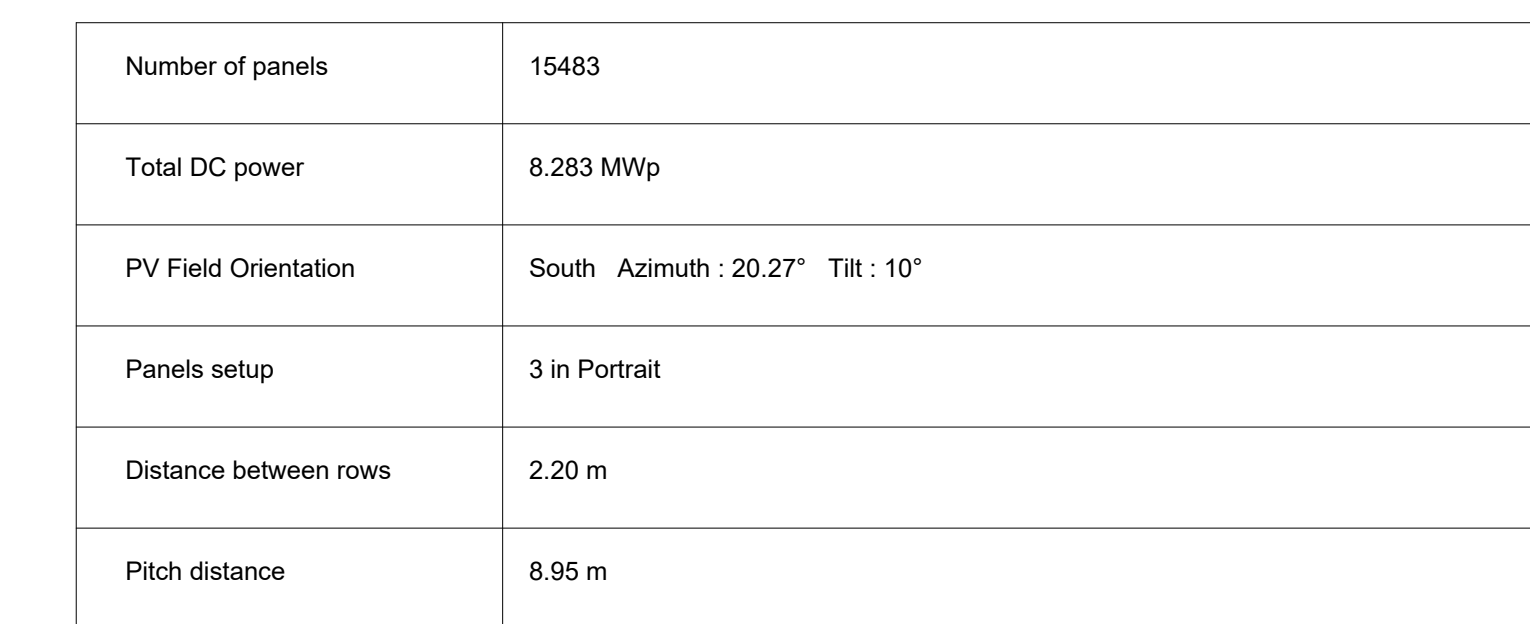




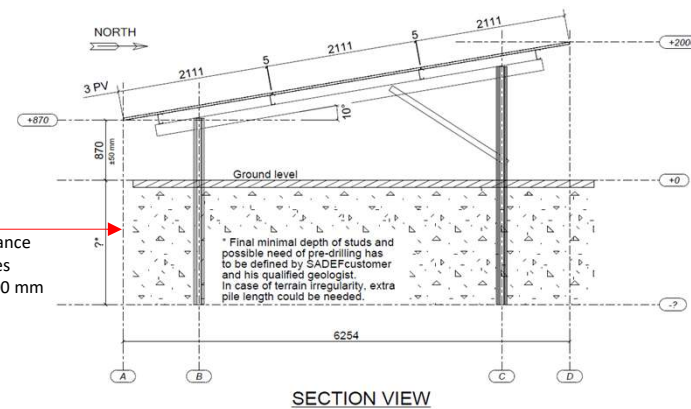
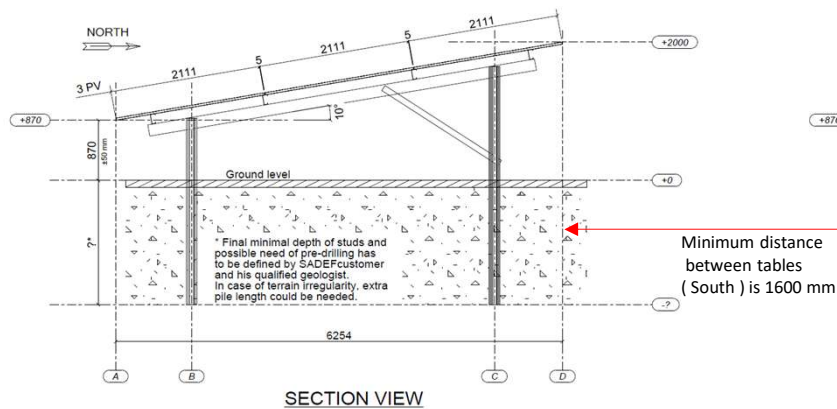
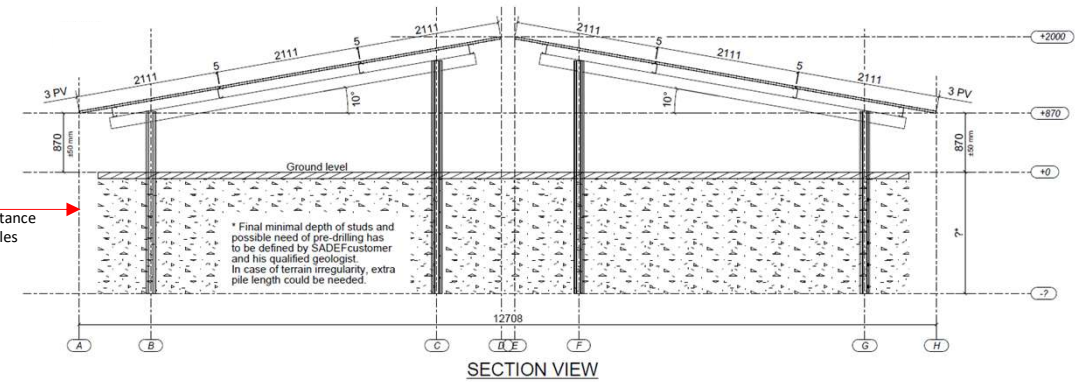
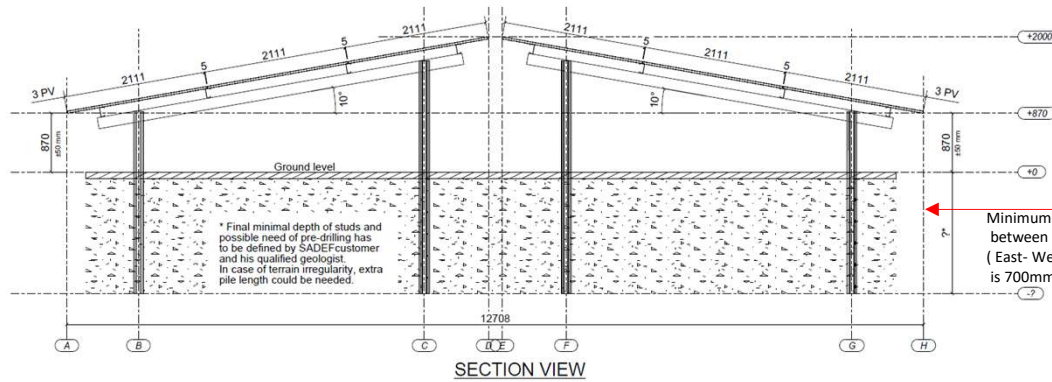
Number of panels	15483
Total DC power	8.283 MWp
PV Field Orientation	South Azimuth : 20.27° Tilt : 10°
Panels setup	3 in Portrait
Distance between rows	2.20 m
Pitch distance	6.95 m

