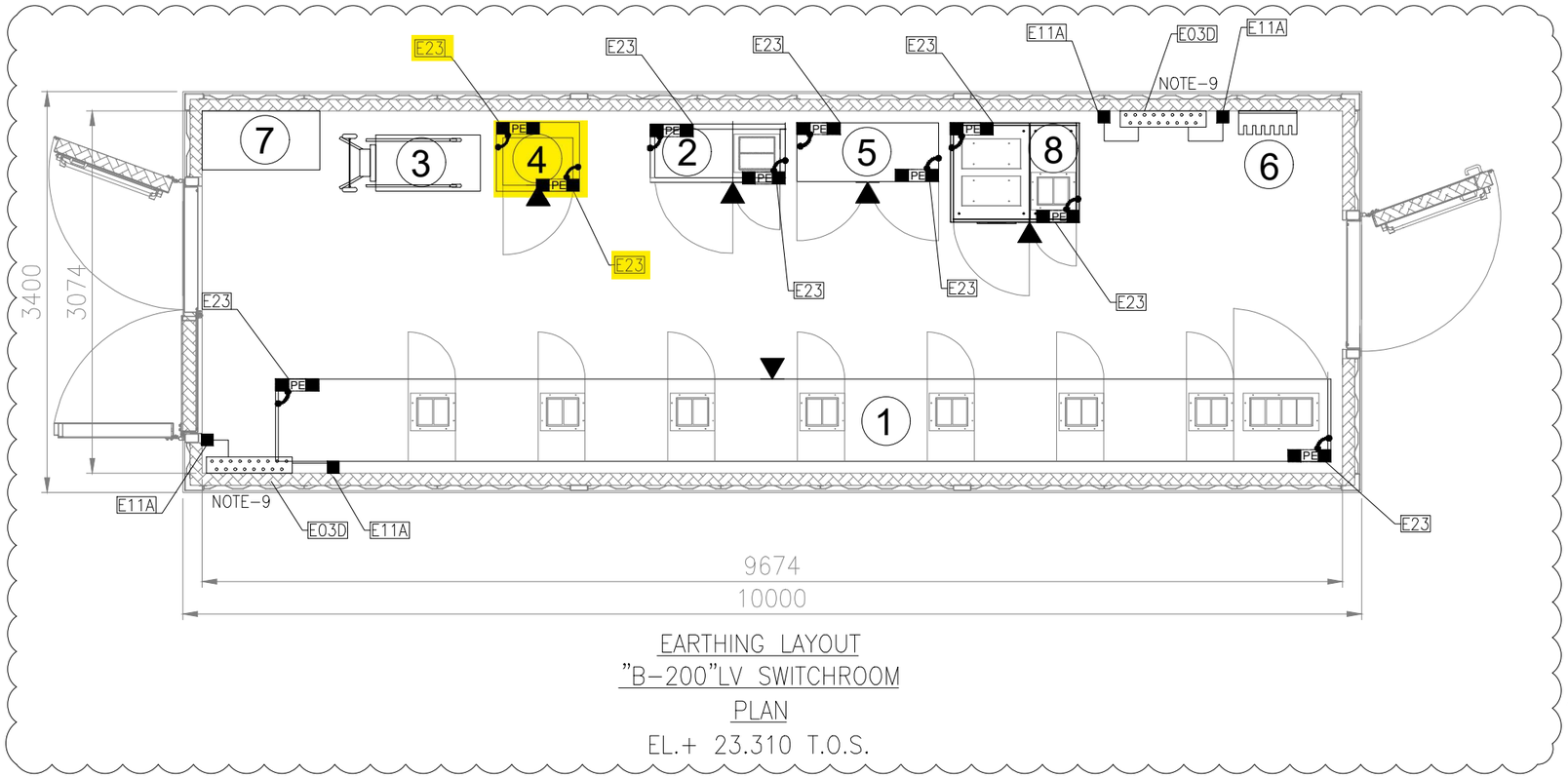
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

File Name : 123A90-DDL-EL-DL-20105_REV02.dwg



EQUIPMENT LIST		
REF.	TAG No.	DESCRIPTION
1	SG-200N1	400V SWITCHGEAR
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.
3		SERVICE TROLLEY FOR 400V SWITCHGEAR
4	CN-200N1	ICCP PANEL
5	B200-HSB-001	HVAC PANEL - LV ROOM
6		TOOL BOX
7		TABLE
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE

01



EARTHING LAYOUT
"B-200"LV SWITCHROOM
PLAN
EL.+ 23.310 T.O.S.

01

NOTES

1. THIS DOUCMENT IS VALID ONLY FOR EARTHING LAYOUT.
2. THE CABLE SIZE SHALL BE CONFIRMED.
3. THE EXACT POSITION OF EARTHING/MARSHALLING BUS BAR SHALL BE DEFINED BY VENDOR.
4. THE EARTHING BUS BAR INSTALLATION SHALL BE PREFERABLY IN VERTICAL MODE.
5. FOR TYPICAL DETAILS PLEASE REFER DOCUMENT "123A90-DDL-EL-DD-20090-ELECTRICAL TYPICAL INSTALLATION DETAILS- EARTHING SYSTEM".
6. DUE TO THE TOP CABLE ENTRIES THE EARTHING BUS BAR INSIDE THE CABINETS SHALL BE INSTALLED AT THE TOP OF THE CABINETS THEMSELVES.
7. FOR LIGHTNING PROTECTION SYSTEM SURGE PROTECTIVE DEVICES (SPD), REFER DOCUMENT 123A90-DDL-EL-RE-20154.
8. ALL NON WELDED OBJECTS SHALL BE EARTHED.
9. CONTAINER WILL HAVE A BTH (EARTHING BAR TINNED COPPER) WITH 2 EARTHING BOSS, INSTALLED IN THE SOUTH-WEST CORNER AT AN ELEVATION OF 2.5M FROM THE CONTAINER FLOOR. EARTHING BOSS SHALL BE INSTALLED AT SAME ELEVATION 2.5M.

SYMBOL	DESCRIPTION
PE	EARTHING BUS
	EARTHING BAR TINNED COPPER WITH no.18 HOLES
	35sq.mm Y/G INSULATED COPPER CONDUCTOR FOR PE
PE	PROTECTIVE EARTH
	EARTHING BOSS AISI316L
	JUMPER CONNECTION
	FRONT OF EQUIPMENT

01

REFERENCE	
DOCUMENT NUMBER	DOCUMENT TITLE
123A90-DDL-EL-DD-20090	ELECTRICAL TYPICAL INSTALLATION DETAILS -EARTHING SYSTEM
123A90-DDL-EL-DL-20105	ELECTRICAL EQUIPMENT LAYOUT-LV SWITCHROOM
1724000049-AR-DD-00019	B-200 DETAILED DRAWINGS - E&I SHELTERS

01

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20137**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	25/07/24	ASR	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
EARTHING & LIGHTNING LAYOUT - LV SWITCHROOM
"B-200"LV SWITCHROOM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:50

A3 | DRAWING NO. 123A90-DDL-EL-DL-20137 | SHEET 003 | REV. 01

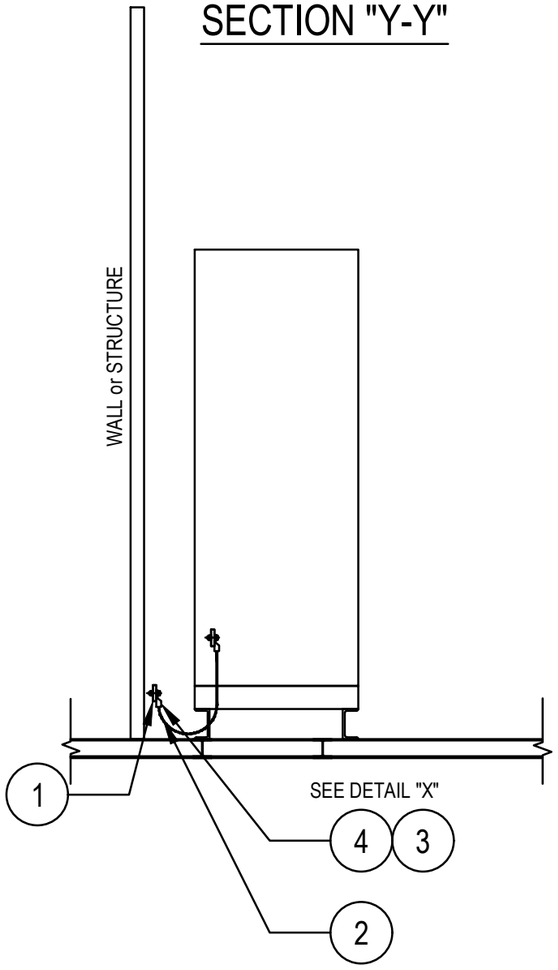
F.to UNI A3: 420mmx297mm

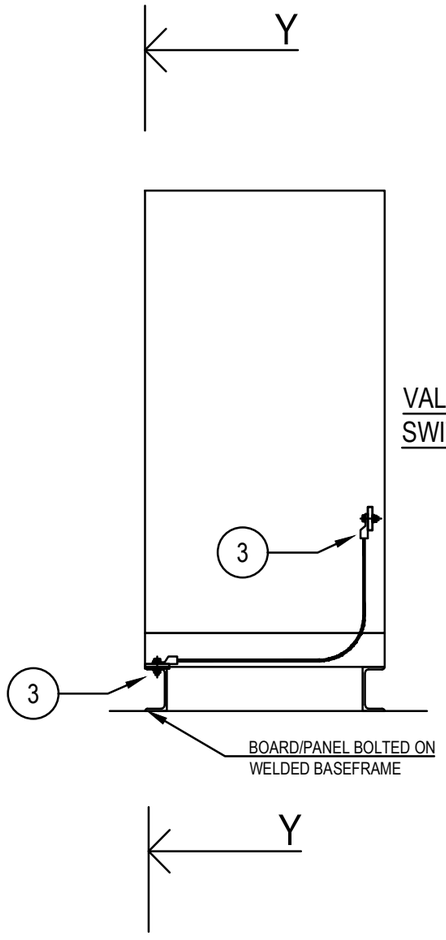
File Name : 123A90-DDL-EL-DL-20137 Rev. 01

E23

POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	MARSHALLING EARTHING BAR	TINNED COPPER	50X5		NOTE 1
2	Y/G INSULATING COPPER CONDUCTOR	COPPER			NOTE 1
3	COMPRESSION TYPE LUG FOR INSULATION COPPER CONDUCTOR	TINNED COPPER	35mm^2	4	NOTE 1
4	BOLT, PLANE WASHER, GROWER SPRING WASHER AND NUT	AISI 316L	M10X30	4	

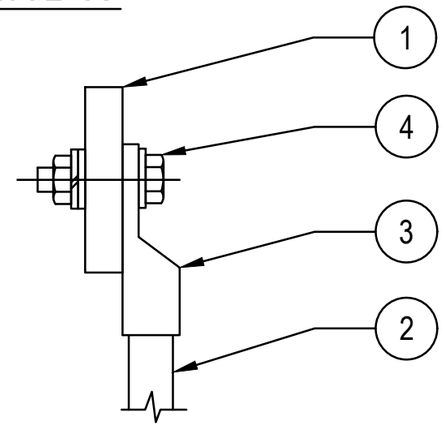
SECTION "Y-Y"





VALID FOR HV/LV SWITCHGEAR

DETAIL "X"



NOTES:

1) FOR SIZE OF THE EARTHING CABLE SEE EARTHING LAYOUT DRAWINGS OF RESPECTIVE AREAS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20090**

REV.:	DATE:	SIGNATURE:
2_A	26/08/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	26/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/06/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS–EARTHING SYSTEM
EARTHING FOR PANELS/BOARDS IN TECHNICAL ROOM

CONTRACT NO./TITLE CW–I–WP4–2023–05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

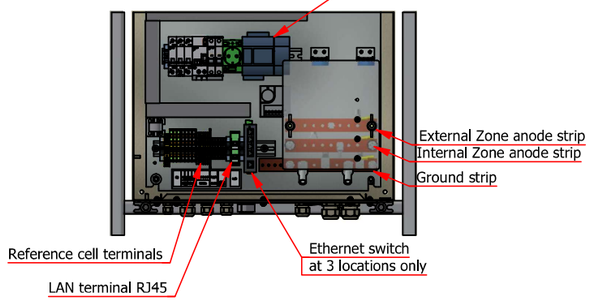
A3	DRAWING NO.	SHEET	REV.
	123A90–DDL–EL–DD–20090	011	02

F.to UNI A3: 420mmx297mm

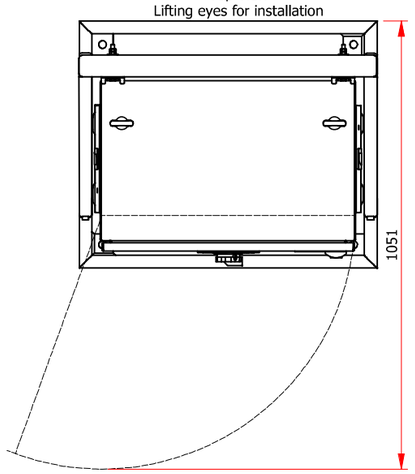
File Name : 123A90-DDL-EL-DD-20090 REV.02.DWG

Revision History					
Rev:	Description:	Drawn:	Date:	Checked:	Date:
1	Cabinet changed	JvO	17-8-2021	JdL	31-8-2021
2	Pedestal added / magnets added	JvO	2-9-2021	JdL	8-9-2021
3	Titleblock modified	JvO	23-11-2021	-	
4	Frame modified for wall mount cabinet	JvO	28-1-2022	-	
5	Dimensions added for information	JvO	8-3-2022	HA	16-3-2022

Section A-A (1:7)



Top View
Lifting eyes for installation



General Notes:

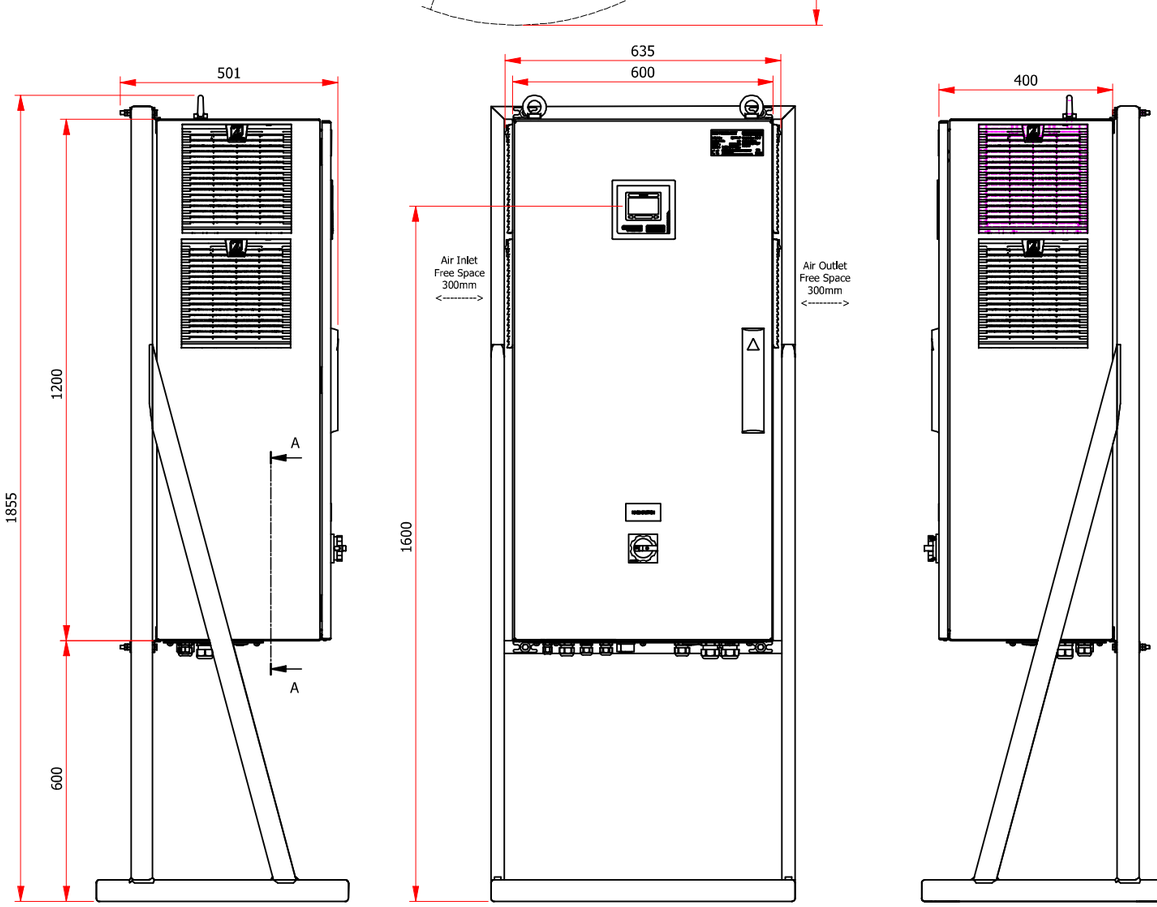
Power unit is frame mounted. Customer to provide fasteners to secure to floor
- Power supply cable will not be terminated from factory in power unit.
- Earthing cables will be terminated from factory in power unit
  Length extending from power unit is 2m.
  Cable terminals for bolt M12 supplied loose
  * Minus cables H07Z-K 1x70 (2x)
  * PE cable H07Z-K 1x16 (1x)

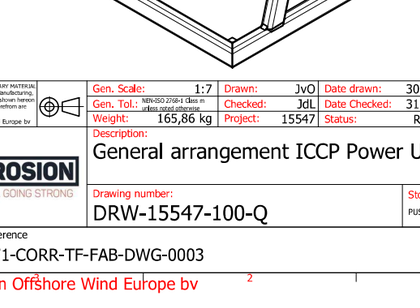
- Communication cable (customer to supply) will not be terminated from factory in power
  unit. Split cable gland and RJ45 connector socket provided
- Fasteners and lifting bolts A4

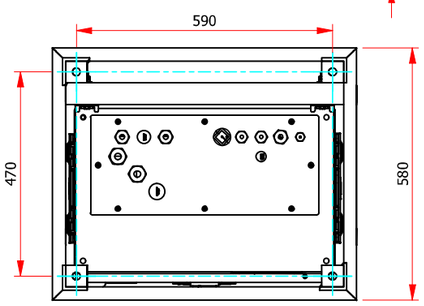
- Power unit shall be location specific:
  * No. of cable glands as required / excess holes are plugged.
  * Tag plate including location and Device-ID

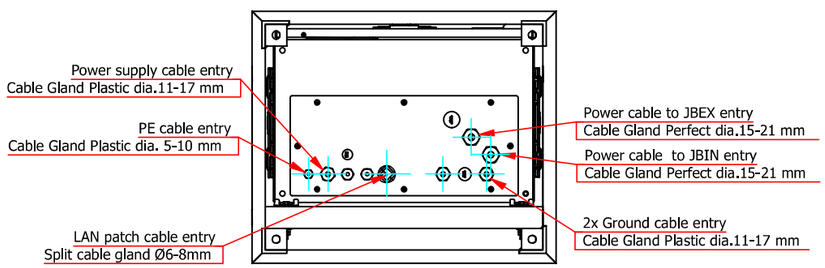
Data:

Supply voltage 400 VAC/3ph
Rated power 11 kVA
Ingress protection IP54
coating C4
colour RAL 7035









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Gen. Scale:	1:7	Drawn:	JvO	Date drawn: 30-4-2021
Gen. Tol.:	NEN-ISO 2768-1 Class m unless noted otherwise	Checked:	JdL	Date Checked: 31-8-2021
Weight:	165,86 kg	Project:	15547	Status: Released

Size: A1

Description:
General arrangement ICCP Power Unit

Rev: 5

CORROSION
STEEL GOING STRONG

Drawing number: DRW-15547-100-Q

Stock number: PUSETP15547

Customer reference
144671-CORR-TF-FAB-DWG-0003

Corrosion Offshore Wind Europe bv

Novaga Lorenzo (ERM)

Da: Remco Boonstra <Remco.Boonstra@crosswindhkn.nl>
Inviato: mercoledì 3 luglio 2024 14:08
A: Madaschi Andrea (Rosetti)
Cc: Dominik Sznajder; stephen.bremner; Ken Rose; Lo Sterzo Davide (Rosetti); Giunchi Claudia (Rosetti); Ramponi Vittorio (Rosetti); CrossWind Innovations
Oggetto: RE: 123A90 - CW - CORROSION - ICCP cable entry

Hi Andrea,

I just received confirmation from Corrosion that the below described procedure is accepted.

Appreciated if pictures can be made of the procedure for documentation purposes.

Thanks for the quick and detailed description. Very helpful.

Regards,

Remco

From: Madaschi Andrea (Rosetti) <Andrea.Madaschi@rosetti.it>
Sent: Wednesday, July 3, 2024 12:35 PM
To: Remco Boonstra <Remco.Boonstra@crosswindhkn.nl>
Cc: Dominik Sznajder <dominik.sznajder@crosswindhkn.nl>; Stephen Bremner <stephen.bremner@crosswindhkn.nl>; Ken Rose <ken.rose@kbr.com>; Lo Sterzo Davide (Rosetti) <Davide.LoSterzo@rosetti.it>; Giunchi Claudia (Rosetti) <Claudia.Giunchi@rosetti.it>; Ramponi Vittorio (Rosetti) <Vittorio.Ramponi@rosetti.it>; CrossWind Innovations <crosswind.innovations@crosswindhkn.nl>
Subject: RE: 123A90 - CW - CORROSION - ICCP cable entry

EXTERNAL E-MAIL: **Think secure using links and files.**

Hi Remco,
here the procedure that ROS will adopt to drill the new hole on the ICCP gland plate:

1- Identify the correct position (central axis point) for new hole
2- Remove the cable glands for black cable and yellow/green cable
    - without disconnecting the cables
3- Remove the gland plate from ICCP panel
    - Pulling out the cable (on point 1) without damage
4- Remove the remaining cable glands from gland plate
5- Cover the hole area with masking tape on both side
    - To prevent the damage of painting
6- Cover the whole surface on both side of gland plate with opportune heavy plastic sheet
    - To prevent accidental damage due to steel particles released by drill
7- Perform the hole with column drill
8- Remove all dust, steel particle, making tape, plastic sheet, etc.
9- Clean the gland plate
10- Re-install the cable glands, pulling the cables (on point 1) and related cable glands, re-install the gland plate

We will share all pictures once everything will be done. RM will take responsibility of this hole and correctness of the activities

BR,

Andrea

Andrea Madaschi
Electrical Engineer

ROSETTI MARINO SPA

Strada 1 Palazzo F7 - Milanofiori
20090 Assago (MI) - ITALY
phone: +39.02.893464220
mobile: +39.3892152373
email: andrea.madaschi@rosetti.it
www.rosetti.it

From: Remco Boonstra <Remco.Boonstra@crosswindhkn.nl>
Sent: Monday, July 1, 2024 1:34 PM
To: Madaschi Andrea (Rosetti) <Andrea.Madaschi@rosetti.it>
Cc: Dominik Sznajder <dominik.sznajder@crosswindhkn.nl>; stephen.bremner <stephen.bremner@crosswindhkn.nl>; Ken Rose <ken.rose@kbr.com>; Lo Sterzo Davide (Rosetti) <Davide.LoSterzo@rosetti.it>; Giunchi Claudia (Rosetti) <Claudia.Giunchi@rosetti.it>; Ramponi Vittorio (Rosetti) <Vittorio.Ramponi@rosetti.it>; CrossWind Innovations <crosswind.innovations@crosswindhkn.nl>
Subject: FW: 123A90 - CW - CORROSION - ICCP cable entry

Hi Andrea,

Find below the response from Corrosion. Can you please indicate how the below mentioned risk will be handled? I will then feed that back to Corrosion to close the loop on it.

