



HIGH MAST LIGHTING

AN ISO 9001 COMPANY
 **SOLAR**
LIGHTING FIXTURES

ensuring a brighter world 



AN ISO 9001 COMPANY

SOLAR
LIGHTING FIXTURES

HIGH MAST LIGHTING

INTRODUCTION

APPLICATIONS

Area Lighting

Airports

City Junction

Toll Plaza

Sea Ports

Car Parks

Stadiums

It is my great pleasure to express my regards to the patrons of **SOLAR** who have promoted their brand around. Your precious cooperation is indeed appreciable. **SOLAR** has earned a markable prestige in lighting world. Our production capacity is also increased to four times. We are now able to meet with any volume of requirements. We are launching new products simultaneously. Quality is our concern & customers' satisfaction is our utmost motto. Your company has recently launched **HIGH MAST SYSTEM**. The technocrats of the company have tried their level best to satisfy the consumers. It is approved by Indian Railways.

We provide the complete varieties of **HIGH MAST LIGHTING SYSTEM** to meet the different needs of the customers. **SOLAR** offers the most comprehensive range of **HIGH MAST** including the lowering devices.

Our highly trained & experienced personells are capable to provide you the superior designed product, which is the most reliable **HIGH MAST SYSTEM** of today. We are committed for excellent services to your real choice.

We seek your cooperation to develop this **HIGH MAST SYSTEM** project, as well as **SOLAR** brand light fittings & luminaires.

HIGH MAST SYSTEM is developed to use at different places i.e. Parking lots, Shopping complexes, Railway yards, Airports, Prison yards, Freight terminals, Piers, Industrial plants, Mines, Highways Toll Plazas, Fly overs & other hazardous places.

SOLAR HIGH MAST has lowering device designs with numerous options & accessories to accommodate the requirement of our valued customers.

SOLAR assures for its **HIGH MAST SYSTEMS** reliability & performance.





PRODUCT PROFILE

MAST: -

- Consists of 6/5/4/3/2 telescopic sections of approximately 5.5. mtr. to 10.5 mtr. length each made of 8/6/5/4/3-mm thick mild steel (M.S.) Plates conforming to IS:2062-1975,1079,10748. BS En10 025 having a tapered profile for stability and aesthetics.

CAPPING SECTION: -

- Is fixed at the top of the mast & is made of M.S. plate and is hot dip galvanised.
- Accommodates specially designed LM6 die-cast pulleys for wire ropes and cable. Pulley construction ensures the proper running of the rope with the grooves.
- Pulleys are fitted on the stainless steel axles retained by stainless steel pins. Suspension does not require any lubrication.
- Total top assembly is protected by a hot-dip galvanised M.S. cover.

LANTERN CARRIAGE: -

- The standard lantern carriage is designed to accommodate 6/9/12/16 luminaries, radially symmetrical. It can be provided as per prior confirmation.
- It is made in two sections for the ease of installation. The main frame is made of steel pipe or M.S. plate. The arms are made of M.S. E.R.W. tubes/ channels are bolted and M.S. plate of suitable size is welded for mounting of



luminaries. Control Gear Boxes, Junction Box etc. The assembly is hot-dip galvanised.

- Combined guides and stops ensure concentricity between the lantern carriage and the masthead. The stops also ensure proper levelling and positioning of the lantern carriage at top position.
- The Lantern Carriage rests firmly at a maintainable height from the ground level with the help of stoppers for ease of maintenance at the lower docking position.
- During lowering/raising operation the design ensures that there is no damage caused to the mast surface and any other parts installed.

WINCH ASSEMBLY: -

- The specially designed winch consists of two drums made of steel with machined grooves and is mounted inside the mast at a convenient height from the base.
- The wire rope is wound on the drum with one end attached to the lantern carriage while the other end is clamped to the winch drum. The design ensures that no inter-winding of the lifting ropes takes place.
- The winch is self-sustaining type with the positive locking arrangement without the need of any brakes and clutches.
- The double drum winch is useful for raising and lowering the lantern carriage. It is also useful for levelling the lantern carriage by operating the drums individually.

ELECTRIC DRIVE: -

- The motor is mounted on M.S. hot-dip galvanised plate inside the mast.
- The motor is 3-phase, 415 Volts, 125/200/250 RPM, 0.75 / 1/1.5 H.P.

