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BOZEMAN

A Comparative Analysis and Design of
Holiday Facilities

Part I
Undergraduate Thesis in Architecture

by

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Submitted to the School of Architecture
as partial fulfillment of the
requirements for the degree of
Bachelor of Architecture at
Montana State University

Bozeman, Montana
March, 1975

P378
K1325

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THE S I S S T A T E M E N T

The *"physical environmental factors" are important criteria in any design.

*By physical environmental factors, I mean all influences upon the site such as, climate, land, water, fauna, and flora. These will act as my variables.

M E T H O D

Establishment of fixed factors
(needs common to both designs)

Cataloging of my variables
(physical environmental factors)

S O L U T I O N

Designing of Holiday facilities in Hawaii and in Montana and comparing them through a classical approach.

MARKET ANALYSIS

Historically, the affluent sector of society has always traveled and will continue to travel. In the 60's, industries such as airlines and hotels experienced a phenomenal growth. The reason for this is that they aimed at the middle class market. However, because of rising costs and inflation, this sector of the market is experiencing a decline. These industries are financially strapped. Good examples are the small budget hotels in Hawaii, Big Sky, and Pan American Airways. Interestingly, the high rate hotels in Hawaii, San Francisco, and Los Angeles are having a high occupancy rate, i.e. Mauna Kea Hotel and Kahala Hilton in Hawaii. My market will be aimed at the higher rate market.

PROGRAM

The program is based on the needs of an 80 room holiday facility. The needs reflect only the minimum areas and I've assumed Hawaii's and Montana's requirements to be the same in order to establish a common basis for design.

ORGANIZATION

The organization chart shows conceptually the relationship that exists between the user i.e. employee and patron and the amenities to be provided in order to give a basis for circulation and organization.

ANATOMY

The anatomy diagram conceptualizes the physical relationship that the parts have to each other in that site, function and circulation relationships are determined.

PROGRAM

Room-80 @ 255 ft ² ea.	20,400	Bed, bath, closet, dresser, seating
Lobby	1,000	Writing desk, seating (20), telephone, toilet, travel desk, social director (1:50)
Front Desk	200	Writing counter, cashier, house phone, key, mail drop, safe, telegram, cigar/magazines
Entry	400	Porter station, change, ramp, telephone, porte-cochere (N.I.C.), luggage handling, schedules
Dining (20 ft ² /guest, 80 accommodations, 60% kitchen, 50% storage)	1,600	Cashier, salad bar, water station, kitchen, office, storage (china, liquor, food), toilet (1:25), dishwasher, freezer, chiller, telephone
Bar-30 persons @ 20 ft ² ea.	600	Bar, toilet (1:25), phone, band, dancing, storage, patio
Banquet/Conference 10 ft ² /person @ 80 seats	800	Storage (8%), server (20%), toilet (1:25), cloak room
Shop (store)	800	Display, storage, office, cash register, change room, counter
Office (1:46)	800	Toilet (1:25), lounge, supplies, storage, files, desks, (accounting, reservation, employee)
Shop (maintainance)	800	Office, supplies, storage, toilet, work area
Storage	800	Minimum, maximum security
Housekeeping	750	Office, linen, valet service, supplies, bath facilities, guest storage (1:40)
Employee-160	2,250	Dining (50 ft ²), bath (50 ft ²), lounge (150 ft ²) recreation (200 ft ²), quarters (18,000)
Security	40	Office, storage, mechanical
Mechanical	400/1,000	Water, sewage, hot water, office
TOTAL	31,890	(excluding exterior recreational facilities)

ACTIVITIES

Hawaii

Surfing

Fishing

Swimming

Hunting

Hiking

Horse back riding

Sightseeing

Skin diving

Golfing

Sailing

Hukilau

Luau

Water skiing

Montana

Skiing

Fishing

Swimming

Hunting

Hiking

Horse back riding

Sightseeing

Ice fishing

Golfing

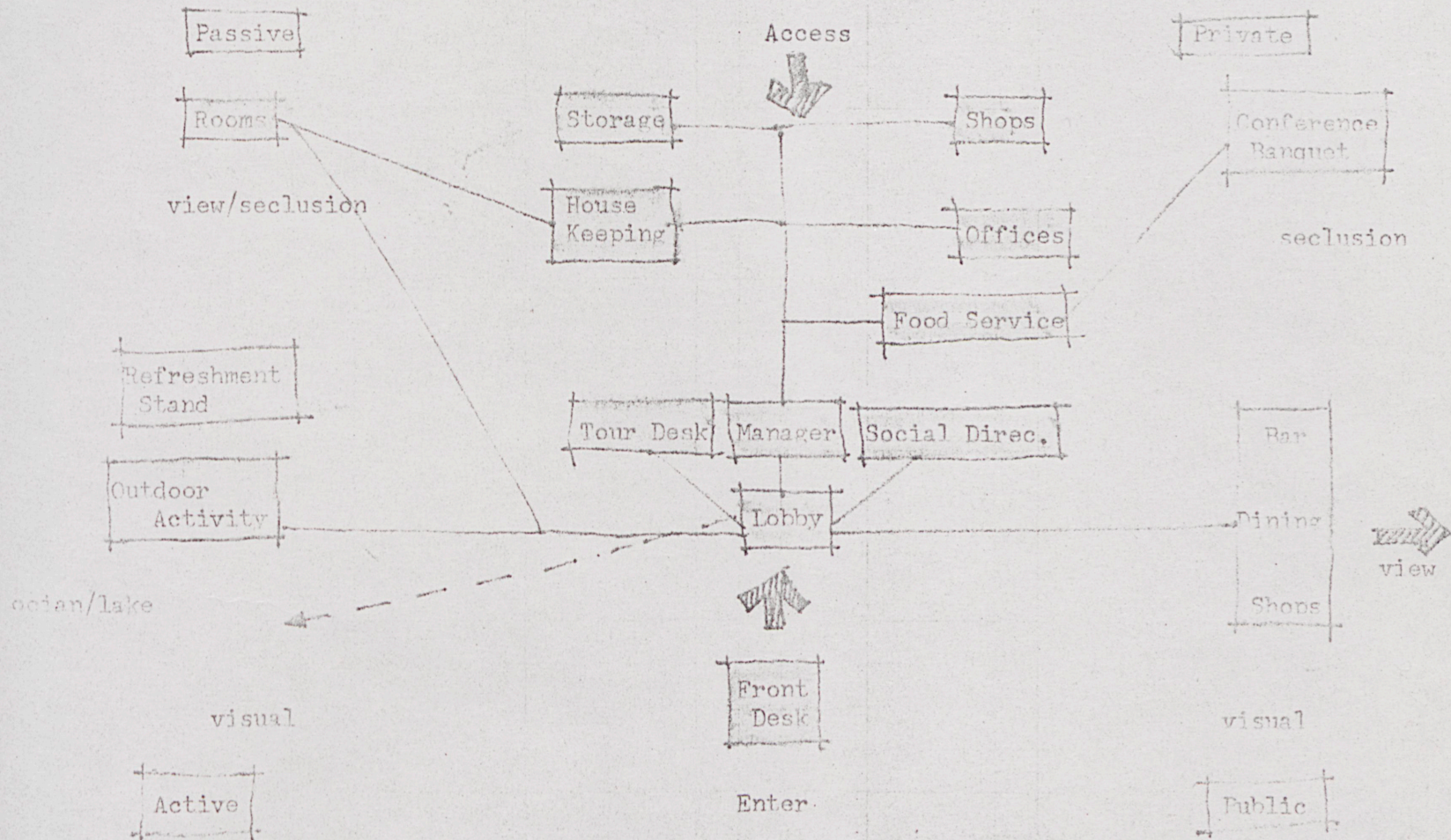
Boating

Round up

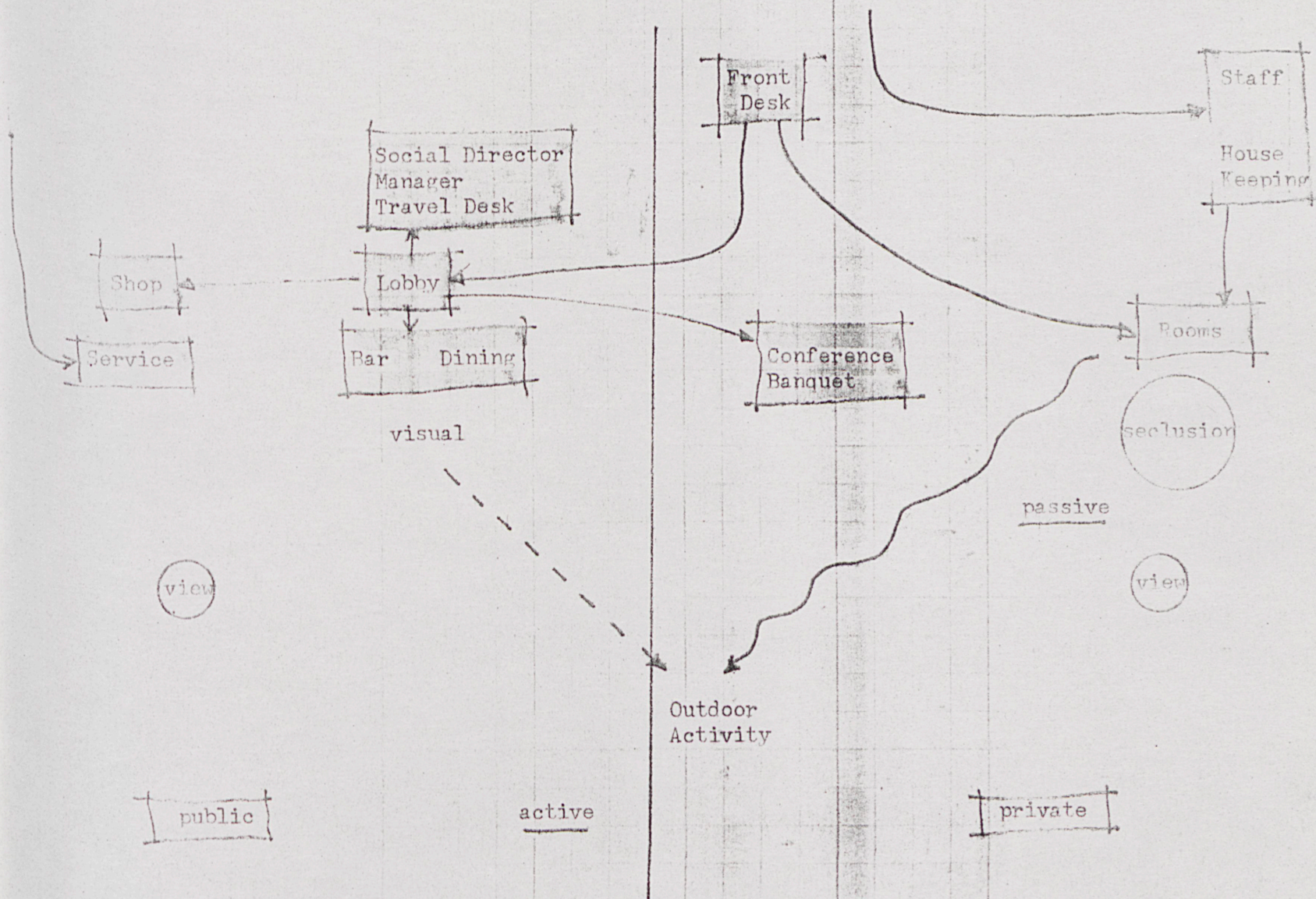
Cook out

Ice skating

ORGANIZATION

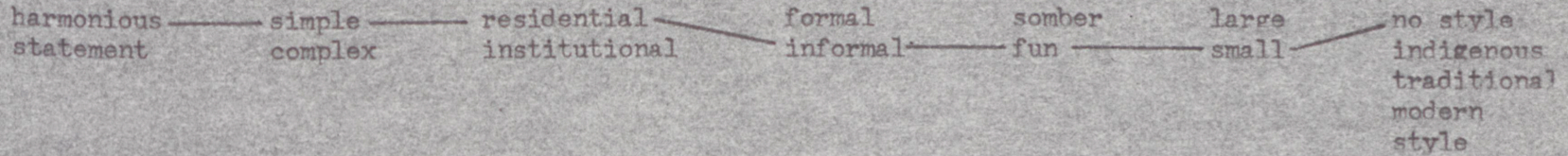


ANATOMY

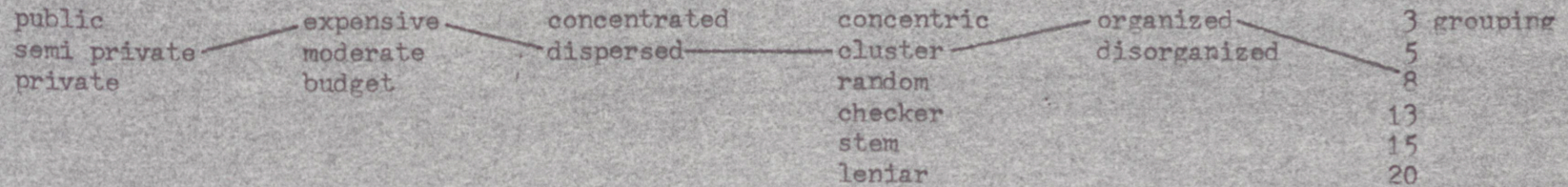


DECISION TREE

Non-Functional:



Functional:



DECISION TREE

My decisions for the "non physical environmental factors: are the same for Hawaii and Montana, again to establish a basis for comparison of the two sites.

