

Pinang Tunggal (I)

Sungai Petani (D)

Pantai Peral (I)

Pinang Tunggal (D)

Kulim (D)

Water Pipe & Pedestrian Bridge

Railway Bridge

Railway

Sidam Kiri

Existing Muda Bund

Pinang Tunggal (I)

Terat Batu (I)

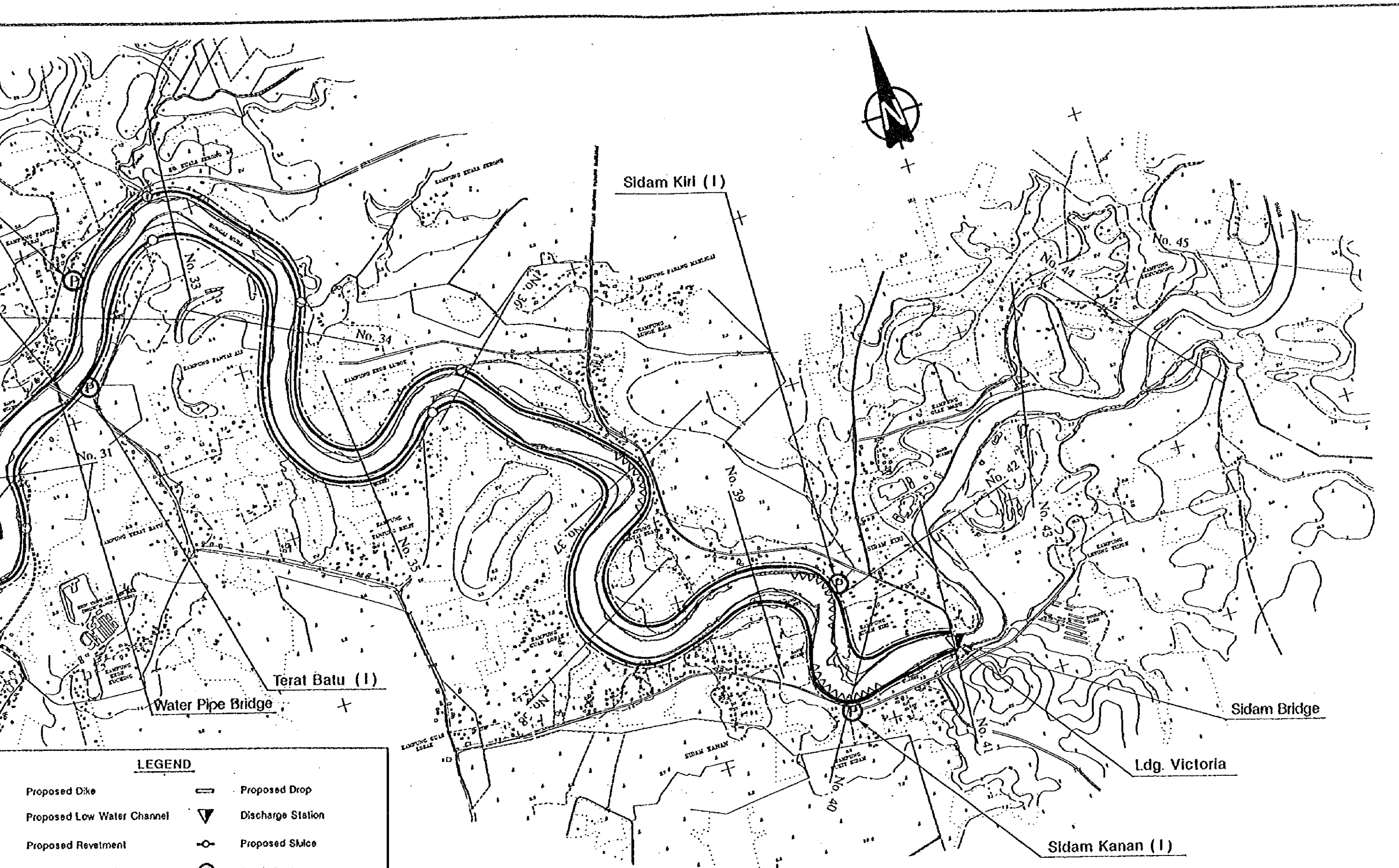
Water Pipe Bridge

Lahar Tiang (D)

LEGEND

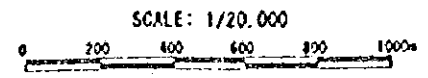
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	Proposed Low Water Channel		Discharge Station
	Proposed Revetment		Proposed Sluice
	Existing Sea Dike		Pump Station
	Boundary of Proposed River Reserve Area		Irrigation Purpose
	Proposed Barrage		Domestic / Industrial Purpose

SCALE: 1/20,000
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





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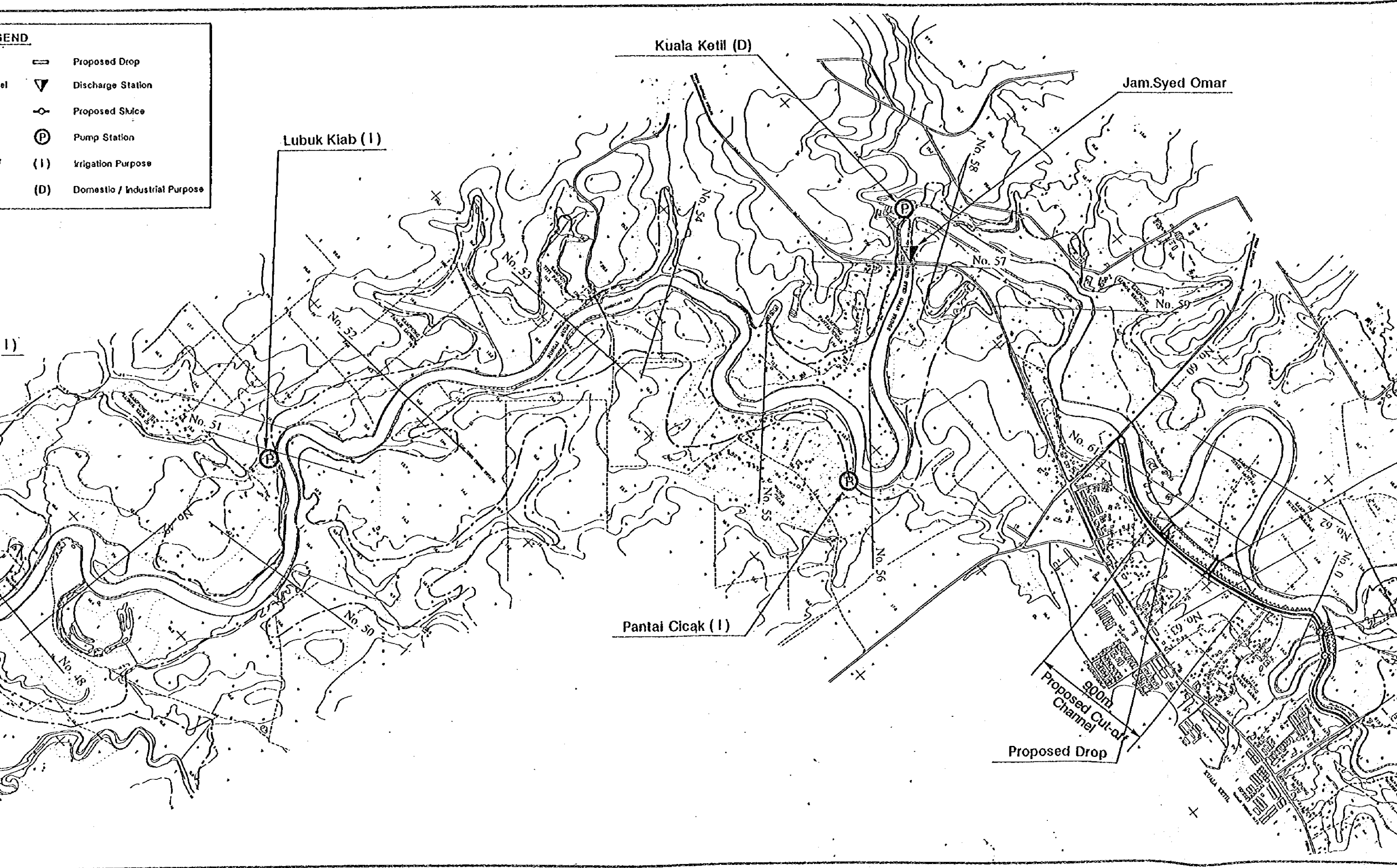
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| Proposed Low Water Channel | ▽ | Discharge Station |
| Proposed Revetment | ⊖ | Proposed Sluice |
| Existing Sea Dike | Ⓟ | Pump Station |
| Boundary of Proposed River Reserve Area | (I) | Irrigation Purpose |
| Proposed Barrage | (D) | Domestic / Industrial Purpose |