WIRE ROPE: -

- The mast is provided with a 7/19 construction wire rope made of S.S wires.



- The design ensures that no meshing takes place between the wire rope and the cable during windy conditions and raising/lowering operation.

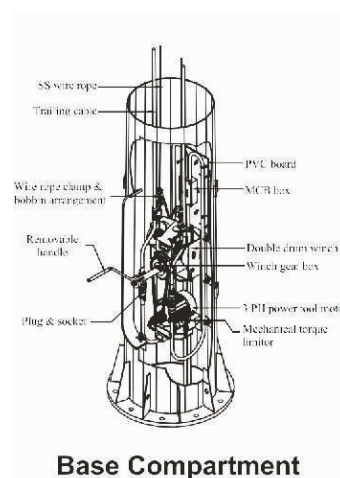
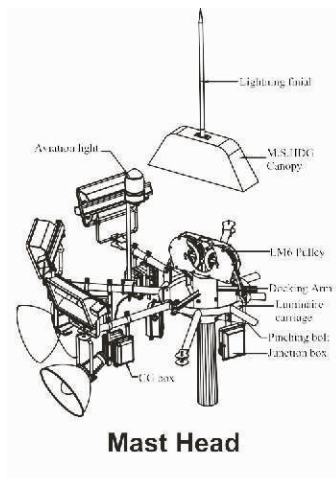
FEEDER PILLAR BOX: -

- is made of 14/16 SWG M.S. sheet and suitably painted for the protection and is to be mounted on a raised platform above ground level.
- Construction ensures for outdoor use suitability.
- Basic components inside the Feeder Pillar-Box are:
 - Incoming terminal.
 - Outgoing terminal to lantern carriage.
 - Outgoing terminal to winch motor.
 - Main contractor for lighting circuit
 - HRC fuse for winch motor.
 - HRC fuse for lighting circuit.
 - MCB isolator switch.
 - Auxiliary power supply.
 - Timer.
 - Two numbers of contractors for forward and reverse operation of winch motor. (In the remote control switch)
- Feeder Pillar-Box is connected to the remote control switch for raising and lowering the lantern carriage.
- The power feed cable is connected between the feeder pillar-box and the junction box on the lantern carriage.



HIGH MAST CONTAINS

<u>SL. No.</u>	<u>Description</u>	<u>Material</u>	<u>Finish</u>
1.	Mast Section	M.S.	Hot-dip Galvanised
2.	Lantern carriage	M.S.	Hot-dip Galvanised
3.	Capping section	M.S.	Hot-dip Galvanised
4.	Pulley cover	M.S.	Hot-dip Galvanised
5.	Cable	-	-
6.	Pulley	LM6	-
7.	Wire rope	S.S.	Galvanised
8.	Balancing weight	M.S.	Hot-dip Galvanised
9.	Luminaries mtg. Bracket	M.S.	Hot-dip Galvanised
10.	C.G. Box mtg. Bracket	M.S.	Hot-dip Galvanised
11.	Base plate	M.S.	Hot-dip Galvanised
12.	Foundation bolts &nuts	M.S.	Hot-dip Galvanised
13.	Lantern carriage stopper	M.S.	Hot-dip Galvanised
14.	Mast door	M.S.	Hot-dip Galvanised
15.	Junction box	LM6	Hot-dip Galvanised
16.	Winch	M.S.	Painted -
18.	Winch handle	M.S.	Hot-dip Galvanised -
19.	Motor mounting plate	M.S.	Hot-dip galvanised
20.	Motor	-	-
21.	Feeder Pillar-Box	M.S.	Painted.





AN ISO 9001 COMPANY

SOLAR
LIGHTING FIXTURES

HIGH MAST LIGHTING

SPECIAL FEATURES

- Pulley assembly to accommodate extra cable for emergency supply – Optional.
- Stainless steel wire rope- Optional
- Lantern carriage for various luminaires mounting position –Optional.
- Feeder pillar-box with emergency supplies arrangement – Optional.
- Bearings/Gears used are made of C.I., Phosphor Bronze requiring minimum maintenance.
- Mast structure is designed to withstand the wind velocity as per IS:875 (Part-3)-1987.
- Mast sections are fabricated from M.S. plates conforming to IS:2062/1079/10748-1975 BSEN 10 025
- Mast sections are welded conforming to IS:9595-1980, IS:4943-1968 & IS:1024-1979.
- Mast sections are hot dip galvanised with a minimum thickness of coating-75-80 microns (610 gm/m²) conforming to IS:4759-1984, IS:2629-1985 & IS:2633-1972.
- Earthing terminal provided on the mast base and feeder pillar-box as per IS.



