資料－2　現地調査の日程

1．基本設計調査

日順	月/日	曜日	天候	宿泊地	移　動	調査業務の内容
1	平成3年 11/23	土	晴	ロンドン	成田発 BA008 11:00 ロンドン発 14:55	コンサルタント側調査団（寺西、宍戸、武内、小宮） 日本出発
2	11/24	日	曇り	カイロ	ロンドン発 BA155 16:00 カイロ着 23:00	コンサルタント側調査団　エジプト着
3	11/25	月	雨 のち 晴	カイロ		ＪＩＣＡ事務所長表敬訪問・打合せ 日本大使館表敬訪問・打合せ 団内打ち合せ
4	11/26	火	晴	カイロ		ギザ市への表敬訪問及びインセプションレポート、QUESTIONNAIRE、無償資金協力システム、調査日程等 程等の説明・協議
5	11/27	水	晴	カイロ		現地調査準備作業と団内打ち合せ ＣＷＯへの表敬及びQUESTIONNAIREの説明・協議と前プロジェクトの現況調査（日本・エジプト友好ポンプ場他） 収集資料整理
6	11/28	木	曇り	カイロ		ＧＣＷＳＡへの表敬及びQUESTIONNAIREの説明・協議 ＪＩＣＡ事務所への経過報告 サイト調査及び測量
7	11/29	金	晴	カイロ		団内打合せ、収集資料整理
8	11/30	土	晴	カイロ		ＧＣＷＳＡとの協議、資料収集と既設南ギザ浄水場及び配水本管の鉄道・運河横断部サイト調査 測　量
9	12/1	日	晴	カイロ		ＧＣＷＳＡとの協議及び資料収集 ギザ市との合同サイト調査、前ﾌﾟﾛｼﾞｪｸﾄの現況調査 （上下水道幹線ルート、マンホール、周辺住宅状況等） 測量、団内打合せ及び収集資料整理
10	12/2	月	晴	カイロ		エジプト電力庁（ＥＥＡ）、ドッキー地区配電会社、ギザ北部地区配電会社及びカイロ地区配電会社との電力計画調査・既設配電網状況調査・資料収集 ギザ電話局との既設電話網状況調査、ＧＯＳＤとの協議 収集資料整理、スタディー、サイト調査及び測量
11	12/3	火	晴	カイロ		ギザ電話局と既設電話網状況調査 ＪＩＣＡ事務所へ経過報告、ギザ市及びＧＣＷＳＡとの協議、QUESTIONNAIREの回答及び資料収集 既設南ギザ浄水場現況調査 測量、収集資料整理、スタディー

日順	月/日	曜日	天候	宿泊地	移　動	調査業務の内容
12	12/4	水	晴	カイロ		ＧＣＷＳＡ、ＧＯＳＤ、ギザ市及びＣＷＯとの協議 QUESTIONNAIREの回答及び資料収集 団内打合せ、資料整理、スタディー コンサルタント第２班（村木、榊山）カイロ着
13	12/5	木	晴	カイロ		ＧＣＷＳＡ及びＧＯＳＤとの協議、QUESTIONNAIREの回答及び資料収集 ＪＩＣＡ事務所への調査概要報告 市場調査、測量、団内打合せ、収集資料整理
14	12/6	金	晴	カイロ		収集資料整理、スタディー及び団内打合せ
15	12/7	土	晴	カイロ		ＧＣＷＳＡ及びＧＯＳＤの協議、 前プロジェクト施設の運用状況調査 収集資料整理、スタディー、調査概要報告書取りまとめ、市場調査及び測量 官側調査団カイロ着（KL668）
16	12/8	日	晴	カイロ		日本大使館及びＪＩＣＡ事務所表敬・打合せ ギザ市及び国際協力省（ＭＯＩＣ）表敬・協議 ＧＯＳＤ及びＧＣＷＳＡエンババ支局との協議、 QUESTIONNAIREの回答及び資料収集、 並びに前プロジェクト施設の運用・維持監理状況調査 市場調査及び測量、団内打合せ、収集資料整理
17	12/9	月	晴	カイロ		ＧＯＳＤと合同で、下水中継ポンプ場No.５、本計画の下水道幹線ルート及びアブラワシュ下水処理場等のサイト調査 ＧＣＷＳＡネットワーク部門との協議、QUESTIONNAIREの回答及び資料収集、並びに前プロジェクト施設の運用・維持監理状況調査 市場調査及び測量、収集資料整理、スタディー
18	12/10	火	晴	カイロ		ＧＣＷＳＡ及びＣＷＯへの表敬・協議 国家統計資料及び関連資料収集、スタディー、市場調査及び測量
19	12/11	水	晴	カイロ		ＧＣＷＳＡ及びＧＯＳＤとの協議、並びにギザ州知事表敬 NOPWASD訪問、QUESTINNAIREの説明・協議 市場調査、測量、収集資料整理、スタディー
20	12/12	木	晴	カイロ		ＭＯＩＣ及びギザ市とのＭ／Ｄ協議 ＧＯＳＤ総裁表敬・協議、ＧＣＷＳＡとの協議 国家統計資料及び関連資料収集、市場調査及び測量
21	12/13	金	曇り一時雨	カイロ		団内打合せ、収集資料整理、スタディー
22	12/14	土	曇り	カイロ		ＧＣＷＳＡ及びＧＯＳＤとの協議、前プロジェクトの状況調査 市場調査及びサイト調査、収集資料整理、スタディー

日順	月/日	曜日	天候	宿泊地	移　動	調査業務の内容
23	12/15	日	曇り	カイロ		MOIC及びギザ市とM／D確認及び調印 GCWSA及びGOSDとの協議、前プロジェクトの状況調査 市場調査、サイト調査、収集資料整理、スタディー
24	12/16	月	晴	カイロ		日本国大使館報告・挨拶、JICA報告・挨拶 GOSDとの協議並びに前プロジェクトの状況調査 NOPWASDとの協議 市場調査、サイト調査、団内打合せ、収集資料整理、スタディー
25	12/17	火	晴	カイロ		官側調査団エジプト国出国（LH683） ギザ市との協議、QUESTIONNAIREの回答及び資料収集 GOSDとの協議、前プロジェクトの状況調査 市場調査、サイト調査、収集資料整理、スタディー
26	12/18	水	晴	カイロ		GOSDとの協議、前プロジェクトの状況調査 市場調査及びサイト調査、収集資料整理、スタディー フィールドレポート作成
27	12/19	木	晴	カイロ		市場調査、収集資料整理、スタディー、フィールドレポート作成
28	12/20	金	晴	カイロ		収集資料整理、スタディー、フィールドレポート作成
29	12/21	土	晴	カイロ		フィールドレポート作成、市場調査、収集資料整理 コンサルタント側調査団（小宮、榊山、村木） エジプト国出国
30	12/22	日	晴	カイロ		ギザ市、GCWSA、ギザ灌漑局、国鉄へのフィールドレポートの提出・説明・協議 収集資料整理
31	12/23	月	晴	カイロ		GOSDへのフィールドレポート提出・説明・協議
32	12/24	火	晴	カイロ		日本大使館、JICA事務所、ギザ市への調査報告及び帰国挨拶
33	12/25	水	晴	ｱﾑｽﾃﾙﾀﾞﾑ	カイロ発 KL554 7:50 ｱﾑｽﾃﾙﾀﾞﾑ着 11:45	コンサルタント側調査団（寺西、宍戸、武内） エジプト出国
34	12/26	木	晴	機　内	ｱﾑｽﾃﾙﾀﾞﾑ発 KL861 13:40	移　動
35	12/27	金	晴	機　内	東京着　9:15	コンサルタント側調査団（寺西、宍戸、武内） 日本着

2．ドラフト・ファイナルレポート（ＤＦ／Ｒ）の現地説明

日順	月/日	曜日	天候	宿泊地	移　動	調査業務の内容
1	平成4年 4/14	火	曇	ｱﾑｽﾃﾙﾀﾞﾑ	成田発 KL862 11:50 ｱﾑｽﾃﾙﾀﾞﾑ着 16:55	調査団　日本出発
2	4/15	水	晴	カイロ	ｱﾑｽﾃﾙﾀﾞﾑ発 KL862 11:50 カイロ着 17:45	調査団　エジプト着
3	4/16	木	晴	カイロ		日本大使館表敬・打合せ ＭＯＩＣ表敬、ＤＦ／Ｒ説明・協議 ギザ市表敬、ＤＦ／Ｒ説明・協議
4	4/17	金	晴	カイロ		団内打合せ及び資料整理
5	4/18	土	晴	カイロ		ギザ市長表敬、ＤＦ／Ｒ説明・協議 ＧＣＷＳＡ庁官表敬、技術顧問表敬、ＤＦ／Ｒ説明・協議 ＣＷＯ副長官表敬、ＤＦ／Ｒ説明
6	4/19	日	晴	カイロ		ＧＯＳＤ庁官表敬、ＤＦ／Ｒ説明・協議 ＤＦ／Ｒに係わるメモランダム作成
7	4/20	月	晴	カイロ		ＧＯＳＤ、ＤＦ／Ｒ説明・協議
8	4/21	火	晴	カイロ		ギザ市とＭ／Ｄ及びメモランダム協議・署名 日本大使館、ＪＩＣＡ事務所への報告書作成
9	4/22	水	晴	カイロ		日本大使館、ＪＩＣＡ事務所への帰国報告 ＭＯＩＣへのＭ／Ｄ説明
10	4/23	木	雨	ウィーン	カイロ発 OS384　6:40 ウィーン着 10:40	調査団　エジプト出国
11	4/24	金	晴	機　中	ウィーン発 OS555 11:25	移　動
12	4/25	土	晴		成田着 8:20	調査団　日本着

資料－3　相手国関係者リスト

面談者リスト

[所属及び氏名]	[職　位]
在エジプト日本国大使館：	
長崎輝章　氏	一等書記官
菊地和博　氏	一等書記官
車田直昭　氏	一等書記官
ＪＩＣＡエジプト事務所：	
岩口健二　氏	所　長
川添浩正　氏	次　長
岡本　茂　氏	
国際協力省	
Ministry of International Cooperation(MOIC):	
Mr. Hamed Moustafa	Undersecretary
Mr. Mohsen Sadek	Director of Japan Department
ギザ州	
Giza Governorate :	
Gen. Yousef Afify	Governor
ギザ市	
Giza City :	
Gen. Fouad Khalil	Mayor
Dr. Nabil Makhlouf	Technical Advisor
Mr. Zein Adam	General Secretary
Mr. Said Said Mohmoud	Manager of Engineering Department
Mr. Ahmed El Darmely	Administrator
大カイロ圏上水道庁	
Greater Cairo Water Supply Authority (GCWSA) :	
Mr. Saad El Deeb	Chairman
Mr. Adel El Toweiry	Vice Chairman
(Technical Advisor Section)	
Mr. Mahmoud Abo Khalaf	Technical Advisor of Chiarman
Mrs. Laila Ada El Monem	Chief Engineer of Technical Advisor Section
(Network Depertment)	
Mr. Mahamed Hassan Dessaky	Manager of Piping Sector in Project Department
Mr. Bahali S. Shenouda	Undersecretary of Water Network Department
Mr. Gamil Khallaf	General Manager of Maintenance of Water Network Department
Mr. Fathy Kandeel	Chief of Sakiat Mekey Network Section of Network Department
Mr. Gad Abd Elaziezgad	Chief of Halam Network Section of Network Department
Mr. Al Hag Mohamed Morsey	Chief of Draftman
Mr. Ahmed Darwish	Mechanical Engineer and Network Engineer
Mr. Morcus Farag	Mechanical Engineer of SAKIAT MEKEY Network Section
Mr. Abdel Saeed	Draftman

南ギザ浄水場
South Giza Water Treatment Plant :

Mr. Saliman Wahken Aly	General Manager
Mrs. Nagwa Zaghlaul	Maintenance Engineer (Mechanical)
Mr. Mohamed Shawky	Maintenance Engineer (Electrical)
Mr. Said Kasen	Maintenance Engineer (Mechanical)
Mr. Mohamed Abdel Backy	Operation Engineer (Electrical)
Mr. Ashraf Ahmed	Operation Engineer of Raw Water (6 Oct. Line)
(Laboratory)	
Mr. Nagy Gayed	Chief of Chemist
Mr. Mohamed Basem Ali	Chemist of Laboratory
Mr. Zein Sayd Ali	Chemist of Laboratory
Mr. Mostafa Ahmad Hassan	Technician of Laboratory

大カイロ圏下水道庁
Greater Cairo General Organization for Sanitary Drainage (GOSD) :

Mr. Ahmed Abd Maksoud	Chairman
Mr. Issak Metry	Chief of Operation and Maintenance Section
Mr. Abdel Gaward Abu Zaid	Director of Project Department
Mr. Abdel Kadr Hamdy	Technical Advisor of Chairman
Mr. Obeid Faheem Girgis	Assistant of Project Depertment Manager
Mr. Samir Abdel Moneim	General Manager of West Bakn
Mr. Saleh S. Wanees	General Manager of South Cairo Area in O&M Section
Mr. Hamed Waly	Director of Mechanical Cleaning Depertment
Mr. Dia Shaewkey Miehail	Technical Officer of Project Section (Civil Engineer)
Mrs. Azza Sayed Mohamed	Design Engineer
Mr. Ahmed Hameza Ahmed	Electrical and Mechanical Department (Mechanical Engineer)
Mrs. Faten Zakry Kobrial	Electrical and Mechanical Department (Electrical Engineer)
Mr. Mohamed Tahaimam	Electrical and Mechanical Department (Electrical Engineer)
(Pyramid Pump Station)	
Mr. Salah Mhmoeud Mousa	Director of Pyramid Station
Mrs. Nancy Farag	Chief of Japan Pump Station

ギザ下水中継ポンプ場
Giza Sewer Pump Station :

Mr. Mohamed Ibrahim Hassan	Manager of Giza Pump Station
Mr. Mohamed Ahdel Gelil	Mechanical Engineer
Mr. Roshdi Mohamed Ahmed	Driver of Japanese Sewer Cleaning Vehicle

