

These guidelines are updated periodically. Users of the guidelines are encouraged to check this site as needed to be sure of having the most current edition. Comments and suggestions concerning improvements to this section of the guidelines may be submitted to: m_takacs@uncg.edu.

02001. EXISTING TOPOGRAPHY

All new project site plans shall be developed from a new topographical map developed specifically for that project; not from "as-built" information or previous project grading plans. Accurate information is essential and "special" conditions such as the presence of asbestos, lead paint, underground tank leaks, contaminated soil, etc. shall be addressed.

02010. SUBSURFACE EXPLORATION

1. DESIGNER'S RESPONSIBILITIES

The Designer shall direct a soils exploration program (see N. C. Construction Manual, Section 204.1.c) as judged necessary in consultation with the University. The Designer shall contact Facilities Design & Construction and submit a Request for Proposals for soils exploration. Facilities Design & Construction will provide names of pre-qualified testing companies. This will include investigative work and surveyor reports, laboratory tests (including test borings), soil analysis (including load bearing capabilities) and related site analysis. The Designer shall study plans of existing underground utilities and shall locate borings to avoid these utilities. Bored holes are to be backfilled, finish graded and seeded. Submit two copies of the site exploration report to the University.

2. INFORMATION TO BE INCLUDED IN CONTRACT DOCUMENTS

Show all boring locations, cross sections and soil conditions. Also show all existing conduits, drains, utility lines, sewers, tunnels, cables, trees, paving, walks, foundations and other objects or obstructions, whether in use or abandoned. Facilities Operations will assist with identifying existing conditions by providing "as-built" drawings as available. Clearly indicate the project boundary.

02080. ASBESTOS ABATEMENT

1. Demolition, renovation or remodeling projects are likely to involve some asbestos abatement. The University will provide all current information on identified asbestos on any site. The Designer will conduct his own independent study to identify all asbestos containing materials. A separate prime construction contract may be appropriate for asbestos abatement work.

2. It is noted that the Designer shall provide a design for asbestos removal, if required, as part of the design contract as per the State Construction Manual.
3. The University requires the Designer to provide for asbestos abatement on structures on the site scheduled for demolition. All asbestos abatement work shall be done in compliance with the North Carolina Department of Environment, Health and Natural Resources; Asbestos Hazardous Management Branch.

02110. DEMOLITION

1. STRUCTURE REMOVAL

In open areas, foundations of structures shall be removed to a minimum of 3 feet below finish grade elevations. Where new structures will replace existing structures, indicate extent of foundation removal on the drawings. Existing slabs remaining under fill, minimum of 3'-0" below finish grade, for new structures shall be broken to provide for drainage and ground water equalization. Recycle demolished material to the greatest extent possible.

2. RELOCATED EQUIPMENT

Special concern shall be taken with equipment to be reused. Establish schedule for removal and reinstallation through the University. Relocation of existing equipment shall include:

- 2.1. Disconnecting and moving.
- 2.2. Restoration and capping of utilities at the old location.
- 2.3. Recording existing piping arrangements to facilitate reinstallation.
- 2.4. Replacing unsalvageable piping, ductwork and wiring, and furnishing any new piping, ductwork, and wiring as required to complete reinstallation, without additional cost to the University.

3. BLASTING

Every reasonable effort should be made to avoid blasting because of the close proximity of other structures. If blasting is utilized, control dust and excessive noise when surroundings require. Document conditions of adjacent structures, before and after blasting, when collateral damage is possible. Seismographic monitoring may be required on adjacent buildings.

02102. CLEARING AND GRUBBING

1. All objectionable growth shall be stripped. Debris resulting from stripping and clearing operations shall be promptly removed from University property and recycled to the greatest extent possible.
2. GRUBBING

Removal of trees and shrubs shall include the removal of stumps and roots to the extent that no root greater than 3 inches in diameter remains within 5 feet of an underground structure or utility line nor under footings or paved areas. Grubbing in open areas shall include removal of stumps and 3 inch or greater roots to 2 feet below finish grade elevations.

02210. SITE GRADING

1. GRADING

Maintain existing grade inside drip line of trees wherever possible. Do not allow open excavations in the vicinity of trees for longer than two days to prevent soil moisture reduction.

2. FINISH GRADING

Slopes shall be shallow enough to allow mowing (generally 1:3 or less); steeper slopes will be permitted only in areas where maintenance-free erosion control (groundcover planting, rip-rap, etc.) is planned. All areas disturbed by construction operations and not covered by building, paving, etc. shall be fine graded and seeded.

