Landscape Design

for

The Columbia Zoological Garden

Columbia, Maryland

by

Nancy Stuart Stiles

A Terminal Problem Presented For

Degree of Bachelor of Landscape Architecture

Department of Landscape Architecture
University of Georgia
Athens, Georgia
February, 1965

H.B. Owens Resource Center
School of Environmental Design
Caldwell Hall
University of Georgia

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1965
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WINTER QUARTER
LAR 355
PROFESSOR OWENS

A ZOOLOGICAL GARDEN

INTRODUCTION

Community Research and Development, Inc., of Baltimore, Maryland, has aquired fourteen thousand acres in the eastern portion of Howard County, Maryland for the development of a new town, Columbia, Maryland, to accomodate a population of one hundred and twenty-five thousand. An important element for the success of the new town will be the low-density residential areas and recreational facilities, which will comprise the perimeter areas of the city. I have been retained as Landscape Architect to develop Columbia Zoological Garden, which will be incorporated into one of the large green areas.

The area to be developed comprises approximately one hundred and eleven acres at the northern end of a large park area located in the western portion of Columbia. The boundaries of the Zoological Garden are: Maryland Route 108 on the North, a line one quarter mile East of the Middle Patuxent River, a line three quarters of a mile south of Md. Route 108, and a line slightly west of the Middle Patuxent River.

The solution shall contain the following elements:

1. Administration building, auditorium and small museum complex.
2. Display areas:
   a. Rodent House
   b. Reptile House
   c. Land and water fowl preserves

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d. Small Mammals

e. Deer preserves

f. Fox preserve

g. Children's Farm

h. Bear pits

i. Lynx pit

j. Wild Boar

k. An Aviary

3. Restaurant accomodating a seating capacity of three hundred
4. Parking facilities for five-hundred cars
5. Service facilities including the physical plant and an animal hospital

The solution presented shall be in the following form:

1. Plans
   a. Master Plan
   b. Grading Plan
   c. Staking Plan
   d. Profiles
   e. Landscape Development Details
   f. Perspectives showing the character of the designed area.
2. Scaled model of the area
3. A bound typewritten report which includes:
   a. Photostatic copies of the Plans and the Model.
   b. An appendix containing acknowledgements, a bibliography, specifications and cost estimate

for construction and planting, and other pertinent data.

A BRIEF HISTORY OF COLUMBIA, MARYLAND
AS IT RELATES TO THE COLUMBIA ZOOLOGICAL GARDEN

In the fall of 1963, Community Research and Development Inc., recently formed under the direction of James Rouse of Baltimore, Maryland, announced to the public their plans for designing and developing a new town housing a population of one hundred and twenty-five thousand. The town has since been named Columbia, Maryland, and the Columbia Zoological Garden has been designed as a small part of the city.

Since the inception of the idea of the new town, a staff of Planners and Designers have been engaged in forming the design concept and the basic layout of the city. This information was published in the fall of 1964, in the form of diagrmatic plans and several reports. Before any additional plans can be made for the city, the land involved, primarily agricultural, must be rezoned according to the land uses set down in the Master Plan. Community Research and Development Inc. hopes to have the zoning ordinances changed by April, 1965, at which time, detailed drawings may be started for the central core of the city.

The city will be completed in several stages. The first of those stages will be the central core of the city, which has been designed to extend in a north-south direction along Maryland Route 29. The second stage will be several town centers and their complimentary areas, located in the North-western quadrant of the city. Within this area is located the site for the Columbia Zoological

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Garden, which shall make up a part of the projected green area, running generally in a North-South direction along the Middle Patuxent River. Most probably the second stage will progress from the town centers in an outward direction, so that the Columbia Zoological Garden will be built in one of the later phases of the second stage, and will afford the residents of the central core, the low density areas, and the outlying populations an unusual recreational area.

COLUMBIA ZOOLOGICAL GARDEN

INTRODUCTION

The site for Columbia, Maryland, is at the eastern end of Howard County, Maryland, which is centrally located between Baltimore and Washington. It is in a strategic location because the Baltimore-Washington area is the fastest growing metropolitan area in the East, and the site is only thirty-five minutes driving time from both cities. The city will not only serve as a residential area for commutors to both cities, but is also and more importantly, it is being designed as a self sufficient entity providing employment for all its residents.

The town is designed around three different units, each with its individual function. These are; the "neighborhood", containing three hundred to five hundred families, the "village" containing three thousand to five thousand families, and the town as a whole. Almost every phase of human activity has been considered. Closely associated with each school in each neighborhood unit, are recreation areas serving the residents. Industry has been segregated into an arc running parallel with Maryland Route 32, and for the most part, south of the residential areas, but with easy access for all. All types of dwelling units, from single family dwellings, to several high-rise apartments have been provided. Pedestrian greenways have been provided for access by foot to each neighborhood and village center, and still there is a good deal of green space remaining. The largest green space planned is located in the North-western quadrant of the city,

running generally in a north-south direction from Maryland Route 108 to Maryland Route 32 along the Middle Patuxent River.

The Columbia Zoological Garden evolved from a study of the structure and functions of the different areas of the city, as a senior terminal problem design project. The resulting design for the Zoological Garden is located in the northern end of the large green area, described above, directly south of Maryland Route 108. It is designed not only to serve the population of Columbia, Maryland, but also to serve the populations of the Baltimore and Washington areas. The design concept has been formed by certain principles of design utilized in the design of the city, physical features, and concepts formed as to the placements of animals in their best envoronments.

The design concept used in the design of the city as a whole, is based on the principle that the city should be designed as a complete entity, with all necessary facilities located within this unit, so that no additional development need take place outside of its boundries. To inforce this concept, the boundaries should be kept as much in their natural state as possible, and the higher density use areas should be confined to the center. The Columbia Zoological Garden is therefore designed to blend in and become a part of the existing landscape.

The physical features to be considered are; the topography, the vegetation, the soil, the climate, and the existance of a potential water feature. The animals used in the garden are another important element and must be chosen with care, so that their natural envoronment may be kept and duplicated if necessary.

Thus, the Columbia Zoological Garden has taken its form from these considerations. It has been designed not only to provide the natural environment for the animals, but also and equally as important, has been designed for the greatest enjoyment of its viewers, and as a permanent recreational and green space to be preserved for the future.

GENERAL ANALYSIS

Certain physical characteristics of the site must be considered before any design can be properly justified and carried out. These are climate, topography, vegetation, soil types, land use, population expectance and others directly relating to the site.

The Columbia Zoological Garden is located on a site of approximately one hundred eleven acres of rolling land with Maryland Route 108 as its northern boundary, and a steep slope falling to the river bed of the Middle Patuxent River as its southern boundary.

The northeastern portion, an open pasture, is used primarily for grazing cattle, and its eastern and southern portions are wooded. The trees are predominantly Tulip Poplar, and Jack Pine, with some Oak scattered within the area and with an understory of American Beech.

The topography is quite varied, and therefore lends interest to the landscape. The land form consists of a wide ridge running in a north-south direction ending in a one to one slope at the southern end. The slope along this ridge is from three percent to approximately ten percent with the highest part of the ridge on the northern end and the lowest at the southern end. Ravine areas are formed on both the eastern and western sides of the ridge with the river bed of the Middle Patuxent River on the West.

The soil types on the site are sandy loam to clay loam. The present condition of the soil is good because of prudent agricultural practices used on the pastures, and the thick hardwood leaf mulch over the woodland floor. The site is located in the temperate region, which

facilitates an informal layout of buildings for the best use of desirable sun and wind penetration.

The only existing utility on the site at present, is an underground gas line running in an East-west direction at the northern end of the site.

The problems faced in designing an area such as this, are not only concerned with the placement of different objects and use areas in relation to one another, but also placing these units in a manner which would best suit and accentuate the desirable characteristics of the site. Both topography and vegetation hold a prominent place in design consideration. They should be recognized as assets to the site and used accordingly, The existance of a water source is another important consideration. Not only the Middle Patuxent River, but also the samll stream running from the south-eastern portion of the site westward to meet the Middle Patuxent River could be used to advantage both in design and utility. These physical characteristics and others must be taken into consideration before a design can be reached and finalized.

Not only the physical characteristics but also the elemants to be placed in the landscape must be considered. These are the administration center, parking and entrance road, the restaurant and related services, the physical plant and animal hospital, and the animal areas and shelters themselves. These must be placed in proper relation one to another and in relation to the site. From these relationships comes the appropriate design for the specific site.

JUSTIFICATION AND DESIGN CONCLUSIONS

After careful consideration of the site, and each of its physical characteristics and land sues, the Landscape Architect is able to form design conclusions which relate the whole environment to be created. Each portion will relate to all the others in a logical and pleasing progression.

The design concept, which has evolved from the study of this site, is based on the recognition of the physical elements of the site, the consideration of vehicular and pedestrian movement on the site, and the land uses as they relate one to another.

The first consideration taken is that of topography. The entrance road compliments the topography so that an even slope may be maintained without unnecessary disturbance to the existing vegetation. As the entrance road nears the administration center, it is directly on line with the building so that the friver's view is directed toward that object. It then leads to the parking areas, one on either side, which are again designed to take advantage of the topography. The design concept used within the interior of the garden, is based on the two high density uses being placed at the opposite ends of the area and incidental structures and areas being placed along and to the sides of the primary walk connecting these two large buildings. Therefore, in order to use the topography to the best advantage, the administration center is placed at the upper end of the slope, and the restaurant is placed at the lower end, and the primary walk connecting them follows the line of the ridge. From this primary walk are the secondary walks,

leading around each exhibition area and subsequently to others. These walks are again designed to take the best advantage of the topography. Because of the size of the exhibition areas and the downward slope of the topography, each area may be viewed separately and in entirety. The largest and most prominant buildings are placed as incidents along the primary walk, but are still designed to blend in with the landscape. The buildings along the secondary walks are less prominant, not only because of size, but also because they are incorporated into the hillsides.

Because of existing types of vegetation on the site, the Oak and Hickory have been introduced as shade tree elements so that they will blend into the existing woodland. Hemlock has been introduced as the prominant evergreen tree, and these are used both as screening elements and elements to direct the eye to a particular view. They are placed in greatest quantity along the primary walk to direct pedestrian movement. Two flowering trees have been introduced: the Flowering Dogwood and the Bedbud, to provide scale, dimension and color to the landscape. These trees are planted in an informal manner in order to accentuate the natural beauty of the site.

Two shrubs have been selected, the Wintergreen Barberry and the Multiflora Rose, each with its specific uses. The Barberry placed along the wide ditches created, aid in creating a natural scene into which the pedestrian may view the animals. The fences enclosing the animals, shall be placed on the middle of the slopes so that their upper parts are below the pedestrian's eye level. The multiflora Rose is not only used for year-round color, but also as hedges screening one park-

ing aisle from another, pedestrian barriers and for the supply of berries for the birds introduced into the area.

In accordance with the proposal made by Community Research and Development Inc., the Middle Patuxent River has been dammed further south, to form a lake running along the southern and western portions of the site. The small stream feeding into the river has also been dammed to form a smaller lake. These two bodies of water will perform both utilitarian and aesthetic purposes. The walks adjacent to these areas are designed to take the best advantages of the views. The restaurant which is placed overlooking the lake, is designed to accomodate a seating capacity for three hundred people, and is hexagonal in shape not only for efficient service, but also to take advantage of the views.

