

## CHAPTER 5 PROJECT EVALUATION AND CONCLUSION

### 5-1 Project Evaluation

The benefits which can be expected on the implementation of this project are:

#### (1) Stimulation of economic activities

Telecommunications are indispensable for such economic activities as commodity production, distribution and trades. Improvement of telecommunications services in the objective port and industrial areas will lead to promotion of the economic activities in the areas and further to national economic development.

Though the national economy in Tanzania is still developing, it has been growing at an annual average rate of approx. 4% per annum. for several years, as a result of the first Economic Recovery Program (ERP: 1986-1989), and can be said to be relatively stable as compared to other African countries.

In ESAP, the emphasis is also placed on promotion of agriculture and manufacturing industries, and the related telecommunications and transports. Realization of stable telecommunication services will facilitate rapid transmission of information and stimulate industrial and economic activities, leading to successful materialization of ESAP.

#### (2) Enhancement of social welfare

Improved telecommunications services will provide greater ease in emergency access to medical institutions, police stations, fire stations, etc., serving for public welfare. Particularly in case of disasters or accidents, prompt emergency calls can protect or rescue human lives, prevent the waste of public property and the stagnation of production activities, thereby contributing to minimization of economic losses. Moreover, modernized communication services can upgrade the safety

standard and quality of life, which are basic factors to support daily life.

In the objective port and industrial areas, there are more than 70,000 employees working. Provision of stable communication services in these areas will serve to enhance the public welfare and social services.

In the following are summarized current problems to be solved, countermeasures considered by this project, and the expected effects and improvements.

Problems to be Solved	Countermeasures by this Project	Expected Effects
<p>The objective port area and Pugu Road industrial area embrace a large number of subscribers, including enterprises relating to export/import, transport, and industrial production. In consequence, there is large telephone demand. Outside plant facilities in these areas are deteriorated, and economic and social development of Tanzania is obstructed.</p>	<p>The existing paper insulated, lead sheathed cables which suffer from frequent breakdowns due to water penetration into cables will be replaced with jellyfilled, polyethylene insulated, polyethylene sheathed cables, so as to remarkably reduce cable faults and upgrade telecommunications services.</p>	<ul style="list-style-type: none"> <li>-Improvement of telecommunications infrastructure, which is one of major objectives of ESAP now being driven forward by the Tanzania Government.</li> <li>-Promotion of national economic and economic activities.</li> <li>-Enhancement of social welfare in the objective areas where a number of important subscribers are located, including more than 70,000 staff engaged in harbour/port business and industrial production.</li> </ul>
<p>The waiting applicants for telephones amount to approx. 550 in the port area, and approx. 3,300 in the Pugu Road industrial area. The total number of waiters in the objective areas is 3,850, of which more than 20% have been kept waiting for several years. These demands must be satisfied urgently.</p>	<p>Primary cables of 1,600 pairs and 5,200 pairs will be installed for DSM Central Exchange and Pugu Road Exchange, respectively, to replace the existing cables. Required number of secondary cables corresponding to the above primary cables will be installed in respective exchange areas, replacing the existing cables. Pertaining facilities will also be rehabilitated.</p>	<p>The waiting applicants in the objective areas numbering approx. 3,800 can be served. Most of the unsatisfied demands in these areas are for business use and, therefore, stimulating effects on trade and commerce can be expected.</p>

<p>Faults ratio of outside plant facilities in the DSM Central Exchange area is 390 per 100 subscribers per year, and in the Pugu Road Exchange area, 416, proving the poor service quality in these areas. (The above figures do not include faults in subscribers' premises.)</p>	<p>Outside plant facilities in the objective areas are the most superannuated in the DSM Central and Pugu Road Exchange areas. Cable facilities in these areas will be replaced with polyethylene insulated, PE sheathed cables to ensure stable communication service.</p>	<p>Upon completion of this project, fault ratio of outside plant facilities in the DSM Central Exchange area will be improved approximately to 255 per 100 subscribers per year, and in the Pugu Road Exchange area, 125. This means the improvement of fault ratio by 65% and 30%, respectively.</p>
<p>The annual average successful call ratio in Dar es Salaam is less than 20%.</p>	<p>The outside plant facilities in the port area of the DSM Central Exchange area will be rehabilitated. In the Pugu Road Exchange area, 7,000 L.U. ESS has been introduced in 1992, under the Japan's grant aid Phase-II. The rehabilitation of outside plant in this area, therefore, will be very effective.</p>	<p>With the implementation of this project, the annual average successful call ratio in Dar es Salaam will be improved by 5-7 %.</p>

## 5-2 Conclusion

As analyzed in previous chapters, the implementation of this project will be able to remarkably contribute to the advancement of Social and Economic Action Programme (ESAP), the stimulation of social activities, and the enhancement of public welfare.

The objective areas of this project are the port area having an important trade port and the industrial area having a number of large and small factories in the capital city, Dar es Salaam, a center of the national political and economic activities. In these areas, therefore, demands for telephone and its value in use are extremely high. The rehabilitation and improvement of the local telephone networks in these areas will not only benefit these areas but also have a great pervasive effect over the nation, facilitating communications with those outside the objective areas including foreign countries.

An implementing agency of this project, TPTC, has adequate management capability both in terms of technology and manpower resource, and it is judged that operation and maintenance of the facilities after completion of the project can be properly carried out.

In view of the above, the application of grant aid by the Government of Japan for the implementation of this project is considered appropriate.

## 5-3 Recommendations

- (1) In order to implement this project smoothly without delay, the Government of Tanzania will take necessary budgetary measures to cover the Tanzania side's financial burden share for the project, as soon as possible after the signing of an Exchange of Notes (E/N).
- (2) Tanzania will have to take the following measures to ensure satisfactory operation and maintenance and maximum utilization of the facilities rehabilitated by this project:

- 1) To train operation and maintenance personnel so that they can be equipped with sufficient technical capability necessary for satisfactory operation and maintenance of the facilities, to ensure provision of stable communication services.
- 2) To review the existing operation and maintenance system of TPTC and introduce measures to enable prompt repair of defective points, aiming at drastic reduction of faults in hand and thereby increasing the income from telephone charges, to enhance profitability.
- 3) To analyze the causes of faults in subscribers' premises, based on the faults report data, i.e., those on indoor wiring, telephone sets, subscribers' terminals, arrectors, PABX, etc. and, based on the data thus obtained, the priority in rehabilitation is given to the worst subscribers' premises which suffer from frequent troubles, so as to reduce faults in subscribers' premises.
- 4) There are at present a total of some twenty thousand subscribers lines in the DSM Central Exchange area. Of these twenty thousand lines six thousand were rehabilitated under the former Japanese Grant Aid Project completed in 1991 and a further one thousand will be rehabilitated under this Project. The remaining thirteen thousand lines in the commercial areas of DSM Central Exchange will still require rehabilitation.

In order to properly upgrade the telephone services in Dar es Salaam, the TPTC should urgently make and implement a plan to rehabilitate the deteriorated outside plant facilities in commercial area situated in the center of DSM city. It should be noted that most of the thirteen thousand lines that require rehabilitation are in a small geographical areas and include a lot of important subscribers.

# **APPENDIXES**





**APPENDIXES**

**APPENDIX-1 MEMBER LIST OF SURVEY TEAM**

**APPENDIX-2 SURVEY SCHEDULE**

**APPENDIX-3 MINUTES OF DISCUSSIONS**

**APPENDIX-4 MEMBER LIST OF GOVERNMENT OFFICIALS  
IN TANZANIA**

**APPENDIX-5 LIST OF DATA COLLECTED**



APPENDIX-1A MEMBER LIST OF SURVEY TEAM

NAME	DUTY IN CHARGE	AFFILIATED TO
(1) Official Members		
Mabito YOSHIDA	Leader	Deputy Director Tariff Division Telecommunications Bureau Ministry of Posts & Telecommunications
Atsuo ASAI	Telecommunications Policy	Technology Policy Division, Communications Policy Bureau, Ministry of Posts & Telecommunications
(2) Consultant Members		
Kenji TSUBOI	Network Planning	Overseas Telecommunication Consulting Division, Nippon Telecommunications Consulting Co., Ltd.
Shuichi ISHIMOTO	Circuit Design	- ditto -
Tomio YAMAMOTO	Outside Plant	- ditto -
Teruhiro TAHARA	Civil Facilities & Cost Estimate	- ditto -

