

ZIMBABWE DIGITAL BROADCASTING MIGRATION PROJECT

Detailed Design Drawings

Site ID:		Site Name:	BINDURA
Latitude:	S: 17°18'2.35"	Longitude:	E: 31°20'10.51"
Site type:	New Greenfield	Tower:	113m TV Tower

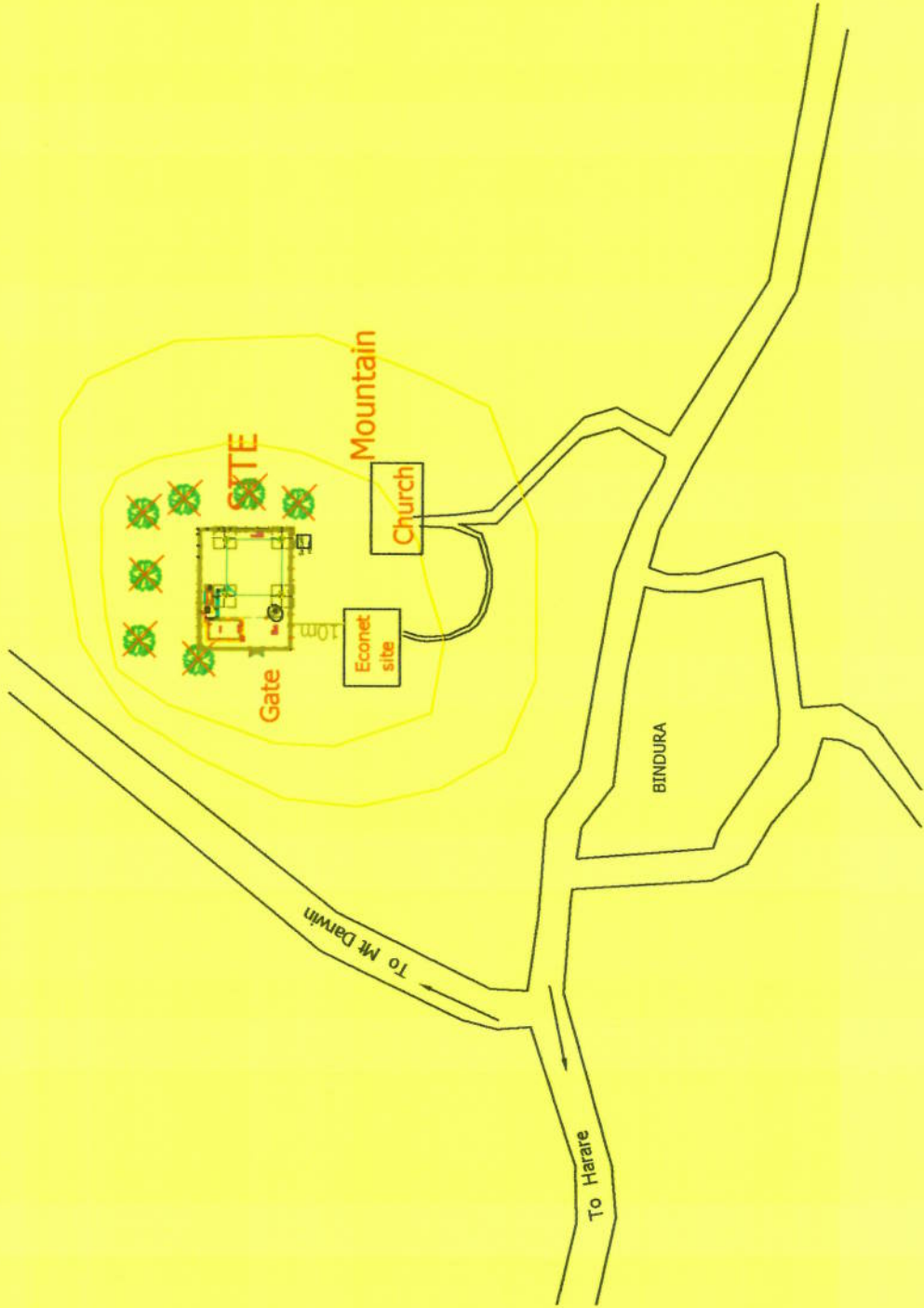


BROADCASTING AUTHORITY OF ZIMBABWE
1st FLOOR, MEDIA CENTRE
RAINBOW TOWERS, CAUSEWAY, HARARE
P.O. BOX 496, TEL: +263 4 79739015

29-06-15

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- Legend:
- Tree
 - Tree need to be cut down
 - Contour

NOTE :

1. Toilet position is determined by the owner.
2. Need customer to cut about 14 trees around the site.

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LONGITUDE: E: 31°20'10.51"

SURVEY DATE:

RADIO ENGINEER:

SUPERVISOR:

DRAWN BY:

DATE:



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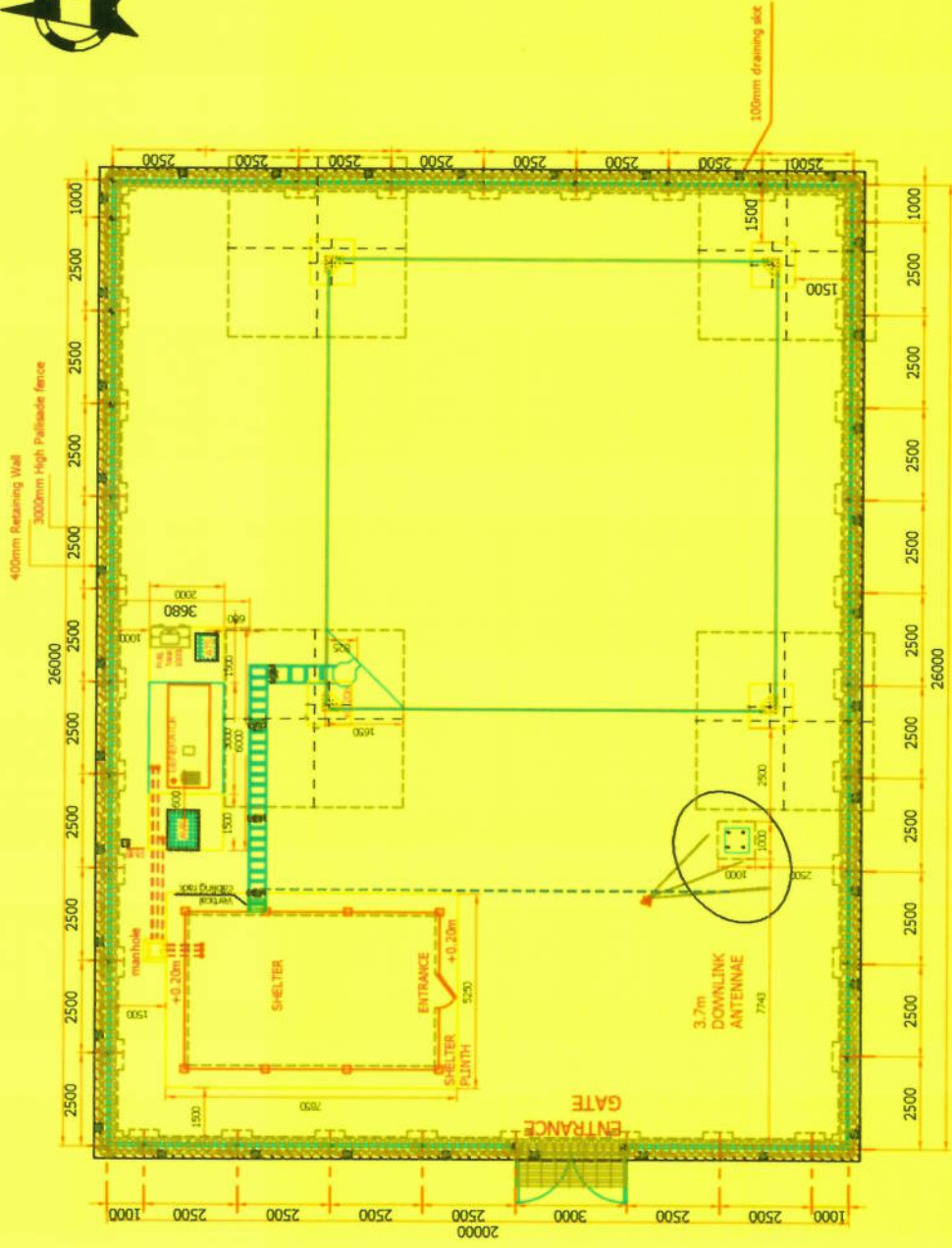
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DATE:	DATE:
HUAWEI	DESCRIPTION:
NO:	DATE:

SCALE: N.T.S	ISSUE: 1	DRAWING: A	SHEET NO: 1
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LOCALITY PLAN





True North



SITE LAYOUT

SCALE-1:100

Legend:

-  ϕ 100mm PVC pipe
-  ϕ 110mm PVC pipe underground
-  ϕ 50mm PVC pipe underground
-  Draining Slot

NOTE :

1. The Satellite dish should be facing north-west, the accurate orientation should be determined by the satellite manufacturer.
2. Cable should be laid through the reserved PVC pipe.
3. After the cable jointing completed, using silicone rubber sealing PVC pipe orifice to prevent inflow water.
4. The width of drainage channel should be 100mm.
5. All the edges to be chamfered at 25 mm.

