

**CHAPTER 2 FACILITIES TO BE SURVEYED AND
NECESSITY OF UPGRADING THEM**

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For the three educational facilities, namely Vaipouli College, Avele College and Savaii Library, this chapter will attempt a rough explanation of these three facilities and then elucidate the necessity for the items requested concerning the improvement of these facilities. Among the three governmental senior secondary schools in Western Samoa, Samoan College is in good condition regarding its system and facilities, while the other two colleges are rather backward from an institutional point of view.

As an academic institution, Samoan College is charged with the duty to cultivate managerial personnel in general; however, it is difficult for the College to meet all the manpower demand required by the present day Western Samoa. Therefore, it is of vital importance that the two colleges of Vaipouli and Avele be improved into full-scale senior secondary schools which put emphasis on both agricultural and/or vocational education and on the academic education, so that they will be able to augment the development of manpower to meet the urgent demand.

The Savaii Library which is to be constructed at Salelologa on Savaii Island will be a branch of Nelson Library which is the only public library in Western Samoa. Savaii Island has a population of about one fourth of the entire population of Western Samoa and its area is greater than that of Upolu Island where the capital city of Apia is located. However, it lags Upolu Island in development. There are remarkable differences between it and Upolu Island in all aspects of modernization. The plan for improvement, inauguration of infrastructure and construction of cultural facilities in Savaii Island, coupled with the Rural Development Programme, constitutes one of the main features of the government's population dispersion policy.

The construction of this library will have a great impact on the local people who have so far never received the benefit of cultural facilities. Various schools in Savaii Island will also be able to improve their use of library services to a remarkable degree. It will indirectly benefit Vaipouli College in its effort to elevate the academic quality of students in general.

2 - 1 Vaipouli College

Vaipouli College was originally established in 1922 as a public primary school. It became a senior secondary school during the educational reformation in 1960. In 1973, the school was expanded to a four year college having Form III - Upper V grades as it does today. Originally a boy's school, the college is now co-educational. The number of students was 186 in 1980. The number of teachers was 14, including the principal.

At present, the curriculum of the college includes English, mathematics, natural science, geography, social science, Samoan arts and crafts, woodwork and home economics.

The school is located on a hill near Fagamalo village, one hour's distance by car from Salelologa, which is the centre of the island and has air and sea ports. The area of the site is 284 acres (115 ha) in the midst of a vast forest. The college manages farms for fruit-culture, cattle, pigs and vegetables, and offers agricultural training to its students. The agricultural training activities are progressing favorably, giving a bright prospect to implement the country's policy on agriculture.

The students come from all parts of Savaii Island. Among them, male students from distant places lodge in Fagamalo village, and for female students, a hostel is provided.

In order to cope with the future population increase, the Government has taken measures to disperse its population, to improve agriculture and to promote development of Savaii Island. As one of its basic administrative policies, it is necessary to provide the people of Savaii Island with opportunities for higher education which are solely concentrated in Upolu Island at present. For this purpose, the Ministry of Education has decided that Vaipouli College, as a senior secondary school, will have vocational courses and academic courses up to Form VII by expanding courses in scale and improving their quality. Such subjects as commerce, woodwork and home economics are to be introduced in addition to the vocational courses.

For these purposes, construction of new facilities, expansion of existing ones, and reconstruction of old ones, are urgently needed.

The items required are listed as follows:

- (1) Biology Laboratory: 1 new room
- (2) Ordinary Classroom: 2 new rooms
- (3) One new room for manual arts and home economics
- (4) Expansion of dining room and kitchen
- (5) A recreation hall to be added to the dormitory
- (6) School bus with about 35 passenger capacity
- (7) Power generation: 1 set (approx 54 KVA)
- (8) Woodwork room: 1 new room
- (9) Typewriters for commercial course practice: 20 sets
- (10) Cattle for agricultural course practice: 50 heads
- (11) Barbed wire for fencing of pasture and piggery.
- (12) Materials, equipment, and facilities, other than the above.
- (13) Furniture and teaching materials for newly built classrooms.

Among the above items, the recreation hall was requested to be attached to the hostel, since the school is located on a remote hill.

Regarding transportation facilities, a school bus is indispensable due to the isolated location of the school. At present, trucks are used for this purpose.

Regarding the generator, no power transmission facilities are provided in this district. Technically, two independent power generators are necessary for everyday use. Since one of existing generators is now out of use, it causes a great inconvenience to the school operations. There has been an instance in the past in which a chicken raising programme was abandoned halfway due to the shortage of power.

Typewriters were strongly requested by the principal of the school so that a commercial course could be established.

After discussions between the study team and Western Samoan counterparts, both have agreed to include the following items selected among the above initially requested items in the Minutes: item (1) and one classroom

for item (2) which may also be used for the commercial course practice, plus items (3), (6), (7), (8), and (9).

2 - 2 Avele College

Avele College was originally established as a primary school in 1924 in the suburbs of Apia. In 1959 it was converted into an agricultural college having grades from Form I to III. Further development has taken place through the reformations of 1960 and 1961. The reformation of 1970 placed Avele College under the jurisdiction of the Ministry of Education again. At the same time, it was transformed from an agricultural college into an academic one, with agriculture still included as one of its several subjects. The Form Upper V grade was also added. In 1978, it was raised to Form VI, as it exists today.

The students of this college are all-male and the number of them as of 1980 was 439.

The number of teachers was 25 including the principal.

The college is situated on a hill in the suburbs of Apia, fifteen minutes drive by car from the center of Apia. It is a fairly long walk from the city on foot. Being located on a sloping land, the buildings are arranged in terrace style. The area of the useable site is rather limited.

The existing hostel consists of four one-storey buildings which accommodate a total of 160 to 200 students. It is now overcrowded.

Since the students of the college are active in sports activities, the college aims to build-up student character through physical training as well as intellectual education. The school's Rugby football teams won championships in five of the seven classes of the secondary school's Rugby football tournament in 1979.

The necessity of improvement and reformation of Avele College, whose role is a supplementary school to Samoan College, lies in cultivating a good number of students, both male and female, with the higher practical ability that is demanded in the fields of agriculture and various business. The Samoan College is charged with the duty to cultivate managerial personnel in general.

Avele College is being planned to become a co-educational school. Therefore, the necessity for upgrading of school facilities is for institutional reformation as in the case of Vaipouli College. The items required are listed as follows:

- (1) Agricultural science laboratory building with one biological laboratory, one projection room, one projector's room and one teacher's room.
- (2) A new sports field, shower and toilet block.
- (3) Hostel, one two-story building with accommodation for 80 students.
- (4) Materials and equipment for cattle, chicken and pig farms.
- (5) Expansion of dining room and kitchen, including housing for two cooks, a kitchenet for Umu cooking and a storage room.
- (6) One building for a new sick bay and clinic.
- (7) Repair of existing hostel dormitories.
- (8) Five classroom and furnishings.
- (9) One school bus with about 35 passenger capacity.