FUNCTIONAL DECISION

SEMI PRIVATE

The facility will be semiprivate, which means the room areas are for guests while other facilities will be open to the public to help defray the cost of operation i.e. bar, restaurant.

EXPENSIVE

See Market Analysis on page 2.

DISPERSED

In order to allow a greater sense of free dom and relaxation since a large segment of the tourists are from populated areas.

CROSS

The basic circulation will be a cross to achieve separation. One leg will be public and the other private.

ORGANIZED

The units will be organized in groups to give a sense of community.

Groups will vary in size for the sake of flexibility (in order to accommodate view, topography, management, change of scale).

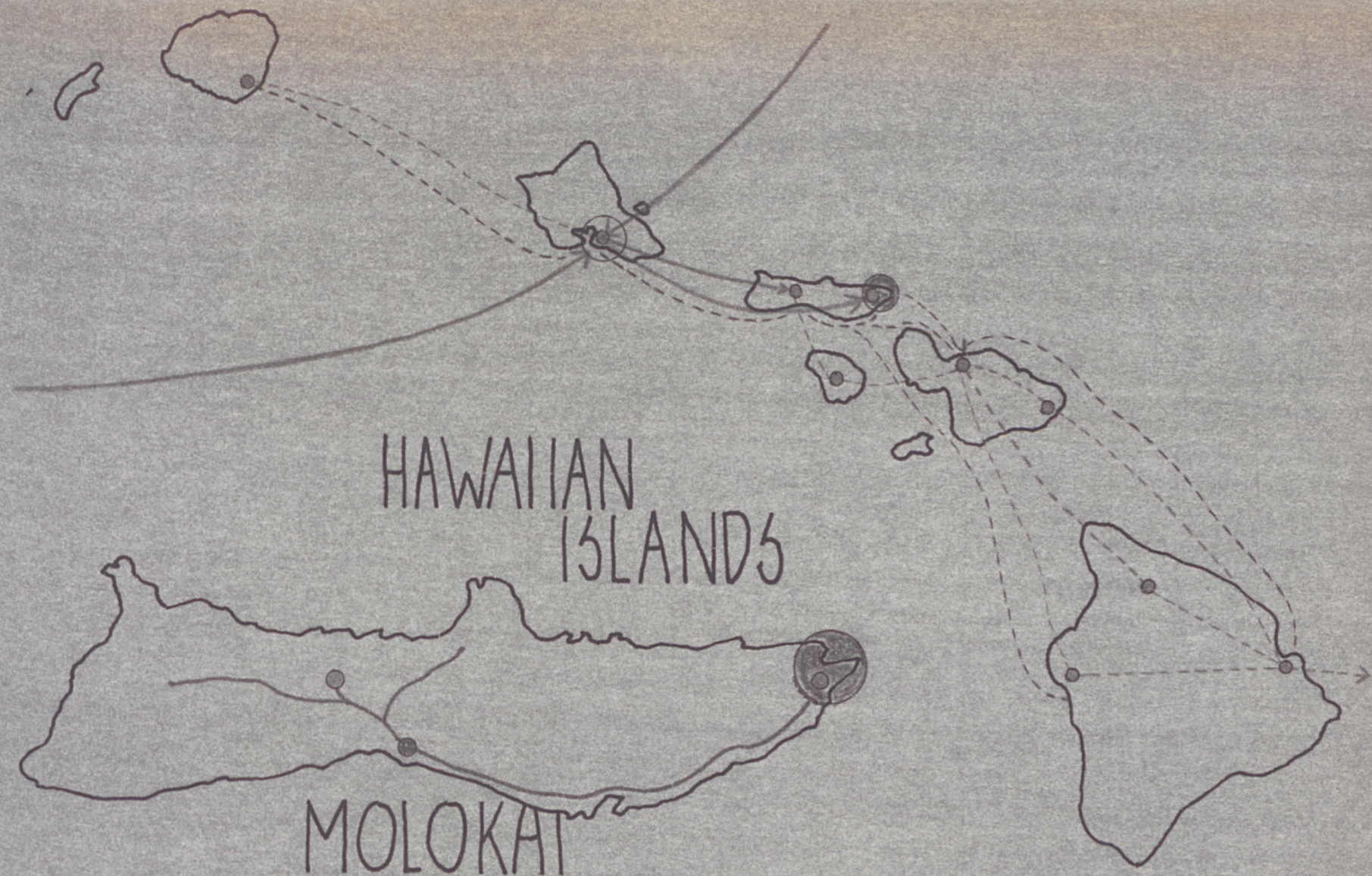
AESTHETIC

Because both sites are in beautiful surroundings, the buildings should be subservient to them. This calls for a simple design.

The character should be residential so people can feel at ease and relax, so that they not only want to stay longer, but also want to return.

An informal atmosphere is needed to relax the guest. It should be fun. A small establishment was decided upon to allow employees to give more personal, friendly service.

It should reflect the needs of the site.



- HONOLULU
- SITE
- AIR
- WATER-HYDROFOIL
- ~ HIGHWAY
- CITIES
- AIRPORTS

POPULATION

Honolulu	630,000
Molokai Island	6,000
Kaunakakai	3,500

LOCATION

Mileage from Mainland to Honolulu	2,500 miles
from Oahu to Molokai	10 miles
from Honolulu to Kaunakakai	60 miles
from Kaunakakai to Waipali	28 miles

SERVICES

Hospital-33 bed, private (nonprofit)
general, short stay

Police-20 men county police

Fire Equipment-at Kaunakakai only

Recommendation:

Supplementation of police, fire, and medical aid station
should be considered

UTILITY

Water	demand is estimated at 7,185 gal/day source-artesian well
Sewer	waste water flow 8,000 gal/day process method-anaerobic digester disposal-irrigation
Power	Molokai Electric
Gas	Bottled
Phone	Hawaiian Telephone
Alternate Power Source	Wood (limited) Solar Wind Sea
Building Material	Cement Sand Rock Wood (limited)

TRANSPORTATION

The primary mode of transportation to Honolulu, Hawaii is by air. Commercial flights are available on a daily basis to Kaunakakai, Molokai. From there car rental or company transportation will be available to Waipali.

Private planes may be chartered to a landing field adjacent to Waipali (two miles).

Hydrofoil ferry service is slated to begin in the summer of 1975 to service all of the island, including Kaunakakai, Molokai. Transportation of ferry passengers to Waipali will be the same as for commercial air passengers. Sight-seeing transportation will be through tour service and car rentals.

Only a minimal parking requirement is necessary for autos.

C L I M A T E

Hawaii's climate is mild and equable the year round with moderate humidity (60%), a persistent tradewind (northeasterly), and infrequent severe storms.

The variation in seasons occurs between May and October (summer) and from October to April (winter).

During the summer, the sun is overhead, the weather warmer and drier, and the tradewinds more persistent. The length of the longest day is about 13½ hours.

The climate in winter is cooler with an increased frequency of rain. At this time, the sun is never more than 45 degrees from the zenith and the shortest day being about 11 hours.

The superb climate is attributable to three factors--latitude, surrounding sea, and the wind. The latitude (20 degrees) allows for comparatively even-length days and the sun angle allows a greater penetration of solar all year (as compared to Montana).

The surrounding sea modifies the cold arctic air as the air travels over 3,000 miles to reach Hawaii.

The climate is cooled by the third factor, the tradewinds.

Occasionally, the southwesterly shifts northward, bringing with it heavy rains and high humidity. This is the kona storms and amount to about ten days a year.

Heavy rain occurs daily in the mountainous areas, resulting from the warm moisture-laden tradewinds rising up the mountains. Hence, there is an abundance of water.

The windward low coastal areas are contrastingly dry and warm as with my site.

The greatest number of days per month of cloud cover (80% or more) occurs in April (11 days) and the least during June and July.

Surface winds average about 15 knots, but the valley is well sheltered from this.

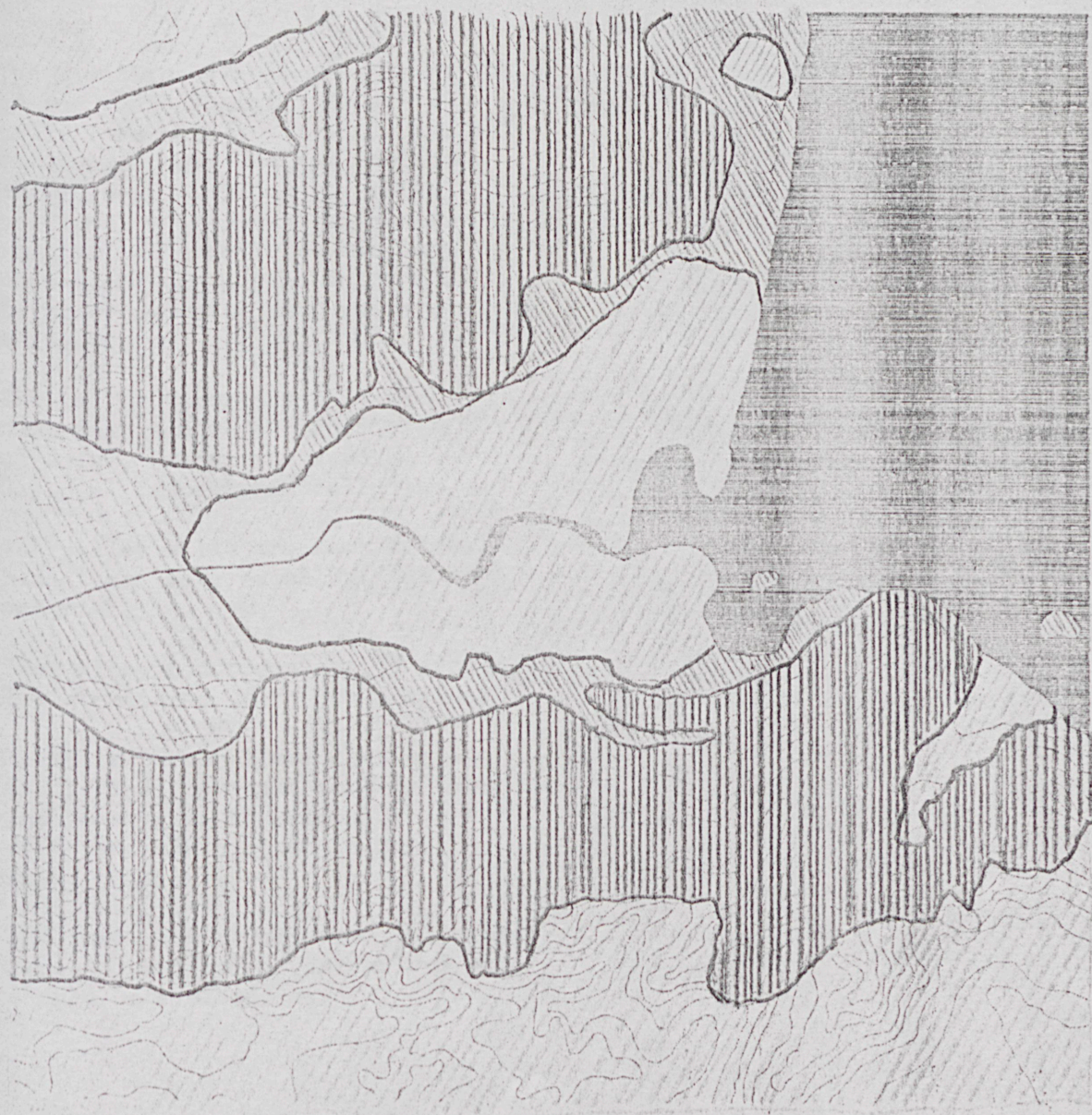
There is no problem with air quality and hurricanes. Storm conditions occur out of the southwest. The main concern is protection from sun and rain.

TOPOGRAPHY

The valley is $\frac{1}{2}$ mile wide and 4 miles deep. There are two waterfalls at the head of the valley forming excellent natural swimming pools. The walls of the valley are quite steep; the south wall being the gentler. The ridges of the valley wall taking the configuration of a shield volcano ending abruptly into the sea. The length of the valley floor is less than a 10% grade for two miles inland, at which point the grade becomes greater than 10%.

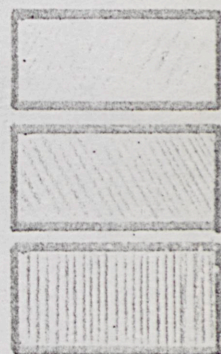
The mouth of the valley has a bay with a maximum depth of 10 feet. It's well protected and safe for swimmers.

The practical limit for building on the south wall is at the 150 foot contour, while the north is about 50 feet.



TOPOGRAPHY

0-20%
20-40%
40% +



GEOLOGIC BASE

The Hawaiian islands are the result of low viscous lava. These typically form shield volcano. Molokai was formed this way and geologically speaking is in its late erosional stage. All this means is that volcanic activity has long ceased and the shield volcano is being eroded with deep valleys being formed.