APPENDIX-1B MEMBER LIST OF TEAM FOR CONSULTATION ON DRAFT REPORT

NAME	DUTY IN CHARGE	AFFILIATED TO
(1) Official Members		
Naoki OKANO	Leader	Deputy Director Telecommunication Systems Division Telecommunications Bureau Ministry of Posts & Telecommunications
Tomohiro SEKI	Project Coordinator	Second Project Management Division, Grant Aid Project Management Department Japan International Cooperation Agency
(2) Consultant Members		
Kenji TSUBOI	Network Planning	Overseas Telecommunication Consulting Division, Nippon Telecommunications Consulting Co., Ltd.
Shuichi ISHIMOTO	Circuit Design	- ditto -

APPENDIX-2A SURVEY SCHEDULE

Date (in 1992)	Works
Sept. 14 (Mon)	Departing from Tokyo and arriving in London (BA-008)
15 (Tue)	Departing from London (BA-069)
16 (Wed)	Arriving in Dar es Salaam. Discussions with JICA Office. Courtesy visit to Japanese Embassy.
17 (Thu)	Meeting with TPTC: explanation on formalities of Japan's grant aid and submission of Inception Report.
18 (Fri)	Meeting with TPTC.
19 (Sat)	Team members meeting and drafting of minutes of the discussions with TPTC.
20 (Sun)	Team members meeting and field investigation.
21 (Mon)	Meeting with TPTC and drafting minutes of discussions.
22 (Tue)	Signing of the minutes of discussions by representative of TPTC and the survey team, and by Deputy Director General of International Bureau of the Ministry of Finance.
23 (Wed)	Reporting to Japanese Embassy and JICA Office.
24 (Thu)	Official members leaving Dar es Salaam (SR-293) Field survey and data collection.
25 (Fri)	Field survey and data collection.
26 (Sat)	Field survey and data collection.
27 (Sun)	Field survey and data collection.
28 (Mon)	Field survey and data collection.
29 (Tue)	Field survey and data collection.
30 (Wed)	Field survey and data collection.
Oct. 1 (Thu)	Field survey and data collection.
2 (Fri)	Field survey and data collection.
3 (Sat)	Field survey and data collection.
4 (Sun)	Field survey.

- 5 (Mon) Field survey and data collection.
- 6 (Tue) Field survey and data collection.  
Discussions with TPTC.
- 7 (Wed) Field survey and data collection.  
Discussions with TPTC.
- 8 (Thu) Field survey and data collection.
- 9 (Fri) Filing of data collected and team member meeting.
- 10 (Sat) Team member meeting.  
Consultant members leaving Dar es Salaam (AF-467).
- 11 (Sun) Arriving at Paris.
- 12 (Mon) Leaving Paris (AF-276).
- 13 (Tue) Arriving at Tokyo.

APPENDIX-2B SCHEDULE FOR CONSULTATION ON DRAFT REPORT

Date (in 1992)	Works
Dec. 14 (Mon)	Departing from Tokyo and arriving in London (BA-008)
15 (Tue)	Departing from London (BA-069)
16 (Wed)	Arriving in Dar es Salaam. Discussions with JICA Office. Courtesy visit to Japanese Embassy.
17 (Thu)	Explanation of the Draft Report and Discussions with TPTC
18 (Fri)	Discussions on the Draft Report with TPTC.
19 (Sat)	Team members meeting and drafting of minutes of the discussions with TPTC.
20 (Sun)	Team members meeting.
21 (Mon)	Discussions on the Draft Report with TPTC.
22 (Tue)	Signing of the minutes of discussions by representative of TPTC and the survey team, and by Deputy Director General of International Bureau of the Ministry of Finance.
23 (Wed)	Reporting to Japanese Embassy and JICA Office.
24 (Thu)	Team members leaving Dar es Salaam (SR-293)
25 (Fri)	Leaving Zurich (SR-166)
26 (Sat)	Arriving at Tokyo.





**APPENDIX-3**

**MINUTES OF DISCUSSIONS**



MINUTES OF DISCUSSIONS  
ON  
THE TELEPHONE NETWORK REHABILITATION PROJECT  
FOR  
THE PORT AND INDUSTRIAL AREAS IN DAR ES SALAAM  
IN  
THE UNITED REPUBLIC OF TANZANIA

In response to the request from the Government of the United Republic of Tanzania, the Government of Japan decided to conduct a Basic Design Study of the Telephone Network Rehabilitation Project for the Port and Industrial Area in Dar es Salaam, (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA).

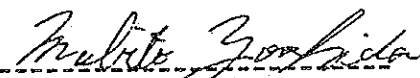
JICA sent a basic design study team (hereinafter referred to as "the Team"), headed by Mr. Mabito Yoshida, Deputy Director of Tariff Division, Telecommunications Bureau, Ministry of Posts and Telecommunications, to Dar es Salaam in Tanzania for the period from September 16 to October 10, 1992.

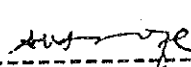
The team had discussions on the Project with the officials concerned of the Government of the United Republic of Tanzania and conducted a field survey of the Project areas.


As a result of discussions, both parties have confirmed the main items described on the attached sheets.

The team will proceed with further work and prepare the Basic Design Study Report, in order to realize the Project.

Dar es Salaam, September 22, 1992

  
-----  
Mr. Mabito Yoshida  
Leader  
Basic Design Study Team  
JICA

  
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MR. S.M. MSOFFE  
for: Director General  
Tanzania Posts and  
Telecommunications Corporation

  
-----  
Commissioner for External Finance  
Ministry of Finance

ATTACHMENT

01. Objective

The objective of the project is to improve the deteriorated outside plant for the Port and Industrial Areas in Dar es Salaam. The telecommunications services are given a top priority by the Government under the Economic Recovery Programme and the Economic and Social Action Programme. Tanzania Posts and Telecommunications Corporation (TPTC) places the highest priority on this Project, because the Project areas are the most important economic nerve center of Dar es Salaam and the nation as a whole.

02. Project Areas

The project covers for the port and industrial areas in Dar es Salaam being served by the Central Exchange and the Pugu Road Exchange.

03. TPTC is responsible for the administration and execution of the Project. (refer to Annex-2 Organization of TPTC).

04. Items confirmed by Both Parties

According to the discussion between the both parties, the following matters have been confirmed by and between the Government of Tanzania and the Basic Design Study Team.

(1) Scope of Work

Work Item	Central & Pugu Road Exchange
1) Main Distribution Frame (MDF)	1 Lot
2) Primary Cable	6800 Pairs
3) Cross Connection Cabinet	12 Ea
4) Secondary Cable	2 Lots
5) Civil Works	2 Lots
6) Cable Splicing Material/Tools	2 Lots

The final component of the Project will be decided by further surveys and studies.

(2) Final component for Scope of Work in Project Areas

The final component for the scope work in the Project areas shall be determined based on the surveys and studies done by the Basic Design Study Team.

