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LAO PEOPLE'S DEMOCRATIC REPUBLIC
Peace Independence Democracy Unity Prosperity

MINISTRY
OF
COMMUNICATION, TRANSPORT, POST AND CONSTRUCTION

APPLICATION FOR JAPAN'S GRANT AID FOR ESTABLISHMENT OF ROAD AND BRIDGE MANAGEMENT CENTER

FEBRUARY 2001

THE APPLICATION FORM FOR THE JAPAN'S GRANT AID

1. Date of entry: February 2001

2. Applicant: The Government of Lao People's Democratic Republic

3. Project title: Establishment of Road and Bridge Management Center

4. Sector: Road Sector

5. Project type: Facilities Construction and Equipment Supply

6. Target site: (province) Savannaket Province
(city/town) Seno/Savannaket
(from Vientiane) approximate 6 hours by car, one hour by plane
The project site is shown on Appendix 1.

7. Requested amount: Japanese Yen 1,300,000,000.

8. Desired fiscal year of implementation: Survey FY2002
Implementation FY2003-2004

9. Implementing agency:
Ministry of Communication, Transport, Post and Construction
Person in charge: (full name) Mr. Sommad PHOLSENA
(affiliation) Director General, Department of Roads
Address: Lane-Xang Avenue, Vientiane, Lao PDR
Telephone No. (856-21) 412741

10. Outline of the Implementing Agency

The Ministry of Communication, Transport, Post and Construction (MCTPC) is the agency responsible for overall planning, organization and management of communication, transport, post and construction matters at the National level including urban infrastructure planning and development.

The Department of Roads (DOR) of MCTPC is responsible for planning, development, construction, maintenance and repairs of roads and bridges all over the

country.

Maintenance management of National Road Network, which includes the National Road No.13, No.9 and Pakse Bridge fully or partly financed by the Government of Japan, and Local Road Network are under the responsibility of the Road Administration Division (RAD) of DOR. In order to secure smooth running of these road network, RAD will take important part. RAD plans, co-ordinates and manages road maintenance through the 18 Provinces in Lao PDR.

Annual budget and staff member of DOR are:

Name of the department/section	Department of Road, MCTPC				
Year	19997/98	1998/99	1999/00	2000/01	2001/02
Annual budget(Million kip)	129,450	153,455	268,597	616,399	1,489,202
Number of staff members	185	192	166	166	166

Organization chart of MCTPC is shown in Appendix 2.

11. Background of the Request for the Japan's Grant Aid

(1) Current situation of the Sector

Road is the dominant mode of transportation in Lao PDR. About 65% of freight and 90% of all passenger traffic is carried by road. The development of road network is critical to national and regional integration and to the overall socioeconomic development of the country. At the end of the 1980s, the road network was in a state of total disrepair. The roads, already shattered during the Indochina war, further deteriorated due to lack of funding and inadequate maintenance management.

In the past decade, the Government had accorded high priority to the development of the road network. During the first half of the 1990s, about 50% of the Public Investment Program (PIP) was allocated to the road sector (mainly for the upgrading of national roads). About US$ 600 million was spent for the rehabilitation of national and provincial networks in the '90s. Bilateral and multilateral donors contributed almost to 80% of this expenditure. As a result, about 3,000 km of roads have been improved.

Especially in the southern region of Lao PDR, the primary roads have been remarkably improved. The National Road No.13S running north to south along the Mekong River has almost rehabilitated up to its southern end at the Lao-Cambodian border, and the National Road No.9 running west to east through Savannakhet Province is now under rehabilitation up to the eastern end at the Lao-Vietnam border with financial assistance of Japan and ADB. National Road No.8, No.16 and No.18 running west to east in the southern region are also fully or partly under rehabilitation now. In addition, a long bridge across the Mekong River at Pakse has recently completed with the grant aid of Japan directly linking Lao PDR to Thailand through the

National Road No.16, and also, another long bridge over the Mekong is now planed to be constructed at Savannakhet to directly connect between Lao PDR and Thailand and further connect between Thailand and Vietnam through the National Road No.9 in Lao PDR.

In near future, maintenance management of roads and bridges will be the most serious problem in Lao PDR, especially in the southern region where many primary constructions and rehabilitations of roads and bridges have been being implemented.

With regard to management/institutional reforms, Donors have helped the DOR of MCTPC strengthen its capacity by establishing Road Administration Division (RAD) with three regional offices, Transport Planning Unit and Project Coordinating Unit as part of their financing project or by assigning advisors/specialists in selected fields of activities.

As for human resources development, Swedish International Development Authority (SIDA) established Road Training Center in Vientiane in 1987 and managed it. It changed to Telecom & Communication Training Institute (TCTI) in 1997, which is for work skills training of MCTPC personnel, state enterprises staff and professionals of concerned private companies. However, at present the training of TCTI is insufficient to develop engineers for road and bridge maintenance management because of the lack of necessary equipments and machines.

In connection with the reliable source of funds for maintenance management of roads and bridges, the Government will establish a financing mechanism for the preservation of road and bridge assets (Road Fund) which will enables maintenance management activities to be viable either economically or financially.

(2) Problems to be solved in the Sector

a. Insufficient duration of pavement

The roads, which were rehabilitated or reconstructed during the first half of the decade, are deteriorating at a faster rate than expected. For instance, roads rehabilitated 4 to 6 years ago required a level of repair that would normally be expected after 10 years. This is mainly caused by inadequate maintenance.

b. Insufficiency of routine and periodical maintenance management

It is important that the roads are always checked by patrolling along their routes, and when any damages of pavement are found out, they must be soon repaired before

enlarging, and any obstacles such as stone, tree and landslide existing on the roads must be soon removed not to interfere with traffic for a long time. In addition, improvement or settlement of road safety system (lighting, guard rails, etc.), alignment improvement, local procurement of necessary materials, etc. and appropriate technology which will support them are also important. At present, however, such routine and periodical maintenance management is insufficient because of lack of fund and staffs. Therefore, the roads after rehabilitated or reconstructed soon heavily deteriorate, incurring a large amount of maintenance cost, leading to frequent breakdown and accidents of motor vehicles.

c. Insufficient and over-aged road maintenance machinery

Even in the case of domestic contractors having road maintenance machinery, most of their machinery have been already over-aged, and so, frequently broken down during the works, but the spare parts have not been available soon or unavailable at all depending on the model, these leading to frequent work stoppages and low motivation of workers and management as well.

d. Insufficiency of qualified domestic contractors and engineers

After the country having adopted an economic liberalization policy, there have been a number of domestic private-owned contractors established by private associations or by privatization of state or provincial-owned construction enterprises through allocation of shares to their employees. However, most of them have been small in scale and not yet had enough facilities, liquidity, managerial expertise and commercial orientation as well to properly execute major road maintenance works. Therefore, the works entrusted to such contractors are often delayed largely exceeding the contract period or do not meet the specifications. In spite of a large volume of routine and periodic road maintenance works being put into practice every year, there have been still only a few domestic contractors qualified to participate and succeed in the international and national competitive biddings. Furthermore, there are not enough facilities to train engineers.

e. Lack of fund

Under the present severe financial constraints, there has been no enough fund available for MCTPC to improve road maintenance management.

(3) Necessity and importance of improvement in the Sector which lead to the

formulation of the Project

a. In the southern region of Lao PDR, which is the proposed area, covering area of this Project consisting of Borikhamxai, Khammouan, Savannakhet, Saravan, Champasak, Xekong and Attapeu Province, National Road No.13S has been almost rehabilitated up to the Lao-Cambodian border and directly connected with Thailand through the bridge across the Mekong River in Pakse, while National Road No.9 will be soon rehabilitated up to Lao-Vietnamese border and directly connected with Thailand after another bridge across the Mekong River being completed at Savannaket. In addition, National Road No.8, No.16 and No.18 running west to east through the southern region also will be rehabilitated fully or partly. As these major projects are completed in near future, the southern region will be grossly developed leading to considerable increase of motor vehicles. But, as the motor vehicles increase, the roads will quickly deteriorate. Therefore, to detect the deterioration, and repair and maintain the roads as early as possible before they are more seriously deteriorated by heavy traffic. It is very necessary and important to establish the routine and periodical road/bridge maintenance management system including the road safety system improvement, alignment improvement and local procurement of necessary materials with necessary machinery and equipment under this Project.

b. At present, there have been no enough laboratories in each Province to test various samples of works and check the quality of works done by the contractors. So, it is necessary and important to establish the laboratory with necessary equipment under this Project for ensuring the quality of works required in the specifications, procurement of necessary materials, etc.

c. Most of the domestic contractors are small in scale and have not enough road maintenance machinery and equipment. Even in the case of large contractors, most of their machinery and equipment are over-aged and hard to be repaired due to lack of repair parts, greatly affecting their performance of works. Therefore, it is necessary and important to support and foster them through provision of well-maintained machinery and equipment to them on the rental basis under this Project so as to enable them to carry out the works strictly in accordance the specifications and complete the works not later than the contractual time for completion. At the same time, fostering of domestic contractors is largely expected to lead increase of employment in the region.

d. In addition, to entrust the domestic contractors with the road maintenance works, it

is very necessary and important for them to improve their technical and managerial capability through technology transfer under this Project so as to enable them to participate and succeed in the international and national competitive biddings and carry out the works satisfactorily in accordance with the contractual schedule and specifications.

(4) Relation between the Sector and the Project

The road sector is very important as a basic infrastructure and as an industry for development of the southern region. In this context, this Project is one of the most important and indispensable ones in the road sector to maintain the roads in a good condition and foster the domestic contractors in the field of the road maintenance, and as a consequence to develop various industries such as construction, road transport, tourism and so on, and alleviate the poverty in the southern region.