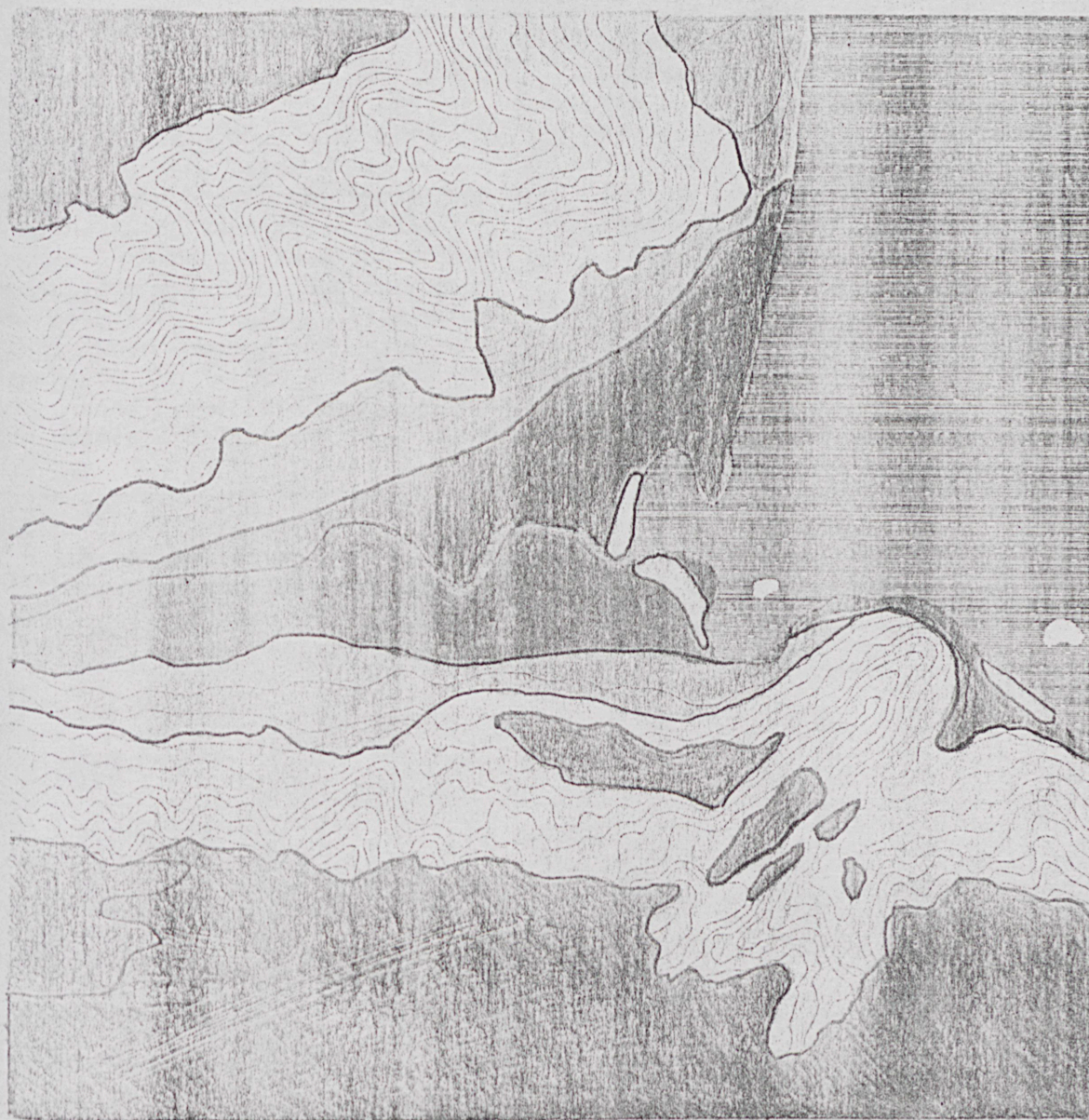
The valley floor consists of detrital sediment composing of alluvium, calcarious sand, lagoonal deposit and calluvium.

The valley walls are East Molokai Basalt and make excellent building material.

The valley floor can easily support low structures up to two stories.

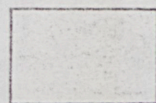
There is no earth movement or faults and the quake zone is two. The beach area is primarily sand with bed rock exposed in many areas (Basalt).

The immediate stream area (alluvial deposit) and beach (calcarious sand) should be avoided.

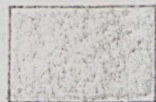


GEOLOGICAL BASE LEGEND

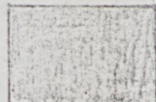
EAST MOLOKAI LAVA



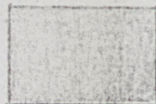
LATE STAGE LAVA



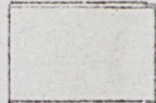
ULTISOLS



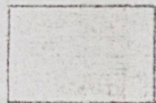
DENTRITAL SEDIMENTS



CORAL SAND



CONGLOMERATE



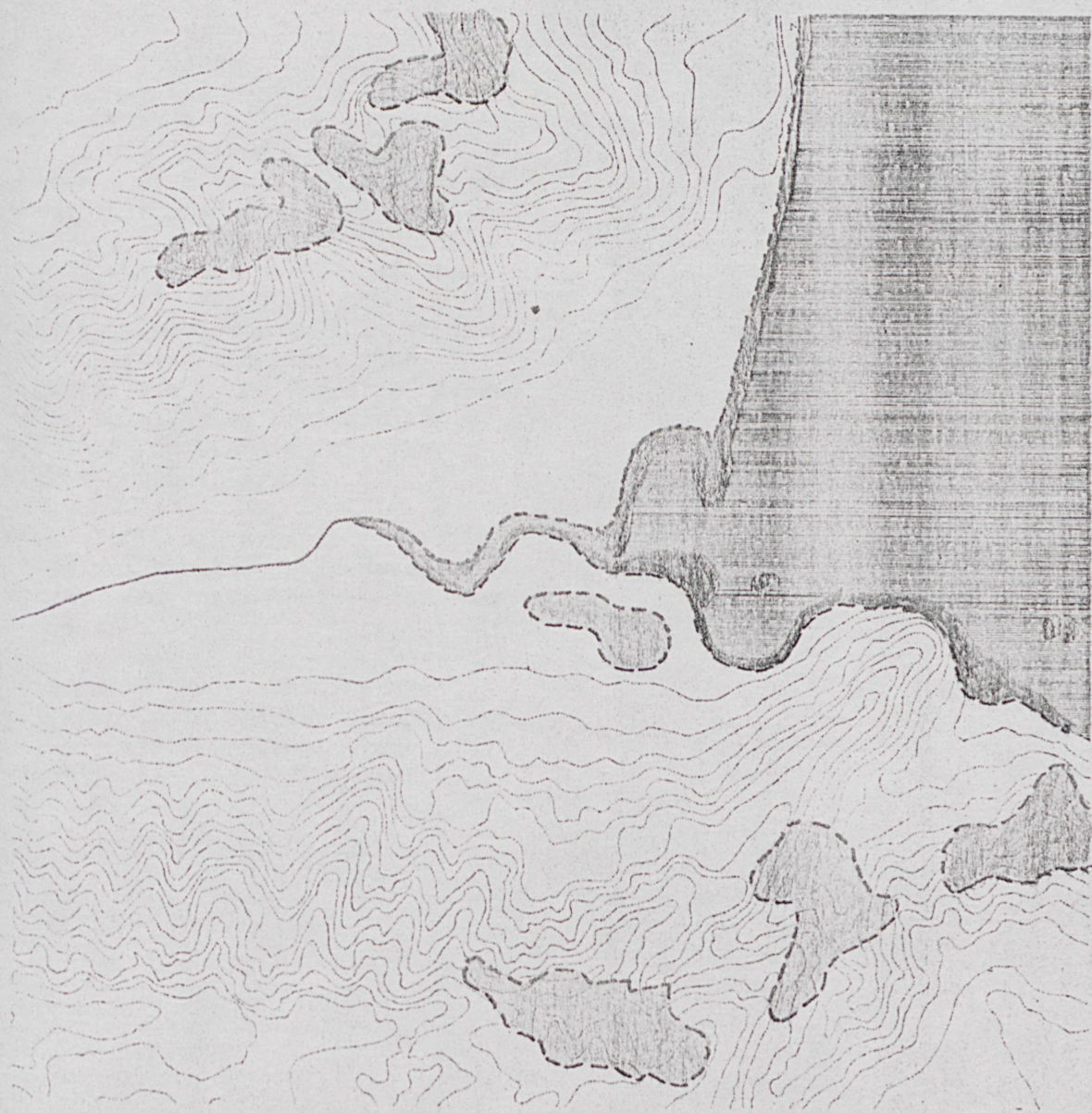
F A U N A

The mammals found on Molokai are deer (axis), goats, pigs, and mongoose. Wild dogs also roam the island. Goats, being voracious eaters cause erosion by stripping the ground of vegetation while feeding. Mongoose feed on indigenous birds eggs and is a detriment to the native species. Pigs uproot plants when feeding also causing damage to the land. All these were introduced by man and are upsetting the delicate balance of the island.

There are numerous species of native as well as migratory birds who inhabit the site. The habitat of the native species, primarily honey creepers, are the highlands,

while migratory birds, such as plover and ducks feed along the streams, beaches, and estuaries. Albatross nest in the cliffs along the sea while the grasslands are the domain of finches, pheasants, and cardinals.

Particular care should be taken to preserve the nesting and feeding of these animals.



FAUNA PROFILE

LEGEND

MIGRATORY BIRDS 
NESTING BIRDS 
BIRDS, FEEDING 

FLORA

There is a large stand of coconut trees near the east end of the valley that's well established. The bay is fringed with Hau thickets with some iron wood trees growing in its midst. The valley floor is a mixture of grass and guava, while the north cliff sustains mostly grass as with the ridges. The South wall is a mixture of guava and plum. The Ravines is a mixed forest of guava, plum, kukui, koa, mountain apple, hoa, and gum trees as are the higher mountain areas.

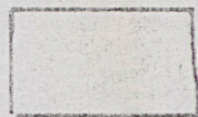
The outer beach area is primarily grass and shrubs. Wild taro, ginger, and guava thrive along the streams.

Because of ample sunshine and moisture, wild species quickly heal scarification. Nevertheless, scarification should be kept to a minimum.

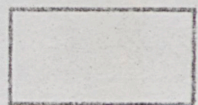


VEGETATION

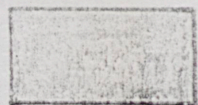
GRASS



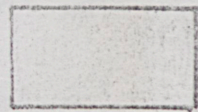
MIXED GRASS/SHRUB



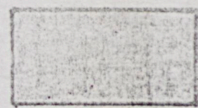
PALM



MIXED DECIDUOUS



IRON WOOD



HYDROLOGY

Extensive and heavy flooding is not a major threat as in the case of Montana. Flooding does occur during heavy rain, but is restricted to a fairly narrow area. Four factors cause this difference from Montana. First, the drainage areas are relatively small; Second, there is no accumulation of moisture (i.e. snow); Third, the porosity of the soil; and Fourth, the heavy vegetation.

Three feet above the normal stream level is more than adequate in avoiding flooding. Below this level should be avoided in building.

The water table appears quite high as numerous springs occur beneath the sea at ten feet.

High waves and salt spray can cause problems in buildings, so adjacent beach areas should not be considered for building. To avoid

the destructiveness of Tsunamis, either Tsunami Barriers should be erected or buildings should be built above thirty feet of the mean ocean level.

Safe, adequate water supply is available by tapping into the hillside or by sinking artesian wells. The wells should be located well in the Forest Reserve Zone to insure the quality of the water.

