

ABSTRACT

The following is a document influenced by a traditional educational process, which is in contrast to my educational philosophy, i.e., in regards to my thesis project and my personal beliefs. I attempted to develop a high school based on the individual as the learner, in which he may reinforce his weak areas and strengthen his career goals. This is what I feel education should be, but presently the system forces students to build up school images or stereotype their professors. I took it upon myself to select a project that would challenge my weak areas in order to assure a learning experience during thesis year. My thesis project was an attempt to develop a strong philosophy and concept for the building environment to respond; this environment is more important than the structure itself. I set out to develop a learning environment in which the student feels is for him and not for the glory of the faculty, staff, or architect. My sole aim for this year was to learn, which I feel I accomplished quite well. The drawings were done to satisfy thesis requirements and do not reflect the total knowledge I gained. This document can not begin to represent the knowledge gained, and should not be looked upon as a final product.


Manford Dale Rudisel

"Senior High Learning Facility
for
Clay County"

"Thesis Program"

"College of Architecture and Planning"

"Ball State University"

Manford Dale Rudisel

October 1, 1971

TABLE OF CONTENTS

Introduction

1. Statement and Nature of the Project	3
2. Description of Context	6
3. Time as it Effects Economics, History and Growth	9
4. Character of Project in terms of Known Permanent Influence	12
5. Financing Methods and Considerations	13
6. Zoning	16
7. Building Functions	18
8. Areas Required	21
9. Philosophy and Restated Goals	31
10. Research Influences	34

Introduction

"The new school system is a sub-system of the social system and school design is a component of community design. School concerns have expanded to include broader community concerns and planning. Concurrently, this gives new importance to schools . . . to their locations, forms, relationships to the community. The new school facility is more and more the whole city with its infinite potential for varied experience."¹

"Any investigation of environmental relationships must therefore take into consideration the particular goals, the particular tasks that may be involved in each particular learning activity. The nature and the scope of their inter-reaction will have a direct effect on each particular learner, not only as an individual entity but also in so far as he himself becomes an operation factor within the particular environment."²

¹ Architectural Record, November 1970, p. 121.

² SER 3 Environmental Analysis, University of Michigan, 1965, p. 1/10.

Education for the most part has been an assembly line method for learning. "Academic disciplines are physically confined and intellectually defined by square rooms along straight corridors where the student receives, at precisely determined stages, elements of education (he may or may not be ready for or needed long ago). During this process he may find that he has never learned to think, at best he might have memorized some facts and learned some skills, many of which will not be of particular relevance to his adult life, all of which he might have learned with less waste of time and effort through a more realistic process of education."³

Hopefully the following program will serve as a starting point for an educational learning facility in which the individual can learn from the existing world. The community can guide the next generation to learn what present conditions are and what the future is likely to bring, so that the young can grow and control conditions to come.

³ Progressive Architecture, February 1971, p. 68.

1. Statement and Nature of the Project

This program for a new high school learning facility was developed to form a sound basis for evaluation through professional research of the population, economics, existing facilities and concepts, and land use as they affect education. The building should form a learning laboratory for all members of the community which offers a welcome atmosphere in which they may feel at home and comfortable with their children. The new facility should also provide physical facilities for education, facilities required for housing the school and community programs which must be determined as the function of the school in the community.

Clay County has four very small high schools with a total enrollment of 1200, each of these schools are overcrowded, obsolete and costly to remodel. At present, 29 percent of the students go on to college which leaves 71 percent looking for employment. These small schools do not have the proper facilities or a wide curriculum range. For crucial college preparatory or vocational training the students must depend on the secondary school. This is where they first

get exposed to the outside world (on the job or college) and they must be prepared to face it socially and educationally.

The new learning facility should make an active attempt to plan and use facilities jointly with other civic agencies-- the public library, the recreation or park department and the adult education department. School space can work for the community; a place to hold meetings, little theater groups, lectures, concerts, movies or enjoy relaxation at the gym or pool.

"Educators have been questioning the basic process of the school - the unassisted teacher and the unvarying classroom containing 30 and 35 students, the hierarchy of grades, the ill-equipped study hall, the understocked library that is too often locked and school space that proscribes change because it cannot shift nor can it be easily altered."⁴ Why not apply the basic human trait of curiosity to education, for one is intrinsically curious and wondering, and possesses an uncontrollable desire to understand his world. Why should the child give up his curiosity to memorize, then forget, then rememorize when he could learn the tools of society and put them to creative use?

⁴ Educational Facilities Laboratories, High Schools 1962, p. 13.

Some ultimate goals to strive for the individual or the community:

- to develop a knowledge and appreciation of the societal environment and how to participate in it;
- to develop the general skills that are preconditions for employment or college;
- to draw out and broaden individual capacity and talents;
- to provide self-confidence, self-respect and hopefully self-motivation (by challenging the learner it helps develop his mental discipline); for the best learner is one who concentrates on his intellectual tasks and refuses to be sidetracked by the physical or social environment;
- to use present technology thru multi-media devices, electronic retrieval systems for self-instruction or TV, films, and tapes for large or small groups;
- to provide flexible spaces to accommodate changes in education we as yet know nothing about (for one cannot predict precisely the future needs).

2. Description of Context*

Clay County is located in west central Indiana with an area of 364 square miles. The city of Brazil is the major city and is also the county seat. The city now has a population of 8,053 as compared to 1960 of 8,741. This is a 7.9 percent decrease in population while the county only decreased 1.1 percent. Major decreases occur in the northwestern part of the county. The rest of the county is mostly filled with scattered small towns ranging from 50 to 900 in size, various farms and many lakes and wooded areas with idle and wasted lands left from strip mining.

Public service of Indiana will provide adequate gas and electrical service for the new high school. Clay County has a sewage treatment plant located a few miles south of Brazil which would be adequate for sewer service.

The land surface is slightly rolling, a somewhat dissected till plain. The nearly flat upland areas are broad and rather extensive except where dissection by present

* A more concise analysis will be done in a site selection and site analysis study later.

streams is somewhat more advanced (as in the northeastern part of the county). The altitude of the land surface ranges from slightly less than 520 feet above mean sea level in the Raccoon Creek valley up to 850 feet above in the northeast corner of the county. Maximum local land relief in the county of 140 feet with an average relief of 70 feet per square mile.

Clay County soils are primarily silt loams and clays which have a good water holding capacity but are susceptible to destructive erosion. Long leaching has developed a soil with acidity and moderate to low available fertility (which limit soil productivity.) Calcareous till may be found at 10 feet while coal measuring shales and sandstones at 15-25 feet below the surface.

Native vegetation for Clay County is as follows: pin oaks, sweet gums, beech-maples and oak-hickories. Present land use consists of 22 percent corn and soybeans, 13 percent small grains, 12 percent hays, 24 percent pastures, 9 percent idle and waste and 20 percent timber and miscellaneous.

A child's learning environment consists not only of the school classroom or the intra-school community, but also includes the home, the neighborhood and the larger society.

Clay County has an average median income level of \$5,453

which places the people into a low socio-economic class.

The socio-economic class is an acting factor in the child's performance in education, a low-class individual will dedicate less utilization of their abilities to academic achievement than one from a high class. Their performance may be a result of lack of material resources at home, parents' values on education or resistance to the society. Parental support is less important to a child in high school than one in elementary school, but this support on a child's social efforts clearly has an impact on his performance.

3. Time as it Affects Economics, History and Growth

Today's rapid developments in design and technology mean a more rapid rate of building obsolescence. Philosophies, population, educational requirements and technology are constant forces that a new building should respond to. If a new educational facility can't respond to these changes, the building will become obsolete and therefore uneconomical or unfeasible to revitalize.

