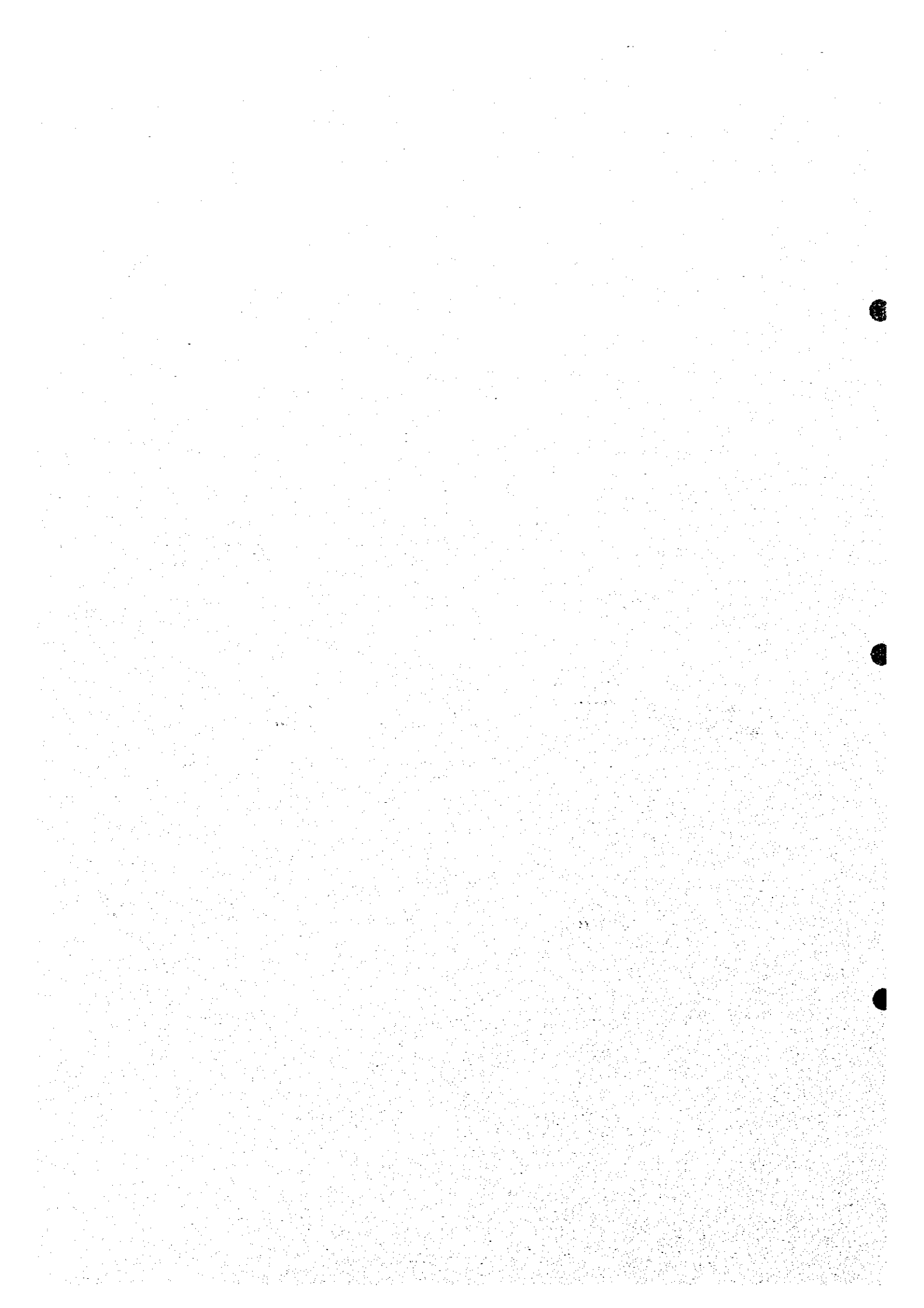


# FIGURES



**THE STUDY ON  
DRAINAGE IMPROVEMENT AND FLOOD CONTROL  
IN THE MUNICIPALITY OF PHNOM PENH**

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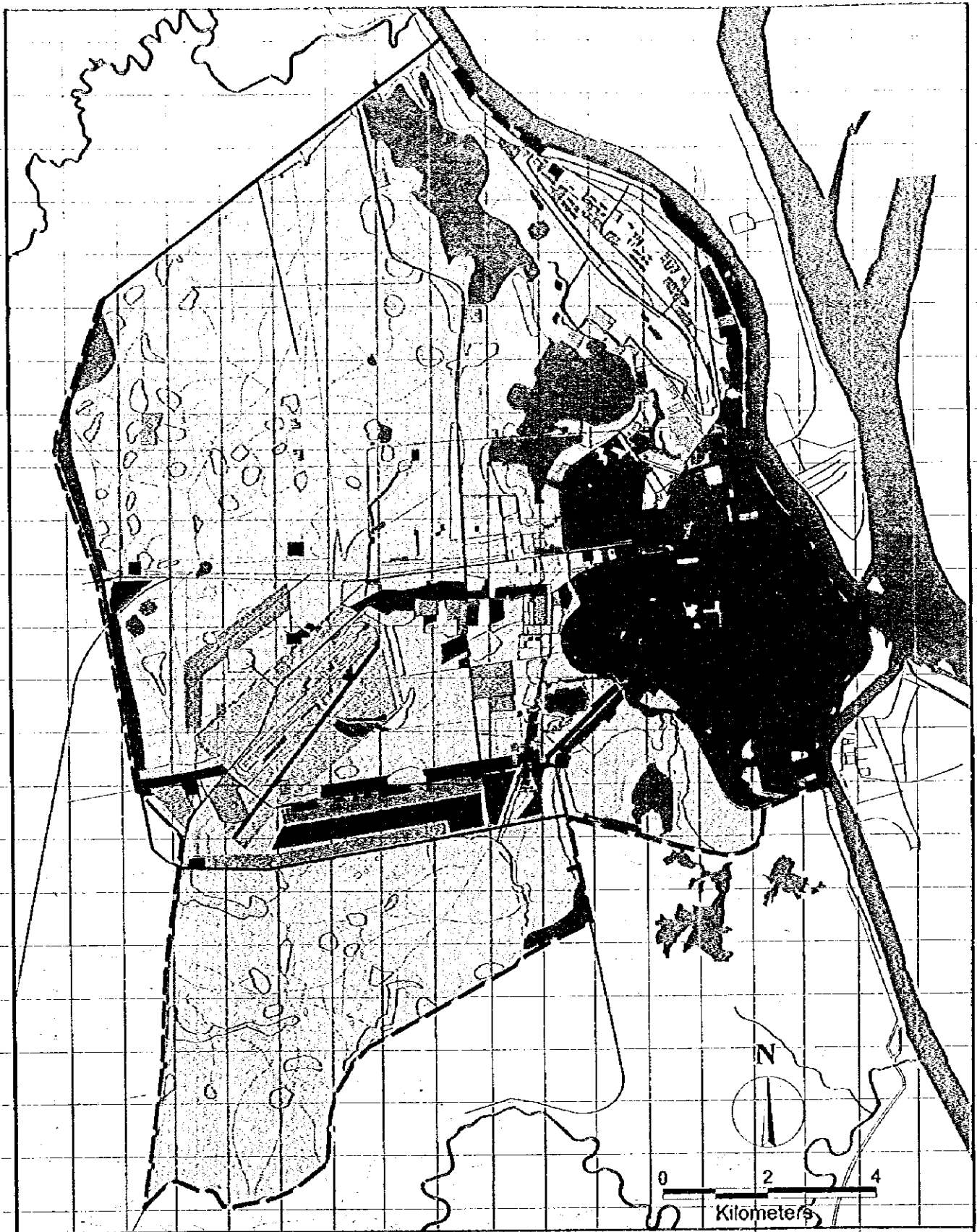
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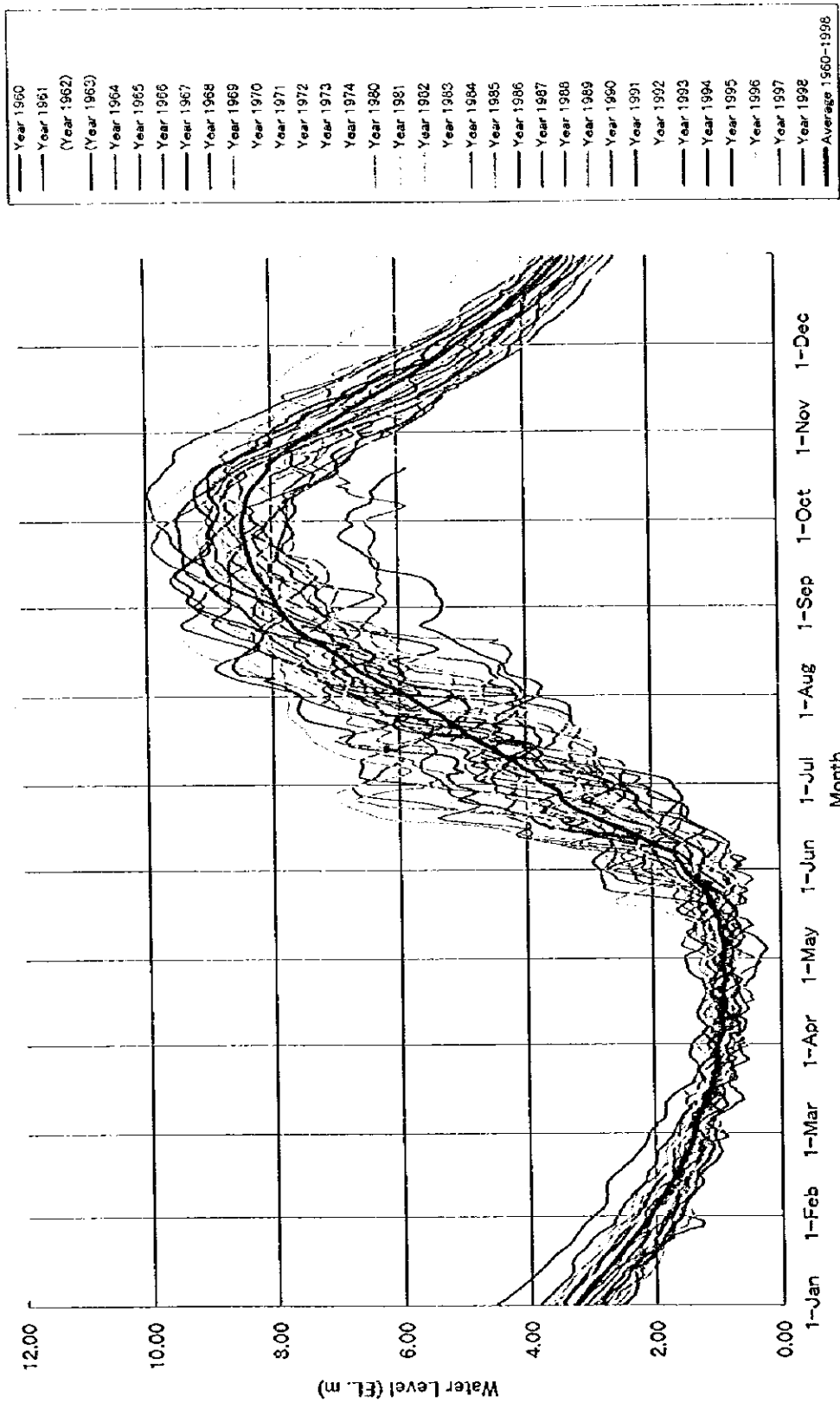


Base map: APUR BAU

- |   |  |   |
|---|--|---|
| <ul style="list-style-type: none"> <li> Dense activities (activities and industries requiring important buildings and infrastructure)</li> <li> Dense urban centre (important buildings, chinese compartments, side by side houses)</li> <li> Dense residential (urban villas, buildings with small gardens)</li> </ul> | <ul style="list-style-type: none"> <li> Loose residential (small villas and buildings, much green spaces and agricultural land)</li> <li> Loose activities (small-size activities mixed with residential or waste grounds)</li> <li> Agricultural land (rice fields, unused land, important vegetable or fruit gardens)</li> </ul> | <ul style="list-style-type: none"> <li> Green spaces and parks (all urban green spaces of noticeable size, excluding villa gardens)</li> <li> Fish Ponds</li> <li> Lakes and ponds (all water-covered surfaces, including rivers and swamps)</li> </ul> |
|---|--|---|

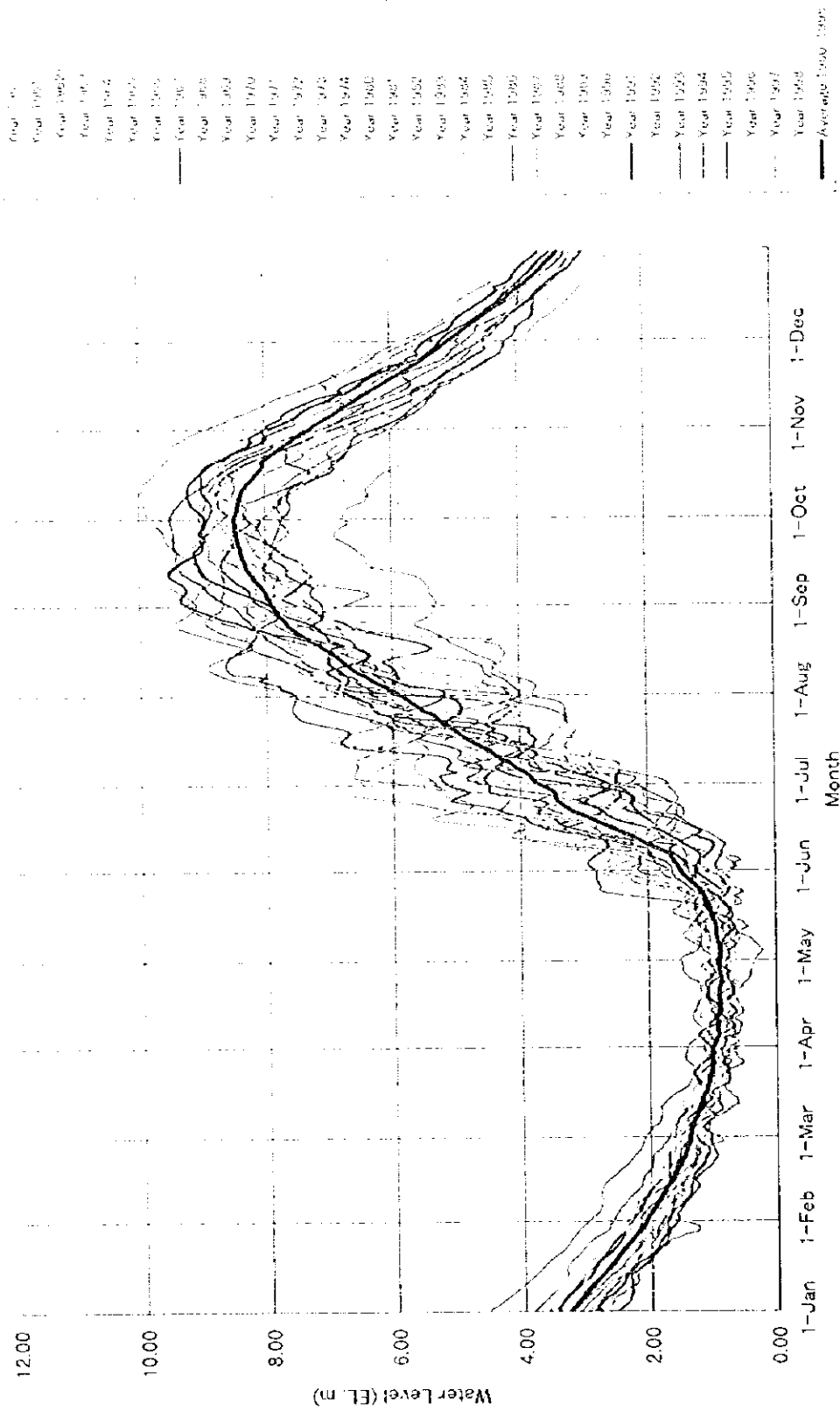
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Figure I2-1  
Future Land Use



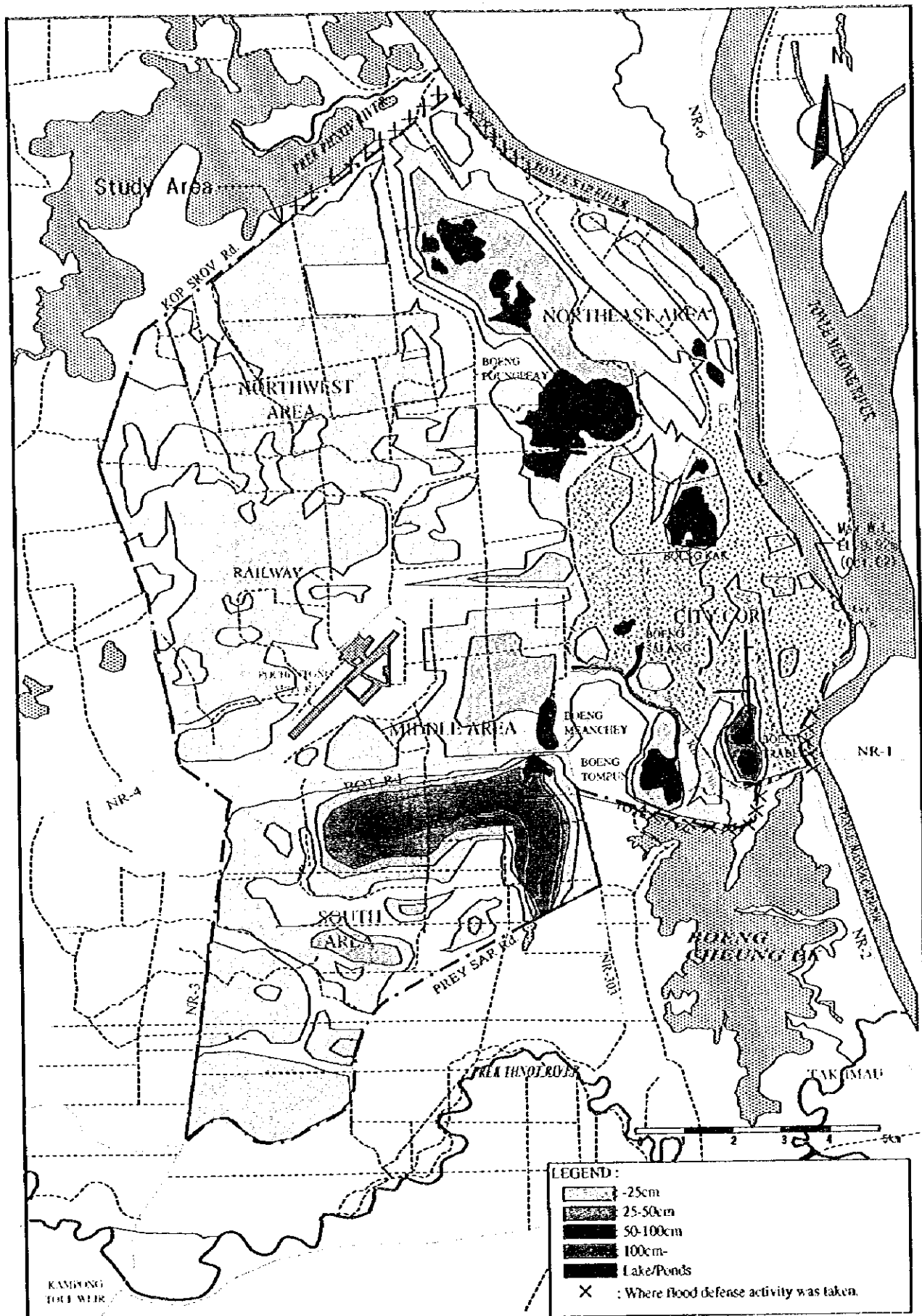
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Figure 12-2  
Seasonal Variation of Water Level at Chaktomuk Station



