SPRING VALE ACADEMY

LANDSCAPE ARCHITECTURE

THESIS PROJECT

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DEPARTMENT OF LANDSCAPE ARCHITECTURE

BALL STATE UNIVERSITY
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PREFACE

Interest in Spring Vale Academy as a possible thesis project was fostered on a visit to the school this past summer. I was originally approached by several of the staff members to do a landscape plan for the campus area. After finding out how much property was owned by the church at Spring Vale, I saw opportunities for expanding the project to accommodate retreats and annual conferences which the church is interested in holding at Spring Vale Academy. This sort of project would serve to meet the needs of the students, faculty and staff at Spring Vale Academy. After receiving an enthusiastic reception for my project expansion ideas, I further adjusted the project considerations and parameters to meet my needs and the needs of the church and the academy.

The thesis project will be comprehensive dealing with all the different stages of the landscape architectural design process. These aspects of the process include programming, site analysis, conceptual design work, master planning, and a limited amount of work in the development of details. Aspects of the conceptual design involve an exploration of the relationships between the different facilities and activities planned. The master plan will include a comprehensive design at two scales— one showing the entire site and another showing the campus. Some perspective and section sketches will help further illustrate the plans. The construction phase of the project will provide examples of suggested plans for planting and grading; as well as possible construction
techniques for the site hardware and other site details. An explanation of Spring Vale Academy's needs will appear in subsequent sections of this study.
INTRODUCTION
BACKGROUND INFORMATION

Spring Vale Academy is a private denominational high school for the general conference of the Church of God (7th Day). It is located 3 miles south of Owosso, Michigan on state road 52 in Shiawassee County. There are presently 105 students, about half a dozen faculty members, and a dozen full time staff members. The students at the school come from all parts of the country and Canada. The majority of the students reside in the midwest, south and the far west. Spring Vale Academy was first opened in 1947, in a farmhouse and a small schoolhouse on the property. The farmhouse contained the girls dormitory, classrooms, kitchen, and the faculty quarters. The boys dormitory was located in the schoolhouse, which has since been torn down. The farmhouse has since been converted into apartments for the faculty at the school.

Since the start in the farmhouse there has been several building projects finished these include the cafeteria/music building, the classroom building and both dormitories. In conjunction with the construction of the girls dormitory in 1968, a sewage lagoon was built to store all the academy's waste water. The last major project completed was the addition of a basketball gymnasium to the classroom building in 1972. There has been no further construction until this spring when an apartment for the boys dean was added to the boys dormitory. This project is expected to be completed before this winter. In the middle of October ground was broken for an addition to the girls dormitory. Future
building plans include an addition to the boys dormitory and the construction of a chapel for the academy's use and the use of the local church congregation.
AREA ANALYSIS

Shiawassee County is mainly agricultural with 84% of its land area devoted to farming (Shiawassee County Soil Survey, 1974). There are several small industries in the county but the majority of the work force commutes to the nearby auto manufacturing centers. Owosso is the largest town in the county with a population of about 10,000. Corunna, the county seat, is located 2 miles east of Owosso. Spring Vale Academy is located about 50 miles from the cities of Lansing, Flint, Saginaw and Pontiac. It is about an hour and a half from Detroit and Grand Rapids.

Spring Vale Academy is at the southwest corner of the intersection of Bennington Rd. and S.R. 52. At the northeast corner of the intersection is a small cemetery. About a quarter of a mile south of the campus is a nine hole golf course. 10 miles to the west of Spring Vale is a small state park which is used primarily for camping, fishing, swimming, and boating. Spring Vale Academy owns 147 acres of land surrounding the campus. The majority of the land is farmland with some woodland. There is a broad lowland area stretching across the middle of the property which contains a marsh, lowland vegetation and a small creek. The actual campus is contained on approximately 30 acres at the peak of a small hill. The majority of the property can be seen from the school. In addition to the major buildings on the campus there are two
residences, two mobile homes for staff members and a barn. There is a small apple orchard and two small gardens on the campus.
PROBLEM STATEMENT

The immediate objective of the project is to meet the Spring Vale Academy students needs. Additional facilities and activities must be adequate enough to satisfy demands placed on them from church retreats and conferences. The prime consideration of the project is economy and simplicity of the design. The design should be compatible with the existing rural character of the site.
STUDENTS NEEDS

*Indoor Recreation*—Presently the only indoor recreation that is provided at Spring Vale Academy is basketball. The only lounge areas provided are in the dormitories; activities which are provided in these lounges are opportunities for sitting, reading and watching television. The dormitory areas are off limits for members of the opposite sex. The types of indoor recreation students would like to see provided include ping pong and pool tables; areas for playing chess or other board games and air hockey tables. I believe one reason the students would like to see the lounge areas expanded is an opportunity to get away from the dormitories in the evening and enjoy some recreational opportunities with other girls/boys. The most favorable location for an indoor recreation room and new lounge areas would be in the present cafeteria building. There are plans to build a new cafeteria between the two dormitories. The present cafeteria is large enough to accommodate all the planned activities including the lounge area; there would also be facilities already provided for a kitchen and snack bar.

*Outdoor Recreation*—Types of activities and facilities the students would like to see added for outdoor recreation include facilities for soccer/football, tennis, track, volleyball, baseball and swimming. Many of these activities if included could be used for interscholastic competition with a minimum of cost. In addition to the above activities added
facilities need to be included for informal recreation such as shuffleboard, horseshoes, frisbee and other activities grouped around the dormitories. Paved areas for tennis and basketball need to be provided.

*Winter Recreation*- About half of the school year there is a snow cover and cold weather; presently there are no facilities for winter recreation. Many students would like to see ice skating, sledding, snowmobiling and cross country skiing added. Snowmobiling and skiing will not be considered in the project because of safety and storage problems. Ice skating and toboganning were the most popular responses.

*Water Based Recreation*- Many of the students and staff are interested in the construction of a new lake primarily for recreation, as well as for baptisms. The most popular activity listed was swimming. Other popular items included boating and fishing; these last two items are possible on a limited basis because of the size of the lake. There is also interest in growing fish as a money making possibility.

*Educational Needs*- The present teaching facilities at Spring Vale Academy are inadequate to meet the students present educational needs. Students feel that art, shop, home economics, and physical education are the classes that are needed the most. The above classes are ones which require a large amount of special facilities and equipment. Additional
classes which are missing at Spring Vale Academy include foreign languages and physics. Many students expressed an interest in holding certain classes outside during the warm months. Classes that the students felt were appropriate for outdoor instruction included science classes. These classes could take place in areas provided for outdoor instruction such as classrooms, nature trails and possibly an amphitheatre.

*Money Making Activities - The students were asked what kinds of money making activities could be included at Spring Vale Academy to bring added income to the school; presently students are required to donate 12 hours of their time a month working for the school. This work generally involves maintenance and other service related work. Plans are underway to build a pole barn which could be used for auto repair work and possibly storage. Types of activities the students felt could be added, included auto repair facilities, child care facilities, carpentry and also dressmaking facilities. It would be practical to explore other possibilities which would provide a maximum return for a minimum of capital.

