ISN 32702

PD-AAW-611

PW4

4970244

REPUBLIK INDONESIA

DEPARTEMEN PEKERJAAN UMUM

DIREKTORAT JENDERAL BINA MARGA

PROJECT CODE

LUWU ROAD BETTERMENT PROJECT
SOUTH SULAWESI

SUPERVISION MONTHLY REPORT
APRIL - 1979

P.T. INDAH KARYA
CONSULTING ENGINEERS

LOUIS BERGER INTERNATIONAL, INC.
CONSULTING ENGINEERS

USAID / Indonesia
Information Center

PDAAN611

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LUWU ROADS BETTERMENT PROJECT
CONSTRUCTION SUPERVISORY SERVICES

MONTHLY REPORT - A P R I L 1979

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B. Laboratory Works
C. Survey Works
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B. Construction Works
C. Laboratory Works
D. Survey Works

* Work Progress Schedule

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B. Report of Resident Engineer Section II

CONSTRUCTION SUPERVISORY SERVICES FOR LUWU ROAD BETTERMENT PROJECT
P.T. INDAH KARYA - LOUIS BERGER INT. INC.
PROJECT OFFICES - JLN. IMAM BONJOL 8 PALOPO, BONE BONE, WALENRANG, WOTU - SOUTH SULAWESI

MONTHLY REPORT APRIL 1979

During April the project was again visited by A. I. D. The project was also visited by General Solichin and Col. Hiru. Van Kaiser has returned and is progressing well on redesign. The surveyors are again without an E. D. M. There is still no water or electricity at Bone Bone. The office space is completed, but it has developed that the office is supposed to be for Bina Marga. The Project Manager has agreed to provide space for the consultants as soon as the office is completed.

Bina Marga has a new Project Manager, Harry Pondaag. Jaya now has a blue print machine and we can now print without having to drive two days to Ujung Pandang.

Jaya is still finishing their camp and getting organized. The crusher is still not operational.

Sekayu is still doing remarkably well to construct a passable gravel road without adequate equipment. They are still lacking in spare parts and maintenance and are only operating 8 dump trucks.

Ernie Trevalo, the materials man is on site and working well with both labs. To date Sekayu has not produced acceptable concrete pipe.

Attachments: Monthly report Section I
Monthly report Section II

Copy to: A. I. D.
Pat Quinn
File

P.T. INDAH KARYA - Jln. Ir. H. Juanda 63, Tlp. 58657 - 57241 - Bandung
LOUIS BERGER INT. INC. - Jln. Kemang Raya 2, Tlp. 791715 - Jakarta
- 100 Halsted Street East Orange, New Jersey 07017 USA

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1. PROJECT DESCRIPTION AND HISTORY

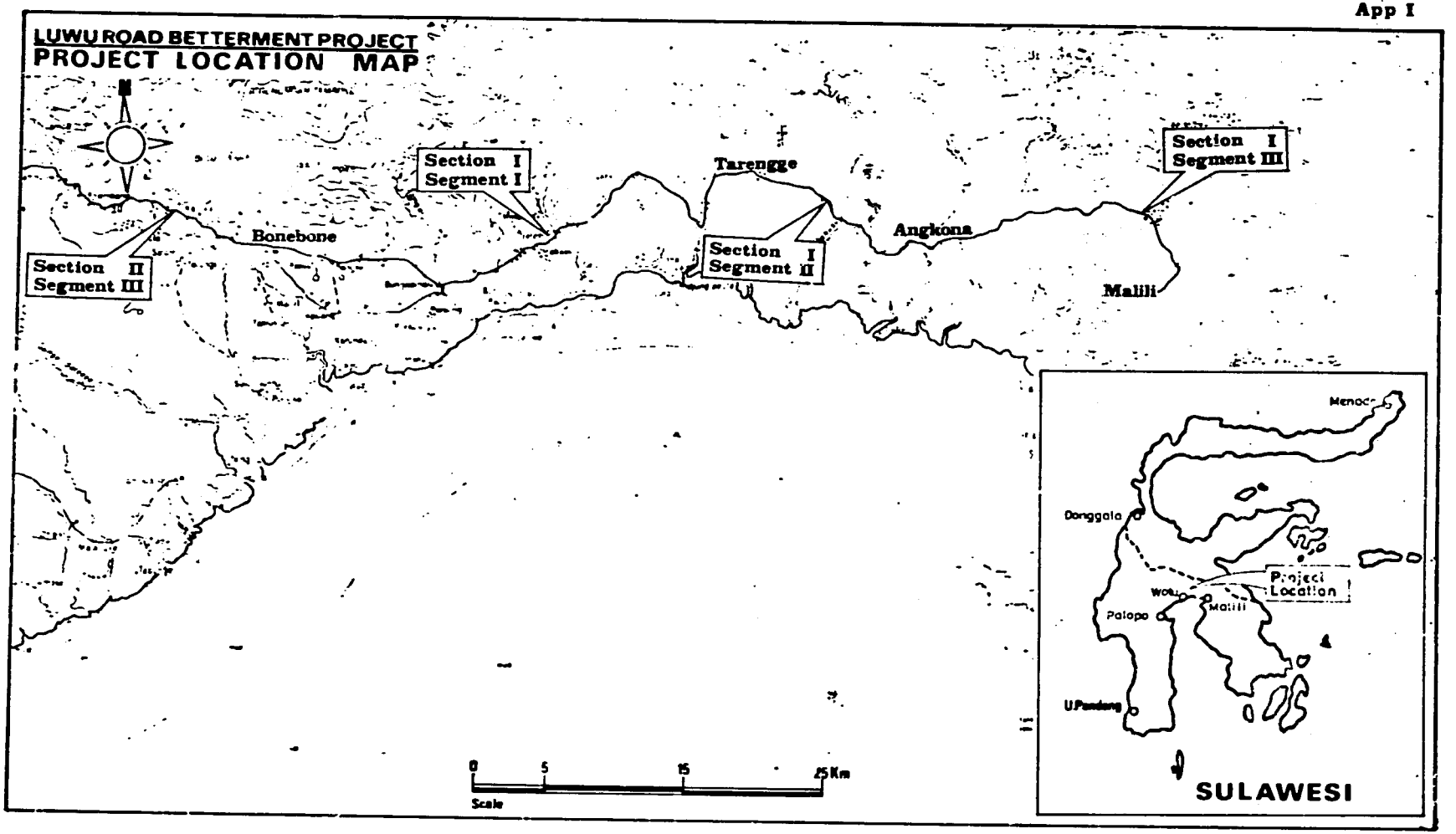
The project area lies in South Sulawesi Province, connect the several townships within the area of Luwu Transmigration Project and comprise of two Sections approximately 176 Km. in length.

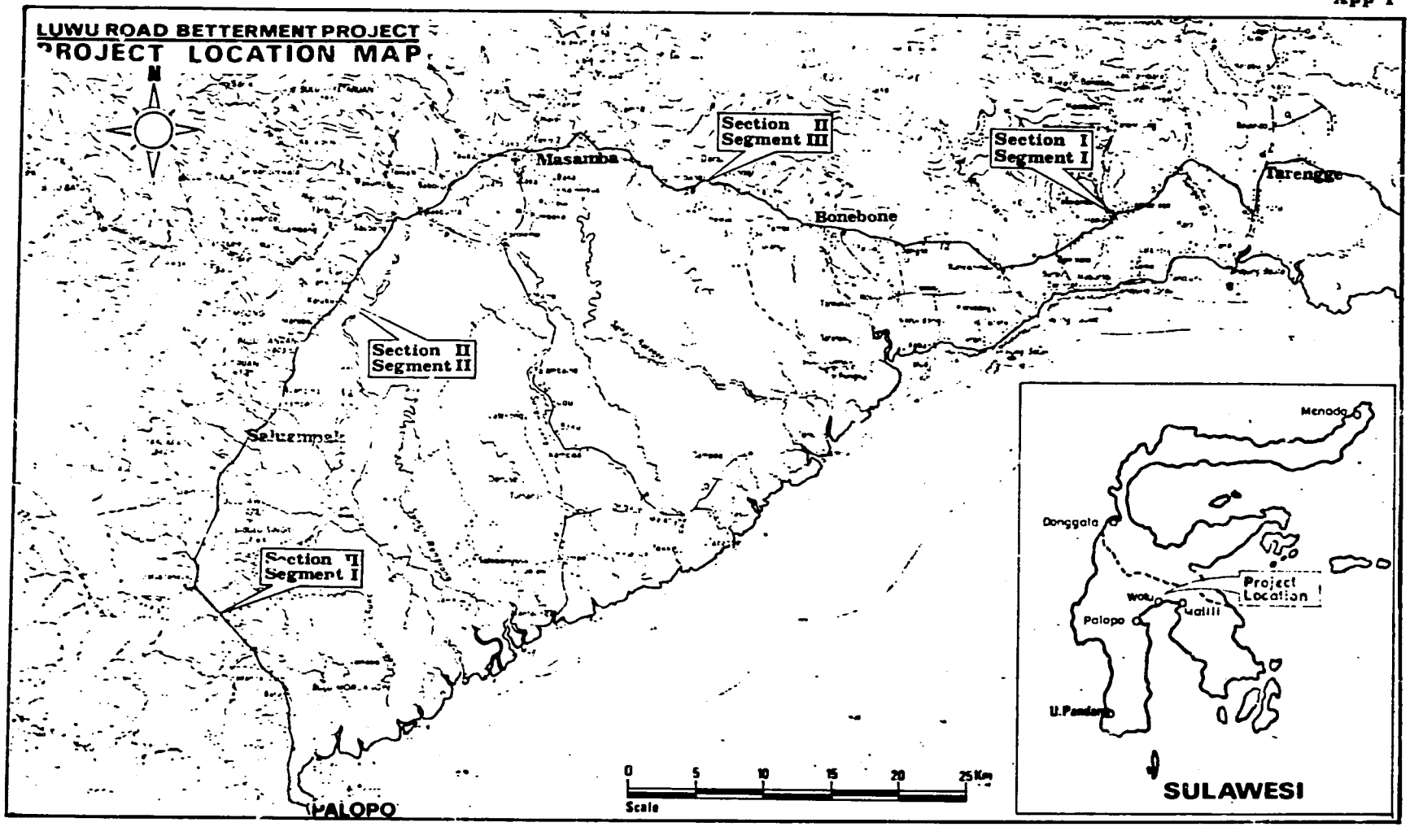
Section I connect the township of Bone-Bone - Tarengge - Malili approximately 78 Km. in length ; and Section II connect the township of Palopo - Masamba - Bone-Bone approximately 98 Km. in length.