A high initial building cost may be required to reduce upkeep and allow building changes. This initial cost can be offset later by the savings on maintenance or installation of new building components. The demands of economy are increasingly forcing the designer to allow for future changes in design and construction.

Designing with economy in mind can work for the designer. When a building is extremely flexible, this would take some pressure off the design phase. It is not necessary to consider every last detail of the floor plan arrangement because if it does not work out as expected, it will be quite easy to change; that is, if the partition arrangement does not

affect the structure, mechanical or ceiling systems. The final partition modifications can be determined almost any-time before occupancy or afterwards.

Existing landmarks in Clay County are the remains of the strip mining era which consists of infinite lake areas, several thousand acres of wasted, idle and extremely eroded land. Other areas are very nice wooded and lake areas which were developed from strip mine areas. Late 19th Century Victorian architecture of the central business district is seriously threatened by obsolescence and neglect.

Brazil, a city whose birth began in 1843, was a stage-coach wagon stop on the Cumberland Road. In 1852 the first deposits of black coals and clays were discovered along out-croppings, which grew into a fabulous black coal industry. With the decline of the coal industry, clay products emerged at the turn of the century from brick to structural clay tile products. The industry grew to its present state with 13 plants based on local clay products.

Potential for growth of the new high school may never come into reality unless educational philosophies change. The high school population in ten years will decline (speculation from 1970 census reports for Clay County) which will

result in a contraction of space instead of expansion. The potential for growth can still be developed by the needs of reeducation due to the changing times and technology; for one is constantly developing human entity through learning and unlearning or relearning. Thus, the learner (the community) himself contains a dimension of time as a factor that finds expression in continuing growth and change.

4. Character of Project in Terms of Known Permanent Influence

The school must be planned and designed to be functional and aesthetically pleasing and in harmony with the environmental goals of the community. The need for rental spaces for lectures or meetings could be met by renting out the auditorium or classrooms. The natatorium, gymnasium or library could be used for recreation and relaxation for the community. Adult education or additional vocational training after high school can create a desire for further learning.

Since it is uneconomical to build more than one new high school (lack of tax funds, low population) in Clay County, busing is a major negative factor to overcome. One school would be less accessible (not in walking distance for the majority). Clay County does not have a regular public transportation system. In addition to the busing problem, 50 percent of the county's population oppose one school but only 8 percent are against it because of the busing problem. The community is worried about increased taxes and the one school becoming too large and insufficient. There are many ways to finance a school other than increasing taxes and one school does not have to duplicate facilities and staff.

5. Financing Methods and Considerations

A suburban area, such as Clay County, does not have a large tax base as a concentrated metropolitan area. Only in rare cases is it possible to support an adequate school system through local resources where the majority of the tax base is limited to residential property. Clay County is primarily a residential area and also has several thousand acres of idle and wasted land left from strip mining which has little taxable value.

There are several methods in which schools may be financed in Indiana. The major methods are usually in the form of tax levies or bond issues. Taxes are levied on property through general obligation bonds or cumulative building funds. Bonds are usually issued through public holding corporations (not for profit) or private holding corporations (for profit). Other ways are common school loans, veterans memorial construction funds, general funds and federal grants.

After interviewing Richard W. Morrison (Director of the Division Schoolhouse Planning for Indiana) about the qualifications for financing a high school for Clay County, it was

agreed that a combination of cumulative building funds and private holding corporations would probably be used.* Cumulative building funds for Clay County are generated at a rate of \$250,000 per year (based on a maximum of \$1.25 per hundred dollars of taxable property). Bond issues would be issued from a private holding company at a rate of 6 percent per annum for a maximum of thirty years. The school corporation would lease the facilities on a long-term basis and assume ownership for a token payment.

When considering financing, we must consider construction implications. We must not only consider the economy of the school, but also the usable life of the building. If the new high school is financed on a thirty year term basis, it would be ironic to have the building become obsolete before that period. The new building must be able to adapt or change as the needs change.

Clay County has four high schools at present, which are obsolete, overcrowded and too costly to remodel. Presently, there is a need for facilities to accommodate 1200 students. Clay County which lacks financial means to build needed schools and is without enough pupils to make several schools

* A more concise analysis will be done in a feasibility study later.

feasible, will find it both better for the children and more economical for the taxpayer to cooperate with adjoining school districts. Several schools would mean duplicating costly facilities and staff which wouldn't be economical for Clay County.

The land values in Clay County vary from \$450 to \$1000 per acre depending on location or value for building or farming. Farm land is usually valued at \$500 per acre while a lot in the city could be up to \$1000. Idle and wasted land left over from strip mining has an unestimated lower value.

6. Zoning

A new high school for 1200 students by code requires a minimum site area of 21 acres (12 acres and 1 acre per 100 students over 300). Minimum setbacks of 30 feet shall be maintained from adjacent property lines and from other buildings on the site. Eighty-five feet is a minimum distance a school can be located from a filling station or gasoline storage area. A safe sight distance of 500 feet must be maintained from entry and exit from school to public roads.

Brazil zoning ordinances have jurisdiction two miles from the city limits, no county zoning exists. The city of Brazil is zoned as follows: the central business district (CBD) is general business, south and north of the CBD is open industrial and the remaining is residential.

Governing codes for Clay County are the city of Brazil code which is a composite of Indiana's and the Administrative Building Council Codes which are as follows:

- Building Rules and Regulations, Vol. 1, 1969;
- School Construction Rules and Regulations, Vol. V, 1967;

- Heating and Ventilating and Air Conditioning Rules and Regulations, Vol. IV, 1969;
- Plumbing Rules and Regulations, Vol. III

Height limitations are based on the construction types defined in the ABC Building Rules and Regulations. Type I construction has an unlimited height limitation, types II and III are limited to two stories while types IV and V are limited to one story. The code stipulates that type I construction must be used to obtain the required square foot for a high school.

A zoning variance for a new high school would be easy to obtain for such a public building provided the State of Indiana would approve the location.

7. Building Functions

Instead of a row of conventional classrooms which can be divided into unusual spaces, there would be only three kinds of classroom spaces: large group seminar; individual study which would be grouped in close relation to each other and in close relation to much more elaborately planned; team offices and workrooms. There would be considerably more space devoted to individual project work. Large spaces such as the auditorium would be clustered into three or four lecture halls for a capacity of 450-1000 for assemblies or community meetings. A full attempt shall be made to strive for multi-purpose use throughout the building.

There shall be several public functions incorporated throughout the facility such as (1) basic and general adult and vocational education services that are tailored to the needs of the community at varied levels of educational attainment who need or want to further develop skills and/or broaden their understandings; (2) community services and cultural activity programs that are designed to further their understanding of group or community problems; (3) to provide

information and aid to the individual and his parents to permit better choice of school program and of post high school opportunities that reflect their capabilities.

"The school as a productive system involves the purposive organization of certain resources (inputs from society) for the modification of some raw material (students recruited on the basis of age) with the objective of producing an improved end product (the new society)."⁵ This basic function for learning has been used for many decades, it is hoped that learning shall now be looked upon as a continual development for the learner.

The large group seminar areas or common learning areas shall be made up in teams from various departments, one teaching station for English, social studies, science and fine arts. Each of these have special competences, by coordinating their abilities through group planning, each can contribute their particular talents most effectively to all the students in the unit. This concept is an attempt to link the various subjects for applications to the society.

Individual independent studies would be carried out in four types of spaces: conventional supervised study hall,

⁵ Secondary School Administration, Meredydd G. Hughes, 1970, p. 39.

less supervised materials centers, multi-media electronic retrieval carrel, and unsupervised project area. These spaces are assigned according to the degree of responsibility the students bring to independent study or the degree of complexity of the project. Supervision of these areas are not for order but to assist in obtaining information.