*Religious Facilities - The most important element of this nature that is missing at S.V.A. is a permanent church that would serve both the local church and the school. Presently the school and the local congregation hold services in the
cafeteria a clearly inadequate facility. Also desired are areas for campfire pits for outdoor worship and fellowship, and small rooms for prayer and meditation for persons to have quiet time. The prayer rooms would most easily be accommodated in the dormitory lounges with a minimum of alterations.
STUDENT QUESTIONNAIRE RESULTS

There were 100 copies of the questionnaire passed out to students. There were 12 questions dealing with the planned activities. The intent was to gather quickly some of the perceived needs and desires of the students. In many of the questions choices were provided and I wanted to get input on the more popular responses. 74 copies of the questionnaire were returned. Many of the questionnaires were only partially filled out; resulting in varying amounts of responses for the different questions. The percentage figures refer to the number of students who responded to that item.

#1 What types of indoor recreational activities can be added?

GIVEN RESPONSES -
- Pool Tables .................. 76%
- Ping Pong .................. 68%
- Lounge Area ................ 42%
- Board Games ................ 20%
- Chess .................. 11%

ADDED RESPONSES -
- Air Hockey .................. 11%
- Foosball .................. 4%
- Pinball .................. 4%

#2 Where should the indoor recreation room be located?

Added Building .................. 59%
Class/Gym .................. 24%
Dormitories .................. 8%
Cafeteria .................. 4%

#3 What outdoor recreation activities should be added?

GIVEN RESPONSES -
- Tennis .................. 69%
- Football/Soccer ............ 49%
- Jogging Trail ............ 27%
- Baseball .................. 20%
- Volleyball .................. 12%
- Badminton .................. 12%
- Horseshoes .................. 8%
#4 Which outdoor activities can be used for interscholastic competition?

Tennis ............... 45%
Football/Soccer ........ 40%
Volleyball ............ 34%
Baseball .............. 24%
Track/Field ............ 18%
Swimming .............. 12%
Cross Country .......... 5%

#5 Is the gymnasium being used to its full potential?

Yes .................. 24%
No .................... 51%
Aren't Sure ............ 4%

What other uses can be added?

Gymnastics Supervised Sports
Volleyball Physical Education
Ping Pong Badminton

#6 What kinds of winter recreation activities would you like to see added?

Ice Skating ............ 74%
Sledding ................ 50%
Skiing ................. 27%
Snowmobiling .......... 12%

#7 What type of water based recreation activities would you like to see added?

Swimming ............. 65%
Boating ................ 19%
Fishing ............... 8%

#8 What types of classes are missing at Spring Vale Academy?

GIVEN RESPONSES - ADDED RESPONSES -

Shop .................. 55%
Physics
Art .................... 39%
Foreign Lang.
Home Economics ........ 34%
Agriculture
Physical Education .... 28%
Drama/Speech

#9 Would you like to see places provided for classes outside?

Yes .................. 63%
No ..................... 13%

If so, what kinds of classes would be best suited for the outdoors?

Science ............... 35%
Bible .................. 11%
Physical Education .... 5%

#10 Could a nature trail be used for certain educational activities?

Yes .................. 76%
No ..................... 12%
#11 What kinds of moneymaking activities could be provided at Spring Vale Academy?

**GIVEN RESPONSES -**
- Child Care ............ 57%
- Auto Repair .......... 47%
- Carpentry ............ 45%
- Dressmaking .......... 35%

**ADDED RESPONSES -**
- Nursery(Orchard)
- Printing
- Snow Shoveling
- Selling Firewood
- Car Wash
- Bake Sales
- Farming
- Housecleaning

#12 What type of additional worship facilities need to be added?
- Chapel separate from the cafeteria.
- Permanent campfire pits.
- Quiet rooms for prayer and meditation.
FACULTY AND STAFF NEEDS

The purpose of the faculty and staff questionnaire was to get some responses and ideas about what they thought some of the Spring Vale Academy's needs were. There were approximately 25 questionnaires passed out and 10 were returned. I did not provide possible answers with these questions because I wanted to hear specifically how the faculty felt and how the faculty thought some of the problems could best be solved.

*Student Needs- The majority of the staff felt that student needs could best be met by hiring additional staff members and by providing more recreational and lounge facilities. Some possible solutions included hiring a staff member whose primary responsibility would be provision of recreation opportunities and supervision; by grouping activities together that would be used during the same periods of time.

*Housing Needs- Presently the housing for staff at Spring Vale is scattered around in several different locations on the campus. Housing includes the farmhouse, 2 residences located along Bennington Rd., and 4 mobile homes in 2 different locations. The staff members would like to see all the housing in one location in more permanent facilities. The housing facilities should be separated from the school for privacy. Several staff would like to have housing developed

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that they could buy into and they would like to see the quality of housing improved.

*Teaching Facilities- Generally the staff felt that classrooms are overcrowded and there aren't enough of them. Teaching aids are also inadequate. The above problems can be ironed out with additional money and enough students to support a wider range of class offerings. Outdoor teaching facilities and a nature trail could help alleviate these problems, however their help would be limited because of the area climate.

*Visitor Accomodations- Staff members felt that campus visitors could best be accomodated in nearby hotels or motels and in the dormitories during the summer when school isn't in session. A drawback in this area is that I made no reference to retreats or conferences and as a result I got no feedback on camping possibilities.

*Church Facilities- Most staff members feel that a new church building is needed to meet the local churches needs and to help relieve the present overcrowded conditions on campus. Presently the local congregation meets with the school members for services in the cafeteria. All the property owned at Spring Vale Academy is in the schools name and the use of the cafeteria is rented to the local church for
services. Many church members are hesitant about trying to increase their independence from the school because of the present dependance they have on the school facilities; however the church is interested in increasing their membership in the area; before this is possible the church needs to develop an identifiable image in the surrounding area, separate from the S.V.A. image. One of the solutions that has been expressed has been the building of a church facility that would serve the school as well as the local church. The church would need to have a separate image from Spring Vale Academy and yet be a part of the campus area.
PROBLEM AIMS AND OBJECTIVES

The problem is a multi-faceted one involving the inclusion of camping, recreation, educational land uses and the campus reorganization, as well as problem solutions concerned with waste disposal. The staff at Spring Vale Academy is interested in bringing additional income to the school, presently they are totally dependant on student tuition and church donations. Student labor should be utilized to bring more money to the academy. The campus planning aspect of the problem solution involves the creation of campus entrances which are easily seen from the highway; which give an identifiable image of Spring Vale Academy to the passing motorist and which function as an interactive element between the school and the highway. The present circulation patterns will be reorganized. This will involve eliminating conflicts between drives, parking and pedestrian pathways. Buildings which need direct service access include the classroom building and the cafeteria/music building. Thru drives will be restricted as much as possible. The only connector roads needed will be ones linking the camping area with the academy and to the public access roads. The parking requirements include parking for visitors and faculty and staff at the academy with space for additional parking for retreats, conferences and other peak use periods. Other aspects of the reorganization involve the creation of spatial definition for the school through the use of plantings, buffers, screens
and other landscape elements. Areas for sitting and gathering, focal points, outdoor classrooms, display of information, picnic areas, and a limited amount of passive recreational activities also need to be incorporated into the campus plan. Future building plans as far as size requirements and siting need to be considered in the reorganization.

In dealing with the problems associated with waste disposal, I will mainly be concerned with the sewage lagoon. This will involve the research of methods of maintenance and uses of sewage lagoons other than waste storage. The sewage lagoon needs to be upgraded to meet present and future demands placed on it. The wastewater facilities should also be restructured to provide more comprehensive sewage treatment and methods employed to reuse or reclaim the water. There is a problem with an open air incinerator that is currently in use, this will have to be eliminated because of a ban on burning in the county this can most efficiently be taken care of with trash compactors and increased trash pickups.

