

2-2-3 Basic Design Drawing

The following basic design drawings for the Project are attached from the next page.

<Moulvibazar Meteorological Radar Tower Building>

- Site Plan : A-01
- Floor Plan 1 : A-02
- Floor Plan 2 : A-03
- Floor Plan 3 : A-04
- Floor Plan 4 : A-05
- Floor Plan 5 : A-06
- Elevation 1 : A-07
- Elevation 2 : A-08
- Section : A-09

- Equipment Layout 1 : EQ-01
- Equipment Layout 2 : EQ-02

<Dhaka Meteorological Radar Station/ Strom Warning Centre>

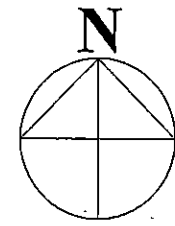
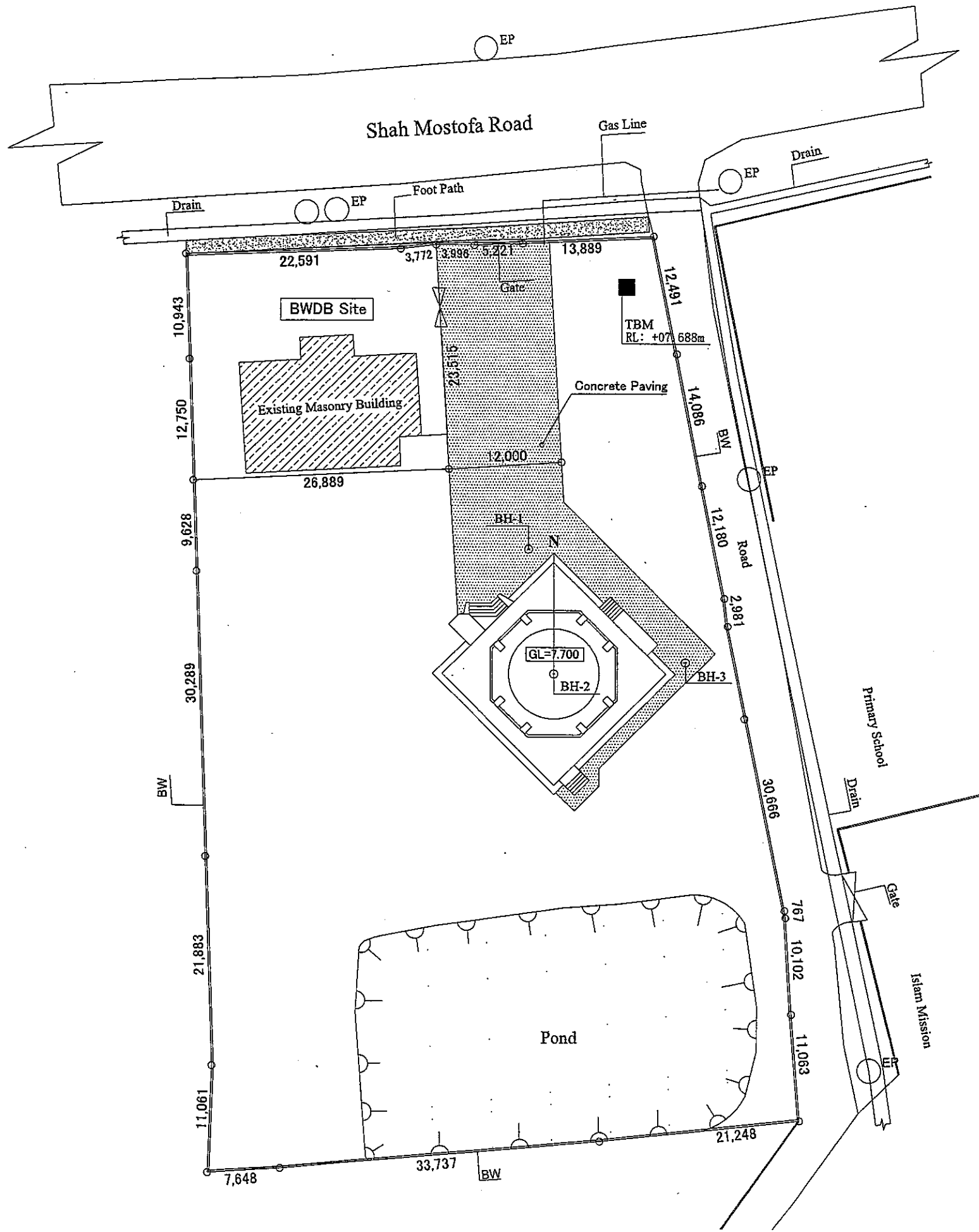
- Equipment Layout 3 : EQ-03

<Rangpur Meteorological Radar Station/Flood Forecasting and Warning Centre>

- Equipment Layout 4 : EQ-04

<Dhaka International Airport/Prime Minister's Office/Bangladesh TV Centre>

- Equipment Layout 5 : EQ-05



Area Calculation

Floor	Area
1F	206.48 m ²
2F	8.14 m ²
M2F,3,M3,4,M4F,5F	0 m ²
M5F	88.53 m ²
6F	16.73 m ²
7F	30.18 m ²
Total Floor Area	350.06 m²
Building Coverage Area	206.48 m²

Note:-

Reference Bench Mark : Survey of Bangladesh, BM no. 585, RL : + 9.5088m
Near Janata Bank Kazirbazar at Moulvibazar.

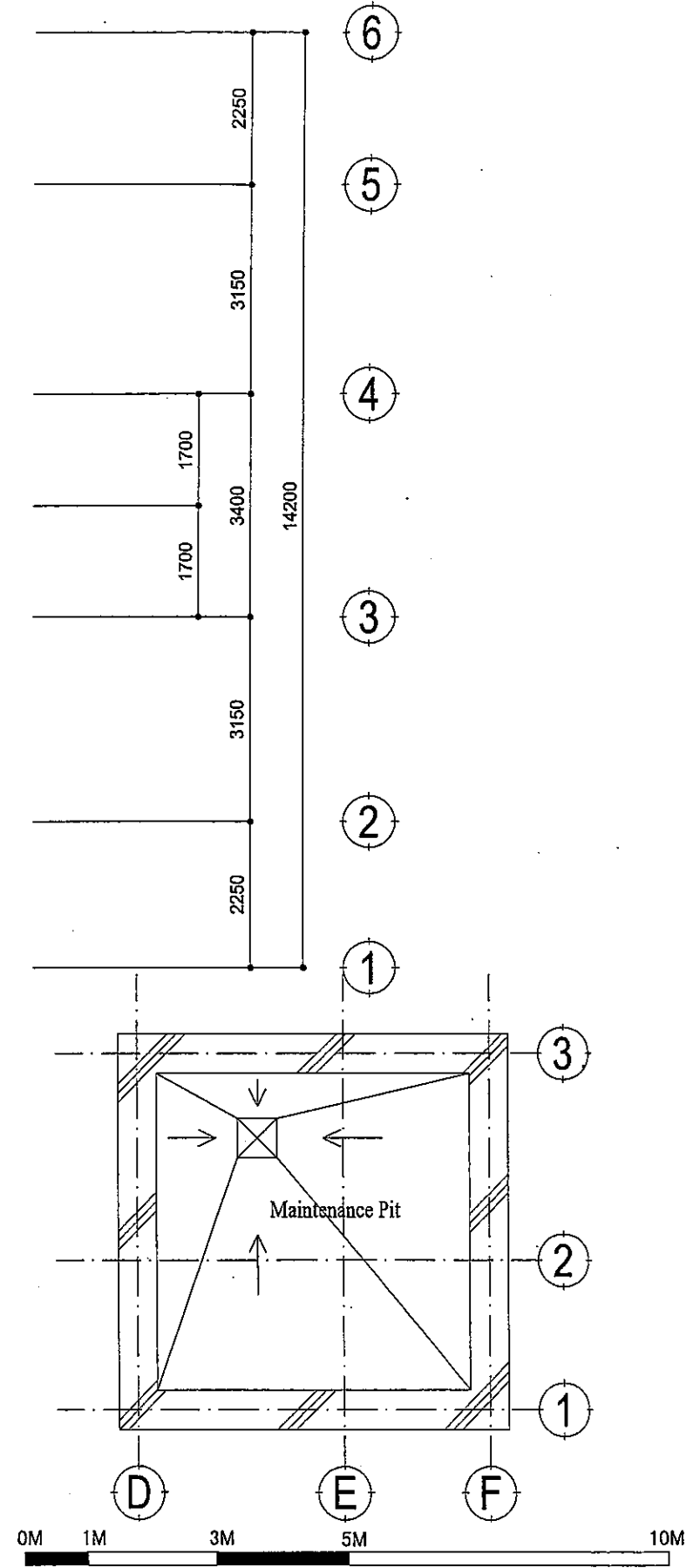
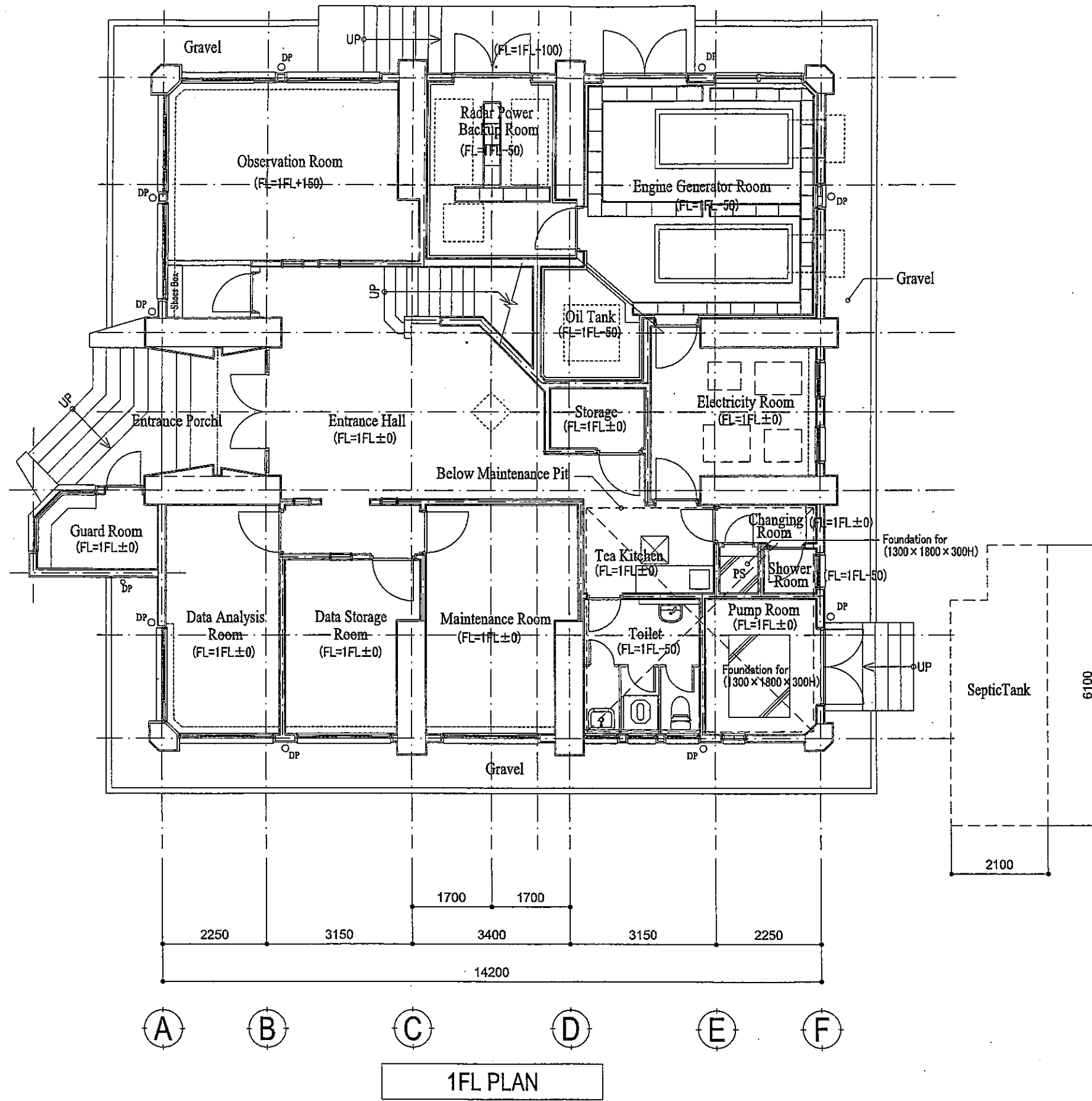
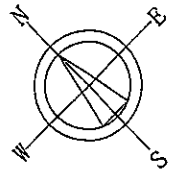
- BW : Boundary Wall.
- BM : Bench Mark.
- EP : Electric Pole.
- BH : Bore Hole
- WT : Water Tank

