

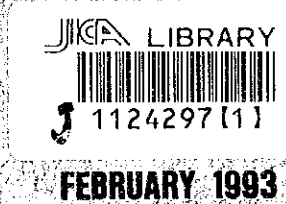
**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**ROYAL IRRIGATION DEPARTMENT  
MINISTRY OF AGRICULTURE AND COOPERATIVES  
KINGDOM OF THAILAND**

**THE DETAILED DESIGN STUDY  
ON  
THE BANG PAKONG DIVERSION DAM PROJECT**

**BASIC DESIGN REPORT**

**DRAWINGS**



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**FEBRUARY 1993**

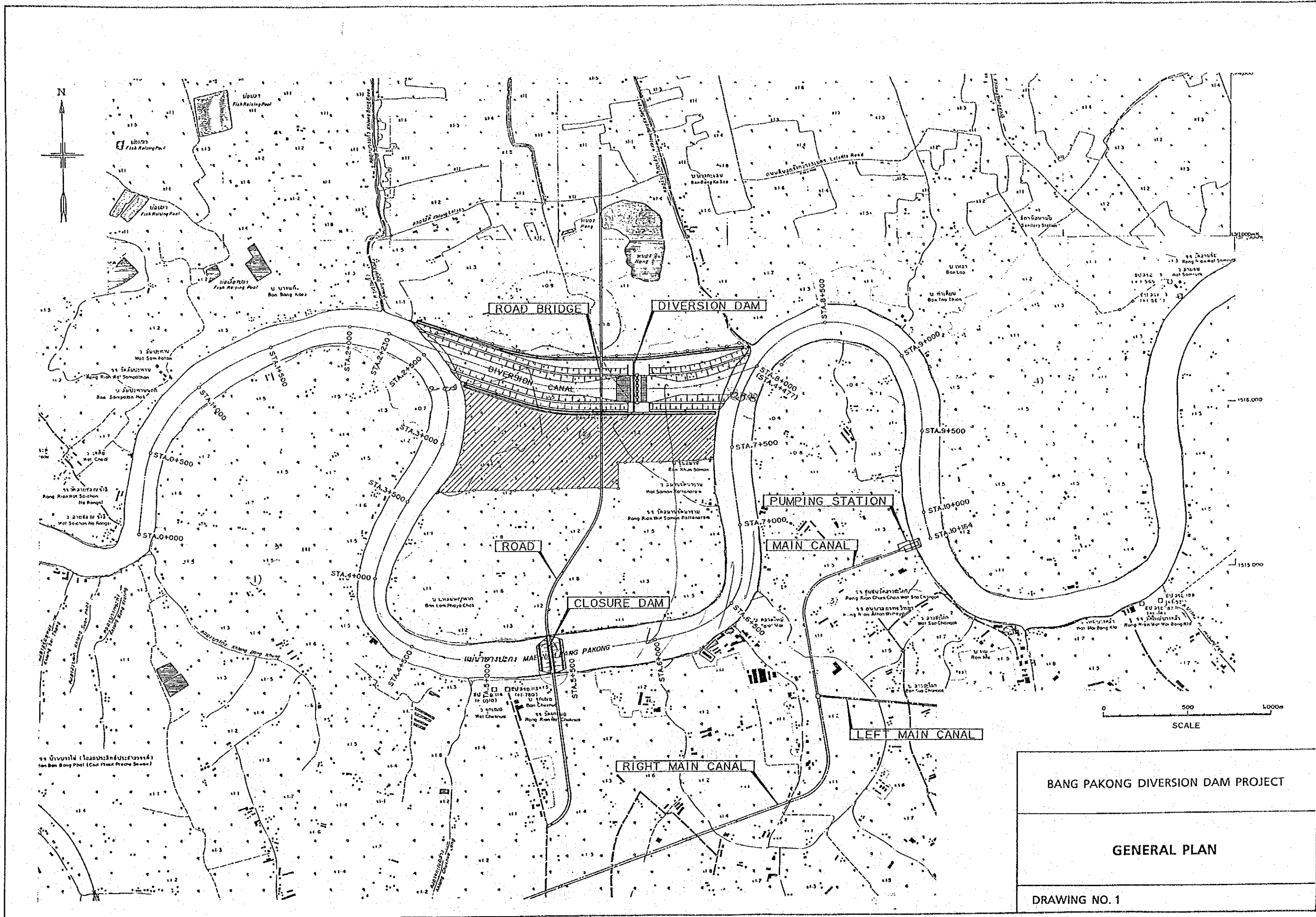
**SANYU CONSULTANTS INC.**



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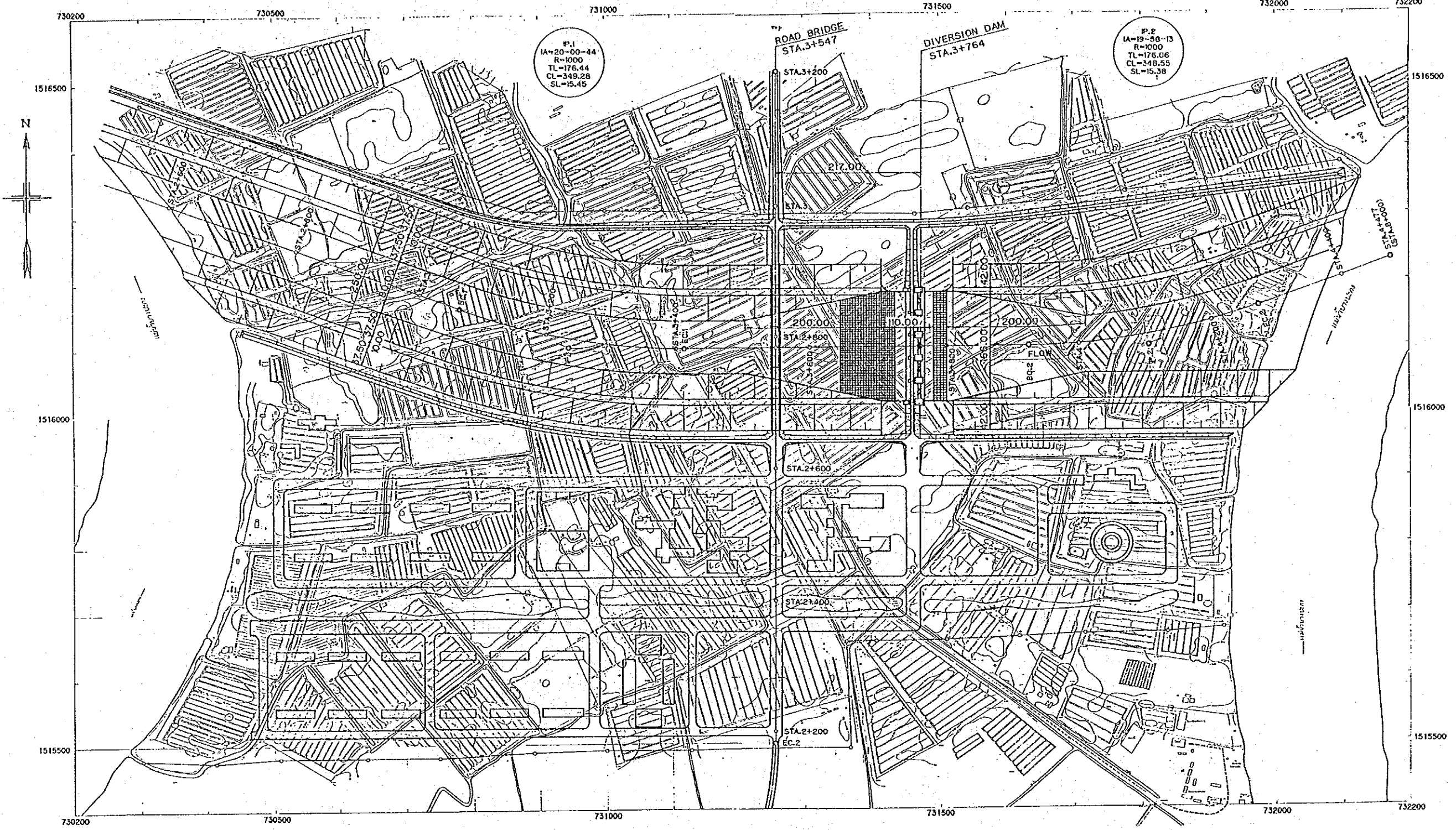
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| 25.         | PUMPING STATION, PLAN   |
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|                                   |
|-----------------------------------|
| BANG PAKONG DIVERSION DAM PROJECT |
| GENERAL PLAN                      |
| DRAWING NO. 1                     |



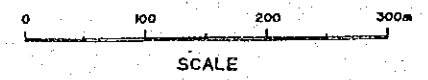


BANG PAKONG DIVERSION DAM PROJECT

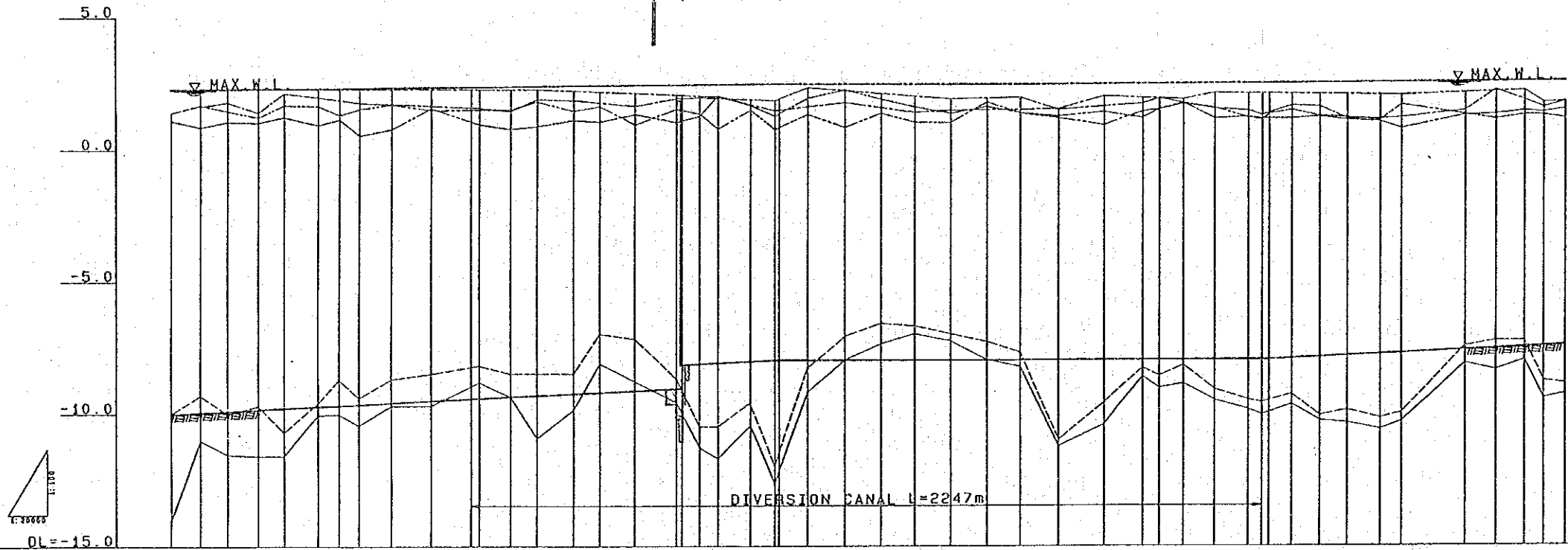
DIVERSION CANAL

PLAN

DRAWING NO. 2



ROAD BRIDGE  
STA. 3+547  
DIVERSION DAM  
STA. 3+764  
EQUATION(-) 3.523M  
STA. 4+477



| STATION | DISTANCE |         | ACCUM. DISTANCE | RIVERBED ELEVATION | CREST OF DIKE |       | GROUND ELEVATION |       | CANAL BOTTOM ELEVATION | WATER LEVEL | SLOPE OF CANAL BOTTOM | GRADIENT OF WATER SURFACE | DISCHARGE    |
|---------|----------|---------|-----------------|--------------------|---------------|-------|------------------|-------|------------------------|-------------|-----------------------|---------------------------|--------------|
|         | LEFT     | RIGHT   |                 |                    | LEFT          | RIGHT | LEFT             | RIGHT |                        |             |                       |                           |              |
| 0+000   | 0.0      | 0.0     | 0.0             | -14.04             |               |       | 1.40             | 1.11  | -10.00                 | 2.20        | 1:10.00               | 2.28                      | Q=1.600 m³/s |
| 218.0   | 218.0    | 218.0   | 218.0           | -11.00             | 1.64          | 2.31  | 1.60             | 0.86  | -9.93                  | 2.20        |                       |                           |              |
| 423.0   | 205.0    | 423.0   | 423.0           | -11.52             | 1.75          |       | 1.46             | 1.06  | -8.89                  | 2.20        |                       |                           |              |
| 626.0   | 233.0    | 659.0   | 659.0           | -11.30             | 1.40          |       | 1.22             | 1.02  | -9.84                  | 2.30        |                       |                           |              |
| 823.0   | 197.0    | 856.0   | 856.0           | -11.50             | 2.13          |       | 1.67             | 1.23  | -9.79                  | 2.31        |                       |                           |              |
| 1023.0  | 250.0    | 1103.0  | 1103.0          | -10.05             | 1.98          |       | 1.65             | 0.93  | -9.72                  | 2.31        |                       |                           |              |
| 1225.0  | 132.0    | 1235.0  | 1235.0          | -10.02             | 1.31          |       | 1.14             | 0.69  | -9.69                  | 2.32        |                       |                           |              |
| 1420.0  | 147.0    | 1402.0  | 1402.0          | -10.44             | 1.76          |       | 1.53             | 0.53  | -9.65                  | 2.32        |                       |                           |              |
| 1624.0  | 242.0    | 1544.0  | 1544.0          | -8.71              | 1.69          |       | 1.69             | 0.78  | -9.59                  | 2.33        |                       |                           |              |
| 1828.0  | 254.0    | 1838.0  | 1838.0          | -8.71              | 1.47          |       | 1.54             | 0.52  | -9.52                  | 2.37        |                       |                           |              |
| 2023.0  | 282.0    | 2120.0  | 2120.0          | -8.92              | 1.60          |       | 1.46             | 1.00  | -9.44                  | 2.33        |                       |                           |              |
| 2221.0  | 81.0     | 2201.0  | 2201.0          | -8.82              | 1.53          |       | 1.46             | 0.93  | -9.44                  | 2.33        |                       |                           |              |
| 2427.0  | 236.0    | 2527.0  | 2527.0          | -8.37              | 1.42          |       | 1.48             | 0.75  | -9.37                  | 2.36        |                       |                           |              |
| 2621.0  | 194.0    | 2721.0  | 2721.0          | -10.94             | 1.67          | 2.24  | 1.78             | 0.05  | -9.32                  | 2.37        |                       |                           |              |
| 2821.0  | 260.0    | 2981.0  | 2981.0          | -8.87              | 1.82          |       | 1.42             | 1.07  | -9.26                  | 2.37        |                       |                           |              |
| 3018.0  | 184.0    | 3165.0  | 3165.0          | -8.13              | 1.59          |       | 1.59             | 1.01  | -9.21                  | 2.38        |                       |                           |              |
| 3212.0  | 247.0    | 3412.0  | 3412.0          | -8.79              | 1.60          |       | 0.90             | 1.29  | -9.19                  | 2.39        |                       |                           |              |
| 3422.0  | 310.0    | 3722.0  | 3722.0          | -8.59              | 1.88          |       | 1.48             | 0.99  | -9.07                  | 2.40        |                       |                           |              |
| 3627.0  | 133.0    | 3897.0  | 3897.0          | -11.20             | 1.91          |       | 1.33             | 1.21  | -8.15                  | 2.40        |                       |                           |              |
| 4024.0  | 137.0    | 4034.0  | 4034.0          | -11.69             | 1.93          |       | 0.74             | 1.09  | -8.11                  | 2.43        |                       |                           |              |
| 4228.0  | 235.0    | 4269.0  | 4269.0          | -10.47             | 1.44          |       | 1.44             | 1.61  | -8.05                  | 2.41        |                       |                           |              |
| 4427.0  | 230.0    | 4499.0  | 4499.0          | -12.65             | 1.42          |       | 1.80             | 0.71  | -8.01                  | 2.42        |                       |                           |              |
| 4625.0  | 198.0    | 4697.0  | 4697.0          | -8.18              | 2.28          |       | 1.28             | 1.88  | -8.00                  | 2.42        |                       |                           |              |
| 4825.0  | 260.0    | 4957.0  | 4957.0          | -7.99              | 1.73          |       | 0.79             | 2.21  | -8.00                  | 2.42        |                       |                           |              |
| 5019.0  | 264.0    | 5191.0  | 5191.0          | -7.38              | 1.38          |       | 1.33             | 1.88  | -8.00                  | 2.42        |                       |                           |              |
| 5218.0  | 250.0    | 5449.0  | 5449.0          | -7.00              | 1.38          |       | 0.99             | 1.57  | -8.00                  | 2.42        |                       |                           |              |
| 5414.0  | 285.0    | 5714.0  | 5714.0          | -7.27              | 1.44          |       | 0.98             | 1.32  | -8.00                  | 2.42        |                       |                           |              |
| 5621.0  | 257.0    | 5971.0  | 5971.0          | -7.99              | 1.75          |       | 1.98             | 1.98  | -8.00                  | 2.42        |                       |                           |              |
| 5821.0  | 238.0    | 6219.0  | 6219.0          | -8.24              | 1.93          |       | 1.34             | 1.34  | -8.00                  | 2.42        |                       |                           |              |
| 6023.0  | 273.0    | 6492.0  | 6492.0          | -11.24             | 1.46          |       | 1.14             | 1.21  | -8.00                  | 2.42        |                       |                           |              |
| 6211.0  | 328.0    | 6820.0  | 6820.0          | -10.23             | 1.96          |       | 0.87             | 1.38  | -8.00                  | 2.42        |                       |                           |              |
| 7020.0  | 275.0    | 7095.0  | 7095.0          | -8.42              | 1.87          |       | 1.37             | 1.13  | -8.00                  | 2.42        |                       |                           |              |
| 7203.0  | 149.0    | 7209.0  | 7209.0          | -8.05              | 1.86          |       | 1.45             | 1.45  | -8.00                  | 2.42        |                       |                           |              |
| 7389.0  | 171.0    | 7389.0  | 7389.0          | -8.93              | 1.83          |       | 1.65             | 1.89  | -8.00                  | 2.42        |                       |                           |              |
| 7603.0  | 223.0    | 7603.0  | 7603.0          | -8.51              | 1.47          |       | 1.50             | 1.99  | -8.00                  | 2.42        |                       |                           |              |
| 7849.0  | 248.0    | 7849.0  | 7849.0          | -8.36              | 1.39          |       | 1.12             | 1.15  | -8.00                  | 2.42        |                       |                           |              |
| 8000.0  | 100.0    | 8000.0  | 8000.0          | -10.07             | 1.21          |       | 1.04             | 1.08  | -8.00                  | 2.42        |                       |                           |              |
| 8164.0  | 184.0    | 8164.0  | 8164.0          | -9.68              | 1.87          |       | 1.40             | 1.08  | -7.86                  | 2.43        |                       |                           |              |
| 8367.0  | 203.0    | 8367.0  | 8367.0          | -10.20             | 1.53          |       | 1.17             | 1.13  | -7.91                  | 2.43        |                       |                           |              |
| 8587.0  | 200.0    | 8567.0  | 8567.0          | -10.30             | 1.67          |       | 1.13             | 1.02  | -7.96                  | 2.44        |                       |                           |              |
| 8804.0  | 237.0    | 8804.0  | 8804.0          | -10.42             | 1.67          |       | 1.02             | 0.97  | -7.90                  | 2.45        |                       |                           |              |
| 9059.0  | 195.0    | 9059.0  | 9059.0          | -10.33             | 1.12          |       | 1.80             | 0.71  | -7.78                  | 2.45        |                       |                           |              |
| 9423.0  | 470.0    | 9423.0  | 9423.0          | -8.15              | 1.38          |       | 1.23             | 1.20  | -7.64                  | 2.47        |                       |                           |              |
| 9655.0  | 226.0    | 9655.0  | 9655.0          | -8.40              | 2.16          |       | 1.05             | 1.24  | -7.95                  | 2.47        |                       |                           |              |
| 9862.0  | 207.0    | 9862.0  | 9862.0          | -8.03              | 1.21          |       | 1.21             | 1.35  | -7.94                  | 2.48        |                       |                           |              |
| 10004.0 | 142.0    | 10004.0 | 10004.0         | -8.46              | 1.49          |       | 1.20             | 1.31  | -7.95                  | 2.48        |                       |                           |              |
| 10164.0 | 180.0    | 10164.0 | 10164.0         | -9.28              | 1.70          |       | 1.08             | 1.42  | -7.46                  | 2.49        |                       |                           |              |