Additional educational opportunities will be provided as alternatives to the traditional classroom teaching concept. The different educational activities that need to be provided include a building for vocational activities, and opportunities for outdoor education. The outdoor classrooms and nature trails can function in conjunction with recreational facilities.
Camping areas are the only spaces which aren't in direct proximity to the campus area. These will be concentrated in the wooded areas on the site. Since there probably isn't enough woodland on the property to accommodate camping as well as recreational activities, efforts will be made to acquire woodland and natural areas immediately adjacent to the academy property. Car camping and primitive camping needs to be added for persons staying for retreats and conferences. These people will usually be staying for half a week up to a week. Car camping needs to have the largest amount of facilities. In the case of primitive camping the campsites need to be easily accessible to the supportive facilities for car camping. Direct access to Spring Vale Academy from the camping will be provided.

The primary function of the recreational opportunities is to provide added recreation for the student population at Spring Vale Academy and to upgrade present facilities. The kinds of outdoor recreational opportunities include multiple use playing fields, walking, jogging, and nature trails; activities that require a paved surface and spaces for passive recreation. Indoor recreation facilities need to be provided. In addition to the aforementioned outdoor and indoor recreation, the personnel at Spring Vale Academy are interested in developing some water based and winter recreational activities. Water based activities will include swimming, fishing and boating.
Winter sports activities will include sledding and ice skating opportunities. Organized sports activities should be grouped around the campus because of the dependance on the school facilities. The main purpose of the trails is to provide the students with access to the natural areas of the property.
RESEARCH DISCUSSION

The depth covered in each area of research was related to the importance of that area in satisfying the total needs of the school. Recreation was covered in the most detail because of the varied requirements and the intensity of use. Research concerning the sewage lagoon was general. Information gathered concerning the reorganization of the campus area focuses on aspects of the outdoor education provided; satisfying Spring Vale Academy's requirements and meeting the planning criteria set forth. Future building plans are covered only to the extent of determining the schools needs. Assumptions need to be made concerning guidelines and government regulations, in the areas of recreation and outdoor education where this information wasn't available. Enough detailed information was collected to meet the planning needs for camping and problem solutions for the sewage lagoon. When assumptions were made for recreation and campus planning they were based on past experience.
RECREATION CRITERIA

Presently Spring Vale Academy has very limited recreation facilities. These consist of a gymnasium for basketball and a sandlot baseball diamond. Concerns of the staff at Spring Vale Academy involve the development of additional recreation activities to meet the rapidly expanding student needs; to be adequate enough to meet the demands placed upon it by church retreats and conferences. General use categories include facilities for indoor activities, facilities for organized and active sports, areas for passive activities, such as walking and small group activities and water based activities. Facilities for spectators and pathways will serve to meet outdoor education needs in addition to recreation. Finally there should be a limited amount of opportunities available for winter activities such as ice skating and sledding.

Active Sports

*Facilities need to be close to campus:

  Ease of participation.
  Serve immediate needs of students.
  Visibility from campus.
  Identification with Spring Vale Academy image.
  Access to gymnasium.
*Types of activities to be included:

Badminton- 1 court.
Baseball/Softball- 1 multiple use field.
Basketball court- 1 court.
Football/Soccer- 1 multiple use field.
Tennis- 2 or more courts.
Volleyball- 1 or more courts.

*Site Standards

Level or nearly level, maximum 5% slope.
Well drained and not subject to flooding.

*Site Development

Combine paved sports into as few areas as possible.
Combine field sports into multi-use areas when practical.
Separate areas for different uses adequately to eliminate conflicts.
Provide buffer zone around sports areas, at least 10' wide.
Accommodate seating on lawn areas, benches, seating walls and permanent seating.
Terrace seating on sloped areas.
Locate spectator facilities so playing areas can be easily viewed.
Locate spectator facilities far enough away from play to eliminate possible disturbances.
Lighting in play areas for night time use and interscholastic competition.
Direct lighting in such a way that won't conflict with nearby activities.
Place lighting in compatible manner with pedestrians and adjacent areas.

Place rubbish containers in proximity to seating areas, playing fields and walkways.

*User Requirements

Locate parking for visitors within ¼ of a mile away from activity visited.

Provide direct access to gymnasium and dormitories.

Plan activity areas for boys sports requirements, but make provisions for satisfying requirements for girls.

*Environmental Factors

Locate sports activities away from existing wetlands or wooded areas.

Orient playing areas to eliminate direct views of the sun.

* Health and Safety

Clear playing surfaces of debris and obstructions which create hazards for the players.

Provide direct access to playing fields for ambulances.

*Maintenance and Storage

Plan playing fields to make maintenance as easy as possible.

Provide maintenance person for clean up and preparation of playing areas.

Provide service access to active sports areas.

Provide storage for play and maintenance equipment.

Passive and Informal Recreation

*Types of Activities
Croquet
Horseshoes
Shuffleboard - requires paved surface
Board Games - Chess, etc.
Sitting and Gathering spaces
*Characteristics of Passive Activities

Group activities in campus area.

Shall be small intimate spaces.

Provide seating on mounds, benches, seating walls and terraced areas.

Pillar or post for board games; provide seating for 4 people around game. (Beazley, 1957)

Group board games around gymnasium and indoor recreation facilities.

Locate litter containers between passive spaces and pedestrian walkways.

Provide lighting for areas at night.

Filter sunlight in these areas.

Provide screening to block out noise and views of active sports and vehicular circulation.

Maintenance of sitting and gathering areas should be easily accomplished.

*Informal Activities

Group around dormitories and gymnasium.

Includes shuffleboard, horseshoes, frisbee and related activities.

Reduce conflicts with pedestrian pathways and active sports areas.

Pathways

*Trails to serve as:

Connection between campus buildings, recreation and camping facilities.

Means of bringing people into direct contact with natural areas of site.

Provide snowmobile access to isolated areas of property.
*Jogging Trail

Serve as exercise path and running trail.
Level or nearly level surface.
Avoid slopes over 5%.
Should have well drained soils.
1 or 2 mile in length.
Have several stations or stops.
Pave trail surface.
Should be well marked.
Make trail wide enough for 2 people running side by side.
Can function for interscholastic cross country competition.
Provide direct connection to gymnasium and active sports areas.
Connection to camping is desirable.
Separate jogging from nature trails, roadways and passive activities.
Provide benches, litter containers and exercise equipment at each station.
Maintain trail surface adequately to stop material deterioration.

*Nature Trails

Contain trails on natural areas of property.
Develop 2 trails if possible:
   Wetland trail
   Woodland Trail

Can use slopes up to 10%, anything over 10% can be used for short distances.
Avoid areas that present risks to user.
Incompatible activities include active sports, vehicular circulation and jogging trails.
Change in level and views from trail are important in creating a variety of experiences.

Make direct connections to academy and camping areas.
Length should be between 1 and 1½ miles. (Beazley, 1957)

Catalogue natural features of significance to determine best trail layout. (Beazley, 1957)

Layout trails to take best advantage of existing natural features. (Beazley, 1957)

When possible trails should follow contours.

Locate stations along the trail adjacent to areas that exhibit uniqueness.

Make trails wide enough for 2 people walking side by side.
Should be well marked and easily followable.

Use materials that prevent erosion and possible trampling.

