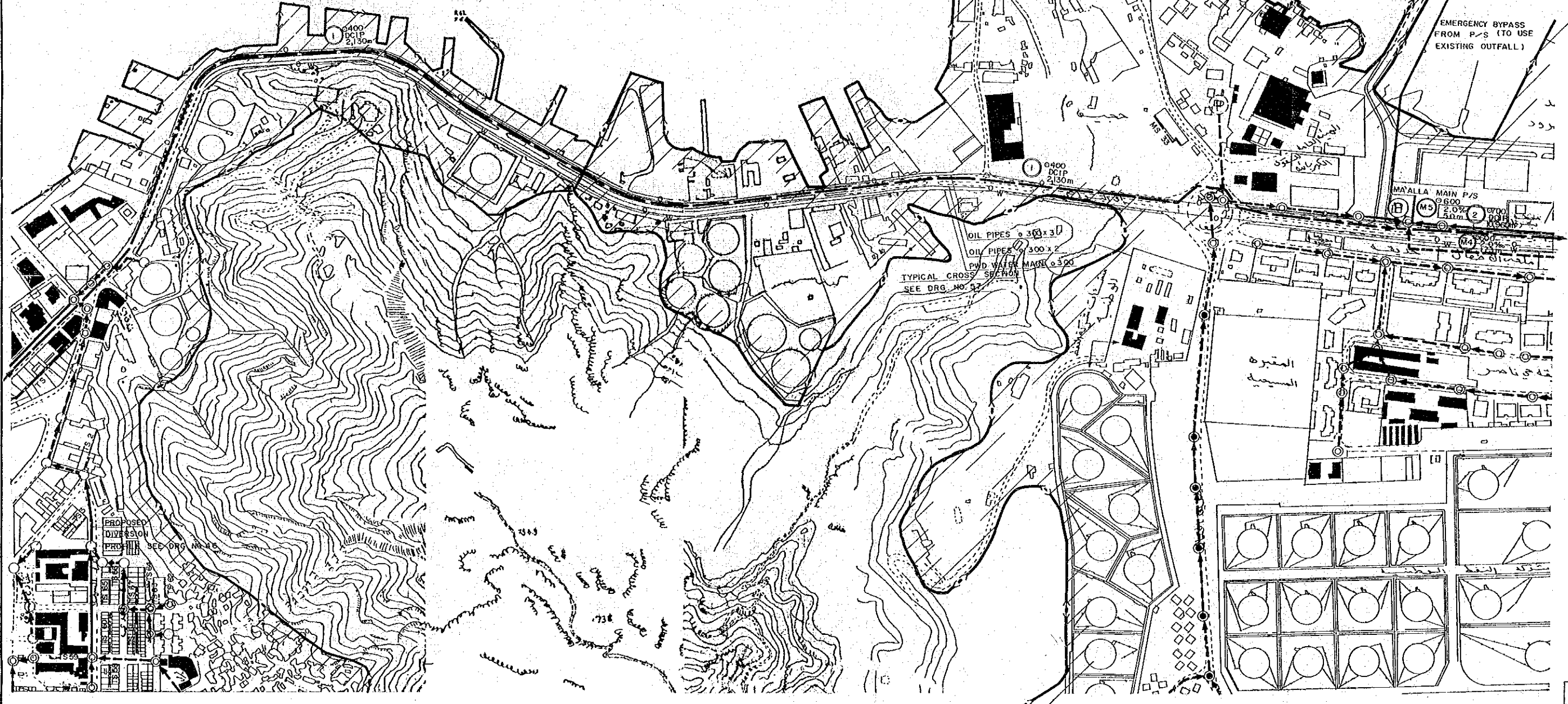


**LEGEND**

- BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
- EXISTING TRUNK SEWER
- SWEEPER'S PASSAGE
- PROPOSED TRUNK SEWER
- PROPOSED FORCE MAIN
- EXISTING PUMPING STATION
- PROPOSED PUMPING STATION
- AREA FOR FIRST PHASE UP TO 1995
- SEWAGE TREATMENT PLANT
- MANHOLE TYPE MA
- MANHOLE TYPE MB
- MANHOLE TYPE MC
- EXTRA CATCHMENT AREA



NOTE: EXISTING P/S TO BE ABANDONED  
SITE PLAN SEE DRG. NO. 47

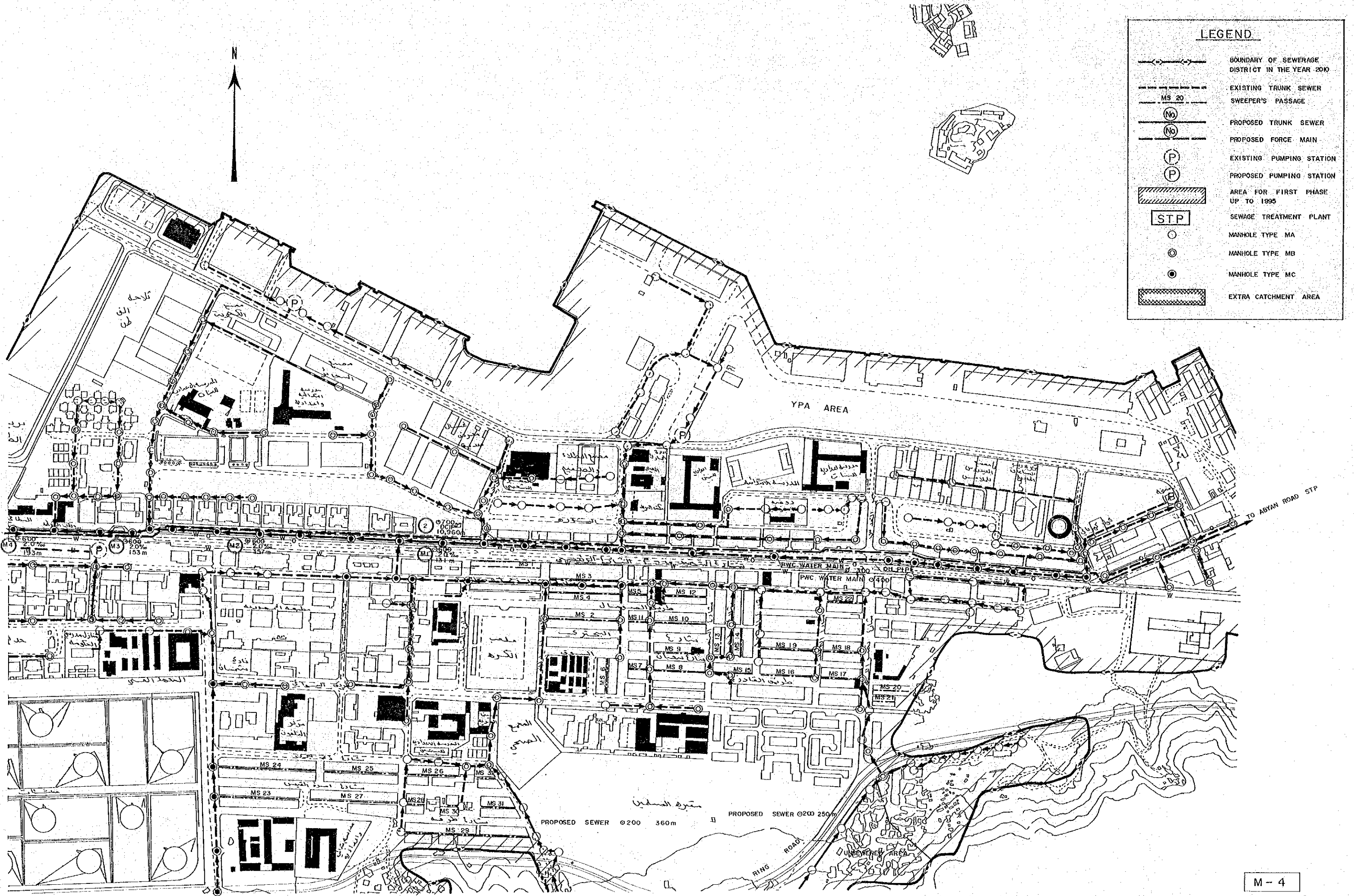
PROPOSED TRUNK SEWERS M1 TO M4 TO REPLACE EXISTING SEWERS

M - 3














**FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM**

PROPOSED SEWERAGE SYSTEM FOR MA'ALLA DISTRICT (3 / 4)

|           |             |
|-----------|-------------|
| DATE      | JICA        |
| JAN. 1990 |             |
| SCALE     | DRAWING NO. |
| 1 : 2,500 | 17          |

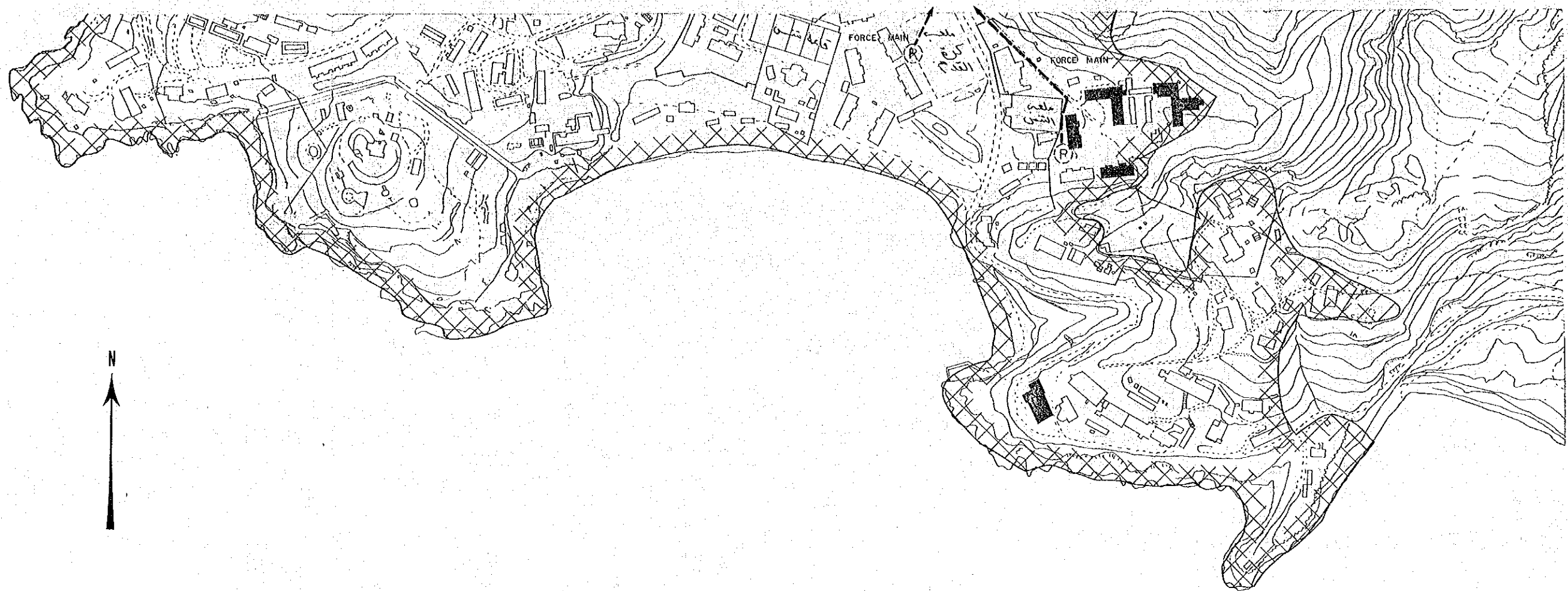


**LEGEND**

-  BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
-  EXISTING TRUNK SEWER
-  SWEEPER'S PASSAGE
-  PROPOSED TRUNK SEWER
-  PROPOSED FORCE MAIN
-  EXISTING PUMPING STATION
-  PROPOSED PUMPING STATION
-  AREA FOR FIRST PHASE UP TO 1995
-  SEWAGE TREATMENT PLANT
-  MANHOLE TYPE MA
-  MANHOLE TYPE MB
-  MANHOLE TYPE MC
-  EXTRA CATCHMENT AREA

