No. 1

MINISTRY OF POST AND TELECOMMUNICATION
THE REPUBLIC OF ANGOLA

BASIC DESIGN STUDY REPORT ON THE PROJECT FOR EMERGENT IMPROVEMENT FOR TELECOMMUNICATION IN LUANDA IN THE REPUBLIC OF ANGOLA

AUGUST, 1997

JAPAN INTERNATIONAL COOPERATION AGENCY

NTT INTERNATIONAL CORPORATION

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PREFACE

In response to a request from the Government of the Republic of Angola, the Government of Japan decided to conduct a basic design study on the Project for Emergent Improvement for Telecommunication in Luanda in the Republic of Angola and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Angola a study team from December 9 to 28, 1996 and from February 3 to March 2 ,1997.

The team held discussions with the officials concerned of the Government of Angola, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Angola from May 25 to June 6, 1997 in order to discuss a draft basic design, and as a result, this report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Angola for their close cooperation extended to the teams.

August 1997

Kimio FUJITA
President
Japan International Cooperation Agency

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Emergent Improvement for Telecommunication in Luanda in Republic of Angola.

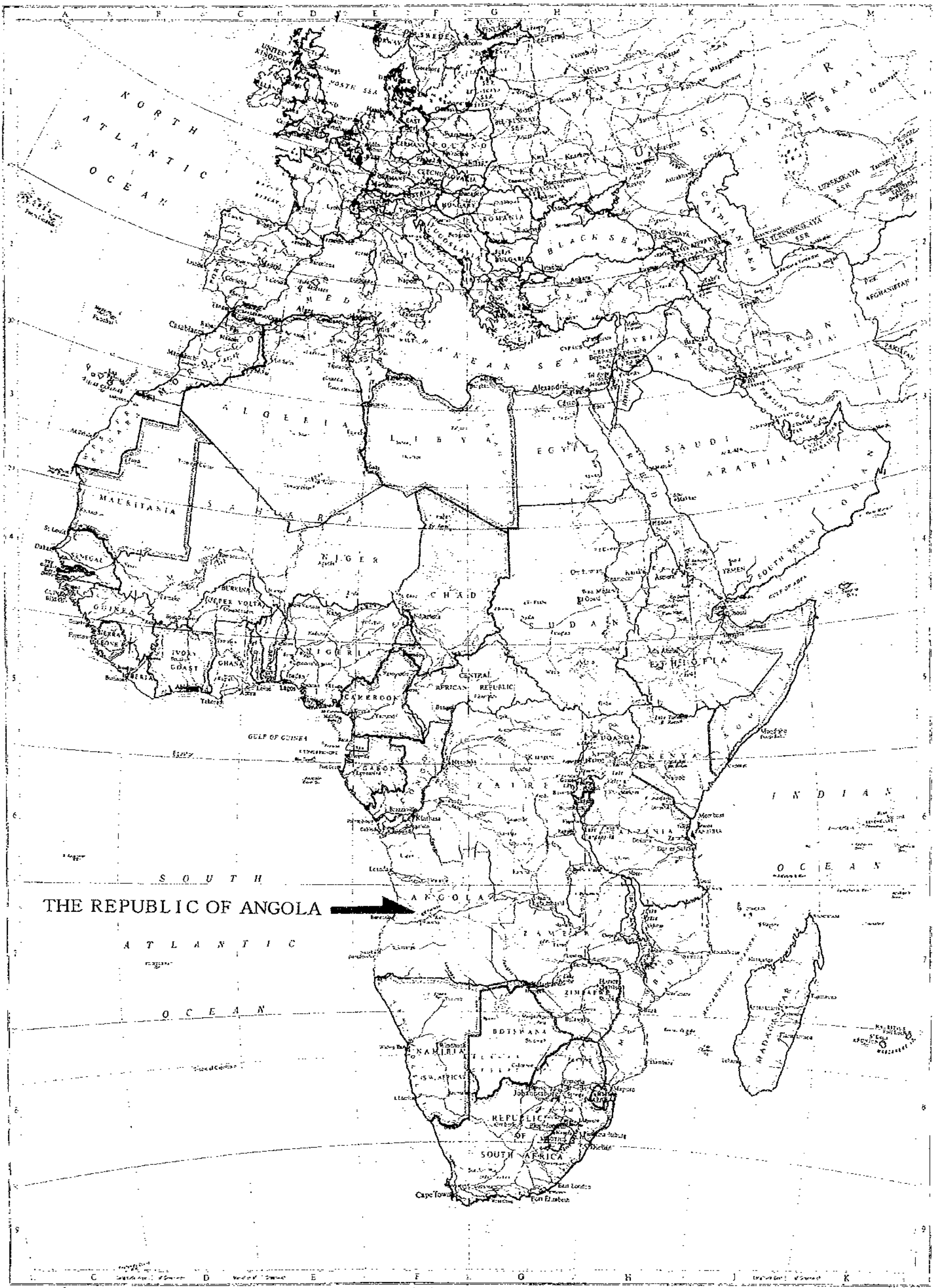
This study was conducted by NTT International Corporation, under a contract to JICA, during the period from December 2, 1996 to September 5, 1997. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Angola and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

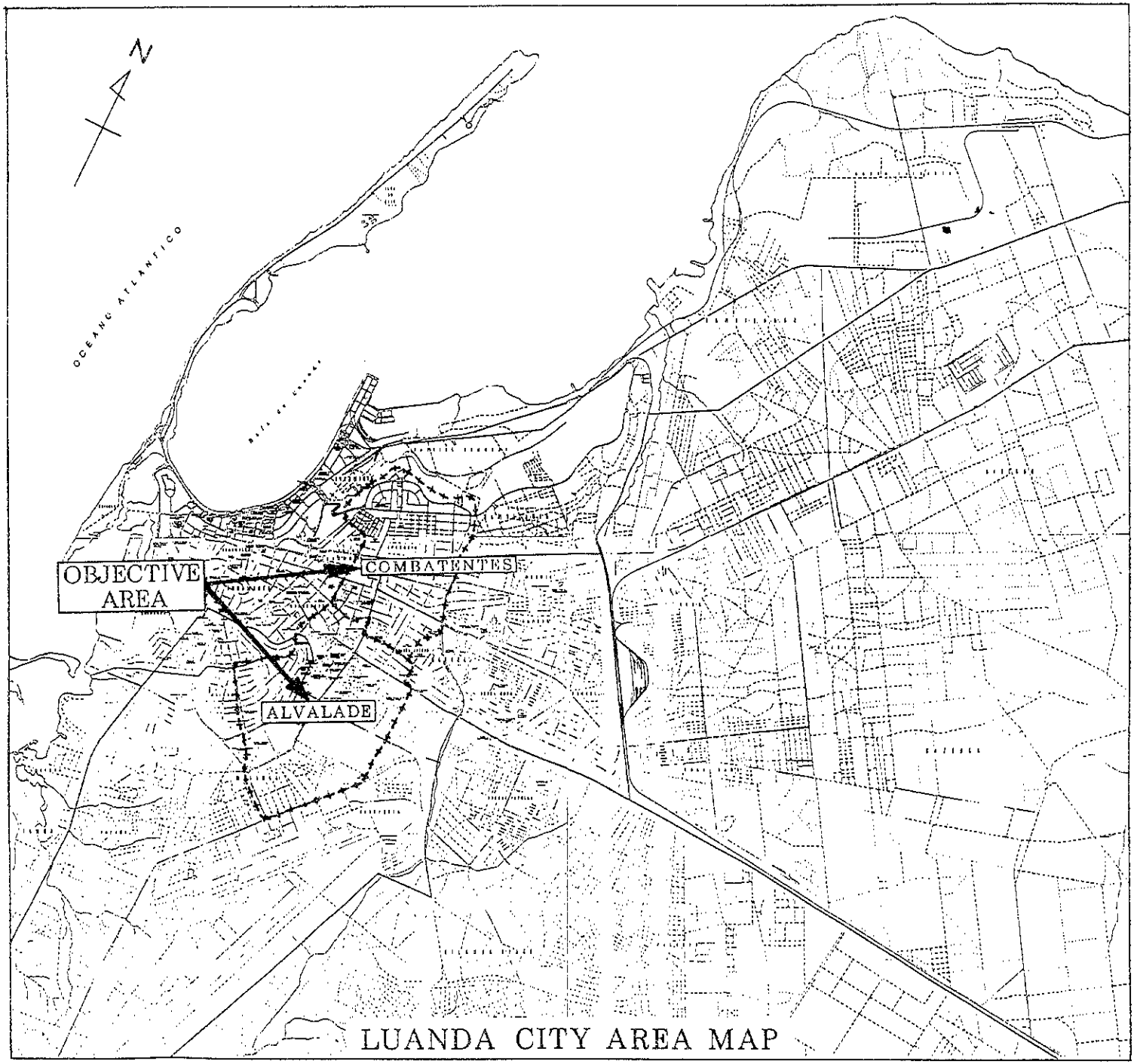
August 1997

S. Koshikawa

Sadao KOSHIKAWA
Project manager
Basic design study team on
the Project for Emergent Improvement
for Telecommunication in Luanda
NTT International Corporation



LOCATION MAP
OF THE REPUBLIC OF ANGOLA



LUANDA CITY AREA MAP

Abbreviations

ADB	African Development Bank
Angola Telecom.	Empresa de Telecomunicaçõnes de Angola
CCC	Cross Connection Cabinet
DP	Distribution Point
E/N	Exchange of Notes
FRP	Fiberglass Reinforced plastic
GDP	Gross Domestic Product
MDF	Main Distribution Frame
NKZ	New Kwanza
OSP	Outside Plant
PE	Plyethylene
UNITA	National Union for the Total Independence of Angola
UTT	Unidad de Taxa de Telecomunicaçõnes

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Chapter 1 Background of the Project

Chapter 1 Background of the Project

Peace accord for the civil war which signed on November 20, 1994, between the Angola Government and the UNITA at Lusaka has brought a peace to the country that has suffered for nearly 20 years, since the independence from Portugal on November 11, 1975. The long civil war damaged several infrastructures facilities, and telecommunications facilities are one of these infrastructures damaged seriously.

The number of telephones increased to 72,000 at the end of 1991, and telephone density reached to 0.7 subscriber per 100 inhabitants. But due to aggravation by civil war, the number of telephones decreased to 49,000 in 1992, but as of 1996 it was about 55,000, and telephone density was 0.51 which was rather lower level as compared with neighbor ring African countries, i.e. Republic of South Africa ; 9.03, Zimbabwe ; 1.20, and Zambia ; 0.88.

Approximately 70 % of subscribers in Angola are installed in Luanda city . However the existing outside plant in Luanda city is as old as 30 years which exceeds their designed useful lifetime, and the installed cables are the type of paper insulation which causes the insulation drop and consequent line interruption. It is necessary to be totally replaced with jelly filled cable to avoid water penetration problem.

The government of Angola is now promoting reconstruction and development of the country, and considers the telecommunication infrastructure is the important key to achieve a success.

From the viewpoint of most efficient and economical use of limited communications facilities and budget, the Government of Angola decided, as a first priority, to rehabilitate communications services in Luanda city, the capital of the Republic of Angola which includes many public sectors, consulates of foreign countries and important industries.

The rehabilitation plan is to replace the existing network and to build reliable telecommunications network in Luanda city, using the updated technology in order to meet the demand of economic and social reconstruction of the Republic of Angola.

The rehabilitation plan has been started under the credit of Spain, which is to rehabilitate the telecommunication network in Luanda city replacing existing four (4)

analog exchanges to digital system.

Under these situations, the Government of Angola proposed the Emergency Telecommunication Project for Luanda regional to the Government of Japan on November 1995. This project is aiming at the establishment of stable and efficient network for domestic and international telecommunication services. The main points of the project were as follows;

- to replace three (3) exchanges (One of two exchanges of Principal, Sao Paulo, Vila Alice) in Luanda regional to digital system, which has 24,000 subscribers lines capacity,
- to install 1,600 subscribers of Digital Cordless Telephone System,
- to install new Satellite Earth Station (Standard A) in Luanda city,

On the other hand, the Government of Angola proposed on March 1996, a grant aid for " the Urgent Rehabilitation of Telephone Network in Luanda city " to the Government of Japan. The purpose of the project is to rehabilitate the existing old outside-cable plant, and to provide telecommunication services to the important applicants waiting for telephone.

In response to the propose from the Government of Angola, the Government of Japan entrusted the Basic Design Study to the Japan International Cooperation Agency (JICA).

At the first phase of study, it was considered that the digitalization of the whole network in Luanda city replacing three (3) exchanges which are not covered by credit of Spain, must be a effective and important cooperation to answer to the above mentioned proposals from the Government of Angola.

JICA organized a study team for the Basic Design to examine the possibility of Replacement of existing three (3) analog exchange and prepare the basic design for the project, and sent to Angola a study team which stayed from December 11 to 28, 1996. As a result of discussions with the relevant officials of Angola and field survey, both side confirmed that the requested priority of project must be changed reflecting the situation of background.

The unfavorable background was cancellation of finance by ADB, which was supposed to rehabilitate old telephone cables in Luanda, another one was considering additional

support from Spain for further development of the digitalization plan to other remaining exchanges. In connection with these changes of situations, the rehabilitation of access networks became as the most important issue.

As a series of discussions, both side confirmed that the following items with priority should be an important roll of the project,

Priority 1;	Rehabilitation of access network in Alvalade
Priority 2;	Rehabilitation of access network in Combatentes

In order to finalize the contents and components of the project due to the change of facilities and the project areas, it was required for further additional field survey, and JICA sent to Angola a second Basic Design Study team which was scheduled to stay in the country from February 5 to 26, 1997.

As a result of discussions with relevant officials and field survey by second study team, both side have confirmed that the project is to provide necessary facilities and equipment for rehabilitation of outside cable plants in Luanda city. The project will be carried out dividing into two (2) installation phases. The objective areas and installation were as follows;

Phase 1	Rehabilitation of outside cable plants in Alvalade exchange area.
Phase 2	Rehabilitation of outside cable plants in Combatentes exchange area.

Through a series of discussion, the result of site survey and technical examination in Japan, JICA has prepared a Draft Basic Design Study Report.

In order to explain and consult with the Government of Angola on the outline of the Project and the contents of the Draft Basic Design, JICA sent to Angola a Draft Basic Design Study Report Explanation Team which was scheduled and conducted to stay in Angola from May 2 to June 2, 1997.

This Basic Design Report describes the outline and contents of the Project confirmed in the course of discussion by both side.

Chapter 2 Contents of the Project

Chapter 2 Contents of the Project

2-1 Objective of the Project

Due to the long Civil War, several infrastructures facilities were damaged, and telecommunication facilities are one of these infrastructures damaged seriously.

From the viewpoint of most efficient and economical use of limited facilities and budget, the Government of Angola decided, as a first priority, to rehabilitate telecommunication services in Luanda city, the capital of the Republic of Angola which includes many public sectors, consulates of foreign countries and important industries.