05. Share of Main Works

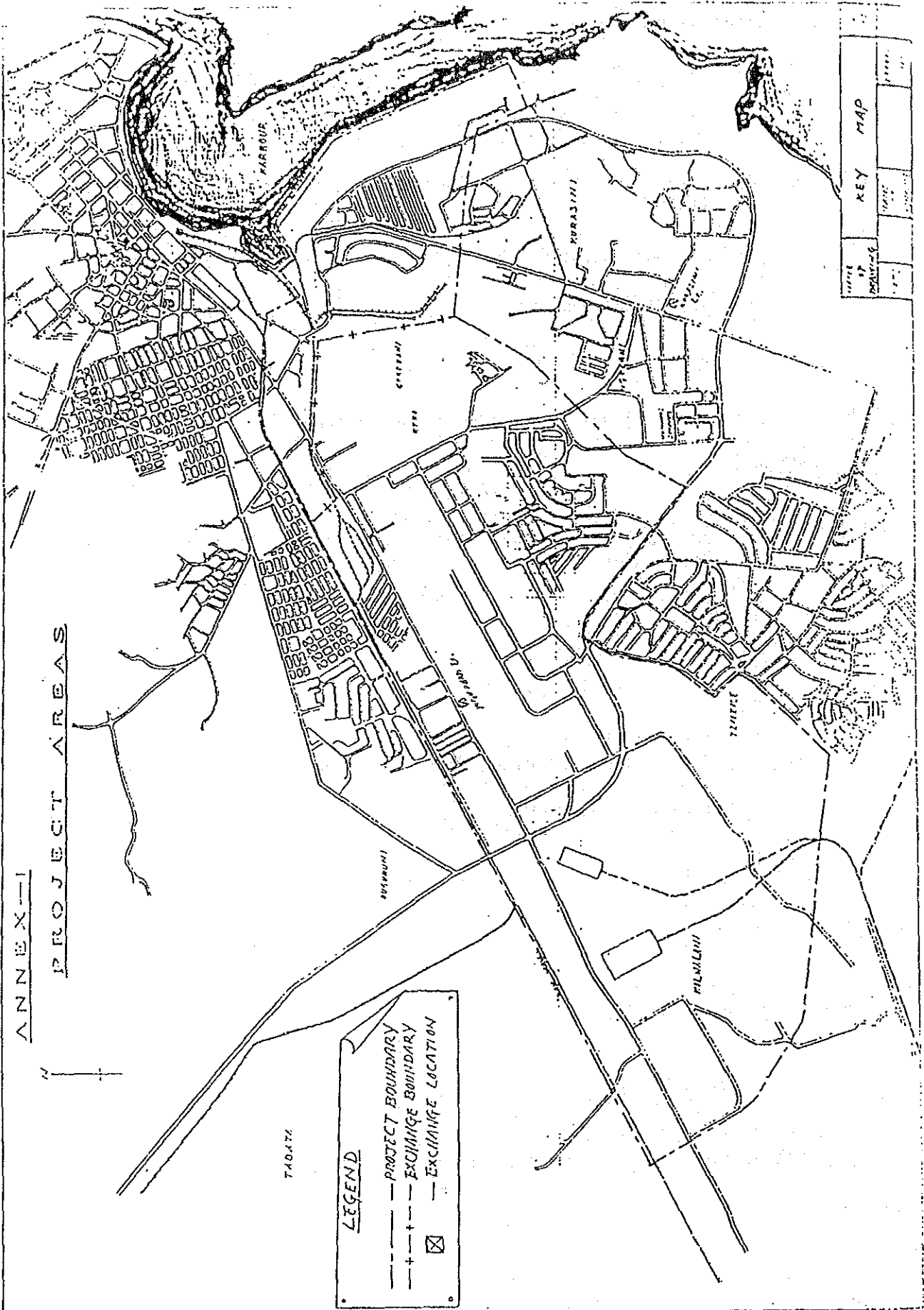
- (1) The Project covers the implementation of installation/ construction work with materials from MDF to distribution points and the supply of materials for maintenance use on the local cable network.
- (2) TPTC is to carry out transfer work of drop wire for existing subscribers.
- (3) All removal work such as removal of aerial and underground cables with associated accessories are to be carried out by TPTC after transferring to new facilities.

06. Japan's Grant Aid System

- (1) The Government of Tanzania has understood the system of Japanese Grant Aid explained by the team.
- (2) The Government of Tanzania will take all necessary measures, described in Annex-3 for the smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

07. Schedule of Study

- (1) The consultants will proceed with further studies in Tanzania until October 10, 1992.
- (2) Based on the Minutes of Discussions and technical examination of the study results, JICA will complete the draft final report and will notify the outcome to the Government of Tanzania in November, 1992.

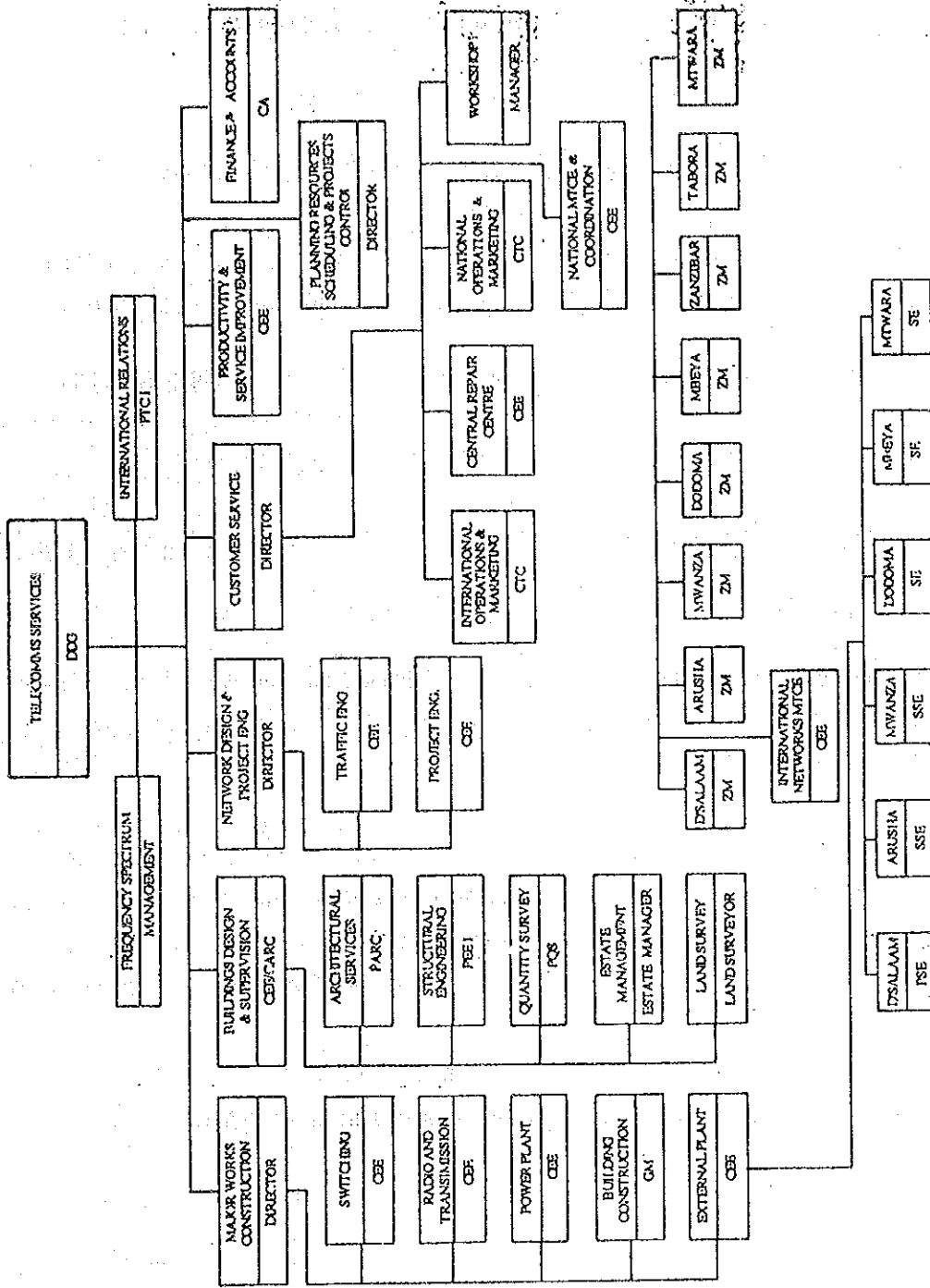


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ANNEX-2 Organization of TPTC

APPROVED ORGANISATION STRUCTURE FOR TELECOMS SERVICES



DOG - DEPUTY DIRECTOR GENERAL  
 CE - CHIEF EXECUTIVE ENGINEER  
 PE - PRINCIPAL EXECUTIVE ENGINEER  
 CTC - CHIEF TELECOMS CONTROLLER  
 PTC - PRINCIPAL TELECOMS CONTROLLER  
 CARC - CHIEF ARCHITECT  
 PARC - PRINCIPAL ARCHITECT  
 PQS - PRINCIPAL QUANTITY SURVEYOR  
 GM - GENERAL MANAGER  
 ZM - ZONAL MANAGER  
 PSE - PRINCIPAL SECTIONAL ENGINEER  
 SSE - SENIOR SECTIONAL ENGINEER  
 SE - SECTIONAL ENGINEER  
 CA - CHIEF ACCOUNTANT

5/1

NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF TANZANIA IN CASE  
JAPAN'S GRANT AID IS EXECUTED.

1. To prepare the Project office with storage and parking area.
2. To undertake incidental outdoor works and facilities such as gardening fencing, gates and exterior lighting in and around the office area.
3. To provide facilities for distribution of electricity water supply, telephone, drainage, sewage and other incidental facilities to the Project site.
4. To bear commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
5. To ensure prompt unloading and customs clearance at ports of disembarkation in Tanzania and internal transportation therein of the products purchased under the Grant.
6. To accord Japanese Nationals whose services may be required in connection with the supply of products and the services under the verified contract such facilities as may be necessary for their entry into the United Republic of Tanzania and stay therein for the performance of their work.
7. To maintain and operate properly and effectively the facilities constructed and equipment purchased under the Grant Aid.