02220. EXCAVATING AND BACKFILLING

1. Excavations shall not be permitted which undermine the integrity of adjacent structures, paving or utilities.
2. Rock removal allowances shall be realistic estimates based on historical data for similar projects and the subsurface exploration data. Every allowance shall be accompanied by a Unit Cost to be used to adjust the contract if actual quantities are over or below the allowance quantity.

02225. TRENCH BACKFILL AND COMPACTION

Density of trench backfill shall be equal to densities specified for adjacent fill and backfill.

02226. STRUCTURE BACKFILL AND COMPACTION

1. BACKFILL

- 1.1. Backfill material shall be free of debris.
- 1.2. Excess material or topsoil not required nor permitted as fill shall be removed from University property at the contractor's expense.

2. Specify that soils be compacted to the following minimum densities determined by Standard Proctor Tests (ASTM D-698) unless special conditions override:

- 2.1. **ROAD BEDS AND PARKING AREAS:** 95% up to 12" below subgrade, 100% for upper 12" below subgrade. Compaction is required for the entire subgrade area for the full width and depth of slope of embankments supporting berms and pavement.

2.2. INSIDE THE STRUCTURES

- 2.2.1. **UNDER NON-STRUCTURAL SLABS ON GRADE, with normal loading:** 95%.

- 2.2.2. **UNDER FOUNDATIONS, ISOLATED PADS, AND FOOTINGS:** 100%.

2.3. OUTSIDE THE STRUCTURES

Extreme care shall be taken to obtain proper compaction in areas which abut walls, curbs, adjacent slabs, and other structures where use of mechanical compactors is difficult.

- 2.3.1. **FOUNDATION BACKFILL UNDER PLANTING BEDS AND LAWN:** The upper 2 feet of soil below finish grade - 90% maximum. Remainder of backfill - 95% if depth is less than 10 feet; - 100% if depth exceeds 10 feet.

- 2.3.2. **FOUNDATION BACKFILL UNDER PAVEMENTS:** 100%.

- 2.3.3. **UNDER PAVED PEDESTRIAN WALKS AND COURTS:** 95%.

- 2.3.4. **BACKFILL AROUND MANHOLES AND OTHER UNDERGROUND STRUCTURES:** 95% if depth is less than 10 feet; 100% if depth is more than 10 feet.

- 2.3.5. **UNDER LAWN AND PLANTING AREAS NOT ADJACENT TO STRUCTURES:** The upper 1 foot of soil below finish grade - 90% maximum. Remainder - 95%.

02230. SOIL COMPACTION CONTROL

1. Compaction control shall be provided for all fill, backfill, and embankments, both inside and outside the perimeter of the structure. Field compaction tests and related laboratory analyses shall be performed by a qualified independent laboratory (conforming to American Society for Testing and Materials standards), under the supervision of a registered professional engineer specializing in soils engineering. Soils proposed for fill, backfill, and embankments shall be analyzed by the soils engineer to determine acceptability; no soil shall be placed until it is approved by the soils engineer. A representative of the testing laboratory shall provide continuous inspection during placement and compaction operations; tests shall be made in a quantity that will assure uniform compaction and density of each course or lift of fill.
2. The University solicits proposals for the testing laboratory shortly after the receipt of construction bids. The Designer should contact the University prior to this time regarding any specific requirements for the proposal request. Note that this construction materials testing program is different from the soils exploration program in 02010.

02300. PILE FOUNDATIONS

1. Before a decision is made to use pile foundations, the Designer shall make a thorough examination of structures and occupancies and equipment adjacent to the site to determine what effect vibratory forces will have. Wood piles are prohibited.

2. INSPECTION SERVICES

The Designer shall devise tests of pile foundations and provide full time inspection of pile driving and caisson construction to assure conformance with the drawings and specifications.

02500. SITE DRAINAGE

Updated: December 23, 2014

1. SURFACE DRAINAGE

Slope sites to insure positive drainage without wet spots. Drain away from buildings, sidewalks and driveways.

2. In stairwells, areaways and similar locations where leaf clogging of conventional drains would be expected, provide scupper or dome type drains.
3. Reference City of Greensboro standards for storm drainage construction where applicable. Drain grates shall be designed to prevent bike tires from falling in them.

