

THE ARBORETUM--A DESIGN, DEVELOPMENT
AND CONTENT PROPOSAL

By

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1970

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
MASTER OF SCIENCE
July, 1972

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AND CONTENT PROPOSAL

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ACKNOWLEDGEMENTS

The author wishes to express his sincere appreciation to Professor J. S. Ownby for his guidance, cooperation and patience during the writing of this thesis and throughout my graduate program.

Appreciation is due to Professor W. R. Kays, Head, Department of Horticulture, Dr. R. N. Payne, Professor, Department of Horticulture, and Dr. H. A. Robitaille, a former Professor in the Department of Horticulture for their interest, cooperation and contributions to this study.

Special appreciation is extended to Bobby Burk and the entire greenhouse staff for their assistance in carrying out this study.

My wife, Bonnie, deserves the final and most sincere measure of appreciation. It has been her faith and her support that have seen this thesis through to completion.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.	1
II. LITERATURE REVIEW	2
III. THE SITE.	13
IV. THE DESIGN.	19
Research Area.	21
Plant Introduction Area.	21
Teaching Area.	23
V. THE ARBORETUM	24
Deciduous Tree Area.	26
Broadleaved Evergreen Area	26
The Conifer Peninsula.	29
Deciduous Shrub and Conifer Area	31
Protected Area	31
VI. PLANT SELECTION	34
VII. CONSTRUCTION.	40
VIII. CONCLUSION.	46
SELECTED BIBLIOGRAPHY	47

LIST OF TABLES

Table	Page
I. Conifers	35
II. Broadleaved Evergreens	36
III. Deciduous Shrubs	37
IV. Deciduous Trees	38

LIST OF FIGURES

Figure	Page
1. Location of the Horticulture Teaching and Research Center.	14
2. Soils of the Center	15
3. Microclimates	17
4. Circulation Patterns.	20
5. Major Divisions of the Center	22
6. Divisions of the Display Area	25
7. Deciduous Tree Area	27
8. Broadleaved Evergreen Area.	28
9. The Conifer Peninsula	30
10. Deciduous Shrub and Juniper Area.	32
11. The Grid System Used to Locate Features	39
12. The Water System.	41
13. Horticulture Center Entrance.	42
14. Typical Bridge.	44
15. Construction Detail of a Bridge	45

CHAPTER I

INTRODUCTION

A properly labeled plant collection is needed to familiarize students with more than the commonly grown plants in Oklahoma, so that as graduates, they may be more able to succeed.

There is a very modest collection of labeled plants in the Oklahoma State University Horticulture Nursery. A relatively small number of plant species can be found on the campus, and these are not labeled. The Horticulture Department had recognized this shortcoming and developed a small plant materials garden on campus, but construction of the Home Economics building west of Monroe street destroyed them. Another attempt at making a plant collection was begun in 1965 by Professor A. F. Kenyon. The site selected was located west of the city at the Horticulture Nursery. A small collection consisting primarily of junipers and hollies was started, but the effort stalemated after Professor Kenyon left the university.

CHAPTER II

LITERATURE REVIEW

An arboretum or botanical garden is an area set aside for the growing, maintenance, proper labelling, study, and effective display of different types of ornamental trees, shrubs, vines and other plants which can be grown in a given geographic or climatic area, for educational and scientific purposes [34]. The emphasis in an arboretum is placed on the growing of woody plants, as opposed to a botanic garden where emphasis is placed on no one type of plant, all types having equal importance. In both cases, an effort is made to plant extensive collections, not only for display, but also for critical examination [34].

Botanic gardens and arboreta are among the oldest scientific research institutions. Up to one hundred years ago, principal botanic work was done only in botanic gardens and arboreta. The early gardens were primarily collections of medicinal plants. Emperor Shen Ming had such a garden in China in 2800 B.C. In 1500 B.C. the head gardener of the Temple of Karnak planned a garden for Thotmes III. Aristotle had a botanic garden in Athens in 340 B.C. where he taught students about medicine [19].

The search for and collection of plants yielding drugs and spices led to the founding of the monastic gardens in Europe during the middle ages. One such garden existed at the Vatican in the thirteenth century for use in the training of medical students [31]. These monastic

gardens were the forerunners of botanic gardens associated with universities [14].

The knowledge that emanated from those gardens was collected in herbals. The herbals of Brunfels, Bock, and Fuchs in the sixteenth century were the first textbooks of botany [22].

The oldest botanic garden in existence today is that of Pisa in Italy, founded in 1543 [20]. A decree from the Senate of the Republic of Venice instituted the botanic gardens at the University of Padua on June 29, 1545 [22]. These were followed by academic gardens associated with universities in Leiden, Leipzig, Montpellier, Strassbourg, Paris, and Oxford [8].

Two factors caused the decline of the old botanic gardens [31]:

1. Drugs became available as standard products so the physician no longer had to collect them himself, and
2. It was difficult to maintain a complete collection.

Generally the first botanic gardens in North America were private gardens of plant collectors, as James Logan, Christopher Witt, John Clayton, John Bartram, John Evans, Joy Morton, Pierre DuPont, Henry Shaw, and Henry Winthrop Sargent [43, 22]. John Bartram established the first known botanical garden in America in Pennsylvania in 1778. The garden contained a collection of American trees gathered by Bartram in his travels. This garden is now a public park in Philadelphia [4].

One of America's foremost arboreta, Arnold Arboretum, was one of the first established primarily for educational purposes. Arnold Arboretum was founded in 1868 by Harvard University and the city of Boston through a gift of \$100,000 from James Arnold. The arboretum was designed by Frederick Law Olmstead, who contrived a gentle landscape

to give a naturalistic appearance [25].

Other universities have followed Harvard's lead and developed arboreta for educational and research purposes, some of which are the University of Minnesota, Yale, Swarthmore College, University of Wisconsin, University of Michigan, Cornell University, and the University of Pennsylvania [34].

The functions of arboreta and botanical gardens have gradually changed. The botanic gardens of the pre-renaissance times were chiefly for the cultivation of plants used for medicinal purposes and for the training of physicians in the identification and uses of these plants. During the renaissance period, the botanic gardens took on greater educational importance, that being in the training of botanists.

As a greater awareness and knowledge of plants grew, an increased interest arose in the collecting of unusual and rare plants from different parts of the world. Well-to-do people interested in plants would acquire large collections in private gardens for their own enjoyment, eventually opening them up to the public. Universities have made large collections to carry out botanical research and to teach botany and horticulture.

Today the arboretum is a hybrid organization, combining some of the functions of a university, a museum, and an experiment station, with the informal recreation of a park system [18]. The arboretum should not merely be a collection of living plants, but a center coordinating the interests of all those in the region concerned with plants [29].

An arboretum may be established for a specific function or functions and be concerned with various groups of people. Of the many

arboreta in America, no two are exactly alike in organization, purposes, or the people they serve [24]. Most arboreta function in one or more of the following ways [16, 23, 31, 36]:

1. To grow the best woody plants hardy in the area;
2. To show a complete selection of all that is considered the best from an ornamental standpoint among the woody plants that is possible to grow in the area;
3. To serve as a means of introducing new or little known woody plants;
4. To disseminate a knowledge of woody plant materials to the public;
5. To test the hardiness of untried plant materials;
6. To provide a laboratory for students of botany, horticulture, forestry, and nature study;
7. To increase the productivity, economic importance, and beauty of an area by intelligent and interesting planting and by introducing new plants;
8. To provide recreation stimuli to the public by means of walks, drives and beautiful displays and to stimulate the pleasure of learning new plants;
9. To serve as a training ground for gardeners, students and the general public;
10. To serve as a horticultural center; and
11. To serve as a serene site of relaxation, and provide passive, educational, cultural and meditative recreation.

The functions of the arboretum are closely related to the groups of people who will use the arboretum. The functions determine what segment of the population will use the arboretum, and the people using the arboretum will affect its functions.

Groups of people who may be concerned with arboretum are [29]:

1. School children and their teachers;
2. The general public;
3. Horticultural amateurs (considered as individuals);
4. Owners of large and diversified gardens;
5. Commercial and semicommercial growers;
6. Gardeners employed by commercial growers and on large estates;
7. Amateur botanists and other amateur naturalists;
8. Professional botanists, horticulturalists, foresters and many other biologists;
9. Landscape architects;
10. Horticultural and other biological societies in the area; and,
11. City, county, and federal governments and several of their agencies.

No arboretum can serve all these groups of citizens equally, nor can it function in all of the ways listed. Before the arboretum can be designed, decisions must be made as to what purpose the arboretum is to serve and what segment of the population will use it.

Site selection is one of the most important factors determining the success or failure of the arboretum. The site should be far enough from the city to escape the effects of dust, smoke, and air pollution, yet close enough to allow quick and easy access [30].

The site should have topographic diversity, forming many micro-climates for special plant groups and providing an interesting terrain for the arboretum. A diversity of soils is needed to grow different types of plants. Soils should differ both chemically and physically. An adequate water supply for irrigation purposes is necessary. Non-treated water from a well or some other dependable supply is best. The site should also contain a diversity of native plant material and be a spot of local beauty [30].

On large projects, the planning should be done by a planning committee with a landscape architect as a member of the committee or at its head. The composition of the committee will depend upon the ownership and purpose of the arboretum. The planning committee of a city arboretum might contain a landscape architect, a banker, a realtor, a nurseryman, a representative from the park department, a public school teacher, a botanist, representatives from civic organizations, and a representative from another arboretum [34].

No matter how small the beginning, the arboretum should be developed according to plan. Every part must be started in such a manner, that without changes in plant location, the arboretum can be developed gradually into its ultimate form. Two things are essential for this to happen: one must know the ultimate extent of the garden, and what lands will be added if all is not available at the present; and one must have a definite program and an outline of each and every section of the complete plan [27].

The well conceived plan will include in addition to the locations of the plants, roads and paths, grading required, waterpipes, required soil conditioning, and specific microclimates. Consideration must also

be given to the location of necessary buildings, as lath houses, propagation structures, growing areas, storage units, comfort stations and offices [34].

There are no specific rules for the design of an arboretum as each differs in purpose, size, location, topography, and the people it serves. Since a majority of people see the arboretum for its pleasant atmosphere rather than to study plant specimen, the design must be aesthetically pleasing in addition to being functional [5]. The design should benefit all the visitors by making them aware of ornamental plants. In this way it becomes an arboretum of and for the people [1].

The design of an arboretum is typically one of quietness and introspection. When something in the arboretum is of interest, as plants in bloom, autumn foliage, or berried shrubs, the public will come see it; the remainder of the year the arboretum is given over to research and maintenance [7].

Traditionally the arboretum has been either an informal grouping of plant species within a family tied together by means of curvilinear paths or a plan that is bilaterally symmetrical. The informal grouping forms a safe, conservative design. Plantsmen and botanists consider this the naturalistic approach. Design by plant families, however, places a heavy restriction on creativity [7].

The bilateral symmetry scheme treats the right and left sides of a center axis alike. The severe formality requires immaculate maintenance, but the scheme lends itself to a systematic arrangement and simplifies finding plants [7].

In European gardens rebuilt after World War II, individual species have been grouped into pleasing compositions rather than being treated

as individual exhibits. This allows more creativity in design but is confusing when trying to locate a specific plant [7].

It is advisable to keep plants of a certain genus together for comparative reasons. Some arboreta develop plantings in a definite botanical sequence of families and genera. This greatly simplifies locating plants [34, 27].

No matter which general scheme is used, the individual needs of the plants should be harmonized with good landscape design to achieve the best possible design [34].

Rules for design are nonexistent, but several authors list certain guidelines which apply to the development of all arboreta [1, 27, 34].

1. There should be one main entrance, which is dignified yet welcoming, and emphasizes the theme of the design.
2. The road system and/or footpaths should always be well defined and as simple as possible. In gardens of less than 300 acres, automobile traffic should be excluded as it is not compatible with the functions of an arboretum.
3. The most important genera should be placed closest to the roads and paths.
4. Colorful displays of seasonal interest should be easily accessible and seen from several vantage points.
5. A display label should be clearly visible on each plant except where there are large plantings of the same species. The labels should contain the scientific name, the common name, and the geographic origin.

6. Groups of plants should be spaced so one can walk between individual plants and observe them closely as well as from a distance.
 7. Special attention should be given to the development of seasonal interest to draw the public to the arboretum at various times of the year.
 8. Control of visitors is necessary. The garden should be enclosed by a chain link fence or some other kind of barrier. The number of visitors and the hours of the arboretum should be stated and regulated. An admission fee automatically restricts visitors either to those interested in the displays, programs, or the environment provided.
 9. Comfort stations should be located where they are convenient to all the visitors.
 10. Compatible forms of recreation might be provided. Picnic grounds could be located in the arboretum, but they should be permitted only in designated areas. Children's play areas and children's gardens might also be incorporated into the arboretum.
- Plants selected for the arboretum should include woody plants most adapted to the area and most desirable ornamentally. Recent plant lists and books on plant materials should be reviewed to select which plants will be grown in the arboretum. The number of plants in the arboretum will depend on the location and size of the arboretum, and its financial resources [34].

Charles Sprague Sargent, first director of the Arnold Arboretum, used to say that in order to start an arboretum it was necessary to have a thousand acres of land with at least a million dollars endowment; however, Arnold Arboretum started with one hundred thousand dollars endowment and one hundred-twenty five acres [34].

There are several methods of establishing an arboretum, all of which have certain advantages and disadvantages. Many arboreta are under private ownership, obtaining their operating funds either from entrance fees or from the owner. Some local arboreta are co-operative efforts of local institutions, their funds coming from donations from these institutions. Other local arboreta are part of a park department. In this case the park department may be well equipped to maintain the arboretum, but its funding is from tax dollars. When a city needs to cut expenses the park department budget is often the first to be cut [34].

Government arboreta are also tax supported. These may also face a fluctuating budget depending on the makeup of the legislature and their appropriations. Two such arboreta are the Dominion Arboretum in Ottawa, Canada, and the National Arboretum in Washington, D. C. [34].

Arboreta associated with universities may also face budget changes from year to year, depending on the administration of the university and appropriations to the university. Association with a university adds permanence to the arboretum, and it may serve as an outdoor laboratory to augment classroom work [34].

Probably the best method of financing an arboretum is by means of a restricted endowment. Many arboreta are operated wholly or in part through this method. Drawbacks to this financing are that an estimate

of expenses must be made in advance, and a large endowment is needed to have an ample income. Usually a board of directors oversees the administration in a privately endowed institution such as the Morton Arboretum [34].

In some cases it is advisable to associate the arboretum and its endowment with a university such as Arnold Arboretum and Harvard, Authur Hoyt Scott Foundation and Swarthmore College, and the Morris Arboretum and the University of Pennsylvania [34].

One goal in the establishment of the arboretum is to make it permanent. A permanent, dependable income should be provided thus insuring continued usefulness and availability to the greatest number of people.

CHAPTER III

THE SITE

The Horticulture Research and Teaching Center at Oklahoma State University will be located on the site of the present Horticulture Nursery. This site is bordered on the south by State Highway 51, (much of the land adjacent to 51 is currently used for feed production), on the north by a row of ponderosa pines and West Virginia Avenue, a university road, on the west by rows of sycamore and red cedar trees, and on the east generally by the eastern canopy of a pecan grove along Cow Creek. Excluding future expansion, the proposed initial plan will utilize a forty acre area shown crosshatched in Figure 1.

The soils and topography of the site are closely related (Figure 2). The large, relatively flat, exposed area in the western part of the site is Norge loam (6nB) with a 1 to 5 percent slope. The Norge series in general consists of deep, well drained soils on the remnants of ancient stream terraces and alluvial plains. The soil developed in neutral to alkaline clayey sediments. This soil is easy to till, but in tilled areas it is susceptible to water erosion. The soils have a high natural fertility level and the water holding capacity is moderate [36, 37].