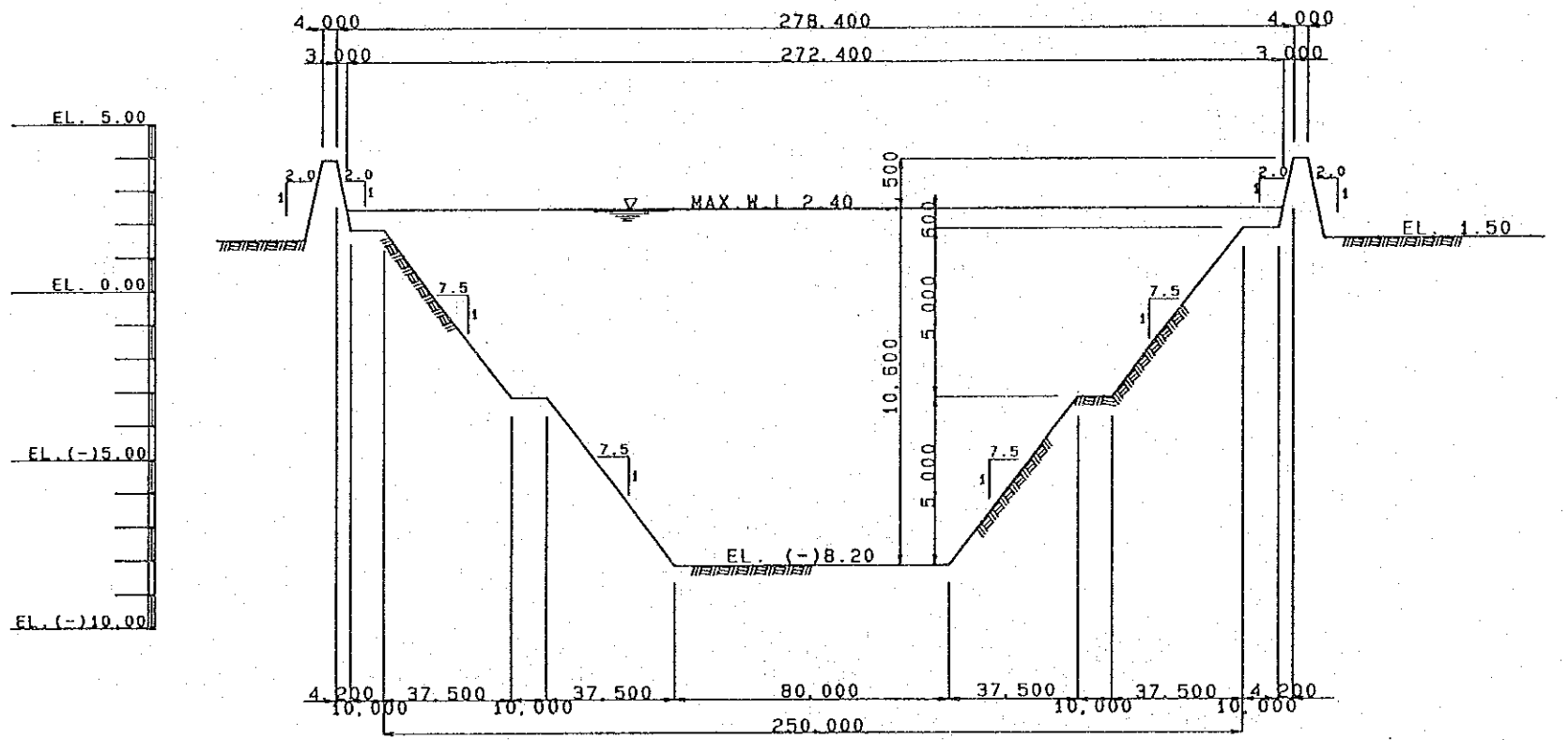
BANG PAKONG DIVERSION DAM PROJECT

DIVERSION CANAL

PROFILE

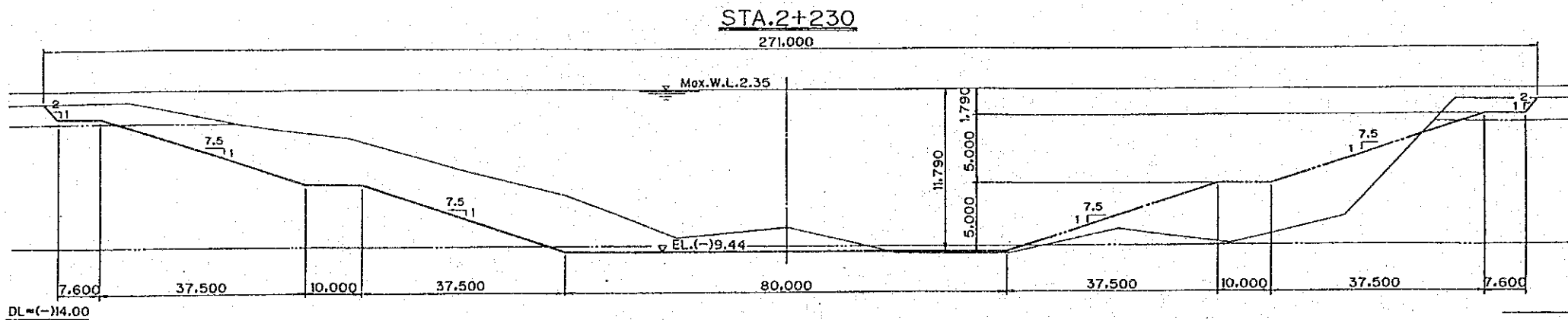
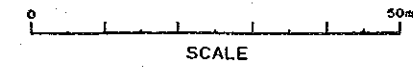
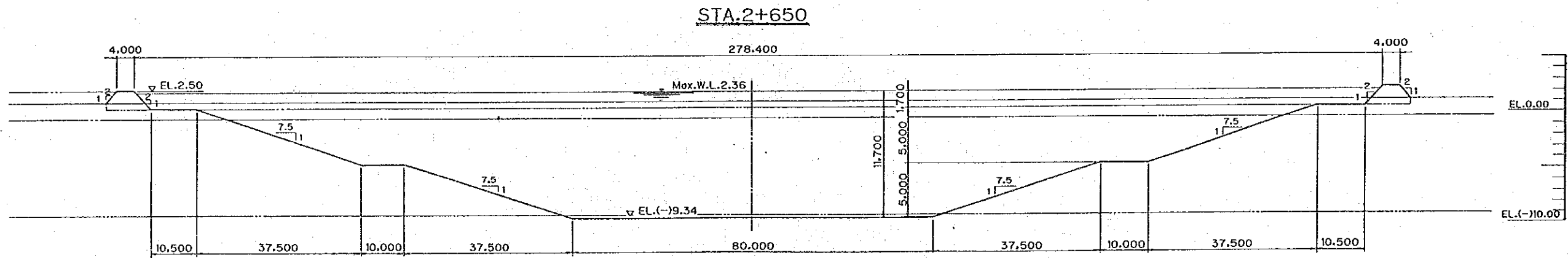
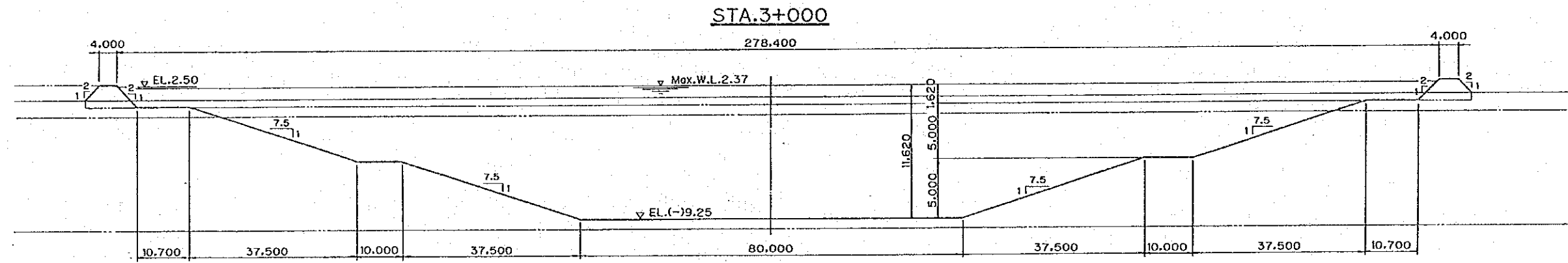
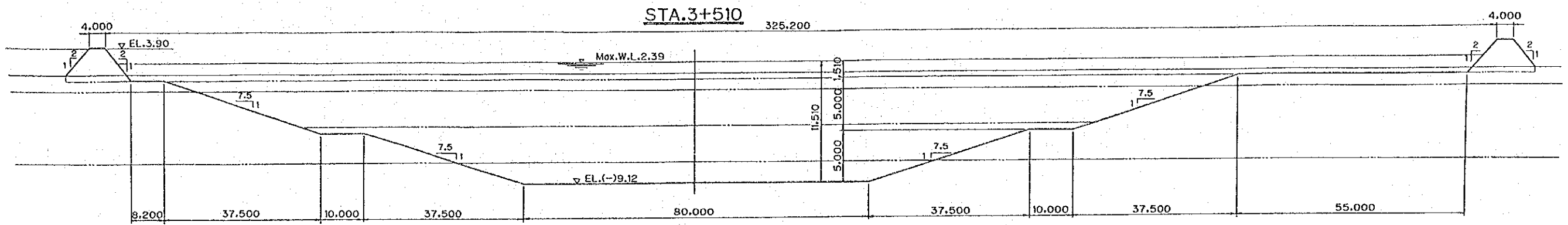
DRAWING NO. 3





TYPICAL SECTION OF DIVERSION CANAL  
(AT THE DIVERSION DAMSITE)

|                                   |
|-----------------------------------|
| BANG PAKONG DIVERSION DAM PROJECT |
| DIVERSION CANAL                   |
| TYPICAL SECTION                   |
| DRAWING NO. 4                     |



DL=(-)14.00

BANG PAKONG DIVERSION DAM PROJECT

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DIVERSION CANAL

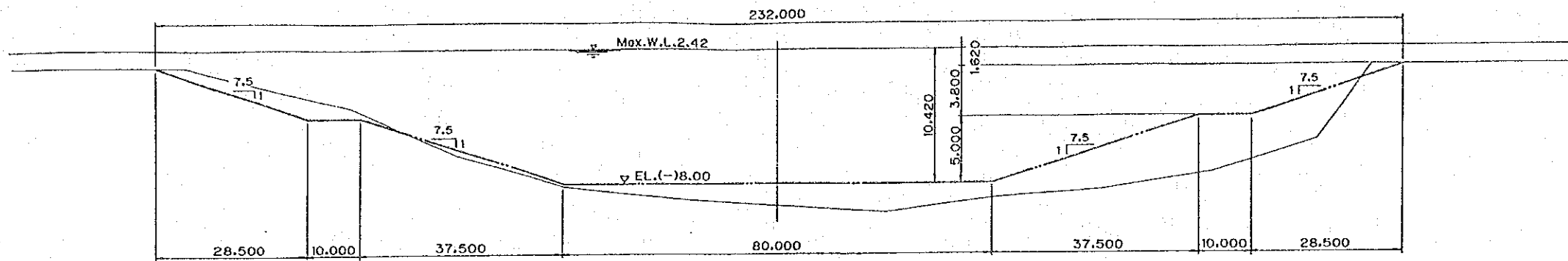
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**CROSS SECTIONS (1/2)**

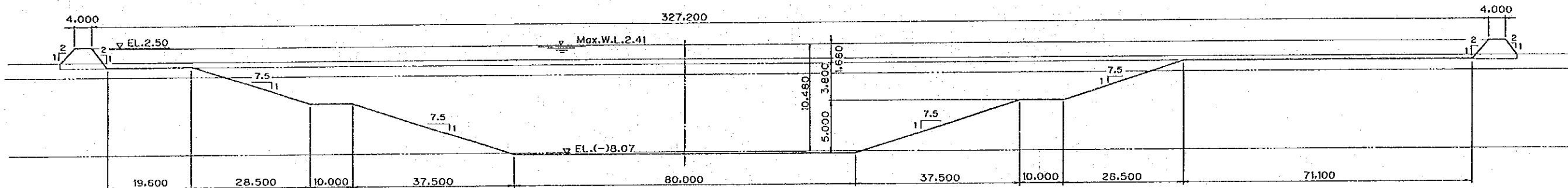
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DRAWING NO. 5

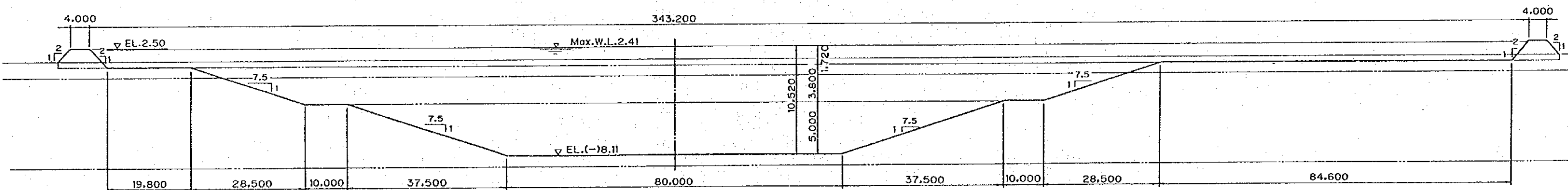
STA.4+477



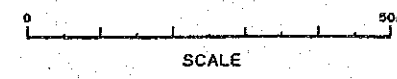
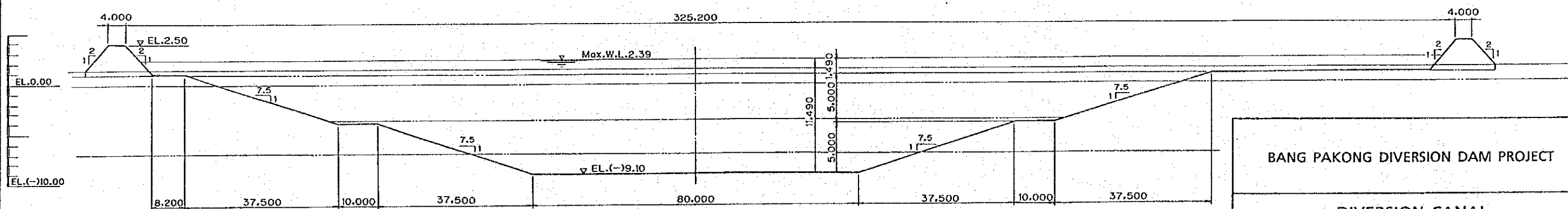
STA.4+200



STA.4+040



STA.3+600

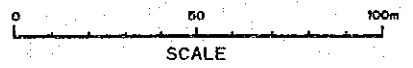
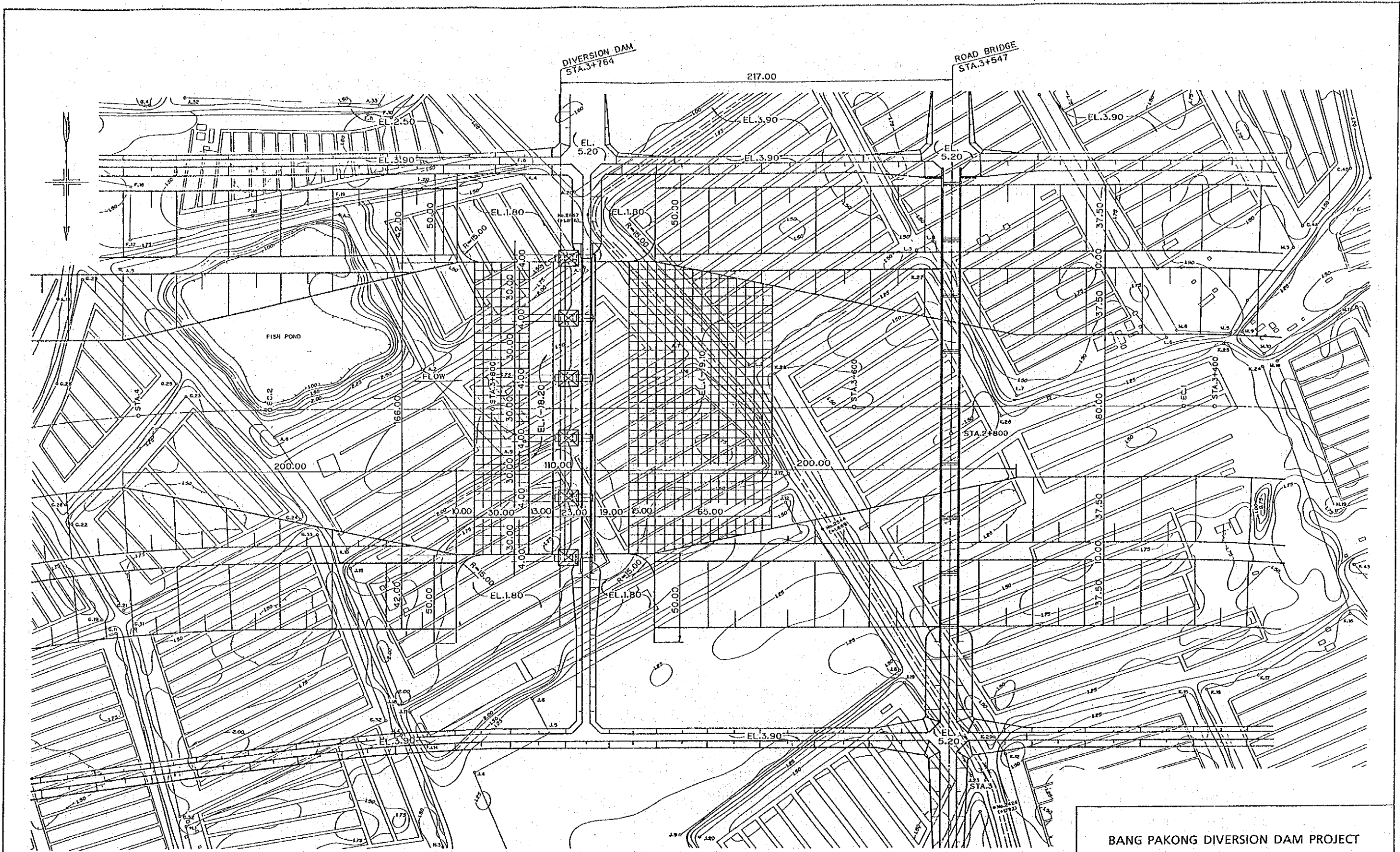


BANG PAKONG DIVERSION DAM PROJECT

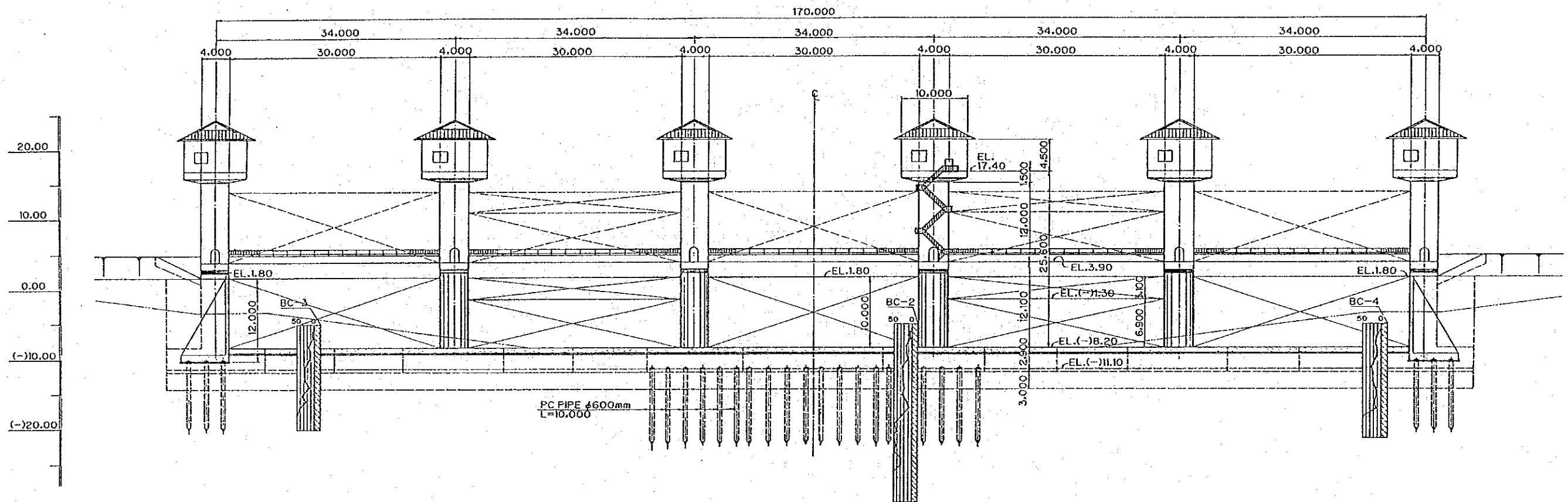
DIVERSION CANAL

CROSS SECTIONS (2/2)

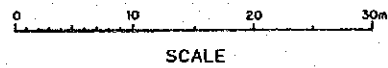
DRAWING NO. 6



|                                   |
|-----------------------------------|
| BANG PAKONG DIVERSION DAM PROJECT |
| DIVERSION DAM                     |
| PLAN                              |
| DRAWING NO. 7                     |



GENERAL ELEVATION OF DIVERSION DAM

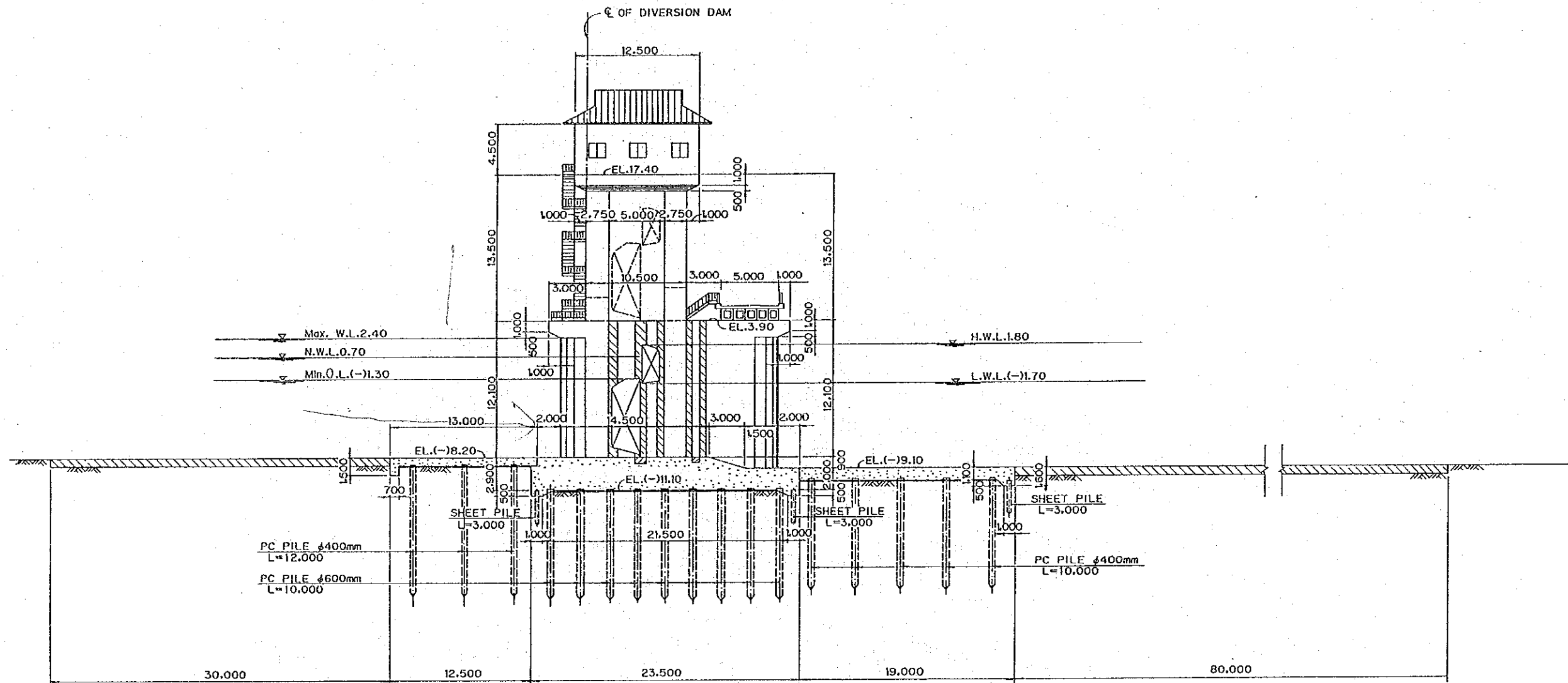


BANG PAKONG DIVERSION DAM PROJECT

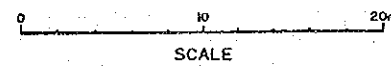
DIVERSION DAM

ELEVATION

DRAWING NO. 8

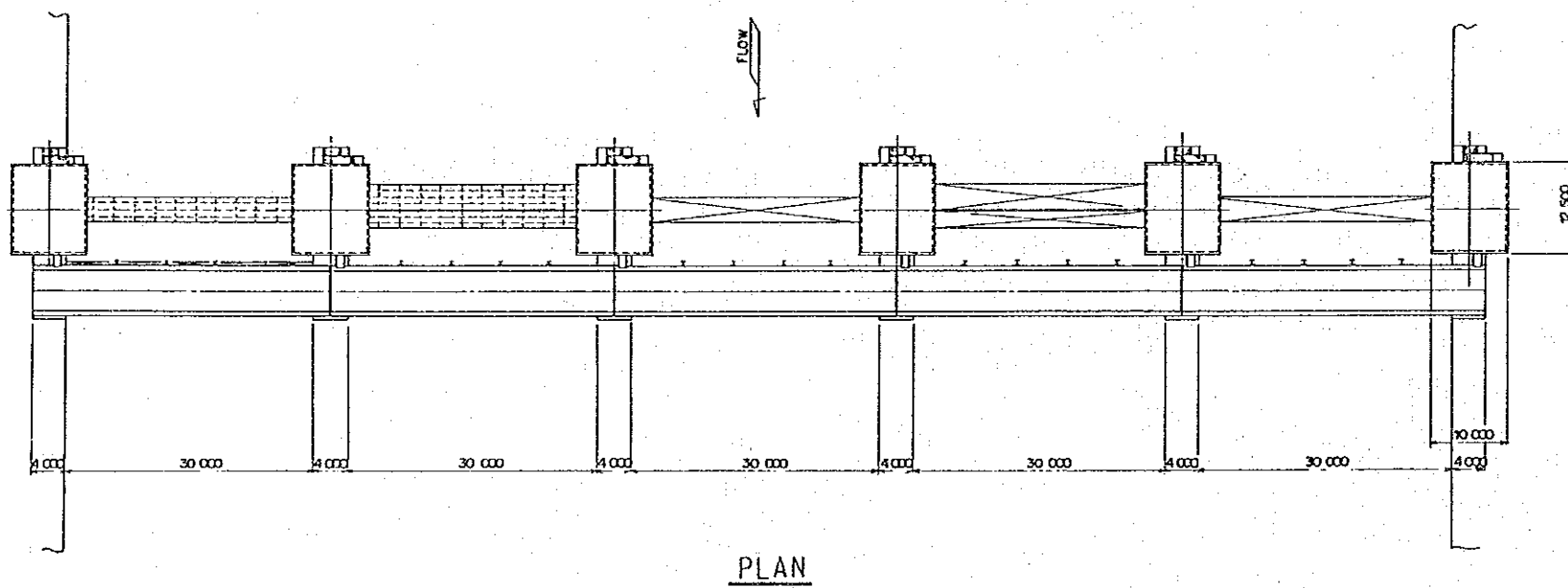
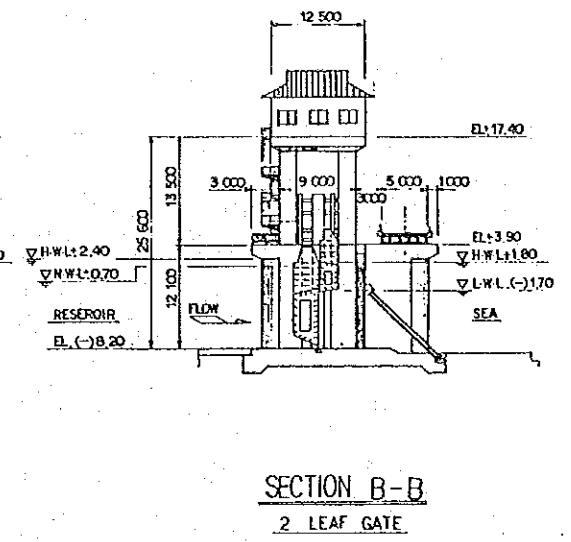
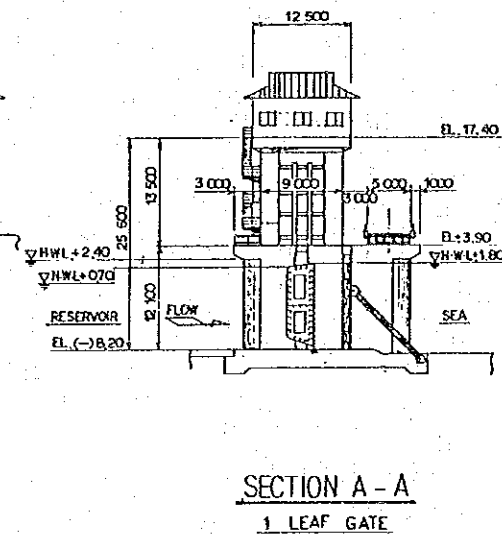
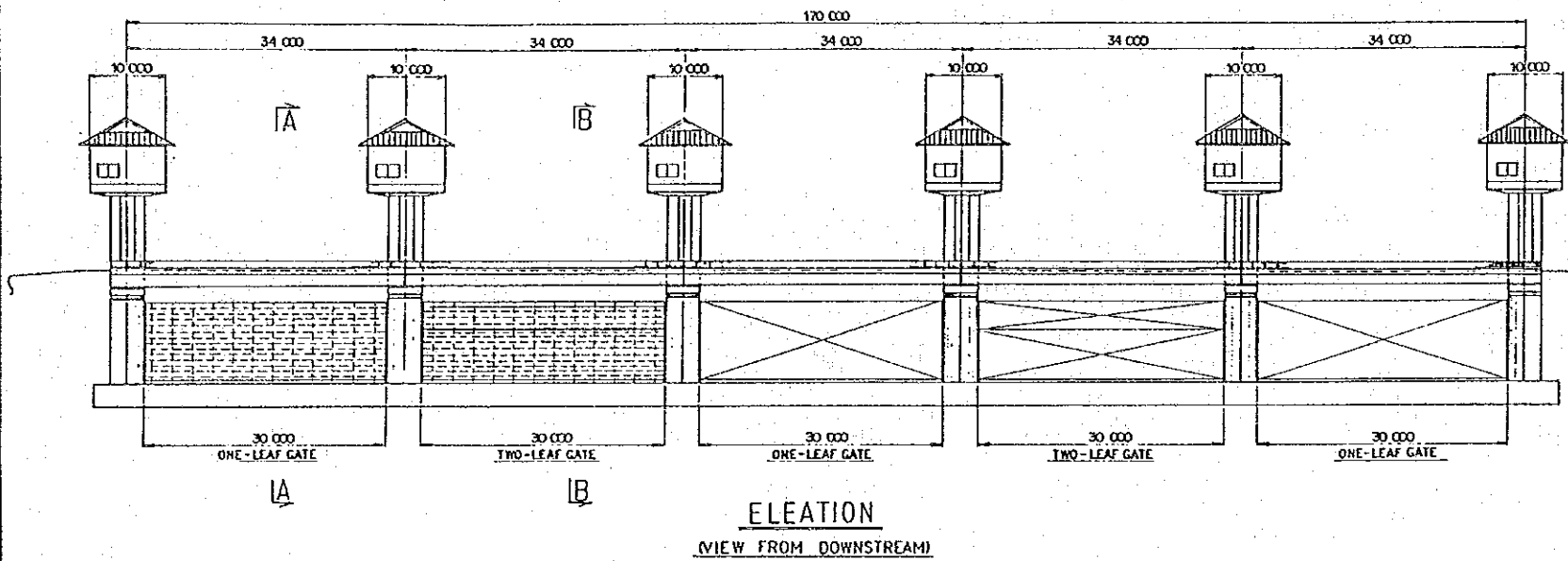