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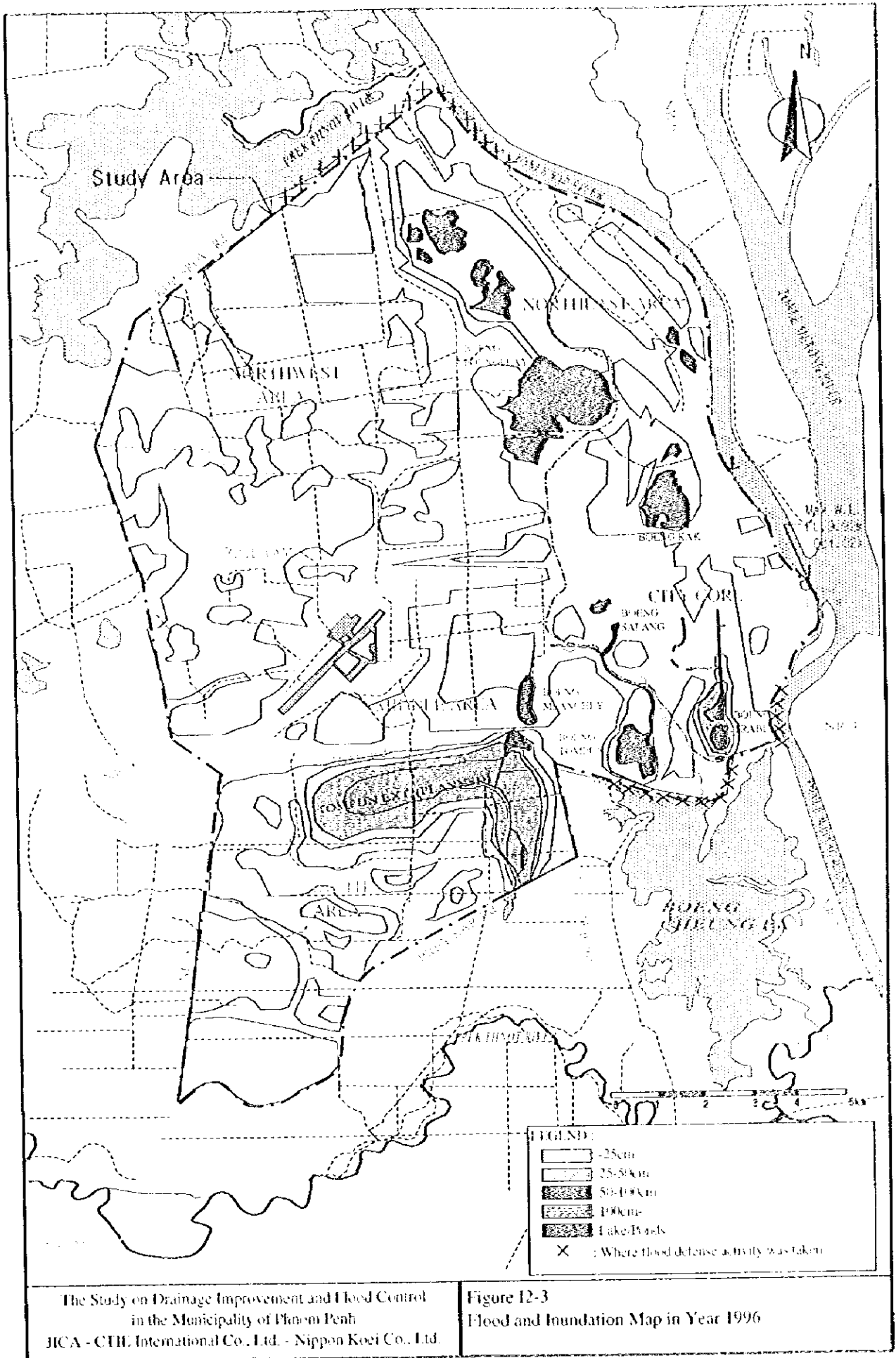
Figure 12-2  
 Seasonal Variation of Water Level at Chaktomuk Station

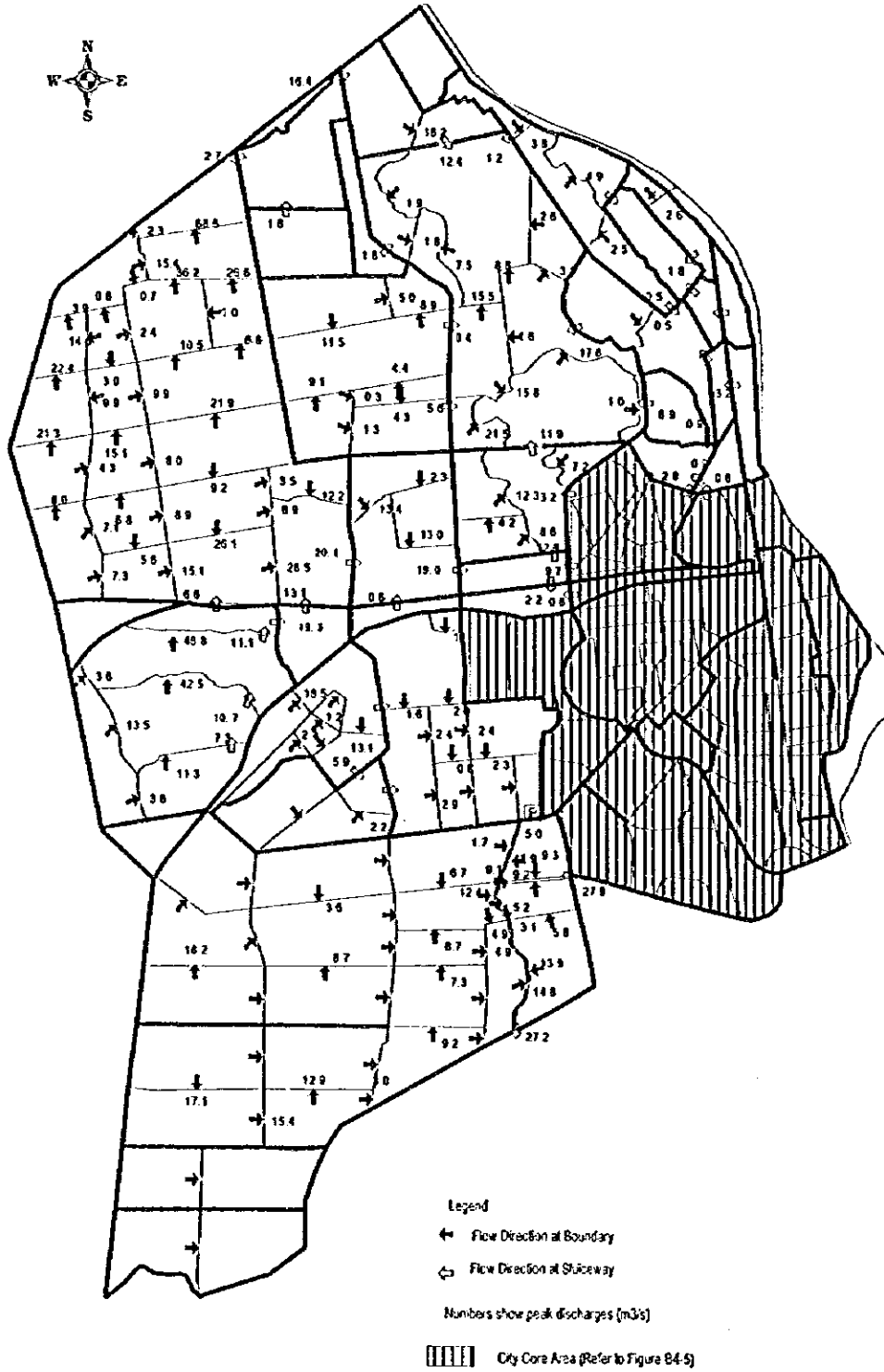


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Figure I2-3  
 Flood and Inundation Map in Year 1996

