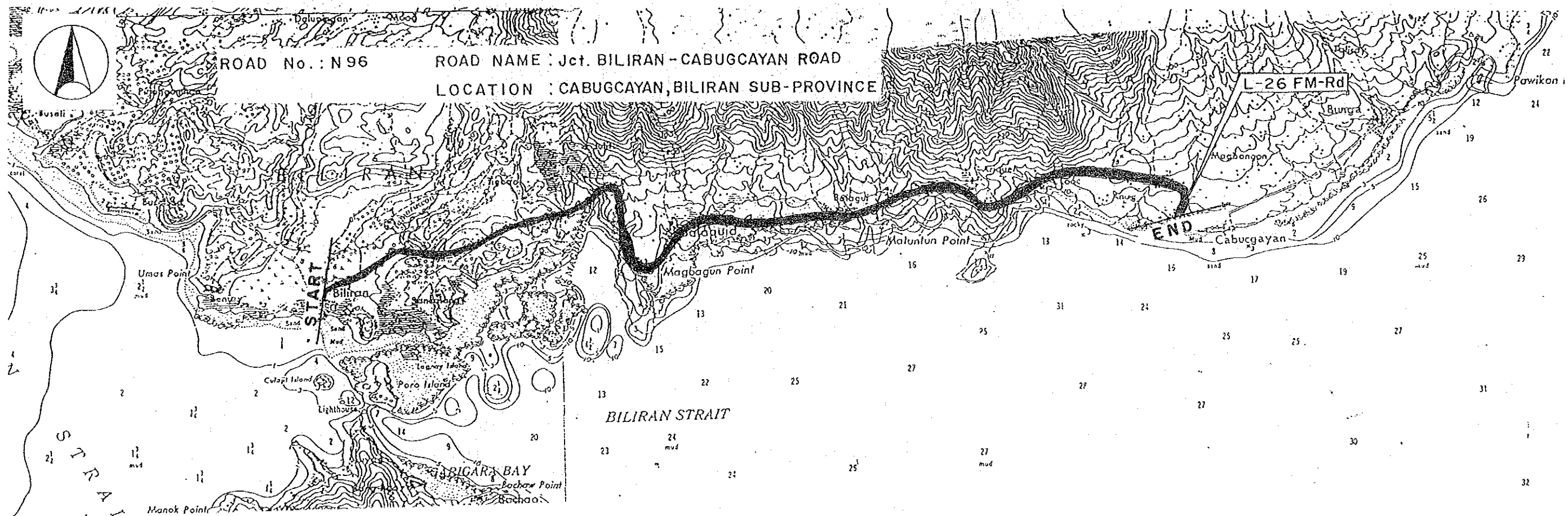
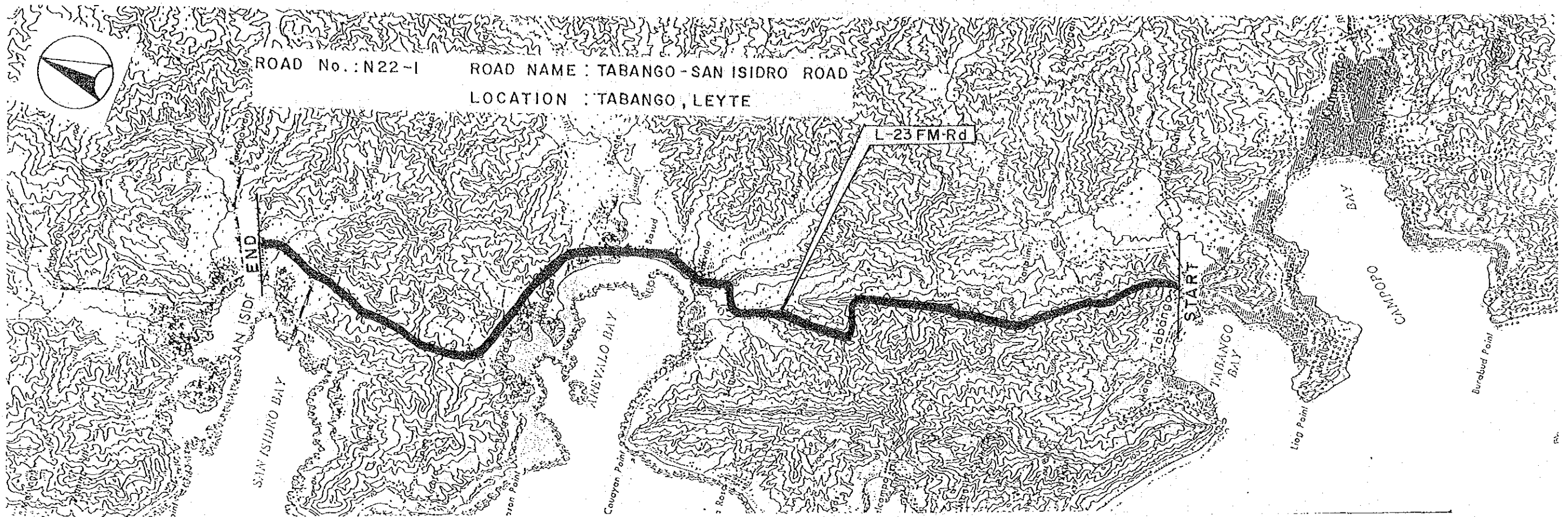


LOCATION OF SELECTED SPOTS IN LEYTE (5/10)

Scale
1:50,000

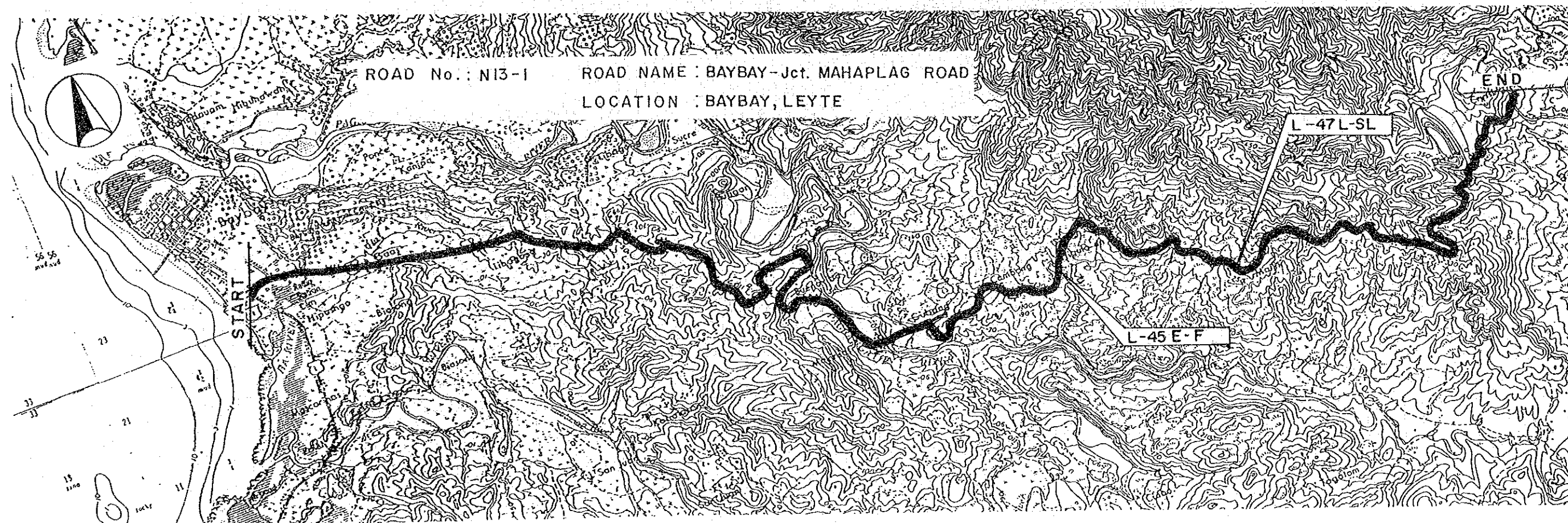
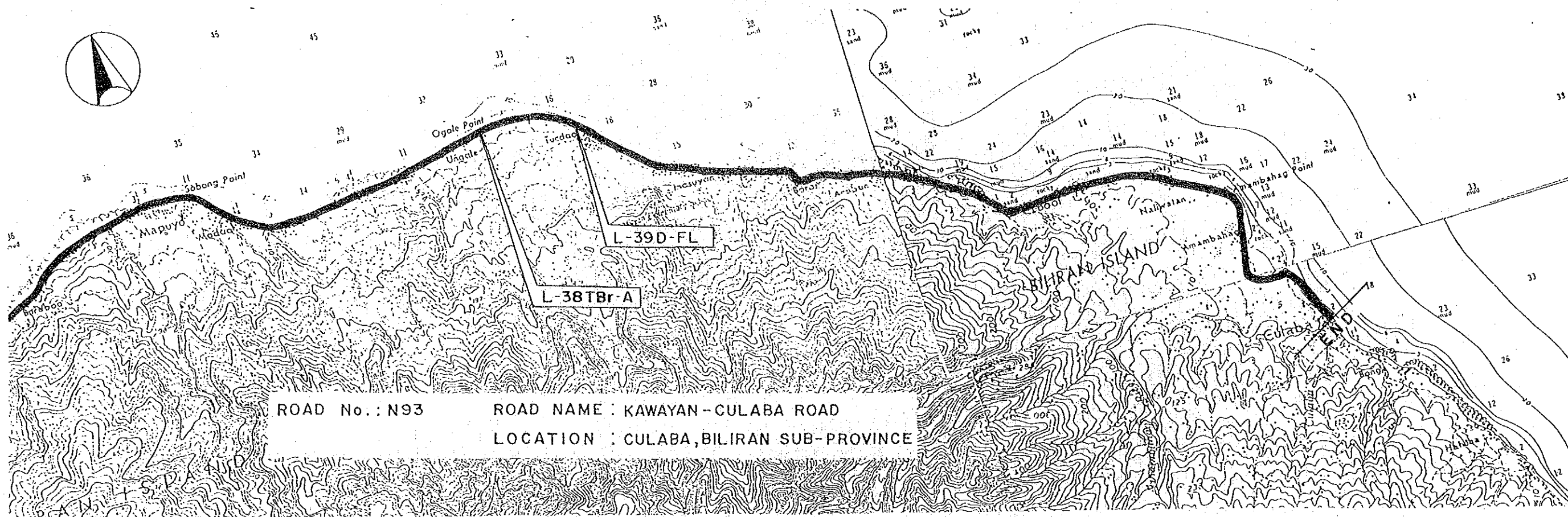
Drawing No.
118



LOCATION OF SELECTED SPOTS IN LEYTE (6/10)