OCEANOGRAPHY

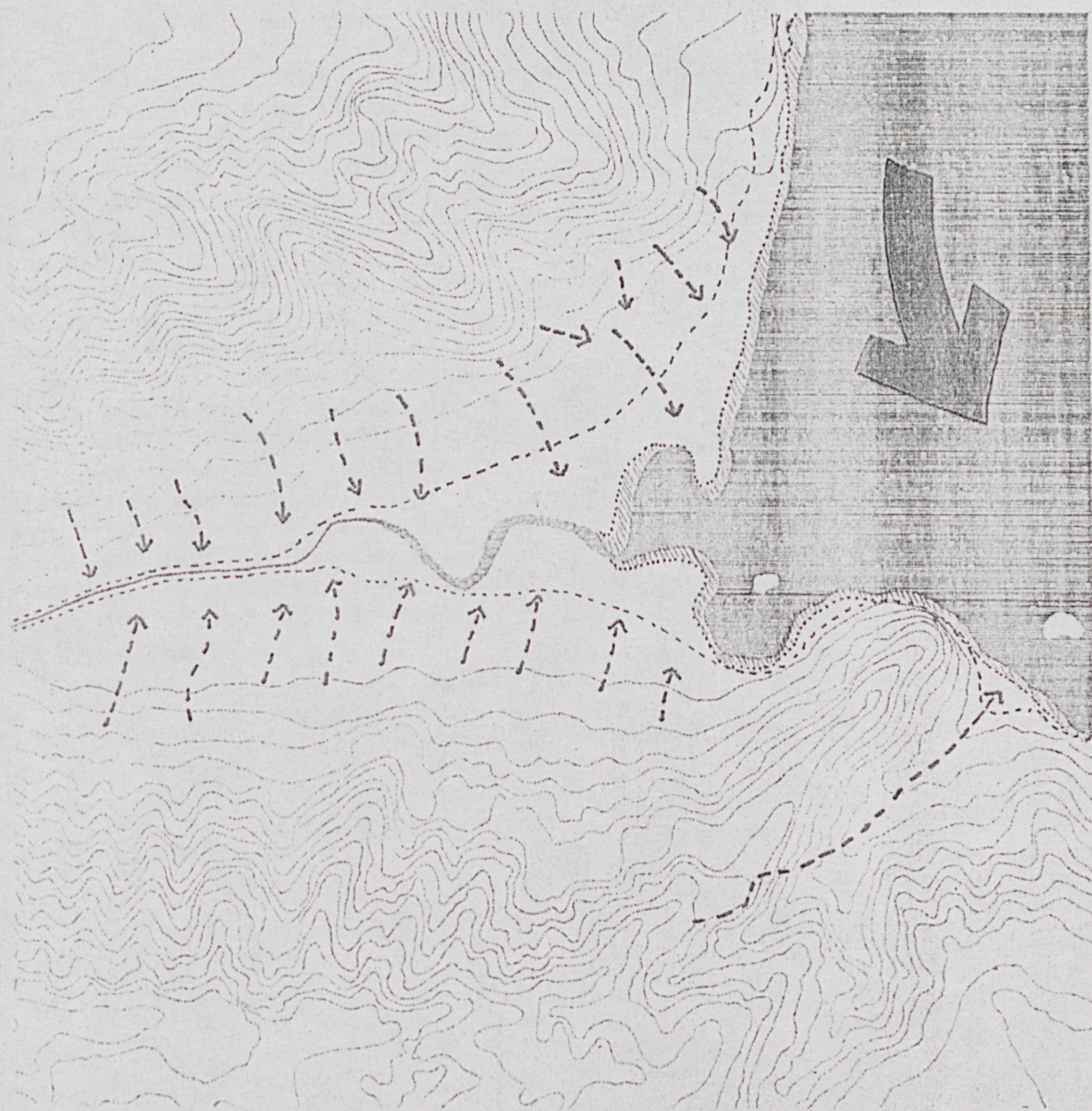
The water temperature is 74 degrees in February and 78 degrees in September. A current flows north-east to southwest at about .5 knots. The bay is shallow and safe for swimming. There are some reef formations in the larger bay, as well as further into the ocean.

Sedimentation extends 500 feet from shore to a depth of 250 feet. Reef formations are dispersed in this area.

Extending 25 miles out are diatomaceous ooze up to a depth of 300 fathoms. There are some ferromagnesium deposits off the north coast occurring at 100 to 3,000 fathoms. The plan by Marine Engineers to mine this may prove

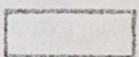
detrimental to the excellent marlin fishing in this area. This may be a cause of impact upon the resorts economy. (Part of the revenue will be based on sport fishing).

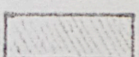
There are 700 species of fish, 400 types of seaweed, 1,000 mollusks, and 13,500 kinds of invertebrates. Of these, the ones of major interest are tuna, marlin, sword fish, lobster, clams, and crabs. Sea creatures can stand very little stress, so disturbing their habitat through pollution and inhibiting the enrichment by the stream needs to be looked after.



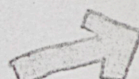
HYDROLOGICAL MAP

LEGEND

MINOR FLOOD PLAIN 

MAJOR FLOOD PLAIN 

DRAINAGE 

OCEAN CURRENT 

EXISTING CULTURE

The north mouth of the valley has two Heiaus (ancient Hawaiian prayer areas) which may need some restoration. A road of good quality exists to the site. On the south rim is a Kukui grove that is sacred and has religious significance. Taro fields used to cover the valley bottom which was fed by a now broken down irrigation flume. Some old wooden structures dated about 1920's exist, but are in poor condition and beyond restoration due to termites and fungus. These were remnants of the taro agriculture in that area. The Heiau and taro fields should be restored for cultural enjoyment and education. The buildings should be demolished.

CONCEPTUAL DIAGRAM

This diagram conceptualizes how the site will respond to the physical environment as well as to the needs of the user. This is essentially my conclusion in response to the variable factors at my site.



CONCEPTUAL DIAGRAM

WATER ACTIVITY

SEWER

SUN PATH

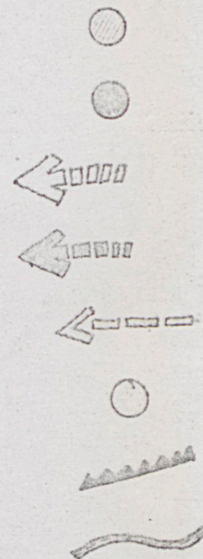
STORM

TRADE WINDS

HISTORIC SITE

VISUAL BOUNDARY

ROAD

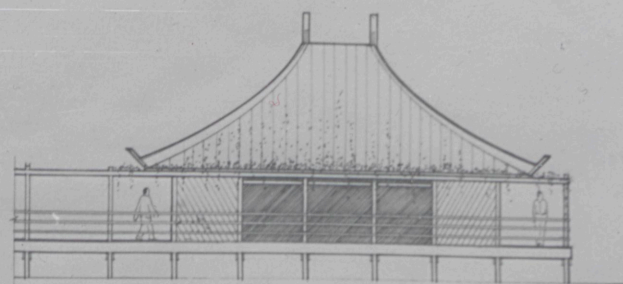




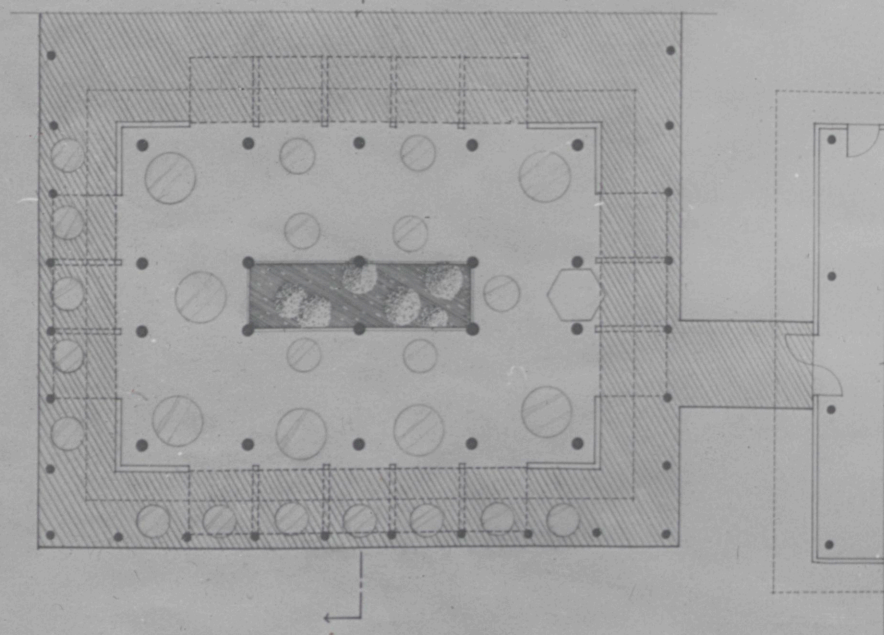




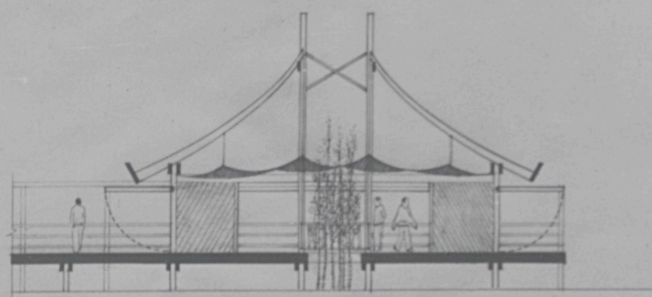
SOUTH ELEVATION



NORTH ELEVATION

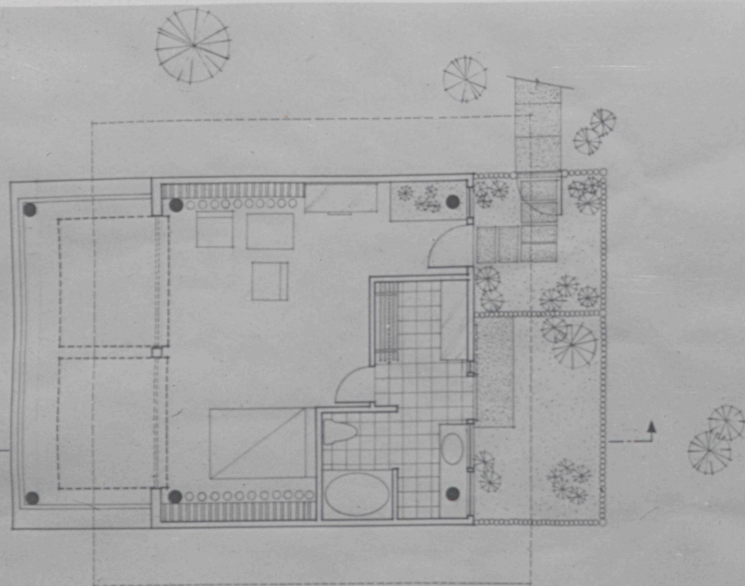


PLAN

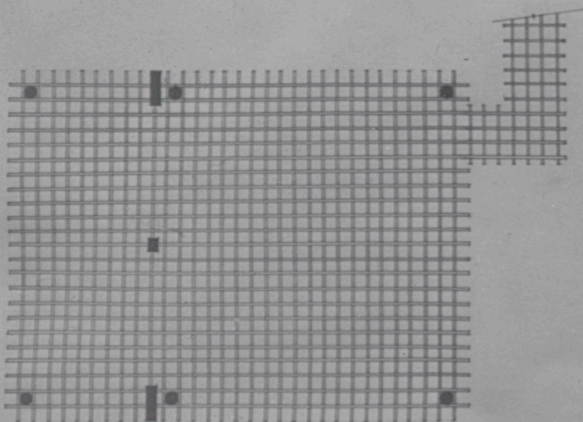


SECTION

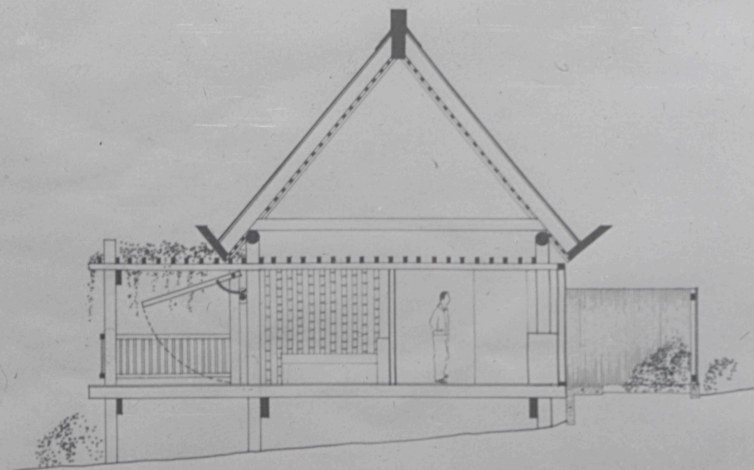




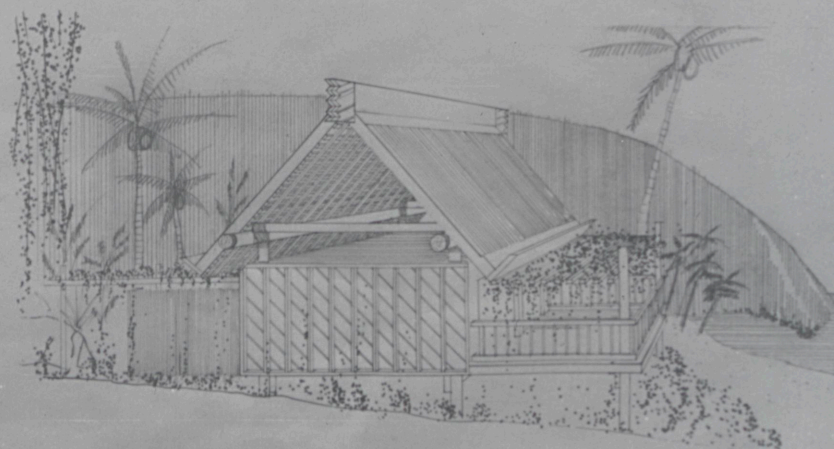
PLAN (typical)