Legend

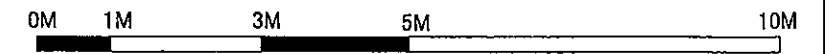
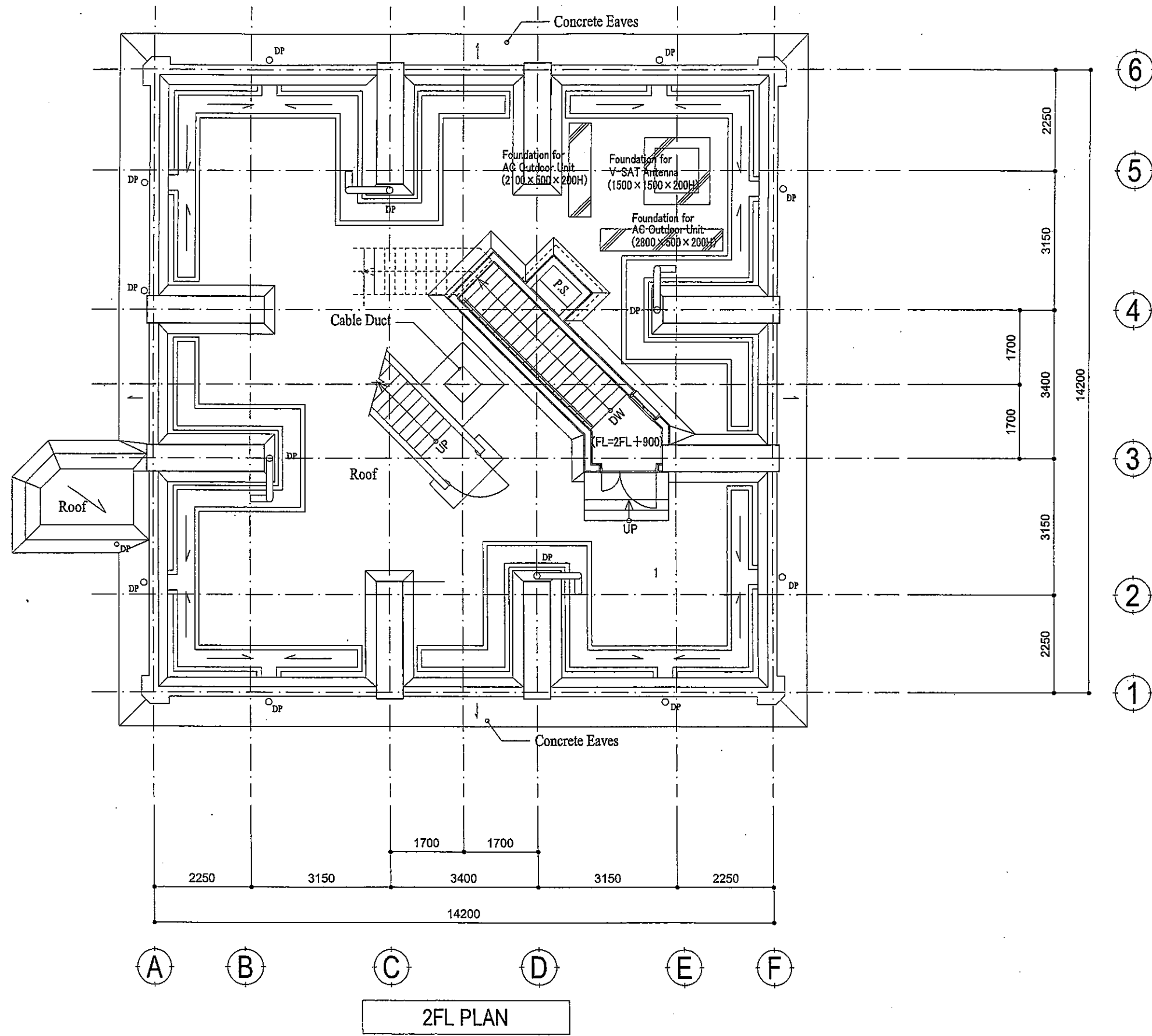
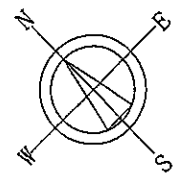
	Structure: Masonry Building, Tin Shed.
	Boundary Wall
	Paved Road, Foot Path.
	Tree, Coconut Tree
	EP, TP
	Bench Mark
	Gate
	Drain
	Gas Line
	Pond
	Garden

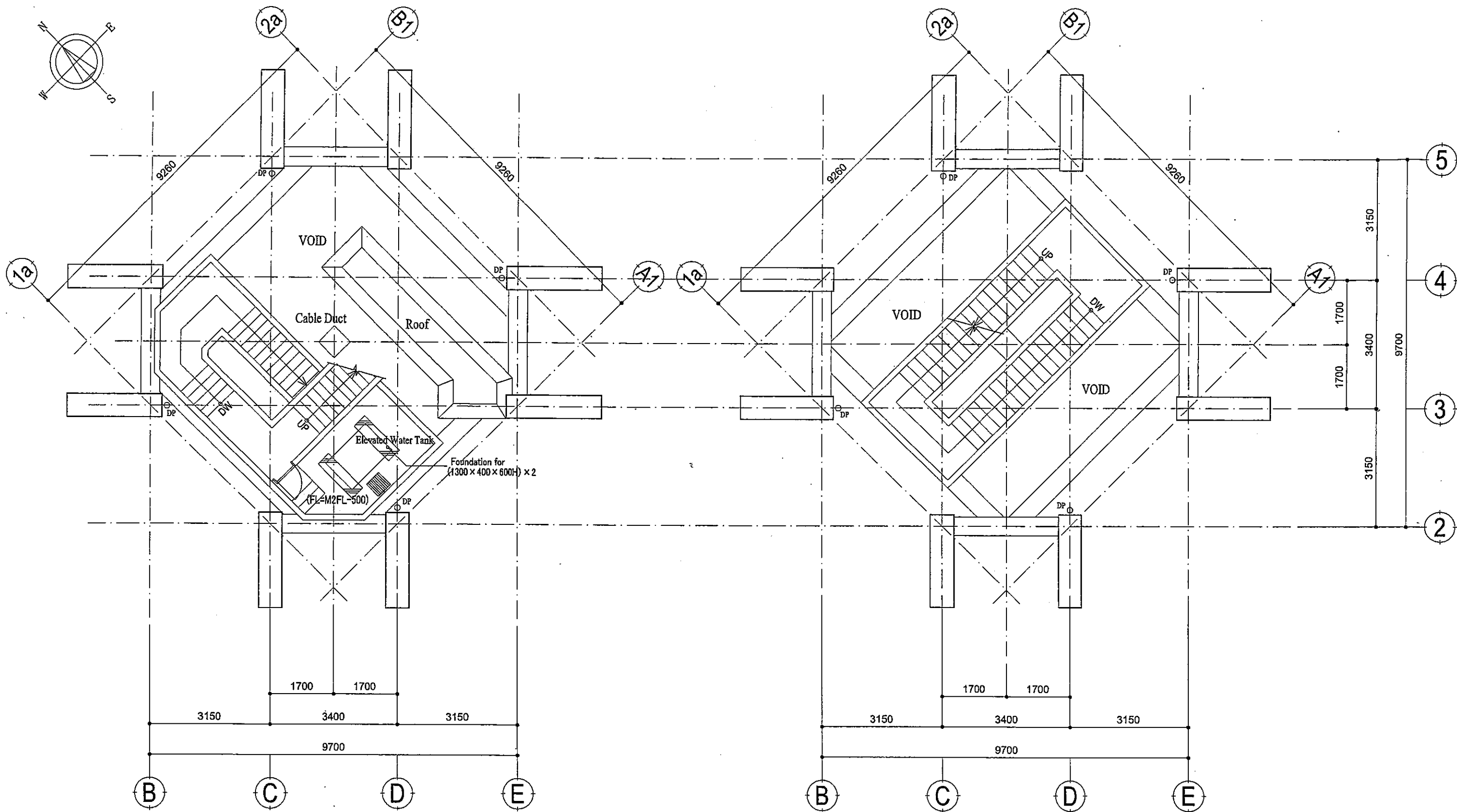
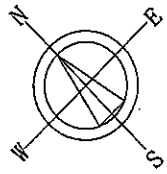
Location	Area in sqm
Total Area	3,452.054
Rest House Area	403.701
Net Area	3,048.353





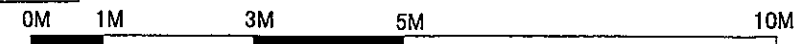
1FL PLAN





M2FL PLAN

3,M3,4,M4FL PLAN



JWA Japan Weather Association
 Sunshine 60 Bldg., 55F, 3-1-1, Higashi Ikebukuro, Toshima-ku, Tokyo,
 170-6055 Japan Tel. +81-3-5958-8161 Fax. +81-3-5958-8162

THE PROJECT FOR ESTABLISHMENT OF
 THE METEOROLOGICAL RADAR SYSTEM AT MOULVIBAZAR
 IN THE PEOPLE'S REPUBLIC OF BANGLADESH

DRAWING TITLE

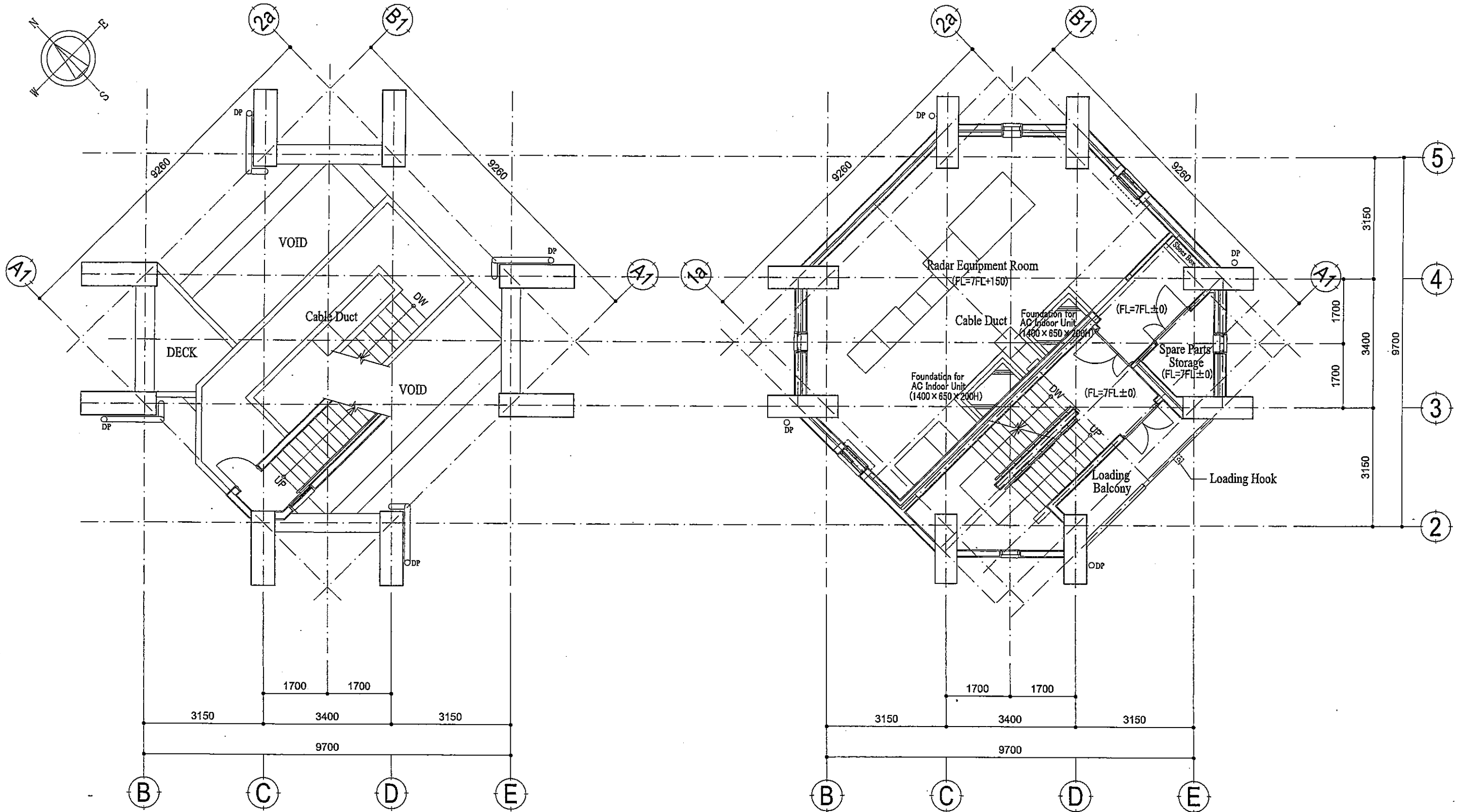
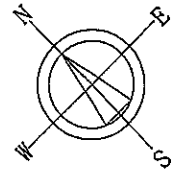
FLOOR PLAN - 3

SCALE

1:100

DRAWING No.