アインシャム下水道庁車両整備工場
Garage and Workshop of GOSD for Vehicle and Machine :

Mr. Adel Fahime	Mechanical Engineer for Vehicle Maintenance
Mr. Abdel Moneam	Mechanical Engineer for Vehicle Maintenance

アブラワシュ下水処理場
Abu Rawsh Wastewater Treatment Plant :

Mr. Soliman Fetian	Operation Engineer of Existing Plant
Mr. Alaaeldin	Civil Engineer of USAID Project

大カイロ圏下水道プロジェクト実施機構
Organization for the Execution of the Greater Cairo Wastewater Project (CWO) :

Mr. Talat Abu Seda	Vice Chairman

全国上下水道庁
National Organization for Potable Water and Sanitary Drainage (NOPWASD) :

Mr. Mohamed Negm	Head of Central Administration for Reserch
Mrs. Samira Necola	General Manager for Mechanical and Electrical Reserch Department
Mr. Gala El Din Abuzeid	Head of Design Department
Mr. Mohamed Kostafa Hassan	Engineer of Design Department
Mr. Serag M. Elkitka	Engineer of Design Department

エジプト電力庁
Egyptian Electricity Company (EEA) :

Mr. Roshdy	Manager of Network Affaires

ドッキー地区配電会社
Dokki Area Electric Company :

Mr. Ismail Helal	General Manager of Dokki Area

ギザ北部配電会社
Giza North Distribution Company :

Mr. Mohamed Ahmed Aba El Fadl	General Manager
Mr. Tallat Shaltoot	Manager of Low Tension Network

カイロ地区配電会社
Cairo Electricity Districution Company :

Mr. M. Khairy S. Attia	Duputy Chairman

ギザ電話局
Giza Telephone Exchange :

Mr. Hamdy Mcmmoud	Chairman
Mr. Yettia Maser	Assitant of Chairman

エジプト国鉄
Egyptian State Railway :

Mr. Mohamed Marai	General Manager of Railway Engineering Dept. of Central Region
Mr. Ahmed El Bestawi	Manager of Techinical and Reserch Department

ギザ灌漑局
Giza Irrigation Authority :

Mr. Mostafa Naba	General Manager
Mrs. Sohair Ahmed Mokhtar Arit	Inspector Giza Section

資料－4　協議議事録（M／D）

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR
THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY
IN
THE ARAB REPUBLIC OF EGYPT

In response to the request of the Government of the Arab Republic of Egypt, and based on the results of the preliminary study for the Project of the Water Supply and Sewer System Upgrading in Monib, Giza City (hereinafter referred to as "the Project"), Japan International Cooperation Agency (JICA) decided to implement a basic design study and sent the study team headed by Mr. Haruo IWAHORI, Team Leader, JICA to the Arab Republic of Egypt from November 24 to December 25, 1991.

The team had a series of discussions with the authorities concerned of the Government of the Arab Republic of Egypt and conducted a field survey in the Project site.

As a result of the discussions and the field survey, both parties have agreed to recommend to their respective Governments the main items described on the attached sheets.

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

Giza, December 15, 1991

Mr. Haruo IWAHORI
Leader
Basic Design Study Team
JICA

Mr. Fouad KHALIL
Mayor of Giza City

Witnessed by:

Mr. Mohaen Sadek
Director of Japan Department
Ministry of International Cooperation

ATTACHMENT

1. Objective

The objective of the Project is to upgrade the present conditions of both water supply and sewer system in Monib, Giza City in order to improve the living standards of the low income group of inhabitants in the area.

2. Project Site

The Project site is Monib, Giza City, Giza Governorate, the location of which is shown in Annex-I.

3. Responsible and Executing Organization

- Responsible and Coordinating Organization for the Project:
  Giza Governorate

- Executing Organization of the Project:
  Giza City

4. The Project Components

The following items were requested by the Government of the Arab Republic of Egypt. However, final items will be decided after further studies.

(1) Construction of sewer main line
  - Dia 1,600 mm to 2,000 mm : Approx. 1.8 km

(2) Material provision of sewer branch line
  - Dia less than 300 mm : Approx. 20 km
  - Dia 300 mm to 600 mm : Approx. 4.5 km

(3) Material provision of water supply branch line
- Dia less than 300 mm : Approx. 20 km
- Dia 300 mm to 500 mm : Approx. 4.7 km
(Construction for railway crossing point will be implemented by Japanese side.)

5. Japan's Grant Aid System

(1) Giza Governorate has acknowledged the system of Japan's Grant Aid explained by the team.

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

6. Schedule of the Study

(1) JICA will prepare draft report in English and despatch a mission to the Arab Republic of Egypt in order to explain its contents in April, 1992.

(2) In case that the contents of the report are accepted in principle by the Government of the Arab Republic of Egypt, JICA will complete a final report and send it to Egypt by July, 1992.

7. Required Assistance from Giza Governorate in case Japan's Grant is executed:

(1) to secure land for water supply and sewer system and other related facilities.

(2) to provide temporary land for a construction liaison office, warehouse, stockyard, jacking pit plant, etc., during the construction period.

(3) to provide necessary data and information for detailed design.

These data and information are not eligible to be delivered to third parties or brought to their notice unless there is a written consent by Giza Governorate.

(4) to give permission required for test pitting to check underground services at the time of detailed design, if necessary.

(5) to take necessary actions to expedite the approval for executions of the Project by Giza Governorate.

(6) to give permission required for all the works related to the Project. e.g., opening of manholes, entering into railway and canal lot, surveying on the road, etc.

(7) to witness and confirm by the authorities concerned when test pitting and, protection and relocation of services are carried out.

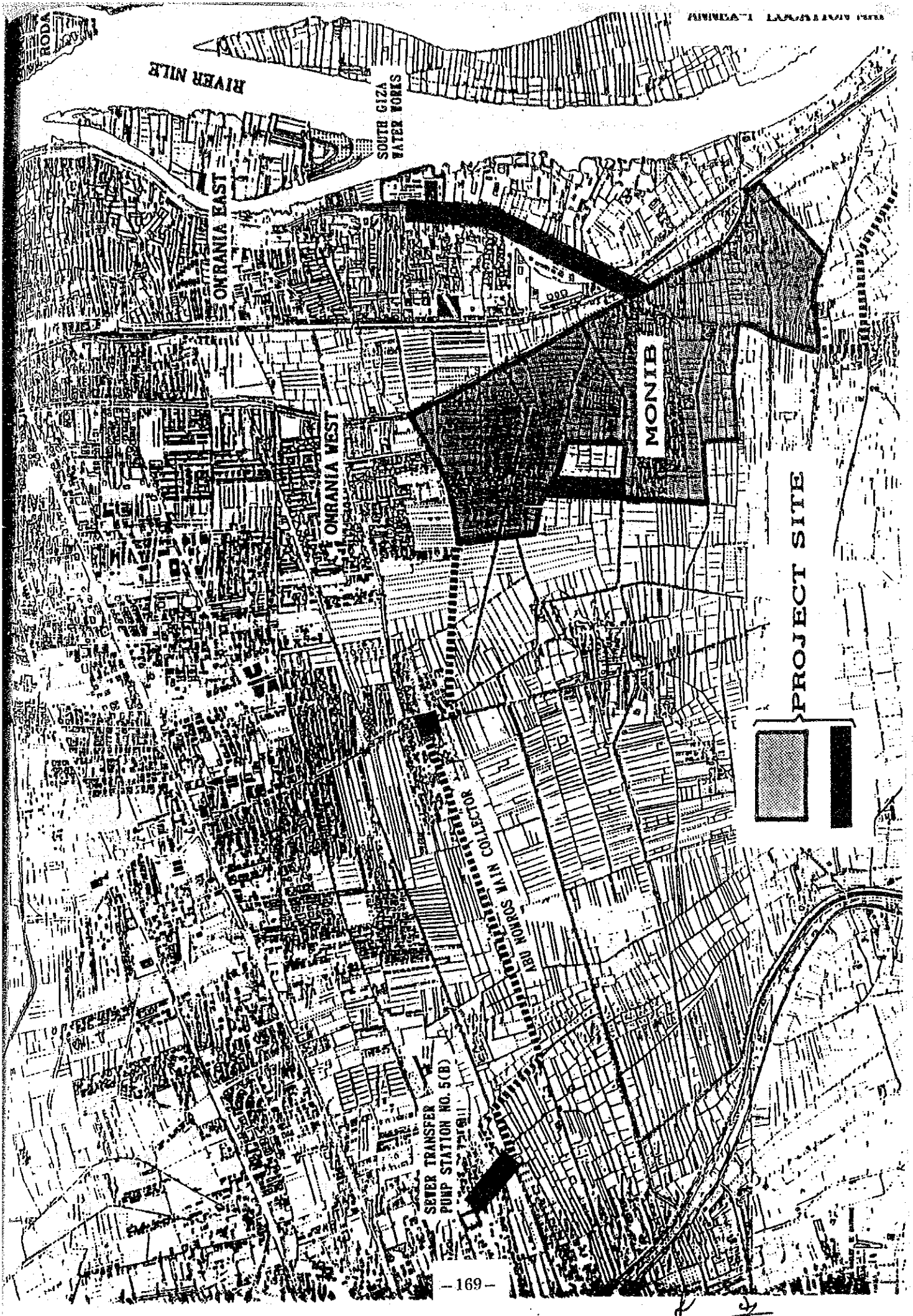
(8) to take necessary measures for inhabitant's cooperation and traffic control.

(9) to take necessary measures for historical remains which may be encountered during the construction period, if any.

(10) to provide disposal places of the water including silt, clay, etc., discharged during the construction period.

(11) to secure suspension of water supply during the connection works of the proposed water supply trunk line and the existing line.

(12) to form a steering committee in Giza City to expedite the Project.


RIVER NILE
SOUTH GIZA WATER WORKS
ON'RANIA EAST
ON'RANIA WEST
MONIB
PROJECT SITE
SEWER TRANSFER PUMP STATION NO. 5(B)
ABU NOMROS MAIN COLLECTOR

ANNEX-II Recommendations for Undertakings by the Government of the Arab Republic of Egypt in case Japan's Grant is executed:

1. to undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the site.

2. to construct the access road to the site prior to the commencement of the construction.

3. to provide facilities for distribution of electricity, water supply, telephone, drainage and other incidental facilities to the Project site.

4. to ensure prompt unloading and customs clearance at ports of disembarkation in the Arab Republic of Egypt and internal transportation therein of the products purchased under the Grant.

5. to secure, with respect to the supply of the products and services under the verified contracts that Japanese nationals shall not be subject to any customs duties, internal taxes and other fiscal levies which may be imposed in the Arab Republic of Egypt.

6. to accord Japanese Nationals whose services may be required in connection with the supply of the products and services under the verified contract such facilities as may be necessary for their entry into Egypt and stay therein for the performance of their work in accordance with the relevant laws and regulations of the Arab Republic of Egypt.

7. to maintain and use properly and effectively the facilities constructed and equipment under the Grant.

8. to bear all the expenses other than those to be borne by the Grant, necessary for the execution of the Project.

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY ON THE PROJECT FOR THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY IN THE ARAB REPUBLIC OF EGYPT

(CONSULTATION ON DRAFT REPORT)

In November 1991, Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team on the Project for the Water Supply and Sewer System Upgrading in Monib, Giza City (hereinafter referred to as "the Project"), to the Arab Republic of Egypt, 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 the Egyptian side on the components of the draft report, JICA sent to Egypt a Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Haruo IWAHORI, development specialist of JICA, and is scheduled to stay in the country from April 15 to 23, 1992.

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

Giza, April 21, 1992

Mr. Haruo IWAHORI
Leader
Draft Report Explanation Team
JICA

Mr. Fouad KHALIL
Mayor of Giza City

ATTACHMENT

1. Components of Draft Report

Giza Governorate has acknowledged and accepted in principle the components of the Draft Report proposed by the Team as stated in "MEMORANDUM ON DRAFT REPORT" signed on the same day.

2. Japan's Grant Aid system

Giza Governorate has acknowledged the system of Japanese Grant Aid explained by the Team.

3. Further schedule

The Team will make the Final Report in accordance with the confirmed items, and send it to Giza Governorate by the end of June 1992.

4. Recommendations for undertakings by Giza Governorate in case Japan's Grant Aid is executed

Giza Governorate agreed to request the related authorities to take the following measures for successfully accomplishing the objectives of the Project and for maximizing the positive effects of the Project.

Prior to project implementation

(1) To ascertain the will of beneficiaries to pay a water charge after completion of the Project in order to secure a continuous revenue flow to cover the operation and maintenance expenses of the new facilities.
(2) To obtain the agreement of local inhabitants not to dispose of vinyl objects, cloth, paper, etc., into the sewer facilities through enlightenment to local inhabitants, to maintain their proper functioning and to reduce the operation and maintenance expenses.

(3) To conduct public relations activities in order to secure cooperation for the construction work, especially 24 hours/day working, possible traffic jams and construction noise, etc.
(4) To secure the necessary budget for the work to be undertaken by Giza Governorate.
(5) To establish the Project Steering Committee in order to secure the smooth implementation.
(6) To obtain the official permission for the sewer trunk line, water supply and sewer branch lines (diameter 300-600mm) which will be buried under the existing road.
(7) To take necessary measures to the "feedback of evaluation results" as stated in 3-4-3-(8) of the Draft Report.

During project implementation

(8) To appoint several full-time engineers at the initial stage of Project implementation with a view to improving their expertise which will enable them to be responsible for the plan, construction, operation and maintenance of water supply and sewer facilities, to learn the technical aspects of the Project for the maintenance work in the future.
(9) To ensure that the materials provided by the Japanese side are used for their original purposes.

After completion of project

(10) To secure adequate budget of operation and maintenance for the facilities by surely collecting the water service charge based on (1) above.
(11) To take the necessary measures to transfer the property of the new facilities to GCWSA and GOSD.
(12) To ensure that GCWSA and GOSD conduct the operation and maintenance of the transferred facilities in a responsible manner.
(13) To maintain regular contact with the Fire Department to ensure the proper functioning of fire hydrants in order to create an urban environment in which the lives and assets of local inhabitants are protected.