Kind regards,

Remco

From: Marcel Qualm <mqualm@corrosion.nl>
Sent: Monday, July 1, 2024 11:13 AM
To: Remco Boonstra <Remco.Boonstra@crosswindhkn.nl>; Jacco van Oudheusden <jvanoudheusden@corrosion.nl>
Cc: Dominik Sznajder <dominik.sznajder@crosswindhkn.nl>; Stephen Bremner <stephen.bremner@crosswindhkn.nl>; CrossWind Innovations <crosswind.innovations@crosswindhkn.nl>
Subject: RE: 123A90 - CW - CORROSION - ICCP cable entry

EXTERNAL E-MAIL: **Think secure using links and files.**

Hi Remco,

As Jacco is on holiday, I will answer this question.

We agree with the changes as proposed by Rosetti to install a larger cable gland. We assume that some drilling is required for this? This will damage the (C4) coating of the cable gland plate as well for some steel particles released by this drilling. Please inform Rosetti for these two risks (and possibly more) and how to mitigate those. Especially the larger hole and related coating damage may result into corrosion.

Trust to have informed you sufficient, we remain.

Kind regards,

Marcel

Best regards / Met vriendelijke groet,

Marcel Qualm
Sales Manager

+31 79 593 12 95
+31 6 22 69 21 21
mqualm@corrosion.nl
www.corrosion.nl

Herenweg 58A
2751 DB, Moerkapelle
The Netherlands

Please note that we are moving.
Our new address will be Zernikestraat 2, 2665 JJ Bleiswijk, The Netherlands.
Factory and Warehouse from July 16, 2024
CORROSION HQ and Laboratory from August 11, 2024

From: Remco Boonstra <Remco.Boonstra@crosswindhkn.nl>
Sent: maandag 1 juli 2024 07:03
To: Marcel Qualm <mqualm@corrosion.nl>; Jacco van Oudheusden <jvanoudheusden@corrosion.nl>
Cc: Dominik Sznajder <dominik.sznajder@crosswindhkn.nl>; Stephen Bremner <stephen.bremner@crosswindhkn.nl>; CrossWind Innovations <crosswind.innovations@crosswindhkn.nl>
Subject: FW: 123A90 - CW - CORROSION - ICCP cable entry

Hi Jacco, Marcel,

I received below described question regarding a power cable entry modification from Rosetti Marino. Can below request be authorized from Corrosion's perspective?

Kind regards,

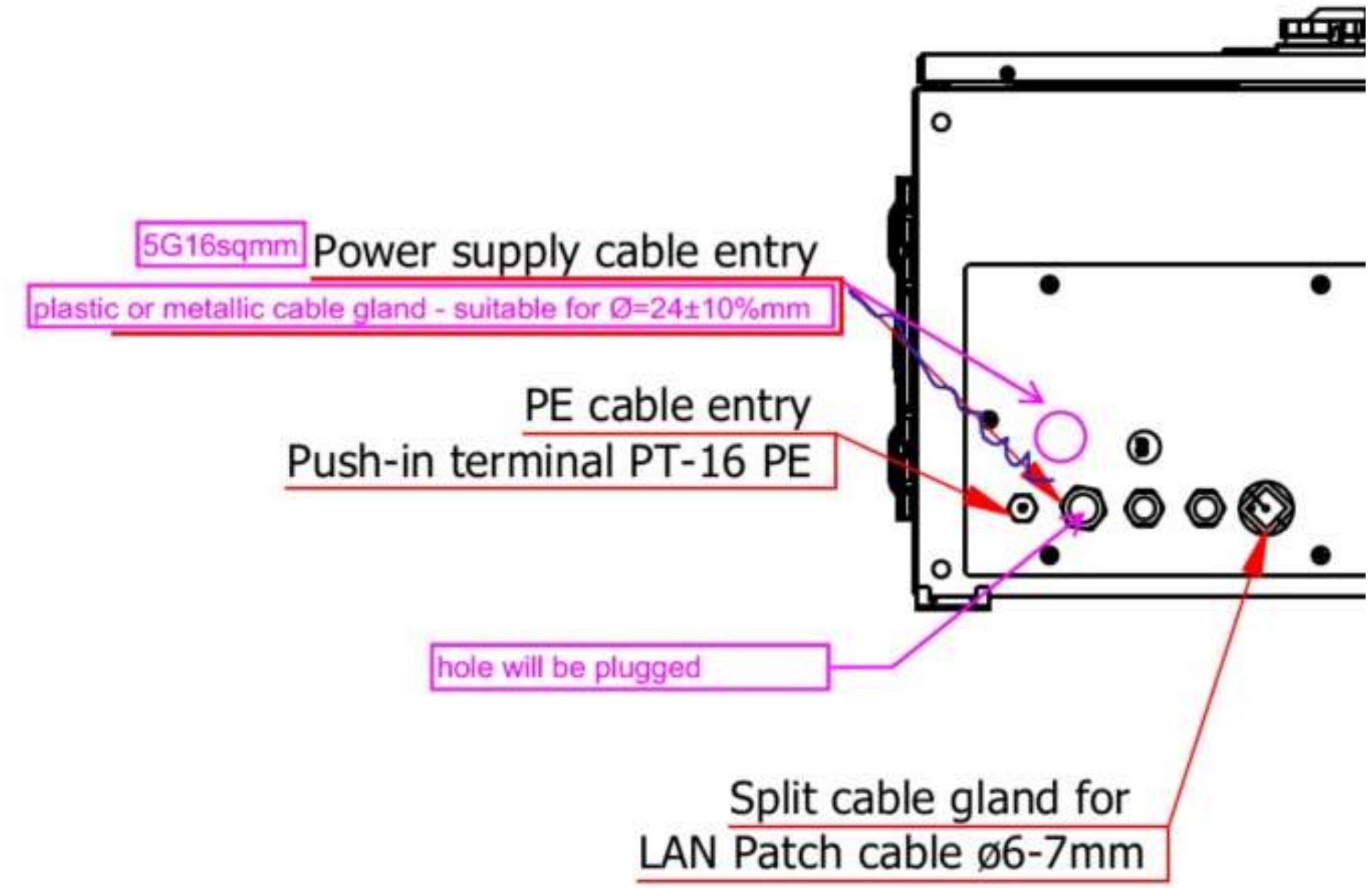
Remco

From: Madaschi Andrea (Rosetti) <Andrea.Madaschi@rosetti.it>
Sent: Wednesday, June 26, 2024 5:07 PM
To: Remco Boonstra <Remco.Boonstra@crosswindhkn.nl>
Cc: Dominik Sznajder <dominik.sznajder@crosswindhkn.nl>; Stephen Bremner <stephen.bremner@crosswindhkn.nl>; Ken Rose <ken.rose@kbr.com>; Lo Sterzo Davide (Rosetti) <Davide.LoSterzo@rosetti.it>; Giunchi Claudia (Rosetti) <Claudia.Giunchi@rosetti.it>; Ramponi Vittorio (Rosetti) <Vittorio.Ramponi@rosetti.it>
Subject: 123A90 - CW - CORROSION - ICCP cable entry

EXTERNAL E-MAIL: **Think secure using links and files.**

Hi Remco,
I apologize for the inconvenience but, after check of electrical BLPH cable list with confirmed data from our electrical cable's Vendor, we noticed that the power cable does not fit in the hole and cable gland provided by CORROSION.

For this reason, I am would like to request to CW and CORROSION the authorization to execute another hole, suitable for power cable and related cable glands.
Reference to materials and jobs, everything will be procured by Rosetti Marino.



Thank you in advance for cooperation
BR,
Andrea

Andrea Madaschi
Electrical Engineer

ROSETTI MARINO SPA

Strada 1 Palazzo F7 - Milanofiori
20090 Assago (MI) - ITALY
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email: andrea.madaschi@rosetti.it
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ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	5W2.1	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200/TP
TASK	code	C10001799		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX10 Multicore Electrical Control Cable

CABLE DATA

Type: LSZH, Flame Retardant Unarmoured | Cores/Size mm²: 2X2,5 mm2 | Color: BLACK

From: CN-200N1 | To: EAJ-200-02

1	Check cable physical integrity	OK
2	Check cable data against latest cable schedule.	OK
3	Check cable routing against latest drawings (segregation, distance…).	Note
4	Check cable is supported and fixed to rack according to latest project Specification.	OK
5	Check bending radius is within the specified limits.	OK
6	Check cable and core marking against latest drawings	OK
7	Check cable labelling is in accordance with latest specification.	PL
8	Check cable glands suit for cable type and are in accordance with latest specification.	OK
9	Check terminations are in accordance with latest termination diagram.	Note
10	Check cable earthing against lastest drawings.	NA
11	Check gland plate for single core cables is non magnetic.	OK
12	If required produce Red Line Mark Up for "AS BUILT"	

CONTINUITY	CORE 1 / All cores+screen+armour+earth	0.9
	CORE 2 / All cores+screen+armour+earth	0.9
	CORE 3 / All cores+screen+armour+earth	NA
	CORE 4 / All cores+screen+armour+earth	NA
	CORE 5 / All cores+screen+armour+earth	NA
	CORE 6 / All cores+screen+armour+earth	NA
	CORE 7 / All cores+screen+armour+earth	NA
	CORE 8 / All cores+screen+armour+earth	NA
	CORE 9 / All cores+screen+armour+earth	NA
	CORE 10 / All cores+screen+armour+earth	NA
INSULATION	CORE 1	>1999
	CORE 2	>1999
	CORE 3	NA
	CORE 4	NA
	CORE 5	NA
	CORE 6	NA
	CORE 7	NA
	CORE 8	NA
	CORE 9	NA
	CORE 10	NA
	SCREEN	NA
	EARTH	>1999
	ARMr	>1999
	TEST VOLTS	1000

TESTING INSTRUMENTS USED

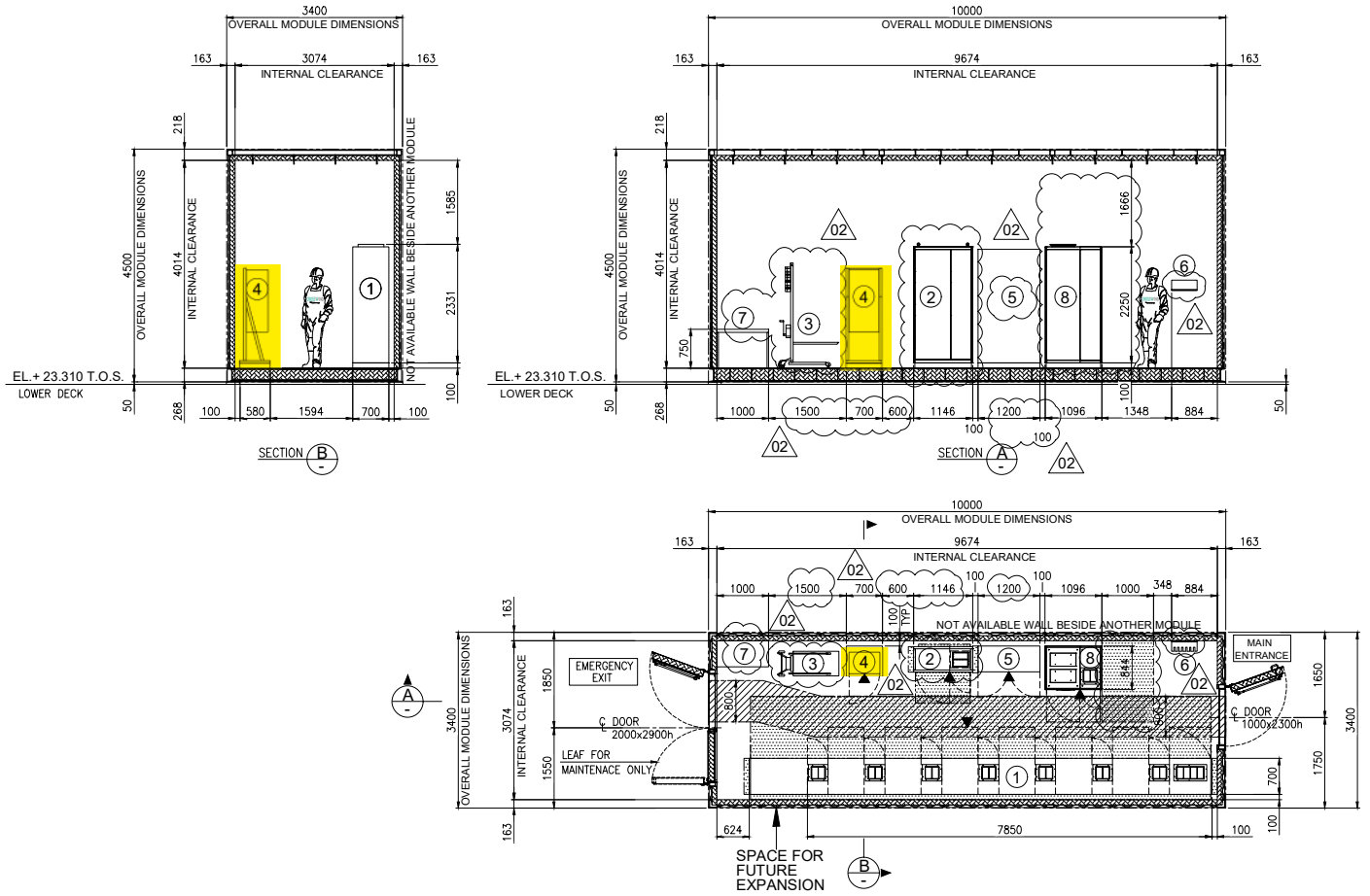
TYPE / SERIAL N° :	VOLCRAFT 1000V - ET-200 S/N:H240103023	TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207
Calibration certificate N° and date:	N°LAT 042 00768/24 _ 12/10/2024	Calibration certificate N° and date:	N°7722/24 _ 10/07/2024
TYPE / SERIAL N° :		TYPE / SERIAL N° :	
Calibration certificate N° and date:		Calibration certificate N° and date:	

Comments: Note 3,9: Cable dressing and termination will be completed on OFFSHORE phase. Refer to task C10004681

Page 1/1

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Alessio Polo	
Date	2025-02-18	2025-02-20	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-02-18T16:00:21.798Z	PROVERLIS Digitaly signed by Alessio Polo 2025-02-20T10:34:27.154Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02

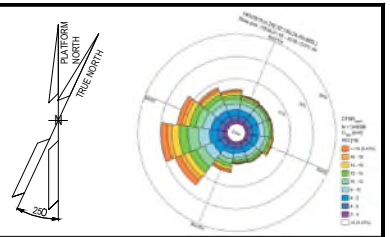


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

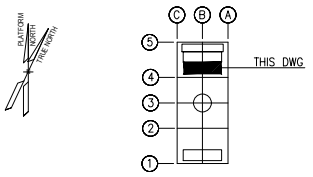
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20105
REV.: 2_A | DATE: 08/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

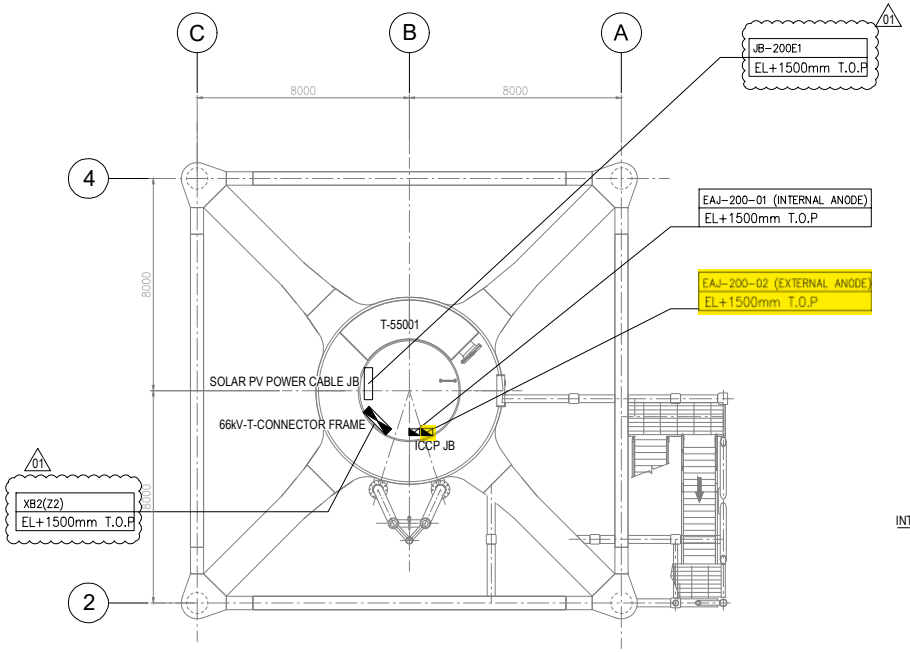
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

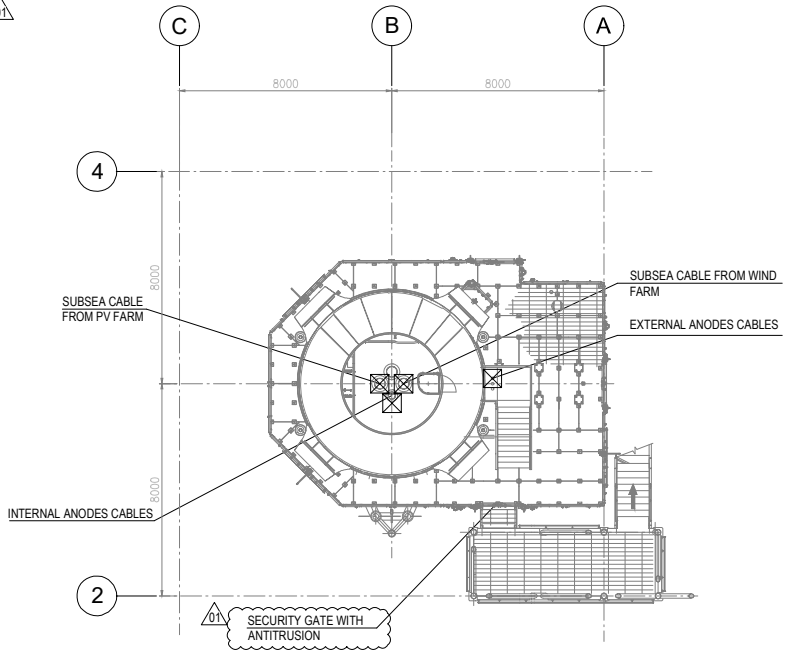
File Name : - 123A90-DDL-EL-DL-20105_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DL-20102

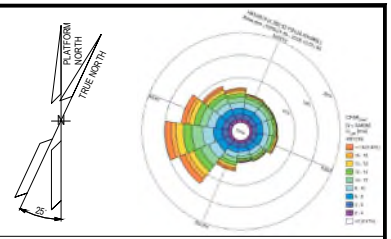
REV. 01



PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.



PLAN ON EXISTING PLATFORM AT
EL+16.860 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. ELEVATIONS REFER TO THE HORIZONTAL AXIS OF THE OBJECT. 01

LEGEND

JB-200E1 / EL+1500mm T.O.P — TAG ITEM REFERED ELEVATION TO T.O.P. (TOP OF PLATFORM)

SOLAR PV POWER CABLE JB

66kV T-CONNECTOR FRAME

ICCP JUNCTION BOX

01 EXISTING CABLE ENTRY

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20120	LIGHTING & SOCKET LAYOUT - BELOW LOWER DECK
123A90-DDL-EL-DS-20048	TDS - IAC CABLE INTERFACE JB + SOLAR PV JB
123A90-DDL-EL-DS-20054	T-CONNECTORS & HV TERMINATIONS
DRW-15547-001-SAE-001	ICCP DRAWINGS & SPECIFICATIONS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	23/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	24/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20102

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
BELOW LOWER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:100
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 23/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20102	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20102-Electrical Equipment Layout - Stair Towers

FROM	TO

DESCRIPTION: IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEM
TAG NUMBER: CN-200N1

-X0
L 191 BN
N 193 BU

5W2.1
2C X 2.5 mm²

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1
BN 1 L
BU 2 N

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X0
L 291 BN
N 293 BU

6W2.1
2C X 2.5 mm²

-X3
BN 1 L
BU 2 N

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1:1
2 BK

7WD3
1C X 70 mm²

-X2:1
BK 2

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X1:2
2 BK

7WD6.1
1C X 70 mm²

-X4:1
BK 2

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_K	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM

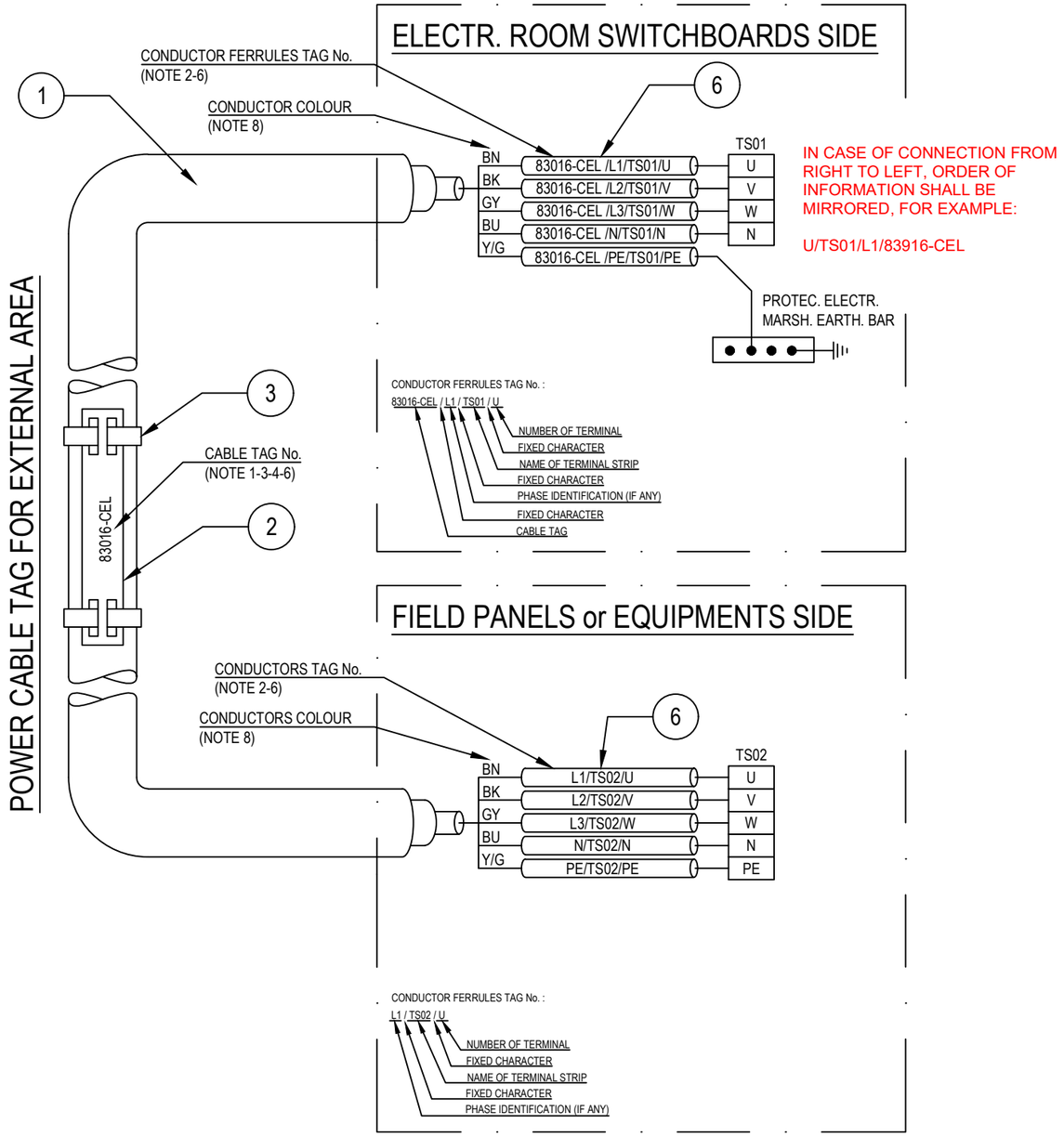
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 060 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

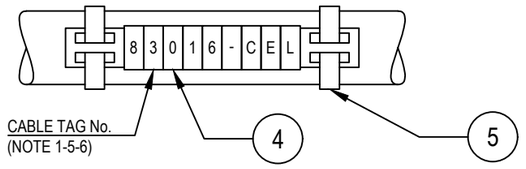
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	From Tag Section	To Tag	To Main Function	To Area	To Tag Section	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
5W2.1	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						CN-200N1	Impressed Current Cathodic Protection (ICCP) System	Lower Deck (B-200)	Panel	EAJ-200-02	ICCP Junction Box	Transition Piece	External	ELECV39-2X2,5	Cable LSZH, Flame Retardant Unarmoured 0,6/1kV 2C x 2,5mm² - Black - Cable Supply by Client	M20S	T1_M20S_Single			T1_M20S_Single	M25	RED_M25MxM 20F		L-300-101-LVT-031 / L-600-101-LVT-020 / L-600-101-LVT-018 / L-600-101-LVT-017 / E-MCT-201 / L-750-101-LVT-011 / L-300-101-LVT-003 / L-300-101-LVT-004 / Passage-1 / L-300-100-LVT-006 / L-300-100-LVT-005 / L-150-100-LVT-001

LKAM-HF Screened power and control cable 0,6/1kV



DESIGN: **STANDARDS:** IEC 60092-353, design

1. Conductor
- stranded copper conductor IEC 60228, class 2
- tinned stranded copper conductor on request

2. Insulation
- XLPE plastic IEC 60092-360

3. Screen
- drain wire of tinned copper 1,0mm² (in all sizes)
- aluminium polyester tape, coverage 100% IEC 60092-350

4. Sheath
- polyolefine plastic, SHF1 IEC 60092-360
- on request, thermosetting polyolefine, SHF2
- standard colour black, other colours on request

Flame-retardant	●
Fire-resistant	○
Halogen-free	●
Low smoke emission	●
Oil resistant (only SHF2)	●

Application: For fixed installation in most areas and on open deck in ships, especially when lightweight cables are needed.