M - 4

|   |           |             |
|---|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF M'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA        |
|   | JAN. 1990 |             |
| PROPOSED SEWERAGE SYSTEM FOR M'ALLA DISTRICT (4/4)                        | SCALE     | DRAWING NO. |
|   | 1:2,500   | 18          |



| LEGEND |  |
|--------|--|
|        | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|        | EXISTING TRUNK SEWER                           |
|        | PROPOSED TRUNK SEWER                           |
|        | PROPOSED FORCE MAIN                            |
|        | EXISTING PUMPING STATION                       |
|        | PROPOSED PUMPING STATION                       |
|        | AREA FOR FIRST PHASE UP TO 1995                |
|        | SEWAGE TREATMENT PLANT                         |
|        | MANHOLE TYPE MA                                |
|        | MANHOLE TYPE MB                                |
|        | MANHOLE TYPE MC                                |
|        | EXTRA CATCHMENT AREA                           |

T-1

|  |           |             |
|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA        |
|  | JAN. 1990 |             |
| PROPOSED SEWERAGE SYSTEM FOR TAWAHI DISTRICT (1/3)                         | SCALE     | DRAWING NO. |
|  | 1:2,500   | 19          |



| LEGEND |  |
|--------|--|
|        | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2000 |
|        | EXISTING TRUNK SEWER                           |
|        | PROPOSED TRUNK SEWER                           |
|        | PROPOSED FORCE MAIN                            |
|        | EXISTING PUMPING STATION                       |
|        | PROPOSED PUMPING STATION                       |
|        | AREA FOR FIRST PHASE UP TO 1995                |
|        | SEWAGE TREATMENT PLANT                         |
|        | MANHOLE TYPE MA                                |
|        | MANHOLE TYPE MB                                |
|        | MANHOLE TYPE MC                                |
|        | EXTRA CATCHMENT AREA                           |

T-2

|  |           |             |
|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA        |
|  | JAN. 1990 |             |
| PROPOSED SEWERAGE SYSTEM FOR TAWAHI DISTRICT (2/3)                         | SCALE     | DRAWING NO. |
|  | 1 : 2,500 | 20          |



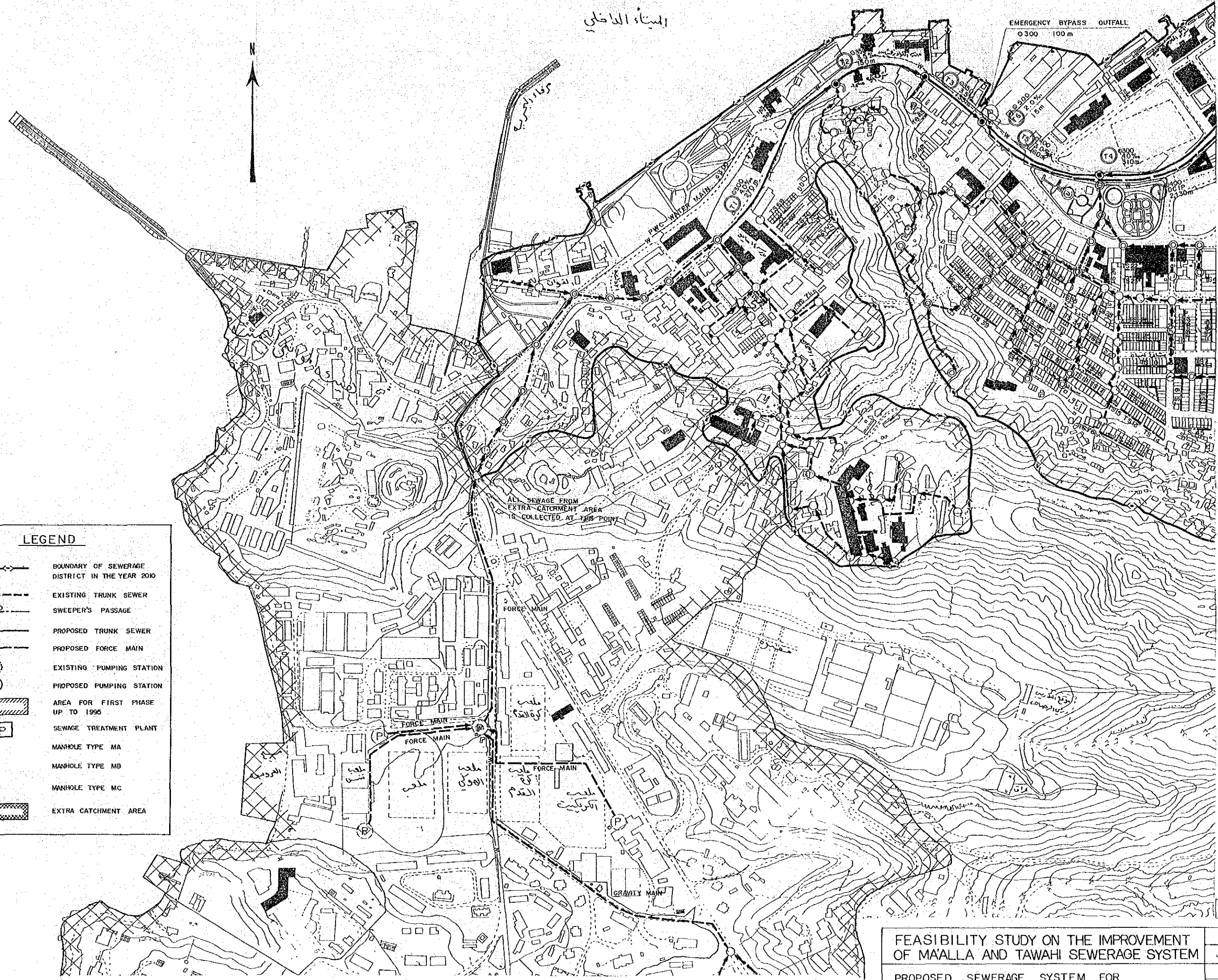
المستأء الداخلي

EMERGENCY BYPASS OUTFALL  
 0 300 100 m



**LEGEND**

- BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
- EXISTING TRUNK SEWER
- SWEEPER'S PASSAGE
- PROPOSED TRUNK SEWER
- PROPOSED FORCE MAIN
- EXISTING PUMPING STATION
- PROPOSED PUMPING STATION
- AREA FOR FIRST PHASE UP TO 1995
- SEWAGE TREATMENT PLANT
- MANHOLE TYPE MA
- MANHOLE TYPE MB
- MANHOLE TYPE MC
- EXTRA CATCHMENT AREA



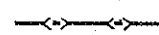
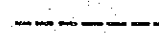
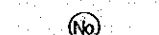








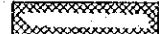
T-3

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM  
 PROPOSED SEWERAGE SYSTEM FOR TAWAHI DISTRICT (3/3)

|       |           |             |
|-------|-----------|-------------|
| DATE  | JAN. 1990 | JICA        |
| SCALE | 1 : 2,500 | DRAWING NO. |
|       |           | 21          |



**LEGEND**

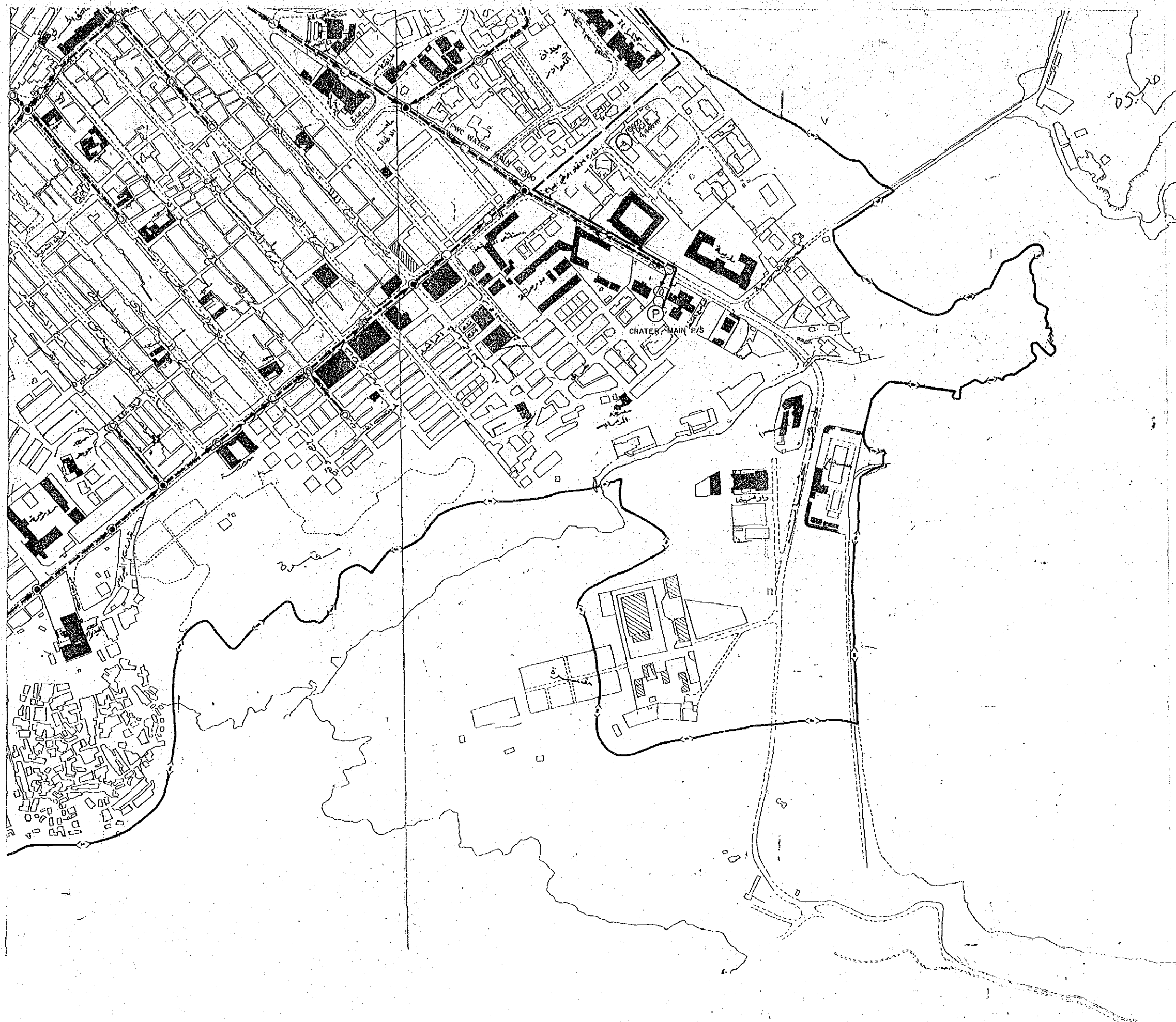
-  BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
-  EXISTING TRUNK SEWER
-  PROPOSED TRUNK SEWER
-  PROPOSED FORCE MAIN
-  EXISTING PUMPING STATION
-  PROPOSED PUMPING STATION
-  AREA FOR FIRST PHASE UP TO 1995
-  SEWAGE TREATMENT PLANT
-  MANHOLE TYPE MA
-  MANHOLE TYPE MB
-  MANHOLE TYPE MC
-  EXTRA CATCHMENT AREA

C-1

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM

PROPOSED SEWERAGE SYSTEM FOR CRATER DISTRICT (1/4)