8. Areas Required

The following areas are places to start designing the high school, many of them may need to be expanded while others may be combined to obtain multi-purpose use.

Site Requirements

- Minimum area of 21 acres;
- Parking for 300 cars;
- Truck delivery and minor parking for kitchen, main receiving, auto mechanics and woodworking;
- two tennis courts;
- Quarter mile running track with football field and baseball diamond and bleachers for 2000 people;
- Two softball diamonds and one little league baseball diamond;
- Two playfields each 300 feet x 165 feet;
- Outdoor paved play area for two handball courts 50 feet x 55 feet and two basketball courts 42 feet x 74 feet;
- School bus unloading areas with canopies;
- Landscaping entire site;
- Putting green for golf;
- Practice areas for drivers education and parking for cars;
- Nature study area.

Space Requirements

<u>Large Group or Group Reaction Areas</u>	<u>8,810 s.f.</u>
1 room seating at least 250	3,400
1 room seating at least 150	2,400
1 room seating at least 75	1,260
1 room seating at least 50	1,000
5 storage areas	750

Small Group or Group Interaction Areas 4,500 s.f.

20 rooms with 15 people each 275

Art* 2 32 4,250 s.f.

Dept. Office 250
Conf. 200
Lab 2,000
2 storage rooms 500
Exhibition gallery 800
2 private workshops 300
teacher preparation 200

Business Ed 6 111 6,040 s.f.

Typewriter lab (36) 1,440
Machines resource center 1,800
(45)
Resource center (30) 1,200
Dept. Office 250
Library-conf. room 300
Storage 250
Teacher stations (6) 600
Teacher preparation 200

Drivers Ed. 3 20
with Health and Safety 2 14 2,800 s.f.

Simulator room (12) 750
Storage 300
Resource area
Indiv. carrels (15) 600
Small group (5-6) 250
Conf. (10-15) 300
Staff work area 200
Teacher stations (4) 400

English 10 102 5,200 s.f.

Resource area (40) 1,600
Study carrels (20)
Filmstrip view (5)

* Art Department with 2 teacher stations, 32 student stations, and 4,250 total s.f.

English (con't.)

Tapes and records (10)	
Tables (20)	
Dept. Office	250
Teacher stations (5)	500
2 Conf. (sound proof)	500
Composition lab (30)	750
Typing lab (12)	400
Reading lab (20)	500
12 carrels w/reading pacers	
8 tables	
Teacher workroom	300
Teacher preparation	200
Storage	200

Foreign Language 5 53 4,660 s.f.

Group action lab (27)	1,080
4 deck consoles	
Resource center (26)	1,040
Electronic stations (9)	
Dry study carrels (12)	
Wet study carrels (5)	
Teacher stations (5)	500
Dept. Office	250
Workroom	300
Offices (2)	300
Conf. (4 people) (3)	540
Large conf. (10-12 people)	250
Storage	200
Teacher preparation	200

Home Economics 2 27 3,350 s.f.

Homemaking (27)	
Clothing lab (7)	280
Food lab (4)	520
Home care (2)	300
Carrels (4)	200
Tables (10)	400
Fitting area	100
Nursery area	200
Family living	350
Conf. for 15	250

Home Economics (con't.)

Dept. Office	250
Workroom	300
Teacher preparation	200

Industrial Arts 9 112 24,920 s.f.

Drafting (19) Lab B	
Machine shop (13) Lab A	
Electricity and appliance repair (7) B	
Woodworking (24) C	
Welding (10) A	
Internal combustion engines (11) A	
Craft (13) C	
Graphic Arts (6) B	
Distributive Ed. (7) D	
Agriculture (2) D	
*Laboratory A	9,100
Conf.	200
Teaching storage (3)	900
Teaching stations (3)	300
Workroom	200
Teacher preparation	200
*Laboratory B	3,600
Teaching stations (3)	300
Storage (3)	900
Workroom	200
Teacher preparation	200
Conf.	200
*Laboratory C	4,500
Teaching stations (2)	200
Workroom	200
Teacher preparation	200
Storage (2)	600
Conf.	200
*Laboratory D	750
Teaching stations (2)	200
Workroom/conf.	200
Teacher preparation	200
Storage (2)	300
*Resource Center (8)	320
Dept. Office	250
Central supply	500

Mathematics 6 72 5,300 s.f.

2 dept. office	400
Lab	1,200
Storage	200
Action learning (60)	2,400
8 carrels-desk calculators	
8 teaching machines	
8 filmstrip viewing	
12 dry carrels	
24 small groups (2-4) at tables	
Teacher stations (6)	600
Workroom for staff	300
Conf./workroom	200

Music 2 40 11,300 s.f.

Music rehearsal	4,500
5 practice rooms	500
Music class	900
Chorus	2,500
4 storage for equipment	1,200
2 office	300
Conf.	200
Music librarys (must not be combined)	
choral	500
instrument	500
Broadcast control room	200

Physical Ed. 4 60 35,280 s.f.

Gymnasium	20,000
Natatorium	5,000
Mat Room	1,500
2 locker-shower rooms	2,000
Training	360
4 offices	600
Treatment room	250
2 storage	400
Storage	320
Concessions/w/storage	150

Physical Ed (con't.)

Main athletic storage	800
extensively shelved	
Coaches dressing (5-10)	500
Lobby and trophy display	600
Coat check	100
Cust. storage	100
Chair and gen. stor.	800
Weight room	1,000
Lounge off lobby	500

Science 6 81 11,450 s.f.

Chemistry lab (12)	750
Biology lab (25)	1,200
Adv. biology lab (8)	400
Physical science lab (8)	400
Physics (10)	500
Adv. physics (3)	150
Resource center (15)	600
Dept. office	250
Lab-Conf.	300
Teacher stations (6)	600
A/v room	750
6 storage	1,200
Teacher preparation	300
Student workroom	500
Greenhouse	600
Animal room	150
2 conf.	300
Plantetorium	1,000
Observatory	1,000
Aquarium (exhibit)	500

Social Studies 8 80 4,800 s.f.

Resource Center (80)	3,200
20 carrels wet (5 TV)	
4 make-up tests	
5 comfortable chairs	
6 periodicals	
6 references	
39 scattered carrels and tables	

Social Studies (con't.)

workroom (student)	300
2 teachers stations	250
Workroom storage	300
Teachers preparations	300
Conf.	250

Auditorium 17,000 s.f.

Seating	10,000
36' dp. stage	1,800
Off stage areas	1,000
2 storage areas	500
Orchestra pit	1,000
Green room	300
Foyer	400
Stagecraft shop	2,000

Administration 4,175 s.f.

General office	
3 sec.	300
Waiting	100
Cloak Closet	25
Storage	150
Workroom	300
Vault	60
M&W restrooms	120
Principal's office	250
Large conf.	400
2 assist. principals	300
Public address control	200
Offices for deans	
2 offices	400
Recep. and waiting	350
Small conf.	200
Stor.	120
Bookstore	900

Guidance 8 2,420 s.f.

7 offices	1,050
1 recep. and waiting	350

Guidance (con't.)

1 browsing	300
1 conf.	200
2 testing rooms	120
1 records room	200
storage	200

Medical Suite 1,405 s.f.

Examining room	500
3 dressing	75
2 toilet areas	160
2 sick rooms	200
Office	150
Stor. (rec. and Mat.)	100
Coat closet	20
Testing room	200

Dramatics and Speech Lab 2,200 s.f.