The Government of Indonesia construct the Luwu Roads Betterment Project with the fund provided by USAID and by Government yearly budget (DIP). The Project has been subjected to a Final Engineering during the year of 1975.

P.T. INDAH KARYA undertakes and performs the consulting supervision services along with LOUIS BERGER INTERNATIONAL Inc.

Whilst P.T. SEKAYU INTERNATIONAL and P.T. PEMBANGUNAN JAYA as Contractors, undertakes the construction works for Section I and Section II.

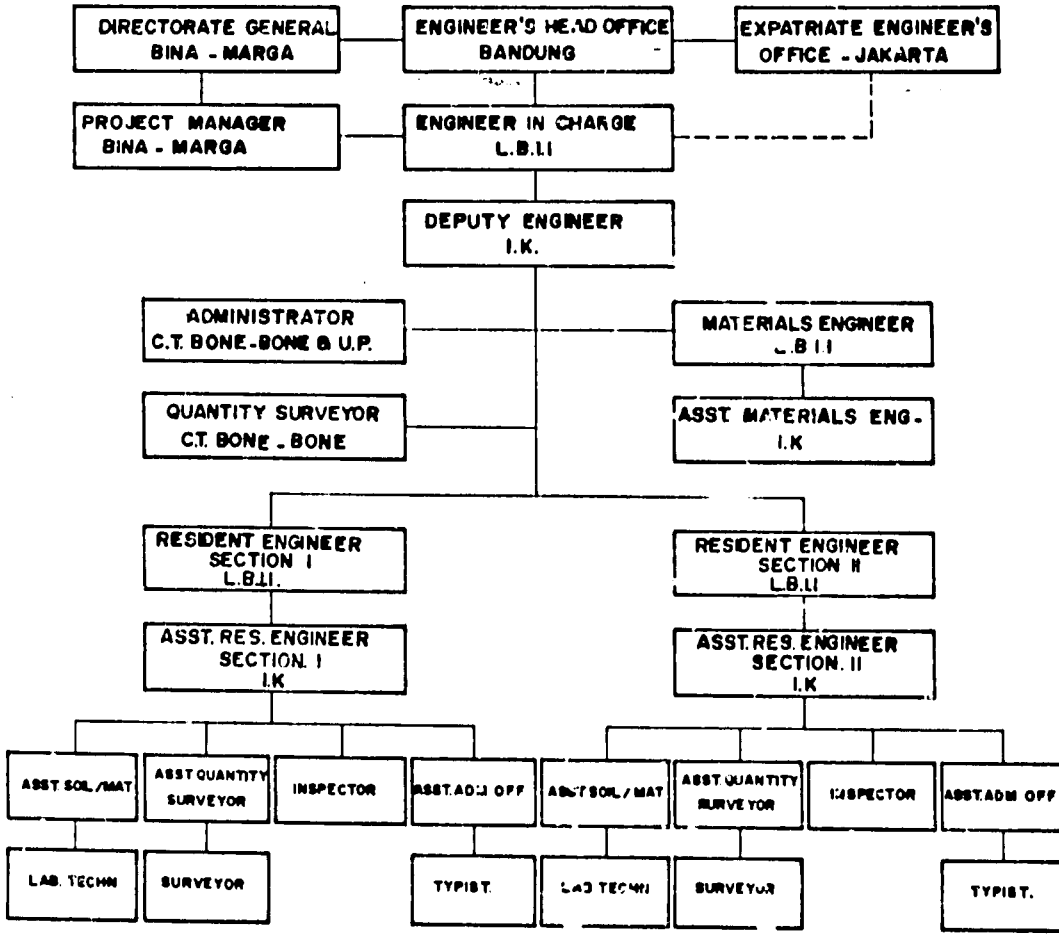

LUWU ROAD BETTERMENT PROJECT
PROJECT LOCATION MAP
Section I
Segment I
Section II
Segment III
Bonebone
Tarengge
Section I
Segment II
Angkona
Section I
Segment III
Malili
0
5
15
25Km
Scale
Menado
Donggala
Project Location
Palopo
Malili
U.Pandang
SULAWESI


LUWU ROAD BETTERMENT PROJECT
PROJECT LOCATION MAP
N
Section II
Segment III
Section I
Segment I
Masamba
Tarengge
Bonebone
Section II
Segment II
Section II
Segment I
PALOPO
0 5 10 15 20 25 Km
Scale
Menado
Donggala
Project Location
Palopo
U.Pandang
SULAWESI

