2-2-2-2 Equipment Plan

(1) Furniture and Equipment

The amount of furniture and equipment units to be provided in the Project will be as follows.

① Desk and Chairs for Students

18 desks (2 students to 1 desk type) and 36 chairs will be installed in each classroom. They will be of two different sized desks and chairs, half of them large and the other half small, in accordance with Phase I of the Project.

② Teacher's Desk and Chairs in the Classroom

1 set of desk and chair for the teacher will be provided in each classroom.

③ Desk and Chairs in the Teachers' Room

The number of desks and chairs is equivalent to the total of classroom teachers and subject teachers.

④ Meeting Table for Teachers

Depending on the number of teachers which is estimated in ③ above, 2 or 4 meeting tables will be provided.

⑤ Storage Cabinet for Teaching Materials

1 storage cabinet for every two classrooms will be installed in the teachers' room.

⑥ Blackboard and Bulletin Board

1 blackboard and 1 bulletin board will be installed in each classroom.

(2) Educational Equipment

In Mongolia, the use of teaching materials and equipment for each grade is not specified in the curriculum. Thus, the units of equipment listed below were selected on the basis of information in Phase I of the Project and from the opinions of specialists at Pedagogy University who were involved in curriculum and textbook development.
The standard of equipment selection are as follows

a) to follow the current curriculum
b) to be used daily

c) to be used effectively and maintained by teachers

d) to be used in ordinary classrooms

① The list of Educational Equipment and Furniture to be Provided in the Project (same as in Phase I of the Project)

Table 15: List of Basic Educational Equipment

	Item	Subject	Summary	Target Grade	Number
1	Geographic map of Mongolia	Social Science	Color, wall chart	1-8	1/CR
2	Political and Administrative Map of Mongolia	Social Science	Color, wall chart	5-8	1/2CR
3	Map of Mineral Resources of Mongolia	Social Science	Color, wall chart	5-8	1/2CR
4	Botanical Map of Mongolia	Life Science	Color, wall chart	1-4	1/2CR
5	Zoological Map of Mongolia	Life Science	Color, wall chart	1-4	1/2CR
6	World Geographic Map	Social Science	Color, wall chart	5-8	1/2CR
7	World Political and Administrative Map	Social Science	Color, wall chart	5-8	1/2CR
8	Diagram of Chemical Element Cycle	Science	Color, wall chart	7,8	1/4CR
9	Diagram of Physical Measuring Unit	Science	Color, wall chart	7,8	1/4CR
10	Human Body Chart	Science	Color, wall chart	6-8	1/8CR
11	Mongolian Alphabet Chart	National Language	Color, wall chart	1-4	1/2CR
12	Wall Thermometer	Life Science, Science	For temperature	1-4	1/2CR
13	Azimuth Compass	Life Science, Science		1-4	1/2CR
14	Tape Measure	Life Science, Mathematics	30m	1-4	1/2CR
15	Geometric Block Models	Mathematics	Blocks	1-4	1set/2CR
16	Abacus	Mathematics	Abacus	1-4	1/2CR
17	T-Square	Mathematics	90cm, for Blackboard	1-8	1/CR
18	Scales	Mathematics	Triangle, a Compass, a Graduator	1-8	1set/CR

CR=classroom

②Additional Educational Equipment

In addition to the educational equipment listed above, the following equipment units were requested by MOSTEC.

Table 16: Additional Educational Equipment

	Item	Subject	Summary	Target Grade	Number
1	Multipication Tables for Primary Education	Mathematics	Color, wall chart	1-4	1／2CR
2	Political and Administrative Map of Mongolia	All Subjects		1-8	1 set／school

As multiplication tables are a fundamental teaching tool for primary education, it is considered appropriate to provide them. As for the Over Head Projector (OHP), it will be used for many classes and for teacher training. Thus, it is also considered appropriate to provide it in the Project.

(3) Facility Maintenance Equipment

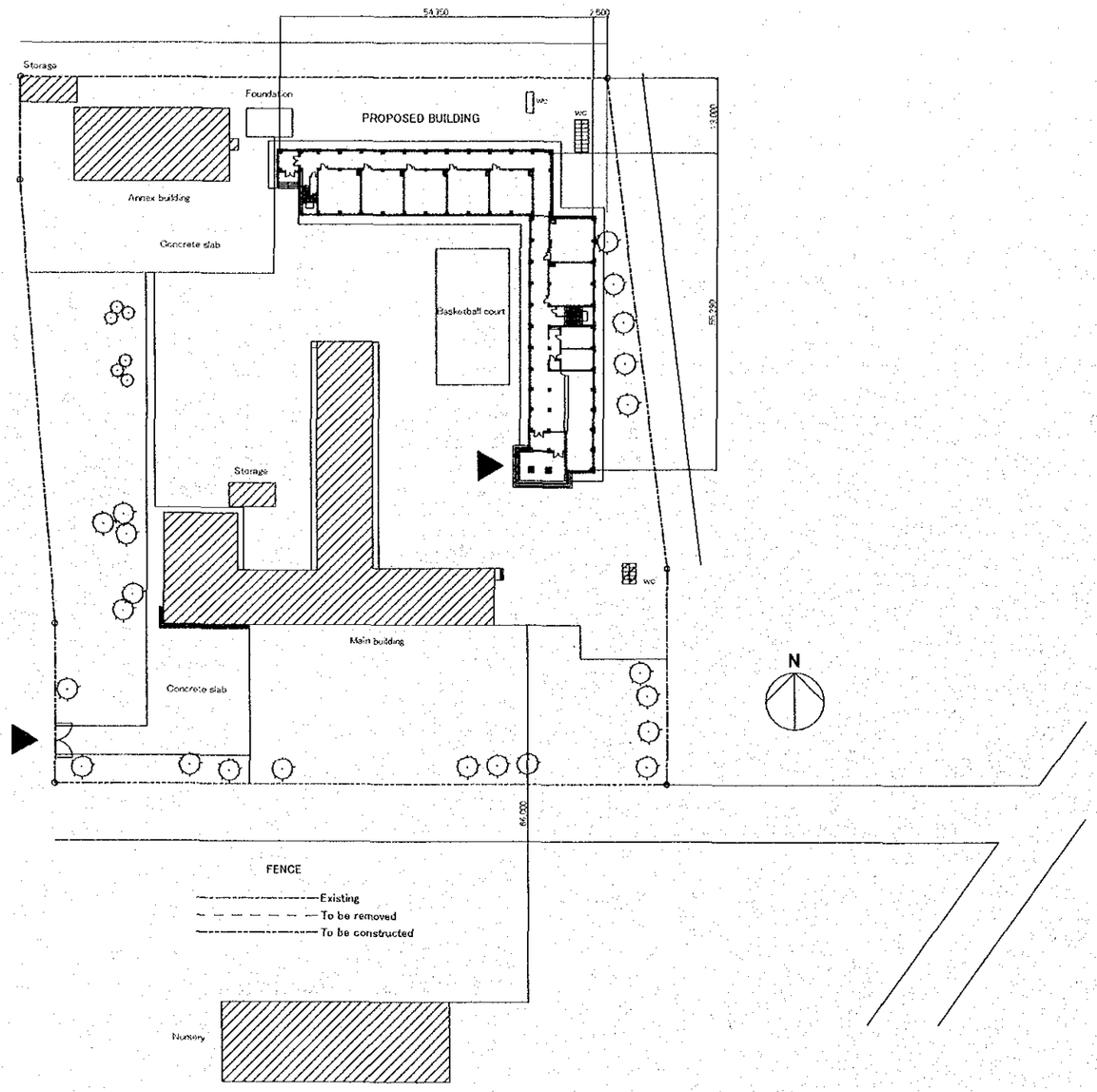
In accordance with Phase I of the Project, manual-use tools such as pliers, hammers, screwdrivers, electrical testers, saws, files, tape measures, and shovels, will be provided in the Project, so that teachers and students' parents can repair and maintain the school facilities. However, cleaning equipment for daily use such as brooms, dustpans, buckets, deck brushes, rubber hoses, and rakes, will not be provided by the Project, because they are easy to purchase by the Government of Mongolia

(4) List of Furniture and Equipment to be Provided

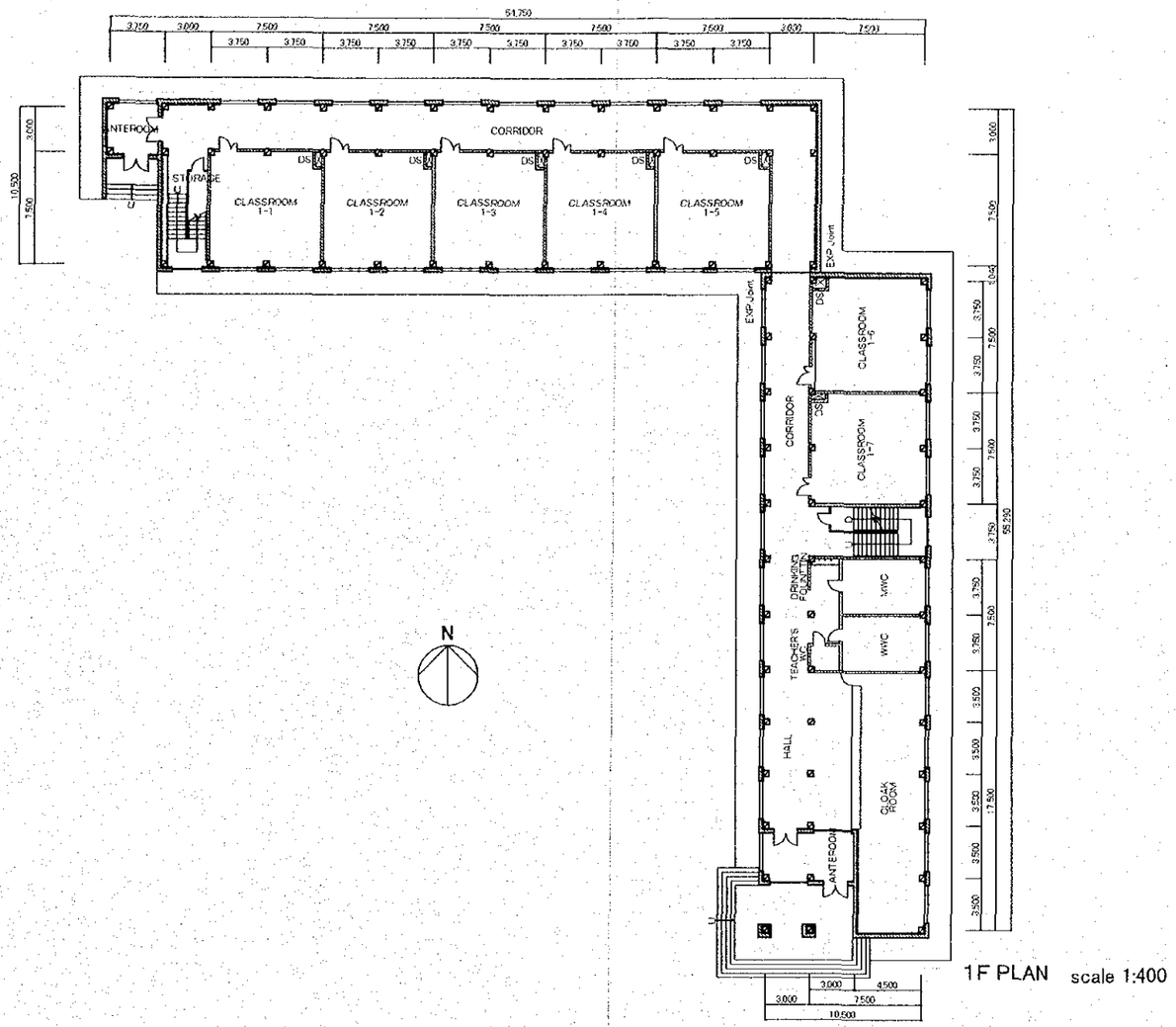
The furniture and equipment units are listed in Table 17.

Table 17: List of Furniture and Equipment Units to be provided by the Project

		Darkhan-Uul			Orkhon							
		D-4	D-11	D-od	O-2	O-3	O-6	O-7	O-16	O-17	O-18	TOTAL
Furniture												
Class	Teacher's Desk	21	9	8	4	16	6	9	20	12	12	117
Room	Teacher's Chair	21	9	8	4	16	6	9	20	12	12	117
	Student's 2seater desk(large)	180	72	72	36	144	54	72	180	108	108	1,026
	Student's 1seater desk(large)	360	144	144	72	288	108	144	360	216	216	2,052
	Student's 2seater desk(small)	198	90	72	36	144	54	90	180	108	108	1,080
	Student's 1seater desk(small)	396	180	144	72	288	108	180	360	216	216	2,160
	Blackboard	21	9	8	4	16	6	9	20	12	12	117
	Bulletin board	21	9	8	4	16	6	9	20	12	12	117
Teacher's	Meeting table	4	3	3	2	4	2	3	4	3	3	31
Room	Chair	24	14	14	8	24	8	14	24	18	18	166
	Cabinet	9	4	4	2	9	2	4	9	6	6	55
Basic Educational Equipment												
1	Geographic Map of Mongolia	21	9	8	4	16	6	9	20	12	12	117
2	Political and Administrative Map of	11	5	4	2	8	3	5	10	6	6	60
3	Map of Mineral Resources of Mongolia	11	5	4	2	8	3	5	10	6	6	60
4	Botanical Map of Mongolia	11	5	4	2	8	3	5	10	6	6	60
5	Zoological Map of Mongolia	11	5	4	2	8	3	5	10	6	6	60
6	World Geographic map	11	5	4	2	8	3	5	10	6	6	60
7	The World Political and Administrative	11	5	4	2	8	3	5	10	6	6	60
8	Diagram of Chemical Element Cycle	6	3	2	1	4	2	3	5	3	3	32
9	Diagram of Physical Measuring Unit	6	3	2	1	4	2	3	5	3	3	32
10	Human Body Chart	8	4	3	2	6	3	4	8	5	5	48
11	Mongolian Alphabet Card	11	5	4	2	8	3	5	10	6	6	60
12	Wall Thermometer	11	5	4	2	8	3	5	10	6	6	60
13	Azimuth Compass	11	5	4	2	8	3	5	10	6	6	60
14	Tape measure	11	5	4	2	8	3	5	10	6	6	60
15	Geometric Block Models	11	5	4	2	8	3	5	10	6	6	60
16	Abacus	11	5	4	2	8	3	5	10	6	6	60
17	T-square	21	9	8	4	16	6	9	20	12	12	117
18	Scales	21	9	8	4	16	6	9	20	12	12	117
19	Multiplication Table	11	5	4	2	8	3	5	10	6	6	60
20	OHP(Over Head Projector)	1	1	1	1	1	1	1	1	1	1	1
21	Maintenance Tool Set	1	1	1	1	1	1	1	1	1	1	1