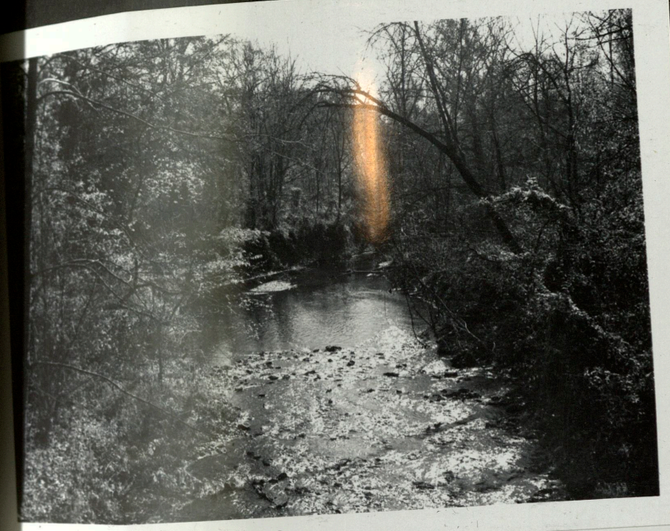
The service road forms the eastern boundary of the garden, and serves not only the administration center, physical plant and animal hospital, and restaurant, but also by means of connecting the road and the walks at certain points, each animal may be reached by a service vehicle.

The animals which have been chosen for exhibit are either presently existing in the area, or were native to the area in the past. Each area is designed as nearly as possible to provide a natural environment for that particular animal. The greater amount of these are located along the primary walk, but easy and varied access is provided to the areas beyond.

The design has been determined by the many and varied conditions on the site. Unique areas have been placed in relation one to another to create an atmosphere suitable for the stimulation and enjoyment of

its visitors and suitable for each particular animal introduced. Varied topography, changes in sizes and shapes of open spaces, water elements, incidents of buildings in the landscape, are combined to create a pleasing and stimulating atmosphere.

The Columbia Zoological Garden will be one of many parts going into the creation of the healthy and stimulating atmosphere, now being planned by the designers of the city of Columbia, Maryland. The goals of the designers are high, and the lives enjoyed by its future residents should be full and rewarding. Columbia Zoological Garden has been designed with these same hopes for a full and rewarding experience in the natural environment.



LAND USE:

- (A) INFORMATION CENTER AND OFFICES
- (B) AUDITORIUM
- (C) MUSEUM
- (D) SHELTER
- (E) PICNIC AREA
- (F) WHITE-TAILED DEER
- (G) BEAR
- (H) MOUNTAIN GOAT
- (K) RODENT HOUSE
- (L) BROWN RABBIT
- (M) EL
- (N) CHILDREN'S FARM
- (O) MOOSE
- (P) RESTAURANT WITH INTERIOR AVIARY
- (Q) PHEASANT
- (R) QUAIL
- (S) GROUSE
- (T) REPTILE HOUSE
- (U) LYNX
- (V) WILD BOAR
- (W) PHYSICAL PLANT AND ANIMAL HOSPITAL

COLUMBIA ZOOLOGICAL GARDEN
COLUMBIA MARYLAND

SCALE: 1"=100'-0"	TERRIBAS, PROBASCO & VAN DEUSEN	SHEET NO. 1 OF 8
DATE: JUNE 8 1965	UNIVERSITY OF FLORIDA	SUBJECT & ASSIGN

MASTER PLAN

REVISIONS:

SHEET: 1 OF 8

LOCATION MAP

EXISTING CONDITIONS

EARTHWORK COMPUTATIONS:

CUT:	FILL:
124,410 CU. YD.	132,985 CU. YD.
N.W. - 24,613 CU. YD.	
AFTER COMPACTION 139,798 CU. YD.	

LIMIT OF WORK

LIMIT OF WORK

LIMIT OF WORK

COLUMBIA ZOOLOGICAL GARDEN
COLUMBIA MARYLAND

TERMINAL PROBLEM
SCALE: 1"=100'-0" | LAB 353
DATE: FEB 9, 1966 | UNIVERSITY OF GEORGIA
NANCY S. STYLES

CONT. INT. 5'-0"

GRADING PLAN

REVISIONS

SHEET 2 of 8

COLUMBIA ZOOLOGICAL GARDEN
COLUMBIA — MARYLAND

SCALE: 1" = 100'-0" | TERMINAL PROBLEM | CONT. INT. 2'-0"
DATE: FEB 4 1966 | UNIVERSITY OF GEORGIA | NANCY S. STILES

STAKING PLAN

REVISIONS

SHEET 3 OF 8

CURVE DATA

CURVE	RADIUS	Δ	D	TANGENT	LENGTH	E	P.C. STATION	P.T. STATION
1	150	42°-00'	38-11	57.67	109.96	10.54	1+33.33	2+43.29
2	150	42°-00'	38-11	57.67	109.96	10.54	2+43.29	3+53.25
3	225	83°-00'	25-28	190.85	325.95	69.24	3+53.25	7+79.20
4	150	83°-00'	38-11	127.06	217.29	46.16	7+79.20	10+96.49
5	150	49°-00'	38-11	69.57	128.28	15.97	10+96.49	12+24.77
6	225	98°-30'	25-28	234.41	386.78	101.45	12+24.77	16+11.55
7	225	98°-30'	25-28	234.41	386.78	101.45	16+11.55	19+98.33
8	225	98°-30'	25-28	234.41	386.78	101.45	19+98.33	23+85.11
9	225	98°-30'	25-28	234.41	386.78	101.45	23+85.11	27+71.89
10	225	98°-30'	25-28	234.41	386.78	101.45	27+71.89	31+58.67
11	225	98°-30'	25-28	234.41	386.78	101.45	31+58.67	35+45.45
12	225	98°-30'	25-28	234.41	386.78	101.45	35+45.45	39+32.23
13	225	98°-30'	25-28	234.41	386.78	101.45	39+32.23	43+19.01
14	225	98°-30'	25-28	234.41	386.78	101.45	43+19.01	47+05.79
15	225	98°-30'	25-28	234.41	386.78	101.45	47+05.79	50+92.57
16	225	98°-30'	25-28	234.41	386.78	101.45	50+92.57	54+79.35
17	225	98°-30'	25-28	234.41	386.78	101.45	54+79.35	58+66.13
18	44	90°-00'	130-24	44.00	69.12	13.82	58+66.13	59+35.25

TRAVERSE COORDINATES

STA	LINE	DIST	BEARING	COSINE	SINE	LATITUDES NORTH (+)	LATITUDES SOUTH (-)	DEPARTURES EAST (+)	DEPARTURES WEST (-)	COORDINATES Y (N-S)	COORDINATES X (E-W)
A										2411.386	6204.89
	AY	289.78	N 45°-16'-E	.71009	.70380	211.365		281.89		2411.386	6204.89
Y	YA	245.11	S 89°-30'-E	.89986	.43646		0.000	219.62		2200.000	6349.00
A	AB	233.00	SOUTH	1.00000	.00000	0.000	211.365		329.51	2200.000	6349.00
B	BC	244.00	S 89°-30'-W						244.00	2200.000	6105.00
C	CD	453.08	S 89°-30'-W						453.08	2200.000	5651.92
D	DE	453.08	S 89°-30'-W	.99939	.03483		15.78		452.79	2200.000	5198.84
E	EF	453.08	S 89°-30'-W	.99939	.03483		15.78		452.79	2200.000	4745.76
F	FG	453.08	S 89°-30'-W	.99939	.03483		15.78		452.79	2200.000	4292.68
G	GH	453.08	S 89°-30'-W	.99939	.03483		15.78		452.79	2200.000	3839.60
H	HJ	212.97	S 89°-30'-W	.99939	.03483		7.42		212.89	2200.000	3626.71
J	JK	212.97	S 89°-30'-W	.99939	.03483		7.42		212.89	2200.000	3413.82
K	KL	148.44	N 23°-22'-E	.91874	.39648	136.44		59.04		2336.444	3472.93
L	LM	114.44	N 23°-22'-E	.91874	.39648	105.16		45.39		2441.604	3518.32
M	MN	114.44	N 23°-22'-E	.91874	.39648	105.16		45.39		2546.764	3563.71
N	NO	114.44	N 23°-22'-E	.91874	.39648	105.16		45.39		2651.924	3609.10
O	OP	114.44	N 23°-22'-E	.91874	.39648	105.16		45.39		2757.084	3654.49
P	PQ	114.44	N 23°-22'-E	.91874	.39648	105.16		45.39		2862.244	3699.88
Q	QR	114.44	N 23°-22'-E	.91874	.39648	105.16		45.39		2967.404	3745.27
R	RS	89.01	N 23°-22'-E	.91874	.39648	81.79		35.29		3072.564	3780.56
S	SB	89.01	N 23°-22'-E	.91874	.39648	81.79		35.29		3154.354	3815.85
B	BA	89.01	N 23°-22'-E	.91874	.39648	81.79		35.29		3236.144	3851.14
										3317.934	3886.43

PROFILE

ENTRANCE ROAD AND PRIMARY WALK

VERTICAL SCALE 1"= 10'-0" HORIZONTAL SCALE 1"=100'-0"

PLAN

ENTRANCE ROAD AND PRIMARY WALK

SCALE 1"= 100'-0"