MASTER OPERATION PROCEDURE

- A. Before Servicing:
- a. Remove lower end of the main cable from JBB, before lowering the lantern carriage.
 - b. The which system may now be operated (with the motor or manually) for lowering the lantern carriage.
 - c. When at its lowest position the cable end at JBY should be removed.
 - d. The extra length of cable supplied should now be used from EPB to JBT for checking any luminaries after servicing (cleaning, lamp replacement etc.)
- B. After Servicing :
- a. Remove the connections of the extra cable from FPB and JBT.
 - b. Plug-in the free end of the main cable into JBT.
 - c. Operate the winch system to raise the lantern carriage to its top most docking position.
 - d. After raising the lantern carriage to its uppermost docking position, insert lower end of the main cable into JBB.
 - e. The lantern carriage is now back to its operating position.
JBB-Junction Box Bellow i.e. in base section
JBY-Junction Box at Top i.e. on Lantern Carriage
FPB-Feeder Pillar Box.

Following tools and accessories are to be maintained by the client for maintenance of the mast :

- i. Which handle for manual operation.
- ii. Set of Allen keys for door of mast and feeder pillar box.
- iii. A normal set of spanners, screwdrivers etc.
- iv. A 3m long extension cable with plug and socket for carrying out any ground level testing of luminaries used on the mast.



INSTALLATION INSTRUCTIONS

Mechanical

- | | | | |
|-----|--|----|---|
| 1. | Line up the mast Sections on supports | 1 | |
| 2. | Assemble strain roads of adequate length | 2 | |
| 3. | Strain sections by vibration | 3 | |
| 4. | Mount capping section | 4 | |
| 5. | Mount Pulley assembly | 5 | A |
| 6. | Position wire ropes, cable, winch | 6 | |
| 7. | Clamp wire rope and cable | 7 | |
| 8. | Assemble sling rod. Check twist length | 8 | |
| 9. | Draw ropes and cable through | 9 | |
| 10. | Pass wire ropes and cable over pulley | 10 | |
| 11. | Draw out extra 30m of wire ropes | 11 | |
| 12. | Clamp wire rope ends on winch drums | 12 | |
| 13. | Mount Pulley cover | 13 | |
| 14. | Mount the winch | 14 | |
| 15. | Mount distribution Board | 15 | B |
| 16. | Clamp other end of wire ropes outside the mast | 16 | C |
| 17. | Mount handing wire and sling | 17 | D |
| 18. | Support mast through handling wire rope with a long boom crane | 18 | |
| 19. | Remove all other supports | 19 | |
| 20. | Lift mast to almost vertical position | 20 | |
| 21. | Shift mast to foundation | 21 | |
| 22. | Tighten nuts at 180 and 90 degrees spacing | 22 | E |
| 23. | Level and mast | 23 | F |
| 24. | Mount Electric drive | 24 | G |
| | | | H |



25.	Put lantern carriage with luminaries	25
26.	Secure lantern carriage with wire rope	26
27.	Check luminaries bumming with aux. Cable	27
28.	Plug main cable to lantern carriage junction box at to (JBT)	28
29.	Take lantern carriage up slowly	29
30.	Adjust torque limit for slip	30
31.	Connect other end of the main cable junction box at Bottom (JBB)	31
32.	Visual check for burning at top	32
33.	Disconnect at base, bring L.C. down	33
34.	Take L.C. up, check torque limit	34
35.	Put the door	35

Electrical

- A. Check main and auxiliary cable for continuity
- B. Mount feeder pillar box on foundation
- C. Terminate incoming cable
- D. Lay outgoing cable to mast base
- E. Check all C.G. Boxes
- F. Check each of luminaries and C.G. Boxes
- G. Mount luminaries and C.G. Boxes on LC
- H. Mount junction box on lantern carriage

