

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 01 00 OPERATION AND MAINTENANCE OF EXTERIOR IMPROVEMENTS

A. Design Considerations

1. Maintenance or repair of existing exterior improvements shall be coordinated directly with the Office of University Planning and Development.

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction:

1. Rubber and Paint Removal from Paving
 - a. Removal of traffic stripes or traffic markings shall be performed by methods which do not damage the integrity of the underlying pavement. Obliterating stripes or markings by painting over them is not permitted unless approved by the Office of University Planning and Development.
 - b. Before starting removal operations the proposed removal method shall be demonstrated to Rutgers University. At a minimum, the method should remove approximately 95 percent of the stripe or marking without removing more than 2 milliliters (0.1 inches) of pavement thickness. Areas of removal include the area of the stripe or marking plus 25 milliliters (1 inch) on all sides. Removal operations will not be permitted until the method has been demonstrated and approved.
 - c. Debris from the removal of traffic stripes, markings, and rubber shall be disposed of in accordance with local, state, and federal regulations.

32 01 80 OPERATION AND MAINTENANCE OF IRRIGATION

RESERVED

32 05 00 COMMON WORK RESULTS FOR EXTERIOR IMPROVEMENTS

A. Design Considerations

RESERVED

B. Special Documentation Requirements

1. Proposed material details and material samples for exterior improvements shall be submitted to the Office of University Planning and Development prior to construction.

C. Materials and Methods of Construction

1. Soils for Exterior Improvements: See Section 31 00 00 for topsoil and fill requirements.
2. Aggregates for Exterior Improvements: See Section 31 00 00 for aggregate requirements.
3. Geosynthetics for Exterior Improvements: See Section 31 00 00 for geosynthetic requirements.

32 06 00 SCHEDULES FOR EXTERIOR IMPROVEMENTS

A. Design Considerations

RESERVED

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

1. Proposed construction schedules for exterior improvements shall be submitted to Rutgers University at least two weeks prior to the anticipated start of construction.

32 10 00 BASES, BALLASTS, AND PAVING

A. Design Considerations

1. The design team's geotechnical engineer shall provide a paving design based on the project's subsurface investigation. Based on subsurface

conditions, the geotechnical engineer shall determine the necessary laboratory tests to facilitate pavement design. The pavement design shall include any necessary subgrade modifications, subgrade compaction requirements, and sub-base, base course, and top course material specifications. The design team shall provide a pavement construction specification detailing materials, testing, and construction procedures. The design team should consult with the Office of University Planning and Development to determine the anticipated lifespan of the pavement and design accordingly.

2. At a minimum, the following pavement sections shall be used:
 - a. Roadways – 2” Hot Mix Asphalt 12.5M64 Surface Course
4” Hot Mix Asphalt 19M64 Base Course
6” Dense Graded Aggregate Base Course
 - b. Parking Lots – 2” Hot Mix Asphalt 12.5M64 Surface Course
3” Hot Mix Asphalt 19M64 Base Course
5” Dense Graded Aggregate Base Course
 - c. Service Drive – 2” Hot Mix Asphalt 12.5M64 Surface Course
4” Hot Mix Asphalt 19M64 Base Course
8” Dense Graded Aggregate Base Course
 - d. Loading Areas – 2” Hot Mix Asphalt 12.5M64 Surface Course
3” Hot Mix Asphalt 19M64 Intermediate Course
5” Hot Mix Asphalt 25M64 Base Course
6” Dense Graded Aggregate Base Course
(Note – Concrete sections may also be used for loading areas. This must be coordinated with Office of University Planning and Development.)
3. Asphalt mix specifications should be provided by the design team in accordance with the State of New Jersey Department of Transportation Standard Specifications for Roads and Bridges Construction (Sections 300 and 400).
4. Porous pavement is allowable and encouraged when site conditions permit. Porous pavement usage and design requirements will be determined on an individual project basis by the Office of University Planning and Development