The objective of the Project is to rehabilitate the existing network and to build reliable telecommunication network in Luanda city, using the updated technology in order to meet the demand for economic and social reconstruction of the Republic of Angola.

The planned project is to rehabilitate the existing outside cable plant, and to provide telecommunication services to the important applicants who are waiting for telephone services.

2-2 Basic Concept of the Project

The existing outside plant in Luanda city is as old as 30 years which exceeds their designed useful lifetime, and the type of existing cables are paper insulated which causes the insulation drop and consequently result in service interruption by water penetration.

The purposes of this project are to resolve these problems and to provide good telecommunication services to existing subscribers, and to offer services to the waiting applicants.

In order to realize the rehabilitation of the cable network, it is necessary :

- to rehabilitate primary and secondary cables using jelly-filled plastic cable,
- to install the underground facilities such as conduit, manholes and handholes,
- to introduce the flexible cable distribution system using cross connection cabinet.

In this Project, the top priority is placed on the area of Alvalade and Combatentes exchanges, where most of governmental offices and business offices and many other important subscribers such as foreign embassies are located.

The scope of the project is planned to meet the numbers for existing subscribers, waiting applicants and the future demand based on the site survey.

The total number of the subscribers is 16,132, and the numbers for each exchanges are as follows :

(1) Alvalade

The scope of the Project includes the secondary cable rehabilitation for about 400 subscribers in the area Bairro Martires de Kifangondo, where located between Alvalade and Prenda exchange.

Total number of existing and waiting subscribers for Alvalade exchange, including above mentioned Kifangondo, is 6,562 lines.

(2) Combatentes

Total number of existing and waiting subscribers for Combatentes exchange is 9,570 lines.

Table 2-2-1 Numbers of Subscribers

Name of exchange	Existing Nos.	Waiting Nos.	Total	Cable pairs for MDF
Alvalade	4,422	1,740	6,162	
Kifangondo	200	200	400	
Sub-total	4,622	1,940	6,562	8,000
Combatentes	7,066	2,504	9,570	12,000
Total	11,688	4,444	16,132	20,000

Taking account of the 20 percent redundancy for the loss of cable distribution and future demand based on the site survey, the numbers of cable pairs to be connected to Main Distribution Frame (MDF) for each exchange are as follows :

- MDF pairs for Alvalade are 8,000
- MDF pairs for Combatentes are 12,000

The scope of the project includes the provision of material and construction/installation of the all facilities used for the cable section between MDF and Distribution Point (DP). The main facilities are Ducts, Manholes, Primary cables and Secondary cables, Poles, Cross Connection Cabinets (CCCs) and DPs. The main contents of project for each exchange are shown in Table 2-2-2 .

Table 2-2-2 Main Contents of Project

Name of Exchange	Main Item	Unit	Quantity
Alvalade (Phase 1)	Cabling facilities		
	MDF Pair	Pair	8,000
	Primary cable	Km	6
	CCC	ea.	18
	Secondary cable	Km	52
	Pole	ea.	350
	Civil work		
	Manhole/handhole	ea.	44
	Duct	Km	6
Combatentes (Phase 2)	Cabling facilities		
	MDF Pair	Pair	12,000
	Primary cable	Km	6
	CCC	ea.	20
	Secondary cable	Km	70
	Pole	ea.	600
	Civil work		
	Manhole/handhole	ea.	40
	Duct	Km	5
Equipment necessary for maintenance (Phase 2)	Pole Erection Car	ea.	1
	Tool	Set	1
	Measure Equipment	set	1

2-3 Basic Design

2-3-1 Design Concept

With due consideration of the natural and social circumstances as well as the condition of the construction and schedule, the basic design concept of the project is established. The main points of the design concept are as follows.

(1) Natural Conditions

The Republic of Angola is situated in the southwest part of the African Continent and faces to the Atlantic Ocean. And the topography consists of desert area in the flat coastal zone and plateaus zone inside of the country.

The Luanda city (objective area) belongs to coastal zone. Cool and dry season is from May to October, and hot and wet season is from November to April. Although annual rainfall in Luanda city is not so high, 400 mm, there is relatively heavy rain in March and April. Therefore, it is considered better to exclude these two months in the implementation of civil work.

(2) Social Conditions

The objective areas are located in the center of the Luanda city and are very important for politics, economy and society which include the following offices and buildings.

1) Alvalade

Ministry of Foreign Affairs
Ministry of Education
Ministry of Agriculture
Foreign embassies
National TV broadcasting
Commercial and business offices
University and colleges
Hospitals
High class and middle class apartment houses

2) Combatentes

Commercial and business offices
High class and middle class apartment houses
Hospitals

(3) Telephone Demand

Numbers of existing and waiting subscribers of these two exchanges are shown in Table 2-3-1.

MDF pair numbers of primary cable for Alvalade and Combatentes are 8,000 and 12,000 respectively as described in Item 2.2.

Table 2-3-1 Numbers of Telephone

Exchange	Number of existing subscribers	Number of waiting subscribers	Total
Alvalade	4,622	1,940	6,562
Combatentes	7,066	2,504	9,570
Total	11,688	4,444	16,132

(4) Right of way permission

In this project, conduits are installed under the carriage way, on the other hand, direct buried cables of secondary cables are installed under the footway. To start the installation, it will be required permission from the road authorities concerned for digging works of these underground facilities. Application for permission of road digging will be done by Angola Telecom to the road authorities. Temporally pavement after road excavation is included in this project. But permanent pavement is not included and is to be done by Angola Telecom.

(5) Capacity of Maintenance

Maintenance work after construction of this project will be done by Angola Telecom's staff.

Angola Telecom already have practical experiences of new technology such as jelly- filled cable and cable splicing method by heat shrinkable closure.
After completion of the project, fault ratio of outside plant will decrease remarkably. Then, maintenance cost and maintenance man power necessary for trouble repair is expected to considerably decrease than before.

(6) Grade of Facilities to be Implemented

Major facilities and materials to be used under the project shall be equivalent or better quality as using in the world universally. Since objective area is near the coast, all materials to be used shall be durable for salt damages.

(7) Implementation Period

Implementation steps of the project are roughly divided into three sub-phases as detailed designing, procurement and construction work. Each sub-phase in relation to cable work and civil work is to be suitably arranged, taking into consideration for the design diagram, manufacturing, transportation, actual installation and acceptance test, so that the project can be completed within the targeted implementation period.

2-3-2 Basic Design

There are six (6) telephone exchanges in Luanda city, but the Project aims to rehabilitate the superannuated outside plant facilities of most important two (2) exchange areas (Alvalade and Combatentes) among them.

The contents of the Project are divided into cable work and civil work. Basic design criteria and conditions for each work are described in the following items. Configuration of the Project and demarcation of the scope of work between Angola side and Japan side are shown in Figure 2-3-2 in Annexes.

2-3-2-1 Cable work

Basic design criteria for cable work are as follows.

(1) Transmission standard

The conductor resistance and attenuation loss of a local telephone network (MDF-DP), which are designed based on the technical standard of Angola Telecom, are as follows :

- DC loop resistance: Maximum 1,200 ohms
  (0.4 mm cable: 296 ohms / km)
- Attenuation loss (at 800Hz): Maximum 8.0 dB
  (0.4 mm cable: 1.84 dB / km)

(2) Cable Specifications

Primary and Secondary cables must be protected from water penetration so as to maintain good condition in insulation of cable conductors.
For them, therefore, PE (polyethylene) insulated, jelly-filled, PE-LAP (Laminated aluminum tape) and polyethylene sheathed cables shall be used. In addition, secondary cables are to be covered by armored steel-tape over the PE-LAP sheath, because they are not accommodated inside the conduit.

(3) Kinds of Cables

In both exchange areas, cable length from MDF to DP is under 3 km. Aforementioned transmission criterion is satisfactorily cleared even though the small diameter conductor (0.4 mm) is employed for both primary cable and secondary cable. So the cable cost is saved. Cable pairs of primary cable and secondary cable to be used are shown Table 2-3-2.

Table 2-3-2 Kinds of Cables

Cable	Diameter	Cable pairs
Primary Cable	0.4 mm	200,400,600,800,900,1000,1200, 1600,1800,2000,2400
Secondary Cable	0.4 mm	10,20,30,50,100,150,200

(4) Cable Distribution

1) Direct distribution / Cross connection cabinet.

For short distance area from telephone exchange, a direct distribution system is employed, while for other area, a Cross Connection Cabinet (CCC) is employed to achieve efficient distribution of cables.
In this connection, cables from MDF to CCC are called primary cables and cables from CCC to Distribution Point (DP) are called Secondary Cables.

2) Primary Cable Distribution

Primary cables are installed under the carriageway in principle, and due to vibration of car traffic or construction works of underground by other enterprises. The depth of underground conduit is 100cm from the road surface.

3) Secondary Cable Distribution

Secondary cables are laid down under the footway directly in principle. And the cables are covered by steel armor (Direct buried cable).
When vacant conduits are available, they shall be used for secondary cables.
An aerial cable system is not adopted in the project.

To keep cables away from unfavorable damages to be caused by the work for drainage, water supply, electric power feeder etc. The depth of direct buried cable shall be more than 80cm from the surface of the footway.

(5) Cable Termination

A primary cables are connected with a PVC sheathed termination cable at cable vault and terminated at MDF terminals which are supplied by Angola Telecom. A compound is injected into the splicing portion of primary cable and the termination cable to prevent moisture penetration into the cables. On the other hand, the cable termination at CCC, primary cables and secondary cables are connected directly to the terminal of CCC.

(6) Cable Splicing

For cable splicing , heat-shrinkable splicing closure will be employed in order to ensure speedy and uniform work performance.

(7) Cross Connection Cabinet (CCC)

A CCC to be used under the Project shall employ the fiberglass reinforced plastic (FRP) in accordance with the Angola Telecom standard to prevent it from salty erosion.

1) Location of Cabinet

A CCC is installed at such a location in a distribution block area as total length of cables becomes minimum, so that efficient distribution can be performed. Location of a CCC must be chosen carefully taking the maintainability into account, and the cabinet must be fixed to the place so as not to give disturbance to pedestrians.

Consideration should also be given so that their location will not need to change in the future.

2) Cabinet Capacity

The capacity of CCC to be used in the Project is either 1,200 pairs or 2,400 pairs, depending upon the total number of pairs of primary and secondary cables to be accommodated therein.

(8) Concrete Pole

Concrete poles which can meet the Angola Telecom standard are used for installing distribution point (DP) boxes on it.
The location of concrete poles is chosen in consideration of such factors as easy distribution for subscriber wires, no foreseeable harm to the pedestrians, least probability of removal in the future, and better maintainability.

(9) Distribution Point (DP) Box

1) Application of DP Box

Three types of DP boxes will be used :
pole-mounted DP,
wall-mounted DP ,
and indoor type DP.

The pole-mounted DP is used where a DP box is installed on a concrete pole and wall-mounted DP is used on a outer wall of the building. While the indoor type DP is used where it is installed in the inside of building or residential house.

2) Capacity of DP Box

The following capacity of DP for each types of DP box are used.

- Pole -mounted type DP : 10 pairs, 20 pairs
- Wall -mounted type DP : 10 pairs, 20 pairs
- Indoor type DP : 10 pairs, 20 pairs, 30 pairs, 50 pairs, 100 pairs, 200 pairs

3) Location of DP Box

A wall-mounted DP box should be mounted on an outer wall of a building, so as to permit easy installation of drop wires and flexible extension to neighboring houses. The location of DP box shall be with the least possibility of suffering from damages by the third parties and of

relation in the future.

4) Protection for Riser Cable

The protection for riser cable to DP boxes of pole-mounted, wall-mounted and indoor type, a steel pipe shall be used.

2-3-2-2 Civil work

Designing of conduit routes is most important in order to minimized the construction cost. Before construction of civil works, it needs to survey thoroughly other underground facilities by pilot digging and confirm the space for conduit laying and dimensions of manholes. Furthermore, it needs to consider the security as well as easy maintenance.

(1) Selection of Conduit Routes

Conduit routes are selected based on an overall study on technical matters involves in construction and maintenance of civil facilities, by referring to the relevant data/ information on the city planning, etc.

(2) Conduit

PVC pipe is used for underground conduit, while a steel pipe is adopted to bridge and railway crossing.

(3) Depth of Underground Conduit

Underground cable is apt to be inflicted by other construction work for water, drainage, power, etc. To keep cables away from these damages, the depth of underground conduit shall be more than 100 cm from the ground surface.

(4) Protection of Direct Buried Cable

A warning tape is installed between the ground surface and direct buried cables to draw attention to the presence of communication cable, so that probable damages to the cable from other construction sources such as power lines and

water pipes can be prevented.

Also along the conduit, a warning tape is installed between the ground surface and the conduit.

(5) Type of Manhole

Manholes are installed at cable jointing or branching points and any other points necessary for cable installation and maintenance.

A manhole size is determined, taking the following items into account:

- necessary quantity of conduits accommodated;
- necessary space to work therein;
- presence of cable joints;
- necessary radius of curvature of a cable.

Types and dimensions of manhole are tabulated in accordance with the Angola Telecom standard. The details are shown in Table 2-3-3 below. Since manholes are constructed under the carriageway in principle, upper slab, under slab, and side walls of manhole will be constructed by iron reinforced structure.

Table 2-3-3 Type of Manhole

Manhole Type	Width	Length	Depth	Number of Ducts
I - 0	1.3	2.1	1.9	4 ~ 8
I - 1	1.3	2.6	1.9	6 ~ 12
L - 0	1.3	2.3	1.9	4 ~ 8
L - 1	1.3	2.9	1.9	6 ~ 12
LM-1	1.3	2.9	1.9	6 ~ 12
T - 0	1.3	2.3	1.9	4 ~ 8
T - 1	1.3	2.9	1.9	6 ~ 12
T - 2	1.5	3.7	1.9	12 ~ 24
TM-1	1.3	2.9	1.9	6 ~ 12

(6) Manhole Span

Manhole spans are determined, taking into consideration the cable branching, location of cross-connection cabinets, and other geographical conditions. But maximum manhole spans are:

- Direct section: Maximum 250 m
- Curved section: Maximum 150 m

(7) Manhole Cover

Manhole cover is made of round-shaped and cast iron in accordance with Angola Telcom standard.

2-3-2-3 Basic Design Drawings

Following basic design drawings of Alvalade and Combatants exchanges are indicated in ANNEXS.

- Alvalade Key Map
- Alvalade Primary Cable Plan
- Alvalade Duct Route Plan
- Combatentes Key Map
- Combatentes Primary Cable Plan
- Combatentes Duct Route Plan

Chapter 3 Implementation Plan

Chapter 3 Implementation Plan

3-1 Implementation Concept

3-1-1 Implementation Scheme

The government authority in telecommunication is the Ministry of Post and Telecommunication, and the operational body is Angola Telecom.