The moderately sloping terraced land in the northwest section consists of Norge loam with a 3 to 5 percent slope (6nC3) which has been severely eroded. The erosion problem has been mostly eliminated by

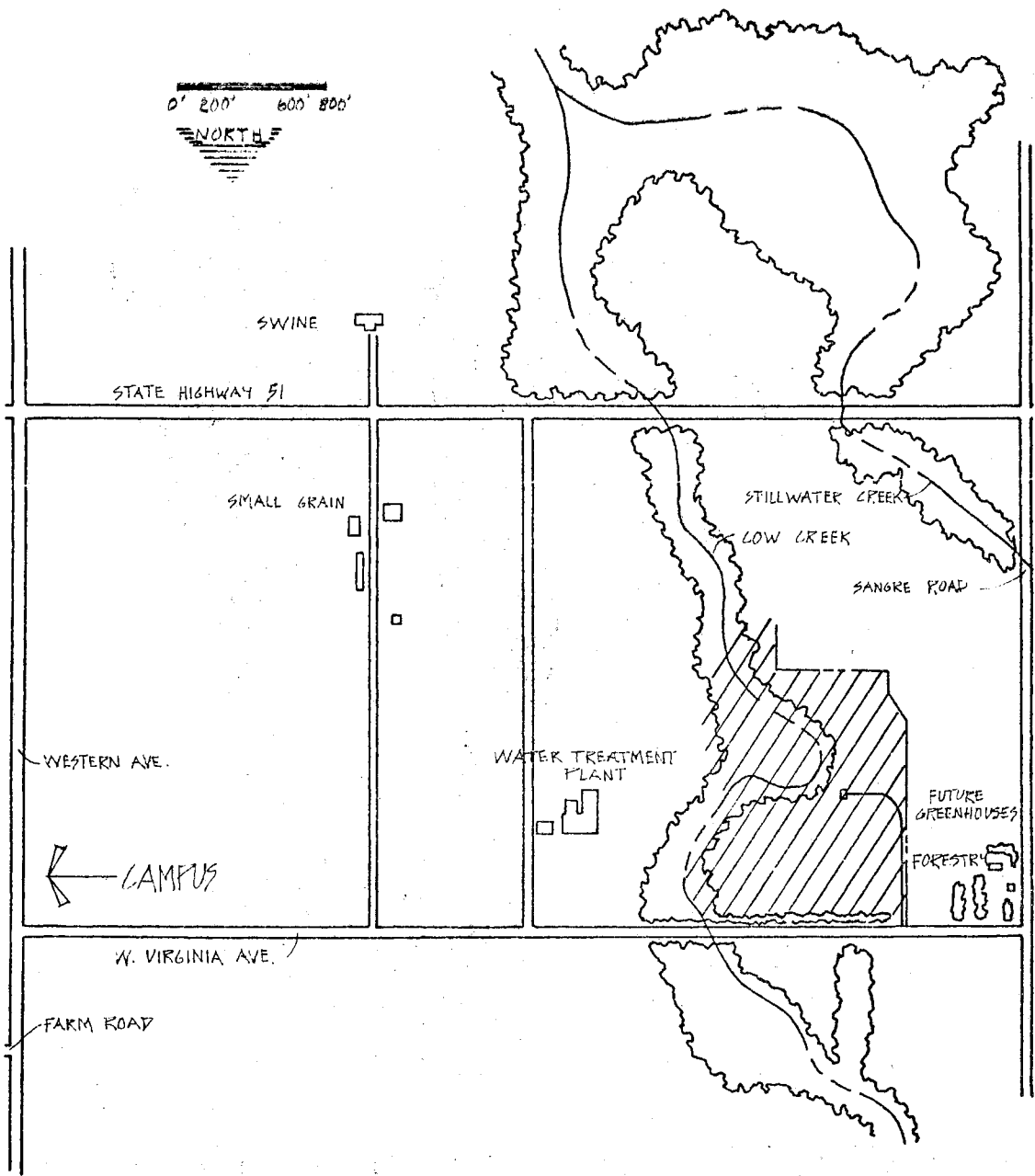


Figure 1. Location of the Horticulture Teaching and Research Center.

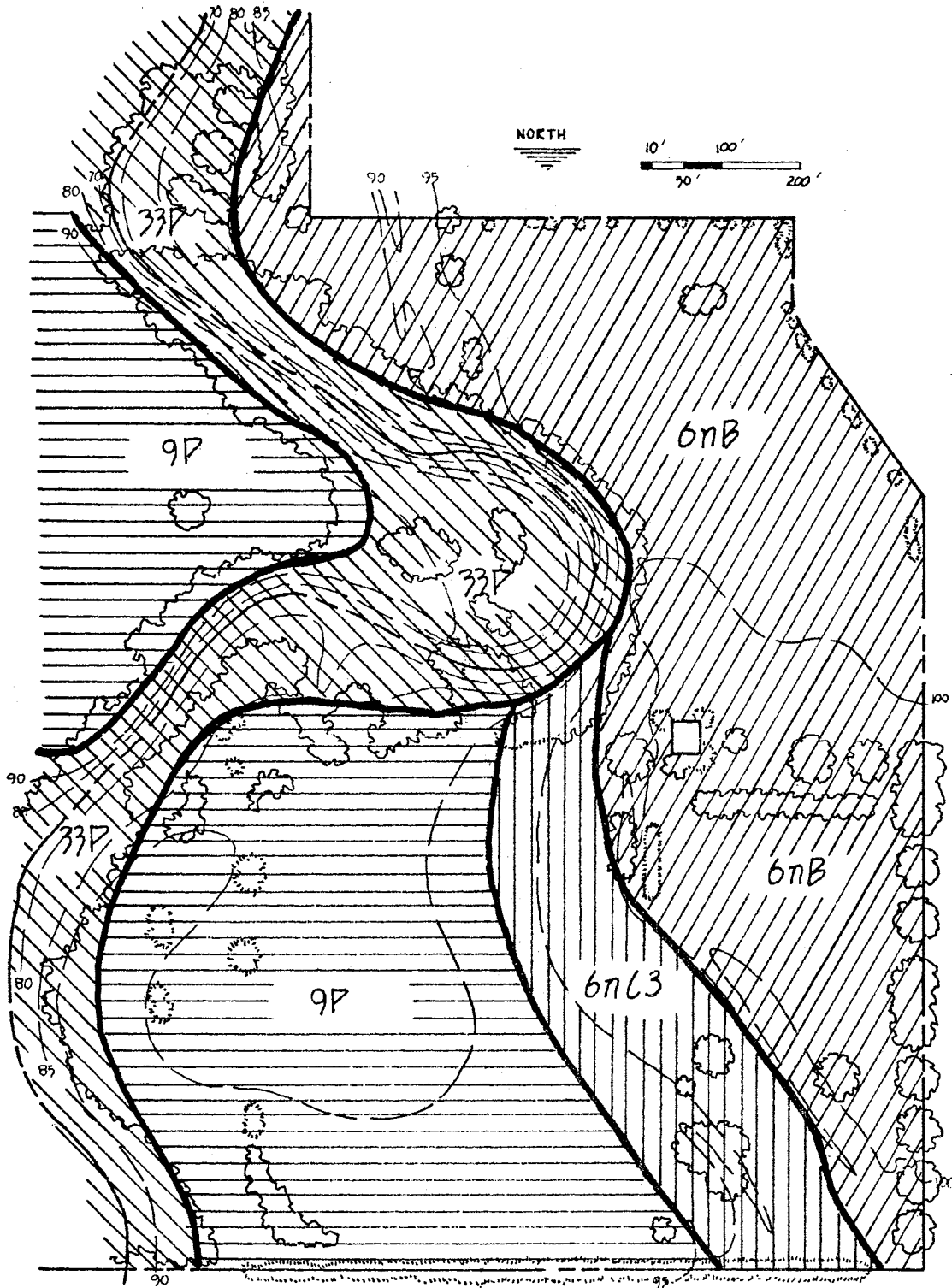


Figure 2. Soils of the Center.

terraces [36, 37].

Port silt loam (9P) makes up the gently sloping creek bottomland to the north and east on the site. The Port series are dark brown to brown soils on flood plains of rivers and streams. These soils were formed in neutral silty sediments from Permian Redbeds. Port soils are naturally well drained. Internal drainage is medium, permeability is moderate, and waterholding capacity is high. The natural fertility of Port soils is also high. Port soils are subject to occasional flooding [36, 37].

Broken alluvial land (33P) follows the creek. This land consists of reddish brown, friable, loamy alluvium. It lies in a narrow strip along the sides of streams that have cut deep wide channels [36, 37].

Cow Creek, which flows through the property, has a large amount of native plant material growing on its banks. This material consists mostly of pecan, black willow, black locusts, elm, boxelder and redbuds. These trees, in conjunction with the creek and topography, will form many cool, humid, and protected microclimates essential for growing many plant materials in Oklahoma (Figure 3).

Although much of the site is undeveloped, certain sections are being used by the Grounds Maintenance Department of Oklahoma State University for growing plants for use on the campus. Interference will be minimal, however, because these sections are located in expansion areas, and the Grounds Maintenance Department plans to decrease and eventually discontinue growing operations in these areas.

A graveled road enters the property at the northwest corner, heads southward along a row of sycamores and curves to the east toward a two-story barn. This barn is centrally located on the site and should

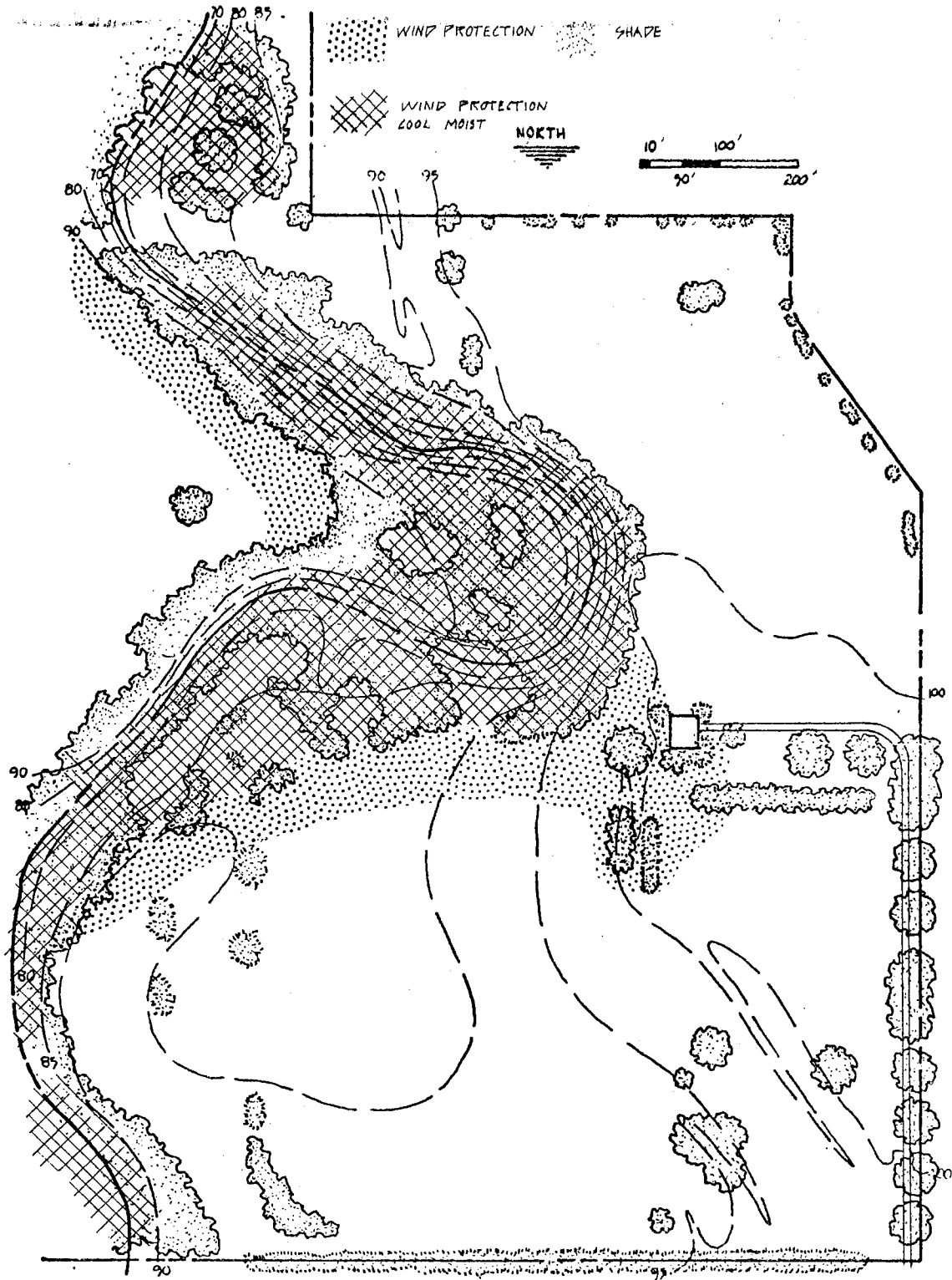


Figure 3. Microclimates.

provide a basis for all future major structural needs for the development of this area.

There is a small arboretum existing near the nursery entrance. This arboretum consists mainly of selected species of junipers and hollies. In addition to this collection, there are also several introduced trees existing on the site, including Chinese elm, winged elm, cedar elm, thornless honeylocust, hackberry, tuliptree, soapberry, live oak, Scotch pine, Austrian pine, desert willow, Chinese chestnut, and bald cypress.

CHAPTER IV

THE DESIGN

The basic principles employed in the design of the Horticulture Center are simplicity and informality. No intricate geometric patterns are used in the plan, merely gentle curves and flowing lines. The topography, with its gentle slopes and steep creek banks, along with the existing vegetation, have been used to their best advantages. Only in rare instances will vegetation and topography be disturbed.

The design increases the importance of certain natural views by enframing and accenting them. Other new spaces are planned creating new and interesting vistas.

The various use areas are located not only in relation to soils, exposure, microclimates, and topography, but also from the standpoint of accessibility. Vehicular traffic is allowed only from the entrance to the parking area. The parking is centrally located so that visitors can park in the designated area and still be within a reasonable distance from any particular point they might wish to see. All walks are to be as natural as possible, being either river gravel, pecan shells, bark, or in some cases turf. In the latter case, the walks will be defined by a closer cutting of the grass. Where slope dictates steps, risers will be of railroad ties. Bridges necessary to span the creek will be of wood, thus keeping the construction materials in harmony with the naturalness of the center (Figure 4).

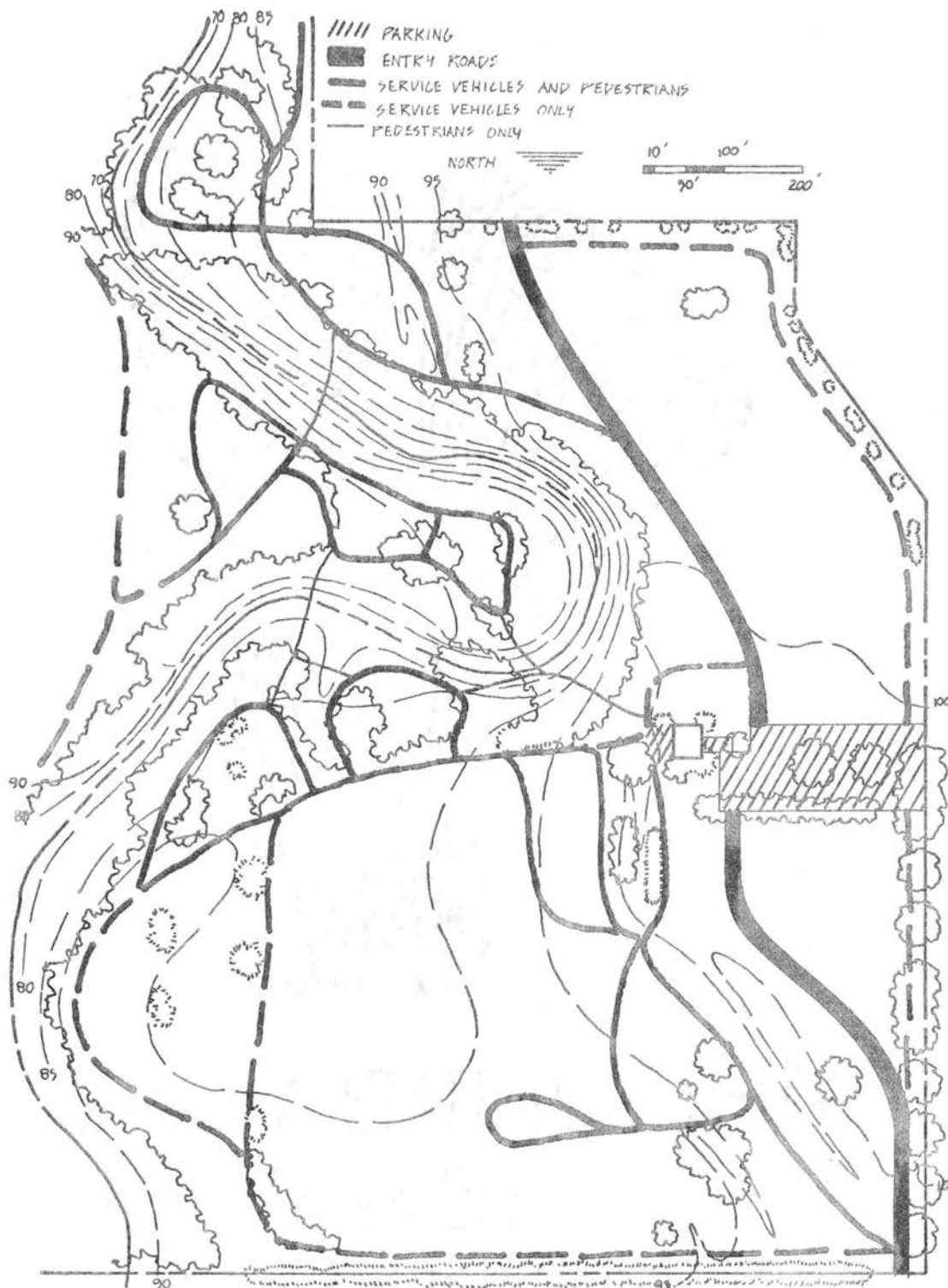


Figure 4. Circulation Patterns.

The center is divided into four major use areas: research, teaching, plant introduction, and display (Figure 5).

Research Area

The research area was placed in the proposed location because of the immediate availability of the land, the proximity to water, the topography, the soil, and the accessibility. The area is cleared and much of it is presently unused. The soil is of high natural fertility, and has good permeability. A slight slope of 2 to 4 percent exists which will allow surface water runoff without danger of severe erosion. Service roads will make the area easily accessible, yet the circulation patterns developed in the display area will tend to keep the public from the research area.