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20th Floor, 20th Unit Tower 1, 3000
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Tel: +263 4 70375



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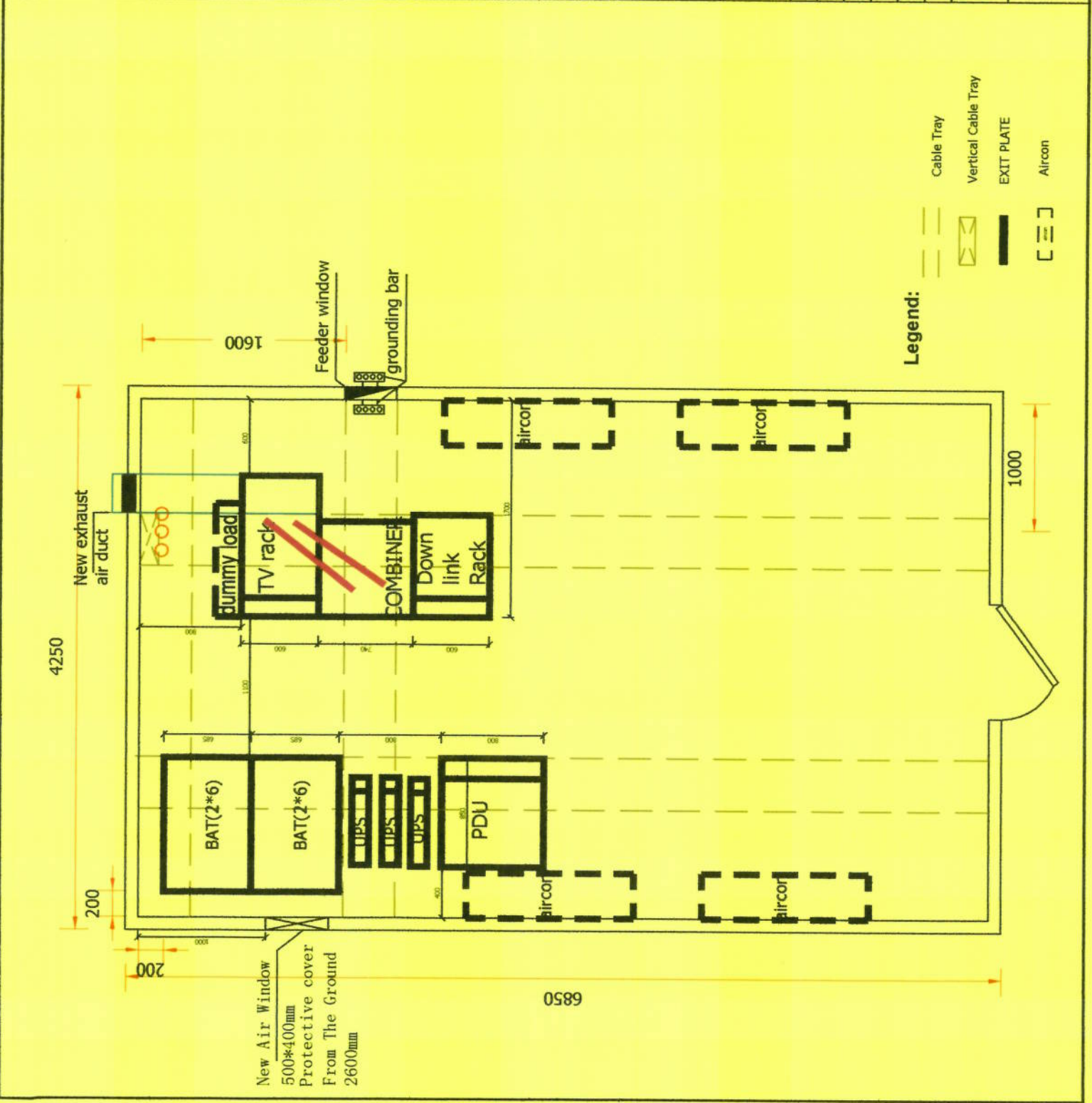
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SHEET NO: 2

SITE PLAN

SITE NAME:	BINDURA
SITE ID:	
LAND ID :	
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LONGITUDE: E:	31°20'10.51"
SURVEY DATE:	
RADIO ENGINEER:	
SUPERVISOR:	
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DATE:	
 	
<small>HUAWEI TECHNOLOGIES ZIMBABWE PRIVATE LTD 110, UNIVERSITY AVENUE MIDWAY, HARARE, ZIMBABWE TEL: +263 4 793267 FAX: +263 4 793268</small>	
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DATE:	
NO:	
DATE:	
DESCRIPTION:	
SCALE:	N.T.S
ISSUE:	1
DRAWING:	A
SHEET NO:	3



SHELTER PLAN

SITE NAME: BINDURA

SITE ID:

LAND ID :

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PROJECT NUMBER:

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SURVEY DATE:

RADIO ENGINEER:

SUPERVISOR:

DRAWN BY:

DATE:



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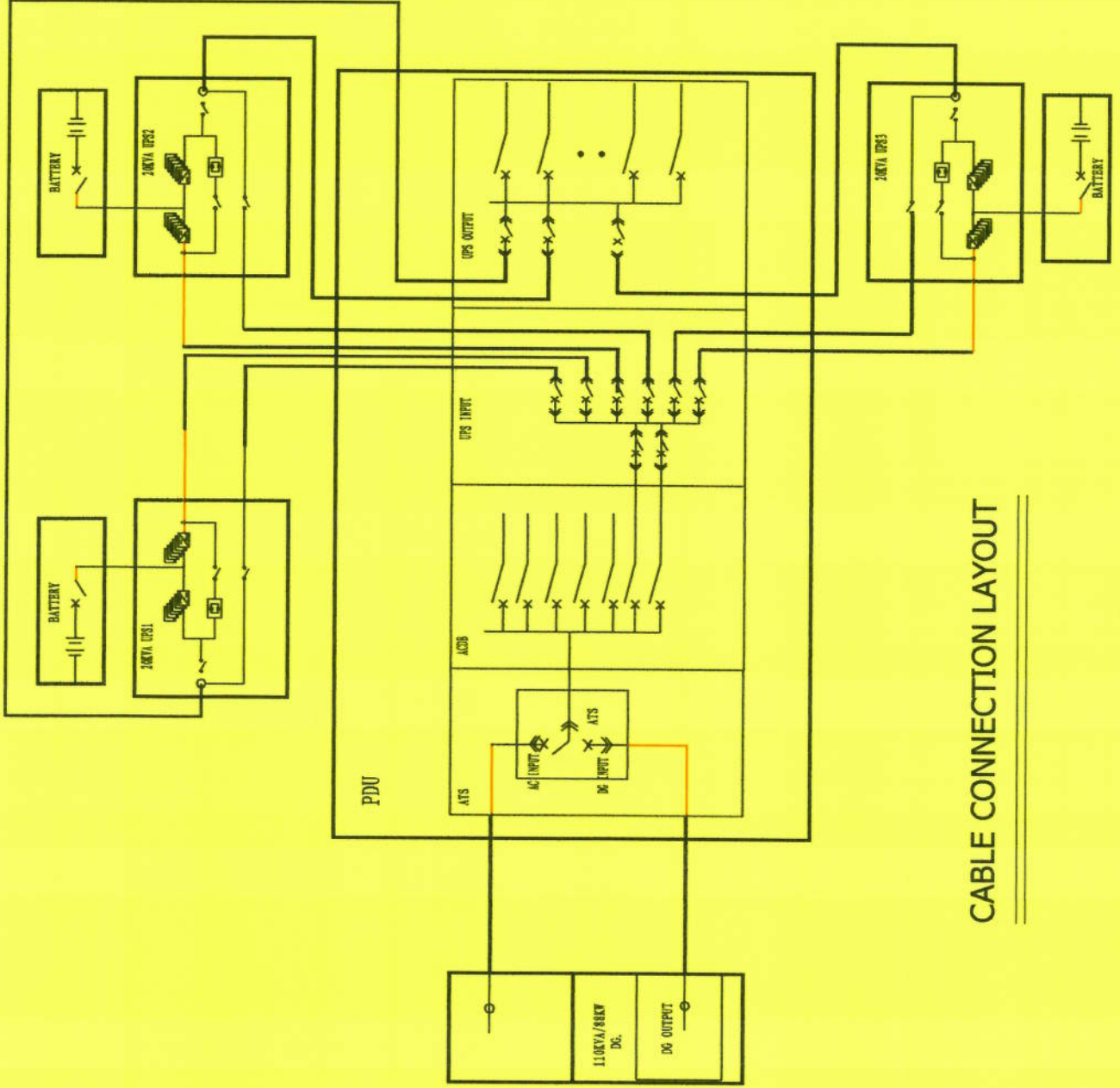
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4

CABLE CONNECTION LAYOUT



CABLE CONNECTION LAYOUT

ZIMBABWE
CASTING AND PRINTING CENTRE
RAILWAY TOWERS GRAZIOSO
P.O. BOX 495, CALISEWAY, HARARE
TEL: +263 4 79387
FAX: +263 4 79324

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SUPERVISOR:
DRAWN BY:
DATE:



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HUAWEI TECHNOLOGIES ZIMBABWE (PVT) LTD
17th Floor, 28 Lube Towers, Bank
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Fax: +263 4 792034