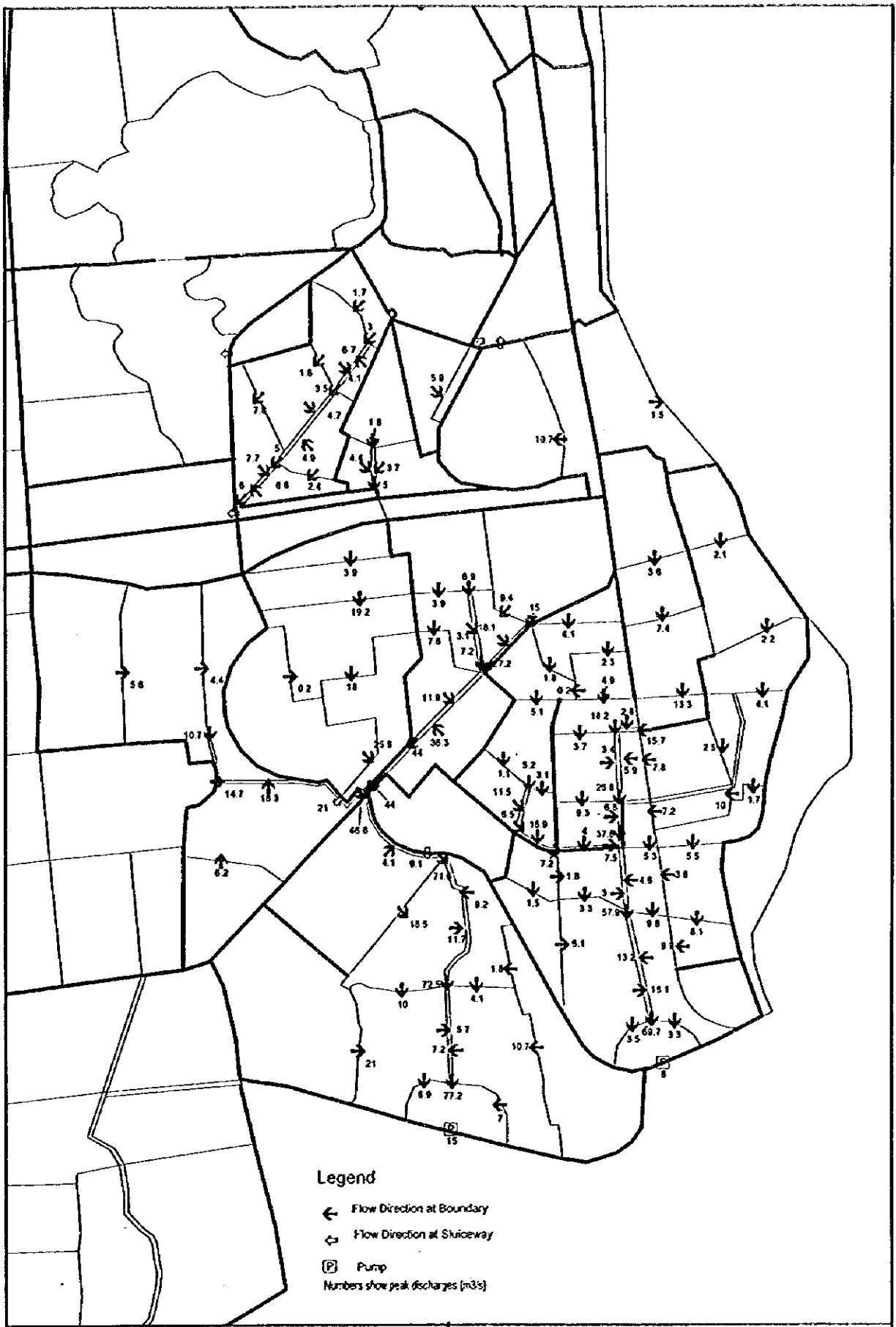






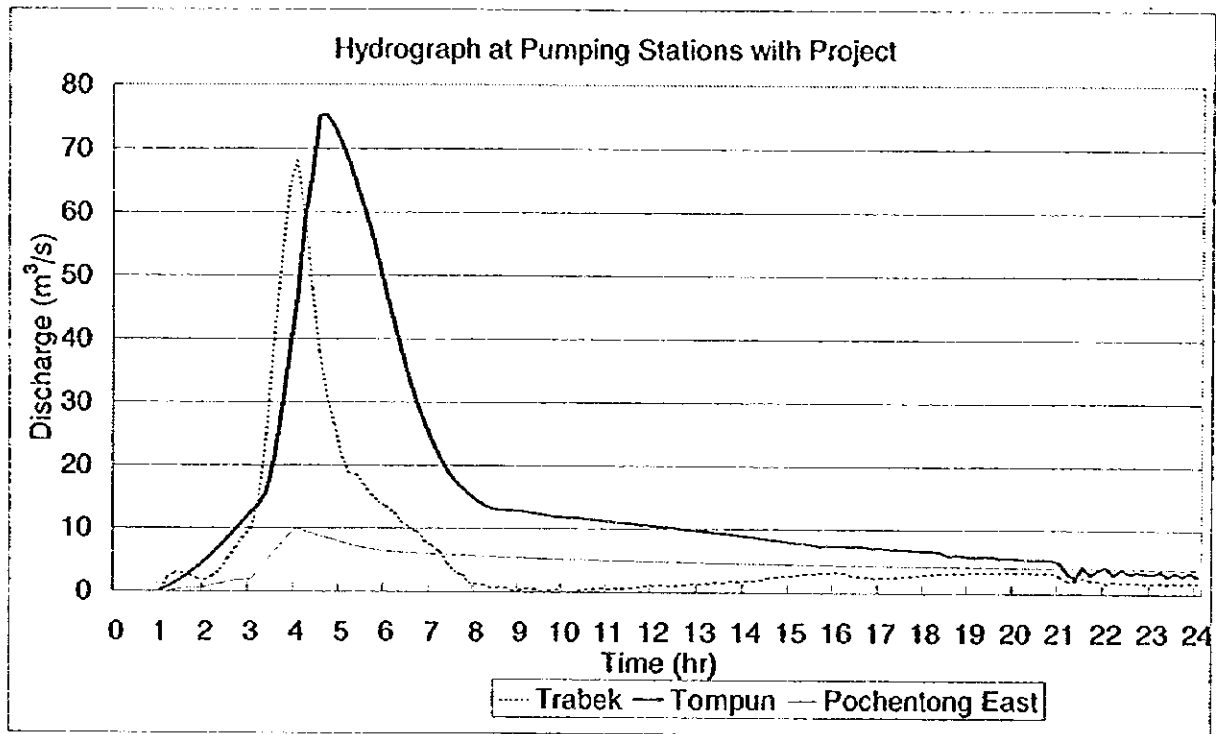
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Figure 12-4  
 Flow Directions and Peak Discharges in Case 5  
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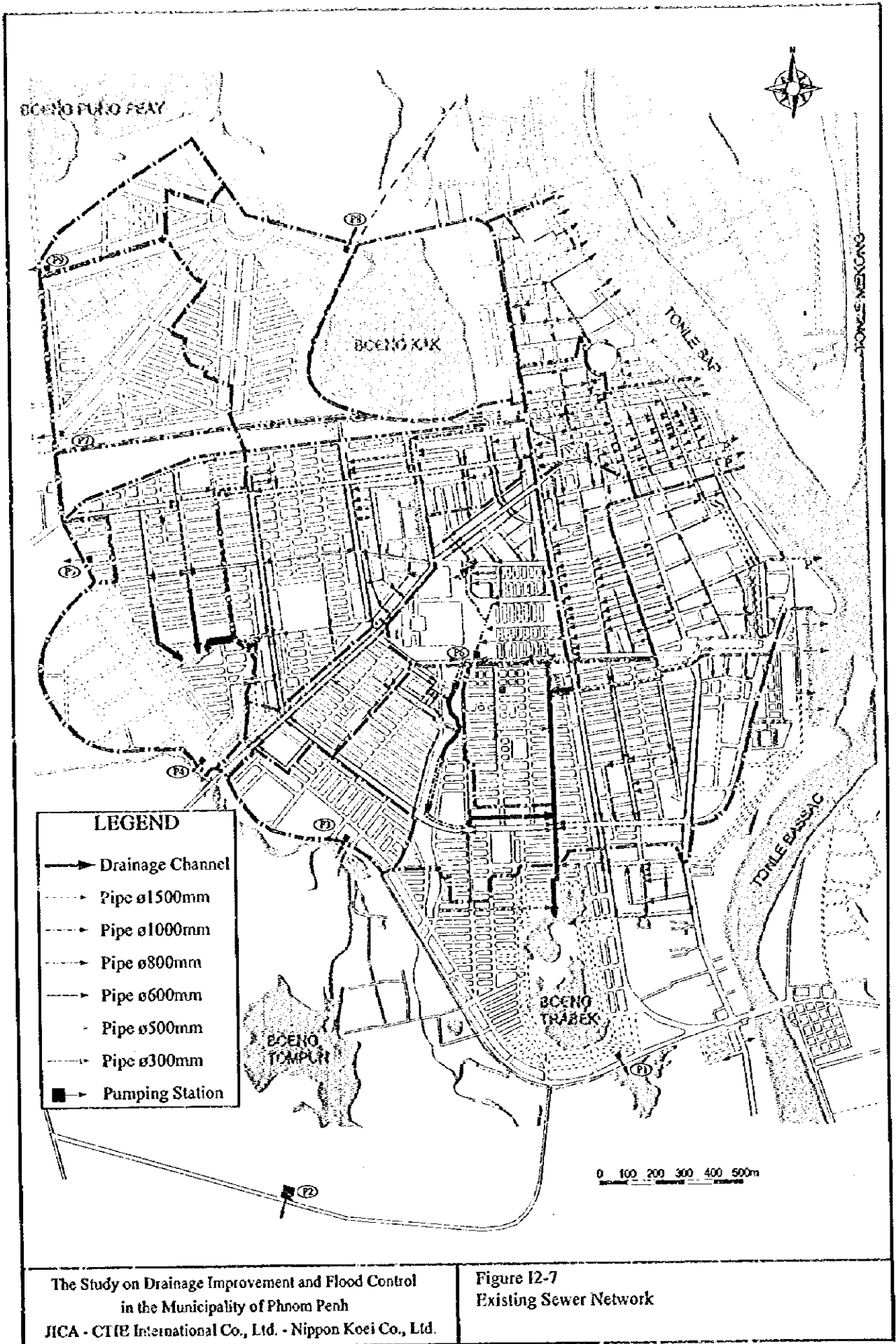
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Figure 12-5  
Flow Directions and Peak Discharges in Case 5  
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in the Municipality of Phnom Penh  
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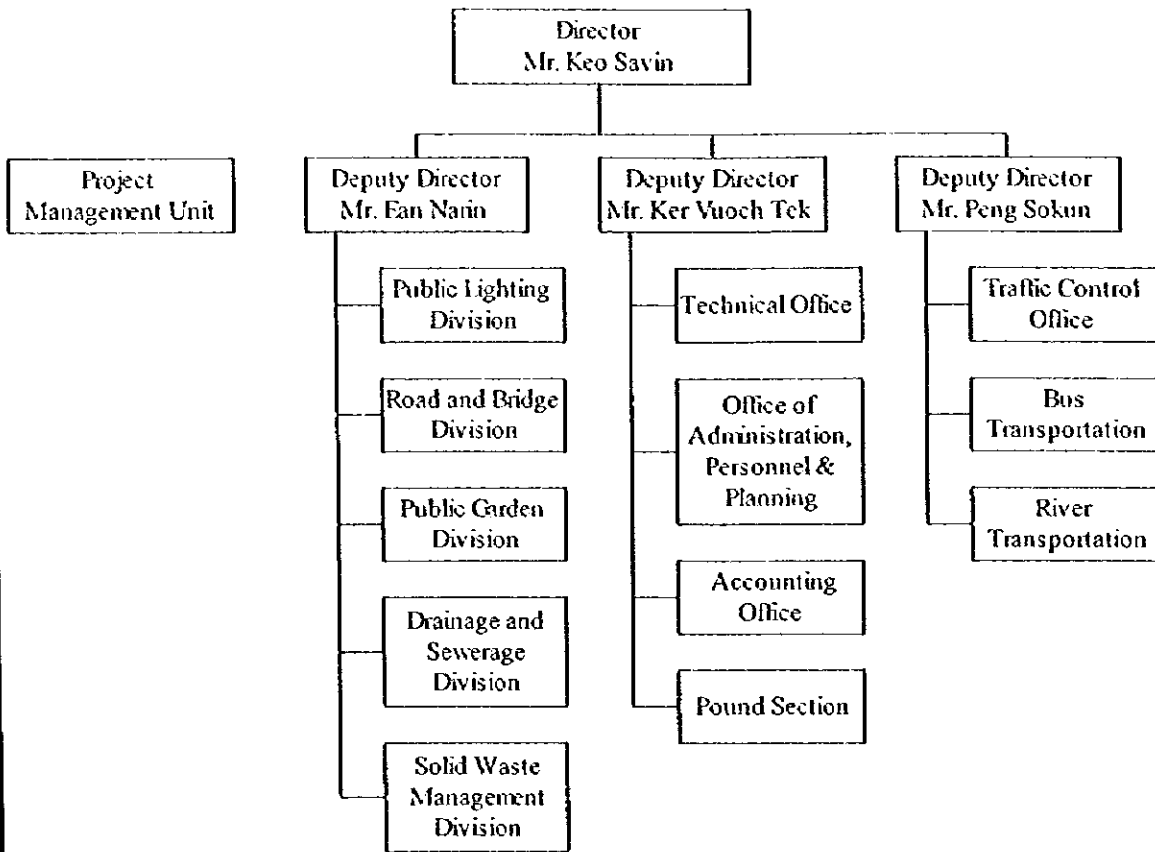
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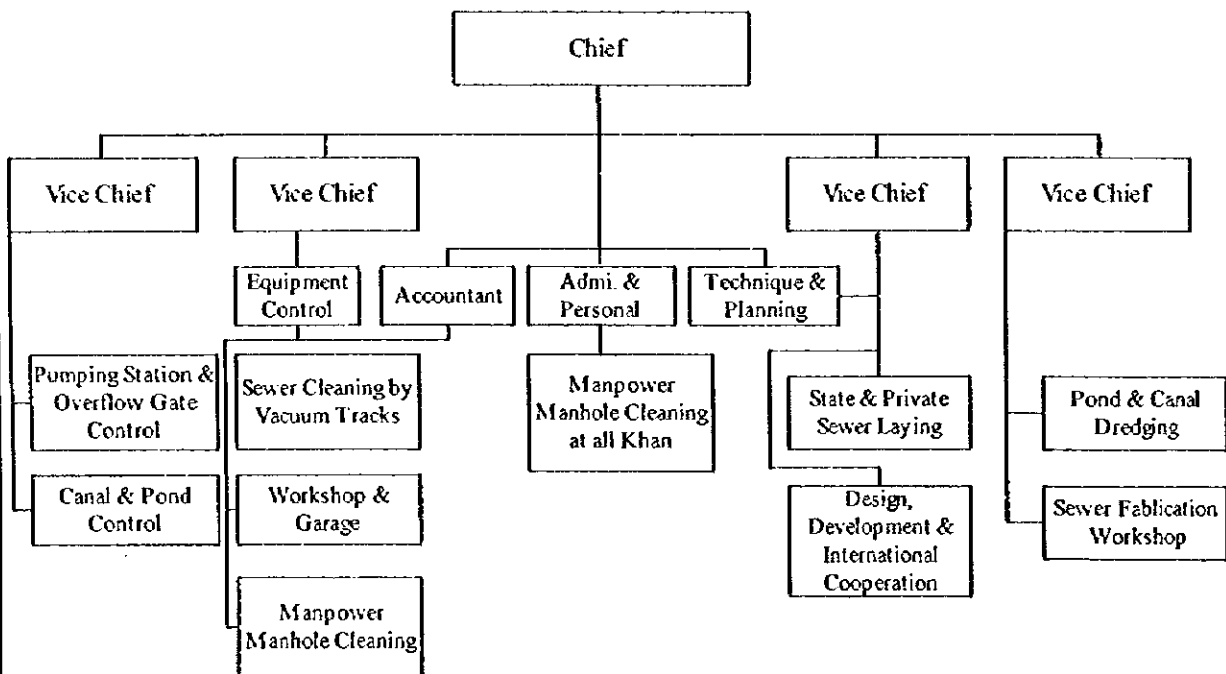
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in the Municipality of Phnom Penh  
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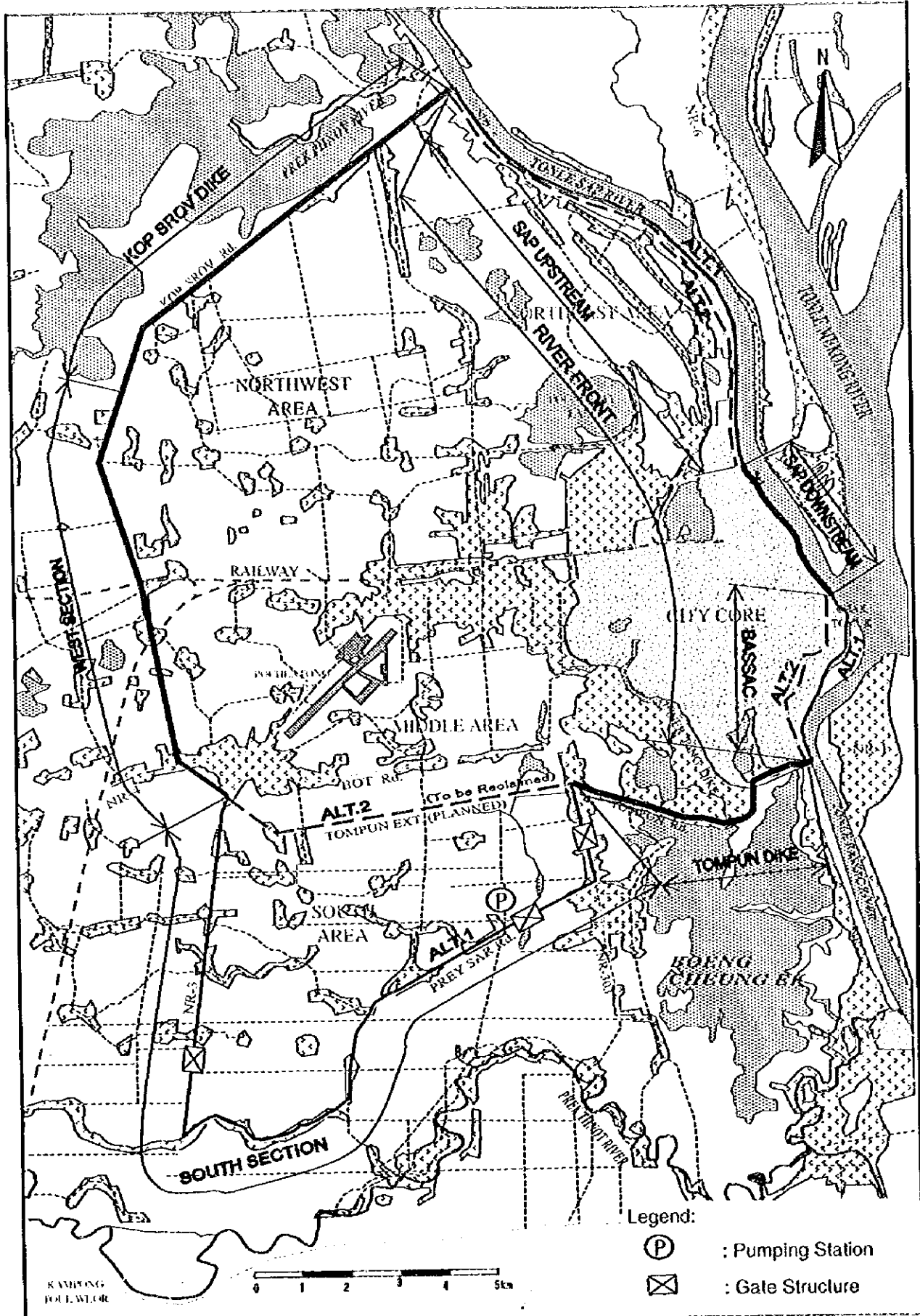
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## Organizational Structure of Department of Public Works and Transport



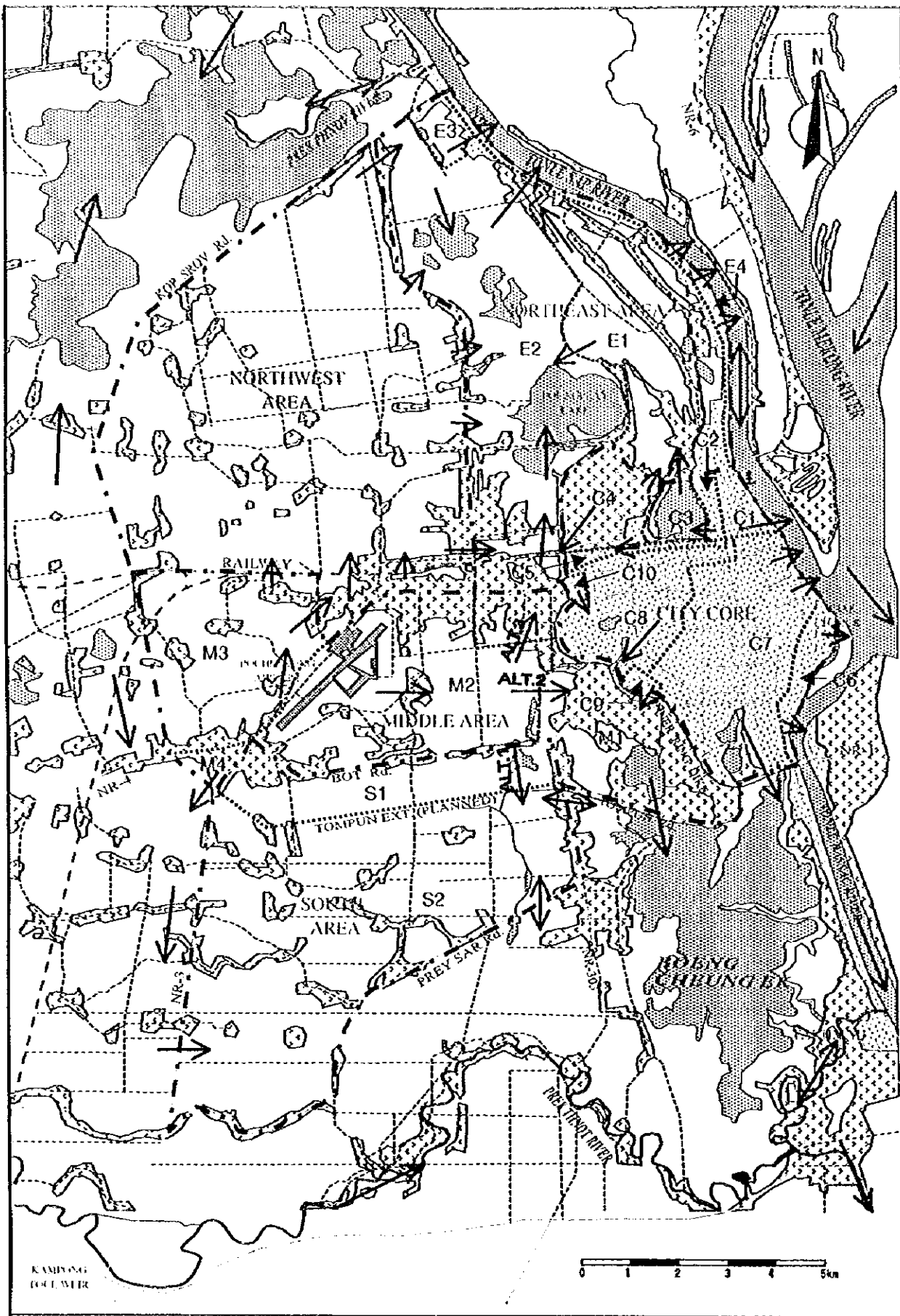
## Organizational Structure of Drainage and Sewage Division





The Study on Drainage Improvement and Flood Control  
in the Municipality of Phnom Penh  
JICA - CTIE International Co., Ltd. - Nippon Koei Co., Ltd.

Figure I3-1  
Protection Line against Flood



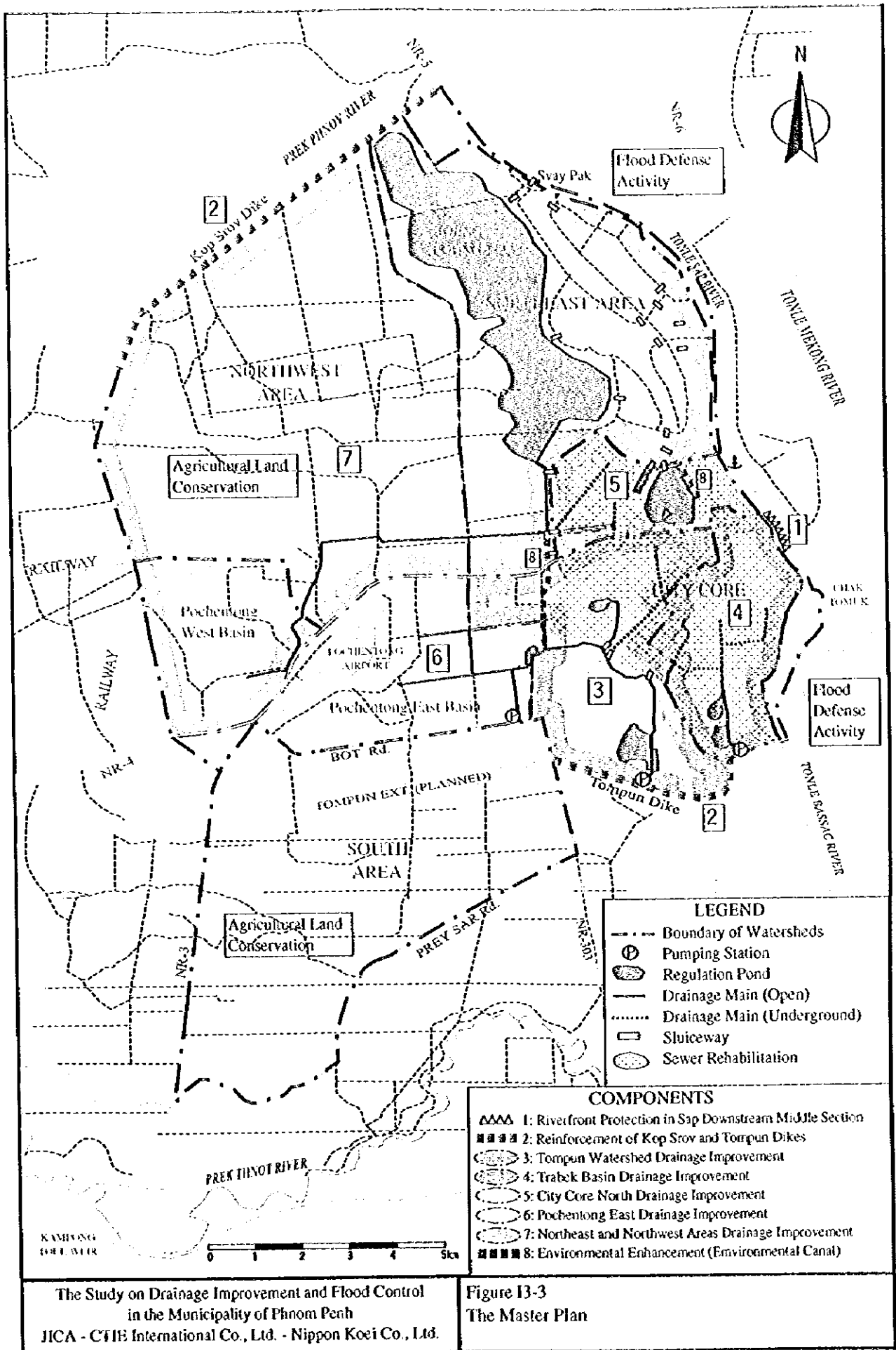
KAMINONG  
TOUWIER

0 1 2 3 4 5km

The Study on Drainage Improvement and Flood Control  
in the Municipality of Phnom Penh  
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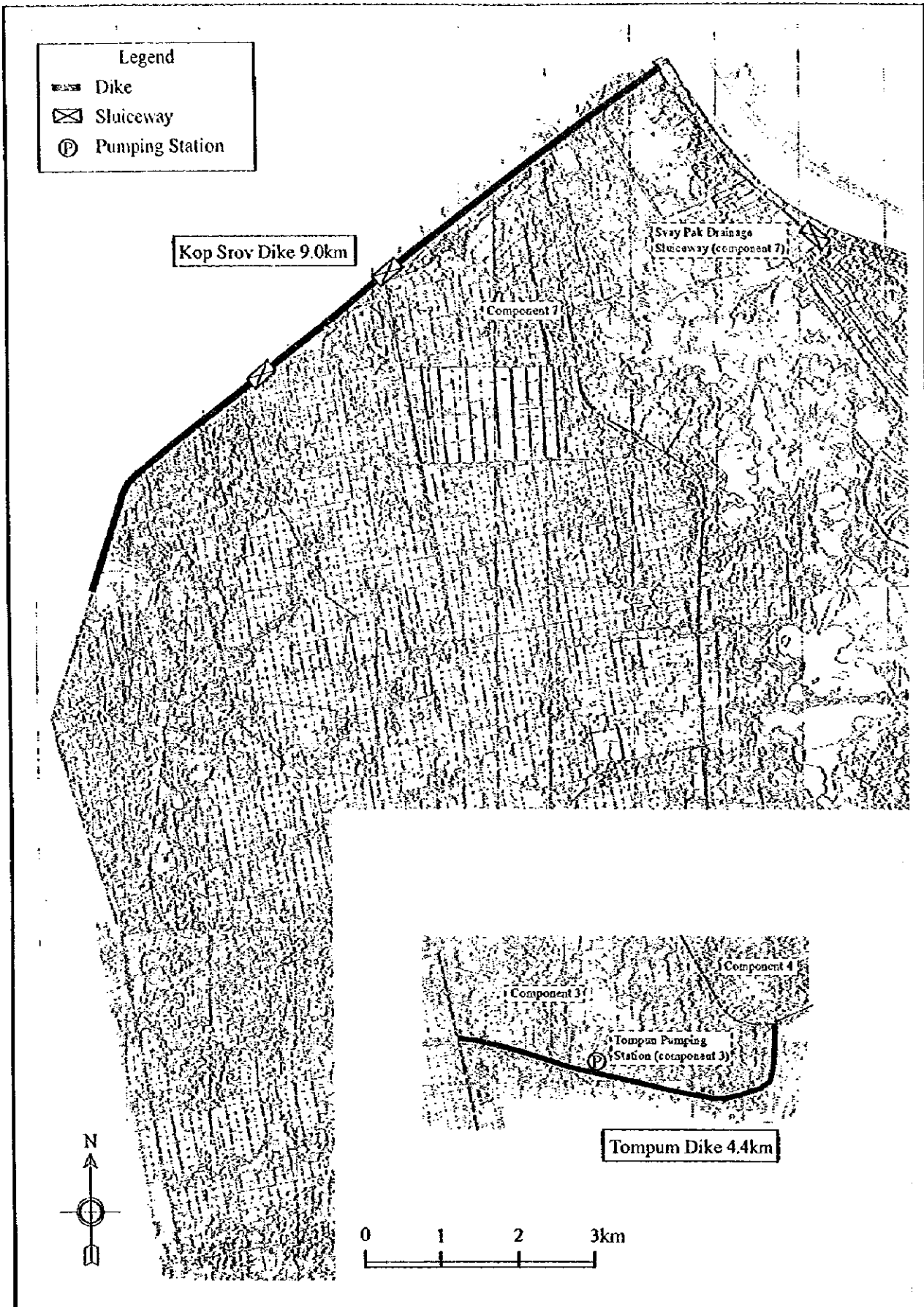
Figure B-2  
Drainage Direction of Each Basin