The execution of this Project is undertaken by Angola Telecom under the authority of the Ministry of Post and Telecommunication. In order to carry out smoothly the Project, Angola Telecom is requested to nominate a project manager who is responsible to administrate the Project with respect to the coordination with correlated field, in close cooperation with the consultant. The Project to be done by Japanese side is implemented under turnkey basis, though subcontractors may be employed locally since available local construction companies are capable of cable laying, cable splicing, pole installation, manhole construction, underground duct construction, etc.

3-1-2 Implementation Conditions

The matters to be taken into consideration for the implementation are as follows:

(1) Right of Way Permission

It is prerequisite to complete relevant formalities, such as obtaining approval of road utilization / occupancy and permission of road excavation from either the relevant authority or Luanda City Council. Hence a special care must be taken, prior to starting the work, on submitting application document by Angola Telecom to competent authorities with sufficient lead time in advance to starting the installation work, and no delay will be caused in the implementation time schedule in connection therewith.

(2) Rain Consideration

A considerable amount of rainfall in Luanda in the rainy season, once a year, is likely to exercise unfavorable effects on the construction work of outside plant and civil work. For this Project, therefore, the construction work schedule should be drawn up deliberately so that the Project can be implemented efficiently and safely within the contracted period.

3-1-3 Demarcation in the Scope of Work

Works to be undertaken by the Japanese side and the Angola side are described as follows:

The cost estimation to be borne by the recipient country refer to table 3-1-3.

(1) Work to be undertaken by Japanese Side

1) Rehabilitation of primary and secondary cables from MDF to each DP, including procurement and installation work and pertaining facilities for outside plant.

2) Provision of measuring equipment, tools and materials necessary for maintenance of the facilities after completion of this Project.

3) Provision of a Pole-erection-car for subscriber connection and maintenance after completion of the Project.

(2) Work to be undertaken by Angola Side

1) Preparation of terminal and MDF to terminate primary cable. Necessary terminal numbers are 8,000 for Alvalade exchange and 12,000 for Combatentes exchange.

2) Transfer of drop wires, jumper wiring in MDF and cross-connection cabinets, in connection with the transfer of the existing subscribers to new facilities, after installation of new cables.

3) Removal of primary cables, cross-connection cabinets which have become disused upon completion of this Project.

4) Permanent restoration of paved road after temporally pavement by contractor.

3-1-4 Consultant Supervision

It will be adopted a combined supervisory system consisting of stationed supervision and spot supervision. An engineer capable of coordinating all the relevant technologies will be stationed to cover all the period of the Project, while spot supervisors specializing in respective fields will be dispatched on demand. Main items of Consultant Supervision are as follows ;

- Inspection of detailed installation drawings submitted by contractor

- Management of procurement and transportation for construction materials and tools
- Supervision of cable work and civil work to be conformed to the tender specification
- Progress control of each relevant work
- Factory inspection of materials used for installation
- Acceptance test after completion of work

3-1-5 Procurement Plan

(1) Major Materials

Almost all the construction materials and tools, as well as cables, wires, etc. are not manufactured in Angola. Therefore the materials used for this Project owe to the foreign made. Equipment and materials are delivered to Angola mainly by marine transportation and unloaded at Luanda. As for the inland transportation, no hazardous environment is foreseen since a depot for the Project can be located in the vicinity of the harbor of Luanda.

(2) Materials to be procured locally

Among wide variety of materials necessitated for the implementation of this Project, cement, sand, gravel, crushed rock and iron bars are to be procured in Angola.

Cement and iron bars and other items procurable locally are almost the same in quality with those on the general market. Concrete poles, PVC pipes and Manhole covers, have been procured by Angola Telecom, will be locally procured. When the local materials does not satisfy the quality and date of delivery, foreign made materials will be procured.

3-1-6 Implementation Schedule

The Project implementation period, i.e., after the signing of the Exchange of Notes (E/N) till the completion of implementation work at site, will take 20 months for Alvalade area and 21 months for Combatentes area as shown in Table 3-1-6. Assuming that E/N signing is in August 1997 for Alvalade, the Project will be completed in March 1999, and in June 1998 for Combatentes, the Project will be completed in February 2000.

3-1-7 Obligations of Recipient Country

In addition to the scope of the work mentioned in Item 3-1-3 above, the followings should also be undertaken by the Angola side:

(1) Arrangement for exemption from the following taxes:

- Customs clearance and import taxes on equipment and materials to be imported from foreign countries
- Taxes on durable consumer goods to be procured locally

(2) Local Support

- Telecommunications means (Toll and local communications)
- Stock yard

(3) Permission and approvals to be required in connection with the road occupation and excavation

(4) Issuance of Authorization to Pay

Issuance of authorization for the Payment will be made by the Government of Angola or its designated authority to authorize the payment, when the work fall under the scope of work by Angola side.

3-2 Operation and Maintenance Plan

3-2-1 Maintenance Staff

Trouble claims from subscriber due to poor outside plant are 70 per 100 subscribers in the objective area, in 1996. After the completion of this project, the claim are expected to reduce remarkably. This effect may reflect to reduction of maintenance work and its cost, and this surplus can be available for preventive maintenance and future expansion work.

3-2-2 Spare Parts

For operation and maintenance of the outside plant and civil facilities, the undermentioned spare and materials will be provided by this Project:

- Cables (Primary and secondary cables)
- Cables splicing materials

Chapter 4 Project Evaluation and Recommendation

Chapter 4 Project Evaluation and Recommendation

4-1 Project Effect

After the completion of this rehabilitation project on outside plant of Alvalade and Combatentes exchange area, a excellent and stable telecommunication service will be provided to the existing subscribers, moreover its can be provided telephone service to the important applicants who are waiting for telephone, these service are realized cooperating with the implementation of digital switching which is supported by the credit of Spain.

In addition, the followings benefits are expected by this project

(1) The current telephone service level in Alvalade and Combatenntes area are poor, with the annual fault claim ratio has been more than 70 per 100 subscribers due to over ages cables facilities. This fault claim ratio will be improved remarkably and will achieve the target quality of service level specified by Angola Telecom.

(2) Rehabilitation of telecommunication facilities will lead to improvement in call completion. In consequence, the number of calls will increase, which lead to increase the income from telephone services.

(3) Primary and Secondary cables provided by this Project are protected from water penetration so as to maintain good condition in insulation of cable conductors. Therefore, the outside plant facilities are easy to maintain, and line failures due to water penetration during the rainy season can be eliminated. As a result, it will produce a good economical effect to minimize the necessary number of maintenance staff and its cost.

(4) Telecommunication carry out the important roll as nerve in the economic activities such as production, transport and delivery of daily necessities and versatile social activities. Hence, improvement of telecommunication service, in the objective area where most of business offices and many important subscribers are located, will substantially contribute to promotion of the vivid economic activities

(5) The improved telephone service will contribute to reduction of transportation traffic which substitute for the poor communication means.

4.2 Recommendation

As mentioned above, many benefit can be expected from this project. However, in order to implement this useful project smoothly as scheduled, due attention must be paid to the following:

(1) Budget for the work under its responsibility

The part to be undertaken by Angola side covers the purchase and installation of MDF and terminal block, the transfer of the existing subscribers to new facilities, removal of outside plant disused upon completion of this Project, permanent restoration of paved road after temporally pavement. Hence the attention should e paid to take action for the budget for the work after the signing of Exchange of Notes(E/N)by both government.

(2) Right of Way Permission

It is important for the civil work to complete relevant formalities, such as obtaining approval of road utilization / occupancy and permission of road excavation from either the relevant authority. Hence a special care must be taken, prior to starting the work, on submitting application document by Angola Telecom to competent authorities with sufficient lead time in advance to starting the installation work.

(3) Switching capacity of Alvalade exchange

So as to bring out the full efficiency of the outside plant facilities installed by the Project, the switching capacity of Alvalade exchange should be expanded according to the existing Master Plan to meet the telephone demand which is estimated in the Project based on the site survey.

(4) Maintenance of plant record

In order to provide telecommunication services effectively meeting to the various requirement of subscribers, it is indispensable to maintain correct plant record of outside plant. Hence attention must be paid to establish the system to keep the plant record, when the modification of the plant is done, after the implementation of the Project.

ANNEXES

ANNEXES

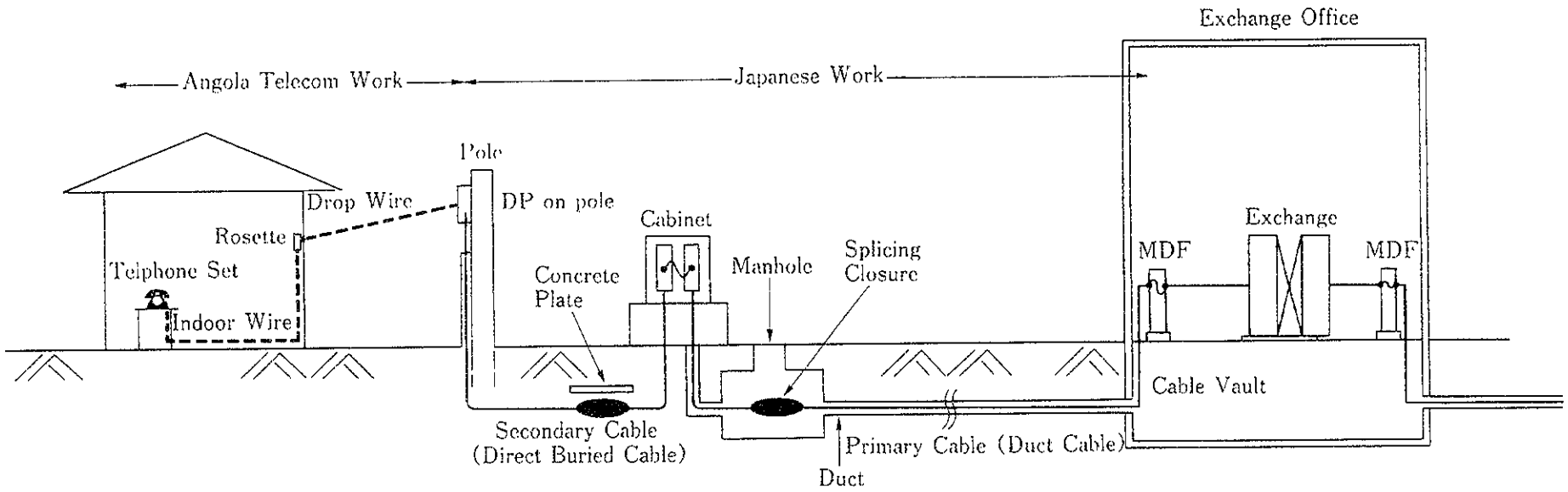
I. FIGURE AND TABLES

II. APPENDICES

III. Basic Design Drawings

I. FIGURE AND TABLES

I. FIGURE AND TABLES



Note: 1. ∧∨: Jumper wiring of MDF & Cabinet are included in the Work by the Angola Telecom.
2. MDF Terminal Block of Subscriber cable side shall be installed by Angola Telecom.

Figure 2-3-2 Configuration of Subscriber Cable Network

Table 3-1-3 Cost to be borne by Angola Telecom.

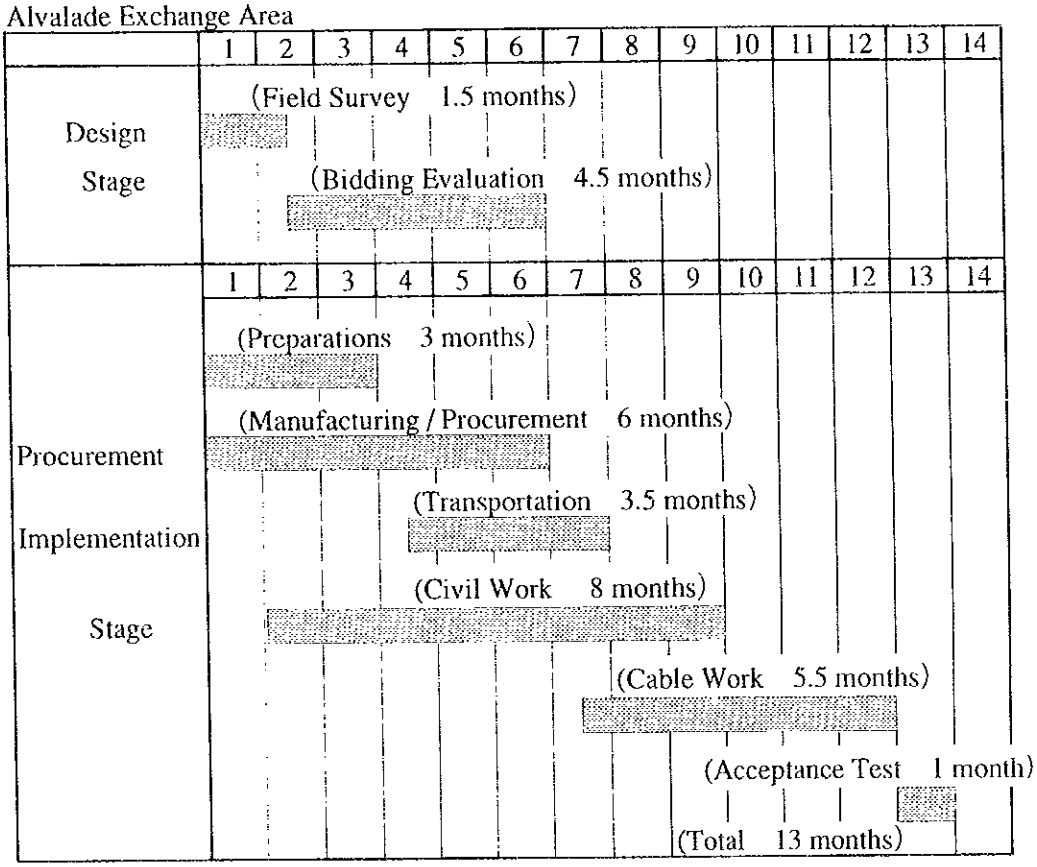
Unit : US $

Item	Alvalade	Combatentes	Total
Subscriber Transfer	4,500	12,200	16,700
Permanent Restoration of Pavement	189,500	178,800	368,300
Removal of Disused existing Outside Plant	57,600	67,100	124,700
Total	251,600	258,100	509,700

