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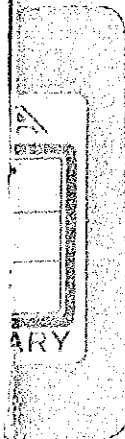
Feasibility Study
on
The Rural Road Network Development Project

FINAL REPORT (Volume 15)

DRAWINGS FOR ROAD PROJECTS
IN
THE PROVINCE OF LA UNION

OCTOBER, 1990

JAPAN INTERNATIONAL COOPERATION AGENCY



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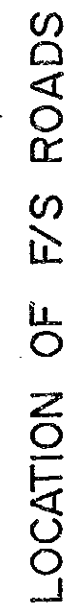


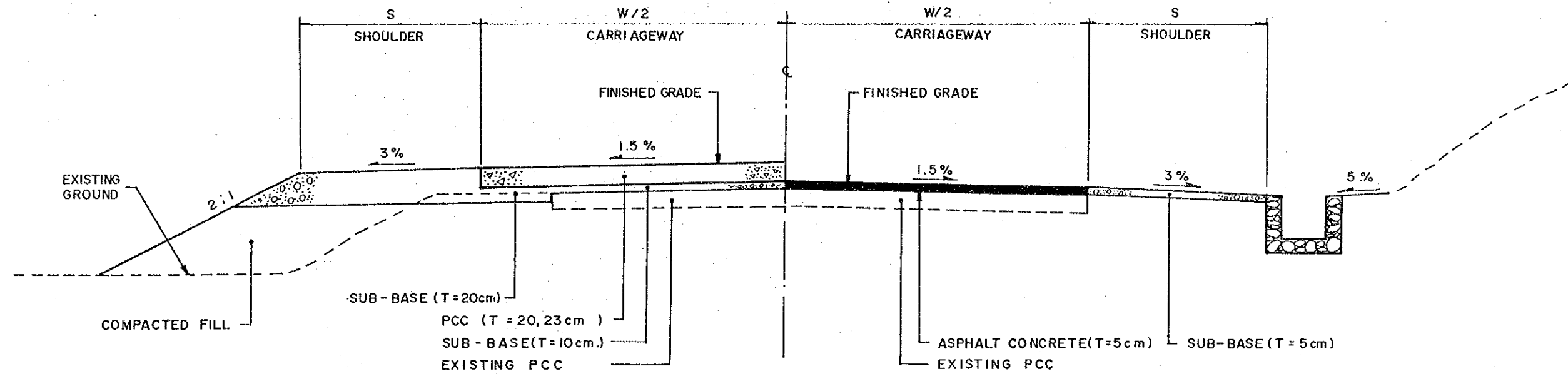
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2 to 9	TYPICAL ROAD SECTIONS
10 to 38	PRESENT CONDITION AND PROPOSED IMPROVEMENT

LIST OF ROADS

Road Class	Road No.	Drawing No.	Road Class	Road No.	Drawing No.	Road Class	Road No.	Drawing No.
Secondary Major Road	N 6	10	Minor Road	P 45	22	Minor Road	B 10 - 16	33
	N 7 - 1	11		P 56	23		B 11 - 23	33
	N 11	12		P 64	24		B 11 - 38	34
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	P 16	19		B 4 - 10	30			
	P 23	20		B 5 - 30	31			
	P 39	20		B 7 - 51	31			
	P 41	21		B 9 - 2	32			
	P 43	21		B 9 - 4	32			





TYPE 1-1

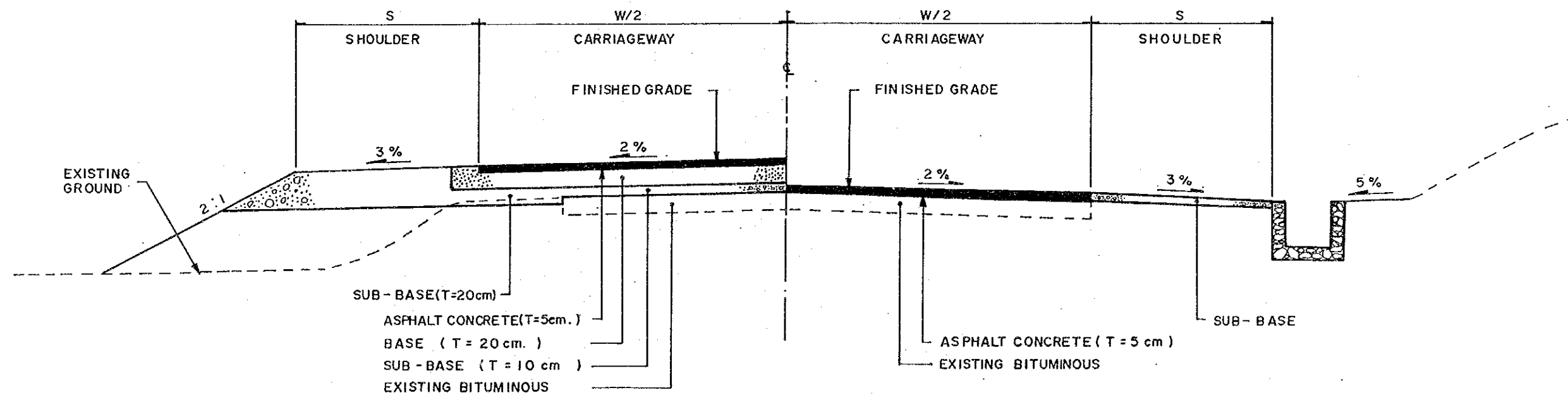
PROPOSED PAVEMENT : PCC

EXISTING PAVEMENT : PCC (BAD / VERY BAD)

TYPE 1-2

PROPOSED PAVEMENT : ASPHALT CONCRETE OVERLAY

EXISTING PAVEMENT : PCC (BAD / VERY BAD)



TYPE 1-3

PROPOSED PAVEMENT : ASPHALT CONCRETE

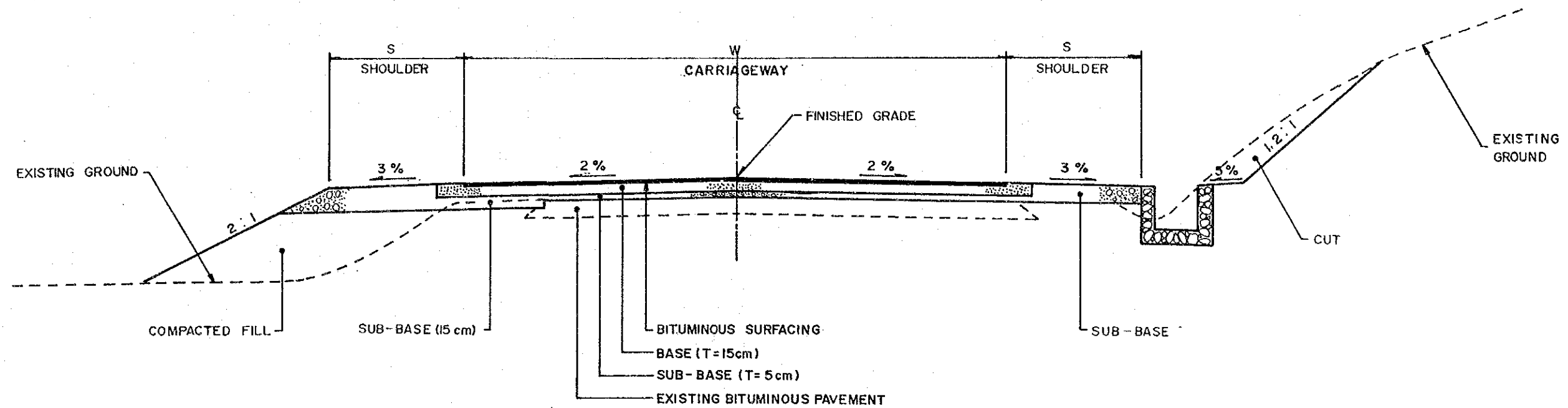
EXISTING PAVEMENT : BITUMINOUS (BAD / VERY BAD)

TYPE 1-4

PROPOSED PAVEMENT : ASPHALT CONCRETE OVERLAY

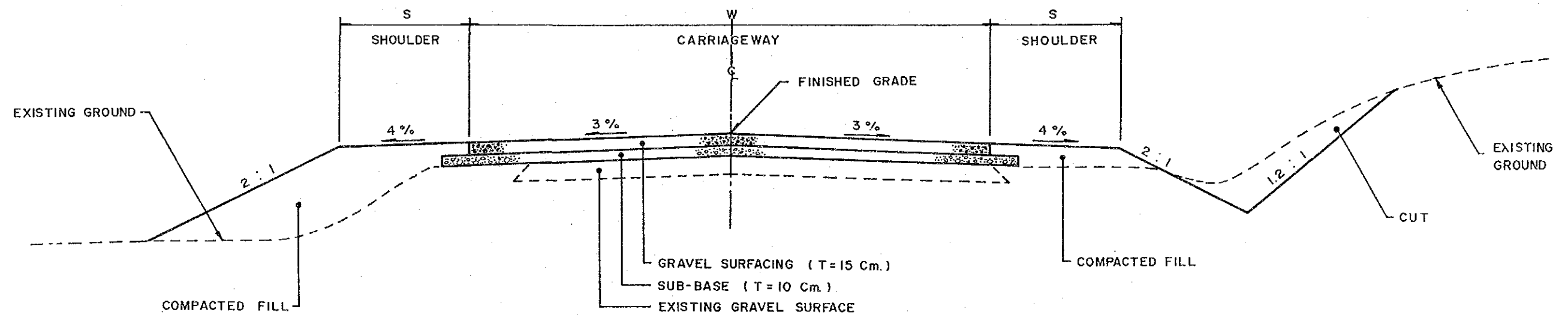
EXISTING PAVEMENT : BITUMINOUS (BAD / VERY BAD)

REHABILITATION (1)



TYPE I-5

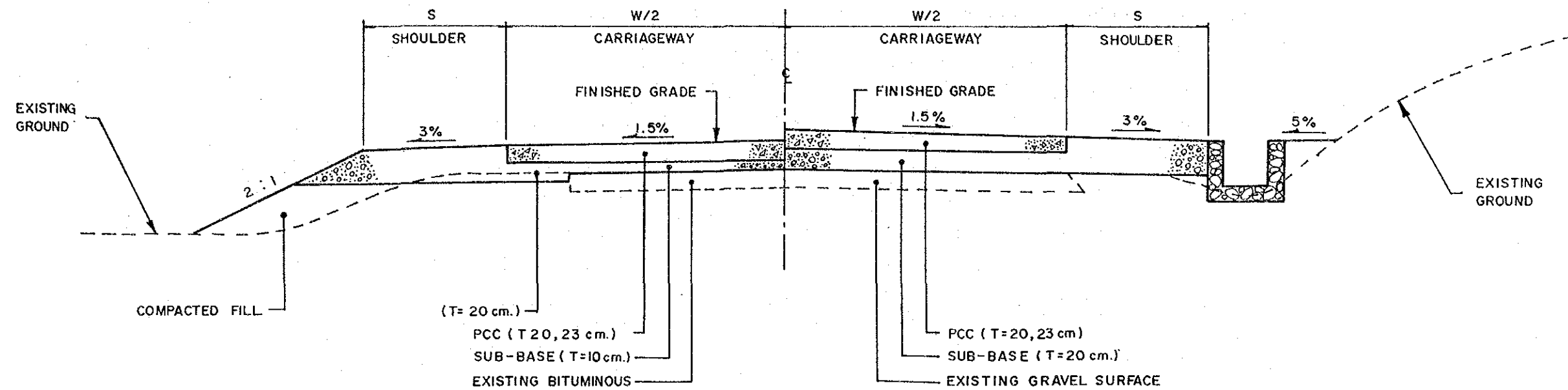
PROPOSED PAVEMENT : BITUMINOUS MACADAM/DOUBLE BITUMINOUS SURFACE TREATMENT
EXISTING PAVEMENT : BITUMINOUS (BAD / VERY BAD)



TYPE I-6

PROPOSED PAVEMENT : GRAVEL SURFACING
EXISTING PAVEMENT : GRAVEL SURFACING (BAD / VERY BAD)

REHABILITATION (2)



TYPE 2-1

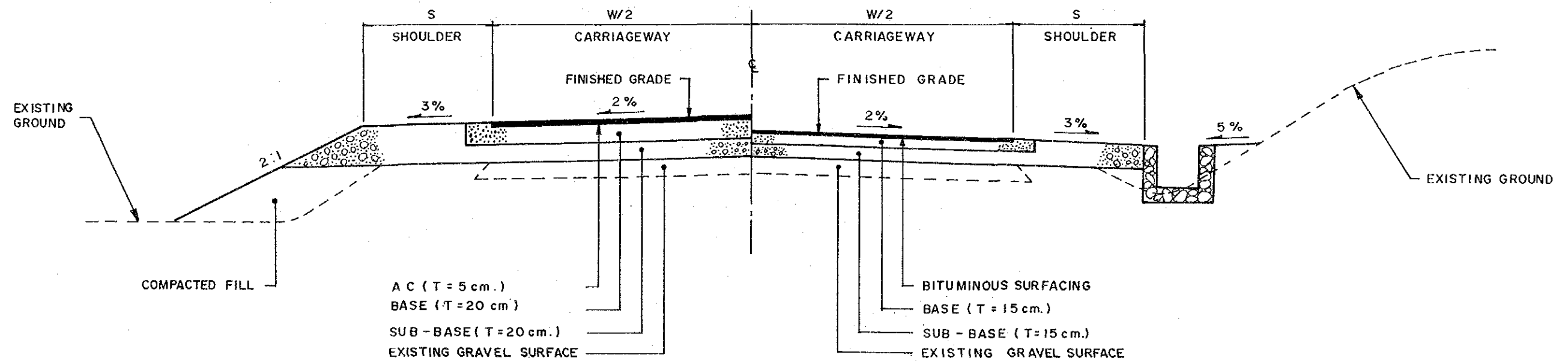
PROPOSED PAVEMENT : PCC

EXISTING PAVEMENT : BITUMINOUS (BAD/VERY BAD)

TYPE 2-2

PROPOSED PAVEMENT : PCC

EXISTING PAVEMENT : GRAVEL SURFACING (BAD/VERY BAD)



TYPE 2-3

PROPOSED PAVEMENT : ASPHALT CONCRETE

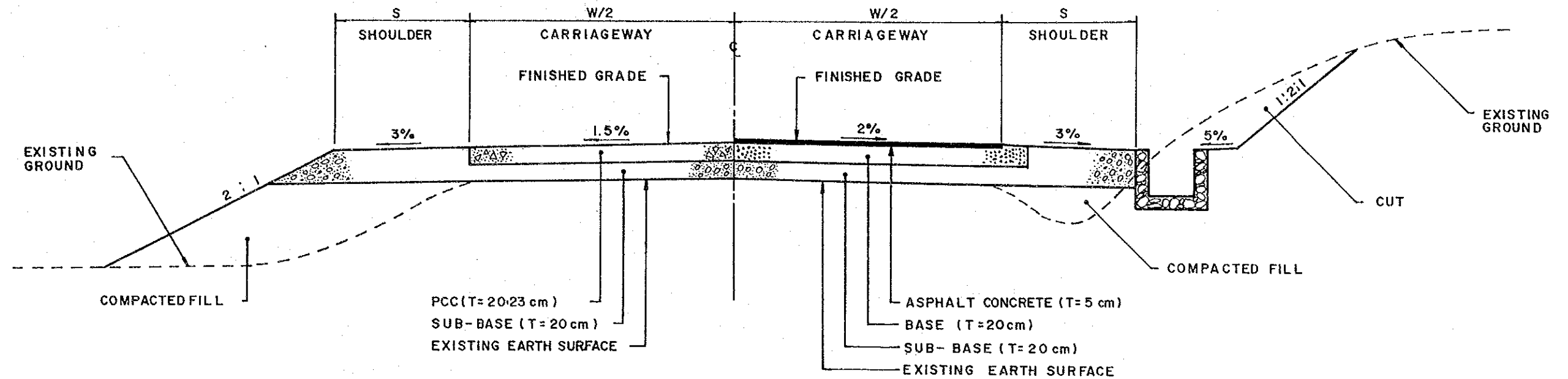
EXISTING PAVEMENT : GRAVEL SURFACING
(BAD/VERY BAD)

TYPE 2-4

PROPOSED PAVEMENT : BITUMINOUS MACADAM / DOUBLE BITUMINOUS
SURFACE TREATMENT

EXISTING PAVEMENT : GRAVEL SURFACING (BAD/VERY BAD)

IMPROVEMENT-1 (I)