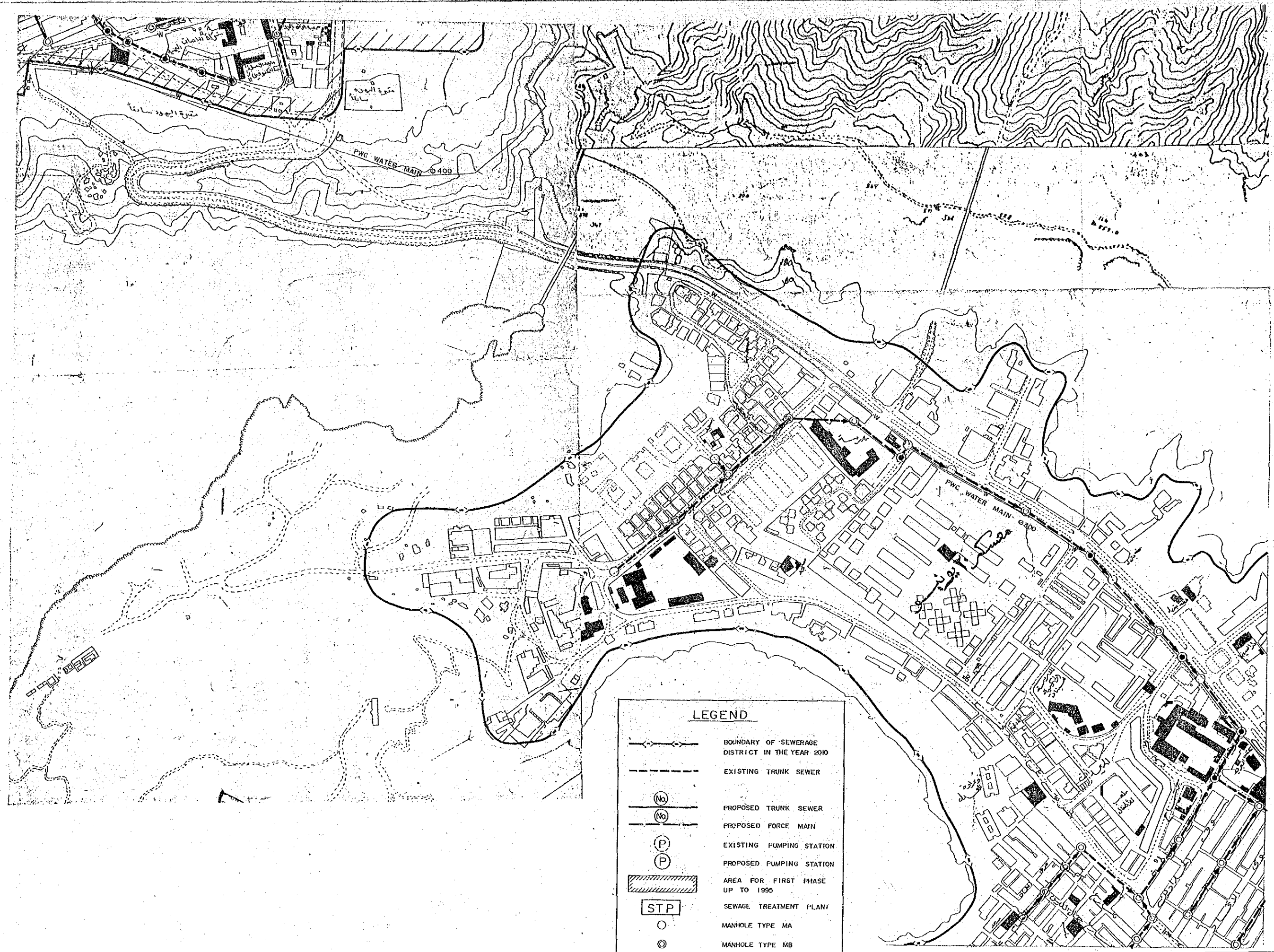
|       |           |             |
|-------|-----------|-------------|
| DATE  | JAN. 1990 | JICA        |
| SCALE | 1 : 2,500 | DRAWING NO. |
|       |           | 22          |



| LEGEND |  |
|--------|--|
|        | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|        | EXISTING TRUNK SEWER                           |
|        | PROPOSED TRUNK SEWER                           |
|        | PROPOSED FORCE MAIN                            |
|        | EXISTING PUMPING STATION                       |
|        | PROPOSED PUMPING STATION                       |
|        | AREA FOR FIRST PHASE UP TO 1995                |
|        | SEWAGE TREATMENT PLANT                         |
|        | MANHOLE TYPE MA                                |
|        | MANHOLE TYPE MB                                |
|        | MANHOLE TYPE MC                                |
|        | EXTRA CATCHMENT AREA                           |

C-2

|  |           |             |
|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA        |
|  | JAN. 1990 |             |
| PROPOSED SEWERAGE SYSTEM FOR CRATER DISTRICT (2/4)                         | SCALE     | DRAWING NO. |
|  | 1 : 2,500 | 23          |



**LEGEND**

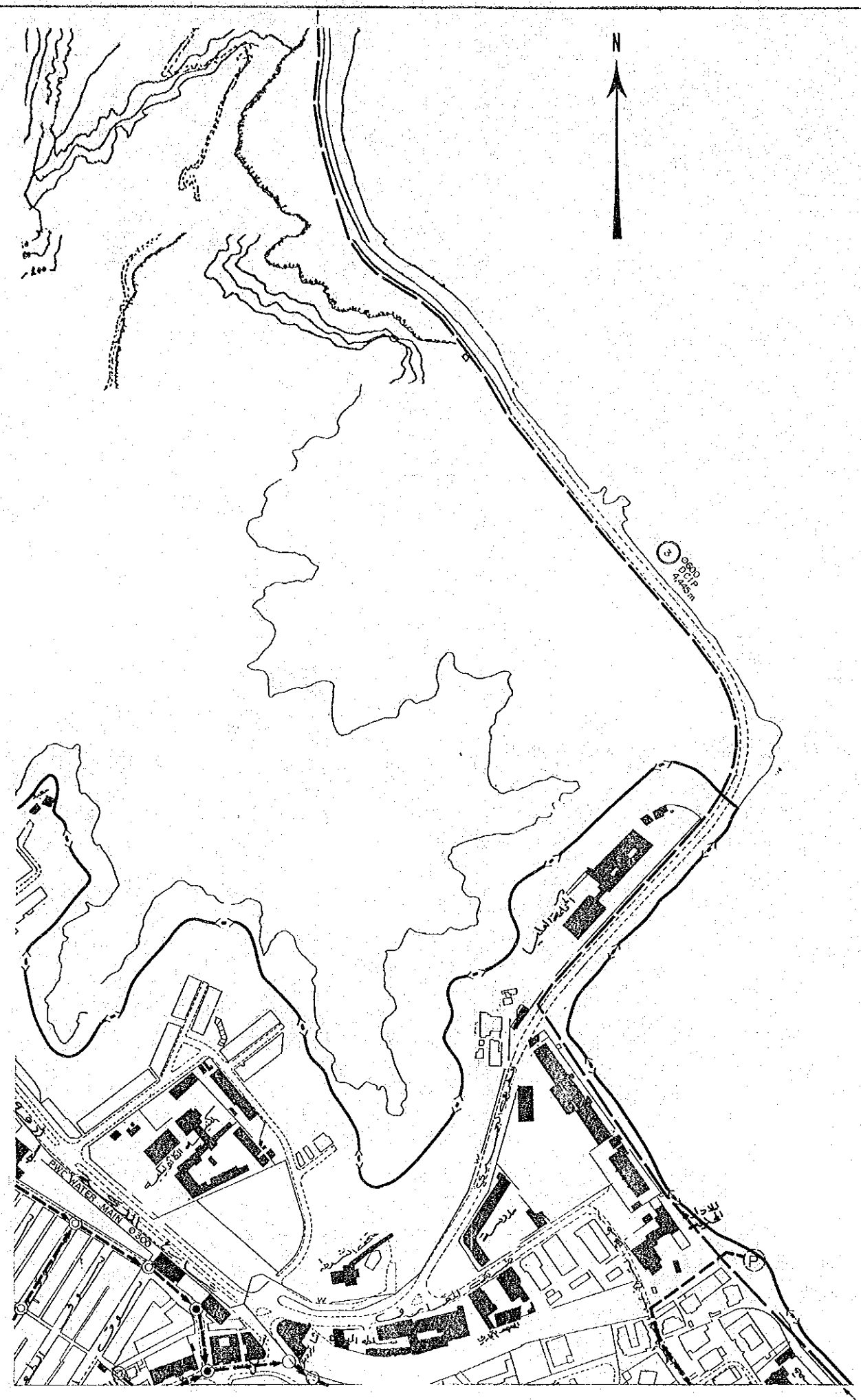
|  |  |
|--|--|
|  | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|  | EXISTING TRUNK SEWER                           |
|  | PROPOSED TRUNK SEWER                           |
|  | PROPOSED FORCE MAIN                            |
|  | EXISTING PUMPING STATION                       |
|  | PROPOSED PUMPING STATION                       |
|  | AREA FOR FIRST PHASE UP TO 1995                |
|  | SEWAGE TREATMENT PLANT                         |
|  | MANHOLE TYPE MA                                |
|  | MANHOLE TYPE MB                                |
|  | MANHOLE TYPE MC                                |
|  | EXTRA CATCHMENT AREA                           |



C-3

|  |  |           |             |
|--|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT<br>OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM<br>PROPOSED SEWERAGE SYSTEM FOR<br>CRATER DISTRICT (3/4) |  | DATE      | JICA        |
|  |  | JAN. 1990 |             |
|  |  | SCALE     | DRAWING NO. |
|  |  | 1 : 2,500 | 24          |












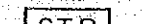





**LEGEND**

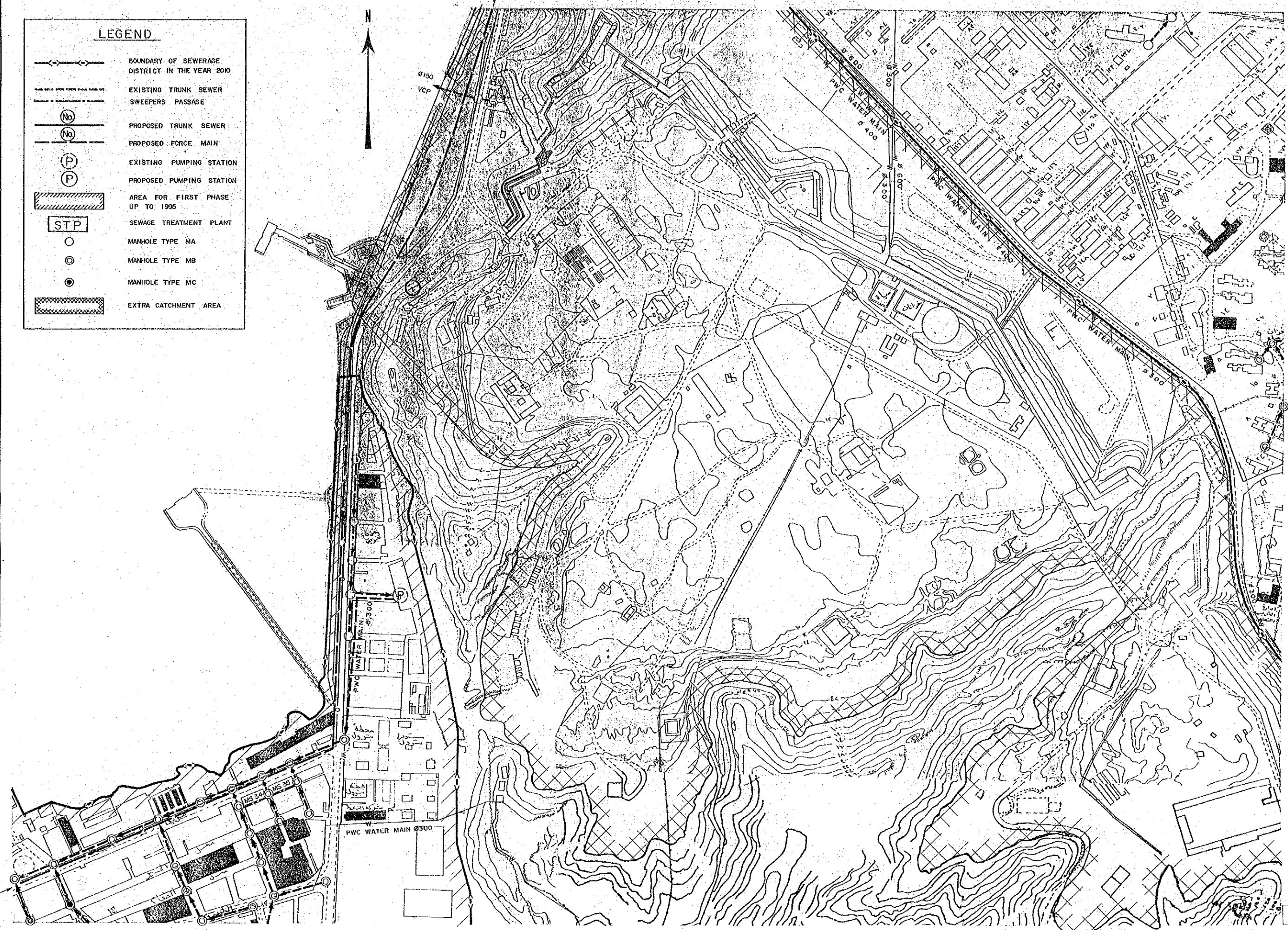
|  |  |
|--|--|
|  | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|  | EXISTING TRUNK SEWER                           |
|  | PROPOSED TRUNK SEWER                           |
|  | PROPOSED FORCE MAIN                            |
|  | EXISTING PUMPING STATION                       |
|  | PROPOSED PUMPING STATION                       |
|  | AREA FOR FIRST PHASE UP TO 1995                |
|  | SEWAGE TREATMENT PLANT                         |
|  | MANHOLE TYPE MA                                |
|  | MANHOLE TYPE MB                                |
|  | MANHOLE TYPE MC                                |
|  | EXTRA CATCHMENT AREA                           |

