



LAYOUT REPORT OF GROUND MOUNTED PROJECT

For 1.05 MWp

Name of Place
Punjab, India

Date
10 October, 2014

Order No.
#1410100001

Client
ABC

Email
abc@abc.com

Address
xyz
Mulowali, Punjab, India
340012

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ABOUT EZYSOLARE


ezysolare is dedicated to making the journey of going solar easy. Starting from decision making to design, ezysolare breaks the process into 2 simple steps. We assist in ascertaining the feasibility of a solar project through SEAR (Solar Energy Assessment Report), while LAYOUT (Solar Module Layout) details the placement of modules and other key equipment of a solar power plant. Both our offerings are designed for all possible variations of projects - rooftop and ground mounted, MW and kW scale, crystalline and thin film modules promising users a tailor made solution to their unique requirements.

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Considering the nature of climate fluctuations, inter-annual and long-term changes, as well as uncertainty of measurements and calculations, ezysolare cannot take full guarantee of the accuracy of estimates. The maximum possible has been done based on the layout on the best available data, software and knowledge. Ezysolare shall not be liable for any direct, incidental, consequential, indirect or punitive damages arising or alleged to have arisen out of use of the provided report.

1. LAYOUT REVIEW PAGE

This is the review page of your layout form you filled and provided us the information to create your layout report.



Geo Coordinates

Latitude	32 North
Longitude	75 East



Technical Specifications

Capacity	1.05 MW
Type of Area	Ground
Links	-

Modules & Inverters

Set #	Item	Type	Make	Capacity
Set	Module	Polycrystalline	Canadian Solar	250.000 Wp
	Inverter	Central	ABB	1000.000 kW
	Remarks	-		

2. METHODOLOGY OF LAYOUT

Methodology that can be used for evaluation of the sites to create the Layout report include various attributes described below:

Shadow Analysis

Shading analysis is one of the most essential steps in phase of solar energy system design. In photovoltaic it is important to analyze shading caused by surrounding objects and/or vegetation. Shadow Analysis is the major parameter based on which we get the capacity of plant. However, other parameters like availability of land, energy requirement etc. are also considered for deciding the capacity of a plant.

Capacity, Pitch and Optimum tilt

Based on the Shadow Analysis or capacity given by our users We take the capacity of a site and calculate the pitch and optimum tilt of modules to get maximum sunlight from sun for energy generation through photovoltaic module.

Evacuation Location

General arrangement of equipment & facilities are in a way to ease out the evacuation of power to grid.

Stringing - Series, Parallel

Based on the voltage range of modules & inverters the string sizing (Number of modules in Series & parallel) will be determined.

Table Size finalization

Based on the strings, table size is finalized & same size of the table is kept to insure the repeatability of the racking arrangement for easy sourcing.

Inverter Location

Inverter location is generally governed by optimized cable lengths to keep losses as minimum as possible.

Lightning Arrester Placement

Lightning Arrester is positioned to cover the complete installed area factoring in the shadow of Lightning Arrester.

3. SUMMARY

This layout report is proposed to develop a Solar Photovoltaic power plant with maximum generation capacity of 1 MW AC capacity & 1.05 MWp installed capacity located at site Punjab, India.

4. SITE CHARACTERISTIC

Project Location

Punjab, India



5. PROJECT FEATURES

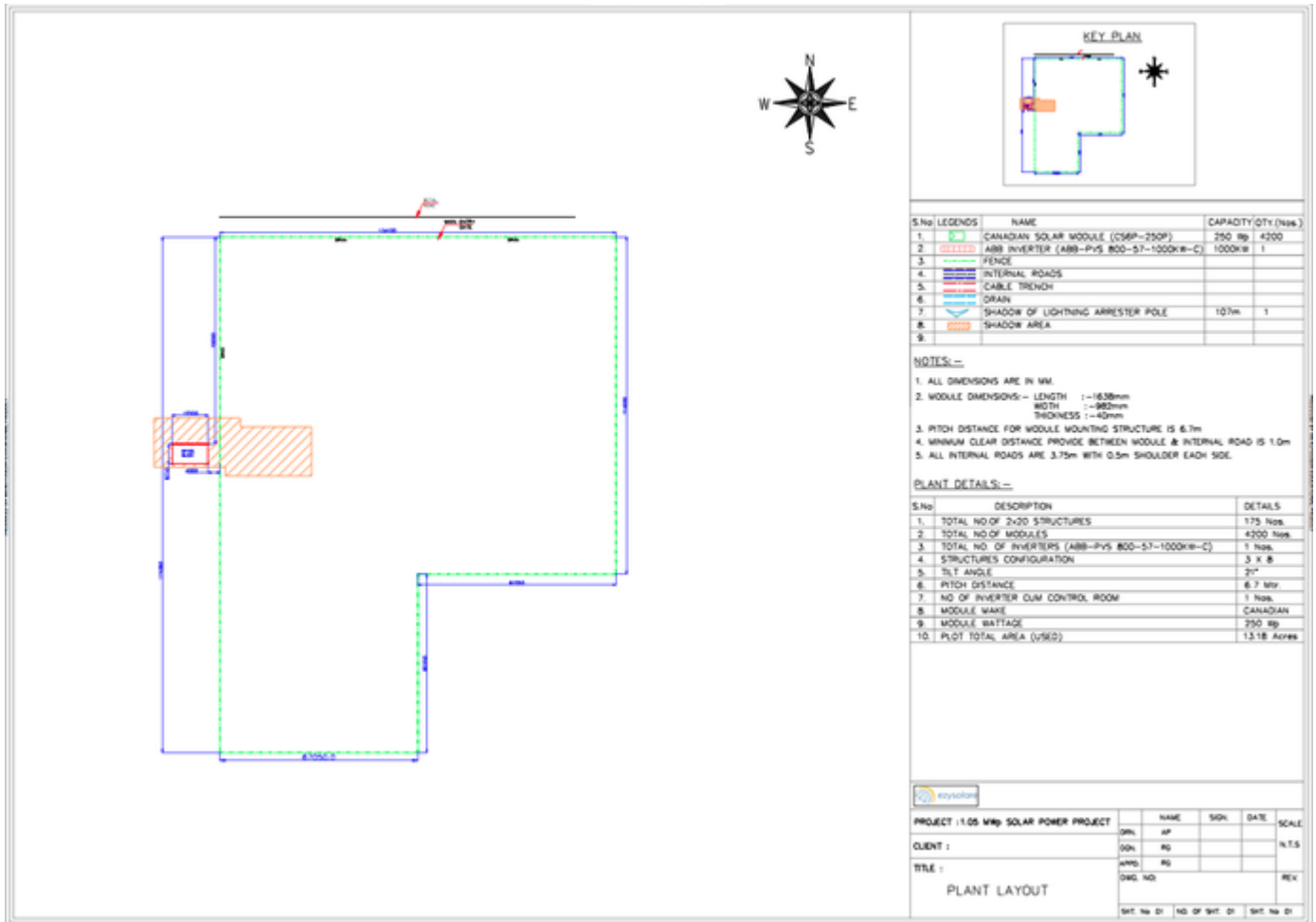
Parameters	Details
Project Location	Punjab, India
Latitude & Longitude	32.000 North, 75.000 East
Tilt Angle	21 °
Pitch Distance	6.70 m
Estimated Total Area	4.77 Acres
Installed Capacity	1.05 MWp
Module Make & Wattage	Canadian Solar, 250 Wp
Total No. of modules	4200
Inverter Make & Capacity	ABB, 1000 kW
Number of Inverter Used	1
AC Capacity	1 MW
Number of Control Room	0
Number of Inverter Room	0
Number of Inverter Cum Control Room	1