MEMORANDUM ON DRAFT REPORT

BASIC DESIGN STUDY ON THE PROJECT FOR
THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB,
GIZA CITY
IN
THE ARAB REPUBLIC OF EGYPT

With regard to the Project for the Water Supply and Sewer System Upgrading in Monib, Giza City (the Project), the Draft Report Explanation Team of JICA (the Team) has explained and consulted the Egyptian side on the components of the draft report of the Project. As a result of the explanation by the Team and discussions with the related authorities, the Egyptian side has acknowledged and accepted in principle the components of the draft report.

The Egyptian side and the Team confirmed that the report of the Basic Design Study of the Project will be finalized in Japan taking into account the items attached in the Annex and the final report will be submitted officially to the Egytian side by the end of June, 1992.

Giza, April 21, 1992

Mr. Haruo IWAHORI
Leader
Draft Report Explanation Team
JICA

Mr. Fouad KHALIL
Mayor of Giza City

Annex : Confirmation and Modification on Draft Report

1. Confirmation on Draft Report

The Egyptian side and the Team have discussed the draft report and the Egyptian side has accepted the components of the draft report as stated in the letters, attached herewith, from the related authorities (Greater Cairo Water Supply Authority and Greater Cairo General Organization for Sanitary Drainage) to Giza City.

2. Modification on Draft Report

Following revisions are taken into account for the finalization of the Basic Design Study Report.

2.1 Page 71 in Draft Report, 4-3-5-(1)

In the sub-section 4-3-5 "Operation and Maintenance Plan", item (1) "Securing Operation and Maintenance Cost Through Water Charge System" will be substituted by the following.

(1) Securing Operation and Maintenace Cost through Water Charge System

The Government of Egypt is required to urgently improve the poor living and sanitation conditions in the Project Site to meet the expectations of local inhabitants and to conduct appropriate operation and maintenance of the new facilities to ensure their long, undistrupted service. It will be essential to continuously secure the necessary cost for such operation and maintenance and the collection of an appropriate water charge with the full understanding of local inhabitants of the necessity for such collection will be necessary.

In this connection, the Government of Egypt is required to take the following actions.

1) As described earlier in 2-2-2-3), GCWSA will be required to make efforts to improve the financial situation by implementing the water tariff readjustment plan through the examination of the water tariff that more nearly reflect the costs of producing and distributing the potable water.
2) GCWSA will be required to make efforts to collect the water tariff from each household and public facility without fail as well as to promote the installation of water meter on each household and public facility through investigating whether the meters are adequately provided.

3) GOSD will be required to have a consultation with GCWSA for "improvement of water metering system to establish the wastewater quantities to be paid for" as recommended in the draft of SYSTEM MANAGEMENT PLAN for GOSD (October, 1989) and thereby reconsider the surcharge on the water tariff which is assessed for wastewater service and used for the maintenance and operation work of the wastewater system.

2.2 Pages A-7-1 and A-7-2 in Draft Report, APPENDIX 7

The estimated cost for the work to be undertaken by the Egyptian side shown in APPENDIX 7 will be calculated in the Egytian pound (LE) which is now expressed in US dollar (US$).

2.3 Pages 141 to 145 in Draft Report

Drawing No. EMU-S-04

Invert levels of the sewer trunk line shown in the drawing No. EMU-S-04 shall be as follows.

- ROUTE 2 : to be revised from 21.65m to 11.65m at Manhole No.5
- ROUTE 3 : to be revised from 13.33m to 13.35m at Manhole No.14

Drawing Nos. EMU-S-05 and S-06

- Two openings shall be provided on the top slab of each manhole and inner diameter of the openings shall be 60cm and 76cm.
- The depth of the riser for opening shall not be more than 50cm.

(نموذج ٢٠٢٢ م)

الهيئة العامة
لمرفق مياه القاهرة الكبرى
مكتب رئيس مجلس الإدارة

بسم الله الرحمن الرحيم
" وجعلنا من الماء كل شيء حي "
صدق الله العظيم

القاهرة في ١٩٩٢/٤/١٢
رقم

السيد الاستاذ / رئيس مدينة الجيزه
محافظة الجيزه
مكتب وكيل أول الوزاره - رئيس المدينة

تحية طيبه وبعد ،

بالإشاره الى كتابكم بتاريخ ١٩٩٢/٤/٨ والمرفق معه مسودة التقرير المبدئي الخاص بالدراسات والتصميمات لمشروع شبكة التغذيه بالمياه وشبكة الصرف الصحي لمنطقة الهرم بمدينة الجيزه ،

تأمل الأحاطه بأنه قد تمت مراجعة التقرير المرفق والهيئه ليس لديها أية ملاحظات من النواحي الفنيه بخصوص مشروع المياه حيث سبق التنسيق مع فريق البحث اليابانى أثناء أعداد هذا التقرير ،

وتفضلوا بقبول وافر الاحترام ، ،،

أ.ح،

رئيس مجلس الأداره

مهندس سعد الدين محمد حسن الديب

GREATER CAIRO WATER SUPPLY AUTHORITY

Giza Mayor

Dear sir,

With reference to your letter dated 8/4/1992 to which the Draft Report on the Basic Design on the Project for the Water Supply and Sewer System Upgrading in Monib in Giza City. We would like to inform you that this report has been studied and the Authority has no technical comments on the water project as the authority had organized the work with the Japanese side during the preparation of the report.

Best regards.

Chairman,

Eng. Saad El-din Mohamed Hassan El-Dieb

General Organization
Cairo Sanitory Drainage utility
Chairman

الهيئة العامة
لمرفق الصرف الصحى للقاهرة الكبرى
رئيس مجلس الادارة

القيد : ٣١٠٤٥

التاريخ : ٩٠ / ٤ / ١٩٩٢

المرفقات :

السيد الاستاذ / رئيس مدينة الجيزة

تحيه طيبه .. وبعد

ردا على خطاب سيادتكم رقم (بدون) بتاريخ ٩٢/٤/٨ والمرفق به التقرير المبدئى الخاص بمشروع شبكة الصرف الصحى لمنطقة المنيب وبعض اجزاء مجمع ابو النمرس التى سيتم تنفيذها بالانفاق .

وبناء على الخطاب المقدم للهيئه العامه لمرفق الصرف الصحى للقاهرة الكبرى من مندوب البعثه اليابانيه بتاريخ ١٩٩٢/٤/١٨ .

رجاء التفضل بالاحاطه بأن الهيئه توافق على التقرير المبدئى المقدم على أن توافى برسومات تفصيليه للمشروع للمراجعه والاعتماد مع موافاتنا بميعاد التنفيذ للمشروع لتحديد جهاز الاشراف من الهيئه كذا فأن الهيئه ستاخذ فى اعتبارها ما جاء من ملاحظات بالتقرير المرفق بخصوص أعمال الصيانه لمحطة الصداقه اليابانيه .

وتفضلوا بقبول فائق الاحترام ...

التوقيع :

٤/١٩

مهندس / احمد عبدالمقصود السيد

رئيس مجلس الادارة

آمال ...

GENERAL ORGANIZATION CAIRO SANITARY DRAINAGE UTILITY

No. 1045
Date : 20/4/1992

Giza Mayor

Dear sir,

With reference to your letter dated 8/4/1992 to which the Draft Report on the Basic Design on the Project for the Water Supply and Sewer System Upgrading in Monib in Giza City, and with reference to the letter from the Japanese mission to Cairo Sanitary Draniage Organization dated 18/4/1992. We would like to inform you the authority approves the said report provided that we can be supplied with detailed drawings of the project for revision and verification and to inform us of the execution date to designate supervising staff from the authority, in addition to that the authority will consider the comments in the report regarding maintenance work of the Japanese Friendship Station.

Best regards.

Eng. Ahmed Abdel Maksoud
Chairman

資料-5　フィールドレポート

JAPAN INTERNATIONAL COOPERATION AGENCY
THE BASIC DESIGN STUDY TEAM OF THE PROJECT FOR THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY IN THE ARAB REPUBLIC OF EGYPT

December 24, 1991

Mr. Fouad Khalil
Mayor
Giza City

Re : The Project for the Water Supply and Sewer System Upgrading in Monib, Giza City

Sub: Submission of Field Report

Dear Sir,

With regard to the captioned project, in accordance with the inception report prepared by the basic design study team, we, as the consultant team of the basic design, submit herewith three (3) copies of the field report which shows the basic technical concept of the Project.

As mentioned in the field report, we have already submitted and explained relative section in the report to the authorities concerned with your official.

Therefore, you are kindly requested to inform us of your comment by the beginning of January, 1992, if any.

We thank you for your kindness and deepest cooperation extended to us during our stay in Egypt.

Yours very truly,

Ryosuke Teranishi
Leader of Consultant Team of
JICA Basic Design Study Team

THE BASIC DESIGN STUDY
ON
THE PROJECT FOR
THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY
IN
THE REPUBLIC OF EGYPT

FIELD REPORT

DECEMBER, 1991

CONSULTANT TEAM OF BASIC DESIGN STUDY

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

TABLE OF CONTENTS

1. Introduction

This report has been prepared unofficially by the consultant team of basic design study (hereinafter referred to as "the consultant team") for the Project for the Water Supply and Sewer System Upgrading in Monib, Giza City in the Arab Republic of Egypt (herein after referred to as "the Project"), based on the field survey and discussions with authority concerned of the Government of Egypt, in order to build mutual understanding and to prevent misunderstanding of the Project.

However, all the items in the basic concept are subject to the approval of the Japanese Government, and some items in this report may be modified based on the result of the further study in Japan.

2. Required Conditions for Construction Work

For the construction work, the following items shall be required in order to make smooth implementation of the Project.

2.1 Temporary construction work

(1) Provision of temporary land owned by Giza Governorate for construction with the following space:

- For temporary yard including site office, warehouse, etc. : Approx. 2,500M^2 (1 place)
- For stock yard : Approx. 3,600M^2 (1 place)

(2) Provision of disposal places of the water including silt, clay, etc., discharged during the construction period.

The transportation distance from the Project site to the disposal places shall be as follows:

- For dumping yard for the disposal of surplus soil from excavation work : Approx. 15km

- For disposal place of the removal of groundwater from excavation work : within the project site (Canal)

2.2 Origin of the materials to be used for the Project

We are planning to use, for the most part, the construction materials and equipment available in the Grater Cairo region.

However, some construction materials and equipment are not available by the following reasons:

- They are not in Greater Cairo region.
- It is very difficult to get them in Grater Cairo region.
- It is doubtful to maintain the desired safety and quality of facilities to be constructed and/or the construction schedule.

Therefore, the following materials and equipment shall be tranported from Japan.

To avoid any trouble and/or delay for the Project, necessary measures on the import and transportation of the materials and equipment into Egypt shall be taken by Giza City for Japanese Contractor.

Plan of the materials and equipment to be imported from Japan

(1) Jacking machine and ancillary equipment
(2) Vibro hammer of vibration free
(3) Centrifugal reinforced concrete pipes for intermediate jacking
(4) Ancillary materials of reinforced concrete pipes, e.g., connection materials and rubber materials for jacking method

(5) Ductile cast iron with flanges in the part of state's railway crossing
(6) All fittings of ductile cast iron pipes, e.g., bend and valves for water supply pipe lines
(7) Sheet piles and ancillary steel materials for jacking method
(8) Liner plate and ancillary steel materials for jacking method
(9) Grouting materials and machine for soil stabilization and so on

2.3 Working hour for the construction work

In order to keep the construction schedule which is very tight, the jacking work for the piping installation shall be executed for about 24 hours per day by conducting two or three shift system, if necessary.

To avoid any trouble and/or delay for the Project, necessary measures on the work shall be taken by Giza City for Japanese Contractor.

3. Materials of Branch Lines

The piping materials of branch lines for water supply and sewer drainage shall be supplied by Japanese side under this Project provided that Giza City installs all the materials.

The following materials shall be adopted for this purpose:

(1) Water supply branch lines

For pipeline with diameter 300 to 600mm : Ductile cast iron pipe

For pipeline with diameter less than 300mm : Asbestos cement pipe

(2) Sewer branch lines

For all the branch lines : Vitrified clay pipes

4. Field Report submitted to the authority concerned

As described in the previous Section 1 "Introduction", in order to built mutual understanding and to prevent misunderstanding of the Project, we have submitted the field report to the authority concerned.

The list of the authority concerned which we have submitted the report is given below. The reports submitted to the authority are attached herewith.

Sec. No.	Title of Report	Name of Authority (Received official)	Date of Submission
4.1	Conceptional Plan of Water Supply Pipe Line	GCWSA (Secretary of Chairman)	December 22, 1991
4.2	Conceptional Plan of Aqueduct over El Zomor Canal for Water Supply Pipe Line	Giza Irrigation Authority (Mr.Mostafa Nada General Manager)	December 22, 1991
		GCWSA (ditto)	December 22, 1991
4.3	Conceptional Plan of Jacking Method at State's Railway supply pipeline	Egyptian State Railway (Mr.Mohamed Marei General Manager of Railway Engineering Department)	December 22, 1991
		GCWSA (ditto)	December 22, 1991
4.4	Conceptional Plan of Sewer Pipeline	GOSD (Secretary of Chairman)	December 23, 1991
		CWO (Secretary of Vice Chairman)	December 22, 1991
4.5	Preliminary Plan of the Expansion of Giza Waterworks	GCWSA (Ditto)	December 22, 1991

THE BASIC DESIGN STUDY
ON
THE PROJECT FOR
THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY
IN
THE REPUBLIC OF EGYPT

CONCEPTUAL PLAN
OF
WATER SUPPLY PIPELINES

DECEMBER, 1991

CONSULTANT TEAM OF BASIC DESIGN STUDY

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

Conceptual Plan of Water Supply Pipelines

1. General

1.1 General conditions

Following general conditions of basic design have been confirmed through the data and information obtained by Giza city,The Greater Cairo Water Supply Authority(GCWSA) and other related authorities during the field survey as well as the discussion with GCWSA.