32 11 00 BASE COURSES

RESERVED

32 12 00 FLEXIBLE PAVING

RESERVED

32 13 00 RIGID PAVING

RESERVED

32 14 00 UNIT PAVING

A. Design Considerations

1. Precast Concrete Unit Paving
 - a. University standard precast concrete unit paving is manufactured by E.P. Henry Corporation (www.ehenry.com) or approved equal.
 - b. Final determination of material will be made by on an individual project basis by the Department of Planning, Development, and Design based on existing conditions and project finances.
 - c. The standard paving unit is the E.P. Henry Brick Stone 4"x 8" Paver. (NOTE: Actual dimensions are 3-15/16" x 7 - 7/8")
 - d. Thickness for pedestrian only applications is 2-3/8".
 - e. Thickness for vehicular access applications is 3-1/8".
 - f. The University standard colors are as follows:

College Avenue Campus:

Field: Pewter Blend

Soldier Course/Accent: Azalea

Busch Campus

Field: Harvest Blend

Soldier Course/Accent: HB Brown

Livingston Campus

Field: Harvest Blend

Soldier Course/Accent: Dakota Blend

Cook/Douglass Campus

Field: Azalea or Autumn Blend

Soldier Course/Accent: Pewter Blend

- g. The University standard paving pattern is a 90 degree herringbone pattern with a single, double, or triple soldier course.
- h. All precast concrete unit paving shall be installed on a 4" thick concrete sub-base with a 1" sand-setting bed according to the manufacturer's recommendations.
- i. A University approved paver edge restraint system shall be used where necessary.
- j. Final determination of material will be made by on an individual project basis by the Department of Planning, Development, and Design, based on existing conditions and project finances.

2. Porous Unit Paving

- a. University standard porous unit paving is manufactured by E.P. Henry Corporation (www.ephenry.com) or approved equal.
- b. The standard paving unit is the E.P. Eco Paver. Dimensions are: W: 6.7" x H: 3 1/8" x L: 9"
- c. Final determination of material will be made by on an individual project basis by the Department of Planning, Development, and Design, based on existing conditions and project finances.
- d. The University standard colors are as follows:

College Avenue Campus:

Autumn Blend

Busch Campus

Harvest Blend

Livingston Campus

Harvest Blend

Cook/Douglass Campus

Autumn Blend

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

RESERVED

32 15 00 AGGREGATE SURFACING

RESERVED

32 16 00 CURBS, GUTTERS, SIDEWALKS, AND DRIVEWAYS

A. Design Considerations

1. The University's preferred curbing material is concrete. Final determination of curb material will be made by on an individual project basis by the Department of Planning, Development, and Design, based on existing conditions and project finances.

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

1. All exterior concrete shall be air entrained. Concrete curbs shall conform to the Rutgers standard concrete curb detail. Concrete curbs shall be formed of minimum 4500 psi concrete.
2. Concrete sidewalks greater than 8-feet in width shall be designed to handle H-20 vehicular loading unless otherwise specified by the Department of Planning, Development, and Design.
3. Concrete sidewalks shall be scored in accordance with University Landscape Standards.
4. Sidewalk layout and scoring patterns shall be approved by the Department of Planning, Development, and Design during design.
5. Sidewalks shall be 8-inches thick and consist of 4,500 psi strength concrete. 6x6 #10 welded wire mesh reinforcement shall be provided. Sidewalks shall bear on a compacted 6-inch thick layer of dense graded aggregate. See University construction details.

32 17 00 PAVING SPECIALTIES

RESERVED

32 18 00 ATHLETIC AND RECREATIONAL SURFACING

RESERVED

32 31 00 FENCES AND GATES

A. Design Considerations

1. Black Vinyl chain link fencing is required around all climbing hazards and at grade mechanical and electrical equipment (i.e. cooling towers, emergency generators, etc.).

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

1. Chain link fences shall be 8-ft high and consist of black PVC coated steel fence sections. Fences shall have no top rail. Fence posts shall have a minimum diameter of 2-inch and be anchored with 2,500 psi concrete. The design team shall submit details of proposed fences to Rutgers University during the design process.

32 32 00 RETAINING WALLS

A. Design Considerations

1. Retaining walls shall be designed by a licensed Professional Engineer in the State of New Jersey. Proposed wall types will be evaluated on an individual project basis by the Department of Planning, Development, and Design.

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

RESERVED

32 33 00 SITE FURNISHINGS

A. Design Considerations

1. Site furnishings are to be provided under the landscape work which will be provided by the A/E as part of their scope of basic services. Rutgers has adopted the following standard site and street furnishings for use:
 - a. Refer to Standards for Campus Furnishings, of the Design Standards Manual.
2. All benches shall be securely mounted on hard surfaces (concrete walks, plazas, etc.) in accordance with the manufacturer's specifications and construction details provided.