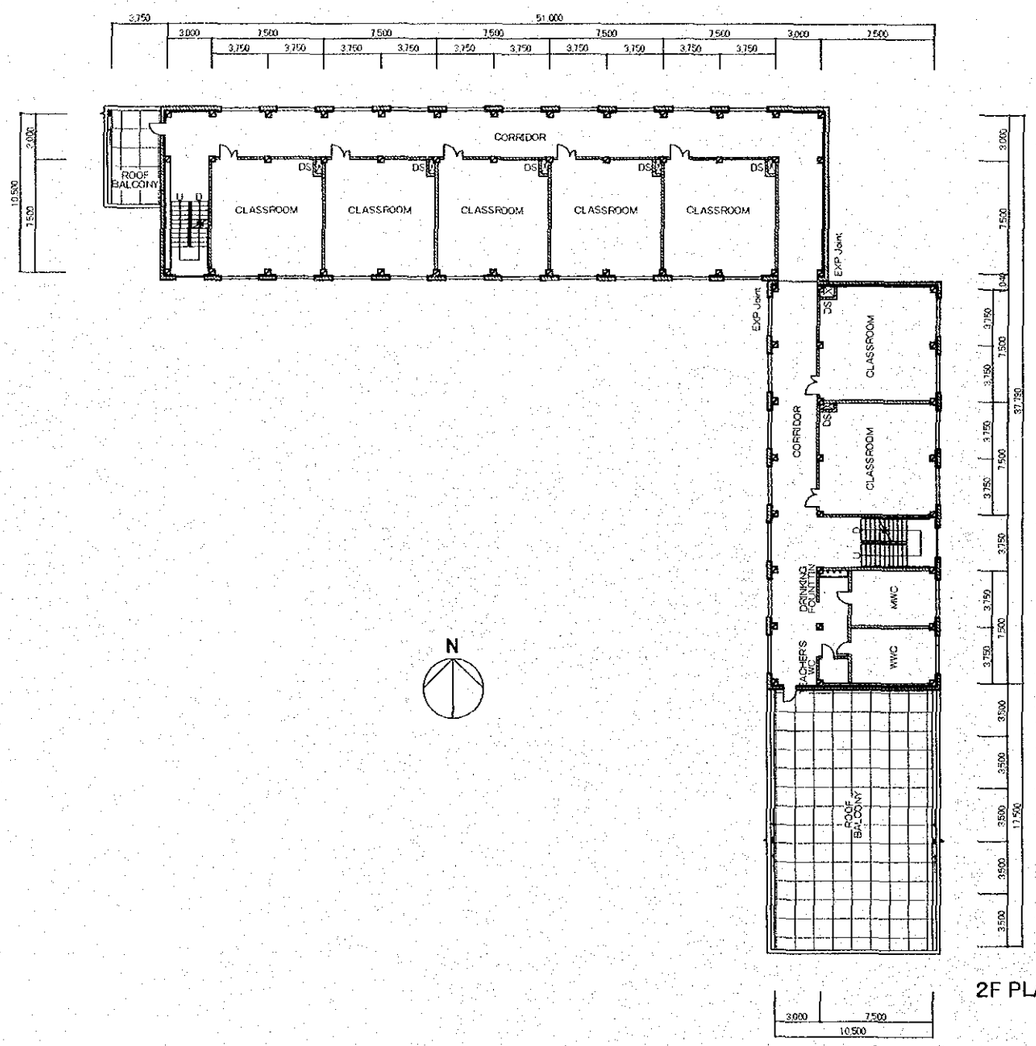


DARKAN-UUL NO.4 PLOT PLAN scale 1:1000



1F PLAN scale 1:400

	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	DARKAN-UUL NO.4 PLOT PLAN 1F PLAN	NUMBER OF SHEET / SCALE



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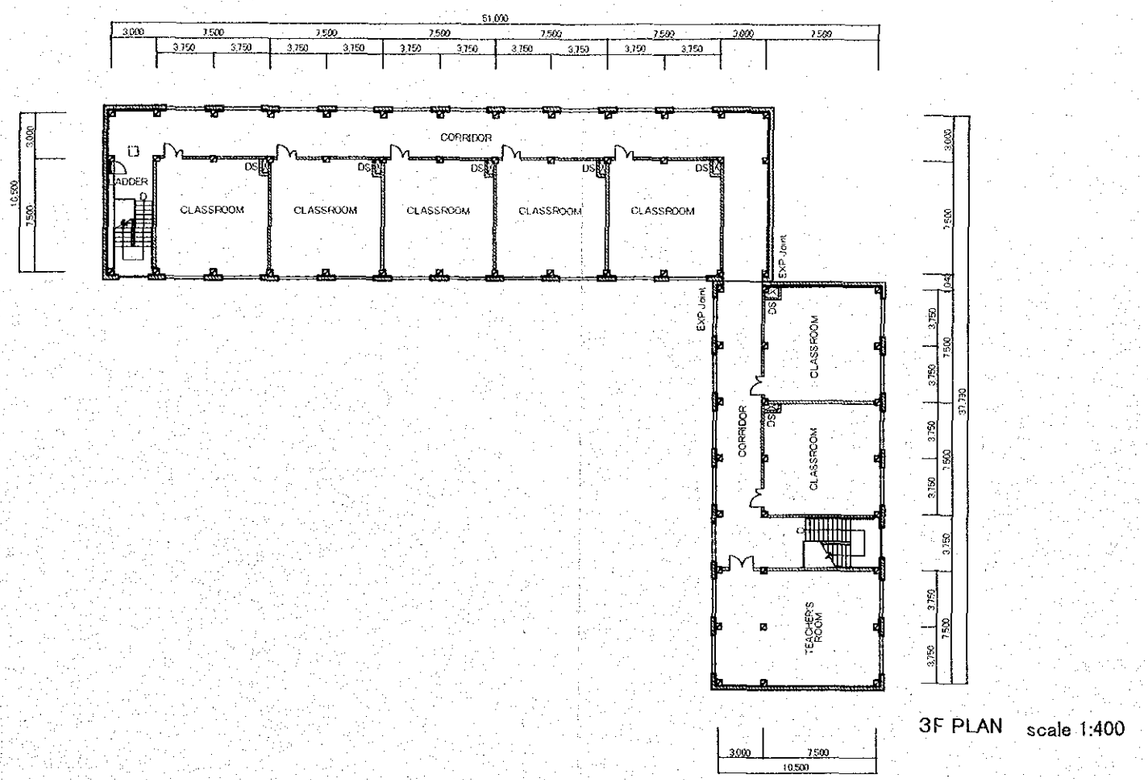

3F PLAN scale 1:400

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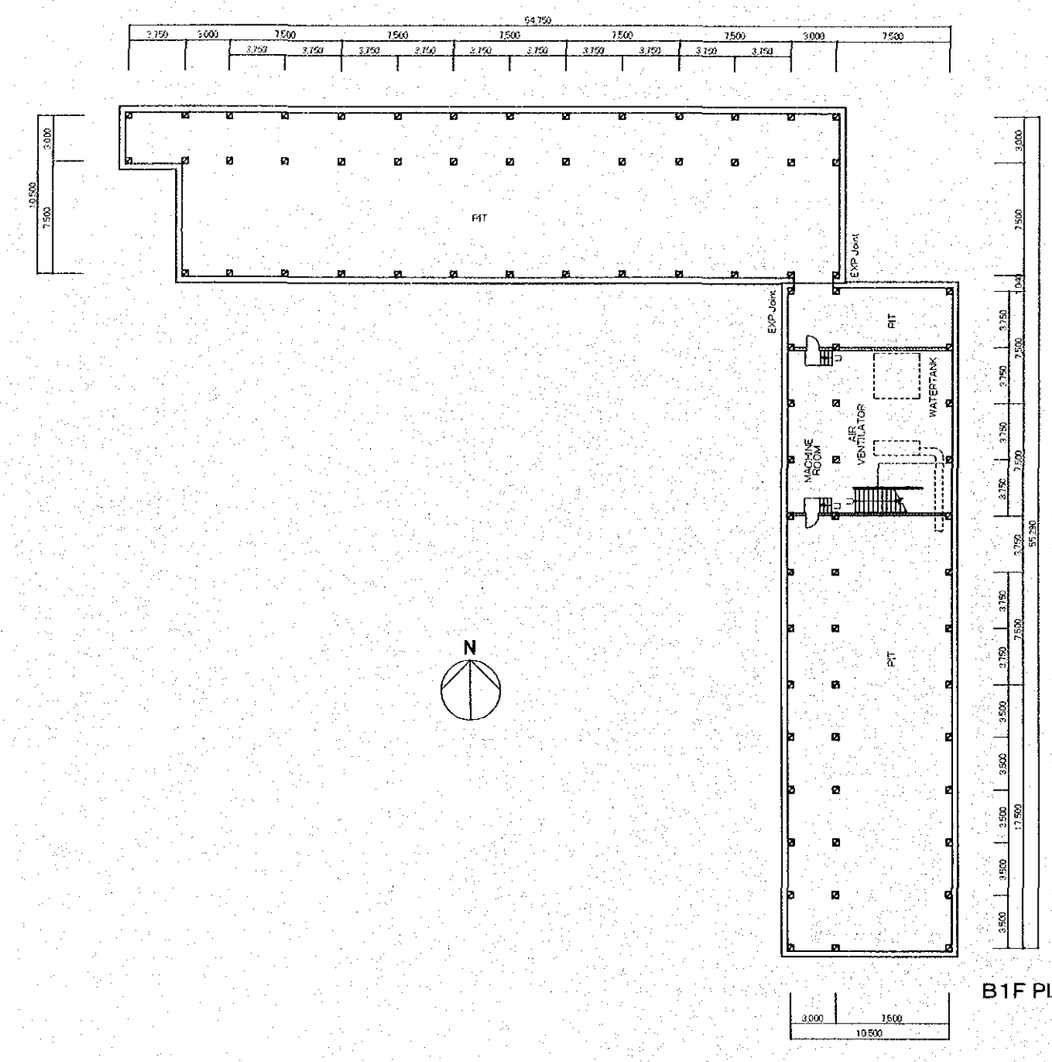
	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	2F/3F PLAN	NUMBER OF SHEET SCALE



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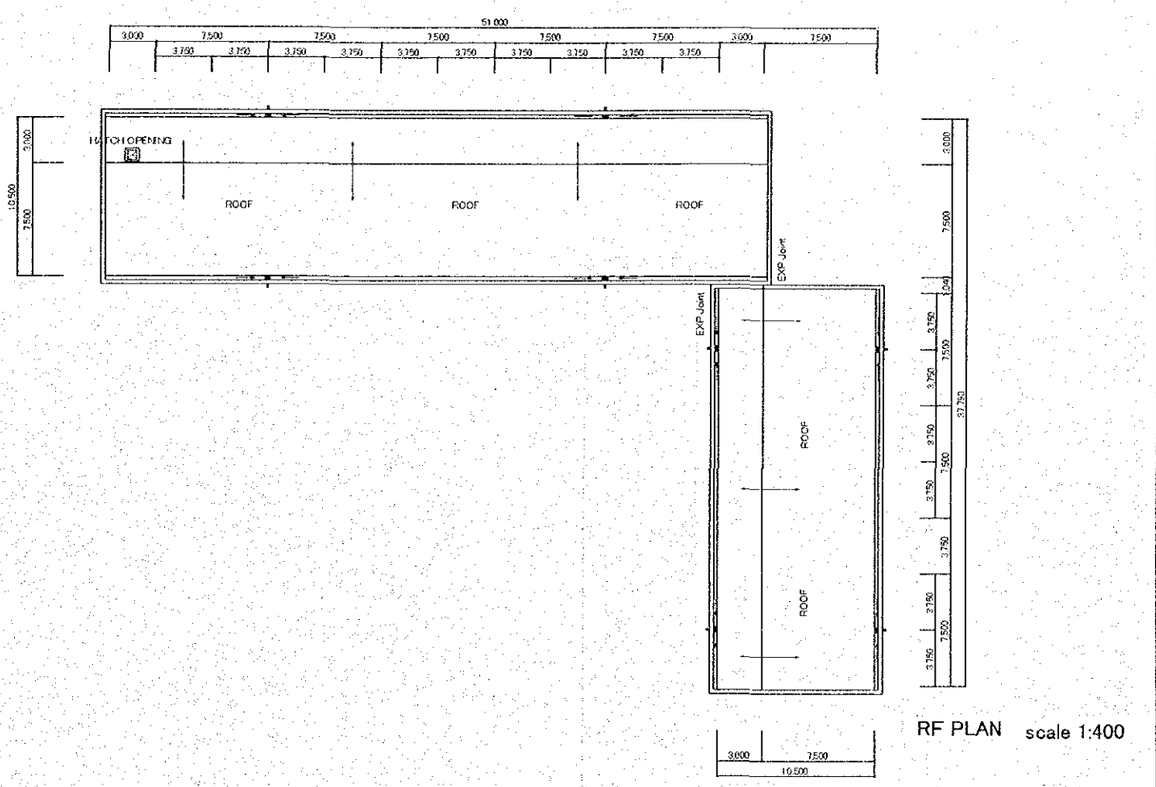

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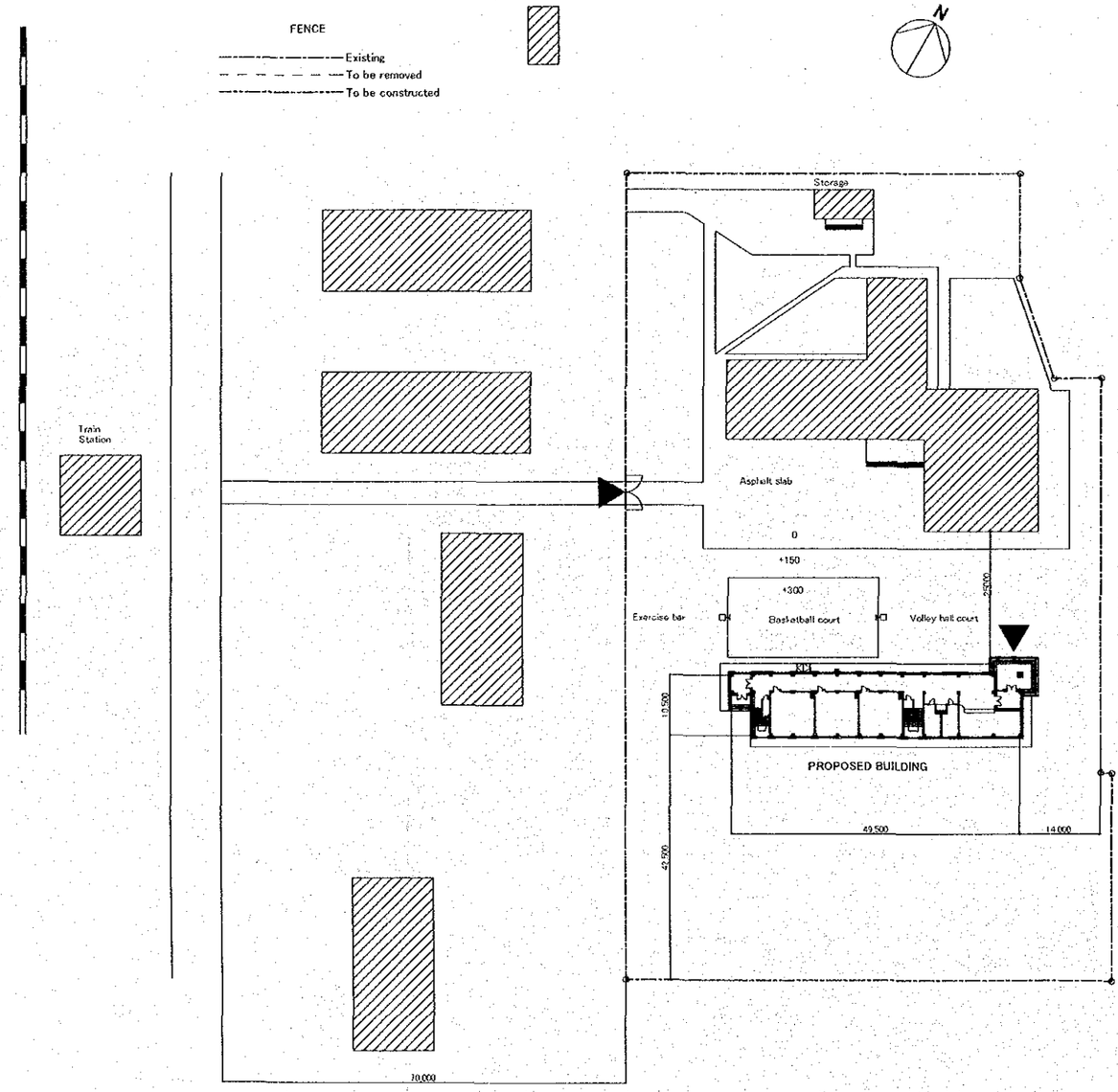

