No.

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS
IN
THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

DECEMBER, 2005

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
KUME SEKKEI CO., LTD.

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PREFACE

In response to a request from the Government of the Lao Democratic People's Republic, the Government of Japan decided to conduct a basic design study on the Project for Improvement of District Hospitals in the Lao Democratic People's Republic and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Lao PDR a study team from February 27 to March 28, 2005.

The team held discussions with the officials concerned of the Government of Lao PDR, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Lao PDR in order to discuss a draft basic design, and as this result, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Lao PDR for their close cooperation extended to the teams.

December, 2005

Seiichi KOJIMA
Vice-President
Japan International Cooperation Agency

December, 2005

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of District Hospitals in the Lao Democratic People's Republic.

This study was conducted by Kume Sekkei Co., Ltd., under a contract to JICA, during the period from February to December, 2005. In conducting the study, we have examined the feasibility and rational of the project with due consideration to the present situation of Lao PDR and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

Tetsuro NISHIMURA
Project Manager,
Basic Design Study Team on the Project for
Improvement of District Hospitals in the Lao PDR,
Kume Sekkei Co., Ltd.

Location Map and Scope of Works

	Name of Hospital	Name of Province	Scope of the works
①	Khoua DH	Phongsaly Province	Building (2Story) & Equipment
②	Sing DH	Louangnamtha Province	Building (B type) & Equipment
③	Houn DH	Oudomxay Province	Additional Building &Equipment
④	Kenthao DH	Sayabouly Province	Building (B type) & Equipment
⑤	Sangthong DH	Vientiane Capital	Equipment
⑥	Pak Ngum DH	Vientiane Capital	Equipment
⑦	Outhomphone DH	Savannakhet Province	Equipment
⑧	Songkhone DH	Savannakhet Province	Building (A type) and Equipment
⑨	Khongsedone DH	Saravan Province	Equipment
⑩	Champasak DH	Champasak Province	Building (A type) and Equipment

THE BASIC DESIGN STUDY ON
THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS IN LAO PDR

Kume Sekkei co., ltd.

LIST OF ACRONYMS/ABBREVIATIONS

AIDS	Acquired Immuno-deficiency Syndrome
AP	Authorization to Pay
ARI	Acute Respiratory Infection
ARV	Automatic Voltage Regulator
B/A	Banking Arrangement
BCG	Bacille de Calmette-Guerin
BOD	Biochemical Oxygen Demand
CBR	Crude Birth Rate
CDR	Crude Death Rate
DFID	Department for International Development (UK)
DH	District Hospital
DHO	District Health Office (Officer)
DOTS	Directly Observed Therapy Short-course (TB)
DRF	Drug Revolving Fund
E/N	Exchange of Notes
EDL	Electricity du Lao
ENT	Ear, Nose and Throat
EPI	Expanded Programme on Immunization
GDP	Gross Domestic Product
GNI	Gross National Income
GNP	Gross National Product
GTZ	German Technical Organization for Development Co-operation
HC	Health Centre
HIV	Human Immuno-Deficiency Virus
HMIS	Health Management Information system
IEC	Information. Education and Communication
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
JASS	Japanese Architectural Standard Specification
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standard
JOCV	Japan Overseas Cooperation Volunteers
MA	Medical Assistant
MCH	Maternal and Child Health
MCTPC	Ministry of Communication, Transport, Post and Construction
MDF	Main Distribution Frame
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MR	Minimum Requirement
PH	Provincial Hospital
PHC	Primary Health Care
PHO	Provincial Health Office (Officer)
R/D	Record of Discussions
RH	Reproductive Health
RRH	Regional Referral Hospital
STD	Sexually Transmitted Diseases
SWAp	Sector Wide Approach
TAS	Thailand Industrial Standards
TB	Tuberculosis
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
U5MR	Under-Five Mortality Rate
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VHC	Village Health Committee
WB	World Bank
WHO	World Health Organization

Summary

Summary

The Lao People's Republic (hereinafter referred to as "Laos") is located near the center of the Indochina Peninsula and is approximately 231,000km2 (same size as the main island of Japan). Its population is 5.52 million (2002 estimate). Since population density is low at 23.9 persons/km2 (120 persons/km2 in Thailand), 70% of population reside in rural areas and engage in self-sustaining agriculture. The targeted areas of the Project are scattered over 10 districts nationwide (7 provinces and 1 city). In the northern regions, ethnic minorities live scattered across mountainous terrain, whereas, in the central and southern regions, agriculture flourishes due to its proximity to the Mekong River and relatively population density.

The Lao Government has shifted to a market economy in 1986 with the introduction of the "New Economic Mechanism (NEM)" and the economy continued to grow due to the effects of surrounding ASEAN nations. However, economic indicators show the gross national income (GNI) per capita to be US$379 (estimated in 2004), which is still below that of the surrounding Asian nations. Since economic growth is also limited to specific areas, poverty has been one of the major problems due to the economic disparity in rural communities where the infrastructure has fallen behind. To address this problem, in 2000 the Government of Laos introduced a "Five-year Socio-economic Plan" and continues to develop new strategies in each area to break through itself from the "least developed country" by the year 2020.

The health indicators in Laos are low even among Asian nations, preventive and curative infectious diseases (such as malaria, acute respiratory infections and diarrhea) are the major cause of death. Moreover, the infant mortality rate (IMR) is 87 (per 1,000 persons, 2003 UNDP), the under five children mortality rate (U5MR) is 100 (idem) and the maternal mortality rate (MMR) is 650 (per 100,000 live births, 2000 UNDP) respectively. In particular, district hospitals or health centers in rural areas where access is poor have deteriorated such that improvement to community-based health care and medical services for local residents has become an issue.

Faced with these circumstances, in 2000 the Government of Laos introduced the "Health Strategy up to the Year 2020" and proclaimed that "the quality of life for all its citizens would be improved through fair and impartial health care and medical services by the year 2020". Specifically, "integrated health care and medical services to meet people's needs would be realized". And in particular, "community-based services would be developed in remote areas" and improvements and expansion in rural health systems would therefore be a major priority.

The current national medical care system is comprised of 5 Regional Referral Hospitals (RRHs), 13 Provincial Hospitals (PHs), 134 District Hospitals (DHs) and many Health Centers (HCs). In response to the assistance of the ADB/World Bank and other donors, the Ministry of Health has rebuilt or renovated some Regional or Provincial Hospitals. However, most District Hospitals are rundown and basic medical equipment is not sufficient, so local peoples do not have access to basic health care and medical services.

Under such conditions, in order to improve the regional referral system of medical services, since the Ministry of Health plans to give priority to strengthening district hospitals located in key traffic areas such as Inter-District Hospitals and to upgrade two or three surrounding district hospitals to as Rural District Hospitals, they made a request to the Government of Japan as the grant aid.

In response to this request, the Government of Japan decided to carry out a basic design study and the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team to Laos from February 27 to March 28, 2005. The Study Team held discussions with related personnel on the Lao side in the Ministry of Health and project director/staff of the ADB/World Bank, etc, and implemented a field survey of 10 district hospitals based on the agreed-upon contents of the request. After returning to Japan, in due consideration of the findings of the field survey, and after examining the necessity and relevance of assistance, an operation and maintenance scheme and effects of the assistance, a final draft report was prepared by selecting an appropriate facility scale, contents of equipment. The draft explanation team was dispatched and explained in Laos from October 19 to the 30, 2005.

In due consideration of the findings of the field survey, natural and social conditions, local construction and procurement situations, maintaining competency of the related agency and implementation schedule in accordance with Japan's grant aid scheme, etc. were carefully considered during the formulation of the Project. Since many of the targeted district hospitals are not functionally arranged due to the repeated constrictions additionally the goal of the Project is to improve the functionality of district hospital facilities in accordance with the following table primarily in the areas of ① outpatient consultations, ② maternity and child care, ③ inpatient consultations, ④ operations and ⑤ administration.

＜Overview by Block＞

Block Name	Facility Contents	Total Floor Area
Outpatient Block (OPD)	Outpatient consultation room, dental room, laboratory, X-ray examination room, middle surgery	219.38 ㎡
Inpatient Ward	Beds (16 beds), isolation room, nurses station, night duty	219.38 ㎡
Maternity and Childcare (MCH) Block	MCH room, injection room (EPI), delivery room, recovery, room, staff room	146.25 ㎡
(Operation Block)	Operation theater, sterilization room, dirty room, recovery space	73.13 ㎡
Administration Block	Registration and cashier, pharmacy, administration room (3 to 6 persons), director's office, meeting room (10 seats)	109.69 ㎡
Others	WCs, corridors	176.63 ㎡
Annexed Facilities	Electric room, workshop, elevated tank	48.91 ㎡
Total	(Type A: with operating block)	993.37 ㎡
	(Type B: without operating block)	920.24 ㎡

Of the ten district hospitals included in the request, the Project goal is to implement construction at six district hospitals in accordance with the level of priority on the Lao side and equipment procurement for all ten districts hospitals including those six. With respect to the construction of operating theatres and the improvement of x-ray equipment, the district hospitals that currently have actual results will be eligible for the requested Japanese assistance.

＜Facility Contents＞

Name of District Hospital	Overview	Total Floor Area
Kenthao DH	Reinforced CB & RC structure, single-story building	920.24 ㎡
Songkhone DH	Reinforced CB & RC structure, single-story building (with operating theatre)	993.37 ㎡
Champasak DH	Reinforced CB & RC structure, single-story building (with operating theatre)	993.37 ㎡
Khoua DH	Reinforced CB & RC structure, two-story building	1097.07 ㎡
Sing DH	Reinforced CB & RC structure, single-story building	920.24 ㎡
Houn DH	Reinforced CB & RC structure, single-story building (OPD, patient ward: 12 beds)	455.44 ㎡
Total		5,379.73 ㎡

Note) CB: Concrete blocks, RC: Reinforced concrete

In the equipment plan, the quantity and specifications according to the conditions of equipment presently owned at each target district hospital, the results of activity and personnel arrangements will be scheduled as a standard set of basic medical equipment essential to medical examinations and care activities based on a standard equipment list compiled by the Ministry of Health.

＜Major Equipment Contents＞

Classification	Equipment Name	Application	Q'ty
Biological Image Testing Equipment	General X-ray unit	X-ray testing for bones, thoracic parts, abdominal region and soft tissue	4
	Ultrasound scanner	Diagnosis of images especially for abdominal region through the use of ultrasonic waves	3
	Mobile x-ray unit	Mobile X-ray testing for bones, thoracic parts, abdominal parts and soft tissue	1
Operation-related equipment	Operating table	To be utilized during an operation; height and angle of table can be adjusted depending on the operating method or region of the body when a patient is lying down.	10
	Anesthesia apparatus	General anesthesia is administered as anesthetic gas or vaporized anesthetic	3
	Electro-surgical unit	When an incision is made during an operation area is coagulated thus minimizing bleeding.	2
	Operation instrument set	Forceps and instruments necessary for general abdominal operations such as general surgery, liver and gall bladder, etc.	4
Obstetric equipment	Infant warmer	The aim is to keep infants warm in a case of hypothermia; also utilized during medical treatment or observation immediately after birth.	10
Dental equipment	Dental unit	Utilized for dental treatment. The height of the patient's chair can be adjusted hydraulically.	10
Medical care & Examination-related	MCH examination set	Instruments utilized for maternal and child diagnosis and include vaginal speculums, tape measures, fetus stethoscopes (Traube).	10

The required period for implementation of the Project in accordance with Japan's grant aid scheme will be 37.0 months in total (5.5 months for the detailed design and 31.5 months for execution and procurement). The total cost of the project is estimated to be ¥1.179 billion (¥1.174 billion to be borne by the Japanese side and ¥5 million by the Lao side).

The responsible agency of the project is Department of Curative Medicine, the Ministry of Health who is responsible for the entire implementation of the Project. Each provincial health office which are directly controlled by the Prime Minister's Office of the MOH is responsible for personnel affairs and budgetary allocation, and each district health office is responsible for the operation and supervision of each targeted district hospital and health centers. Under the supervision of the MOH, it is agreed that district health offices and provincial health offices will be responsible for securing the necessary maintenance cost associated with the implementation of the Project and appropriate human resources.

With respect to maintenance, the targeted district hospitals are operated by small scale organizations of 20 to 30 staff; whereas, the maintenance and repair of facilities and equipment is to be implemented by maintenance personnel from the provincial health office. The Project will discuss at participatory workshops as a Soft Component on the system of "Operation and Maintenance of District Hospitals" at. At that time, the Soft Component will promote daily operations in accordance with agreed contents so that all staff will be fully capable of the operation and maintenance of a hospital and prepare an "annual schedule".

The following direct effects can be expected through the implementation of the Project.

1) Improvement of medical service environment at district hospitals
Facilities at six district hospitals will be improved through the implementation of the Project and basic medical equipment and materials will be procured at all ten district hospitals; the environment of medical examinations and treatment in the implementation of rural health and medical services will therefore be improved.

2) Improvement in accessibility for local residents
Users (approximately 50,000 persons) at the targeted 10 hospitals who were usually directed to provincial hospitals or who are compelled to give up medical treatment will be able to receive medical services at a district hospital through the improvements at ten district hospitals.

3) Increase in the number of medical examinations, treatment and childbirths
Through improvement of access to district hospitals, the existing annual case of outpatients (51,826 cases), inpatients (8,708 cases), the blood tests (13,459 cases), x-ray tests (367 cases), childbirths in health facility (1,299 cases) and medical examinations for ante- or post mature women (9,352 cases), etc., which are currently being implemented at ten district hospitals can be expected increase.

4) Improvement in hospital operations and maintenance
Workshops on hospital operations will be conducted through the Soft Component, so hospital-related personnel including the director and staff will be able to prepare appropriate operations and a maintenance system at district hospitals and take the necessary steps for improvement.

5) Address the poverty gap (indirect effect)

Although the majority of targeted areas are rural poor, since adequate medical services will be provided to this poor in rural areas through the Project, the poverty gap is expected to be reduced through sound production activities. In addition, women's health conditions are also expected to improve through better medical examinations and improved maternal and childcare treatment.

The above-mentioned effects can be expected if the Project is implemented in accordance with Japan's grand aid, and therefore it is judged to be appropriate. However, to ensure the smooth and effective implementation of the Project the Government of Laos should secure the operations and maintenance budget and appropriate personnel arrangements.

The implementation of the Project will directly benefit approximately 50,000 persons who are regular users of the targeted district hospitals. In addition, it is expected to directly benefit approximately 500,000 residents in the targeted districts. Therefore, through the implementation of the Project, facilities and equipment necessary at the targeted district hospitals will be improved and a system for providing reasonable rural health and medical services can be improved. This is consistent with the overall plan of the Government of Laos and will contribute to a qualitative improvement in rural health and medical services.

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Chapter 1

Background of the Project

Chapter 1. Background of the Project

1.1 Objectives of the Project

The Lao People's Democratic Republic (hereinafter referred to as "Laos") is located near the center of the Indochina Peninsula and is approximately 240,000 km² in total area (same size as the main island of Japan). Its population is 5.52 million (estimated in 2002) and population density is low at 23.9person//km² (120 person/ km² in Thailand). Seventy percent (70%) of the population reside in rural areas and engage in self-sustenance agriculture. In addition, about 70 numbers of ethnic minorities are living with their individual customs, making unified national development difficult.

Although health indicators of Laos have improved remarkably since the 1980s, the infant mortality rate (IMR) is 82 (per 1,000 UNDP 2003), the mortality rate for children under five (U5MR) is 100 (per 1,000), and the maternal mortality (MMR) is 650 (per 100,000 UNDP 2002) respectively which are extremely low even among Asian nations. The major diseases for death are such as malaria, acute respiratory infections (ARI) and diarrhea which are preventable and curative through medical treatment and proper health care. Therefore, improvements in basic health care and medical services, in other words, primary health care (PHC) should be endeavored. In addition, the causes for MMR are complications during delivery, young pregnancies and burdensome labor, and malnutrition. Also such maternal health care should be improved promptly.

The current rural medical care system is comprised of 5 regional referral hospitals (RRHs), 13 provincial hospitals (PHs) and 134 district hospitals (DHs). Almost rural facilities are deteriorated and there are shortages of basic medical equipment, so rural residents do not have access to basic health and medical care services. In response to assistance of the ADB/World Bank and other donors, the Ministry of Health (MOH) has accelerated improvement at rural medical institutions and human resources development.

Table1-1 Outline of the Requested Japanese Assistance

Objective：	To improve health condition of community peoples living targeted Districts
Project Goal：	To improve health services on targeted District Hospitals
Out put：	To maintain hospital facilities and medical equipment of targeted District Hospitals
Input(J-side)：	Facility：Construction of 6 DHs (Inter-District revel)
	Equipment：Procurement of Basic Medical Equipment for 10 DHs
Input(L-side)	1) Procurement and reclamation of sites、 2) allocation and training of medical staff、 3) allocation of budget for operating and maintenance
Target Area：	10 Districts （8 Provinces/City）
Recipient：	Direct Recipients：User of targeted Hospitals（50,000 patients per year） In-direct Recipients：Peoples living in targeted Districts and surroundings (Approx. 500,000 peoples)

In order to improve the referral system of DHs, the MOH has give the priority for strengthening some DHs which located on traffic points as the Inter-District Hospitals (I-DHs). And 2 to 3 numbers of DHs that are located around I-DH shall be strengthening as the Rural District Hospitals (R-DHs).

As part of the policy, the Project was designed for the purpose of improving the facilities and equipment through the grant aid scheme of the Government of Japan by selecting 10 DHs. Japan's assistance in the Lao health and medical sector has been extensive through the dispatching of individual experts and senior volunteers and Japan Overseas Cooperation Volunteers (JOCVs), and by collaborating with these activities, the Project aims at contributing to improving the quality of the rural health system in the said country.

1-2 Confirmation of Requested Components

Since the Standards of District Hospitals (Draft) are currently under consideration, as showed in the following table, the Ministry of Health will provide medical services through thirteen (13) sections at district hospitals and selected ten (10) sections as units for health centers. From the results of a study of ten (10) DHs as requested in the field survey, the present activities vary according to the presence of medical staff and the present situation of facilities and equipment.

Sections indicated by ○ in the table 1-2 are presently active working sections. Since there is scarcity of doctors specialized in oto/rhinolaryncology, ophthalmology, stomatology or rehabilitation, etc. against as the recommendation of the Ministry of Health, general physicians and medical assistants are handling these sections utilizing consultation rooms. On the other hand, through vertical programs of the Ministry of Health, activities in infection control, family planning (FP), maternal and child health (MCH), vaccination (EPI), etc. are vigorously being applied and many hospitals also provide dentistry services.

Table 1-2 Standard Services of District Hospitals by MOH (draft)

	Medical Service	Recommended by MOH for DHs	Available Services at DHs
1.	IPD & Traditional Medicine	Section	○
2.	OPD (Surgery, Operating Room)	Section	○
3.	Anesthesia	Section	
4.	Delivery & Gynecology	Section	○
5.	Pediatrics	Section	○
6.	Oto-Rhinolaryncology	Section	
7.	Ophthalmology	Section	
8.	Stomatology	Section	
9.	Laboratory	Section	○
10.	X-Ray & Ultrasound	Section	○
11.	Pharmacy	Section	○
12.	Rehabilitation	Section	
13.	Administration	Section	○

Note: District Hospital has marked services but other services are not available.
Source: MOH and survey results

In addition, the MOH plans to introduce middle surgery (for Cesarean sections and appendicitis) and radioactive diagnosis (x-ray and ultrasound examinations) at I-DHs. However in current, surgery is only available at district hospitals where both the human resources (surgeons and x-ray technicians) and equipment have been prepared.

Even at similar facilities financed by ADB and the World Bank which are regarded to be the standard by the MOH, there are adopted similar sections which functioning as shown at Figure 1-2 by district hospitals, it came to agreement with the MOH and the district hospital side to plan the Project in accordance with their.

Chapter 2

Contents of the Project

Chapter 2. Contents of the Project

2-1 Basic Concept of the Project

The Project covers to implement construction of six Inter-district Hospitals (I-DHs) in accordance with the priority on the Lao side and procurement of basic medical equipment for all ten districts hospitals including those six. After implementation of the Project, the environment of medical services of the targeted hospitals will be improved and the health indexes of the districts are expected to improve through the medical services at the I-DHs as the key of a regional medical referral system.

2-2 Basic Design of the Requested Japanese Assistance

2-2-1 Design Policy

The Project includes a plan for 10 DHs as requested by the Lao side through facility improvement at 6 DHs with high priority and equipment procurement to all 10 DHs. In the planning, the basic principles are described below.

(1) Principles on Facility Plan

1) One problem with existing DHs in Laos is that fragmental facilities built in separated at the site so they are not functional. Consequently, the Project will adopt standard designs and establish the major functions of ①outpatient, ②maternity and child health, ③inpatient, ④operations and ⑤administration as hospital roles.
2) In response to a request by Lao side, a layout plan which will correspond to future expansion will be examined by promoting standardization for Type A including an general operation room and Type B which have a treatment rooms for first aid operations (such as Caesarean sections and appendicitis).
3) Also responding to a request by Lao side, the X-ray examination room shall be planed for all 6 DHs in order to install X-ray equipment easily by Lao side in future.
4) In due consideration of present activities and maintenance of selected 10 DHs as a result of site survey, also considering necessity and priority of re-constructions, various rooms will be examined as the adequate and necessary space.
5) Considering the present maintenance, durable weather resistant finishing materials will be examined for example at floor and wall tiles, and roofing tiles, etc.
6) The use of reinforced concrete blocks is planned for the purpose of workability and a shorter construction period,

(2) Principles on Equipment Plan

1) Based on the "Standard Equipment List" discussed with the MOH and each DHs, an equipment plan suitable to each hospital for the existing equipment conditions, the number of cases, the existence of medical staff and electricity supply, etc. is scheduled.

2) In due consideration of the usability and technical level at DHs, simple and durable equipment shall be selected.
3) Equipment with low maintenance cost for spare parts and consumables should be selected.
4) To estimate a 3-month portion of spare parts for equipment.
5) In addition to basic equipment, x-ray units and ultrasounds unit will be considered for hospitals with actual achievements. Although ambulances were requested, since the frequency of conveyance is still low, these will be excluded from the Project.

(3) Principles on Adequate Scale

The components should be designed to realize the DHs functions requested by the MOH. Nearly the same area will be applied for the each room area based on the services conditions at the existing facilities. Since the average floor area of the existing 10 DHs is 1,027 ㎡, in reconstructing the target hospitals approximately 990 ㎡ of the floor area is deemed to be appropriate.

(4) Principles on natural Conditions

Although temperatures in Laos vary according to altitude, the average temperature is 10℃ to 35℃. It falls to 6℃ in February in the north and exceeds 40℃ between April and June in the south. Therefore, natural drafts and ventilation should generally be applied; whereas air conditioning systems will be installed in operation theatres and delivery units that are to be closed for cleanness and in x-ray rooms / laboratories where equipment will be protected.

Although there are no accurate records of earthquakes being felt in northern Laos, since earthquakes occur in the northern part of Thailand similarly. Therefore, the similar earthquake coefficient shall be considered for structure calculation at 3 DHs in the northern part of Laos.

(5) Principles on Competency of Implementing Bodies on Operation and Maintenance

The facility components and the number of staff at the present DHs are vary, but despite varied construction periods, dirt / damage and deterioration in each building due to insufficient maintenance. In addition, there is no staff in charge of maintenance; this responsibility for each room is left to cleaning or routine inspections. Consequently, in principle, facility / equipment which even the current staff can clean and maintain will be adopted. And “daily maintenance which they can do themselves” will be discussed by Soft Component and strictly put into practice. In addition, with respect to repair items that are difficult for current staff to deal with, the introduction of a correspondence system with responsible persons at provincial or central offices will be introduced.

(6) Principles on Implementation Schedule

This Project covers 10 DHs spreading nation wide, the implementation should be separated by 3 phases. Therefore, procurement of basic equipment for 10 DHs will be at first phase, construction of 3 DHs in the south with installation equipment will be at second phase. Then another construction and equipment for 3 DHs in the north will be at the third phase.

2-2-2 Basic Plan

2-2-2-1 Overview of the Project

(1) Examination of Target District Hospitals

From the results of a field survey of 10 DHs based on a request by the Lao side, despite the deteriorated condition of all district hospital facilities, the following 4 DHs are considered to be lower urgency in the implementation of the grant aid cooperation in accordance with the priorities by Lao side.

1) The Sangthong DH and Pak Ngum DH are located within the metropolitan Vientiane area about 1-hour from the Central Hospital and are considered to be lower urgency for facility improvement under the Project. Accordingly, basic equipment essential to curative activities at the present facilities will be improved. Furthermore, suspending construction of an emergency operating building at the Pak Ngum DH should be completed through self-supporting efforts.

2) Although existing facilities at the Outhoumphone DH and Khongsedone DH appear to have deteriorated, repair work is gradually taking place, so the urgency of facility improvement is considered low under the Project. Especially, the Khongsedone DH has constructed new Operation building by assistance of US-NGO and completed by May 2005. Self-supporting efforts are preferred for interior repairing of remaining buildings (such as OPD, laboratories and wards).

As described above, from an analysis conducted in Japan, 6 DHs will be subject to facility construction, the contents of which are described in the following table. Due to the scarcity of its land the Khoua DH will be planned a two-storied building. The OPD and wards at Houn DH will be enlarged, and the Songkhone DH and Champasak DH are planned to be Type A with an operating theater.

Table 2-1 Planed Facility Type and Equipment in Targeted DHs

Name of DHs		Name of Province	Level of DH	Planned	
				Facility	Equipment
1.	Khoua DH	Phongsali	IDH	B type (2 story)	○
2.	Sing DH	Louangnamtha	IDH	B type	○
3.	Houn DH	Oudomsay	IDH	Additional (OPD・Ward)	○
4.	Kenthao DH	Sayaboury	IDH	B type	○
5.	Sangthong DH	Vientiane City	RDH	—	○
6.	Pak Ngum DH	Vientiane City	RDH	—	○
7.	Outhoumphone DH	Savannakhet	IDH	—	○
8.	Songkhone DH	Savannakhet	IDH	A type	○
9.	Khongsedone DH	Saravan	IDH	—	○
10.	Champasak DH	Champasak	IDH	A type	○

Note: IDH: Inter-District Hospital, RDH: Rural District Hospital

(2) Examination of Necessary Rooms

After survey of health activities and room compositions at existing 10 DHs and similar health facilities by ABD/WB assistance, the necessary rooms of the Project will be planned as follows in accordance with the discussions with the MOH.

1) Outpatient and Consultation Room

The number of outpatients is varying from 1,075 to 11,317 annually in 2003. In general, number of outpatients of DH is small when under Health Center or mobile clinic are well functioned. Most outpatients come to the hospital early in the morning so it is crowded. The Project will establish two (2) consultation rooms, Room-1 for general outpatients and Room-2 for mainly Pediatrics but including ENT, Eye, Stomach and Rehabilitation.

2) Examination Room

There is presence of 2 to 3 laboratory technicians in DHs, and testing is mainly carried out malaria, tuberculosis or blood using microscopes and some old equipment. There is presently no other equipment available, so despite the presence of laboratory technicians testing cannot be carried out. The Project will establish one (1) standard laboratory with basic equipment in order to up grading of test quality.

3) Establishment of X-ray Rooms

The MOH has standardized to provide x-ray units at IDHs. Based on past results and the security of x-ray technicians, the Study Team has agreed to procure x-ray equipment. Since the MOH strongly requested a plan for x-ray rooms where x-ray equipment will not be installed by the Project. Therefore, the Project will provide x-ray rooms for all 6 DHs. In fact, the old equipment is transferred for replacement such as provincial hospitals, the DH with x-ray rooms have priority, and as same of new procurement by the ADB/World Bank.

4) Inpatient Ward

In the standards of the MOH, it is stated that 15 to 30 beds shall be installed. Although the present number is 10 beds to 42 beds in targeted 10 DHs, there is full utilization in case of outbreak of malaria or infectious diarrhea, however normal bed occupancy rate is 45% at 10 DHs.

The Project will provide 16 beds; 4 beds for internal, 2 beds for surgical, 4 beds for genecology, 4 beds for pediatrics and 2 beds for observation of serious patients. Ward will be semi-walled by booth with each 2 beds for securing privacy. Also Nurse station and Night duty room will be planned at same area.

5) Family Space

In Laos, patient's family has to take care the patient, so a request was made to provide a family space by MOH. The Project will provide a veranda for family space at outside of patients ward. A meal service is not available for patients, so a cooking shed is provided where families can cook. Although this shed is simple wooden structure, the Project decided to utilize the existing sheds or to provide by peoples.

6) Mother and Child Health Care (MCH)

Services at present are provided health check for maternity, growth monitoring for under-five, family plan (FP) and the Expanded Program of Immunization (EPI), etc. The Project will establish one examination room to be used as a maternal and child health (MCH) consultation room.

The number of deliveries varies from 48 to 416 cases/year in 2003. In the north deliveries often take place at home without any assistance due to bad access. To improve MMR, delivery at health facility is promoted by MOH. The Project will establish one delivery room (average of 1.1 case/day = 1 delivery bed) with labor / post delivery room in adjacent.

7) Establishment of Operating Theatres

The MOH deems that it is indispensable for IDHs to have operating rooms as per mentioned before. The Study Team recommended on the assumption of past performance at middle or higher operations with surgical staff (surgeon) that had operating experience. So a mutual agreement was made to establish operating rooms at 2 DHs in the south.

In the Khongsedone DH, the Project will provide surgical equipment for completing new operation block. Other 4 DHs will plan treatment (middle surgery) rooms to suit for life-threatening operations (such as Cesarean and appendicitis).

8) Utilization of Existing Facilities

As described earlier, there are many activities to be responsible by District Health Office such as Traditional Medicine, Medicinal Plants, Health Promotion or Health Education, etc., a mutual agreement has been reached to convert existing facilities for these.

Although these activities have rooms or offices at present, the plan recommends utilizing existing facilities continuously.

(3) Examination of Size and Scale

With respect to the various above-mentioned necessary rooms, by referring to existing room areas and similar facilities implemented by the ADB/World Bank, the planned areas in the following table will be considered.

Table 2-2 Planned Floor Area of Each Rooms

	Room Area (㎡)		Notes
Out-Patient Block(OPD)	9.75 × 22.50 =	**219.38**	
Consultation Room(OPD)	3.75 × 3.75 × 2 =	28.13	Examination and consultation for out-patients.
Dentist Room	3.75 × 3.75 =	14.06	Space for basic dental chair, dental care is high demands in rural.
Laboratory	3.75 × 3.75 =	14.06	Microscopic examination of Malaria/TB, Blood test and others.
Waiting Area	7.50 × 9.75 =	73.13	Patients and family waitnig area for registration or pharmacy.
X-ray Examination/Control	5.40 × 3.75 =	20.25	Examination by X-ray machine and control space.
Dark Room	1.86 × 3.75 =	6.98	Film development space by manual.
Middle Surgery	5.62 × 3.75 =	21.08	Middle Surgery and Caesarian cession in emergency.
Other Related Rooms	219.38 - 177.68 =	41.70	Preparation room and Corridor etc.
In-Patient Ward	9.75 × 22.50	**219.38**	
Ward	219.38 - 112.31 =	107.06	2 beds/bay ×7bays (14 Beds), existing wards for Outbreak.
Isolation Room	3.75 × 2.40 =	9.00	For serious patients as ICU.
Nurse Station	3.75 × 2.40 =	9.00	Station for 4 nurses and others.
Night Duty	3.75 × 2.40 =	9.00	2 beds for Doctor/Nurse for night duty.
Family Area	18.75 × 2.60 =	48.75	Space for family of Patients.
Waiting Area	3.75 × 9.75 =	36.56	Patients / family waitning area and for MCH too.
MCH/Surgery Block	9.75 × 22.50	**219.38**	
MCH Block	9.75 × 15.00 (	**146.25**	)
MCH Room	7.50 × 3.75 =	28.13	Consultation and monitoring for Mothers and Children.
Injection Room(EPI)	3.75 × 3.75 =	14.06	Vaccination for mothers and children and others.
Delivery Room	5.62 × 3.75 =	21.08	One delivery bed for normal Delivery mainly.
Recovery Room	5.62 × 3.75 =	21.08	3 beds for labor pain/recovery after labor.
Staff Room	3.75 × 3.75 =	14.06	Office/Meeting space for MCH staff
Preparation Room	1.80 × 3.75 =	6.75	Preparation for delivery and stelirize/clean of materials.
Other Related Rooms	146.25 - 105.15 =	41.10	Preparation room and Corridor etc.
Surgery Block	9.75 × 7.50 (	**73.13**	)
Operation Theater	4.60 × 6.00 =	27.60	One surgery bed for middle to major surgery.
Sterilization Room	3.75 × 3.75 =	14.06	Sterilization and stock for clean materials for surgery.
Dirty Room	2.33 × 3.75 =	8.72	Scrab wash dirty items after operation.
Recovery Space	2.90 × 3.75 =	10.88	Preparation before and recovery after operation
Other Related Rooms	73.13 - 61.26 =	11.87	Sluce and Corridor etc.
Administration Block	9.75 × 11.25	**109.69**	
Registration &Casher	3.75 × 2.40 =	9.00	Patient registration and payment counter
Administration room	5.10 × 3.75 =	19.13	Staff of administration/account and Deputy Director
Store	3.75 × 3.75 =	14.06	Store patient record, wquipment, medicine and supplys
Pharmacy	3.75 × 2.40 =	9.00	Store and delivery of medicine for patients
Meeting Room	5.10 × 3.75 =	19.13	Meeting/Seminor room for 10 staff
Director Office	3.75 × 3.75 =	14.06	Office for Hospital Director
Other Related Rooms	109.69 - 42.19 =	67.50	Storage and Corridor etc.
Others		**176.63**	
WC/Shower	9.75 × 3.75 × 2 =	73.13	2 booth for Male/Female and 1 booth for Handicapped.
Corridor/Main Entry	=	103.50	Storage and Entrance porch etc.
Sub-Total		**944.4**	
Annex Facilities		**48.93**	
Elec Room	3.75 × 5.55 =	20.81	Distribution board and Generator for Emergency (50kVA apx.)
Workshop	3.75 × 3.75 =	14.06	Maintenance of Facility and Equipment / Storage
Water Tank	3.75 × 3.75 =	14.06	SUS water tank (2tons) and water pump house
Total Floor Area	**A Type**	**993.37**	
	B Type	**920.24**	**(without Operation Theatre)**

2-2-2-2 Site and Location Plan

(1) Examination of Layout Plan

The following basic principles will be applied to a layout plan for the facilities to be provided under the Project.

① A layout plan shall be forecasting a future extension.
Since it is necessary to upgrade of medical services or treatment levels in line with an improvement in earnings of local residents at each DH and future extensions will be required, a layout feasible for such expansion.

② A layout plan shall be related functionally with existing facilities.
Since a part of the existing facilities can be continuously utilized, a layout plan feasible for functional medical services incorporated in the new facilities under the Project.

③ A layout feasible to convert the existing facilities by the hospital side.
Many of the existing facilities have deteriorated so that it is difficult to continuously utilize them as medical institutions. However, since it is possible to convert these into staff rooms, training rooms or staff houses, a layout plan in which is not force to demolish the existing facilities.

④ The facilities should be in east-west axis to avoid direct sunlight.
The facilities should avoid penetration of low sunlight in the morning and the afternoon through windows. And consideration of the local weather and climate, a layout feasible to obtain favorable ventilation and lighting should be planned.

The project will arrange following block plan. If functions are lined up on an east-west axis and those are two lines of south and north, the block structure in the following figure will be appropriate.

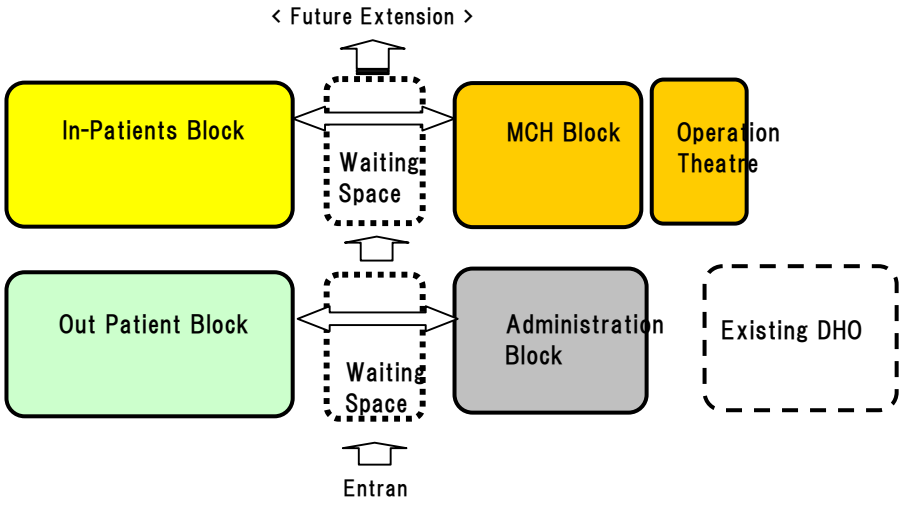


Figure 2-1 Block Plan of District Hospital

2-2-2-3 Building Plan

(1) Floor Planning

1) Outpatient Block (219.4 sqm)

In the outpatient block, “consultation rooms”, “treatment room”, “dentist”, “laboratory” and “x-ray room” will be prepared. By establishing a waiting space, rooms with a higher frequency of patients will be arranged in order.

a) OPD consultation room

Due to the congestion of outpatients in the morning, two outpatient consultation rooms will be set up based on the standard design of the ADB/World Bank. One is general consultation and another is Pediatrics.

b) Treatment Room

A mediate size of treatment room feasible for Caesarean sections or appendicitis in emergency and a preparatory room will be established.

c) Dentist

A space will be set up with one dental treatment chair.

d) Laboratory

A space feasible to carry out microscopic testing, T.B. dyeing test and blood test will be provided.

e) X-ray Room

By providing a dressing space within the x-ray examination room, a dark room will be established by the control room.

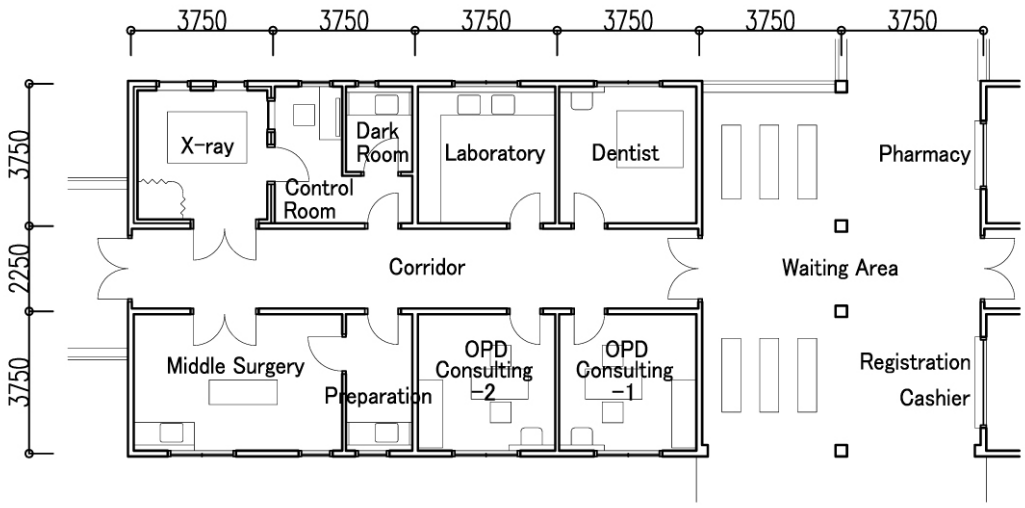


Figure2-2 Arrangement Plan of Out-Patient Block

2) Inpatient Block (219.4 sqm)

An inpatient ward will be composed of sixteen (16) beds and eight (8) bays (one bay is two beds), which will be arranged in the Nightingale method. One bay close to a nurse station will be an isolation room for nursing critical patients. A night-duty room will be established for nurses and assistant doctors on the night shift. An outside passageway will be used as “family space” as a place to meet accompanying families and as lodging space.

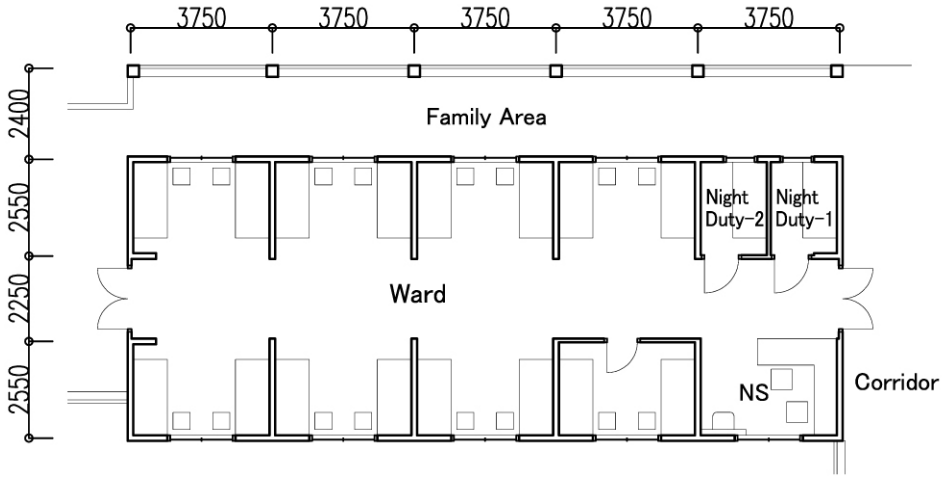


Figure2-3 Arrangement Plan of In-Patient Block

3) MCH Block (146.3m2)

A “maternal and child health consultation room” will be provided in the MCH block for prenatal and post-natal health check and growth monitoring of infants. The Expanded Program of Immunization (EPI) will be implemented in an “injection room”. In addition, a “delivery room” will be set up to deal with facility delivery and one “labor and recovery room” will be provided for preparing pregnant women before and after childbirth.

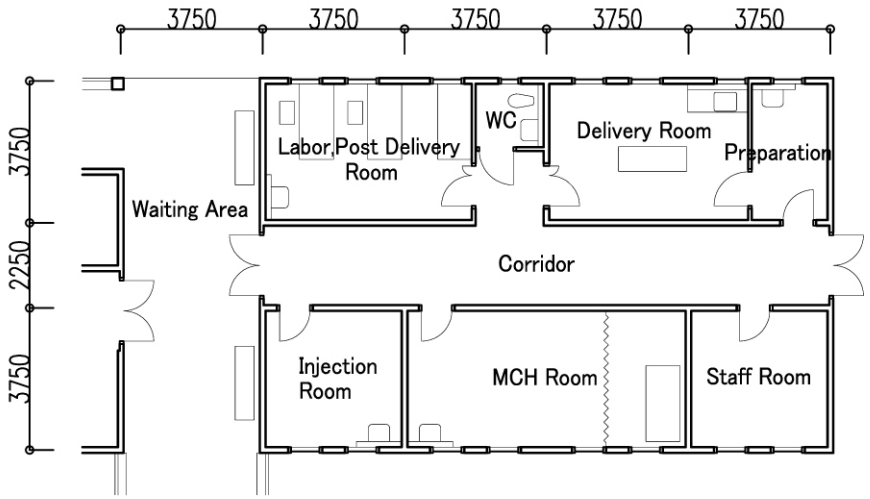


Figure2-4 Arrangement Plan of MCH Block

4) Operating Theatre (73.1 sqm)

An operating theatre will be arranged adjoining the MCH ward. The Project plans to provide this at 2 DHs in the south where they have past performance of medium-scale operations. The area of an operating room will be 27.6 ㎡ for medium operations such as Caesarean sections. A recovery room will be provided to prepare patients before and after operations.

Medical wastes discharged after an operation will be cleaned in a Dirty Utility and will be sterilized in a Sterilization room. A circulation with traffic of clean and dirty will be separated to prevent contamination.

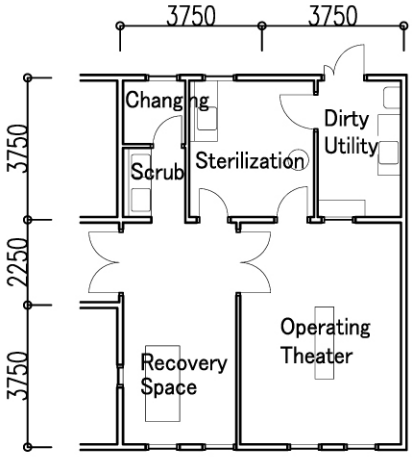


Figure2-5 Arrangement Plan of Operating Theatre

5) Administration Block (109.7 sqm)

There are Registration/Casher and Pharmacy facing at waiting area. Administration office will be for 3 to 6 staffs next to Meeting room for 10 seats and Directors Office.

6) Utilities

- Elevated Water Tank: With receive tank and high tank (2 tons each).
- Electric room: Distribution Board and emergency Generator with Fuel tank will be installed.

According the above examinations, contents and floor area for 6 DHs are as follows.

Table 2-4 Floor Area Tabulation (unit: sqm)

	Type	OPD Block	IPD Block	MCH Block	Operation Theatre	Admin Block	WC/ Corridor	Stair/ Slope way	Utilities	Total
＜Phase -II＞										
Kenthao DH	B	219.38	219.38	146.25	—	109.69	176.63	—	48.93	920.24
Songkhone DH	A	219.38	219.38	146.25	73.13	109.69	176.63	—	48.93	993.37
Champasak DH	A	219.38	219.38	146.25	73.13	109.69	176.63	—	48.93	993.37
Sub-total										2,906.98
＜Phase-III＞										
Khoua DH	2 Story	219.40	219.40	146.25	—	109.69	138.85	235.35	28.13	1,097.07
Sing DH	B	219.38	219.38	146.25	—	109.69	176.63	—	48.93	920.24
Houn DH	Additional	219.38	117.16	—	—	—	69.97	—	48.93	455.44
Sub-total										2,472.75
Total										5,379.73

Notes: A type is with Operation Theatre, B type is not including one.

(2) Section Plan

Since temperature and humidity are high at the project site, the Section Plan will set the ceiling height at 3.2m and adopt an air circulation system of natural ventilation through Jarousy fanlight and ceiling fans.

A pitched roof is locally popular at rual area in Laos, cement tile roofing will be applied especially in order to harmonize with the surrounding rural builings also exisitng hospitals which assisted by ADB/WB.

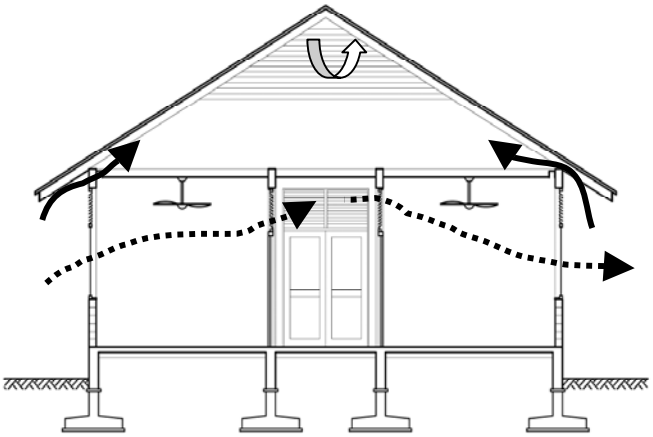


Figure 2-6 Section Plan

2-2-2-4 Structure Plan

(1) Structural Design Standards

As for the building standard codes in Laos, although there is the "Rule of Construction (1990)" published by MCTPC (the Ministry of Communications, Transport, Posts and Construction), it has not been established as systematic structural design standards. Generally structural design standards of each donor country are applied. The Project will take local standards into account and will also refer to the structural design standards of the Architectural Institute of Japan (JAS) at need.

(2) Soil Conditions and Foundation Planning

A boring survey was implemented one at each proposed site to confirm ground conditions during the field survey. From the findings of the survey observed in the following table, 150kN/sqm to 200kN/sqm is secured. In due consideration of building scale, a spread foundation will be adopted at all sites.

Table 2-5 Results of Soil Bearing Test

	Bearing Level	Bearing Layer	Design Bering Capacity (kN/sqm)
1.Khoua DH	GL-0.6m	Clay	200
2.Sing DH	GL-0.8m	Sandy clay	200
3.Houn DH	GL-1.2m	Clayey laterite	150
4.Kentao DH	GL-1.0m	Sandy clay	150
5.Sangthong DH	GL-1.2m	Clayey laterite	150
6.Pakngum DH	GL-1.2m	Clayey laterite	200
7.Outhoumphne DH	GL-0.6m	Clayey SAND	200
8.Songkhone DH	GL-1.2m	Silty SAND	200
9.Khongsedone DH	GL-0.6m	Sandy silty CLAY	200
10.Champasak DH	GL-0.6m	Sandy lean CLAY	200

Notes: GL means ground level

The foundation system will be planned as continuous footing to avoid differential settlement. A slab floor will be adopted on the ground floor to guard against the consolidation of soil settlement.

