

Fig. X-8-1  
Schematical Feature of 5 Types  
of Quebrada



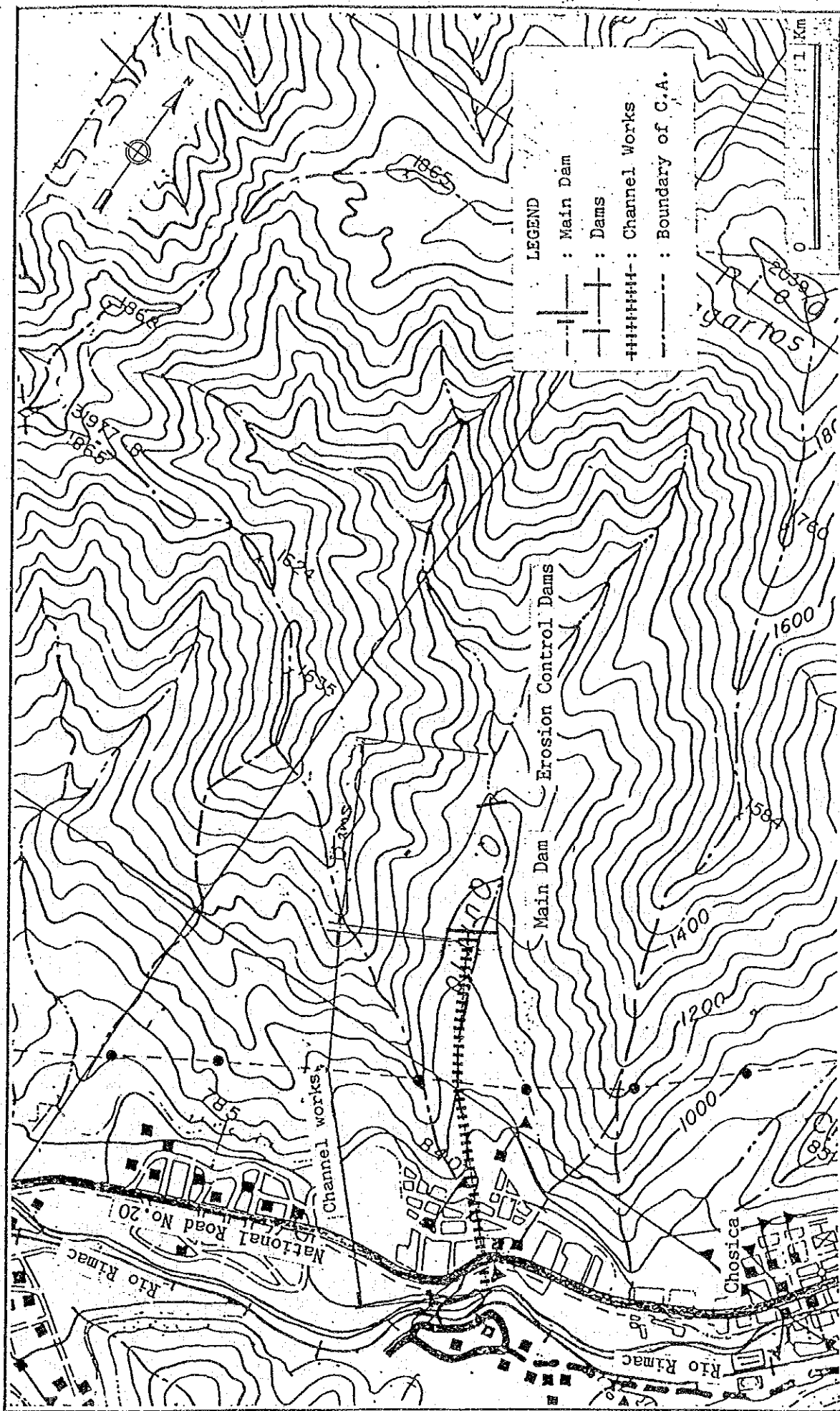
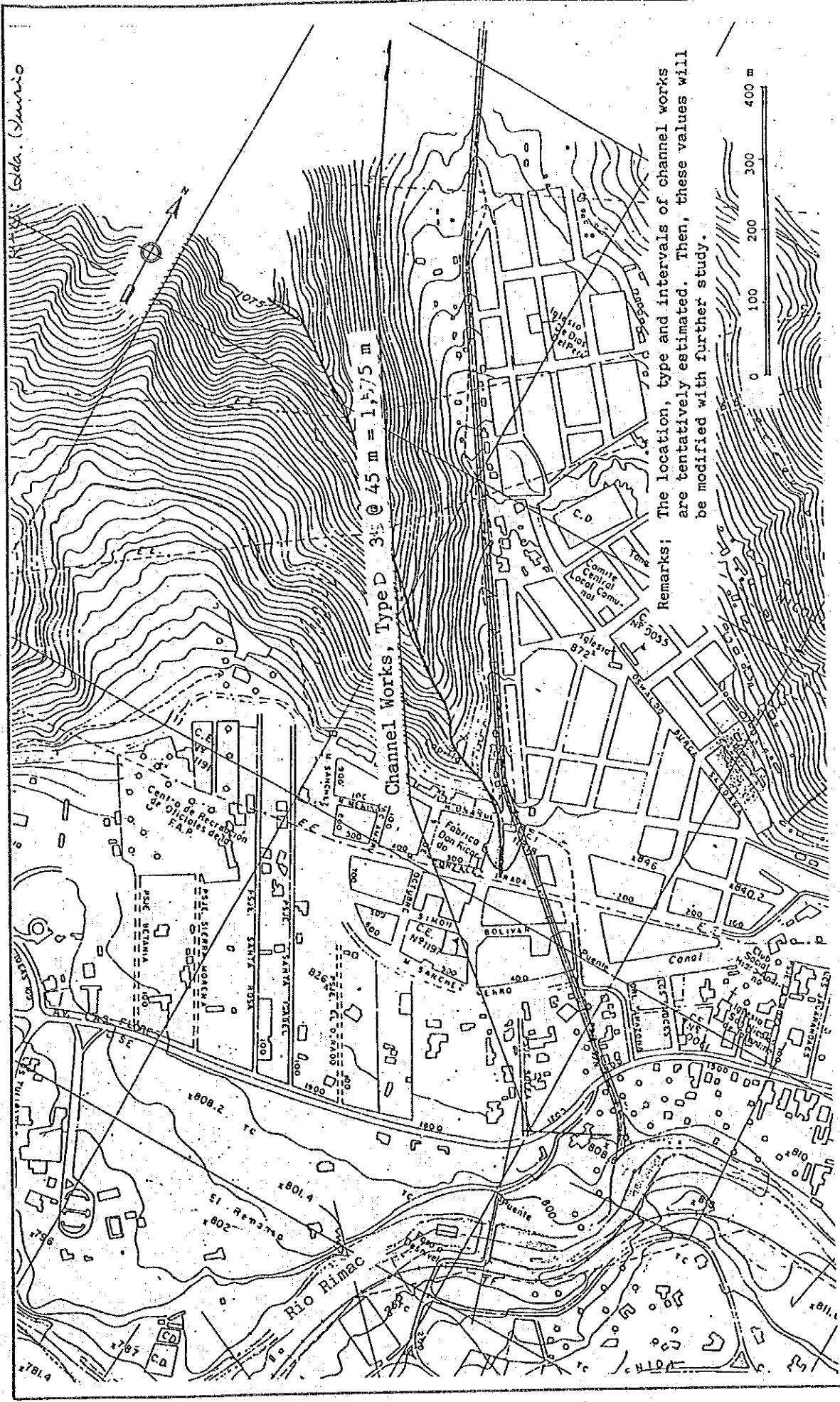


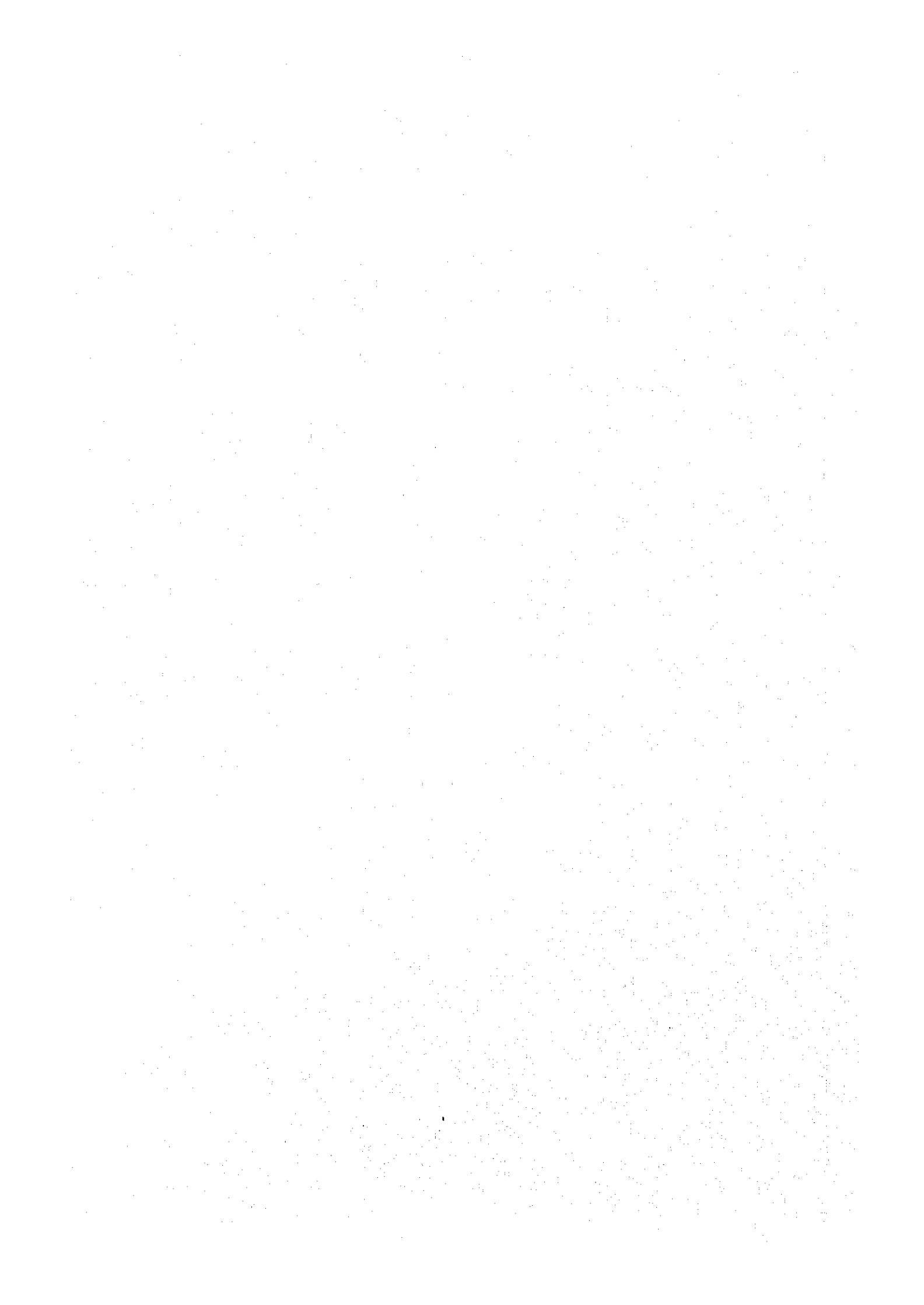
Fig. X-8-2 Alignment of Channel and General Layout of Structures in Qda. Quirio





Remarks: The location, type and intervals of channel works are tentatively estimated. Then, these values will be modified with further study.

Fig. X-8-3 Alignment of Channel and General Layout of Structures in Qda. Quirio (Only Channel Works Stretch)





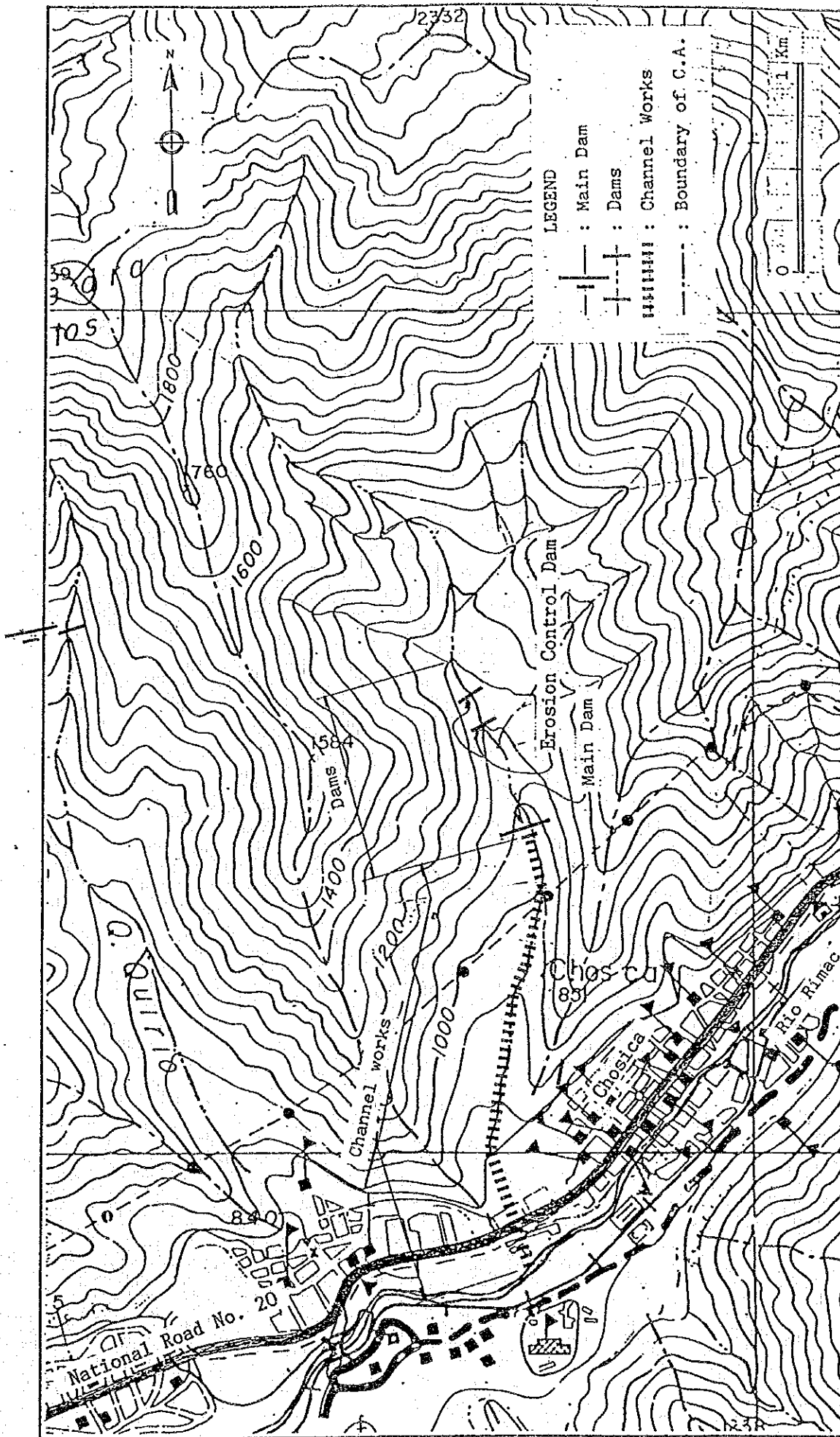


Fig. X-8-4 Alignment of Channel and General Layout of Structures in Qda. Pedregal



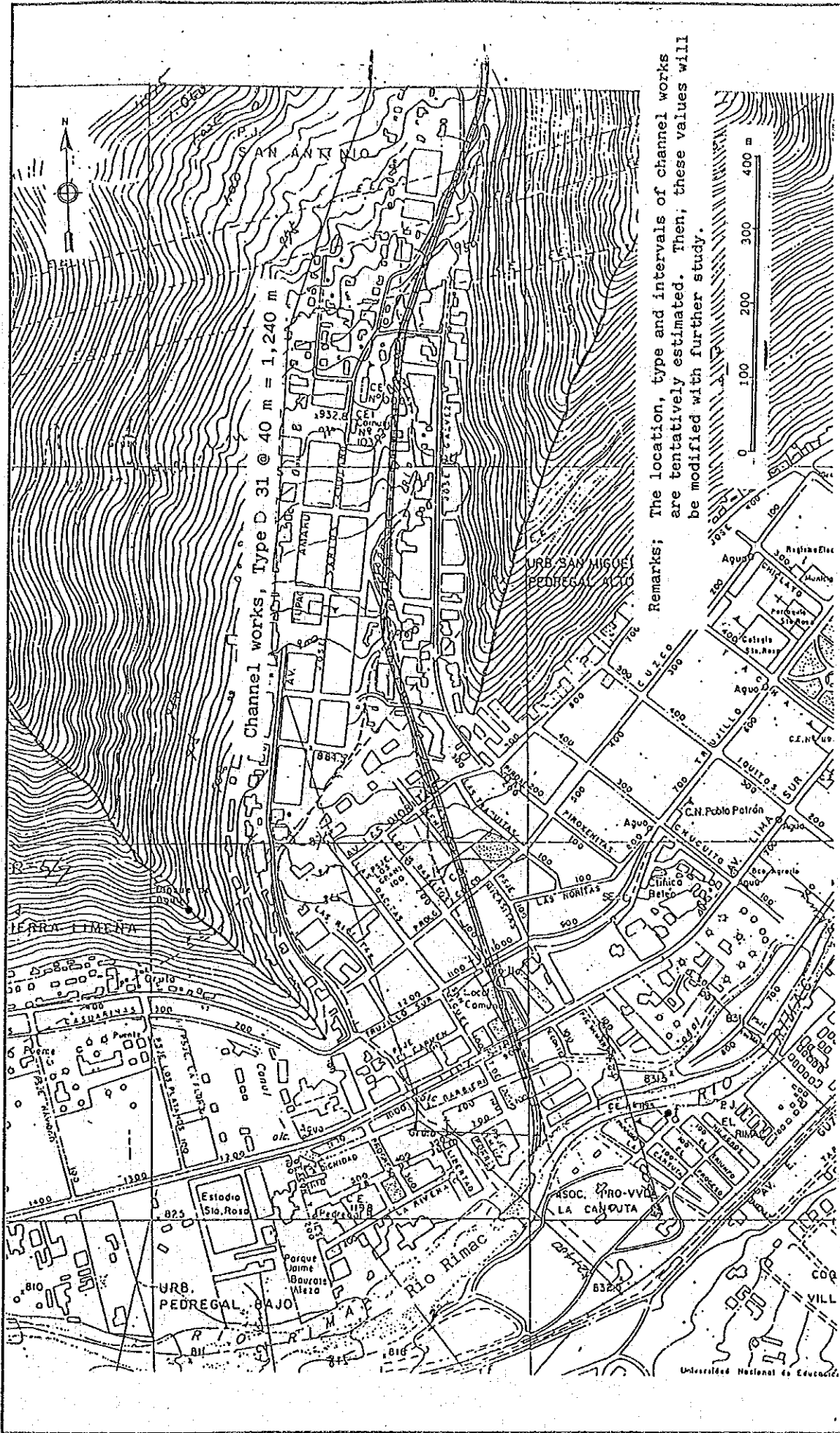


Fig. X-8-5 Alignment of Channel and General Layout of structures in Qda. Pedregal (Only Channel Works Stretch, Alternative C)







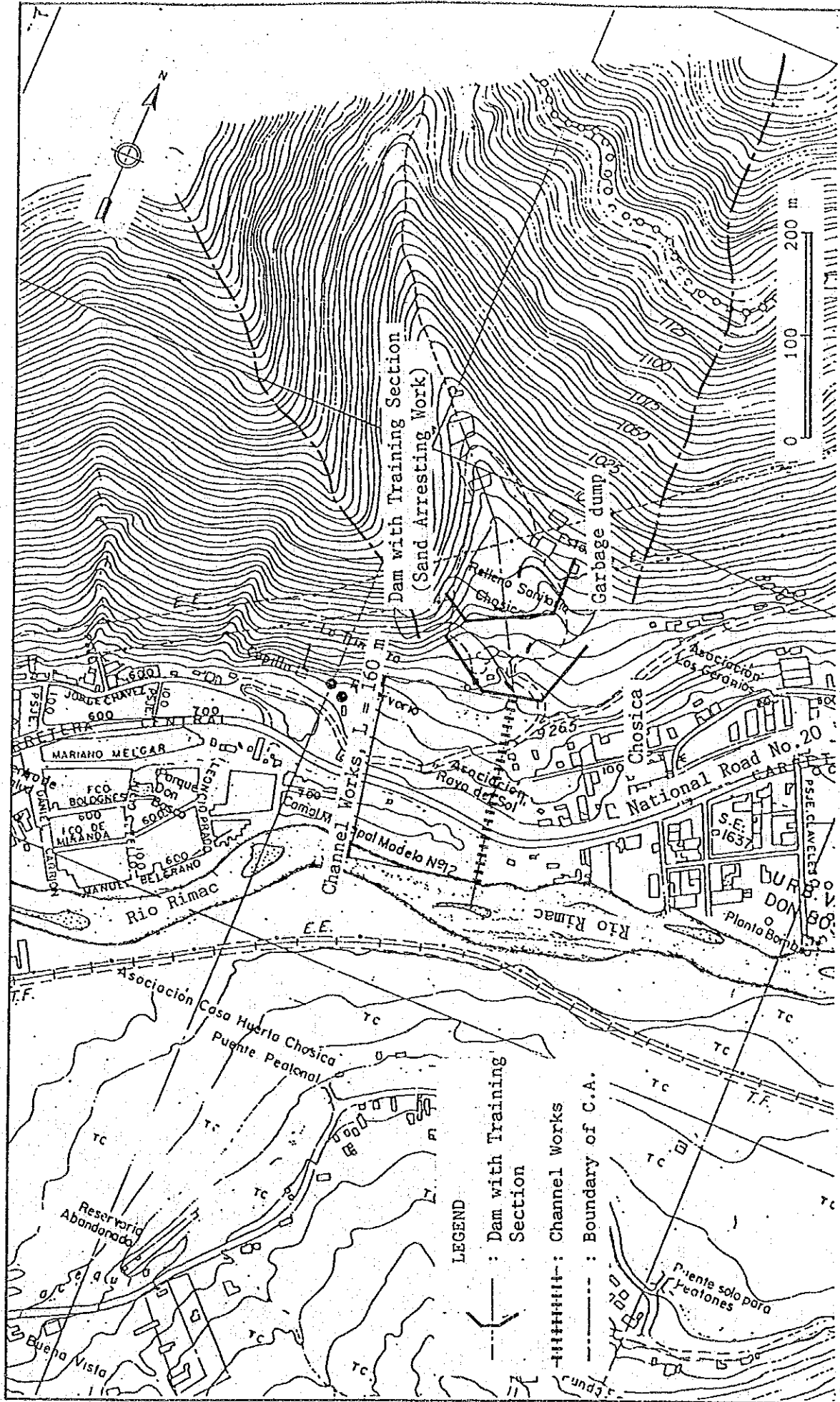


Fig. X-8-7 Alignment of Channel and General Layout of Structures in Qda. Corrales





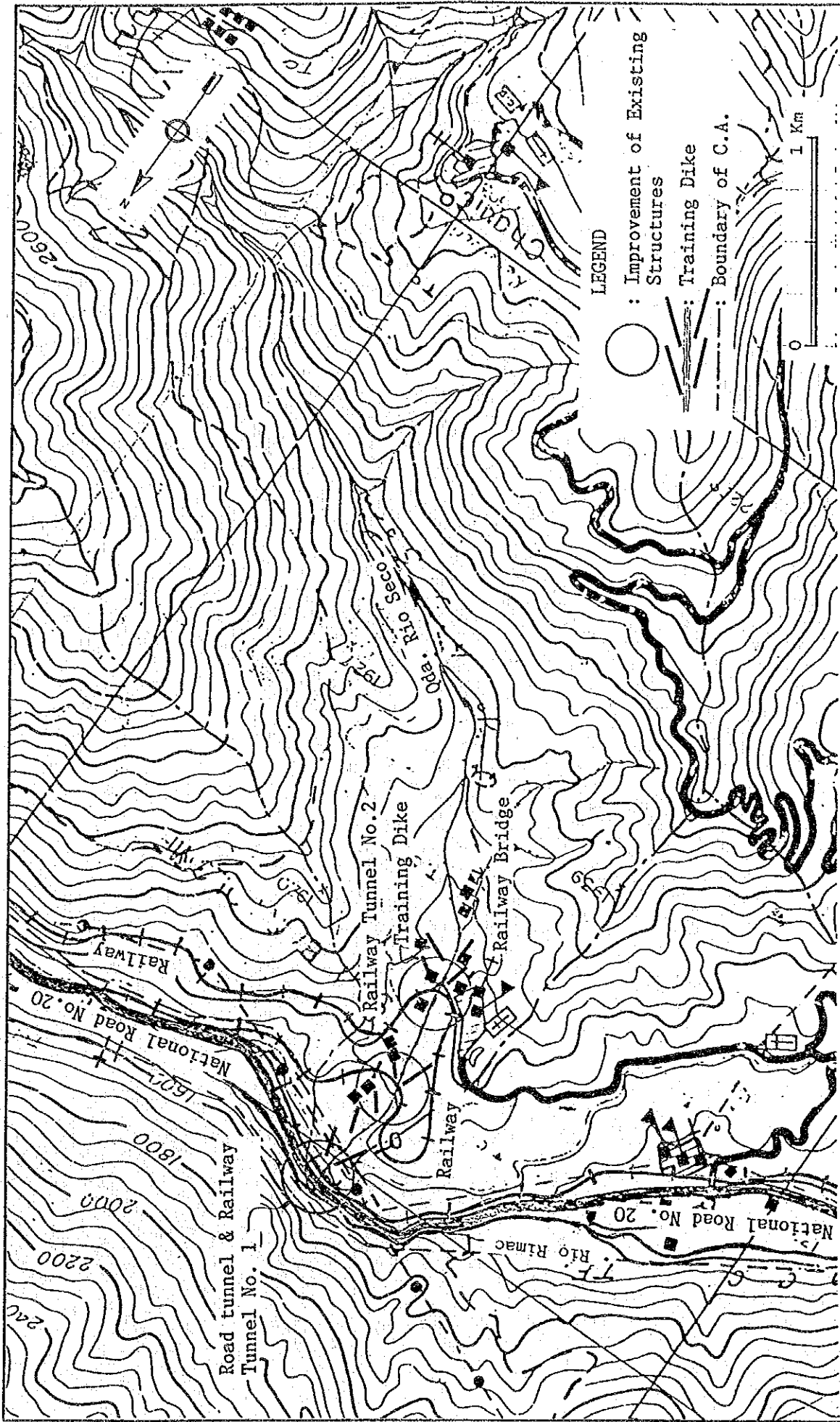


Fig. X-8-8 Alignment of Channel and General Layout of Structures in Qda. Rio Seco