Scale
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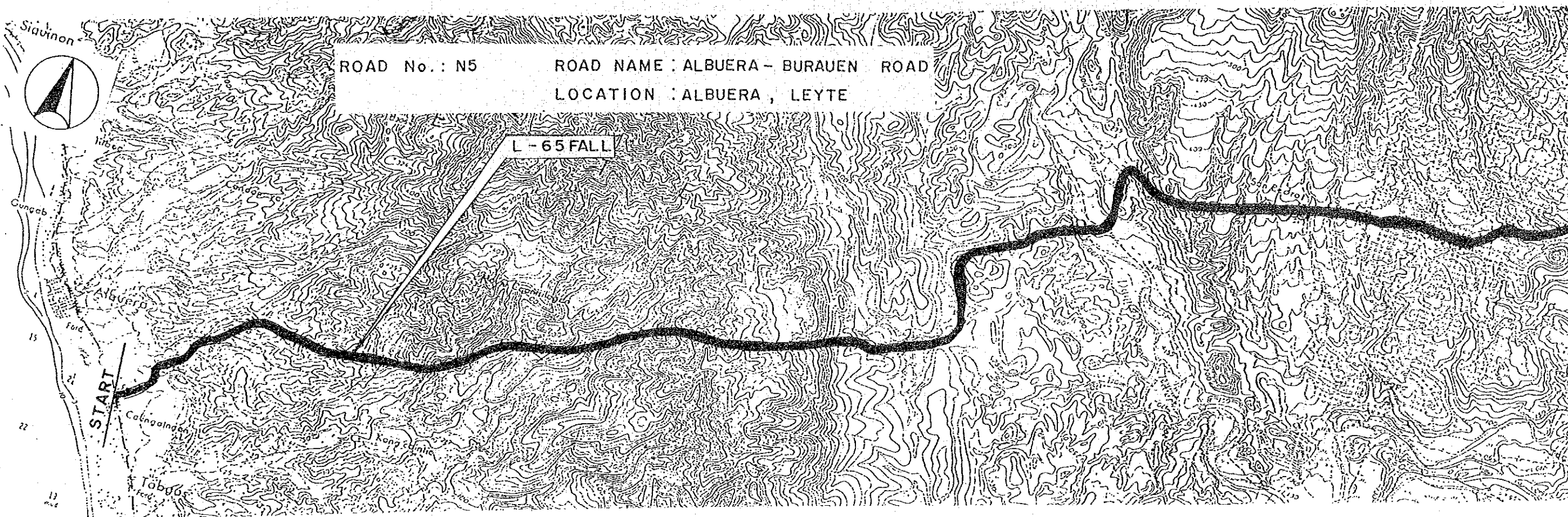
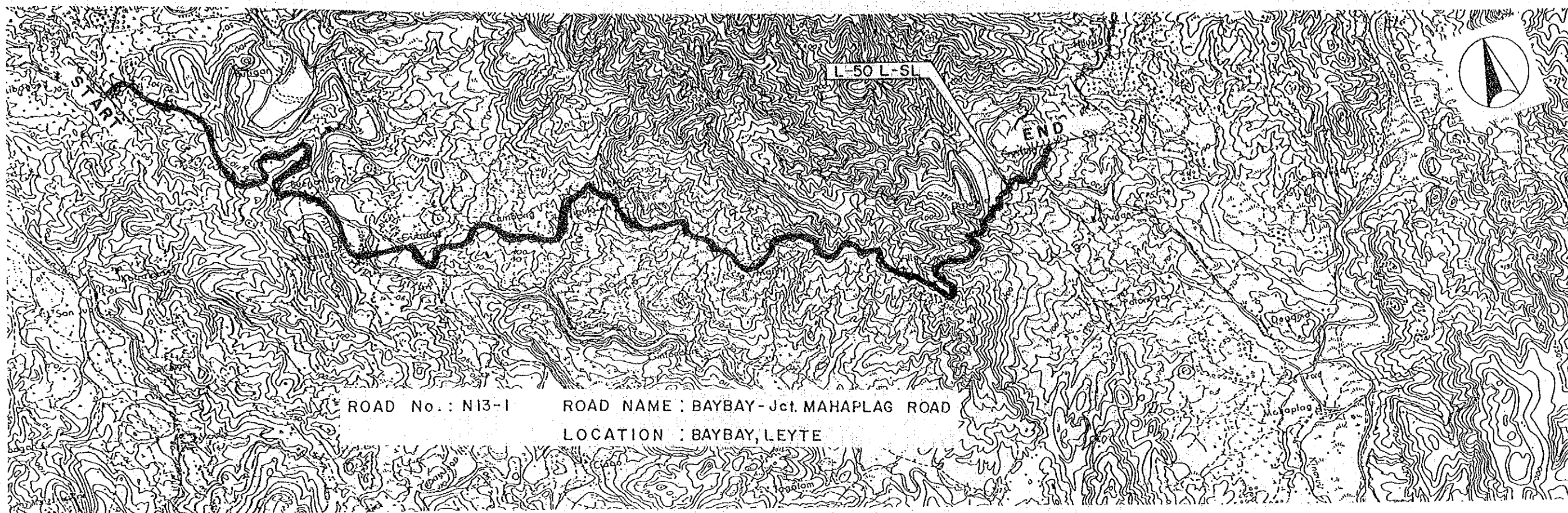
Drawing No.
119

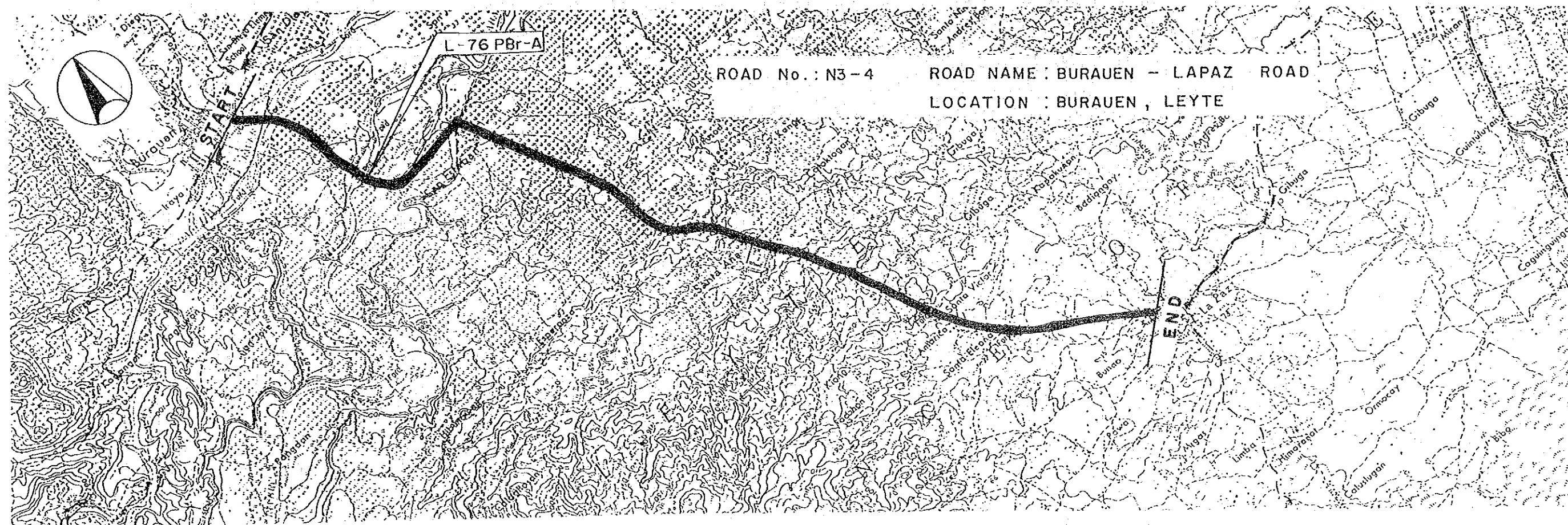
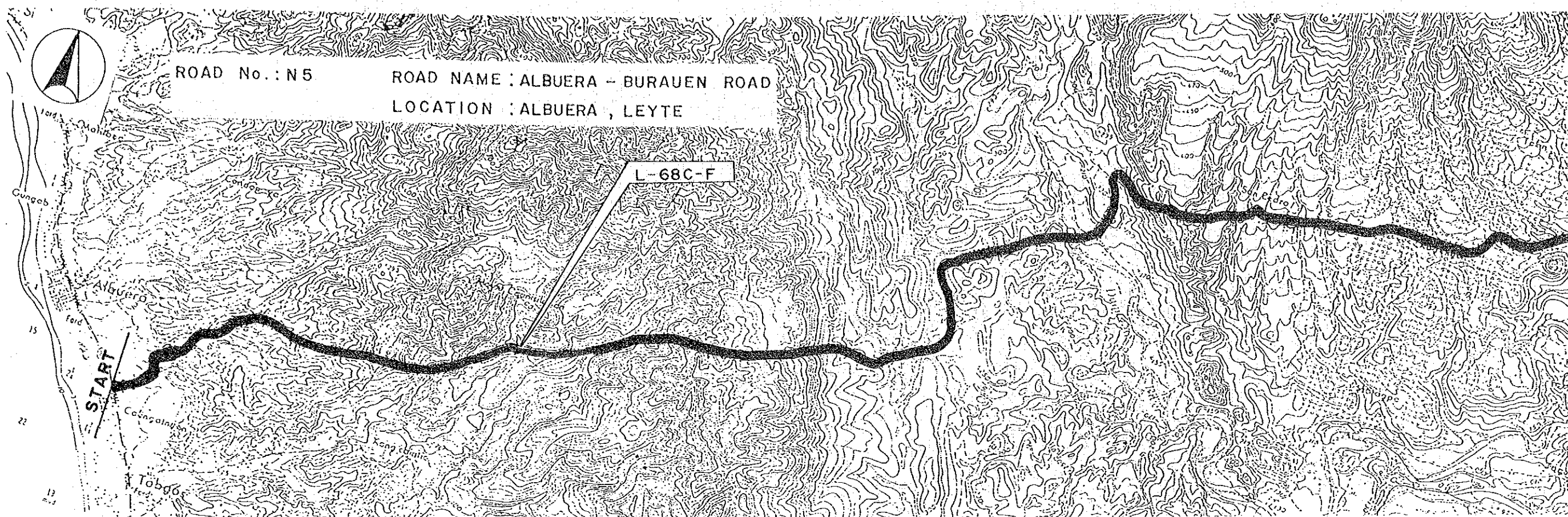


LOCATION OF SELECTED SPOTS IN LEYTE (7/10)

