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1. 協 議 議 事 錄


MINUTES OF DISCUSSIONS
ON
THE REHABILITATION PROJECT OF
TELECOMMUNICATIONS EXTERNAL LINE PLANT
IN THE REPUBLIC OF GHANA

In response to the request of the Government of the Republic of Ghana, the Government of Japan decided to conduct a basic design study on the Rehabilitation Project of Telecommunications External Line Plant and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Ghana the study team headed by Mr. Noriyuki SHIGETA, Deputy Director, Telecommunications System Division, Ministry of Posts and Telecommunications, from 25th October to 19th November, 1986.

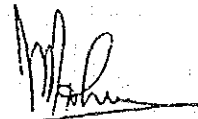
The team had a series of discussions on the Project with the officials concerned of the Government of the Republic of Ghana headed by Mr. T. A. Botchway, Deputy Director General (Engineering) and conducted a field survey in Accra area.

As a result of the study, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

Accra, 5th November, 1986.



Mr. Noriyuki SHIGETA
Leader, Japanese Study
Team, JICA



Mr. F. A. Johnson
Acting Director General
The Ghana Posts and
Telecommunications
Corporation



Dr. William Adote
Acting Chief Director
Ministry of Transport
and Communications

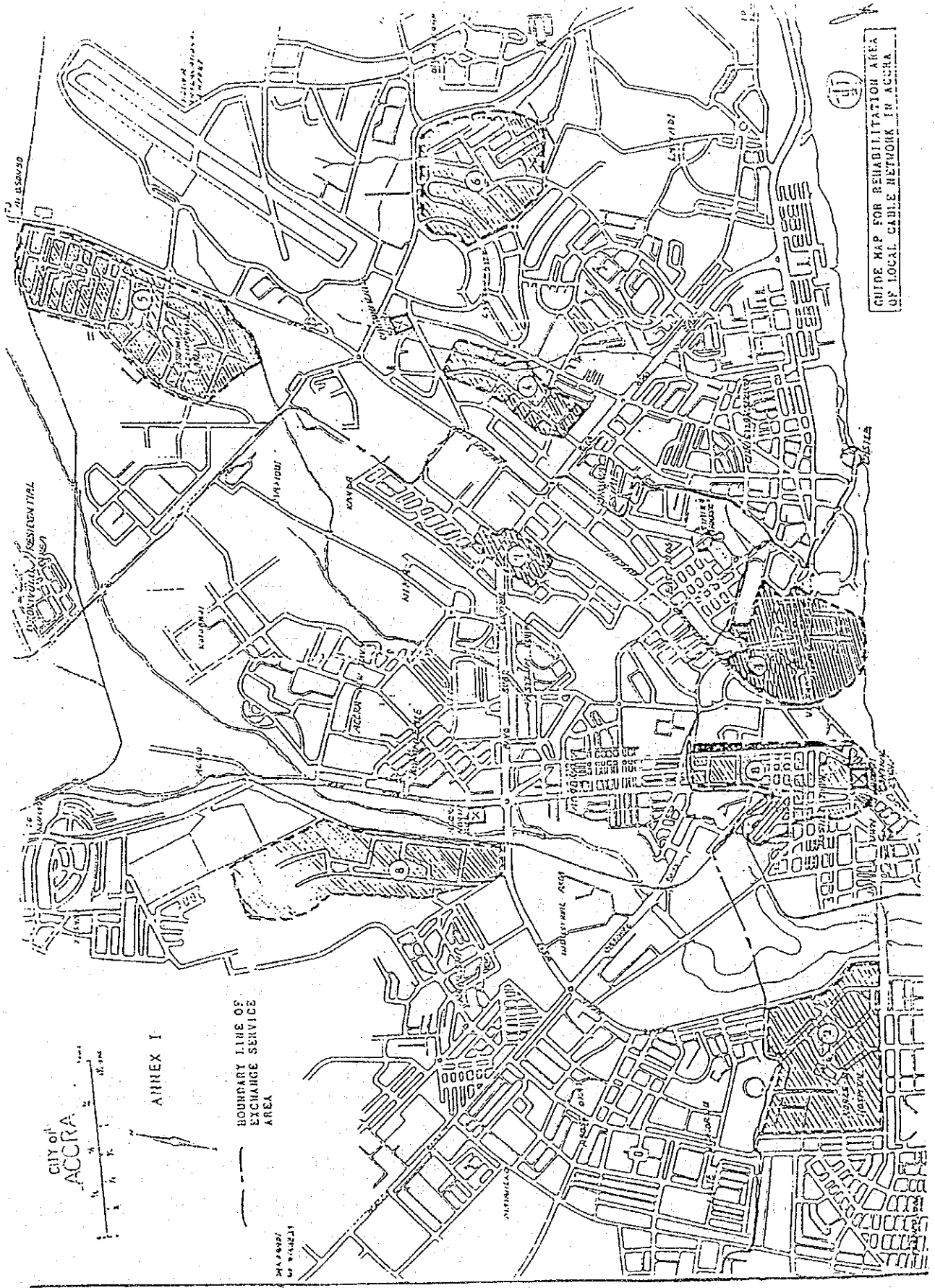
-ATTACHMENT-

1. The objective of the Project is to execute rehabilitation work of the Telecommunications External Line Plant in the areas where rehabilitation is most urgently required in Accra.
2. The Team will convey the desire of the Government of the Republic of Ghana to the Government of Japan that the latter will take the necessary measures to cooperate in implementing the Project within the scope of the Japanese economic cooperation in grant form.

The proposed areas of the Project are shown in Annex I. The number given to each area shows the order of priority, and the areas of low priority may be deleted or adjusted according to the budget to be allocated by the Government of Japan.

3. The Ghanaian representatives have understood the Japan's grant aid system, explained to them by the Team, which includes a principle of the use of a Japanese consultant and a Japanese general contractor for the execution of the Project.
4. The Government of the Republic of Ghana will take the necessary measures as listed in Annex II on condition that the grant aid provided by the Government of Japan shall be extended to the Project.
5. The Ghana Posts and Telecommunications Corporation shall be the implementing body for the Project and shall be responsible for the implementation of the preparatory work and construction work of the Project.
6. For technical cooperation the Team will convey to the Government of Japan the desire of the Government of the Republic of Ghana to be provided with experts to be dispatched from Japan to assist with the training of the Ghana Posts and Telecommunications's engineers and technicians in the operation and maintenance of the telecommunications external line plant.
7. The Team will convey to the Government of Japan the desire of the Government of the Republic of Ghana for the supply of:
 - (1) measuring equipment, tools, materials and vehicles for the maintenance and operation of the telecommunications external line plant.
 - (2) equipment, tools and materials necessary for training on the maintenance and operation of external line plant and switching facilities.



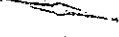
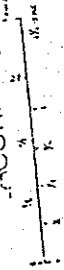


GUIDE MAP FOR REHABILITATION AREA
OF LOCAL CABLE NETWORK IN ACCRA

CITY OF
ACCRA

ANNEX I

BOUNDARY LINE OF
EXCHANGE SERVICE
AREA



MAKINDI
10/11/2011

ANNEX II

Required Arrangement to be taken by the
Government of the Republic of Ghana

1. To provide the space necessary for such construction as temporary offices, working areas, stock yards and others.
2. To obtain the appropriate construction permit prior to construction work.
3. To bear commissions to the Japanese foreign exchange bank for the Banking Arrangement.
4. To ensure prompt unloading, tax exemption and customs clearance at ports of disembarkation in Ghana and prompt internal transportation therein of the products purchased under the grant.
5. To exempt Japanese nationals engaged on the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Ghana with respect to the supply of the products and the services under the verified contracts.
6. To accord without delay to 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 Ghana and their stay therein for the performance of their work.
7. To maintain and use properly and effectively the facilities constructed and equipment purchased under the grant.
8. To bear all the expenses, other than those to be borne by the grant, necessary for construction of the facilities as well as for the transportation and the installation of the equipment.
9. To coordinate with the inhabitants living in the Project areas on any related matters which may arise during the implementation of the Project.
10. To execute the following works:
 - (1) Removal works of existing faulty/deteriorated facilities, if necessary, after the transfer of working lines.
 - (2) Subscriber premises rehabilitation works.
 - (3) Rehabilitation works of internal network of PBXs (Private Branch Exchanges).



Ⅱ. 調 査 団 の 構 成

| | |
|---------------------|---------------------------------|
| 重 田 憲 之 (団 長) | 郵政省電気通信局電気通信技術システム課 課長補佐 |
| 伊 藤 隆 文 (計 画 管 理) | 国際協力事業団無償資金協力計画調査部 基本設計調査第二課 |
| 三 橋 英 夫 (電 話 網 計 画) | 日本通信協力株式会社 |
| 江 口 健 二 (土 木 設 備) | 日本通信協力株式会社 |
| 斉 藤 哲 男 (線 路 設 備) | 日本通信協力株式会社 |
| 岩 瀬 喜 雄 (線 路 設 備) | 日本通信協力株式会社 |
| 浜 田 啓 嗣 (交 換 設 備) | 日本通信協力株式会社 |

Ⅲ. 調 査 日 程

昭和61年10月25日より11月19日までの26日間

| 月/日 (曜) | 調 査 内 容 |
|-----------|---|
| 10/25 (土) | 団長以下全調査団員 成田出発 |
| 10/26 (日) | アムステルダム着 |
| 10/27 (月) | アクラ着 |
| 10/28 (火) | 日本大使館及び JICA 事務所へ表敬訪問 調査目的及び調査日程説明 |
| 10/29 (水) | 大蔵経済企画省、運輸通信省及び P & T へ表敬訪問 P & T にインセプション・レポートの提出、説明及びカウンター パートの要請 |
| 10/30 (木) | P & T にて全体会議 (カウンターパートを含む)。インセプション ・レポートの詳細説明、調査日程の打合わせ及び依頼資料項目の提示 世銀アクラ事務所へ表敬訪問及び資料収集 |
| 10/31 (金) | 団長、計画管理及び三橋団員は P & T において、本プロジェクト対 象地域についての協議 その他の団員は、既設通信設備のプラント・レコードの収集、P & T 技術訓練学校の視察、調査及び資料収集 |
| 11/ 1 (土) | 団長、計画管理及び三橋団員は対象地域の概況調査 その他の団員は P & T にて既設通信設備のプラント・レコードの収集 |

- 11 / 2 (日) 調査団内打ち合わせ及び資料整理
- 11 / 3 (月) 団長, 計画管理及び三橋団員は P & T にて会議議事録の内容について協議
その他の団員は対象局及び対象地域の既設通信設備の現況調査及び関係省庁, P & T にて資料収集
- 11 / 4 (火) 団長, 計画管理及び三橋団員は P & T にて会議議事録の内容についての協議, 確認及び作成
その他の団員は, 対象局及び対象地域の既設通信設備の現況調査, P & T 技術訓練学校の調査及び資料収集
- 11 / 5 (水) 運輸通信省にて会議議事録の調印及び日本大使館への報告
斉藤, 岩瀬団員は対象地域の既設通信設備の現況調査, 測量及びプラント・レコードの収集
- 11 / 6 (木) 団長及び計画管理は帰国のためアクラ出発
三橋団員は P & T にて技術基準についての協議
その他の団員は対象局の局内の調査, 対象地域の既設通信設備の現況調査, 測量, プラント・レコード収集及び資料収集
- 11 / 7 (金) 三橋団員は P & T にて局外設備の設計基準についての協議
その他の団員は対象局の局内調査, 対象地域の既設通信設備の現況調査, 測量, プラント・レコード収集及び資料収集
- 11 / 8 (土) 対象地域の既設通信設備の現況調査及び測量
- 11 / 9 (日) 調査団内打ち合わせ及び資料整理
- 11 / 10 (月) 対象地域の既設通信設備の現況調査, 測量, P & T からの資料収集

- 11/11 (火) 三橋及び浜田団員はP & Tの技術訓練学校において訓練用交換機
設置場所の実測及び訓練用機器類の調査
その他の団員は対象地域の既設通信設備の現況調査及び測量
- 11/12 (水) 三橋団員は世銀と打ち合わせ及びガーナ銀行で資料収集
浜田団員はP & Tが保守維持しているP A B Xの調査
その他の団員は対象地域の既設通信設備の現況調査, 測量及び資
料収集
- 11/13 (木) 三橋団員はP & Tで保守・維持についての打ち合わせ
その他の団員は対象地域の既設マンホールの調査, 既設通信設備
の現況調査, 測量及び資料収集
- 11/14 (金) 三橋団員はP & Tにて設計方針についての打ち合わせ
その他の団員は対象地域の既設マンホールの調査, 既設通信設備
の現況調査, 測量及び資料収集
- 11/15 (土) 調査団内打ち合わせ及び資料整理
- 11/16 (日) 既設マンホールの調査, 既設通信設備の現況調査及び測量
- 11/17 (月) 資料収集及び資料整理
日本大使館, JICA事務所へ経過報告
三橋, 江口, 斉藤, 岩瀬及び浜田団員は帰国のためアクラ出発
- 11/18 (火) アムステルダム出発
移動
- 11/19 (水) 三橋, 江口, 斉藤, 岩瀬及び浜田団員は成田帰着

IV. 調査面談者リスト

Ministry of Finance and Economic Planning

Mr. Kofi Sekyiamah Acting Chief Director

Ministry of Transport and Communications

Dr. William Adote Acting Chief Director

The International Bank for Reconstruction and Development Bank (IBRD)

Mr. Seung H. Choi Resident Representative in Ghana

Ghana High - Way Authority

Mr. Yakatey Chief Engineer

State Construction Corporation

Mr. A. K. Agyarey General Manager

Labour Department

Mr. P. Obegdosu Manager

Bank of Ghana

Mr. Stephen Ameyaw Manager, Research Dept.

Duraplast Ltd.

Mr. Hitti Chairman

Plant Pool Ltd.

Mr. J. K. Serbeh Commercial Officer

Posts and Telecommunications Corporation (P&T)

| | |
|-------------------------|---|
| Mr. Col. Kwasi Opong | Director General |
| Mr. J. K. Gyimah | Deputy Director General/Engineering |
| Mr. F. A. Johnson | Deputy Director General/Posts |
| Mr. Tim A. Botchway | Director of Engineering, Internal Telecommunication Services and Acting Deputy Director |
| Mr. G. K. Adanusa | Director of Engineering, External Telecommunication Services and Acting Deputy Director |
| Mr. M. L. K. Appeti | Financial Controller |
| Mr. Aggrey-Mensah | Deputy Director of Engineering |
| Mr. E. M. Vondee | Chief Accountant |
| Mr. Kofi Dua - Adonteng | Legal Officer |
| Mr. A. A. Afful | School Master, Training School |
| Mr. G. B. Nquartey | Switching, Training School |
| Mr. S. S. K. Abotsi | Engineering Technician, Operation Section |
| Mr. C. K. Mensah | Maintenance Staff, Accra Central Exchange |
| Mr. S. Amoako - Atta | Maintenance Staff, Cantonments Exchange |
| Mr. Amartey | Maintenance Staff, Ministries PABX |
| Mr. Odame Joseph | Maintenance Staff, Ministries PABX |
| Mr. R. D. Adiei | Maintenance Staff, Volta River Authority PABX |
| Mr. J. K. Quaye | Maintenance Staff, State House PABX |
| Mr. S. P. Mensah | Maintenance Staff, Korle - Bu Hospital PABX |
| Mr. J. K. Quartey | Maintenance Staff, Castle PABX |

P&T Counterpart Staff

| | |
|-----------------------|--|
| Mr. N. O. O. Adjebu | Project Manager, IBRD Project |
| Mr. John Nyodeka | Senior Cable Engineer |
| Mr. Francis Newlands | Cable Engineer |
| Mr. M. E. Owusu Ansah | Principal Telecommunications Superintendent |
| Mr. V. K. Adomah | Telecommunications Superintendent |

V. 収集資料リスト

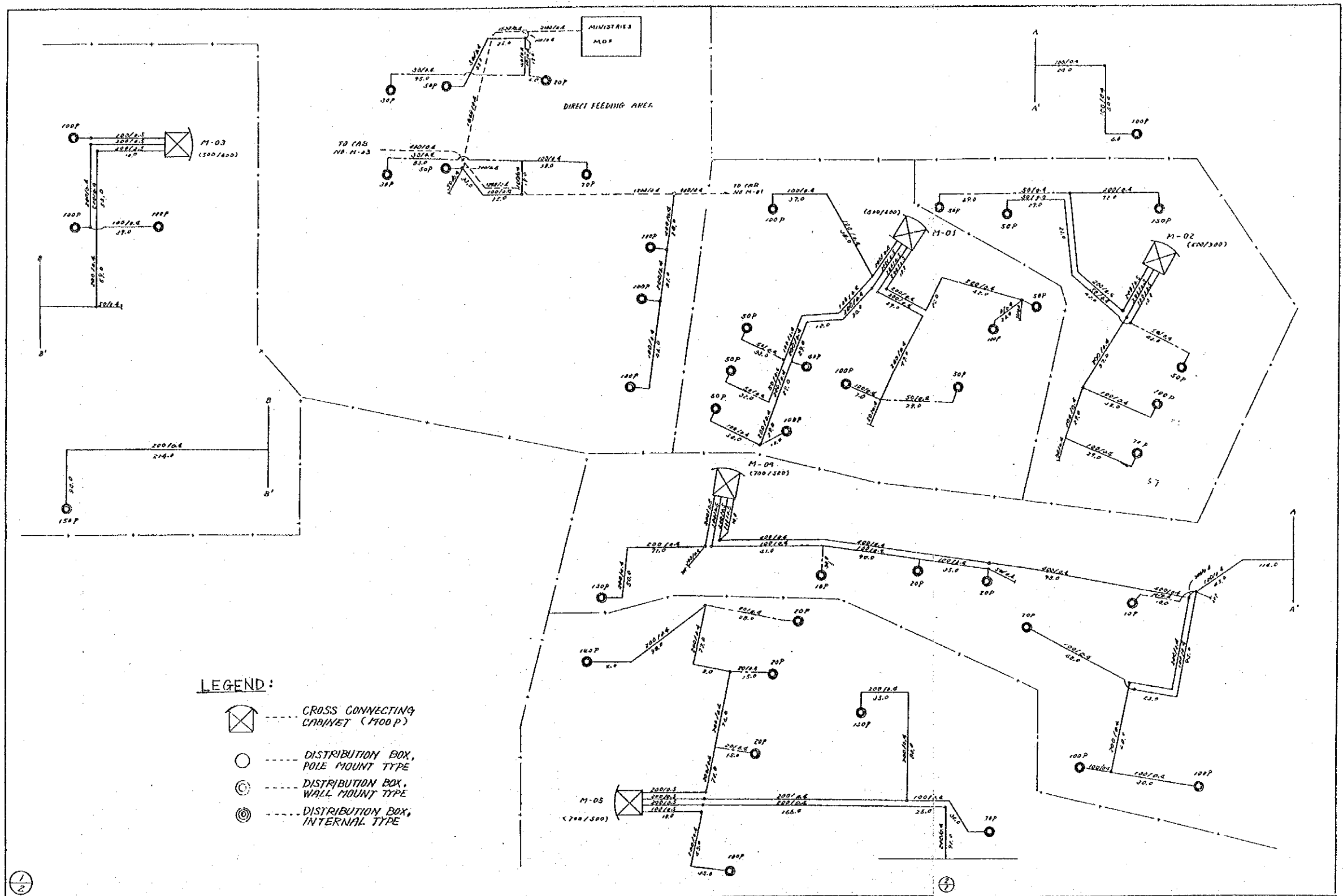
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P.N.D.C. Secretary for Finance and Economic Planning, 1986.

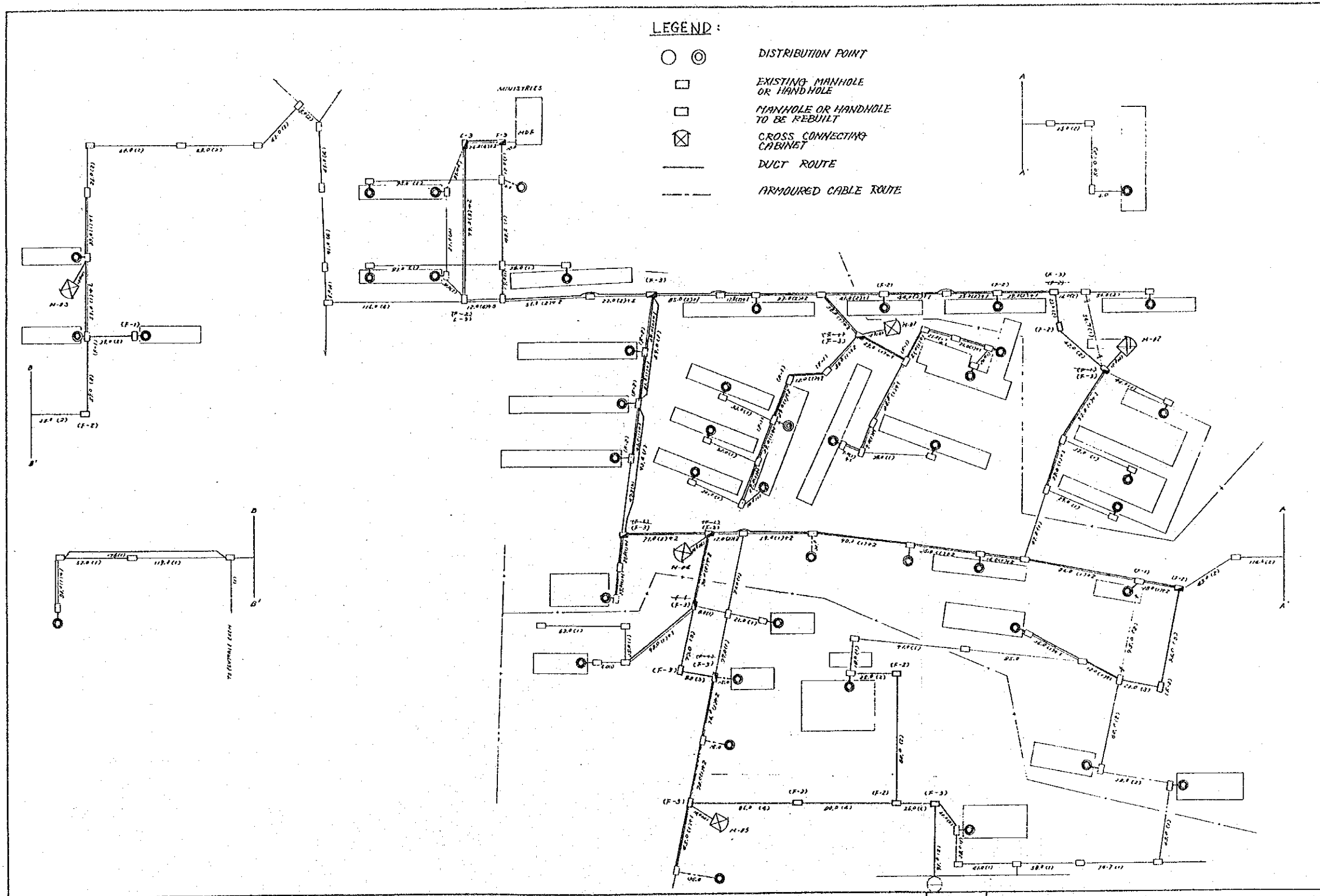
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prices in Ghana, 1971, Central Bureau of Statistics.
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 - 1) Request of Replacement of PABX for Ministries Area
 - 2) Minutes of Discussions on The Rehabilitation Project of
Telecommunications External Line Plant, In the Republic of Ghana
 - 3) Flouchart Showing Detailed Procedures of
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 - 4) Teaching Equipment (including Measuring Apparatus)
 - 5) Telecommunications Engineering School,
Schedule of Courses for Financial Year, 1986
 - 6) - D.P. Record
- Exchange Time Fault Card