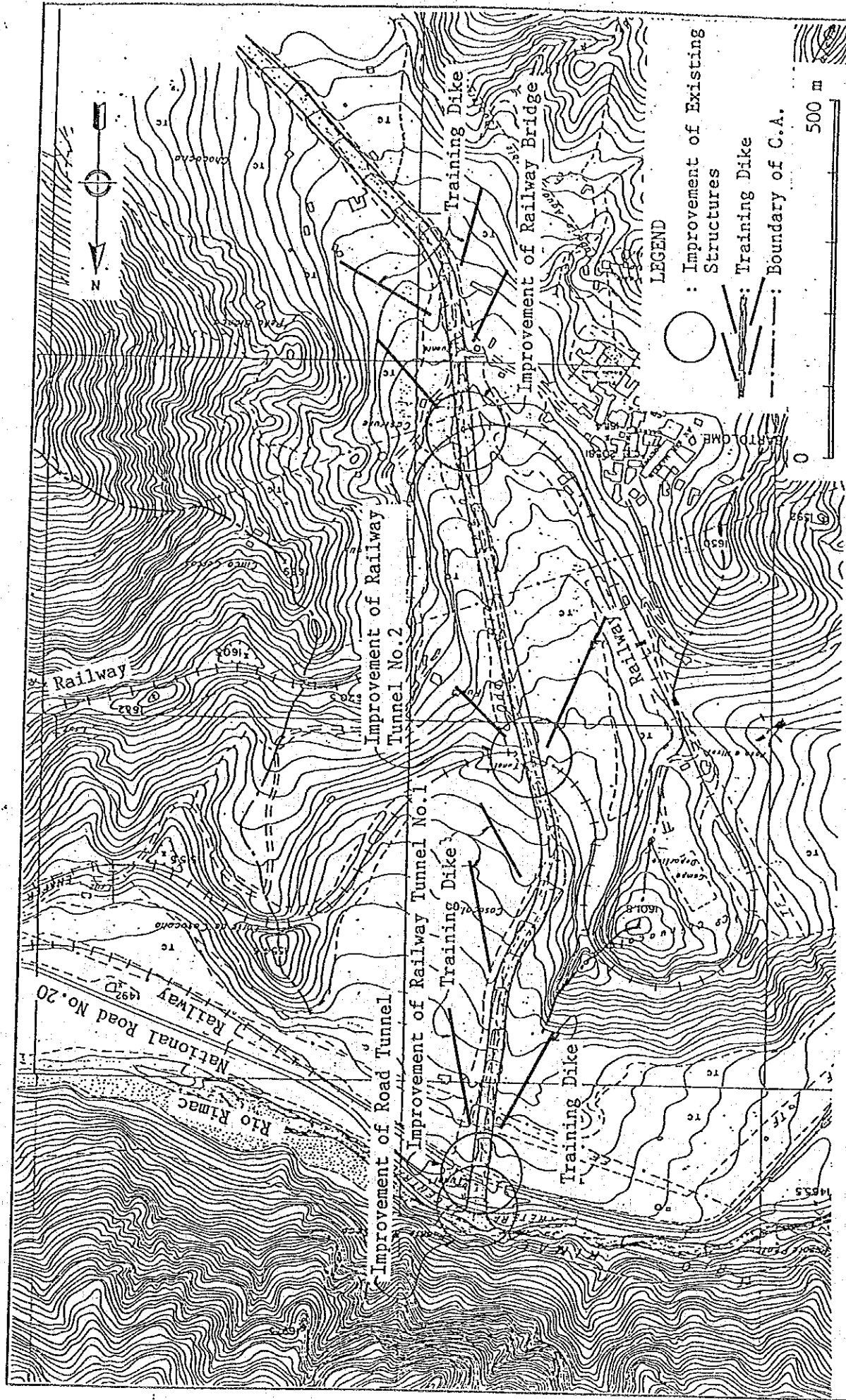


Fig. X-8-9 Alignment of Channel and General Layout of Structures in Qda. Rio Seco (Only Channel Works Stretch)



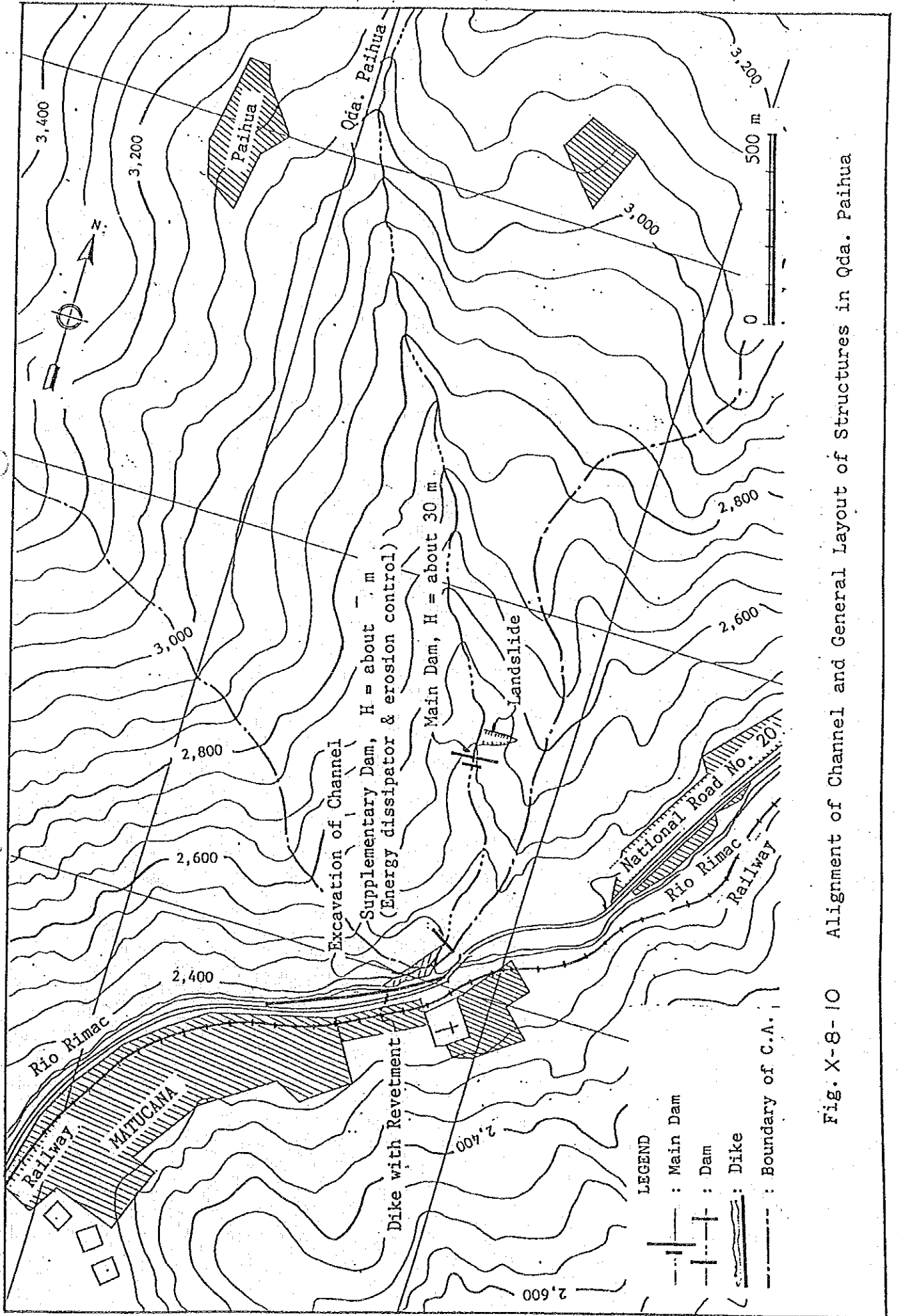


Fig. X-8-10 Alignment of Channel and General Layout of Structures in Qda. Paihua



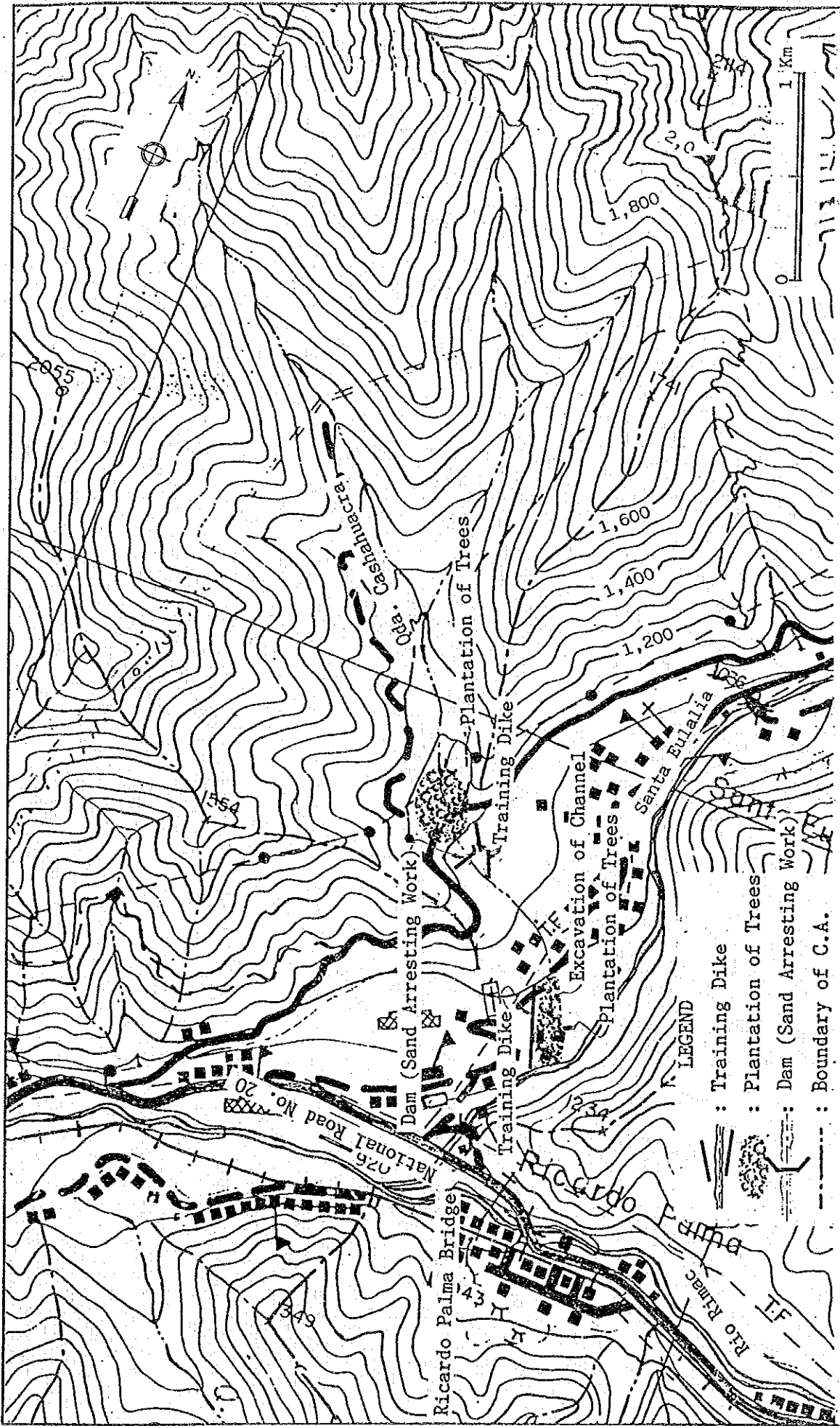


Fig. X-8-II Alignment of Channel and General Layout of Structures in Qda. Cashahuacra





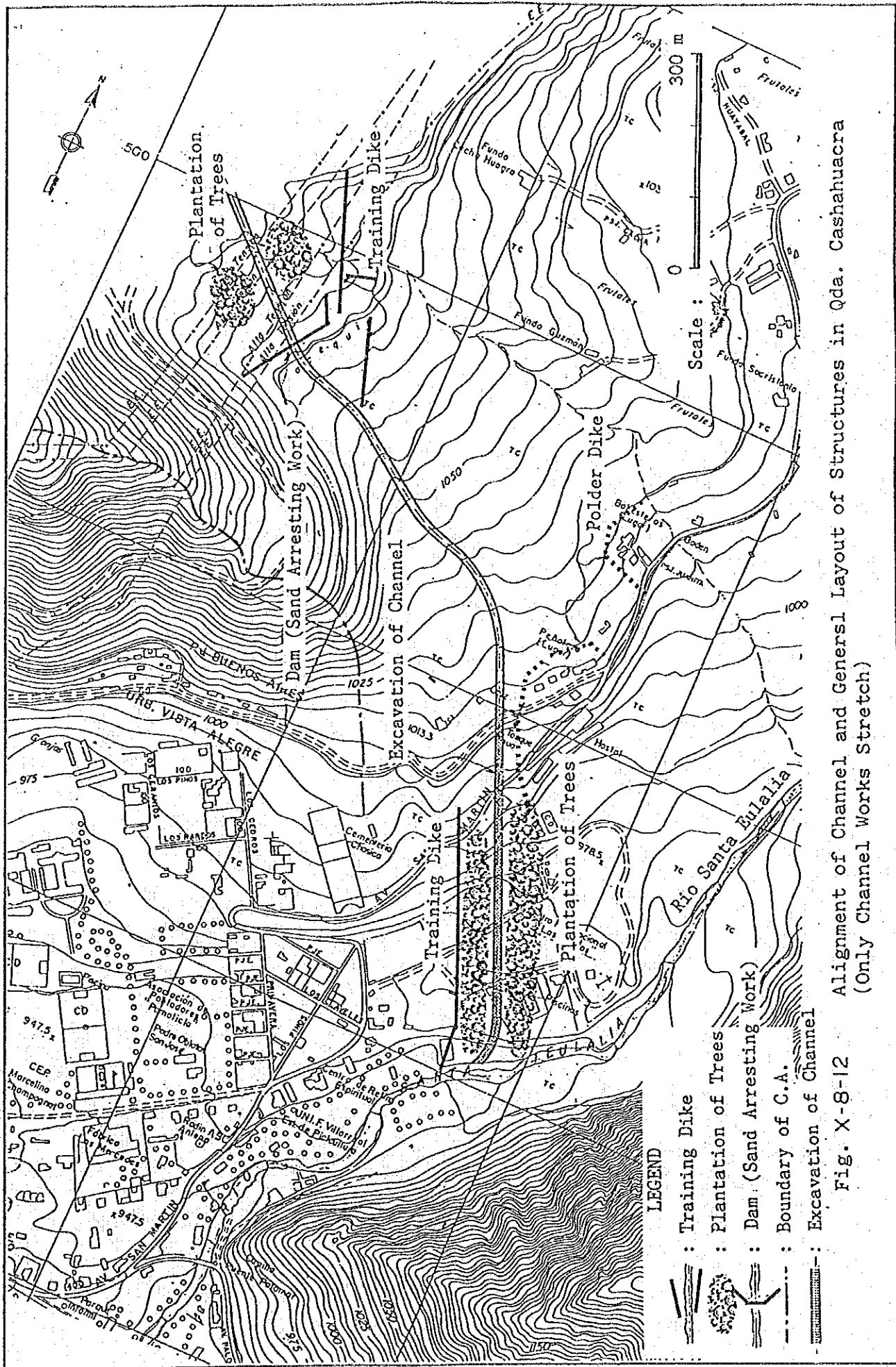


Fig. X-8-12 Alignment of Channel and General Layout of Structures in Qda. Cashahuacra (Only Channel Works Stretch)

LEGEND

- : Training Dike
- ⊙ : Plantation of Trees
- : Dam (Sand Arresting Work)
- - - : Boundary of C.A.
- - - : Excavation of Channel