COMPREHENSIVE MANAGEMENT PLAN OF
MUDA RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN OF MUDA RIVER (2/5)

LEGEND	
	Proposed Drop
	Discharge Station
	Proposed Sluice
	Pump Station
	Irrigation Purpose
	Domestic / Industrial Purpose



Kuala Ketil (D)

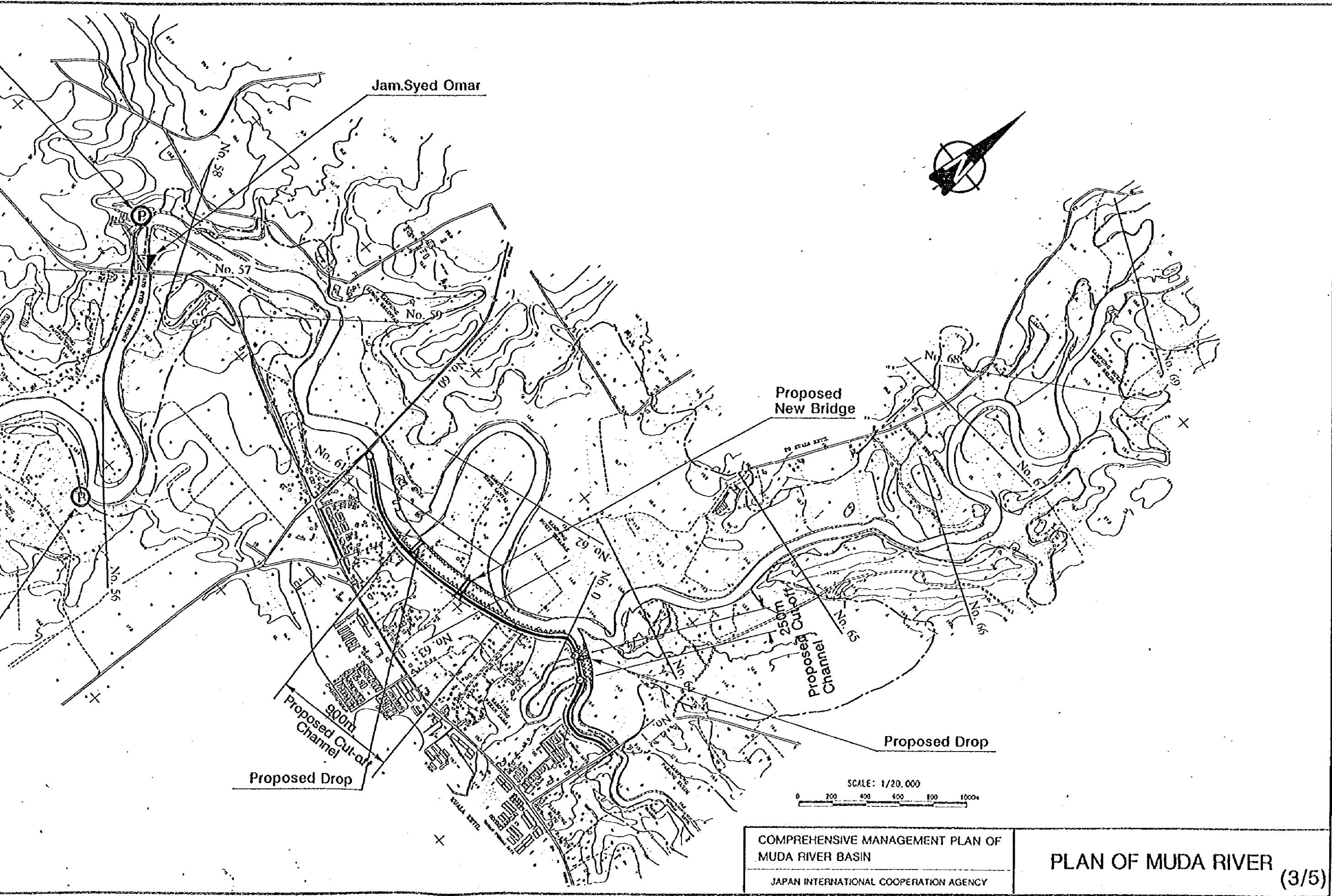
Jam. Syed Omar

Lubuk Kiab (I)

Pantai Cicak (I)

Proposed Drop
900m
Proposed Cut-off Channel

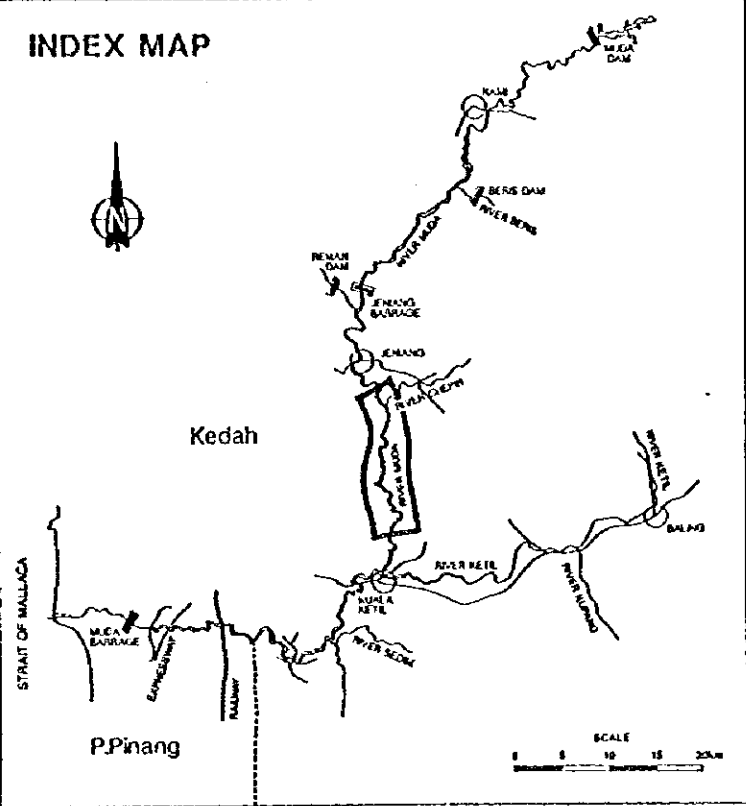
1)



COMPREHENSIVE MANAGEMENT PLAN OF
 MUDA RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