PROFILE

PLAN

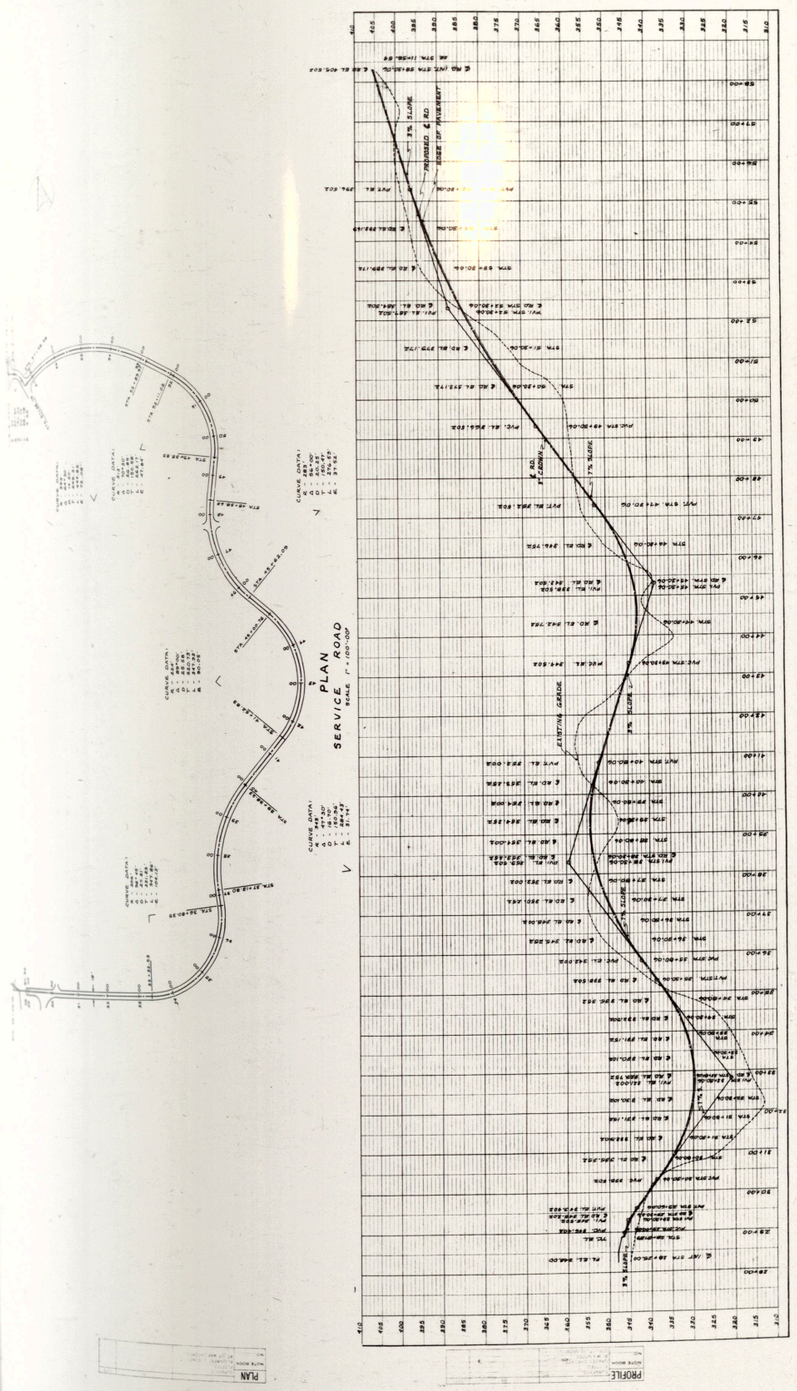
COLUMBIA ZOOLOGICAL GARDEN
MARYLAND
COLUMBIA

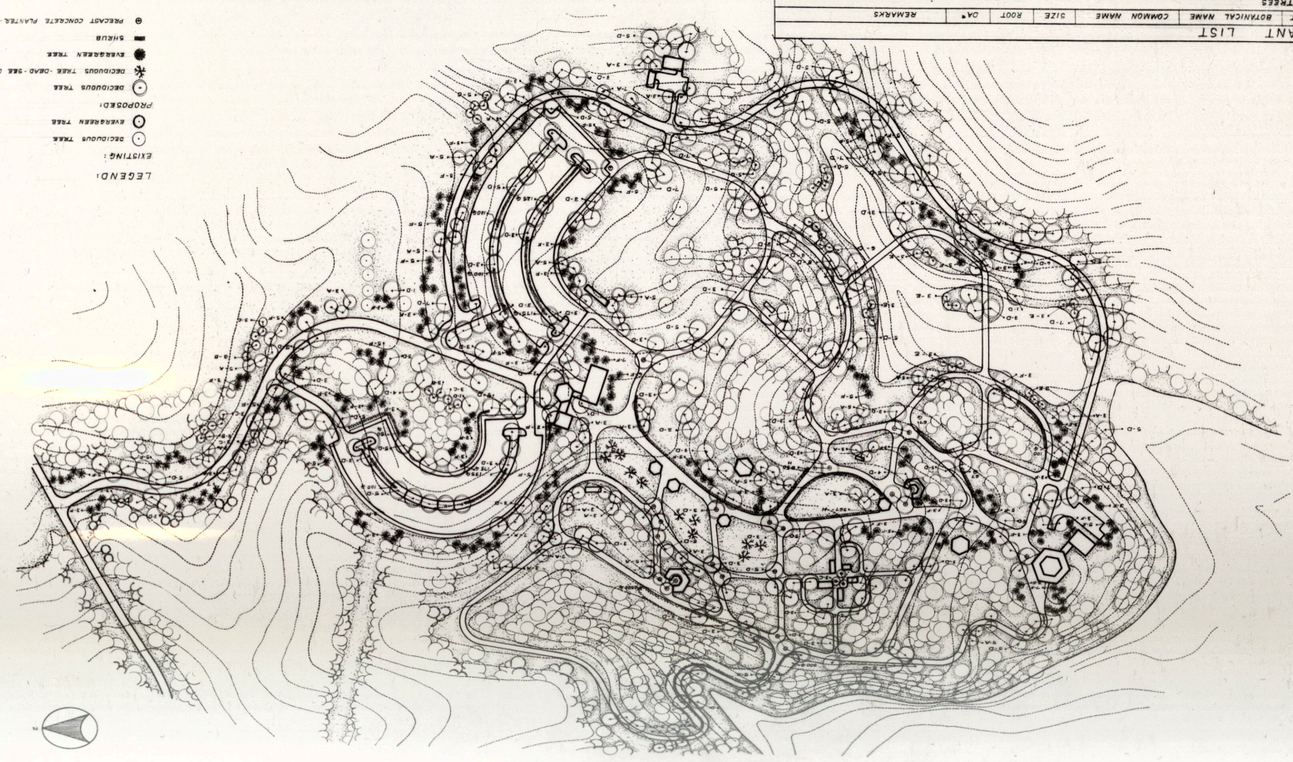
SCALE - AS NOTED	TERMINAL PROBLEM
DATE: FEB 4 1965	UNIVERSITY OF GEORGIA LAB 335
CONT. INT.: NONE	NANCY S. STILES

HORIZONTAL & VERTICAL ALIGNMENT

REVISIONS:

SHEET: 4 of 8


PLAN
SERVICE ROAD
SCALE 1" = 100'-00"
PROFILE
SERVICE ROAD
VERTICAL SCALE 1" = 10'-00"
HORIZONTAL SCALE 1" = 100'-00"
PROPOSED E RD.
BASE OF PAVEMENT
EXISTING GRADE
17% SLOPE
5% SLOPE
3% SLOPE
COLUMBIA ZOOLOGICAL GARDEN
COLUMBIA MARYLAND
TERMINAL PROBLEM
UNIVERSITY OF GEORGIA
HORIZONTAL & VERTICAL ALIGNMENT
SHEET: 5 of 8



PLANT LIST							
LETTER	QUANT	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	O.A.*	REMARKS
DECIDUOUS TREES							
A	112	CARYA OVATA	SHAGBARK HICKORY	5'-6"	B&B	30'	PLANTED IN SPRING, SEE SPECIFICATIONS
B	9	CERCIS CANADENSIS	EASTERN REDBUD	5'-6"	B&B	20'	PLANTED IN SPRING, SEE SPECIFICATIONS
C	34	CORNUS FLORIDA	FLOWERING DOGWOOD	5'-6"	B&B	20'	PLANTED IN SPRING, SEE SPECIFICATIONS
D	215	QUERCUS BOREALIS	RED OAK	1¾"-2" CAL	B&B	40'	PLANTED IN FALL, SEE SPECIFICATIONS
E	18	SALIX BABYLONICA	BABYLON WEEPING WILLOW	8'-10'	B.R.	20'	PLANTED IN SPRING SEE SPECIFICATIONS
EVERGREEN TREES							
F	181	TSUGA CANADENSIS	CANADIAN HEMLOCK	3½'-4'	B&B	20'	PLANTED IN SPRING, SEE SPECIFICATIONS
DECIDUOUS SHRUBS							
G	1427	ROSA MULTIFLORA	MULTIFLORA ROSE	¾" CAL	B.R.	2'	PLANTED IN SPRING, SEE SPECIFICATIONS
EVERGREEN SHRUBS							
H	1017	BERBERIS JULIANAE	WINTERGREEN BARBERRY	2'-3½"	B&B	3'	PLANTED IN SPRING, SEE SPECIFICATIONS

* O.A. - DISTANCE APART

LEGEND:

EXISTING:
- DECIDUOUS TREE
- EVERGREEN TREE

PROPOSED:
- DECIDUOUS TREE
- DECIDUOUS TREE -DEAD- SEE DETAILS
- EVERGREEN TREE
- SHRUB
- PRECAST CONCRETE PLANTER- SEE DETAILS

COLUMBIA ZOOLOGICAL GARDEN
COLUMBIA MARYLAND

SCALE: 1"-100-00 | TERMINAL PROBLEM | CONT. INT 5'-00"
DATE: FEB 6 1965 | LAB 333 | NANCY S. STILES
UNIVERSITY OF GEORGIA

PLANTING PLAN

REVISIONS | SHEET 6 of 8

COLUMBIA ZOOLOGICAL GARDEN
COLUMBIA MARYLAND

SCALE: AS NOTED	TERMINAL PROBLEM	CONT. INT. NONE
DATE: FEB 4 1965	UNIVERSITY OF GEORGIA	HARRY S. STILES

LANDSCAPE DEVELOPMENT DETAILS

REVISIONS: SHEET: 7 of 8

CANTILEVER RETAINING WALL
SCALE 1/4"=1'-0"

ENTRANCE ROAD DETAIL
SCALE 1"=1'-0"

SECONDARY WALK DETAIL
SCALE 1"=1'-0"

SERVICE ROAD AND PRIMARY WALK DETAIL
SCALE 1"=1'-0"

CHAIN LINK FENCE DETAIL
SCALE 1/2"=1'-0"

CURB AND GUTTER - PARKING AREA DETAIL
SCALE 1"=1'-0"

CONCRETE SLEEVE FOR DEAD TREE
SCALE 1/2"=1'-0"

CONCRETE SITTING WALL
PLAN
SCALE 1/4"=1'-0"

CONCRETE SITTING WALL
SECTION
SCALE 1/4"=1'-0"

CONCRETE SITTING WALL
SCALE 1"=1'-0"

12' DOUBLE GATE
SCALE 1/4"=1'-0"

CONCRETE SLEEVE FOR DEAD TREE
SCALE 1/2"=1'-0"

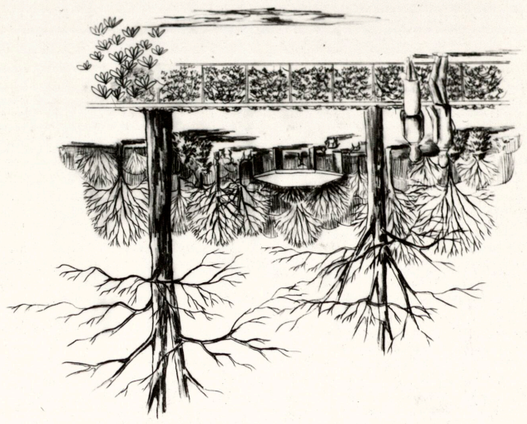
BRACING - DOUBLE STAKED AND BURLAPED TREE
SCALE 1/4"=1'-0"

BRACING - DOUBLE VERTICAL STAKE TREE - BARE ROOT
SCALE 1/4"=1'-0"

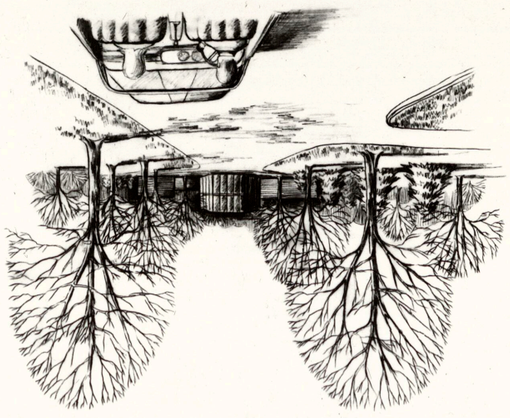
CONCRETE STEPS - SECTION
SCALE 1/2"=1'-0"

CONCRETE STEPS - PLAN
SCALE 1/4"=1'-0"

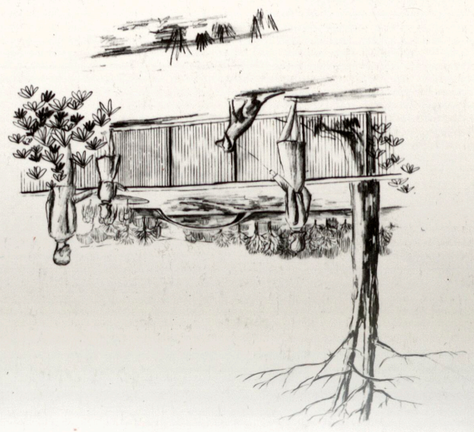
- DEER SHELTER -



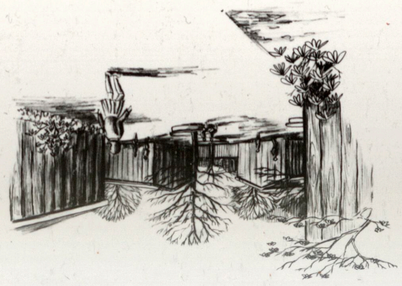
- ENTRANCE -



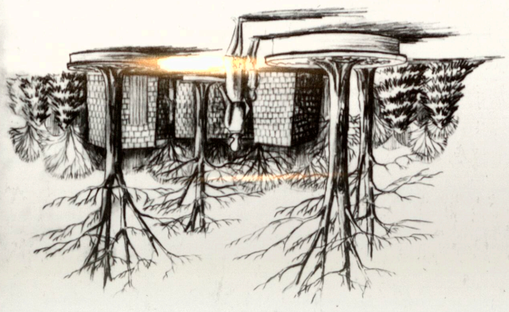
- LAKE -



- CHILDREN'S FARM -



- REPTILE HOUSE -



COLUMBIA ZOOLOGICAL GARDEN
COLUMBIA
MARYLAND

SCALE - NONE	TERMINAL PROBLEM
DATE - FEB 4 1965	UNIVERSITY LAB 325 OF GEORGIA
CONT. INT. - NONE	NANCY S. STILES

PERSPECTIVES

REVISIONS: SHEET: 8 of 8

NOTICE TO BIDDERS

Mr. Morton Hoppenfeld
Community Research & Development
14 West Saratoga Street

Notice is hereby given for construction and installation of plant materials at the Columbia Zoological Garden. The site is located on Md. Route 108, Columbia, Maryland. Sealed bids shall be received by Community Research and Development, on Wednesday, March 31, 1965 at Two O'clock Eastern Standard Time in the Planning Office, Community Research and Development, 14 West Saratoga Street, Baltimore, Maryland.