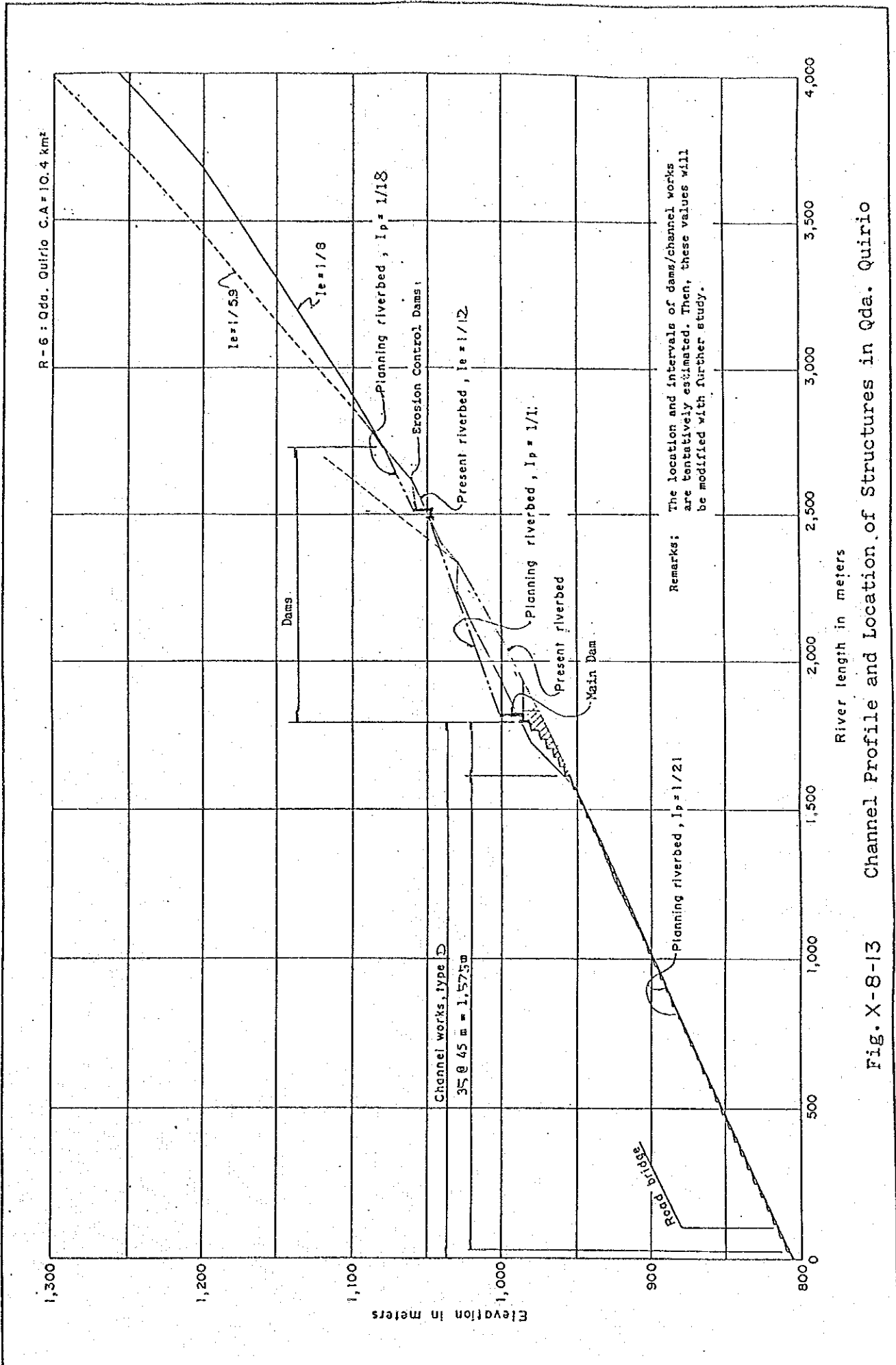


Fig. X-8-13 Channel Profile and Location of Structures in Qda. Quirio



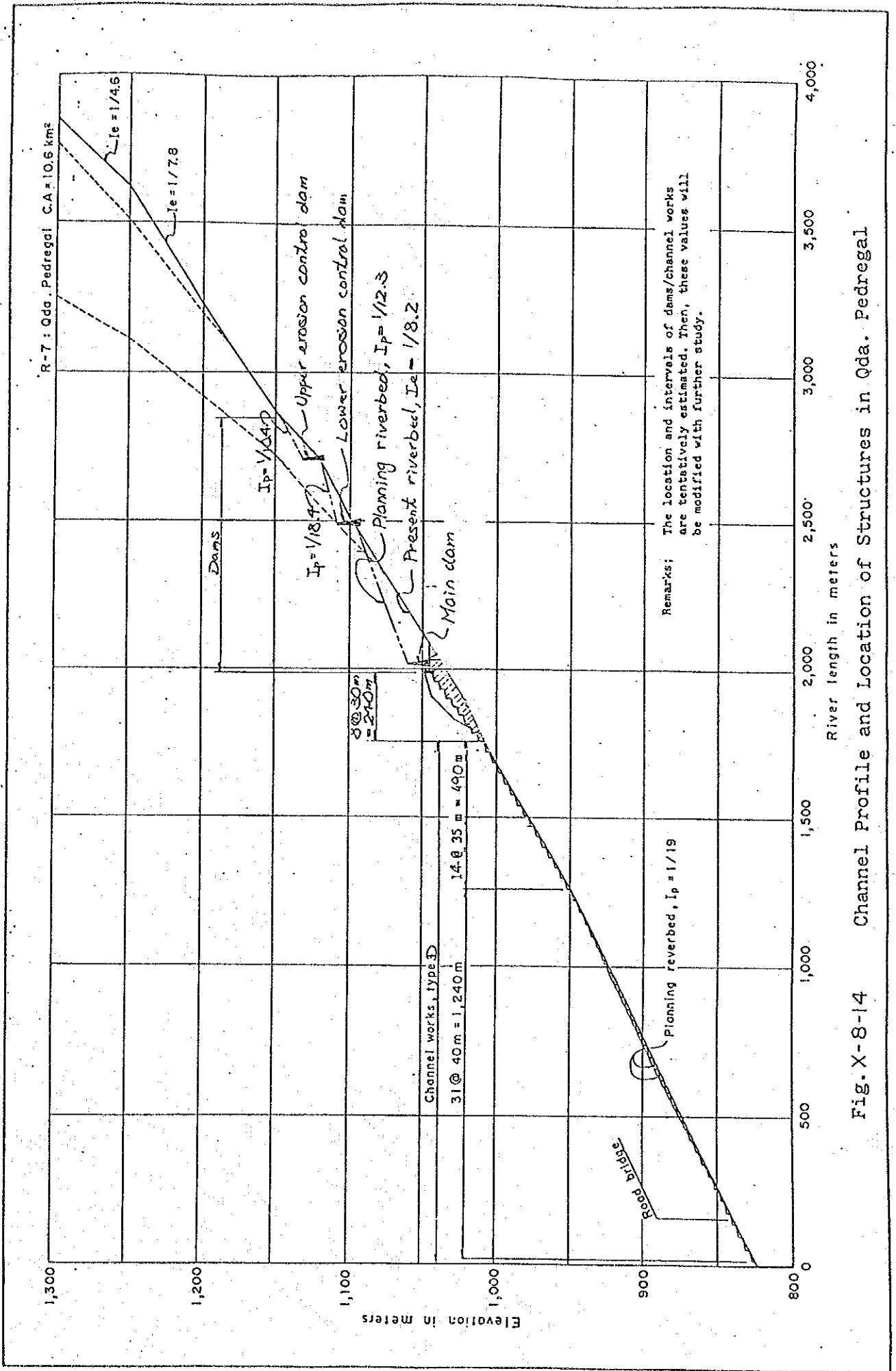


Fig. X-8-14 Channel Profile and Location of Structures in Qda. Pedregal



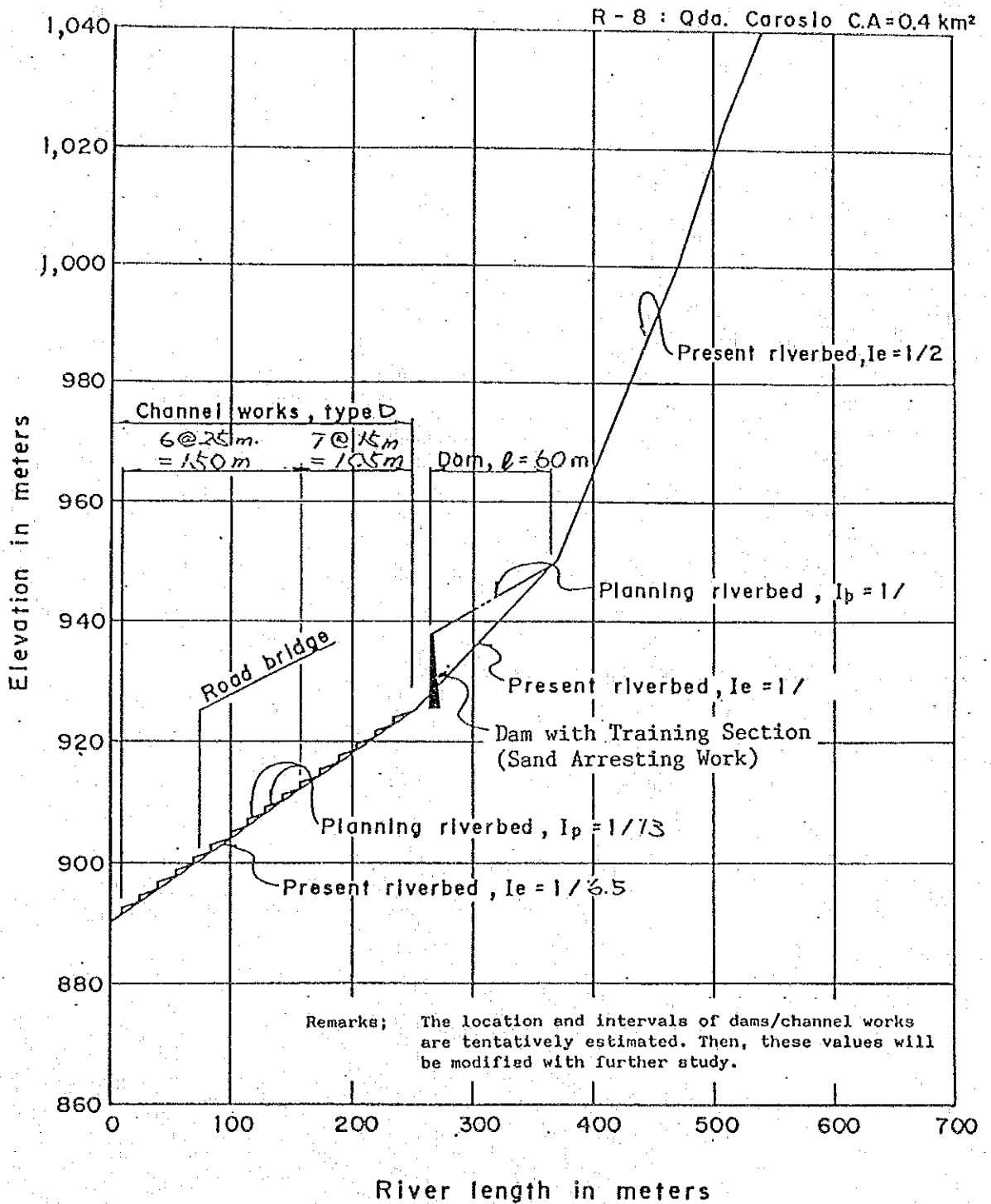


Fig. X-8-15 Channel Profile and Location of Structures in Qda. Carosio





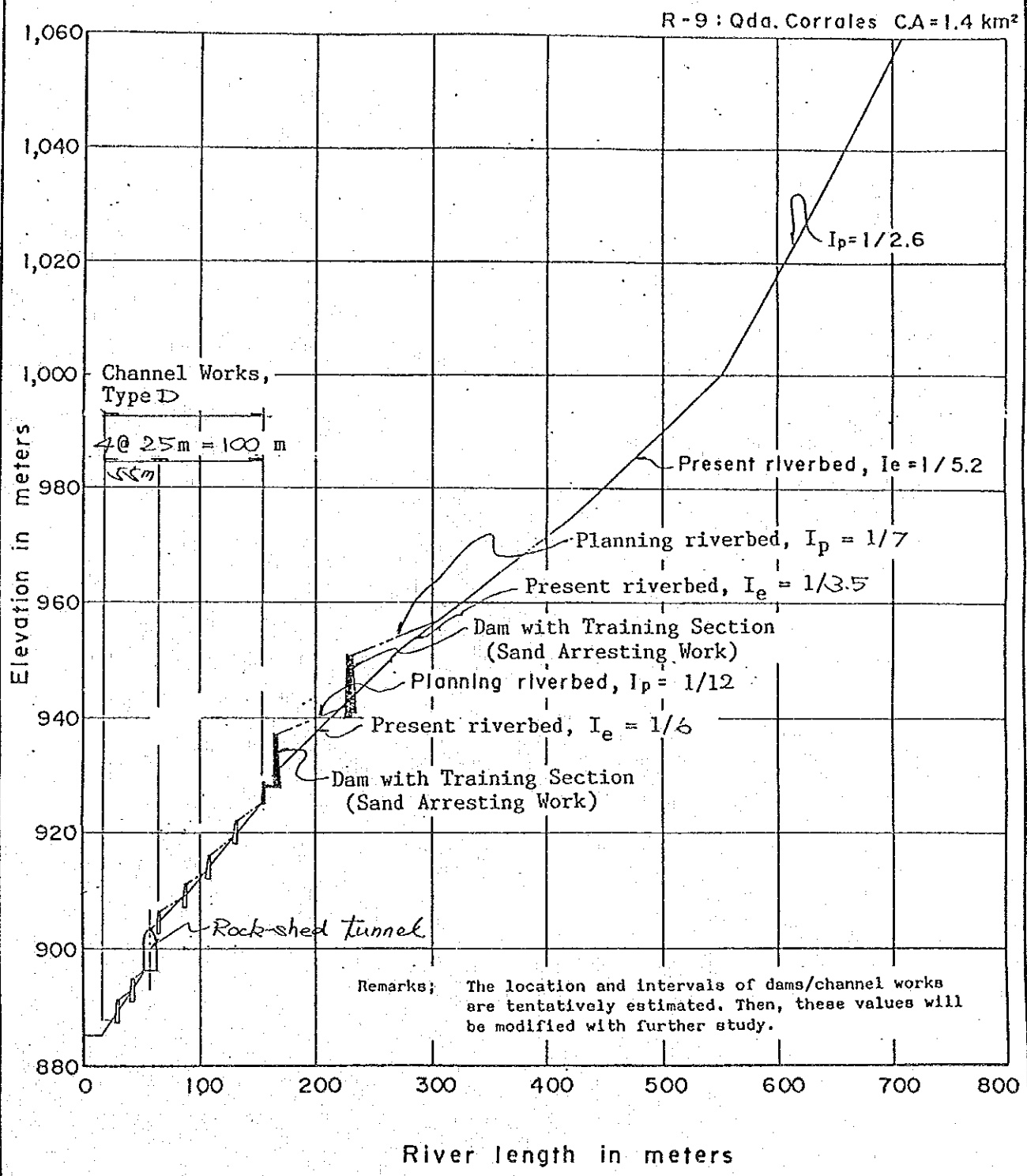
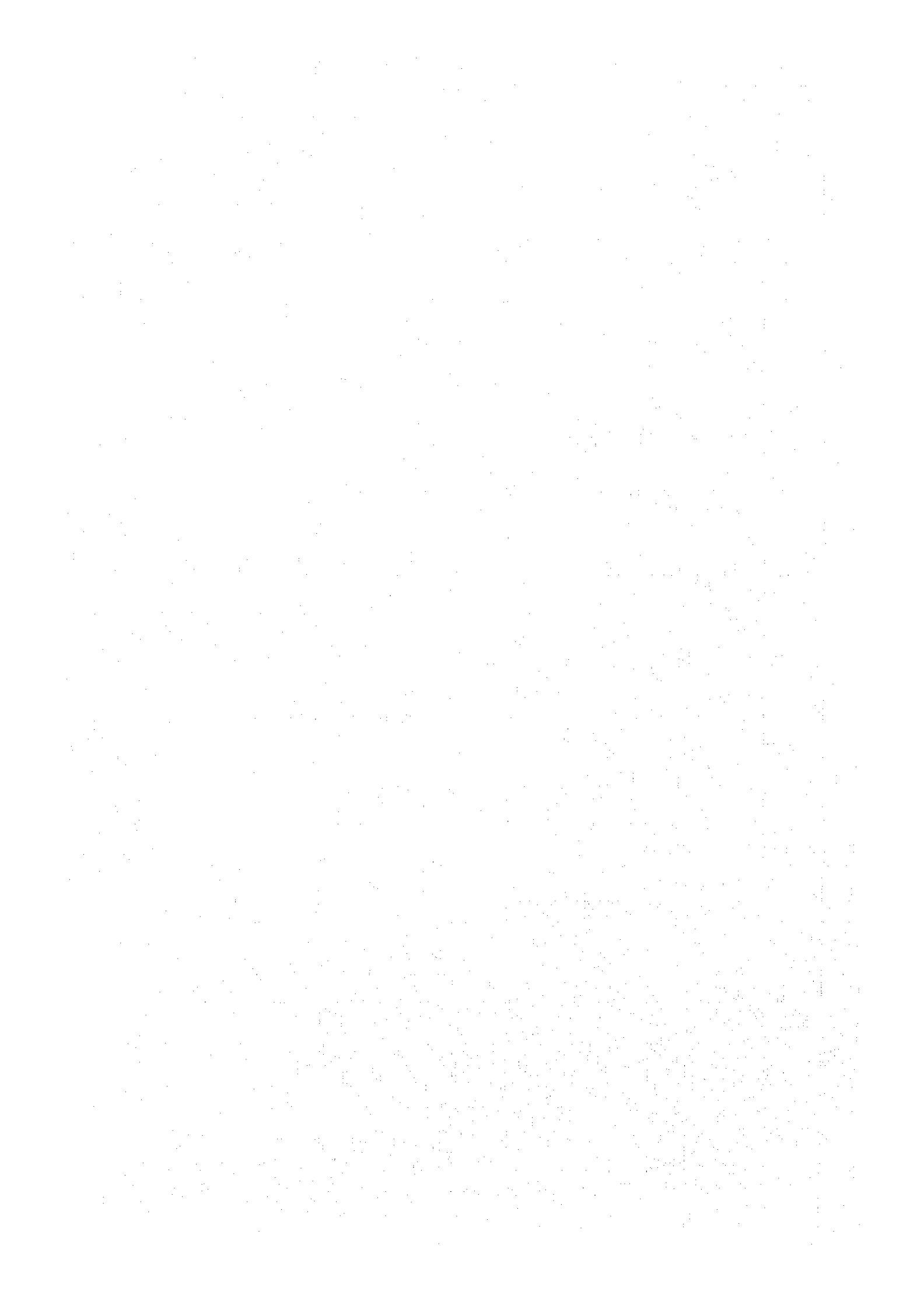


Fig. X-8-16

Channel Profile and Location of Structures in Qda. Corrales



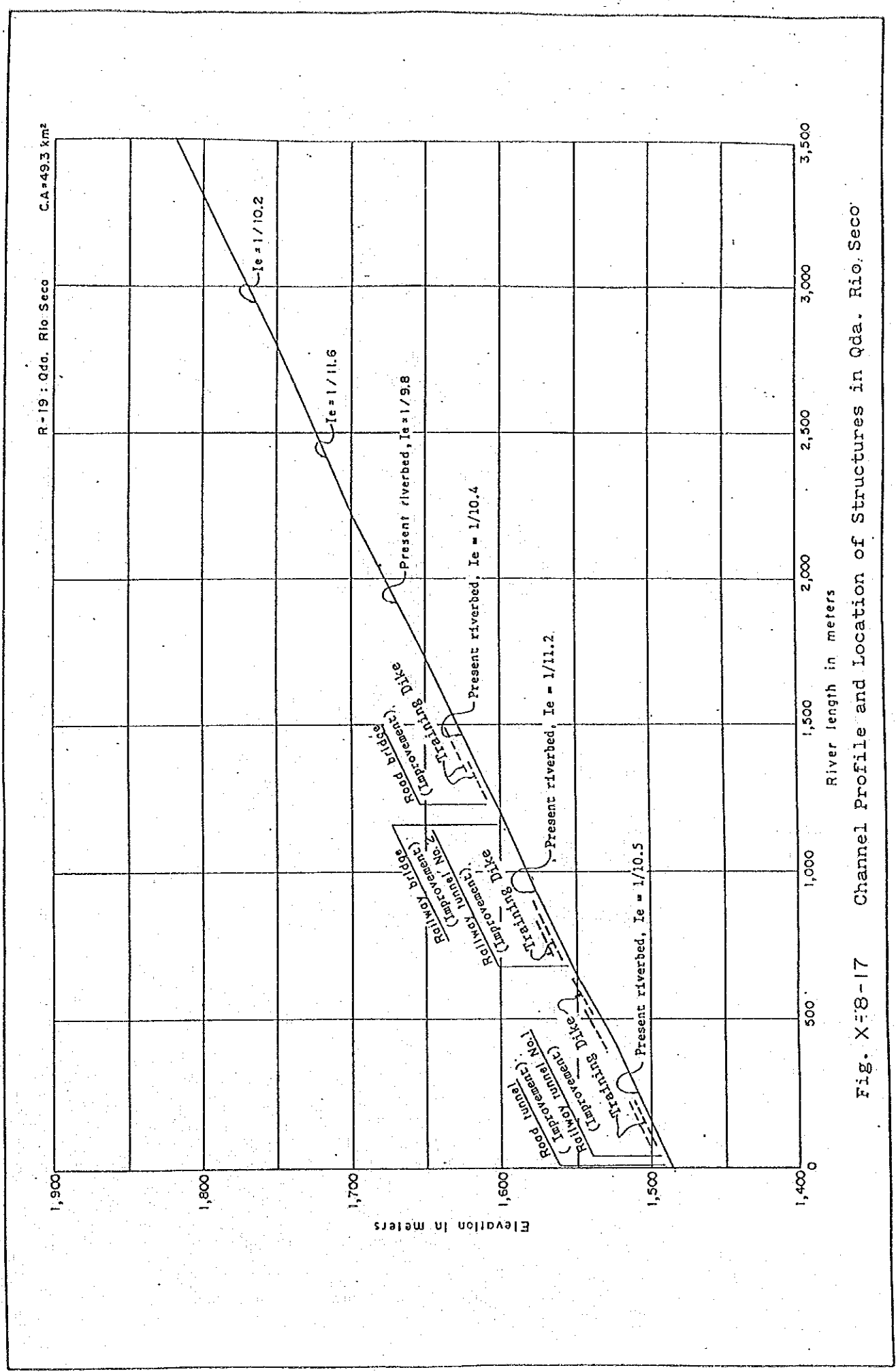


Fig. X-8-17 Channel Profile and Location of Structures in Qda. Rio. Seco



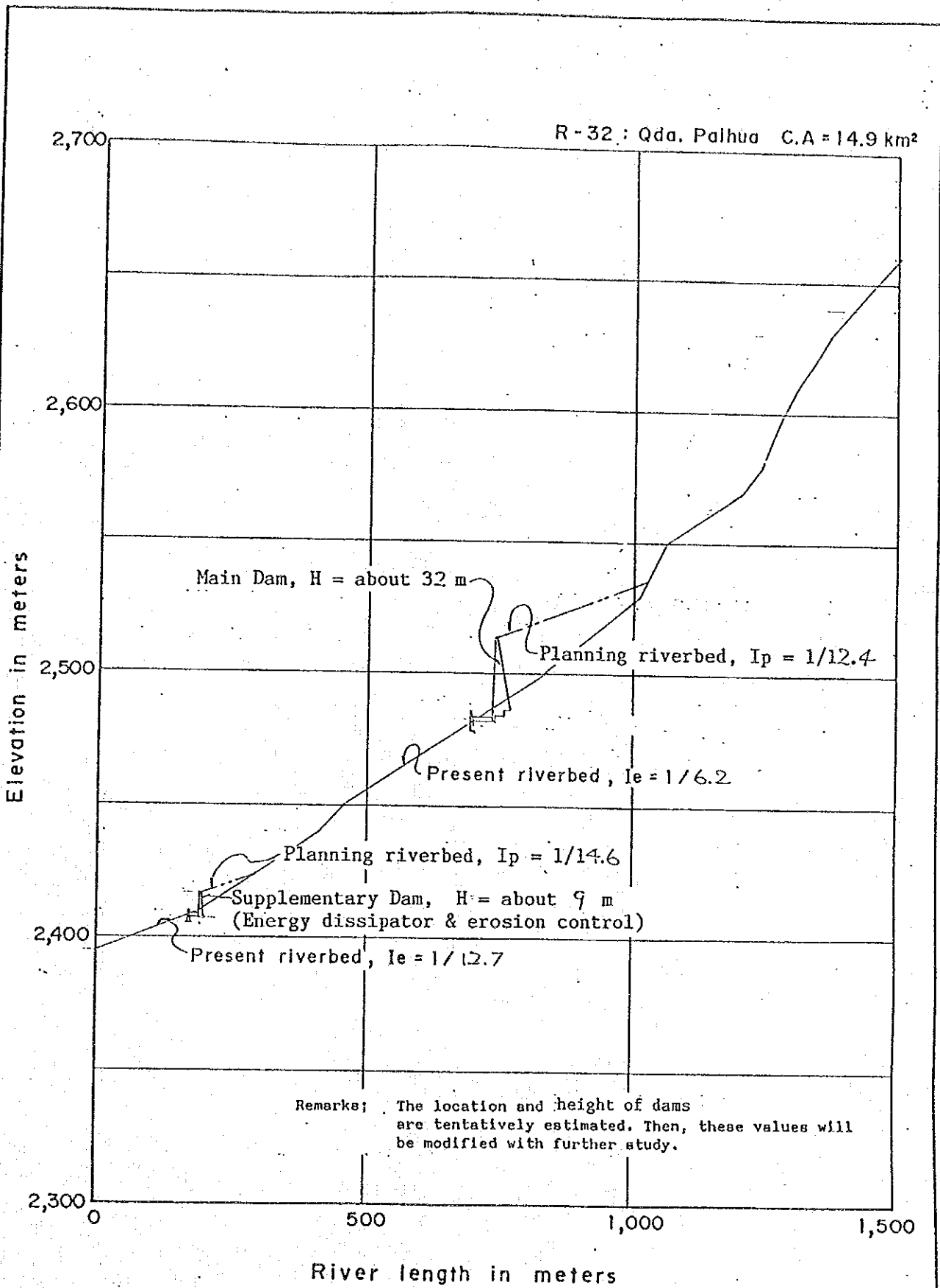


Fig. X-8-18 Channel Profile and Location of Structures in Qda. Palhua



S - 1 : Qda . Cashahuera CA = 15.1 km<sup>2</sup>

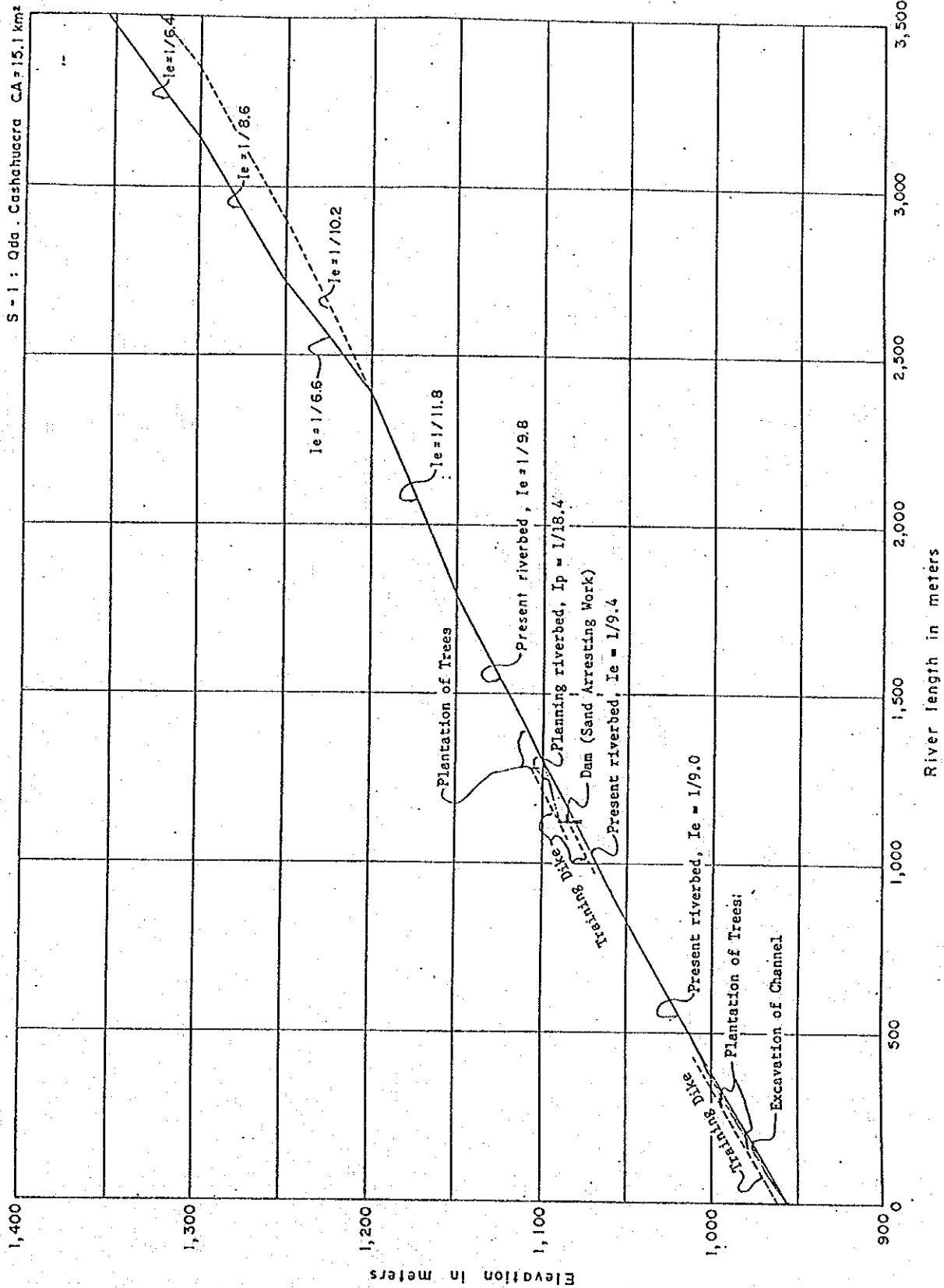
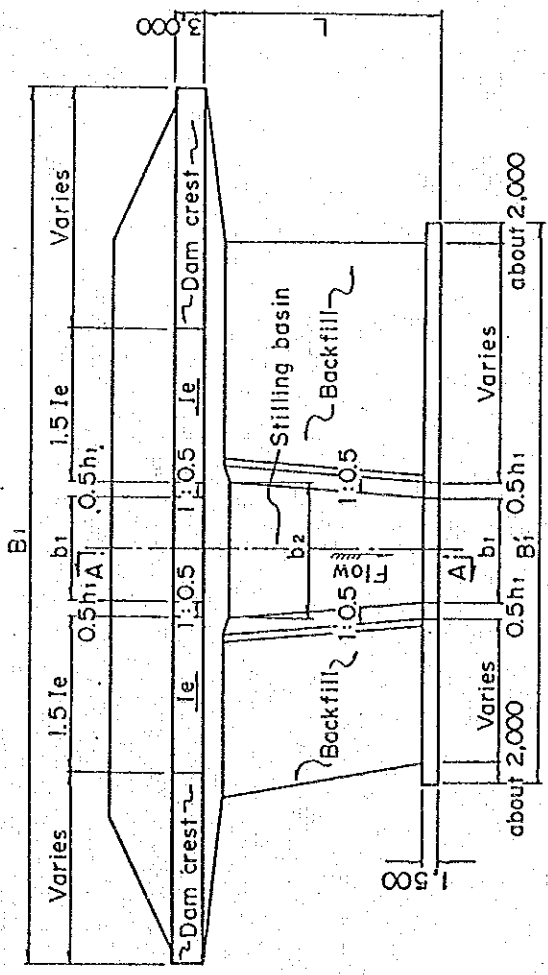


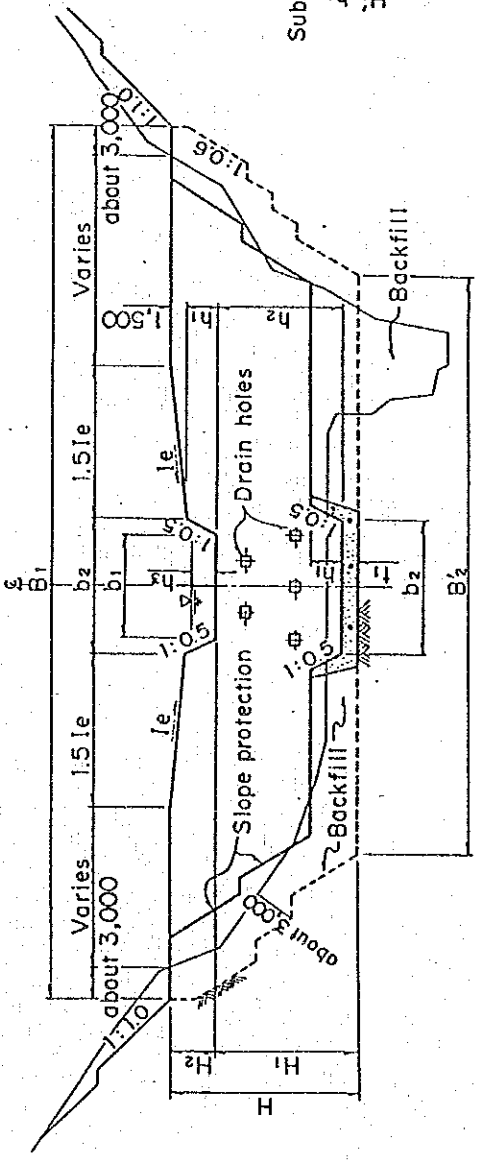
Fig. X-8-19 Channel Profile and Location of Structures in Qda. Cashahuera



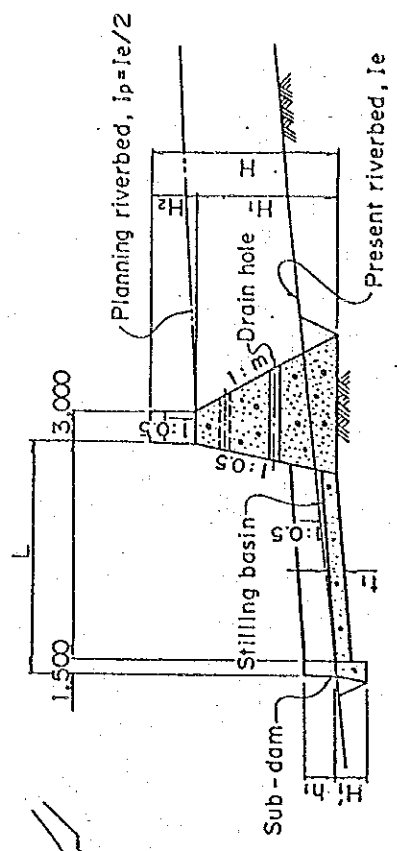




PLAN



DOWNSTREAM ELEVATION

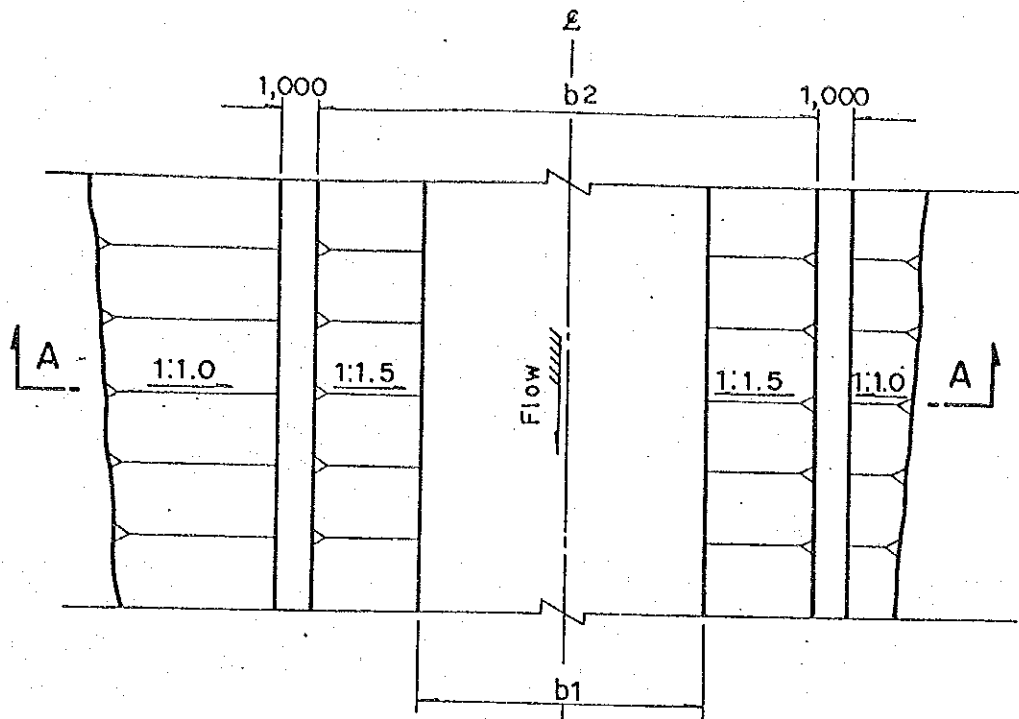


SECTION A - A

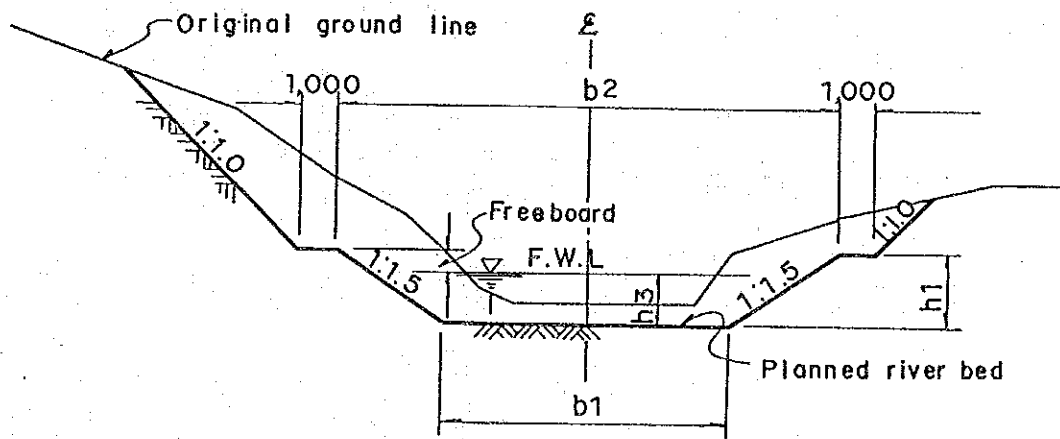
Remarks; m : To be decided by stability analysis  
 $b_2, h_3$ : To be decided by hydraulic calculation  
 $b_1$ : Existing river width  
 $h_1$ :  $h_3 + \text{Freeboard}$   
 $L$ :  $1.5 (h_2 + h_3)$   
 $t_1$ :  $0.1 (0.6 h_2 + 3 h_3 - 1.0)$

