

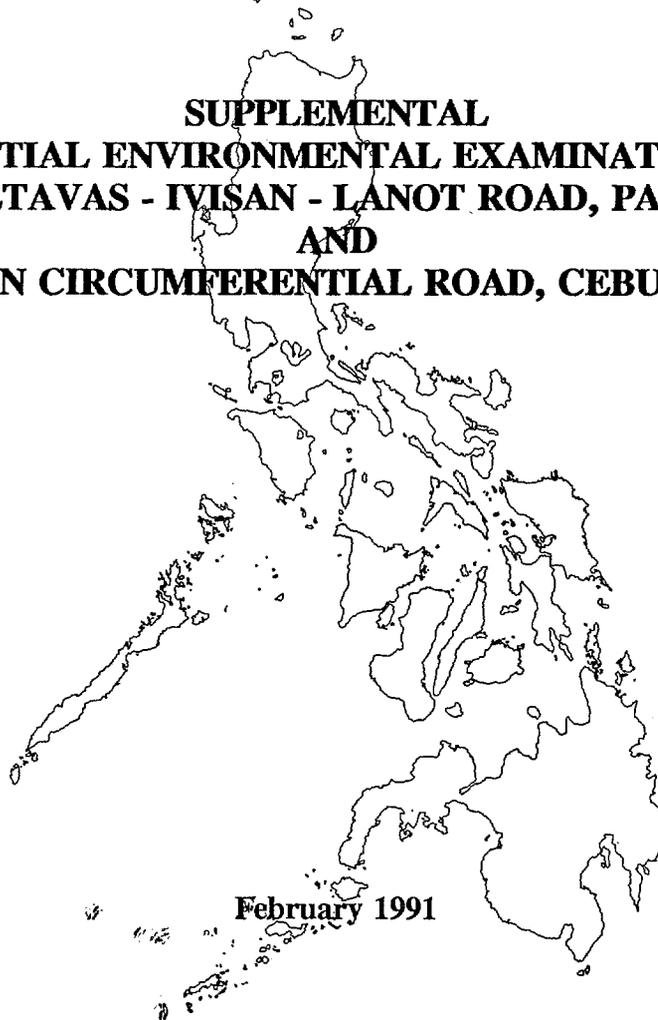
10-10-2007

**REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**

**RURAL INFRASTRUCTURE  
FUND PROJECT**

(UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT NO. 492-0420)

**SUPPLEMENTAL  
INITIAL ENVIRONMENTAL EXAMINATION  
BANGA - ALTAVAS - IVISAN - LANOT ROAD, PANAY ISLAND  
AND  
MACTAN CIRCUMFERENTIAL ROAD, CEBU ISLAND**



**LOUIS BERGER INTERNATIONAL, INC.**

100 Halsted Street, East Orange, NJ, 07019, U.S.A.

in joint venture with

**TECHNOSPHERE CONSULTANTS GROUP, INC**

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## TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

II. PURPOSE OF THIS REPORT

III. STUDY APPROACH

IV. RESULTS

APPENDIX A Land Cover Maps

APPENDIX B Subproject Photographs

## LIST OF TABLES

<u>TABLE</u>	<u>TITLE</u>	<u>PAGE</u>
1	Rural Infrastructure Fund Project USAID Project Number 492-0420 List of Road Subprojects	2
2	Rural Infrastructure Fund Project USAID Project Number 492-0420 List of Port Subprojects	4
3	Description of Road Projects to Initial Environmental Examination in this Supplement	8
4	Results of Initial Environmental Examination of RIF Improved Projects in this Supplement	9
5	Rural Infrastructure Fund Project USAID Project Number 492-0420 Road Subprojects Environmental Analysis	10

**LIST OF FIGURES**

<b><u>FIGURE</u></b>	<b><u>TITLE</u></b>	<b><u>PAGE</u></b>
1	Road Subprojects	3
2	Port Subprojects	5

## I. INTRODUCTION

The Rural Infrastructure Fund (RIF) Project undertaken by the Government of the Republic of the Philippines (GOP) will be financed by the United States Agency for International Development (USAID) under Grant Number 492-0420. The project proponent is Mr. Edmundo V. Mir, Undersecretary, Department of Public Works and Highways (DPWH), 8th Street Corner Bonifacio Drive, Port Area, Metro Manila. The joint venture of Louis Berger International Incorporated (LBII) and Technosphere Consultant Group Incorporated (TCGI) has been engaged by DPWH to provide engineering services to develop or update feasibility studies; to conduct environmental assessments; to carry out detailed designs; and to provide contract award and supervision of construction services for roads, bridges and ports for projects determined to be economically and environmentally acceptable.

The goal of the RIF project is to improve infrastructure in the transport sector in order to support and sustain economic growth in rural areas. This involves preparing or updating feasibility and environmental studies for over 1200 km of 24 road and bridge sub-projects and 43 ports (Tables 1 and 2; Figures 1 and 2). Feasibility studies were conducted in accordance with USAID and DPWH Guidelines for Feasibility Studies and the scope of work included technical, financial, economic, social soundness and energy use analyses. The environmental assessment of each sub-project was conducted in accordance with USAID Guideline for Environmental Works and GOP Department of Environment and Natural Resources (DENR) Environmental Management Bureau (EMB) environmental impact review process.

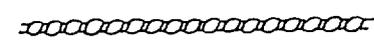
A project of this magnitude has the potential of creating a wide variety of ecological, cultural and socioeconomic impacts. Resource sensitivity varies from region to region, related in large part to the amount of previous disturbance. Similarly, the impact of a specific road or port depends on whether the proposed project is new construction or an upgrade of existing facilities. Finally, the existing population density and distribution, agricultural practices, and potential for additional resource exploitation are all factors considered in the environmental assessment.

Preliminary screening revealed that ten of the 24 road subprojects had no sensitive environmental receptors in the subproject impact area. An Initial Environmental Examination was prepared for eight of these roads in which it was recommended that an Environmental Assessment was not required. This IEE, which covers the Mactan Circumferential Road and the Banga-Altavas-Ivisan-Lanot Road, is a supplement to the previously submitted IEE covering the two remaining roads where no significant potential impacts were identified. Environmental assessments (EAs) were prepared for each of the remaining road sub-project.

