

A NEW SKI AREA IN NORTHERN NEW HAMPSHIRE

a thesis submitted in partial fulfillment  
of the requirements for the degree  
Bachelor in Architecture

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March 24, 1964




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March 24, 1964

Dean Pietro Belluschi  
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Dear Dean Belluschi:

In partial fulfillment of the requirements for the degree  
Bachelor in Architecture, I herewith submit this thesis " A New  
Ski Area in Northern New Hampshire. "

Respectfully submitted,

  
Andrew S. Harris

## ABSTRACT

This study is of the planning of site use and facilities for a new ski area. The problems are (1) the use of a site on which the central facilities are best located in the middle of the skiing terrain and (2) elimination of a long access highway through the National Forest. Emphasis is placed on answering the needs of circulation.

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I.

HISTORY OF COMMERCIAL SKIING

Skiing had its start when man first wanted to travel across snow without sinking into it. He made platforms on which to walk or slide and strapped them to his feet. Although transportation was the first objective, work soon turned to play and racing started. The people of Scandinavia raced across the rolling countryside and those of the Alpine countries raced down their steep mountains. Nordic and Alpine racing competitions trace their histories to these early passtimes.

For centuries, in Scandinavia, skiing had been native as the snow. Norwegians and Swedes and Finns, during the Middle Ages used to put on skis and go out to spear the reindeer. King Gustavus Vasa of Finland hurled ski troops against the Russians in 1555. Skiing was the sport of the Scandinavian kings, and the serious business of the commoners. In the long winters throughout the huge white parishes, peasants skied about their daily chores, and children glided white miles to school.<sup>1</sup>

In the United States the first skiing was touring and was for transportation. Each downhill run was the climax of a long climb up the mountain and could only be accomplished if there were an open slope or an old stand of timber. There are few people who still indulge in touring ; the main center is in the Alps.

After centuries of skiing an over a century of mechanization of most aspects of our lives somebody had the idea that people might be willing to pay to get pulled up a hill to allow more downhill skiing and less work for it. The first such conveyance in the United States was a

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<sup>1</sup> Emily Williams, "The Great Bilgeri, " Skier, XII (March, 1964), p. 22

1200 foot long rope tow on the Clinton Gilbert farm in Woodstock, Vermont, which opened for business in January, 1934. Much has changed in commercial skiing during the thirty years which have since passed. The pasture on the Gilbert farm no longer plays host to skiers, but Vermont has become the skiing center of the east.

Ski schools came to New Hampshire before uphill transportation. The first sch was founded in Jackson in 1935. The Carroll Reed Ski School began training instructors in the winter of 1935-36 under the direction of Benno Rybizka. Rybizka came to this country from St. Anton, Austria, where he had learned with Hannes Schneider. In 1937 the school was renamed the American Branch of the Hannes Schneider Ski School and in 1938 the Eastern Slope Ski School was founded in North Conway with the Jackson school as a branch.

In February, 1939, Hannes Schneider emigrated from St. Anton to North Conway and assumed leadership of the ski schools. At the same time, Cranmore Mountain was being established as a ski area. The lower half of the Skimobile was built for the 1938-39 season and the upper half for the sollowing season. Although the Jackson branch was closed in 1943, the main school is still in operation. It is once again called the Hannes Schneider Ski School and is run by Herbert Schneider, the present owner of Cranmore Mountain.

Mechanical uphill transportation for skiers did not arrive in New Hampshire until 1937. In that year Bill Whitney built the first overhead tramway in this country on the lowest shoulder of Black Mountain in

Jackson. The lift consisted of a series of shovel handles fastened to an overhead line. One simply held onto the handle and was pulled up the hill. This was not a very sophisticated conveyance, but did represent a major step away from the rope tow in the direction of our present T-bars and J-Bars.

The next major addition to new uphill devices was the Tramway on Franconia's Cannon Mountain. The hourly capacity of 160 people was too little from the start, yet it is still in service taking skiers over some rough territory to the start of fine skiing.

The first chair lift in the east was the single chair at Mount Mansfield in Stowe, Vermont. This lift also traverses rough terrain, but carries 350 skiers per hour, more than twice as many as carried by the Tramway.

Since the Second World War there have been two great spurts of building in the ski business. The first ran from the end of the war until 1952 and the second from 1957 to the present. The second era of expansion is still going.

The first tow on the main part of Black Mountain in Jackson was built in 1946 by the May brothers. The tow allowed people to ski higher on the mountain than was possible with the Whitney lift alone. Arthur Doucette started his ski school in Jackson during the same season. The school used the slopes at Black as well as the hills and slopes around the village.

1948 was the start of two new ski areas in Jackson. Black Mountain and Thorn Mountain both opened as "modern" ski areas. Thorn boasted

the first chair lift in the region and some good skiing. Unfortunately, the development combined many faults of ski area planning and management. It was on the wrong mountain, was built by people who were not prepared to run it and was built in too much of a hurry. The area ceased operation in 1955. The lifts are now gone and the trails and slopes are overgrown with brush and houses.

Black Mountain is still thriving and was recently commended by the United States Eastern Amateur Ski Association for "... developing the modern family skiing concept."<sup>2</sup> The area is not on a major mountain, however, it provides what many families want when they go skiing. There are easy trails and slopes, places for watching, if one does not ski, and other winter activities close at hand.

The development of the Pinkham Notch side of Wildcat Mountain as a ski area is the most recent stage of growth in the Jackson Area. The lower mountain was opened in December, 1957 and the Gondola Lift, another first in the United States, in January, 1958. Last December a new double chair lift was put into service on the upper half of the mountain. The original Wildcat trail was cut by the C. C. C. in 1934 and is the second oldest racing trail in the United States.

From the rope tow era which started in 1934 we have very few existing relics. There are still a few rope tows in use, but they are mostly new ones. The old ones have been replaced or forgotten.

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<sup>2</sup> Henry Moore, "Anniversary for a Rope, "Skier (March, 1964), p. 20

Thirty years have passed and skiing has changed from the sport of a few people who would climb for hours for a few minutes of downhill skiing to a passtime for millions of Americans. The most recent areas think nothing of chalking up 6000 ticket sales on a good weekend . The small warming hut which was in the engine room of the rope tow has now been replaced by large restaurants, ski shops and nurseries.

II.

PLANNING A SKI AREA

The first step in planning a ski area is to find the proper location. The early areas depended upon public curiosity for their customers and were placed on major highways or near railroads rather than on major mountains. In New Hampshire this approach has been continued as the state does not build public roads for private enterprise.<sup>3</sup> In the thirties "Ski Trains" were the major carrier of skiers. The shift from trains to cars meant that ski areas did not have to be close to the railroads, but that good highways were now an absolute necessity.<sup>4</sup> The simultaneous increase in popularity of skiing as a winter activity magnified the problem of mass transportation in the mountains. Finally, if one considers the problems involved in maintaining highways for winter driving, there is little wonder that the highway departments in skiing states are hard pressed to meet the demands of skiers. New Hampshire and Vermont depend upon the tourist business for a major portion of their income which means that roads are important during the summer and fall seasons, as well as in the winter. For this reason, highways receive the attention of the residents and the legislatures.

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<sup>3</sup> New Hampshire State Planning and Development Commission, Report of the Winter Facilities Development Committee (Concord, 1961), This report appraises the business climate of New Hampshire's winter facilities and makes recommendations for specific action.

<sup>4</sup> Stratton Corporation, 5% Convertible Subordinated Debentures Due December 1, 1981 ; Prospectus (Stratton Mountain, 1962) p. 6. Note is made of the loss of revenue due to an unpaved access road.