TYPICAL SECTION OF DIVERSION DAM



|                                   |
|-----------------------------------|
| BANG PAKONG DIVERSION DAM PROJECT |
| DIVERSION DAM                     |
| SECTION                           |
| DRAWING NO. 9                     |

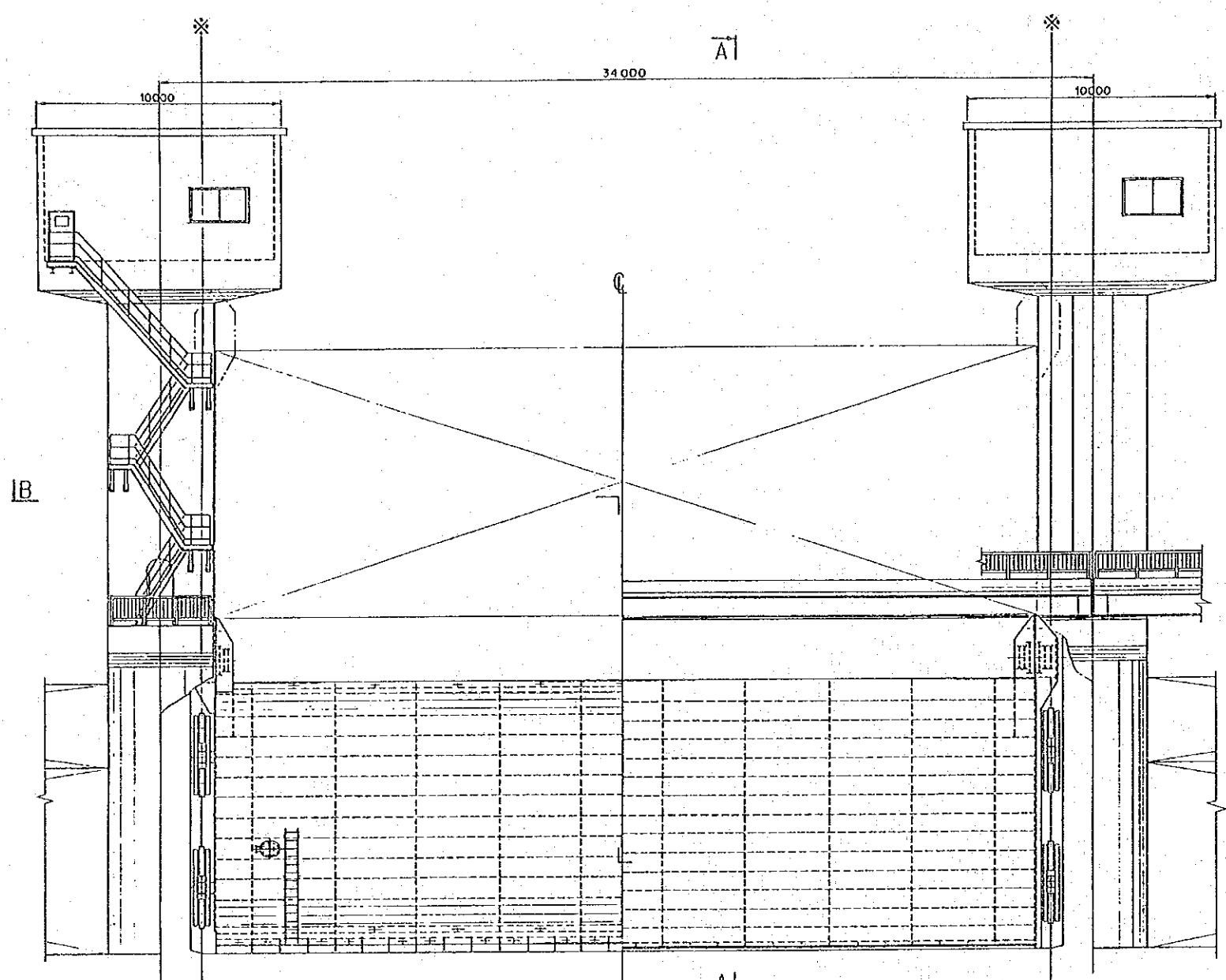




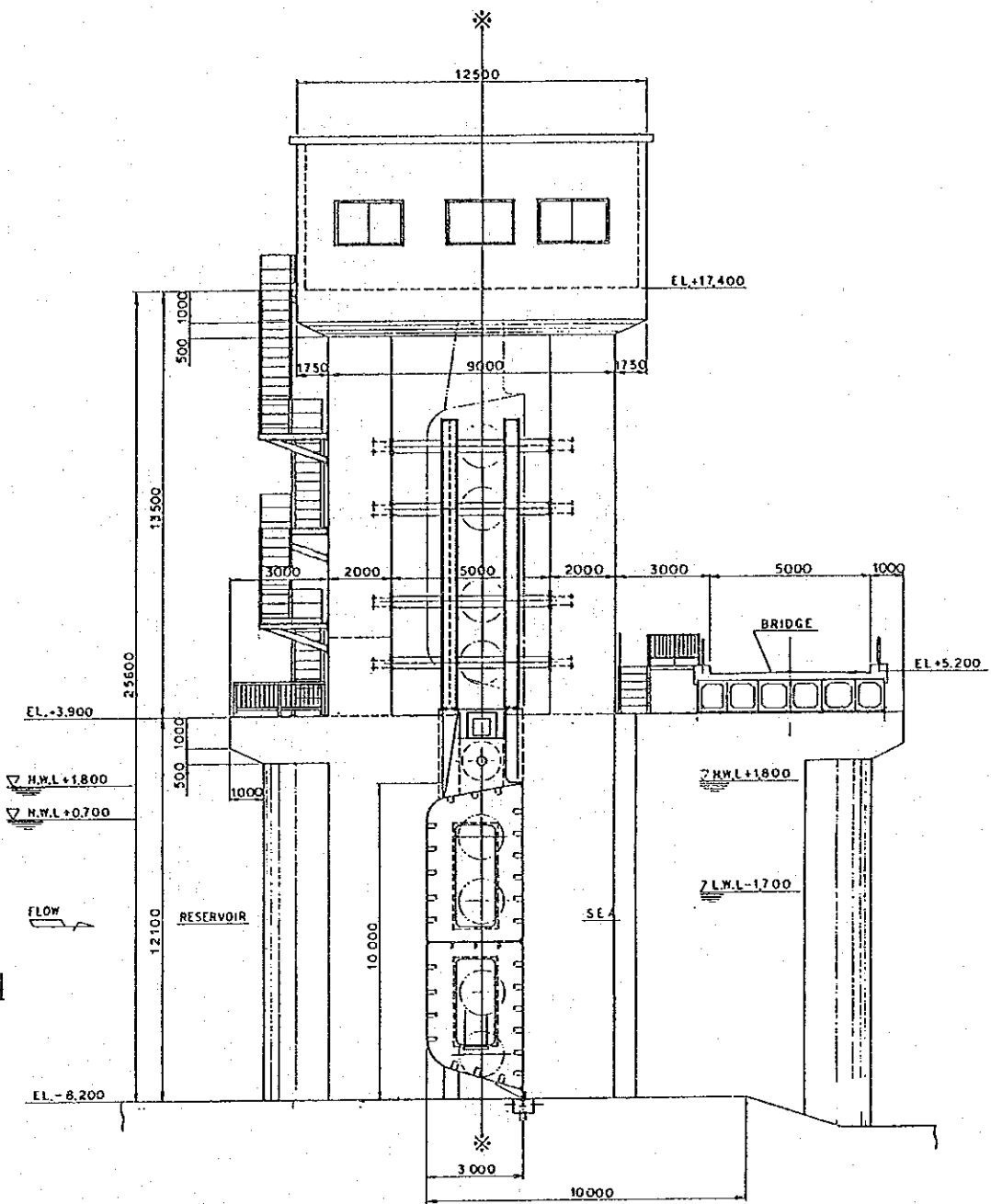
BANG PAKONG DIVERSION DAM PROJECT

DIVERSION DAM  
TIDE PROTECTION GATES  
ELEVATION AND SECTIONS

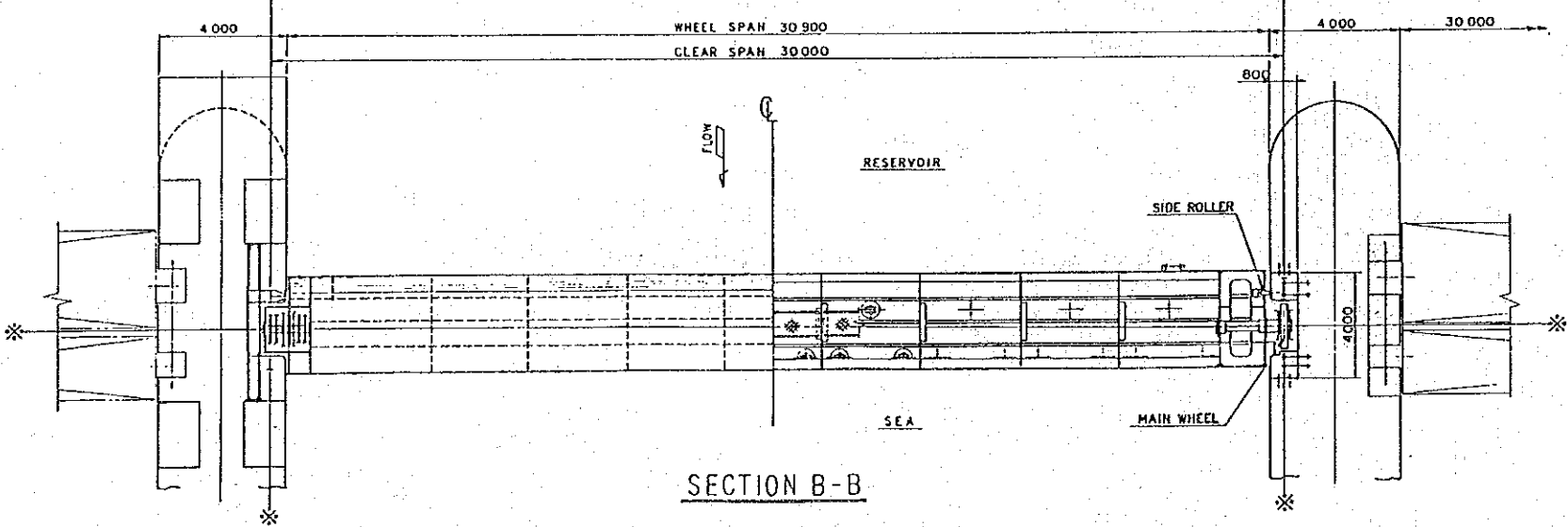
DRAWING NO. 10



VIEW FROM UPSTREAM  
ELEVATION  
VIEW FROM DOWNSTREAM



SECTION A-A



SECTION B-B

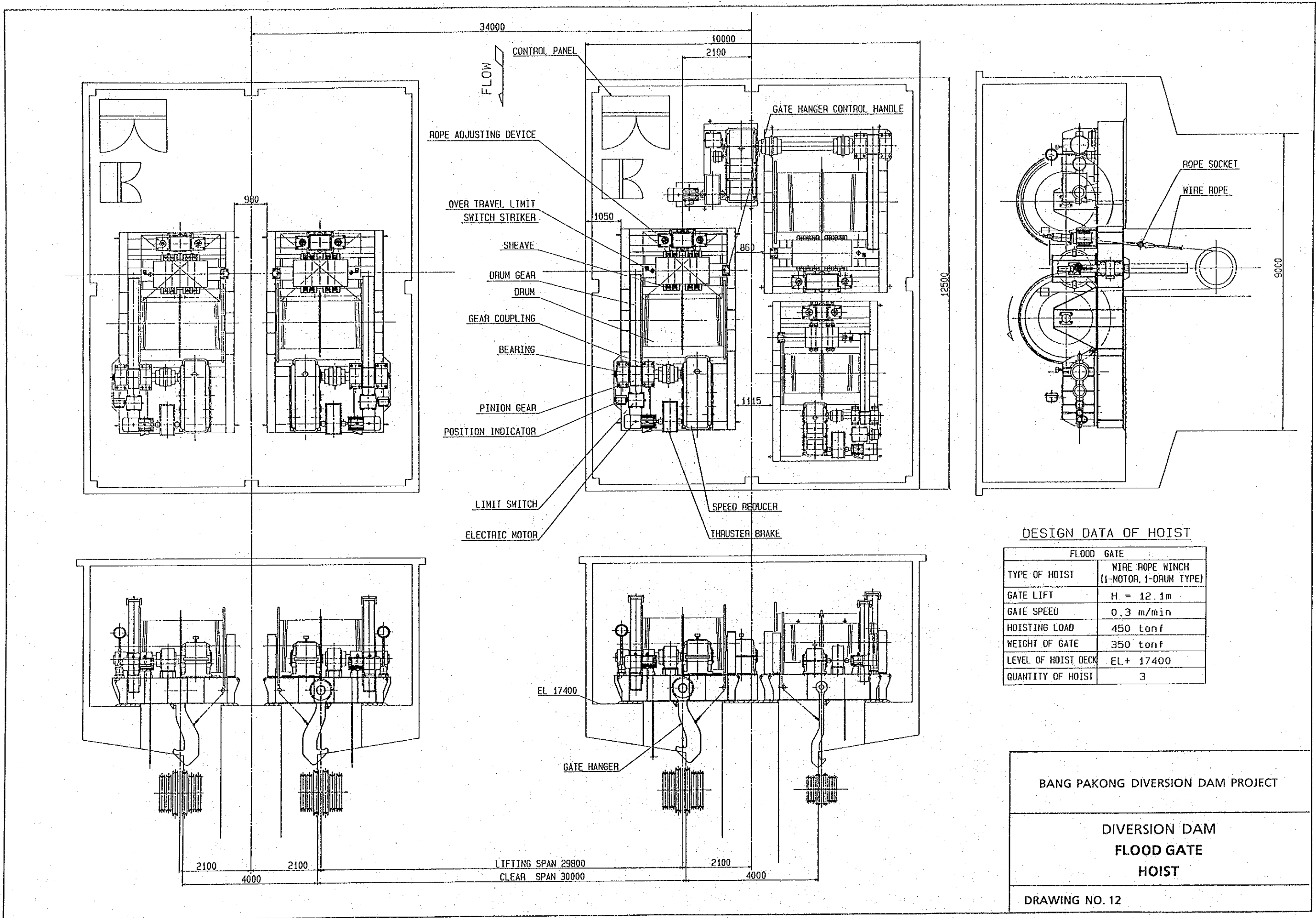
GATE DESIGN CONDITION

| TYPE                      | 1 LEAF GATE      |
|---------------------------|------------------|
| SHELL TYPE                | FIXED WHEEL GATE |
| QUANTITY                  | 3                |
| CLEAR SPAN                | 30,000           |
| GATE HEIGHT               | 10,000           |
| WATER LEVEL UP STREAM     | H.W.L. +1,800    |
| DOWN STREAM               | L.W.L. -1,700    |
| ELEVATION OPERATING FLOOR | EL +17,400       |
| SILL                      | EL -8,200        |
| HOIST                     | WIRE ROPE WINCE  |
| OPERATING SPEED           | 0.375/MIN        |

BANG PAKONG DIVERSION DAM PROJECT

DIVERSION DAM  
FLOOD GATE  
GATE LEAF

DRAWING NO. 11



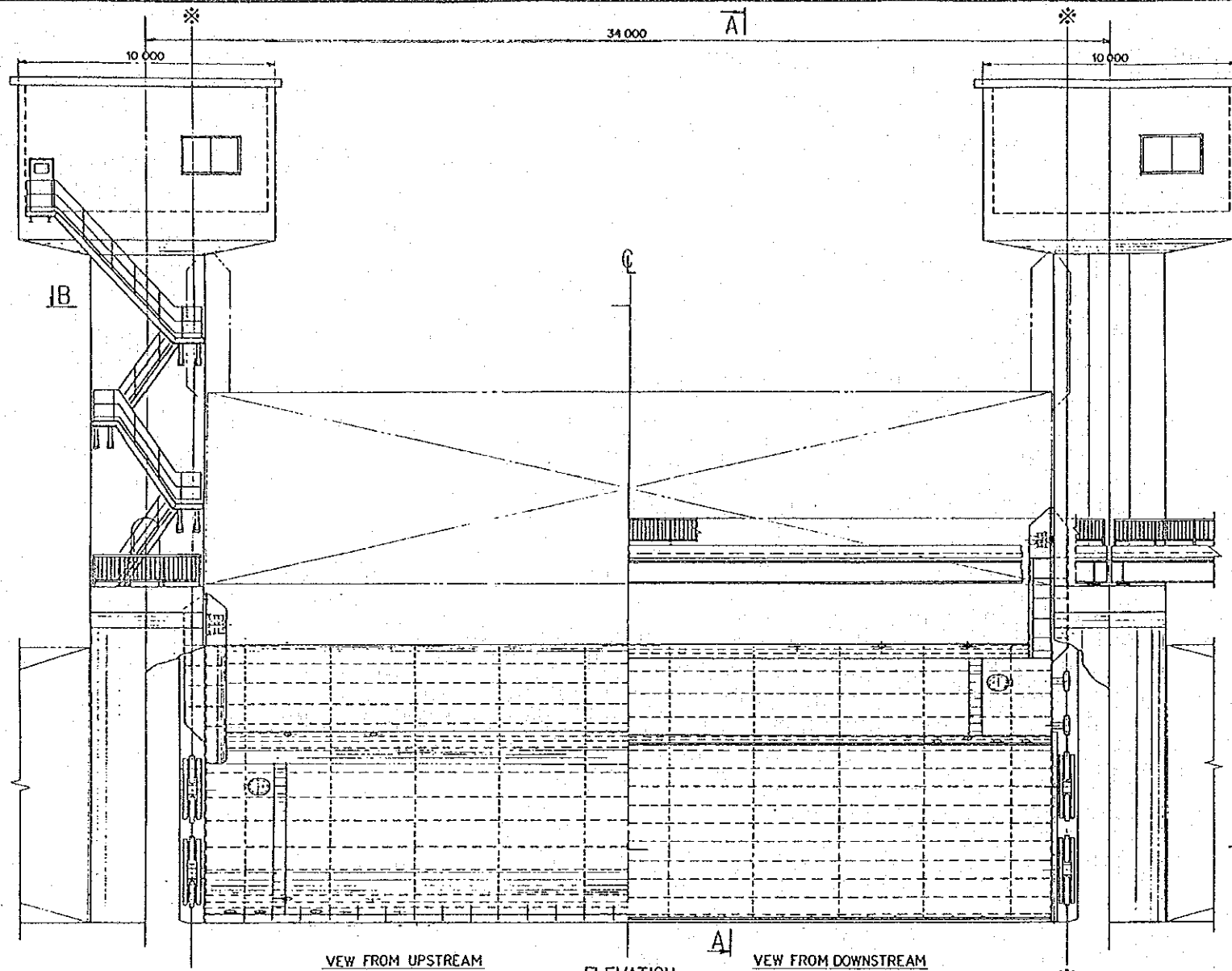
DESIGN DATA OF HOIST

| FLOOD GATE          |   |
|---------------------|---|
| TYPE OF HOIST       | WIRE ROPE WINCH<br>(1-MOTOR, 1-DRUM TYPE) |
| GATE LIFT           | H = 12.1m                                 |
| GATE SPEED          | 0.3 m/min                                 |
| HOISTING LOAD       | 450 tonf                                  |
| WEIGHT OF GATE      | 350 tonf                                  |
| LEVEL OF HOIST DECK | EL+ 17400                                 |
| QUANTITY OF HOIST   | 3   |