The above-stated items are those mentioned in the letters of request. Explanation is provided on each item, as follows:

- (1) There is now one laboratory room with a capacity for 25 students, but which is too small for the projected 36 students. At the same time, there are other circumstances which require two laboratory rooms. Also, since there has been no room provided with facilities for projection in the existing school building, a new room for this purpose is required.
- (2) The existing ground is located on an inclined place having a fairly steep slope. The fall between both ends reaches approximately 10 m, which makes it unsuitable for sports activities. The works was undertaken to make a sports field, but due to lack of funds, it has been suspended. The request made this time is to complete the works. By this means, the existing sports field would become the site for new school buildings.

This is another aim which would contribute to solve the lack of space.

- (3) As may be indicated by the fact that the existing hostels were built by the students themselves, it has long suffered from overcrowding and, being unable to admit all who want to become boarders, these prospective students from far villages must be incurred great expense for lodging in town. Therefore many of them give up their scholastic careers. It must be in need of expansion with the expected increase of students.
- (4) Regarding the pig farm, the main point is the maintenance cost. Regarding the chicken farm, the points are the cost of building chicken houses, procuring chickens, and the feed bill. For cattle raising, there exists a plan, but no site for the farm.
- (5) Items for the dining room, etc., emphasizes the necessity for expansion of facilities due to increase in number of students.
- (8) It might have been made in anticipation of future need.
- (9) Regarding the school bus, city bus services are not frequent enough and often irregular, causing the students to be late for school. This affects school lessons so much that, when the teachers evaluate a student's performance record, they often must take the traffic circumstances of the students into consideration.

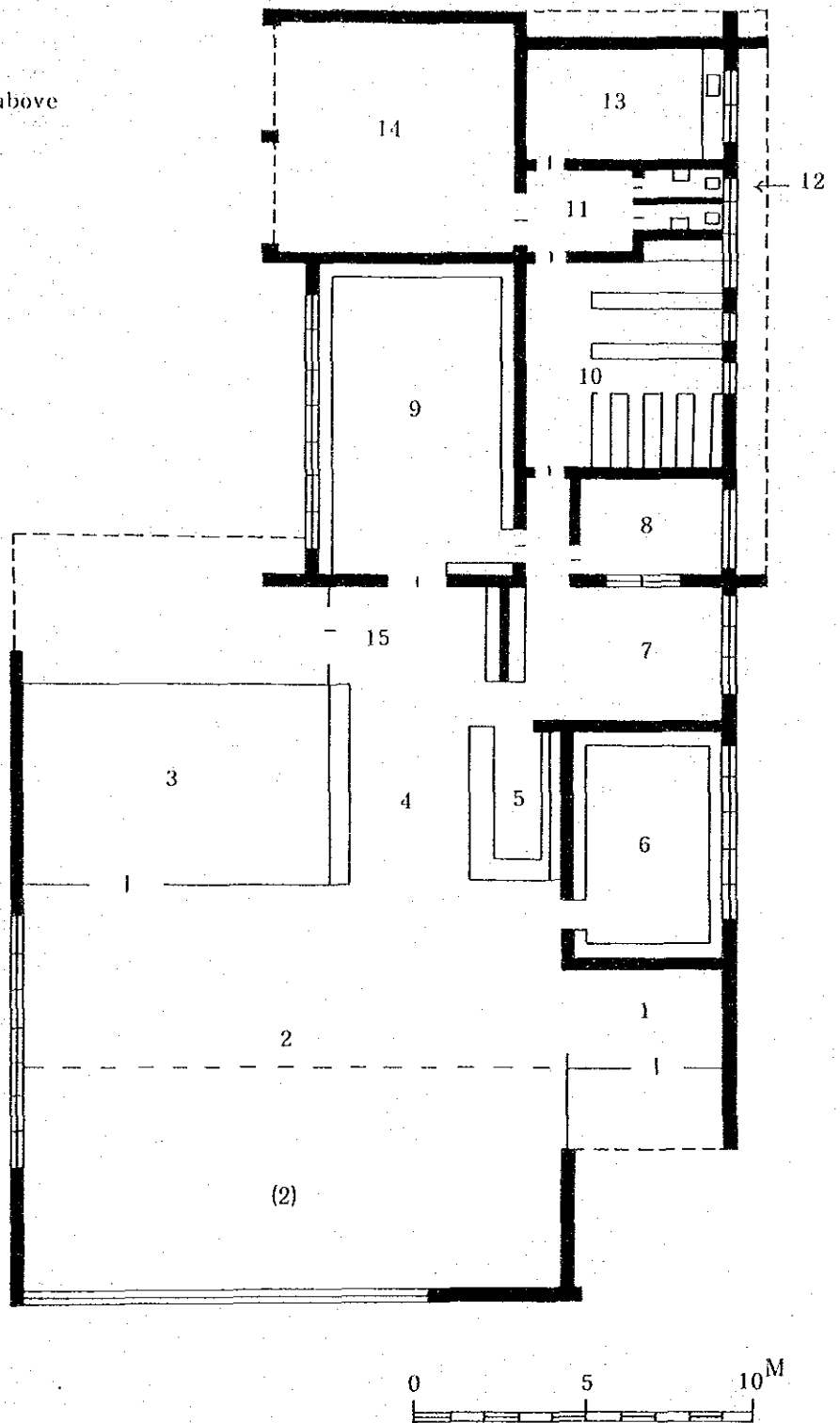
Through the process as in the case of Vaipouli College it was agreed that items (1), (2), (3) and (9) would be stated in the Minutes.

2 - 3 Savaii Library at Salelologa

The Nelson Library houses approximately 45,000 books, most of them being under open access systems. It has a common reading room and a special reading room, the Pacific Room for special literature. It also has a collection of movie films, as shown in Figure 2-1.

Fig. 2-1 Nelson Memorial Library, Floor Plan

1. Main Entrance Lobby
2. Main Reading Area
- (2) There is Reading Area above
3. Reading Terrace
4. Foyer
5. Desk
6. Audio - Visual Room
7. Work Room
8. Librarian's Room
9. Pacific Room
10. Stook & Archives
11. Lobby
12. W. C.
13. Staff Room
14. Garage
15. Entrance



This library, originally located at a corner of a bookstore named Wesley, was finally established on the property left by the late Mr. Nelson, a businessman, and with assistance extended by both the Governments of Western Samoa and New Zealand.

Library services to various local places in the country are being operated using a mobile-library with various schools as the bases of activities. One tour of the whole country takes six weeks. This means that local people can make use of it one day in every six weeks, namely eight days in a year. On the other hand, the vehicle (assistance of the U.S.A.) was put out of service and out of order. They are now awaiting a new vehicle to be supplied by Japan.

Salelologa is a village at the gateway of Savaii Island, having sea and air ports. The site of the project is situated along a waterfront street leading to Salelologa from the seaport, adjoining a market building now under construction, and a fishery cold-storehouse constructed with Japan's assistance. On the same site, a local agency of the Ministry of Education is also to be established, which will, become an educational centre capable of offering educational and cultural services to a wide area of Savaii.