4. Consider the use of bioswales, bio-retention areas, and other storm water devices to treat and slow runoff water.

02550. SITE UTILITIES

Updated: December 12, 2014

1. COORDINATION OF DIVISIONS OF THE WORK

Care is required in preparation of documents to assure no overlapping and no gaps between the work for the various contracts. Each contractor shall be required to perform excavation, trenching, and backfill for his installations. Materials and compaction of fill materials shall meet the requirements stipulated in Division 2, regardless of who performs this work; therefore, in Divisions 15 and 16 the requirements for earthwork may be best specified by making reference to Division 2.

2. UTILITY LOCATOR

The Designer will note on the site utility installation drawings that all underground utilities will be made electronically locatable. The designer will provide specifications and drawings that detail how the utility will be made electronically detectable.

The Designer in bold print, on all site utility installation drawings, will provide a note stating that prior to digging, the contractor will contact "NC 811" at 1-800-632-4949 (www.nc811.org) to have all public utilities located and marked.

The Designer, in bold print, on all site utility installation drawings, will provide a note stating that prior to digging the contractor will contact a third party Underground Utility Location company, approved by the Owner, to locate and mark all of the University's underground utilities located in the area of excavation.

3. MANHOLES

Manhole frame, cover and grate castings shall include the name and location of the manufacturer. Covers shall be at finish grade and have cast identification of "STORM DRAIN", "SANITARY", "STEAM", "ELECTRICAL", "TELEPHONE", etc. as appropriate. Manhole covers 36" in diameter or greater shall be equipped with hooks for attaching chains to aid in removing them. Masonry manholes shall be parge coated inside and outside. Manholes are considered confined spaces and appropriate safety measures should be taken when entering them.

02600. PAVING AND SURFACING

1. This is a pedestrian oriented campus and as such, designs will be prepared with pedestrian traffic (including those with mobility impairments) as the highest priority.
2. The campus has a handicapped accessibility route designated to provide access throughout the campus. This route will be augmented by new construction and must remain intact during construction work or an alternate route shall be provided.
3. Roads, parking, service courts, subgrade and related work shall be constructed by road building firms fully qualified and equipped to perform the total work.

02610. PAVING

1. BASE DRAINAGE

Over impervious subbases, drainage trenches filled with stone shall be provided for drainage of the aggregate base. These drainage trenches shall be located at low points and at intervals of 100 feet or less.

2. PROTECTION OF SURFACE COURSE

After completion of surface course, no vehicular traffic or parking shall be permitted on the pavement until the surface has cured.

3. REPAIRS

Depressions and abutments to existing pavement shall be repaired by cutting out the surfacing to a minimum depth of one inch with vertical cuts, filling, and rolling the areas. Feathering of patches and abutments to existing pavement is prohibited.

4. CONCRETE PAVING

Heavy duty, reinforced concrete paving shall be used for loading dock and dumpster areas. Refer to Section 02760, Item 1.3.

02620. CURBS AND GUTTERS

1. CAST-IN-PLACE CONCRETE shall be used unless other design is required to match existing conditions. Minimum 28-day strength shall be 4000 psi with 4% to 6% entrained air.
2. EXPANSION JOINTS shall be specified and shown on the drawings.

3. Curbs shall pitch to catch or release water as required by adjacent paving grades. Pitch sections shall be clearly designated on the drawings.

02630. WALKS

1. Typical width shall be 6 feet for minor walks and 8 feet for major walks and walks that may have vehicular use.

2. **DESIGN CONSIDERATIONS**
Updated: December 24, 2014

Selection of paving material should be based on all of the following criteria as a whole:

- 2.1. Existing paving material in the vicinity.
- 2.2. Cost and economic factors.
- 2.3. Maintenance and durability.
- 2.4. Aesthetic value.
- 2.5. **Reduce the on-site heat island effect for non-roof hardscape surfaces by specifying High Solar Reflectance Index (SRI) materials for paving, or ensure that hardscape areas are shaded within the prescribed time period by the current LEED Rating System.**

3. **CONCRETE WALKS**

Typical concrete walks shall be 4 inches thick, 3000 PSI concrete with welded wire fabric over 4 inches of gravel base; designed suitable for vehicular use; and have a light broom finish perpendicular to traffic flow. Where a service vehicle is likely to drive on a wide walk, a 6 inch concrete thickness with appropriate welded wire fabric shall be used.

4. **BITUMINOUS WALKS**

Typical bituminous walks shall be a full 2 inch compacted thickness on a 4 inch compacted gravel base. The base and the bituminous material shall each be compacted to 98% of their test densities.