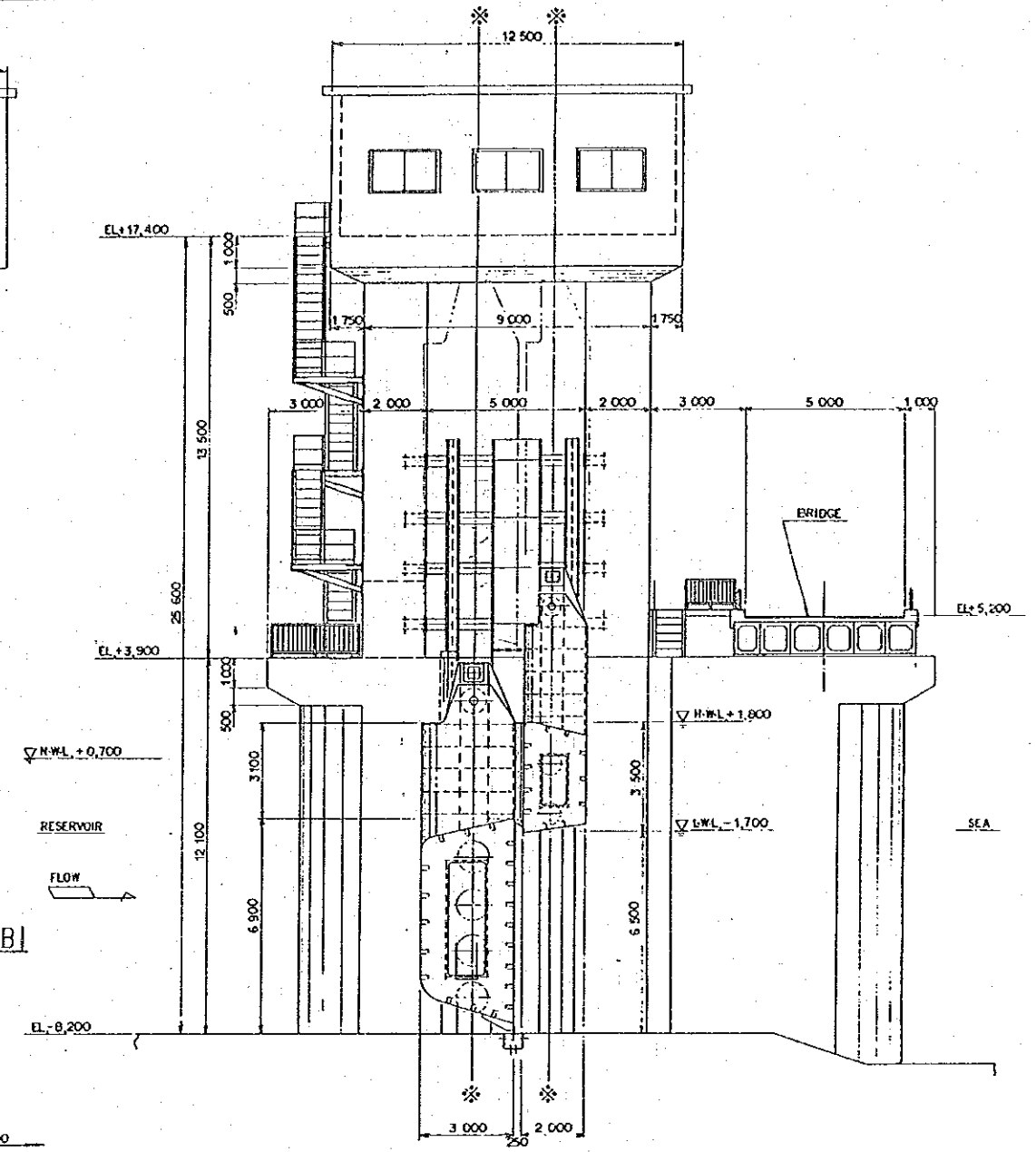
BANG PAKONG DIVERSION DAM PROJECT

DIVERSION DAM  
FLOOD GATE  
HOIST

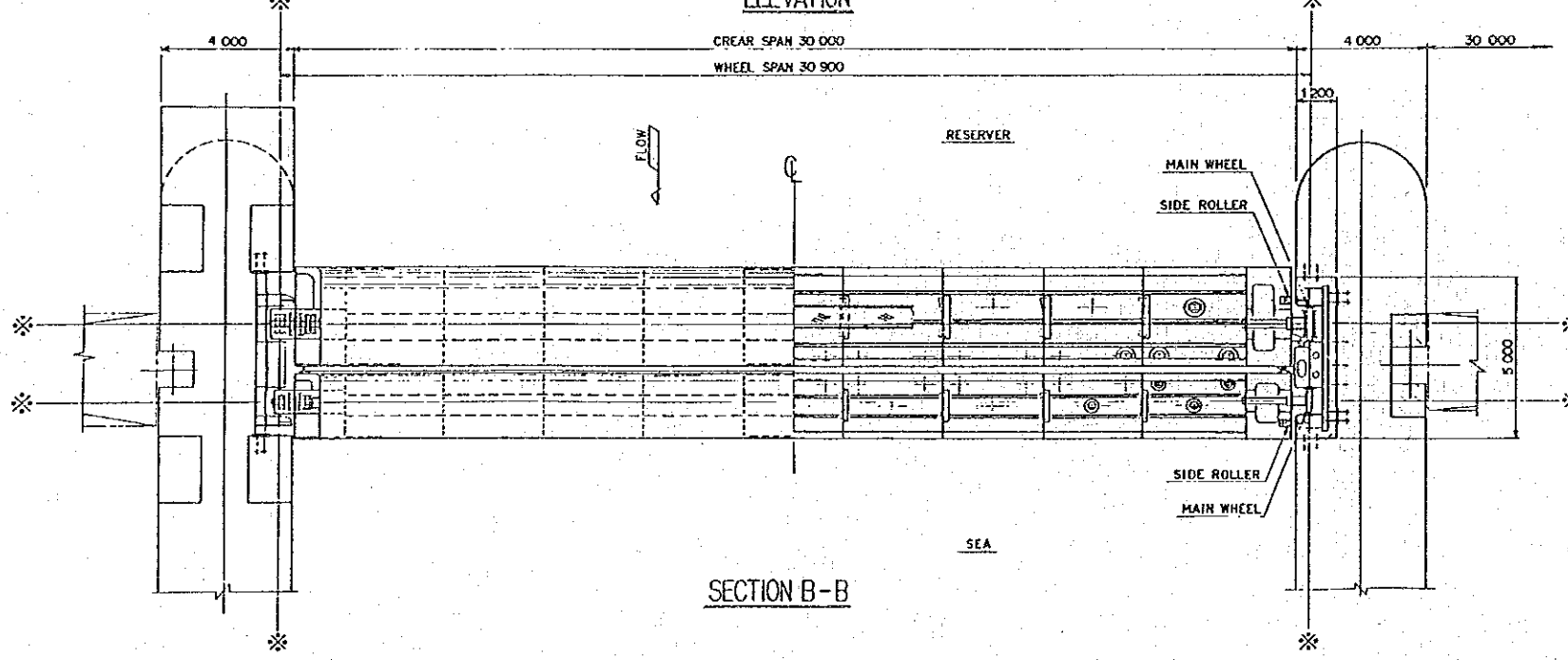
DRAWING NO. 12



VIEW FROM UPSTREAM  
ELEVATION  
VIEW FROM DOWNSTREAM



SECTION A-A



SECTION B-B

GATE DESIGN CONDITION

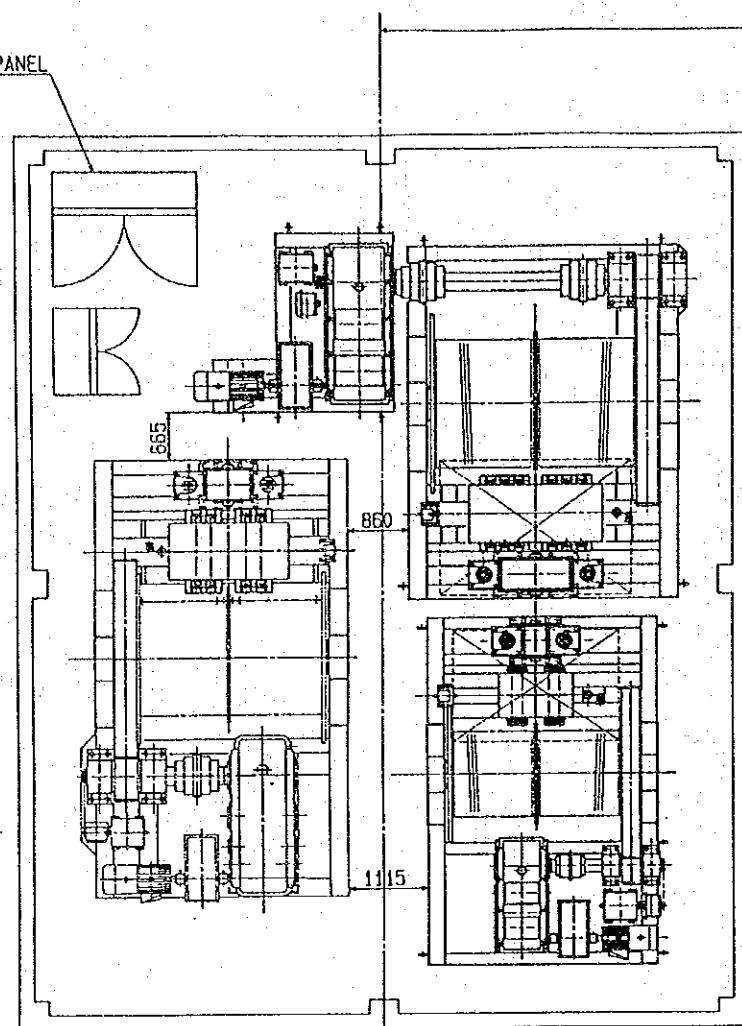
| 2 LEAF GATE     |                                |
|-----------------|--------------------------------|
| TYPE            | SHELL TYPE<br>FIXED WHEEL GATE |
| QUANTITY        | 2                              |
| CLEAR SPAN      | 30,000                         |
| GATE HEIGHT     | 10,000                         |
| WATER LEVEL     |                                |
| UP STREAM       | H.W.L. + 1,800                 |
| DOWN STREAM     | L.W.L. - 1,700                 |
| ELEVATION       |                                |
| OPERATING FLOOR | EL. + 3,900                    |
| SILL            | EL. - 8,200                    |
| HOIST           | WIRE ROPE WINCH                |
| OPERATING SPEED | 0.3 M/MIN                      |

BANG PAKONG DIVERSION DAM PROJECT

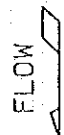
DIVERSION DAM  
REGULATING GATE  
GATE LEAF

DRAWING NO. 13

CONTROL PANEL



34000



ROPE ADJUSTING DEVICE

OVER TRAVEL LIMIT SWITCH STRIKER

DRUM GEAR

DRUM

GEAR COUPLING

BEARING

PINION GEAR

POSITION INDICATOR

LIMIT SWITCH

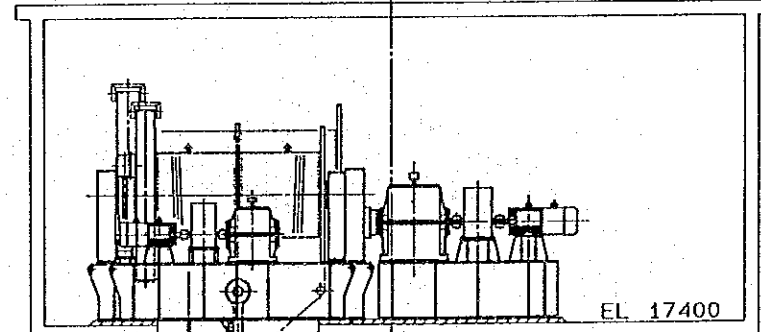
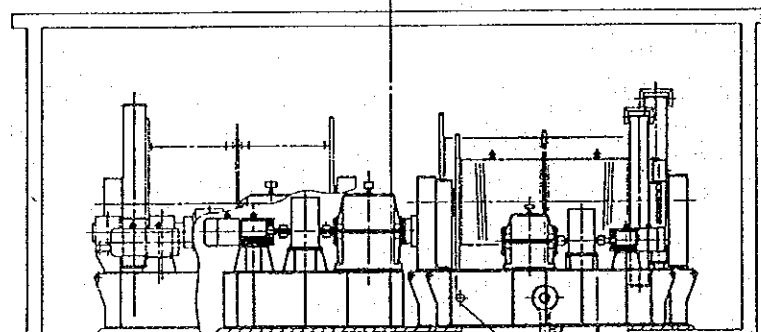
ELECTRIC MOTOR

GATE HANGER CONTROL HANDLE

SHEAVE

SPEED REDUCER

THRUSTER BRAKE



GATE HANGER

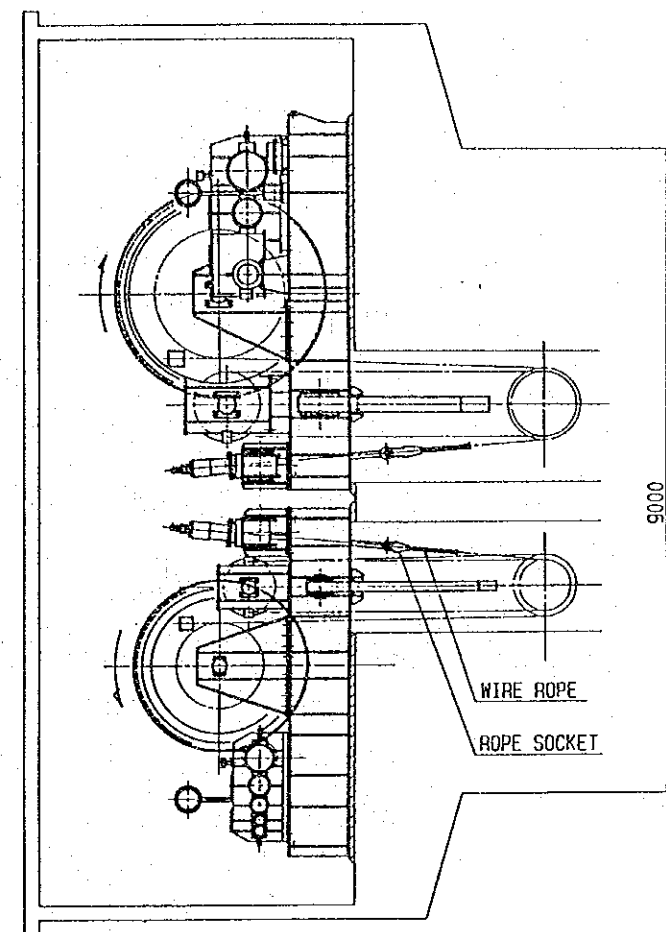
4000

2100

LIFTING SPAN 29800  
CLEAR SPAN 30000

2100

4000



WIRE ROPE

ROPE SOCKET

9000

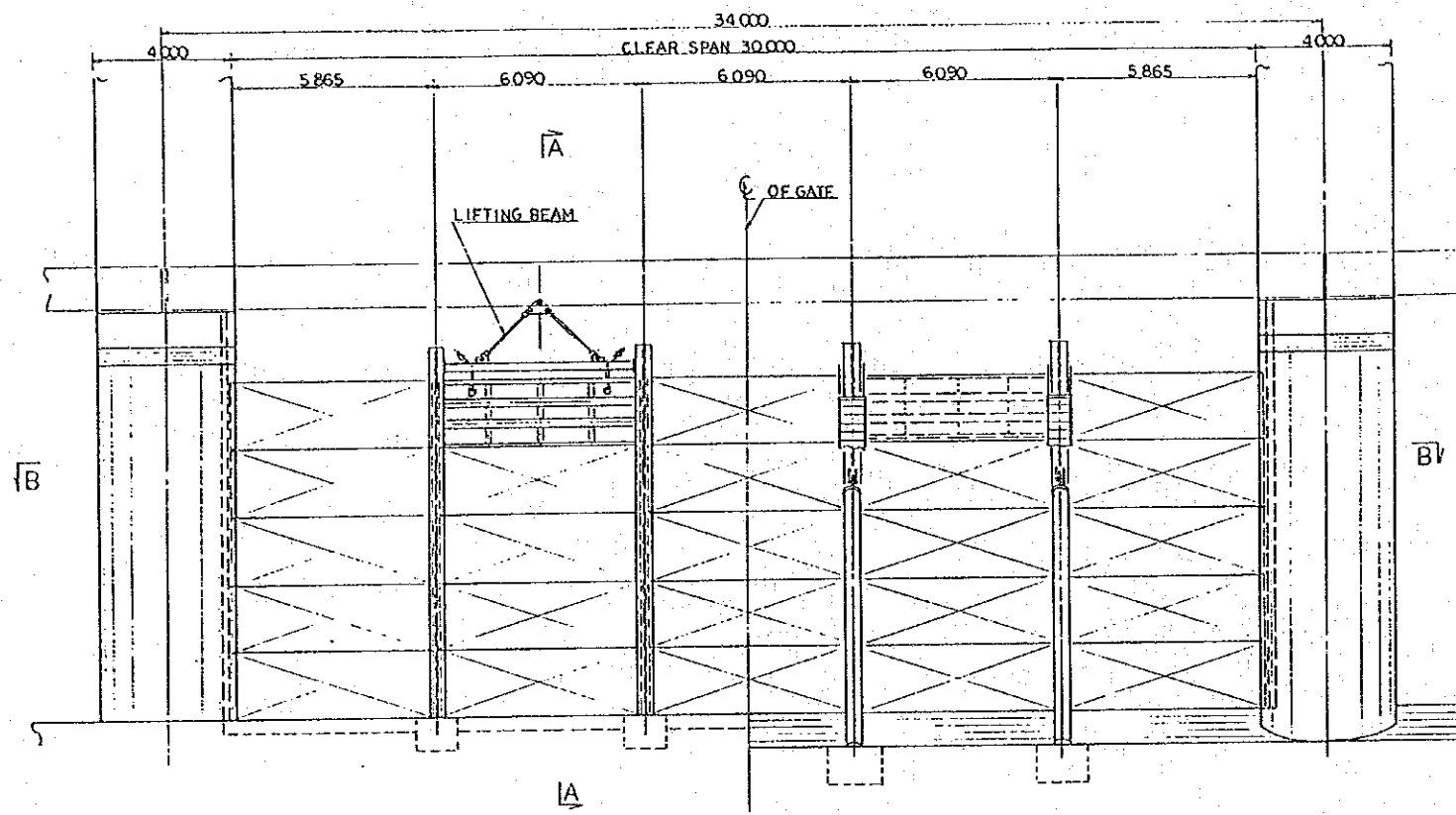
DESIGN DATA OF HOIST

| TYPE OF HOIST       | UPPER REGULATING GATE                     | LOWER REGULATING GATE                     |
|---------------------|---|---|
|                     | WIRE ROPE WINCH<br>(1-MOTOR, 1-DRUM TYPE) | WIRE ROPE WINCH<br>(1-MOTOR, 1-DRUM TYPE) |
| GATE LIFT           | H = 12.1m                                 | H = 12.1m                                 |
| GATE SPEED          | 0.3 m/min                                 | 0.3 m/min                                 |
| HOISTING LOAD       | 235 tonf                                  | 540 tonf                                  |
| WEIGHT OF GATE      | 100 tonf                                  | 280 tonf                                  |
| LEVEL OF HOIST DECK | EL+ 17400                                 | EL+ 17400                                 |
| QUANTITY OF HOIST   | 2   | 2   |

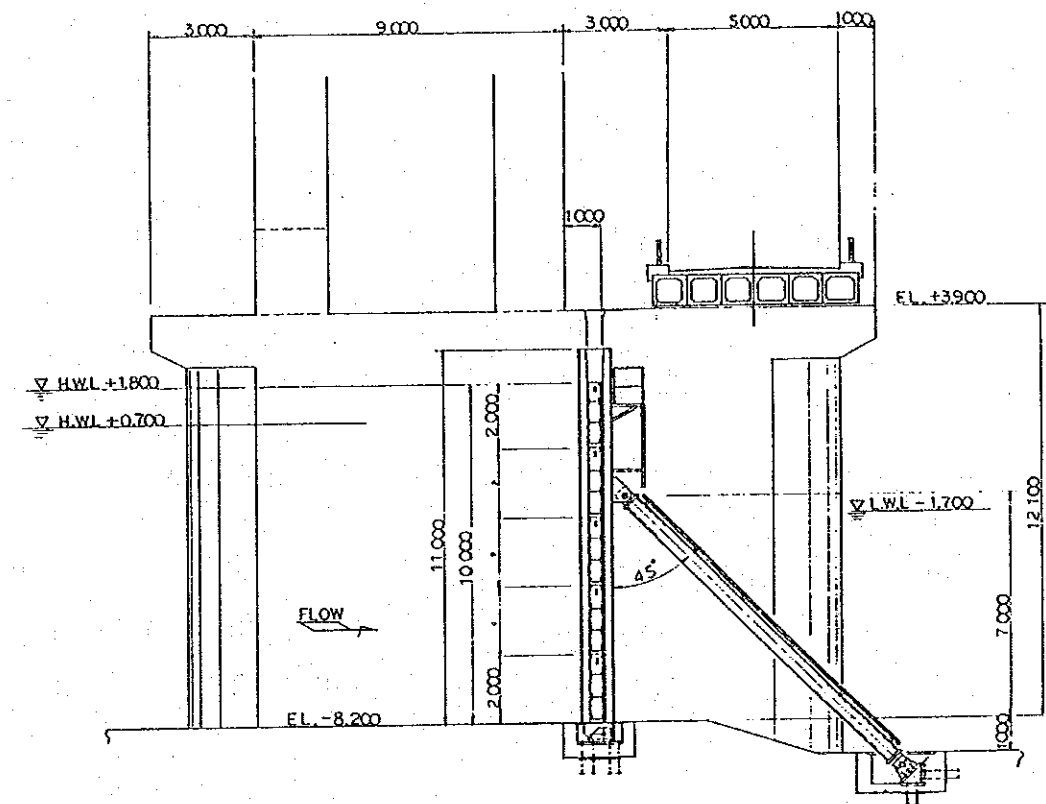
BANG PAKONG DIVERSION DAM PROJECT

DIVERSION DAM  
REGULATING GATE  
HOIST

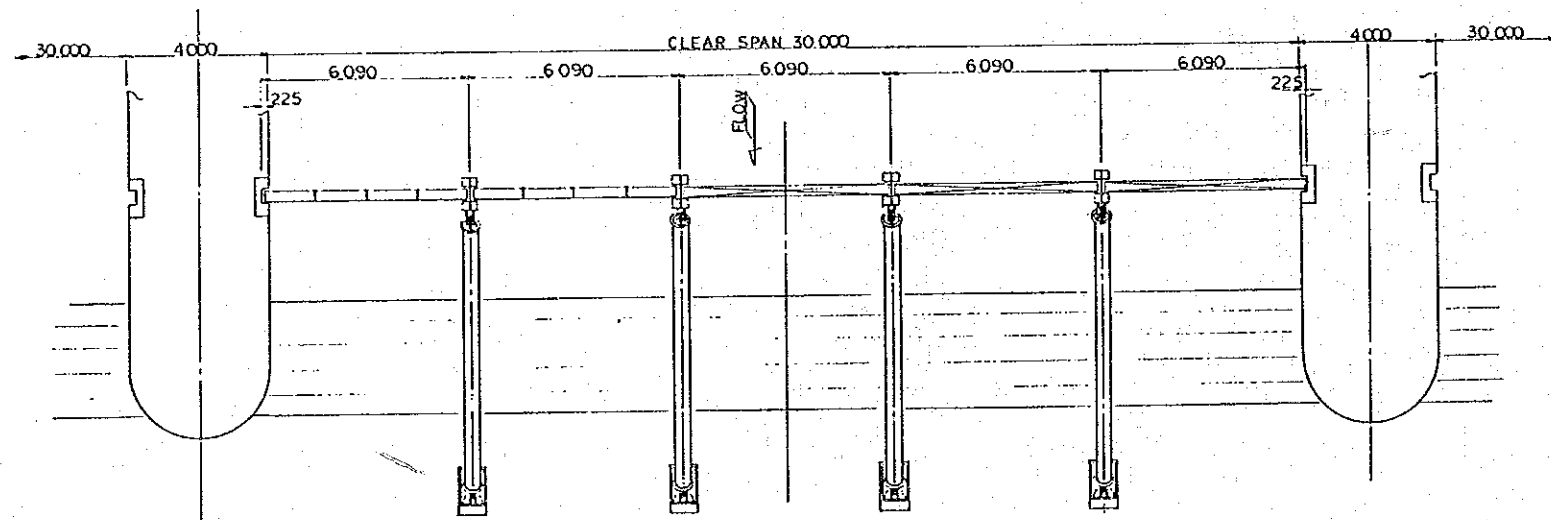
DRAWING NO. 14



ELEVATION



SECTION A-A



SECTION B-B

GATE DESIGN CONDITION

|                |  |
|----------------|--|
| TYPE           | STOP LOG<br>GIRDER TYPE<br>SLUICE GATE |
| QUANTITY       | 25                                     |
| CLEAR SPAN     | 30,000                                 |
| GATE HEIGHT    | 10,000 (2,000x5)                       |
| WATER LEVEL    |  |
| UP STREAM      | HWL + 1.800                            |
| DOWN STREAM    | LWL - 1.700                            |
| SILL ELEVATION | EL. - 8.200                            |