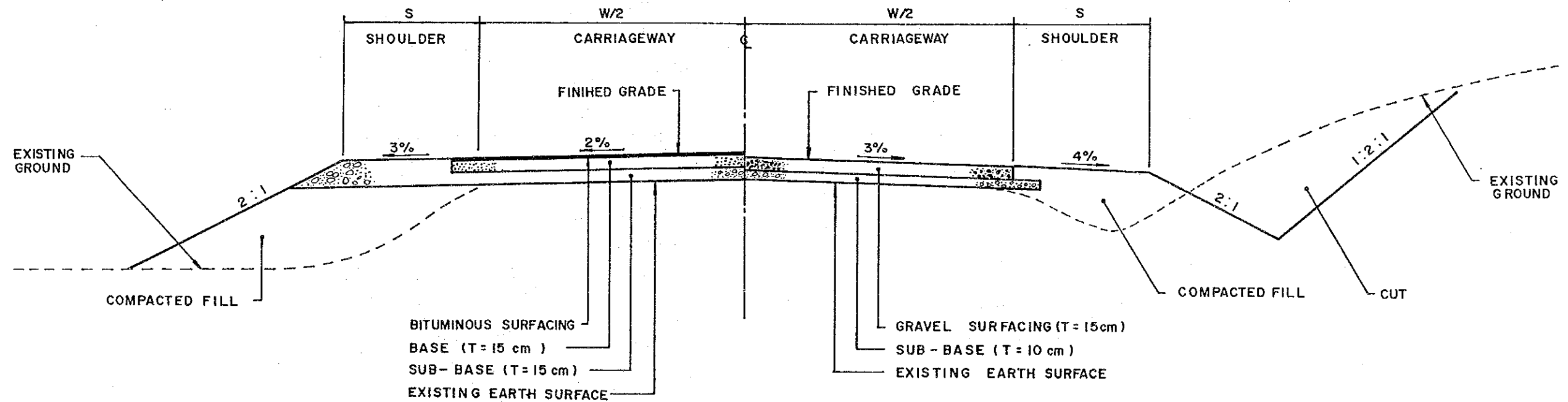


TYPE 2-5

PROPOSED PAVEMENT : PCC
EXISTING PAVEMENT : EARTH SURFACE

TYPE 2-6

PROPOSED PAVEMENT : ASPHALT CONCRETE
EXISTING PAVEMENT : EARTH SURFACE

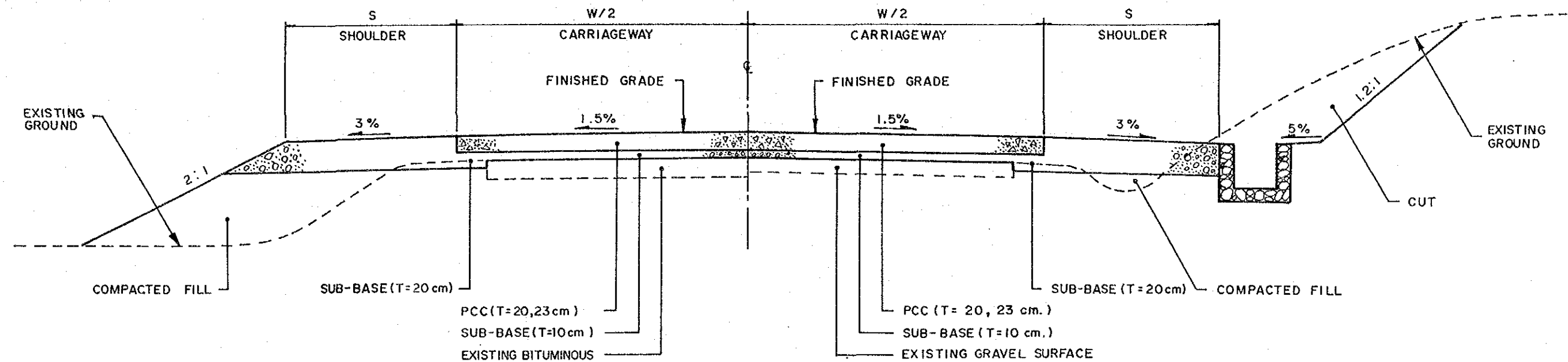


TYPE 2-7

PROPOSED PAVEMENT : BITUMINOUS MACADAM/
DOUBLE BITUMINOUS
SURFACE TREATMENT
EXISTING PAVEMENT : EARTH SURFACE

TYPE 2-8

PROPOSED PAVEMENT : GRAVEL SURFACING
EXISTING PAVEMENT : EARTH SURFACING

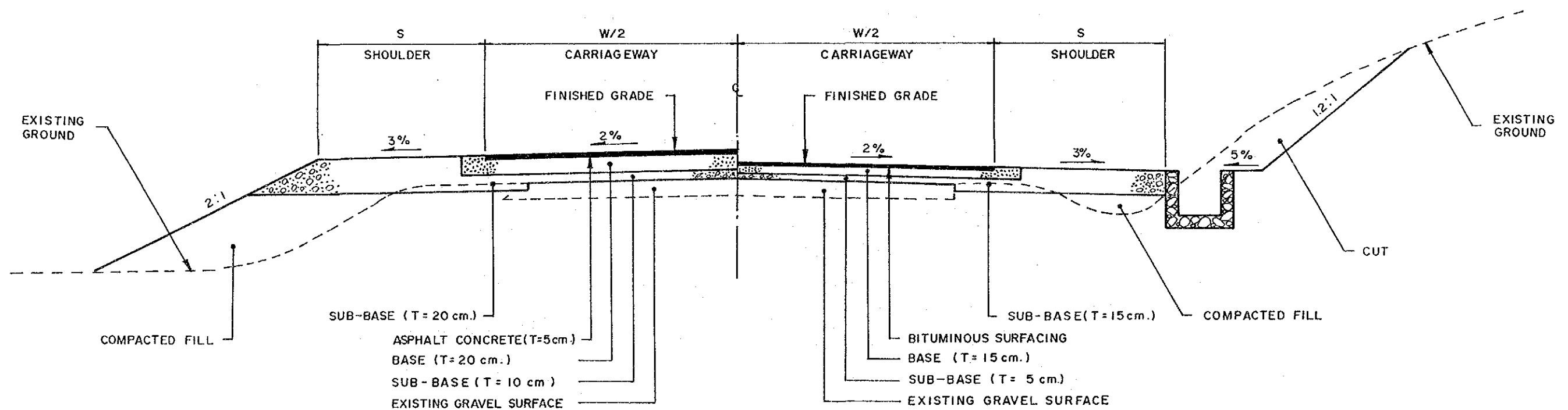


TYPE 3-1

PROPOSED PAVEMENT : PCC
EXISTING PAVEMENT : BITUMINOUS (Good/Fair)

TYPE 3-2

PROPOSED PAVEMENT : PCC
EXISTING PAVEMENT : GRAVEL SURFACING (Good/Fair)



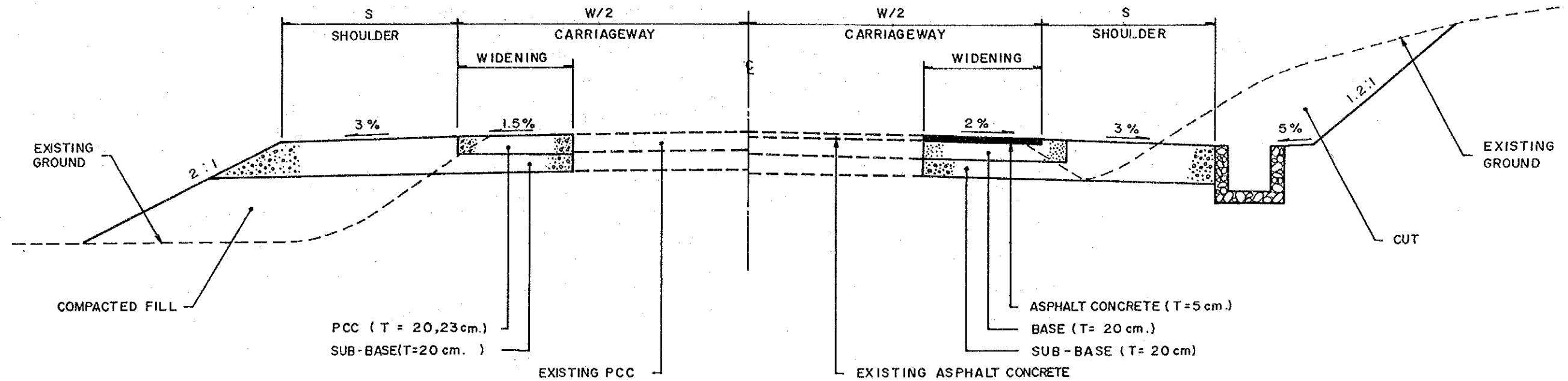
TYPE 3-3

PROPOSED PAVEMENT : ASPHALT CONCRETE
EXISTING PAVEMENT : GRAVEL SURFACING (Good/Fair)

TYPE 3-4

PROPOSED PAVEMENT : BITUMINOUS MACADAM/DOUBLE BITUMINOUS SURFACE TREATMENT
EXISTING PAVEMENT : GRAVEL SURFACING (Good/Fair)

IMPROVEMENT-2

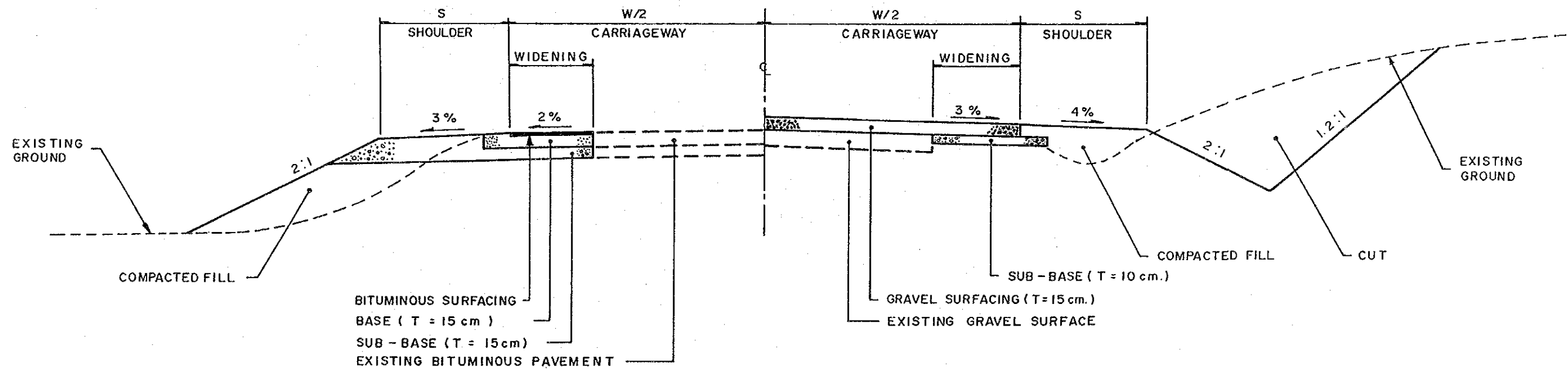


TYPE 4-1

PROPOSED PAVEMENT : PCC
EXISTING PAVEMENT : PCC

TYPE 4-2

PROPOSED PAVEMENT : ASPHALT CONCRETE
EXISTING PAVEMENT : ASPHALT CONCRETE



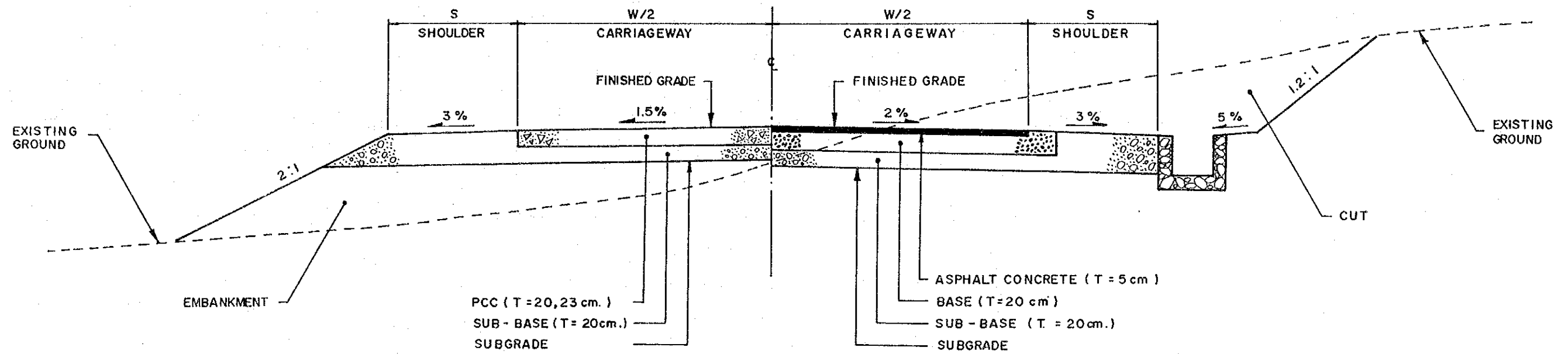
TYPE 4-3

PROPOSED PAVEMENT : BITUMINOUS MACADAM/
DOUBLE BITUMINOUS
SURFACE TREATMENT
EXISTING PAVEMENT : BITUMINOUS

TYPE 4-4

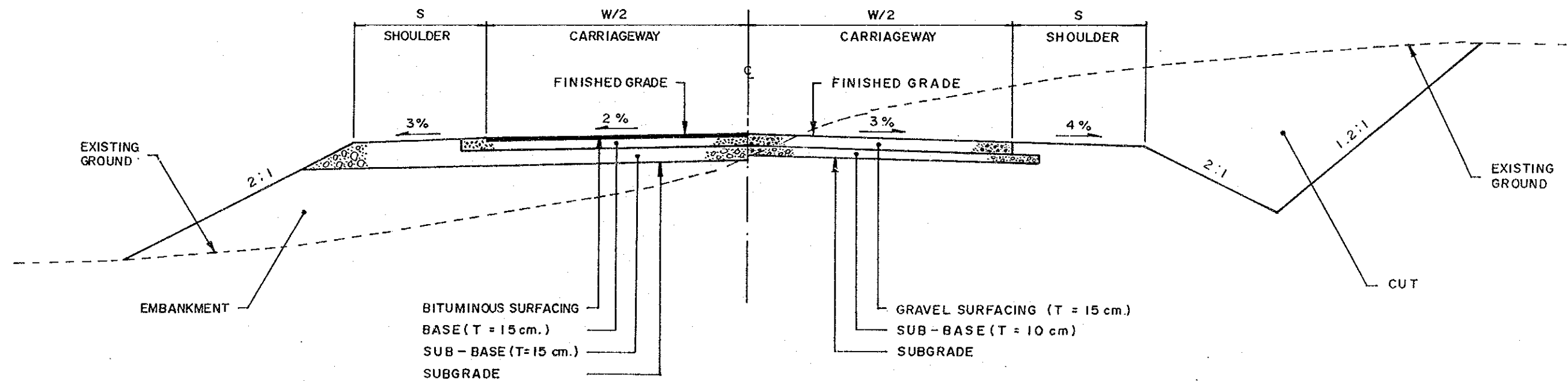
PROPOSED PAVEMENT : GRAVEL SURFACING
EXISTING PAVEMENT : GRAVEL SURFACING

WIDENING



TYPE 5-1
PROPOSED PAVEMENT : PCC

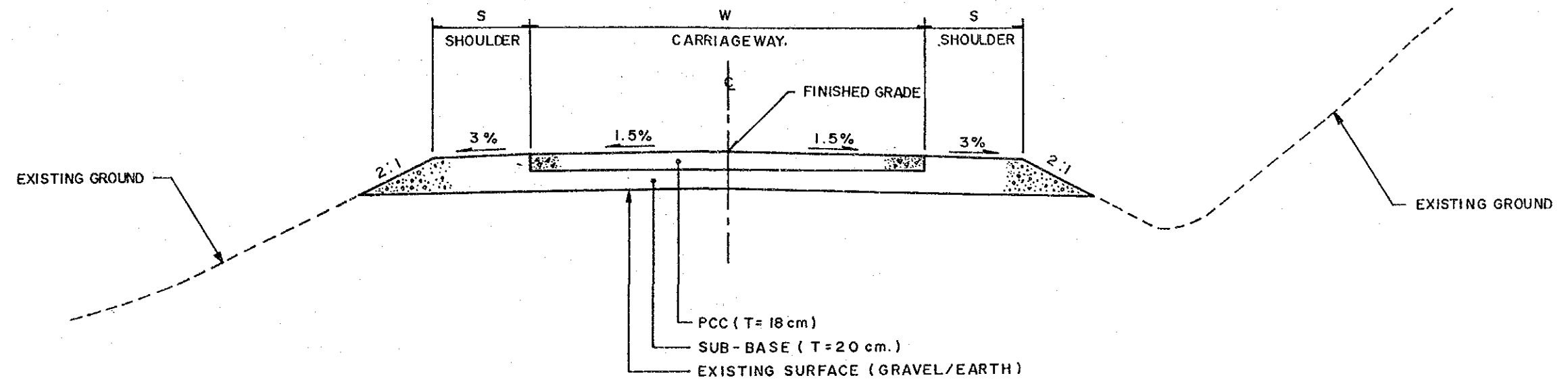
TYPE 5-2
PROPOSED PAVEMENT : ASPHALT CONCRETE