- 7) Organization Chart of Posts & Telecommunications Corporation
- 8) Organisation Chart of Posts & Telecommunications Corporation
- 9) Reconciliation Interim Report
- 10) Description of Types of Activity in Areas
- 11) Particulars of Chambers
- 12) New Switches under IBRD Project
- 13) Indenture
32. 1) Specimen for Cable D.P. Record (2 sheets)
- 2) Specimen for D.P. Record (2 sheets)
- 3) Specimen for Weekly Fault Analysis Record
- 4) Specimen for Cable Card
33. 1) Cost Estimation of PVC Pipe
- 2) The State of The Economy, 1
- 3) -ditto- , 2
- 4) -ditto , 3
- 5) Economic Recovery Programme, 1984 - 86,
Review of Progress in 1984 and Goals for 1985, 1986
34. 1) Faulty Cable Pairs for Junction Cable, as of 5/ 4/83
- 2) Maintenance and Operation Staff
 - ACCRA NORTH LINE DISTRICT
 - ACCRA CENTRAL LINE DISTRICT
 - CANTONMENTS LINE DISTRICT
- 3) Restoration of Underground Telephone Cable Breakdown
35. Individual Underground Cable Faults,
ACCRA LINE DISTRICT, 1/Jan. -31/Oct., 1986
36. 1) Memorandum of Revision of Unit Prices for Cable Civil Works
under the World Bank Project Cable Contract for TAKORADI

- 2) Population Statistics, Population and Telephone Demand Forecasts
- 3) P&T Corporation, External Plant Staff Strength, As of 10/ 3/86
- 4) Staff Disposition as of 31/ 5/86, Telecommunication Division
- 5) Establishment Schedule
- 6) Accra Central Cable Project, Scope of Work
- 7) Contract for Cable Project Cantonments Area, ACCRA
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- 8) Contract for Cable Project Cantonments Area, ACCRA
Clause 3(a) - Price Adjustment, Jan. 13, 86
- 9) Rate of Pay in Government Departments in Ghana, 29 Oct. 86
- 10) Cost of Reinstating Asphaltic Concrete Surfaced Roads
after cutting per Linear Metre, High-Way Authority
- 11) Price of Steel Pipe, Gihoc Steelworks Co.,Ltd.
- 12) Price of Air Conditioner, Ghana Sanyo
- 13) Statistical Service Law, 1985, P.N.D.C.L. 135
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First Schedule, Inland Telephone Charges
- 15) Basic Prices of Materials, March, 1986, Architectural &
Engineering Service Corporation, Quantity Survey Division
- 16) New Wages Bases on 90.00 A Day Minimum Wage,
Effective from Jan.1986
- 17) Revision of Hire Rates, State Construction Corporation,
6th February, 1986
- 18) Water Tariffs, 1986
- 19) Electricity Corporation of Ghana, Tariff Increases
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- 20) Schedule of Rates for Building Works, March, 1986
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基本設計図

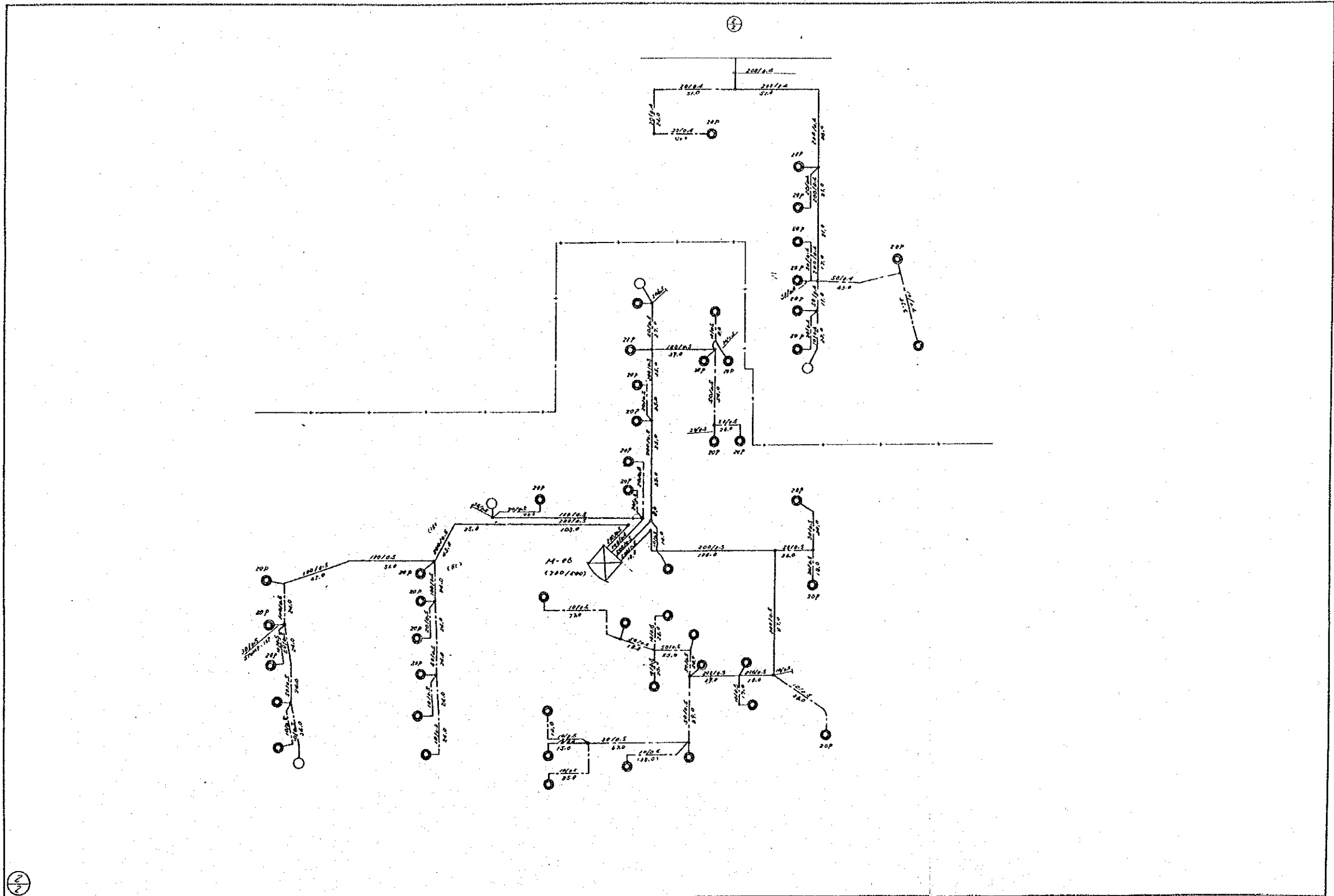




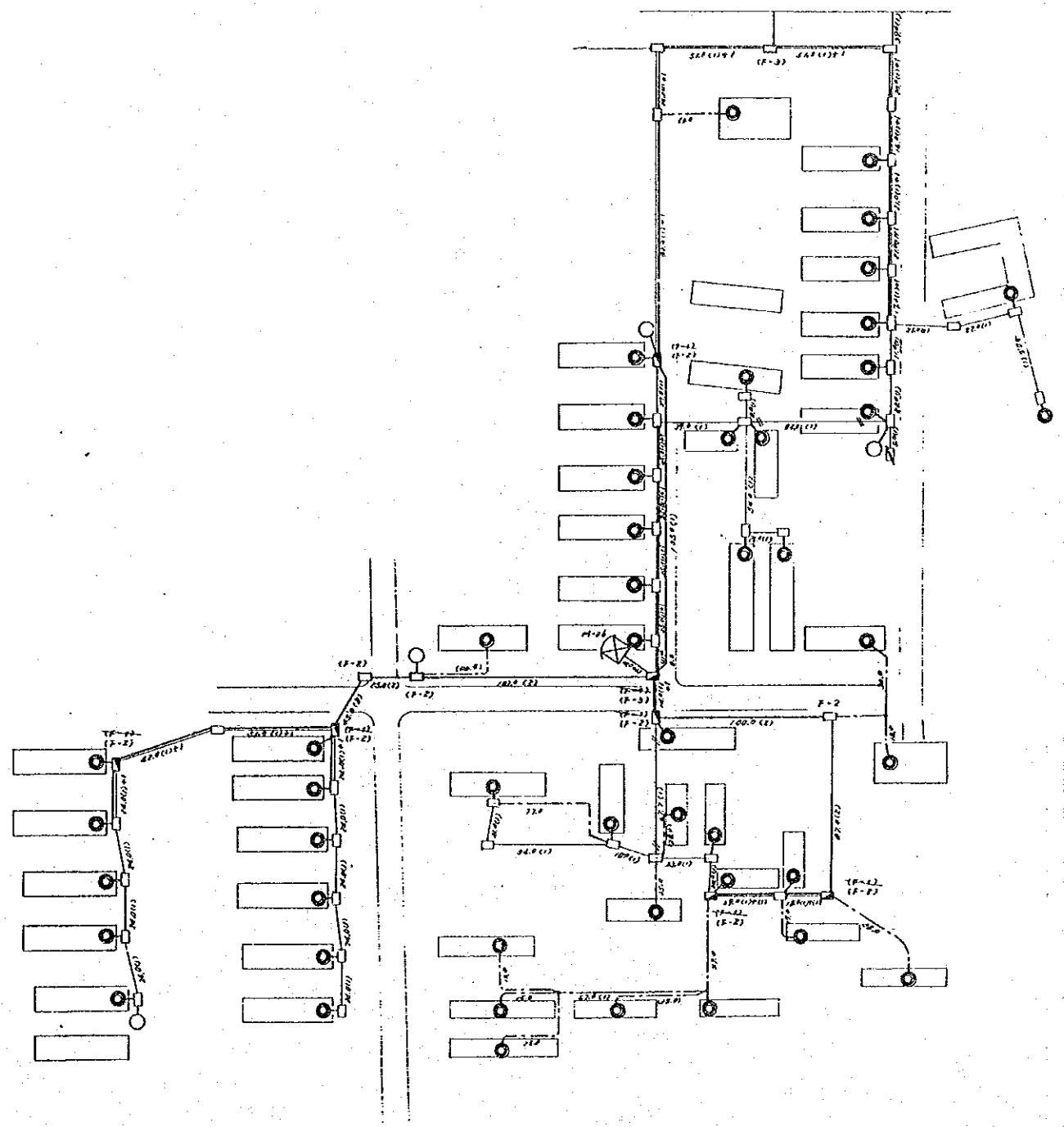
LEGEND :

- ● DISTRIBUTION POINT
- EXISTING MANHOLE OR HANDHOLE
- MANHOLE OR HANDHOLE TO BE REBUILT
- ⊗ CROSS CONNECTING CABINET
- DUCT ROUTE
- - - ARMOURD CABLE ROUTE

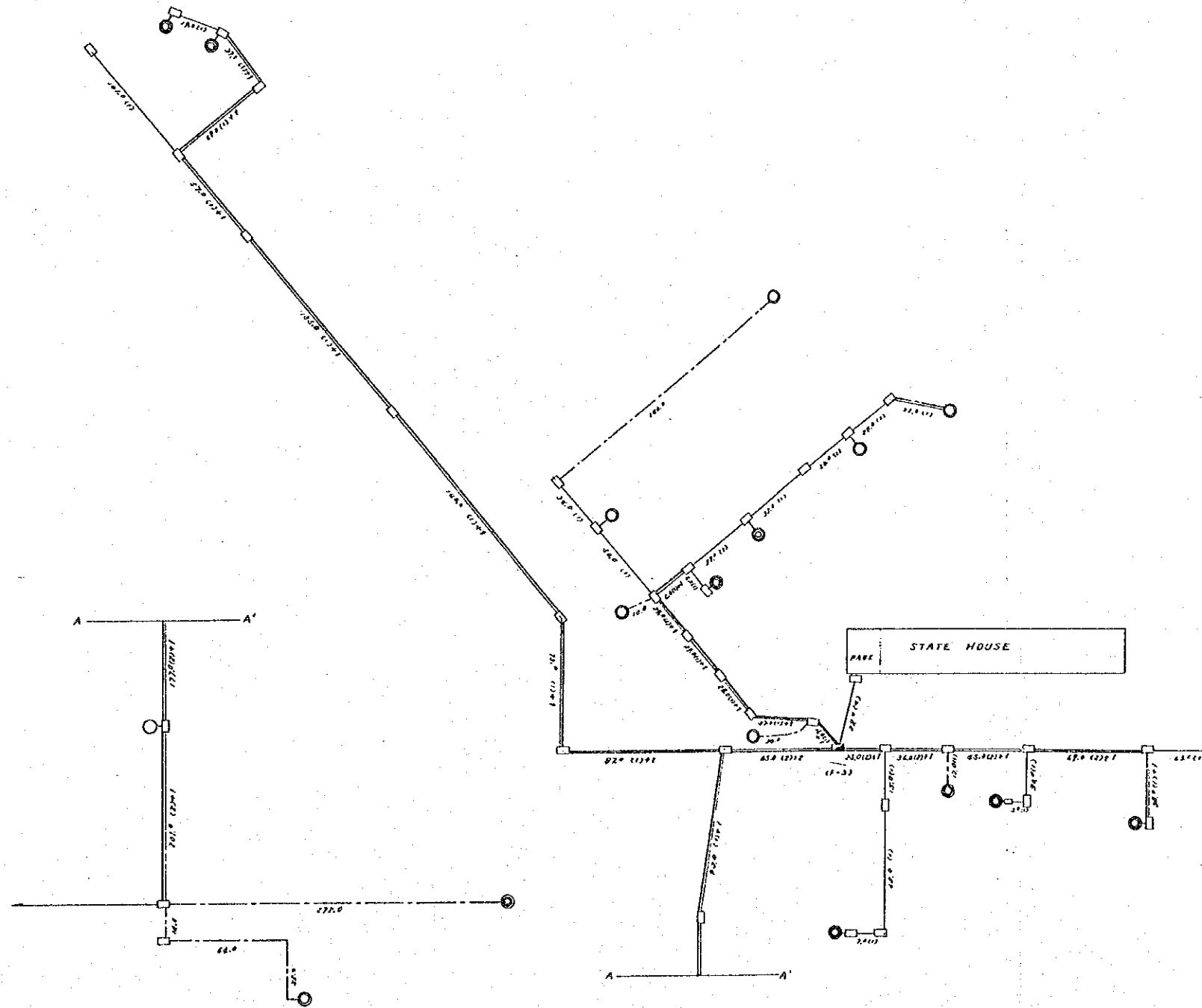
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| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 2 |



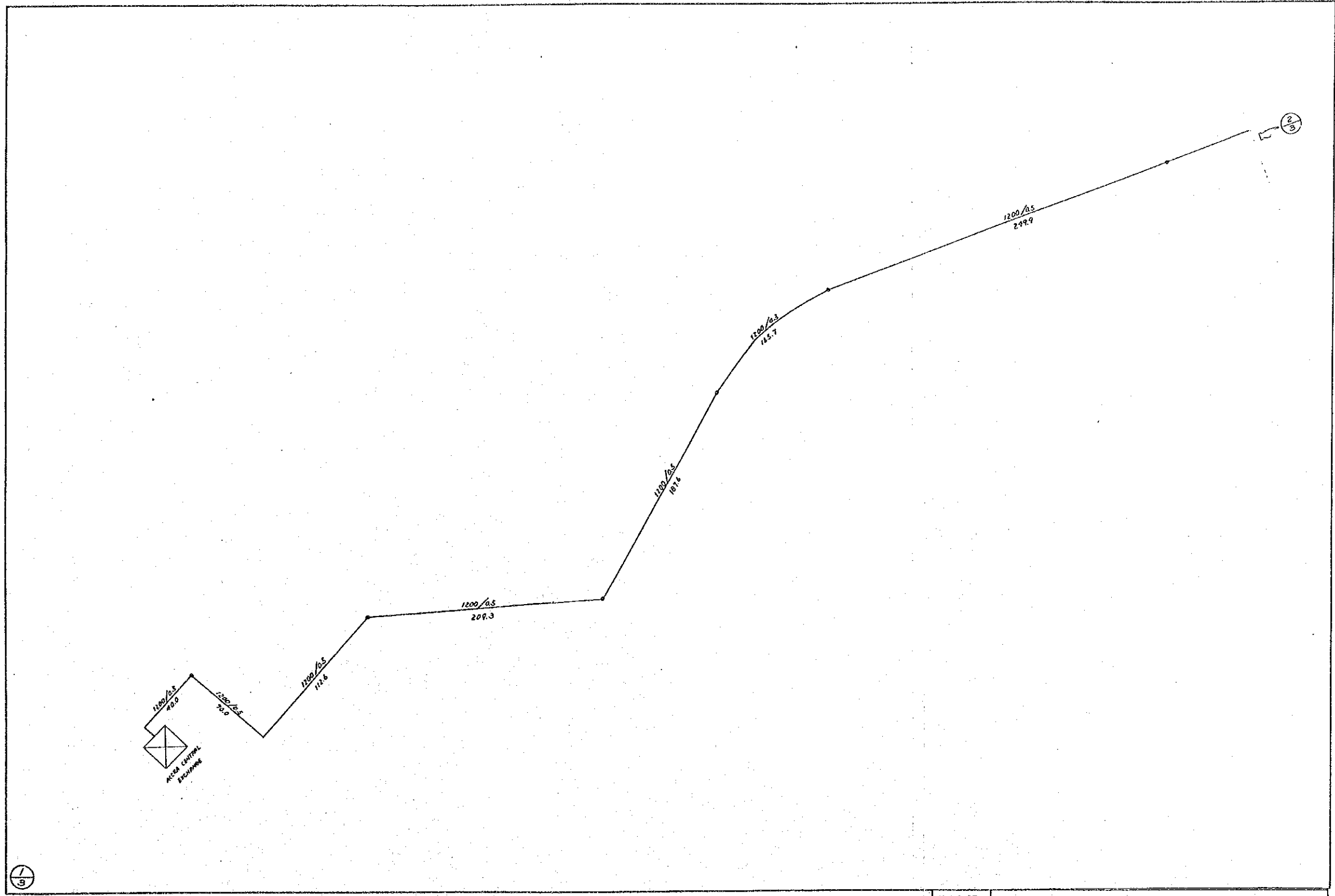
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|-----------------|---|------------------|---------------|
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| DATE | FEB. 1937 | NAME OF EXCHANGE | ACCRA CENTRAL |
| | | | DRAWING NO. 3 |



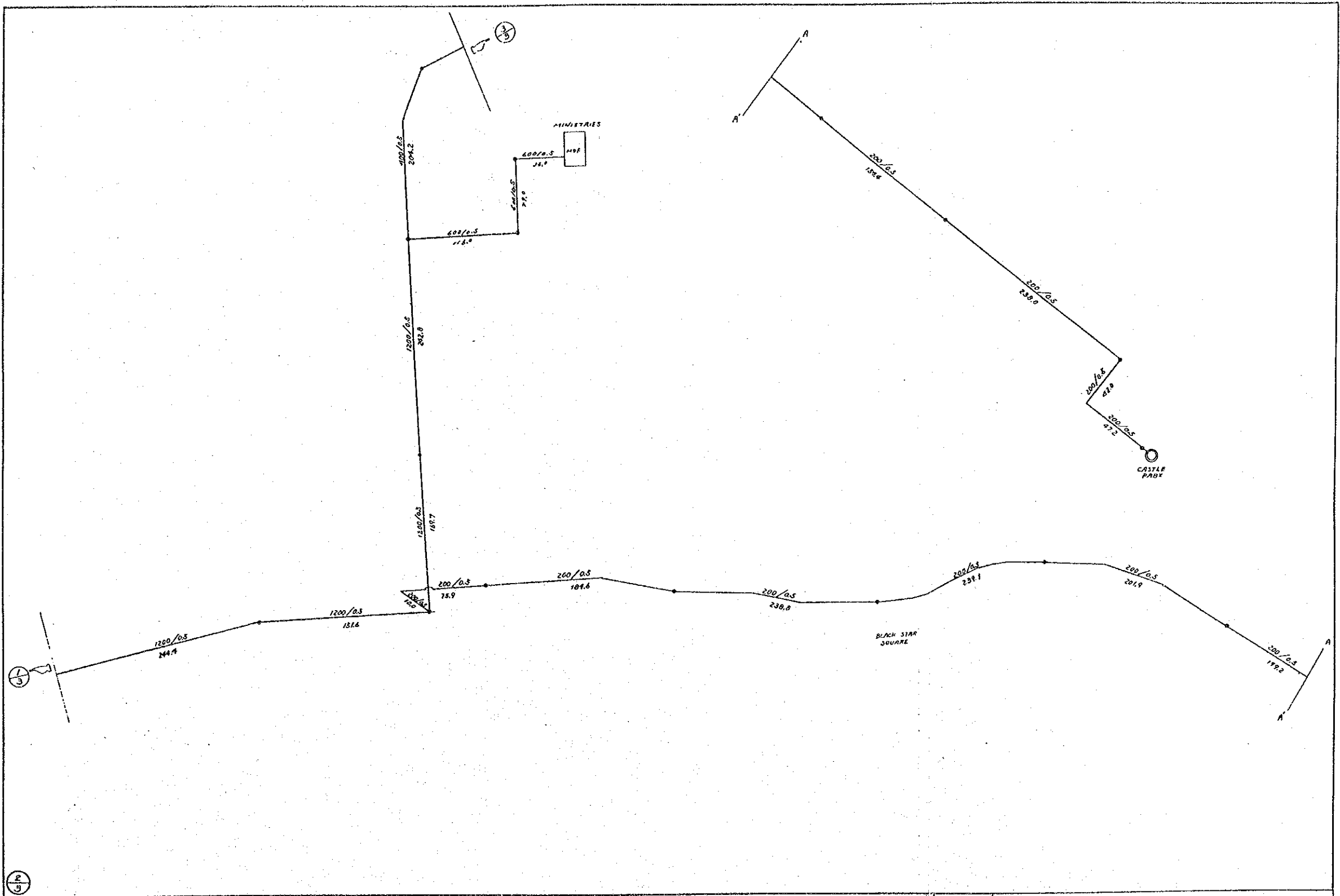
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| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 4 |