Once a site has been found which offers the desired access, terrain and local services, the network of trails and slopes must be planned. To do this requires a knowledge of the wind and sun conditions and the nature of the ground cover. After the preliminary trail layout is known, the planning of the uphill facilities may start.

The next phase of the work is the most important one in making the area function and make money. The relationships among the access road, parking area and base facilities must be planned in agreement with the desired network of trails slopes and lifts.

The linking of access road and parking areas is critical to proper reception of skiers and tourists. The walk from the individual cars should be as short as possible. Especially for the non-skier, much of the selling of an area is done right at the road. The person's curiosity must be aroused enough to get him out of the car. Once out of the car, he is apt to come in and spend some money.

Circulation at this point is as critical as any other in a ski area. Automobiles are much larger than people and require maneuvering room. The plan of the parking area must be logical and the junctions at the access road must be level. The lot should also be planned so that it is not an open sore in the middle of the country.

Ticket sales should be made just inside the area. The ticket booths should be placed in the path of flow so that they must be consciously avoided if one does not want to buy a ticket. Otherwise they will be overlooked by people who are thinking about the skiing which awaits them.

Although ski areas are named for the sport of skiing, the quality of the skiing at an area is not the only impression which the visitor receives. The planning of an area must place emphasis on fulfilling every need of the visitor and impressing upon him his delight with every aspect of the area. Staff attitude is greatly influenced by the ease of operating the facilities and impresses the visitor. Good planning will thus have a double effect.

The fact that a major area can expect to be host to more than three thousand people on a good day means that small errors in planning can result in chaos. Recurrent bottlenecks which disturb the pattern of the skiing day will not aid the area's reputation and income.

The earlt base building was the shack which held the drive mechanism for the rope tow. A kindly operator would allow people to crowd into part of the building to warm up and dry off. As time past, he found that snacks, wax and minor repairs to skis and bindings could also be sold. As the popularity of the sport began to grow, the demands on the base building grew also. A base building must now have restaurants, warming and spectator areas and a ski shop to meet the skiers' demands. The large ski areas now being built have at least one major restaurant with smaller ones at the summit stations of major lifts and warming facilities at the tops of others. The ski shop may just be a service shop which rents equipment, does minor repairs and sells the small, but necessary, paraphernalia of skiing, or it may be a complete ski shop, but the latter is not very common in New Hampshire as there are many large ski shops in the towns adjoining the ski areas.

Circulation is the prime consideration in planning the base station, as in general planning. The number of people to be handled is large and the buildings must guide people into going the way they should go. They should not have to search for what they want. Through traffic should be kept outside to eliminate unnecessary confusion. Patron circulation must be separated from service circulation. This is especially true in the restaurant.

The immediate area of the central facility must provide circulation space, areas for the removal and temporary storage of skis and areas for eating and sitting in the warm spring sun. Circulation to and from the lifts should not conflict with the quieter activities.

In New Hampshire there are few ski areas which are active in any way after the skiing day is over. Although most of the developments are outside the town centers, community activities could use some of the facilities for dances, lectures, movies or similar purposes. Such cooperation would bring more people into the area who might later return as customers. As one of the major businesses in any community, the ski area should contribute as much as possible to the region.

Summer use of the facilities is a must if the area is to survive. Stratton Mountain is in the process of building a golf course on the lower hills of its property. Riding and other summer activities are planned and two inns run summer and winter. Similar use of resources must be part of the master plan of any new area.

III.

THE SITE

## HISTORY

Jackson is in the northeast corner of the state ( see maps ). The town was settled in 1778, incorporated in 1800 as Adams and renamed Jackson in 1829. The present center of the population ( 350 ) is the Village of Jackson. The center was once located above the falls, near Black Mountain. With the exception of those houses on Dundee the majority of houses are located on the banks of the Ellis and Wildcat Rivers. The private landholds within the town are in two "tongues" of land which extend into Carter and Pinkham Notches. The balance of the town is in the White Mountain National Forest.

Tourism and skiing are the basis of the town's economy. Black Mountain is the only ski area in the town , but Wildcat Mountain depends upon Jackson for hotel and shopping facilities. Cranmore Mountain and the Intervale Slope are within six miles of the village.

Starting in the early years of the town's history, the main period of tourism was the summer and fall. The following account appeared in 1895 :

Jackson is the Mecca of the tourist. To the cultured traveler who has ranged through the historic and romantic countries of the Old World, and visited the lonely isolation of the stupendous mountain scenery of the far West, the White Mountain section, with its combination of wondrous sublimity and reverence-inspiring grandeur, and scenes of restful quiet and gentle repose, appeals in a most effective manner and has a powerful attraction. One of the loveliest of these scenes of sylvan beauty and dreamy repose—one that tarries ever in

the memory with tender and fascinating recollections and bewitching unobtrusiveness—is the ideal mountain town of Jackson. The noble Frenchmen of the empire believed that the culmination of earthly happiness lay in Parisian life, hence the expression, " See Paris and die." In the minds of the highest order of cultured American people a fundamental law seems to be now written, "See Jackson and live." <sup>5</sup>

This is a rather flowery description of Jackson, but one can only concur that Jackson is a very pleasant place to be. Summer tourism continues and skiing flourishes.

### CLIMATE

The climate of the site is influenced by Mount Washington which is taller than any nearby mountain ( 6288 feet above sea level ) and is a "weather breeder." Storms quite often linger around the mountain and give extra snow to the immediate region. The following is a summary of the climatic conditions:

Average temperature:

Summer: 67° F.                      Winter: 18° F.

Normal extreme temperature:

Summer: 80° F.                      Winter: - 35° F.

Precipitation:

The average annual precipitation is 40" ( melted ) with an average of 180" of snow on the upper mountain. <sup>6</sup>

Wind:

Prevailing direction: northwest              Velocity: no record

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<sup>5</sup> The History of Carroll County, New Hampshire ( Concord: The State of New Hampshire, 1895 ), p. 945.

<sup>6</sup> The snow depth is from the existing development on Wildcat.

Sun angles: <sup>7</sup>

	10 A.M. altitude/azimuth	3 P.M. altitude/azimuth
December 22	17.6° / S 27.8° E.	12.3° / S 40.7° W.
March 22	39.7° / S 36.5° E.	33.2° / S 51.9° W.

Rocks:

Conway granite and gray gneiss. <sup>8</sup>

Ski season:

The season runs from December into April and averages 130 days.

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<sup>7</sup> Ernst Neufert, Baentwurfslehre ( 20th es. ; Berlin: Ullstein Fachverlag, 1959 ), pp. 116-17.

<sup>8</sup> Andrew Harris, " Geology of Jackson, New Hampshire" (Unpublished report, Dept. of Geology, Massachusetts Institute of Technology), p. 6.