BANG PAKONG DIVERSION DAM PROJECT

DIVERSION DAM

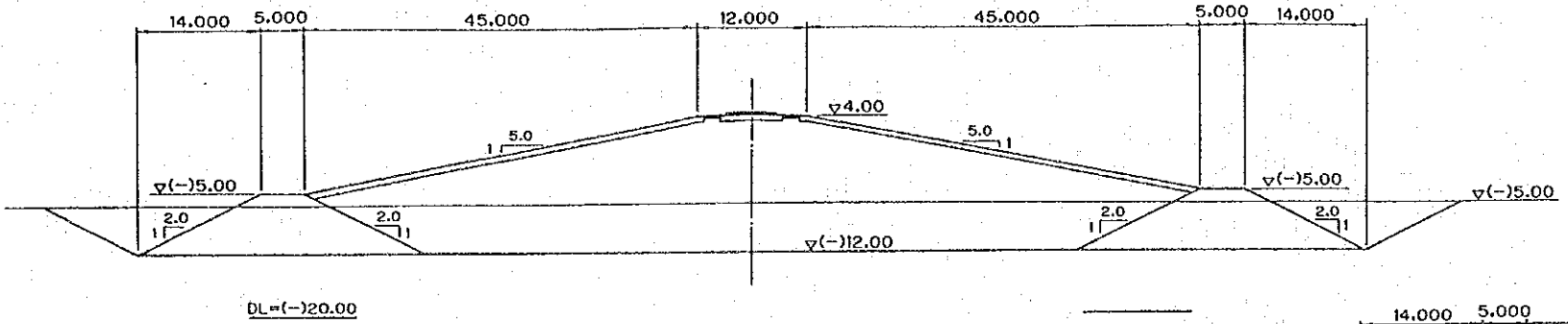
STOP LOG

DRAWING NO. 15

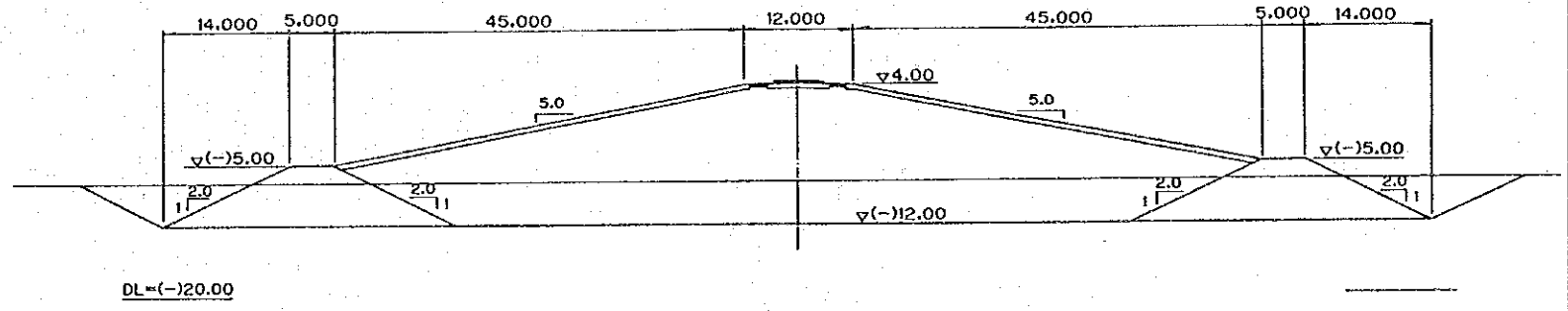




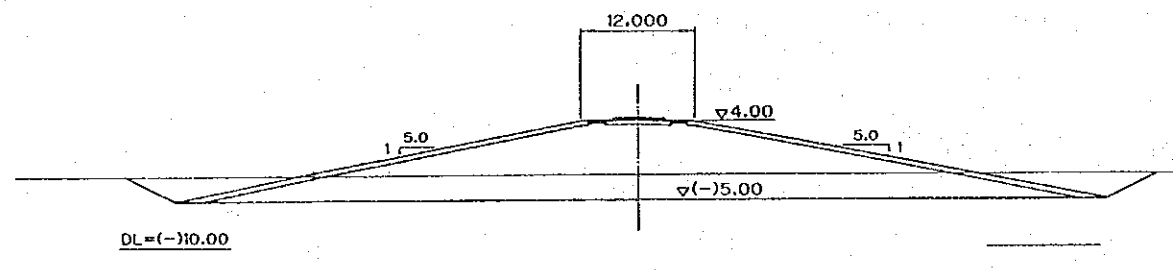
**STA.1+000**  
 GH=(-)6.50  
 FH=4.20



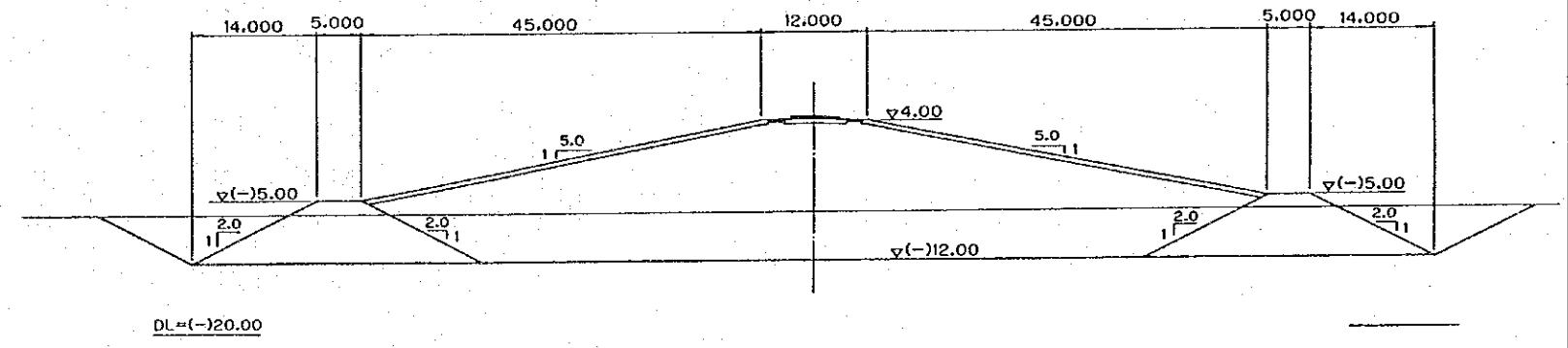
**STA.1+100**  
 GH=(-)7.00  
 FH=4.20



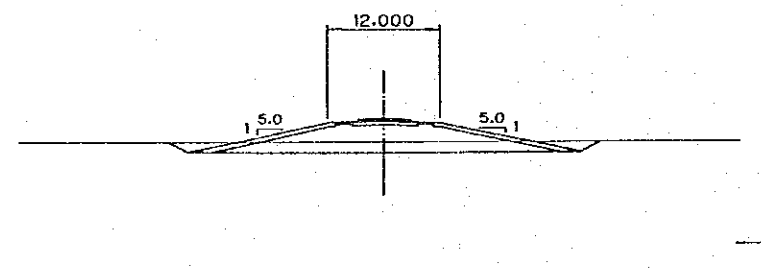
**STA.0+986**  
 GH=(-)2.20  
 FH=4.20



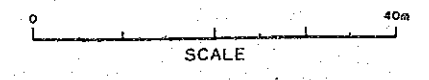
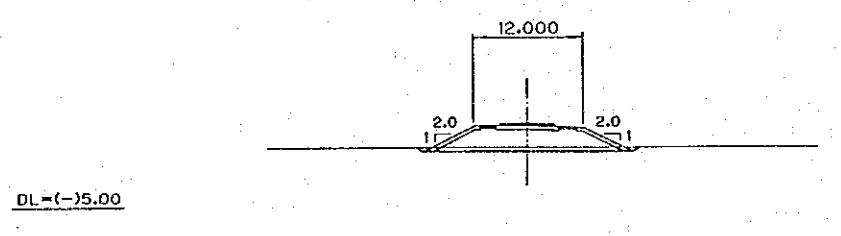
**STA.1+50**  
 GH=(-)6.50  
 FH=4.20



**STA.0+975**  
 GH=(-)1.90  
 FH=4.20



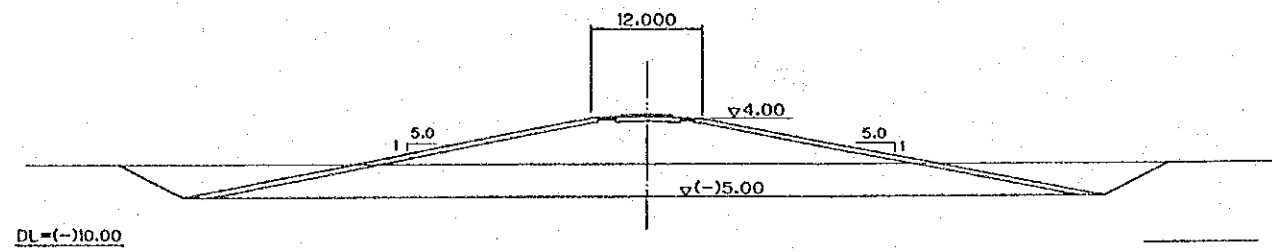
**STA.0+950**  
 GH=(-)1.70  
 FH=4.20



|                                   |
|-----------------------------------|
| BANG PAKONG DIVERSION DAM PROJECT |
| CLOSURE DAM                       |
| CROSS SECTIONS (1/2)              |
| DRAWING NO. 17                    |

STA.1+204

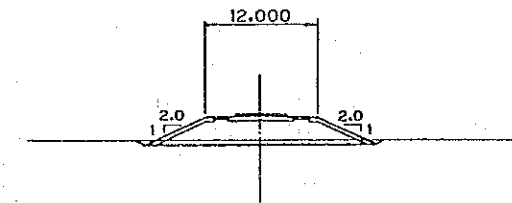
GH=(-)1.30  
FH=4.20



DL=(-)10.00

STA.1+250

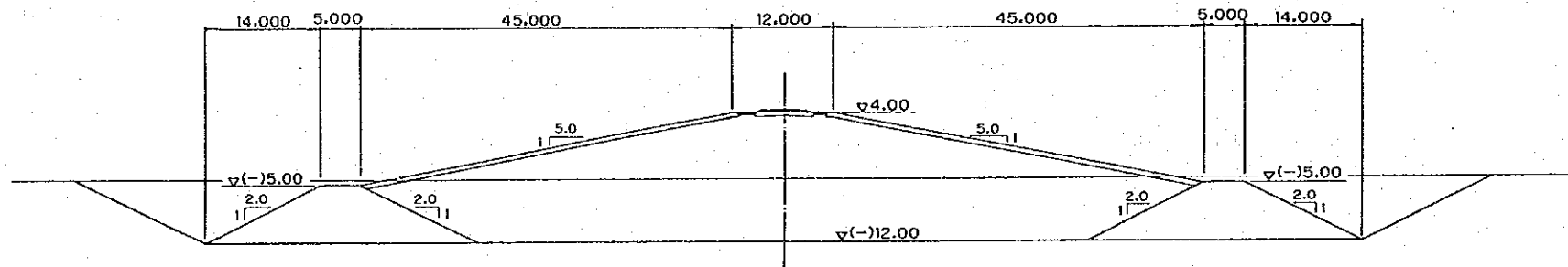
GH=1.20  
FH=4.20



DL=(-)10.00

STA.1+190

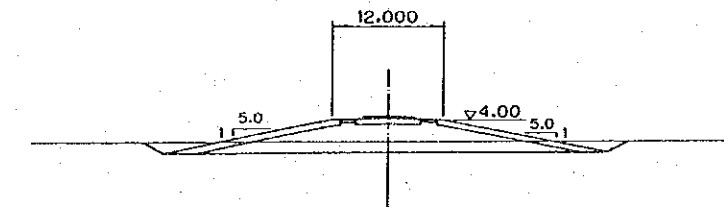
GH=(-)4.20  
FH=4.20



DL=(-)20.00

STA.1+215

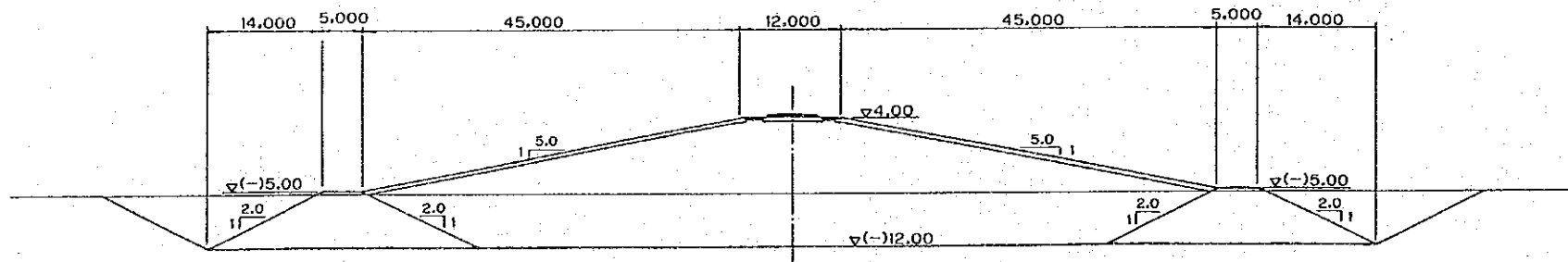
GH=1.30  
FH=4.20



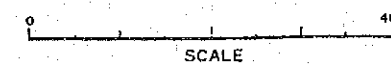
DL=(-)10.00

STA.1+150

GH=(-)5.30  
FH=4.20



DL=(-)20.00



BANG PAKONG DIVERSION DAM PROJECT

CLOSURE DAM

CROSS SECTIONS (2/2)

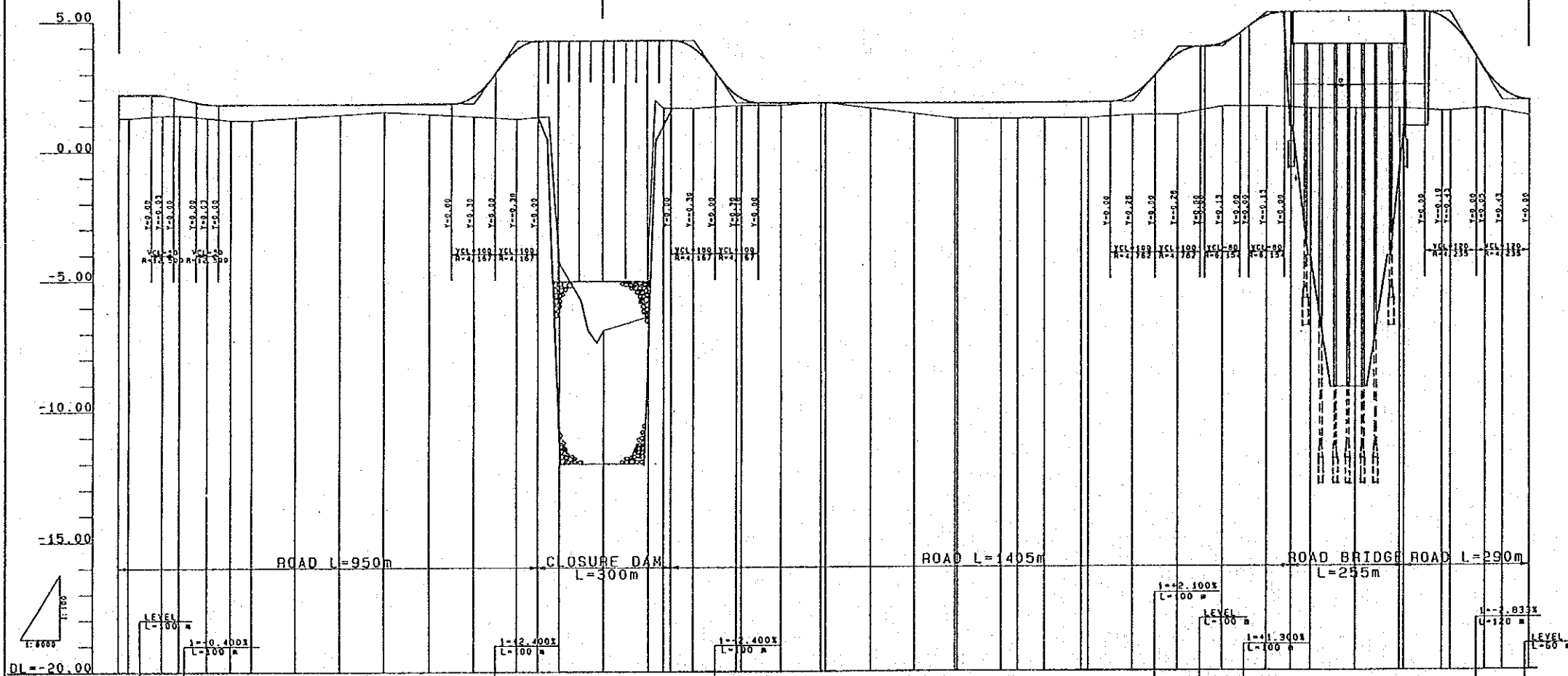
DRAWING NO. 18

BEGINNING POINT  
STA. 0

CLOSURE DAM  
STA. 1+95.00

DIVERSION CANAL  
STA. 7+784.74

END POINT  
STA. 3+200.00



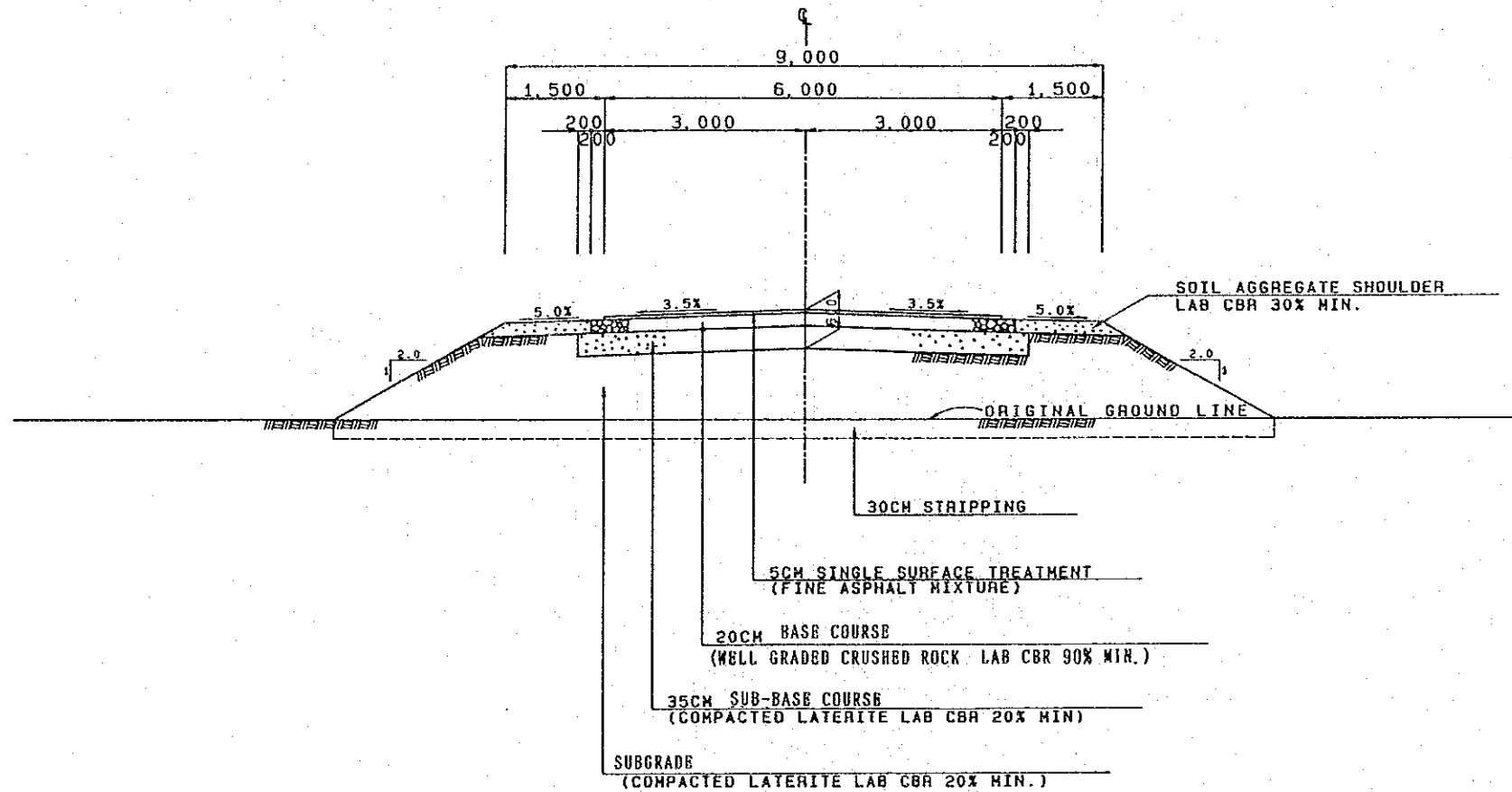
| LONGITUDI SLOPE | CREST ELEVATION | GROUND ELEVATION | ACCUM. DISTANCE | DISTANCE | STATION | CURVE ARRANGE.                                     | SUPER ELEVATION                              |
|-----------------|-----------------|------------------|-----------------|----------|---------|--|--|
| 2.20            | 2.20            | 1.3              | 0.00            | 0.00     | STA. 0  | IP, 1<br>R=200.00 TL=128.70<br>CL=230.13 SL= 38.78 | [Diagram showing super elevation transition] |
| 2.20            | 2.20            | 1.3              | 32.94           | 32.94    | BC1     |  |  |
| 2.20            | 2.18            | 1.4              | 77.05           | 77.05    | +100    | IP, 2<br>R=300.00 TL=185.50<br>CL=355.43 SL= 33.33 | [Diagram showing super elevation transition] |
| 2.20            | 2.05            | 1.4              | 138.01          | 138.01   | SP1     |  |  |
| 1.80            | 1.83            | 1.3              | 200.00          | 200.00   | +200    | IP, 3<br>R=500.00 TL=249.02<br>CL=478.86 SL= 21.74 | [Diagram showing super elevation transition] |
| 1.80            | 1.80            | 1.2              | 333.07          | 333.07   | EC1     |  |  |
| 1.80            | 1.80            | 1.2              | 463.33          | 463.33   | +300    |  |  |
| 1.80            | 1.80            | 1.3              | 600.00          | 600.00   | +400    |  |  |
| 1.80            | 1.80            | 1.4              | 700.00          | 700.00   | +500    |  |  |
| 1.80            | 1.80            | 1.3              | 800.00          | 800.00   | +600    |  |  |
| 1.80            | 1.80            | 1.4              | 900.00          | 900.00   | +700    |  |  |
| 1.80            | 1.80            | 1.2              | 950.00          | 950.00   | +750    |  |  |
| 4.20            | 4.20            | 1.2              | 950.00          | 950.00   | STA. 1  |  |  |
| 4.20            | 4.20            | 1.2              | 1000.00         | 1000.00  | +100    |  |  |
| 4.20            | 4.20            | 1.7              | 1100.00         | 1100.00  | +150    |  |  |
| 4.20            | 4.20            | 1.7              | 1200.00         | 1200.00  | +200    |  |  |
| 4.20            | 4.20            | 1.8              | 1333.07         | 1333.07  | BC2     |  |  |
| 3.90            | 3.90            | 1.8              | 1500.00         | 1500.00  | +300    |  |  |
| 3.90            | 3.90            | 1.7              | 1600.00         | 1600.00  | +350    |  |  |
| 3.90            | 3.90            | 1.7              | 1700.00         | 1700.00  | +400    |  |  |
| 3.90            | 3.90            | 1.6              | 1800.00         | 1800.00  | +450    |  |  |
| 3.90            | 3.90            | 1.4              | 1900.00         | 1900.00  | +500    |  |  |
| 3.90            | 3.90            | 1.2              | 2000.00         | 2000.00  | STA. 2  |  |  |
| 3.90            | 3.90            | 1.2              | 2038.93         | 2038.93  | SP3     |  |  |
| 3.90            | 3.90            | 1.2              | 2100.00         | 2100.00  | +100    |  |  |
| 3.90            | 3.90            | 1.3              | 2200.00         | 2200.00  | +200    |  |  |
| 3.90            | 3.90            | 1.3              | 2300.00         | 2300.00  | +300    |  |  |
| 3.90            | 3.90            | 1.3              | 2400.00         | 2400.00  | +400    |  |  |
| 3.90            | 3.90            | 1.6              | 2500.00         | 2500.00  | +500    |  |  |
| 3.90            | 3.90            | 1.6              | 2600.00         | 2600.00  | +600    |  |  |
| 3.90            | 3.90            | 1.6              | 2655.00         | 2655.00  | +655    |  |  |
| 3.90            | 3.90            | 1.5              | 2700.00         | 2700.00  | +700    |  |  |
| 3.90            | 3.90            | 1.3              | 2800.00         | 2800.00  | +800    |  |  |
| 3.90            | 3.90            | 1.5              | 2910.00         | 2910.00  | +910    |  |  |
| 3.90            | 3.90            | 1.4              | 3000.00         | 3000.00  | STA. 3  |  |  |
| 3.90            | 3.90            | 1.4              | 3050.00         | 3050.00  | +20     |  |  |
| 3.90            | 3.90            | 1.5              | 3100.00         | 3100.00  | +100    |  |  |
| 3.90            | 3.90            | 1.4              | 3140.00         | 3140.00  | +140    |  |  |
| 3.90            | 3.90            | 1.2              | 3200.00         | 3200.00  | EP      |  |  |

BANG PAKONG DIVERSION DAM PROJECT

ROAD

PROFILE

DRAWING NO. 19



DESIGN CONDITIONS

| CLASS OF ROAD      |                          | CLASS 4       |     |    |
|--------------------|--------------------------|---------------|-----|----|
| DESIGN SPEED       |                          | 60 TO 80km/hr |     |    |
| DESIGN CBR         |                          | 3 %           |     |    |
| PAVEMENT           | UNIT                     | Ta            | H   |    |
| REQUIRED THICKNESS | C.M.                     | 19            | 48  |    |
| DESIGN THICKNESS   | #                        | 19            | 60  |    |
| SURFACE TREATMENT  | FINE ASPHALT             | #             | 5.0 | 5  |
| BASE COURSE        | WELL GRADED CRUSHED ROCK | #             | 7.0 | 20 |
| SUB-BASE COURSE    | COMPACTED LATERITE       | #             | 7.0 | 35 |