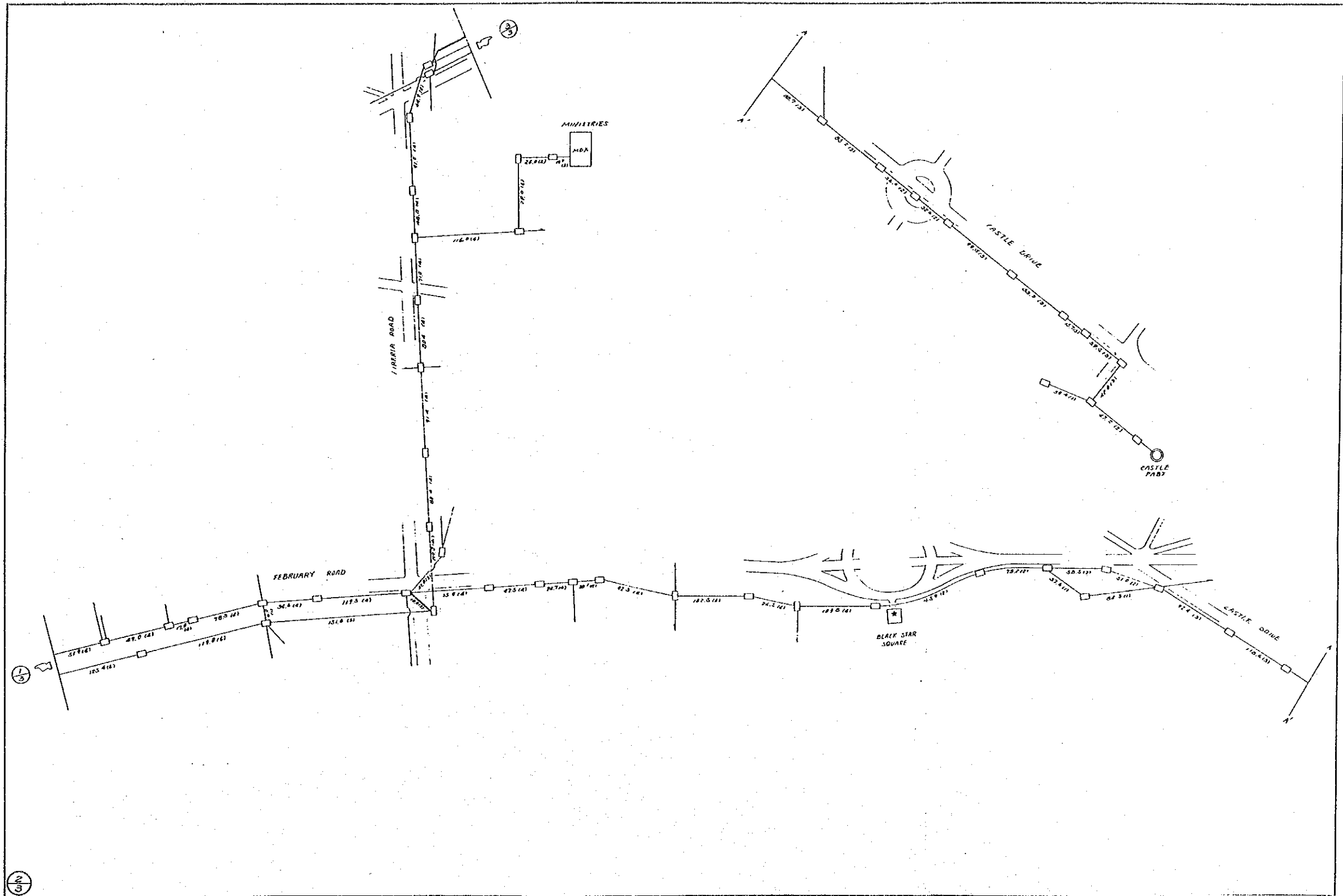
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| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 8 |



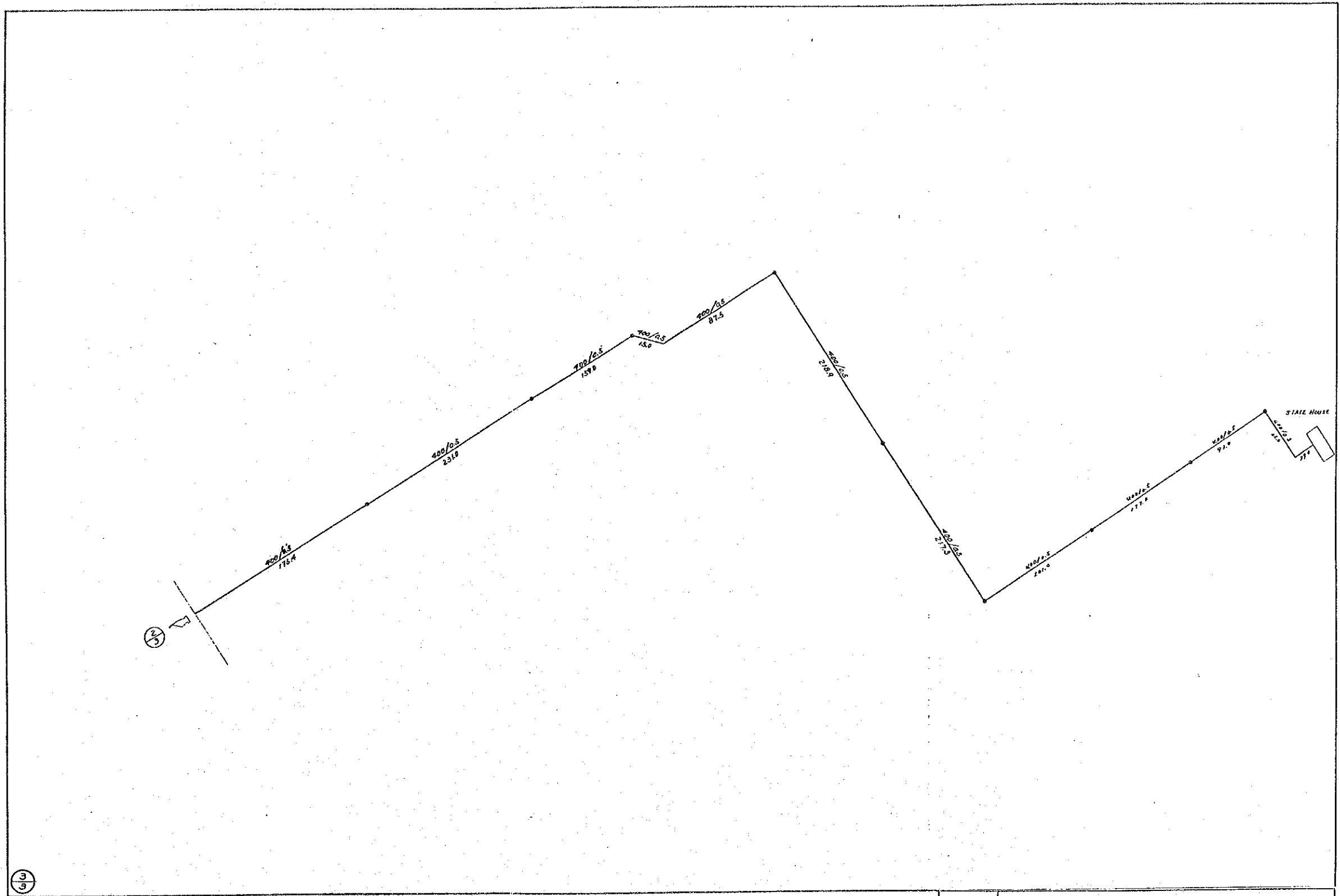
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| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 9 |



| | | | | |
|-----------------|--|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE (ACCRA CENTRAL - MINISTRY, STATE HOUSE, CASTLE) | | | 2/3 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 11 |

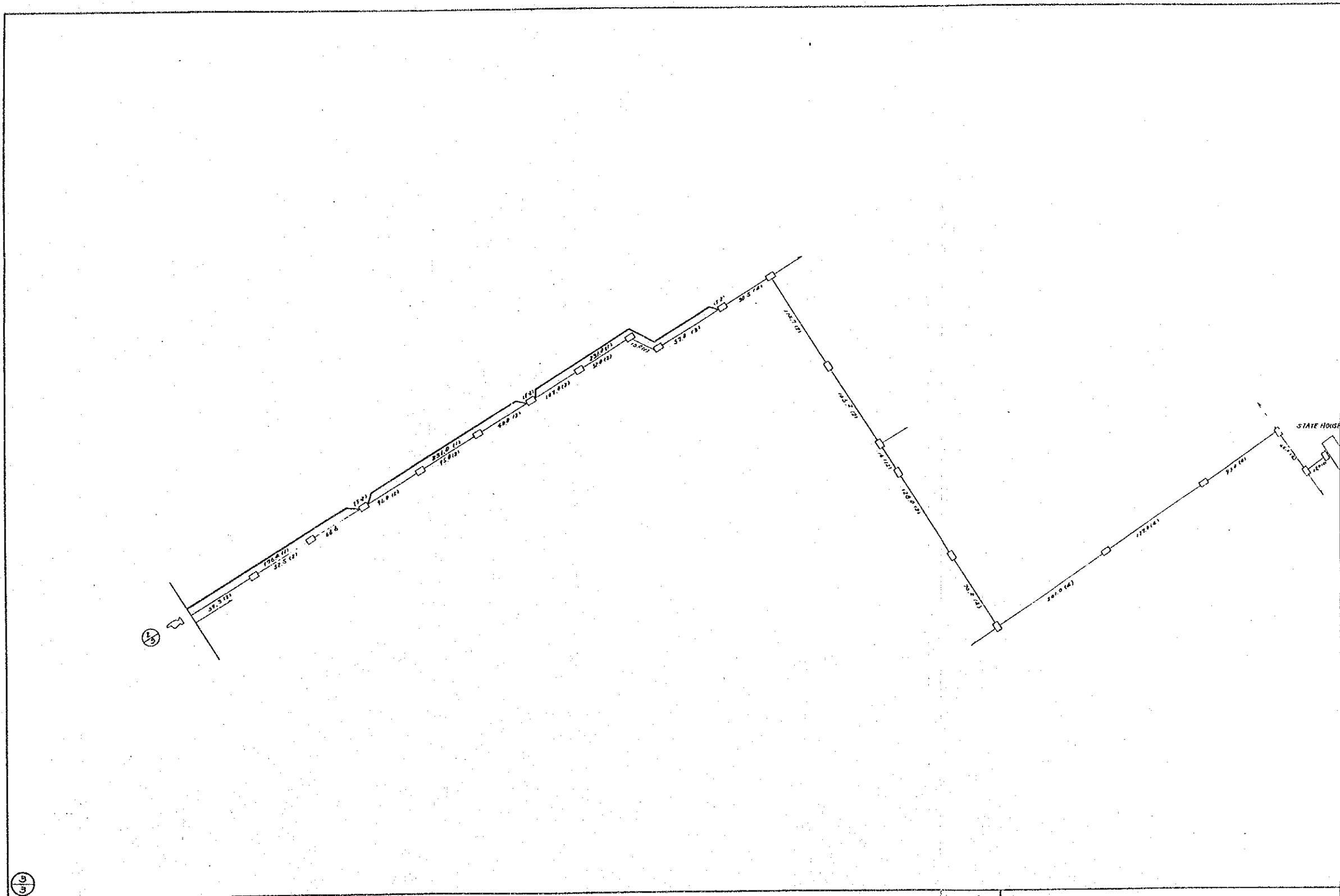


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| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE DUCT ROUTE (ACCRA CENTRAL-MINISTRY, STATE HOUSE, CASTLE) | | | 2/3 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 12 |

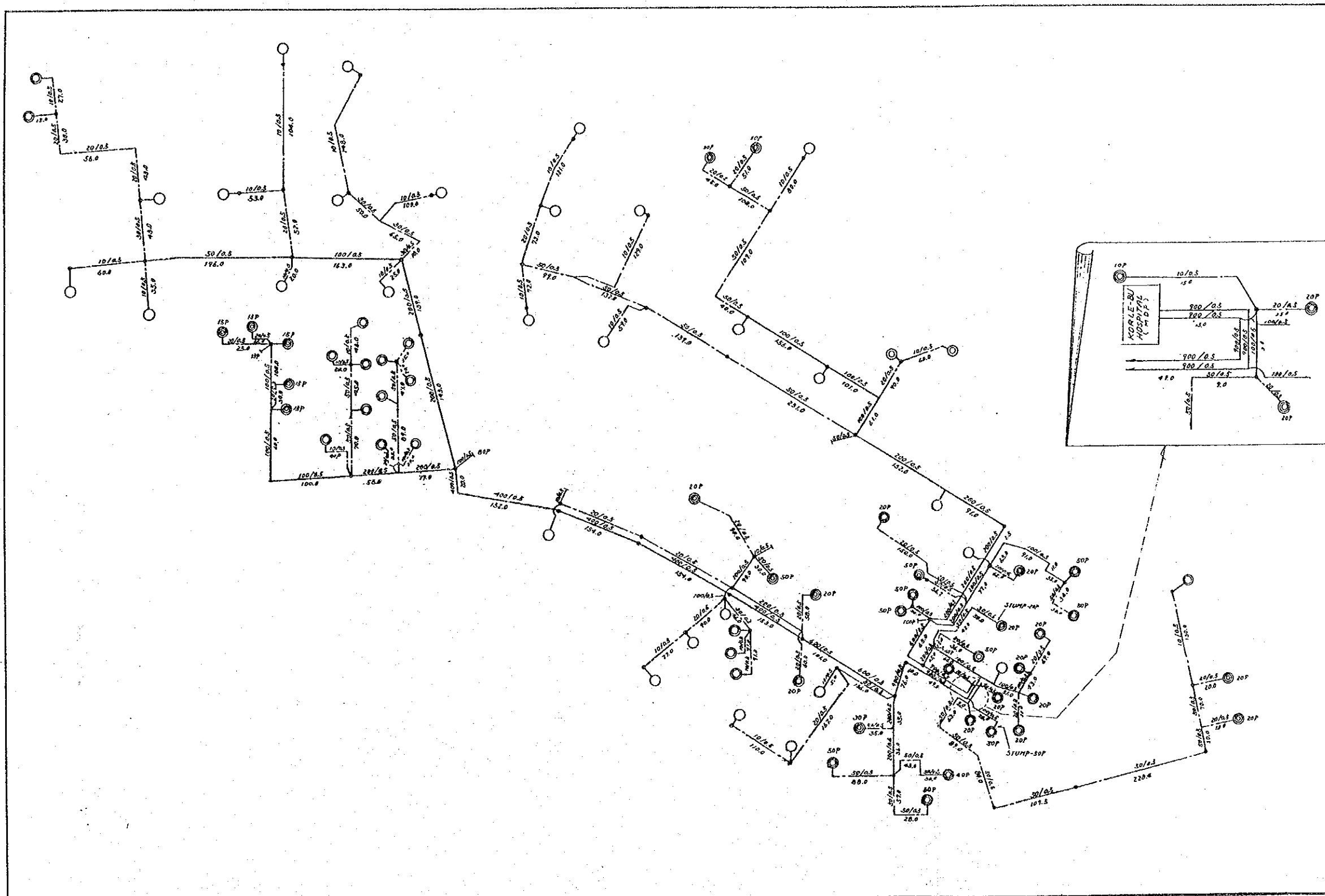


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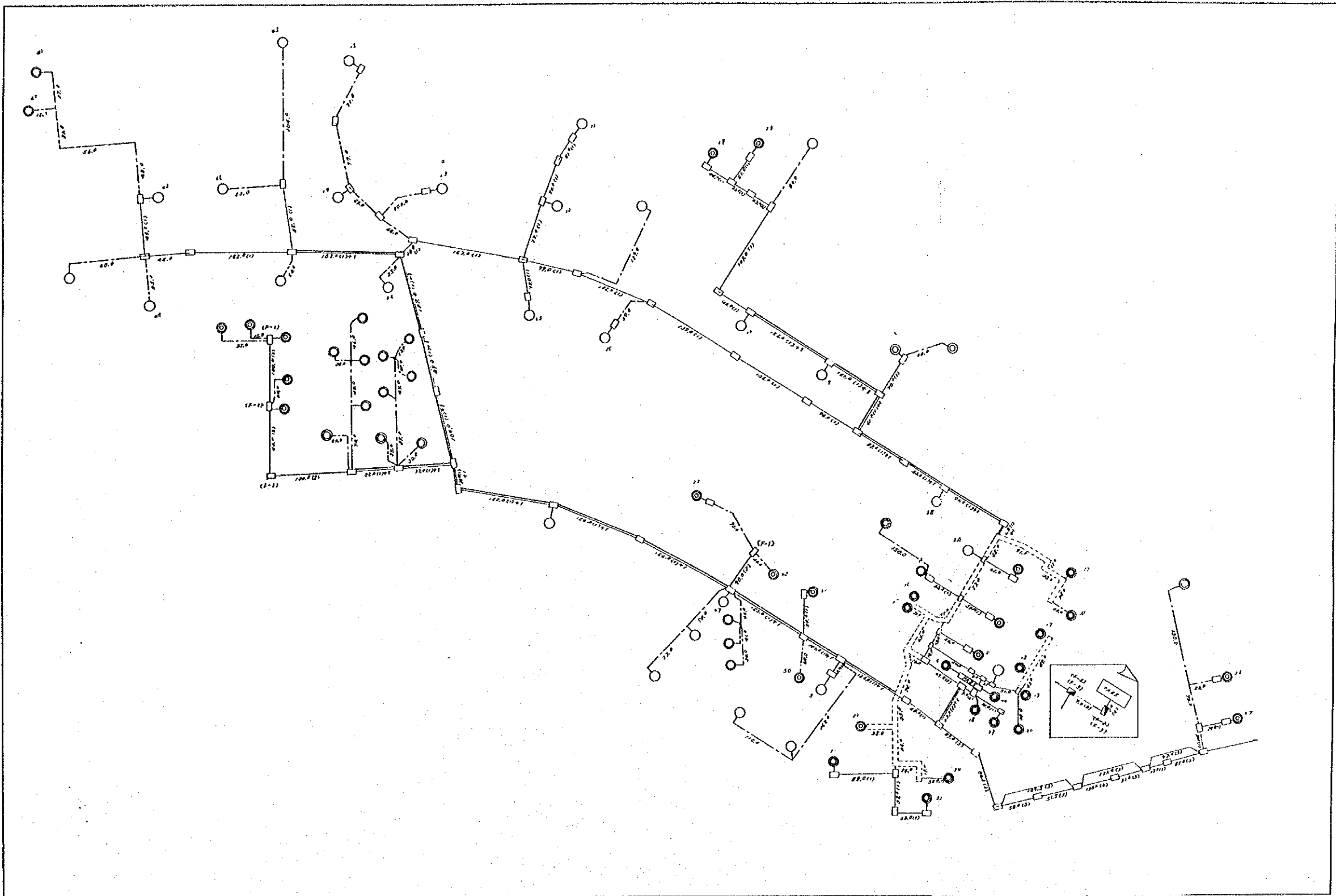
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| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE (ACCRA CENTRAL - MINISTRY, STATE HOUSE, CASTLE) | | | 3/3 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 13 |



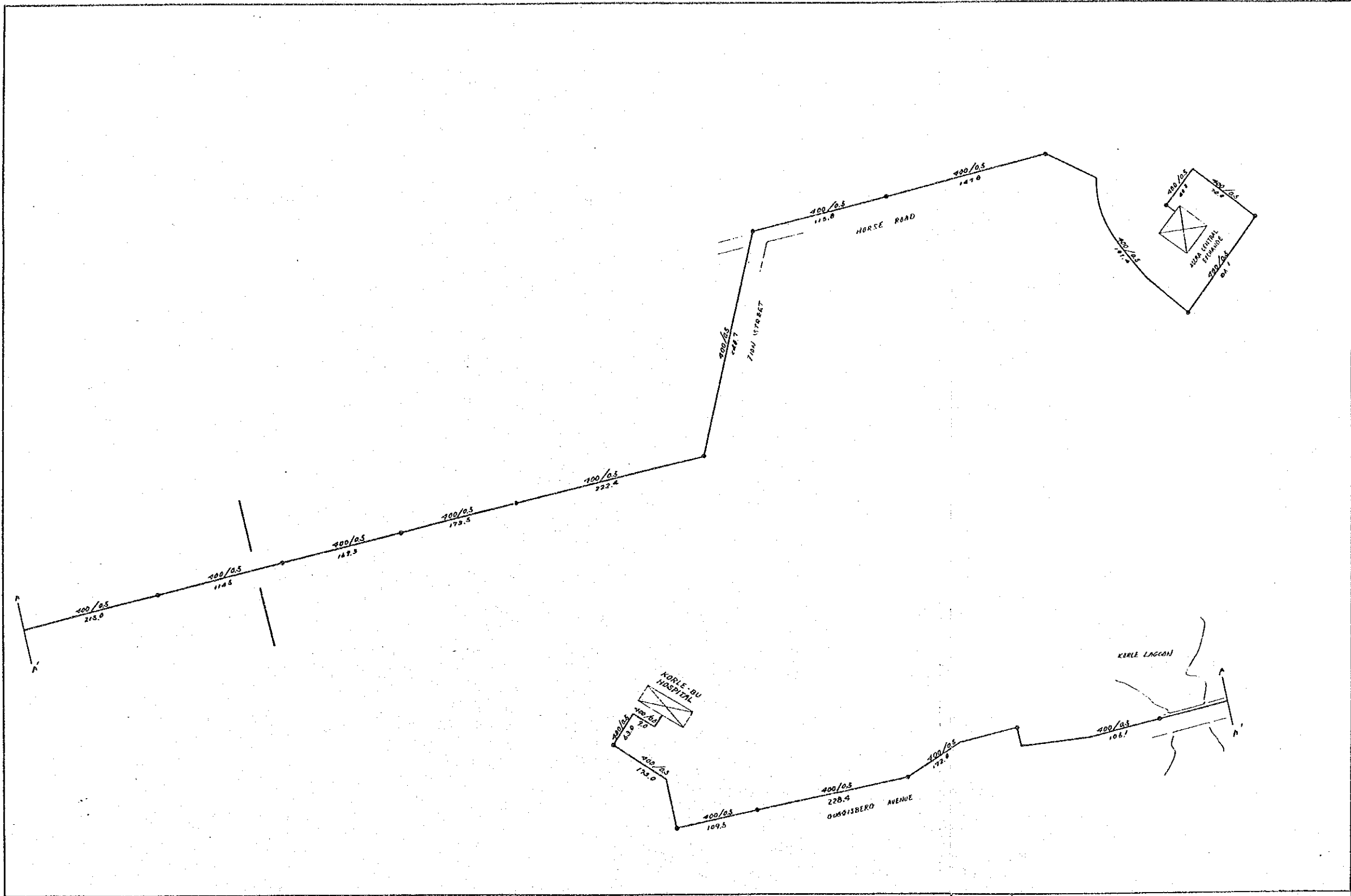
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|-----------------|---|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE DUCT ROUTE (ACCRA CENTRAL- MINISTRY, STATE HOUSE, CASTLE) | | | 3/3 |
| DATE | FEB. 1937 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 14 |