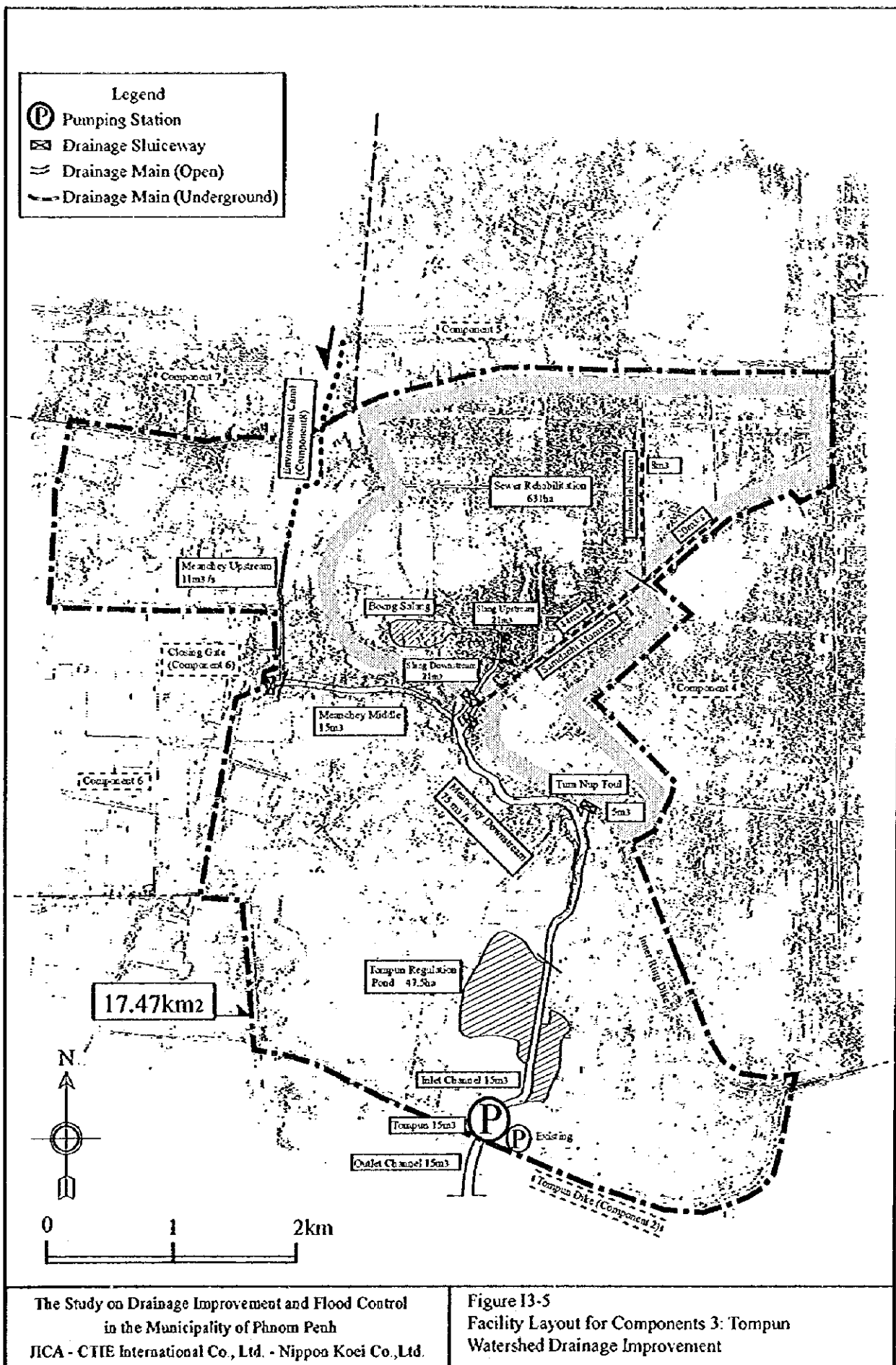
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Figure 13-3  
 The Master Plan



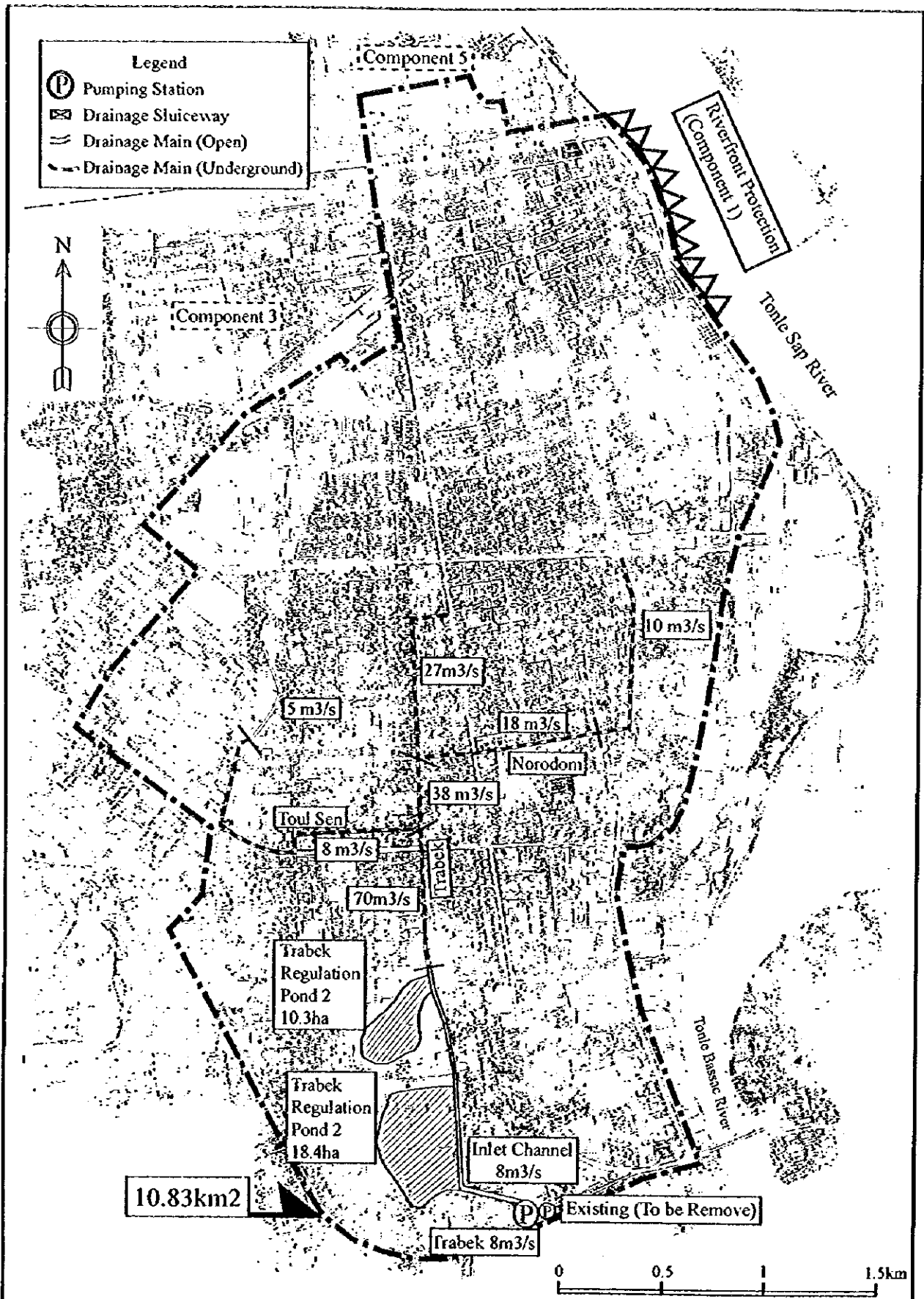
The Study on Drainage Improvement and Flood Control  
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Figure I3-4  
 Facility Layout for Component 2: Reinforcement of  
 Kop Srov and Tompun Dikes



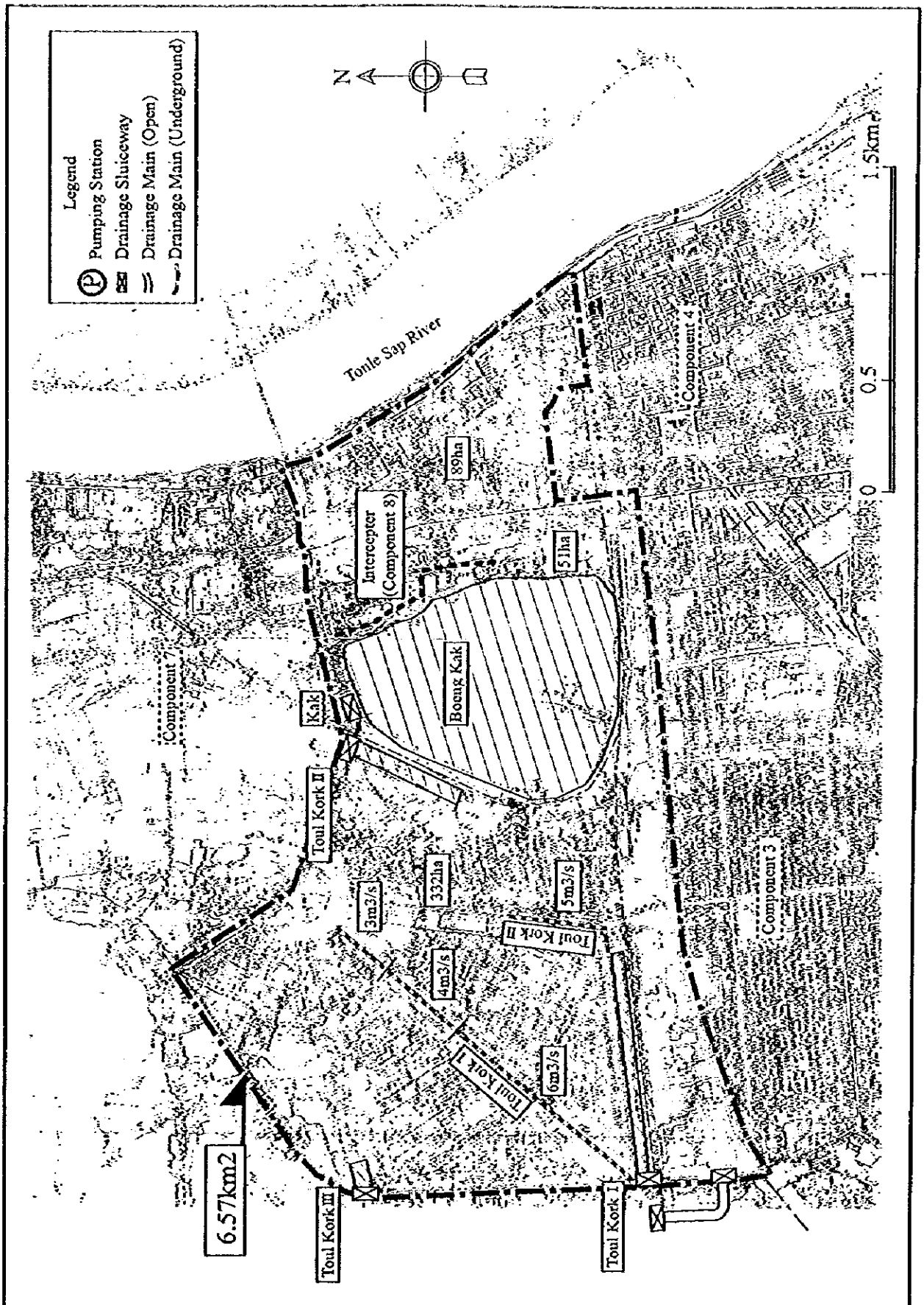
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Figure I3-5  
Facility Layout for Components 3: Tompun  
Watershed Drainage Improvement



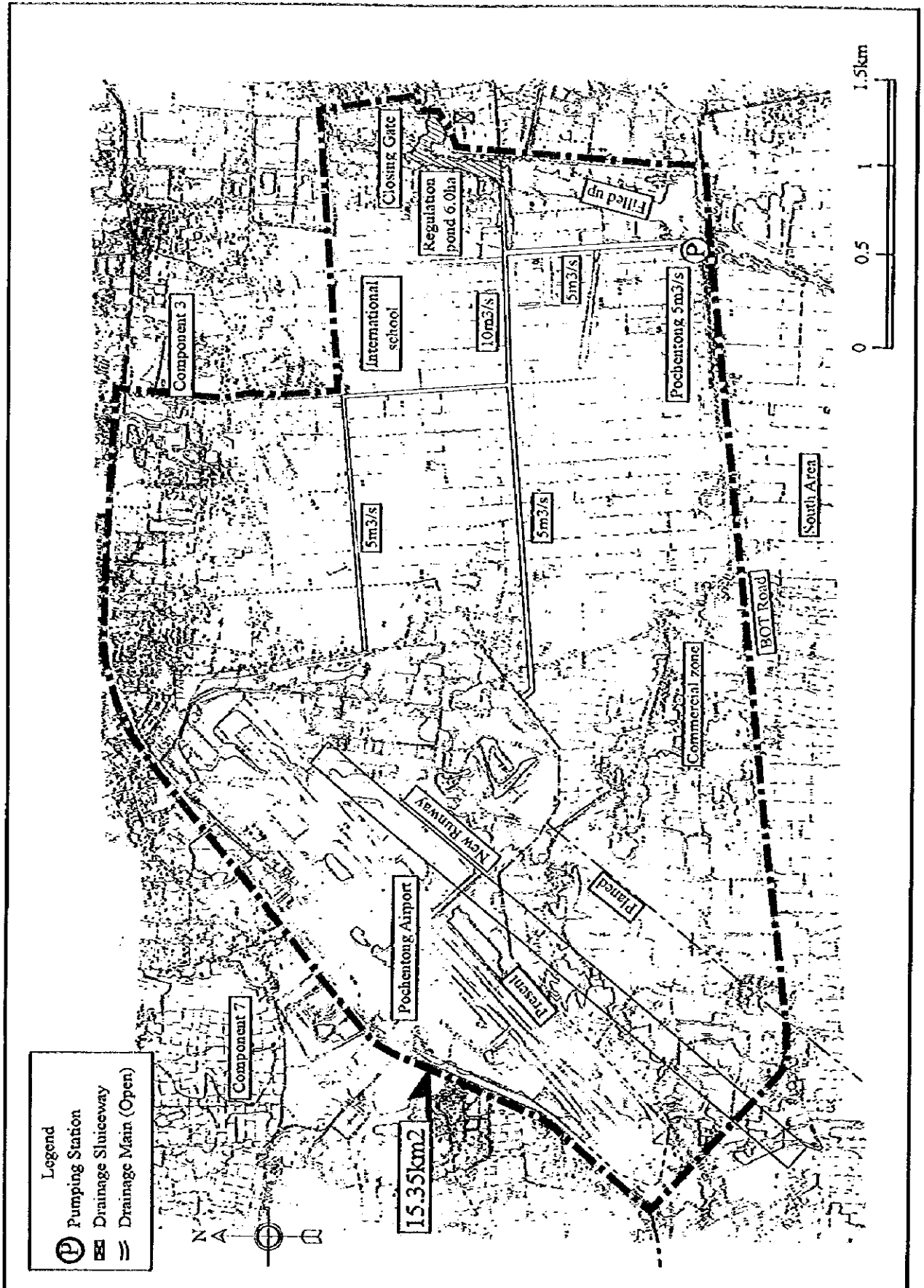
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Figure I3-6  
 Facility Layout for Component 4: Trabek Basin  
 Drainage Improvement