The work will comprise the following;

EARTHWORK, CONSTRUCTION OF CONCRETE RETAINING WALLS, STEPS, TREE SLEEVES, SITTING WALLS, SUPPLYING AND INSTALLING FENC_ ING, CONSTRUCTION OF PAVED AREAS (ROADS, PARKING AREAS, WALKS), SUPPLYING AND INSTALLING PLANT MATERIAL.

The contract shall be awarded to the lowest responsible bidder, subject, however, to the discretionary right reserved by the Owner to waive any informalities, reject any or all proposals and to request new proposals, if, in his opinion the best interest of Columbia Zoological Garden shall thereby be promoted.

Each bidder must deposit with his bid, security in an amount not less than five (5%) percentum of the bid, in the form, and subject to the conditions provided in the Information to Bidders.

Date: January , 1965

INFORMATION FOR BIDDERS

FOR THE
PLANTING AND CONSTRUCTION WORK
FOR

COLUMBIA ZOOLOGICAL GARDEN
COLUMBIA, MARYLAND

1. RECEIPT AND OPENING OF BIDS

(a) Mr. Morton Hoppenfeld, Chief Planner, Community Research and Development, Baltimore, Maryland, (herein after called the Owner) invites separate sealed bids for the:

CONSTRUCTION OF ALL ROADS AND WALKS, STEPS, RETAINING WALLS AND SITTING WALLS, SUPPLY AND INSTALLATION OF ALL FENCING AND GATE MATERIALS, ESTABLISHING FINISHED GRADE, AND SUPPLY AND INSTALLATION OF ALL PLANT MATERIAL.

at the Columbia Zoological Garden.

(b) Bids shall be received by Mr. Morton Hoppenfeld, Chief Planner, Community Research and Development, Baltimore, Maryland on Wednesday, March 31, 1965 at Two o'clock Eastern Standard Time, at 14 West Saratoga Street.

(c) Any bids received after the time and date specified will not be considered. No bids will be withdrawn pending the decision of the Owner.

2. PREPARATION OF PROPOSAL

(a) Proposals must be submitted on the prescribed form, two copies of which are attached hereto, all blanks filled by printing, in ink, in both words and figures. The Contractor shall remove the proposal form from the specifications, and submit as his bid one copy, and keep the other copy for his records.

(b) All proposals must be submitted in sealed envelopes, bearing on the outside the name of the Bidder, his address, the name of the project, and the Contract bid upon.

(c) Proposals so enclosed shall be delivered to the aforementioned place on or before the hour and the date noted above.

3. OBLIGATION OF BIDDERS

(a) At the time of the opening of bids, each Bidder shall be presumed to have inspected the site and to have examined and to be thoroughly familiar with the Plans, General Conditions, General Requirements of the Contract, and Specifications (including all addenda thereto). The failure of or the omission of any Bidder to receive or examine any drawings, form, instruction or document shall in no wise relieve such Bidder from any obligation with respect to his bid.

(b) Each Bidder shall, by careful examination of the site, satisfy himself as to the location of the work to be performed and materials to be furnished, the character of equipment and facilities needed preliminary to and during prosecution of the work, the general and local conditions and all other matters which in any way effect the work specified herein.

(c) After the contract has been entered into, no consideration shall be given for any misunderstanding as to work and materials set forth herein and shown on any of the accompanying drawings, details and schedules, it being mutually understood that the tender of a bid carries with it an agreement to this and other obligations set forth in the Contract or Specifications, and further implies a full understanding of the Specifications, Drawings and Details, notes, indications and requirements.

4. AWARDS

Contract will be awarded to the lowest responsible Bidder, subject, however, to the discretionary right reserved by the Owner to waive any informalities in or to reject any or all proposals if, in his opinion, the best interests of Columbia Zoological Garden shall thereby be promoted.

5. ADDENDA AND INTERPRETATION

Bidders are expressly notified that their proposals shall be based upon materials, products, and methods specified. For the purpose of estimate, no deviation from the Drawings and Specifications will be considered, except as provided. No

interpretation of the meaning of the Drawings, Specifications or other Contract Documents shall be made to the Bidder orally. Every request for such interpretation shall be in writing addressed to Mr. Morton Hoppenfeld, Chief Planner, Community Research and Development, 14 West Saratoga Street, Baltimore, Maryland, and to be given consideration must be received at least five (5) days prior to the date fixed for the opening of the bids. Any and all such interpretations and any supplemental drawings which, if issued, shall be mailed to all prospective Bidders (at the respective addresses furnished for such purposes) not later than three (3) days prior to the date fixed for the opening of bids. Failure of any Bidder to recieve any such addenda or interpretation shall not relieve any Bidder from any obligation, under his bid as submitted.

6. TIME FOR COMPLETION

The Contractor shall state in the bid form the number of days required for him to complete the project.

7. BID SECURITY

Each bid must be accompanied by the certified check of the Bidder, or by a Bid Bond duly executed by the Bidder as principal, and having as surety thereon a surety company approved by the Owner, in an amount not less than five (5) percentum of the amount of the bid. Such check as Bid Bond shall be returned to all except the successful Bidder within 48 hours after the Owner and the accepted Bidder have executed the Contract, or if no Contract has been executed within fifteen (15) days after the opening of bids, upon demands of the Bidder, or anytime thereafter, so long as he has not been notified of the acceptance of his Bid.

8. SECURITY OF FAITHFUL PERFORMANCE

(a) Simultaneously with the delivery of the executed Contract, the successful Bidder must deliver to the Owner an executed Performance Bond of a corporate surety licensed to do business in the State of Maryland in the amount of one hundred percent (100%) of the accepted bid for the faithful performance of the terms, covenants, and conditions of the Contract and a further separate labor and material Bond, in the amount of fifty percent (50%) of the accepted bid guaranteeing the prompt payment of all indebtedness encurred by the Contractor or Sub-Contractor for supplies, materials or labor furnished, used or consumed in connection with or in or about the construction of the project, in-

cluding fuels, lubricants, power, etc. The forms of both Performance Bond and Labor and Material Payment Bond shall be as per form No. 107 (AIA).

(b) The Broker for the Bond and the Surety Company shall be approved by the Owner.

(c) The premium on all Bonds shall be paid for by the Contractor.

9. FAILURE TO EXECUTE CONTRACT

Failure to execute contract and file acceptance bonds within eight (8) days shall be just cause for the annulment of the award and the forfeiture of the Proposal Guarantee which shall become the property of the Owner, not as a penalty but in liquidation of the damages sustained. Award may then be made to the next lowest responsible Bidder or the work may be readvertised and constructed under contract or otherwise, as the Owner may decide.

10. INSURANCE

(a) The successful Contractor shall not commence work until the following insurances have been obtained, approved and certificates delivered to the Owner.

(b) Workman's Compensation Insurance.

(c) Public Liability Insurance shall be furnished in amounts of $100,000/300,000, and Property Damage Insurance in amounts of $50,000.

(d) Before final payment is made, the Contractor will provide an affidavit stating all costs for labor and materials have been paid, and that the Owner is indemnified against any lien.

GENERAL CONDITIONS

Art. I. Definitions

(a) Contract - A written agreement executed between the Owner and the successful Bidder, covering the performance of work and the furnishing of labor, equipment and materials, by which the Contractor is bound to perform the work and furnish the labor, equipment and materials, and by which the Owner is obligated to compensate him therefore at the mutually established rate or price. The Contract shall include the invitation for bids, instructions to Bidders, Proposal Contract form and Contract Bond, These Specifications, all Special Provisions, all Plans and Notice to Proceed, also any written Change Orders and Supplemental Agreements that are required to complete the construction of work in an acceptable manner including authorized extensions, thereof, all of which constitute one instrument.

(b) Contract Bond - The approved form of security, executed by the Contractor and his surety or sureties, guaranteeing complete execution of the Contract and all Supplemental Agreements pertaining thereto.

(c) Equipment - All machinery, equipment and livestock, together with the necessary supplies for upkeep and maintenance and also tools and apparatus necessary for the proper construction and acceptable completion of the work.

(d) Plans - The official approved plans, profiles, typical cross sections, working drawings and supplimental drawings, or exact reproduction thereof which show the location, character, dimensions, and details of the work to be done, and which are to be considered part of the Contract supplimentary to these Specifications and which are identified as such.

(e) Profile Grade - The trace of a vertical plane intersecting the top surface of the proposed wearing surface, along the longitudinal section of the roadbed.

(f) Specifications - The general term comprising all directions, provisions and requirements contained herein, together with such as may be added or adopted as Supplemental Specifications.

(g) Subcontractor - Any individual partnership, firm or corporation undertaking the construction of a part of the work under the terms of the Contract, by virtue of an agreement with the Contractor, who, prior to such undertaking, receives the consent of the Surety and the approval of the Owner.

(h) Work - Work shall be understood to mean the furnishing of all labor, materials, equipment, and other incidentals necessary to the completion of the project and the carrying out of all duties and obligations imposed by the Contract.

Art. II. Intent of Contract

The intent of the Contract is to prescribe a complete work of improvement which the Contractor undertakes to do, in full compliance with the Plans, Specifications, Special Provisions, Proposal and Contract. The Contractor shall perform all work in accordance with the lines, grades, typical cross sections dimensions, and other data shown on the Plans or as modified by the written orders, including the furnishing of all materials, implements, machinery, equipment, tools, supplies, transportation, labor, and all other things necessary to the satisfactory prosecution and completion of the Contract.

Art. III. Special Provisions

Conditions not covered by the Plans or these Specifications shall be known as Special Provisions and attached to the Proposal Form, and shall be considered a part of these Specifications the same as though contained fully herein. Special Provisions shall govern over Specifications, Supplimental Specifications and Plans. Also, it should be understood that Plans govern over Specifications and Supplimental Specifications.

Art. IV. Execution of Contract

The Contract shall be signed by the successful bidder and returned, together with the Contract Bond and Payment Bond within ten (10) days after the Owner forewards the Contract. If the Contract is not executed by the Owner within twenty (20) days after receiving properly executed Contracts, Contract Bonds, and Payment Bonds from the Contractor, he shall have the right to withdraw his bid without penalty. No Contract shall be considered as effective until it has been executed by all of the parties thereto. It shall be further understood and agreed that all Specifications as well as Special Provisions attached to the Proposal Form used in submitting bids, and all approved drawings are parts of the Contract and shall be considered in full force and effect even though not included in and/ or attached to the separate form used in actual execution of the Contract.

Art. V. Shop Plans and Working Drawings

The approved plans will be supplimented by such working drawings as are necessary to adequately control the work. It is mutually agreed that all authorized alterations effecting the requirements and information given on the approved plans shall be in writing and approved by the Landscape Architect. When at any time reference is made to the Plans, the interpretation shall be the Plans as affected by all authorized alterations then in effect.

Art. VI. Copies Furnished

Unless otherwise provided in the Contract Documents, the Landscape Architect will furnish to the Contractor, free of charge, all copies of drawings and Specifications necessary for the execution of the work.

Art. VII. Drawings and Specifications on the Work

The Contractor will keep one copy of Drawings and Specifications on the work, in good order, available to the Landscape Architect.

Art. VIII. Ownership of Drawings

The drawings and Specifications furnished by the Landscape Architect are his property. They are not to be used on other work and are to be returned to him on request, at the completion of the work.

