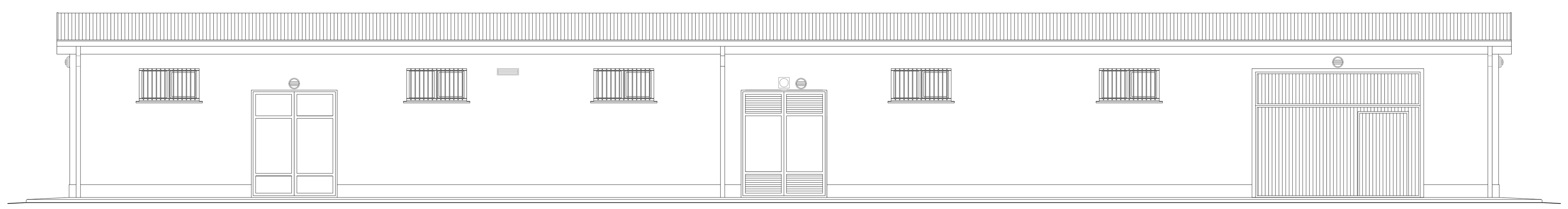
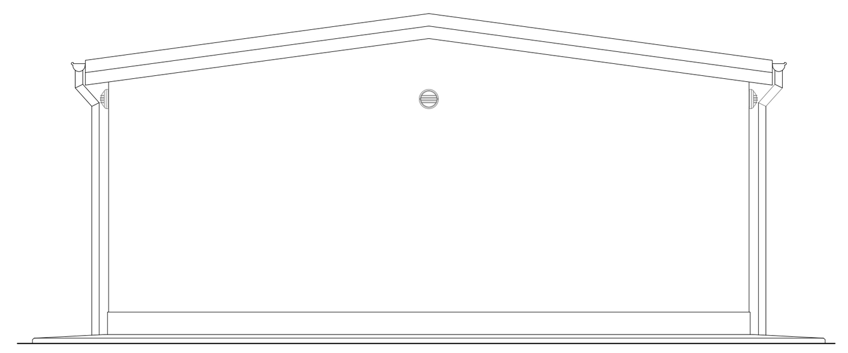
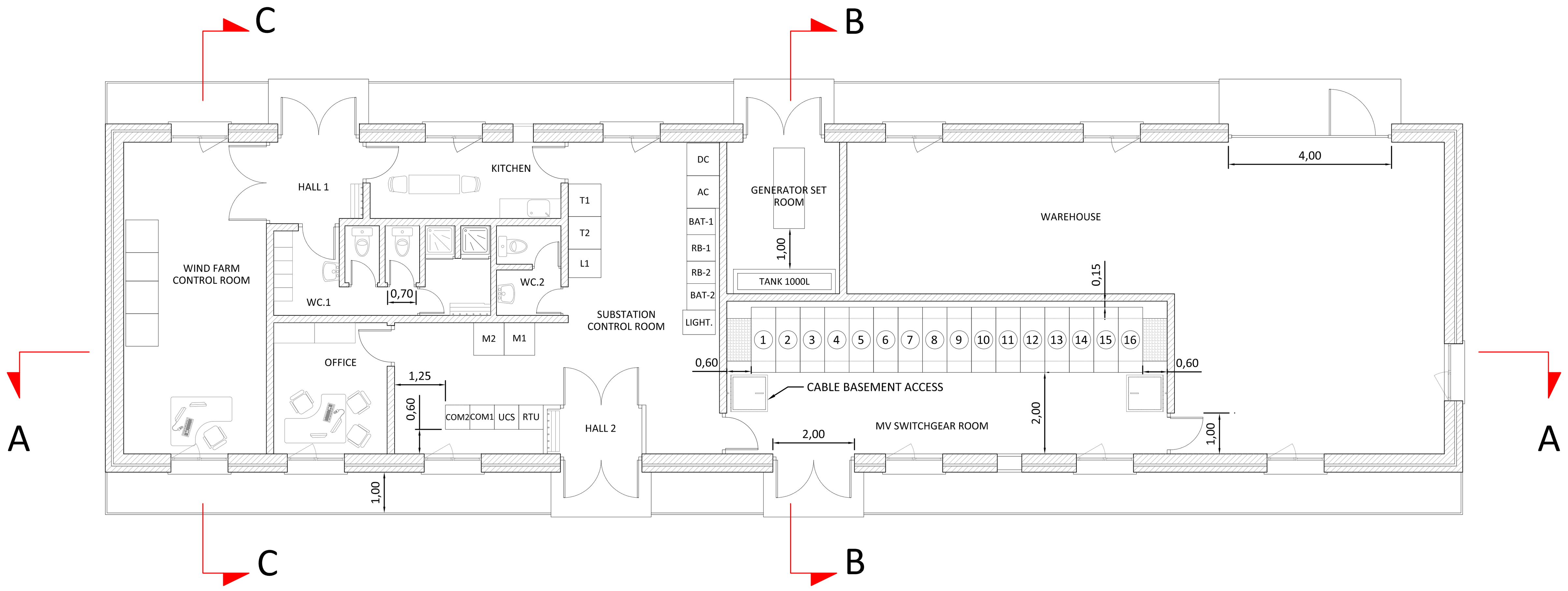