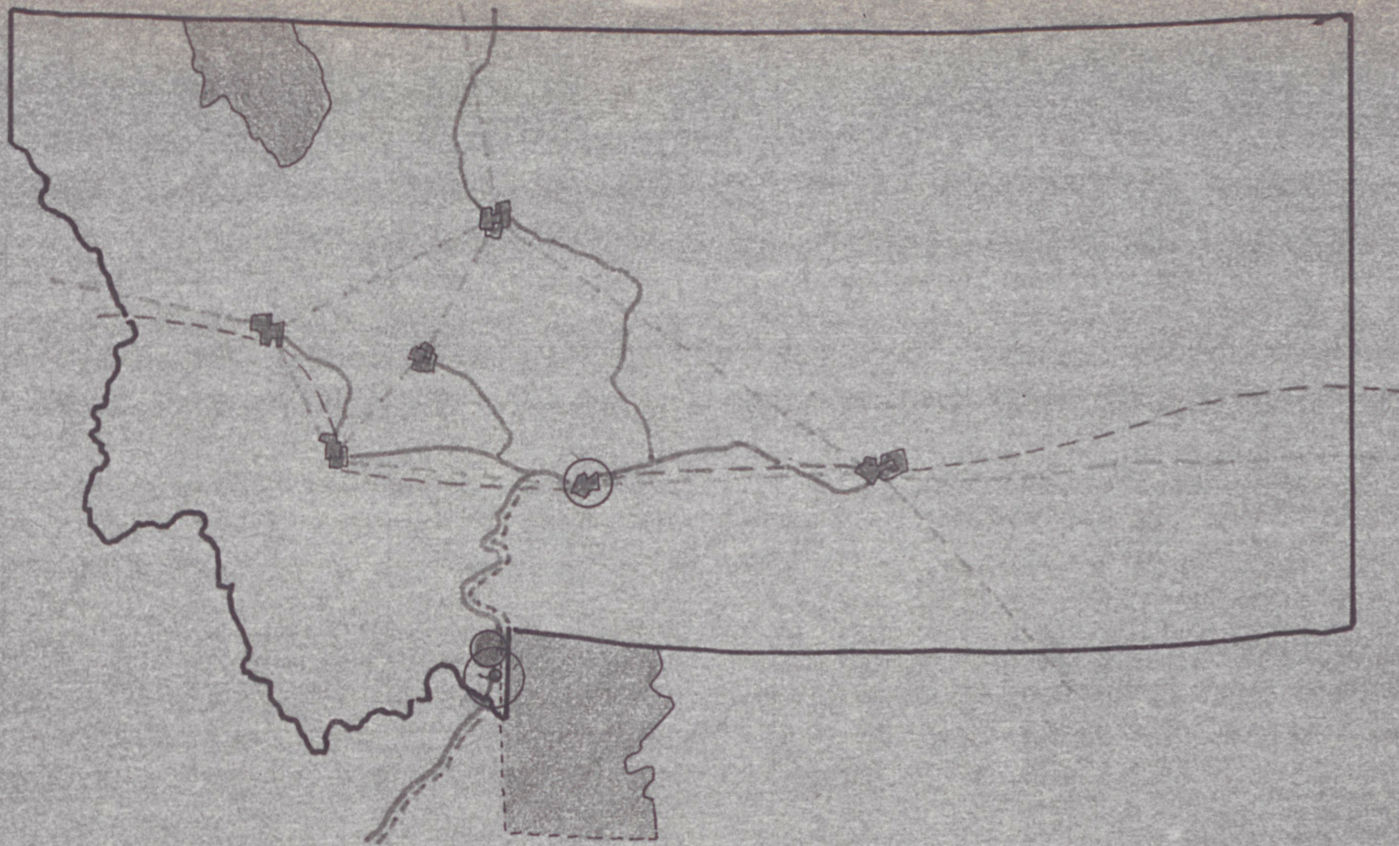
CEILING PLAN



SECTION



PERSPECTIVE





MOLOKAI & LANAI

THE FRIENDLY ISLE AND THE PINEAPPLE ISLE
OF THE ISLANDS OF HAWAII



POPULATION

Bozeman 30,000
West Yellowstone 800 winter/2,000 summer

LOCATION

Mileage from Bozeman to West Yellowstone 90 miles
from West Yellowstone to site 14 miles
from Bozeman to site 88 miles

SERVICES

Hospital-Bozeman, private (nonprofit)
general, extended stay

Police-1 county sheriff, 5 summer police
2 winter police

Fire-own and 2 volunteer at West Yellowstone

Recommendation:
Supplementation of police, fire, and medical care
should be considered

UTILITY

Water	demand is estimated at 7,185 gal/day source-artesian well
Sewer	waste water flow 8,000 gal/day method-gravity collector separator effluence stored disposal-irrigation
Power	Falls River Electric Co-op
Gas	Bottled
Phone	Mountain Bell
Alternate Power Source	Coal Oil Wood Solar Wind Water
Building Material	Rock Cement Sand Wood

TRANSPORTATION

In Bozeman, there are two airlines; Northwest Orient and Frontier. Amtrak and bus service are also available. Bus or company limousine service will be available to the site.

West Yellowstone is served by bus and airlines. Company limousine and car rentals are available to the site.

The principle hiways are U.S. 191 running north-south and U.S. 87 running east-west. The site is accessible almost all year by auto.

Parking will be provided for 150 cars.

C L I M A T E

Montana can get extremely cold during the winter. With windy conditions, the apparent temperature is reduced further. (This reduction is referred to as the chill factor causing apparent temperatures in the minus seventies).

Summers are pleasantly mild, though temperatures do occasionally rise into the nineties. The warmest days occur in July and August, while the coldest ones are in January and February.

The longest day is about 16 hours, while the shortest is 8 hours. The summer solstice is 66 degrees and the winter is 27 degrees. Rain occurs most often in July, while the greatest snowfall occurs in January.

Storm conditions occur out of the northwest and southwest. The severest occur from the latter.

The diurnal wind flows down the valley at night and reverses itself during the day.

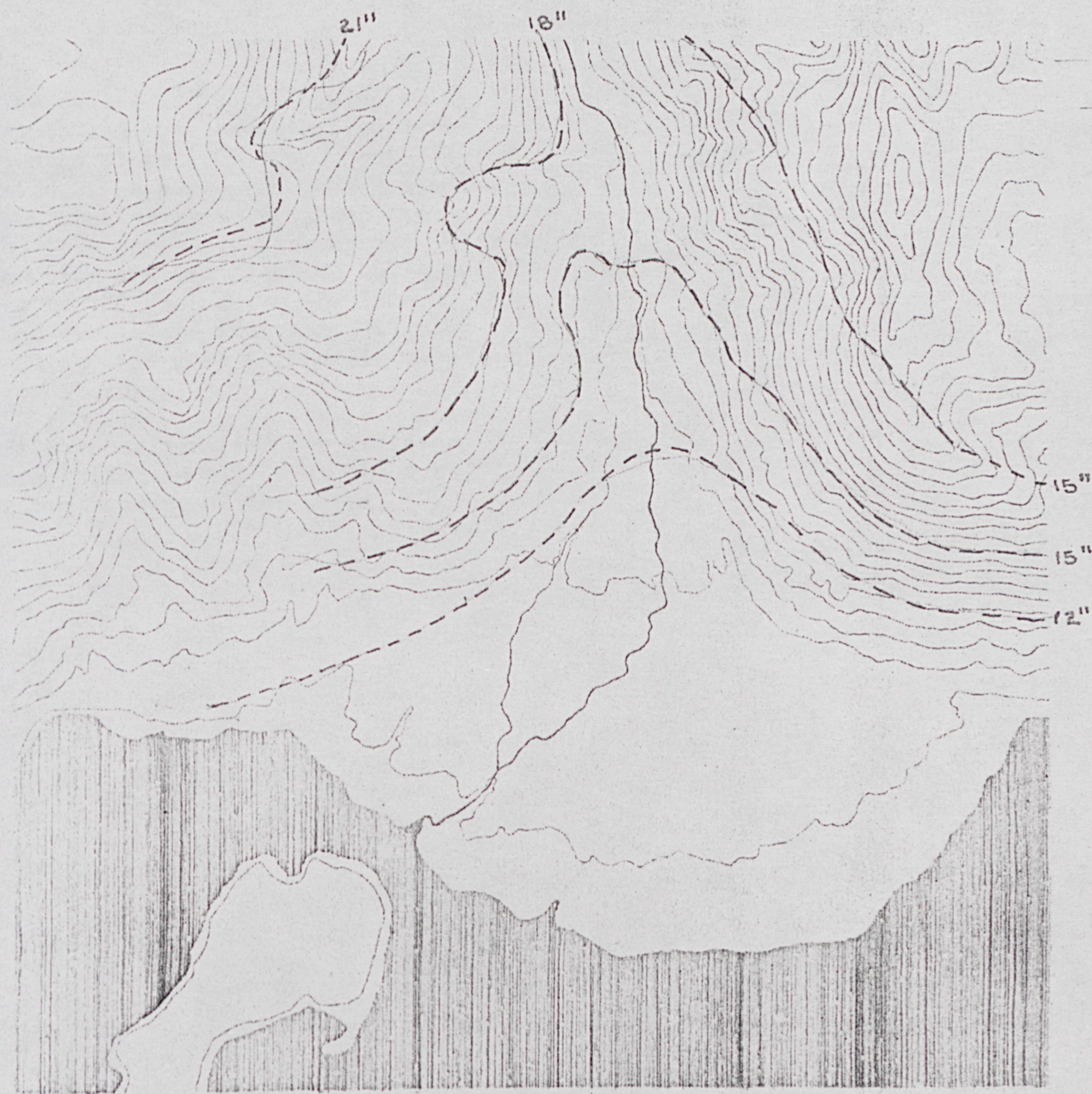
Cloud cover occurs most often in December, January, and February, while July is the sunniest.

Snow can be expected any day of the year.

The air is generally dry and air quality is excellent.

Frost depth is 60 inches and snow load is 50 pounds per square foot.

Deep snow, icicles, chilly winds, and snow loads must be paid particular attention when designing.



SNOW DEPTH

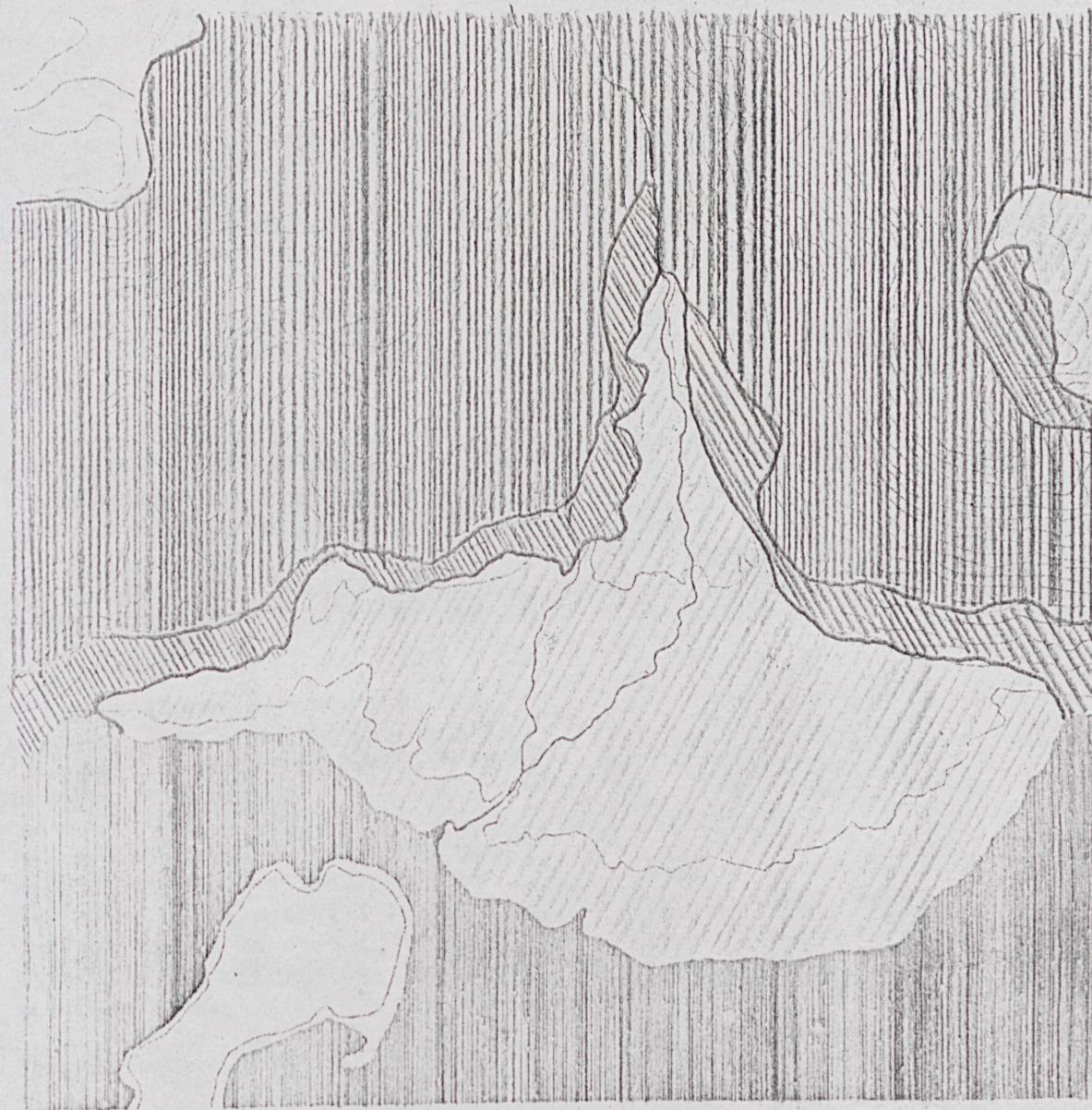
INCHES OF WATER EQUIVALENT
LONG TERM MEAN

TOPOGRAPHY

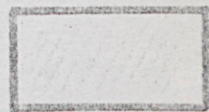
The valley is $3/4$ mile wide at the mouth and the length has a fairly gentle slope (10%) for about $1/2$ mile. The east slope has a gradient greater than 30% above the 80 foot contour. The west wall is gentler and practical to build on up to 480 feet above the lake. The west slope averages 30% gradient and has more than ample slope for skiing.