Art. IX. Materials, Appliances, Employees

Unless otherwise stipulated, the Contractor will provide and pay for, all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of the work.

Art. X. Protection of Work and Property

The Contractor will maintain adequate protection of all his work from damage and will protect the Owner's property from injury or loss arising in connection with the Contract. He will make good any such damage, injury, or loss, except such as may be directly due to errors in the Contract Documents, or caused by agents or employees of the Owner. He will adequately protect adjacent property as provided for by law.

The Contractor will take all necessary precautions for the safety of employees on the work, and will comply with all applicable pro-

visions of Federal, State and Municipal safety laws to prevent accident, injury to person on, about, or adjacent to the premises where the work is being performed. He will erect and properly maintain at all times, as required by the conditions and progress of the work, all necessary safeguards for the protection of workmen and the public.

Art. XI. Inspection of Work

All materials and each part or detail of the work shall be subject at all times to inspection by the Landscape Architect or his authorized representative, and the Contractor will be held strictly to the Contract and allowable tolerances and regard to quantity of materials, workmanship and the diligent execution of the Contract. The Landscape Architect or his representative shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

Art. XII. Superintendence: Supervision

The Contractor will keep on his work, during its progress, a competent superintendent, satisfactory to the Landscape Architect.

The Contractor will give efficient supervision to the work, using his best skill and attention. He will carefully study and compare all drawings and Specifications, and will at once report to the Landscape Architect any error, inconsistancy or omission which he may discover, but he will not be held responsible for their existence or discovery.

Art. XIII. Additional Work

The Contractor shall perform such increased quantity of any contract item as the Landscape Architect may deem necessary to properly complete the Contract, and shall receive in full payment for such increased work the prices in the Proposal or by Supplimental Agreement (s) when such Supplimental Agreement (s) is (are) properly agreed to and executed.

Art. XIV. Extra Work

When required alterations require work for which no quantity and price have been included in the Proposal, such work shall be done at a price agreed upon previously in writing by the Contractor and the Landscape Architect, or where such parties cannot be satisfactorily agreed upon by both parties, or where such agreement is im-

practicable, the Landscape Architect may, in writing, order the work be done in a force account basis, to be paid for in one of the following methods:

(a) By estimate and acceptance in a lump sum.
(b) By unit price named in the Contract or subsequently agreed upon.
(c) By cost and percentage or by cost and fixed fee.

Art. XV. Claims for Extra Cost

If the Contractor claims that any instructions by drawings or otherwise involves extra cost under this Contract, he will give the Landscape Architect written notice thereof within a reasonable time after such instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property, and the procedure will then be as provided as for changes in the work.

Art. XVI. Correction of work before final Payment

If the Contractor does not remove from the premises all work condemned by the Landscape Architect as failing to conform to the Contract within a reasonable time, fixed by written notice, the Owner may remove it and may store the material at the expense of the Contractor. If the Contractor does not pay the expenses of such removal within ten (10) days time thereafter the Owner may, upon ten (10) days notice, sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all the cost and expenses that should have been borne by the Contractor.

Art. XVII. Correction of work after final Payment

Neither the final certificate nor payment nor any provision in the Contract Documents will relieve the Contractor of responsibility for faulty materials or workmanship, and, unless otherwise specified, he will remedy any defects due thereto, and pay for damage for other work resulting therefrom, which will appear within a period of one year from the date of substantial completion. The Owner will give notice of observed defects with responsible promptness. All questions arising under this article will be decided by the Landscape Architect subject to arbitration.

Art. XVIII. The Owner's Right to do Work

If the Contractor should neglect to prosecute the work or fail to perform any provisions of this Contract, the Owner, after three (3)

days written notice to the Contractor may, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then, or thereafter due the Contractor, provided, however, that the Landscape Architect approve such action and the amount charged to the Contractor.

Art. XIX. Owner's Right to Terminate Contract

If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistantly or repeatedly refuse or should fail to provide enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors or for materials or labor, or persistantly disregard laws, ordinances, or the instructions of the Landscape Architect, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner, upon the certificate of the Landscape Architect that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor seven (7) days written notice, terminate the employment of the Contractor and take possession of the premises and of all Materials, tools and appliances thereon and furnish the work by whatever method he may deem expedient. In such case the Contractor will not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price shall exceed the expense of finishing the work including compensation for additional managerial and administrative services, such excess will be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor will pay the difference to the Owner. The expense incurred by the Owner has herein provided, and the damage incurred through the Contractor's default, will be certified by the Landscape Architect.

Art. XX. Contractor's Right to Stop Work or Terminate Contract

If the work should be stopped under the order of any court, or under public authority, for a period of three months, through no act or fault of the Contractor or of anyone employed by him, or if the Landscape Architect should fail to issue any certificate for payment within seven (7) days after it is due, or if the Owner should fail to pay the Contractor within seven (7) days after its maturity and presentation, any sum certified by the Landscape Architect or awarded by arbitrators, then the Contractor may, upon seven (7) days written notice to the Owner and the Landscape Architect, stop work or terminate this Contract and recover from the Owner payment for all work executed and any loss sustained upon any plant or materials and reasonable profit and damages.

Art. XXI. Applications for Payment

The Contractor will submit to the Landscape Architect an application for each payment, and, if required, receipts or other vouchers, showing his payments to subcontractors as required by article XXXI.

If payments are made on valuation of work done, such application will be submitted at least ten days before each payment falls due, and, if required, the Contractor will, before the first application, submit to the Landscape Architect a schedule of values of the various parts of the work, including quantities, aggregating the total sum of the divided so as to facilitate payments to subcontractors in accordance with article XXXI (e), made out in such form as the Landscape Architect and the Contractor may agree upon, and, if required, supported by such evidence as to its correctness as the Architect may direct. This schedule, when approved by the Landscape Architect, will be used as a basis for certificates of payment, unless it be found to be in error. In applying for payments, the Contractor will submit a statement based upon this schedule, and, if required, itemized in such form and supported by such evidence as the Landscape Architect may direct, showing his right to the payment claimed.

If payments are made on account of materials delivered and suitable stored at the site, but not incorporated in the work, they will, if required by the Landscape Architect, be conditional upon submission by the Contract of bills of sale or such other procedure as will establish the Owner's title to such material or otherwise adequately protect the Owner's interest.

Art. XXII. Certificates of Payments

If the Contractor has made application as above, the Landscape Architect will, not later than the date when each payment falls due, issue to the Contractor a certificate for such amount as he decides to be properly due, or state in writing his reasons for withholding a certificate.

No certificate issued nor payment made to the Contractor, nor partial or entire use or occupancy of the work by the Owner, will be an acceptance of any work or materials not in accordance with this contract. The making and acceptance of the final payment will constitute a waiver of all claims by the Owner, other than those arising from unsettled liens, from faulty work appearing after final payment or from requirement of the specifications, and of all claims by the Contractor, except those previously made and still unsettled.

Should the Owner fail to pay the sum named in any cerfificate of the Landscape Architect or in any award by arbitration, upon demand when due, the Contractor will receive, in addition to the sum named

in the certificate, interest thereon at the legal rate in force at the place of building.

Art. XXIII. Payments Withheld

The Landscape Architect may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect the Owner from loss on account of:

(a) Defective work not remedied.
(b) Claims filed or reasonable evidence indicating probable filing of claims.
(c) Failure of the Contractor to make payments properly to subcontractors or for material or labor.
(d) A reasonable doubt that the contract can be completed for the balance then unpaid.
(e) Damage to another Contractor.

When the above grounds are removed, payment will be made for amounts withheld because of them.

Art. XXIV. Contractor's Liability Insurance

The Contractor will maintain such insurance as will protect him from claims under workmen's compensation acts and from claims for damages because of bodily injury, including death, which may arise from and during operations under this Contract, whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them. This insurance will be written for not less than any limits of liability specified as part of this contract.

Art. XXV. Owner's Liability Insurance

The Owner will be responsible for and at his option may maintain such insurance as will protect him from his contingent liability to others for damages because of bodily injury, including death, which may arise from operations under this contract, and any other liability for damages which the Contractor is required to insure under any provision of this contract.

Art. XXVI. Fire Insurance

The Owner will effect and maintain fire insurance on all structures on property that the work of this contract is to be done to 100 percent of the insurable value, including items of materials connected

therewith whether in or adjacent to the structure insured, materials in place or to be used as part of the permanent construction including surplus materials in place or to be used as part of the work, and such structures, miscellaneous materials and supplies incident to the work. The loss, if any, is to be made adjustable with and payable to the Owner as Trustee for the insureds as their interests may appear, except in such cases as may require payment of all or proportion of said insurance to be made to a mortgagee as his interests may appear.

The Contractor and all subcontractors shall be named or designated in such capacity as insured jointly with the Owner in all policies. If the Owner fails to effect or maintain insurance as above and so notifies the Contractor, the Contractor may insure his own interest and that of the subcontractors and charge the cost thereof to the Owner.

Art. XXVII. Guarantee Bonds

The Owner will have the right, prior to the signing of the Contract, to require the Contractor to furnish bond covering the faithful performance of the Contract and the payment of all obligations arising thereunder, in such form as the Owner may prescribe and with sureties as he may approve. If such bond is required by instructions given previous to the submission of bids, the premium will be paid by the Contractor; if subsequent thereto, it will be paid by the Owner.

Art. XXVIII. Responsibility for Damage Claims

The Contractor shall indemnify and save harmless the Owner or all of his representatives from all suits, actions, or claims of any character brought on account of any injuries or damages sustained by any person or property in consequence of any neglect in and safeguarding the work or through the use of unacceptable materials in the construction of the improvement, or an account of any act or omission by said Contractor, or as a result of faulty, or inadequate or improper temporary drainage during construction, or on account of the use or misuse, storage or handling of explosives, or on account of any claims or amounts recovered for any infringement, or patent, trademark or copyright, or from any claims or amounts arising or recovered under the Workmen's Compensation Laws, or any other law, by-law, ordinance, order or decree. The Contractor shall be responsible for all damage or injury to property of any character during the prosecution of the work resulting from any act, omission, neglect, or misconduct, in the manner of method of executing said work satisfactorily or due to the non-execution of said work or at any time due to defective work or materials and said responsibility shall continue until the improvement shall have been completed and accepted.

Claims for damages will be made in writing to the party liable within a reasonable time of the first observance of such damage and not later than the time of final payment, except as expressly stipulated otherwise in the case of faulty work or materials, and will be adjusted by agreement or arbitrations.

Art. XXIX. Liens

Neither the final payment nor any part of the retained percentage will become due until the Contractor, if required, will deliver to the Owner a complete release of all liens arising out of this Contract, or receipts in full lieu thereof, and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all the labor and material for which a lien could be filled; but the Contractor may, if any subcontractor refuses to finish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remain unsatisfied after all payments are made, the Contractor will refund to the Owner all money that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorneys' fee.

Art. XXX. Assignment

Neither party to the Contract will assign the Contract or sublet it as a whole without the written consent of the other, nor will the Contractor assign any money due or to become due to him hereunder, without the previous written consent of the Owner.

Art. XXXI. Mutual Responsibility of Contractors

Should the Contractor cause damage to any separate contractor on the work the Contractor agrees, to settle with such contractor by agreement or arbitration, if he will so settle. If such separate contractors sue the Owner on account of any damage alleged to have been so sustained, the Owner will notify the Contractor, who will defend such proceedings at the Owner's expense, and, if any judgment against the Owner arise therefrom, the Contractor will pay or satisfy it and pay all costs incurred by the Owner.

Art. XXXII. Separate Contracts

The Owner reserves the right to let other contracts in connection with this work. The Contractor will afford other contractors reasonable opportunity for introduction and storage of their materials and the execution of their work, and will properly connect and coordinate his work with theirs.

Art. XXXIII. Subcontractors

The Contractor will as soon as practicable after the execution of the contract, notify the Landscape Architect in writing of the names of subcontractors proposed for the principal parts of the work and for such others as the Landscape Architect may direct and will employ any that the Landscape Architect may within a reasonable time object to as incompetent or unfit.