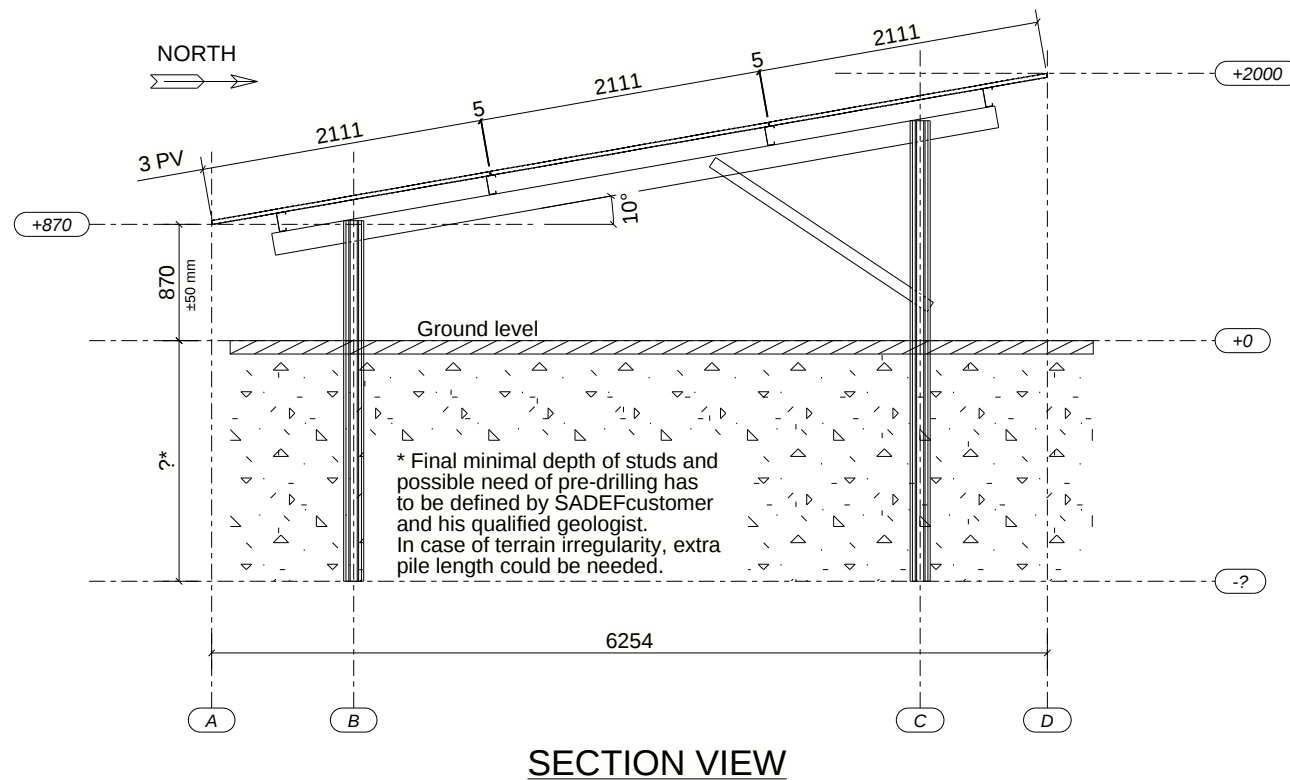
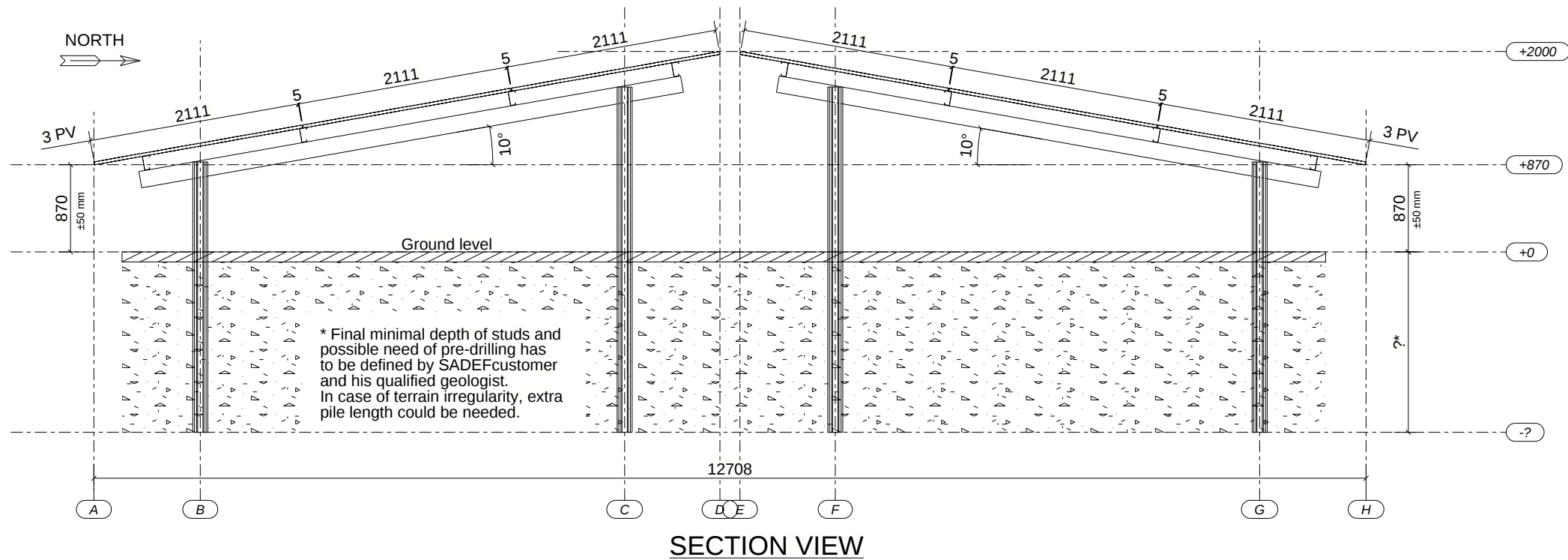