Replace trail materials often enough to keep the trail easily recognizable.

Use construction techniques in sensitive areas that minimize impacts.

Trim back branches and ground covers that present obstructions to the users.

Trails are to function as educational activities in addition to recreation.

Trail hardware:
Covered shelters at both ends of trail and at middle.
Information posts at both ends.
Benches and litter containers at rest stations.

Signs:
To identify natural features and mark trail. (Beazley, 1957)

Use symbols when possible.

Place so views aren't obstructed and corresponding features are easily identified.
Winter Activities

*Sledding Hill

Run should be between 200' and 400' long.
Top of run will be 20'-25' wide and narrower at the base.
Steepest slope is at the top of the run, it will gradually level out. (Jubenville, 1976)
Separate the return path from sled run.

*Ice Skating

Accommodate on small lake.
Protect from direct sunlight. (Jubenville, 1976)
Test for ice depth prior to use, should be at least 8".
Provide screening to eliminate wind gusts.

Water Based Activities

*Swimming

Provide direct connection to dormitories and the camping.
Provide clean beach of at least 30'. (Jubenville, 1976)
Water slope shouldn't exceed 5%.
Orient swimming and beach toward the sun.
Remove aquatic weeds and underwater obstructions.
(Jubenville, 1976)

Monitor water quality.
Anchor diving platform in at least 8' of water.
(Jubenville, 1976)

Crossbars will be well above or below water level to prevent icing. (Jubenville, 1976)
Place safety equipment on diving platform and at the shore.
Place rubbish containers well away from water.
Maintain rubbish containers in clean and sanitary condition.
*Fishing

Provide opportunities for bank fishing.

Keep fishing banks free of obstructions for a distance of at least 5' from water.

*Boating

Provide opportunities for beginners to become familiar with boats.

Include dock or shore tie down for boat.

Put safety equipment on boat and at shore tie down.
CAMPING CRITERIA

The staff at Spring Vale Academy are interested in utilizing the woodlands on the property for camping areas. The camping area should be large enough to accommodate local or district church retreats and conferences. Most of the camping should be devoted to car and trailer camping with a limited amount of primitive camping provided. There is a need for a well planned campground that is easily accessible to Interstate 69 (the main connector between Lansing and Flint) to serve Spring Vale Academy. Because the woodlands on the property aren't sufficient to incorporate all the desired activities additional woodland adjacent to Spring Vale Academy will need to be purchased.

Site Standards

Soil should be well drained and level.

Composed mainly of sands and gravels.

Will be partially shaded at all times.

Auto camping will have 15' of frontage on roadway. (Michigan Dept. of Public Health, 1970)

Capacity of 8 persons per campsite. (Michigan Dept. of Public Health, 1970)


Plan roads for one way traffic.

Provide parking at ratio of 1 1/2 to 1 per campsite. (Michigan Dept. of Public Health, 1970)
Facilities
Supply water thru wells on site.
Sewage disposal facilities.
Electricity hookups.
Refuse disposal- at least 1 container per site.
Emptying point for chemical closets. (Jubenville, 1976)
Lavatories and washrooms for car camping. (Jubenville, 1976)
Play area for small children.
Picnic table for each site.
Grill or barbecue pit for each site.
Each site should be well marked.

User Requirements
Connect car and primitive camping with Spring Vale Academy and to public access roads.
Provide connections to active recreation and lake.
Link primitive camping by trails to parking and camp facilities.

Aesthetic Considerations
Maintain desirable views from each campsite.
Give sense of enclosure to campsites.
Minimize environmental impacts of camping development.

Health and Safety
Separate sewage lagoon from all campsites. (Michigan Dept. of Public Health, 1970)
Survey and reduce all hazards on the site. (Jubenville, 1976)
Adequate warning signs for chemical closet emptying points and sewage lagoon. (Jubenville, 1976)
Maintenance

Remove obstructions and maintain road right of ways in passable condition. (Michigan Dept. of Public Health, 1970)

Provide full time maintenance person for camping areas. (Michigan Dept. of Public Health, 1970)

Should have adequate maintenance for campsites, especially for refuse collection.

Have service access to all campsites.
CRITERIA FOR LAKE DEVELOPMENT

The personnel at Spring Vale Academy would like to develop a small lake or pond suitable for swimming and the performance of baptisms. There used to be a small manmade lake on the property, but this was undammed after complaints from neighbors of water backing up into their ponds. A new lake can be built, but care must be taken in the size, the water flow through the lake and the effects on nearby areas of water. The new lake will be large enough to serve Spring Vale Academy and all the camping areas.

User Requirements

Accessible to students, especially to the dormitories and gymnasium.

Provide connection to camping areas.

Visible from the school for safety reasons.

Screen from areas off the site.

Make shore adequate enough for large number of people for viewing baptisms.

Site Development

Lake

Water source to be existing wetland.

Build dam for retaining water.

Need overflow outlet.

Gentle uniform slope to depth of 6', slope between 5% and 10%. (Jubenville, 1976)

Bottom material at least 12" of coarse sand or gravel. (Jubenville, 1976)
Water fluctuation of less than 2". (Horvath, 1967)

*Shore Area

Slope between 2% and 10%. (Jubenville, 1976)

Material sand or sand/pea gravel mix of at least 12". (Jubenville, 1976)

Accommodate sunbathing, circulation, limited recreation such as frisbee, and large crowds of at least 100 people.

*Dam Design (Beazley, 1969)

Foundation should be stable, horizontal soil layers.

20-30% clay soil with well graded sand and gravel.

Prevent internal erosion.

Upstream slope will be 2-1 ratio.

Downstream slope will be 2½-1 ratio.

Make top of dam 2' wider than it's height.

Environmental Factors

Isolate sewage lagoon from lake.

Minimize oxygen depletion through areas of deep water. (Horvath, 1967)

Orient lake towards the sun.

Protect lake from wind and water currents. (Jubenville, 1976)

Maintenance

Provide means for cleaning lake.

Allow service access for maintaining beach areas.
CRITERIA FOR CAMPUS PLAN

The aspects of the campus plan include the campus and building beautification, entrance definition, circulation improvement, outdoor education, focal points and information display. Additional buildings that are needed include a chapel and a structure for vocational activities and indoor recreation. The campus reorganization can best be fulfilled through the creation of a campus quadrangle having two or three major focus points.

Campus Beautification

Soften and contrast building exteriors with plantings.

Define campus with screens and visual barriers, can also serve as noise buffer from highway.

Direct views off of campus as well as on campus.

Addition of small scale entrance plazas to buildings.

Hide undesirable views.

Entrances

Redesign vehicular entrance sign, perpendicular placement with the highway.

Create focus for campus entrance using sign.

Use future chapel building as visual focus of the campus from highway.

Circulation

Eliminate thru roads on campus, except for connection to campus.

Lessen conflicts between pedestrians and vehicular circulation.
Provide parking areas on campus perimeter.

Have direct access from parking to all campus buildings.

Types of parking include parking for active recreation, faculty and staff, campus visitors and turnover parking for the Spring Vale Campers.

By shortening driveway lengths can hasten snow removal.

Restructure pedestrian walkways to provide safer walks.

Outdoor Education

Allow direct contact to natural areas of the property by the use of nature trails.

Use of sitting and gathering spaces for holding classes out of doors.

Future Buildings

*Chapel

Meet needs of local congregation for worship facility in addition to satisfying Spring Vale Academy's needs.

Serve as interface between campus and highway.