C - 4

|  |           |             |
|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA        |
|  | JAN. 1990 |             |
| PROPOSED SEWERAGE SYSTEM FOR CRATER DISTRICT (4/4)                         | SCALE     | DRAWING NO. |
|  | 1 : 2,500 | 25          |

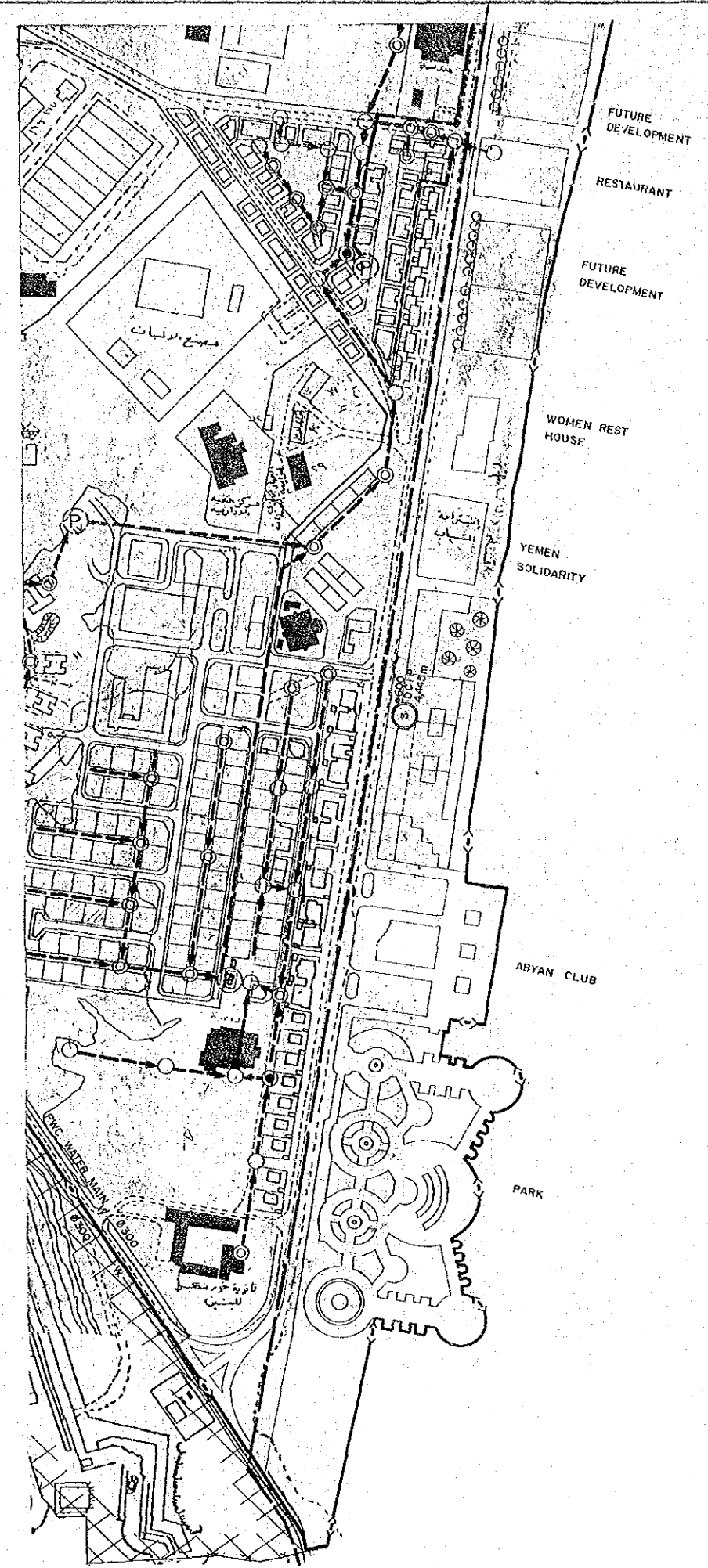
**LEGEND**

-  BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
-  EXISTING TRUNK SEWER
-  SWEEPERS PASSAGE
-  PROPOSED TRUNK SEWER
-  PROPOSED FORCE MAIN
-  EXISTING PUMPING STATION
-  PROPOSED PUMPING STATION
-  AREA FOR FIRST PHASE UP TO 1995
-  SEWAGE TREATMENT PLANT
-  MANHOLE TYPE MA
-  MANHOLE TYPE MB
-  MANHOLE TYPE MC
-  EXTRA CATCHMENT AREA



K-1

|  |  |           |             |
|--|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM |  | DATE      | JICA        |
| PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (1/10)                    |  | JAN. 1990 | DRAWING NO. |
|  |  | SCALE     | 26          |
|  |  | 1 : 2,500 |             |



| LEGEND |  |
|--------|--|
|        | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|        | EXISTING TRUNK SEWER                           |
|        | PROPOSED TRUNK SEWER                           |
|        | PROPOSED FORCE MAIN                            |
|        | EXISTING PUMPING STATION                       |
|        | PROPOSED PUMPING STATION                       |
|        | AREA FOR FIRST PHASE UP TO 1995                |
|        | SEWAGE TREATMENT PLANT                         |
|        | MANHOLE TYPE MA                                |
|        | MANHOLE TYPE MB                                |
|        | MANHOLE TYPE MC                                |
|        | EXTRA CATCHMENT AREA                           |

K-2

|  |           |             |
|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA        |
|  | JAN 1990  |             |
| PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (2/10)                    | SCALE     | DRAWING NO. |
|  | 1 : 2,500 | 27          |






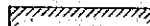




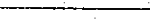





ENVIRONMENTAL  
CONTROL AREA

PLANNING AREA  
IN THE FUTURE

LEGEND

-  BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
-  EXISTING TRUNK SEWER
-  PROPOSED TRUNK SEWER
-  PROPOSED FORCE MAIN
-  EXISTING PUMPING STATION
-  PROPOSED PUMPING STATION
-  AREA FOR FIRST PHASE UP TO 1995
-  SEWERAGE TREATMENT PLANT
-  MANHOLE TYPE MA
-  MANHOLE TYPE MB
-  MANHOLE TYPE MC
-  EXTRA CATCHMENT AREA



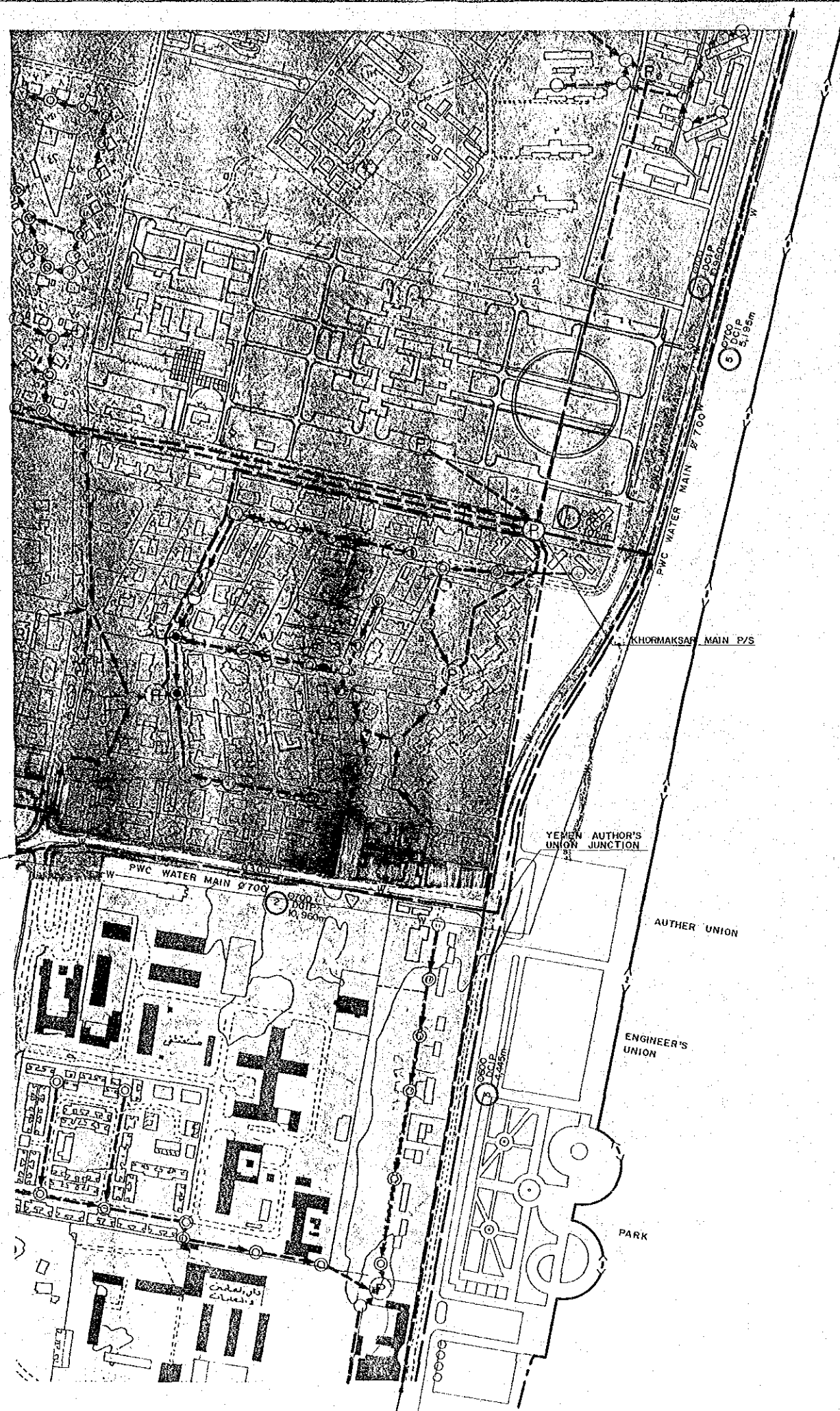
K-3

FEASIBILITY STUDY ON THE IMPROVEMENT  
OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM

PROPOSED SEWERAGE SYSTEM FOR  
KHORMAKSAR DISTRICT (3/10)

|           |             |
|-----------|-------------|
| DATE      | JICA        |
| JAN. 1990 |             |
| SCALE     | DRAWING NO. |
| 1 : 2,500 | 28          |











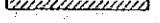




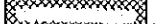
| LEGEND |  |
|--------|--|
|        | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|        | EXISTING TRUNK SEWER                           |
|        | PROPOSED TRUNK SEWER                           |
|        | PROPOSED FORCE MAIN                            |
|        | EXISTING PUMPING STATION                       |
|        | PROPOSED PUMPING STATION                       |
|        | AREA FOR FIRST PHASE UP TO 1995                |
|        | SEWAGE TREATMENT PLANT                         |
|        | MANHOLE TYPE MA                                |
|        | MANHOLE TYPE MB                                |
|        | MANHOLE TYPE MC                                |
|        | EXTRA CATCHMENT AREA                           |