LUWU ROADS & BRIDGES
BETTERMENT PROJECT
CONSTRUCTION SUPERVISORY

APP. III

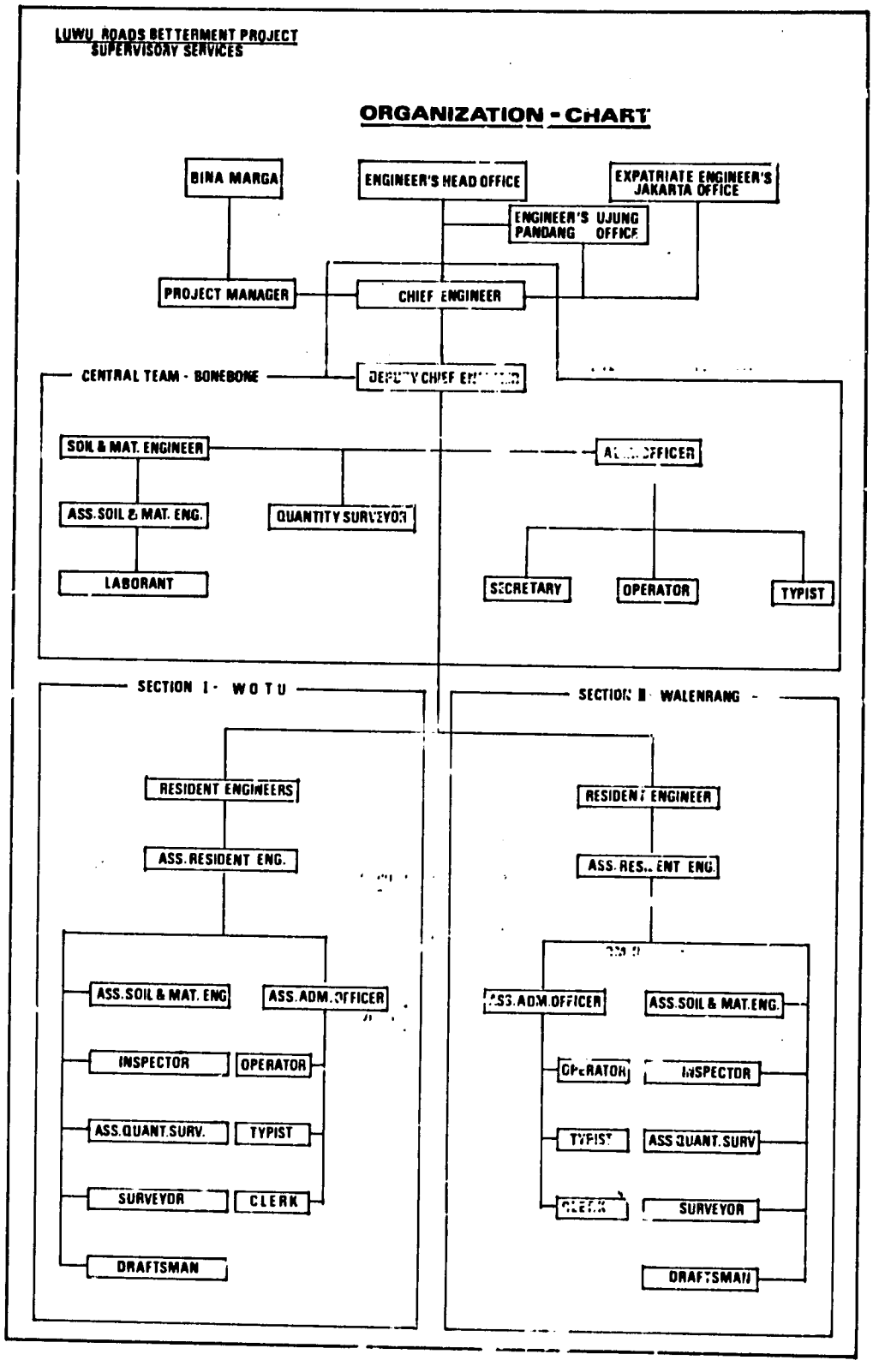
ORGANIZATION — CHART



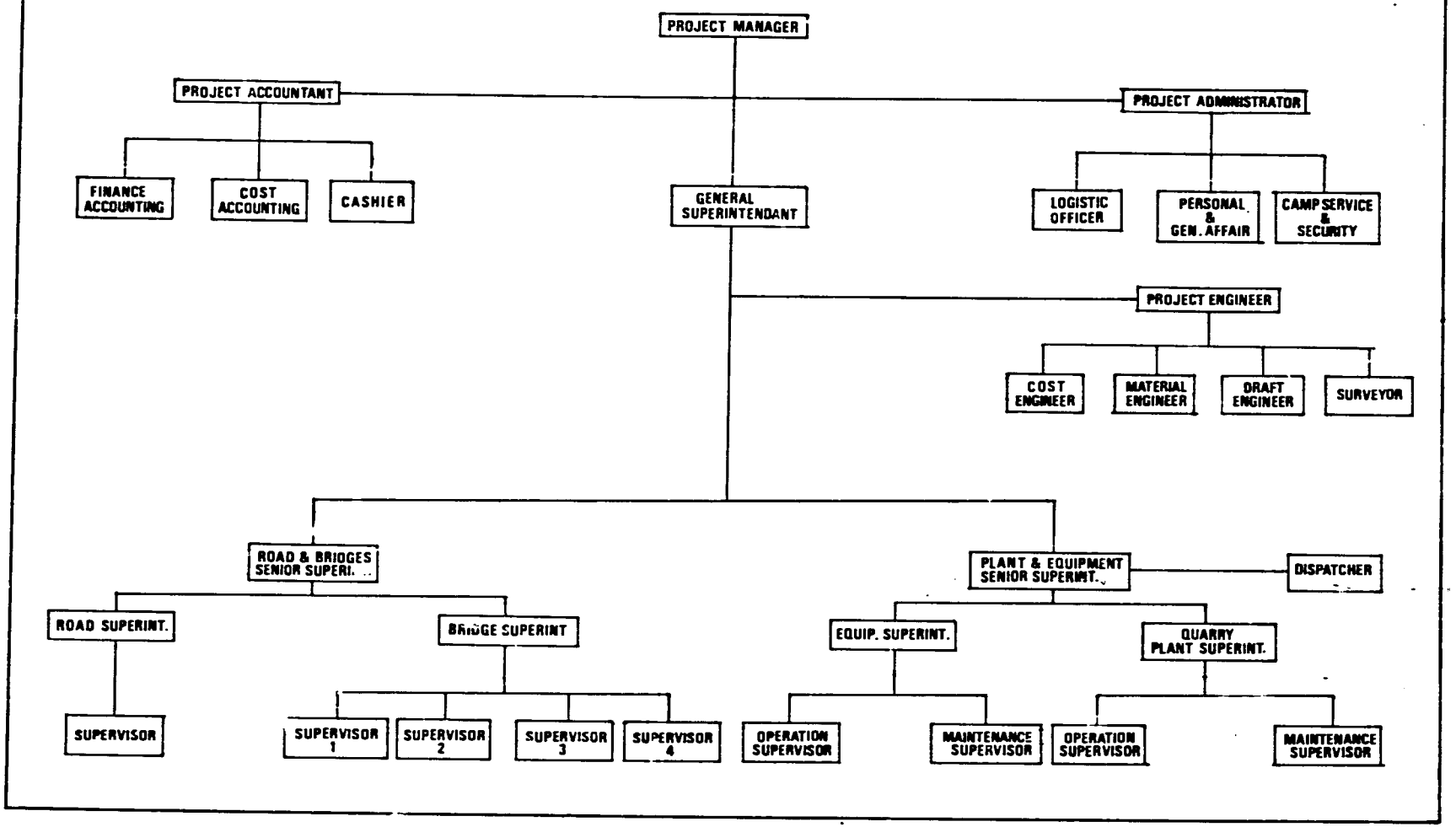
NOTE : I.K - P.T INDAH KARYA.
L.B.I.I. - LOUIS BERGER INTERNATIONAL INC.
C.T - CENTRAL TEAM.
U.P - UJUNG PANDANG.

LUWU ROADS BETTERMENT PROJECT
SUPERVISORY SERVICES

ORGANIZATION - CHART



LUWU ROAD BETTERMENT PROJECT
ORGANIZATION SCHEME
PT SEKAYU INT.- CONTRACTOR SECTION I



2. THE CONSULTANT'S ACTIVITY

2.1. Survey Works

Supervise the Contractor's Surveyor on Section I - Sekayu Int. in undertaking of :

- Centerline : Stake of P.I.s
  Longitudinal elevation
- Road Cross Section
- Fix the Reference point.

And on Section II - Pembangunan Jaya are :

- Reduce of Topographical Data : Horizontal Alignment
  Vertical Alignment
- Leveling revision
- Checking the distance of R/W
- Stake out the centerline

Equipment and materials used are :

- 1 unit Transit T2
- 1 unit Transit T1
- 2 unit Level NAKI
- T o p c o n
- Metering indicator
- Paints, stakes etc.

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2.2. Laboratory Works

Section I

Check and supervise the investigation and testing provided by the Contractor, as :

a. Atterberg test
b. Specific Gravity
c. Field Density
d. Sieve Analysis
e. C.B.R. test
f. Concrete cube test

on material samples taken from Bungadidi, Kao and Tomoni river banks.

Section II

Check and supervise the investigation and testing provided by the Contractor, as :

a. Sieve Analysis
b. Compaction test
c. Specific Gravity
d. Soundness test on gravel
e. Liquid limit and plastic limit

on material samples taken from Batang, Bonto Buku and Lamosi - river banks.

2.3. Further Roadway Design

The following personnel are mobilized on Survey and Drafting works under Contract Addendum No. 1 of Redesign Works.

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1.	Mr. D. Kaiser	-	Expatriate Road Design Eng.
2.	Mr. L. Lunanta	-	Road Design Engineer
3.	Mr. Nana Thea	-	Draftsman
4.	Mr. Benny Taulu	-	Surveyor
5.	Mr. Paul Kauripan	-	Surveyor
6.	Mr. Mansyur	-	Driver

On field survey activity, the Consultant hired 10 Labourers and 4 Chainman.

2.4. Construction Supervision

Check and supervise the Construction works on Section I as :

- Maintenance Works
- Clearing & Grubbing on Sta. 14+750 up to Sta. 23+500
- Subgrade Preparation on Sta.12+400 up to Sta. 20+450
- Subbase Preparation on Sta.11+250 up to Sta. 20+325
- Culvert production.

On Section II

Up to this month, the construction works has not been started.

2.5. Staff Mobilization

April 2, Mr. Soetrisno - A.R.E. Section II left the Project by personal reason.

April 6, Mr. Ernesto L. Arevalo approved as Material Engineer by the Director of Construction - Bina Marga.

LBI submitted the resume of Mr. Mike Spiegel as Road Design Eng. to the Director of Construction - Bina Marga.
Mr. Spiegel is proposed to replace Mr. Dan Kaiser.

The total Consultant's personnel have been mobilized and working at the Job Site are listed as follows :

I. BONE-BONE OFFICE

No.	N a m e	Qualification
1.	Mr. Howard E. Raymond	Engineer in Charge
2.	Mr. KGS Achmad	Deputy Chief Engineer
3.	Mr. Subardo Adhy	Administration Officer
4.	Mrs.Kartini Subardo	T y p i s t
5.	Mr. Aep Saefuddin	Laboratory Technician
6.	Mr. Moch. Soleh	Laboratory Technician
7.	Mr. E r w i n	D r i v e r
8.	Mr. Abdullah	D r i v e r
9.	Mr. Nasrullah	Labour
10.	Mr. Kasiani	Labour

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II. W O T U BASE CAMP

No.	N a m e	Qualification
1.	Mr. John Bowler	Resident Engineer
2.	Mr. Erie Haryanto	Ass. Resident Engineer
3.	Mr. Masyur Suryason	Ass. Mats. Engineer
4.	Mr. Maksum Rachmat	Inspector
5.	Mr. Tjaya Suparya	Inspector
6.	Mr. R.U. Sunaryo	Surveyor
7.	Mr. Wawan Darmawan	Surveyor
8.	Mr. Agus H.	Draftsman
9.	Mr. Bambang T.	Draftsman
10.	Mr. Syamsuddin [illegible]	Ass. Adm. Officer
11.	Mr. Amiruddin Djumain	T y p i s t
12.	Mr. Yance Andreas	Laboratory Technician
13.	Mr. Umar D.	D r i v e r
14.	Mr. S y a m	D r i v e r
15.	Mrs.Muryati	Labour
16.	Mr. H e r m a n	D r i v e r

III. WALENRANG/KARETAN BASE CAMP

1.	Mr. Alfred Foust	Resident Engineer
2.	Mr. Handri P. Kristianto	Ass. Resident Engineer
3.	Mr. Bambang Sugiyanto *)	Ass. Soil & Mat. Engineer
4.	Mr. Nanang Abdullah	Inspector
5.	Mr. Rachman Rustia	Inspector
6.	Mr. Y. Ngatemin	Surveyor

*) on sick leave.

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III. WALENRANG/KARETAN BASE CAMP (cont.)

No.	N a m e	Qualification
7.	Mr. Sastro Sudarno	Surveyor
8.	Mr. Machfuddin	Draftsman
9.	Mr. S o l e m a n	Draftsman
10.	Mr. Yunus L. Renta	Ass. Administration Off.
11.	Mr. Paulus Rodarius	T y p i s t
12.	Mr. Yooce Kamu	Laboratory Technician
13.	Mr. M. Soleh B.	Laboratory Technician
14.	Mr. G. Sutrisno	D r i v e r
15.	Mr. M. N a t s i r	D r i v e r
16.	Mr. E r w i n	D r i v e r

V. RE-DESIGN TEAM (PALOPO)

1.	Mr. Dan Kaiser	Exptr. Design Engineer
2.	Mr. L. Lunanta	Ass. Highway Engineer
3.	Mr. Nana Thea	Draftsman
4.	Mr. Benny Taulu	Surveyor
5.	Mr. Paul Kauripan	Surveyor
6.	Mr. Safruddin	Field Office Manager
7.	Mr. Mansyur	D r i v e r
8.	Mr. Patola P.	Chainman
9.	Mr. Abdul Karim	Chainman
10.	Mr. Jeffry Tumundo	Chainman
11.	Mr. Hengky Wagay	Chainman
	10 Labourers.	