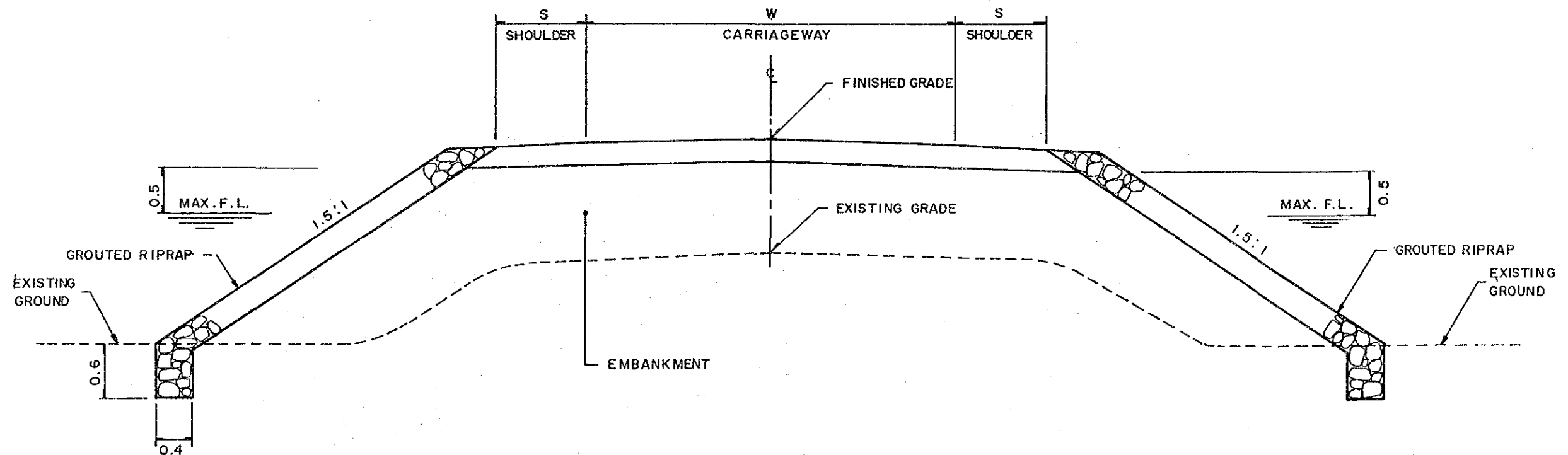
TYPE 5-3
PROPOSED PAVEMENT : BITUMINOUS MACADAM/
DOUBLE BITUMINOUS
SURFACE TREATMENT

TYPE 5-4
PROPOSED PAVEMENT : GRAVEL SURFACING

NEW CONSTRUCTION



TYPE 6
PCC PAVEMENT FOR STEEP GRADIENT SECTIONS



TYPE 7
GRADE RAISING SECTIONS IN FLOOD AREA

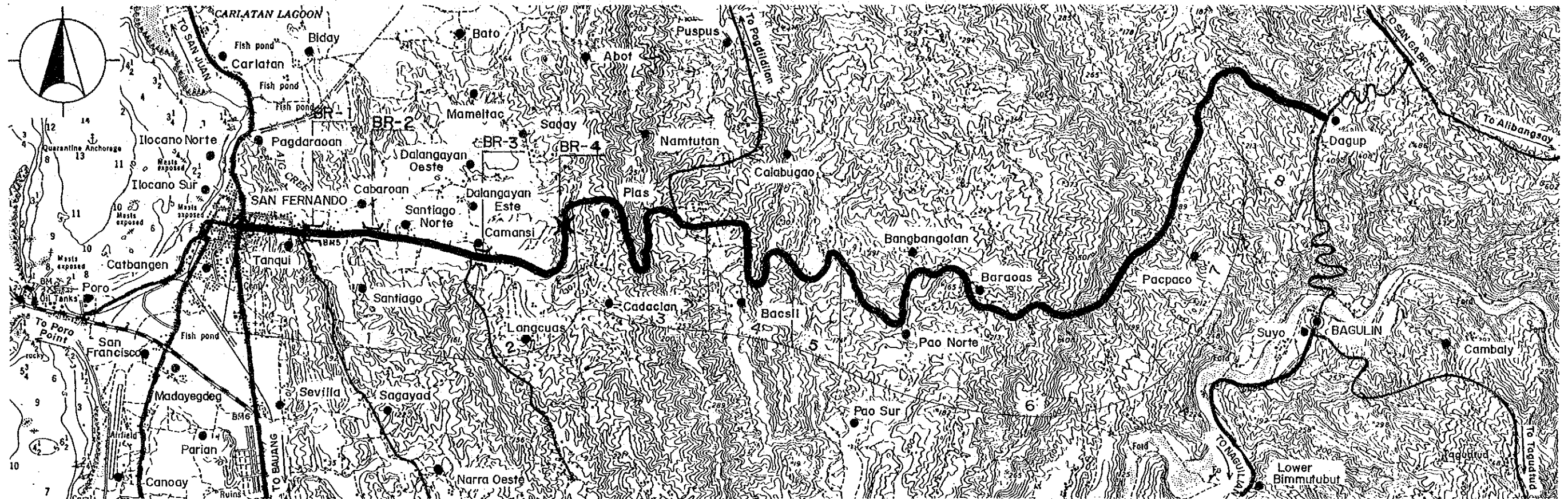
**THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT
IN THE REPUBLIC OF THE PHILIPPINES**

PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
1:50,000

Drawing No.
10

Road No: N6 Road Name: SAN FERNANDO - BAGULIN ROAD
Location : SAN FERNANDO & BAGULIN, LA UNION



Road Classification	Secondary Major (National Road)							
Total Length	21.5 km							
Sub-section No.	1	2	3	4	5	6	7	8
Length (km)	3.6	1.8	3.4	1.4	1.7	4.9	3.0	1.7
Terrain	Flat	Rolling	Mt'nous	Rolling	Mt'nous	Rolling	Mt'nous	Rolling
Existing Road Surface	6.1-BTM (Fair)	6.0-GRV (Fair)	4.0-GRV (V.Bad)	3.6-GRV (V.Bad)	4.0-GRV (Impass)	4.0-GRV (Impass)	3.2-GRV (Impass)	3.2-EAR (Impass)
Proposed Improvement	Rehabil. Rehabil. Rehabil. Rehabil. Rehabil. Rehabil. Rehabil. Impr.-1							
Improvement Type	Gravel Gravel Gravel Gravel Gravel Gravel Gravel Gravel							
Surface Type	Gravel Gravel Gravel Gravel Gravel Gravel Gravel Gravel							
Carriageway Width(m)	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Shoulder Width (m)	.5	.5	.5	.5	.5	.5	.5	.5
Ref. Typical Section	TYPE 1-6 TYPE 1-6 TYPE 1-6 TYPE 1-6 TYPE 1-6 TYPE 1-6 TYPE 1-6 TYPE 2-8							
Special Treatment								
Flood Section Length	-	500	-	-	-	-	-	-
Height	-	.2	-	-	-	-	-	-
Steep Section Length	-	-	500	-	-	-	-	-
Bridge No.	BR-1	BR-2	BR-3	BR-4				
Existing Type	Concrete	RCBC	Concrete	Concrete				
Length (m)	15	4	18	21				
Proposed Type	-	-	-	-				
Length (m)	-	-	-	-				
No. of Spans	-	-	-	-				

THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT IN THE REPUBLIC OF THE PHILIPPINES

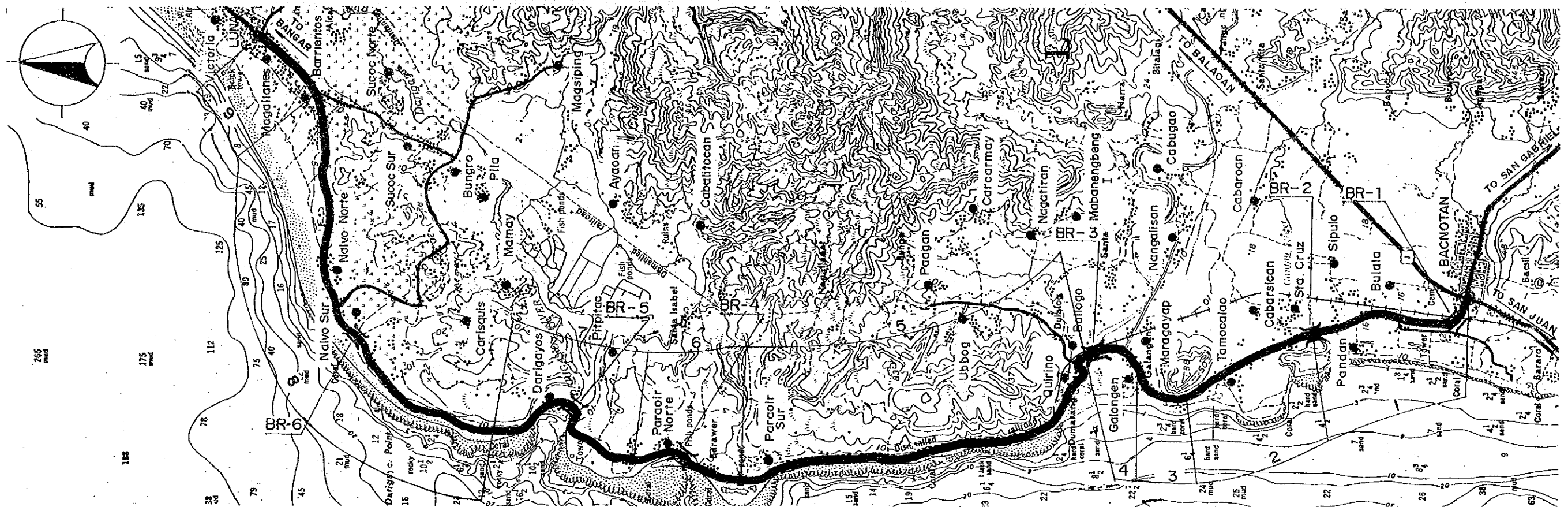
PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
1:50,000

Drawing No.
11

Road No: N7-1

Road Name: BACNOTAN - LUNA - BALAOAN ROAD
Location: BACNOTAN & LUNA, LA UNION



Road Classification	Secondary Major (National Road)								
Total Length	20.7 km								
Sub-section No.	1	2	3	4	5	6	7	8	9
Length (km)	2.2	2.3	.7	.6	5.0	1.4	2.5	5.0	1.0
Terrain	Flat	Flat	Flat	Flat	Flat	Flat	Rolling	Rolling	Flat
Existing Road Surface	6.1-BTM (Good)	4.5-BTM (V.Bad)	4.5-BTM (Fair)	6.0-GRV (Fair)	6.1-PCC (Good)	6.0-GRV (Fair)	6.8-PCC (Good)	6.0-GRV (Fair)	6.1-PCC (Good)
Proposed Improvement	-	Rehabil.	Rehabil.	Impr.-2	-	Impr.-2	-	Impr.-2	-
Improvement Type	-	-	-	-	-	-	-	-	-
Surface Type	-	AC	AC	AC	-	AC	-	AC	-
Carriageway Width(m)	-	6.0	6.0	6.0	-	6.0	-	6.0	-
Shoulder Width (m)	-	2.0	2.0	2.0	-	2.0	-	1.5	-
Ref. Typical Section	-	TYPE 1-3	TYPE 1-3	TYPE 3-3	-	TYPE 3-3	-	TYPE 3-3	-
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6			
Existing Type	RCBC	Concrete	Concrete	Concrete	Concrete	RCBC			
Length (m)	6	26	102	28	75	18			
Proposed Type	-	-	-	-	-	-			
Length (m)	-	-	-	-	-	-			
No. of Spans	-	-	-	-	-	-			

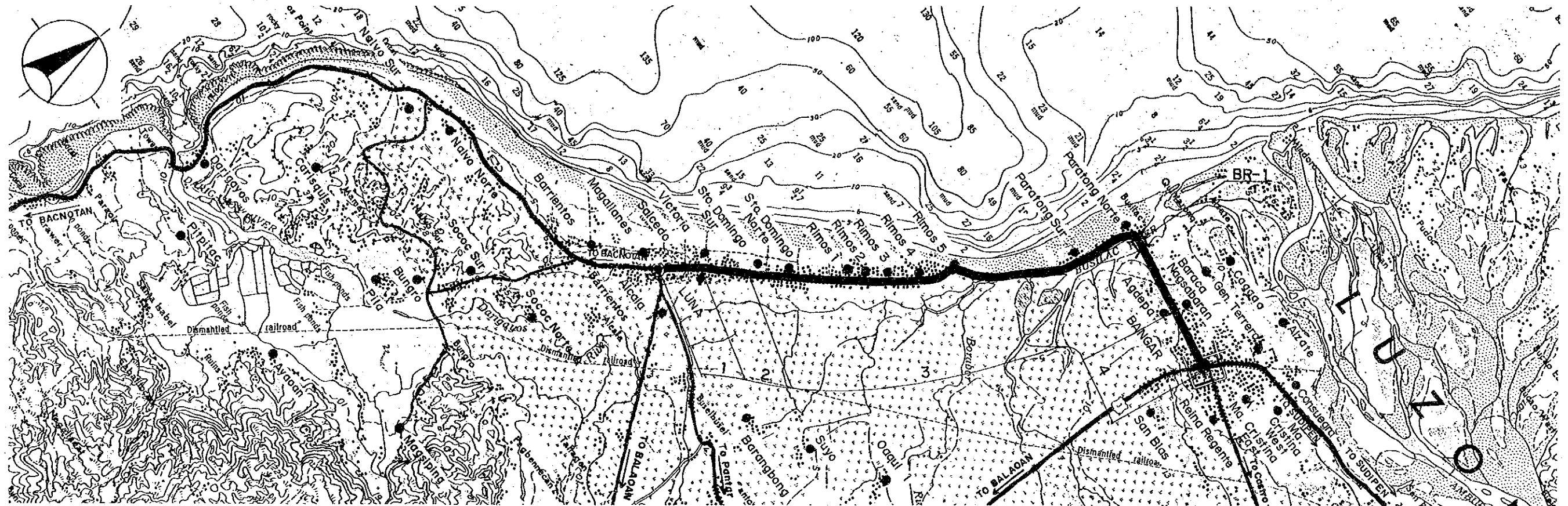
**THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT
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PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
1:50,000

Drawing No.
12

Road No: N11 Road Name: LUNA - BANGAR ROAD
Location : LUNA & BANGAR, LA UNION



Road Classification	Secondary Major (National Road)			
Total Length	8.2 km			
Sub-section No.	1	2	3	4
Length (km)	.5	.6	6.3	.8
Terrain	Flat	Flat	Rolling	Flat
Existing Road Surface	4.3-BTM (Fair)	6.7-PCC (Good)	5.9-GRV (Fair)	6.1-BTM (Fair)
Proposed Improvement				
Improvement Type	Widening	-	Impr.-2	-
Surface Type	AC	-	AC	-
Carriageway Width(m)	6.0	-	6.0	-
Shoulder Width (m)	2.0	-	1.8	-
Ref. Typical Section	TYPE 4-2	-	TYPE 3-3	-
Special Treatment				
Flood Section Length	-	-	200	-
Height	-	-	2.0	-
Bridge No.	BR-1			
Existing Type	Concrete			
Length (m)	196			
Proposed Type	-			
Length (m)	-			
No. of Spans	-			

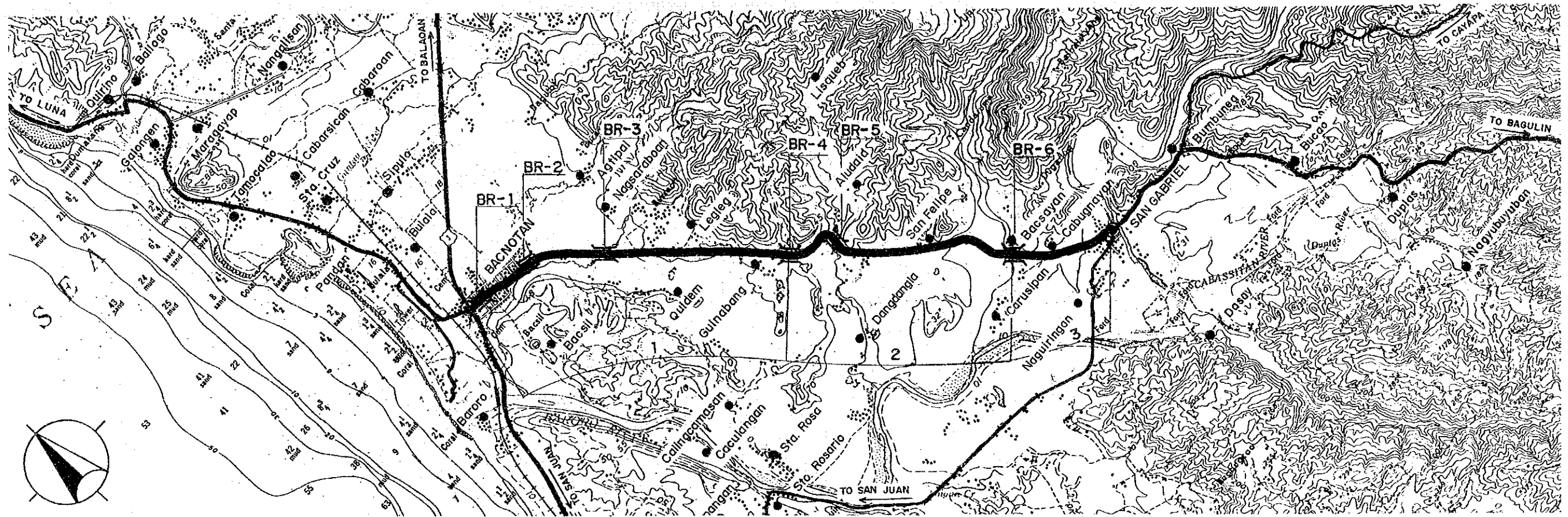
**THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT
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PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
1:50,000