The conception of the library is that it will begin operating with some 15,000 volumes; provide a children's reading room, general adults' reading room and a special reading room for special literature; adopt an open access system in general; provide a mobile library and a garage; provide a projection room which will be also used as a meeting room for the local people.

CHAPTER 3 BASIC DESIGN

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3 - 1 Climate and Natural Conditions, etc., from viewpoint of Architectural Design

The Islands of Upolu and Savaii are both volcanic, having mountainous areas in the centre which slope down to flat lands along the shoreline. The villages lie scattered on the plain along this shoreline. Geologically, these islands are formed of lava covered with a thin layer of volcanic ash (known as "Kanto loaming layer" in Japan). Lava is exposed at various places. The islands are surrounded by coral reefs which form natural breakwaters and help to tame the sea.

Climate: Though in the tropical zone directly beneath the equator, because of the oceanic climate, it is unexpectedly cool when there are breezes. It has a high humidity, average annual precipitation registering 2880 mm. The rainy season is from December to March, with a moderate period in April, the dry season lasts from May to September, and a further moderate period continues through October and November.

Architectural style applicable to the tropical climate: The traditional architecture in Samoa is that known as Fale which is available for its climate. The style is similar to that of the so-called 'pilotee', with just roof and pillars, which aims at heat-prevention and ventilation. In present-day architecture, the most important points in designing are also heat-prevention and ventilation.

Earthquakes: The Samoan islands lie near the northern end of the Tongan Trench which is an earthquake-prone area recording a gigantic earthquake of M8.3 at a spot 200 Km south of Samoa, in 1917. There have been frequent mild earthquakes. It is not unusual for fairly large earthquakes to exceed M7. Apia Meteorological Observatory has issued a report stating that the New Zealand Standard ZONE (A) should be applied.

Hurricanes: There have been instances in which a maximum wind velocity of 42m./Sec. (in 1966) and 40m./sec. (in 1966) and 40m./sec. (in 1968) were recorded. Average maximum momentary wind velocity in an ordinary year is 20 ~ 26m./sec. On the occasions of the above two hurricanes, fairly extensive damage were caused. Sufficient consideration should be paid to the structure and method of construction of roofs.

Attention must be paid to the strength of the eaves.

Salt damage: Where the project site is situated near the seashore, taking the particular climate of high temperature and humidity into consideration, attention must also be given to the possibility of metal erosion through salt damage.

Timber: Several kinds of hardwood like teak are produced and used as building materials locally. These woods are extremely hard and strong, but are liable to warping. There exists a species of worm called the "borer" which can be treated with liquid insecticide, found locally. There are two kinds of methods of building generally used. One is the wooden construction method which uses these wood materials, and the other is the method which uses concrete blocks as described below:

Aggregate: The coarse aggregate is crushed lava. The fine aggregate is made by mixing coral sand and crushed lava, the grading of which has been adjusted beforehand.

Concrete block: There is a concrete block plant in Apia. Blocks are transported to Savaii Island by ferry boat.

Building skill: At present, a five storey reinforced concrete building is under construction in Apia. The building engineers need the help of foreigners, but the skill of craftsman can be trusted, provided finishing of a high standard is not required.

3 - 2 Basic Policy of Design

For the last five years, Western Samoa has been depending on foreign aid for more than 60 percent of its total cost of development projects. Because these projects have not been conducted solely by herself, various situations disadvantageous to the future of Western Samoa are becoming apparent. The DP IV Plan indicates this point, too. Regarding the building project it states as follows:

The plans prepared by foreign engineers are often based on the highly developed technology of their own country or those which have the tendency of far above the standard demanded by the present needs of Western Samoa.

- (1) Dependence on foreign engineers regarding construction, repairs and maintenance,
- (2) to necessitate use of imported equipment and materials for repair and maintenance and, in its turn, puts pressure upon the country's balance of international payments,
- (3) Increase of imported materials results in obstruction of development of local resources and productivity,
- (4) to result in increased dependency on foreign assistance and cooperation.

In preparing the policy of design, attention must be paid to these evils. At the same time, taking the contents of the directions given by Mr. Oyamada, Ambassador to New Zealand, at the beginning of the survey into consideration, the basic policy is hereby established as follows:

- (1) To make maximum use of the site and pay due consideration to future expansion or reconstruction.
- (2) Priority be given to design strong and durable buildings; unnecessary decorative grading up to be avoided.
- (3) To use as many local materials as possible, to esteem local methods of construction and to design for easy future maintenance.
- (4) Attention be given to local conditions concerning the running cost.
- (5) Buildings to blend in with natural features, as far as is practical.
- (6) To respect local ways of life and not to bring in carelessly things particularly connected with the Japanese life style.

The basic design was carried out within the amount of the grant assistance according to the priority on the request of the Government of Western Samoa.

3 - 3 Conditions of Site

3 - 3 - 1 Vaipouli College

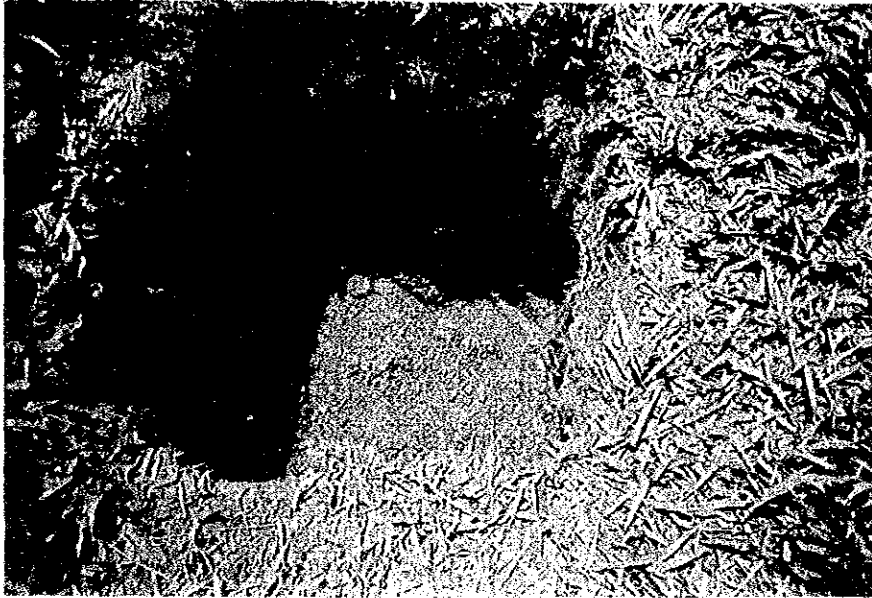
The site is situated at the foot of Mt. Matavanu, about 1 km southward from Fagamalo, a scenic spot on the northern shore of Savaii Island.