(1)	Project area	:	Monib , Giza City
(2)	Served area	:	185 ha
(3)	Population		
	-at 2010	:	247,000
	-at present	:	133,000
(4)	Average water demand	:	140 lit/day/cap.

1.2 Route plan

The route,diameter and connection points of water supply pipelines for this project shall be complied with the master plan ,"STUDY OF WATER SUPPLY FOR CITY OF GIZA ",prepared by GKW in 1987.

The route and diameters of water supply pipelines are shown on the attached Fig.WS-1.

2. Scope of work

Pipeline materials are to be provided by the Japanese side and the pipe laying work shall be done by the Egyptian side expect the railway crossing part constructed by Japanese side.
Please refer to Part B,"CONCEPTUAL PLAN OF JACKING METHOD AT THE STATE'S RAILWAY CROSSING FOR WATER SUPPLY PIPELINE".

3. Material

3.1 Straight pipe
Material of straight Pipe for Water supply pipelines shall be ductile cast iron pipes made in Egypt except all fitting ,valves and accessories.

3.2 Fitting ,valves and Accessories

All fittings,valves and accessories will be transported from Japan.

4. Major basic design conditions of ancillary equipment and pipes for water supply pipelines

Major basic design conditions of ancillary equipment and pipes for water supply pipelines as follows:.

4.1 Joints of Pipe

Pipes shall be connected by T-shape joints(push - on joint) except the following cases.

- Pieces inside the water stop valve chambers which shall be connected by flange joints.
- Pieces between jacking pit and receiving pit in the railway crossing part which shall be connected by flange joints.

Valves shall be connected by flange joints.

4.2 Standard earth covering
Standard earth covering shall be approx. 1.2 m.

4.3 Water stop valves

(1) Butterfly valve shall be installed on pipes of not less than 400 mm in diameter.
Please refer to Fig.WS-2.

(2) Sluice valve will be installed on those of less than 400 mm in diameter.
Please refer to Fig.WS-3.

(3) Water stop valves shall be installed at the aqueduct,railroad crossing ,washout pipes and the connecting points of pipelines.

(4) Ductile cast pipes with paddle installed through the walls shall be used.

(5) Flexible joints before and after valve chamber shall be used.

(6) An expansion joint shall be used for valve maintenance works in the chamber.

4.4 Washout facilities

(1) Washout facilities shall be installed at certain lower parts in the water supply pipelines and located near canal.

(2) The diameters of washout pipes shall be of 150 mm or 100 mm.

(3) When the water surface of outflow at discharge places is higher than the bottom of the pipe, drainage chamber should be provided.
Please refer to Fig.WS-4.

4.5 Air Valve

(1) Air valves shall be installed at certain convex parts in water supply pipelines such as aqueduct.

(2) Dual mouthed air valves shall be installed on water supply pipelines of not less than 400 mm in diameter.
Please refer to Fig.WS-5.

(3) Single mouthed air valves shall be installed on water supply pipelines of less than 400 mm in diameter.
Please refer to Fig.WS-6.

4.6 Fire Hydrant

(1) Fire hydrants shall be installed at the intervals of Approx.150 meters as shown on Fig.SW-1 and/or be installed at some points where fire fighting activities is convenient.

(2) Single jet hydrant shall be installed on header pipeline of not less than 150 mm and less than 300 mm in diameter.
Dual jet hydrant shall be installed on header pipeline of not less than 300 mm in diameter.

(3) Typical plans of Fire hydrants are shown on Fig.SW-7 and Fig.SW-8.

In case that roads have no walkway,fire hydrants shall be installed at the public road of approx. 1.0 m from boundary between private land and public road.

(5) The type of screw and the outside diameter of mouth of fire hydrants shall be complied with the technical recommendation of Giza Fire Authority.

4.7 Support of pipe

Pipe shall be supported by the concreted anchor block.
Standards of anchor block are shown on Fig.WS-9

5. Conceptual plans

Please refer to Fig. SW - 1 TO SW - 9.

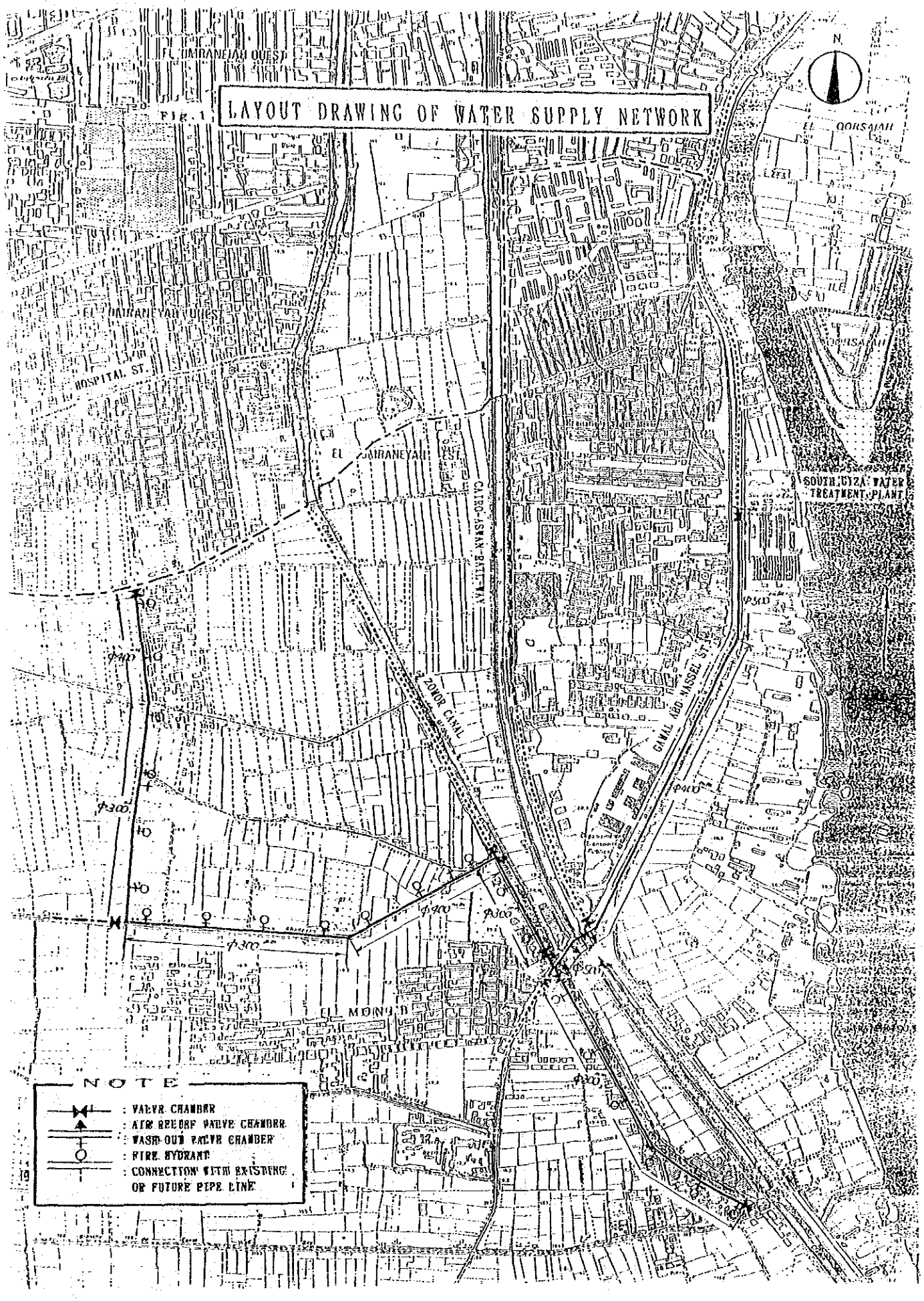


FIG. 1
LAYOUT DRAWING OF WATER SUPPLY NETWORK
N
EL OMRANEIAH OUEST
EL OMRANEIAH EST
HOSPITAL ST.
CAIRO-ASSIUT RAILWAY
ZOMOR CANAL
GAWAL ABD-NASSER ST.
SOUTH GIZA WATER TREATMENT PLANT
EL MONIB
NOTE
: VALVE CHAMBER
: AIR RELEASE VALVE CHAMBER
: WASH-OUT VALVE CHAMBER
: FIRE HYDRANT
: CONNECTION WITH EXISTING OR FUTURE PIPE LINE

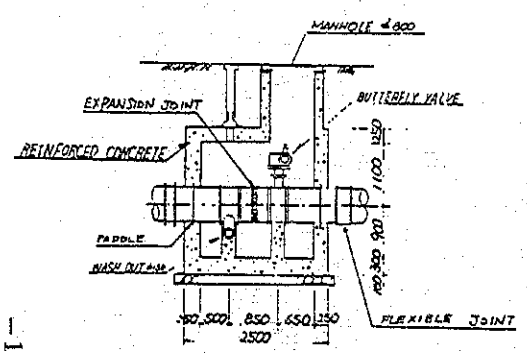
Fig. WS-2 VALVE CHAMBER (VERTICAL TYPE)

(BUTTERFLY VALVE φ600 ~ φ900)

NON SCALE

UNIT : mm

SECTION A-A



HORIZONTAL SECTION

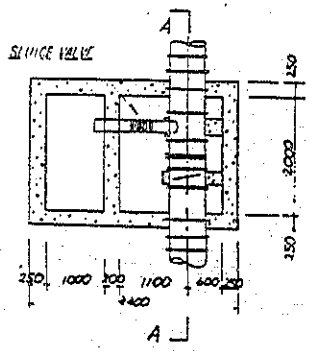


Fig. WS-3 VALVE PROTECTION FOR VALVE φ100 ~ φ300

S = 1/20

UNIT : mm

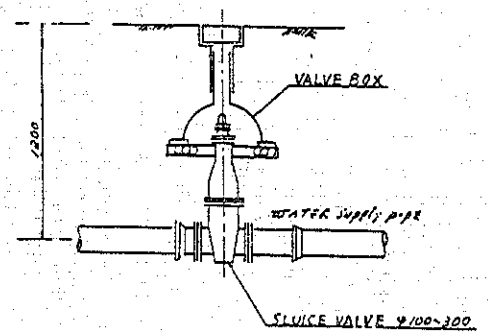
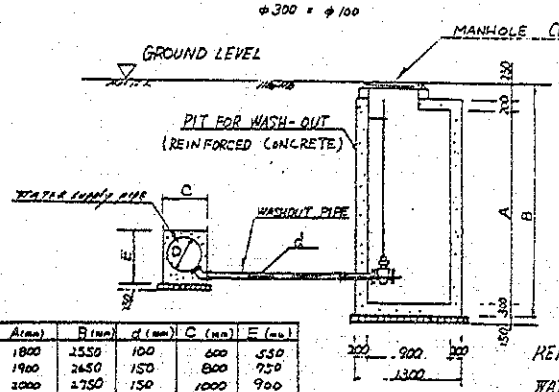


Fig. WS-4 TYPICAL SECTION OF WASH-OUT

φ300 ~ φ100

NON - SCALE

UNIT : mm



D (mm)	A (mm)	B (mm)	d (mm)	C (mm)	E (mm)
300	1800	2550	100	600	550
400	1900	2650	150	800	750
500	2000	2750	150	1000	900
600	2100	2850	150	1200	1050

REMARKS:

WATER DISCHARGED IN PIT FOR WASH-OUT SHALL BE DEWATERED BY POTABLE PUMP EQUIPMENTS.

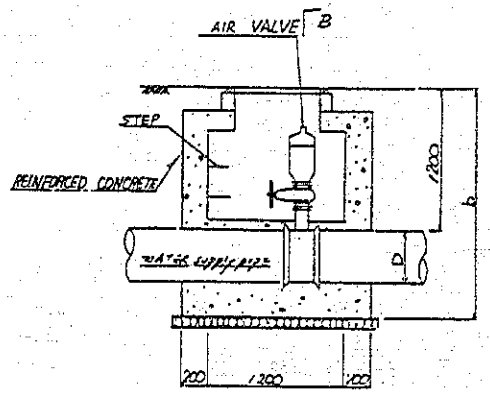
Fig. WS-5 AIR VALVE CHAMBER (φ400 To φ600)

(DUAL MOUTHED AIR VALVE)

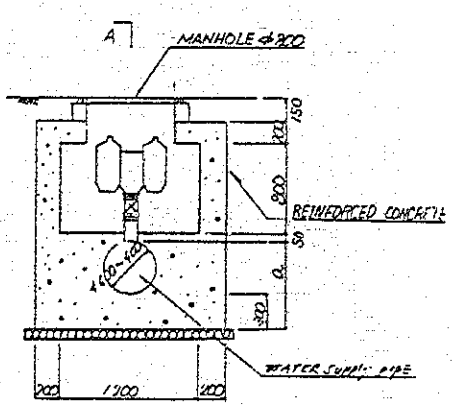
NON SCALE

UNIT : mm

SECTION A-A



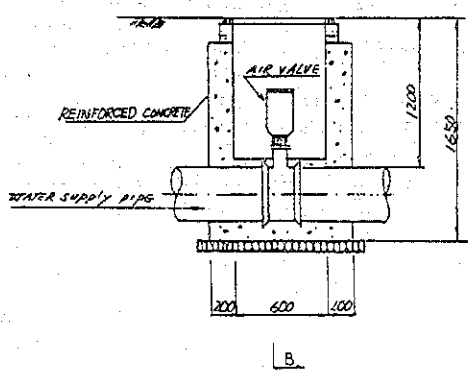
SECTION B-B



D (mm)	a (mm)	b (mm)
600	900	2100
500	800	2000
400	700	1900

Fig.WS-6 AIR VALVE CHAMBER (φ300)
(SINGLE MOUTHED AIR VALVE) NON SCALE
UNIT : mm

SECTION A-A



SECTION B-B

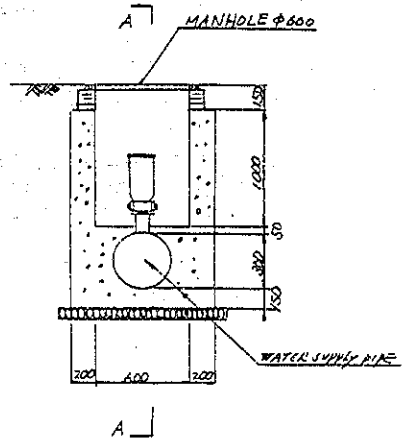
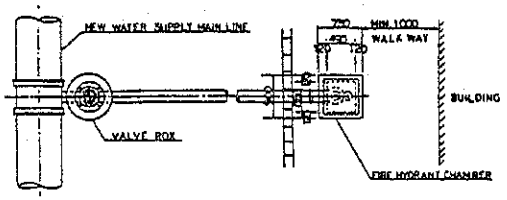