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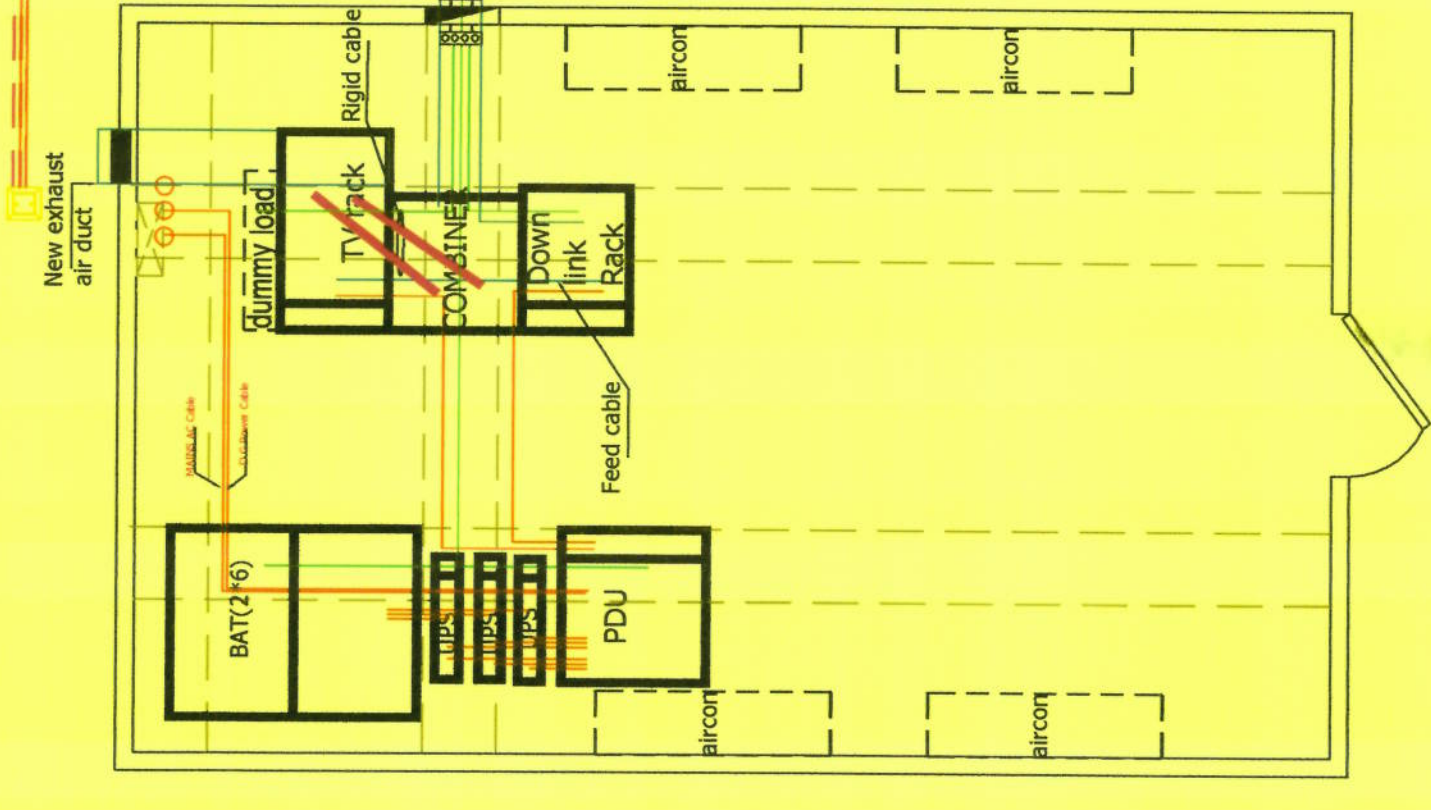
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NO: DATE: DESCRIPTION:

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SHELTER PLAN



Legend:

- Power Cable
- Signal cable
- Grounding cable

APPROVED BY: [Signature]
DATE: 2015-06-05
POL: 263 4 7873515

SITE NAME: BINDURA

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RADIO ENGINEER:
SUPERVISOR:
DRAWN BY:
DATE:



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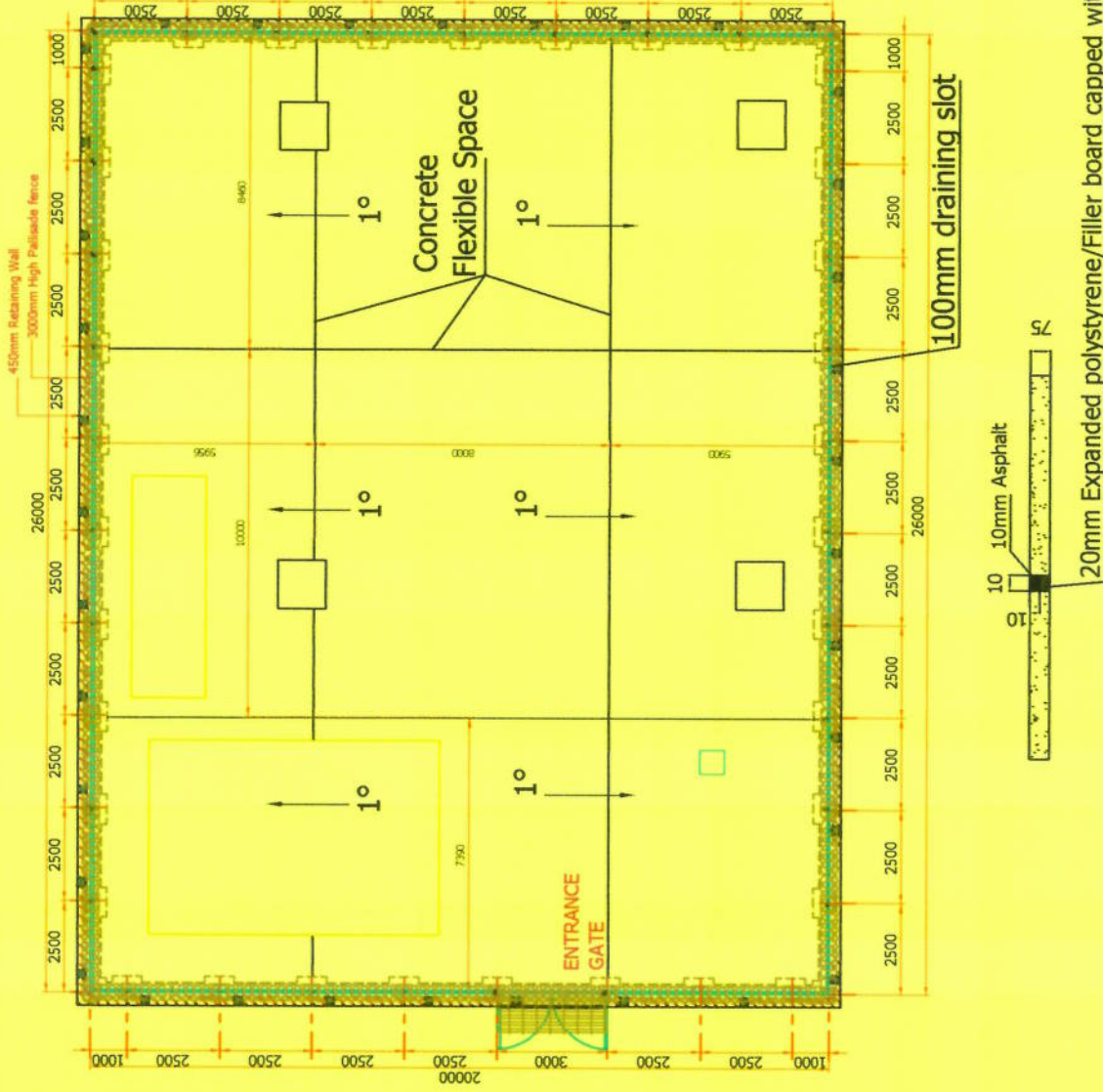
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FENCE 1



NOTE:

1. Pouring the ground floor of base station, the ground is divided into nine panel, leaving two 2cm expansion joints.
2. After the concreting, fill the joint with asphalt.
3. Base station floor tilt to the gate side of 1 degree, to ensure that there is no stagnant water in the station.