(3) Frame Work Plan

A general construction method in Laos will be preferentially adopted so that the principal frame will be made of reinforced concrete blocks. A reinforced concrete beam-column structure will be applied to waiting space or corridor ways without walls. Pitched roofs will be applied by light gauge steel truss.

Structures by type are described below.

- **Main structure:**	Reinforced concrete block (partially reinforced concrete structure)
- **Roof :**	Steel structure (welding at factory and connection with high tension bolt at the site)
- **Walls:**	Concrete block masonry (brick masonry for non-structure wall)

(4) Construction Materials

The following construction materials will be utilized in principle. Although Lao products or Thai products generally available on the local market will be utilized, if less expensive materials of similar quality to Thai products are available, procuring products from Japan or a third country will be examined.

- **Cement:**	Locally produced ordinary Portland cement will be utilized.
- **Reinforcement:**	Molded reinforcing bars stipulated in the Thai Industrial Standard (TIS), which are generally utilized in Laos will be applied. The reinforcement diameters will be 10mm, 12mm, 16mm and 20mm.
- **Steel frame:**	Steel frames produced in Thailand will be applied. SS400 stipulated by the JIS or materials similar to this grade will be adopted. These will be installed by processing and welding at a plant and assembling through on-site high-strength bolts.

Table 2-6 Materials for Structure Work

	Specifications	Sizes
Concrete	Ordinal Concrete	21N/mm2
	Lean Concrete	15N/mm2
Cement	Ordinal Portland Cement	
Steel Bars	Round Bar	Φ6～Φ9
	Decorative Bar SD40	D10～D16、D20
Steel	Figure Steel、Steel Seat	SS400、SSC400

(5) Design Load

1) Live Load

Load suitable for application of each room will be applied. Design loads in principal rooms will be as follows.

Table 2-7 Design Load (N/sqm)

	Floor・Sub-beam	Column・Beam・Base	Seismic Force
Roof	1000	600	400
X-ray Rooms	3900	2600	1600
Corridor	2900	1800	800
Wards・WC	1800	1300	600

2) Wind Load

Generally 30m/sec is adopted as a reference speed. Standards in adjoining Thailand, 800N/sqm (less than 10m in height) will be applied as a wind pressure.

3) Seismic Force

Although accurate records do not exist, earthquakes do occur in the northern part of Laos. Accordingly, the seismic force in the northern part of adjoining Thailand will be taken into account for three hospitals: the Khoua DH, Sing DH and Houn DH.

Based on the following calculation, 0.11 of the planned seismic force will be applied.

$V = ZIKCSW$, hence $V = 0.11 \times W$.

Here;
- V: Horizontal shear force at the ground surface level
- Z: Earthquake concentration coefficient （＝0.38）
- I: Strength coefficient for building use （＝1.50）
- K: Structural characteristics factor （＝1.33）
- C: Coefficient decided by building life cycle （$=1/15\sqrt{T}$）、
  （As $T = 0.09 \times h / \sqrt{D}$, h＝10.5m and D＝4.35m, C＝0.099）
- S: Coefficient by ground type （＝1.5）
- W: Total building weight

2-2-2-5 Mechanical Plan

(1) Basic Policy

The mechanical equipment will be planned for the targeted 6 DHs by followings policy.

1) Necessary and minimum utilities will be provided at IDH. In addition, utilities feasible to expand in the future will be scheduled.
2) At the sites to be incorporated with existing facilities, existing utility capacity should be considered in the design. However, the connecting work to the existing facilities will be taken by the Laos side to clarify the demarcation of construction.
3) Equipment with simple specifications for easy maintenance that are locally standard products should be selected.
4) The Laos standards will be applied to the design, if there are no applicable standards, the Japanese standards will be used.
5) To reduce a burden of an operation cost and electricity and heating cost, the necessary minimum utilities should be planned.

(2) Water Supply and Drainage System

1) Water Supply System

It is possible to receive water from the district water supply at the 3 DHs (Khoua DH, Sangthon DH, Song Khone DH), but there is a shortage of service amount at 2 locations, well water will generally be used. The water supply system has been improved through assistance from the ADB/World Bank in northern area. Deep wells are commonly used in the south near the Mekong River. The Project will be planed to use both district water supply and well water by installing water-receiving tanks. After water is pumped into an elevated tank, it will be distributed to each part of the facility through gravity. Water connection work from main pipe to the site (up to the water meter) and drilling of deep well are the Lao side work.

- Required service amount:	16 beds × 200L/bed ≒ 3 ton/day
- Water receiving capacity:	2 tons (2/3 of required service amount)
- Elevated tank capacity:	2 tons (directory connect from main pipe in case of enough water supply pressure)

Table 2-8 Available Water Supplies

Name of site	Well Water	District Water Supply	Notes
1. Khoua DH	None	Yes	WB provided in 2003
2. Sing DH	Yes (6m)	None but planned	ADB plans in 2006
3. Houn DH	Yes (3m)	None but planned	ADB plans in 2006
4. Kentao DH	Yes (24m)	None but planned	ADB plans in 2006
5. Sangthong DH	Yes (43m)	Yes but shortage	
6. Pakngum DH	Yes (45m)	None	
7. Outhoumphne DH	Yes (50m)	None bet planned	Planned in Many 2005
8. Song khone DH	Yes (30m)	Yes but shortage	
9. Khongsedone DH	Yes (30m)	None but planned	Planned in October 2005
10.Champasak DH	None	None	Deep well shall be bored by Lao side

Source: Site Survey in March 2005

Although the existing facilities will be converted into offices, meeting rooms or hospital wards by the district hospital side, the service amount is anticipated to be only minimal. Consequently, for the water supply to the existing facilities, in principle the existing water supply system will be continuously utilized. In addition, to enable the hospital to connect to the water supply system valve-stopping branches will be installed.

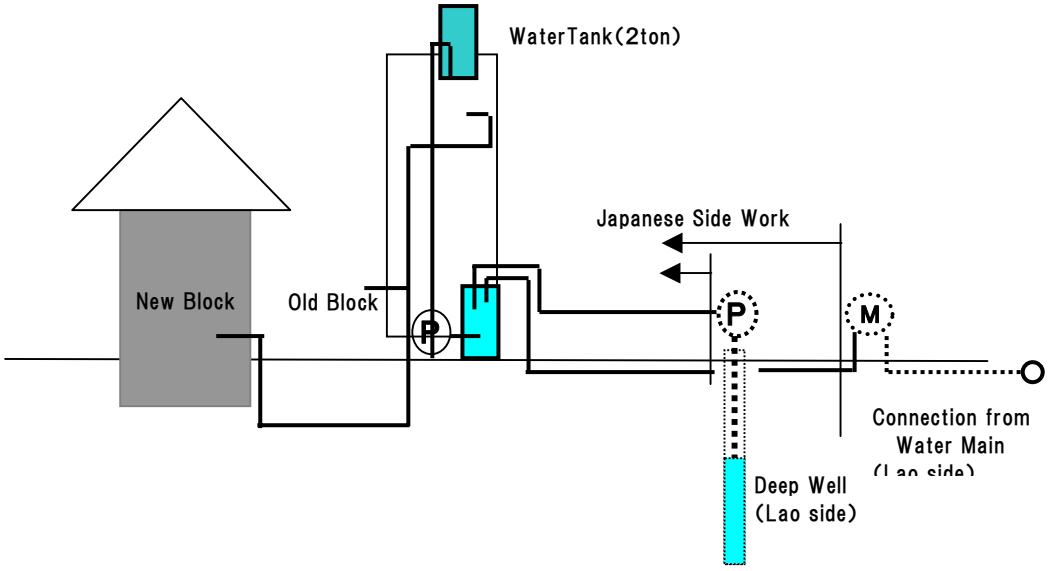


Figure2-7 Water Supply System

2) Drainage System

The public drainage system in Laos has yet to be improved so that waste drainage is processed in septic tanks, which then seeps into soil through a "filtered seepage pit" in each site.

The Project will be applied the Standard Design of Septic Tank from "Rule of Construction (1990)" published by MCTPC consisting from Septic Tank + Treatment Tank and Seepage Pit. Design population for waste treatment tank is calculated from Japan Industrial standard (JAS-A3302-1969).

- Disposal capacity:	IPD (16 beds) x 1.5person/beds + floor area of OPD(56sqm) x 0.3 person/sqm = 40.8 person ≒ 40 persons
- Septic tank:	Septic tank (40-person) + Treatment tank (40-person) + Filtered seepage pit

Table 2-9 Standard Design of Sewage Treatment Tank by MOH

Population	First Tank(m3)	Second Tank(m3)	Third Tank(m3)
15 persons	3.37	2.81	1.50
20 persons	5.40	4.05	2.16
20 to 30 prns	10.00	8.00	3.00
Less than 50 prns	12.00	10.00	4.00

Source : "Rule of Construction (1990)" , MCTPC

Drainage from Laboratory is also jointly processed. Although only the Pak Ngum DH has a dilution tank, it is not utilized. Testing drainage at DHs contains a very small amount of toxic substances. The Science Technology Environment Agency of the Prime Minister's Office is examining a disposal method and provides guidance to hospitals on collection and storage. It is possible to discharge waste water in a laboratory by jointly processing (diluting) due to the few number of testing cases at the present time. Waste developing fluid in x-ray rooms will be collected at the time of replacement.

Table 2-10 Solid water from Laboratory

	Test/Examination	Method of Treatment
Xylene	TB test	Dilution and drain, very small quantity.
Cyanide	Hemoglobin Counting	Neutralize Sodium Hypochlorite and sewer.
Mercury compound	X-ray film development	Collection at changing developing fluid

Source: Survey Result

3) Sanitary Fixtures

Squat type (Asian type) sanitary fixtures are common in toilets at existing facilities. The Project will also adopt this in due consideration of durability. On the other hand, one toilet for the disabled will be installed at each district hospital and a western sanitary fixture will also be installed. In addition, one western-style toilet for pregnant women will be installed in the delivery room.

The flushing method follows local customs so that pumping and flushing of water will be applied. A hand shower will be installed for cleaning. Since all sanitary fixtures can be locally procured, it is possible to maintain sanitary fixtures including the procurement of spare parts such as faucets.

4) Waste Disposal

The MOH regulates disposal separated by waste types; therefore, a refuse storage or shed will be installed. Since inflammable waste is disposed of by burning, the generation of dioxin when incinerating low temperature is problem. Therefore, the Plan recommends collecting or burying underground.

5) Fire Extinguisher System

Although there are no any fire-code in Laos, fire alarms and fire extinguishers will be installed at 25m radius in accordance with similar facilities financed by the ADB/World Bank. A fire alarm will be a simple method composed of a button and bell; whereas, a common powder type fire extinguisher is scheduled.

(3) Air Conditioning Systems

As natural ventilation will be adopted in most rooms, common ceiling fans will be installed to promote convection of indoor air. Ventilating fans will be installed in laboratories, sterilizing rooms and in storage areas where heat or offensive odors arise.

At the target sites, the ambient temperature during the rainy season between April and September is 35℃. Accordingly, a separate air conditioning system will be installed in the operating rooms, delivery rooms, x-ray rooms and laboratories that are closed to ensure sanitation. Exhaust air will be forced out by ventilating fans in the attic and will be louvered to avoid dust.

A popular independent-cooling air conditioning system will be adopted. Details on air conditioning, mechanical ventilation methods and area are described below.

Table 2-11 Area for Air-Conditioning and Exhausting

	Room Name	A/C (Cooling)	Exhaust Fan
Out-patients Block	Middle Surgery	—	Yes
	Laboratory	Yes	Yes
	X-ray Room	Yes	Yes
Admin Block	Pharmacy	—	Yes
MCH Block	Delivery Room	Yes	Yes
Operation Theatre Block	Operation Theatre	Yes	Yes
	Sterilization	—	Yes

(4) Electric Equipment System

1) Distribution Unit Substation Plan

Except for 2 DHs (Khoua and Houn), the existing facilities receive electric power from district distribution lines (3-phase 4-line, 400/200V, 50Hz), which are lowered by transformer for surrounding facilities from 22KV of high-tension trunk line. Although the capacity of the transformer for district power distribution is 160 to 250kVA, the voltage fluctuation is severe due to the power consumption of surrounding residences.

The estimated electrical power at each DH can be calculated at a scale of 150kVA including power at the existing facilities. Consequently, in order to secure stable power at DHs, the Project will install a transformer system within each lot to receive high voltage from the trunk line (3-phase, 22kV).

Since Khoua DH has no public power supply but there is a public Generator of 300kVA working 2 to 3 hours at evening. At Houn DH, there is also no public power supply. District power distribution is planned at 2008 for all those northern area by ADB.

2) Emergency Power Generating Unit

Diesel generators (25kVA) will be installed for emergency lighting in the operating rooms and delivery rooms for life support during an emergency lighting. Supply of electrical power will be limited to important locations for medical care to minimize generator capacity.

3) Trunk Line and Power Equipment

Electric power will be distributed from a switchboard in an electricity room to each distribution board at the facility. Steel pipes and a cable rack method will be applied inside facilities.

4) Lighting System

Mainly fluorescent lamps of reasonable maintenance cost will be supplied for lighting. In due consideration of local conditions, approximately 50 to 70% of the Japanese Industrial Standard (JIS) will be applied for illumination. Outdoor lamps generally utilized will be adopted. In addition, built-in battery emergency lights and emergency exit lighting will also be installed.

5) Lightning Arresters

Since there is a lot of lightening in Laos especially in the rainy season and since the region receives twenty (20) to forty (40) days of lightening annually according to the World Meteorological Organization (WMO), this is approximately 2.5 times that of Tokyo. Lightening storms may damage x-ray equipment. In order to keep damage to a minimum, lightning arresters will be installed.

6) Telephone System

In the presence, all targeted DH except Houn DH has telephone line connection either district hospital or district health offices that are utilized as both telephone and facsimiles. Although there is a telephone system in Houn District Office where near Houn DH, this line will be extend and connect for the Project. The project will provide main-telephone in the office and sub-phone in the nurse station. The lead-in work to parent (principal) telephones will be taken by Laos.

7) Fire Alarm Equipment

Push button and simple fire alarm equipment will be installed in three (3) locations in 25m radiuses at each DH.

2-2-2-6 Building Material Plan

In the case of selecting construction materials, in due consideration of easy maintenance, weather, local construction conditions, construction period and cost, the materials generally utilized in Laos will be mainly adopted.

(1) Selection of Construction Materials

With respect to the improvement in DHs, the ADB/World Bank has implemented similar hospitals; the Project will realize harmony and incorporation at each DH by selecting construction materials similar to the specifications of those facilities.

(2) Exterior Finishing Materials

1) Roofing

Since tile roofing is popular in Laos, in due consideration of heat insulation, soundproofing during rain and durability, cement tile roofing will be applied. Although slate roofing is also distributed, it contains asbestos so that will not utilize it. In addition, in order to harmonize with the surrounding landscape, pitched roofs will be adopted. On the valley part of the roofs, metal gutters will be installed.

2) Exterior Wall Materials

Although brick masonry is locally popular, in due consideration of the conservation of forest which becomes fuel, concrete blocks will be utilized. As for finishing, after cement plastering (mortar finish), durable sprayed tiles will be coated.

3) Exterior Fittings

The MOH requested sliding windows because *jalousie* windows collect dust. Since wooden fittings often have a camber and cracks, general aluminum fittings will be utilized. *Jalousie* windows will be inserted into the upper part of lintel for natural ventilation. In addition, Insect screens will be installed at hospital wards; whereas crime-prevention grills will be installed in rooms housing equipment and medicines.

(3) Interior Finishing Materials

1)Floor Covering Materials

Popular tiles will be used on most floors at the hospital facilities for easily cleaning and durability. Floors in the operating rooms, delivery rooms and sterilizing rooms should be washable with water in order to maintain cleanliness.

2)Wall Materials

On wall surfaces that easily become dirty due to the movement of patients and attendant facilities, the lower part of tiles will be coated for easy cleaning; whereas, the upper part will be finished with paint. In addition, tiles in the wet areas such as

toilets and shower rooms or sterilizing rooms will be coated. Other parts will be finished with paint.
Shielding panels will be carpeted in x-ray rooms for protection against radiation.In locations where stretchers may come in contact, stretcher guards concurrently utilized for handrails will be installed.

3) Ceiling Materials

Gypsum boards will be applied on popular-style ceilings (T bar type) throughout the entire facilities. Cement boards (calcium silicate boards) will be adopted in humid rooms.

4) Interior Fittings

Aluminum doors will be applied to places where people frequently come in and out and places requiring easy cleaning or durability; whereas, wooden fittings will be applied to other places. Protective doors and lead glass windows will be adopted for rooms requiring protection against x-rays.
Finishing materials and related construction methods are compiled as follows.

Table 2-12 Plan of Finish Materials

	Existing Facility (District Hospitals)	Planned Materials	Notes
[Frame & External]			
Structure :	-RC Frame Structure	-Reinforced CB, -Partly RC Structure	RC frame for ward and waiting space.
Roof Frame :	-Wooden truss. -Steel truss.	-Steel Truss.	Wooden truss bends often.
Roofing :	-Slate roof tile. -Metal roofing. -Cement roof tile.	-Cement roof tile.	Slate roof tile contains asbestos.
External Wall :	-Brick wall -Mortal paint fin.	-Concrete Block -Mortal paint fin.	Brick wall for internal wall
Doors/Windows :	-Aluminum D/Ws. -Wooden D/Ws.	-Aluminum D/Ws -Wooden Doors (inside).	Wooden doors are bent and cracked
[Interior Materials]			
<Ordinary Room> Ceiling :	-Paint on plywood -T-bar system ceiling	-T-bar system ceiling (Gypsum Board)	Very popular in Laos
Wall :	-Paint on mortal trowel (partially Tile)	-Paint of Mortar	Easy for clean and popular in Lao
Floor :	-Mortar screed. -Ceramic Tile	-Ceramic tile	
<Operation Room> Ceiling :	-Paint on plywood (Gypsum board)	-Plaster board	Cleanness and poplar in site
Wall :	-Ceramic Tile	-Ceramic tile	
Floor :	-Ceramic Tile -Terrazzo in si tu	-Ceramic tile	

Notes: RC means Reinforced Concrete, CB means Concrete Block, D/W means Doors and Windows

2-2-2-7 Equipment Plan

(1) Examination of Planned Equipment

1) Examination of Major Equipment

A) X-ray Unit

The equipment presently owned and testing by the Kenthao DH, Outhoumphone DH and Khongsedone DH will be replaced. Since Outhoumphone DH has not provided X-ray protections in the its temporary X-ray testing room, the Plan will procure mobile-type X-ray unit. The annual number of outpatients is approximately 110,000 cases at the Songkhone DH and Champasak DH that are many, tremendous beneficiary effects are anticipated. In addition, there is operation staff already trained by X-ray examination training program sponsored by the ADB. The Project will be planed those 5 DHs for procurement of X-ray units.

B) Ultrasound Scanners

Although the existing ultrasound scanner (10 years old) exists at the Champasak DH, it is scheduled to be replaced with new equipment because of its unclear images resulting from deterioration. Since the doctors at Outhoumphone DH and Khongsendone DH have completed the training program on ultrasound scanners financed by the ADB, equipment is scheduled to be procured should any problems during utilization occur. The Project will be planed those 3 DHs for procurement of Ultrasound Scanners.

C) Dental Units

Since there are no private Dental clinics in rural area, the MOH and DHs requested strongly to procure dental unit. Staff already exists at the Sing DH and Houn DH in the north, which do not have a dental unit at the present time and staff of the Khoua DH are currently taking training in the capital, procurement is scheduled. In addition, with respect to the Champasak DH in the south, the MOH has promised to make staff complete training until the equipment installation. Therefore, procurement is planned for 10 DHs because the staff problem will be solved, since the other 6 DHs utilize deteriorated dental units, renewal is planned.

D) Instrument Sets for Surgery

As descried before, the MOH strongly requested that an operating theatre be provided for the IDH. At the DHs in the south, there are full-time surgeons who carry out Caesarean sections or appendicitis operations. Since there are no surgeons at the DHs in the north, minor operations are conducted by medical assistants (MAs), and middle operations such as Caesarean sections are implemented a few times annually in emergency situations.

Accordingly, mutual consent has been reached on the installation of an operating theatre at 2 DHs with past performances in the south and a middle surgery room in the north without past results respectively. Consequently, instrument sets for surgery are classified as type (A) for general abdominal operations, and type (B) for Caesarean sections and appendicitis. Type (A) will be applied DHs in the south and type (B) for DHs inn the north respectively.

E) Blood Bank Refrigerators

The MOH made a request for blood bank refrigerators for the Songkhone DH, Khongsendone DH, Champasak DH and Kenthao DH. Although a blood supply system should be well operated through a national blood bank system, the system is not operating smoothly at the present time. Accordingly, only one unit will be provided to the Kongsendone DH where the number of major operations is 60 cases annually. On the other hand, the number of major operations is less than 15 cases annually at the other 3 DHs and on one case every 3.5 weeks on average. If blood is stored in a blood bank refrigerator for 2 weeks or longer it cannot be utilized in some cases. The benefits of equipment procurement are low so this will not be procured. Therefore, the Project will be planned 1 DH for blood bank refrigerator.

2) Examination of General Equipment

A) Consultation Rooms

Corresponding to the standard designs for DHs established by the MOH, since 2 rooms are scheduled, one examination table, examination light and instrument set for examinations will be provided for each room. One height scale and one weighing scale will be shared. One ultrasound scanner will be provided totally 3 units for each of the Kenthao DH, Outhoumphone DH, Khongsendone DH and Champasak DH. As for examination lights, instead of Halogen lights incandescent type will be adopted due to easy acquisition and reasonable price.

B) Middle Surgery

Since the 6 DHs in the north provide first-aid type middle operations in a middle surgery room, one operating table, operating light (B type), instrument set for surgery (B type: Caesarean sections and appendicitis) and treatment instrument set, etc. will be applied for each. In addition, one resuscitation set, blood pressure manometer and aspirator, etc. will also be provided.

Since the operating theatres are scheduled at the 2 DHs and existing at the 2 DHs (totally 4 DHs) in the south, one operating table, an examination light and instrument set for surgery (C type), etc. will be provided for each middle surgery room. To deal with emergency cares, a resuscitation bag (included in a resuscitation set) will be made from a silicon product which is durable and can be sterilized by high-pressure steam.

C) Pharmacies

One drug cabinet with key for storing medicines is scheduled.

D) Dentists

One dental unit, dental instrument set and an autoclave for dental department will be provided.

E) Laboratories

One microscope, centrifuge (with hematocrit rotor), refrigerator and bald bank refrigerator is scheduled to be provided. In the interests of cost reduction, the centrifuge should be of a type which can double as a hematocrit centrifuge by replacing the rotor.

F) X-ray Room

a) X-ray examination unit

As per explain before, the Project will procure X-ray units for 5 DH, but mobile-type for Outhoumphone DH because there are no x-ray shield protection at existing room.

b) Dark Rooms

At the 5 DHs where x-ray units are planned, a developer (for manual developing) and dark room set will be procured. In order to save developing solution and fixatives, a small-volume type 3-compartment (developing, fixing and cleaning) developer will be selected.

G) Operating Theatres

One operating table, operating light (A type), instrument set for surgery (A type for General surgical operations), anesthesia apparatus, electro-surgical unit and an x-ray film illuminator, etc. will be provided for the 4 DHs in the south.

Although the “operating theatre” was constructed by assistance of US-NGO at the Khongsendone DH, the Project will provide equipment for operating theatre.

H) Recovery Rooms

One recovery bed is planned for each recovery room.

I) Sterilization Rooms

One small floor-type autoclave (50 liters volume) is planned for 4 DHs in the south. This one unit autoclave will sterilize most forceps and operating gowns. Since the volume of the existing autoclave is approximately 20 litters, the frequency of sterilization will be one third (1/3). Since there are small cases of operations in the north, one small floor-type autoclave (25 liters volume) is planned for 6 DHs in the north instead of existing fire-wood type autoclave.

J) Patient Wards

The Project will plan patient beds, bedside cabinets, IV poles and wheelchairs, etc.

a) Patient Beds and Bedside Cabinets

Corresponding to the number of planned beds, 16 patient beds (12 for the Houn DH) are scheduled. Many of the existing wooden/steel beds are decaying; these will be replaced.

b) Intravenous Poles (IV Pole)

One intravenous pole per 4 beds will be applied. Three units at Houn DH and 4 units at other hospitals are planned.

c) Wheelchairs

Solid tire type wheelchairs will be applied to prevent flat tires from occurring.

K) Nurse Stations

One stethoscope and sphygmomanometer will be provided.

L) Maternal and Child Health (MCH) Rooms

Health check ups Antenatal / Post-natal and infant growth monitoring are carried out. One gynecological examination table, examination light (for adults and newborns), a height scale, a weighing scale (for adults and new born babies) and instrument set for examination for maternal and child health, etc. will be provided.

M) Delivery Rooms

One delivery table, a suction unit (small-sized), a weighing scale for newborns (analogue type) and an infant warmer will be procured. Specifications of infant warmer will be easy handling with a treatment table and warmer lamp.

N) Recovery Room

Since a labor/recovery room is planned with 1 room, 3 beds will be provided.

O) Injection Rooms

Since this room will be utilized for the Expanded Program for Immunization (EPI), one examination table will be applied.

P) Emergency Rooms

Although new operating block was constructed by the US-NGO at the Khongsendone DH, equipment improvement is not included. Consequently, one emergency bed, emergency light and IV pole, etc. will be provided for the new emergency room to be constructed.

A planned equipment list and major specifications are shown in the attached list.

Table 2-13 List of Major Equipment by Types

	Block	Room	Name of Equipment
A Type	OPD	Consulting Room	Examination Table, Examination Light, Instrument Set for Examination, Height and Weighing Scale
		Dentist	Dental Unit, Dental Instrument Set
		Laboratory	Microscope, Centrifuge, Refrigerator
		X-ray Room	X-ray Unit, Mobile X-ray
		Middle Surgery	Operating Table, Operating Light, Instrument Set for Surgery, Resuscitation Set, Sphygmomanometer, Suction Unit, Stretcher
	Patient Ward	Ward	Wheel Chair, Treatment Trolley
		Nurse Station	Stethoscope, Sphygmomanometer
	MCH	MCH	Examination Table, Gynecology, Instrument Set for MCH
		Delivery Room	Delivery Table, Instrument Set for Delivery, Infant Warmer, Weighing Scale for Neonate
	Operating Theater	Operating Theater	Anesthesia Apparatus, Electrosurgical Unit, X-ray Film Illuminator, Operating Table, Operating Light, Stretcher
		Sterilizing Room	Autoclave
B Type	OPD	OPD	Examination Table, Examination Light, Instrument Set for Examination, Height and Weighing Scale, Ultrasound Scanner
		Dentist	Dental Unit, Dental Instrument Set
		Laboratory	Microscope, Centrifuge, Refrigerator
		X-ray Room	X-ray Unit
		Middle Surgery	Treatment Table, Instrument Set for Treatment, Resuscitation Set, Sphygmomanometer, Suction Unit
	Patient Ward	Ward	Wheel Chair, Treatment Trolley
		Nurse Station	Stethoscope, Sphygmomanometer
	MCH	MCH	Examination Table, Gynecology, Instrument Set for MCH
		Delivery Room	Delivery Table, Instrument Set for Delivery, Infant Warmer, Weighing Scale for Neonate

Notes: A type is with Operation Theatre, B type is not including one.

Table 2-14 Major Specifications of Planned Equipment

Name of Equipment	Major Specifications
IV pole	No. of hook: 2, Casters: 4, Adjustable: 1600-1900mm
Instrument Set for MCH	Vaginal speculum, Measure tape, Fetal scope, Clinical thermometer, Sphygmomanometer, etc.
X-ray Film Cabinet	Dimensions: W800 x D2000 x H360mm, Material: Wood
Reading Desk	Dimensions: W1500 x D750 x H750mm, Material: Wood
X ray Unit	Maximum X-ray tube voltage: 125KV, mAs range: 0.5-500mA
X ray Protective Apron	Type: Covered from shoulders to knees, Size: L, Lead equivalent:0.25mmPb
Mobile X-ray Unit	X-ray tube voltage: 125KV, X-ray tube current: 100mA, Manual run
X-ray Film Illuminator for OT	Film capacity: For 2pieces
X-ray Film Illuminator for Reading Room	Table top type, Film capacity: For 2pieces
Treatment Trolley	Dimensions: W700 x L400 x H800mm, Material: Stainless steel, drawer, side rails, Bucket holder, Bowl holder
Labor / Recovery Bed	Dimensions: W900 x L2000mm, Head and foot board: Removable
Stretcher	Dimensions: W550 x L1900 x H800mm, Casters:4
Resuscitation Set	Resuscitation bag for adult and child, Face mask for adult and child, Autoclavable
Bedside Cabinet	Dimensions: W450 x D350 x H750mm
Mayo Stand	Height adjustment: 800-1200mm, Tray size: 300 x 450mm, Material: SUS 304
Dark Room Set	Film hunger, Film mark set
Centrifuge	Centrifuge and Hematocrit combine type, Rotor: for Centrifute-4 tubes, for Hematocrit-20tubes
Patient Bed	Dimensions: W900 x L2000 x H650mm, Head and foot panels, Mattress
Instrument Trolley	Dimensions: W500 x L350 x H800mm, No. of Shelf: 2, Material: SUS 304
Instrument Trolley-Large Type	Dimensions: W600 x L450 x H800mm, No. of Shelf: 2, Material: SUS 304
Instrument Cabinet	Dimensions: W750 x L350 x H1400mm, Glass door with lock, No. of Shelf: 4, Material: SUS 304
Suction unit-Large Size	Vacuum pressure: -650mmHg, Suction capacity: 40Litter/Minute, Suction bottle: Total 6000ml, Plastic, Autoclavable, Foot switch
Suction Unit-Medium Size	Vacuum pressure: -600mmHg, Suction capacity: 20Litter/Minute, Suction bottle: Total 3000ml, Plastic, Autoclavable
Suction unit-Small Size	Vacuum pressure: -500mmHg, Suction capacity: 10Litter/Minute, Suction bottle: Total 500ml, Plastic, Autoclavable
Instrument Set for Emergency	Forceps, Scissors, Needle holder, Retractor, Pus basin, etc.
Emergency Light	Lamp: incandescent lamp,75W, Arm: Flexible Type, Floor stand with casters,
Sphygmomanometer	Aneroid, Stand type, Casters: 4, Measurement range: 20-300mmHg, Cuff: Adult and Child
Spygmomanometer-Portable type	Aneroid, Portable type, Measurement range: 20-300mmHg,Cuff: Adult & Child
Blood Bank Refrigerator	Capacity: 30L, Alarm: Audible and Visual
Examination Light	Lamp: incandescent lamp,75W, Arm: Flexible Type, Floor stand with casters,
Microscope	Electric and natural illumination type, Magnification 40-1000x, Objective Lens: 4x, 10x, 40x, 100x, With natural illumination mirror
Manual Film Developer	Composition: development, fixing, washing, 3 part integral type, Material: PVC, Total capacity: 20Litter
Autoclave, 50L (for South)	Capacity: 50L
Autoclave, 25L (for North)	Capacity: 25L
Oxygen Cylinder Cart	Cylinder size: 7000L cylinder, Casters: 4

Name of Equipment	Main Specifications
Oxygen Regulator, Flow Meter, Humidifier	Type of connector : Blue nose type, Flow rate: 0-15L/min.
Dental Unit	Dental chair, Light, Hand piece, Water supply system, Tray with arm for instrument, Compressor
Dental Instrument Set	Extraction forceps, Tweezers, Mirror, etc.
Dental Chair	Chair for patient, Chair for operator
Dental Autoclave	Capacity: 10L
Wheel Chair	Wheel size: 24 inch, Solid wheels, Seat size: W450 x D400mm
Instrument Set for Surgery-A	Sponge forceps, Dissecting scissors, Tissue forceps, Retractor, Needle holder, etc.
Instrument Set for Surgery-B	Dissecting scissors, Intestinal forceps, Hemostatic forceps, Needle holder, Towel forceps, etc.
Operating Table	Dimensions of table top: W500 x L1900, Height adjustment: 800-950mm, Lateral tilt left/right: 20/20 degree, Trendelenburg/reverse: 20/20degree, Elevation: Oil hydraulic type, Arm rest, Anesthetic frame/Screen frame
Operating Light-A	Intensity: 70,000 lux, Type: Stand type, with Emergency battery
Operating Light- B	Intensity: 35,000 lux, Type: Stand type, with Emergency battery
Instrument Set for Surgery-C	Tissue forceps, Surgical scissors, Needle holder, Pus basin, etc.
Treatment Bed	Dimensions: W600 x L2000 x H800mm, With support frame, Backrest, Footstool: 1 step
Infant warmer	Infra-red heater, Dimensions of a mettles: W350 x L550 x H30mm
Baby Cot	Dimensions: W400mm x D700mm x H800mm, Material of basket : Plastic
Weighing Scale for Neonate	Analog type, Measurement capacity: 0-15kg
Instrument Set for Examination	Composition: Stethoscope, Sphygmomanometer-portable type, Tongue depressor, Percussion hammer, Thermometer, Pen light, etc.
Consulting Desk	Dimensions:W1500 x D800 x H750mm, Material of a desk: Wood, With Chair
Examination Table	Dimensions: W600 x L2000 x H800mm, With support frame, Backrest, Footstool: 1 step
Height and Weighing Scale	Height scale: 2000mm, Type: Weighing scale capacity: 200kg, Analog type
Height Scale for Neonate	Measurement range: 100-900mm, Graduation: 5mm
Resuscitation Set for Neonate	Resuscitation bag for neonate, Face mask for neonate, Resuscitation bag and face mask: Autoclavable
Stethoscope	Dual type
Ultrasound Scanner	Display: Black & White, Probe: Convex, With Printer
Electrosurgical unit	Mode: Monopola, Bipola, Inactive electrode: Nonmetal and Reusable, With foot switch
Examination Table, Gynecology	Dimensions: W550 x L1750 x H800mm, Backrest, Knee crutches
Instrument Set for Delivery	Dissecting forceps, Sponge forceps, Tissue tweezers, etc.
Delivery Table	Dimensions: L1700 x W650 x H750mm, Composition: Main unit and supplemental table
Delivery Light	Lamp: incandescent lamp,75W, Arm: Flexible Type, Floor stand with casters,
Vacuum Extractor	Suction pressure: -750mmHg, Suction capacity: 40L/minute, Suction bottle: Total 2000ml, Autoclavable, Vacuum extractor cup: Silicon, Autoclavable
Vacuum Extractor-Foot Pedal Type	Suction pressure: -500mmHg, Suction bottle: Total 1000ml, Autoclavable, Vacuum extractor cup: Silicon, Autoclavable
Anesthesia Apparatus	Vaporizer: Halothane, Oxygen connector type: Blue nose type
Refrigerator	Capacity: 125L
Nurse Station Chair	Height adjustment: 400-500mm, With backrest and casters
X-ray Protective Door	Lead equivalent: 1.5mmPb, Dimensions: W1180 x H2100

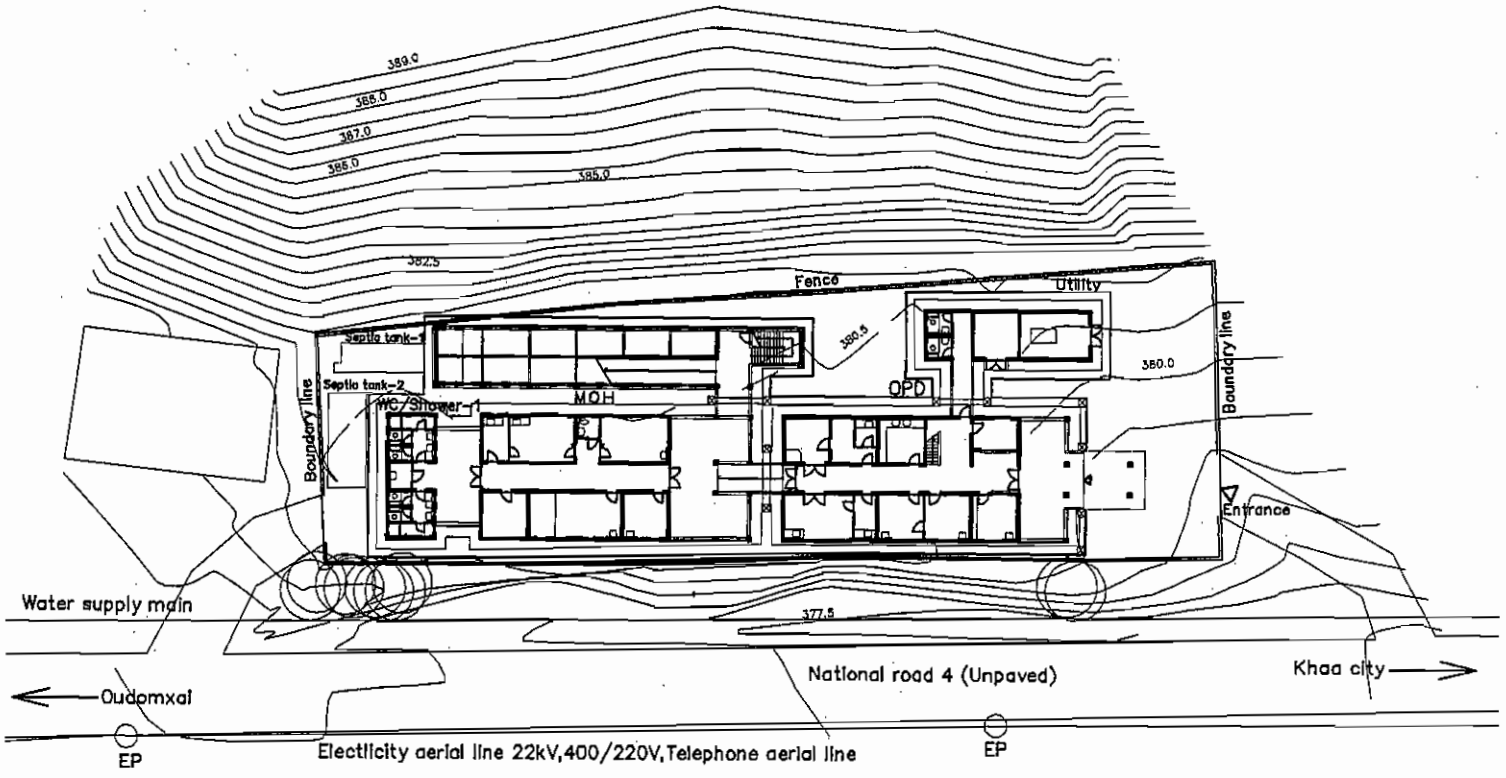
2-2-3 Basic Design Drawings

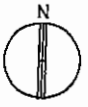
List of Drawings:

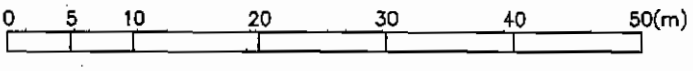
1. Site Plan: Khoua DH
2. Site Plan: Sing DH
3. Site Plan: Houn DH
4. Site Plan: Kenthao DH
5. Site Plan: Songkhone DH
6. Site Plan: Champasak DH
7. A Type Plan: Songkhone DH, Champasak DH
8. B Type Plan: Sing DH, Kenthao DH
9. A Type Elevation:
10. Khoua DH Plan: Ground Floor
11. Khoua DH Plan: First Floor
12. Khoua DH Elevation:
13. Houn DH Plan:
14. Houn DH Elevation:
15. Equipment Plan: A type (Outhoumphone DH, Champasak DH)
16. Equipment Plan: B type (Sing DH, Kenthao DH)
17. Equipment Plan Khoua DH Ground Floor
18. Equipment Plan: Kyoua DH First Floor
19. Equipment Plan: Houn DH
20. Planned Equipment List-1/3
21. Planned Equipment List-2/3

Table 2-15 Planned Contents and Floor Area

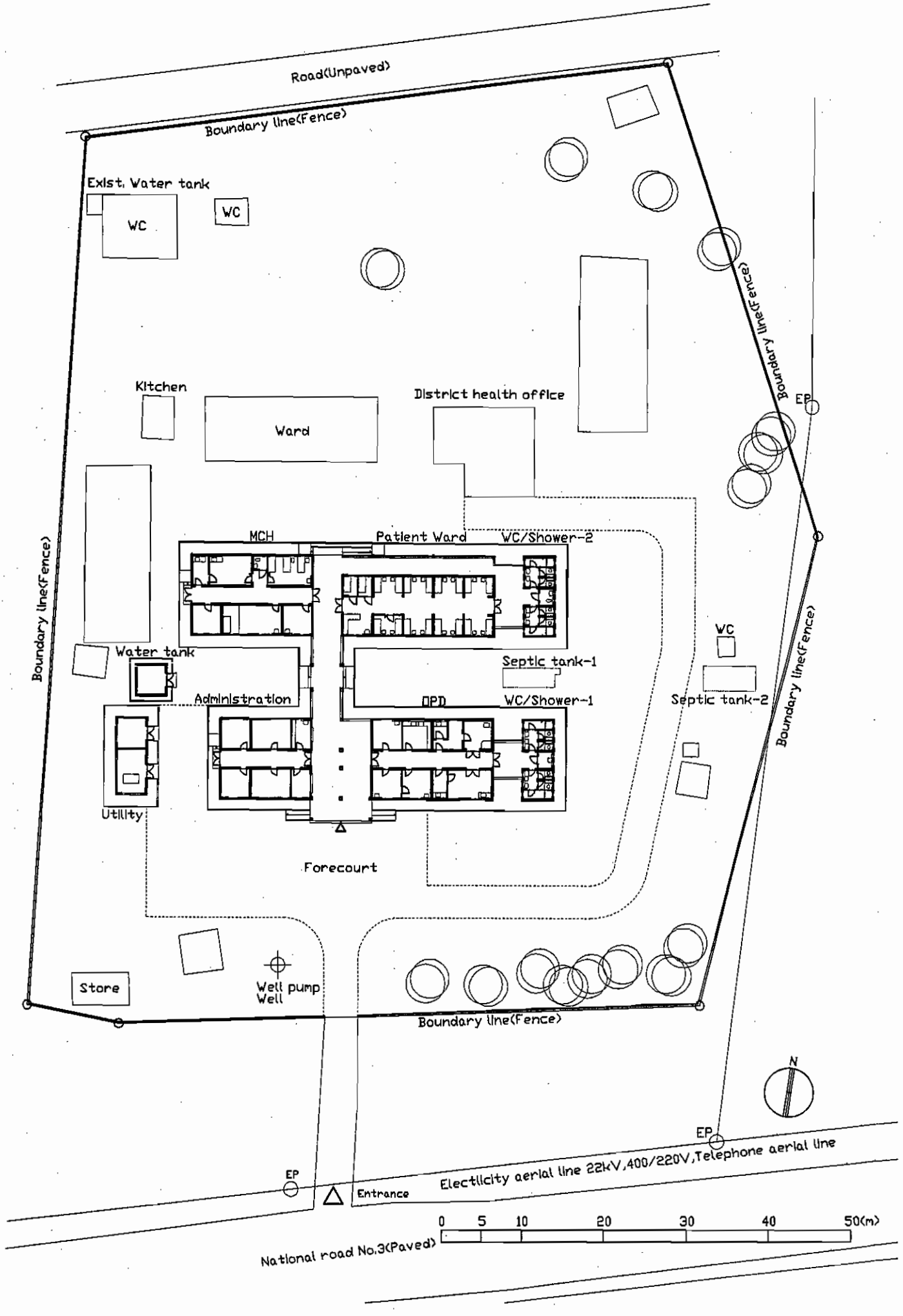
	Phase-1	Phase-2		Phase-3		Planned Floor Area (sqm)
	Equipment	Construction	Equipment	Construction	Equipment	
1. Khoua DH	○			○(2 Story)	○	1,097.07
2. Sing DH	○			○(B type)	○	920.24
3. Houn DH	○			○(Additional)	○	455.44
4. Kentao DH	○	○(B type)	○			920.24
5. Sangthong DH	○					-
6. Pakngum DH	○					-
7. Outhoumphne DH	○					-
8. Song khone DH	○	○(A type)	○			993.37
9. Khongsedone DH	○					-
10.Champasak DH	○	○(A type)	○			993.37
Total						5,379.73