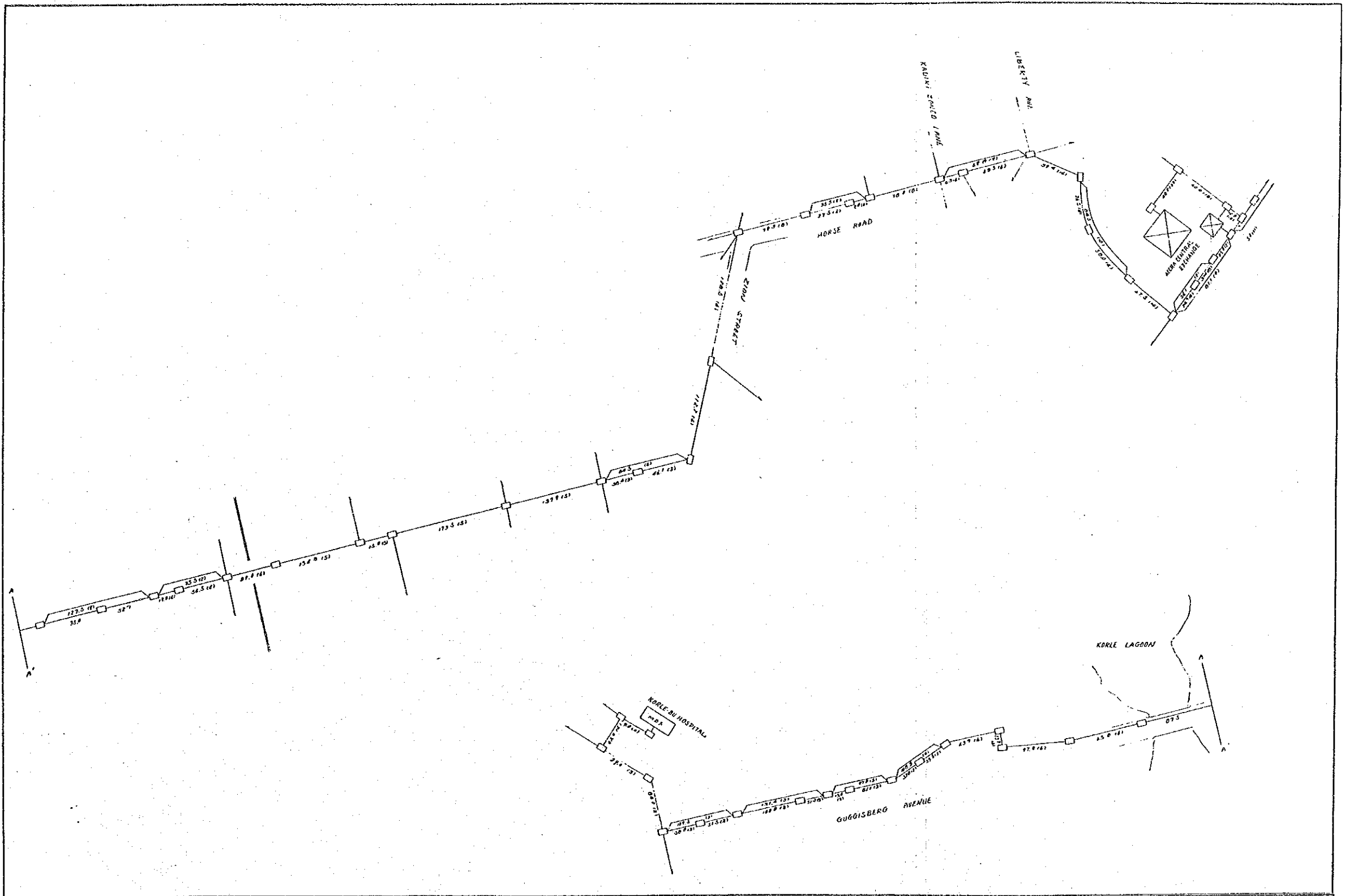
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|-----------------|-----------|---|---------------|----------------|--|
| NAME OF DRAWING | | BASIC PLAN FOR DISTRIBUTION CABLE (KORLE-BU HOSPITAL AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 15 | |



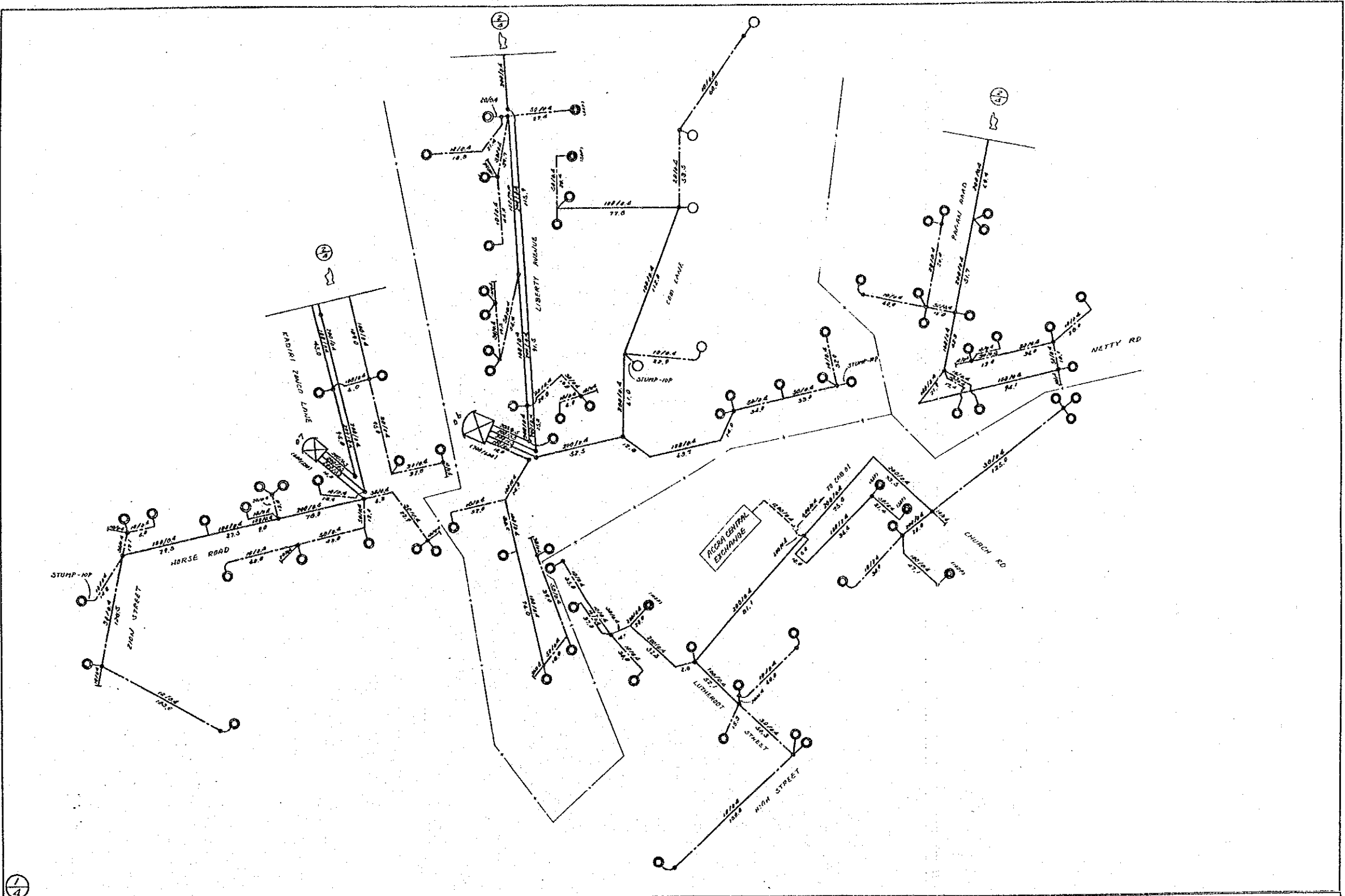
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|-----------------|--|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (KORLE-BU HOSPITAL AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 16 |



| | | | |
|-----------------|---|------------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE (ACCRA CENTRAL - KORLE-BU HOSPITAL) | | |
| DATE | FEB, 1987 | NAME OF EXCHANGE | ACCRA CENTRAL |
| | | | DRAWING NO. 17 |

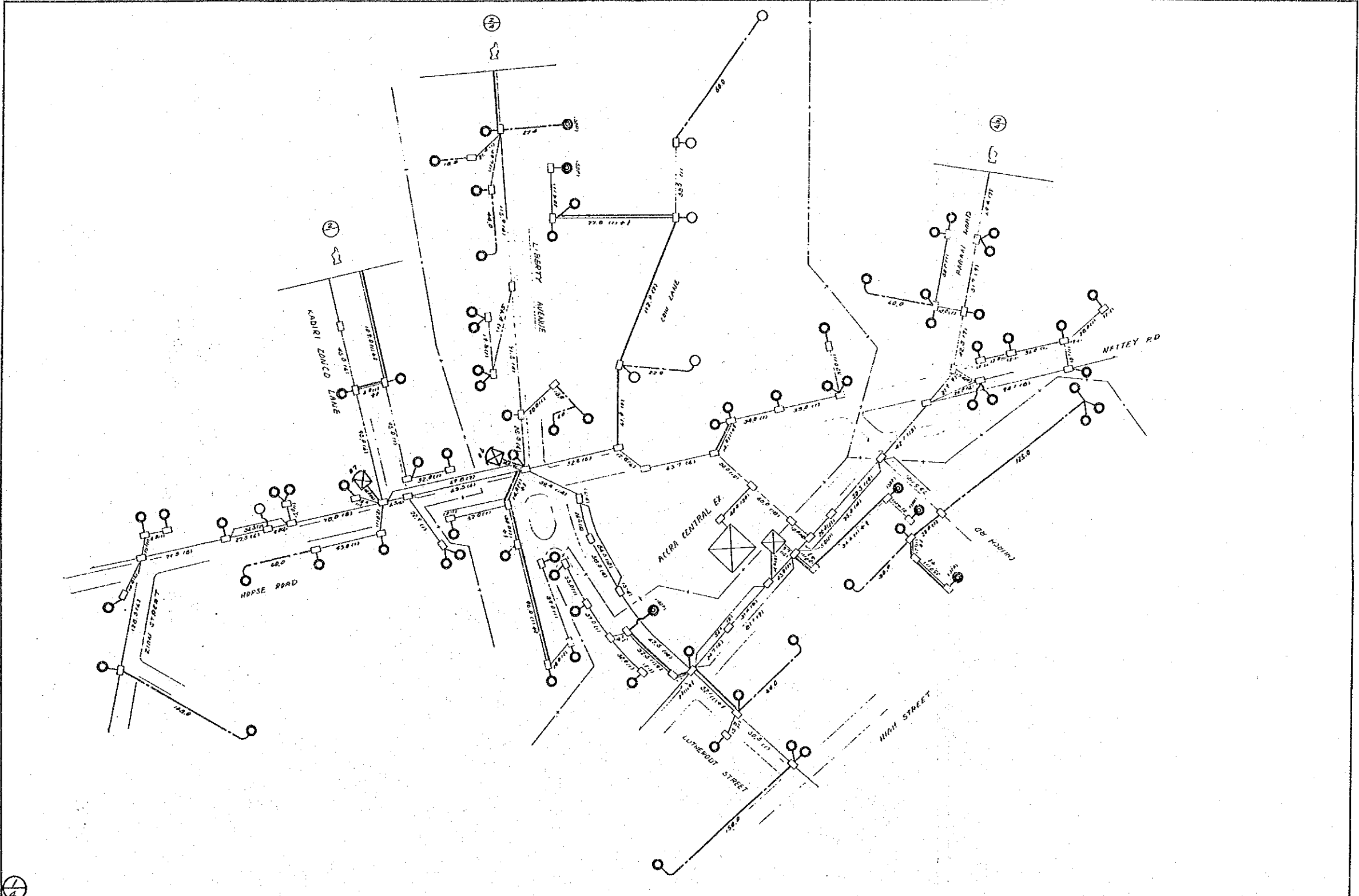


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|-----------------|---|------------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE DUCT ROUTE (ACCRA CENTRAL - KORLE-BU HOSPITAL) | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL |
| | | | DRAWING NO. 18 |

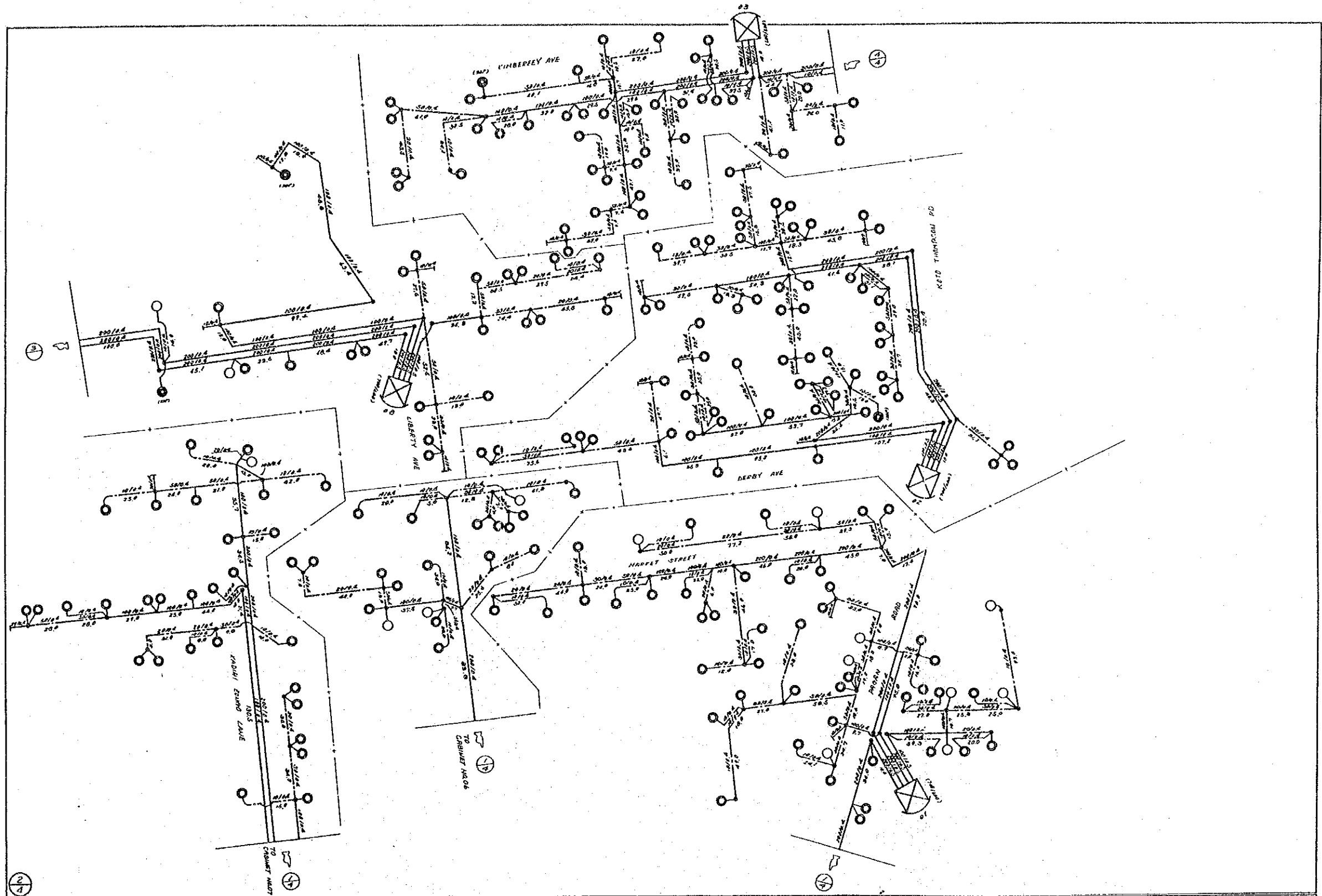


1/4

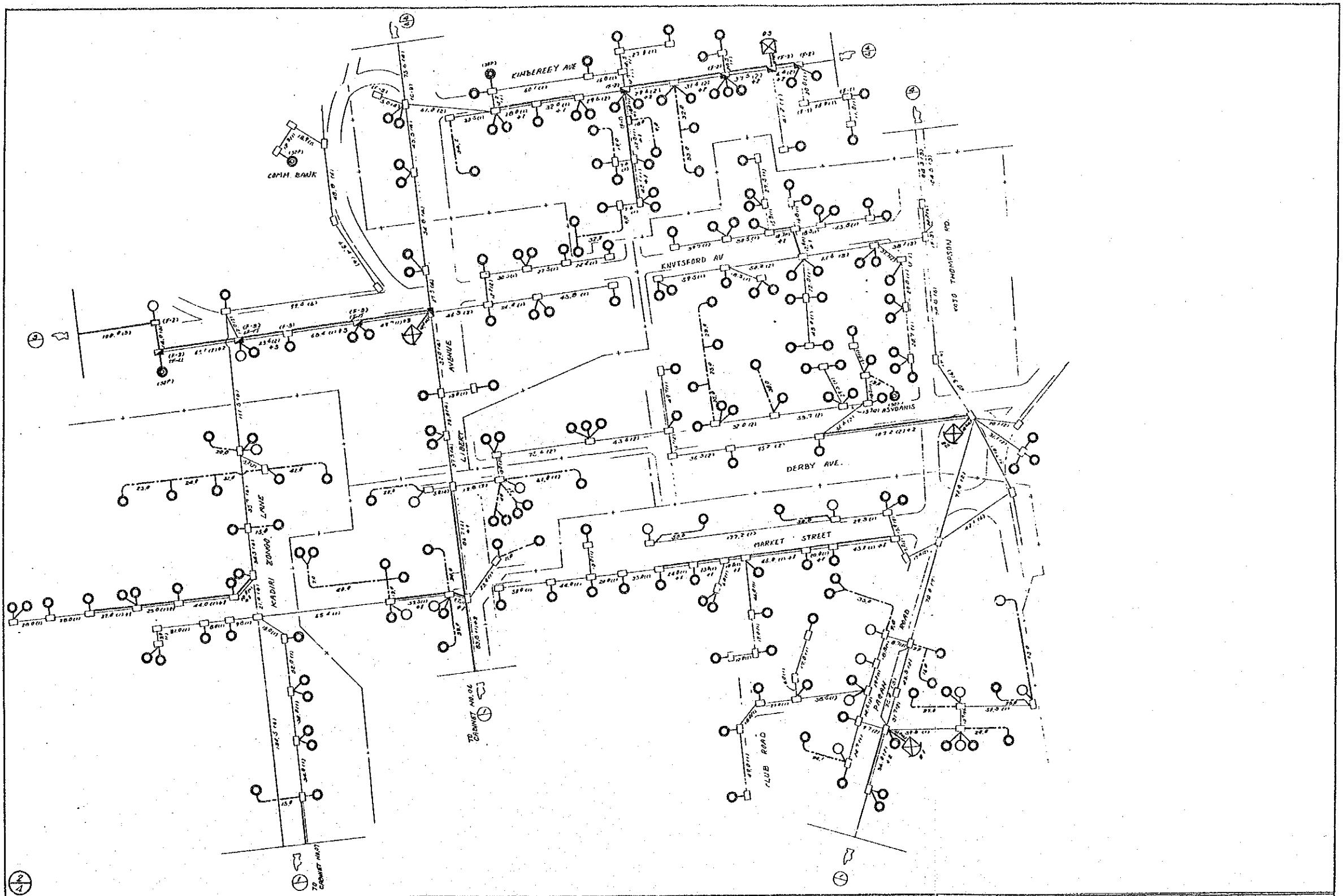
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|-----------------|--|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DISTRIBUTION CABLE (BUSINESS AND COMMERCIAL AREA) | | | 1/4 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 19 |



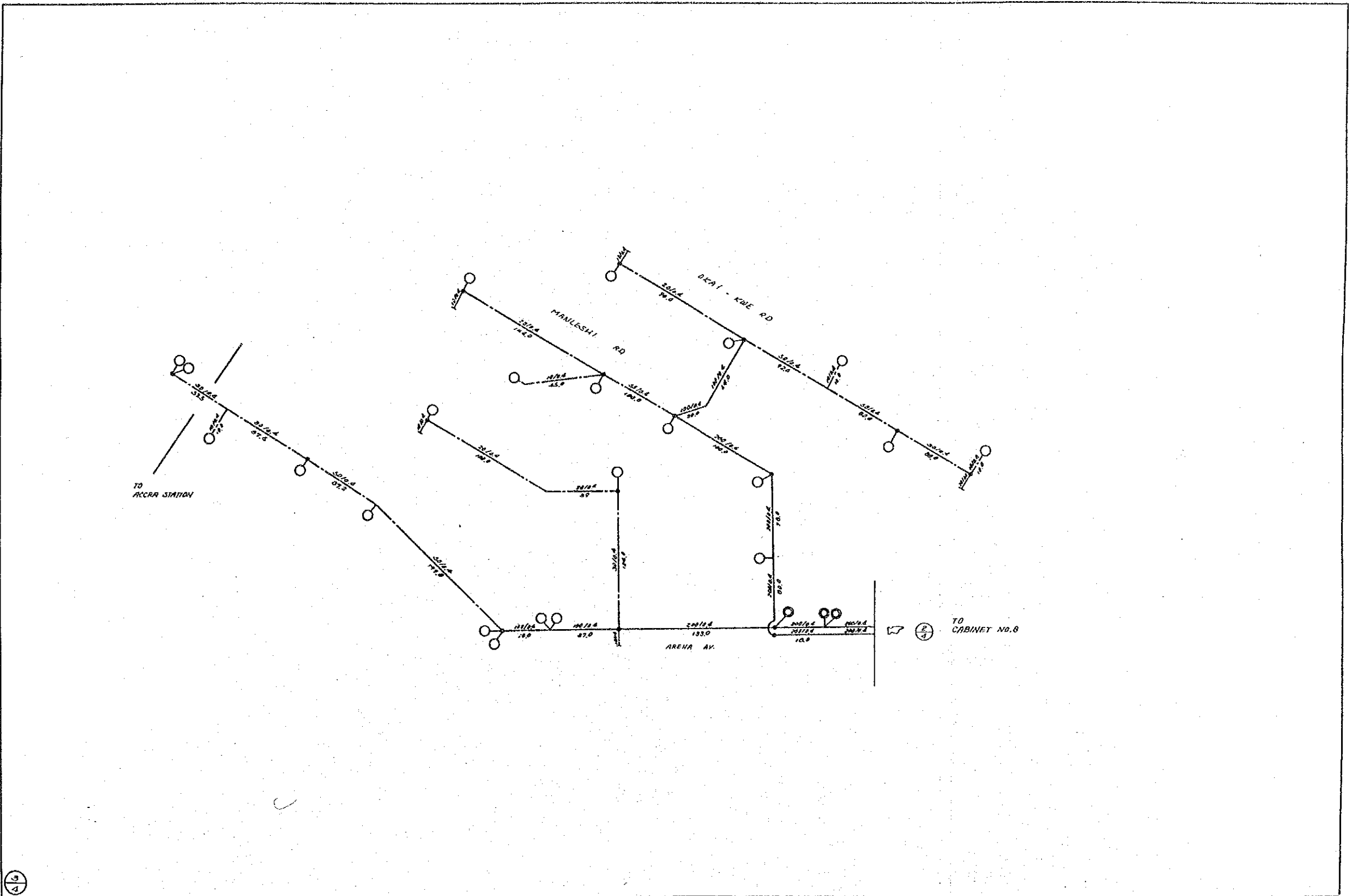
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|-----------------|--|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (BUSINESS AND COMMERCIAL AREA) | | | 1/4 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 20 |