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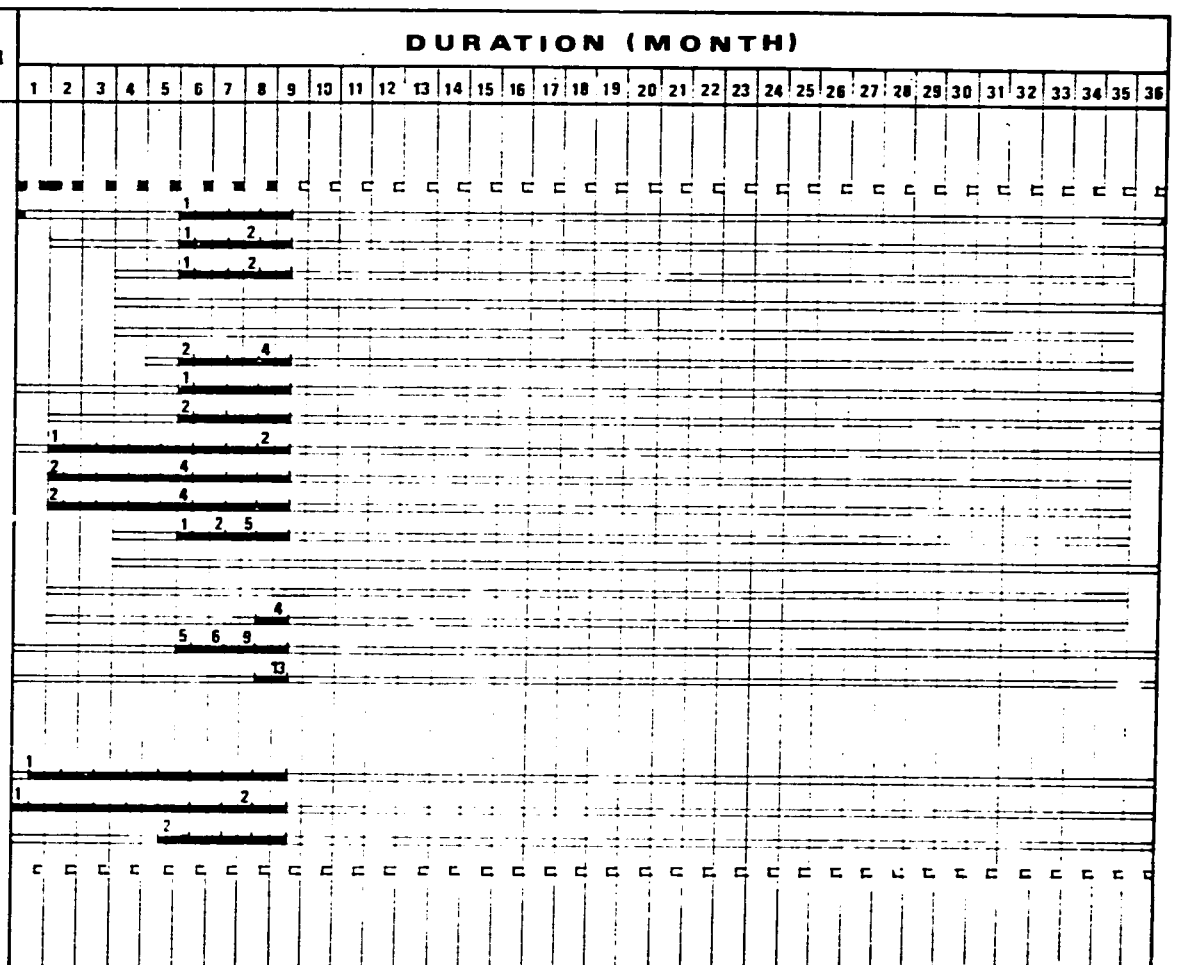
LUWU ROAD BETTERMENT PROJECT
WORK PROGRESS SCHEDULE

QUALIFICATION	NUMBER
INDONESIAN PERSONNEL	
Consultant principal	1
Deputy chief engineer	1
Ass. resident engineer	2
Ass. soil engineer	2
Quantity surveyor	1
Ass. quantity surveyor	2
Site. Inspector	4
Adm. Officer	1
Ass. Adm. Officer	3
Secretary/Typist	4
Surveyor	4
Draftsman	8
Lab. Technician	1
Operator	2
Clerk	2
Chainman	4
Driver	10
Labourer	17
EXPATRIATE	
Chief Engineer	1
Resident Engineer	2
Soil/Material Engineer	1
Short Term Consultants	



Starting Date August 15 – 78

App II.

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3. THE CONTRACTOR'S ACTIVITY

3.1. S E K A Y U Section

Works performed on this Section are as follows :

A. Construction Works

a. Maintenance Works :

Temporary Side Ditch on Sta. 2+925 up to Sta. 3+100
Sta. 14+037 up to Sta. 23+100

Bridge : T a w a o River

Cross Ditch : on Sta. 3+500

Existing Road : from Pepuro to Wotu

Temporary Bridge : K a l u k u

Sta. 2+550, Sta. 2+175, Sta. 12+751, Sta. 19+659 and Sta. 18+025

Equipment and materials used are : 1 Motor Grader ; Coconut trees and Timber.

b. Clearing & Grubbing :

On Sta. 14+750 up to Sta. 23+500

Equipment used are : 3 unit Bulldozer ; 1 unit Grader.

c. Subgrade Preparation :

Compaction on Sta. 12+400 up to Sta. 20+450

Equipment used are : 1 unit Sheep Foot Roller ; 1 unit Smooth Roller.

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d. Subbase Preparation :

F i l l on Sta. 11+250 up to Sta. 20+325

Compaction on Sta. 12+750 up to Sta. 18+000

Equipment used are : 1 unit Track Loader ; 1 unit Wheel Loader ; 12 unit Dump Trucks ; 1 unit Steel Wheel Roller ; Bulldozer.

e. Culvert Production :

Concrete pipe with Ø 60, 80 and 100 cm and the comparison mixture of 1 : 2 1/2 : 3 1/2 with slump variation between 7 1/2 - 13 cm, have been produced at Bungadidi. The total pipe are : 118.

B. Laboratory Works

Soil Investigation :

Atterberg test (Sta. 13+000 - Sta. 13+200)

Specific Gravity (Sta. 16+875 - Sta. 16+975)

Sieve Analysis

C.B.R. Test

Field Density & Lab. Compaction test :

(Sta. 15+600 - Sta. 15+700)
(Sta. 16+875 - Sta. 16+975)
(Sta. 16+250 - Sta. 16+350)
(Sta. 17+400 - Sta. 17+560)
(Sta. 20+000 - Sta. 20+250)

Mud gravity analysis from material samples taken from Bungadidi river banks.

C. Survey Works

Stake out (Sta. 20+000 - Sta. 33+000)

Longitudinal elevation (Sta. 19+325 - Sta. 33+000)

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Cross section elevation (Sta. 19+750 - Sta. 33+000)
Fix the centerline (Sta. 25+000 - Sta. 30+850)
Change the centerline (Sta. 20+500 - Sta. 20+900)
Reduce long section and cross section.

D. Miscellaneous

P.T. Sekayu has fulfilled the General Condition of Contract, Art. 25 by insurance of Contractors All Risks - and Third Party Liability through P.T. Asuransi Wahana Tata, Jakarta.

Draft Monthly Report of Ass. R.E. Section I is attached on : Annex. - A.

3.2. PEMBANGUNAN JAYA Section

Work activity on this Section are as follows :

A. Mobilization

- To continue with the completion of Housing, Works Shop and PArking Area for heavy equipment.
- Set water tank.
- Finishing the office space for Consultant, except water supply.
- Finishing Housing for Consultant, except water supply and the furniture have not been completed.
- House for Resident Engineer has not been finished yet.

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B. Up to this month Pembangunan Jaya has not produce with Construction Works.

C. Laboratory Works

- Sieve Analysis on material taken from Batang river banks.
- Compaction test borrow pit from Bonto Buku river - banks.
- Liquid limit and Plastic limit test.
- Specific Gravity test of soil taken from Bonto Buku.river banks.
- Concrete Cube Compressive test.
- Soundness test of gravel: sample taken from Batang and Lamosi river banks.
- CBR test of soil taken from Bonto Buku.

D. Survey Works

- Reduce centerline, horizontal alignment, vertical - alignment and cross section.
- Calculate super elevation.
- Levelling revision.
- Stake out of Centerline.
- Preparing longitudinal profile, plan profile.

Draft Monthly Report of Resident Engineer Section II is attached on : Annex - B.

PROGRESS REPORT OF NEW ROAD
CONSTRUCTION PROJECT

SECTION 1
Monthly Report for April, 1979

Contractor : P.T. Sekayu International

I. SURVEYING / SETTING

I.1. Fixing the stake of P.I. at Sta 40 + 000 - 40 + 600

2. a. Setting up the longitudinal elevation at Sta 19 + 325 - 33 + 000
b. Setting up the cross-sectioning elevation at Sta 19 + 750 - 33 + 000

3. Stake out in field at Sta 20 + 000 - 33 + 000

4. Material & Equipment Used

a. 1 ea Transit [illegible]
b. 1 ea Transit [illegible]
c. 2 ea Level [illegible]
d. 1 ea Topcon
e. Metering Indicator
f. Paint
g. Stakes

5. Instructions :

7th April, 79 : Since 05.00 up to 12.00 hours rain continuously
14th April,79 : 2 hours of P.T. Sekayu Contractor were performing the strike.
19th April,79 : 2 helpers got sick, began 19th - 23th April, 1979
30th April,79 : 1 Surveyor got sick.