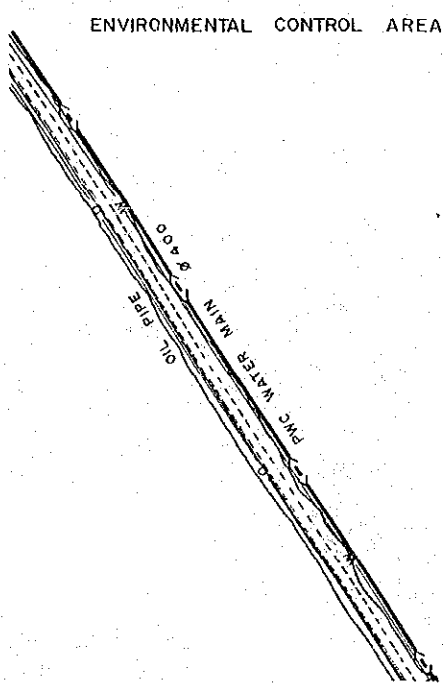
K-4

|  |           |            |
|--|-----------|------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA       |
|  | JAN. 1990 |            |
| PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (4/10)                    | SCALE     | DRAWING NO |
|  | 1 : 2,500 | 29         |



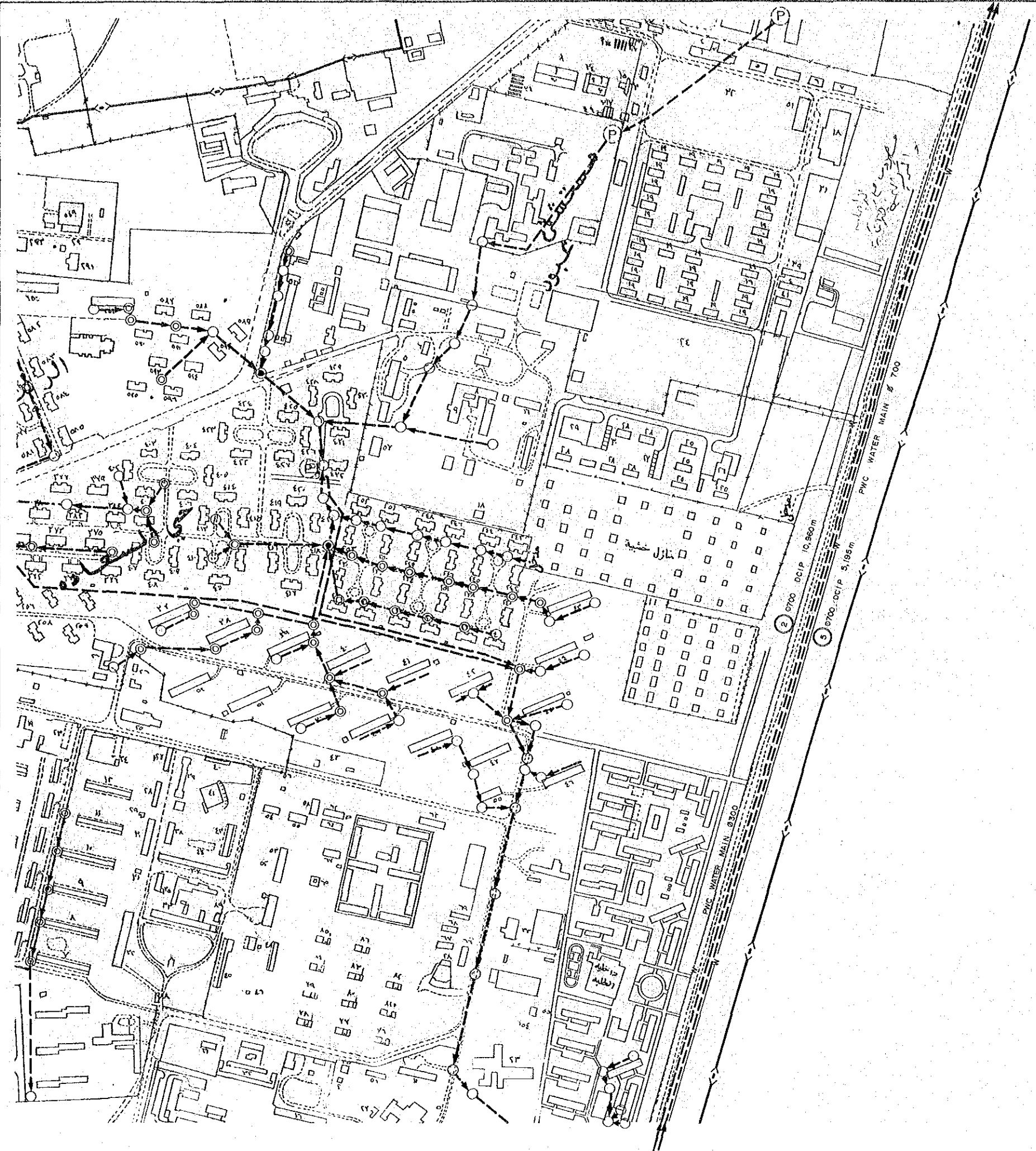
**LEGEND**

-  BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
-  EXISTING TRUNK SEWER
-  PROPOSED TRUNK SEWER
-  PROPOSED FORCE MAIN
-  EXISTING PUMPING STATION
-  PROPOSED PUMPING STATION
-  AREA FOR FIRST PHASE UP TO 1995
-  SEWAGE TREATMENT PLANT
-  MANHOLE TYPE MA
-  MANHOLE TYPE MB
-  MANHOLE TYPE MC
-  EXTRA CATCHMENT AREA



K-5.

|  |           |             |
|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MAALLA AND TAWAHI SEWERAGE SYSTEM<br>PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (5/10) | DATE      | JICA        |
|  | JAN. 1990 | DRAWING NO. |
|  | SCALE     | 30          |
|  | 1 : 2,500 |             |

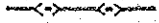













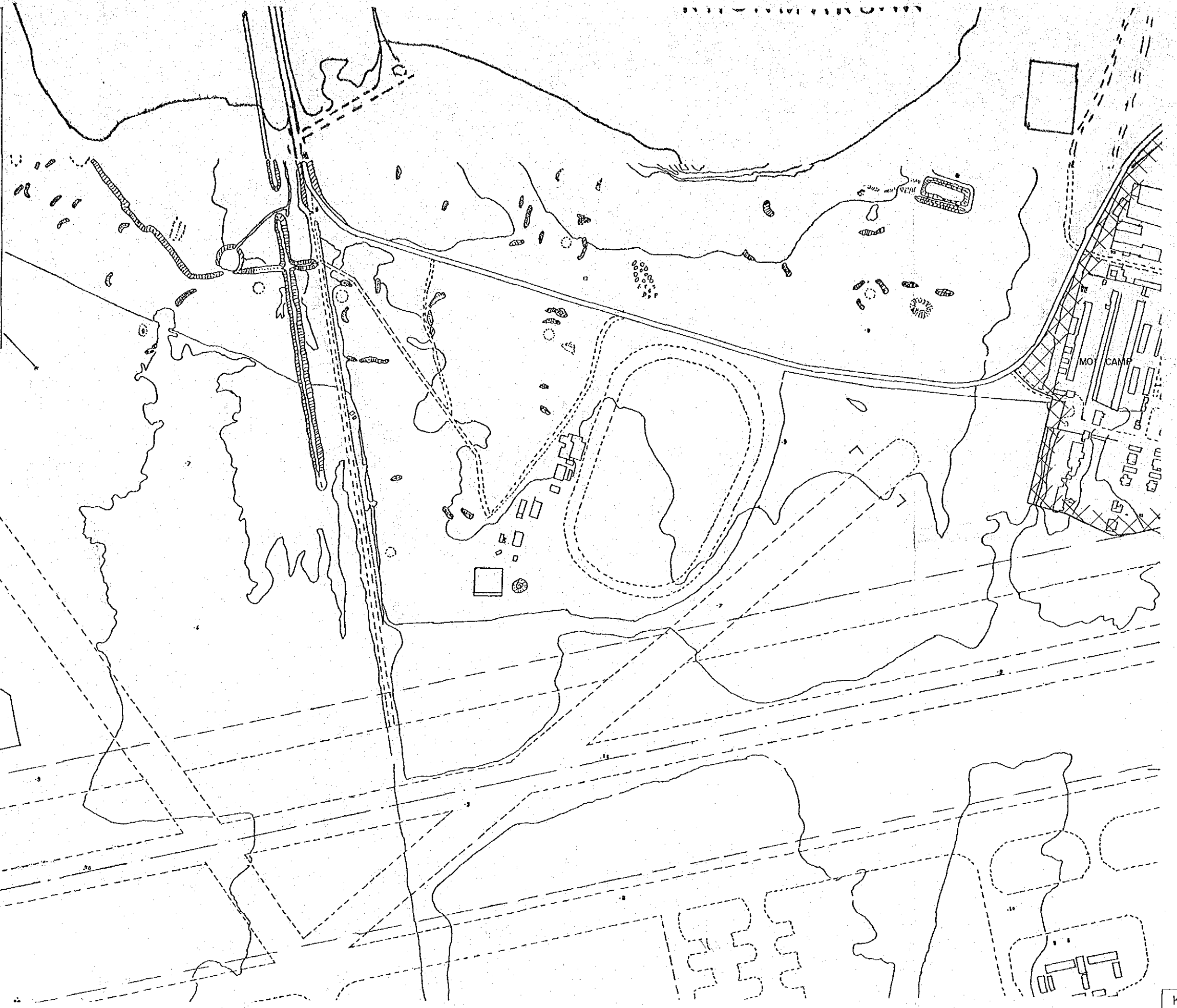
| LEGEND |  |
|--------|--|
|        | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|        | EXISTING TRUNK SEWER                           |
|        | PROPOSED TRUNK SEWER                           |
|        | PROPOSED FORCE MAIN                            |
|        | EXISTING PUMPING STATION                       |
|        | PROPOSED PUMPING STATION                       |
|        | AREA FOR FIRST PHASE UP TO 1995                |
|        | SEWAGE TREATMENT PLANT                         |
|        | MANHOLE TYPE MA                                |
|        | MANHOLE TYPE MB                                |
|        | MANHOLE TYPE MC                                |
|        | EXTRA CATCHMENT AREA                           |

K-6

|  |           |            |
|--|-----------|------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA       |
|  | JAN. 1990 | DRAWING NO |
| PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (6/10)                    | SCALE     | 31         |
|  | 1:2,500   |            |

**LEGEND**

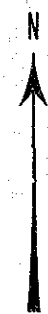
-  BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
-  EXISTING TRUNK SEWER
-  PROPOSED TRUNK SEWER
-  PROPOSED FORCE MAIN
-  EXISTING PUMPING STATION
-  PROPOSED PUMPING STATION
-  AREA FOR FIRST PHASE UP TO 1995
-  SEWAGE TREATMENT PLANT
-  MANHOLE TYPE MA
-  MANHOLE TYPE MB
-  MANHOLE TYPE MC
-  EXTRA CATCHMENT AREA



K-7

|   |           |             |
|---|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM<br>PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (7/10) | DATE      | JICA        |
|   | JAN. 1990 |             |
|   | SCALE     | DRAWING NO. |
| 1:2,500   | 32        |             |