Main characteristics

Rated voltage	**AC 0,6/1kV (1,2kV)** **DC 0,9/1,5kV** (if voltage to earth does not exceed 0,9kV)
Maximum conductor temperature	+ **90 °C**
Flame-retardant	**IEC 60332-1-2** -test for single insulated wire and cable **IEC 60332-3-22** -test for bunched wires and cables, category A
Halogen-free	**IEC 60754** series
Smoke emission	**IEC 61034** series

Minimum recommended installation temperature -15 °C
Lowest operation temperature -40 °C

Core identification: see technical information section

Identification: Lot number, cable type, cable size, voltage, temperature, standards, production month, manufacturer's name and meter marking printed on the sheath

Tel. +31 (0) 183 - 617 109, Fax +31 (0) 183 - 614 087, www.helmacab.nl

LKAM-HF 0,6/1kV		Number of conductors & cross-section n x mm²	Nominal outer diameter mm	Approximate weight kg/km	Current Rating A at +45°C	Min. bending radius fixed installation mm
Part number Normal	G-type					
10110207	–	2x1,5	9,0	100	20	55
10110307	10110307S	3x1,5	9,5	125	16	55
10110407	10110407S	4x1,5	10,0	150	16	60
10110507	10110507S	5x1,5	11,0	175	13	65
10110707	10110707S	7x1,5	12,0	220	12	70
10111007	10111007S	10x1,5	15,5	310	11	90
10111207	10111207S	12x1,5	16,0	350	10	95
10111407	10111407S	14x1,5	16,5	395	10	100
10111607	10111607S	16x1,5	17,5	450	9	105
10111907	10111907S	19x1,5	18,5	510	9	110
10112407	10112407S	24x1,5	22,0	650	8	130
10112707	10112707S	27x1,5	22,5	710	8	135
10113207	10113207S	32x1,5	23,5	825	7	140
10113707	10113707S	37x1,5	25,0	935	7	150
10110208	–	2x2,5	9,5	130	26	60
10110308	10110308S	3x2,5	10,5	160	21	60
10110408	10110408S	4x2,5	11,0	195	21	65
10110508	10110508S	5x2,5	12,5	240	17	75
10110708	10110708S	7x2,5	13,5	300	16	80
10111008	10111008S	10x2,5	17,5	430	14	105
10111208	10111208S	12x2,5	18,0	495	13	105
10111408	10111408S	14x2,5	18,5	565	13	110
10111608	10111608S	16x2,5	19,5	635	12	120
10111908	10111908S	19x2,5	21,0	740	11	125
10112408	10112408S	24x2,5	25,0	930	10	150
10112708	10112708S	27x2,5	25,5	1025	10	150
10113208	10113208S	32x2,5	26,5	1195	9	160
10113708	10113708S	37x2,5	28,5	1355	9	170

G-type is with yellow/green earth conductor and marking on sheath is, for example, 3G1,5

Part number for oil resistant SHF2 cable:
4 + code from above table → 4xxxxx

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ITEM	Tag	6W2.1	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200/TP
TASK	code	C10001800		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX10 Multicore Electrical Control Cable

CABLE DATA

Type	LSZH, Flame Retardant Unarmoured	Cores/Size mm²	2X2,5 mm2	Color	BLACK
From	CN-200N1	To	EAJ-200-01		

1	Check cable physical integrity	OK
2	Check cable data against latest cable schedule.	OK
3	Check cable routing against latest drawings (segregation, distance…).	Note
4	Check cable is supported and fixed to rack according to latest project Specification.	OK
5	Check bending radius is within the specified limits.	OK
6	Check cable and core marking against latest drawings	OK
7	Check cable labelling is in accordance with latest specification.	PL
8	Check cable glands suit for cable type and are in accordance with latest specification.	OK
9	Check terminations are in accordance with latest termination diagram.	Note
10	Check cable earthing against lastest drawings.	NA
11	Check gland plate for single core cables is non magnetic.	OK
12	If required produce Red Line Mark Up for "AS BUILT"	

CONTINUITY	CORE 1 / All cores+screen+armour+earth	0.9
	CORE 2 / All cores+screen+armour+earth	0.9
	CORE 3 / All cores+screen+armour+earth	NA
	CORE 4 / All cores+screen+armour+earth	NA
	CORE 5 / All cores+screen+armour+earth	NA
	CORE 6 / All cores+screen+armour+earth	NA
	CORE 7 / All cores+screen+armour+earth	NA
	CORE 8 / All cores+screen+armour+earth	NA
	CORE 9 / All cores+screen+armour+earth	NA
	CORE 10 / All cores+screen+armour+earth	NA
INSULATION	CORE 1	>1999
	CORE 2	>1999
	CORE 3	NA
	CORE 4	NA
	CORE 5	NA
	CORE 6	NA
	CORE 7	NA
	CORE 8	NA
	CORE 9	NA
	CORE 10	NA
	SCREEN	NA
	EARTH	>1999
	ARMr	>1999
	TEST VOLTS	1000

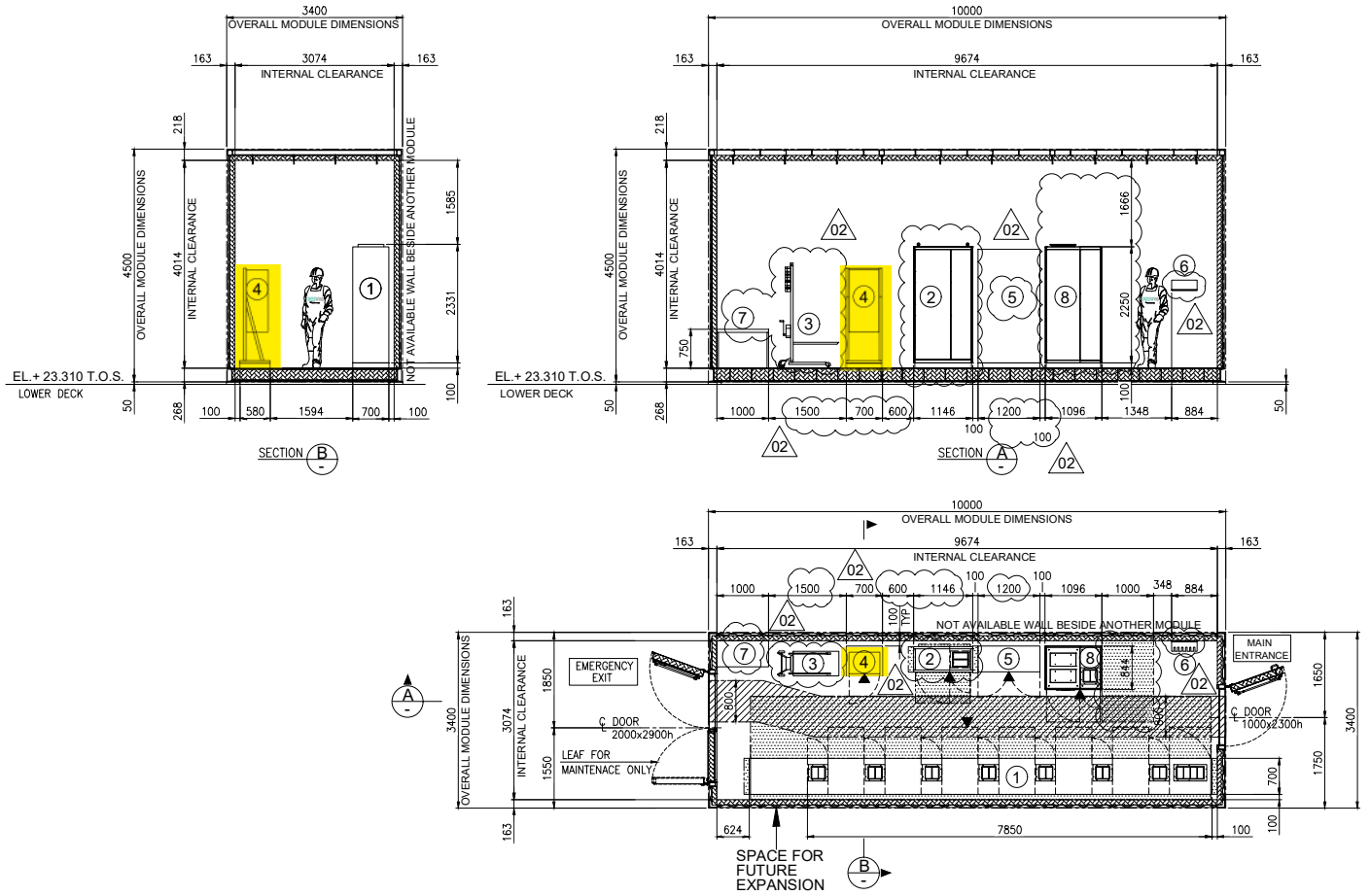
TESTING INSTRUMENTS USED

TYPE / SERIAL N° :	VOLCRAFT 1000V - ET-200 S/N:H240103023	TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207
Calibration certificate N° and date:	N°LAT 042 00768/24 _ 12/10/2024	Calibration certificate N° and date:	N°7722/24 _ 10/07/2024
TYPE / SERIAL N° :		TYPE / SERIAL N° :	
Calibration certificate N° and date:		Calibration certificate N° and date:	

Comments: Note 3,9: Cable dressing and termination will be completed on OFFSHORE phase. Refer to task C10004682

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Alessio Polo	
Date	2025-02-18	2025-02-20	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-02-18T16:00:33.094Z	PROVERLIS Digitaly signed by Alessio Polo 2025-02-20T10:34:34.549Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02

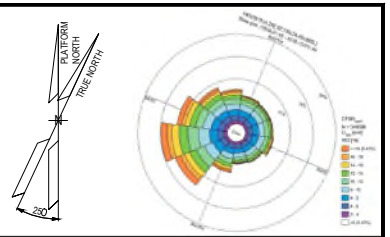


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

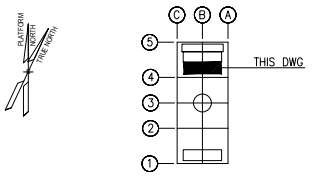
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20105
REV.: 2_A | DATE: 08/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

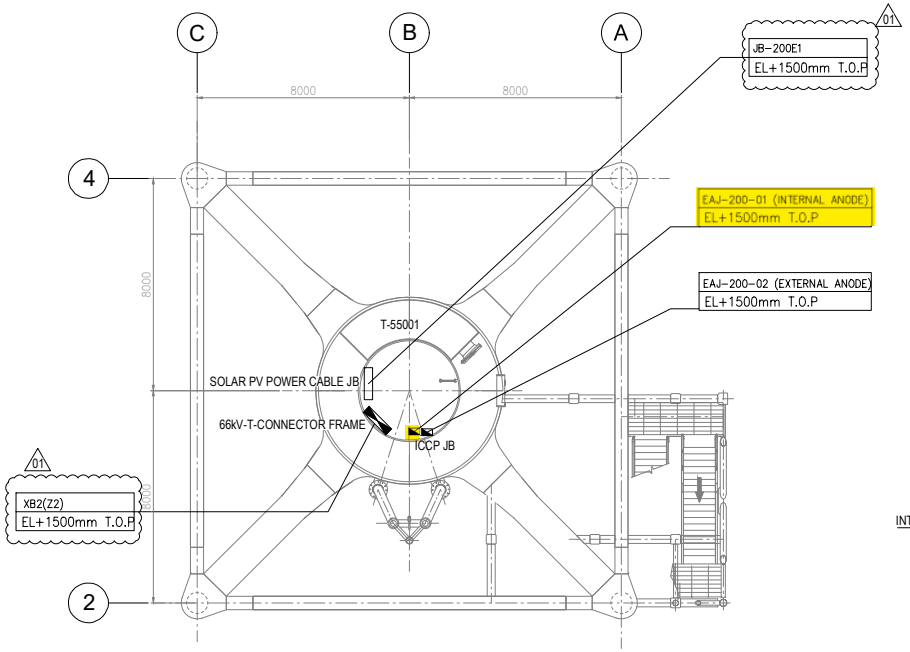
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

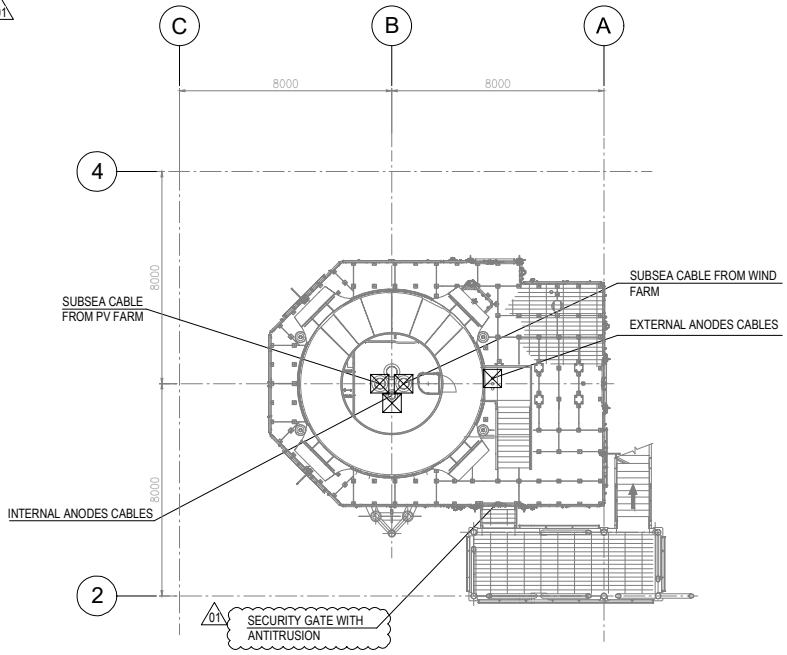
File Name : - 123A90-DDL-EL-DL-20105_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DL-20102

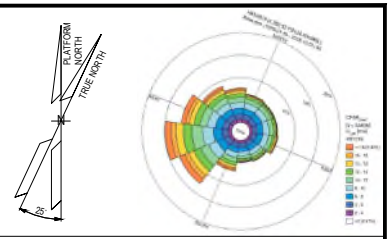
REV. 01



PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.



PLAN ON EXISTING PLATFORM AT
EL+16.860 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. ELEVATIONS REFER TO THE HORIZONTAL AXIS OF THE OBJECT. 01

LEGEND

JB-200E1 / EL+1500mm T.O.P	TAG ITEM REFERED ELEVATION TO T.O.P. (TOP OF PLATFORM)
	SOLAR PV POWER CABLE JB
	66kV T-CONNECTOR FRAME
01	ICCP JUNCTION BOX EXISTING CABLE ENTRY

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20120	LIGHTING & SOCKET LAYOUT - BELOW LOWER DECK
123A90-DDL-EL-DS-20048	TDS - IAC CABLE INTERFACE JB + SOLAR PV JB
123A90-DDL-EL-DS-20054	T-CONNECTORS & HV TERMINATIONS
DRW-15547-001-SAE-001	ICCP DRAWINGS & SPECIFICATIONS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	23/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	24/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20102

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
BELOW LOWER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:100
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 23/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20102	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20102-Electrical Equipment Layout - Stair Towers

FROM	TO

DESCRIPTION: IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEM
TAG NUMBER: CN-200N1

-X0
L 191 BN
N 193 BU

5W2.1
2C X 2.5 mm²

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1
BN 1 L
BU 2 N

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X0
L 291 BN
N 293 BU

6W2.1
2C X 2.5 mm²

-X3
BN 1 L
BU 2 N

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1:1
2 BK

7WD3
1C X 70 mm²

-X2:1
BK 2

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X1:2
2 BK

7WD6.1
1C X 70 mm²

-X4:1
BK 2

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_K	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM

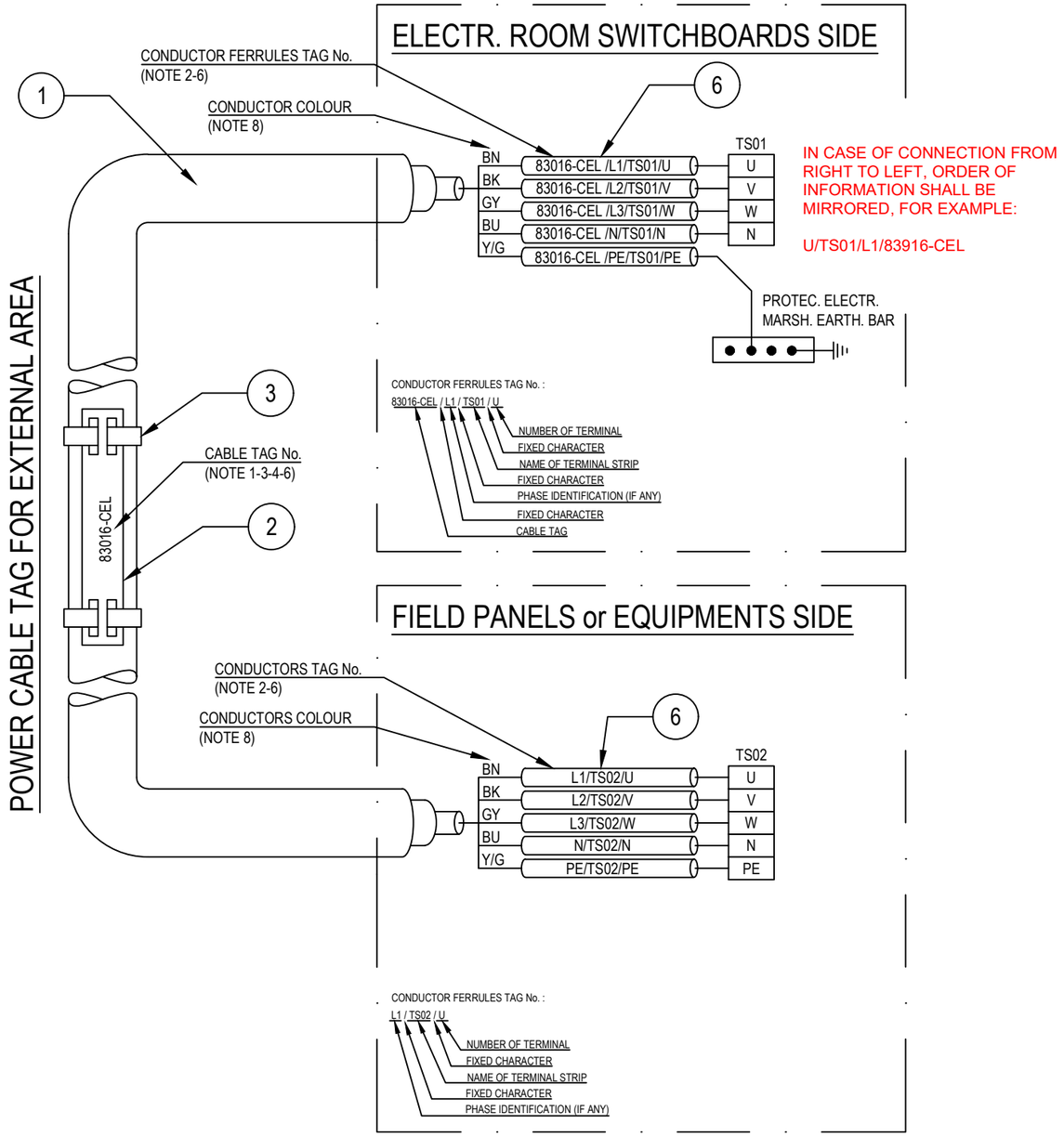
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 060 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

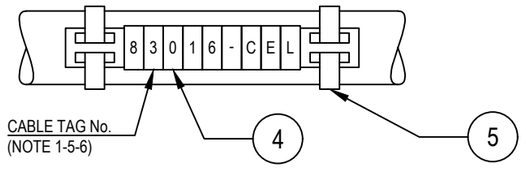
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	From Tag Section	To Tag	To Main Function	To Area	To Tag Section	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
6W2.1	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						CN-200N1	Impressed Current Cathodic Protection (ICCP) System	Lower Deck (B-200)	Panel	EAJ-200-01	ICCP Junction Box	Transition Piece	Internal	ELECV39-2X2,5	Cable LSZH, Flame Retardant Unarmoured 0,6/1kV 2C x 2,5mm² - Black - Cable Supply by Client	M20S	T1_M20S_Single			T1_M20S_Single	M25	RED_M25MxM 20F		L-300-101-LVT-031 / L-600-101-LVT-020 / L-600-101-LVT-018 / L-600-101-LVT-017 / E-MCT-201 / L-750-101-LVT-011 / L-300-101-LVT-003 / L-300-101-LVT-004 / Passage-1 / L-300-100-LVT-006 / L-300-100-LVT-005 / L-150-100-LVT-001

LKAM-HF Screened power and control cable 0,6/1kV



DESIGN: **STANDARDS:** IEC 60092-353, design

1. Conductor
- stranded copper conductor IEC 60228, class 2
- tinned stranded copper conductor on request

2. Insulation
- XLPE plastic IEC 60092-360

3. Screen
- drain wire of tinned copper 1,0mm² (in all sizes)
- aluminium polyester tape, coverage 100% IEC 60092-350

4. Sheath
- polyolefine plastic, SHF1 IEC 60092-360
- on request, thermosetting polyolefine, SHF2
- standard colour black, other colours on request

Flame-retardant	●
Fire-resistant	○
Halogen-free	●
Low smoke emission	●
Oil resistant (only SHF2)	●

Application: For fixed installation in most areas and on open deck in ships, especially when lightweight cables are needed.