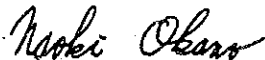
MINUTES OF DISCUSSIONS  
BASIC DESIGN STUDY ON THE PROJECT  
FOR  
TELEPHONE NETWORK REHABILITATION IN DAR ES SALAAM  
IN  
THE UNITED REPUBLIC OF TANZANIA  
(CONSULTATION ON DRAFT REPORT)

In September 1992, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team on the Project for Telephone Network Rehabilitation in Dar es Salaam (hereinafter referred to as "the Project") to the United Republic of Tanzania, and through discussions, field survey, and technical examination of the results in Japan has prepared the draft report of the study.

In order to explain and to consult with the Tanzania side on the components of the draft report, JICA sent to Tanzania a study team, which is headed by Mr. Naoki Okano, Deputy Director, Telecommunication Systems Division, Telecommunications Bureau, Ministry of Posts and Telecommunications, and is scheduled to stay in the country from December 16 to 24, 1992.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

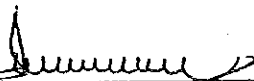
Dar es Salaam, December 22, 1992



\_\_\_\_\_  
Naoki Okano  
Leader  
Basic Design Study Team  
JICA



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E. C. Mosha  
for: Director General  
T.P.T.C



\_\_\_\_\_  
A. I. Muneni  
Assistant Commissioner for External Finance  
Ministry of Finance

Attachment

1. Components of Draft Report

The Government of Tanzania has agreed and accepted in principle the components of the Draft Report proposed by the Team.

2. Japan's Grant Aid system

(1) The Government of Tanzania has understood the system of Japan's Grant Aid explained by the Team.

(2) The Government of Tanzania will take the necessary measures, described in Annex-I, for smooth implementation of the Project on condition that the Grant Aid assistance by the Government of Japan is extended to the Project.

3. Further schedule

The team will make the Final Report in accordance with the confirmed items, and send it to the Government of Tanzania by the end of February 1993.

Ecm

Annex-I Necessary Measures to be taken by the Government of Tanzania

1. To provide data and information necessary for detailed design.
2. To prepare the Project office area with storage and parking spaces, before commencement of work.
3. To provide necessary permissions, licenses and other authorization for carrying out the Project.
4. To bear commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
5. To ensure prompt unloading and customs clearance at ports of disembarkation in the United Republic of Tanzania and internal transportation therein of the products purchased under the Grant.
6. To accord Japanese nationals whose services may be required in connection with the supply of the equipment and services under the verified contract such facilities as may be necessary for their entry into Tanzania and stay therein for the performance of their work.
7. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the United Republic of Tanzania with respect to the supply of the products and services under the Verified Contracts.
8. To operate and maintain properly and effectively the equipment provided under the Grant for the execution of the works for the Project.
9. To bear all the expenses other than those to be borne by the Grant, necessary for construction of the Project.

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APPENDIX-4 MEMBER LIST OF GOVERNMENT OFFICIALS IN TANZANIA

1. Ministry of Finance (MOF)

Dr. J.K. Kipokola : Deputy Secretary  
Mr. E.M. Masanja : Acting Commissioner for External Finance  
Mr. A.I. Muneni : Assistant Commissioner for External Finance

2. Ministry of Communications and Transport

Mr. A.S. Ndakidemi : Director of Communications

3. Tanzania Posts and Telecommunications Corporation (TPTC)

1) Mr. A.B. Mpunda : Deputy Director General  
2) Mr. S.M. Msofe : Acting Deputy Director General  
3) Mr. N. Felician : Chief Economic/ Corporate Planning  
4) Mr. I. J. Sementawa : Public Relations Manager  
5) Mr. W.J.N. Miigo : Senior Public Relations Officer  
6) Mr. E.C. Masha : Director/ Customer Service  
7) Mr. J.S. Ngatana : Director/ Network Design and Project Engineering  
8) Mr. S.B.J. Ngalambe : Director/ Major Works Construction  
9) Mr. S.S. Kyaruzi : Director/ Planning Resources Scheduling & Projects  
10) Mr. S.M. Manyama : Chief Accountant Telecoms  
11) Mr. J.K. Maserele : Chief Executive Engineer/ Power Plant  
12) Mr. H. Pantaleo : Financial Controller  
13) Mr. J. E. Mhando : Zonal Telecoms Manager  
14) Mr. H. Y. Mtopa : Zonal Chief/Sales Installation & Maintenance  
15) Mr. H.J.R. Lymo : Chief Executive Engineer/ Project Engineering  
16) Mr. M.S. Rulenguka : Principal Sectional Engineer/ External Planning

- 17) Mr. S.K. Mkumba : Chief Executive Engineer/ Switching & Traffic Engineering
- 18) Mr. Masudi Ali : Principal Sectional Engineer/ Radio Transmission Engineering
- 19) Mr. A. Amri : Chief Sectional Engineer/ External Construction
- 20) Mr. K. A. M. A. Mohamad : Senior Sectional Engineer/ External Planning
- 21) Mr. P. M. Mghanga : Assistant Engineer/ External Planning
- 22) Mr. J. K. Jongo : Section Engineer/ External Planning

#### 4. Japanese Officials

##### - Japanese Embassy

His Excellency

Mr. Shigenobu Nagai : Ambassador

Mr. Sumio Kusaka : Councilor

Mr. Satoshi Ito : First Secretary

Mr. Takashi Katsumi : Second Secretary

Mr. Isamu Kita : Second Secretary

##### - JICA Office

Mr. Masahiro Kumomi : Resident Representative

Mr. Noboru Tsutsui : Deputy Director

Mr. Yukihide Katsuta : Assistant Resident Representative

Mr. Tomiaki Ito : Assistant Resident Representative

Mr. Yukio Abe : Assistant Resident Representative

##### - JETRO Office

Mr. Akio Nagai : Representative

APPENDIX-5 LIST OF DATA COLLECTED

1. Population Census National Profile (1988)
2. National Accounts of Tanzania (1976-1990)
3. Plans of Operations 1991/92 for Bureau of Statistics Tanzania and Department of Statistics Zanzibar
4. Plans of Operations 1992/93 for Bureau of Statistics Tanzania
5. Tanzania Economic Trends (TET) A Quarterly Review of the Economy
6. Plan for the Split of the Corporation, Tanzania Posts and Telecommunications Corporation
7. Foreign Funded Project, Telecommunications Grant Aid and Loan Project
8. Profit and Loss Account for the Year Ended 31st December, 1990 and Profit and Loss Account for the Year Ended 31st December, 1989
9. Major Telecomms Engineering Works 1991, Summary of Cost Estimates
10. Telecommunications Facilities in Dar es Salaam Metropolitan Area by Exchange
11. International Telephone and Telex Lines
12. Number of Employees (TPTC)
13. Statistical Abstract (1990)
14. Regulations of Wages and Terms of Employment
15. Security of Employment
16. Economic Recovery Programme II (Economic and Social Action Programme) 1989/90 - 1991/92
17. DHL Tariff
18. Tanganyika Tegry (Plastics) Limited
19. University of Dar es Salaam for List of Fees for Laboratory Tests
20. Exchange Rates Bank of Tanzania
21. Motor Car Insurance National Insurance Corporation
22. List of Fees for Laboratory Tests Form 1st January 1992
23. Foreign Trade Statistics 1989
24. Transport Statistics 1989
25. Industrial Commodities Quarterly Report (1990/4)
26. Industrial Commodities Quarterly Report (1991)
27. Foreign Trade Statistics 1987
28. Survey of Employment and Earnings (1981-1984)
29. Income Tax Statistics Year of Income 1974