6. SITE DESIGN PLAN

Site Features	Description	BOM
Existing Features	Existing features are those, which already exist on site.	Office Block
PV Module	PV module converts solar radiation into direct current (DC) electricity through photovoltaic effect. The panels will be mounted and aligned in rows facing due south and will be mounted.	4200 number of PV panels of 250 Wp, Canadian Solar CS6P-250P panels of 250 watts, Dimensions: Length- 1638mm, Width- 982mm, thickness- 40mm.
Inverter	From the combiner box, the DC current will be transmitted to one of given inverter units (enclosed), which will convert the DC electricity into AC electricity suitable for evacuating to the local grid.	1 number of inverter units, ABB, PVS800-57-1000kW-C, 1000 kW of continuous output power and will contain one 1000 kW inverters.
Lightning Arrester	A lightning arrester is a device used to protect the insulation and conductors of the system from the damaging effects of lightning.	One Lightning Arrestors of 107m radius has been considered.

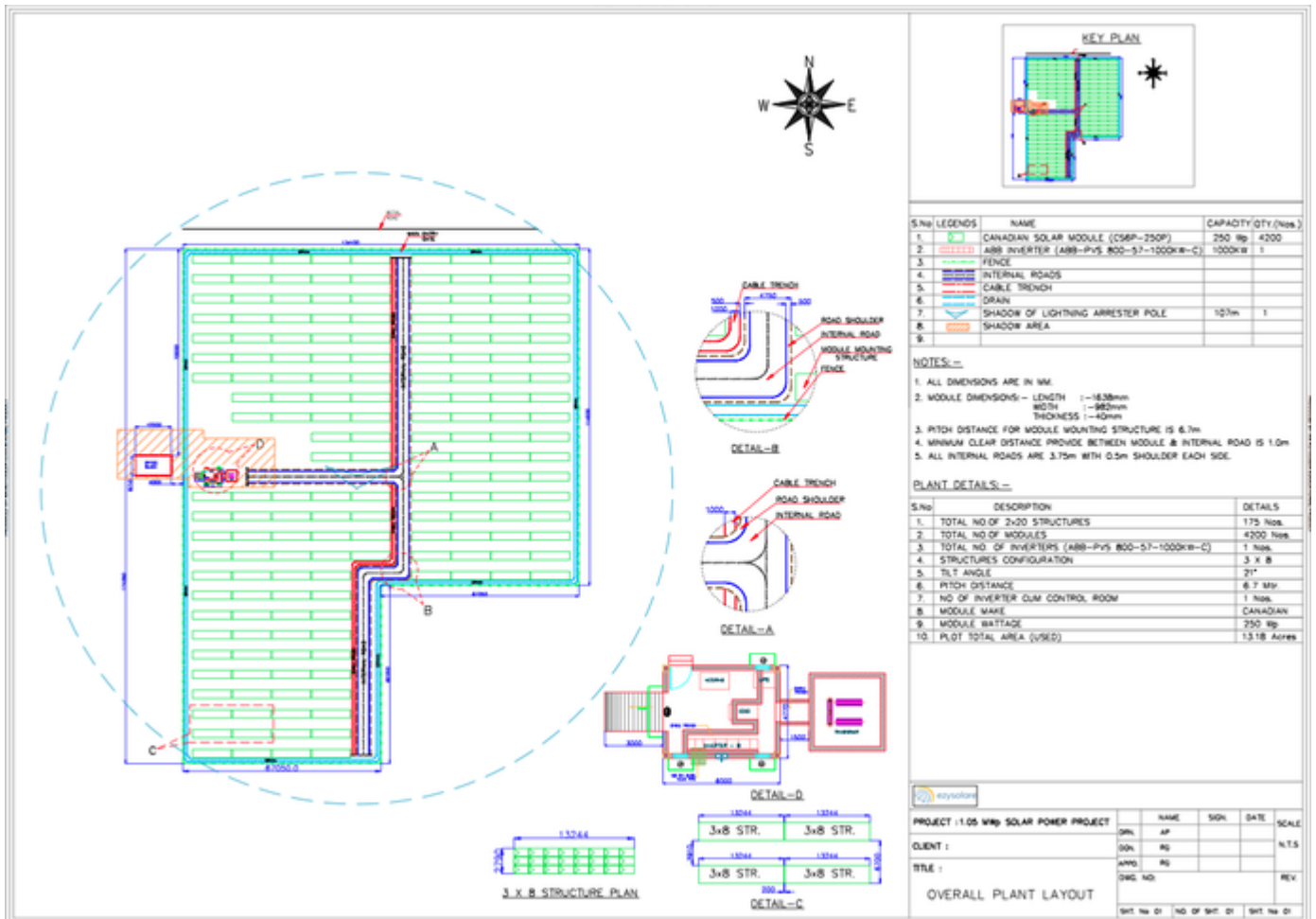
7. TOP VIEW OF A SITE

This is the top view of the site for which Solar Module Layout has been designed.