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

RESERVED

32 39 13 MANUFACTURED METAL BOLLARDS

A. Design Considerations

RESERVED

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

1. University standard manufactured metal bollards shall be manufactured and supplied by: Fairweather Site Furnishings and Accessories (www.fairweathersf.com), (800) 323-1798 or approved equal.
2. The following Model Numbers shall be used:
 - a. B4-5B2 Embed Mounting Bollard - (42" height/schedule 40/5" diameter with 1" reveal top and bottom)

- b. B4-5B2 Removable Mounting Bollard - (42" height/schedule 40/5" diameter with 1" reveal top and bottom with an in-ground receiver cover and lock well cover)
 - c. B4-5B2 Surface Mount Bollard - (42" height/schedule 40/5" diameter with 1" reveal top and bottom with 9.5" OD x 5/8" thick base plate w/5 predrilled 5/8" anchor holes for 1/2" anchor bolts)
3. Materials: The bollard body shall be fabricated with 5" Schedule 40 steel pipe. The standard bollard has a dome top, and two decorative reveals, one at the top and one at the bottom. The in-ground receiver, for removable bollards only, shall be fabricated with 11 gauge steel sleeve welded to a 3" x 5" lockwell.

Finishes: University standard color is Gloss Black unless otherwise specified by the Department of Planning, Development, and Design. Powder coating: following fabrication bollards shall be cleaned and treated with an iron phosphate process followed with an acidic sealer for maximum adhesion prior to the coating application. A corrosion resistant undercoat shall be applied.

The protective coatings shall be either polyester or polyester TGIC powder. Following application, the parts shall be baked until properly cured. The coating shall be a minimum of 4 mils thick on all surfaces.

Hot Dip Galvanizing: Following fabrication, the in ground receivers shall be hot dip galvanized to standard ASTM A123, 3 to 4 mils thick.

4. Installation and Site Selection: The use and quantity of bollards and types of bollards shall be determined by the University at select locations. Bollards shall be installed according to the manufacturer's specifications.
5. Cleaning and Protection: Clean bollards in accordance with manufacturer's instructions. Remove any protective coverings and protect bollards from damage during construction.

32 71 00 CONSTRUCTED WETLANDS

A. Design Considerations

1. Constructed wetlands shall be designed with input from the Office of University Planning and Development and others as specified and shall be in accordance with the most recent New Jersey Stormwater Best Management Practices (BMP) Manual as well as the University's

Stormwater and Landscape Management Master Plan. During a project's design development phase, detailed designs and calculations for constructed wetlands shall be submitted to the Office of University Planning and Development.

2. Goose and deer fencing are required for constructed wetlands and other stormwater systems as determined by the Office of University Planning and Development for a minimum of 18 months.

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

RESERVED

32 80 00 IRRIGATION

A. Design Considerations

1. All new buildings shall have interior piping and fixtures installed to accept an irrigation system whether the exterior irrigation system is to be part of the new building construction or not. Preparation shall include a location within an appropriate Mechanical or Electrical Equipment Room for a controller, with designated circuit breaker, pipe sleeves through the foundation, and empty 1" conduit with pull rope to a point 5' outside the building, 3'- 0" below grade, with shutoff valve inside the building in an accessible location. Conduit and pipe sleeves shall be capped and clearly identified. Regardless of the system being installed, a backflow preventer must be installed as part of irrigation system under the building contract. Rainfall sensors must be included in the design of system. Irrigation system design will be by A/E.

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

RESERVED

32 91 00 PLANTING PREPARATION

A. Design Considerations

1. Planting preparation shall be performed in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey for all projects greater than 5,000 sf. Projects less than 5,000 square feet must work with the Department of Planning, Development, and Design to develop an acceptable seed mix for the disturbed area.
2. Mulch shall not be utilized in stabilization of a water quality related stormwater management feature.

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

RESERVED

32 92 00 TURF AND GRASSES

A. Design Considerations

1. Sod is preferred over seed, especially near the building perimeter. Sod is always to be used in interior courtyards. Decision as to the use of seed or sod will be a budgetary decision. Hydroseeding is not preferred, but is acceptable only under the following specification: Grass seed shall be incorporated into the top ¼ inch of topsoil by hand rake or slice-seeder before applying hydromulch fiber. The hydromulch mixture can include fertilizer, lime, dye and tackifier.