Lab with stage	2,200
----------------	-------

Publications Center 1,750 s.f.

Workroom (30)	1,000
Darkroom	400
Office	150
Conf.	200

Dining, Commons and Faculty 13,300 s.f.

Dining and commons	12,000
Faculty lounge area	1,300

Kitchen Area and Supports 4,230 s.f.

Kitchen	3,500
Receiving w/dock	400
Office	150
Safe	60
Toilets	120

Library 14,650 s.f.

Bookstacks, files, etc.	12,000
Off.	150
A/V aid	500
4 reading areas	2,000

Instructional Material Center 6,400 s.f.

Student learning	1,000
25 programmed teaching machines	
Motion picture and TV simultaneous viewing	
5 groups (12-15)	2,500
A/V support center	
Production	1,000
Storage	200
Maintenance Shop	400
Film storage	200
Recep. and lobby	300
Admin. Off.	150
Film preview	250
Multi-media projection	400

Maintenance Area 4,000 s.f.

Truck dock, supt. off.
2 work shops
storage area

Sub-total 202,180 s.f.

Toilets, mech. circulation (add 30%) 60,600 s.f.

TOTAL AREA 262,780 s.f.

Student Stations

<u>100% utilization</u>	<u>1629</u>
Action learning	804
Interaction	300
Group reaction	525

<u>75% utilization</u>		<u>1221</u>
Action learning	603	
Interaction	225	
Group reaction	392	
<u>Teaching Stations</u>		<u>65</u>

"Philosophy and Restated Goals"

"Thesis Program"

"College of Architecture and Planning"

"Ball State University"

Manford Dale Rudisel

December 17, 1971

Educational Philosophy

A new educational facility should provide physical facilities for education; facilities required for housing the school and community programs which must be determined as the function of the school in the community. A school system should be looked upon as a sub-system of the social system which means school design is a component of the community or everyday life. The facility should therefore form a learning laboratory for all members of the community which offers a relaxed atmosphere in which they may feel at home and comfortable with their children.

The secondary school is the last step before the students face the outside world (the job, college, armed services), and they must be prepared for it socially and educationally. The nature and the scope of their social interaction will have a direct effect on each particular learner, not only as an individual entity but also in so far as he himself becomes an operation factor within the particular environment. Part of their education should therefore provide a wide range of social interaction from large groups to the individual in order to form various social identities or relations.

The school in itself should provide systems that create motivations to learn. Why not apply the basic human trait of curiosity to education, for one is naturally curious and wondering and possesses an uncontrollable desire to understand his world. Students walking from one learning area to another could learn accidentally if they were exposed to other learning areas by visual or auditoral means, such as balconies viewing into areas or open walls. This type of learning could create self-motivation, self-confidence or self-respect for learning through human curiosity. So why should the child give up his curiosity to memorize then forget, then rememorize when he could learn the tools of society and put them to creative use?

Educational Objectives

The school should strive to (1) develop the general skills and social interactions which are preconditions for employment or college, (2) provide a place which has the unique ability to serve the talents of the individual, not just impart knowledge, (3) provide a desire to learn, a self-motivation.

Technological Objectives

The school should strive to (1) use present technology and provide for future technology through multi-media devices,

electronic retrieval systems for self-instruction or television, films and tapes for large or small groups, (2) provide flexible spaces to accommodate unpredicted changes in future education.

"Research Influences"

"Thesis Program"

"College of Architecture and Planning"

"Ball State University"

Manford Dale Rudisel

January 5, 1972

Educational Problems

"Schools today are designed to last longer than the educational ideas that created them."¹ Educational philosophies are temporary, they are subject to change as the need arises through changing technologies and social requirements. New building forms must be devised for growth and change because "today's freedom is tomorrow's confinement."

"No matter how much each generation spent on its schools, it always turned out the majority of people who were unfit for enlightenment by this process had to be discarded as unprepared for life in a man-made world."²

"Educators have been questioning the basic process of the school--the unassisted teacher and the unvarying classroom containing 30 and 35 students, the hierarchy of grades, the ill-equipped study hall, the understocked library that is too often locked and school space that prescribes change because it cannot shift nor can it be easily altered."³

Education for the most part has been an assembly-line method of education. "Academic disciplines are physically confined and intellectually defined by square rooms along straight corridors where the student receives, at precisely

determined stages, elements of education which he may or may not be ready for or needed long ago. During this process he may find that he has never learned to think; at best he might have memorized some facts and learned some skills, many of which will not be of particular relevance to his adult life--all of which he might have learned with less waste of time and effort through a more realistic process of education."⁴

"We can continue with the prison or we can set the conditions for a new era in which technology would be used to make society more simple and transparent, so that all men can once again know the facts and use the tools that shape their lives."⁵

Restrictions society has placed on itself is another problem; these restrictions are involved with access to the knowledge and tools created by society. "They live in an environment in which tools that can be used for creative purposes have become luxuries; an environment in which channels of communication serve a few to talk to many."⁶

"When knowledge became a commodity, it acquired the protections of private property; and thus a principle designed to guard personal intimacy became a rationale for declaring facts off limits for people without the proper credentials. In schools, teachers keep knowledge to themselves unless it fits into the day's program. The media inform but exclude those things they regard as unfit to print. Information is

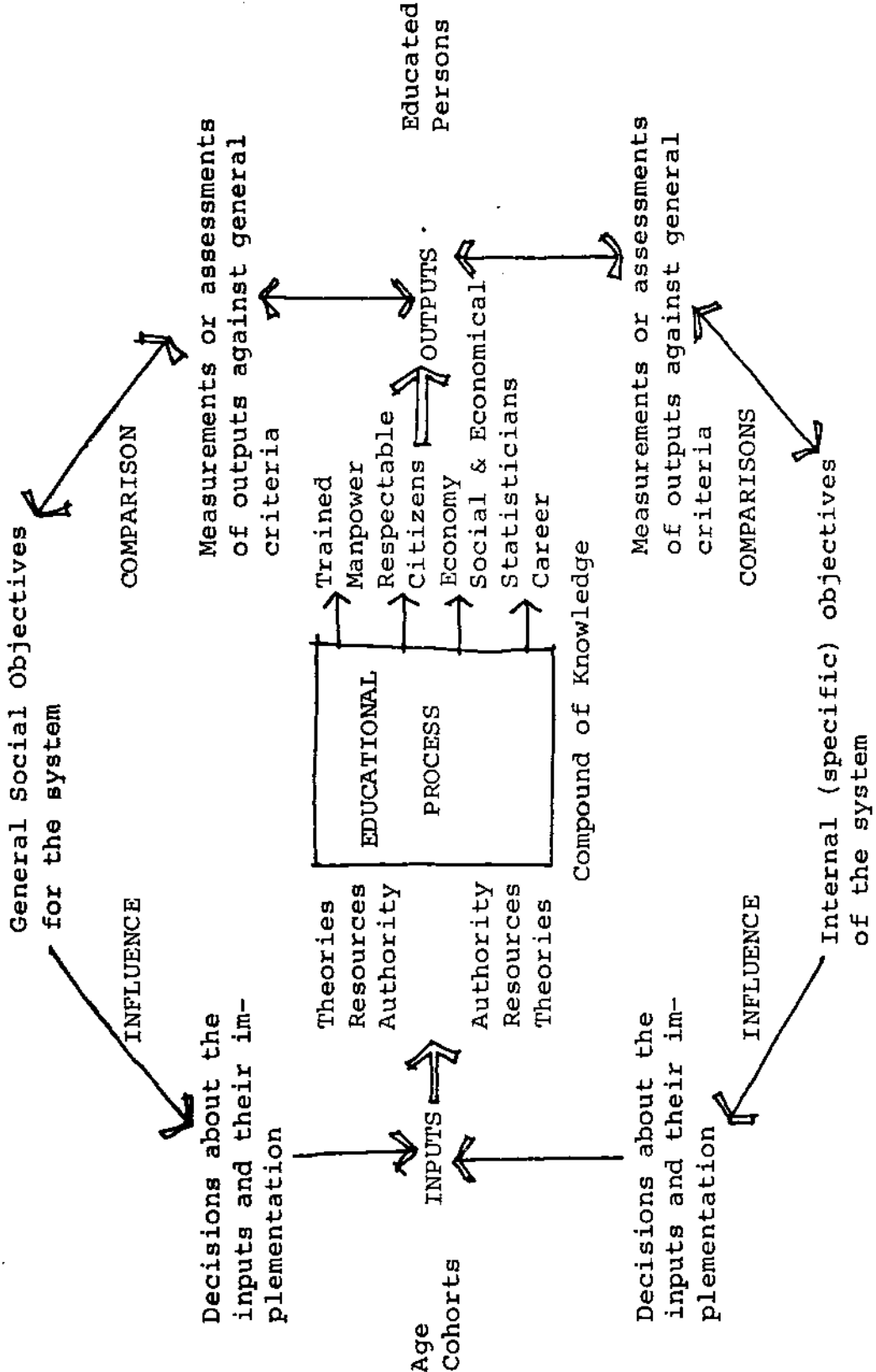
locked into special languages and specialized teachers live off its retranslation. Neither the political nor the professional structure of our societies, East and West, could withstand the elimination of the power to keep entire classes of people from facts that could serve them. The access to facts that I advocate goes far beyond truth in labeling. Access must be built into reality, while all we ask from advertising is a guarantee that it does not mislead. Access to reality constitutes a fundamental alternative in education to a system that only purports to teach about it."⁷