8. OVERALL PLANT LAYOUT

This is the overall plant layout with Modules, inverters & Lightning arresters placed at your site.






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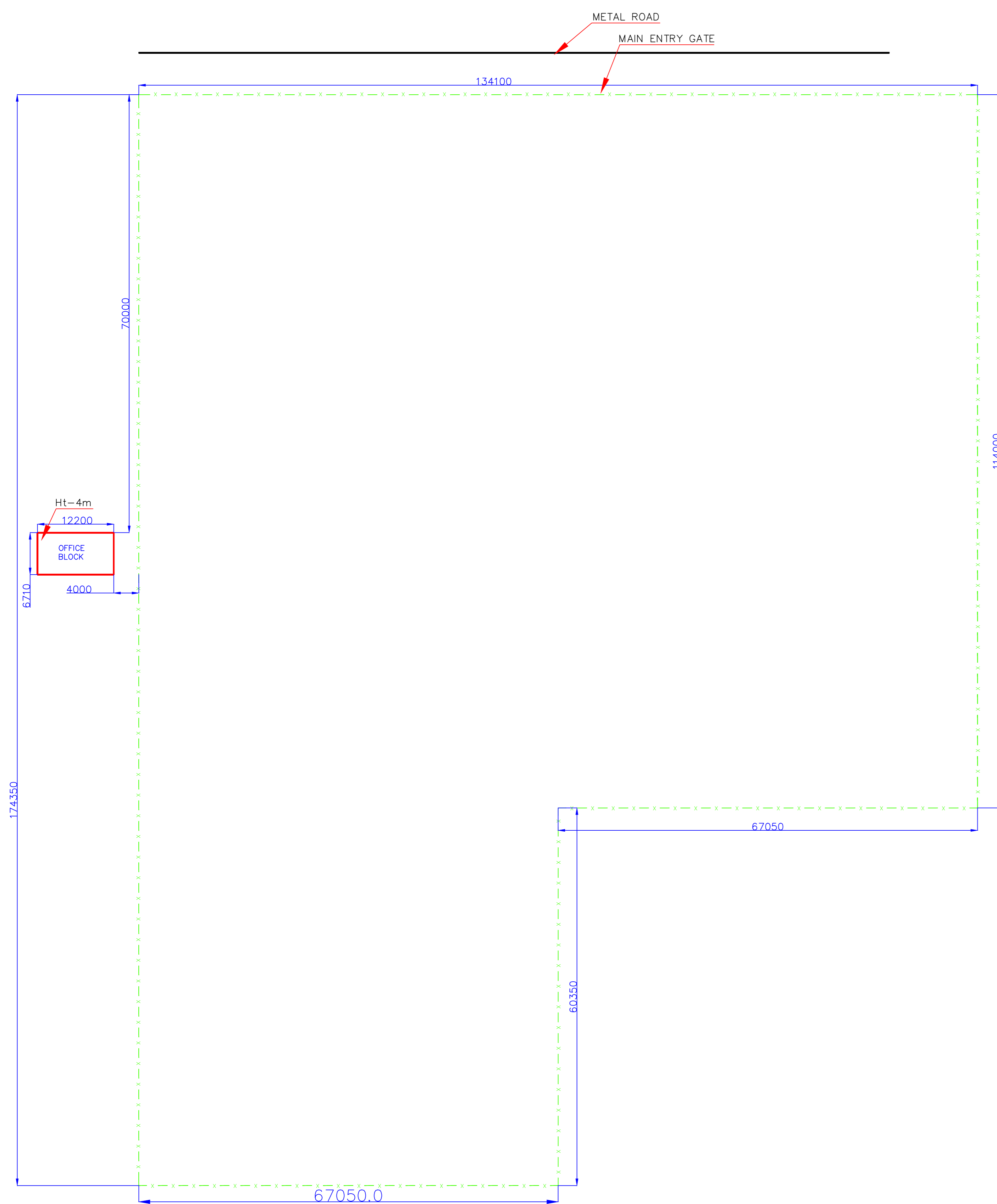
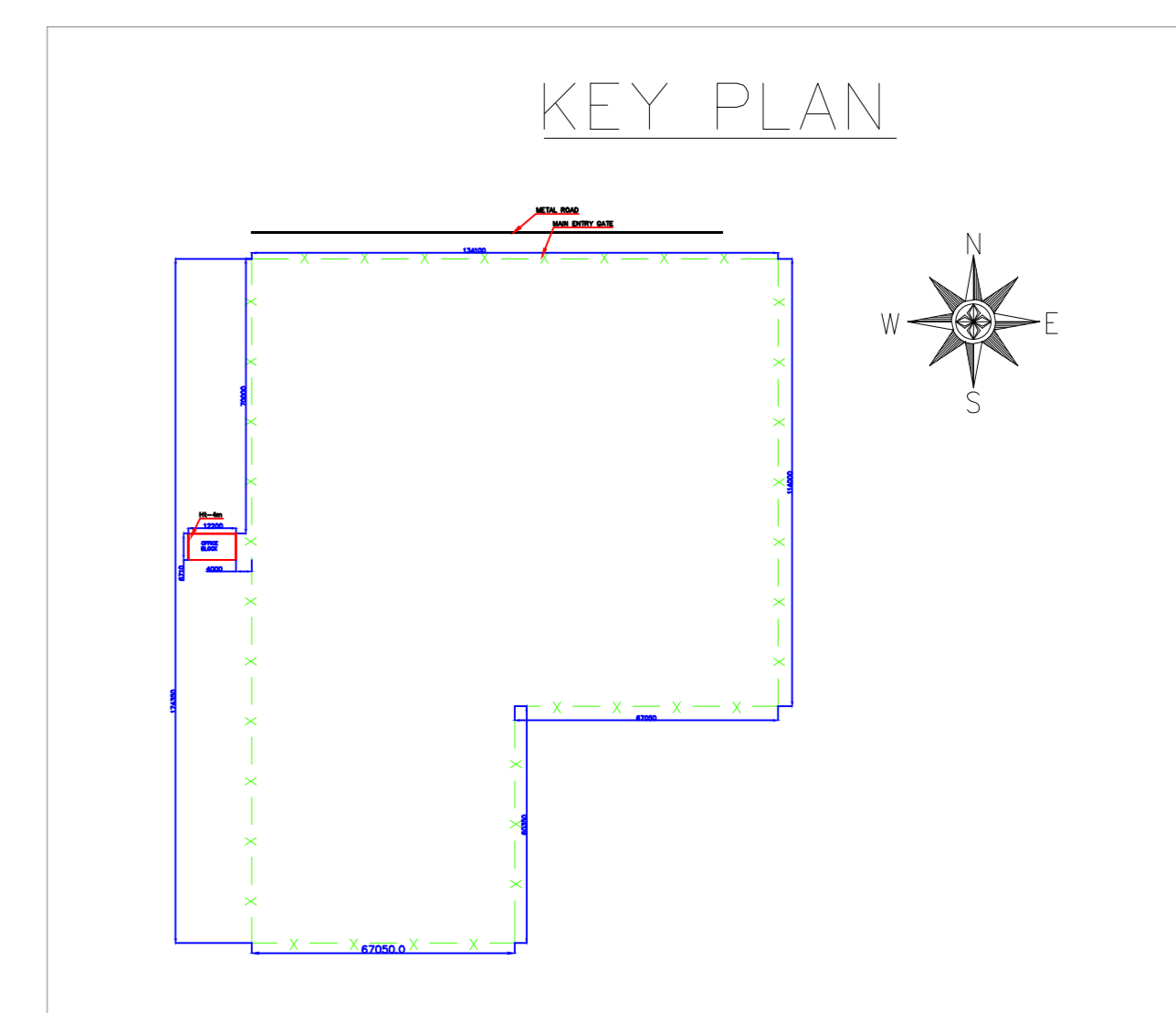
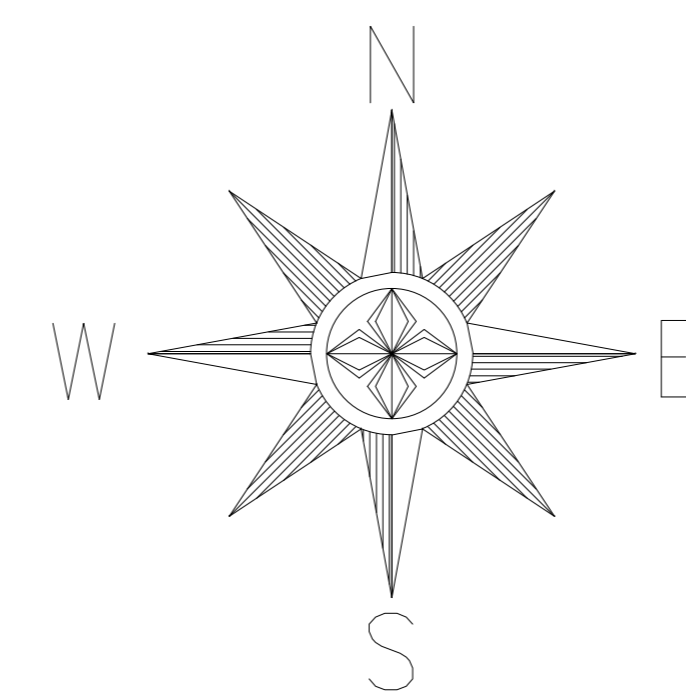
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S.No	LEGENDS	DESCRIPTION	CAPACITY	QTY.(Nos.)
1.	- - - - -	FENCE		