5. **MASONRY PAVERS**

When pavers are used, it is preferred to have them on a concrete, mortar or asphalt substrate rather than a sand bed.

6. COMPANION RAMPS

When a curb ramp is built on one side of a street, a companion ramp is required on the opposite side of the street. When project limits would normally end within a street intersection, the limits must be extended to allow construction of a companion ramp on the opposite side of the intersection.

02760. SITE FURNISHINGS

Updated 7/8/13 (Trash and Recycling Cans + Exterior Benches moved to Guideline #10000)

1. DUMPSTERS & COMPACTORS

The number, location and size of dumpsters and compactors must be evaluated for each specific project. The following information is for a typical dumpster or compactor on the UNCG campus:

- 1.1 Cost: Cost of dumpsters, recycling containers, compactors, etc. shall be included in the movable equipment budget for projects. Cost estimates will be available from Facilities Operations.
- 1.2 Location: Dumpsters, compactors and enclosures shall be located in close proximity to the service area of each building. Paved access for staff to deposit waste and vehicle access by a 20 cubic yard front load refuse truck shall be considered in the location. Provide truck turn-around route or access without creating a traffic hazard. At least 50' of straight clearance is needed for truck access to the dumpster/compactor. See attached drawings for specific dimensions and configurations. Provide highway grade paving for the route that the refuse truck will take to service the container. Locations shall reduce the visual impact of the dumpster. Built or landscaped screening shall be provided for each location. Gates or other devices requiring operator time are not desired. The dumpster/compactor screen should typically accommodate an 8yd front-load trash dumpster, an 8 yd co-mingled or cardboard dumpster (7' tall, 4'8" deep, 6' wide), and a 6 yd. front feed compactor (Vert-I-Pac or similar) with 3' clearance around each dumpster/compactor and 25' overhead clearance. Dumpsters will be provided by the project's moveable equipment budget. Compactors may be provided by the moveable or fixed equipment budget, but power for the compactor should be designed and provided in the project with final power connection by the contractor. A lockable fused disconnect switch should be provided within sight of the compactor's electrical panel box and not more than 50' from the compactor.
- 1.3 Pad: Provide a level concrete pad sized to accommodate the dumpster/compactor enclosure and a minimum 10' deep apron immediately in front of the enclosure for the dumpster truck's front wheels to sit on while emptying the container. The

pad and approach must be on the same plane. The pad and apron shall be 6" thick, 4000 psi minimum concrete reinforced with 6x6-W2.0xW2.0 WWF on 6" of compact aggregate and compacted subgrade. The pad and apron should be thickened to 14" at the edges with two horizontal #4 rebars placed over each other.

1.4. Piedmont Disposal Front Load Truck dimensions (truck currently in use at UNCG):

Height: 13'-3"
 Vertical Clearance: 18'-0"
 Width: 8'-0"
 Side Clearance needed: 12'-0" (two feet each side, total of 4 extra feet)
 Weight: 24 tons (empty)

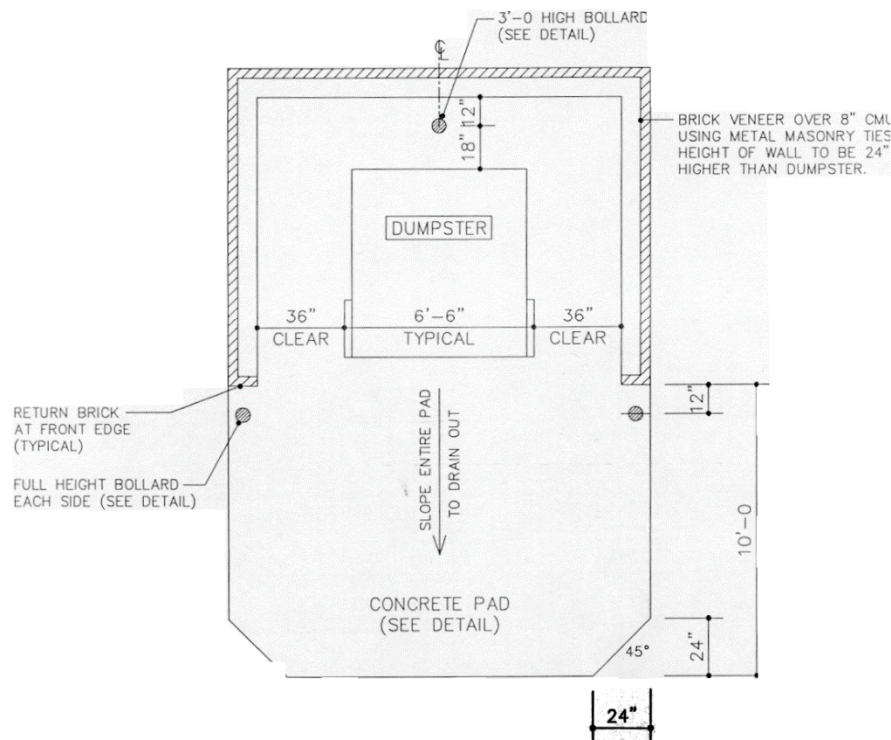
1.5. Bollard to be primed and painted safety yellow.