The initial area is eight acres in extent, with an additional five acres for expansion. Subdivision of the land will depend on future research needs.

Plant Introduction Area

Plants newly introduced to Oklahoma will be observed in a one-quarter acre area just south of the barn. These plants will be obtained through the Bureau of Plant Introductions of the U. S. Department of Agriculture and other sources. This project has been carried on at Oklahoma State University since the early 1940's. This area will be capable of intensive culture and care, yet will be representative of central Oklahoma. Ornamentals and some fruit and vegetable cultivars will be tested. There will be an estimated twenty introductions per year that will be evaluated within five years. If a plant selection

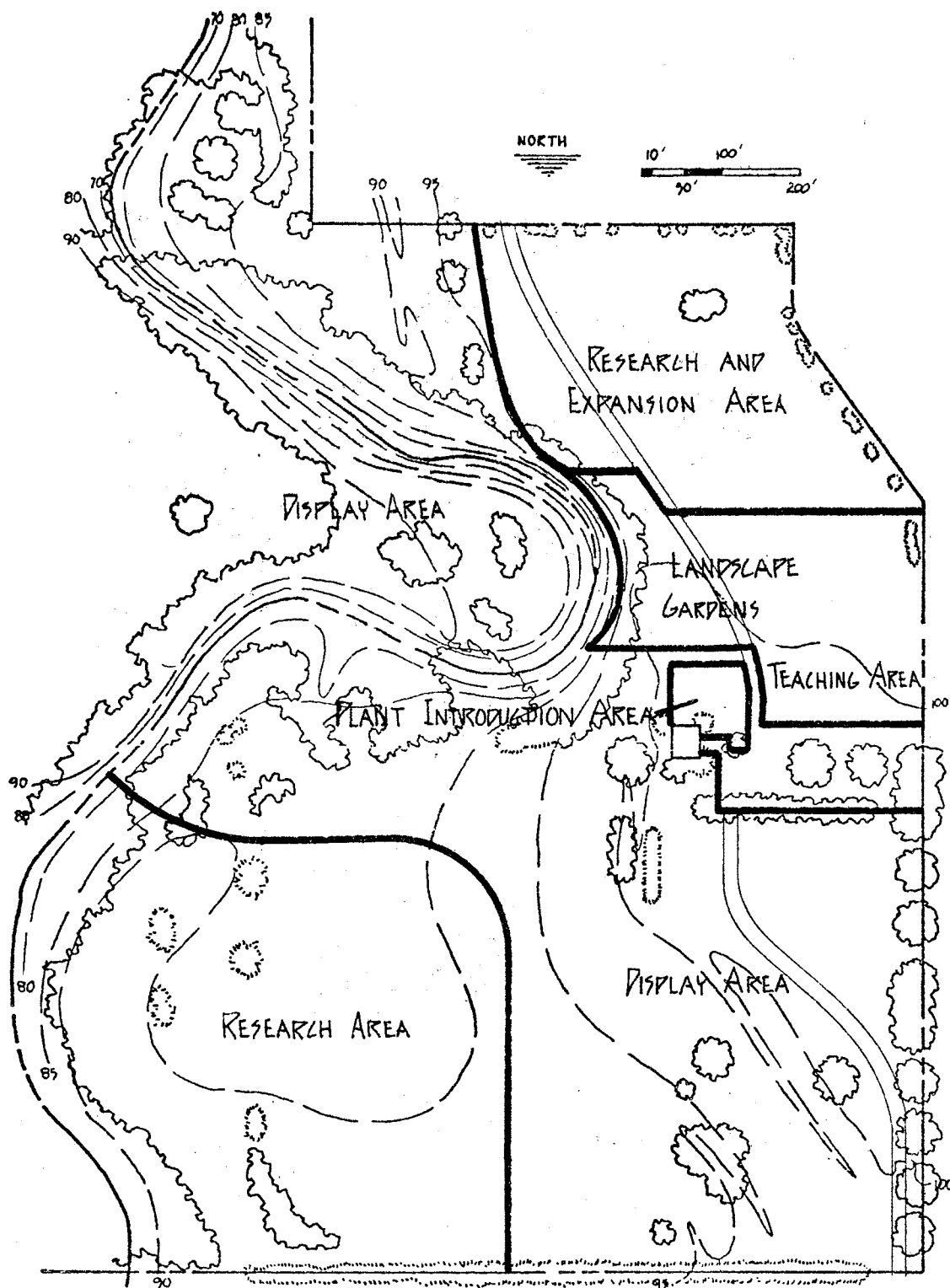


Figure 5. Major Divisions of the Center.

is determined to be of ornamental value, it will be moved to a proper place in the arboretum at the end of the evaluation period. If the selection is determined to be undesirable, it will be discarded.

Teaching Area

The teaching area is designed to serve mainly the design, production and maintenance oriented courses in horticulture. The area is located west of the barn and south of parking area. It is close to the barn because of the necessity of equipment storage for classwork. The area will eventually be expanded westward to unify the future greenhouse range with the Horticulture Center. Facilities in this area will include a preparation laboratory for seed germination and seedling growth; grafting, preparation of cuttings, storage and handling of chemicals, and conducting experiments. Also included in the area will be a cold storage room for storing seed, propagation material and dormant plants; a film plastic covered quonset for winter mist propagation; an area for container growing with overhead irrigation and fertilizer injection; and a field growing area for budding, grafting, balling, and for fertilizer and weed control demonstrations.

A highly specialized section of the teaching area will be the landscape garden portion. In this section, landscape classes will be provided the opportunity to design and install examples of landscapes. These landscapes will be used to demonstrate variations in design, construction materials, and plant selections. Participation in planting and maintenance operations may also take place in this area.

Space in the teaching area will also be allocated for flower and vegetable demonstration gardens.

CHAPTER V

THE ARBORETUM

The major emphasis in the planning of the Center was placed on the display area, or arboretum section of the Center. This is the area that will hold the most interest for students and the general public.

The principal purpose of this section is to be educational. It is designed to allow students and the public to become more aware of plant materials, their growth characteristics, and their suitability to Oklahoma conditions. With the many varied microclimates within the display area, it was possible to locate individual species and varieties of plants where they should grow best.

Due to the foreseen problems of limited funds and labor, the design of the display area is functional and easy to maintain. In turf-ed areas, there is a minimum of ten feet between plants to facilitate mechanized mowing. Where plants are spaced closer, materials such as pecan shells, bark, river gravel, or sawdust are to be used as ground cover. Chemical weed control will be used wherever possible to eliminate hand weeding.

The display area has been subdivided into five major sections: a deciduous tree area, a broadleaved evergreen area, a conifer peninsula, a deciduous shrub and juniper area, and a protected area (Figure 6).

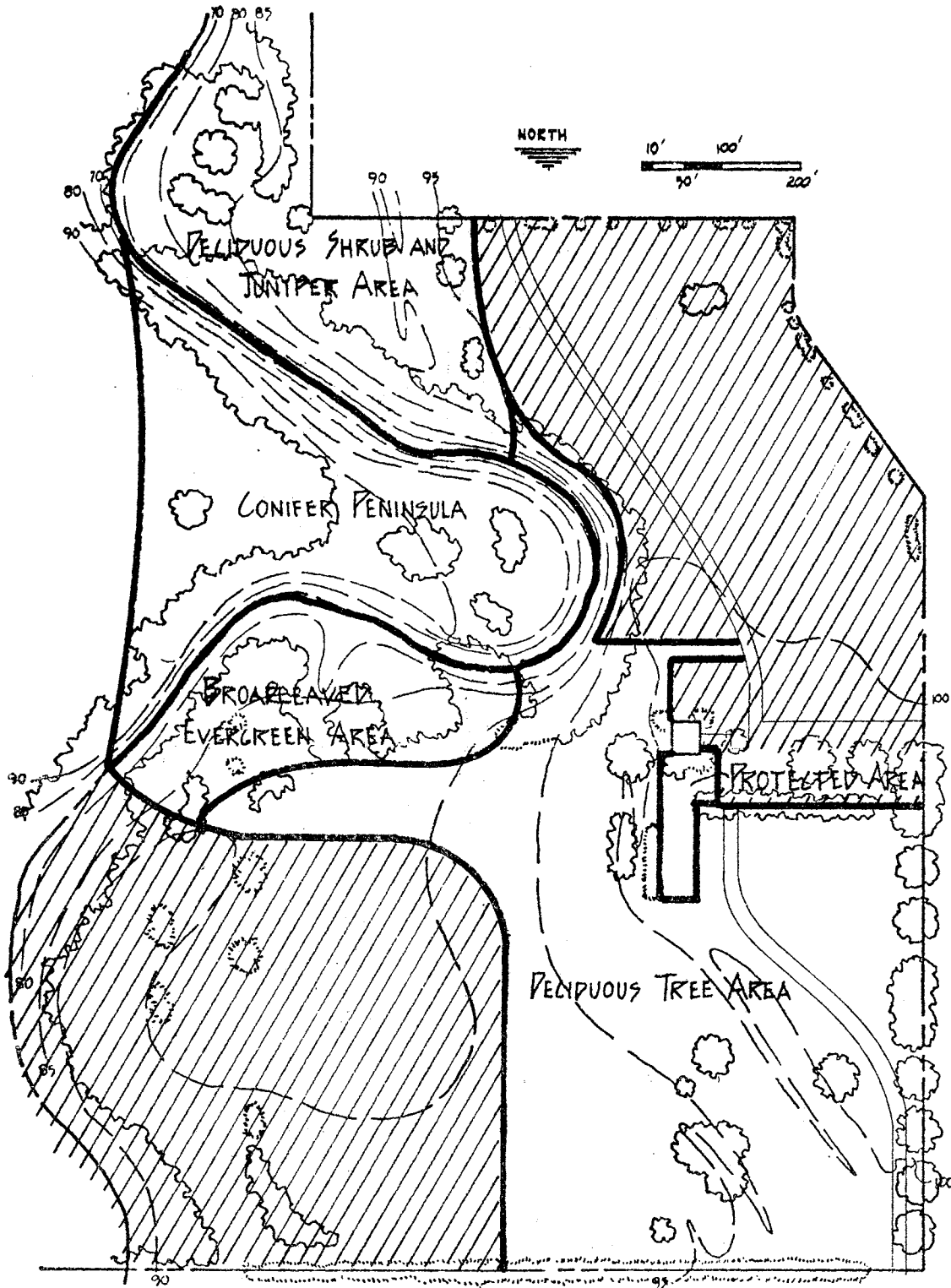


Figure 5. Divisions of the Display Area.

The segregation of these areas makes a less pleasing design but facilitates student learning and simplifies maintenance. Because of microclimates and the need of transition areas, some overlap exists between areas.

Expansion areas to the south will be used to develop a new and more pleasing entry to the arboretum, and to enlarge the plant collection.

Deciduous Tree Area

The deciduous tree area is the largest of the five divisions of the arboretum (Figure 7). It was selected because a large expanse of open exposed area was needed for good tree growth. Deciduous trees not tolerant of these conditions will be grown either along the creek, forming a background planting for other areas, or amidst the other areas forming interest features. Trees have generally been grouped by genus.

Turf will be the ground cover used in this area. Circulation is guided by tree size and defined by a closer cutting of the grass.

Within the area there will be a specific plot for small crabapple cultivar trials. This area will be planted with 27 cultivars. After the trials have been completed, the trees will remain as permanent features of the arboretum.

Broadleaved Evergreen Area

The variety of microclimates existing in this section of the arboretum was the reason for this location of the broadleaved evergreens (Figure 8). Cool, humid and protected microclimates are found within

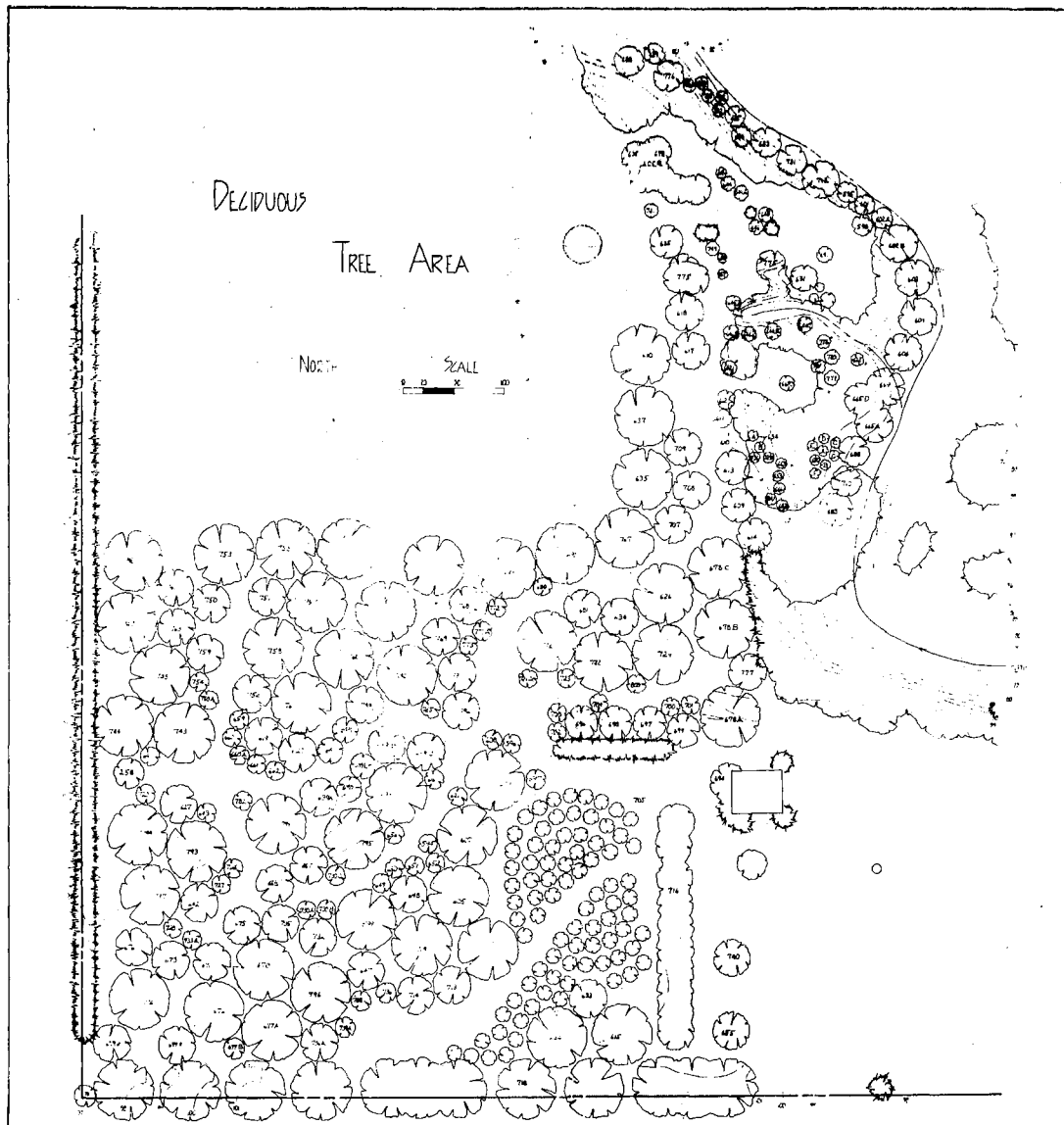


Figure 7. Deciduous Tree Area.