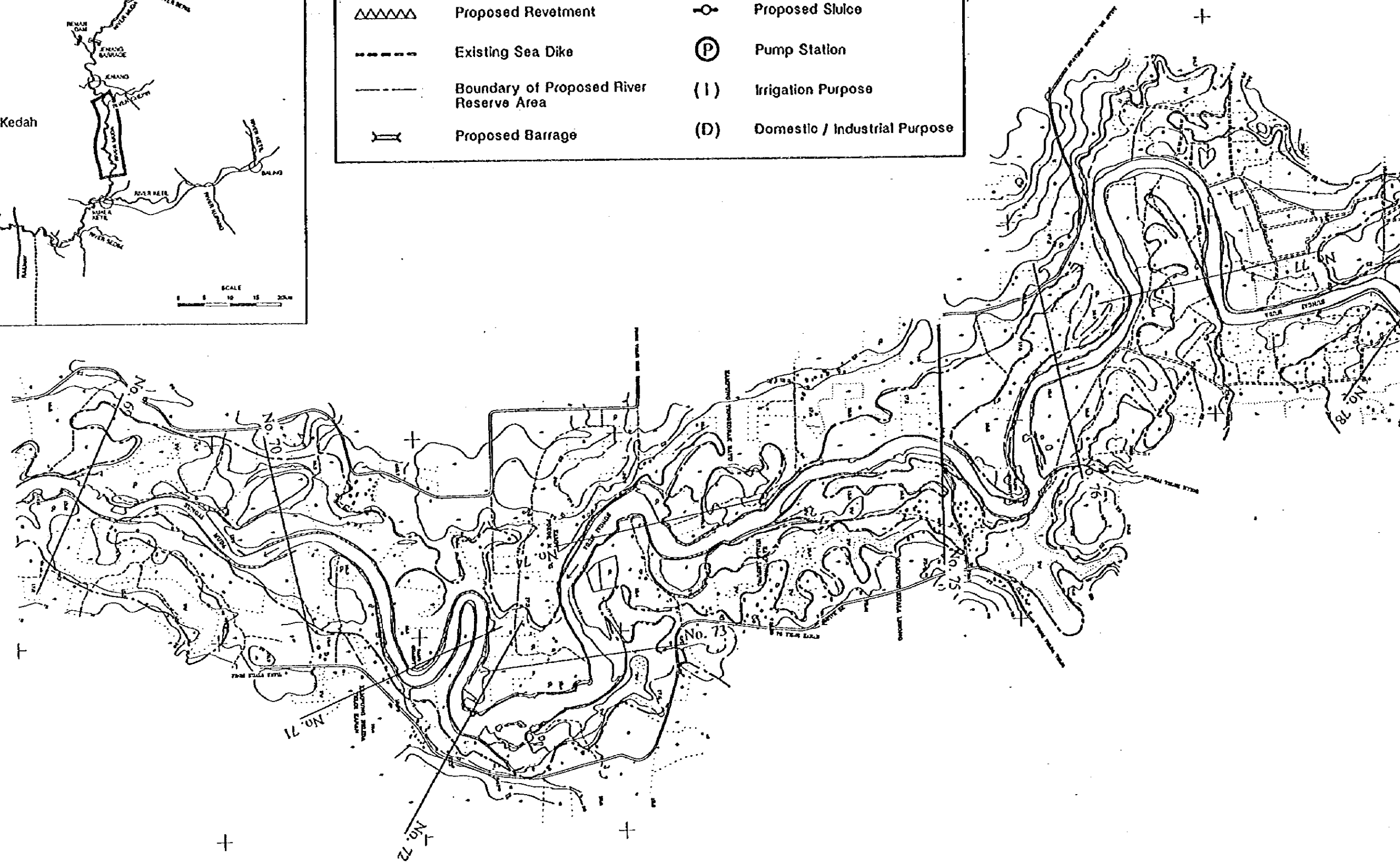
PLAN OF MUDA RIVER (3/5)

INDEX MAP









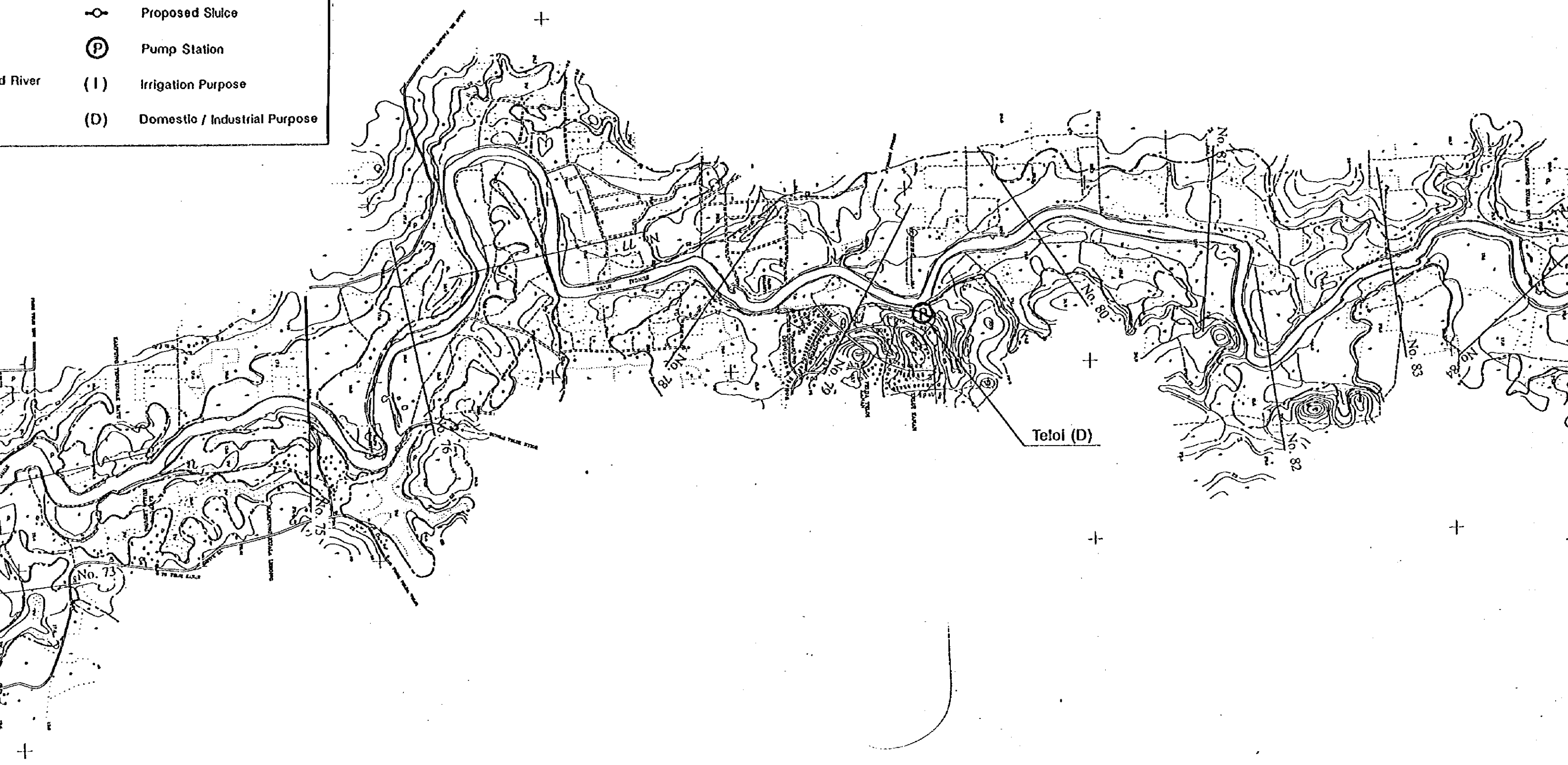
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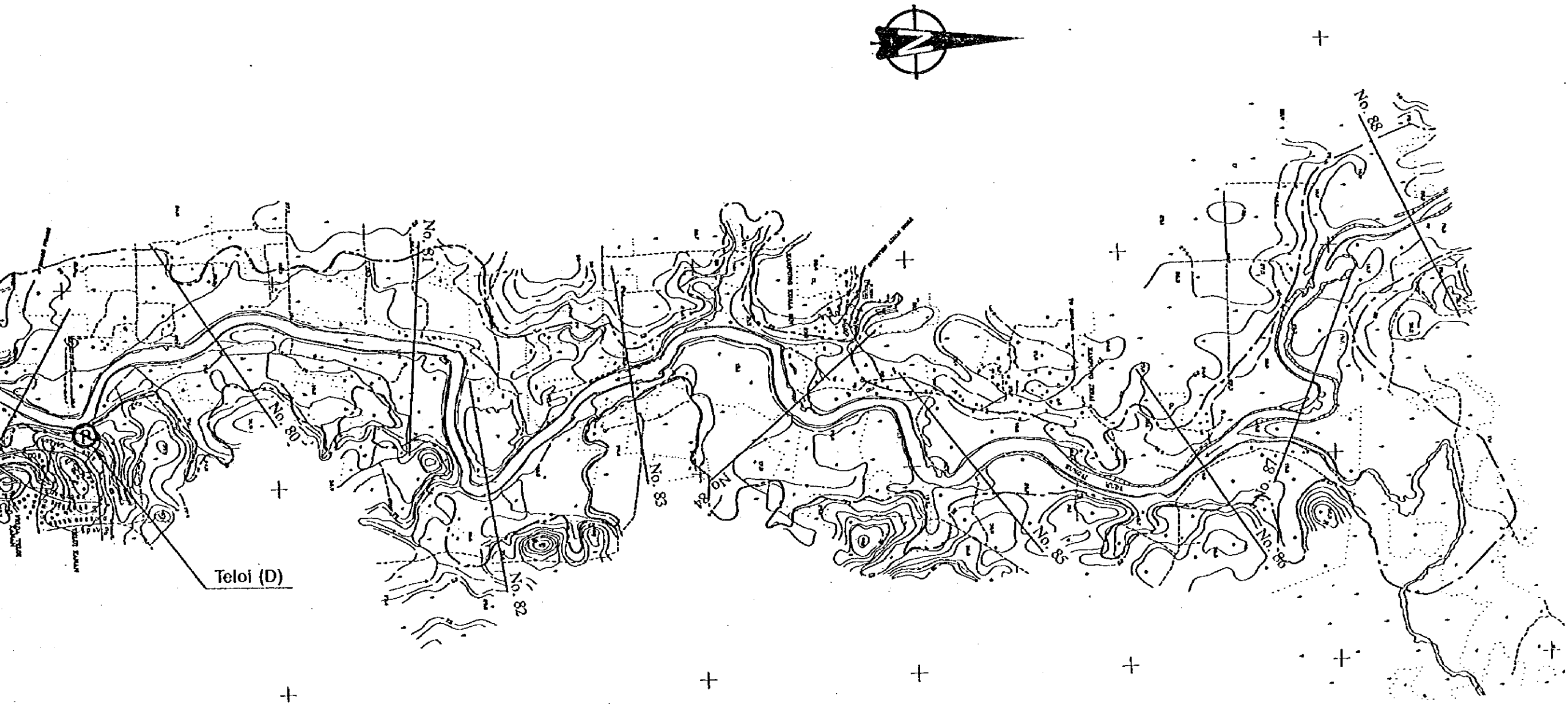
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	Proposed Revetment		Proposed Sluice
	Existing Sea Dike		Pump Station
	Boundary of Proposed River Reserve Area		Irrigation Purpose
	Proposed Barrage		Domestic / Industrial Purpose