STANDARD DUMPSTER HEIGHTS & DEPTHS VARY. STD. WIDTH IS 6'-0" PLUS THE HANDLES. SIZE SCREEN ACCORDING TO UNIT USED.

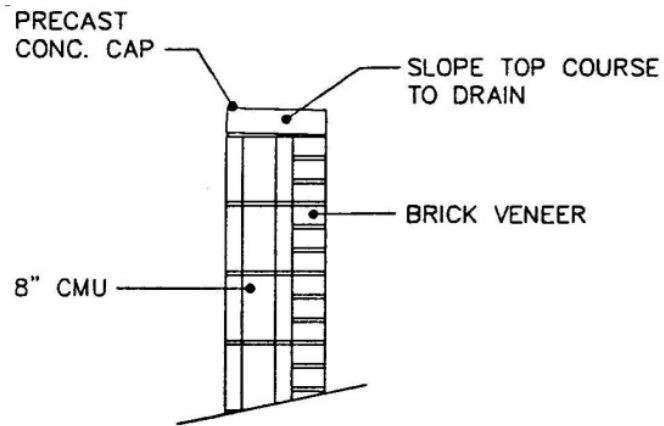
IF TWO DUMPSTERS ARE LOCATED WITHIN ONE ENCLOSURE ALLOW A MINIMUM OF 36" BETWEEN BOTH DUMPSTERS AS WELL AS OUTER SIDES.

SIZE	HT.	DEPTH	WDL
A	42"	36"	
B	48"	54"	
C	60"	66"	
D	80"	66"	

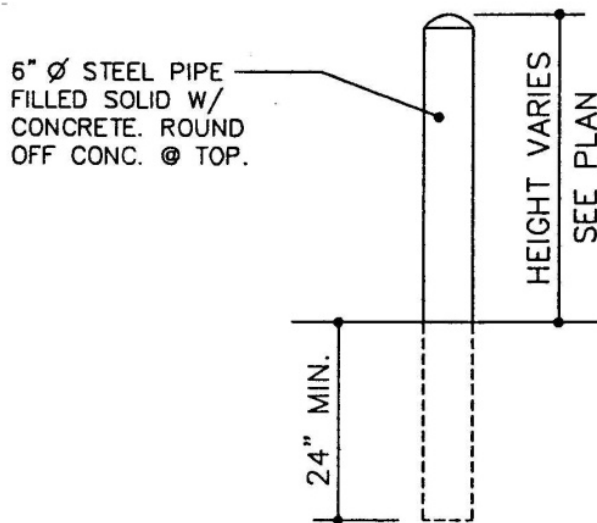
2 cu.yd. 4'
 8 cu.yd. 6'
 30 cu.yd. 8'



TYPICAL DUMPSTER PAD SCALE: 1/4" = 1'-0"
 W/ BRICK SCREEN WALL



TOP OF WALL DETAIL SCALE: $\frac{1}{2}$ " = 1'-0"
W/ BRICK SCREEN WALL



BOLLARD DETAIL SCALE: $\frac{1}{2}$ " = 1'-0"

02800. LANDSCAPING

Plant material selections must be made from stock indigenous to the specific locations where it will be placed. Persons selecting materials must be knowledgeable about the plants that will survive in the specific area. Refer to the Grounds Superintendent for assistance. Plant lists shall contain both common and technical names, quantities and plant delivery method (B&B, bare roots, etc.).

02820. LAWNS

1. GENERAL

- 1.1. Grades: The areas to be grassed will be at finished grade prior to seeding and this grade shall be maintained.
- 1.2. Guarantee: The contractor shall guarantee a live stand of permanent grass consisting of 95% coverage minimum for seeded grass with no bare spots greater than 1 square foot. Acceptance will be made after the grass has been mowed at least once by the Contractor and shows sufficient stand and cover as specified.