It occupied a stretch of land, mainly plateau, 60 meters above sea level. The way of access is an unpaved road of about 6 meters width. As the road has a slope, measures against muddy spots caused by rainfall must be considered. Though the site has many rises and falls, the projected building site lies at the northern corner near the existing school buildings, having a gentle slope descending in a north-eastern direction. There are the existing school buildings, a students' dormitory, school staff houses, cattle pens and a power-house, etc. on this ground, which are located around the sports field, covering an area of about 20,000 m². These houses are surrounded by a coppice composed of coconut trees, breadfruit trees, etc. There are no private houses.

Regarding the infrastructure, a water-cooled power generator of 65 KVA for exclusive use of the campus supplies power to the students' dormitory and staff-houses in the night time at present. Regarding the project buildings, power will be supplied through a service wire branched off from an electric-light pole at a distance of about 100 meters as shown in Figure 3-1 Site Plan.

Water supply will be obtained from a water tower of 20 ton capacity of 6 M. lift at the location shown in Figure. Site Plan.

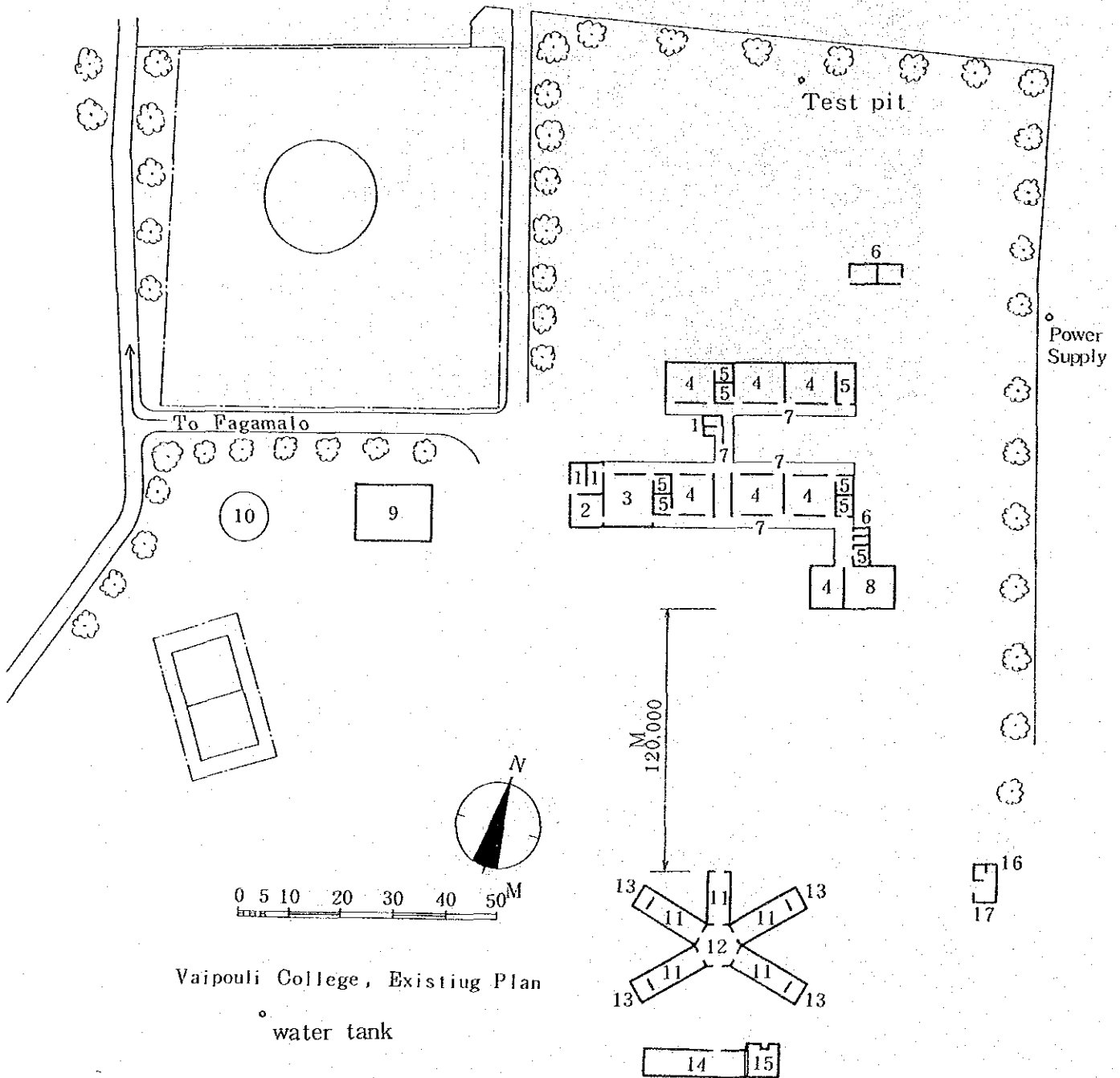
The soil condition is such that, there exists a layer of loam of unknown thickness at the site of the test pit shown in Figure 3-1 under a humus soil of 500 m/m thickness. There is a strong prospect of a volcanic rock bed being found under the loam.



Vaipouli College
Test Pit

Fig. 3 - 1 Existing Facilities of Vaipouli College

- | | | |
|-----------------|---|-----------------|
| 1. Staff Room | 7. Open Corridor | 12. Hall |
| 2. Meeting Room | 8. Library | 13. Lavatory |
| 3. Laboratory | 9. Work Shop | 14. Dining Room |
| 4. Classroom | 10. Pale (traditional house used for special lecture) | 15. Kitchen |
| 5. Storage | 11. Hostel | 16. Generator |
| 6. W. C. | | 17. Garage |