Scale
1:50,000

Drawing No.
120

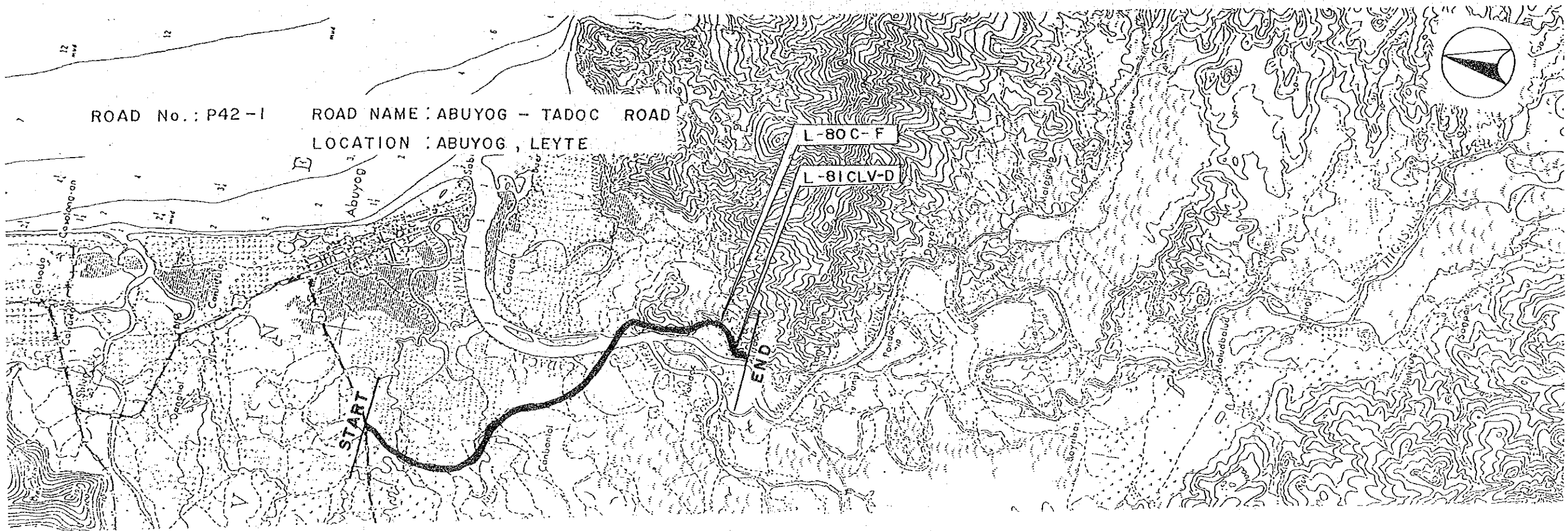
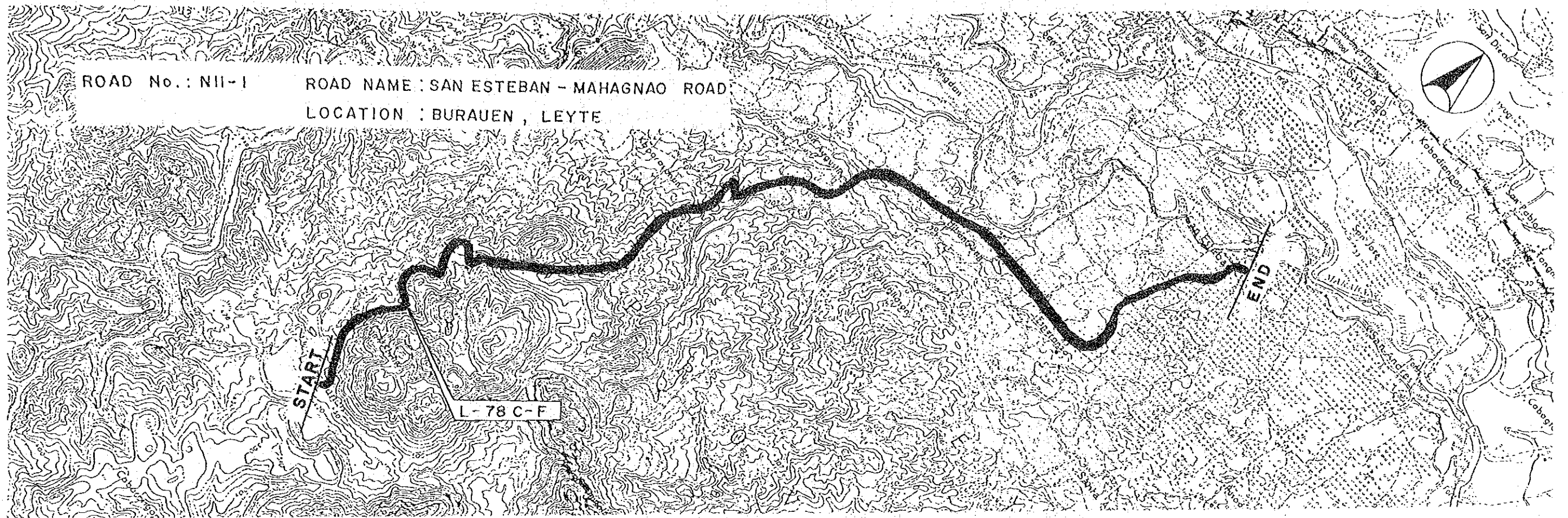




LOCATION OF SELECTED SPOTS IN LEYTE (9/10)

Scale
1:50,000

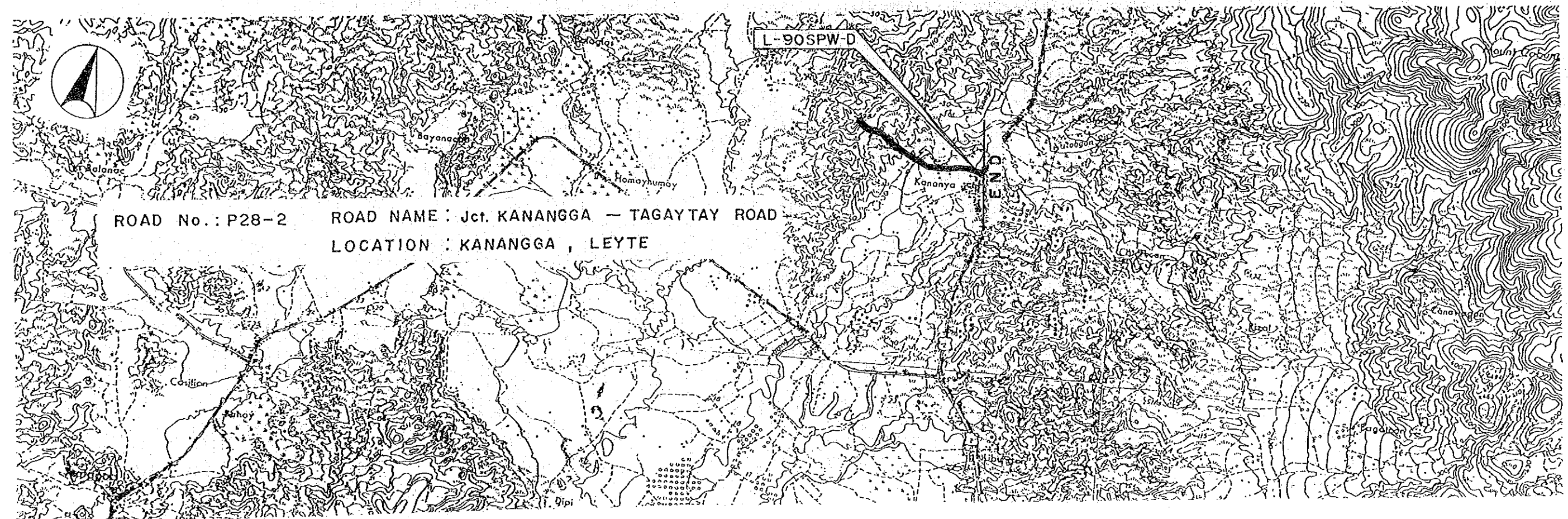
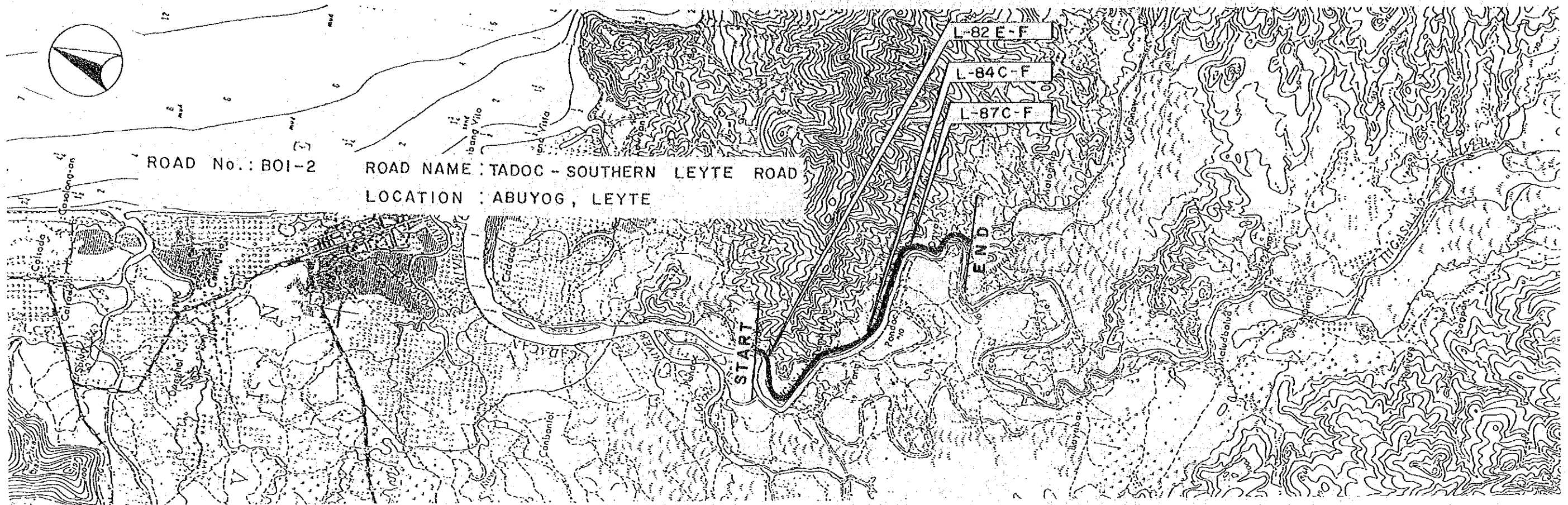
Drawing No.
122