A - 04



5FL PLAN

M5FL PLAN



JWA Japan Weather Association
 Sunshine 60 Bldg., 55F, 3-1-1, Higashi Ikebukuro, Toshima-ku, Tokyo,
 170-6055 Japan Tel. +81-3-5958-8161 Fax. +81-3-5958-8162

THE PROJECT FOR ESTABLISHMENT OF
 THE METEOROLOGICAL RADAR SYSTEM AT MOULVIBAZAR
 IN THE PEOPLE'S REPUBLIC OF BANGLADESH

DRAWING TITLE

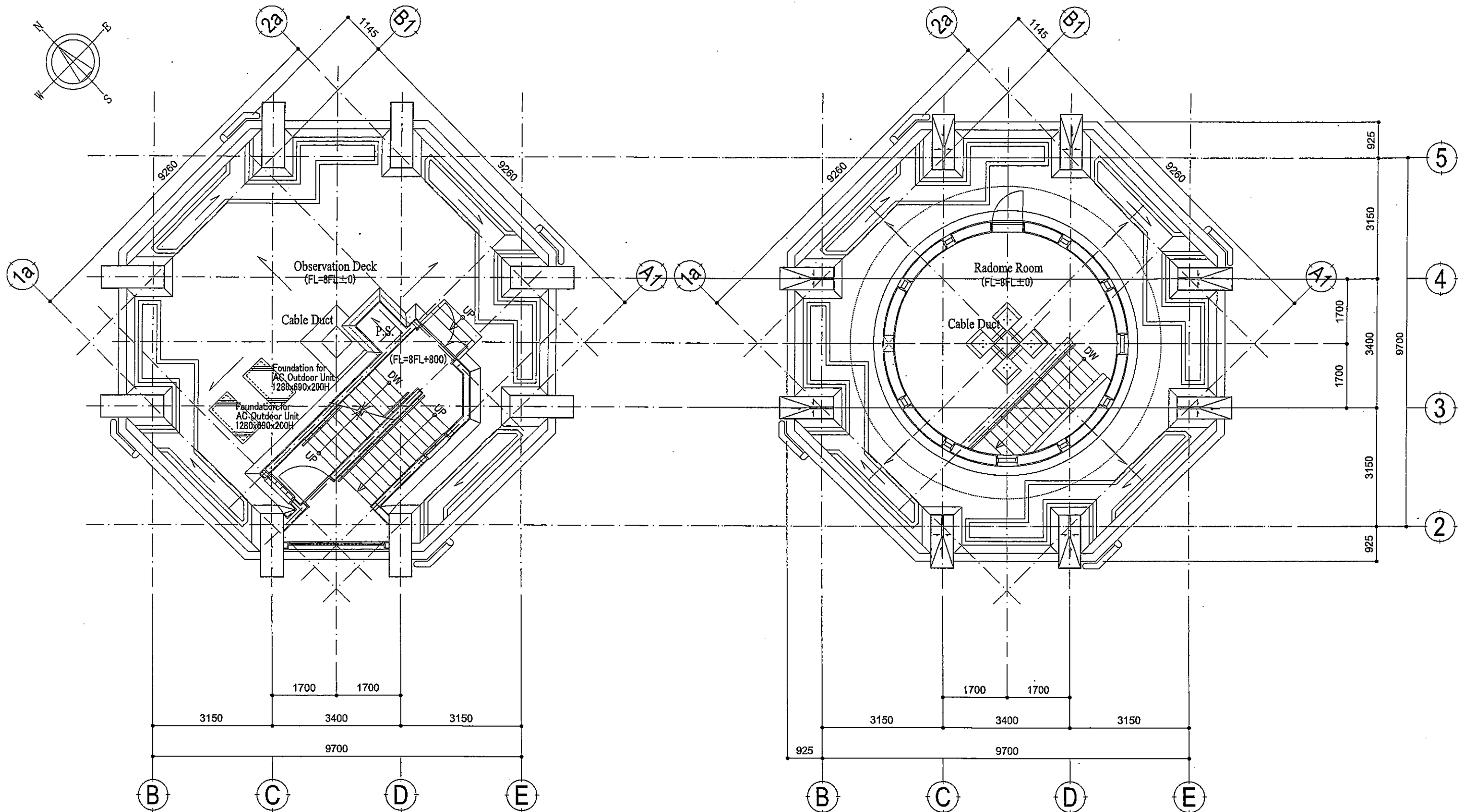
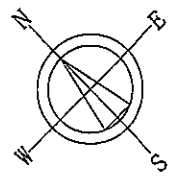
FLOOR PLAN - 4

SCALE

1:100

DRAWING No.

A - 05



6F PLAN (OBSERVATION DECK)

7F PLAN (RADOME FLOOR PLAN)

JWA Japan Weather Association
 Sunshine 60 Bldg., 55F, 3-1-1, Higashi Ikebukuro, Toshima-ku, Tokyo,
 170-6055 Japan Tel. +81-3-5958-8161 Fax. +81-3-5958-8162

THE PROJECT FOR ESTABLISHMENT OF
 THE METEOROLOGICAL RADAR SYSTEM AT MOULVIBAZAR
 IN THE PEOPLE'S REPUBLIC OF BANGLADESH

DRAWING TITLE

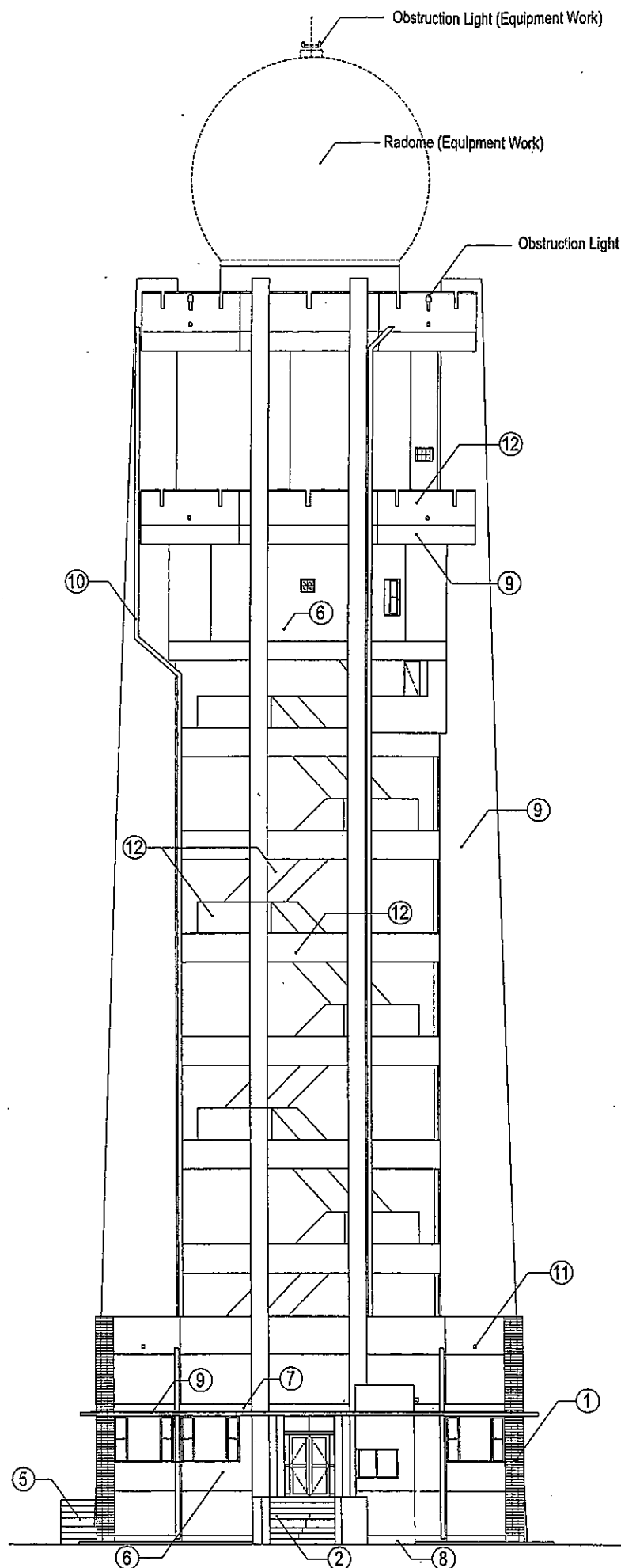
FLOOR PLAN - 5

SCALE

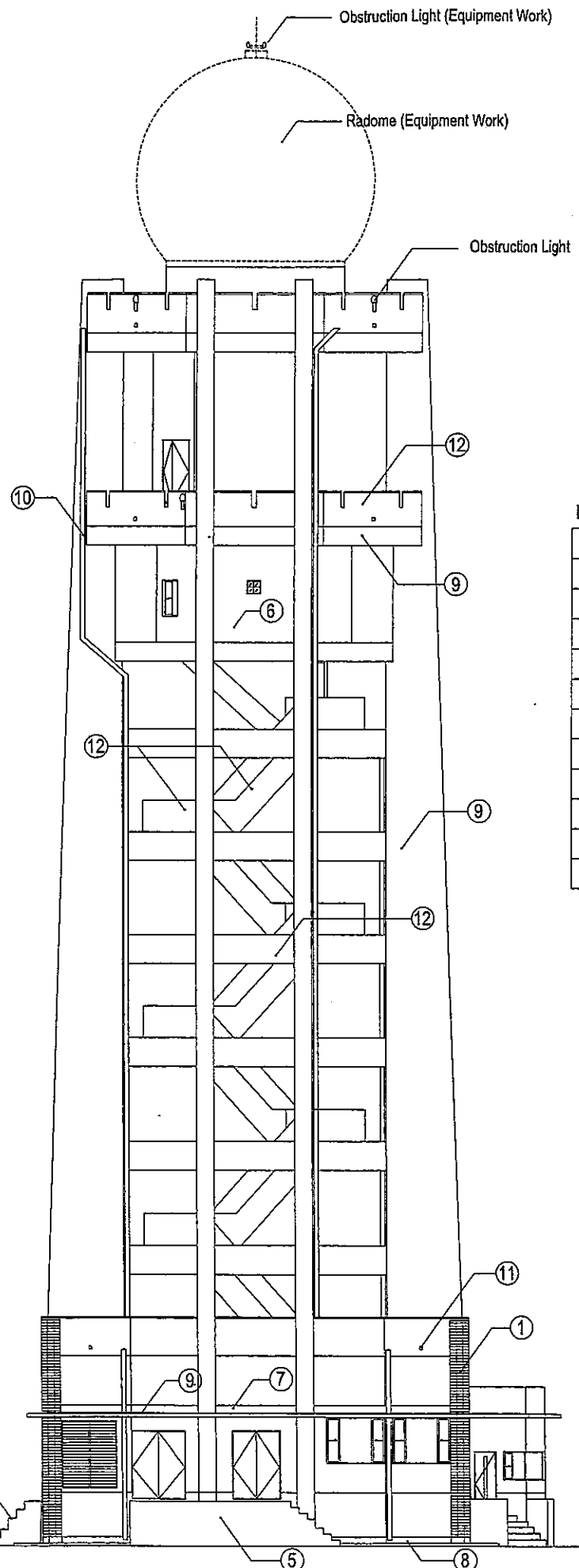
1:100

DRAWING No.