TYPICAL SECTION OF ROAD

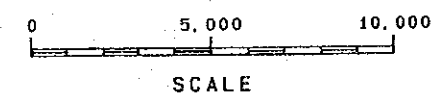
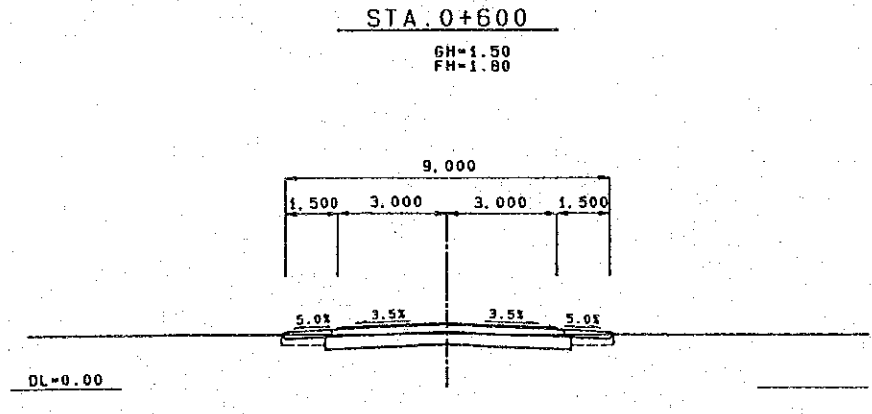
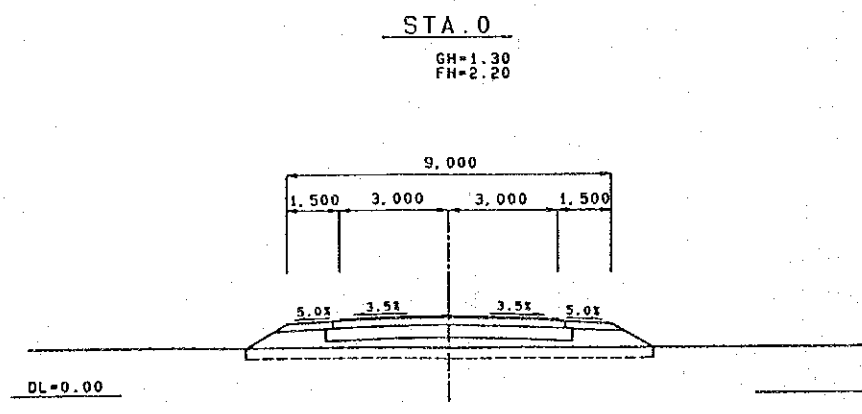
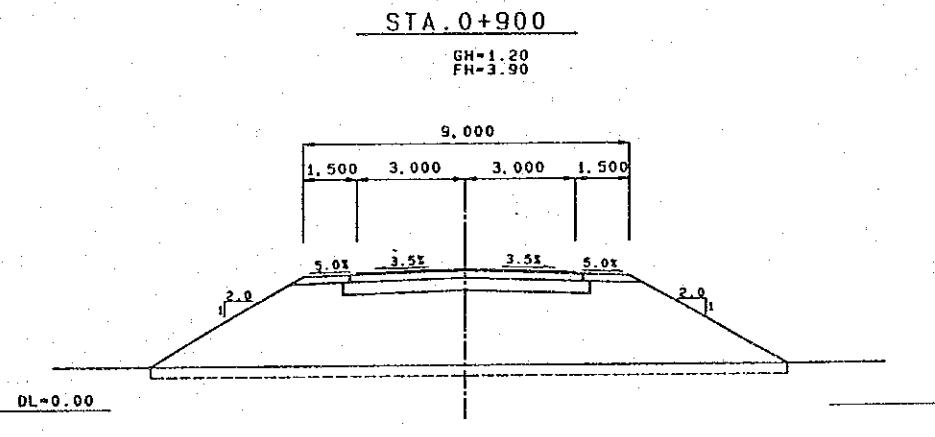
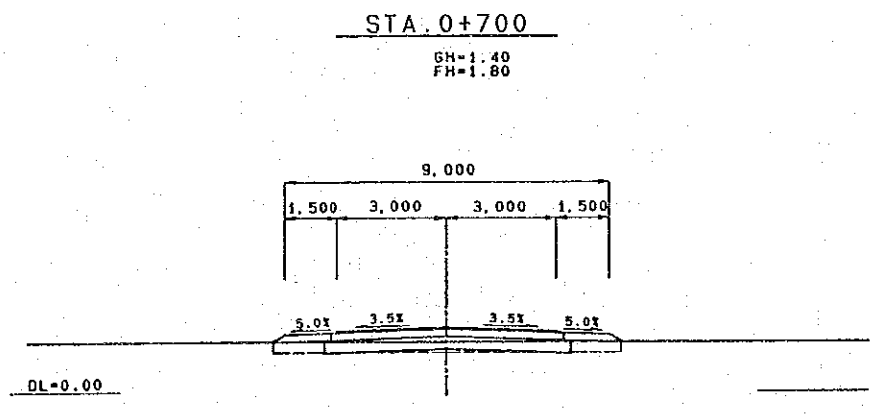
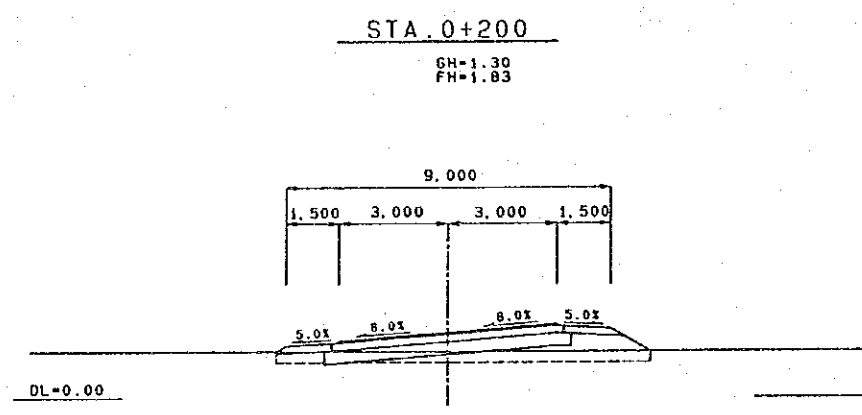
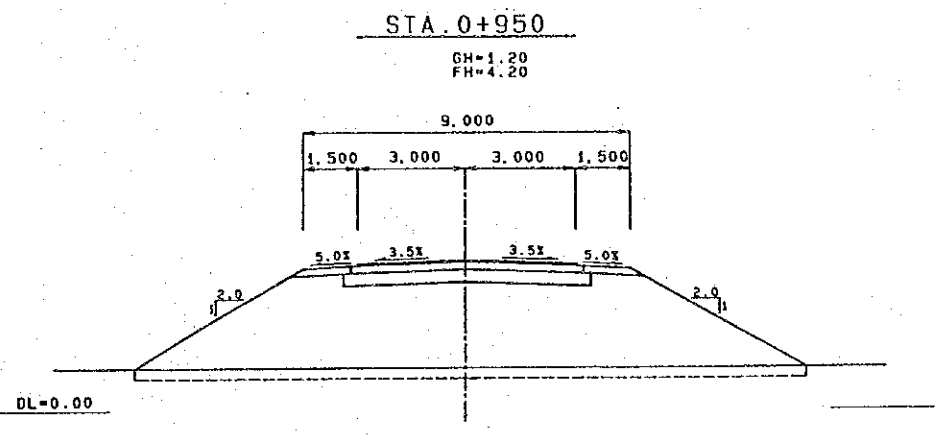
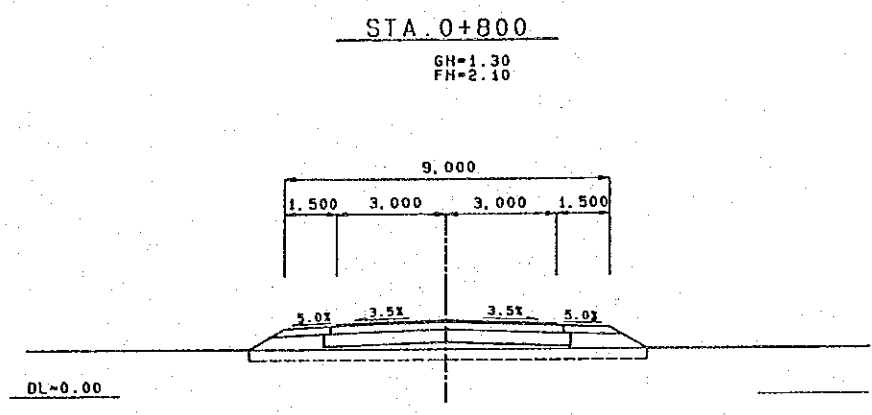
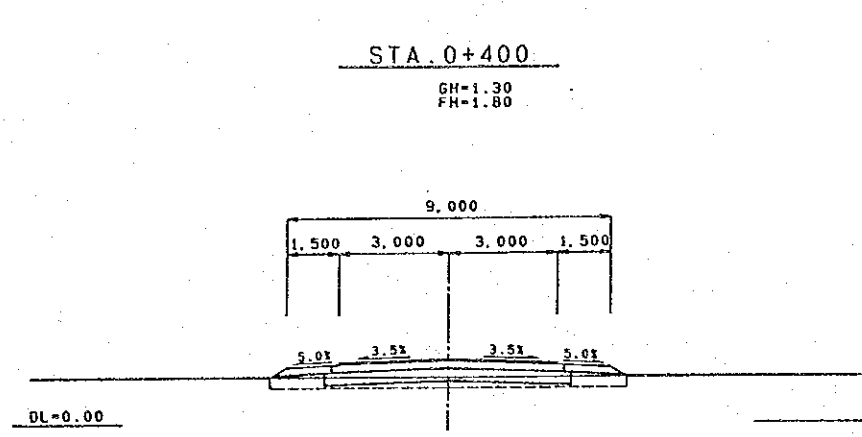


BANG PAKONG DIVERSION DAM PROJECT

ROAD

TYPICAL SECTION

DRAWING NO. 20



BANG PAKONG DIVERSION DAM PROJECT

ROAD

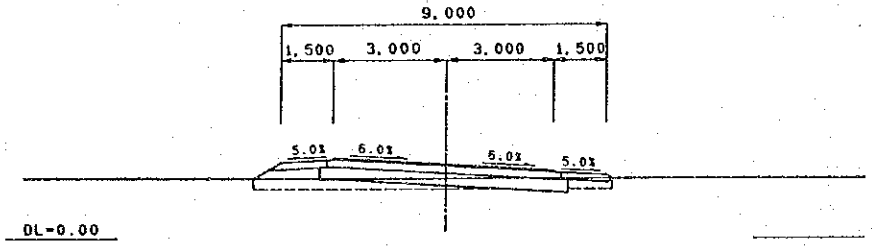
CROSS SECTIONS (1/3)

DRAWING NO. 21



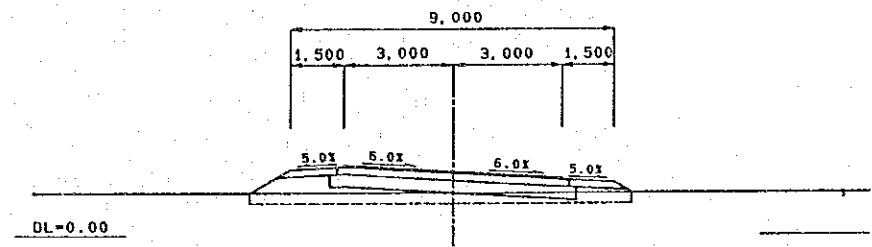
STA. 1+400

GH=1.70  
FH=2.10



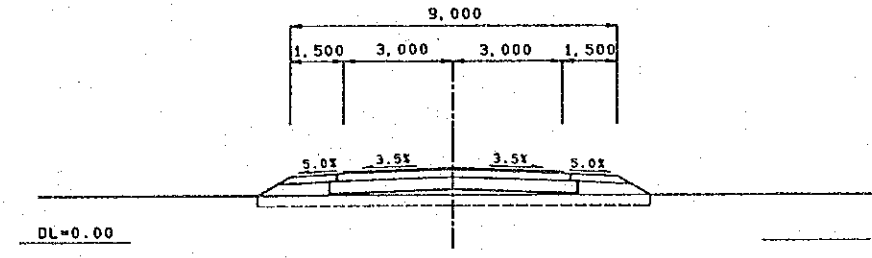
STA. 2

GH=1.20  
FH=1.80



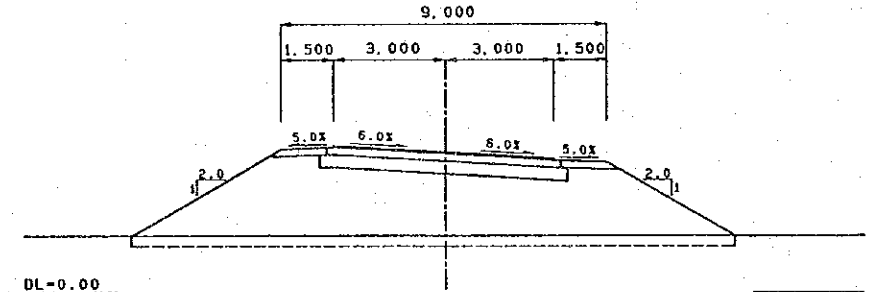
STA. 2+300

GH=1.30  
FH=2.06



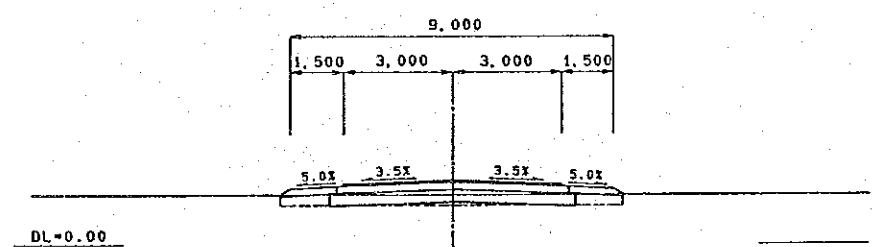
STA. 1+300

GH=1.60  
FH=3.90



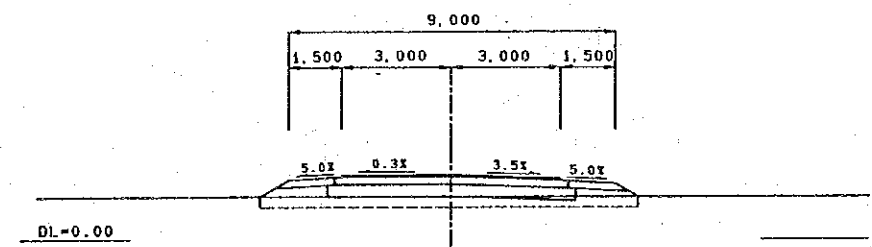
STA. 1+800

GH=1.40  
FH=1.80



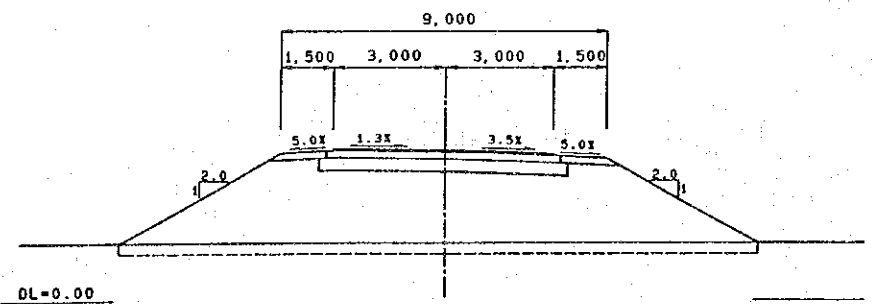
STA. 2+200

GH=1.20  
FH=1.80



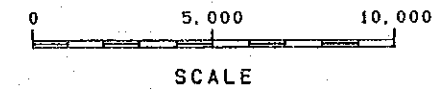
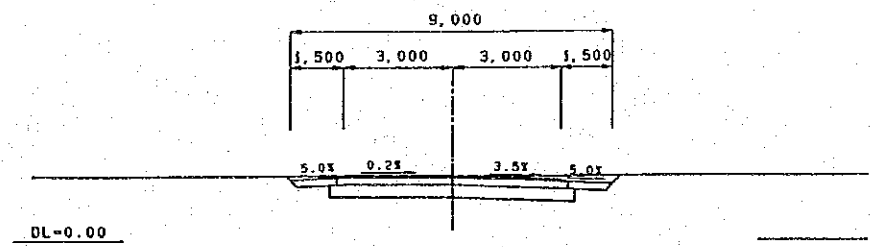
STA. 1+250

GH=1.60  
FH=4.20



STA. 1+600

GH=1.80  
FH=1.80

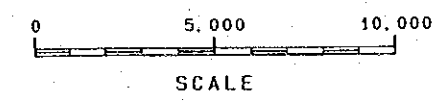
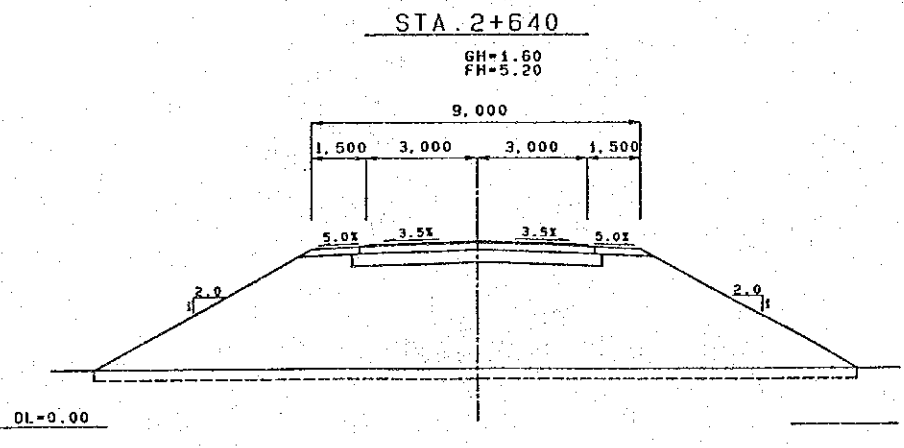
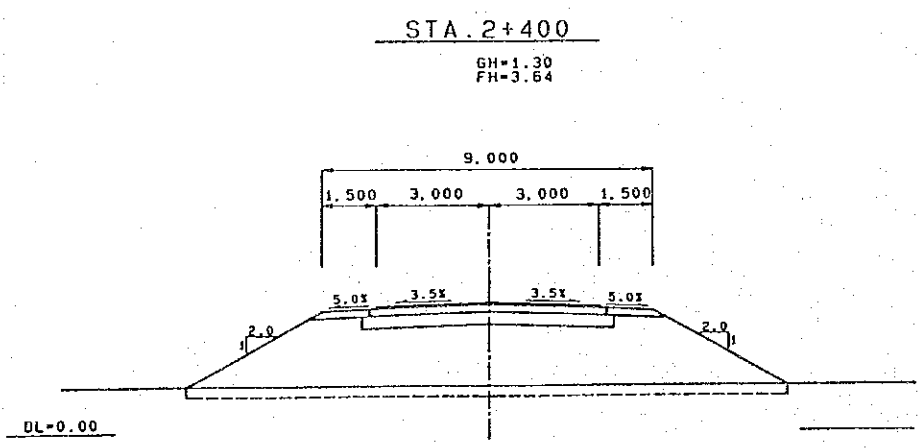
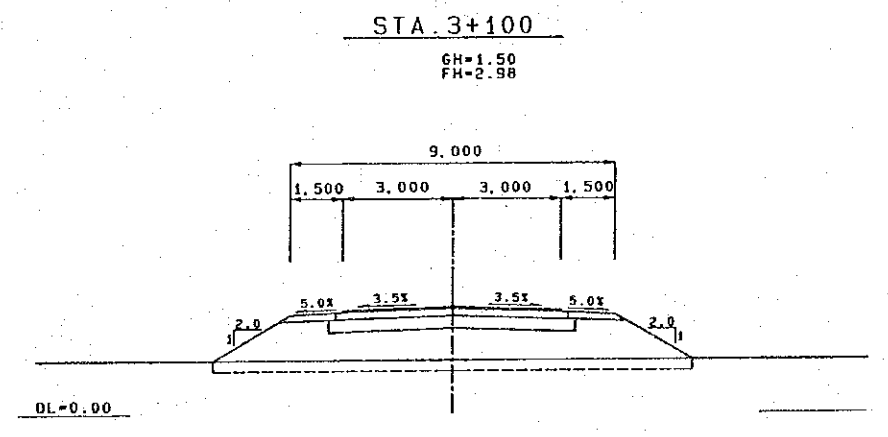
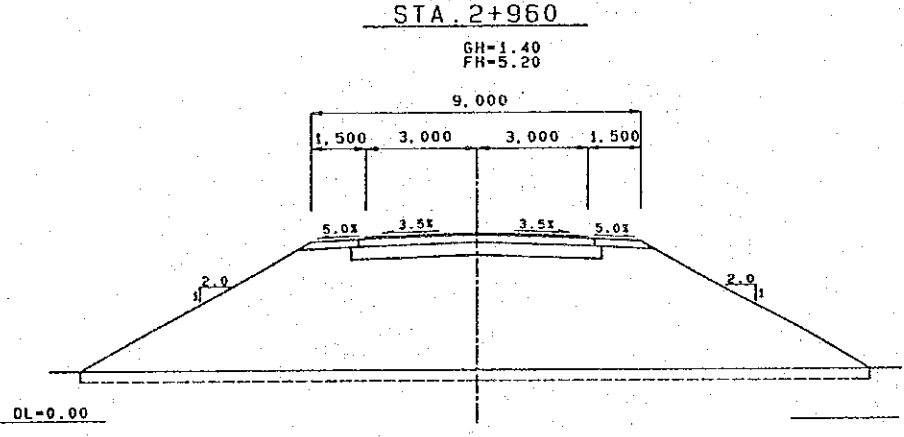
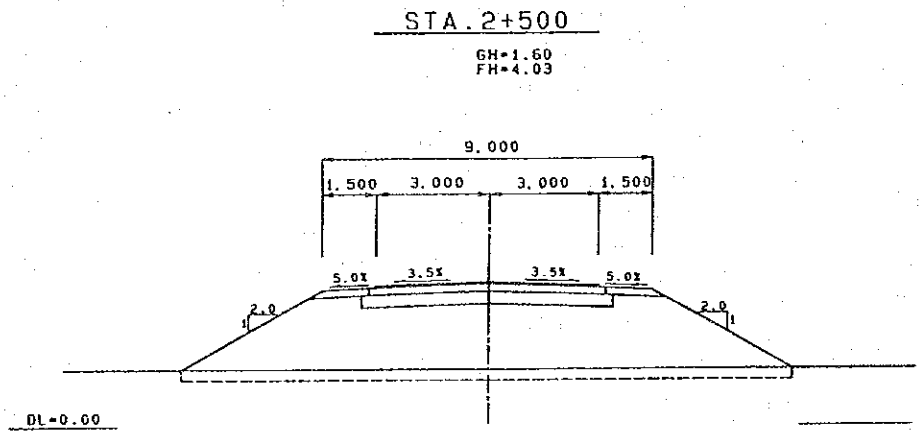
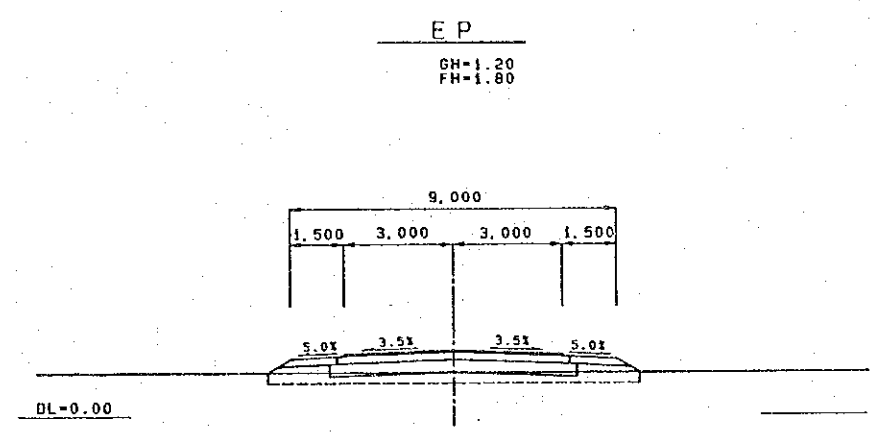
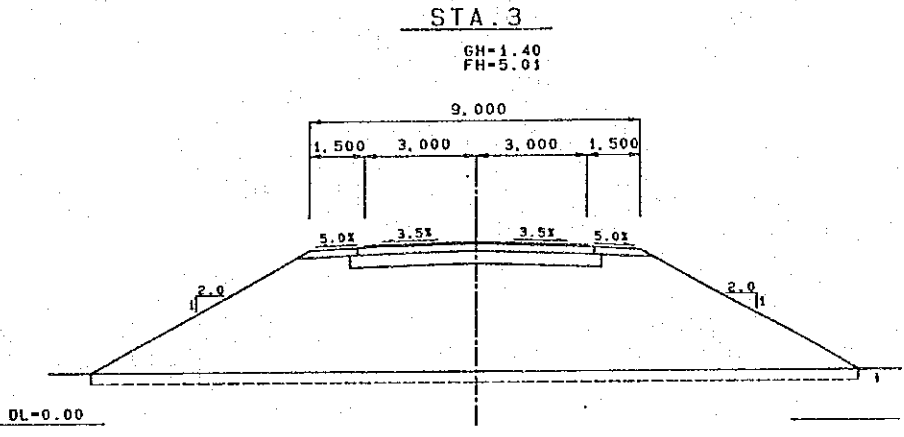
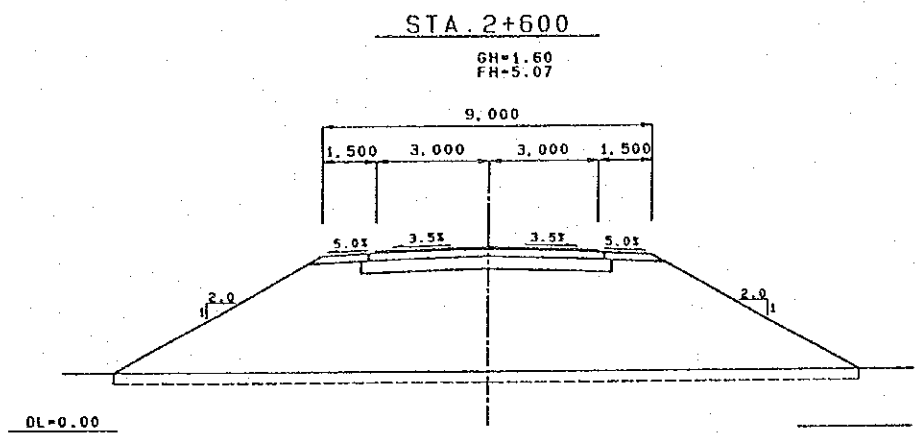


BANG PAKONG DIVERSION DAM PROJECT

ROAD

CROSS SECTIONS (2/3)