LOCATION OF SELECTED SPOTS IN LEYTE (10/10)

Scale
1:50,000

Drawing No.
123



DESCRIPTION AND DESIGN OF RESTORATION MEASURES
FOR EACH DISASTER SPOT (LEYTE)

PROVINCE: LEYTE
SPOT No. : L-4(1/2)

NAME OF ROAD : BARUGO - BABATNGON ROAD
ROAD CLASSIFICATION: NATIONAL SECONDARY ROAD

TYPE OF DISASTER : TEMPORARY BRIDGE WASHOUT

DRAWING NO.
125

Leyte Spot No. 4 (L-4)

1) General Situation

- Disaster Classification: TBr-W
- Road Name: Barugo - Babatngon Road
- Location : 4+100 from Barugo Proper
- Road Class/Office Concerned: National Secondary Road/Leyte 1st Engineering District
- Municipalities connected: Barugo and Babatngon
- Road Width: 10.0
- Pavement Type: Gravel
- Surface Condition: Bad
- Availability of Detour: None

2) Damage Identified

- Type of Disaster: Washed out of superstructure/scouring on abutments
- Magnitude of Damage: 160.0 meters
- Date Noticed: 1988
- Degree/Period of Traffic Interruption: High
- Description of Disaster:

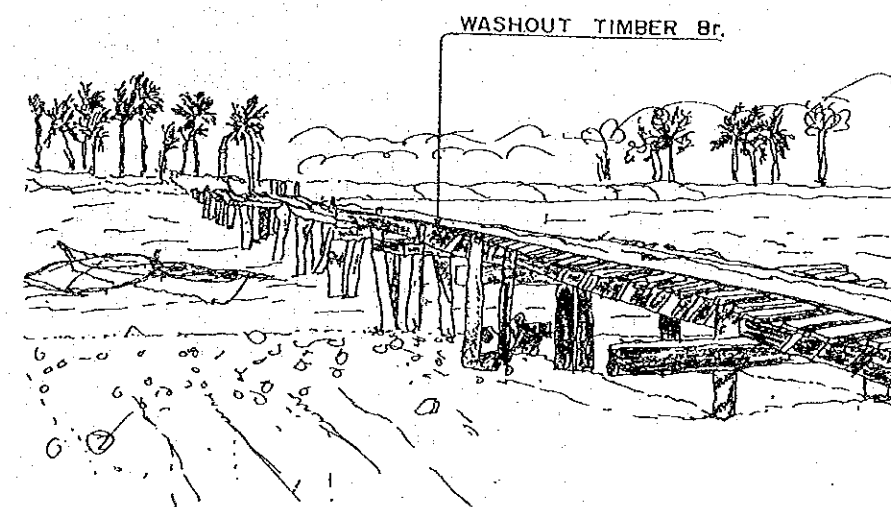
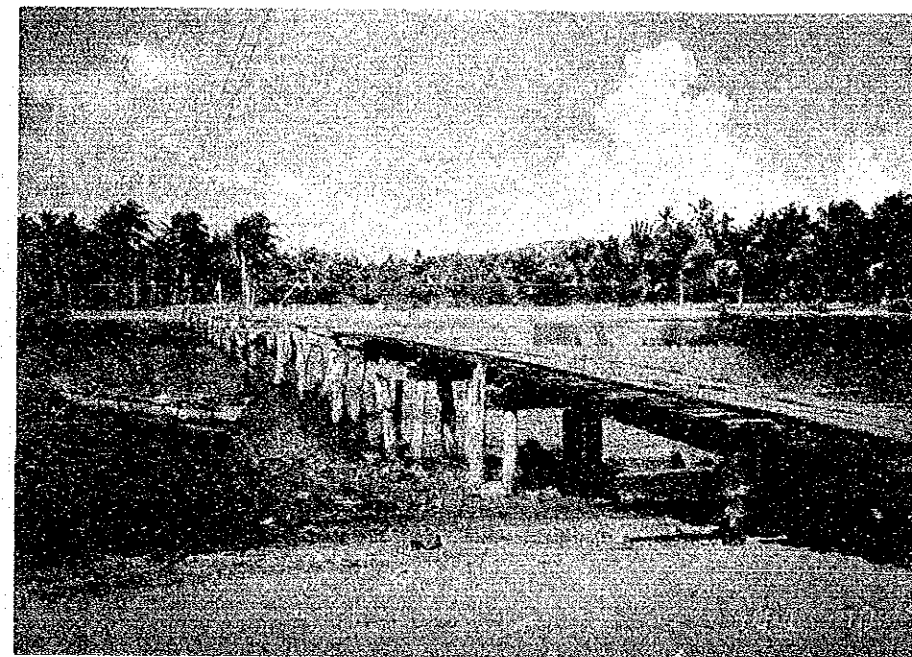
The Cabarasan timber bridge has a total length of 160.0m, composing of 26 spans and a 1-lane bridge with 4.0m width.

The timber bridge was washed out last 1988 during typhoon "Undang". Since that time the bridge was not passable to traffic and temporary foot bridge was made available to crossing pedestrians.

No logs nor debris were coming or flowed from upstream that may cause damaged to the bridge.

3) Causes of Damage

- Tidal waves that hit the bridge last 1988 by typhoon "Undang" caused the superstructure to be washed out.

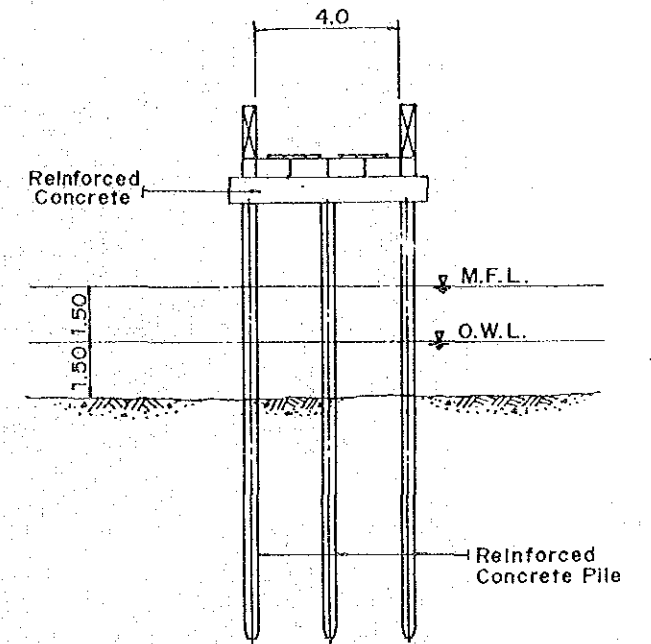
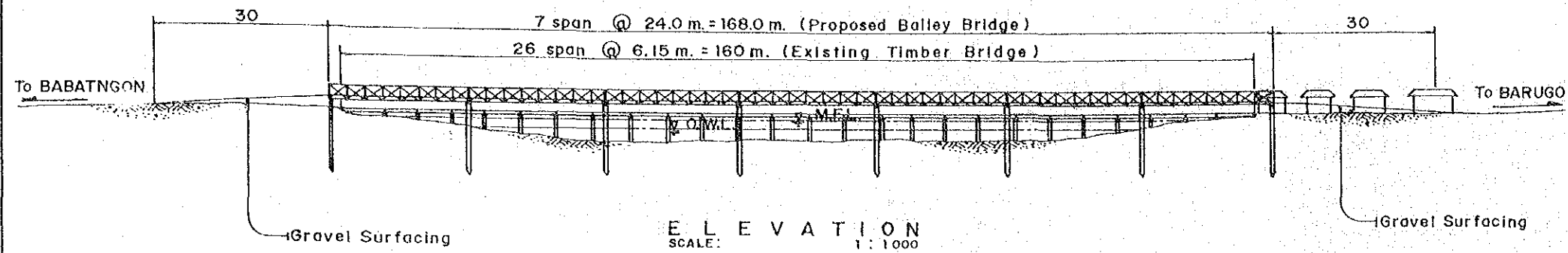


PROVINCE : LEYTE
 SPOT No. : L-4(2/2)

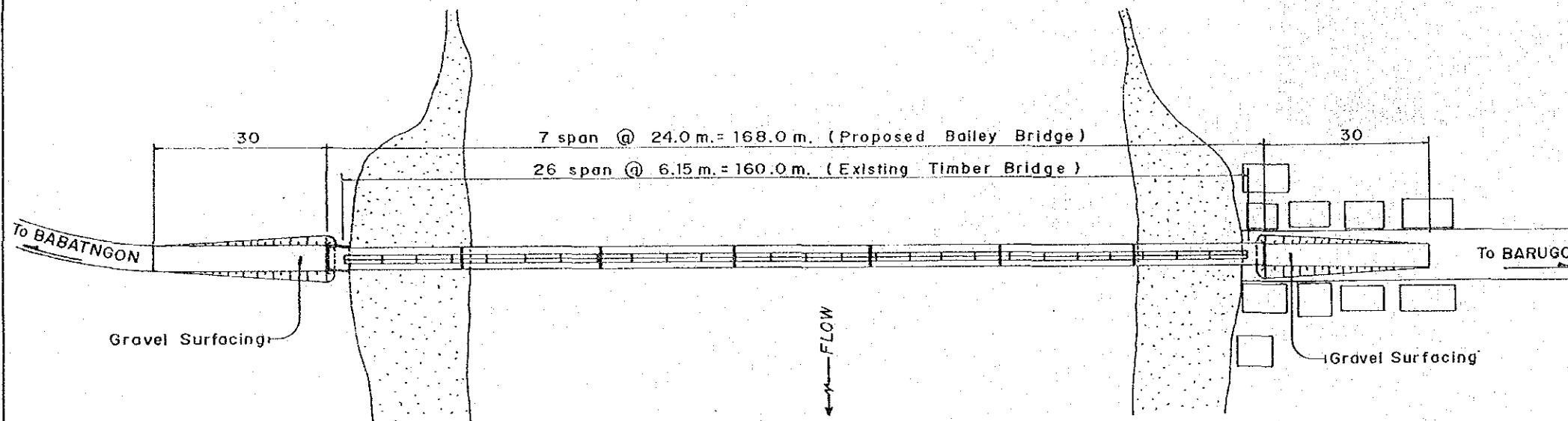
NAME OF ROAD : BARUGO - BABATNGON ROAD
 ROAD CLASSIFICATION : NATIONAL SECONDARY ROAD