Fig. WS-7

FIRE HYDRANT CHAMBER TYPE-2 S=1:30
(IN CASE OF WIDE WALKWAY)

PLAN



SECTION

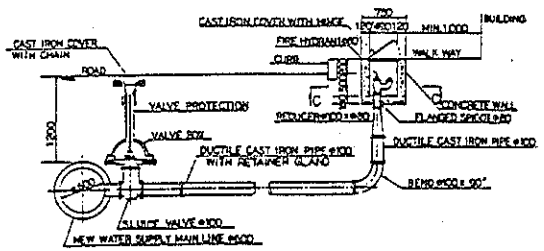
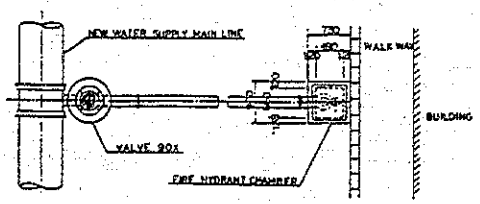


Fig.WS-8

FIRE HYDRANT CHAMBER TYPE-1 S=1:30
(IN CASE OF NARROW WALK WAY)

PLAN



SECTION

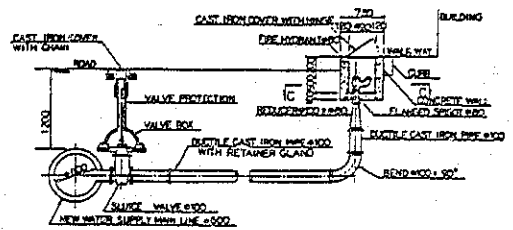
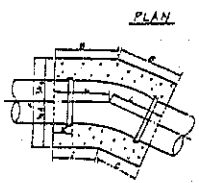


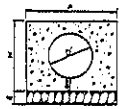
Fig.WS-9. ANCHOR BLOCK STANDARDS FOR WATER SUPPLY PIPELINE
UNIT : mm

IN CASE OF 22½° BEND

PLAN



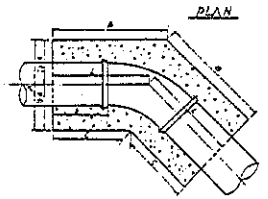
SECTION



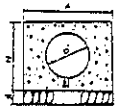
D	A	B	C	E	H	h	L
300	620	670	380	—	520	150	570
400	1300	830	570	250	900	200	700
500	1900	990	660	300	1000	200	800
600	1400	1040	740	320	1100	300	900

IN CASE OF 45° BEND

PLAN



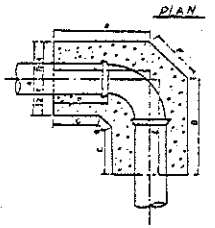
SECTION



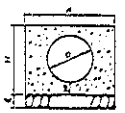
D	A	B	C	E	H	h	L
300	620	670	380	—	520	150	570
400	1300	970	830	270	900	200	700
500	1500	1070	910	270	1000	200	800
600	1600	1250	420	350	1100	300	950

IN CASE OF 90° BEND

PLAN



SECTION



D	A	B	C	E	F	G	H	h	L
300	650	630	380	450	750	210	700	200	950
400	1300	1150	300	570	920	300	900	200	1150
500	1400	1550	650	800	990	290	1000	200	1550
600	1600	1800	800	940	1130	390	1100	300	1800

THE BASIC DESIGN STUDY
ON
THE PROJECT FOR
THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY
IN
THE REPUBLIC OF EGYPT

CONCEPTUAL PLAN OF AQUEDUCT OVER EL ZOMOR CANAL FOR WATER SUPPLY PIPELINE

DECEMBER, 1991

CONSULTANT TEAM OF BASIC DESIGN STUDY

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

Conceptual Plan of Aqueduct over El Zomor Canal for Water supply Pipeline

1 Major conditions of basic design
Major conditions of basic design for aqueduct are as follows:

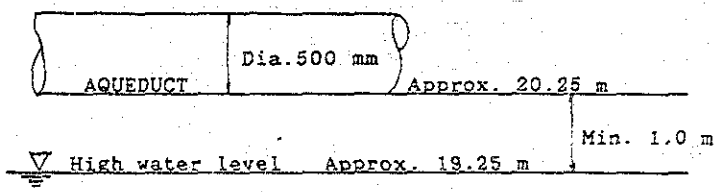
1.1 Location of the aqueduct
Location of the aqueduct is as shown on Fig.AQ-1.

1.2 Typical section of canal
Typical section of El Zomor canal is as shown on Fig.AQ-1 and AQ-2.

- Width of canal : Approx.16.9 m
- High water level : Approx.19.25 m above mean sea water level
- Side slope of canal : 1:1(=45°)
- Distance from standard point :Approx.5.0 km

1.3 Diameter of Aqueduct : 500 mm

1.4 Minimum clearance between the bottom level of the aqueduct and high water level:Min.1.0 m

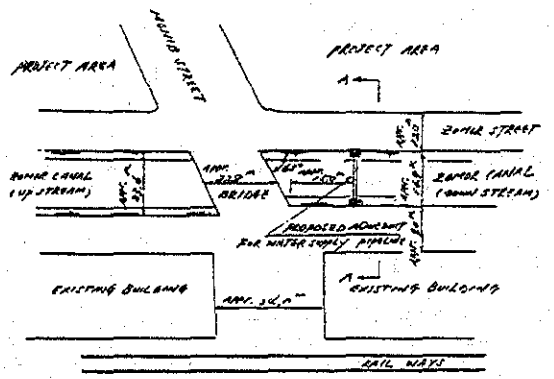


1.5 Rehabilitation and/or expansion of the canal :Nil

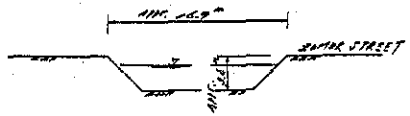
1.6 Pipe materials of the aqueduct :Structure steel (with paint)

1.7 Auxiliary equipment
The air valve shall be installed on the top of higher point of the pipe.
The expansion joints shall be installed adjacent to the ring supports on the both sides of support.
The flexible couplings shall be installed on the both sides of buried pipes.
(Please refer to Fig.AQ-2)

2. Conceptual plan
Conceptual Plan is shown on Fig.AQ-1 and AQ-2.



PLAN (NON SCALE)



TYPICAL SECTION "A-A"
(NON SCALE)

Fig. AQ-1 PLAN AND TYPICAL SECTION

TYPICAL SECTION OF AQUEDUCT OVER CANAL
(NON SCALE)

SECTION A-A

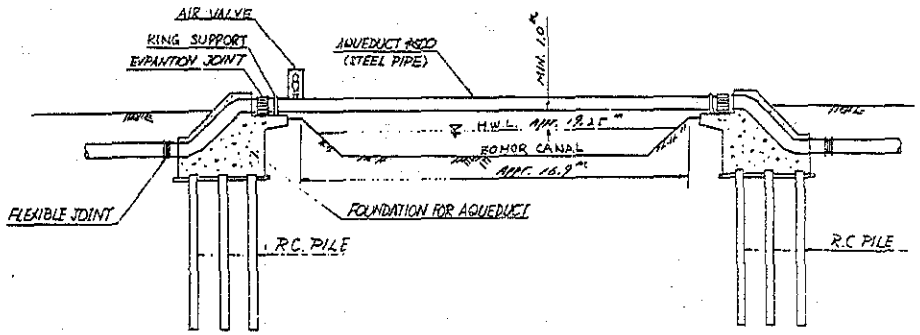


Fig. AQ-2

THE BASIC DESIGN STUDY
ON
THE PROJECT FOR
THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY
IN
THE REPUBLIC OF EGYPT

CONCEPTUAL PLAN OF JACKING METHOD AT THE STATE'S RAILWAY CROSSING FOR WATER SUPPLY PIPELINE

DECEMBER, 1991

CONSULTANT TEAM OF BASIC DESIGN STUDY

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

Conceptual Plan of Jacking Method at the State's Railway Crossing for Water Supply Pipeline

1. Major conditions of basic design
Major conditions of Basic design for water supply pipeline at the crossing of the railway are as follows:

1.1 The route of water supply pipeline is crossing right angle as shown Fig.RW-1.

1.2 Diameters of pipe are as follows(Please refer to Fig.RW-2):
(1) Water supply pipe : 500 mm
(2) Sleeve pipe : 1800 or 2000 mm

1.3 Materials of pipe are as follows:
1) Water supply pipe : Ductile cast iron
2) Sleeve pipe : Reinforced concrete

1.4 The construction method shall be jacking method to keep the safety and transportation of railway.

1.5 The jacking pit near Taxi parking Area shall be applied the sheet pile to keep the safety of pit from the jacking force.(Please refer to Fig.RW-1 and RW-2)

1.6 Receiving pit near the ZOMOR CANAL street with heavy traffic condition and lots of open markets shall be applied the liner plate to minimize the space of the pit and keep the safety of one.(Please refer to Fig.RW-1 and RW-2)

1.7 The height between surface of ballast and top of jacking sleeve pipe shall keep not less than 3.5 m.

1.8 Distance between the nearest side of jacking pit and the nearest rail shall keep not less than 10 meters.

1.9 Distance between the nearest side of receiving pit and the nearest rail shall keep not less than 10 meters.

1.10 The soil improvement made by cement milk and so on will be applied to keep the safety of sheathing and prevent the leakage of underground water into the pit.

1.11 The pipes installed between the jacking pit and receiving pit shall be fixed by flanges and bolts & nuts.

1.12 The following auxiliary equipment at the chamber installed in the jacking and receiving pit.

1) Air valves
2) Butterfly valves
3) Wash out valves

2 Conceptual plan

Conceptual plan is shown on Fig.RW-1 and RW-2.

Fig.RW-1
LOCATION OF PITS FOR JACKING WORKS
Scale 1:500

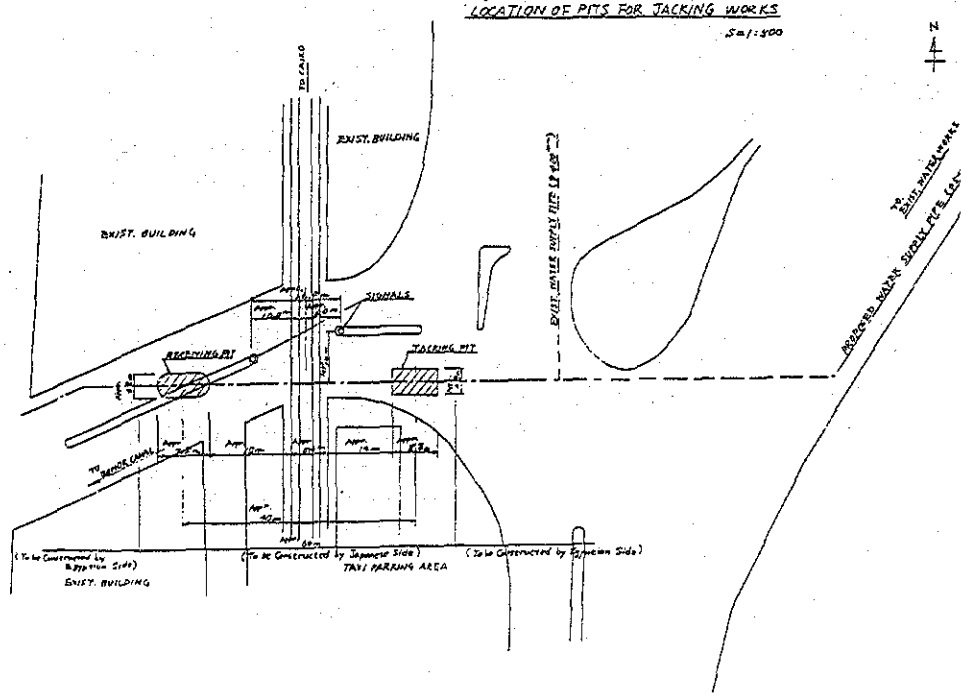
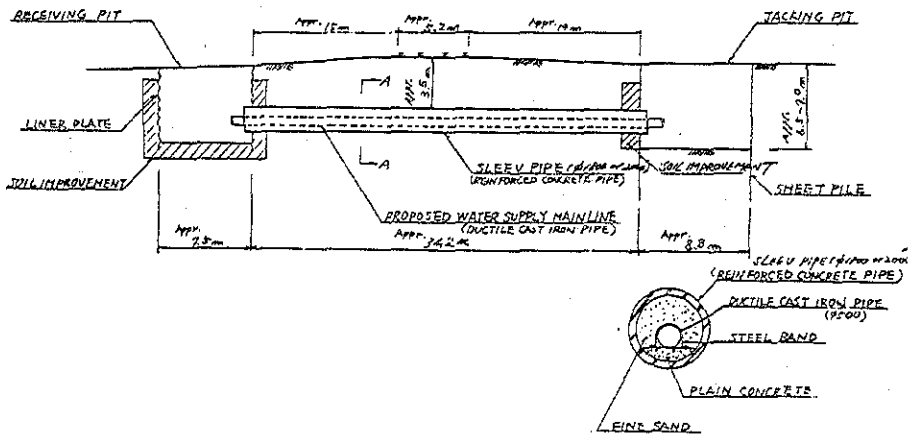


Fig.RW-2
LONGTUDINAL SECTION AT RAILWAY CROSSING
(NON-SCALE)



SECTION "A-A"

THE BASIC DESIGN STUDY
ON
THE PROJECT FOR
THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY
IN
THE REPUBLIC OF EGYPT

CONCEPTIONAL PLAN OF SEWER PIPELINE

DECEMBER, 1991

CONSULTANT TEAM OF BASIC DESIGN STUDY

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

TABLE OF CONTENTS

1. General

1.1 Design Conditions

Following design conditions have been confirmed through the data and information obtained by Giza City, GOSD and other related authorities as well as the discussions with GOSD during the field survey.