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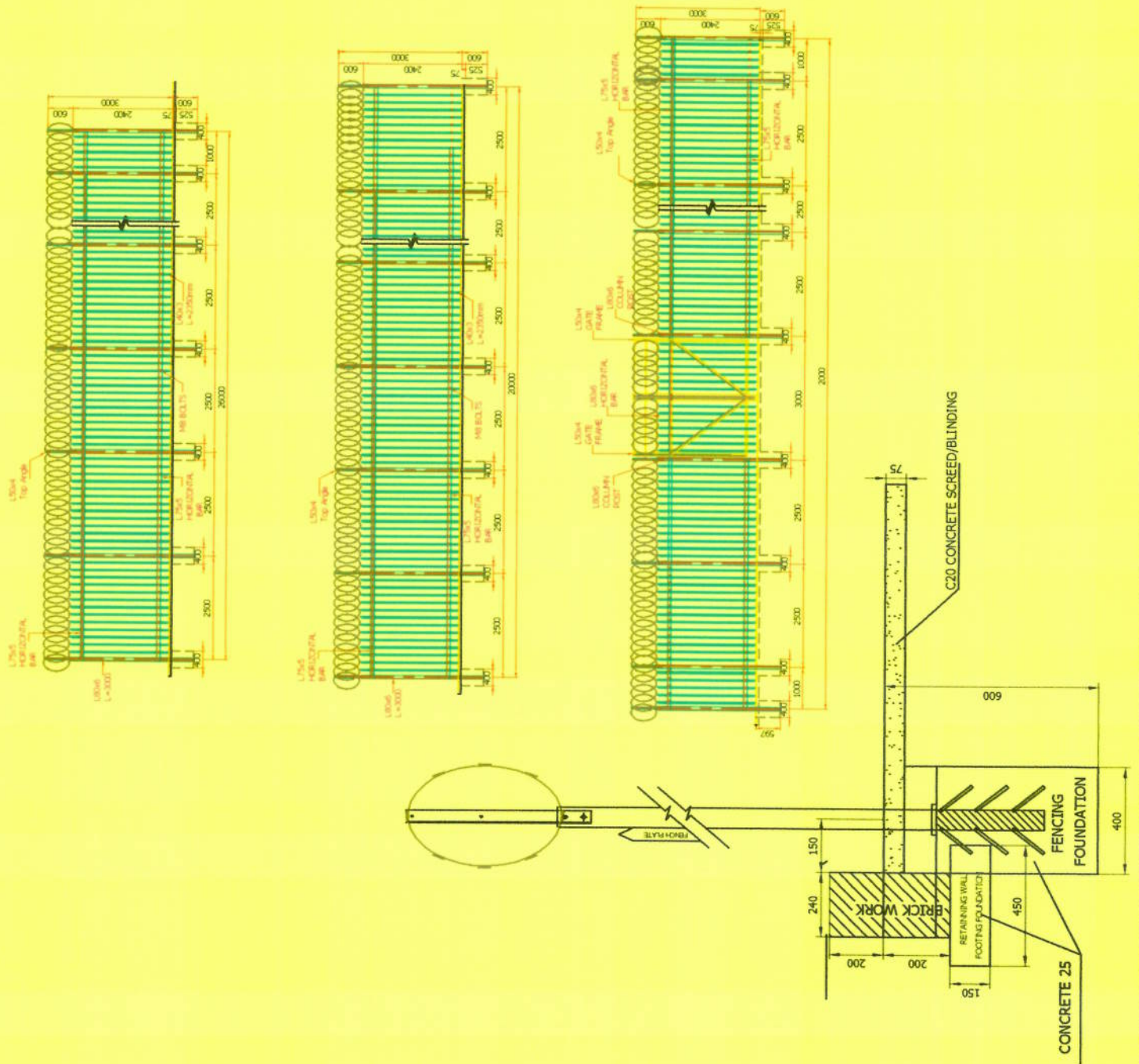
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ISSUE: 1

DRAWING: A

SHEET NO: 7

FENCE 2



BROADCASTING AUTHORITY OF ZIMBABWE
APPROVED
1st FLOOR, TOMBERG GREEN BUILDINGS
P.O. BOX 255, CAULSWAY, HARARE
BAZ 263 4 797333/5

SITE NAME:	BINDURA
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SUPERVISOR:	
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DATE:	



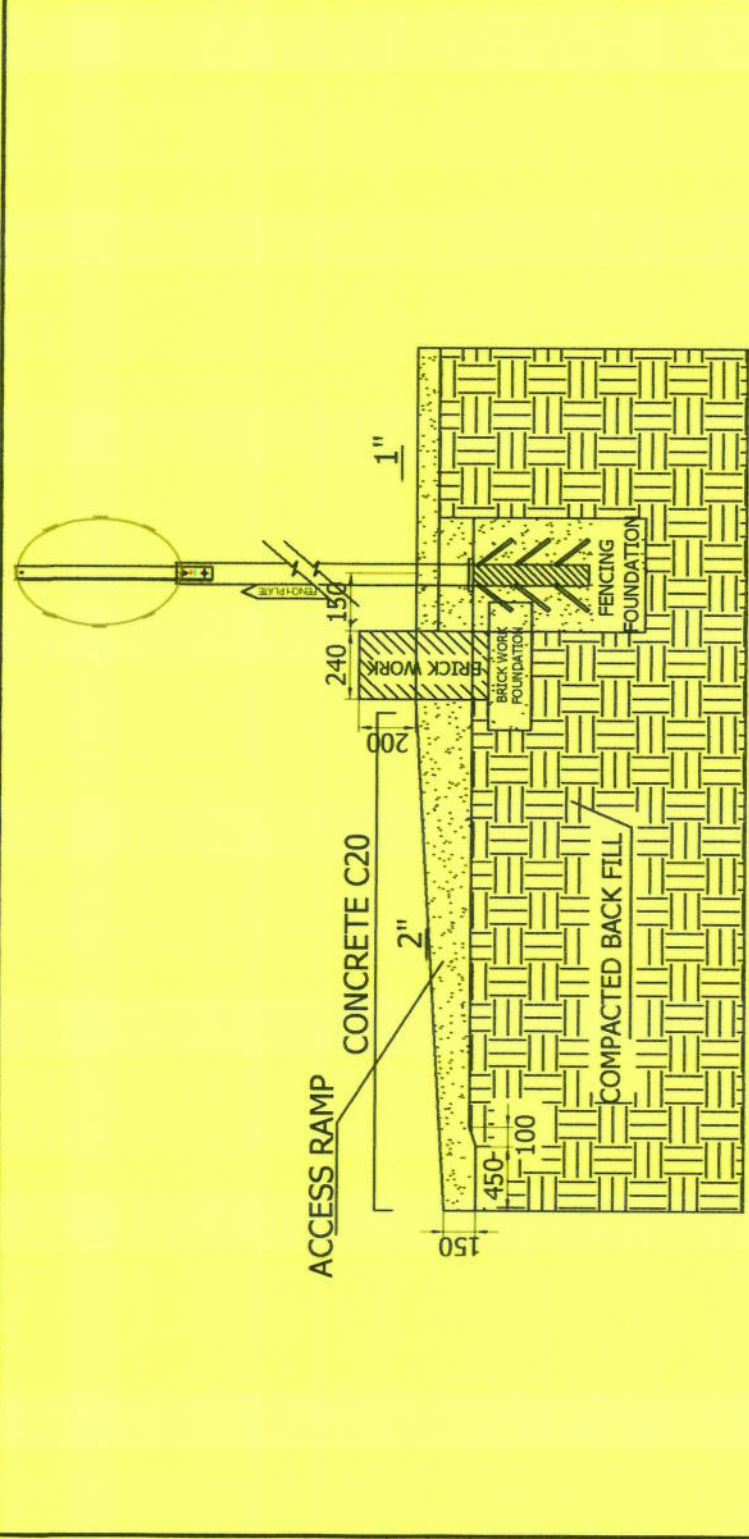
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 12th Floor, 20, Hill Street
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 Fax: +263 4 79334