Another problem: Lack of tools, as Hammers and saw

II. [illegible]

II.1. Making temp. side ditch & temp. side ditch maintenance at Sta 11 + 625 up to Sta 23 + 100

2. Making of Cross Sectioning at Sta 14 + 700 - 19 + 650

3. Making of temp. area through channel

4. Material + Equipment Used

a. Timber (plank)
b. Coconut trunk
c. Labour - a

III. CLEARING & GRUBBING

III.1. Location : 14 + 750 - 23 + 500
of Sta.
Condition : Sparse vegetation

2. Machinery : a. 2 ea Bulldozers, and b. 1 ea Motor Grader.

3. Instruction : The broken down of Bulldozers, and Motor Grader

a. D7 : On 3rd, 26th up to 30th April, 1979
b. D5 : On 2nd - 3rd, 24th up to 28th April, 1979
c. D3 : On 26th up to 30th April, 1979
d. D4 : On 25th up to 29th April, 1979
e. MG03 : On 23rd April, 1979

Rainage : On 7th April, since 05.00 - 12.00 hrs
On 22nd April, since 20.00 - 01.00 hrs
On 24th April, since 05.00 - 12.00 hrs

Other obstacles, : Concerning with the area around Sta 21 + 225 - 22 + 400, and Sta 22 + 500 - 23 + 000 still too wet (as rice field, swamp) so there the locations are not able to attend the performance of clearing & grubbing.

p.t.o. (page 1)

Best Available Document

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IV. SUB GRADE

IV.1. Compaction at Sta 14 + 000 - 20 + 450

2. Machinery :

a. 1 ea Sheeps Foot Roller (Vibrator) SIC5
b. 1 ea Smooth Roller (Vibrator) SIC 3

w/ pass. of compaction :
a. 10 pass. by Sheeps Foot Roller
b. 6 pass. by Smooth Roller
except at Sta 15 + 400 - 15 + 770 be compacted by 16 pass. of Sheeps Foot Roller. And from Sta 18 + 500 up to 20 + 450 just being compacted w/ 10 pass. of Sheeps Foot Roller

3. Obstruction :

Drainage : Rains on 5th April (at night) w/ hardly - continuously, also on 7th and 8th April (at - night)

Vibratory : Since 17th April, '79 up 30th April, '79 the - Smooth Roller got a " jam " or broken. And since 23rd April up 30th April, '79 the - Sheeps Foot Roller, also need of repairing.

V. SUB BASE

V.1. Fill. Sub Base at Sta 11 + 250 up to Sta 19 + 125

2. Sub Base Compaction at Sta 12 + 000 up to 18 + 000

3. Material & equipment Used

Heavy Equipments : a. 1 ea Wheel Loader
b. 1 ea Track Loader
c. 12 ea Dump Trucks
d. 1 ea Steel Wheel Roller
e. 1 ea Bulldozer

Materials : Gravel and sand

4. Obstruction :

On 23rd April, 79, Dump Truck No. 023 collisions w/ a Motor - cycle around Sta 17 + 750

On 7th April, and 27th April, Rain(continuously)fall hardly.

VI. LABORATORY

VI.1. Soil Test.

- Atterberg Test (Sta 13 + 000 - 13 + 200, and 16 + 875 - 16 + 975)

- Sieve analysis, with materials from Tomoni River, Bungadidi - River and Tao River

- Field Density Test, and Lab. Compaction Test of Subgrade at Sta

a. 15 + 500 - 15 + 700
b. 16 + 575 - 16 + 775
c. 16 + 250 - 16 + 350
d. 17 + 400 - 17 + 560
e. 20 + 000 - 20 + 250

- Counting the gravity from materials of : a. Tomoni River
b. Sta 14 + 000
c. Sta 16 + 875 - 16 + 975
d. Sta 17 + 400 - 17 + 560

- Calibration of all piezometer

p.t.o. (page 2)

Best Available Document

- Mud gravity analysis from material of Bungadidi River
- Field Density Test for foundation layer (at lower), in Sta - 16 + 250 - 16 + 350
- C.B.R. Test : Sta 20 + 000 - 20 + 250

2. Concrete Test

- Concrete Cube Test for mix design trial
- Concrete Cube for the realization of making pipe culverts w/ diam. 60 Cm, 80 Cm, and 100 Cm (pressure strength of 7, 14, and 28 days)
- Taking samples of reinforcing bars for being examined the strength.

VII. [illegible]

VII.1. Activity at Bungadidi. :

Produced 1 11"(Hundred & Eighteen) w/ Diam. 60, 80, and 100 Cm Formerly the comparison mixture is 1 : 2 : 4, then be changed into comparison mixture of 1 : 2½ : 3½ with slump variation - between 7½ Cm - 13 Cm.

2. Activity at Sanggeni & Wacmato. :

Stock of fill. sub base materials (Filling materials)

3. Obstruction :

- Rain on date of 7th, and 27th April
- Date of Track Loader Broken Down :

a. 2nd April - 6th April, 79
b. 9th April -12nd April, 79
c. 26th April -30th April, 79

- Ø of Vibrator (1") is too big, being suggested to Contractor provides with the diam. of ¾"
- Alcon pump need repairing since 17th April up to 21st April, 79

VIII. WEATHER & MISCELLANEOUS.

Weather condition within working hours, generally were good except on - date of 7th, 20th, 27th, and 30th April, 1979, rain fall for some hours. On date of 5th, 6th, 8th, 9th, 15th, 19th, 21st up to 26th April, rain - fall at night.

Temperature : indicating around 28° C - 33° C

Activity at Lagoso (in making of culverts)
Double Box :

a. Putting (or laying) the stones on the working floor (making the - working floor) with comparison mixture of 1 : 3 : 5
b. Making the frames structure for lower plate and outwall
c. Install. of reinforcing bars of lower plate and outwall
d. Making the wing wall.

p.t.o. (page 3)

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The stock of reinforcing bars which are available up to 9th April, '79

Ø 10 Cm	=	60 bars x 7.356 Kg	=	441.36 Kg
Ø 12 Cm	=	171 bars x10.584 Kg	=	1809.864 Kg
Ø 16 Cm	=	231 bars x18.861 Kg	=	4356.496 Kg
Ø 19 Cm	=	86 bars x26.712 Kg	=	2297.494 Kg
		T o t a l :		8894.952 Kg

Bone Bone, 1st May, 1979

Reported by :

Asst. Resident Engineer of
Section I,

(E. H A R Y A N T O)

23

Y-299/019/[redacted]040/79.
16 May 1979

DRAFT

MONTHLY REPORT

APRIL 1979

LUWU ROAD AND BRIDGES BETTERMENT PROJECT

SECTION II

RESIDENT ENGINEER

Due to formalities involving immigration proceedings the Resident Engineer traveled to Singapore to secure an official visa. On 03 April a meeting was held with USAID / Jakarta to discuss project implementation and problem areas.

The Materials Engineer arrived on site. The Engineer-in-charge and the Resident Engineer briefed the materials Engineer on the materials and soils problems facing the contractor.
An inspection trip, including an in-depth study of segment I during a heavy rain storm. The road was inundated for several kilometres.

DRAINAGE SURVEYS

Drainage surveys were completed between station 15 + 000 and 20 + 000 . The following tables are reflective of the drainage studies.

Appendix I	Transverse Drainage
Appendix II	R.C.B.C
Appendix III	Bridges
Appendix IV	Service Entrance Pipes
Appendix V	Berm removal and Construction & Ditch Relocation

SCHEDULE " A "
SUMMARY OF APPENDIX IV
SERVICE ENTRANCE CULVERTS
STATION 15+000 TO 20+000

[illegible]	NUMBER	LENGTHS
[illegible]	Est-Lines	Metres
60	92	109
[illegible]	118	173
[illegible]	6	9
[illegible]	-	-

[illegible] of the above service entrance pipes serve private dwellings. [illegible] highly recommended by the Consultant that these pipes be installed [illegible] order to secure freedom of obstruction of drainage ditches. [illegible] to [illegible] maintenance in the most drainage ditches become obstructed causing [illegible] to the roadbed, either through overtopping of the roadbed or erosion and filtration through the roadway embankments.

.../

Best Available Document

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The typical Indonesian palmloy entrances is an antiquated method of providing private entrances. The failure of Maintenance crews to perform ditch work has caused premature failure of the existing roadway. Pipe entrances must be provided at entrances to public buildings (offices,schools, mosques, shops, churches, etc.) and entrance driveways and feeder roads.

SCHEDULE " B "

SUMMARY OF APPENDIX V

BERM RECONSTRUCTION - IRRIGATION DITCHES .

STATION 15 + 000 Thru 20 + 000

ITEM	LINEAR METRES	VOLUME	REMARKS
Berm Removal	349.20	96	
Berm Reconstruction	2488.20	684	
Irrigation Ditch Relocation.	75	20	

SCHEDULE " C "

SUMMARY OF APPENDIX I

TRANSVERSE DRAINAGE PIPE SURVEYS

STATION 15 + 000 Thru 20 + 000

DESCRIPTION	STRUCTURE (Ø Cm)	NUMBER (Est.Lines)	LENGTH (Metres)
1) Existing	0.80	1	7.2
	1.00	1	8
2) Proposed	0.80	3	27
	1.00	1	11.