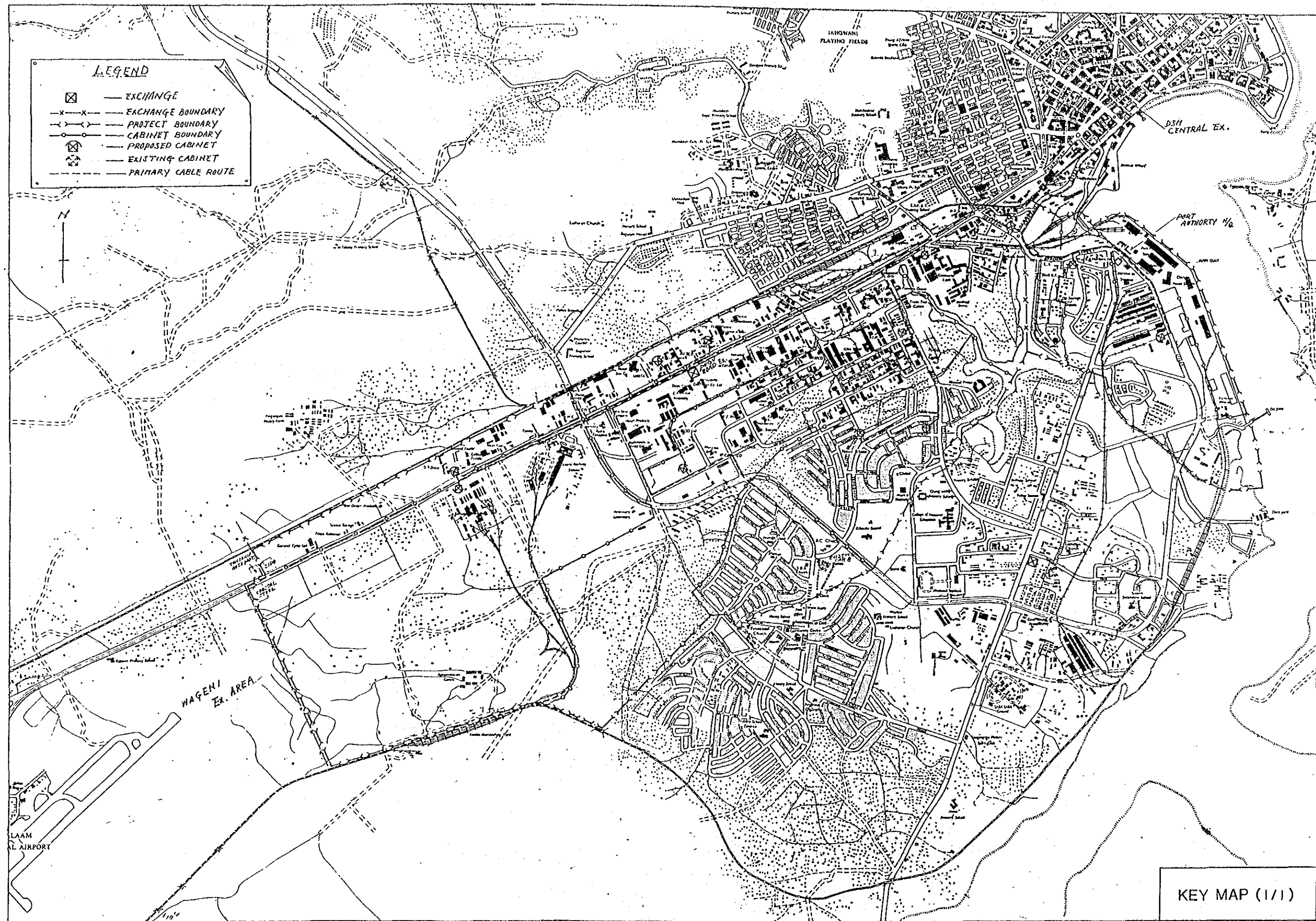
30. The Economic Survey (1989)
31. Telecommunications Restructuring Project (Briefing Memo, December 1991)
32. Other data for cost estimation





**B A S I C   D E S I G N**

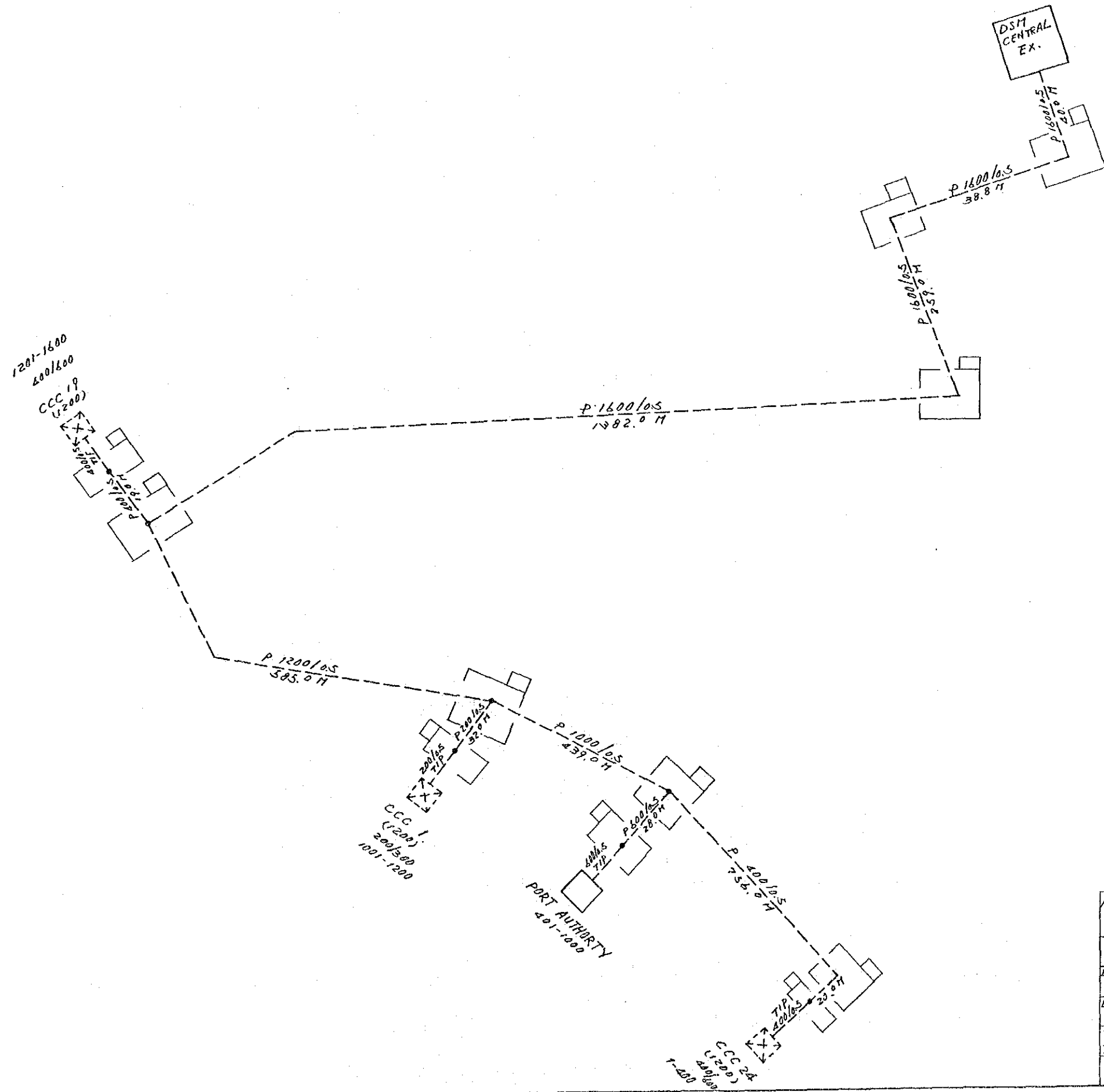




KEY MAP (1/1)