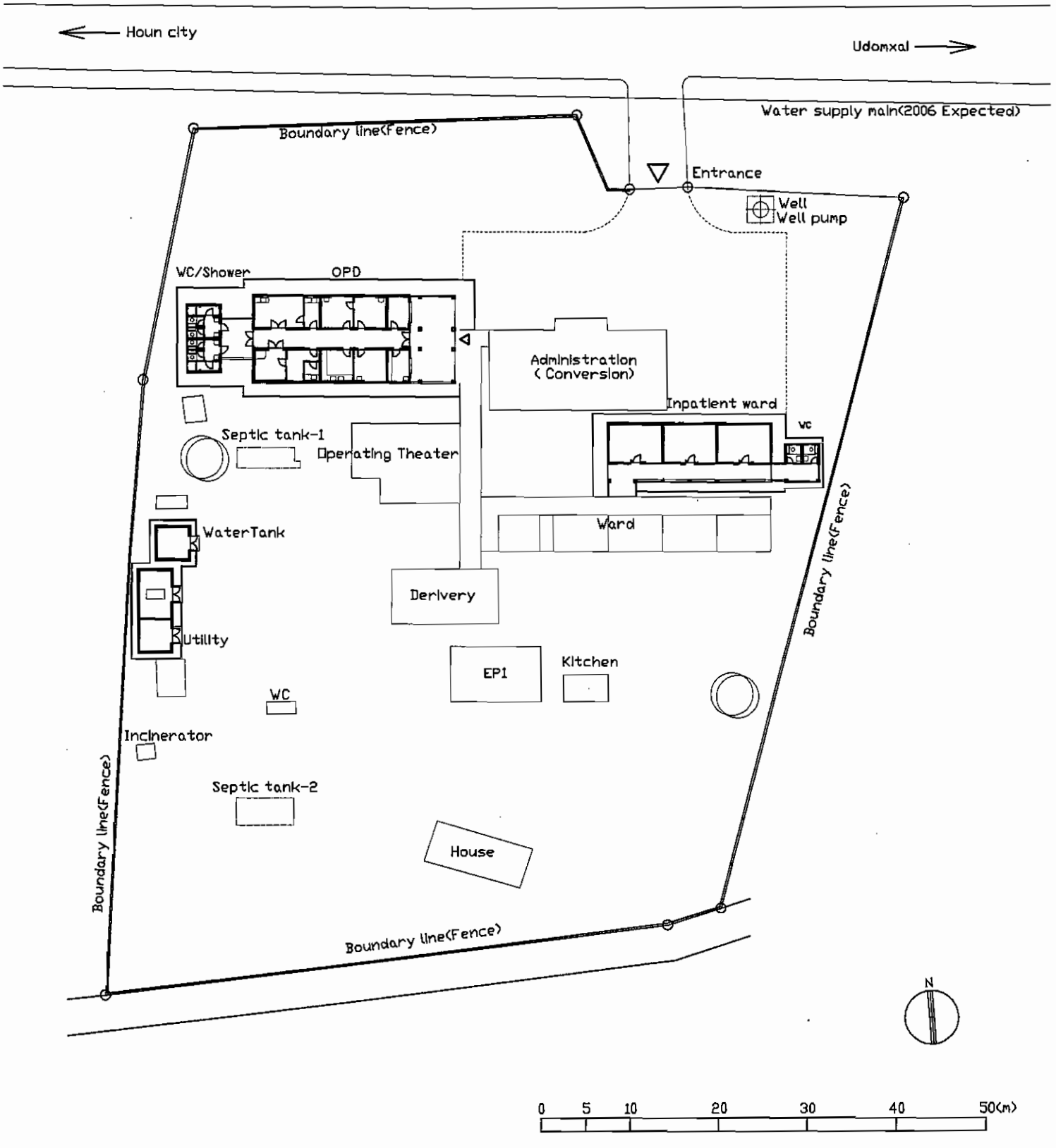




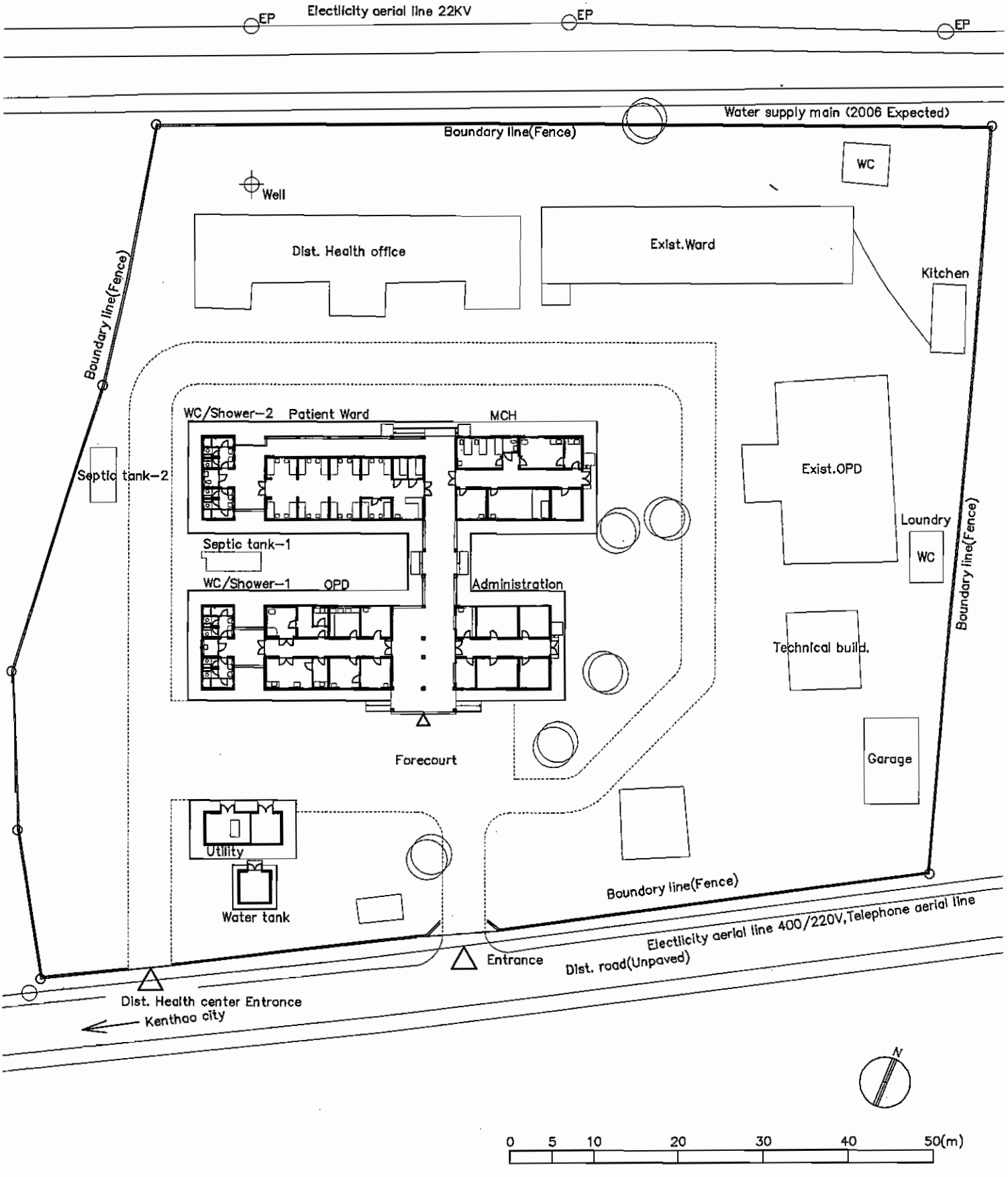
KHOUA DISTRICT HOSPITAL SITE PLAN 1/600



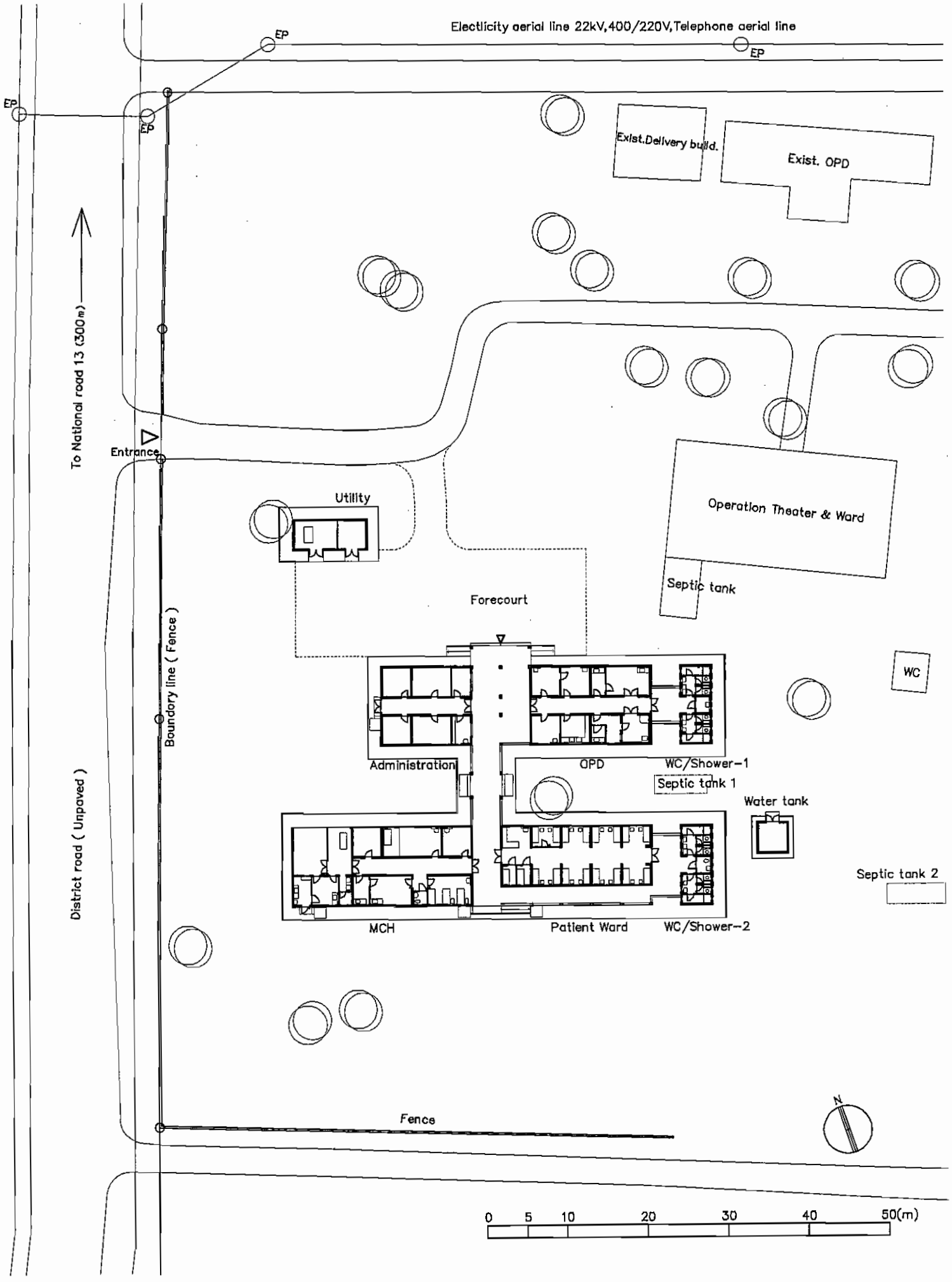
SING DISTRICT HOSPITAL . SITE PLAN 1/600



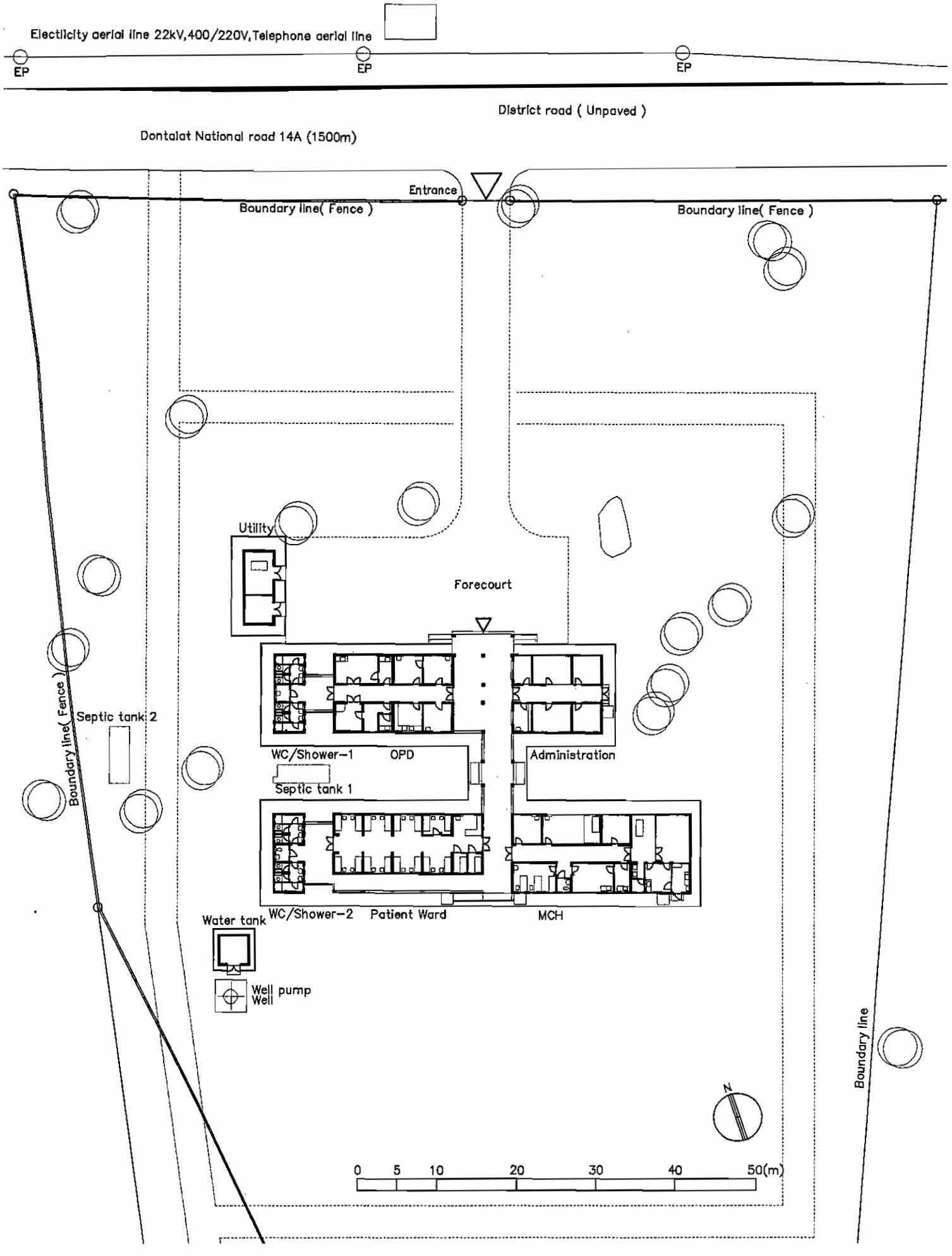
HOUN DISTRICT HOSPITAL NO.3 SITE PLAN 1/600



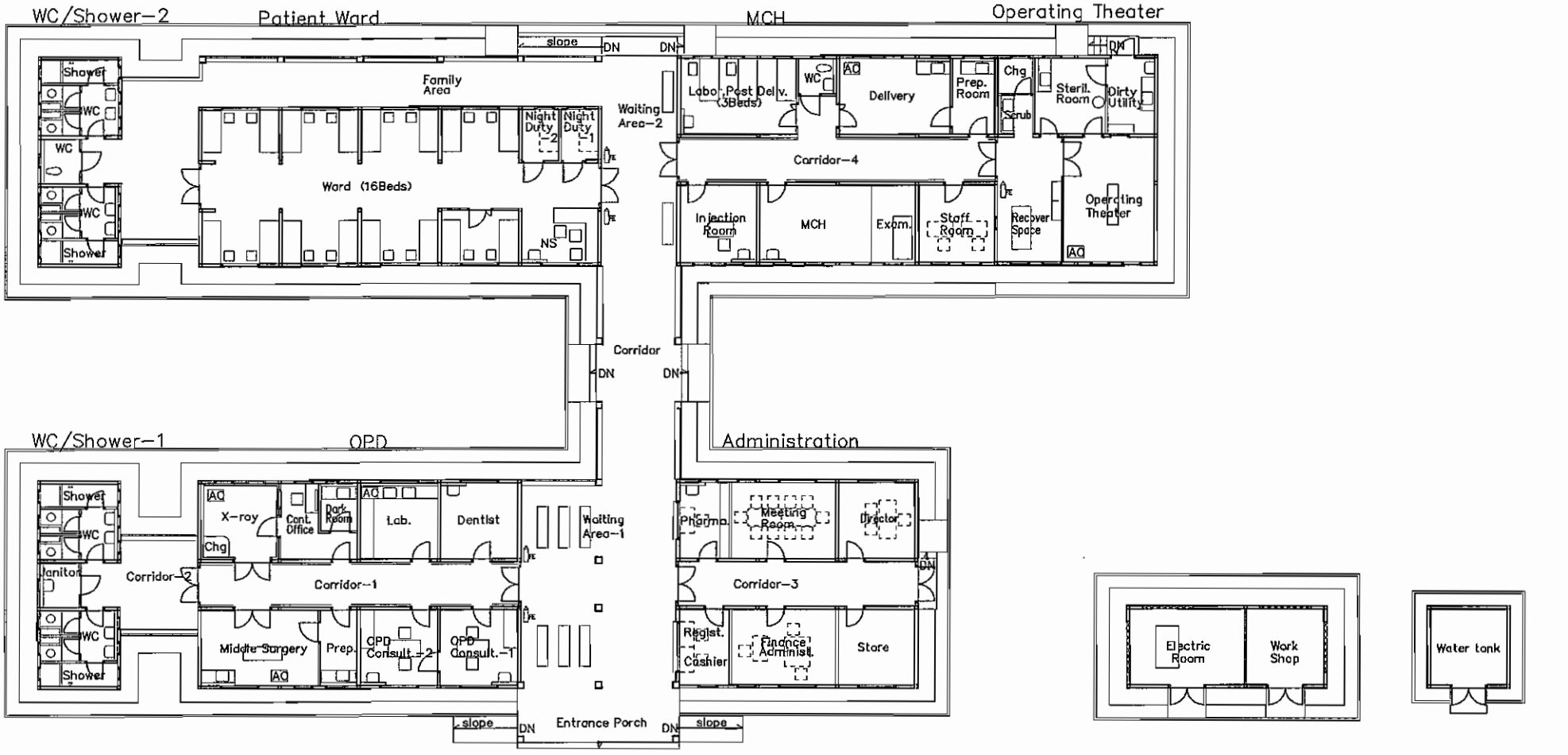
KENTHAO DISTRICT HOSPITAL SITE PLAN 1/600



SONGKHON DISTRICT HOSPITAL SITE PLAN 1/600

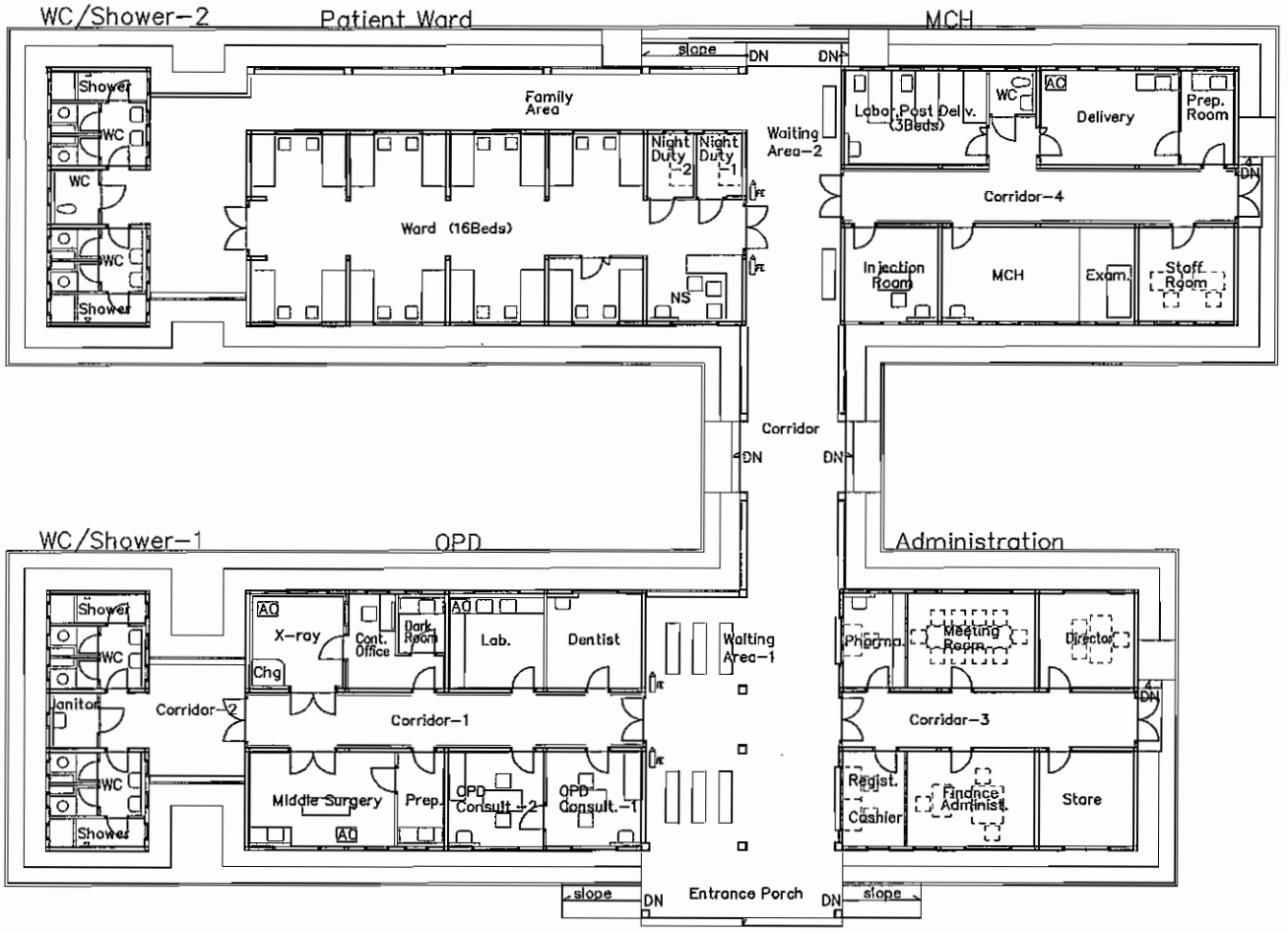


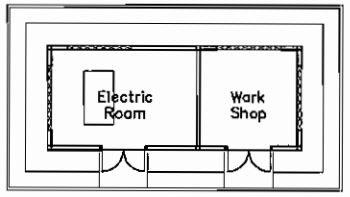
CHAMPASAK DISTRICT HOSPITAL SITE PLAN 1/600

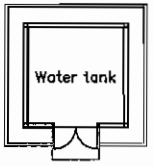


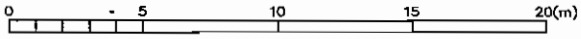
A TYPE PLAN: SONGKHONE DH, CHAMPASAK DH

THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS IN LAO PDR

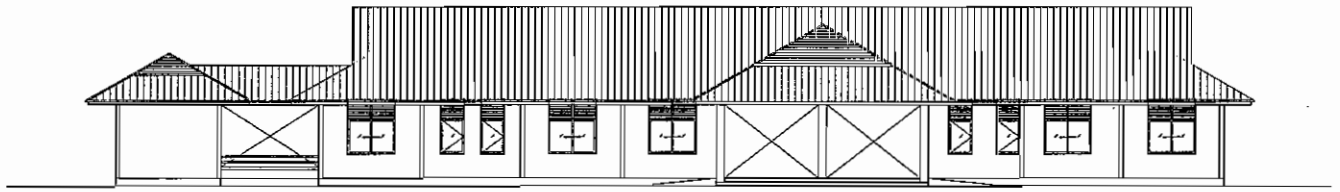




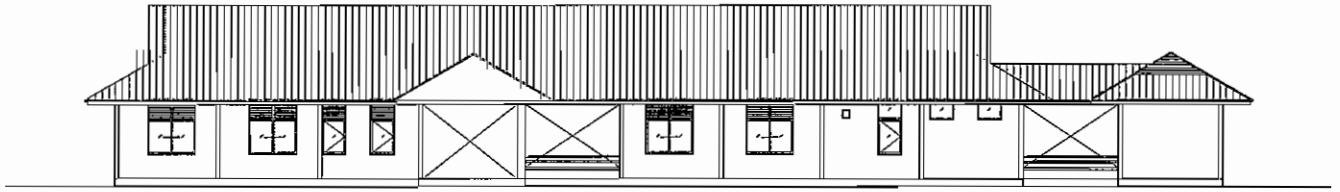




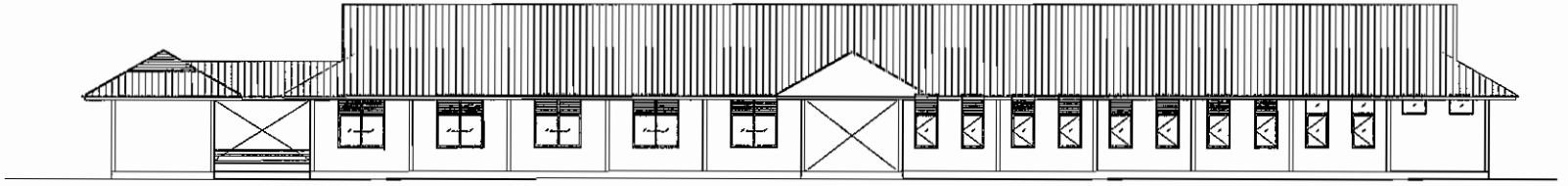
B TYPE PLAN: SING DH, KENTHAO DH



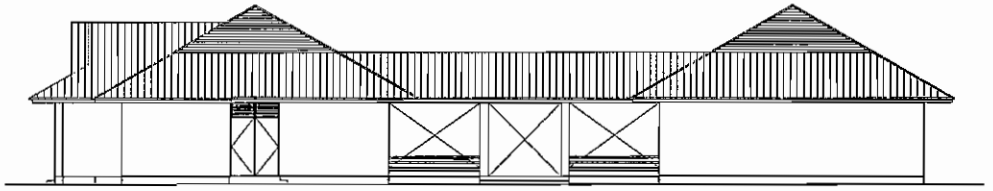
Admi. & OPD Front Elevation



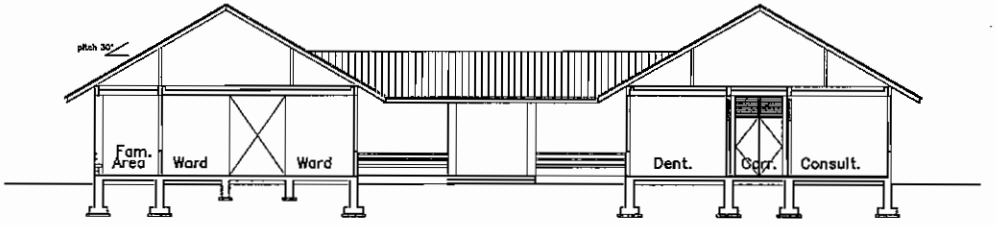
Admi. & OPD Rear Elevation



Ward & MCH Front Elevation

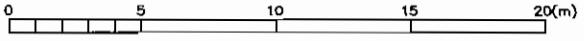


Side Elevation

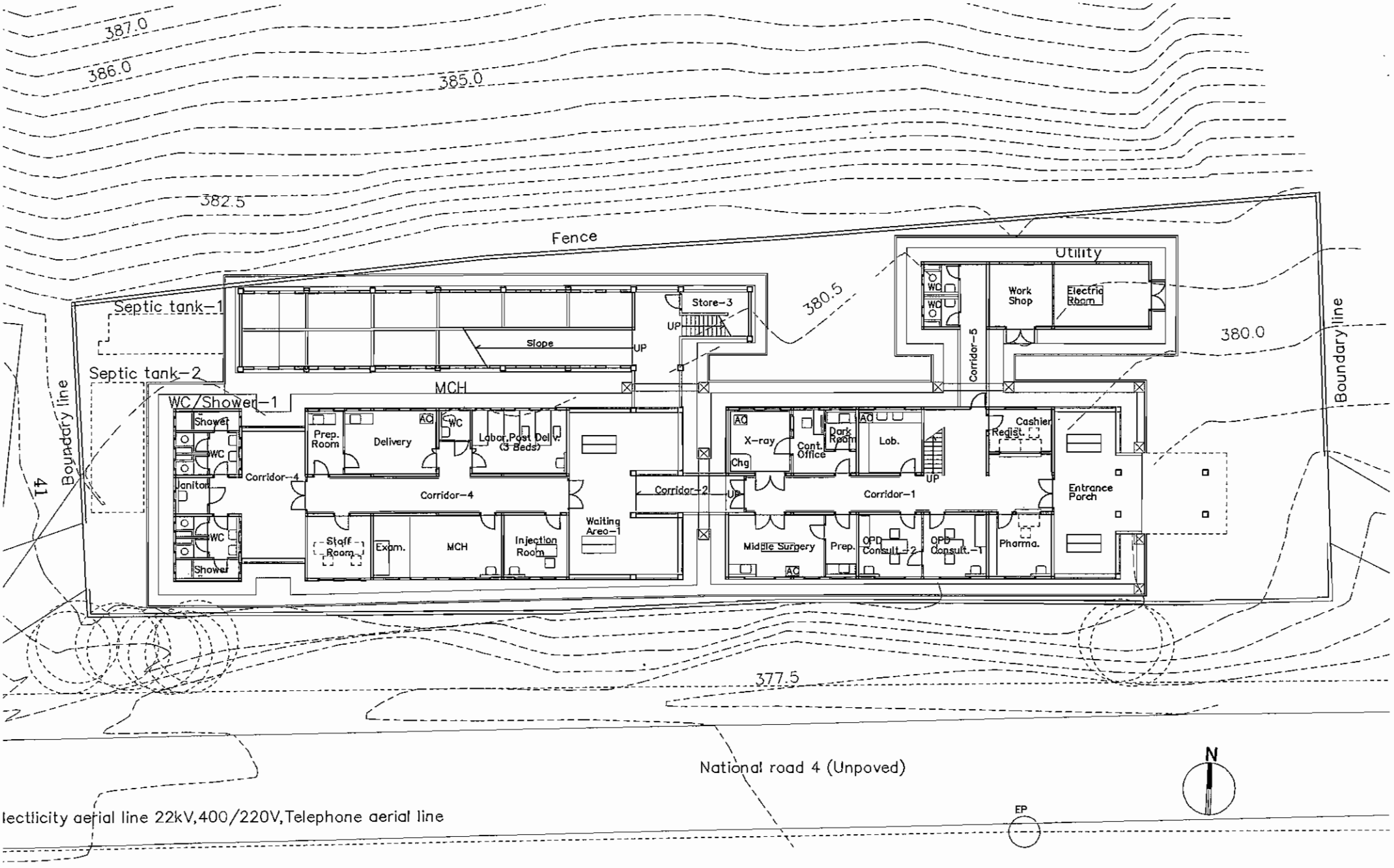


Ward Section

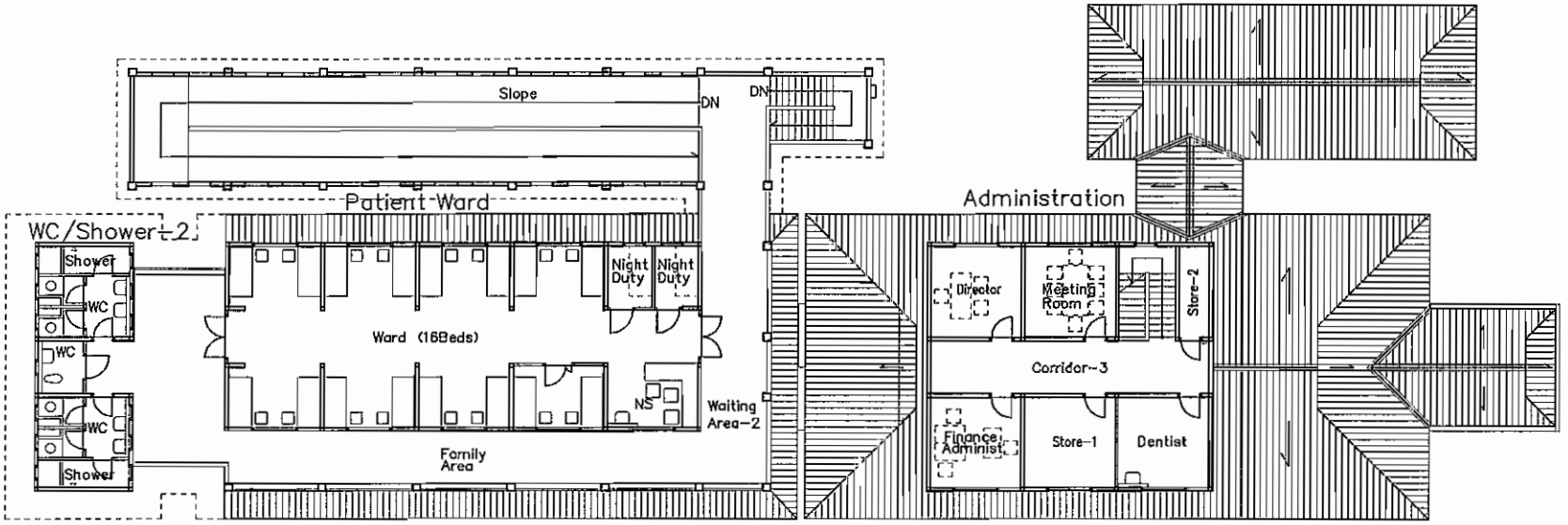
OPD Section

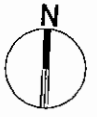


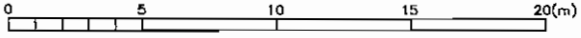
A TYPE ELEVATION:



KHOUA DH PLAN: GROUND FLOOR

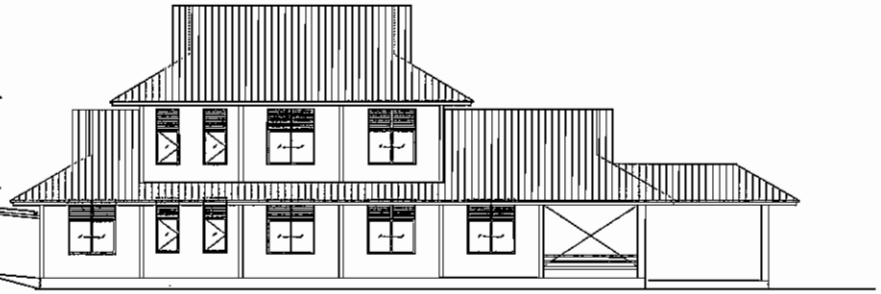




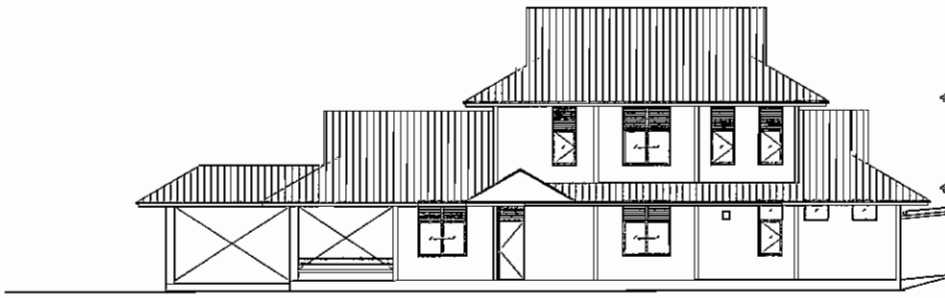


KHOUA DH PLAN: FIRST FLOOR

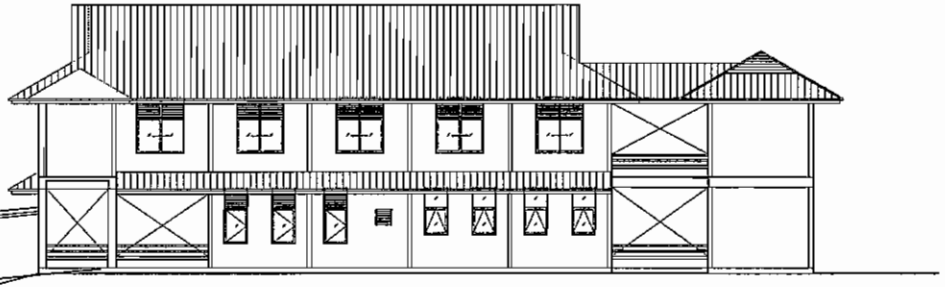
MCH & Ward South Elevation



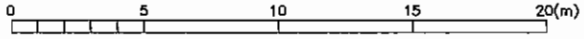
Admi. & OPD South Elevation



Admi. & OPD North Elevation

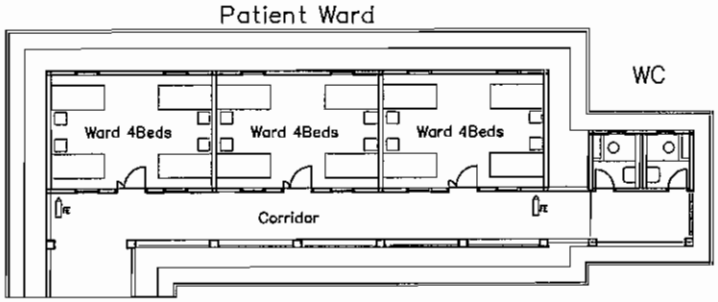


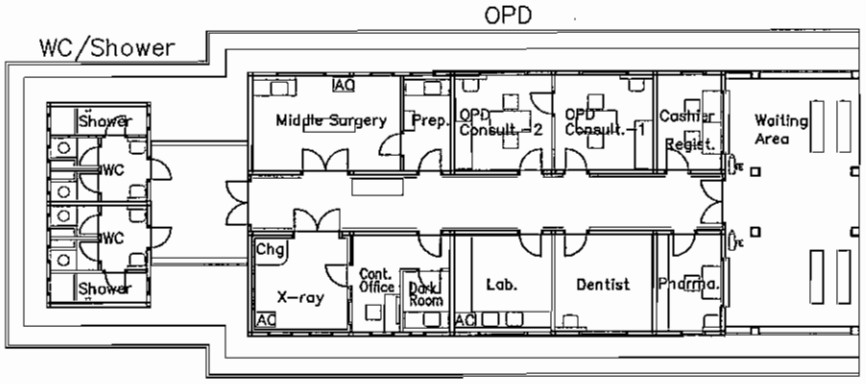
MCH & Ward North Elevation

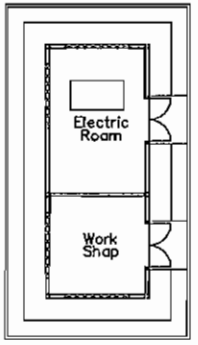


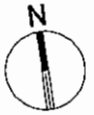
KHOUA DH ELEVATION:

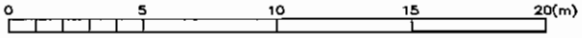
THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS IN LAO PDR



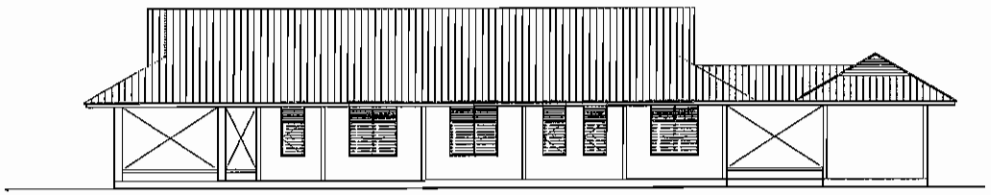




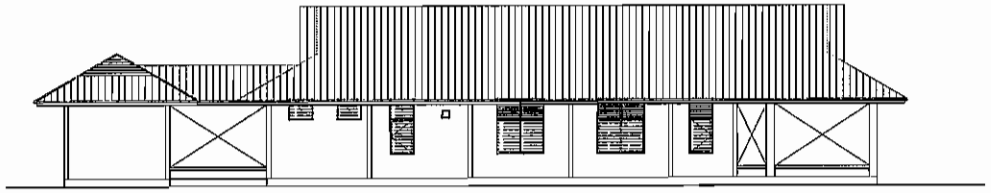




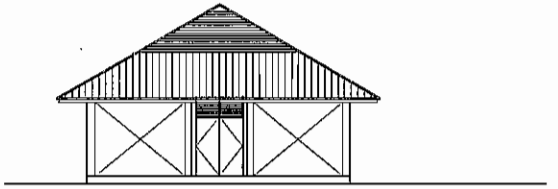
HOUN DISTRICT HOSPITAL FLOOR PLAN



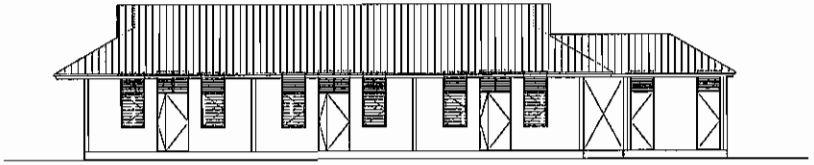
New OPD North Elevation



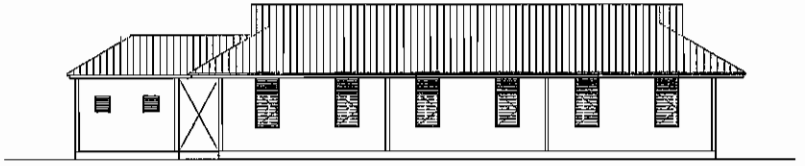
New OPD South Elevation



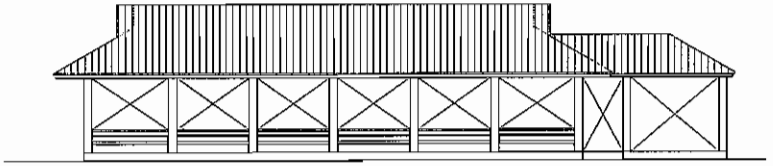
New OPD East Elevation



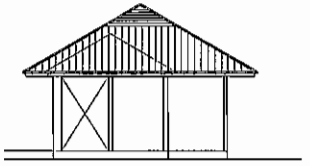
Ward South Elevation



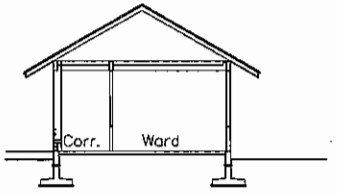
Ward North Elevation



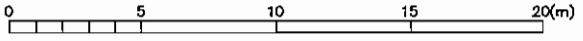
Ward South Elevation



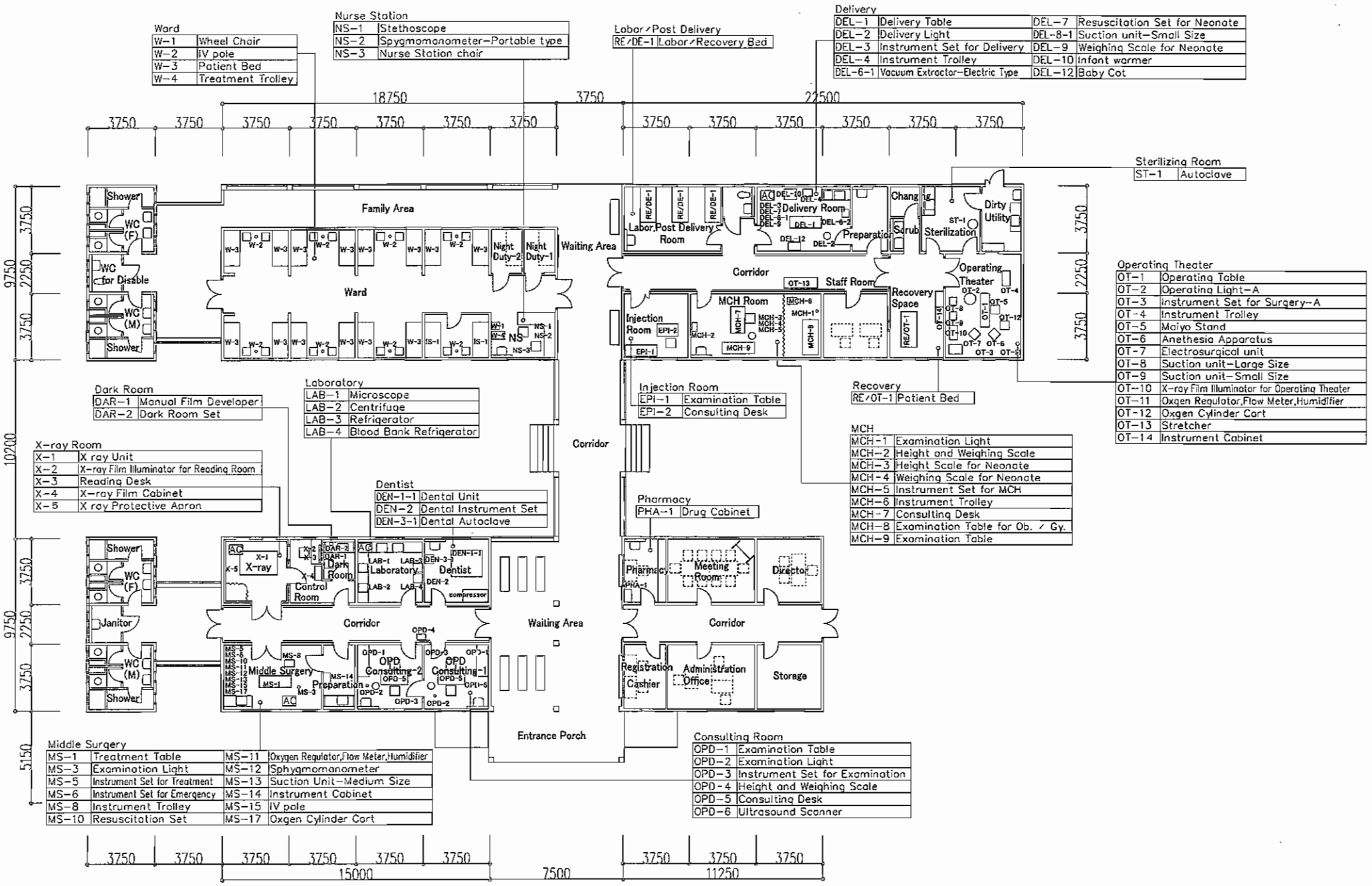
Ward East Elevation



Ward Section

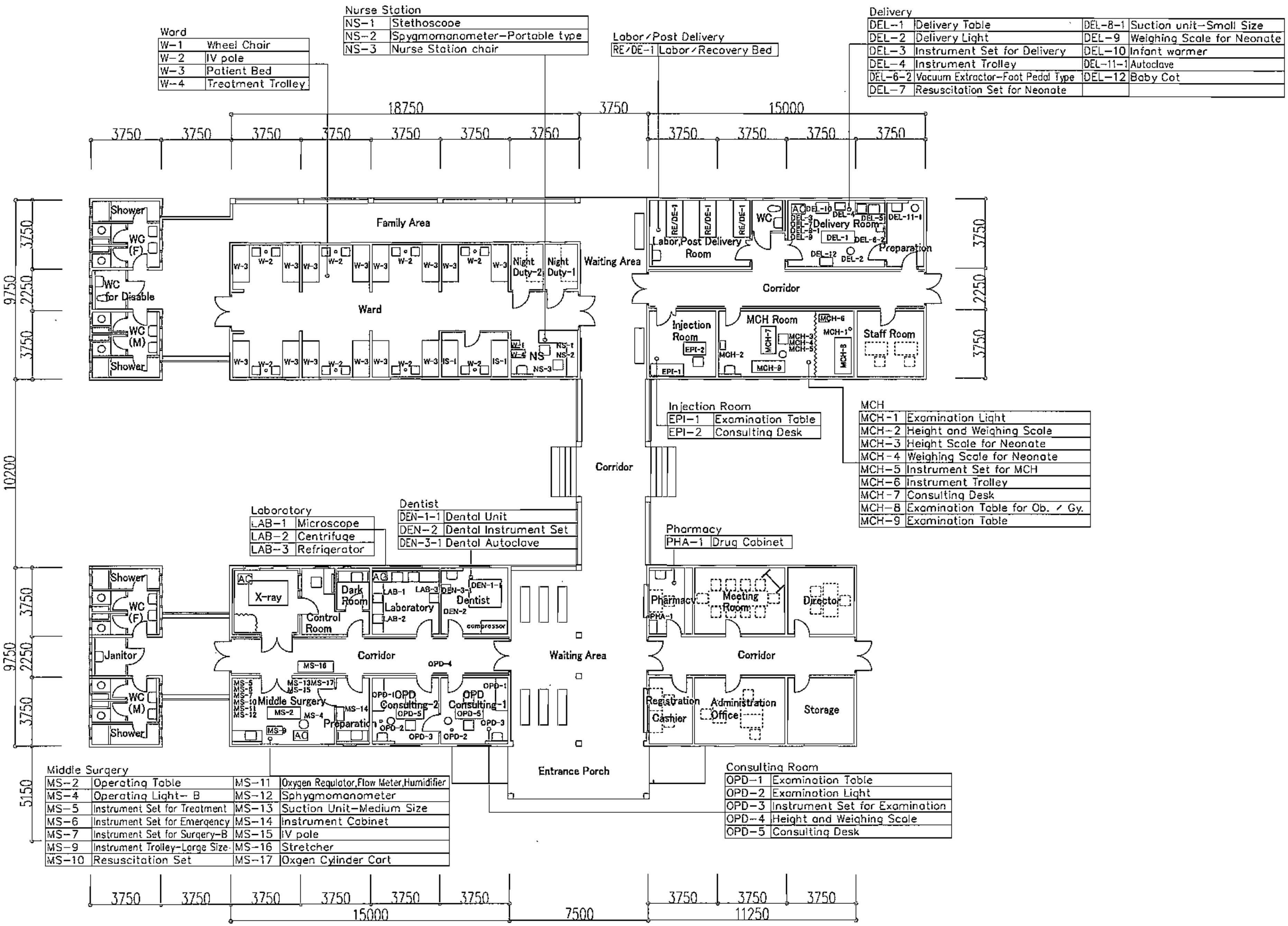


HOUN DISTRICT HOSPITAL ELEVATION



EQUIPMENT PLAN: A TYPE (OUTHOUMPHONE DH, CHAMPASAK DH)

THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS IN LAO PDR



EQUIPMENT PLAN: B TYPE (SING DH, KENTHAO DH)

Delivery

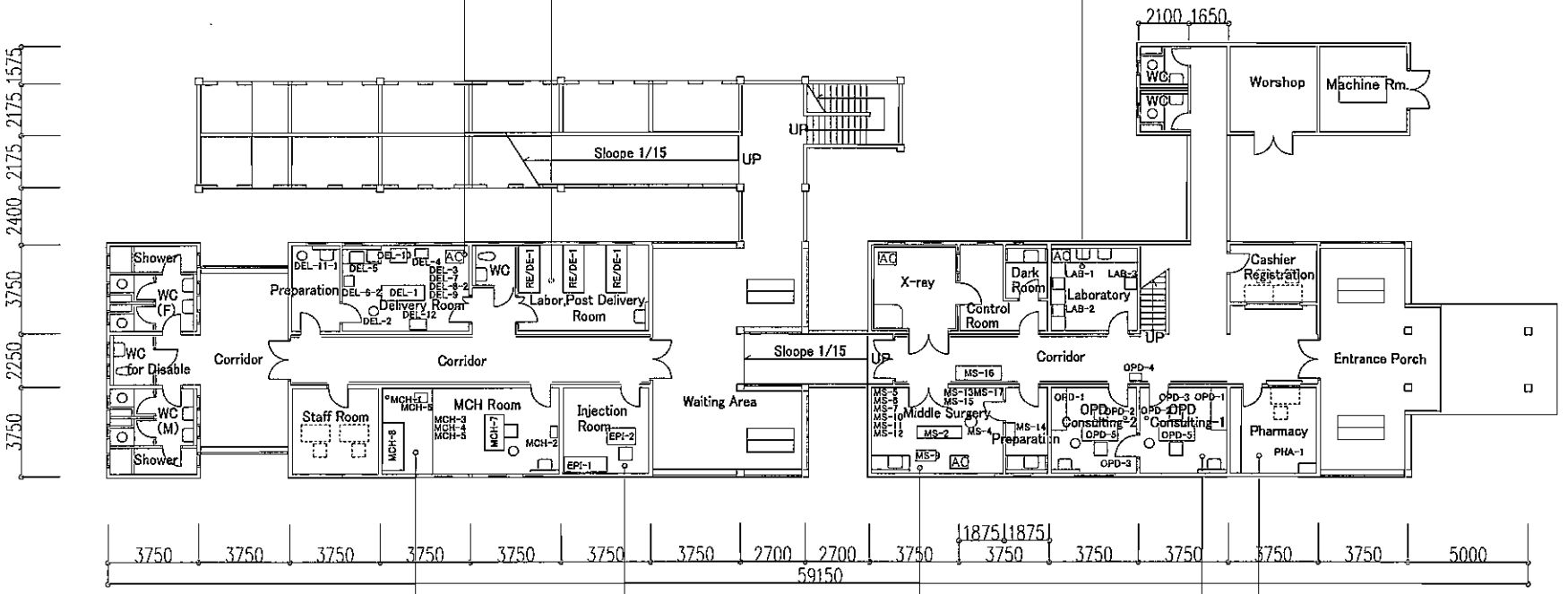
DEL-1	Delivery Table	DEL-7	Resuscitation Set for Neonate
DEL-2	Delivery Light	DEL-8-1	Suction Unit,Small-Size
DEL-3	Instrument Set for Delivery	DEL-10	Infant warmer
DEL-4	Instrument Trolley	DEL-11-1	Autoclave
DEL-6-2	Vacuum Extractor-Foot Pedal Type	DEL-12	Baby Cot

Labor / Post Delivery

RE/DE-1	Labor / Recovery Bed

Laboratory

LAB-1	Microscope
LAB-2	Centrifuge
LAB-3	Refrigerator



MCH

MCH-1	Examination Light
MCH-2	Height and Weighing Scale
MCH-3	Height Scale for Neonate
MCH-4	Weighing Scale for Neonate
MCH-5	Instrument Set for MCH
MCH-6	Instrument Trolley
MCH-7	Consulting Desk
MCH-8	Examination Table for Ob. / Gy.