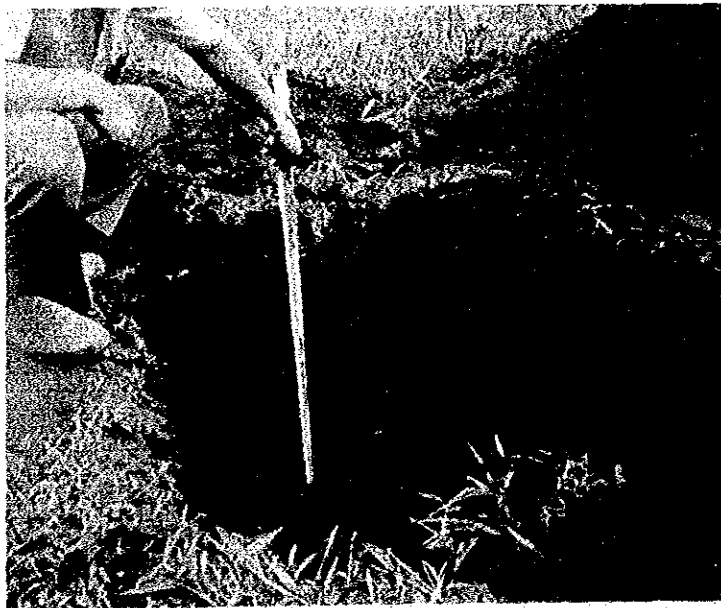
Vaipouli College, Existing Plan

water tank

3 - 3 - 2 Avele College

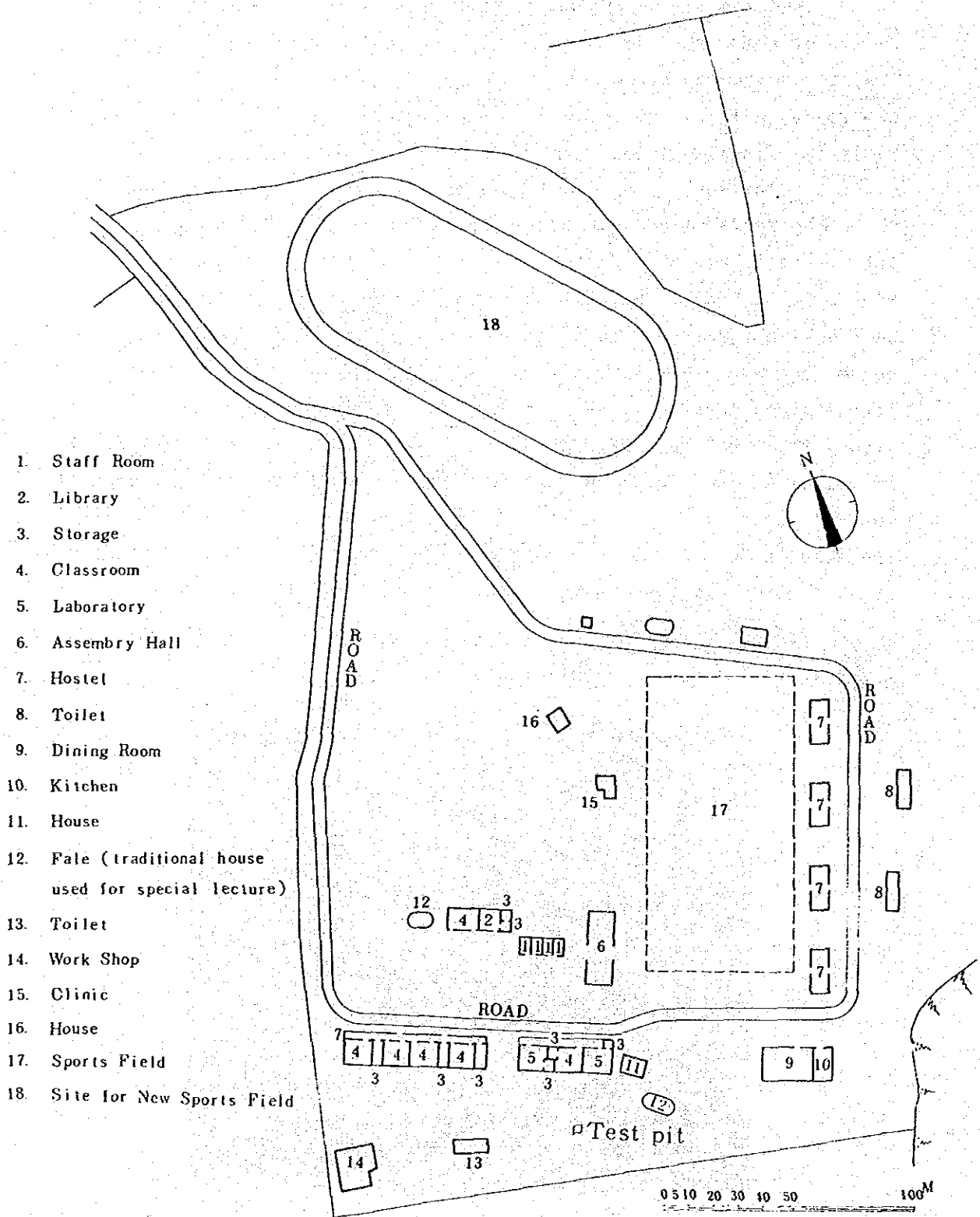
The site is located on Vailima hill, about 4 km south from the centre of Apia, resting on a slope with little even ground. The access road to the campus branches off from the road to Latava. Between the two roads, a little distance from the campus, lies a farm owned by the Ministry of Agriculture. The difference of heights between the highest point where the school buildings lie and the lowest point where the sports field exists is about 40 meters. The height at the lowest point is 180 meters above sea level. As shown in Figure 3-2, school buildings and administration buildings are located on the higher part of the site, while the dining/kitchen building and hostel dormitory buildings are arranged along a gentle descending slope. School staff houses are located around these buildings. The sports ground is being used, regardless of the slope. There is a difference in height of the rugby goalposts at either end of the field of about 10 meters. Roads in the site will circulate around the various facilities. The site is surrounded by a coppice composed of trees of coconut, banana, etc., the southern and eastern parts of which descend sharply.

As regard the infrastructure, power and water are already being supplied to the existing buildings.



Avele College
Test Pit

Fig. 3 - 2 Existing Facilities of Avele College.



Avele College, Existing Plan

3 - 4 Site Planning

Since the construction of new buildings is to be done on the existing campus for both Vaipouli College and Avele College, there must be certain restrictions regarding existing buildings, site conditions, etc., but, as the basic points of design, attention was paid to intercepting the fierce sunlight and to securing good ventilation, by means of arranging the major axis of the building in an east-west direction, and by providing suitable eaves.

3 - 4 - 1 Vaipouli College

According to the Educational Facilities Expansion Plan, presented by the Western Samoan side at the beginning, the special classrooms for woodwork and home-science were to be provided in a separate building, and an other biology laboratory plus two ordinary classrooms were to be constructed at the extension of the existing buildings. By studying the arrangement of these buildings, it was supposed that, since the existing buildings are wooden ones, their respective years of construction being different, any possible future reconstruction plan will be hindered, because of the difference in their expected durability. Thus, it is considered best that the functions be put together in one separate building, the vocational education centre.

Regarding the disposition of the building, as there is vacant land of about 70 M. x 90 M. on the north side of the existing school building, considering the possible reconstruction of the old building in future, the projected building is located at the northern part at a distance of about 48 meters from the existing building.

3 - 4 - 2 Avele College

Considering the fact that the campus ground has little even area, since it undulates as aforesaid, and because of the flow-line relative to the existing building, the arrangement of the projected building must inevitably be restrained. The agricultural science/biology laboratory building is constructed as a separate building for the reason same as that concerning Vaipouli College.

The location is selected at the south side of the site nearest to the existing school building. The ground at this part undulates also in the direction of the major axis of the building, with a difference in height of about 1.5 M, which can be adjusted by height of the foundation.