Main characteristics

Rated voltage	**AC 0,6/1kV (1,2kV)** **DC 0,9/1,5kV** (if voltage to earth does not exceed 0,9kV)
Maximum conductor temperature	+ **90 °C**
Flame-retardant	**IEC 60332-1-2** -test for single insulated wire and cable **IEC 60332-3-22** -test for bunched wires and cables, category A
Halogen-free	**IEC 60754** series
Smoke emission	**IEC 61034** series

Minimum recommended installation temperature -15 °C
Lowest operation temperature -40 °C

Core identification: see technical information section

Identification: Lot number, cable type, cable size, voltage, temperature, standards, production month, manufacturer's name and meter marking printed on the sheath

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LKAM-HF 0,6/1kV		Number of conductors & cross-section n x mm²	Nominal outer diameter mm	Approximate weight kg/km	Current Rating A at +45°C	Min. bending radius fixed installation mm
Part number Normal	G-type					
10110207	–	2x1,5	9,0	100	20	55
10110307	10110307S	3x1,5	9,5	125	16	55
10110407	10110407S	4x1,5	10,0	150	16	60
10110507	10110507S	5x1,5	11,0	175	13	65
10110707	10110707S	7x1,5	12,0	220	12	70
10111007	10111007S	10x1,5	15,5	310	11	90
10111207	10111207S	12x1,5	16,0	350	10	95
10111407	10111407S	14x1,5	16,5	395	10	100
10111607	10111607S	16x1,5	17,5	450	9	105
10111907	10111907S	19x1,5	18,5	510	9	110
10112407	10112407S	24x1,5	22,0	650	8	130
10112707	10112707S	27x1,5	22,5	710	8	135
10113207	10113207S	32x1,5	23,5	825	7	140
10113707	10113707S	37x1,5	25,0	935	7	150
10110208	–	2x2,5	9,5	130	26	60
10110308	10110308S	3x2,5	10,5	160	21	60
10110408	10110408S	4x2,5	11,0	195	21	65
10110508	10110508S	5x2,5	12,5	240	17	75
10110708	10110708S	7x2,5	13,5	300	16	80
10111008	10111008S	10x2,5	17,5	430	14	105
10111208	10111208S	12x2,5	18,0	495	13	105
10111408	10111408S	14x2,5	18,5	565	13	110
10111608	10111608S	16x2,5	19,5	635	12	120
10111908	10111908S	19x2,5	21,0	740	11	125
10112408	10112408S	24x2,5	25,0	930	10	150
10112708	10112708S	27x2,5	25,5	1025	10	150
10113208	10113208S	32x2,5	26,5	1195	9	160
10113708	10113708S	37x2,5	28,5	1355	9	170

G-type is with yellow/green earth conductor and marking on sheath is, for example, 3G1,5

Part number for oil resistant SHF2 cable:
4 + code from above table → 4xxxxx

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ITEM	Tag	7WD3	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200/TP
TASK	code	C10001801		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

CABLE DATA

Type: LSZH, Flame Retardant Unarmoured | Cores/Size mm²: 1X70 mm2 | Color: BLACK

From: CN-200N1 | To: EAJ-200-02

1	Confirm cable is as specified in project cable schedule	OK
2	Visual Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	Note
4	Check cable is supported and fixed to rack according to project specification.	OK
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Check gland plate for single core cables is non ferrous (non -magnetic).	NA
8	Confirm cable labelling is in accordance with specifications.	PL
9	Check cable is correctly loomed and segregated in accordance with specification.	OK
10	Check cable earthing against lastest drawings.	NA
11	Check cores marking are in accordance with termination diagram	OK
12	Check terminations are in accordance with latest termination diagram	Note
13	If required produce Red Line Mark Up for "AS BUILT"	

ITEM	Tag	7WD3	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	83-60	: Cathodic Protection		Module	LD_B-200/TP	
TASK	code	C10001801	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form	CPX09	LV Power Cable

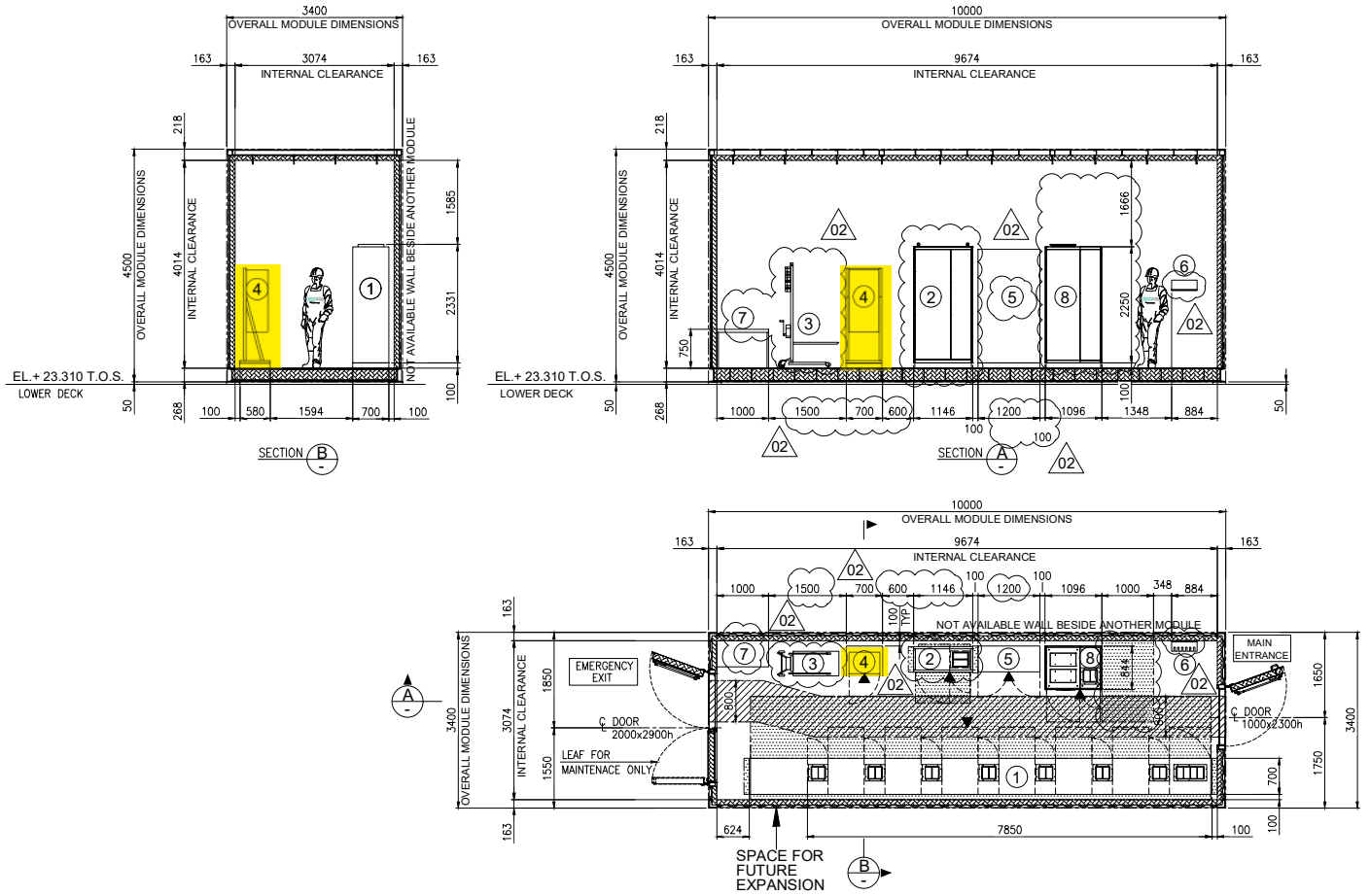
CONTINUITY				
5	CORE CONTINUITY Ω	PH 1	0,2	
6		PH 2	NA	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		NA	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		NA	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>1999	
11		PH2 / PH1-PH3-A-E	NA	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		NA	

TESTING INSTRUMENTS USED			
TYPE / SERIAL N° :	VOLCRAFT 1000V - ET-200 S/N:H240103023	TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207
Calibration certificate N° and date:	N°LAT 042 00768/24 _ 12/10/2024	Calibration certificate N° and date:	N°7722/24 _ 10/07/2024

Comments: Note 3,12: Cable dressing and termination will be completed on OFFSHORE phase. Refer to task C10004683

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Michele Tartaglia	Alessio Polo	
Date	2025-02-18	2025-02-20	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-02-18T16:00:44.148Z	PROVERLIS Digitaly signed by Alessio Polo 2025-02-20T10:34:59.408Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02

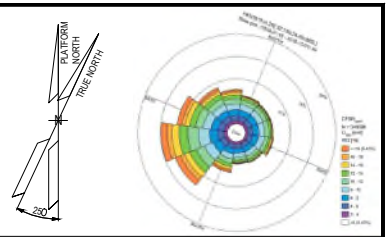


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

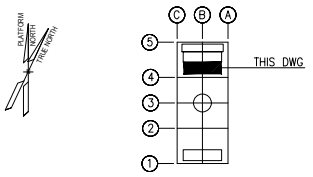
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20105
REV.: 2_A | DATE: 08/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

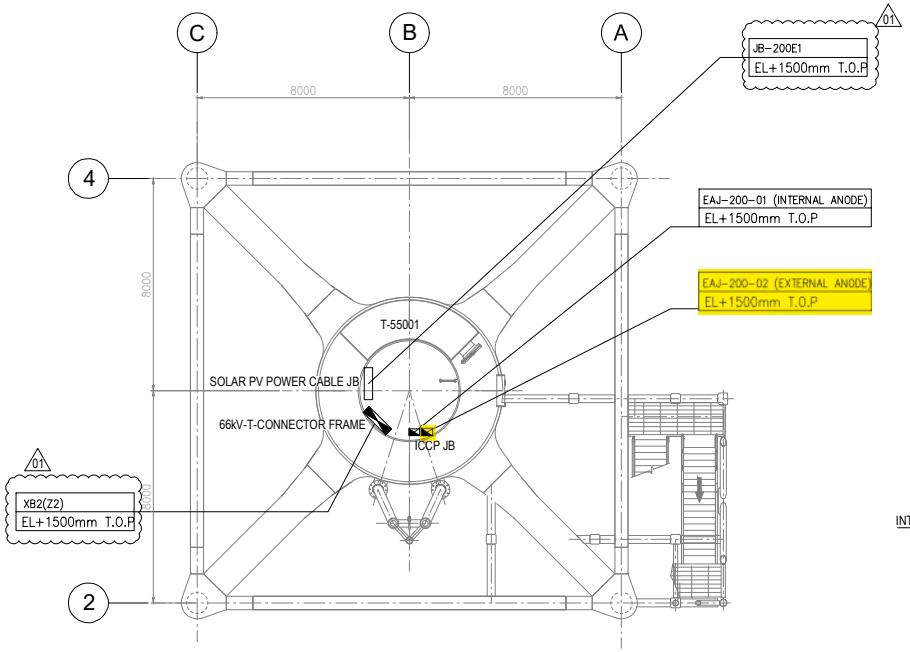
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

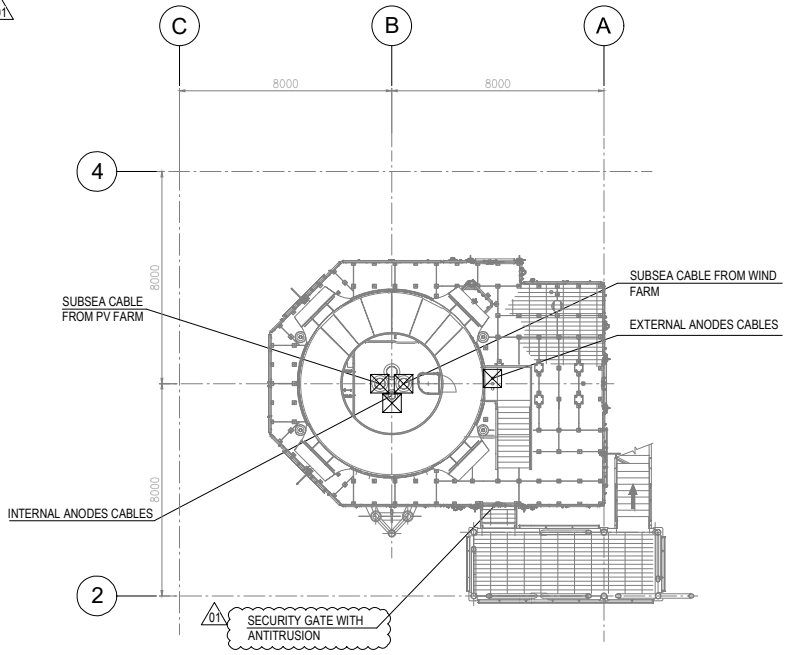
File Name : - 123A90-DDL-EL-DL-20105_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DL-20102

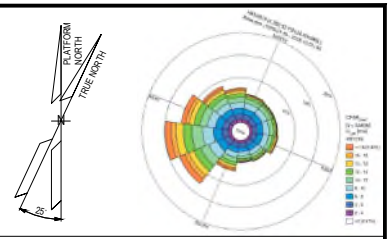
REV. 01



PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.



PLAN ON EXISTING PLATFORM AT
EL+16.860 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. ELEVATIONS REFER TO THE HORIZONTAL AXIS OF THE OBJECT. 01

LEGEND

JB-200E1 / EL+1500mm T.O.P — TAG ITEM REFERED ELEVATION TO T.O.P. (TOP OF PLATFORM)

SOLAR PV POWER CABLE JB

66kV T-CONNECTOR FRAME

ICCP JUNCTION BOX

01 EXISTING CABLE ENTRY

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20120	LIGHTING & SOCKET LAYOUT - BELOW LOWER DECK
123A90-DDL-EL-DS-20048	TDS - IAC CABLE INTERFACE JB + SOLAR PV JB
123A90-DDL-EL-DS-20054	T-CONNECTORS & HV TERMINATIONS
DRW-15547-001-SAE-001	ICCP DRAWINGS & SPECIFICATIONS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	23/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	24/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20102

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
BELOW LOWER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:100
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 23/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20102	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20102-Electrical Equipment Layout - Stair Towers

FROM	TO

DESCRIPTION: IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEM
TAG NUMBER: CN-200N1

-X0
L 191 BN
N 193 BU

5W2.1
2C X 2.5 mm²

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1
BN 1 L
BU 2 N

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X0
L 291 BN
N 293 BU

6W2.1
2C X 2.5 mm²

-X3
BN 1 L
BU 2 N

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1:1
2 BK

7WD3
1C X 70 mm²

-X2:1
BK 2

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X1:2
2 BK

7WD6.1
1C X 70 mm²

-X4:1
BK 2

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_K	12/02/25	G.Randi

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ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM

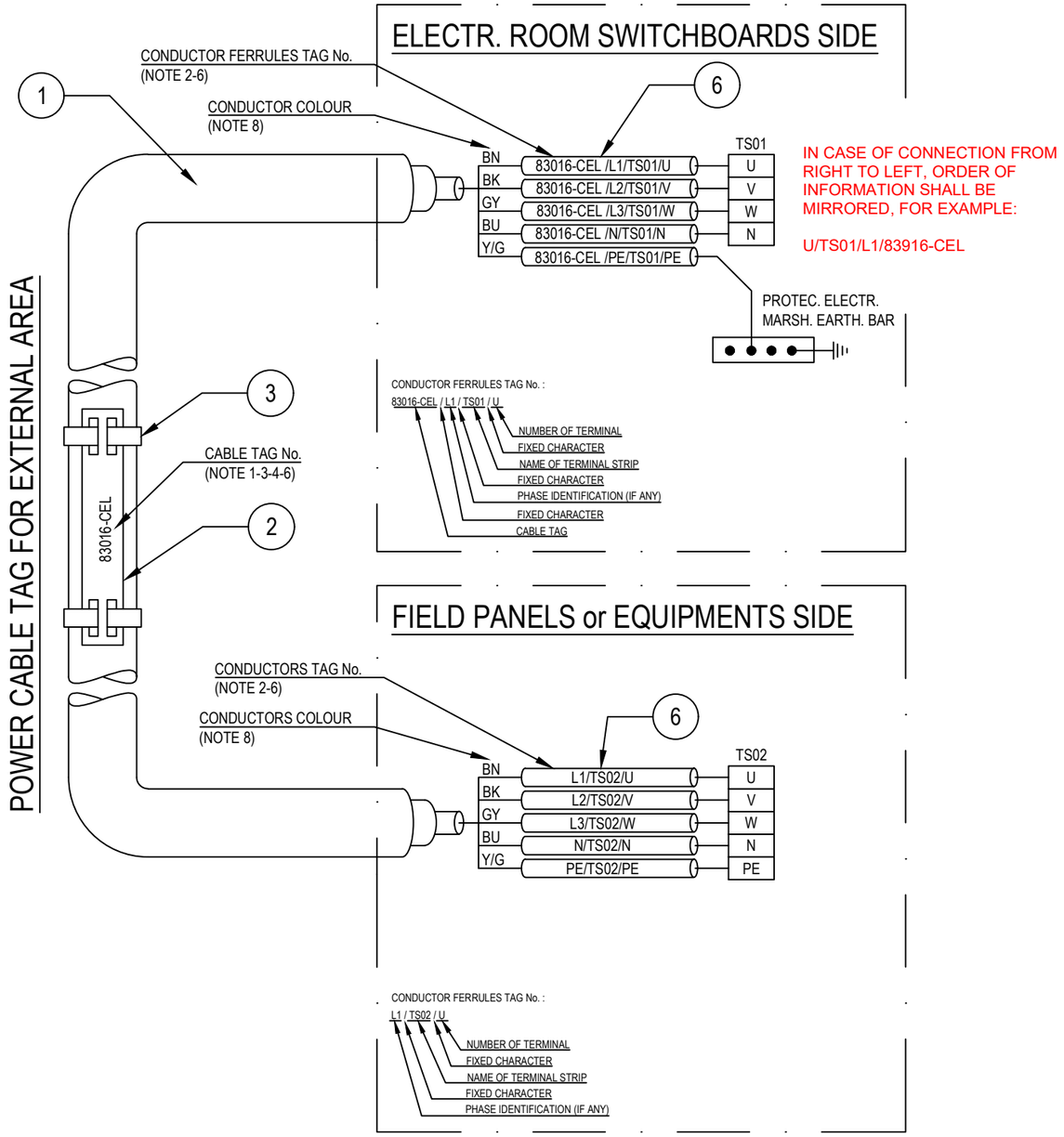
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 060 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

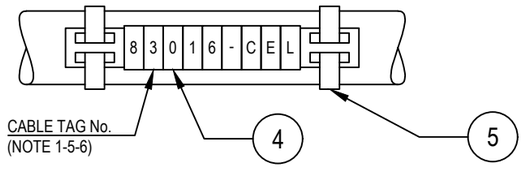
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	From Tag Section	To Tag	To Main Function	To Area	To Tag Section	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
7WD3	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						CN-200N1	Impressed Current Cathodic Protection (ICCP) System	Lower Deck (B-200)	Panel	EAJ-200-02	ICCP Junction Box	Transition Piece	External	ELECV40-1X70	Cable LSZH, Flame Retardant Unarmoured 0,6/1kV 1C x 70mm² - Black - Cable Supply by Client	M25	T1_M25_Single			T1_M25_Single				L-300-101-LVT-031 / L-600-101-LVT-020 / L-600-101-LVT-018 / L-600-101-LVT-017 / E-MCT-201 / L-750-101-LVT-011 / L-300-101-LVT-003 / L-300-101-LVT-004 / Passage-1 / L-300-100-LVT-006 / L-300-100-LVT-005 / L-150-100-LVT-001

LKM-HF Unarmoured power and control cable 0,6/1kV



DESIGN:

STANDARDS:
IEC 60092-353, design

1. Conductor
- stranded copper conductor 1,0-10mm² IEC 60228, class 2
- stranded copper conductor 16-300mm² IEC 60228, class 5(Flex)
- tinned stranded copper conductor on request

2. Insulation
- XLPE plastic IEC 60092-360

3. Bedding
- separator tape

4. Sheath
- polyolefine plastic, SHF1 IEC 60092-360
- on request, thermosetting polyolefine, SHF2
- standard colour black, other colours on request

Flame-retardant ●
Fire-resistant ○
Halogen-free ●
Low smoke emission ●
Oil resistant (only SHF2) ●

Application: For fixed installation in most areas and on open deck in ships.