**TABLE 1**  
**RURAL INFRASTRUCTURE FUND PROJECT**  
**USAID PROJECT NUMBER 492-0420**  
**LIST OF ROAD SUBPROJECTS**

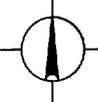
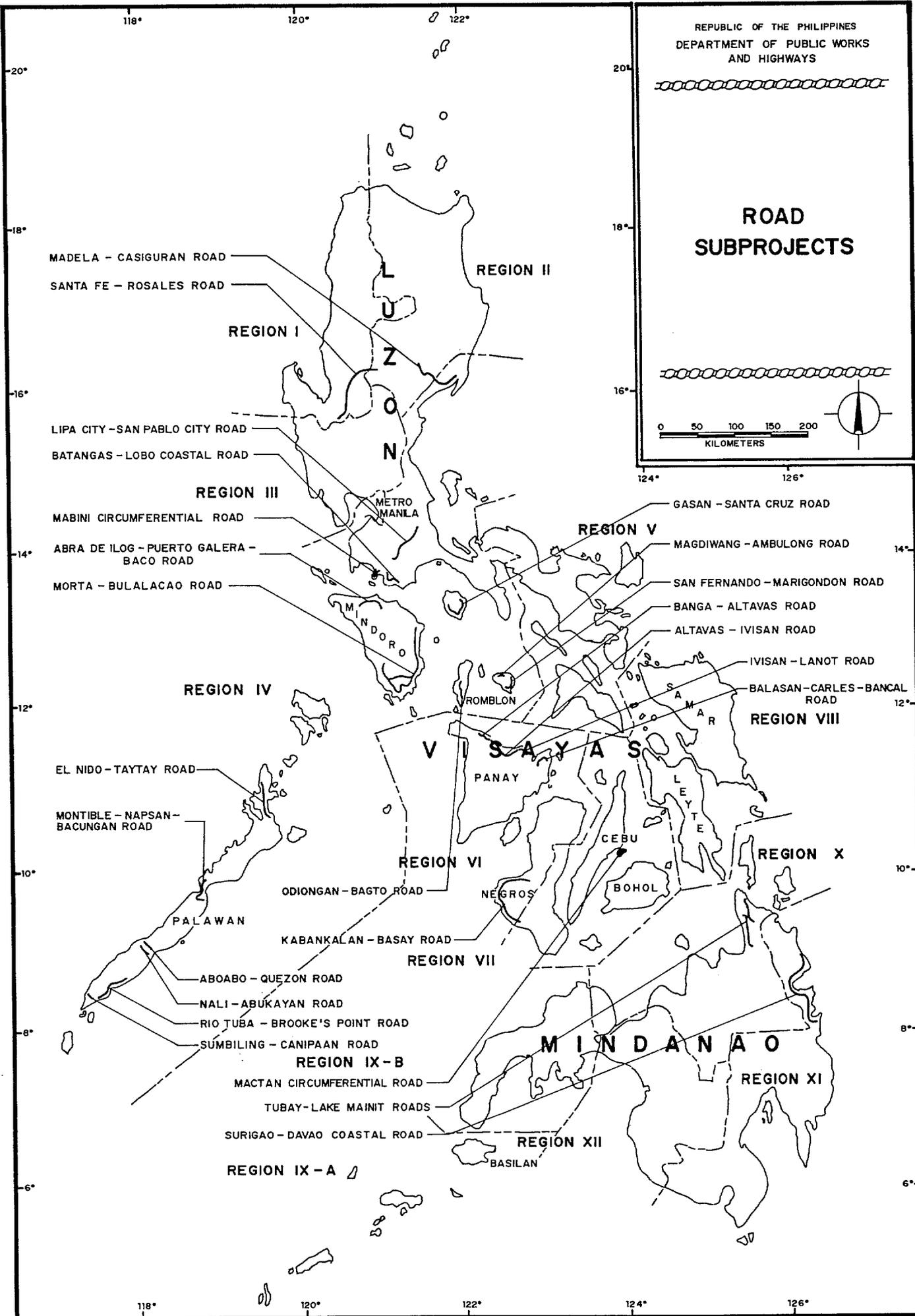
<u>Road</u>	<u>Approximate Length (km)</u>	<u>Location</u>
Aboabo-Quezon	18	Palawan
Abra de Ilog-Puerto Galera-Baco	70	Mindoro
Banga-Altavas-Ivisan-Lanot	68	Panay
Balasan-Carles-Bancal	16	Panay
Batangas-Lobo Coastal	40	Luzon
Brooke's Point-Rio Tuba	58	Palawan
Canipaan-Sumbiling	10	Palawan
El Nido-Taytay	67	Palawan
Gasán-Sta. Cruz	75	Marinduque
Kabankalan-Basay	132	Negros
Lipa City-San Pablo City	20	Luzon
Mabini Circumferential	25	Luzon
Mactan Circumferential	27	Cebu
Madela-Casiguran	113	Luzon
Magdiwang-Ambulong	3	Sibuyan
Montible-Napsan-Bacungan	74	Palawan
Morta-Bulalacao	108	Mindoro
Nali-Abukayan	25	Palawan
Odiongan-Bagto	27	Tablas
San Fernando-Marigondon	30	Sibuyan
Sta. Fe-Rosales	76	Luzon
Surigao-Davao Coastal	144	Mindanao
Tubay-Lake Mainit	80	Mindanao

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AND HIGHWAYS



### ROAD SUBPROJECTS



RURAL INFRASTRUCTURE FUND PROJECT AID PROJECT NO. 492 - 0420

# ROAD SUBPROJECTS

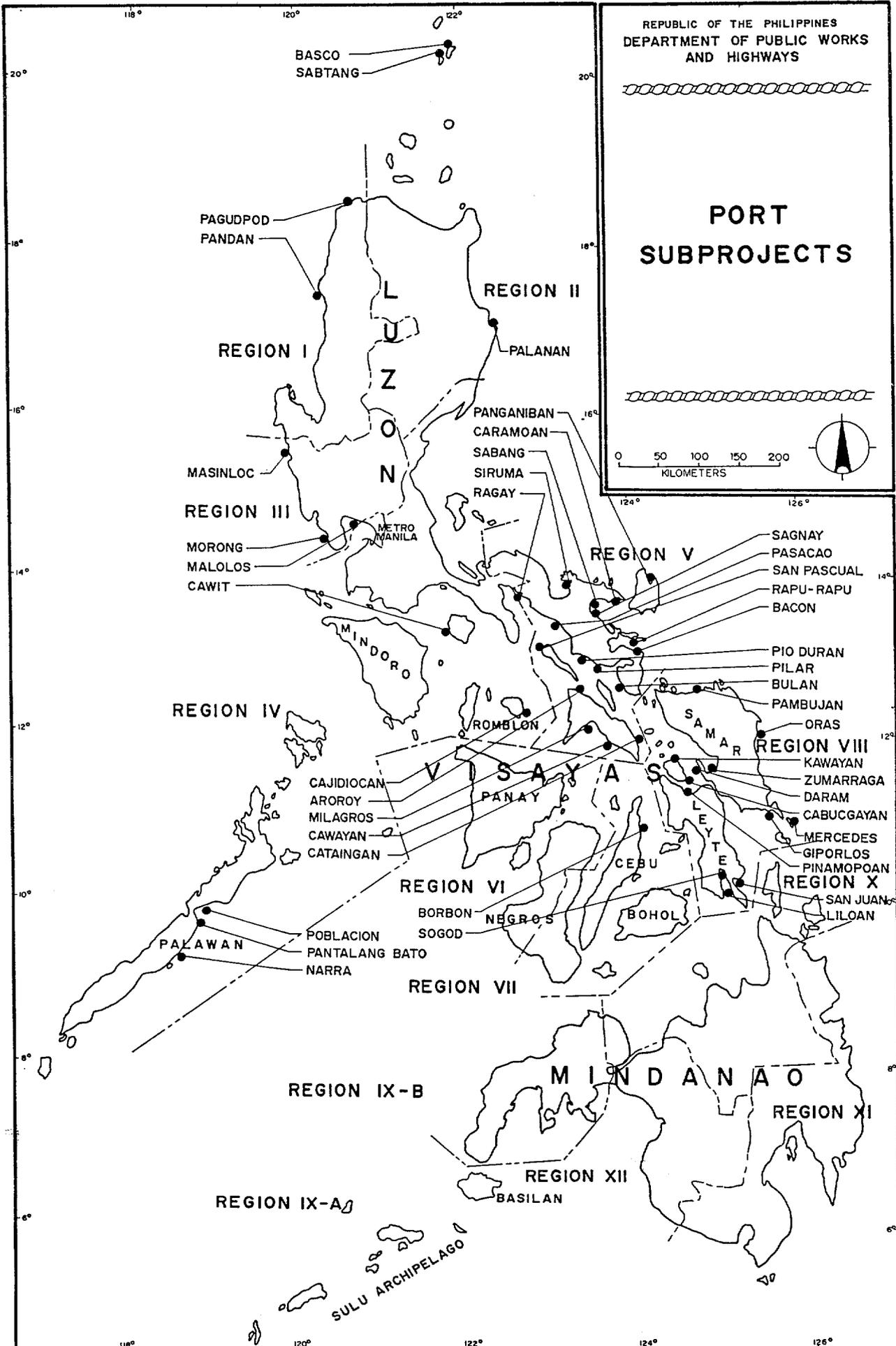
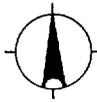
TABLE 2

RURAL INFRASTRUCTURE FUND PROJECT  
USAID PROJECT NUMBER 492-0420  
LIST OF PORT SUBPROJECTS

<u>Port</u>	<u>Province</u>	<u>Port</u>	<u>Province</u>
Aroroy	Masbate	Pagudpod	Ilocos Norte
Bacon	Sorsogon	Palanan	Isabela
Basco	Batanes	Pambujan	Northern Samar
Borbon	Cebu	Pandan	Ilocos Sur
Bulan	Sorsogon	Panganiban	Catanduanes
Cabucgayan	Leyte	Pantalang Bato	Palawan
Cajidiocan	Romblon	Pasacao	Camarines Sur
Caramoan	Camarines Sur	Pilar	Albay
Cataingan	Masbate	Pinamopo-an	Northern Leyte
Cawayan	Masbate	Pio Duran	Albay
Cawit	Marinduque	Poblacion	Palawan
Daram	Samar	Ragay	Camarines Sur
Giporlos	Eastern Samar	Rapu-Rapu	Albay
Kawayan	Leyte	Sabang	Camarines Sur
Liloan	Southern Leyte	Sabtang	Batanes
Malolos	Bulacan	Sagnay	Camarines Sur
Masinloc	Zambales	San Juan	Leyte
Mercedes	Eastern Samar	San Pascual	Masbate
Milagros	Masbate	Siruma	Camarines Sur
Morong	Bataan	Sogod	Leyte
Narra	Palawan	Zumarraga	Samar
Oras	Eastern Samar		

# PORT SUBPROJECTS

0 50 100 150 200  
KILOMETERS



## II. PURPOSE OF THIS REPORT

This report constitutes an Initial Environmental Examination (IEE) which summarizes the results of environmental screening analyses conducted on two road subprojects, Banga-Altavas-Ivisan-Lanot Road and Mactan Circumferential Road (Figure 1). Screening studies indicate no significant environmental constraints or concerns are likely. Contracts for these roads will include specification for erosion and sedimentation control and safety measures for handling hazardous materials and solid wastes related to construction. A description of the screening studies, their findings and recommendation for an exemption from preparation of Environmental Assessments for the subprojects follows. Background materials used for the preparation of the IEE have been filed with USAID/Manila and the USAID Europe and Near East Bureau, Project Development Division, Environmental Branch in Washington, D.C.