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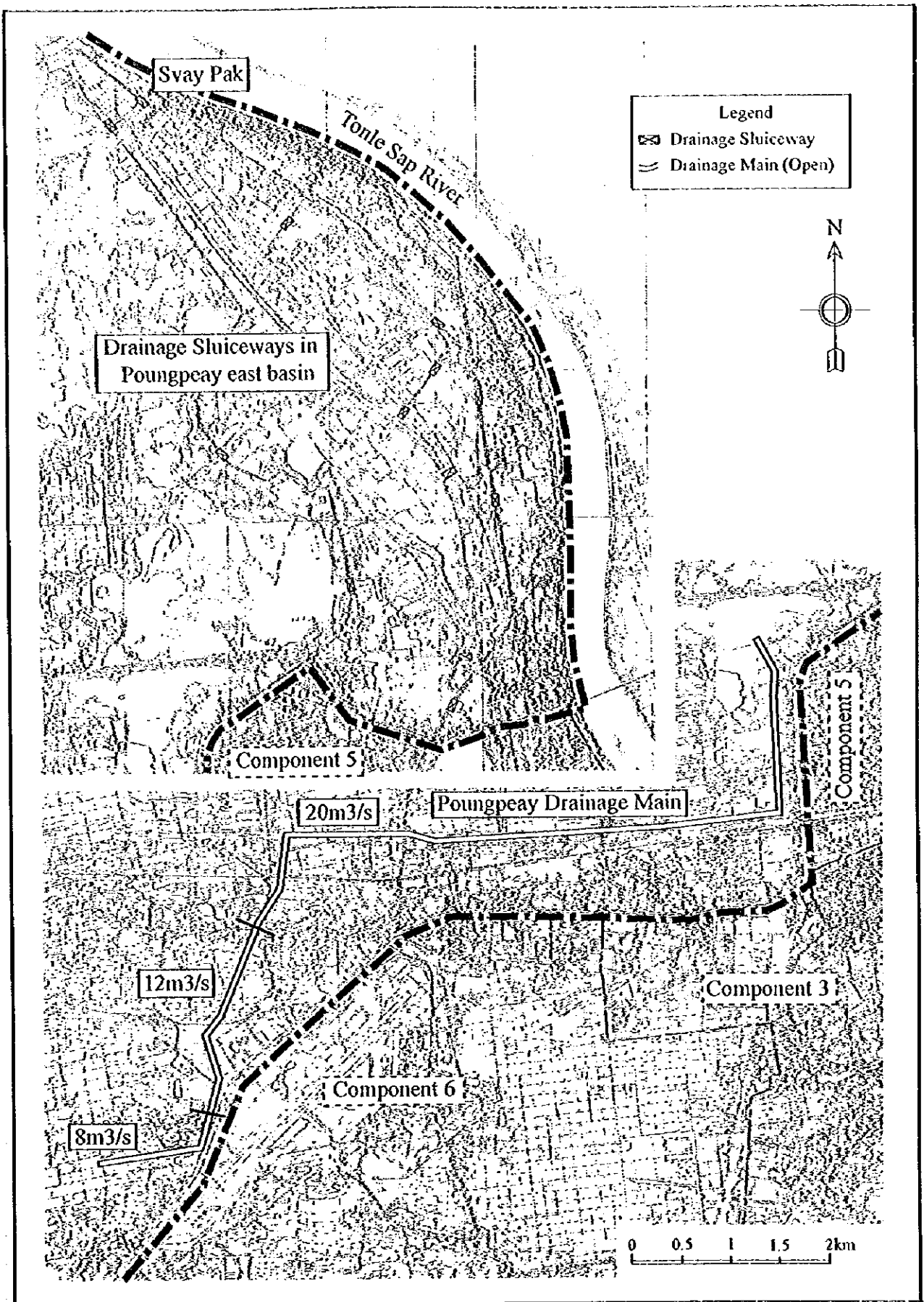
Figure 13-7  
 Facility Layout for Components 5: City Core North  
 Area Drainage Improvement



**Legend**  
 (P) Pumping Station  
 [---] Drainage Sluceway  
 [==] Drainage Main (Open)

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Figure 13-8  
 Facility Layout for Component 6: Pochentong  
 East Basin Drainage Improvement



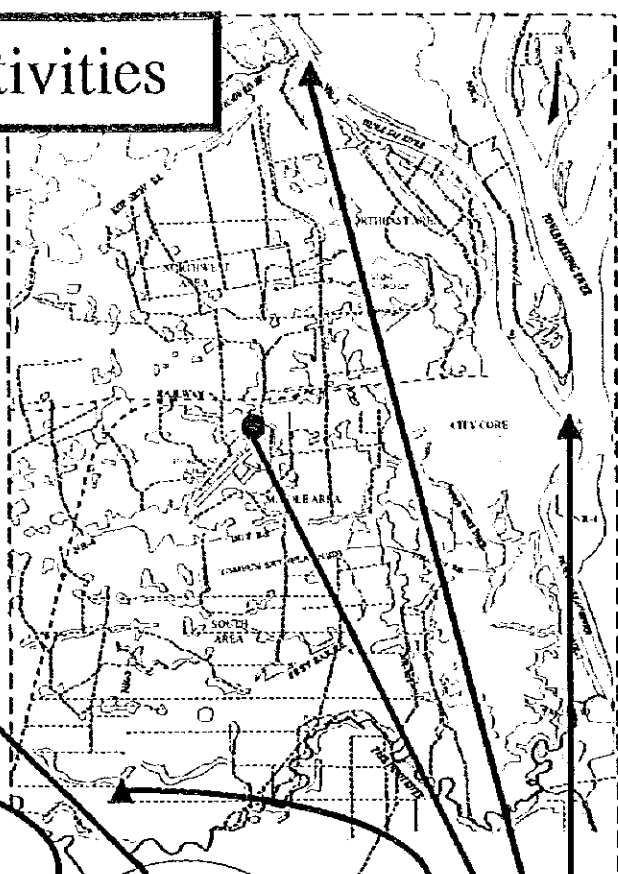
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 in the Municipality of Phnom Penh  
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Figure 13-9  
 Facility Layout for Component 7: Northeast and  
 Northwest areas Drainage Improvement

# Flood Defense Activities

## Legend

- ▲ Water Level Gaging Station
- Rainfall Gaging Station



**Residents**

**Flood Defense Activities**

Warning  
TV News  
Radio News

Information from  
Gaging Station

Support  
Medical  
Rescue

Phum

Sangkat

Patrol/Warning  
Technical advice  
for Flood Defense  
Activities

Ministry of  
Water Resources

Private Sector  
NGO

District (Khan)

**Flood Protection  
Division**

Related Agencies  
(Police, etc)

Request

Order

Related Ministries

Request

MPP  
Committee and  
Sub-committee for  
Flood Protection

Request

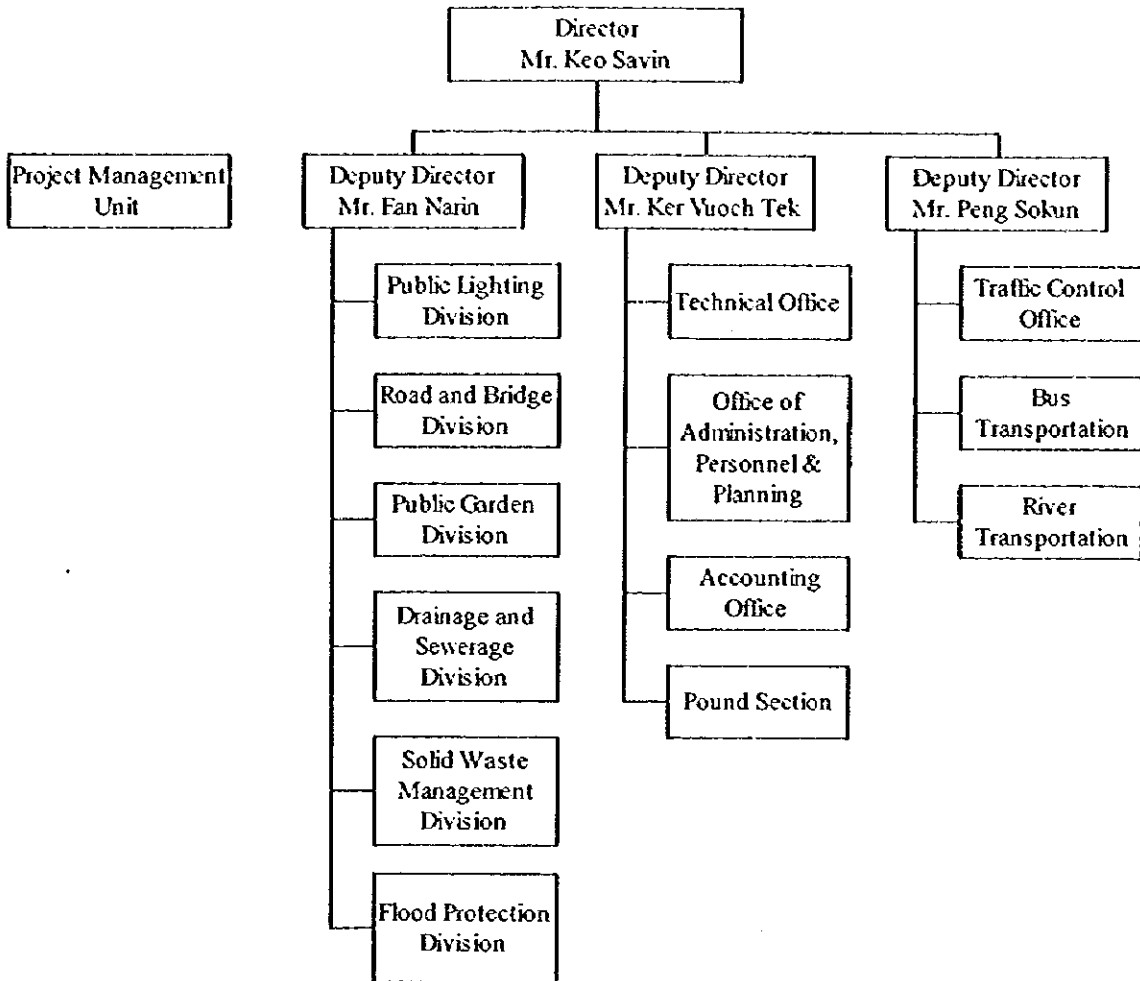
Order

**National Committee  
in charge of Disaster**

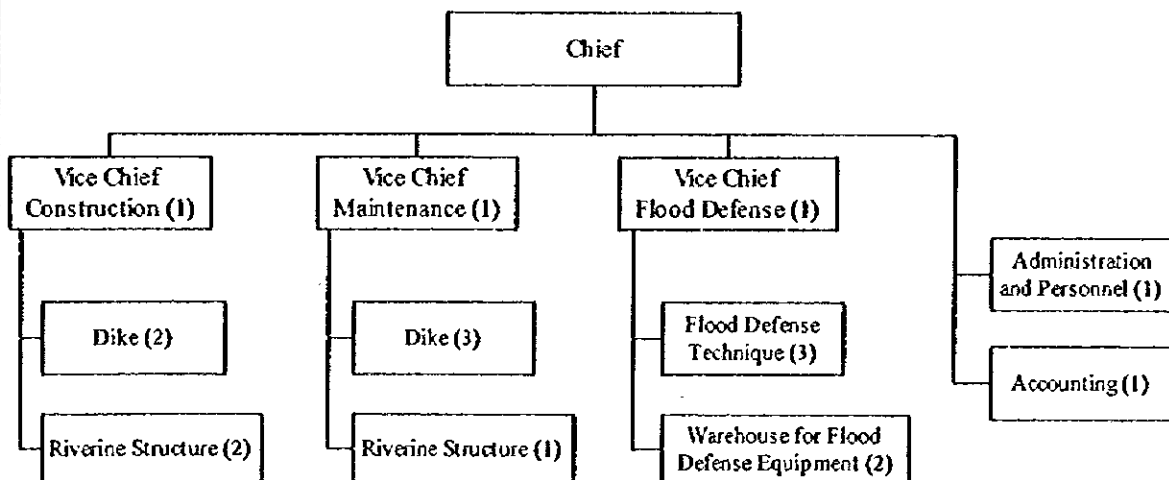
Order



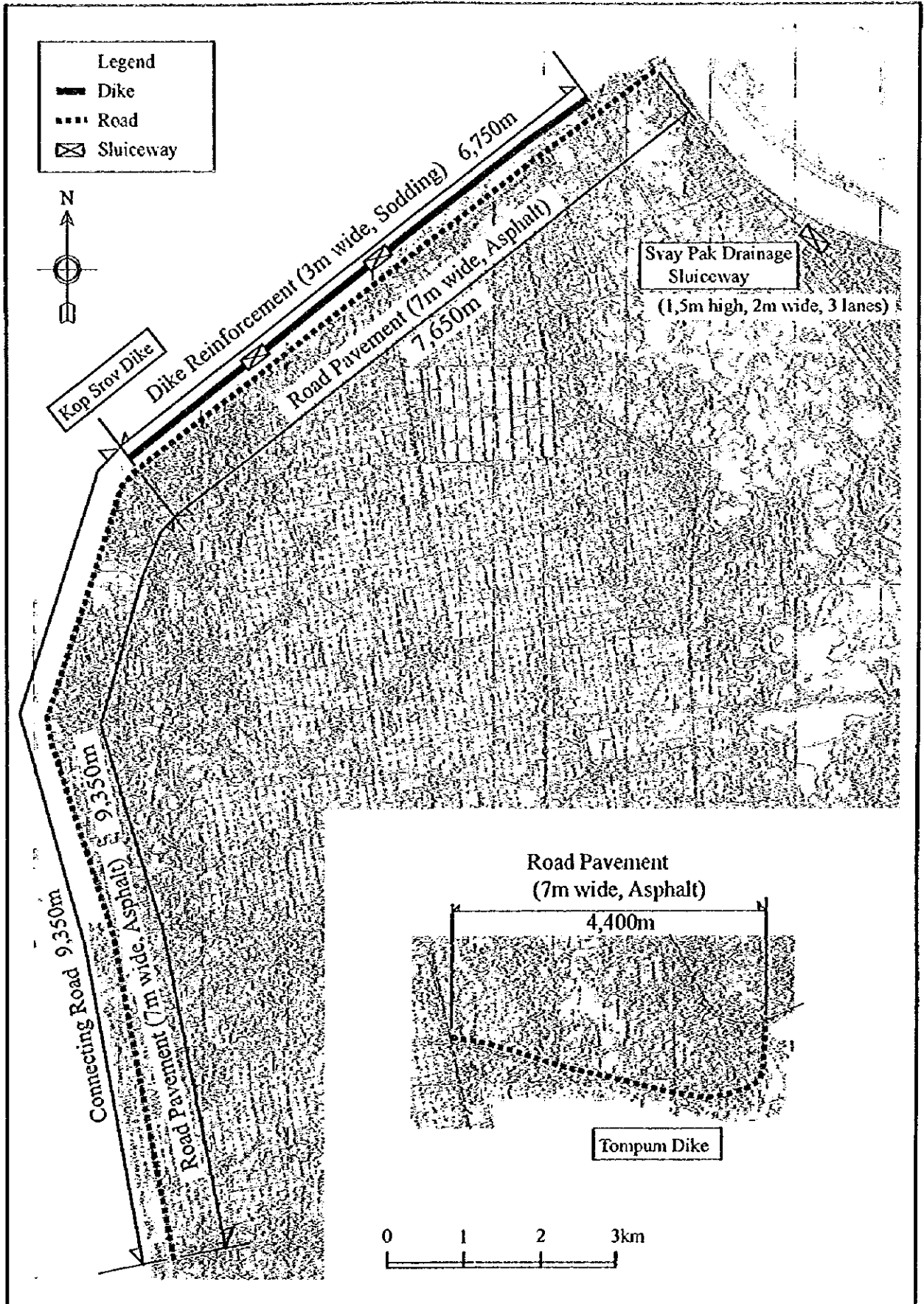
## Organizational Structure of Department of Public Works and Transport