A - 06



NORTH ELEVATION



EAST ELEVATION

LEGEND

①	Porcelain Tile 100×50
②	Porcelain Tile 200×200
③	C.S.mortar t=25
④	C.S.mortar t=25, EP
⑤	C.S.mortar t=30
⑥	C.S.mortar t=25, Spray Tile
⑦	Waterproof Mortar t=30
⑧	Fine-faced Concrete Mortar Mending, EP
⑨	Fine-faced Concrete Mortar Mending, Spray Tile
⑩	Rain Leader Pipe: Galvanized Steel Pipe 150A Spray Tile
⑪	Overflow Pipe: Galvanized Steel Pipe 100A, Spray Tile
⑫	PC Concrete Sprey Tile

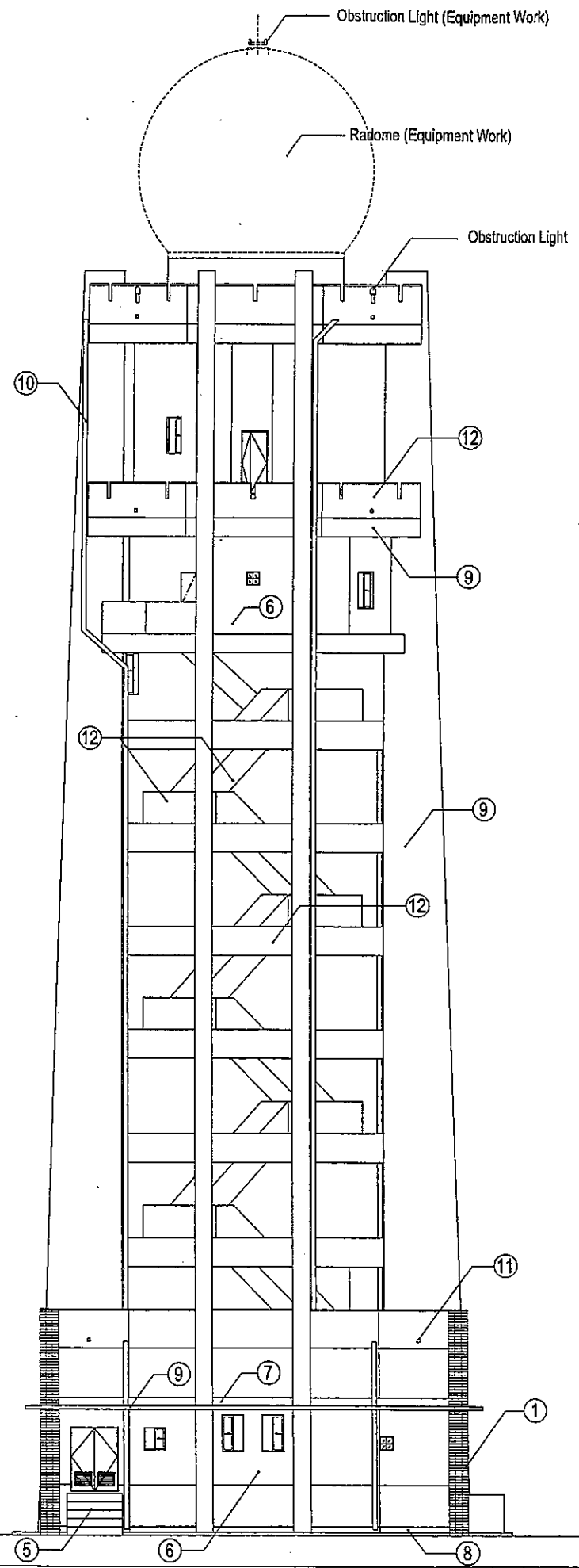
JWA Japan Weather Association
 Sunshine 60 Bldg., 55F, 3-1-1, Higashi Ikebukuro, Toshima-ku, Tokyo,
 170-6055 Japan Tel. +81-3-5958-8181 Fax. +81-3-5958-8182

THE PROJECT FOR ESTABLISHMENT OF
 THE METEOROLOGICAL RADAR SYSTEM AT MOULVIBAZAR
 IN THE PEOPLE'S REPUBLIC OF BANGLADESH

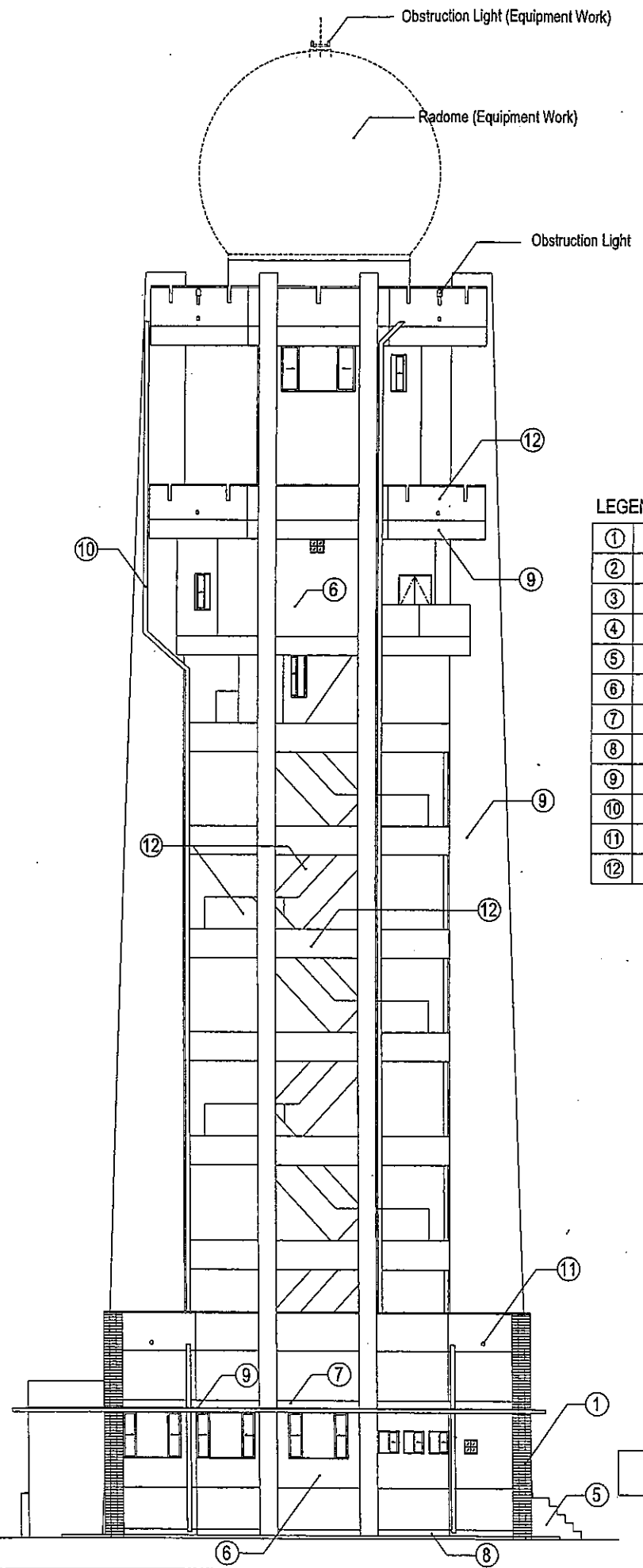
DRAWING TITLE DRAWING TITLE
ELEVATION 1

SCALE
1:200

DRAWING No.
A - 07



SOUTH ELEVATION



WEST ELEVATION

LEGEND

①	Porcelain Tile 100×50
②	Porcelain Tile 200×200
③	C.S.mortar t=25
④	C.S.mortar t=25, EP
⑤	C.S.mortar t=30
⑥	C.S.mortar t=25, Spray Tile
⑦	Waterproof Mortar t=30
⑧	Fine-faced Concrete Mortar Mending, EP
⑨	Fine-faced Concrete Mortar Mending, Spray Tile
⑩	Rain Leader Pipe: Galvanized Steel Pipe 150A Spray Tile
⑪	Overflow Pipe: Galvanized Steel Pipe 100A, Spray Tile
⑫	PC Concrete, Spray Tile

0M 1M 3M 5M

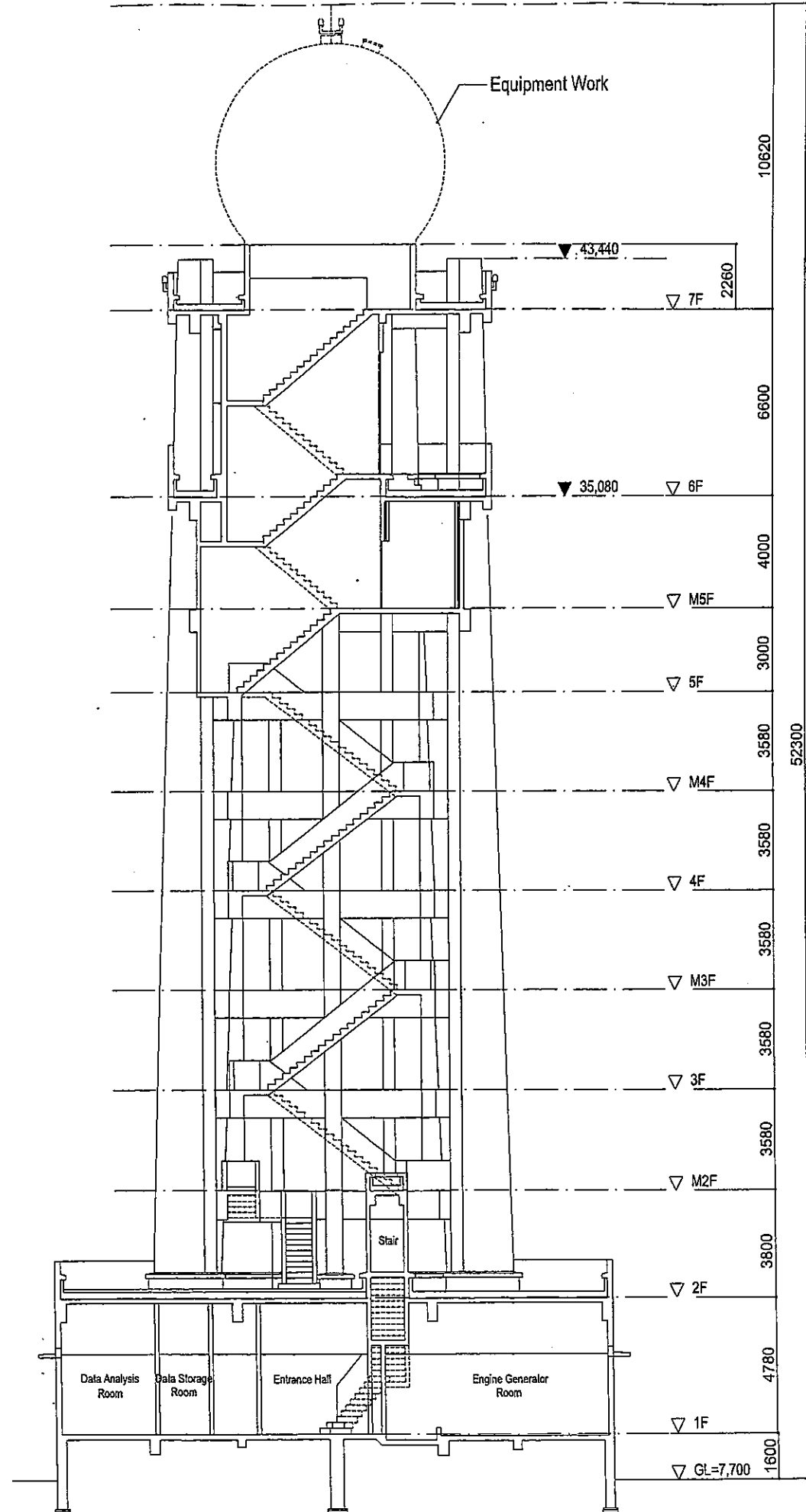
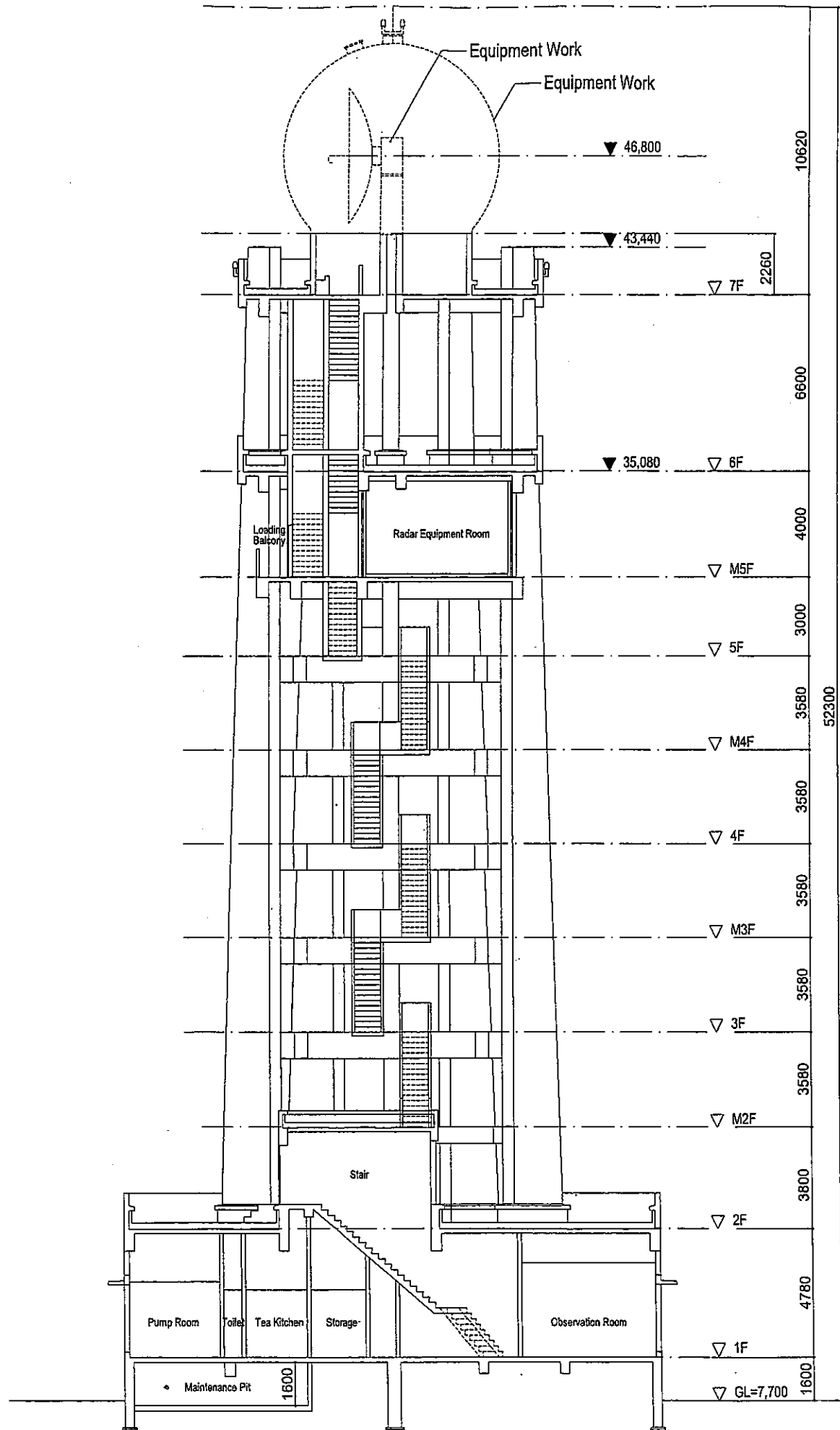
JWA Japan Weather Association
 Sunshine 60 Bldg., 55F, 3-1-1, Higashi Ikebukuro, Toshima-ku, Tokyo,
 170-6055 Japan Tel. +81-3-5958-8161 Fax. +81-3-5958-8162