Prime consideration for building and skiing should be on the west slope because of the slope.

TOPOGRAPHY



0-20%



20-40%



40%+



GEOLOGIC BASE

The Hepgen Lake area is well noted for faults and earth movement. This area is in a constant uplift causing earth movement as witnessed in the numerous escarpment in the valley walls. There are numerous evidences of earth movement on the east slope due to lubrication of the soil from ground water, while a major fault occurs further in the valley.

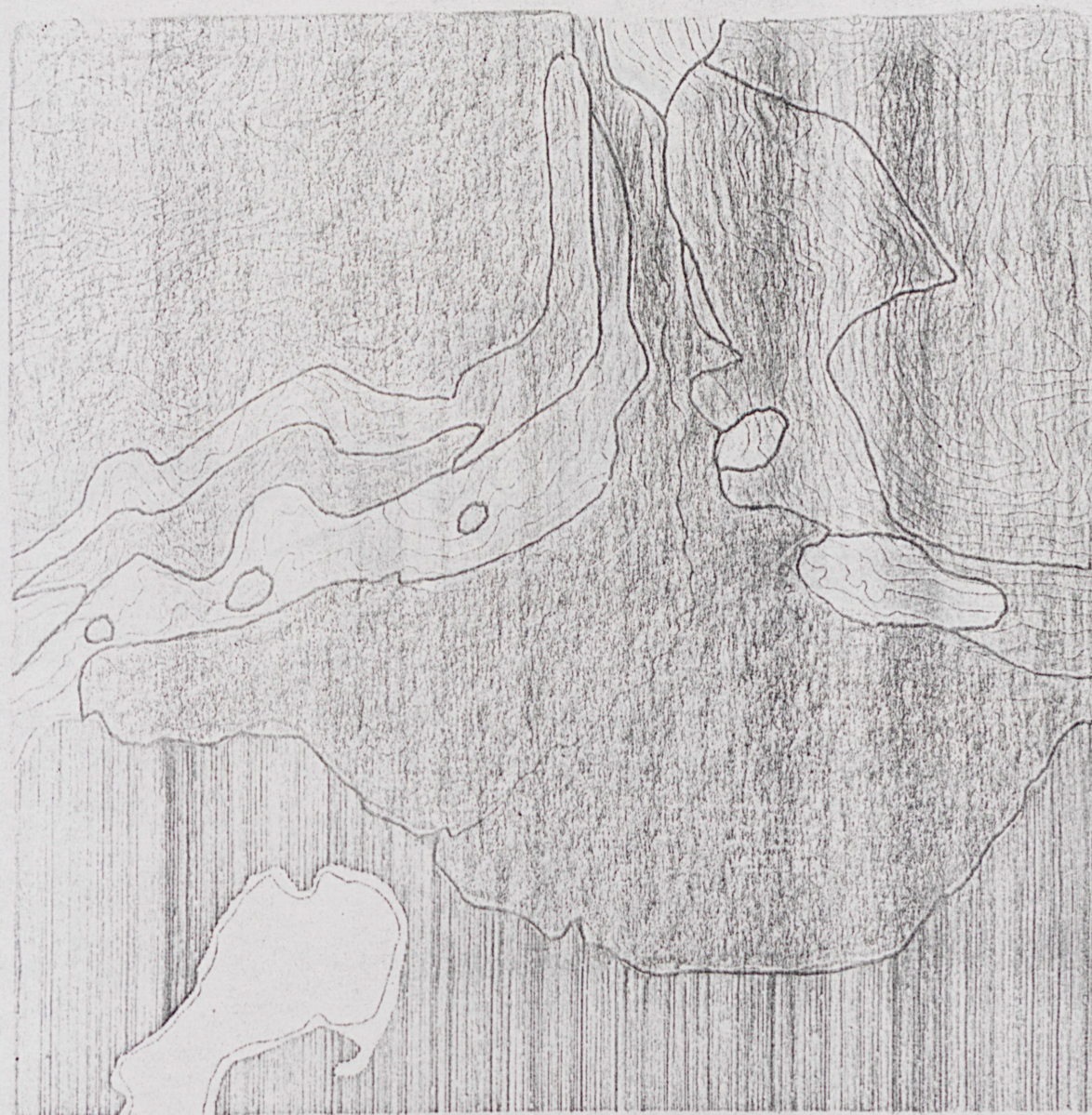
There are two low risk faults across the mouth of the valley while another runs up the face of the northwest slope.

The valley floor consists of alluvium and limits buildings to light structures.

The east slope is primarily Devonian Strata, while the west is Precambrian capped by Devonian and Cambrian Strata.

Because of unstable ground in many areas, extreme caution should be exercised in selecting a site. The west slope is stable with a firm base and affords the safest building site.

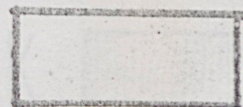
The earthquake zone is three.



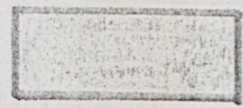
GEOLOGICAL BASE

LEGEND

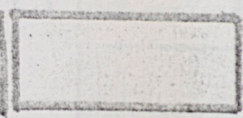
LANDSLIDES OF
VARIOUS TYPES



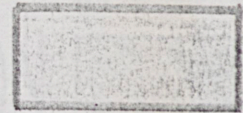
ALUVIUM



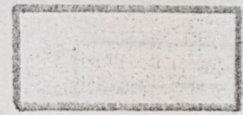
PRE-CAMBRIAN



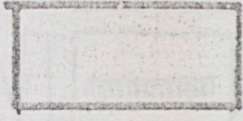
DEVONIAN AND CAM-
BRIAN (STRATA UNDIV.)



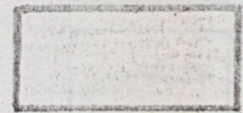
DEVONIAN



RHYOLITE WELDED
TUFF



MADISON LIME.

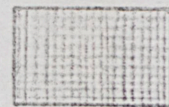




GEOLOGICAL BASE

LEGEND

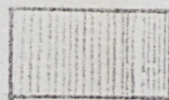
SHORT TERM RISK



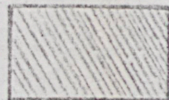
MODERATE RISK



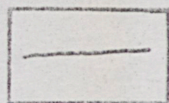
EXTREME RISK



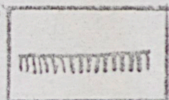
SEVERE LIMITATION



LOW RISK FAULT



EARTH MOVEMENT



HIGH RISK FAULT



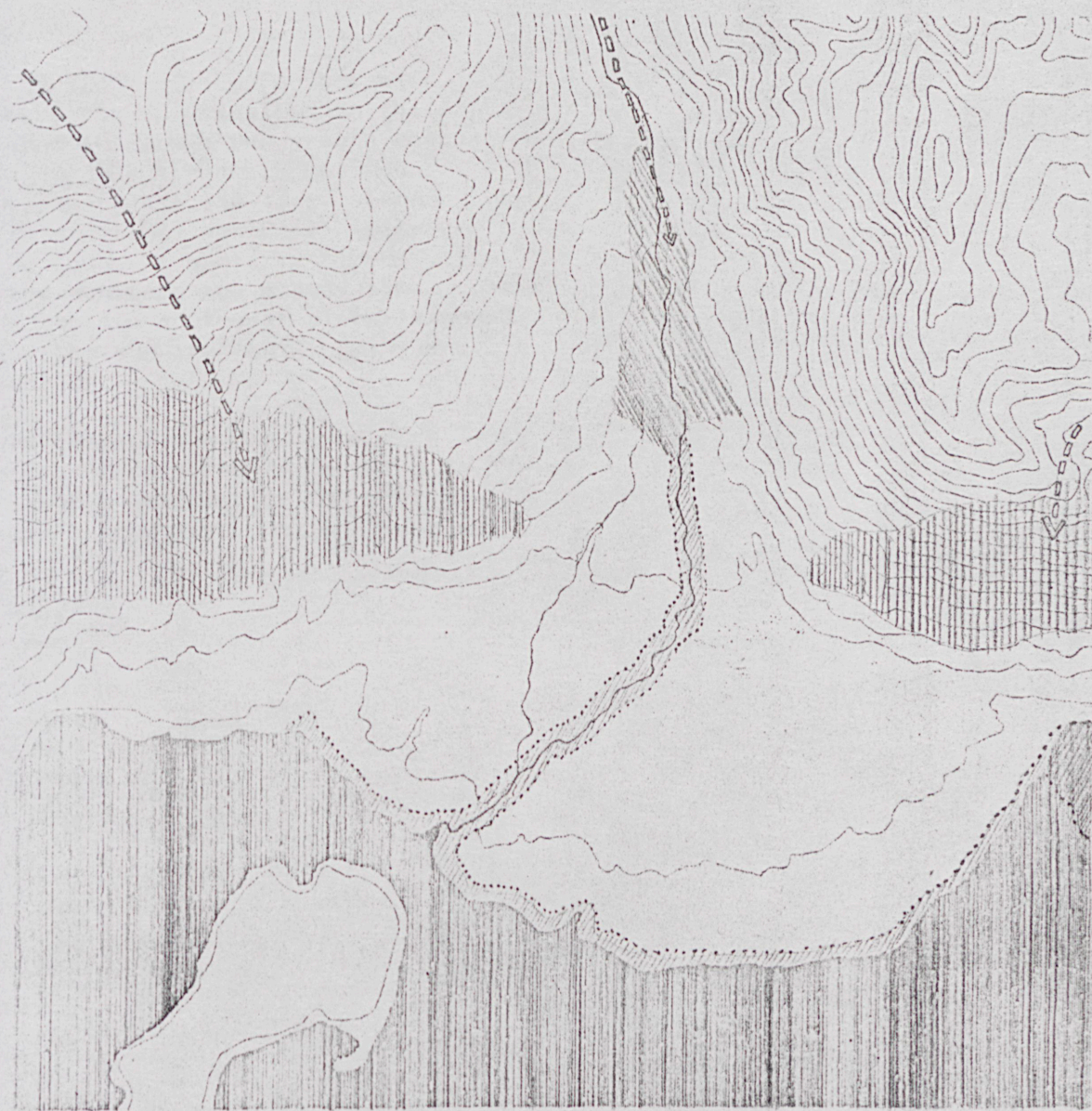
F A U N A

The east and west slopes of the valley are wintering areas for elk. There exist migratory routes to the northeast and northwest from these sites.

The upper valley floor serves as wintering grounds for moose. Smaller mammals abound in this valley, such as, raccoon, skunk, and porcupine.

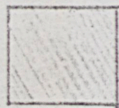
The bay serves as a water fowl nesting grounds and the shores are feeding grounds for many species of birds.

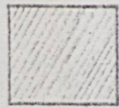
Care should be taken to avoid creating a great impact in these feeding and nesting areas.