3 - 5 Planning

3 - 5 - 1 Vaipouli College

The rooms requested for the Education Centre Building are as follows:

Biology Laboratory : 17.6 M x 8.5 M (containing a teacher's room - 4.8 M x 8.5 M)

Furniture:

Laboratory:

1 teacher's desk, 6 student's desks; each provided with sink; built-in cupboards on the walls; blackboard, bulletin board, platform.

Teacher's room:

Two built-in cupboards on the wall, one of which with sink. A storage part fixed with shelves.

Classroom: 12.2 M x 7.8 M Storage 3 M x 7.8 M

Teachers' desk, blackboard, bulletin board, cupboards.

Expected uses are for vocational education such as, typewriting, bookkeeping, etc.

Moves to be taken to reduce noise from typewriting.

Storage part be with shelves.

Home Science Room: 11.2 M x 9.0 M

Teachers' Room : 3.6 M x 7.0 M

Blackboard, bulletin board, built-in cupboard - fixed with a kitchen sink and range.

Expected uses of the Home Science Room are mainly for cooking and sewing. Since some activities entail the use of fire, care should be taken on fire prevention, ventilation,

noise, etc.

Woodwork Room: 14.0 M x 9.0 M

Storage Room: 3.6 M x 9.0 M

Blackboard, bulletin board, built-in cupboard, 2 wash-stands, two storage parts, one with built-in cupboard for tools; the other with depth of 4.0 m to make storage of wooden materials easy. Care to be taken on noises emanating through use of woodcraft tools and instruments.

It is planned to erect second-storey rooms in one building. With regard to natural conditions and economy, the open-sided corridor style has been adopted. The flow lines relative to existing buildings are by open connecting corridors. Since the concrete-block wall, plus wooden-truss style is used, attention is directed to such points as uniform arrangement of concrete blocks, most advantageous open area, from lighting and ventilating aspect and sound insulation between the rooms. Consequently, storage and teachers' rooms are placed between the classrooms. Location of the biology laboratory and wood-work room are situated at the ends of the west side and east side, respectively, so that each classroom may function without unnecessary hindrance, due to noise, etc.

3 - 5 - 2 Avele College

The rooms requested and their functions are as follows:

Projection room and projector room: 12.0 M x 8.0 M

Projection room: 8.4 x 8.0 M with blackboard
and built-in cupboard

Projector room: 3.6 M x 8.0 M With built-in cupboard

Both rooms be provided with air-conditioners.

Biology laboratory: 13.3 x 8.0 M

Teachers' Room: 4.7 x 8.0 M

Laboratory: Blackboard, bulletin board, platform,
teacher's desk, 6 students' desks,
provided with sinks, built-in cupboard.

Teachers' Room: Built-in cupboard with sink.

It is planned to contain the above rooms in one building. As is the case of Vaipouli, the one-sided, open corridor style is planned, and earthquake-resistant walls have been allowed for.

3 - 6 Sectional Planning

The features of building style suitable for the natural conditions in the tropical zone are, as seen in the traditional style of Fale, that it has high ridge and sharply pitched roof to intercept the sunlight by using pillars, without providing walls, so that good ventilation is secured. The high ridge serves to disperse the radiant heat and the sharply pitched roof is helpful against tropical squalls. The method at present prevalent is to underline the roof with a 20° incline of galvanized corrugated iron sheets with heat insulation (tin foil lined on both sides of the roofing) and then, after being sealed, the ventilation is installed in the back of the house wall so that the radiant heat from the roof is dispersed. Also, the walls are provided with wide openings and glass louvers, so as to give maximum ventilation.

Regarding the floor, as an elevated floor is preferable, the concrete floor is planned to be laid 30 cm above the ground. In the sectional planning, taking these conditions into account, in order to make the heat insulation effective, by means of intercepting the sunlight and promoting the ventilation, eaves are made deeper and openings in the walls are made as large as is practicable, to realize the best lighting and ventilation, and, at the same time, utilize the heat insulating materials effectively. By these means, construction of buildings suited to the natural conditions are designed.

Regarding the elevation plan of the two colleges, due to the conditions of the sites, it is considered that these housing with overhanging eaves of two-sided-panelled or four sided-panelled roofs the horizontal lineaments are fully emphasized should retain well harmonized outlooks with the adjoining housing, land, etc.

3 - 7 Selection of Method of Construction and Structural Planning

The basic principle for design was decided after considering the natural conditions, climate, etc., viewed from the point of construction design. Analysis of data secured by investigation showed that the construction should be done using local resources and materials as far as practicable. If the time of completion is set for March, 1982, in order to complete the work in time, great use of prefabrication techniques would be an asset. However, it raises problems, such as the balance between the existing buildings, maintenance after completion, etc., and, further, an analysis of cost shows that the transportation of materials in the construction expenses becomes too high to pay, due to the increased volume of transportation required.

Regarding the construction of standard facilities for schools, the P.W.D. (Public Works Department) of the Western Samoa Government has experience in this matter. The most suitable method of construction is to make maximum use of local materials with which local labourers have experience of handling - that is, the improved method of the concrete block wall plus the wooden truss roof system, which has stronger resistance against earthquakes and strong wind.

Regarding structural planning, New Zealand standards are applied locally. However, as earthquakes are frequent, it is considered that, using the standards of the Architectural Institute of Japan for extra reference, solid buildings in a form which suit the actual conditions of the place can be constructed.

3 - 8 Facilities Planning

Practically no equipment or material are produced locally and major reliance has, therefore, to be placed on imports. This also is the case with maintenance, since the number of technicians available are insufficient to meet the need. Under these circumstances, it was planned, in principle, to keep the extent of facilities at an absolute minimum, as far as practicable.

3 - 8 - 1 Water Supply Planning

Extensive execution of water supply work is carried out throughout Upolu Island at present with the assistance of the New Zealand Government. Complete water supply systems are, therefore, already available in the Avele.

Vaipouli, on the other hand, has its own water supply facilities, water being drawn from river. Under these circumstances, the plan is to obtain water from nearby systems, accordingly.

3 - 8 - 2 Drainage Planning

As there is practically no central disposal system relative to drainage disposal facilities, septic tank and soakage trench is used individually. Although no laws and/or technical standards are clearly established governing these fields as yet, P.W.D. (Public Works Department) use New Zealand Standards as reference. The projected planning is, therefore, set up to conform with New Zealand Standards.

3 - 8 - 3 Gas Fittings

L.P.G. is planned to be installed in Vaipouli and Avele college laboratories, where gas cylinders are to be placed outside the building, while a gas tap shall be installed on each of the laboratory desks.

3 - 8 - 4 Air Conditioning and Ventilation Planning

It has been arranged that Avele College projection room and projector room are provided with air conditioning equipment, as requested. As to the types of equipment, window-type roomcoolers shall be installed, as this is the type already widely in use locally, and also, because of the easiness in handling.

3 - 8 - 5 Lighting and Receptacles

A complete electric power supply system by E.P.C. (Electric Power Supply Corporation) has been established on both the Avele and Salelologa grounds. As to Vaipouli, electric power is supplied

through generator. The lighting plan, therefore, shall be made along the line of maintaining lighting at the illumination of 200 Lx for school rooms.