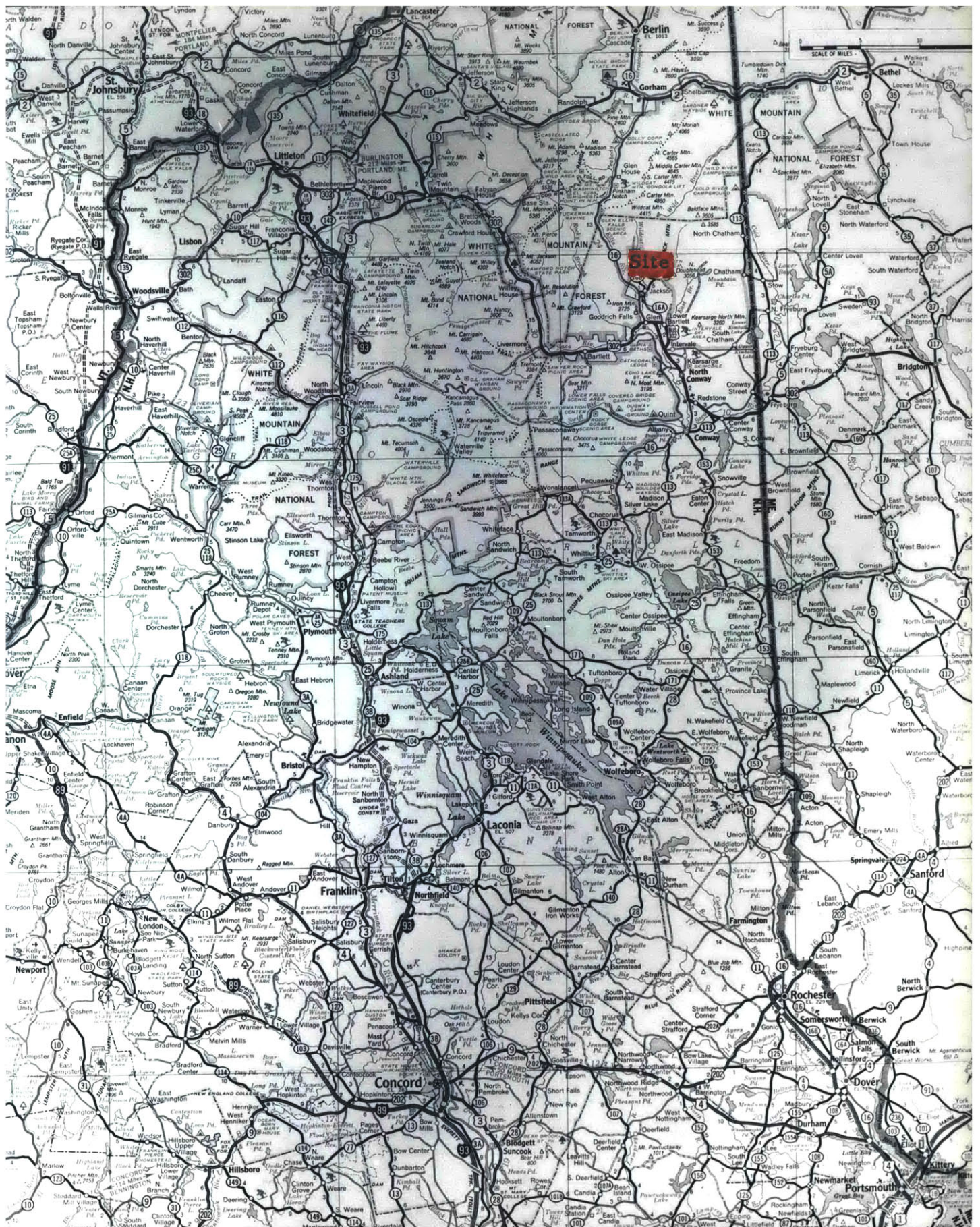


Figure 1. --Location of Site in New Hampshire

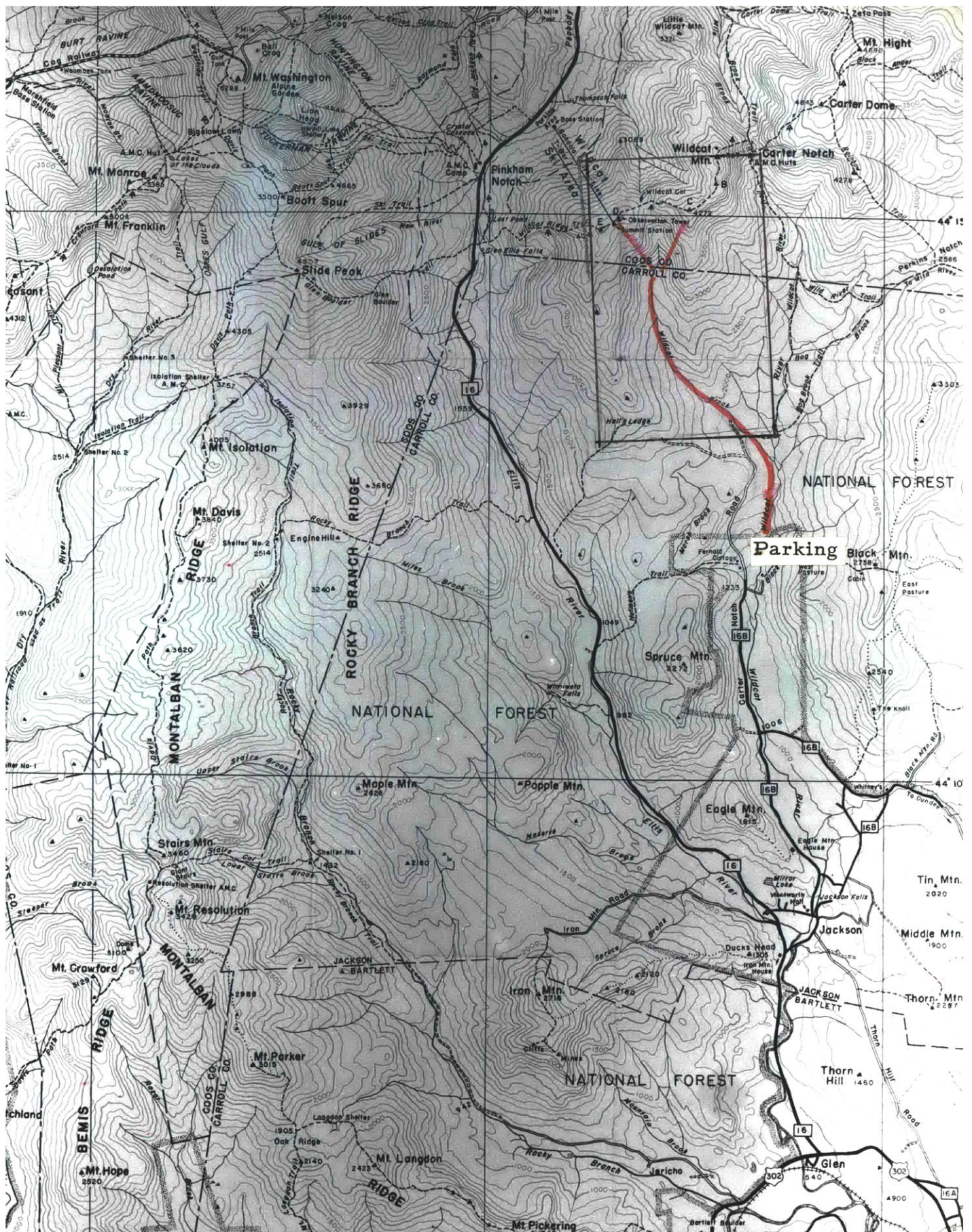


Figure 2. --Location of Site in Eastern Slope Region

## CHOICE AND USE

The site was chosen for several reasons. They all bear on the desire to have an area with commercial potential.

1. Location in an established region. The history of the Eastern Slope Region was outlined in part I.
2. Terrain which lends itself to skiing. The land forms of the site provide the variations desired in a ski area and the sun and wind conditions allow trails and slopes to be cut which will hold snow for good skiing during a long season ( see figures 3 and 4 ).<sup>9</sup>
3. Proximity to the existing development on Wildcat Mountain.

The combined use of north and south slopes of a mountain allows more skiing during an average season than the massive development of one side or the other. This may be observed at Mount Tremblant, Canada, the "circus" approach has been in use for years. Skiers can ski on the south face of the mountain when the conditions are bad on the north and vice versa. Wildcat Mountain Corporation, the present developer of the north side of Wildcat, has stated an interest in such a program of expansion.<sup>10</sup>

The greatest problem posed by the site is access from the upper Carter Valley. As indicated on the maps ( figures 2 and 3 ) there are logging roads in the valley of the Wildcat Brook, but the gradient is

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<sup>9</sup> A study of the sun effects was part of the original research portion of this thesis. It forms a portion of the graphic presentation of part II.