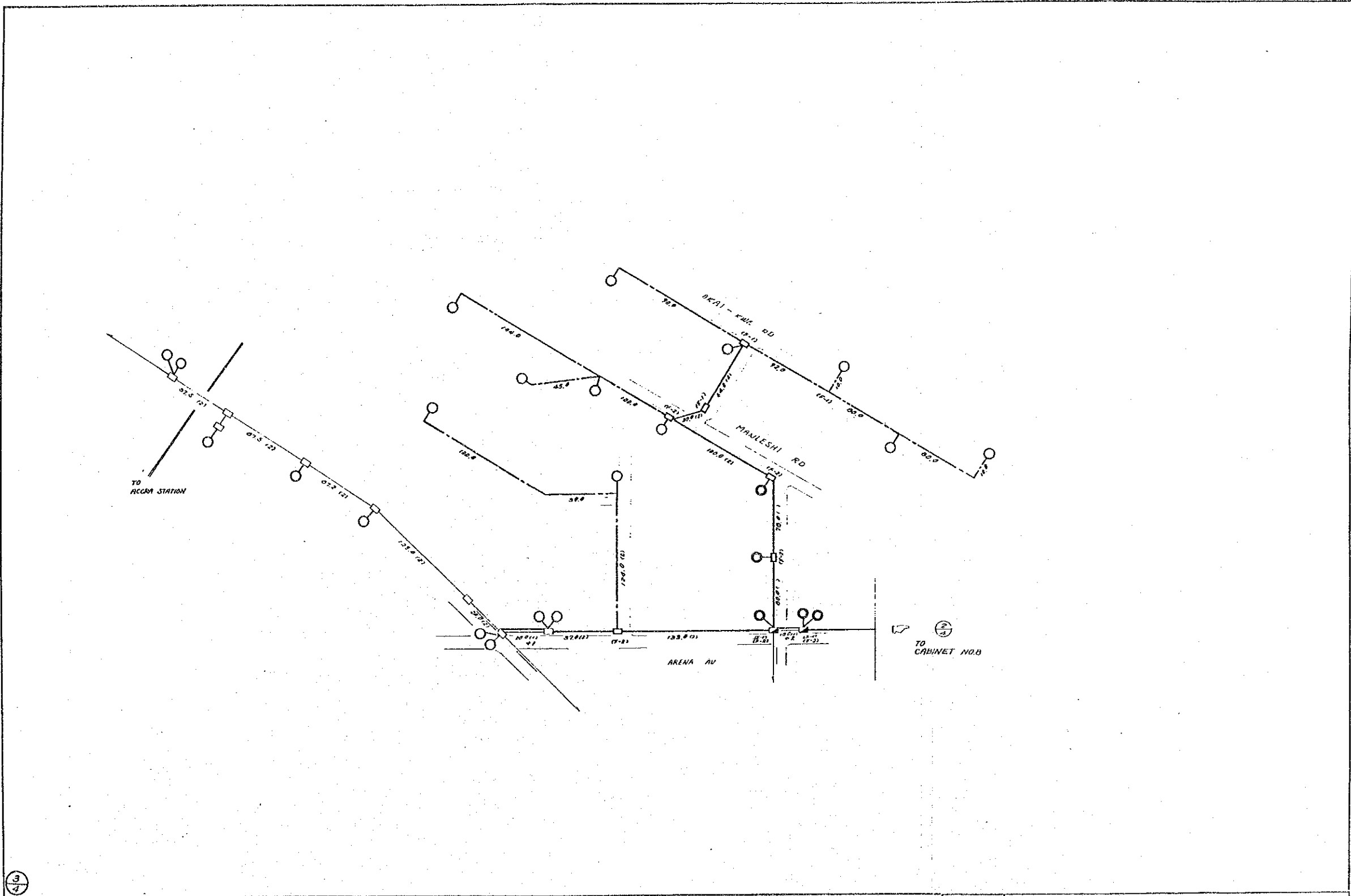
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|-----------------|-----------|--|---------------|-------------|----|
| NAME OF DRAWING | | BASIC PLAN FOR DISTRIBUTION CABLE (BUSINESS AND COMMERCIAL AREA) | | 2/4 | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. | 21 |



| | | | | |
|-----------------|--|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (BUSINESS AND COMMERCIAL AREA) | | | 2/4 |
| DATE | FEB. 1937 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 22 |

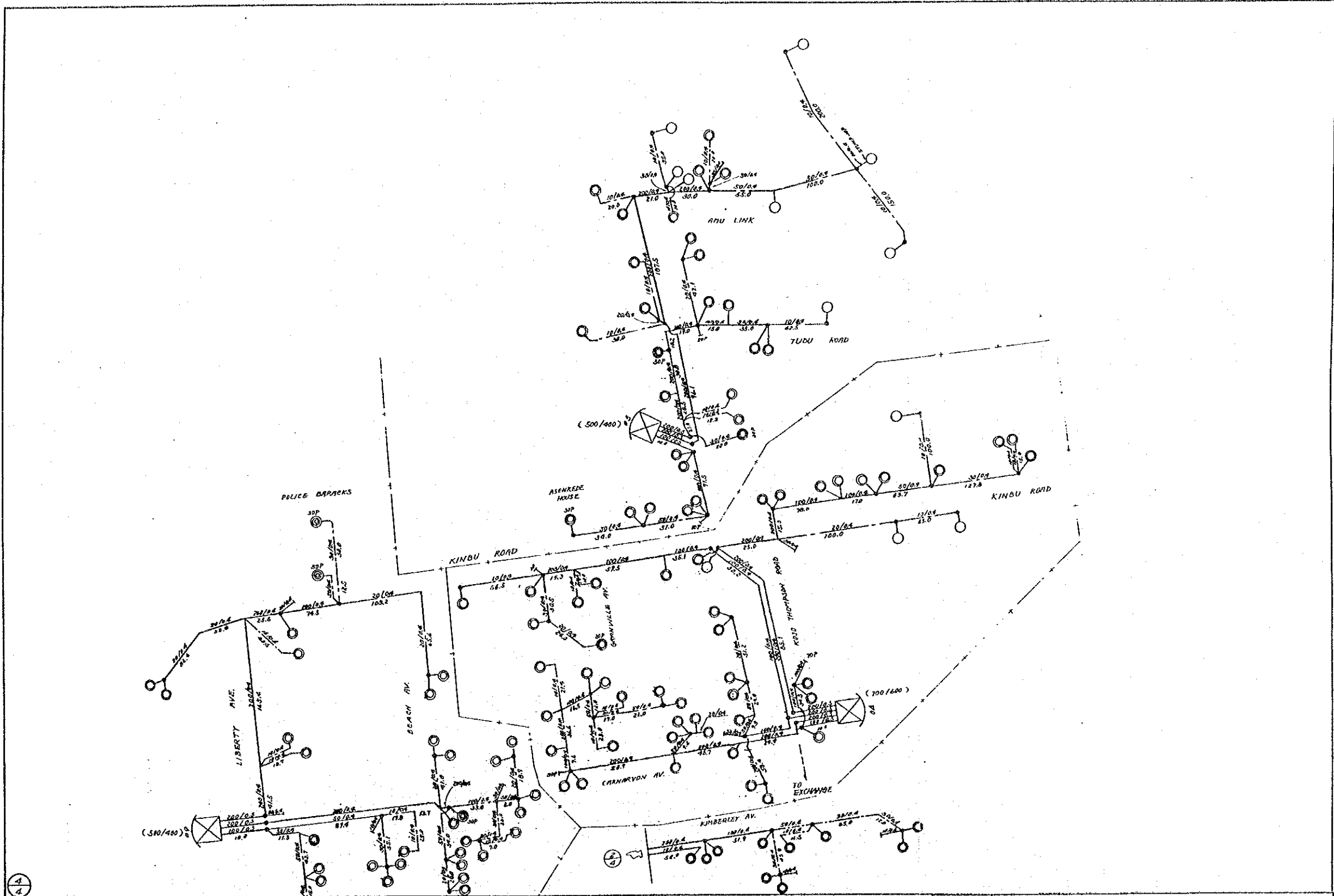


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| NAME OF DRAWING | | BASIC PLAN FOR DISTRIBUTION CABLE (BUSINESS AND COMMERCIAL AREA) | | 3/4 | |
| DATE | FEB. 1907 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. | 23 |

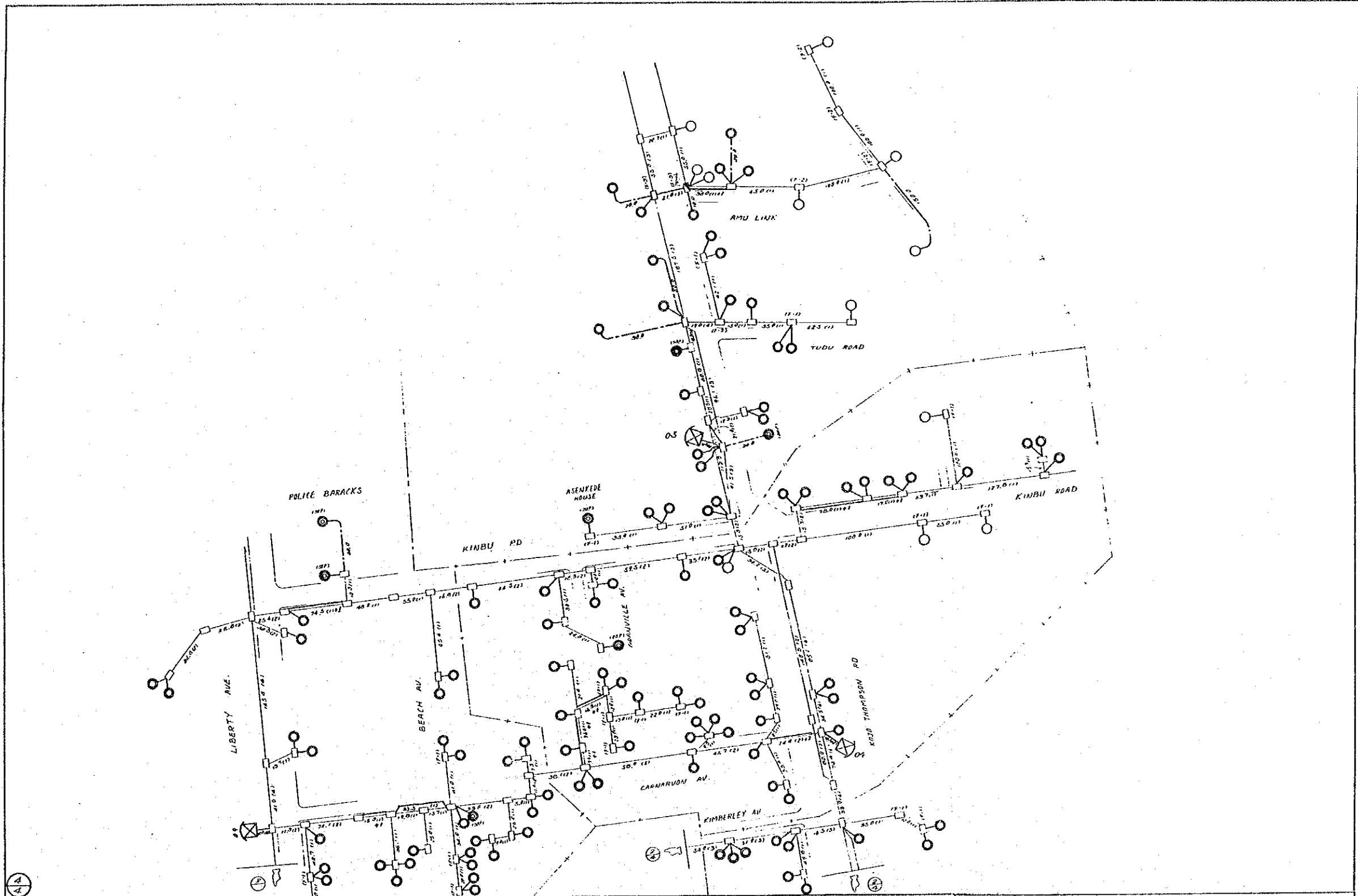


3/4

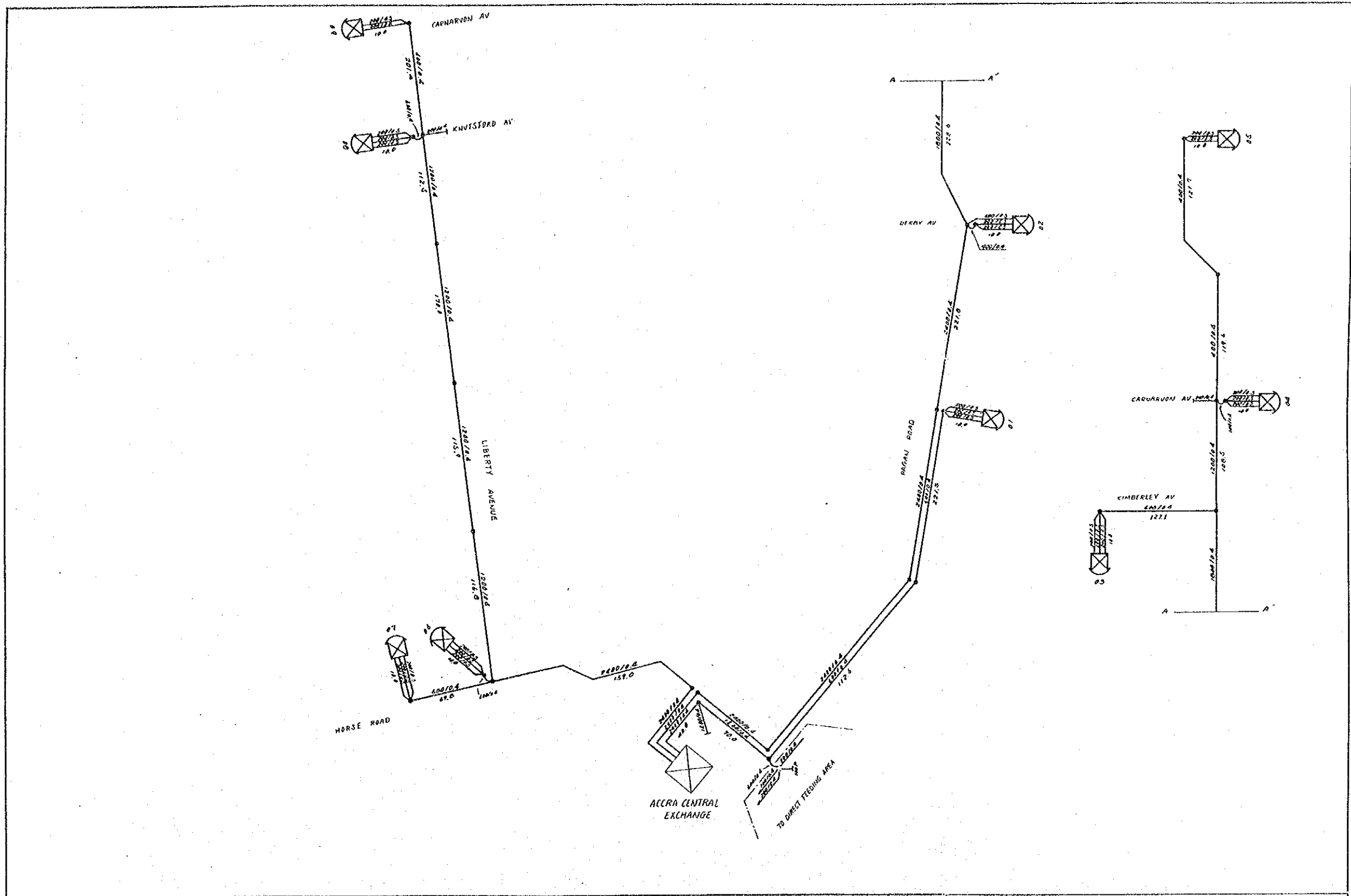
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|-----------------|--|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (BUSINESS AND COMMERCIAL AREA) | | | 3/4 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 24 |



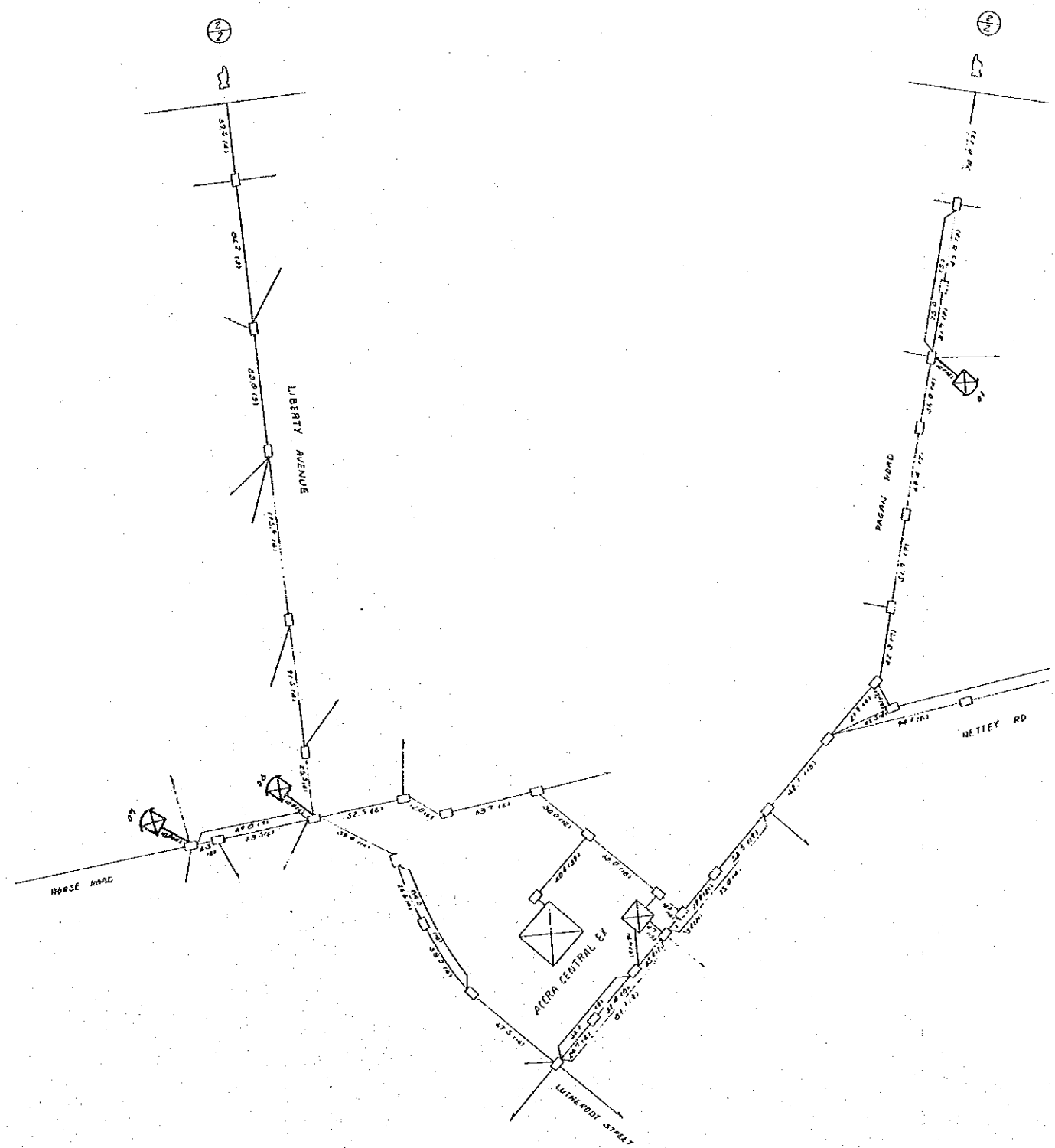
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|-----------------|--|------------------|---------------|
| NAME OF DRAWING | BASIC PLAN FOR DISTRIBUTION CABLE (BUSINESS AND COMMERCIAL AREA) | | 4/4 |
| DATE | FEB. 1937 | NAME OF EXCHANGE | ACCRA CENTRAL |
| | | DRAWING NO. | 25 |



| | | | | |
|-----------------|--|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (BUSINESS AND COMMERCIAL AREA) | | | 4/4 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 26 |

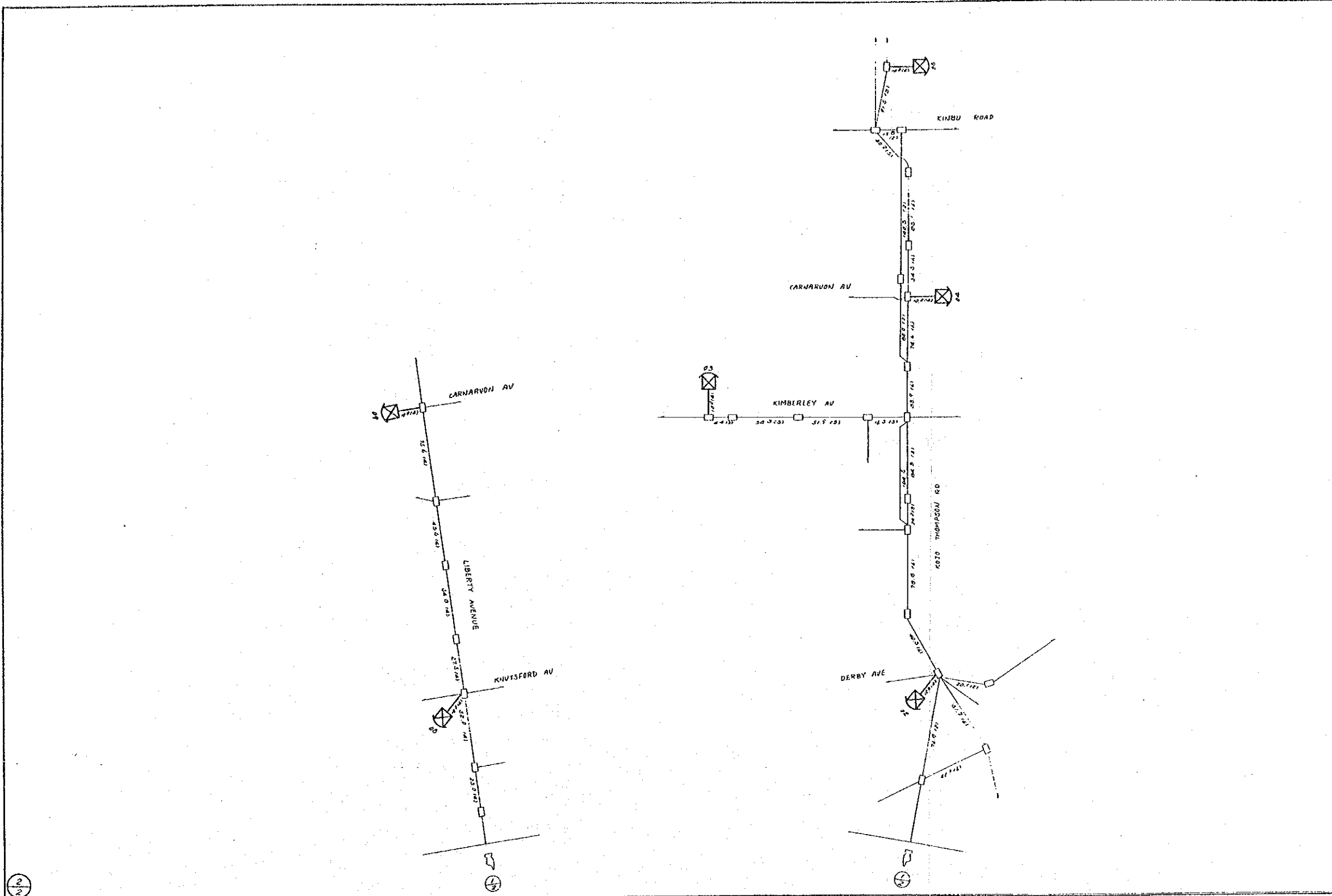


| | | | | |
|-----------------|---|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE (BUSINESS AND COMMERCIAL AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 27 |