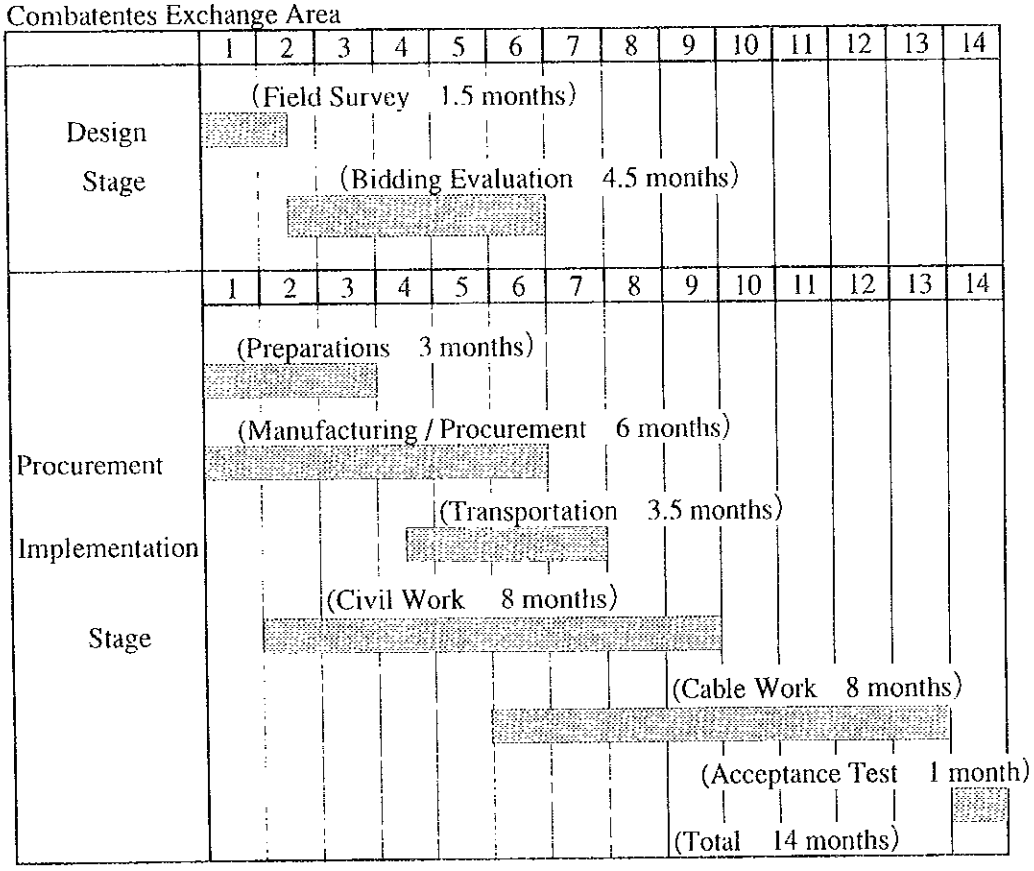
Note : Cost of MDF and Terminal Blocks is not counted in this table, as these are to be installed under separate project.

Table 3-1-6 Implementation Schedule

1) Alvalade Exchange Area



2) Combatentes Exchange Area



II. APPENDICES

II. APPENDICES

Appendix 1

Member List of the Survey Team

Members List of the Survey Team

1. Members of the Survey Team (1st Field Survey)

Duty	Name	Affiliated to
Team Leader	Mr.Shigemaro Aoki	Development Specialist, JICA
Project Coordinator	Mr.Masafumi Nagaishi	2nd Project Study Division, Grant aid Project Department, JICA
Technical Advisor	Mr.Naohisa Ishitani	Trunk Communications Division, Radio Department, Communications Policy Bureau, Ministry of Post and Telecommunications
Chief Consultant, Telecomunication Network Planner	Mr. Sadao Koshikawa	NTT International Corporation
Outside Plant Planner	Mr. Syoichi Date	NTT International Corporation
Switching System Planner and Cost Estimation	Mr.Yuji Ninakawa	NTT International Corporation
Interpreter	Ms.Sakae Funabasi	NTT International Corporation

2. Members of the Survey Team (2nd Field Survey)

Duty	Name	Affiliated to
Team Leader	Mr.Shigemaro Aoki	Development Specialist, JICA
Project Coordinator	Mr.Masafumi Nagaishi	2nd Project Study Division, Grant aid Project Department, JICA
Technical Advisor	Mr. Yutaka Sasaki	International Affairs Department, International Cooperation Division Ministry of Post and Telecommunications
Chief Consultant, Telecommunications Network Planner	Mr. Sadao Koshikawa	NTT International Corporation
Outside plant Planner	Mr.Mitsuo Makino	NTT International Corporation
Outside plant Planner	Mr.Yoshiyuki Yamasaki	NTT International Corporation
Procurement Planner	Mr.Yuichi Samekawa	NTT International Corporation
Interpreter	Ms.Sakae Funabasi	NTT International Corporation

3. Members of the Draft Basic Design Study Report Explanation Team

Duty	Name	Affiliated to
Team Leader	Mr.Shigemaro Aoki	Development Specialist, JICA
Grant Aid Cooperation	Mr.Takahiro Yamaguti	Grant Aid Division, Bureau of Economic Cooperation, Ministry of Foreign Affairs
Chief Consultant, Telecommunications Network Planner	Mr. Sadao Koshikawa	NTT International Corporation
Outside plant Planner	Mr.Mitsuo Makino	NTT International Corporation
Interpreter	Ms.Sakae Funabasi	NTT International Corporation

Appendix 2

Survey Schedule

1. Itinerary of the Servey Team (1st Field survey)

Date(1996)	Movement	Activities
Dec. 9 (Man)	Team members Leave Tokyo, Arrive to Paris	
10 (Tue.)	Leave Paris	Acquisition of VISA for Luanda
11 (Wed.)	Arrive to Luanda	Meeting with Telecom.
12 (The.)		Site survey Meeting with Telecom.
13 (Fri.)		Site survey, Meeting with Telecom. Courtecy visit to Director of Plan & Development, MTC
14 (Sat.)		Meeting with Telecom.
15 (Sun.)		Site survey Team member Meeting
16 (Man.)		Courtecy visit to Vice President ,MTC Courtecy visit to Director for Asia & Oceania, Ministry of Foreign Affair Site survey (S.Paulo)
17 (Tue.)	Team Leader Coordinator, Adviser leave Luanda	Meeting with Telecom. Signing of minutes of Discussion
18 (Wed.)		Site survey (S. Paulo) Discussion and Data collection
19 (The.)		Site survey (Principal) and Data collection
20 (Fri.)		Data collection Servey of Sub-contractor
21 (Sat.)		Meeting with Telecom. (Ing.Julio) Site survey

Date(1996)	Movement	Activities
22 (Sun.)		Meeting with Telecom. (Ing.Julio) Site survey (Alvalade) Team member meeting
23 (Man.)		Meeting with DRL and meeting with local suplier and Data collection
24 (Tue.)		Meeting with Telecom., DRL, TELECTRINF and Data collection
25 (Wed.)		Preparation of Survey Report Site Survey
26 (The.)	Consultant members leaves Luanda for Johannesburg	
27 (Fri.)	Consultant members leaves Johannesburg	
28 (Sat.)	Consultant members Arrive to Tokyo	

2. Itinerary of the Survey Team (2nd Field Survey)

Date (1997)	Movement	Activities
Feb. 3 (Man.)	Consultant members Leave Tokyo	
4 (Tue.)	Consultant members Leave Paris	Acquisition of VISA for Luanda
5 (Wed.)	Consultant members Arrive to Luanda	Meeting with Telcom and explanation of Inception Report
6 (The.)		Site survey (Alvalade exchange) Explanation of Specification / Data collection Explanation of Inception Report to Telcom Director
7 (Fri.)		Site survey (Combatentes Area) Data collection
8 (Sat.)		Data collection Team Member meeting
9 (Sun.)		Team Member meeting
10 (Man.)		Meeting with Ing. Lundoloca at Principal on Spec. Data collection
11 (Tue.)	Leader, Coordinator, Advisor Leave Tokyo	Team Member meeting Data collection
12 (Wed.)	Leader, Coordinator, Advisor Leave Paris	Site survey and Data collection Discussion with Ing. Lundoloca
13 (The.)	Leader, Coordinator, Advisor Arrive to Luanda	Team Member meeting Courtesy visit to Vice president, MTC Site survey and Data collection
15 (Sat.)		Team Member meeting Site survey (Alvalade & combatente) Meeting with Ing. Julio on Discussion item
16 (Sun.)		Team member meeting Site survey

Date (1997)	Movement	Activities
17 (Man.)		Meeting and discussion with Telecom director general, and site survey
18 (Tue.)		Visit to Concrete pole factory and PVC pipe factory Courtesy visit to Director of Plan and development MTC. Site survey
19 (Wed.)		Meeting and Signing of minutes of discussion
20 (The.)		Meeting and discussion with Telecom Site survey and Data collection
21 (Fri.)	Leader, Coordinator, Advisor Leaves Luanda (to Harare)	Visit to Institute National de Telecommunication Site survey and Data collection
22 (Sat.)		Site survey and Data collection
23 (Sun.)		Team member meeting
24 (Man.)		Meeting with Eng. Lundoloca Site survey and Data collection
25 (Sun.)		Site survey and Data collection
26 (Wed.)		Meeting and discussion (on specification / duct, Primary cable plan)
27 (The.)	Consultant members Leaves Luanda (To Johannesburg)	
28 (Fri.)	Consultant members Leaves Johannesburg	
1 (Sat.)	Consultant members via Singapore to Japan	
2 (Sun.)	Consultant members arrive in Japan	

3. Itinerary of the Draft Basic Design Report Explanation Team

Date (1997)	Movement	Activities
May.25 (Sun.)	Team members leave Tokyo	
26 (Man.)	Arrive to Paris	Acquisition of VISA for Luanda
27 (Tues.)	Leave Paris	
28 (Wed.)	Arrive to Luanda	Courtesy visit to the Angola Telecom, and Explanation of Draft Report
29 (The.)		Explanation and discussion, Courtesy visit to the Ministry of Foreign Affairs.
30 (Fri.)		Meeting and discussion with Angola Telecom. Courtesy visit to the Ministry of Post & Telecommunication,
31 (Sat.)		Site Survey
1 (Sun.)		Team Member meeting
2 (Man.)		Meeting and discussion with Angola Telecom. and Signing of minutes of discussion
3 (Tues.)	Leave Luanda Arrive to Harare	
4 (Wed.)	Leave Harare	Courtesy visit to Embassy of Japan and Explanation of Draft Report
5 (The.)	Leave Johannesburg	
6 (Fri.)	Arrive to Tokyo	

Appendix 3

List of the Parties concerned in the Recipient country

List of the Parties concerned in the Recipient country

1. The Basic design Study (1st Field survey)

Name	Section
Mr. Licinio Tavares Ribeiro	Vice Minister, MTC
Mr. Carlos Alberto Lopes	Director planeamento e desenvolviento MTC
Eng. José Gualbert de Matos	Director Geral Angola Telcom.
Eng. Victor M. C. Simoes Alexandre	Director Geral Adjunto Angola Telcom.
Eng. João Avelino A. Manuel	Director Geral Adjunto Angola Telcom.
Eng. Júlio Miguel Fernandes	Chefe Dep. D.G. Project Angola Telcom.
Mr. Florencio de Almeida	Director para Asia e Oceania (Arca de Cooperacion) Ministerio das Relacion Exteriores
Mr. José Paulo Joãn David	Chefe da Divisão Exproration Commercial Angola Telcom.
Eng. Walter de Jesus Van-Deste	Department of Planning & Engineering (DCDT/dPE) Angola Telcom.
Eng. Lundoloca Casteiro Garcia	Chefe do Departament de Mantenance e Operacões (DCDT/dMO) Angola Telcom.
Mr. Victor Baltazar de Sousas	Director Regional de Luanda (DRL) Angola Telcom.
Mr. Abdul Kamdumba dos Santos	Sub Director da DRL
Mr. Victor Machado	Chefe de Departamiento de Comutação DRL
Mr. João Crus	Chefe da Base de DRL
Mr. Monteiro Quimuango	Chefe do Centro de Operações Departamento Comercial da DRL

Name	Section
Mr. Oliveira Barradas	Programa de Recuperação de Rede DRL
Mr. António Tadeu Alberto Machado	Director Técnico TELECTRINF Telecomunicaçõnes Electricidade Serviços Técnico
Mr. Simba Vika	Sócio Gerente Servicios de Telecomunicações Assistencia Técnica. Lda. (STAT)
Mr. Angel Diaz Gomez	Chefe de Obras MONTREAL Montajes y Realizaciones, S.A.
Mr. Jos'e Manuel de Castro Guimaraes	Assessor Comercial Sumitomo Corporation
Mr. Arlindo C. Goncalves	Director Geral. Alcatel Angola Equipamento e Serviços, Lda.
Mr. Filipe Silva	Director Comercial Alcatel Angola Equipamento e Serviços, Lda.

Angola Telecom. : Empresa de Telecomunicações de Angola

DCDT : (Commercial & Technical Division , TELCOM)

DLR : Direcçõ Regional de Luanda (Luanda Regional Department)

MTC : Ministerio dos Transportes e Communicações

(Ministry of Transportation and Telecommunications)

2. The Basic Disgin Study (Second Field Study)

Name	Section
Mr. Licinio Tavares Ribeiro	Vice Minister, MTC
Mr. Carlos Alberto Lopes	Director planeamento e desenvolviento MTC
Eng. José Gualbert de Matos	Director Geral Angola Telcom
Eng. Victor M. C. Simoes Alexandre	Director Geral Adjunto Angola Telcom
Eng. Julio Miguel Fernandes	Chefe Dep. D.G. Project Angola Telcom
Mr. Florencio de Almeida	Director para Asia e Oceania (Area de Cooperacion) Ministerio das Relacion Exteriores
Mr. Mansowgi Manimo Simão	Cooperacion Ministerio das Relacion Exteriores
Mr.José Paulo Joãn David	Chefe da Division Exproration Commercial Telcom.
Eng. Walter de Jesus Van-Deste	Department of Planning & Engineering (DCDT/dPE) Telcom
Eng. Lundoloca Casteiro Garcia	Chefe do Departament de Mantenance e Operações (DCDT/dMO) Telcom
Mr. Oliveira Barradas	Programa de Recuperação de Rede DRL
Mr. Manuel José da Silva	Chefe do Centro de Alvalade

3. The Basic Design Study (Draft Basic Design Report Explanation)

Name	Section
Mr. Carlos Alberto Lopes	Director planeamento e desenvolviento MPT
Eng. Jose Gualbert de Matos	Director Geral Angola Telcom
Eng. Victor M. C. Simoes Alexandre	Director Geral Adjunto Angola Telcom
Eng. Julio Miguel Fernandes	Chefe Dep. D.G. Project Angola Telcom
Mr. Francisco Domingos Esperança	Director Financeiro Angola Telcom
Mr. Florencio de Almeida	Director para Asia e Oceania (Area de Cooperacion) Ministerio das Relacion Exteriores
Mr. Mansowgi Manimo Simão	Cooperacion Ministerio das Relacion Exteriores
Mr.José Paulo Joãn David	Chefe da Division Exproration Commercial Telcom.
Eng. Walter de Jesus Van-Deste	Department of Planning & Engineering (DCDT/dPE) Telcom
Eng. Lundoloca Casteiro Garcia	Chefe do Departament de Mantenance e Operações (DCDT/dMO) Telcom
Mr. Oliveira Barradas	Programa de Recuperação de Rede DRL
Mr. António José da Luz Avelino	Unidades Tecnica de Redes (UTR) (Supervisão de Investimento Local-Lisboa 1 Projecto Portugal Telecom.)
Mr. Carlos Marques Enriques	Unidades Tecnica de Redes (UTR) Consultor Sinior, TDC Portugal Telecom.