The receptacles shall be adequately disposed to meet the requirements of room usage.

3 - 8 - 6 Generator

As stated in (5) above, there is no power supply system in Vaipouli and an individual generator is necessary. At the present time, a 65 KVA (water-cooled) is installed there. However, considering possible future trouble, maintaining preservation, etc., a new generator of the same capacity shall be installed. This shall be of the air-cooled type, in accordance with local requests.

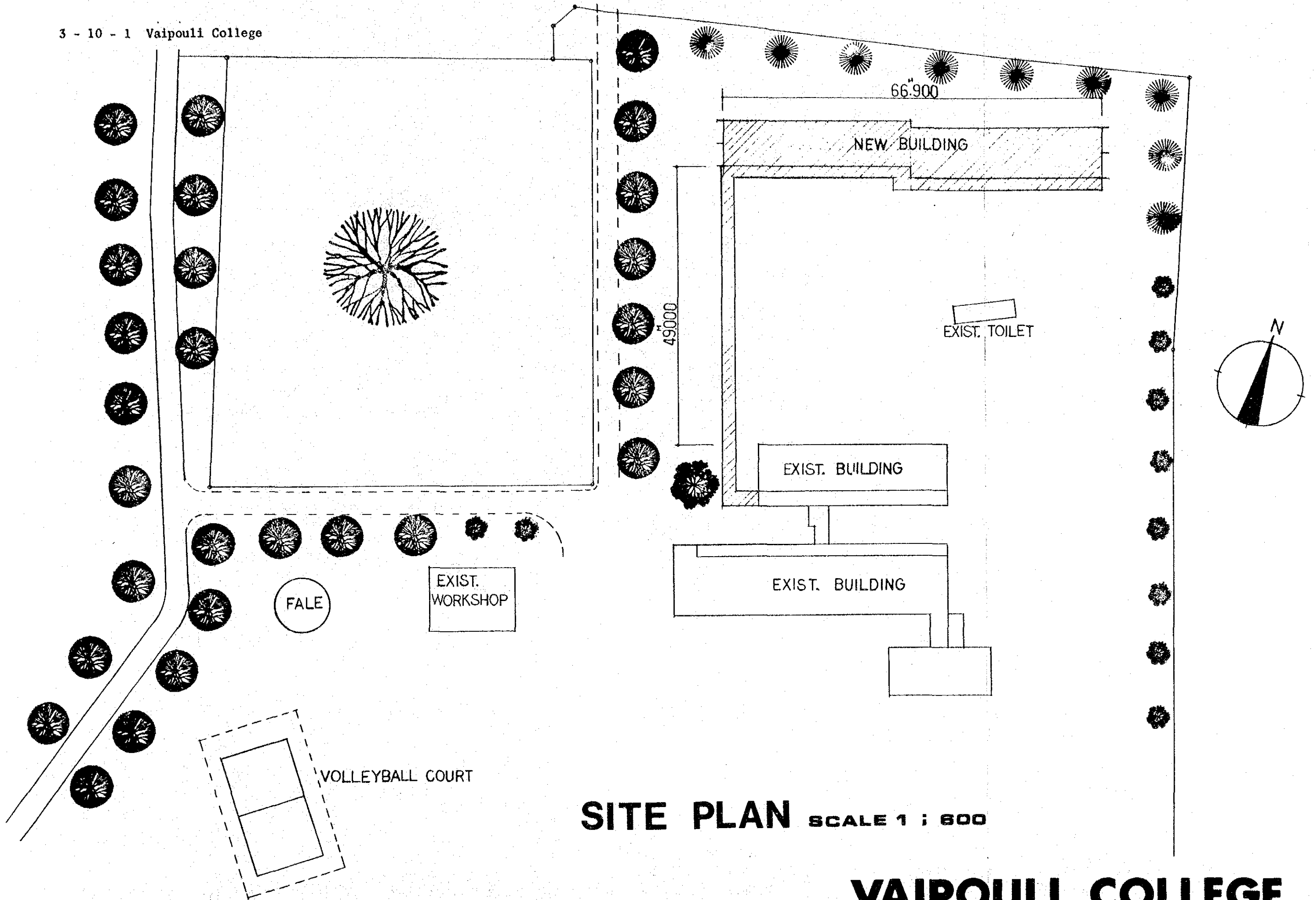
3 - 9 Built-in Furniture Planning

Built-in furniture, as agreed upon per the minutes, shall be in compliance with the prescriptions as follows:

Place	Room	Name	Prescription (unit: M)	Number	
Vaipouli College	Laboratory	Laboratory table	3.0 x 0.9 wood, w/laboratory sink at both ends of table	6	
		Built-in cupboard	12.4 x 0.5 wood	1	
			8.0 x 0.5 wood	1	
		Teacher's desk	4.5 x 0.7 wood, w/lab. sink	1	
		Platform	4.5 x 1.8 x 0.2(H) wood	1	
		Blackboard	4.5 x 1.2 wood	1	
		Bulletin board	wood	1	
		Teacher's room	Built-in capboard	6.0 x 0.6 w/sink	1
			Built-in capboard	5.0 x 0.6	1
		Storage	Built-in capboard		
	Class room	Built-in capboard	11.0 x 0.5	1	
			8.4 x 0.5	1	
		Teacher's desk	4.5 x 0.7	1	
		Platform	1.7 x 4.5	1	
	Brackboard	4.5 x 1.2			