Fig. X-8-20 Standard Design of Dam





PLAN



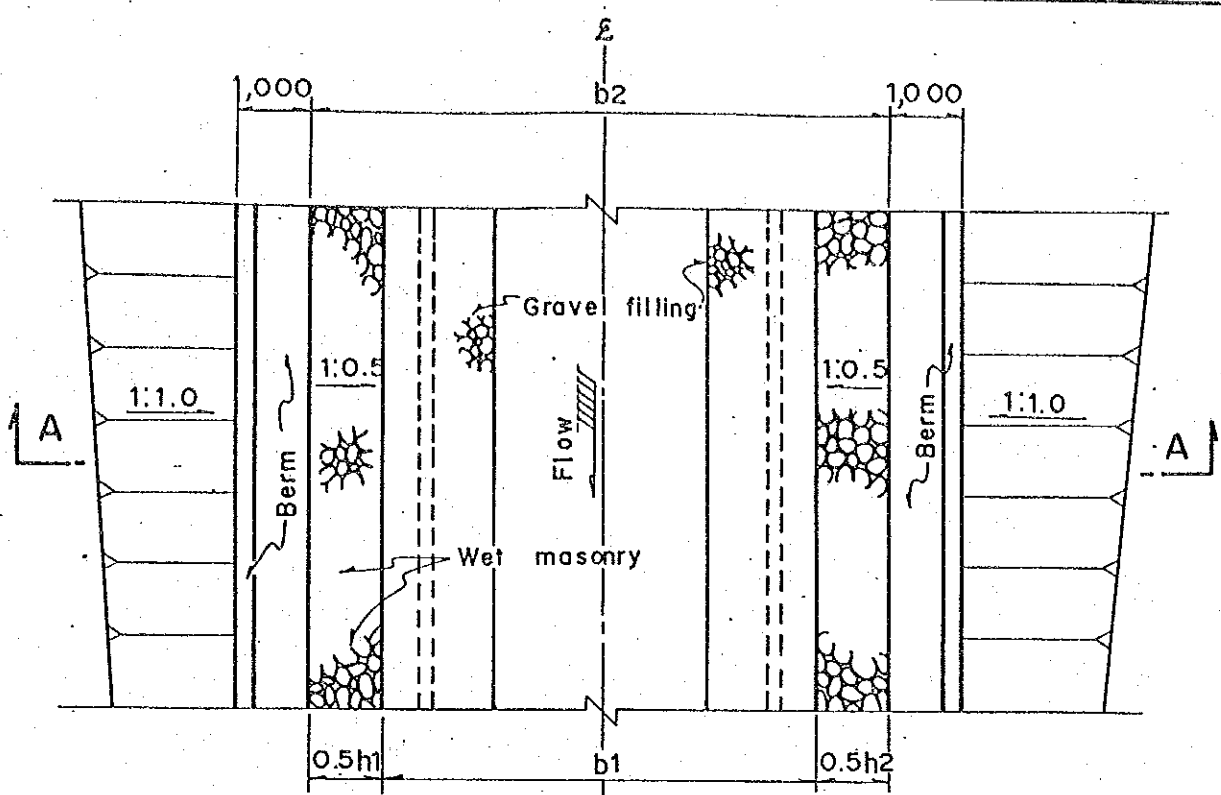
SECTION A-A

h3 : To be decided by design peak run-off  
 b1 : Existing river width

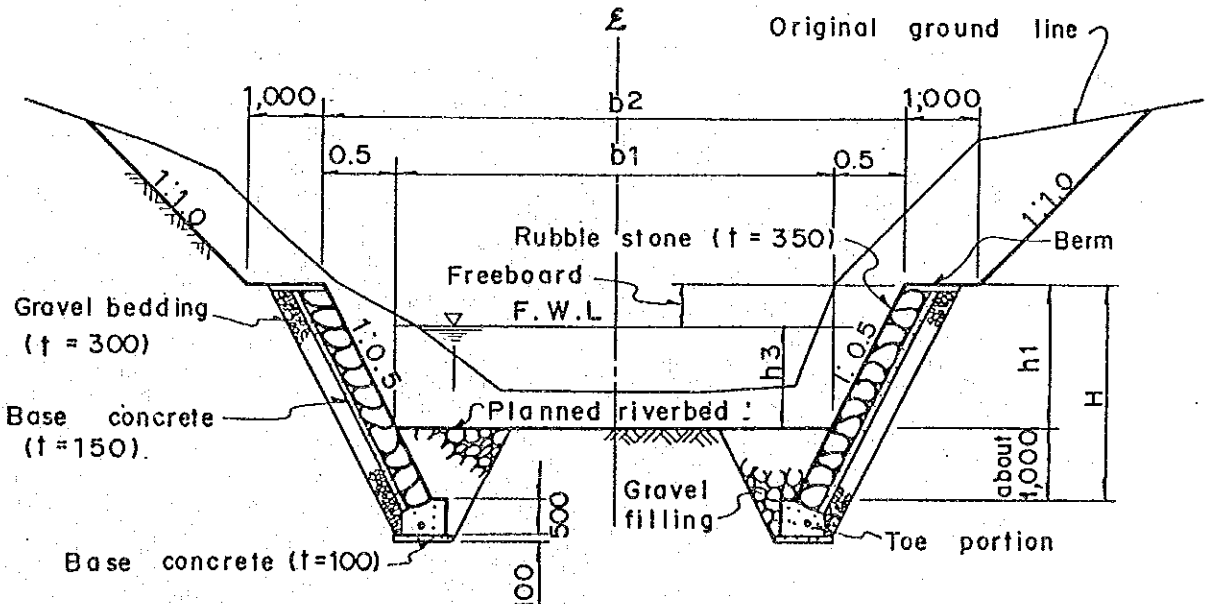
Fig. X-8-21 Standard Design of Channel Works, Type A

30  
 21





PLAN

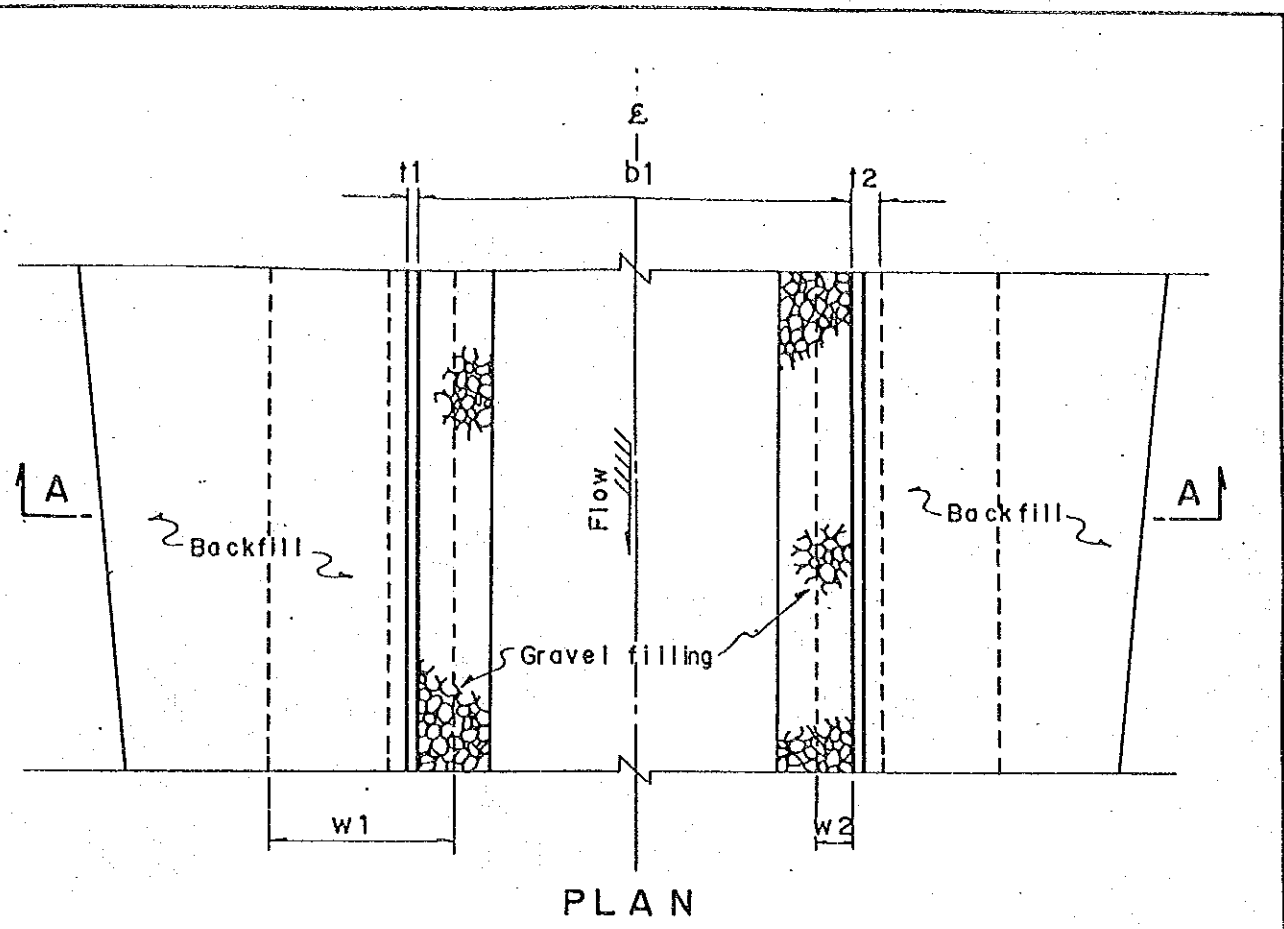


SECTION A-A

$b_1, h_3$  : To be decided by design peak run-off

Fig. X-8-22 Standard Design of Channel Works, Type B





t1 : about 350  
 t2 : about 600  
 t3 : about 500

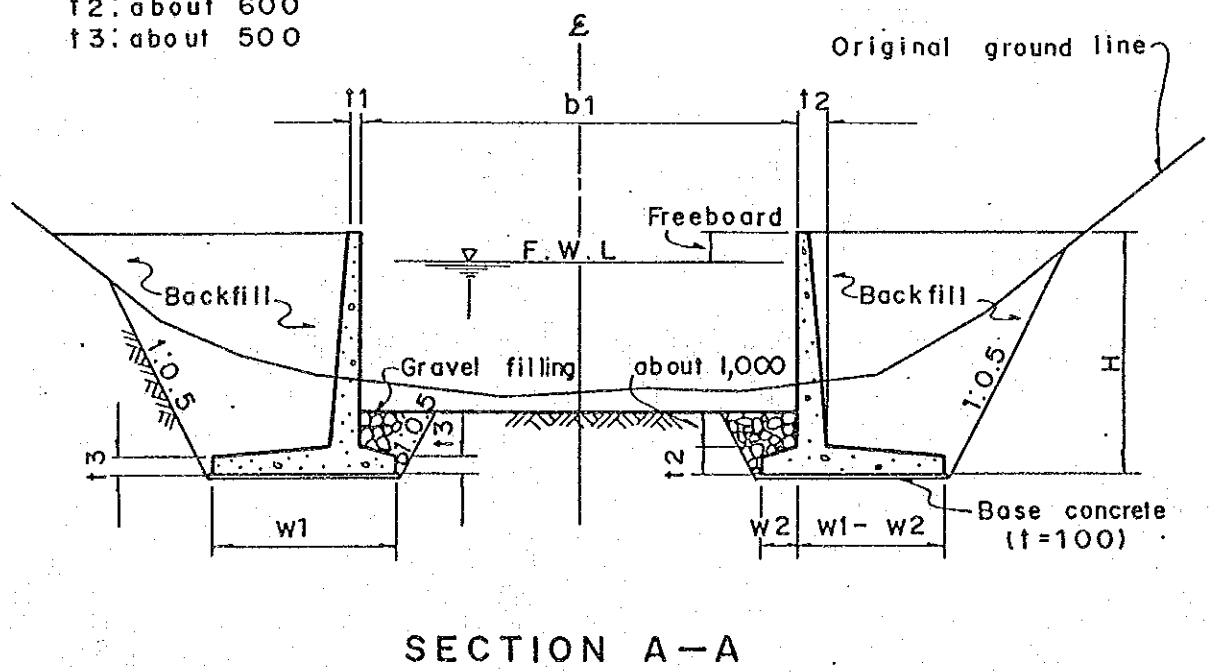
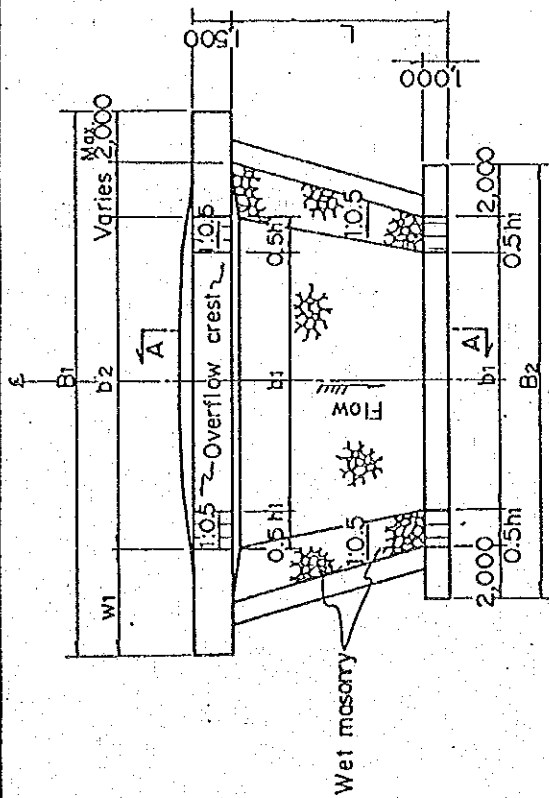


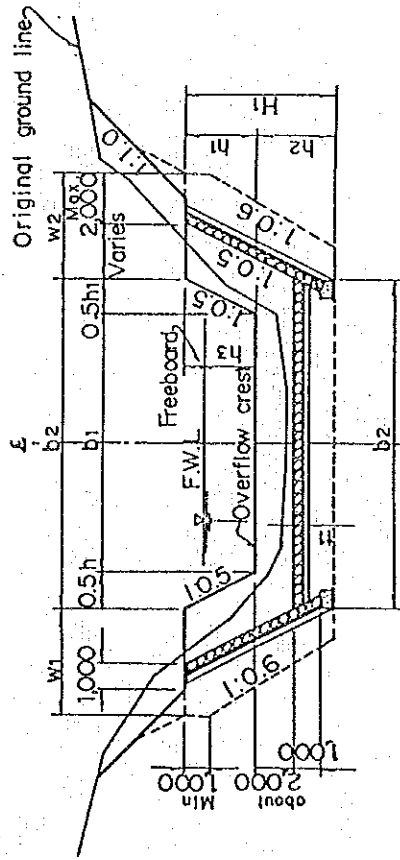
Fig. X-8-23 Standard Design of Channel Works, Type C



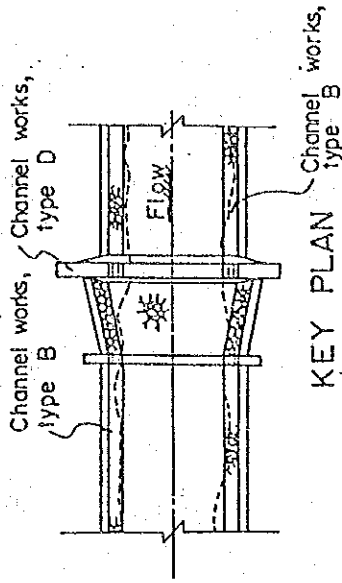




PLAN

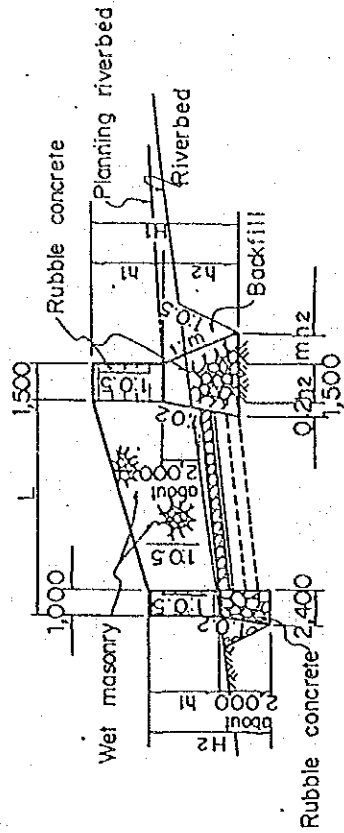


DOWNSTREAM ELEVATION



KEY PLAN

m: To be decided by stability analysis  
 b<sub>1</sub>, h<sub>3</sub>: To be decided by design peak run-off  
 L: 1.5(h<sub>2</sub>+h<sub>3</sub>)  
 t<sub>1</sub>: 0.1(0.6h<sub>2</sub>+3h<sub>3</sub>-1.0)  
 h<sub>1</sub> h<sub>3</sub> + Freeboard

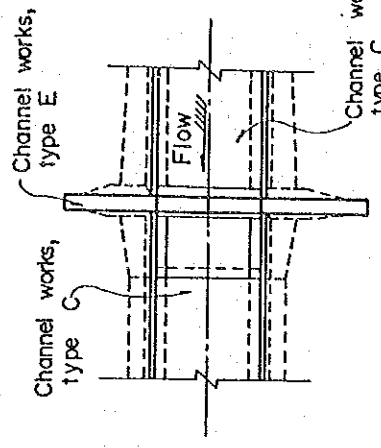
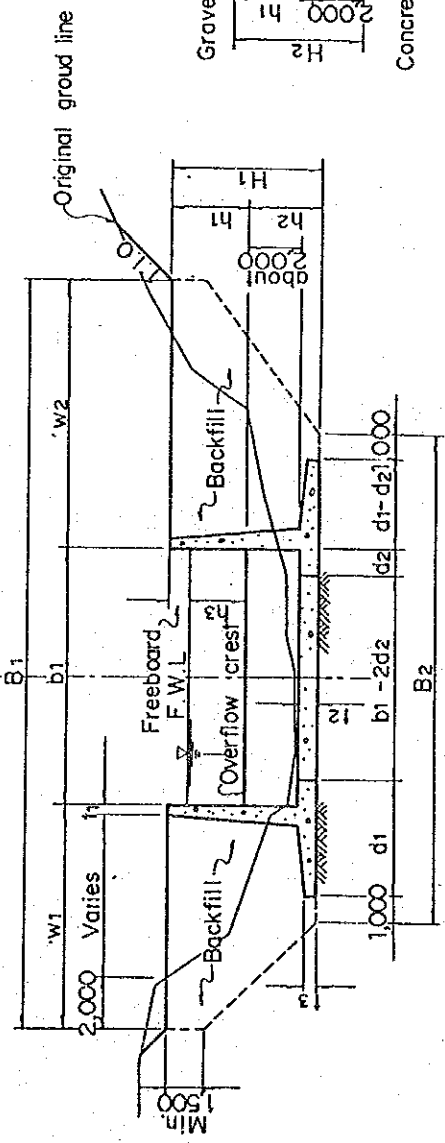
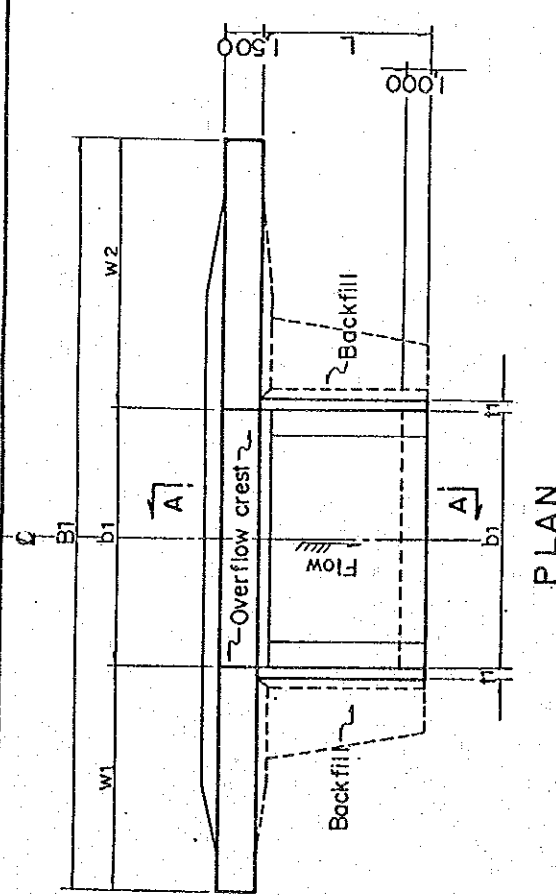


SECTION A-A

Fig. X-8-24 Standard Design of Channel Works, Type D

33  
 75





$m$  : To be decided by stability analysis  
 $b_1, h_3$  : To be decided by design peak run-off  
 $L$  :  $1.5(h_2 + h_3)$   
 $h_1$  :  $h_3 + \text{Freeboard}$   
 $t_1$  : about 350  
 $t_2$  :  $0.1(0.6 h_2 + 3h_3 - 1.0)$   
 $t_3$  : about 500