THE PROJECT FOR ESTABLISHMENT OF
 THE METEOROLOGICAL RADAR SYSTEM AT MOULVIBAZAR
 IN THE PEOPLE'S REPUBLIC OF BANGLADESH

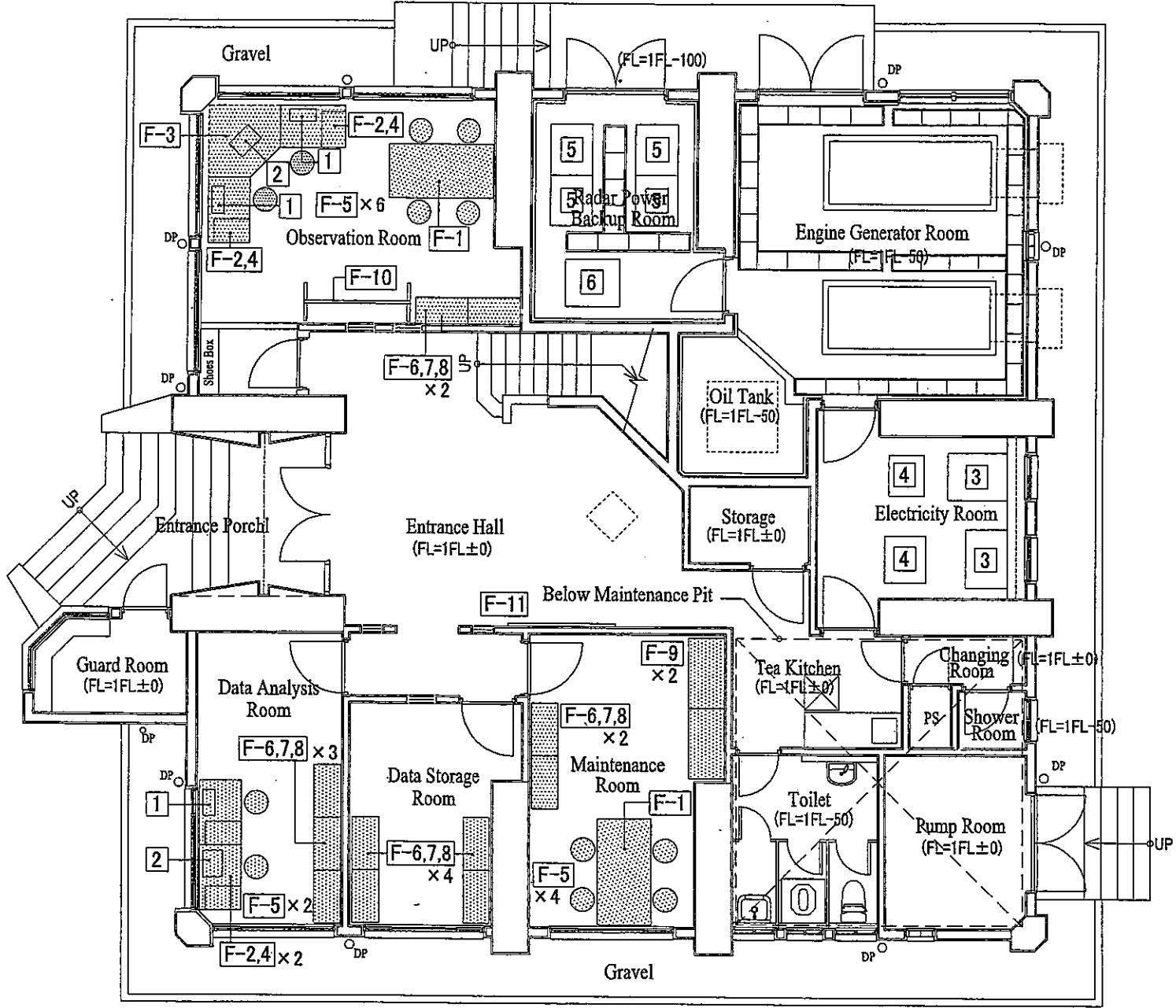
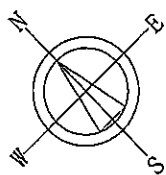
ELEVATION 2

SCALE
 1:200

DRAWING No.
 A - 08



0M 1M 3M 5M

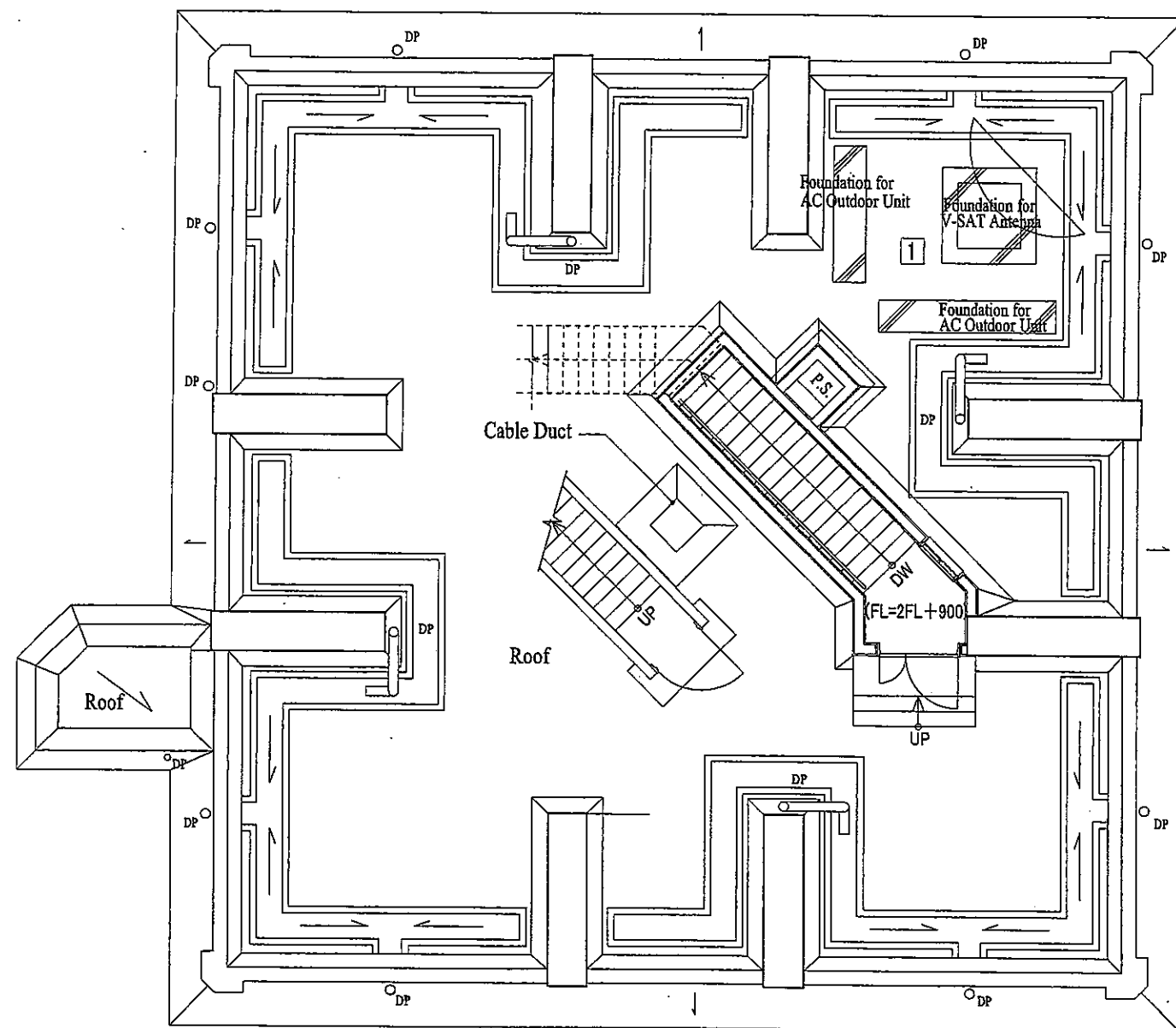
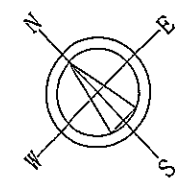


EQUIPMENT	
1	Indicator
2	Color Printer
3	Radar AVR
4	Isolation Transformer for Radar
5	Flywheel Power Back-up Unit
6	Flywheel Power Back-up Unit Controller

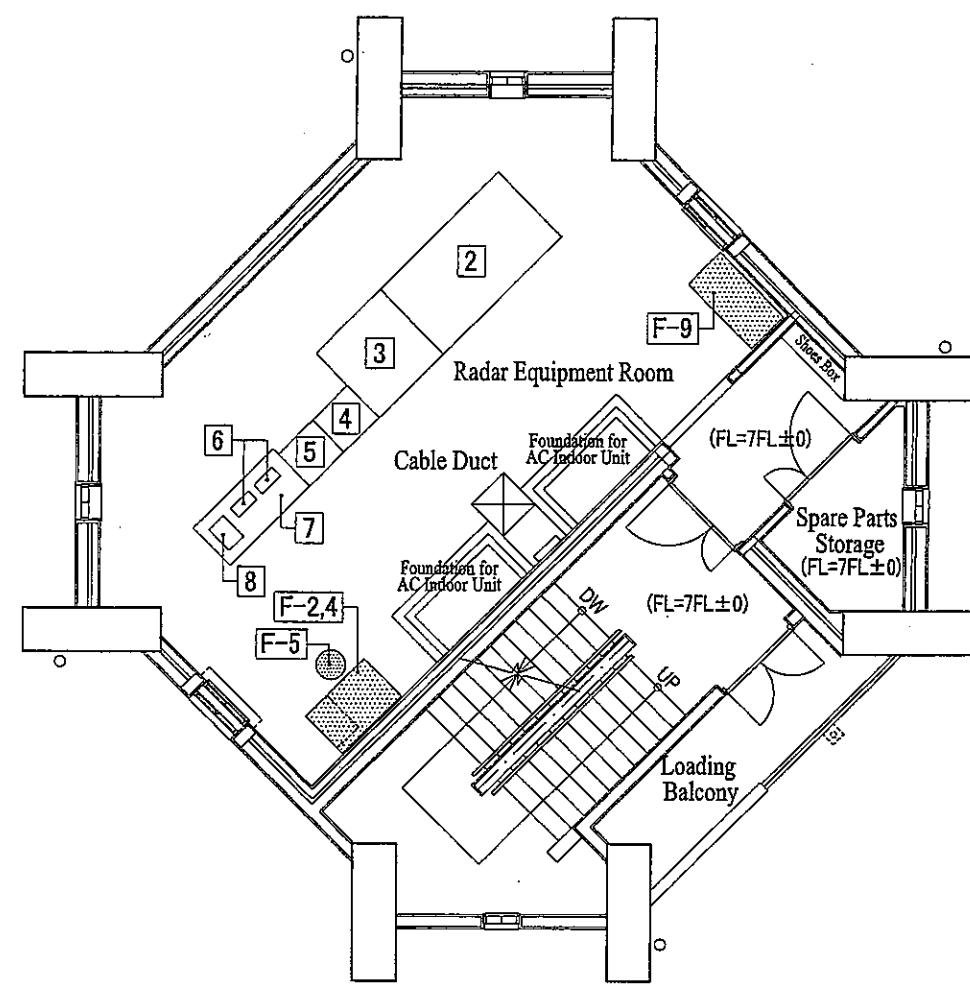
FURNITURE	
F-1	Meeting Table
F-2	Pedestal Desk
F-3	Five-sided Corner Desk
F-4	Drawer Unit with Casters
F-5	Chair
F-6	Lateral Filling Cabinet
F-7	Cabinet with Double Hinged Door
F-8	Top Panel
F-9	Shelves with Double Hinged Door
F-10	White Board (Movable Type)
F-11	Pin Board (Wall Mounted Type)