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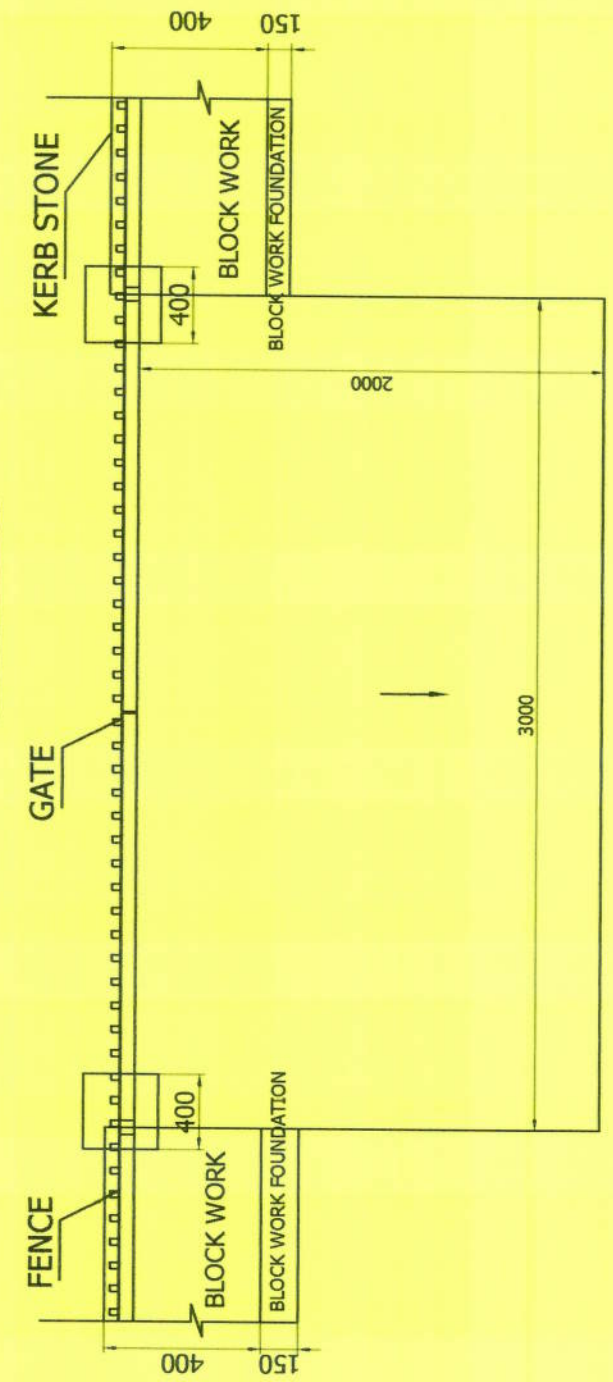
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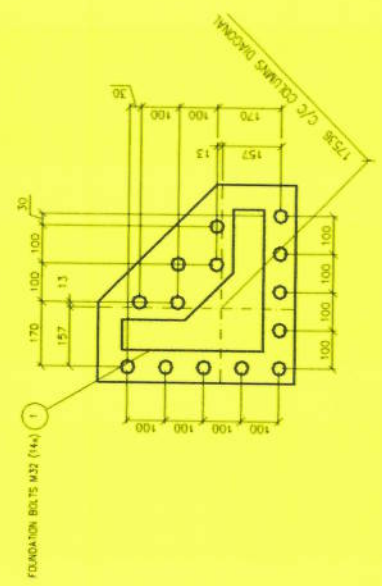
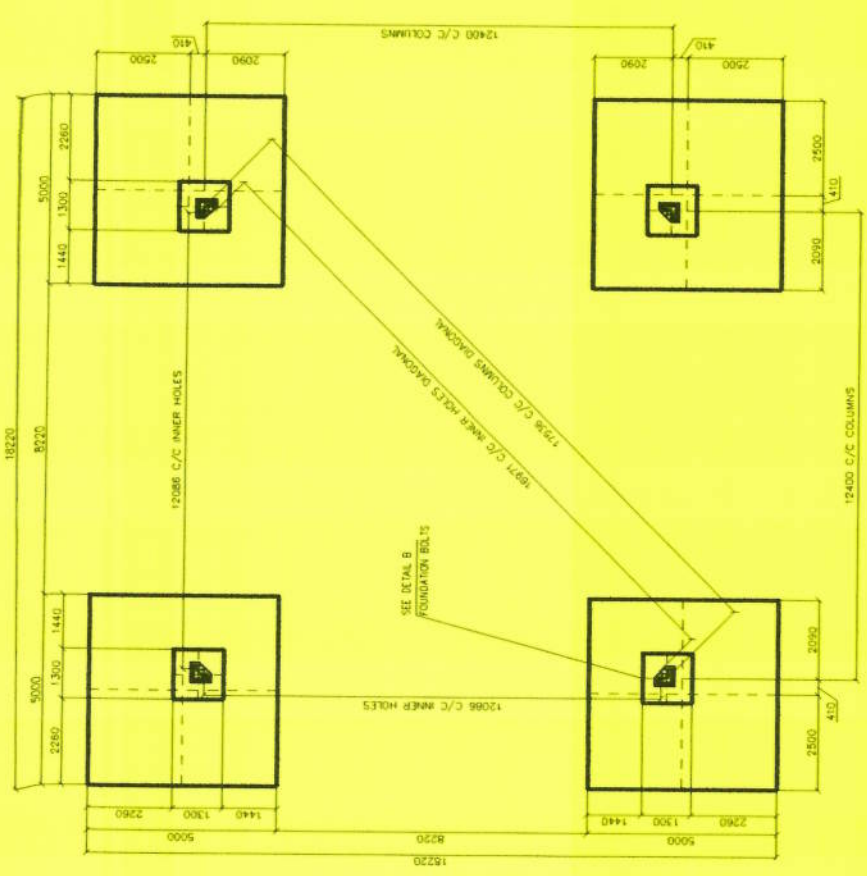
ACCESS RAMP



A-A SECTION



ACCESS RAMP



VIEW B - B
SCALE 1:100

DETAIL B
SCALE 1:10

- ALLOWABLE SOILBEARING CAPACITY: 150 kPa AND ABOVE NO GROUND WATER.
- REINFORCEMENT QUALITY: MIN 420 MPa
- REINFORCEMENT WEIGHT: 14105 kg, EXCL FOUNDATION BOLTS
- CONCRETE GRADE: C25 (TESTCUBE STRENGTH 37 MPa)
- CONCRETE VOLUME: 71,1 m³
- EXCAVATION VOLUME: 434,0 m³
- MINIMUM CONCRETE COVERS TO BE 50 mm
- C30 COMPOSITION: CEMENT 1, SAND 1, AGGREGATES 2, 4, AGGREGATES B
- ANGLE OF FRUSTRUM 30 DEGREES.
- SETTING TEMPLATES: TO BE SUPPLIED BY JARLSØ.

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HUAWEI
DATE: 2023-08-15
APPROVED AUTHORITY OF ZIMBABWE
BROADCASTING AUTHORITY
MEDIA CENTRE
RAINBOW TOWERS GREENHILLS
JAZ AUSEVATY, HARARE

NO:	DATE:	DESCRIPTION:

SCALE:	ISSUE:	DRAWING:	SHEET NO:
N.T.S	1	A	10

TOWER FOUNDATION

SITE NAME: BINDURA

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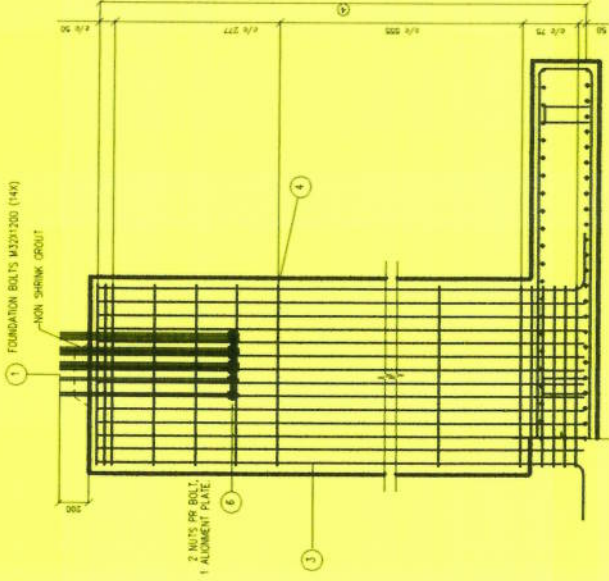
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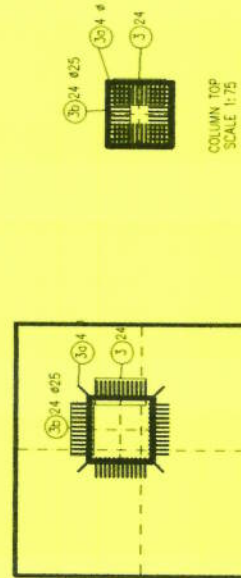
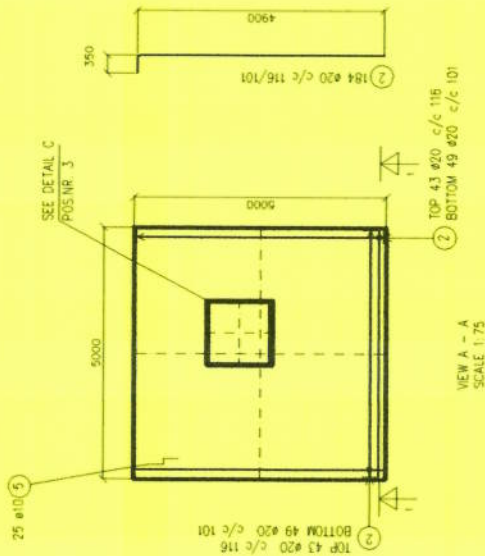
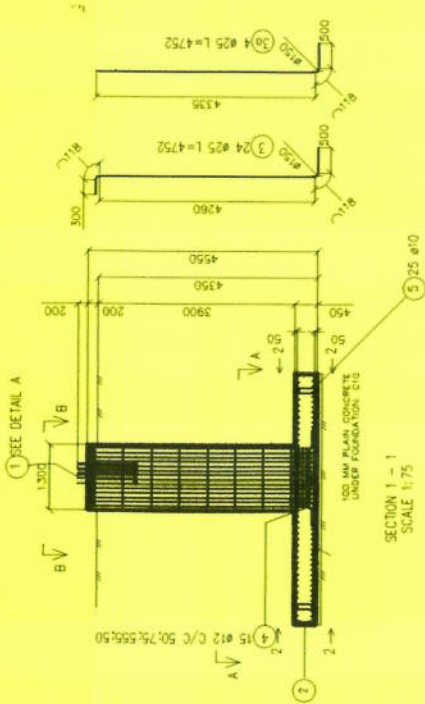
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ISSUE: 1
DRAWING: A
SHEET NO: 11