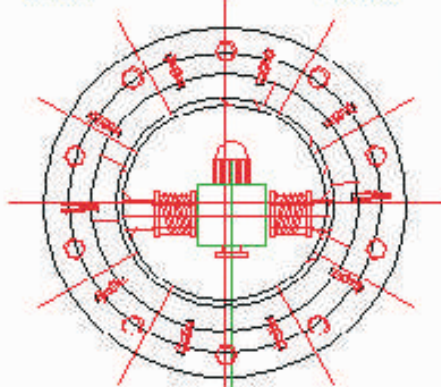
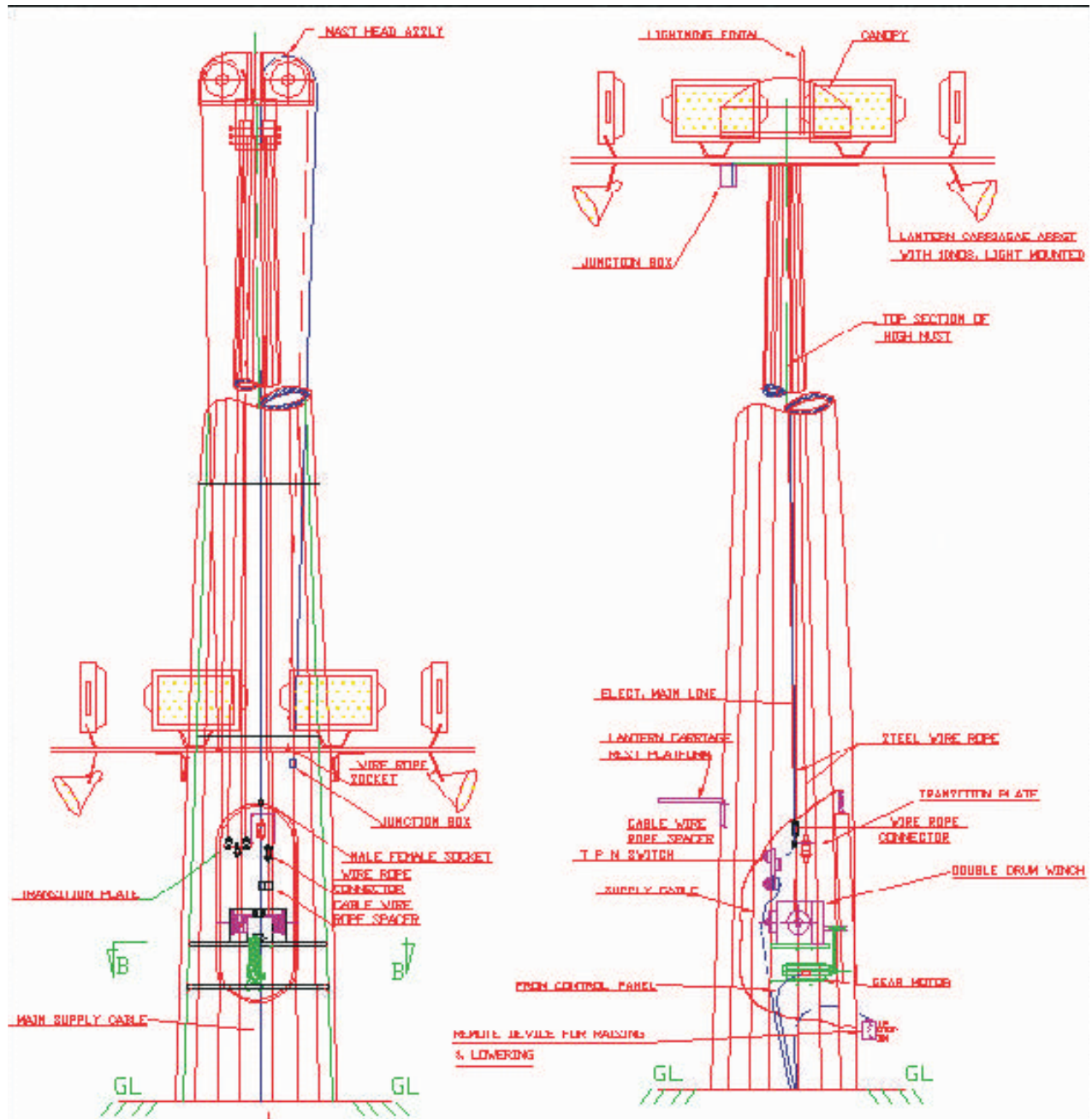
NOTE: -Data subject to change



