SB482.M5C65 1997 c.1

COLONIAL MICHILIMACKINAC STATE HISTORIC PARK: MICHILIMACKINAC OPEN SPACE SITE DESIGN AND IMPLEMENTATION

PROJECT NO. 96CE-9.01

COASTAL MANAGEMENT PROGRAM
LAND AND WATER MANAGEMENT DIVISION
DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE OF MICHIGAN

Submitted by
MACKINAC ISLAND STATE PARK COMMISSION
MACKINAC ISLAND, MICHIGAN

February 15, 1997

TOTAL PROJECT ..... $ 66,571.83

COASTAL MANAGEMENT PROGRAM ..... $ 27,354.28
(Provided by the Coastal Land Management Act of 1972 administered by the Office of Coastal Zone Management, Natural Oceanic and Atmospheric Administration.)

MACKINAC ISLAND STATE PARK COMMISSION ..... $ 39, 217.55

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Colonial Michilimackinac State Historic Park:
Michilimackinac Open Space Site Design and Implementation
Project No. 96CE-9.01

Final Report
by
David A. Armour, Deputy Director
Mackinac Island State Park Commission
Project Supervisor

Colonial Michilimackinac State Historic Park, a registered National Historic Landmark, is located on 25 acres of beach front in Mackinaw City at the Straits of Mackinac. Located at the northern tip of Michigan's Lower Peninsula this historic park is one of the most scenic and popular parks in the state. The park is bisected by the southern approach to the Mackinac Bridge. To the west of the bridge, 15 acres are managed as an historic site. The 10 acres of park east of the bridge includes the Old Mackinac Point Lighthouse and Fog Signal Station. Over 200,000 visitors annually enjoy picnicking, bridge viewing and strolling through the park.

This grant was to develop a site design for the 10 acres east of the historic area and to implement some of the design elements.

In order to select a professional landscape designer a Request for Proposals was sent out to a large number of designers. Five firms submitted proposals which were evaluated by a staff committee of the Mackinac Island State Park Commission. Based on a combination of experience and price the firm of Hansen Krueger Partnership of Dexter, Michigan, was selected.

The first step in the planning process was for the planners to visit the site to gather data for base maps of existing conditions. They also met with project director David Armour and park manager James Debelak to discuss a variety of landscape options. Based on these discussions a base map was prepared and some preliminary designs were developed. These plans addressed a number of concerns:

- Emphasize the beach front and utilize the existing concrete walkway.
- Eliminate the existing gravel roadways that had been installed when the park was utilized as a campground.
- Provide screen planting to soften or hide the visual impact of the adjacent motel, the restroom near the parking lot and the parking lot itself.

- Enhance the circulation pattern by providing a viewing area adjacent to the Visitor's Center and provide hard surface pedestrian routes along both sides of the parking lot to Straits Avenue.

- Provide shade trees in selected areas.

- Cut vistas to lighthouse and bridge to provide interesting views.

- Utilize low plantings to break up large grass areas into zones for picnicking, performing and a future pavilion.

- Determine the site for a handicapped telescope.

The preliminary plans were circulated widely to park staff for comment. They were also reviewed by officials of the Village of Mackinaw City which has a Heritage Pathway which traverses the park. Comments were received and the plans were then refined and finalized.

Specifications were set out for concrete walk, lawns and planting and planting details were provided. Based on the plans and specifications cost estimates were developed which totaled $233,000 to complete the items in the plan. These estimates will be very valuable in future planning and budgeting as the park is developed over the next several years.

Funds were available in this grant to undertake a limited number of the projects set out in the plan. Twenty wooden picnic tables were constructed in accordance with ADA standards and concrete wheel stops were purchased to define the edge of the parking lot. A special telescope for persons with disabilities was purchased and installed. The existing gravel pathways were dug up and the gravel hauled off site for reuse as pathway material at Historic Mill Creek State Park where a handicapped trail is being improved. Over 500 cubic yards of screened topsoil was used to fill in and level the former pathways and grass seed was planted to create a park lawn. A number of trees were cut down to create vistas and their stumps were removed.

In order to screen the unsightly restroom adjacent to the parking lot a raised wooden planting area was designed and constructed. Prior to its construction our Curator of Archaeology, Dr. Lynn Morand, tested the site for possible archaeological resources. All areas of ground disturbance for construction or tree planting are evaluated and monitored by Dr. Morand.

A boardwalk was designed along the west side of the parking lot leading to the restroom. The materials for the boardwalk were purchased but an early winter made it impossible to install the walkway in 1996. The walkway will be constructed with park personnel in the spring. The early winter also made it impossible to plant the trees and shrubs which were acquired with grant funds. These trees are under contract and will be planted in the spring. The areas to be planted are the items in the restroom planter and shrubs to screen the parking lot from the park.

Based on the landscape plan a grant totaling $8,880 was received from Detroit Edison to plant 30 clump birch, 16 maple, 10 oak and 4 white pine trees in the park area in the Spring of 1997.

In summary, the grant has resulted in a landscape master plan for the park east of the historic area and has made possible the initial projects to implement the plan. The plan has also helped to attract additional funds to further its implementation. As usual the Mackinac Island State Park Commission over-matched the project indicating our enthusiasm to carry out the exciting plan.

Financial Summary:

Salaries	$ 39,217.55
Supplies, Materials & Contracting	27, 354.28
TOTAL	$ 66,571.83

GENERAL NOTES

PAVEMENT REMOVALS

Parking lot (OPTION)
Remove Macadamia paving and base material. Scarify compacted subgrade. Replace paving with clean fill, lightly compacted, to within 4" of the surrounding grade. Retain with 4" of topsoil, spread, rolled, and overfilled slightly to allow for settling. Total topsoil 8" and over existing base. Seed.
Install temporary fencing at drip line to protect trees from compaction and mechanical damage by equipment during pavement removal and soil placement.

Gravel paths and drives
Scarify compacted gravel zones. Install clean fill to bring any depressions or irregularities up to grade, spread 4" topsoil over all bare areas, blending out into existing turf. Seed.

Fill zones
The main area to be filled is a depression between the sod embankments to the parking area near the lighthouse. Install clean fill to bring soil level to within 4" of the surrounding grade. Finish with 4" topsoil, spread beyond the fill zone to blend with the existing turf. Seed.

SITE FURNITURE AND DETAILS

Trash receptacles
Locate trash containers mainly in areas where small trash is generated, (picnic area, food concessions and vendor areas), near to trees or other features, and along walks near picnic and benches. Avoid visually confronting patrons on open lawn and places where they will intrude into the views. Place units in shrub plantings, where they will not need to be moved around. Periodically project be convenient and as visually unobtrusive as possible.

Benches
Locate permanent benches along the shoreline walk, where they will be shaded by trees, and along the lawn edges facing the park, backed into the existing tree edge. Install 3 to 4 benches under trees at the edge of the open area on the west side of the Lighthouse.

Signs and interpretive devices
Combine signs, interpretive and interpretive elements in groupings along the shoreline walks, to minimize the visual clutter of small elements along the Straits side of the park.

Picnic area furnishings
Restrict all picnic and outdoor cooking apparatus to the wooded area in the southwest area of the park. Install permanent grills in accessible safety design from trees and areas they will be shared alternatives to trees mowers. Provide receptacles containers for disposal of coals, secured in place within convenient distance of all grills, and clearly marked to differentiate them from the regular trash receptacles. Grills may be temporarily installed in the Cabin area designated for future construction at a park shelter building.

PLANTING

1. Use native species for all new trees and shrub plantings in the park. Select new tree plantings to match those already existing in different areas of the park.
2. Remove any trees which are damaged, weak, or diseased. Replace with species as noted for the several vegetation zones on the plan. Note that tree locations on the plan indicate only the general numbers and presence of pavement. The specific locations for all trees to be installed shall be staked on site.
3. Remove the bittersweet overgrown trees (primarily white spruce) from areas where they obscure views of the Bridge and Straits – especially from the south (Straits overlook) side of the park. Determine in the field the actual trees to be removed.
4. Install new tree plantings at large native deciduous species in the broad open zone south of the new shoreline walk, maintain trees with high percentage to filter views out to the Bridge and Straits from between the canopies.
5. Lift out shrub plantings in georgian groupings as indicated on the plan. Use 25 to 50+ shrubs of a type in each planting area. Several species, best not to overspread groups, may be used together. Incorporate existing trees within bed areas. Final quantities, placement and layout of shrub plantings shall be determined by staking in the field.
6. Install evergreen trees in varied sizes, positioning to approximate a natural grouping in hedge from older trees to young growth.

PLANTING SPECIFICATIONS

Birch Groves
Plantings, at four sizes: Betula papyrifera Paper Birch 12'-18' ht. clumps, BB

A-1 Maintain stand of hedges at west side of main entrance, connecting plantings across the walk to edge of parking lot and into right-of-way at end of ornamental wall. Options extend mown across area street median. Quantity: 20-30 trees

A-2 Add to existing birches along both sides of spectacle walk to create a grove east of Visitor Center overlook plaza. Quantity: 10-15 trees

A-3 Add to existing birches along lakeshore walk to create a linear grove which extends down along the entire wall of the motel to buffer views to the motel and its parking lot from inside the park. Quantity: 20-25 trees

A-4 Install small groups of birches around seating areas, placing them to frame views out to the Straits. Remove small trees from between the canopies. Quantity: 10-15 trees

A-5 Install birches along the west side of the Visitor Center to soften and buffer the west edge of the view out to the Bridge from the new Overlook. Please and deciduous some element of the park vegetation into the building setting. Quantity: 5 trees

Buffer/Screen Plantings

B-1 Shrub plantings to provide a visual separation between the parking lot and picnic area. Install curving linear beds (30'-50'), mostly on west side of walk. Select from:

Viburnum dentatum	Arrowwood Viburnum	4' ht.	BR
Viburnum lentago	American Cranberry	4' ht.	BR
Aronia melanocarpa	Black Chokeberry	3' ht.	BR
Cornus sericea	Redosier Dogwood	3' ht.	BR
Ilex verticillata	Winterberry	3' ht.	BR

B-2 Linear shrub beds along street parking edge. Vary length of beds 20'-50' leaving openings to provide entry into park. Plantings may spread to south side of grass in areas where there are trees on the right-of-way side of the walks. Shrubs to be two size (3'-5') to block views over. Select from:

Aronia melanocarpa	Black Chokeberry	3' ht.	BR
Cornus sericea	Redosier Dogwood	3' ht.	BR
C. s. flaviramea	Yellowtwig Dogwood	3' ht.	BR
Cotoneaster dielsianus	American Hippeas	3' ht.	BR

B-3 Mass planting of shrubs to buffer view to restroom building from lakeshore.

30	Viburnum dentatum	Arrowwood Viburnum	4' ht.	BR

B-4 Mass plantings along west side of park space to buffer view of motel wall. Install new evergreen and deciduous trees among existing plantings. Infill with native deciduous shrubs. Select from:

3-10	Pinus strobus	Eastern White Pine	6'/12' ht.	BB
5-10	Hamamelis virginiana	Common Witchhazel	8' ht.	BB
25-50	Aronia melanocarpa	Black Chokeberry	3' ht.	BR
25-50	Ilex verticillata	Winterberry	3' ht.	BR
25-50	Viburnum dentatum	Arrowwood Viburnum	4' ht.	BR

B-5 Mass shrub planting to enhance the bay view seat along the shoreline walk and define a secondary path out to lake edge. Mid height plantings at east end, grading to low shrub prairie around to the west. Select from:

25-30	Viburnum dentatum	Arrowwood Viburnum	4' ht.	BR
25-30	Ilex verticillata	Winterberry	3' ht.	BR
50-75	Cornus sericea	Red-osier Dogwood	3' ht.	BR
25-50	Hypericum kalmianum	Kalm's St. John's-wort	1' ht.	BR
50-75	Potentilla fruticosa	Shrubby Cinquefoil	1' ht.	BR
25-30	Juniperus horizontalis	Creeping Juniper	2' spr.	cont.