Help define campus quadrangle area.

*Indoor recreation

Primary use during winter months.

Include table tennis, pool, sitting areas and other related activities.

*Vocational activities

Satisfy schools need for shop facilities.

Provide work space for student labor.

Student labor can aid in bringing additional money to Spring Vale Academy.
CRITERIA FOR WASTE DISPOSAL

Presently all of Spring Vale Academy's waste water is disposed of in a sewage lagoon that was built in 1968; at the same time as the girls dormitory was built. It is approximately one acre in size. Since the lagoon has been in operation there has been no maintenance work done. The school is allowed to open the floodgates on the lagoon twice a year, during periods of peak water flow. The sewage lagoon should be restructured enough to adequately handle all of S.V.A.'s present and future sewage disposal needs with a maximum of ease and a minimum of health and safety problems. Secondary treatment of the solid wastes will be added with tertiary treatment added if feasible. Means of recycling or reusing the solid waste will be used, such as use on adjacent agricultural land to increase soil fertility. Problems concerned with odor problems, mosquito breeding habitats and possible affects on the groundwater need to be considered and dealt with.

User Requirements

Need to provide most economical means possible to provide for academy's waste disposal.

Lagoon should be large enough to adequately serve S.V.A.'s present and future needs.

Restructure different sections of the sewage lagoon in a manner that would best suit the academy including: pond sizing, inlet and outlet location, most desirable waste storage duration, methods for reusing solid wastes.
Site Considerations

Minimize any possible waste infiltration to the ground water.

Minimize soil percolation in areas where the water table is close to the surface.

Avoid areas with steep slopes for use as spillway for the lagoon.

Provide means for keeping algae growth under control, such as the inclusion of fish.

Reconstruct sewage lagoon well enough to eliminate possible seepage.

Pond should be deep enough to eliminate problems with weeds or other aquatic growth.

Allow sufficient detention time to metabolize completely the solid wastes.

Promote mixing in the sewage lagoon by use of wind action.

Health and Safety

Avoid any health or safety problems to the academy users and to people in the immediate area.

Include buffers, screens, fences and any signage necessary to discourage people from possibly endangering their health.

Eliminate sewage lagoon as possible mosquito breeding habitat.

Minimize any possible odor problems associated with the lagoon.

Eliminate access to any effluent discharge for any and all people.

Don't let any discharge accumulate, enough to constitute a health hazard.

Maintenance

Provide for most appropriate means of adequately monitoring and maintaining the sewage lagoon.

Restructure lagoon in a manner that makes maintenance as easy as possible.
Aesthetic Considerations

Maintain sewage lagoon as a pleasant visual feature.

Restrict access to the lagoon except for maintenance personnel and authorized users.

Keep long term views of lagoon, restrict short term views.
CONCLUDING REMARKS

Because of the economic considerations of the problem the project will need to be phased. The phasing will be determined by the aspects of the project which best meet Spring Vales immediate needs and can be built the cheapest.

The remainder of the project will involve doing a detailed site analysis that begins to find areas where the activities can best be located; the methods which would best be suited for upgrading waste water disposal. The next part of the project will be concerned with the physical planning of the different project elements. These parts of the problem will be completed at the end of next quarter. The final quarter will involve the implementation and detailing of the master plan.
BIBLIOGRAPHY


INTERVIEWS

Patchen, Vernon; Boys Dean, Spring Vale Academy.
Rice, Bill; Member Owosso Church of God (7th Day).
Dr. Siewert, Horst F.; Professor, Department of Natural Resources, Ball State University.
AREA ANALYSIS

Owosso (3 miles to the north of S.V.A.) is the largest town in Shiawassee County. It is served by state highways M-52(Saginaw to I-96), M-21(Grand Rapids to Flint) and M-71 (to Corunna and I-69). M-71 is a minor highway connecting Owosso to I-69 by way of Corunna. The county seat of Corunna is directly to the east of Owosso. The main traffic artery in the county is I-69 which is presently a 4 lane highway with unlimited access, this route connects Lansing and Flint,(see Fig. A-1). There is a traffic light where M-52 crosses this east/west route just north of the village of Perry. Spring Vale Academy is approximately 7 miles north of I-69. Presently there are long range plans to upgrade I-69 to limited access. The county is served by the Grand Trunk railroad. There is an abandoned Penn Central line running from Owosso through Bennington.

The area climate is moderated to a small degree from Lake Michigan and Lake Huron, although this effect is lessened because of the counties inland location,(see Fig. A-2). The prevailing winds are out of the southwest except during the months of February, March and September. In February the prevailing winds are out of the northwest as well as the southwest. In March the winds are out of the northwest and in September they are directly out of the south,(U.S. Department of Commerce, 1977). The summer sun rises 30° north of
east and sets 30° north of west; in the spring the sun rises and sets 20° north of east and west. In the fall the sun rises and sets directly out of the east and west, and in the winter it rises and sets 20° south of the east and west. (American Society of Landscape Architects, 1976). On the average there are 150 days annually with a temperature of 32°F or lower. (U.S. Dept. of Commerce, 1977). January is the month that usually has the heaviest snowfall amounts with December and February following closely behind. There is a chart showing the average monthly snowfall rates in Figure A-2, (U.S. Dept. of Commerce, 1977). The months that have the heaviest precipitation are May through November with about 3" for each month. January and February have the lowest precipitation amounts. (U.S. Dept. of Commerce, 1977). Because of some of the planned facilities in the project a general idea of the annual and summer evaporation rates is needed, (see chart on Fig. A-2); (U.S. Dept. of Commerce; 1977). These are the major climatic factors that influence the area.
**Sun Angles**

- **Summer**
- **Spring**
- **Fall**
- **Winter**

**Prevailing Winds**

- **January**
- **February**
- **March**
- **April**
- **May**
- **June**
- **July**
- **August**
- **September**
- **October**
- **November**
- **December**

**Average Monthly Precipitation**

**Average Monthly Snowfall**

- **Ave. Annual Lake Evaporation = 30"**
- **Ave. May - October Evaporation = 85% of Total**

Fig. A2: Area Analysis

**Micro - Climate**
SITE ANALYSIS

Localized micro-climate features which affect the site, include warm/cold slopes, frost pockets, on-site wind patterns, and winter sun and wind shadow zones, (see Fig. B-1). Warm and cold slopes are a reflection of areas which receive more or less solar radiation, depending on the slope orientation. Frost pockets are areas on the site which are more susceptible to heavy frosts in the fall and spring; these areas are found on low elevations and are generally sheltered from winds. A study of on-site wind patterns is important in determining areas where snow will tend to drift and in finding spaces that are protected from winds in the fall and winter.

An analysis of soils is of prime importance in locating areas that are suitable for a particular facility or activity. A map of soils found on the site is in Fig. B-2, (Shiawassee County Soil Survey, 1974). Also included in this soils analysis is a brief description of the different soil types, (see Fig. B-3), and a matrix showing the suitability of a soil type for a particular activity, (see Fig. B-4). The majority of Spring Vale Academy is level with slopes of 2% or less, (see Fig. B-5). There are only 2 small parcels of land with slopes exceeding 25%. Slopes were divided into 4 categories: 0-2%, level land; 2-12%, nearly level to moderately
sloping; 12-25%, moderate to steep slopes; over 25%, excessively steep slopes. These slope divisions generally paralleled soil divisions. A study of surface elevations was conducted to explain the relief and to find high points and low points, (see Fig. 8-6).