<sup>10</sup> New Hampshire State Planning and Development Commission, op. cit. , p. 34.

up to 15% and the roads are impassible in winter. The highway to "Fernald's Cottages" ( figure 2 ) is an all-weather, 2-lane, paved highway with access from Jackson Village via the Jackson Falls Road and the Black Mountain Road, but beyond Fernald's there is nothing.

Locating the central facility is another problem. The most common approach is to place the main restaurant, ski shop, and other portions of the "base" facility at the lowest point in the development and to have the parking areas immediately adjacent. The site being used is such that the most logical location for the central facility is at the head of the valley. This is where the character of the terrain changes and where the upper lifts will start. It will be the center of activity during the entire season. Any other location would not serve the area as well.

With the central facility at the head of the valley transportation must be provided (1) at the start of the day and (2) after skiing down the east or west limb of the valley. Supplies must also be brought from the end of the highway. Three approaches were considered:

1. A 2-lane access highway. The use of a highway would give the required capacity for both skiers and supplies arriving at the area. It would not provide for transportation from the bottoms of trails and a lift would have to be built on each side of the valley. The main reason for rejecting this approach is that the highway would serve only the ski area and would disrupt the forest more than is warranted for that single purpose. To overcome the steep portions would require too much earth moving or serpentineing.

2. A cableway from the lower valley to the base station. A cableway with a 1200 person per hour capacity would be reasonable if the distance were shorter. A run of 3 miles would require two lifts used in series. Present speeds of operation would result in a travel time of roughly 30 minutes plus the time required to change lifts. This is too long a trip.
3. A high-speed rail conveyance. A conventional rail vehicle could not make the trip up the valley. Even with rubber tires the grade would be steep and winter conditions would make the flatter portions impassible. It would also be a circulation barrier against cross-valley skiing.

An overhead railway with a suspended car, a monorail, would seem to answer the various demands. The possibility of speeds up to 60 miles per hour on grades of 15% is very inviting.<sup>11</sup> The most satisfactory type of monorail for this service has a rail which is an inverted "U"-girder. The driving bogie and wheels are within the "U" and thus protected from the weather.

The monorail would have the required capacity for passengers and supplies. It would be able to receive passengers at both terminals and at an intermediate station higher in the valley.

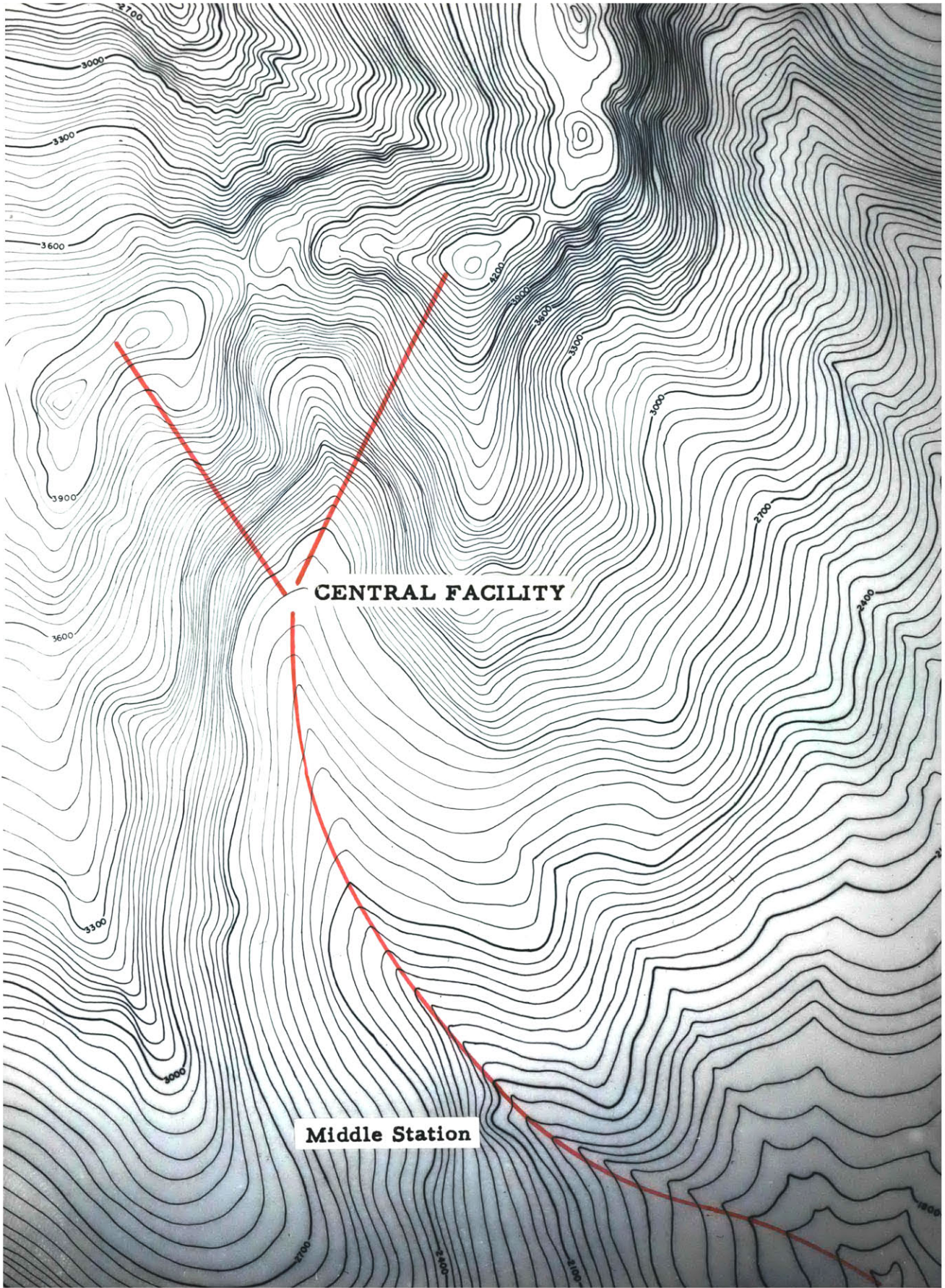
Cost is the major obstacle. Systems of this type are rather new and may be less expensive in the future. The benefits which the monorail offers have caused me to assume the use of one for this problem.

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<sup>11</sup> "French Suspension Railway," The Engineer, April 29, 1960, pp. 755-57

The chairlifts and T-bars are shown in the positions which were determined by the planning of trails and slopes. The exact path of the lifts could vary slightly, due to engineering demands, but present planning need not be influenced. The principal requirement is that the terminals of lifts be located to best serve the desired circulation. Flow from one lift to the next should be downhill and lift waiting lines must not conflict with each other.

**Monorail**



**Figure 3. --Site Map**  
**-23-**



Figure 4. --Photograph of Site Model



Figure 5. --Photograph of Site from South



Figure 6. --Photograph of Site from the Middle of the Valley  
-26-

IV.

THE PROGRAM

The program requirements are listed in the order in which they will appear to the user.

#### PARKING

The development is being planned for 3000 people. The parking area must have a capacity of 1000 cars belonging to skiers and 35 cars belonging to employees. Bus parking must be provided for 10 buses.

The site chosen provides (1) transfer from private transportation to the monorail before the road becomes steep, (2) parking where simple terracing allows blending of parking with the landscape, and (3) a view of the skiing terrain.