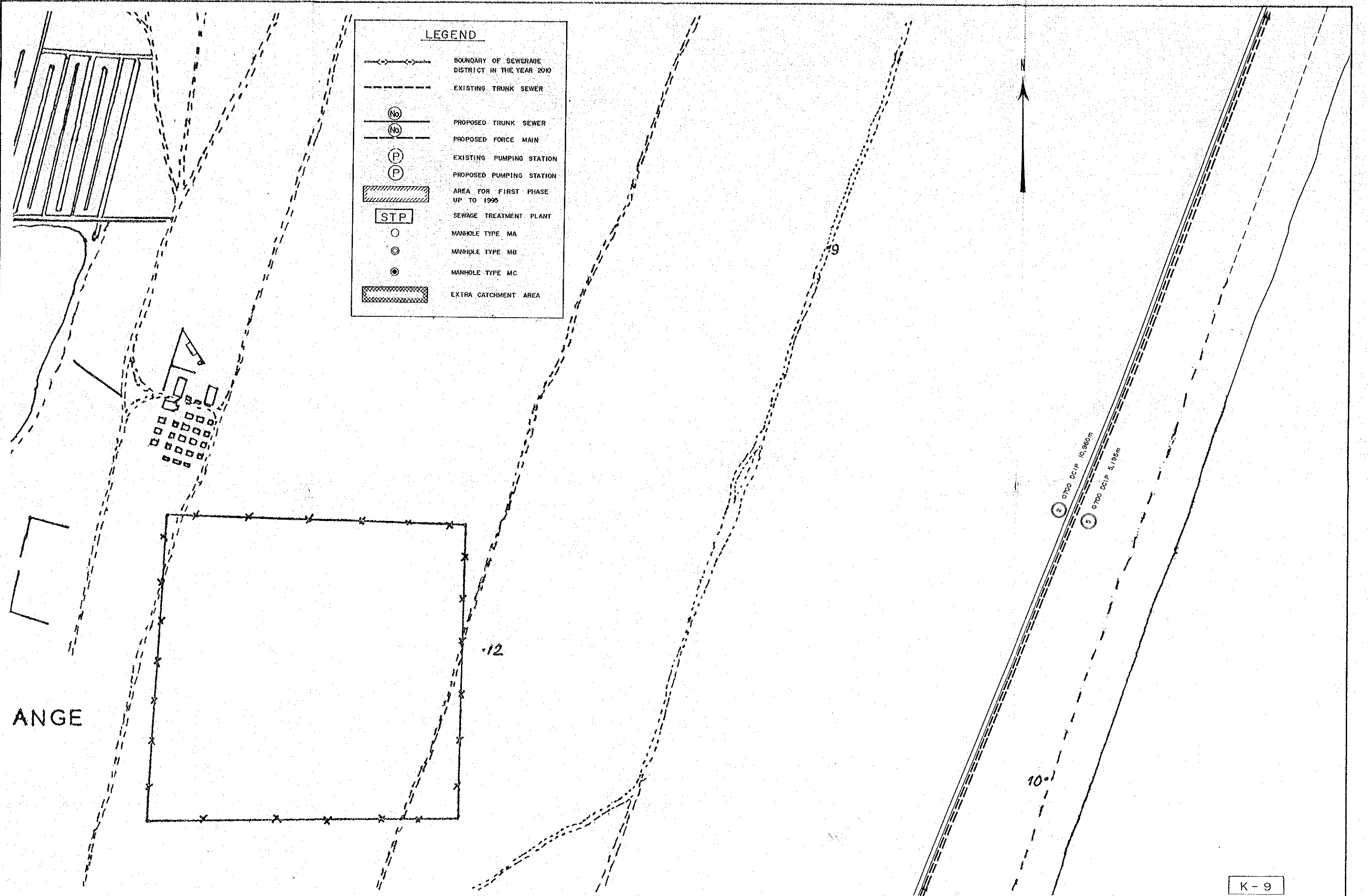




| LEGEND |  |
|--------|--|
|        | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|        | EXISTING TRUNK SEWER                           |
|        | PROPOSED TRUNK SEWER                           |
|        | PROPOSED FORCE MAIN                            |
|        | EXISTING PUMPING STATION                       |
|        | PROPOSED PUMPING STATION                       |
|        | AREA FOR FIRST PHASE UP TO 1995                |
|        | SEWERAGE TREATMENT PLANT                       |
|        | MANHOLE TYPE MA                                |
|        | MANHOLE TYPE MB                                |
|        | MANHOLE TYPE MC                                |
|        | EXTRA CATCHMENT AREA                           |

K - 8

|  |           |             |
|--|-----------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE      | JICA        |
|  | JAN. 1990 |             |
| PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (8 / 10)                  | SCALE     | DRAWING NO. |
|  | 1 : 2,500 | 33          |



**LEGEND**

|  |  |
|--|--|
|  | BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010 |
|  | EXISTING TRUNK SEWER                           |
|  | PROPOSED TRUNK SEWER                           |
|  | PROPOSED FORCE MAIN                            |
|  | EXISTING PUMPING STATION                       |
|  | PROPOSED PUMPING STATION                       |
|  | AREA FOR FIRST PHASE UP TO 1995                |
|  | SEWAGE TREATMENT PLANT                         |
|  | MANHOLE TYPE MA                                |
|  | MANHOLE TYPE MB                                |
|  | MANHOLE TYPE MC                                |
|  | EXTRA CATCHMENT AREA                           |

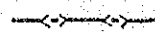
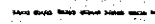




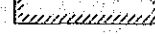




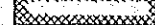
K - 9

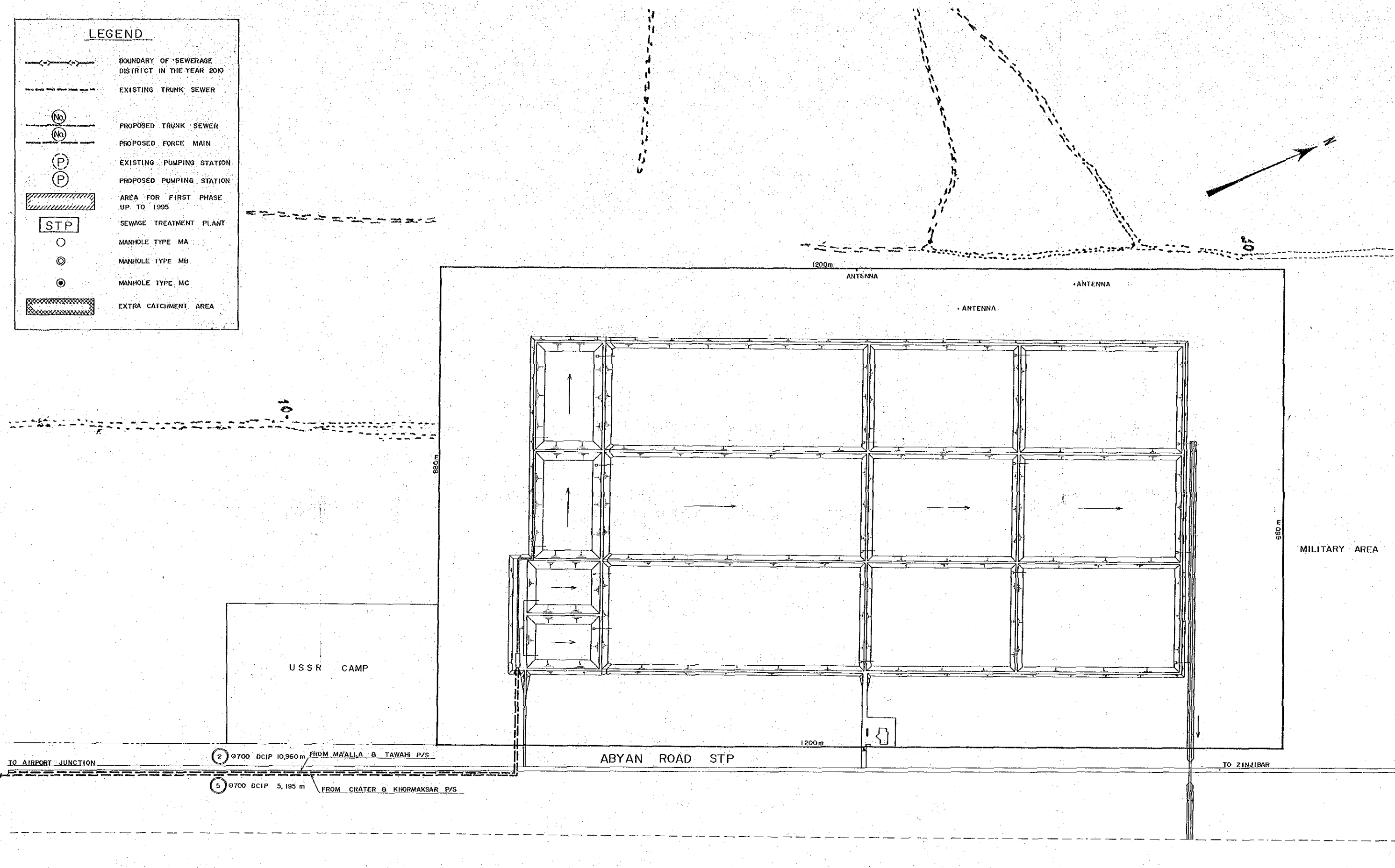
FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM

PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (9/10)

|           |             |
|-----------|-------------|
| DATE      | JICA        |
| JAN. 1990 | DRAWING NO. |
| SCALE     | 34          |
| 1 : 2,500 |             |

**LEGEND**

-  BOUNDARY OF SEWERAGE DISTRICT IN THE YEAR 2010
-  EXISTING TRUNK SEWER
-  PROPOSED TRUNK SEWER
-  PROPOSED FORCE MAIN
-  EXISTING PUMPING STATION
-  PROPOSED PUMPING STATION
-  AREA FOR FIRST PHASE UP TO 1995
-  SEWAGE TREATMENT PLANT
-  MANHOLE TYPE MA
-  MANHOLE TYPE MB
-  MANHOLE TYPE MC
-  EXTRA CATCHMENT AREA



USSR CAMP

ABYAN ROAD STP

MILITARY AREA

G U L F O F A D E N

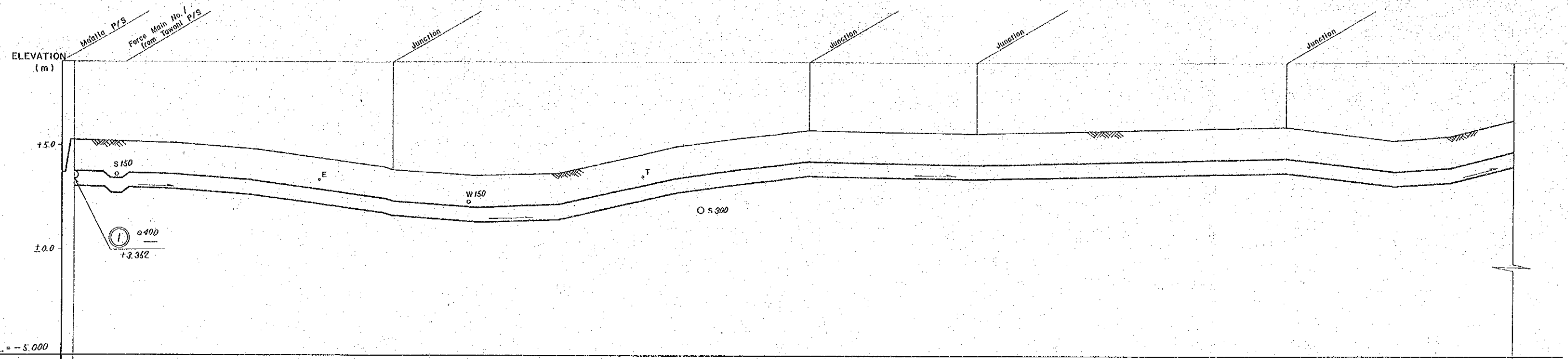
K-10

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM  
 PROPOSED SEWERAGE SYSTEM FOR KHORMAKSAR DISTRICT (10/10)

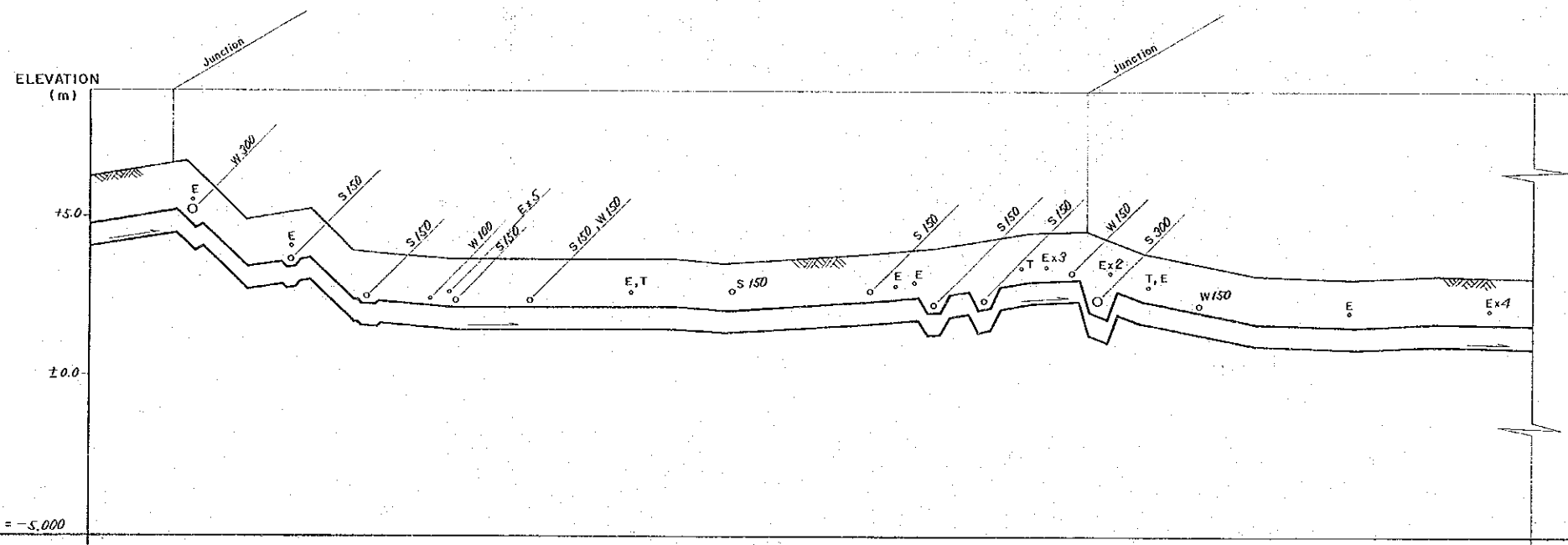
|           |            |
|-----------|------------|
| DATE      | JICA       |
| JAN. 1990 | DRAWING NO |
| SCALE     | 1:2,500    |
|           | <b>35</b>  |