2. MATERIALS

Updated: December 23, 2014

- 2.1. A soil analysis shall be prepared by a testing agency approved by the Designer. The contractor shall provide all elements recommended by the analysis.
- 2.2. Permanent grass: Shall be 99% pure; 85% to 95% Turf type tall Fescue, such as Olympic or Rebel, sown at a rate of 5 lbs/1000 square feet. Red Fescue may be used for heavily shaded areas. All seed must be free of weed seed.
- 2.3. Fertilizer: Shall be a commercial fertilizer delivered in unopened original containers each bearing the manufacturer's guaranteed analysis. Any fertilizer which comes caked or otherwise damaged shall not be accepted. Fertilizer selection and application rate shall be determined by soil analysis. Lime shall be granulated agricultural limestone applied at a rate according to soil sample analysis. Small disturbed lawn areas that require reseeding shall receive 40 pounds of 5-10-10 fertilizer and 75 pounds of lime per 1000 sq. ft. of yard. **When available, use organic fertilizers in lieu of chemical fertilizers.**
- 2.4. Mulch: Shall be weed-free grain straw. Quantity shall be 3,300 pounds per acre (approximately 75 pounds per 1000 square feet) or 65 bales per acre (1-1/2 bales per 1000 square feet).

3. EXECUTION

- 3.1. Cultivation: Spread average 4" deep layer of topsoil after scarification to a depth of 6" minimum. Spread lime evenly at the rate determined by soil sample analysis and work it into the soil by plowing and cross plowing all areas to a minimum depth of 6" including new 4" topsoil. Pulverize the soil with a roller type pulverizer with 4" tines. Hand rake the soil to level and remove loose stones and other debris leaving a smooth friable condition suitable for seeding.
- 3.2. Fertilization: Apply fertilizer uniformly at specified rate with an approved distributor prior to seeding. Fertilizer shall be worked into the top three to four inches of the soil.
- 3.3. Seeding: Shall be with soil moist but not wet and broadcast by means which will insure uniform distribution and thorough coverage of the entire area. Seed shall be covered lightly (1/4") and rolled with a light roller or cultipacker to firm the seed in the soil. Mulch shall be applied to the area evenly and lightly. Areas which do not show a prompt "catch" or have been washed shall be reseeded for thorough coverage.

4. MAINTENANCE

- 4.1. Watering: The Contractor shall sufficiently irrigate seeded areas to maintain a continually moist condition until the seed has germinated and become established. Watering shall continue to assure maximum survival of grass till acceptance of work. One inch/week of water after grass is established is a minimum requirement.
- 4.2. Mowing: The Contractor shall conduct mowing operations to keep the lawn in a neat and well groomed appearance. The lawn shall only be cut when grass and soil are dry. Not more than 1/3 of the total leaf surface is to be removed at one mowing. It is not necessary to remove clippings if grass is mowed according to these specifications. Prior to acceptance, a final mowing shall be conducted. Mowing for Fescue shall be done with rotary type mower set at 3 inches. Bermuda should be cut at 1-1/2 inches.
- 4.3. Responsibility of lawn care: The care of the lawn shall be the responsibility of the Contractor until the Project is accepted. Lawn care shall include watering, feeding, and cutting consistent with general practice of care for the type of lawn. The Contractor shall fully maintain the lawn throughout the warranty period except for mowing and watering. Facilities Operations will be responsible for mowing and watering but this will in no way void the warranty.
- 4.4. Submittals: Submit soil analysis, seed and fertilizer data, and instructions for planting and care of the lawn for approval by Facilities Design & Construction, with copy to Grounds Superintendent, prior to purchase of material.

02831. TREE PROTECTION

1. GENERAL

It is desirable to save existing trees whenever possible. During design, the Designer should identify specifically those trees to be saved and those which must be removed. Trees which must be damaged by construction to the point that they have little chance to survive should be considered for removal. On projects that have a large amount of specimen trees the University normally requires the Designer hire a Natural Resource tree specialist as part of the team to prepare Natural Resource drawings. The Design Project Manager will help the Designer choose an acceptable consultant.