DRAWING NO. 22

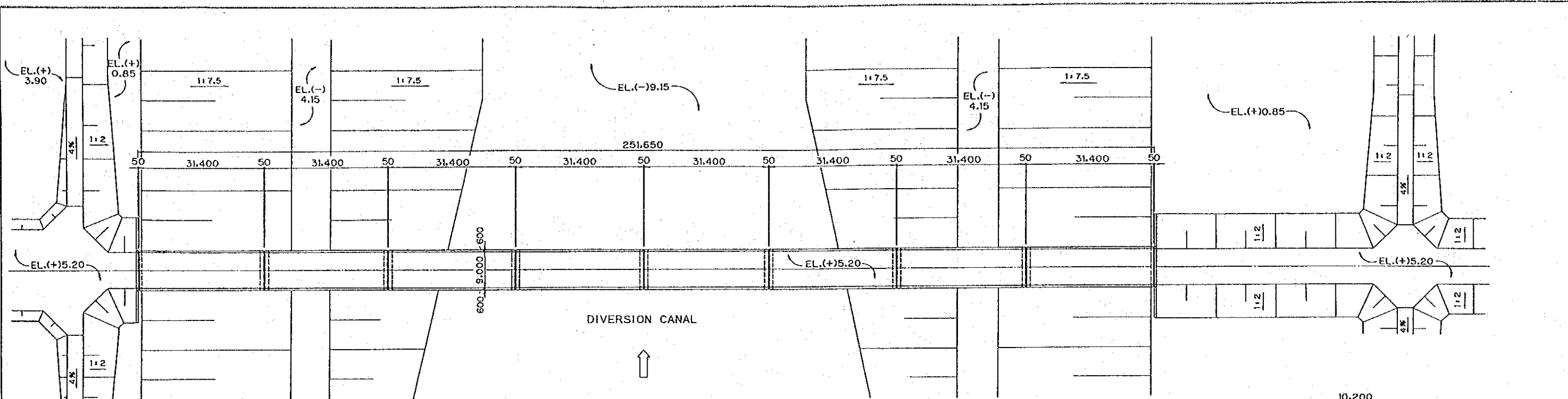


BANG PAKONG DIVERSION DAM PROJECT

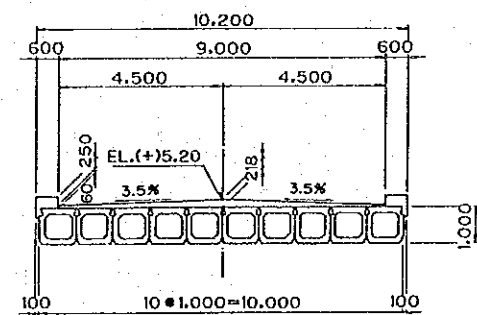
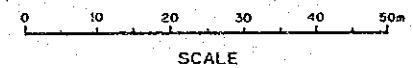
ROAD

CROSS SECTIONS (3/3)

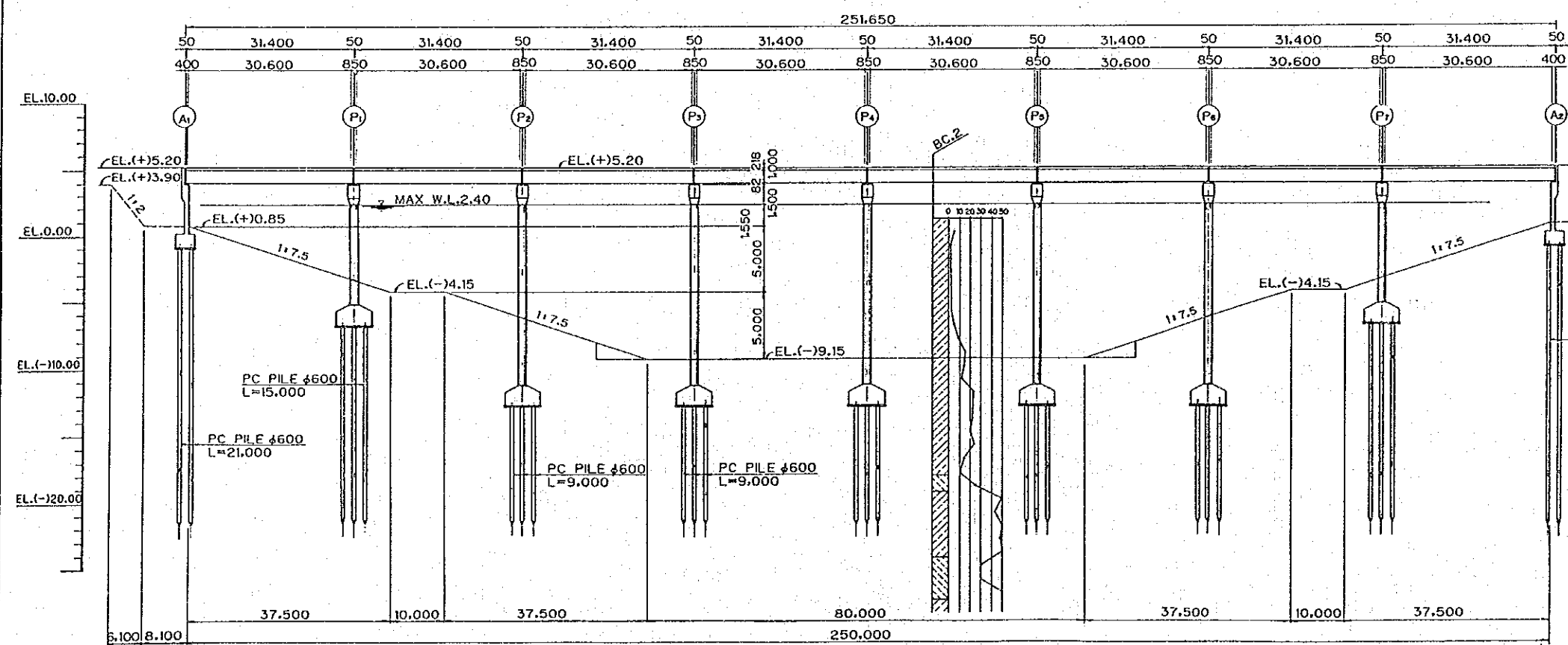
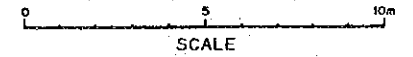
DRAWING NO. 23



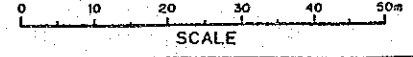
PLAN OF ROAD BRIDGE



TYPICAL SECTION OF ROAD BRIDGE



SIDE VIEW OF ROAD BRIDGE



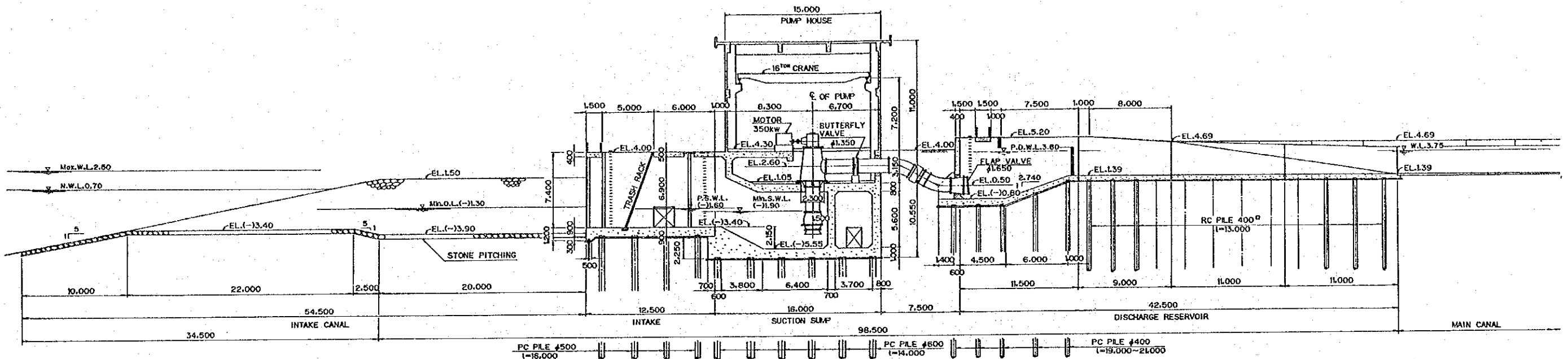
BANG PAKONG DIVERSION DAM PROJECT

ROAD BRIDGE

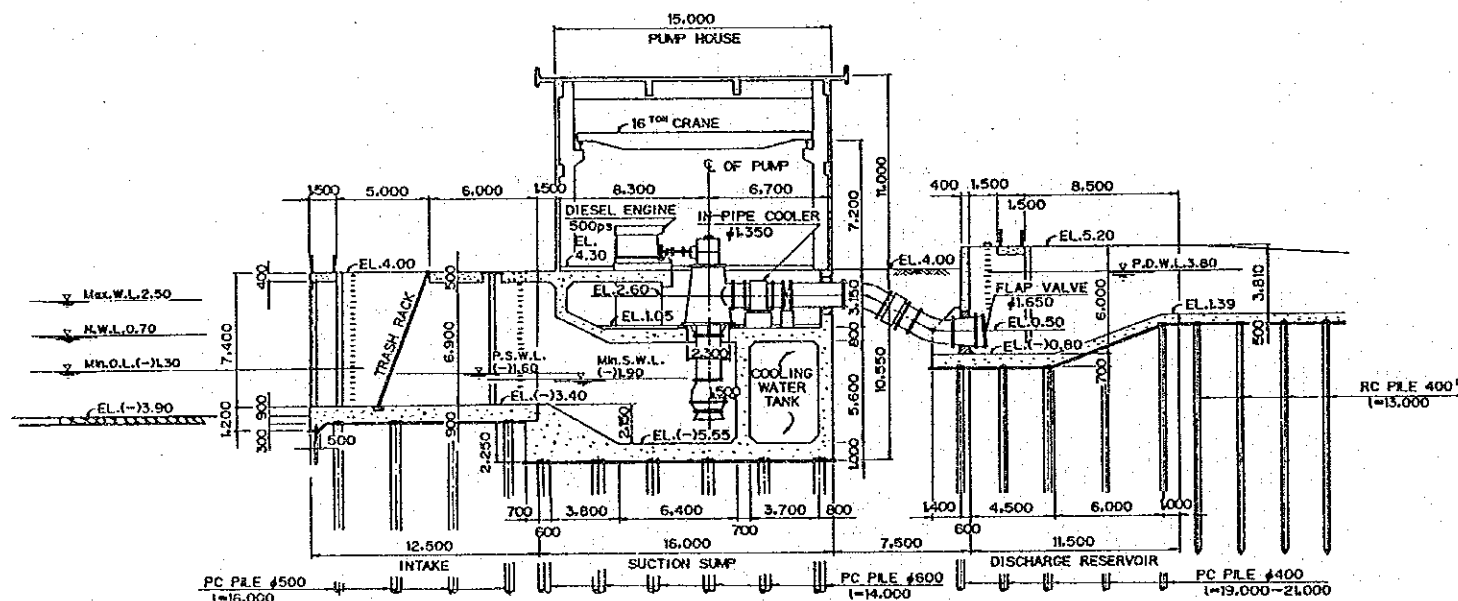
ELEVATION

DRAWING NO. 24

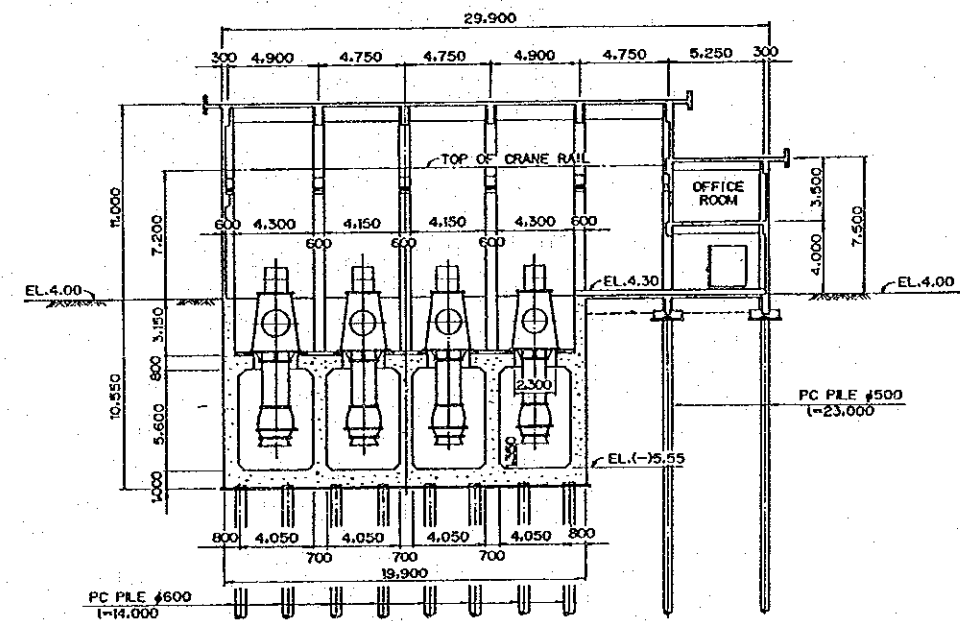




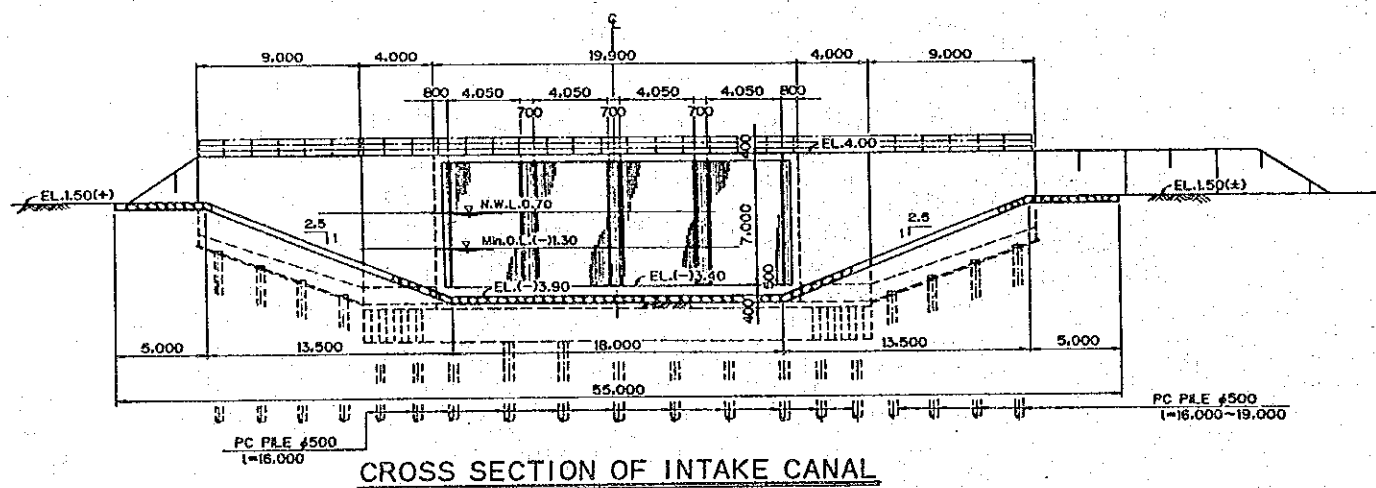
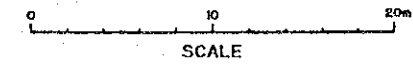
ELEVATION OF PUMPING STATION



ELEVATION OF ENGINE PUMP



CROSS SECTION OF PUMPING STATION



CROSS SECTION OF INTAKE CANAL

DIMENSION OF PUMPS

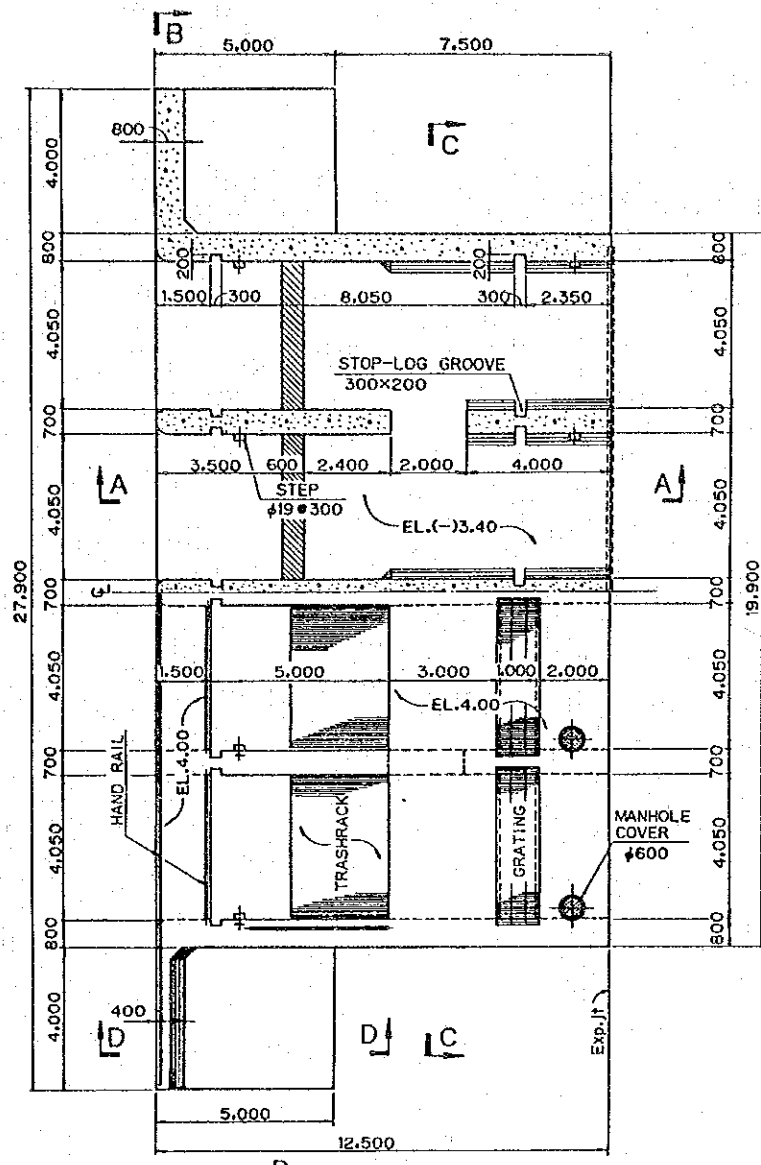
| PUMP TYPE          | VERTICAL SHAFT TYPE MIXED FLOW PUMP |               |
|--------------------|-------------------------------------|---------------|
| BORE               | φ1.350mm                            |               |
| PUMP CAPACITY      | 240m <sup>3</sup> /min x 4          |               |
| ACTUAL HEAD        | 5.4m                                |               |
| PRIME MOVER TYPE   | ERECTRIC MOTOR                      | DIESEL ENGINE |
| TOTAL HEAD         | 6.1m                                | 6.2m          |
| PRIME MOVER OUTPUT | 350kw                               | 500ps         |
| No. OF PUMPS       | 3 units                             | 1 unit        |