AN ISO 9001 COMPANY

SOLAR
LIGHTING FIXTURES

HIGH MAST LIGHTING



SECTION FROM- BB

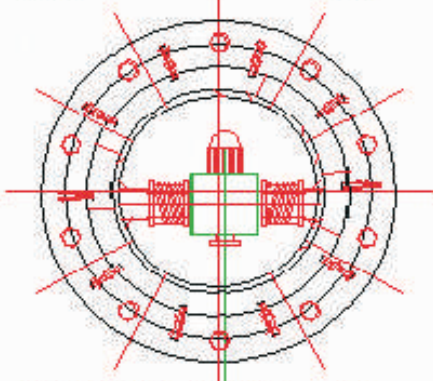
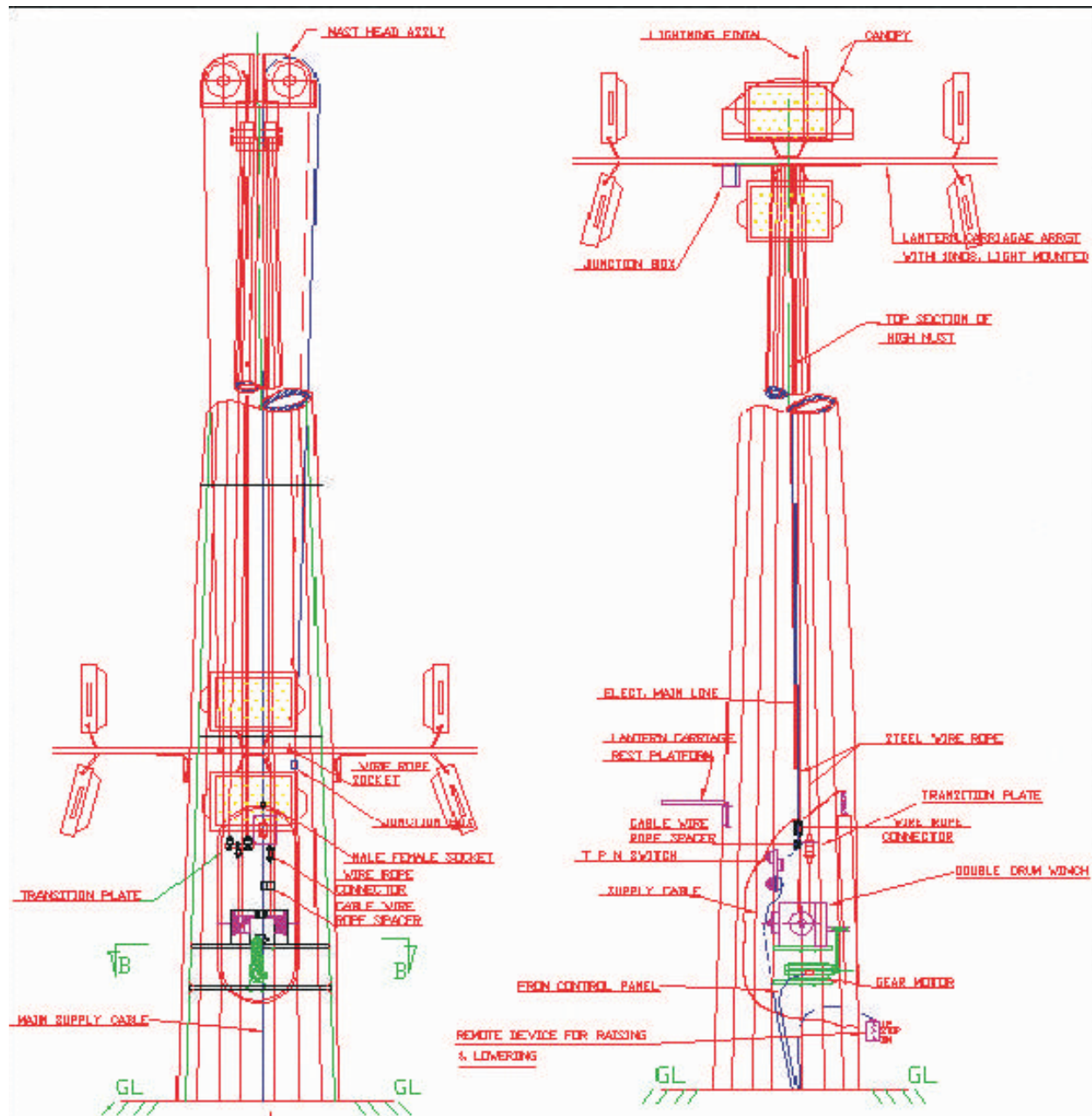
GROSSAV INDUSTRIES