NOTES: -

1. ALL DIMENSIONS ARE IN MM.



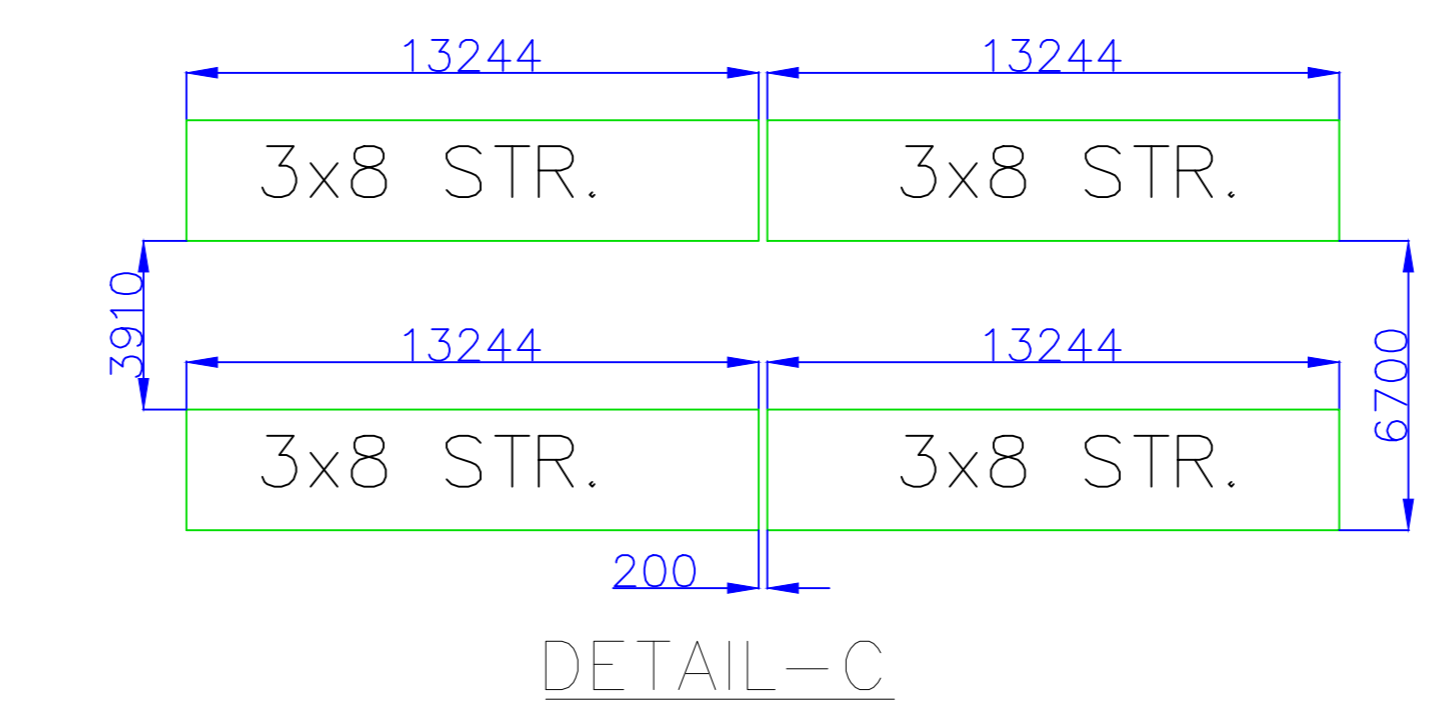