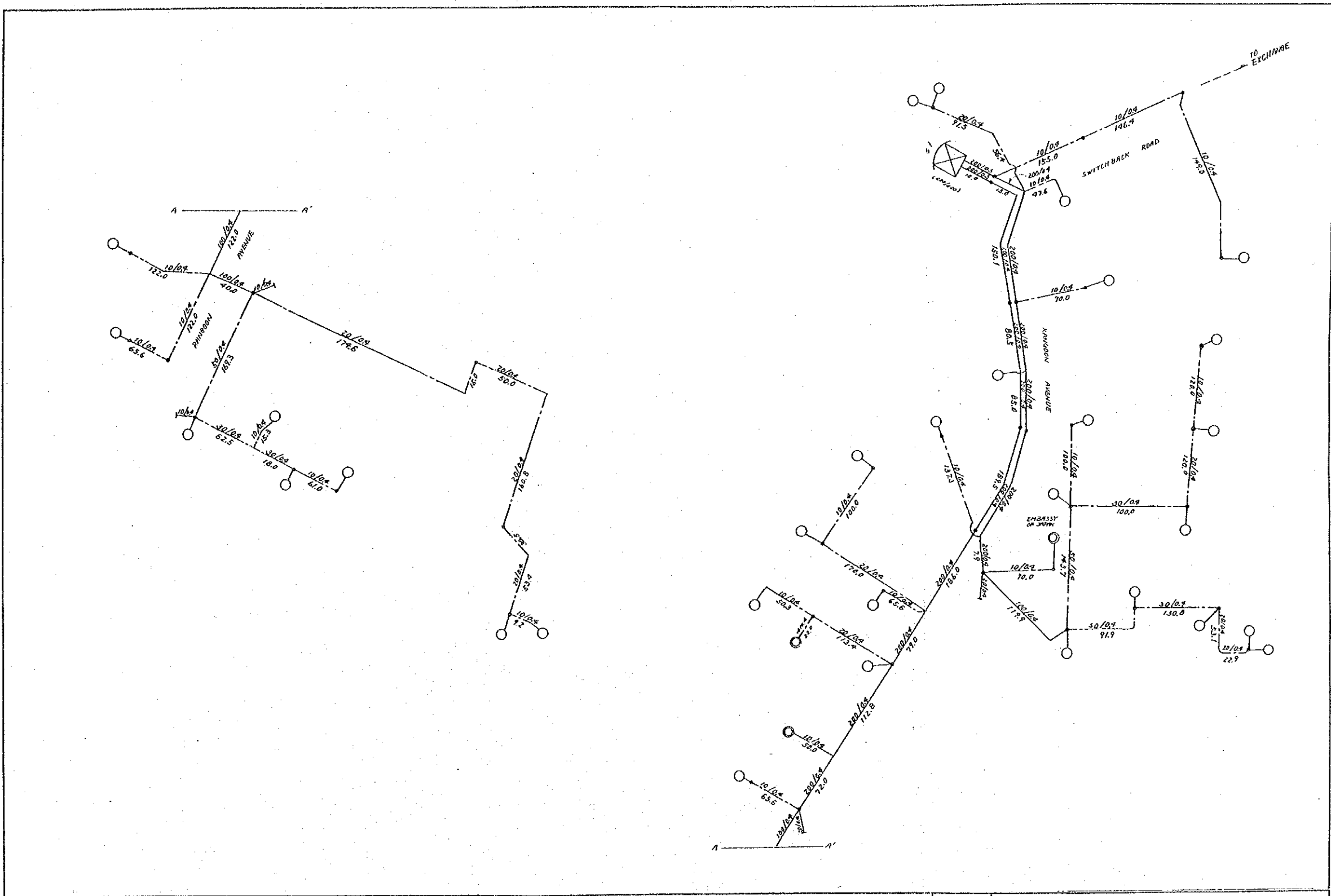


1/2

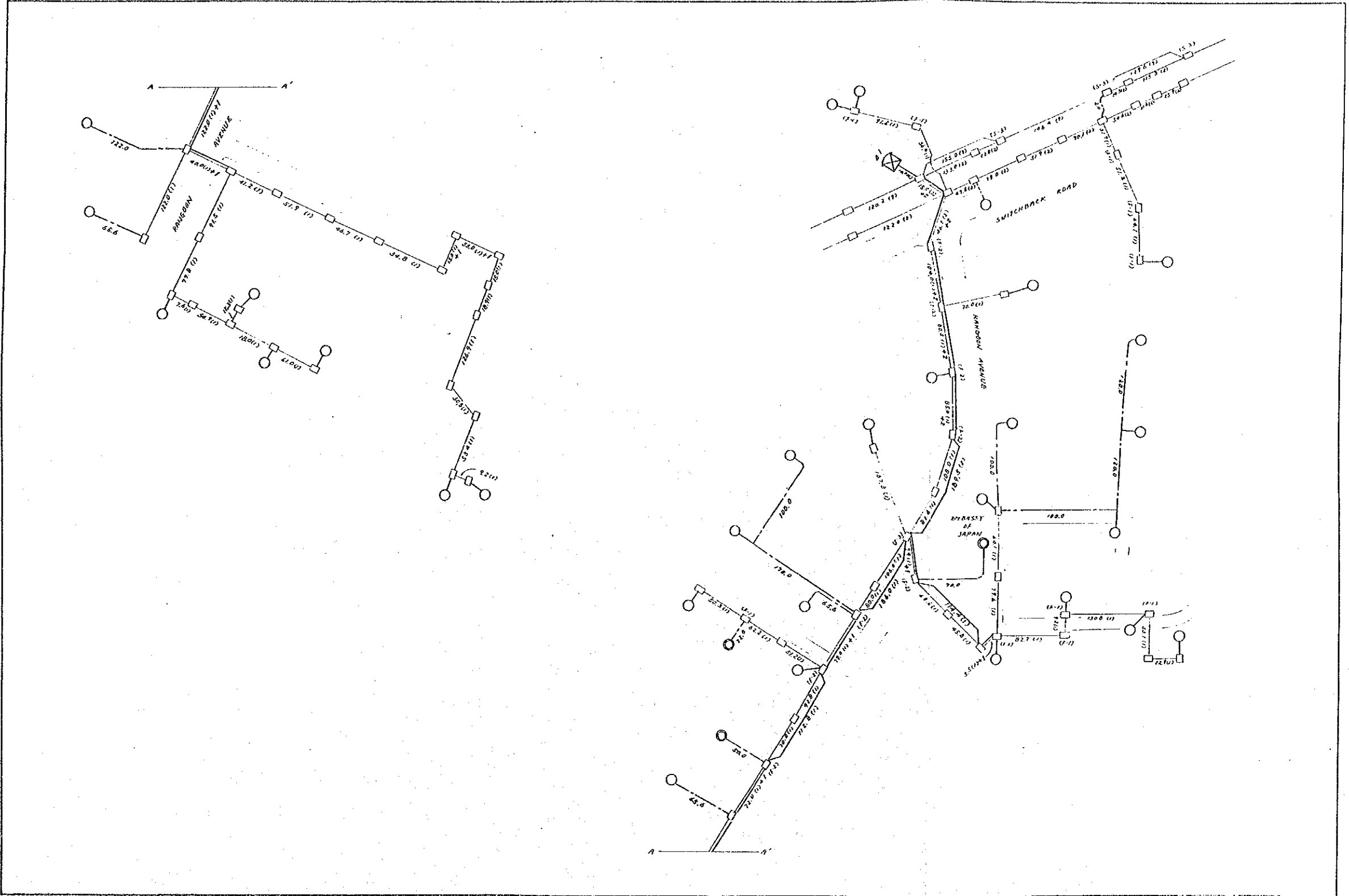
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|-----------------|--|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE DUCT ROUTE (BUSINESS AND COMMERCIAL AREA) | | | 1/2 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 2B |



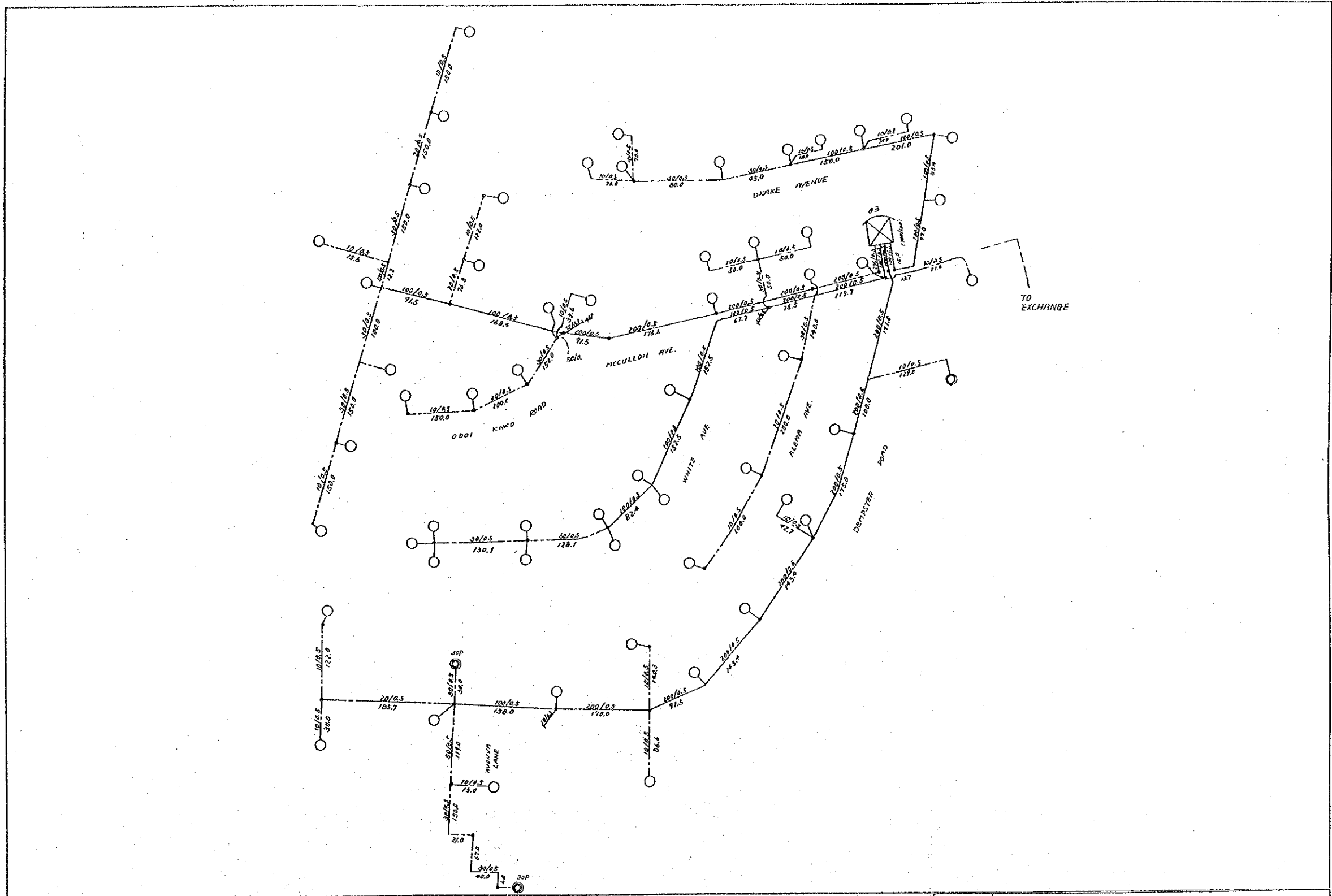
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|-----------------|--|------------------|---------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE DUCT ROUTE (BUSINESS AND COMMERCIAL AREA) | | 2/2 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL |
| DRAWING NO. | | 29 | |



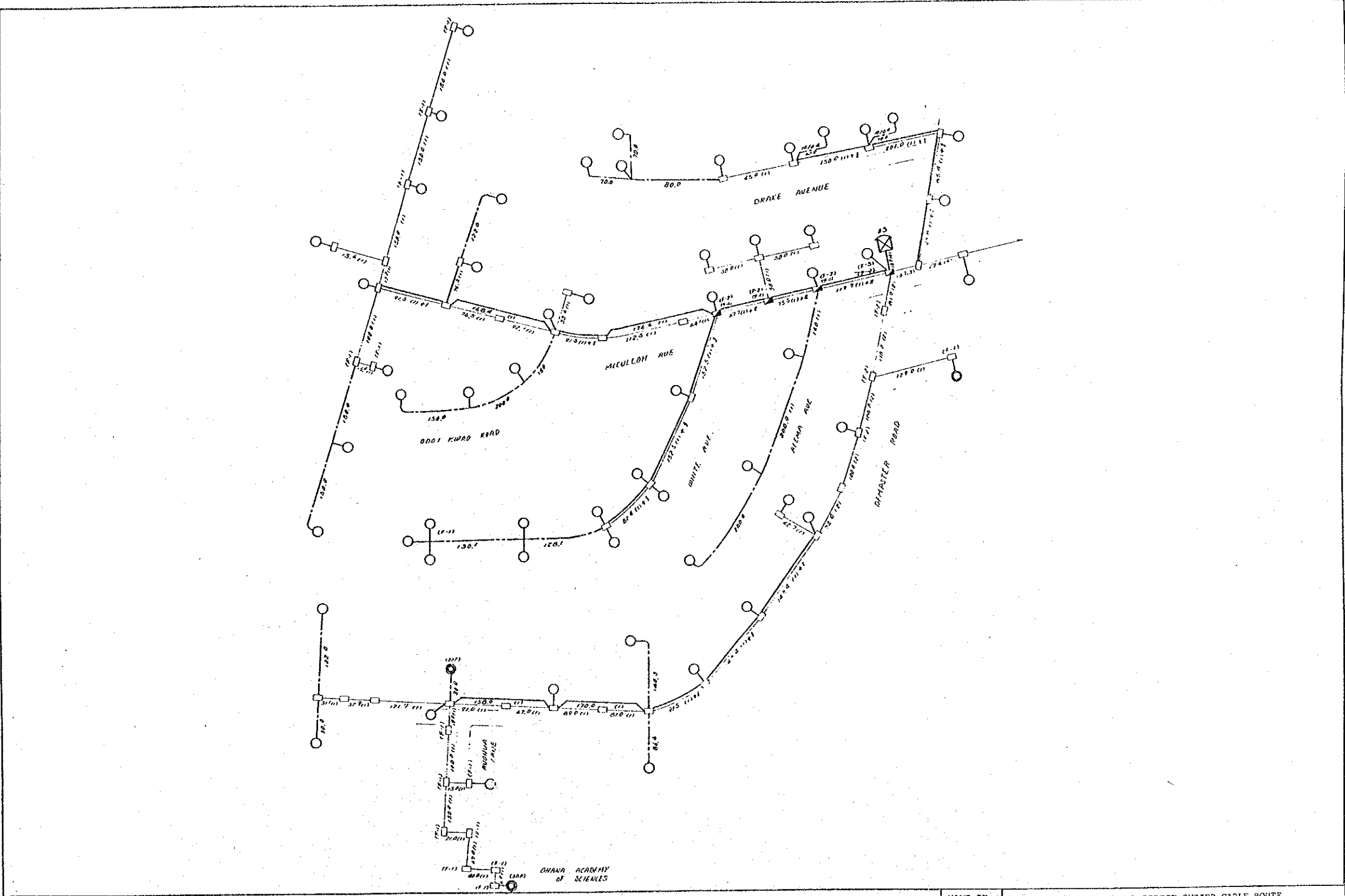
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|-----------------|-----------|--|-------------|-------------|----|
| NAME OF DRAWING | | BASIC PLAN FOR DISTRIBUTION CABLE (EMBASSIES AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. | 30 |



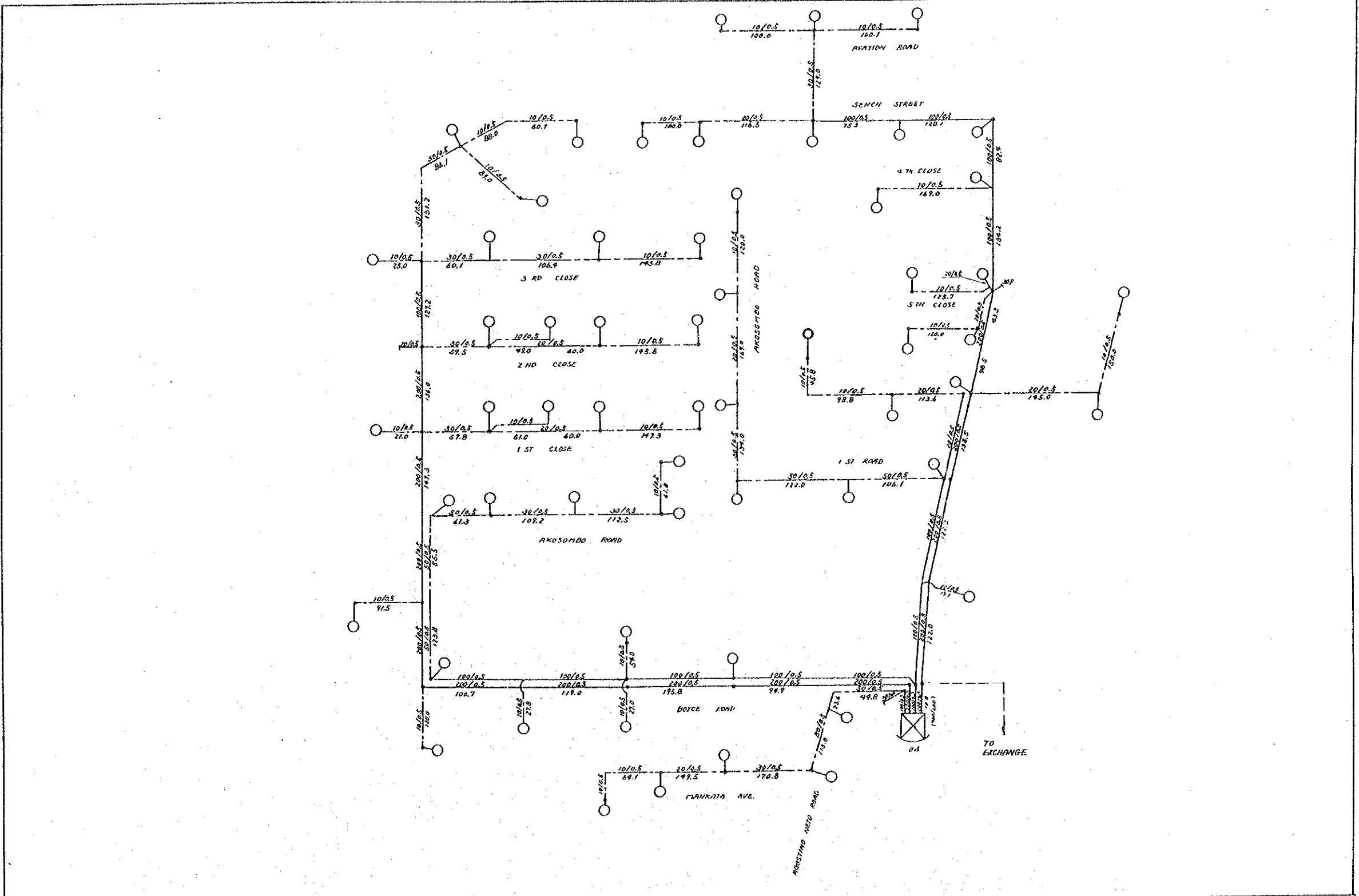
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|-----------------|--|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (EMBASSIES AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. 31 |



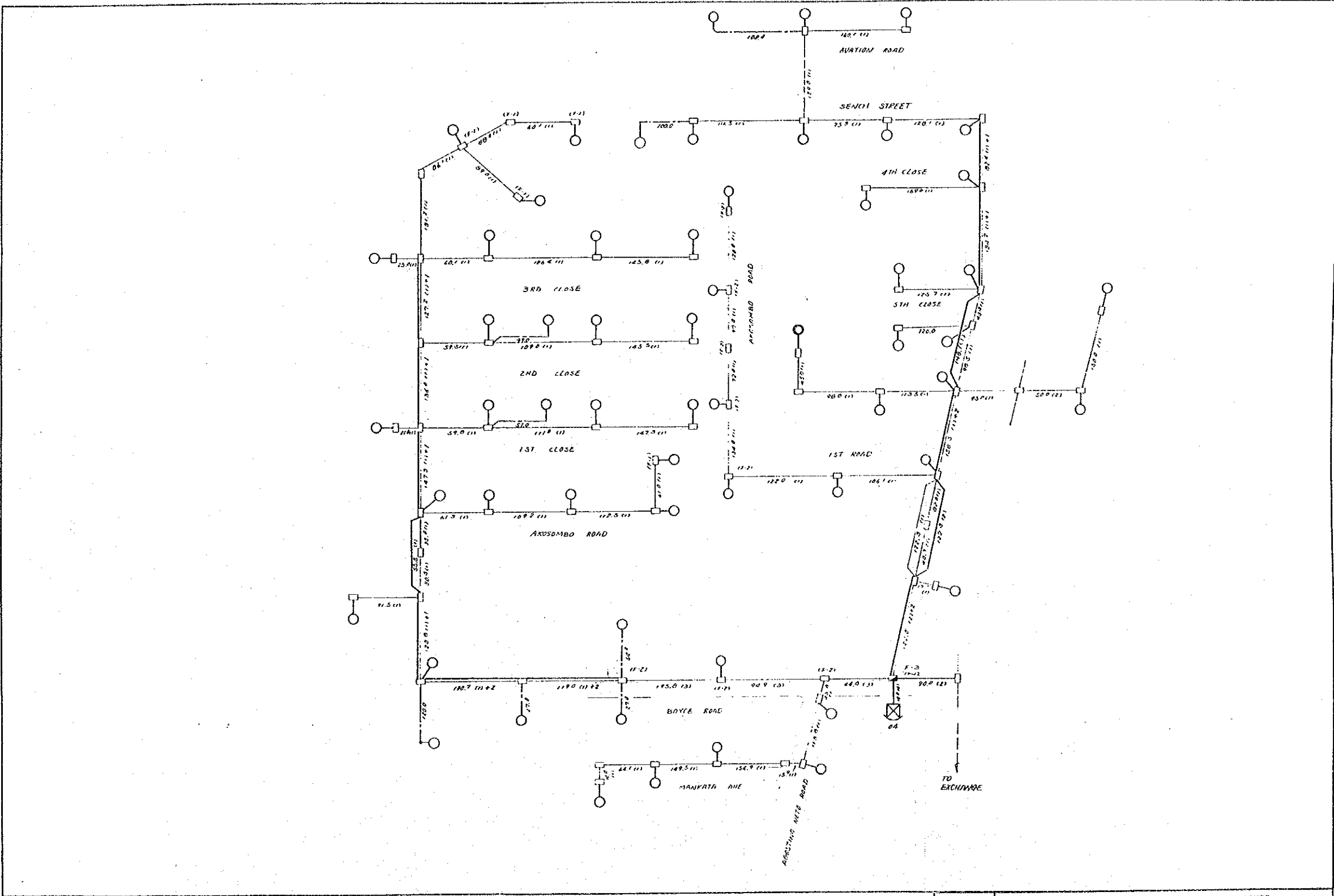
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|-----------------|--|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DISTRIBUTION CABLE (AIRPORT RESIDENTIAL AREA) | | | 1/2 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. 32 |