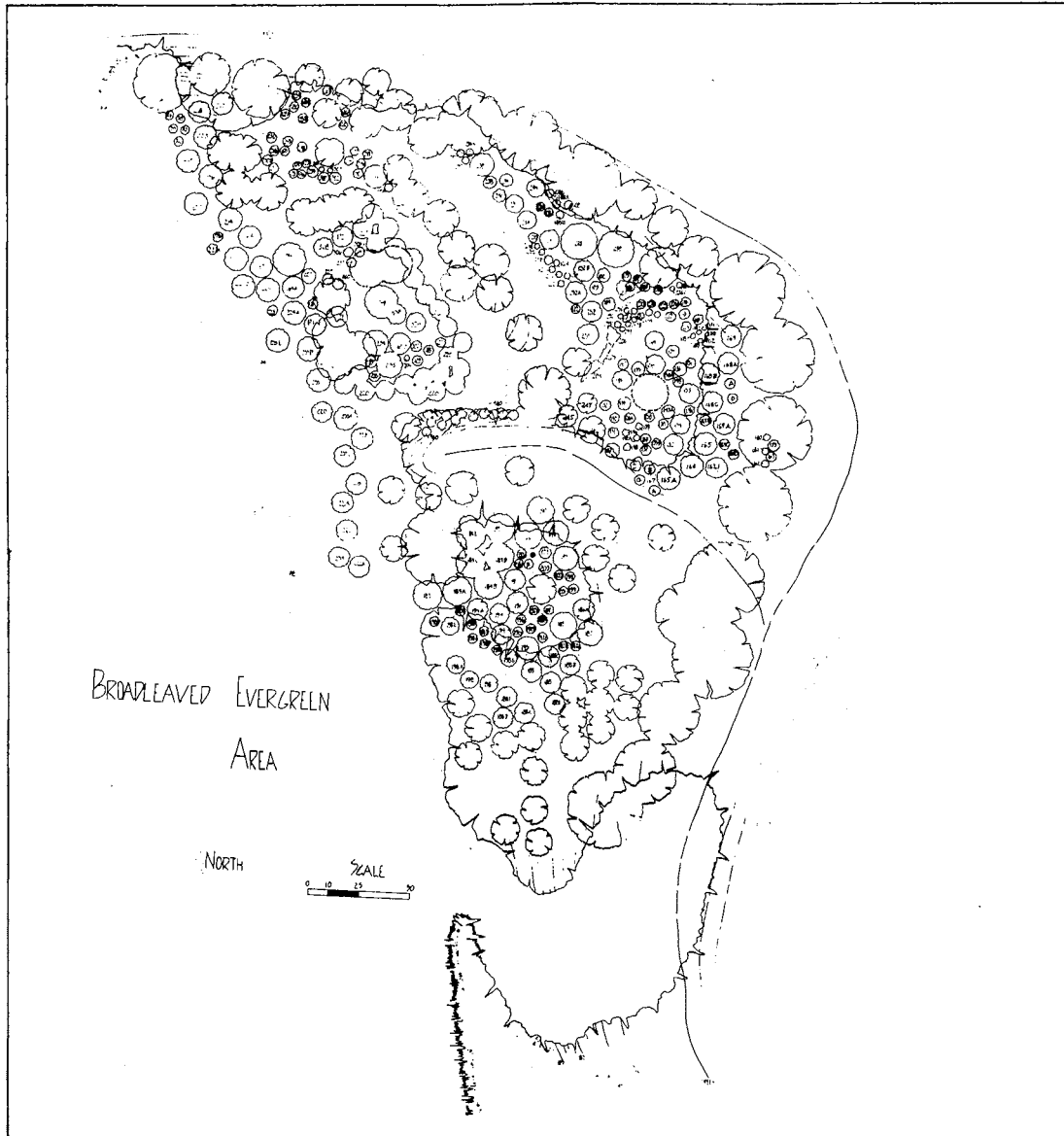


Figure 8. Broadleaved Evergreen Area.

short distances of one another.

A bank will be developed in this area for the growth of ericaceous, acid requiring plants, such as rhododendrons, azaleas, heaths, and heathers. This bank will be in partial shade to shaded conditions. Peat moss will be worked into the soil to lower the pH and provide needed organic matter for these plants.

Because of the size of these plants and the interest they hold to the public, the circulation in this area is less defined. Several main walks will be developed, but the greater part of the area can be viewed by meandering through the plantings. The entire area will have to be mulched with something that will withstand foot traffic and possible flooding. Bark may be used in the other areas, whereas gravel will be used here.

Access to the area will be by a path from the deciduous tree area, a bridge from the conifer area, and a path along the creek leading from the parking area.

The Conifer Peninsula

This area was chosen for conifers because the creek, with its steep banks and native vegetation on three sides, give the area a cool, humid and protected microclimate. Many conifers such as spruce, hemlock, larch, false cypress, yews, and redwoods, not commonly grown in this region should have the best chance of survival in selected locations on this peninsula (Figure 9).

Bark or some other naturalistic surface material will be used in the area around smaller plants. This will ease maintenance and also serve to define a circulation pattern within the area. Turf will be

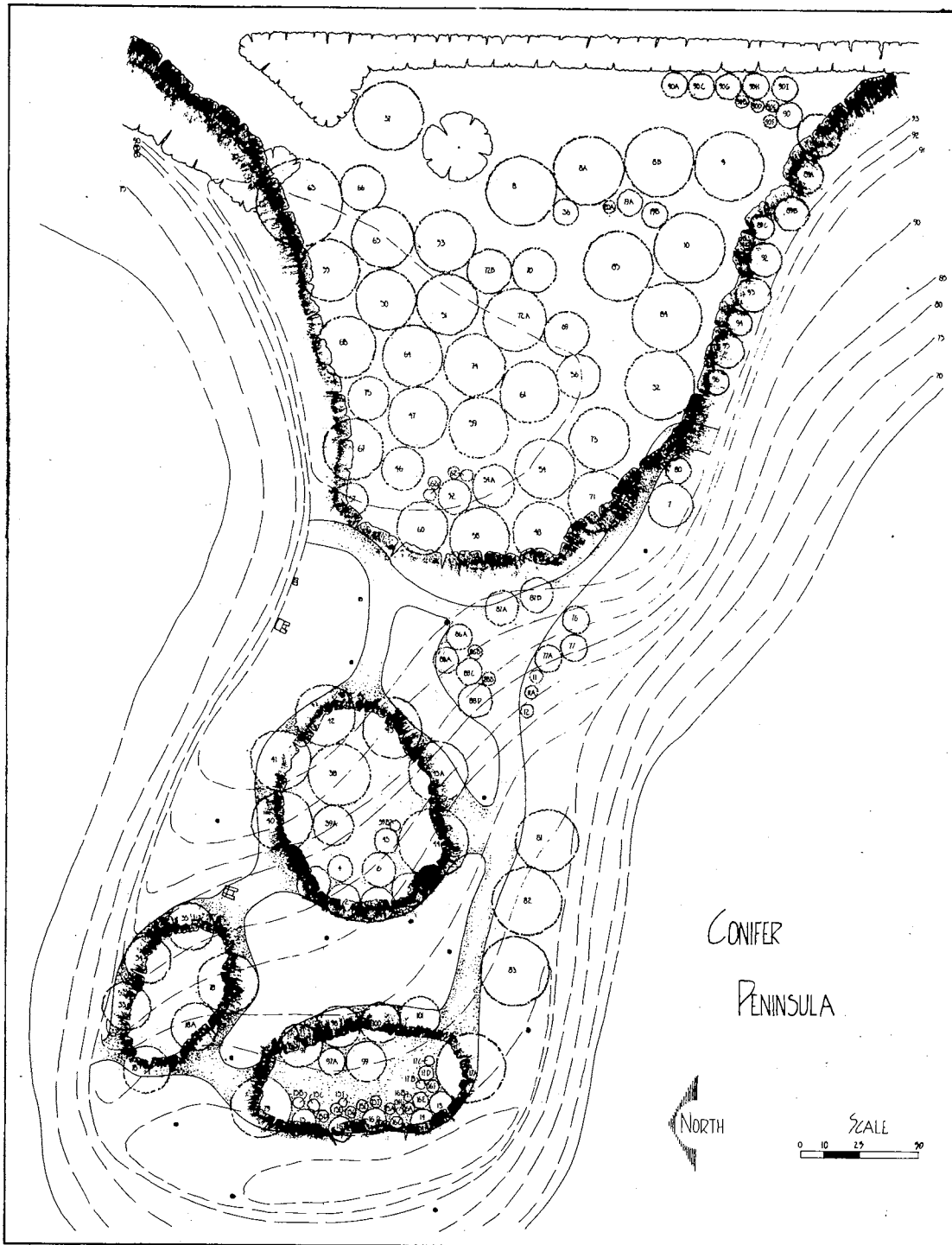


Figure 9. The Conifer Peninsula.

used in the exposed area where pines are placed. The areas between plantings will contain various types of groundcover plantings.

Two large rock fireplaces and one smaller one exist in this area. These will be renovated and could be used for group picnicking.

Access to the area will be via three footbridges creating easy access from the parking area, the deciduous shrub and juniper area, and the broadleaved evergreen area. Service vehicles may enter through a gate in the northeast portion of the area.

Deciduous Shrub and Conifer Area

This area was chosen because of its exposed conditions. Proximity to cool, humid, protected microclimates, will enable shrubs less tolerant of the exposed conditions to be grown. Junipers, which require full sun, have been placed in exposed areas along with the deciduous shrubs to add some winter character to the area (Figure 10).

A mulch such as pecan shells or bark will be used under and around plants to ease maintenance and help define circulation. Access to the area will be via a bridge from the conifer area, or by a more direct path leading from the parking, beside the landscape garden area and introduction area.

Protected Area

This area is located just to the north of the barn and west of the existing row of arborvitae. Additional wind protection will be provided on the north and east sides of the area. Heaters may be used when the temperature drops below 10°F. The purpose of the area is to familiarize people with certain landscape plants which are not winter

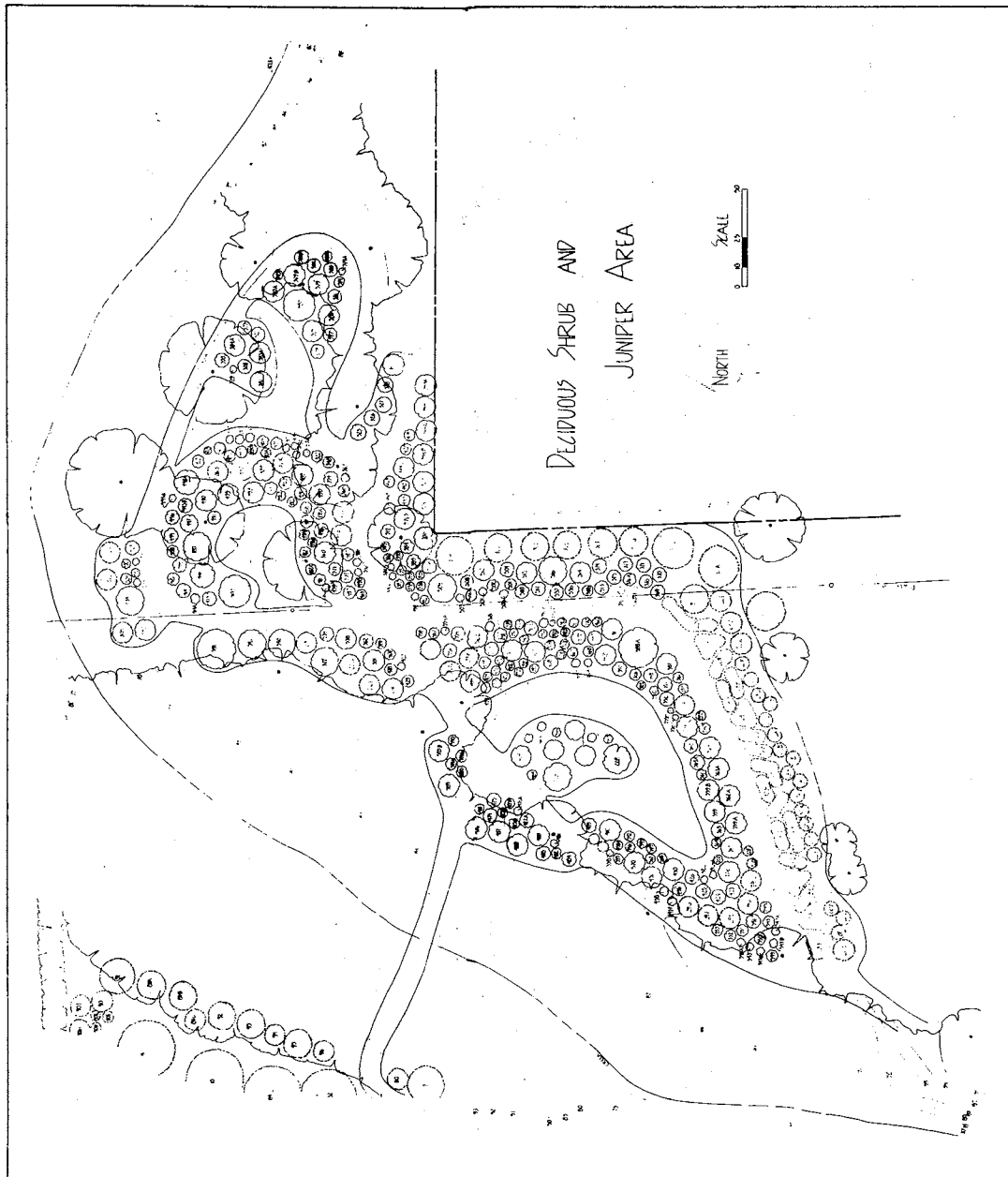


Figure 10. Deciduous Shrub and Juniper Area.

hardy in the Stillwater area, but are important ornamentals in areas further south. Examples of these plants would be fatshedra, fatsia, and raphiolepis.

CHAPTER VI

PLANT SELECTION

Recent plant materials lists and books on plant materials were reviewed to select the plants to be grown in the arboretum. It was planned to have a place for at least one of every desirable woody plant that was of ornamental value, and might possibly grow in the area. Adequate expansion areas will enable the number of plant species to be increased in the future. The initial plan includes approximately 1,000 different plants (Tables I, II, III, IV).

All plants will be labeled with both scientific and common name. Labels will be set in concrete to make them more secure and reduce vandalism.

Records will be kept on each plant. Information on planting dates, source of the plant, location in the arboretum, and periodic notes as to the relative health and growth of the plant will be kept in a file in the Horticulture Department office.

Plants, water lines, and other features will be located by a grid system (Figure 11). The system will be composed of 30-foot squares with a reference stake every 60 feet.