TOWER FOUNDATION 2

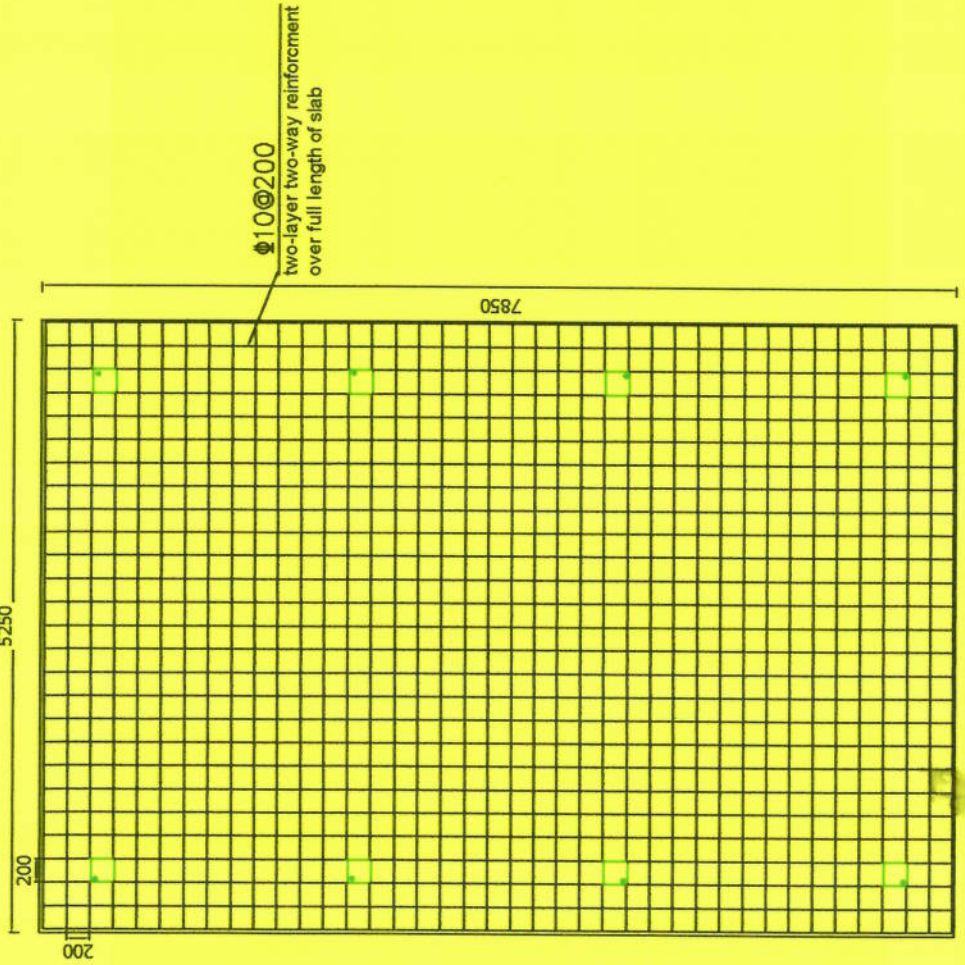
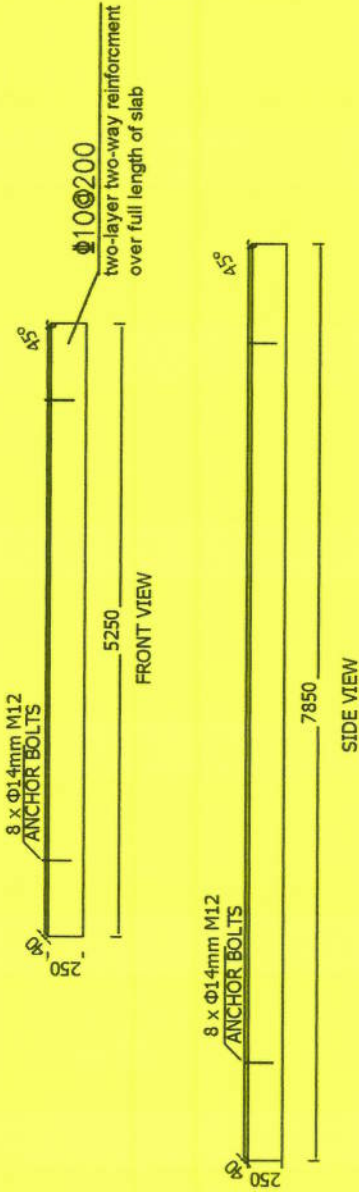


DETAIL A
SCALE 1:20

POS	TYPE	TOTAL PCS	DIA (mm)	LENGTH (m)	TOTAL WEIGHT (kg)	TOTAL LENGTH (m)	Manufacturing Sketch (mm)
2	-	736	20	5.25	9529.2	3864	
3	-	96	25	5.296	1959.1	508.42	
3a	-	16	25	4.921	303.4	78.74	
3b	-	96	25	5.271	1949.9	506.01	
4	-	64	12	5.0	264.1	320	
5	NS-00	100	10	1.282	79.0	128.2	
6	ALIGNMENT PLATE	4	NA	NA	NA	NA	



BROADCASTING AUTHORITY OF ZIMBABWE
1st FLOOR MEDIA CENTRE
RADIO TOWERS GROUND FLOOR
P.O. BOX 248, CAULFIELD HARBOUR
HARARE ZIMBABWE
TEL: +263 4 797354/5
FAX: +263 4 797354



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 SUPERVISOR:
 DRAWN BY:
 DATE:



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 12th Floor, 28, UN Towers, 3001
 Harare Avenue, Harare, Zimbabwe
 Tel: +263 4 793267
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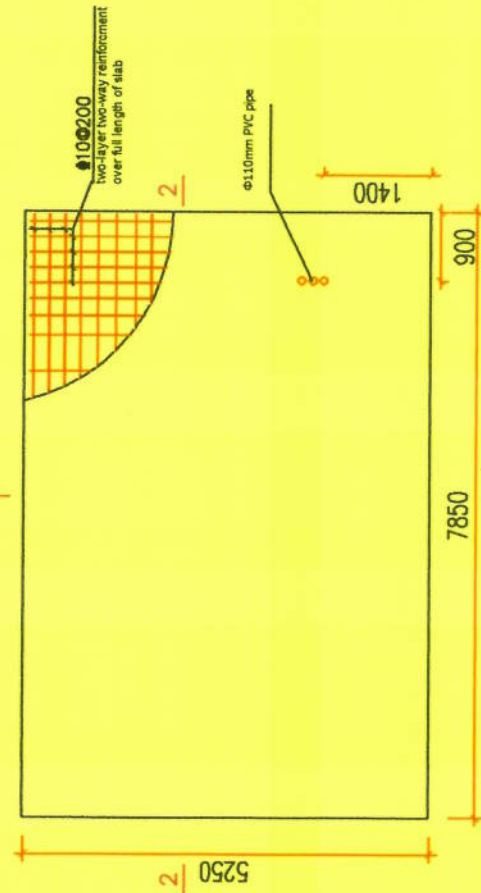
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 1st FLOOR, TOWER 5, GROUND FLOOR
 SAIRI ROAD, CAUSEWAY, HARARE
 HUAWEI P.O. BOX 108, BAZE 3, 4 79733005

DATE: 24-06-15

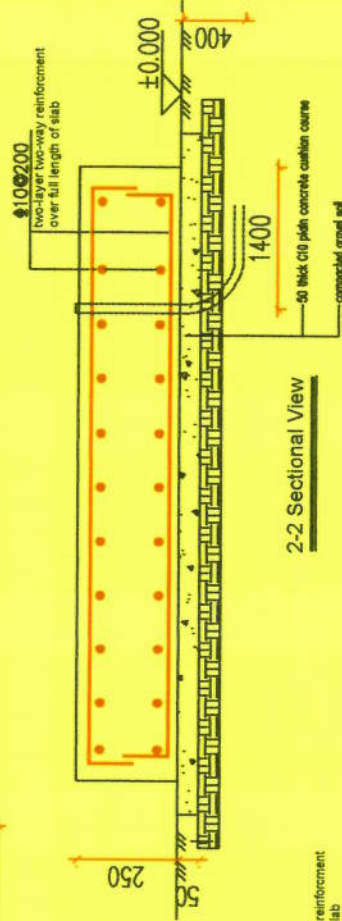
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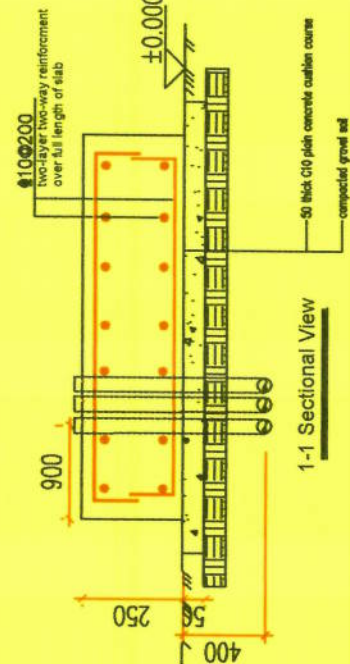
SHELTER PLINTH



Floor plan of shelter foundation



2-2 Sectional View



1-1 Sectional View

Reinforcement grade	Shape	Quantity	Length (m)	Weight (KG)	Total Weight (KG)
Φ10	7750	27	215	132.68	551.17
Φ10	7750	27	215	132.68	
Φ10	5150	40	214	132	
Φ10	5150	40	214	132	
Φ10	300-230-300-230-300	26	35.36	21.8	

- Notes:
- This project is the shelter foundation, the weight of the shelter is about 5 tons;
 - Elevation ±0.000 of this project is the elevation of the natural ground of the project site, the top plane of the foundation is 250mm above the ground;
 - The foundation concrete adopts C25 and the thickness of concrete protecting course is 50mm.
 - All the edges to be chamfered at 25 mm.