Most of the surface runoff on the site drains toward the county drain running through the site, (see Fig. 8-7). The only area that drains off the site is the campus area. Water features located on the site include a marshy area where a lake was located several years ago, and a pond used for storage of the schools wastewater. Major vegetation on the site is primarily oak/hickory and maple/beech with other species common to those climax associations, (see Fig. 8-8). These occur in the low land areas of the site and along the southern edge of the property. There is a hedgerow along the western edge; it is primarily sumac and walnut. Other vegetated spaces include two small spruce groves and an unused apple orchard. The predominant vegetation on the campus is weeping willow specimen trees. The Spring Vale Academy property provides a good habitat for a variety of wildlife, (see Fig. 8-9). Shiawassee County has the highest concentration of pheasant in the state of Michigan, (Shiawassee County Soil Survey, 1974). Prime habitats for pheasants include the openland areas on the site and the hedgerow. Other wildlife found on the site include deer, rabbits, and
groundhogs. It has been reported that flying squirrels, fox, and opossums could well be found in the wooded areas.

A visual and spatial analysis was done to further define areas that would be well suited to certain activities, (see Fig. B-10). Spatial areas of the site were described as having open qualities, semi-enclosed, or as exhibiting a sense of enclosure. Views were defined as being good (short term or panoramic), or as bad views. Present gathering places or focal points on the site were located.
Fig. B-1 Site Analysis
Micro-climate
Scale: 1" = 40' North

Micro-climate Information

- Water, Sun/Wind, Shadow Zones
- Warm Slopes
- Cold Slopes
- Frost Pockets
- Wind Gusts

A - Staff Housing
B - Staff Housing
C - Girls Dormitory
D - Boys Dormitory
E - Cafeteria/Music Bldg.
F - Gymnasium/Classrooms
G - Staff Apartments
Fig. 8-2 Site Analysis

SOIL TYPES

Boyer Series ........ BmA, BmB, BmC, BrA, BrC, BrD
Celina Series ........ ChB
Calaveras Series .... ChA, ChB
Gilford Series ....... Gg
Miami Series ......... HbB, HbB2, Huc2
Sebewa Series ....... Sd
Tawas Series ....... Ta
Wasen Series ....... WsA

DEVELOPMENT SUITABILITIES

Good □ Moderate □ Unsuit □
PERCENTAGE OF SLOPES

- 0-2% - LEVEL or NEARLY LEVEL
- 2-12% - LEVEL TO MODERATELY SLOPING
- 12-25% - MODERATE TO STEEP SLOPES
- OVER 25% - EXCESSIVELY STEEP SLOPES

Fig. 8.5 Site Analysis
Slope Analysis
Scale: 1" = 40' NORTH
ELEVATIONS

- Over 800' EL.
- 780' - 800' EL.
- Below 780' EL.
Fig. 8-7 Site Analysis

Surface Water

Surface Drainage

Former Lake

Wetland Areas

A- Staff Housing
B- Staff Housing
C- Girls Dormitory
D- Boys Dormitory
E- Cafeteria/Music Building
F- Gymnasium/Old Gym
G- Staff Apartments

Scale: 1" = 400' North

Surface Water & Drainage
Fig. 8-9 Site Analysis
WILDLIFE ANALYSIS
Scale: 1" = 40' NORTH
VISUAL/SPATIAL ANALYSIS

BOLDCRATIC VIEWS
SHORT TECH GOOD VIEWS
BAD VIEWS
ENCLOSURE
FOCAL/GATHERING POINTS

Fig. 8-10 Site Analysis
VISUAL/SPATIAL
SCALE: 1"=40' NORTH
CAMPUS ANALYSIS

A visual and spatial analysis was also done at the campus scale to begin to define areas and views around the campus a little more specifically than was possible at the site scale, (see Fig. C-1). Vehicular and pedestrian circulation around the campus was studied to find points of conflict and to find where the majority of people now move,(see Fig. C-2).
Objectionable sensory features were located, such as objectionable views or odors and also areas of high noise,(see Fig. C-3). The location of utility lines on campus was the last analysis completed for Spring Vale Academy,(see Fig. C-4).
Buried utility lines on campus include ones for sewer, gas and water as well as phone and electricity. Electricity and phone are carried onto the property by overhead lines. Gas used by Spring Vale is brought by truck and stored in gas tanks behind the gymnasium, both dormitories and the staff apartments.
Fig. C-1  Campus Analysis
Visual/Spatial
Scale: 1" = 100' North
DESIGN CONCEPTS

Certain facilities and activities planned for Spring Vale Academy are more strongly related to a particular type of activity, (see Fig. D-1). The dormitories are the central core facility, in that they are strongly tied to all the other activities happening at the school. The planned church has the most important tie to the campus, because of the function it performs in bringing people from the surrounding area to Spring Vale Academy and the identity it will create for the school. There are a variety of other relationships that play a less important role. One set of relationships consists of the ties between activities planned for the site such as the recreation, camping, the lake development. Important relationships on the campus involve ties between the major existing buildings and the planned buildings and the other outdoors facilities, an important consideration in the interdependence of all activities and the surrounding community is the vehicular access on and off the site for the planned activities.

Site Concepts - Major elements planned for the site outside the campus area include recreation, camping/picnicking, lake construction, faculty and staff housing and a major facility for outdoor education, (see Figs. D-2-4). Aspects of recreational activities include paved recreation such as tennis and basketball; a multi-use playing field for football,
baseball and other activities, trails for experiencing natural features on the site and jogging. Recreation involving water and winter time use is planned; these include swimming and a limited amount of boating; and ice skating and sledding opportunities during the winter. The camping/picnicing area is most strongly related to the recreation field and the water based recreation. Pedestrian and vehicular access to the campus is needed from this area. An area for visitor parking is desirable between camping and the recreation field. Views of the lake should be restricted from this parking lot. Important considerations in the design of the sled run is easy pedestrian access to the dormitories and the right kind of slopes for a sled run. The amphitheater or outdoor education area is closely tied to the church, the classroom building and the nature trail. Important in the siting of the amphitheater is the degree of protection from direct sun and wind and also finding the right slope. In locating faculty and staff housing easy access to the highway as well as to the campus is important; also important is views to any areas of the site which are used frequently by students such as recreation and the lake. It is necessary while considering the above factors to also maintain a degree of privacy for the housing areas. A buffer shall be provided between the site and adjacent traffic routes to screen objectionable sounds and views.
Site Concept Values - The major element of the project to be located away from the campus is the proposed lake and facilities that go along with it. It is obvious given the constraints present on the site that there is only one successful location. This is in the same area that the former lake was located. In Concept #2 and 3, (see Fig.D-3-4). The lake edge doesn't follow the contours as well as the the first concept does,(see Fig.D-2). Facilities that are dependant on the lake development include; water based recreation, such as boating, and swimming; winter recreation in the form of ice skating; and baptisms. Boating works the best in the first and second concepts because it is easier for vehicles to get to the launching area. In Concept #3 the contours leading to the launch area are too steep to make it feasible for service access. The swimming area has been located in the same place in Concept #1 and 3. The prime location is in Concept #2, in the deep part of the lake. Fishing is an item of water based recreation that should be considered; however it isn't specifically located on the concept plans because it can occur anywhere along the lake edge. It is possible to incorporate ice skating on either the proposed lake or the paved recreation areas. This is best located on the lake because of problems associated with trying to put water on the paved areas. The only logical location for the sled run is in proximity to the lake, on one of the nearby high points; because of the elevation change needed. A reasonable starting point is shown in concept #1. In Concept #2 and 3, the slope near the start of the run isn't steep
enough. The multiple use playing field is best located in concept #2 and 3, because of its relation to the campus area. The best configuration of the playing field is probably that shown in Concept #3. The paved recreation, because of the active nature of the sports accommodated, is best located directly proximate to the gymnasium and with the tennis fences acting as a screen to the sewage lagoon area. Also desired for the paved recreation is a terracing affect down the slope. The configuration that shows this terracing effect the best is Concept #2. Factors taken into consideration in the siting of the jogging trail are the length of the trail and its use as a buffer between the recreation areas and other adjacent activities on the site. The concept that best shows the jogging trail layout is Concept #3. The layout of the trail in Concept #1 and 2, doesn't work because of the activities the trail surrounds and the isolation from campus of a lot of the trail. In the layout of the nature trail nothing more than a general siting can take place until a more detailed study of that particular area has taken place. The only difference between the three concepts is minor variations in the general layout of the nature trail. The major advantage of placing the amphitheater in Concept #3 over the other concepts was the orientation of the slope the amphitheater was placed on and the amount of slope. In Concepts #1 and 2 the slope wasn't steep enough and the solar orientation is wrong. Important factors in the placement of the faculty/staff housing is the amount of privacy provided and the ease of supervision over nearby activities and facilities. Concept #1 is the best concept
because of the ease in supervising the dormitories and paved recreation, nearby. Concept #2 doesn't work because the housing area is far removed from the campus area. In Concept #3 the housing area is sandwiched between the campus and the highway; there is no sense of privacy in this scheme. The only practical location for camping is away from the campus; yet close enough to use the site and campus facilities. The best location for camping is in the lower right hand corner of the different concepts.
Fig. D-3 Site Analysis