Main characteristics

Rated voltage	**AC 0,6/1kV (1,2kV)** **DC 0,9/1,5kV** (if voltage to earth does not exceed 0,9kV)
Maximum conductor temperature	**+ 90 °C**
Flame-retardant	**IEC 60332-1-2**-test for single insulated wire and cable **IEC 60332-3-22** -test for bunched wires and cables, category A
Halogen-free	**IEC 60754** series
Smoke emission	**IEC 61034** series
Oil resistance (only SHF2)	**IEC 60811 404** conditions according to 60092-360/SHF2

Minimum recommended installation temperature -15 °C
Lowest operation temperature -40 °C

Core identification: see technical information section

Identification: Lot number, cable type, cable size, voltage, temperature, standards, production month, manufacturer's name and meter marking printed on the sheath

Tel. +31 (0) 183 - 617 109, Fax +31 (0) 183 - 614 087, www.helmacab.nl

LKM-HF 0,6/1kV		Number of conductors & cross-section n x mm²	Nominal outer diameter mm	Approximate weight kg/km	Current Rating A at +45°C	Min. bending radius fixed installation mm
Part number Normal	G-type					
–	–	1x1,0	5,0	35	18	20
10010107	10010107S	1x1,5	5,5	40	23	25
10010108	10010108S	1x2,5	5,5	55	30	25
10010109	10010109S	1x4	6,5	70	40	30
10010110	10010110S	1x6	7,0	95	52	30
10010111	10010111S	1x10	8,0	140	72	35
10020112	10020112S	1x16 Flex	9,0	185	94	40
10020113	10020113S	1x25 Flex	11,5	290	123	50
10020114	10020114S	1x35 Flex	12,5	385	153	50
10020115	10020115S	1x50 Flex	14,5	540	196	60
10020116	10020116S	1x70 Flex	17,0	750	240	70
10020117	10020117S	1x95 Flex	19,5	975	284	80
10020118	10020118S	1x120 Flex	21,5	1225	331	90
10020119	10020119S	1x150 Flex	24,5	1545	381	100
10020120	10020120S	1x185 Flex	27,0	1880	429	165
10020121	10020121S	1x240 Flex	30,5	2495	507	185
10020122	10020122S	1x300 Flex	33,0	3055	582	200
10010206	–	2x1,0	7,5	65	15	30
10010207	–	2x1,5	8,5	80	20	35
10010208	–	2x2,5	9,5	115	26	40
10010209	–	2x4	10,5	155	34	45
10010210	–	2x6	12,0	240	44	50
10010211	–	2x10	14,0	360	61	60
10020212	–	2x16 Flex	16,5	490	80	70
10020213	–	2x25 Flex	20,5	755	105	85
10020214	–	2x35 Flex	23,0	1035	130	95
10020215	–	2x50 Flex	27,5	1455	167	170
10020216	–	2x70 Flex	31,5	1995	204	190
10010306	–	3x1,0	8,0	80	13	35
10010307	10010307S	3x1,5	9,0	100	16	40
10010308	10010308S	3x2,5	10,0	145	21	45
10010309	10010309S	3x4	11,5	200	28	50
10010310	10010310S	3x6	13,0	310	36	55
10010311	10010311S	3x10	15,0	465	50	65
10020312	10020312S	3x16 Flex	17,5	625	66	75
10020313	10020313S	3x25 Flex	22,0	970	86	90
10020314	10020314S	3x35 Flex	25,0	1325	107	100
10020315	10020315S	3x50 Flex	29,5	1880	137	180
10020316	10020316S	3x70 Flex	34,5	2615	168	210
10020317	10020317S	3x95 Flex	40,0	3455	199	240
10020318	10020318S	3x120 Flex	44,5	4365	232	270
10020319	10020319S	3x150 Flex	50,5	5485	267	305
10020320	10020320S	3x185 Flex	57,0	6800	300	345
10020321	10020321S	3x240 Flex	64,5	9045	355	390

G-type is with yellow/green earth conductor and marking on sheath is, for example, 3G1,5

Part number for oil resistant SHF2 cable:
4 + code from above table→ 4xxxxx

Table continues on next page

Tel. +31 (0) 183 - 617 109, Fax +31 (0) 183 - 614 087, www.helmacab.nl

LKM-HF 0,6/1kV		Number of conductors & cross-section n x mm²	Nominal outer diameter mm	Approximate weight kg/km	Current Rating A at +45°C	Min. bending radius fixed installation mm
Part number Normal	G-type					
10010406	–	4x1,0	8,5	95	13	35
10010407	10010407S	4x1,5	10,0	135	16	40
10010408	10010408S	4x2,5	11,0	180	21	45
10010409	10010409S	4x4	12,5	260	28	55
10010410	10010410S	4x6	14,0	385	36	60
10010411	10010411S	4x10	16,5	585	50	70
10020412	10020412S	4x16 Flex	19,5	800	66	80
10020413	10020413S	4x25 Flex	24,5	1250	86	100
10020414	10020414S	4x35 Flex	27,5	1695	107	170
10020415	10020415S	4x50 Flex	33,0	2420	137	200
10020416	10020416S	4x70 Flex	38,0	3350	168	230
10020417	10020417S	4x95 Flex	44,5	4465	199	270
10020418	10020418S	4x120 Flex	49,5	5590	232	300
10010506	–	5x1,0	9,5	125	10	40
10010507	10010507S	5x1,5	11,0	160	13	45
10010508	10010508S	5x2,5	12,0	220	17	50
10010509	10010509S	5x4	13,5	320	23	55
10010510	10010510S	5x6	15,5	475	30	65
10010511	10010511S	5x10	18,5	720	42	75
10020512	10020512S	5x16 Flex	21,5	970	55	90
10020513	10020513S	5x25 Flex	27,5	1545	71	165
10020514	10020514S	5x35 Flex	30,5	2100	89	185
10020515	10020515S	5x50 Flex	37,0	2980	114	225
10020516	10020516S	5x70 Flex	42,5	4175	139	260
10010706	–	7x1,0	10,5	155	9	45
10011006	–	10x1,0	13,5	225	8	55
10011206	–	12x1,0	13,5	250	8	55
10011406	–	14x1,0	14,5	280	7	60
10011606	–	16x1,0	15,5	325	7	65
10011906	–	19x1,0	16,0	365	7	65
10012406	–	24x1,0	19,0	465	6	80
10012706	–	27x1,0	19,5	510	6	80
10013006	–	30x1,0	20,0	555	5	85
10013706	–	37x1,0	22,0	680	5	90

G-type is with yellow/green earth conductor and marking on sheath is, for example, 3G1,5

Part number for oil resistant SHF2 cable:
4 + code from above table → 4xxxxx

Table continues on next page

Tel. +31 (0) 183 - 617 109, Fax +31 (0) 183 - 614 087, www.helmacab.nl

LKM-HF 0,6/1kV		Number of conductors & cross-section n x mm²	Nominal outer diameter mm	Approximate weight kg/km	Current Rating A at +45°C	Min. bending radius fixed installation mm
Part number Normal	G-type					
10010707	10010707S	7x1,5	11,5	200	12	50
10011007	10011007S	10x1,5	15,0	290	11	60
10011207	10011207S	12x1,5	15,5	335	10	65
10011407	10011407S	14x1,5	16,5	380	10	70
10011607	10011607S	16x1,5	17,0	430	9	70
10011907	10011907S	19x1,5	18,5	495	9	75
10012407	10012407S	24x1,5	22,0	635	8	90
10012707	10012707S	27x1,5	22,0	700	8	90
10013707	10013707S	37x1,5	25,0	920	7	100
10010708	10010708S	7x2,5	13,5	285	16	55
10011008	10011008S	10x2,5	17,0	410	14	70
10011208	10011208S	12x2,5	17,5	465	13	70
10011408	10011408S	14x2,5	18,5	535	13	75
10011608	10011608S	16x2,5	19,5	605	12	80
10011908	10011908S	19x2,5	20,5	690	11	85
10012408	10012408S	24x2,5	24,5	900	10	100
10012708	10012708S	27x2,5	25,0	990	10	155

G-type is with yellow/green earth conductor and marking on sheath is, for example, 3G1,5

Part number for oil resistant SHF2 cable:
4 + code from above table → 4xxxxx

Tel. +31 (0) 183 - 617 109, Fax +31 (0) 183 - 614 087, www.helmacab.nl

ITEM	Tag	7WD6.1	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	83-60	: Cathodic Protection		Module	LD_B-200/TP	
TASK	code	C10001802	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form	CPX09	LV Power Cable

CABLE DATA

Type LSZH, Flame Retardant Unarmoured | Cores/Size mm² 1X70 mm2 | Color BLACK

From CN-200N1 | To EAJ-200-01

1	Confirm cable is as specified in project cable schedule	OK
2	Visual Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	Note
4	Check cable is supported and fixed to rack according to project specification.	OK
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Check gland plate for single core cables is non ferrous (non -magnetic).	NA
8	Confirm cable labelling is in accordance with specifications.	PL
9	Check cable is correctly loomed and segregated in accordance with specification.	OK
10	Check cable earthing against lastest drawings.	NA
11	Check cores marking are in accordance with termination diagram	OK
12	Check terminations are in accordance with latest termination diagram	Note
13	If required produce Red Line Mark Up for "AS BUILT"	

REFER TO FINAL SHEET FOR ACCEPTANCE

ROSETTI MARINO PROVERLIS CROSSWIND

ITEM	Tag	7WD6.1	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	83-60	: Cathodic Protection		Module	LD_B-200/TP	
TASK	code	C10001802	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form	CPX09	LV Power Cable

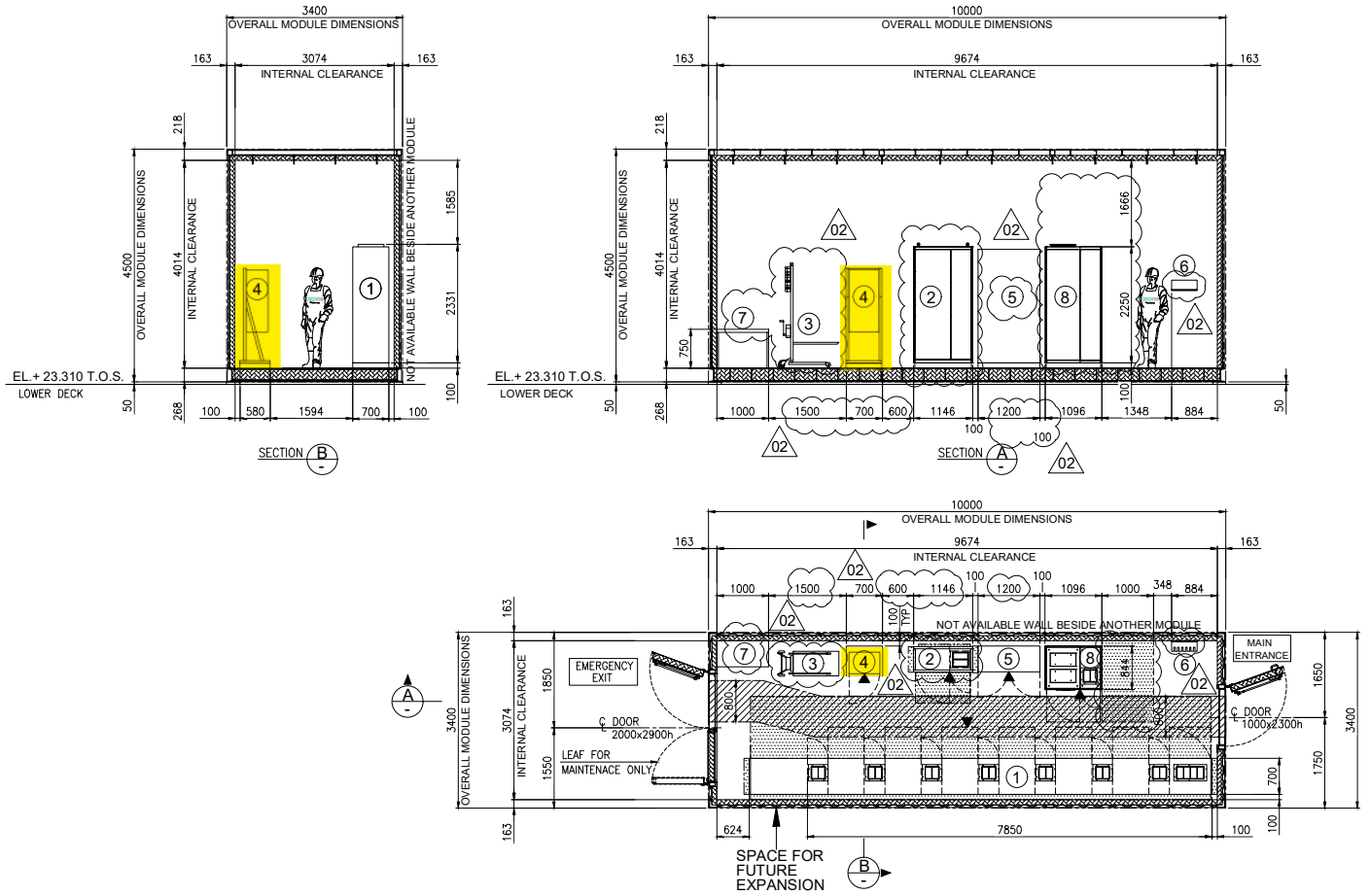
CONTINUITY				
5	CORE CONTINUITY Ω	PH 1	0,2	
6		PH 2	NA	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		NA	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		NA	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>1999	
11		PH2 / PH1-PH3-A-E	NA	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		NA	

TESTING INSTRUMENTS USED			
TYPE / SERIAL N° :	VOLCRAFT 1000V - ET-200 S/N:H240103023	TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207
Calibration certificate N° and date:	N°LAT 042 00768/24 _ 12/10/2024	Calibration certificate N° and date:	N°7722/24 _ 10/07/2024

Comments: Note 3,12: Cable dressing and termination will be completed on OFFSHORE phase. Refer to task C10004684

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Michele Tartaglia	Alessio Polo	
Date	2025-02-18	2025-02-20	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-02-18T16:00:59.032Z	PROVERLIS Digitaly signed by Alessio Polo 2025-02-20T10:35:38.478Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02

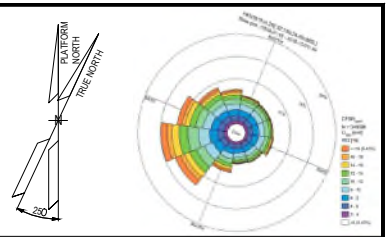


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

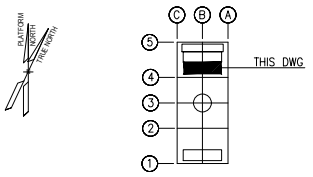
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20105
REV.: 2_A | DATE: 08/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

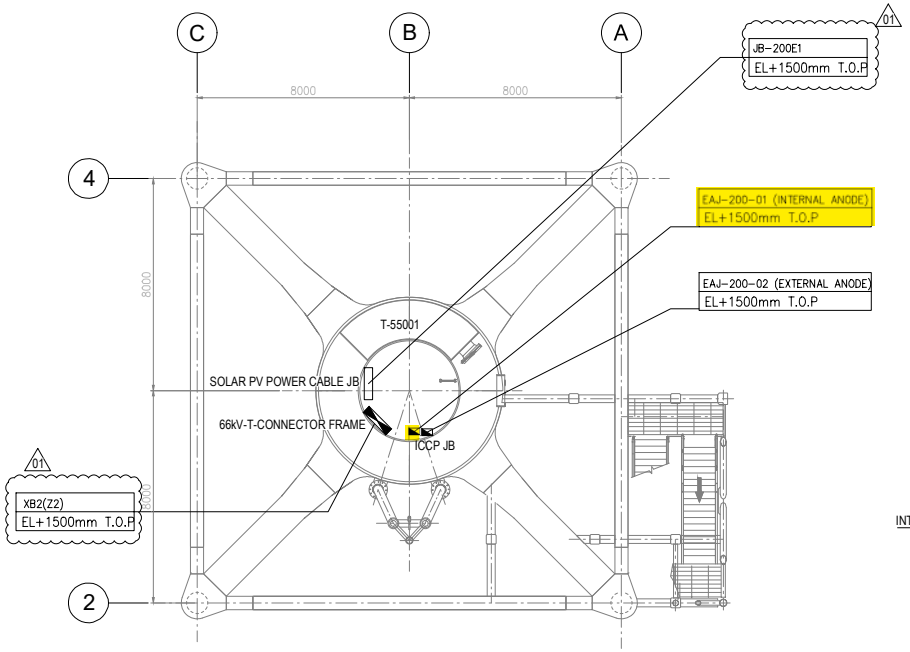
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

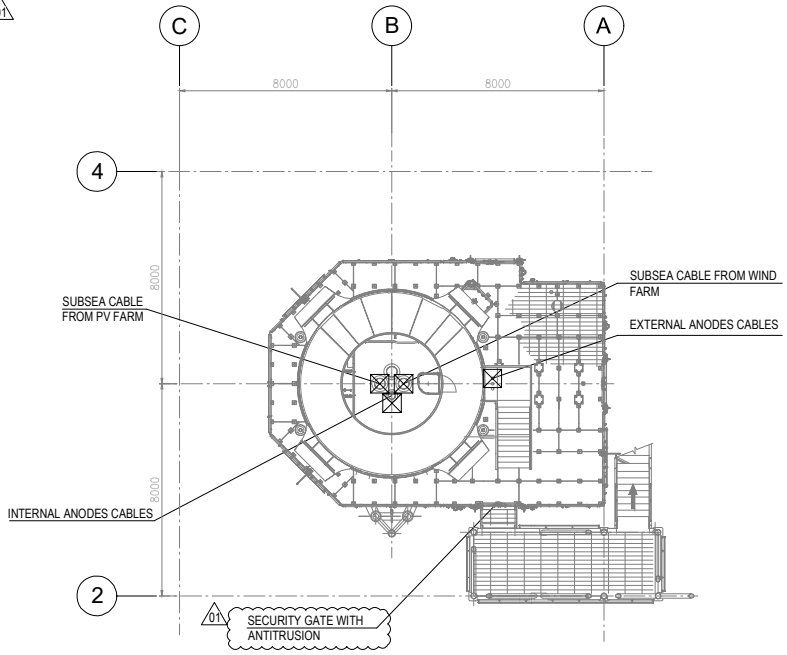
File Name : - 123A90-DDL-EL-DL-20105_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DL-20102

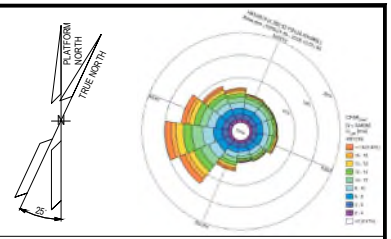
REV. 01



PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.



PLAN ON EXISTING PLATFORM AT
EL+16.860 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. ELEVATIONS REFER TO THE HORIZONTAL AXIS OF THE OBJECT. 01

LEGEND

JB-200E1 / EL+1500mm T.O.P	TAG ITEM REFERED ELEVATION TO T.O.P. (TOP OF PLATFORM)
	SOLAR PV POWER CABLE JB
	66kV T-CONNECTOR FRAME
01	ICCP JUNCTION BOX EXISTING CABLE ENTRY

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20120	LIGHTING & SOCKET LAYOUT - BELOW LOWER DECK
123A90-DDL-EL-DS-20048	TDS - IAC CABLE INTERFACE JB + SOLAR PV JB
123A90-DDL-EL-DS-20054	T-CONNECTORS & HV TERMINATIONS
DRW-15547-001-SAE-001	ICCP DRAWINGS & SPECIFICATIONS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	23/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	24/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20102

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
BELOW LOWER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:100
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 23/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20102	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20102-Electrical Equipment Layout - Stair Towers

FROM	TO

DESCRIPTION: IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEM
TAG NUMBER: CN-200N1

-X0

L	191	BN
N	193	BU

5W2.1
2C X 2.5 mm²

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1

BN	1	L
BU	2	N

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X0

L	291	BN
N	293	BU

6W2.1
2C X 2.5 mm²

-X3

BN	1	L
BU	2	N

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1:1

2	BK	

7WD3
1C X 70 mm²

-X2:1

BK	2	

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X1:2

2	BK	

7WD6.1
1C X 70 mm²

-X4:1

BK	2	

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_K	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM

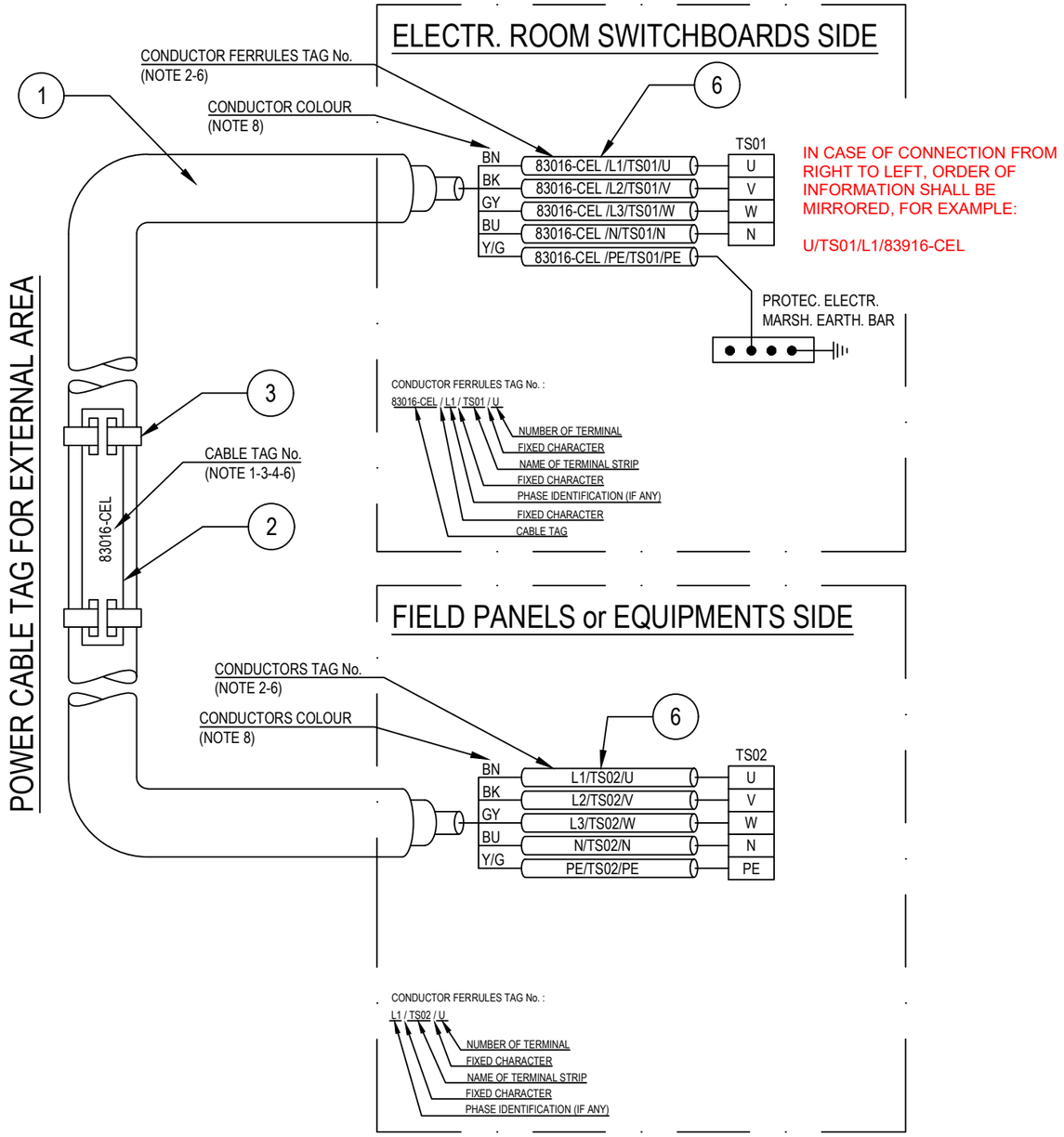
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 060 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

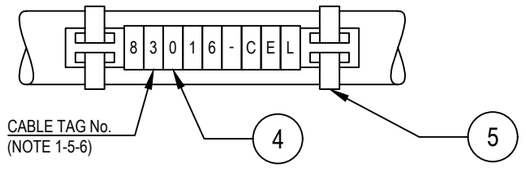
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	From Tag Section	To Tag	To Main Function	To Area	To Tag Section	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
7WD6.1	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						CN-200N1	Impressed Current Cathodic Protection (ICCP) System	Lower Deck (B- 200)	Panel	EAJ-200-01	ICCP Junction Box	Transition Piece	Internal	ELECV40-1X70	Cable LSZH, Flame Retardant Unarmoured 0,6/1kV 1C x 70mm² - Black - Cable Supply by Client	M25	T1_M25_Single			T1_M25_Sin gle				L-300-101-LVT-031 / L-600-101-LVT-020 / L-600-101-LVT-018 / L-600-101-LVT-017 / E-MCT-201 / L-750-101-LVT-011 / L-300-101-LVT-003 / L-300-101-LVT-004 / Passage-1 / L-300-100-LVT-006 / L-300-100-LVT-005 / L-150-100-LVT-001

LKM-HF Unarmoured power and control cable 0,6/1kV



DESIGN:

STANDARDS:
IEC 60092-353, design

1. Conductor
- stranded copper conductor 1,0-10mm² IEC 60228, class 2
- stranded copper conductor 16-300mm² IEC 60228, class 5(Flex)
- tinned stranded copper conductor on request

2. Insulation
- XLPE plastic IEC 60092-360

3. Bedding
- separator tape

4. Sheath
- polyolefine plastic, SHF1 IEC 60092-360
- on request, thermosetting polyolefine, SHF2
- standard colour black, other colours on request

Flame-retardant ●
Fire-resistant ○
Halogen-free ●
Low smoke emission ●
Oil resistant (only SHF2) ●

Application: For fixed installation in most areas and on open deck in ships.