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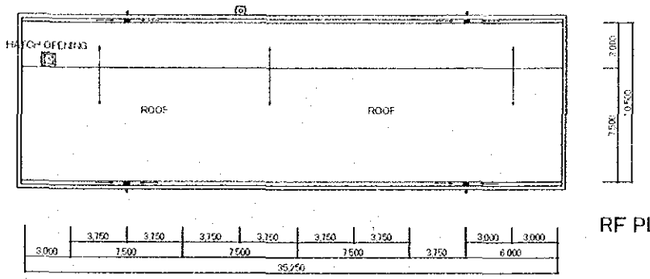

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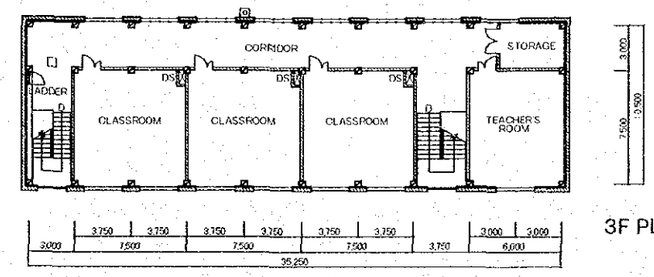

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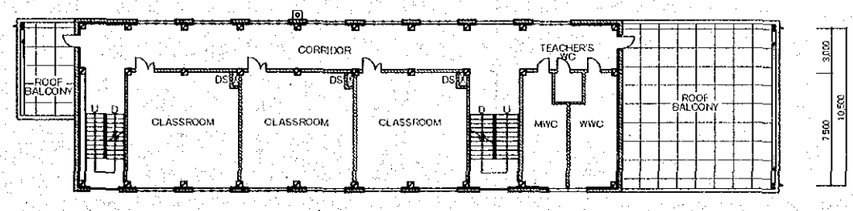

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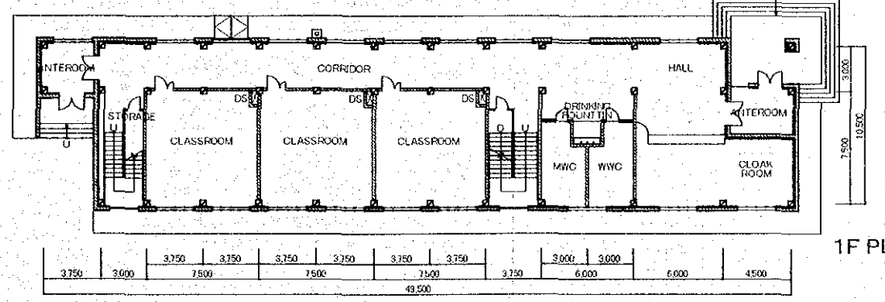

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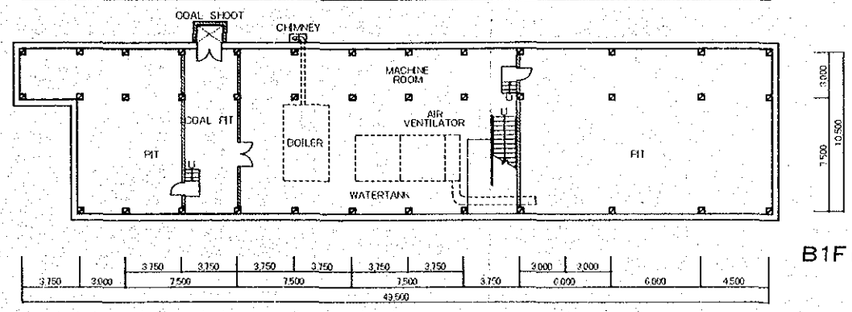

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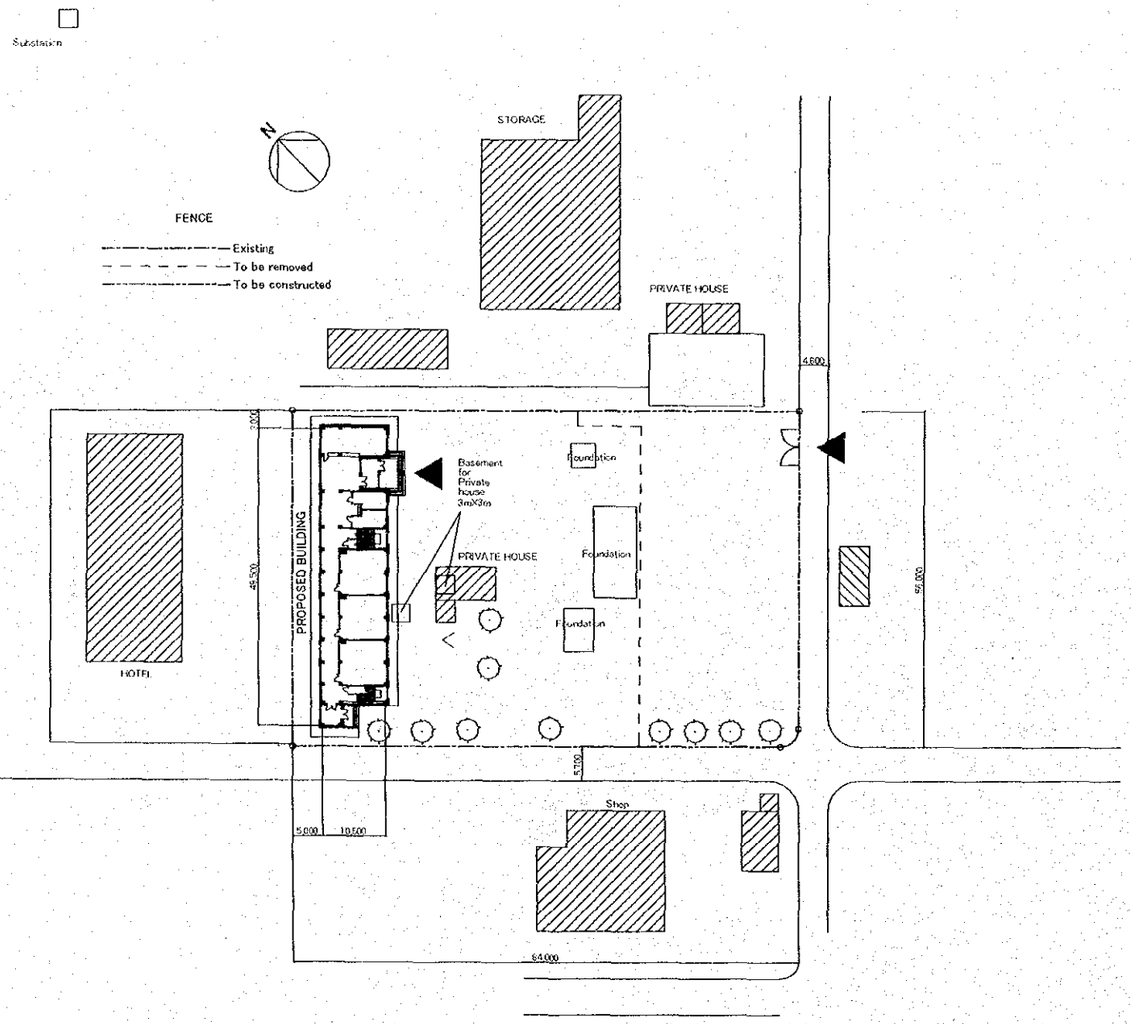
	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	DARKAN-UUL NO.11 PLOT PLAN B1F/1F/2F/3F/RF PLAN	NUMBER OF SHEET SCALE



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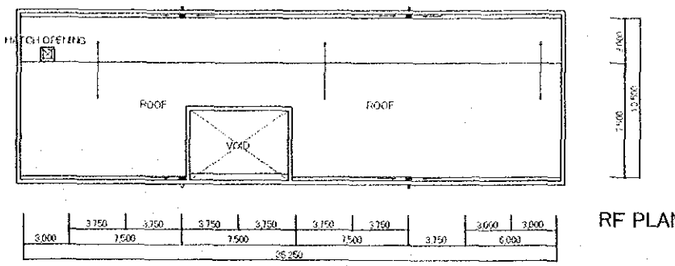

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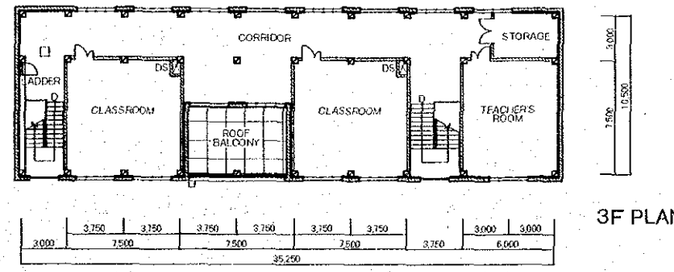

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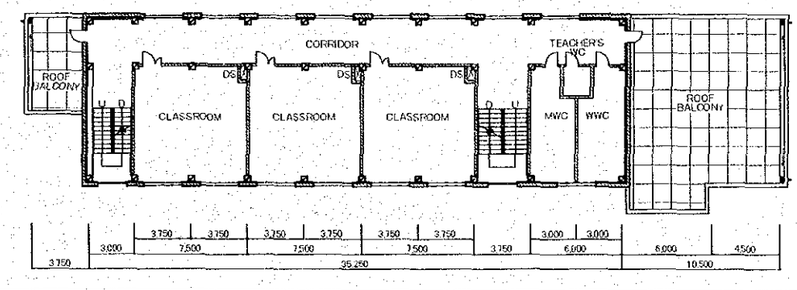

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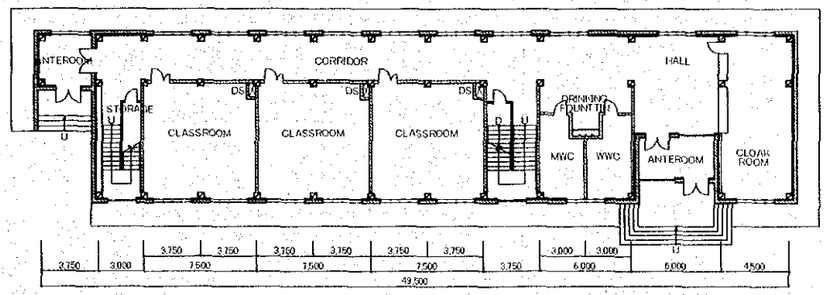

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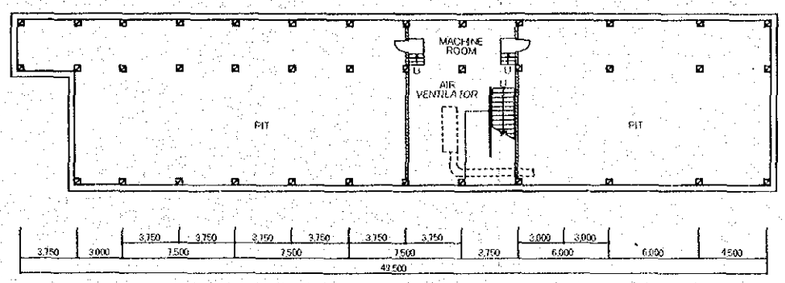

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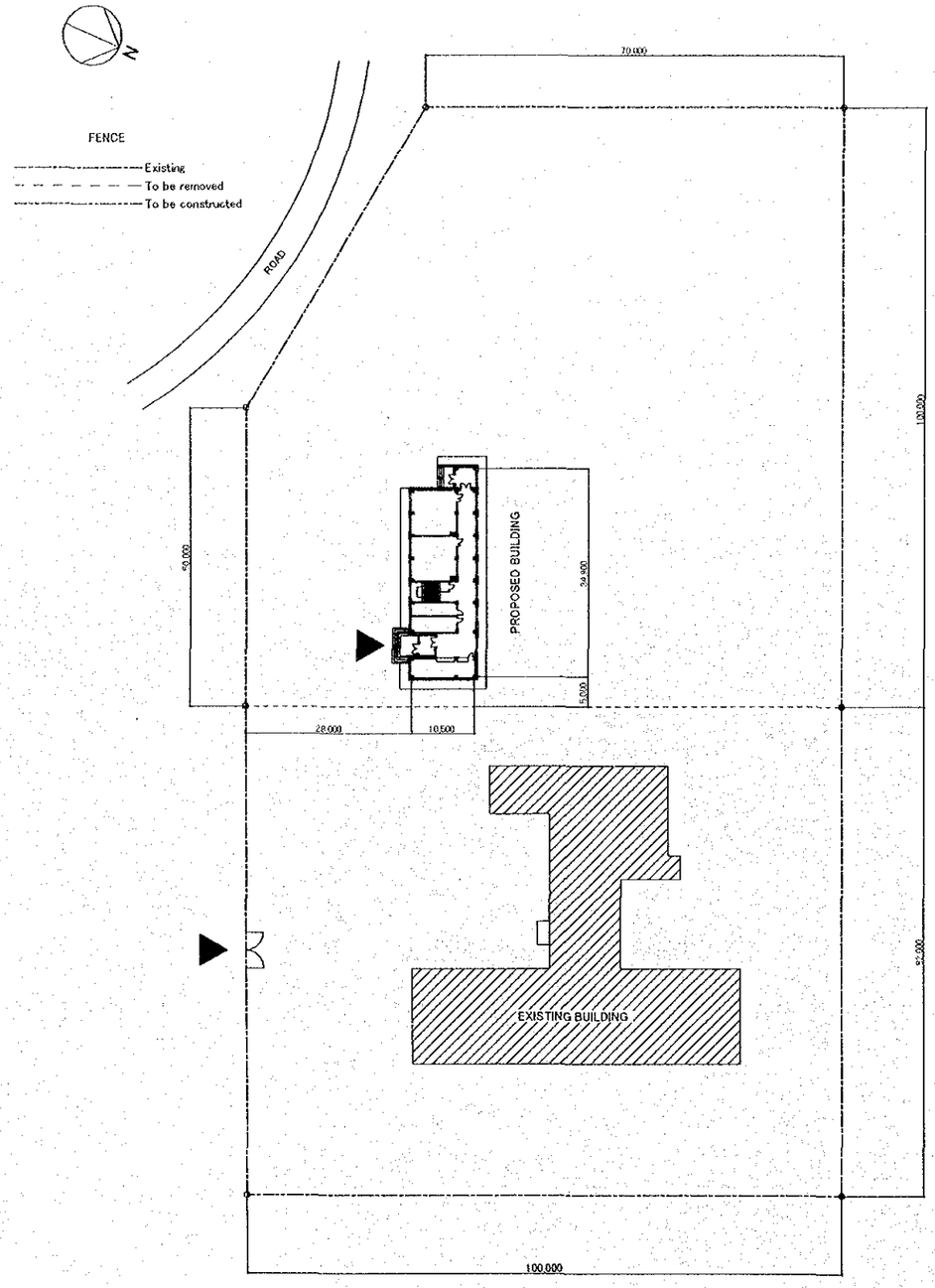
	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	DARKAN-UUL NO.od PLOT PLAN B1F/1F/2F/3F/RF PLAN	NUMBER OF SHEET SCALE



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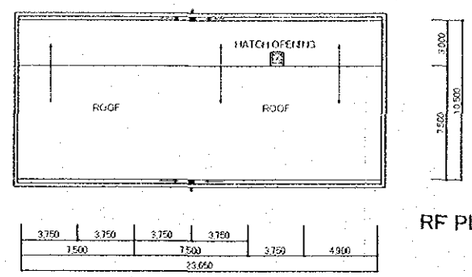