PROJECT :

TITLE : SCHEMATIC VIEW OF HIGHMAST WITH
10 Nos. 2x400W FLOODLIGHTS

SCALE : NTS

DRG. No. HM/GLA/10FL/101



SECTION FROM- BB

GROSSAV INDUSTRIES

PROJECT :

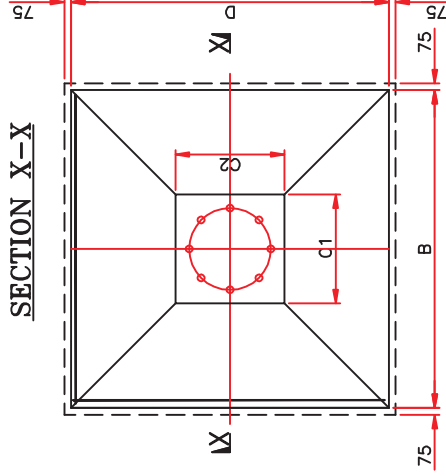
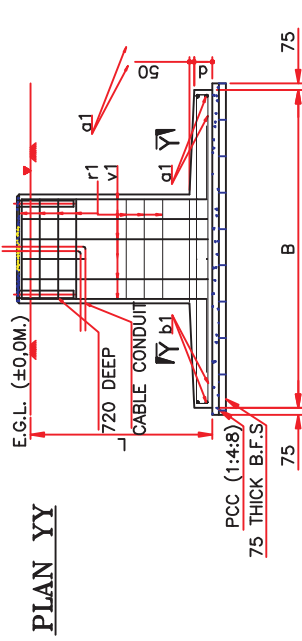
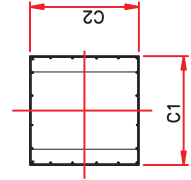
TITLE (SCHEMATIC VIEW OF HIGHMAST WITH 12 Nos. 2x400W FLOODLIGHTS WITH FIXED MOTOR)

SCALE : NTS

DRG. No. HM/GLA/10FL/101

NOTES:

- ALL DIMENSIONS ARE IN mm U.O.S.
- GRADE OF CONCRETE IS OF M20(1:1.5:3)
- STEEL IS OF GRADE Fe 415.
- CLEAR COVER TO MAIN REINFORCEMENT
 - FOUNDATION-50 mm.
 - NO.OF F/BOLTS AT 525 P.C.D.
- DIA. OF BOLTS 24 MM.



**DETAIL OF FOUNDATION
(PLAN)**

T A B L E

DIMENSIONS

HEIGHT OF LIGHT MAST (M)	B (m.m)	D (m.m)	C1 (m.m)	C2 (m.m)	d (m.m)	L (m.m)	PL (m.m)
16	1950	1950	1250	1250	250	2000	300

TABLE FOR REINFORCEMENT

BAR MKD.	DIA OF BAR	SPACING(m.m)/NoS.
a1	8 Φ	150C/C
B1	8 T	150C/C
v1	16 Φ	16 nos.
r1	6 ϕ	150 C/C