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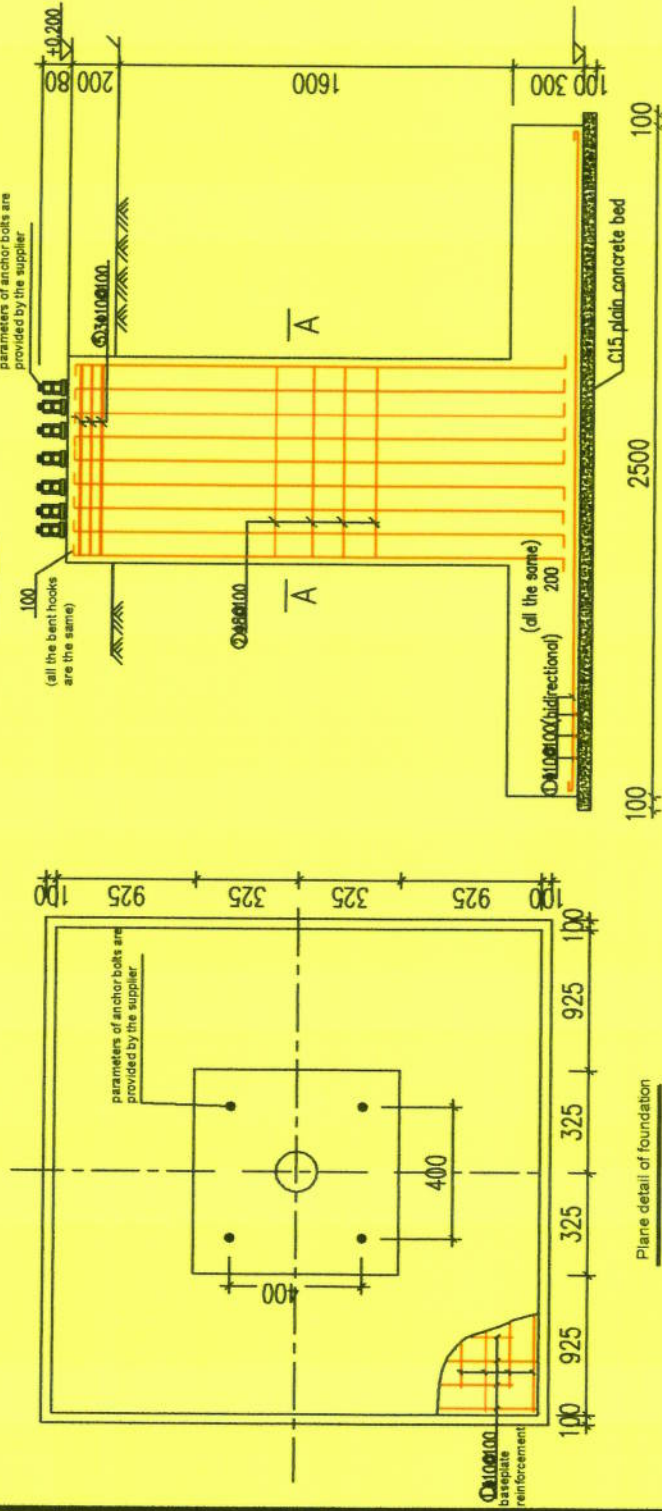
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Downlink Dish Foundation Details Layout



Section detail of foundation

BAR BENDING SCHEDULE FOR THE DOWNLINK FOUNDATION										
Bar code	Shape	Bar Mark	Bar Size	Number	Members	Total	Bar Length(mm)	Total Length(m)	Kgm	Total Weight(kg)
01		Y10	Y10	26	2	52	2600	135.20	0.62	83.28
02		Y8	Y8	17	1	17	1200	20.40	0.39	8.04
03		Y16	Y16	12	1	12	2430	29.16	1.58	46.01
04		Y8	Y8	17	2	34	730	24.82	0.39	9.78
05		Y10	Y10	3	1	3	1200	3.60	0.62	2.22
Total Uplink Foundation Weight in kg										149.33

Technical Requirement for The Foundation:

- The foundation is concrete class C25 which is 1:1:2
- Concrete volumes are: RCC Class C25 - 2.6355m³
PCC Class C15 - 0.729 m³
- Excavated volume - 16.038 m³
- Backfill volumes - 12.6735 m³

- The top of tower foundation can also be post-cast by reserving a thickness of 300mm, which is cast using a higher grade of micro-expansion concrete after the locating plate is leveled and the installation of the iron tower is finished.
- Make terrace within the range of 1m around the tower foundation to prevent rainwater permeation, the terrace practice: cast 40 thick C20 concrete and vibrocompact it, pave 80 thick broken stones or broken bricks and pour M2.5 mixed mortar, spread plain soil and tamp it, make slope of 2% around the terrace.
- The bearing course of foundation base is sand course, it is needed to well make slope protection during the excavation, and well manage construction organization and safety measures.
- The foundation base concrete adopts C25 concrete.

SITE NAME: BINDURA

SITE ID:

LAND ID :

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 17°18'2.35"

LONGITUDE: E: 31°20'10.51"

SURVEY DATE:

RADIO ENGINEER:

SUPERVISOR:

DRAWN BY:

DATE:



HUAWEI

HUAWEI TECHNOLOGIES ZIMBABWE (PRIVATE) LTD
 100th Floor, 20th Avenue, Harare
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 Fax: +263 4 79328

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 COMMENCEMENT OF WORK.

APPROVED

HUAWEI

DATE: 24-06-15

DESCRIPTION:

NO:

DATE:

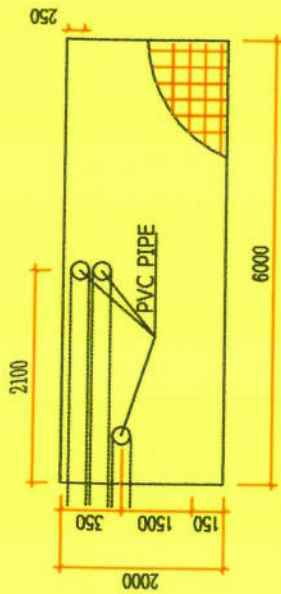
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ISSUE: 1

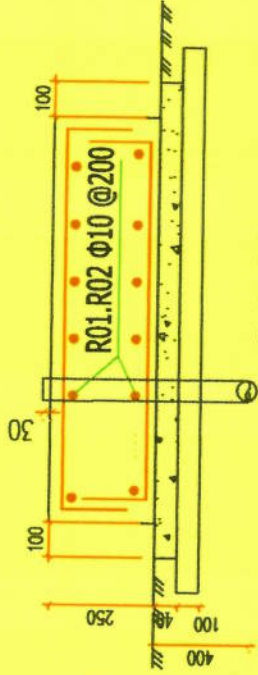
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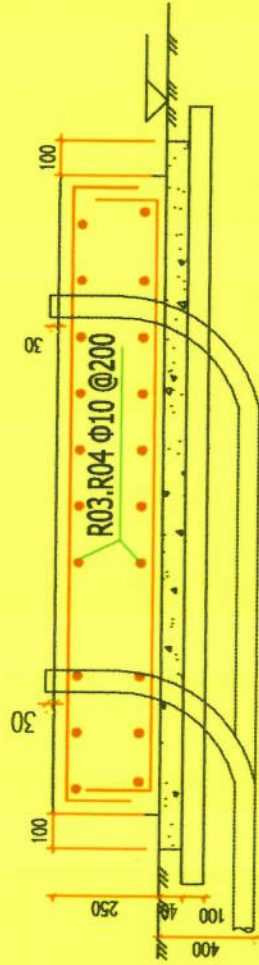
Downlink Dish Foundation Details Layout



TOP VIEW



Section B-B



Section A-A

Volume of reinforced concrete	3.0 m ³
Bedfilling	0.41 m ³
Blinding Concrete	0.5456m ³

Reinforcement grade	SHAPE	QUANTITY	LENGTH (m)	WEIGHT (KG)	TOTAL WEIGHT (KG)
Φ10	5910	11	65	40	154.2
Φ10	5910	11	65	40	
Φ10	1910	30	57.5	35.5	
Φ10	1910	30	57.5	35.5	
Φ10	300, 230, 300	5	6.8	4.2	

Notes:

- This project is the foundation of newly built outdoor 110KVA/88KW box type D.G set, the weight is about 1.6 tons. ;
- The ±0.000 of this project is the elevation of natural ground on the site. Site positioning is determined during the construction. Except for the elevations expressed in m, all the dimensions as shown on the drawing are expressed in mm. ;
- The foundation concrete adopts C20, the thickness of concrete protective layer is 40 ;
- Pay attention to the facilities like underground pipelines, ditches, etc. during the foundation excavation, if there is any abnormal phenomenon, immediately notify relevant department to study and solve it;
- Perform rust-proofing and corrosion resistance treatment of the welded area of the grounding grid.
- All the edges to be chamfered at 25 mm .