VISTA POSTERIORE



VISTA LATERALE SINISTRA



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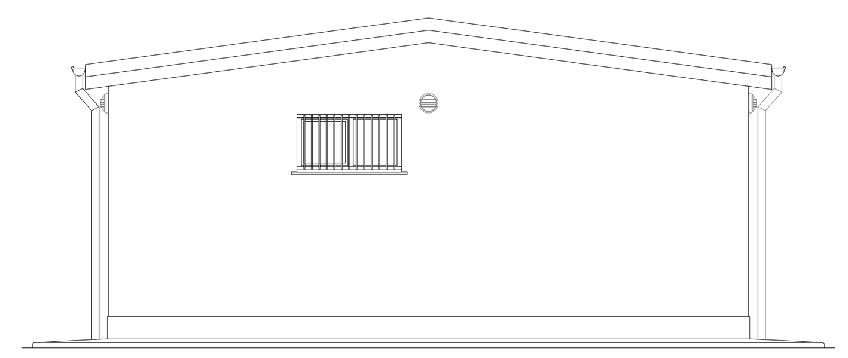

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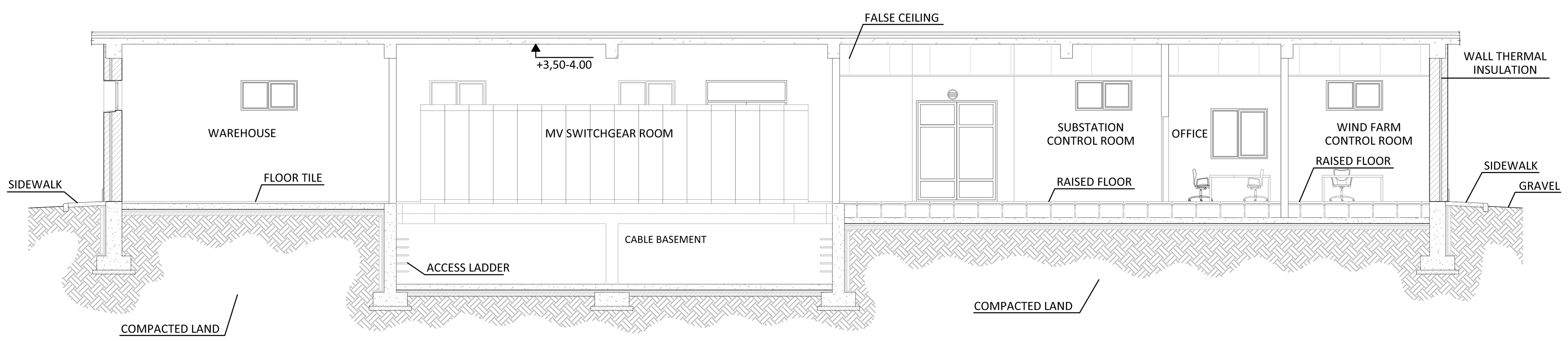
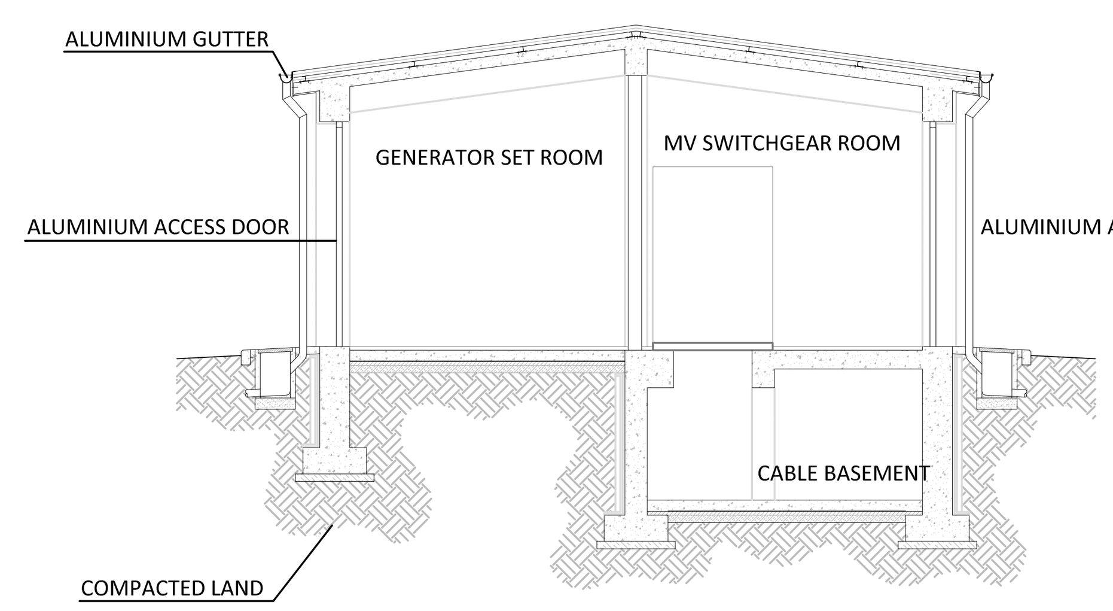