(1)	Project area	: Monib, Giza City
(2)	Served area	: 185ha
(3)	Target year	: 2010
(4)	Population	
	- at 2010	: 247,000
	- at present	: 133,000
(5)	Average discharge	: 140lit/day/cap.
(6)	Maximum discharge	: 190lit/day/cap. (at peak, including ground-water)
(7)	Velocity of flow	
	- Minimum	: 0.6m/sec
	- Maximum	: 1.5m/sec

1.2 Materials

(1) Pipes for sewer trunk line

1) Standard pipe
Egyptian-made reinforced concrete pipe for jacking method shall be used. It shall be manufactured in accordance with the Japanese standard JSWAS A-2 (1991).

2) Pipe for intermediate jacking
Since intermediate jacking pipes have special features and it is not available in Egypt, it shall be procured from Japan.

(2) Pipes for branch line
All pipes shall be of Egyptian-made vitrified clay pipe.

2. Scope of Work

(1) Sewer trunk line
Material suppply and construction of the proposed sewer trunk line will be done by the Japanese side. The basic design study for the trunk line shall be made for determining the optimum facilities for the sewer system upgrading.

(2) Sewer branch line
Piping materials for the sewer branch line will be provided by the Japanese side and the pipe laying work including construction of manholes shall be executed by the Egyptian side. The basic design study for the branch line shall be made for determining the appropriate diameter and length based on the surveying map prepared through the field survey.

3. Proposed Sewer Pipeline

3.1 Route Plan

(1) Sewer trunk line
The proposed sewer trunk lines are the part of Abu Nomros Main Collector which are being constructed by GOSD and divided into three sections as shown on Fig-1. The approximate length of each section is as follows:

- Section-1 (Kordy st.) : 355m
- Section-2 (crossing Osman Moharam st.) : 80m
- Section-3 (El Kasabugy st.) : 1,360m

(2) Sewer branch line

Sewer branch lines to be connected with the trunk line along El Kasabugy st. (or Zomor canal), whose diameters are expected from 300mm to 600mm, shall be planned on the secondary roads as shown on Fig-1.

The route of other sewer branch lines, whose expected diameters are less than 300mm, shall be determined after the detailed study of surveying map in Japan.

3.2 Sewer trunk line

(1) Construction method

The construction of Abu Nomros Main Collector are being carried out using open-cut method by GOSD. However, the sections which the Egyptian Goverment requested to the Japanese Government for the execution under Japan's Grant Aid have many difficulties to be executed as mentioned below.

- Many existing underground services are expected.
- Traffic (cars and pedestrians) is heavy.
- Roads are narrow.
- Residential buildings stand close to the narrow street.
- Depth of the proposed pipes is deep.

For these reasons, pipe jacking method shall be applied to all the proposed trunk lines. The locations of jacking and receiving pits for each section and the terminal points between GOSD and the Japanese side are shown on Fig-2, 3 and 4 respectively. The relation of Section-1 and planned screw pump station (hereinafter referred to as "No.5(B) PS) is shown on Fig-5.

(2) Alternatives of Jacking Pipe diameters

The required diameter of pipes for the proposed sewer trunk line ranges 1,600mm to 2,000mm accoding to GOSD's design. However, taking into account the expected allowable construction period (about 12 month) and

economical aspect under Japan's Grant Aid scheme, some alternatives of using different diameters have been raised and discussed with GOSD. The alternatives approved by GOSD are attached as Table-1. One of the alternatives shall be applied through further study in Japan.

(3) Lining methods

In case that 2000mm diameter pipe is applied instead of the designed diameter 1600mm, internal lining shall be applied to keep the desirable inner diameter. The lining methods recommended by GOSD are shown on Table-2. One of the alternatives shall be applied through further study in Japan.

(4) Manholes

Manholes shall be of reinforced concrete with blue brick lining on the internal surface of walls. Size of manholes shall be determined taking into account the Egyptian practice as well as the Japanese standard.

3.3 Sewer Branch Line

(1) Construction methods

Piping materials for the sewer branch line will be provided by the Japanese side in this project and the pipe laying work will be done with open-cut method by the Egyptian side.

(2) Manholes

Manholes for the sewer branch line shall be constructed by the Egyptian side.

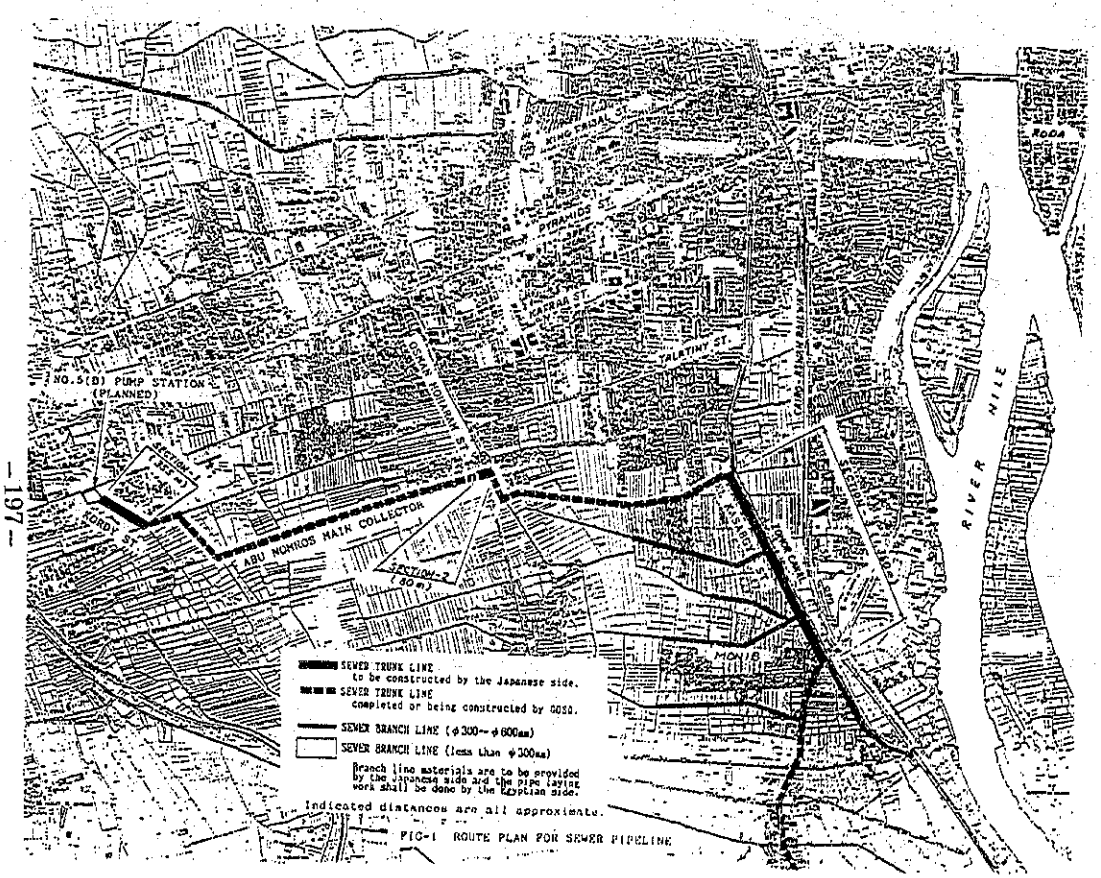


FIG-1 ROUTE PLAN FOR SEWER PIPELINE

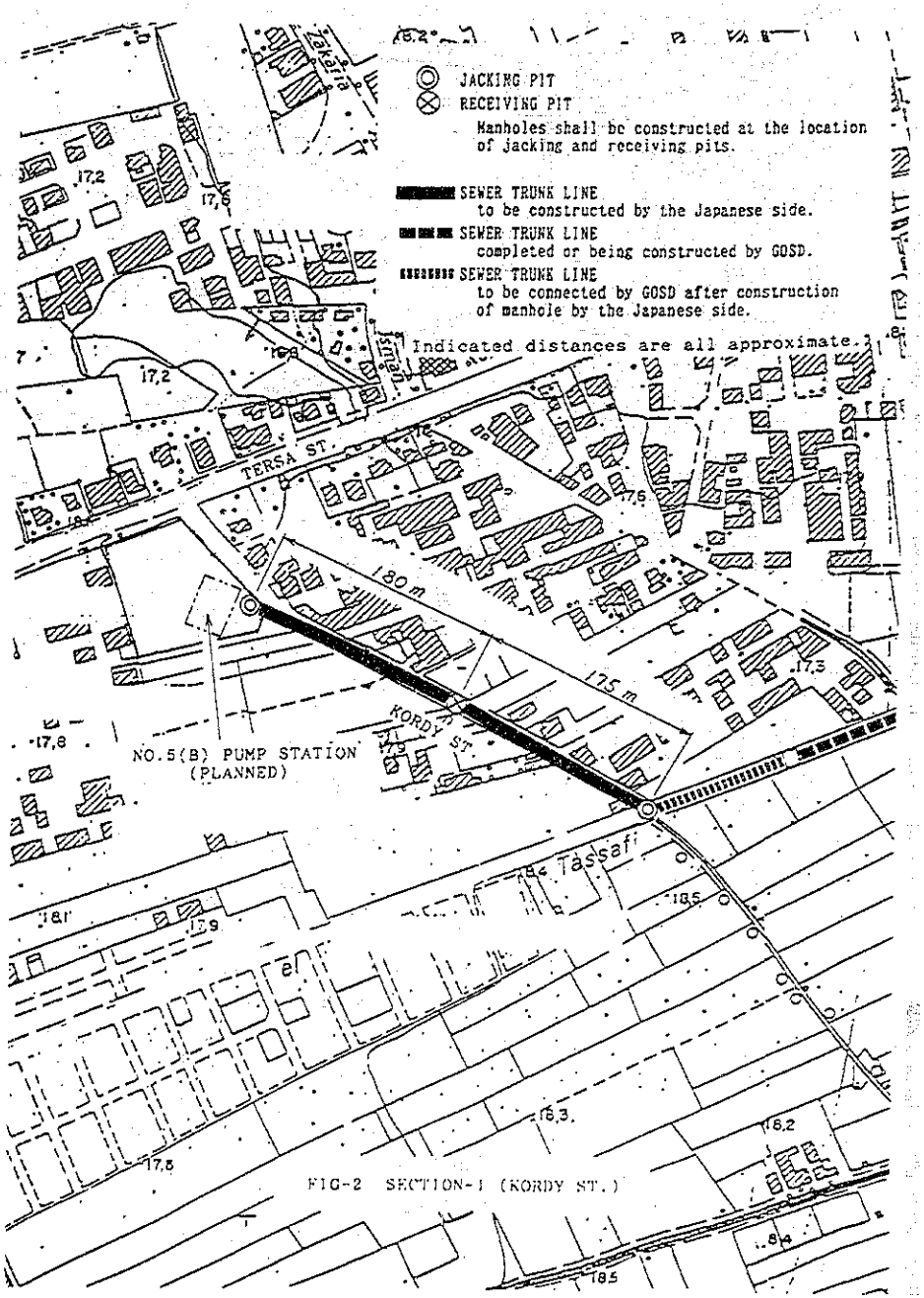


FIG-2 SECTION-1 (KORDY ST.)

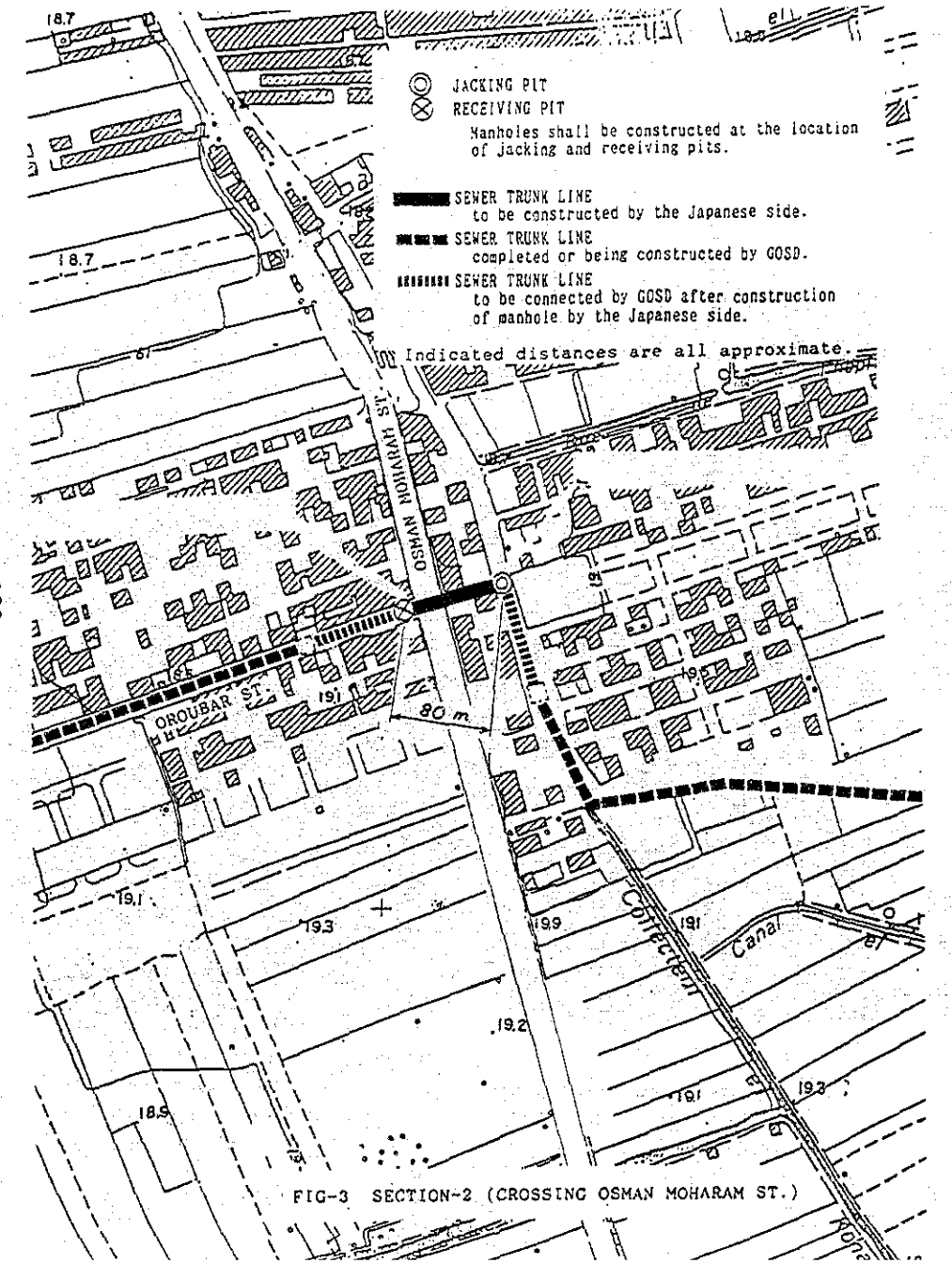


FIG-3 SECTION-2 (CROSSING OSMAN MOHARAM ST.)