Injection Room

EPI-1	Examination Table
EPI-2	Consulting Desk

Middle Surgery

MS-2	Operating Table	MS-11	Oxygen Regulator,Flow Meter,Humidifier
MS-4	Operating Light- B	MS-12	Sphygmomanometer
MS-5	Instrument Set for Treatment	MS-13	Suction Unit-Medium Size
MS-6	Instrument Set for Emergency	MS-14	Instrument Cabinet
MS-7	Instrument Set for Surgery-B	MS-15	IV pole
MS-9	Instrument Trolley-Large Size	MS-16	Stretcher
MS-10	Resuscitation Set	MS-17	Oxgen Cylinder Cart

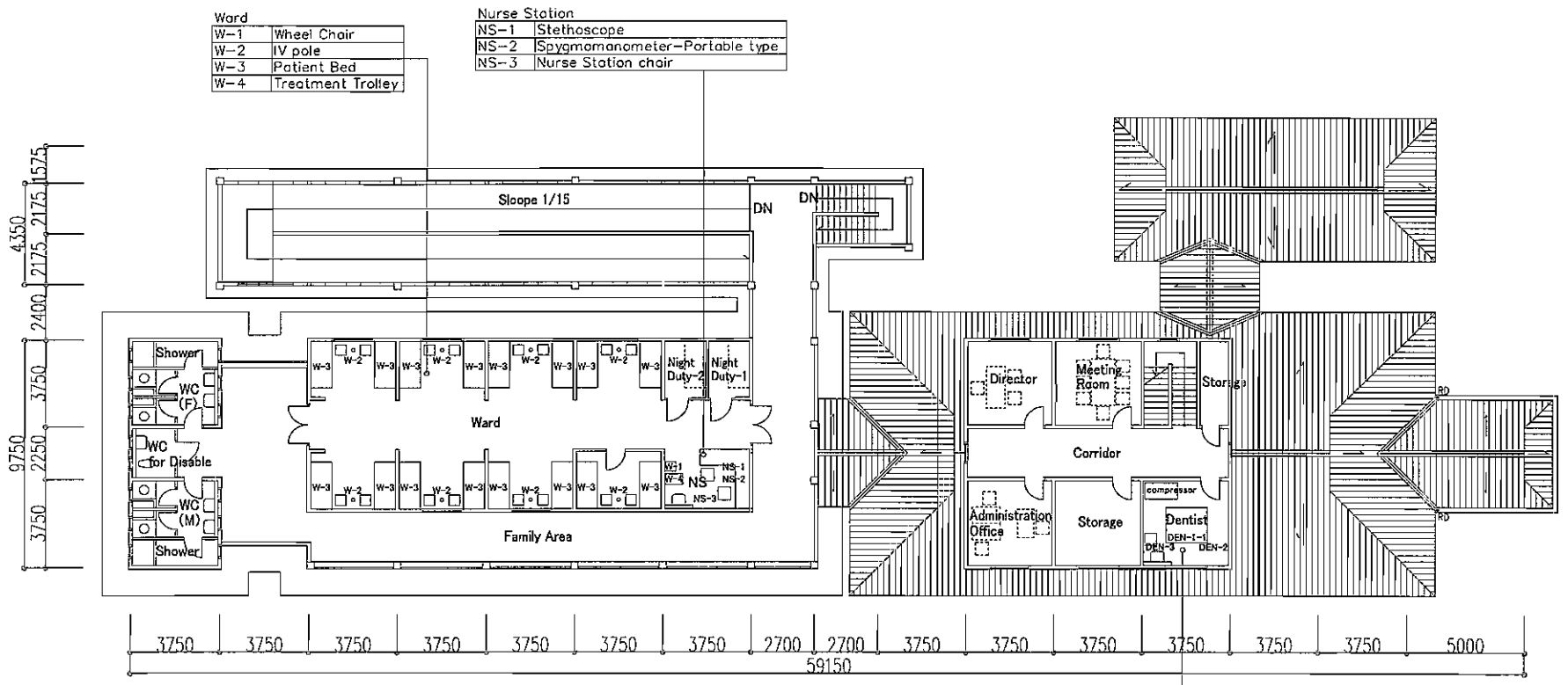
Consulting Room

OPD-1	Examination Table
OPD-2	Examination Light
OPD-3	Instrument Set for Examination
OPD-4	Height and Weighing Scale
OPD-5	Consulting Desk

Pharmacy

PHA-1	Drug Cabinet

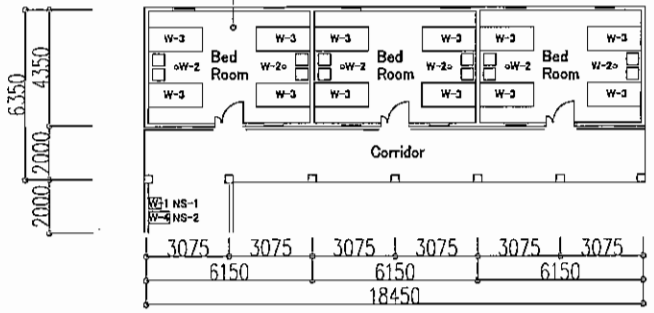
EQUIPMENT PLAN: KHOUA DH GROUND FLOOR



EQUIPMENT PLAN: KHOUA DH FIRST FLOOR

Ward

W-1	Wheel Chair
W-2	IV pole
W-3	Patient Bed
W-4	Treatment Trolley
NS-1	Stethoscope
NS-2	Spygmomanometer-Portable type

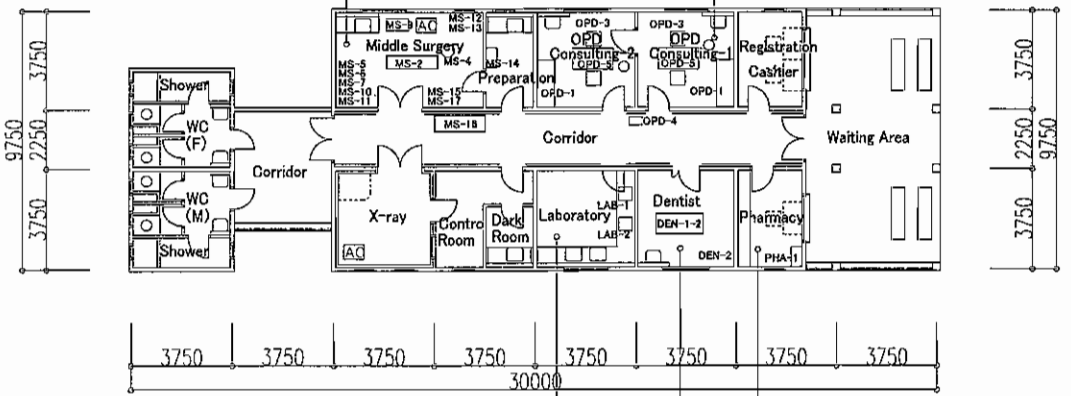


Middle Surgery

MS-2	Operating Table	MS-11	Oxygen Regulator,Flow Meter,Humidifier
MS-4	Operating Light- B	MS-12	Sphygmomanometer
MS-5	Instrument Set for Treatment	MS-13	Suction Unit-Medium Size
MS-6	Instrument Set for Emergency	MS-14	Instrument Cabinet
MS-7	Instrument Set for Surgery-B	MS-15	IV pole
MS-9	Instrument Trolley-Large Size	MS-16	Stretcher
MS-10	Resuscitation Set	MS-17	Oxgen Cylinder Cart

Consulting Room

OPD-1	Examination Table
OPD-2	Examination Light
OPD-3	Instrument Set for Examination
OPD-4	Height and Weighing Scale
OPD-5	Consulting Desk



Pharmacy

PHA-1	Drug Cabinet

Laboratory

LAB-1	Microscope
LAB-2	Centrifuge
LAB-3	Refrigerator

Dentist

DEN-1-1	Dental Unit
DEN-2	Dental Instrument Set
DEN-3-1	Dental Autoclave

Table 2-16 List of Planned Equipment

Name of Hospitals		1 Khoua		2 Sing		3 Houn		4 Kenthao		5 Sangtong	6 Pak Ngum	7 Outhoumphone	8 Songkhone		9 Khongsedone	10 Champasak		Total Amount			
Procurement Phase or Existing Equipment		1st	3rd	1st	3rd	1st	3rd	1st	2nd	1st	1st	1st	1st	2nd	1st	1st	2nd	1st	2nd	3rd	Total
OPD																					
Consulting Room																					
OPD-1	Examination Table	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	9	2	3	14
OPD-2	Examination Light	1	1	1	1	0	2	1	1	1	1	1	1	1	1	1	1	9	3	4	16
OPD-3	Instrument Set for Examination	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	3	3	16
OPD-4	Height and Weighing Scale	1	0	1	0	1	0	1	0	1	1	1	0	0	1	1	0	9	0	0	9
OPD-5	Consulting Desk	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	1	6	3	3	12
OPD-6	Ultrasound Scanner	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3	0	0	3
Pharmacy																					
PHA-1	Drug cabinet	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
Dentist																					
DEN-1-1	Dental Unit	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	1	4	3	3	10
DEN-2	Dental Instrument Set	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	1	4	3	3	10
DEN-3-1	Dental Autoclave	0	1	0	1	0	1	0	1	1	1	1	0	0	1	0	1	4	2	3	9
Laboratory																					
LAB-1	Microscope	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
LAB-2	Centrifuge	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
LAB-3	Refrigerator	0	1	1	0	0	1	1	0	1	1	1	1	0	1	1	0	8	0	2	10
LAB-4	Blood Bank Refrigerator	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1
X-ray Room																					
X-1	X-ray Unit	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	1	1	3	0	4
X-2	X-ray Film Illuminator for Reading Room	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	1	2	3	0	5
X-3	Reading Desk	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	1	2	3	0	5
X-4	X-ray Film Cabinet	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	1	2	3	0	5
X-5	X-ray Protective Apron	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	1	2	3	0	5
X-6	Mobile X-ray Unit	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1
X-7	X-ray Protective Door	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2
Dark Room																					
DAR-1	Manual Film Developer	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	1	2	3	0	5
DAR-2	Dark Room Set	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	1	2	3	0	5
Middle Surgery																					
MS-1	Treatment Table	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
MS-2	Operating Table	1	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	6	0	0	6
MS-3	Examination Light	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	3	0	0	3
MS-4	Operating Light- B	1	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	5	0	0	5
MS-5	Instrument Set for Surgery C	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
MS-6	Instrument Set for Emergency	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	3	0	0	3
MS-7	Instrument Set for Surgery-B	1	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	6	0	0	6
MS-8	Instrument Trolley	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
MS-9	Instrument Trolley-Large Size	1	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	6	0	0	6
MS-10	Resuscitation Set	1	0	1	0	1	0	1	0	1	1	1	1	0	0	1	0	9	0	0	9
MS-11	Oxygen Regulator,Flow Meter,Humidifier	1	0	1	0	1	0	1	0	1	1	1	1	0	0	1	0	9	0	0	9
MS-12	Sphygmomanometer	1	0	1	0	1	0	1	0	1	1	1	1	0	0	1	0	9	0	0	9
MS-13	Suction Unit-Medium Size	1	0	1	0	1	0	1	0	1	1	1	1	0	0	1	0	9	0	0	9
MS-14	Instrument Cabinet	1	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	6	0	0	6
MS-15	IV pole	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
MS-16	Stretcher	1	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	6	0	0	6
MS-17	Oxgen Cylinder Cart	1	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	6	0	0	6
Patient Ward																					
Ward																					
W-1	Wheel Chair	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
W-2	IV pole	8	0	8	0	6	0	8	0	5	8	5	8	0	15	8	0	79	0	0	79
W-3	Patient Bed	0	16	0	16	0	12	0	16	0	0	10	16	0	0	16	0	42	16	44	102
W-4	Treatment Trolley	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
W-5	Bedside Cabinet	0	16	0	16	0	12	0	16	0	0	10	16	0	0	16	0	42	16	44	102
Nurse Station																					
NS-1	Stethoscope	0	1	0	1	0	1	0	1	0	0	0	0	1	1	0	1	1	3	3	7
NS-2	Sphygmomanometer-Portable type	0	1	0	1	0	1	0	1	0	0	0	0	1	1	0	1	1	3	3	7
NS-3	Nurse Station Chair	0	2	0	2	0	2	0	2	0	0	0	0	2	0	0	2	0	6	6	12
Maternity																					
MCH																					
MCH-1	Examination Light	1	0	1	0	1	0	1	0	1	1	0	0	0	1	1	0	8	0	0	8
MCH-2	Height and Weighing Scale	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
MCH-3	Height Scale for Neonate	1	0	1	0	1	0	1	0	1	1	1	0	0	1	1	0	9	0	0	9
MCH-4	Weighing Scale for Neonate	1	0	0	0	1	0	1	0	0	1	1	0	0	1	1	0	7	0	0	7
MCH-5	Instrument Set for MCH	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
MCH-6	Instrument Trolley	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
MCH-7	Consulting Desk	0	1	1	0	1	0	0	1	0	0	0	1	0	0	1	0	4	1	1	6
MCH-8	Examination Table, Gynecology	1	0	1	0	1	0	1	0	1	1	0	1	0	1	1	0	9	0	0	9
MCH-9	Examination Table	1	0	1	0	1	0	1	0	1	1	0	1	0	1	1	0	9	0	0	9
Delivery																					
DEL-1	Delivery Table	1	0	1	0	1	0	1	0	1	1	0	1	0	1	0	0	8	0	0	8
DEL-2	Delivery Light	1	0	1	0	1	0	1	0	1	1	0	1	0	1	1	0	9	0	0	9
DEL-3	Instrument Set for Delivery	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
DEL-4	Instrument Trolley	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
DEL-6-1	Vacuum Extractor-Electric Type	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1
DEL-6-2	Vacuum Extractor-Foot Pedal Type	1	0	1	0	1	0	1	0	1	1	1	0	0	1	1	0	9	0	0	9
DEL-7	Resuscitation Set for Neonate	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
DEL-8-1	Suction unit-Small Size	0	1	1	0	0	1	1	0	1	1	1	1	0	1	1	0	8	0	2	10
DEL-9	Weighing Scale for Neonate	0	0	0	0	0	0	1	0	1	0	1	1	0	1	1	0	6	0	0	6
DEL-10	Infant Warmer	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	0	10	0	0	10
DEL-11-1	Autoclave	1	0	1	0	0	1	1	0	1	1	0	0	0	0	0	0	5	0	1	6
DEL-12	Baby Cot	1	0	1	0	1	0	0	0	1	1	1	1	0	1	1	0	9	0	0	9

Name of Hospitals		1 Khoua		2 Sing		3 Houn		4 Kenthao		5 Sangtong	6 Pak Ngum	7 Outhoumphone	8 Songkhone		9 Khongsedone	10 Champasak		Total Amount			
Procurement Phase or Existing Equipment		**1st**	**3rd**	**1st**	**3rd**	**1st**	**3rd**	**1st**	**2nd**	**1st**	**1st**	**1st**	**1st**	**2nd**	**1st**	**1st**	**2nd**	**1st**	**2nd**	**3rd**	**Total**
Labor/Post Delivery																					
RE/DE-1	Labor/Recovery Bed	0	3	3	0	0	3	3	0	3	3	3	3	0	3	3	0	24	0	6	30
Injection Room																					
EPI-1	Examination Table	1	0	1	0	0	1	0	1	1	1	1	1	0	1	1	0	8	1	1	10
EPI-2	Consulting Desk	1	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0	4	1	1	6
Operating Theater																					
Operating Theater																					
OT-1	Operating Table	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-2	Operating Light-A	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-3	Instrument Set for Surgery-A	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-4	Instrument Trolley	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-5	Maiyo Stand	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-6	Anesthesia Apparatus	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3	0	0	3
OT-7	Electrosurgical unit	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	2
OT-8	Suction unit-Large Size	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-9	Suction unit-Small Size	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-10	X-ray Film Illuminator for Operating Theater	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	1	3	2	0	5
OT-11	Oxgen Regulator,Flow Meter,Humidifier	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-12	Oxgen Cylinder Cart	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-13	Stretcher	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
OT-14	Instrument Cabinet	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
Recovery																					
RE/OT-1	Patient Bed	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
Sterilizing Room																					
ST-1	Autoclave	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	4	0	0	4
Emergency Room																					
ER-1	Emergency Bed	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-2	Emergency Light	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-3	Instrument Set for Emergency	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-4	Instrument Trolley	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-5	IV pole	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-6	Resuscitation Set	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-7	Oxygen Regulator,Flow Meter,Humidifier	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-8	Sphygmomanometer	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-9	Suction Unit-Medium Size	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
ER-10	Instrument Cabinet	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
Total		50	49	55	43	45	44	53	53	53	56	87	94	17	93	100	19	686	89	136	911

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy (Construction and Procurement)

The Project consists of (i) the construction of 6 DHs and (ii) the procurement and installation of equipment, and will be implemented in accordance with the framework of the grant aid scheme of the Government of Japan after the signing of the Exchange of Notes (E/N) by the Government of the Lao PDR following a cabinet approval by the Government of Japan.

After the signing of the E/N, the Government of the Lao PDR will conclude a consultant services agreement with a Japanese consultant to proceed to the detailed design stage of the facilities and equipment. After the completion of the detailed design drawings and tender documents, a Japanese contractor and a Japanese equipment supplier, both of which are selected by tender, will conduct the construction work and the equipment procurement / installation respectively.

The contracts with the consultant, contractor and equipment supplier will only become valid after their verification by the Government of Japan. A construction supervision organization will be established by the project implementation agency on the Lao PDR side, the consultant, the contractor and the equipment supplier under the control of the project related government organizations in Japan and the Lao PDR.

(1) Project Implementation Agency

The responsible organization for the implementation of the Project on the Lao PDR side will be the Ministry of Health (MOH) and the Department of Curative Medicine will be the project implementation agent will be responsible for the general coordination of the work.

(2) Consultant

After the signing of the E/N, the MOH will conclude a consultant services agreement for the detailed design and supervision with the Japanese Consultant in accordance with the set procedure of Japan's grant aid scheme and this contract must be verified by the Government of Japan. After verification of the agreement, the Consultant will prepare the detailed design drawings and tender documents in accordance with the present Basic Design Study Report and in consultation with the Department of Curative Medicine, MOH and will have them approved by the Government of the Lao PDR.

At the tender and construction stages, the Consultant will conduct the work to assist the tender and construction supervision based on these drawings and documents. The Consultant will also conduct supervisory service for the procurement and installation of the equipment from the equipment tender stage to the installation, test operation and handing over of the equipment.

1) Detailed Design

The detailed design means the decision on the details of the building plan and review of the equipment plan based on the findings of the present Basic Design Study and also the preparation of tender documents consisting of design drawings, specifications, general tender conditions and draft contracts for the construction work and equipment procurement/installation. It also includes estimates of the construction cost and equipment procurement / installation cost.

2) Assistance for Tender

This means that the Consultant witnesses the selection of the contractor and equipment supplier by the project implementation agency by means of tender and provides assistance for the administrative procedure required for the concluding of contracts, reporting to the Government of Japan and other necessary work to proceed with the Project.

3) Supervision

This means that the Consultant checks the compliance of the work by the contractor and the equipment supplier with the relevant contracts in order to verify the proper execution of the contracts. It also involves the provision of advice and guidance for the project-related bodies and the coordination of such bodies in a fair manner to facilitate the implementation of the Project. The types of work expected of the Consultant in this regard are listed below.

a) Checking and approval of the construction plan, work drawings, equipment specifications and other documents submitted by the contractor and the equipment supplier
b) Pre-shipment inspection and approval of the quality and performance of the construction materials and equipment to be delivered to the site
c) Confirmation of the delivery, installation and proper explanation of use of the building service equipment and other equipment
d) Assessment of and reporting on the work progress
e) Witnessing of the handing over of the completed building and installed equipment, etc.

In addition to the above types of work, the Consultant will report on the progress of the Project, payment procedure and handing over on completion, etc. to the project-related government organizations in Japan. The flow diagram of the project implementation is shown as Figure 2-8.

(3) Contractor and Equipment Supplier

The Contractor and the Equipment Supplier for the Project will be selected from among Japanese companies with certain qualifications through an open tender. In principle, the tenderer with the lowest tender price will be declared the successful tenderer and will conclude a construction (or equipment supply and installation) contract with the project implementation agency on the Lao PDR side. The Contractor and Equipment Supplier awarded the respective contract will conduct the construction of the facilities and the

procurement, transport and installation of the equipment in accordance with the respective contract. They will also provide technical guidance on the operation and maintenance of the building service systems and equipment.

After the handing over of such systems and equipment, they will provide support together with the equipment manufacturers and local agents so that the Hospital can receive a supply of spare parts and consumables for the major equipment and technical guidance at cost.

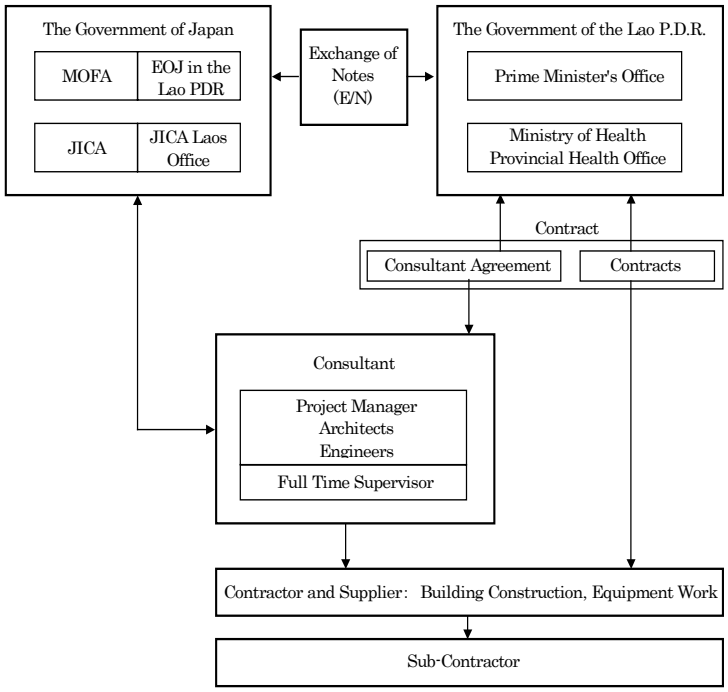


Figure 2-8 Construction Supervision Chart

(4) Preparation of Construction Plan

The project implementation agency on the Lao PDR side and the Consultant will discuss the construction plan during the detailed design period. It will be necessary for the scope of work for the Japanese side and the Lao PDR side to be clearly determined and the timing and method to conduct the work assigned to each side must be confirmed so that the work in question can be smoothly conducted in accordance with the implementation schedule specified in the Basic Design Study Report. For the Project, it will be necessary for the Lao PDR side to complete the banking work at the site prior to the commencement of the construction work.

2-2-4-2 Implementation Conditions

(1) Situation of Construction Industry

The situation of the construction industry in the Lao PDR is outlined below.

a) The technical capacity of local construction companies has not yet been fully developed.
b) Gravel, sand, some secondary concrete products (blocks and floor materials, etc.) and bricks are produced in the Lao PDR. Other construction materials are imported from Thailand and can be procured in the local market.
c) Based on the average work efficiency of joiners, plasterers, reinforcing bar workers and finishing workers, it is estimated that the required workforce is 2.5 – 3 times higher than that for a comparable project in Japan.
d) There are few skilled workers for joinery and finishing work, etc. and such work relies on skilled workers from Thailand.

Therefore, Japanese companies who become the prime contractor are required to employ top local engineers or employ engineers from a third country under the supervision of Japanese engineers which will check the progress of work, quality and safety control or provide guidance. Therefore, it may be necessary to hire workers from third countries.

(2) Important Issues with Regards to Construction Work

1) Building Permission and Certification

With respect to the buildings to be built in urban areas, an examination of detailed design drawings and structural calculation sheets must be submitted to the Department of Housing and Urban Planning (DHUP) of the Ministry of Communications, Transport, Posts and Construction (MCTPC). The sites to be included under the Project are located in rural areas and do not require urban planning. It is therefore unnecessary to obtain permission or certification.

2) Schedule Control

The rainy season in Laos lasts from May to September and 85% of the annual rainfall is concentrated during this season. In order to complete the Project as scheduled, construction work should be carried out in an efficient manner during the dry season. Therefore, the schedule should be monitored through periodic meetings with the implementing bodies on the Laos side, the Consultant and Contractor. In addition, a general schedule should be formulated to minimize the earth-related work, such as foundation work, during a rainy season.

3) Work Zones

To ensure efficiently of construction work at the 6 sites under the Project, implementation will be scheduled in the following 2 work zones for each phase of construction.

Phase-2 Work Zone :	Kenthao DH, Song Khong DH, Champasak DH (Base at Song Khone DH)
Phase-3 Work Zone:	Khoua DH, Sing DH, Houn DH (Base at Oudomsai Office)

4) Safety Control

At all Project sites except for Khoua DH and Champasak DH, reconstruction and expansion will be done within the existing hospital lots, and special consideration should be given toward safety for hospital patients. To control incoming and outgoing of construction vehicles and to ensure safe passageways, sufficient coordination should be taken among concerned parties involved in temporary work planning, implementing bodies on the Laos side, the Consultant and the Contractor.

Furthermore, since the 6 construction sites are scattered nationwide and travel distances are long, sufficient attention should be given to transportation control in order to prevent traffic accidents.

(3) Supervisory Engineers at Construction Companies

In order to complete the facilities corresponding to design documents within the construction period, the Contractor is required for the competency to smoothly operate joint operations with local subcontractors and to perform appropriate technical guidance and schedule control. In addition, in order to realize the better quality facilities after fully understanding functions as a hospital, supervisory engineers who are well-informed in local situations should be permanently stationed.

Based on the contents and the scale of the Project, types and the number of full-time supervisory engineers are described below.

・Site Manager:	(1 person) General supervision and architectural guidance, schedule control, quality control
・Architectural Engineer:	(1 person) Architectural guidance, schedule control, quality control
・Utility Engineer:	(1 person) Schedule control, installation and test run of equipment, technical guidance
・Administrator:	(1 person) Office work and labor management, import procedures

(4) Important Matters with Regards to Equipment Procurement

Equipment to be delivered to newly-constructed facilities should be delivered after the completion of the construction work without delay. In particular, since x-ray equipment is related to facility construction work, a schedule for transportation and installation, etc. should be minutely controlled through contact with the Contractor.

Some equipment will be also delivered to existing facilities at 10 DHs. Since some equipment requires a power supply or water supply and drainage, some modifications may become necessary to accommodate such equipment.
The scope of work for equipment to be procured is described below.

a) Import of the equipment, quantity tests, transportation to the sites
b) Installation and test run of equipment, quantity tests, explanation of equipment handling, implementation of technical guidance
c) Trouble shooting methods in the case of a defect after delivery and place for inquiries (contact)

2-2-4-3 Scope of Works

The Project will be implemented through the mutual cooperation of Japan and the Lao PDR. In the case of implementing the Project through the grant aid scheme provided by the Government of Japan, it is proper to decide the undertakings to be taken by both governments as follows.

Table 2-16 Demarcation and Scope of Works

Japanese Side Works	Lao Side Works
1) Building Works ・Construction（Admin Block, OPD Block, Patient Ward, MCH Block）	**1) Land Preparation** ・Removal of objected structure, trees and land reclamation. ・Removal of obstacle Electricity line / Water pine /Sewage. ・Secure Access Road
2) Electricity Works ・Power main system ・Lighting / Outlet system ・Emergency Electricity	**2) External Work** ・Construction of Boundary Fence/Gate ・Gardening and tree planting ・Others which are not included J-Side
3) Mechanical Works ・Water supply system （Reservoir and Elevated Water Tank） ・Sewage Treatment（Septic Tank and Soak away Pit） ・Hire Hydrant System（Manual Fire Alarm system、Fire Extinguisher） ・Air-Conditioning & Exhaust System	**3) Infrastructure Work** ・Electricity Supply from existing High Tension Line 22kv ・Water Supply Connection to stop valve at the boundary (Deep Well, if necessary). ・Sewage overflow and Drainage pine connection
4) External Works ・Crushed stone for rainwater drainage	**4) General Furniture（which not included in J-side）**
5) Equipment Work ・Procurement, Installation and Test of planned Equipment ・Explanation of handling and daily check	**5) Other Procedure** ・Issuance of various Permits from the Authorities of Lao PDR ・Connection arrangement for any infrastructure works ・Support to Customs Clearance & Tax exemption ・Procedure and fee for B/A、A/P arrangement
6) Soft Component ・Workshop for hospital maintenance	**6) Budget for Operation and Maintenance**

2-2-4-4 Consultant Supervision

(1) Construction Supervision

In accordance with the grant aid scheme implemented by the Government of Japan, the Consultant will implement smooth operations by organizing a project team, which will be consistently involved in the detailed design operations. The basic principles for construction supervision under the Project are described below.

a) To aim at completing facility construction and equipment improvement without delay by having a close contact with the related bodies and responsible persons in both countries
b) To provide prompt and appropriate guidance and advice from a fair point of view for the Contractor, the Equipment Suppliers and parties concerned
c) To provide appropriate guidance and advice on operation and maintenance after the installation and handing-over of facilities and equipment, to witness the handing over of the facilities and equipment by confirming that the contract conditions have been satisfied after the completion of the construction work and the installation of the equipment, to complete the operations by obtaining approval of receipt on the Laos side.

1) Cooperation on Tendering and Contract

The Consultant will prepare the tender documents necessary for deciding the Contractor of construction and equipment work and carry out tender operations such as the invitation to bid, acceptance of applications for tender participation, examination of qualification, holding of tender explanation meetings, distribution of tender documents, acceptance of bidding documents and evaluation of the bidding results.
In addition, the Consultant will provide advice and cooperation on the conclusion of a construction agreement between the successful bidders and the project implementation agency on the Laos side.

2) Guidance, Advice and Coordination for the Contractor

The Consultant will provide guidance, advice and coordination to the Contractor by examining execution process, construction plan, construction materials and equipment procurement plan, medical equipment procurement and installation plan.

3) Inspection and approval of various Drawings

The Consultant will inspect shop drawings, equipment fabrication drawings and documents submitted by the Contractor and give approval after providing necessary instructions.

4) Confirmation and approval of Materials / Equipment, Medical Equipment

The Consultant will confirm the conformity of the construction materials and equipment and medical equipment to be procured by the Contractor with the construction agreement documents and will give approval to adopt them.

5) Factory Inspections

As the occasion arises, the Consultant will implement inspections on quality and performance by witnessing inspections and tests at manufacturing factories of construction materials and medical equipment.

6) Report on Work Progress

The Consultant will report on the progress of construction work to the project-related organizations in both countries by grasping the work schedule and on-site conditions.

7) Completion Test and Test Run

The Consultant will confirm the security of performance described in the construction agreement documents by conducting a completion test and test runs of medical equipment and will submit a report on testing to the Laos side.

(2) Work Supervision Plan

Since the Project sites will be scattered throughout 6 hospital sites in Laos, one full-time supervisor (Resident Architect) and one local supervisory engineer will be posted. Local supervisory engineer will take in charge of the three areas, where the Japanese full-time supervisor will undertake a general control work schedule in order for the quality not to vary widely.

In addition, in line with the work progress, the following engineers will be dispatched in a timely fashion.

- Project Manager:	General coordination, guidance on schedule control
- Architect:	Confirmation of design intention, work drawings and material specifications
- Structural engineer:	Confirmation of soil bearing capacity, foundation work, frame work and steel frame work
- Mechanical engineer:	Pipe systems, air conditioning systems, etc.
- Electrical engineer:	Cable and wiring systems, distribution unit substations and Generator system etc.
- Equipment supervisor:	Guidance on equipment installation, coordination with equipment work, confirmation of explanation of equipment handling, etc.

2-2-4-5 Quality Control Plan

(1) Concrete Quality Control

In Laos the climate is generally hot and humid and the sunshine is strong. The rainy season lasts from May to September. In the case of construction work during this season, adequate quality control is required. According to past local meteorological data, temperatures may reach 35C degree or higher between March and April. Assuming that concrete temperature exceeds 30C degree, hot weather concrete should be considered.

(2) Quality Control of Other Work

A quality control planning on major work items are described as follows.

Table 2-17 Quality Control

Work	Work Type	Control Item	Method
Structural Work	Concrete work	Fresh concrete	Slump, air volume, temperature
		Concrete strength	Comprehensive strength test
	Reinforcing work	Reinforcing bar	Tensile test, mill sheet check
		Arrangement	Bar arrangement check
	Steel structure work	structural steel	mill sheet, delivery note check
			Fabricator inspection report check
	Pile work	Material, bearing capacity	Factory inspection sheet check,
			Bearing capacity check
Finishing Work	Roof work	Workmanship, leakage	Visual inspection, water spray or filling test
	Tile work	Workmanship	Visual inspection
	Plastering work	Workmanship	Factory inspection sheet check
	Door & window work	Products	Visual inspection, dimension check
		Installation accuracy	Visual inspection
	Painting work	Workmanship	Visual inspection
	Interior work	Products, workmanship	
Electrical Work	Power Receiving & Transforming	Performance, operation installation check	Factory inspection sheet check; withstand voltage, mega, operation, Visual inspection
			Visual inspection, dimension
	Conduit Work	Bending, support check	Performance sheet check, cleaning before laying, marking after bolt fixing
	Wiring and cable Work	Sheath damage, loose connection check	Resistance measuring, visual inspection, dimension
			Performance sheet check, illumination measurement, visual inspection
	Lightning Work	Resistance, conductor support pitch check	
		Performance, operation, installation check	
	Lighting Work	Switching and flicker check	
Mechanical Work	Water Piping Work	Support pitch, leakage	Visual inspection, leakage, water pressure test
			Visual inspection, leakage, water flow test
	Drainage Piping	Slope, support pitch, leakage	Performance sheet check, flow rate test
		Performance, operation, installation check	Performance sheet check, temperature measurement
	Pump Installation	Performance, operation, installation check	Water filling test
		Leakage	Visual inspection, flow test
	Air-Con. Work	Operation, installation, leakage check	
	Water Tank Sanitary Fixture		

2-2-4-6 Procurement Plan

(1) Construction Materials

1) Building Frame Work

Construction materials such as gravel, sand, cement and veneers for mould including products imported from Thailand are available locally. Reinforcing bars and steel frames will be imported from Thailand due to limited quantities and types on the local market.

2) Architectural Finishing Materials

Since the majority of architectural finishing materials such as lumber, tiles, roofing tiles, painting and glass are imported from Thailand and available on the market, they can be locally procured. However, if there is a shortage of supply through local procurement, they will be imported from Thailand. Aluminum fittings and metal roof members, etc. will be imported from Thailand due to the limited quantity and types available locally.

Table 2-18 Material Procurement List

Materials	Procurement Country			Notes
	Laos	Japan	3rd Country	
[Building Materials]				
Aggregate (Sand)	○			
Aggregate (Stone)	○			
Cement (Structure)	○			
Cement (Mortar)	○			
Steel bar	○			
Steel			○	Thailand
Form (ordinary Form)			○	Thailand
Concrete Block	○			
Metal Windows & Doors			○	Thailand
Wooden Doors	○			
Glasses			○	Thailand
Ironmongery			○	Thailand
Roof Tile			○	Thailand
Tile for Wall & Floor			○	Thailand
Paint			○	Thailand
[Mechanical/Electrical Materials, etc				
Piping / Sockets			○	Thailand
Sanitary ware			○	Thailand
SUS Water tank			○	Thailand
Pump			○	Thailand
Air conditioner			○	Thailand
Cable / Wire / Boxes			○	Thailand
Consent / Switch / Lighting Fixture			○	Thailand
Ceiling Fan / Exhaust Fan			○	Thailand
Furniture			○	Thailand
[Construction Machines]	○			
Ratio (%)	28.9%	0.0%	71.1%	

3) Mechanical Equipment Work

Air conditioning, ventilating fans, pumps, various appliances and sanitary fixtures manufactured in Thailand and China are common on the local market. However, due to the limited quantity and types available on the local market they will be imported from Thailand where the maintenance system and quality are relatively stable.

4) Electrical Equipment Work

Lighting apparatus, switches, lamps, electric wires, cables, piping materials, transformers and generators, etc. manufactured in Thailand and China are common on the local market. However, if quantity is insufficient, products similar to those sold on the local market and which can be replaced in the future will be imported.

Locally available tailor-made products such as switchboards and distribution boards will be imported from Thailand where the maintenance system and quality is relatively stable.

Major construction materials and equipment to be procured including the reasons for selection are classified by local procurement, procurement form a third country and procurement from Japan.

(2) Medical Equipment

According to the procurement of medical equipment, the simple equipment will be procured in local Agents and other equipment will be imported from Thailand and Japan. Transportation of equipment shall be by trailer from Bangkok to Vientiane at once because of several origin of manufacturing. Then sets of equipment shall be separated and delivered to 10 DHs by trucks for the final destinations.

Table 2-19 Procurement Plan of Medical Equipment

[Equipment]	Procurement Countries			Remarks
	Laos	Japan	3 rd Countries	
Instrument Set for Examination, Instrument Set for MCH		○		
Instrument Set for Delivery, Instrument Set for Surgery		○		
Instrument Set for Emergency		○		
Autoclave		○		
Infant Warmer		○		
Resuscitation Set, Suction Unit, Vacuum Extractor		○		
Microscope, Centrifuge		○		
Dental Instrument Set, Examination Light		○		
Ultrasound Scanner		○		
Anesthesia Apparatus, Electrosurgical Unit		○		
Mobile X-ray Unit, X-ray Protective Door		○		
Blood Bank Refrigerator		○		
Stethoscope, Sphygmomanometer	○			
Height Scale, Weighing Scale (Neonate)	○			
Operating Table, Oxygen Regulator, Flow Meter, Humidifier	○			
Refrigerator	○			
Operating Light, Consulting Desk, Reading Desk	○			
X-ray Film Cabinet	○			
Height and Weighing Scale			○	Thailand
Stretcher, Wheel Chair			○	Thailand
Instrument Trolley, Treatment Trolley			○	Thailand
Maiyo Stand, Instrument Cabinet, Examination Table			○	Thailand
Patient Bed, Baby Cot			○	Thailand
Bedside Cabinet, IV Pole			○	Thailand
Labor/Recovery Bed			○	Thailand
Delivery Table, Examination Table (Gynecology)			○	Thailand
Dental Unit, Dental Chair			○	Thailand
X-ray Unit			○	Switzerland
X-ray Protective Apron, Manual Film Developer			○	Thailand
Dark Room Set, X-ray Film Illuminator			○	Thailand
Percentage (%)	9.7%	50.3%	40.0%	

(3) Transportation Plan

1) Imported Construction Materials and Equipment

The principal disembarkation port for the Project is the Port of Bangkok in Thailand. Trailer will take the transportation from Port of Bangkok to Laos overland. Following customs clearance at the national borders between Nong Khai and Vientiane, between Chongmek and Pakxe, and between Thanaleng and Kenthao, they will be transported to the sites through the base offices. Tax exemption procedures will be taken by the Laos side in advance.

There are no hindrances to transportation on roads in Thailand throughout the year. In addition, Thai importers who transport cargo to Laos are limited to licensed traders. The construction materials and equipment to be procured from Thailand (mainly around Bangkok) are also treated in a similar manner.

2) Inland Transportation

Most of products to be domestically procured in Vientiane or in Pakse in the south will be transported to the sites by utilizing trunk roads. Trunk roads including Route 13 have been adequately improved so that there are no hindrances to transportation throughout the year. At the Kenthao DH, since inland transportation is difficult, imported procurement from Thailand or transportation via Thailand from Vientiane will be mainly examined.

The distance of each site to trunk roads and important points are described as follows.

Table 2-20 Distance and Time to the Construction Sites

Origin	Oudomsay Base-Office		Vientiane	
	Distance (km)	Time (hour)	Distance (km)	Time (hour)
Khoua DH site	106km	2:00	674km	12:00
Sing DH site	247km	4:00	815km	14:00
Houn DH site	107km	2:00	675km	12:00
Oudomsay Base Office	—	—	568 k m	10:00

Origin	Vientiane (via Lao)		Vientiane (via Thailand)	
	Distance (km)	Time (hour)	Distance (km)	Time (hour)
Kenthao DH site	736 k m	12:00	269km	4:30

Origin	Song Khon Base Office		Vientiane	
	Distance (km)	Time (hour)	Distance (km)	Time (hour)
SongKhon DH site	0	0	540 k m	7:00
Champasak DH site	230km	4:30	770 k m	11:30

2-2-4-7 Implementation Schedule

In the case of the Project's implementation with grant aid scheme provided by the Government of Japan, the following processes will be followed up to the commencement of the construction work.

a) Signing of the E/N by the Government of Japan and the Government of the Lao PDR
b) Recommendation of a Japanese consultant by JICA
c) Signing of the consultant services agreement between the MOH and the recommended consultant
d) Preparation of the detailed design documents and tender documents, tender in Japan and signing of the construction and equipment contracts with Japanese companies, leading to the commencement of the construction work.

(1) Detailed Design

The detailed design drawings and tender documents will be prepared based on the basic design by the Consultant. These will consist of the detailed design drawings, specifications, calculation sheets, budget statement and tender outline, etc. The Consultant will conduct detailed consultations with the project-related organizations of the Government of the Lao PDR at the beginning and end of the detailed design. The detailed design work of the Consultant will be completed when the final products submitted to the Government of the Lao PDR are approved.

(2) Tender and Contract

Following the completion of the detailed design, the prequalification for tender will be announced in Japan. Based on the prequalification results, the MOH will invite construction companies and equipment suppliers which have expressed a willingness to participate in the tender. The tender will then be held and will be witnessed by the related parties. The tenderer with the lowest tender price will be declared the successful tenderer provided that the contents of tender are judged to be appropriate. The successful tenderer will conclude a construction contract or an equipment supply contract with the MOH.

It takes 5.5 month from the Contract of Consultant to the Construction and procurement contracts.

(3) Construction Work and Equipment Procurement

Following the signing of the contract, the Contractor and the Equipment Supplier will commence their respective work. Considering from the size of the planned facilities and the local situation of construction workers, it is judged that the Project will take some 10.5 months for single story hospital to complete and 11.5 month for double story hospital.

The completion of the Project in this period assumes the steady procurement of the equipment and materials, the quick clearance of the various procedures and reviews, etc. by related organizations in the Lao PDR and the smooth implementation of the work to be undertaken by the Lao PDR side.

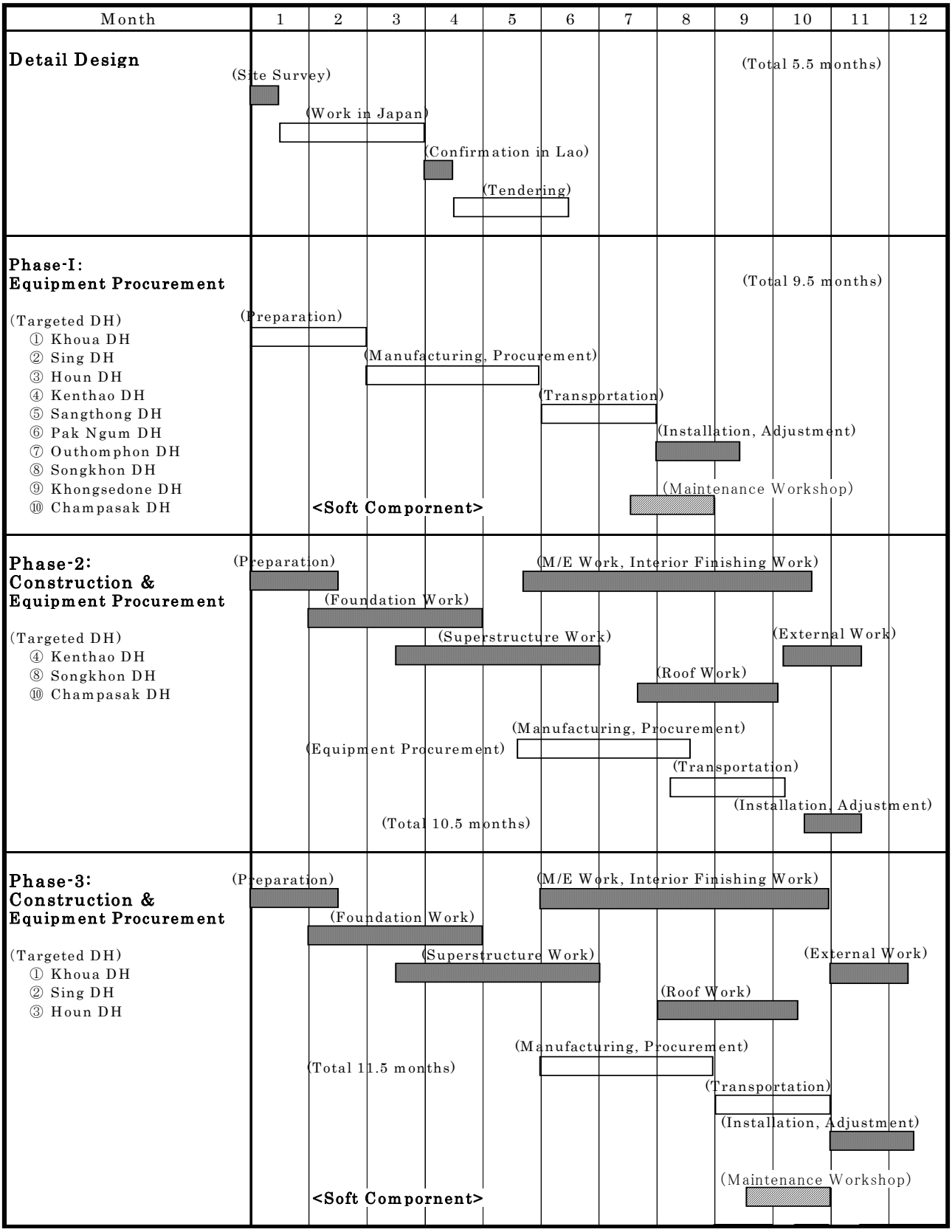


Figure 2-9 Implementation Schedule

2-3 Obligations of Recipient Country

In the case of implementing the Project in accordance with the grant aid scheme of the Government of Japan, items to be borne by the Government of Lao PDR are described below.

(1) Procedures to be taken by the Recipient Country

1) Tax Exemption

- To secure prompt tax exemption pertaining to equipment and materials to be purchased for the Project in accordance with the grant aid scheme, customs clearance and domestic transportation.
- To exempt customs duties, internal taxes and other fiscal levies to be imposed on Japanese nationals concerned in the project implementation in Laos in accordance with the verified contract.

2) Conveniences

- To provide necessary conveniences for Japanese nationals involved in the Project to enter into, depart from and stay in Laos in accordance with a verified contract.

3) Acquisition of Permits and Approvals

- Since the MOH will be required to carry out an examination during the basic design stage of the Project.
- To acquire any certification from each local government during the detailed design stage if necessary.
- To take procedures for approval of matters necessary for other permits.

4) Banking Arrangement (B/A) and Issuance of Authorization to Pay (A/P)

- To take procedures for banking arrangements (B/A) pertaining to contract-related payments and to issue authorizations to pay (P/A).

(2) Undertakings to be borne by the Recipient Country

Undertakings to be taken by the Lao side in the implementation of the Project are described below.

1) Before the Implementation of the Project

- To transfer or remove existing buildings, structures, utility piping and trees, etc. which may become a hindrance prior to the commencement of construction work.
- To secure buildings at temporary transfer places, if necessary.
- To level ground at scheduled construction sites.
- To secure land for temporary construction and storage buildings for equipment and materials, etc.

2) During the Implementation of the Project

- To connect high-tension electricity and water supplies up to the site, if necessary.

- To conduct landscaping and planting within the lot, if necessary.
- To purchase office furniture and curtains, etc. within the facilities and to conduct installation work, if necessary.
- To issue permits necessary for the implementation of the Project without delay.