FAUNA PROFILE LEGEND

EIK-WINTER RANGE 

MOOSE-WINTER RANGE 

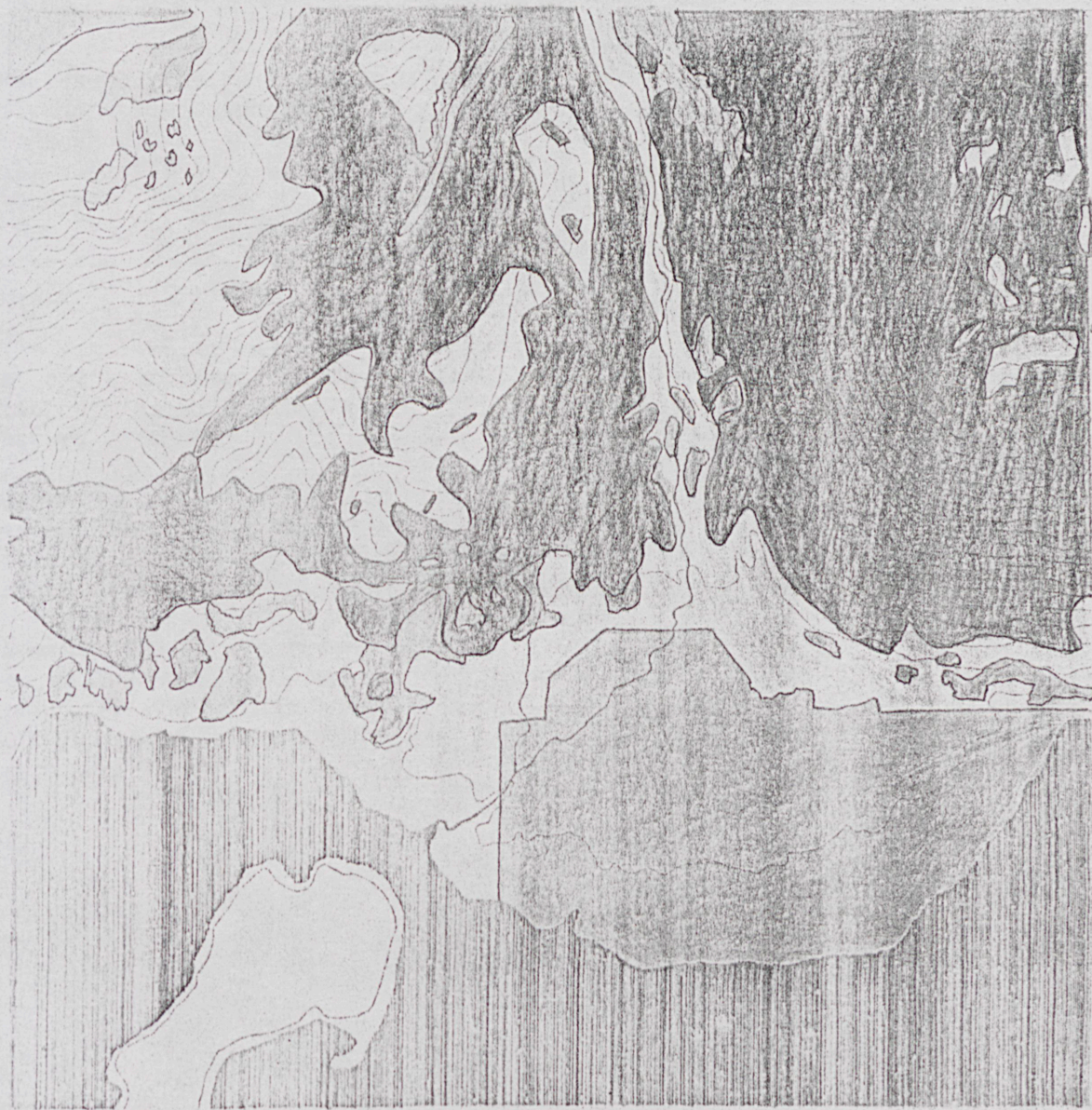
FOWL HABITAT 

MIGRATION ROUTES 

F L O R A

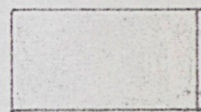
The flora of the Montana site consists of grassland in the delta area and low shrub growth occurs along the streams. Deciduous trees fringe the lower slope turning into conifers higher up. Deciduous are mostly birch, while the conifers are mostly pine. The south and southeast slopes exposed to the sun are mostly grass and shrubs.

Because of the slow growth rate of plants, care should be taken to avoid scarification in order to avoid long term unsightliness and erosion.

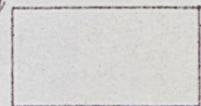


VEGETATION

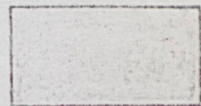
GRASS



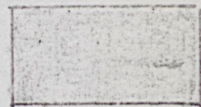
MIXED GRASS / SHRUB



DECIDUOUS



CONIFER



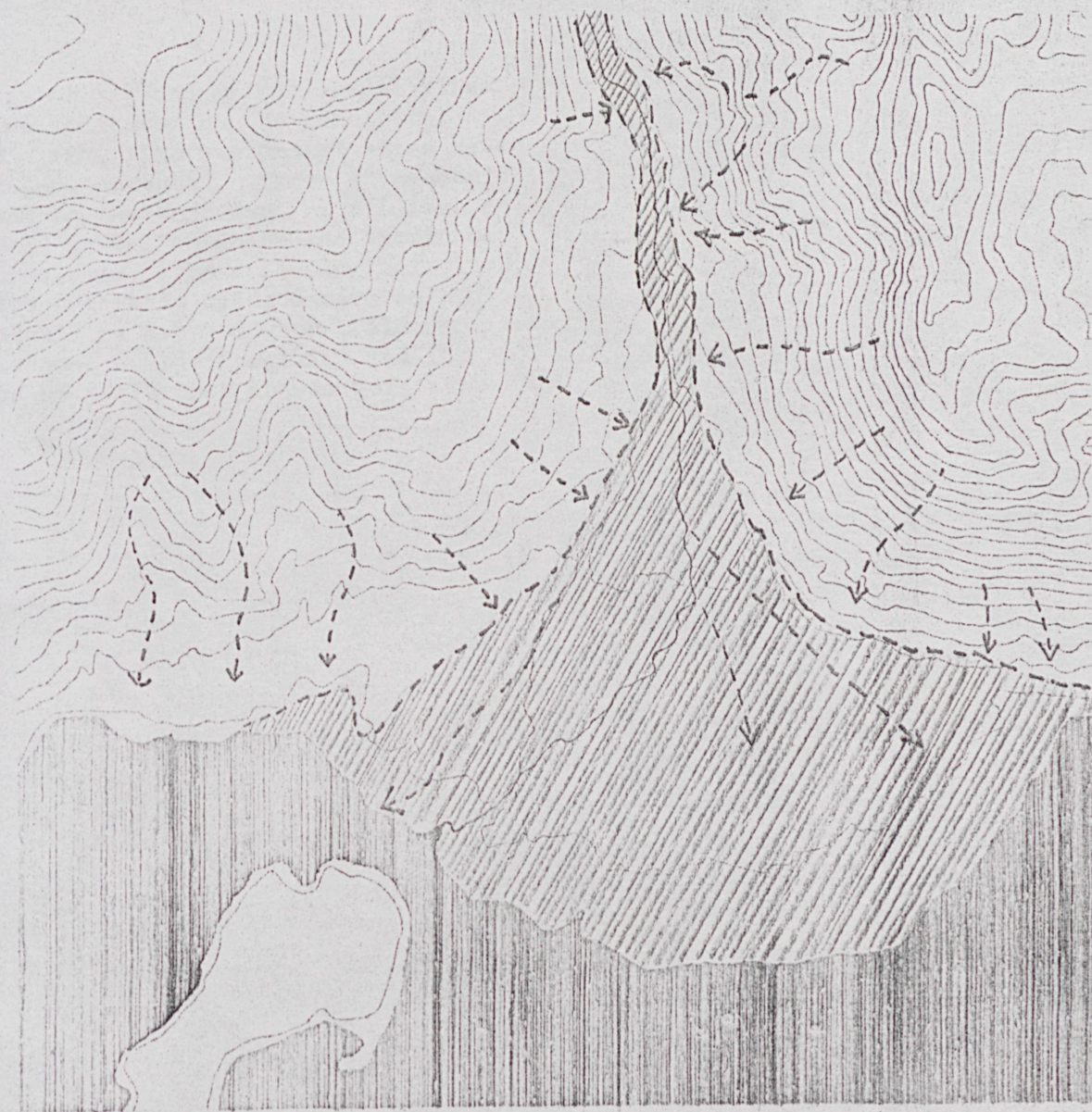
HYDROLOGY

Because of the possibility of heavy flooding, the streams and dry creek beds should be avoided. The alluvial fan area could be subjected to minor flooding and must be taken into account. Building along the lake should not occur below the 8,550 foot contour.

The east valley wall has evidences of earth movement due to lubrication of the calluvium caused by water.

Ground water table data is not available for the valley floor. Because of the permeability of the soil, it fluctuates.

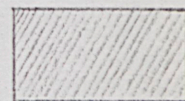
Source of water is recommended to be wells. Spring Creek is one possible source with 50-100 g/m and Corey Springs at 7,000 g/m is another.



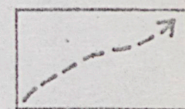
HYDROLOGICAL MAP

LEGEND

MINOR FLOOD PLAIN



RUN-OFF CHANNEL

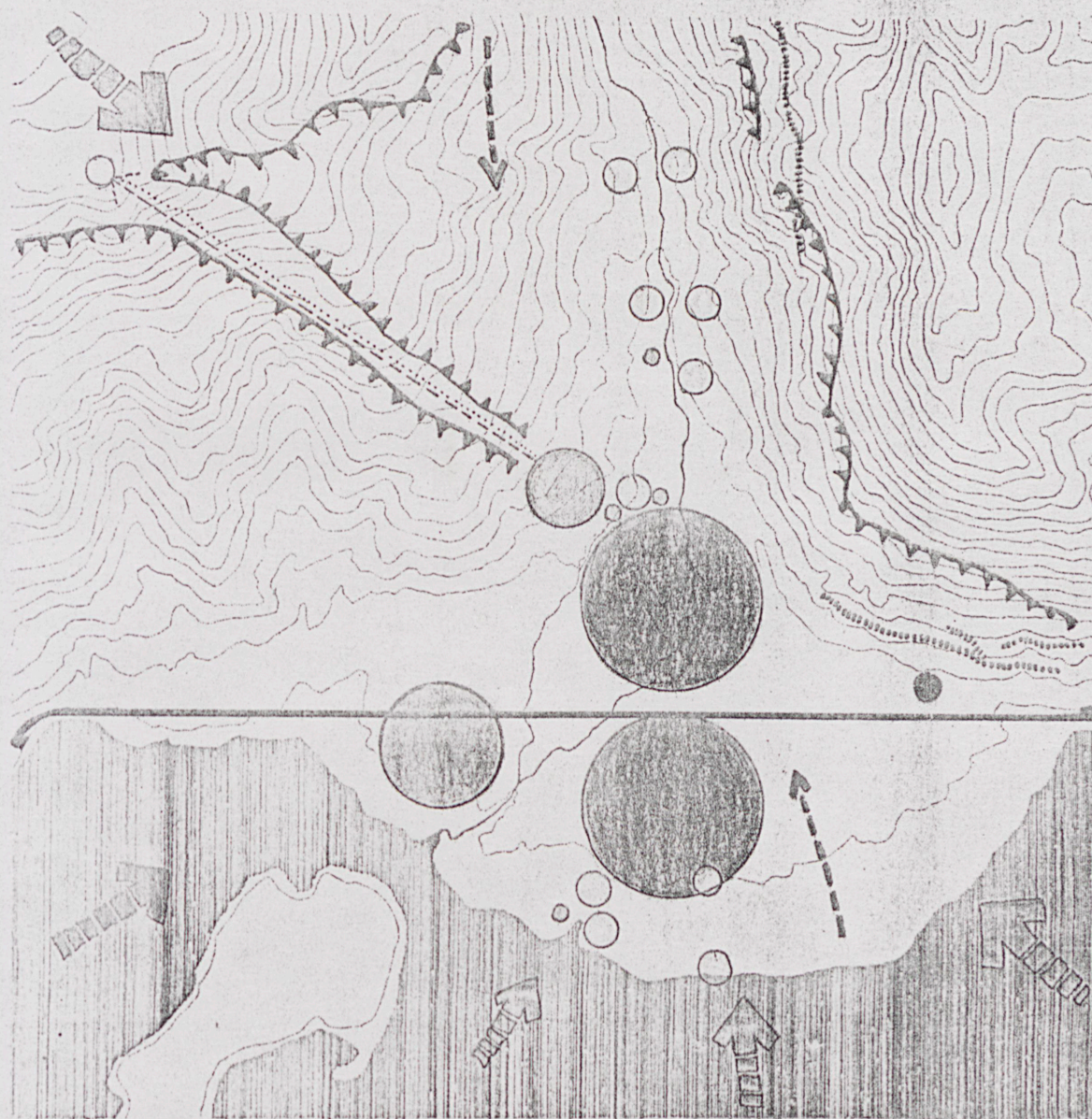


EXISTING CULTURE

Historical and archeological sites are indicated on the conceptual diagram. The historical sites have been documented. These sites could add to the enjoyment of visitors as well as to Montanans and should be preserved. The archeological sites are presently being excavated and should be avoided when building because of the fragility and its value to further knowledge.

CONCEPTUAL DIAGRAM

This diagram also includes existing culture. Refer to page 28 for an explanation of the conceptual diagram.