Shade Trees

C-1 Install high canopy native deciduous trees in random placement throughout open area south of lakeside walk. Select from:

Acer rubrum	Red Maple	3" cal.	BB
Acer saccharum	Sugar Maple	3" cal.	BB
Quercus rubra	Northern Red Oak	3" cal.	BB

Quantity: 15-20 trees

C-2 Install large fluted deciduous trees in median to extend woods canopy out into the space of the street. Select from:

Acer rubrum	Red Maple	3" cal.	BB
Quercus rubra	Northern Red Oak	3" cal.	BB

Quantity: 4-6 trees

Performance Area

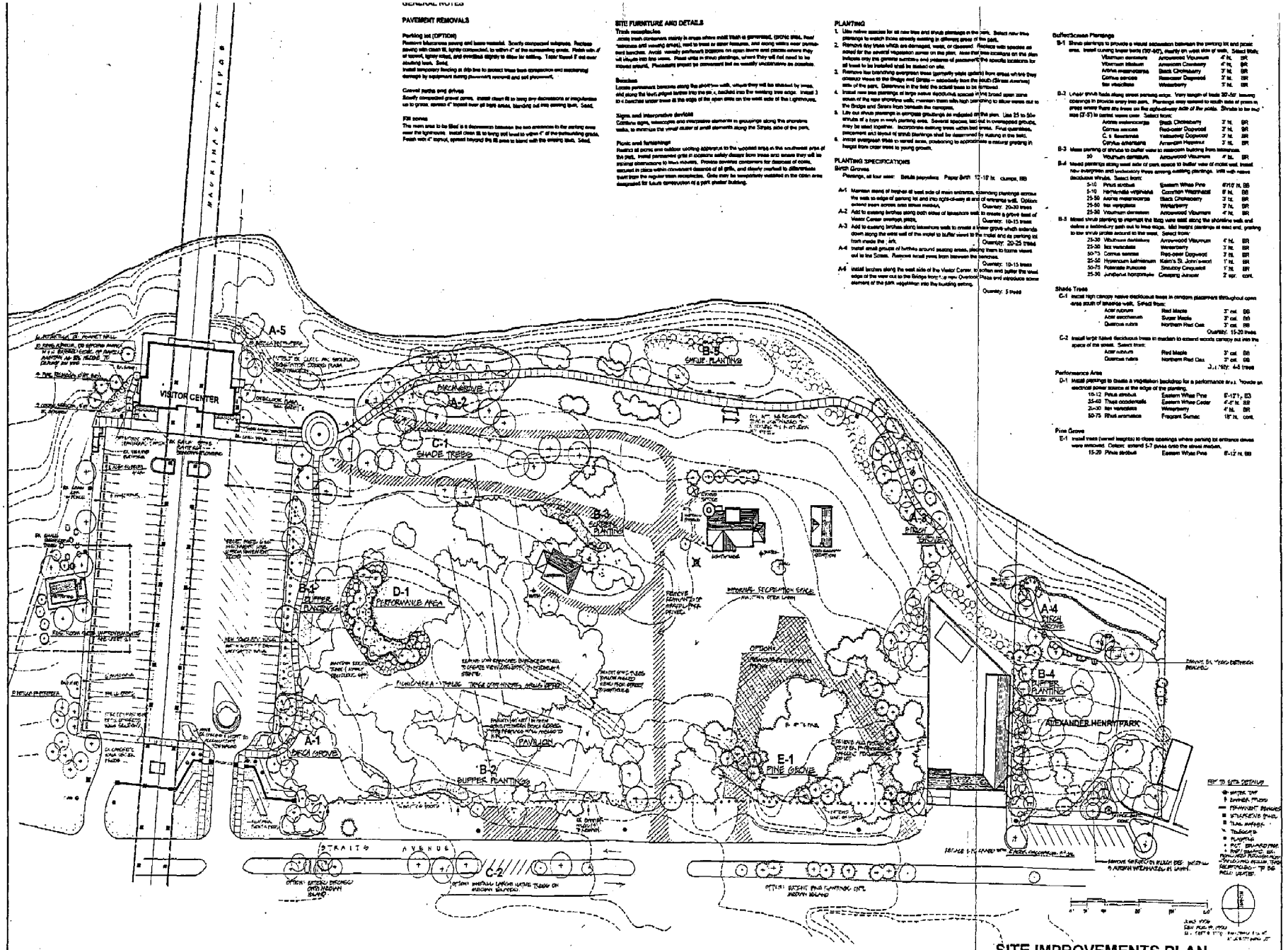
D-1 Install plantings to create a vegetation backdrop for a performance area. Provide an elevated power source at the edge of the planting.

10-12	Pinus strobus	Eastern White Pine	6'-12', BB
35-40	Thuja occidentalis	Eastern White Cedar	4'-6' ht.	BB
20-30	Ilex verticillata	Winterberry	4' ht.	BR
50-75	Rhus aromatica	Fragrant Sumac	18" ht.	cont.

Pine Grove

E-1 Install trees (varied heights) to close openings where parking lot entrance drives were removed. Option: extend 5-7 pines onto the street median.

15-20	Pinus strobus	Eastern White Pine	6'-12' ht.	BB

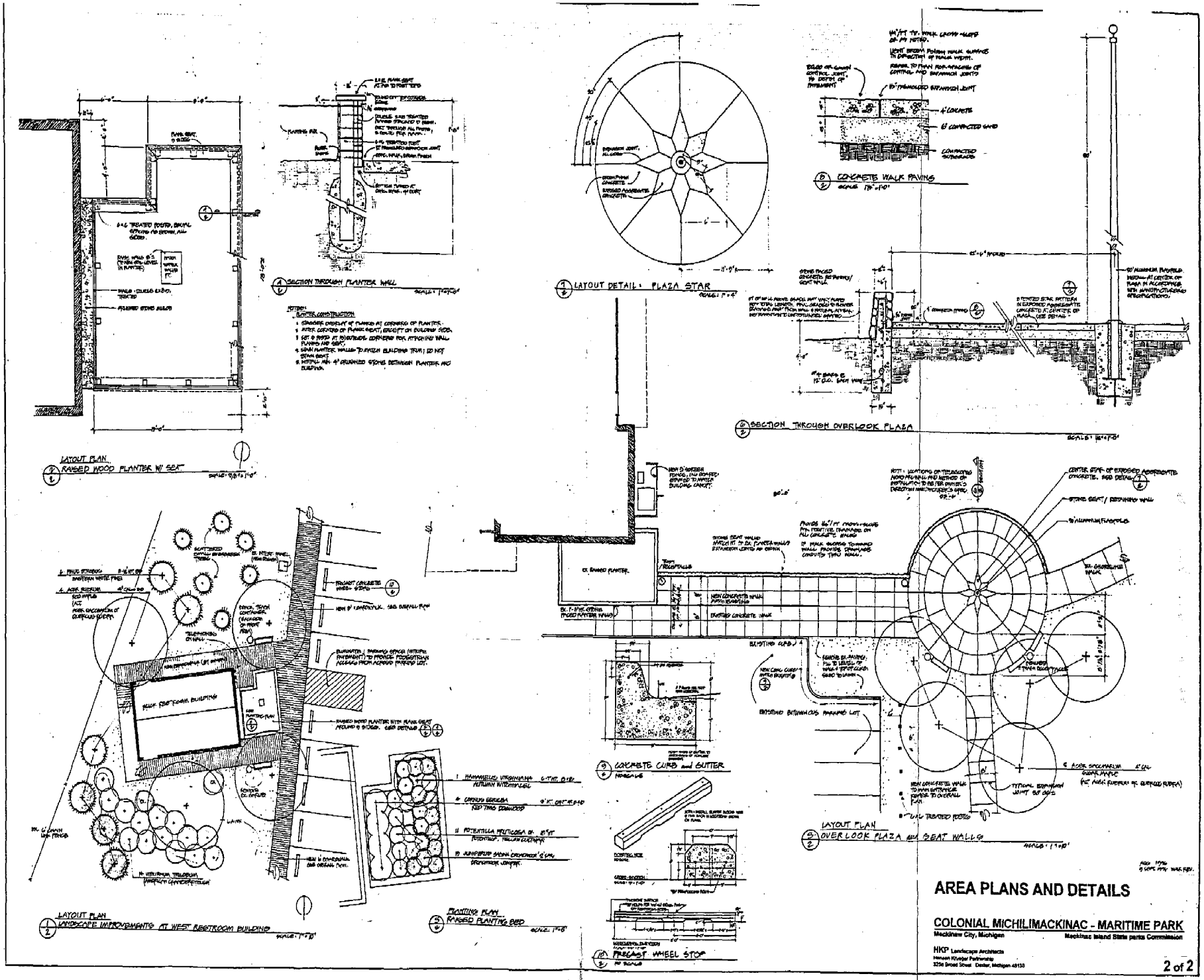


SITE IMPROVEMENTS PLAN

COLONIAL MICHILIMACKINAC - MARITIME PARK

Mackinaw City, Michigan — Mackinac Island State Parks Commission

HKP Landscape Architects
Hermann Kreiger Pennoyer
3258 Broad Street Dexter, Michigan 48130


LAYOUT PLAN
RAISED WOOD PLANTER W/ SEAT
SECTION THROUGH PLANTER WALL
LAYOUT DETAIL: PLAZA STAR
CONCRETE WALK PAVING
SECTION THROUGH OVERLOOK PLAZA
LAYOUT PLAN
LANDSCAPE IMPROVEMENTS AT WEST RESTROOM BUILDING
PLANTING PLAN
RAISED PLANTING BED
CONCRETE CURB and GUTTER
PRECAST WHEEL STOP
LAYOUT PLAN
OVERLOOK PLAZA AND SEAT WALLS
AREA PLANS AND DETAILS
COLONIAL MICHILIMACKINAC - MARITIME PARK
Mackinaw City, Michigan
Mackinac Island State parks Commission
HKP Landscape Architects
Hansen Klueger Partnership
3250 Broad Street Dexter, Michigan 48130
2 of 2

20 August 1996
Revised 23 September 1996

Construction Cost Estimate
Maritime Park Improvements
Colonial Michilimackinac
Mackinac Island State Parks Commission

Estimate Summary:

General Park Area (Page 2)	
Site Improvements	$32,000
Planting	65,500
Overlook Plaza (Page 3)	
Site Improvements	58,500
West Side Improvements (Page 4)	
Site Improvements	54,500
Planting (General Area)	6,500
Planting (Restroom Area)	6,000
Total	**$223,000**

Cost estimate is based upon plans developed by HKP Landscape Architects, dated 14 August 1996.

Cost estimate reflects 1996 contracted prices with a 15% contingency added to cover unforeseen or unresolved items.

General Park Area

Item		Quantity	Unit Cost	Total Cost
Site Improvements:				
Miscellaneous tree removals and pruning		Allow	$2,500.00	$2,500.00
Remove bituminous parking area		1,650 sy	2.50	4,125.00
Fill		400 cy	6.00	2,400.00
Timber posts		38 ea	50.00	1,900.00
Remove gravel drives		3000 sy	1.00	3,000.00
4" topsoil, fine grade, seed		5,000 sy	3.00	15,000.00
				28,925.00
			15% contingency	3,158.00
			total	32,083.00
			Say	**$32,000.00**
Plantings:				
A-1	Native Birch (12'-16' ht.)	25 ea	$250.00	$6,250.00
A-2	Native Birch	12 ea	250.00	3,000.00
A-3	Native Birch	22 ea	250.00	5,500.00
A-4	Native Birch	12 ea	250.00	3,000.00
A-5	Native Birch	5 ea	1,250.00	6,250.00
B-1	Deciduous BR shrubs (4' ht.)	75 ea	15.00	1,125.00
	Deciduous BR shrubs (3' ht.)	85 ea	10.00	850.00
B-2	Deciduous BR shrubs (3' ht.)	160 ea	10.00	1,600.00
B-3	Deciduous BR shrubs (4' ht.)	50 ea	15.00	750.00
B-4	Evergreen trees (6'-10' ht.)	8 ea	320.00	2,560.00
	Deciduous BB shrubs (6' ht.)	8 ea	75.00	900.00
	Deciduous BR shrubs (4' ht.)	25 ea	15.00	375.00
	Deciduous BR shrubs (3' ht.)	75 ea	10.00	750.00
B-5	Deciduous BR shrubs (4' ht.)	25 ea	15.00	375.00
	Deciduous BR shrubs (1'-3' ht.)	175 ea	10.00	1,750.00
	Evergreen shrubs (2' spr.)	25 ea	18.00	450.00
C-1	Deciduous canopy trees (3" cal.)	18 ea	400.00	7,200.00
C-2	Deciduous canopy trees (3" cal.)	5 ea	400.00	2,000.00
D-1	Evergreen trees (6'-12' ht.)	12 ea	330.00	3,960.00
	Evergreen shrubs (4'-6' ht.)	40 ea	25.00	1,000.00
	Deciduous BB shrubs (4' ht.)	25 ea	20.00	500.00
	Deciduous BB shrubs (2' ht.)	65 ea	15.00	975.00
E-1	Evergreen trees (6'-12' ht.)	18 ea	330.00	5,940.00
				57,060.00
			15% contingency	8,559.00
			total	65,619.00
			Say	**$65,500.00**