TABLE I
CONIFERS

1	<i>Abies concolor</i>	17d	<i>Cryptomeria japonica</i>	26a	<i>Juniperus horizontalis</i> 'Bar Harbor'
2	<i>Abies homolepis</i>		'Banda-Sugi'	26c	<i>Juniperus horizontalis</i> 'Plumosa'
3	<i>Abies kawakami</i>	18	<i>Cunninghamia lanceolata</i>	26d	<i>Juniperus horizontalis</i> 'Plumosa Youngstrom'
4	<i>Abies koreana</i>	18a	<i>Cunninghamia lanceolata</i>		
5	<i>Abies nephrolepis</i>		'Glaucis'	26e	<i>Juniperus horizontalis</i> 'Fountain'
6	<i>Abies nordmanniana</i>	19a	<i>Cupressus arizonica</i> 'Garae'	26f	<i>Juniperus horizontalis</i> 'Webber'
7	<i>Araucaria araucana</i>	19b	<i>Cupressus arizonica</i> 'Greenwood'	26g	<i>Juniperus horizontalis</i> 'Wiltoni'
		20a	<i>Cupressus sempervirens</i> 'Stricta'	26h	<i>Juniperus horizontalis</i> 'Douglasii'
		20b	<i>Cupressus sempervirens</i> 'Worthiana'	26.1	<i>Juniperus monosperma</i>
8	<i>Cedrus atlantica</i>			26.2a	<i>Juniperus occidentalis</i> 'Glennora'
8a	<i>Cedrus atlantica</i> 'Argentea'			26.3	<i>Juniperus pinothotti</i>
8b	<i>Cedrus atlantica</i> 'Glaucis'			27	<i>Juniperus procumbens</i>
9	<i>Cedrus deodara</i>			27a	<i>Juniperus procumbens</i> 'Nana'
10	<i>Cedrus libani</i>	21	<i>Juniperus ashei</i>	27b	<i>Juniperus procumbens</i> 'San Jose'
11	<i>Cephalotaxus harringtonia</i>	22a	<i>Juniperus chinensis</i> 'Armstrong'	27c	<i>Juniperus procumbens</i> 'Variegata'
11a	<i>Cephalotaxus harringtonia</i>	22b	<i>Juniperus chinensis</i> 'Armstrong Aurea'	28	<i>Juniperus sabina</i>
	'Fastigiata'	22c	<i>Juniperus chinensis</i> 'Blue Vase'	28a	<i>Juniperus sabina</i> 'Von Ebron'
12	<i>Cephalotaxus fortunei</i>	22d	<i>Juniperus chinensis</i> 'Hetzi'	28b	<i>Juniperus sabina</i> 'Tamariscifolia'
12.5	<i>Chamaecyparis lawsoniana</i> erecta 'Elwood'	22e	<i>Juniperus chinensis</i> 'Hetzi Columnaris'	28c	<i>Juniperus sabina</i> 'Arcadia'
13	<i>Chamaecyparis lawsoniana</i>			28d	<i>Juniperus sabina</i> 'Broadmoor'
13a	<i>Chamaecyparis lawsoniana</i>	22f	<i>Juniperus chinensis</i> 'Keteleeri'	28e	<i>Juniperus sabina</i> 'Table Top Blue'
	'Minima aurea'	22g	<i>Juniperus chinensis</i> 'MONEY'	29a	<i>Juniperus scopulorum</i> 'Blue Haven'
13b	<i>Chamaecyparis lawsoniana</i>	22h	<i>Juniperus chinensis</i> 'Pfitzeriana'	29b	<i>Juniperus scopulorum</i> 'Welchii'
	'Hilky way'	22i	<i>Juniperus chinensis</i> 'Pfitzeriana Aurea'	29c	<i>Juniperus scopulorum</i> 'Wichita Blue'
14	<i>Chamaecyparis nootkatensis</i>	22j	<i>Juniperus chinensis</i> 'Pfitzeriana Glaucis'	29d	<i>Juniperus scopulorum</i> 'Hillii'
15	<i>Chamaecyparis obtusa</i>	22k	<i>Juniperus chinensis</i> 'Pfitzeriana Nick's Compact'	29e	<i>Juniperus scopulorum</i> 'Moonlight'
15a	<i>Chamaecyparis obtusa</i> 'Compacta'	22l	<i>Juniperus chinensis</i> 'San Jose'	29f	<i>Juniperus scopulorum</i> 'Pathfinder'
15b	<i>Chamaecyparis obtusa</i> 'Coralliformis'	22m	<i>Juniperus chinensis</i> 'Sargentii'	29g	<i>Juniperus scopulorum</i> 'Chandler Blue'
15c	<i>Chamaecyparis obtusa</i> 'Crippsii'	22n	<i>Juniperus chinensis</i> 'Sargentii Veridis'	29h	<i>Juniperus scopulorum</i> 'Cologreen'
15d	<i>Chamaecyparis obtusa</i> 'Filicoides'	22o	<i>Juniperus chinensis</i> 'Sea Green'	29i	<i>Juniperus scopulorum</i> 'Pendula'
15e	<i>Chamaecyparis obtusa</i> 'Nana'	22p	<i>Juniperus chinensis</i> 'Columnaris'	29j	<i>Juniperus scopulorum</i> 'Mathis'
15f	<i>Chamaecyparis obtusa</i> 'Nana Gracilis'	22q	<i>Juniperus chinensis</i> 'Nana'	29k	<i>Juniperus scopulorum</i> 'Gray Gleam'
15g	<i>Chamaecyparis obtusa</i> 'Pygmaea'	22r	<i>Juniperus chinensis</i> 'Albo-Variegata'	29l	<i>Juniperus scopulorum</i> 'Dover'
15h	<i>Chamaecyparis obtusa</i> 'Tetragona'	22s	<i>Juniperus chinensis</i> 'Wintergreen'	29m	<i>Juniperus scopulorum</i> 'Halls Sport'
15j	<i>Chamaecyparis obtusa</i> 'Erecta'	22t	<i>Juniperus chinensis</i> 'Houndbatten'	29n	<i>Juniperus scopulorum</i> 'Halls Sport'
15k	<i>Chamaecyparis obtusa</i> 'Nana lutea'	22u	<i>Juniperus chinensis</i> 'Obilisk'	29o	<i>Juniperus scopulorum</i> 'Columnar'
15l	<i>Chamaecyparis obtusa</i> 'Sanderi'	22v	<i>Juniperus chinensis</i> 'Pfitzeriana Sarcocolla'	29p	<i>Juniperus scopulorum</i> 'Hughes'
15m	<i>Chamaecyparis obtusa</i> 'Nariesi'	22w	<i>Juniperus chinensis</i> 'Pfitzeriana Sarcocolla'	29q	<i>Juniperus scopulorum</i> 'Greenspire'
16	<i>Chamaecyparis pisifera</i>	22x	<i>Juniperus communis</i>	29r	<i>Juniperus scopulorum</i> 'Needs Column'
16a	<i>Chamaecyparis pisifera</i> 'Boulevard'	22y	<i>Juniperus communis</i> 'Stricta'	30a	<i>Juniperus squamata</i> 'Meyerii'
16b	<i>Chamaecyparis pisifera</i> 'Golden Hop'	22z	<i>Juniperus communis</i> 'Gold Beach'	30b	<i>Juniperus squamata</i> 'Parsoni'
16c	<i>Chamaecyparis pisifera</i> 'Leptoclada'	23	<i>Juniperus communis</i> 'Hiberica'	31	<i>Juniperus virginiana</i>
16d	<i>Chamaecyparis pisifera</i> (Squarrosa 'Velchii')	23a	<i>Juniperus communis</i> 'Fastigiata'	31a	<i>Juniperus virginiana</i> 'Burk'
16e	<i>Chamaecyparis pisifera</i> 'Plumosa'	23b	<i>Juniperus communis</i> 'Gold Dust'	31b	<i>Juniperus virginiana</i> 'Canerti'
16f	<i>Chamaecyparis pisifera</i> 'Gold Dust'	23c	<i>Juniperus communis</i> 'Hiberica'	31c	<i>Juniperus virginiana</i> 'Compressifolia'
16g	<i>Chamaecyparis pisifera</i> 'Tsukuma'	23d	<i>Juniperus communis</i> 'Fastigiata'	31d	<i>Juniperus virginiana</i> 'Oxford Green'
17a	<i>Cryptomeria japonica</i> 'Yoshino'	24	<i>Juniperus conferta</i>	31e	<i>Juniperus virginiana</i> 'Fillifera'
17b	<i>Cryptomeria japonica</i> 'Globose Nana'	25	<i>Juniperus excelsa stricta</i>	31f	<i>Juniperus virginiana</i> 'Glaucis'
17c	<i>Cryptomeria japonica</i> 'Nana'	25.1	<i>Juniperus hibernica</i>	31g	<i>Juniperus virginiana</i> 'Pendula'
				31h	<i>Juniperus virginiana</i> 'Pyramidalis'
				31i	<i>Juniperus virginiana</i> 'Schottii'
				31j	<i>Juniperus virginiana</i> 'Globose'
				31l	<i>Juniperus virginiana</i> 'Kosteri'
31m	<i>Juniperus virginiana</i> 'Tripartita'	58.1	<i>Pinus halapensis</i>	86b	<i>Taxus baccata</i> 'Fastigiata' (Stricta)
31n	<i>Juniperus virginiana</i> 'Keteleeri'	59	<i>Pinus jeffreyi</i>	87a	<i>Taxus cuspidata</i> 'Expansa'
31	<i>Juniperus virginiana</i> 'Dundeii'	60	<i>Pinus koraiensis</i>	87b	<i>Taxus cuspidata</i> 'Nana'
		61	<i>Pinus nigra</i>	87c	<i>Taxus cuspidata</i> 'Densifolia'
		62	<i>Pinus mugo mughus</i>	88a	<i>Taxus media</i> 'Hatfieldi'
		63	<i>Pinus parviflora</i>	88b	<i>Taxus media</i> 'Hicksii'
32	<i>Katalearia fortunei</i>	64	<i>Pinus pinaster</i>	88c	<i>Taxus media</i> 'Kalseyi'
33	<i>Larix decidua</i>	65	<i>Pinus ponderosa</i>	88d	<i>Taxus media</i> 'Brownii'
34	<i>Larix laricina</i>	66	<i>Pinus radiata</i>	88.1	<i>Taxus nigra</i>
35	<i>Larix leptolepis</i>	67	<i>Pinus resinosa</i>	89a	<i>Thuja occidentalis</i> 'Tachnyi'
36	<i>Libocedrus decurrens</i>	68	<i>Pinus rigida</i>	89b	<i>Thuja occidentalis</i> 'Woodwardii'
		69	<i>Pinus sabiniana</i>	89c	<i>Thuja occidentalis</i> 'Compacta'
		70	<i>Pinus strobus</i>	89d	<i>Thuja occidentalis</i> 'Hoseri'
		71	<i>Pinus strobus</i>	89e	<i>Thuja occidentalis</i> 'Pyramidalis'
37	<i>Metasequoia glyptostroboides</i>	72	<i>Pinus sylvestris</i>	90	<i>Thuja orientalis</i>
38	<i>Picea abies</i>	72a	<i>Pinus sylvestris</i> 'Aigensis'	90a	<i>Thuja orientalis</i> 'Bakeri'
39a	<i>Picea glauca densata</i>	72b	<i>Pinus sylvestris</i> 'Wateriana'	90b	<i>Thuja orientalis</i> 'Bonita'
39b	<i>Picea glauca f. conica</i>	73	<i>Pinus taeda</i>	90c	<i>Thuja orientalis</i> 'Beverlyensis'
40	<i>Picea omorika</i>	74	<i>Pinus thunbergii</i>	90d	<i>Thuja orientalis</i> 'Globose'
41	<i>Picea orientalis</i>	75	<i>Pinus virginiana</i>	90e	<i>Thuja orientalis</i> 'Berkmann's Golden'
42	<i>Picea polita</i>	76	<i>Podocarpus alpinus</i>	90f	<i>Thuja orientalis</i> 'Blue Cone'
43	<i>Picea pungens</i>	77	<i>Podocarpus macrophylla</i>	90g	<i>Thuja orientalis</i> 'Goldspire'
43a	<i>Picea pungens</i> 'Glaucis'	77a	<i>Podocarpus macrophylla</i> 'Haki'	90h	<i>Thuja orientalis</i> 'Elegantissima'
44	<i>Picea breweriana</i>	78	<i>Pseudolarix amabilis</i>	90i	<i>Thuja orientalis</i> 'Excelsa'
45	<i>Picea koyamae</i>	79	<i>Pseudolarix taxifolia</i>	90j	<i>Thuja orientalis</i> 'Raffell's Dwarf'
46	<i>Pinus banksiana</i>			90k	<i>Thuja orientalis</i> 'Green'
47	<i>Pinus caribaea</i>			91	<i>Thuja plicata</i>
48	<i>Pinus contorta</i>			92	<i>Thuja plicata</i>
49	<i>Pinus contorta</i>			93	<i>Torreya californica</i>
50	<i>Pinus contorta</i>			94	<i>Torreya taxifolia</i>
51	<i>Pinus contorta</i>			95	<i>Torreya nucifera</i>
52	<i>Pinus contorta</i>			96	<i>Torreya grandis</i>
53	<i>Pinus contorta</i>			97	<i>Tsuga canadensis</i>
54	<i>Pinus densiflora</i>			97a	<i>Tsuga canadensis</i> 'Sargentii'
54a	<i>Pinus densiflora</i> 'Umbraculifera'			98	<i>Tsuga caroliniana</i>
55	<i>Pinus echinata</i>	84	<i>Taxodium distichum</i>	99	<i>Tsuga diversifolia</i>
56	<i>Pinus edulis</i>	85	<i>Taxodium ascendens</i>	100	<i>Tsuga heterophylla</i>
57	<i>Pinus flexilis</i>	86a	<i>Taxus baccata</i> 'Repandens'	101	<i>Tsuga sargentii</i>
58	<i>Pinus griffithii</i>				

TABLE II
BROADLEAVED EVERGREENS

102	Abelia x 'Edward Goucher'	143a	Coronaster rotundifolia 'Janata'	187b	Ilex opaca 'Xanthocarpa'
103	Abelia x granuliflora	144	Cotoneaster sulcifolia f. flaccosa	184c	Ilex opaca 'Old Heavy Berry'
104	Abelia schumannii	145	Cotoneaster simonsii	184d	Ilex opaca 'Cronenberg'
105	Anurogodea polifolia	146	Cotoneaster thymifolia	184e	Ilex opaca 'Greenleaf'
106	Arctostaphylos stanfordiana	147	Cotoneaster zabelii	185	Ilex x fosteri
107	Arctostaphylos uva-ursi	148	Cotoneaster adpressa	186a	Ilex altaclarensis 'Wilsoni'
108	Aucuba japonica ♂ + ♀	148b	Cotoneaster adpressa 'Park Carpet'	187	Ilex vomitoria ♂ + ♀
108a	Aucuba japonica 'Crotanifolia'	149	Cotoneaster apiculata	187a	Ilex vomitoria 'Nana'
108b	Aucuba japonica 'Longifolia'	150a	Cotoneaster bullata 'Floribunda'	187b	Ilex vomitoria 'Stueggs'
108c	Aucuba japonica 'Luteo-carpa'	151	Cotoneaster dichotoma	188	Ilex aquifolium ♂ + ♀
108d	Aucuba japonica 'Nana'	152	Cotoneaster divaricata	188a	Ilex aquifolium 'Angustifolia'
108e	Aucuba japonica 'Variegata'	153	Cotoneaster foveolata	188b	Ilex aquifolium 'Argenteo-marginata'
109	Berberis candidula	154	Cotoneaster frigida	188c	Ilex aquifolium 'Aureo-marginata'
110	Berberis buxifolia nana	155	Cotoneaster lucida	188d	Ilex aquifolium 'Canellifolia'
111	Berberis x chenaultii	156	Cotoneaster multiflora calocarpa	188e	Ilex aquifolium 'Fructo-luteo'
112	Berberis concinna	157	Cotoneaster racemiflora soongoricus	188f	Ilex aquifolium 'Feyox'
113	Berberis dumvillii	158	Cotoneaster repandens	189	Ilex cassine ♂ + ♀
114	Berberis ganepelini	159	Daphne x burwoodii	190	Ilex decidua ♂ + ♀
115	Berberis julianae	160	Daphne cneorum	191	Ilex latifolia ♂ + ♀
116	Berberis mentorensis	161	Daphne genkwa	192	Ilex pedunculosa ♂ + ♀
117	Berberis x stenophylla	162	Daphne mezereum	193	Ilex pernyi ♂ + ♀
118	Berberis triacanthophora	163	Daphne odora	194a	Ilex aquipernyi 'Brilliant'
119	Berberis verruculosa	164	Elaeagnus macrophylla	195	Ilex purpurea
120	Brickellia spiculifolia	164	Elaeagnus x ebbingei	196	Ilex cilliospinosa
121	Buxus microphylla	165	Elaeagnus pungens	197	Ilex cornuta
121a	Buxus microphylla 'Compacta'	165a	Elaeagnus pungens 'Fruitlandi'	197a	Ilex cornuta 'Burfordi'
121b	Buxus microphylla 'Green Pillow'	166	Erica species 'Cultivars'	197b	Ilex cornuta 'Dwarf Burford'
121c	Buxus microphylla 'Koreana'	167a	Euonymus fortunei 'Vegetus'	197c	Ilex cornuta 'Shangri-la'
121d	Buxus microphylla 'Kingsville Dwarf'	167b	Euonymus fortunei 'Sarcocoe'	197d	Ilex cornuta 'Rotunda'
122	Buxus japonica	167c	Euonymus fortunei 'Coloratus'	197e	Ilex cornuta 'D'Or'
123	Buxus sempervirens	167d	Euonymus fortunei 'Carrierei'	198	Ilex crenata ♂ + ♀
123a	Buxus sempervirens 'Argenteo-variegata'	167e	Euonymus fortunei 'Gracilis'	198a	Ilex crenata 'Convexa'
123b	Buxus sempervirens 'Myrtifolia'	167f	Euonymus fortunei 'Radicans'	198b	Ilex crenata 'Glass'
123c	Buxus sempervirens 'Pendula'	167g	Euonymus fortunei 'Silver Queen'	198c	Ilex crenata 'Helleri'
123d	Buxus sempervirens 'Rosarinifolia'	168	Euonymus japonicus 'Alba-marginatus'	198d	Ilex crenata 'Hetzi'
123e	Buxus sempervirens 'Suffruticosa'	168a	Euonymus japonicus 'Aureo-marginatus'	198e	Ilex crenata 'Kingsville'
123f	Buxus sempervirens 'Welleri'	168b	Euonymus japonicus 'Aureo-marginatus'	198f	Ilex crenata 'Kingsville Green Cushion'
124	Calluna vulgaris 'Cultivars'	168c	Euonymus japonicus 'Aureo-variegatus'	198g	Ilex crenata 'Latifolia'
125a	Camellia japonica 'Frost Queen'	168d	Euonymus japonicus 'Microphyllus'	198h	Ilex crenata 'Mariesi'
125b	Camellia japonica 'Purity' (double white)	169	Euonymus kiautschovicus	198i	Ilex crenata 'Microphylla'
126	Camellia sasanqua cultivars	169a	Euonymus kiautschovicus 'Manhattan'	198j	Ilex crenata 'Compacta'
127	Chaenactis lanata	169b	Euonymus kiautschovicus 'Small leaf'	199	Ilex glabra ♂ + ♀
128	Cistus albidus	169c	Euonymus kiautschovicus 'Jewel'	200	Ilex rugosa
129	Cistus laurifolius	169d	Euonymus kiautschovicus 'Vincifolia'	201	Ilex serrata
130	Cleyera japonica	170	Eurya japonica	202	Ilex verticillata
131	Cotoneaster congesta	171	Fatsia japonica	202a	Ilex verticillata 'Nana'
132	Cotoneaster conspicua	172	Fatsia japonica	202b	Ilex verticillata 'Chrysocharpa'
132a	Cotoneaster conspicua 'Decora'	173	Gaultheria ulquehana	203	Ilex yunnanensis ♂ + ♀
133	Cotoneaster dameri	174	Gaultheria procumbens	204	Iberis gibraltarica
133a	Cotoneaster dameri 'Skogholmen'	175	Gaultheria shallon	205	Iberis sempervirens
133b	Cotoneaster dameri 'Lowfast'	176	Gaultheria veitchiana	206	Iberis tenoreana
134	Cotoneaster francheti	177	Gaylussacia brachycera	207	Illicium floridanum
135	Cotoneaster glaucophylla	178	Gelsenium sempervirens	208	Kalmia angustifolia
136	Cotoneaster henryana	179	Heco traversi	208	Kalmia latifolia
137	Cotoneaster herbiflorus	180	Hedera helix	209	Kalmia latifolia
138	Cotoneaster horizontalis	180a	Hedera cultivars	210	Kalmiopsis leachiana
139	Cotoneaster liking	181	Hypericum calycinum	211	Laurus nobilis
140	Cotoneaster microphylla	182	Hypericum hookerianum	212	Lavandula officinalis
140a	Cotoneaster microphylla 'Cochleata'	183	Hypericum patulum henryi	213	Lepophyllum buxifolium
141	Cotoneaster pannosa	184	Ilex opaca ♂ + ♀	214	Leucothoe fontanesiana (caesubel)
142	Cotoneaster parneyi	184a	Ilex opaca 'East Palatka'	214a	Leucothoe fontanesiana 'Nana'
215	Leucothoe racemosa	248	Pieris floribunda	277	Rhododendron maximum
216	Ligustrum amurense	249	Pieris formosa	278	Rhododendron mucronatum
217	Ligustrum delavayanum	250	Pieris japonica	279	Rhododendron mucronatum
218	Ligustrum henryi	250a	Pieris japonica 'Compacta'	280	Rhododendron nudiflorum
219	Ligustrum japonicum	250b	Pieris japonica 'Dorothy Wycoff'	281a	Rhododendron obtusum 'Hinodegiri'
219a	Ligustrum japonicum 'Rotundifolium'	251	Pieris lawanensis	281b	Rhododendron obtusum 'Kaempferi'
220	Ligustrum lucidum	252	Prunus laurocerasus	281c	Rhododendron obtusum Kurume Azaleas
221a	Ligustrum obtusifolium 'Regelianum'	252a	Prunus laurocerasus 'Schipkaensis'	282	Rhododendron P.J.M. Hybrids
222	Ligustrum ovalifolium	252b	Prunus laurocerasus 'Otto Lyken'	283	Rhododendron prunifolium
222a	Ligustrum ovalifolium 'Aureum'	253	Prunus lusitanica	284	Rhododendron racemosum
223	Ligustrum quihoui	254	Pyraecantha atalantioides	285	Rhododendron roseum
224	Ligustrum sinense	255	Pyraecantha coccinea	286	Rhododendron schlippenbachii
224a	Ligustrum sinense 'Pendulum'	255a	Pyraecantha coccinea 'Lalandei'	287	Rhododendron smirnowii
225	Ligustrum x 'Sawanec River'	255b	Pyraecantha coccinea 'Kasan'	288	Rhododendron vaseyi
226	Ligustrum x vicaryi	255c	Pyraecantha coccinea 'Aurea'	289	Rhododendron viscosum
227	Ligustrum vulgare	255d	Pyraecantha coccinea 'Pauciflora'	290	Rosmarinus officinalis
227a	Ligustrum vulgare 'Densiflorum'	255e	Pyraecantha coccinea 'Sungold'	291	Ruscus aculeatus
227b	Ligustrum vulgare italicum	256	Pyraecantha crenulata rogersiana	292	Santolina chamaecyparissus
228	Megollia grandiflora	257	Pyraecantha fortuneana (crenato-serrata)	293	Santolina virus
229	Mahonia aquifolium	258	Quercus virginiana	294	Sarcococca ruscifolia
229a	Mahonia aquifolium 'Compacta'	259	Raphiolepis umbellata	295	Sarcococca hookeriana
229b	Mahonia aquifolium 'Mdyhan Strain'	260	Raphiolepis ovata	296	Skimmia japonica ♂ + ♀
230	Mahonia bealei	261	Rhododendron arborensens	297	Skimmia reevesiana
231	Mahonia lomarifolia	262a	Rhododendron calendulaceum 'Aurantiacum'	298	Stranvaesia davidiana
232	Mahonia repens	262b	Rhododendron calendulaceum 'Croceum'	299	Vaccinium arboreum
233	Myrica californica	262c	Rhododendron calendulaceum 'Smoky Mountaineer'	300	Vaccinium corymbosum
234	Myrica cerifera	263	Rhododendron canadense	301	Vaccinium delavayi
235	Myrica pensylvanica ♂ + ♀	264	Rhododendron carolinianum	302	Vaccinium ovatum
236	Nandina domestica	264a	Rhododendron carolinianum 'Album'	303	Vaccinium stamineum
236a	Nandina domestica 'Alba'	264b	Rhododendron carolinianum 'Luteum'	304	Viburnum davidi
236b	Nandina domestica 'Nana'	265	Rhododendron catabiense	305	Viburnum henryi
236c	Nandina domestica 'Compacta'	265a	Rhododendron catabiense 'Album'	306	Viburnum japonicum
237	Nothopanax davidi	265b	Rhododendron catabiense Hybrids	307	Viburnum odoratissimum
238	Osmanthus x fortunei	266	Rhododendron decorum	308	Viburnum rhytidophyllum
239	Osmanthus heterophyllus (ilicifolius)	267	Rhododendron discolor	309	Viburnum tinus
240	Osmanthus aquifolium	268	Rhododendron discolor	310	Vinca major
241	Pachysandra terminalis	269	Rhododendron Exbury hybrids	311	Vinca minor
241a	Pachysandra terminalis 'Variegata'	269a	Rhododendron fortunei	312	Yucca aloifolia
242	Paxistima canbyi (Pachistima)	269b	Rhododendron fortunei hybrids	313	Yucca filamentosa
243a	Pernettya mucronata 'Alba'	270	Rhododendron x gandavense (ghent hybrids)	314	Yucca glauca
243b	Pernettya mucronata 'Coccinea'	271	Rhododendron indicum	315	Yucca (Hesperole parvifolia)
243c	Pernettya mucronata 'Lilacina'	272	Rhododendron japonicum	316	Yucca treculiana
244	Phillyrea vilmariniana (decora)	273	Rhododendron keiskei	317	Bignonia capreolata
245	Photinia fraseri	274	Rhododendron kosterianum (mollis hybrids)	318	Gelsenium sempervirens
246	Photinia serrulata	275	Rhododendron lapponicum	319	Kadsura japonica
247	Photinia villosa	276	Rhododendron macrophyllum (californicum)	320	Pileostegia viburnoides