CONCEPTUAL DIAGRAM

OUTDOOR ACTIVITY



RESORT



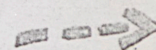
WATER ACTIVITY



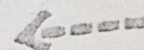
SEWER



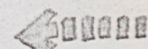
DAY BREEZE



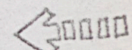
NIGHT BREEZE



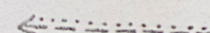
STORM



SUN



TRAM/LIFT



SEVERE STORM



ARCHEOLOGICAL SITE



HISTORICAL SITE



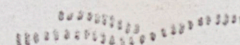
VISUAL BOUNDARY



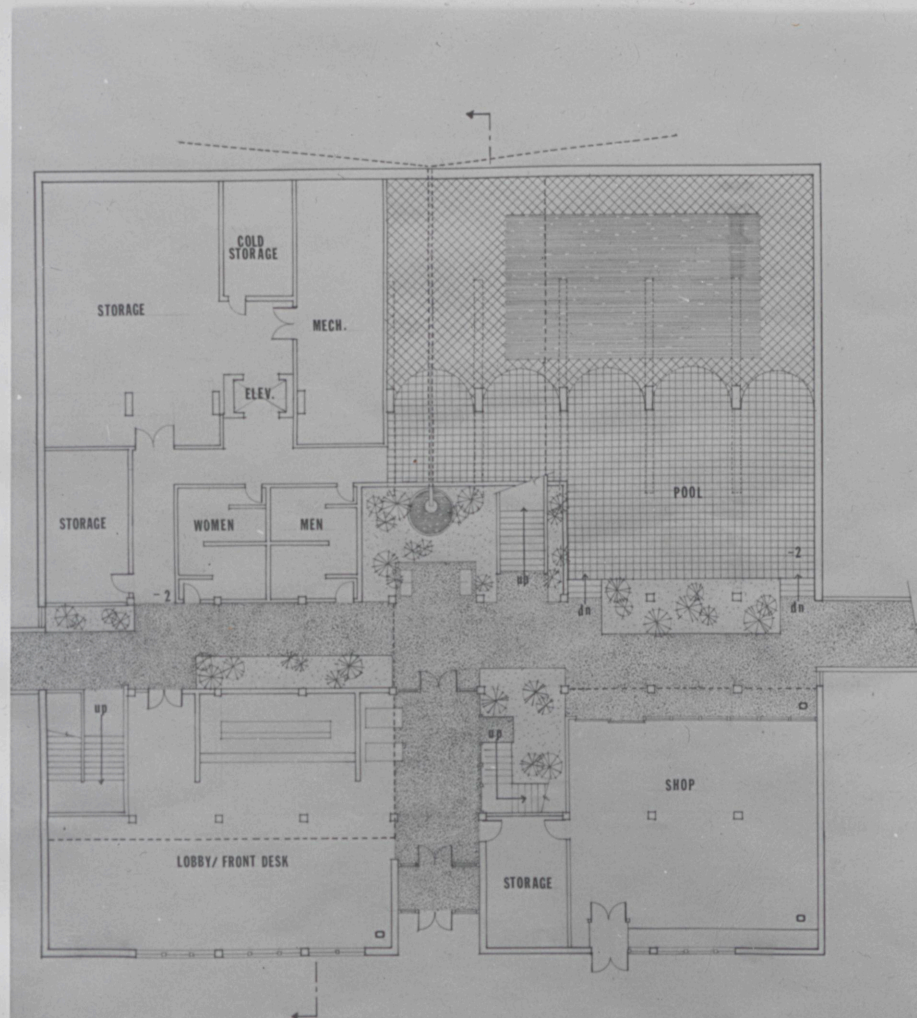
ROAD



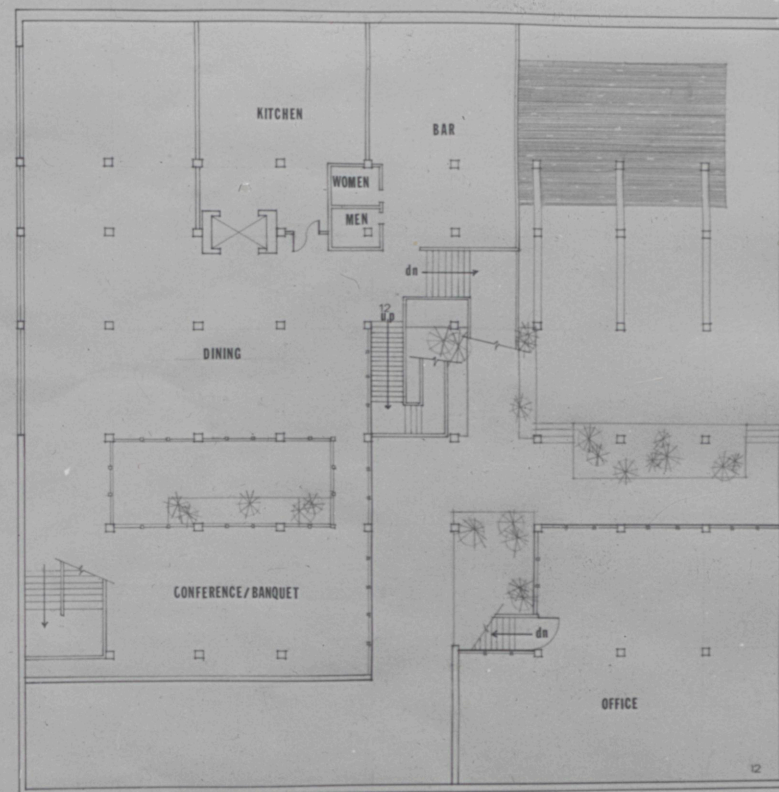
ESCARPMENT



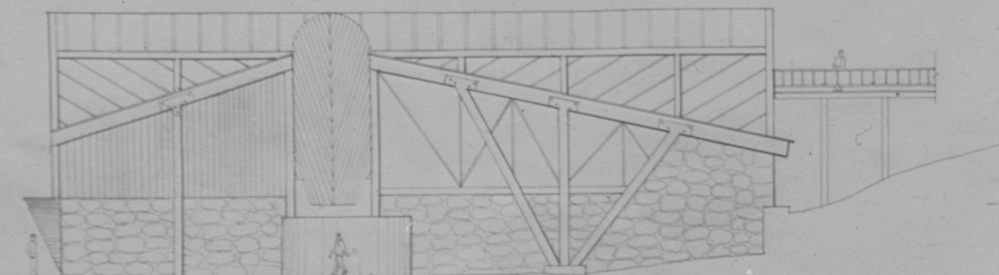




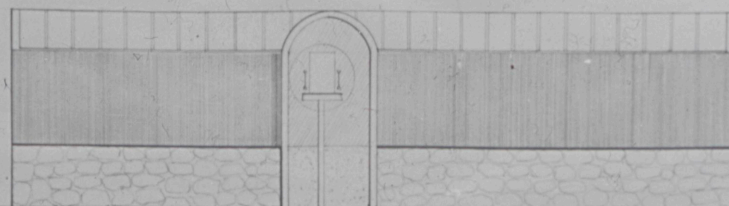
FIRST FLOOR



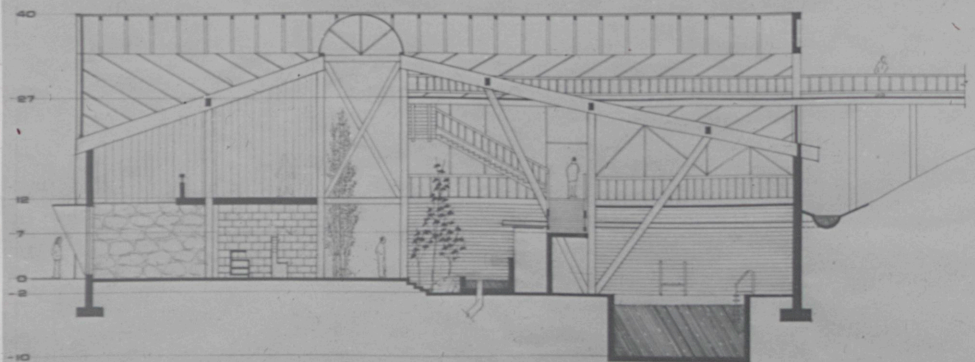
SECOND FLOOR



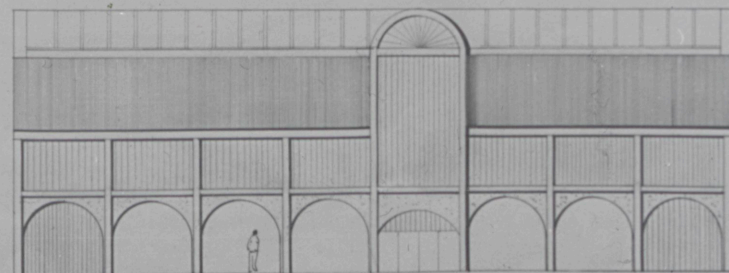
EAST ELEVATION



NORTH ELEVATION



SECTION



SOUTH ELEVATION

CONCLUSION

The method used in arriving at this conclusion was by establishing fixed factors common to both sites then introducing variables which were my "physical environmental factors". Common to both sites the physical and psychological needs of the user. My philosophical and design approach remained the same. Yet, I discovered major differences in the solution of both sites.

The differences lie in three major areas. These are site, public buildings and intimate spaces.

My site in Hawaii having a superb climate wanted to extend the inside outside. Hence, site planning became a more significant design consideration than my Montana site. Even the public buildings and the intimate spaces wanted to respond to the outside. I therefore made the inside outside.

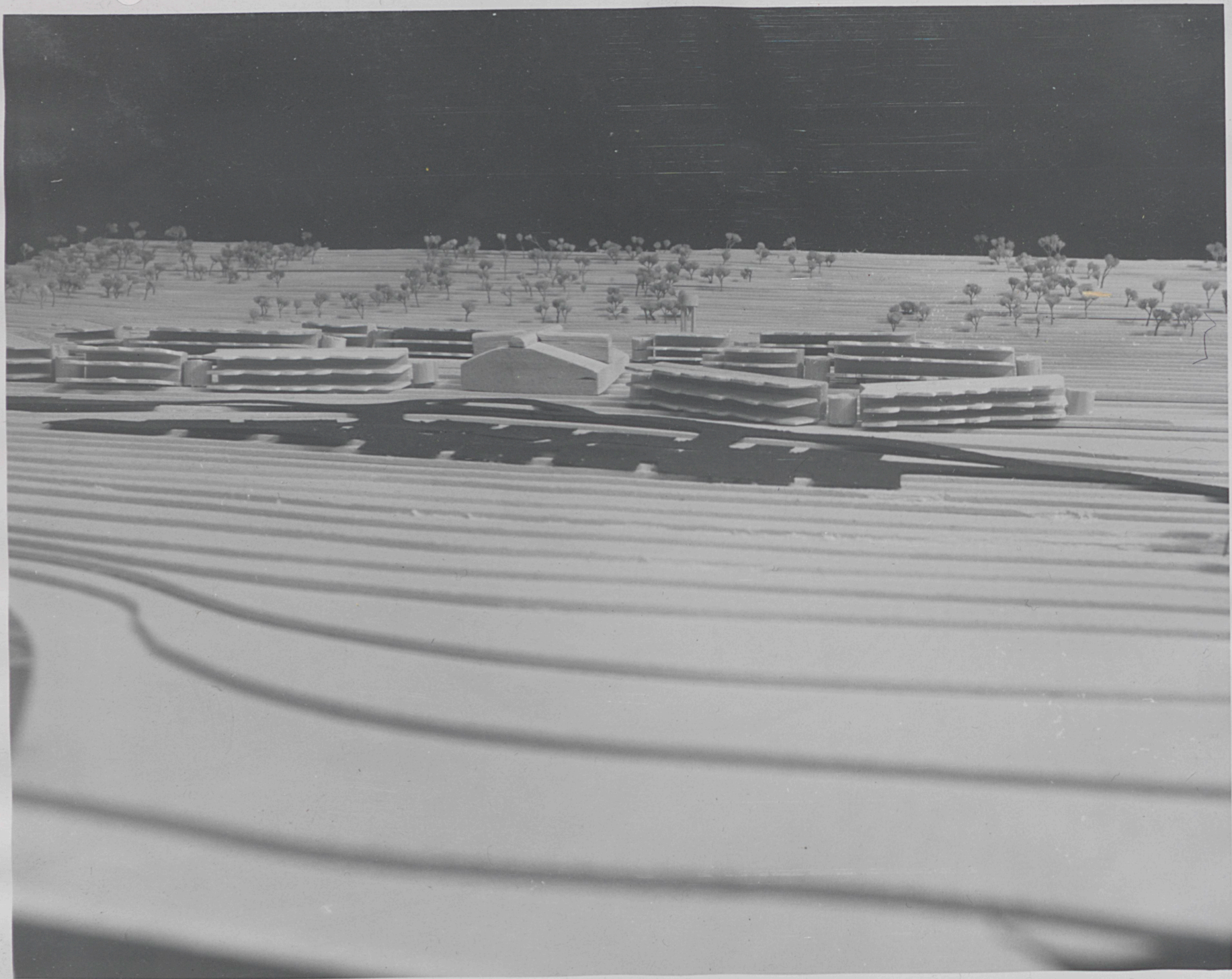
Montana responded differently to the environment. It wanted to exclude the outside. The inside became a haven affording warmth, protection, and fun. The site was not an important design ingredient as was my Hawaii site. Therefore,

the exterior encounter was kept to a minimum.

I also discovered that all physical environment effects the design of buildings. In my opinion, climate is the most significant.

In spite of the effects of climate and other environmental factors have on the design, the users needs often conflict with these factors. Because the premise for designing the site is for humane use, I chose to accommodate their needs over environmental factors when both considerations were equal.

I therefore conclude that the main difference between Hawaii and Montana was that Montana wanted to be introspected while Hawaii wanted to be outwardly.



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