Appendix 4

Minutes of discussion

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON THE PROJECT
FOR
EMERGENT IMPROVEMENT FOR TELECOMMUNICATION IN LUANDA
IN
THE REPUBLIC OF ANGOLA

In response to a request from the Government of the Republic of Angola, the Government of Japan decided to conduct a Basic Design Study on the Project for Emergent Improvement for Telecommunication in Luanda (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Angola a study team, which is headed by Mr. Shigemaro AOKI, Development Specialist, JICA and is scheduled to stay in the country from 11th of December to 26th of December, 1996.

The team held a series of discussions with the relevant officials of Angola and conducted a field survey at the study area.

As a result of discussions and field survey, both sides have confirmed the main items described in the attached sheets.

The team will proceed to further works and prepare the Basic Design Study report.

The Angola side takes this opportunity to thank the deepest interest of the study team and hope that this project will contribute for the beginning of a fruitful and long lasting cooperation between both countries.

Luanda, December 17. 1996

Mr. Shigemaro AOKI
Leader
Basic Design Study Team
JICA

Mr. Jose Gualberto de MATOS
Director Geral
ANGOLA TELECOM

Mr. Carlos Alberto LOPES
Director, Planning and Development
Ministry of Transportation
and Communications

ATTACHMENT

1. OBJECTIVE

The objective of the Project is to provide necessary facilities and equipment for rehabilitation of telephone network in Luanda city.

2. PROJECT SITE

The following proposed sites are shown in ANNEX-I.

Priority 1 : The area of Alvalade exchange

Priority 2 : The area of Combatentes exchange

3. EXECUTING AGENCY

Angola Telecom, Ministry of Transportation and Communications is responsible for the administration and execution of the Project.

4. ITEMS REQUESTED BY THE GOVERNMENT OF ANGOLA

Angola Telecom has presented to the Team a clarification memo attached in ANNEX-IV.

As a result of a series of discussions, the following items with priority order were finally requested by the Angola side.

Priority 1 : Rehabilitation of access network in Alvalade

Priority 2 : Rehabilitation of access network in Combatentes

Access network consists of primary cable, secondary cable, manhole and conduit between MDF and Distribution Point.

The Team will convey the request made by the Angola side to the concerned authorities in Japan for further discussions and analysis to confirm the rationale of the Project.

5. JAPAN'S GRANT AID SYSTEM

The Government of Angola have understood the system of Japan's Grant Aid explained in ANNEX-II.

6. NECESSARY MEASURES TO BE TAKEN BY THE ANGOLA SIDE

The Government of Angola will take necessary measures described in ANNEX-III for smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

7. THE SCHEDULE OF THE STUDY

(1) The consultants will proceed to further studies in Angola until December 26, 1996.

(2) JICA will proceed to further studies based on the discussions held between both sides and the field survey results conducted by the consultants to formulate the most appropriate components of the Project.

(3) If the results of the analysis in Japan reveal the need for further field survey to finalize the component of the Project, another JICA mission may possibly dispatched. The timing and contents of the mission will be informed accordingly.

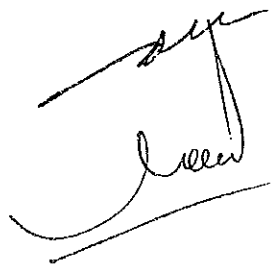
8. OTHER RELEVANT ISSUES

(1) The Government of Angola shall provide all necessary information and data in case that the Basic Design team request.

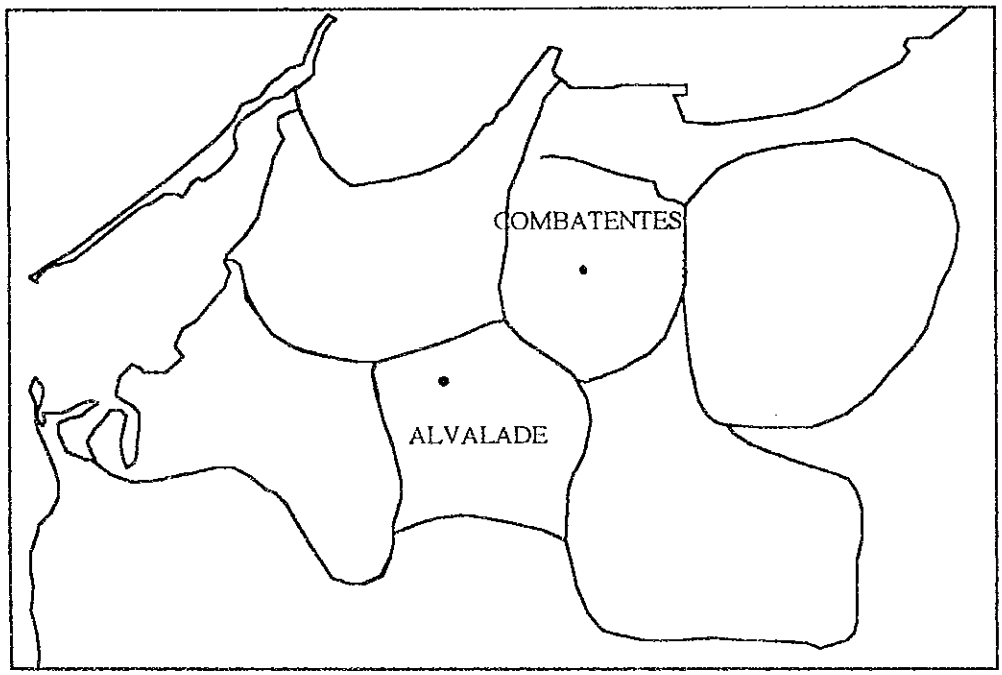
(2) The Angola side shall assign counterparts in case that the Basic Design team request.

(3) The Angola side shall allocate the necessary budget and personnel for execution of the Project.

(4) The Angola side shall take all possible measures to secure the safety of the team during the field survey.



THE PROJECT SITES



ANNEX-II

Japan's Grant Aid System

1. Grant Aid Procedures

Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

(1) Application

Firstly, the application or request for a Grant Aid project submitted by recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is a eligible for Grant Aid.

If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

(2) The study

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese Consulting firm(s)

(3) Appraisal & Approval

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

(4) Determination of Implementation

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient Country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

(1) Contents of the Study

The aim of the Basic Design Study (hereafter referred to as "the Study"), conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

(a) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.

(b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.

(c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.

(d) Preparation of a basic design of the Project

(e) Estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.
the consulting firms(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

(2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(3) The period of the Grant Aid

"The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual Agreement between the two Governments.

(4) Products and services to be purchased

Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals.
Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(6) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

(a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.

(b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.

(c) To secure buildings prior to the procurement in case the installation of the equipment.

(d) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.

(e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.

(f) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(g) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(h) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

(i) Banking Arrangements (B/A)

(i) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

(ii) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

ANNEX-III

Necessary measures to be taken by the Government of Angola on condition that the Japan's Grant Aid is extended:

1. To provide data and information necessary for the implementation of the Project;

2. To secure the sites(necessary lands) for the Project;

3. To clear, level and reclaim the sites prior to the commencement of the construction;

4. To undertake incidental outdoor works such as gardening, fencing, gates and lighting in and around site where required;

5. To provide storages and yards in the sites where required;

6. To obtain permission from relevant authorities for road occupation and excavation for installation of underground facilities and aerial cables;

7. To bear cost for complete restoration of paved road after excavation;

8. To obtain agreement of the owner or user on installation of distribution Point (DP), cable and land excavation in their premises and buildings;

9. To procure and install Main Distribution Frame (MDF), terminal block and drop-wire;

10. To investigate and design of subscriber's premises for subscriber transfer;

11. To investigate jumper wire of MDF for subscriber transfer;

12. To prepare the subscriber transfer sheets for the subscriber transfer;

13. To install the facilities in the subscriber's premises including building (facilities from new DP installed outside building to subscriber);

14. To install jumper wire at MDF for subscriber transfer;

15. To conduct the confirmation test for the subscriber after transfer work is done;

16. To remove the existing cables, poles, CCCs, DPs, jumper wires which are disused after the completion of subscriber transfer;

17. To transfer subscriber and relocate the cable due to requirement by Municipality (such as road expansion) under the technical assistance and guidance by the Japanese side;

18. To re-arrange existing cable in the cable vault (where necessary) under the technical assistance and guidance by the Japanese side;

19. To assist the contractor for the procurement of local productions such as PVC pipes;

20. To bear commissions to the Japanese foreign exchange bank to execute the banking service based upon the Banking Arrangement (B/A);

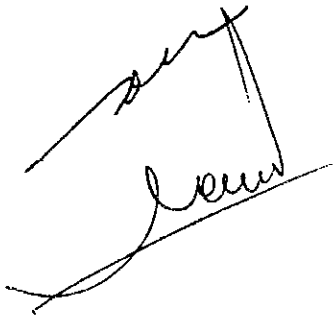
21. To exempt from the taxes and to take necessary measures for customs clearance of equipment and materials for the Project at the port of disembarkation;

22. To exempt Japanese nationals involved in the project from customs duties, internal taxes and other fiscal levies which may be imposed in Angola with respect to the supply of the products and services under the verified contracts;

23. To accord Japanese Nationals, whose services may be required in connection with the supply of the products and services under the verified contracts, such facilities as may be necessary for their entry into Angola and stay therein for the performance of their work;

24. To use and maintain properly and effectively all the facilities constructed and equipment purchased under the Grant, and

25. To bear all the expenses other than those to be borne by the grant, necessary for the transportation and installation of the equipment.



MINISTERIO DOS TRANSPORTES E COMUNICAÇÕES
EMPRESA DE TELECOMUNICAÇÕES DE ANGOLA

GOLA TELECOM

CLARIFICATION MEMO

Present situation

Between November 1995, when a formal request for a grant aid for the Emergency Telecom Project in Luanda was presented and December 1996, some favorable and unfavorable events occurred in our Telecom Projects.

The favorable thing is that Digitalization Plan for Luanda Region, with Spanish support and using System 12 of Alcatel, comes into force with the configuration given below :

	capacity	schedule	
Luanda Principal	23,000	July/97	
Prenda	6,000	July/97	
Alvalade	6,000	Out/97	
Combatentes	10,000	Dez/97	
Petrangol	978	Ago/97	Sub-urban
Golf	978	Ago/97	Sub-urban
Luanda Sul	978	Ago/97	Sub-urban

The unfavorable thing is that the so called Telecom II Project, financed by ADB, through which it was supposed to replace all the old telephone cables in Luanda, was canceled. Thus, the access network remains the weakest component of Luanda Telephone System. We risk to have almost all local exchanges replaced by very new digital exchanges and the old cables not. The access network will thus remains as the biggest constraint of the quality of service.

The Digitalization Project for Luanda includes a "SDH Optical Ring" to be used in the interconnection of the main telephone exchanges (Luanda Principal, Prenda, Alvalade, V.Alice, S.Paulo and Combatentes). The Exchanges of Petrangol, Golf and Luanda sul will be connected by Digital Microwave Links.

Wireless Local Loop (DECT) was included (1500 lines) for the periphery (Petrangol, Golf, and Luanda Sul).

Another good thing is that the Digitalization of Benguela Region (about 10,000 lines) was also decided on the base of a Grant from NORAD, using AXE technology from Ericsson.

We are also considering additional support from Spain for further developments of the Digitalization Plan of Luanda, namely the replacement of the last analog telephone exchanges.

Clarification about present priorities

To conclude the digitalization of Luanda Region, in terms of switching, we need to replace three analog exchanges (S.Paulo, V.Alice and Viana - total of about 12,000 lines). Cacuaco is already a digital exchange.

As said before, we risk to have almost all local exchanges replaced by very new digital exchanges and the old cables not. The access network will thus remains as the biggest constraint of the quality of service.

The concept of "*emergent improvement for telecommunications in Luanda*" has thus a direct connection with the improvement of the access system (local distribution system). In terms of priority, it is more important for Angola Telecom to improve the access network in the areas where new telephone exchanges were already ordered, than simply considering new areas.

For that reason, we would like to see the Emergency Telecom Project focused on the Access Network. We think that the only way to improve rapidly the Fixed Telephone Service in Luanda is to act in access network, not only with traditional systems (cables) but also with wireless local loop. The appropriate combination of both technical solutions is something that consultants can determine after the survey (by analyzing documents already prepared and by physical inspection).

We think that it is mandatory to guarantee an appropriate coordination between donor countries, as reported in the JICA Document (see pag 7, point 6). In this case a good coordination shall be made between what is provided by Spanish support and what is provided by Japanese support. By concentrating this Emergency Telecom Project in the Access Network, a good coordination can be achieved, because we can concentrate the Spanish support in the switching.

It should be noted that for an emergent Operator as is Angola Telecom, it is not good to disperse, by having more than one switching technology in the same region. In the other hand we request to include wireless local loop system and terminal equipment for full capacity with spare parts by Japanese technology to be applied to the other sub-urban areas than the ones having DECT.

Our order of priority is now the following :

(1) - Rehabilitation of Access Network in Alvalade
(2) - Rehabilitation of Access Network in Combatentes

Alvalade and Cobatentes are defined as urban areas.

Luanda, 16 December 1996

José G. de Matos - Director General

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON THE PROJECT
FOR
EMERGENT IMPROVEMENT FOR TELECOMMUNICATION IN LUANDA
IN
THE REPUBLIC OF ANGOLA
(SECOND FIELD STUDY)

In response to a request from the Government of the Republic of Angola, the Government of Japan decided to conduct a Basic Design Study on the Project for Emergent Improvement for Telecommunication in Luanda (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

In December 1996, JICA sent the Basic Design Study team on the Project to the Angola, and through discussion, field survey and the results of analysis in Japan, JICA decided to reveal the need for further field survey to finalize the components of the Project.

In order to conduct further studies, JICA sent to Angola a study team again, which is headed by Mr. Shigemaro AOKI, Development Specialist, JICA and is scheduled to stay in the country from 5th to 26th of February, 1997.

The team held a series of discussions with the relevant officials of Angola and conducted a field survey at the study area.

As a result of discussions and field survey, both sides have confirmed the main items described in the attached sheets.

The team will proceed to further works and prepare the Basic Design Study report.

The Angola side takes this opportunity to thank the deepest interest of the study team and hope that this project will contribute for the beginning of a fruitful and long lasting cooperation between both countries

Luanda, 19th of February. 1997

Mr. Shigemaro AOKI
Leader
Basic Design Study Team
JICA

Eng. Jose Gualberto de MATOS
Director Geral
ANGOLA TELECOM

Mr. Carlos Alberto LOPES
Director
Planning and Development
Ministry of Transportation
and Communications

ATTACHMENT

1. OBJECTIVE

The objective of the Project is to provide necessary facilities and equipment for rehabilitation of telephone network in Luanda city.