Overlook Plaza

Item	Quantity	Unit Cost	Total Cost
Site Improvements:			
Remove bituminous pavement	50 sy	$2.50	$112.00
Concrete walk (4") building to plaza	640 sf	3.50	2,240.00
Concrete walk (4") plaza	1,525 sf	3.50	5,338.00
Concrete walk (4') plaza to parking entrance	2,160 sf	3.50	7,560.00
Exposed aggregate concrete, flagpole area	65 sf	10.00	650.00
Retaining/seat wall (stone faced)	142 lf	200.00	28,400.00
Concrete curb	28 lf	15.00	570.00
Wood screen fence (5' ht.)	25 lf	Allow	800.00
Flagpole (30' aluminum)	1 ea	2,500.00	2,500.00
Benches	3 ea	500.00	1,500.00
Trash receptacles	4 ea	300.00	1,200.00
			50,870.00
		15% contingency	7,630.00
		Total	**$58,500.00**

West Side Improvements

Item	Quantity	Unit Cost	Total Cost
Site Improvements:			
Concrete walks (4")	720 sf	$3.50	$2,520.00
Wood deck (board walk on grade)	3,040 sf	12.00	36,480.00
Wheel stops	28 ea	35.00	980.00
Wood walled planter w/ plank seat	Allow	5,000.00	5,000.00
Miscellaneous striping, utility adjustment	Allow	500.00	500.00
Benches	2 ea	500.00	1,000.00
Trash receptacles	2 ea	300.00	600.00
			$47,080.00
		15% contingency	7,062.00
		total	$54,142.00
		Say	**$54,500.00**
Planting (General Area):			
Acer rubrum (4" cal.)	2 ea	$600.00	$1,200.00
Native Birch (12'-16' ht.)	10 ea	250.00	2,500.00
Pinus resinosa (10' ht.)	4 ea	350.00	1,400.00
Deciduous BB shrubs	25 ea	20.00	500.00
			5,600.00
		15% contingency	840.00
		total	$6,440.00
		Say	**$6,500.00**
Planting (Restroom Area):			
Acer rubrum (4" cal.)	4 ea	$600.00	$2,400.00
Pinus strobus (8'-12' ht.)	6 ea	350.00	2,100.00
Deciduous BB shrub (6'-7' ht.)	1 ea	100.00	100.00
Deciduous BB shrubs (2'-3' ht.)	15 ea	20.00	300.00
Evergreen shrub (2' spr.)	13 ea	18.00	234.00
			5,134.00
		15% contingency	770.00
		total	$5,804.00
		Say	**$6,000.00**

Specifications

for

COLONIAL MICHILIMACKINAC MARITIME PARK

Mackinaw City, Michigan

Mackinac Island State Parks Commission

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Section 02930-Planting	7 Pages

Planting Details

- Deciduous Tree Planting
- Evergreen Tree Planting
- Flowering Tree Planting
- Multi stem Tree Planting
- Tree staking and Guying
- Tree Pruning
- Shrub Planting - Single
- Shrub Planting - Bed
- Typical Plant Spacing
- Groundcover/Perennial Planting

Prepared by:

HKP Landscape Architects
Hansen Krueger Partnership
3258 Broad Street
Dexter, MI 48130

MARITIME PARK

SECTION 02510 - CONCRETE WALKS

PART ONE - GENERAL

1.01 SUMMARY

A. Section includes concrete walks and base slabs as indicated on drawings and specified herein.

1.02 JOB CONDITIONS

A Examine work in place on which this work is dependent. Defects which may influence satisfactory completion and performance of this work shall be corrected in accordance with the requirements of the applicable section of work prior to commencement of the work.

B. Protect the work and adjacent work against damage during progress of the work. Construction equipment which will damage existing or new pavement shall not be used.

PART TWO - MATERIALS

2.01 CONCRETE

A. Coarse aggregate shall comply with ASTM C33 Class Designation 4S except that the sum of clay lumps, friable particles and chert shall be less than 4 percent.

B. Ingredients shall be proportioned to produce homogeneous concrete which will attain the required strength, durability, resistance to deterioration and abrasion, water tightness, appearance, and other specified properties.

C. Minimum compressive strength at 28 days shall be 3,500 psi, 5.5% +/- 1-1/2% air entrainment, 3" Maximum slump.

2.02 REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Welded Wire Fabric: ASTM A 185, welded steel wire fabric

2.03 EXPANSION JOINT

A. Preformed expansion joint fillers shall be bituminous fiber type conforming to ASTM D 1751.

2.04 CURING COMPOUND

A. Membrane Forming Curing Compound: ASTM C 309, Type 1 (clear).

PART THREE - EXECUTION

3.01 INSPECTION

A. Examine subgrade which shall have walks placed for improper grade, poor compaction, or other conditions which will adversely affect execution or quality of the work.

B. Do not place concrete until conditions are satisfactory.

3.02 PREPARATION

A. Setting Forms

1. Compact subgrade under forms and cut to grade so that form, when set, will be uniformly supported for its entire length.

2. Firmly stake forms to the required line and grade; join forms neatly and in such a manner that joints are free from play or movement in any direction. For sidewalks, arrange forms to provide cross-slope as indicated.

3. Set forms at least one day's construction ahead of the actual placing of concrete. Supply of forms shall be sufficient to permit forms being kept in place for at least 12 hours after concrete has been placed. Clean and oil forms before each use.

B. Before Placing Concrete

1. Maintain finished subgrade in a smooth and compacted condition until concrete has been placed.

2. When the mean daily temperature is less than 35 degrees F., protect the subgrade from freezing.

3. Immediately prior to placement of concrete, test subgrade for conformity with indicated cross section by means of an approved template riding on side forms. If necessary, remove or add material as required to bring all portions of subgrade to correct elevation. Concrete shall not be placed on any portion of subgrade which has not been tested for correct elevation. Clear subgrade of loose material which may have fallen upon it. Subgrade shall be damp, but not saturated with water.

3.03 INSTALLATION

A. Expansion Joint

1. For unsealed joints, the expansion joint filler strip shall be installed 1/8 inch below the finish surface of the walk.

2. Provide 1/2 inch thick expansion joints at all points of contact with fixed objects, such as building, curbs, pavement, poles, signs and hydrants, at intervals not exceeding 30 feet, or as indicated.

B. Placing Concrete

1. Place concrete only on a moist compacted base.

2. Deposit concrete so as to require as little re handling as practicable. Placing shall be continuous between transverse joints or in individual sections of the work.

3. Spade concrete thoroughly along forms and expansion joints, and work carefully into corners and around reinforcement. Tamp and screed to a dense mass.

4. Vibrators may be used provided they are operated under experienced supervision and forms are constructed to withstand their action.

5. Walks shall be one-course concrete of widths and depth, and cross-sloped as indicated.

6. Place wire fabric reinforcement in walks where indicated.

7. Walks shall be continuous between expansion joints. After initial placement of concrete, bring surface of concrete to proper section guided by forms.

8. Finish surface of walks and steps to grade and cross section by floating. After floating, trowel the surface smooth and edge all edges and joints.

C. Control Joints

1. Provide control joints in concrete walks to form panels of sizes indicated. Control joints shall be at right angles to, and parallel to, building lines or to patterns indicated on drawings.

2. Control joints in walks shall be 1/4 inch wide by approximately one-fifth the depth of walk.

3. Form control joints in walks by tooling or by inserting a pre-molded or metal strip finished flush with surface when concrete is placed. After the concrete has cured for a period of not less than one week, remove inserts and clean joints. Joints may be formed by sawing as soon as the concrete has hardened sufficiently to prevent raveling of the concrete at edges.

D. Concrete Finish

1. After walk surface has been brought true to grade and cross section by floating, finish surface of walks with a coarse hair push broom drawn over the surface transverse to the line of traffic. Take care that concrete surface does not ravel or ball during brooming.

2. Broom out smooth margin of edging tool at joints and slab edges.

3. Finish surface of walks to grade and cross section by floating. After floating, trowel the surface smooth and round edges with an edging tool having a radius of 1/4 inch. Then finish with a fine hair push broom drawn over the surface transverse to the line of traffic.

3.04 CURING

A. Liquid membrane curing compound shall be applied to cover surface completely and uniformly at a rate which will achieve the performance requirement specified in AASHTO Specification M148. Apply membrane curing compound immediately behind final finishing operation. Failure to provide complete and uniform coverage at required rate will be cause for rejection of all concrete so affected. Take special care to apply curing compound to pavement and walk edges immediately after forms have been removed.

B. The curing shall continue until the cumulative number of hours or fractions thereof during which temperature of the air in contact with the contract is above 50 degrees F. has totaled at least 168 hours. Rapid drying at the end of the curing period shall be prevented.

3.05 CLEANING

A. Concrete spilled on the pavement or structures shall be removed, and the pavement or structures thoroughly cleaned before the concrete sets. Spilled concrete shall not be washed into sewers or drains. Restore the site of the work to a neat and sightly appearance, including removal of excess materials, forms, and equipment.

END OF SECTION 02510

MARITIME PARK

SECTION 02920 - LAWNS

PART ONE - GENERAL

1.01 SUMMARY

A. Section includes: Lawn work including spreading of topsoil, finish grading, seeding and maintenance operations as indicated on plans and as specified herein.

1.02 FINAL ACCEPTANCE

A. General: Final inspection and acceptance will be at the end of the turf establishment period. Acceptance will be based upon a satisfactory stand of turf having l00 percent ground cover of species established.

B. Areas which do not meet the contract requirements shall be resodded or resodded. Repair rejected areas of turf within acceptable planting dates as directed by The Owner.

PART TWO - MATERIALS

2.01 TOPSOIL

A. Topsoil shall be a fertile, friable, sandy-loam surface soil without admixture of subsoil and free of roots, trash, debris and other materials deleterious to plant growth. The pH range shall be 6.5 to 7.5. Organic content shall not be less than 3 percent and not greater than 10 percent. Clay content shall range from 5 percent to 15 percent.

2.02 SEED

A. Lawn seed shall be fresh, clean, dry new-crop seed composed of varieties, mixed in proportions, and tested for minimum percentages of purity and germination as follows by weight.

Variety	By Weight	Purity	Germination
Kentucky Bluegrass	30	90	80
Perennial Ryegrass	30	98	90
Creeping Red Fescue	40	95	90

Maximum weed content shall be 0.30 percent.

2.03 MULCHES

A. Straw

1. Provide stalks from oats, wheat, rye, barley or rice that are free of weeds, mold or other objectionable material.

2. Straw shall be air dry condition and suitable for placing for placing with commercial mulch blowing equipment.

B. Cellulose Fiber (For hydroseeding)

1. Provide cellulose fiber for use with hydraulic application of grass seed and fertilizer consisting of specially prepared wood cellulose fiber, processed to contain no growth or germination-inhibiting factors, and dyed an appropriate color to facilitate visual metering of the application of materials. On an air-dry weight basis, provide wood cellulose fiber containing not more than 12 percent moisture, plus or minus three percent at the time of manufacture, with a pH range from 3.5 to 5.0. Provide wood cellulose fiber manufactured so that:

a. After addition and agitation in slurry tanks with fertilizers, grass seeds, water and other approved additives, the fibers in the material will become uniformly suspended to form a homogeneous slurry.

b. When hydraulically sprayed on the ground, the material will form a blotter like cover impregnated uniformly with grass seed.

c. The cover will allow the absorption of moisture and allow rainfall or applied water to percolate to the underlying soil.

2.04 TACKIFIER

A. Binding agent used to hold mulch material in place shall be a clear non-staining latex based tackifier or water-soluble polymer such as Curasol, Terra Tack or Fibrex Spray Sod.

2.05 FERTILIZER

A. Fertilizer shall be a complete fertilizer, part of the elements of which are derived from organic sources. The percentages by weight shall be 10-10-10 or as determined by soil tests.

B. Fertilizer to be delivered in manufacturer's original unopened containers bearing the manufacturer's guaranteed analysis. Store in a dry location.