## III. STUDY APPROACH

A scoping meeting was held in February 1990 to identify specific concerns held by agencies, interested individuals and organizations regarding RIF road subprojects. No specific significant environmental issues were identified. Individual consultations were held with agencies and groups, including the Environmental Management Bureau of the GOP Department of Environment and Natural Resources, staff of the Institute of Environmental Studies and Management at University of Philippines at Los Baños, members of the Archaeology, Botany and Zoology Divisions of the National Museum, and the National Mapping and Resource Information Authority. In addition, 170 nongovernment organizations (NGOs) were contacted for their specific concerns regarding the projects. Data from these agencies and NGO groups and other published and unpublished sources were reviewed for environmental concerns which might pertain to specific road subprojects. These data included land use, land opportunity and topographic maps.

Potential impacts which were investigated included presence of, or increased access to, undegraded or primary forest (initially identified on land cover maps); presence of critical watershed reserves; mangrove forests and wetland areas (identified by the Asian Wetlands Bureau); prime agricultural areas; undisturbed coral reefs; and areas under or proposed for protection by the Integrated Protected Areas System (IPAS) for the Philippines. Areas identified as containing particularly high diversity by the International Council for Bird Preservation (ICBP), or which could contain species listed as rare, threatened or endangered by the Convention on International Trade in Endangered Species (CITES) were identified on land cover and ICBP

maps.

Following a review of potential issues which might pertain to each of the road subprojects, aerial surveys by helicopter were carried out for each alignment. During the overflight, data were recorded on vegetation type, land use, sensitive habitats and other environmental concerns. Photographs and video recordings were made of the alignment to document these features. Observations made during the flight were used to verify land cover maps and to ascertain the potential impact of the proposed alignment on forests, watersheds, mangroves, agriculture, coral, habitat for rare species, and other environmental concerns.

#### IV. RESULTS

The two road subprojects considered in this supplemental IEE have no sensitive environmental receptors within the expected areas of impact and additional detailed environmental investigation is unwarranted. These subprojects are upgrades of existing roads through developed agricultural areas interspersed with communities and will not impact sensitive environmental features. Table 3 summarizes the description of the road subprojects for which no environmental assessment is recommended. Results of the IEE of these subprojects are presented in Table 4. Land cover maps for these two roads are provided in Appendix A and Appendix B contains photographs of these subprojects. Neither of these routes traverse exceptionally rugged terrain where special erosion control or slope stabilization techniques would be required. Both will provide substantial benefits through enhancement of road surfaces and improvement of existing drainage structures. Both roads are relatively level and will have low maintenance requirements. Contacts with the National Museum and other authorities indicated that impacts on Tribal Filipinos or archaeological resources were unlikely. Any archaeological resources discovered during construction would be treated in accordance with GOP Presidential Decree No. 374 (1974) which requires review of the resources by the Director of the National Museum before work can be continued. No significant potential impacts on sensitive issues or protected areas were identified.

It is recommended, therefore, that no environmental assessment be required of these two subprojects and that no further analysis of their environmental consequences is necessary.

A summary the environmental analysis of RIF roads is presented in Table 5.

**Table 3: Description of Road Projects Subjected to Initial Environmental Examination in This Supplement**

	Location	Length (km)	Existing	Description of Proposed Action	(1) Staff Participating in Evaluation
Banga-Altavas-Ivisan-Lanot	Panay	69	Yes	Upgrade of existing gravel and asphalt road	DK, AB, WC, AC, MC, SP
Mactan Circumferential	Cebu	30	Mostly	Upgrade of existing asphalt and concrete road	DK, AB, WC, AC, MC, SP

**(1) Staff**

DK – D. Kibbe, Environmental Group Leader

AB – A. Blelloch, Principal Environmental Engineer

WC – W. Cummings, Cultural Ecologist

AC – A. Crenshaw, Environmental Planner

MC – M. Caleda, Terrestrial Ecologist

SP – S. Posadas, Rural Sociologist

MR – M. Ross, Aquatic Ecologist

**Table 4: Results of Initial Environmental Examination of RIF Road Improvement Projects in This Supplement**

	POTENTIAL IMPACT ON SENSITIVE ISSUES											
	PRIMARY FOREST	WATERSHED PROJECTS	MANGROVES	PRIME AGRICULTURAL	CORAL	BIODIVERSITY	TRIBAL FILIPINOS	ARCHAEOLOGICAL RESOURCES	CULTURAL RESOURCE	PROTECTED AREAS	TOURISM	SOIL EROSION
Banga-Altavas-Ivisan-Lanot	NP	NP	NI	NI	NP	NI	NP	NP	PB	NP	PB	NI
Mactan Circumferential	NP	NP	NP	NP	NI	NP	NP	NI	PB	NP	PB	NI

NP = Issue Not Present

NI = No Significant Adverse Impact Expected

PB = Probable Benefit

M = Mitigation Available to Alleviate Issue if Present

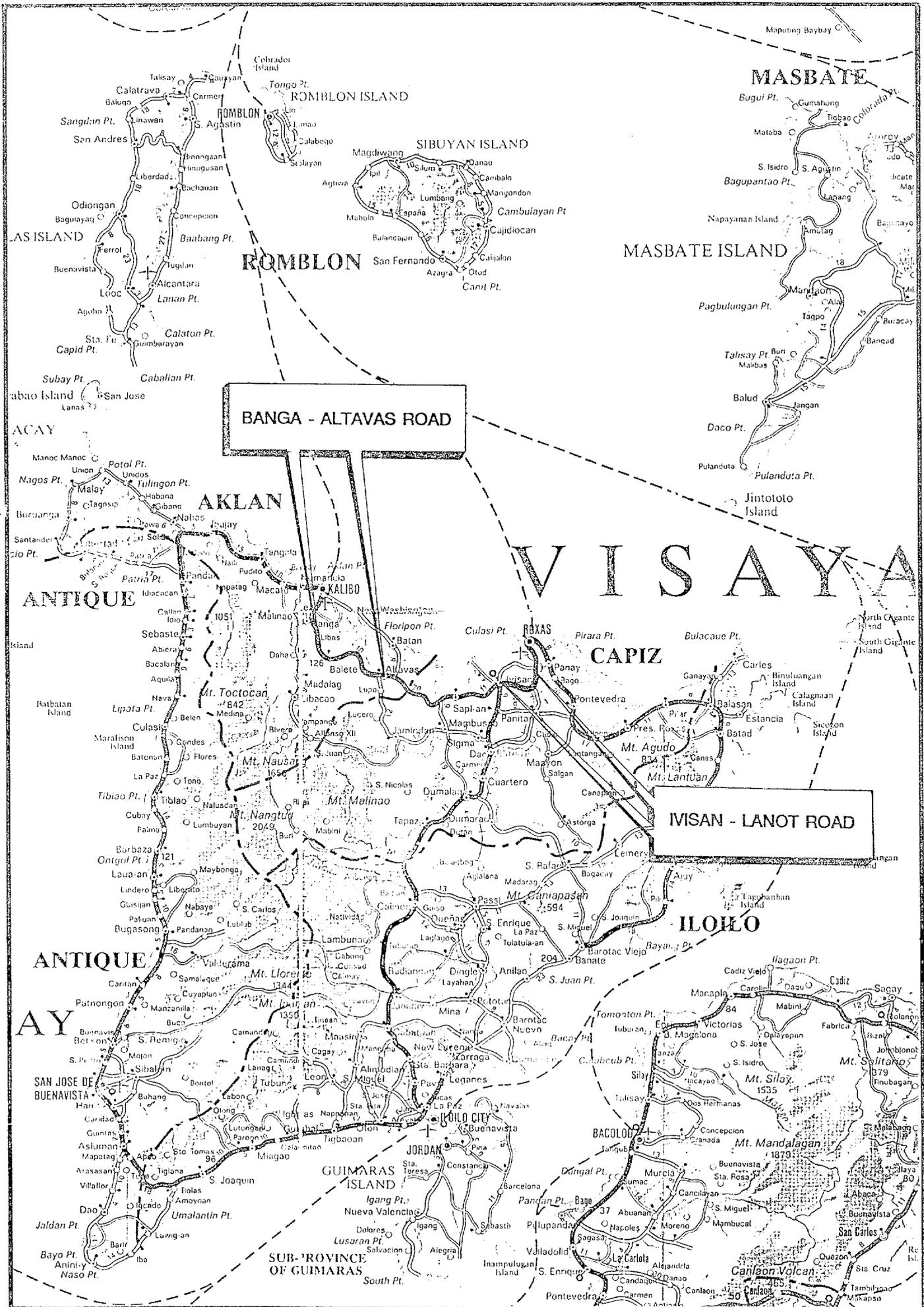
**TABLE 5**  
**RURAL INFRASTRUCTURE FUND PROJECT**  
**USAID PROJECT NUMBER 492-0420**  
**ROAD SUBPROJECTS**  
**ENVIRONMENTAL ANALYSIS**