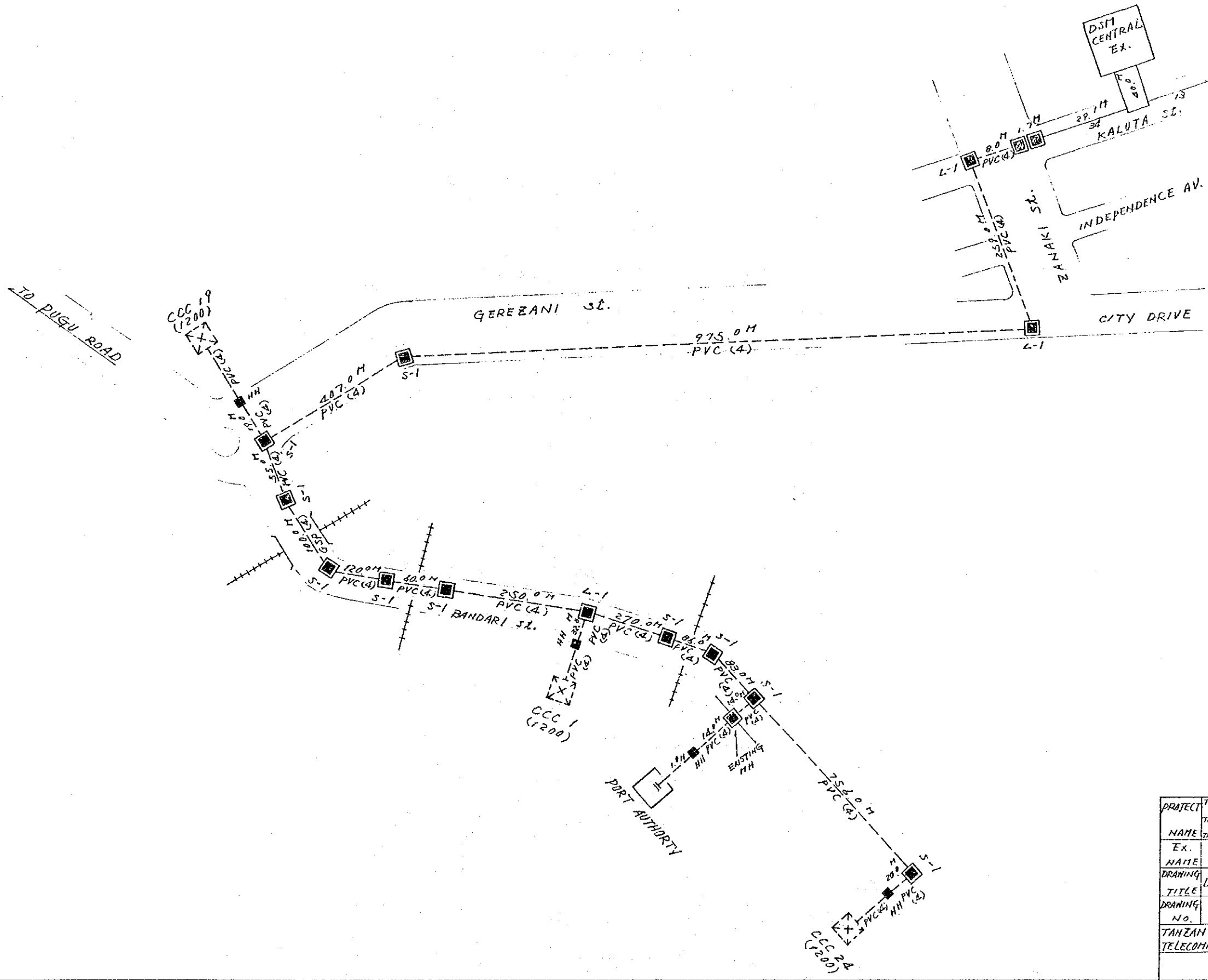


PROJECT	THE TELEPHONE NETWORK REHABILITATION PROJECT FOR THE PORT AND INDUSTRIAL AREAS IN DAR ES SALAAM, THE UNITED REPUBLIC OF TANZANIA		
EX. NAME	DSM CENTRAL		
DRAWING TITLE	PRIMARY CABLE PLAN		
DRAWING NO.	1/1	SHEET NO.	1/6
TANZANIA POSTS AND TELECOMMUNICATIONS CORPORATION			
JICA			









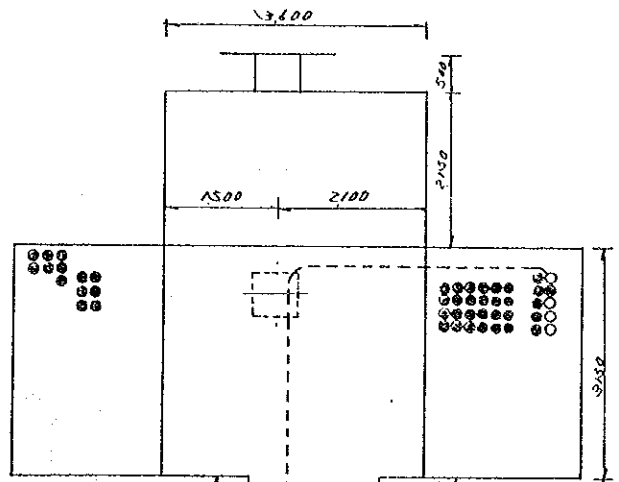
PROJECT	THE TELEPHONE NETWORK REHABILITATION PROJECT FOR THE PORT AND INDUSTRIAL AREAS IN DAR ES SALAAM THE UNITED REPUBLIC OF TANZANIA		
NAME	DSM CENTRAL		
EX. NAME	DSM CENTRAL		
DRAWING TITLE	DUCT CABLE ROUTE PLAN		
DRAWING NO.	1/1	SHEET NO.	2/6
TANZANIA POSTS AND TELECOMMUNICATIONS CORPORATION			
JICA			



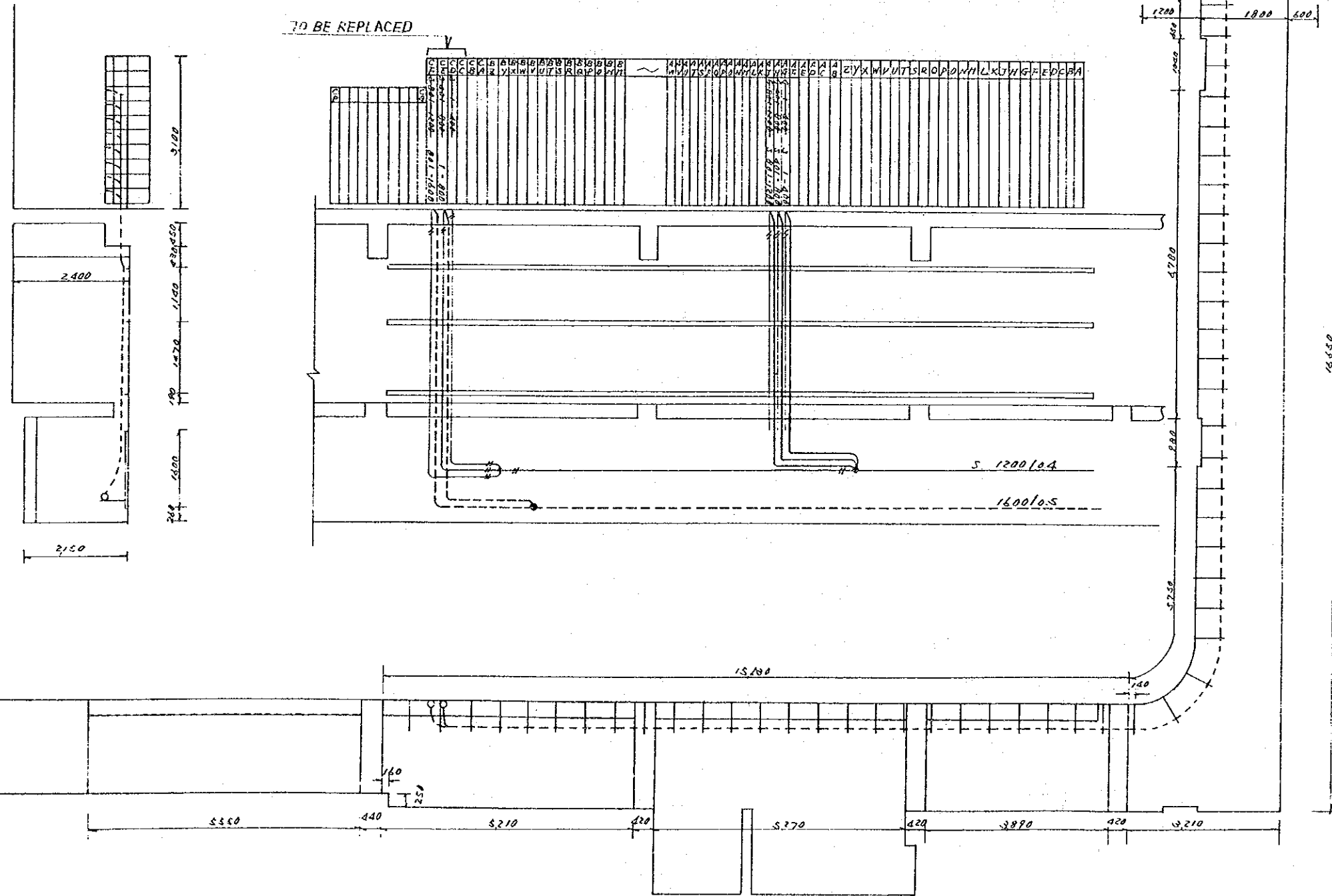


NOTE

- 1) SHIFTING OF THE EXISTING TERMINATION (400 PAIRS/VERTICAL) WITH INCIDENTAL WORKS FOR 'S' MAIN CABLE SHALL BE DONE FROM MDF NOS. CD-CF ONTO NOS. AG-AJ BY TPTC.
- 2) THE EXISTING MDF NOS. CD-CF AND OLD TERMINALS (400 PAIRS/VERTICAL) SHALL BE REMOVED BY THE CONTRACTOR.
- 3) THE NEW TYPE MDF NOS. CD-CF AND NEW TERMINALS (800 PAIRS/VERTICAL) WHICH ARE THE SAME ONES BEING INSTALLED BY JAPANESE GRANT AID, PHASE 1-A., SHALL BE INSTALLED BY THE CONTRACTOR.