	Wire mesh fence
	DC / AC inverter Huawei SUN2000-185KTL-H1
	Transformer station - 1x6600kVA (UAG01)
	Solar panel - Suntech STP535S-C72/Pmth+ - 535Wp
	Client's station

Revisie	Datum	Omschrijving				Handtekening		
1.1	V.M.	25-01-2021	Relocation of some solar modules, Status Design					
1.2	V.M.	25-02-2021	Details for installation of inverters, transformer and gravel paths.					
1.3	V.M.	17-06-2021	New information - Updated Layout					
1.5	H.R.	07-07-2021	New Design with definitive type of modules Final Layout Design					
Getekend	V.M.	Gezien	R.B.	Versie	1.5	Status tekening		
Datum	20-10-2020	Datum	20-10-2020	Schaal	1:12.5 (A0)	Design		
Karakter Energie - Venlo						Locatie		
Layout Drawing - LOT 5						Kaliëfornie Venlo		
South Orientation						Opdrachtgever		
						Karakter Energie		
						PV nummer	Tekeningnr.	Blad
						PA200263		01
Deze tekening is het eigendom van ProfiNRG								

Karakter Energie Venlo – Tables cross section design





ProfiNRG Venlo Section views

This structure is valid for the following tolerances of the modules Trinasolar TSM-DEG17M.20(II):
- tolerances on the length and width are $\pm 2\text{mm}$
- tolerance on the thickness is $\pm 0.5\text{mm}$

The structure is designed for a terrain without soil settlements or soil sagging. If soil settlements would occur, it is the full responsibility of the SadeF customer to take the necessary measures to avoid damage of the steel structure or PV panels.

This plan cannot be used for the final building site layout of piles, frames or tables. Only the specific SADEF "Structural drawing" may be used to prepare or realize the montage of the SADEF-frame.

It is the entire responsibility of the SADEF customer to verify the validity and the completeness of the attached data sheet relating to the applied solar panel.

It is also the entire responsibility of the SADEF customer to verify the compatibility, the panel spacing and the loading capacity of the used solar panels and its fixing to the corresponding SADEF steel frame.

The tolerance on the overall PV panel dimension (measured in length direction of table) may not exceed $\pm 2\text{mm}$, -2mm .

Production of the SADEF steel frame will only be launched after approval by the SADEF customer on the content of these plans and attached documents.

The layout of the solar tables on the terrain should be done in such a way, that there is always a minimal distance of 10 cm between the steel structures of adjacent tables.

In case of a terrain with more than 10% slope, the minimal distance (in cm) should be equal to the slope of the terrain (in %).

E.g. 20% terrain slope $\rightarrow$ 20cm minimal distance between tables.

Standard irregularity in flatness in East-West direction is $\pm 5\text{cm}$. If irregularity (between the 2 ends of table) is more than 5cm, the SADEF customer clearly has to specify the maximum irregularity before approval of the global drawings.

The chosen surface treatment of the steel frame is supposing no significant water accumulation on the terrain surface. It is considered that the ground will absorb all rain water.

Eventual consequences on the steel structure due to water accumulation or underground waterstream will be the full responsibility of the SADEF customer.

Grounding of the installation is the responsibility of the SADEF customer. Grounding of PV-modules is voestalpine SADEF responsibility.

The -by the customer- approved voestalpine SadeF documents (drawings & design data) will be prior to all received information from e.g. the voestalpine SadeF customer.

The content of the documents "Design data", and "Special conditions for components in solar frames (encl. A)" in enclosure is to be fully taken into account !

This print and the information contained here on is confidential disclosure. The subject matter of which is property of SADEF N.V.

This structure is valid for maximal terrain slope in E-W / N-S direction: 3% / flat

In case of higher terrain slope, the customer has to do necessary earth movement in order to respect the given slope limits

Project Reference: ProfiNRG Venlo		Project Start Date: 09/10/2***	
Subject: G[04] Section views		Scale: 1:40	
Client: ProfiNRG		Drawn by: WN	
Object: SOLAR STRUCTURES		Checked by:	
SteelGrade: S390Cd+Z Unless different mentioned		Welding: 4 Unless different mentioned	
BoltsGrade: 8.8 Unless different mentioned		Projection:	
Phone: +32 (0)55 263 315		Fax: +32 (0)55 263 305	
PROJECT NUMBER: SO20136733		DRAWING NO. + REVISION NO.: G[04] · A	
voestalpine SadeF nv		Internet: www.sadeF.be	

SO20136733 ProfiNRG Venlo v03 plotted 09.02.2021

Preliminary drawing OFFER

This drawing must be printed on paper size not less than A3.

1	A	Offer-New Panel	09.02.2021
REV. NO.	REV.	REVISION DESCRIPTION	REV. DATE

1	A	Offer-New Panel	09.02.2021
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1	A	Offer-New Panel	09.02.2021
---	---	-----------------	------------