(5) Reasons why Japan's Grant Aid is requested for the particular Project.

The Government of Japan has been well acquainted with the present road situation in Lao PDR and greatly contributing to improvement of the national roads and new construction of bridges in the southern region under the large financial assistance and advanced technology. Moreover, the Government of Japan had provided MCTPC with a large number of road maintenance machinery under the grant aids for improvement of the national roads in the central region. Therefore, the Government of Lao PDR has decided to apply Japan for implementation of this important project preferably under the grant aid of Japan.

12. Relation with the government's development plans

(1) Relation with the government's national development plan

In the Fourth Five Year Plan 1996-2000 (Fourth Plan), with regard to transport sector and road sub-sect, beside those targets as the rehabilitation/construction, the importance of maintenance management is clearly stated as the following.

- Reconstruction and rehabilitation of the trunk road system shall be continued.
- In order to diversify the country's access to the sea, international transit corridor shall be created.
- So as to preserve the new infrastructures, systematic maintenance shall be established.

(2) Relation with the sector comprehensive/overall program

MCTPC's strategy for the road sector over the period 2000-2015 includes, in order for supporting socio-economic development and national integration, such goal as the following.

- To develop road sector institutions and integrated management system
- To give funding priority to preserving the capital value of road sector asset
- To provide an environment suitable for a sustainable domestic contracting industry
- To improve traffic safety
- To encourage community participation in the planning and execution of road sector activities

The Center's objective is thus corresponding to national as well as ministerial goals.

13. Objectives

(1) Objectives and purpose of the project

- To establish, while unprecedented road and bridge construction works are still ongoing, the national front base for road and bridge maintenance management at the very spot in the south,
- To secure all road and bridge maintenance management activities over the designated area in the south
- To introduce the daily road patrol and emergency maintenance system to check the road condition, and, if necessary, repair the pavement damages and remove obstacles on roads as early as possible
- To install, repair and improve traffic safety system such as lighting system, guard rails, traffic signals, etc.
- To study, recommend and improve the road alignment with the views to facilitating road users and reducing traffic accidents
- To work out the rules and regulations toward the establishment of Lao Road Maintenance Management System which includes specifications for contracting out the road and bridge maintenance works
- To ensure the quality of works through testing of samples and conduct research & development of locally available low-cost materials necessary for day-to-day repair and maintenance work in the laboratory
- To support the domestic road maintenance contractors with over-aged or insufficient machinery through provision of the well-maintained machinery to

them on the rental basis so as to enable them to execute the works strictly in accordance with the contractual specifications and work schedule

- To strengthen the domestic road maintenance contractors through transfer of technical and managerial expertise to them

(2) Overall goal/medium and long-term objectives.

- To develop road transport for freight and passengers in the southern region
- To develop construction, tourist and other industries in the southern region
- To increase employment and alleviate poverty in the southern region
- To contribute to promotion of socio-economic activities
- To contribute to enhancement of public welfare

14. Outline of the project and request

(1) a. In the case of facilities

In order to house those above-mentioned activities, the Center's facilities should include the following. (Details are shown on Appendix 3)

i) Administration Building

- Office for administration, road patrol, road maintenance, machinery maintenance, manager, advisory staff, etc.
- Laboratory, seminar room and meeting room
- Warehouse and storage
- Canteen, kitchen and pantry
- Locker room, shower room and toilet

ii) Workshop

- Repair shop
- Office
- Spare parts and tools storage
- Toilet

iii) Parking and training yard

iv) Depots at selected sites along NR9 and NR13 as annexes

a'. In the case of equipment supply project

So as to secure smooth operation and appropriate maintenance of the Center,

those listed equipment as shown in Appendix 4 will be required.

b. Methods to operate, manage and maintain the facilities and equipment, expected number of persons to be secured, together with their technical levels and prospect to secure necessary budget:

The main income will be MCTPC's maintenance management budget or Road Maintenance Fund assigned to the Center in proportion to the coverage (road length, number of bridges). In addition, income from seminars for technology transfer and renting the road maintenance machinery to the domestic contractors will be utilized.

The number of personnel to be Director and key persons responsible for 3 main functions (operation, development and capacity building) will have to be selected and posted from those qualified staff of either Department of Roads of MCTPC or provincial Department of Communication, Transport, Post and Construction (DCTPC). Routine work will be secured by the Center staff and those trainees who are also selected from among officials (engineers and technicians) of MCTPC, DCTPC, etc. and staff professionals of state-own-enterprises and private contracting firms. The Center count on the site managers of those road and bridge construction works in progress as teaching staff or trainers.

c. Financial sources for management and maintenance after completion of the requested project:

The financial sources will be mainly borne by the government, and partially borne by beneficiaries.

(2) Breakdown of total amount of the facilities and equipment with supporting data

Description	Amount
Facility construction(Civil and architectural works)	JP¥ 600,000,000
Equipment supply	JP¥ 700,000,000
Total	JP¥ 1,300,000,000

(Details are shown in Appendix 3 and 4)

(3) Additional information

a. Existing facilities

No

b. List of existing equipment covering the name, quantity, year purchased, country of

origin of the equipment, together with the manufacturer's name and operating conditions (A = operable, B = partially operable, and C = not operable) and reason(s) for such inoperability.

There is no functional equipment at the moment.

c. Project site preparation:

Land:

The Center

Already secured

Name of the landowner : Province of Savannakhet

Area : 3 ha

Depot NR9

Securable upon identification

Name of the landowner : local authority

Area : 4ha

Depot NR13S

Already secured

Name of the landowner : Province of Champassak

Area : 2ha

i) Current situations of the project site, such as leveling, drainage, availability of power, water supply, telephone, etc.

· The Center

This site is an open land with an area of about 3 ha located about 500m from the Xeno center (market place) of Savannakhet Province along the NR 13 S. The site has been almost leveled, and power is available from the EDL service lines and ground –water is available at the depth of 50-60m.

· Depot NR 9

This site is in flat Savanna forest where farming activities are so limited. Power is available from the EDL service lines and ground-water is available at the depth of 50-60m.

·Depot NR 13 S

This site is remains of the branch office of Road Administration Division, Department of Roads, MCTPC. Power and water supply shall be secured accordingly.

ii) Data on natural conditions

In the southern region of Lao PDR, the climate condition is tropical climate and characterizes by two seasons; wet season from May to September and dry season from October to April. The temperature varies from about 20℃ in December to about 30℃ in April, and the rainfall varies from about 0 mm in December to about 300 mm in August.

iii) Security situation

No security problem around the Project site has been reported.

d. Related Grant Aid cooperation in the past:

i) Fiscal year: 1993

Title: Provision for Road Construction Equipment for the National Road Route No.8

Amount: Yen 749 million

Target area: National Road Route No.8 in Bolikhamxai Province

Assessment on level of utilization of the project: A (Good)

ii) Fiscal year: 1994 – 1997

Title: The Project for Reconstruction of Bridges on National Road Route 13

Amount: Yen 1,594 million

Target area: National Road Route No.13 in Bolikhamxai and Khammouan Province

Assessment on level of utilization of the project: A (Good)

iii) Fiscal year: 1998 – 2001

Title: The Project for Reconstruction of Bridges on National Road Route 13, Phase 2

Amount: Yen 5,391 million

Target area: National Road Route No.13 in Khammouan, Savannnakhet, Saravan and Champasak Province

Assessment on level of utilization of the project: A (Good)

iv) Fiscal year: 1997 – 2000

Title: The Project for Construction of Pakse Bridge

Amount: Yen 5,240 million

Target area: The Mekong River in Pakse, Champasak Province

Assessment on level of utilization of the project: A (Good)

v) Fiscal year: 1999 – 2003

Title: The Project for Rehabilitation of National Road Route No.9, Phase 1

Amount: Yen 3,908 million

Target area: National Road Route No.9 in Savannakhet Province

Assessment on level of utilization of the project: A (Good)

15. Benefit and effects of the project:

(1) Area that will benefit from the project

The total area of 97,043k ㎡ of Borikhamxai, Khammouan, Savannakhet, Saravan, Chanpasak, Xekong and Attapu Province in the southern region will benefit from this project.

(2) Population that will benefit

Directly: About 2 million people of the said provinces in the southern region will directly benefit from the improvement of the roads and bridges in the region.

Indirectly: About 4.6 million people in the whole country will indirectly benefit from the promotion of socio-economic activities, alleviation of poverty and enhancement of public welfare.

(3) Expected social and economic effects

- Development of road transport for freight and passengers
- Development of construction, tourist and other industries
- Increase of employment and alleviation of poverty
- Enhancement of public welfare

16. Relation with technical cooperation, etc.

(1) Feasibility study:

Not yet effected.

(2) Technical cooperation

JICA's Project-Type Technical Cooperation must be the best form of technical cooperation for our Road and Bridge Management Center. However it seems to be very difficult that JICA's Project-Type Technical Cooperation will be adopted as the form of technical cooperation for our center and it will take long period (probably more than 3 years) until it is adopted, because a lot of Project-Type Technical Cooperation is being implemented in Lao PDR now. It is our sincere hope that as many MCTPC and DCTPC

engineers and technicians as possible could come to the site (to the Center) to carefully watch and feel every aspect of ongoing modern road and bridge construction technology and practices in the southern region which will terminate within 3-4years. In order for our Center to start functioning in right time, preferably within two years, technical cooperation by individual experts, senior volunteers and JOCV as the following seems to be realistic.