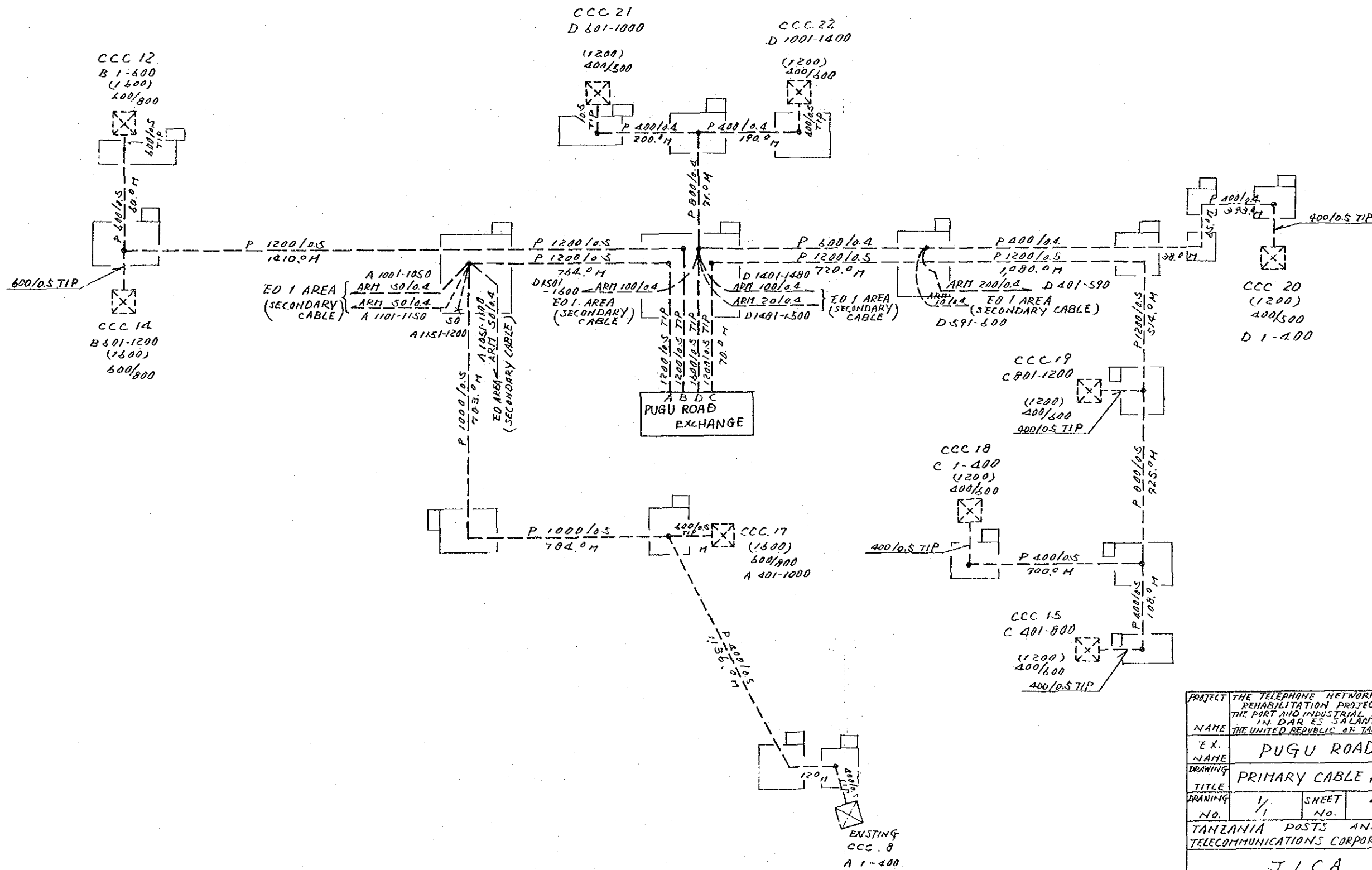
TO BE REPLACED



PROJECT	THE TELEPHONE NETWORK REHABILITATION PROJECT FOR THE PORT AND INDUSTRIAL AREAS IN DAR ES SALAAM THE UNITED REPUBLIC OF TANZANIA		
EX. NAME	DSM CENTRAL		
DRAWING TITLE	CABLE TERMINATION PLAN		
DRAWING NO.	1/1	SHEET NO.	3/6
TANZANIA POSTS AND TELECOMMUNICATIONS CORPORATION			
JICA			





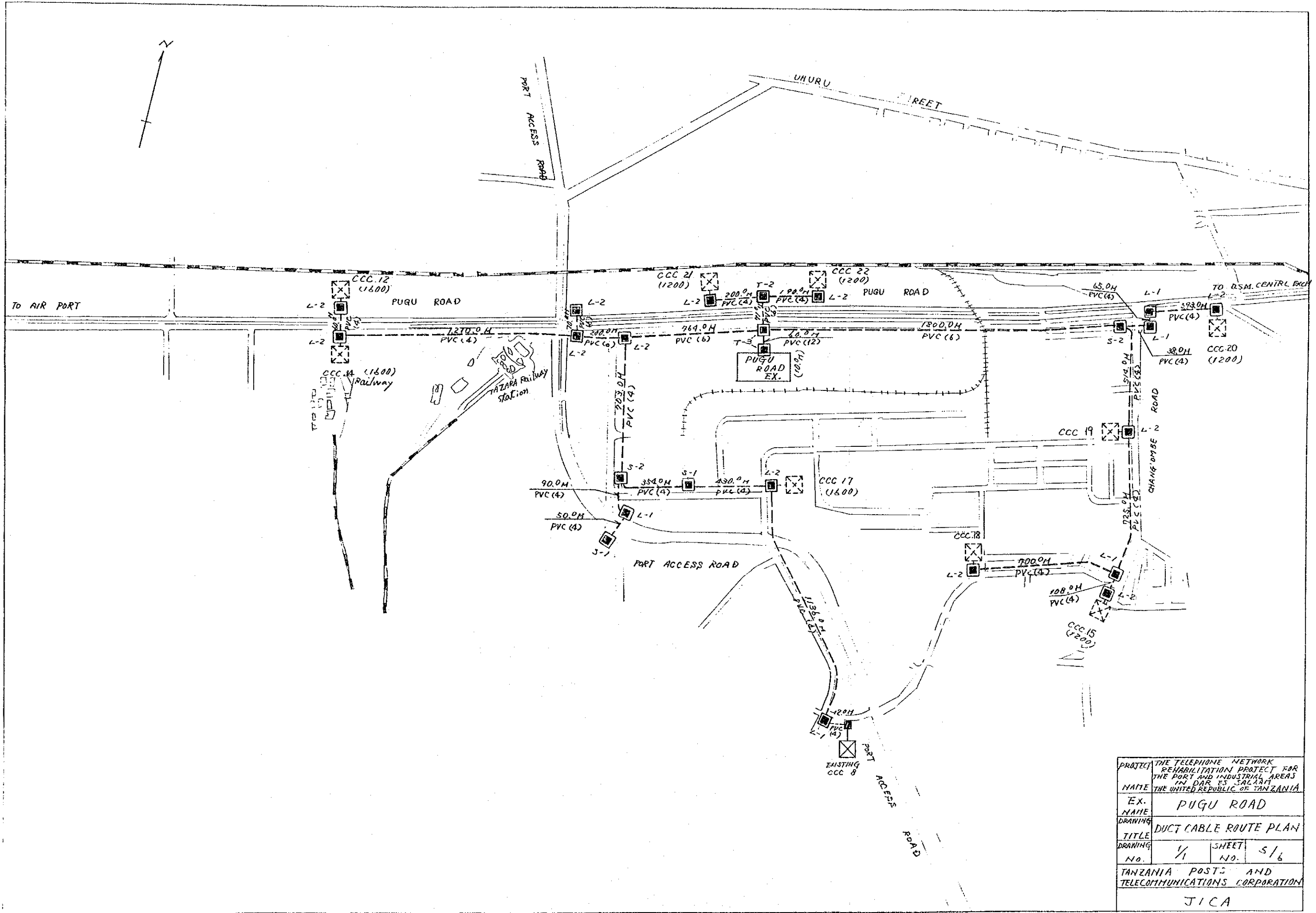


PROJECT	THE TELEPHONE NETWORK REHABILITATION PROJECT FOR THE PORT AND INDUSTRIAL AREAS IN DAR ES SALAAM		
NAME	THE UNITED REPUBLIC OF TANZANIA		
EX. NAME	PUGU ROAD		
DRAWING TITLE	PRIMARY CABLE PLAN		
DRAWING NO.	1/1	SHEET No.	4/6
TANZANIA POSTS AND TELECOMMUNICATIONS CORPORATION			
JICA			