For all projects greater than 5,000 sf and as per the requirements contained within the standards for soil erosion and sediment control, that project must adhere with the permanent and temporary stabilization measures, including the use of an approved grass mix as well as all stabilization measures required within the standards.

2. The Department of Planning, Development, and Design will indicate the type of lawn treatment that will prevail.

B. Special Documentation Requirements

1. Submit seed vendor's certifications including blue tag and interagency certification for required grass seed mixture, indicating percentages by

weight of mix, net weight, and year of production, date and location of packaging, and percentages of purity, germination, and weed seed for each grass species.

C. Materials and Methods of Construction

1. Sod shall be certified Kentucky blue grass grown locally near the area of proposed site work. The soil in which the sod is grown at the sod farm shall be physically and chemically compatible with the soil at the work site. Sod shall be 12-18 months old and 1" thick, 12" - 18" wide and 2' - 6' in length cut in strips. All sod shall be inspected and approved by the Department of Planning, Development, and Design prior to installation. Sod will be installed the same day it is harvested at the sod farm. If the sod is "hot" and decomposing in any manner, it will be rejected. Likewise, any sod that is dry will not be accepted.
2. All new lawn areas sodded or seeded shall have the entire perimeter staked and roped off immediately upon completion. Stakes shall be no less than 30" high installed, and string banner shall be two strands stake to stake, or a single strand of durable twine with fluorescent flagging between the stakes. The stakes shall be installed every eight (8) feet in consistent straight lines or curves.
3. Straw Mulching: Salt hay with nonasphaltic liquid tackifier is preferred. Finished grades having slopes in excess of 20% shall be mulched with erosion control fabric run vertically from top to bottom of slope and stapled with wire staples .125" in diameter or greater and spaced at 4' intervals. In areas of high velocity runoff such as receiving swales and drainage ditches, fabric of sufficient strength and density shall be used and installed in direction of flow and stapled at 2' intervals. The decision to use straw mulch or hydromulch will be made by the Department of Planning, Development, and Design according to site location and conditions.
4. All seeding shall be accomplished with a mechanical slice-seeder. Follow up with an application of hydrofiber mulch. A starter fertilizer can be applied (granular or tank mixture in hydro seeder). Fertilizer and lime rates will be per soil testing recommendations. Rutgers School of Environmental and Biological Sciences (Cook College) has a testing lab and can be contacted at 732-932-9295 for directions.
5. Permanent Lawn Seeding Specifications (All seed variety selections from Rutgers Cooperative Extension, Cook College.):
 - a. Full Sun Mixture (minimum seven to ten hours of direct sunlight):

50% Kentucky Bluegrass, consisting of at least two varieties: Glade, Apex, Alpine, Blackstone, Ram I, America, Apollo, Brilliant, SRX2284, SRX2394;

20% Perennial Ryegrass, consisting of at least two varieties: Allstar, Gator III, SRX4801, Pennant II, Palmer III, Seville II, Fiesta II, Radiant;

15% Chewings Fescue, consisting of one variety: Ambassador, Banner III, Jamestown II, SR5000, Shadow II, Magic or Victory II;

15% Hard Fescue, consisting of one variety: Aurora, Aurora E+, Ecostar, Nordic, Osprey, Reliant II, SR 3000, SR3100 or Warwick.

Seeding Rate: 3 – 4 pounds per 1000 s.f.

b. Shady Mixture (less than five hours of direct sunlight):

10% Chewings Fescue, consisting of one variety: Ambassador, Banner II, Jamestown II, SR5000, Shadow II, Magic or Victory;

40% Creeping Red Fescue, consisting of at least two varieties: Badger, Cindy, Fenway, Flyer, Jasper, Pathfinder, Shademaster II, Vista, Shademark, Salem;

40% Kentucky Bluegrass, consisting of at least two varieties: Glade, Apex, Alpine, Blackstone, America, Brilliant, SRX2284, SRX2394;

10% Hard Fescue, consisting of one variety: Aurora, Aurora E+, Ecostar, Nordic, Osprey, Reliant II, SR3000, SR3100 or Warwick.

Seeding Rate: 4 – 5 pounds per 1000 s.f.