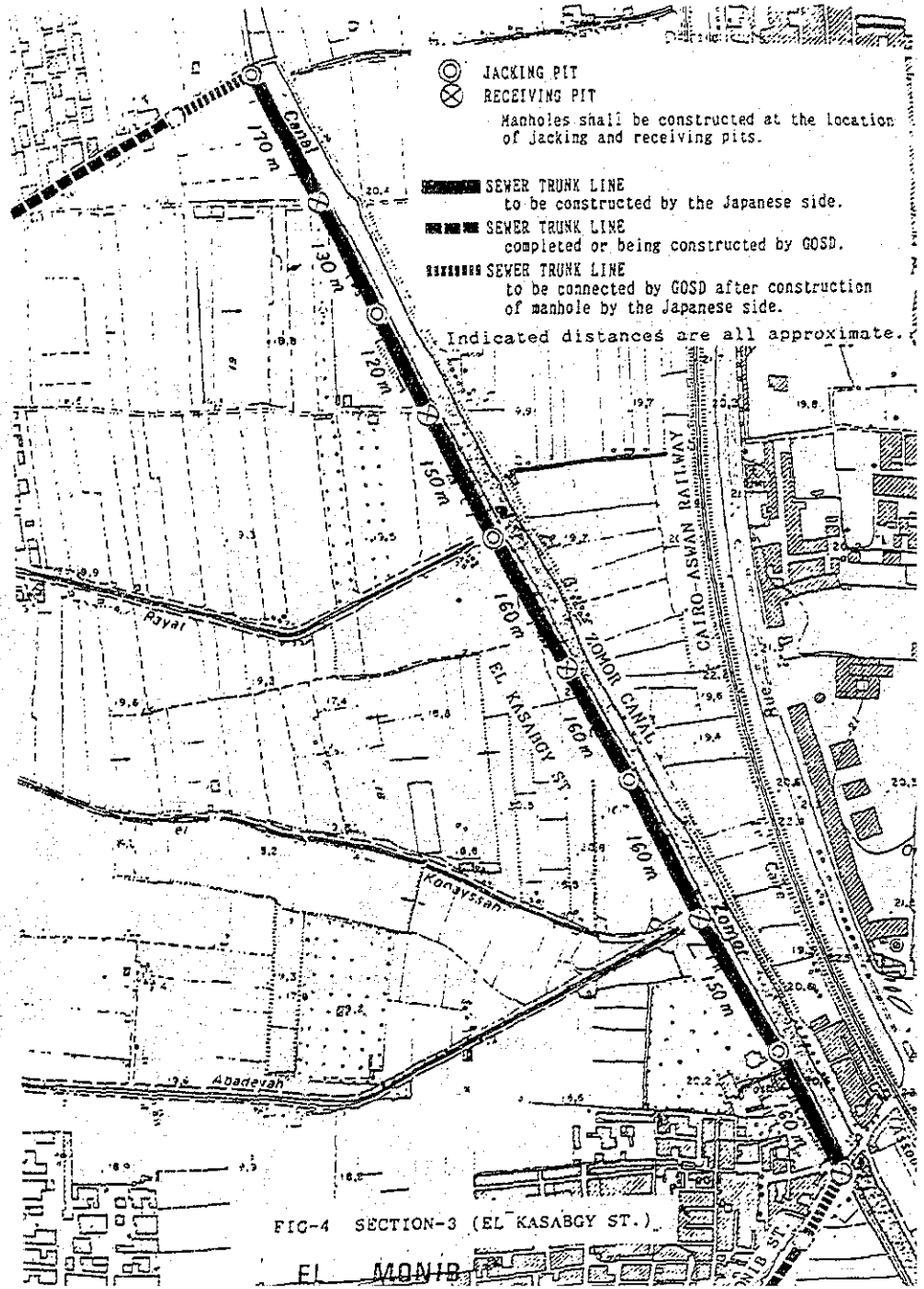
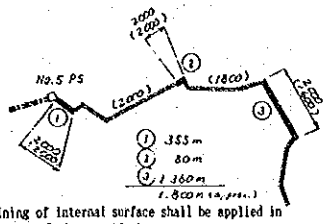
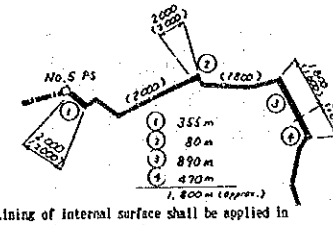
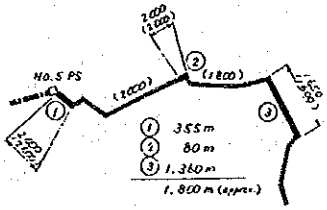


FIG-4 SECTION-3 (EL KASABGY ST.)

TABLE-1 PROPOSAL OF JACKING PIPE DIAMETERS

Alternatives	Proposed Diameters of Jacking Pipe (mm)	Number of Jacking Machine
ALT-1	 Lining of internal surface shall be applied in Section ③ (see TABLE-2).	φ2000mm x 2 units
ALT-2	 Lining of internal surface shall be applied in Section ④ (see TABLE-2).	φ2000mm x 1 unit φ1800mm x 1 unit
ALT-3	 No lining of internal surface shall be applied.	φ2000mm x 1 unit φ1650mm x 2 units

Remarks :
1. Figures shown in ( ) are the diameters on the drawings of GOSD.
2. Internal surface other than lining applied surface shall be coated by epoxy tar paint.

FIG-5 RELATION OF SECTION-I AND PLANNED NO.5(B) PUMP STATION

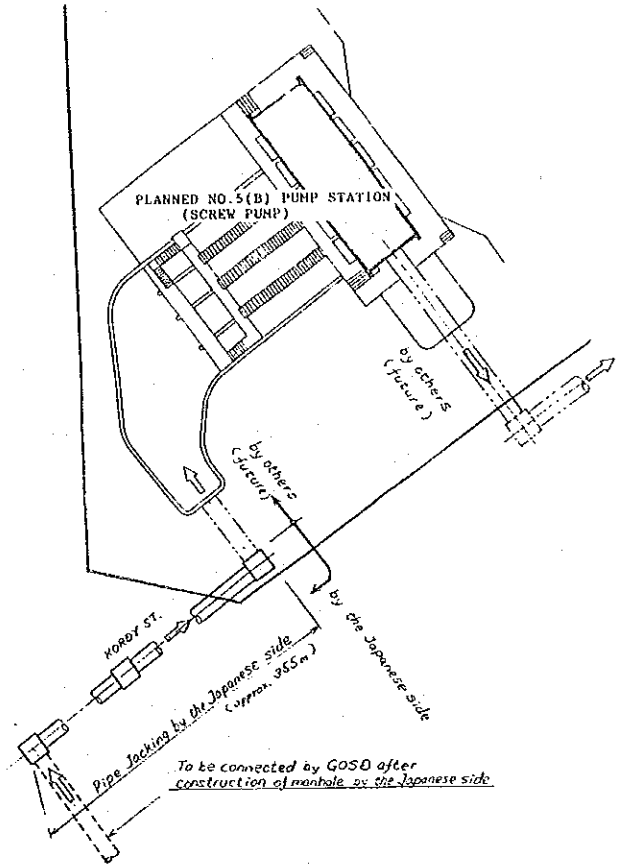
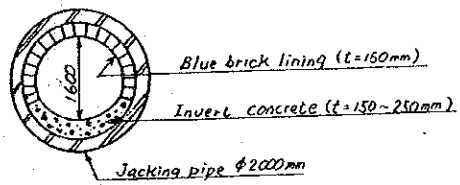
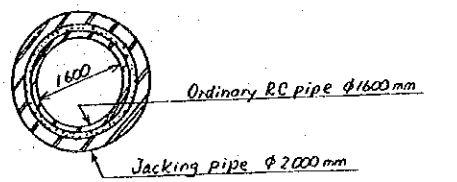


TABLE-2 LINING METHODS

One of the lining methods listed below shall be applied when Jaking Pipe of dia.2000mm is used instead of designed dia.1600mm.

TYPE	Lining Method
A	120° Invert concrete + Blue brick lining 
B	Double piping (dia.2000mm + dia.1600mm) + Epoxy tar coating 

THE BASIC DESIGN STUDY
ON
THE PROJECT FOR
THE WATER SUPPLY AND SEWER SYSTEM UPGRADING IN MONIB, GIZA CITY
IN
THE REPUBLIC OF EGYPT

PRELIMINARY EXPANSION PLAN
OF
SOUTH GIZA WATER WORKS

DECEMBER, 1991

CONSULTANT TEAM OF BASIC DESIGN STUDY

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

Preliminary Expansion Plan of South Giza Water Works

1 Confirmation of Major Conditions of expansion treatment plant
Major conditions of expansion plan for South Giza Water Works are as follows:

1.1 Total Design Capacity of expansion treatment plant.
Total design capacity of expansion treatment plant will be 200,000 cu.m /day

1.2 The design capacity of the first construction stage.
The design capacity of the first construction stage will be 25,000 cu.m /day .
This figure is included in total design capacity(200,000 cu.m/day).

1.3 Expansion treatment plant
Area for the expansion treatment plant is secured adjacent to the existing treatment plant as shown on Fig.SG-1.

1.4 Concerning the intake facilities,the intake pump equipment will be installed at the existing new raw water pumping station and four spaces of New pump facilities for the expansion treatment plant are secured in above mentioned station.

1.5 The existing ancillary facilities such as chemical dosing facilities ,control center,laboratory,work shop and so forth shall be used as possible as they can.

1.6 The flow diagram of the expansion treatment plant shall be shown on the SG-2.

2 Preliminary plan of expansion plant

Preliminary layout of expansion treatment plant is as shown on Fig.SG-3.