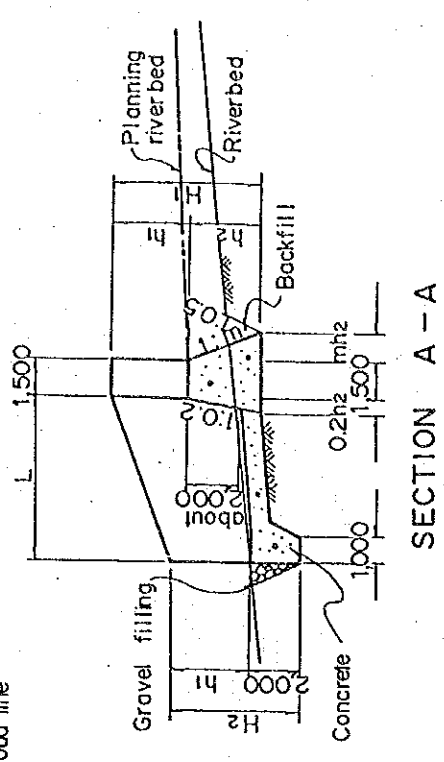


Fig. X-8-25 Standard Design of Channel Works, Type E



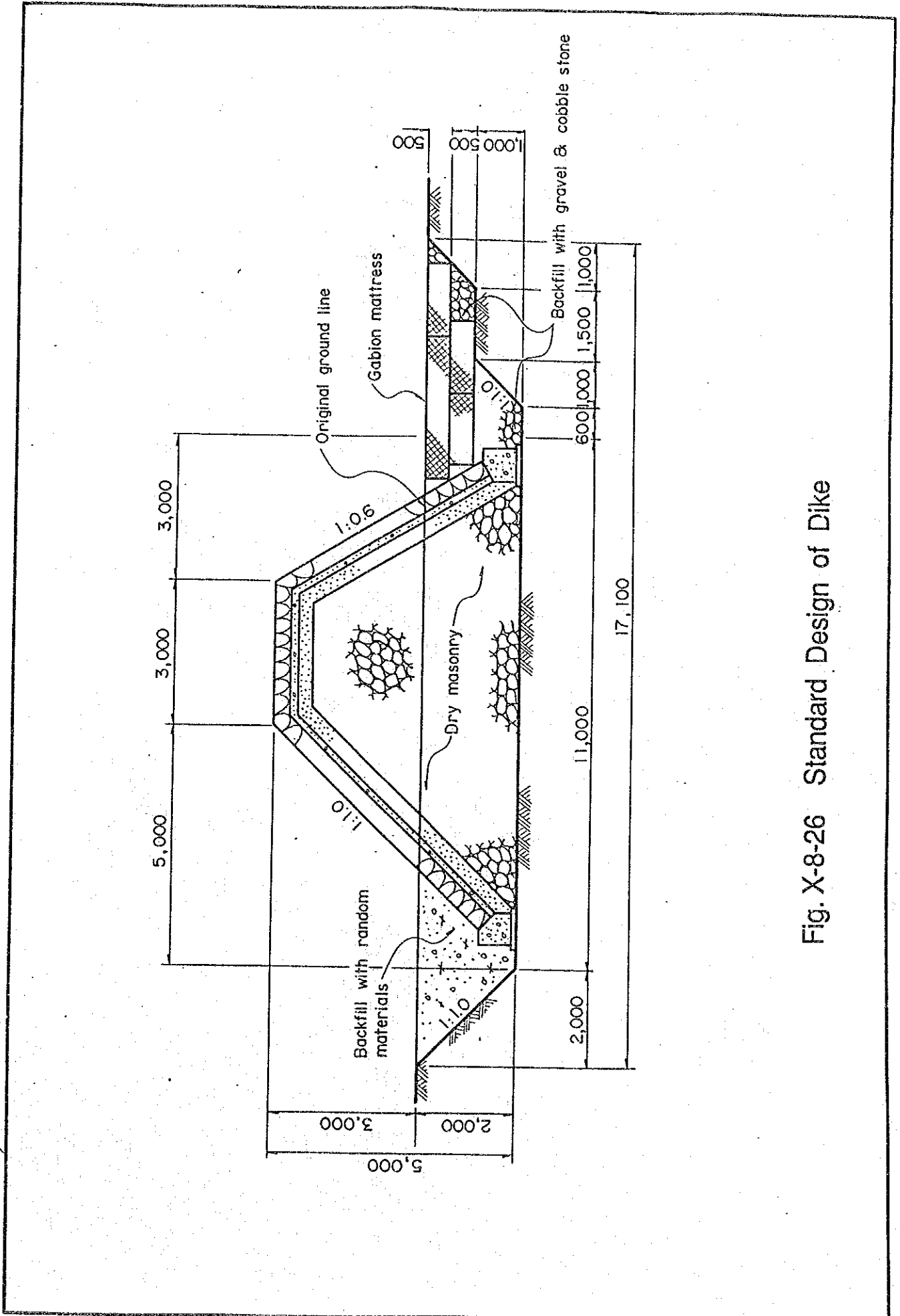


Fig. X-8-26 Standard Design of Dike

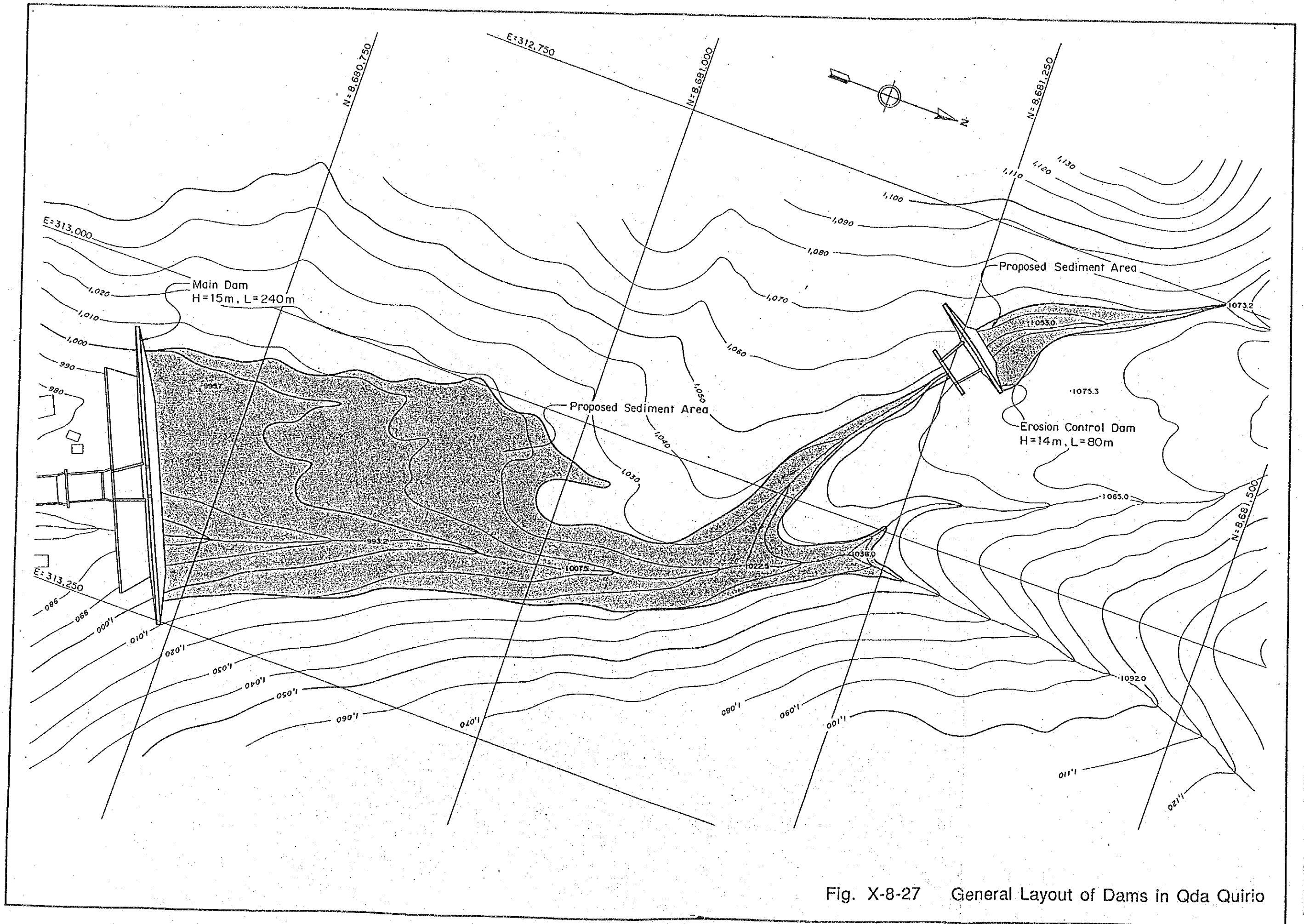


Fig. X-8-27 General Layout of Dams in Qda Quirio



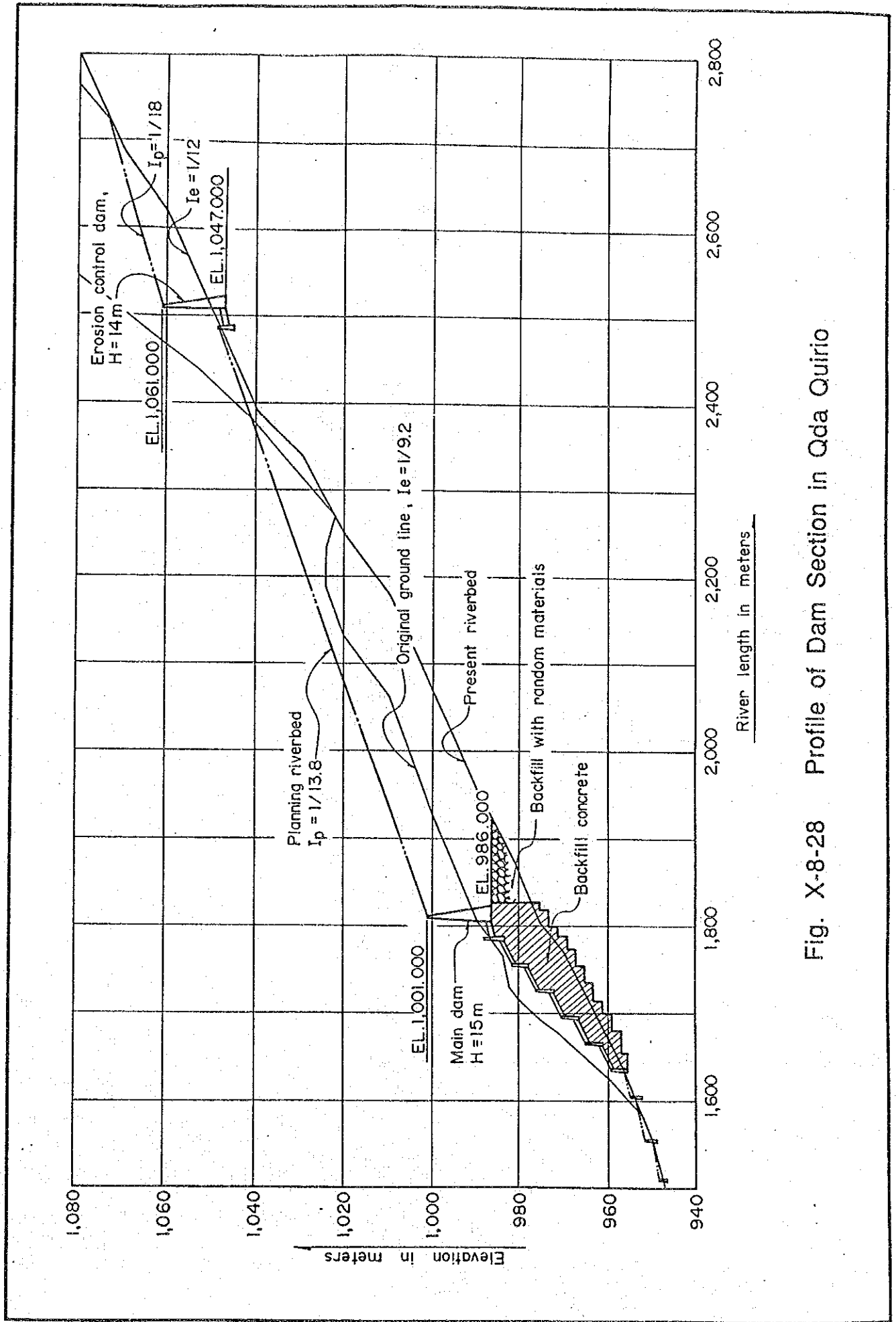


Fig. X-8-28 Profile of Dam Section in Qda Quirio



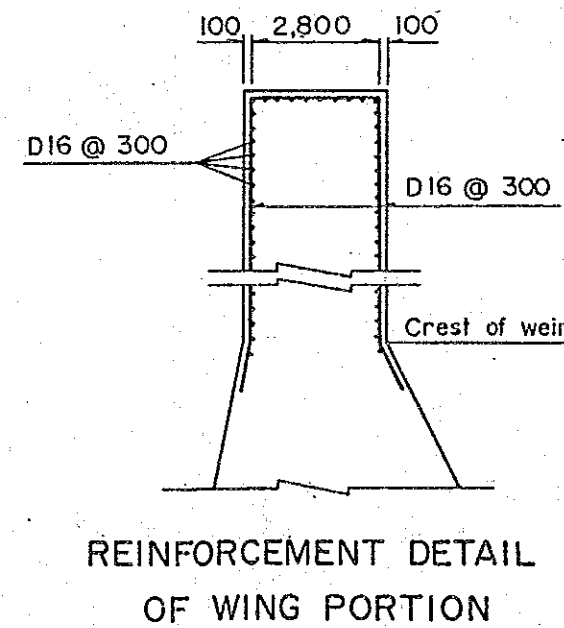
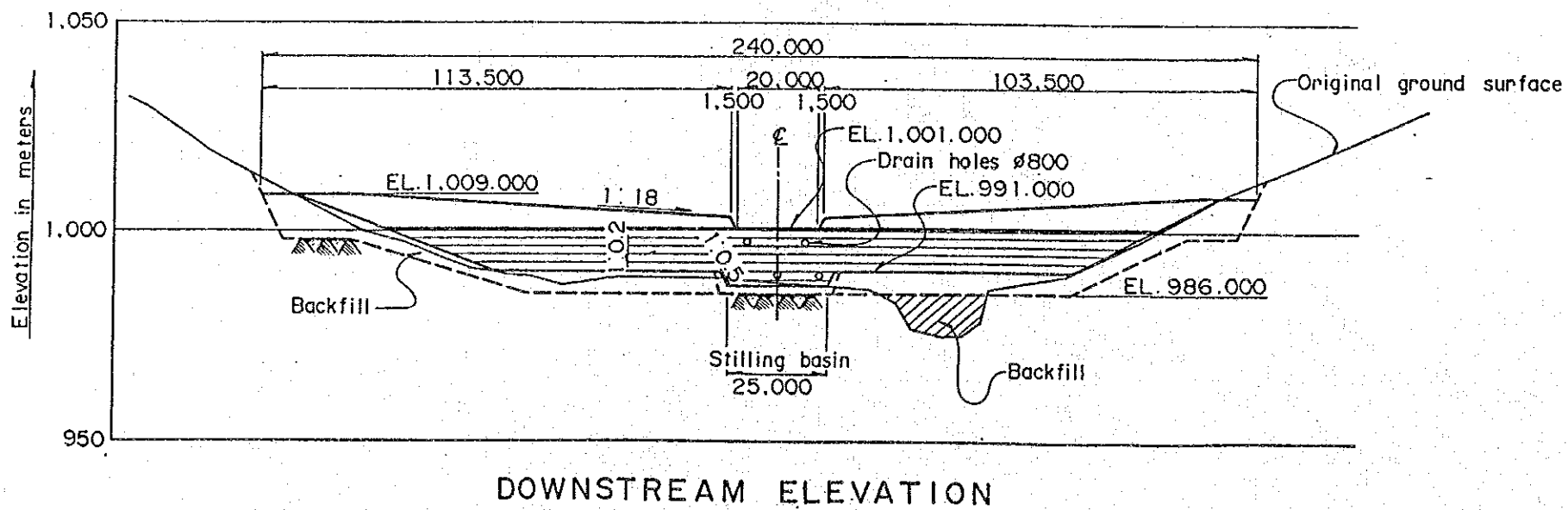
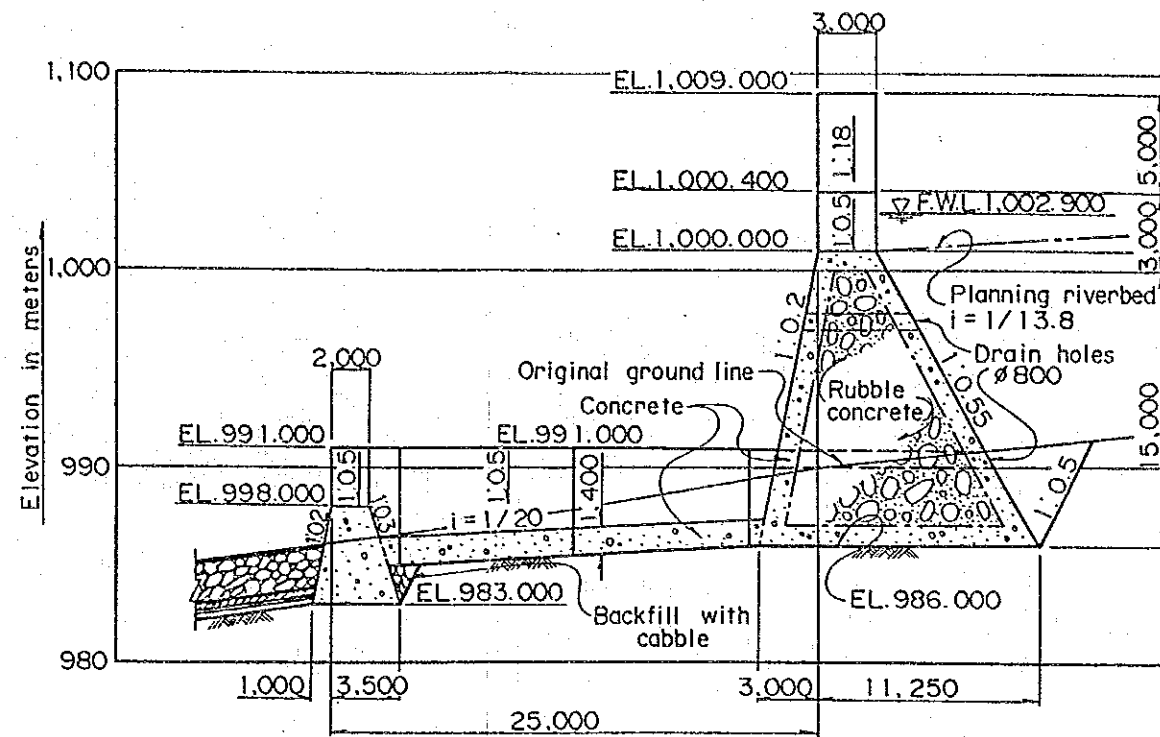
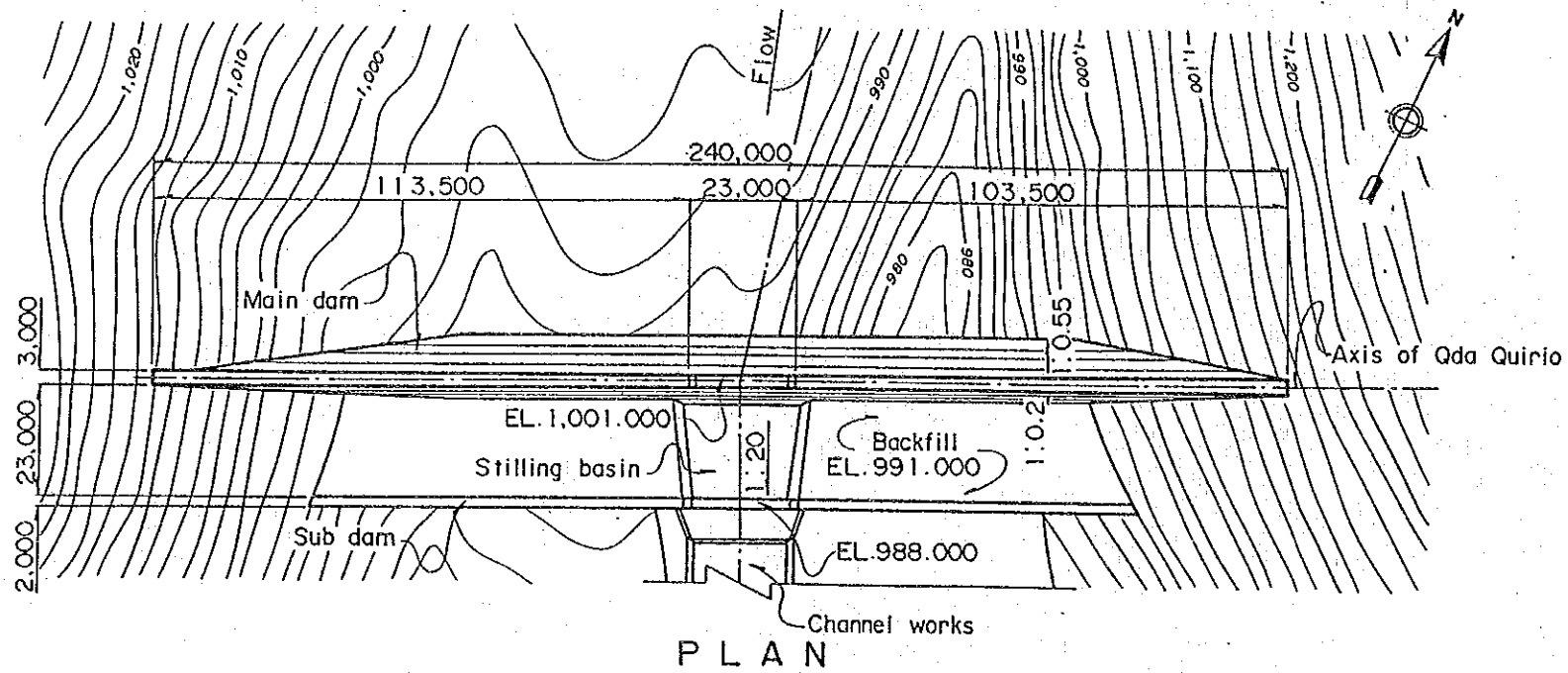
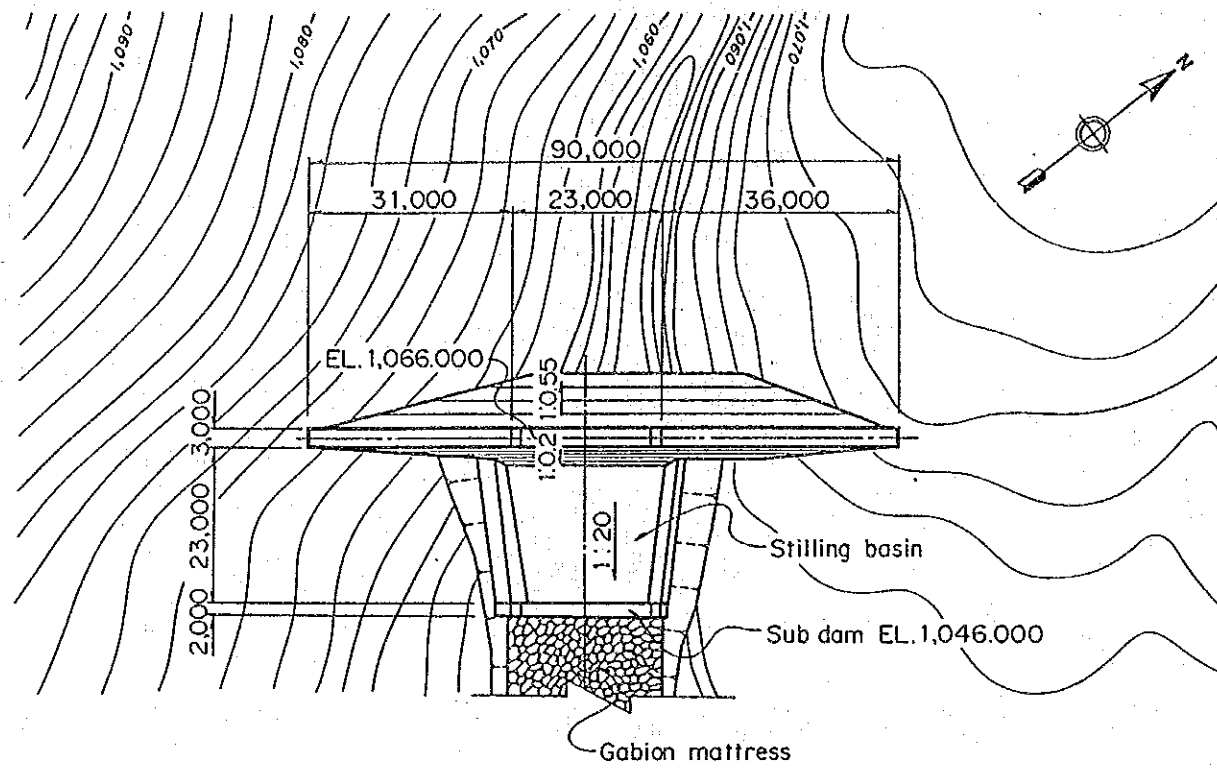
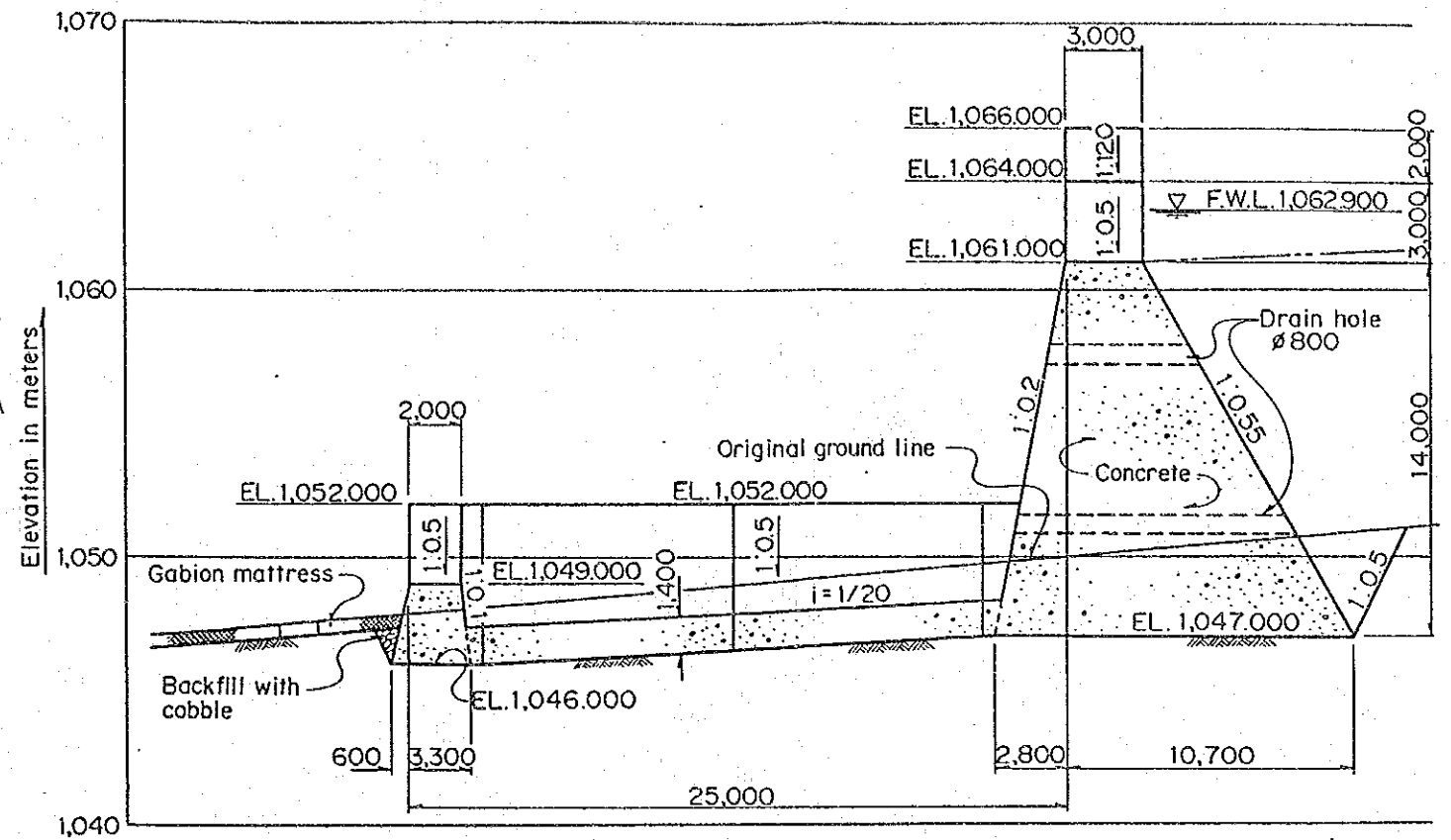