Academic Process

The traditional educational process can be expressed by "The school as a productive system involves the purposive organization of certain resources (mainly professional manpower) for the modification of some raw material (students recruited on the basis of age) with the objective of producing an improved end product (society)."⁸ We should re-evaluate the educational process and pattern it to the needs and goals of society in addition to educating society with facts. The needs and goals are endless--there are needs to develop self-sufficiency for individuals, talents and capacities or needs to function in society.

The educational process should strengthen community involvement because education is a major influence on shaping our society. "The school system is a sub-system of the social system and school design is a component of community design. School concerns have expanded to include broader community concerns and planning. Concurrently, this gives new importance to schools to their locations, forms, relationships to the community. The new school facility is more and more the whole city with its infinite potential for varied experience."⁹ In order to strengthen the educational process it must be capable of self-improvement through feedback from changing technologies and social goals. (Refer to the following diagram.)

The Social Academic Process



From "Secondary School Administration, A Management Approach," University College, Cardiff, edited by Meredydd G. Hughes, Pergamon Press, New York, 1970, p. 40.

Social Needs

"Any investigation of environmental relationships must take into account the particular goals, the particular tasks that may be involved in each particular learning activity. The nature and the scope of their inter-reaction will have a direct effect on each particular learner, not only as an individual entity but also in so far as he himself becomes an operational factor within the particular environment."¹⁰

A child's learning enhancement occurs when the child wants to grow, according to Abraham Maslow, psychologist, who said: "Growth occurs when the next step forward is more pleasing or more subjectively rewarding. It is a process that occurs naturally, without prodding or pushing, because every healthy child is intrinsically curious and wondering and possesses an insuitable desire to understand his world. Only the child knows when he is ready to take the next step toward growth and learning; if, as in many of our schools today, his chief expense of energy is self-defense against the environment, then growth obviously stops."¹¹

The students also need respect and desire to belong. A student or individual that is respected, liked, adequate and successful will develop a self-concept that facilitates learning (self-motivation). "Opportunities should be given to each child for sharing of resources which are valued by the group.

Attention is given to the kinds of feedback the teacher and other children give to the pupil on which he bases his judgment of self. The student must feel that his accomplishment means something to others (society)."¹²

There is also "a need for some restricted, closed-off areas where a child can go to be quiet and alone within a space that he can personalize as his own."¹³

"The educational program that would maximize its impact on the learner will need to give attention to the cultivation of a social climate which is supportive and to the diagnosis and remediation of situations in which social factors inhibit effective learning."¹⁴

Philosophies and Trends

"Knowledge today is not the acquisition of facts but the ability to think and retrieve facts."¹⁵ "Learning is viewed as a continuing process that extends over the entire life span of every individual as he seeks to improve or develop various aspects of his personality. He is a developing human entity, always learning or unlearning and relearning. Thus the learner himself contains a dimension of time, a factor that finds expression in continuous personal growth and change."¹⁶

"Education on the whole is evolving into an open-ended situation where one generation guides another generation to

learn what present conditions are and what the future is likely to be so that the young can grow and control conditions to come."¹⁷

There are several new directions in what school planning should be as suggested by Charles Brubaker of the Perkins and Will partnership. "Schools are no longer isolated; they should be part of society (community)." School concepts should relate community needs through utilizing existing community services and influences. Schools can find new forms and locations such as a high school at a community center or shopping center. Schools will find that independent study and individualized programs allow students to proceed on their own. Technical innovations in multi-media can allow this to work.¹⁸

Howard A. Patterson Jr. of SMS Architects says that "Schools should not be thought of as a container but as a sequence of interrelated events extending beyond the structure out into the site to expose the students to varied stimuli." (Outdoor seminars, science study areas.) Schools should also provide for adaptability to varied activities; careful attention should be given to environmental orientation, color coding and climate controls. Adequate and convenient circulation space is important to reduce congestion and provide pleasant, open educational space. He suggests that straight circulation corridors can be made interesting and educationally valuable

by devising a variety of views, spaces and activities.

Schools should also be adequately prepared for technological aids such as computers and electronic devices, audio-visual aids and other future technical developments.¹⁹

At present, there is a growing need to update today's schools which has developed various educational innovations. These innovations are concerned with curriculum content and available forms of curricular materials, pupil scheduling, new teaching roles with emphasis on team teaching and teacher availability to assist individual pupils, expansion and overhauling of work experience education, the use of teaching assistants, extensive use of new educational technology hardware in the learning process, preparation of pre-primary age children for a more rewarding school experience, school size and location.²⁰

Flexibility

Flexibility is the word associated with construction of schools for the future. "In new building planning we're at the point where educational specifications must be on a structural basis rather than on a room basis with thought that few, if any, permanent interior partitions should be contemplated." Buildings should include space and flexibility to accommodate new concepts of learning, new needs and new technology. Spa-

tial variety in a large school, variety of spaces combined with effective scheduling can provide options in the use of the facility which are a mode of flexibility--although some areas must be specialized, such as music, physical education, vocational labs and science labs.²¹

Flexibility has to do with three types of changes; immediate change, long-range change, and building expansions. Immediate change deals with the possibility to convert certain spaces immediately with an absolute minimum time and effort. Such changes occur during the course of the day. Long-range changability is concerned with rearranging of interior partitions in order to facilitate changes in the teaching program and the resulting redistribution of teachers, students, and equipment.²²

The concepts for expansion are associated with anticipating building growth. "The school building should be planned in such a way that increases in enrollments may be accomodated by an orderly expansion of facilities. By orderly we mean the campus must accomodate growth with a minimum of demolations, interruptions and cost and also the school must be a successful architectural and educational entity at each stage of development. Expansion is largely a matter of plan arrangement of the school by its architect and programming by the school districts."²³

SELECTED REFERENCES

1. Any of the Educational Facilities Laboratories Studies.
2. Architectural Record, July 1971, "New Trends in Audio-Visual Design," pp. 123-8.
3. Columbus Senior High School, the structure and the educational specifications by Mitchell/Giurgola Associates, Architects, Philadelphia, Pa., school in Columbus, Indiana.
4. "Education and Ecstasy," George B. Leonard, Delacorte Press, 1968, Society's effects on shaping schools.
5. "Guide for Planning Educational Facilities," by the Council of Educational Facilities Planners, Columbus, Ohio, September 1969, How to approach the design for a school.
6. Harmon, Darell B., "The Co-ordinated Classroom," published by American Seating Company, Michigan, deals with design criteria for light control in classrooms.
7. Progressive Architecture, April 1968, "The School Scene Change and More Change--New tools, Education's emerging technology, Building examples," pp. 129-214.
8. Progressive Architecture, February 1971, "New Trends and Concepts for Schools," pp. 67-109.
9. Progressive Architecture, October 1971, "Life Support Systems for a Dying Planet," pp. 68-125, designing for mechanical.