#### TICKET BOOTHS

There will be 4 selling positions on the path between the parking area and the Monorail. This is the main selling area. Single tickets will be available at the central facility.

#### MONORAIL LOWER TERMINAL

Facilities must be provided for loading and unloading passengers. Waiting space must be planned for 15 minutes of waiting at a rate of 1200 people per hour. Receiving facilities are required for supplies

which arrive for the central facility. Toilet facilities must also be planned.

THE MONORAIL  
Path of Travel

The course of the monorail is that of the Wildcat River until the junction with the Wildcat Brook and along the Wildcat Brook to the central facility. This is the route of least grade. The present logging road would be used for access during construction.

MONORAIL  
MIDDLE  
STATION

The middle station of the monorail must have a warming hut for 50 people and a loading platform.

CENTRAL FACILITY

MONORAIL  
UPPER  
TERMINAL

The upper terminal will have to receive 1200 people per hour in the morning and load at the same rate in the evening. Many people will ski out to their cars after the skiing day, but the rate of leaving will be high because everybody will want to leave at the same time.

Receiving facilities must be planned for the supplies coming in to the restaurant and shop. Most of these will arrive before or after skiing.

INFORMATION

An information desk for the area and for the ski school should be prominently located. It will be

staffed by 4 people during rush hours. Tickets for ski lessons will be sold here.

RESTAURANT            The restaurant will be the central eating facility and its kitchen will supply food for the snack bars at the summits.

Eating                Places must be provided for 400 people to eat at one time. The eating areas should give a view of the slopes. Warmth, good food and congenial surroundings are requisite.

Serving              Serving will be in cafeteria lines. The lines must be able to serve people at a rate of 16 per minute (total) to allow full use of the restaurant capacity.

Receiving  
Storage  
Production and  
Cleaning              The central kitchen must have sufficient capacity to serve the main restaurant and the snack bars at the summit with the pre-cooked items sold. Short-order items will be prepared at the serving location. Cannisters will be filled for shipment to the summits. Dishwashing and pot washing will be done here.

Employee  
Areas                 Bathroom and locker facilities must be provided for the restaurant employees.

Office                The restaurant must have an office for its manager and files.

**SPECTATOR  
AREAS**

Spectator areas are required both inside and outside. They must all have good views of the skiing and scenery. There must be room for 100 people inside. This space should be added to the restaurant area.

Outside areas should have a capacity of 600 people and should give protection from the wind. This will be a favored eating place in the spring and should be easily reached from the eating spaces in the restaurant.

**SKI SHOP**

The ski shop is divided into two sections : (1) the rental and repair shop, and (2) the sales shop.

The rental and repair shop must be designed to permit easy flow of many people. There must be 5 ski fitting positions, 3 repair positions, 2 waxing positions, 20 seats for fitting boots and 3 positions for checkouts and sails. Storage is required for 300 pairs each of skis, poles and boots. Private storage for 200 pairs of skis should be planned also.

People will enter the shop to rent equipment. The layout must be planned to allow them to do so with a minimum of confusion. Direct access to and from the slopes is a necessity.

The sales portion of the shop is not intended to

be equivalent to a major ski shop. The region has many complete ski shops. It should provide the small items required during the skiing day. The shop would probably be affiliated with one of the local firms and would display some items which are offered in greater variety at the main shop.

#### NURSERY

An additional service which the development should offer is a nursery. Children who are too young to be in ski school should have their own place to go. A capacity of 50 children should be planned. Bathroom facilities are necessary.

#### OFFICES Corporate

Office space should be planned for one member of the board, the manager, the book-keeper and 4 staff aids. These offices should be available to the skier, but not on the main circulation.

#### Maintenance

Office space is required for 2 people with lockers and a shower for 30 others. These offices are not for public use and need not be near the main circulation.

#### Ski Patrol

The ski patrol will number 6 during non-vacation weeks and 20 on weekends and during vacations. Locker space and ski storage racks should be provided.

An office for the nurse and a first aid room should be planned with access from the slopes.

Ski School

The regular staff will be 6-8 with a weekend and holiday staff of 20-28. Warming facilities, lockers and storage for skis must be planned. Office space is required for the director of the school.

TOILETS

Public facilities should be placed with easy access from the restaurant and from the slopes.

Women: 8 toilets and 6 lavatories

Men: 4 toilets, 6 urinals and 6 lavatories

CIRCULATION

Circulation around and in the central facility must guide the visitors where they want to go.

Areas which do not have to be heated should be used, if possible, to reduce overhead.

LOWER  
TERMINALS  
OF THE  
CHAIRLIFTS

Each lower terminal must have a loading station and waiting space for 200 people. The watchman's booth should have a capacity of two people.

UPPER  
TERMINALS

The upper terminals will use gravity unloading ramps. There must be loading stations, but need be no waiting area. The upper watchman's booth should also have a capacity of 2 people.

SUMMIT  
RESTAURANTS

The summit restaurants will serve sandwiches, soup, drinks and desserts. The cooking facilities need only be for hot sandwiches.

Seating will be for 100 people. The siting and

building design should place emphasis on the view, the sun and the wind.

As the development expands the summit restaurants will tend to expand also. Eventual planning might have them do their own cooking so that the central kitchen can serve snack bars at the center of the area.

### CONSTRUCTION

The decision not to build a major highway to the central facility must be reflected in the construction of the area. The materials for heavy construction should be those present on the site. Trees cut during the first season would include enough red spruce and black spruce to meet the structural requirements of the buildings.

The area would be developed during two building seasons. The lift lines, trails and slopes would be cut first. At the same time, the monorail would be installed.

During the second season the lifts would be installed and the buildings constructed. With careful planning and luck the complex would be ready to receive its first visitors for early skiing in November of the second year.

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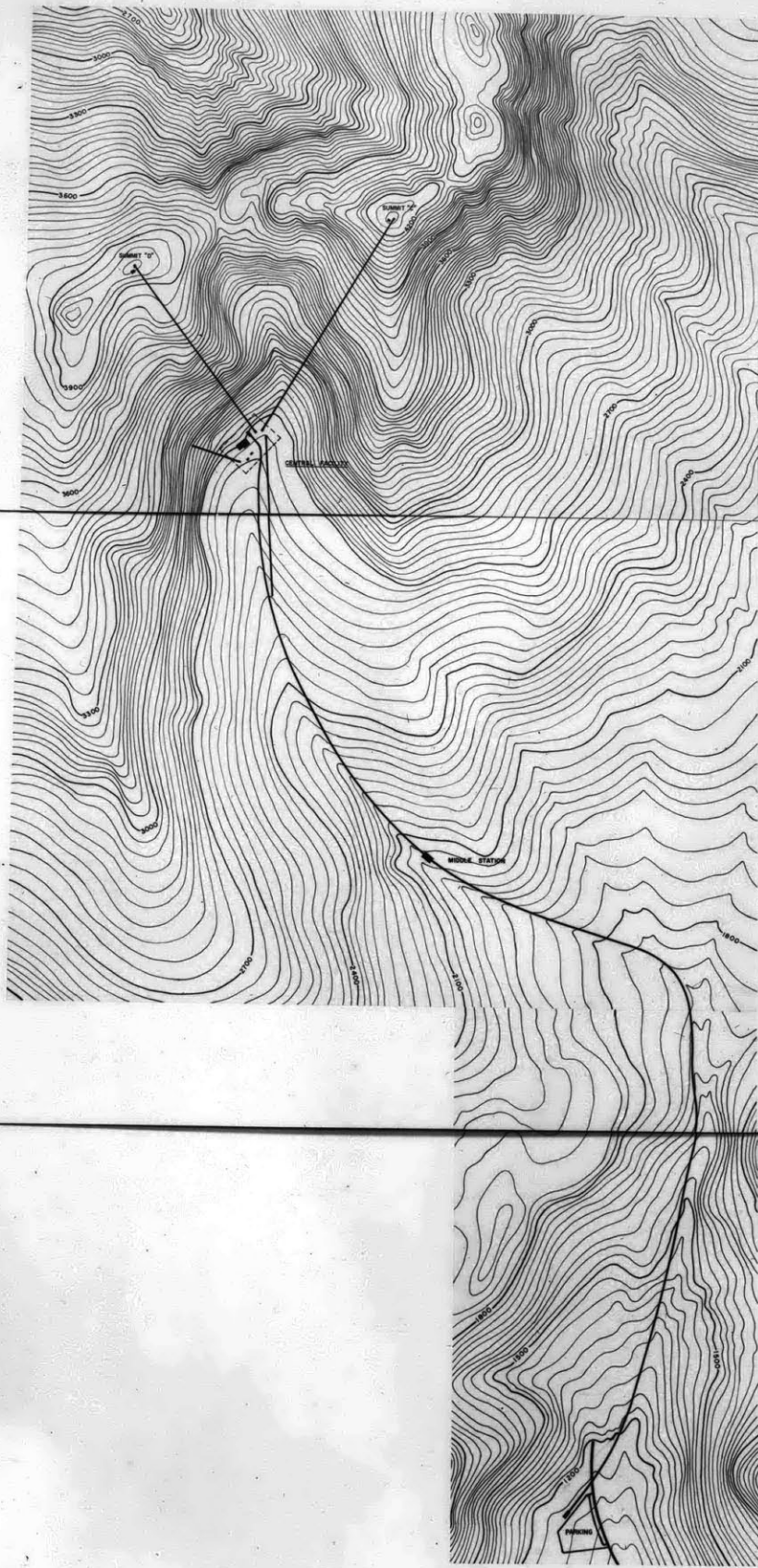
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### Interviews