Main characteristics

Rated voltage	**AC 0,6/1kV (1,2kV)** **DC 0,9/1,5kV** (if voltage to earth does not exceed 0,9kV)
Maximum conductor temperature	**+ 90 °C**
Flame-retardant	**IEC 60332-1-2**-test for single insulated wire and cable **IEC 60332-3-22** -test for bunched wires and cables, category A
Halogen-free	**IEC 60754** series
Smoke emission	**IEC 61034** series
Oil resistance (only SHF2)	**IEC 60811 404** conditions according to 60092-360/SHF2

Minimum recommended installation temperature -15 °C
Lowest operation temperature -40 °C

Core identification: see technical information section

Identification: Lot number, cable type, cable size, voltage, temperature, standards, production month, manufacturer's name and meter marking printed on the sheath

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LKM-HF 0,6/1kV		Number of conductors & cross-section n x mm²	Nominal outer diameter mm	Approximate weight kg/km	Current Rating A at +45°C	Min. bending radius fixed installation mm
Part number Normal	G-type					
–	–	1x1,0	5,0	35	18	20
10010107	10010107S	1x1,5	5,5	40	23	25
10010108	10010108S	1x2,5	5,5	55	30	25
10010109	10010109S	1x4	6,5	70	40	30
10010110	10010110S	1x6	7,0	95	52	30
10010111	10010111S	1x10	8,0	140	72	35
10020112	10020112S	1x16 Flex	9,0	185	94	40
10020113	10020113S	1x25 Flex	11,5	290	123	50
10020114	10020114S	1x35 Flex	12,5	385	153	50
10020115	10020115S	1x50 Flex	14,5	540	196	60
10020116	10020116S	1x70 Flex	17,0	750	240	70
10020117	10020117S	1x95 Flex	19,5	975	284	80
10020118	10020118S	1x120 Flex	21,5	1225	331	90
10020119	10020119S	1x150 Flex	24,5	1545	381	100
10020120	10020120S	1x185 Flex	27,0	1880	429	165
10020121	10020121S	1x240 Flex	30,5	2495	507	185
10020122	10020122S	1x300 Flex	33,0	3055	582	200
10010206	–	2x1,0	7,5	65	15	30
10010207	–	2x1,5	8,5	80	20	35
10010208	–	2x2,5	9,5	115	26	40
10010209	–	2x4	10,5	155	34	45
10010210	–	2x6	12,0	240	44	50
10010211	–	2x10	14,0	360	61	60
10020212	–	2x16 Flex	16,5	490	80	70
10020213	–	2x25 Flex	20,5	755	105	85
10020214	–	2x35 Flex	23,0	1035	130	95
10020215	–	2x50 Flex	27,5	1455	167	170
10020216	–	2x70 Flex	31,5	1995	204	190
10010306	–	3x1,0	8,0	80	13	35
10010307	10010307S	3x1,5	9,0	100	16	40
10010308	10010308S	3x2,5	10,0	145	21	45
10010309	10010309S	3x4	11,5	200	28	50
10010310	10010310S	3x6	13,0	310	36	55
10010311	10010311S	3x10	15,0	465	50	65
10020312	10020312S	3x16 Flex	17,5	625	66	75
10020313	10020313S	3x25 Flex	22,0	970	86	90
10020314	10020314S	3x35 Flex	25,0	1325	107	100
10020315	10020315S	3x50 Flex	29,5	1880	137	180
10020316	10020316S	3x70 Flex	34,5	2615	168	210
10020317	10020317S	3x95 Flex	40,0	3455	199	240
10020318	10020318S	3x120 Flex	44,5	4365	232	270
10020319	10020319S	3x150 Flex	50,5	5485	267	305
10020320	10020320S	3x185 Flex	57,0	6800	300	345
10020321	10020321S	3x240 Flex	64,5	9045	355	390

G-type is with yellow/green earth conductor and marking on sheath is, for example, 3G1,5

Part number for oil resistant SHF2 cable:
4 + code from above table→ 4xxxxx

Table continues on next page

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LKM-HF 0,6/1kV		Number of conductors & cross-section n x mm²	Nominal outer diameter mm	Approximate weight kg/km	Current Rating A at +45°C	Min. bending radius fixed installation mm
Part number Normal	G-type					
10010406	–	4x1,0	8,5	95	13	35
10010407	10010407S	4x1,5	10,0	135	16	40
10010408	10010408S	4x2,5	11,0	180	21	45
10010409	10010409S	4x4	12,5	260	28	55
10010410	10010410S	4x6	14,0	385	36	60
10010411	10010411S	4x10	16,5	585	50	70
10020412	10020412S	4x16 Flex	19,5	800	66	80
10020413	10020413S	4x25 Flex	24,5	1250	86	100
10020414	10020414S	4x35 Flex	27,5	1695	107	170
10020415	10020415S	4x50 Flex	33,0	2420	137	200
10020416	10020416S	4x70 Flex	38,0	3350	168	230
10020417	10020417S	4x95 Flex	44,5	4465	199	270
10020418	10020418S	4x120 Flex	49,5	5590	232	300
10010506	–	5x1,0	9,5	125	10	40
10010507	10010507S	5x1,5	11,0	160	13	45
10010508	10010508S	5x2,5	12,0	220	17	50
10010509	10010509S	5x4	13,5	320	23	55
10010510	10010510S	5x6	15,5	475	30	65
10010511	10010511S	5x10	18,5	720	42	75
10020512	10020512S	5x16 Flex	21,5	970	55	90
10020513	10020513S	5x25 Flex	27,5	1545	71	165
10020514	10020514S	5x35 Flex	30,5	2100	89	185
10020515	10020515S	5x50 Flex	37,0	2980	114	225
10020516	10020516S	5x70 Flex	42,5	4175	139	260
10010706	–	7x1,0	10,5	155	9	45
10011006	–	10x1,0	13,5	225	8	55
10011206	–	12x1,0	13,5	250	8	55
10011406	–	14x1,0	14,5	280	7	60
10011606	–	16x1,0	15,5	325	7	65
10011906	–	19x1,0	16,0	365	7	65
10012406	–	24x1,0	19,0	465	6	80
10012706	–	27x1,0	19,5	510	6	80
10013006	–	30x1,0	20,0	555	5	85
10013706	–	37x1,0	22,0	680	5	90

G-type is with yellow/green earth conductor and marking on sheath is, for example, 3G1,5

Part number for oil resistant SHF2 cable:
4 + code from above table → 4xxxxx

Table continues on next page

Tel. +31 (0) 183 - 617 109, Fax +31 (0) 183 - 614 087, www.helmacab.nl

LKM-HF 0,6/1kV		Number of conductors & cross-section n x mm²	Nominal outer diameter mm	Approximate weight kg/km	Current Rating A at +45°C	Min. bending radius fixed installation mm
Part number Normal	G-type					
10010707	10010707S	7x1,5	11,5	200	12	50
10011007	10011007S	10x1,5	15,0	290	11	60
10011207	10011207S	12x1,5	15,5	335	10	65
10011407	10011407S	14x1,5	16,5	380	10	70
10011607	10011607S	16x1,5	17,0	430	9	70
10011907	10011907S	19x1,5	18,5	495	9	75
10012407	10012407S	24x1,5	22,0	635	8	90
10012707	10012707S	27x1,5	22,0	700	8	90
10013707	10013707S	37x1,5	25,0	920	7	100
10010708	10010708S	7x2,5	13,5	285	16	55
10011008	10011008S	10x2,5	17,0	410	14	70
10011208	10011208S	12x2,5	17,5	465	13	70
10011408	10011408S	14x2,5	18,5	535	13	75
10011608	10011608S	16x2,5	19,5	605	12	80
10011908	10011908S	19x2,5	20,5	690	11	85
10012408	10012408S	24x2,5	24,5	900	10	100
10012708	10012708S	27x2,5	25,0	990	10	155

G-type is with yellow/green earth conductor and marking on sheath is, for example, 3G1,5

Part number for oil resistant SHF2 cable:
4 + code from above table → 4xxxxx

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ITEM	Tag	EAJ-200-02	: ICCP Junction Box			Dwg	123A90-DDL-EL-DL-20118
	S/Sys	83-60	: Cathodic Protection			Module	TP
TASK	code	C10001856		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX31 Junction and Marshalling Box

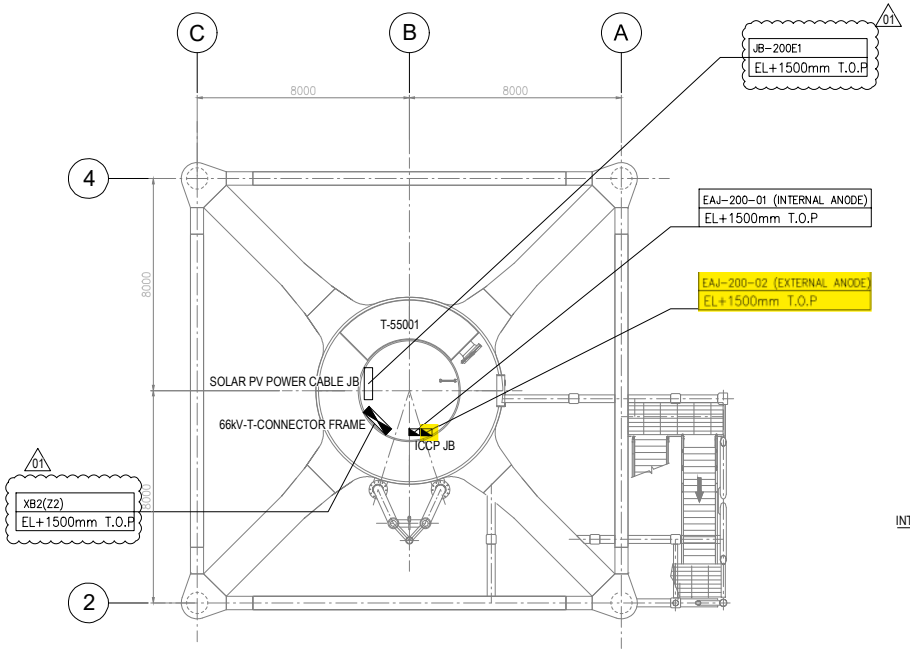
1	Check box is de-energized and safe.	OK
2	Check box is correctly mounted and easily accessible.	OK
3	Check box tagging against drawing.	OK
4	Check nameplate data is correct.	OK
5	Check flameproof joints are clean and greased with approved lubricants (if required).	NA
6	Check for damaging gaskets.	OK
7	Check all bolts are fitted and correcly tighted .	OK
8	Check all unused entries are suitably plugged.	OK
9	Check earthing and bonding against drawings.	OK
10	Check terminal blocks segregation barriers are fitted where necessary.	NA
11	If required produce Red Line Mark Up for "AS BUILT"	

Comments: All cable connections will be connected during offshre activities.See task: C10004683/C10004681

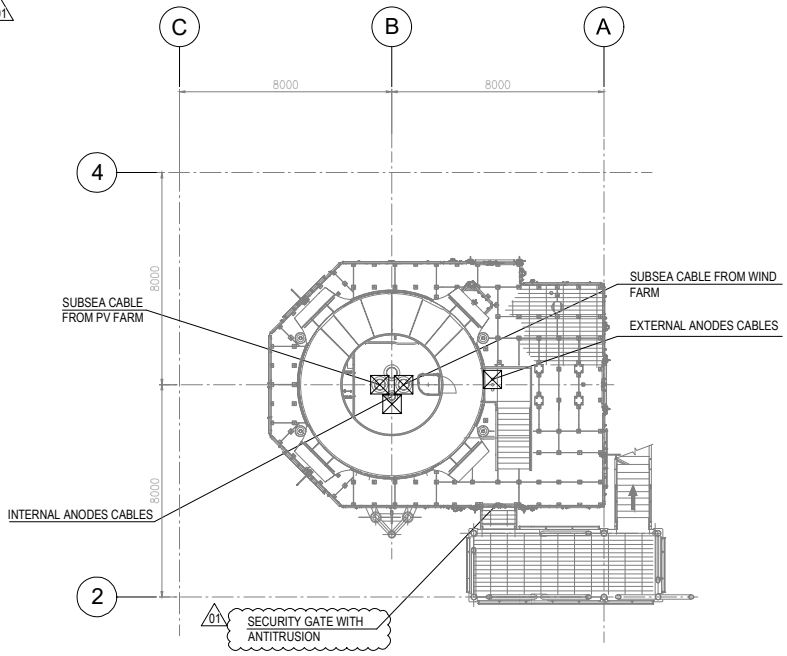
	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	VIP	RM(ROSETTI MARINO)	
Name	Madhankumar Arunagiri	Giovanni Tangianu	
Date	2025-04-18	2025-04-22	
Signature	PROVERLIS Digitaly signed by Madhankumar Arunagiri 2025-04-18T06:32:09.623Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-04-22T13:39:02.240Z	

DRAWING NO. 123A90-DDL-EL-DL-20102

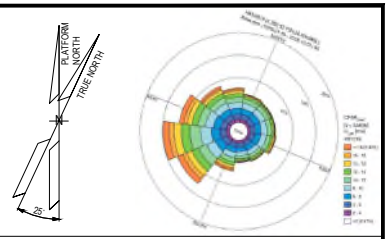
REV. 01



PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.



PLAN ON EXISTING PLATFORM AT
EL+16.860 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. ELEVATIONS REFER TO THE HORIZONTAL AXIS OF THE OBJECT. 01

LEGEND

JB-200E1 / EL+1500mm T.O.P — TAG ITEM REFERED ELEVATION TO T.O.P. (TOP OF PLATFORM)

SOLAR PV POWER CABLE JB

66kV T-CONNECTOR FRAME

ICCP JUNCTION BOX

01 EXISTING CABLE ENTRY

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20120	LIGHTING & SOCKET LAYOUT - BELOW LOWER DECK
123A90-DDL-EL-DS-20048	TDS - IAC CABLE INTERFACE JB + SOLAR PV JB
123A90-DDL-EL-DS-20054	T-CONNECTORS & HV TERMINATIONS
DRW-15547-001-SAE-001	ICCP DRAWINGS & SPECIFICATIONS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	23/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	24/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20102

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

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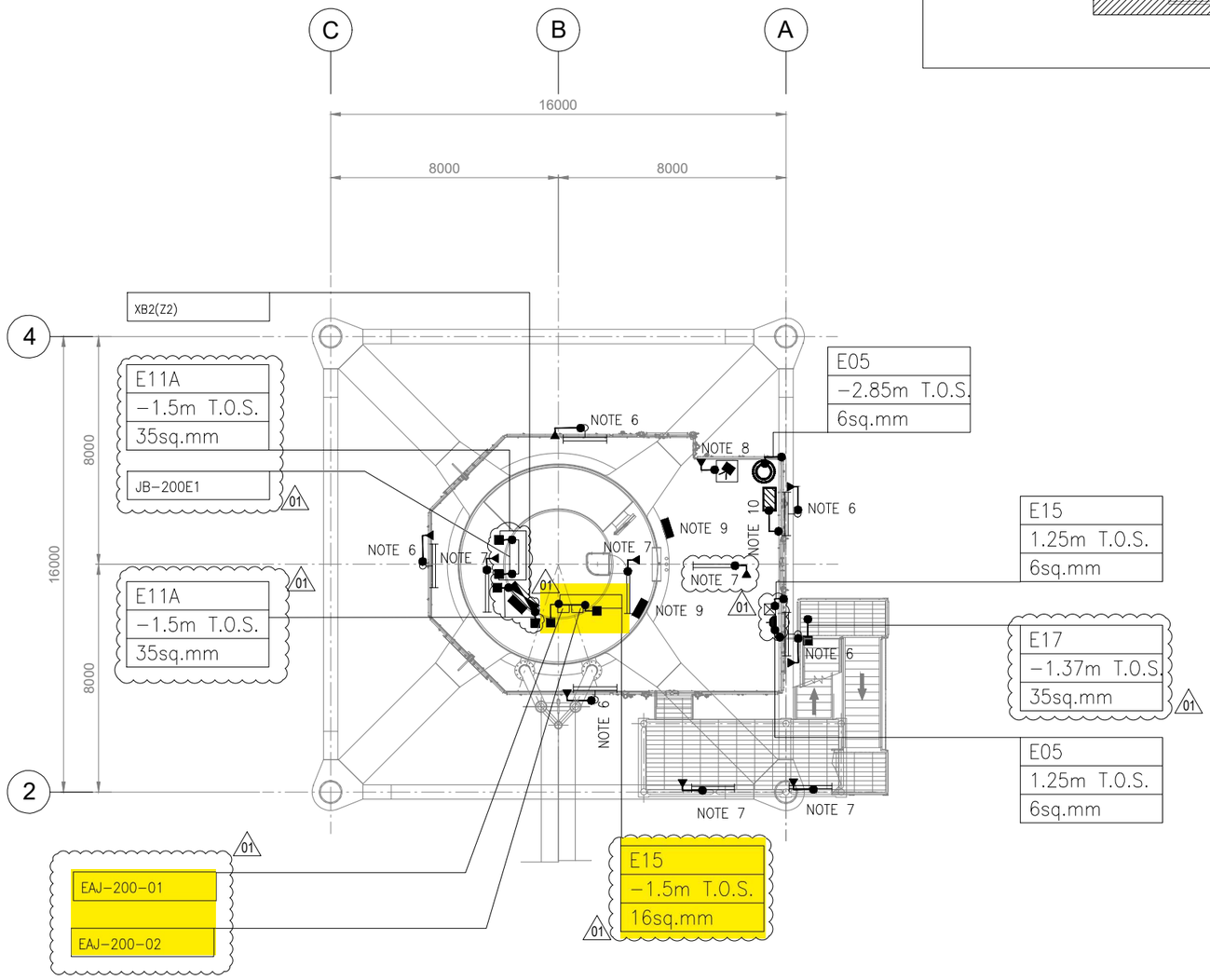
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
BELOW LOWER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:100
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 23/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20102	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20102-Electrical Equipment Layout - Stair Towers

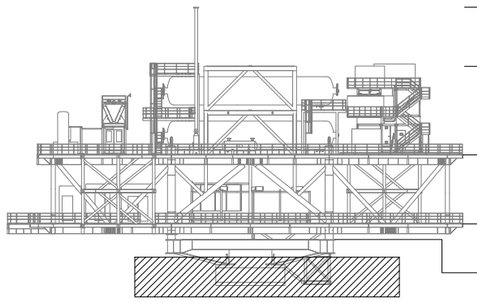
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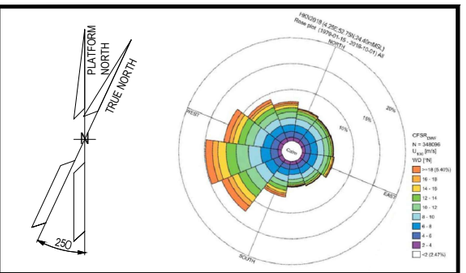
REV. 01



PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.

KEY PLAN





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DOCUMENT IS ONLY VALID FOR EARTHING LAYOUT.
4. ALL ELECTRICAL EQUIPMENT NOT DIRECTLY WELDED TO SKID FRAME SHALL BE BONDED TO STEEL TO THE STRUCTURE OF SKID BASEFRAME.
5. FOR LIGHTNING PROTECTION SYSTEM SURGE PROTECTIVE DEVICES (SPD), REFER TO DOCUMENT 123A90-DDL-EL-RE-20154. 01
6. ALL NON-WELDED POLES WILL BE EARTHED AS PER TYPICAL E05 AND E24.
7. ALL LINEAR LIGHTING FIXTURE WILL BE EARTHED AS PER TYPICAL E32.
8. ALL POLE MOUNTED INSTRUMENT DETECTORS WILL BE EARTHED AS PER TYPICAL E05 AND E24.
9. EARTH BAR WILL BE FIXED TO THE PRIMARY BEAMS OF THE UPPER DECK. COMPLETE EARTHING INCLUDING WITH 2 THREADED STUDS. ALL EARTH BAR WILL BE EARTHED AS PER TYPICAL E03D / 6.50M T.O.S. / 35 SQ MM.
10. ALL INSTRUMENT RACK WILL BE EARTHED AS PER TYPICAL E15.