## Organizational Structure of Flood Protection Division

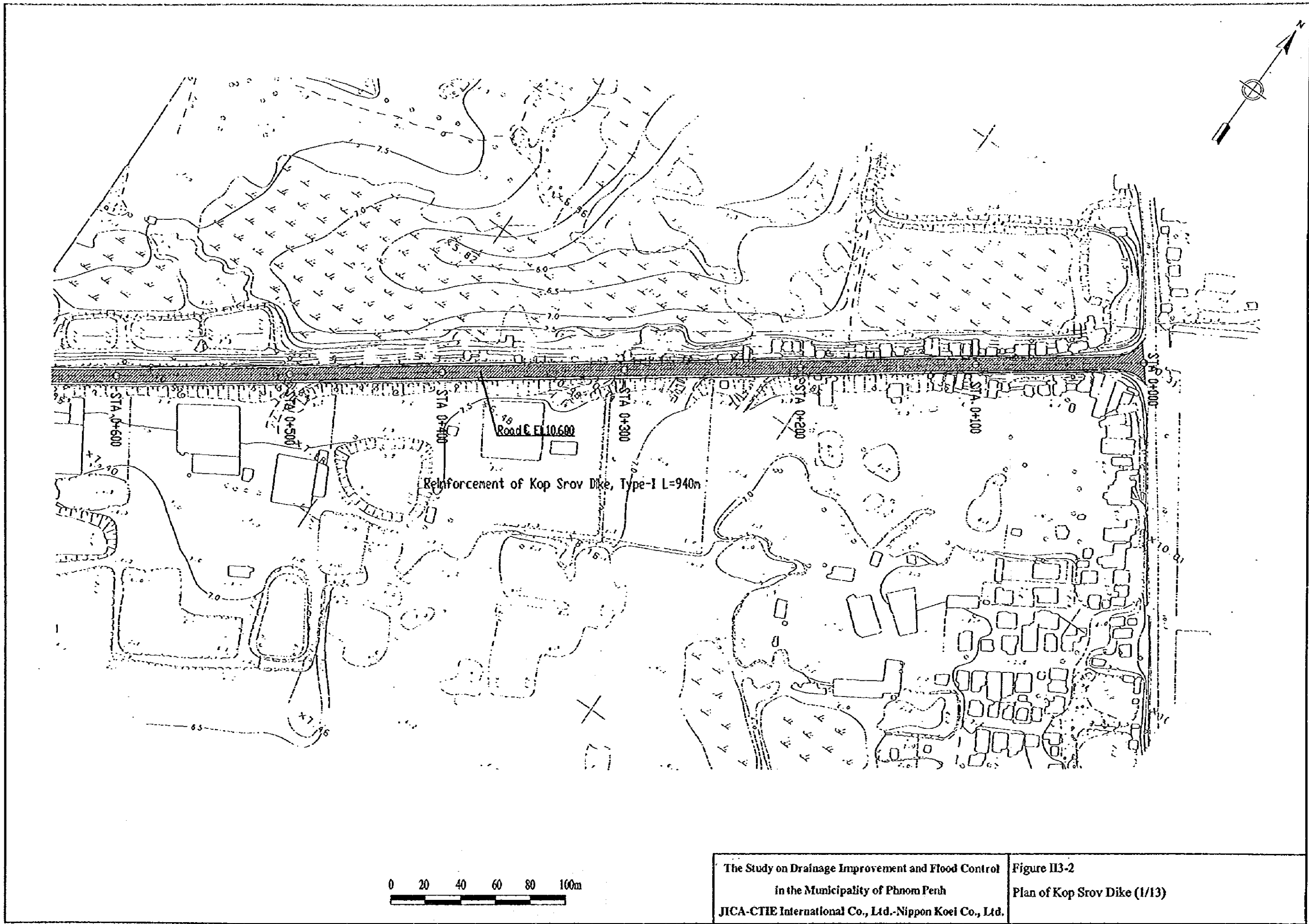






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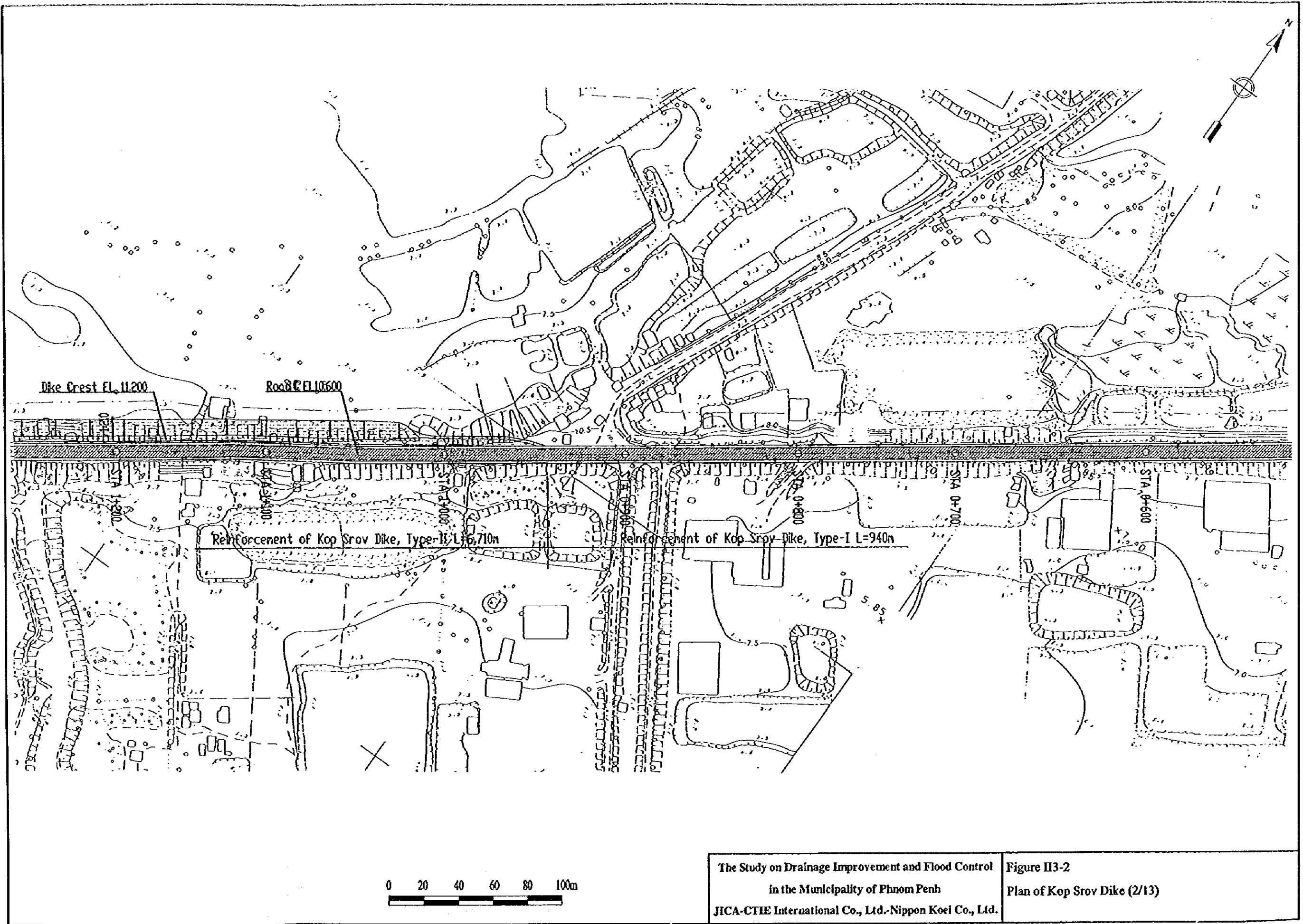
Figure II-3-1  
 Facilities of the Reinforcement of Kop Sov  
 and Tompum Dikes



0 20 40 60 80 100m

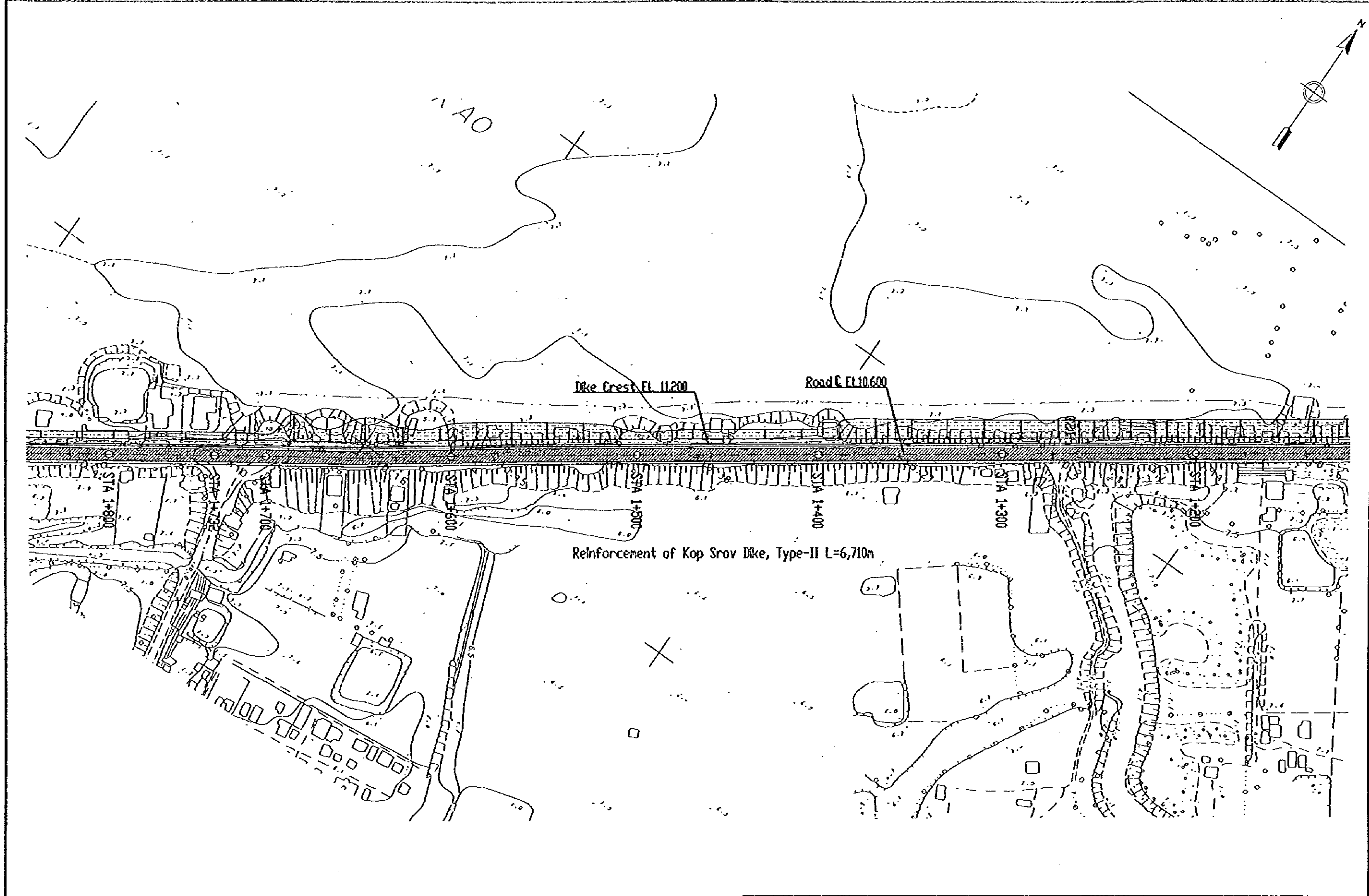
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Figure II3-2  
 Plan of Kop Srov Dike (1/13)

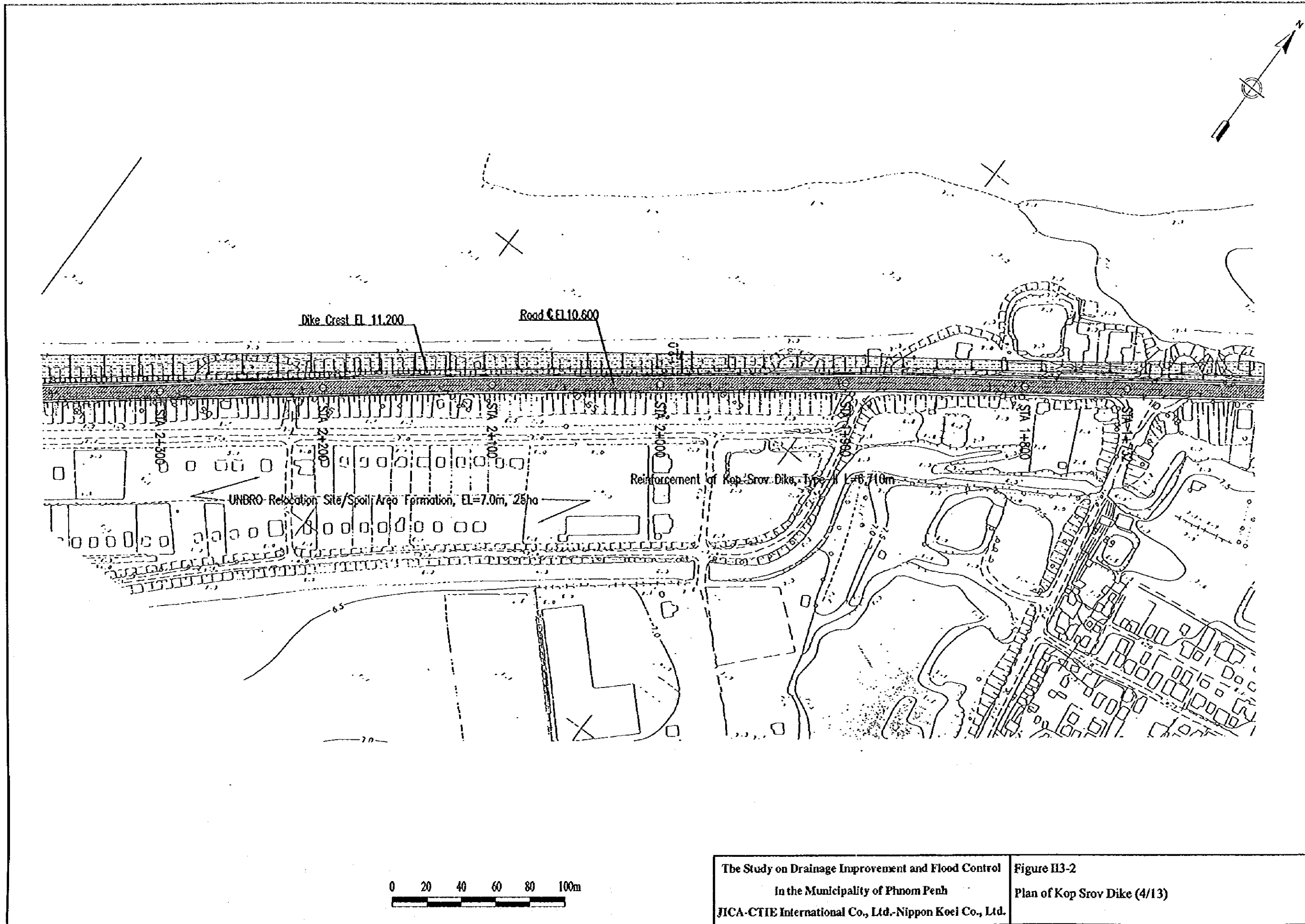


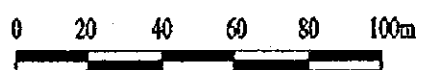
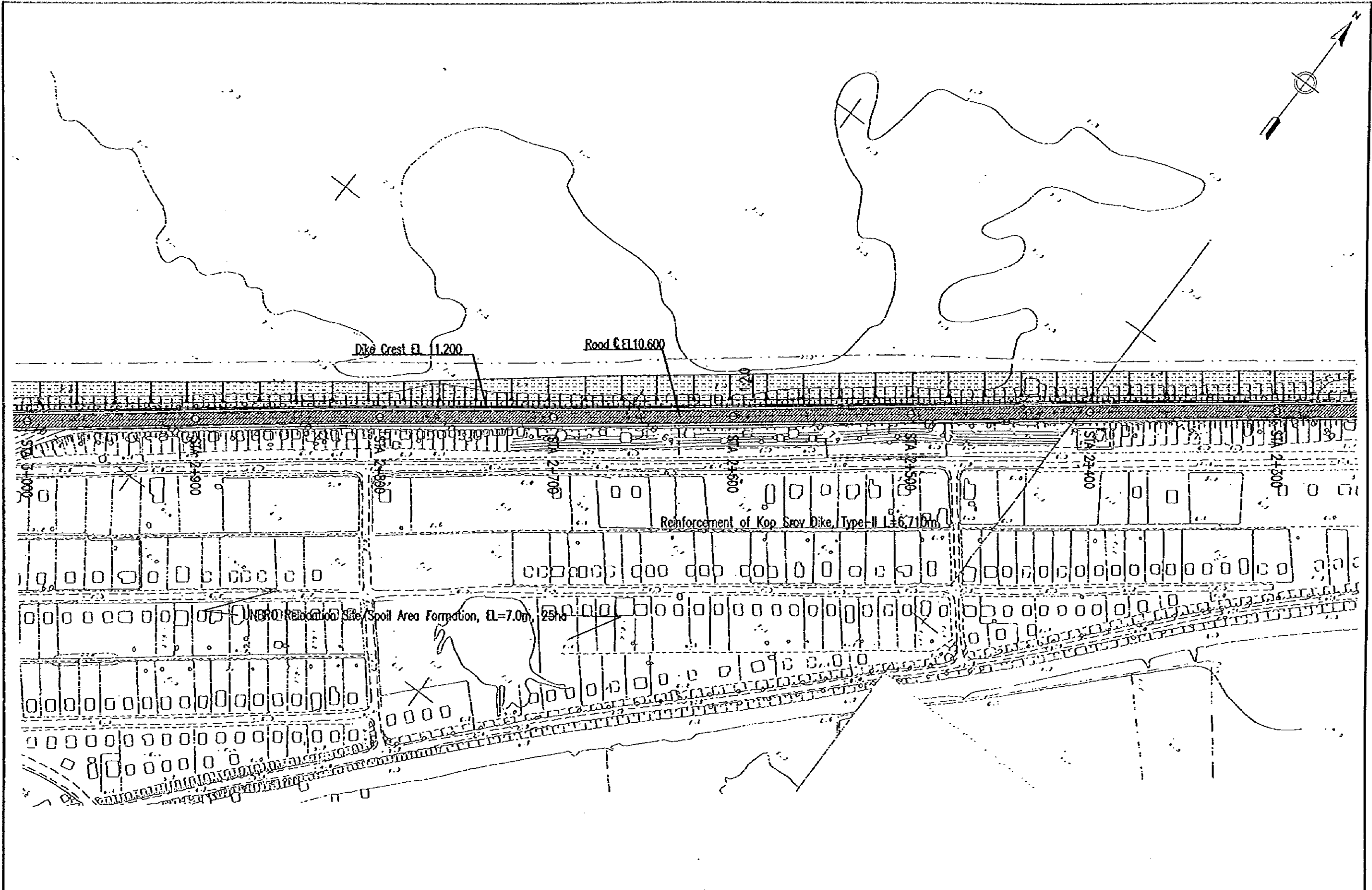
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Figure II-3-2  
 Plan of Kop Srov Dike (2/13)



<p>The Study on Drainage Improvement and Flood Control          in the Municipality of Phnom Penh          JICA-CTIE International Co., Ltd.-Nippon Koel Co., Ltd.</p>	<p>Figure II-3-2          Plan of Kop Srov Dike (3/13)</p>
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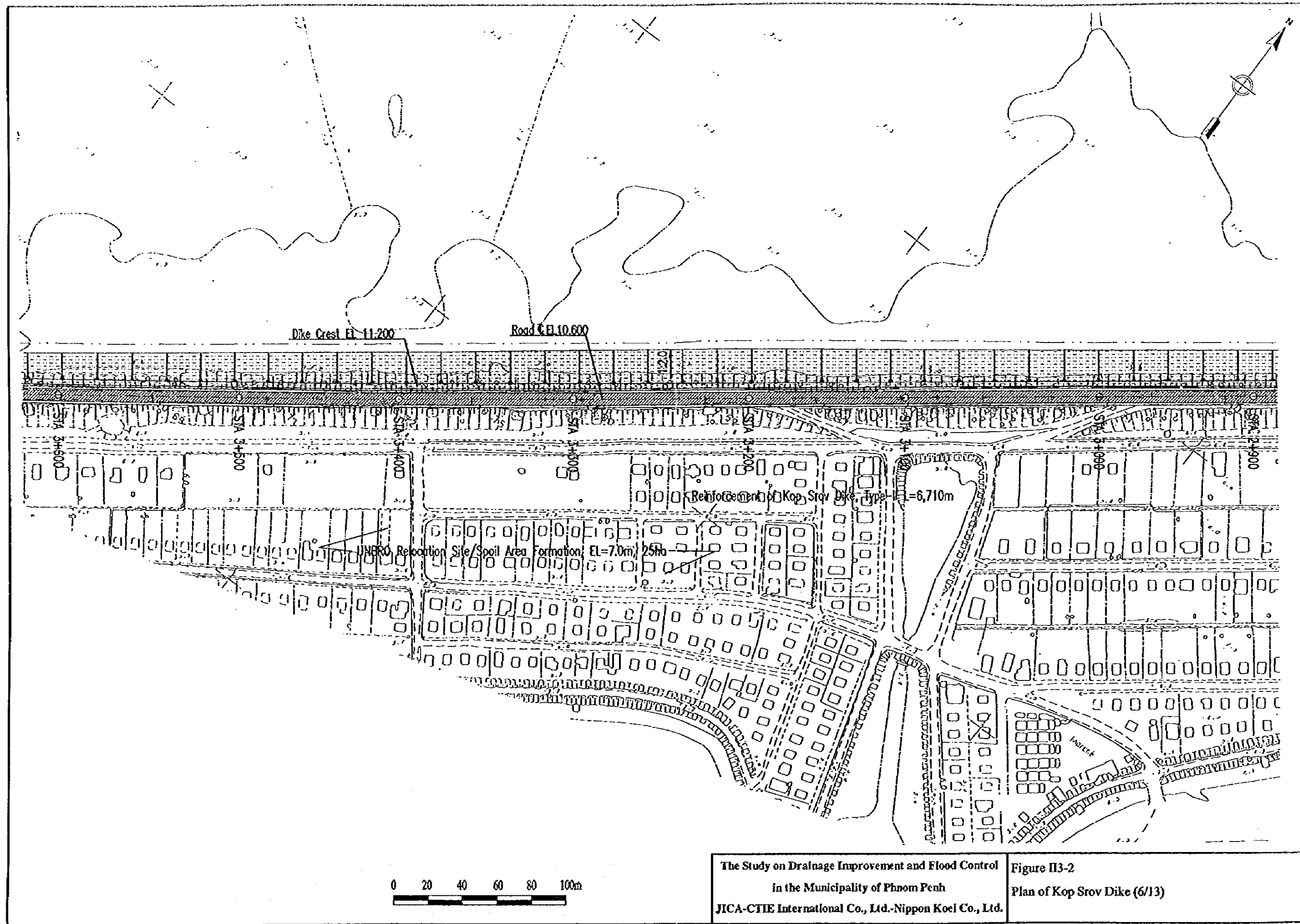