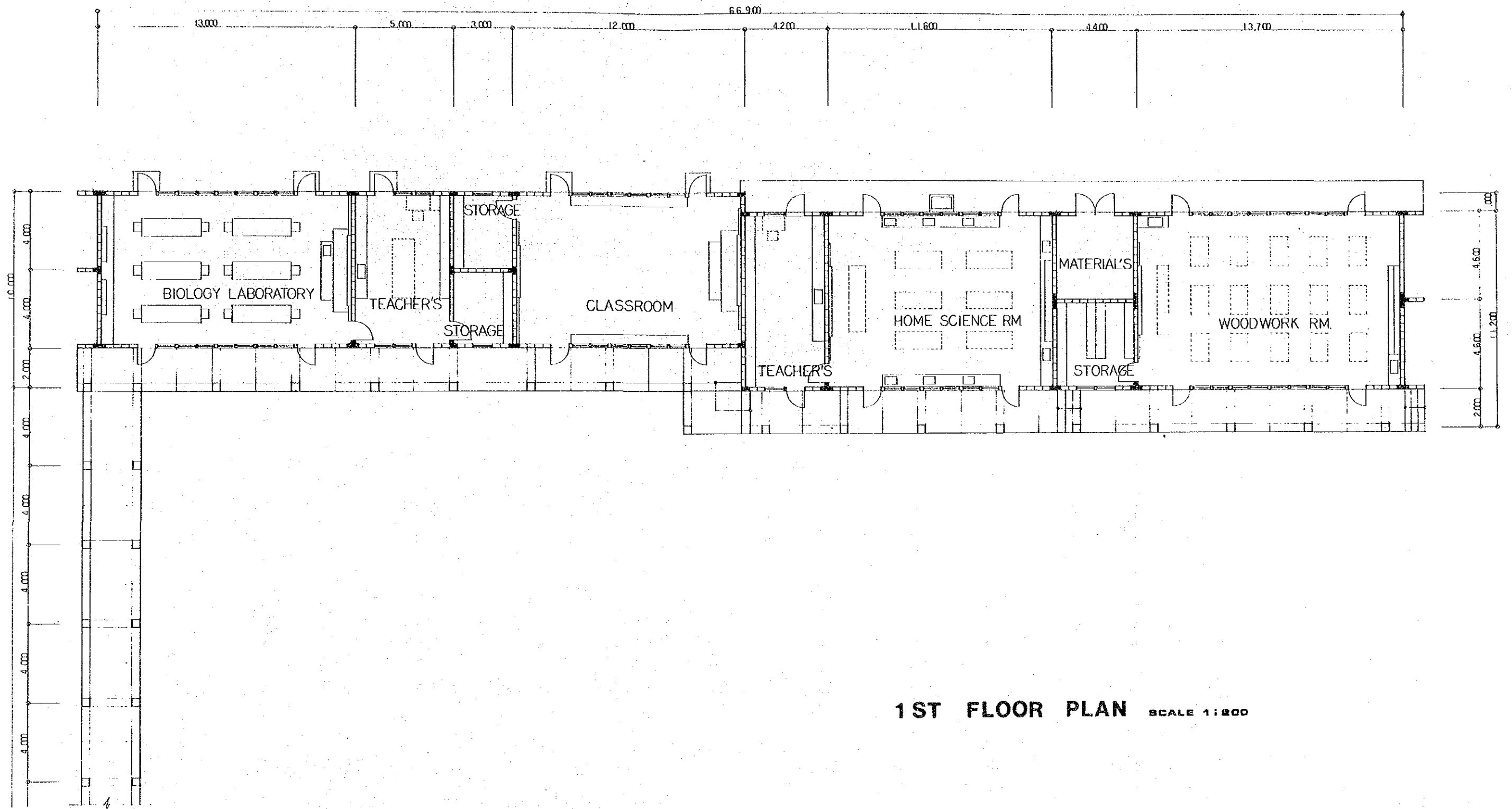
Place	Room	Name	Prescription (unit : M)	Number
		Bulletin board		1
	Storage	Built-in cupboard		1
	Faculty of house-keeping	Built-in sink	9.4 x 0.6	1
			8.0 x 0.6	1
	Blackboard			1
	Bulletin board			1
	Instructor's room	Built-in sink	6.3 x 0.6	1
		Built-in cupboard	8.5 x 0.6	1
	Woodworking room	Built-in cupboard	8.0 x 0.5	1
		Blackboard		1
		Bulletin board		1
		Sink for washhand		2 ea.
	Storeroom	Built-in cupboard		1 set
	Storeroom for timber	Built-in cupboard		1 set
Avele	Laboratory	Laboratory table	3.0 x 0.9	wood, with laboratory sink fixed at both ends 6
		Instructor's desk	3.0 x 0.6	with laboratory sink 1
		Platform	1.0 x 4.0	1
		Built-in cupboard	7.7 x 0.6	1
		Blackboard		1
		Bulletin board		1
	Instructor's room	Built-in cupboard	0.6 x 7.7	1
		" "	0.6 x 6.7	w/lab. sink 1
	Projection room	Built-in cupboard	4.0 x 0.5	1
		Blackboard		1
		Bulletin board		1
	Projector's room	Built-in cupboard	0.6 x 7.7	1
		Built-in cupboard	0.6 x 3.0	1

3 - 10 Design Drawings



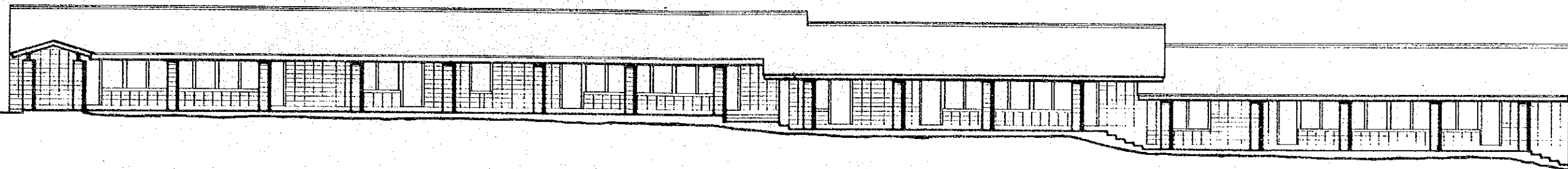
SITE PLAN SCALE 1 : 600

VAIPOULI COLLEGE

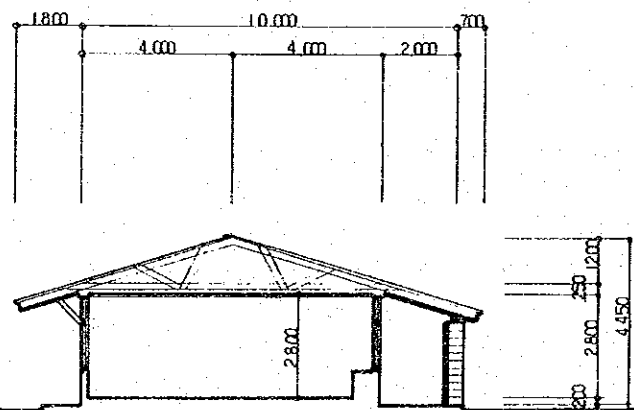


1ST FLOOR PLAN SCALE 1:200

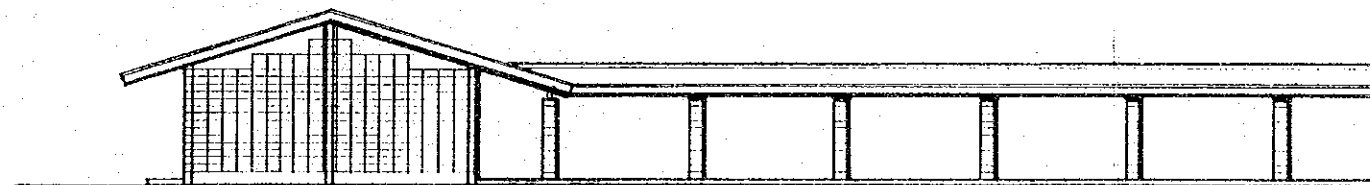
VAIPOULI COLLEGE LABORATORY



SOUTH ELEVATION SCALE 1:200



SECTION SCALE 1:200



EAST ELEVATION SCALE 1:200

VAIPOULI COLLEGE LABORATORY