LEGEND

- LIGHTING FIXTURE POLE MOUNTED
- LINEAR LIGHTING FIXTURE
- ■ EARTHING BOSS AISI316L
- ● COMPRESSION TYPE LUG TINNED COPPER
- ▲ THREADED STUD FOR EARTHING CONNECTION
- Exx EARTHING TYPICAL CODE
- ▬ EARTHING BAR
- SMALL POWER SOCKET & JB 01
- INSTRUMENT RACK
- UV-IR FLAME DETECTOR
- STATUS LIGHT

TYP.	TYPICAL
ELE	ELEVATION
SIZE	

REFERENCE DOCUMENTS

123A90-DDL-EL-DD-20090	ELECTRICAL TYPICAL INSTALLATION DETAILS - EARTHING SYSTEM
123A90-DDL-EL-RE-20154	LIGHTNING PROTECTION SYSTEM CALCULATION REPORT
123A90-DDL-EL-DL-20102	ELECTRICAL EQUIPMENT LAYOUT - BELOW LOWER DECK
123A90-DDL-EL-DL-20120	LIGHTING & SOCKET LAYOUT - BELOW LOWER DECK
123A90-DDL-SAF-DL-30028	F & G DETECTORS LAYOUT - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	SAM	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	24/05/24	NLK	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20134**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

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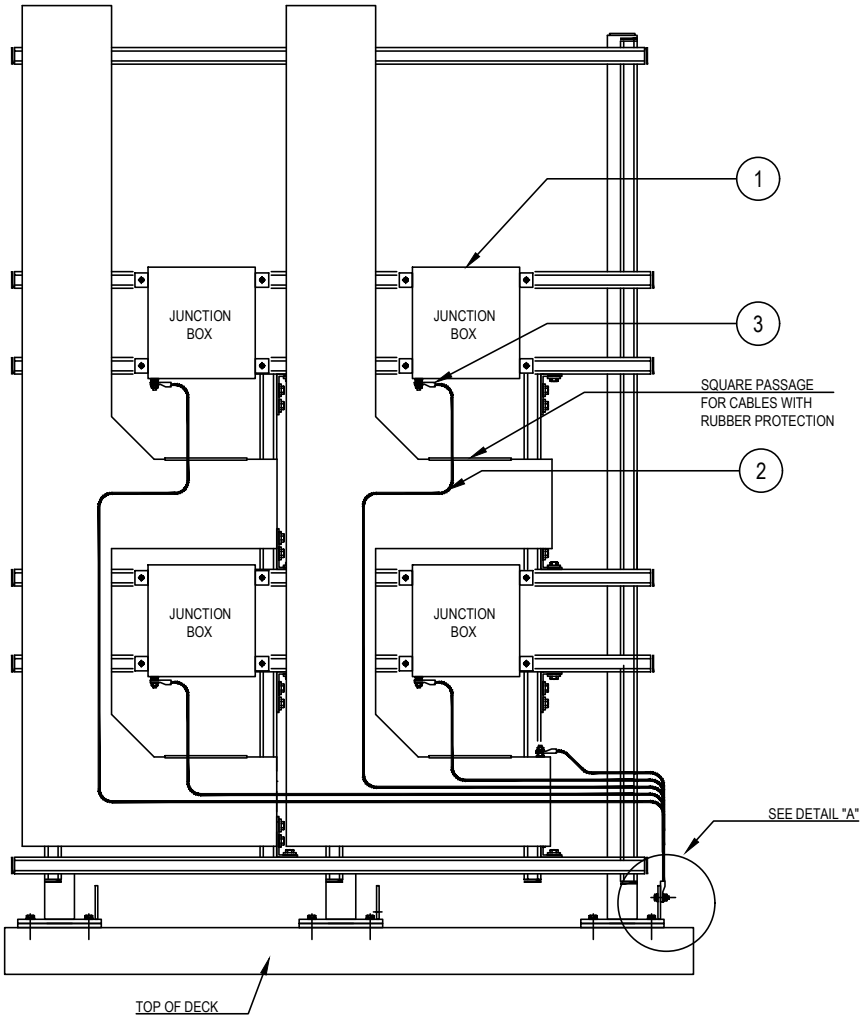
TITLE : BASE LOAD POWER HUB (BLPH)
EARTHING & LIGHTNING LAYOUT
BELOW LOWER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:100
DRAWN NLK	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 26/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20134	SHEET 001	REV. 01

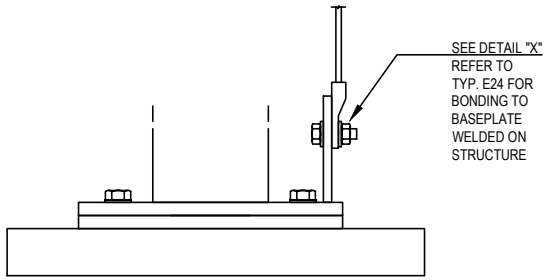
File Name : 123A90-DDL-EL-DL-20134

E15

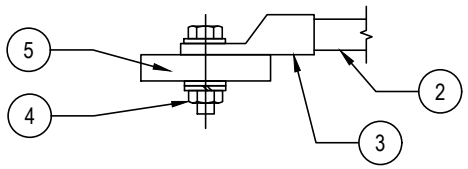
POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	JUNCTION BOX (Ex)	GRP			
2	Y / G INSULATING COPPER CONDUCTOR	COPPER	6mm^2		
3	COMPRESSION TYPE LUG FOR INSULATION COPPER CONDUCTOR	AISI 316L	6mm^2		~~NOTE 1~~
4	HEXAD BOLTS, PLANE WASHERS, GROWER SPRING WASHER AND NUT	AISI 316L	M8X30		
5	EARTHING PLATE	AISI 316L			NOTE 2



DETAIL "A"



DETAIL "X"



NOTES:

1) ~~CABLE LUG CRIMPING METHOD SHALL BE HEXAGONAL COMPRESSION DIES ONLY.~~
2) EARTHING PLATE WELDED ON BASE PLATE OF THE COLUM SUPPORT. SEE TYPICAL DETAIL E24
2) EXTERNAL EARTHING CONNECTION ONLY SHALL BE PROTECTED AGAINST CORROSION USING OXIDE RESISTANT COMPOUND (E.G. COPPER GREASE)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DD-20090
REV.: 2_I | DATE: 07/11/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	26/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/06/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS–EARTHING SYSTEM
EARTHING FOR ELECTRICAL AND INSTRUMENTALE JB MOUNTED ON RACK SUPPORT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 123A90-DDL-EL-DD-20090 | SHEET 007 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20090 REV.02.DWG

CROSSWIND
ROSETTI MARINO

FROM	TO

DESCRIPTION: IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEM
TAG NUMBER: CN-200N1

-X0
L 191 BN
N 193 BU

5W2.1
2C X 2.5 mm²

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1
BN 1 L
BU 2 N

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X0
L 291 BN
N 293 BU

6W2.1
2C X 2.5 mm²

-X3
BN 1 L
BU 2 N

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1:1
2 BK

7WD3
1C X 70 mm²

-X2:1
BK 2

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X1:2
2 BK

7WD6.1
1C X 70 mm²

-X4:1
BK 2

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_M	02/05/25	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

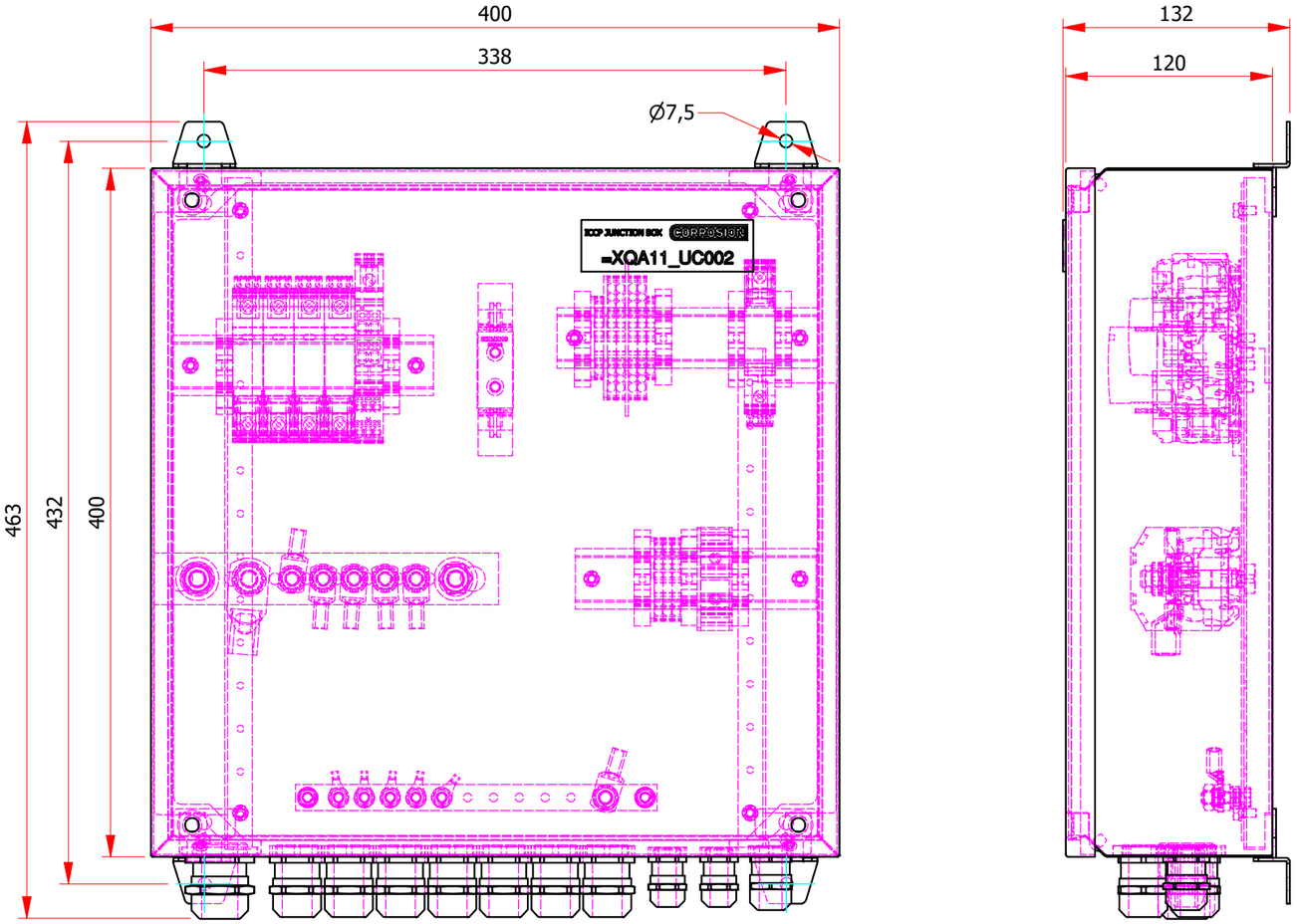
SHEET 060

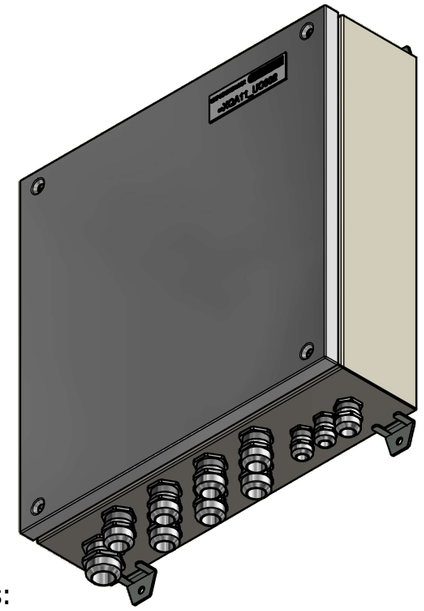
REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

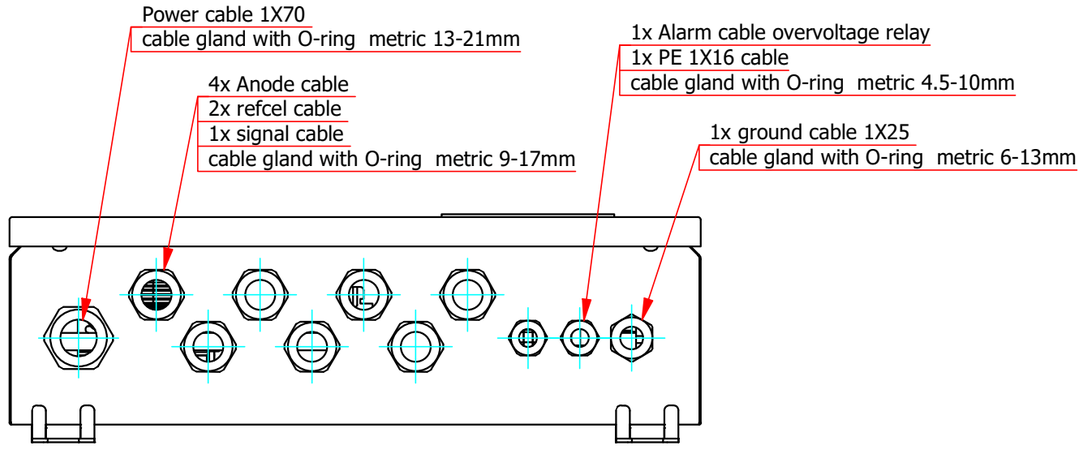
Revision History					
Rev:	Description:	Drawn:	Date:	Checked:	Date:
1	Junction box updated from GRP to 316 Stainless steel	JvO	29-10-2021	-	
2	Dimensions added	JvO	8-3-2022	HA	16-3-2022





General notes:

Stainless steel junction box
Quality: AISI 316L
Make: -
Type: -
Ingress protection IP66



Cable entries			
Description	Cable type	Diameter [mm]	Terminal
Anodes:			
to PU	1x70mm² LKM-HF	ø18mm	M10 ring terminal
to anodes	4 // 1x16mm² Special	ø12.5mm	M8 ring terminal
			M4-5mm² ring terminal (shield)
Reference cells			
to PU	2X2.5mm²-sh. -LKAM-HF	ø11.0mm	pin terminal 2.5mm²
to Refcells	2 // 2x2.5mm²-sh	ø11.8mm	pin terminal 2.5mm²
SPD			
to ground	1X25mm²- H07Z2-K	ø11.5mm	M10 ring terminal
PE	1X16mm² H07Z2-K green/ yellow	ø8.0mm	M10 ring terminal
Alarm	2x1.5mm²		Pin terminal

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Gen. Scale:	1 :2.5	Drawn:	JvO	Date drawn:	30-4-2021
Gen. Tol.: NEN-ISO 2768-1 Class m unless noted otherwise		Checked:	JdL	Date Checked:	31-8-2021
Weight:	10,62 kg	Project:	15547	Status:	Released

Size: A2

CORROSION
STEEL GOING STRONG

Description:
Assembly Junction box External system

Rev: 2

Drawing number:
DRW-15547-701-Q

Stock number:
JBEXP15547

Customer reference
144671-CORR-TF-FAB-DWG-0011

ITEM	Tag	EAJ-200-01	: ICCP Junction Box			Dwg	123A90-DDL-EL-DL-20118
	S/Sys	83-60	: Cathodic Protection			Module	TP
TASK	code	C10001857		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX31 Junction and Marshalling Box

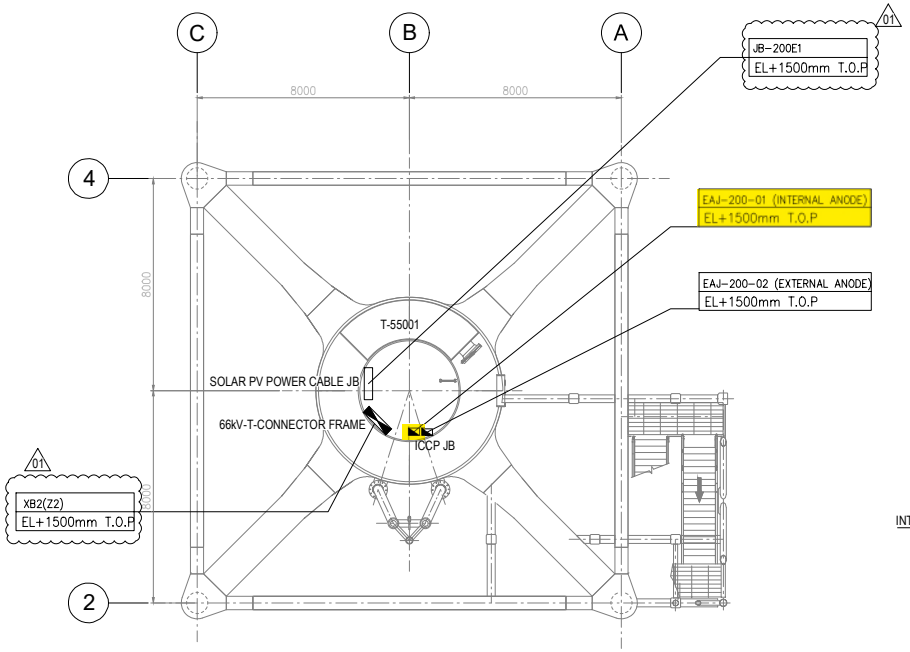
1	Check box is de-energized and safe.	OK
2	Check box is correctly mounted and easily accessible.	OK
3	Check box tagging against drawing.	OK
4	Check nameplate data is correct.	OK
5	Check flameproof joints are clean and greased with approved lubricants (if required).	NA
6	Check for damaging gaskets.	OK
7	Check all bolts are fitted and correcly tighted .	OK
8	Check all unused entries are suitably plugged.	OK
9	Check earthing and bonding against drawings.	OK
10	Check terminal blocks segregation barriers are fitted where necessary.	NA
11	If required produce Red Line Mark Up for "AS BUILT"	

Comments: All cable connections will be connected during offshore activities. See task : C10004684/C10004682

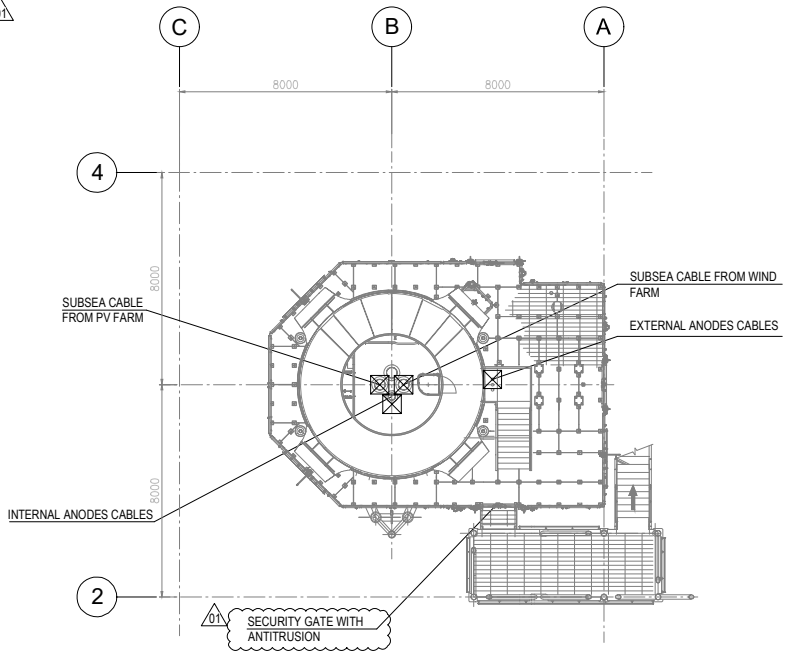
	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	VIP	RM(ROSETTI MARINO)	
Name	Madhankumar Arunagiri	Giovanni Tangianu	
Date	2025-04-18	2025-04-22	
Signature	PROVERLIS Digitaly signed by Madhankumar Arunagiri 2025-04-18T06:32:54.368Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-04-22T13:40:09.597Z	

DRAWING NO. 123A90-DDL-EL-DL-20102

REV. 01



PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.

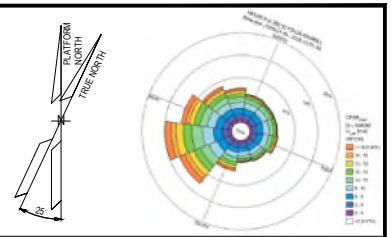


PLAN ON EXISTING PLATFORM AT
EL+16.860 T.O.S.

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20102

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. ELEVATIONS REFER TO THE HORIZONTAL AXIS OF THE OBJECT. 01

LEGEND

JB-200E1 / EL+1500mm T.O.P — TAG ITEM / REFERED ELEVATION TO T.O.P. (TOP OF PLATFORM)
SOLAR PV POWER CABLE JB
66kV T-CONNECTOR FRAME
ICCP JUNCTION BOX
EXISTING CABLE ENTRY 01

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20120	LIGHTING & SOCKET LAYOUT - BELOW LOWER DECK
123A90-DDL-EL-DS-20048	TDS - IAC CABLE INTERFACE JB + SOLAR PV JB
123A90-DDL-EL-DS-20054	T-CONNECTORS & HV TERMINATIONS
DRW-15547-001-SAE-001	ICCP DRAWINGS & SPECIFICATIONS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	23/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	24/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

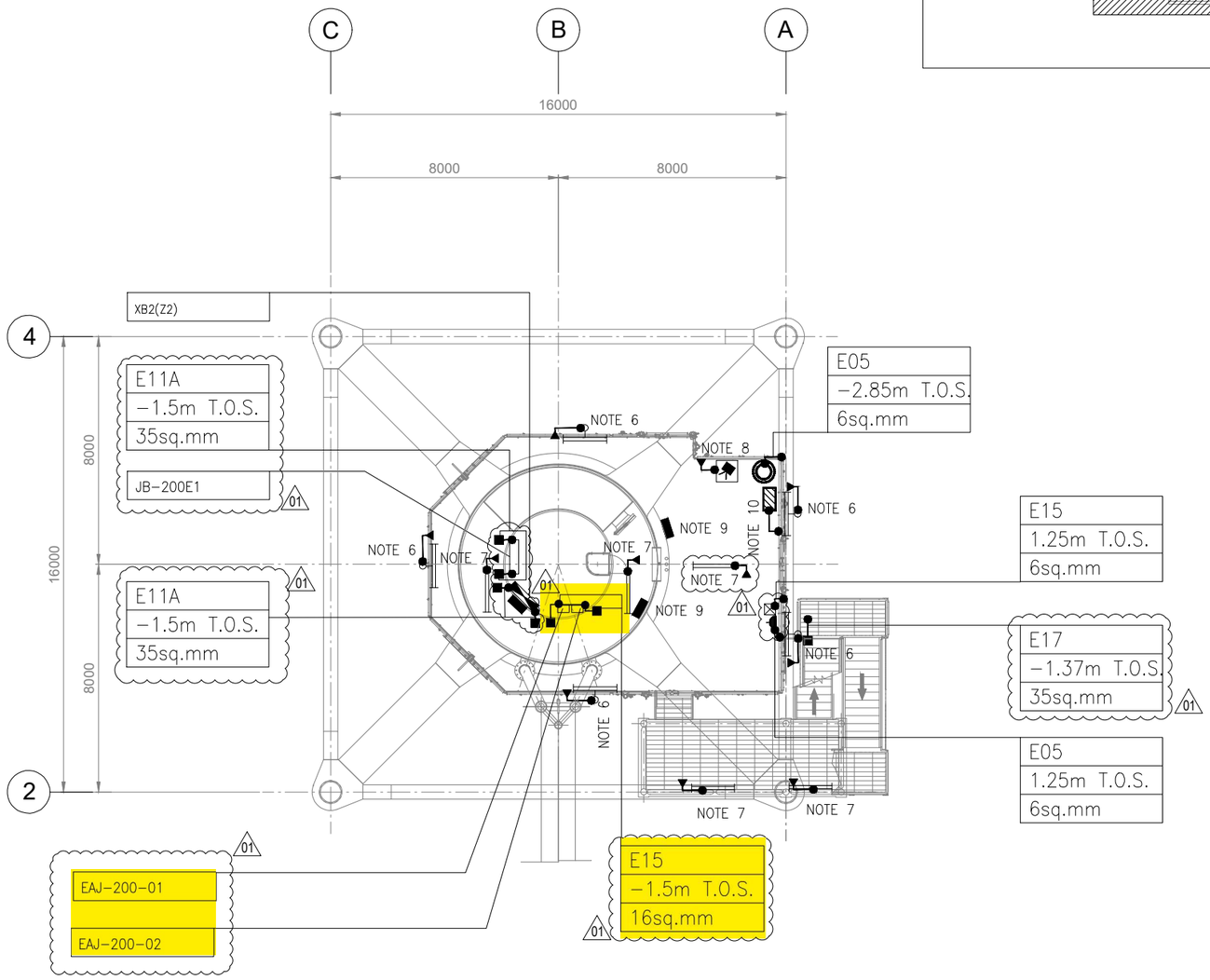
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
BELOW LOWER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:100
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 23/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20102	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20102-Electrical Equipment Layout - Stair Towers

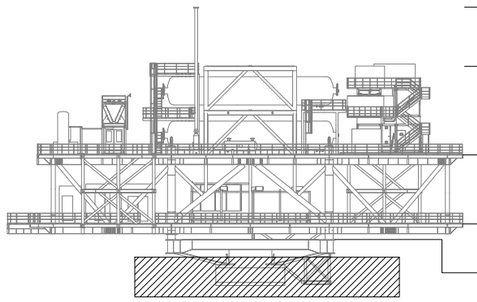
DRAWING NO. 123A90-DDL-EL-DL-20134

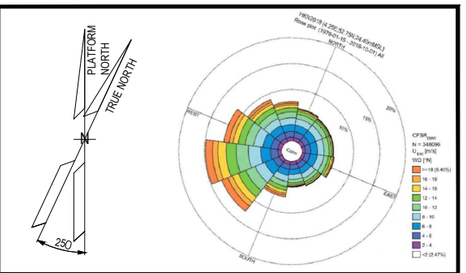
REV. 01



PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.