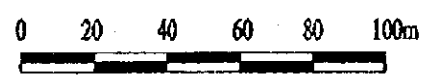
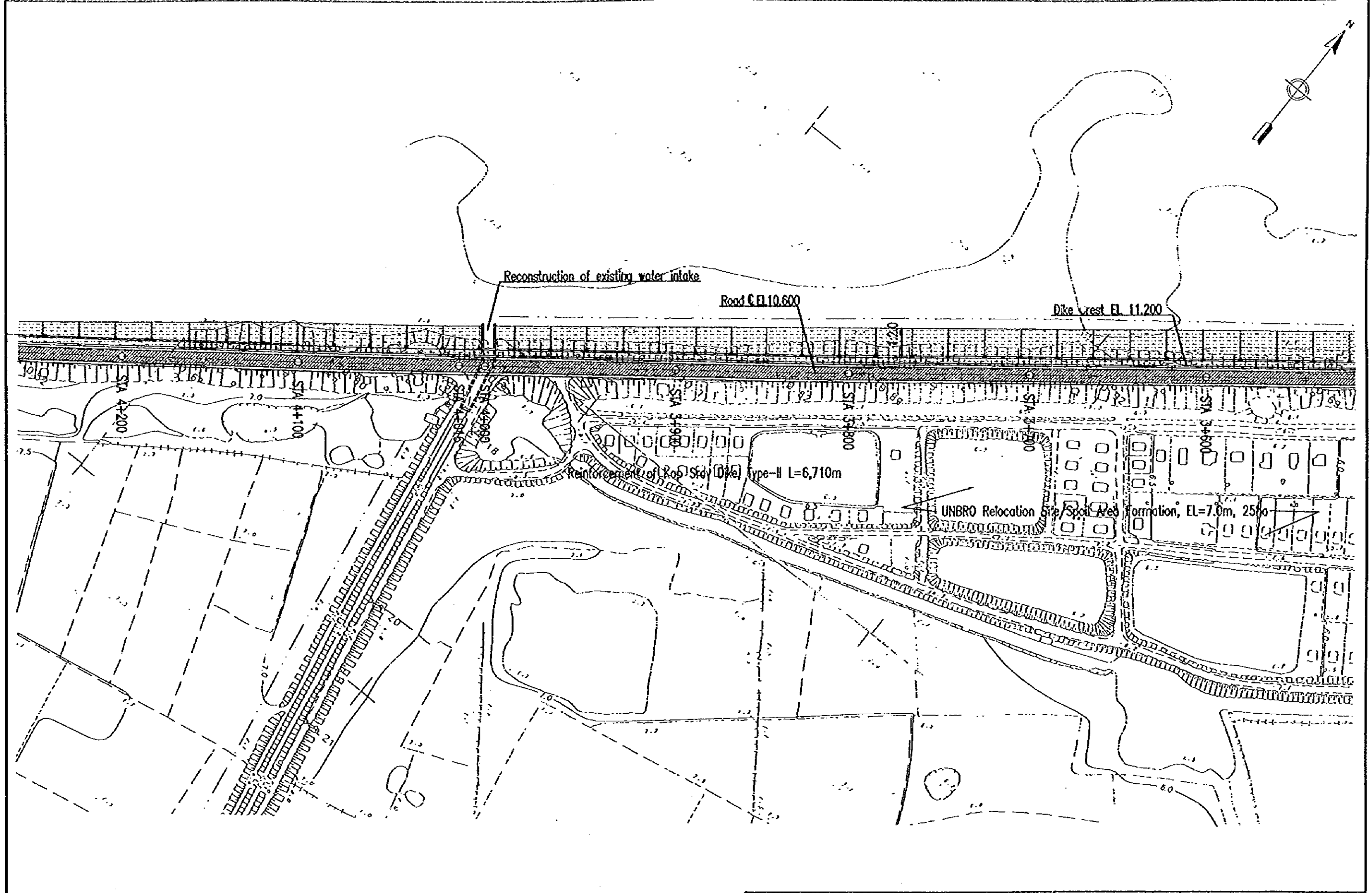


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Figure II3-2  
 Plan of Kop Srov Dike (5/13)

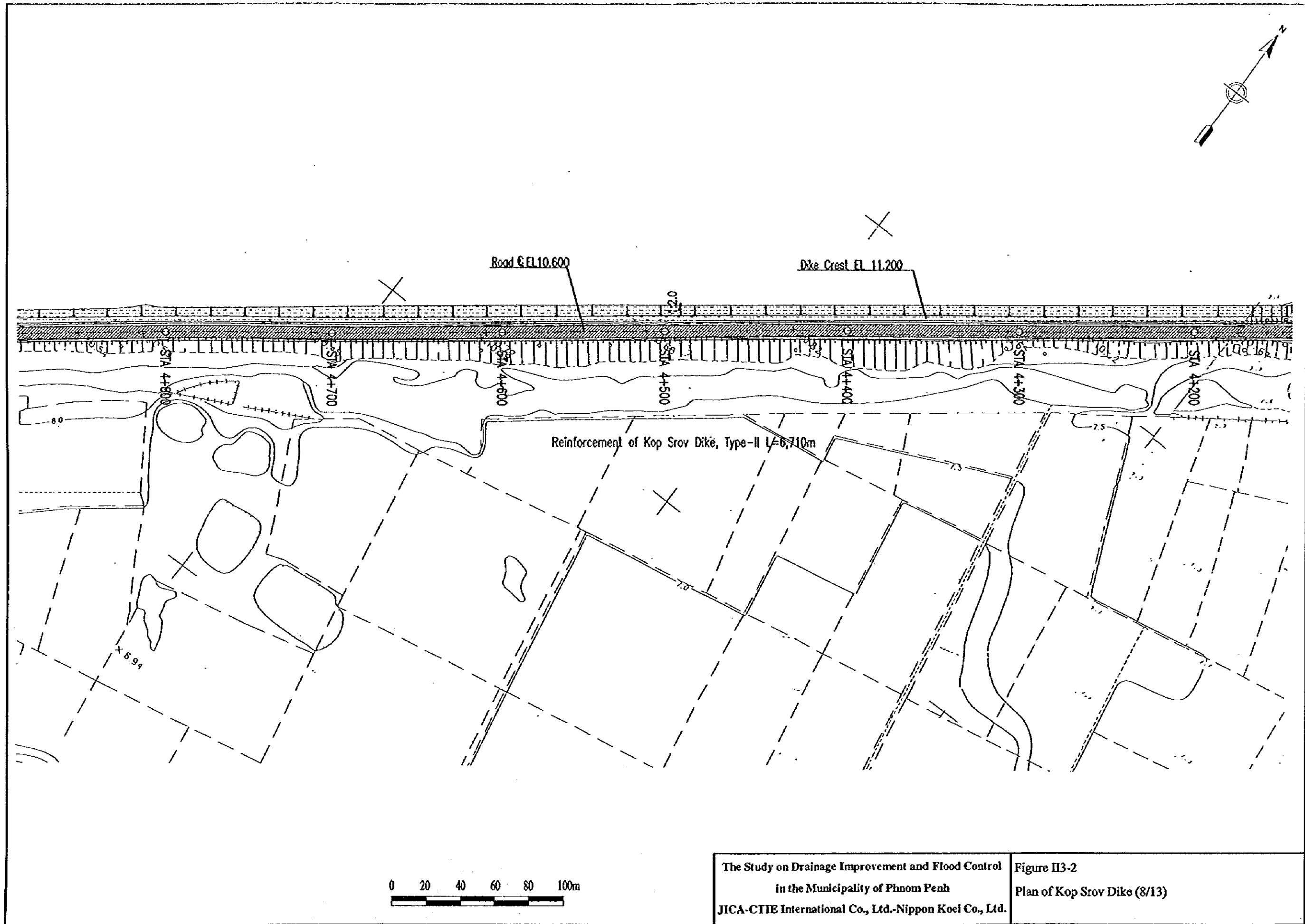






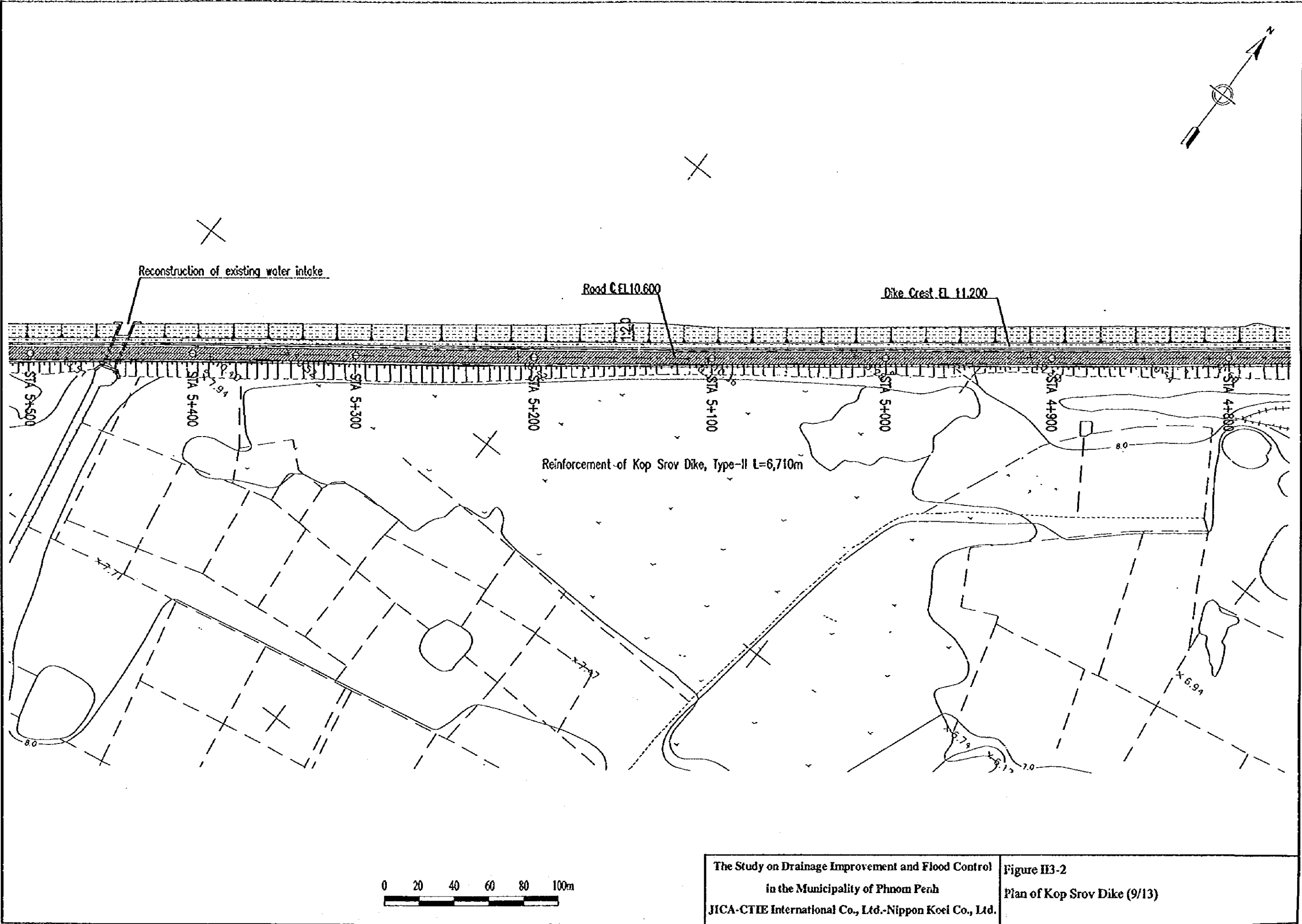
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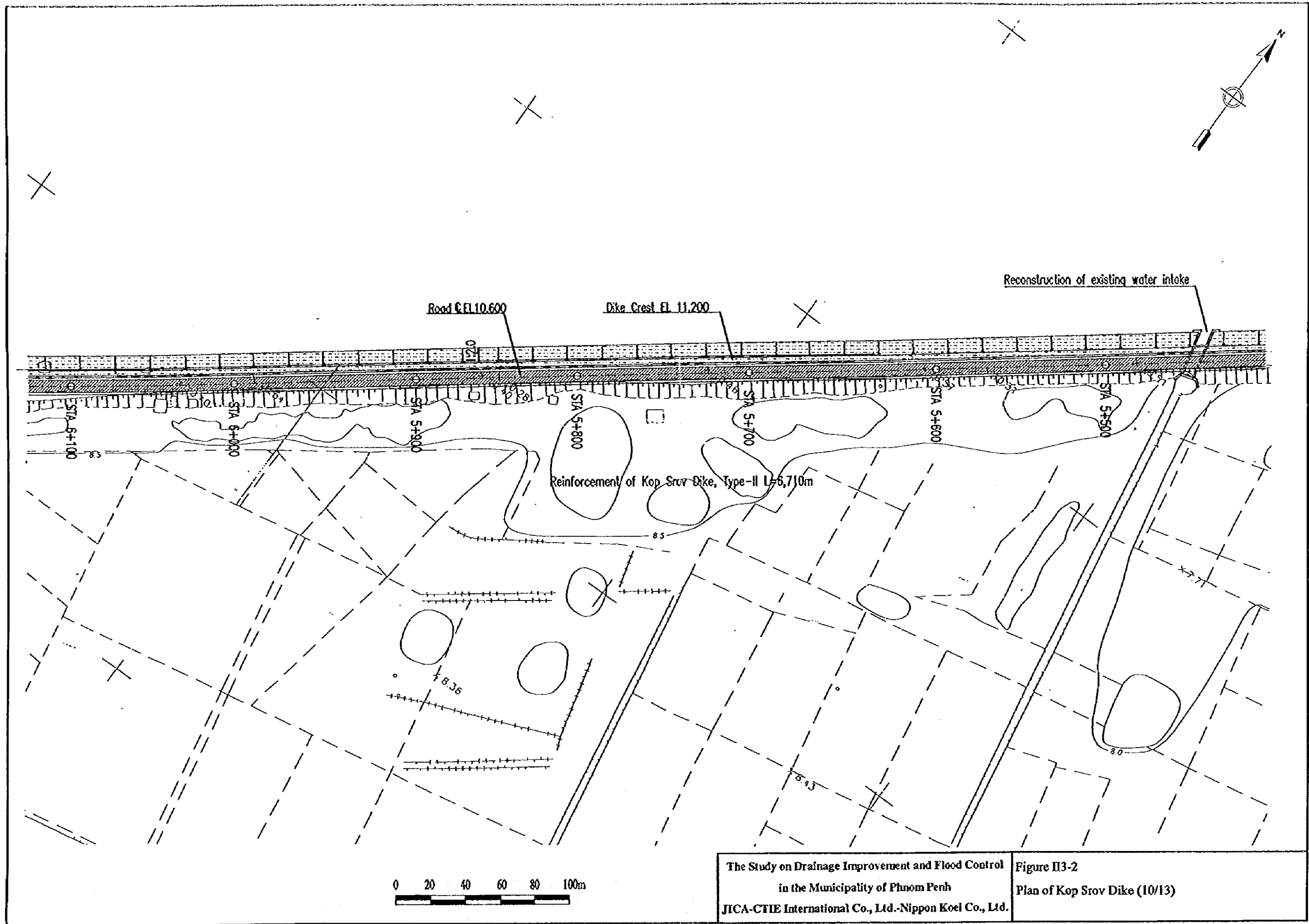
Figure II3-2  
 Plan of Kop Srov Dike (7/13)



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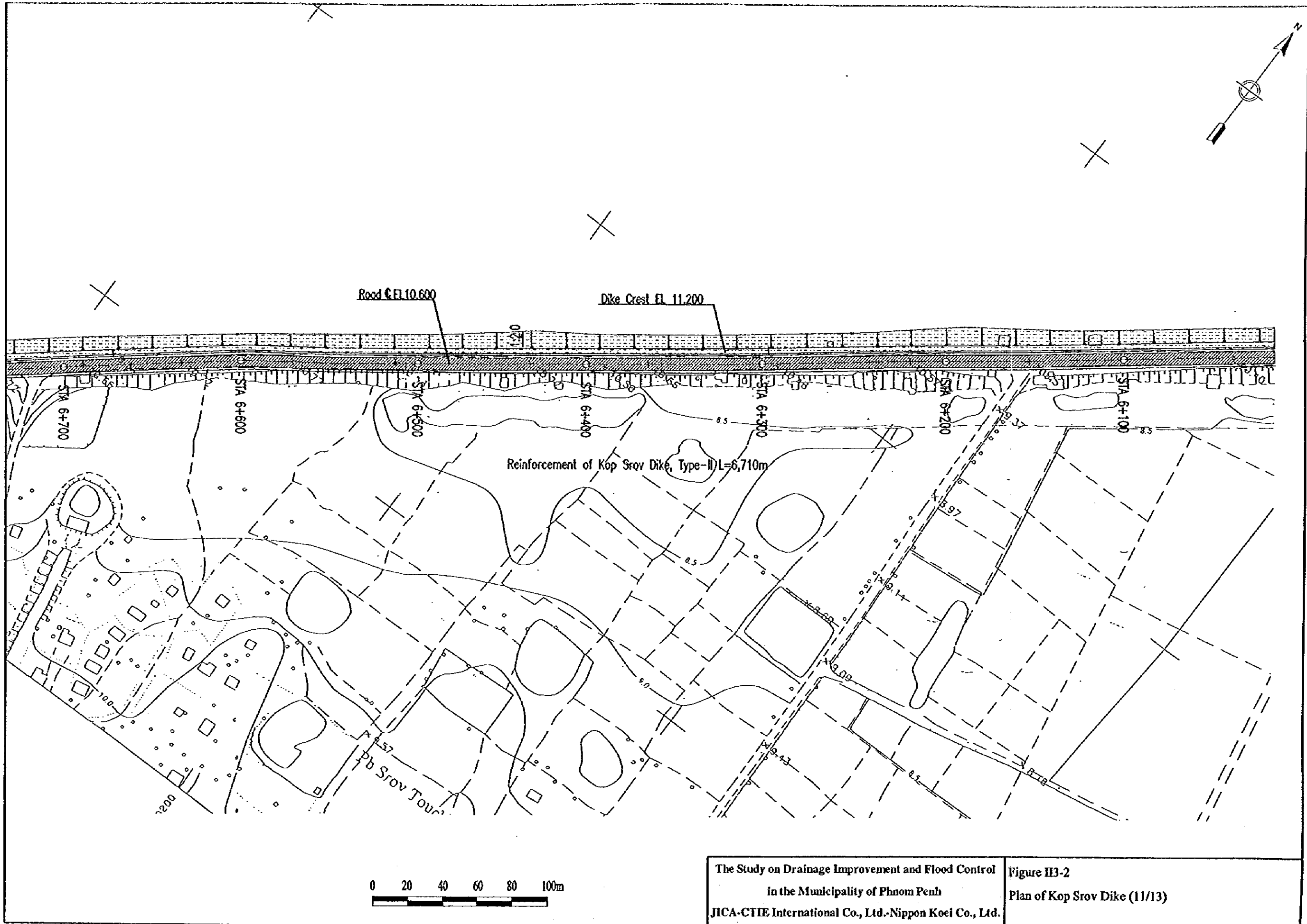
Figure II-2  
 Plan of Kop Srov Dike (8/13)