Site Concept #2

Scale: 1" = 40' North

Legend:
A - Staff Housing
B - Staff Housing
C - Girls Dormitory
D - Boys Dormitory
E - Cafeteria/Music Building
F - Gymnasium/Classrooms
G - Staff Apartments

Nature Trail

Housing

Proposed Lake

Multi-use Fields

Swimming Pool

Academic Center
Campus Concepts - Breaks in the above buffer are important around the campus area to promote views of the church and the major entrance to the site. The most important aspect of the campus plan is the creation of a quadrangle type atmosphere, (see Figs. E-4-7). The location of the church and the new dining hall is paramount to the relative success of this concept. The church is strongly related to the surrounding area off campus. On-campus relationships of concern are to the dining hall, indoor recreation hall, the dormitories and the parking. The dining hall is related most strongly related to the dormitories. Service access is needed to the dining hall from off-campus. A space for outdoor eating is desirable in proximity to the church and dining hall. A parking lot is needed to serve the local church in addition to Spring Vale Academy. This parking lot should be located close to the church as well as to the campus drop-off. A second or minor outdoor education space between the church and the classroom building. The paved recreation area is strongly related to the dormitories and the gymnasium. It is important that this area be visible from at least one area of the faculty and staff housing. An area devoted to storage and vocational activities is needed; this should be located between the classroom/gymnasium building and the recreation areas. Service access is needed to the storage area. A focus or campus focal point should be created to help further create a cohesive campus space.
Campus Concept Values - The most important element in the campus concepts, (see Fig. D-5-7); is the creation of a quadrangle type atmosphere between the buildings. The major facilities affecting the quadrangle plan is the location of the dining hall and the new church. The best location for the church and dining hall is in Concept #1; because the structures tend to enclose two sides of the quadrangle area. The service access to the dining hall works best in the second concept because of the minimal driveway length and its isolation from more public parts of the campus. Indoor recreation will best function in the present cafeteria and music building once the new dining hall and church have been built. The campus drop-off area is most favorably located in Concepts #2 and 3 because of its central location in the campus. In Concept #3 the access to the highway from the drop-off is most direct. Parking in the campus area is primarily needed for the church and in proximity to the campus drop-off area. The parking area in Concept #1 doesn't work because of the conflict involved with the vehicular circulation. In the second concept the parking area is separated from the drop-off. In the third concept the parking is located in the same area as the second; however a small parking area is provided close to the drop-off area. The campus focal point is the active center of campus; this is where a large number of walkways intersect, it is close to several of the more active buildings and the drop-off. There is good potential for a large amount of benches and other seating areas in proximity to this focal point. The paved recreation area because of the
strong relationship to the gymnasium and the dormitories; is best located on the high ground directly to the left of the gymnasium. The best configuration, because of terracing possibilities is shown in Concept #2. The primary relationship of the vocational education area is to the classrooms; because of noise associated with the shop activities it needs to be located in a secluded area of campus. The storage space will mainly be used to store recreation equipment and site maintenance equipment; this needs to be located in a central area of the site. Because of the locational needs and compatible relationships; the vocational education and storage space can be incorporated in the same building. This building location is the same in all the different concepts. There needs to be a buffer on the north and east sides of the property to filter out noise and sights of the nearby traffic. This screen isn't shown on the campus concepts because it is in the same approximate location. Breaks will be made in this screen or buffer to provide limited viewing of the campus.
Final Site Concepts- The prime location for the lake has already been shown in the preliminary concepts. Boating, swimming, and baptisms can take place in the same area because there will be few conflicts between these activities. The best location for the water based recreation is in the area of deep water in the upper right hand corner of the lake; (see Fig. D-8). The jogging trails prime distance is \( \frac{1}{2} \) a mile, this can be accomplished using the trail as a buffer between the recreation areas and surrounding areas such as camping, the picnicing and the church and the campus area. The vest location for the multi-use field is as a hub between the camping, lake, church and gymnasium. There is little change in the nature trail, a successfully designed trail can't be planned until a detailed survey of the natural areas of the site is completed. The best location for the amphitheater is in Concept #3, (see Fig. D-4). The area that is most desirable for the faculty and staff housing is in Concept #1, (see Fig. D-2). In this location the housing is unified and there is a degree of privacy for the faculty; while still maintaining supervision over the students. The best location for a camping area is in the third concept. In this final concept the church has been located away from the campus; this is because of its identity with the rest of the community and the feeling of being separated from the school.