1	A	Offer-New Panel	09.02.2021
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SUN2000-185KTL-H1

Smart String Inverter



**9
MPP Trackers**



**99.0%
Max. Efficiency**



**String-level
Management**



**Smart I-V Curve
Diagnosis Supported**



**MBUS
Supported**



**Fuse Free
Design**

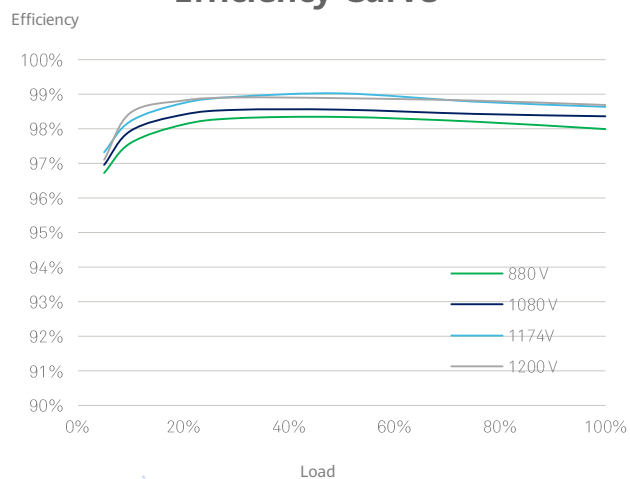


**Surge Arresters
for DC & AC**

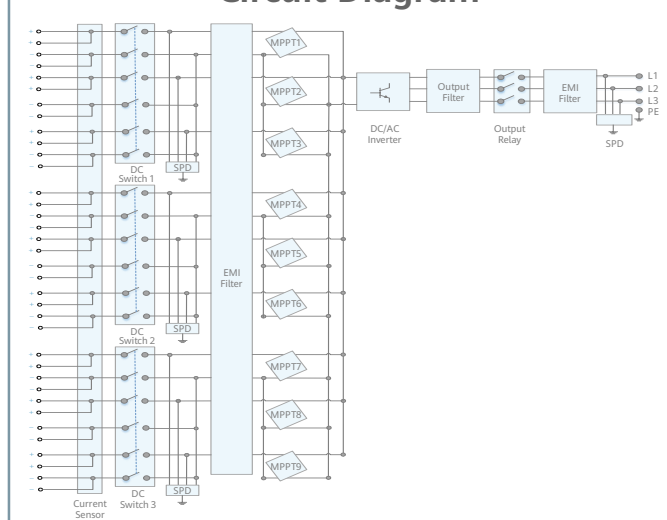


**IP66
Protection**

Efficiency Curve

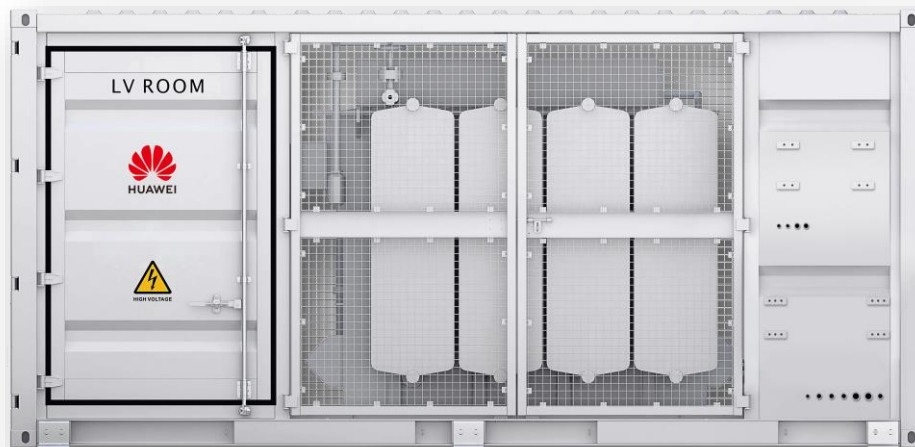


Circuit Diagram



Technical Specifications

Efficiency	
Max. Efficiency	99.03%
European Efficiency	98.69%
Input	
Max. Input Voltage	1,500 V
Max. Current per MPPT	26 A
Max. Short Circuit Current per MPPT	40 A
Start Voltage	550 V
MPPT Operating Voltage Range	500 V ~ 1,500 V
Nominal Input Voltage	1,080 V
Number of Inputs	18
Number of MPP Trackers	9
Output	
Nominal AC Active Power	185,000 W @25°C, 175,000 W @40°C
Max. AC Apparent Power	185,000 VA
Max. AC Active Power (cosφ=1)	185,000 W
Nominal Output Voltage	800 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Nominal Output Current	134.9 A @25°C, 126.3 A @40°C
Max. Output Current	134.9 A
Adjustable Power Factor Range	0.8 LG ... 0.8 LD
Max. Total Harmonic Distortion	< 3%
Protection	
Input-side Disconnection Device	Yes
Anti-islanding Protection	Yes
AC Overcurrent Protection	Yes
DC Reverse-polarity Protection	Yes
PV-array String Fault Monitoring	Yes
DC Surge Arrester	Type II
AC Surge Arrester	Type II
DC Insulation Resistance Detection	Yes
Residual Current Monitoring Unit	Yes
Communication	
Display	LED Indicators, Bluetooth/WLAN + APP
USB	Yes
MBUS	Yes
RS485	Yes
General	
Dimensions (W x H x D)	1,035 x 700 x 365 mm (40.7 x 27.6 x 14.4 inch)
Weight (with mounting plate)	84 kg (185.2 lb.)
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	Smart Air Cooling
Max. Operating Altitude without Derating	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Staubli MC4 EVO2
AC Connector	Waterproof Connector + OT/DT Terminal
Protection Degree	IP66
Topology	Transformerless
Standard Compliance (more available upon request)	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, IEC 62920, EN 50530, IEC 62116, IEC 60068, IEC 61683, IEC 61727, IEC 62910, P.O. 12.3, RD 1699, RD 661, RD 413, RD 1565, RD 1663, UNE 206007-1, UNE 206006



Simple

Prefabricated and pre-tested, no internal cabling needed onsite
Compact 20' HC container design for easy transportation



Efficient

Eco-design transformer suitable for all
Lower self-consumption for higher yields



Smart

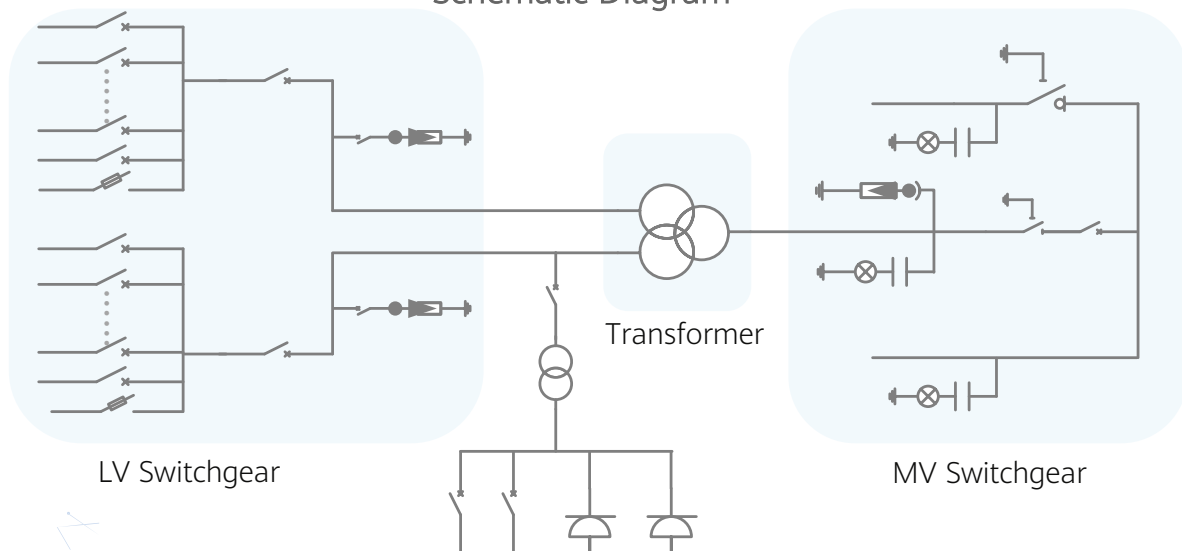
Real-time monitoring of transformer, LV and MV switchgear
0.2% high precision of LV electricity parameters collection
Remote control of ACB and MV Circuit Breaker



Reliable

Robust design against harsh environments
Innovative cooling design, high availability and easy maintenance
Comprehensive tests from components, device to solution