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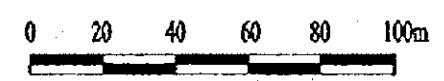
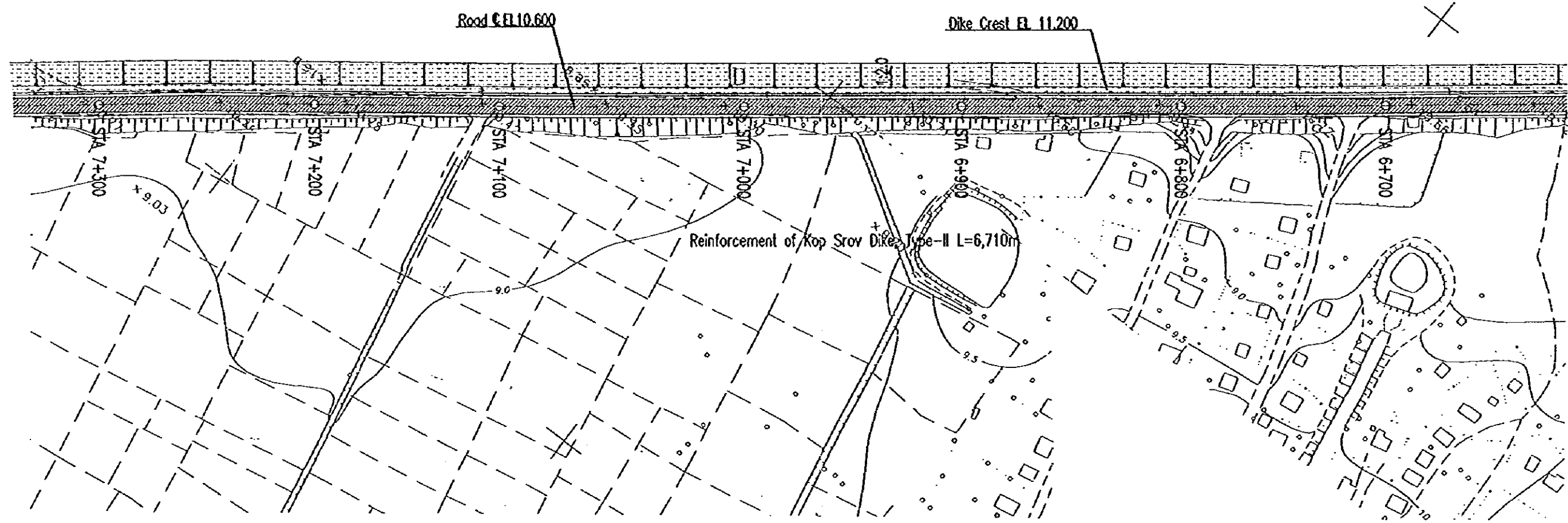
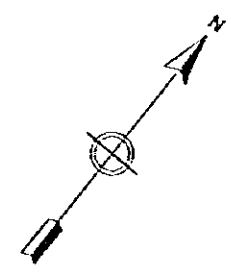
Figure II3-2  
 Plan of Kop Srov Dike (10/13)



0 20 40 60 80 100m

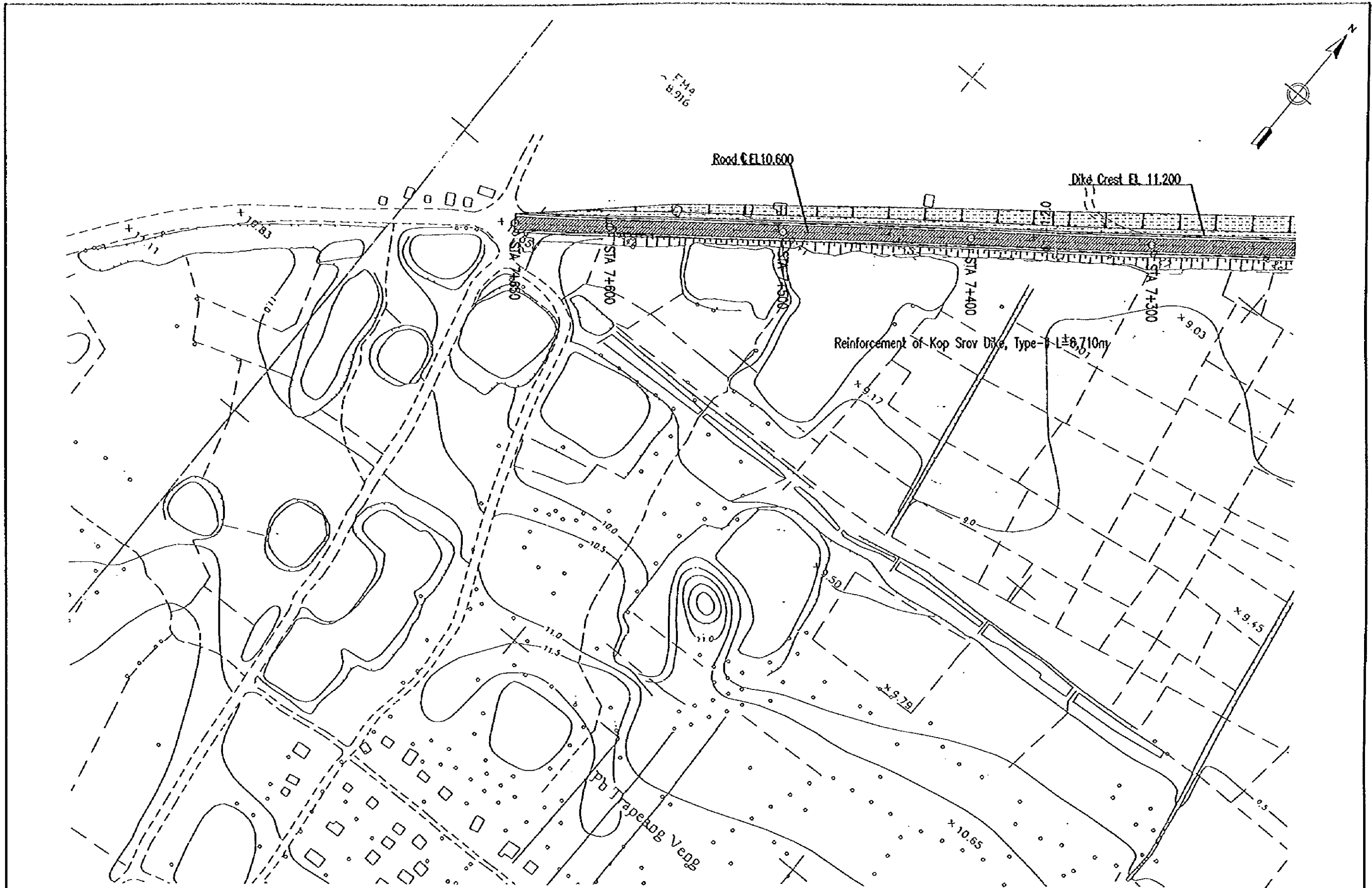
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Figure II-3-2  
 Plan of Kop Srov Dike (11/13)



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Figure II3-2  
Plan of Kop Srov Dike (12/13)

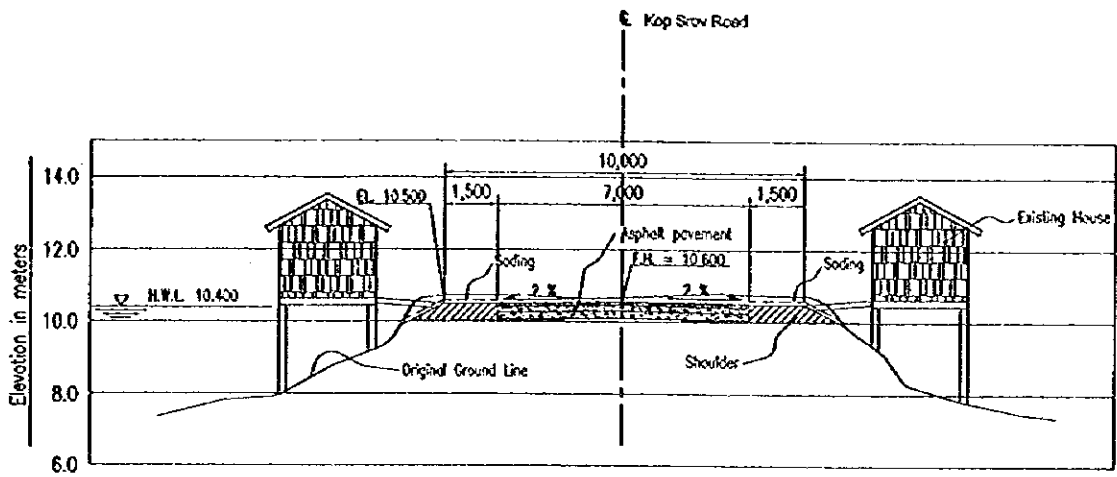


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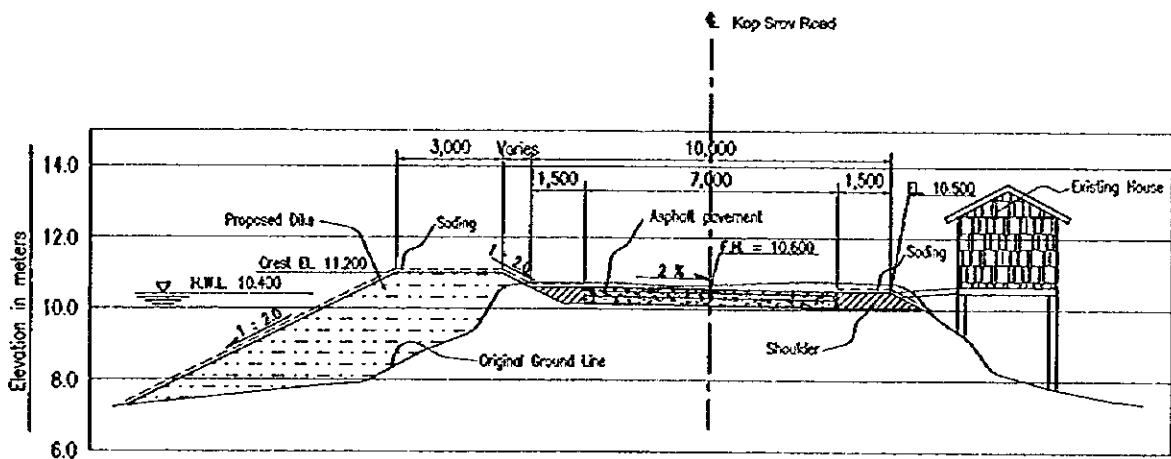
Figure II-3-2  
 Plan of Kop Srov Dike (13/13)







ROAD SECTION TYPE - I  
(Sta. 0+0.000m to Sta. 0+900m)

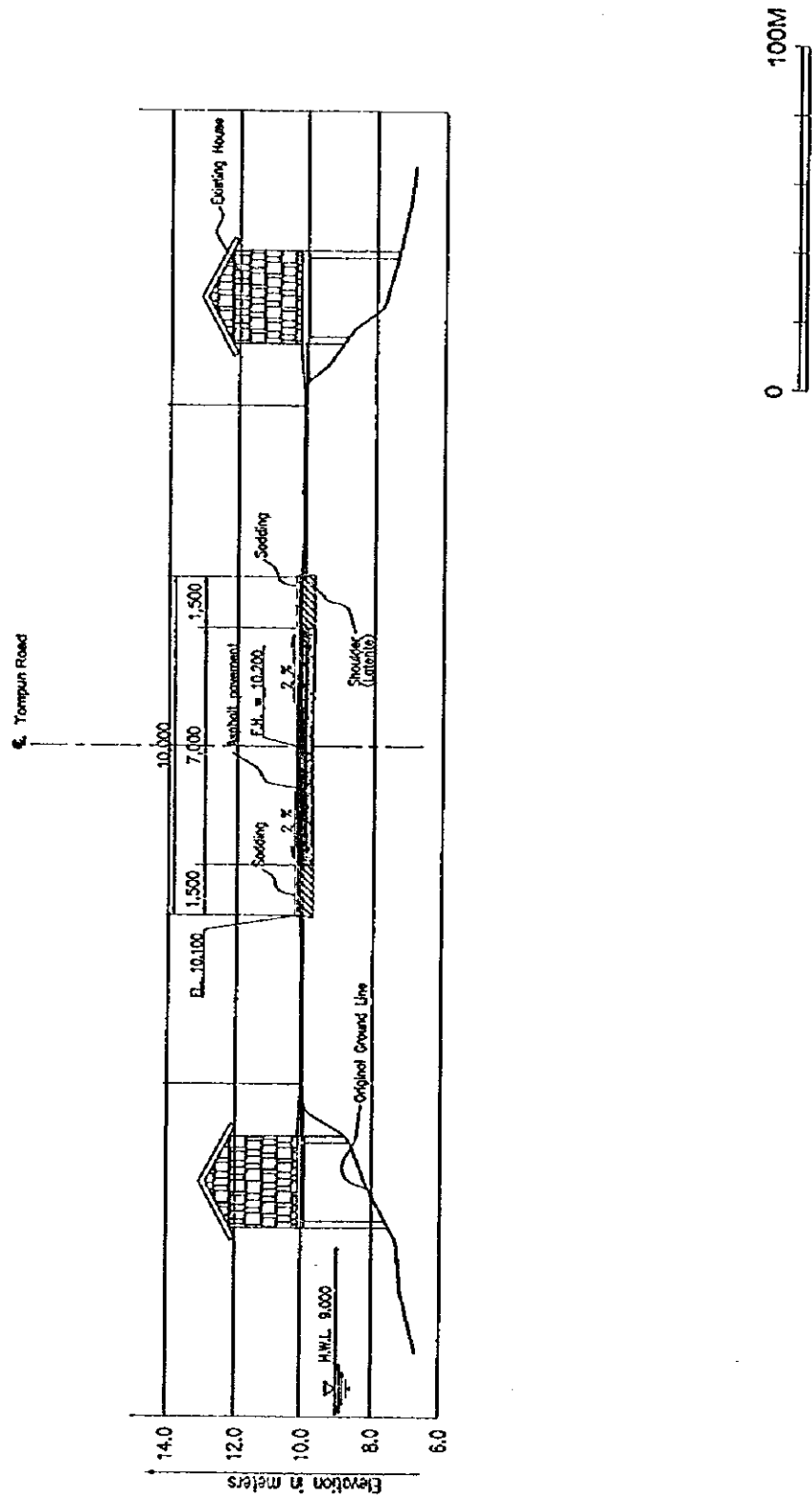


ROAD SECTION TYPE - II  
(Sta. 0+900m to Sta. 7+650m)



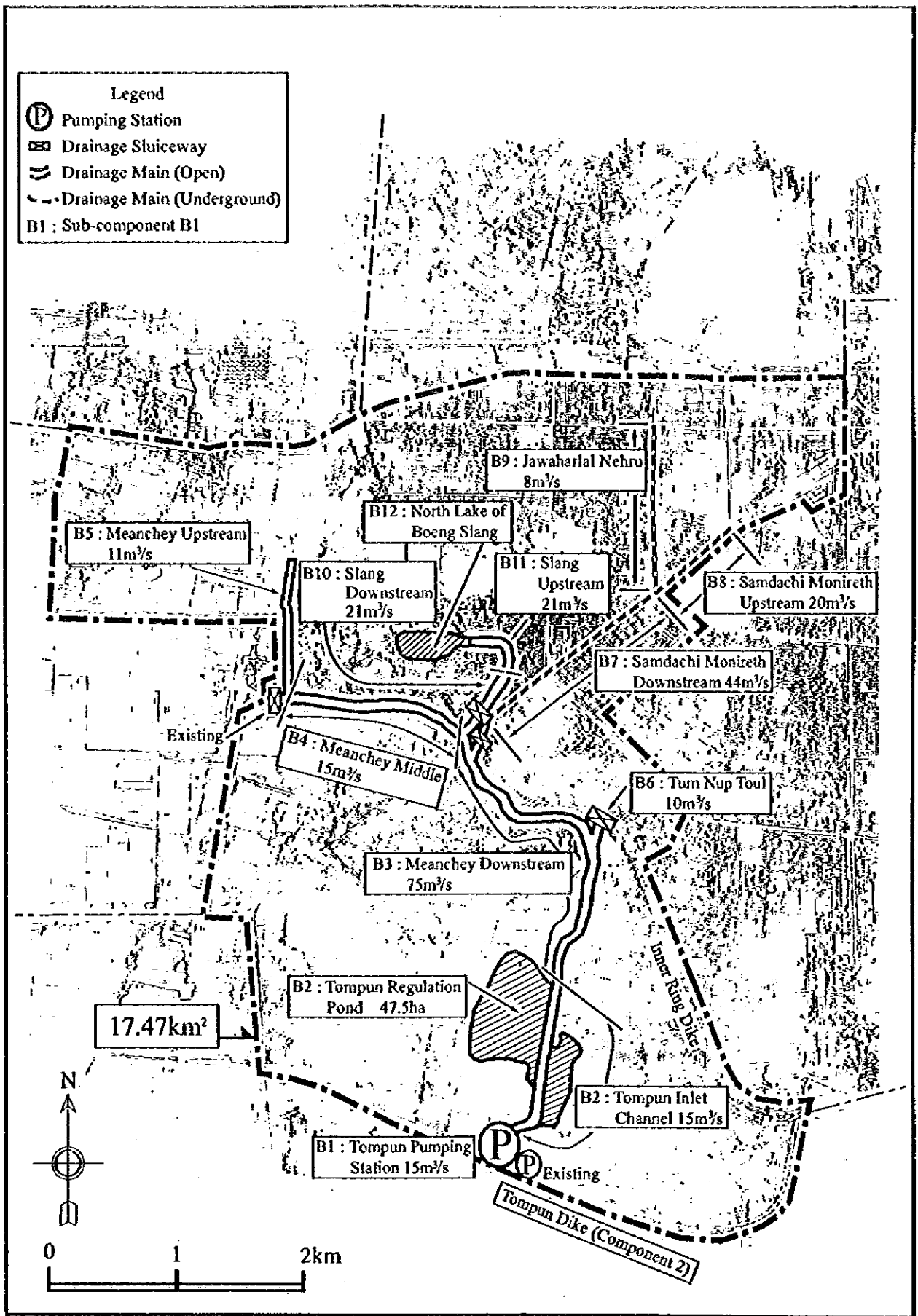
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Figure II-3  
Standard Cross-sections of Kop Srov Dike



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in the Municipality of Phnom Penh  
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Figure II3-4  
Standard Cross-section of Tompun Dike



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Figure II-4-1  
Facilities of the Tompun Watershed  
Drainage Improvement