CONTRACTORS BASE CAMP

At end of April the Contractor's base camp at Karetan was approximately 90 % completed. The expatriate housing was about 40 % completed. The housing for Consultant local staff was substanially completed. The Resident Engineers office was 100 % completed.

EQUIPMENT

Appendix VI details the Equipment, Plant, and Vehicles presently on site for construction of the project.

.... / 3.

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MAINTENANCE

At request of client some equipment was diverted to road and bridge maintenance in section II.
This work is outside the scope of the existing contract and will be paid for and supervised by Bina Marga personnel.

MANPOWER

The following schedule shows the breakdown of personnel assigned to the equipment operations :

SCHEDULE " D "

END OF REPORT PERIOD 30 APRIL 1979

EQUIPMENT DIVISION

ITEM NO.	CATEGORY	PERSONNEL
I	Expatriate H.E. Specialist	1
II	Assistant H.E. Specialist	1
III	Supervisor	1
IV	Foreman	3
V	Mechanics	10
VI	Mechanic Helpers	15
VII	Logistic Support	3
VIII	Administration	2
IX	Operations	16
X	Totals :	52.

MAY FORECAST

The Resident Engineer will complete the drainage inventory of segment I in the second section during May.

It is anticipated that the design will be substanially completed between Station 14 + 000 and the point-of-beginning in Palopo (0 + 000) at Kilometre 390 from Ujung Pandang . Upon receipt of preliminary plans the contractor will initiate clearing & grubbing and commence excavation of drainage ditches and building berms, to contain rice paddy water.

The Contractor will calibrate his crusher.
Delivery of Bitumen is expected by the early part- of May.
Patching of the existing pavement could be on the schedule towards the latter part of the month.

The Materials Engineer will review the laboratory techniques and develope a comprehensive testing program.

Day by day construction supervision will be executed through survillance, inspection, and testing.

Refer to Appendix VII for Personnel breakdown.
CC : -Project Manager
-Project Officer
-USAID / Jakarta
-E.I.C.
-D.E.I.C. - Contractor, File (2)

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APPENDIX I

TRANSVERSE DRAINAGE PIPE SURVEY

SEGMENT I - SECTION II

STATION 15 + 000 - 20 + 000

NO.	STATION	50 ø	60 ø	80 ø	100 ø	Remarks
33	14 + 710			9		Proposed
34	15 + 102			9		Proposed
35	15 + 789				11	Proposed
36	17 + 883			7		Proposed
37	19 + 928			7		Existing
38	20 + 490				8	Existing

APPENDIX II

INVENTORY EXISTING REINFORCED CONCRETE BOX CULVERTS

STATION 15 + 000 - 20 + 000

NO.	SATATION	Opening	Length	Remarks
				None.

APPENDIX III

INVENTORY EXISTING BRIDGES

STATION 14 + 000 - 20 + 000

NO.	STATION	WIDTH	LENGTH	REMARKS
18	14 + 300	6.50	8.0	Good

There is only one structure in this portion of the 1st segment, section II.

.... / Appendix IV

APPENDIX IV

SERVICE ENTRANCE CULVERTS STA 15 + 000 - 20 + 000

SEGMENT I - SECTION II

NO.	STATION	DIRECTION	DIMENSION	LENGTH	REMARKS
550	15 + 189.80	L	60	1	
551	15 + 233.20	L	60	1	
552	15 + 244.80	L	60	1	
553	15 + 298	L	60	1	
554	15 + 387	L	60	1	
555	15 + 517	L	60	1	
556	15 + 534.30	L	60	1	
557	15 + 569	L	60	1	
558	15 + 604	L	60	1	
559	15 + 620.5	L	60	1	
560	15 + 634	L	60	1	
561	15 + 644	L	60	1	
562	15 + 701.60	L	60	1	
563	15 + 726	L	60	1	
564	15 + 737	R	80	1	
565	15 + 749	L	60	1	
566	15 + 750	R	80	1	
567	15 + 777	L	60	1	
568	15 + 781	R	80	1	
569	15 + 800	L	60	1	
570	15 + 813	R	80	1	
571	15 + 824	R	80	1	
572	15 + 851	L	100	2	
573	15 + 856	R	80	1	
574	15 + 878.50	R	80	1	
575	15 + 889.60	L	100	1	
576	15 + 897.30	R	80	1	
577	15 + 949.60	R	80	1	
578	15 + 970	R	80	1	
579	15 + 989	R	80	1	
580	16 + 000.50	R	80	4	Entrance road
581	16 + 042	R	80	1	
582	16 + 054.30	L	80	1	
583	16 + 057.50	R	80	1	
584	16 + 092	R	80	1	
585	16 + 114.40	R	80	1	
586	16 + 135.70	R	80	1	
587	16 + 153.50	R	80	1	
588	16 + 196.30	R	80	1	
589	16 + 201	L	80	1	
590	16 + 218	R	80	1	

..../591.

NO.	STATION	DIRECTION	DIMENSION	LENGTH	REMARKS
591	16 + 259	R	80	1	
592	16 + 302.00	R	80	1	
593	16 + 324	L	80	2	Rice Mill
594	16 + 330.50	R	80	1	
595	16 + 335	L	80	1	
596	16 + 355.50	R	80	1	
597	16 + 362	L	80	1	
598	16 + 381	R	80	1	
599	16 + 401.70	R	80	1	
600	16 + 428	R	80	1	
601	16 + 436	L	80	1	
602	16 + 447	R	80	1	
603	16 + 501.50	R	80	1	
604	16 + 527	R	80	1	
605	16 + 545	R	80	1	
606	16 + 567	L	80	1	
607	16 + 567	R	80	1	
608	16 + 582.70	L	80	1	
609	16 + 588	L	80	1	
610	16 + 610	R	80	1	
611	16 + 640.50	R	80	1	
612	16 + 695	R	80	1	
613	16 + 709	R	60	1	
614	16 + 862.50	L	80	1	
615	16 + 853.50	R	100	1	Irrigation ditch.
616	16 + 853.50	R	80	1	
617	16 + 910	L	60	1	
618	16 + 928	R	60	2	Entrance road.
619	17 + 006	R	100	3	
620	17 + 035.50	L	60	1	Cheel ditch pref.
621	17 + 049	R	80	1	
622	17 + 083	R	80	1	
623	17 + 088	L	80	1	
624	17 + 100	R	80	1	
625	17 + 113.70	R	80	1	
626	17 + 132	R	80	1	
627	17 + 148.30	R	80	1	
628	17 + 166	R	80	1	
629	17 + 179.50	R	80	1	
630	17 + 194	R	80	1	
631	17 + 206.50	R	60	1.	
632	17 + 206.50	L	60	2	Mosque
633	17 + 221	R	80	1	
634	17 + 239	R	80	1	
635	17 + 252	R	80	1	

/ 6-6.

NO	STATION	DIRECTION	DIMENSION	LENGTH	REMARKS.
636	17 + 275	R	80	1	
637	17 + 278.5	L	60	1	
638	17 + 294.50	L	60	1	
639	17 + 297.50	R	80	1	
640	17 + 320	R	80	1	
641	17 + 335	L	60	1	
642	17 + 339	R	80	1	
643	17 + 385	L	60	1	
644	17 + 385	R	80	1	
645	17 + 402	R	80	1	
646	17 + 428	R	80	1	
647	17 + 470	R	80	1	
648	17 + 472	L	80	1	
649	17 + 509	R	80	1	
6	17 + 521	R	80	1	
651	17 + 548	R	80	1	
652	17 + 568	R	80	1	
653	17 + 586	R	80	1	
654	17 + 601	R	60	1	
655	17 + 644	R	60	1	
656	17 + 680.50	R	60	1	
657	17 + 700	R	60	1	
658	17 + 723.50	R	60	2	
659	17 + 730	R	60	2	
660	17 + 833	R	80	6	Entrance road
6	17 + 854	R	80	1	
662	17 + 874	R	60	1	
663	17 + 885.50	L	60	1	
664	17 + 887.	R	60	1	
665	17 + 894	R	60	1	
666	17 + 912	R	60	1	
667	17 + 924.50	L	80	1	
668	17 + 933.50	R	60	1	
669	17 + 937	L	80	1	
670	17 + 939.50	R	60	1	
671	17 + 989	R	60	1	
672	18 + 011.50	L	60	1	
673	18 + 020	R	80	1	
674	18 + 031.40	R	80	1	
675	18 + 094	R	80	1	
676	18 + 126	R	60	1	
677	18 + 118	L.	80	1	
678	18 + 225	L	60	1	Rice Mill
679	18 + 266.5	R	60	1	
680	18 + 289	R	60	1	

..../ 681

NO.	STATION	DIRECTION	DIMENSION	LENGTH	REMARKS
681	18 + 221.30	R	60	1	
682	18 + 353.50	R	60	1	
683	18 + 372	R	60	1	
684	18 + 458.70	R	60	1	
685	18 + 475	R	60	1	
686	18 + 491.50	R	60	1	
687	18 + 510.60	R	60	1	
688	18 + 526.50	R	60	1	
689	18 + 544.50	R	60	1	
690	18 + 575	R	60	1	
691	18 + 605.30	R	60	1	
692	18 + 718	R	60	1	
693	18 + 740	R	60	1	
694	18 + 744	L	60	1	
695	18 + 760	L	60	1	
696	18 + 766.50	R	60	1	
697	18 + 774	L	60	1	
698	18 + 781.40	R	60	1	
699	18 + 790	R	60	1	
700	18 + 792	L	60	1	
701	18 + 815	R	60	1	
702	18 + 825	R	60	1	
703	18 + 831	L	60	1	
704	18 + 833.50	R	60	1	
705	18 + 845.40	R	60	1	
706	18 + 851.50	R	60	1	
707	18 + 856	L	60	1	
708	18 + 869	L	60	1	
709	18 + 870	R	60	1	
710	18 + 893.20	L	60	1	
711	18 + 893	R	60	4	
712	18 + 903.50	R	60	1	13 m from & to the chinel
713	18 + 915.30	L	60	2	
714	18 + 925	R	80	4	20-40 from & entrance to police office.
715	18 + 936.20	L	60	1	
716	18 + 959	L	60	1	
717	18 + 974	L	60	1	
718	18 + 980	R	60	1	
719	18 + 993.50	L	60	4	
720	19 + 016	R	60	3	

...../ 721.