Schematic Diagram



STS-6000K-H1, Ecodesign

Technical Specifications

Input							
Available Inverters	SUN2000-185KTL-H1						
AC Power	6,300 kVA @40°C / 5,760 kVA @50°C ¹						
Max. Inverters Quantity	36						
Rated Input Voltage	800 V						
Max. Input Current at Nominal Voltage	2,428 A x 2						
LV Main Switches	ACB (2500 A / 800 V / 3P, 2*1 pcs), MCCB (250 A / 800 V / 3P, 2*18 pcs)						
Output							
Rated Output Voltage	10 kV	20 kV	22 kV	30 kV	33 kV	35 kV	34.5 kV
Frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	60 Hz
Transformer Type	Oil-immersed, Conservator Type						
Tappings	± 2 x 2.5%						
Transformer Oil Type	Mineral Oil						
Transformer Vector Group	Dy11-y11						
Minimum Peak Efficiency Index	In accordance with EN 50588-1						
Transformer Load Losses	49.7 kW	49.7 kW	49.7 kW	49.7 kW	49.7 kW	49.7 kW	41 kW
Transformer No-load Losses	4.8 kW	4.8 kW	4.8 kW	4.8 kW	4.8 kW	4.8 kW	5.8 kW
Impedance(HV-LV1, LV2)	7.5% (0 ~ +10%) @6,300 kVA						
MV Switchgear Type	SF6 Gas Insulated, 3 Feeders						
MV Switchgear Configuration	CVC or CCV			DVC or DCV			
Auxiliary Transformer	Dry type transformer, 5 kVA, Dyn11						
Output Voltage of Auxiliary Transformer	400 / 230 Vac					220 / 127 Vac	
Protection							
Transformer Monitoring & Protection	Oil level, oil temperature, pressure and buchholz						
Protection Degree of MV & LV Room	IP 54						
Internal Arcing Fault MV Switchgear	IAC A 20 kA 1s						
MV Relay Protection	50/51, 50N/51N						
MV Surge Arrester	Equipped						
LV Overvoltage Protection	Type I+II						
General							
Dimensions (W x H x D)	6,058 x 2,896 x 2,438 mm (20' HC Container)						
Weight	< 22 t						
Operating Temperature Range	-25°C ~ 60°C ² (-13°F ~ 140°F)						
Relative Humidity	0% ~ 95%						
Max. Operating Altitude	2,000 m					2,500 m	
Enclosure Color	RAL 9003						
Applicable Standards	IEC 62271-202, EN 50588-1, IEC 60076, IEC 62271-200, IEC 61439-1						
Features							
Auxiliary Transformer(50 kVA, Dyn11)	Optional ³						
1.5 kVA UPS	Optional ³						
Updated to CVC or CCV MV Switchgear	Optional ³						
IMD	Optional ³						
STS Interlocking	Optional ³						

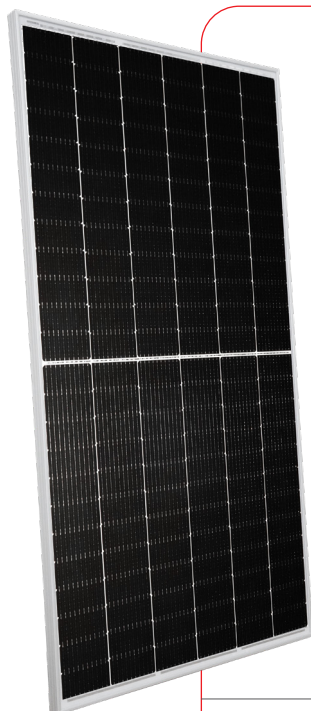
- 1 - More detailed AC power of STS, please refer to the de-rating curve.
 2 - When ambient temperature ≥55°C, awning shall be equipped for STS on site by customer.
 3 - Extra expense needed for optional features which standard product doesn't contain.

Ultra-V Series

144 HALF-CELL BIFACIAL MODULE

530-550W

STPXXXS - C72/Pmh+



Features



High module conversion efficiency

Module efficiency up to 21.3% achieved through advanced cell technology and manufacturing process



High PID resistant

Advanced cell technology and qualified materials lead to high resistance to PID



Excellent weak light performance

More power output in weak light condition, such as haze, cloudy, and morning



Lower operating temperature

Lower operating temperature and temperature coefficient increases the power output



Extended load tests

Module certified to withstand front side maximum static test load (5400 Pascal) and rear side maximum static test loads (2400 Pascal) *



Withstanding harsh environment

Reliable quality leads to a better sustainability even in harsh environment like desert, farm and coastline

Certifications and standards:
IEC 61215, IEC 61730, conformity to CE

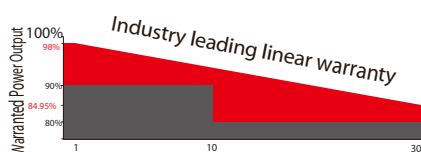
Munich RE



Trust Suntech to Deliver Reliable Performance Over Time

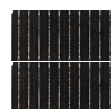
- World-class manufacturer of crystalline silicon photovoltaic modules
- Unrivaled manufacturing capacity and world-class technology
- Rigorous quality control meeting the highest international standards: ISO 9001, ISO 14001 and ISO17025
- Regular independently checked production process from international accredited institute/company
- Tested for harsh environments (salt mist, ammonia corrosion and sand blowing testing: IEC 61701, IEC 62716, DIN EN 60068-2-68)****
- Long-term reliability tests
- 2 x 100% EL inspection ensuring defect-free modules

Industry-leading Warranty based on nominal power



- 98% in the first year, thereafter, for years two (2) through thirty (30), 0.45% maximum decrease from MODULE's nominal power output per year, ending with the 84.95% in the 30th year after the defined WARRANTY STARTING DATE.*****
- 12-year product warranty
- 30-year linear performance warranty

Half-Cell +Bifacial



MBB technology decreases the distance between bus bars and finger grid line which is benefit to power increase. Half-cell aims to eliminate the cell gap to increase module efficiency.

IP68 Rated Junction Box



The Suntech IP68 rated junction box ensures an outstanding waterproof level, supports installations in all orientations and reduces stress on the cables. High reliable performance, low resistance connectors ensure maximum output for the highest energy production.

* Please refer to Suntech Standard Module Installation Manual for details.

** Suntech reserves the right to the final interpretation of the warranty by Munich Re.

***WEEE only for EU market.

**** Please refer to Suntech Product Near-coast Installation Manual for details.

***** Please refer to Suntech Product Warranty for details.

Electrical Characteristics

STC	STPXXXS-C72/Pmh+				
Maximum Power at STC (Pmax)	550W	545W	540W	535W	530W
Optimum Operating Voltage (Vmp)	42.05V	41.87V	41.75V	41.57V	41.39V
Optimum Operating Current (Imp)	13.08A	13.02A	12.94A	12.87A	12.81A
Open Circuit Voltage (Voc)	49.88V	49.69V	49.54V	49.39V	49.24V
Short Circuit Current (Isc)	14.01A	13.96A	13.89A	13.83A	13.76A
Module Efficiency	21.3%	21.1%	20.9%	20.7%	20.5%
Operating Module Temperature	-40 °C to +85 °C				
Maximum System Voltage	1500 V DC (IEC)				
Maximum Series Fuse Rating	25 A				
Power Tolerance	0/+5 W				

STC: Irradiance 1000 W/m², module temperature 25 °C, AM=1.5;
Tolerance of Pmax is within +/- 3%.