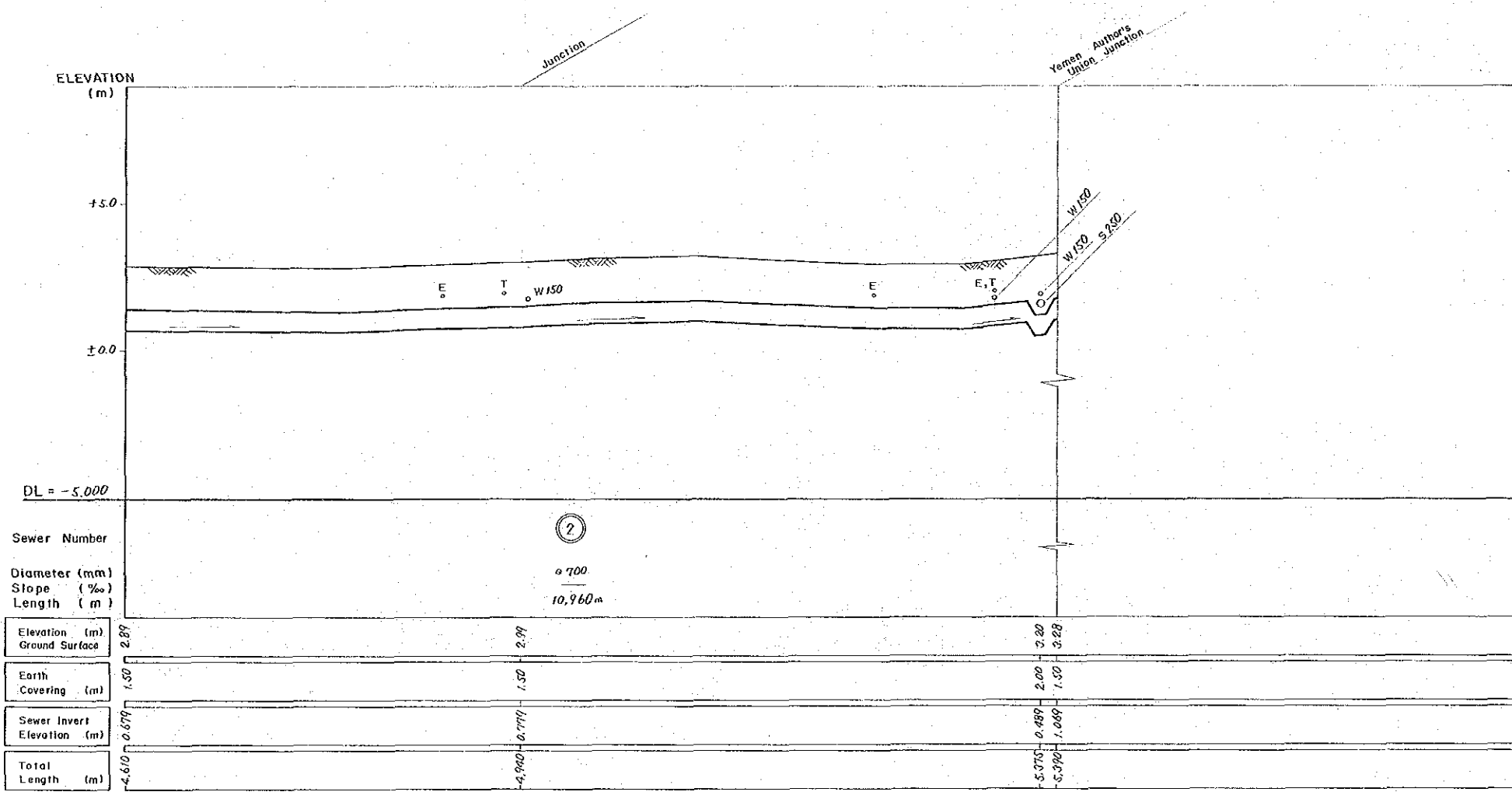
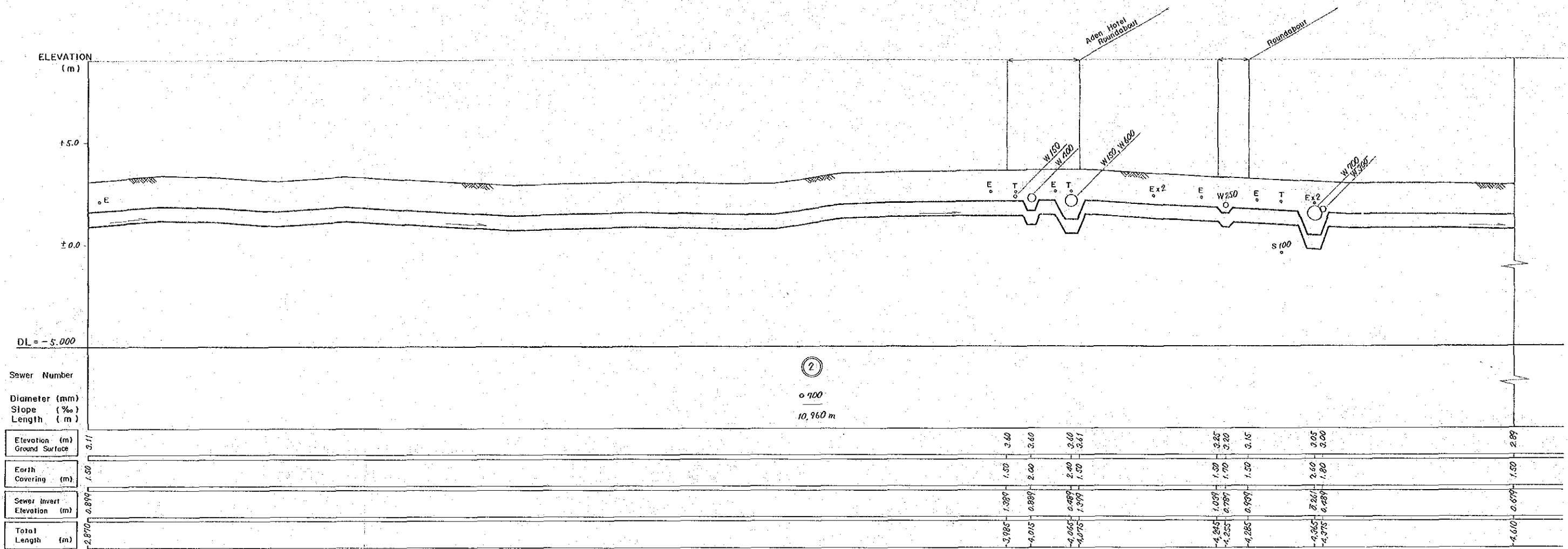
| Sewer Number                 |       | Diameter (mm) |       | Slope (%) |       | Length (m) |       |
|------------------------------|-------|---------------|-------|-----------|-------|------------|-------|
|                              |       | Ø 700         |       |           |       | 10,960 m   |       |
| Elevation (m) Ground Surface | 3.70  | 5.20          | 2.82  | 5.76      | 5.56  | 5.93       | 6.24  |
| Earth Covering (m)           | 1.50  | 1.80          | 1.50  | 1.50      | 1.50  | 1.50       | 1.50  |
| Sewer Invert Elevation (m)   | 3.019 | 2.689         | 1.609 | 3.549     | 3.349 | 3.719      | 4.029 |
| Total Length (m)             | 0     | 50            | 385   | 285       | 1,085 | 1,455      | 1,765 |



| Sewer Number                 |       | Diameter (mm) |       | Slope (%) |       | Length (m) |       |       |       |       |
|------------------------------|-------|---------------|-------|-----------|-------|------------|-------|-------|-------|-------|
|                              |       | Ø 100         |       |           |       | 10,960 m   |       |       |       |       |
| Elevation (m) Ground Surface | 6.24  | 6.70          | 6.55  | 5.15      | 3.70  | 4.00       | 4.55  | 4.57  | 4.45  | 3.11  |
| Earth Covering (m)           | 1.50  | 1.50          | 1.80  | 1.70      | 1.60  | 2.00       | 2.10  | 1.50  | 2.50  | 1.50  |
| Sewer Invert Elevation (m)   | 4.009 | 4.489         | 4.009 | 2.739     | 1.539 | 1.289      | 1.209 | 2.079 | 1.239 | 0.819 |
| Total Length (m)             | 1,765 | 1,790         | 1,865 | 1,885     | 1,995 | 2,395      | 2,435 | 2,515 | 2,525 | 2,870 |

| LEGEND |                      |
|--------|----------------------|
| *E     | PECP CABLE           |
| *W     | PVC WATER PIPE       |
| *T     | MOTC TELEPHONE CABLE |
| OS     | EXISTING SEWER PIPE  |