Drawing No.
13

Road No: P12 Road Name: BACNOTAN - SAN GABRIEL ROAD
Location : BACNOTAN & SAN GABRIEL, LA UNION



Road Classification	Secondary Major (Provincial Road)					
Total Length	8.6 km					
Sub-section No.	1	2	3			
Length (km)	4.2	3.3	1.1			
Terrain	Flat	Rolling	Flat			
Existing Road Surface	6.0-BTM (Bad)	6.0-BTM (Bad)	6.0-BTM (V.Bad)			
Proposed Improvement	Rehabil.	Rehabil.	Rehabil.			
Improvement Type						
Surface Type	AC	AC	AC			
Carriageway Width(m)	6.0	6.0	6.0			
Shoulder Width (m)	2.0	1.5	2.0			
Ref. Typical Section	TYPE 1-3	TYPE 1-3	TYPE 1-3			
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6
Existing Type	Concrete	RCBC	RCBC	RCBC	Concrete	Concrete
Length (m)	8	8	8	8	22	44
Proposed Type	-	-	-	-	-	-
Length (m)	-	-	-	-	-	-
No. of Spans	-	-	-	-	-	-

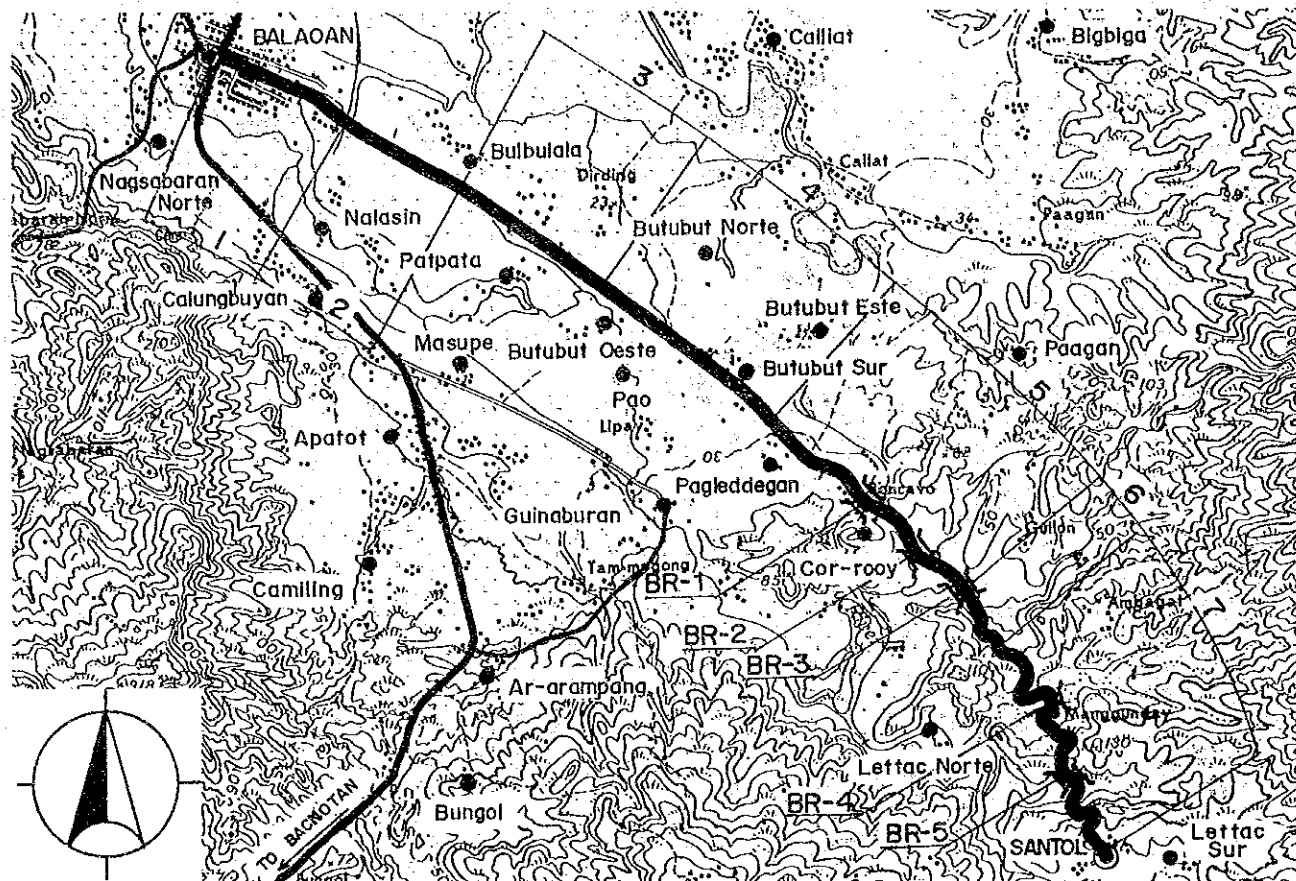
THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT IN THE REPUBLIC OF THE PHILIPPINES

PRESENT CONDITION AND PROPOSED IMPROVEMENT

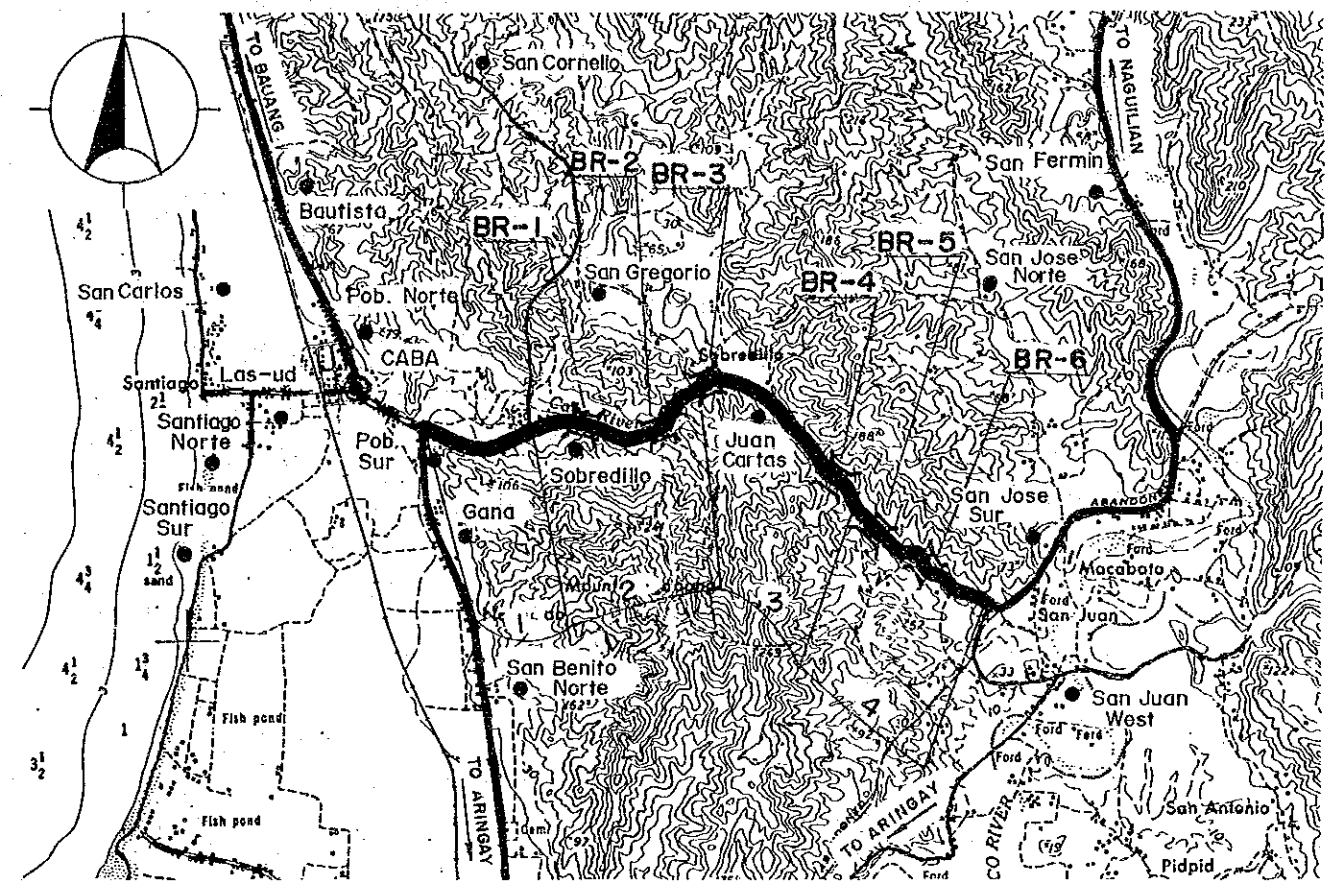
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Drawing No.
14

Road No: P14 Road Name: BALAOAN - SANTOL ROAD
Location : BALAOAN & SANTOL, LA UNION



Road No: P22-1 Road Name: CABA - NAGUILIAN ROAD
Location : CABA, LA UNION



Road Classification	Secondary Major (Provincial Road)						
Total Length	9.9 km						
Sub-section No.	1	2	3	4	5	6	7
Length (km)	1.0	1.0	1.2	1.4	2.0	.8	2.5
Terrain	Flat	Flat	Flat	Flat	Flat	Rolling	Rolling
Existing Road Surface	6.2-PCC (Good)	3.3-PCC (Fair)	3.3-PCC (Fair)	4.8-BTM (Bad)	6.0-GRV (Fair)	4.5-GRV (Bad)	4.0-GRV (Bad)
Proposed Improvement	-	Widening	Widening	Rehabil.	Impr.-2	Impr.-1	Impr.-1
Improvement Type	-	PCC	PCC	AC	AC	AC	AC
Surface Type	-	6.0	5.4	6.0	6.0	6.0	6.0
Carriageway Width(m)	-	2.5	2.5	2.0	2.0	1.5	1.5
Shoulder Width (m)	-	-	-	-	-	-	-
Ref. Typical Section	-	TYPE 4-1	TYPE 4-1	TYPE 1-3	TYPE 3-3	TYPE 2-3	TYPE 2-3
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5		
Existing Type	Concrete	Concrete	Concrete	Concrete	Concrete		
Length (m)	60	15	24	36	16		
Proposed Type	-	-	-	-	-		
Length (m)	-	-	-	-	-		
No. of Spans	-	-	-	-	-		

Road Classification	Secondary Major (Provincial Road)					
Total Length	5.4 km					
Sub-section No.	1	2	3	4		
Length (km)	1.0	1.5	1.4	1.5		
Terrain	Rolling	Rolling	Rolling	Rolling		
Existing Road Surface	4.5-GRV (Fair)	4.5-GRV (Fair)	4.5-GRV (Bad)	4.5-GRV (Bad)		
Proposed Improvement	Impr.-2	Impr.-2	Impr.-1	Impr.-1		
Improvement Type	AC	AC	AC	AC		
Surface Type	6.0	6.0	6.0	6.0		
Carriageway Width(m)	1.5	1.5	1.5	1.5		
Shoulder Width (m)	TYPE 3-3	TYPE 3-3	TYPE 2-3	TYPE 2-3		
Ref. Typical Section						
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6
Existing Type	Concrete	Timber	RCBC	RCBC	RCBC	Ford-Cr.
Length (m)	17	21	3	3	3	-
Proposed Type	-	2Lane-Br	-	-	-	2Lane-Br
Length (m)	-	22	-	-	-	10
No. of Spans	-	1	-	-	-	1

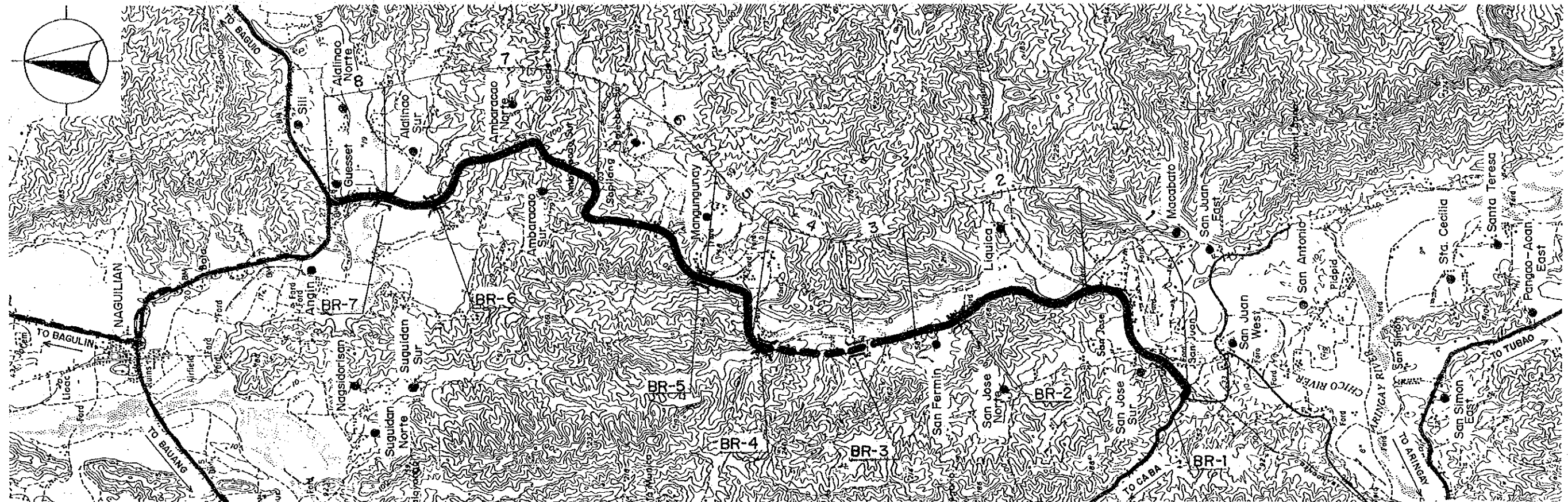
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PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
1:50,000

Drawing No.
15

Road No: P22-2 Road Name: CABA - NAGUILIAN ROAD
Location : CABA & NAGUILIAN, LA UNION



Road Classification	Secondary Major (Provincial Road)							
Total Length	15.4 km							
Sub-section No.	1	2	3	4	5	6	7	8
Length (km)	2.2	3.0	.8	1.4	1.2	2.8	3.3	.7
Terrain	Flat	Rolling	Rolling	Mt'nous	Mt'nous	Rolling	Rolling	Flat
Existing Road Surface	4.5-GRV (Bad)	3.2-EAR (V.Bad)	2.8-EAR (Impass)	Non Ex- isting	2.8-EAR (V.Bad)	3.6-EAR (Bad)	3.6-GRV (Bad)	4.5-GRV (Fair)
Proposed Improvement	Rehabil.	Impr.-1	Impr.-1	New Con.	Impr.-1	Impr.-1	Rehabil.	Widening
Improvement Type	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel
Surface Type	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel
Carriageway Width(m)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Shoulder Width (m)	1.0	.5	.5	.5	.5	.5	.5	1.0
Ref. Typical Section	TYPE 1-6	TYPE 2-8	TYPE 2-8	TYPE 5-4	TYPE 2-8	TYPE 2-8	TYPE 1-6	TYPE 4-4
Special Treatment								
Flood Section Length	-	-	-	-	-	-	1000	-
Height	-	-	-	-	-	-	.5	-
Steep Section Length	-	-	200	-	-	-	100	-
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6	BR-7	
Existing Type	Bailey	Timber	Ford-Cr.	Ford-Cr.	RCBC	RCBC	Bailey	
Length (m)	21	7	-	-	3	3	180	
Proposed Type	2Lane-Br	2cell-BC	2cell-BC	2cell-BC	1cell-BC	-	2Lane-Br	
Length (m)	21	7	6	7	4	-	180	
No. of Spans	1	2	2	2	1	-	8	