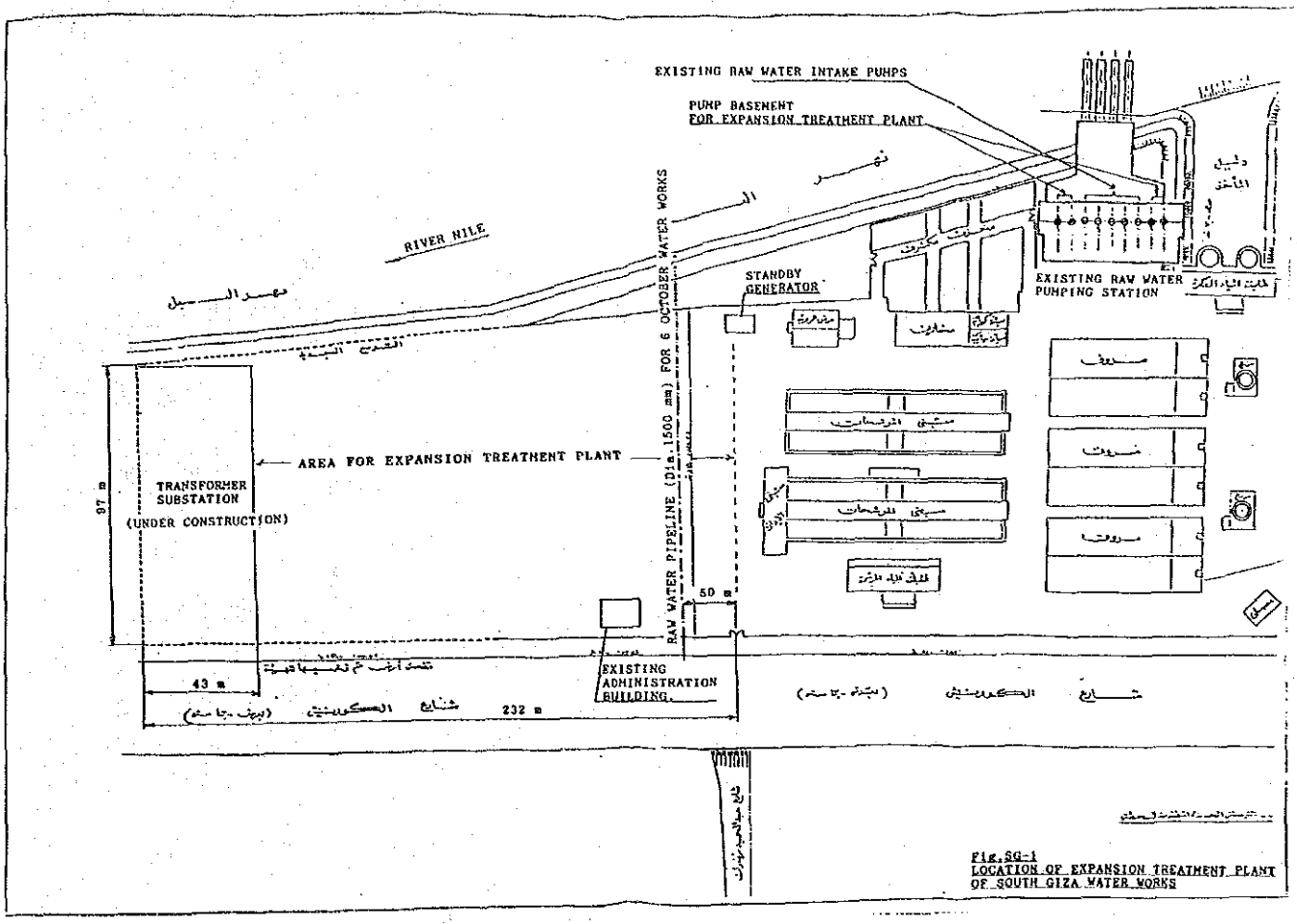


Fig.SG-1
LOCATION OF EXPANSION TREATMENT PLANT
OF SOUTH GIZA WATER WORKS

:First stage

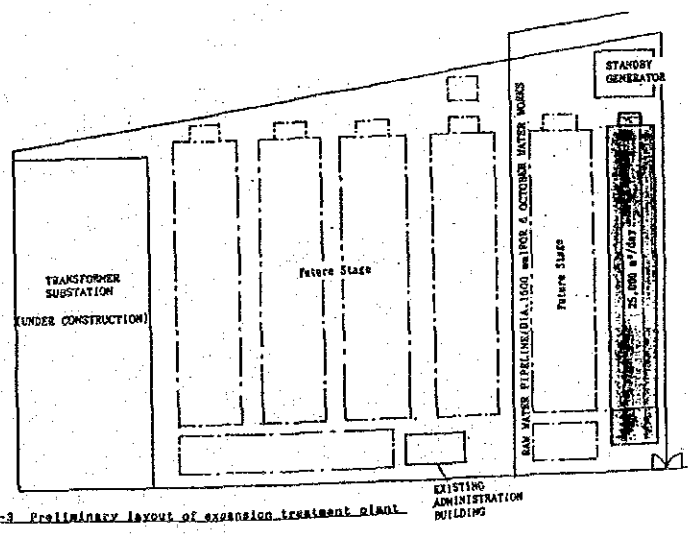


Fig.SG-3 Preliminary layout of expansion treatment plant

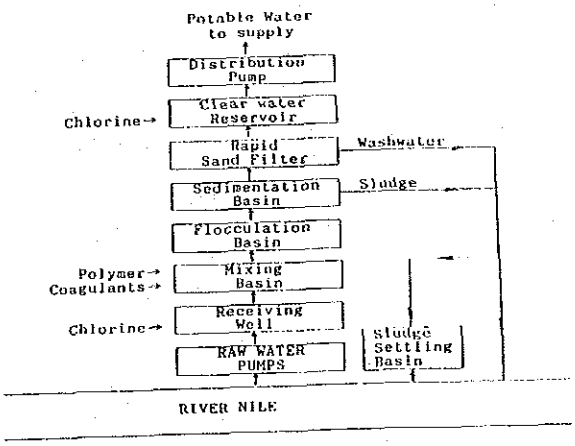


Fig. SG - 2 Flow Diagram for Expansion treatment plant

資料-6　カントリーデータ

1．基礎指標

① エジプト・アラブ共和国　首都カイロ市

② 国土・人口　　面　積：　1,001,499km²
　　人　口：　約54百万人（1991年推定）

③ 政　体　　共和制
　　大統領：　モハメッド・ホスニ・ムバラク（1981年就任）

④ 宗　教　　人口の90%以上が回教徒で、そのほとんどがスンニー派に所属。
　　他にコプト教（約６%）、ギリシャ正教、ローマン・カトリック、
　　アルメニア、プロテスタント各派のキリスト教徒並びにユダヤ教。

⑤ 言　語　　アラビア語
　　外国語として英語及び仏語が通用する。

⑥ 民　族　　アラブ系エジプト人　　98%
　　アルメニア人　　2%

⑦ 教　育　　６－12歳の６年間が義務教育期間である。
　　学齢児の就学率は約78%（1981年）とされている。

⑧ 通　貨　　エジプト・ポンド（LE）
　　１ドル＝3.31LE（1992年１月現在）
　　1985年１月30日より変動相場制が導入されている。

⑨ 社会・政治状況

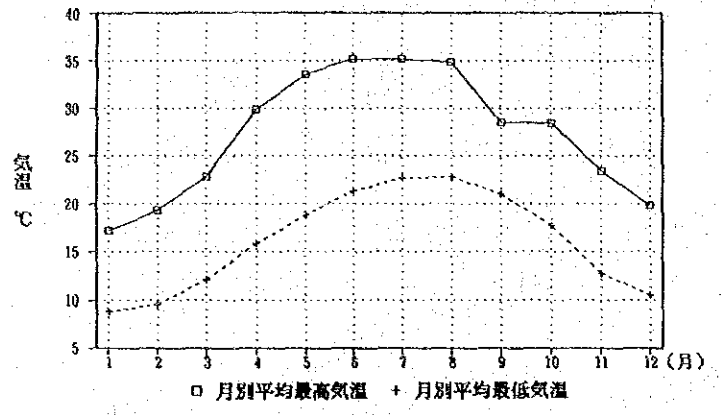
1971年、憲法が制定され、「エ」国を社会民主主義国家と規定し、イスラム教を国教とし、主権は国民にあることを明記して、自由平等の民主主義のルールを取り入れるとともに、多数政党制を導入し、選挙制度も確立している。

1990年８月イラクがクウェートに侵攻し湾岸戦争が勃発したが、「エ」国は多国籍軍として行動し、同国の中東における戦略的重要性を再認識せしめている。

また、1991年５月メギド前「エ」国外相がアラブ連盟事務総長に選出されるとともに、ムバラク大統領がアフリカ同盟機構（ＯＡＵ）の議長に就任し、「エ」国はアラブ諸国及びアフリカ諸国のリーダーとしての地位を示している。

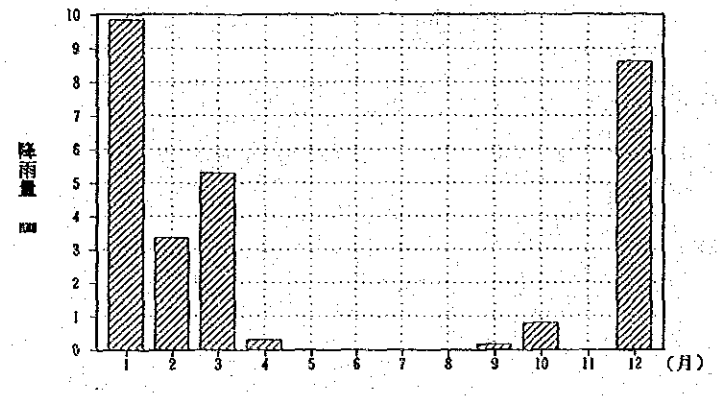
⑩ 気　候　　大カイロ圏の月別平均気温、降雨量、湿度及び風速を以下に示す。

月別平均気温

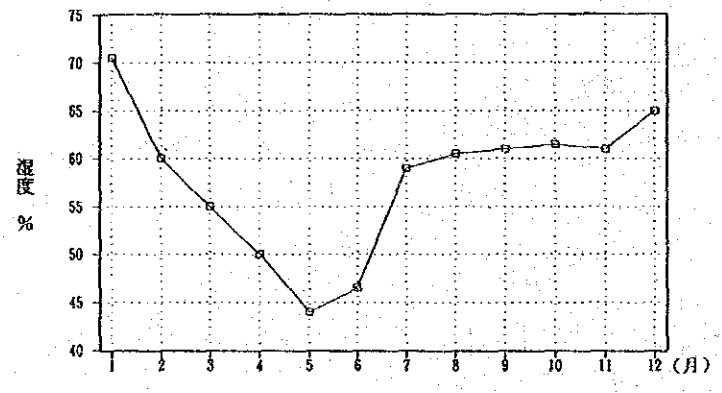


□ 月別平均最高気温　＋ 月別平均最低気温

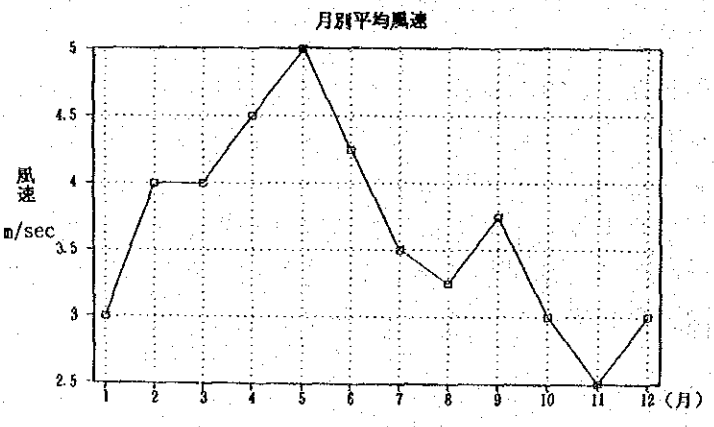
月別平均降雨量



月別平均湿度



月別平均風速



2．社会・経済指標

①　「エ」国の国際収支

（単位：百万ドル）

年　　度	1987／83	1988／89	1989／90
貿易収支	△ 6,567	△ 7,533	△ 7,567
輸　　出	3,274	2,546	3,206
（石　　油）	1,563	1,066	1,129
輸　　入	9,841	10,090	10,733
貿易外収支	1,940	1,764	1,530
受　　取	4,575	5,058	5,580
（スエズ運河）	1,269	1,307	1,472
（観　　光）	886	901	1,067
（利　　息）	624	734	776
支　　払	2,634	3,298	4,050
（利　　息）	785	1,123	1,686
移転収支	4,082	4,240	4,824
政府移転	698	710	1,080
海外送金	3,384	3,530	3,744
経常収支	△　545	△ 1,457	△ 1,214

（出所：計画省）

②　「エ」国の国家予算

（単位：100万ｴｼﾞﾌﾟﾄﾎﾟﾝﾄﾞ）

歳　　出				歳　　出			
項　　目	1989/90	1990/91	1991/92	項　　目	1989/90	1990/91	1991/92
歳出総計	30,306	41,248	54,431	歳入総計	25,416	32,523	45,083
一般会計	18,749	27,245		一般会計	20,342	27,845	39,264
補助金	2,061	3,579	4,520	租税収入	5,730	7,915	9,085
国防費	3,711	3,133	3,742	その他税収	7,520	7,980	9,547
債務利払	3,614	8,362	14,381	非税収入	5,642	9,983	14,892
賃　　金	6,250	7,140	8,288				
資本支出	11,557	14,003	－	資本収入	5,074	4,677	5,819
投　　資	6,350	6,751	10,700	投資収入	2,231	2,111	－
資本移転	5,207	7,252	－	移転収入	2,843	2,567	－
				赤　　字	4,890	8,725	9,438

備考：為替レート　1ドル＝3.24エジプトポンド（1991／92年）
　　1ドル＝2.00エジプトポンド（1990／91年）

（出所：計画省）

③ 第２次５ヵ年計画の産業別生産目標と実績

（単位：100万ｴｼﾞﾌﾟﾄﾎﾟﾝﾄﾞ）

項目＼年度	1987/88（初年度）		1988/89（２年度）		1989/90（３年度）	1991/92（最終年度）	目標成長率
	目標	実績	目標	実績	実績	目標	（%）
農業	8,960	8,930	9,205	9,180	9,440	10,500	4.1
鉱・工業	7,446	7,435	8,069	7,979	8,564	10,397	8.4
石油	1,769	1,799	1,966	1,748	1,728	1,898	2.3
電力	560	559	599	612	649	729	7.1
建設	2,128	2,145	2,259	2,259	2,381	2,647	5.9
商品部門計	20,863	20,868	22,098	21,778	22,762	26,221	5.8
運輸・通信	3,928	3,996	4,211	4,368	4,678	4,819	5.1
商業・金融・保険	10,118	10,150	10,487	10,618	11,110	12,624	5.5
観光	424	533	483	644	694	688	10.9
生産的ｻｰﾋﾞｽ部門計	14,470	14,679	15,181	15,630	16,482	18,111	5.6
公共施設・公益事業	896	898	984	1,007	1,104	1,409	11.4
サービス	1,923	1,930	2,009	2,018	2,112	2,375	5.2
政府サービス・保険	4,898	4,874	5,212	5,170	5,451	6,010	5.5
社会的ｻｰﾋﾞｽ部門計	7,717	7,702	8,205	6,195	8,667	9,794	6.2
合計	43,050	43,249	45,484	45,603	47,911	54,126	5.8

（出所：計画省）

④ 「エ」国の物価動向

年度	1965/66	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
1965/1966＝100とした物価指数	100	487.8	572.1	650.2	820.9	1044.9	1220.3

（出所：中央統計局）

⑤ 「エ」国の過去５年間の国内総生産（ＧＤＰ）動向

（単位：億ｴｼﾞﾌﾟﾄﾎﾟﾝﾄﾞ）

年　度	1986/87	1987/88	1988/89	1989/90	1990/91
ＧＤＰ	477	587	776	840	860

出所：　1986/87　　中央統計局
1987/88～1989/90　米国大使館推定
1990/91　　ＥＩＵ（The Economist Intelligence Unit）推定

3．「エ」国の祝祭日（1992年）

Eve of 1st Bairam	－４月３日
1st Bairam	－４月４日～６日
Sinai Liberation day	－４月25日
Sham El-Nessim	－４月27日
Laborers Day	－５月１日
Eve of 2nd Bairam	－６月10日
2nd Bairam	－６月11～14日
Evacaution Day	－６月18日
Hejri New Year	－７月２日
Revolution Day	－７月23日
Prophet Mohammed's Birthday	－９月10日
Army Forces Day	－10月６日
Suez City & National Liberation Day	－10月24日
Victory Day	－12月23日