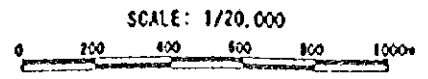
LEGEND

-  Proposed Drop
- Channel  Discharge Station
-  Proposed Sluice
-  Pump Station
- d River  Irrigation Purpose
-  Domestic / Industrial Purpose





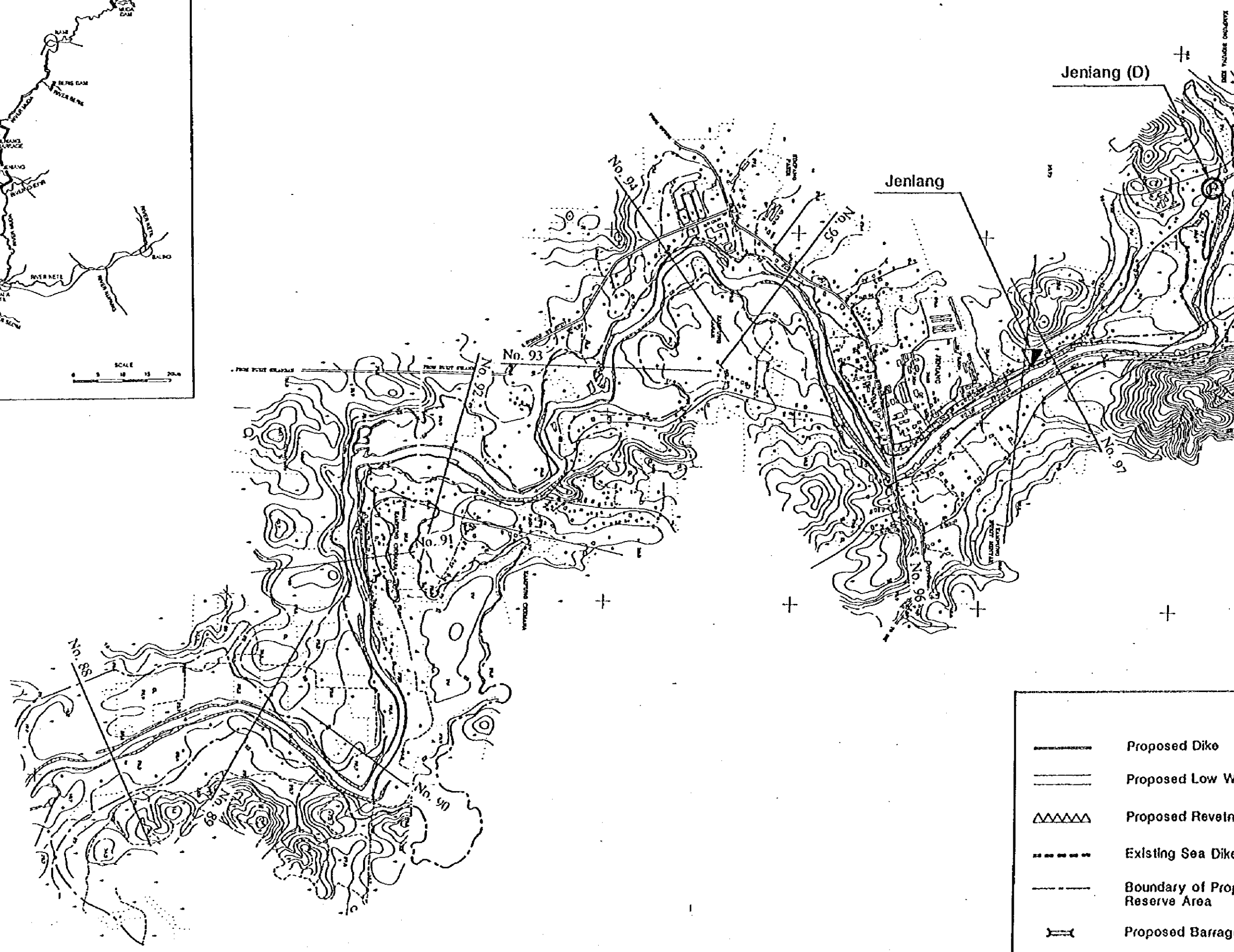
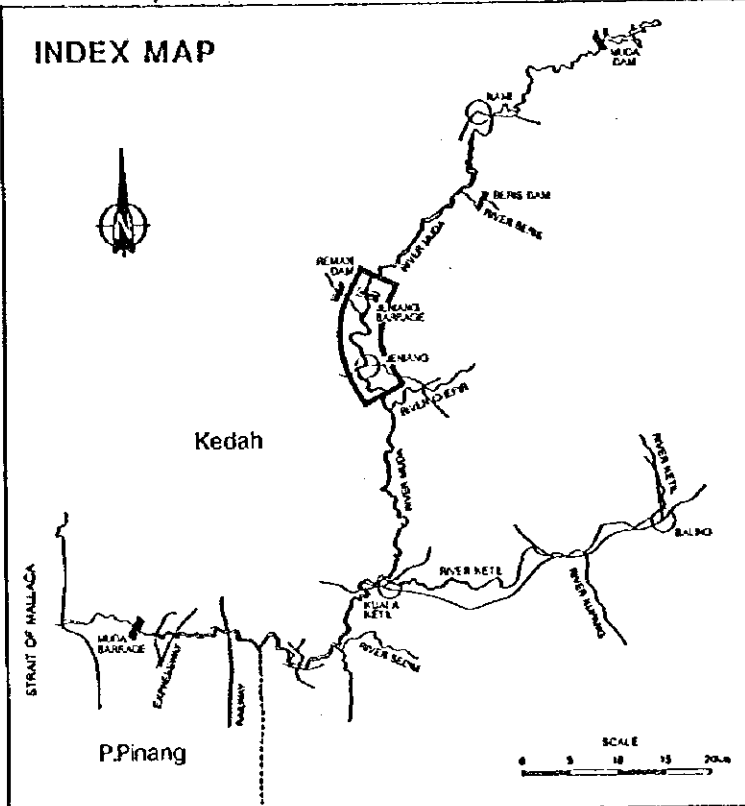
Teloi (D)