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PRESENT CONDITION AND PROPOSED IMPROVEMENT

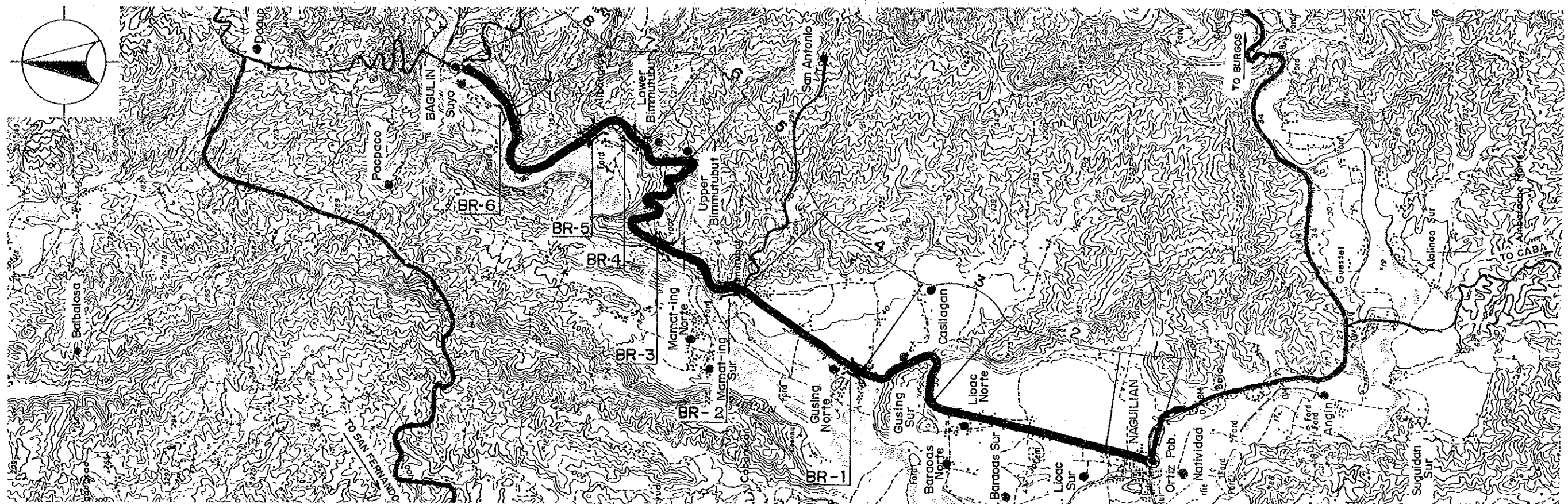
Scale
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Drawing No.
16

Road No: P36

Road Name: NAGUILIAN - BAGULIN ROAD

Location : NAGUILIAN & BAGULIN, LA UNION



Road Classification	Secondary Major (Provincial Road)							
Total Length	14.6 km							
Sub-section No.	1	2	3	4	5	6	7	8
Length (km)	.6	2.3	1.5	2.0	3.1	1.3	2.6	1.2
Terrain	Flat	Flat	Rolling	Flat	Mt'nous	Mt'nous	Mt'nous	Flat
Existing Road Surface	6.7-PCC (Good)	6.5-BTM (Fair)	6.0-BTM (Fair)	6.0-BTM (Fair)	4.5-BTM (V.Bad)	4.5-GRV (Fair)	6.0-BTM (Fair)	4.5-BTM (Fair)
Proposed Improvement					Rehabil.	Impr.-2		Widening
Improvement Type	-	-	-	-	* BMP	* BMP	-	* BMP
Surface Type	-	-	-	-	6.0	6.0	-	6.0
Carriageway Width(m)	-	-	-	-	1.0	1.0	-	1.5
Shoulder Width (m)	-	-	-	-	TYPE 1-5	TYPE 3-4	-	TYPE 4-3
Ref. Typical Section	-	-	-	-			-	
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6		
Existing Type	Bailey	Bailey	Bailey	Bailey	Bailey	Bailey		
Length (m)	34	14	27	17	24	30		
Proposed Type	2Lane-Br	2Lane-Br	2Lane-Br	2Lane-Br	2Lane-Br	2Lane-Br		
Length (m)	34	14	27	17	24	30		
No. of Spans	2	1	1	1	1	2		

* DBST can be applied instead depending on conditions of subgrade, axle load, drainage, etc.

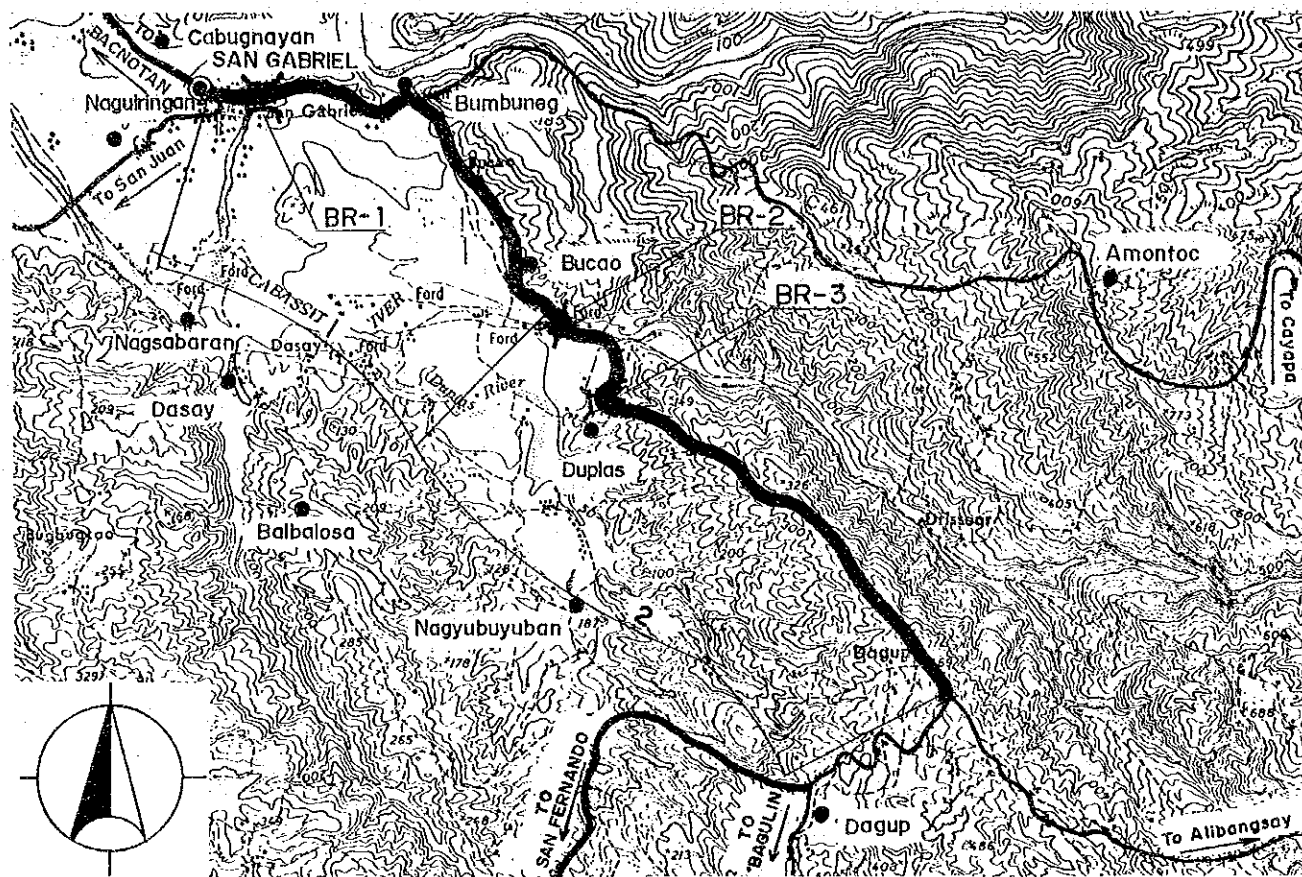
**THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT
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PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
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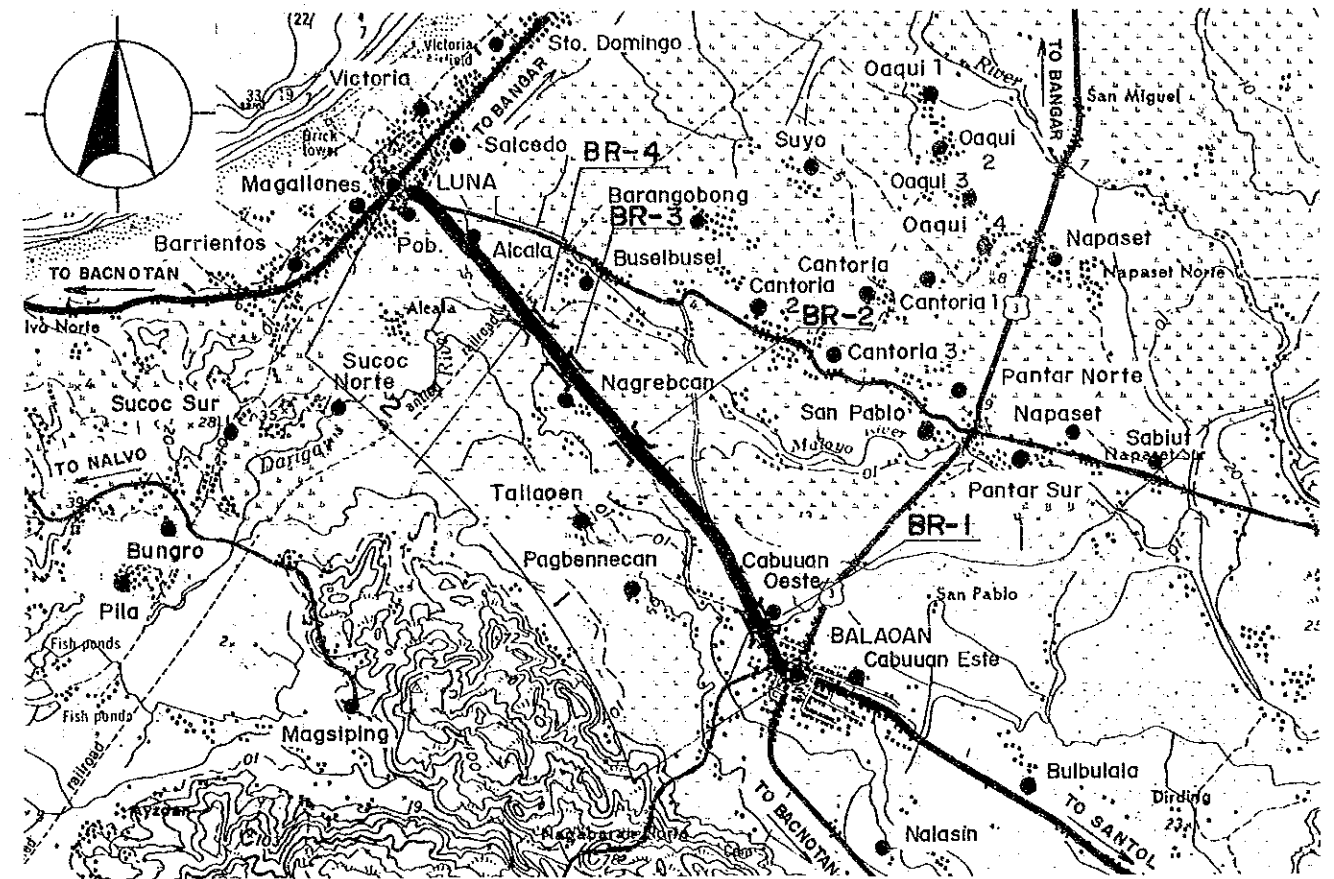
Drawing No.
17

Road No: P104 Road Name: SAN GABRIEL - BAGULIN ROAD
Location : SAN GABRIEL & BAGULIN, LA UNION



Road Classification	Second'y Major(Prov'l Road)		
Total Length	7.3 km		
Sub-section No.	1	2	
Length (km)	3.1	4.2	
Terrain	Flat	Rolling	
Existing Road Surface	3.2-GRV (Bad)	2.4-EAR (V.Bad)	
Proposed Improvement	Rehabil. Impr.-1		
Improvement Type	Gravel	Gravel	
Surface Type	6.0	6.0	
Carriageway Width(m)	1.0	.5	
Shoulder Width (m)	TYPE 1-6 TYPE 2-8		
Ref. Typical Section			
Bridge No.	BR-1	BR-2	BR-3
Existing Type	Concrete	Ford-Cr.	RCBC
Length (m)	90	-	4
Proposed Type	-	2Lane-Br	-
Length (m)	-	100	-
No. of Spans	-	4	-

Road No: N7-2 Road Name: BACNOTAN - LUNA - BALAOAN ROAD
Location : LUNA & BALAOAN, LA UNION



Road Classification	Minor Road (National Road)			
Total Length	4.5 km			
Sub-section No.	1	2		
Length (km)	3.2	1.3		
Terrain	Flat	Flat		
Existing Road Surface	5.2-BTM (Fair)	5.2-BTM (Fair)		
Proposed Improvement	Rehabil. Widening			
Improvement Type	* BMP	* BMP		
Surface Type				
Carriageway Width(m)	6.0	6.0		
Shoulder Width (m)	1.5	1.5		
Ref. Typical Section	TYPE 1-5	TYPE 4-3		
Special Treatment				
Flood Section Length	2000	-		
Height	1.0	-		
Bridge No.	BR-1	BR-2	BR-3	BR-4
Existing Type	RCBC	RCBC	RCBC	Concrete
Length (m)	5	6	4	18
Proposed Type	-	-	-	-
Length (m)	-	-	-	-
No. of Spans	-	-	-	-

* DBST can be applied instead depending on conditions of subgrade, axle load, drainage, etc.

**THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT
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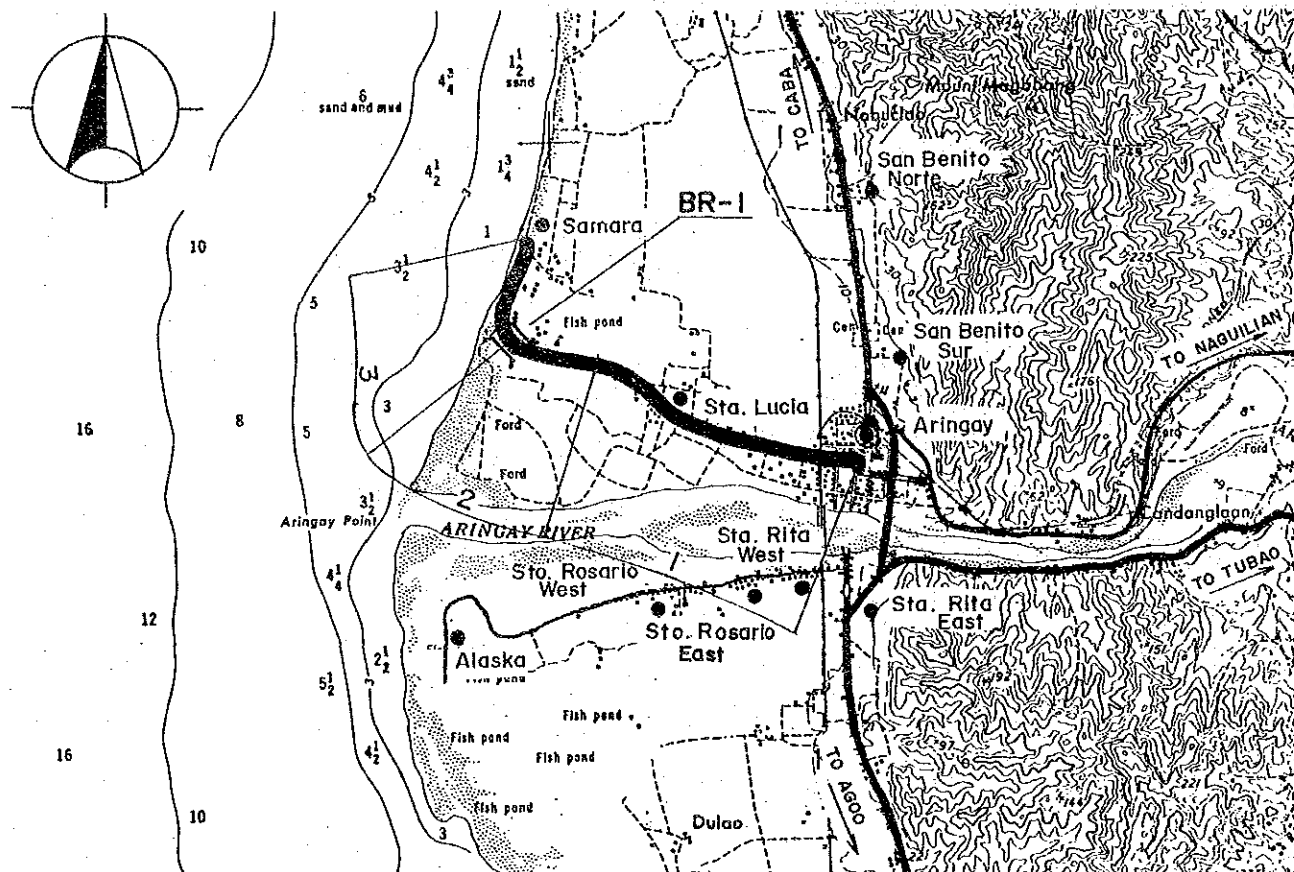
PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
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Drawing No.
18