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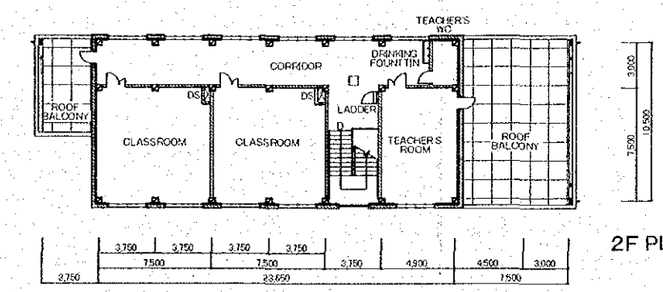

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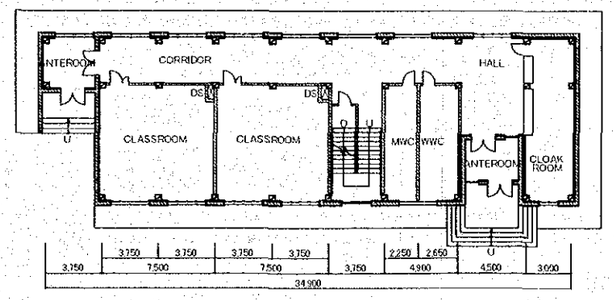

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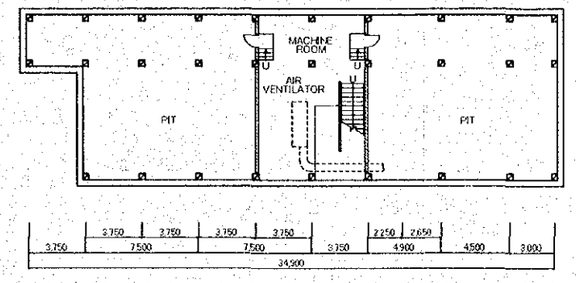

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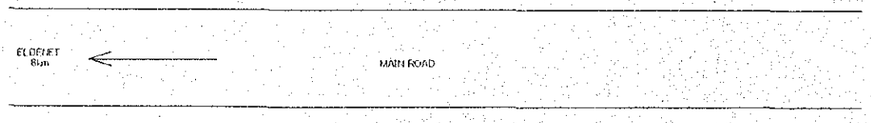
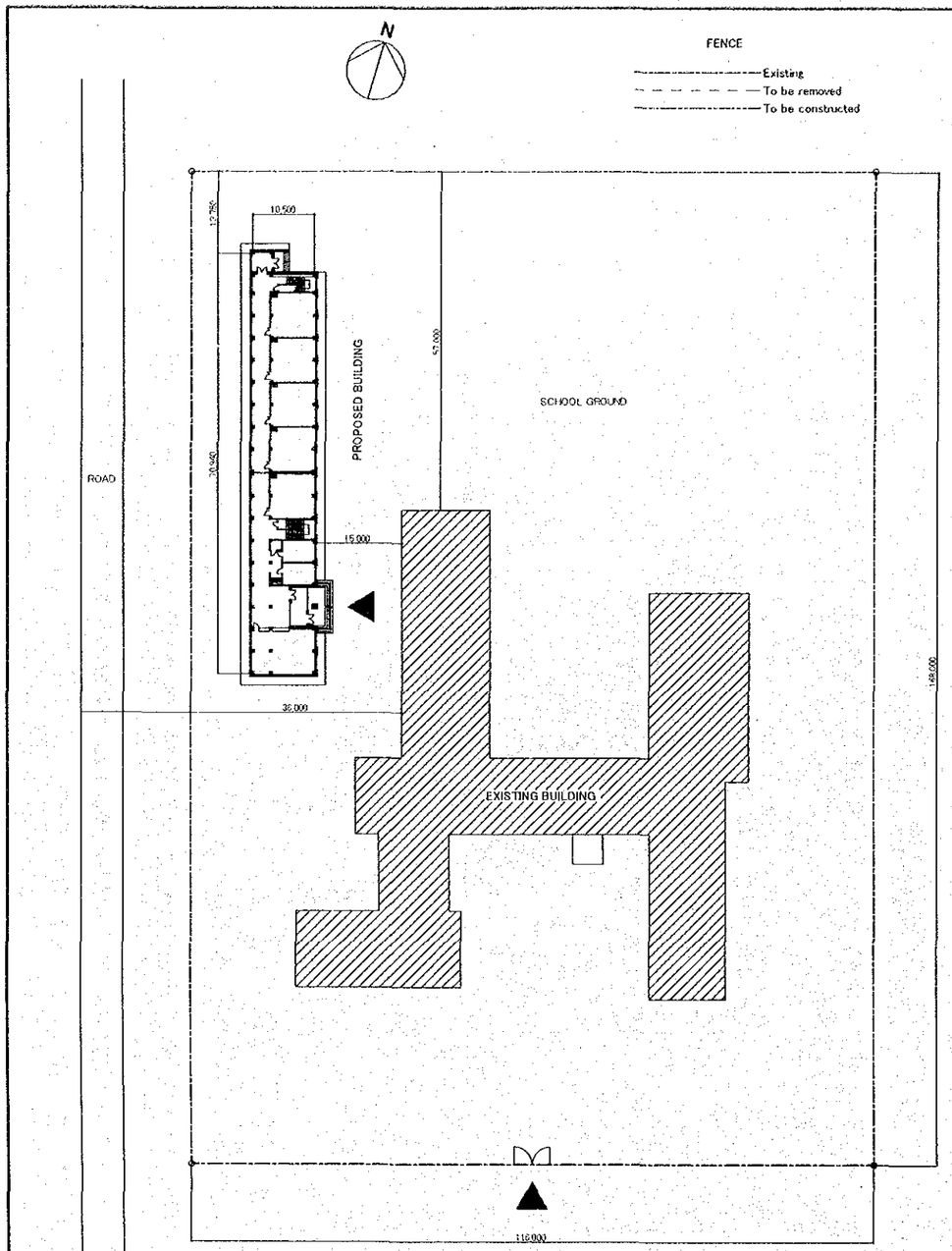


	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	ORKHON NO.2 PLOT PLAN B1F/1F/2F/RF PLAN	NUMBER OF SHEET / SCALE



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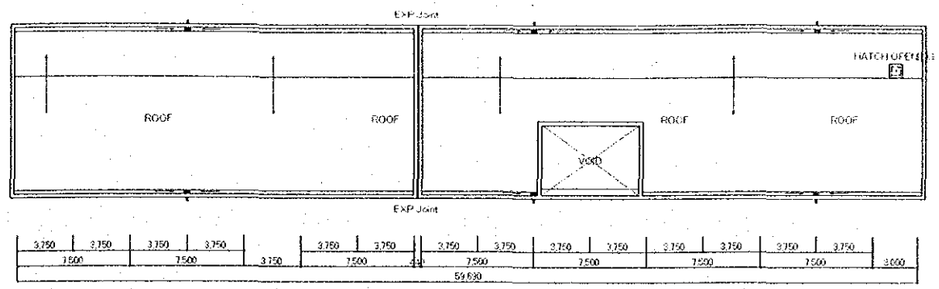

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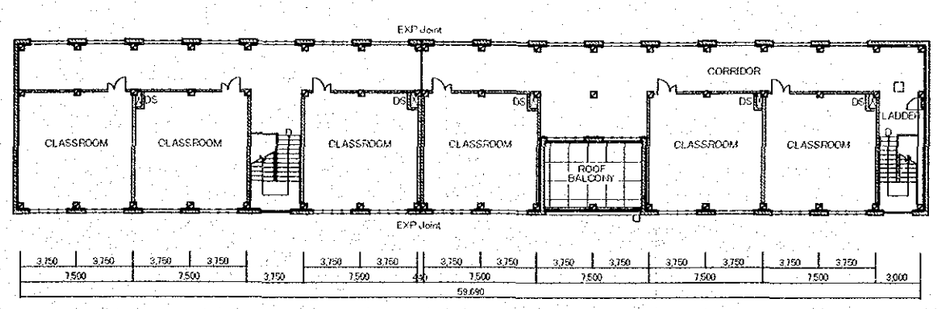

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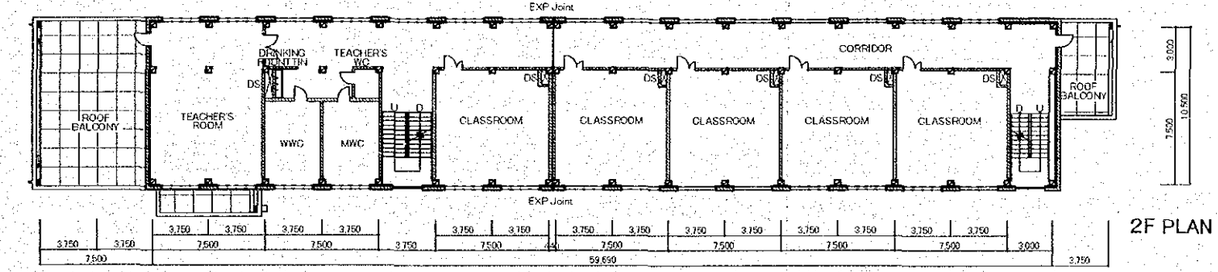

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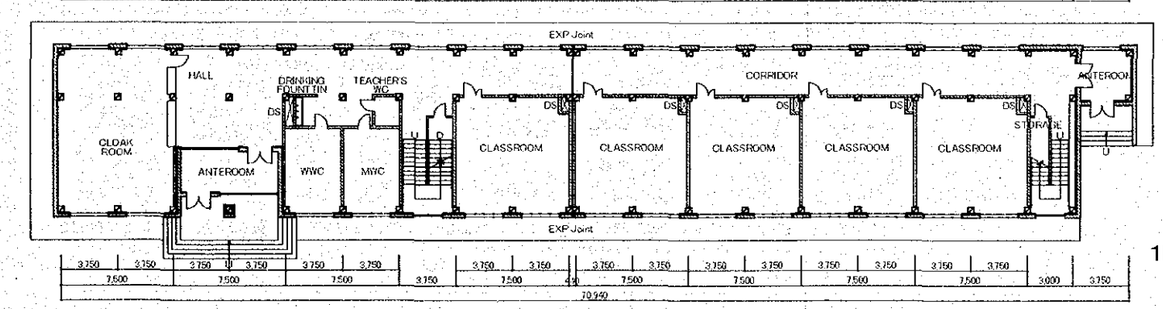

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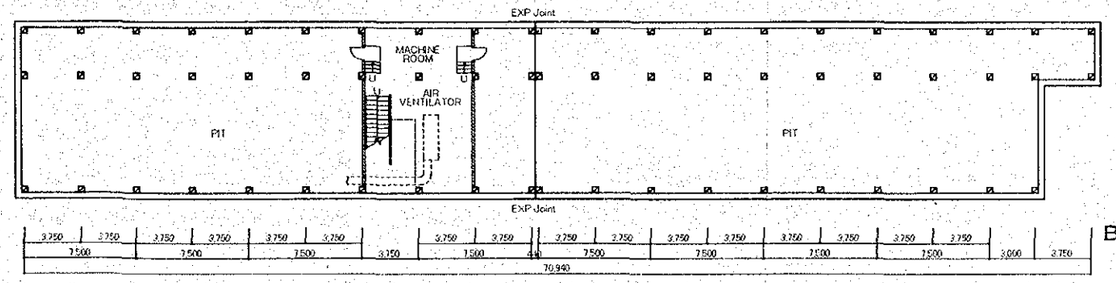

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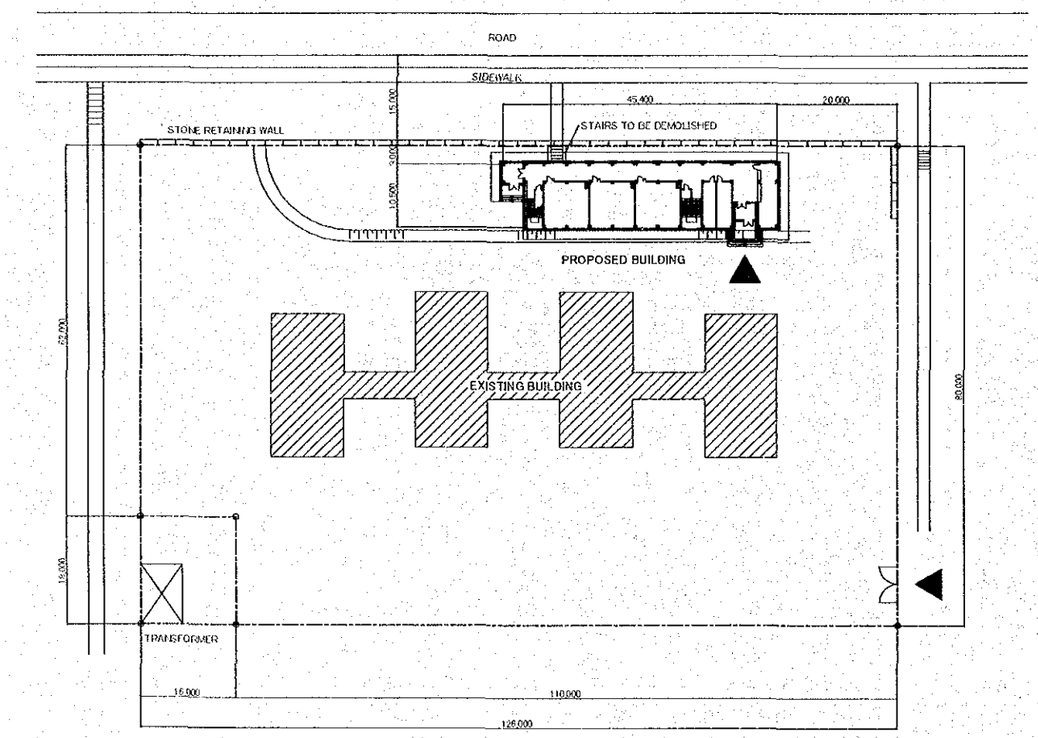
	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIENT	ORKHON NO.3 PLOT PLAN B1F/1F/2F/3F/RF PLAN	NUMBER OF SHEET / SCALE

FENCE

——————— Existing

– – – – – – – To be removed

——————— To be constructed



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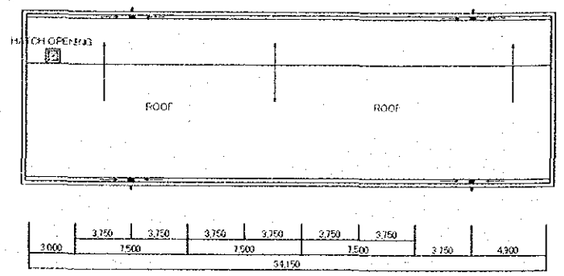

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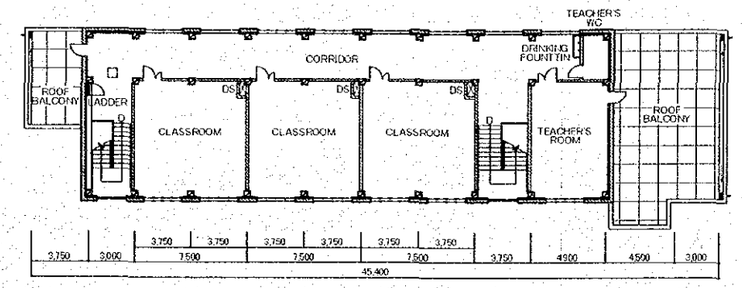