3) After the Implementation of the Project

- To secure budget and personnel necessary for appropriate and efficient operation and maintenance of facilities and equipment to be provided under the grant aid scheme.
- To secure the budget necessary for facility and equipment maintenance and to procure consumables and spare parts.
- To promptly remove abandoned facilities or those difficult to utilize continuously after the completion of construction of new buildings.

(3) Necessary works by sites

Covering 10 DH by this project, there are several works borne by the Lao side as follows.

Table 2-21 Necessary Works Borne by Lao Side (us$)

Items	Contents	Time of works to be done	
		Before Commencement	Before Complete
1.Khoua DH	Sub-total	6,500	1,480
・Shift of existing Storage	Steel STG（300 ㎡） × 2units	3,700	
・Shift of public Generator	Apx. 300kVA	2,800	
・Receiving of High-tension Electricity	Apx.15m、(supply in 2007)		1,200
・Connection of City Water	Apx.10m		280
2.Sing DH	Sub-total	1,800	2,780
・Shift of existing Facility	Wooden （120 ㎡）×2units	1,800	
・Receiving of High-tension Electricity	Apx.35m		2,500
・Connection of City Water	Apx.15m、(supply in 2006)		280
3.Houn DH	Sub-total		1,480
・Receiving of High-tension Electricity	Apx.15m、(supply in 2008)		1,200
・Connection of City Water	Apx.15m、(supply in 2006)		280
4.Kkenthao DH	Sub-total	850	1,480
・Removable of Trees	Within the construction area	50	
・Shift of existing Dormitory	Wooden Shed	800	
・Receiving of High-tension Electricity	Apx.15m		1,200
・Connection of City Water	Apx.15m、(supply in 2006)		280
5.Sangthong DH	Sub-total	175	
・Water/drainage for Dental unit		175	
6.Pak Ngum DH	Sub-total	175	
・Water/drainage for Dental unit		175	
7.Outhomphon DH		715	
・Water/drainage for Dental unit		175	
8.Songkhon DH	Sub-total	1,850	3,000
・Removal of existing Basement	Apx.30 ㎡	250	
・Extension of drainage trench		1,600	
・Receiving of High-tension Electricity	Apx.400m		3,000
9.Khongsedone DH	Sub-total	475	
・Water/drainage for Dental unit		175	
・3 phase electricity for X-ray unit	Cable and switch box	300	
10.Champasak DH	Sub-total	180	11,000
・Removable of Trees	Within the construction area	180	
・Receiving of High-tension Electricity	Apx.400m		9,200
・Drill a Deep Well			1,800
Grand total of cost (US$)	33,400US$	12,180US$	21,220US$

2-4 Project Operation Plan

2-4-1 Facility Operations and Maintenance Plan

(1) Administrative Organization

A district health office (DHO) supervises "Health Promotion Unit" and "Curative Unit" providing health and medical services within each district and is responsible for District Hospital and two to five Health Centers. Accordingly, the Administrative Unit at each DHO is familiar with the maintenance of facilities and equipment and health center budget. Some staff members also work concurrently at district health offices and district hospital.

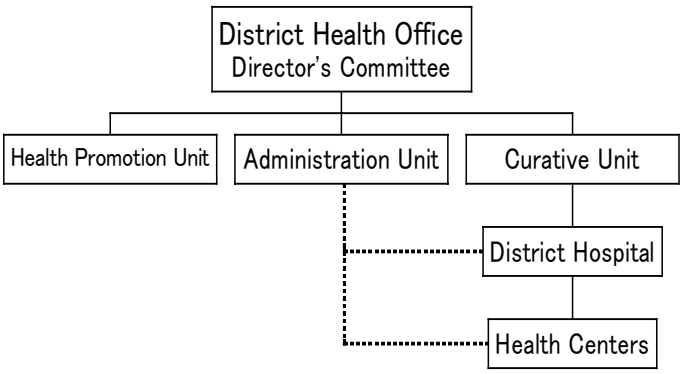


Figure 2-10 Organization of District Health Office

(2) Personnel Plan

The targeted ten (10) DHs are administered by fifteen (15) to thirty (30) staff. Although the number of staff is presently adequate, qualified doctors and nursing staff and medical laboratory technicians are unevenly distributed throughout Provincial Hospitals in town and so there are shortages at DHs. The average of staff breakdown of 10 DHs is 15% for senior personnel, 35% for intermediate personnel and the remaining 50% for unqualified junior personnel. In the future, efforts should be made to increase the number of qualified personnel and a system through which existing staff will be able to receive training in order to acquire qualifications should be established. As part of assistance toward human resources development, the ADB and World Bank require that regional staff receive training at Provincial and Central hospitals.

2-4-2 Maintenance Plan

(1) Facilities

There are three key issues for the maintenance of the building, i.e. (i) daily cleaning, (ii) repairs in the face of wear, damage or aging and (iii) security to ensure safety and crime prevention.

The rigorous implementation of daily cleaning gives a good impression of the facilities to visitors/users and prompts people to use the facilities and equipment gently. It is also important to maintain the proper functioning of the equipment, leading to the early detection and repair of any damage or break down and prolonging the life of the building service equipment.

The main components of the repair work will be the repair or replacement of exterior and interior materials protecting the building structure. Renewal to maintain the serviceability of the facilities is assumed to be required every 10～15 years based on examples in Japan.

The details of the regular inspection and repair which determine the life of the building will be submitted in the form of "a maintenance manual" by the Contractor when the facilities are handed over to the Lao PDR side together with an explanation of the inspection and regular cleaning methods. The required inspections are outlined below.

Table 2-22 Outline of Regular Inspection for Facility

	Type of Maintenance Work	Frequency
Exterior	• Repair and repainting of external walls	Repair: every 5 years, Repaint: every 15 years
	• Inspection and repair of roofing materials	Inspection: every year Repair: every 5 years
	• Regular cleaning of gutters and drainage system	Monthly
	• Inspection and repair of sealing of external windows and doors	Every year
	• Regular inspection and cleaning of ditches and manholes	Every year
Interior	• Renewal of interior finishing	As required
	• Repair and repainting of partition walls	As required
	• Renewal of ceiling materials	As required
	• Adjustment of window and door fitting	Every year
	• Replacement of hardware	As required

(2) Building Service Equipment

What is important for the building service equipment is regular preventive maintenance before the equipment suffers from a break down which requires repair or the replacement of a part(s). The life of the building service equipment can certainly be extended by proper operation and regular inspection, lubrication, adjustment, cleaning and repair. Such regular inspection can prevent break downs and accidents and prevent the spread of accidents. With regular inspection, the replacement of worn parts and the cleaning/replacement of filters are conducted in accordance with the maintenance manual. It is essential to establish a proper maintenance organization involving the rigorous implementation of regular inspection and maintenance by maintenance personnel and the subcontracting of regular inspection to manufacturers' agents if necessary. The general life expectancy of the main equipment is shown below.

Table 2-23 Life Expectancy of Building Services Equipment

	Type of Building Service Equipment	Life Expectancy
Electrical System	• Distribution panels	20 to 30 years
	• Fluorescent lamps	5,000 to 10,000 hours
	• Incandescent lamps	1,000 to 1,500 hours
Water Supply and Drainage Systems	• Pumps, pipes and valves	15 years
	• Tanks	20 years
	• Sanitary fixture	25 to 30years
Air-Conditioning System	• Pipes	15 years
	• Exhaust fans	20 years
	• Air-conditioning units	15 year

(3) Equipment

The maintenance of the planned equipment will required “daily inspection” which checks the proper working of the equipment before and after use and “periodic inspection” which principally consists of annual maintenance and repair. Periodic inspection must be conducted in accordance with the operation and maintenance manual. It is, therefore, very important to read the manual through to become familiar with the operation and maintenance requirements. The periodic inspection of the X-ray unit and Ultrasound units are recommended to maintenance service contract from a local agent.

2-4-3 Maintenance Cost

After implementation of the Project, the maintenance cost for new DH with building construction and existing DHs with equipment procurement only are shown as follows.

Table 2-24 Calculation of Annual Maintenance Cost (Kip)

	A) DHs with Facility construction and Equipment procurement	B) DHs with Equipment procurement only
(1) Electricity & Water, etc	31,218,000	2,514,000
a) Electricity charge	25,416,000	2,514,000
b) Telephone charge	774,000	As existing
c) Water supply charge	2,160,000	As existing
d) Generator fuel cost	2,868,000	As existing
(2) Building maintenance cost	5,000,000	As existing
(2) Equipment maintenance cost	4,421,000	340,000
Total	40,639,000	2,854,000

A : Facility and Equipment Khoua, Sing, Houn, Kenthao, Songkon, Champasak
B : Equipment only Sangton, Pak Ngum, Outhompone, Konsedon

(1) Electricity and Water, etc.

a) Electricity charge

Electricity consumption of each DH is varied but chargers are estimated roughly as per follows.

Hours of Usage: 4 hours / day (1 month: 25 days)
Electricity Tariff: 706 Kip/kwh

Table 2-25 Calculation of Electricity Charge

	Contract Electricity	Load Rate(30%)	4Hour/Month (kwh)	Kip/Month	Kip/Year
A: New DH	100kw	30kw	3000kwh	2,118,000Kip	25,416,000Kip
B :Equipment only	10kw	3kw	300kwh	211,800Kip	2,514,000Kip

b) Telephone charge

There are planned 2 telephone lines for new DH, 3 minutes per every call and 50 calls per month. Telephone charges are 100 kip/min. for city call and 330 kip/min. for international call. This is average from 255Kip to 405Kip for long distance call.

Table 2-26 Calculation of Telephone Charge

	Number of Call	Charge	Kip/Month	Kip/Year
City Call	3min/call、50calls/month	100Kip/min	15,000Kip	180,0000Kip
Long Distance	3min/call、50calls/month	330Kip/min	49,500Kip	594,000Kip
Total				774,000Kip

c) Water supply charge

There are vary for charge of district water supply by each water office, average is 1,500Kip/ton calculated from 700kip to 2,200kip. Consumption of each DH is also vary but calculated 16 beds.

16 beds × 200 litters/bed = 3,200 litters

Design Water Consumption= 4 ton / day

Table 2-27 Calculation of Water Charge

	Design Water Volume	Ton/Kip/Month	Kip/Year
Plan	4tons	180,000Kip	2,160,000Kip

d) Generator fuel cost

There are power failure about 30 min. twice per week. Planned facilities are installed generator for emergency 25KVA. The calculation of fuel for generator is as per following.

Table 2-28 Calculation of Fuel Cost for Generator

	Fuel Expenses(L/h)	0.5H/Week/Month	Fuel Cost/L	Kip/Month	Kip/Year
Plan	12L	48L	4,980Kip/L	239,040Kip	2,868,000Kip

e) Building maintenance cost

Planned facilities are required cleanness as a District Hospital, therefore finishing material for area getting soil easily is covered by Ceramic Tiles in order to wipe up by mop / closes easily. Roof is covered by cement tiles for durability. Therefore, cost for maintenance shall be 1/4 per normal case because periodical maintenance are limited for re-paint on wooden / steel parts or change of lighting fixtures.

Floor Area 1,000sqm × 5,000Kip/Year/sqm = 5,000,000Kip/Year

(2) Equipment maintenance cost

Equipments were selected easy maintenance and minimized spare parts or consumables are necessary on this plan. There are estimation of annual maintenance cost form spare parts and consumables are as follows.

Table 2-29 Calculation of Operation Cost of Medical Equipment

	Kip/Year
DHs with X-ray and Ultrasound	4,421,000Kip
DHs without X-ray and Ultrasound	340,000Kip

Table 2-30 Parts and Consumables for Planned Medical Equipment

Hospital	Classi-fication	Name of Equipment	Contents	Q'ty	Unit Cost (Kip)	Quantity Consumed /Case	Estimated Number of Case/Year	Q'ty	Total Amount (kip)
1.Khoua DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	30	1	220,000
	Consum-abes	Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	500	5	110,000
								Total	340,000
2.Sing DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	30	1	220,000
	Consum-ables	Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	500	5	110,000
								Total	340,000
3.Houn DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	30	1	220,000
	Consum-abes	Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	500	5	110,000
								Total	340,000
4.Kenthao DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	30	1	220,000
	Consum-abes	Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	500	5	110,000
		X-ray Apparatus	X-ray Film	100 pcs.	825,000	1pc.	100	1	825,000
								Total	1,165,000
5.Sangthong DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	30	1	220,000
	Consum-abes	Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	500	5	110,000
								Total	340,000
6.Pak Ngum DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	30	1	220,000
	Consum-abes	Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	500	5	110,000
								Total	340,000
7.Outhoumphone DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	60	1	220,000
	Consum-abes	Ultrasound Scanner	Gel	5L	260,000	10ml	400	1	260,000
		Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	3,200	32	704,000
		X-ray Apparatus	X-ray Film	100 pcs.	825,000	1pc.	100	1	825,000
		Anesthesia Apparatus	Sodasorb	5kg	250,000	150g	30	1	250,000
								Total	2,269,000
8.Songkhone DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	60	1	220,000
	Consum-abes	Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	900	9	198,000
		X-ray Apparatus	X-ray Film	100 pcs.	825,000	1pc.	300	3	2,475,000
		Anesthesia Apparatus	Sodasorb	5kg	250,000	150g	30	1	250,000
								Total	3,153,000
9.Khongsedone DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000

Hospital	Classi-fication	Name of Equipment	Contents	Q'ty	Unit Cost (Kip)	Quantity Consumed /Case	Estimated Number of Case/Year	Q'ty	Total Amount (kip)
		Operating Light	Halogen Lamp	1pc.	220,000	-	60	1	220,000
	Consum-abes	Ultrasound Scanner	Gel	5L	260,000	10ml	800	2	520,000
		Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	3,900	39	858,000
		X-ray Apparatus	X-ray Film	100 pcs.	825,000	1pc.	300	3	2,475,000
		Anesthesia Apparatus	Sodasorb	5kg	250,000	150g	30	1	250,000
								Total	4,333,000
10.Champasak DH	Spare Parts	Examination Light	Incandescent Lamp	1pc.	10,000	-	-	1	10,000
		Operating Light	Halogen Lamp	1pc.	220,000	-	60	1	220,000
	Consum-abes	Ultrasound Scanner	Gel	5L	260,000	10ml	800	2	520,000
		Centrifuge	Hematocrit Tube	100 pcs.	22,000	1pc.	4,300	43	946,000
		X-ray Apparatus	X-ray Film	100 pcs.	825,000	1pc.	300	3	2,475,000
		Anesthesia Apparatus	Sodasorb	5kg	250,000	150g	30	1	250,000
								Total	4,421,000

(3) Financial State

Annual budget of year 2004 from targeted DHOs where manage budget for DH and HCs within the same district, are shown on the table. Total budgets are very from 149 million kips to 324 million kips, and average of Salary is shared 72%, Allowances is 17%. This means 89% of budget is for staff payment. Budget for Administration and Maintenance is only 6% and amount of targeted DH show from 5.5 million Kips to 24.5 million Kips.

Table 4-10 Annual Budget for Targeted District Health Offices, 2004 (Kip)

Items	①Khoua	②Sing	③Houn	④Kenthao	⑤Sangton
Salary	186,035,000	128,708,680	246,809,000	155,857,185	128,104,260
Allowances	—	13,618,500	62,320,000	43,128,855	12,628,000
Admin.& Maint.	5,500,000	8,000,000	15,000,000	14,832,675	20,000,000
Activities	11,500,000	22,483,000	—	14,376,285	3,500,000
Total	203,035,000	172,810,180	324,129,000	228,195,000	164,232,260

Items	⑥Pakngum	⑦Outhompon	⑧Songkon	⑨Konsedon	⑩Chanmpasak
Salary	110,000,000	229,369,200	197,496,600	193,268,034	129,753,600
Allowances	15,000,000	15,658,800	76,879,145	94,268,974	59,980,000
Admin.& Maint.	22,000,000	24,570,000	8,286,500	8,345,000	17,000,000
Activities	2,700,000	24,456,000	27,085,290	—	10,550,000
Total	149,700,000	294,054,000	309,747,535	295,882,008	217,283,600

Source: Survey Sheets

Separate from this budget, there are profit from DRF: Drug Revolving Fund, which are utilized for incentives for staffs and a part of maintenance cost. Khonsedon district has big income of 342 millions kips and 25 millions kips of profit. Also there are income from test and examination, therefore necessary maintenance cost could be covered by District Health Office.

Table 2-32 Drag Revolving Fund of Planned District Hospitals, 2004 (Kip)

	①Khoua	②Sing	③Houn	④Kenthao	⑤Sangton
DRF (Income)	–	99,130,146	–	44,612,359	12,352,350
(Expenditure)	–	76,528,473	–	44,279,359	10,776,706
(Profit)	1,200,000	22,601,673	33,976,000	333,000	1,575,644

	⑥Pakngum	⑦Outhompon	⑧Songkon	⑨Konsedon	⑩Chanmpasak
DRF (Income)	311,381,000	78,153,000	177,030,942	342,546,500	108,047,440
(Expenditure)	132,791,200	75,432,000	145,153,264	317,450,574	103,788,320
(Profit)	178,589,800	2,721,000	31,877,678	25,095,926	4,259,120

Source: Survey Sheets Note: Pak Ngum is year 2003

The ratio of estimated additional cost for maintenance through the implementation of the Project budgeted for each DH management was estimated. At hospitals subject to procurement of equipment it will be 1% to 20%, so an allowance appears feasible.

On the other hand, at some DHs subject to facility improvement two (2) to five (5) times the current estimated cost for management will be necessary. Although the required annual maintenance cost is estimated to be 40,639,000kips, 62% is used for electricity charges of lighting and air conditioning.

Therefore, since the budget for DH maintenance is assigned directly by the District government, the district Governor should give preferential allocation to the six (6) DHs subject to facility construction when allocating the maintenance budget.

Table 2-33 Budget of Administration, Necessary Cost and Rate (Kip, %)

Item	①Khoua	②Sing	③Houn	④Kenthao	⑤Sangton
a)Budget (2004 actual)					
Admin.&Maint.	5,500,000	8,000,000	15,000,000	14,832,675	20,000,000
DRF	1,200,000	22,601,673	33,976,000	333,000	1,575,644
Sub-total	6,700,000	30,601,673	48,976,000	15,165,675	21,575,644
b)Necessary Cost by the Project					
Building Maint.	5,000,000	5,000,000	5,000,000	5,000,000	0
Equipment Maint	340,000	340,000	340,000	1,165,000	340,000
Elec&Water	31,190,000	31,190,000	15,600,000	31,190,000	2,500,000
Sub-total	36,530,000	36,530,000	20,940,000	37,355,000	2,840,000
Ratio= b) / a)	545%	119%	43%	246%	13%

Item	⑥Pakngum	⑦Outhompon	⑧Songkon	⑨Konsedon	⑩Chanmpasak
a)Budget (2004 actual)					
Admin.&Maint.	22,000,000	24,570,000	8,286,500	8,345,000	17,000,000
DRF	178,589,800	2,721,000	31,877,678	25,095,926	4,259,120
Sub-total	200,589,800	27,291,000	40,164,178	33,440,926	21,259,120
b)Necessary Cost by the Project					
Building Maint.	0	0	5,000,000	0	5,000,000
Equipment Maint	340,000	2,269,000	3,153,000	4,333,000	4,421,000
Elec&Water	2,500,000	2,500,000	31,190,000	2,500,000	31,190,000
Sub-total	2,840,000	5,469,000	39,343,000	7,533,000	40,611,000
Ratio = b) / a)	1%	17%	98%	20%	191%

2-5 Soft Component

(1) Necessity for Introducing the Soft Component

Due to the decentralization, DHOs are responsible for DHs maintenance. However, the common belief that the provincial or central government should be responsible for this is still prevalent, so no spontaneous initiatives have appeared. In order to continue hospital functions by fully utilizing facilities and equipment to be improved through the implementation of the Project, the maintaining and upgrading of patient services at DHs is being requested through the arrangement of hospital-related personnel capable of taking individual initiatives implemented spontaneously together with a maintenance scheme.

The Soft Component is designed so that all personnel will be able to grasp and put into practice a capable maintenance on a daily basis through inspections and ongoing bookkeeping activities by reviewing present district hospital maintenance systems and through discussions on a "District Hospital Maintenance System". Through these activities, in the long term it is hoped that hospital workers will be able to provide hospital maintenance through their own initiatives.

(2) Outcome of the Soft Component

The following concrete results are anticipated.

- Daily maintenance at DHs will be carried out through improved personnel awareness.
- Effective measures will be discussed participatory in accordance with a maintenance scheme and will include personnel responsible at the provincial level; improvements and nonconformity (inconveniences) can be detected at an early stage.

(3) Soft Component Activities (Input)

Workshops will be carried out in Phase 1 and Phase 3. At first, each person responsible will prepare feasible activities and ready them for acceptance by ensuring the need hospital maintenance is well understood and necessary systems are discussed. Afterwards, at the time of handing over of facilities and equipment, an explanation of technical handling (instructions before utilization or care after utilization) or description of manuals and item list (equipment control), etc. will be provided by equipment suppliers for personnel at each district hospital.

Applying the investment to the implementation plan;

＜Phase 1＞

1) "Hospital Maintenance Workshop (1st)" (Incentives and Introduction)

Japanese Consultant: 1 person (Laos 0.33MM)
Local Consultants: 2 persons (re-commissioned)
Period: January to February 2007 (1.5 months)

Goal	Improve routine maintenance of hospital-related personnel, formulate an activity plan and enhance awareness of maintenance personnel
Target	Personnel at 10 targeted hospitals, directors and provincial responsible personnel (approximately 30 person at each hospital)
Location	Each hospital (10 locations nationwide)
Method	Participatory workshop (half-day: afternoons when there are few patients)
Outcome	・ Problem tree ・ Activity schedule and activity detail ・ Maintenance system chart and each responsible person (staff circle) ・ Results of monitoring on awareness through questionnaire survey ・ Evaluation method and written recommendations

＜Phase 3＞

2) "Monitoring and Evaluation" (Confirmation of Implementing Conditions)

Japanese Consultant: 1 person (Japan 0.1MM)

Period: January 2008

Goal	Evaluation of implementing of the activity plan for the previous year and encouraging the preparation of a plan for the next fiscal year
Target	Personnel at the 10 targeted hospitals, directors and provincial responsible personnel (approximately 30 person at each hospital)
Location	Japan
Method	Difficulties or areas needing improvement will be confirmed by questionnaire and by collecting and evaluating activity schedules.
Outcome	・ Evaluation of implementing conditions ・ Report on questionnaire surveys on implementing conditions

3) "Hospital Maintenance Workshop (2nd)" (Evaluation and Well-establishment)

Japanese Consultant: 1 person (Japan 0.10MM)

Local Consultant: 2 persons (re-commissioned)

Period: October to November 2008 (1.5 months)

Goal	Evaluation of activity plan from the previous year and preparation of a plan for the next fiscal year
Target	Personnel at the 10 targeted hospitals, directors and provincial responsible personnel (approximately 30 person at each hospital)
Location	Ten targeted hospitals
Method	Participatory workshop (half-day: afternoons when there are few patients)
Outcome	・ Activity schedule and activity details ・ Maintenance system chart and each responsible person (staff circle) ・ Results of monitoring on awareness through questionnaire survey ・ Results of evaluation of implementing conditions and written recommendations for sustainable implementation (10 targeted hospitals)

2-6 Estimated Project Cost

The estimated cost of the project is approximately 1,179 million Japanese Yen (some 1,174 million Japanese Yen from Japan and Lao PDR will shoulder the remaining 5 million Japanese Yen.). The breakdown is shown in the Table 2-34 and Table 2-35. This cost estimate is provisional and would be further examined by the Government of Japan for the approval of the Grant.

(1) Japanese side Share

Table 2-34 Japanese side Share (million Yen)

Classification	Phase-1	Phase-2	Phase-3	Total
Construction Work				
1) Khoua			157	157
2) Sing			151	151
3) Houn			103	103
4) Kenthao		139		139
5) Songkon		154		154
6) Chanmpasak		152		152
Equipment Work	128	32	14	173
Detailed Design and Supervision	23	59	63	145
Total	151	536	488	1,174

(2) Lao PDR side Share

Table 2-35 Lao PDR side Share (US$)

Classification	Amount (US$)
1) Construction work-related expenses (6 hospitals)	
a) Removal of Existing storages and facilities	6,350 US$
b) Removal of Generators	2,800 US$
c) Transplantation	430 US$
d) Extension of existing drains	1,600 US$
e) Public water supply & construction of Deep well	2,920 US$
f) High tension Power receiving (6 hospitals)	18,300 US$
Sub total	(32,400 US$)
2) Equipment work- related expenses	
a) Water supply & drainage for Dental unit (4 hospitals)	700 US$
b) Installation of 3 phases electricity Box for X ray Unit (Konsedon Hospital)	300 US$
3) Commission for Banking Arrangement & Authorization to Pay (about 0.1% of E.N. amount)	11,200 US$
Total	44,600 US$

(3) Conditions of Estimate

－Date of estimate: March 2005

－Exchange rate: 1US$ =110.69 Japanese Yen

－Detailed design andConstruction period: as shown in the implementation schedule

－Other Conditions:

The Project shall be implemented according to the Japan's Grant Aid Scheme

No force majeure is anticipated.

Chapter 3

Project Evaluation and Recommendations

Chapter 3 Project Evaluation and Recommendations

3-1 Project Effect

The following effects associated with the implementation of the Project can be expected.

(1) Direct Effects

1) Improvement of hospital service environment

Of the targeted ten DHs, facilities at six DHs will be improved through the implementation of the Project and basic medical equipment and materials will be procured at all ten DHs; the environment during medical examinations and treatment for rural health and medical services will therefore be improved.

2) Improvement of accessibility for local peoples

Users (approximately 50,000 persons) at the targeted 10 DHs who were usually directed or transferred to provincial hospitals or who are compelled to give up medical treatment will be able to receive medical services at a DH through the improvements at ten DHs.

3) Increase of medical cases

An increase in the number of outpatients (51,826 cases annually), the number of inpatients (8,708 cases), the number of blood tests (13,459 cases), the number of x-ray tests (367 cases), the number of facility childbirths (1,299 cases) and the number of medical examinations for pregnant women and nursing mothers (9,352 cases), etc., which are currently being implemented at ten DHs can be expected through improved access to hospitals.

4) Improvement in hospital operations and maintenance

Workshops on hospital operations will be conducted through the Soft Component, so hospital-related personnel including the director and staff will be able to prepare appropriate operations and a maintenance system at district hospitals and take the necessary steps for improvement.

(2) Indirect Effects

1) Improvement in health indexes

Associated with improvements of the hospital environment, since the primary care of disease or early detection of high-risk case through diagnosis or maternal and child health examinations based on primary health care will be possible. Therefore, the health indexes pertaining to paternal and child health at the Project sites in 2004 such as infant mortality rate at 87 (per 1,000 infants), under-five mortality rate at 100 (per 1,000 infants) and maternal mortality rate at 650 (per 100,000 childbirths) are expected to improve.

2) Address the poverty gap

Although the majority of targeted areas are poor and rural, since reasonable medical services will be also provided to the poor in rural areas through the implementation of the Project, the poverty gap is expected to be reduced through sound production activities.

3) Gender consideration

In addition, women's health conditions are also expected to improve through better medical examinations and improved maternal and childcare treatment.

3-2 Recommendations

For smooth and effective implementation of the Project the following should be improved and upgraded.

(1) Security and Training of Human Resources

There is a severe shortage of medical workers in Laos. In particular, there are very few qualified doctors, nursing staff and medical laboratory technicians. Since medical workers are unevenly distributed at central or provincial hospitals in the metropolitan area, assistant doctors or nursing helpers fill-in at rural DHs. Consequently, an appropriate number of medical workers with formal qualifications should be trained and distributed to even rural facilities. In addition, since the absolute number of medical workers is low, existing personnel should be retrained under technical programs such as ADB and WB, etc.

(2) Routine Maintenance of Facilities and Equipment

With respect to the facilities presently owned by DHs, floors are kept clean and equipment and materials are properly arranged. On the other hand, walls in patient's rooms, etc. where patients or family attendants visit are dirty, and toilets are not cleaned which is unhygienic. In other words, although routine cleaning and maintenance of laboratories and operating theaters is carried out, it appears that daily cleaning of outpatients area and ward rooms are a burden for hospital management. Accordingly, all hospital facilities should be cleaned and arranged or maintained on a daily basis.

Although the Project will assist with the creation of "a maintenance system for DHs" through the Soft Component, since daily cleaning and maintenance can be an early indicator, in order to prevent problems and breakdowns from occurring, hospitals in general should implement this continuously.

(3) Potential for Cooperation with Other Donors

Donors and Un organizations provide assistance to the health sector in Laos, so their cooperation is indispensable. In particular, tuberculosis control, malaria control or EPI are implemented vertically to the DHs from MOH. In addition, a consistent District Health Service System should be encouraged by promoting cooperation, even in terms of technical training or furnishing of specific equipment.

APPENDICES

Appendix-1　Member of the Survey Team

Member of the Survey Team

[Basic Design Study Team]

Mr.Tsutomu SHIMIZU	Leader / Project Coordinator, Project Management Group III, Grant Aid Management Department, JICA
Dr. Junichi INABA	Technical Advisor, Expert Service Division, Bureau of International Cooperation International Medical Center of Japan (IMCJ)
Mr. Tetsuro NISHIMURA	Chief Consultant / Construction Planning Kume Sekkei Co.,Ltd.
Mr. Kiyoshi KANEKO	Building Design / Facility Design Kume Sekkei Co.,Ltd.
Mr. Takashi OGAWA	Equipment Planning I / Maintenance Planning BINKO LTD.
Ms. Akiko NIWA	Equipment Planning II / Procurement Planning / Cost Estimation BINKO LTD.
Mr. Katsumi HAYASHI	Construction Planning / Cost Estimation Kume Sekkei Co.,Ltd.
Ms. Masako SUGITA (Supplemental member)	District Health Planning Fujita Planning Co.,Ltd.
Mr. Tomohisa SUZUKI (Supplemental member)	Building Design / Facility Design II Kume Sekkei Co.,Ltd.

[Draft Explanation Team]

Mr. Shuichi IKEDA	Leader Deputy Resident Representative, JICA Lao Office
Mr. Tetsuro NISHIMURA	Chief Consultant / Construction Planning Kume Sekkei Co.,Ltd.
Mr. Takashi OGAWA	Equipment Planning I / Maintenance Planning BINKO INTERNATIONAL LTD.

Appendix-2　Survey Schedule

Schedule for Basic Design Study（Feb. 27 to Mar. 28, 2005: 30days ）

Date			Officials	Consultants					Supplemental Member	
			Team Leader: Mr.Tsutomu SHIMIZU Technical Advisor: Dr.Jun-ichi INABA	Project Manager (PM)	Architecture・M&E Design Ⅰ	Equipment Ⅰ /Maintenance Planning	Equipment Ⅱ /Procurement, Cost Planning	Construction, Cost Planning	District Health System	Architecture・M&E Design Ⅱ
				Tetsuro NISHIMURA	Kiyoshi KANEKO	Takashi OGAWA	Akiko NIWA	Katsumi HAYASHI	Masako SUGITA	Tomohisa SUZUKI
1	27	SUN		Tokyo（15:55）→Bangkok(20:55）by JL703			Tokyo（15:55）→Bangkok(20:55）by JL703			
2	28	MON		Bangkok(08:15)→Vientiane(09:25) by TG690 14:00 Preliminary Meeting at JICA (Mr.IKEDA, KIDSMILE, Ms.IBI) 16:30 Preliminary Meeting at EOJ (Mr.NAKAMURA)			BKK→VIE Survey for ME Agent	BKK→VTE Survey of Bld. Material	BKK→VIE Same as PM	
3	3/1	TUE		09:00 Preliminary discussion w/MOH, 11:00 Meeting with World Bank 15:00 Survey of MES (Mr.SATO)			Survey for MEt Agent, Survey of MES	Study for Unit Price, Soil Survey & MES	Same as PM	
4	2	WED		09:00 Meeting with Dr.MIYOSHI (MOH Advisor) 14:00 Discussion on IR w/MOH (DOC), Data Collection			Survey of MEt Agent	Survey of Bld. Material Dist. of Cost survey Sheets	Same as PM	
5	3	THU		NORTHER TEAM (A)		(B)	(A)	SOUTHERN TEAM (B)		
				Vientiane(10:30)→Luang Phabang(11:10) by QV101 →Oudomxay(by Road)		Vientiane →Savannakhet	Vientiane →Oudomxay	Vientiane →Savannakhet(by Road)		
6	4	FRI		Site survey at Sing DHP, DHO-2		(B)	(A)	Survey at Outhoumphon DHP, DHO-7		
7	5	SAT		Site survey at Sing DHP, DHO-2		(B)	(A)	Survey at Songkhon DHP, DHO-8		
8	6	SUN		Data Analysis, Site survey at Khoua DHO-1		Data Analysis, Internal Meeting (B)	Data Analysis, Internal Meeting (A)	Data Analysis, Internal Meeting (B)		
9	7	MON		Site survey at Khoua DHP, DHO-1		(B)	(A)	Survey at Khongsedone DHP, DHO-9		
10	8	TUE		Site survey at Houn DHP, DHO-3		(B)	(A)	Survey at Champasak DHP, DHO-10		TYO（15:55）→ BKK(20:55）by JL703
11	9	WED	Tokyo→Bangkok	Oudomxay→Luang Phabang(by Road） LPQ（14:10）→VIE（14:50）by QV106		Pakse →Vientiane	Oudomxay →Vientiane	Pakse（11:20）→Vientiane(12:30) by QV522		BKK(08:15)→ VTE(09:25) by TG690, join team
12	10	THU	BKK→VIE 11:00 EOJ 14:00 JICA	09:30 Airport 11:00 EOJ (Mr.NAKAMURA) 14:00 JICA (Mr.MORI, Mr,IKEDA, Dr.MIYOSHI, Ms.IBI)			Individual Study, Internal Meeting (Progress Reporting)		Same as PM	Individual Study, Internal Meeting (Progress Reporting)
13	11	FRI	9:00 Meeting and Discussion at MOH (DOC) Survey at Sangthong DHP, DHO-5				Survey at Sangthong DHP, DHO-5			Same as in the left
14	12	SAT	Survey at Pak Ngum DH-6 → to Savanaket (by road)				Survey at Pak Ngum DHP, DHO-6 Supplemental Survey			Same as in the left
15	13	SUN	Survey at Outhoumphon DH-7, Champon DH (WB) → to Pakse				Internal Meeting Data Analysis	Internal Meeting Data Analysis	Internal Meeting Data Analysis	Internal Meeting Data Analysis
16	14	MON	Survey at Konsegdon, DH-9 → to Vientiane (by road)				VIE→Kenthao(by Road thr./Thailand)		Data collection	Study of Building Planning
17	15	TUE	08:30 Report to JICA Office 10:00 Discussion w/MOH, 13:00 Preparation of Draft MD		Same as PM Study of Site Plan	Same as PM Study of ME Plan	KenthaoDH-4、Kenthao →VIE(by Road thr./Thailand)		Same as PM Data Collection	Same as PM Study of Building Plan
18	16	WED	9:00 Discussion on MD w/MOH, Survey of other donors, Similar Hospitals		Same as PM, Study of BLD Plan	Same as PM Study of ME Plan	Survey of ME Agent Study of ME Plan	Cost estimation for Lao's Work	Data Collection Survey of other donors	Study of Building Plan
19	17	THU	11:00 Signing MD 14:00 Report to EOJ (Mr.NAKAMURA) 16:00 Report to JICA Office(Mr.MORI, Mr.IKEDA, Ms.IBI)		Same as PM, Study of BLD Plan	Same as PM Study of ME Plan	Study of ME Plan Survey of ME Agent	Survey of Local Contrctr Collection of Cost Sheets	Same as PMr Data Analysis	Study of Building Plan
20	18	FRI	Vientiane→ Bangkok	Survey for Soft Component, Maintenance	Confirmation of Topological, Soil Survey	Survey for Soft Component, Maintenance	Survey of Transportation	Survey of Local Contrctr Collection of Cost Sheets	Survey for Soft Component, Maintenance	Study of Building Plan
21	19	SAT	Bangkok→Tokyo	Supplemental Research	Same as PM, Study of BLD Plan	Supplemental Survey	Supplemental Survey	Study for Bld. Material and Method	VIE(10:30) →BKK by TG691	Study of Building Plan
22	20	SUN		Internal Meeting Vientiane→Savannakhet(by Road)		Internal Meeting Data Analysis			BKK(08:30)→ TYO(16:10) by JL706	Internal Meeting Same as PM
23	21	MON		Survey at Outhoumphon DHP, DHO-7, Songkhon DHP, DHO-8		Study of Equipment Plan	VIE(10:30) →BKK by TG691	Supplemental Survey		Same as PM
24	22	TUE		Survey at Khongsedone DHP, DHO-9, Champasak DHP, DHO-10		Study of Equipment Plan	Survey fo EM Agent in Bangkok	VIE(10:30) →BKK by TG691		Same as PM
25	23	WED		Pakse（11:20）→Vientiane(12:30) by QV522		Supplemental Survey, Preparing Report	Survey fo EM Agent in Bangkok	Survey for Bldt. Material and Method in BKK		Same as PM
26	24	THU		Preparing Technical Notes, Supplemental Survey	Confirmation of Soil Survey, Supplemental	Preparing Tech. notes, Supplemental Survey	Survey fo EM Agent in Bangkok	Survey for Bld. Material and Method in BKK		Study of Building Plan
27	25	FRI		Final Discussion & Technical Notes w/MOH Supplemental Survey			BKK(08:30)→ TYO(16:10) by JL706	BKK(08:30)→ TYO(16:10) by JL706		Study of Building Plan
28	26	SAT		Preparing Report	Study of Building Plan	Preparing Report				Study of Building Plan
29	27	SUN		Vientiane（10:30）→Bangkok(11:35) by TG691						VIE→BKK by TG691
30	28	MON		Bangkok(08:30)→Tokyo(16:10) by JL708						BKK→TYO by JL708

Schedule for Draft Explanation (Oct.19 to Oct.30, 2005: 12days)

			Official	Consultants	
date			Leader	Chief Consultant /Construction Planning	Equipment Planning Ⅰ /Maintenance Planning
			Shuichi IKEDA	Tetsuro NISHIMURA	Takashi OGAWA
1	10/19	Wed		Tokyo(15:45) →BKK (20:15) [JL703]	
2	10/20	Thu		BKK(08:20) →VTE (09:30) [TG690] 11:00 Discussion w/JICA, EOJ、14:00 Coutesy Call to Ministry of Health	
3	10/21	Fri	09:00 Discussion of Draft Report at MOH、13:00 Discussion on Facility/Equipment, 16:00 WB/ADB		
4	10/22	Sat	Northern Site Trip, VTE(10:30) → LPQ(11:10){QV101}、 travel to Muand Shin by road（stay at Shin）		Southern Site Trip Sangthon DH by road (stay at VTE)
5	10/23	Sun	Shin DH, to Khoua by road（stay at Khoua）		Pak Ngum DH, Outhomphone DH by road (stay at Savannaket)
6	10/24	Mon	Khoua DH, to Oudomsay by road（stay at Oudomsay）		SongkhonDH、Kongsedone DH by road（stay at Pakse）
7	10/25	Tue	Houn DH, to Luangpabang（stay at Louangpaban）		Champasak DH by road、to Pakse (stay at Pakse）
8	10/26	Wed	LPQ(14:10)→VTE（14:50）{QV106}、preparation of Minute Draft		Pakse(11:20)→VTE（12:30）{QV522}
9	10/27	Thu	09:00 Final Discussion of Facility/Equipment, 14:00 Discussion of Minutes Draft, 16:00 Collection of Data		
10	10/28	Fri	10:00 Signing of Minutes、13:00 Soft Compornent, 16:00 Rwport to JICA/EOJ		
11	10/29	Sat		VTE(10:30) → BKK (11:35) [TG691], BKK(22:45) →	
12	10/30	Sun		TYO(06:35) [JL704]	

Appendix-3　List of Persons Concerned

LIST OF PERSONS CONCERNED

1. Ministry of Health

Cabinet

Dr. Nao BOUTTA	:	Deputy Director

Department of Curative Medicine

Prof.Dr. Sommone PHONSAVATH	:	Director
Dr. Champhonma VONGSAMPHANH	:	Deputy Director
Dr. Phisith PHOUTSAVATH	:	Director of Regional Hospital Management Division
Dr. Chanpheth PHOTHILATH	:	Deputy Director of Regional Hospital Management Division
Dr. Vannareth THAMMAVONGASA	:	Director of Drug Control Unit
Dr. Bountang CHAPENSACK	:	Chief of Division
Dr. Hongthong SIVILAY	:	Deputy Chief of Administration Division
Dr. Viengsavanh PHANMANIVONG	:	Medical Officer

Department of Planning and Budgeting Department

Mr. Bounsathien PHIMMASENH	:	Deputy Chief of Health Properties Management Division
Mr. May PHONE	:	Engineer

Department of Health Organization and Personal

Dr. Phouthone VANGKONEVILAY	:	Deputy Director

MPSC：Medical Products Supply Center

Dr. Thanom INSAL	:	Director
Mr. Sendao INTHAPATHA	:	Chief of Medical Equipment Service Center (MES)

2. ADB: Primary Health Care Expansion Project

Dr. Prasongsidh BOUPHA	:	Director
Dr. Founkham RATTANAVONG	:	Deputy Director
Dr. Somphete	:	Deputy Director
Dr. Phonepaseath	:	Procurement officer

3. WB：Health Service Improvement Project

Dr. Sisamone KEOLA	:	Director
Dr. Chanpheng SOUTHIVONG	:	Deputy Director
Dr. Chansaly PHOMMAVONG	:	Deputy Director
Dr. Kotsaythoune	:	Deputy Director

4. Khoua District

Mr. Pingxay SOUKASEUM	:	Director, Kh0ua District Health Office
Mr. Khamhack PHOUMAXAYTHONG	:	Deputy Director, Khoua DHO

5. Sing District

Mr. Khan Chan KHATIYANG	:	Director, Sing District Health Office
Mr. Khamhack PHOUMAXAYTHONG	:	Deputy Director, Sing District Health Office
Dr. Khamchamh INTHONGXAY	:	Deputy Director, Luannamtha Provincial Health Office
Dr. Keo INTHAVANG	:	Chief of Admin., Luannamtha Provincial Health Office

6. Houn District

Dr. Bountien VONGPHASITH	:	Director, Houn District Health Office
Dr. Phommalet PHOMMALISACK	:	Director, Houn District Hospital
Mr. Vanna INSOMPHON	:	Deputy Director, Houn District Health Office
Mr. Khamla LENGNASONE	:	Houn District Governor
Mr. Khamphane SAYAVONG	:	Director, Department of Public Health, Oudomxay PHO
Dr. Sounethone DOUANGSAYSI	:	Chief of Technical, Oudomxay Provincial Health Office

7. Kenthao District

Dr. Vonexay SEMLADAT	:	Director, Kenthao District Hospital
Dr. Bountang PHANTHAVONG	:	Deputy Director, Kenthao District Hospital
Mr. Bounphong VONGSAMPHON	:	Head of Hospital Administration, Kenthao District Hospital
Mr. Amkha RATSAMI	:	Administrator, Kenthao District Hospital
Mr. Boulong KEOPHILA	:	Head of Health Education, Kenthao District Hospital
Ms. Bounsom PHADUANDAT	:	Head of MCH, Kenthao District Hospital
Mr. Bounthao PHONMANY	:	Deputy of District Governor, Kenthao District Office

8. Sangthong District

Dr. Khamphou KONGMANY	:	Director, Sangthong District Health Office
Dr. Thonchanh	:	Deputy Director, Sangthong District Health Office
Mr. Kongchay BOUNSUAY	:	Primary Health Care, Sangthong District Health Office
Mr. Bounkhoun CHANTHAVONG	:	Medical Administration and Statistics, Sangthong District Health Office
Mr. Sommone PHALATHONG	:	Head of Hospital Pharmacy, Sangthong District Hospital
Mr. Phayvanh BANKEOINTHA	:	Vaccination Unit, Sangthong District Hospital
Ms. Sengdueune DUANGDARA	:	TB & ORL Unit, Sangthong District Hospital
Mr. Saksith SISOUNTHONE	:	Laboratory, Sangthong District Hospital
Mr. Chalanh THEUNKHANE	:	OPD Nurse, Sangthong District Hospital
Mr. Tieu SENGTHONGVONGSA	:	Head Nurse, Sangthong District Hospital
Mr. Bounma	:	Nurse, Sangthong District Hospital
Mr. Souneth INTHAPANYA	:	Administration Office, Sangthong District Hospital
Dr. Kham Tonh	:	Deputy Director, Vientiane Provincial Public Health

9. Pak Ngum District

Dr. Khamla PHETDAVANH	:	Director, Pak Ngum District Health Office & Hospital
Mr. Uankam	:	Deputy Director, Pak Ngum District Health Office & Hospital
Dr. Khampane	:	Staff, Pak Ngum District Health Office & Hospital
Ms. Sountone	:	Administration, Pak Ngum District Health Office & Hospital
Ms. Bounty	:	Finance, Pak Ngum District Health Office & Hospital
Dr. Soukanya PHETDAVANH	:	Head of Internal Medicine Unit, Pak Ngum District Hospital
Dr. Sounthone	:	Head of Pharmacy, Pak Ngum District Hospital
Ms. Khampheua	:	MCH Unit, Pak Ngum District Hospital
Dr. Tearnanh	:	Dentist, Pak Ngum District Hospital
Ms. Sengchanh	:	Primary Health Care, Pak Ngum District Hospital
Ms. Siphone	:	Laboratory, Pak Ngum District Hospital
Dr. Kham Tonh	:	Deputy Director, Vientiane Provincial Public Health

10. Outhomphone District

Dr. Chantha SIYANONE	:	Director, Outhomphone District Health Office & Hospital
Ms. Kongsy XOUMPHONPHAKO	:	Deputy Director, Outhomphone District Hospital
Dr. Somoy SOURYA	:	Deputy Director, Savannaket Provincial Health Office
Mr. Inpanh	:	Architect, Savannaket Provincial Health Office

11. Songkhon District

Dr. Phousone XAYSYKET	:	Director, Songkhon District Health Office
Dr. Biune Nuck THAVISOUK	:	Deputy Director, Songkhon District Health Office
Dr. Sisaveuy DUANGCHANTHA	:	Director, Songkhon District Hospital
Dr. Phogsavath SAYPANYA	:	Vice Director, Songkhon District Hospital
Dr. Kham THANH	:	Statistic, Songkhon District Hospital
Dr. Kham SAVAN	:	Dentist, Songkhon District Hospital
Dr. Somphanh OUNVILAY	:	Head of Hospital MCH Unit, Songkhon District Health Office
Dr. Sonly SENGPANY	:	Staff, Songkhon District Health Office
Ms. Souliyeth	:	Head of Hospital Administration, District Health Office
Dr. Bounsavane	:	Staff, Songkhon District Health Office
Dr. Panom PHONGMANY	:	Deputy Director, Savannakhet Provincial Health Office
Dr. Khamkeo SOMSATH	:	Chief of Technical office, Savannakhet Provincial Health Office

12. Khongsedone District

Mr. Phouthavong VONGPHOUTHONG	:	Director, Kongsedone District Health Office
Mr. Chanthone KEOLIEMVILAY	:	Deputy Director, Kongsedone District Health Office
Mr. Boun SONG	:	Deputy Director, Kongsedone District Health Office
Dr. Phet SAVANH	:	MCH, Kongsedone District Health Office
Ms. Sibounheung KEOLIEMVILAY	:	Director, Kongsedone District Hospital
Dr. Souvahna	:	Deputy Director, Kongsedone District Hospital
Mr. Thong KHIANE	:	Deputy Director, Kongsedone District Hospital
Dr. Sibounheung THANOMHAK	:	Administration Unit, Kongsedone District Hospital
Ms. Sayaphone VONGSALAVANH	:	Administration Unit, Kongsedone District Hospital
Mr. Vilayphong	:	Accounting, Kongsedone District Hospital
Mr. Liane THONG	:	Finance, Kongsedone District Hospital
Dr. Khoutdara VONGSARAVANH	:	Director, Salavanh Provincial Health Office
Dr. Boualay SENEKEOMYKO	:	Director, Saravane Provincial Hospital
Dr. Oudomsack SYSANA	:	Technical staff, Saravane Provincial Health Office
Mr. Somphanh SIVILAY	:	Head Administration, Saravane Provincial Health Office

13. Champasak District

Mr. Bounhom PHETSANA	:	Director, Champasak District Health Office
Dr. Phonesay HANHMONTHY	:	Deputy Director, Champasak DHO & Director, Champasack District Hospital
Mr. Bunthong SAYTHAVY	:	Finance, Champasak District Health Office
Mr. Bun Song PHETMANYVONG	:	District Rural Development, Champasak District Health Office
Mr. Khamphot LIANKHEO	:	Vice-Governer, Champasak District
Dr. Bun Bang	:	Administration, Champasak District Health Office
Mr. Sonenapha THEPVONGSA	:	Administration, Champasak District Health Office

Dr. Wath KONGKEO	:	Deputy Director, Champasak Provincial Health Office
Dr. Phonesay HHOUNMALA	:	Head of Curative Division, Champasak Provincial Health Office
Dr. Sengchanh KEOPHONEDETH	:	Planning Department, Champasak Provincial Health Office
Mr. Sithisak KEOSAKSITH	:	Administration, Champasak Provincial Health Office

14. Sethathirath Hospital

Dr. Fongsouvanh VONGPHRACHANH : Chief of Clinic Medical

15. Mittaphab Hospital

Dr. Tavan MANIVONG	:	Head, Orthopedic Surgeon
Dr. Phath KEUNGSANETH	:	Chief of Emergency, Department Cardiology

16. Xaysettha District Hospital

Mr. Khantharath PHILAPHANDETL	:	Director, Xaysettha DHO

17. EDL: Electricite Du Laos

Mr. Sisavath THIRAVONG	:	Project Manager, Northern Area Rural Power Distribution Project (NARPD)
Mr. Bounsami HHENNAVONG	:	Assistant Director, Electrical Construction & Installation Branch

18. Ministry of Industry and Handicrafts, Department of Electricity

Mr. Bouathep MALAYKHAM	:	Head, Rural Electrification Division (RED)
Mr. Anousak PHONGSAVATH	:	Deputy Chief, Rural Electrification Division (RED)

19. Ministry of Communication Transport Post and Construction

Mr. Xeng Xiong NENGXAY	:	Head of Housing Division, Department of Housing and Urban Planning
Mr. Ngeun SIVISAY	:	Director, SDMT: State Enterprise for Survey Design and Material Testing

20. Vientiane Capital City, Water Supply Company

Mr. Khamphanh SUVANNARA	:	Head of Commercial Section

21. National Statistic Office

Dr. Thomas VONGPHITH	:	Internal Business Services

22. Lao Management & Development Consultants Co., Ltd. (LMDC)

Mr. Thanomvong KHAMVONGSA	:	Managing Director & Consultant

23. The Project for Improvement of Training Institutions for Health Workers

Mr. Syxomphou SENYAKONE	:	Registered Assistant Engineer, Luangprabang Health School, Pacific Consultants International
Mr. Yasutoshi UCHIYAMA	:	General Manager, Sumitomo Mitsui Construction Co. Group
Mr. Yoshio MOCHIZUKI	:	Study Group of Historical Architecture, Sumitomo Mitsui Constriction Co. Group

Mr. Khamphong VANNAVONGSA	:	Civil Engineer, Oudomxay Health School, Sumitomo-Mitsui Corporation

24. Embassy of Japan in Laos

Mr. Ken NAKAMURA	:	Second Secretary

25. JICA Lao Office

Mr. Senya MORI	:	Resident Representative
Mr. Shuichi IKEDA	:	Deputy Resident Representative
Ms. Tomoni IBI	:	Assistant Resident Representative
Ms. Sumiko NAKAMURA	:	Program Officer
Dr. Chiaki MIYOSHI	:	Advisor to Ministry of Health, Health and Medical Cooperation Planning
Dr. Azusa IWAMOTO	:	Chief Advisor, KIDSMILE Project
Ms. Key SUZUKI	:	Coordinator, KIDSMILE Project
Dr. Kenzo TAKAHASHI	:	Expert, KIDSMILE Project
Mr. Shin-ichi SUZUKI	:	Chief Advisor, LJC Project
Mr. Hideshi MARUTA	:	Coordinator / Project Management
Mr. Hideyuki KONDO	:	Senior Volunteer, MES Center
Mr. Yoichi SATO	:	Senior Volunteer, MES center
Mr. Tadanari KIBA	:	Senior Volunteer, Medical Products Supply Center
Mr. Kikuo TOMIOKA	:	Senior Volunteer, Hospital Management, Sethathirath Hospital
Mr. Daiske NONAKA	:	JOCV Volunteer, Malaria Control Center, Oudomxay PH

Appendix-4
Minutes of Discussions (Basic Design Study)

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS
IN THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

In response to the request from the Government of the Lao People's Democratic Republic (hereinafter referred to as "Laos"), the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of District Hospitals (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Tsutomu Shimizu, Project Management Group III, Grant Aid Management Department, JICA, and is scheduled to stay in Laos from February 28th, 2005 to March 27th, 2005.