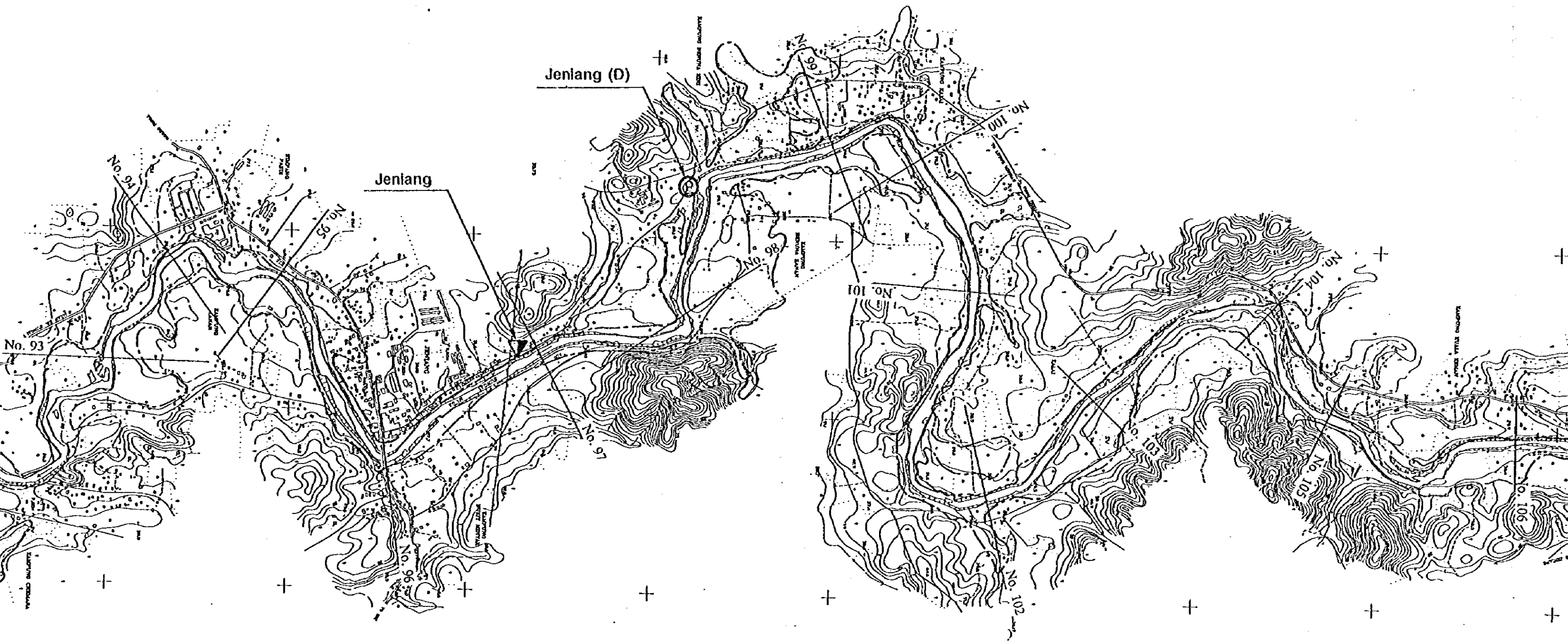
COMPREHENSIVE MANAGEMENT PLAN OF
MUDA RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN OF MUDA RIVER (4/5)

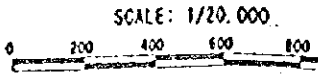
INDEX MAP

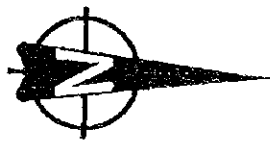
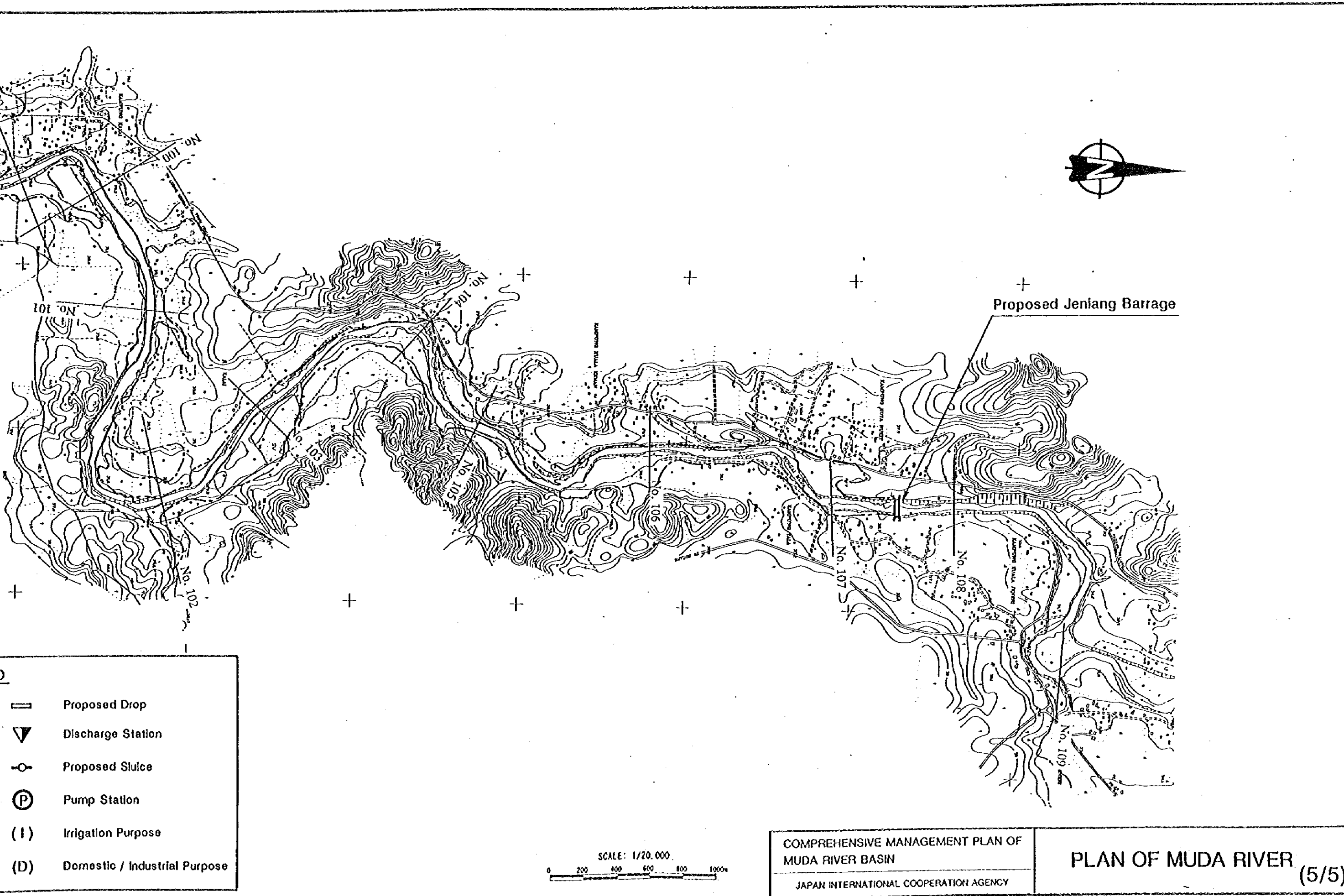


	Proposed Dike
	Proposed Low Wa
	Proposed Revelme
	Existing Sea Dike
	Boundary of Propo Reserve Area
	Proposed Barrage