Source: [4, 10, 26, 32, 33, 35].

TABLE III
DECIDUOUS SHRUBS

322	<i>Acanthopanax tiboldianum</i>	369	<i>Cornus alba</i>	423	<i>Forsythia x intermedia</i>
323	<i>Amelanchier x grandiflora</i>	370	<i>Cornus amomum</i>	424	<i>Forsythia ovata</i>
324	<i>Amelanchier stolonifera</i>	371	<i>Cornus asperifolia</i>	425	<i>Forsythia suspensa sieboldii</i>
325	<i>Amorpha canescens</i>	372	<i>Cornus hessii</i>	426	<i>Forsythia viridissima</i>
326	<i>Amorpha fruticosa</i>	373	<i>Cornus pauciflora</i>	426a	<i>Forsythia viridissima 'Bronkensis'</i>
327	<i>Arbutus unedo</i>	374	<i>Cornus racemosa</i>	427	<i>Fothergilla gardenii</i>
328	<i>Arbutus trifoliata</i>	375	<i>Cornus sanguinea</i>	428	<i>Fothergilla major</i>
329	<i>Aronia melanocarpa</i>	376	<i>Cornus sericea (stolonifera)</i>	429	<i>Fothergilla monticola</i>
330	<i>Aronia prunifolia</i>	376a	<i>Cornus sericea 'Flaviranca'</i>	430	<i>Forestiera acuminata</i>
331	<i>Artemisia abrotanum</i>	376b	<i>Cornus sericea 'Kobler'</i>	431	<i>Forestiera mexicana</i>
332	<i>Artemisia abrotanum</i>	377	<i>Corylopsis glabrescens</i>	432	<i>Fuchsia magellanica</i>
333	<i>Artemisia tridentata</i>	378	<i>Corylopsis griffithii</i>	433	<i>Garrya wrightii</i>
334	<i>Arundinaria simonii</i>	379	<i>Corylus avicularis subtorra</i>	434	<i>Genista cinerea</i>
335	<i>Arundinaria variegata</i>	380	<i>Coturnia tricolorata</i>	435	<i>Genista hispanica</i>
336	<i>Baccharis halimifolia</i>	381	<i>Cytisilia racemiflora</i>	436	<i>Genista pilosa</i>
337	<i>Baccharis halimifolia</i>	382	<i>Cytisus albus</i>	437	<i>Genista tinctoria</i>
338	<i>Berberis beamaniana</i>	383	<i>Cytisus arduini</i>	438	<i>Halimodendron halimodendron</i>
339	<i>Berberis clemensiana</i>	384	<i>Cytisus battandieri</i>	439	<i>Hamelis x intermedia 'Arnold Primrose'</i>
340	<i>Berberis glabella</i>	385	<i>Cytisus x bearii</i>	440	<i>Hamelis macrophylla</i>
341	<i>Berberis koreana</i>	386	<i>Cytisus x dallimorei</i>	441	<i>Hamelis vernalis</i>
342	<i>Berberis thunbergii</i>	387	<i>Cytisus decumbens</i>	442	<i>Hamelis virginiana</i>
342a	<i>Berberis thunbergii atropurpurea</i>	388	<i>Cytisus x kewensis</i>	443	<i>Hibiscus syriacus</i>
342b	<i>Berberis thunbergii 'Red Bird'</i>	389	<i>Cytisus multiflorus</i>	444	<i>Holodiscus discolor eriaefolius</i>
342c	<i>Berberis thunbergii 'Aurea'</i>	390	<i>Cytisus nigricans</i>	445	<i>Hydrangea arborescens 'Grandiflora'</i>
342d	<i>Berberis thunbergii 'Crimson Pigmy'</i>	391	<i>Cytisus x praecox</i>	445a	<i>Hydrangea arborescens radiata</i>
342e	<i>Berberis thunbergii 'Erecta'</i>	392	<i>Cytisus procumbens</i>	446	<i>Hydrangea aspera</i>
342f	<i>Berberis thunbergii 'Variegata'</i>	393	<i>Cytisus purgans</i>	447	<i>Hydrangea macrophylla</i>
343	<i>Buddleia alternifolia 'Argentea'</i>	394	<i>Cytisus purpureus</i>	448a	<i>Hydrangea paniculata 'Grandiflora'</i>
343a	<i>Buddleia alternifolia 'Argentea'</i>	395	<i>Cytisus scoparius</i>	449	<i>Hydrangea quercifolia</i>
344	<i>Buddleia davidi</i>	396	<i>Cytisus x St. Mary's</i>	450	<i>Hypericum calycinum</i>
344a	<i>Buddleia davidi 'Empire Blue'</i>	397	<i>Deutzia x candelabrum</i>	451	<i>Hypericum densiflorum</i>
344b	<i>Buddleia davidi magnifica</i>	398	<i>Deutzia gracilis</i>	452	<i>Hypericum frondosum</i>
344c	<i>Buddleia davidi 'Peace'</i>	399	<i>Deutzia grandiflora</i>	453	<i>Hypericum kalmianum</i>
345	<i>Calliandra americana</i>	400	<i>Deutzia x kalmiaeiflora</i>	454	<i>Hypericum prolificum</i>
346	<i>Calliandra americana</i>	401	<i>Deutzia x lemoinei</i>	455	<i>Hypericum rowellianum</i>
347	<i>Calliandra japonica</i>	402	<i>Deutzia x magnifica</i>	456	<i>Indigofera amblyantha</i>
348	<i>Calycanthus floridus</i>	403	<i>Deutzia parviflora</i>	457	<i>Indigofera kirilowii</i>
349	<i>Caragana arborescens</i>	404	<i>Deutzia scabra</i>	458	<i>Indigofera potaninii</i>
350	<i>Caragana frutex</i>	405	<i>Deutzia scabra 'Candidissima'</i>	459	<i>Itea virginica</i>
351	<i>Caragana maximowicziana</i>	406	<i>Diervilla sessilifolia</i>	460	<i>Jasminum humile</i>
352	<i>Caragana microphylla</i>	407	<i>Dirca palustris</i>	461	<i>Jasminum nudiflorum</i>
353	<i>Caryopteris x elandensis</i>	408	<i>Disanthus cercidifolius</i>	462	<i>Kerria japonica</i>
354	<i>Cassia alata</i>	409	<i>Elaeagnus multiflora</i>	462a	<i>Kerria japonica 'Pleniflora'</i>
355	<i>Ceanothus americanus</i>	410	<i>Elaeagnus umbellata</i>	463	<i>Kolkwitzia amabilis</i>
356	<i>Ceanothus ovatus</i>	411	<i>Elsholtzia stauntonii</i>	464	<i>Lagerstromia indica</i>
357	<i>Cephalanthus occidentalis</i>	412	<i>Enkianthus perulatus</i>	465	<i>Leptodermis oblonga</i>
358	<i>Chaenomeles japonica</i>	413	<i>Escallonia virgata</i>	466	<i>Lespedeza bicolor</i>
359	<i>Chaenomeles lagenaria</i>	414	<i>Eunymus alatus</i>	467	<i>Lespedeza cyrtobotrya</i>
359a	<i>Chaenomeles lagenaria cultivars</i>	414a	<i>Eunymus alatus 'Compactus'</i>	468	<i>Lespedeza japonica</i>
360	<i>Chilopsis linearis</i>	415	<i>Eunymus americanus</i>	469	<i>Lespedeza thunbergii</i>
361	<i>Chytocarpus graveolens</i>	415a	<i>Eunymus atropurpurea</i>	470	<i>Lindera benzoin</i>
362	<i>Clerodendrum trichotomum</i>	416	<i>Eunymus yedensis</i>	471	<i>Lonicera alpigena 'Nana'</i>
363	<i>Clethra alnifolia</i>	417	<i>Exochorda giraldi wilsonii</i>	472a	<i>Lonicera x amena 'Arnoldiana'</i>
364	<i>Clethra alnifolia</i>	418	<i>Exochorda racemosa</i>	473a	<i>Lonicera x bella 'Atrorosea'</i>
365	<i>Clethra barbinervis</i>	419	<i>Fallugia paradoxa</i>	473b	<i>Lonicera x bella 'Rosea'</i>
366	<i>Colutea arborescens</i>	420	<i>Fendleria rupicola</i>	474	<i>Lonicera deltoidea</i>
367	<i>Comptonia peregrina</i>	421	<i>Ficus carica</i>	475	<i>Lonicera fragrantissima</i>
		422	<i>Forsythia 'Arnold Dwarf'</i>		
476	<i>Lonicera korolkowii</i>	516	<i>Rhus typhina</i>	559a	<i>Syringa x 'Alba'</i>
477	<i>Lonicera maackii</i>	517	<i>Rhus trilobata</i>	559b	<i>Syringa x saugeana</i>
478	<i>Lonicera morrowii</i>	518	<i>Ribes alpinum</i>	560	<i>Syringa laciniata</i>
479	<i>Lonicera nitida</i>	519	<i>Ribes aureum</i>	561	<i>Syringa neyeri</i>
480	<i>Lonicera pileata</i>	520	<i>Ribes missouriense</i>	562a	<i>Syringa microphylla 'Suberba'</i>
481	<i>Lonicera pyrenaica</i>	521	<i>Ribes odoratum</i>	563	<i>Syringa x persica</i>
482	<i>Lonicera quinquelocularis</i>	522	<i>Ribes sanguineum</i>	563a	<i>Syringa x persica 'Laciniata'</i>
483	<i>Lonicera tatarica</i>	523	<i>Robinia hispida</i>	564a	<i>Syringa x prestoniae 'Isabella'</i>
484	<i>Lonicera thibetica</i>	524	<i>Rosa acicula</i>	565	<i>Syringa villosa</i>
485a	<i>Lonicera xylosteum 'Clayville'</i>	525	<i>Rosa deltoidea</i>	566	<i>Syringa vulgaris</i>
486	<i>Neviusia alabamensis</i>	526	<i>Rubus odoratus</i>	567	<i>Tamarix africana</i>
487	<i>Orixa japonica</i>	527	<i>Rubus phoenicolasius</i>	568	<i>Tamarix hispida</i>
488	<i>Philadelphus coronarius</i>	528	<i>Rubus x tridel 'Benenden'</i>	569	<i>Tamarix odessana</i>
489	<i>Philadelphus grandiflorus</i>	529	<i>Salix gracilistylis</i>	570	<i>Tamarix pentandra</i>
490	<i>Philadelphus inodorus</i>	530	<i>Salix lanata</i>	571	<i>Trientalis paniculata</i>
491	<i>Philadelphus inodorus</i>	531	<i>Salix purpurea</i>	571a	<i>Vaccinium arboreum</i>
492	<i>Philadelphus x lemoinei 'Avalanche'</i>	532	<i>Salix tristis</i>	572	<i>Viburnum acerifolium</i>
492b	<i>Philadelphus x lemoinei 'Erectus'</i>	533	<i>Salix uva-ursi</i>	573	<i>Viburnum x carcephalum</i>
492c	<i>Philadelphus x lemoinei 'Grandifolia'</i>	534	<i>Salix interior</i>	574	<i>Viburnum carlesi</i>
493	<i>Philadelphus propinqua</i>	535	<i>Sambucus canadensis</i>	574a	<i>Viburnum carlesi 'Compactum'</i>
494	<i>Philadelphus x splendens</i>	535a	<i>Sambucus 'Aurea'</i>	575	<i>Viburnum dentatum</i>
495	<i>Philadelphus x virginialis</i>	536	<i>Shepherdia canadensis</i>	576	<i>Viburnum dilatatum</i>
495a	<i>Philadelphus x virginialis 'Minnesota Snowflake'</i>	537	<i>Sophora davidii</i>	577	<i>Viburnum ferreri</i>
495b	<i>Philadelphus x virginialis 'Virginal'</i>	538	<i>Sorbaria aitchisonii</i>	578	<i>Viburnum x juddii</i>
496	<i>Physocarpus opulifolius</i>	539	<i>Sorbaria sorbifolia</i>	579	<i>Viburnum opulus</i>
496a	<i>Physocarpus opulifolius</i>	540	<i>Sorbus tianshanica</i>	579a	<i>Viburnum opulus 'Compactum'</i>
496b	<i>Physocarpus opulifolius</i>	541	<i>Sorbus villosa</i>	579b	<i>Viburnum opulus 'Roseum'</i>
497	<i>Poinciana gilliesii</i>	542	<i>Spartium junceum</i>	580	<i>Viburnum plicatum</i>
498	<i>Potentilla fruticosa</i>	543	<i>Spiraea albilifera</i>	580a	<i>Viburnum plicatum 'Roseum'</i>
499	<i>Prinsepia sinensis</i>	544	<i>Spiraea x arguta</i>	580b	<i>Viburnum plicatum 'Montosum'</i>
500	<i>Prunus angustifolia watsonii</i>	545	<i>Spiraea x billiardii</i>	581	<i>Viburnum prunifolium</i>
501	<i>Prunus besseyi</i>	546	<i>Spiraea x brachybotrys</i>	582	<i>Viburnum robustum compactum</i>
502	<i>Prunus x cistena</i>	547a	<i>Spiraea x bumalda 'Anthony Waterer'</i>	583a	<i>Viburnum sargentii 'Flavum'</i>
503	<i>Prunus glandulosa</i>	547b	<i>Spiraea x bumalda 'Frederic'</i>	584	<i>Viburnum setigerum 'Aurantiacum'</i>
504	<i>Prunus gracilis</i>	547c	<i>Spiraea x bumalda 'Norman'</i>	585	<i>Viburnum sieboldii</i>
505	<i>Prunus japonica</i>	548a	<i>Spiraea japonica 'Atrosanguinea'</i>	585a	<i>Viburnum sieboldii 'Seneca'</i>
506	<i>Prunus maritima</i>	549	<i>Spiraea nipponica rotundifolia</i>	586	<i>Viburnum trilobum</i>
507	<i>Prunus tenella alba</i>	550	<i>Spiraea prunifolia</i>	587	<i>Vitex agnus-castus</i>
508	<i>Prunus tonantosa</i>	551	<i>Spiraea thunbergii</i>	588a	<i>Vitex negundo 'Hirta' 'ophylla'</i>
509	<i>Prunus triloba</i>	552	<i>Spiraea trichocarpa</i>	589	<i>Weigela florida</i>
510	<i>Punica granatum</i>	553	<i>Spiraea x vanhouttei</i>	589a	<i>Weigela florida 'Follis Purpuris'</i>
511	<i>Rhamnus frangula</i>	554	<i>Stephanandra incisa</i>	589b	<i>Weigela florida 'Variegata Nana'</i>
511a	<i>Rhamnus frangula 'Columnaris'</i>	554a	<i>Styrax wilsonii</i>	589c	<i>Weigela florida Venusta</i>
512	<i>Rhodotypos scandens</i>	555	<i>Symphoricarpos albus laevigatus</i>	590	<i>Weigela middendorffiana</i>
513	<i>Rhus aromatica</i>	557	<i>Symphoricarpos x chenaultii</i>	591	<i>Xanthoceras sorbifolium</i>
514	<i>Rhus copallina</i>	558	<i>Symphoricarpos orbiculatus</i>	592	<i>Xanthorrhiza simplicissima</i>
515	<i>Rhus glabra</i>	559	<i>Syringa x chinensis</i>	593	<i>Zenobia pulverulenta</i>