6. Optimum Seeding Times:

a. Spring: March 15 – May 15

b. Fall: August 15 – October 15

c. Seeding is not recommended at other times.

7. Any deviations, changes, or alternatives to these specifications must be approved by the Department of Planning, Development, and Design

8. Temporary/Stabilization Seeding: Tri-Plex Perennial Ryegrass (varieties from sunny mixture). Seeding Rate: 5 pounds per 1000 s.f.

9. Inspections: Inspections will be made by the University Landscape Architect at completion of the following tasks:
 - a. At completion of the soil loosening phase to insure that the minimum depths have been achieved.
 - b. At completion of the removals and /or screening phase to insure that specified dimension material has been removed.
 - c. At completion of the top soiling phase to insure that full depth of cover has been achieved.
 - d. At completion of the fine grading phase to insure that specified slopes, uniformity and positive drainage have been achieved.
 - e. At completion of the seeding and mulching phase to insure adequate coverage.
 - f. At the end of the 60 Day Maintenance Period to insure adequate percentage of growth and coverage as specified has been achieved.
 - g. It is the responsibility of the Contractor to notify the Project Manager of the completion of each task in writing for approvals prior to proceeding to the next phase. Unsatisfactory conditions must be corrected at Contractor's expense before beginning next phase tasks.
10. Close-Out: Contractor shall contact University Facilities and Capital Planning to arrange an on-site meeting, to include the Project Manager, University Facilities Operations and Services, the Office University Program Development, the Office of University Planning and Development and others as specified, to discuss landscape maintenance procedures going forward, and to deliver landscape maintenance manual.

32 92 19 SEEDING

A. Design Considerations

1. If a project disturbs greater than 5,000 sf, seeding must be performed in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey.

B. Special Documentation Requirements

RESERVED

C. Materials and Methods of Construction

1. Seeding on Rutgers University Campuses shall meet the following:

a. All seeding will be accomplished with a mechanical slice-seeder, or broadcast and lightly raked into the top ¼ inch of soil. Followed up with an application of hydro fiber mulch. A starter fertilizer can be applied granular or tank mixture in hydro-seeder. Fertilizer and lime rates will be per soil testing recommendations. Rutgers Cook College has a testing lab and can be contacted at 732-932-9295 for directions.

b. Permanent Lawn Seeding Specifications

1) Full sun mixture (minimum seven to ten hours of direct sunlight)

50% Kentucky Bluegrass consisting of at least two varieties: Glade, Apex, Alpine, Blackstone, Ram I, America, Apollo, Brilliant, SRX2284, SRX2394

20% Perennial Ryegrass consisting of at least two varieties: Allstar, Gator III, SRX4801, Pennant II, Palmer III, Seville II, Fiesta II, Radiant

15 % Chewing Fescue consisting of one variety: Ambassador, Banner III, Jamestown II, SR5000, Shadow II, Magic or Victory II

15% Hard Fescue consisting of one variety: Aurora, Aurora E+, Ecostar, Nordic, Osprey, Reliant II, SR3000, SR3100 or Warwick

Seeding Rate: 3 – 4 pounds per 1000 s.f.

2) Shady Mixture (less than five hours of direct sunlight)

10% Chewings Fescue consisting of one variety: Ambassador, Banner III, Jamestown II, SR5000, Shadow II, Majic or Victory

40% Creeping Red Fescue containing of at least two varieties: Badger, Cindy, Fenway, Flyer, Jasper, Pathfinder, Shademaster II, Vista, Shademark, Salem

40% Kentucky Bluegrass consisting of at least two varieties: Glade, Apex, Alpine, Blackstone, America, Apollo, Brilliant, SRX2284, SRX2394

10% Hard Fescue consisting of one variety: Aurora, Aurora E+, Ecostar, Nordic, Reliant II, SR3000, SR3100

Seeding Rate: 4 – 5 pounds per 1000 s.f.

3) Optimum Seeding Times

Spring, March 15 - May 15

Fall, August 15 - October 15

Permanent seeding is not recommended between May 15th - August 15th and October 15th – March 15th. Temporary stabilization seeding shall be done during these periods.

Temporary stabilization seeding to consist of Tri-Plex Perennial Ryegrass (must contain three different varieties from sunny mixture).