TYPE OF DISASTER : TEMPORARY BRIDGE WASHED OUT

DRAWING NO.
 126



TYPICAL CROSS SECTION
 SCALE: 1:200



P L A N
 SCALE: 1:1000

SUMMARY OF QUANTITY

TYPE OF WORK	UNIT	TOTAL
URGENT RESTORATION		
U1-4	REFILLING / EMBANKMENT	CU. M. 360
U6-2	H-PILE BENT	L. M. 288
U6-3	BAILEY BRIDGE	L. M. 168
U7-1	GRAVEL SURFACING	SQ. M. 240

PROVINCE : **LEYTE**
SPOT No. : **L-6 (1/2)**

NAME OF ROAD : **SAN MIGUEL - STA CRUZ ROAD**
ROAD CLASSIFICATION : **PROVINCIAL ROAD**

TYPE OF DISASTER : **TEMPORARY BRIDGE APPROACH WASHOUT**

DRAWING NO.
127

Leyte Spot No. 6 (L-6)

1) General Situation

- Disaster Classification: TBr-W
- Road Name: San Miguel - Sta. Cruz Road
- Location : 13+100 from San Miguel Proper
- Road Class/Office Concerned: Provincial Road/Provincial Engineer's Office

- Municipalities/Barangays connected: Brgy. Sta. Cruz, San Miguel and Babatngon

- Road Width: 4.0m
- Pavement Type: Earth
- Surface Condition: Bad
- Availability of Detour: None

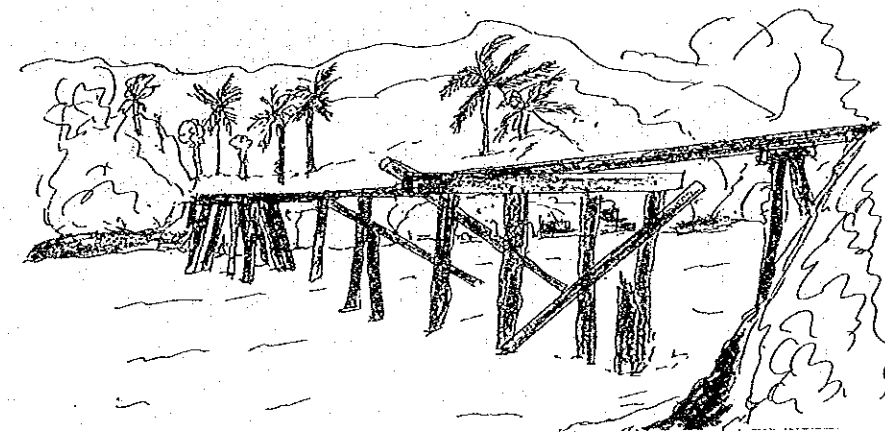
2) Damage Identified

- Type of Disaster: Timber bridge washout
- Magnitude of Damage: 54.0 total length of bridge washout
- Date Noticed: 1986
- Degree/Period of Traffic Interruption: High
- Description of Disaster:

The Bagacay timber bridge has a total length of 54.0m, composing of 9 spans, and a 1-lane bridge with 4.0m width. This bridge was washed out last 1986 and since then it was not passable to vehicles. Temporary foot bridge was made available for pedestrians.

3) Causes of Damage

Insufficient free board and too short span length between piers caused accumulation of logs and debris flowed from upstream.

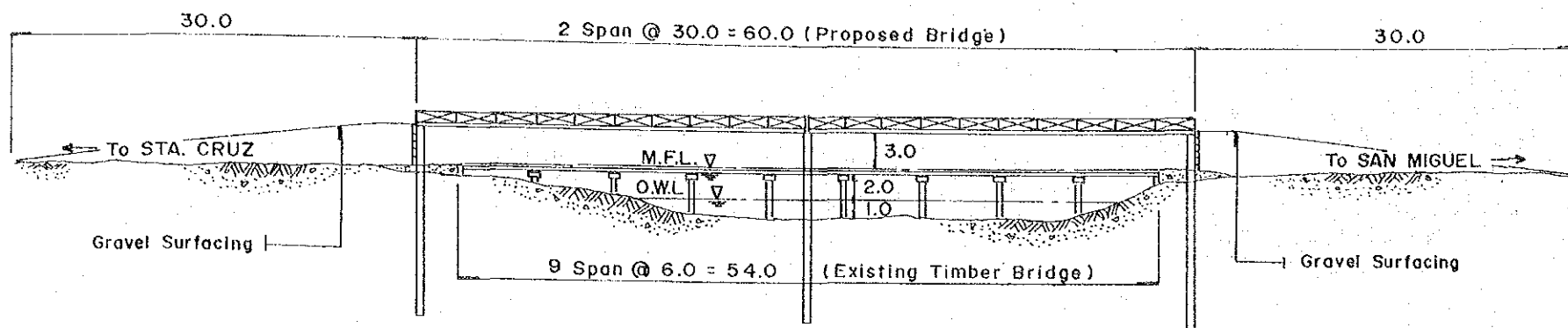


PROVINCE : LEYTE
 SPOT No. : L-6(2/2)

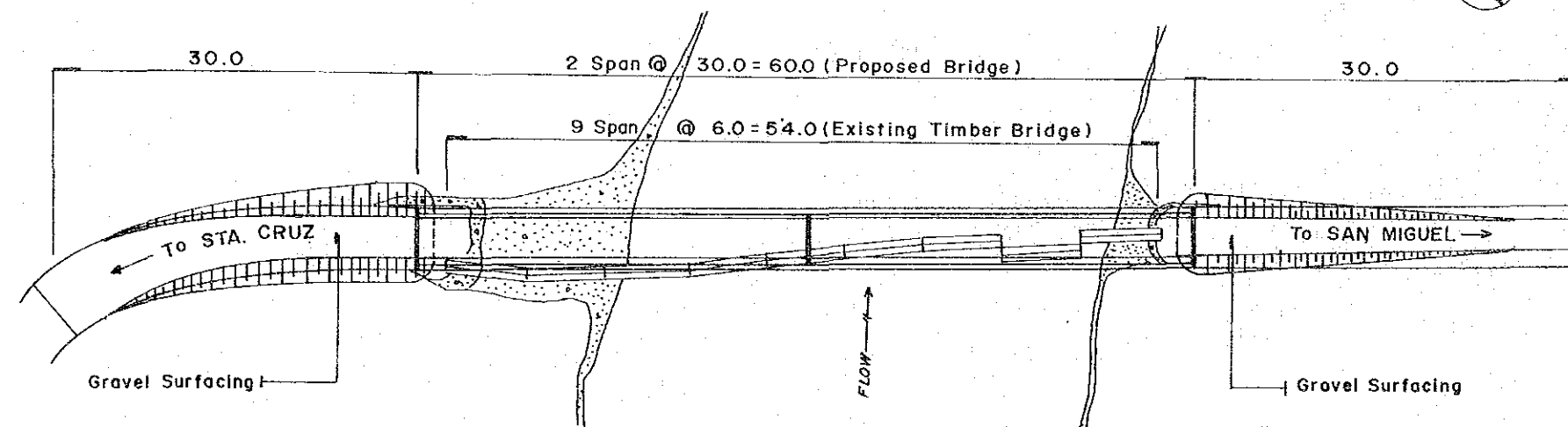
NAME OF ROAD : SAN MIGUEL - STA. CRUZ ROAD
 ROAD CLASSIFICATION : PROVINCIAL ROAD

TYPE OF DISASTER : TEMPORARY BRIDGE WASHED OUT

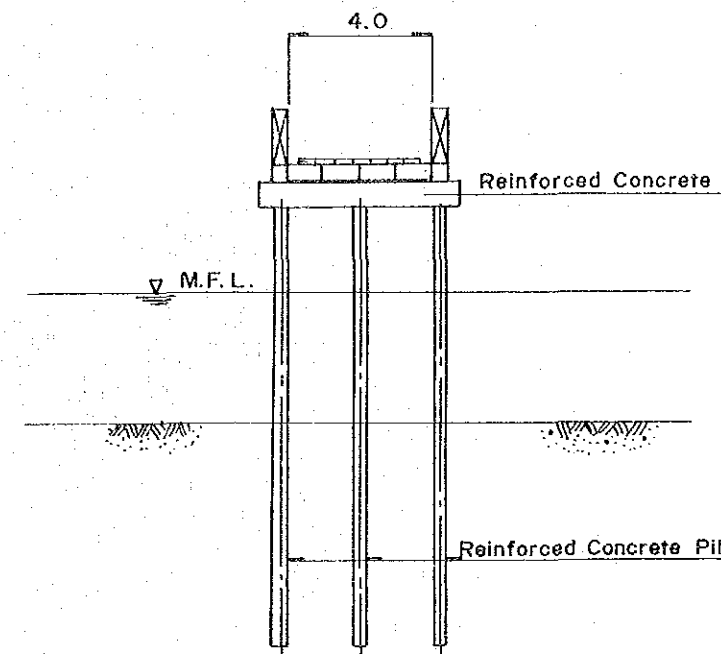
DRAWING NO.
 128



ELEVATION
 SCALE 1 : 500



P L A N
 SCALE 1 : 500



TYPICAL CROSS SECTION
 SCALE 1 : 200

SUMMARY OF QUANTITY

TYPE OF WORK		UNIT	TOTAL
URGENT RESTORATION			
U1-4	REFILLING / EMBANKMENT	CU.M.	360
U6-2	H-PILE BENT	L.M.	108
U6-3	BAILEY BRIDGE	L.M.	60
U7-1	GRAVEL SURFACING	SG.M.	240

PROVINCE: **LEYTE**
SPOT No. : **L-13(1/2)**

NAME OF ROAD : **MATAG-OB - PALOMPON ROAD**
ROAD CLASSIFICATION: **NATIONAL SECONDARY ROAD**

TYPE OF DISASTER : **CULVERT DAMAGE**

DRAWING NO.
129

Leyte Spot No. 13 (L-13)

1) General Situation

- Disaster Classification: CLV-D
- Road Name: Matag-ob - Palompon Road
- Location : 8+800 from Matag-ob Proper
- Road Class/Office Concerned: National Secondary Road/Leyte 2nd Engineering District

- Municipalities connected: Matag-ob and Palompon

- Road Width: 9.0m
- Pavement Type: Gravel
- Surface Condition: Fair
- Availability of Detour: None

2) Damage Identified

- Type of Disaster: Culvert damaged
- Magnitude of Damage: Inlet and outlet facilities of 0.610m RCP
- Date Noticed: 1988
- Degree/Period of Traffic Interruption: Low
- Description of Disaster:

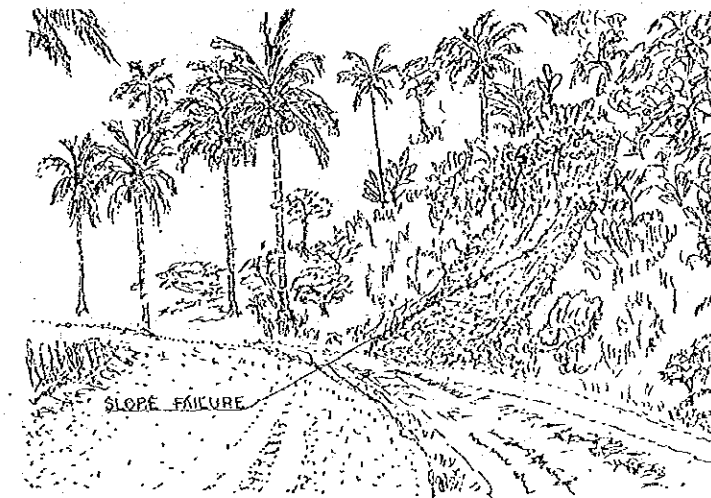
This culvert damaged is located on a sharp curve at a radius of about 57.0m. Inlet portion was partially clogged.