Personal interview with Richard B. Earle. This was a discussion about the history of commercial skiing in the Eastern Slope Region. March, 1964.

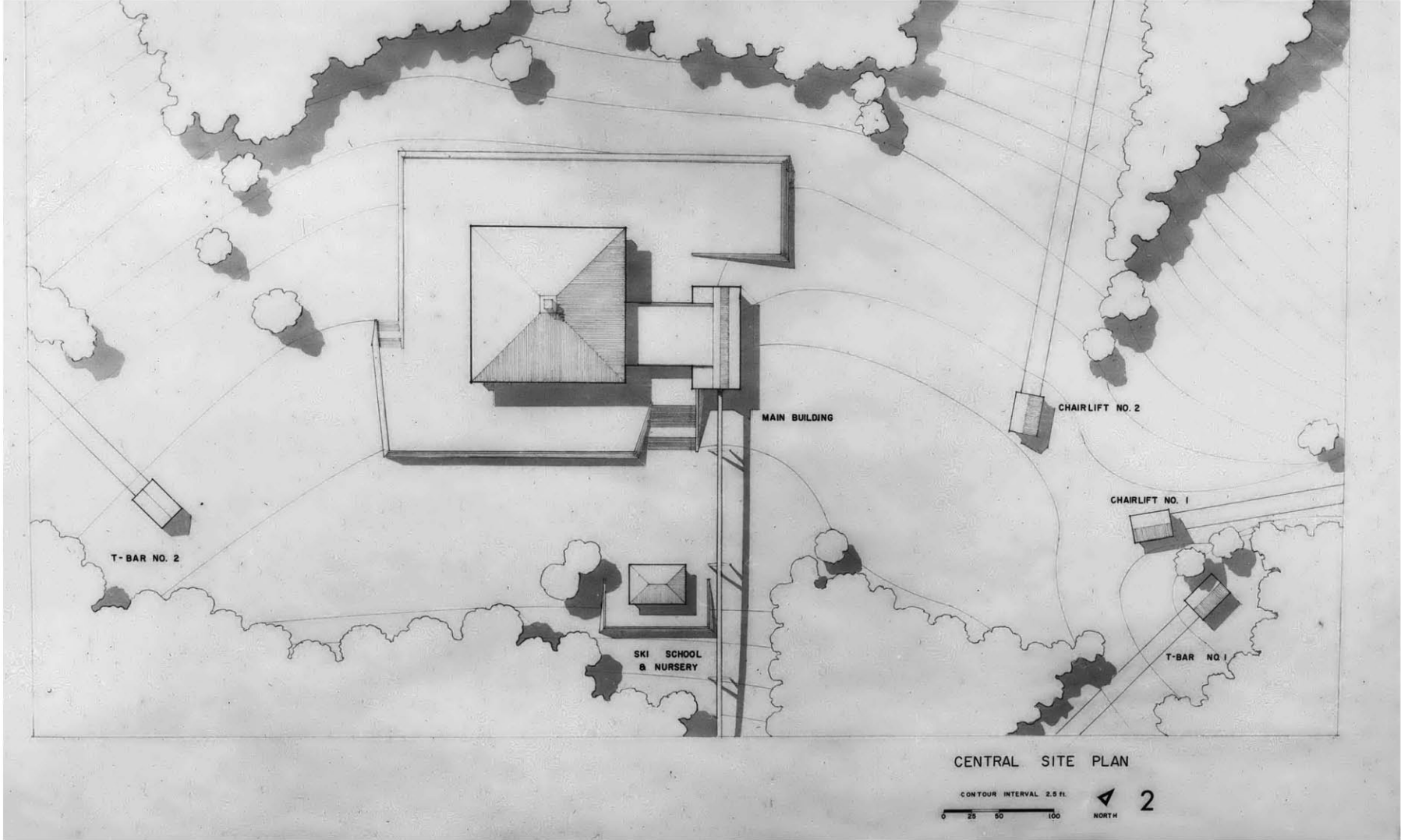
Massachusetts Institute of Technology. Interview with Professor Alexander Bone about methods of transportation. March, 1964.

Wildcat Mountain Corporation, Pinkham Notch, New Hampshire. Personal interview with Stanley Judge, Manager. February, 1964.