Forms of assistance we require

- Long-term experts: 1 person
- Short-term experts: 1person
- Senior volunteers: 3persons
- JOCV: 3persons

The technical cooperation being underway

Title: Road Maintenance Program

Period: from Apr., 2000 to Mar., 2001

Long-term expert: 1person

17. Request to other donors for the same project

None.

18. Aid by third countries or international organizations in the same or related fields.

Name of Donor	Period	Type	Amount (million)	Outline (concretely)	Relationship with the present request
ADB	1993 to 2000	Loan	US$26.0	Sixth Road Improvement Project DBST improvement of 58km of NR16 and 20 (Pakxong-Thateng-Ban Beng), 49km of NR11 (Xekong-Attapeu) and 12km of NR18 (Attapeu-Xaisetha), and reconstruction of 27 bridges.	To be covered by this Project
ADB	1995 to 2000	Loan	US$48.0	Champasak Road Improvement Project DBST improvement of 160km of NR13S (Pakse-Cambodia border) and 40km of NR16 (Pakse-Thai border), reconstruction of their bridges and DBST improvement of 10km of district roads in Pakse.	To be covered by this Project
ADB	2000 to 2003	Loan	US$40.0	East West Corridor Project DBST improvement of 78km of NR9 (Muang Phin-Vietnam border).	To be covered by this project
IDF & NDF	1988 to 1995	Credit	US$14.1	Southern Transport Project Spot improvement of 270km of NR13S (Xeno-Pakse)	To be covered by this project
IDA & NDF	1994 to 2001	Credit	US$22.0	Second Highway Project (SHIP) DBST improvement of 226km of NR13S (Pakkading-Svannakhet), etc., reconstruction of their 6 bridges, and DBST improvement of 33km of NR9 and 13S (Khanthabouri-Xeno), etc.	To be partly covered by this Project
IDA & NDF	1997 to 2002	Credit	US$48.02	Third Highway Project (THIP) DBST improvement of 200km of NR13S (Ban Lak35-Pakse), 13,700km of routine maintenance and 600km of periodic maintenance in the southern region, etc.	To be covered by this Project

19. Other information with special remark (whether or not privatization policy is effected. If yes, indicate the relationship with the requested project.)

The Center will not be privatized in future.