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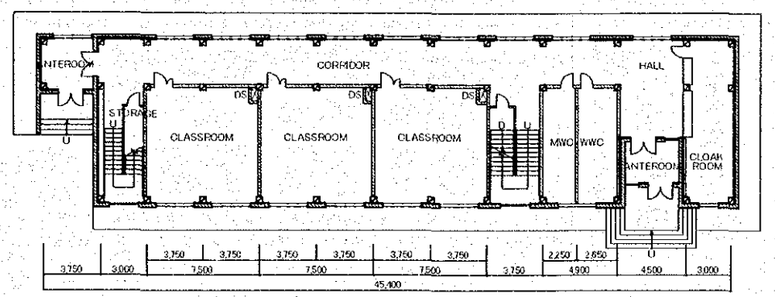

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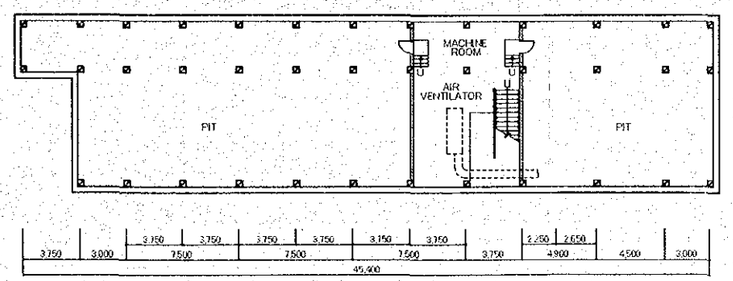

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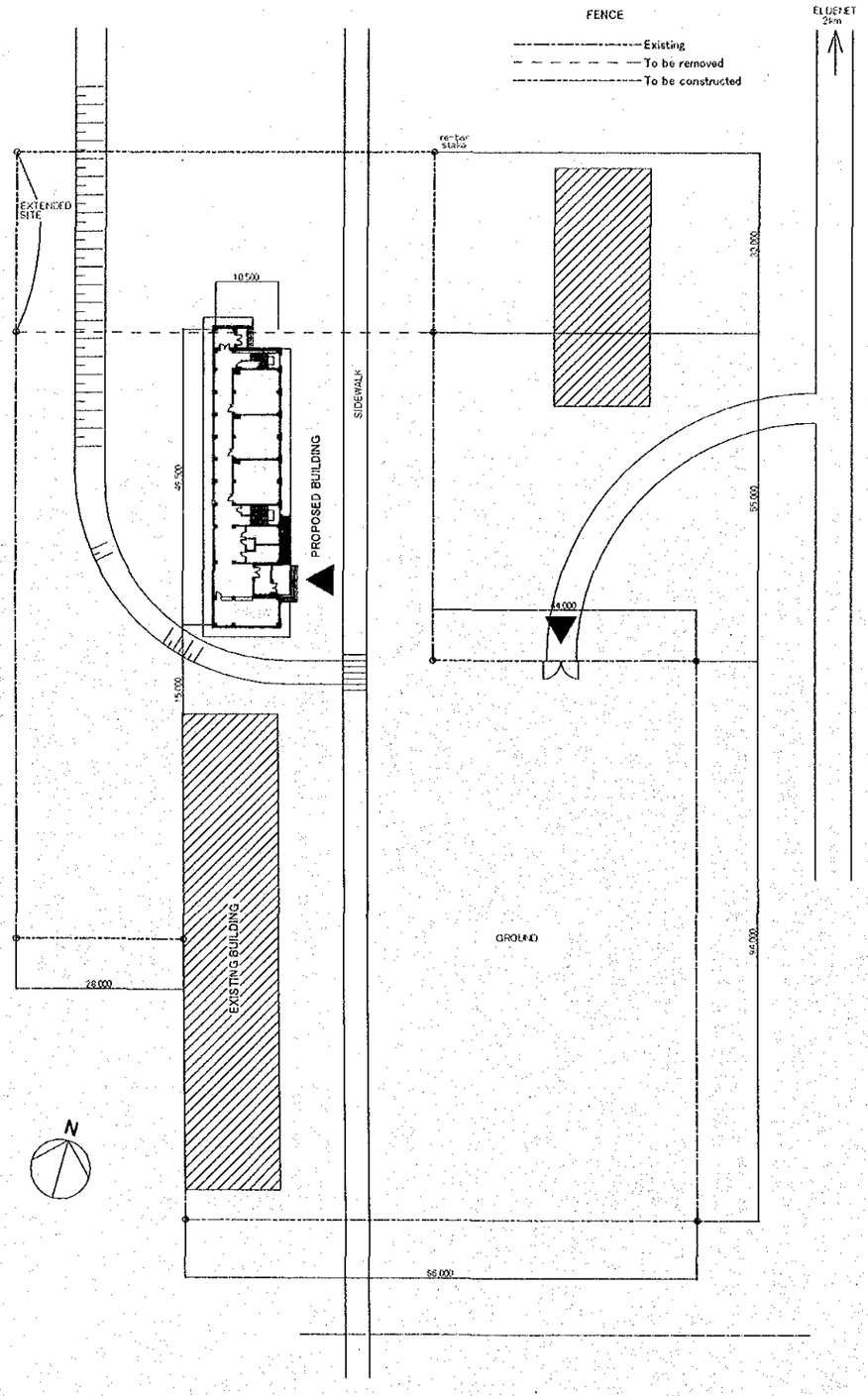
	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	ORKHON NO.6 PLOT PLAN B1F/1F/2F/RF PLAN	NUMBER OF SHEET / SCALE



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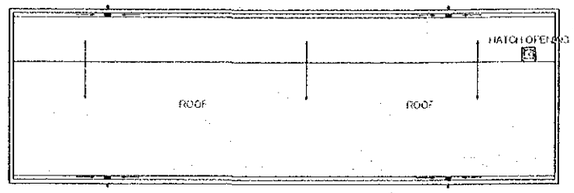

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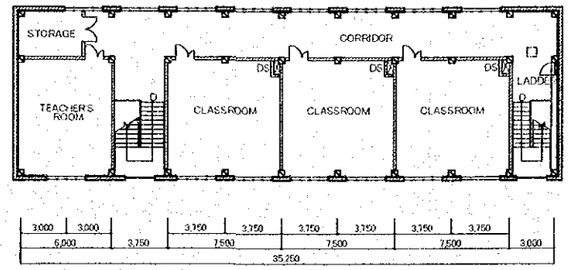

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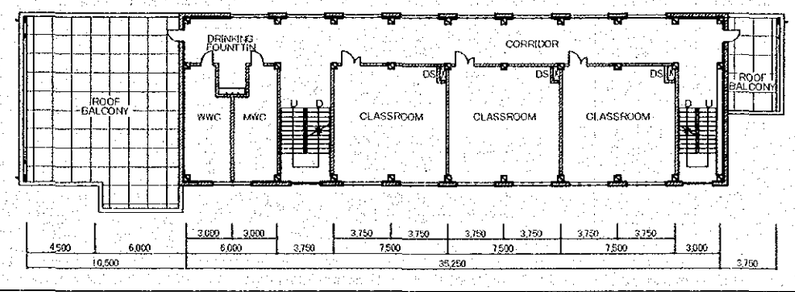

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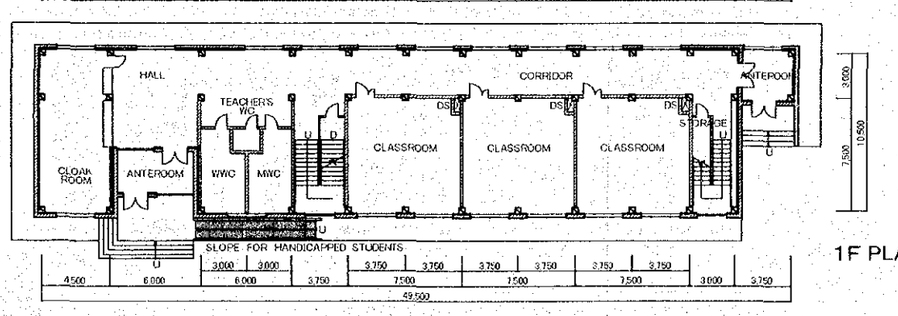

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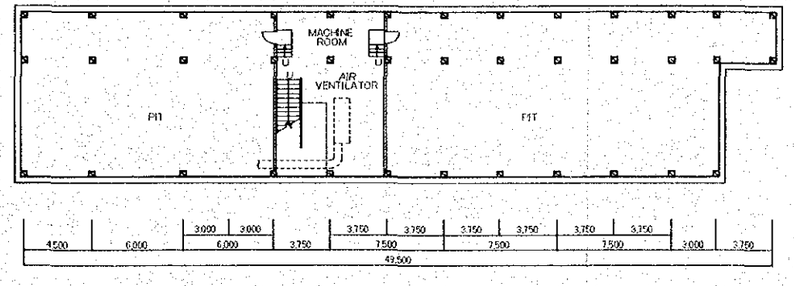


B1F PLAN scale 1:400

	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	ORKHON NO.7 PLOT PLAN B1F/1F/2F/3F/RF PLAN	NUMBER OF SHEET SCALE

FENCE

Existing

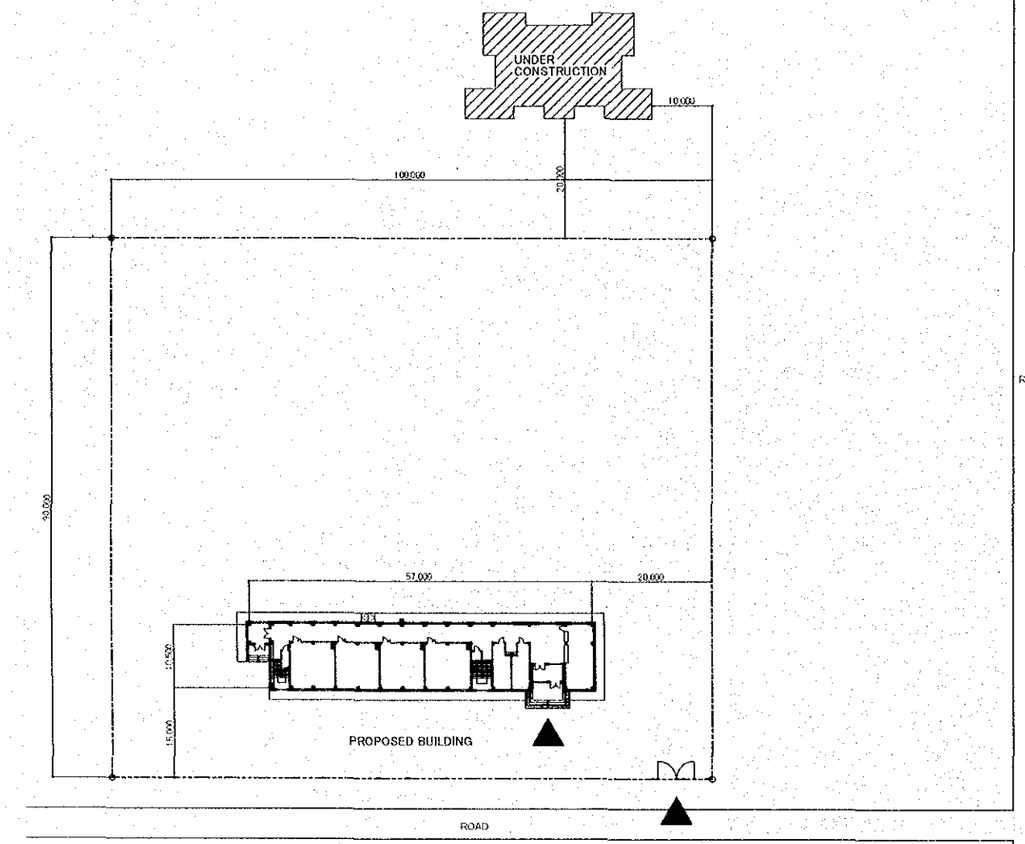
To be removed

To be constructed

WEST END OF ELDENET

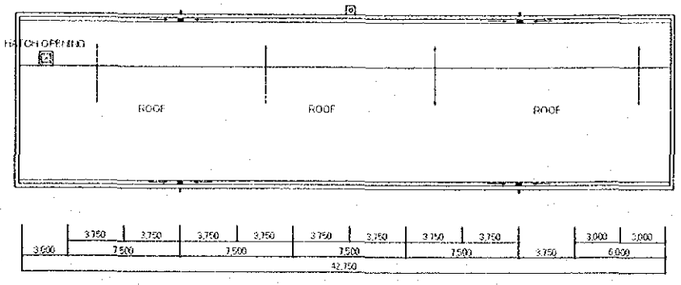
WOODEN FENCE

ELDENET



ROAD

ORKHON NO.17 PLOT PLAN scale 1:1000



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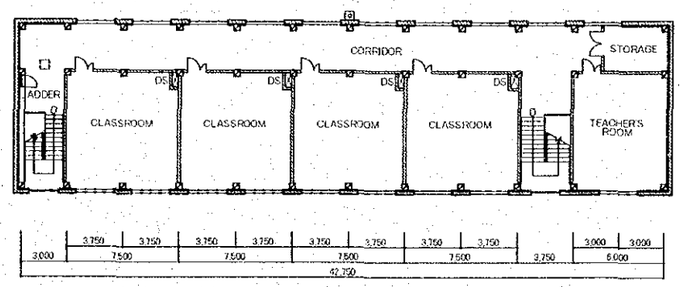

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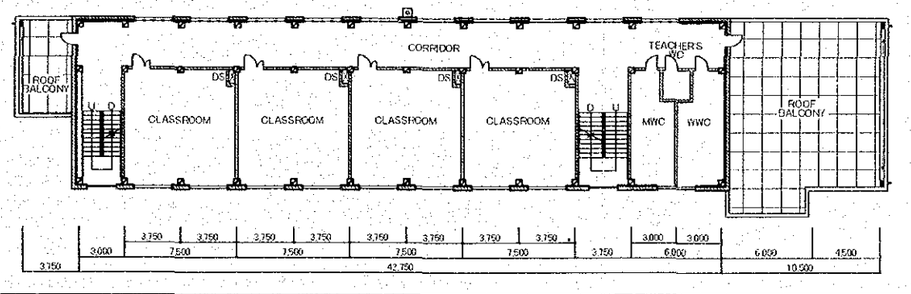

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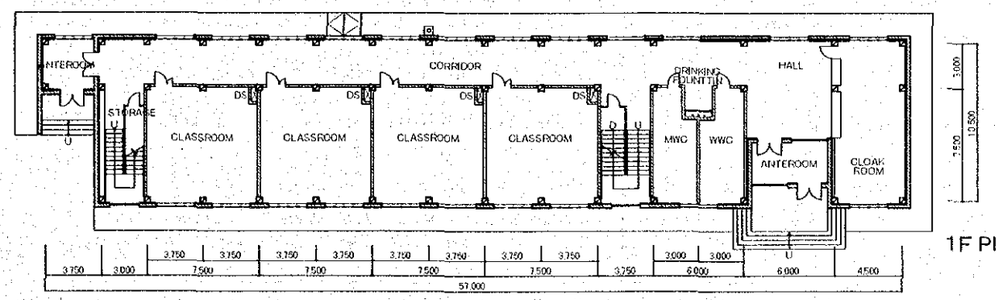