Source: [4, 10, 26, 32, 33].

TABLE IV
DECIDUOUS TREES

594	<i>Acer campestre</i>	632	<i>Gastanea mollissima</i>	664	<i>Fagus grandifolia</i>
595	<i>Acer distylum</i>	633	<i>Catalpa bignonioides</i>	665	<i>Fagus sylvatica</i>
596	<i>Acer ginnala</i>	634	<i>Catalpa speciosa</i>	665a	<i>Fagus sylvatica</i> 'Pendula'
597	<i>Acer grandidentatum</i>	635	<i>Celtis occidentalis</i>	665b	<i>Fagus sylvatica</i> 'Riversi'
598	<i>Acer griseum</i>	636	<i>Celtis laevigata</i>	665c	<i>Fagus sylvatica</i> 'Columnar'
599	<i>Acer negundo</i>	637	<i>Celtis australis</i>	665d	<i>Fagus sylvatica</i> 'Laciniata'
600	<i>Acer palmatum</i>	638	<i>Cercidiphyllum japonicum</i>	666	<i>Ficus carica</i>
600a	<i>Acer palmatum</i> 'Atropurpureum'	639	<i>Cercis canadensis</i>	667	<i>Firmiana simplex</i>
600b	<i>Acer palmatum</i> 'Dissectum'	639a	<i>Cercis canadensis</i> 'Alba'	668	<i>Firmiana platanifolia</i>
600c	<i>Acer palmatum</i> 'Ornatum'	639b	<i>Cercis canadensis</i> 'Oklahoma'	669	<i>Franklinia alatanaha</i>
600d	<i>Acer palmatum</i> 'Sanguineum'	639c	<i>Cercis canadensis</i> 'Forest Pansy'	670	<i>Fraxinus americana</i>
600e	<i>Acer palmatum</i> 'Oshiu-beni'	639d	<i>Cercis canadensis</i> 'Rubye Atkinson'	671	<i>Fraxinus pennsylvanica</i>
600f	<i>Acer palmatum</i> 'Elegans'	639e	<i>Cercis canadensis</i> 'Flame'	672	<i>Fraxinus pennsylvanica lanceolata</i>
600g	<i>Acer palmatum</i> 'Burgundy Lace'	639.5	<i>Cercis reniformis alba</i>	673	<i>Fraxinus quadrangulata</i>
601	<i>Acer pensylvanicum</i>	640	<i>Cercis chinensis</i>	674	<i>Fraxinus ornus</i>
602	<i>Acer platanoides</i>	641	<i>Chionanthus virginicus</i>	675	<i>Fraxinus uhdei</i>
602a	<i>Acer platanoides</i> 'Columnare'	642	<i>Cladrastis lutea</i>	676	<i>Fraxinus velutina</i>
602b	<i>Acer platanoides</i> 'Crimson King'	643	<i>Clethra barbinervis</i>		
603	<i>Acer pseudoplatanus</i>	643.1	<i>Cornus controversa</i>		
604	<i>Acer rubrum</i>	644	<i>Cornus florida</i>		
604a	<i>Acer rufinerve</i>	644a	<i>Cornus florida</i> 'Cherokee Chief'	677a	<i>Ginkgo biloba</i> 'Autumn Gold'
605	<i>Acer saccharinum</i>	644b	<i>Cornus florida</i> 'Pluribracteata'	677b	<i>Ginkgo biloba</i> 'Fastigiata'
606	<i>Acer saccharum</i>	644c	<i>Cornus florida</i> 'Xanthocarpa'	678	<i>Gleditsia triacanthos</i>
607	<i>Acer saccharum</i> 'Caddo'	645	<i>Cornus kousa</i>	678a	<i>Gleditsia triacanthos</i> 'Moraine'
608	<i>Acer tataricum</i>	645.1	<i>Cornus macrophylla</i>	678b	<i>Gleditsia triacanthos</i> 'Sunburst'
609	<i>Aesculus carnea</i> 'brioti'	646	<i>Cornus mas</i>	678c	<i>Gleditsia triacanthos</i> 'Ruby-lace'
610	<i>Aesculus arguta</i>	646.1	<i>Cornus nuttallii</i>	679	<i>Gymnocladus dioica</i>
611	<i>Aesculus glabra</i>	646.2	<i>Cornus officinalis</i>		
612	<i>Aesculus pavia</i>	647	<i>Cotinus coggygria</i>		
613	<i>Aesculus hippocastanum</i>	648	<i>Crataegus crusgalli</i>		
614	<i>Aesculus octandra</i>	649	<i>Crataegus monogyna biflora</i>	680	<i>Halesia carolina</i>
615	<i>Ailanthus altissima erythrocarpa</i>	650	<i>Crataegus nitida</i>	681	<i>Halesia monticola</i>
616	<i>Albizia julibrissina</i>	651	<i>Crataegus oxyacantha</i> 'Pauli'	682	<i>Hemamelis mollis</i>
617	<i>Alnus pendula</i>	652	<i>Crataegus phaenopyrum</i> (cordata)	683	<i>Hippophae rhamnoides</i>
618	<i>Alnus pendula hirsuta</i> var. <i>sibirica</i>				
619	<i>Amelanchier canadensis</i>				
620	<i>Amelanchier laevis</i>				
621	<i>Aralia spinosa</i> (elata)	653	<i>Davidia involucreta</i>	685	<i>Ilex decidua</i>
622	<i>Asimina triloba</i>	654	<i>Diospyros kaki</i>	685	<i>Ilex montana</i>
		655	<i>Diospyros virginiana</i>		
623	<i>Betula papyrifera</i>			686	<i>Juglans nigra</i>
624	<i>Betula pendula gracilis</i>	656	<i>Elaeagnus angustifolia</i>	687	<i>Juglans regia</i>
625	<i>Betula populifolia</i>	657	<i>Eriobotrya japonica</i>		
626	<i>Betula nigra</i>	658	<i>Eriobotrya deflexa</i>		
627	<i>Broussonetia papyrifera</i>	659	<i>Euonymus bungeanus</i>		
		660	<i>Euonymus europaeus</i>	688	<i>Kalopanax pictum</i>
628	<i>Carpinus betulus</i>	660a	<i>Euonymus europaeus</i> 'Aldenhamensis'	689	<i>Koeleruteria paniculata</i>
629	<i>Carpinus caroliniana</i>	661	<i>Euonymus latifolius</i>	690	<i>Koeleruteria integrifolia</i>
630	<i>Carya ovata</i>	662	<i>Euonymus sanguineus</i>		
631	<i>Carya illinoensis</i>	663	<i>Evodia daniellii</i>		
691	<i>Laburnum watereri</i> (vossii)	728	<i>Prunus mume</i>	768	<i>Salix babylonica</i>
692a	<i>Liquidambar styraciflua</i>	729a	<i>Prunus padus</i> 'Commutata'	768.1	<i>Salix fragilis</i> f. <i>bullata</i>
	'Midwest Sunset'	730	<i>Prunus persica</i>	768.2	<i>Salix subcoerulea</i>
693	<i>Liquidambar formosana</i>	731	<i>Prunus sargentii</i>		
	(Formosan Sweetgum)	732	<i>Prunus serotina</i>		
694	<i>Liriodendron tulipifera</i>	733a	<i>Prunus serrulata</i> 'Kwanzan'		
		734a	<i>Prunus subhirtella</i> 'Autumnalis'	769	<i>Salix pentandra</i>
		734b	<i>Prunus subhirtella</i> 'Pendula'	770	<i>Salix matsudana</i> 'Tortuosa'
695	<i>Maclura pomifera</i>	735	<i>Prunus virginiana</i>	771	<i>Salix nigra</i>
696	<i>Magnolia acuminata</i>	736	<i>Prunus yedoensis</i>	772	<i>Salix discolor</i>
697	<i>Magnolia denudata</i>	737	<i>Ptelea trifoliata</i>	773	<i>Salix caprea</i>
698	<i>Magnolia macrophylla</i>	738	<i>Pterostyrax hispida</i>	774	<i>Sambucus caerulea</i>
699	<i>Magnolia obovata</i>	739a	<i>Pyrus calleryana</i> 'Bredford'	775	<i>Sapindus drummondii</i>
700	<i>Magnolia salicifolia</i>			776	<i>Sassafras albidum</i>
701	<i>Magnolia sieboldii</i>			777	<i>Sophora japonica</i>
702	<i>Magnolia soulangeana</i>	740	<i>Quercus acutissima</i>	778	<i>Sorbus alnifolia</i>
703	<i>Magnolia stellata</i>	741	<i>Quercus agrifolia</i>	779	<i>Sorbus aucuparia</i>
704	<i>Magnolia virginiana</i>	742	<i>Quercus alba</i>	780	<i>Sorbus decora</i>
705	<i>Melus species</i>	743	<i>Quercus bicolor</i>	781	<i>Sorbus discolor</i>
706a	<i>Melia azedarach</i> 'Umbraculiformis'	744	<i>Quercus borealis</i>	782	<i>Staphylea trifolia</i>
707	<i>Morus alba</i>	745	<i>Quercus cerris</i>	783	<i>Stewartia koreana</i>
708	<i>Morus alba tatarica</i>	746	<i>Quercus chrysolepis</i>	784	<i>Stewartia pseudo-camellia</i>
709	<i>Morus rubra</i>	747	<i>Quercus coccinea</i>	785	<i>Styrax japonica</i>
		748	<i>Quercus falcata</i>	786	<i>Styrax obassia</i>
		749	<i>Quercus ilex</i>	787	<i>Symplocos paniculata</i>
		750	<i>Quercus imbricaria</i>	788	<i>Syringa amurensis japonica</i>
		751	<i>Quercus kelloggii</i>		
710	<i>Nyssa sylvatica</i>	752	<i>Quercus laurifolia</i>		
711	<i>Ostrya virginiana</i>	753	<i>Quercus macrocarpa</i>	789	<i>Tilia cordata</i>
712	<i>Oxydendrum arboreum</i>	754	<i>Quercus marilandica</i>	790	<i>Tilia americana</i>
		755	<i>Quercus montana</i>	791	<i>Tilia petiolaris</i>
		756	<i>Quercus muhlenbergii</i>	792	<i>Tilia tomentosa</i>
713	<i>Parrotia persica</i>	756.1	<i>Quercus myrtillofolia</i>		
714	<i>Paulownia tomentosa</i>	757	<i>Quercus nigra</i>		
715	<i>Phellodendron aurance</i>	758	<i>Quercus palustris</i>		
716	<i>Pistacia chinensis</i>	759	<i>Quercus phellos</i>	793	<i>Ulmus alata</i>
717	<i>Platanus acerifolia</i>	760	<i>Quercus robur</i>	794	<i>Ulmus carpinifolia</i>
718	<i>Platanus occidentalis</i>	760a	<i>Quercus robur</i> 'Fastigiata'	795	<i>Ulmus crassifolia</i>
719	<i>Platanus orientalis</i>	761	<i>Quercus shumardi</i>	796	<i>Ulmus parvifolia</i>
720	<i>Poncirus trifoliata</i>	762	<i>Quercus stellata</i>	797	<i>Ulmus procera</i>
721	<i>Populus alba</i>	763	<i>Quercus subar.</i>		
721a	<i>Populus alba</i> 'Bolleana'	764	<i>Quercus velutina</i>		
722	<i>Populus deltoides</i>				
723	<i>Populus nigra italica</i>				
724	<i>Populus tremuloides</i>			798	<i>Zanthoxylum americanum</i>
725	<i>Prosopis chilensis</i>	765	<i>Rhamnus cathartica</i>	799	<i>Zelkova serrata</i>
726	<i>Prunus birriana</i>	766	<i>Rhamnus frangula</i>	800	<i>Zizyphus jujube</i>
727	<i>Prunus cerasifera atropurpurea</i>	767	<i>Robinia pseudacacia</i>		

Source: [4, 10, 26, 35].

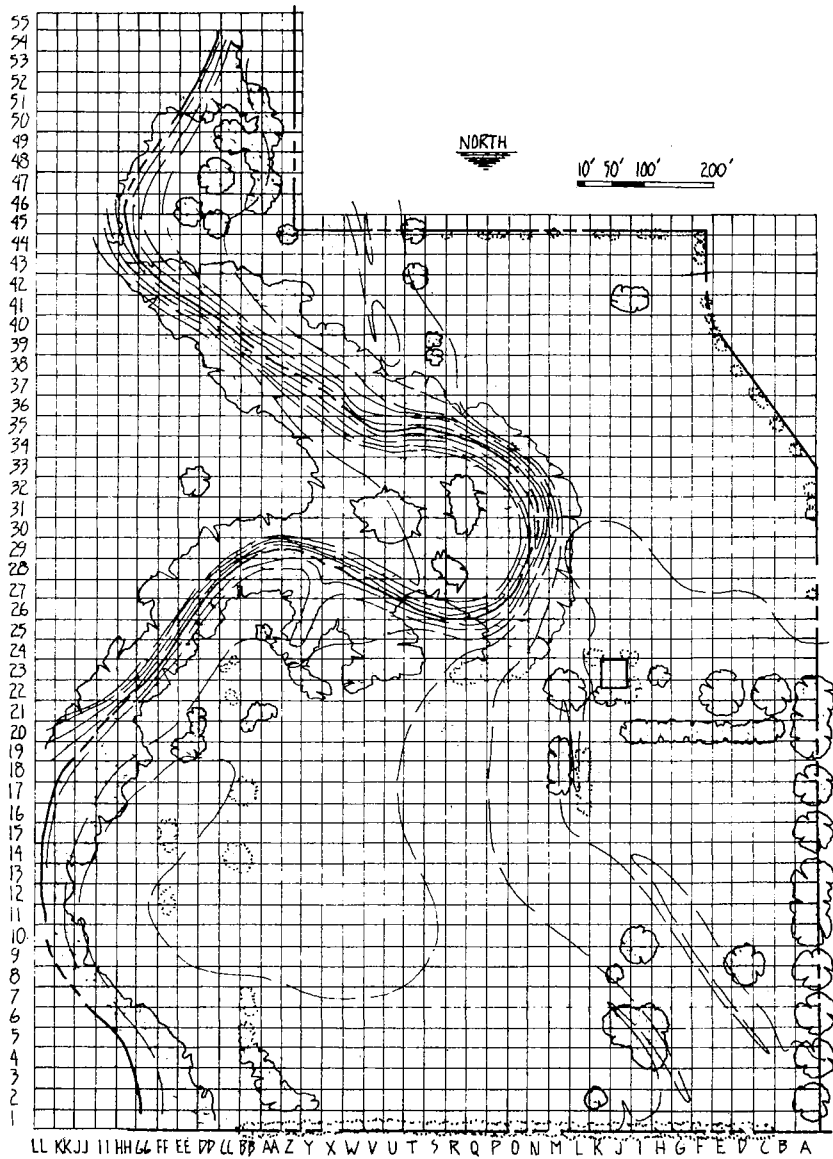


Figure 11. The Grid System Used to Locate Features.