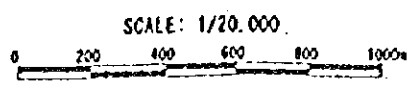
LEGEND			
	Proposed Dike		Proposed Drop
	Proposed Low Water Channel		Discharge Station
	Proposed Revetment		Proposed Sluice
	Existing Sea Dike		Pump Station
	Boundary of Proposed River Reserve Area		Irrigation Purpose
	Proposed Barrage		Domestic / Industrial Purpose





Proposed Jeniang Barrage

-  Proposed Drop
-  Discharge Station
-  Proposed Sluice
-  Pump Station
-  Irrigation Purpose
-  Domestic / Industrial Purpose

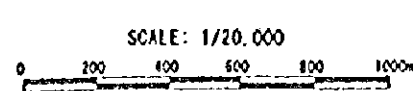
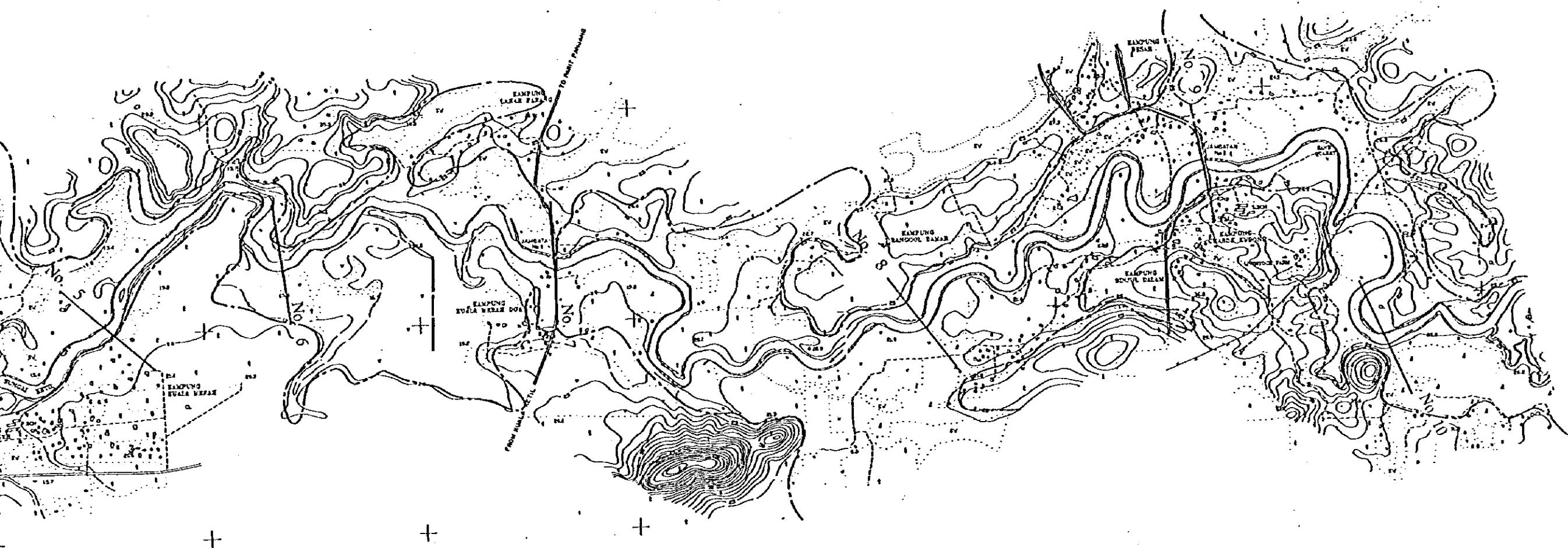
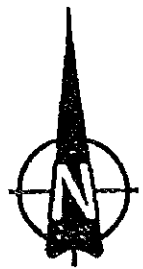


COMPREHENSIVE MANAGEMENT PLAN OF
MUDA RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN OF MUDA RIVER (5/5)

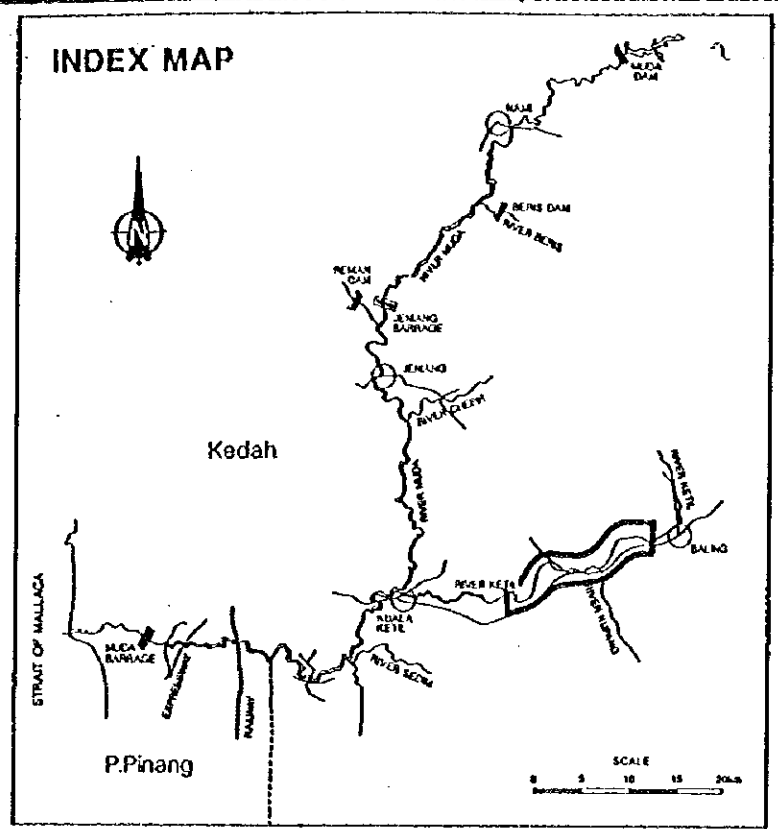
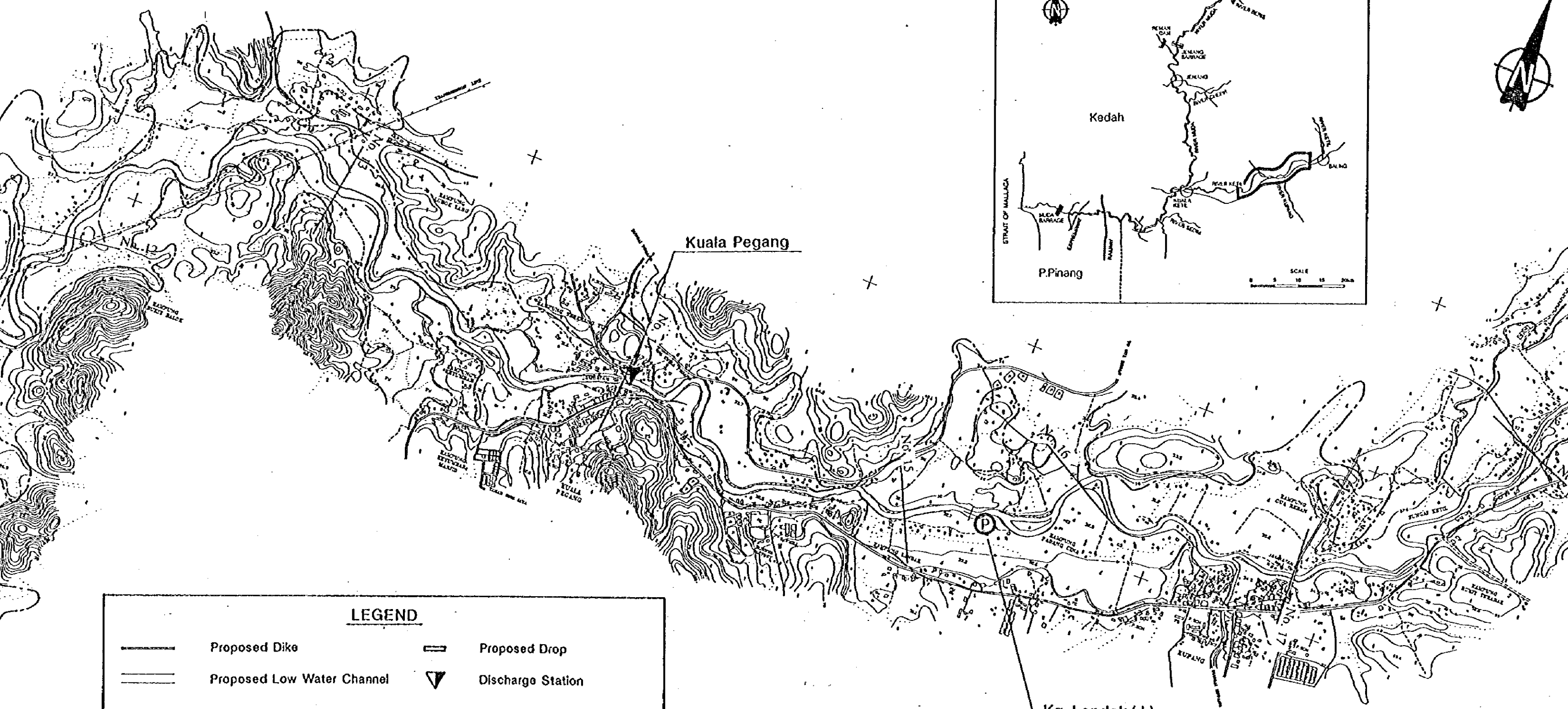
LEGEND