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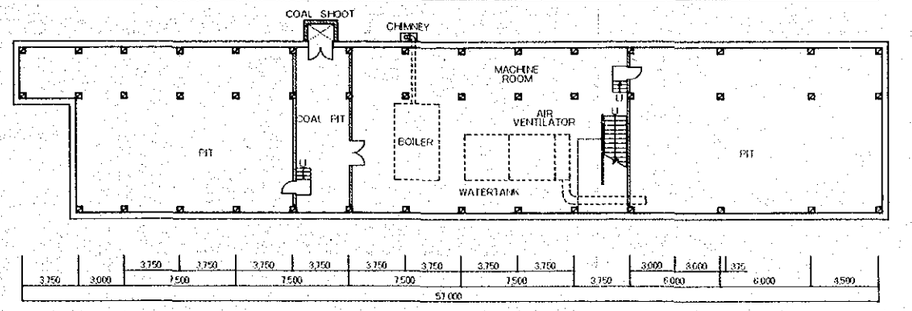


B1F PLAN scale 1:400

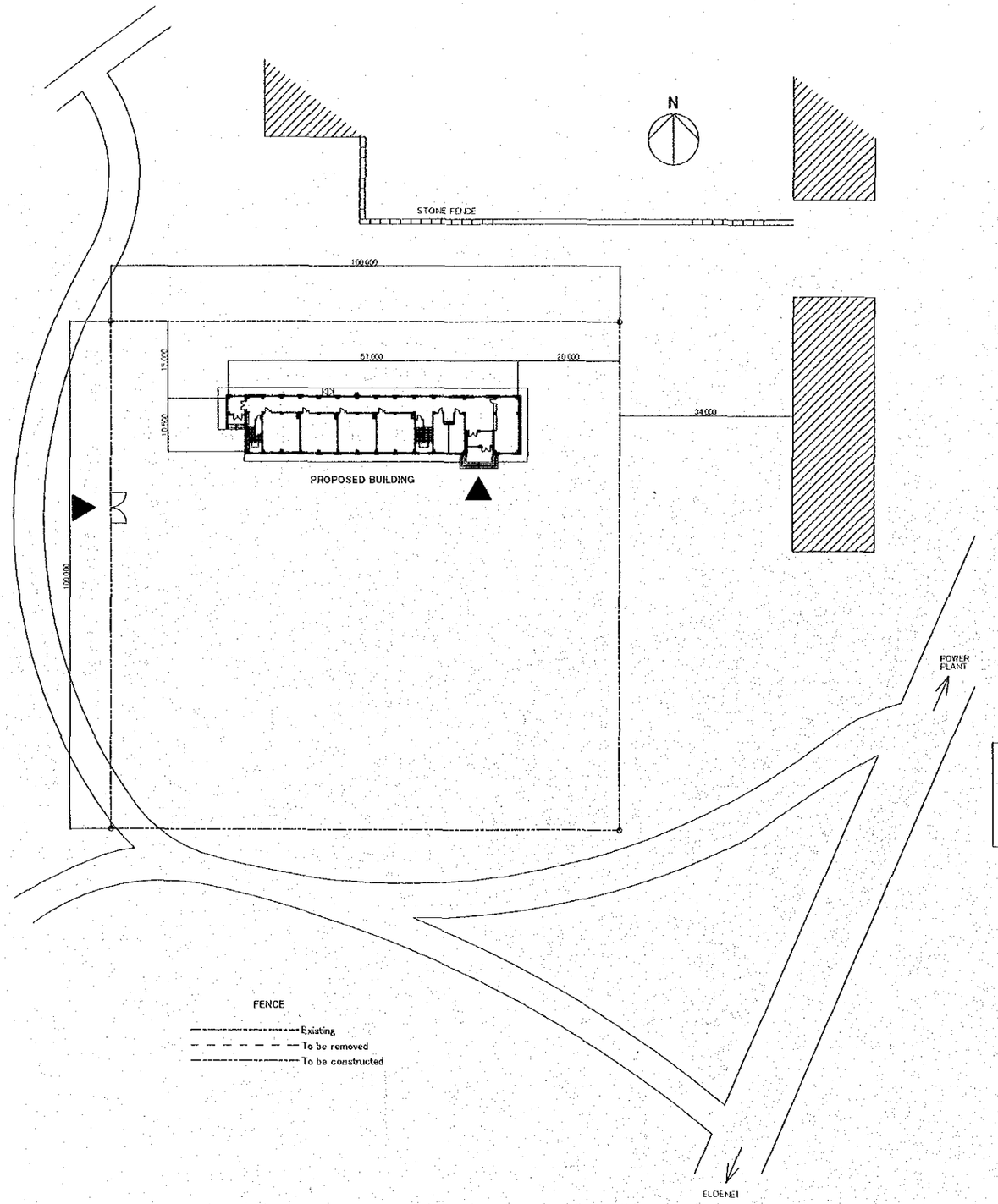
THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2

CLIANT

ORKHON NO.17 PLOT PLAN
B1F/1F/2F/3F/RF PLAN

NUMBER OF SHEET

SCALE



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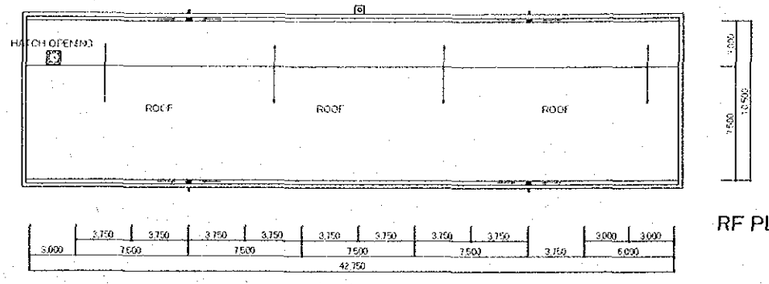

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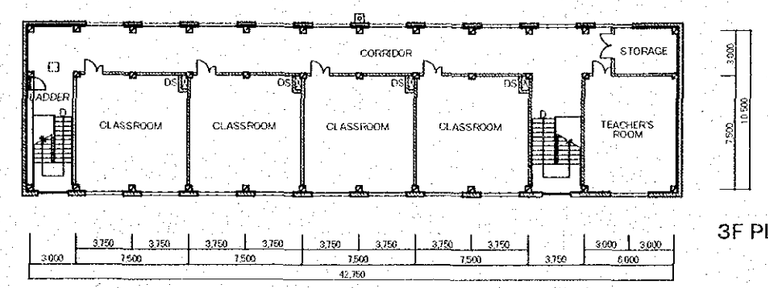

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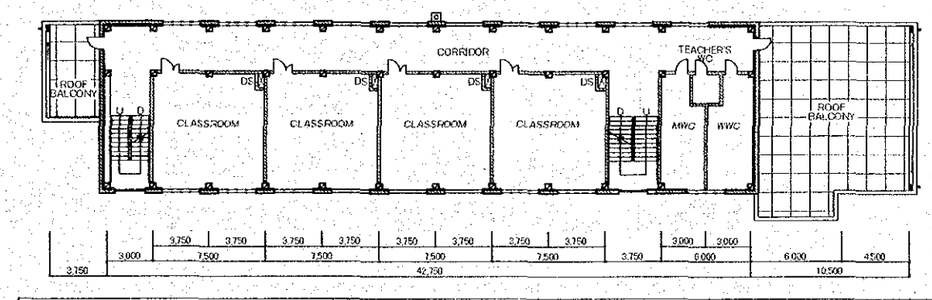

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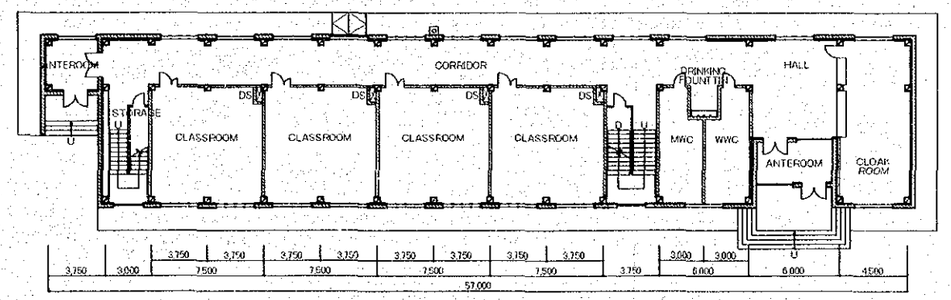

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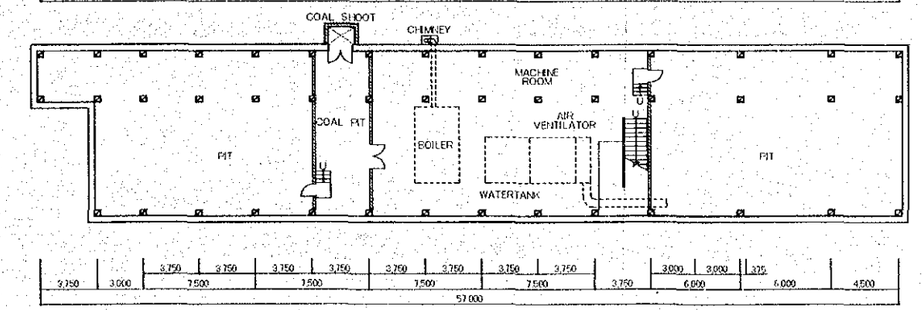


B1F PLAN scale 1:400

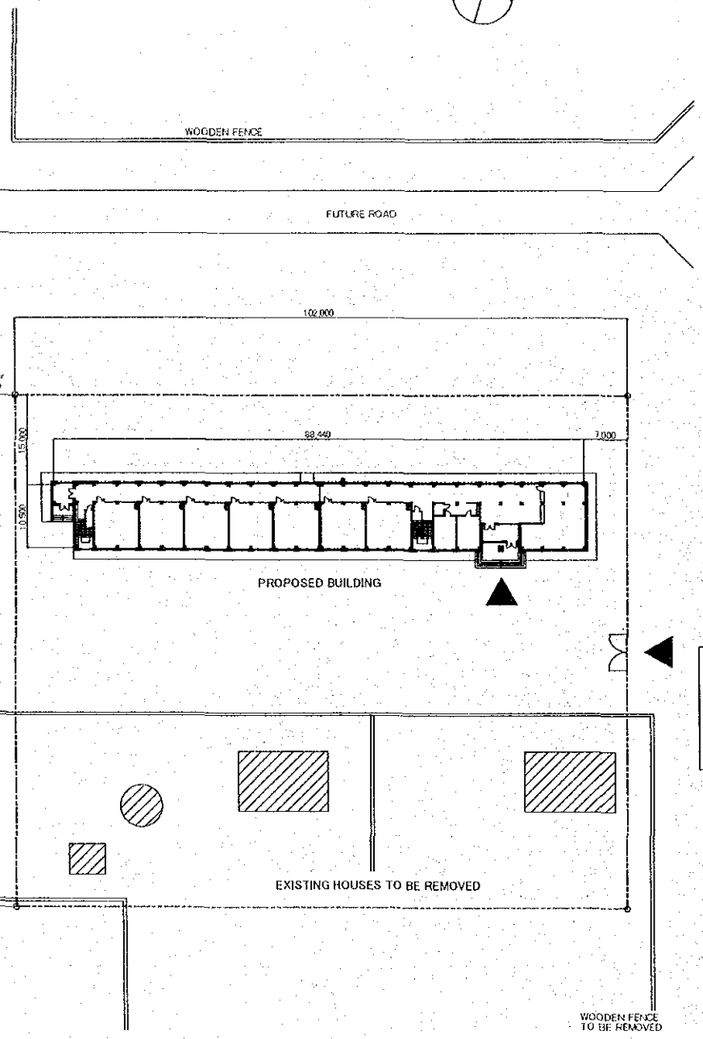
	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	ORKHON NO.18 PLOT PLAN B1F/1F/2F/3F/RF PLAN	NUMBER OF SHEET / SCALE

FENCE

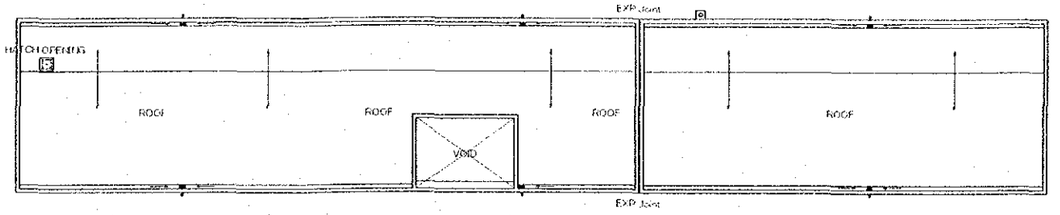
Existing

To be removed

To be constructed



ORKHON NO.16 PLOT PALN scale 1:1000



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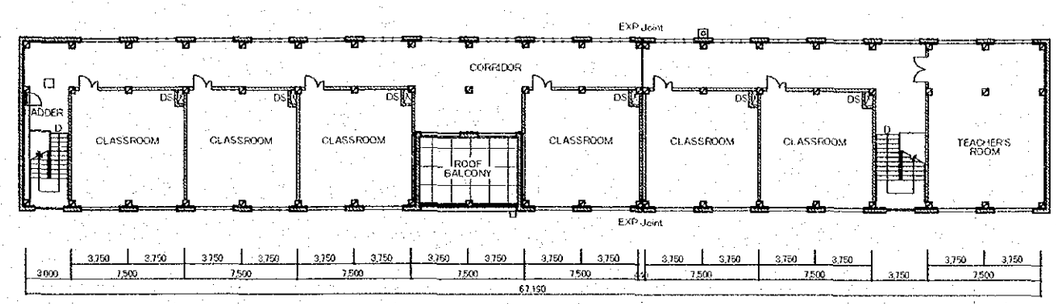

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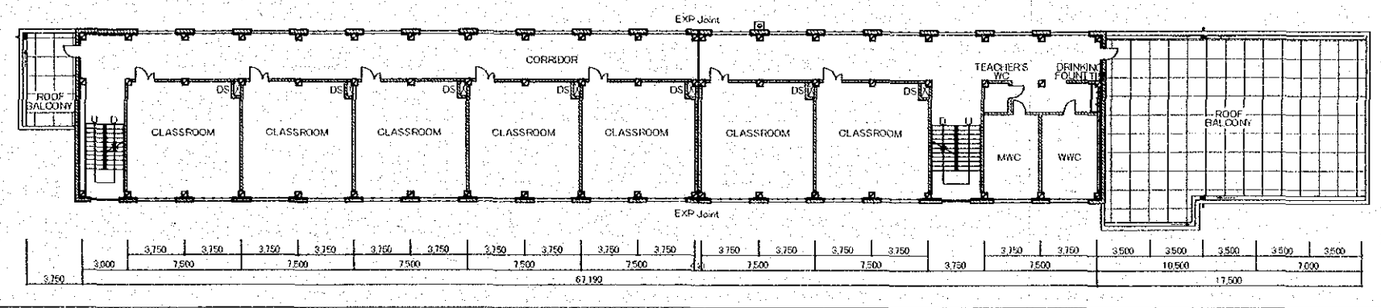

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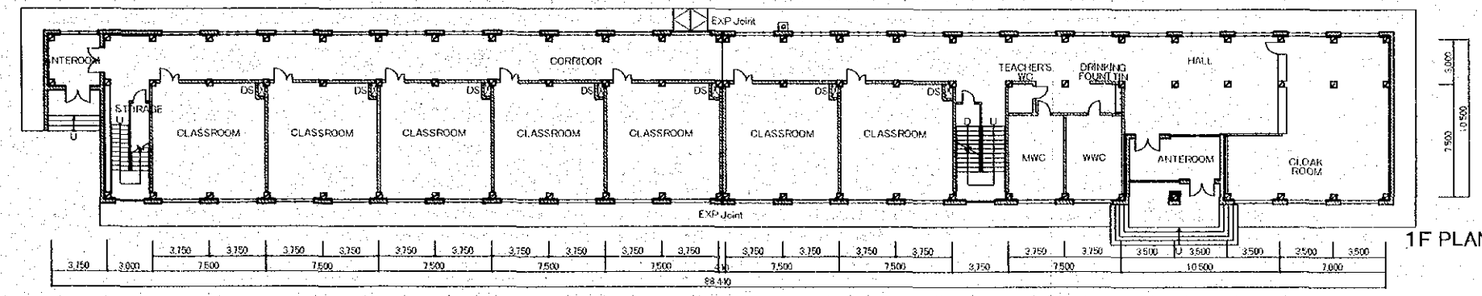