NMOT	STPXXXS-C72/Pmh+				
Maximum Power at NMOT (Pmax)	415.0W	411.5W	408.0W	404.3W	400.6W
Optimum Operating Voltage (Vmp)	38.9V	38.7V	38.6V	38.4V	38.2V
Optimum Operating Current (Imp)	10.67A	10.63A	10.58A	10.53A	10.47A
Open Circuit Voltage (Voc)	46.9V	46.7V	46.5V	46.4V	46.3V
Short Circuit Current (Isc)	11.22A	11.18A	11.13A	11.08A	11.02A

NMOT: Irradiance 800 W/m², ambient temperature 20 °C, AM=1.5, wind speed 1 m/s.

Electrical Characteristics with Different Rearside Power Gain(Reference to 540 W Front)

Rearside Power Gain	5%	15%	25%
Maximum Power at STC (Pmax)	567W	621W	675W
Optimum Operating Voltage (Vmp)	41.8V	41.8V	41.9V
Optimum Operating Current (Imp)	13.59A	14.88A	16.18A
Open Circuit Voltage (Voc)	49.5V	49.5V	49.6V
Short Circuit Current (Isc)	14.48A	15.86A	17.24A
Module Efficiency	21.9%	24.0%	26.1%

Temperature Characteristics

Nominal Module Operating Temperature (NMOT)	42 ± 2 °C
Temperature Coefficient of Pmax	-0.36%/°C
Temperature Coefficient of Voc	-0.304%/°C
Temperature Coefficient of Isc	0.050%/°C

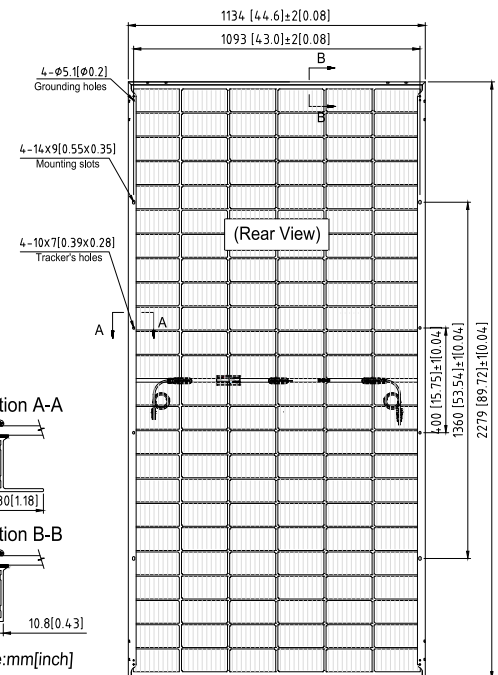
Mechanical Characteristics

Solar Cell	Monocrystalline silicon 182 mm
No. of Cells	144 (6 × 24)
Dimensions	2279 × 1134 × 35 mm (89.7 × 44.6 × 1.4 inches)
Weight	32.8 kgs (72.3 lbs.)
Front and Back Glass	2.0+2.0 mm (0.079+ 0.079inches) semi-tempered glass
Frame	Anodized aluminium alloy
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4.0 mm ² , Portrait: (-)350 mm and (+)160 mm in length Landscape: (-)1400 mm and (+)1400 mm in length or customized length
Connectors	MC4 EVO2, Cable 01S
Refer. Bifaciality Factor	(70 ± 5)%

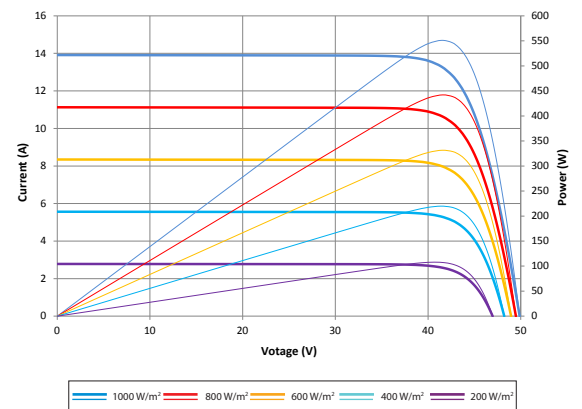
Packing Configuration

Container	40' HC
Pieces per pallet	31
Pallets per container	20
Pieces per container	620
Packaging box dimensions	2310×1130×1245 mm
Packaging box weight	1080 kg

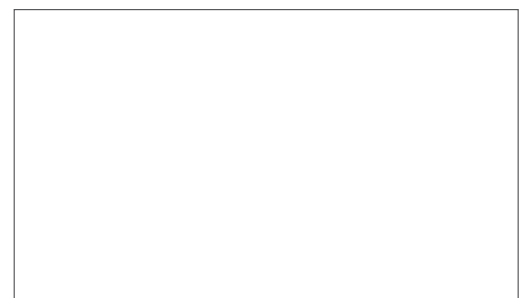
Information on how to install and operate this product is available in the installation instruction. All values indicated in this data sheet are subject to change without prior announcement. The specifications may vary slightly. All specifications are in accordance with standard EN 50380. Color differences of the modules relative to the figures as well as discolorations of/in the modules which do not impair their proper functioning are possible and do not constitute a deviation from the specification.



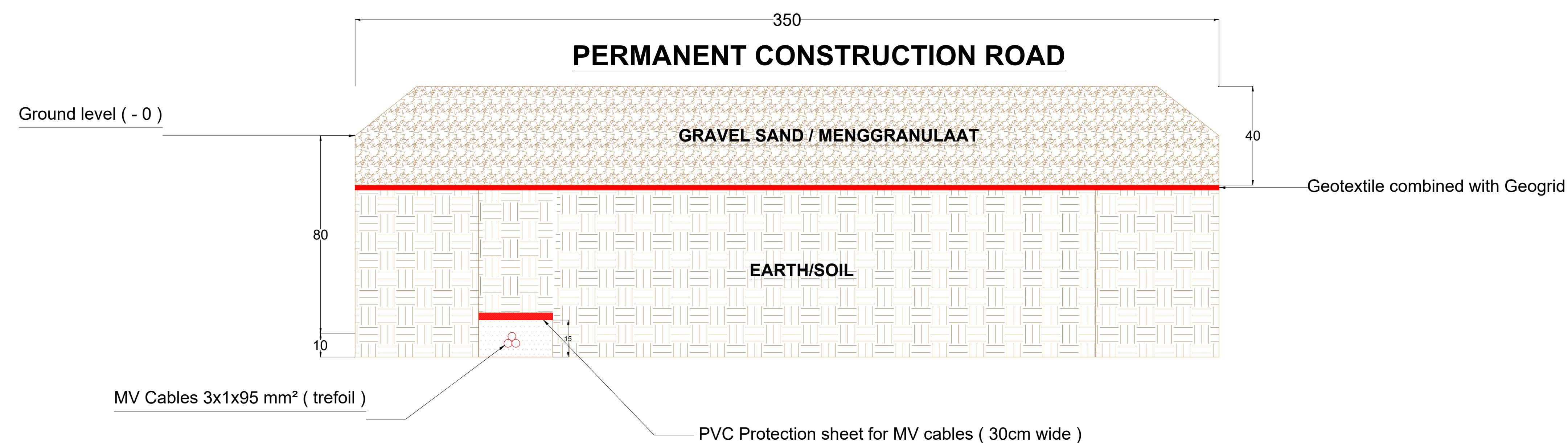
Current-Voltage & Power-Voltage Curve (550S)