If the Contractor has submitted before execution of the contract a list of subcontractors and the change of any name on such a list is required in writing by the Owner after such execution, the contract price will be increased or diminished by the difference in cost occasioned by such changes.

The Landscape Architect will, on request, furnish to any subcontractor, wherever practicable, evidence of the amounts certified on his account.

The Contractor agrees that he is as fully responsible to the Owner for the acts of his subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the contract document will create any contractual reaction between any subcontractor and the Owner.

Art. XXXIV. Relations of Contractor and Subcontractor

The Contractor agrees to bind every Subcontractor and every Subcontractor agrees to be bound by the terms of the Agreement, the General Conditions, the Drawings, and Specifications as far as applicable to his work, including the following provisions of this article.

The Subcontractor agrees--

(a) To be bound to the Contractor by the terms of the Agreement, General Conditions, Drawings, and Specifications, and to assume toward him all the obligations and responsibilities that he assumes toward the Owner.
(b) To submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment under Art. XXI of the General Conditions.
(c) To make claims for extras to the Contractor in the manner provided in the General Conditions for like claims by the Contractor upon the Owner, except that the time for making claims for extra cost is one week.

The Contractor agrees--

(d) To be bound to the Subcontractor by all the obligations that the Owner assumes to the Contractor under the Agreement, General Conditions, Drawings, Specifications and by all the provisions thereof affording remedies to the Contractor from the Owner.

(e) To pay the Subcontractor, upon the payment of certificates, if issued under the schedule of values in Art. XXI of the General Conditions, the amount allowed to the Contractor on account of the Subcontractor's work to the extent of the Subcontractor's interest therein.

(f) To pay the Subcontractor, upon the payment of certificates, if issued otherwise than as in (e), so that at all times his total payments will be as large in proportion of the value of the work done by him as the total amount certified to the Contractor is to the value of the work done by him.

(g) To pay the Subcontractor to such extent as may be provided by the Contract Documents or the subcontract, if either of these provides for earlier or larger payments than the above.

(h) To pay the Subcontractor on demand for his work or materials as far as executed and fixed in place, less the retained percentage, at the time the certificate is issued.

(i) To pay the Subcontractor a just share of any fire insurance money received by him, the Contractor.

(j) To make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specified in the contract.

(k) That no claim for services rendered or materials furnished by the Contractor to the Subcontractor will be valid unless written notice thereof is given by the Contractor to the Subcontractor during the first ten days of the calendar month following that in which the claim originated.

(l) To give the Subcontractor an opportunity to be present and to submit evidence in any arbitration involving his right.

(m) To name as arbitrator as provided for in the General Conditions the person nominated by the Subcontractor, if the sole cause of dispute is the work, materials, rights, or responsibilities of the Subcontractor.

The Contractor and Subcontractor agree--

(n) In the matter of arbitration, their rights and obligations and all procedure will be analogous to those set forth in this contract. Nothing in this article will create any obligation on the part of the Owner to pay or to see to the payment of any sums to any subcontractor.

Art. XXXV. Landscape Architect's Status

He is the agent of the Owner as provided in the Contract Documents.

The Landscape Architect will side neither with the Owner nor with the Contractor, but will use his power under the contract to enforce its faithful performance by both.

Art. XXXVI. Landscape Architect's Decisions

The Architect will, within a reasonable time, make decisions on all claims of the Owner or Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents.

Art. XXXVII. Arbitration

All disputes, claims, or questions subject to arbitration under this contract will be submitted to arbitration in accordance with the provisions, then obtaining, of the Standard Form of Arbitration Procedure of the American Institute of Architects.

Art. XXXVIII. Cash Allowances

The Contractor will include in the contract sum all allowance named in the Contract Documents and will cause the work so covered to be done by such contractors and for such sums as the Architect may direct, the contract sum being adjusted in conformity therewith.

The Contractor will not be required to employ for any such work persons against whom he has a reasonable objection.

Art. XXXIX. Use of Premises

The Contractor will confine his apparatus, the storage of materials, and the operations of his workmen to the limits indicated by law, ordinances, permits, or directions of the Landscape Architect and will not unreasonably encumber the premises with his materials.

Art. XXXX. Final Cleaning Up

Upon completion of the work specified in the Contract, and before final payment will be made, the construction area and all other adjoining areas, other than those owned and/or controlled by him, occupied by the Contractor during the construction of said Contract shall be cleaned of all surplus and discarded materials, false work,

rubbish and temporary structures and buildings; that were placed thereon by the Contractor, and left in a neat and presentable condition. Borrow pits and spoil areas shall be treated as elsewhere herein provided.

DIVISION PL - 1

EARTHWORK

PL 1.1 GENERAL

(a) Work under this division is indicated on the drawings entitled "Grading Plan", "Staking Plan", "Horizontal and Verticle Alignment and "Landscape Development Details" prepared by Nancy Stuart Stiles, Landscape Architect, Athens, Georgia.

(b) Each Bidder will familiarize himself with the Contract Documents and shall visit the site of proposed work to aquaint himself with the existing conditions pertinent to the execution of all work described herein.

(c) Should the Bidder find a discrepancy of omission in the Specifications, or should he be in doubt as to the meaning of any portion of them, he shall then notify the Landscape Architect who shall then instruct all bidders in the matter by an Addendum.

(d) This Contractor shall guard and protect against damage to existing work. Any work, already completed, that is disturbed or in any way damaged or changed, shall be replaced to original condition, or as shown on the drawings.

PL 1.2 CLEARING AND GRUBBING

(a) This item shall consist of clearing and grubbing areas as described below and in conformity with the Plans.

(b) Clearing is defined as the clearing of areas of trees, shrubs, brush, down timber, rotten wood rubbish and any other vegetation, as well as the removal of fences and incidental structures.

(c) Grubbing is defined as removing from the ground all stump roots and stubs, brush, organic materials and debris. When indicated such materials as leaf mould or other organic materials above the surface of the ground and suitable for use as mulch or as topsoil, shall be salvaged and stockpiled.

(d) Limits of clearing shall be out of construction limits. All other areas within the "Limit of Work" shall be cleaned of all rubbish and fallen wood. All standing stumps and

dead trees shall be cut off flush with the ground. The Landscape Architect has the right to designate trees and other growth to leave standing and when such is done, the Contractor shall conform to such direction.

(e) Limits of grubbing are hereby defined to include construction area (out to out excavation or embankment, as the case may be.)

(f) Removal materials derived from clearing and grubbing shall be salvaged and/or disposed of as subsequently set forth.

PL 1.3 ROADWAY EXCAVATION

(a) Description

1) Roadway excavation shall in general consist of excavation and grading for roadways and their appurtenances to lines and grades indicated on the Plans. Unsuitable and excess materials in any excavation shall be disposed of by being removed from the limits of the work or to such locations as approved by the Landscape Architect.

2) Roadway excavation shall include the following:
   (a) Within the boundary faces of the typical cross section(s) indicated on the Plans, including ditches within the cut section.
   (b) Topsoil to be salvaged within the limits of the road.
   (c) Excavation for stream and channal changed.

(b) Construction Methods

1) All suitable material removed from the excavation shall be used as far as practicable in the formation of embankment, subgrade, shoulders, slopes, backfill for structures and at such other places as directed.

2) Boulders and excavated rock shall be broken and reduced in size so as to be acceptable for use in embankments and in other specified areas.

3) All earth slopes shall be formed in lines conforming to the plans.

4) All boulders and ledge rock encountered in the roadbed, shall be removed within ditch lines.

5) All spaces created by removal of rock, or unsuitable material, shall be backfilled to the lines and grades indicated on the Plans.

PL 1.4 EMBANKMENT

(a) Embankment shall be formed of suitable material, obtained from roadway, Structure and other excavation included in the Contract and it shall be placed, processed and compacted to the lines and grades on the Plans.

PL 1.5 EARTH SHOULDERS

(a) This item shall consist of the formation and compaction of earth shoulders in conformity with the lines and grades shown on the Plans and in accordance with these Specifications.

(b) Earth shoulders shall be composed of suitable materials from roadway or Structure excavation, supplimanted by suitable material, if directed from borrow excavation.

(c) Construction Methods

1) Earth shoulders shall be formed and compacted as soon as possible after the surfacing item is complete.

2) Any damage to the surfacing or pavement by reason of carelessness or negligence on the part of the Contractor shall be repaired to the satisfaction of the Landscape Architect.

3) The entire shoulder area shall be uniformly and thoroughly compacted by rolling with a tandem, or three-wheel or pneumatic tire roller.

4) The weight of any roller used for this operation shall be such that the shoulder shall be thoroughly compacted; however the weight shall not exceed that required for the adjacent surface of pavement. The areas to be shaped and compacted shall include all shoulder areas shaped to the specified cross-slope. The construction of the shoulders shall conform to the typical cross section of improvment shown on the Plans of the proposed work.

DIVISION PL - 2

CONSTRUCTION WORK

PL 2.1 GENERAL

(a) Work under this division is indicated on drawings entitled "Grading Plan", "Staking Plan", "Horizontal and Vertical Alignment", and "Landscape Development Details" prepared by Nancy Stuart Stiles, Landscape Architect, Athens, Georgia.

(b) Each Bidder will familiarize himself with the Contract Documents and shall visit the site of proposed work to aquaint himself with the existing conditions pertinent to the execution of all work described herein.

(c) Should the Bidder find a discrepancy or omission in the Specifications, or should he be in doubt as to the meaning of any portion of them, he shall then notify the Landscape Architect who shall then instruct all Bidders in the matter by an Addendum.

(d) This Contractor shall protect, and guard against damage to existing work. Any work already completed, that is disturbed or in any way damaged or changed, shall be replaced to original condition, or as shown on the drawings.

PL 2.2 WORK INCLUDED

(a) The work covered by this specification consists of furnishing labor and materials, equipment appliances necessary for establishing finished grade, and for construction of concrete sitting walls, concrete retaining walls, steps, tree sleeves, construction of paved areas, installing chain link fencing, and post and rail fencing, as shown on drawings and schedules as specified herein including but not limited to the following:

1) Furnishing cement, stone, sand, water, reinforcement rods, prefabricated concrete coping, formwork and all other necessary materials for the construction of the sitting walls.

2) Furnishing cement, stone, sand, water, reinforcement rods, formwork, and all other necessary materials for the construction of the retaining walls.

3) Furnishing cement, stone, sand, water, wire mesh reinforcement, and all other necessary materials for the construction of the concrete tree sleeves.

4) Furnishing cement, stone, sand, water, steel reinforcement rods, formwork and all other necessary materials for the construction of the concrete steps.

5) Establishing base for paved areas.

6) Furnishing materials used in base.

7) Furnishing concrete asphalt mixtures for roads and walks.

8) Furnishing combination curb and gutter for parking areas.

9) Furnishing chain link fencing and gates, and cement, stone, sand, and water for the post footings.

10) Furnishing post and rail fencing.

PL 2.3 CONCRETE

(a) All cement shall be Portland Cement and shall meet the requirements of the latest standard specifications of the American Society of Testing Materials. It shall be dry and in its original container.

(b) Water used in mixing concrete shall be free from acids alkalies, oils, salts, organic matter or any deleterious substances which would impair the strength of the concrete. Water containing not more than one percent (1%) of chlorides by weight will be acceptable for curing concrete.

(c) Fine aggregate shall consist of clean, washed sand, ninety-five percent (95%) which shall pass through a number four (4) seive. Not less than fifty percent (50%) shall be retained in a number thirty (30) seive, and not more than five percent (5%) shall pass a 100 mesh seive.

(d) Coarse aggregate may be either crushed stone, gravel, crushed slag or combinations thereof.

1) Crushed stone shall consist of particles of clean, hard, tough, durable rock free from adherent coating.

2) Gravel shall be composed of hard, durable particles of clean stone and shall be free from an excess of thin, or elongated pieces, frozen lumps, vegetable or other deleterious matter.