<u>Road</u>	<u>IEE Adequate</u>	<u>EA Required</u>
Aboabo-Quezon		X
Abra de Ilog-Puerto Galera-Baco		X
Banga-Altavas-Ivisan-Lanot	X	
Balasan-Carles-Bancal	X	
Batangas-Lobo Coastal	X	
Brooke's Point- Rio Tuba		X
Canipaan-Sumbiling		*
El Nido-Taytay		X
Gasan-Sta. Cruz	X	
Kabankalan-Basay	X	
Lake Mainit Circumferential		X
Lipa City-San Pablo City		X
Mabini Circumferential		X
Mactan Circumferential	X	X
Madela-Casiguran		X
Magdiwang-Ambulong	X	
Montible-Napsan-Bacungan		*
Morta-Bulalacao		X
Nali-Abukayan		*
Odiongan-Bagto	X	
San Fernando-Marigondon	X	
Sta. Fe-Rosales		X
Surigao-Davao Coastal		X
Tubay-Jabonga		X

\* Included as chapter in Feasibility Study.

**APPENDIX A**

**Land Cover Maps**

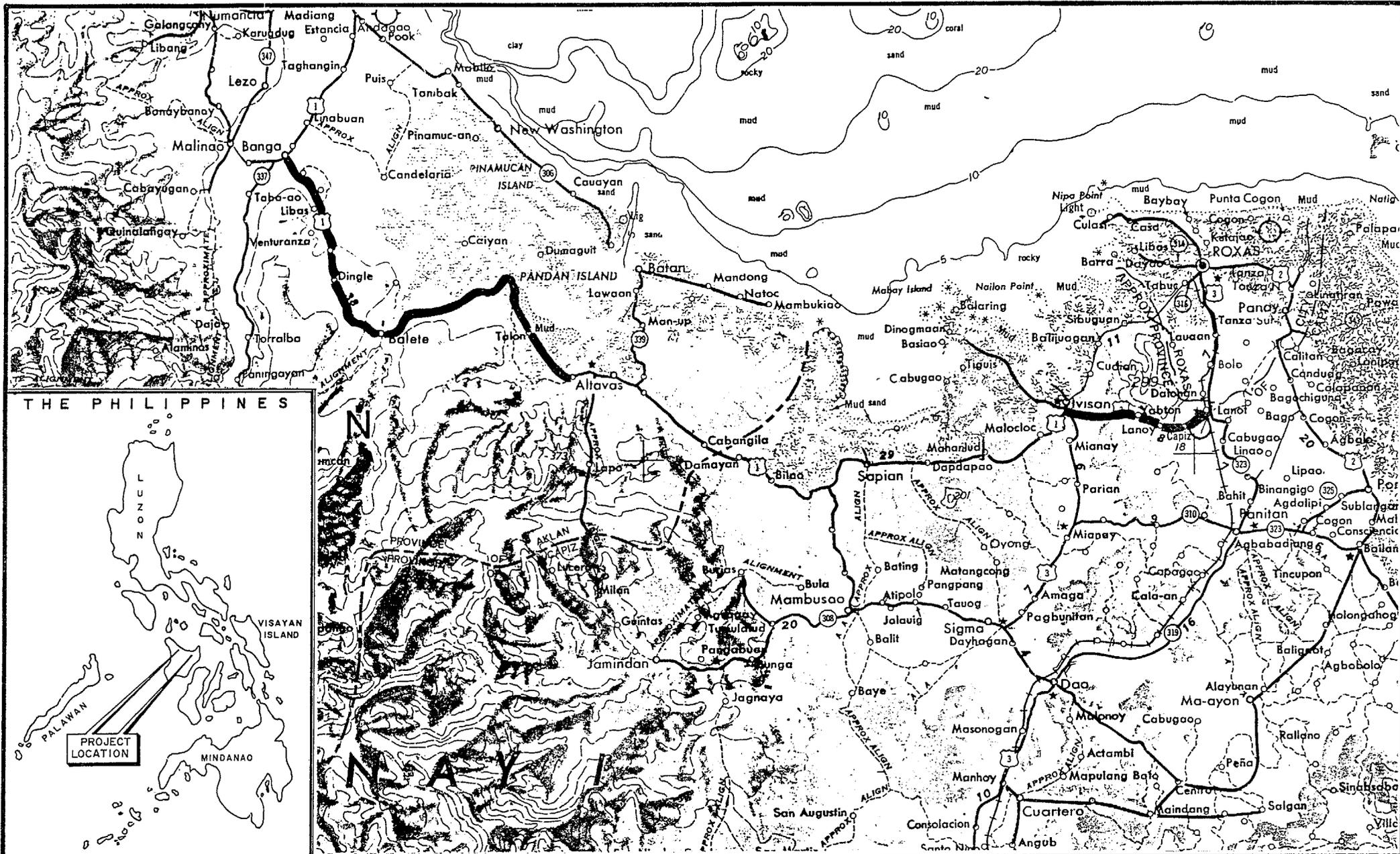


RURAL INFRASTRUCTURE FUND PROJECT

AID PROJECT NO. 492-0420

**PROJECT AREA ROAD MAP**

FIGURE A-1

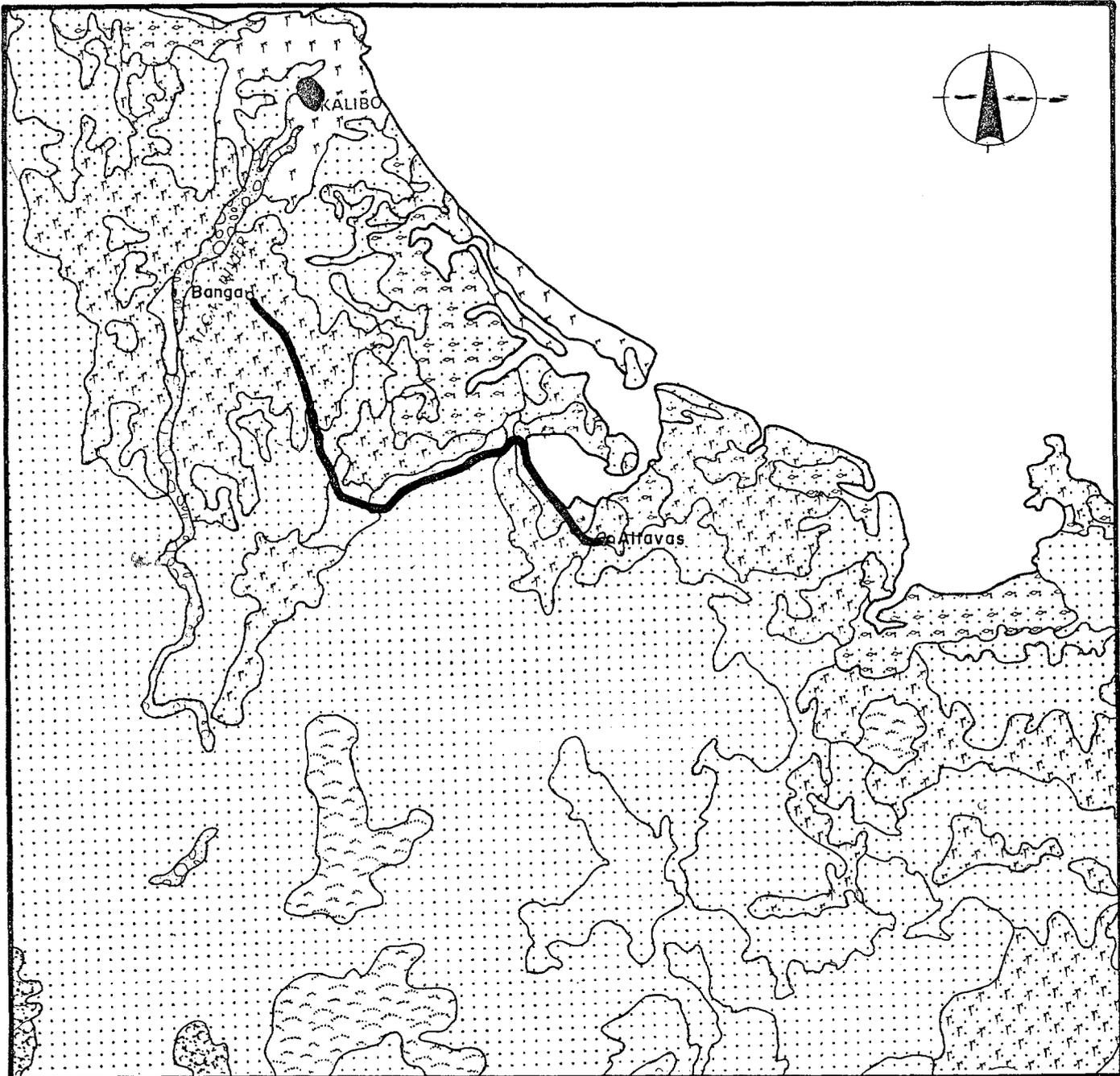


RURAL INFRASTRUCTURE FUND PROJECT

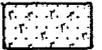
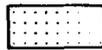
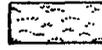
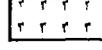
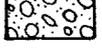
AID PROJECT NO. 492 - 0420