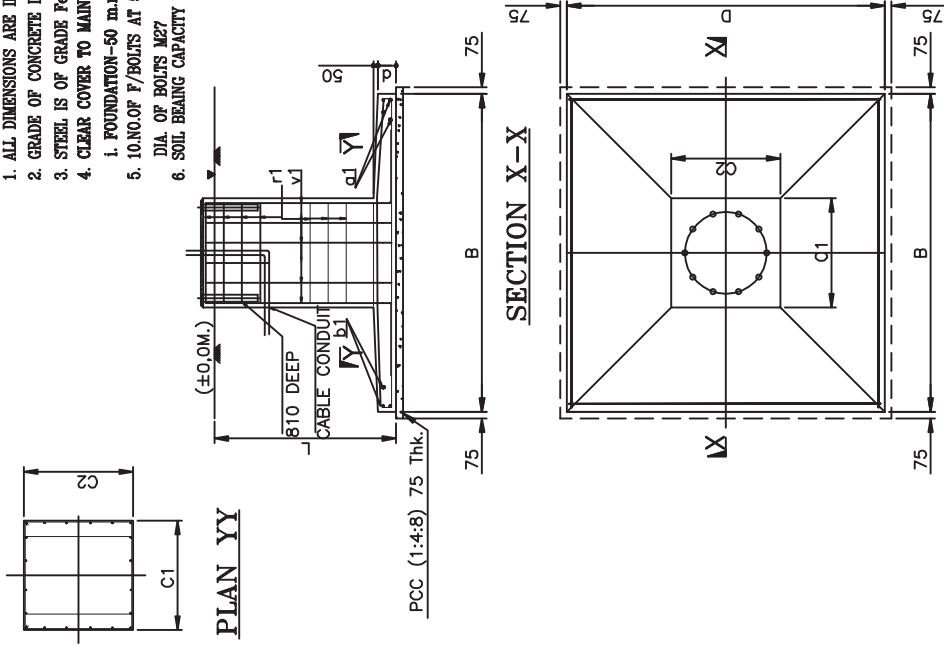
BAR BENDING SCHEDULE

SL. NO	BAR MKD. DIA.	SHAPE	POSITION	LENGTH IN m.m.	QTY.	TOTAL LENGTH IN m.	UNIT WEIGHT IN Kg/m	TOTAL WEIGHT IN Kg
1.	a 1 8 Φ		SHAFT	2050	26	54	.39	21
2.	b 1 8 Φ		SHAFT	2050	26	54	.39	21
3.	v 1 12 Φ		SHAFT	2680	16	43	1.58	68
4.	r 1 6 ϕ		SHAFT	4700	15	71	0.22	16

REV	ZONE	DESCRIPTION	APPD	DATE
DRWN	NAME	DATE		
CHKD	DATE			
TRCD	DATE			
APTD	DATE			
SCALE 1 : 50				
<p>GROSSAV INDUSTRIES</p> <p>PROJECT : 16 MTR.-HIGH.MAST ,</p> <p>TITLE : DETAIL OF FOUNDATIONFOR 16 MTR.HIGH MAST</p> <p>DRG. NO. GI/16/RK/DEL/FDN/1</p>				
				RBY. SHEET 1 OF 1

NOTES:

1. ALL DIMENSIONS ARE IN m.m U.O.S.
2. GRADE OF CONCRETE IS OF M20(1:1.5:3)
3. STEEL IS OF GRADE Fe 415.
4. CLEAR COVER TO MAIN REINFORCEMENT
 - i. FOUNDATION-50 m.m.
 - ii. 10.N.O.P F/BOLTS AT 575 P.C.D.
5. DIA. OF BOLTS M27
6. SOIL BEARING CAPACITY 10T / SQ. MTR.



BAR MKD.	DIA OF BAR	SPACING(m.m)/NoS.
a1	8 Φ	150C/C
b1	8 Φ	150C/C
v1	12 Φ	24 nos.
r1	8 Φ	150 C/C

BAR BENDING SCHEDULE

SL. NO	BAR MKD. DIA.	SHAPE	POSITION	LENGTH IN m.m.	QTY.	TOTAL LENGTH IN m.m.	UNIT WEIGHT IN Kg/m	TOTAL WEIGHT IN Kg
1.	a 1 8 Φ		SHAFT	2450	30	74	.39	29
2.	b 1 8 Φ		SHAFT	2450	24	60	.39	24
3.	v 1 12 Φ		SHAFT	2560	24	54	.89	48
4.	r 1 8 T		SHAFT	4900	16	79	0.39	31

DETAIL OF FOUNDATION (PLAN)

DIMENSIONS							
HEIGHT OF LIGHT MAST (M)	B (m.m)	D (m.m)	C1 (m.m)	C2 (m.m)	d (m.m)	L _r (m.m)	PL (m.m)
20	2350	2350	1300	1300	250	2000	300

REV	ZONE	DESCRIPTION	APPD	DATE

GROSSAV INDUSTRIES

PROJECT : 20 MTR. HIGH MAST

TITLE : DETAIL OF FOUNDATION FOR 20 MTR. HIGH MAST

SCALE 1 : 50

DRG. NO. G1/20/DSP/01/FDN
 REV. 0
 SHEET 1 OF 1

NOTES:

1. ALL DIMENSIONS ARE IN m.m U.O.S.
2. GRADE OF CONCRETE IS OF M20(1:1.5:3)
3. STEEL IS OF GRADE Fe 415.
4. CLEAR COVER TO MAIN REINFORCEMENT
 - i. FOUNDATION-50 m.m.
 - ii. 10.NO.OF F/BOLTS AT 685 P.C.D.
 - iii. DIA. OF BOLTS 36 MM.