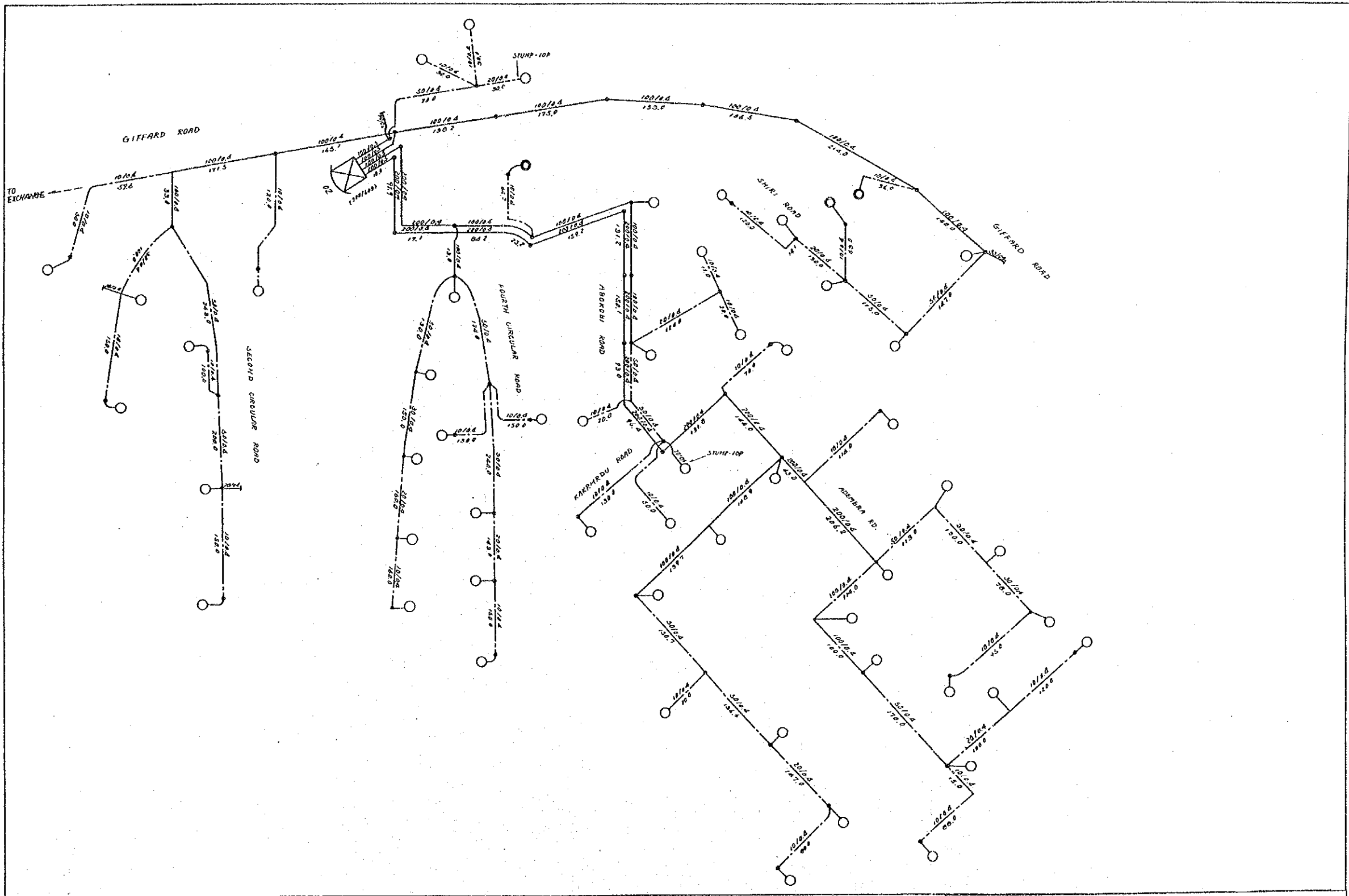
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|-----------------|--|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (AIRPORT RESIDENTIAL AREA) | | | 1/2 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. 33 |



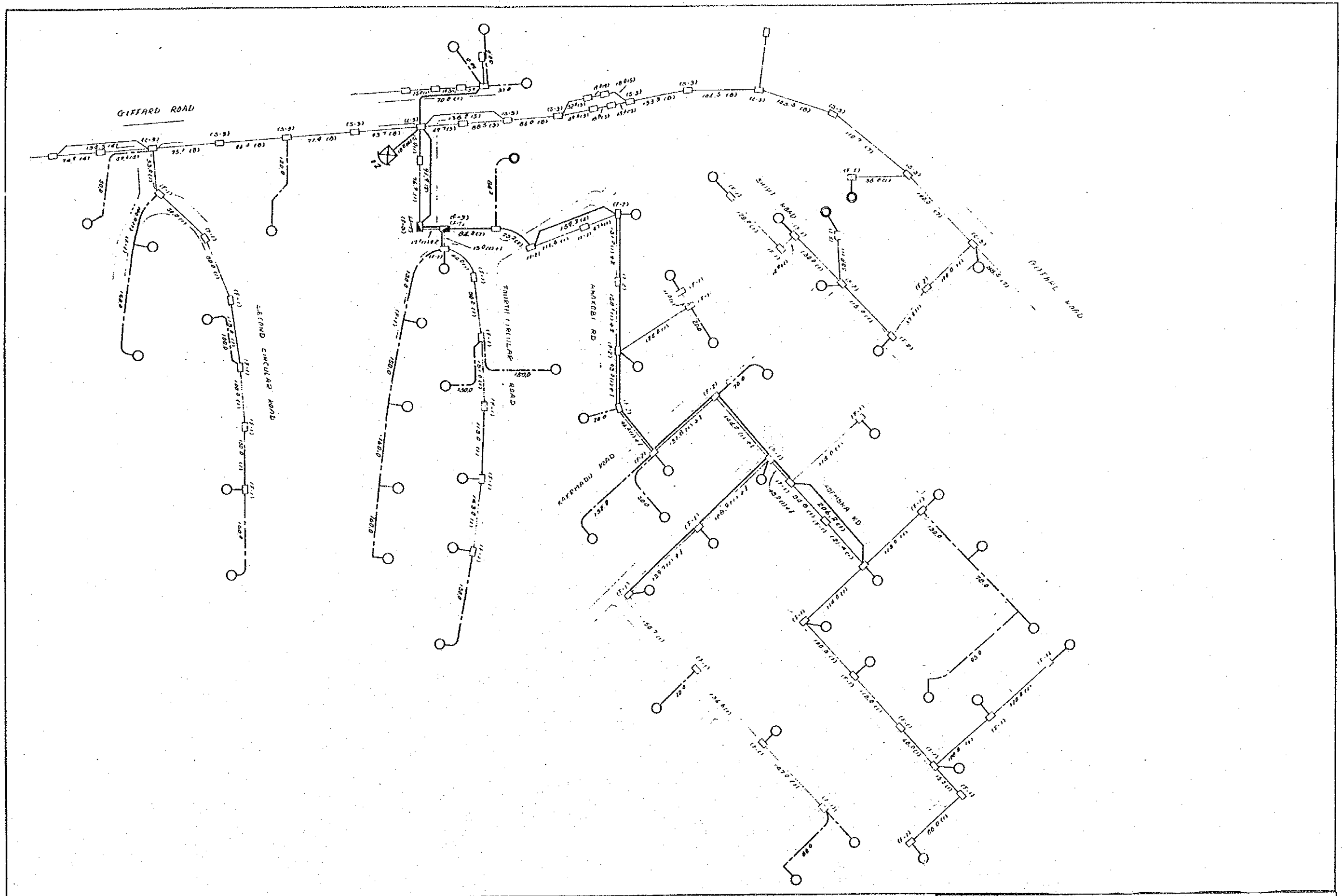
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|-----------------|--|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DISTRIBUTION CABLE (AIRPORT RESIDENTIAL AREA) | | | 2/2 |
| DATE | FEB. 1937 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. 34 |



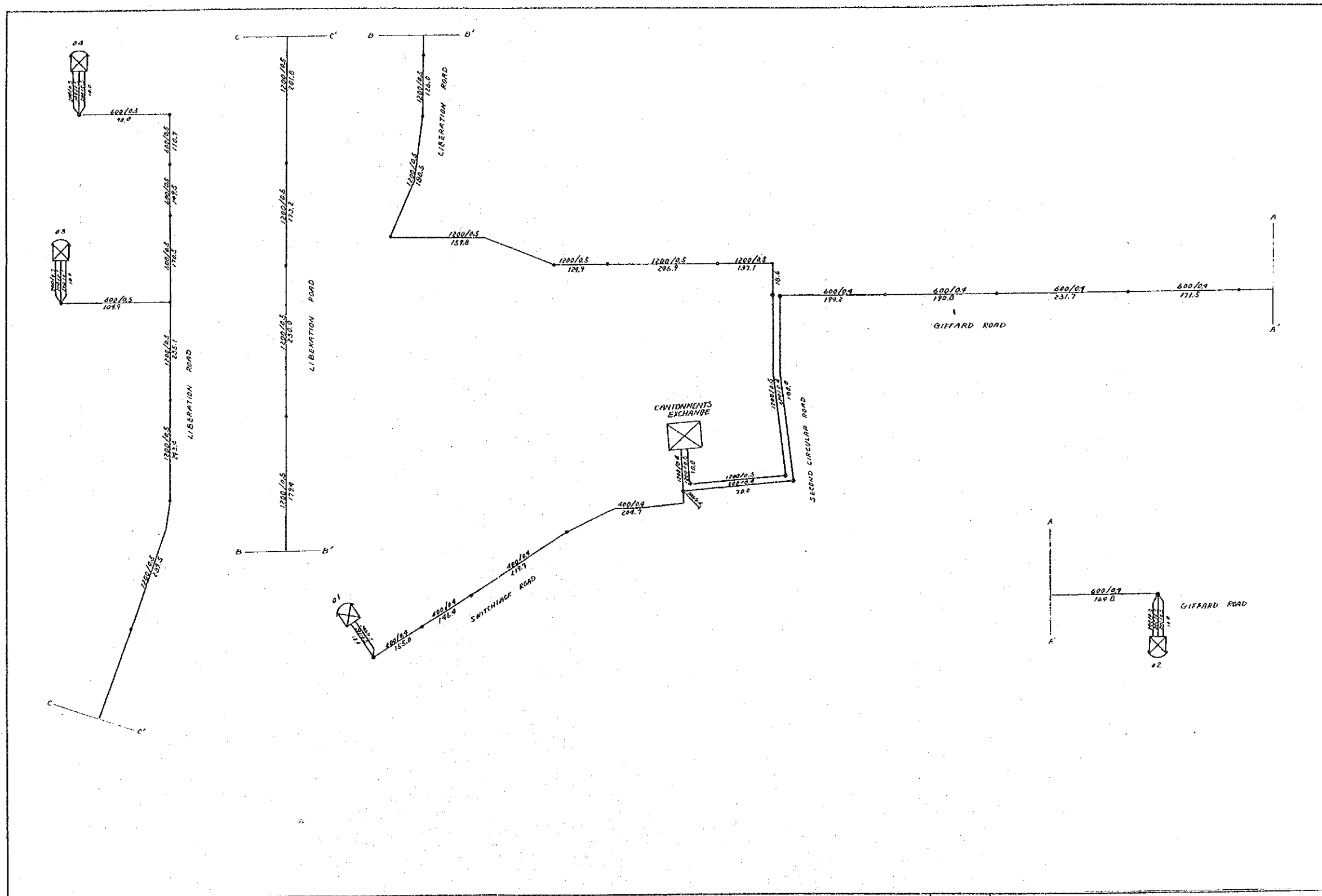
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|-----------------|--|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (AIRPORT RESIDENTIAL AREA) | | | 2/2 |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. 35 |



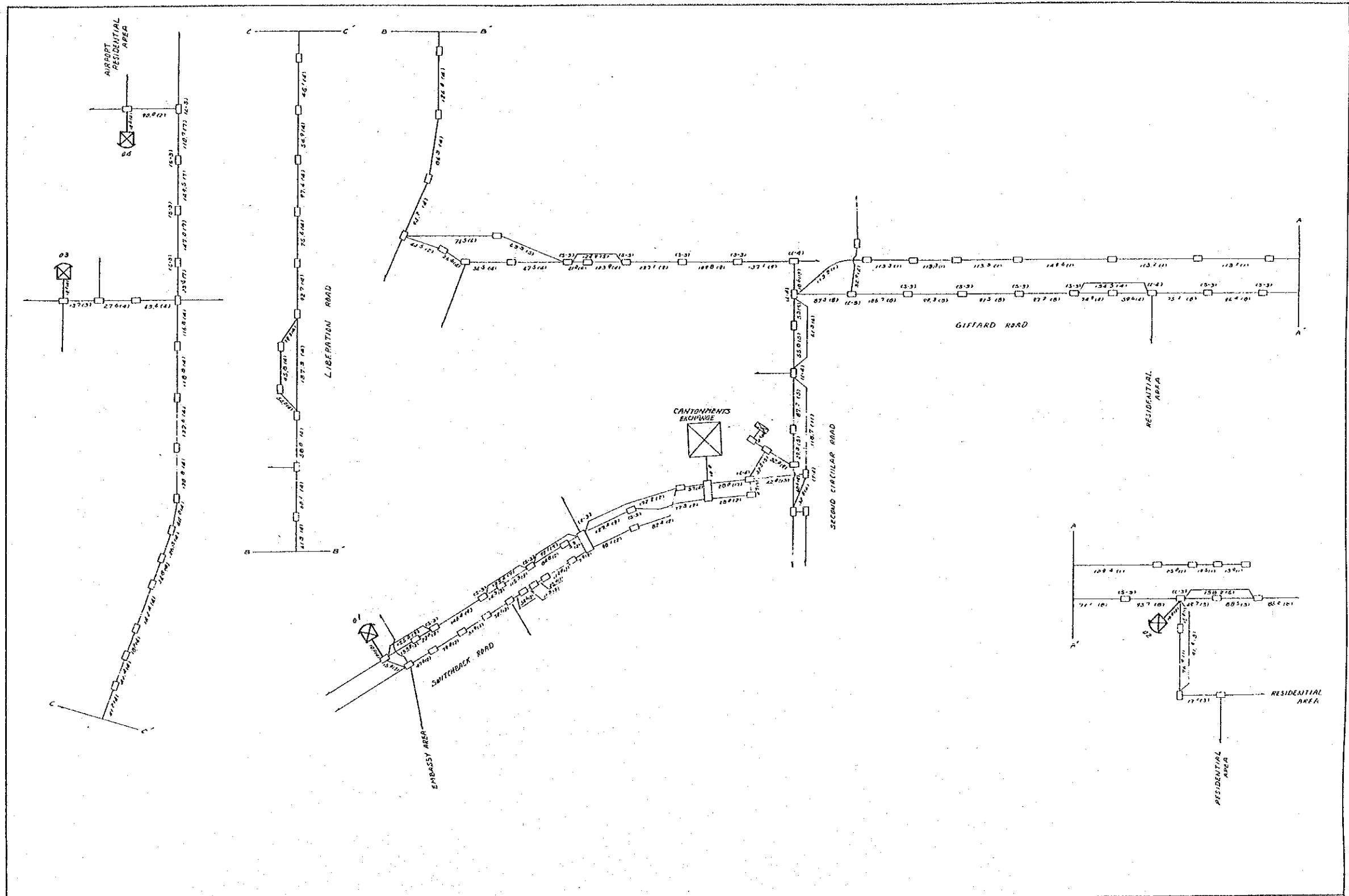
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|-----------------|---|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DISTRIBUTION CABLE (EAST CANTONMENTS AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. 36 |



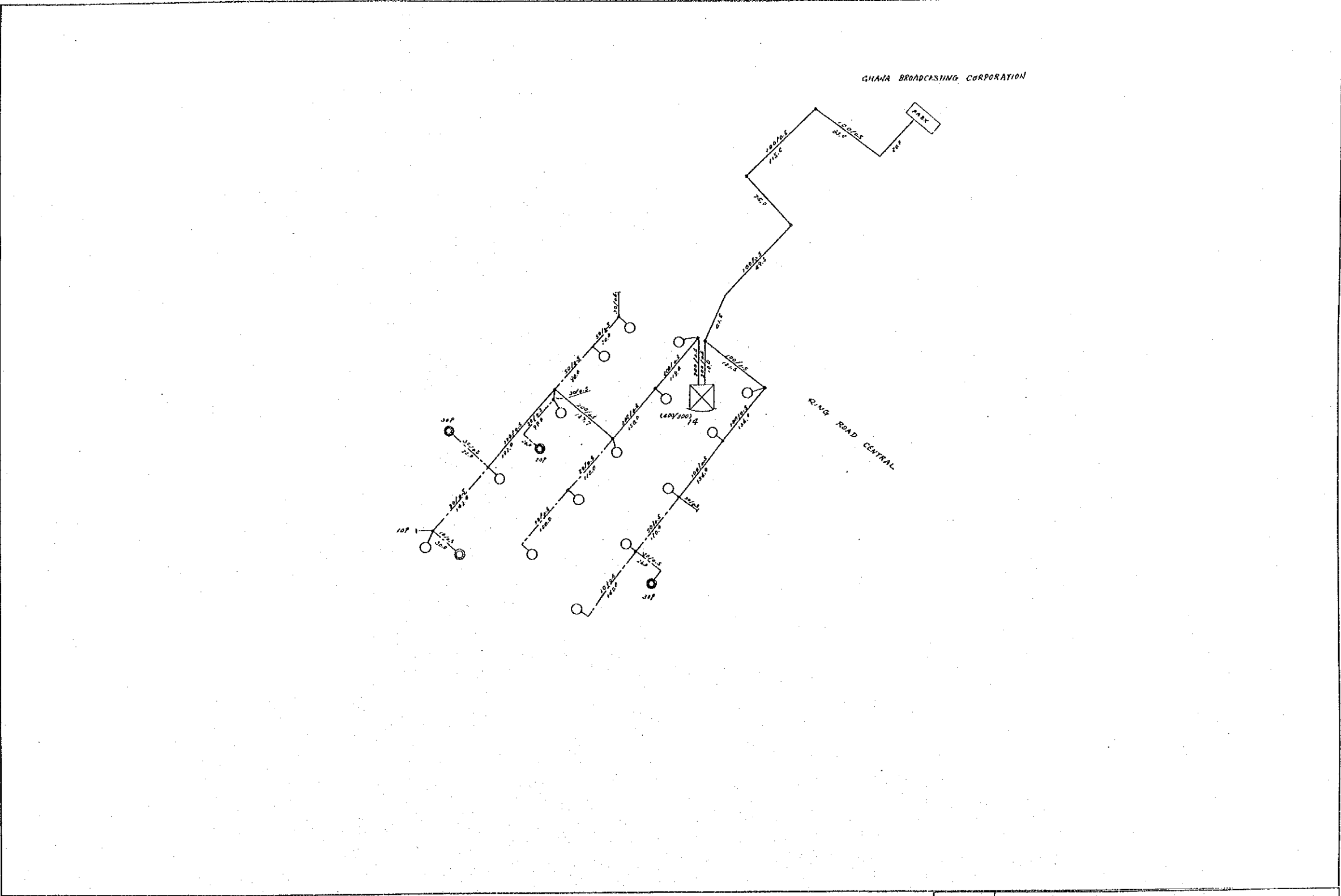
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|-----------------|---|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (EAST CANTONMENTS AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. 37 |



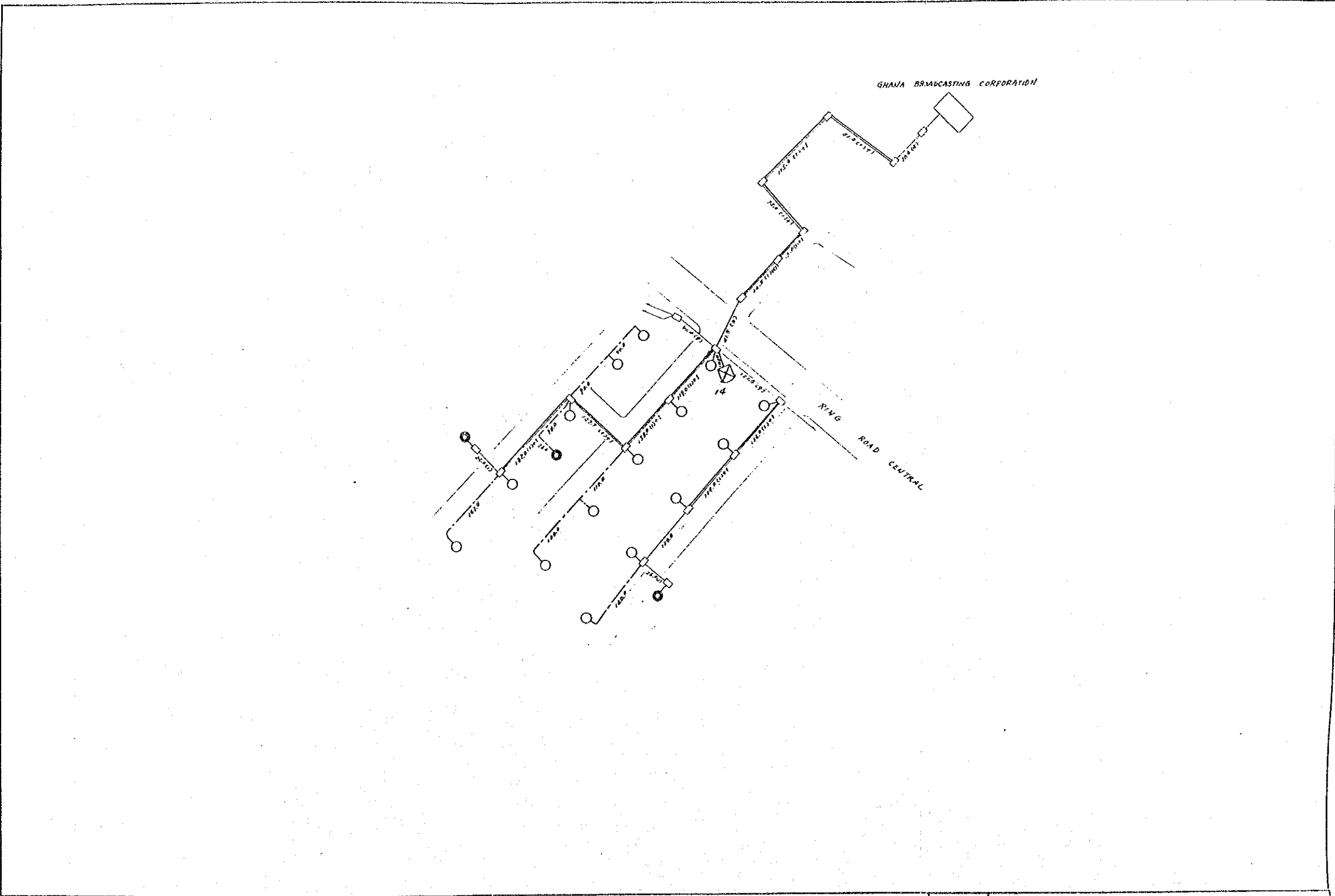
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|-----------------|--|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE (AIRPORT RE., EAST CANTONMENTS RE. AND EMBASSIES AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS | DRAWING NO. 38 |



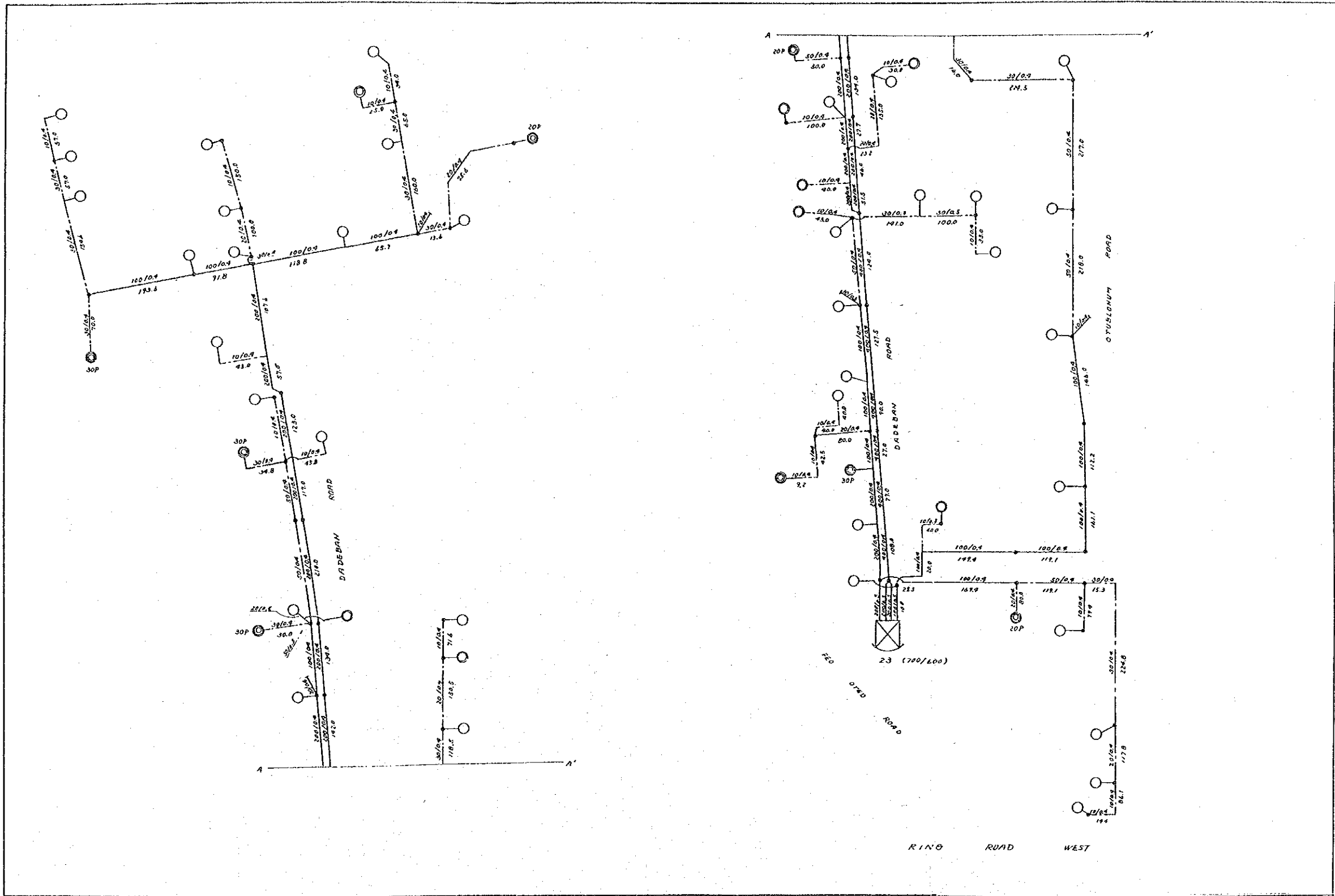
| | | | |
|-----------------|---|------------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE DUCT ROUTE (AIRPORT RE., EAST CANTONMENTS RE. AND EMBASSIES AREA) | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | CANTONMENTS |
| | | | DRAWING NO. 39 |