During heavy rain, water that comes from high elevation cannot be accommodated to the existing drainage pipe of 0.610m ϕ . Also, absence of side ditches and damaged inlet facilities caused water to flow on the roadway and runs directly on embankment slope that causes heavy scouring. No outlet facility is provided.

Vertical alignment is almost flat.

3) Causes of Damage

- Insufficient capacity of culvert, thus causing water to overflow on road surface and damaging embankment slope.
- No outlet drainage facilities, thus water runs directly on a slope, causing deep scouring.

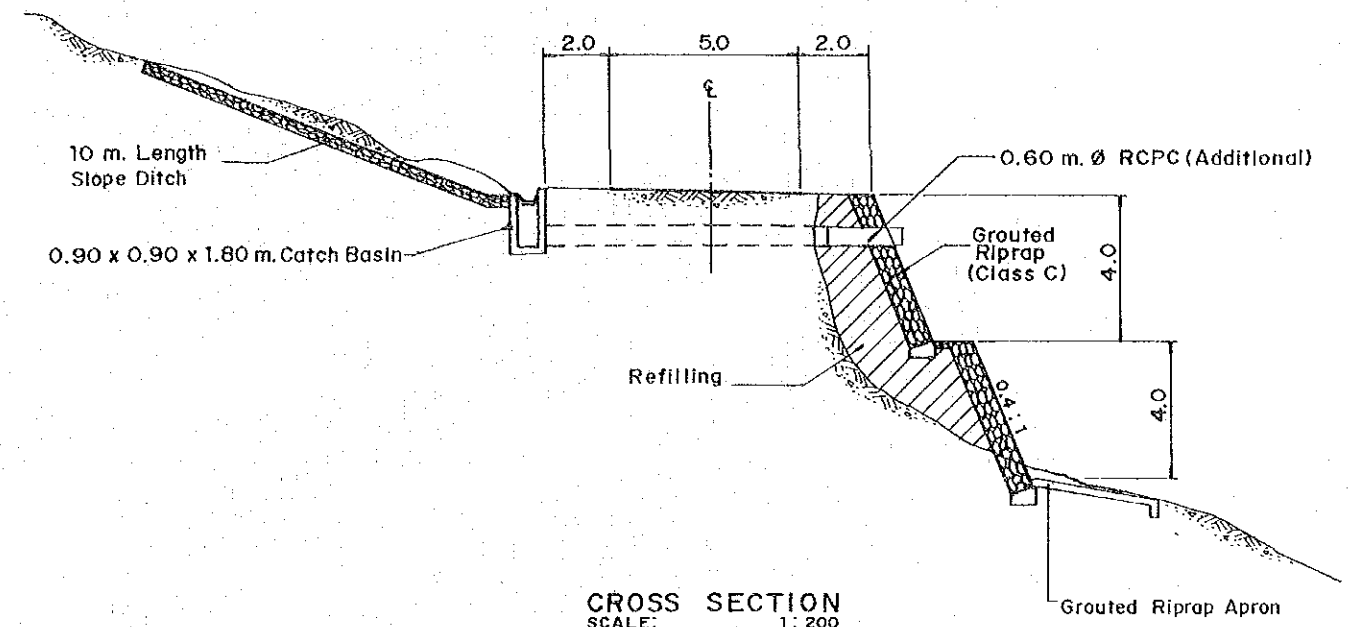
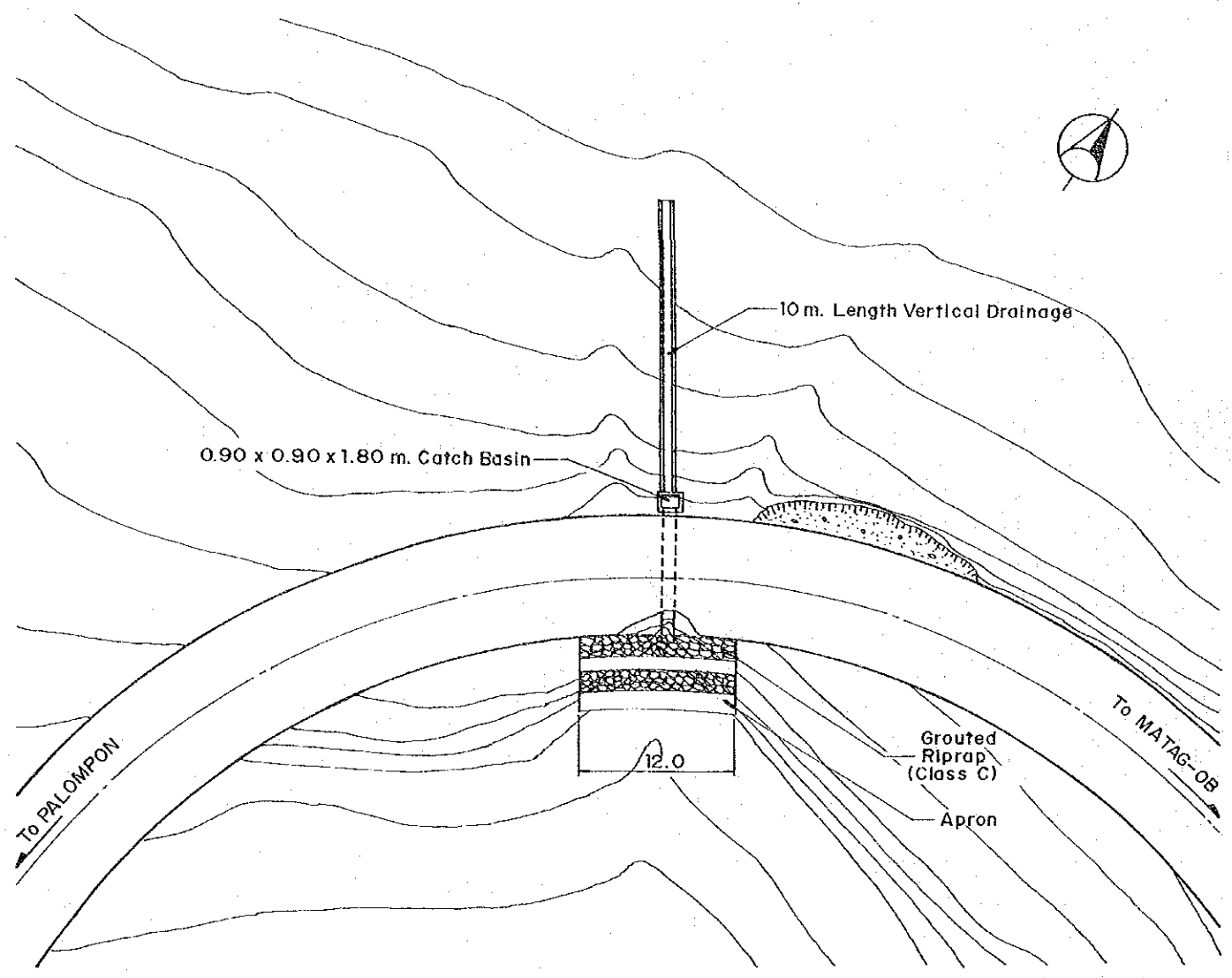


PROVINCE : LEYTE
 SPOT No. : L-13(2/2)

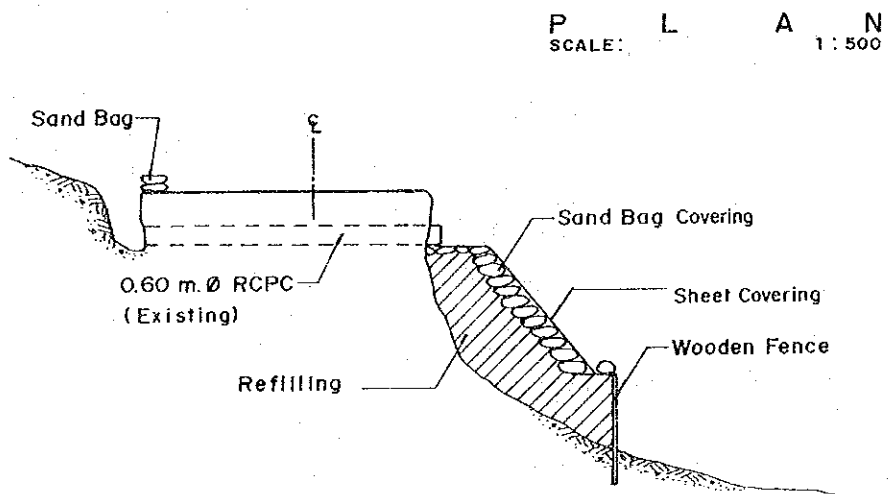
NAME OF ROAD : MATAG-OB - PALOMPON ROAD
 ROAD CLASSIFICATION : NATIONAL SECONDARY ROAD

TYPE OF DISASTER : CULVERT DAMAGE

DRAWING NO.
 130



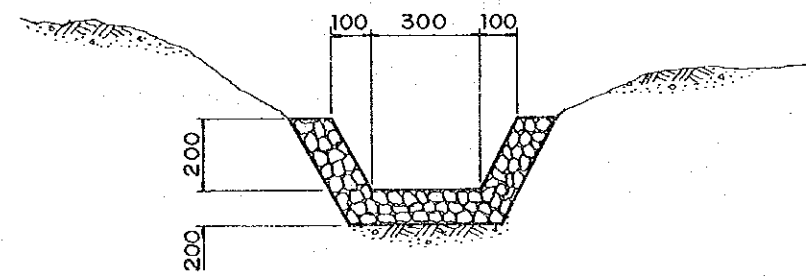
CROSS SECTION
 SCALE: 1:200



CROSS SECTION FOR URGENT RESTORATION
 SCALE: 1:500

SUMMARY OF QUANTITY

TYPE OF WORK		UNIT	TOTAL
PERMANENT RESTORATION			
P2-1	SLOPE DITCH	L.M	10
P2-4	R.C.P.C 0.6 m. Ø	L.M	1.2
P2-5	CATCH BASIN	E.A.	1
P6-2	GROUTED RIPRAP	CU.M	63
P16-3	GROUTED RIPRAP APRON	CU.M	5
URGENT RESTORATION			
U1-4	REFILLING / EMBANKMENT	CU.M	120
U3-1	SHEET COVERING	SQ.M	72
U3-2	SAND BAG COVERING	SQ.M	72
U4-3	WOODEN FENCE	L.M	12