- | | | | |
|--|---|--|-------------------------------|
| | Proposed Dike | | Proposed Drop |
| | Proposed Low Water Channel | | Discharge Station |
| | Proposed Revetment | | Proposed Sluice |
| | Existing Sea Dike | | Pump Station |
| | Boundary of Proposed River Reserve Area | | Irrigation Purpose |
| | Proposed Barrage | | Domestic / Industrial Purpose |



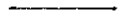

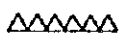









COMPREHENSIVE MANAGEMENT PLAN OF
MUDA RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

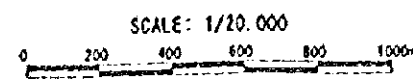
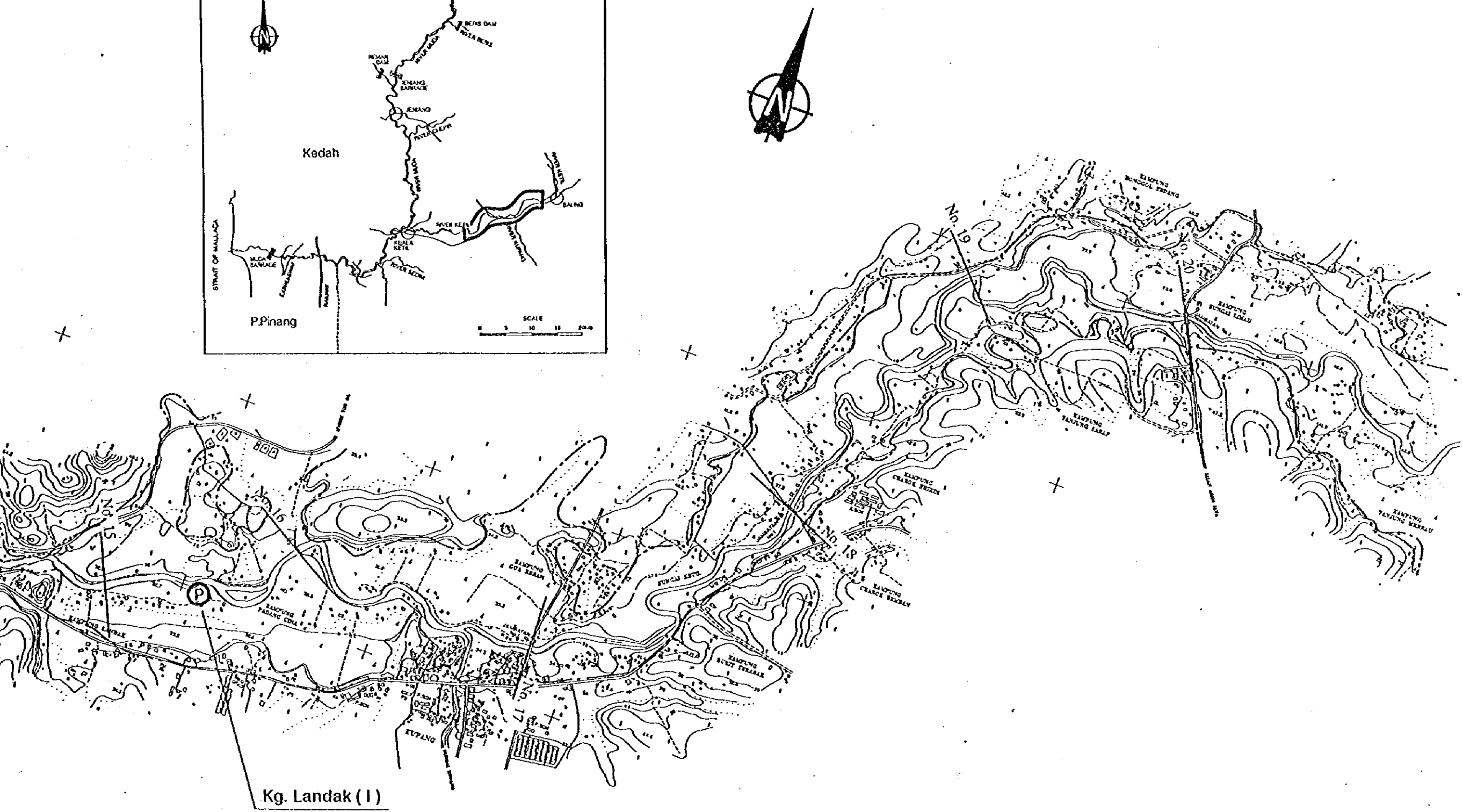
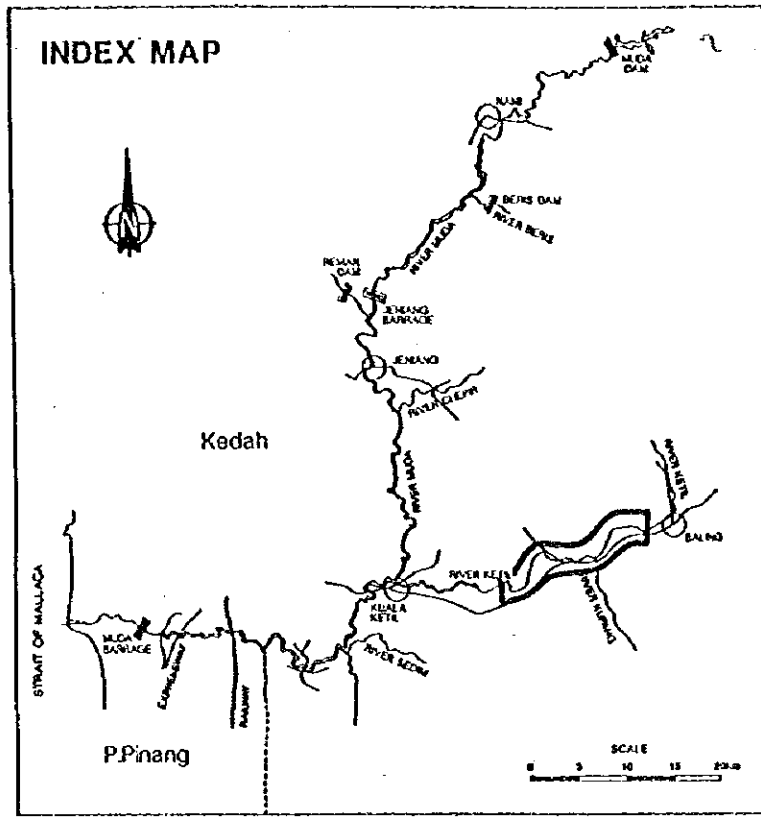
PLAN OF KETIL RIVER (1/2)



LEGEND

	Proposed Dike		Proposed Drop
	Proposed Low Water Channel		Discharge Station
	Proposed Revetment		Proposed Sluice
	Existing Sea Dike		Pump Station
	Boundary of Proposed River Reserve Area		Irrigation Purpose
	Proposed Barrage		Domestic / Industrial Purpose

SCALE: 1/20,000
 0 200 400 600 800



COMPREHENSIVE MANAGEMENT PLAN OF
MUDA RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN OF KETIL RIVER (2/2)

*LABORATORY TEST RESULTS REPORT
(RIVER SEDIMENT SURVEY)*

Project:
The River Sediment Survey
For
The Study on Comprehensive
Management Plan Of Muda River Basin
in Malaysia

Section One - Report.