1FL PLAN





2FL PLAN



M5FL PLAN

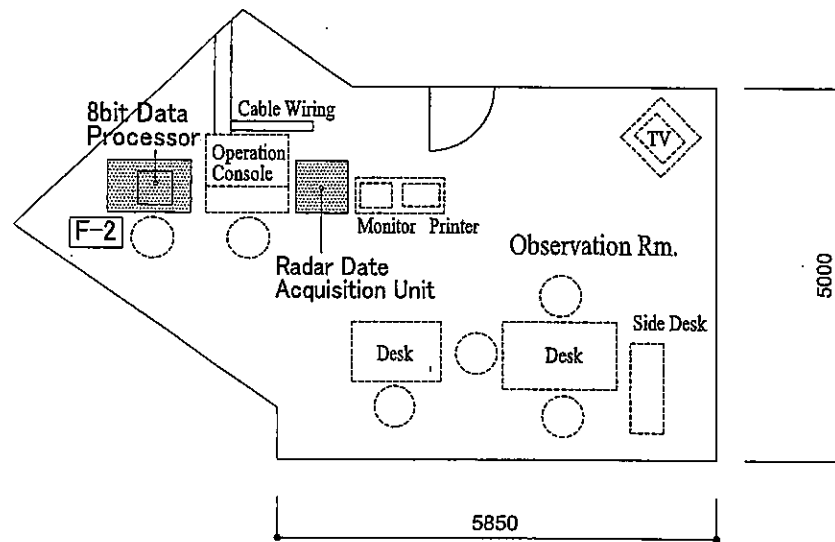
FURNITURE

F-2	Pedestal Desk
F-4	Drawer Unit with Casters
F-5	Chair
F-9	Shelves with Double Hinged Door

EQUIPMENT

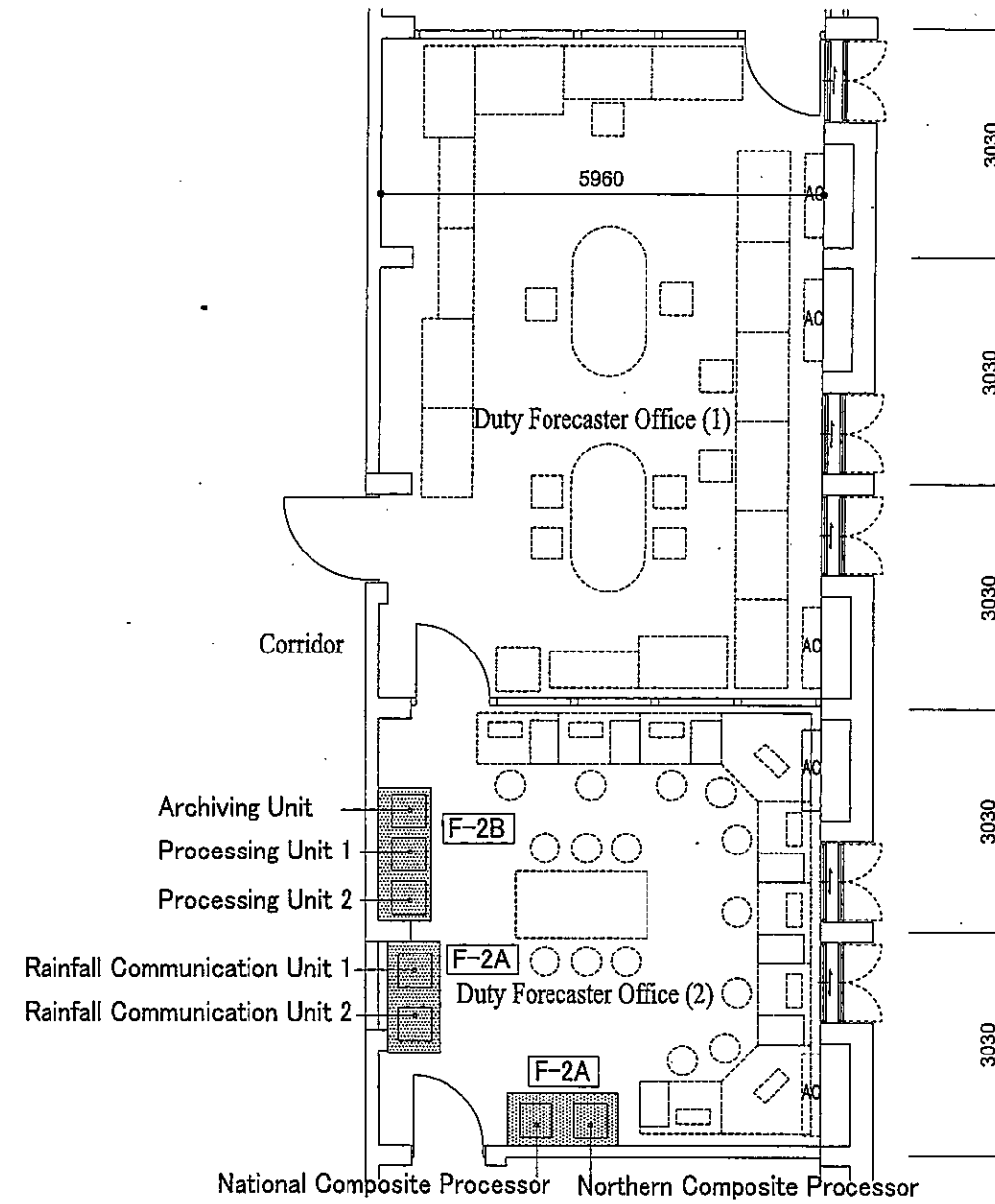
1	VSAT Antenna
2	Transmitter
3	ATU
4	DRSP
5	Antenna Controller & Dehydrator
6	Indicator
7	Indicator Rack
8	VSAT IDU





DHAKA RADAR

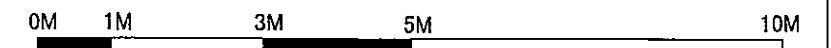
F-2 x 1 Pedestal-free Desk (W1100 x D700 x H750)

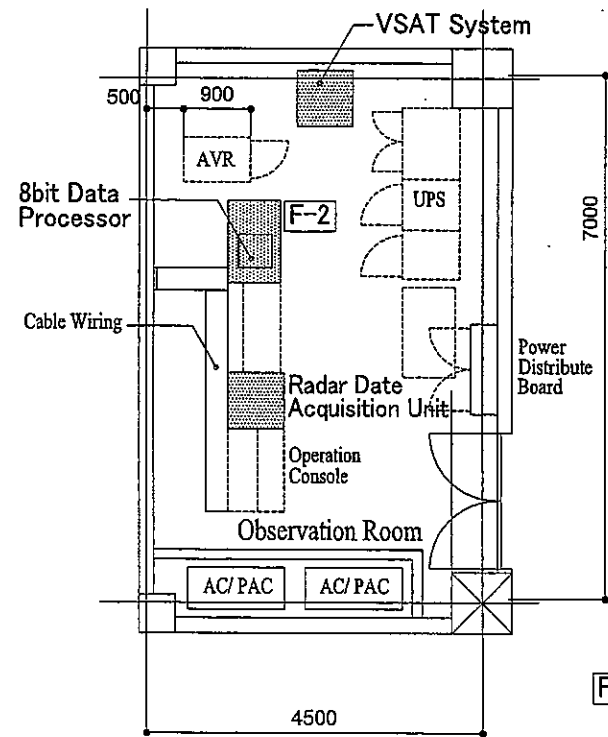
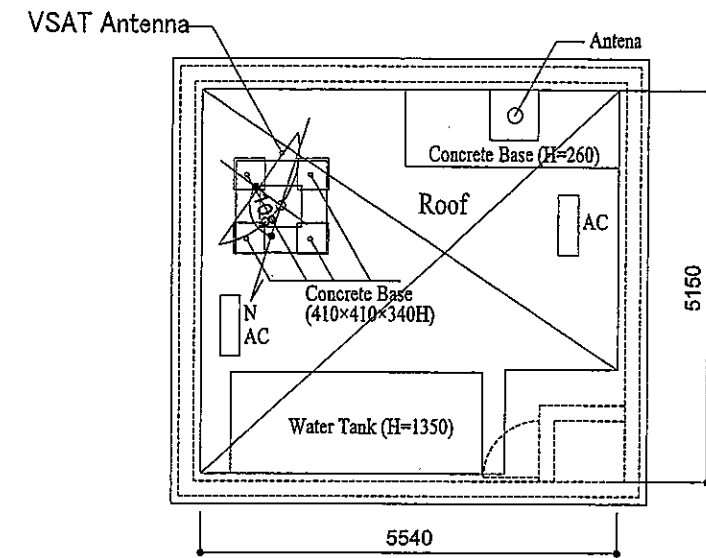
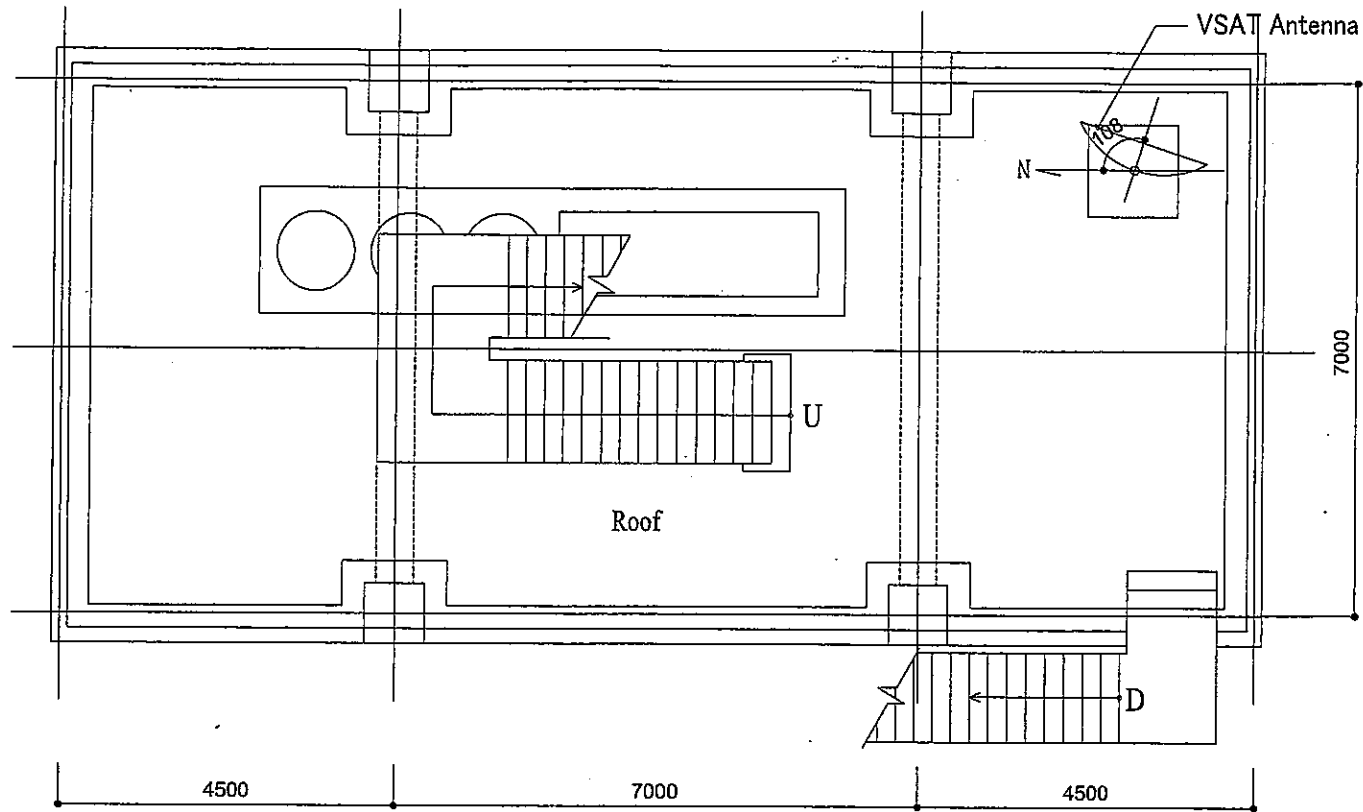