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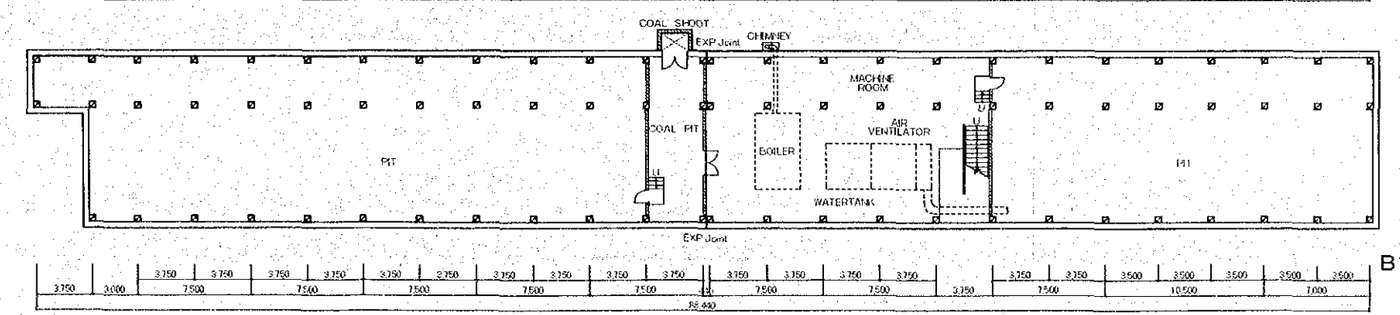
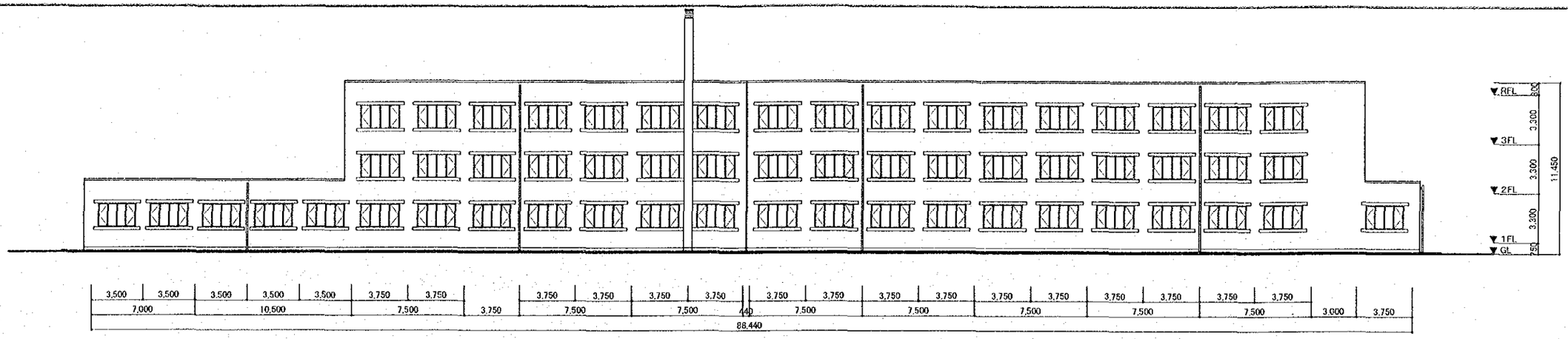


B1F PLAN scale 1:400

	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	ORKHON NO.16 PLOT PLAN B1F/1F/2F/3F/RF PLAN	NUMBER OF SHEET SCALE



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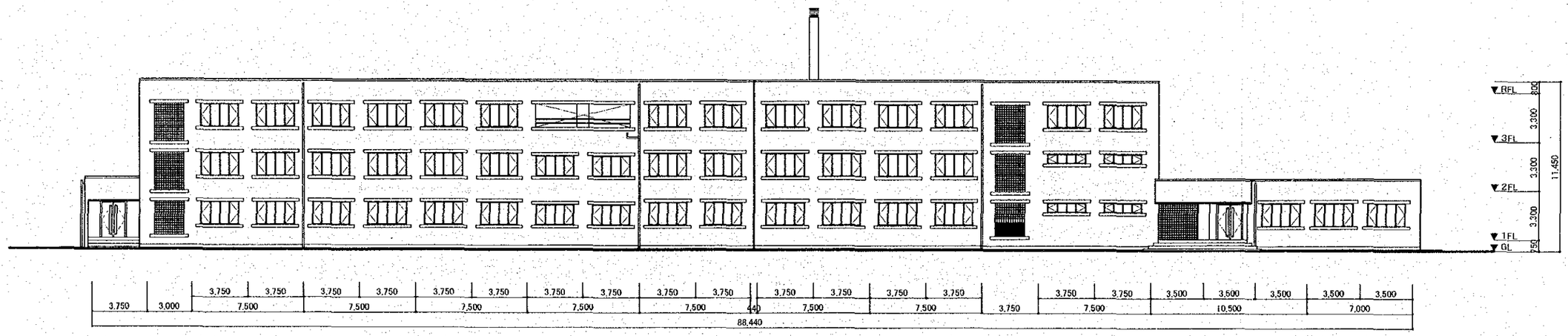
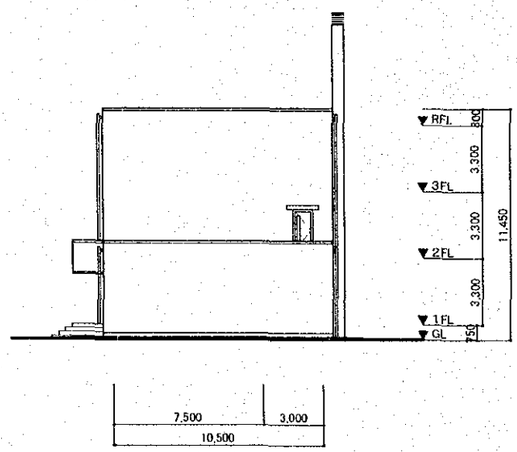


SOUTH ELEVATION scale 1:300



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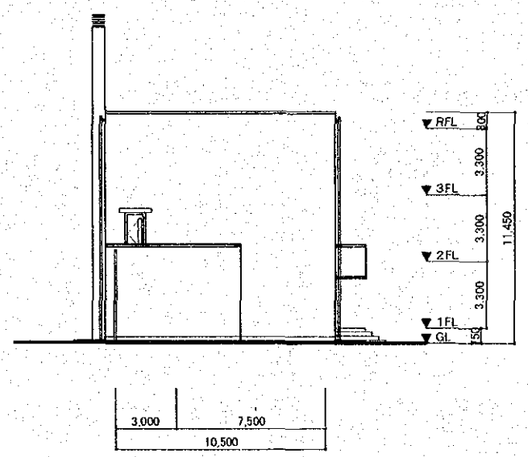
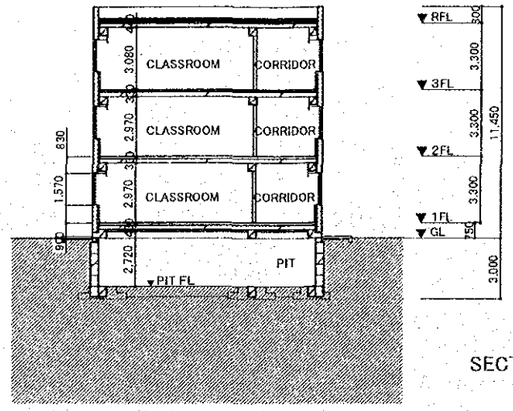
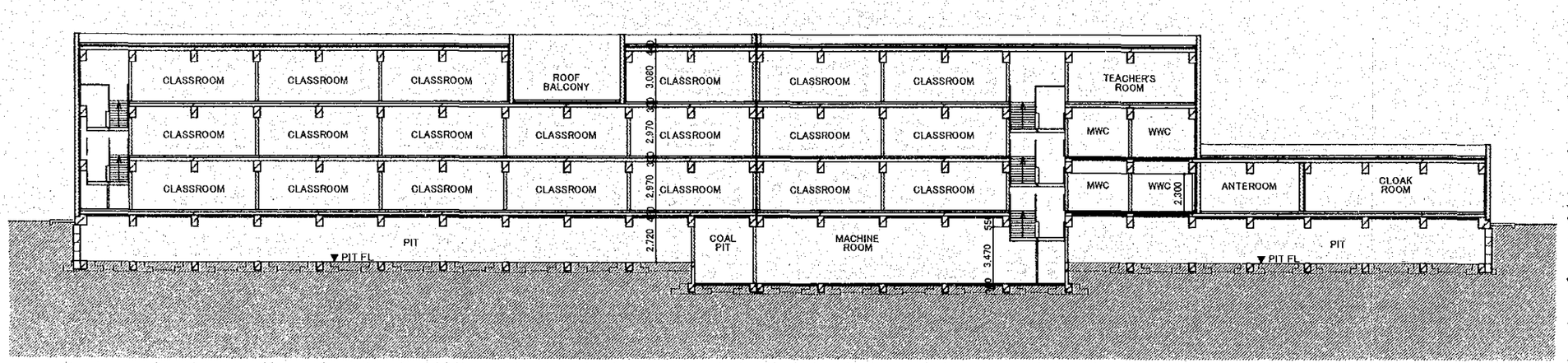


WEST ELEVATION scale 1:300

	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIANT	ORKHON NO.16 ELEVATION	NUMBER OF SHEET / SCALE



SECTION 1 scale 1:300



SECTION 2 scale 1:300

	THE PROJECT FOR THE IMPROVEMENT OF PRIMARY EDUCATION FACILITIES IN MONGOLIA STAGE-2	CLIENT	ORKHON NO.16 SECTION
			NUMBER OF SHEET / SCALE

2-2-4 Implementation Plan

2-2-4-1 Implementation and Procurement Policy

The Project is to construct the facilities for 10 schools and provide educational equipment and furniture within a period of specified time with avoiding the cold winter and utilizing local contractors and locally available materials as much as possible. It is necessary to prepare construction plans fully, taking into account the construction capabilities of the Mongolian side, including local construction and material procurement.

(1) Principles for Project Implementation

The Project will be implemented on the basis of this report. After Project approval by the Japanese Government Cabinet Meeting, the Exchange of Notes for the Project will be signed by both the Mongolian and Japanese Governments. Then, the Project will be implemented in accordance with the following principles:

① The Project will be funded by tax money paid by the Japanese people and implemented under the rules of Japan's Grant Aid scheme within Japanese budgetary system.
② The Government of Mongolia will sign a contract with a Japanese consultant and entrust it a) to prepare the detailed designs of the Project, and b) to assist in tendering procedures for selection of a contractor, and c) to conduct construction supervision work in accordance with this report.
③ The Government of Mongolia will select a Japanese contractor through a competitive bidding process.

(2) Principles for Project Construction

① To efficiently conduct construction within a limited time period and to employ local consultants and contractors who are familiar with local construction and material procurement as much as possible.
② To efficiently conduct construction under strict safety standards and quality control, as well as adhere to strict management of the construction schedules. Also, to transfer to the Mongolian side, the knowledge and practice of the Japanese contractor in regards to those management and other standards and procedures.
③ To select, as much as possible, locally manufactured or easily available imported

construction materials, equipment and furniture for the purpose of simple and economical maintenance completed facilities as well as equipment provided in the Project.

(3) Project Implementation Structure

As regards to the structure of implementation for the Project, the responsible agency concerned with the Mongolian side is MOSTEC. Actual work concerned with Project implementation will be undertaken by the Economic Monitoring and Assessment Department of MOSTEC. MOSTEC will take actual and full responsibility for the items listed below:

① The signing of the contract between the Japanese consultant and contractor;
② The opening of and paying fees for the Project's bank account;
③ The issuing of the Authorization to Pay (A/P) and the payment of the commission;
④ The approval of all necessary designs and documents;
⑤ The supervision of both Provinces which are the implementation agencies for the Project

Under supervision of MOSTEC, both Provinces will establish the Steering Committee for School Building Construction (SCSBC), as the implementing. The Committee will take responsibility for items listed below:

① The applying for and acquiring of all necessary permits to start construction work;
② The re-confirmation of land ownership and boundary lines;
③ The implementation and completion of all works borne by the Mongolian side.

2-2-4-2 Conditions for Implementation

The Project schools are located in Darkhan City of Darkhan-Uul Province (approximately 220km from Ulan Bator) and also in and around Erdenet City of Orkhon Province (approximately 180km from Darkhan Soum). The Project is to construct school buildings in a fairly vast area where the climate is very severe. Thus, it is necessary to prepare very precise construction plans to suit the conditions of the areas.

The followings are policies regarding preparation of the construction plans.

① Division of Construction Stages

The construction plans will be prepared by dividing the construction work into two stages for two years, taking the total amount of work involved into account. In the first year, the construction of the three schools in Orkhon Province that are presently holding classes under extremely severe conditions, will be undertaken.

② Schedule Planning

Project implementation includes a) the building construction work, b) the mechanical/electrical work, and c) the furniture and equipment procurement work. Each work-step requires procurement of necessary materials and equipment, and the arrangement of skilled workers who can follow the work schedule. As various types of work will be conducted simultaneously at every Project site, the coordination of procurement and all the work arrangements, etc will be very detailed and complicated. In order to accomplish the necessary work within the limited period, the preparation of a precise and detailed work schedule is necessary as to avoid any re-work, down-time and suspension of work.

③ Construction Measures for Cold Winter Climate

In Mongolia, the quality and scheduling of work is influenced by the frozen ground and snow in the winter. Special attention to the condition of laborers will be necessary during work on severely cold days. This should be observed and considered carefully in the preparation of the working schedule.

④ Preparation Work by Mongolian side Prior to Construction

Some Project school sites require land preparation work by the Mongolian side prior to Project construction. Site preparation work shall be conducted without delay so that Project construction will not be affected.

⑤ Prevention of Accidents to Students and School Staff

At the Project sites on existing school grounds where new buildings will be constructed, strict safety measures should be initiated to prevent students and school staff from possible injury.

⑥ Procurement Plan

Both Provinces are far from Ulan Bator to which all the construction and finishing materials, furniture and school equipment, etc. will be provided, and the road between these Provinces and Ulan Bator is still under construction. Considering

the severe climate conditions in winter, procurement schedules, including enough space to store supplies and material, must be prepared with utmost care and detail.

⑦ Skilled labor

The amount of construction work in both Provinces is usually small. Thus, the supply of skilled laborers, especially for finishing fork, in both Provinces is limited. In choosing the sub-contractor, their capability shall be confirmed carefully.

2-2-4-3 Scope of Work

(1) Scope of Japanese Side

① Construction of school buildings including 117 classrooms, toilets, and teachers' rooms;
② Basic school furniture;
③ Basic educational equipment.