APPENDICES

Appendix 1. Location and photograph of the project site

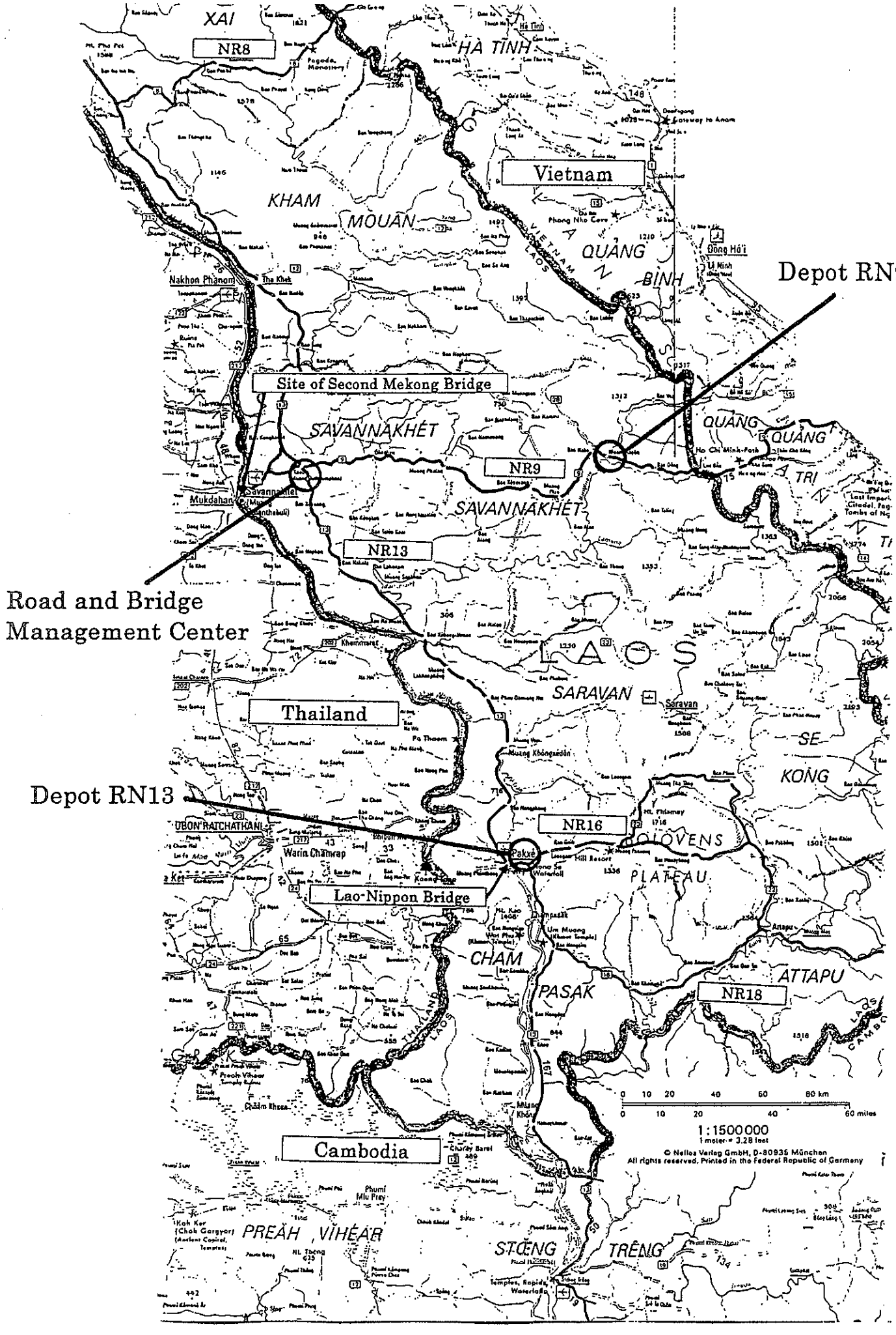
Appendix 2. Organization chart of MCTPC

Appendix 3. Facility drawings

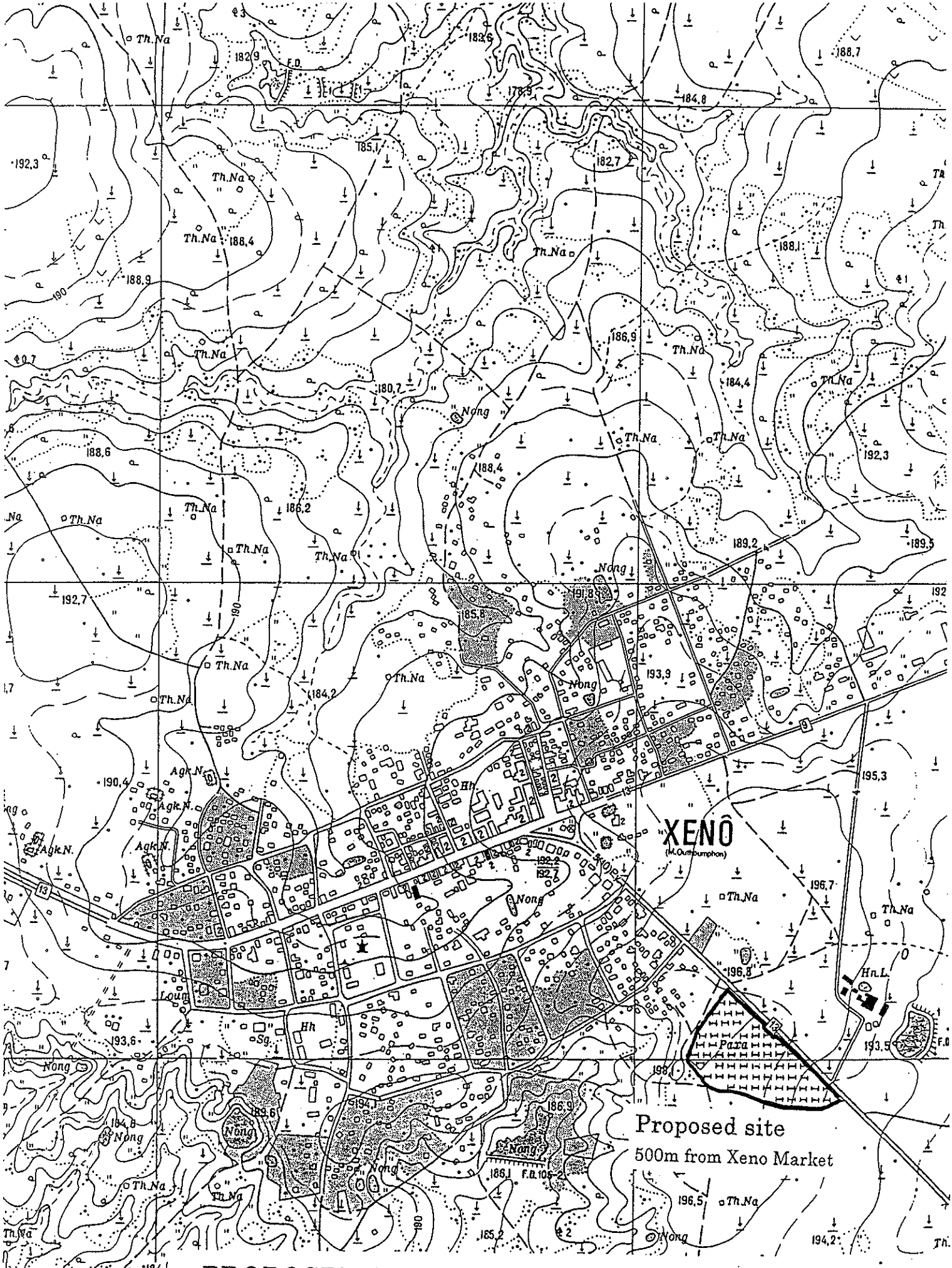
Appendix 4. List of requested equipment

Appendix 1

Location and photograph of the project site



LOCATION MAP



PROPOSED SITE LOCATION OF THE CENTER

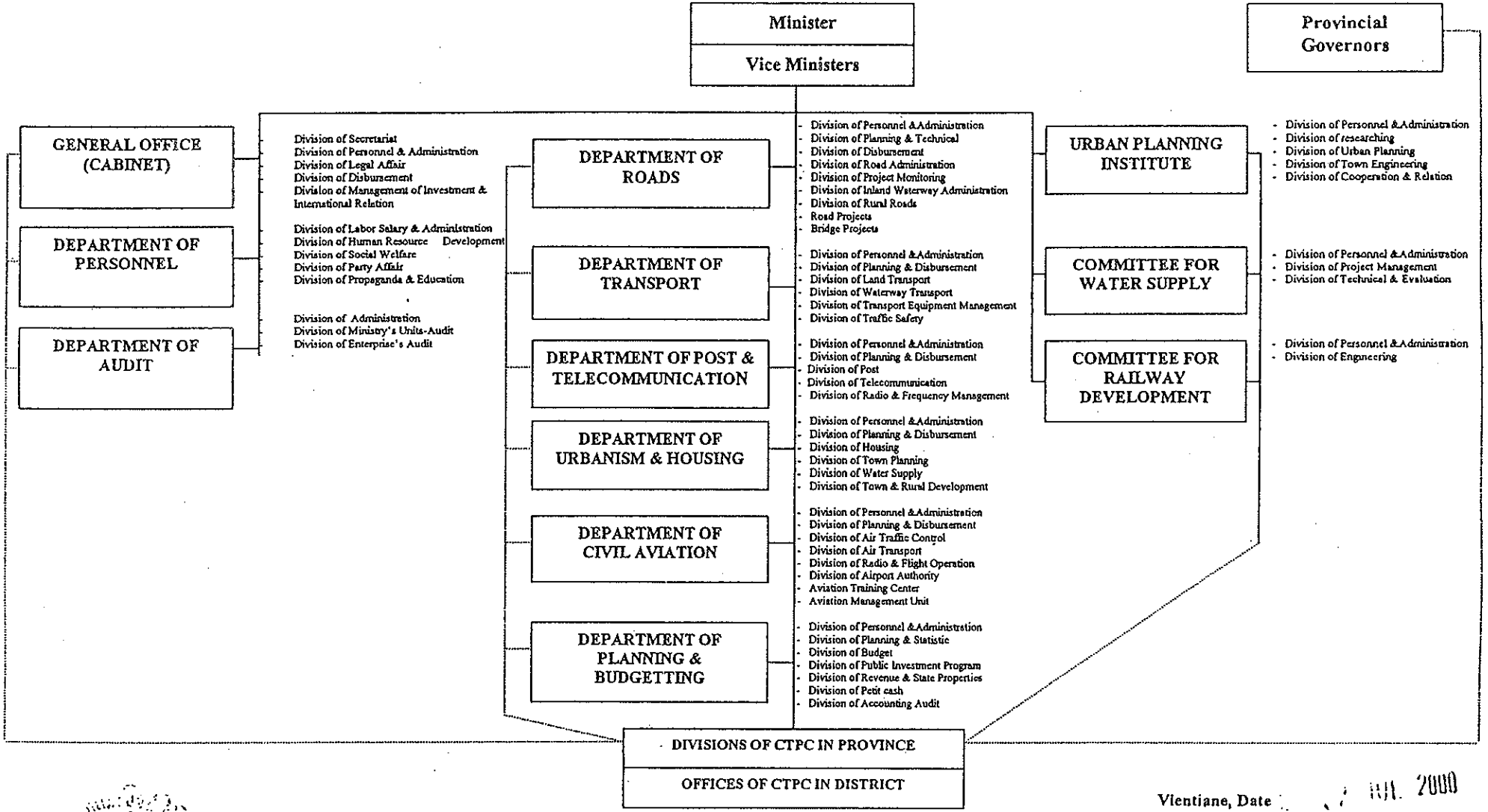
Proposed site of the center

500m from Xeno Market

Appendix 2

Organization chart of MCTPC

ORGANISATION CHART OF MINISTRY OF COMMUNICA')N TRANSPORT POST AND CONSTRUCTION



Minister, Ministry of communication, Transport, Post and Construction

Dr. Thongloun Phao BOUNNAPHOL

Vientiane, Date 11/1 2000

Director General, Department of Personnel

Appendix 3

Facility drawings

Road and Bridge Management Center

2 Storied Administration Building with a total area of 2,163m²

Ground Floor

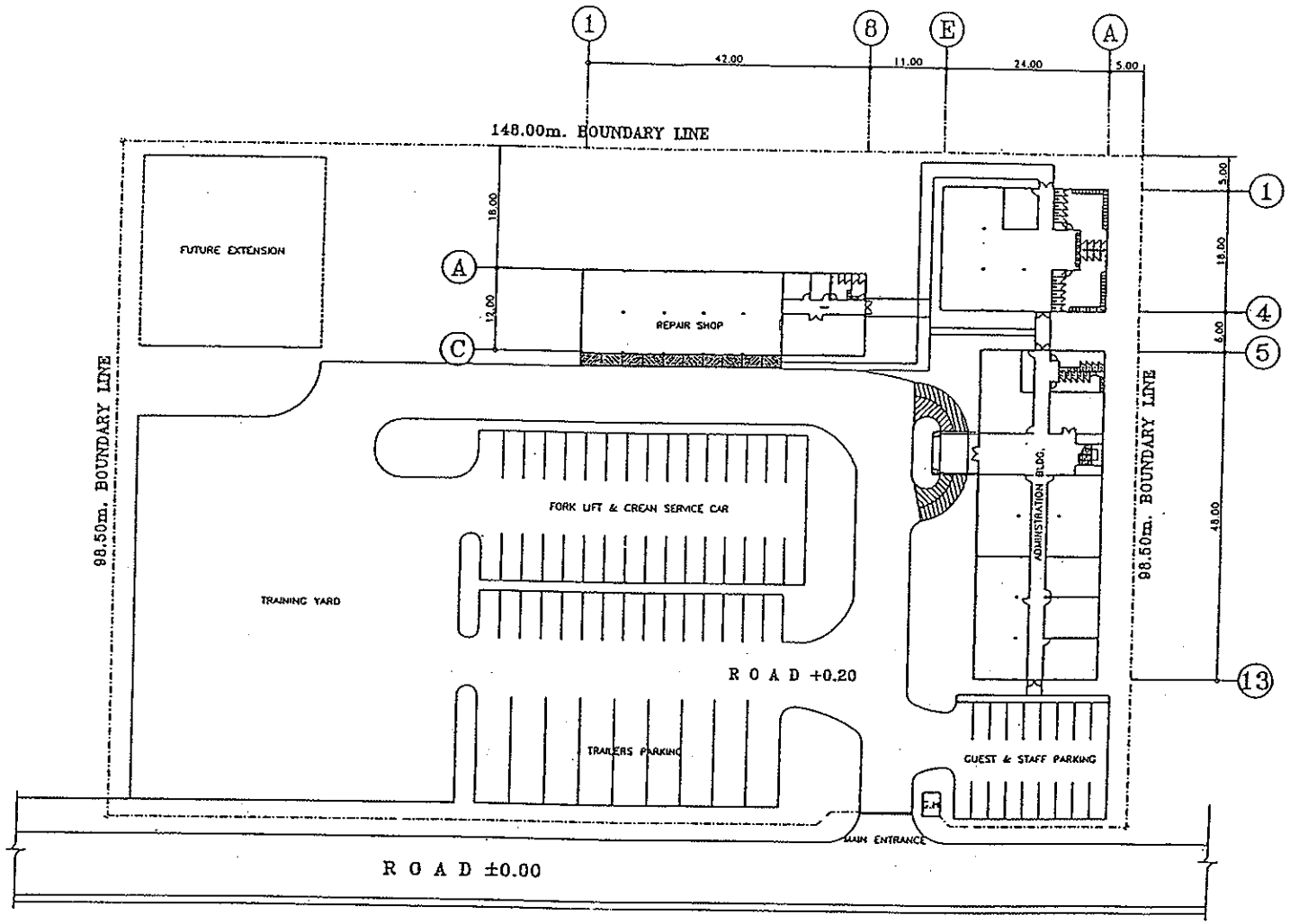
1) Administration office 96.0m²
2) Road patrol office 48.0m²
3) Road maintenance office 48.0m²
4) Machinery maintenance office 48.0m²
5) Manager's office 81.0m²
6) Advisory staff's office 96.0m²
7) Laboratory 144.0m²
8) Warehouse 46.0m²
9) Canteen 182.0m²
10) Kitchen 24.0m²
11) Locker and shower room 117.0m²
12) Pantry 11.0m²
13) Corridor and hall 358.0m²