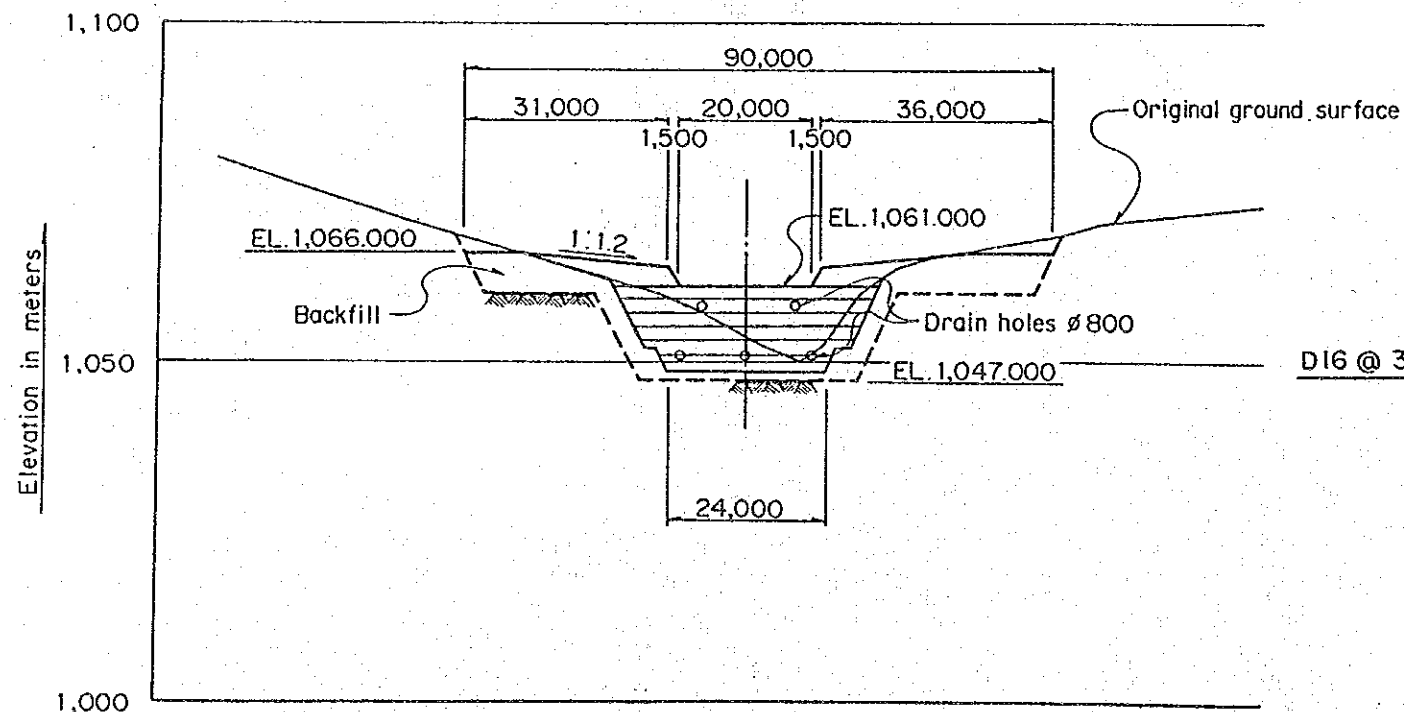
Fig. X-8-29 (1) Plan, Elevation and Section of Main Dam in Qda Quirio



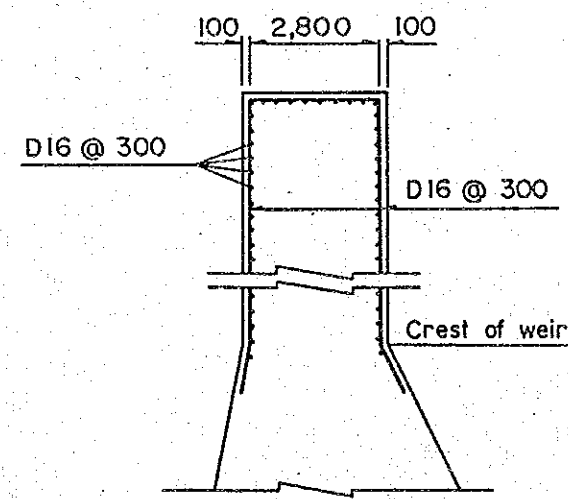
PLAN



SECTION



DOWNSTREAM ELEVATION



REINFORCEMENT DETAIL

OF WING PORTION Fig. X-8-29 (2) Plan, Elevation and Section of Erosion Control Dam in Qda Quirio

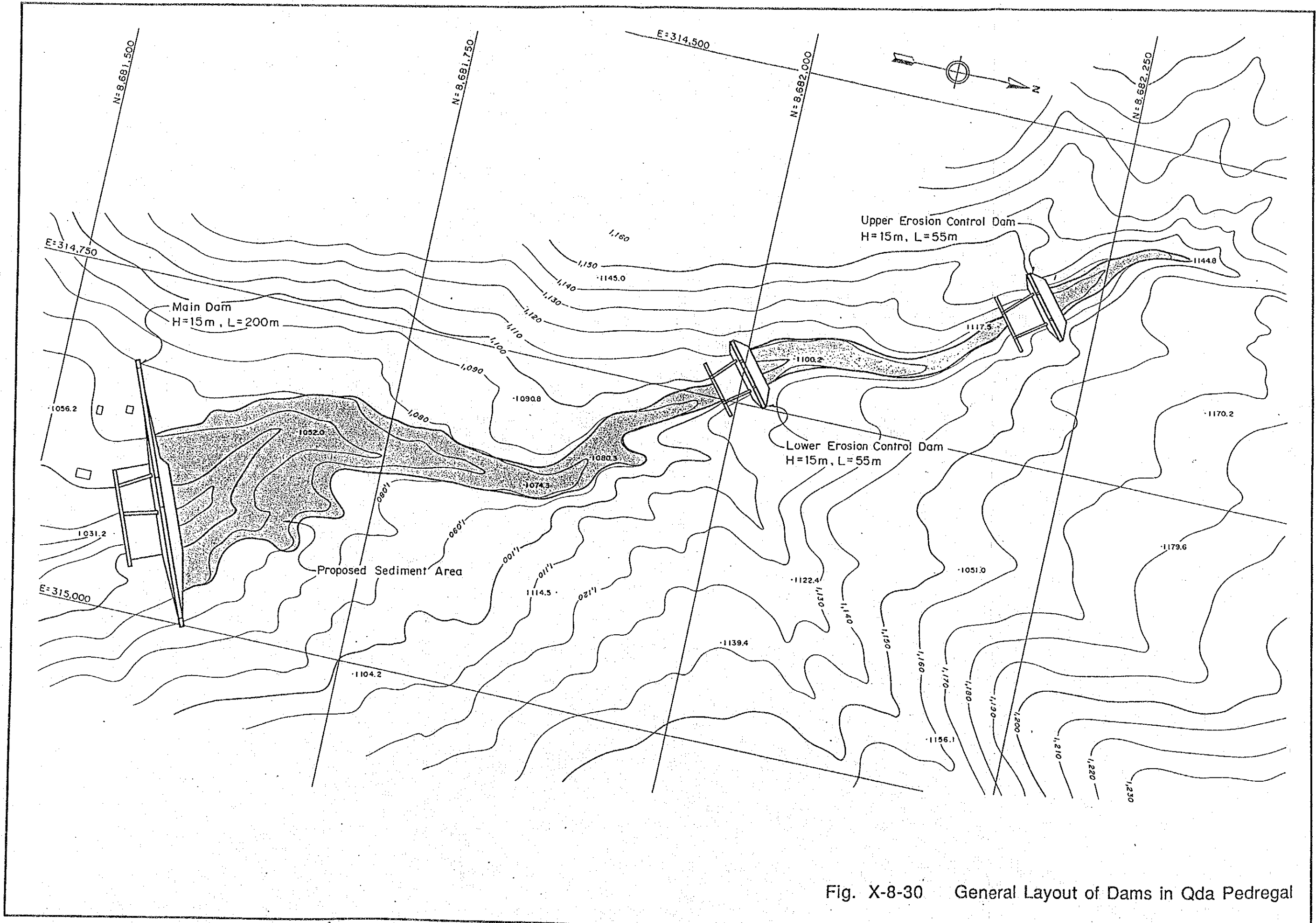


Fig. X-8-30 General Layout of Dams in Qda Pedregal

40  
31



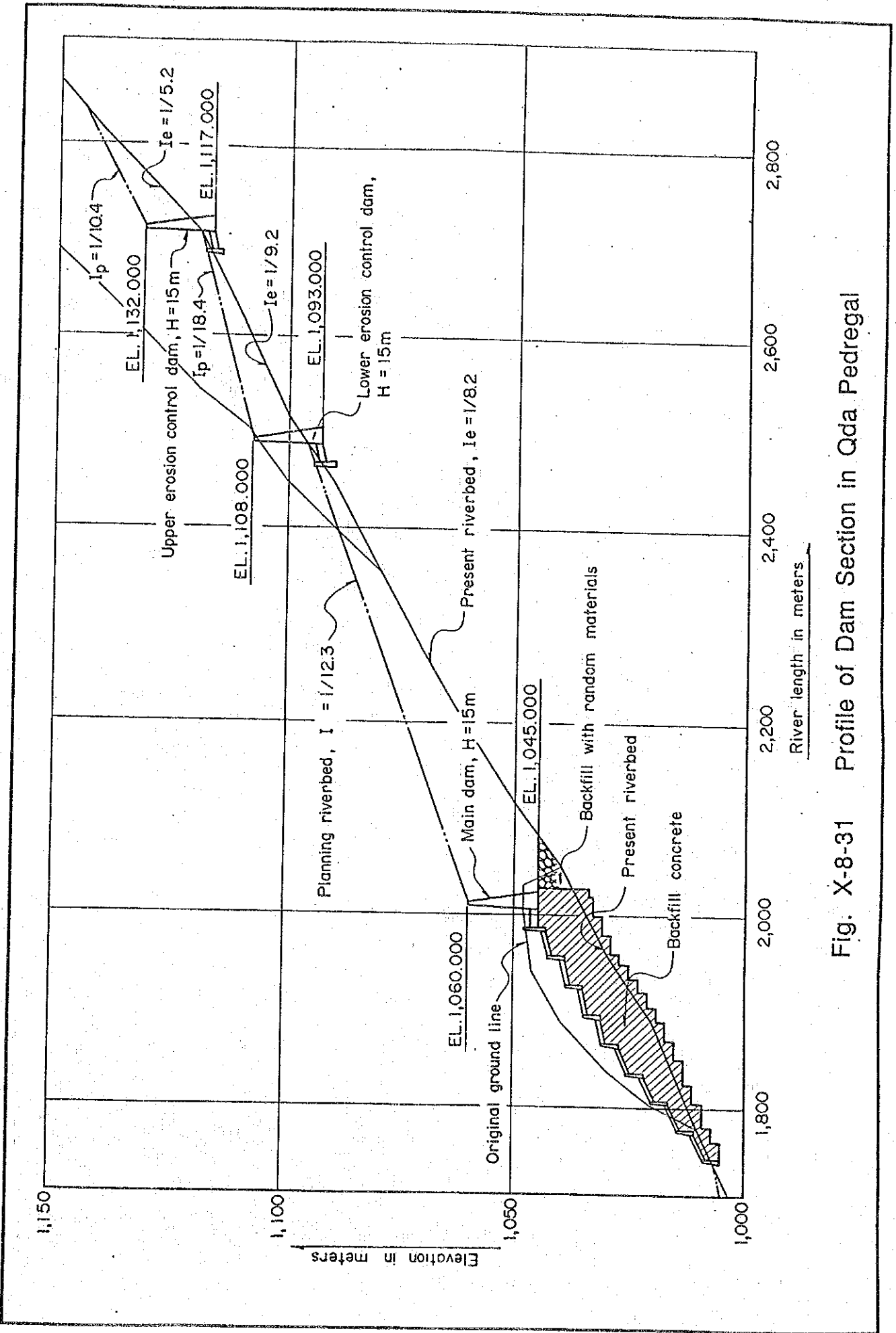
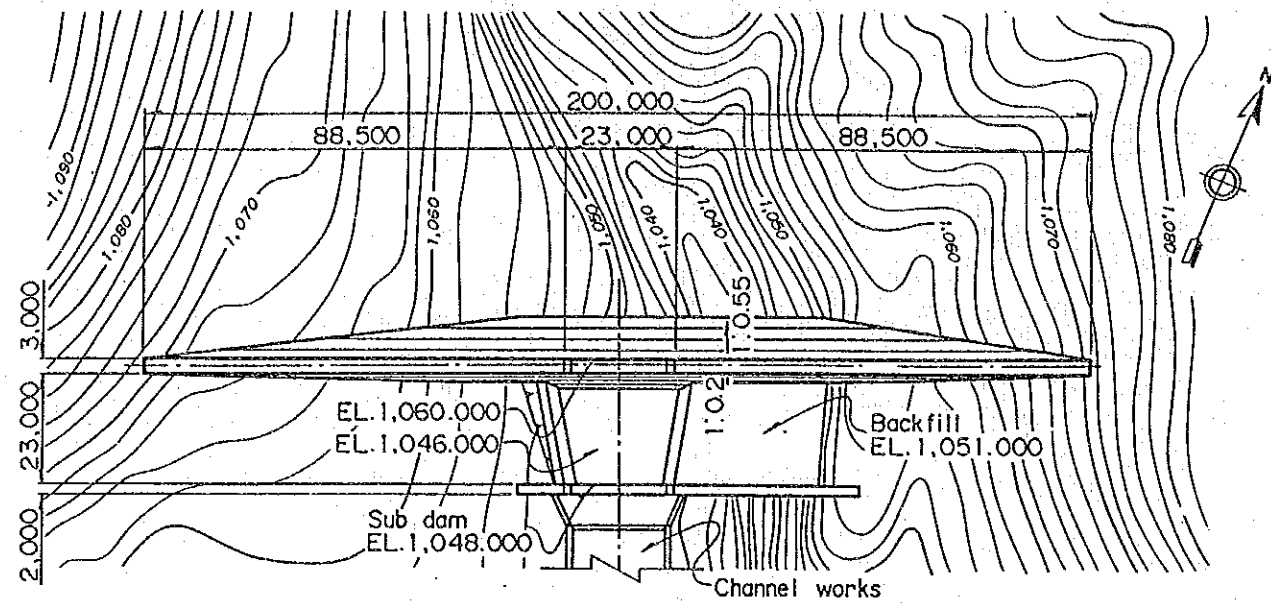
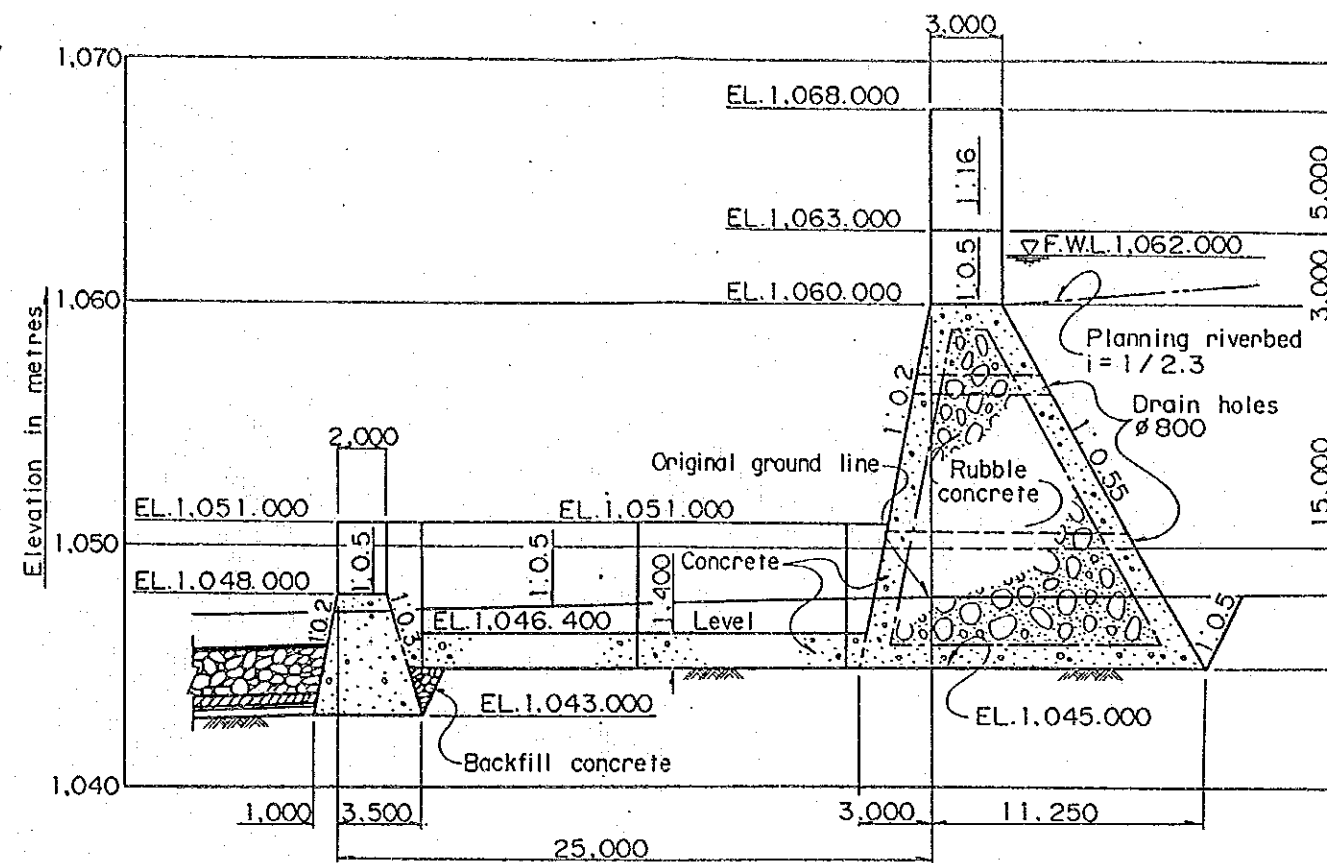


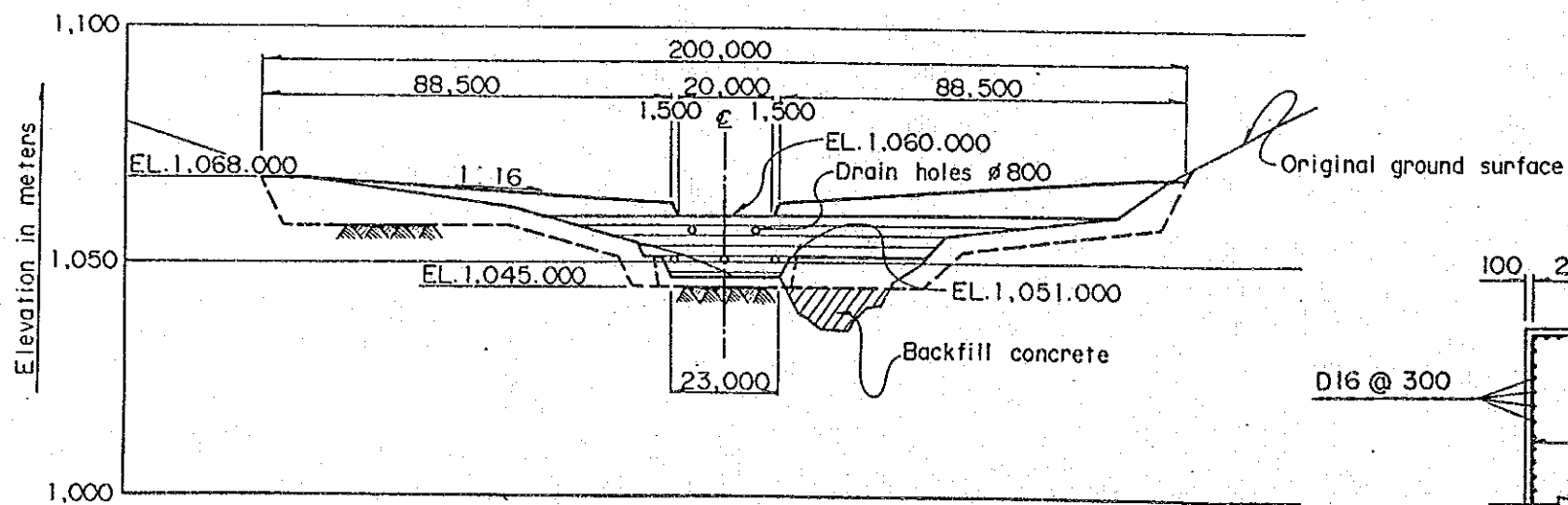
Fig. X-8-31 Profile of Dam Section in Qda Pedregal