CROSS SECTION OF VERTICAL DRAINAGE
 SCALE: 1:20

PROVINCE : LEYTE
SPOT No. : L-16(1/2)

NAME OF ROAD : LAKE DANAOC CIRCUMFERENTIAL ROAD
ROAD CLASSIFICATION : NATIONAL SECONDARY ROAD

TYPE OF DISASTER : CUT SLOPE FAILURE

DRAWING NO.
131

Leyte Spot No. 16 (L-16)

1) General Situation

- Disaster Classification: C-F
- Road Name: Lake Danao Circumferential Road
- Location : 4+300 from Jct. Kabingtán
- Road Class/Office Concerned: National Secondary Road/Ormoc City Engineering Office

- Municipalities/Barangays connected:

- Road Width: 7.0m
- Pavement Type: Gravel
- Surface Condition: Fair
- Availability of Detour: None

2) Damage Identified

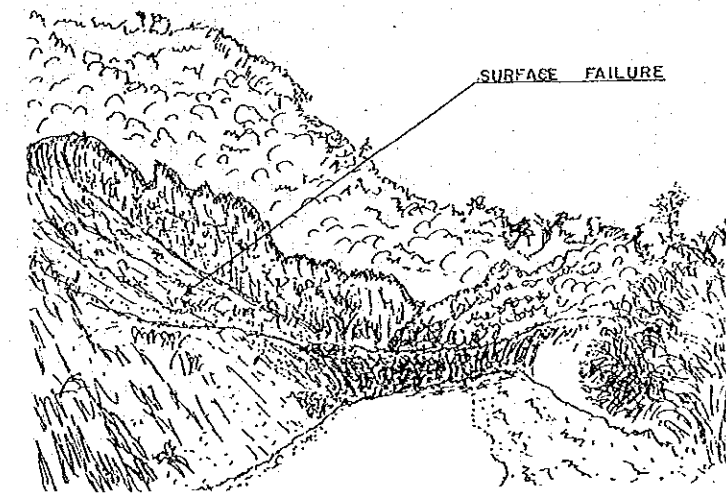
- Type of Disaster: Cut slope failure
- Magnitude of Damage: 60 meters in length; 24.0m in height
- Date Noticed: Nov. 12, 1990 (typhoon "Ruping")
- Degree/Period of Traffic Interruption: Low
- Description of Disaster:

Damaged section is about 60.0m in length and 24.0m in height. Mountain slope is about 34° angle from the roadway.

Right after the typhoon, debris materials were on the roadway that block the flow of traffic. At present, debris materials were just on the roadside with no effect to passing vehicles.

3) Causes of Damage

- Unstable slope gradient.
- Weathered rocks slide due to rainfall.

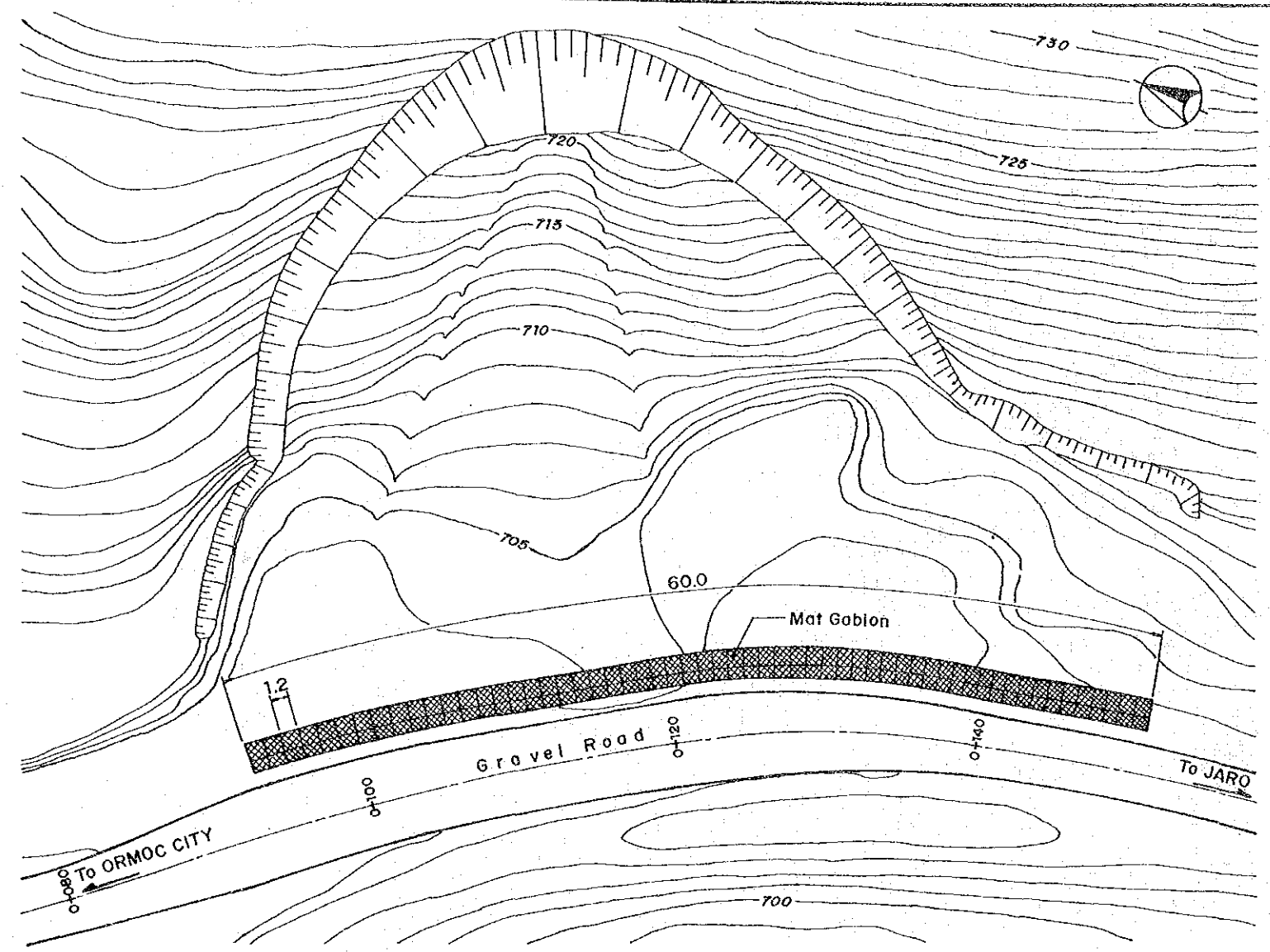


PROVINCE : LEYTE
 SPOT No. : L-16(2/2)

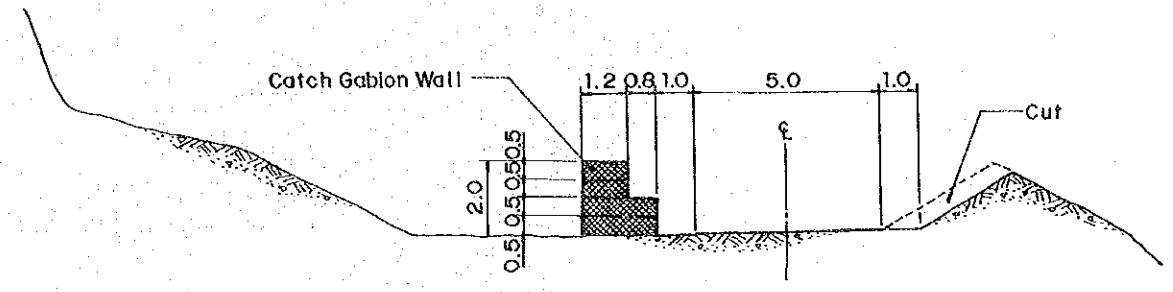
NAME OF ROAD : LAKE DANA O CIRCUMFERENTIAL ROAD
 ROAD CLASSIFICATION : NATIONAL SECONDARY ROAD

TYPE OF DISASTER : CUT SLOPE FAILURE

DRAWING NO.
 132



P L A N
 SCALE: 1:400



CROSS SECTION
 SCALE: 1:200

SUMMARY OF QUANTITY

TYPE OF WORK		UNIT	TOTAL
PERMANENT RESTORATION			
P8-2	CATCH GABION WALL	CU. M.	192
URGENT RESTORATION			
UI-1	REMOVAL OF DEPOSIT MATERIALS	CU. M.	90

URGENT RESTORATION :

- Removal of deposit materials

PROVINCE : **LEYTE**
SPOT No. : **L-19(1/2)**

NAME OF ROAD : **JCT. MILAGROS-TONGONAN-KANANGA RD.**
ROAD CLASSIFICATION : **NATIONAL SECONDARY ROAD**

TYPE OF DISASTER : **SPILLWAY DAMAGE**

DRAWING NO.
133

Leyte Spot No. 19 (L-19)

1) General Situation

- Disaster Classification: SPW-D
- Road Name: Jct. Milagros - Tungonan - Kananga Road
- Location : 6+900 from Jct. Milagros
- Road Class/Office Concerned: National Secondary Road/Leyte 2nd Engineering District

- Municipalities/Barangays connected:

Bgy. Milagros and Tungonan of Ormoc City and Bgy. Lim-ao to Kananga Proper.