First

1) Library and seminar room 543.0m²
2) Meeting room1 46.0m²
3) Meeting room2 82.0m²
4) Storage 46.0m²
5) Pantry 10.5m²
6) Toilet 48.0m²
7) Corridor and hall 88.5m²

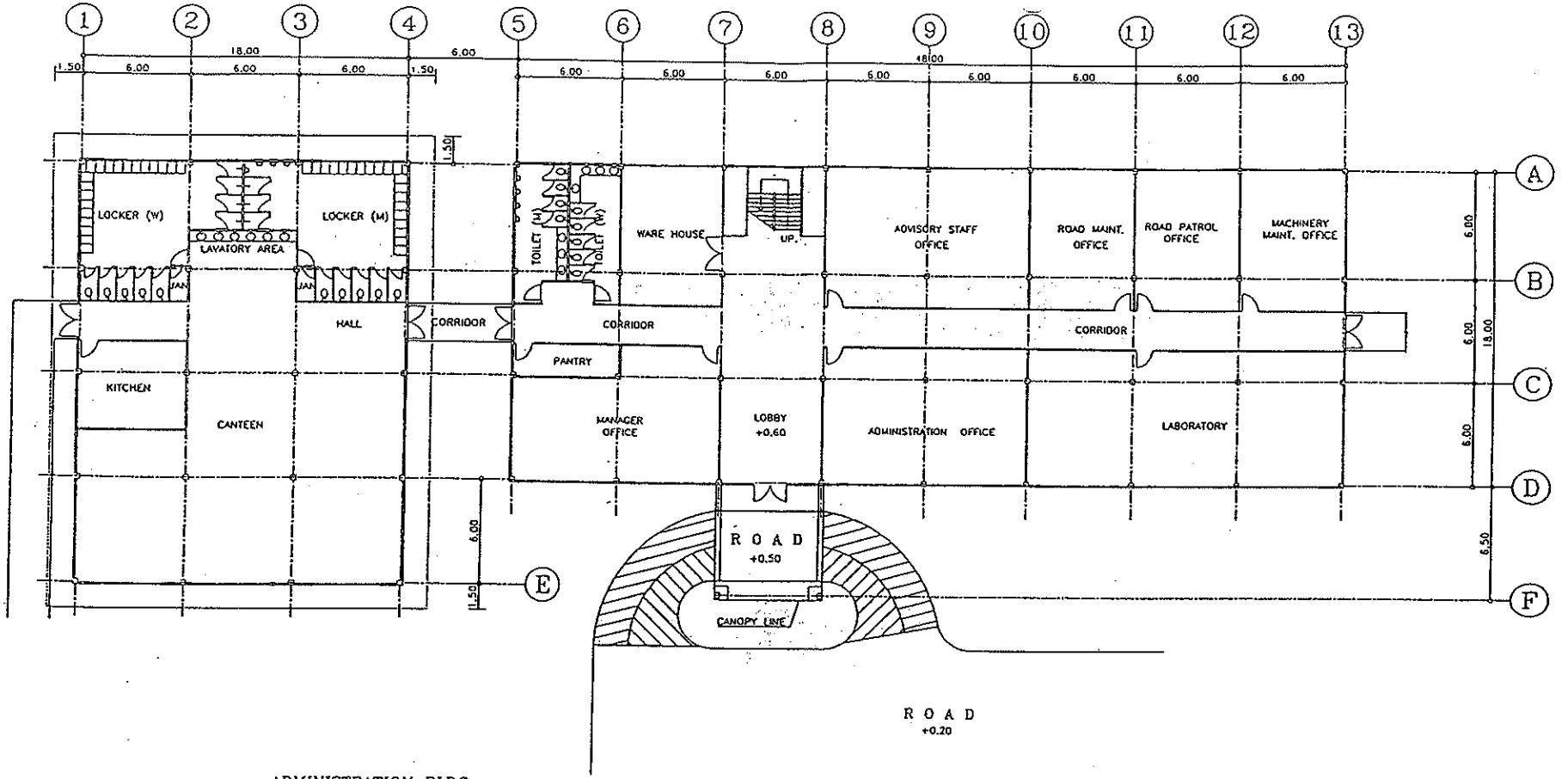
1 Storied Workshop with a total area of 504m²

1) Repair shop 361.0m²
2) Office 15.2m²
3) Pantry 10.6m²
4) Spare parts and tools storage 73.9 m²
5) Toilet (M) 10.4m²
6) Toilet (W) 7.6m²
7) Corridor 24.4m²



LAY-OUT

SCALE 1 : 500



ADMINISTRATION BLDG.

GROUND FLOOR

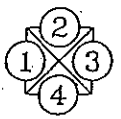
1. ADMINISTRATION OFFICE AREA = 96.00m.^{2}
2. ROAD PATROL OFFICE AREA = 48.00m.^{2}
3. ROAD MAINTENANCE OFFICE AREA = 48.00m.^{2}
4. MACHINERY MAINTENANCE OFFICE AREA = 48.00m.^{2}
5. MANAGER'S OFFICE AREA = 81.00m.^{2}
6. ADVISORY STAFF'S OFFICE AREA = 96.00m.^{2}
7. LABORATORY AREA = 144.00m.^{2}
8. WAREHOUSE AREA = 46.00m.^{2}
9. CANTEEN AREA = 182.00m.^{2}
10. KITCHEN AREA = 24.00m.^{2}
11. LOCKER & SHOWER ROOM AREA = 117.00m.^{2}
12. PANTRY AREA = 11.00m.^{2}
13. CORRIDOR & HALL AREA = 358.00m.^{2}

TOTAL AREA = 1,296.00m.^{2}

2nd FLOOR

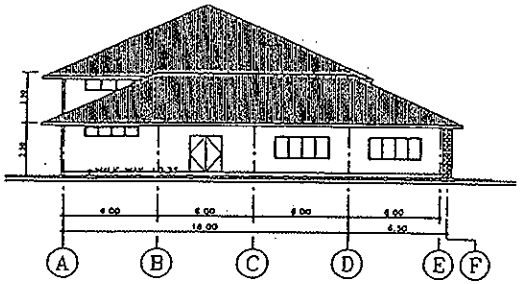
1. LIBRARY & SAMINAR ROOM AREA = 543.00m.^{2}
2. MEETING ROOM 1 AREA = 46.00m.^{2}
3. MEETING ROOM-2 AREA = 82.00m.^{2}
4. STORAGE AREA = 46.00m.^{2}
5. PANTRY AREA = 10.50m.^{2}
6. TOILET AREA = 48.00m.^{2}
7. CORIDOR & HALL AREA = 88.50m.^{2}

TOTAL AREA = 864.00m.^{2}

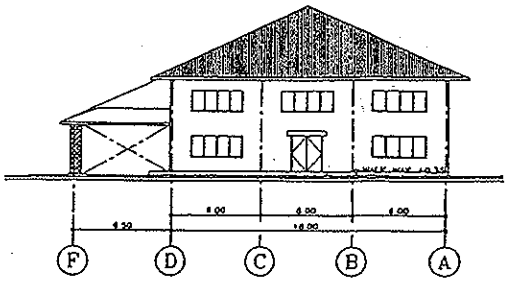


GROUND FLOOR PLAN (ADMIN BLDG.)