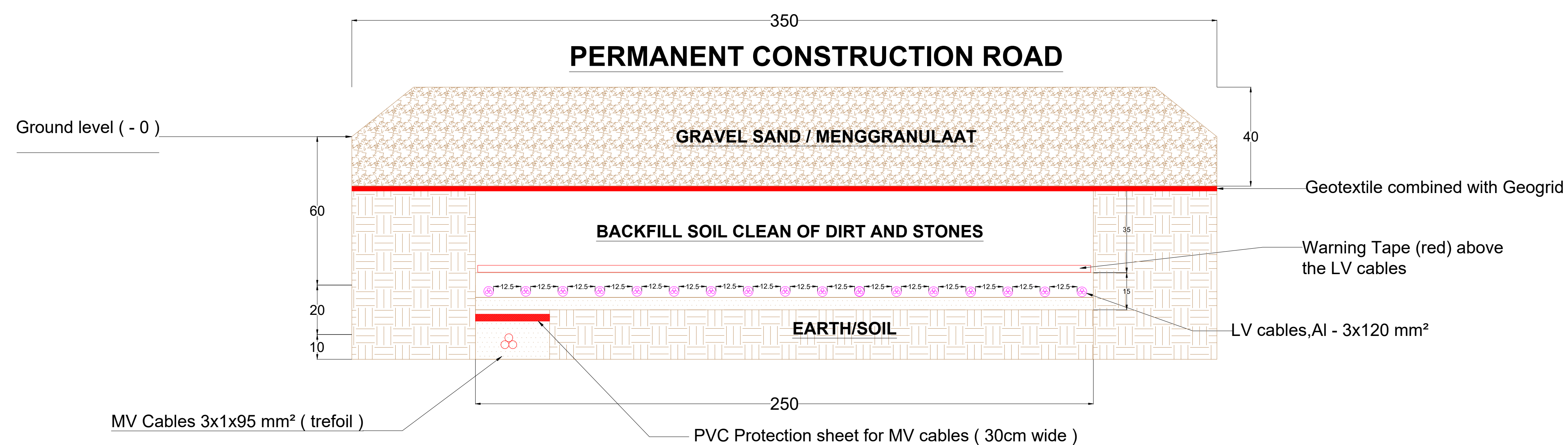
Dealer information



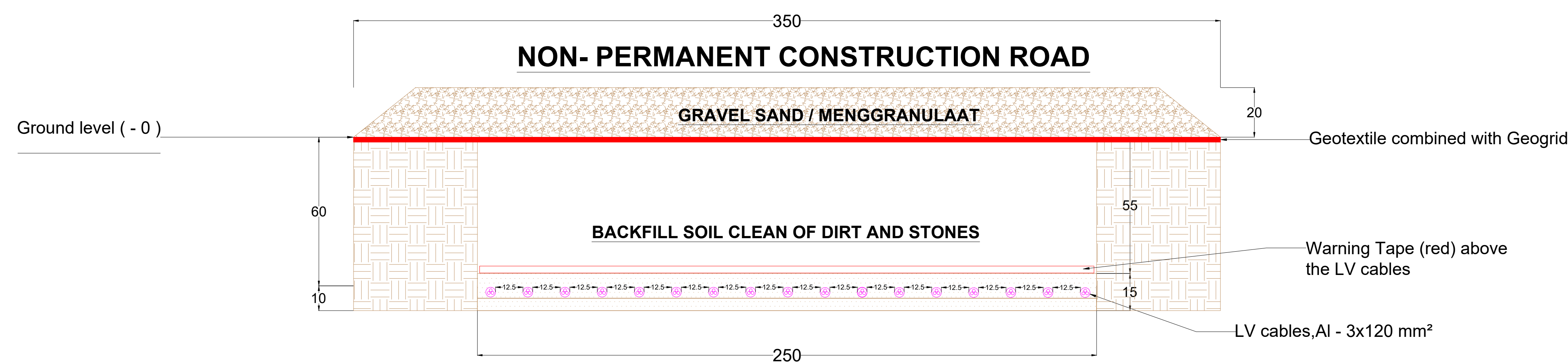
SECTION A-A'



SECTION B-B'



SECTION C-C'



Non-permanent construction roads

Those roads can be built directly on the topsoil layer. Removing the humus layer is not required. We propose to compact the loosened topsoil by a roller compactor on all construction roads built later on before further activities.

We recommend building up this plane with a well compacted sand-gravel mixture or crushed concrete 0/32. To separate the materials from the topsoil, use a simple non-woven geotextile combined with a geogrid. This material should have a thickness of approx. 0.20 m and be compacted in one layer.

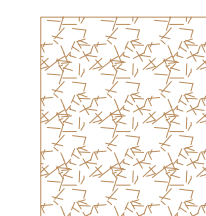
Permanent construction roads

For construction roads, able to bear the loads from heavy goods vehicles, the vegetation cover and 0.2 m of the underlying topsoil need to be taken away completely and a plane with a homogeneous slope of $> 3^\circ$ needs to be established. On this plane, a simple geotextile combined with a geogrid has to be installed. We recommend building up this plane with a well compacted sand-gravel mixture or crushed concrete 0/32. This material should have a thickness of approx. 0.4 m and has to be compacted in two layers. This filling should have a degree of compaction of 98% standard Proctor density.

General instructions

- LV cables will be installed at 60cm depth with warning red tape above them.
- LV cables will be installed with a distance of 12,5cm between them.
- MV cables will be installed at 80cm depth with a PVC protective sheet above them.
- All the cables will be installed in a layer (5cm) of clean sand and will be cover with a layer (10cm) of clean sand as well.
- The soil that will be used as a backfill needs to be clean of dirt and stones. In the trenches below the permanent roads, the topsoil layer (20 cm) cannot be used as a backfill.
- The gravel sand / menggranulat road needs to be compacted according to the requirements.
- Distances are indicated in cm.