3) Crushed slag shall be air-cool, blast furnace slag weighing not less than 70 lbs. per cu. ft. dry

rodded, when produced to a number six (6) size and shall consist of angular fragment, reasonably uniform in density and quality, and reasonably fe free from thin, elongated or glassy pieces, dirt or other objectionable matter and coatings of any character that would indicate an unstable product.

4) Crushed gravel shall consist of clean, hard durable particles of clean stone, and shall be free from an excess of elongated pieces, frozen lumps or vegetable or other deleterious matter, and shall contain at least seventy-five percent (75%) crushed particles.

5) Coarse aggregate shall consist of number one (1) and number two (2) size particles, provided that not more than fifty percent (50%) or less than thirty percent (30%) shall be of number one (1) size or more than seventy percent (70%) or less than fifty percent (50%) shall be of number two (2) size.

(e) All concrete shall have an ultimate compressive strength of three thousand (3,000) pounds per square inch at the end of twenty-eight (28) days.

PL 2.4 REINFORCEMENT STEEL

(a) All rods for concrete reinforcement shall be of performed rods, rolled of new brilliant steel conforming to the specifications of the American Society for Testing Materials.

(b) Wire mesh for reinforcement shall be composed of cold drawn steel wires in accordance with the specifications of the American Society of Testing Materials. It shall be furnished in flat sheets of the dimensions, spacing and wire sizes specified on the plans.

PL 2.5 MASONRY WORK

Masonry units shall be laid in the best manner, well bonded with corners true and laid in a full bed of mortar with joints shulshed full. Care must be taken during the course of the work to keep free from injurious strains. After completion of masonry work, all exposed work shall be washed down and left clean, and in every way acceptable to the Owner.

PL 2.6 CONCRETE SITTING WALLS

The Contractor shall construct the concrete sitting walls set into the asphalt concrete pavement as shown on the plans as follows:

1) The concrete sitting walls shall be circular with an exterior radius of four (4) feet and an interior radius of three (3) feet and formed in two equal sections, see Plans. The structures shall be fifteen (15) inches high from the ground level and extend three (3) feet below the ground level, with a width of twelve (12) inches from the top to five (5) inches below the ground level and widening to an ultimate width of eighteen (18) inches at the base.

2) The concrete used for the construction of the sitting walls shall be mixed in the proportions of one (1) part Portland Cement, two (2) parts sand, and three (3) parts gravel or crushed stone.

3) Form work shall be constructed according to the standard practices of the State of Maryland.

4) Concrete shall be poured in continuous layers, six (6) to eight (8) inches deep.

5) Number 3 temperature rods shall be placed two (2) inches from the outer face of the wall and twelve (12) inches on center.

6) The mortar for the precast concrete coping shall be composed of one (1) part of Portland Cement and a maximum of two (2) parts fine aggregate, with not more than five (5) parts of hydrated lime or lime putty.

PL 2.7 CONCRETE RETAINING WALLS

The Contractor shall construct 4 (four) ten (10) foot high retaining walls in the locations noted on the Plans as follows:

1) The concrete structures shall be ten (10) feet high, and three (3) feet below the finished grade. the horizontal base shall be twelve (12) inches long, four feet six inches (4' 6") wide and cover distances of 500, 530, 535, and 450 feet respectively. The vertical slab shall be twelve (12) feet long, twelve (12) inches long and shall cover distances of 500, 530, 535, and 450 respectively.

2) The concrete used for the construction of the retaining walls shall be mixed in the proportions of one (1) part Portland Cement, two (2) parts sand, and three (3) parts gravel or crushed stone.

3) Form work shall be constructed according to the standard practices of the State of Maryland.

4) Concrete shall be poured in continuous layers, six (6) to eight (8) inches deep.

5) One half ($\frac{1}{2}$) inch reinforcing rods twelve (12) inches on center, and three eighths (3/8) inch reinforcing rods ten (10) inches on center shall be fastened with wire as shown on the Plans.

FL 2.8 CONCRETE TREE SLEEVES

The Contractor shall construct concrete tree sleeves located on the Plans as follows:

1) The concrete structures shall have exterior dimensions of four (4) feet long, four (4) feet wide and five (5) feet deep; and an interior dimensions of one (1) foot radius, and four foot and six inches (4' 6") deep, as shown on the Plans.

2) The concrete used for the construction of concrete tree sleeves shall be mixed in the proportions of one (1) part Portland Cement, two (2) parts sand, and three (3) parts gravel or crushed stone.

3) Concrete shall be poured in continuous layers, six (6) to eight (8) inches deep.

4) One quarter (1/4) inch wire mesh reinforcing with six (6) inch spacing shall be placed three (3) inches from the interior face of the structure, as shown on the Plans.

FL 2.9 CONCRETE FOOTINGS FOR FENCE POSTS

The Contractor shall pour footings for the fence posts as shown on the Plans as follows:

1) The concrete fence posts shall have the following dimensions: corner posts: eighteen (18) inches wide, eighteen (18) inches long, and fourty (40) inches deep; gate posts: eighteen (18) inches wide, eight-

een (18) inches long, and fourty (40) inches deep; line posts: twelve (12) inches wide, twelve (12) inches long, and thirty-six (36) inches deep and shall be placed according to the Plans.

2) The concrete used for the footings shall be mixed to the proportions of one (1) part Portland Cement, two (2) parts sand, and three(3) parts gravel or crushed stone.

PL 2.10 ASPHALT CONCRETE PAVEMENT

(a) Entrance Road, Parking Area, Service Road, and Primary Walk.

1) Subgrade and subbase preparation shall be in accordance with the State of Maryland, Specifications for Materials, Highways, Bridges and Incidental Structures (1962 Edition) Articles 32.00, "Sug-grade preparation", Article 32.01, "Sub-base" and Article 32.04, "Bituminous Stabilized Base Course".

2) Surface courses shall be in accordance with the State of Maryland, Specifications for Materials, Highways, Bridges and Incidental Structures, (1962 Edition), Article 33.12, "General Requirements for Bituminous Concrete Pavements", and Article 33.13, "Bituminous Concrete Specification 'A'", and in accordance with the Plans.

(b) Asphalt Concrete Walks.

The Contractor shall have the responsibility for installing the asphalt concrete walks in accordance with the Asphalt Institute Specifications 1(SS-1) Asphalt Institute, College Park, Maryland, March, 1962.

DIVISION PL - 3

PLANTING WORK

PL 3.1 GENERAL

(a) Work under this division is indicated on drawings entitled "Planting Plan", and "Landscape Development Details", prepared by Nancy Stuart Stiles, Landscape Architect, Athens, Georgia.

(b) Each Bidder will familiarize himself with the Contract Documents and shall visit the site of proposed work to aquaint himself with the existing conditions pertinent to the execution of all work described herein.

(c) Should the Bidder find a discrepancy or omission in the Specifications, or should he be in doubt as to the meaning of any portion of them, he shall then notify the Landscape Architect who shall then instruct all bidders in the matter by an Addendum.

(d) This Contractor shall guard and protect against damage to existing work. Any work, already completed, that is disturbed or in any way damaged or changed, shall be replaced to original condition, or as shown on the drawings.

PL 3.2 WORK INCLUDED

(a) The work covered by this Specification consists of furnishing all labor, materials, equipment and appliances necessary for Planting of Major and Minor Plants, as shown on drawings and schedules and as specified herein, including but not limited to the following:

Excavating for all tree and shrub pits and beds.

Furnishing and preparing topsoil for backfilling all tree and shrub pits and beds.

Furnishing and incorporating fertilizer and peat.

Furnishing and planting all trees and shrubs as shown.

Furnishing and spreading topsoil, as needed beyond that on the site.

Mulching.

Maintenance inspection.

Replacements of unsatisfactory plant material.

Installation of grass areas.

(b) All labor, materials, and equipment necessary in establishing grass areas, as specified herein, include but are not limited to the following:

Testing soil for content.

Furnishing and incorporating fertilizer and soil conditioner.

Establishing the grade.

Furnishing and installing the seed.

Watering the area as specified in PL 3.9.

PL 3.3 PROTECTION OF EXISTING UTILITIES

(a) The Contractor shall ascertain the location of all electrical cables, utility lines, cesspools, and supply lines.

(b) The Contractor shall be held responsible for any damage to existing utilities incurred during the process of work under this Contract.

PL 3.4 INSPECTION

Plants shall be subject to inspection and approval at place of growth, or upon delivery, for quality, size, variety, and health.

PL 3.5 FERTILIZERS

(a) Commercial fertilizer shall be 5-10-5. Commercial fertilizers shall have an analysis and guarantee, and shall analyze in the following order: 5% Total Nitrogen; 10% available Phosphoric Acid; and 5% Total Potash. Nitrogen in such commercial fertilizer shall be supplied in the form of inorganic chemicals to the amount of at least seventy-five percent (75%) of the nitrogen carrying agents or materials. All fertilizers shall meet the specified requirements of State and Federal laws regarding them.

(b) Commercial fertilizer shall be thoroughly incorporated with topsoil and loam planting mixture at the rate of three pounds per inch caliper of tree (approximately two shovels per tree).

(c) Commercial fertilizer shall be applied on grass areas at the rates that follow:

1) Five (5), ten (10), five (5) fertilizer shall be applied at the rate of thirty (30) pounds per thousand (1,000) square feet.

2) Ammonium Nitrate shall be applied at the rate of three (3) pounds per thousand (1,000) square feet, every six (6) weeks during the growing season.

(d) The Contractor shall provide weatherproof storage space for fertilizer, until and during its use.

PL 3.6 SOIL CONDITIONER

(a) Peat moss shall be granulated sphagnum or moss peat furnished in air-dry condition and shall be free from woody substances and mineral matter such as sulphur or iron, and it shall show an acid reaction of 3.5 to 5.5 PH.

(d) Peat moss shall be incorporated into the soil planting mixture to provide a friable planting mixture.

(b) Lime shall consist of ground limestone containing not less than eighty-five percent (85%) of calcium and Magnesium carbonates. Dolomitic lime or high magnesium lime shall contain at least ten percent (10%) of magnesium oxide.

Lime shall be incorporated into the soil mixture for grass areas at the rate of fifty (50) pounds per thousand (1,000) square feet.

PL 3.7 TOPSOIL AND LOAM

Topsoil to be used on planted areas shall be good, friable, sandy or silt loam, containing no subsoil material, and known to have supported good vegetation. It shall contain not less than 1.5% organic matter as determined by the Thomas Rapid Test method and free from stone larger than one inch diameter. It shall be reasonably uniform in texture and structure.

PL 3.8 MULCH

Woodchip mulch shall be prepared from selected timber on the site and installed at the rate specified on the Plans.

PL 3.9 SEED

(a) On all slope areas, the following seed mix shall be used:

65% Kentucky 31 Fescue
15% Lespedesa Korean
15% Red Top
5% Perennial Rye

(b) On all areas ten percent (10%) or less the following mix shall be used:

45% Kentucky Bluegrass
35% Red Chewing Fescue
15% Fancy Re-cleaned Red Top

(c) Any seed used in this Contract, must comply with the Maryland Seed Law, Article 48, Sections 149 to 156, inclusive, of the Annotated Code of Maryland (1957 Edition).

(d) Prior to the application of seed, a certificate from the dealer of purity, weed seed and germination must be furnished to the Landscape Architect, so that he may be able to check the seed and make adjustments for seed under the required minimum percentage of purity and germination.

(e) For "Seed Quality Control" see State of Maryland, Specifications for Highways, Bridges and Incidental Structures, (1962 Edition), Article 20.17, p. 122.

PL 3.10 PLANT MATERIAL

(a) All plants to be supplied shall be first class representatives of their normal species or variety unless otherwise specified on the Plans. All material is to conform in size grade to American Standards for Nursery Stock.

(b) Flowering shrubs are to be well furnished with branches and be symetrically balanced and conform to their natural shape. Evergreens are to be full foliage compact specimens of mature growth.