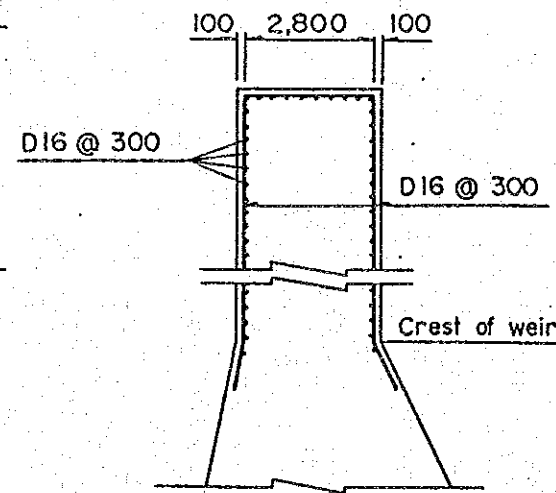
PLAN



SECTION

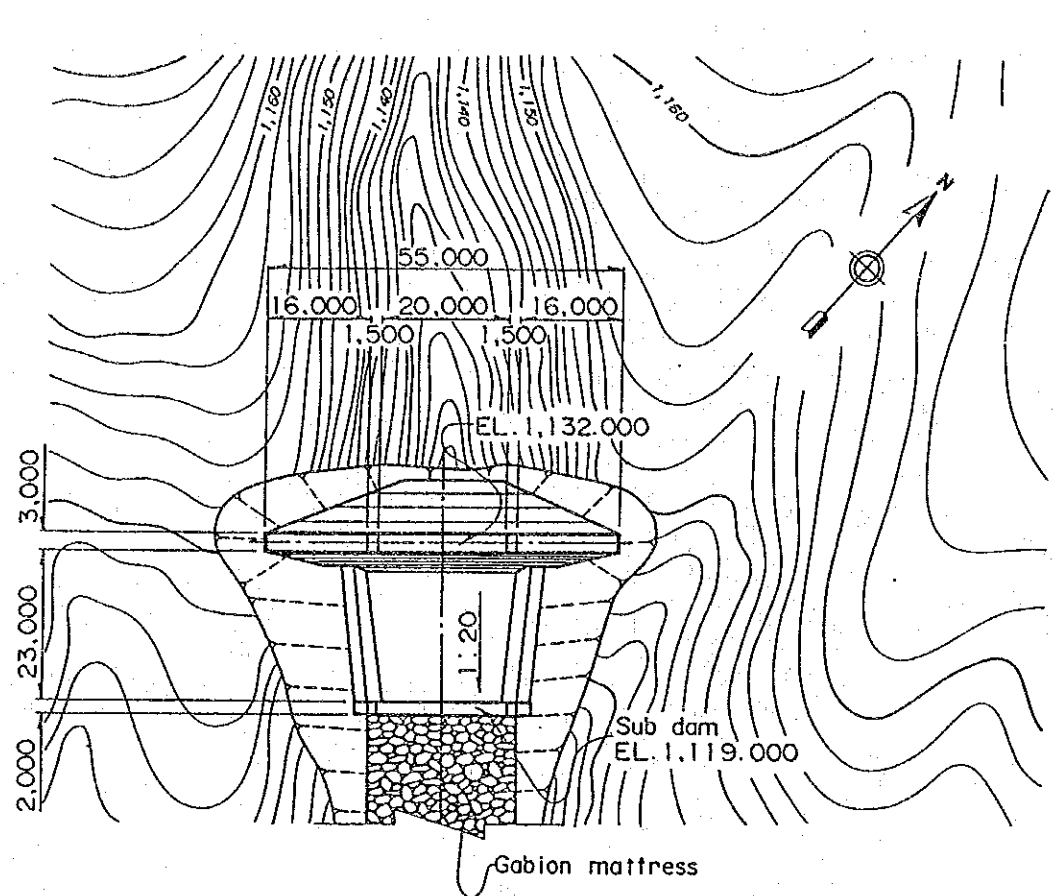


DOWNSTREAM ELEVATION

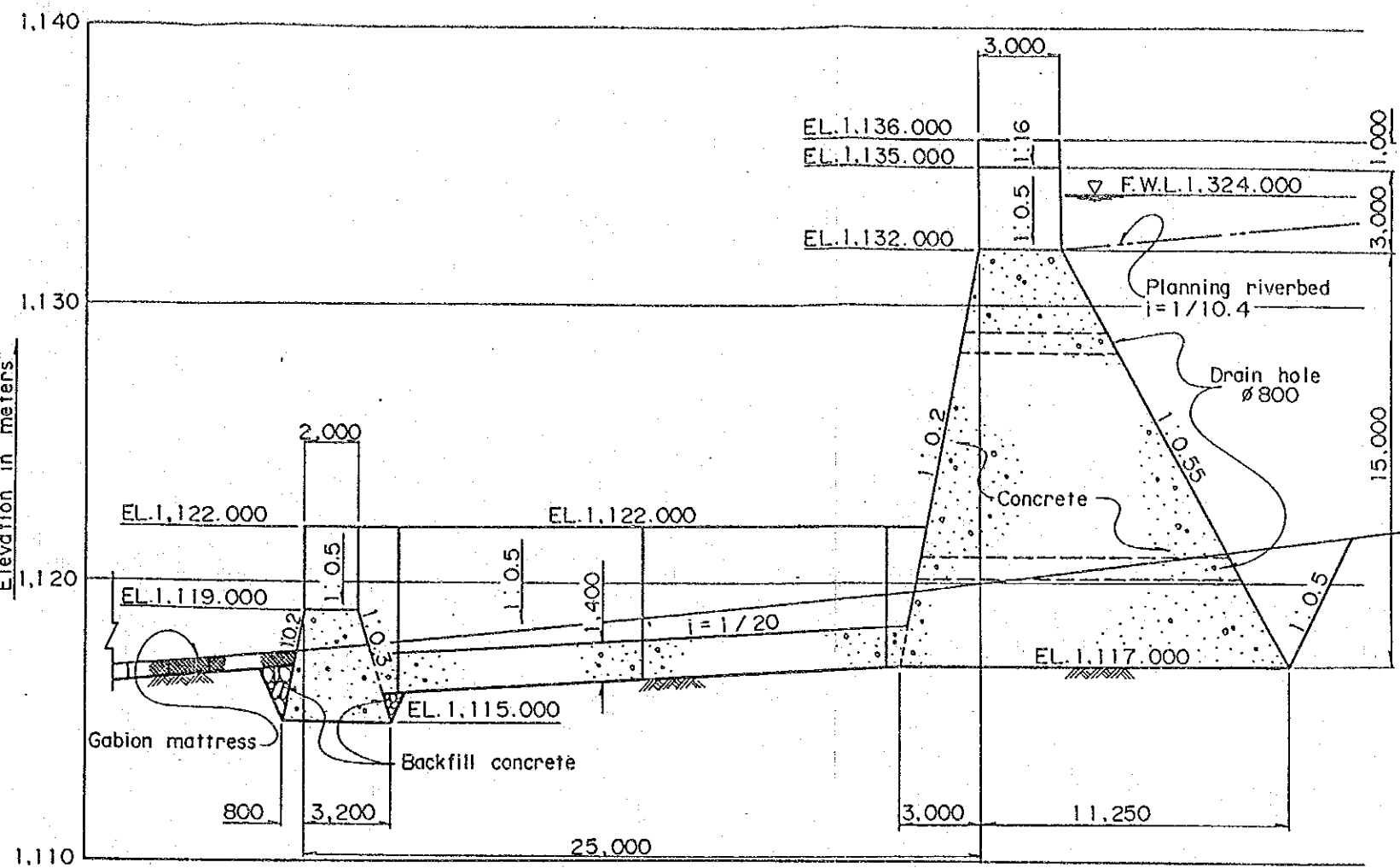


REINFORCEMENT DETAIL OF WING PORTION

Fig. X-8-32 (1) Plan, Elevation and Section of Main Dam in Qda Pedregal

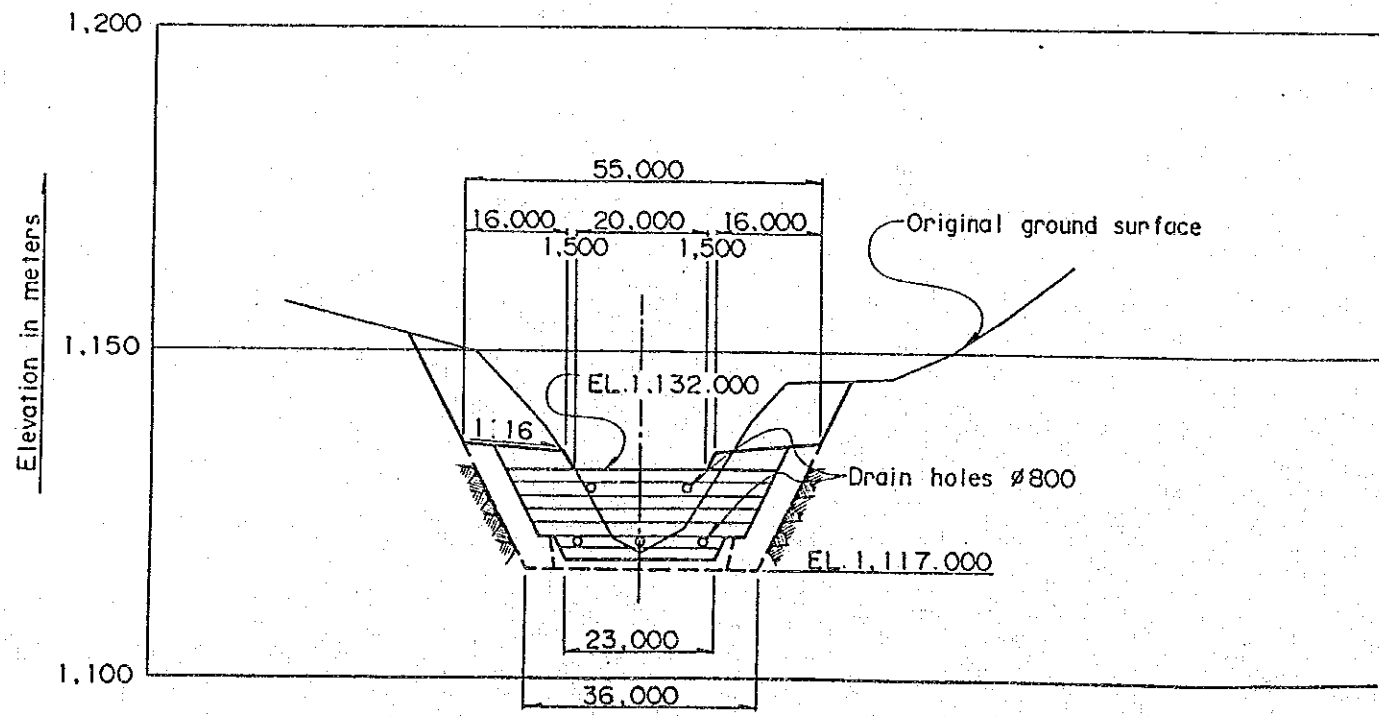


PLAN

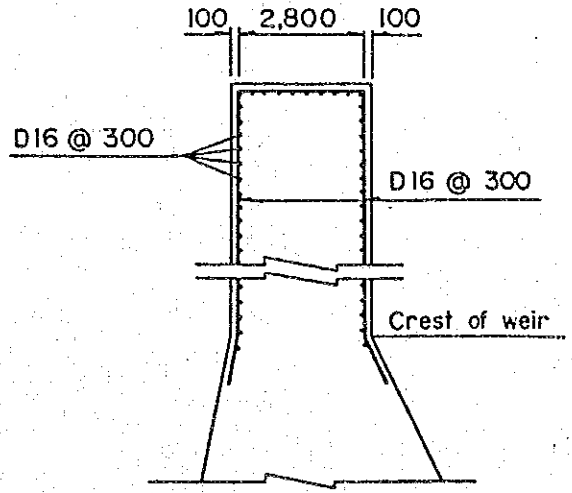


Elevation in meters

SECTION



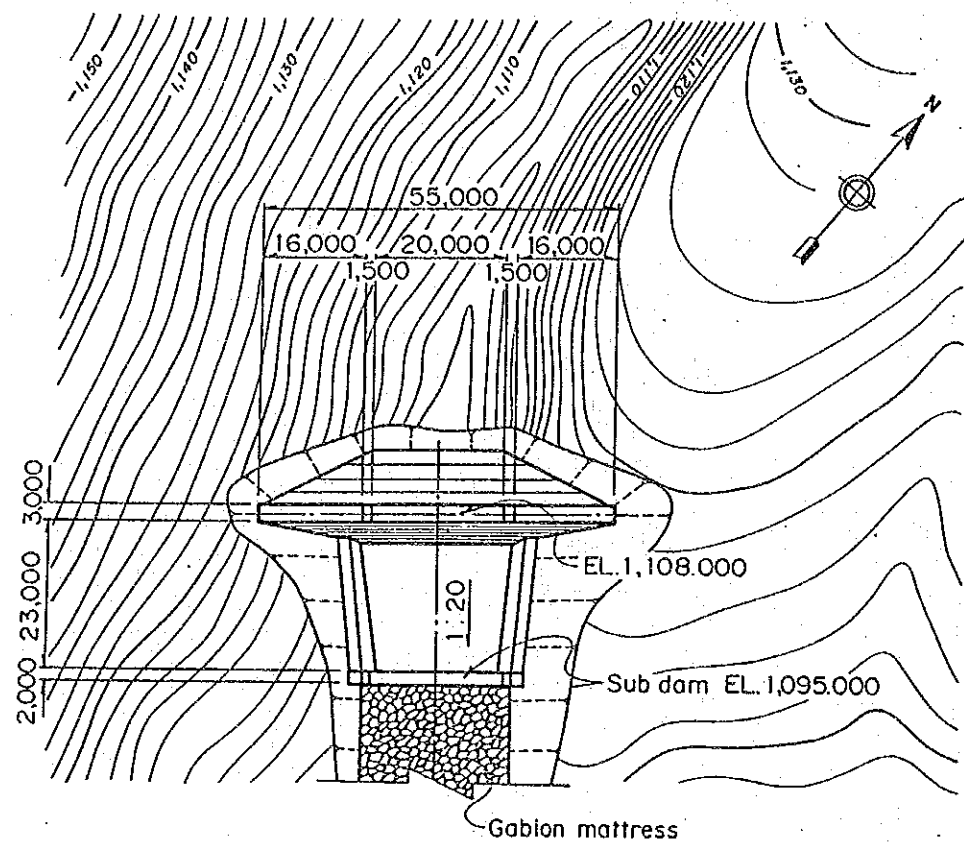
DOWNSTREAM ELEVATION



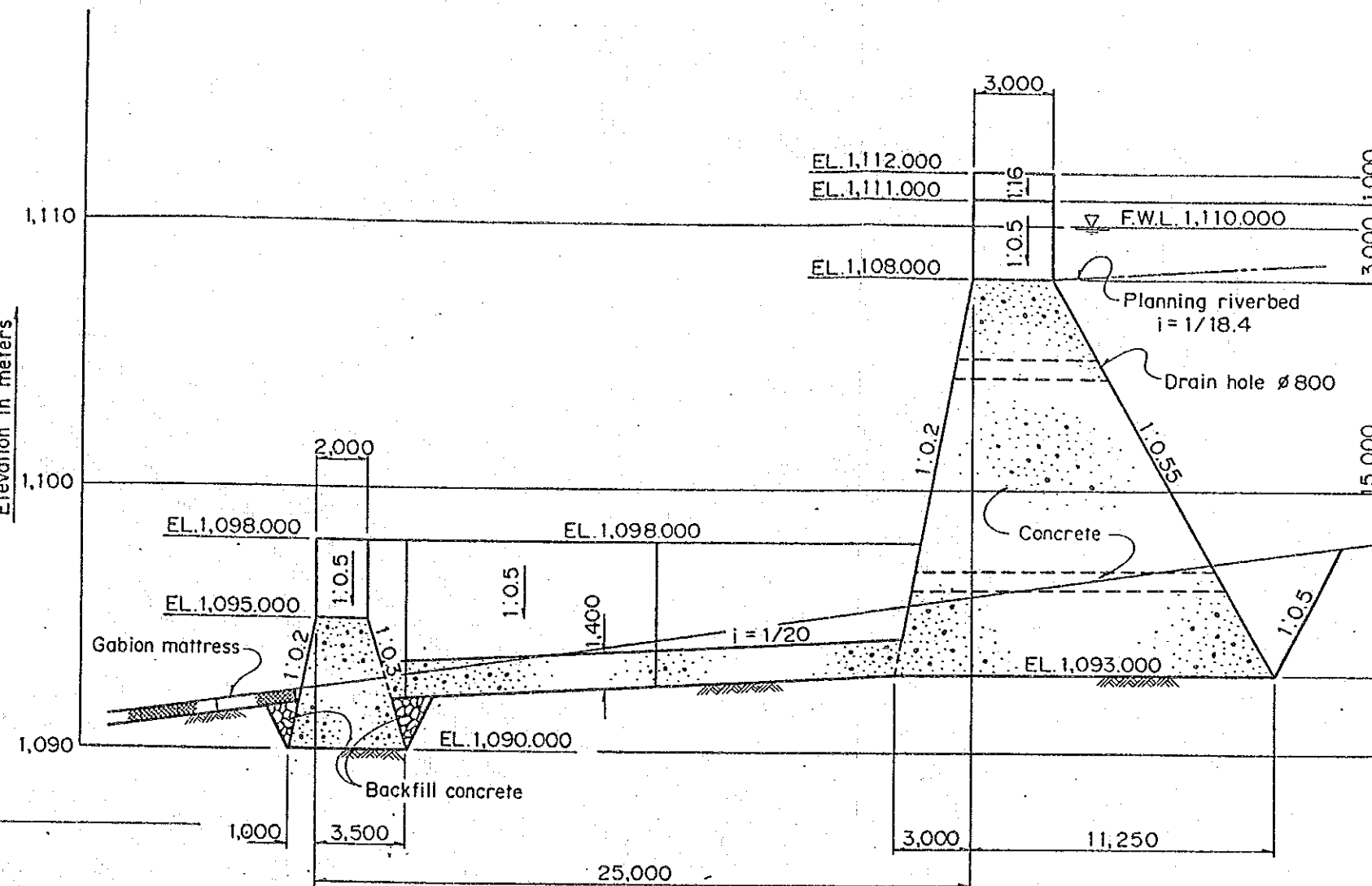
REINFORCEMENT DETAIL OF WING PORTION

Fig. X-8-32 (2) Plan, Elevation and Section of Upper Erosion Control Dam in Oda Pedregal

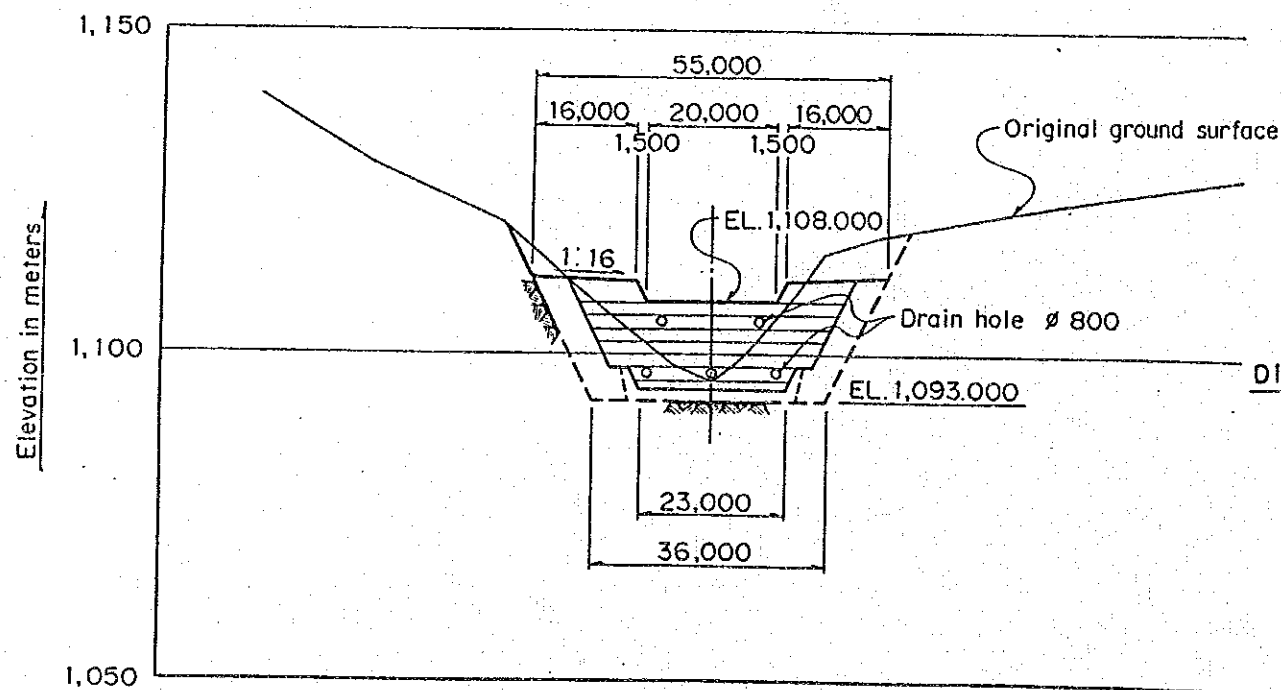
43  
37



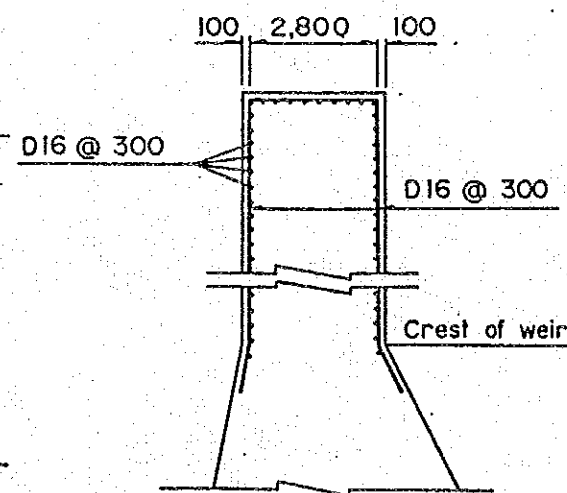
PLAN



SECTION



DOWNSTREAM ELEVATION



REINFORCEMENT DETAIL OF WING PORTION

Fig. X-8-32 (3) Plan, Elevation and Section of Lower Erosion Control Dam in Qda Pedregal





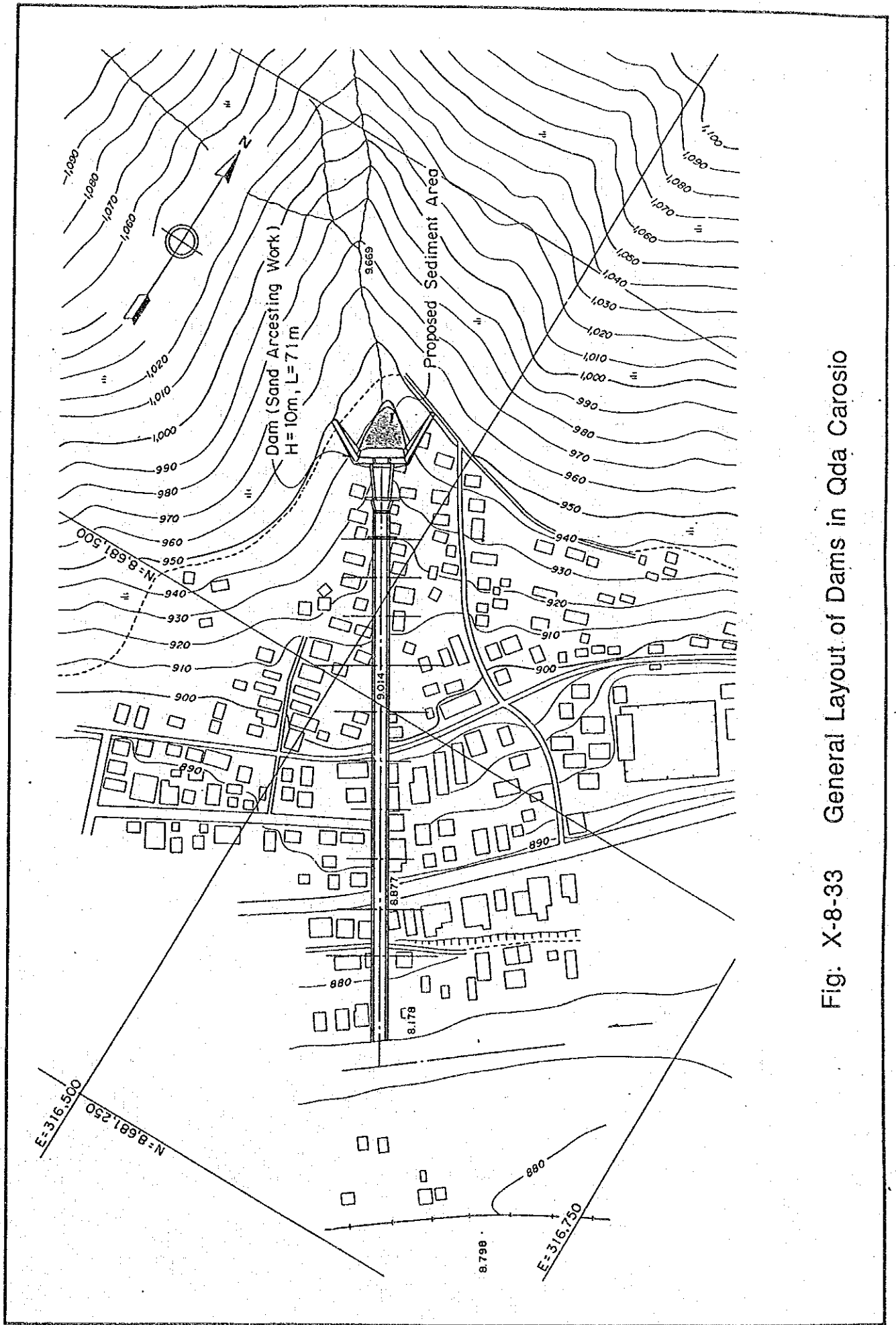


Fig. X-8-33 General Layout of Dams in Qda Carosio



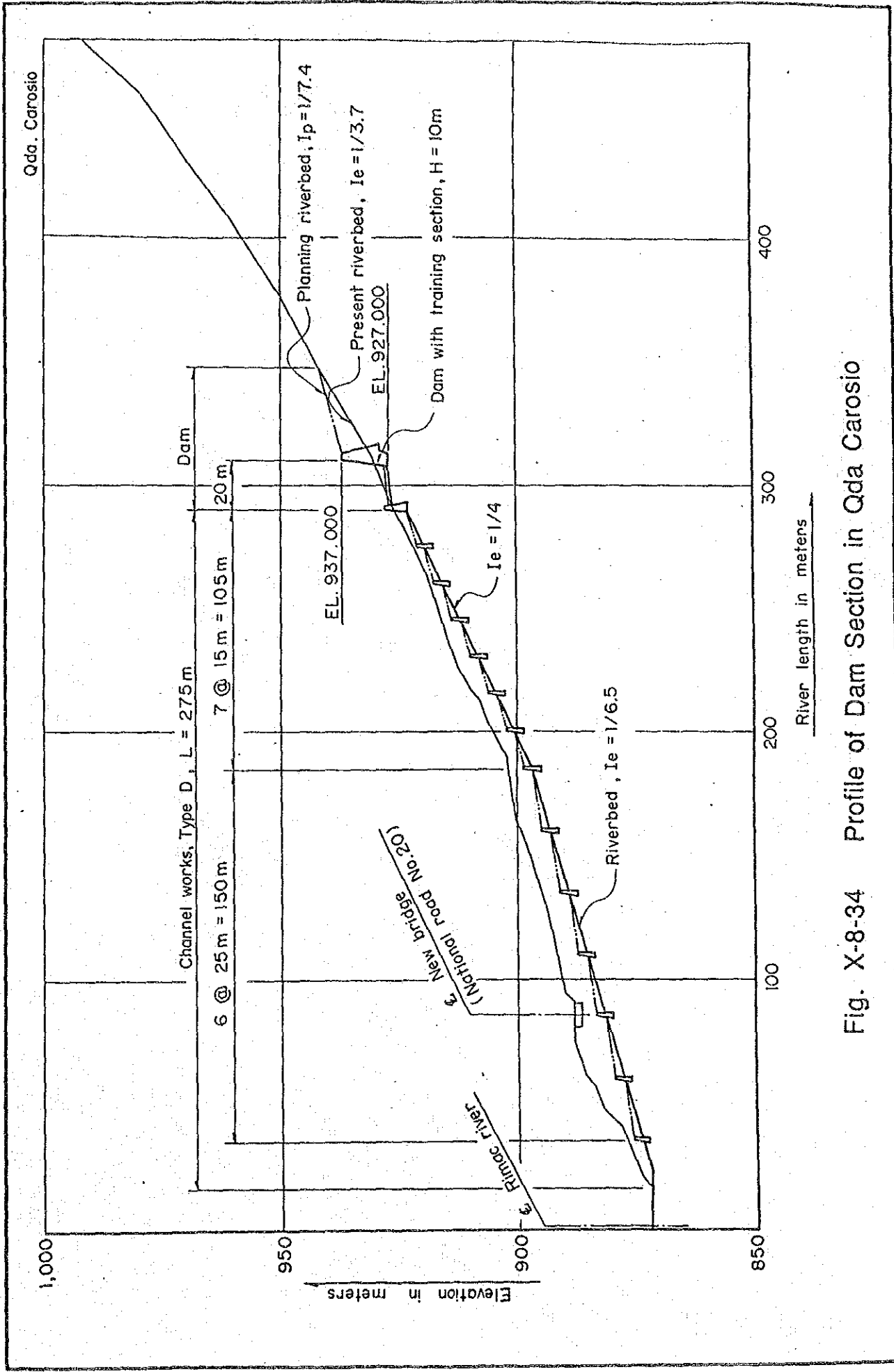
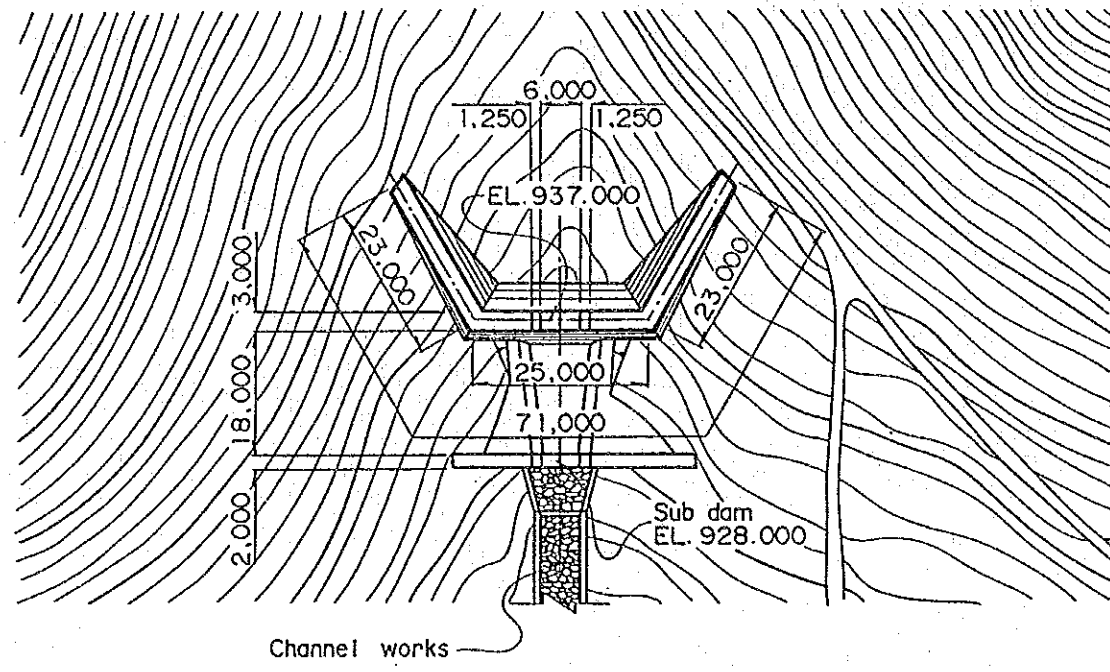
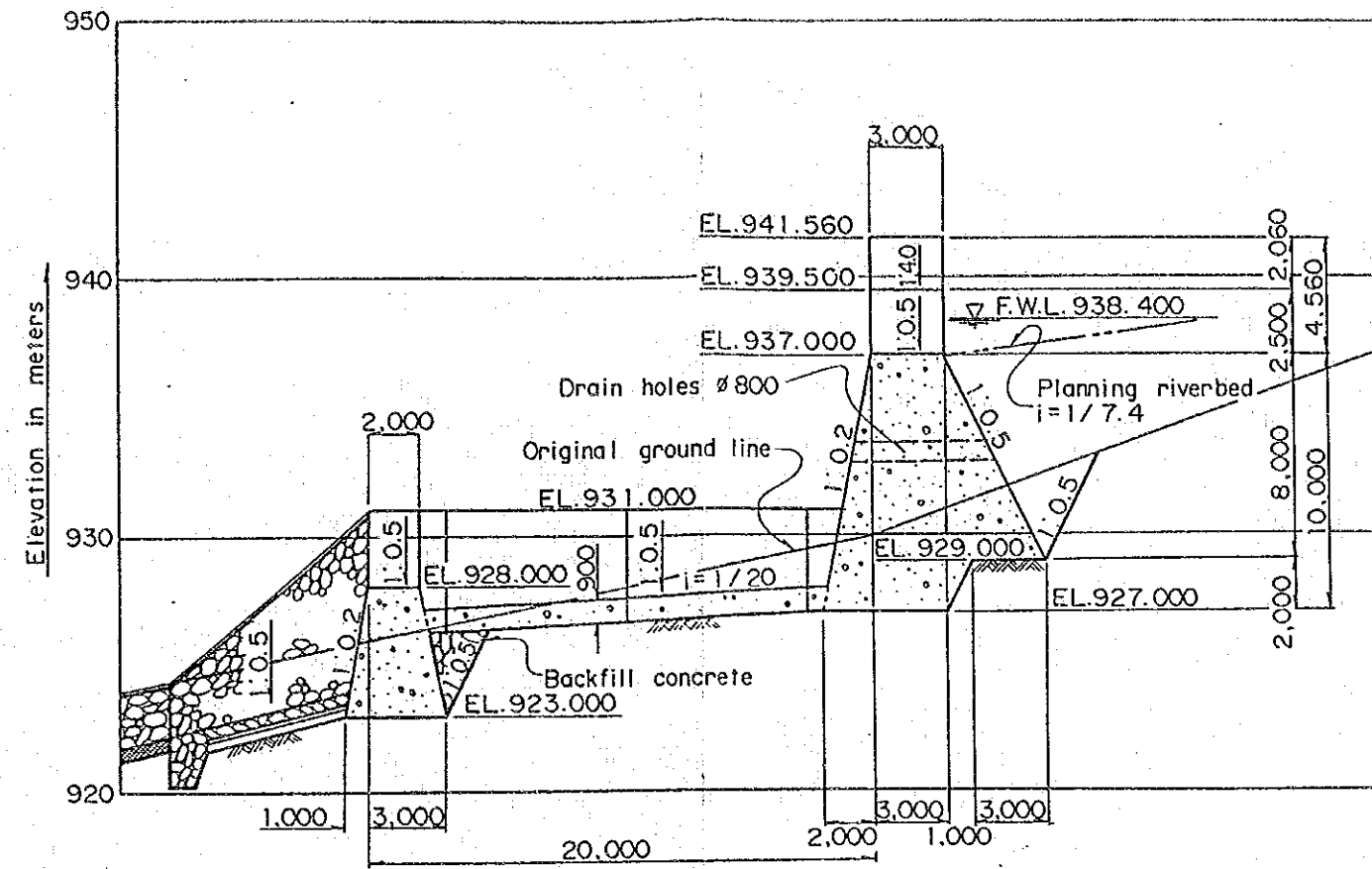