BANGA - ALTAVAS ROAD and IVISAN - LANOT ROAD SUBPROJECTS : TOPOGRAPHIC MAP

FIGURE A-2



**LEGEND**

- |  |  |
|--|--|
|  DIPTEROCARP FOREST, CLOSED CANOPY      |  CROPLAND MIXED W/ COCONUT PLANTATION |
|  DIPTEROCARP FOREST, OPEN CANOPY        |  BUILT - UP AREA                      |
|  CULTIVATED AREA MIXED W/ BRUSH & GRASS |  FISHPONDS DERIVED FROM MANGROVE      |
|  GRASSLAND, GRASS COVERING              |  MANGROVE VEGETATION                  |
|  COCONUT PLANTATIONS                    |  RIVER BEDS                           |
|  PROJECT ROAD ALIGNMENT                 |  |

**BANGA-ALTAVAS ROAD**

SOURCE PCGS 2523

National Mapping and  
Resource Information  
Authority, 1987

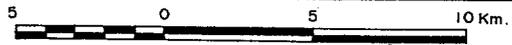
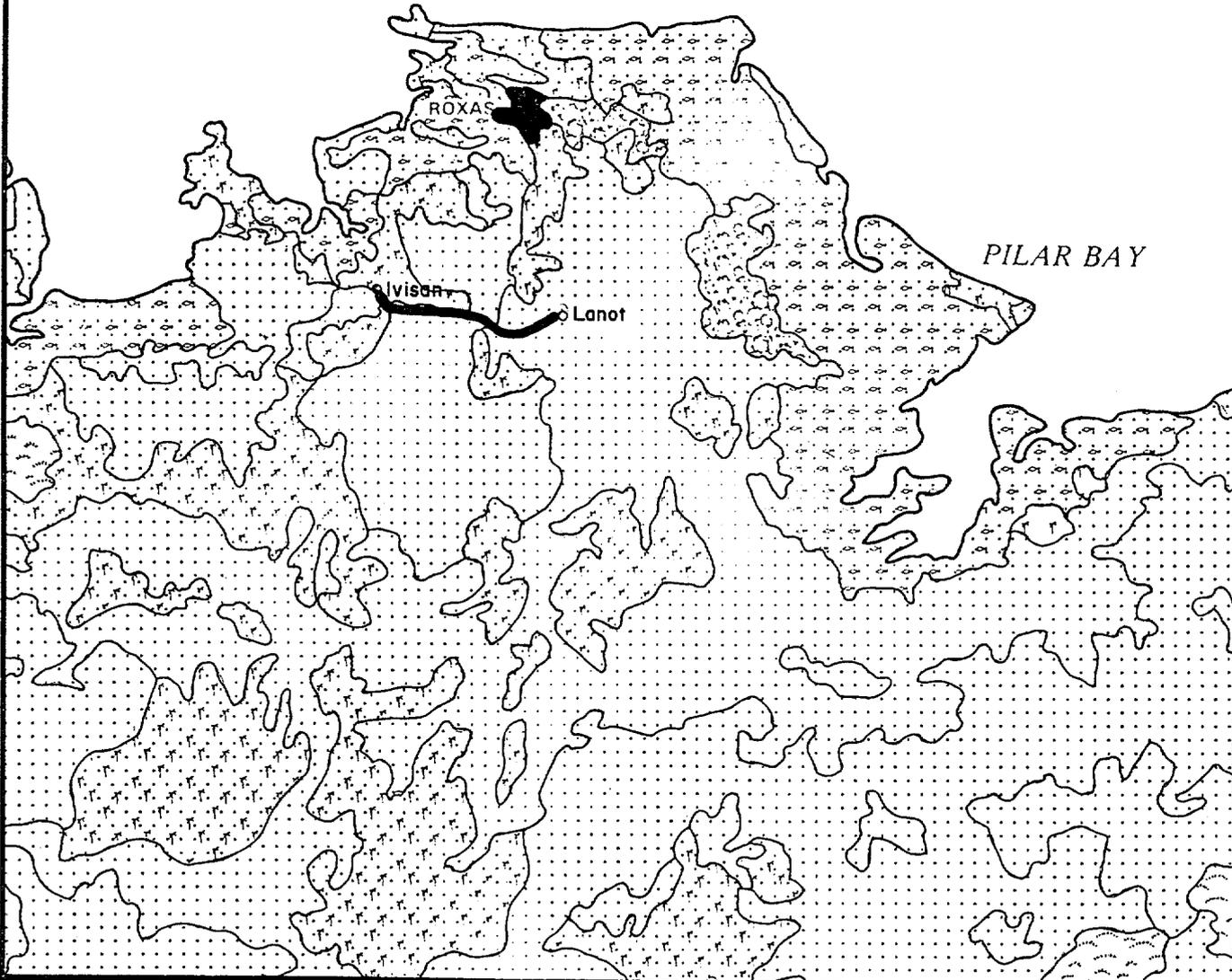
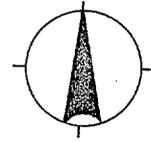
RURAL INFRASTRUCTURE FUND PROJECT

AID PROJECT NO. 492 - 0420

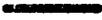
LAND COVER MAP

FIGURE A-3

SIBUYAN SEA



LEGEND :

-  DIPTEROCARP FOREST, CLOSED CANOPY
-  DIPTEROCARP FOREST, OPEN CANOPY
-  CULTIVATED AREA MIXED W/ BRUSH & GRASS
-  GRASSLAND, GRASS COVERING
-  COCONUT PLANTATIONS
-  BUILT-UP AREA
-  FISHPONDS DERIVED FROM MANGROVE
-  MANGROVE VEGETATION
-  RIVER BEDS
-  PROJECT ROAD ALIGNMENT

IVISAN- LANOT ROAD

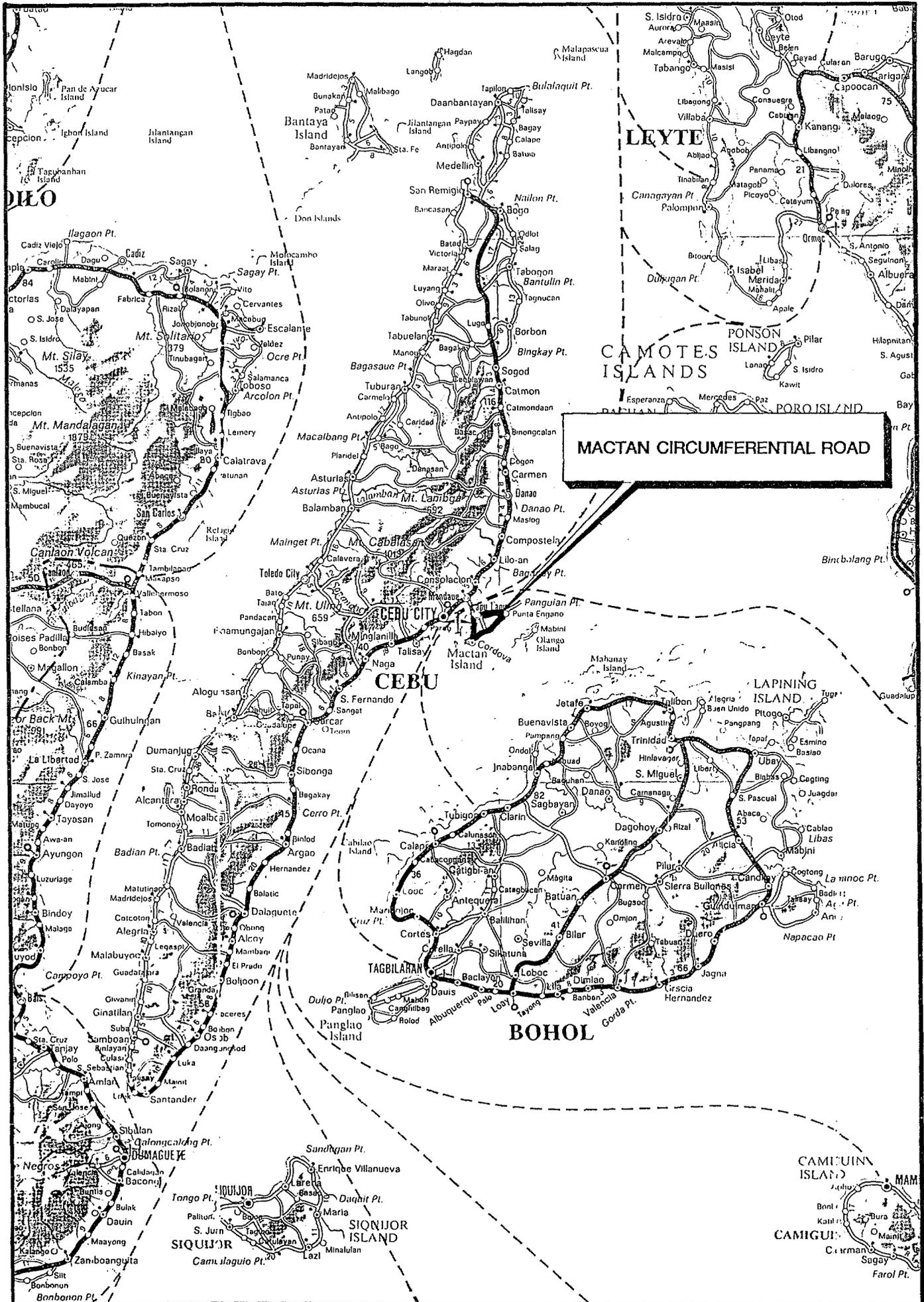
SOURCE PCGS 2523  
National Mapping and  
Resource Information  
Authority, 1987