NO.	STATION	DIRECTION	DIMENTION	LENGTH	REMARKS
721	19 + 029.80	R	60	1	
722	19 + 039.60	L	60	1	
723	19 + 046.50	L	60	1	
724	19 + 046.50	R	60	1	
725	19 + 071.40	R	60	1	
726	19 + 073	L	60	1	
727	19 + 086.50	L	80	1	
728	19 + 114	L	100	1	
729	19 + 123.30	L	100	1	
730	19 + 123	R	80	8	Entrance road
731	19 + 217	L	80	1	
732	19 + 225	L	80	1	
733	19 + 236	L	80	1	
734	19 + 254	L	80	1	
7	19 + 264.20	L	80	1	
736	19 + 268.70	R	60	1	
737	19 + 281.50	L	80	1	
738	19 + 284	R	60	1	
739	19 + 290	L	80	1	
740	19 + 295	R	60	2	
741	19 + 313.50	L	80	1	
742	19 + 311.50	R	80	1	
743	19 + 329.40	L	80	1	
744	19 + 338	R	80	4	
745	19 + 340.30	L	80	1	
7	19 + 351.50	2	80	4	
747	19 + 355.30	L	80	4	
748	19 + 367	L	80	4	
749	19 + 370	R	80	4	
750	19 + 388	L	80	1	
751	19 + 391.60	R	80	2	
752	19 + 403.5	L	80	1	
753	19 + 421.60	L	80	2	
754	19 + 433	L	80	5	
755	19 + 432	R	80	7	
756	19 + 439	R	80	1	
757	19 + 443	L	80	2	
758	19 + 453.50	R	80	1	
759	19 + 458	L	80	1	
760	19 + 463.50	R	80	1	

..../ 761.

NO.	STATION	DIRECTION	DIMENSION	LENGTH	REMARKS
761	19 + 471.80	L	80	1	
762	19 + 475.50	R	80	1	
763	19 + 491.50	R	80	1	
764	19 + 505	R	80	1	
765	19 + 537.70	R	80	1	
766	19 + 550	R	80	10	Entrance road.

APPENDIX V

STATION - STATION	DIRECTION	ESTIMATED VOLUME (M ^{3})	REMARKS
15 + 122.50 - 15 + 185.50	L	16	Remove berms /
15 + 122.50 - 15 + 185.50	L	20	Reconstruct berm.
15 + 192.50- 15 + 219	L	7	- " -
15 + 192.50 - 15 + 219	L	10	- " -
15 + 267.50 - 15 + 293.50	L	7	- " -
15 + 267.50 - 15 + 293.50	L	10	- " -
15 + 305.70 - 15 + 377	L	18	-" -
15 + 305.70 - 15 + 377	L	20	- " -
15 + 406 - 15 + 456.50	L	13	- " -
15 + 406 - 15 + 456.50	L	15	- " -
15 + 456.50 - 15 + 507	L	6	- " -
15 + 456.50 - 15 + 507	L	10	- " -
15 + 925 - 15 + 947.70	R	6	-"-
15 + 925 - 15 + 947.70	R	10	-"-
15 + 931 - 15 + 021.70	L	23	-"-
15 + 931 - 15 + 021.70	L	28	-"-
1. + 959.30 - 15 + 969.70	R	3	-"-
15 + 959.30 - 15 + 969.70	R	5	-"-
16 + 002.50 - 16 + 026	R	6	-"-
16 + 002.50 - 16 + 026	R	10	-"-
16 + 066.80 - 16 + 087.50	R	6	-"-
16 + 066.80 - 16 + 087.50	R	10	-"-
16 + 119 - 16 + 196	L	20	-"-
16 + 119 - 16 + 196	L	25	-"-
16 + 175 - 16 + 191	R	4	-"-
16 + 175 - 16 + 191	R	6	-"-
16 + 223.50 - 16 + 259	R	9	-"-
16 + 223.50 - 16 + 259	R	12	-"-
16 + 228 - 16 + 305.30	L	20	-"-
+ 228 - 16 + 305.30	L	25	-"-
16 + 263 - 16 + 273	R	15	-"-
16 + 263 - 16 + 273	R	19	-"-
16 + 387.60 - 16 + 425	L	24	-"-
16 + 387.60 - 16 + 425	L	29	-"-
16 + 410 - 16 + 425	R	4	-"-
16 + 410 - 16 + [illegible]	R	6	-"-
16 + 443 - 16 + 556.7	L	30	-"-
16 + 443 - 16 + 556.7	L	36	-"-
16 + 451.5 - 16 + 482.3	R	8	-"-
16 + 451.5 - 16 + 482.3	R	11	-"-
16 + 604 - 16 + 850	L	62	-"-
16 + 604 - 16 + 850	L	70	-"-
16 + 655 - 16 + 691.50	R	37	-"-
16 + 655 - 16 + 691.50	R	42	-"-
16 + 725 - 16 + 841	R	29	-"-
16 + 725 - 16 + 841	R	34	-"-
16 + 929 - 16 + 915	L	4	-"-
16 + 929 - 16 + 915	L	7	-"-

..... / 2.

APPENDIX V

STATION - STATION	DIRECTION	ESTIMATED VOLUME (M^3)	REMARKS
16 + 986 - 17 + 023	L	10	Remove Berms/ Re-construct berm.
16 + 986 - 17 + 023	L	14	
17 + 045 - 17 + 075	L	8	-"-
17 + 045 - 17 + 075	L	11	-"-
17 + 099 - 17 + 194	L	24	-"-
17 + 099 - 17 + 194	L	30	-"-
17 + 219.50 - 17 + 258	L	10	-"-
17 + 219.50 - 17 + 258	L	14	-"-
17 + 283.5 - 17 + 325	L	8	-"-
17 + 283.5 - 17 + 325	L	11	-"-
17 + 336 - 17 + 369	L	14	-"-
17 + 336 - 17 + 369	L	19	-"-
17 + 415 - 17 + 469.90	L	14	-"-
17 + 415 - 17 + 469.90	L	19	-"-
17 + 430.30 - 17 + 775	L	86	-"-
17 + 430.30 - 17 + 775	L	96	-"-
17 + 775 - 17 + 842	L	16	-"-
17 + 775 - 17 + 842	L	20	-"-
17 + 937 - 17 + 988	L	13	-"-
17 + 937 - 17 + 988	L	17	-"-
18 + 050 - 18 + 125	L	-	raise grade
18 + 090 - 18 + 138.40	L	12	Remove berm Re-construct berm.
18 + 090 - 18 + 138.40	L	16	
18 + 136.50 - 18 + 180.50	R	11	-"-
18 + 136.50 - 18 + 180.50	R	15	-"-
18 + 188.50 - 18 + 264.30	R	40	-"-
18 + 188.50 - 18 + 264.30	R	46	-"-

APPENDIX VI

EQUIPMENT, PLANT, & VEHICLES

DUMP TRUCK LIST

NO.	EQUIPMENT	MAKE	EQUIP.CODE	REGISTRATION	MODEL	TYPE ENGINE	CAPACITY	CHASIS NUMBER	ENGINE NUMBER	YEAR	REMAR
1.	Dump Truck	Isuzu	DT.01	DD 1982 L	TXD 40	DA 120	6 Ton	1669917	848667	1977	
2.	Dump Truck	"	DT.02	DD 1983 L	"	"	"	1669918	848666	"	
3.	"	"	DT.03	DD 1981 L	"	"	"	1669965	848612	"	
4.	"	"	DT.04	DD 2114 L	"	"	"	1669996	848746	"	
5.	"	"	DT.05	DD 2118 L	"	"	"	1669910	848700	"	
6.	"	"	DT,06	DD 2111 L	"	"	"	1669946	848665	"	
7.	"	"	DT.07	DD 2119 L	"	"	"	1669932	848620	"	
8.	"	"	DT.08	DD 2113 L	"	"	"	1669921	848658	"	
9.	"	"	DT.09	DD 2110 L	"	"	"	1669961	848697	"	
10	"	"	DT.10	DD 2112 L	"	"	"	1659025	825645	"	
11	"	"	DT.11	DD 2121 L	"	"	"	1669994	848743	"	
12	"	"	DT.12	DD 2123 L	"	"	"	1659928	848611	"	
13	"	"	DT.13	DD 2124 L	"	"	"	1659941	848701	"	
14	"	"	DT.14	DD 2120 L	"	"	"	1669966	848618	"	
15	"	"	DT.15	DD 2122 L	"	"	"	1669807	848509	"	
16	"	"	DT.16	DD 2125 L	"	"	"	1669805	848513	"	
17	"	"	DT.17	DD 2350 L	"	"	"	1669944	848670	1978	
18	"	"	DT.18	DD 2351 L	"	"	"	1669992	848740	"	
19	"	"	DT.19	DD 2352 L	"	"	"	1669922	848606	"	
20	"	"	DT.20	DD 2353 L	"	"	"	1669993	848739	"	
21	"	"	DT.21	DD 2355 L	"	"	"	1669945	848[illegible]68	"	
22	"	"	DT.22	DD [illegible] L	"	"	"	1669[illegible]08	848[illegible]12	"	
23	"	"	DT.23	DD [illegible] L	"	"	"	1669963	848[illegible]17	"	
24	"	"	DT.24	DD 2362 L	"	"	"	1669964	848[illegible]13	"	
25	"	"	DT.25	DD 2333 L	"	"	"	1669[illegible]5	848738	"	
26	"	"	DT.31	DD 2354 L	TLD 53		5,[illegible]	[illegible]	[illegible]	"	