2. PROJECT SITE

The following proposed sites are shown in ANNEX-I.

Phase 1	The area of Alvalade exchange
Phase 2	The area of Combatentes exchange

3. EXECUTING AGENCY

Angola Telecom, Ministry of Transportation and Communications is responsible for the administration and execution of the Project.

4. ITEMS REQUESTED BY THE GOVERNMENT OF ANGOLA

As a result of a series of discussions, the following items were finally requested by the Angola side.

(1) Supply of material and construction / installation between Main Distribution Frame (MDF) and Distribution Point (DP)
   a) Duct s
   b) Manhole s
   c) Primary Cables and Secondary Cables
   d) Poles
   e) DPs and CCCs (Cross Connection Cabinet)

(2) Supply of equipment
   a) Tools
   b) Measure Equipments
   c) Outside Plant Maintenance Vehicles

However, the detailed components of the Project will be decided after further studies.

5. JAPAN'S GRANT AID SYSTEM

The Government of Angola have understood the system of Japan's Grant Aid explained by the team

6. NECESSARY MEASURES TO BE TAKEN BY THE ANGOLA SIDE

The Government of Angola will take necessary measures described in ANNEX-II for smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

7. THE SCHEDULE OF THE STUDY

(1) The consultants will proceed to further studies in Angola until 26th of February, 1997.

(2) Based on the results, JICA will prepare the Draft Basic Design report in English and dispatch a team around the middle of May 1997 in order to confirm the contents.

(3) In case that the contents of the report is accepted in principle by the Government of Angola, JICA will complete the Basic Design report and forward it to the Angola side around the end of July 1997.

8. OTHER RELEVANT ISSUES

(1) The Government of Angola shall provide all necessary information and data in case that the Basic Design team request.

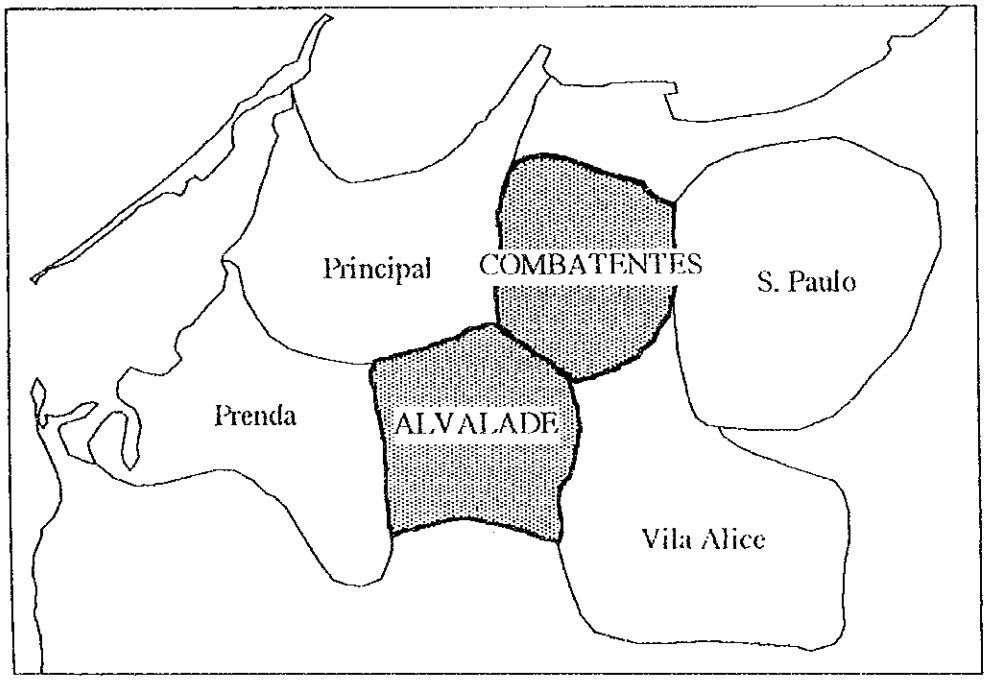
(2) The Angola side shall assign counterparts in case that the Basic Design team request.

(3) The Angola side shall allocate the necessary budget and personnel for execution of the Project.

(4) The Angola side shall take all possible measures to secure the safety of the team during the field survey.

ANNEX I PROPOSED OBJECTIVE SITE

Luanda



Project Area

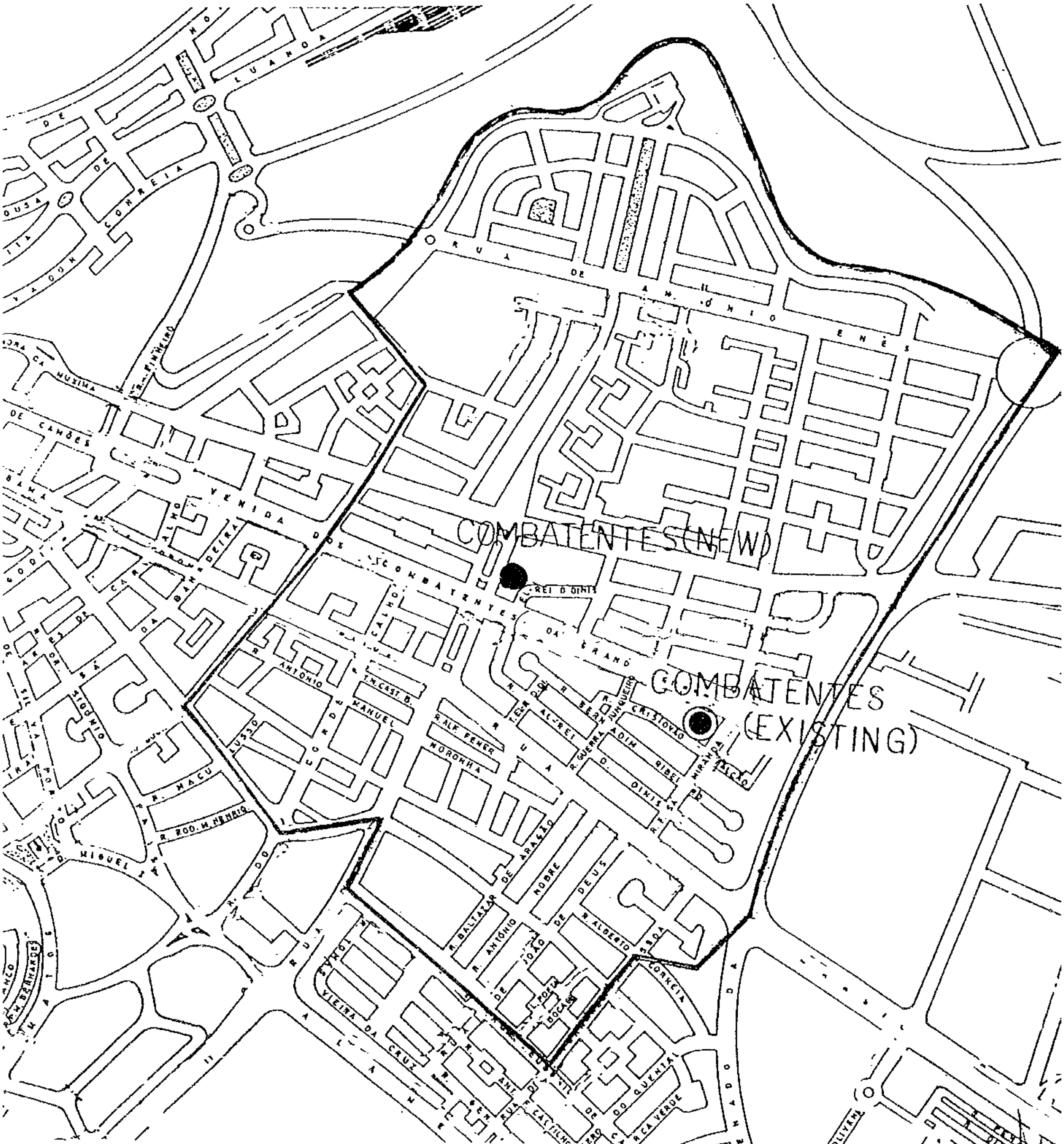
Phase 1 Alvalade
Phase 2 Combatentes

ANNEX-I-1

THE AREA OF ALVALADE EXCHANGE

ANNEX-I-2

THE AREA OF COMBATENTES EXCHANGE



ANNEX-II

Necessary measures to be taken by the government of Angola on condition that the Japan's Grant Aid is extended

1. General

(1) To provide the data and information necessary for the implementation of the Project.

(2) To provide storage and yard in the sites where required to store equipment and materials imported by the contractor.

2. Preparation for installation

(1) To obtain permission from relevant authorities for road occupation and excavation for installation of underground facilities and aerial cables.

(2) To obtain agreement of the owner or user on installation of DP(Distribution Point), CCC (Cross Connection Cabinet), cable, pole and land excavation in their premises and buildings.

(3) To procure and install of MDF (Main Distribution Frame) and terminal block.

(4) To procure drop wire for subscriber transfer.

3. Subscriber transfer

(1) To investigate and design of subscriber's premises for subscriber transfer.

(2) To install facilities in the subscriber's premises (facilities from new DP to the subscriber).

(3) To install jumper wire at MDF and CCC for subscriber transfer.

(4) To carry out confirmation test for the subscriber after transfer work is done.

4. Recovering

(1) To remove the existing cable, pole, CCC, DP, jumper wire which are disused after the completion of subscriber transfer.

(2) To carry out subscriber transfer and cable connection for cable re-location due to requirement by Municipality (such as road expansion) under the technical assistance and guidance by the Japanese side.

(3) To re-arrange existing cable in the cable vault (where necessary) under the technical assistance and guidance by the Japanese side.

(4) To bear cost for complete restoration of paved road after excavation.

5. Others

(1) To assist the contractor in the procurement of local productions such as PVC pipes.

(2) To bear commissions to the Japanese foreign exchange bank to execute the banking service based upon the Banking Arrangement (B/A);

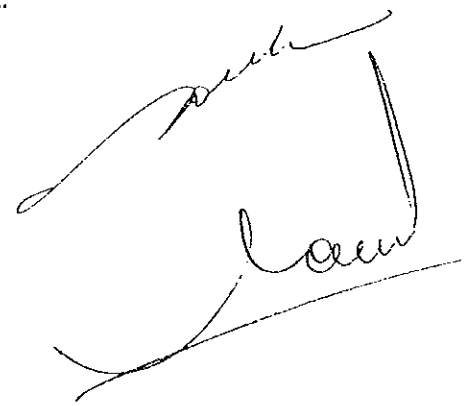
(3) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the equipment and material purchased for the Project under the Grant Aid.

(4) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the Angola with respect to the supply of the products and services under the Verified Contracts.

(5) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into Angola and stay therein for the performance of their work.

(6) To maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) To bear all the expenses other than those to be borne by the grant, necessary for the transportation and installation of the equipment.



MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON THE PROJECT
FOR
EMERGENT IMPROVEMENT FOR TELECOMMUNICATION IN LUANDA
IN
THE REPUBLIC OF ANGOLA
(EXPLANATION OF DRAFT BASIC DESIGN)

In December 1996 and February 1997, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design StudyTeam on the Project for Emergent Improvement for Telecommunication in Luanda (hereinafter referred to as "the Project") to the Republic of Angola, and through discussions, site survey, and technical examination of the result s in Japan, has prepared the Draft Basic Design on the Study.

In order to explain and to consult the Government of Angola, on the components of the Draft Basic Design, JICA sent to Angola a study team, which is headed by Mr. Shigemaro AOKI, Development Specialist, JICA and is scheduled to stay in the country from 28th of May to 2nd of June, 1997.

In the course of discussions, both sides have confirmed the main items described in the attached sheets.

The Angola side takes this opportunity to thank the deepest interest of the study team and hope that this project will contribute for the beginning of a fruitful and long lasting cooperation between both countries.

Luanda, 2nd of June. 1997

Mr. Shigemaro AOKI
Leader
Basic Design Study Team
JICA

Eng. Jose Gualberto de MATOS
Director General
ANGOLA TELECOM

Mr. Carlos Alberto LOPES
Director
Planning and Development
Ministry of Post and
Telecommunications

ATTACHMENT

1. COMPONENTS OF DRAFT BASIC DESIGN

The Government of Angola (hereinafter referred to as "The Angola side") has agreed and accepted in principle the components of the Draft Basic Design proposed by the Team.

2. JAPAN'S GRANT AID SYSTEM

The Angola side has understood the system of Japan's Grant Aid explained by the Team as attached in ANNEX-I.

3. NECESSARY MEASURES TO BE TAKEN BY THE ANGOLA SIDE

The Government of Angola will take the necessary measures described in ANNEX-II for smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project .

4. THE FURTHER SCHEDULE OF THE STUDY

The team will make the Final Basic Design Study Report in accordance with the confirmed items and send it to the Angola side by middle of August, 1997.

5. OTHER RELEVANT ISSUES

(1) The Angola side assured that the installation of MDF (Main Distribution Frame) and terminal block in Alvalade and Combatentes Exchanges will be completed before the commencement of the primary cable termination by the contractor.

(2) The Angola side requested that the scope of the Project should include the secondary cable rehabilitation for about 400 subscribers in the Prenda exchange (Bairro Martires de Kifangondo) as described in ANNEX-III.

The Japanese side recommended that the switching capacity of Alvalade exchange should be expanded based on the existing Master Plan in order to meet the telephone demand which is estimated in the Project.

Both sides confirmed that the secondary cable rehabilitation in the above requested area will be included in the scope of the Project and the number of cable pairs for MDF will be 8,000.

(3) The Angola side shall allocate the necessary budget for the work under the responsibility of Angola Telecom and personnel for execution of the Project.

ANNEX-I

Japan's Grant Aid System

1. Grant Aid Procedures

Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

(1) Application

Firstly, the application or request for a Grant Aid project submitted by recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is a eligible for Grant Aid.

If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

(2) The study

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese Consulting firm(s)

(3) Appraisal & Approval

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

(4) Determination of Implementation

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient Country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

(1) Contents of the Study

The aim of the Basic Design Study (hereafter referred to as "the Study"), conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

(a) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.

(b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.

(c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.

(d) Preparation of a basic design of the Project

(e) Estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.
the consulting firms(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

(2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(3) The period of the Grant Aid

"The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

8.18

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual Agreement between the two Governments.

(4) Products and services to be purchased

Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals.
Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(6) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

(a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.

(b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.

(c) To secure buildings prior to the procurement in case the installation of the equipment.

(d) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.

(e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.

(f) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(g) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(h) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

(i) Banking Arrangements (B/A)

(i) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

(ii) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

ANNEX-II

Necessary measures to be taken by the government of Angola on condition that the Japan's Grant Aid is extended

1. General

(1) To provide the data and information necessary for the implementation of the Project.