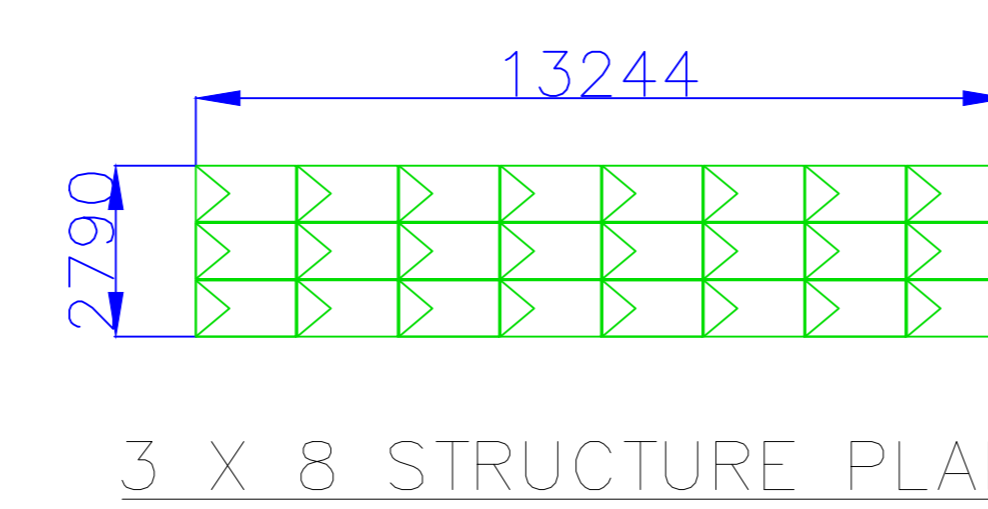
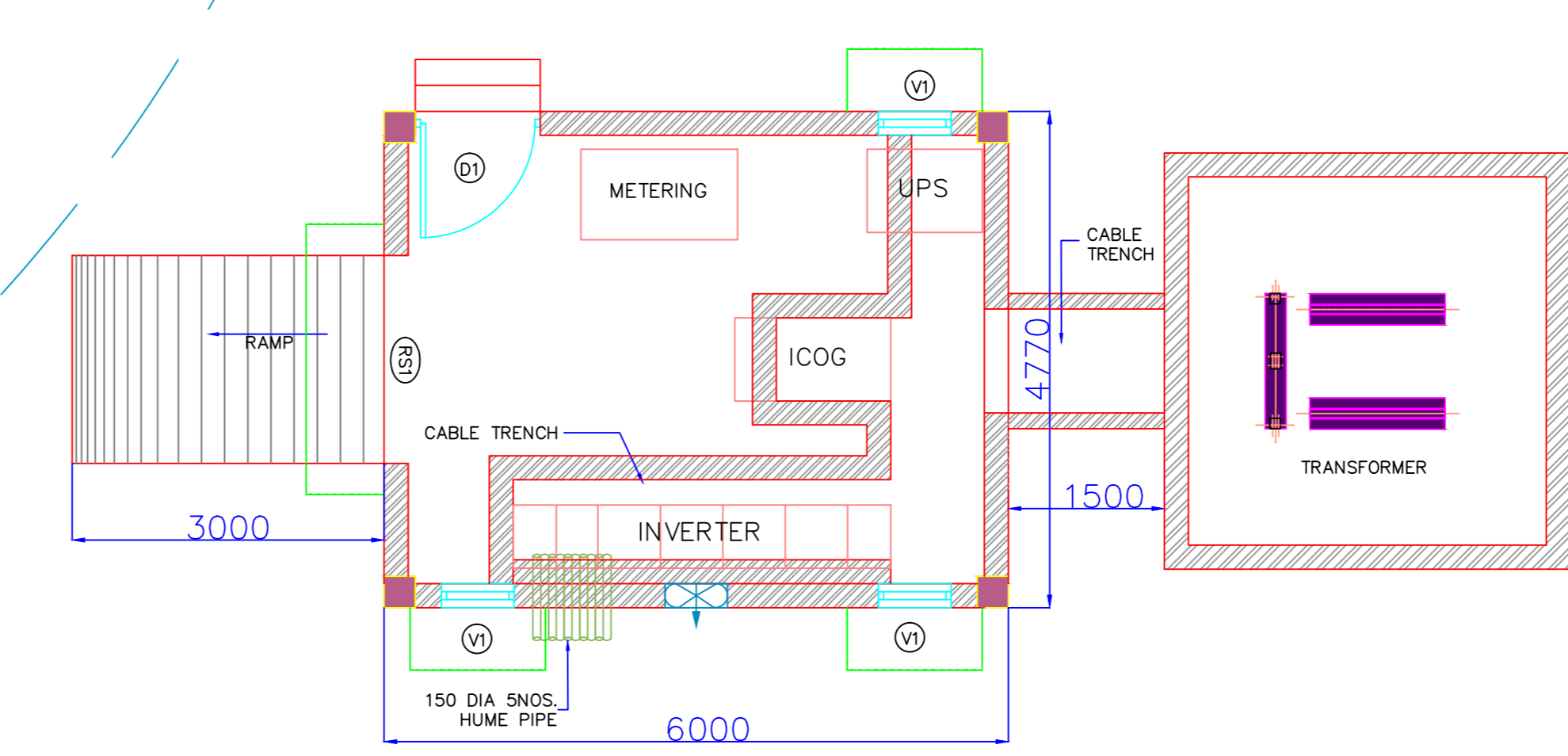
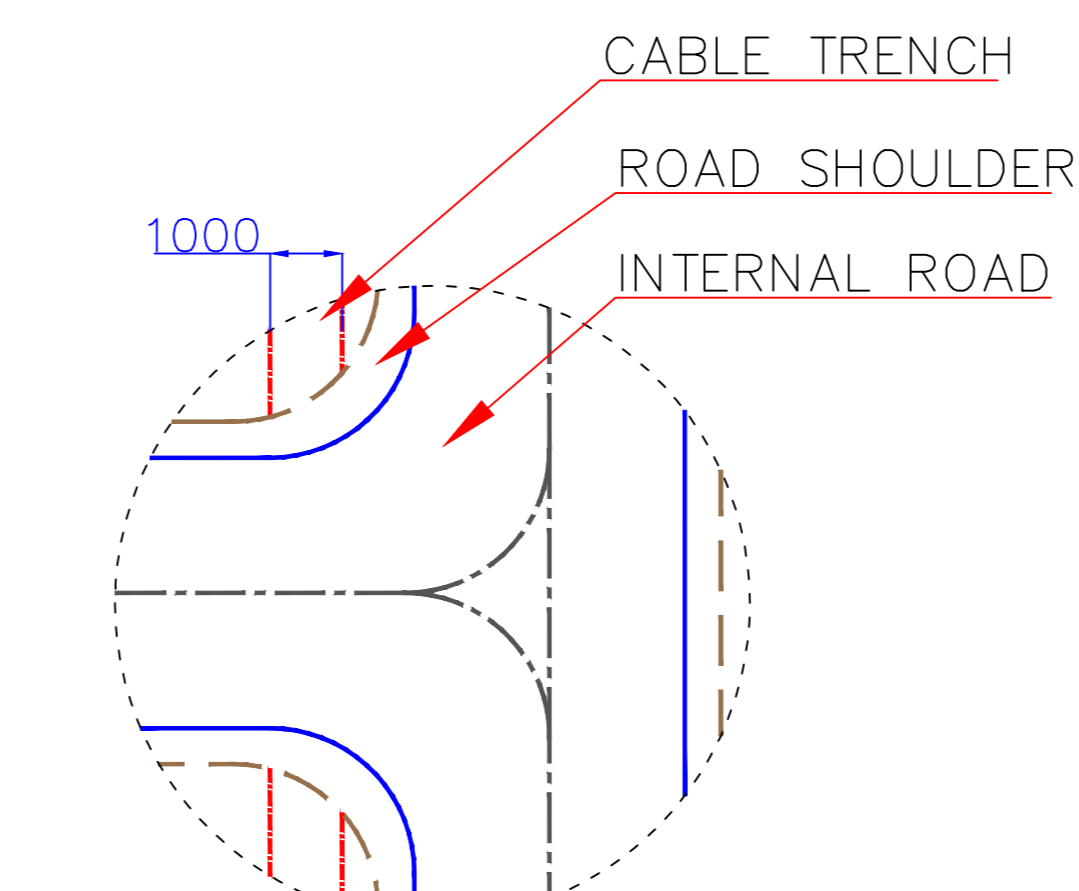