- Road Width: 7.0m
- Pavement Type: Gravel
- Surface Condition: Bad
- Availability of Detour: None

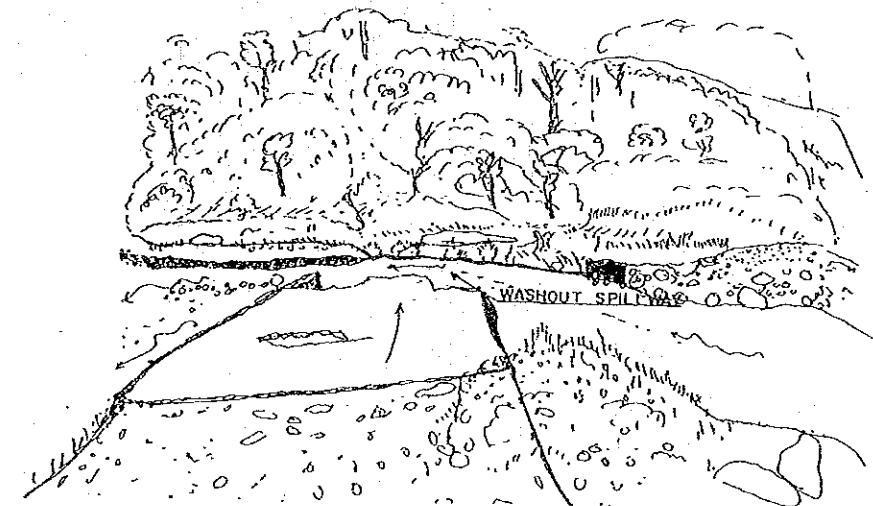
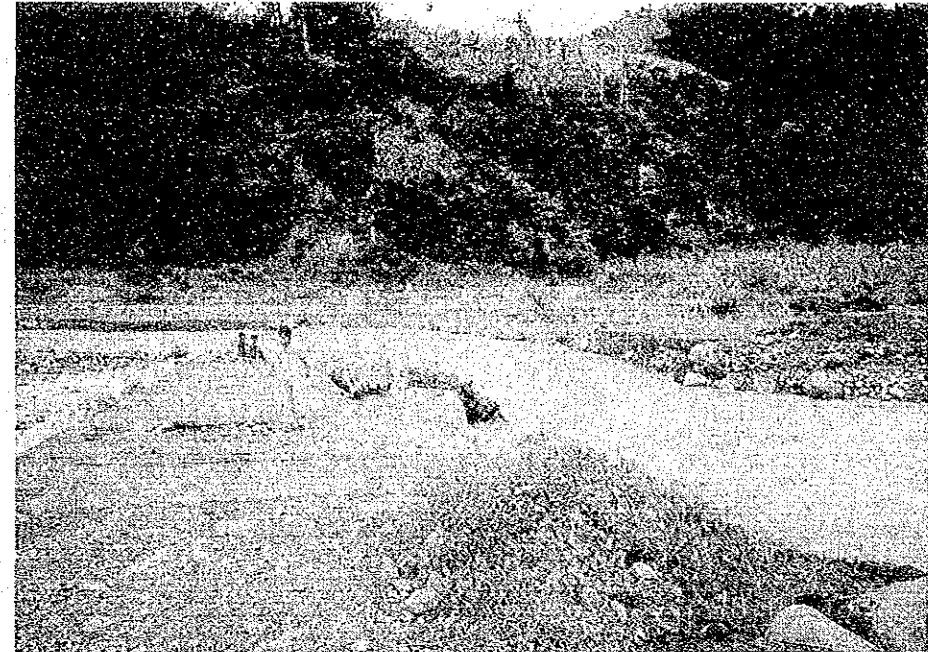
2) Damage Identified

- Type of Disaster: Spillway Damaged
- Magnitude of Damage: 56.0m in length
- Date Noticed: 1988
- Degree/Period of Traffic Interruption: High
- Description of Disaster:

The spillway 56.0m in length and 6.5m width was damaged last 1988. Approach of the spillway is about 12.0m in length was washed out.

3) Causes of Damage

- Debris and logs flowed from upstream by flood water usually damaged the structure.

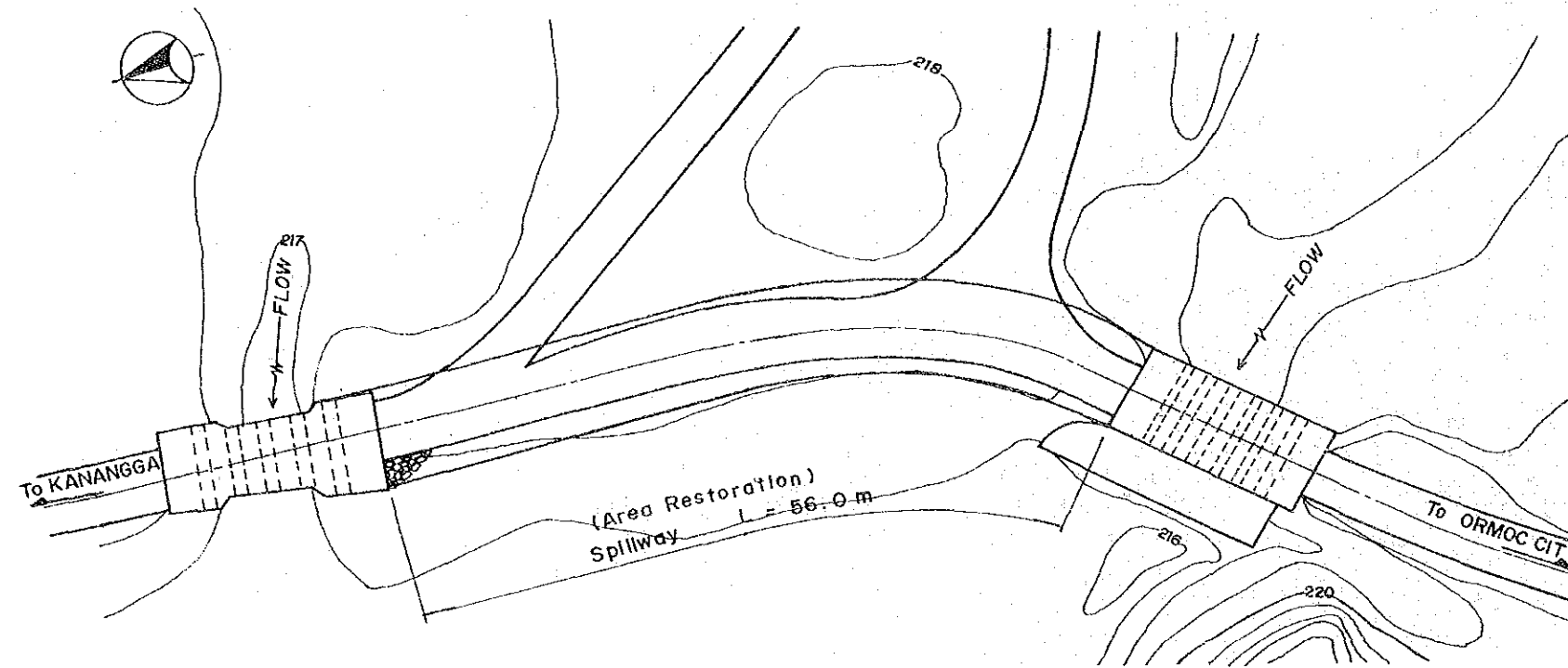


PROVINCE : LEYTE
 SPOT No. : L-19 (2/2)

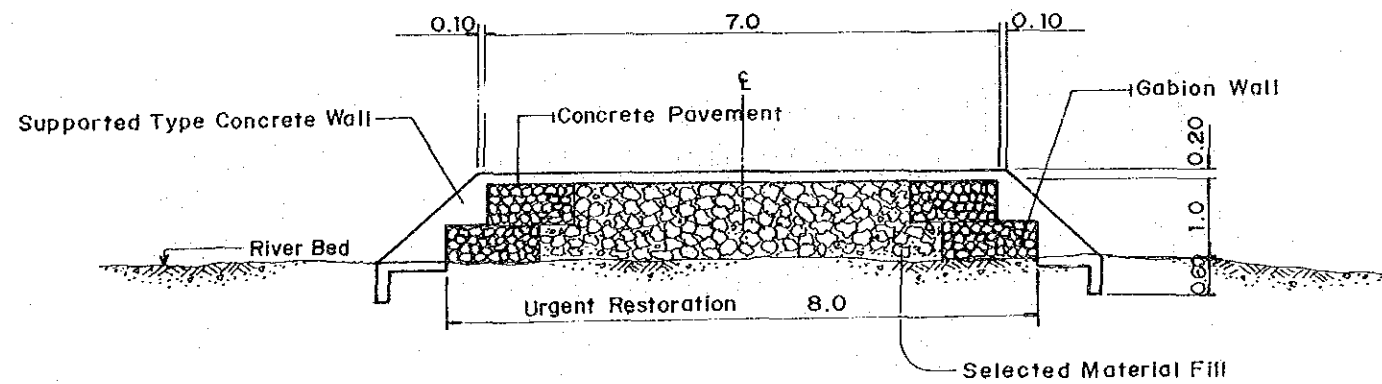
NAME OF ROAD : Jct. MILAGROS-TONGONAN-KANANGA ROAD
 ROAD CLASSIFICATION : NATIONAL SECONDARY ROAD

TYPE OF DISASTER : SPILLWAY DAMAGE

DRAWING NO.
 134



P L A N
 SCALE: 1:500



CROSS SECTION
 SCALE: 1:100

SUMMARY OF QUANTITY

TYPE OF WORK	UNIT	TOTAL
PERMANENT RESTORATION		
P6-6 SUPPORTED TYPE CONCRETE WALL	CU. M.	100
P10-3 CONCRETE PAVEMENT	CU. M.	80
URGENT RESTORATION		
U1-6 SELECTED MATERIAL FILL	CU. M.	286
U4-2 GABION WALL	CU. M.	134

NOTE:
 Urgent restoration - Gabion B inside boulders (Selected materials)
 about 20-30 cm. Ø
 Permanent restoration - Cover Concrete

PROVINCE : LEYTE
SPOT No. : L-21(1/2)

NAME OF ROAD : GIMORCA - CALUBIAN ROAD
ROAD CLASSIFICATION : NATIONAL SECONDARY ROAD

TYPE OF DISASTER : ROCK FALL/DEBRIS FALL

DRAWING NO.
135

Leyte Spot No. 21 (L-21)

1) General Situation

- Disaster Classification: Fall
- Road Name: Gimorca - Calubian Road
- Location : 10+300 km. from Leyte 2nd-Biliran Bdry.
- Road Class/Office Concerned: National Secondary Road/Leyte 2nd Engineering District

- Municipalities/Barangays connected: Bgy. Guimorca, Bgy. Toktok, Bgy. Burabod & Calubian Proper

- Road Width: 8.0m
- Pavement Type: Gravel
- Surface Condition: Bad
- Availability of Detour: None

2) Damage Identified

- Type of Disaster: Falling rocks
- Magnitude of Damage: 35m in length; 15.0 m in height
- Date Noticed: Nov. 12, 1990
- Degree/Period of Traffic Interruption: Low
- Description of Disaster:

The spot was located at a very steep slope almost at 90° angle and at about 15.0m high and 35.0m in length. The rock fall is expected due to its overhang situation.

The spot is located at a sharp curve with a radius of 38.0 m.

3) Causes of Damage

- Rocks with highly weathered and developed cracks/joints.