(2) To provide storage and yard in the sites where required to store equipment and materials imported by the contractor.

2. Preparation for installation

(1) To obtain permission from relevant authorities for road occupation and excavation for installation of underground facilities and aerial cables.

(2) To obtain agreement of the owner or user on installation of DP(Distribution Point), CCC (Cross Connection Cabinet), cable, pole and land excavation in their premises and buildings.

(3) To procure and install of MDF (Main Distribution Frame) and terminal block.

(4) To procure drop wire for subscriber transfer.

3. Subscriber transfer

(1) To investigate and design of subscriber's premises for subscriber transfer.

(2) To install facilities in the subscriber's premises (facilities from new DP to the subscriber).

(3) To install jumper wire at MDF and CCC for subscriber transfer.

(4) To carry out confirmation test for the subscriber after transfer work is done.

4. Recovering

(1) To remove the existing cable, pole, CCC, DP, jumper wire which are disused after the completion of subscriber transfer.

(2) To carry out subscriber transfer and cable connection for cable re-location due to requirement by Municipality (such as road expansion) under the technical assistance and guidance by the Japanese side.

(3) To re-arrange existing cable in the cable vault (where necessary) under the technical assistance and guidance by the Japanese side.

(4) To bear cost for complete restoration of paved road after excavation.

5. Others

(1) To assist the contractor in the procurement of local productions such as PVC pipes.

(2) To bear commissions to the Japanese foreign exchange bank to execute the banking service based upon the Banking Arrangement (B/A);

(3) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the equipment and material purchased for the Project under the Grant Aid.

(4) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the Angola with respect to the supply of the products and services under the Verified Contracts.

(5) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into Angola and stay therein for the performance of their work.

(6) To maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) To bear all the expenses other than those to be borne by the grant, necessary for the transportation and installation of the equipment.

ANGOLA TELECOM

MINISTÉRIO DOS TRANSPORTES E COMUNICAÇÕES

EMPRESA DE TELECOMUNICAÇÕES DE ANGOLA

ANNEX - III

CLARIFICATION MEMO

Present situation

Following the recent changes made to the exchange areas of Alvalade and Prenda, it has been decided that some of the subscribers which formally belonged to Prenda will be now tranferred to the Alvalade exchange area. This change has been introduced due to the fact that ANGOLA TELECOM intends to provide securization of Communications to the exchange area that covers the airport zone.

Taking into account the need for the rehabilitation of the secondary cable for this area we propose that this work is covered under the scope of the EMERGENT IMPROVEMENT FOR THE TELECOMMUNICATION IN LUANDA under the Japanese Government Grant Aid.

Luanda, 02 nd June 1997

José Gualberto de Matos

Director General

S.A

Appendix 5

References

List of Document, Data, Information referred

No.	NAME OF LIST	RESOURCE
1	PERFIL ESTATISTICO ECONOMICO E SOCIAL	INE
2	INDICE DE PREOS NO CONSUMIDOR	INE
3	ESCUTE PRIMEIRO E DEPOIS COMUNIQUE	Angola Telecom.
4	NATIONAL SYNCHRONISATION PLAN	Angola Telecom.
5	CENTRAIS TELEFONICA	Angola Telecom.
6	OPERATION'S PERFORMANCE INDICATORS	Angola Telecom.
7	SWITCHING / EXTERNAL PLANT COMPONENT	Angola Telecom.
8	STATISTICA DE TRAFEGO (1995 / 1995)	Angola Telecom.
9	ANGOLA NUMBERING PLAN	Angola Telecom.
10	VARIAÇÃO DE TAXA CAMBIO (SETEMBRO / 95)	Angola Telecom.
11	Boletin de Câmbio (em 1996)	Angola Telecom.
12	TARIFAS DOS SERVIÇOS DE TELECOMUNICAÇÕES (Out-96)	Angola Telecom.
13	Tariff structure and its history	Angola Telecom.
14	CHARGING PLAN	Angola Telecom.
15	Especificações Técnicas do sistema de Tarifação da Rede Telefónica	Angola Telecom.
16	RELATORIO DA CALIDADE DE SERVIÇO	Angola Telecom.
17	TMS-Impresso de Referéncias de DP	Angola Telecom.
18	SERVIÇOS DE REDES TABELA DE PREÇOS	Angola Telecom.
19	REDE DE CONDUTAS PLANILHA DE SERVIÇOS	Angola Telecom.
20	PROJECTO DE DIGITALIZAÇÃO DE REDE TELEFÕNICA DE LUANDA	Angola Telecom.
21	AMPLIACAO DA REDE DE CONDUTAS	Angola Telecom.
22	RELATÕRIO E CONTAS 1995	Angola Telecom.
23	D.R.L. Local AreaNetwork Schematic Diagram (Main Overview)	Angola Telecom.
24	Labor Cost	Angola Telecom.
25	Angola Telecom. Number of personnel	Angola Telecom.
26	ESTRUTURA DA DIRECÇÃO REGIONAL DE LUANDA	Angola Telecom.
27	Angola Telecom. MEMO ON EXAMINATION 31 DECEMBER 1993	Angola Telecom.
28	MAP OF LUANDA	MINISTERIO DA DEFESA
29	LOCAL CABLE NETWORK COMPONENT VOLUME 1	Angola Telecom.
30	LOCAL CABLE NETWORK COMPONENT VOLUME 2	Angola Telecom.

No.	NAME OF LIST	RESOURCE
31	LOCAL CABLE NETWORK COMPONENT VOLUME 3.0	Angola Telecom.
32	LOCAL CABLE NETWORK COMPONENT VOLUME 3.2	Angola Telecom.
33	LOCAL CABLE NETWORK COMPONENT VOLUME 3.3	Angola Telecom.
34	SUPPLEMENT TO NETWORK PLANNING & DESIGN CRITERIA	Angola Telecom.
35	CABLE NETWORK LUANDA 2ND PHASE ALVALADE	Angola Telecom.
36	CABLE NETWORK LUANDA 2ND PHASE COMBATENTES	Angola Telecom.
37	ANGOLA info (DIRECTORIO) 95/96	Angola Telecom.
38	LISTA TELEFONICA NACIONAL 1992 • 1993	Angola Telecom.
39	LEGULAMENTO INTERNO DO INSTITUTO NATIONAL DE TELECOMUNICAÇÕES	I.TEL.
40	DISCIPLINAS MINISTRADAS NO I.TEL.	I.TEL.