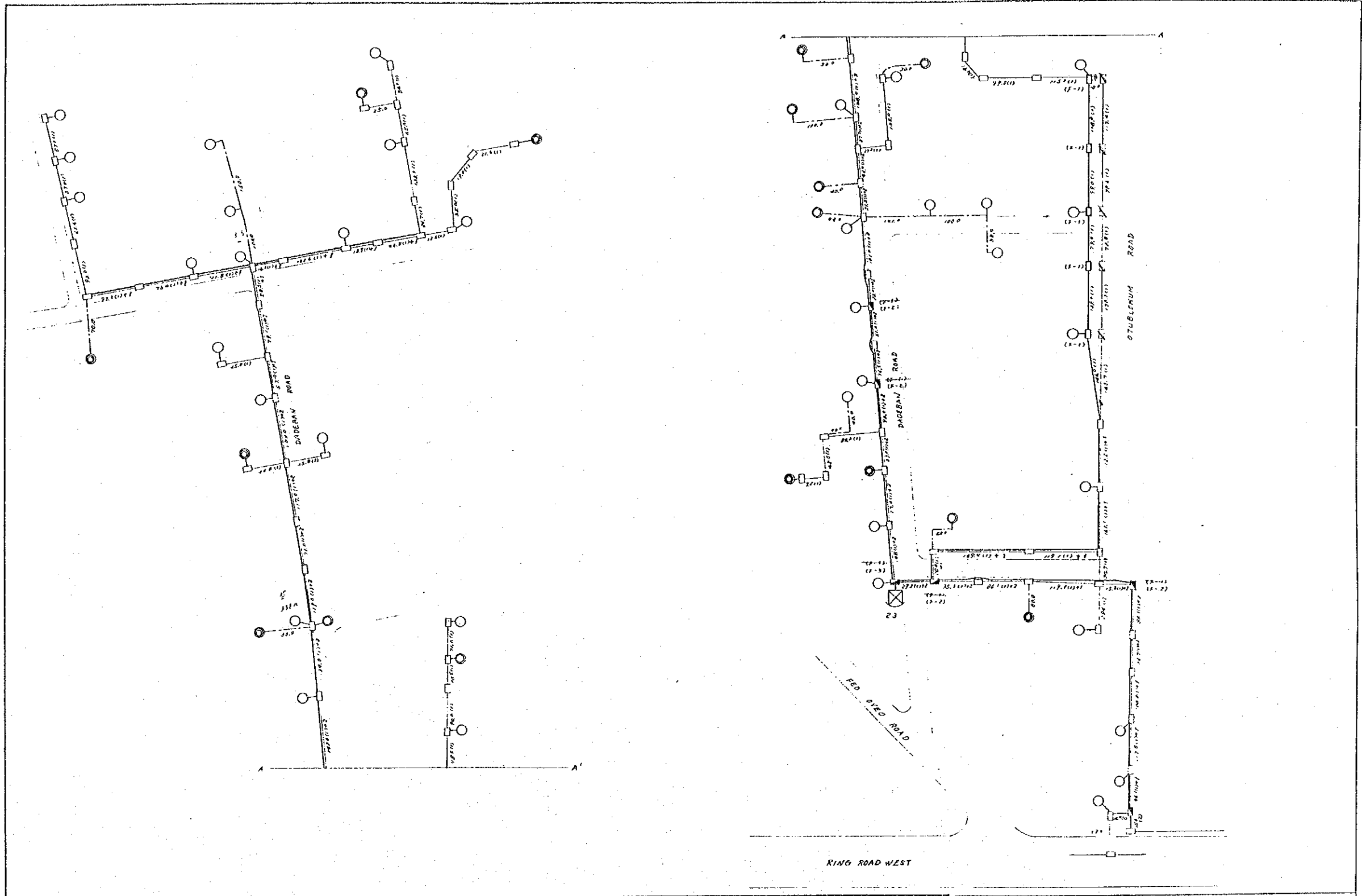
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|-----------------|--|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DISTRIBUTION CABLE (GHANA BROADCASTING CORPORATION AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA NORTH | DRAWING NO. 40 |



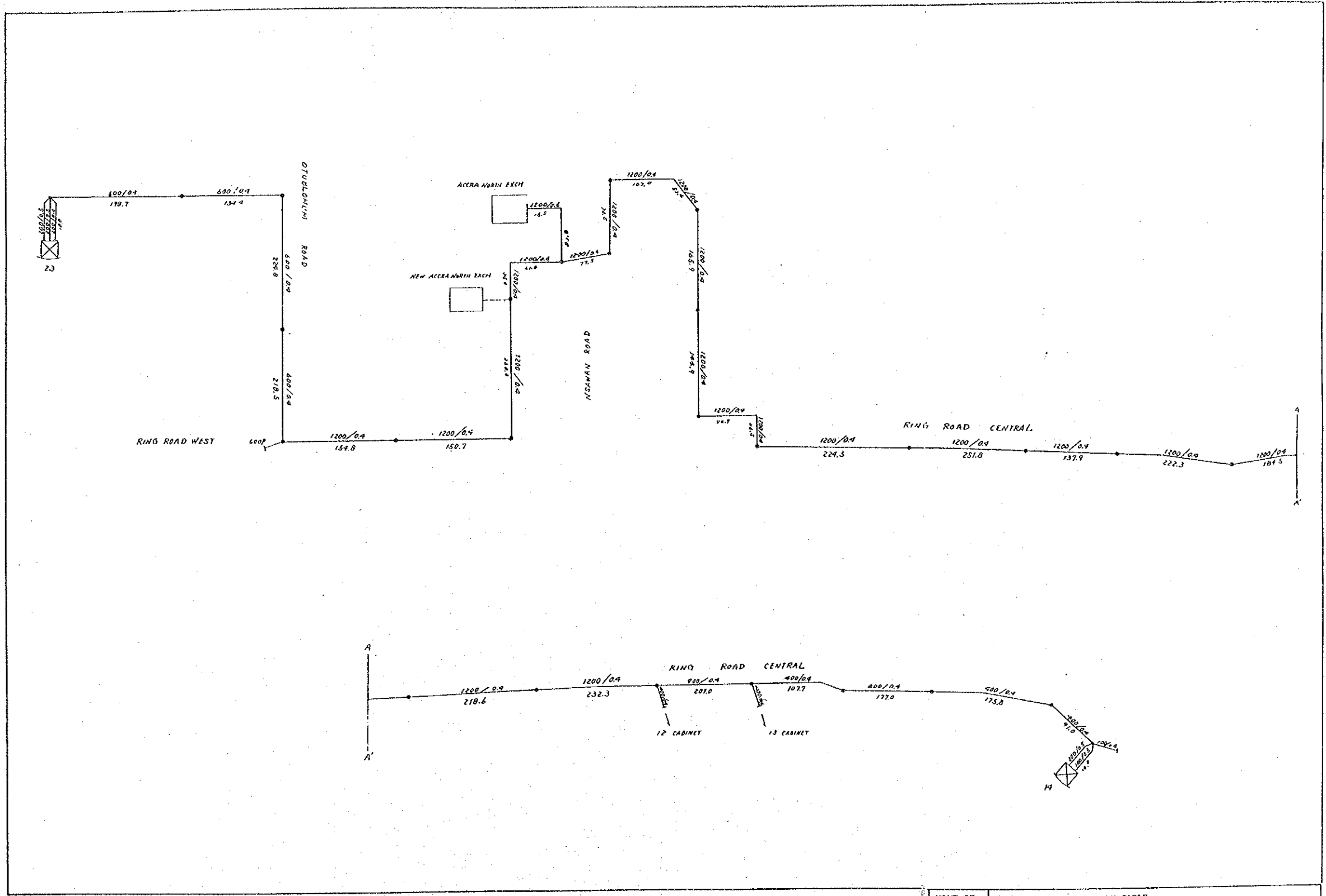
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|-----------------|---|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (GHANA BROADCASTING CORPORATION AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA NORTH | DRAWING NO. 41 |



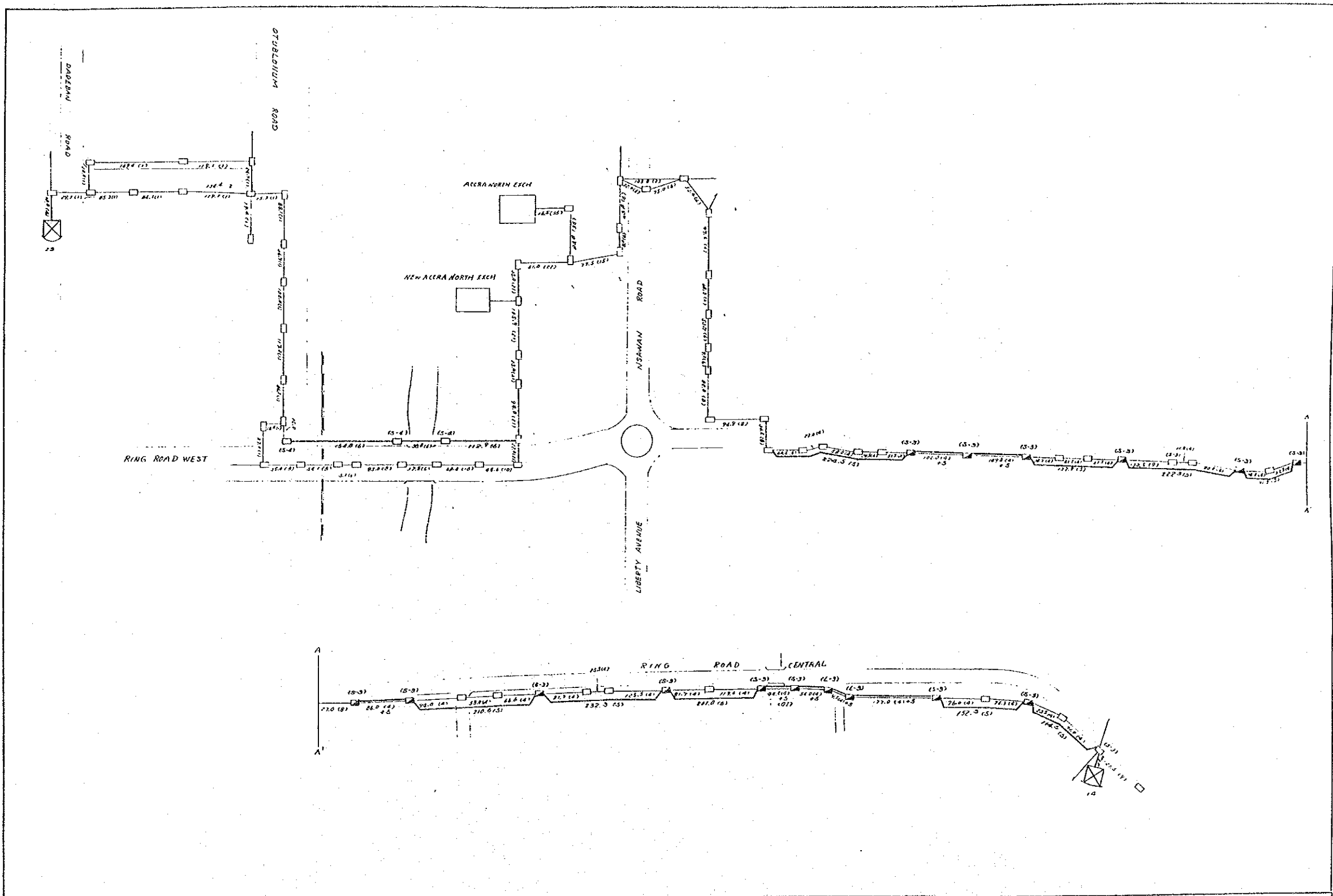
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|-----------------|---|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DISTRIBUTION CABLE (INDUSTRY AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA NORTH | DRAWING NO. 42 |



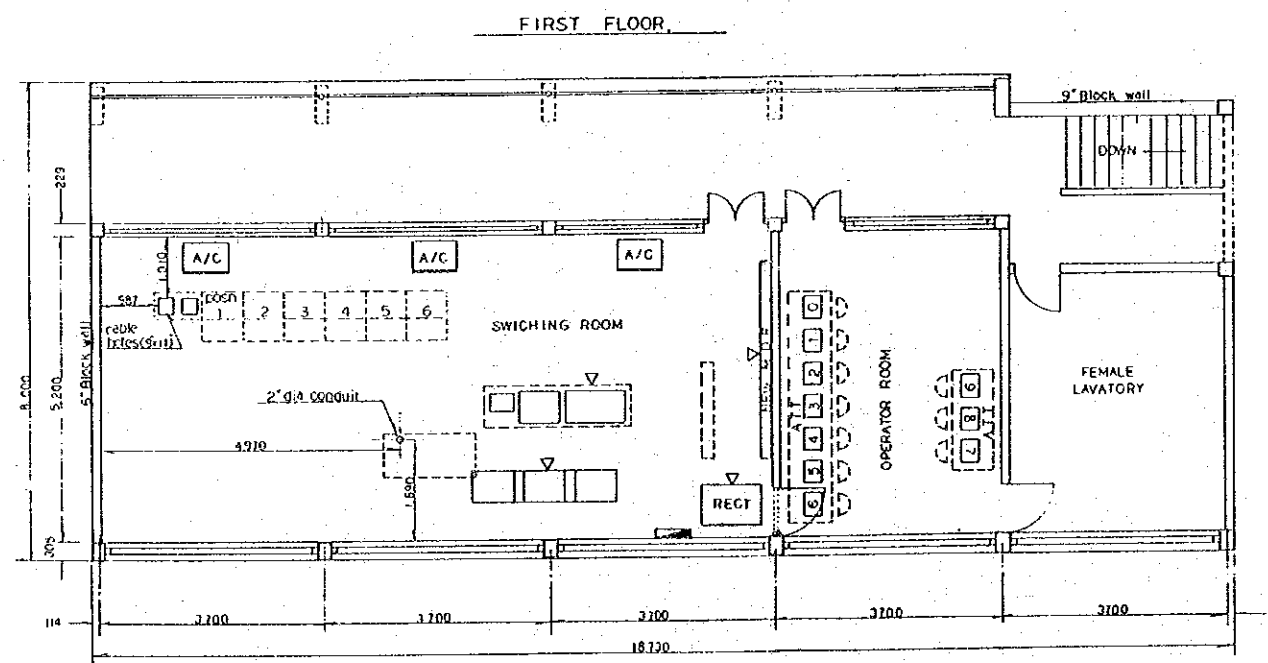
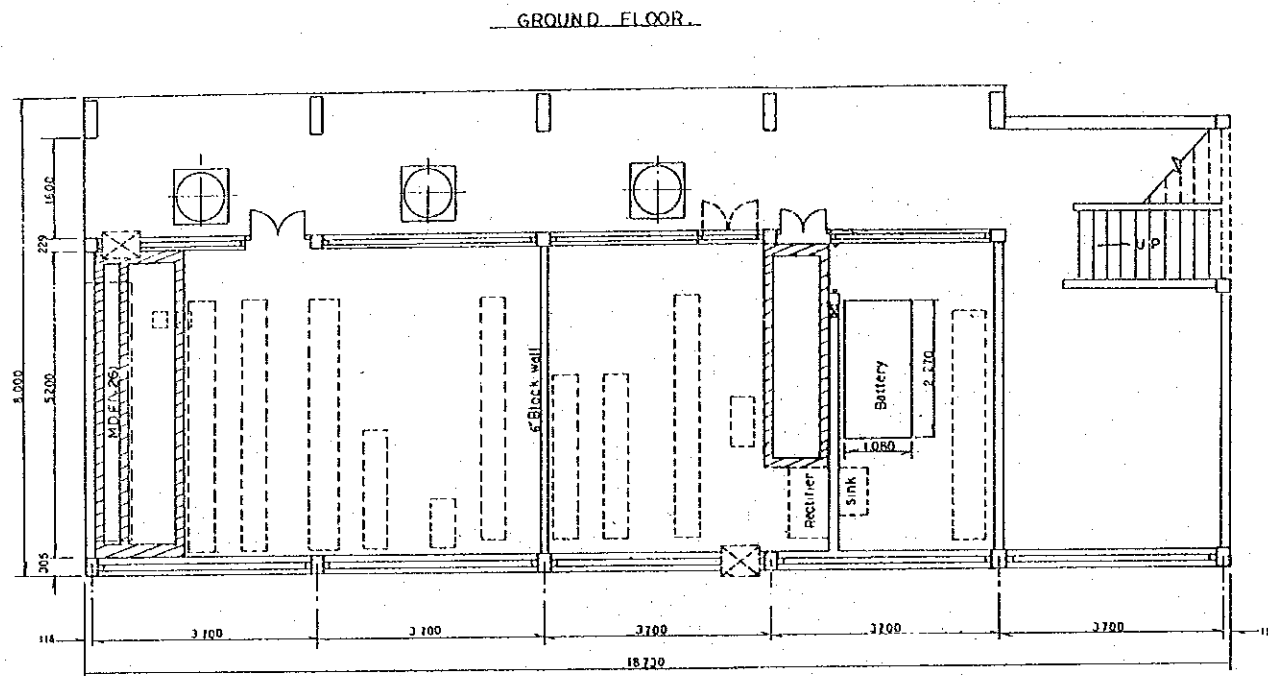
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|-----------------|---|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR DUCT AND DIRECT-BURIED CABLE ROUTE (INDUSTRY AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA NORTH | DRAWING NO. 43 |



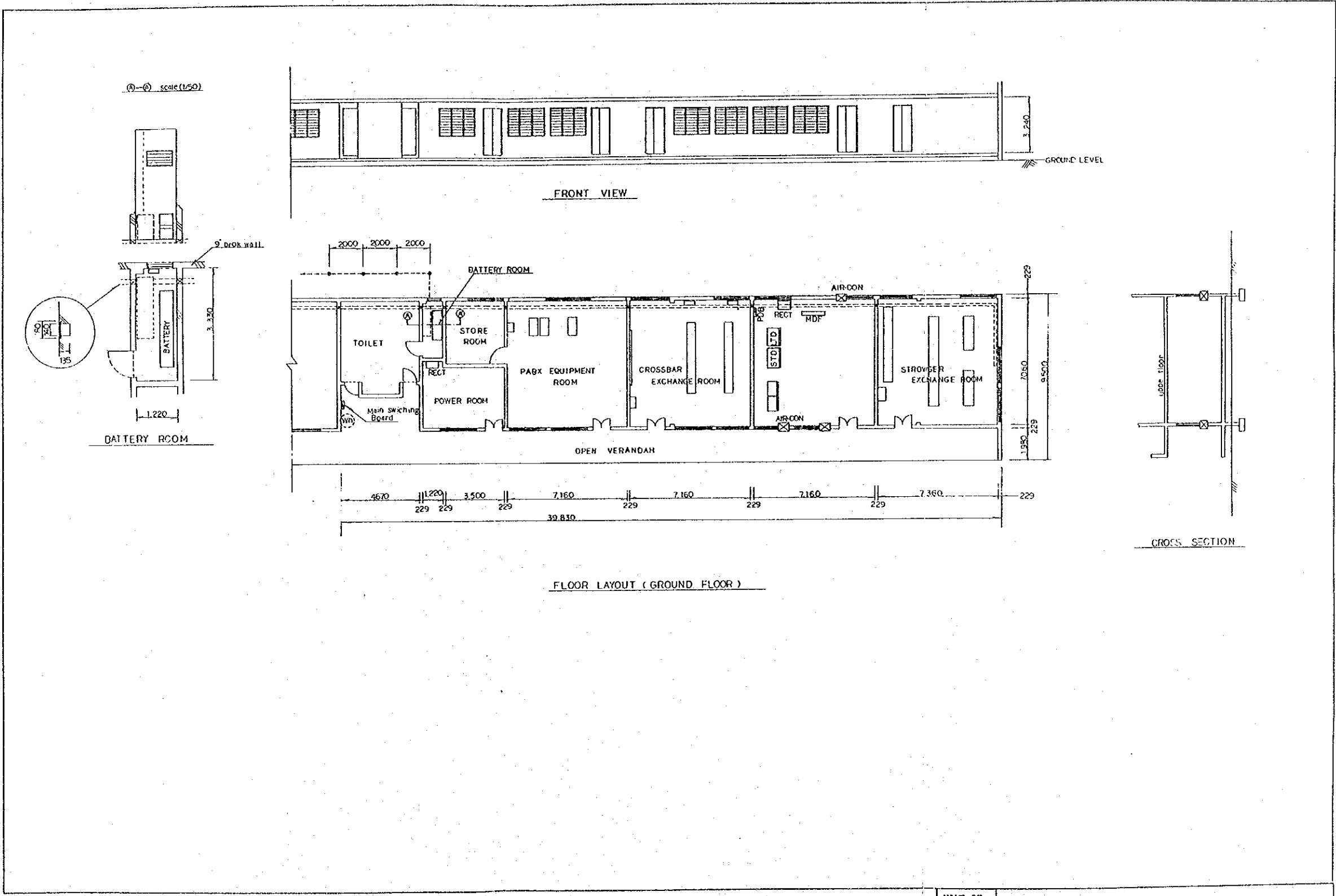
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|-----------------|-----------|--|-------------|-------------|----|
| NAME OF DRAWING | | BASIC PLAN FOR PRIMARY CABLE (GHANA BROADCASTING CORPORATION AND INDUSTRY AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA NORTH | DRAWING NO. | 44 |



| | | | | |
|-----------------|---|------------------|-------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR PRIMARY CABLE DUCT ROUTE (GHANA BROADCASTING CORPORATION AND INDUSTRY AREA) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA NORTH | DRAWING NO. 45 |



| | | | | |
|-----------------|-----------------------------------|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR FLOOR LAYOUT (1/2) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 46 |



| | | | | |
|-----------------|-----------------------------------|------------------|---------------|----------------|
| NAME OF DRAWING | BASIC PLAN FOR FLOOR LAYOUT (2/2) | | | |
| DATE | FEB. 1987 | NAME OF EXCHANGE | ACCRA CENTRAL | DRAWING NO. 47 |