PART THREE - EXECUTION

3.01 FINISH GRADING

A. Subgrade Preparation

1. Maintain rough grades in the areas to be topsoiled in a uniform condition so as to prevent future depressions. Prior to placing topsoil, repair disturbances to previously graded areas, remove surplus subgrade material associated with any landscape construction. Scarify areas to a depth of l2 inches prior to topsoil placement. Scarifications to have a maximum 2-foot separation and be cut in two directions, one perpendicular to the other.

B. Placing Topsoil

1. Uniformly distribute topsoil on lawn areas in quantity sufficient to provide full depth of soil after compaction and finish grading indicated on the drawings. Topsoil shall be spread, cultivated and lightly compacted to prevent future settlement, dragged and graded to finished grade.

2. Topsoil, when placed, shall be dry enough so as not puddle or bond. Do not place topsoil when the subgrade is frozen, excessively wet, extremely dry or in a condition otherwise detrimental to proper grading or lawn operation.

C. Finished Grades

1. Finished grades shall slope to drain, be free of depressions or other irregularities after thorough settlement and compaction of soil, and shall be uniform in slope between grading controls and the elevations indicated.

2. Finished grade for lawn areas shall meet existing grades at contract limits and be one-half inch below top of curbs and walk paving.

3. Topsoil for seeded lawns shall be graded to within one-half inch below finished grade.

4. Topsoil for sodded lawns shall be graded to 1-1/2 inches below finished grade.

3.02 LAWN INSTALLATION

A. Grade Preparation

1. Immediately before or sodding, scarify, loosen, float and drag topsoil as necessary to bring it to the proper condition. Remove foreign matter larger than one inch in diameter.

2. If the prepared grade is eroded or compacted by rainfall prior to fertilizing, rework the surface as specified.

B. Fertilizing

1. Uniformly distribute fertilizer by mechanical means at the rate of 20 pounds per 1,000 square feet or as determined by soil tests.

2. Work fertilizer into the top 3 inches of soil. Cultivating equipment shall be set so that the fertilizer will not penetrate into the soil more than 3 inches. Do not apply fertilizer when there is a possibility of rain before lawn areas can be seeded or sodded.

3.03 SEEDING

A. Sow seed during the months of April, May, August and September, unless otherwise approved by the Owner's representative. Do not sow seed when weather conditions are unfavorable, such as during drought or high winds.

B. Perform drill seeding using approved equipment such as cultipacker seeders and grass seed drills.

C. Drill the seed uniformly to an average depth of one-half inch and at a rate of 3 pounds per 1,000 square feet. All Areas shall be seeded in at least two directions. Turfgrass seeds shall not be covered by more than one-fourth inch of soil. The seeding device shall lightly roll the seed bed to provide good moisture contact between the seed and soil.

D. Water thoroughly and immediately with a fine mist until soil is soaked to a depth of 3 inches. Maintain soil in a moist condition until seeds have sprouted and reached a height of one inch. Water thereafter at least once every 14 days unless natural rainfall has provided equivalent watering.

E. Spread mulch evenly at the rate of 1-1/2 tons per acre. Place all mulch on given areas within 48 hours after seeding. A mechanical blower may be used to apply mulch material, provided the machine has been specifically designed and approved for this purpose. Anchor the mulch by either using a light serrated disc or by spraying tackifier. If tackier is used, it may be applied either simultaneously or in a separate application. Take precautionary measures to prevent tackifier materials from marking or defacing structures, pavements, utilities or plantings.

3.04 HYDROSEEDING (WET APPLICATION METHOD)

A. Apply seed and fertilizer by spraying them on the previously prepared seed bed in the form of an aqueous mixture and by using the methods and equipment specified. The rate of seed application shall be four pounds per 1.000 square feet. Apply the seed, fertilizer and water mixture at a rate not less than 1.000 gallons per acre.

B. Water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances at all times. Identify to the Owner's representative all sources of water at least two weeks prior to use. The Owner's representative, at this direction, may take samples of the water at the source or from

the tank at any time and have a laboratory test the samples for chemical and saline content. Use no water from a source which is disapproved by the Owner's representative following such tests.

C. Mixtures shall be constantly agitated from the time they are combined until they are finally applied to the seed bed. Once combined, mixtures shall be used within eight hours; portions not used within 8 hours shall be wasted and disposed of at locations acceptable to the Owner's representative.

D. Direct application nozzle sufficiently upward so that the mixture falls to the ground in a uniform shower. Never direct spray toward the ground in a manner that produces erosion or runoff.

E. Apply uniformly and at the prescribed rate, avoiding misses and overlapped areas, gauging quantities of mixture to measured application areas. Checks on the rate and uniformity of application may be made by observing the degree of wetting or by distributing test sheets and observing the quantity of material deposited thereon.

F. The spray method shall not be used during times of high winds.

G. Seed and commercial fertilizer applied by the spray method need not be raked into the soil.

H. Mulch all seeded areas at the following rates and stabilize with tackifier at rate recommended by the manufacturer.

1. Straw at two tons per acre.

2. Wood cellulose at 1,500 pounds per acre.

3.07 CLEANING, REMOVAL AND REPAIR

A. Paved areas over which hauling operations have been conducted shall be kept clean. Promptly remove materials spilled on pavement.

B. Upon completion of lawn installation, remove from the site and legally dispose of the following:

1. Surplus subgrade material.

2. Stone and foreign matter.

C. Excess topsoil not required for lawns or planting shall be stockpiled on site for future use as directed by the Owner's representative.

D. Repair existing lawns damaged by operations under the contract. Repair shall include finish grading, seeding as required to match existing grade and lawn, and maintenance of repaired areas.

3.08 MAINTENANCE

A. Maintain lawns for at least three mowings after installation or until the substantial completion inspection of the entire landscape, whichever is greater. Maintenance to include watering, weeding, reseeding, resodding, mowing, trimming and edging. Each mowing shall occur when the grass has reached a height of 3-1/2 inches. Mow to a height of 2 inches. Sodded areas shall be rolled with a 200-pound roller within 30 days after installation.

B. Fill any depressions or settlement that occurs within 90 days following installation. Reseed or resod as directed by the Owner's representative, bare spots which occur during the maintenance period.

C. Keep lawns clean and protected from damage during the maintenance period. Debris which accumulates shall be removed from the site. Promptly repair damaged lawns except those damaged by major storms.

D. Irrigate as required to supplement natural rainfall so that all lawn areas receive sufficient water for normal plant growth. Furnish all irrigation equipment needed for watering and be responsible for securing adequate supply of water.

E. Refertilization shall be repeated after the first two lawn mowings have been made or as otherwise directed by the Owner's representative. Use the same analysis commercial fertilizer as required by soil test, applied at 0.5 pounds of actual nitrogen per 1,000 square feet.

END OF SECTION 02920

MARITIME PARK

SECTION 02930 - PLANTING

PART ONE - GENERAL

1.01 SUMMARY

A. Section Includes: Plant materials, installation, soil treatments and plant maintenance as indicated on drawings and specified herein.

1.02 QUALITY ASSURANCE

A. Certification: All landscape materials shall be from stock inspected and certified by authorized governmental agencies. The stock shall comply with governmental regulations prevailing at the supply source and the job site.

B. Plant material selection: Prior to digging and shipment by the nursery, plant materials may at the Owner's option be tagged for inspection and approval by the Landscape Architect. Notify the Landscape Architect of tagged material locations at least four weeks prior to digging.

C. Substitutions: If specified landscape material is not obtainable, notify the Landscape Architect, who will identify alternate sources or substitutes. Adjustments will be made at no additional cost to the Owner.

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Shipping shall be scheduled to minimize on site storage of plants.

B. Labels: Clearly identify plants with legible labels stating correct name and size of plant securely attached to individual plants or to bundles of like variety and size.

C. During shipment, plants shall not be bent, stacked, or bound in a manner that damages bark, breaks branches, deforms root balls, or destroys natural shape.

D. Transport plant material in closed vehicles or in open vehicles with the entire load properly covered for protection from drying winds, heat, freezing or other exposure that may be harmful.

E. If delays beyond the Contractor's control occur after delivery, plants shall be kept watered and protected from sun, wind, and mechanical damage; root balls shall be covered with topsoil or mulch.

F. Handle plants at all times in accordance with the best horticultural practices. Lift B&B materials from the bottom of the ball only. Balled and burlapped plants which have cracked or broken balls are not acceptable and shall not be planted.

1.05 JOB CONDITIONS

A. Prior to beginning work, examine and verify the acceptability of the job site and notify the Landscape Architect of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected or resolved.

B. Where planting occurs in close proximity to other site improvements, provide adequate protection to all features prior to commencing work. Any items damaged during planting operations shall be promptly repaired to their original condition at no cost to the Owner.

C. Utilities: Have all underground utilities located by servicing agencies. In the vicinity of utilities, hand excavate to minimize possibility of damage to underground utilities.

D. Excavation: When conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions, or obstructions, notify Landscape Architect before planting.

E. Planting Season: Install plants during planting seasons normally recognized in the job locality for the species being utilized.

1.06 GUARANTEE

A. General

1. Warrant all plant material to be true to botanical name, specified size.

2. After receiving a Notice of Provisional Acceptance, all plant materials shall be maintained in vigorous condition and warranted against defects including death, improper maintenance, and unsatisfactory growth for the following time periods.

a. 15 October, one year after fall plantings
b. 15 June, one year after spring plantings

3. The Contractor will not be responsible for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents beyond Landscape Installer's control which result from floods, lightning, storms, freezing rains, or winds over 60 miles per hour, fires, or vandalism.

B. Replacements

1. During the warranty period, replace at no additional expense to the Owner, plant materials that are dead or that are, in the opinion of the Landscape Architect, in an unhealthy or unsightly condition, or that have lost their natural shape due to dead branches, excessive pruning, or inadequate or improper maintenance. Remove from the site and legally dispose of rejected plant material.

2. Only one replacement of any plant is required after Provisional Acceptance, except for losses or replacements due to failure to comply with specified requirements.

3. Replacement plants and planting operations shall be accordance with the original specifications. Make replacements no later than the next succeeding planting season. Fully restore areas damaged by replacement operations.

4. If, in the opinion of the Landscape Architect, it is advisable to extend guarantee for a second growing season, an inspection at the end of extended guarantee period will be made to determine acceptability of the items involved.

PART TWO -PRODUCTS

2.01 MATERIALS

A. Plant Materials

1. Plant materials shall be true to name and variety described in "Hortus Third", Cornell University, l976, or by cultivars generally accepted in the trade.

2. All planting stock shall be nursery-grown in accordance with good horticultural practice. Plants shall be free of disease, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement. They shall be well-formed, free from irregularities, with the minimum quality conforming to American Standard for Nursery Stock.

3. Plants indicated as specimen shall be exceptionally heavy, symmetrical, and tightly knit, cultured, to be unquestionably superior in form, branching, compactness, and symmetry.

4. All plant dimensions shall conform to those listed in ANSI A60.1, American Standard for Nursery Stock.

5. Root Treatment: Root treatments on all plants shall conform to the requirements of ANSI Z60.1.

a. Balled and burlapped ("B&B") plants shall have a firm, natural ball of earth of sufficient diameter and depth to encompass the fibrous and feeding root systems necessary for full recovery of the plant. Balls shall be securely wrapped with burlap and bound with cord. Ball sizes shall meet the requirements of the ANSI Z60.1.

b. Plants furnished in containers shall have the roots well established in the soil mass and shall have grown in the container for at least one growing season. Containers shall be large enough to provide earth-root mass of adequate size to support the plant tops being grown. Plants, other than groundcovers, over-established in the container, as evidenced by pot-bound root ends, will not be accepted.

c. Bare root plants shall have a root spread sufficient to isure full recovery and development of the plant. Take care to avoid injury to or removal of fibrous roots. Carefully protect roots with wet straw, moss, or other materials so that the plants arrive with their roots in a moist and healthy condition. Remove broken and injured roots prior to planting.

6. Plant materials shall be subject to final approval by the Landscape Architect at the site before installation.

B. Topsoil shall be a fertile. friable, sandy-loam surface soil without admixture of subsoil and free of stones, roots trash, debris and other materials deleterious to plant growth. The pH range shall be 6.5 to 7.5. Organic content shall not be less than 3 percent and not greater than 10 percent. Clay content shall range between 5 to 15 percent.

C. Soil Amendments

1. Peat shall meet the requirements of Federal Specification Q-P-166E, Type II.

2. Superphosphate shall be composed of finely ground phosphate rock, as commonly used for agricultural purpose, containing not less than 15 percent available phosphoric acid.