- c. Any deviations, changes, or alterations to these specifications must be approved by the Office of University Planning and Development
- d. All seed variety selections as recommended by Rutgers Cooperative Extension, Cook College, or approval by the Office of University Planning, Development, and Design.

32 93 00 PLANTS

A. Design Considerations

- 1. All new lawns and plantings shall have an underground irrigation system. See Section 32 80 00.

B. Special Documentation Requirements

1. Guarantee of Plants:
 - a. Specify that the Contractor shall guarantee newly installed plants for a period of one year after date of acceptance against defects, including death and unsatisfactory growth. Trees which are not healthy, are dying, or the design value of which, in the opinion of the OFD, has been destroyed through root damage, loss of branches, bark damage, etc., shall be replaced by the Contractor at no cost to the Owner. Exceptions are defects resulting from abuse or damage by others, or unusual phenomena or incidents which are beyond landscape installer's control.
 - b. Specify that plants which are determined to be defective shall be replaced at the proper season or planting time after the guarantee period is complete, and replacement plants will be guaranteed by the Contractor for an additional growing season under an extended guarantee at no additional cost.
 - c. Specify that, during the guarantee period, the Contractor shall, from time to time, inspect the watering and other maintenance practices carried on by the Owner and promptly report to the Owner any practices which he considers unsatisfactory and not in his interests or good horticultural practices. The failure of the Contractor to inspect or report shall be construed as an acceptance by him of the Owner's maintenance practices and shall not thereafter claim that any defects which may later develop are the result of such practice.

C. Materials and Methods of Construction

1. Preparation of Sub grade: Specify that subsoil shall be ripped or tilled to a depth of 5" and graded to remove all ridges and depressions so that it will be parallel to proposed finished grade. Remove stones over 1" in any dimension, sticks, rubbish and other extraneous matter.
2. Specify that all topsoil shall be tested against the following Specifications:
 - a. Physical Analysis (Soil Texture):

Quantity Percent by oven dry weight	Size Fraction inches	Range of Particle Diameter mm
Less than 2% gravel	larger than 1	25
Less than 3% gravel	1/4 to 1	6-25
Less than 10% gravel	2/25 to 1/4	2-6
40% to 65% sand	1/500 to 2/25	.05-2.0
25% to 60% silt	1/12,500 to 1/500	.002-.05
Less than 20% clay	smaller than 1/12,500	.002

- 1) Amounts of sand, silt, and clay - determined by official hydrometer method or mechanical analysis of the soil. Gravel sized particles should be determined by separation on screens with appropriate size openings.
- 2) Soil should be free of undecomposed organic material like roots, sticks, leaves and paper and of any other undesirable trash like glass, plastic or metal fragments that would have to be removed before seeding or planting.

b. Chemical Analysis:

- 1) Organic matter content (% oven dry weight of soil):
Sandy Loam, 1.25% to 20%; Loam and Silt Loam, 2.5% to 20%.
- 2) On soil with less than 10% organic matter, use wet oxidation method of analysis. On soil with more than 10% organic matter, use loss on ignition method of analysis.
- 3) Soil reaction - pH of 4.5 to 7.0
Soluble salt content: Conductivity (ECe, millimhos per centimeter):
Less than 1.00 mmhos/cm for a 1:1 soil: water ratio;
Less than 0.50 mmhos/cm for a 1:2 soil: water ratio;
Less than 0.33 mmhos/cm for a 1:3 soil: water ratio.

3. Plant Materials: All plants, including trees, shrubs, vines, groundcovers, annuals and perennials shall comply in form and vitality with industry standards as described in the American Standard for

Nursery Stock as published by the American Association of Nurserymen. All plant material shall be inspected by the University Landscape Architect prior to being delivered to the site. All shade trees, flowering and ornamental trees, and evergreen trees shall be tagged in the nursery field by the Department of Planning, Development, and Design.

4. Plant Installation: All trees shall be installed according to the standards as prescribed by International Society of Arboriculture and as shown in Part IV, Standard Details section of this Manual. The final location of all plant material shall be according to plan and shall be approved in the field by the Department of Planning, Development, and Design prior to planting.

32 94 00 PLANTING ACCESSORIES

RESERVED

32 95 00 EXTERIOR PLANTING SUPPORT STRUCTURES

RESERVED

32 96 00 TRANSPLANTING

RESERVED