Note IEN : INSTITUTO NATIONAL DE ESTATISTICA

I.TEL : INSTITUTO NATIONAL DE TELECOMUNICAÇÕES

III. Basic Design Drawings

Basic Design Drawings

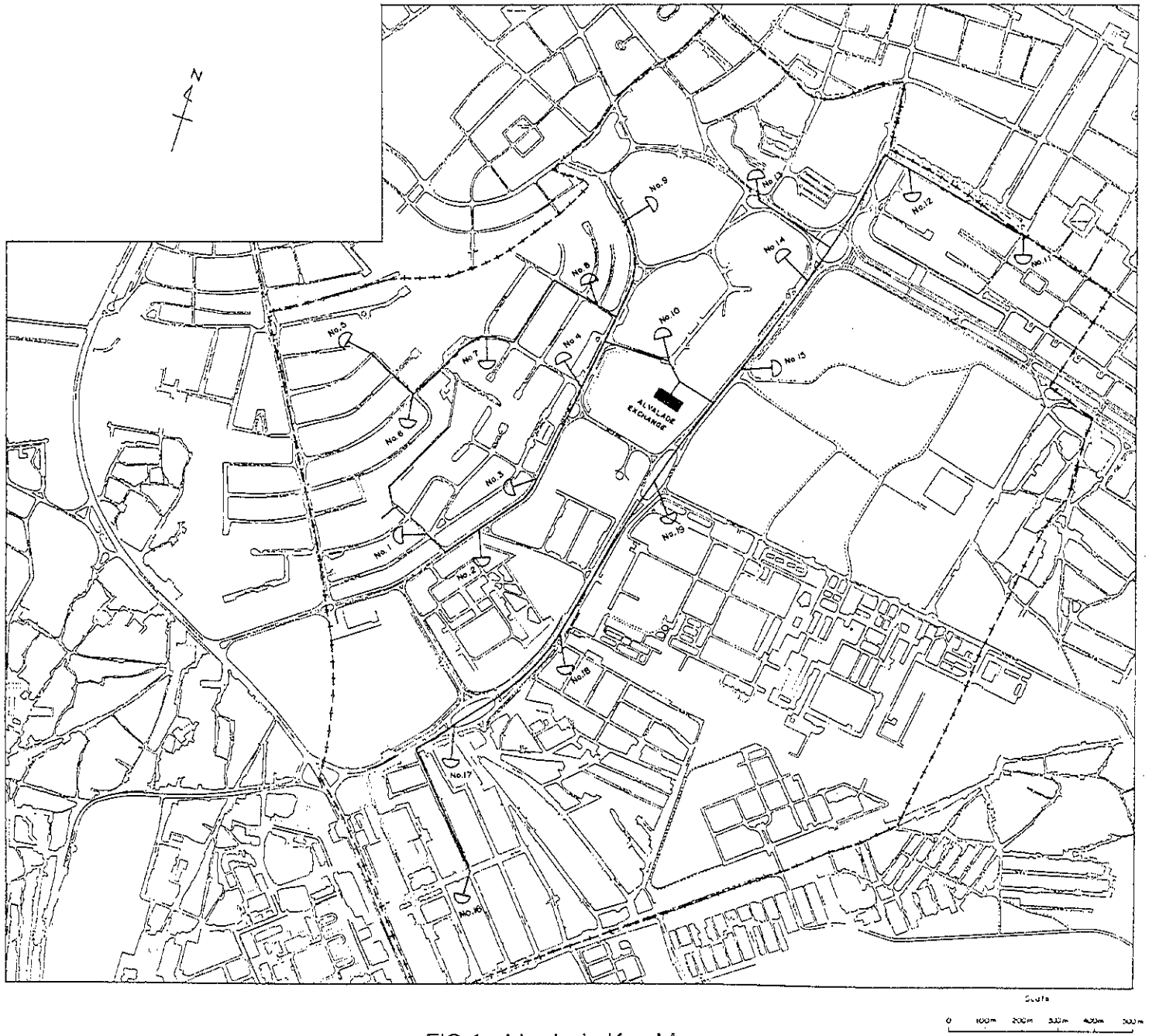


FIG.1 Alvalade Key Map

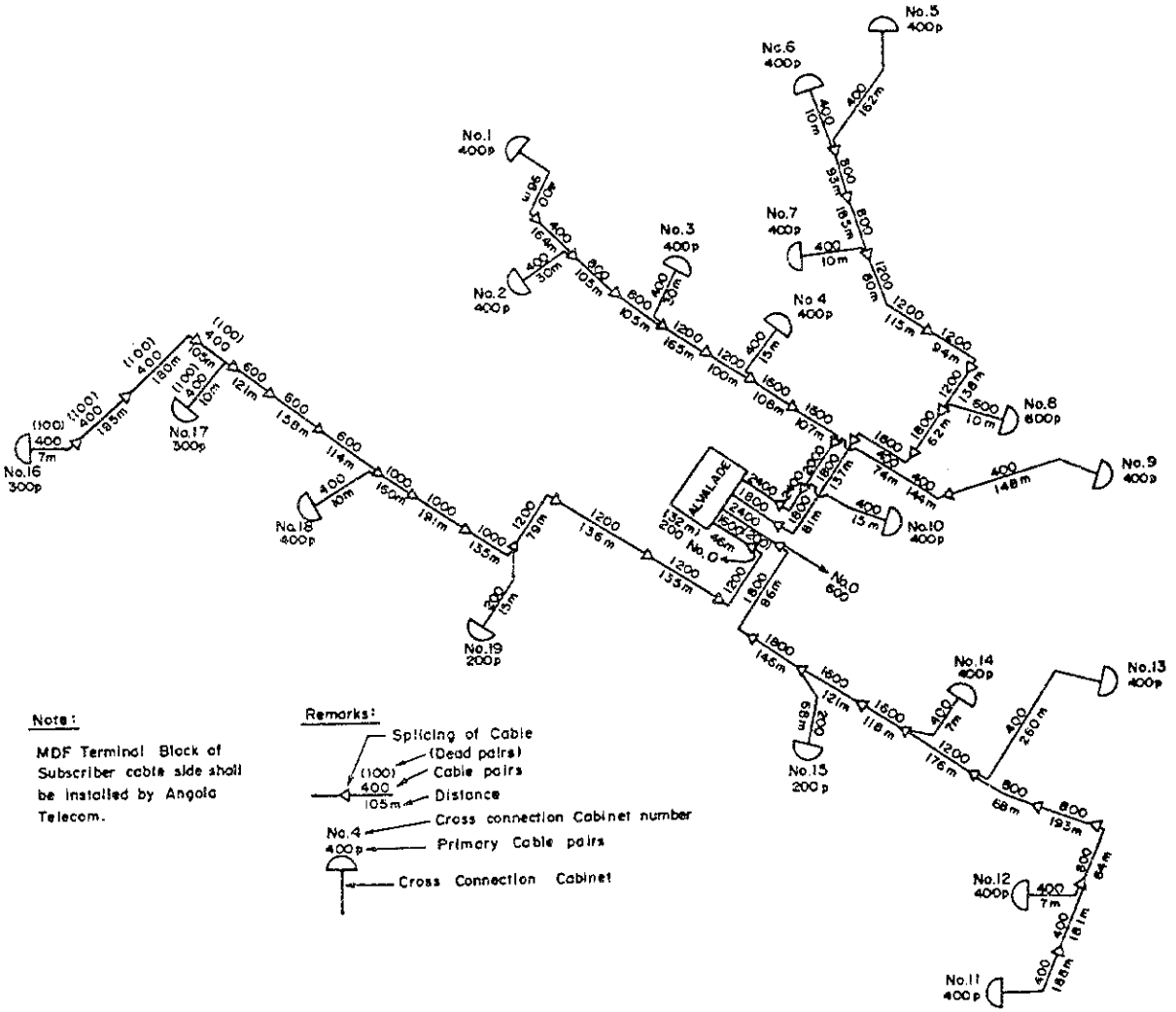


FIG.2 Primary Cable Plan for Alvalade

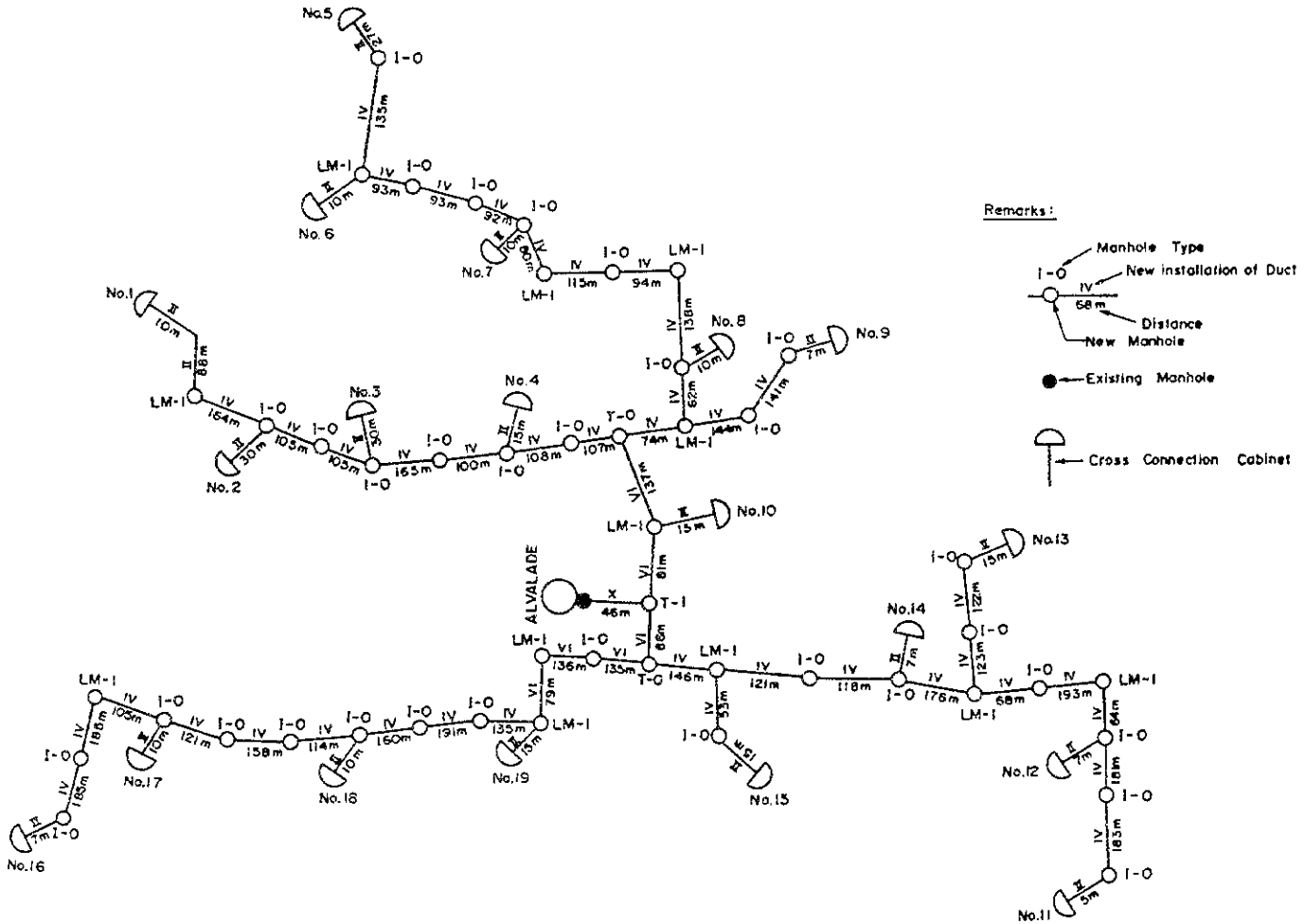


FIG.3 Duct Route Plan for Alvalade

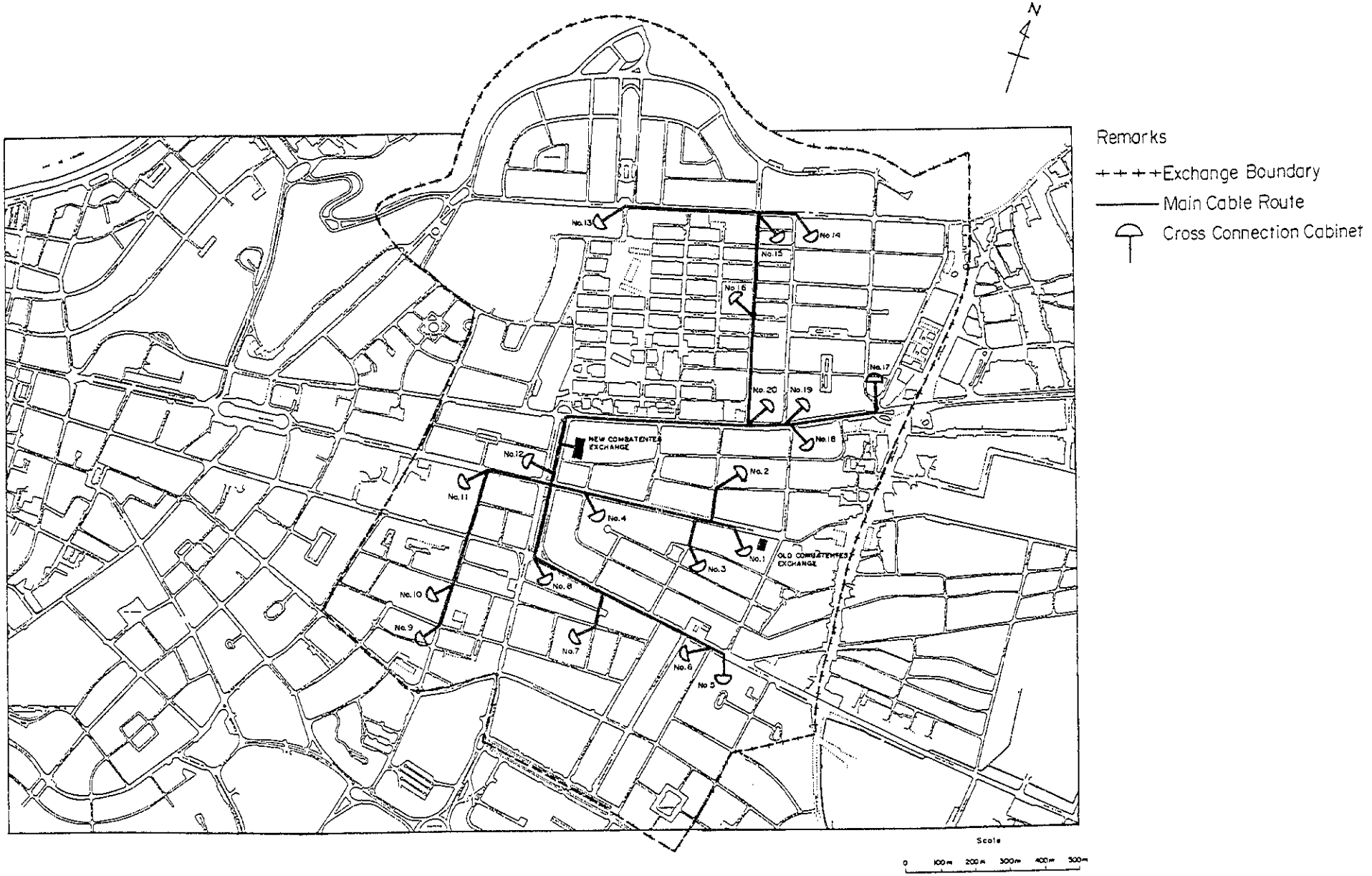


FIG.4 Combatentes Key Map

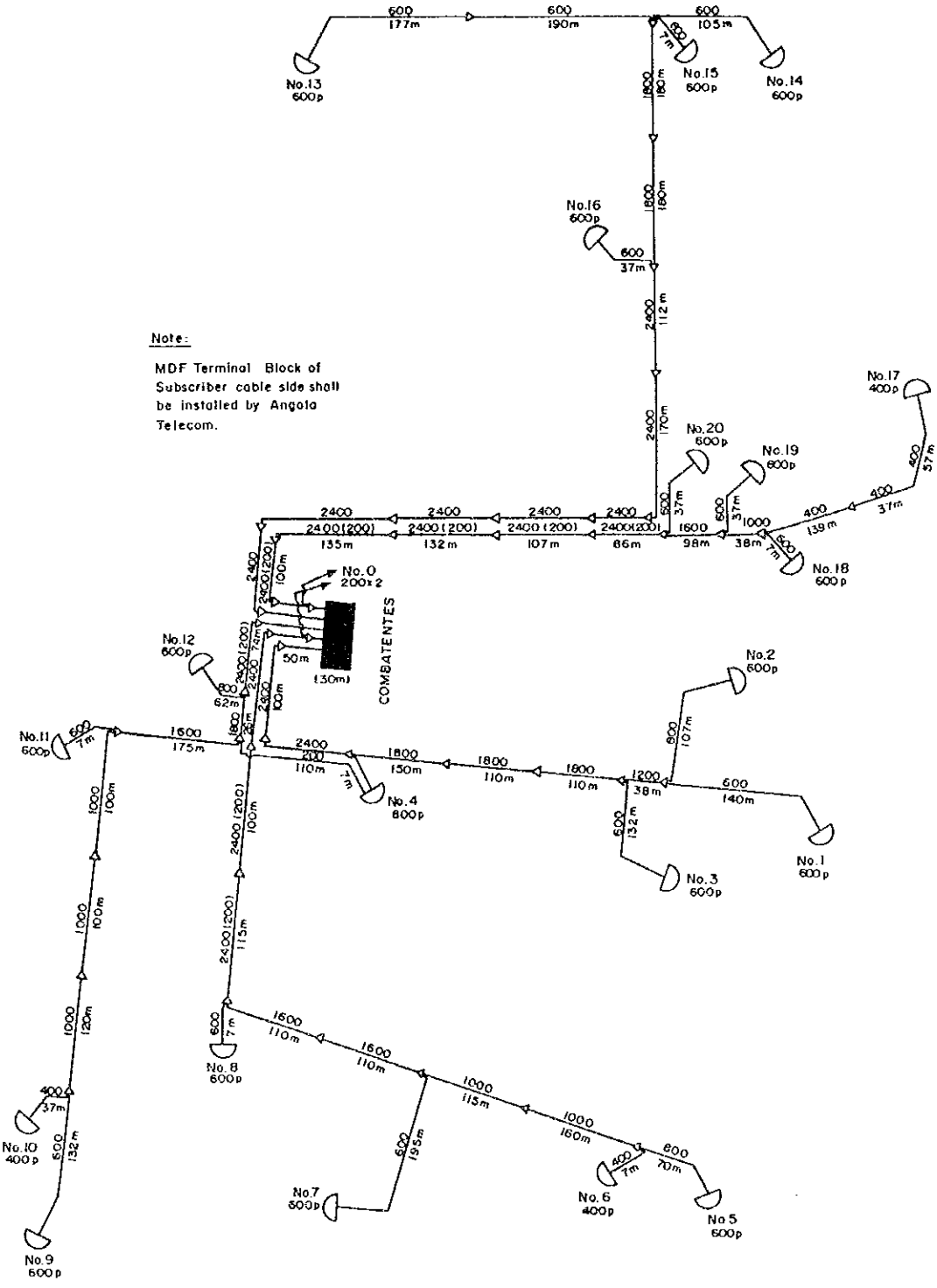


FIG.5 Primary Cable Plan for Combatentes

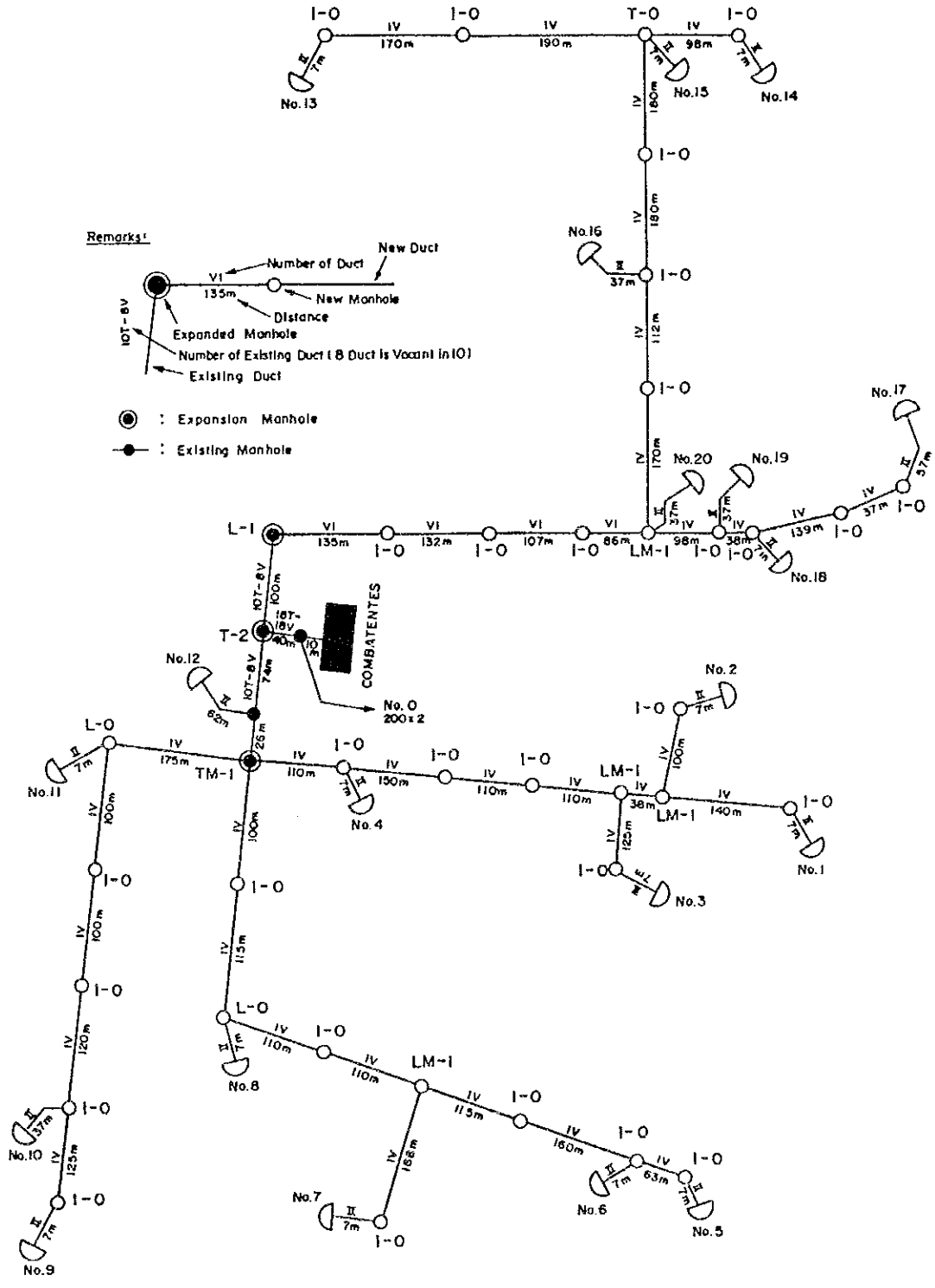


FIG.6 Duct Route Plan for Combatentes