CHAPTER VII

CONSTRUCTION

Only minor construction is needed to begin the arboretum. Presently, treated water is available only in summer months. Arrangements have been made to insure an adequate supply of nontreated water. To avoid water mold organisms, this water could be chlorinated with one part per million chlorine by use of an injector. Electricity will be made available at the barn to operate an electric motor driven pump so this water can be used for irrigation purposes. Irrigation water will then be distributed through portable upright sprinklers connected by means of aluminum irrigation pipe to permanent risers (Figure 12).

Both for security purposes and visitor control, a fence must be installed along the north boundary and a gate constructed at the entrance (Figure 13). The gate will be locked at closing time and on weekends in the absence of supervisory personnel. Access on the conifer peninsula will be controlled by means of a trifoliate orange hedge with one gate for maintenance vehicles.

The existing road to the barn will be relocated. This will give the visitor a more aesthetic approach since the drive will curve through the crabapple trials entering the parking area just west of the barn. A parking area has been designated to the west of the barn just south of the existing row of Chinese pistache trees.

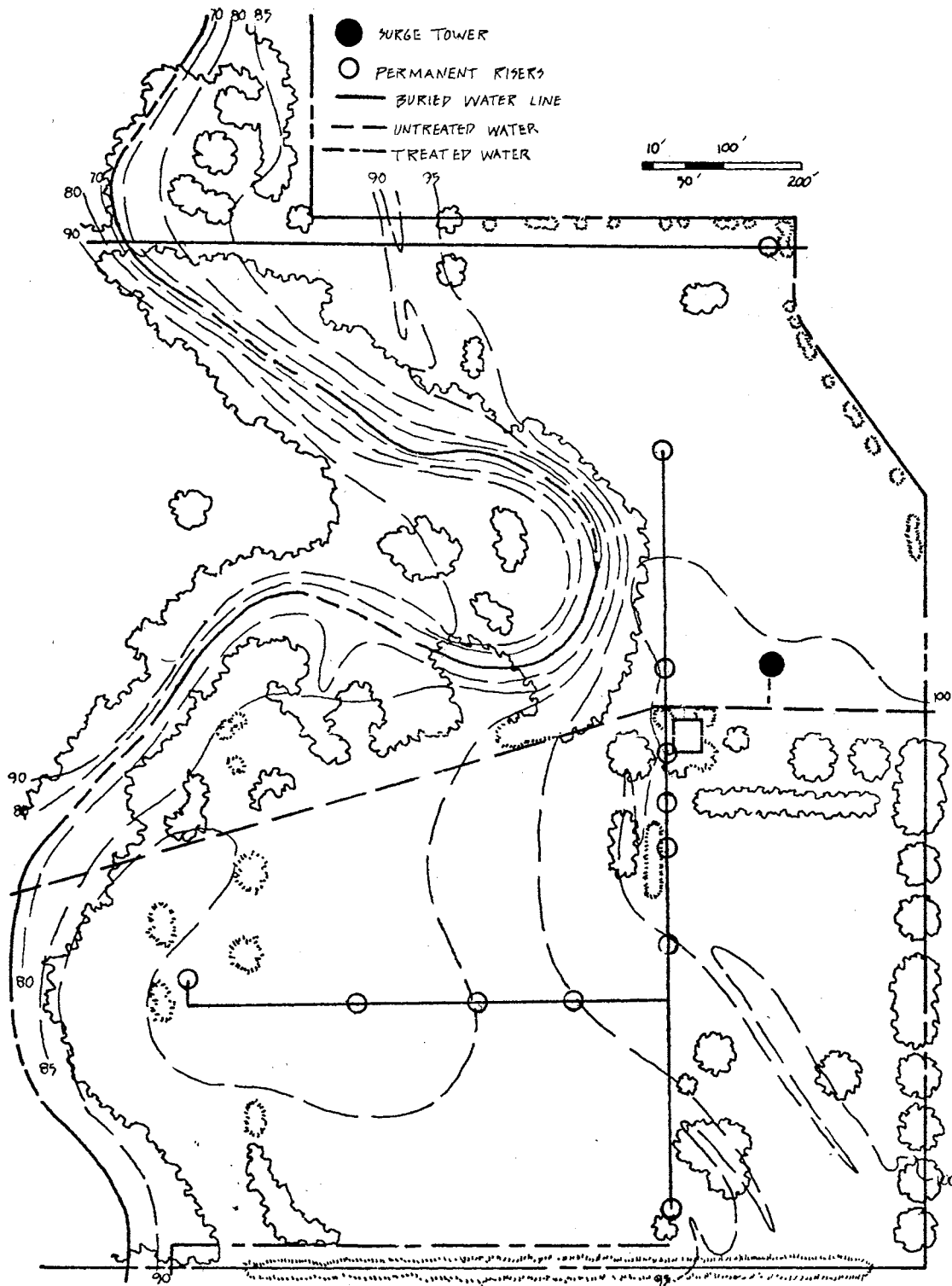


Figure 12. The Water System.

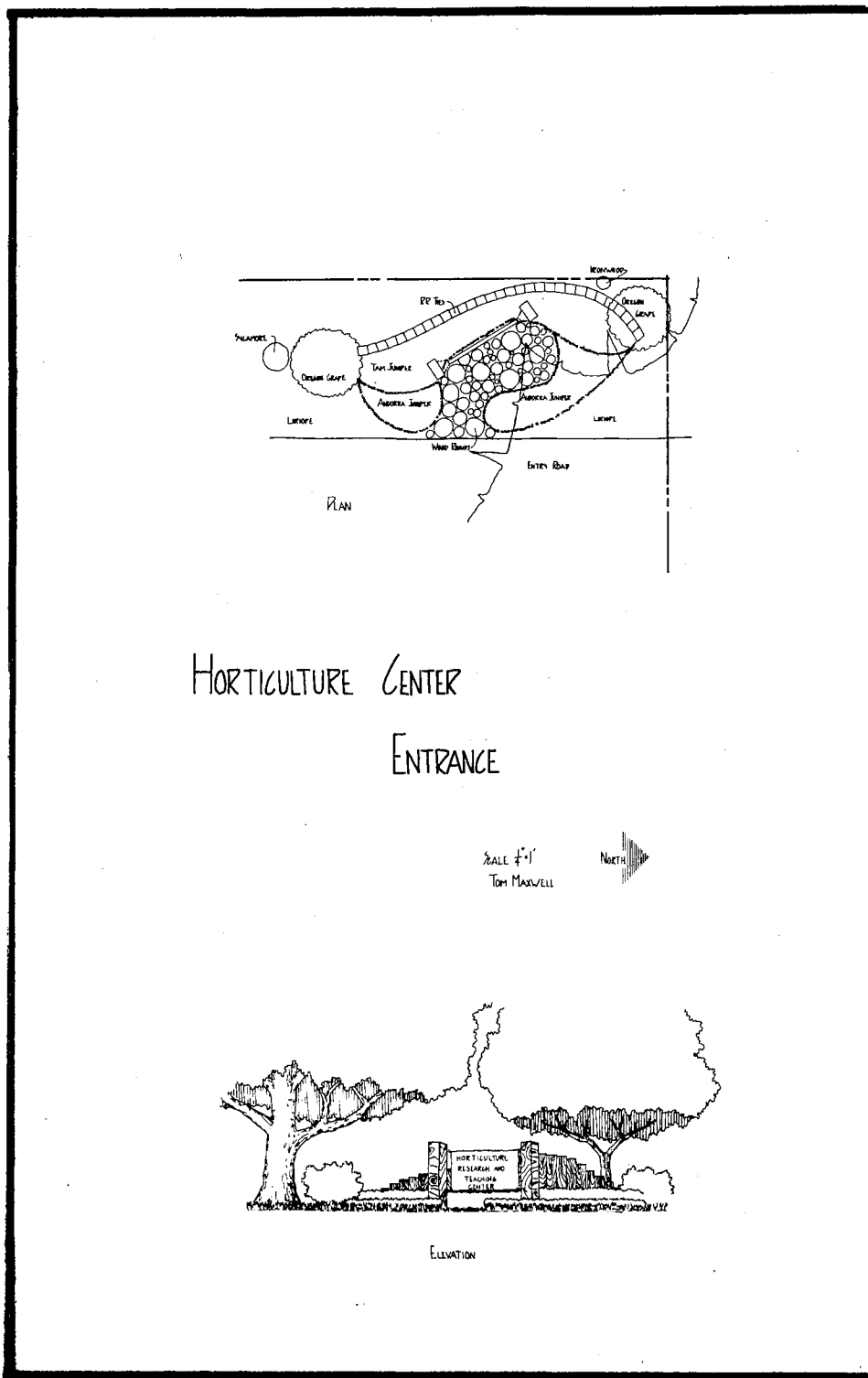


Figure 13. Horticulture Center Entrance.

In the future, it is hoped to develop an entrance from highway 51 to the south. This road would extend north along the west side of Cow Creek, curve west of the deciduous shrub and juniper area and enter the parking area. This drive would provide more convenient vehicular access to the center.

Four bridges must be constructed to allow adequate circulation between the major areas of the arboretum. These bridges will be used only for pedestrian traffic (Figures 14 and 15).

Plans call for the relocation of portions of the existing plant materials in the arboretum near the entrance. This will be done to conform to the master plan herein submitted.

The existing terraces will be graded to enable water to drain to the south. Excess soil cut from the terraces will be used to cover the trash on the bank of Cow Creek southeast of the barn. A gravity wall will be constructed at the foot of the bank to reduce erosion on the slope.

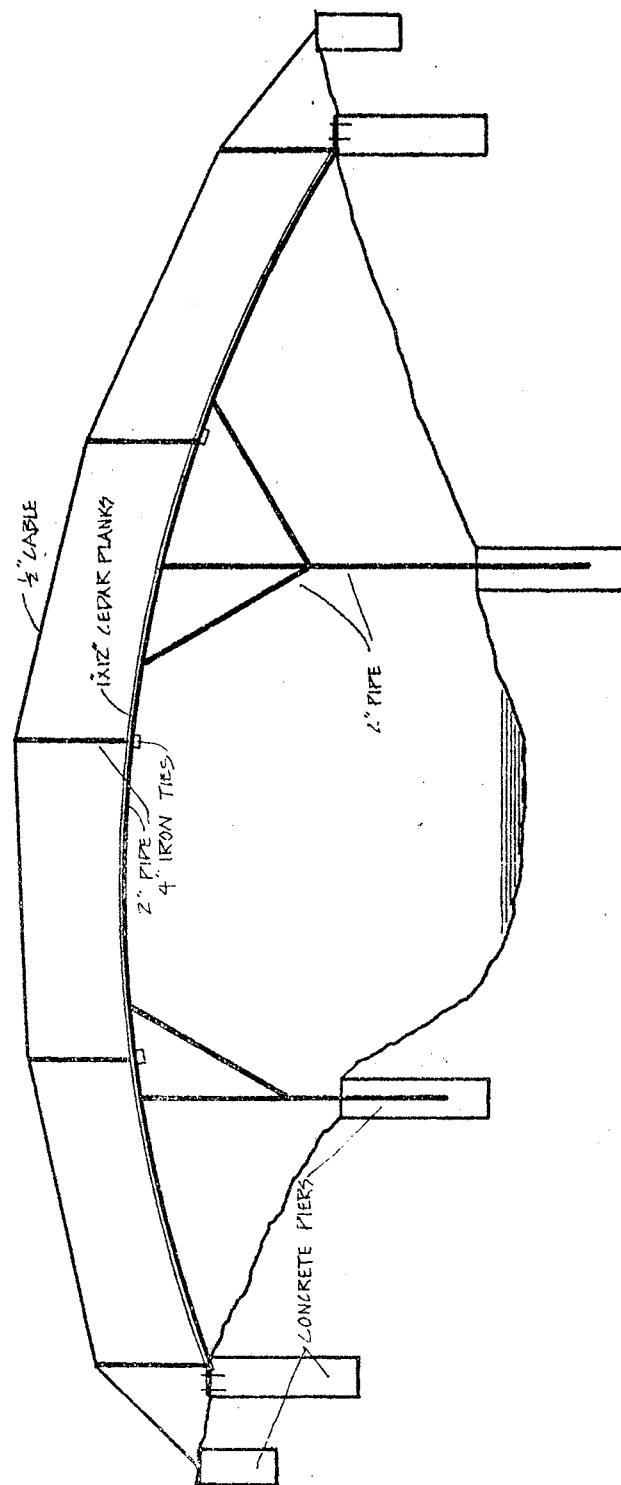


Figure 14. Typical Bridge.

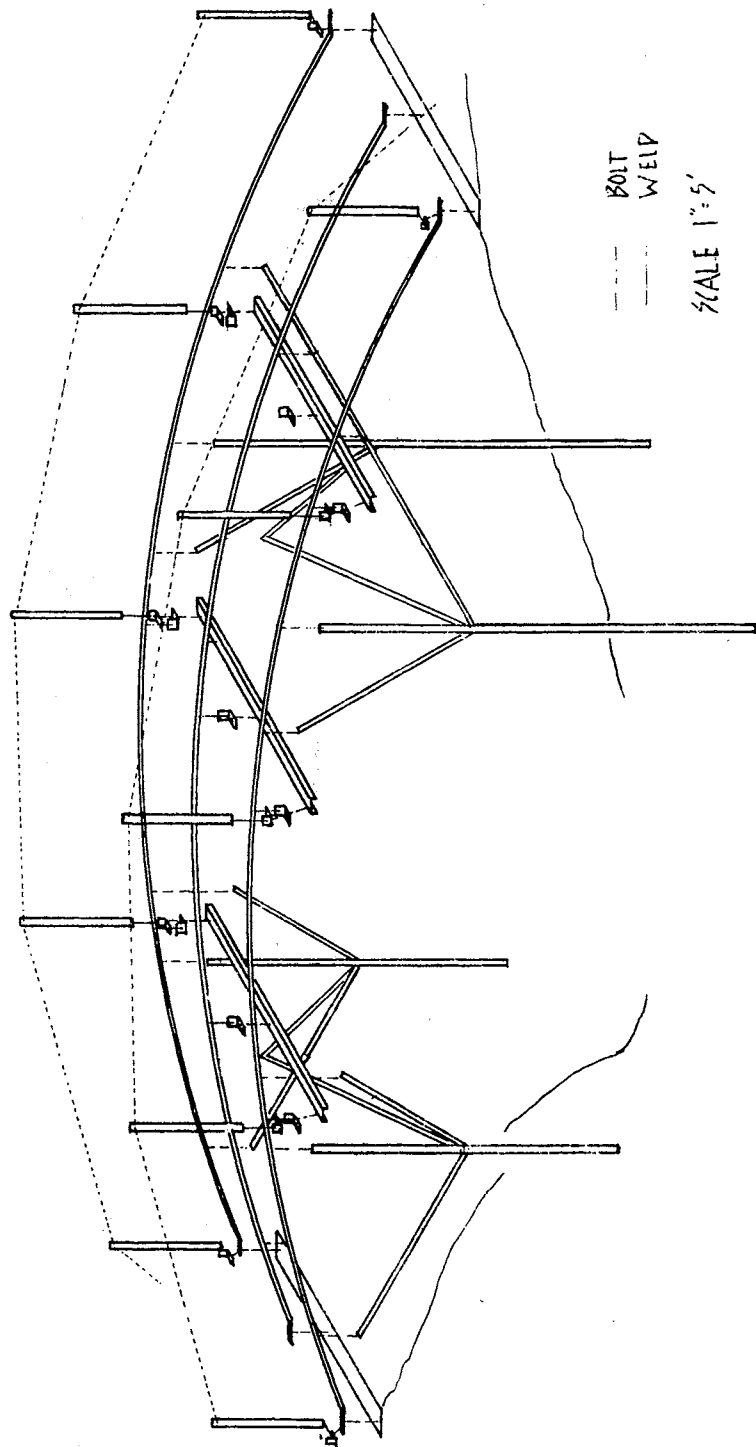


Figure 15. Construction Detail of a Bridge.

CHAPTER VIII

CONCLUSION

This has been a proposal for the justification and establishment of the Horticulture Teaching and Research Center as it will appear after all the areas have been completely developed. The completion of the arboretum as a whole will take considerable time and effort. Although the arboretum will be used and enjoyed from its very beginning, full maturity and maximum beauty will be attained after a forty to fifty year period.

The design in conjunction with the future greenhouses will provide a horticulture complex equaled by only a few other universities. The plants proposed will enable graduates to become more informed and be more qualified to fill positions in many parts of the country.

The demand for teaching and research in horticulture will continue to grow, as urban problems become more acute and environmental awareness increases. This proposal is designed to enable Oklahoma to meet this challenge by taking a leading role in teaching and research on a national scale.

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