SEZIONE A-A



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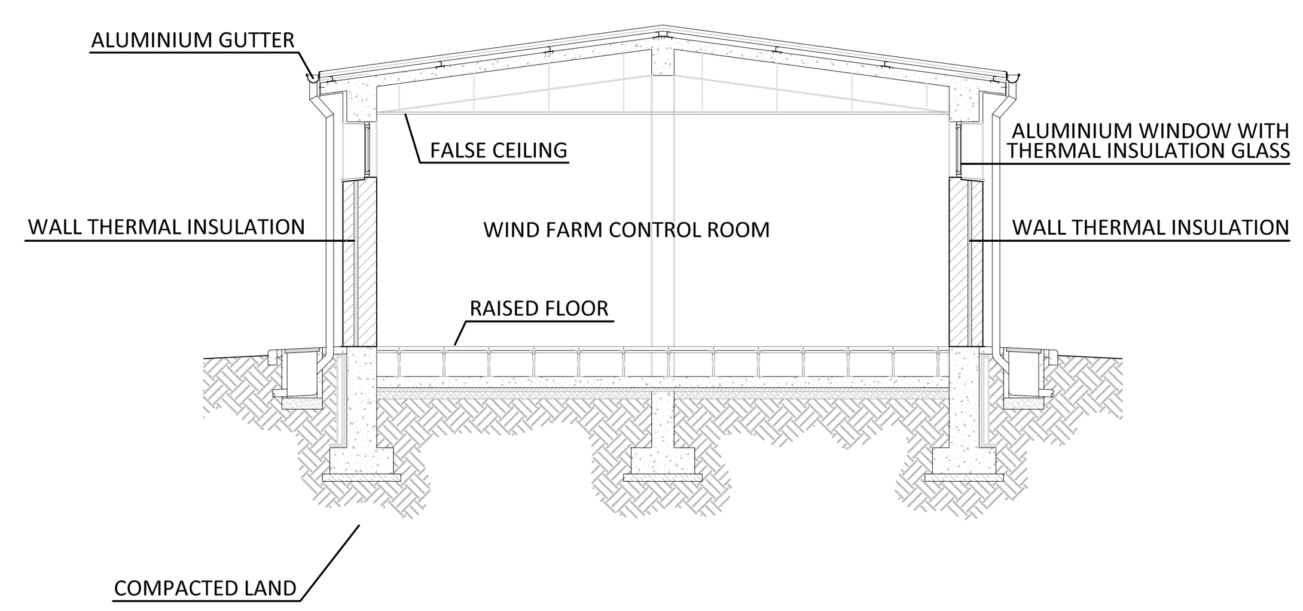

SEZIONE C-C

Notes:

1.- Typical design correspond to substation with:

- Two wind farms (2 WF) with 22-30 Vestas WTG in total.
- One line bay (1L) + two trafo bays (2T).