RURAL INFRASTRUCTURE FUND PROJECT

AID PROJECT NO. 492-0420

LAND COVER MAP

FIGURE A-4

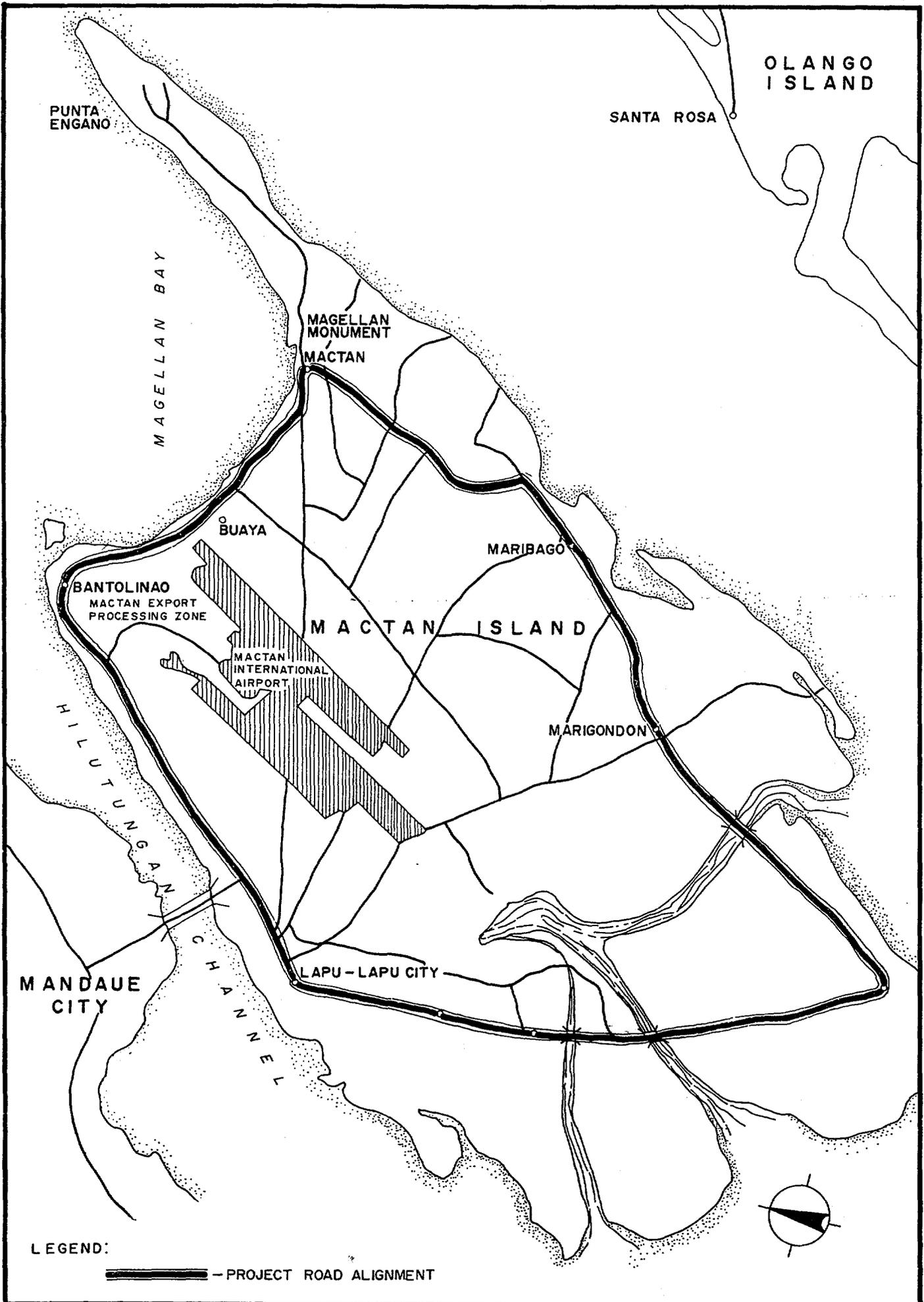


RURAL INFRASTRUCTURE FUND PROJECT

AID PROJECT NO. 492-0420

PROJECT AREA ROAD MAP

FIGURE A-5



RURAL INFRASTRUCTURE FUND PROJECT      AID PROJECT NO. 492-0420

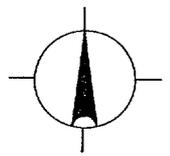
LOCATIONS OF MAGELLAN MONUMENT IN MACTAN ISLAND

FIGURE A - 6



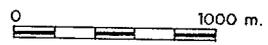
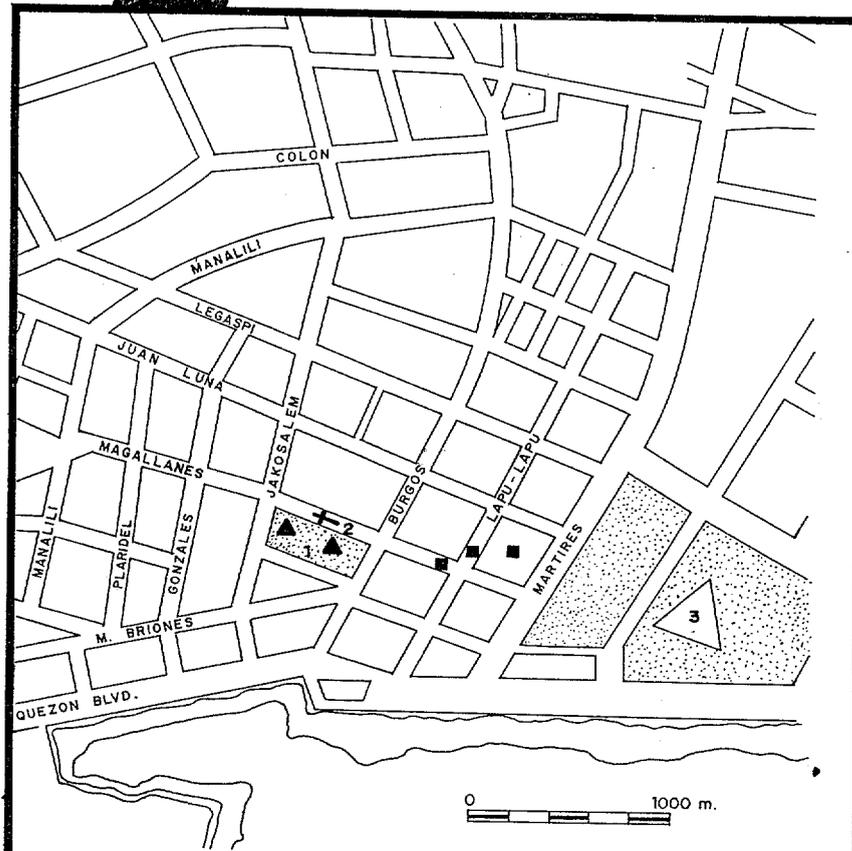
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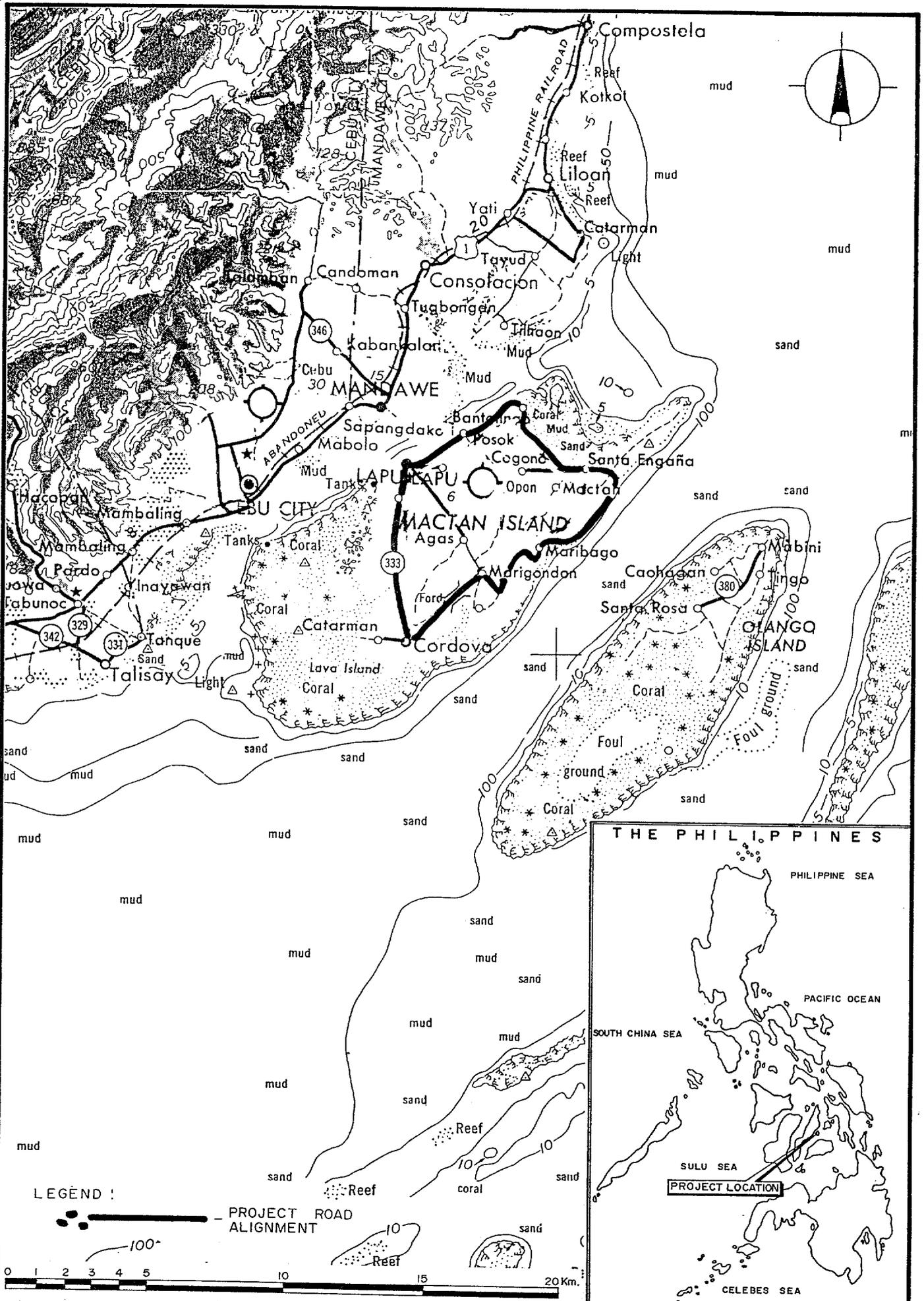
- 1 - PLAZA RIZAL
- 2 - CROSS OF MAGELLAN
- 3 - FORT S. PEDRO
- - EXCAVATION SITE
- ▲ - TEST EXCAVATION
- PROJECT ROAD ALIGNMENT



**SOURCE :**

AN ARCHAEOLOGICAL PICTURE OF A PRE - SPANISH CEBUANO COMMUNITY 1973.



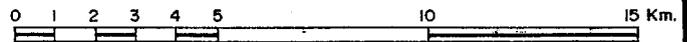
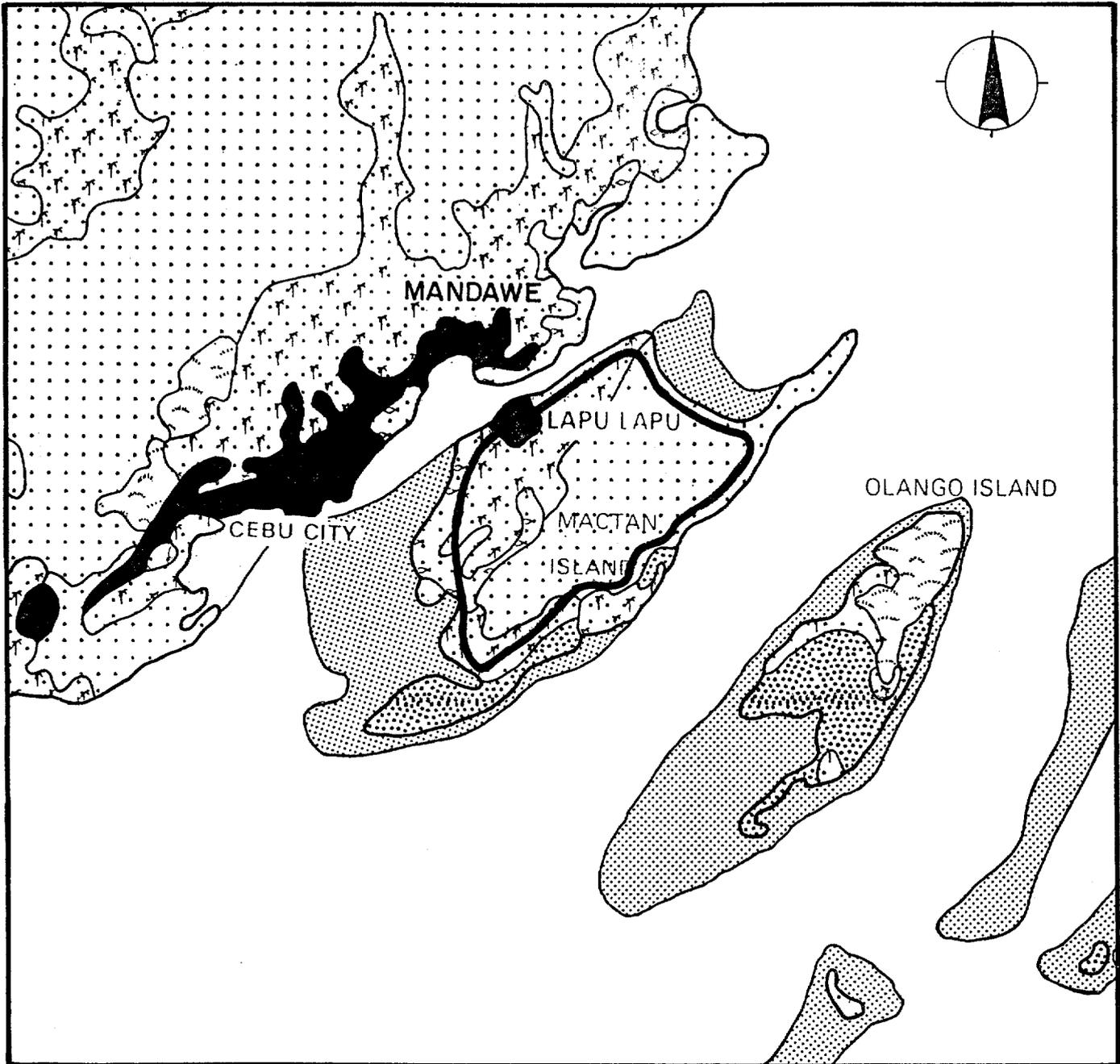


RURAL INFRASTRUCTURE FUND PROJECT

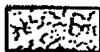
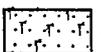
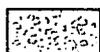
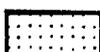
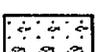
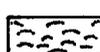
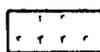
AID PROJECT NO. 492 - 0420

MACTAN CIRCUMFERENTIAL ROAD SUBPROJECT: TOPOGRAPHIC MAP

FIGURE A-8



**LEGEND :**

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|--|--|
|  DIPTEROCARP FOREST, CLOSED CANOPY      |  CROPLAND MIXED W/ COCONUT PLANTATION |
|  DIPTEROCARP FOREST, OPEN CANOPY        |  BUILT-UP AREA                        |
|  CULTIVATED AREA MIXED W/ BRUSH & GRASS |  FISHPONDS DERIVED FROM MANGROVE      |
|  GRASSLAND, GRASS COVERING              |  OTHER BARREN LAND                    |
|  COCONUT PLANTATIONS                    |  CORAL REEFS                          |
|  PROJECT ROAD ALIGNMENT                 |  |