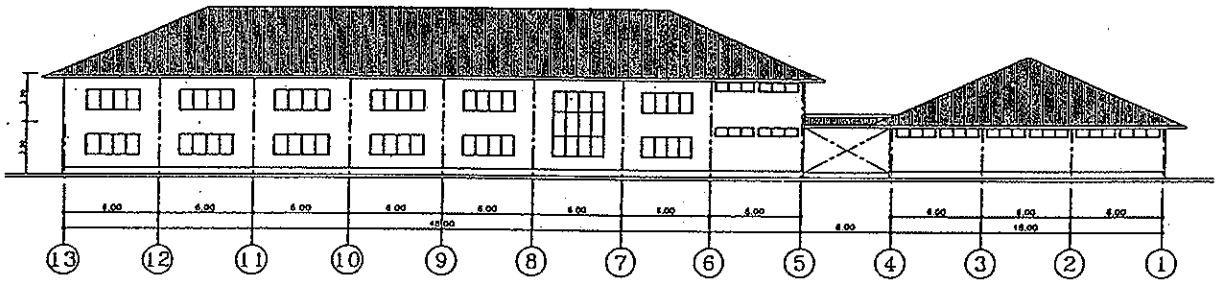
SCALE 1 : 200



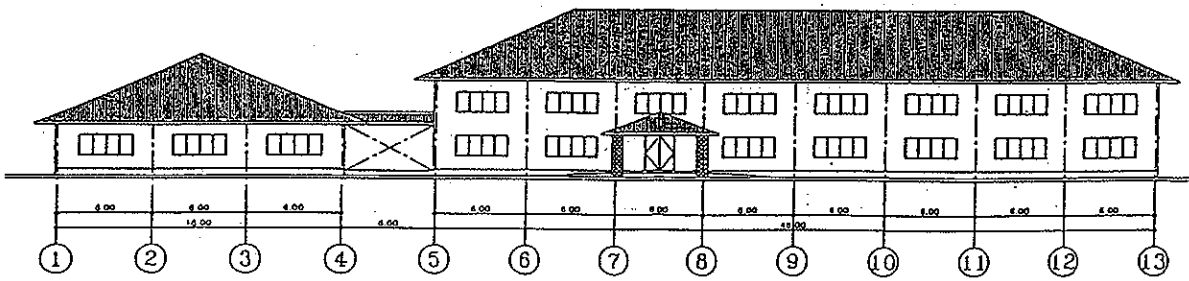
ELEVATION 1
SCALE 1 : 200



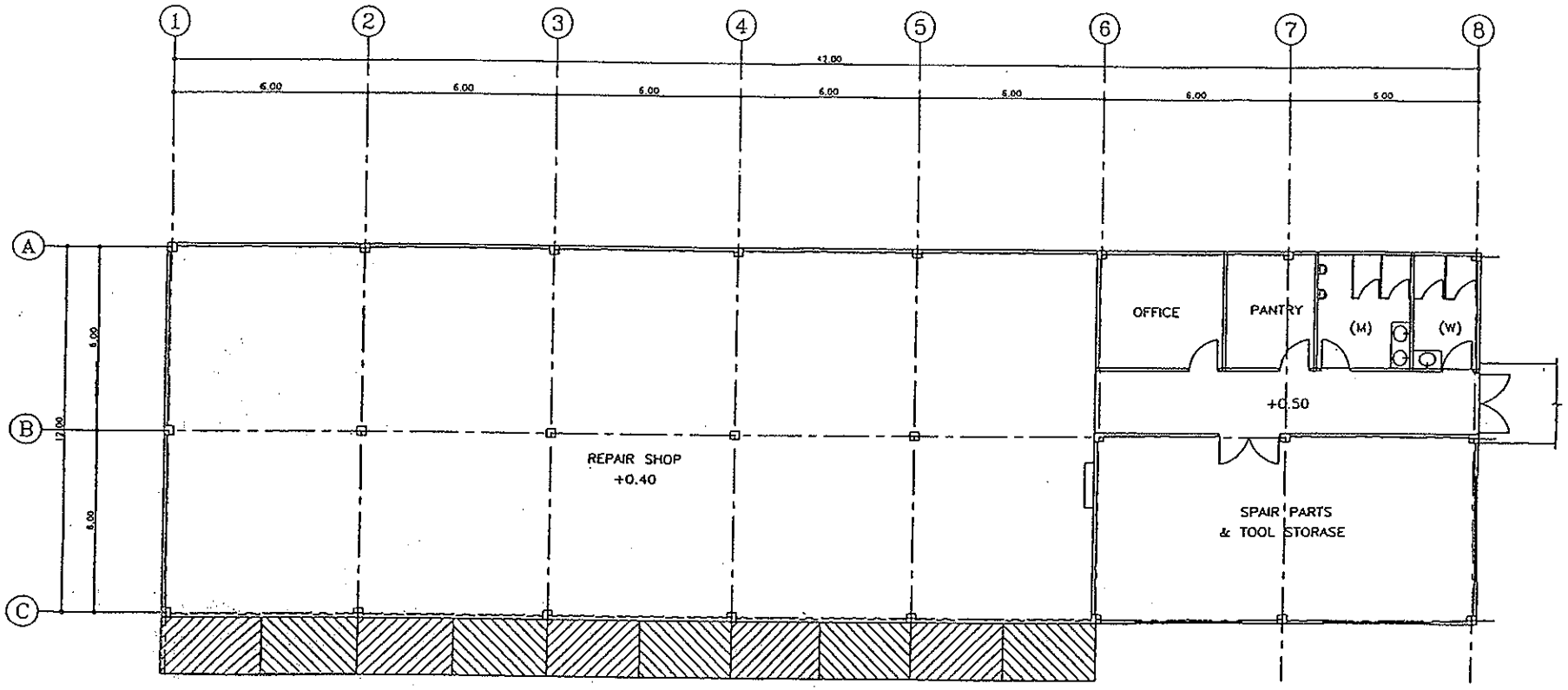
ELEVATION 3
SCALE 1 : 200



ELEVATION 2
SCALE 1 : 200



ELEVATION 4
SCALE 1 : 200



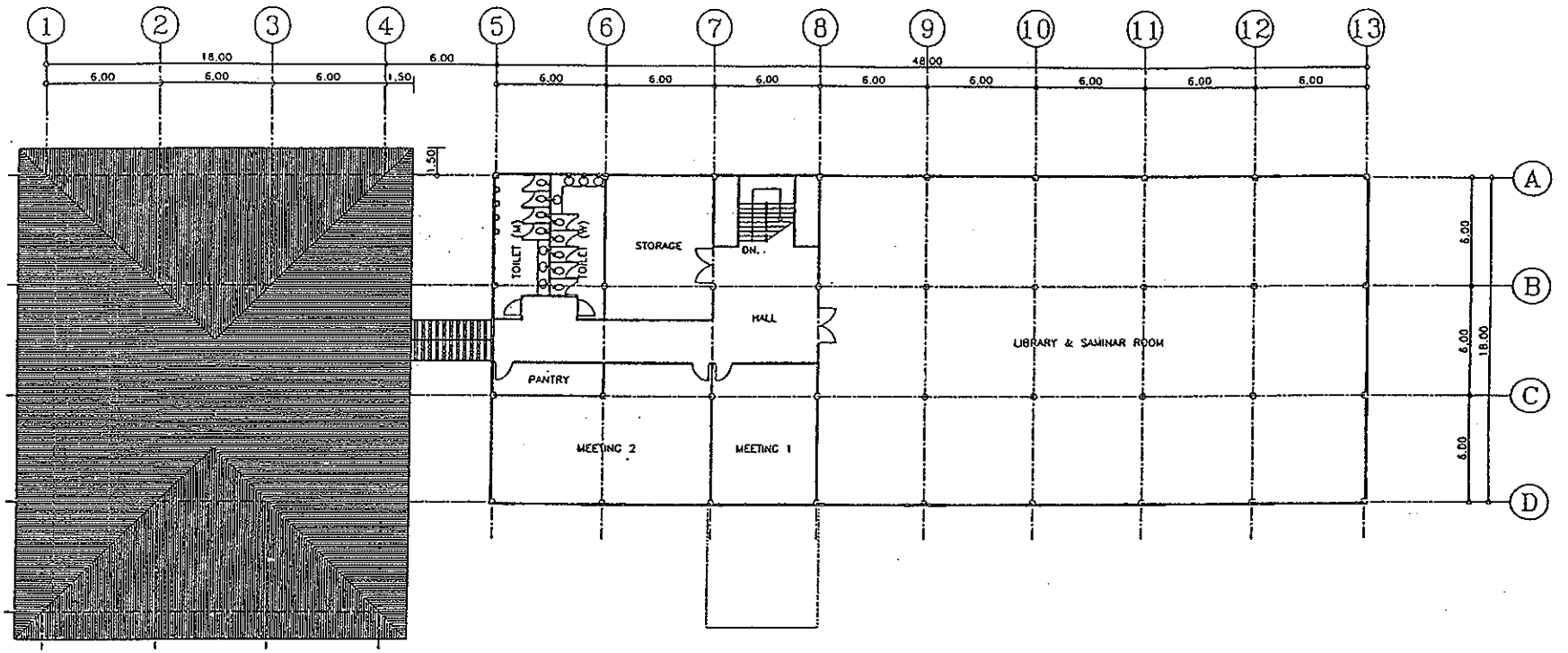
GROUND FLOOR

1. REPAIR SHOP AREA = 361.00m.^{2}
2. OFFICE AREA = 13.20m.^{2}
3. PANTRY AREA = 10.64m.^{2}
4. SPAIR PARTS & TOOL STORAGE AREA = 73.81m.^{2}
5. TOILET (M) ARCA = 11.40m.^{2}
6. TOILET (W) ARCA = 7.60m.^{2}
7. CORRIDOR AREA = 24.35m.^{2}

TOTAL AREA = 504.00m.

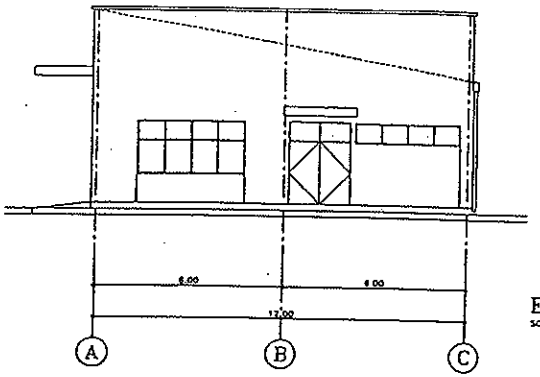
GROUND FLOOR PLAN (WORK SHOP BUILDING.)

SCALE 1 : 100

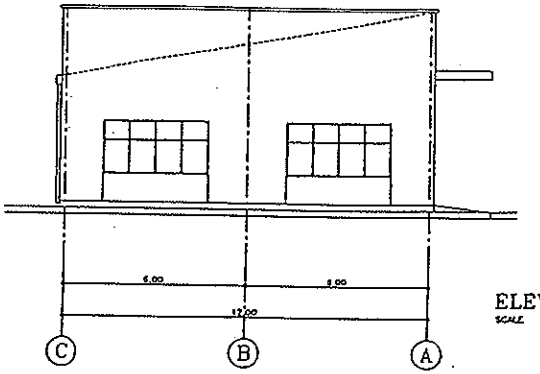


2nd FLOOR PLAN (ADMIN BLDG.)