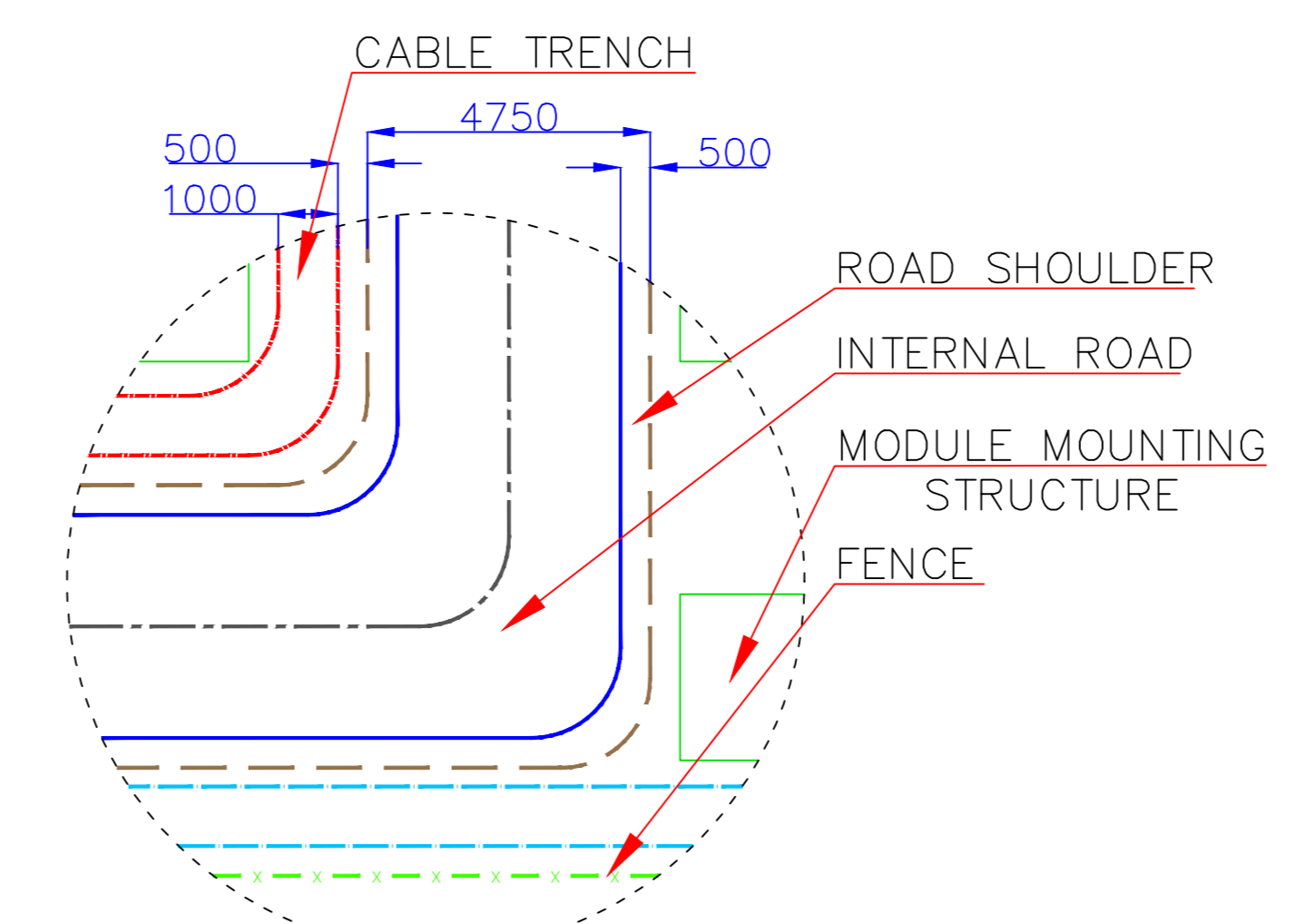
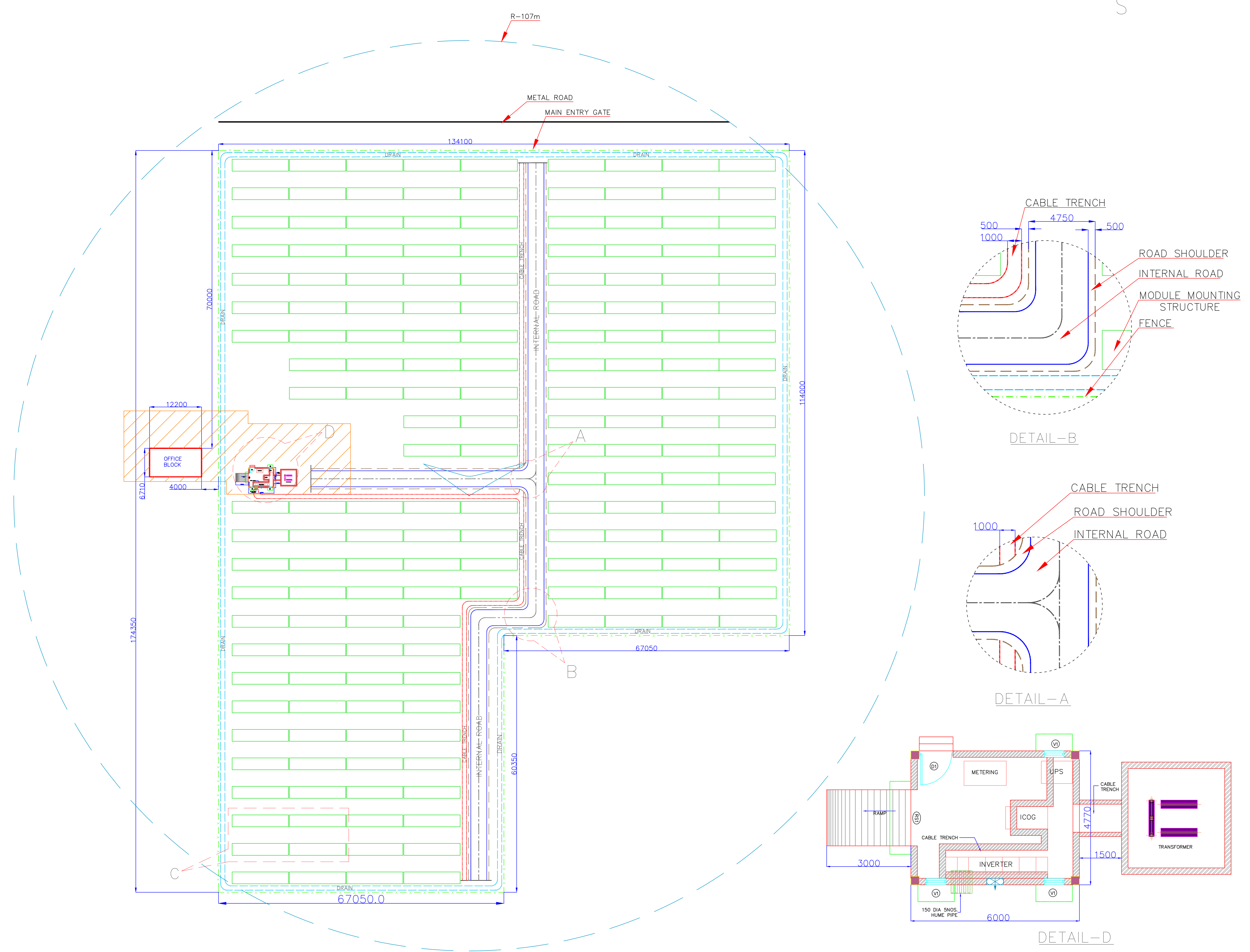