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HEAVY EQUIPMENT LIST

No.	EQUIPMENT	CODE	MARK	MODEL/TYPE	CAPACITY	ENGINE	BODY NO.	ENG. NO.	REMARK
1.	Tire Roller	301	Sakai	TS.7409	8.5 - 20 Ton	Isuzu DA 120	932457	563231	
2.	Tire Roller	302	Sakai	TS.7409	8.5 - 20 "	Isuzu DA 120	32683	568668	
3.	Three Wheel Roller	303	Sakai	KD 8.7608	8 - 10 Ton	Hino DM 100	30043	17255	
4.	Three Wheel Roller	304	Sakai	KD 8	8 - 10 "	Mitsubici 6DS3	30133	14102	
5.	Vibratory Compactor	305	Ingersol Rand	SP 54	9.6-22 "	GM.4-53	-	5125424	
6.	Double Vibr.Roller	306	Wacker	W.75	1-4 Ton	Kato DS-780	-	364800851	
7.	Generating Set	401	Denyo	F3.30L	30 KVA	Isuzu DA 220	-	813343	
8.	Generating Set	402	Cummins	NT 855 GC	175 KVA	Cummins	S.O.53207	10698483	
9.	Generating Set	403	Caterpillar	-	135 KVA	Caterpillar	SN.6628736	ZP 960	
10	Compressor Air	405	Broom wade	CV.125	125 CFM	Broomwade	-	502.810.439432	
11	Concrete Mixer	501	Nikko	-	600 liter	Nissan UD/SD22	-	76677	
12	Concrete Mixer	502	Winget	-	250 liter	Lister-diesel	-	6TSD 5258	
13.	Concrete Mixer	503	Goliath	GL 350	200 liter	Yanmar TS.50	7768260	C 88911	
14.	Water Pump	504	Kawamoto	-	4 Inch	Yanmar TS .80	-	80742	
15.	Water Pump	505	Kawamoto	-	4 Inch	Yanmar TS. 80	-	06732	
16	Concrete Internal	506	Wacker	-	-	-	-	271218059	
17	Concrete Internal	507	Wacker	-	-	-	-	271216265	
18	Concrete Internal	508	Wacker	-	-	-	-	271216253	
19	Engine Welder	509	Nippon Sharyo	EDW.270 Y	300 Amp.	Yanmar TS180C	-	C.80251	
20	Water Pump	510	Honda	-	3 Inch	Honda	-	G. 200	
21	Generating Set	404	AEG	SJRK 30/104D	10 KVA	Yanmar TS.155	-	C.80789	
22	Jaw Crusher	201	Jaques	-	50 HP	Motor type FEK	-	-	
23	Gyratory Crusher	202	Jaques	18 TS	50 HP	Motor type EEK	AG 2926	-	

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EQUIPMENT LIST

NO.	EQUIPMENT	CODE	MAKE	TYPE	ENGINE MODEL	ENGINE SERIAL NO	MACHINE SERIAL NO.	REMARKS
1.	Motor Grader	101	Caterpillar	120 G	3304	78 P 42685	87 V 4049	
2.	Motor Grader	102	Caterpillar	120 G	3304	78 P 42669	87 V 4048	
3.	Wheel Loader	103	Caterpillar	930	3304	78 P 43030	41 K 8122	
4.	Wheel Loader	104	Caterpillar	930	3304	78 P 43028	41 K 8124	
5.	Truck Loader	105	Caterpillar	955	3304	78 P 43070	13 X 1058	
6.	Truck Loader	106	Caterpillar	955	3304	78 P 43125	13 X 1059	
7.	Bulldozer	107	Caterpillar	D 6 D	3306	3 N 73419	4 X 3278	
8.	Bulldozer	108	Caterpillar	D 6 D	3306	3 N 73397	4 X 3279	
9.	Bulldozer	109	Caterpillar	D 6 D	3306	3 N 73779	4 X 3340	

APPENDIX VII

MANPOWER SCHEDULE (CONTRACTOR)

30 April 1979

No.	Name	Position	No.	Name	Position
1.	Ir. Rusli Rusdam	Project Manager	41.	Markus P.	Ass.Surveyor
2.	Ir.Victor H.S	Site Manager	42	Petrus	"
3.	A. Rachman	-"-	43	Hasrif	"
4.	Ir. Lande M.S.Q	Material Engineer	44	Hasdi	"
5.	R.T.Welah	Heavy Equipment	45	Samsuddin	"
6.	Hadi Sanjoto	H.E. Section	46	Syamsul Alam	"
7.	Purwanto	Chief Service	47	Syainuddin	"
8.	Santono	Administration	48	Sil	"
9.	Idin	Ujung Pandang-Branch	49	Yunus	"
10	Pulung Anwar	Logistic	50	Sugiono	Coord. Security
			51	S.Dusboy	Secubity
11	Hertanto	Warehousing	52	Uding Umar	"
12	Yunus	Ass.Warehouseman	53	Welem	"
13	Yudhi A.R.	Ass. Administration	54	A.R.Umar	"
14	Siteng	- " -	55	M. Jaie	"
15	Hadi	Assistant Office	56	M.G. Limpau	"
16	S. Sudarna	Chief Executor	57	A.R. Basir	"
17	Rudiono	Executor	58	Ali Bahri	"
18	Hidayat	"	59	M. Saleh	"
19	Anta Suryadi	Ass.Executor	60	Hasruddin	"
20	Piter Hasa	"	61	Salim	Office Cleaner
21	Bachtiar	"	62	Tangke	"
22	Udin	"	63	Alias Rauf	Driver
23	U.Sulaiman S.A	Laboratory	64	M.A. Rambly	"
24	Surnto	"	65	Sukito	Crusher Operator
25	Samodra	"	66	Tukimin	"
26	Edward S.	Ass. Laboratory	67	Aminta S.	Ass. Crusher Opt.
27	Mahmud	"	68	Aswar L	Adm./ Account.A?B.
28	Oiling	"	69	Eddy S	" - " -
29	Rotak	"	70	Syahruddin	Ass. Administration
30	Hamat	"	71	Syarifuddin	Warehouse/Logistic
31	Slamet	Installation	72	Markus T.	Ass. Logistic
32	Rusli	Ass.Installation	73	Amir Sinrang	"
33	Hassan	"	74	Jainuddin	Toolnkeeper
34	Dwi Santono	"	75	M. Rifuddin	Helper
35	Petrus Manda P.	Draftman	76	Sostiyono	Repair Maintenance
36	Marcius Sianipar	Surveyor	77	Hukidi	Workshop
37	Marcus John	Team Survey	78	Sudomo	"
38	Kashi	"	79	Achmad	Ass. Workshop
39	Iuriran	"	80	Yudhi	Mechanic
40	Badar	"	81	Jhoni C.	Mechanic.

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No.	Name	Position	No.	Name	Position
82.	Mushal	Mechanic	121	Djaga Kantun	Driver
83	Beru	Ass. Mechanic	122	Backri Bandu	"
84	Samsul Bah	Recording	123	Darman	"
85	Solihin	Ass.Warehouseman	124	Sudin	"
86	Mustading	"	125	Ramli Syam	"
87	Darwin	"	126	Mustafa	"
88	Liliek E.	Premium	127	Abdul Hakim	"
89	M. Nasir	Greasing	128	R.Abbas Arsyad	"
90	Z. Sudarno	Ass.Welder	129	Damarulloh T	"
91	Lemuo	Welder	130	Sappe	"
92	Syarif	Oli-man	131	Suparman	"
93	Roadi	Foreman	132	Amir Arifin	"
94	Sarjo Wirjanto	"	133	Jusuf Sarno	"
95	Salim	Chief Opt.	134	Irman A.P	"
96	Sudono	Chief Opt.	135	Suppu	"
97	Gaon Hidayat	Operator	136	Mahmud	"
98	Mislan	Operator	137	Lalilintar	"
99	Pachri Anwar	Cat.Operator	138	Johannes Saban	"
100	Abu Hanifah	"	139	Inkandar	"
101	Marwah	"	140	Adang	"
102	Sujoto	"			
103	Salimin	"			
104	Djumadi	"			
105	Murjono	Operator			
106	Murdayat	Operator			
107	Suripto	"			
108	[illegible]	"			
109	Sutaji	"			
110	Yadi S.	"			
111	Yatno	"			
112	Didi S	"			
113	Karno	"			
114	Wijioto	"			
115	Purwanto	"			
116	Sutrinno	"			
117	[illegible]	"			
118	M. [illegible]	Operator			
119	Mantu Manlan	Operator			
120	H. Tabbi Malaga	"			

Best Available Document

APPENDIX VIII

MAINTENANCE PERSONNEL

NO.	FOREMAN	KIND WORKMAN	Remarks
1.	FOREMAN MA'UN	- Smith	
		- Carpenter	
		- Stonemen	
		- Digmen	Including maintenance S.II bridge.
2.	FOREMAN KARJA	- Smith	
		- Carpenter	
		- Stonemen	
		- Digmen	Including Maintenance road S.II.
3.	FOREMAN KURDI	- Smith	
		- Carpenter	
		- Stonemen	
		- Digmen	Including maintenance road S.II.