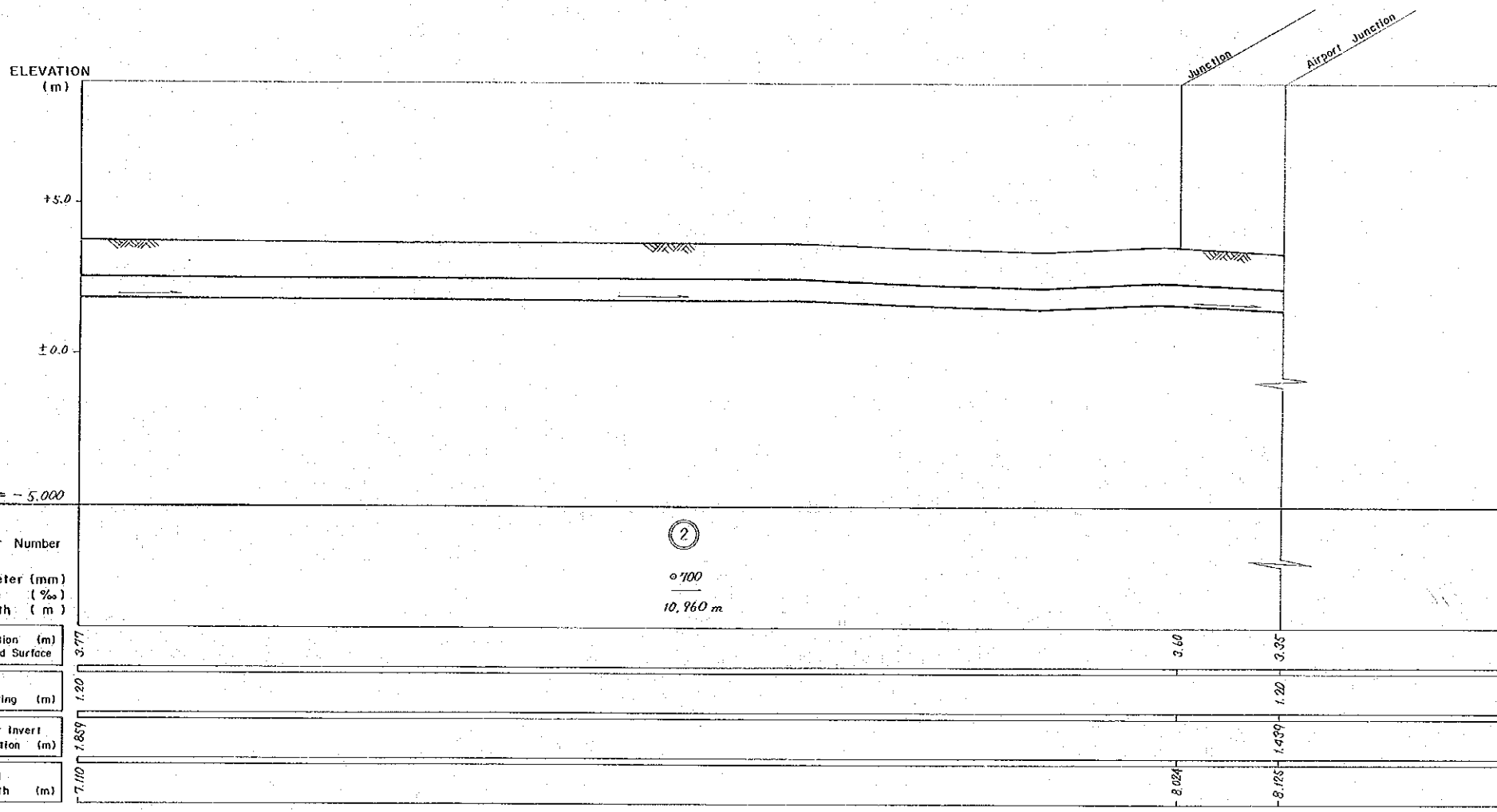
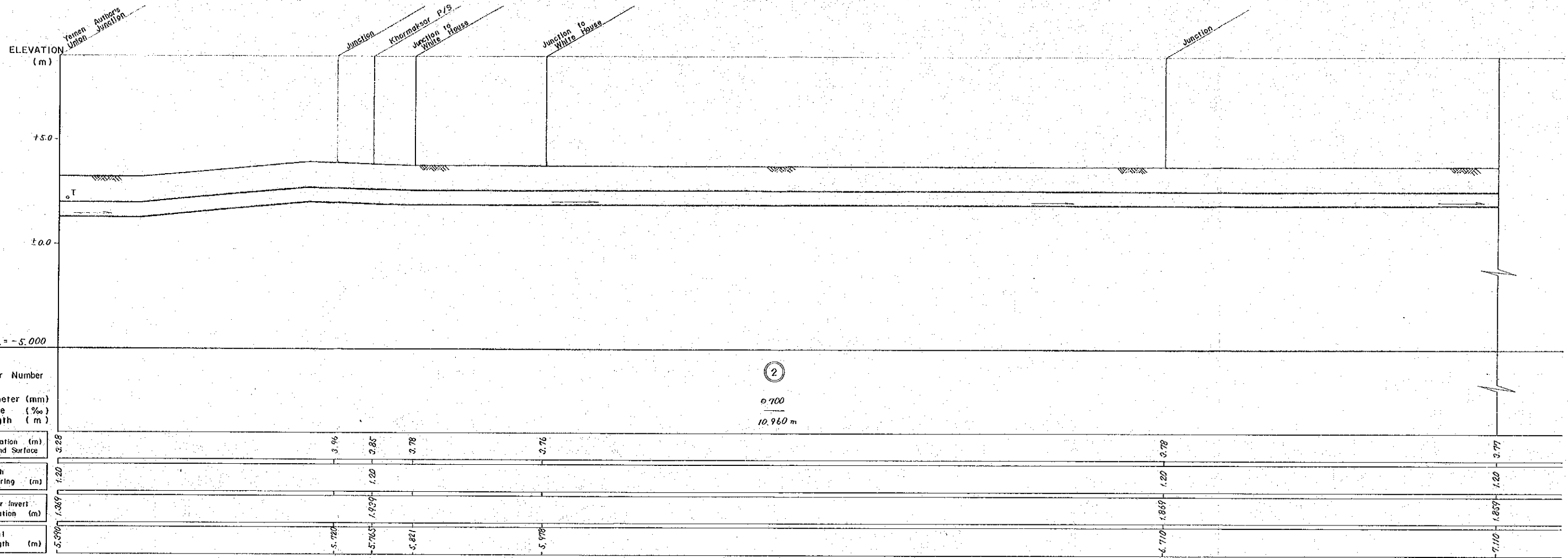
|  |                          |                        |             |
|--|--------------------------|------------------------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MALLA AND TAWAHI SEWERAGE SYSTEM | DATE                     | JAN. 1990              | JICA        |
|  | SCALE                    | SV   100<br>SH   2,500 | DRAWING NO. |
|  | FORCE MAIN PROFILE (2/9) |                        | 37          |



**LEGEND**

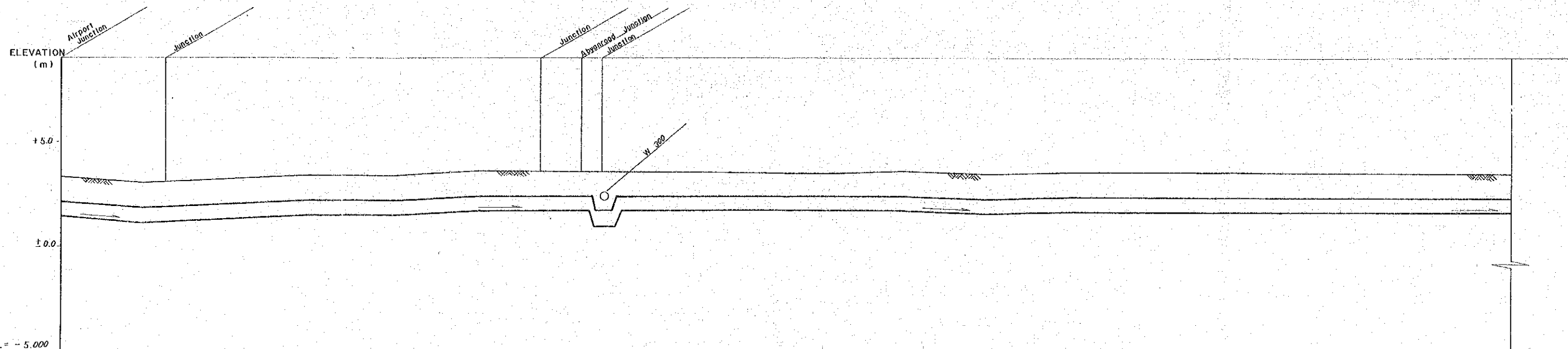
- °E PECP CABLE
- °W PHC WATER PIPE
- °T MOTC TELEPHONE CABLE
- OS EXISTING SEWER PIPE

|  |                        |             |
|--|------------------------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM | DATE                   | JICA        |
|  | JAN. 1990              |             |
| FORCE MAIN PROFILE (3/9)   | SCALE                  | DRAWING NO. |
|  | SV 1:100<br>SH 1:2,500 | 38          |

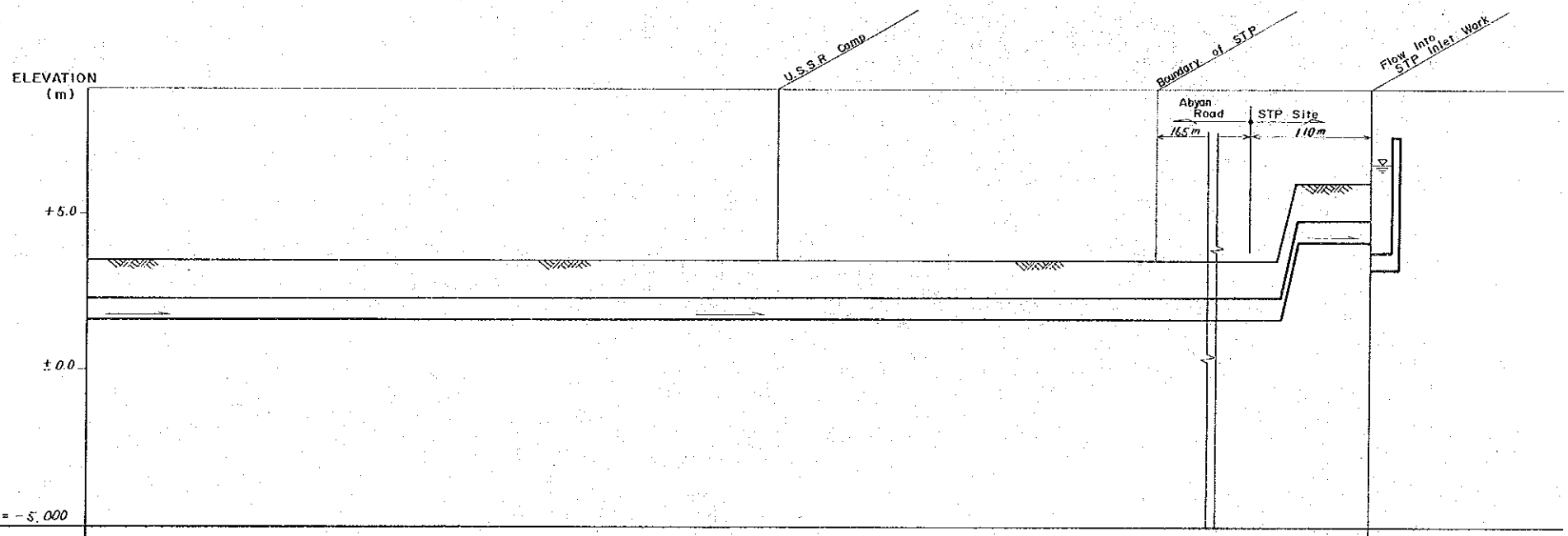


| LEGEND |                      |
|--------|----------------------|
| *E     | PECP CABLE           |
| *W     | PHC WATER PIPE       |
| *T     | MOTC TELEPHONE CABLE |
| OS     | EXISTING SEWER PIPE  |

|   |                        |             |
|---|------------------------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MAALLA AND TAWAHI SEWERAGE SYSTEM | DATE                   | JICA        |
|   | JAN. 1990              |             |
|   | SCALE                  | DRAWING NO. |
| FORCE MAIN PROFILE (4/9)  | SV 1:100<br>SH 1:2,500 | 39          |



|                              |          |       |       |       |
|------------------------------|----------|-------|-------|-------|
| Sewer Number                 | ②        |       |       |       |
| Diameter (mm)                | ø 700    |       |       |       |
| Slope (‰)                    | 10.960   |       |       |       |
| Length (m)                   | 10,960 m |       |       |       |
| Elevation (m) Ground Surface | 3.35     | 3.21  | 3.40  | 3.51  |
| Earth Covering (m)           | 1.20     | 1.20  | 1.20  | 1.20  |
| Sewer Invert Elevation (m)   | 1.459    | 1.689 | 1.689 | 1.559 |
| Total Length (m)             | 8,125    | 8,285 | 8,697 | 8,749 |



|                              |          |        |        |        |
|------------------------------|----------|--------|--------|--------|
| Sewer Number                 | ②        |        |        |        |
| Diameter (mm)                | ø 700    |        |        |        |
| Slope (‰)                    | 10.960   |        |        |        |
| Length (m)                   | 10,960 m |        |        |        |
| Elevation (m) Ground Surface | 3.48     | 3.51   | 3.50   | 3.50   |
| Earth Covering (m)           | 1.20     | 1.20   | 1.20   | 1.20   |
| Sewer Invert Elevation (m)   | 1.559    | 1.559  | 1.559  | 1.559  |
| Total Length (m)             | 9,830    | 10,960 | 10,685 | 10,140 |

| LEGEND |                      |
|--------|----------------------|
| *E     | PECP CABLE           |
| *W     | PRC WATER PIPE       |
| *T     | NOTC TELEPHONE CABLE |
| O R    | EXISTING SEWER PIPE  |

|  |  |                            |             |
|--|--|----------------------------|-------------|
| FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM |  | DATE                       | JICA        |
|  |  | JAN. 1990                  |             |
| FORCE MAIN PROFILE (5/9)   |  | SCALE                      | DRAWING NO. |
|  |  | SV 1 : 100<br>SH 1 : 2,500 | 40          |