SITE NAME: BINDURA

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SURVEY DATE:

RADIO ENGINEER:

SUPERVISOR:

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DATE:



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APPROVED

DATE:

NO:

DATE:

DESCRIPTION:

SCALE:

N.T.S

ISSUE:

1

DRAWING:

A

SHEET NO:

15

D.G PLINTH

SITE NAME: BINDURA

SITE ID:

LAND ID :

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 17°18'2.35"

LONGITUDE: E: 31°20'10.51"

SURVEY DATE:
RADIO ENGINEER:
SUPERVISOR:
DRAWN BY:
DATE:



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APPROVED

HUAWEI

DATE:

NO:

DATE:

DESCRIPTION:

APPROVED
RAMPHEPS GRAMINOS
P.O. BOX 489 CAULDEWAY HARARE
TEL: 263 4 797242/5
CUSTOMER

DATE: 24-06-15

DESCRIPTION:

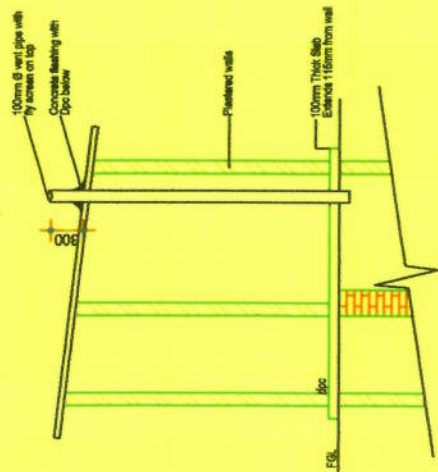
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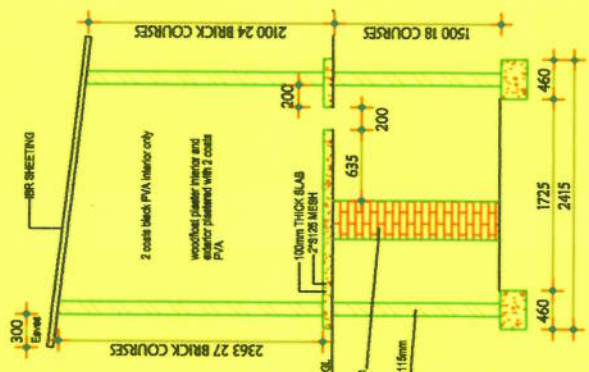
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SHEET NO: 16

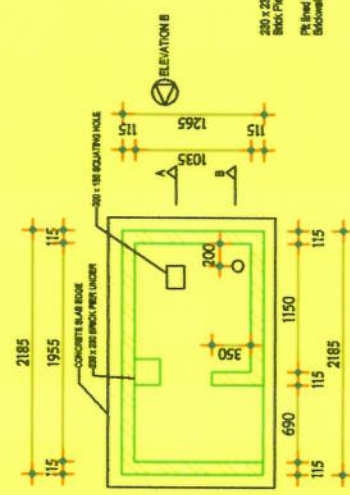
TOILET



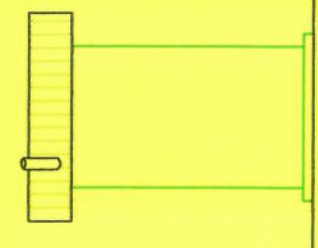
SECTION B-B



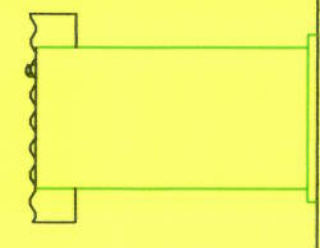
SECTION A-A



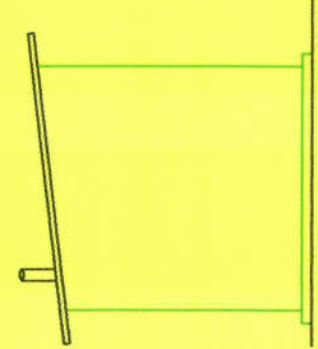
FLOOR PLAN



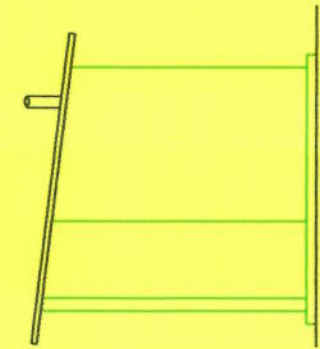
REAR ELEVATION



FRONT ELEVATION



ELEVATION A



ELEVATION B

Specifications
Roof Pitch 7.5°
I.B.R sheeting on 50 x 152 timber rafter tied
led into at least 5 courses of brickwork

WALLS
Walls to be constructed from standard common
bricks throughout. Brickwork at every fifth
course above gpc and in every 4 consecutive
courses immediately below roof level. All sand used
for mortar to be free of organic matter.
15mm interior and exterior woodfost plaster for
painting PVA

FLOORS
20mm trowel finish granio floor screed on 100 grade
25 concrete slab (mesh reinforced)
course above gpc and in every 4 consecutive

FOUNDATION
See drawing. Depth of foundation to be determined
on site. Base of all excavations are to be rammed
before concreting. 400 x 230mm dp grade 20
concrete step footings centered on walls

SITE NAME: BINDURA

SITE ID:

LAND ID :

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 17°18'2.35"

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SURVEY DATE:
RADIO ENGINEER:
SUPERVISOR:
DRAWN BY:
DATE:



HUAWEI TECHNOLOGIES ZIMBABWE (PVT) LTD
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APPROVED

APPROVED

DATE:

NO:

DATE:

DATE:

DESCRIPTION:

SCALE:

N.T.S

ISSUE:

1

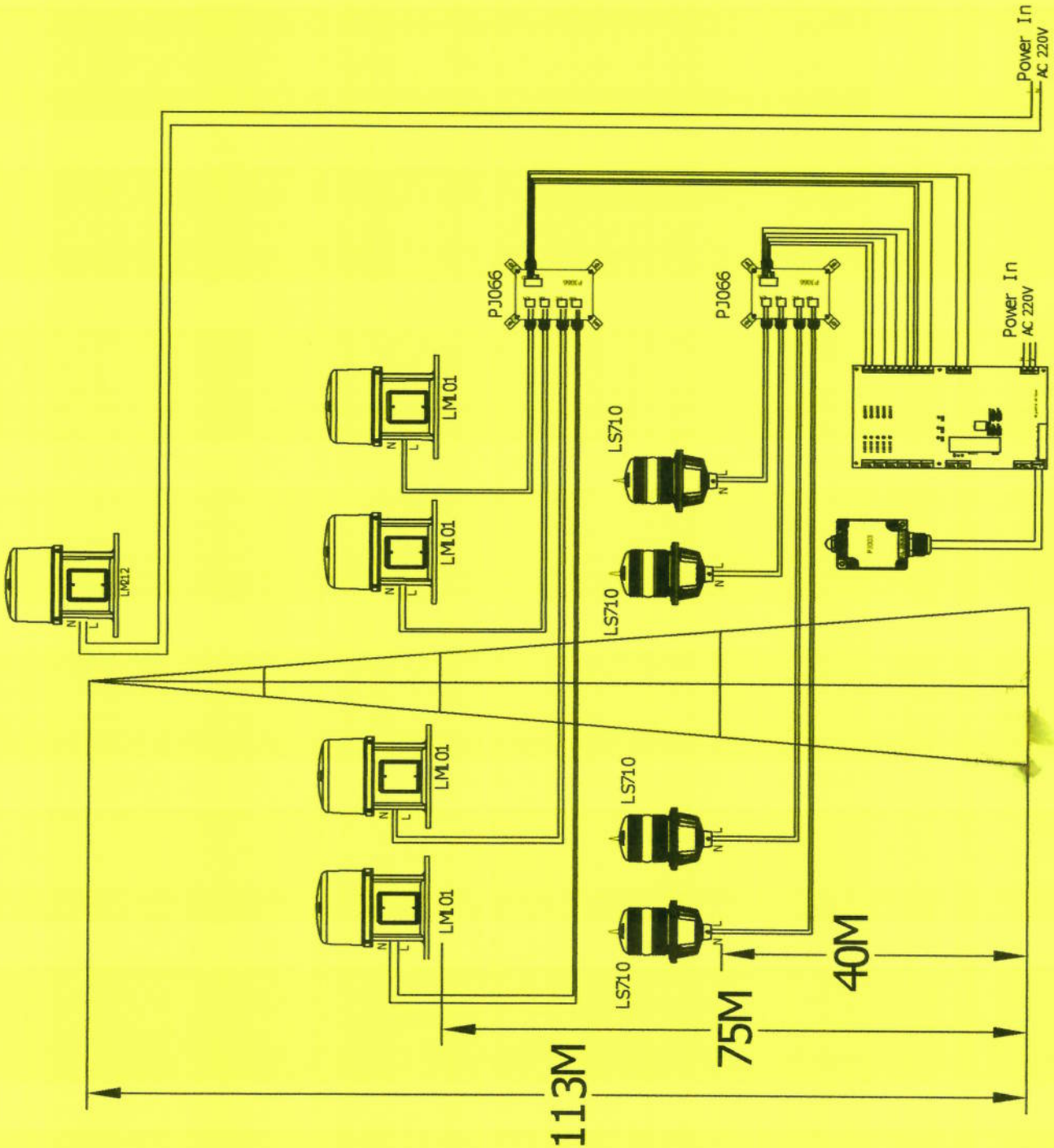
DRAWING:

A

SHEET NO:

18

4 Leg Wiring Diagram



RAINBOW TELEVISION SERVICES
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P.O. BOX 1000, HARARE, ZIMBABWE
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