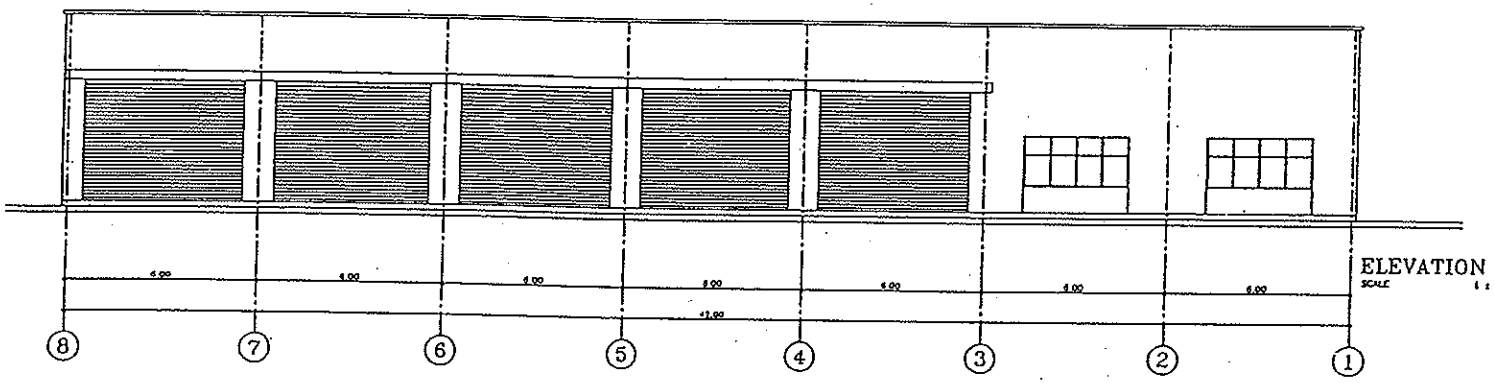
SCALE 1 : 200



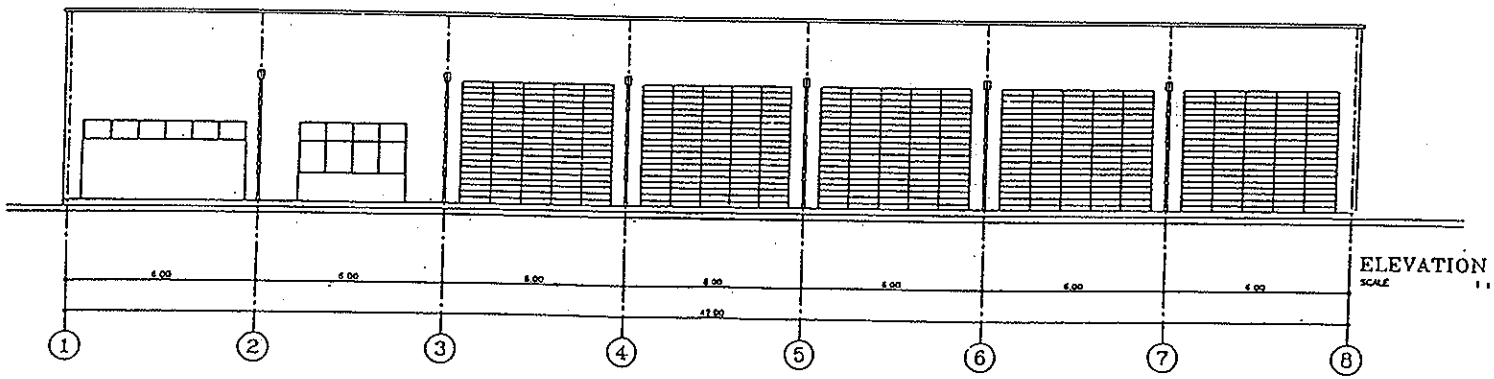
ELEVATION 1
SCALE 1 : 100



ELEVATION 3
SCALE 1 : 100



ELEVATION 2
SCALE 1 : 100



ELEVATION 4
SCALE 1 : 100

Depot RN9 (area 4ha)

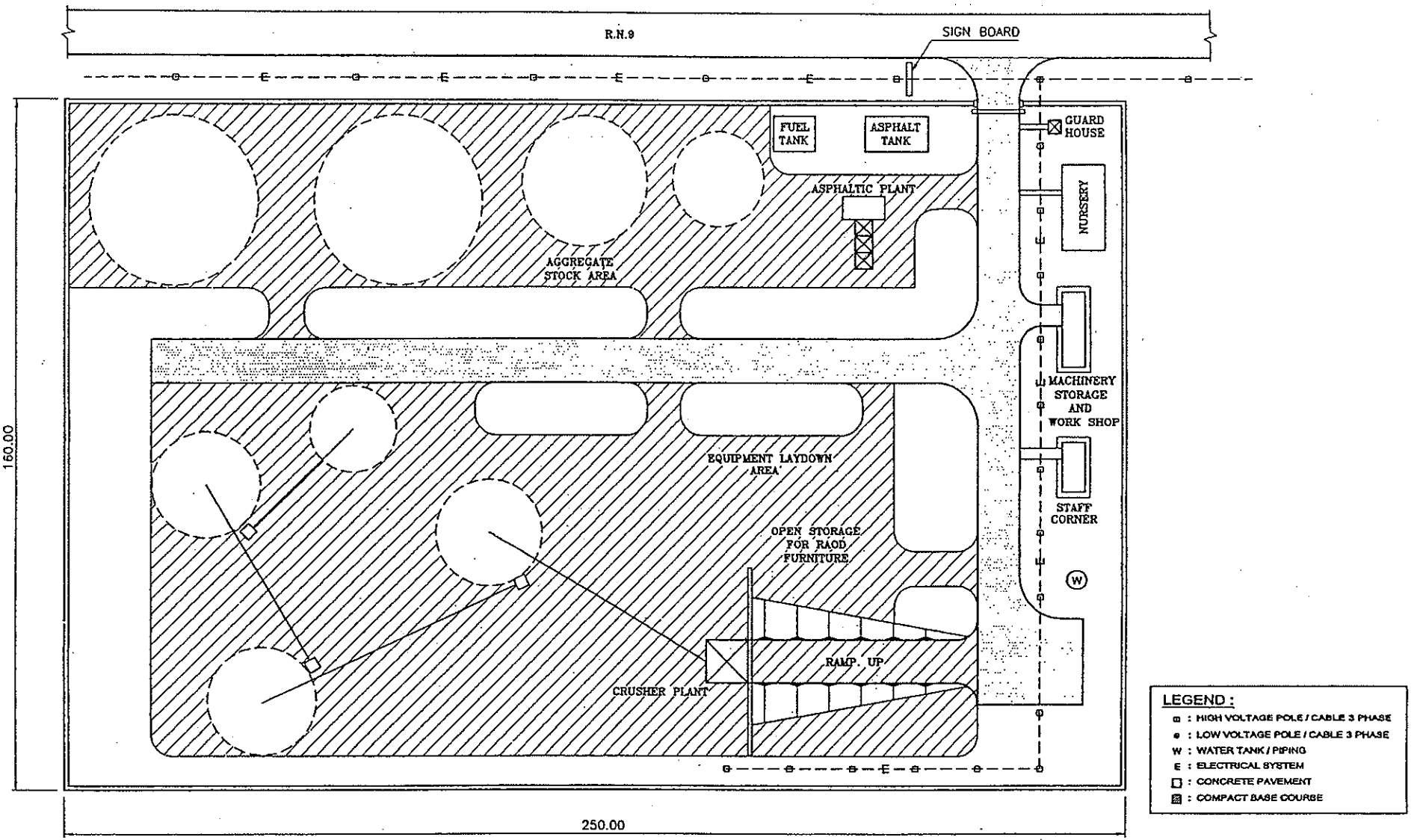
Location along RN9 near Xepon

1) Staff corner with boarding facilities; one story building, two bedrooms, floor area 60m^2(12×5)
2) Store building; one story building for storage small machinery and miscellaneous materials, floor area 100m^2 (20×5)
3) Nursery yard; sunshade material on steel roof truss and column, for shade area 200m^2 (20×10).
4) Guard house; one story building with floor area 9 m^2
5) Aggregate crusher plant (mobile type); complete with conveyor and screening equipment to produce aggregate size 3/4", 1/2", 3/8", and fine with capacity 20 m^3/d or 50ton/d
6) Asphalt mixing plant; complete with asphalt heating plant, aggregates bin conveyor with weight scale with capacity 25ton/h
7) Storage tanks; skid mouth for Asphalt 6 m^3 4Nos.
   Fuel 6 m^3 2Nos.
8) Generator 200KVA for asphalic; mixing plant and crusher plant one each
9) Lay down area; for aggregate stock area, equipment yards and road furniture yard

Depot RN13 (area 2ha)

Location along RN13S near to Pakse

The facility is similar to deport RN9 above but does not include 5), 6), 7) and 8).