BIBLIOGRAPHICAL FOOTNOTES

1. Wilson, Forrest, "What Passes for Education Today?", Progressive Architecture, February 1971, p. 67.
2. Illich, Ivan, Saturday Review, June 19, 1971, p. 47.
3. Educational Facilities Laboratories, "High Schools," 1962, New York, p. 13.
4. "Closing Off the Open Plan," Progressive Architecture, February 1971, p. 68.
5. Saturday Review, op. cit.
6. Ibid., p. 48.
7. Ibid.
8. Hughes, Meredydd G., "Secondary School Administration, A Management Approach," University College, Cardiff, Pergamon Press, New York, 1970, p. 39.
9. "New Directions in School Planning," Architectural Record, November 1970, p. 121.
10. "SER 3 Environmental Analysis," University of Michigan, 1965, p. 1/10.
11. Progressive Architecture, February 1971, p. 68.
12. "SER 2 Environmental Evaluations," p. 177.
13. Progressive Architecture, February 1971, p. 69.
14. "SER 2 Environmental Evaluations," p. 178.
15. Rowan, Jan C., "The American Dreams," Progressive Architecture, April 1968, p. 129.
16. "SER 3 Environmental Analysis," p. 1/7.

17. Progressive Architecture, April 1968, p. 129.
18. Architectural Record, November 1970, p. 121.
19. Ibid., p. 123.
20. Council of Educational Facility Planners, "Guide for Planning Educational Facilities," Columbus, Ohio, September 1969, p. 12.
21. Educational Facilities Laboratories, "SCSD: The Project and the Schools," New York, 1967, p. 153.
22. Ibid., p. 36.
23. Ibid., p. 37.

"Site Location"

"College of Architecture and Planning"

"Ball State University"

Manford Dale Rudisel

October 13, 1971

TERRE HAUTE



INDIANAPOLIS

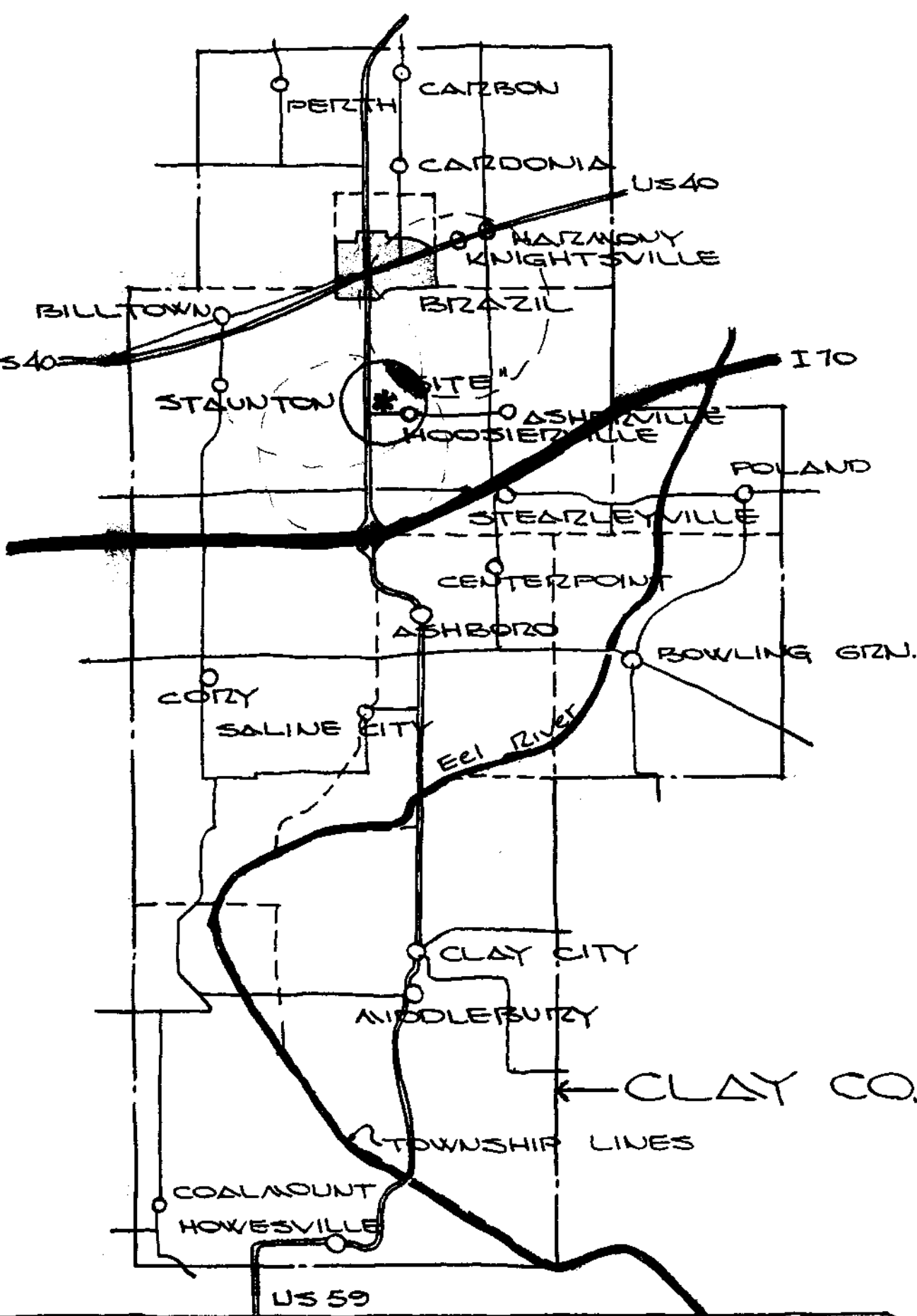


CLAY CO.