STORM WARNING CENTRE

F-2A x 2 Pedestal-free Desk (W1500 x D700 x H750)

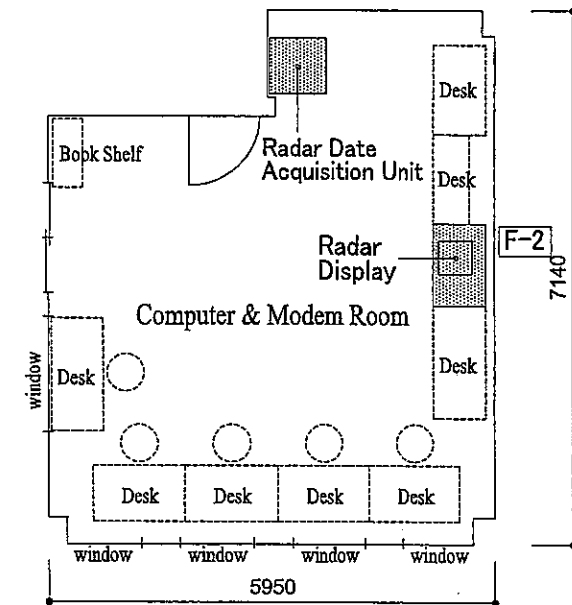
F-2B x 1 Pedestal-free Desk (W1800 x D700 x H750)





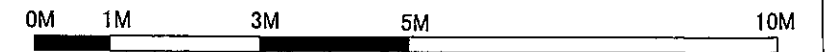
[F-2] x 1 Pedestal-free Desk (W1100 x D700 x H750)

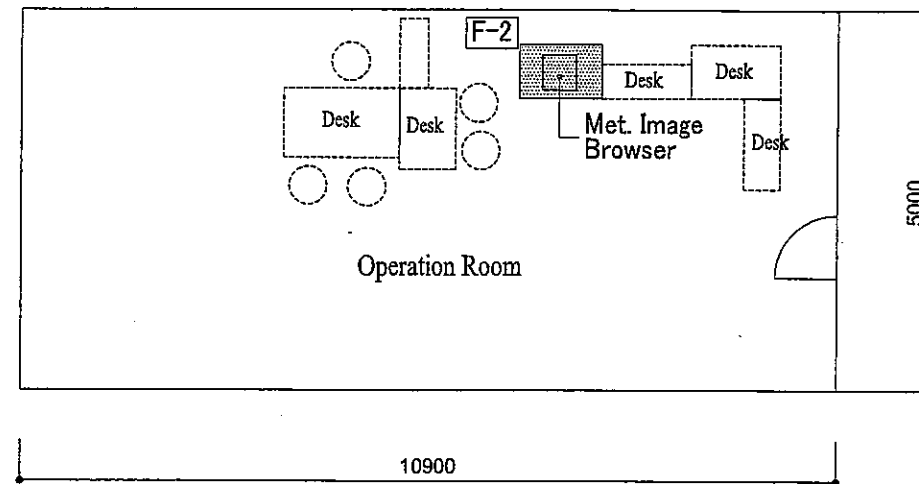
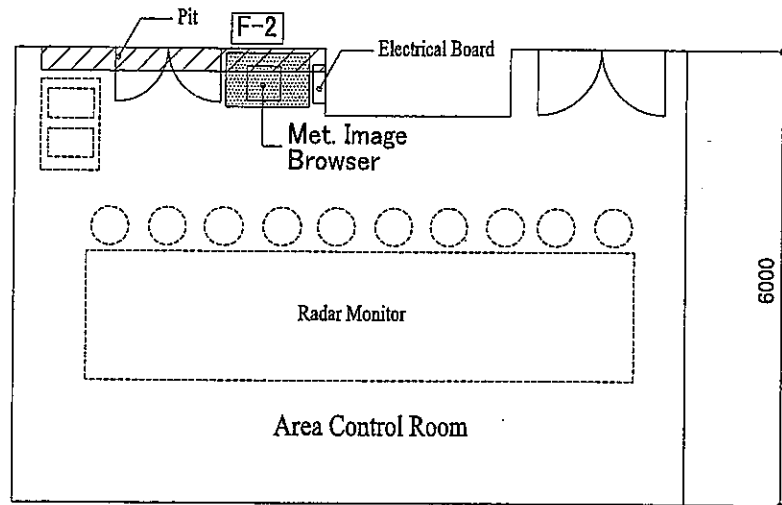
RANGPUR RADAR



[F-2] x 1 Pedestal-free Desk (W1100 x D700 x H750)

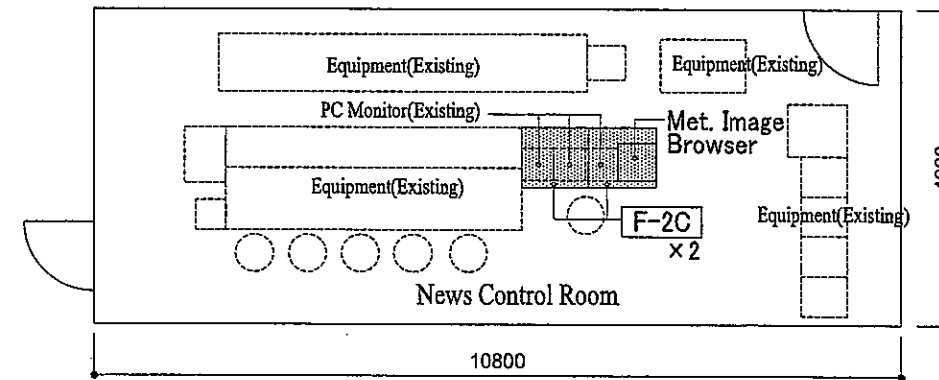
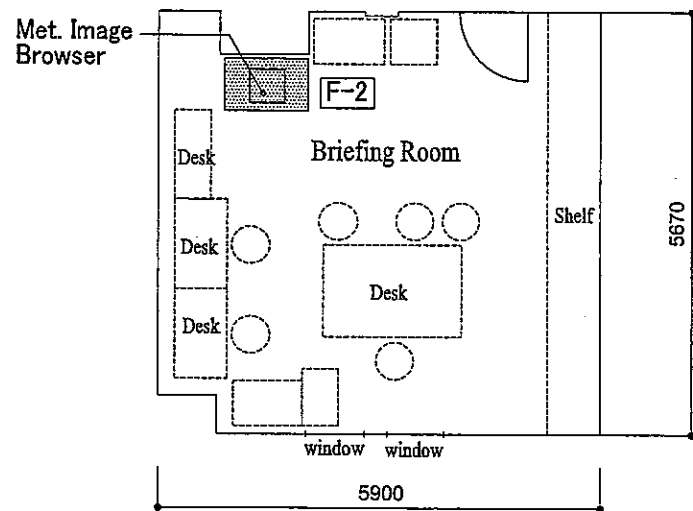
FLOOD FORECASTING AND WARNING CENTRE





PRIME MINISTER'S OFFICE

F-2 × 1 Pedestal-free Desk (W1100 × D700 × H750)
 (Required equipment and furniture to be Supplied by BMD)



DHAKA INTERNATIONAL AIRPORT

F-2 × 2 Pedestal-free Desk (W1100 × D700 × H750)
 (Required equipment and furniture to be Supplied by BMD)

BANGLADESH TV CENTRE

F-2C × 2 Pedestal-free Desk (W900 × D800 × H750)
 (Required equipment and furniture to be Supplied by BMD)



2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The Project covers many fields, including procurement and installation of meteorological and communication equipment, construction work, etc. For the successful completion of the Project, close coordination will be required among all parties. Since the period April to October are the flood season in Bangladesh and because there are significant lead times in manufacturing meteorological equipment, the management of the implementation schedule should be given particular attention.

1) Executing agency for the Project

The responsible government agency of Bangladesh for the implementation of the Project is BMD under the supervision of the Ministry of Defence. BMD, as the Client, will be a signatory to the Consultancy Agreement and to the Contract.

2) Consultant

After the signing of the Exchange of Notes (E/N) for the Project between the Government of Bangladesh and the Government of Japan, it is important to finalize the Agreement of Consulting Services as early as possible. The Agreement of Consulting Services will be signed by BMD and a Japanese consulting firm, having its principal office in Japan and recommended by JICA.

The consulting firm will become the Consultant for the Project by signing the Agreement. The Consultant then will conduct a detailed design study in Bangladesh with BMD and in Japan, and prepare tender documents including technical specifications, drawings, diagrams, etc. In addition, the Consultant in stead of BMD will conduct a tender and supervise the Project implementation for successful completion of the Project as a project of Japan's Grant Aid Assistance.

3) Contractor

A contractor with the required qualifications (an equipment supplier and a construction company) incorporated and registered in Japan, having its principal office in Japan, will be selected by an open public tender, in accordance with the tender documents prepared by the Consultant, in accordance with JICA guidelines, and approved by BMD.

2-2-4-2 Implementation Condition

1) Natural Disaster in Bangladesh

According to the following table showing most of natural disaster occurred in Pre-monsoon and

Monsoon seasons, there was no year without damage by natural disasters in Bangladesh. From the attached table, it is clear that careful attention must be paid to the implementation schedule of any works to be done in pre-monsoon and monsoon seasons.

Table 21: Disaster Occurrence Period

Season	Dry Season		Pre-monsoon Season			Monsoon Season			Post-monsoon Season			Dry Season
	1	2	3	4	5	6	7	8	9	10	11	12
Flood												
Flash Flood												
Storm												
Tornado												

2) Conditions for the Installation of Equipment

The meteorological radar system, computing equipment and other sophisticated equipment with electric and electronic circuits will be installed in the radar tower building. In accordance with the construction schedule, the dispatch of an electrical engineer is required at the time of the installation, adjustment and wiring of the electric power supply and power back-up equipment. A building equipment engineer is required during the installation of air-conditioning systems for the adjustment and acceptance testing of the systems. During the construction period, it is important that there should be a smooth procurement of required materials and hiring of skilled labors to meet the construction schedule. In addition, specialized skilled engineers are needed for installation, adjustment and commissioning of the radar system, computing equipment and the sophisticated meteorological equipment. They are essential to ensure the quality of the installation work necessary for accurate meteorological observations. Furthermore, as part of the technology transfer to BMD staff, specialized highly skilled engineers are required for on-the-job training to ensure BMD can operate and maintain the equipment efficiently.

2-2-4-3 Scope of Works

The scope of works to be undertaken by the Japan's Grant Aid Assistance and the Bangladesh side for the implementation of the Project is as follows.

1) Construction of the Radar Tower Building

<Scope of works to be undertaken by the Japan's Grant Aid Assistance>

- a) Architectural and civil works
- b) Electrical works
- c) Air-conditioning and Ventilation works
- d) Plumbing works

<Scope of works to be undertaken by the Bangladesh side>

- a) Securing necessary permission for construction of the radar tower building
- b) Securing the Project sites
- c) Fencing work
- d) Movement and relocation of any obstructions in the Project sites, if required
- e) External and planting work, if necessary
- f) Power supply intake work
- g) Water intake work
- h) Telephone line connection work
- i) Purchase of furniture which is not indicated in the drawings in this report, if required

2) Installation Work for the Equipment

<Scope of works to be undertaken by the Japan's Grant Aid Assistance>

- a) Procurement of the required equipment
- b) Transport of the equipment to the Project sites
- c) Installation work for the equipment
- d) Adjustment work of the equipment
- e) Commissioning for the total system

<Scope of works to be undertaken by the Bangladesh side>

- a) Provision of stable commercial power supply at the Project sites
- b) Provision of public telephone lines at the Project sites
- c) Provision of water supply at the Project sites
- d) Obtaining necessary frequency allocations for the radar system and the meteorological data communication system
- e) Renting the necessary space segment of a communication satellite for the meteorological data satellite communication systems
- f) Shifting and removing any obstructions in the Project sites, if required
- g) Protection against any damage and disappearance for the equipment & systems

2-2-4-4 Consultant Supervision

1) Principal Guidelines

- a) To take the responsibility for expediting the project implementation and supervision, in accordance with the guidelines of Japan's Grant Aid Assistance and the basic design.
- b) To communicate closely with responsible organizations and personnel of both countries, and complete the Project in time in accordance with the implementation schedule.
- c) To provide appropriate advice to personnel of BMD and the contractor.
- d) To ensure the Project places top priority on public safety by improving BMD's capability to monitor severe weather phenomena.