AREA. 4 ha

TITLE

SITE LAYOUT PLAN I
DEPOT R.N. 9

LAO PEOPLE'S DEMOCRATIC REPUBLIC

MINISTRY OF COMMUNICATION TRANSPORT POST AND CONSTRUCTION

ROAD AND BRIDGE MANAGEMENT CENTER

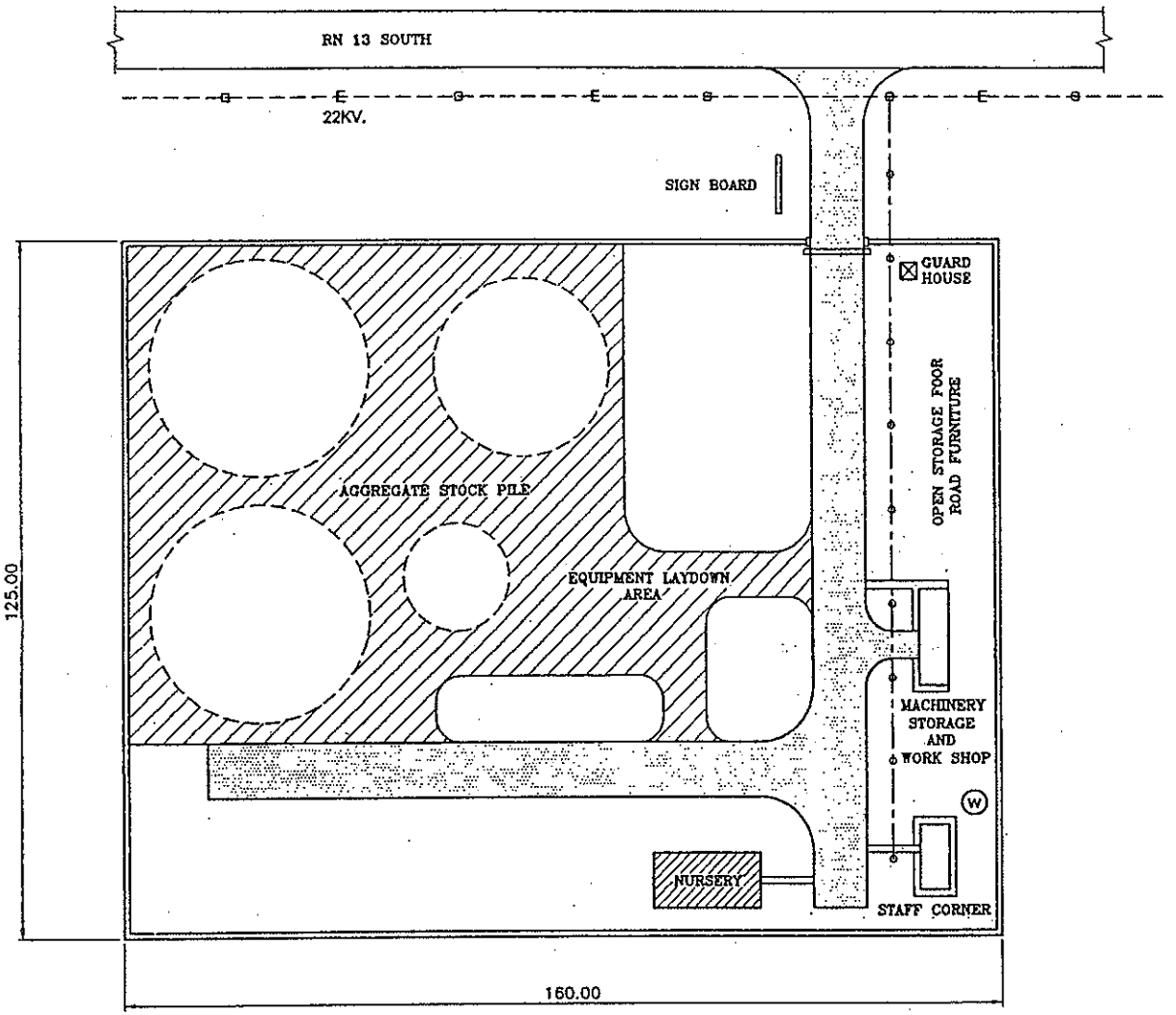
	NAME	DATE	BY
DRAWN	BPL		
CHECKED	CHANNITH		
APPROVED	CHANNITH		

0 13/02/01 FOR APPROVAL

SCALE : 1:125
UNITS : MM
DATE : 13Feb_2001

DRAWING NO. PLN-001

REV. 0



LEGEND :

- : HIGH VOLTAGE POLE / CABLE 3 PHASE
- : LOW VOLTAGE POLE / CABLE 3 PHASE
- W : WATER TANK / PIPING
- E : ELECTRICAL SYSTEM
- : CONCRETE PAVEMENT
- : COMPACT BASE COURSE

AREA 2 ha

TITLE

SITE LAYOUT PLAN II
DEPOT R.N. 13

REV	DATE	DESCRIPTION	Drawn	Chkd	App'd
0	13/02/01	FOR APP.	A	S	K

	NAME	DATE	BY
DRAWN	C.P.L		
CHECKED	CHHANTH		
APPROVED	CHHANTH		

LAO PEOPLE'S DEMOCRATIC REPUBLIC

MINISTRY OF COMMUNICATION TRANSPORT POST AND CONSTRUCTION

ROAD AND BRIDGE MANAGEMENT CENTER

SCALE : 1:125
UNITS : M.
DATE : 13Feb.,2001

DRAWING NO. PLN-002

REV. 0

Appendix 4

List of requested equipment

Equipment for patrol, repair, depot and road safety

No.	Discription	Specification	Quantities			
			Center	Depot RN.9	Depot RN.13	Total
	Patrol and small repair					
1	patrol car	pick up truck 2 doors	2	1	1	4
2	utility truck 4 wheel	dump truck 4 ton	2	1	1	4
3	truck backhoe 4 wheel	bucket 0.165 m3 , max h=5.80 max d=3.7	1	1	–	2
4	boom truck with man cage (high-rider)	boom car 12 m.	1	–	–	1
5	water truck complete with pump and spray bar 6 wheel	tank capacity 6 m3	1	1	–	2
6	back hoe wheel type	pw-100 bucket 0.4 m3	1	–	–	1
7	dump truck 6 wheel	4 ton capacity	1	1	–	2
8	air compressor wheel type	3.7 m3/min 35 hp	1	1	–	2
9	pavement cutter		1	1	1	3
10	asphalt distributor. complete with boiler/pump	2,000 l capacity	1	–	1	1
11	vibratory roller (hand guide)	650 ~700 kg	1	1	–	2
12	vibratory rammer	80 kg fuel gasoline	–	1	1	2
13	excavator and loader		1			1
14	concrete mixer	drum 0.15 m3 fuel diesel	–	1	1	2
15	jack hammer. complete with chisel.	20 kg	2	1	1	4
16	pick hammer. complete with chisel.	7 kg	2	1	1	4
17	air hose ø 3/4" complete with fitting	30 m. length	2	1	1	4
18	submersible pump	2" 220 v., head 15 m.	2	1	1	4
19	fuel and lube truck complete with hand pump and lubrication set	pick up 2 door	1	1	–	2
20	portable generator	20 kva fuel gasoline	–	1	1	2
21	extension wire 25 mm2	30 m	–	2	2	4
22	communication system	satellite or athena system	1	1	1	3
	Depot main equipment					
1	crusher plant complete with belt conveyor and screening equipment for size 3/4", 1/2", 3/8" and fine	mobile type complete with	–	1	–	3
2	wheel loader	w.a 100/cat 910 1.20 m3	–	1	–	1
3	asphaltic mixing plant complete with heating plant, aggregate bin, conveyor and weight scale	25 ton/n	–	1	–	3
4	asphalt storage bulk skid type	6 m3	–	4	–	4
5	water storage tank skid type	6 m3	–	2	–	2
6	fuel tank skid type	10 m3	–	2	–	2
7	generator 380/220v 50 hz with distribution panel	200 kva	–	2	–	2
	Road safety					
1	line marking machine for thermo plastic paint	2 melting pot capacity 100 l each	1	–	–	1
2	truck scale	40-50 t	1	–	–	1
3	construction safety sign board (various type)	reflecting type in lao and english wording and symbol	lot	–		0
4	safety cone reflecting type	standard type	50	30	30	110
5	safety barrier reflecting type	moveable type	20	20	20	60
6	flashing light with movable stand 2 wheel	batteries 6 v., 50 amp	10	10	10	30
7	battery charger	200v., 50 hz	1	1	1	3
8	first aid kit		1	2	2	5
9	hi-vest jacket	orange colour with reflector type	20	10	10	40
	Communication system					
1	communication system	satellite or athena system	1	1	1	3
Total Amount J¥560,000,000.-						

Equipment for workshop

No.	Discription	Specification	Quantities
	Washing equipment		
1	water high pressure washer	140kg/cm2	1
2	hot/cool water & steam combi-washer	steam 7kg/cm2	1
	Air equipment		
3	air compressor	7kg/cm2	1
4	air parts cleaner	motor 1-Ph/35w	1
5	air blow gun	consumption 20-1221/m	1
	Machining machines		
6	vertical drilling machine		1
7	multifunction milling machine		1
8	arc welder, AC	24KVA/40-300A	2
9	arc welder, DC	18KVA/10-300A	2
10	gas cutting & welding equipment		1
11	hose cutting & pressing machine		1
12	brake lining grinder		1
	Other machines		
13	hydraulic shop press	100ton	1
14	high pressure grease pump	230kg/c	1
15	nozzle cleaning kit		1
16	injection nozzle tester		1
17	battery chager with quick charge		1
18	battery tester		1
19	oil filter wrench		1
20	apray gun		1
21	tire service tool set		1
22	mobile floor crane	500kg	1
23	repair tools for hydraulic cylinder		
24	gas kit for suspensions		
	Hand tools		
25	straight shank drill		1
26	portable hydraulic jack		1
	Test tools		
27	hydraulic pressure test pump		1
28	hydraulic tester gauge set		1
29	cylinder gauge		1
30	oil leak tester		1
31	fuel consumption meter		1
32	engine oil analyzer		1
	Transportation tools		
33	over head crane	5ton	2
34	jib crane	1ton	3
35	forklift	3ton	1
Total Amount J¥100,000,000.-			

Equipment for training

No.	Discription	Specification	Quantities
1	slide		1
2	overhead transparencies		1
3	cutaway model		1
4	plastic model		1
5	system board		1
6	audio visual equipment complete set with software		1
Total Amount J¥40,000,000.-			