The Team held discussions with the officials concerned of the Government of Laos and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Vientiane, March 17th, 2005

Tsutomu Shimizu
Leader
Basic Design Study Team
Japan International Cooperation Agency

Prof. Dr. Sommone PHOUNSAVATH
Director, Department of Curative Medicine
Ministry of Health
Lao People's Democratic Republic

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve the quality of health care services in the district hospitals described in the next clause through construction of facilities and provision of medical equipment.

2. Project site

The requested sites of the Project are the following district hospitals. The locations of the above hospitals are shown in Annex-1.

No. 1	Khoua District Hospital	Phongsaly Province
No. 2	Sing District Hospital	Louangnamtha Province
No. 3	Houn District Hospital	Oudomxay Province
No. 4	Kenthao District Hospital	Sayabouly Province
No. 5	Sangthong District Hospital	Vientiane Capital
No. 6	Pak Ngum District Hospital	Vientiane Capital
No. 7	Outhoumphone District Hospital	Savannakhet Province
No. 8	Songkhone District Hospital	Savannakhet Province
No. 9	Khongsedone District Hospital	Saravan Province
No.10	Champasak District Hospital	Champasak Province

3. Responsible and Implementing Agency

3-1. The Responsible Agency is the Ministry of Health.

3-2. The Implementing Agency is the provincial health offices and the district health offices of each province.

3-3. The Ministry of Health shall supervise concerned provincial health offices and the district health offices to ensure smooth implementation of the Project, especially for the arrangement of necessary budget and personnel.

4. Items requested by the Government of Laos

After discussions with the Team, the facilities described in Annex-2 and the equipment described in Annex-3 were finally requested by Lao side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval. The both sides confirmed that the final components of the Project will be decided after further analysis in Japan.

5. Japan's Grant Aid Scheme

5-1. The Lao side understood the Japan's Grant Aid Scheme explained by the Team, as described in Annex-4.

5-2. The Lao side will take the necessary measures, as described in Annex-5, for smooth

implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

6. Schedule of the Study

6-1. The consultants will proceed to further studies in Laos until March 26th, 2005.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around May, 2005.

6-3. In case that the contents of the report is accepted in principle by the Government of Laos, JICA will complete the final report and send it to the Government of Laos around August, 2005.

7. Other relevant issues

7-1. The Lao side shall ensure enough budget and personnel for operation and maintenance of the facilities and equipment of the planned district hospitals. Especially, proper trainings for the procured equipment are necessary.

7-2. The Lao side shall allocate the budget for its undertakings described in Annex-5 to be done in a timely manner.

7-3. The Lao side requested the consultant services for the following issues as the soft components of the Project.

(1) Operation and maintenance of the facilities and equipment

(2) Management of planned hospitals

7-4. The Lao side strongly requested the room for X ray apparatus in the planned hospitals in the northern region.

7-5. Special matters on the proposed sites of some hospitals

(1) The planned site of the Khua District Hospital is small and close to steep slope. The Team concerned about the risk of natural disaster. The Lao side explained the high priority of the Khua District Hospital and safety of the site. The Lao side will submit a letter, which describes above issues, to the consultant team by 25th March, 2005.

(2) The Lao side agreed to relocate existing storage buildings including its foundation and power line of the planned site of the Khua District Hospital before the start of construction.

(3) The Team pointed out the constraints of facilities construction of the following hospitals such as the lack of electricity in the Houn District Hospital, low utilization of the Sangthong District Hospital and the new building being built with the donation by an organization of the United States of the Khongsedon District Hospital, respectively.

(4) The Lao side expressed the importance of the all District Hospitals, however they gave the lower priority of facility construction according to the following order; 1) Pak Ngum District Hospital, 2) Khongsedone District Hospital, 3) Outhoumphone District Hospital, 4) Sangthong District Hospital.

Annex-1: Location Map

Annex-2: List of requested facilities

Annex-3: List of requested equipment

Annex-4: Japan's Grant Aid Scheme

Annex-5: Major Undertakings to be taken by Each Government

ANNEX 1 Location Map

	Name of Hospital	Name of Province
①	Khoua DH	Phongsaly Province
②	Sing DH	Louangnamtha Province
③	Houn DH	Oudomxay Province
④	Kenthao DH	Sayabouly Province
⑤	Sangthong DH	Vientiane Capital
⑥	Pak Ngum DH	Vientiane Capital
⑦	Outhomphone DH	Savannakhet Province
⑧	Songkhone DH	Savannakhet Province
⑨	Khongsedone DH	Saravan Province
⑩	Champasak DH	Champasak Province

ANNEX 2 List of Requested Facilities

Hospital No.	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
Province	Phongsaly	Louangnamtha	Oudomxay	Sayabouly	Vientiane	Viantiane	Savannakhet	Savannakhet	Saravan	Champasak
District	Khoua	Sing	Houn	Kenthao	Sangthong	PakNgum	Outhoumphone	Songkhone	Khongsedone	Champasak
Classification of Construction work	ALL (New Site)	ALL	Extension (OPD,WARD)	ALL	ALL	Extension (OPD)	ALL	ALL	Extension (OPD,WARD)	ALL (New site)
Classification	ID	ID	ID	ID	Rural	Rural	ID	ID	ID	ID
Covered population	26,966	29,740	59,451	36,682	23,430	43,952	73,351	86,855	56,050	57,316
No. of Bed Existing	30	18	20	15	10	14	10	30	30	30
OPD, Examination										
OPD	○	○	○	○	○	○	○	○	○	○
Pharmacy	○	○	○	○	○	○	○	○	○	○
Dentist	○	○	○	○	○	○	○	○	○	○
Laboratory	○	○	○	○	○	○	○	○	●	○
Waiting Area	○	○	○	○	○	○	○	○	○	○
X-ray	▲	▲	▲	○	▲	▲	○	○	○	○
Dark room	▲	▲	▲	○	▲	▲	○	○	○	○
Other Related Rms	○	○	○	○	○	○	○	○	○	○
Surgery										
Middle Surgery	○	○	○	○	○	○	○	○	●	○
OPTheater	–	–	●	–	–	–	○	○	●	○
Recovery	–	–	–	–	–	–	○	○	●	○
Other Related Rms	–	–	–	–	–	–	○	○	●	○
Ward										
Ward (16 beds)	○	○	○(12)	○	○	●	○	○	○	○
Nurse Station	○	○	●	○	○	●	○	○	○	○
Isolation	●	●	●	●	●	●	●	●	●	—
Other Related Rms	○	○	●	○	○	●	○	○	○	○
Matarnity										
MCH	○	○	●	○	○	●	○	○	●	○
Waiting Area	○	○	●	○	○	●	○	○	●	○
Examination	○	○	●	○	○	●	○	○	●	○
Delivery	○	○	●	○	○	●	○	○	●	○
Recovery	○	○	●	○	○	●	○	○	●	○
Injection Rm (EPI)	○	○	●	○	○	●	○	○	●	○
Other Related Rms	○	○	●	○	○	●	○	○	●	○
Administration										
Director	○	○	●	○	○	●	○	○	●	○
Administ.	○	○	●	○	○	●	○	○	●	○
Meeting Rm	○	○	●	○	○	●	○	○	●	○
Other Related Rms	○	○	●	○	○	●	○	○	●	○
Common Space										
WC/Shower	○	○	○	○	○	○	○	○	○	○
Elec Rm	○	○	●	○	○	●	○	○	●	○
Water Tank	○	○	●	○	○	●	○	○	●	○
Other Related Facilities	○	○	●	○	○	●	○	○	●	○

(Notes)
○: requested room
●: existing room
▲: with conditions
–: n/a

(Considerations)
① Site is small with steep slope
③ No plan of electricity supply
⑤ Low utilization
⑨ MCH/OPT newly constructed by USA

List of Requested Equipment

Hospital No.	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
Name of Hospital	Khoua	Sing	Houn	Kenthao	Sangthong	Pak Ngum	Outhoumphone	Songkone	Khongsedone	Champasak
OPD, Examination										
Consulting Room										
Examination Table	○	○	○	○	○	○	○	●○	○	○
Examination Light	○	○	-	○	○	○	○	○	○	○
Instrument Set for Examination	○	○	○	○	○	○	○	○	○	○
Instrument Cabinet	○	○	○	○	○	○	○	○	○	○
Height Scale	○	○	○	○	○	○	○	●○	○	○
Weighing Scale	○	○	○	○	○	●	○	●○	○	○
Consulting Desk	○	○	○	○	○	○	○	○	○	○
Ultrasound Scanner	△	△	-	△	-	-	○	-	○	○
Minor Surgery										
Treatment Bed	-	-	-	-	-	-	○	○	○	○
Examination Light	-	-	-	-	-	-	●○	○	○	○
Instrument Set for Treatment	-	-	-	-	-	-	○	○	○	○
Instrument Set for Emergency	-	-	-	-	-	-	○	○	○	○
Instrument Trolley	-	-	-	-	-	-	○	○	○	○
Instrument Cabinet	-	-	-	-	-	-	○	○	○	○
IV pole	-	-	-	-	-	-	○	●	○	○
Boiling Sterilizer	-	-	-	-	-	-	○	○	○	○
Resuscitation Set	-	-	-	-	-	-	○	○	○	○
Stretcher	-	-	-	-	-	-	○	○	○	○
Oxygen Regulator,Flow Meter,Humidifier	-	-	-	-	-	-	○	○	○	○
Oxygen Cylinder Cart	-	-	-	-	-	-	○	○	○	○
Sphygmomanometer	-	-	-	-	-	-	○	○	○	○
Suction Unit-Medium Size	-	-	-	-	-	-	○	○	○	○
Sucction Unit-Foot Pedal Type-M Size	-	-	-	-	-	-	-	-	-	-
Pharmacy										
Drug Cabinet	○	○	○	○	○	○	○	○	○	○
Dental										
Dental Unit	○	○	-	○	○	○	○	○	○	△
Dental Chair	-	-	○	-	-	-	-	-	-	-
Dental Instrument Set	○	○	○	○	○	○	○	○	○	△
Autoclave for Dental	○	○	-	○	○	○	○	●	○	△
Consulting Desk	○	○	○	○	○	○	○	○	○	△
Laboratory										
Microscope	○	○	○	○	○	○	○	○	○	○
Centrifuge	○	○	○	○	○	○	●	○	○	○
Hematocrit Centrifuge	○	○	○	○	○	○	○	○	●	○
Incubator	-	-	-	-	-	-	○	○	○	●
Refrigerator	○	○	-	○	○	○	○	○	○	○
Blood Bank Refrigerator	-	-	-	△	-	-	-	○	○	○
Autoclave for Laboratory	○	○	-	○	○	○	○	○	○	○
Autoclave for Laboratory-Cooker Type	-	-	○	-	-	-	-	-	-	-
X-ray										
X ray Unit	-	-	-	○	-	-	○	○	○	○
X ray Protective Set	-	-	-	○	-	-	○	○	○	○
X-ray Film Cabinet	-	-	-	○	-	-	○	○	○	○
Dark Room										
Manual Film Developer	-	-	-	○	-	-	○	○	○	○
Dark Room Set	-	-	-	○	-	-	○	○	○	○
Reading Room										
X-ray Film Illuminator	-	-	-	○	-	-	○	○	○	○
Reading Desk	-	-	-	○	-	-	○	○	○	○

Hospital No.	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
Name of Hospital	Khoua	Sing	Houn	Kenthao	Sangthong	Pak Ngum	Outhoumphone	Songkone	Khongsedone	Champasak
Surgery										
Middle Surgery										
Operating Table- B type	○	○	○	○	○	○	–	–	–	–
Operating Light- B type	○	○	–	●	●	○	–	–	–	–
Instrument Set for Surgery-B type	○	○	○	○	○	○	–	–	–	–
Instrument Set for Surgery-C type	○	○	○	○	○	○	–	–	–	–
Instrument Trolley	○	○	○	○	○	○	–	–	–	–
Instrument Cabinet	○	○	○	○	○	●	–	–	–	–
IV pole	○	○	○	○	○	○	–	–	–	–
Boiling Sterilizer	–	○	–	○	○	○	–	–	–	–
Resuscitation Set	○	○	○	○	○	○	–	–	–	–
Stretcher	○	○	○	○	○	○	–	–	–	–
Oxgen Regulator,Flow Meter,Humidifier	●	○	○	○	●	●○	–	–	–	–
Oxgen Cylinder Cart	○	○	○	○	○	○	–	–	–	–
Sphygmomanometer	○	○	○	○	○	○	–	–	–	–
Sucction Unit-Medium Size	–	○	–	○	○	○	–	–	–	–
Sucction Unit-Foot Pedal Type-M Size	○	–	○	–	–	–	–	–	–	–
OP Theater										
Operating Table-A type	–	–	–	–	–	–	○	○	○	○
Operating Light-A type	–	–	–	–	–	–	○	○	○	○
Instrument Set for Surgery-A type	–	–	–	–	–	–	○	○	○	○
Instrument Trolley	–	–	–	–	–	–	○	○	○	○
Maiyo Stand	–	–	–	–	–	–	○	○	○	○
Anethesia Apparatus	–	–	–	–	–	–	○	●	○	○
Electrosurgical unit	–	–	–	–	–	–	●	○	○	●
Suction unit-Large Size	–	–	–	–	–	–	○	○	○	○
Suction unit-Small Size	–	–	–	–	–	–	○	○	○	○
X-ray Film Illuminator	–	–	–	–	–	–	○	○	○	○
Oxgen Regulator,Flow Meter,Humidifier	–	–	–	–	–	–	○	○	○	○
Recovery										
Patient Bed	–	–	–	–	–	–	○	○	○	○
Sterilization										
Autoclave	○	○	–	○	○	○	○	○	○	○
Autoclave-Cooker Type	–	–	○	–	–	–	–	–	–	–
Instrument Cabinet	○	○	○	○	○	○	○	○	○	○
Ward										
Ward										
Wheel Chair	○	○	○	○	○	○	○	○	○	○
IV pole	○	○	○	○	○	○	○	○	○	○
Patient Bed	○	○	○	○	○	○	○	○	○	○
Bed Side Cabinet	○	○	○	○	○	○	○	○	○	○
Stretcher	○	○	○	○	○	○	○	○	○	○
Nurse Station										
Stethoscope	○	○	○	○	○	○	○	○	○	○
Spygmomanometer	○	○	○	○	○	○	○	○	○	○
Isolation										
Patient Bed	○	○	○	○	○	○	○	○	○	○
Bed Side Cabinet	○	○	○	○	○	○	○	○	○	○

Hospital No.	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
Name of Hospital	Khoua	Sing	Houn	Kenthao	Sangthong	Pak Ngum	Outhoumphone	Songkone	Khongsedone	Champasak
Maternity										
MCH										
Examination Table for Ob. / Gy.	○	○	○	○	○	○	●	○	○	○
Examination Light	○	○	○	○	○	○	●	●	○	○
Height Scale	○	○	○	○	○	○	○	○	○	○
Weighing Scale	○	○	○	○	○	●	○	○	○	○
Height Scale for Neonate	○	○	○	○	●	○	○	●	○	○
Weighing Scale for Neonate	●	○	○	○	●	○	●	●	○	○
Instrument Set for Examination for MCH	○	○	○	○	○	○	○	○	○	○
Instrument Trolley	○	○	○	○	○	●	○	○	○	○
Consulting Desk	○	○	○	○	○	○	○	○	○	○
Delivery Room										
Delivery Table	○	○	○	○	○	○	●	○	○	●
Delivery Light	○	○	○	○	●	●	●	○	○	○
Instrument Set for Delivery	○	○	○	○	○	○	○	○	○	○
Instrument Trolley	○	○	○	○	○	○	○	○	○	○
Boiling Sterilizer	○	○	○	○	○	○	○	○	○	○
Vacuum Extractor-Electric Type	-	-	-	○	○	○	○	○	○	○
Vacuum Extractor-Foot Pedal Type	○	○	○	-	-	-	-	-	-	-
Baby Cot	○	○	○	○	○	○	○	○	○	○
Resuscitation Set for Neonate	○	○	○	○	○	○	○	○	○	○
Suction unit-Small Size	○	○	-	○	○	●	○	○	○	○
Sucction Unit-Foot Pedal Type-M Size	-	-	○	-	-	-	-	-	-	-
Weighing Scale for Neonate	●	●	●	○	○	●	○	○	○	○
Infant warmer	○	○	-	○	○	○	○	○	○	○
Labor Bed	○	○	○	○	○	○	○	○	○	○
Recovery										
Recovery Bed	○	○	○	○	○	○	○	○	○	○
EPI										
Examination Bed	○	○	○	○	○	○	○	○	○	○
Emergency										
Emergency Bed	-	-	-	-	-	-	-	-	○	-
Emergency Light	-	-	-	-	-	-	-	-	○	-
Instrument Set for Emergency	-	-	-	-	-	-	-	-	○	-
Instrument Trolley	-	-	-	-	-	-	-	-	○	-
Instrument Cabinet	-	-	-	-	-	-	-	-	○	-
IV pole	-	-	-	-	-	-	-	-	○	-
Boiling Sterilizer	-	-	-	-	-	-	-	-	○	-
Resuscitation Set	-	-	-	-	-	-	-	-	○	-
Stretcher	-	-	-	-	-	-	-	-	○	-
Oxgen Regulator,Flow Meter,Humidifier	-	-	-	-	-	-	-	-	○	-
Oxgen Sylinder Cart	-	-	-	-	-	-	-	-	○	-
Sphygmomanometer	-	-	-	-	-	-	-	-	○	-
Sucction Unit-Medium Size	-	-	-	-	-	-	-	-	○	-

(Notes)

○: New Equipment

●: Existing Equipment

●○: Additional

- : n/a

Japan's Grant Aid Scheme

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedure

1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Team to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Programme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by

TS

JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
d) preparation of a basic design of the Project; and
e) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even through they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country, in order to maintain the technical consistency between the Basic Design and Detailed Design as well as to avoid any undue delay caused by the selection of a new consulting firm.

3. Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability of Japanese taxpayers.

5) Undertakings required to the Government of the recipient country

a) to secure a lot of land necessary for the construction of the Project and to clear the site;
b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site;
c) to ensure prompt unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;
d) to exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;
e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;
f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and
g) to bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

6) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and

equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

8) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commission to the Bank.

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1.	To secure land and to obtain building permit		●
2.	To clear, level and reclaim the site when needed		●
3.	To construct gates and fences in and around the site		●
4.	To construct the parking lot	●	
5.	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6.	To construct the buildings	●	
7.	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others) to the site		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
8.	To bear the following commissions to the Japanese bank for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●

9.	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	•	
	2) Tax exemption and custom clearance for the products at the port of disembarkation		•
	3) Internal transportation from the port of disembarkation to the project site	•	
10.	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contact, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		•
11.	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts.		•
12.	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant		•
13.	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment.		•

Appendix-5
Minutes of Discussions (Explanation on Draft Report)

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS
IN THE LAO PEOPLE'S DEMOCRATIC REPUBLIC
(EXPLANATION ON THE DRAFT REPORT)

In March 2005, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Improvement of District Hospitals (hereinafter referred to as "the Project") to the Lao People's Democratic Republic (hereinafter referred to as "the Lao P.D.R."), and through discussions, field survey and technical examination of the results in Japan, JICA prepared the draft report of the Study.

In order to explain and to consult with the officials concerned of the Lao P.D.R. on the components of the draft final report, JICA sent to the Lao P.D.R. the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Shuichi IKEDA, Deputy Resident Representative, Laos Office, JICA, from 20th October to 29th October, 2005.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Vientiane, October 28, 2005

Shuichi IKEDA
Leader
Draft Explanation Study Team
Japan International Cooperation Agency

Prof. Dr. Sommone PHOUNSAVATH
Director, Department of Curative Medicine
Ministry of Health
Lao People's Democratic Republic

ATTACHMENT

1. Components of the Draft Report

The Lao Side agreed and accepted in principle the components of the draft report explained by the Team.

2. Japan's Grant Aid Scheme

The Lao Side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Lao side as explained by the Team and described in Annex-4 and Annex-5 of the Minutes of Discussions of the Basic Design Study signed by both parties March 17, 2005.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Lao side by the end of January 2006.

4. Other Relevant Issues

4-1. The Lao Side promised to allocate the enough budget and personal staff at each targeted hospitals for the operation and maintenance of the facilities and equipments provided by the Project.

The team requested to submit the commitment letter of these allocations from each responsible authority, and the Lao side agreed to submit these letters by the end of November 2005.

4-2. The Lao side understood that the Project will be implemented in three phases and understood its process (especially the process that tender will be implemented at each phase in accordance with "the Guidelines of the Japanese Grant Aid for General Projects and for Fisheries").

4-3. The Lao side requested Anesthesia Apparatus for Khoua DH, Sing DH and Kenthao DH. The Team will convey this request to the Government of Japan. In addition, the Lao side requested to consider repairing existing building of Khongsedone DH.

4-4. The Lao side agreed to connect high-tension power line for Khoua DH, Sing DH, Houn DH, Kenthao DH, Songkhon DH and Champasak DH before commencement of the construction work.

4-5. The Lao side agreed to prepare water supply and drainage piping works for Dental units at Sangthong DH, Pak Ngum DH, Outhomphon DH and Khongsedone DH before installation of Dental units.

4-6. The Lao side agreed to supply 3-phase electricity for X-ray unit at Khongsedon DH before installation of X-ray unit.

4-7. To secure transparency and equity of the tendering procedure, both sides promised not to disclose information related to the Project to the third parties until tender opening.

APPENDIX-6 Technical Notes

THE BASIC DESIGN STUDY

ON THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS

IN THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

TECHNICAL NOTES

March 2005

The Ministry of Health, Lao PDR

The Consultant Team of JICA Basic Design Study

THE BASIC DESIGN STUDY
ON THE PROJECT FOR IMPROVEMENT OF DISTRICT HOSPITALS
IN THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

TECHNICAL NOTES

After the signing of the Minutes of Discussion on 17th of March 2005, the Consultant team continued further study and analysis of the Project. The Consultant team prepared attached documents/plans and Lao side confirmed the contents as the final requested items.

Also Lao side prepared five (5) letters that were strongly requested during the official discussion, as follows;

1) Scarcity/safety of land and necessity of District Hospital in Khoua DH.
2) Undertaking for demolishment of existing Storages including foundations and relocation of power generator system before starting the construction at the new site of Khoua DH.
3) Necessity of Ultrasound with staff training / allocation plan for Khoua DH, Sing DH and Kenthao DH.
4) Necessity of Dental equipment with staff training / allocation plan in Champasak DH.
5) Necessity of Blood bank refrigerator in Kenthao DH.

The Consultant team will proceed to further works based of attached requested items with collected necessary data and explain to the Government of Japan for preparing the Basic Design Study Report in Tokyo.

Vientiane, March 24th, 2005

Tetsuro NISHIMURA
Project Manager
Basic Design Study Team
Kume Sekkei Co., Ltd.

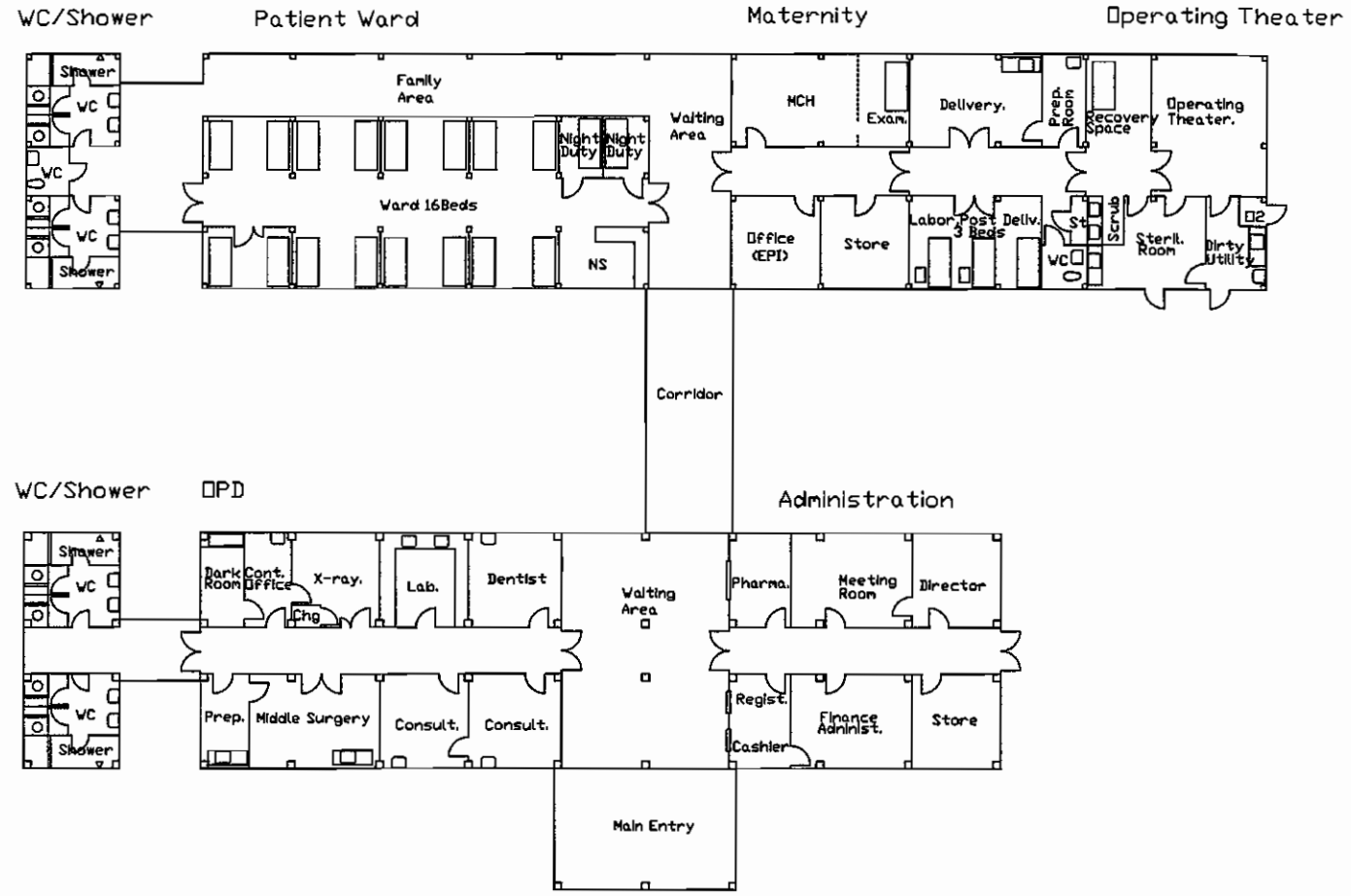
Prof. Dr. Sommone PHOUNSAVATH
Director, Department of Curative Medicine
Ministry of Health
Lao People's Democratic Republic

CONTENTS:

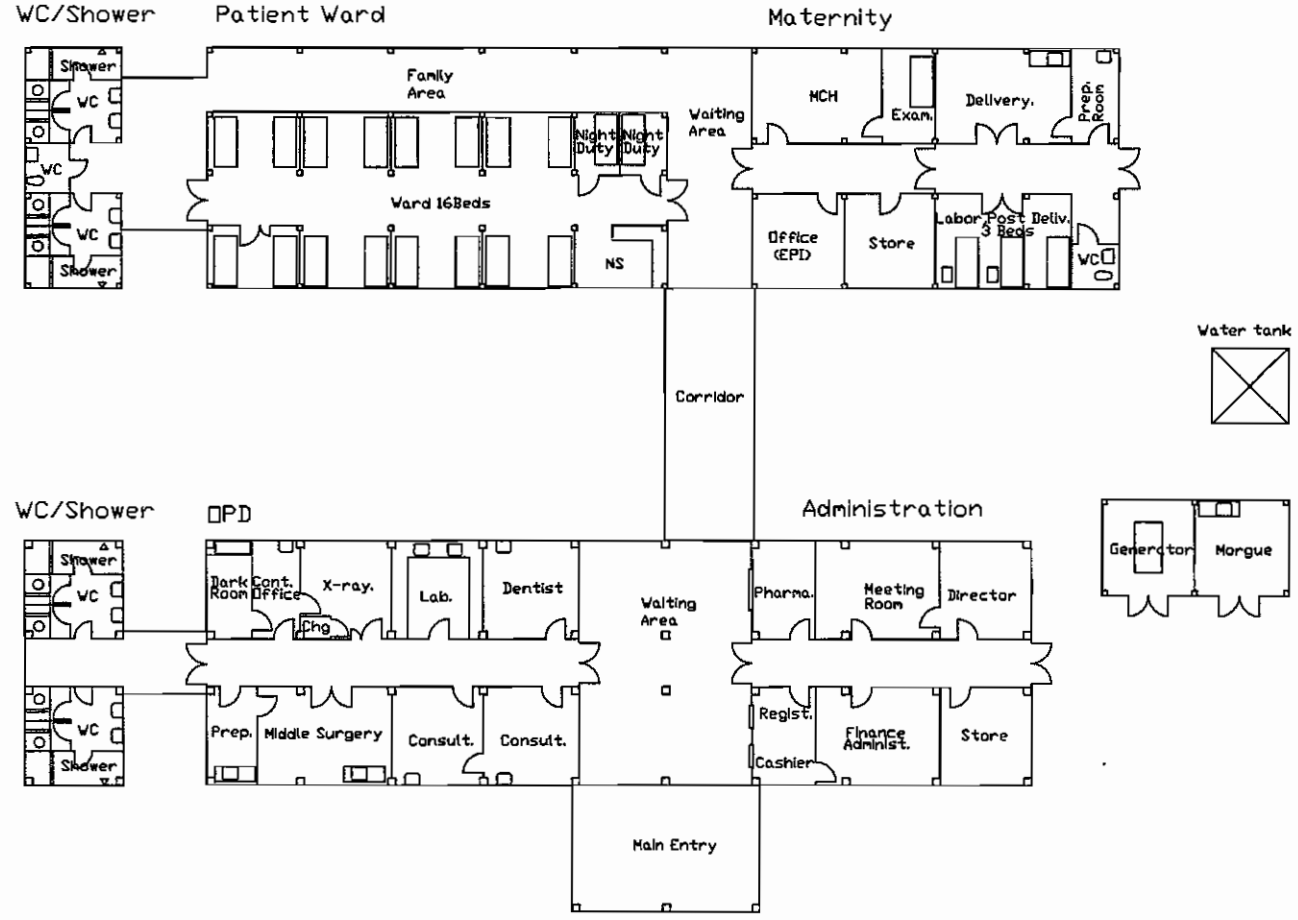
Attached: request letters from Lao side

Prototype plan for the District hospitals 1:300

Type-A (with O.T.)

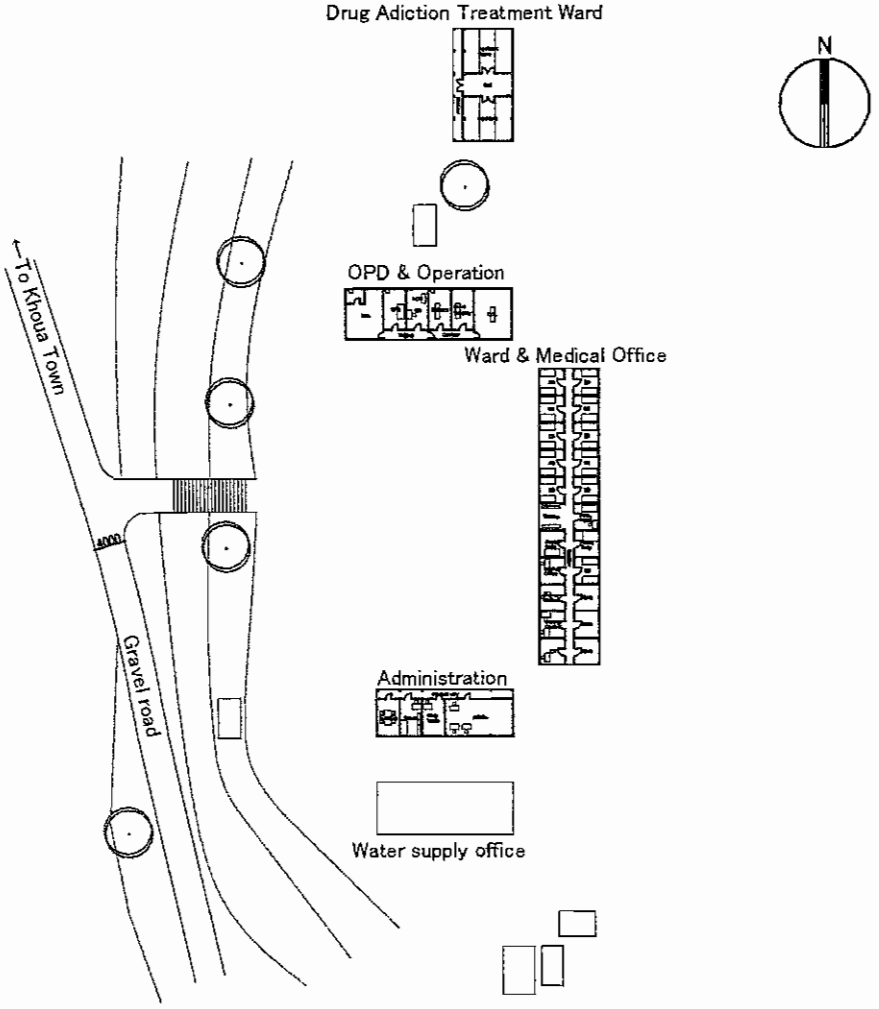


Type-B (without O.T.)



List of Requested Rooms Area

Hospital Type	A			B		
	Ground	Area (㎡)		Ground	Area (㎡)	
OPD		207.4			207.4	
OPD	3.6 × 3.6 × 2 =	25.9		3.6 × 3.6 × 2 =	25.9	
Dentist	3.6 × 3.6 =	13.0		3.6 × 3.6 =	13.0	
Laboratory	3.6 × 3.6 =	13.0		3.6 × 3.6 =	13.0	
Waiting Area	7.2 × 9.6 =	69.1		7.2 × 9.6 =	69.1	
X-ray/Cont. Office	5.4 × 3.6 =	19.4		5.4 × 3.6 =	19.4	
Dark room	1.8 × 3.6 =	6.5		1.8 × 3.6 =	6.5	
Middle Surgery	5.4 × 3.6 =	19.4		5.4 × 3.6 =	19.4	
Other Related Rms	207.4 − 166.3 =	41.0		207.4 − 166.3 =	41.0	
Ward		172.8			172.8	
Ward	172.8 − 71.6 =	101.2		172.8 − 71.6 =	101.2	
Nurse Station	3.6 × 2.3 =	8.3		3.6 × 2.3 =	8.3	
Isolation	3.6 × 2.3 =	8.3		3.6 × 2.3 =	8.3	
Night Duty	3.6 × 2.3 =	8.3		3.6 × 2.3 =	8.3	
Family Area	18.0 × 2.6 =	46.8		18.0 × 2.6 =	46.8	
MCH,Examination,Surgery		241.9			172.8	
(MCH,Examination)	(	172.8	)	(	172.8	)
MCH	5.1 × 3.6 =	18.4		5.1 × 3.6 =	18.4	
Waiting Area	3.6 × 9.6 =	34.6		3.6 × 9.6 =	34.6	
Examination	2.1 × 3.6 =	7.6		2.1 × 3.6 =	7.6	
Delivery	5.4 × 3.6 =	19.4		5.4 × 3.6 =	19.4	
Recovery	5.4 × 3.6 =	19.4		5.4 × 3.6 =	19.4	
EPI	3.6 × 3.6 =	13.0		3.6 × 3.6 =	13.0	
Other Related Rms	172.8 − 112.3 =	60.5		172.8 − 112.3 =	60.5	
(Surgery)	(	69.1	)		-	
OP Theater	4.6 × 6.0 =	27.6			-	
Sterilization Room	4.4 × 1.8 + 3.0 × 1.8 =	13.2			-	
Recovery Space	2.6 × 2.6 =	6.8			-	
Other Related Rms	69.1 − 47.6 =	21.5			-	
Administration		103.7			103.7	
Pharmacy	2.4 × 3.6 =	8.6		2.4 × 3.6 =	8.6	
Director	3.6 × 3.6 =	13.0		3.6 × 3.6 =	13.0	
Administration	4.8 × 3.6 =	17.3		4.8 × 3.6 =	17.3	
Meeting Room	5.4 × 3.6 =	19.4		5.4 × 3.6 =	19.4	
Other Related Rms	103.7 − 58.3 =	45.4		103.7 − 58.3 =	45.4	
Common Space		172.6			172.6	
WC/Shower	3.6 × 9.6 × 2 =	69.1		3.6 × 9.6 × 2 =	69.1	
Corridor/Main Entry	22.3 + 36.5 + 8.64 + 36.0 =	103.5		22.3 + 36.5 + 8.64 + 36.0 =	103.5	
Total Floor Area 1		898.4			829.3	
Elec Room	3.6 × 3.6 =	13.0		3.6 × 3.6 =	13.0	
Morgue	3.6 × 3.6 =	13.0		3.6 × 3.6 =	13.0	
Total Floor Area 2		25.9			25.9	
Water Tank	3.6 × 3.6 =	13.0		3.6 × 3.6 =	13.0	
Total Floor Area 3		13.0			13.0	
Total Floor Area		937.3			868.1	



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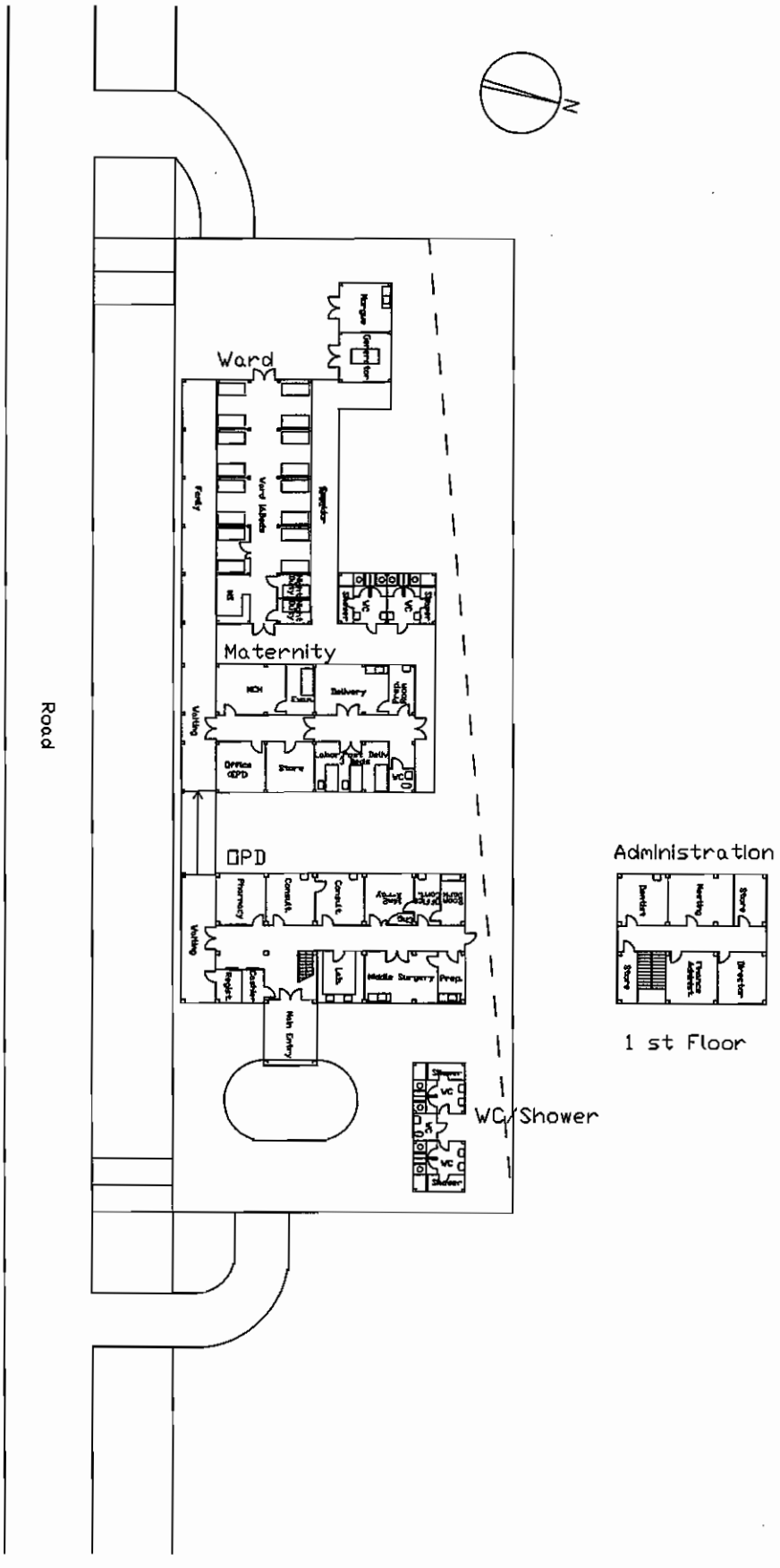
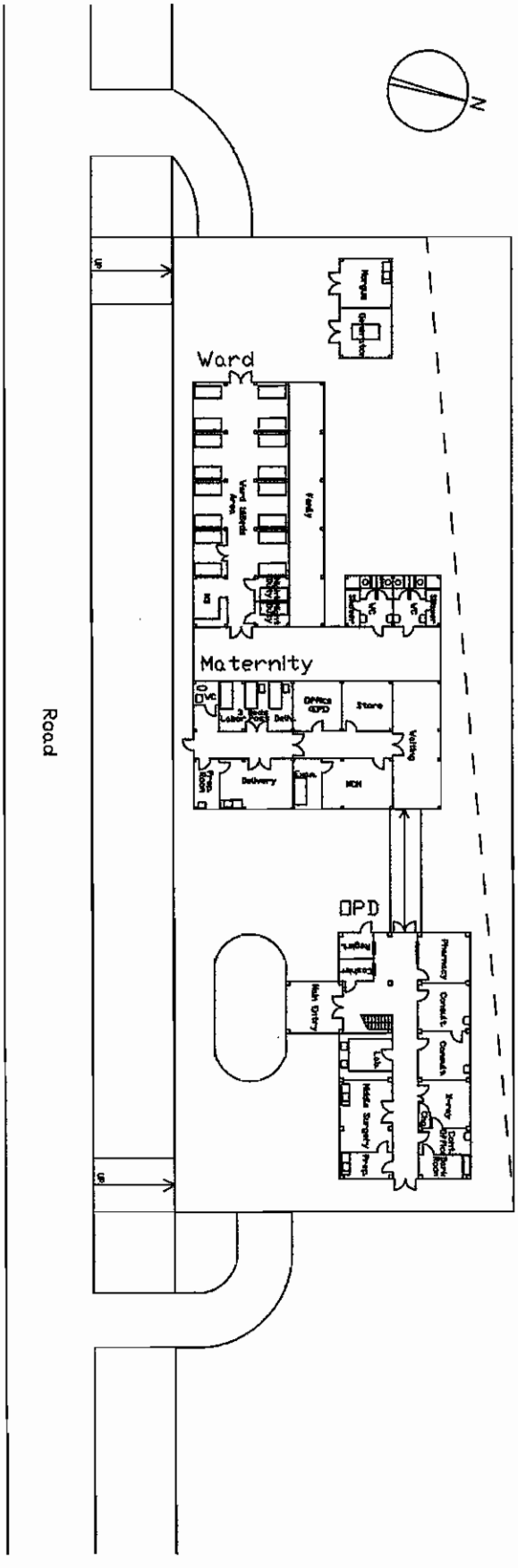
A-31 Existing Khoua District Hospital No.1