Road No: P6

Road Name: ARINGAY BEACH ROAD
Location : ARINGAY, LA UNION

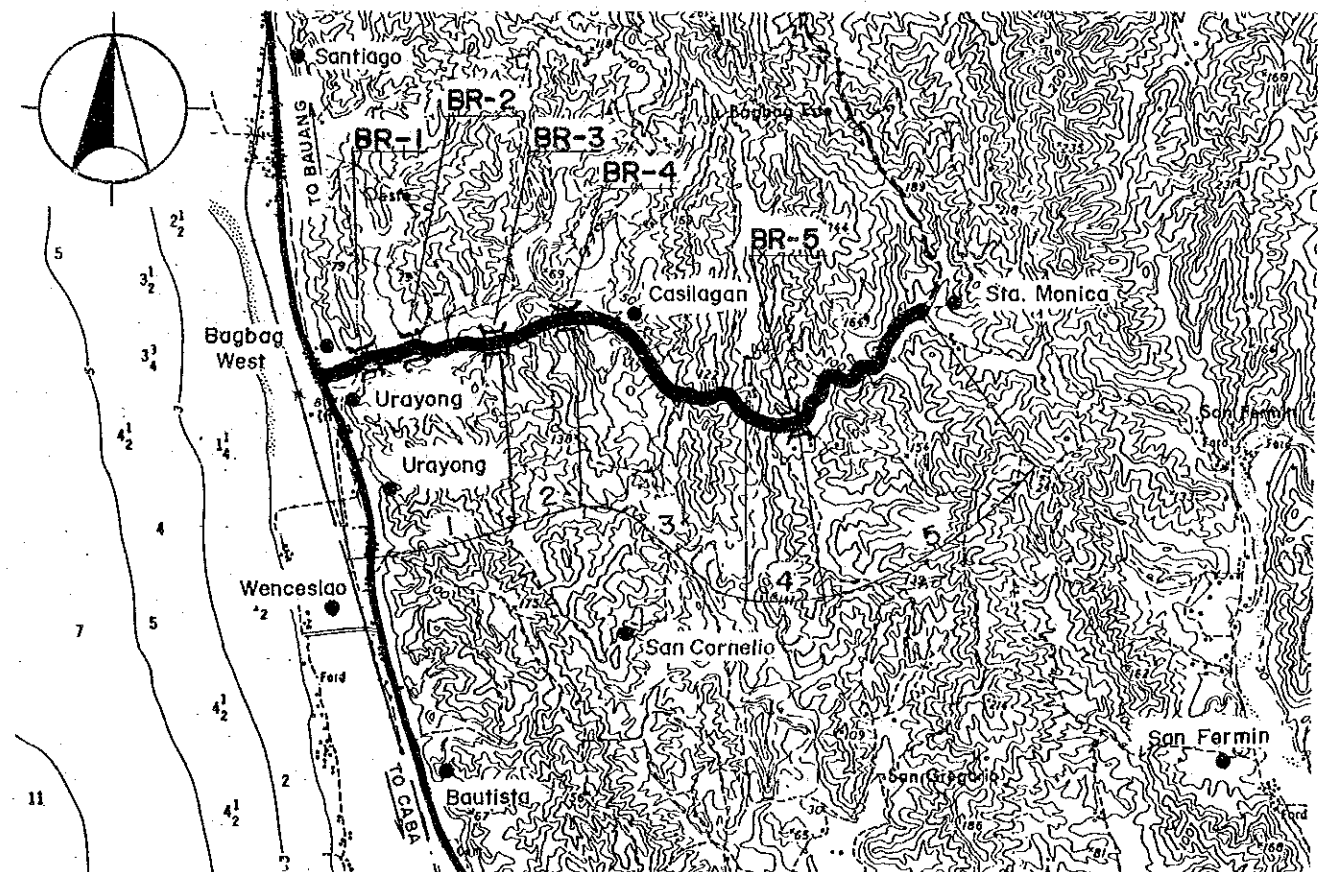


Road Classification	Minor Road(Provincial Road)		
Total Length	3.5 km		
Sub-section No.	1	2	3
Length (km)	2.0	.7	.8
Terrain	Flat	Flat	Flat
Existing Road Surface	4.2-BTM (Bad)	4.2-BTM (Bad)	5.2-GRV (V.Bad)
Proposed Improvement	Rehabil.	Rehabil.	Rehabil.
Improvement Type	* BMP	* BMP	Gravel
Surface Type			
Carriageway Width(m)	6.0	6.0	6.0
Shoulder Width (m)	1.5	1.5	1.0
Ref. Typical Section	TYPE 1-5	TYPE 1-5	TYPE 1-6
Special Treatment			
Flood Section Length	1000	700	-
Height	.5	.5	-
Bridge No.	BR-1		
Existing Type	Timber		
Length (m)	50		
Proposed Type	2Lane-Br		
Length (m)	50		
No. of Spans	2		

* DBST can be applied instead depending on conditions of subgrade, axle load, drainage, etc.

Road No: P11

Road Name: BAGBAG - STA. MONICA ROAD
Location : BAUANG, LA UNION



Road Classification	Minor Road (Provincial Road)				
Total Length	5.4 km				
Sub-section No.	1	2	3	4	5
Length (km)	1.4	.5	1.6	.7	1.2
Terrain	Flat	Mt'nous	Rolling	Mt'nous	Rolling
Existing Road Surface	4.2-GRV (Fair)	3.4-GRV (Bad)	3.6-GRV (V.Bad)	3.2-GRV (V.Bad)	3.2-EAR (V.Bad)
Proposed Improvement	-	Rehabil.	Rehabil.	Rehabil.	Impr.-1
Improvement Type	-	Gravel	Gravel	Gravel	Gravel
Surface Type	-				
Carriageway Width(m)	-	4.0	4.0	4.0	4.0
Shoulder Width (m)	-	.5	.5	.5	.5
Ref. Typical Section	-	TYPE 1-6	TYPE 1-6	TYPE 1-6	TYPE 2-8
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5
Existing Type	Concrete	Timber	Timber	Timber	Timber
Length (m)	30	6	16	6	12
Proposed Type	-	2cell-BC	1Lane-Br	2cell-BC	1Lane-Br
Length (m)	-	6	16	6	12
No. of Spans	-	2	1	2	1

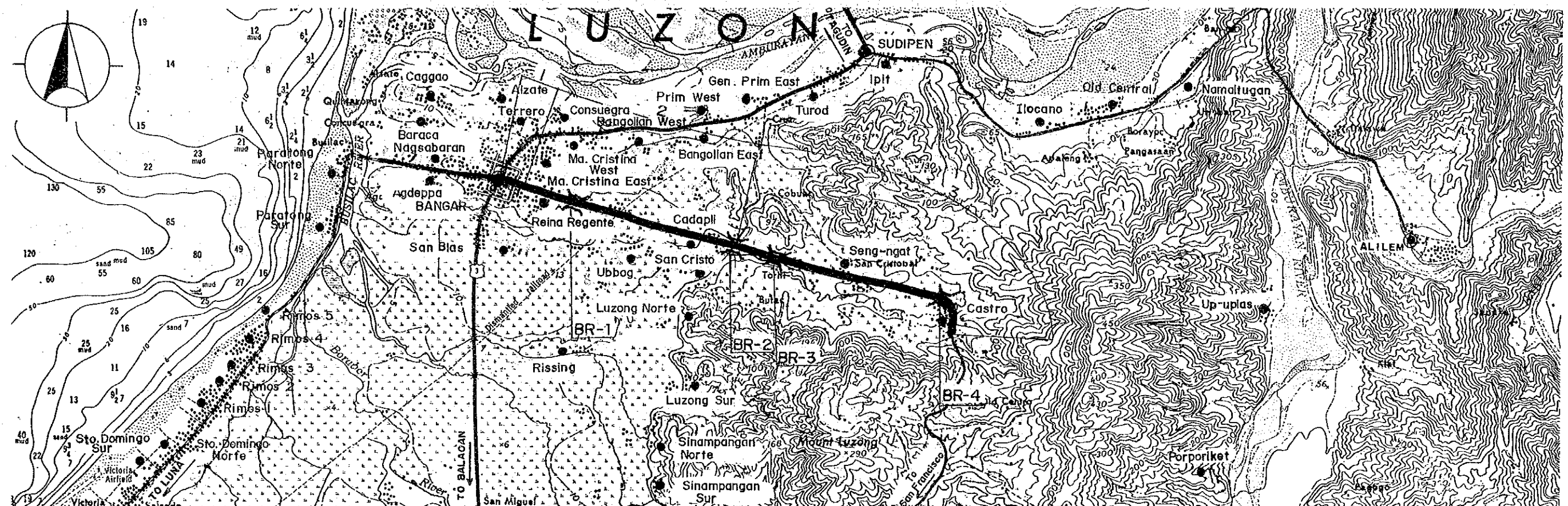
**THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT
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PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
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Drawing No.
19

Road No: P16 Road Name: BANGAR - CASTRO ROAD
Location : BANGAR & SUDIPEN, LA UNION



Road Classification	Minor Road (Provincial Road)			
Total Length	6.1 km			
Sub-section No.	1	2	3	
Length (km)	.3	2.9	2.9	
Terrain	Flat	Flat	Flat	
Existing Road Surface	4.0-BTM (Fair)	5.0-GRV (Fair)	5.0-GRV (Fair)	
Proposed Improvement	Widening	Widening	Widening	
Improvement Type	* BMP	Gravel	Gravel	
Surface Type				
Carriageway Width(m)	6.0	6.0	6.0	
Shoulder Width (m)	1.5	1.0	1.0	
Ref. Typical Section	TYPE 4-3	TYPE 4-4	TYPE 4-4	
Bridge No.	BR-1	BR-2	BR-3	BR-4
Existing Type	RCBC	Concrete	Concrete	Bailey
Length (m)	3	13	16	11
Proposed Type	-	-	-	-
Length (m)	-	-	-	-
No. of Spans	-	-	-	-

* DBST can be applied instead depending on conditions of subgrade, axle load, drainage, etc.

THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT IN THE REPUBLIC OF THE PHILIPPINES

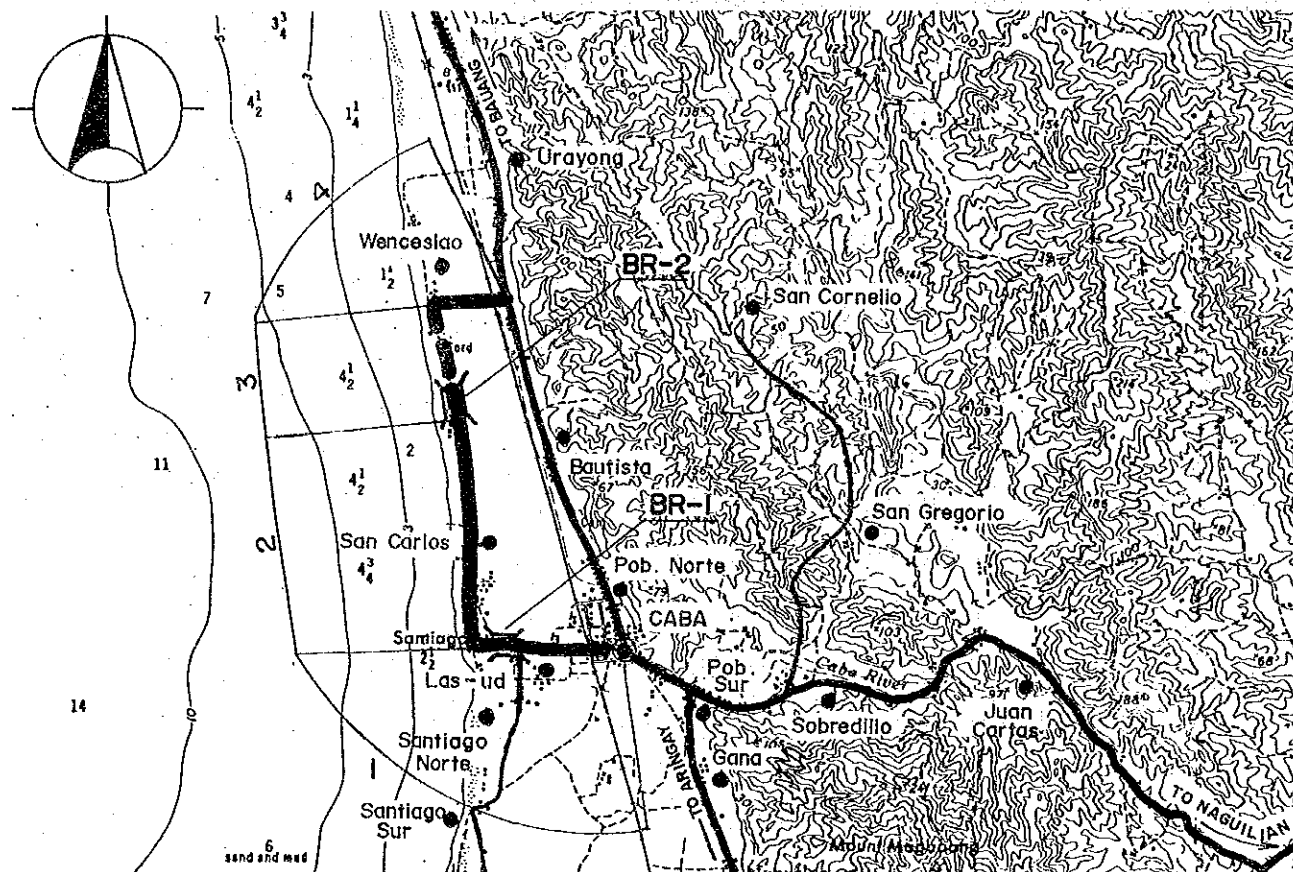
PRESENT CONDITION AND PROPOSED IMPROVEMENT

Scale
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Drawing No.
20

Road No: P23

Road Name: CABA BEACH ROAD
Location : CABA, LA UNION

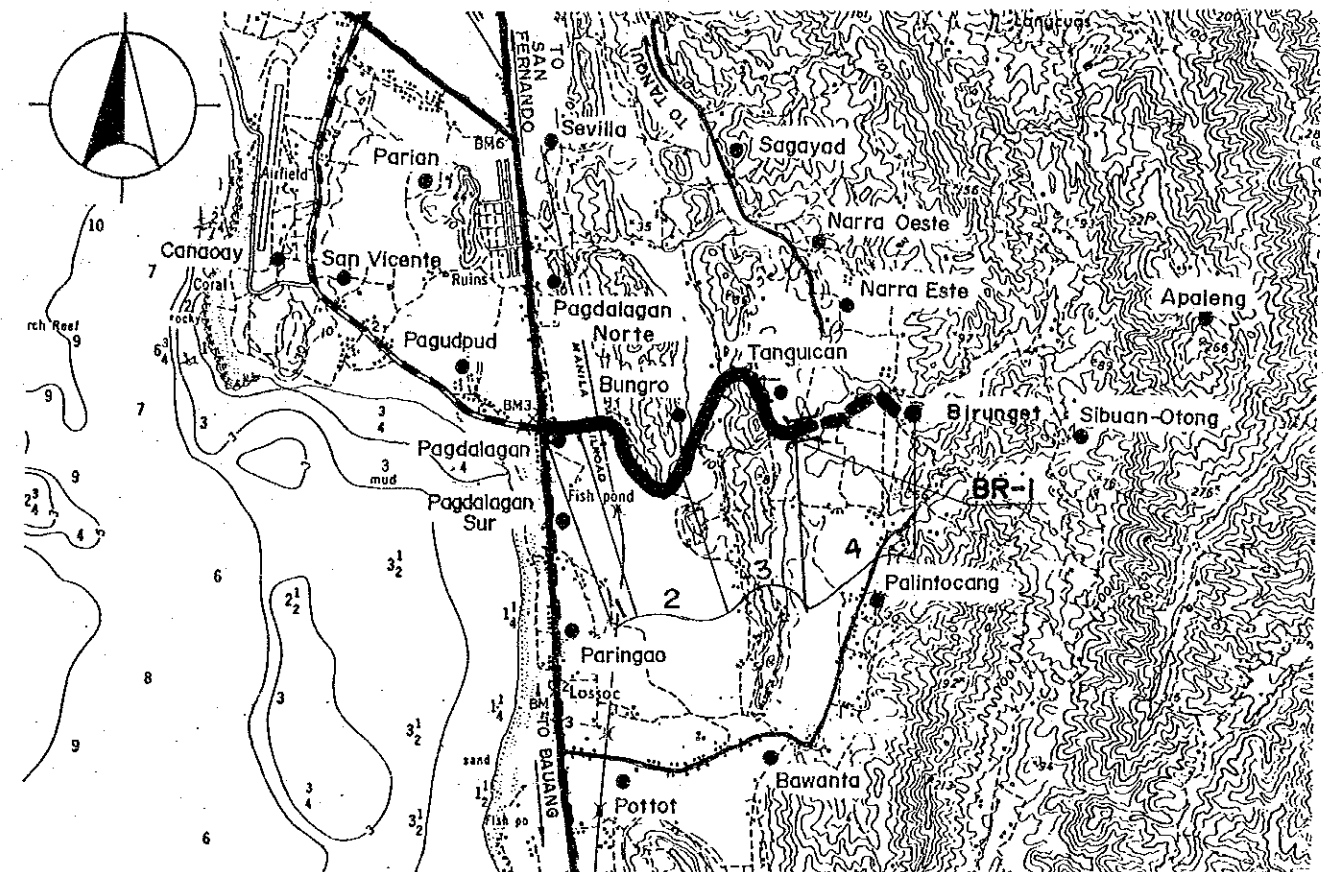


Road Classification	Minor Road (Provincial Road)			
Total Length	3.9 km			
Sub-section No.	1	2	3	4
Length (km)	1.2	1.5	.8	.4
Terrain	Flat	Flat	Flat	Flat
Existing Road Surface	5.0-BTM (Fair)	5.5-GRV (Bad)	Non Ex- isting	4.0-BTM (Bad)
Proposed Improvement	- Rehabil. New Con. Rehabil.			
Improvement Type	- Gravel Gravel * BMP			
Surface Type	- 4.0 4.0 4.0			
Carriageway Width(m)	- 1.0 1.0 1.5			
Shoulder Width (m)	- TYPE 1-6 TYPE 5-4 TYPE 1-5			
Ref. Typical Section				
Bridge No.	BR-1	BR-2		
Existing Type	Bailey Ford-Cr.			
Length (m)	12 -			
Proposed Type	- 2cell-BC			
Length (m)	- 8			
No. of Spans	- 2			

* DBST can be applied instead depending on conditions of subgrade, axle load, drainage, etc.