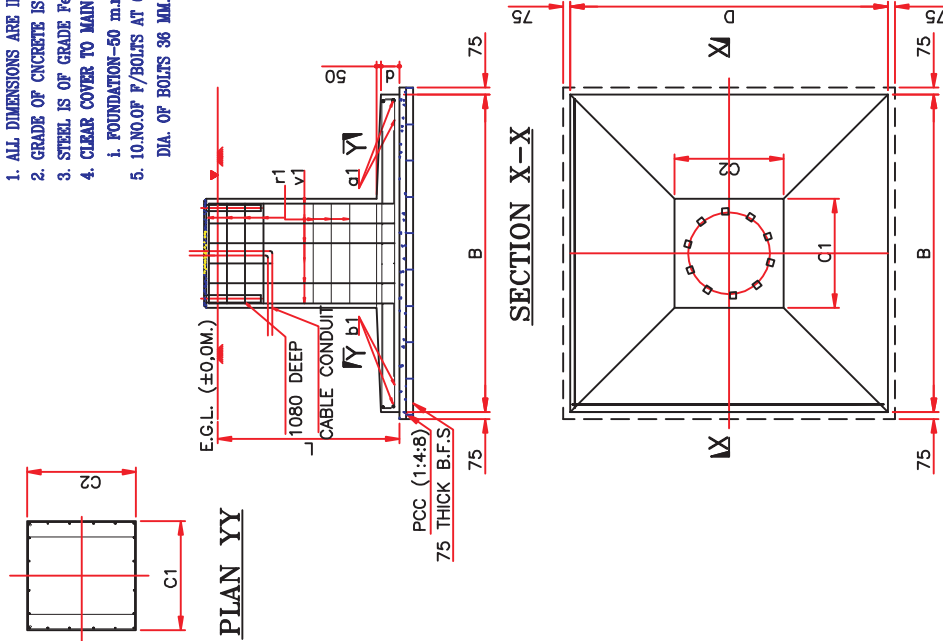


TABLE FOR REINFORCEMENT

BAR MKD.	DIA OF BAR	SPACING(m.m)/Nos.
a1	8 Φ	150C/C
b1	8 Φ	150C/C
v1	16 Φ	24 nos.
r1	6 ϕ	150 C/C

BAR BENDING SCHEDULE

S/L NO	BAR MKD.DIA.	SHAPE	POSITION	LENGTH IN m.m.	QTY.	TOTAL LENGTH IN m.	UNIT WEIGHT IN Kg/m	TOTAL WEIGHT IN Kg
1.	a 1 8 Φ		SHAFT	2950	38	102.6	.39	44
2.	b 1 8 Φ		SHAFT	2950	38	102.6	.39	44
3.	v 1 12 Φ		SHAFT	2680	24	65	1.56	102
4.	r 1 6 ϕ		SHAFT	6500	15	98	0.22	22

REV	ZONE	DESCRIPTION	APPD	DATE
DATE	NAME	<p align="center">GROSSAV INDUSTRIES</p> <p>PROJECT : 30 MTR.HIGH.MAST ,</p> <p>TITLE : DETAIL OF FOUNDATIONFOR 30 MTR.HIGH MAST</p> <p>DRG. NO. G1/30/RK/DEL/FDN/1</p>		
DRWN	DATE			
CHKD	DATE			
TRED	DATE			
APPD	DATE			
SCALE		<p>1 : 50</p>		
REV.		<p>SECRET 1 OF 1</p>		

T A B L E

DIMENSIONS						
HEIGHT OF LIGHT MAST (M)	B (m.m)	D (m.m)	C1 (m.m)	C2 (m.m)	d (m.m)	PL (m.m)
30	2850	2850	1700	1700	250	300

AN ISO 9001 COMPANY



S O L A R
LIGHTING FIXTURES



HIGH MAST LIGHTING

grossavind@gmail.com



Email

www.grossavind.com



Web

GROSSAV INDUSTRIES

B-78, Sector-5, Noida-201301 (U.P.)

Tele-Fax : 0120-4250754

Mobile : +91-9811181511 / 9899261450