BANG PAKONG DIVERSION DAM PROJECT

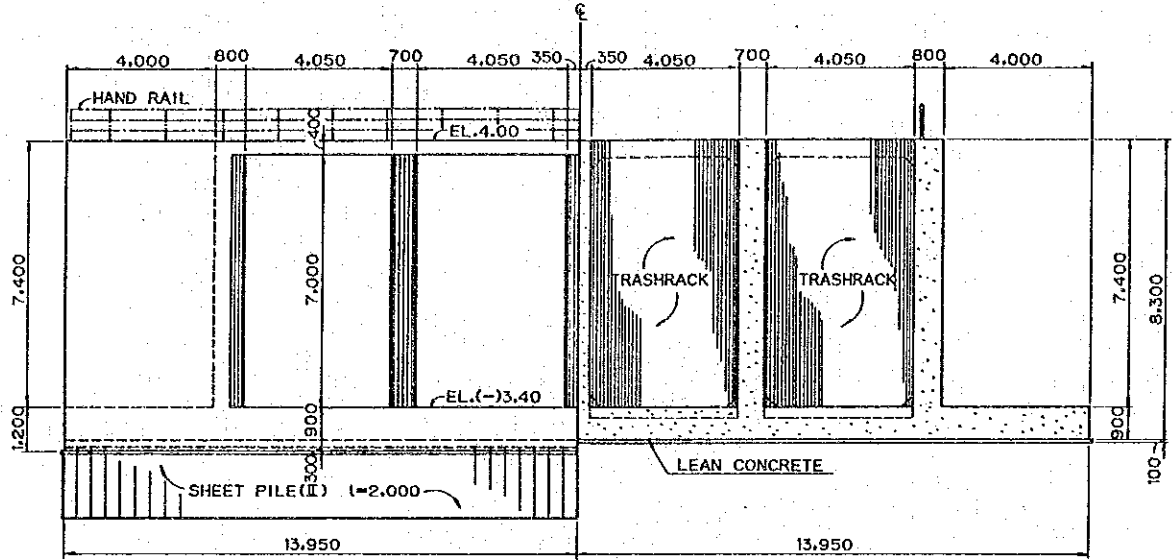
PUMPING STATION

ELEVATION & SECTIONS

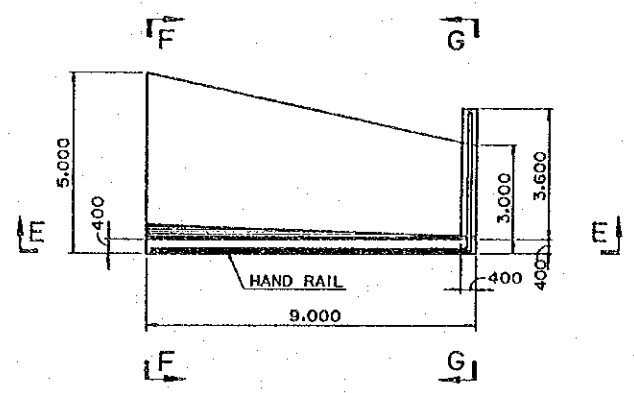
DRAWING NO. 26



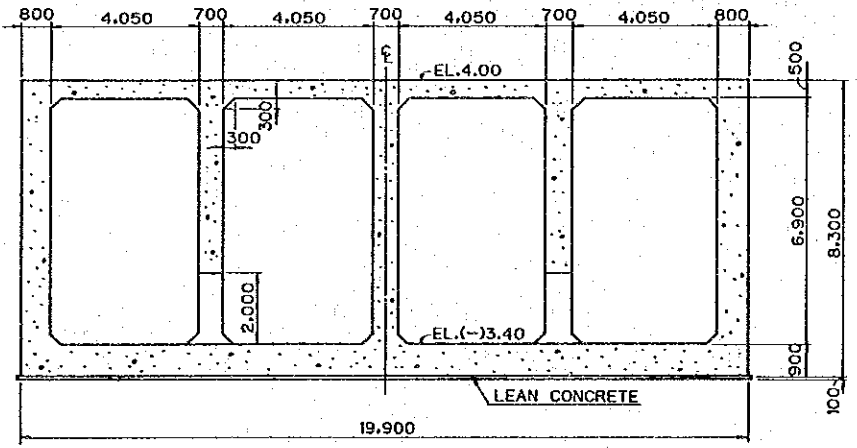
PLAN OF INTAKE



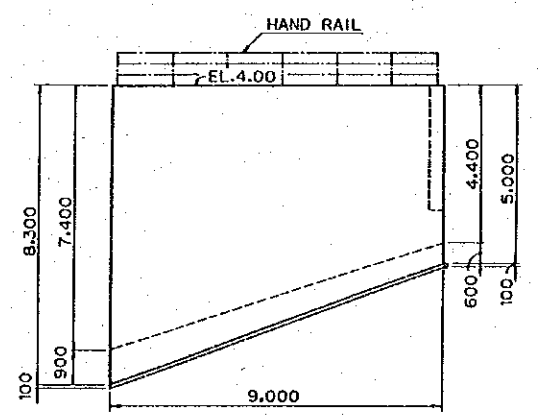
SECTION B-B



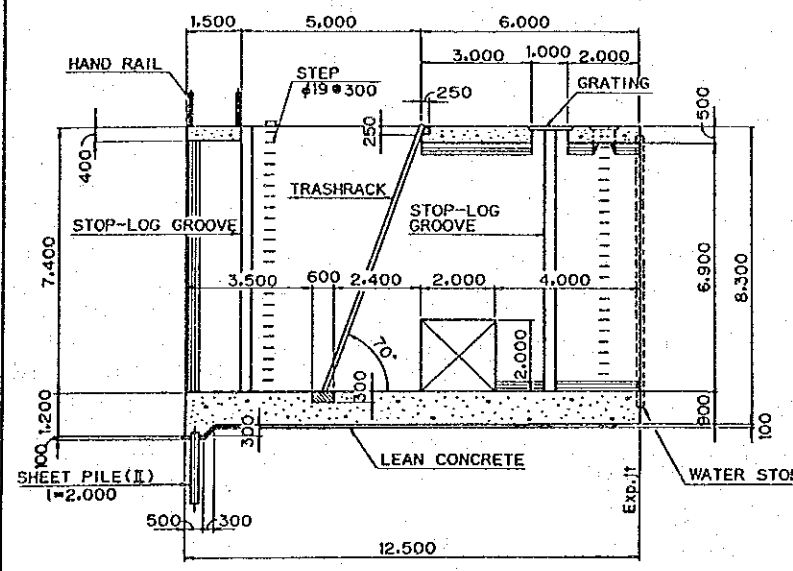
PLAN OF SIDE RETAINING WALL



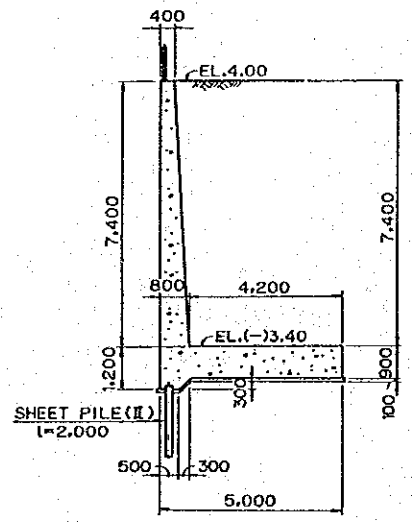
SECTION C-C



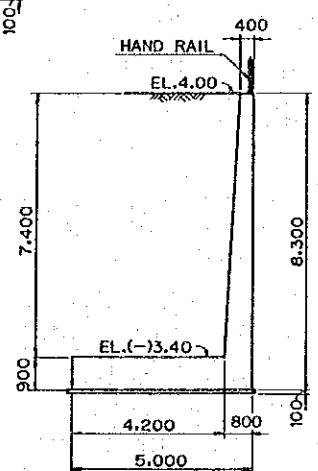
SECTION E-E



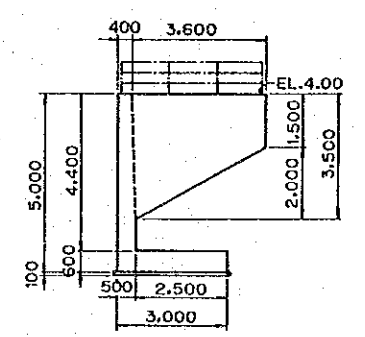
SECTION A-A



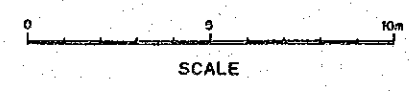
SECTION D-D



SECTION F-F



SECTION G-G



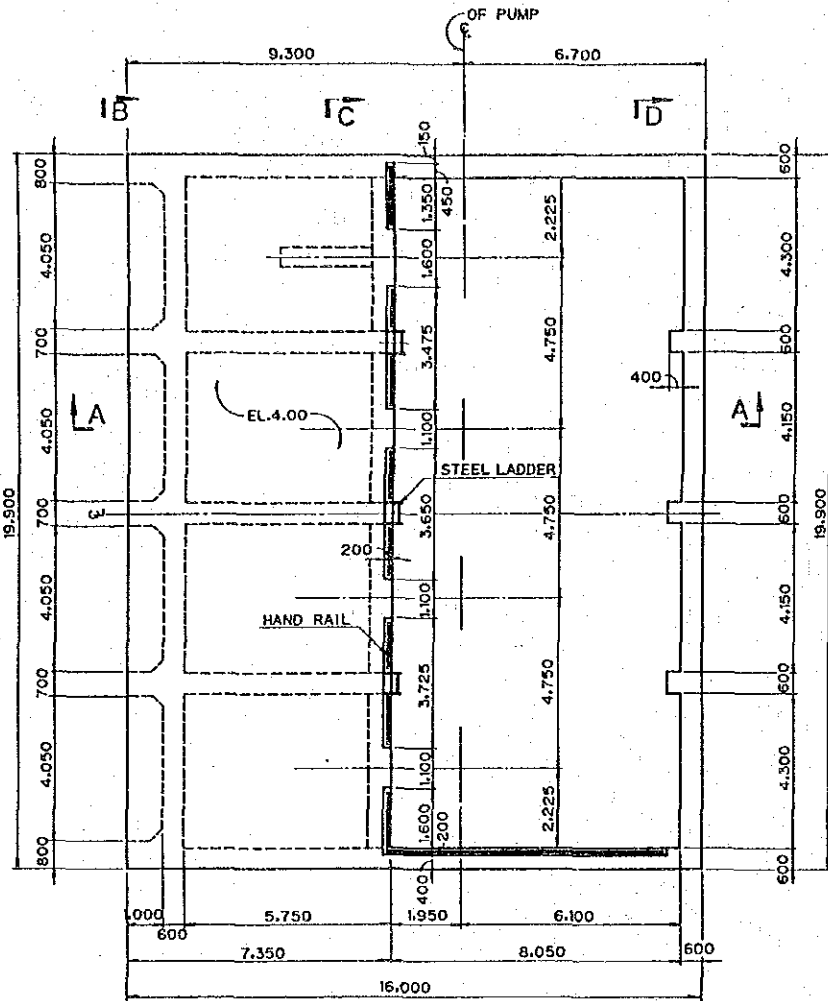
BANG PAKONG DIVERSION DAM PROJECT

PUMPING STATION

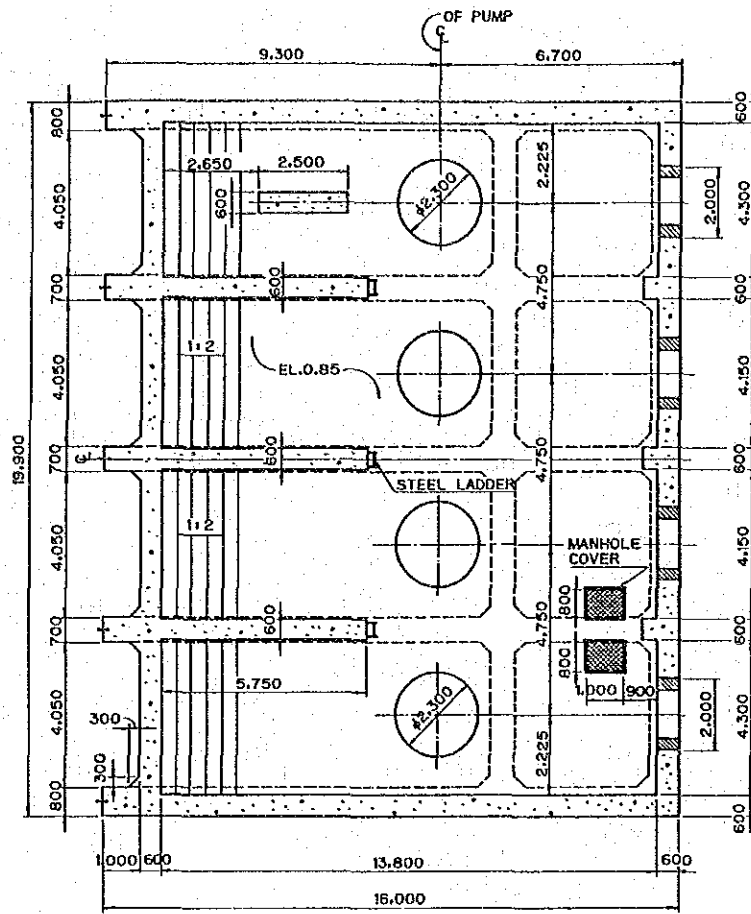
INTAKE STRUCTURE

DRAWING NO. 27

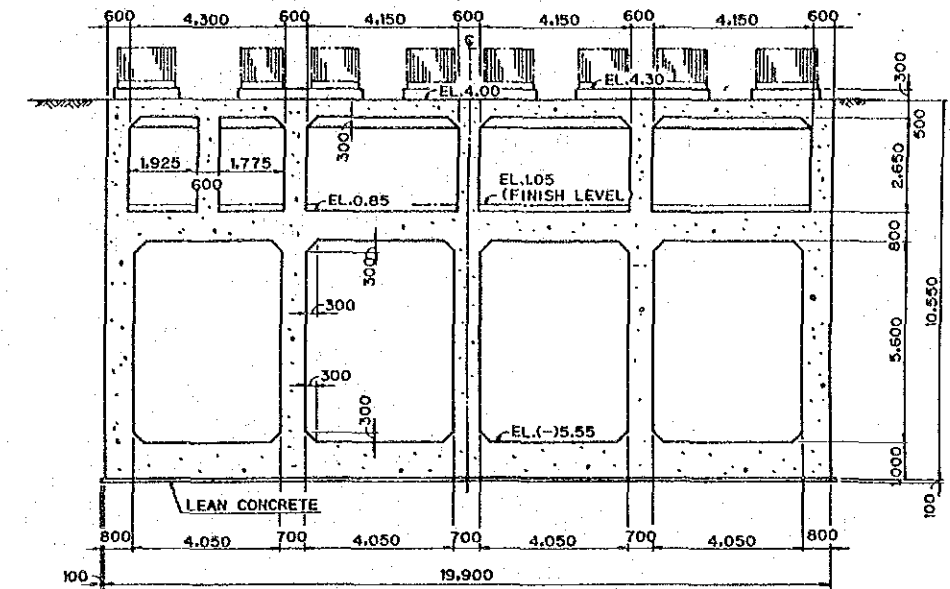




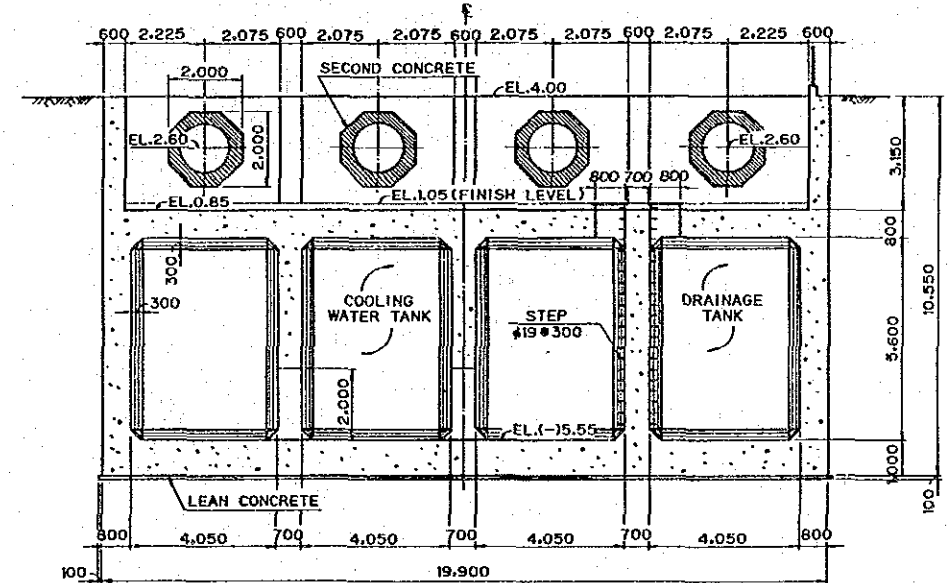
PLAN OF PRIME MOVER FLOOR



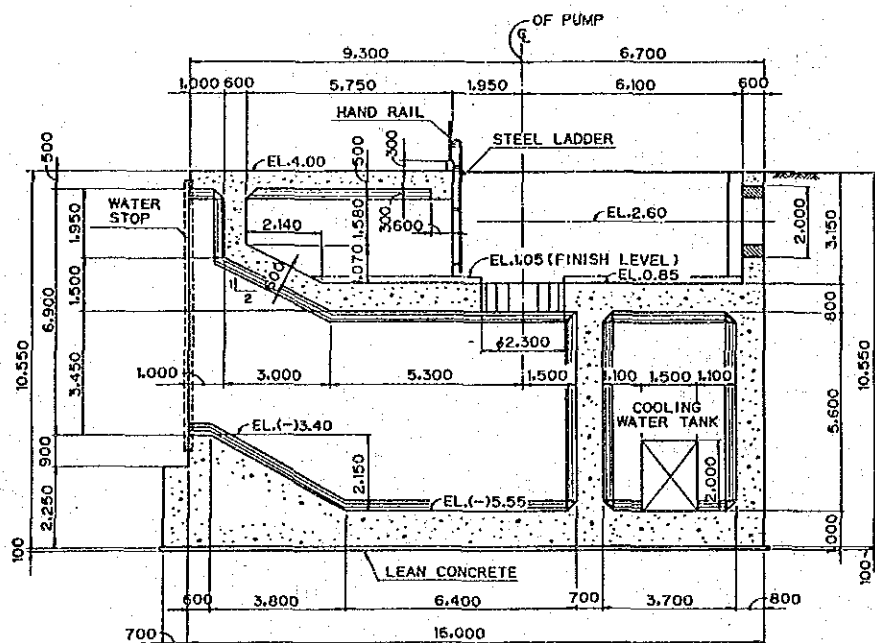
PLAN OF PUMP FLOOR



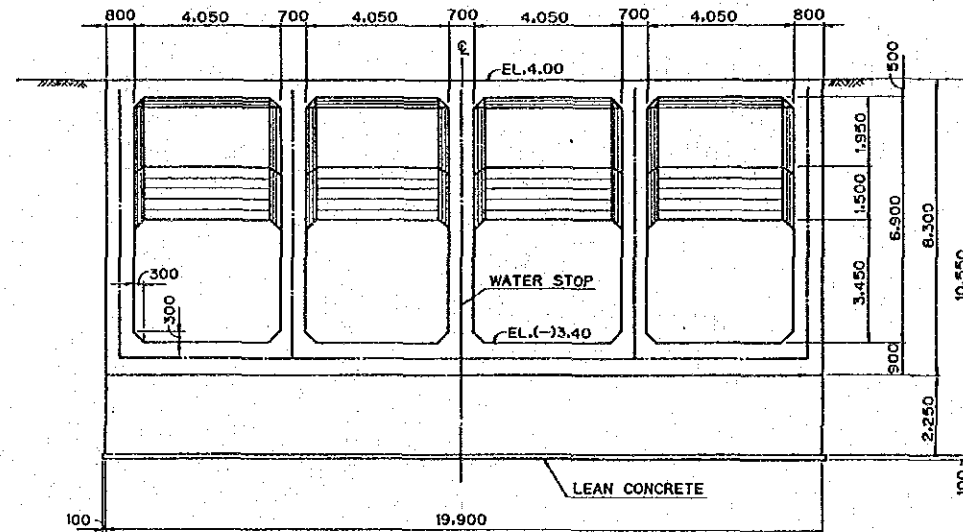
SECTION C-C



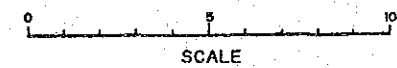
SECTION D-D



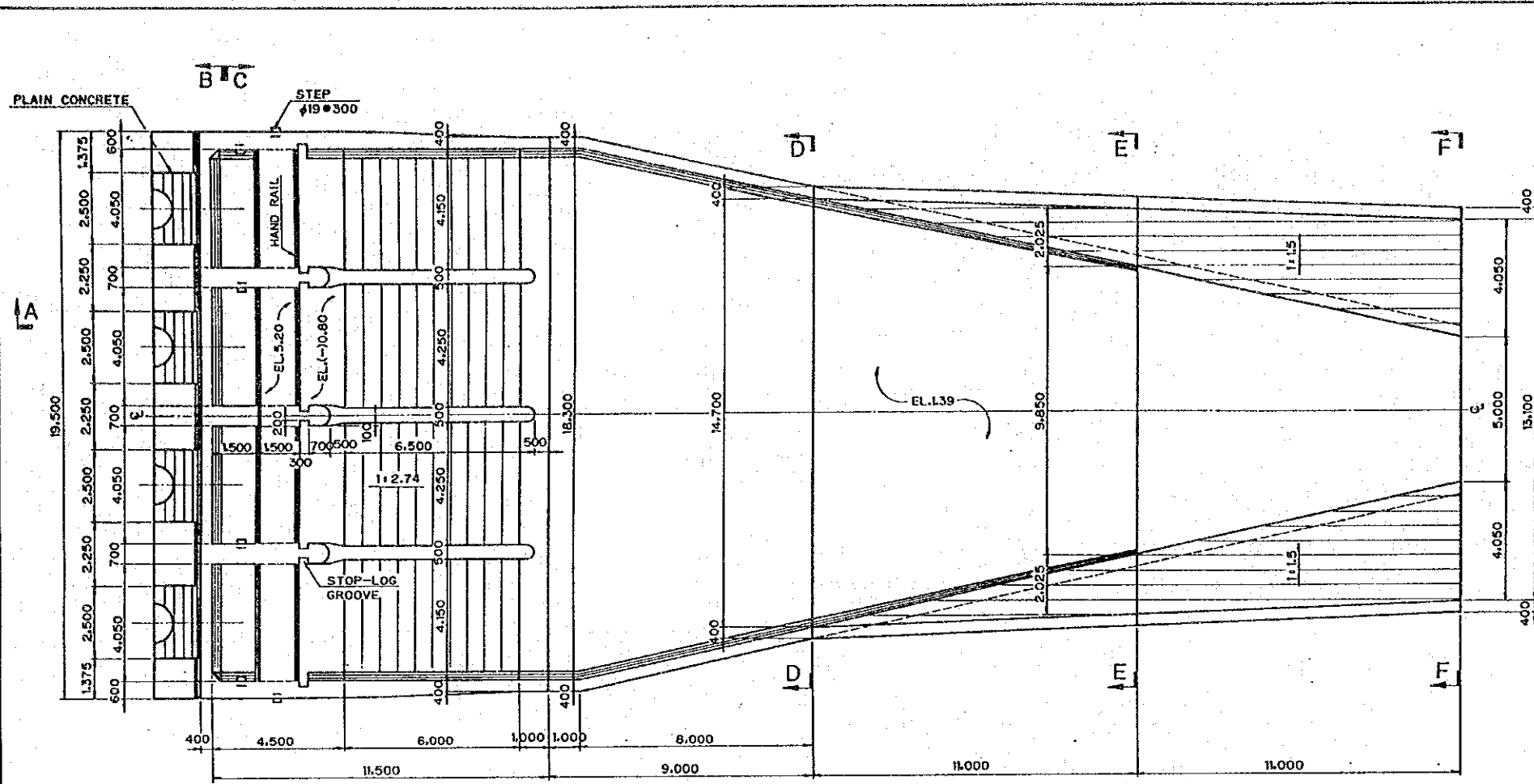
SECTION A-A



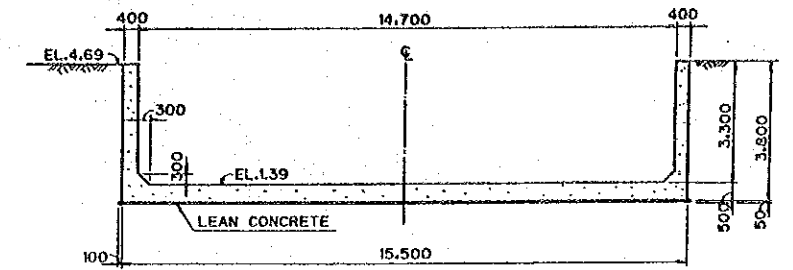
SECTION B-B



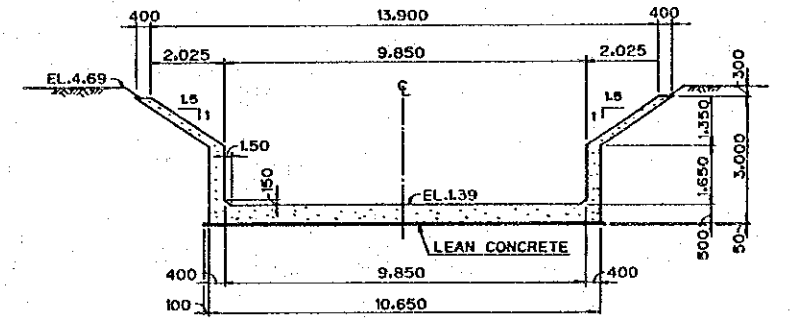
BANG PAKONG DIVERSION DAM PROJECT  
 PUMPING STATION  
 SUCTION SUMP STRUCTURE  
 DRAWING NO. 28



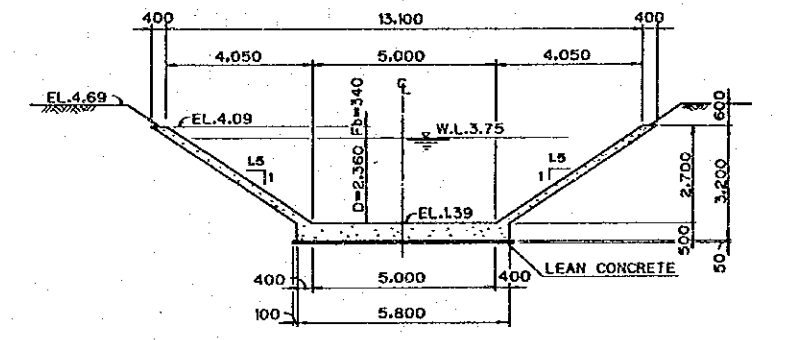
PLAN



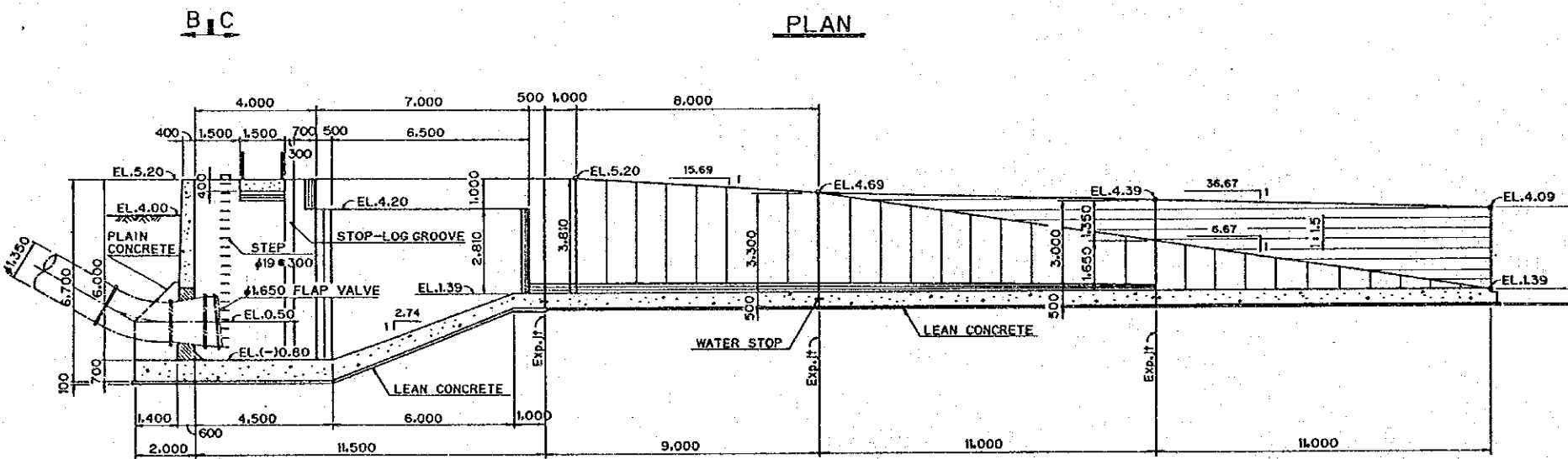
SECTION D-D



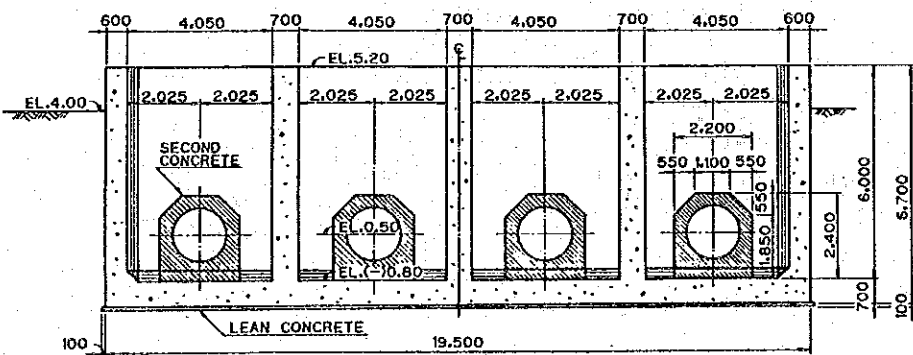
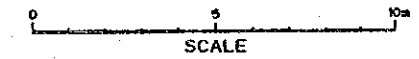
SECTION E-E



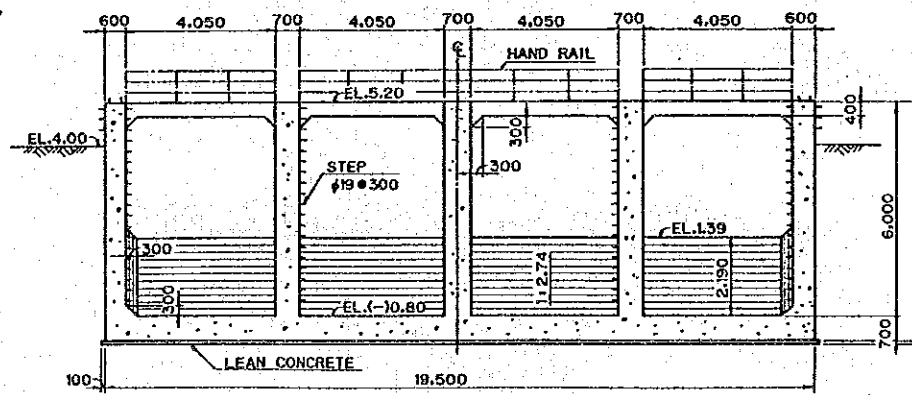
SECTION F-F



SECTION A-A



SECTION B-B



SECTION C-C

BANG PAKONG DIVERSION DAM PROJECT  
 PUMPING STATION  
 DISCHARGE RESERVOIR STRUCTURE  
 DRAWING NO. 29