3. Granular fertilizer shall conform to Fed. Spec, Q-F241, Type I, Level B, and shall bear the manufacturer's guaranteed statement of analysis. Fertilizer analysis to be 10N-10P-10K, or as determined by Landscape Architect upon receipt of soil test results.

D. Mulch material shall be finely shredded and processed composted bark, free from other foreign material.

2.02 SOIL MIXES

A. Standard planting backfill shall be topsoil mixed with 3 lbs. superphosphate per cubic yard of soil.

B. Ground cover beds shall receive 2 inches of peat rototilled into the upper 6 inches of soil.

PART THREE - EXECUTION

3.01 PREPARATION

A. Layout: Individual plant locations shall be staked on the project site by the Contractor and approved by the Landscape Architect before any planting pits are dug. The Landscape Architect reserves the right to adjust plant material locations to meet field conditions, without additional cost to the Owner.

3.02 PLANTING

A. Excavation

1. Rocks and other underground obstructions shall be removed to a depth necessary to permit proper planting. If underground utilities or other structural obstructions are encountered, alternate planting locations will be determined by the Landscape Architect.

2. Planting pits shall be round, with vertical sides and flat bottoms, and sized in accordance with outlines and dimensions shown on the drawings. Loosen or scarify in the bottom of all plant pits to a depth of 4 inches.

B. Planting

1. Balled and burlapped plants: Place a minimum of 4 inches of compacted planting mixture in the bottom of the pit or to depth necessary to set the plant to required grade. Set the plant in the pit to the proper grade and position, faced to give the best appearance or relationship to one another and adjacent structures. Cut away burlap, rope, wire, or other wrapping materials from the top 1/3 of the ball and remove from pit. Do not remove burlap or ties from sides or bottom of ball. If plastic wrap or other non-degradable materials are used in lieu of burlap, completely remove them before placing of backfill. Cleanly cut off broken or frayed roots. Place planting mixture around the ball and carefully compact to avoid injury to the roots and to fill the voids. After backfilling planting pit approximately two-thirds full, add water and allow planting mixture to settle. After the water has been absorbed, fill the planting pit with planting mixture and tamp light to grade and form a watering basin of the size indicated.

2. Plant container-grown stock as specified above for balled and burlapped plants and as modified herein. Remove containers before planting and sever the sides of root ball in several places, loosening the roots on the outside of the ball sufficiently to encourage rapid root extension into the surrounding soil and to prevent girdling of root mass.

3. Bare root stock shall be planted so that the roots are arranged in a natural position. Remove damaged roots with a clean cut. Planting soil mixture shall be carefully worked in among the roots. Remainder of backfill of planting soil mixture shall be tamped and watered as above. Earth saucers shall then be formed around isolated plants.

C. Fertilizing: Amend all planting backfill and bed mixes at rates specified under Section 2.02.

D. Mulching: Mulch plant beds, except ground cover, and tree and shrub planting pits to a uniform depth of 2 inches. Keep mulch out of the crowns of shrubs and off buildings, sidewalks, light standards, and other structures.

E. Pruning

1. General: After planting, prune the branches of deciduous stock to balance the loss of roots in such manner as to retain the natural form of the plant type. Pruning shall be done by workmen experienced in this type of work. Remove trimmings from the site.

2. Trees: Prune trees by removing all dead wood, badly formed, interfering limbs, and sufficient other growth to insure healthy and symmetrical growth of new wood. Up to one-third of the branches may be removed. The proportion is, in all cases, subject to the approval of the Landscape Architect. In the case of multiple leaders, preserve the one which will best promote the symmetry of the tree, and remove or cut back the remainder so that they will not compete with the selected leader. Cut back surrounding top branches to conform to the leader.

3. Shrubs: Prune shrubs by removing all dead wood and broken branches, thinning out canes and cutting back or removing unsymmetrical branches. Pruning shall result in a loose outline conforming to the general shape of the shrub type. Do not use hedge trimmers or shears.

F. Wrapping: Wrap the trunks of broadleaf trees immediately after planting but not before the condition of the trunks has been inspected and approved. Wrap trees beginning at the base and extending to the first branches. Apply wrap in a spiral manner with an overlap of one-half the width of the paper. Securely tie wrapping at the top and bottom and at 18-inch maximum intervals with twine.

G. Guying and Staking: Complete guying and staking immediately after planting. Stakes and guys shall be removed by and become the property of the Contractor at the end of the warranty period.

H. Maintenance

1. Planting maintenance shall begin immediately after each plant is installed and shall continue as required until final acceptance at the end of the Guarantee Period.

2. Inspect plants at least once per week during the installation period and perform needed maintenance promptly.

3. Irrigate all plants adequately to maintain optimum supply of moisture within the root zone. If the irrigation system is inoperative, hand watering shall be accomplished from a source approved by the Landscape Architect. Water shall not be applied with a force that will displace mulch or cause soil erosion and shall not be applied so quickly that it cannot be absorbed by the mulch and plants.

4. Prune plants and replace mulch as required.

5. Stakes and guys shall be adjusted or replaced as required. Repair eroded or damaged plant saucers.

6. Maintain all plant beds and saucers weed free. Grass and weeds shall not be allowed to reach a height of 3 inches before being completely removed, including root growth.

7. Keep plants free of insects and disease. All insecticides and fungicides applied to control pests and maintain plants in a healthy growing condition shall be approved by the Landscape Architect.

8. Fertilize plants at least once during the period of establishment between the dates of 1 February and 15 March. Fertilization shall be applied by top dressing 1 pound per l00 square feet of plant pit or bed area. Formula for the application shall be 1ON-IOP-10K.

9. Remove, at no cost to Owner, dead and unacceptable plants as their condition becomes apparent.

3.03 ACCEPTANCE

A. Provisional Acceptance Inspection: Within 10 days after notification of completion of work, the Landscape Architect will inspect the work and prepare a Notice of Provisional Acceptance, along with a list of items that require completion or correction. Issuance of the Notice of Provisional Acceptance shall constitute the start of the warranty period for portion accepted.

B. Final Acceptance Inspection: The final inspection of all planting or phase of planting work under the contract will be made by the Owner, Contractor, and Landscape Architect. Before final acceptance will be made, the terms of the warranty shall be met and the site shall be in the condition stipulated under "Final Cleanup". Final acceptance inspection of plantings or material planted during recognized planting seasons will be made during the following September for fall planting and by the following June for spring planting.

3.04 CLEANUP AND PROTECTION

A. Cleanup: Remove excess and waste material daily. When planting in an area has been completed, the area shall be cleared of all debris, soil piles, and containers.

B. Repairs: Repair any damage to existing landscape, paving, or other such features as a result of work related to this contract, to its original condition.

C. Protection: Protect landscape work and materials from damage due to landscape operations, operations by other Contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

END OF SECTION 02930

NOTES:

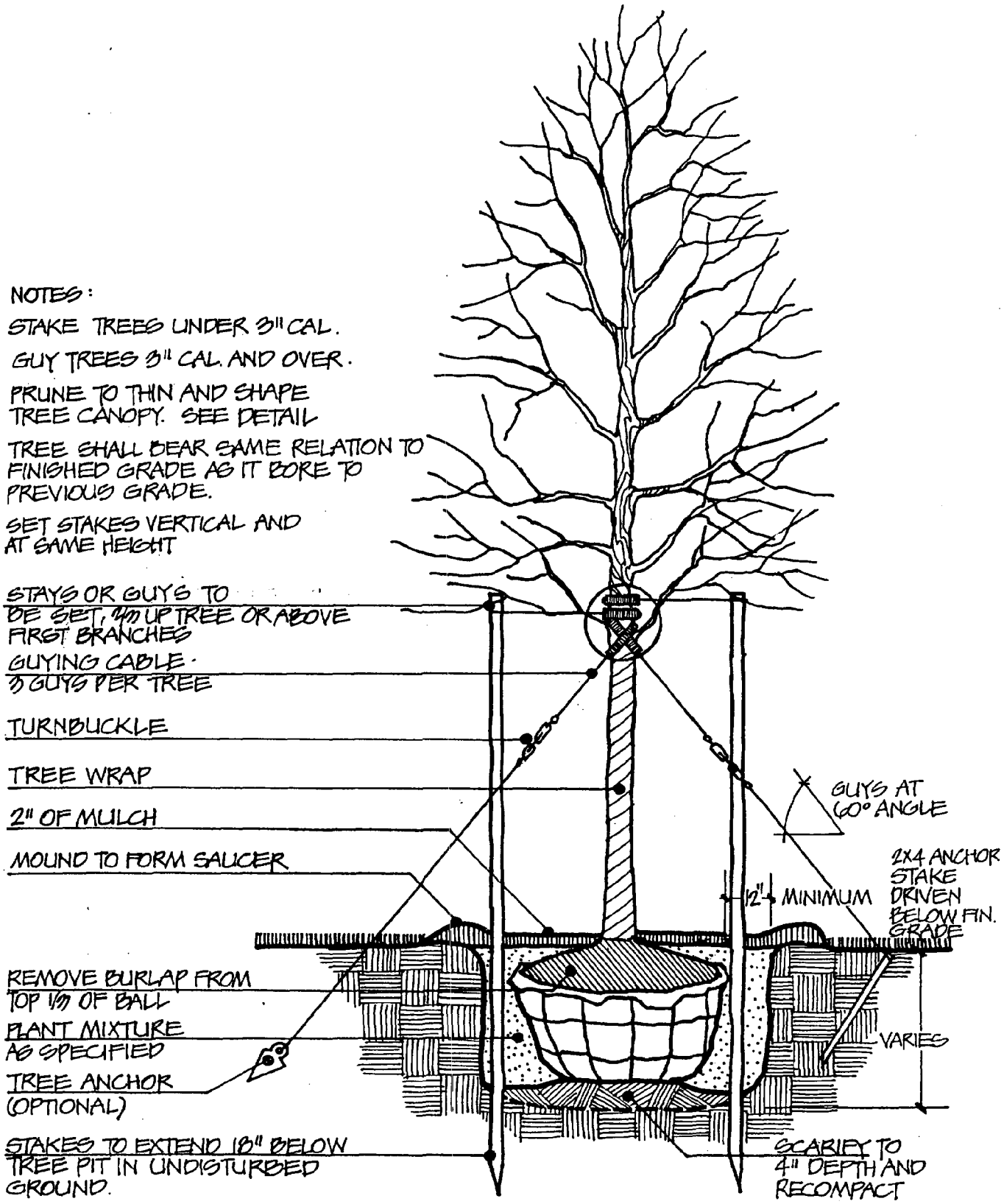
STAKE TREES UNDER 3" CAL.

GUY TREES 3" CAL. AND OVER.

PRUNE TO THIN AND SHAPE TREE CANOPY. SEE DETAIL

TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE.