2.- Dimension of wind control area and warehouse will be modified according to number of WTG of Wind Farms connected to the substation under design. Dimension must be confirmed accordingto WTG manufacturer. For Vestas must be used specification included in MSA.

3.- Equipments in wind control room must be modified according to WTG manufacturer requirements.

4.- MV switchgear room must be adapted to number of MV cublicles required in substation under design and MV cublicle manufacturer.

5.- Reserve cubicle equiped: In each project must be studied the best location in relation with rest of cubicles. In cases with busbar coupling it must be studied if it is possible to use the coupling cublicle as reserve cubicle.

6.- In MV switchgear room, of substations with only one power transformer must be included only one Reserve Cubicles Equiped and space for one future cublicle.

7.- Layout of rooms can be changed to adapt to access and general layoutbut phylosophy must be kept up:

- Warehouse must be accesible from MV switchgear or substation control room. Main door must be prepared for "pick up" access, only to load and unload materials. PARKING IS NOT ALLOWED.
- Kitchen must be accesible from Wind Farm Control Room and Substation Control Room. In normal operation door between Kitchen and Substation Control Room must be closed and key must be under control of O&M EDPR.
- Wind farm control room, warehouse and generator set room must be accesible outside of substation switchyard.

8.- Control building structure must be calculated according to legislation and environmental conditions of the area. Layout of windows can be modified.

CUBICLES IN MV SWITCHGEAR ROOM

BUSBAR 1	
1 2 3 4 5 6 7	Circuit 1 WF "A" Circuit 2 WF "A" Capacitor bank protection Auxiliary service transformer Measurement Power transformer protection Reserved cubicle equiped
COUPLING BETWEEN BUSBARS	
8	Coupling
9	Riser
BUSBAR 2	
10	Reserved cubicle equiped
11	Power transformer protection
12	Measurement
13	Capacitor bank protection
14	Auxiliary service transformer
15	Circuit 1 WF "B"
16	Circuit 2 WF "B"

EQUIPMENTS IN SUBSTATIONS´ CONTROL ROOM

PROTECTION PANELS	
T1	Transformer 1
T2	Transformer 2
L1	Line 1
INTEGRATED CONTROL SYSTEM PANELS	
COM 1	Communication panel for utility
COM 2	Communication panel for utility (Reserve)
UCS	Substation scada system
RTU	Communication panel for EDPR
M1	Measurement 1
M2	Measurement 2
AUXILIARY SERVICES PANELS AND EQUIPMENTS	
RB-1	Rectifier 1
BAT-1	Battery charger 1
RB-2	Rectifier 2
BAT-2	Battery charger 2
A.C.	Auxiliary services A.C.
D.C.	Auxiliary services D.C.
LIGHT	Lighting

CONTROL BUILDING AREAS

VESTAS MASTER SUPPLY AGREEMENT (MSA)

Num of WTGs	Wind Farm Control Room + Services
5 - 10	40 m2
20 - 30	50 m2
30 - 40	60 m2
40 - 60	80 m2
60 - 80	100 m2
80 - 120	110 m2
120 - 150	120 m2

Num of WTGs	Warehouse Area
5 - 10	60 m2
20 - 30	80 m2
30 - 40	120 m2
40 - 60	150 m2
60 - 80	200 m2
80 - 120	230 m2
120 - 150	250 m2

EDIC.	DATE	DRAWN	CHECKED	REVISED-EDPR	MODIFICATION
D					
C					
B	28/02/2022	INSE srl	INSE srl		SECONDA EMISSIONE
A	10/05/2020	INSE srl	INSE srl		PRIMA EMISSIONE

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	DRAWN	INSE
02/22	CHECKED	INSE
05/20	REVISED-EDPR	
	Format A1	

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