A NEW SKI AREA IN NORTHERN NEW HAMPSHIRE  
B. ARCH. THESIS M.L.T. ANDREW S. HARRIS 1964

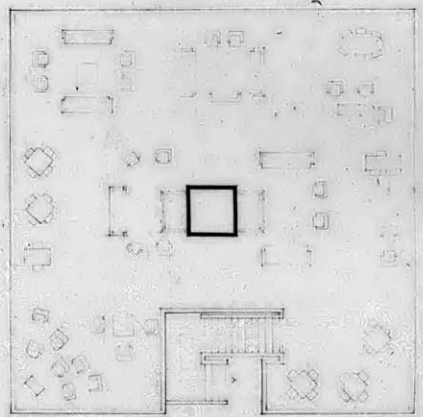
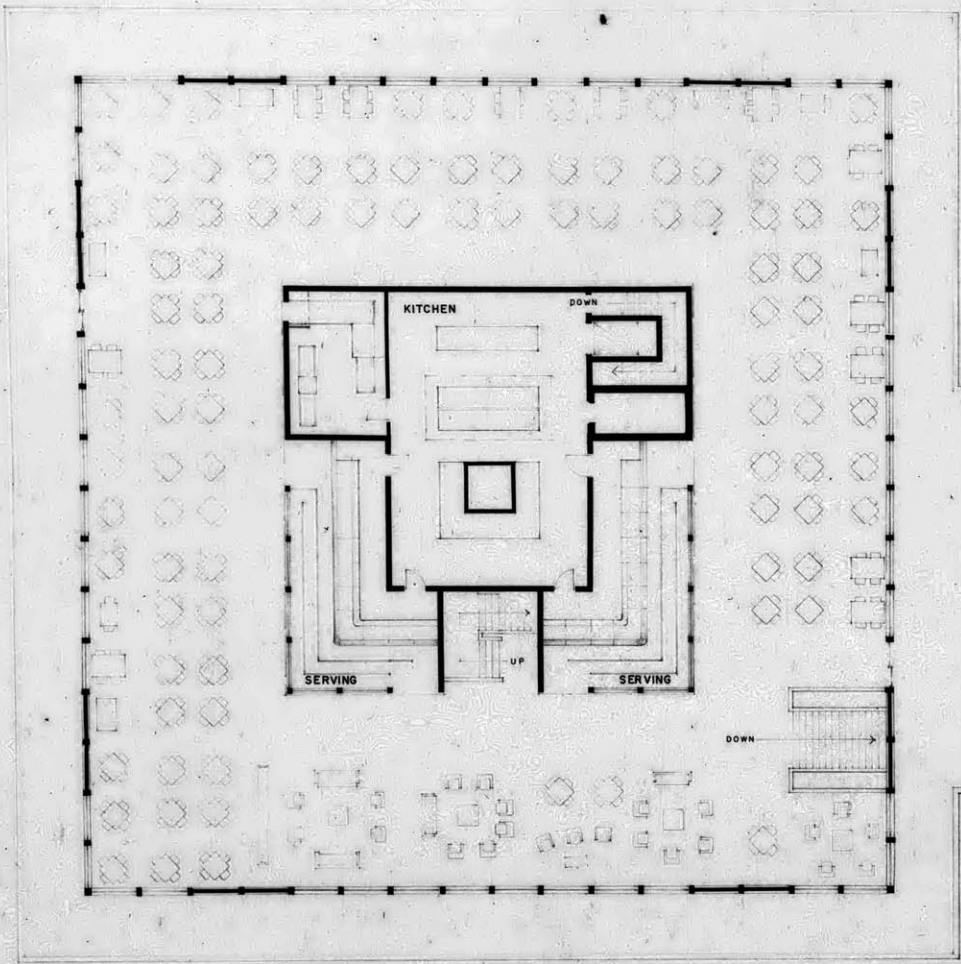
AREA SITE PLAN  
CONTOUR INTERVAL 30 FEET  
0 500 1000



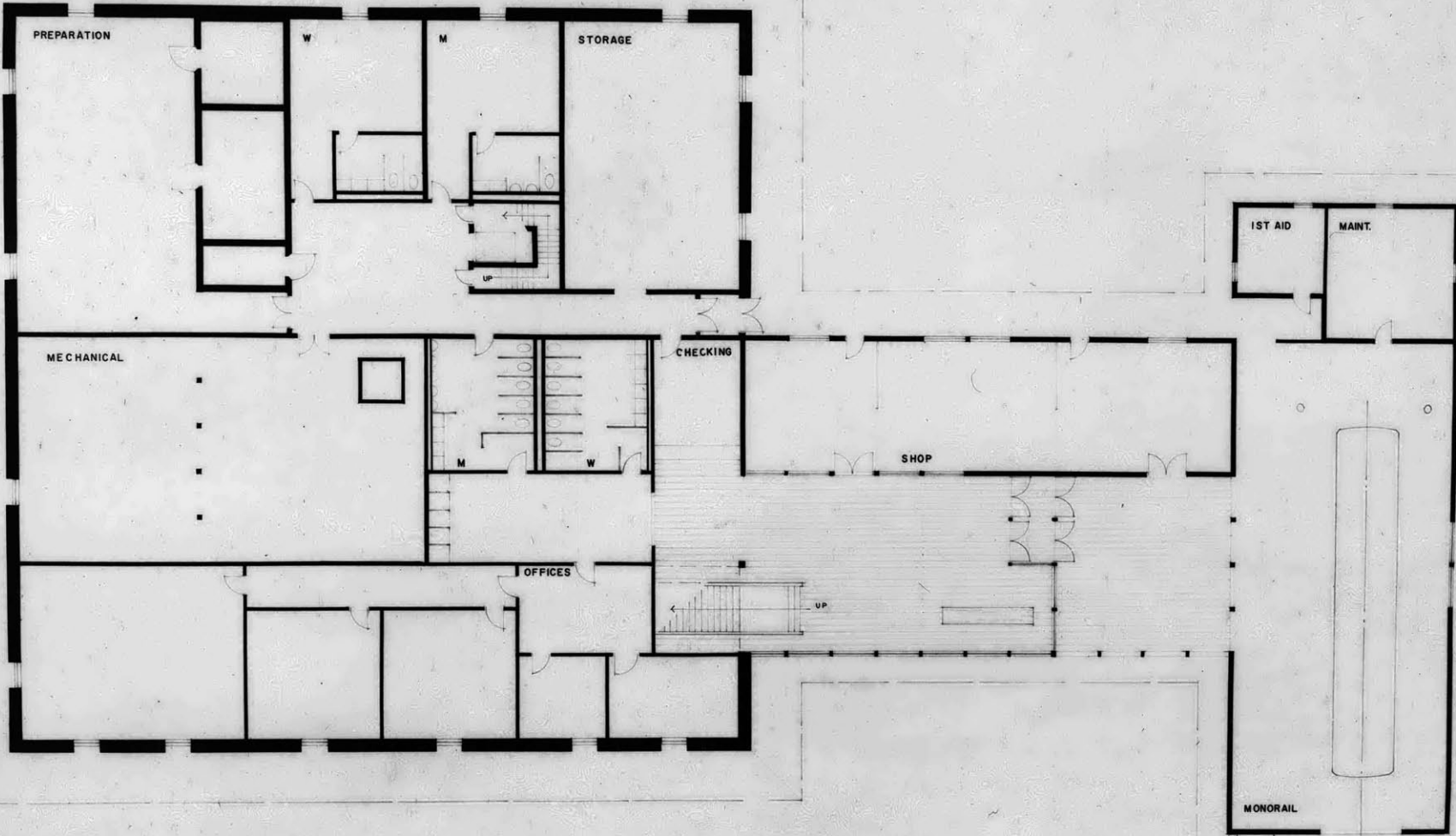
CENTRAL SITE PLAN

CONTOUR INTERVAL 2.5 FT.  
0 25 50 100

2  
NORTH



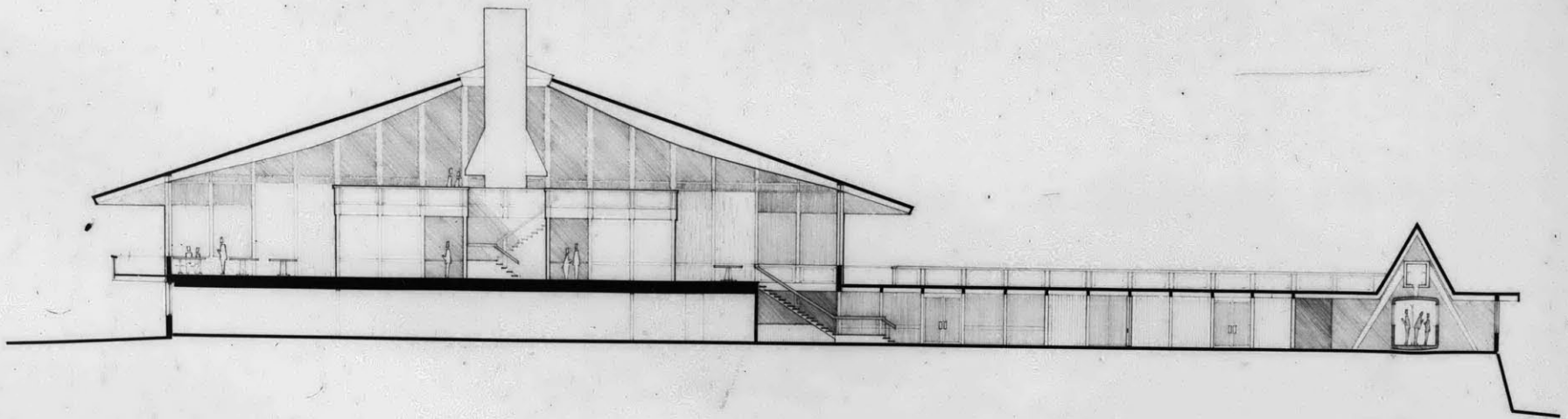
DINING LEVEL  
PLANS  
0 5 10 15  
3  
NORTH