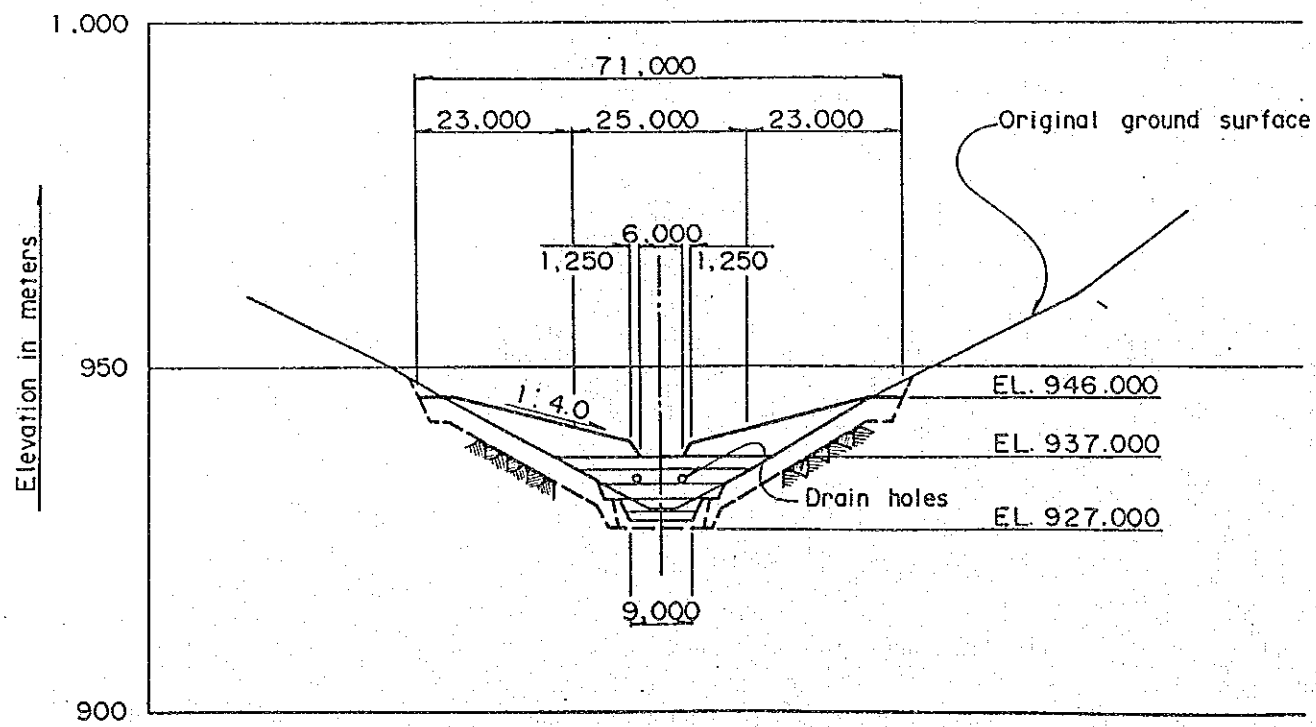
Fig. X-8-34 Profile of Dam Section in Qda Carosio



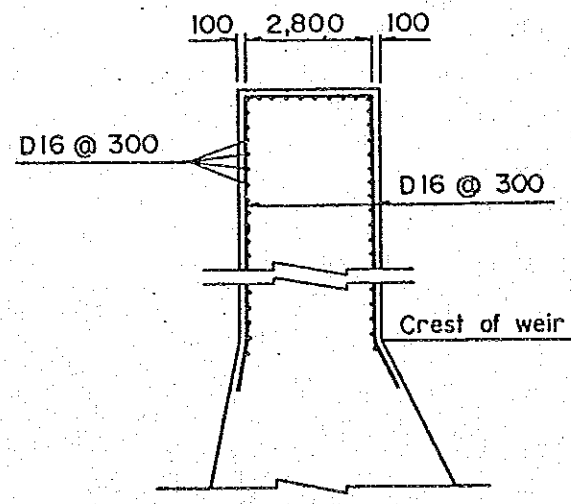
PLAN



SECTION



DOWNSTREAM ELEVATION



REINFORCEMENT DETAIL OF WING PORTION

Fig. X-8-35 Plan, Elevation and Section of Dam in Qda Carosio

47  
64



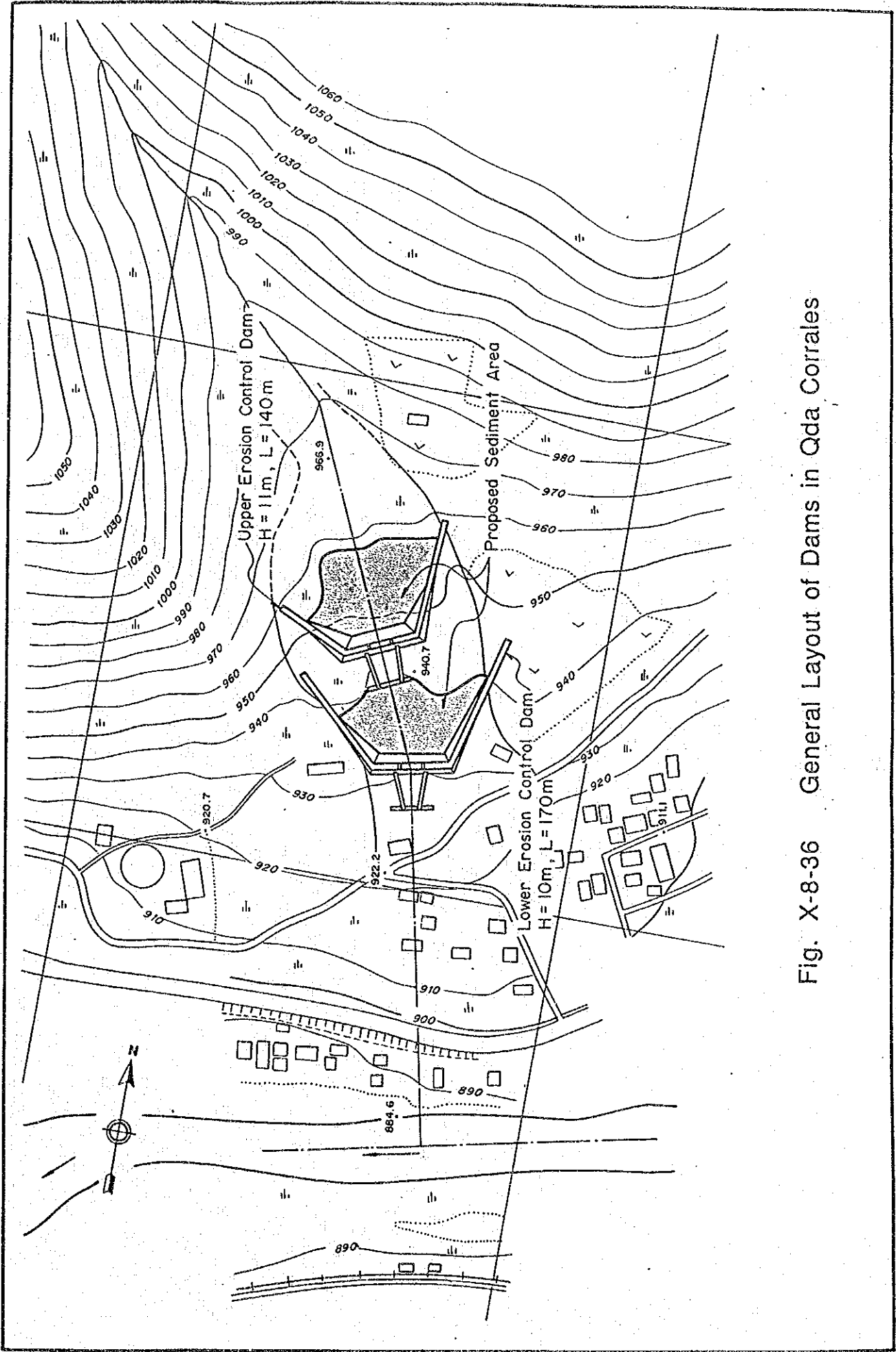


Fig. X-8-36 General Layout of Dams in Qda Corrales





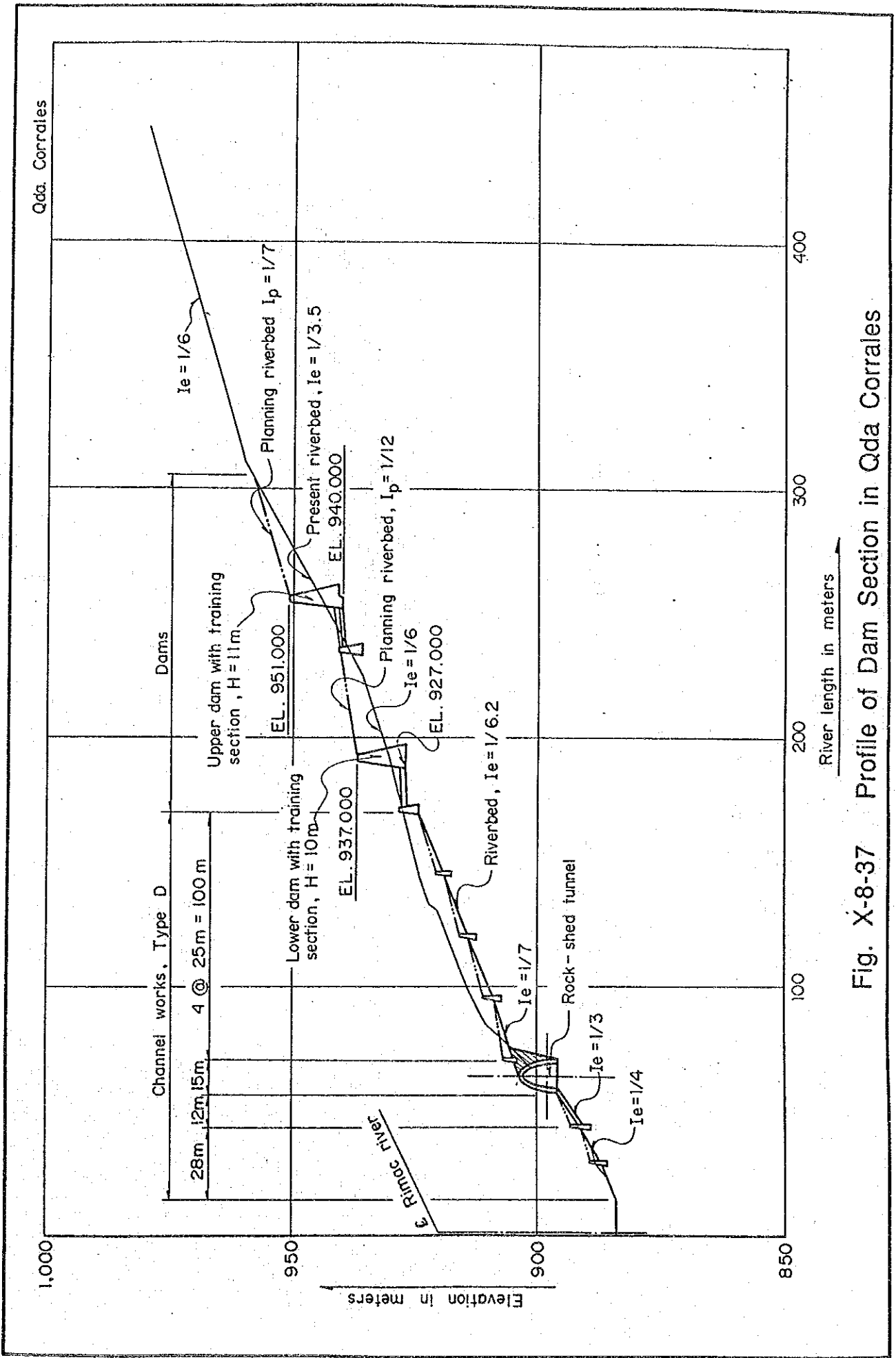
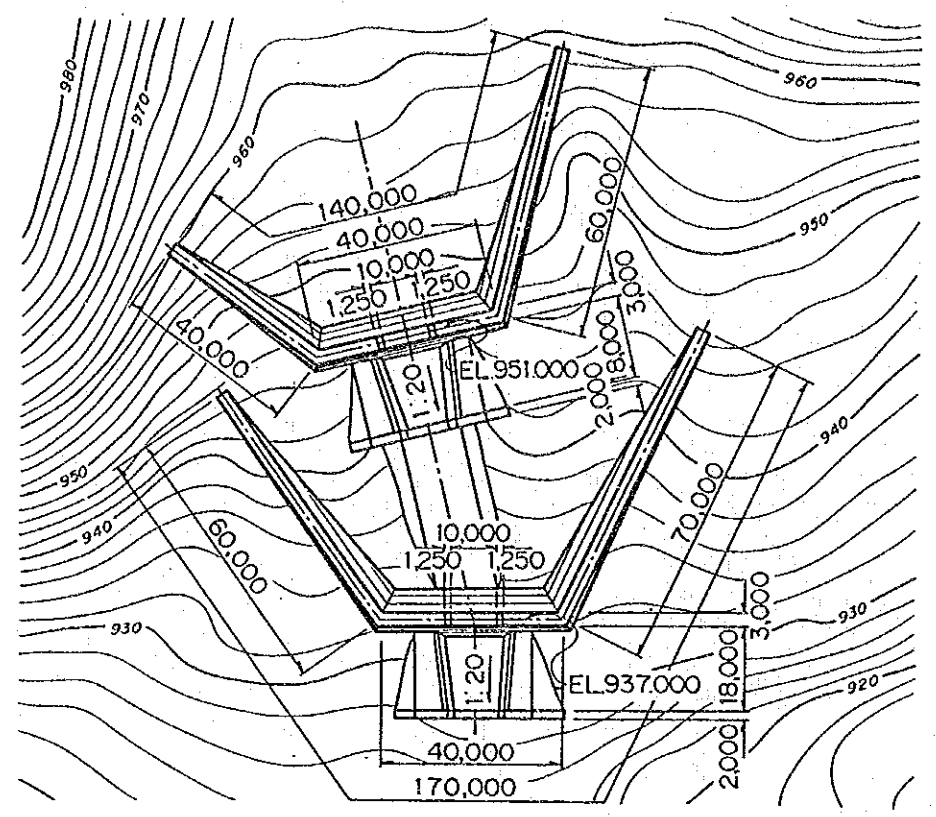
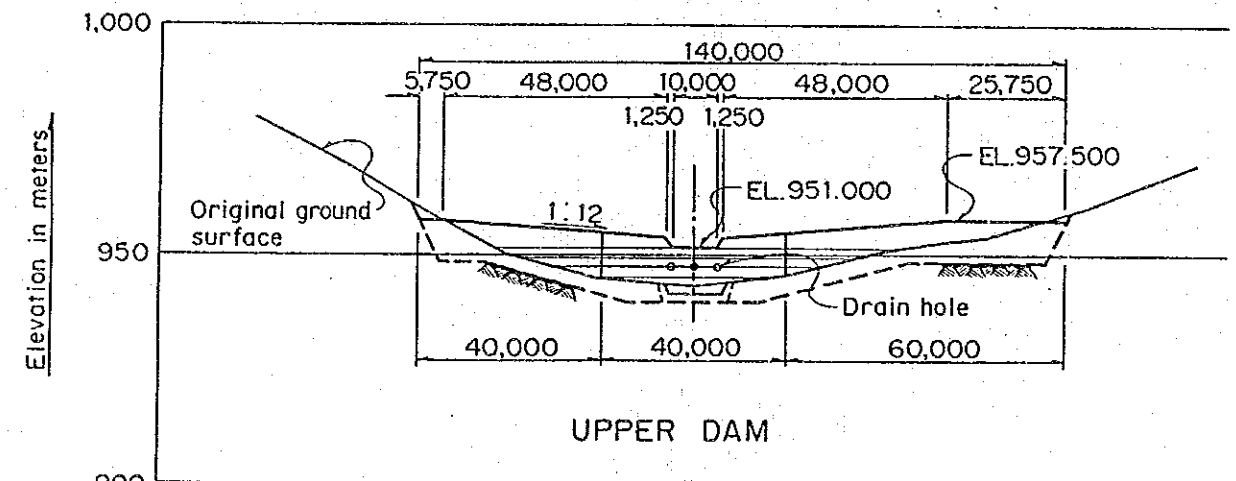


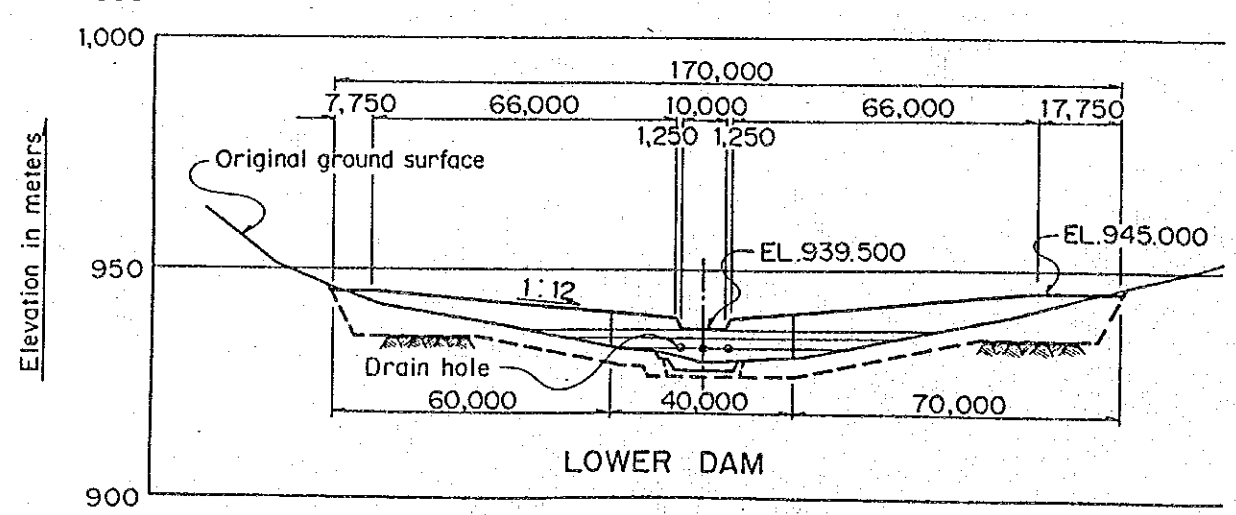
Fig. X-8-37 Profile of Dam Section in Qda Corrales



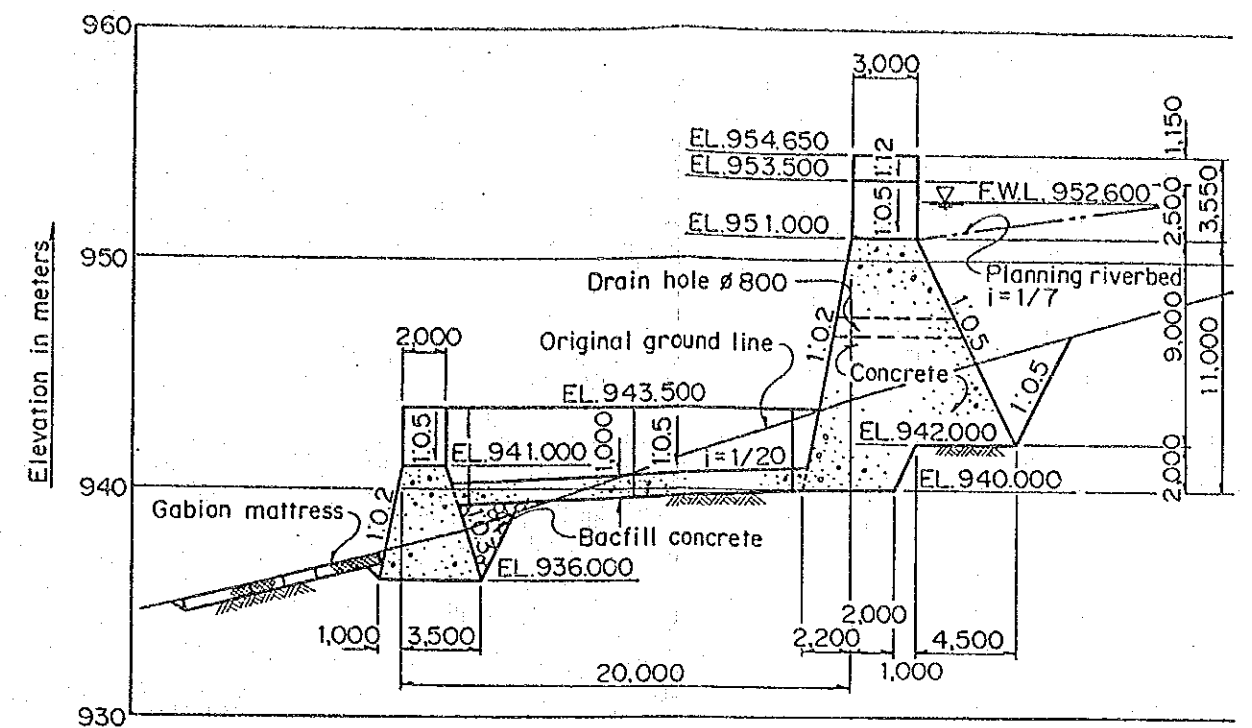
PLAN



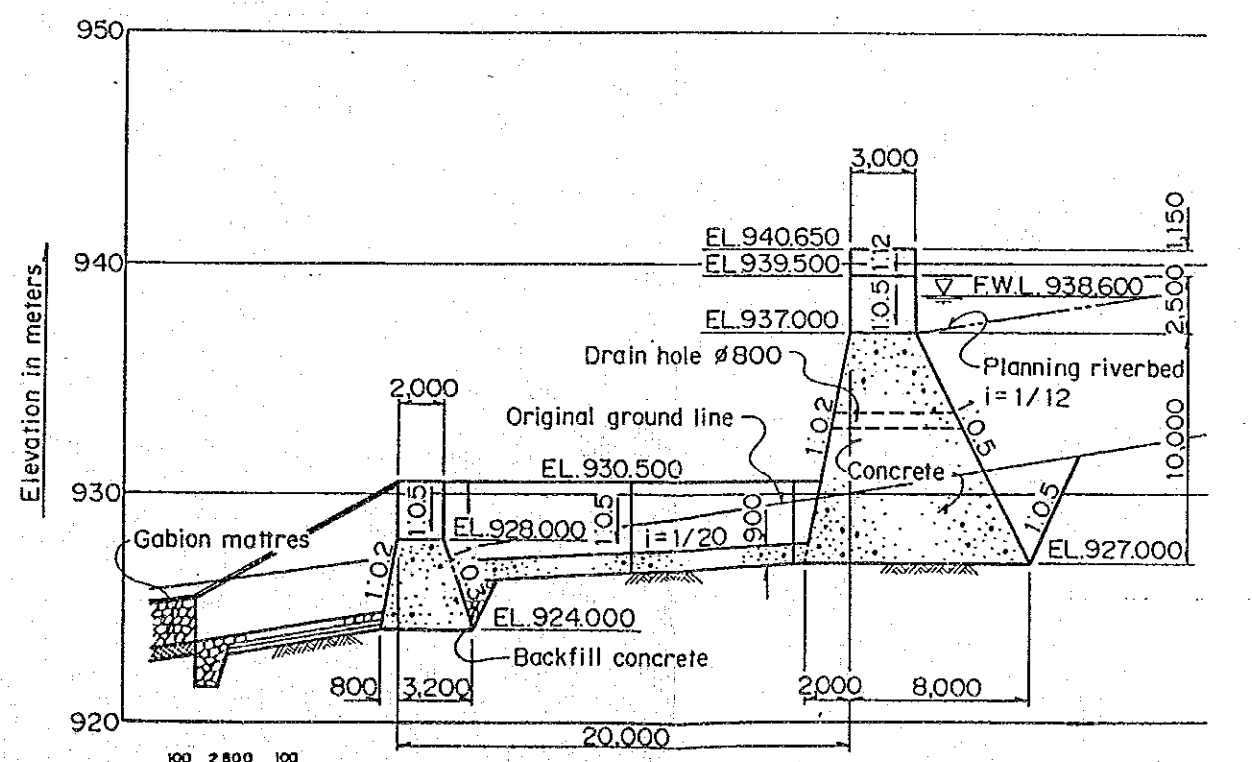
UPPER DAM



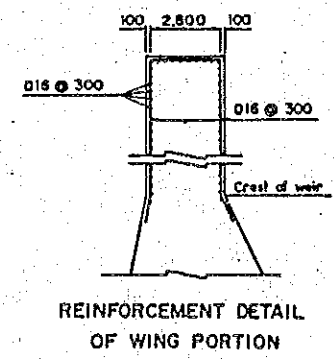
DOWNSTREAM ELEVATION



UPPER DAM



LOWER DAM SECTION



REINFORCEMENT DETAIL OF WING PORTION

Fig. X-8-38 Plan, Elevation and Section of Dam in Qda Corrales