SET STAKES VERTICAL AND AT SAME HEIGHT



DECIDUOUS TREE PLANTING

NOT TO SCALE

NOTES:

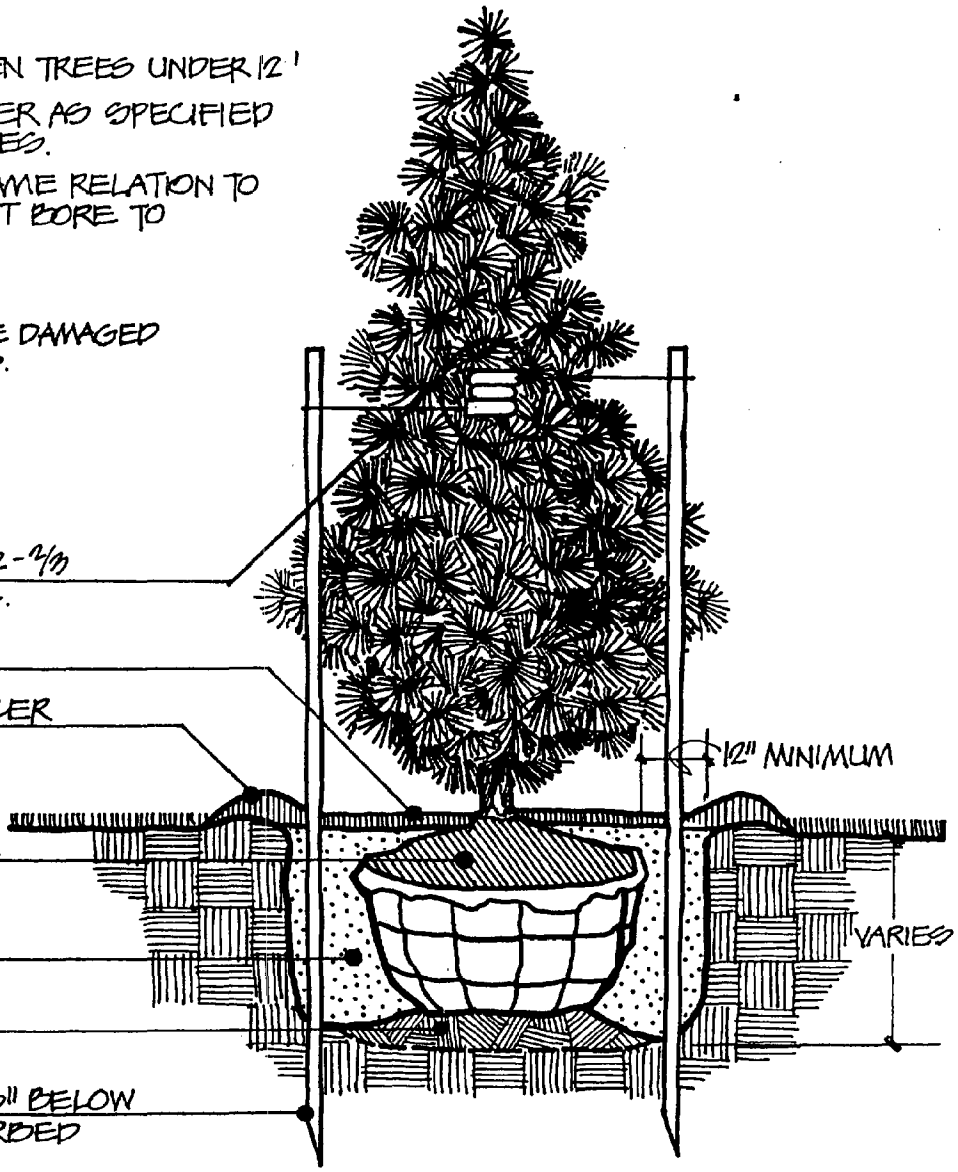
STAKE ALL EVERGREEN TREES UNDER 12'

GUY TREES 12' AND OVER AS SPECIFIED FOR DECIDUOUS TREES.

TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE.

NEVER CUT LEADERS.

PRUNE ONLY TO REMOVE DAMAGED OR BROKEN BRANCHES.



EVERGREEN TREE PLANTING

NOT TO SCALE

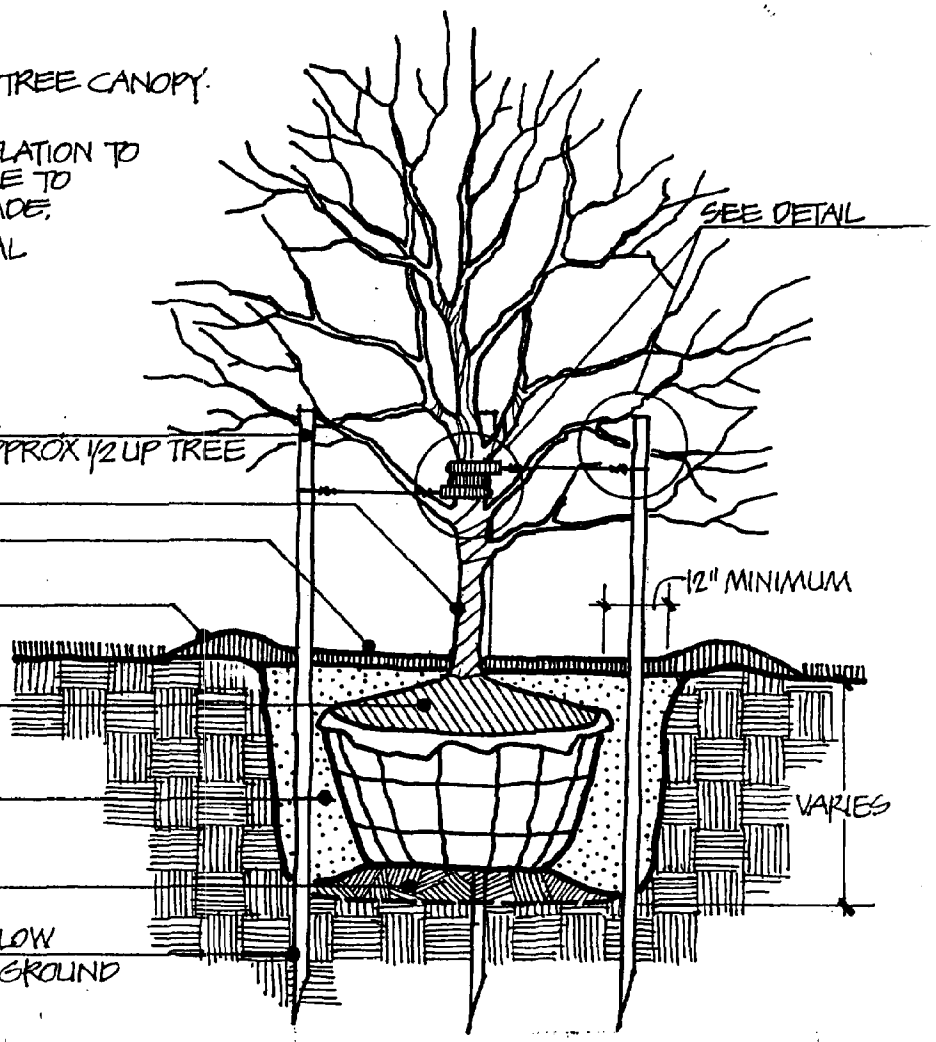
NOTES:

NEVER CUT LEADERS

PRUNE TO THIN AND SHAPE TREE CANOPY. SEE DETAIL.

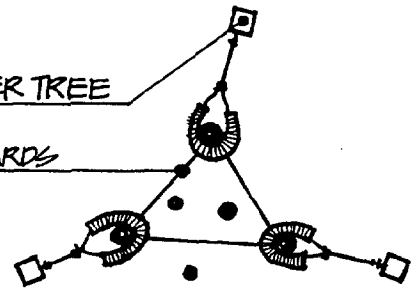
TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUSLY EXISTING GRADE.

SET TREE STAKES VERTICAL AND AT SAME HEIGHT.



FLOWERING TREE PLANTING

NOT TO SCALE



MAXIMUM 3 STAKES PER TREE

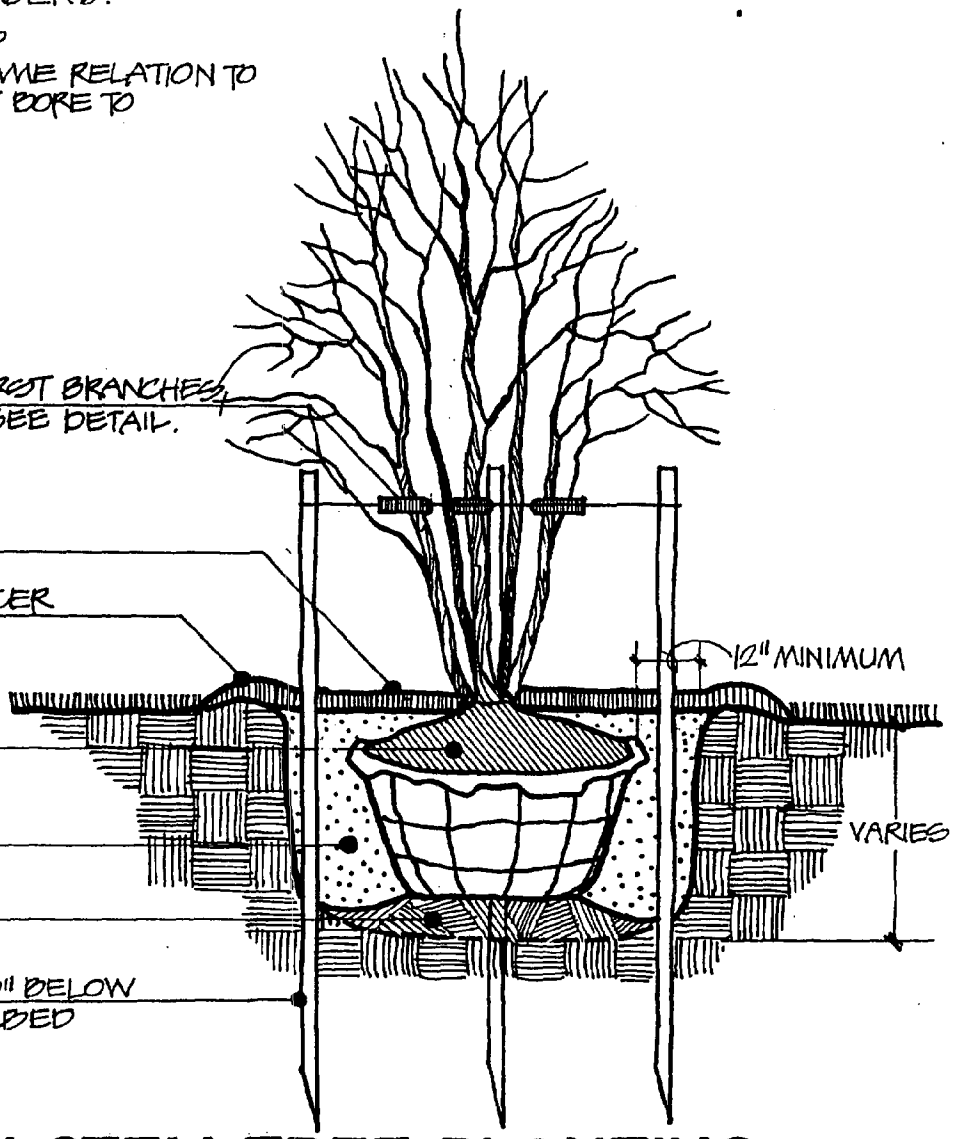
LACE HOSE CHAFING GUARDS TOGETHER W/ SINGLE WIRE STAY

NOTES:

STAKE 3 LARGEST STEMS, IF TREE HAS MORE THAN 3 LEADERS.

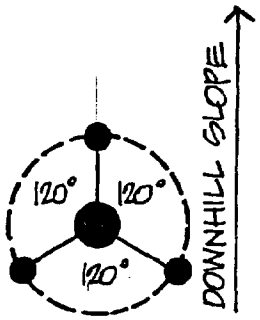
NEVER CUT LEADERS

TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE.