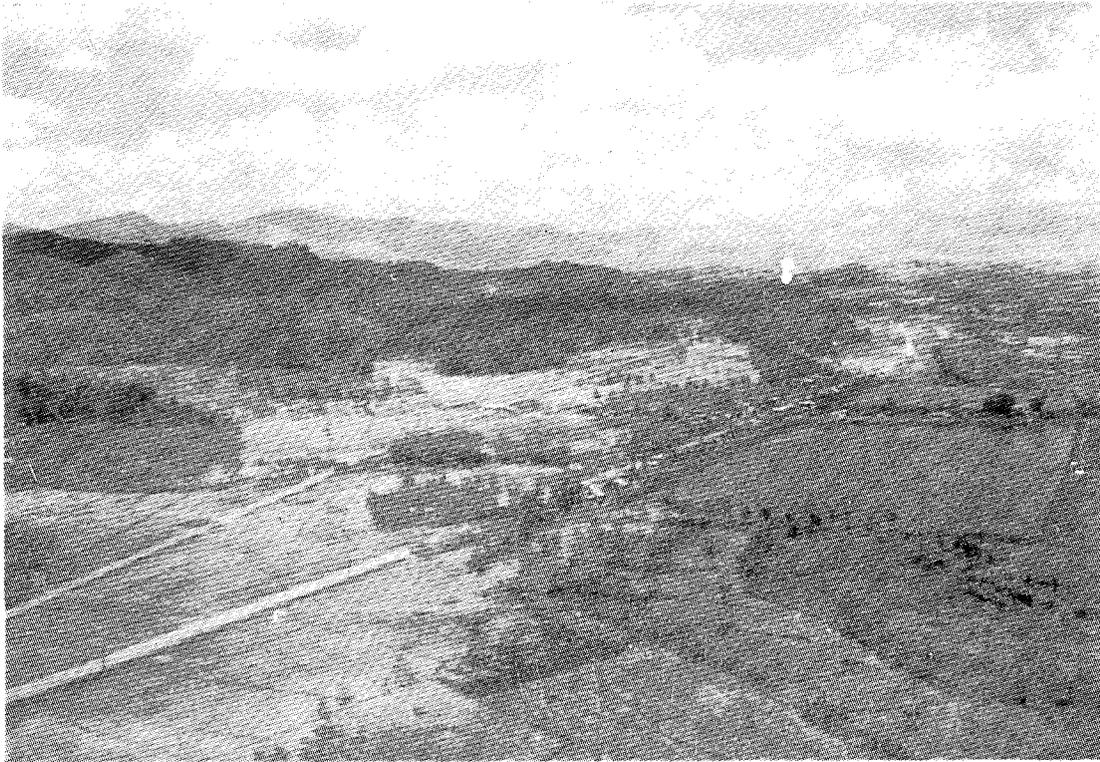
**MACTAN CIRCUMFERENTIAL ROAD**

SOURCE PCGS 2529

National Mapping and  
Resource Information  
Authority, 1987

**APPENDIX B**

**Subproject Photographs**

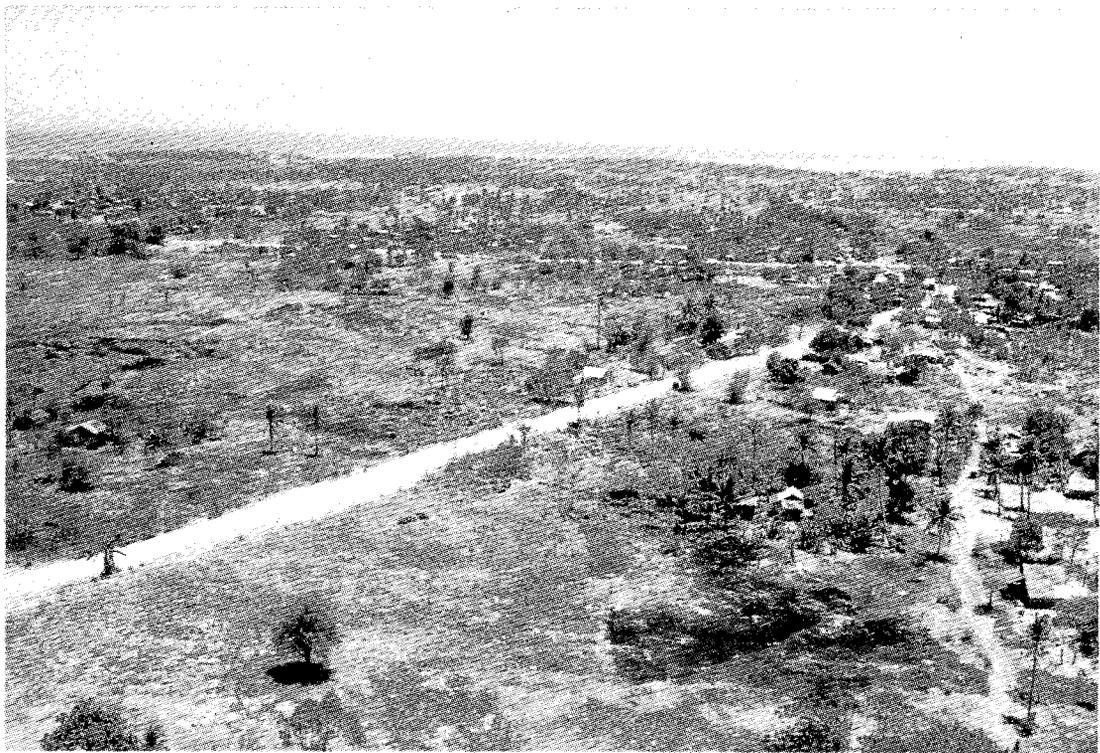
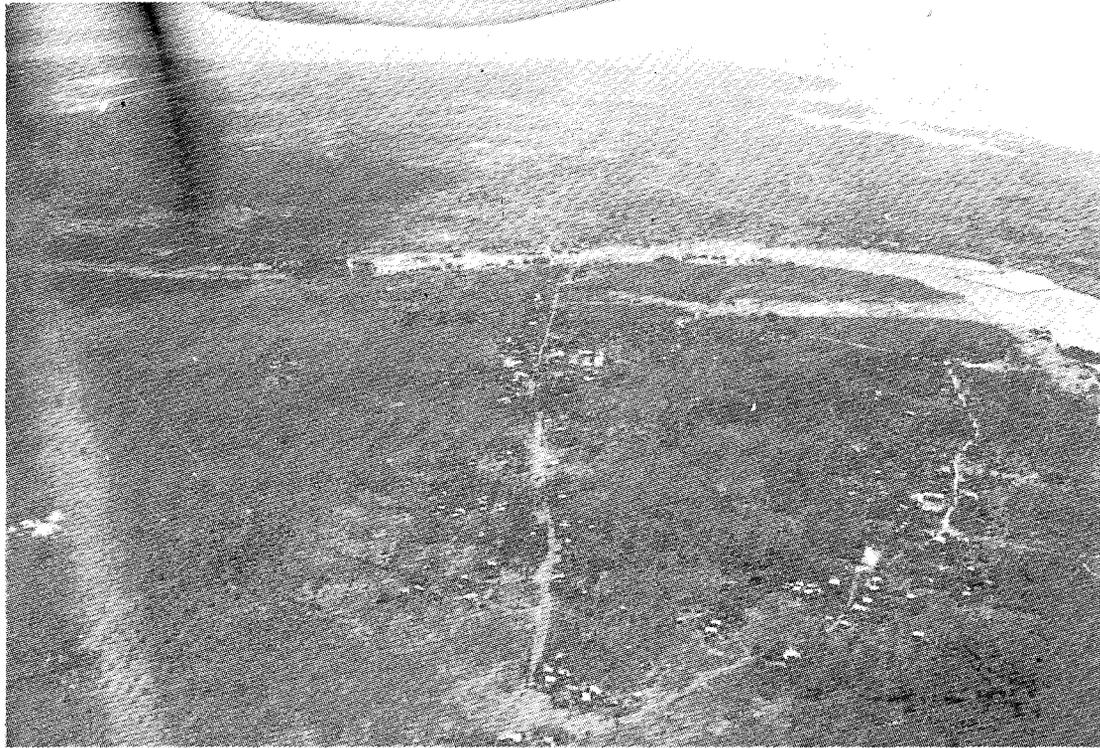


RURAL INFRASTRUCTURE FUND PROJECT AID PROJECT NO. 492-0420

REPRESENTATIVE VIEWS OF BANGA-ALTAVAS ROAD

PLATE B-1







RURAL INFRASTRUCTURE FUND PROJECT      AID PROJECT NO. 492-0420  
REPRESENTATIVE VIEW OF MACTAN CIRCUMFERENTIAL ROAD

PLATE B-4