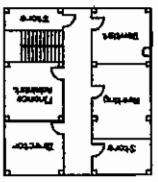
Khoua District Hospital No.1 S=1/500



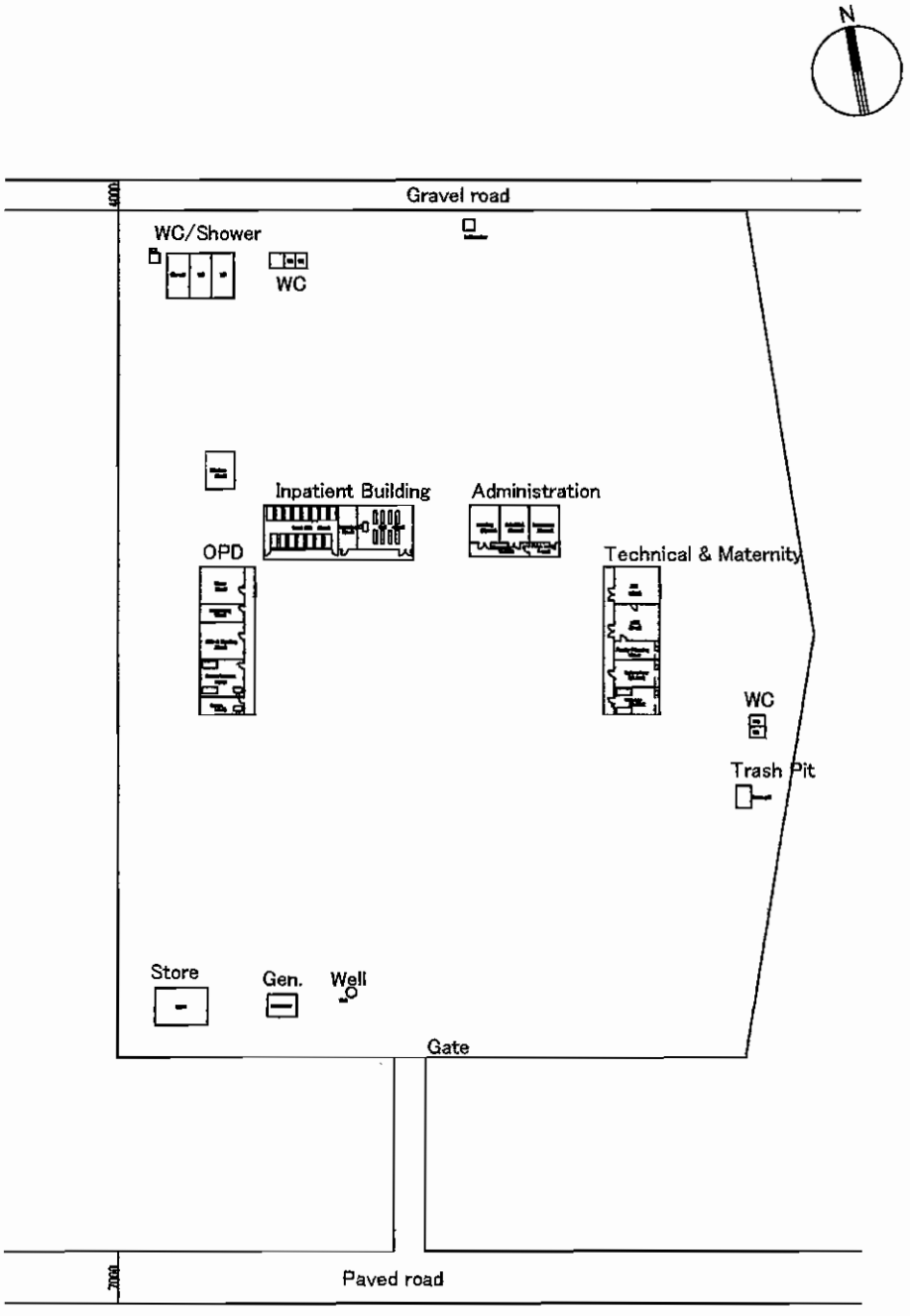
Khoua District Hospital No.1 S=1/500



Administration



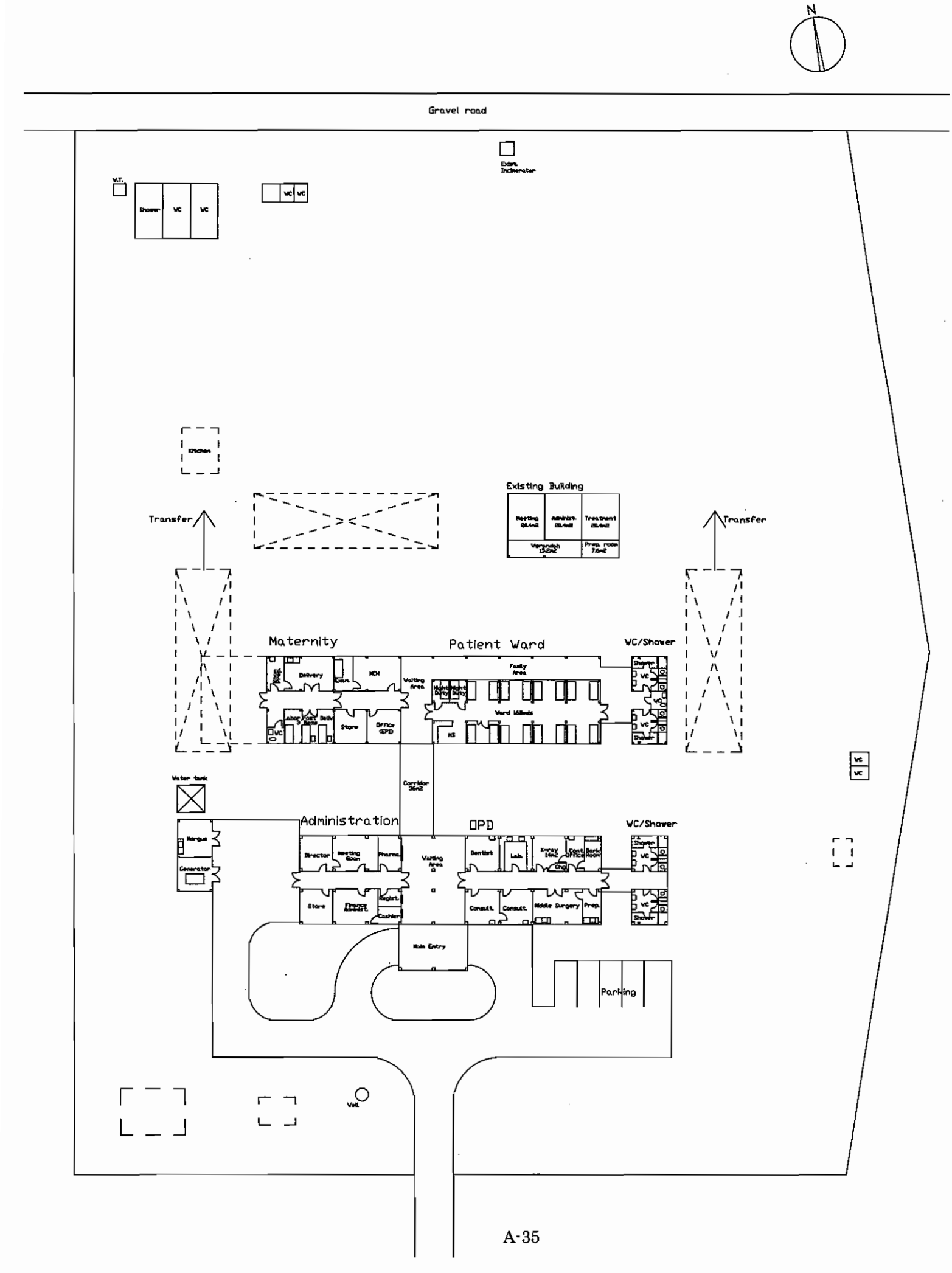
1 st Floor

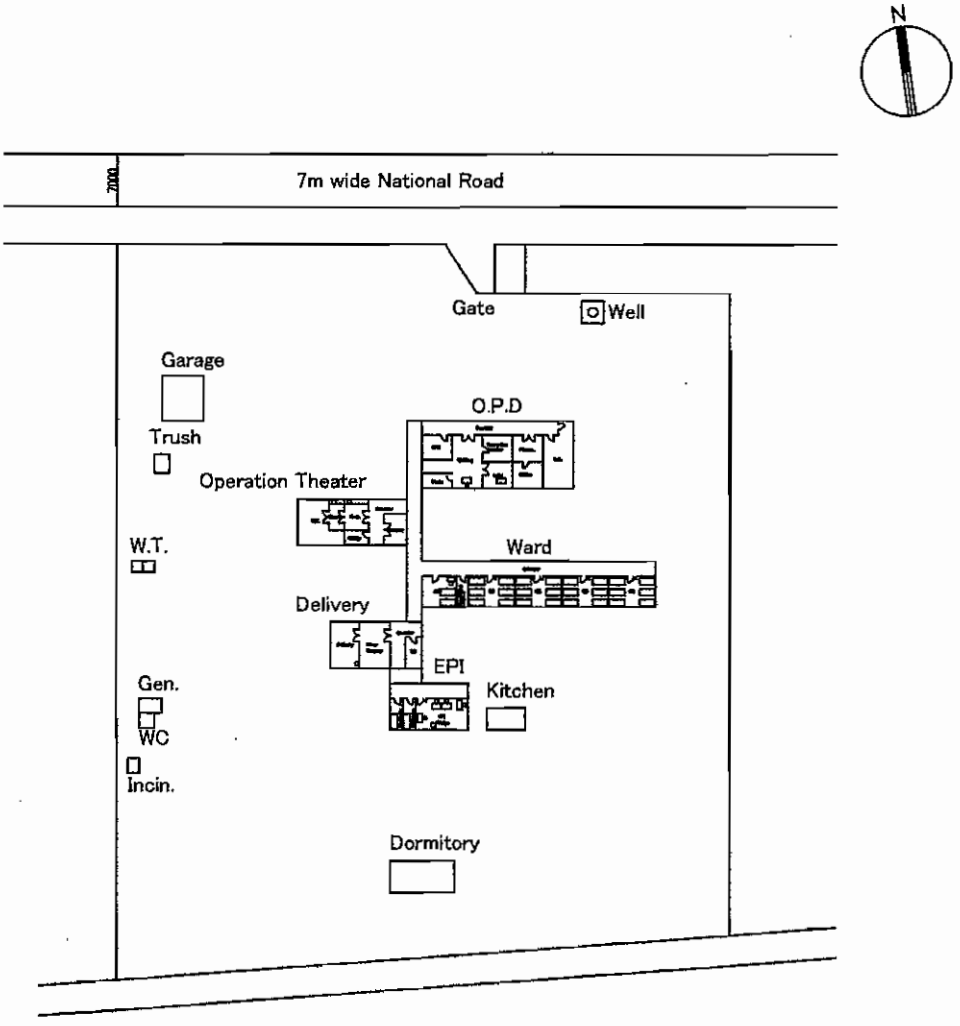


S=1/1000 0 5 10 20 30 40 50(m)

A-34 Existing Sing District Hospital No.2

Sing District Hospital No.2 S=1/500

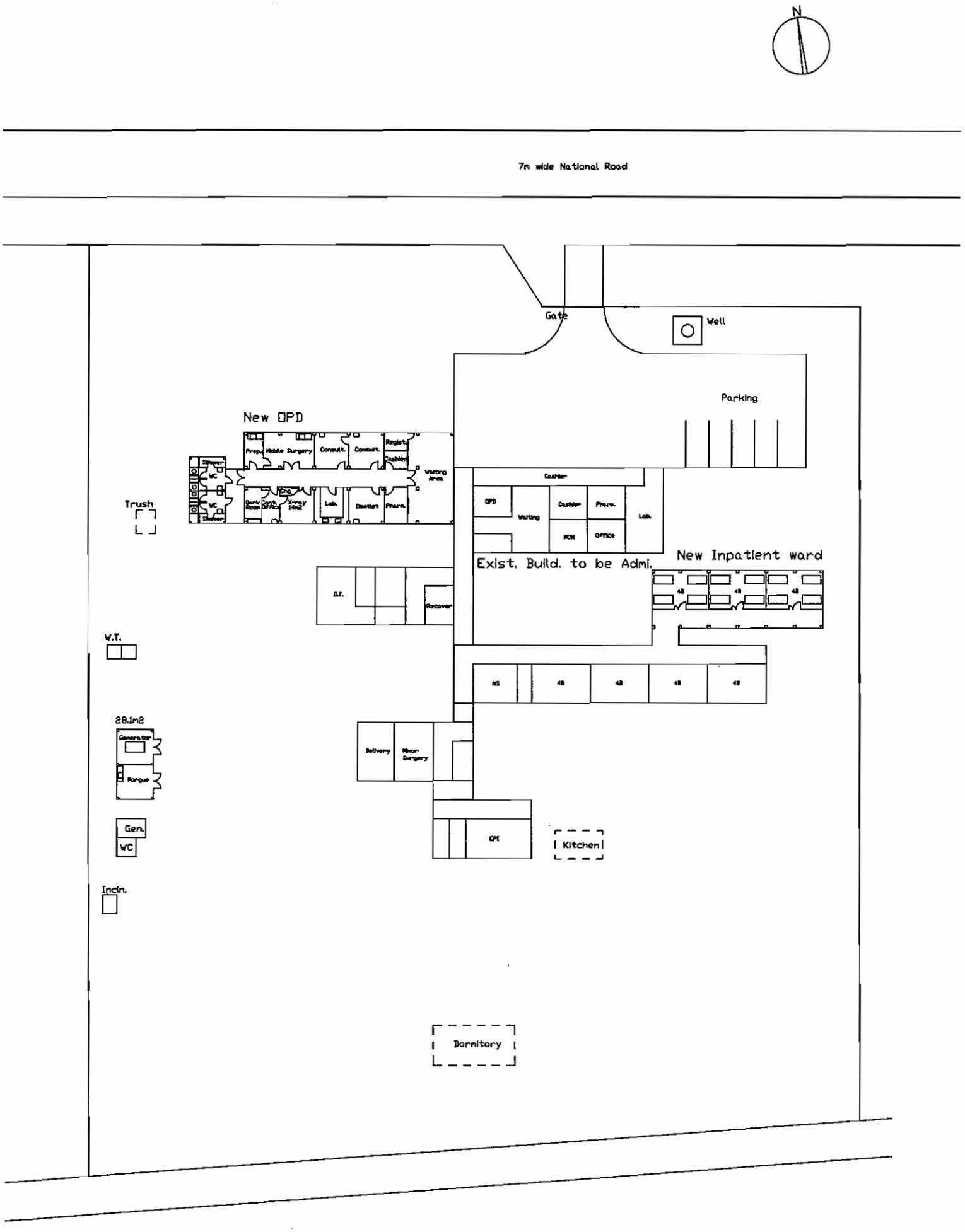


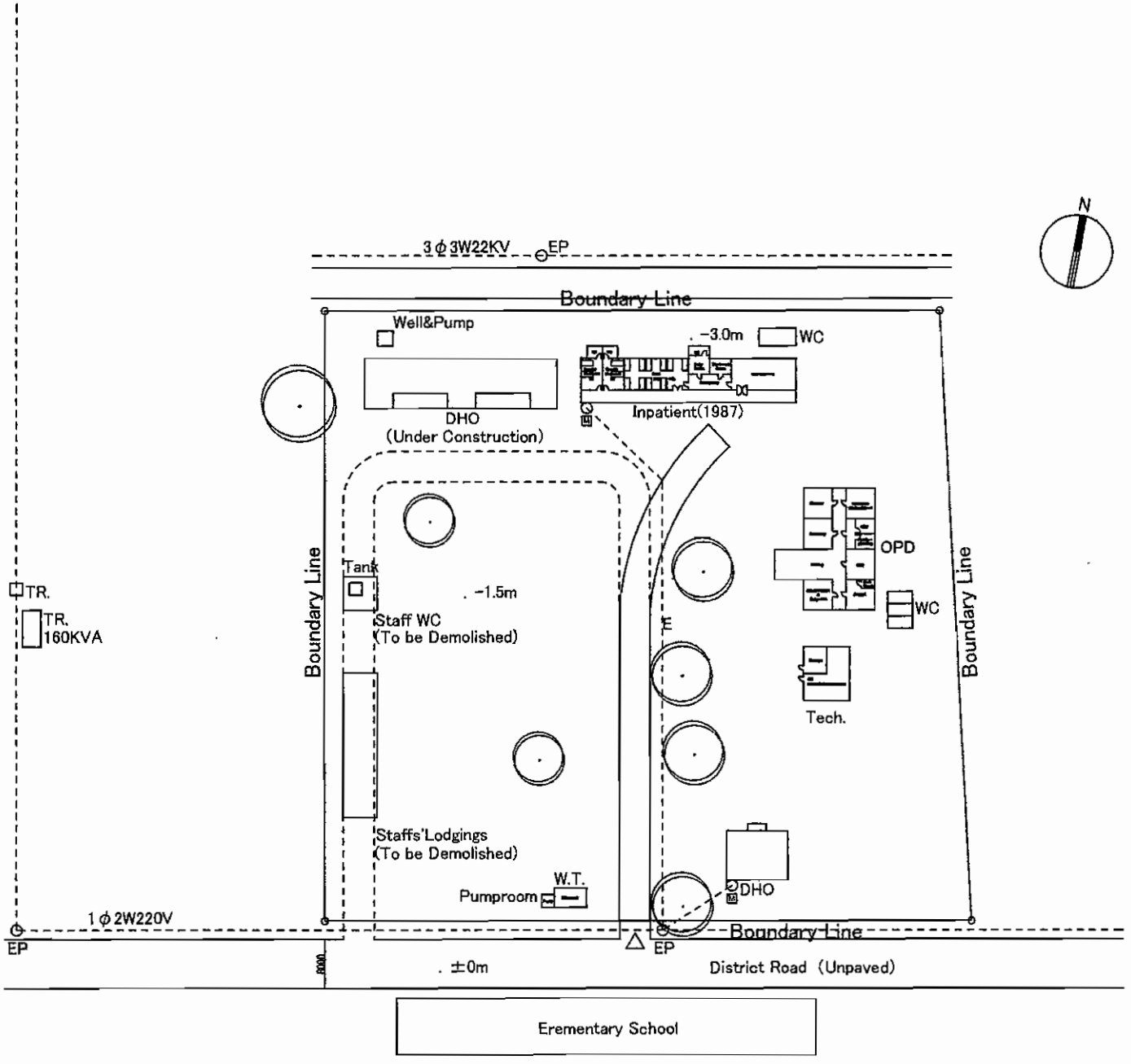


S=1/1000 0 5 10 20 30 40 50(m)

A-36 Existing Houn District Hospital No.3

Houn District Hospital No.3 S=1/500

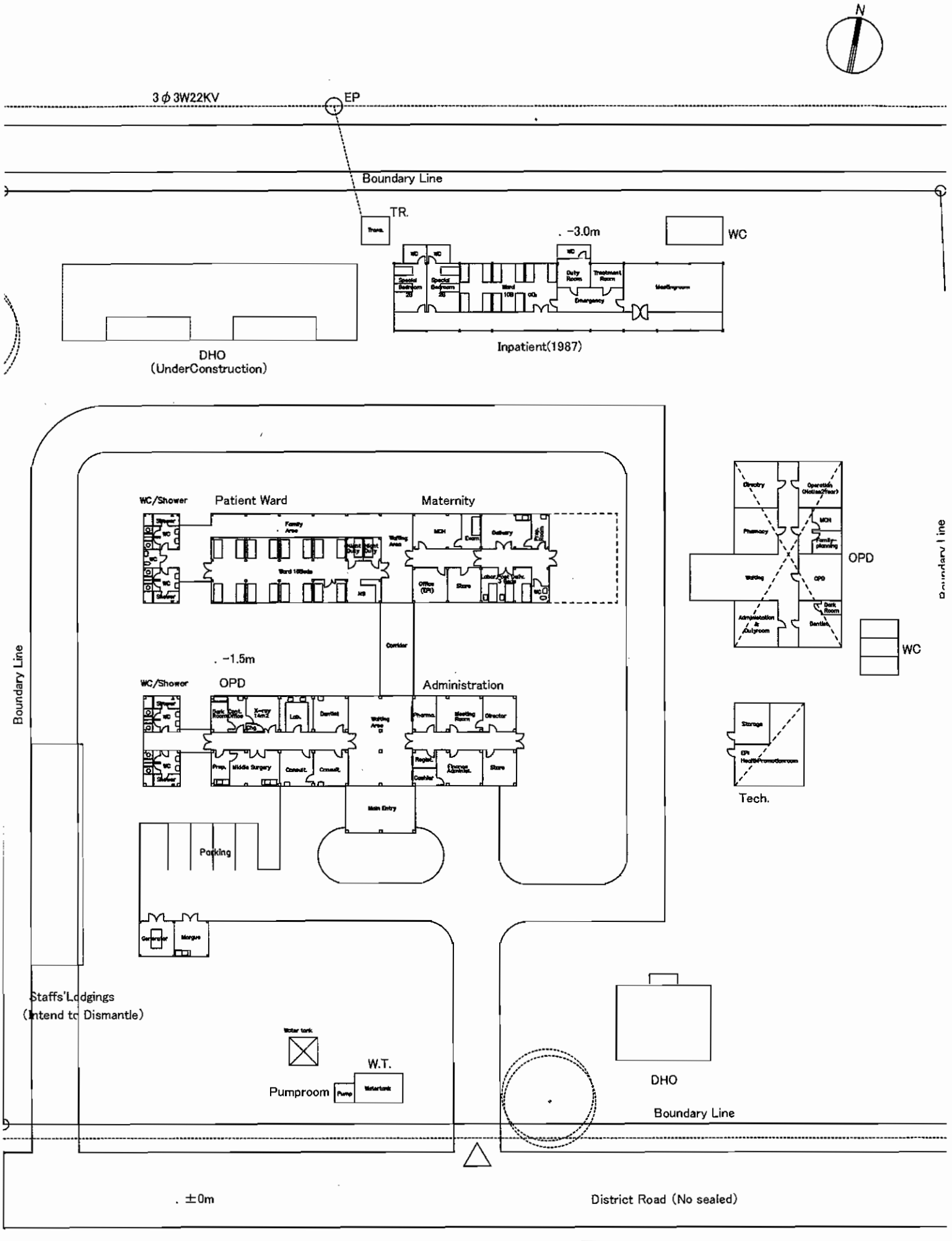


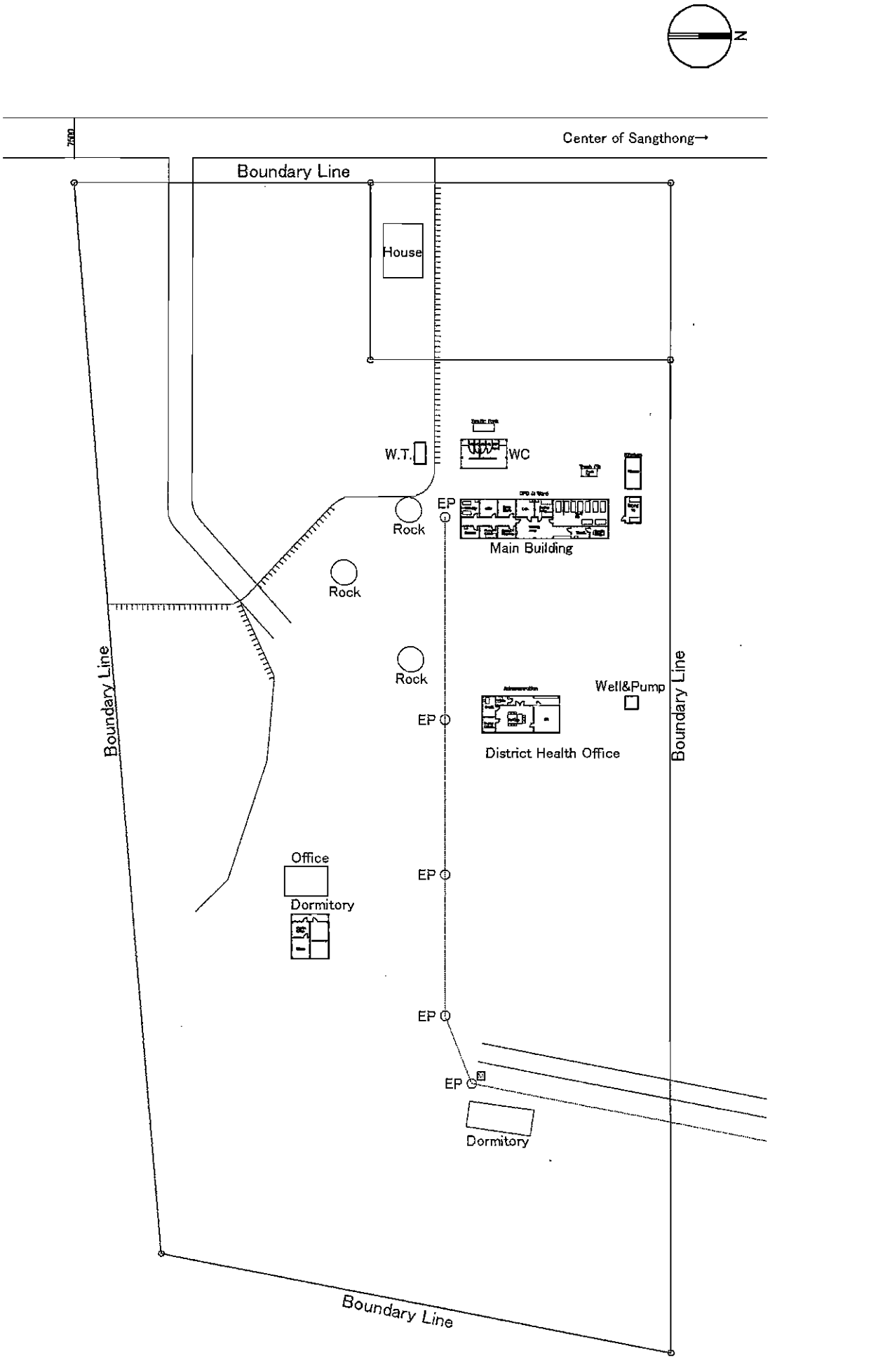


S=1/1000 0 5 10 20 30 40 50(m)

A-38 Existing Kenthao District Hospital No.4

Kenthao District Hospital No.4 S=1/500

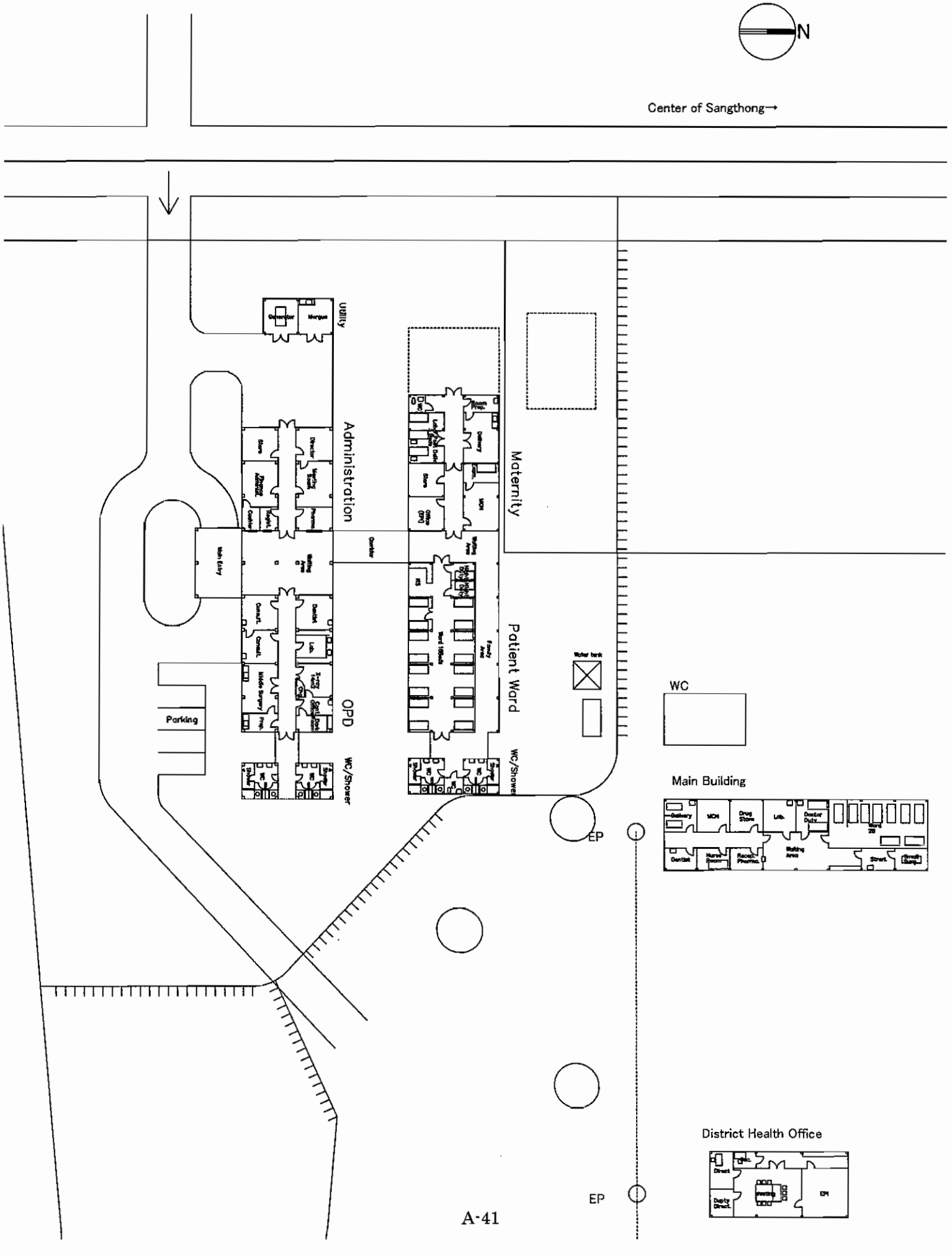


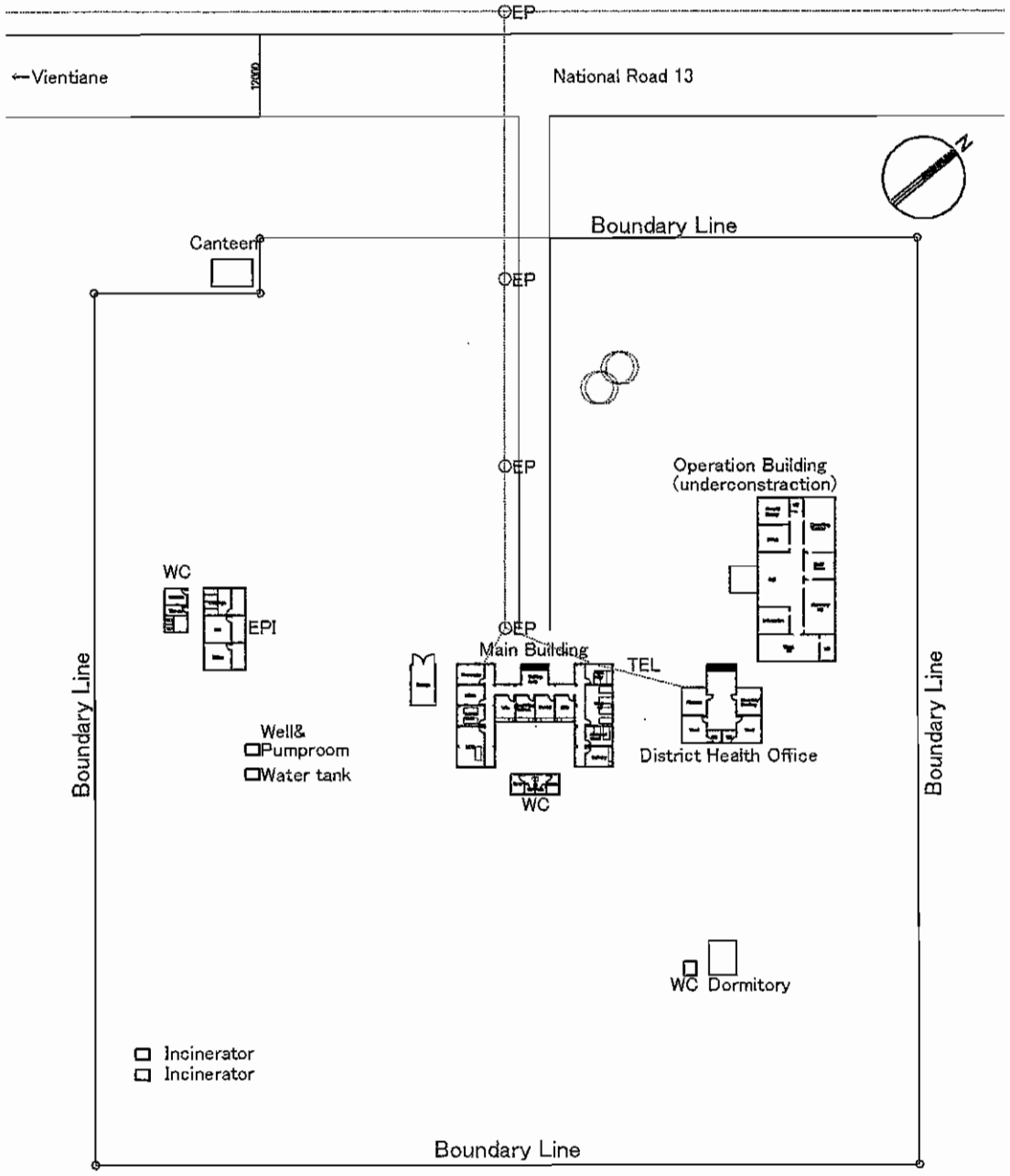


S=1/1000 0 5 10 20 30 40 50(m)

A-40 Existing Sangthong District Hospital No.5

Sangthong District Hospital No.5 S=1/500

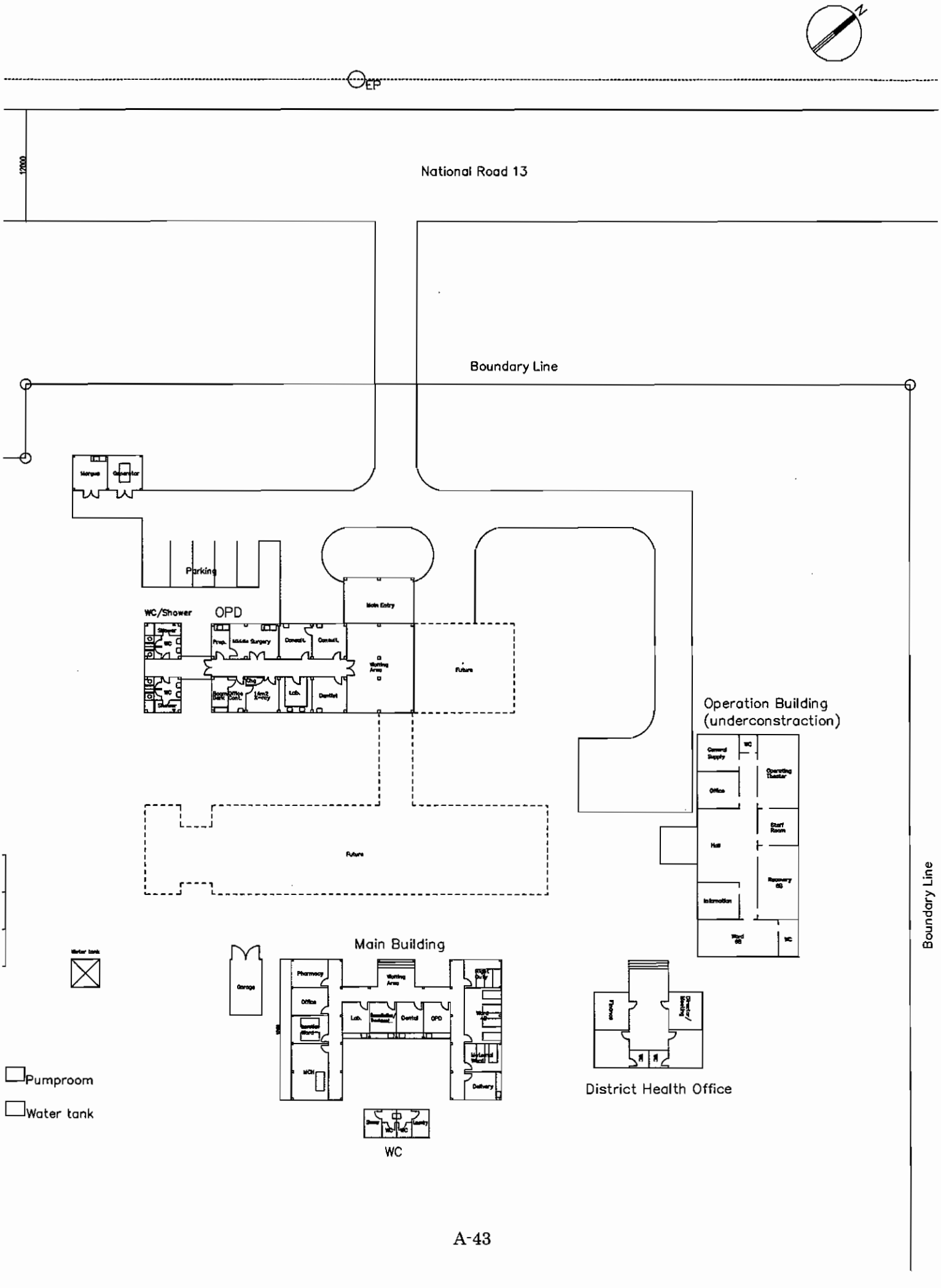




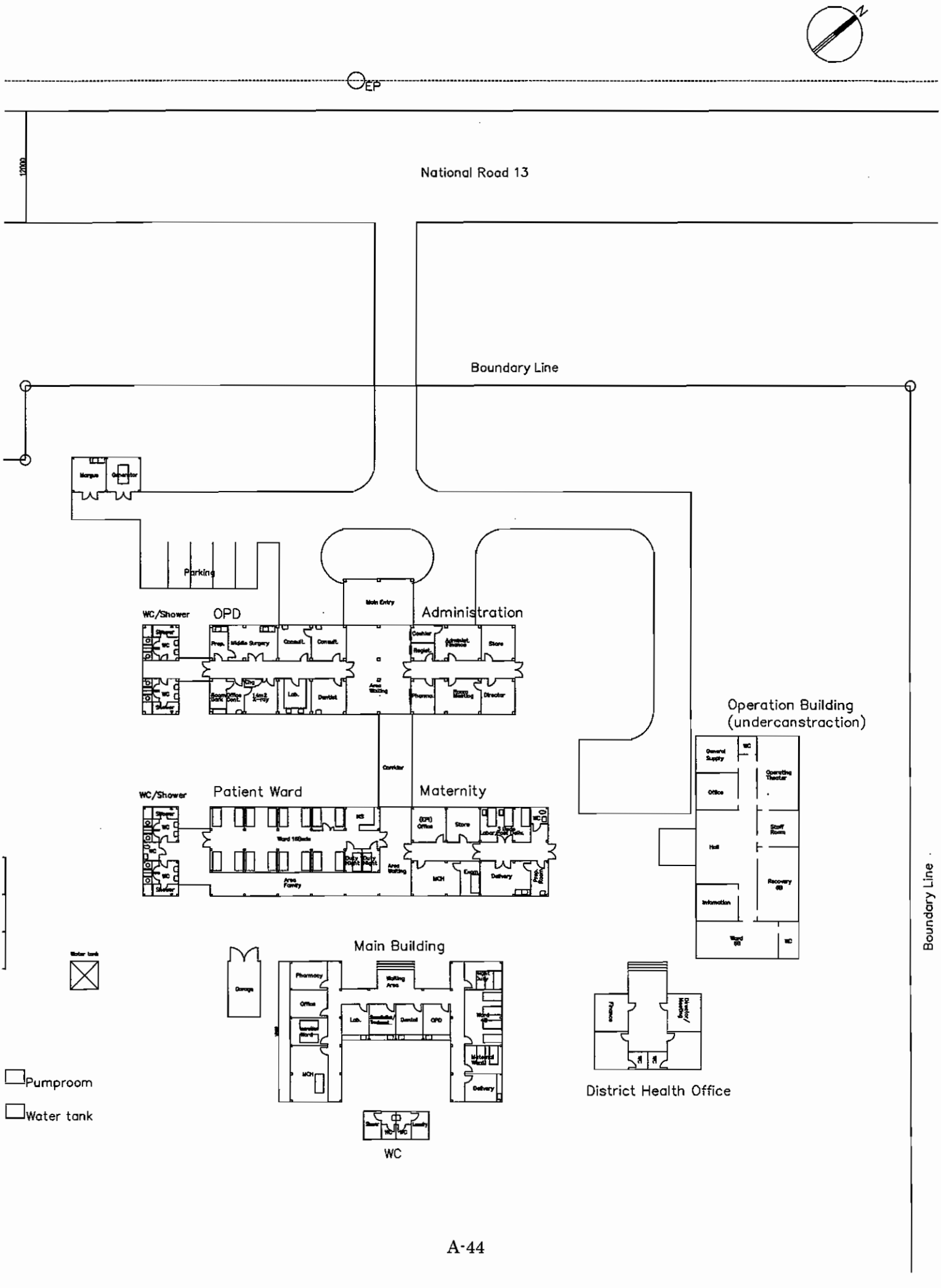
S=1/1000 0 5 10 20 30 40 50(m)

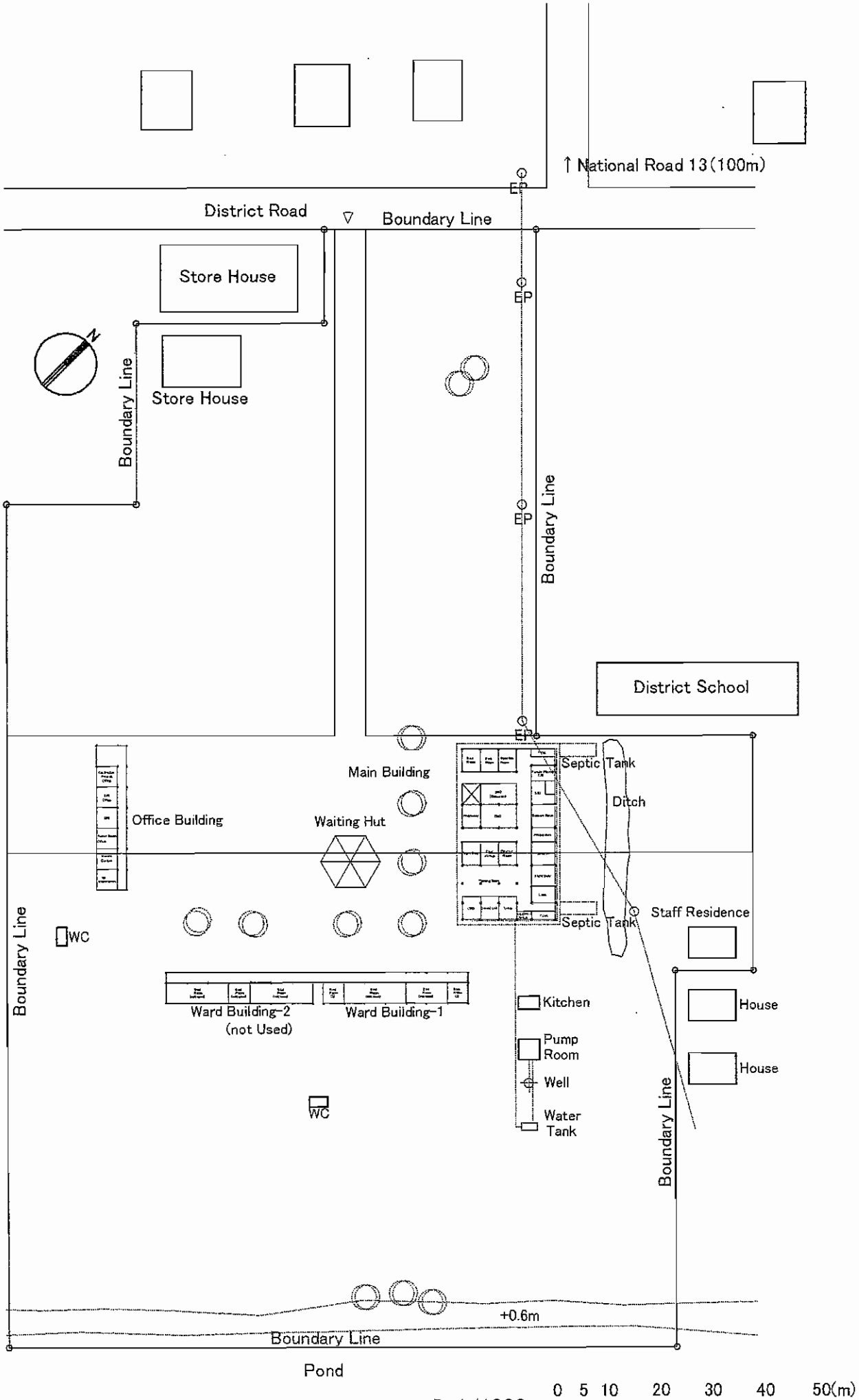
A-42 Existing Pakngum District Hospital No.6