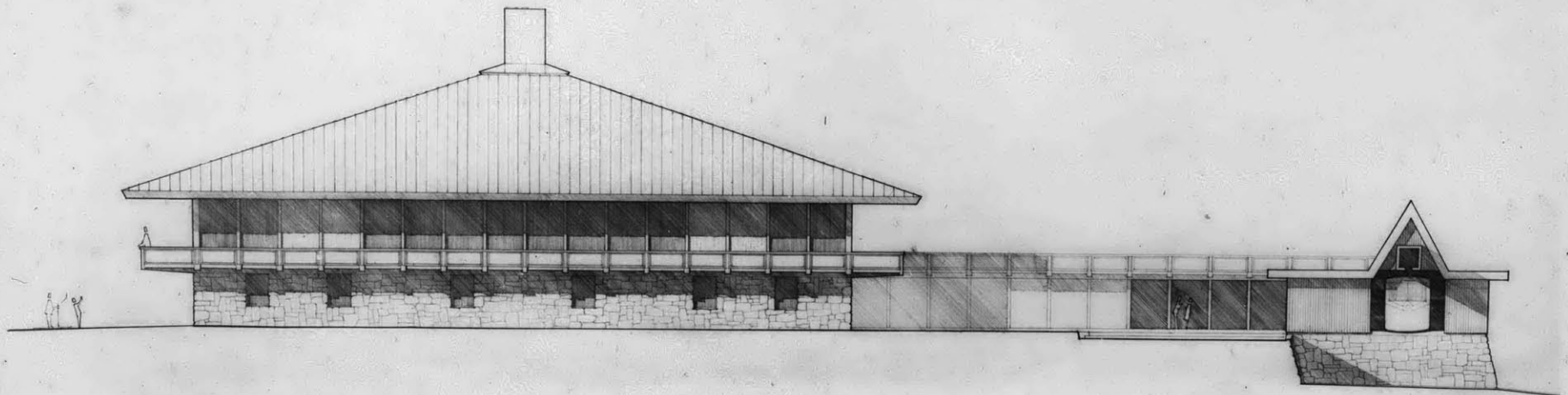
PLAN ENTRANCE LEVEL



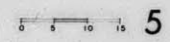
4

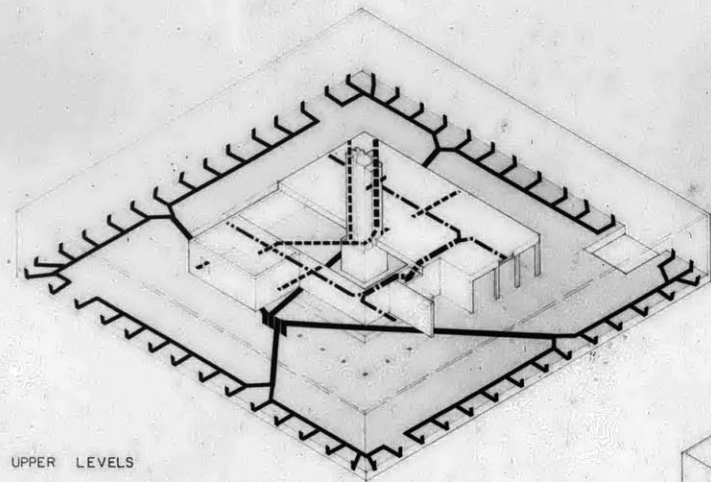


SECTION

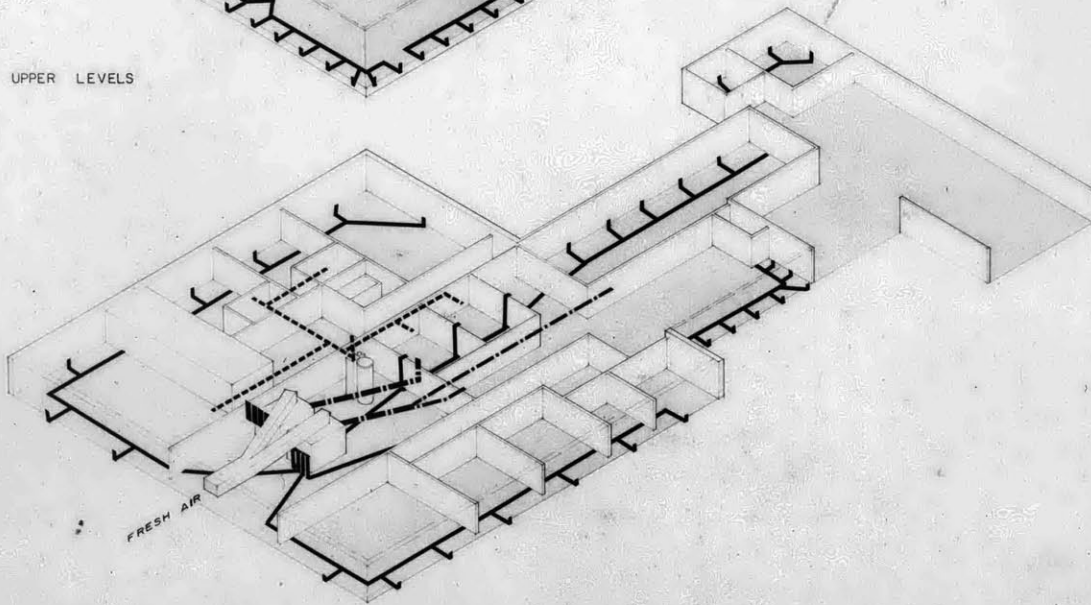


SOUTH ELEVATION



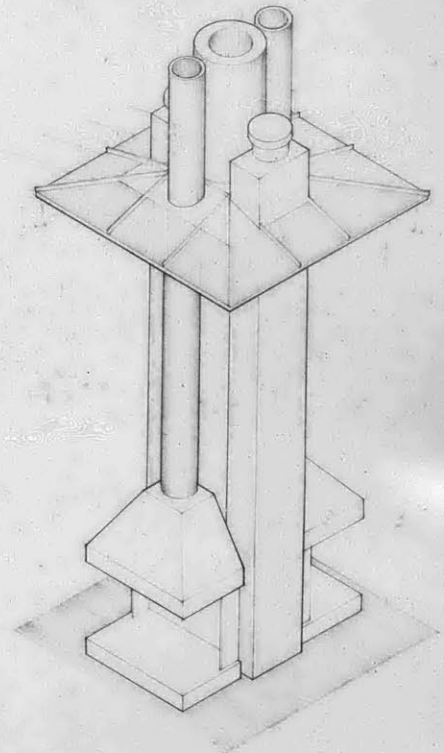
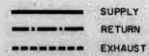


UPPER LEVELS



ENTRANCE LEVEL

DUCT LAYOUTS



CENTRAL STACKS