AREA LOCATION

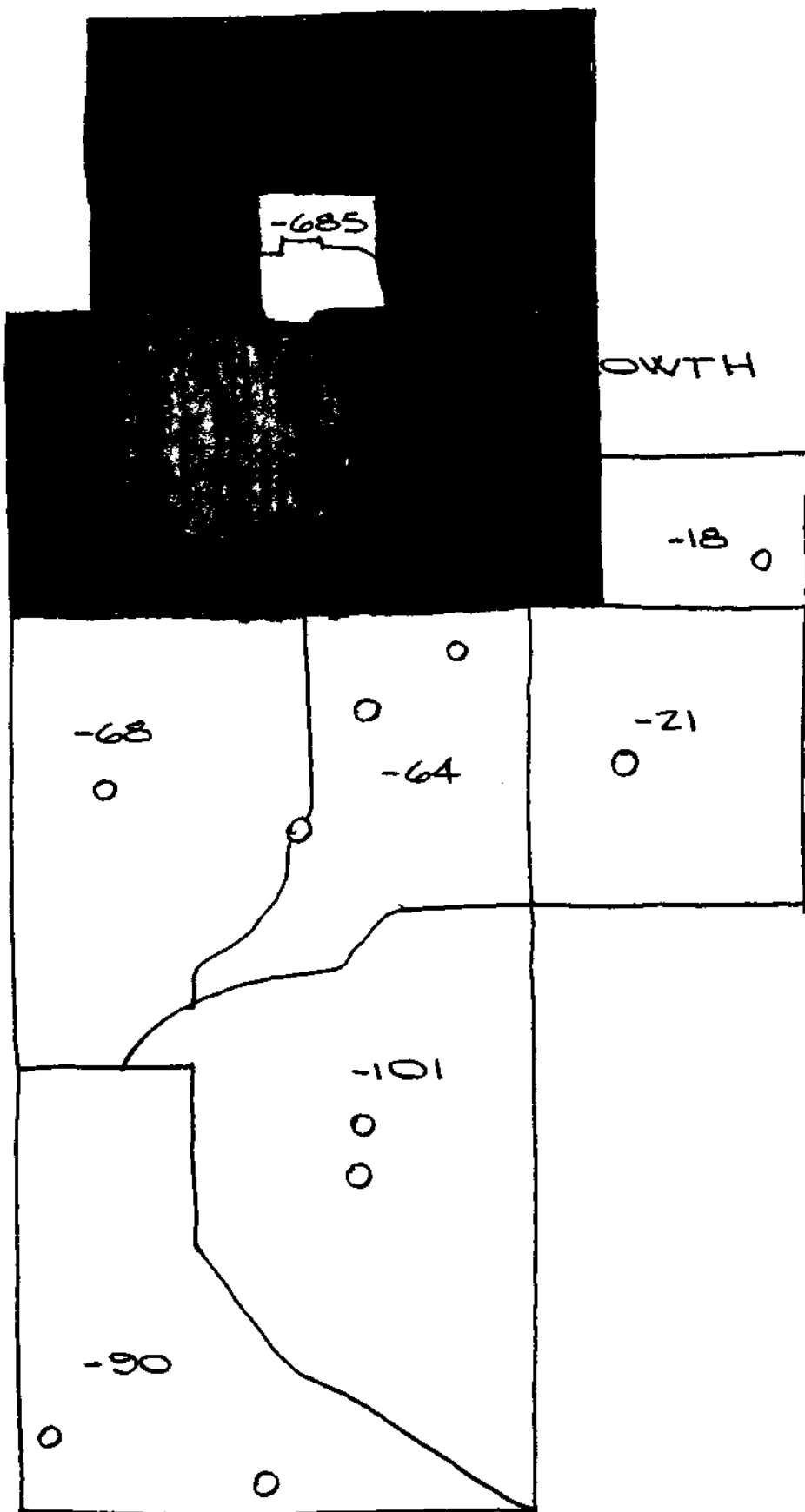
10 mi 30





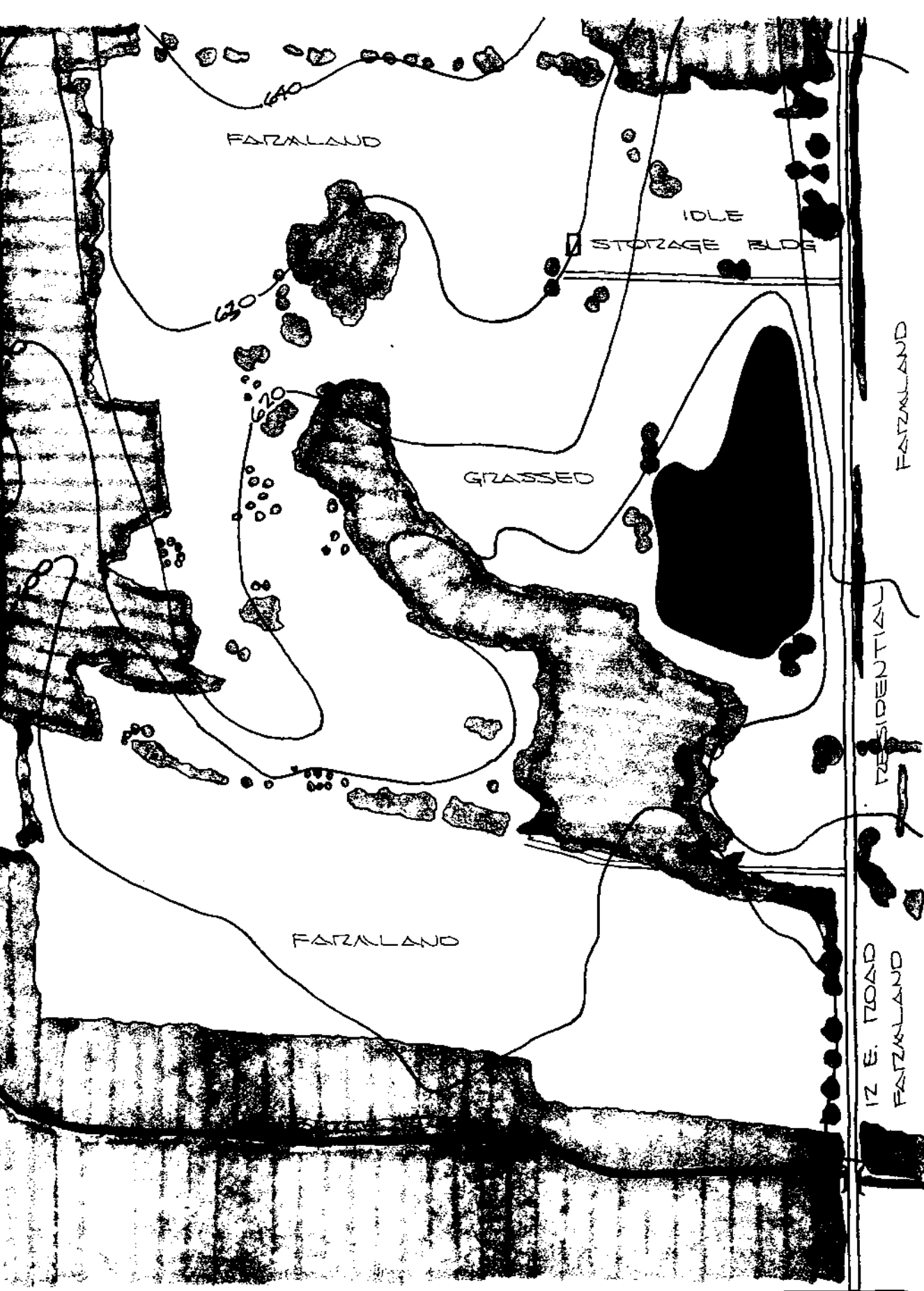
SITE LOCATION





POPULATION CHANGES 1960-1970. CLAY CO. 1 mi

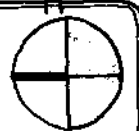




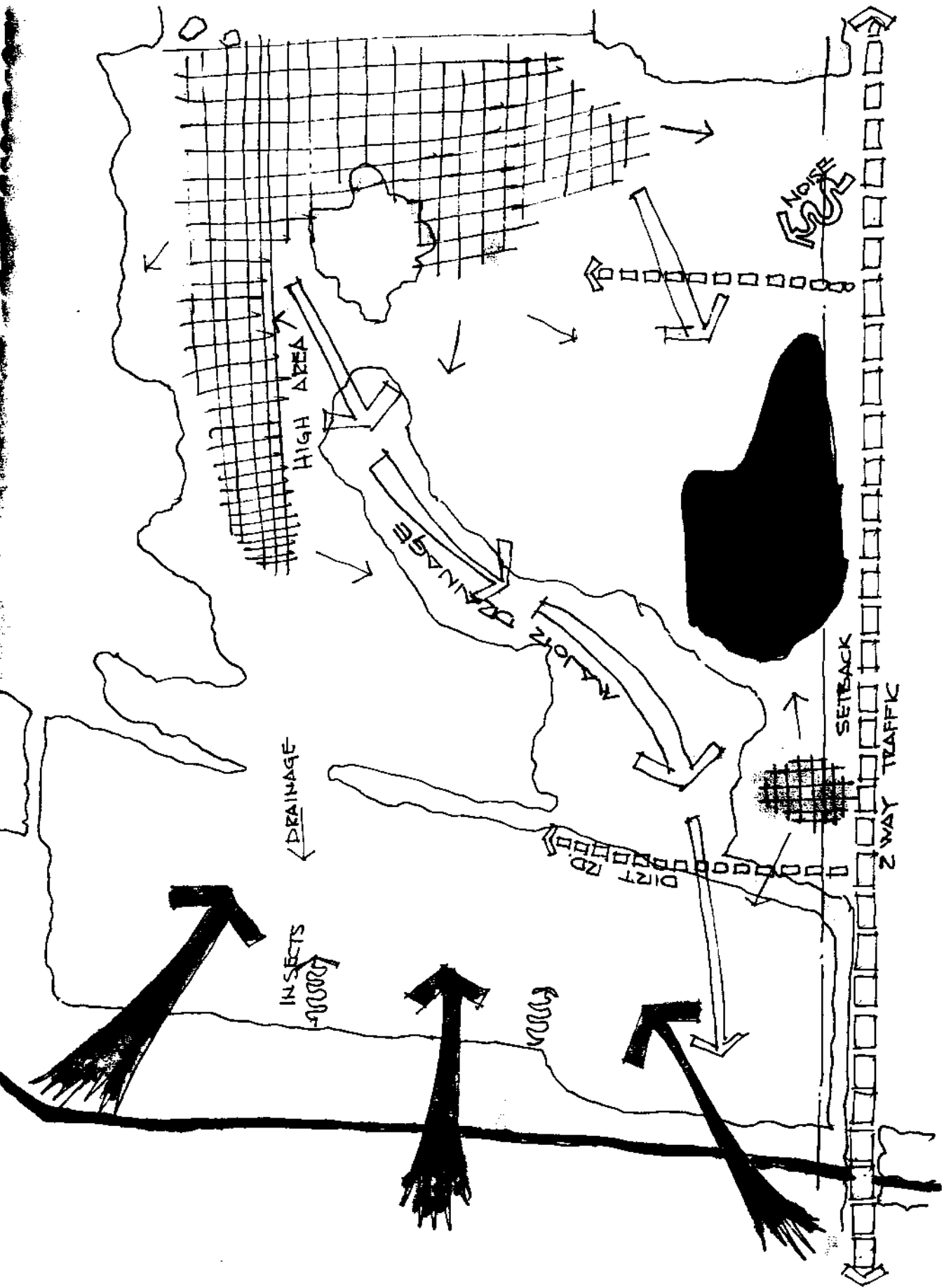
EXISTING SITE