Client:
JICA Study Team.
CHI Engineering Co Ltd.
In association with
INA Corporation.

Contractor:
Pembinaan Jitu Padat.
282, Jalan Kangar, Perlis,
01000 Kangar, Perlis.

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- 1.0 Introduction.
- 2.0 Site location.
- 3.0 Investigation Objectives.
- 4.0 Scope of Works.
- 5.0 Results.
- 6.0 Photos.

Section ii - Attachments.

- Attachment 1 - Location Map
- Attachment 2 - Results of River Bed Sampling
 - a) Sieve Analysis / Hydrometer test
 - b) Specific Gravity test
- Attachment 3 - Results of Bed Load Sampling
 - a) Sieve Analysis
- Attachment 4 - Photos.

Report
on
Collection of Samples and Test Results
for
The River Sediment Survey
for
The Study On Comprehensive
Management Plan Of Muda River Basin In Malaysia.

1.0 Introduction.

This report presents the test results carried out on the samples for the River Sediment Survey For The Study On Comprehensive Management Plan Of Muda River Basin In Malaysia.

2.0 Site Location.

As called for in the specification we were required to do:

- a) River Bed Material Survey
- b) Bed Load Survey

The site is as per Figure 1

3.0 Investigation Objectives.

The JICA objectives of the investigation are mainly to determine:

- a) the distribution of particle sizes
- b) the specific gravity of river bed materials and

- c) the relationship between the water discharge and the sediment transport caused by the tractive form of flowing water

Only results of item (a) and (b) are presented in this report.

4.0 Scope of Work.

In order to accomplish the stated objectives the following works were carried out ie.

- a) 30 sampling sites along the river channels of Muda River and its major tributaries were selected namely:-

<u>Name of River</u>	<u>Number of Sampling Sites</u>
Muda River	15
Sedim River	2
Karangan River	2
Ketil River	5
Kupang River	2
Chepir River	2
Beris River	2
Total	30

All samples collected were supervised by the JICA Study team.

On the whole, quantity of each sample collected were not less than 1 kg.

Particle size analysis (sieve analysis) and specific gravity test was carried on the sample collected.

For fine sample (i.e more than 20% of the particles in weight pass the 75um sieve (200 sieve), hydrometer test was carried out

5.0 Results.

5.1 River Bed Materials

5.1.1 Location

Refer Attachment 1

5.1.2 Results Sheets

See Attachment Two

5.2 Bed Load Materials

5.2.1 Location

Refer Attachment 1

5.2.2 Results Sheet

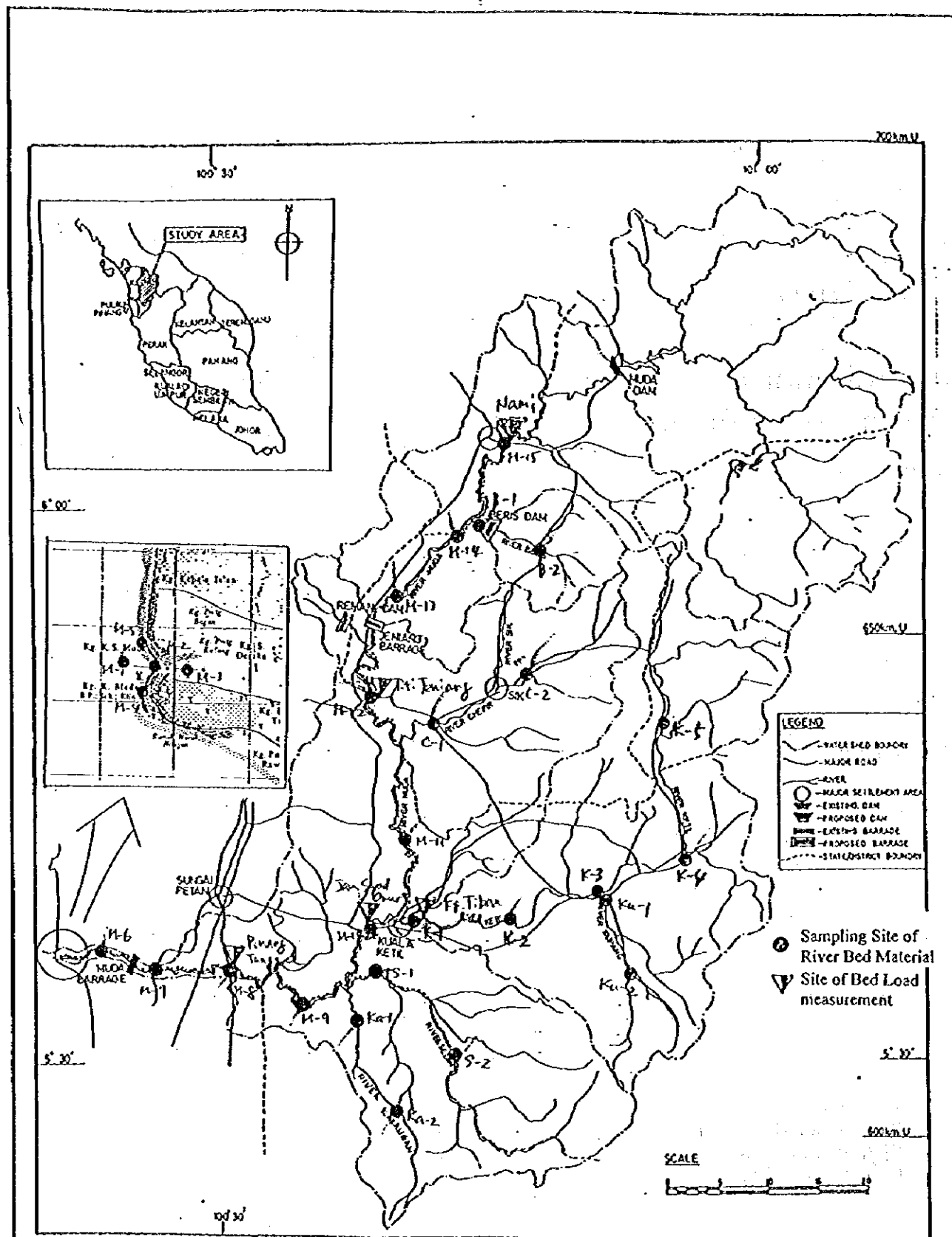
The results is divided up into 5 locations

- i.e a) Pinang Tunggal
b) Jambatan Syed Omar
c) Kampung Tiban
d) Jeniang
e) Nami

Refer Attachment Three

6.0 Photos.

Refer Attachment Four.



COMPREHENSIVE MANAGEMENT PLAN OF
MUDA RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 1

LOCATION OF RIVER SEDIMENT SURVEY

Project:
The River Sediment Survey
For
The Study on Comprehensive
Management Plan Of Muda River Basin
in Malaysia

Section Two - Attachment.

Attachment One:

Location Map.

Attachment Two:

River Bed Sampling Results.

a. Sieve Analysis / Hydrometer test.

b. Specific Gravity test.

Attachment Three:

Bed Load Sampling Results.

a. Sieve Analysis.

Attachment Four:

a. Photos.

Client:
JICA Study Team.
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INA Corporation.

Contractor.
Pembinaan Jitu Padat.
282, Jalan Kangar,
01000 Kangar, Perlis.