Road No: P39

Road Name: PAGDALAGAN - BUNGRO - TANGUIGAN ROAD
Location : SAN FERNANDO, LA UNION



Road Classification	Minor Road (Provincial Road)			
Total Length	3.5 km			
Sub-section No.	1	2	3	4
Length (km)	.2	1.0	1.3	1.0
Terrain	Flat	Flat	Rolling	Rolling
Existing Road Surface	4.1-PCC (Good)	3.0-GRV (Bad)	2.7-GRV (Bad)	Non Ex- isting
Proposed Improvement	- Rehabil. Rehabil. New Con.			
Improvement Type	- Gravel Gravel Gravel			
Surface Type	- 4.0 4.0 4.0			
Carriageway Width(m)	- 1.0 .5 .5			
Shoulder Width (m)	- TYPE 1-6 TYPE 1-6 TYPE 5-4			
Ref. Typical Section				
Special Treatment				
Flood Section Length	-	-	1000	-
Height	-	-	1.5	-
Bridge No.	BR-1			
Existing Type	Ford-Cr.			
Length (m)	-			
Proposed Type	1Lane-Sp			
Length (m)	15			
No. of Spans	-			

THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT IN THE REPUBLIC OF THE PHILIPPINES

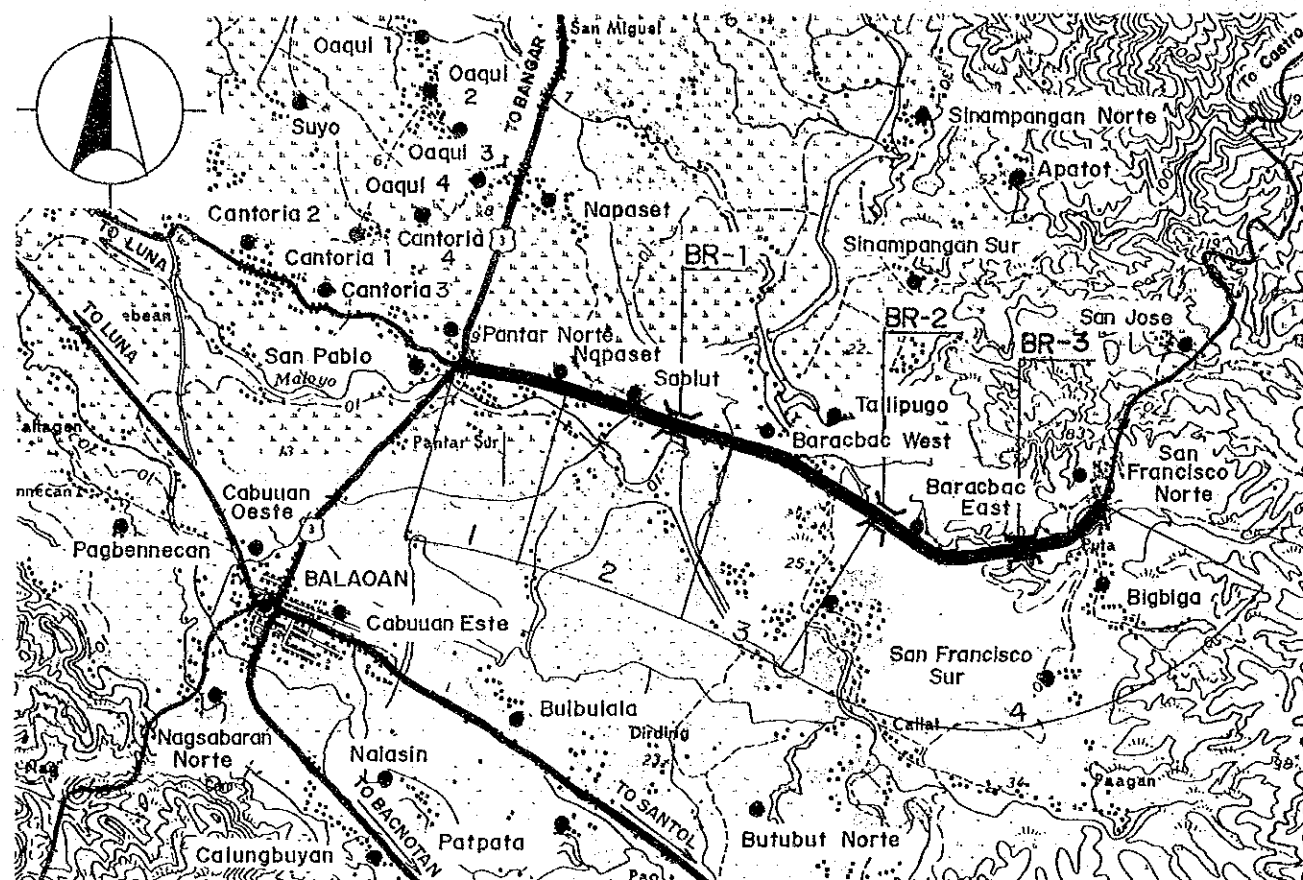
PRESENT CONDITION AND PROPOSED IMPROVEMENT

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Drawing No.
21

Road No: P41

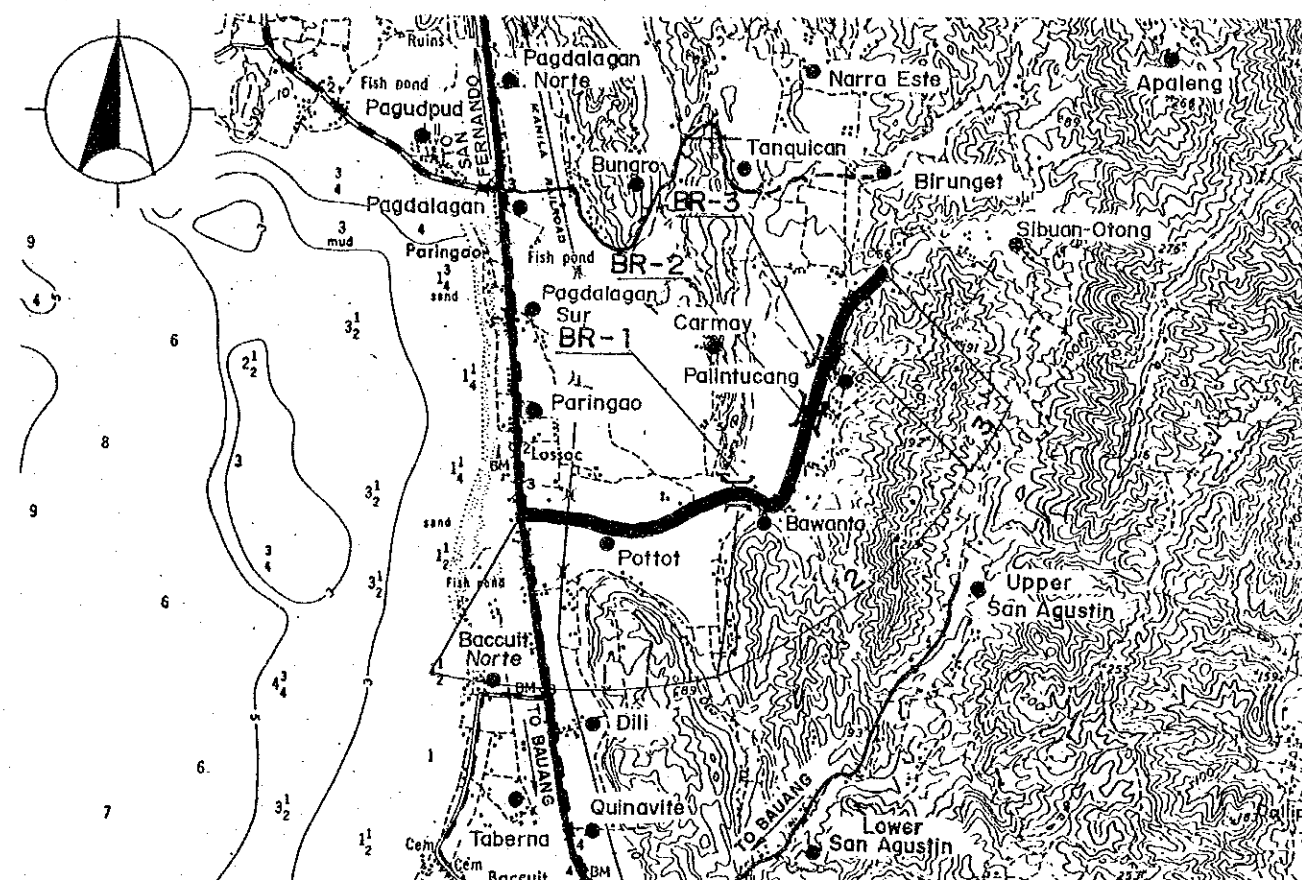
Road Name: PANTAR - SAN FRANCISCO ROAD
Location: BALAOAN & SUDIPEN, LA UNION



Road Classification	Minor Road (Provincial Road)			
Total Length	5.2 km			
Sub-section No.	1	2	3	4
Length (km)	.8	1.2	1.2	2.0
Terrain	Flat	Flat	Flat	Flat
Existing Road Surface	6.0-GRV (Fair)	6.0-GRV (Bad)	6.0-GRV (Fair)	4.5-GRV (Fair)
Proposed Improvement				
Improvement Type	-	Rehabil.	-	Widening
Surface Type	-	Gravel	-	Gravel
Carriageway Width(m)	-	6.0	-	6.0
Shoulder Width (m)	-	1.0	-	1.0
Ref. Typical Section	-	TYPE 1-6	-	TYPE 4-4
Bridge No.	BR-1	BR-2	BR-3	
Existing Type	Concrete	Concrete	Concrete	
Length (m)	30	7	13	
Proposed Type	-	-	-	
Length (m)	-	-	-	
No. of Spans	-	-	-	

Road No: P43

Road Name: PARINGAO - PALINTUCANG ROAD
Location: BAUANG, LA UNION



Road Classification	Minor Road (Provincial Road)		
Total Length	3.8 km		
Sub-section No.	1	2	3
Length (km)	1.6	1.7	.5
Terrain	Flat	Flat	Flat
Existing Road Surface	2.9-GRV (Fair)	2.8-GRV (Bad)	2.2-GRV (Bad)
Proposed Improvement			
Improvement Type	Widening	Rehabil.	Rehabil.
Surface Type	Gravel	Gravel	Gravel
Carriageway Width(m)	4.0	4.0	4.0
Shoulder Width (m)	1.0	1.0	1.0
Ref. Typical Section	TYPE 4-4	TYPE 1-6	TYPE 1-6
Special Treatment			
Flood Section Length	-	500	500
Height	-	2.0	2.0
Bridge No.	BR-1	BR-2	BR-3
Existing Type	Timber	Timber	Bailey
Length (m)	6	4	21
Proposed Type	2cell-BC	1cell-BC	-
Length (m)	6	4	-
No. of Spans	2	1	-

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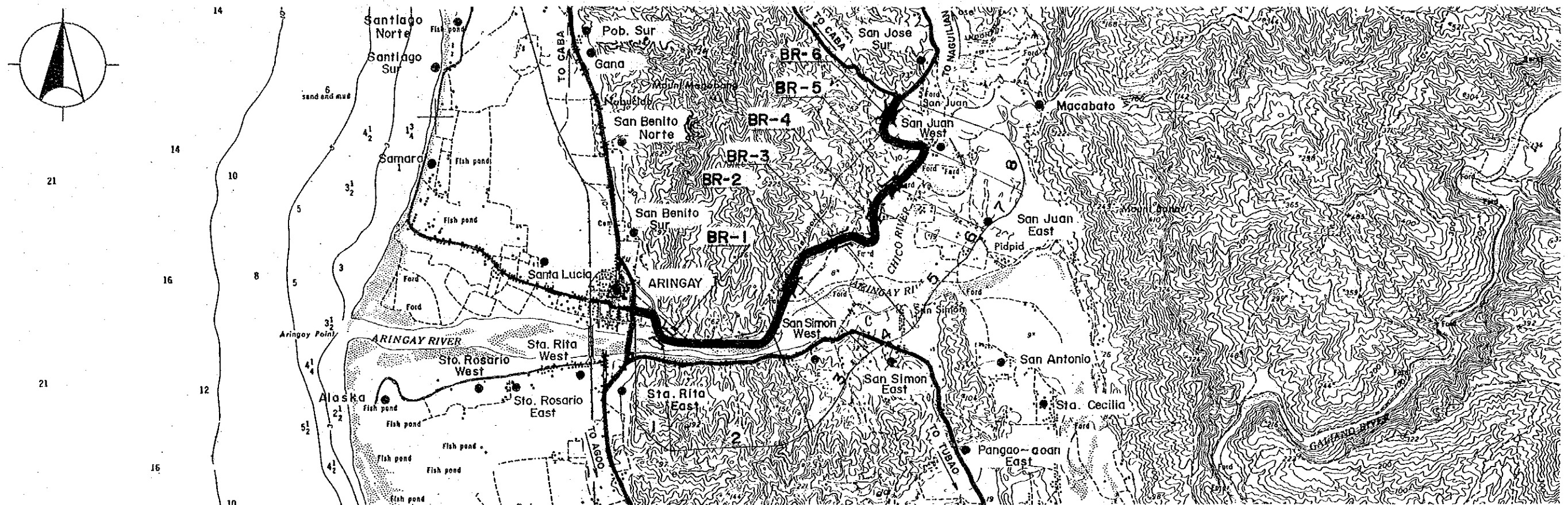
PRESENT CONDITION AND PROPOSED IMPROVEMENT

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Drawing No.
22

Road No: P45

Road Name: ARINGAY - SAN JOSE ROAD
Location : ARINGAY & CABA, LA UNION



Road Classification	Minor Road (Provincial Road)							
Total Length	5.8 km							
Sub-section No.	1	2	3	4	5	6	7	8
Length (km)	.6	1.5	.6	.7	.6	.3	.6	.9
Terrain	Flat	Mt'nous	Mt'nous	Mt'nous	Mt'nous	Rolling	Rolling	Rolling
Existing Road Surface	3.4-GRV (Fair)	3.4-GRV (Fair)	3.6-GRV (Fair)	3.6-GRV (Bad)	3.6-GRV (Bad)	3.2-GRV (Bad)	3.2-GRV (Fair)	2.8-EAR (V.Bad)
Proposed Improvement	Widening	Widening	Widening	Rehabil.	Rehabil.	Rehabil.	Widening	Impr.-1
Improvement Type	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel
Surface Type	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Carriageway Width(m)	1.0	.5	.5	.5	.5	.5	.5	.5
Shoulder Width (m)	TYPE 4-4	TYPE 4-4	TYPE 4-4	TYPE 1-6	TYPE 1-6	TYPE 1-6	TYPE 4-4	TYPE 2-8
Ref. Typical Section	-	-	-	-	-	-	400	-
Special Treatment	-	-	-	-	-	-	.3	-
Flood Section Length								
Height								
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6		
Existing Type	Bailey	Timber	RCBC	Timber	RCBC	Ford-Cr.		
Length (m)	21	6	7	18	4	-		
Proposed Type	-	2cell-BC	-	1Lane-Br	-	1Lane-Sp		
Length (m)	-	6	-	20	-	15		
No. of Spans	-	2	-	1	-	-		

**THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT
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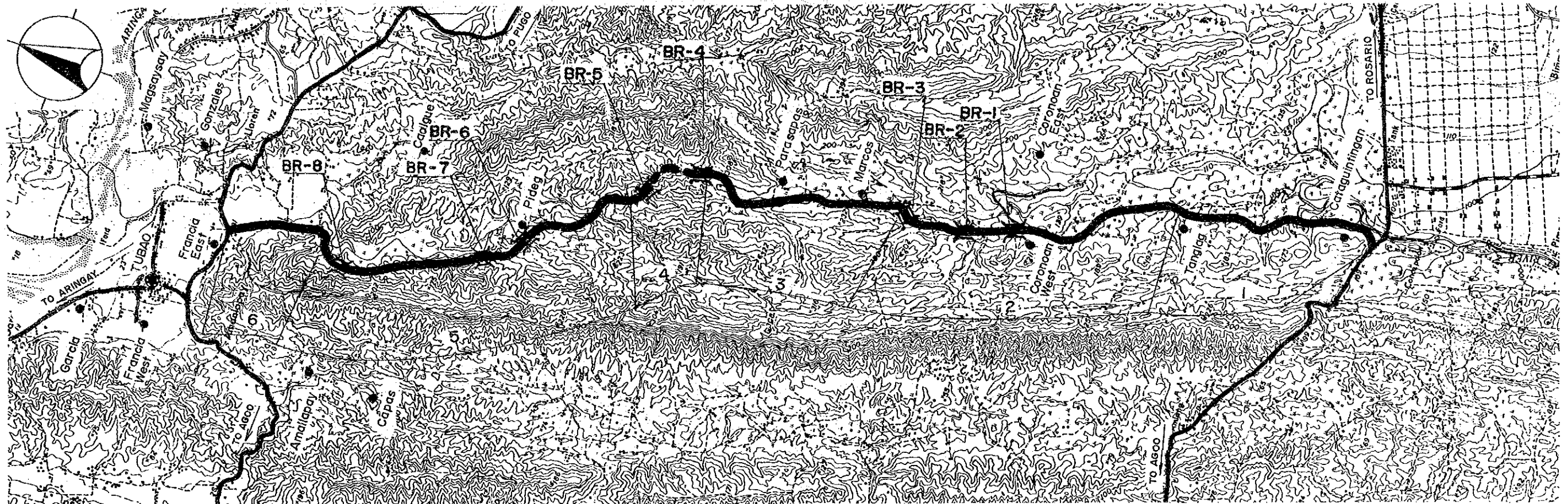
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Drawing No.
23

Road No: P56

Road Name: ROSARIO - TUBAO ROAD

Location : ROSARIO & TUBAO, LA UNION



Road Classification	Minor Road (Provincial Road)							
Total Length	15.1 km							
Sub-section No.	1	2	3	4	5	6		
Length (km)	2.6	3.4	2.6	1.0	4.3	1.2		
Terrain	Rolling	Rolling	Rolling	Mt'nous	Mt'nous	Flat		
Existing Road Surface	4.5-GRV (Bad)	4.5-GRV (Bad)	4.5-GRV (Bad)	Non Ex- isting	3.6-GRV (V.Bad)	3.6-GRV (Bad)		
Proposed Improvement	Rehabil.	Rehabil.	Rehabil.	New Con.	Rehabil.	Rehabil.		
Improvement Type	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel		
Surface Type	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel		
Carriageway Width(m)	6.0	6.0	6.0	4.0	4.0	4.0		
Shoulder Width (m)	.5	.5	.5	.5	.5	1.0		
Ref. Typical Section	TYPE 1-6	TYPE 1-6	TYPE 1-6	TYPE 5-4	TYPE 1-6	TYPE 1-6		
Bridge No.	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6	BR-7	BR-8
Existing Type	RCBC	Timber	Bailey	Ford-Cr.	Ford-Cr.	RCBC	Bailey	Timber
Length (m)	4	13	9	-	-	3	7	7
Proposed Type	-	2Lane-Br	-	1Lane-Sp	1Lane-Sp	-	-	2cell-BC
Length (m)	-	13	-	30	20	-	-	7
No. of Spans	-	1	-	-	-	-	-	2

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PRESENT CONDITION AND PROPOSED IMPROVEMENT

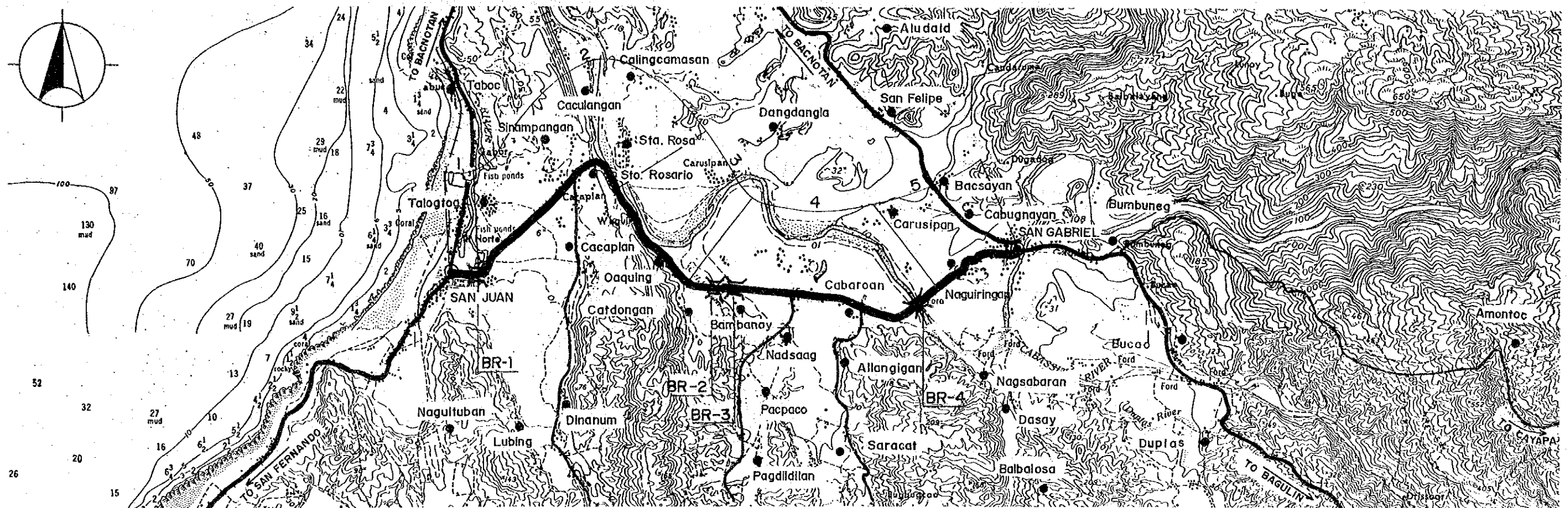
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Drawing No.
24

Road No: P64

Road Name: SAN JUAN - SAN GABRIEL ROAD

Location: SAN JUAN & SAN GABRIEL, LA UNION



Road Classification	Minor Road (Provincial Road)				
Total Length	9.1 km				
Sub-section No.	1	2	3	4	5
Length (km)	.3	2.4	1.5	3.7	1.2
Terrain	Flat	Flat	Mt'nous	Flat	Flat
Existing Road Surface	5.0-PCC (Good)	5.0-BTM (V.Bad)	4.7-GRV (V.Bad)	5.0-BTM (V.Bad)	5.7-GRV (Bad)
Proposed Improvement	-	Rehabil.	Rehabil.	Rehabil.	Rehabil.
Improvement Type	-	* BMP	Gravel	* BMP	Gravel
Surface Type	-	6.0	6.0	6.0	6.0
Carriageway Width(m)	-	1.5	.5	1.5	1.0
Shoulder Width (m)	-	-	-	-	-
Ref. Typical Section	-	TYPE 1-5	TYPE 1-6	TYPE 1-5	TYPE 1-6
Bridge No.	BR-1	BR-2	BR-3	BR-4	
Existing Type	Concrete	RCBC	Bailey	Concrete	
Length (m)	13	7	28	160	
Proposed Type	-	-	-	-	
Length (m)	-	-	-	-	
No. of Spans	-	-	-	-	

* DBST can be applied instead depending on conditions of subgrade, axle load, drainage, etc.

THE FEASIBILITY STUDY ON THE RURAL ROAD NETWORK DEVELOPMENT PROJECT IN THE REPUBLIC OF THE PHILIPPINES

PRESENT CONDITION AND PROPOSED IMPROVEMENT

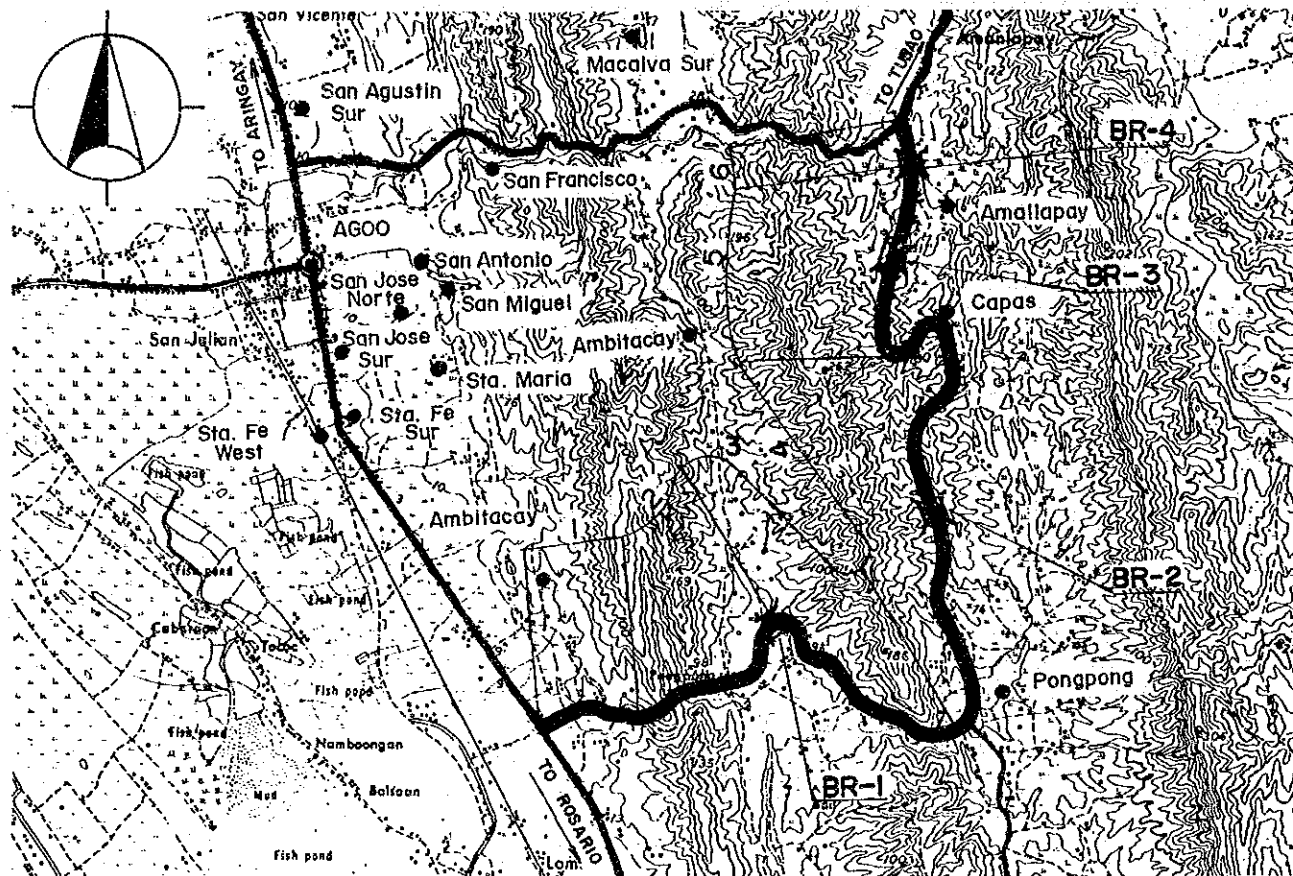
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Drawing No.
25

Road No: P73

Road Name: STO. TOMAS - AGOO - TUBAO ROAD

Location: STO. TOMAS, AGOO & TUBAO, LA UNION

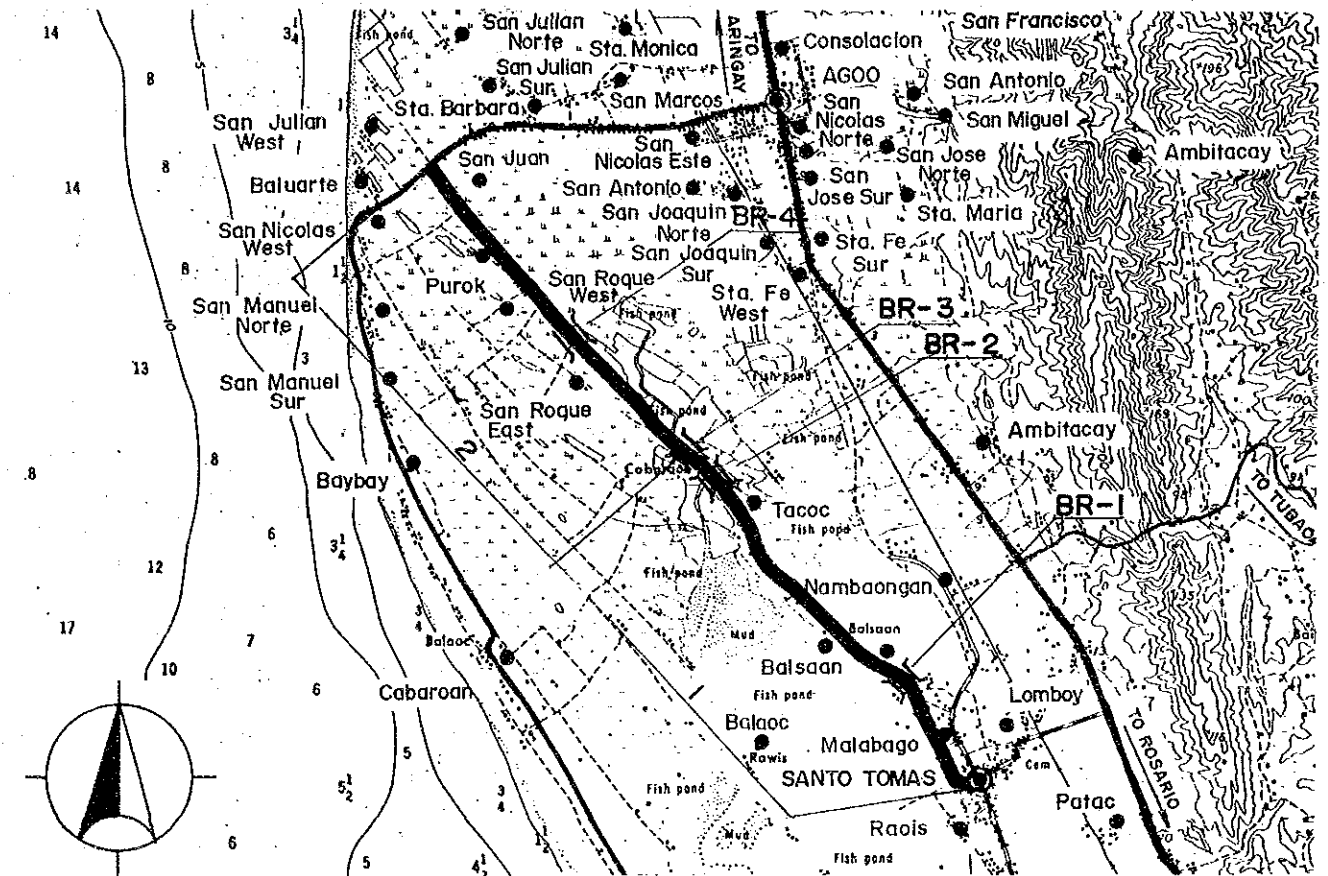


Road Classification	Minor Road (Provincial Road)					
Total Length	9.3 km					
Sub-section No.	1	2	3	4	5	6
Length (km)	.8	1.3	1.8	3.4	1.6	.4
Terrain	Flat	Mt'nous	Mt'nous	Rolling	Mt'nous	Flat
Existing Road Surface	4.0-GRV	3.2-GRV	3.6-EAR	3.2-EAR	3.2-GRV	3.2-GRV
	(Bad)	(Bad)	(V.Bad)	(V.Bad)	(Bad)	(Bad)
Proposed Improvement	Rehabil.	Rehabil.	Impr.-1	Impr.-1	Rehabil.	Rehabil.
Improvement Type	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel
Surface Type	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel
Carriageway Width(m)	4.0	4.0	4.0	4.0	4.0	4.0
Shoulder Width (m)	1.0	.5	.5	.5	.5	1.0
Ref. Typical Section	TYPE 1-6	TYPE 1-6	TYPE 2-8	TYPE 2-8	TYPE 1-6	TYPE 1-6
Bridge No.	BR-1	BR-2	BR-3	BR-4		
Existing Type	Timber	Timber	Timber	Bailey		
Length (m)	13	7	24	12		
Proposed Type	1Lane-Br	2cell-BC	1Lane-Br	-		
Length (m)	14	7	25	-		
No. of Spans	1	2	1	-		

Road No: P76

Road Name: STO. TOMAS - SAN JULIAN ROAD

Location: STO. TOMAS & AGOO, LA UNION



Road Classification	Minor Road (Provincial Road)			
Total Length	6.3 km			
Sub-section No.	1	2		
Length (km)	3.1	3.2		
Terrain	Flat	Flat		
Existing Road Surface	4.0-GRV (Fair)	4.0-GRV (Bad)		
Proposed Improvement	Widening Rehabil.			
Improvement Type	Gravel Gravel			
Surface Type				
Carriageway Width(m)	6.0	6.0		
Shoulder Width (m)	1.0	1.0		
Ref. Typical Section	TYPE 4-4	TYPE 1-6		
Special Treatment				
Flood Section Length	2000	-		
Height	.5	-		
Bridge No.	BR-1	BR-2	BR-3	BR-4
Existing Type	Concrete	Concrete	Concrete	Timber
Length (m)	15	12	24	12
Proposed Type	-	-	-	2Lane-Br
Length (m)	-	-	-	12
No. of Spans	-	-	-	1