2. PROTECTION

- 2.1. All trees to remain are to have protective barriers set outside the drip line of the tree. Barriers shall be installed prior to any construction and shall remain until construction and site cleanup is complete. The tree protection barrier fence shall be made of 4'-0" minimum height woven wire fence of minimum 14.5 gauge with 6'-0" "T" bar metal fence posts with rebar caps on each post. Spacing between posts to be 10'-0" center to center maximum. Attach flagging to the fencing for visibility and use "Arctic" weight orange flagging. No construction material, debris or excavated material shall be stored within the barricade area.
- 2.2. Protect root system from compaction, flooding, erosion and noxious materials in solution from spillage of construction materials. Do not park vehicles under existing trees.

3. EXCAVATION AROUND TREES

- 3.1. Care must be taken in excavating foundations and installation of utility lines adjacent to trees that are to be saved.
- 3.2. Excavate within drip line of trees only where indicated on plans. If excavation will damage trees extensively, the trees should be removed and replaced.
- 3.3. Where trenching for utilities is required within the drip line, tunnel under or around roots by hand digging. Do not cut main lateral or tap roots. Cut smaller roots which interfere with a sharp pruning tool; do not chop or break.
- 3.4. Do not allow exposed roots to dry out before backfill is placed; provide temporary earth or moist burlap cover.
- 3.5. Any tree to remain that has had excavation within the drip line shall be pruned by a professional arborist according to the National Arborist Association Standards Class

IV -Cutting Back or Drop Crotch Pruning (see Sheet #2).

Cutting back or drop crotch pruning shall consist of the reduction of tops, sides, underbranches or individual limbs. This practice is to be undertaken only in cases of utility line interference, or where certain portions of the roots or root systems have been severed or severely damaged.

The following specifications shall apply:

- 3.5.1. All cuts shall be made sufficiently close to the trunk or parent limb, without cutting into the branch collar or leaving a protruding stub, so that closure can readily start under normal conditions. All cuts shall be clean. It is necessary to pre-cut branches too heavy to handle to prevent splitting or peeling the bark. Where necessary, to prevent tree or property damage, branches shall be lowered to the ground by proper ropes or equipment.
- 3.5.2. Remove the weaker, least desirable, crossed or rubbed branches. Such removal should not leave holes in the general outline of the tree.
- 3.5.3. Treatment of cuts and wounds, with tree wound dressing, is optional except where open wounds in certain trees may attract insects that carry disease or allow fungus invasion. If such treatment is made, materials non-toxic to the cambium layer must be used, and care taken to treat only the exposed wood with a thin coat of dressing. Old injuries are to be inspected. Those not closing properly and where the callus growth is not already completely established should be traced where appropriate. If desired, for cosmetic purposes, the wound may be treated with a thin coat of wound dressing.
- 3.5.4. Generally, in reducing size (cutting back) not more than one-third of the total area should be reduced at a single operation. When cutting back, only drop crotch as much as necessary. Where practical, avoid cutting back to small suckers. All effort should be made to cut back to a lateral, one-third the diameter of the cut being made. In reducing overall size, attention is to be given to the symmetrical appearance. Top is to be higher and sides reduced in order to maintain a tree-like form. When cutting back trees, one should have in mind to make them shapely and typical of their species.
- 3.5.5. On thin bark trees, just enough limbs shall be removed to get the effect wanted without admitting too much sunlight to the trunk of the tree or the top of large branches. Care should be taken with the following species: lindens, maples, beeches, apples, oaks, and other trees susceptible to sunscald, growing in different geographical areas. The damage may be minimized by doing work on susceptible species during the dormant season.

- 3.5.6. In lifting the lower bottom branches of trees for underclearance, care should be given to symmetrical appearance, and cuts should not be made so large that they will prevent normal sap flow.
- 3.5.7. Periodical drop crotching or cutting back of silver maples, poplars, and other trees with brittle and soft wood is an established practice and has proven beneficial in maintaining the safety of these trees over long periods of growth. Other trees with soft and brittle wood growing in different geographic areas may be specifically named when it is common practice to control growth by cut-back. An alternate method in some situations for maintaining the safety of these trees would be cabling and bracing.