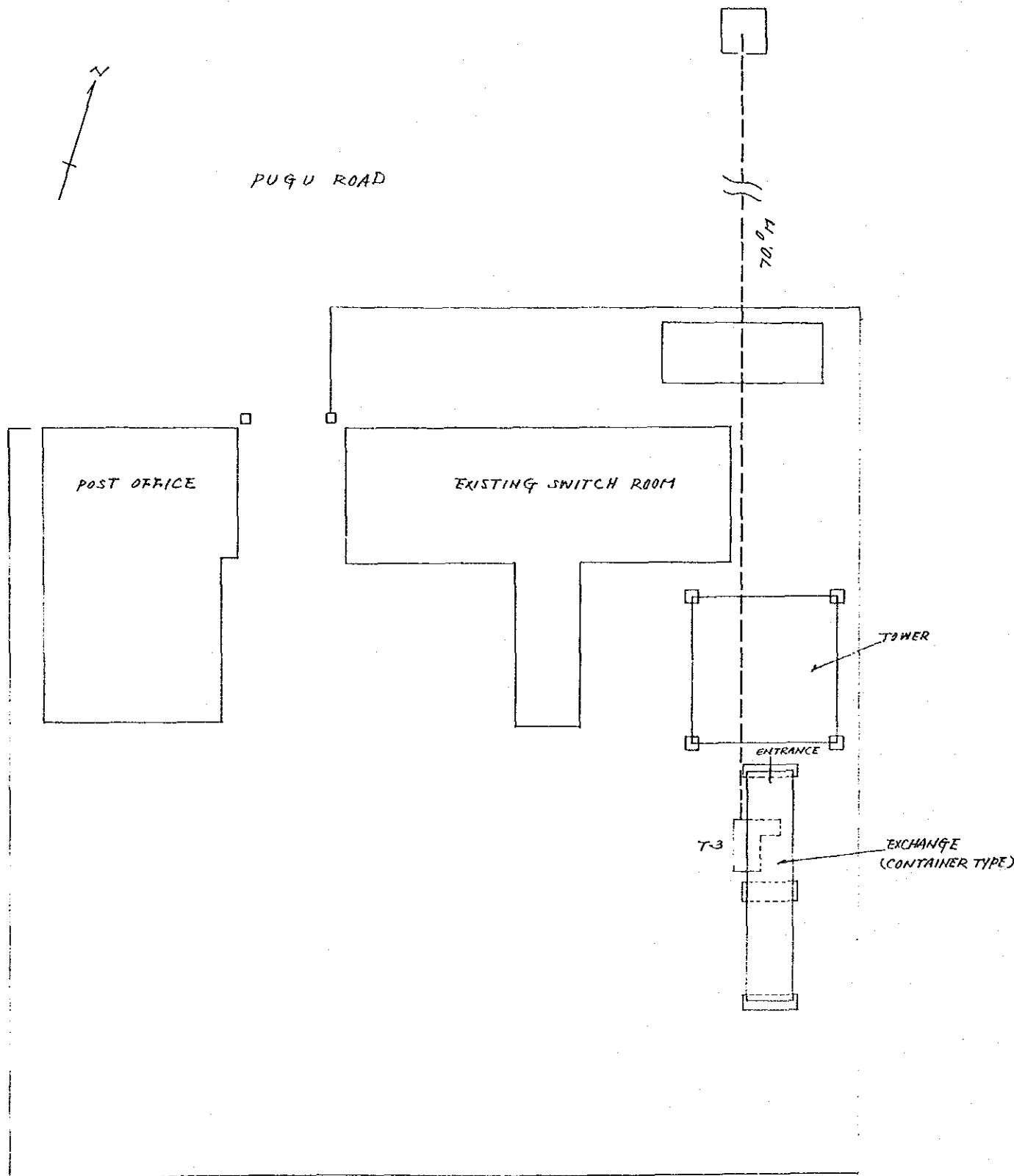




PROJECT	THE TELEPHONE NETWORK REHABILITATION PROJECT FOR THE PORT AND INDUSTRIAL AREAS IN DAR ES SALAAM, THE UNITED REPUBLIC OF TANZANIA		
EX. NAME	PUGU ROAD		
DRAWING TITLE	DUCT CABLE ROUTE PLAN		
DRAWING NO.	1/1	SHEET NO.	5/6
TANZANIA POSTS AND TELECOMMUNICATIONS CORPORATION			
JICA			

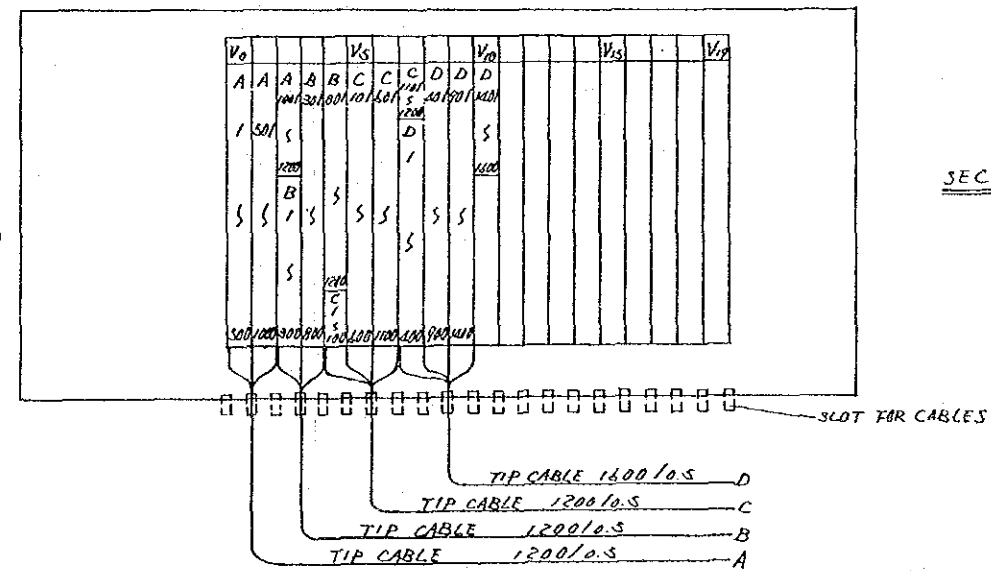
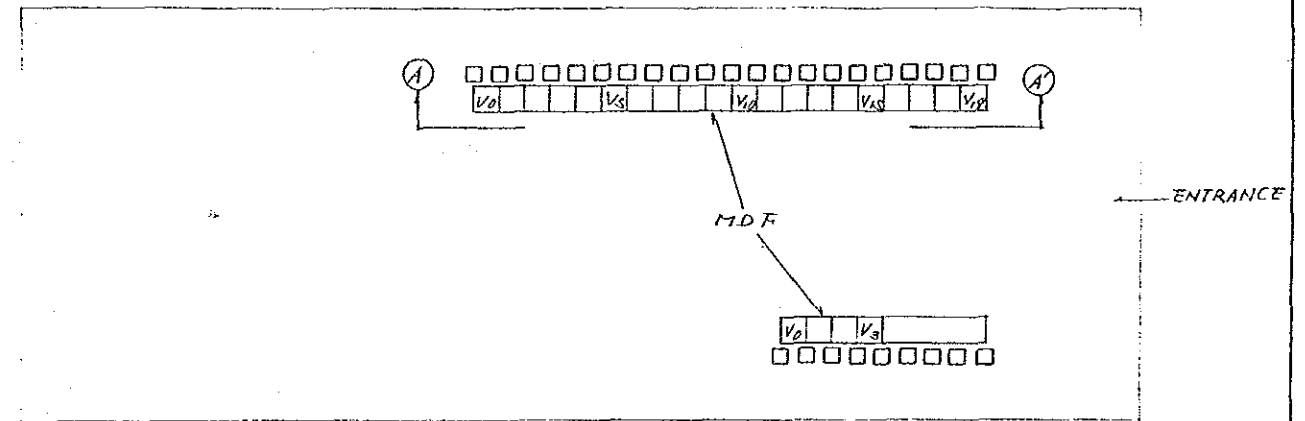






PLAN

PLAN OF CONTAINER



SECTION A-A

PROJECT	THE TELEPHONE NETWORK REHABILITATION PROJECT FOR THE PORT AND INDUSTRIAL AREAS IN DAR ES SALAAM		
NAME	THE UNITED REPUBLIC OF TANZANIA		
EX. NAME	PUGU ROAD		
DRAWING TITLE	SITE LAYOUT AND CABLE TERMINATION PLAN		
DRAWING NO.	1/1	SHEET NO.	4/6
TANZANIA POSTS AND TELECOMMUNICATIONS CORPORATION			
JICA			





JICA