Pakngum District Hospital No.6(OPD only) S=1/500



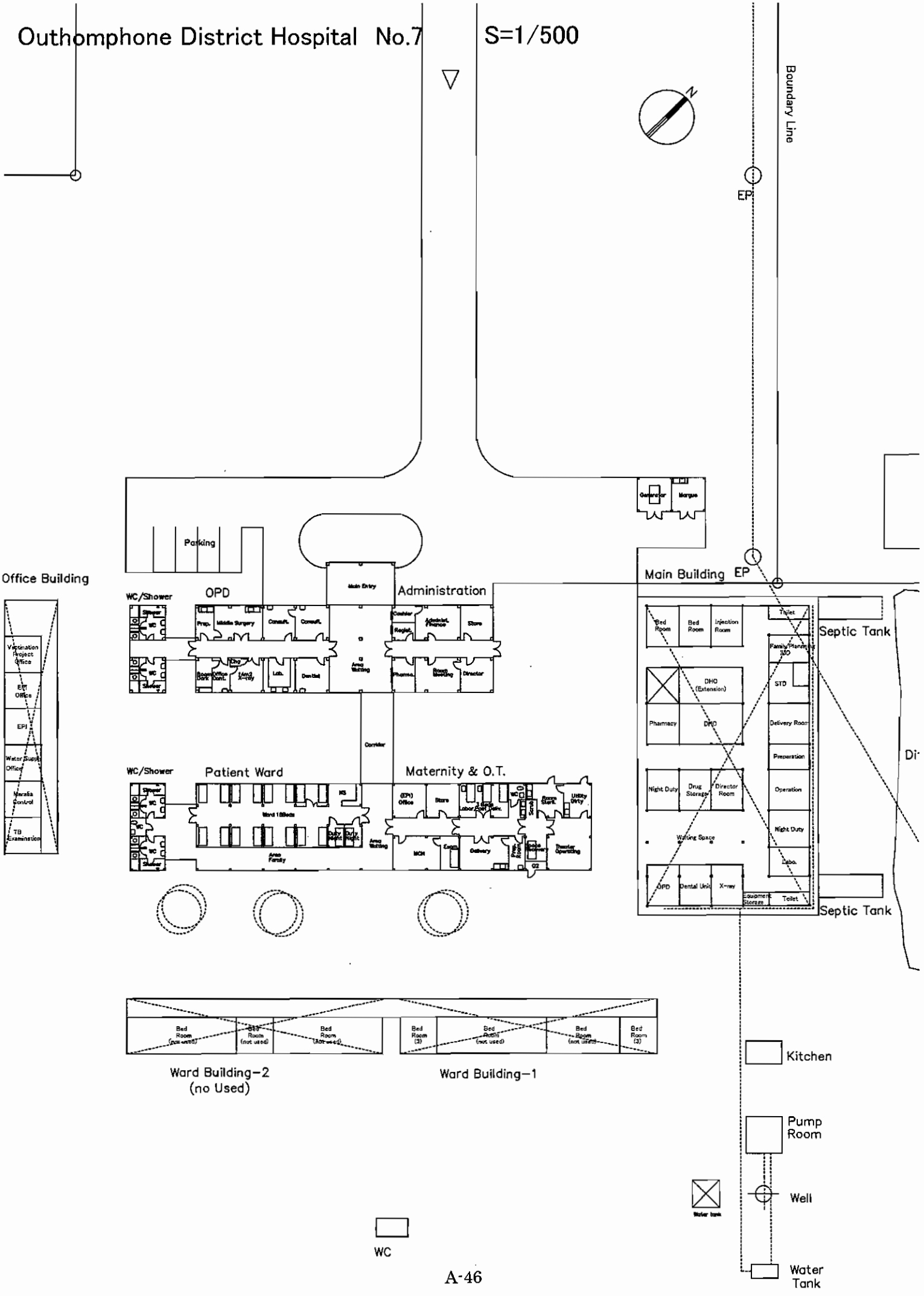
Paknguam District Hospital No.6 S=1/500

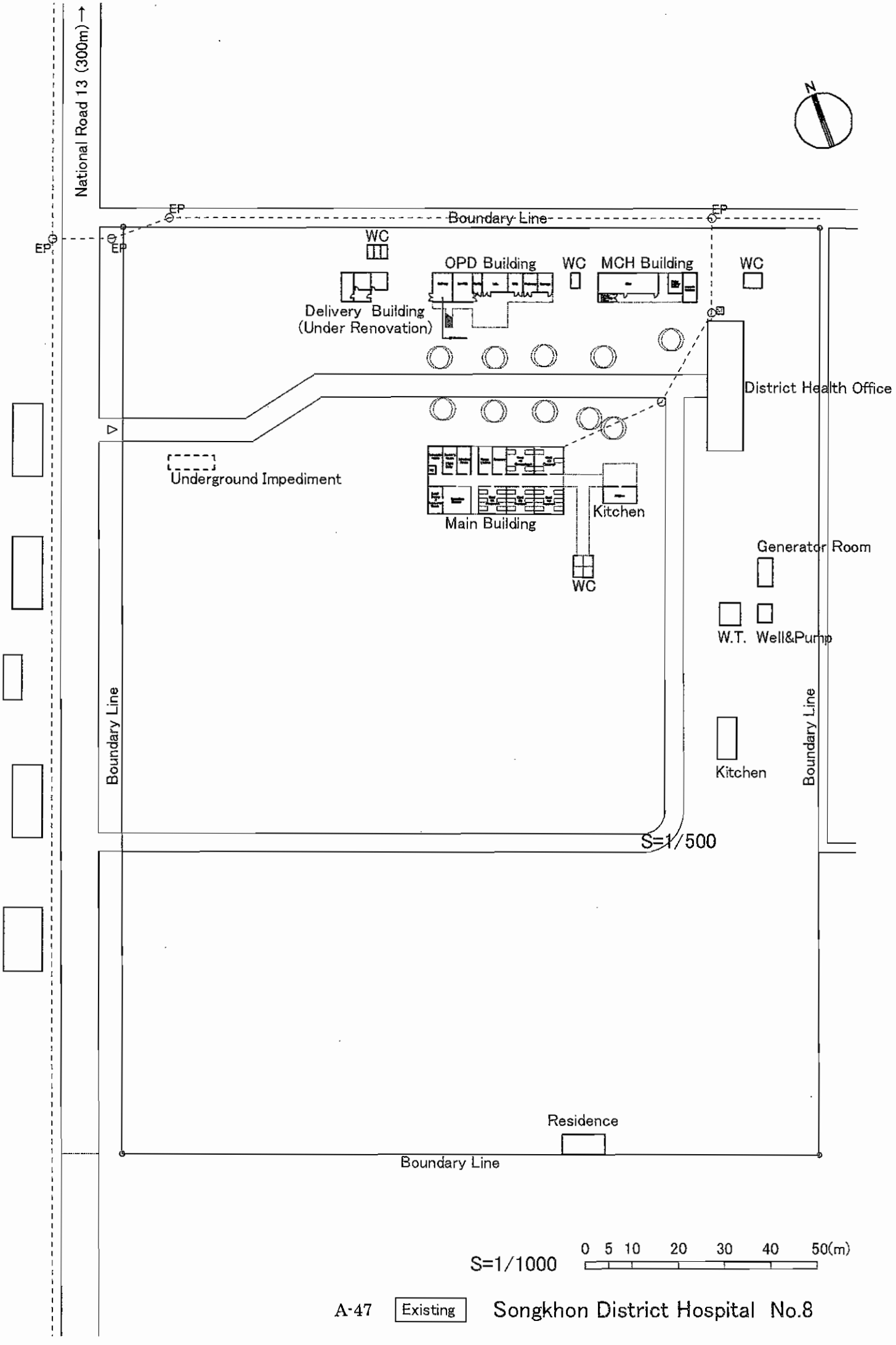




A-45 Existing Outhomphone District Hospital No.7

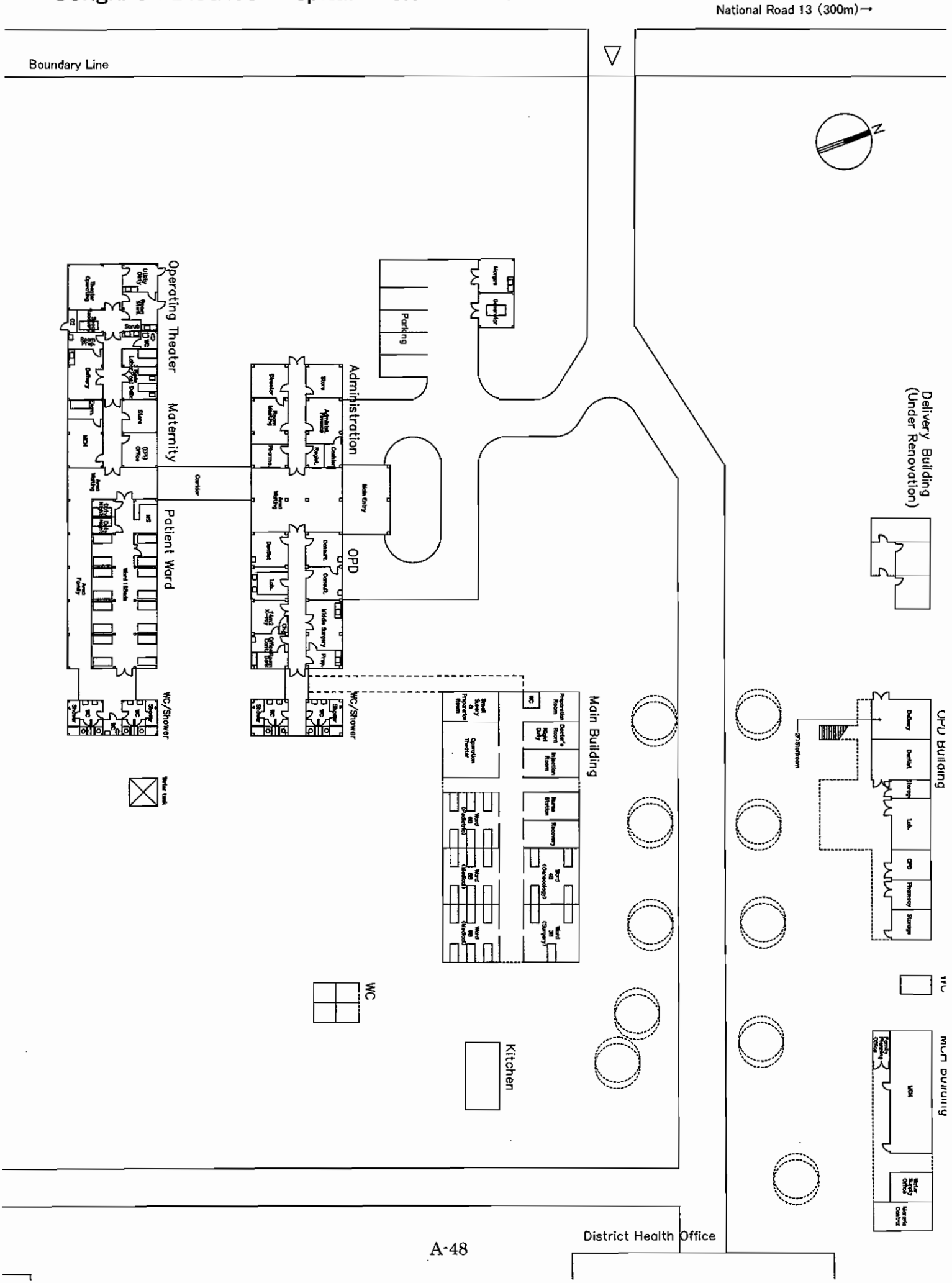
Outhomphone District Hospital No.7 S=1/500

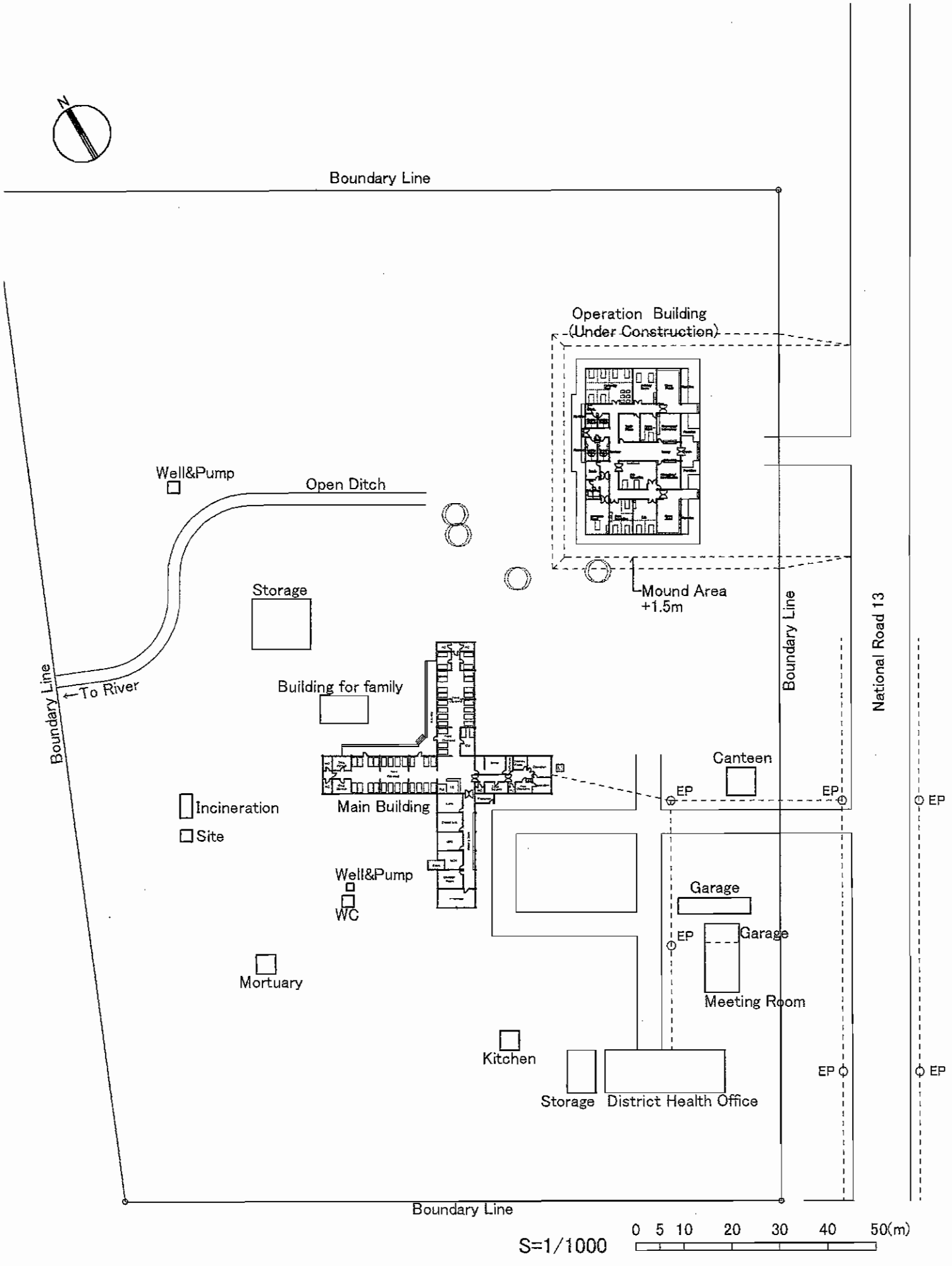




A-47 Existing Songkhon District Hospital No.8

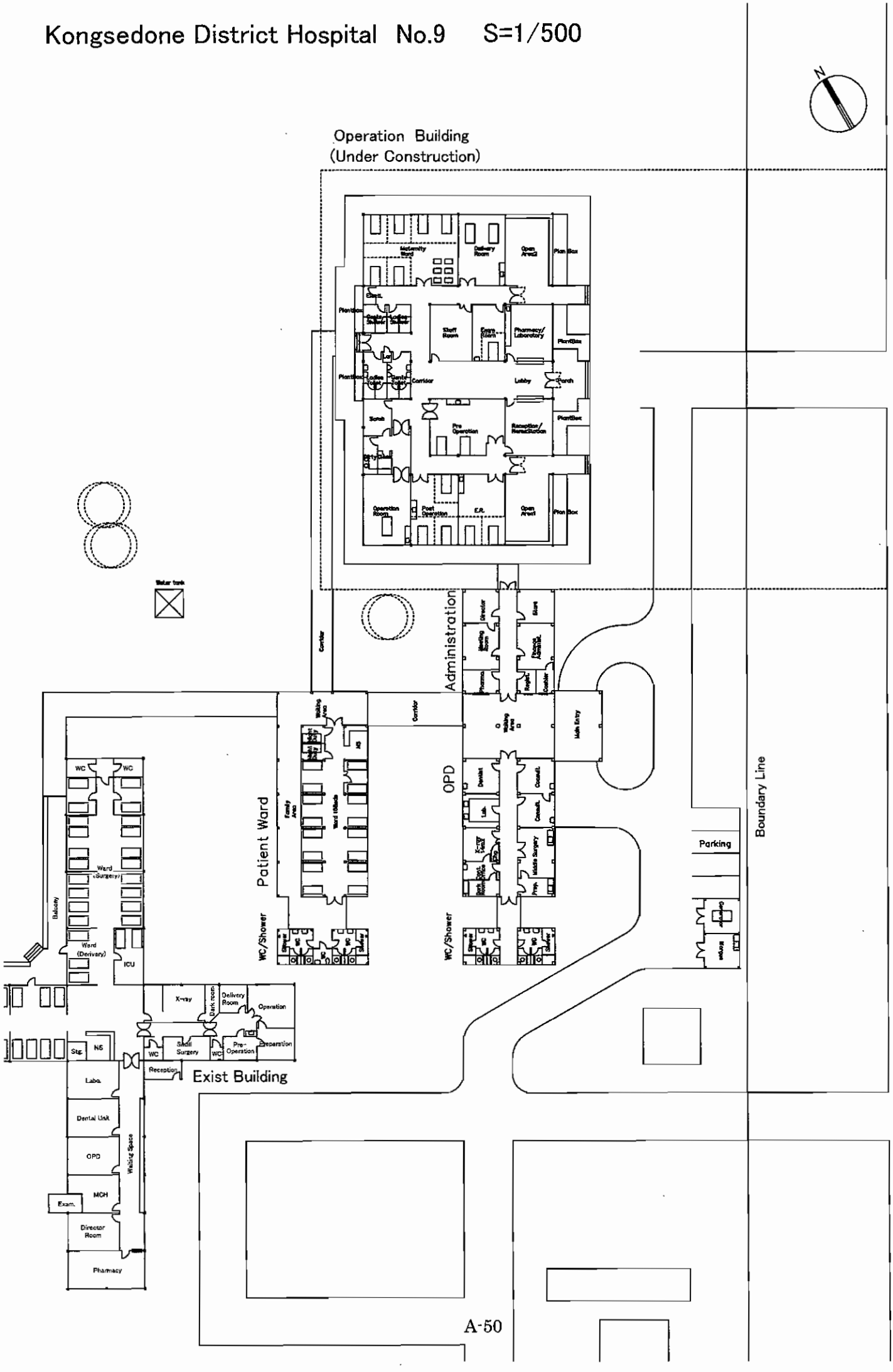
Songkhon District Hospital No.8 S=1/500

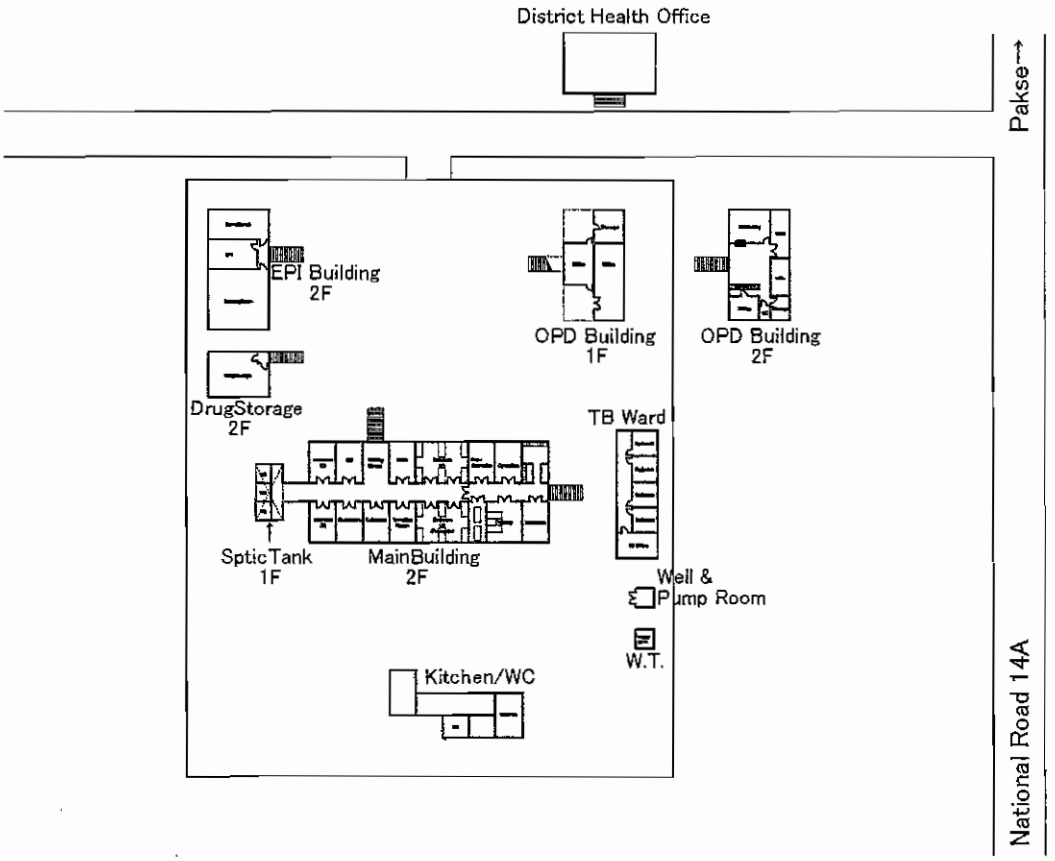




A-49 Existing Kongsedone District Hospital No.9

Kongsedone District Hospital No.9 S=1/500

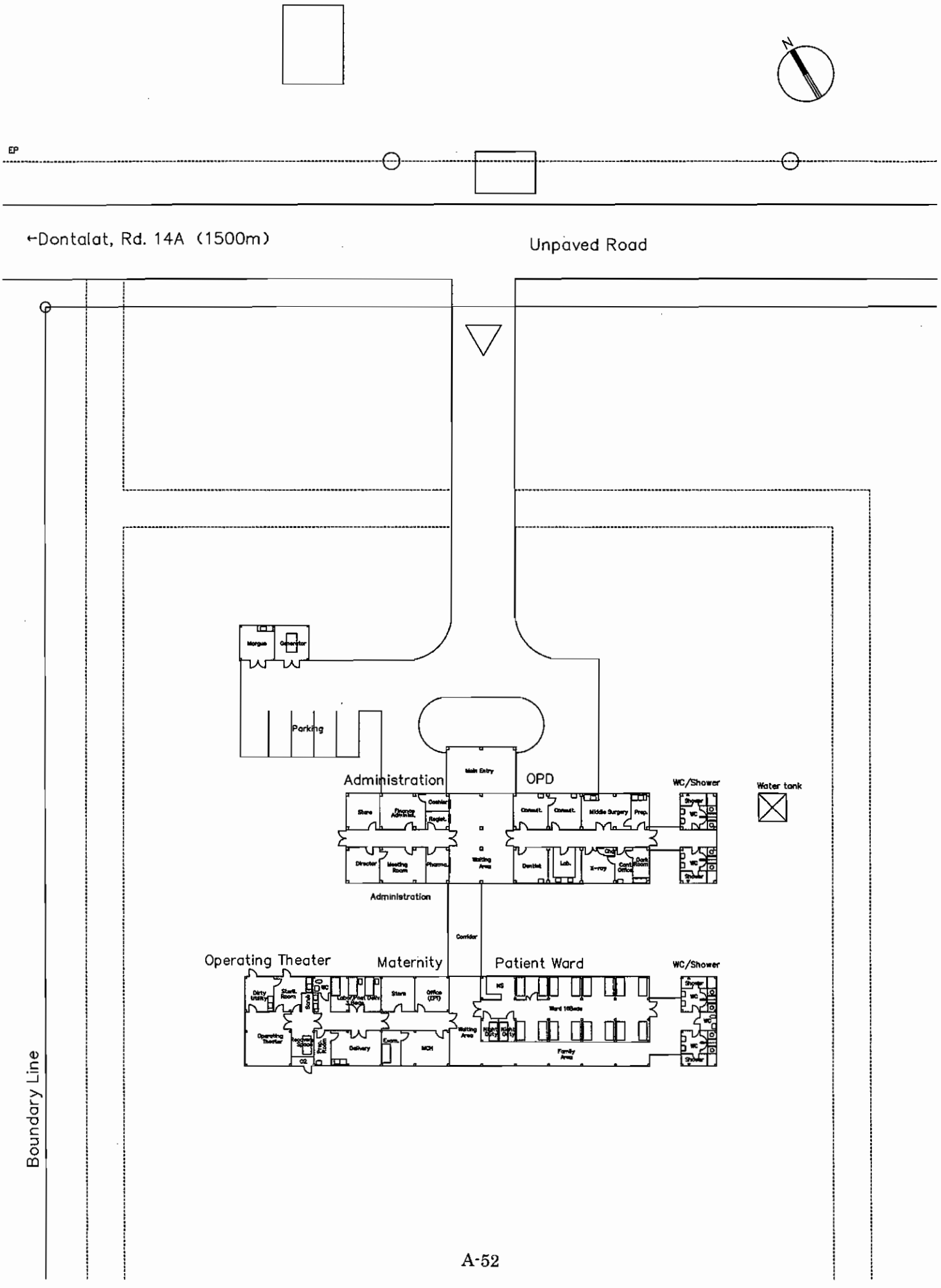




10 20 30 40 50(m)

A-51 Existing Champasak District Hospital No.10

Champasak District Hospital No.10 S=1/500



Quantity of Requested Equipment

Hospital No.	①		②		③		④		⑤		⑥		⑦		⑧		⑨		⑩		Total
Name of Hospital	Khoua		Sing		Houn		Kenthao		Sangthong		Pak Ngum		Outhoumphone		Songkone		Khongsedone		Champasak		
	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	
OPD, Examination																					
Consulting Room																					
Examination Table	○	2	○	2	○	2	○	2	○	2	○	2	○	2	●	0	○	2	○	2	18
Examination Light	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	20
Instrument Set for Examination	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	20
Instrument Cabinet	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	20
Height Scale	○	2	○	2	○	2	○	2	○	2	○	2	○	2	●○	1	○	2	○	2	19
Weighing Scale	○	2	○	2	○	2	○	2	○	2	●○	1	○	2	●○	1	○	2	○	2	18
Consulting Desk	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	20
Ultrasound Scanner	△	1	△	1	–	0	△	1	–	0	–	0	○	1	–	0	○	1	○	1	6
Minor Surgery																					
Treatment Bed	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Examination Light	–	0	–	0	–	0	–	0	–	0	–	0	●	0	○	1	○	1	○	1	3
Instrument Set for Treatment	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Instrument Set for Emergency	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Instrument Trolley	–	0	–	0	–	0	–	0	–	0	–	0	○	2	○	2	○	2	○	2	8
Instrument Cabinet	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
IV pole	–	0	–	0	–	0	–	0	–	0	–	0	○	1	●	0	○	1	○	1	3
Boiling Sterilizer	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Resuscitation Set	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Stretcher	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Oxygen Regulator,Flow Meter,Humidifier	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Oxygen Cylinder Cart	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Sphygmomanometer	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Suction Unit-Medium Size	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Pharmacy																					
Drug Cabinet	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Dental																					
Dental Unit	○	1	○	1	–	0	○	1	○	1	○	1	○	1	○	1	○	1	△	1	9
Dental Chair	–	0	–	0	○	1	–	0	–	0	–	0	–	0	–	0	–	0	–	0	1
Dental Instrument Set	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	△	1	10
Autoclave for Dental	○	1	○	1	–	0	○	1	○	1	○	1	○	1	●	0	○	1	△	1	8
Consulting Desk	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	△	1	10

Hospital No.	①		②		③		④		⑤		⑥		⑦		⑧		⑨		⑩		Total
Name of Hospital	Khoua		Sing		Houn		Kenthao		Sangthong		Pak Ngum		Outhoumphone		Songkone		Khongsedone		Champasak		
	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	
Laboratory																					
Microscope	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Centrifuge	○	1	○	1	○	1	○	1	○	1	○	1	●	0	○	1	○	1	○	1	9
Hematocrit Centrifuge	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	●	0	○	1	9
Incubator	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	●	0	3
Refrigerator	○	1	○	1	–	0	○	1	○	1	○	1	○	1	○	1	○	1	○	1	9
Blood Bank Refrigerator	–	0	–	0	–	0	△	1	–	0	–	0	–	0	○	1	○	1	○	1	4
Autoclave for Laboratory	○	1	○	1	–	0	○	1	○	1	○	1	○	1	○	1	○	1	○	1	9
Autoclave for Laboratory-Cooker Type	–	0	–	0	○	1	–	0	–	0	–	0	–	0	–	0	–	0	–	0	1
X-ray																					
X ray Unit	–	0	–	0	–	0	○	1	–	0	–	0	○	1	○	1	○	1	○	1	5
X ray Protective Set	–	0	–	0	–	0	○	1	–	0	–	0	○	1	○	1	○	1	○	1	5
X-ray Film Cabinet	–	0	–	0	–	0	○	1	–	0	–	0	○	1	○	1	○	1	○	1	5
Dark Room																					
Manual Film Developer	–	0	–	0	–	0	○	1	–	0	–	0	○	1	○	1	○	1	○	1	5
Dark Room Set	–	0	–	0	–	0	○	1	–	0	–	0	○	1	○	1	○	1	○	1	5
Reading Room																					
X-ray Film Illuminator for Reading Room	–	0	–	0	–	0	○	1	–	0	–	0	○	1	○	1	○	1	○	1	5
Reading Desk	–	0	–	0	–	0	○	1	–	0	–	0	○	1	○	1	○	1	○	1	5
Surgery																					
Middle Surgery																					
Operating Table- B type	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6
Operating Light- B type	○	1	○	1	○	1	●	0	●	0	○	1	–	0	–	0	–	0	–	0	4
Instrument Set for Surgery-B type	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6
Instrument Set for Surgery-C type	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6
Instrument Trolley	○	2	○	2	○	2	○	2	○	2	○	2	–	0	–	0	–	0	–	0	12
Instrument Cabinet	○	1	○	1	○	1	○	1	○	1	●	0	–	0	–	0	–	0	–	0	5
IV pole	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6
Boiling Sterilizer	–	0	○	1	–	0	○	1	○	1	○	1	–	0	–	0	–	0	–	0	4
Resuscitation Set	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6
Stretcher	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6
Oxgen Regulator,Flow Meter,Humidifier	●	0	○	1	○	1	○	1	●	0	●	0	–	0	–	0	–	0	–	0	3
Oxgen Cylinder Cart	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6
Sphygmomanometer	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6
Sucction Unit-Medium Size	○	1	○	1	○	1	○	1	○	1	○	1	–	0	–	0	–	0	–	0	6

Hospital No.		①		②		③		④		⑤		⑥		⑦		⑧		⑨		⑩		Total
Name of Hospital		Khoua		Sing		Houn		Kenthao		Sangthong		Pak Ngum		Outhoumphone		Songkone		Khongsedone		Champasak		
		Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	
OP Theater																						
	Operating Table-A type	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
	Operating Light-A type	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
	Instrument Set for Surgery-A type	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
	Instrument Trolley	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
	Maiyo Stand	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
	Anethesia Apparatus	–	0	–	0	–	0	–	0	–	0	–	0	○	1	●	0	○	1	○	1	3
	Electrosurgical unit	–	0	–	0	–	0	–	0	–	0	–	0	●	0	○	1	○	1	●	0	2
	Suction unit-Large Size	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
	Suction unit-Small Size	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
	X-ray Film Illuminator for OT	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
	Oxgen Regulator,Flow Meter,Humidifier	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Recovery																						
	Patient Bed	–	0	–	0	–	0	–	0	–	0	–	0	○	1	○	1	○	1	○	1	4
Sterilization																						
	Autoclave	○	1	○	1	–	0	○	1	○	1	○	1	○	1	○	1	○	1	○	1	9
	Autoclave-Cooker Type	–	0	–	0	○	1	–	0	–	0	–	0	–	0	–	0	–	0	–	0	1
	Instrument Cabinet	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Ward																						
Ward																						
	Wheel Chair	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
	IV pole	○	4	○	4	○	3	○	4	○	4	○	4	○	4	○	4	○	4	○	4	39
	Patient Bed	○	16	○	16	○	12	○	16	○	16	○	16	○	16	○	16	○	16	○	16	156
	Bed Side Cabinet	○	16	○	16	○	12	○	16	○	16	○	16	○	16	○	16	○	16	○	16	156
	Stretcher	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Nurse Station																						
	Stethoscope	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
	Spygmomanometer	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Isolation																						
	Patient Bed	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	20
	Bed Side Cabinet	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	○	2	20
Maternity																						
MCH																						
	Examination Table for Ob. / Gy.	○	1	○	1	○	1	○	1	○	1	○	1	●	0	○	1	○	1	○	1	9
	Examination Light	○	1	○	1	○	1	○	1	○	1	○	1	●	0	●	0	○	1	○	1	8
	Height Scale	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
	Weighing Scale	○	1	○	1	○	1	○	1	○	1	●	0	○	1	○	1	○	1	○	1	9
	Height Scale for Neonate	○	1	○	1	○	1	○	1	●	0	○	1	○	1	●	0	○	1	○	1	8
	Weighing Scale for Neonate	●	0	○	1	○	1	○	1	●	0	○	1	●	0	●	0	○	1	○	1	6
	Instrument Set for Examination for MCH	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
	Instrument Trolley	○	1	○	1	○	1	○	1	○	1	●	0	○	1	○	1	○	1	○	1	9
	Consulting Desk	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10

Hospital No.	①		②		③		④		⑤		⑥		⑦		⑧		⑨		⑩		Total
Name of Hospital	Khoua		Sing		Houn		Kenthao		Saugthong		Pak Ngum		Outhoumphone		Songkone		Khongsedone		Champasak		
	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	Status	Q'ty	
Delivery Room																					
Delivery Table	○	1	○	1	○	1	○	1	○	1	○	1	●	0	○	1	○	1	●	0	8
Delivery Light	○	1	○	1	○	1	○	1	●	0	●	0	●	0	○	1	○	1	○	1	7
Instrument Set for Delivery	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Instrument Trolley	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Boiling Sterilizer	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Vacuum Extractor-Electric Type	–	0	–	0	–	0	○	1	○	1	○	1	○	1	○	1	○	1	○	1	7
Vacuum Extractor-Foot Pedal Type	○	1	○	1	○	1	–	0	–	0	–	0	–	0	–	0	–	0	–	0	3
Baby Cot	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Resuscitation Set for Neonate	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Suction unit-Small Size	○	1	○	1	–	0	○	1	○	1	●	0	○	1	○	1	○	1	○	1	8
Sucction Unit-Foot Pedal Type-M Size	–	0	–	0	○	1	–	0	–	0	–	0	–	0	–	0	–	0	–	0	1
Weighing Scale for Neonate	●	0	●	0	●	0	○	1	○	1	●	0	○	1	○	1	○	1	○	1	6
Infant warmer	○	1	○	1	–	0	○	1	○	1	○	1	○	1	○	1	○	1	○	1	9
Labor Bed-thick mattres	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Recovery																					
Recovery Bed-thick mattres	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
EPI																					
Examination Table	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	○	1	10
Emergency																					
Emergency Bed	–	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0	○	1	–	0	1
Emergency Light	–	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0	○	1	–	0	1
Instrument Trolley	–	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0	○	2	–	0	2
Instrument Cabinet	–	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0	○	1	–	0	1
IV pole	–	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0	○	1	–	0	1
Boiling Sterilizer	–	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0	○	1	–	0	1
Total		105		108		94		116		103		100		121		119		136		127	1,129

(Notes)

○: New Equipment

●: Existing Equipment

●○: Additional

-: n/a

Specifications of Requested Equipment

Name of Equipment		Specifications
OPD, Examination		
Consulting Room		
	Examination Table	Dimensions: W600 x L2000 x H800mm Footstool: 1 step With support frame
	Examination Light	(A) Lamp: Incandescence type, 75W Arm: Flexible Stand type with casters (B) Pen light-for Houn DH
	Instrument Set for Examination	Stethoscope, Sphygmomanometer-portable type, Tongue depressor, Hammer reflex test, Thermometer
	Instrument Cabinet	Dimensions: W750 x L400 x H1400mm Glass door with lock Shelves: 4
	Height Scale	Measuring range: 600-2000mm Scale: 1mm increments
	Weighing Scale	Analog type Weight capacity: 200kg Weight sencitivity: 500g Platform with Casters
	Consulting Desk	Material: Wood With drwers Chair
	Ultrasound Scanner	Table top type Display: Black & White Probe: Convex Printer
Minor Surgery		
	Treatment Bed	Dimensions: W600 x L2000 x H800mm Footstool: 1 step With support frame
	Examination Light	Lamp: Incandescence type, 75W Arm: Flexible Stand type with casters
	Instrument Set for Treatment	*
	Instrument Set for Emergency	*
	Instrument Trolley	(A) Dimensions: W15" x L21" x H32" (inches) Two-shelf unit Stainless steel (B) Dimensions: W17" x L29" x H32" (inches) 1 set of bucket tray and bowl available Bottom shelf underframe with 2 deep drawers on nylon runners 3 side rails, top and bottom shelves Stainless steel
	Instrument Cabinet	Dimensions: W750 x L400 x H1400mm Glass door with lock Shelves: 4
	IV pole	No. of hook: 2 Casters: 4 Adjustable: 1600-1900mm

Name of Equipment		Specifications
	Boiling Sterilizer	Dimensions: W400 x L200 x H150mm Material: Stainless steel Electric heater: 1.2KW
	Resuscitation Set	Resuscitation bag for adult and child Silicon, Autoclavable Face mask for adult and child
	Stretcher	Dimensions: W600 x L2000 x H800mm Casters: 4
	Oxygen Regulator,Flow Meter,Humidifier	Blue nose type Flow rate: 0-15L/min.
	Oxygen Cylinder Cart	Casters: 4
	Sphygmomanometer	Aneroid Stand type Casters: 4 Measurement range: 20-300mmHg Cuff: Adult and Child
	Suction Unit-Medium Size	Vacuum presuure: -550mmHg Suction capacity: 18L/h Succion bottle: Plastic, Autoclavable
Pharmacy		
	Drug Cabinet	Dimensions: W750 x L400 x H1400mm Glass door with lock Shelves: 4
Dental		
	Dental Unit	Dental chair, Light, Hand piece, Water system, Tray with arm for instrument, Compressor
	Dental Chair	Dental Chair
	Dental Instrument Set	*
	Autoclave for Dental	Front door type Capacity: 15L
	Consulting Desk	Material: Wood With drwers Chair
Laboratory		
	Microscope	Electric and natural illumination type 10x, 40x, 100x objective
	Centrifuge	Centrifuge and Hematocrit conbine type
	Hematocrit Centrifuge	Rotor: for Centrifute-6 tubes, for Hematocrit-12 tubes
	Incubator	Temperature range: Room temp +5℃～80℃ Temperature accuracy: ±1℃
	Refrigerator	Capacity: 125L
	Blood Bank Refrigerator	For 10 bags
	Autoclave for Laboratory	Capacity: 15L Fromt door type
	Autoclave for Laboratory-Cooker Type	Capacity: 15L
X-ray		
	X ray Unit	Bucky table, Bucky stand
	X ray Protective Set	Protective apron
	X-ray Film Cabinet	Dimentions: W800 x D2000 x H360mm Material: Wood
Dark Room		

Name of Equipment		Specifications
	Manual Film Developer	Separated 3 part Consisting of developer, fixing, linsing and washing Material: PVC
	Dark Room Set	Film hunger, Film mark
Reading Room		
	X-ray Film Illuminator for Reading Room	Table top type For 2pcs.
	Reading Desk	Dimentions: W1400 x D600 x H750mm Material: Wood
Surgery		
Middle Surgery		
	Operating Table- B type	Dimensions of table top: W500 x L1900mm Height adjustable Arm rest, Anethesic frame/Screen freme
	Operating Light- B type	Intensity: 30,000 lux Stand type
	Instrument Set for Surgery-B type	*
	Instrument Set for Surgery-C type	*
	Instrument Trolley	(A) Dimensions: W18" x L34" x H32" (inches) Two-shelf unit Stainless steel (B) Dimensions: W17" x L29" x H32" (inches) 1 set of bucket tray and bowl available Bottom shelf underframe with 2 deep drawers on nylon runners 3 side rails, top and bottom shelves
	Instrument Cabinet	Dimensions: W750 x L400 x H1400mm Glass door with lock Shelves: 4
	IV pole	No. of hook: 2 Casters: 4 Adjustable: 1600-1900mm
	Boiling Sterilizer	Dimensions: W400 x L200 x H150mm Material: Stainless steel Electric heater: 1.2KW
	Resuscitation Set	Resuscitation bag for adult and child Silicon, Autoclavable Face mask for adult and child
	Stretcher	Dimensions: W600 x L2000 x H800mm Casters: 4
	Oxgen Regulator,Flow Meter,Humidifier	Blue nose type Flow rate: 0-15L/min.
	Oxgen Cylinder Cart	Casters: 4
	Sphygmomanometer	Aneroid Stand type Casters: 4 Measurement range: 20-300mmHg Cuff: Adult & Child
	Sucction Unit-Medium Size	Vacuum presuure: -550mmHg Suction capacity: 18L/Min. Succion bottle: Plastic, Autoclavable
OP Theater		

Name of Equipment		Specifications
	Operating Table-A type	Dimensions of table top: W500 x L1900 x H75-100mm Lateral tilt left/right: 25/25 degree Trendelenburg/reverce: 20/25 degree Elevation: Oil hidrulic type
	Operating Light-A type	Intensity: 45,000 lux (A) Stand type (B) Stand type, with battery
	Instrument Set for Surgery-A type	*
	Instrument Trolley	Dimensions: W18" x L34" x H32" (inches) Two-shelf unit Stainless steel
	Maiyo Stand	Dimensions: Height 1200mm Extended Height 800mm Lowered Removable tray-size 13" x 19" (inches)
	Anethesia Apparatus	Vaporizer: Halothane Oxygen connector: Blue nose type
	Electrosurgical unit	Type: Monopola, Bipola Inactive electrode: Not metal, Reusable Foot switch
	Suction unit-Large Size	Vacuum presuure: -750mmHg Suction capacity: 35L/Min. Succion bottle: Plastic, Autoclavable Foot switch
	Suction unit-Small Size	Vacuum presuure: 0.07Mpa Suction capacity: 12L/Min. Succion bottle: Plastic, Autoclavable
	X-ray Film Illuminator for OT	For 2pcs.
	Oxgen Regulator,Flow Meter,Humidifier	Blue nose type Flow rate: 0-15L/min.
Recovery		
	Patient Bed	Dimensions: W900 x L2000mm Height: Adjustable Head and foot boad: Removable
Sterilization		
	Autoclave	Capacity: 60L Semi automatic type
	Autoclave-Cooker Type	Capacity: 30L Direct fire type
	Instrument Cabinet	Dimensions: W750 x L400 x H1400mm Glass door with lock Shelves: 4
Ward		
Ward		
	Wheel Chair	Solid wheels
	IV pole	No. of hook: 2 Casters: 4 Adjustable: 1600-1900mm
	Patient Bed	Dimensions: W36" x L78" x H16" (inches) Head and foot panels Mattress
	Bed Side Cabinet	Dimensions: W450 x L350 x H750mm
	Stretcher	Dimensions: W600 x L2000 x H800mm Casters: 4

Name of Equipment		Specifications
Nurse Station		
	Stethoscope	Dual type
	Spygmomanometer	Aneroid Portable type Measurement range: 20-300mmHg Cuff: Adult & Child
Isolation		
	Patient Bed	Dimensions: W36" x L78" x H16" (inches) Head and foot panels Mattress
	Bed Side Cabinet	Dimensions: W450 x L350 x H750mm
Maternity		
MCH		
	Examination Table for Ob. / Gy.	Examination and Treatment Cough
	Examination Light	(A) Lamp: Incandescence type, 75W Arm: Flexible Stand type with casters (B) Pen light-for Houm DH
	Height Scale	Measuring range: 600-2000mm Scale: 1mm increments
	Weighing Scale	Analog type Weight capacity: 200kg Weight sencitivity: 500g Platform with casters
	Height Scale for Neonate	Masuring range: 300-900mm
	Weighing Scale for Neonate	Analog type Capacity: 20kg
	Instrument Set for Examination for MCH	*
	Instrument Trolley	Dimensions: W15" x L21" x H32" (inches) Tow-shelt unit
	Consulting Desk	Material: Wood With drwers Chair
Delivery Room		
	Delivery Table	Dimensions: W26" x L72" x H30" (inches) 2 part separeted
	Delivery Light	(A)Intensity: 20,000 lux, Halogen Stand type with casters (B) Lamp: Incandescence type, 75W Arm: Flexible Stand type with casters
	Instrument Set for Delivery	*
	Instrument Trolley	Dimensions: W15" x L21" x H32" (inches) Tow-shelt unit
	Boiling Sterilizer	Dimensions: W400 x L200 x H150mm Material: Stainless steel Electric heater: 1.2KW
	Vacuum Extractor-Electric Type	Suction pressure: 0 to –750mmHg Suction volume: 25 liter/min Vacuum extractor cup: Silicon
	Vacuum Extractor-Foot Pedal Type	(A) Manual type, Fool pedal (B) Manual, Hand operated type

Name of Equipment		Specifications
	Baby Cot	Acrylic basket 2 inches mattress casters
	Resuscitation Set for Neonate	Resuscitation bag for neonate Silicon, Autoclavable Face mask for neonate
	Suction unit-Small Size	Vacuum presuure: 0.07Mpa Suction capacity: 12L/Min. Succion bottle: Plastic, Autoclavable
	Sucction Unit-Foot Pedal Type-M Size	Foot pedal type Suction power: 600mmHg Capacity: 10 liter / min. Suction bottle: 500cc, Made plastic, Autoclavable
	Weighing Scale for Neonate	Analog type Capacity: 20kg
	Infant warmer	Treatment table, Warmer
	Labor Bed-thick mattres	Dimensions: W900 x L2000mm Height: Adjustable Head and foot boad: Removable
Recovery		
	Recovery Bed-thick mattres	Dimensions: W900 x L2000mm Height: Adjustable Head and foot boad: Removable
EPI		
	Examination Table	Dimensions: W600 x L2000 x H800mm Footstool: 1 step
Emergency		
	Emergency Bed	Dimensions of table top: W500 x L1900mm Height adjustable Arm rest, Anethesic frame/Screen freme
	Emergency Light	Lamp: Incandescence type, 75W Arm: Flexible Stand type with casters
	Instrument Trolley	Dimensions: W15" x L21" x H32" (inches) Tow-shelt unit
	Instrument Cabinet	Dimensions: W750 x L400 x H1400mm Glass door with lock Shelves: 4
	IV pole	No. of hook: 2 Casters: 4 Adjustable: 1600-1900mm
	Boiling Sterilizer	Dimensions: W400 x L200 x H150mm Material: Stainless steel Electric heater: 1.2KW

(Notes)

* : Contents of set will be sent by E-mail.

Surveyed Basic Data of the District Hospitals

No.	1	2	3	4	5	6	7	8	9	10
Province	Phongsali	Louangnamtha	Oudomsay	Sayaboury	Vientiane	Viantiane	Savannakhet	Savannakhet	Saravan	Champasak
District	Khoua	Sing	Houn	Kenthao	Sanglong	Pak Ngum	Outhoumphon	Songkhom	Khongsedone	Champasak
Classification of Construction work	ALL (New site)	ALL	Extension (OPD,WARD)	ALL	ALL	Extension (OPD)	ALL	ALL	Extention (OPD,WARD)	ALL(New Site)
Class	ID	ID	ID	ID	Rural	Rural	ID	ID	ID	ID
No. of HC	2	3 (+1under	9	10	5	9	5	11	5	4
Beneficial Population	26,966	29,740	59,451	36,245	24,053	44,357	73,351	86,855	56,050	57,316
No. of Villages	119+non official15	95	146+39sub	58	37+1sub	53	106	142	107	92
No. of Beds										
No.of Beds(Authorized/Act	30 (20)	18 (18)	20 (20)	15(15)	10 (10)	15 (15)	10 (30)	30 (30)	30 (42)	30 (32)
Average Duration of Hospi	3	3	4	3	2.3	3	4	3.3	3.5	4.4
Average Occupancy rate (%	20	38.9	60	58.9	6.4	66.7	80.9	57.4	84	53
Open time										
General	Weekday 7:30-11:30, 13:30-16:30	Weekday 8:00-12:00 13:00-16:00	Weekday 7:30-11:30 13:30-16:30	Weekday 8:00-12:00 14:00-16:00	Weekday 8:00-12:00 13:00-16:00	Weekday 8:00-12:00 13:00-16:00	Weekday 8:00-12:00 13:00-16:00	Weekday 8:00-12:00 13:00-16:00	Weekday 8:00-12:00 13:00-16:00	Weekday 8:00-12:00 13:00-16:00
Emergency	24H	24H	24H	24H	24H	24H	24H	24H	24H	24H
No. of Medical Staffs (in Hospital/in District)										
Medical Doctor	3/3	3/4	1/2	3/?	3/5	5/8	3/5	3/4	5/6	2/2
Medical Assistant	2/7	1/4	2/4	4/?	4/6	2/7	10/16	4/14	2/6	4/7
Nurse	1/1	0/0	0/0	8/?	1/1	2/3	1/1	2/2	1/1	0/0
Auxiliary Nurse	5/24	6/17	16/29	7/?	8/22	3/14	19/30	12/25	14/35	9/30
No. of Patients										
Out-patient/year	1,075	7,041	3,481	2,100	2,954	2,409	7,438	11,317	2695 (15,854)	11,316
In-patient/year	266	706	515	1,062	99	672	586	1,539	2,293	970
No. of Operation										
Major Operation/year	5	—	—	—	—	—	—	5	60	15
Middle Operation/year	No Record	—	3	—	—	—	11	181	193	60
Minor Operation/year	57	—	115	60	118	53	228	265	274	220
(Details)										
Bladder Stone(Cases	3	0	○ (No Record)	0	0	0	—	20	17	15
Appendectomy (Case	○ (No Record)	0	3	0	0	0	5	110	98	51
Hernia(Cases)	2	0	—	0	0	0	1	2	45	5
No. of Delivery										
Normal /year	86 (half of these are at	179	77	45	8	60	254	365	160	65
Cesareab Section /ye	6	0	0	—	—	—	0	7	5	4
Vacuum Extracted /ye	1	5%	0	3	—	—	3	44	3	0
Dental										
Extraction (Case)	—	○ (No Record)	—	91	187	164	409	104	60	—
Caries Treatment	—	—	—	—	34	—	—	175	—	—
Staff	in Iraining		1(Dentist) (from 2005)	1(Assistant Dentist	1(Dentist)	3(Dentists)	1(Assistant Dentist	3(Dentists) 2(Assistant Dentists)	1(Dentist)	—
Laboratory										
Malaria /year	47 (+3)	811 (+23)	743 (+44)	445	208 (+1)	387 (+0)	2,689	2,127	3,850	1,601
TB /year	119 (+15)	29(+2)	64	89	38 (+5)	130 (+16)	200	141	252	148
Hematcnt /year	—	—	474	356%	○ (No Record)	605	3,162	830	3,850	4,303
Other Miscroscopic /yea	○ (No Record)	—	500	89	31	88	259	1,976	135	634
Staff	2	2	3	3	2	2	2	2	2	2
X-ray										
No. of X-ray Exam./ye	-	-	-	-	-	-	81	-	286	-
No. of film /year	-	-	-	-	-	-	81	-	300	-
Staff	-	-	-	1 Medical Assistan	-	-	1 Nurse	-	1 Technician	-
Ultrasound										
Cases /year	-	-	-	-	-	-	-	-	-	774
Staff	-	-	-	-	-	-	1 Doctor	-	-	
ECG (Nonexistent)										
Staff	-	-	-	-	-	-	-	-	Plan of 3 month Training	-
Ambulance & Referral										
Car available for Refe	Nonexistent	Nonexistent	Nonexistent	1	Nonexistent	1	Nonexistent	1	Nonexistent	1
Lower Level→DH	No Record	5～10	No Record	30% of In-patients	No Record	No Record	26	No Record	110	54
DH→Upper Level	12	48	No Record	23	8	72	10	35	67	25
Time of Transfer to Regional Hospital (RH), to Provincial Hospital	Oudomxay RH : 2H	Oudomxay RH : 4H (Louangnamtha PH : 1H)	Oudomxay RH : 2H	Sethatilate RH : 4H	Sethatilate RH : 2H	Sethatilate RH : 1H	Savanaket RH : 0.5H	Savanaket RH : 1.5H	Champasack RH : 1H (Saravan PH : 2H)	Champasack RH :1.5H (cross the Mekong river by ferry)
Others	Refer to Viet Nam (2 cases), 84 cases are accepted from the next District	Refer to China 30% (20Km)		Refer to Thailand, Thali DH(20min), Lorei PH (80km)	Accepted form Sang Kham District				Accepted from Champasack Province	Covered Pathompone & Sikhuna District (10,700pop.)
MCH										
Antenatal (Case)	177	630	771	422	232	423	1,786	3,667	791	453
Post natal (Case)	36	No Record	28	No Record	No Record	14	1,170	195(Hospital) 221(Home)	222	112
Child clinic (Case)	No Record	No Record	No Record	No Record	73	186	1,264	3,430	497	1,221