2) Consultant Supervision

- a) The Consultant will dispatch at least one responsible personnel to Bangladesh at each implementation stage in the Project.
- b) Consultant technical specialists will be dispatched to Bangladesh for installation guidance, inspection work, etc. for the installation and configuration work of the major hardware, data communication equipment, computing equipment and system software.
- c) The Consultant will attend factory performance tests, configuration verifications and inspections of the equipment on behalf of and instead of BMD.
- d) Qualified engineer(s) will be dispatched for data transmission tests in Bangladesh.

3) Scope of Work for Supervision

- a) The Consultant, in coordination with BMD, will prepare the contract in accordance with JICA standards; select a Japanese prime contractor through tendering; and recommend the nominated contractor to the Government of Bangladesh.
- b) The Consultant will inspect and approve shop-drawings, system drawings & diagrams and material samples submitted by the contractor, and verify the performance and function of all equipment.
- c) Based on a review of the implementation schedule, the Consultant will provide instructions to a contractor and submit progress reports on the implementation of the Project to BMD, the Embassy of Japan, the JICA local office, etc.
- d) The Consultant will cooperate in certification of payment, such as through examination of notice of approval and invoices in connection with implementation cost to be disbursed during the implementation period and upon completion of the Project.

2-2-4-5 Quality Control Plan

Moulvibazar is a region of high temperatures and high humidity year round, reaches about 70-80%. In 2005, the annual mean temperature was 30.4°C. Due to the severe environment, proper quality control is required during the construction work. According to past local meteorological data, the monthly mean temperature can reach more than 30°C every month except January, February, March and December, necessitating measures to deal with a possible concrete temperature of more than 30°C. In view of this possibility, the ambient temperature and the concrete temperature will be measured during concrete pouring, to ensure the correct concrete quality.

The quality control plan for the main work is described in the table below.

Table 22: Quality Control Plan

Work	Work Type	Control Item	Method	Remarks
Structural Work	Concrete work	Fresh concrete Concrete strength	Slump, air volume, temperature Comprehensive strength test	Strength test at a public test institution
	Reinforcing work	Reinforcing bar Arrangement	Tensile test, mill sheet check Bar arrangement check	
	Pile work	Material, bearing capacity	Bearing capacity check	
Finishing Work	Roof work	Workmanship, leakage	Visual inspection, water spray test	
	Tile work	Workmanship	Visual inspection	
	Plastering work	Workmanship	Visual inspection	
	Door & window work	Products, Installation accuracy	Factory inspection sheet check Visual inspection, dimension check	
	Painting work	Workmanship	Visual inspection	
	Interior work	Products, workmanship	Visual inspection	
Electrical Work	Power Receiving & Transforming	Performance, operation installation check	Factory inspection sheet check; withstand voltage, megar, operation, visual inspection	
	Conduit work	Bending, support check	Visual inspection, dimension	
	Wiring and cable work	Sheath damage, loose connection check	Performance sheet check, cleaning before laying, marking after bolt fixing	
	Lightning work	Resistance, conductor support pitch check	Resistance measuring, visual inspection, dimension	
	Lighting work	Performance, operation, installation check	Performance sheet check, illumination measurement, visual inspection	
Mechanical Work	Water Piping Work	Support pitch, leakage	Visual inspection, leakage, water pressure test	
	Pump Installation	Performance, operation installation check	Performance sheet check, flow rate test	
	Air-Con. work	Performance, operation installation check	Performance sheet check, temperature measurement	
	Sanitary Fixture	Operation, installation, leakage check	Visual inspection, flow test	

2-2-4-6 Procurement Plan

(1) Equipment Procurement

1) Equipment Procurement Policy

Maintenance requirements and the availability of the necessary parts and consumables in Bangladesh are two of most important factors in selecting the equipment. The equipment procurement process must provide for continuing maintenance after the completion of the Project. None of the meteorological equipment to be supplied under the Project is produced in Bangladesh. Japanese meteorological radar system and related equipment are considered to be most suitable for the Project, in terms of reliability, durability, accuracy and performance.

The activities of the private sector in Bangladesh will be useful in the support of the computer systems and other sophisticated systems. There are many computing equipment manufactures. The procurement plan for the equipment is designed with a view to achieving the maximum possible degree of standardization as well as facilitating the obtaining of spare parts and maintenance services for the chosen computing equipment.

2) Equipment Procurement Plan

Equipment procurement plan for the Project is classified as follows.

Table 23: Equipment Procurement Plan

Name of Equipment	Procurement Plan		
	Japan	Bangladesh	Third Countries
Meteorological Doppler Radar System	◎		
Meteorological Radar Data Display System	◎		
Meteorological Data Satellite Communication System	◎		
Existing Radar System 8bit Modification	◎		◎

◎ : Planned countries for the equipment procurement

(2) Procurement of Construction Material

1) Procurement Policy of Construction Material

As the main construction materials can be procured locally, they will, in principle, be procured in Bangladesh. However, the products produced in Bangladesh are limited to gravel, sand, fresh concrete, some secondary concrete products (blocks, floor materials, etc.) and timber for temporary works, etc. Other construction materials imported from the neighboring countries are marketed throughout Bangladesh. As these imported materials can be easily procured locally, they are considered as part of the procurement of local products. In order to ensure the easy maintenance of the radar tower building, locally available materials will be utilized for construction.

2) Procurement Plan of Construction Material

[1] Structural Work

The main materials for the structural work, such as fresh concrete, plywood for form works, etc., can be procured locally. Locally made concrete blocks are available and are a common material for building construction.

[2] Building Exterior and Interior Work

Timber, tiles, paint, glass, aluminum window frames, etc. used for the exterior and interior of a building are imported from ASEAN countries and, in principle, are readily available in the local market. For the proposed buildings, airtight aluminum and steel doors & windows, treated for salt-corrosion, are required.

[3] Air-Conditioning and Plumbing Work

Imported air-conditioning equipment, exhaust fans, sanitary-fixtures, etc. are popular in Bangladesh. In principle, those products can be procured in the local market with a view to ease of repair and maintenance. However, large air-conditioning units and exhaust fans, which are unavailable in the local market will be procured from ASEAN countries.

[4] Electrical Work

Imported and local Lighting fixtures, switches, lamps, electrical wires and cables, conduits and other items are available in the local market. They will, in principle, be procured in Bangladesh for the convenience of repair and maintenance. However, custom-made building equipment such as control panels, power distribution boards and switch boards will be procured from ASEAN countries.

Table 24: Major Materials Procurement Plan (Architectural Work)

Materials	Local Market		Procurement Plan		
	Condition	Import	Bangladesh	Third Country	Japan
Portland cement	○		○		
Sand, aggregate	○		○		
Reinforcing bar	○		○		
Form (plywood)	○		○		
Concrete block	○		○		
Asphalt waterproofing	△		○		
Wood	○		○		
Aluminum door & window	△		○		
Steel door & window	△		○		
Wooden door & window	○		○		
Door handle, lock	○		○		
Floor hinge	○		○		
Plane glass	○		○		
Laminated safety glass	○		○		
Access floor panel	○		○		
Access floor panel (heavy duty type)	△		○		
Paint	○		○		
Gypsum board (T-bar)	○		○		
Cement board	○		○		
Rockwool acoustic board (T-bar)	○		○		
Glass wool, glass cloth	○		○		
Carpet tile	△		○		
PVC tile	○		○		
Porcelain tile	○		○		
Ceramic tile	○		○		
Floor maintenance hatch	○		○		
Kitchen	○		○		
Roof drain	○		○		
Steel drainage pipe (galvanized)	○		○		
Concrete pavement block	○		○		
Spray tile	○		○		
Caulking	○		○		

Table 25: Major Materials Procurement Plan (Mechanical and Electrical Work)

Work type	Materials	Local Market		Procurement Plan		
		Condition	Import	Bangladesh	Third Country	Japan
Air-conditioning work	Air conditioner	△		○		
	Heat exchanger	X	ASEAN		○	
	Exhaust fan (salt-proof)	△		○		
Plumbing work	Sanitary fixture	○		○		
	Pipe	○		○		
	Fire extinguisher	○		○		
	Water lifting pump	○		○		
Electrical work	Lighting fixture	○		○		
	Obstruction light	X	Japan			○
	Panel	△	ASEAN		○	
	Wire, cable	○		○		
	Conduit (PVC)	○		○		
	Conduit (Steel)	○		○		
	Cable-rack	○		○		
	Telephone system	△	ASEAN		○	
	Isolation Transformer	X	Japan			○
	AVR	X	Japan			○
	Fire alarm system	○		○		
	Diesel engine generator	○		○		
	Lightening protection	○		○		

- : Easy to procure in Bangladesh
- △ : Available in the local market in Bangladesh but model and quantity are limited
- X : Difficult to procure in Bangladesh

3) Transportation Plan

Transportation of the equipment from outside of Bangladesh will principally use wooden crates or container shipment. The main disembarkation point for maritime cargo to Bangladesh is the Chittagong Seaport. Transport from Japan to Dhaka Container Depot takes at least 1.5 months (marine transportation: 1 month, railway transportation form Chittagong to Dhaka: 0.2 month, custom clearance: 0.3 month) including all necessary procedures in Japan for exporting the equipment to Bangladesh and the customs clearance.



Figure 11: Route Map of Transport

In order to obtain tax exemptions in Bangladesh, BMD will submit each copy of the “Contract signed by BMD and a selected supplier for the Project” and each “Proforma Invoice” to the National Board of Revenue (NRB), and BMD will obtain the required permission for the tax exemptions 2 to 3 weeks after the submission. Access (roads and bridges) to Moulvibazar and Rangpur has been improved by the Government of Bangladesh, with the support of foreign assistance, and it is now much easier to get to the sites than before. The arterial roads connecting each principal city are adequate, even in the monsoon season. The roads in areas surrounding the stations are sometimes covered with flood water in the monsoon season. The transportation plan needs to allow for that.

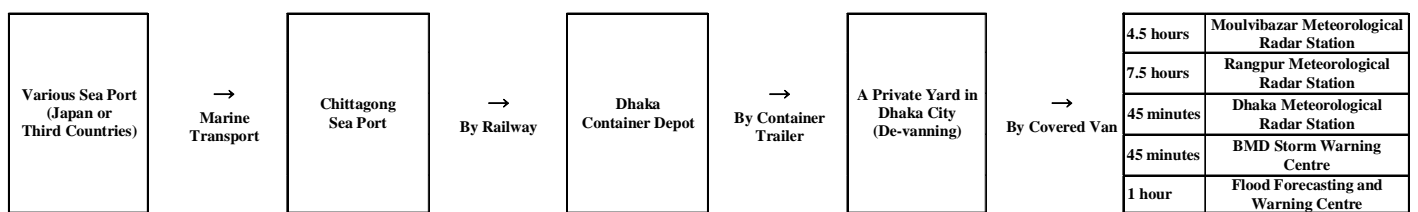


Figure 12: Inland Transport Route to Each Project Site

2-2-4-7 Operational Guidance Plan

The required operation guidance will be implemented through practical operation simulation of each system after completion of the equipment installation. During the equipment installation period, the operational guidance for cabling, piping (wave guide), unit replacement/adjustment, transmitter discharge, etc. of the meteorological radar system is required to BMD because the operational guidance for these items is unable to implement after completion of the equipment installation. The operational guidance for each system will be implemented at the following places indicated in the table attached hereunder.

Table 26: Operation and Maintenance Training

Equipment	Moulvibazar Meteorological Radar Observation Station	Storm Warning Centre, Dhaka	Dhaka Meteorological Radar Observation Station	Rangpur Meteorological Radar Observation Station	Flood Forecasting and Warning Centre
Meteorological Radar System • Power Unit • Antenna • Radar Unit • Meteorological Radar Transmission Unit • Computer Network Unit	○				
Meteorological Radar Data Display System • Power Unit • Computer Network Unit	○	○			○
Meteorological Data Satellite Communication System • Power Unit • VSAT Communication Unit • Computer Network Unit	○	○		○	○
Existing Radar System 8bit Modification • Power Unit • Radar Unit • Computer Network Unit			○	○	

2-2-4-8 Implementation Schedule

Table 27: Implementation Schedule

month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Detailed Design	█																
Tendering Procedures		█			Total : 4.0 months												
month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Construction Work at Moulvibazar Radar Tower Building	█																
Preparation Work	█																
Temporary/Piling/Earth Works	█																
Structure Work					█												
Building Equipment/Finishing Works			█														
External Work											█						
Equipment Manufacturing	█																
Transportation									█								
Equipment Installation/Adjustment												█					
Completion														Total 16.0 months			△