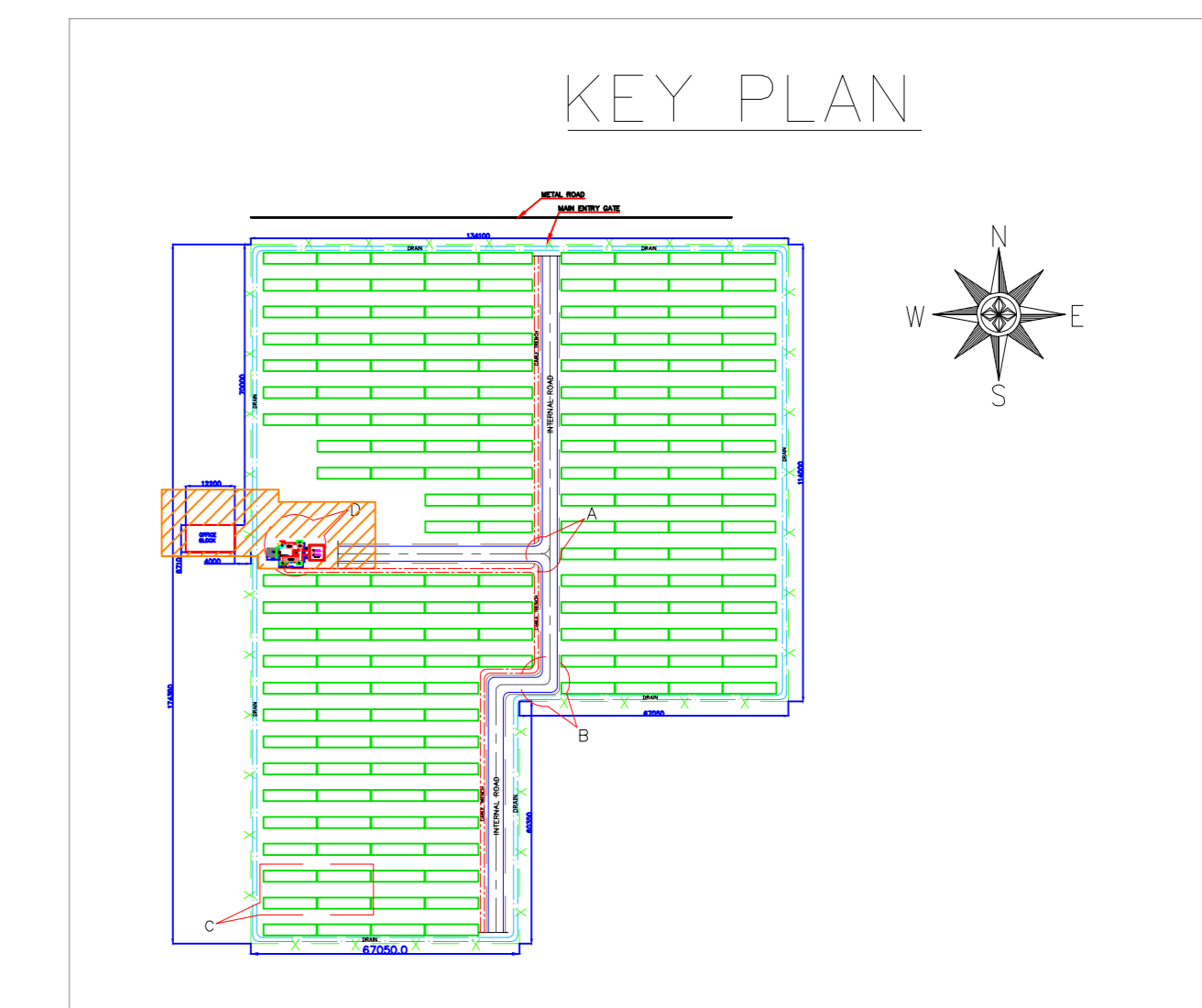
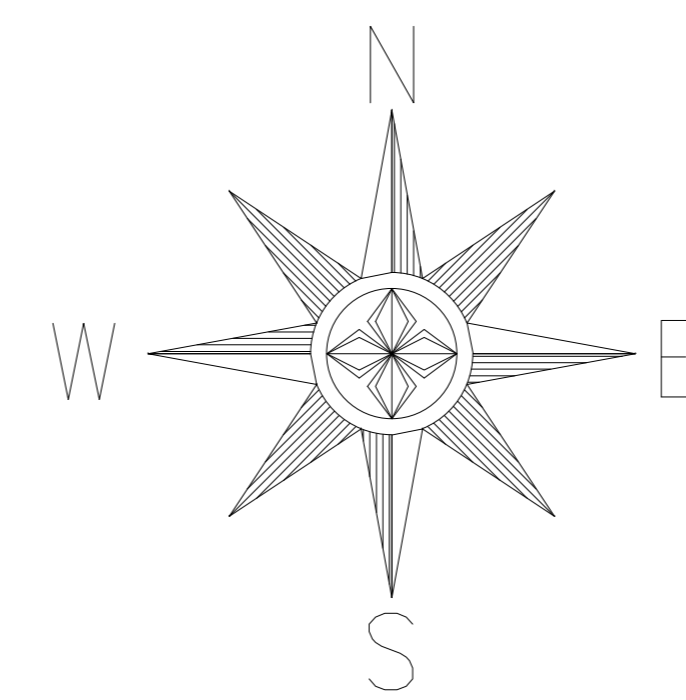
PROJECT : SOLAR POWER PROJECT