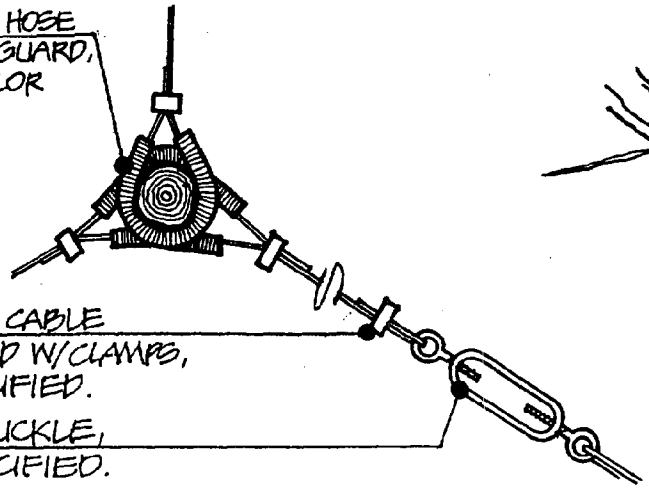


MULTI STEM TREE PLANTING

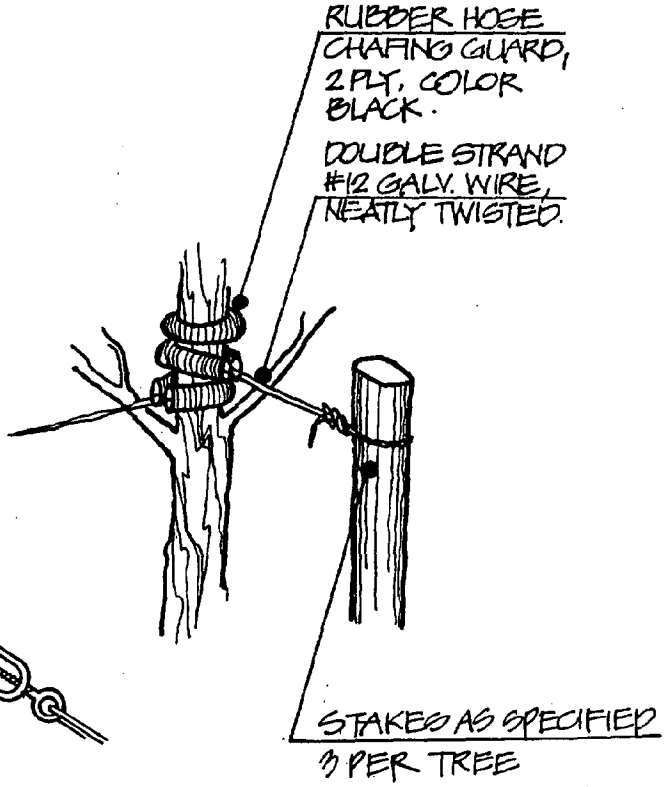
NOT TO SCALE



STAKING / GUYING PLAN SCHEMATIC



GUYING CABLE DETAIL



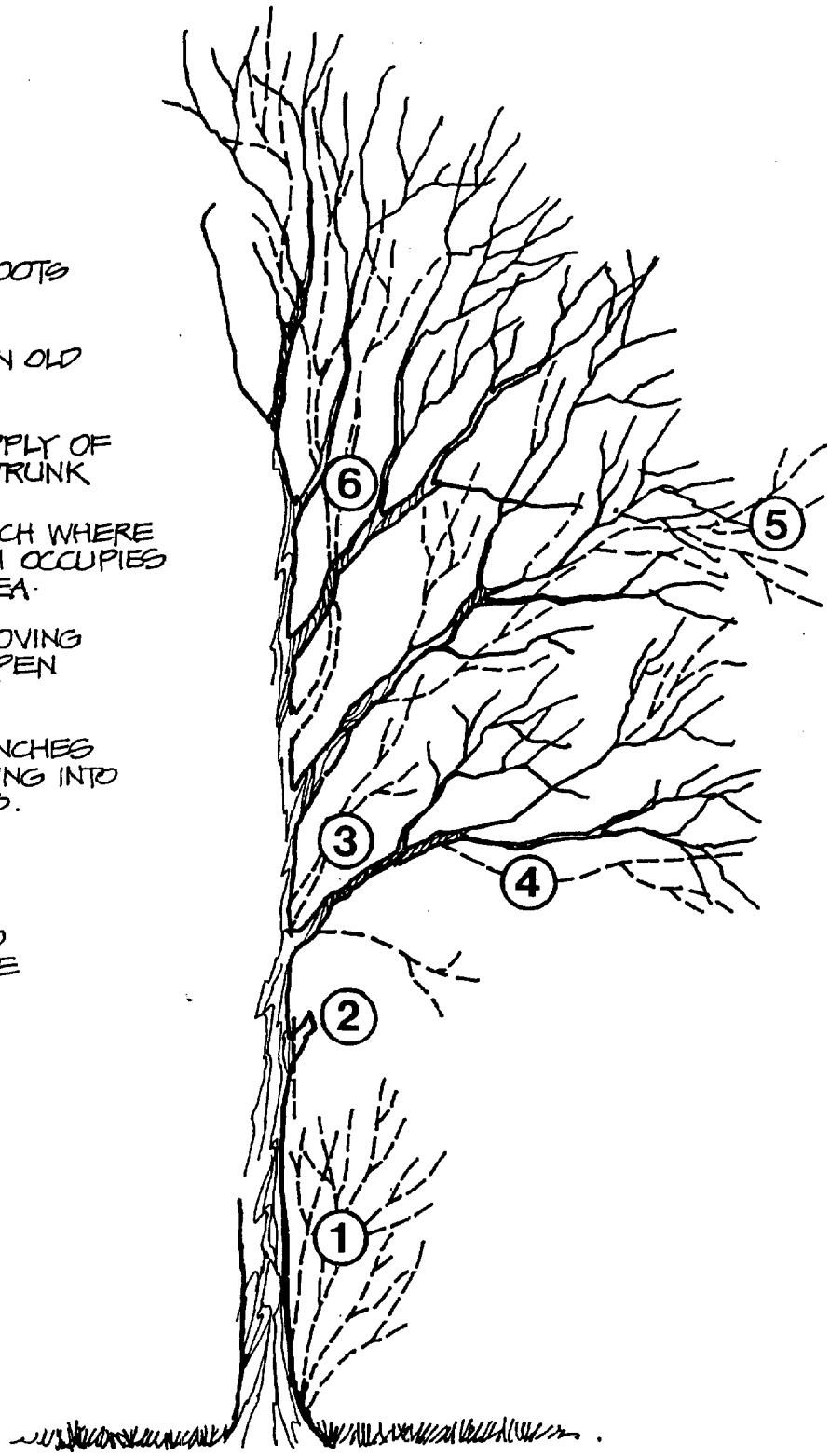
STAKING DETAIL

TREE STAKING AND GUYING

NOT TO SCALE

1. REMOVE SUCKER SHOOTS AT BASE OF TREE.
2. MAKE CLEAN CUTS ON OLD STUBS, IF PRESENT.
3. REMOVE ENTIRE SUPPLY OF TWIGS AND BUDS ON TRUNK
4. REMOVE LOWER BRANCH WHERE AN OVERLYING BRANCH OCCUPIES ABOUT THE SAME AREA.
5. SHAPE TREE BY REMOVING INJURED AND MISSHAPEN BRANCHES.
6. REMOVE CROSS BRANCHES AND THOSE DEVELOPING INTO SECONDARY LEADERS.

NOTE:
BRANCHES IN DASHED LINES INDICATE THOSE TO BE REMOVED.



TREE PRUNING

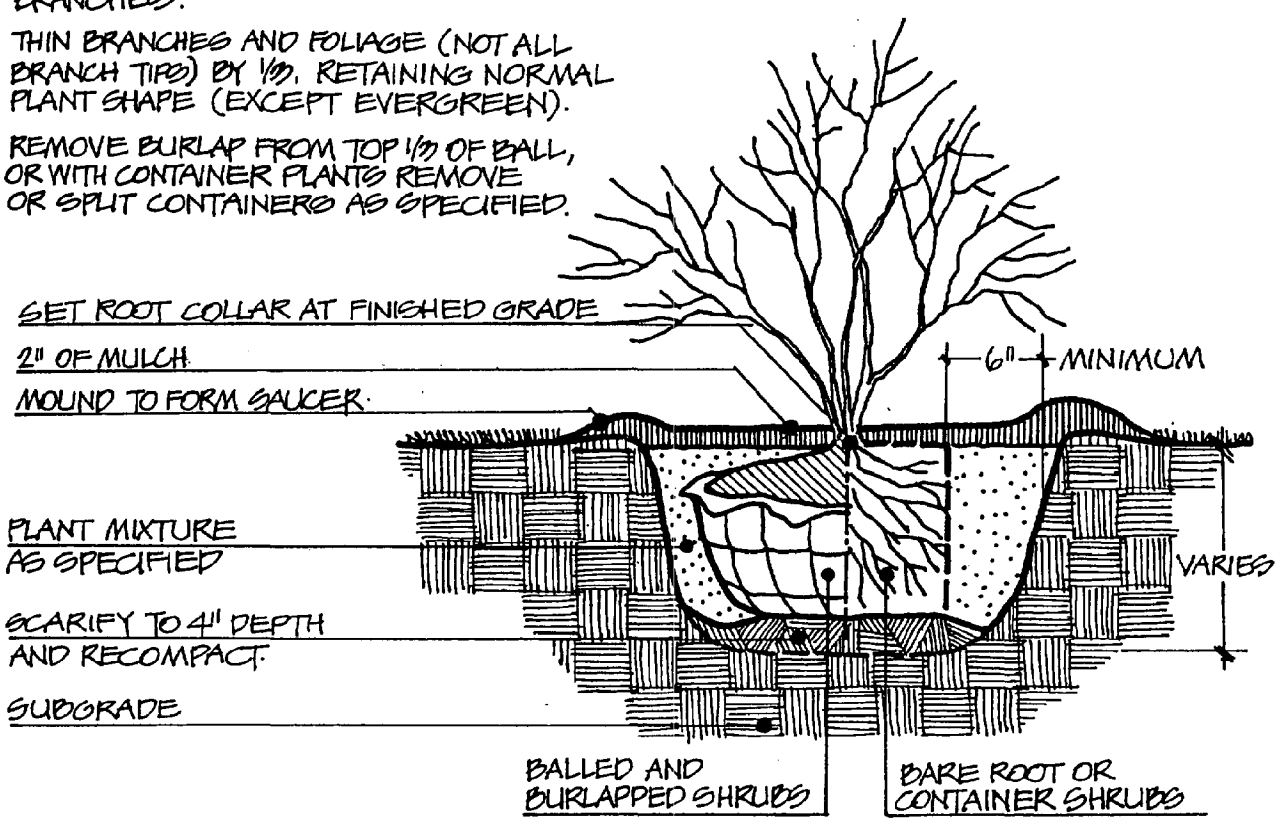
NOT TO SCALE

NOTES:

DO NOT PRUNE EVERGREENS, EXCEPT TO REMOVE DEAD AND BROKEN BRANCHES.

THIN BRANCHES AND FOLIAGE (NOT ALL BRANCH TIPS) BY 1/3, RETAINING NORMAL PLANT SHAPE (EXCEPT EVERGREEN).

REMOVE BURLAP FROM TOP 1/3 OF BALL, OR WITH CONTAINER PLANTS REMOVE OR SPLIT CONTAINERS AS SPECIFIED.



SHRUB PLANTING – SINGLE

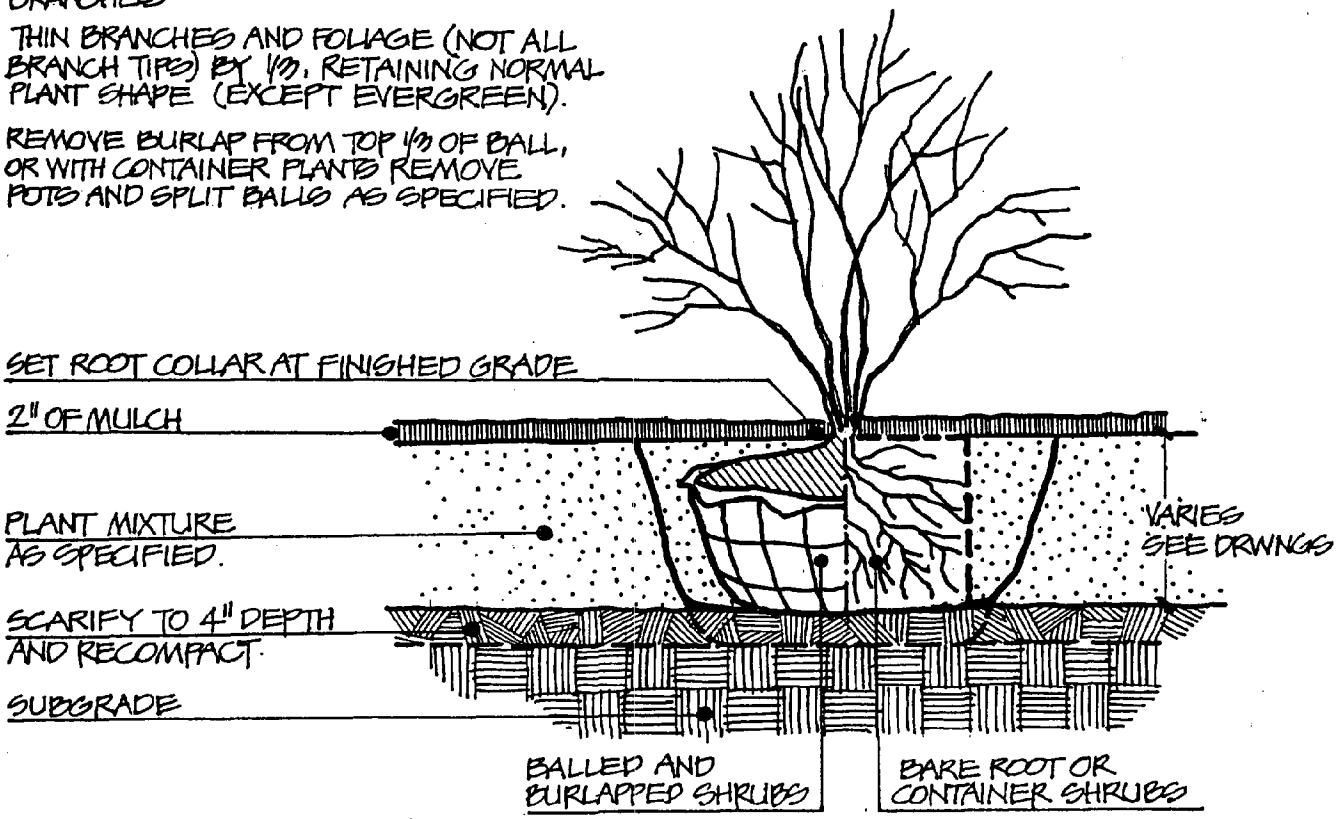
NOT TO SCALE

NOTES:

DO NOT PRUNE EVERGREENS, EXCEPT TO REMOVE DEAD AND BROKEN BRANCHES

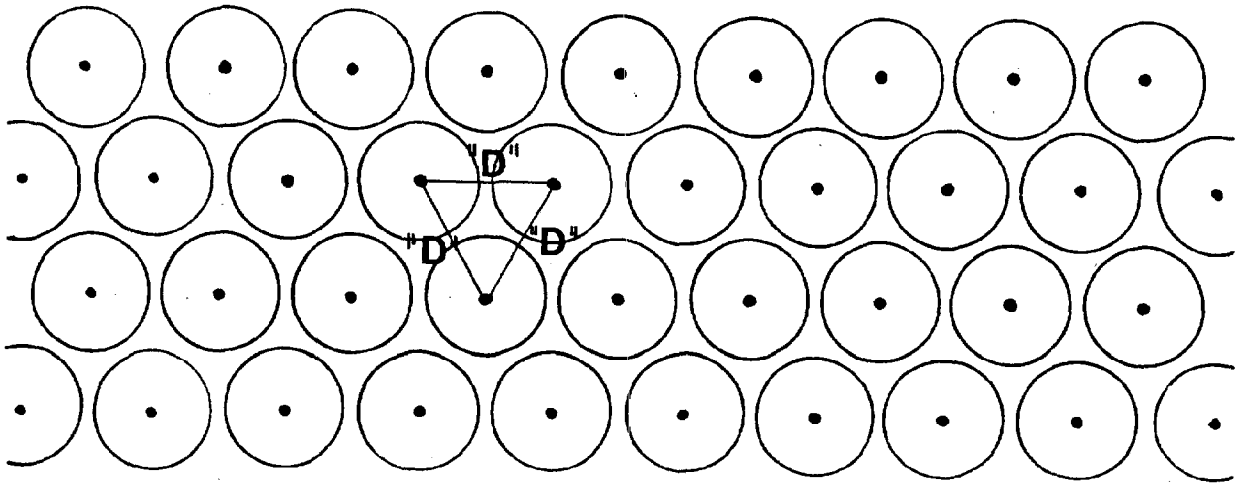
THIN BRANCHES AND FOLIAGE (NOT ALL BRANCH TIPS) BY 1/3, RETAINING NORMAL PLANT SHAPE (EXCEPT EVERGREEN).

REMOVE BURLAP FROM TOP 1/3 OF BALL, OR WITH CONTAINER PLANTS REMOVE POTS AND SPLIT BALLS AS SPECIFIED.



SHRUB PLANTING - BED

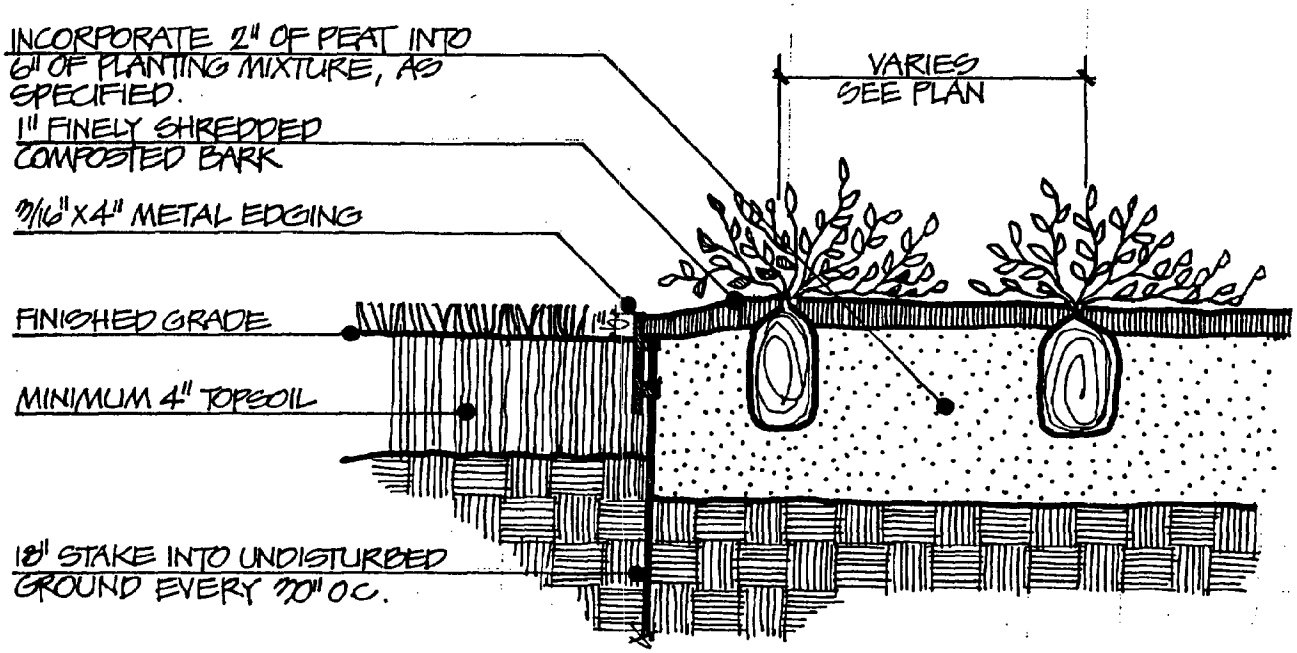
NOT TO SCALE



D = DIMENSION OF PLANT SPACING (SHRUB, GROUNDCOVER OR PERENNIAL) AS INDICATED ON PLANS.

TYPICAL PLANT SPACING

NOT TO SCALE



GROUNDCOVER/PERENNIAL PLANTING

NOT TO SCALE

MICHILIMACKINAC OPEN SPACE LANDSCAPING

1.

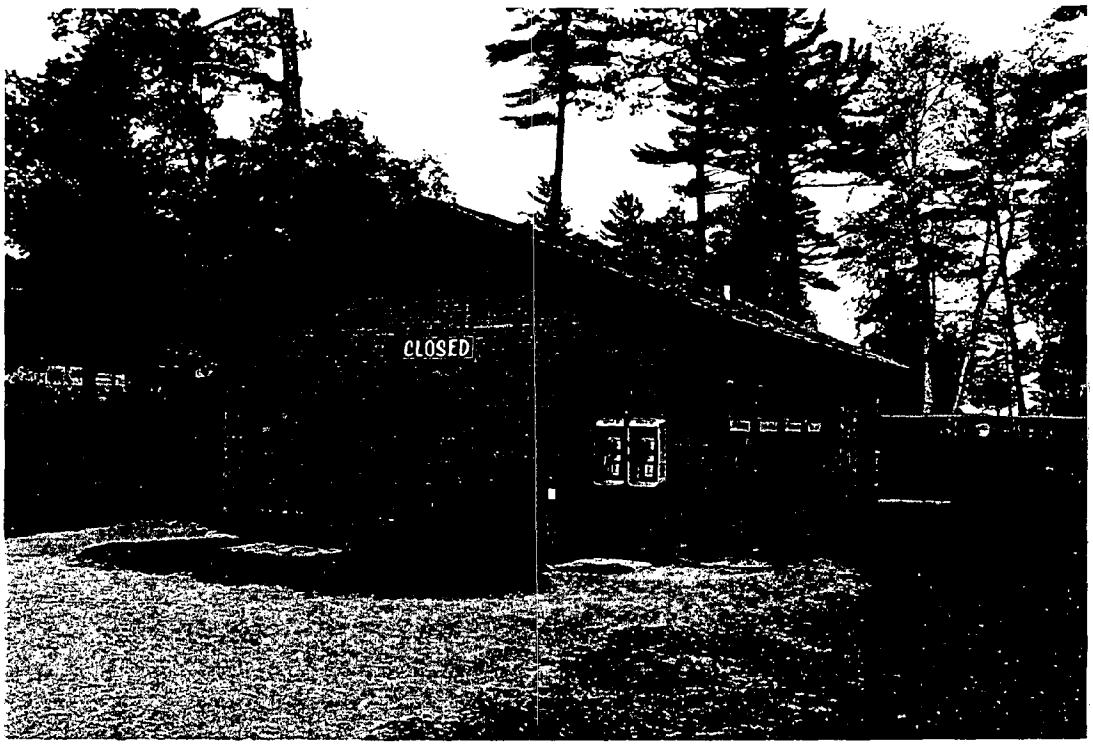
East restroom area prior to roadway removal.

2.

East restroom with roadway removed and with topsoil spread and seeded.

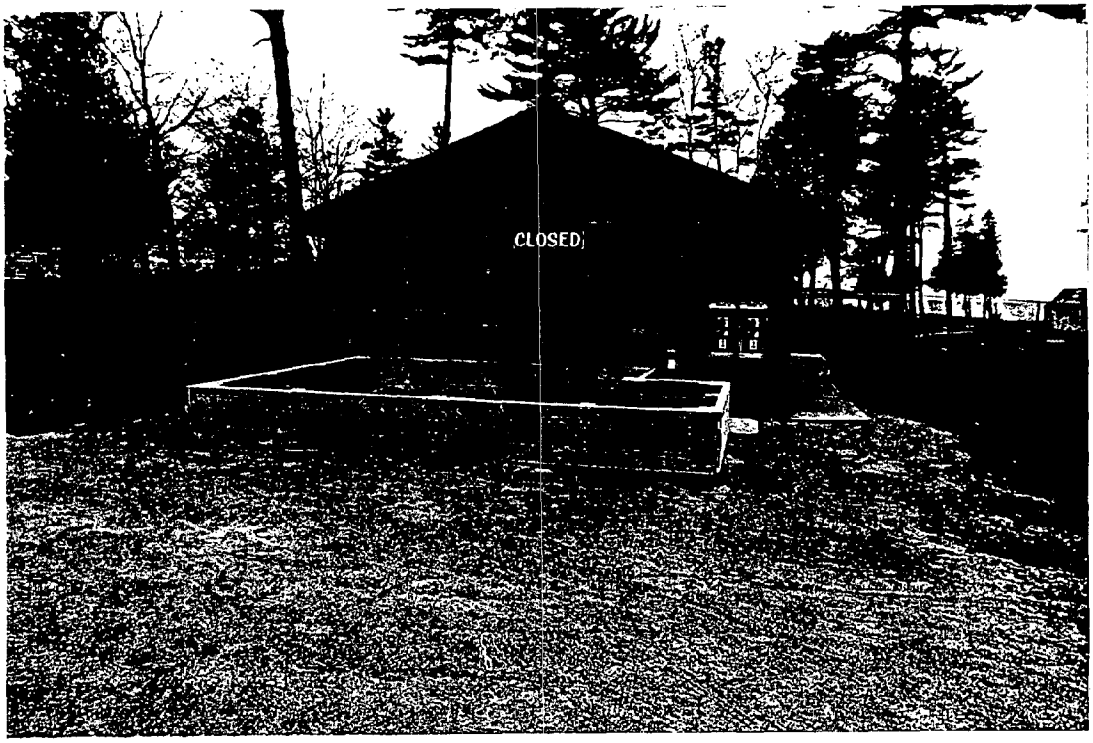
MICHILIMACKINAC OPEN SPACE LANDSCAPING

3.



West restroom prior to landscaping.

4.



West restroom with planting crib in place. Planter will be filled with topsoil and planted with trees and shrubs.

MICHILIMACKINAC OPEN SPACE LANDSCAPING

5.

Lighthouse area - spreading topsoil after paths were removed.

6.

Lighthouse area - with topsoil spread and seeded.

MICHILIMACKINAC OPEN SPACE LANDSCAPING

7.

Need picnic tables constructed to ADA specifications.

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