(c) All plants must show normal health and vigor in strict accordance with these Specifications and shall be free

from disfiguring knots, sun scald injuries, abrasions and other disfigurements. Weak plants will not be accepted or paid for. All stock shall be nursery grown, freshly dug plants unless otherwise specified on the Plans.

PL 3.11 SEEDING

(a) Description

1) Seeding shall consist of preparing seedbeds, furnishing, placing and covering lime, fertilizer and seed; compacting seedbeds and other operations incidental to the proper seeding of areas shown on the Plans, or directed by the Landscape Architect, and in accordance with these Specifications.

2) The planting season shall be from March first to May thirty-first, and from August six-teenth to October thirty-first inclusive. The Contractor shall perform all liming, fertilizing, seeding, raking and compaction operations only at times when local weather or other conditions affecting such work are normal and favorable to the proper prosecution of the work. No seeding will be done on frozen ground or when the temperature is 32° F. or lower.

(b) Construction Methods

1) Seedbed Preparation

All grading and shaping operations shall be completed before seeding.

When the area to be seeded has been recently and thoroughly loosened to a depth of not less than five inches as a result of grading operations and, if immediately prior to seeding, the top three inches of soil is loose, friable, reasonably free from large clods, rocks, large roots and other undesirable matter and if shaped to the required grade, it shall be considered a satisfactory seedbed without additional treatment.

However, when the areas to be seeded are sparcely sodded, weedy, barren, and unworked, or packed and hard, any grass or weeds shall be cut or otherwise satisfactorily disposed of, and the soil then be scarified or otherwise loosened to a depth of not less than five inches.

2) Dry application Method

Liming: Lime shall be applied separately and prior to the application of any fertilizer or seed, and only on seedbeds which have previously been prepared as described above. The lime shall be worked to a depth of three inches after which the seed bed shall be properly graded and dressed to a smooth finish.

Fertilizing: 5-10-5 Commercial fertilizer will be applied at the rates specified in Article 3.5 above.

Seeding: Seed mixture shall be applied at the rate of three (3) pounds per thousand (1,000) square feet, immediately after fertilizing. Fertilizer and seed shall be raked to a depth of one quarter (1/4) inch.

Rolling: After the seed has been properly covered, the seed bed shall be immediately compacted by means of an approved lawn roller, weighing fourty (40) to sixty-five (65) pounds for foot of width for clay soil, and weighing one hundred and fifty (150) to two hundred (200) pounds per foot of width for sandy or light soils.

PL 3.12 EXCAVATION, HANDLING AND PLANTING OPERATIONS

(a) All plants shall be handled so that the roots are adequately protected at all times. During shipment they shall be protected by tarpaulin or other suitable covering. All balled and burlaped plants which cannot be planted immediately upon delivery shall be set in the ground and well covered with soil.

(b) All trees shall be planted as shown on the Plan according to the Standards of the Maryland State Nurserymen's Association.

PL 3.13 PREPARATION OF TOPSOIL FOR PLANT PITS AND BEDS

Topsoil for plant pits and beds shall be prepared by mixing with peat moss in the proportions of one (1) unit of peat moss to seven (7) units of topsoil by volume. The components shall be thoroughly mixed before use.

PL 3.14 MULCHING

(a) A two (2) inch mulch of wood chips shall be applied around all deciduous trees after planting.

(b) All evergreens and broadleaved evergreens, shall be mulched to a depth of two (2) inches with a mixture consisting of fifty percent (50%) leaf mold, and fifty percent (50%) peat moss. A portion of this shall be scratched into the top one and one half (1 1/2) inch of soil.

PL 3.15 STAKING, GUYING, WRAPPING

(a) All trees shall be guyed by wire guys encased in water hose at the trunk and stakes. Guys will be securely staked in an approved manner. All wire will be pliable iron of Md. shown of guying sketches.

(b) Stakes for supporting trees shall be of sound wood of uniform size, capable of standing in ground at least two years. They shall be at least two (2) inch actual dimension and not less than eight (8) feet in length, and as shown on the Plans.

(c) Stakes shall be placed a minimum of four (4) inches from the trunk of the tree for bare root plants and a minimum of twelve (12) inches from the ball for balled and burlaped plants. They shall be driven into the ground to the depth shown.

(d) Wrapping material shall be first quality burlap or waterproofed crepe paper not less than six (6) inches or more than ten (10) inches in width, and of suitable length.

(e) The trunks of all large trees, shall be wrapped and the material securely tied at the top and bottom, and at two foot intervals. Bandaging shall start at the base and will cover the entire surface of the trunk to the first branches.

(f) All guying, staking and wrapping shall be done immediately after planting. All plants shall stand plumb after guying and staking.

PL 3.16 MAINTENANCE OF PLANTING UNTIL ACCEPTANCE

Areas around trees shall be kept cultivated, free of weeds and grass, and properly watered until acceptance. Replacement will be done as soon as dead material appears. If any tree, shrub or plant bed settles more than three (3) inches below the established grade, it shall be raised to the proper level, and not merely filled with additional topsoil.

PL 3.17 CLEANING UP

(a) The Contractor shall dispose of, on the site or as directed by the Landscape Architect, all subsoil excavated from his work. All other debris including branches, paper and rubbish resulting from his work shall be removed from the site as work proceeds.

(b) All areas shall be kept in a neat and orderly condition at all times. Prior to final acceptance the Contractor will clean up his work areas to the satisfaction of the Landscape Architect.

PL 3.18 INSPECTION FOR ACCEPTANCE

(a) Inspection by the Landscape Architect shall be made upon completion of all work, at the notification of the Contractor.

(b) Payment shall be made after acceptance by the Landscape Architect. Such payment shall not relieve Contractor of responsibility of guarantees, or of conformance with provisions for plant replacement as specified below. (3.19).

PL 3.19 GUARANTEE OR WARRANTY

(a) This Contractor warrants that all work executed under this division shall be free from defective plant material or workmanship for a period of one year after the Landscape Architect's acceptance of the work.

(b) This Contractor shall guarantee to replace all defective plants and workmanship by approved methods and at his own expense whensoever such defects may appear prior to the conclusion of this guarantee.

PL 3.20 REPLACEMENTS

(a) Any trees or shrubs not found to be in a healthy growing condition at any time during the period of guarantee, shall be removed from the site and replaced, as soon as weather and seasonal conditions permit, as determined by the Landscape Architect.

(b) Plant replacements shall be the same kind and size as specified in the itemized plant list, all replacements shall be furnished, planted, and mulched as specified, at the Contractor's expense.

(c) The Contractor shall be liable for any damage to property including lawns, sprinkler systems, pavements, curbs, etc. caused by replacing operations.

PL 3.21 COOPERATION

This Contractor shall agree to complete cooperation and coordination with the General Contractor engaged in all adjacent work.

PL 3.22 SEQUENCE OF THE WORK

The Contractor shall do the work specified in the following order:

1) Sub. grade (1-2 inches)
2) Construction work and Planting work
3) Spread topsoil
4) Spreading of seed

FORM OF PROPOSAL FOR THE

EXCAVATION, CONSTRUCTION AND PLANTING WORK

at

COLUMBIA ZOOLOGICAL GARDEN

Route 108
Columbia, Maryland

To:
Mr. Morton Hoppenfeld
Chief Planner
Community Research and Development
14 West Saratoga Street
Baltimore, Maryland

Dear Sir;

Pursuant to and in compliance with the Plans, Specifications and documents related thereto, the undersigned hereby offers to furnish all labor, materials, supplies, equipment and other facilities and things necessary and proper for or incidental to the completion of the work as required by and in strict accordance with the applicable conditions of the Contract Documents, including the Drawings, the Specifications, and all Addenda issued by the Owner prior to the date of the opening of bids, whether received by the undersigned or not, for the following sum;

_____

_____ Dollars, ($_____)

TIME OF COMPLETION

If awarded the Contract, the undersigned agrees to complete the work within _____ Calendar days for the date of the award of the Contract.

COST ESTIMATE

Nancy Stuart Stiles
Landscape Architect
University of Georgia
Athens, Georgia

PROJECT: Columbia Zoological Garden
Columbia, Maryland

COMPUTED BY: Nancy Stuart Stiles

CHECKED BY: Nancy Stuart Stiles

PLANT MATERIALS:

QUAN.	BOTANICAL AND COMMON NAME	SIZE	UNIT PRICE	TOTAL
	LARGE DECIDUOUS TREES			
112	Carya ovata (B&B) Shagbark Hickory	5'-6'	4.00	448.00
275	Quercus borealis (BR) Northern Red Oak	1½"-2"cal	18.00	4950.00
18	Salix babylonica (BR) Weeping Willow	6'-8'	6.00	108.00
	SMALL DECIDUOUS TREES			
9	Cercis canadensis (B&B) Eastern Redbud	5'-6'	4.00	36.00
39	Cornus florida (B&B) Flowering Dogwood	3½'-4'	5.50	214.50
	EVERGREEN TREES			
251	Tsuga canadensis Canadian Hemlock	3½'-4'	550	1380.50
	SHRUBS			
7427	Rosa multiflora Multiflora Rose	1/16"-1/8"cal	12.50/M	93.00
1017	Berberis julianae Wintergreen Barberry	2'-2½'	3.25	3305.25

TOTALS

Items	Sub-totals	Grand Totals
1. Trees and Shrubs	$10,536.00	
2. Transportation Costs	$ 1,501.00	
3. Special Equipment	$ 527.00	
4. Soil	$ 2,108.00	
5. Labor and Equipment	$10,536.00	
6. Contingencies	$ 527.00	
7. Overhead	$ 2,108.00	
8. Profit	$ 5,163.00	$30,978.00
Total	$30,978.00	
Installation of Grass	$39,974.00	
Grand Total		$70,952.00

EARTHWORK

QUAN.	ITEM	UNIT PRICE	SUB-TOTALS	GRAND TOTALS
59 Acres	General Cleaning & Grubbing	$400/acre	$23,600.00	
139,798cu.yd.	Earth Cut & Fill	$.70/cu.yd.	$97,859.00	
14,047cu.yd.	Topsoil Strip & Replace	$1.00/cu.yd.	$14,047.00	$135,506.00
			$135,506.00	

LANDSCAPE CONSTRUCTION

QUAN.	ITEM	UNIT PRICE	SUB-TOTALS	GRAND TOTALS
	CONCRETE			
2015 lin.ft.	Retaining Walls	$57.76/lin.ft.	$116,387.00	
21 pairs	Steps	$60.00/cu.yd.	$483,120.00	
25	Sitting Walls	$60.00/cu.yd.	$ 5,550.00	$606,399.00
11	Tree Sleeves	$122.00each	$ 1,342.00	
			$606,399.00	
	ASPHALT PAVEMENT			
236,140sq.ft.	Entrance Road & Parking Areas	.32/sq.ft.	$ 75,565.00	
82,056sq.ft.	Service Road & Primary Walk	.30/sq.ft.	$ 24,617.00	
7500 lin.ft.	Concrete Curb & Gutter	$2.50/lin.ft.	$ 18,750.00	$168,769.00
262,300sq.ft.	Asphalt Concrete Walks	.19/lin.ft.	$ 49,837.00	
			$168,769.00	

CONSTRUCTION

QUAN.	ITEM	UNIT PRICE	SUB-TOTAL	GRAND TOTAL
	FENCING			
9133 lin.ft.	Chain Link Fencing	$1.00/lin.ft.	$9,133.00	
96	Corner Posts	$10.00 each, inst.	$ 960.00	
				$11,348.00
11	12' Double Gates	$6.00/lin.ft.	$ 463.00	
			$11,348.00	

ITEM	TOTALS	GRAND TOTALS
1. Planting	$ 10,952.00	
2. Earthwork	$135,506.00	
3. Landscape Construction		
a) Concrete Structures	$606,399.00	
b) Asphalt Concrete Structures	$168,796.00	
		$922,022.00
c) Fencing	$ 11,348.00	
	$922,022.00	

GRAND TOTAL: $922,022.00

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