CLIENT :

TITLE :

LAYOUT

DRN.	NAME	SIGN.	DATE	SCALE
	AP			N.T.S
	RG			
	RG			
DWG. NO:				REV.
SHT. No 01	NO. OF SHT. 01	SHT. No 01		



S.No	LEGENDS	DESCRIPTION	CAPACITY	QTY.(Nos.)
1.		CANADIAN SOLAR MODULE (CS6P-250P)	250Wp	4200
2.		ABB INVERTER (ABB-PVS 800-57-1000KW-C)	1000kW	1
3.		FENCE		
4.		INTERNAL ROADS		
5.		CABLE TRENCH		
6.		DRAIN		
7.		SHADOW OF LIGHTNING ARRESTER POLE		
8.		SHADOW AREA		

NOTES:

- ALL DIMENSIONS ARE IN MM.
- MODULE DIMENSIONS: LENGTH : 1638mm
WIDTH : 982mm
THICKNESS : 40mm
- PITCH DISTANCE FOR MODULE MOUNTING STRUCTURE IS 6.7m.
- MINIMUM CLEAR DISTANCE PROVIDED BETWEEN MODULE & INTERNAL ROAD IS 1.0M.
- ALL INTERNAL ROADS ARE 3.75m WITH 0.5m SHOULDER EACH SIDE.
- SHADOW MARKED CONSIDERING TIMING 8.30AM TO 4.30PM.
- DIMENSION OF INVERTER CUM CONTROL ROOM IS INDICATIVE.

PLANT DETAILS:

S.No	DESCRIPTION	DETAILS
1.	TOTAL NO. OF 3x8 STRUCTURES	175 Nos.
2.	TOTAL NO. OF MODULES	4200 Nos.
3.	TOTAL NO. OF INVERTERS (ABB-PVS 800-57-1000KW-C)	1 No.
4.	TOTAL NO. OF LIGHTNING ARRESTER (107m)	1 No.
5.	STRUCTURES CONFIGURATION	3 X 8
6.	TILT ANGLE	21°
7.	PITCH DISTANCE	6.7 Mtr.
8.	NO. OF INVERTER CUM CONTROL ROOM	1 No.
9.	MODULE MAKE	CANADIAN
10.	MODULE WATTAGE	250 Wp
11.	PLOT TOTAL AREA (USED)	4.77 Acres



PROJECT : 1.05 MWp SOLAR POWER PROJECT	NAME	SIGN.	DATE	SCALE
CLIENT :	DRN. AP			N.T.S
TITLE :	DGN. RG			
	APPD. RG			
	DWG. NO:			REV.
	SHT. No. 01	No. OF SHT. 01	SHT. No. 01	

OVERALL PLANT LAYOUT