KEY PLAN





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DOCUMENT IS ONLY VALID FOR EARTHING LAYOUT.
4. ALL ELECTRICAL EQUIPMENT NOT DIRECTLY WELDED TO SKID FRAME SHALL BE BONDED TO STEEL TO THE STRUCTURE OF SKID BASEFRAME.
5. FOR LIGHTNING PROTECTION SYSTEM SURGE PROTECTIVE DEVICES (SPD), REFER TO DOCUMENT 123A90-DDL-EL-RE-20154. 01
6. ALL NON-WELDED POLES WILL BE EARTHED AS PER TYPICAL E05 AND E24.
7. ALL LINEAR LIGHTING FIXTURE WILL BE EARTHED AS PER TYPICAL E32.
8. ALL POLE MOUNTED INSTRUMENT DETECTORS WILL BE EARTHED AS PER TYPICAL E05 AND E24.
9. EARTH BAR WILL BE FIXED TO THE PRIMARY BEAMS OF THE UPPER DECK. COMPLETE EARTHING INCLUDING WITH 2 THREADED STUDS. ALL EARTH BAR WILL BE EARTHED AS PER TYPICAL E03D / 6.50M T.O.S. / 35 SQ MM.
10. ALL INSTRUMENT RACK WILL BE EARTHED AS PER TYPICAL E15.

LEGEND

- LIGHTING FIXTURE POLE MOUNTED
- LINEAR LIGHTING FIXTURE
- ■ EARTHING BOSS AISI316L
- ● COMPRESSION TYPE LUG TINNED COPPER
- ▲ THREADED STUD FOR EARTHING CONNECTION
- Exx EARTHING TYPICAL CODE
- ▬ EARTHING BAR
- SMALL POWER SOCKET & JB 01
- INSTRUMENT RACK
- UV-IR FLAME DETECTOR
- STATUS LIGHT

TYP.	TYPICAL
ELE	ELEVATION
SIZE	

REFERENCE DOCUMENTS

123A90-DDL-EL-DD-20090	ELECTRICAL TYPICAL INSTALLATION DETAILS - EARTHING SYSTEM
123A90-DDL-EL-RE-20154	LIGHTNING PROTECTION SYSTEM CALCULATION REPORT
123A90-DDL-EL-DL-20102	ELECTRICAL EQUIPMENT LAYOUT - BELOW LOWER DECK
123A90-DDL-EL-DL-20120	LIGHTING & SOCKET LAYOUT - BELOW LOWER DECK
123A90-DDL-SAF-DL-30028	F & G DETECTORS LAYOUT - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	SAM	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	24/05/24	NLK	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20134**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

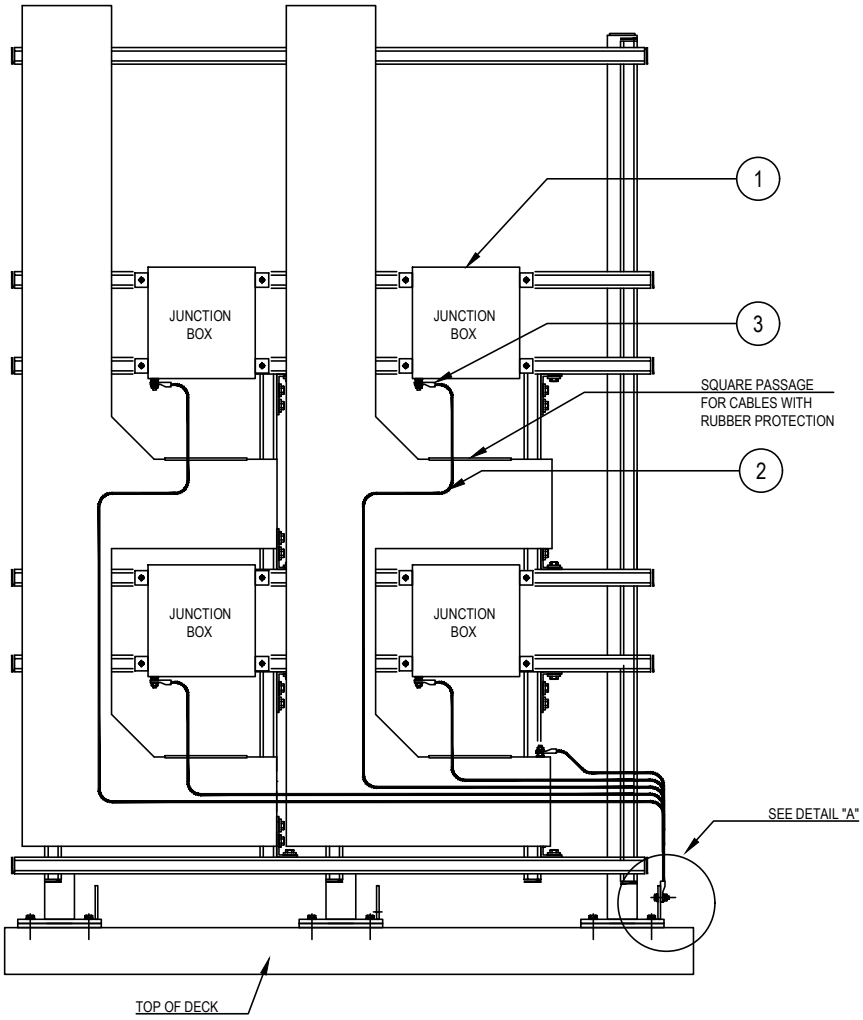
TITLE : BASE LOAD POWER HUB (BLPH)
EARTHING & LIGHTNING LAYOUT
BELOW LOWER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:100
DRAWN NLK	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 26/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20134	SHEET 001	REV. 01

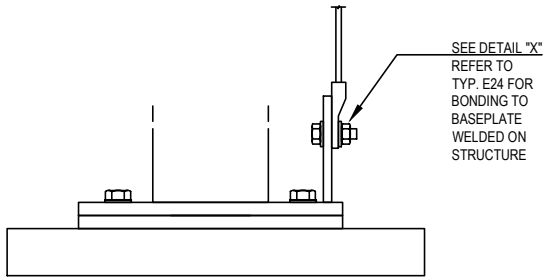
File Name : 123A90-DDL-EL-DL-20134

E15

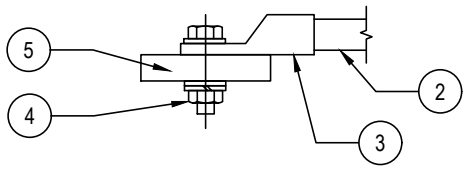
POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	JUNCTION BOX (Ex)	GRP			
2	Y / G INSULATING COPPER CONDUCTOR	COPPER	6mm^2		
3	COMPRESSION TYPE LUG FOR INSULATION COPPER CONDUCTOR	AISI 316L	6mm^2		~~NOTE 1~~
4	HEXAD BOLTS, PLANE WASHERS, GROWER SPRING WASHER AND NUT	AISI 316L	M8X30		
5	EARTHING PLATE	AISI 316L			NOTE 2



DETAIL "A"



DETAIL "X"



NOTES:

1) ~~CABLE LUG CRIMPING METHOD SHALL BE HEXAGONAL COMPRESSION DIES ONLY.~~
2) EARTHING PLATE WELDED ON BASE PLATE OF THE COLUM SUPPORT. SEE TYPICAL DETAIL E24
2) EXTERNAL EARTHING CONNECTION ONLY SHALL BE PROTECTED AGAINST CORROSION USING OXIDE RESISTANT COMPOUND (E.G. COPPER GREASE)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DD-20090
REV.: 2_I | DATE: 07/11/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	26/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/06/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS–EARTHING SYSTEM
EARTHING FOR ELECTRICAL AND INSTRUMENTALE JB MOUNTED ON RACK SUPPORT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 123A90-DDL-EL-DD-20090 | SHEET 007 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20090 REV.02.DWG

CROSSWIND
ROSETTI MARINO

FROM	TO

DESCRIPTION: IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEM
TAG NUMBER: CN-200N1

-X0

L	191	BN
N	193	BU

5W2.1
2C X 2.5 mm²

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1

BN	1	L
BU	2	N

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X0

L	291	BN
N	293	BU

6W2.1
2C X 2.5 mm²

-X3

BN	1	L
BU	2	N

DESCRIPTION: ASSEMBLE JUNCTION BOX EXTERNAL SYSTEM
TAG NUMBER: EAJ-200-02

-X1:1

2	BK	

7WD3
1C X 70 mm²

-X2:1

BK	2	

DESCRIPTION: ASSEMBLE JUNCTION BOX INTERNAL SYSTEM
TAG NUMBER: EAJ-200-01

-X1:2

2	BK	

7WD6.1
1C X 70 mm²

-X4:1

BK	2	

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_M	02/05/25	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

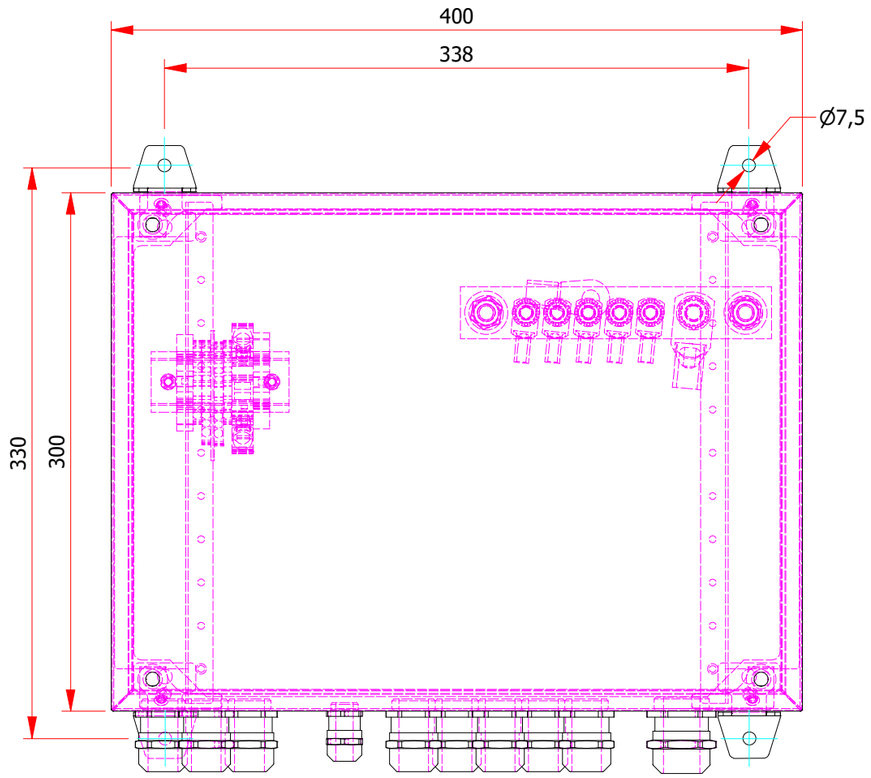
SHEET 060

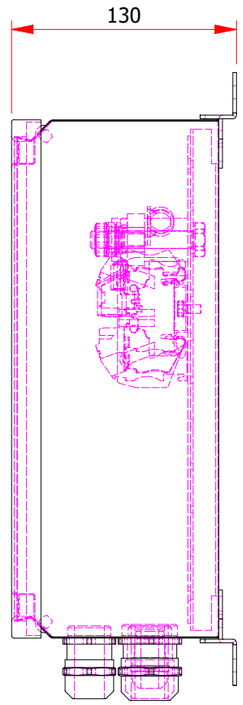
REV. 02

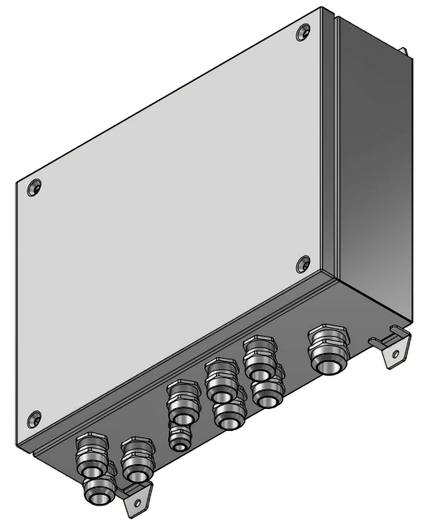
F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

Revision History					
Rev:	Description:	Drawn:	Date:	Checked:	Date:
1	Table updated	JvO	29-11-2021	-	



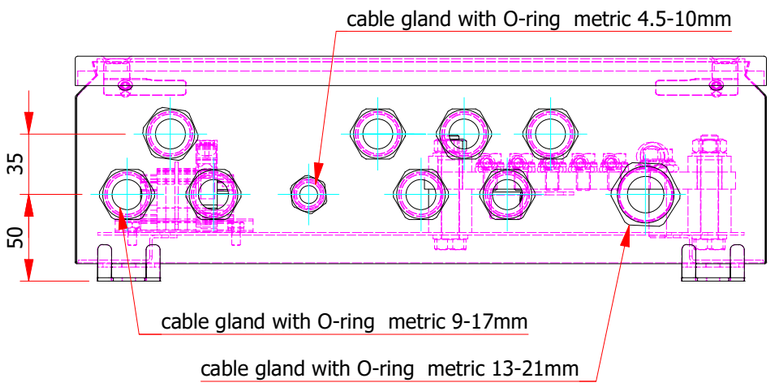




General notes:

Stainless steel junction box
Quality: AISI 316L
Make: -
Type: -
Ingress protection IP66

Cable entries			
Description	Cable type	Diameter [mm]	Terminals
Anodes:			
to PU	1x70mm² LKM-HF	ø18mm	M10 ring terminal
to anodes	4 or5 // 1x16mm² Special	ø12.5mm	M8 ring terminal
Reference cells			
to PU	2X2.5mm²-sh. -LKAM-HF	ø11.0mm	pin terminal 2.5mm²
to Refcells	2 // 2x2.5mm²-sh	ø11.8mm	pin terminal 2.5mm²
PE	1X16mm² H07Z2-K green/ yellow	ø8.0mm	M10 ring terminal



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Gen. Scale:	1 :2.5	Drawn:	JvO	Date drawn:	30-4-2021
Gen. Tol.:	NEN-ISO 2768-1 Class m unless noted otherwise	Checked:	JdL	Date Checked:	31-8-2021
Weight:	6,63 kg	Project:	15547	Status:	Released

Size: A2

Description: Assembly Junction box Internal system

Rev: 1

CORROSION
STEEL GOING STRONG

Drawing number: DRW-15547-702-Q

Stock number: JBINP15547

Customer reference
144671-CORR-TF-FAB-DWG-0013

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	5W2.1	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200/TP
TASK	code	C10004681		Location	Offshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX10 Multicore Electrical Control Cable

CABLE DATA

Type: LSZH, Flame Retardant Unarmoured — Cores/Size mm²: 2X2,5 mm2 — Color: BLACK

From: CN-200N1 — To: EAJ-200-02

1. Check cable physical integrity
2. Check cable data against latest cable schedule.
3. Check cable routing against latest drawings (segregation, distance…).
4. Check cable is supported and fixed to rack according to latest project Specification.
5. Check bending radius is within the specified limits.
6. Check cable and core marking against latest drawings
7. Check cable labelling is in accordance with latest specification.
8. Check cable glands suit for cable type and are in accordance with latest specification.
9. Check terminations are in accordance with latest termination diagram.
10. Check cable earthing against lastest drawings.
11. Check gland plate for single core cables is non magnetic.
12. If required produce Red Line Mark Up for "AS BUILT"

CONTINUITY	CORE 1 / All cores+screen+armour+earth		
	CORE 2 / All cores+screen+armour+earth		
	CORE 3 / All cores+screen+armour+earth		
	CORE 4 / All cores+screen+armour+earth		
	CORE 5 / All cores+screen+armour+earth		
	CORE 6 / All cores+screen+armour+earth		
	CORE 7 / All cores+screen+armour+earth		
	CORE 8 / All cores+screen+armour+earth		
	CORE 9 / All cores+screen+armour+earth		
	CORE 10 / All cores+screen+armour+earth		

INSULATION	CORE 1		
	CORE 2		
	CORE 3		
	CORE 4		
	CORE 5		
	CORE 6		
	CORE 7		
	CORE 8		
	CORE 9		
	CORE 10		
	SCREEN		
	EARTH		
	ARMr		
	TEST VOLTS		

TESTING INSTRUMENTS USED

TYPE / SERIAL N° : Calibration certificate N° and date:	TYPE / SERIAL N° : Calibration certificate N° and date:
TYPE / SERIAL N° : Calibration certificate N° and date:	TYPE / SERIAL N° : Calibration certificate N° and date:

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company			
Name			
Date			
Signature			

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	6W2.1	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200/TP
TASK	code	C10004682		Location	Offshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX10 Multicore Electrical Control Cable

CABLE DATA

Type: LSZH, Flame Retardant Unarmoured | Cores/Size mm²: 2X2,5 mm2 | Color: BLACK

From: CN-200N1 | To: EAJ-200-01

1 Check cable physical integrity

2 Check cable data against latest cable schedule.

3 Check cable routing against latest drawings (segregation, distance…).

4 Check cable is supported and fixed to rack according to latest project Specification.

5 Check bending radius is within the specified limits.

6 Check cable and core marking against latest drawings

7 Check cable labelling is in accordance with latest specification.

8 Check cable glands suit for cable type and are in accordance with latest specification.

9 Check terminations are in accordance with latest termination diagram.

10 Check cable earthing against lastest drawings.

11 Check gland plate for single core cables is non magnetic.

12 If required produce Red Line Mark Up for "AS BUILT"

CONTINUITY	CORE 1 / All cores+screen+armour+earth		
	CORE 2 / All cores+screen+armour+earth		
	CORE 3 / All cores+screen+armour+earth		
	CORE 4 / All cores+screen+armour+earth		
	CORE 5 / All cores+screen+armour+earth		
	CORE 6 / All cores+screen+armour+earth		
	CORE 7 / All cores+screen+armour+earth		
	CORE 8 / All cores+screen+armour+earth		
	CORE 9 / All cores+screen+armour+earth		
	CORE 10 / All cores+screen+armour+earth		

INSULATION	CORE 1		
	CORE 2		
	CORE 3		
	CORE 4		
	CORE 5		
	CORE 6		
	CORE 7		
	CORE 8		
	CORE 9		
	CORE 10		
	SCREEN		
	EARTH		
	ARMr		
	TEST VOLTS		

TESTING INSTRUMENTS USED

TYPE / SERIAL N° : Calibration certificate N° and date:	TYPE / SERIAL N° : Calibration certificate N° and date:
TYPE / SERIAL N° : Calibration certificate N° and date:	TYPE / SERIAL N° : Calibration certificate N° and date:

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company			
Name			
Date			
Signature			

ITEM	Tag	7WD3	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200/TP
TASK	code	C10004683		Location	Offshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

CABLE DATA

Type	LSZH, Flame Retardant Unarmoured	Cores/Size mm²	1X70 mm2	Color	BLACK
From	CN-200N1	To	EAJ-200-02		

1	Confirm cable is as specified in project cable schedule
2	Visual Check cable physical integrity.
3	Check is installed in accordance with layout drawing (segregation, distance…).
4	Check cable is supported and fixed to rack according to project specification.
5	Check bending radius is within the specified limits.
6	Confirm cable glands suit for cable type, correctly mounted and tightened.
7	Check gland plate for single core cables is non ferrous (non -magnetic).
8	Confirm cable labelling is in accordance with specifications.
9	Check cable is correctly loomed and segregated in accordance with specification.
10	Check cable earthing against lastest drawings.
11	Check cores marking are in accordance with termination diagram
12	Check terminations are in accordance with latest termination diagram
13	If required produce Red Line Mark Up for "AS BUILT"

REFER TO FINAL SHEET FOR ACCEPTANCE

ITEM	Tag	7WD3	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB EXTERNAL			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200/TP
TASK	code	C10004683		Location	Offshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

CONTINUITY				
5	CORE CONTINUITY Ω	PH 1		
6		PH 2		
7		PH 3		
8	ARMOUR CONTINUITY Ω			
9	PROTECTIVE CONDUCTOR CONTINUITY Ω			
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E		
11		PH2 / PH1-PH3-A-E		
12		PH3 / PH1-PH2-A-E		
13	CABLE IS CORRECTLY RE-CONNECTED.			

TESTING INSTRUMENTS USED	
TYPE / SERIAL N° : Calibration certificate N° and date:	TYPE / SERIAL N° : Calibration certificate N° and date:

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company			
Name			
Date			
Signature			

ITEM	Tag	7WD6.1	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	83-60	: Cathodic Protection		Module	LD_B-200/TP	
TASK	code	C10004684	Location	Offshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form	CPX09	LV Power Cable

CABLE DATA

Type LSZH, Flame Retardant Unarmoured | Cores/Size mm² 1X70 mm2 | Color BLACK

From CN-200N1 | To EAJ-200-01

1	Confirm cable is as specified in project cable schedule
2	Visual Check cable physical integrity.
3	Check is installed in accordance with layout drawing (segregation, distance…).
4	Check cable is supported and fixed to rack according to project specification.
5	Check bending radius is within the specified limits.
6	Confirm cable glands suit for cable type, correctly mounted and tightened.
7	Check gland plate for single core cables is non ferrous (non -magnetic).
8	Confirm cable labelling is in accordance with specifications.
9	Check cable is correctly loomed and segregated in accordance with specification.
10	Check cable earthing against lastest drawings.
11	Check cores marking are in accordance with termination diagram
12	Check terminations are in accordance with latest termination diagram
13	If required produce Red Line Mark Up for "AS BUILT"

REFER TO FINAL SHEET FOR ACCEPTANCE

ITEM	Tag	7WD6.1	: Impressed Current Cathodic Protection (ICCP) System / ICCP JB INTERNAL			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	83-60	: Cathodic Protection			Module	LD_B-200/TP
TASK	code	C10004684		Location	Offshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

CONTINUITY				
5	CORE CONTINUITY Ω	PH 1		
6		PH 2		
7		PH 3		
8	ARMOUR CONTINUITY Ω			
9	PROTECTIVE CONDUCTOR CONTINUITY Ω			
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E		
11		PH2 / PH1-PH3-A-E		
12		PH3 / PH1-PH2-A-E		
13	CABLE IS CORRECTLY RE-CONNECTED.			

TESTING INSTRUMENTS USED	
TYPE / SERIAL N° : Calibration certificate N° and date:	TYPE / SERIAL N° : Calibration certificate N° and date:

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company			
Name			
Date			
Signature			

Section 6 MECHANICAL COMPLETION STATUS INDEX - INSTRUMENTAL DISCIPLINE

NOT APPLICABLE

Section 7 MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE

NOT APPLICABLE

Section 8 MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE

NOT APPLICABLE

Section 9 MECHANICAL COMPLETION STATUS INDEX - HVAC DISCIPLINE

NOT APPLICABLE

Section 10 MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE

NOT APPLICABLE

Section 11 MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE

NOT APPLICABLE

Section 12 FAT / VENDOR REPORTS

NOT APPLICABLE

Section 13 MECHANICAL COMPLETION CHANGES / MARK-UPS

NOT APPLICABLE