100'

300'







SOILS

CALCAREOUS TILL AT 10'
COAL MEASURING SHALES &
SANDSTONES AT 15'-25' BELOW SURFACE

SILT LOAMS & CLAYS WITH
GOOD WATER HOLDING CAPACITY

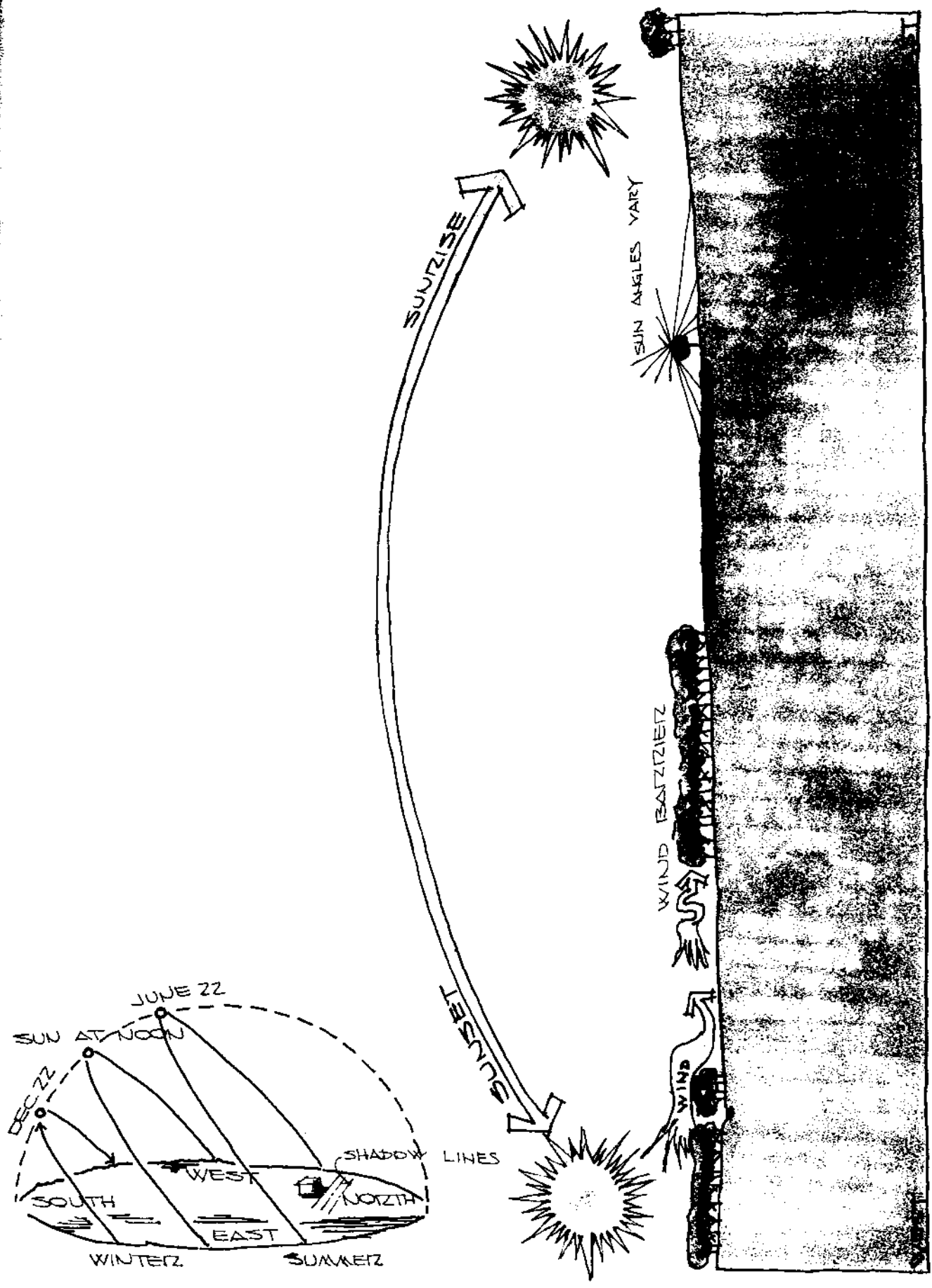
BIRCH CREEK

LAKE

100'

300'





SITE RESTRAINTS:

200'