EARTH/SOIL

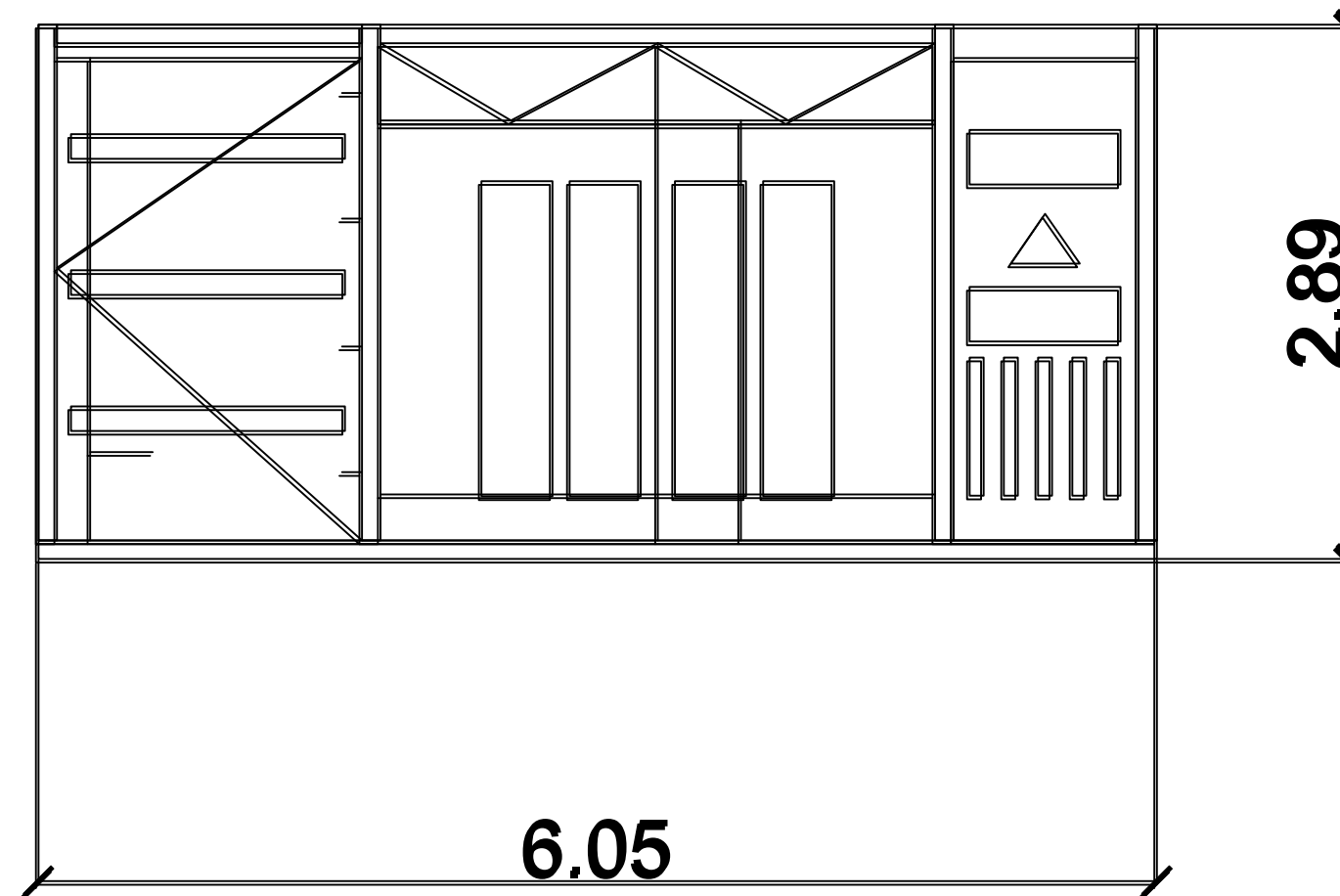


GRAVEL SAND / MENGGRANULAAAT

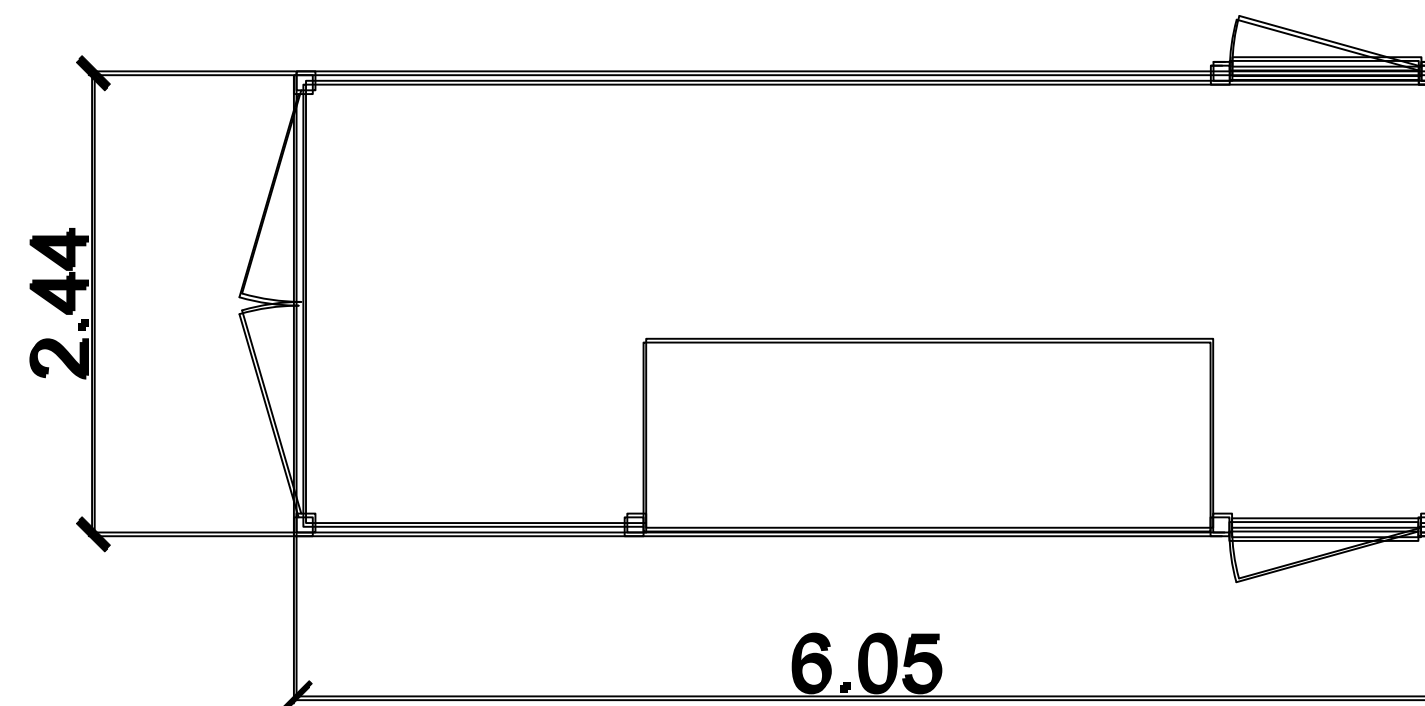
CLEAN SAND

Revisie	Datum	Omschrijving				Handtekening
Getekend	V.M.	Gezien	R.B.	Versie	1.0	Status tekening
Datum	07-07-2021	Datum	07-07-2021	Schaal	n/a	Design
Karakter Energie - Venlo LOT 5 Maintenance roads & Cross sections						Locatie
						Kalifornië Venlo
						Oprechtgever
						Karakter Energie
 ProfiNRG <i>Professioneel in zonne-energie</i>				PV nummer	TekenIngnr.	Blad
				PA200263		01
				Deze tekening is het eigendom van ProfiNRG		

Huawei STS Transformer station



Front view



Top view