4. GRADING

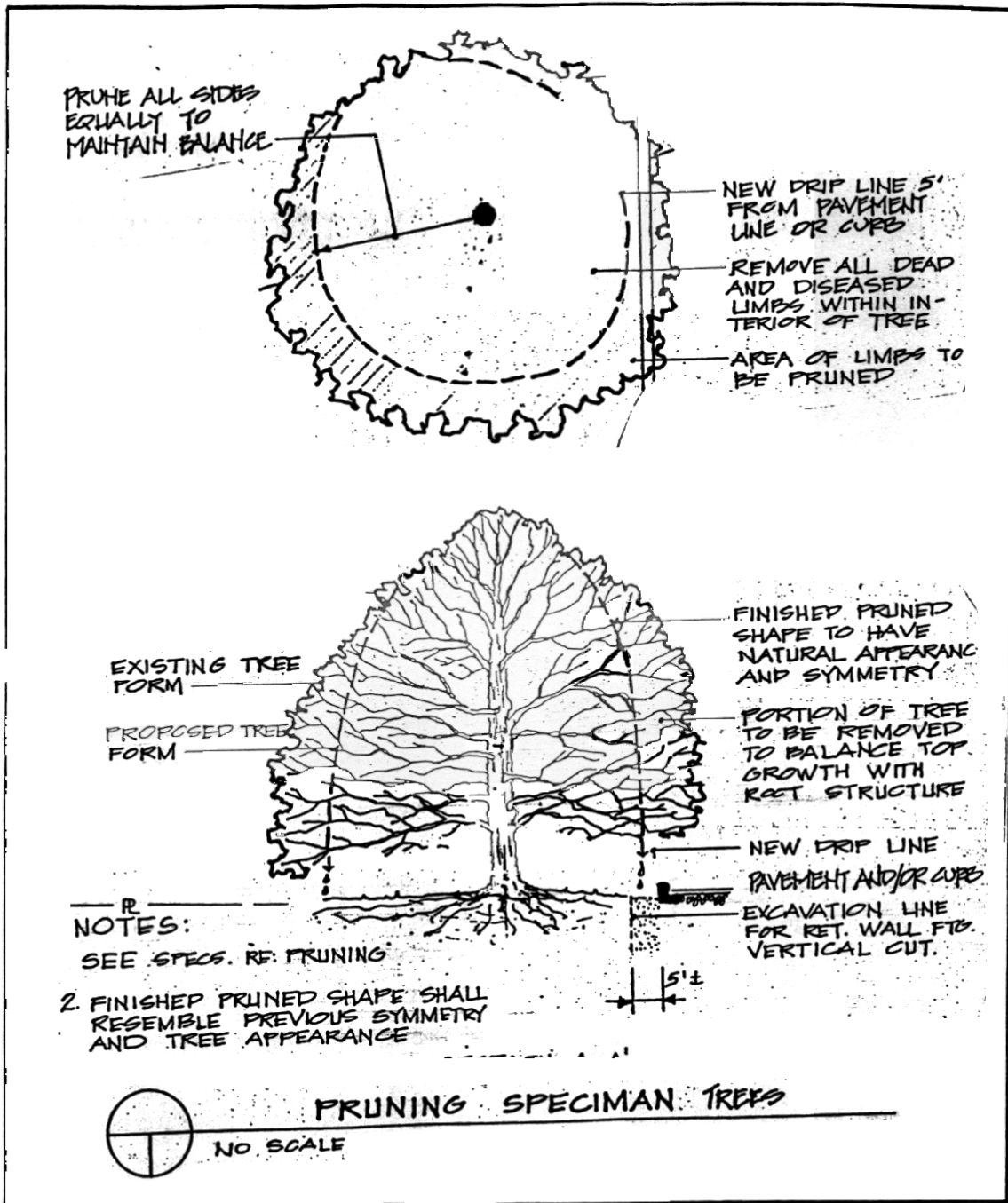
Maintain existing grade outside drip line of trees, unless otherwise indicated on plan. Do not leave open excavations in the vicinity of protected trees for longer than 2 days to prevent soil moisture reduction.


5. FERTILIZATION

The specifications shall define proper fertilization and the contractor shall fertilize affected trees during construction.

6. REPAIRS TO DAMAGED TREES

- 6.1. Repairs to damaged trees shall be performed by a professional arborist following the preceding instructions for pruning.
- 6.2. Trees damaged beyond repair or that do not survive will be removed by the contractor. A replacement cost will be determined by the Designer and paid by the contractor. The University will reserve the option of having the contractor replace the tree with one of equal size and quality.



TREE PROTECTION STANDARD		SHEET: 2	 <p>THE UNIVERSITY OF NORTH CAROLINA GREENSBORO PHYSICAL PLANT DEPARTMENT</p>
BY: M.M.	CHECKED:	WORK ORDER/PROJECT #:	
DATE: 11-15-88	SCALE:		