Final Campus Concept- The major change in the campus concept is the deletion of the church, (see Fig. D-8). The dining hall is sufficient to enclose the space between the girls dormitory and
the indoor recreation building. The storage and vocational activities space should be moved closer to the classes and a better relationship with that particular building. The vehicular circulation is changed to allow more direct access to the campus drop-off and a more private, yet direct service access to the dining hall. Parking for the campus is best provided between the staff apartments and the classroom building. An outdoor eating space is provided between the proposed dining hall, and the present cafeteria. An area that can possibly be used for a small outdoor classroom is shown just above the classroom is shown just above the classroom building.
MASTER PLAN

Site Master Plan- The most important facility on the site in terms of land area is the lake, (see Fig. M-1). Because of problems associated with the lake backing up onto adjacent property the soil to the south of the lake will need to be built up also a spillway should be provided, and an overflow gate where the former dam was located. In the upper right hand corner where the swimming and boating area is located the land needs to be pushed back to a steep slope behind the swimming area that wraps on around to the amphitheater area. Land also needs to be built up in proximity to the parking area for the picnic shelter. It is important for the church to be a strong visual focus for the surrounding area, (see Fig. M-4). To create this visual focus a 50' belltower will be located close to the main church building; the bell tower will be separated from the building by a covered porch on 2- sides. The building will contain a main auditorium and a smaller classroom annex. A drop-off area will be directly in front of the main entrance with a parking area and access to the camping located behind the main entrance so as to not distract from the identity the church has with the highway and the surrounding community. An entrance sign for the church should be located close to the main entrance. Pedestrian walkways will be provided to the main campus, to the lake for baptismal purposes and to camping. The camping area will have one-way vehicular circulation through it; with access to the parking for the picnic shelter and the church. A control gate will be located at the

-80-
main entrance to the camping near the church to control access to camping when it won't be used. An area for primitive camping will be provided in the lower left hand corner of the master plan in an existing woodland. Service access to this area needs to be provided; and parking is in the lot for the picnic shelter. The picnic area is provided between the baseball field and the lake on an upland area. This area is separated from the camping by the parking area and the picnic shelter, (see Fig. M-3). The multi-use field which is large enough to accommodate a baseball and football or soccer field, is located between the church and the picnic area. The land surrounding the playing field is mounded to provide seating possibilities and they are separated to try to formalize the walk to the baptismal area from the church. The amphitheater, (see Fig. M-4), is oriented away from the sun and towards a grove of spruce trees with a spruce screen behind it; between the amphitheater and the swimming is a smaller area that can be used for outdoor gatherings and a bathhouse for the beach that can also serve as a lookout. The nature trail hasn't been dealt with in more than a general manner because of the need for a detailed survey of the natural areas. A figure eight trail system is shown with access to the primitive camping off the trail and connector paths to the campus, the camping and across the dan to the amphitheater, (see Fig. M-3). In addition to the existing woodland and the fields; areas for a woodland succession and meadow succession; as well as an area used for agricultural experimentation will be added for greater interest in the trail.
Campus Master Plan- The major themes developed in the campus master plan, (see Fig. M-2), was the quadrangle atmosphere and formality, while retaining a certain amount of the rural character. In the development of the quadrangle building masses and vegetation screens were used to enclose the central campus area. Also, vegetation canopies and walkways were used to help define the spaces. The proposed dining hall was the most important element in the creation of the quadrangle, (see Fig. M-7). It encloses the side between the girls dormitory and the indoor recreation building. There is a main entrance with a covered and a limited amount of benches for seating. There is a side entrance providing more direct access to the indoor recreation and the shuffleboard and horseshoe playing area. Between these two buildings is a pleasant walk through a space containing fieldstone walks, mounding and some fieldstone retaining walls for seating, around the shuffleboard courts is a small number of benches. The walk through space turns into a grassy area with a large amount of screening close to the highway. This is a nice space for sitting and relaxing. The campus drop-off is located between the indoor recreation building, (formerly the cafeteria and music building), and an existing spruce grove. In this spot the drop-off definite and helps enclose that particular edge of the quadrangle, (see Fig. M-6). The drop-off needs to be large enough to turn school buses around. The main entrance to the campus is flanked by two light posts which connect to entrance signs on both sides of the entrance drive. This whole entrance development is unified by using
railroad tie construction. Off this main drive is a secondary drive which contains the main campus parking lot between the class building and the proposed administration building (presently staff apartments). This secondary drive connects to the church parking area and also served as bus parking and service for the storage building. The front of the storage building is flush with the same side of the classroom building; there is a covered walkway between the two buildings. This building placement and the covered walkway help separate the more pedestrian areas from the vehicular emphasis in front of the buildings. The paved recreation area which consists of tennis and basketball is located directly to the left of the gymnasium. This paved facility is located on a high point of land. There is a large amount of green space connecting this area with the grassed fields. The jogging trail at this point wraps around the tennis and basketball courts and continues on to circle the football and baseball fields. The faculty/staff housing area is designed in the configuration shown to help unify the entire housing area and to help formalize the link to the campus area. Parking is centrally located and equally convenient to all the homes. The faculty/staff houses that are foreseen are modular homes that have exterior wood paneling, with a covered privacy area for each modular home. Perspectives of the major entrances to the dormitories and the classroom building are shown in Figures W-5, 8 and 9. The planting intent is shown in Figure W-1. Figure W-2 shows a preliminary grading plan for the campus.
1. VIEW LOOKING TOWARDS MAIN ENTRANCE OF CLASSROOM BUILDING. SHOWING OVERHEAD ARBORETS, PLANTING & SEATING WALLS.

FIG. M-5
2: View looking towards Indoor Recreation Building & Campus drop-off to the right. Shuffleboard & Horseshoe courts are to left of the building.

FIG. M-6
3. View looking towards main entrance of proposed dining hall.

Fig. M-7
For Boys' Dorm, showing outdoor patio & porch.

Fig. H-8

Fig. H-9
PHASING PLAN

Building- The most pressing building expansion needs include the construction of a new dining hall and the church for the local congregation. Construction of the dining hall should go before the church because of the space that will be freed. The present dining hall (cafetorium) can be remodeled for indoor recreation after the church has been built. Other building needs include the construction of a facility for storage and vocational classrooms and housing for the faculty and staff. The sites for this housing should be developed as the need for additional housing increases. The most appropriate type of housing would probably be mobile and modular shell type homes and repossessions these can be remodeled and outfitted on the site. The storage and vocational education building should be developed after the indoor recreation building is completed.

Recreation- The main recreational needs include development of the field sports area and the paved recreation area. Specifically development of football, baseball, tennis, and basketball. The next priority lies in the indoor recreation building shuffleboard and horseshoe development should occur in the same phase as the indoor recreation. Informal recreation or areas for board games is closely related to construction of retaining walls and will be phased at that time. The jogging trail development parallels the phasing of connector walks for pedestrians.
Education- Of prime importance in bringing additional money to Spring Vale Academy is the development of the nature trail. The nature trail should be one of the first facilities phased because of its relative importance and the low cost associated with it. Development of the amphitheater should occur after the nature trail and about the same time as the surrounding facilities.

Vehicular Circulation- Of major importance concerning vehicular circulation is the development of new parking and the main access drives and drop off for the campus area. Parking for and connections to the church, storage/vocational education building will be built in conjunction with the construction of those buildings. The majority of service access will take place on pedestrian walkways, relating to vehicular circulation it is of minor significance.

Pedestrian Circulation- Necessary in the campus redevelopment is the construction for the major connector and the spine sidewalks before most of the building construction. The layout of the walks for the nature study area is also important before these can be completed a detailed survey of any unique or valuable features should be done. The development of segments of the jogging trail and the sitting areas around the campus is of minor significance.

Vegetation and New Planting- The first stage in needed planting is the development of natural areas along the nature
trail and planting in the camping areas. Of secondary importance is the planting of trees in the campus area, however planting which is close to new construction will need to wait until that particular construction is finished. The final stage of new planting will be that on berms and in planting beds.

Lake—Dredging of the lake should begin almost immediately, because the soil cuts in this area will be used for fill in practically all the other aspects of the project. Major construction along the lake, ie. the diving platform and the boat tie-ups should be done at the same time as the dredging. Further shore line development such as the beach will take place concurrently with the amphitheater and adjacent facilities.

Camping—When planting in the camping area is happening the campsites and roadway and utility lines should be staked and left clear until they are developed. Campsites should be developed in two or three phases as the need arises.