(2) Scope of Mongolian Side

① Securing of Land for the Project;
② Land preparation work;
③ Removal of existing obstructions, including buried objects;
④ Securing of access roads to each Project site;
⑤ Securing of space for storage of construction materials;
⑥ Securing and connecting of temporary electrical power, water, and sewage lines for construction;
⑦ Securing and connecting of infrastructure lines to each Project site including but not limited to, power lines, heating supply lines, water supply pipes, drainage lines, and telephone lines;
⑧ Installation of gates and fences, planting of trees, and landscaping work;
⑨ The providing of equipment and furniture other than those covered by the Project

2-2-4-4 Consultant Supervision

The total floor area of the school buildings is fairly large: approximately 16,000 ㎡. In order to complete the Project construction of ten school buildings within the limited time period, it is absolutely necessary that construction supervision is done carefully and completely, including frequent reporting to, and close communication with the

implementing agency, as well as giving appropriate directions and guidance to contractors. The supervision work will be done in cooperation between the offices in Mongolia and Japan, and will proceed simultaneous communication to the resident architect as follows:

(1) General Supervision

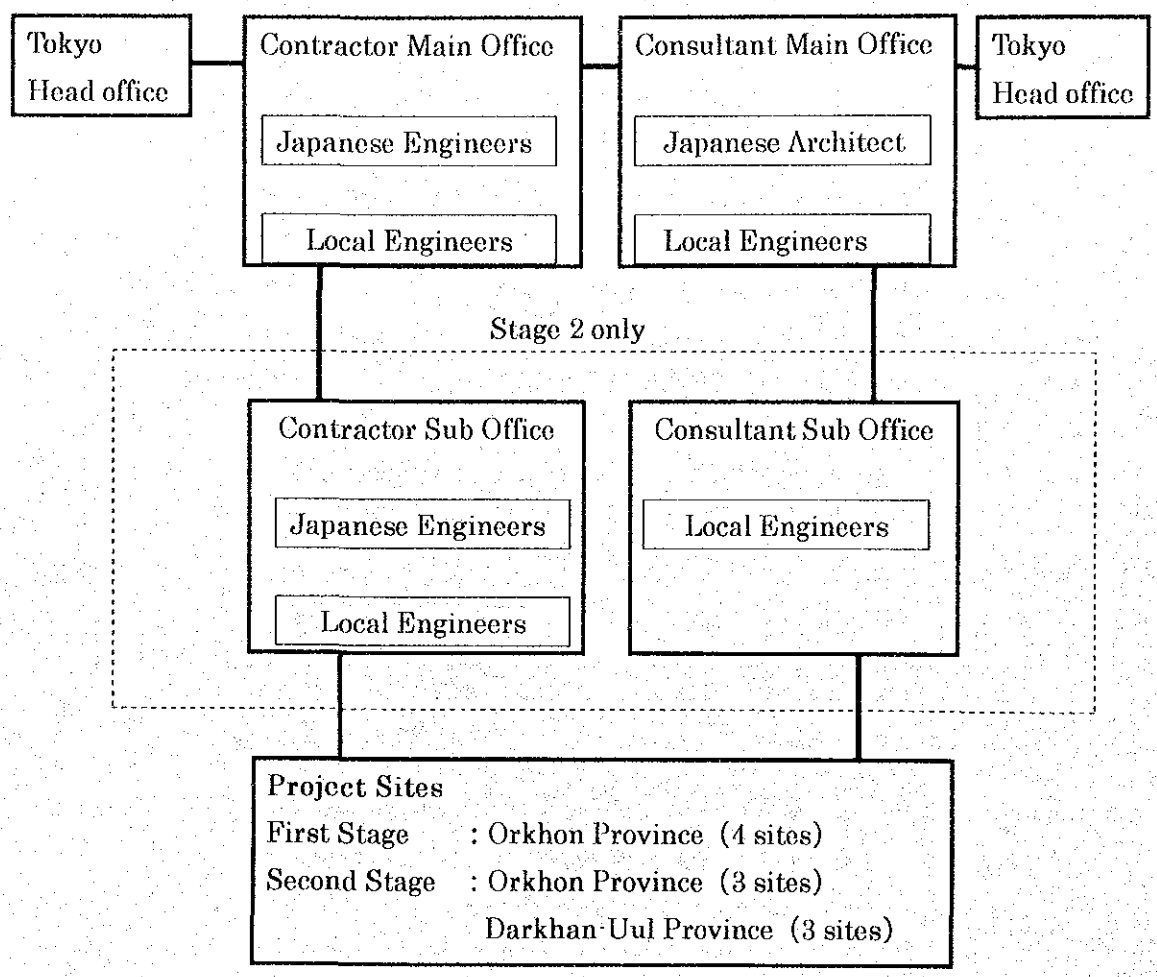
Control of overall Project schedules, including all works to be accomplished in the Project, overall technical evaluation, advice and assistance on all items outside the resident architect's expertise, and all necessary and periodic reporting to JICA headquarters will be conducted by the general supervisor. Architects and engineers who have been involved in the Project since the Basic Design Study stage will support the general supervisor.

(2) Supervision by Resident Architect

A senior architect involved in the development of the detailed designs will be assigned as a resident architect for Project construction in Mongolia. The resident architect will undertake, with the assistance of local consultants, various duties including consulting of daily work schedules, evaluation and advice on the shop drawings, approval of methodology, quality control guidance and use of materials, technical guidance and direction to contractors, necessary and periodic reporting to the Project implementing agency of both Provinces, to MOSTEC and to JICA's local office as well as to the Japanese Embassy, intermediate and completion inspections, collection of information and data related to the Project control and preparation of construction supervision reports.

The organization structure for Project construction supervision is as shown in Figure 10.

Figure 10: Organization for Construction Supervision for Stage 1 and 2



As the construction work in stage 1 will be implemented in Orkhon Province, the consultant's office and the contractor's office will be established in Erdenet city, in the center of Orkhon Province. The construction work of the 3 schools in Darkhan-Uul Province of which the total area is 5,248 ㎡, and 3 schools in Orkhon Province of which the total area is 2,847 ㎡, will be implemented in stage 2 of the Project. As the distance between the center of both Provinces is far as 180km, the main office of the consultant and contractor will be established in the center of Darkhan-Uul Province, and sub-office in the center of Orkhon Province.

2-2-4-5 Quality Control Plan

As Mongolia is cold country, the Quality control of the Project shall be undertaken accordingly as follows:

① In the winter, if floor slabs, tanks, or utility pipes in the underground pits are raised by frost heaving, cracks in the structure and water leakage might occur. To avoid this, the floor slabs, tanks, and utility pipes, etc. must be laid below the level of the frozen soil, or laid on improved soil.

② Water leakage in the roof from capillary action must be avoided.

③ The checking of contractor's blueprints and all other related inspecting should be strict and careful, so as not to make heat bridges.

④ Keep water and sewage water in the pipes from freezing.

⑤ The methodological plan for pre-cast concrete (PC) must be strict, because the re-bar arrangements can not be checked after casting concrete is done in the factory. A good and reliable factory inspection system should be established. Since PC is produced in the winter, concrete specifications must follow winter concreting methods.

2-2-4-6 Procurement Plan

Regarding construction materials: cement, which originates in China, is available on the local market and the reinforcement bars and aggregates, which originate in Mongolia, are available on the local market. As for finishing materials: bricks, which are produced in Russia, are available on the local market. Most other finishing materials, which come from China, are also available on the local market. Based on the field study results attained during the Basic Design Study period, the materials shown in Table 18 will be procured for the Project. Any materials which originate in Mongolia will be given priority after checking the quality.

Table 18: Building Materials and Educational Equipment to be Procured for the Project

Materials & Equipment	Procurement	Product Origin	Remarks
Building construction:			
Cement	UlanBator	China	Easily available. No quality problem.
Concrete aggregates	Darkhan	Darkhan	Easily available. No quality problem.
Reinforcing bars and steel frames	Darkhan	Darkhan	Easily available. No quality problem. JIS standard products
Forms for concrete work	UlanBator	China	Easily available. No quality problem.
Bricks	UlanBator	Russia	Easily available. No quality problem.
Precast concrete products	Both Provinces	Both Provinces	Easily available. No quality problem in Darkhan.
Lumber	Hovsgol	Hovsgol	Easily available. No quality problem.
Finishing materials	UlanBator	China	Easily available. No quality problem.
Wooden finishing material	UlanBator	China	Easily available. No quality problem.
Metal accessories and fittings	Ulan Bator	China	Easily available. No quality problem.
Glass, and glass blocks	UlanBator	China	Easily available. No quality problem.
Paint and water proofing material	UlanBator	China	Easily available. No quality problem..
Insulation material	UlanBator	China	Easily available. No quality problem.
Furniture:			
Furniture	Ulan Bator	Ulan Bator	No problem in availability and quality
Materials for Electrical Work:			
Distribution board	UlanBator	China	Easily available. No quality problem.
Cables & wires	UlanBator	China	
Conduit	UlanBator	China	
Lighting fixtures	UlanBator	China	
Small current equipment and alarms	UlanBator	China	
Mechanical Equipment Materials			
Galvanized steel pipes	UlanBator	China	Easily available. No quality problem.
Valves and pipe fittings	UlanBator	China	
Pumps and Boilers	Ulan Bator	China	
Radiators	UlanBator	China	
Sanitary wares	Ulan Bator	China	
Educational Equipment			
Wall Chart	Ulan Bator	China	Easily available. No quality problem.
OHP	Ulan Bator	Japan or OECD countries	
Other Educational Equipment	Ulan Bator	China	
Maintenance Equipment	Ulan Bator	China	

2-2-4-7 Implementation Schedule

For smooth implementation of the Project, all work and proceedings borne by the Mongolian and Japanese sides shall be done without any delay. After the Exchange of Notes for the Project are signed by the Governments of Mongolia and Japan, implementation of the Project will proceed with the Detailed Design stage, the tendering and signing of contract stage, the building construction and equipment procurement stage.

(1) Detailed Design Stages

Based on the Basic Design of the Project, the tender documents will be prepared. The tender documents include Detailed Design drawings, specifications, bill of quantities. During the Detailed Design preparation stage, the consultants will hold discussions with the responsible agencies of the Government of Mongolia. After acquiring of the documents from the Government of Mongolia, the tender of construction will be conducted. It may take approximately four and half months for these procedures to take place and be completed.

(2) Tendering and Signing of Contracts

After the Detailed Design stage, evaluation of the candidate contractors will be conducted in Japan (called P/Q, pre-qualification). Based on those pre-qualifications, the project implementation agency of Mongolia will call for the tendering of the Project witnessed by official personnel related to the Project. The lowest bidder will be further evaluated if the tendering contents are appropriate. After successful evaluation, a bidder will be selected as the contractor and will sign the Project construction contract(s) with the Government of Mongolia, which means MOSTEC. It will take approximately 2 months for these procedures to take place and be completed.

(3) Building Construction and Equipment Installation Stages

After the signing of the contract and verification by the Government of Japan, the contractor will start construction work. From an experienced estimate of the total amount of work and components involved in the facilities, and supposing that the material and equipment procurement by the Mongolian side is smoothly conducted, construction may take 12 months per each construction stage. The schedule is shown in Figure 11.

2-3 Obligations of Recipient Country

As a basic principle, the Government of Japan requests recipient country (Mongolia) to share the following obligations of the Project:

(1) To provide the Japanese side promptly with the information and materials necessary for the Project;

(2) To secure the land for the Project and to confirm the building rights by the provincial government holds school building rights, and extend the construction site at School No. 7 (Darkhan-Uul) so that the school building can be arranged on the site;

(3) To remove all existing obstacles on and under the ground within the site, then level the ground and fill up or cut the ground as required prior to the start of construction (Table 17). Also to secure temporary classrooms at sites where necessary so that classes are not interrupted during the construction period;

① To transfer classes to the temporary classrooms as soon as possible at the site of School No. 4 (Darkhan-Uul) because the existing school building is structurally precarious;

② To demolish and remove, prior to construction, the existing structures at the sites of School No. 6 (Orkhon) and School No. 11 and od-3rd (Darkhan-Uul) (Table 17);

③ To level the ground by filling or cutting as required and build retaining walls at the sites of School No. 2, No. 7, No. 16, and No. 18 (Orkhon) (Table 17);

(4) To secure access roads leading to all construction sites planned in the Project, and improve them if necessary for easy access to each site. They must be in good enough condition so that vehicles carrying construction materials (pumping trucks and cement trucks, etc.) will be able to reach the sites safely;

(5) To bear commissions, handing charges and other necessary fees related to the Bank Arrangement (B/A) and the Authorization to Pay (A/P) to a bank in Japan;

(6) To acquire permits, approvals, and any other authorizations required for the work that is undertaken during the implementation process of this Project;

(7) To ensure prompt unloading of and customs clearance at ports of disembarkation in the country and internal transportation therein of products, machinery, equipment, and materials purchased Japan's grant aid;

(8) 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;

(9) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;

(10) To extend infrastructure to the construction site at the time of completion and do so according to the Japanese side request based upon its work schedule;

①Power Source for Heating Facility and Hot-water Supply System

When the Japanese side judges that it is possible to use a heating facility of a Province or region adjoining the construction site, the Japanese side will execute the piping work within the school site at Project own expense. On the other hand, the Mongolian side shall be responsible for the piping work outside the site and for bringing the equipment infrastructure to the site, and submitting an application to the Heating Bureau at its own expense. When the Japanese side judges that it is impossible to use a heating facility of the Province, the Japanese side will install a coal boiler at Project expense, whereas the Mongolian side shall pay fuel expenses. (Table 19)

②Water Supply and Drainage

When the Japanese side judges that it is possible to use a water supply pipe or main drainage pipe, the Japanese side will carry out the piping work within the school site. On the other hand, the Mongolian side shall be responsible for piping work outside the site, extension work, and applying for water service and sewage disposal at the Water Supply Bureau and the Sanitation Bureau at its own cost. When the Japanese side judges that it is impossible to use a water supply pipe or main drainage pipe of the Province, the Japanese side will install a water tank with a capacity for two-days supply and a sewage tank with the capacity for one week. The Mongolian side shall take responsibility to replenish water to the storage tank and collect waste from the waste tank by vacuum car. (Table 19)

③Electricity

The Japanese side will build a lead-in pole at the boundary to the road within the school site and install a main cable at Project cost. The Mongolian side shall

install an integrating wattmeter and provide a cable to the wattmeter (only a portion outside the site), or build a lead-in pole outside the site, and apply for electricity service to the Power Bureau at its own expense.

④Telephone

The Japanese side will carry out the conduit installation work from the terminal board of the underground machine room to the outlet in the teachers' room. The Mongolian side shall be responsible for terminal equipment, wiring, and application for telephone lines to the Telephone Bureau.

⑤Party-line Television System and Cable System

The Japanese side will not install a joint TV receiving system nor a cable system.

(11) To conduct additional work such as landscaping and installing gates and fences if necessary after the completion of the construction;

(12) To use, manage, and maintain properly and effectively the facilities and equipment provided under this Project using Japan's grant aid;

(13) To ensure all expenses required for the implementation of this Project outside the coverage of the grant aid;

(14) To coordinate and settle various potential problems that may be posed by neighboring residents in relation to the implementation of the Project.

Table 19: List of Works Allotted to Each Side

Province	School	Preparation & leveling works (by Mongolia)	Infrastructure (Connecting work to the site by Mongolia)		
			Heating system	Water supply	Sewerage
Orkhon	2nd school	Cutting or raising	Province	City water	Public sewerage
	3rd school	None	Province	District tank	Dipping up
	6th school	Removal of stone steps	Province	City water	Public sewerage
	7th school	Cutting or filling	Province	City water	Public sewerage
	16th school	Cutting or filling	Installation of boiler	Water supply wagon or well	Dipping up
	17th school	None	Installation of boiler	Water supply wagon or well	Dipping up
	18th school	Cutting or filling	Installation of boiler	Water supply wagon or well	Dipping up
Darkhan-Uul	4th school	None	District	District tank	Dipping up
	11th school	Removal of concrete lumps	Installation of boiler	City water	Regional sewerage
	Od-3 school	Removal of existing structures	Province	City water	Public sewerage

Symbol: Work to be done by Mongolian side