

# **CHAPTER V**

## **TECHNICAL DESIGN & PERFORMANCE STANDARDS**



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## DIVISION 2 – SITE WORK

### 02070 Selective Demolition

This section MUST be included in Project Specs. An up-to-date and downloadable version of this section can be found on the OWRR Guidelines website [www.fac.unc.edu/OWRRGuidelines/](http://www.fac.unc.edu/OWRRGuidelines/). Related sections: 01060 Regulatory Requirements, 01505 Construction Waste Management.

- [Demolition](#)
- [Disposal of Equipment and Materials](#)
- [Definitions](#)
- [Execution](#)

#### Demolition

Proper coordination for the shut-off of utility services and control measures for dust and noise must occur prior to commencement of any demolition work. Considerations must be given to on-going University activities in adjacent areas. In confined areas of selective demolition, install and maintain dust and noise control barriers to keep dirt, dust, and noise from being transmitted to adjacent areas. Remove these protection measures after demolition operations are completed.

Maintain and protect existing building services which transit the area affected by selective demolition. Demolition activities that affect parking, vehicle or pedestrian traffic must be approved by UNC Department of Public Safety at (919) 962-8100 prior to work commencing.

Completely remove all equipment noted for removal including all associated devices, controls, conduit, wiring, etc. Remove all exposed conduit and wiring back to the panel from which it is served. Mark all disassociated breakers "spare". Unless otherwise noted, the Contractor shall fill and patch all wall, floor, and ceiling openings resulting from this demolition work with materials and finishes identical to adjacent materials and finished.

Unless otherwise noted, remove all wiring devices, fixtures, controls, circuitry (conduit and wiring), etc., made obsolete by the demolition within or around the building.

The Contractor shall relocate all existing piping, circuitry (conduit and wiring), ductwork, etc., which impedes the installation of new materials and equipment, unless otherwise noted.

Demolish, remove, demount, and disconnect the following:

- Inactive and obsolete piping, fitting and specialties, equipment, ductwork, controls, fixtures, and insulation.
- Piping and ducts embedded in floors, wall, and ceiling may remain if such materials do not interfere with new installation. Remove materials above accessible ceilings. Drain and cap piping and ducts allowed to remain.

All demolition which involves the removal or disturbance of Asbestos Containing fire proofing, finish material, insulation or other asbestos containing material shall be performed in strict accordance with the Division of State Construction "Specifications for Asbestos Abatement" and must be approved by the University's Department of Environment, Health and Safety.

Notify the Department of Environment, Health and Safety (919) 962-5507 if any underground tanks are removed from the ground on the construction site.

Notify the Department of Environment, Health and Safety at (919) 962-9752 for information on proper disposal of ballasts and fluorescent light bulbs.

Prior to building demolition, the Department of Environment, Health and Safety should be contacted at (919) 962-5507 to review the project for potential mercury containing equipment such as piping in dental and scientific buildings, thermostats, and switches.

### **Disposal of Equipment and Materials**

The Contractor shall remove all generated trash, recyclables and debris (including, for example, old carpeting) at his or her expense. The Contractor may not place this trash and debris in University dumpsters. The Owner, acting through the Designer, shall retain the right to direct the disposal of salvageable equipment and materials (such as slate roof shingles, mechanical equipment, brick pavers). The Contractor will comply with all requirements as outlined in [01505 \(Construction Waste Management\)](#) and [01060 \(Regulatory Requirements\)](#). After selective demolition is complete, submit a list of items that have been removed and salvaged.

The University, as a State institution, is accountable for controlled property and equipment including electrical, mechanical, and plumbing equipment. No equipment is given to the Contractor unless specifically listed in the job specifications prior to contract award. The Contractor shall deliver any surplus equipment to the Surplus Property Warehouse and return a receipt for the equipment to the Facilities Services Data Control Office.

For equipment retained by the Contractor under the contract, the Contractor shall remove the equipment control decals and return them to the Facilities Services preventive maintenance shop or the University's Asset Manager. Do not disturb equipment or fixtures bearing a hazardous, biological or radiological warning sign in any way until authorized by the University Department of Environment, Health and Safety Office who will remove or obliterate the warning sign.

### **Definitions**

**Remove:** Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

**Remove and Salvage:** Detach items from existing construction and deliver them to Owner ready for reuse.

**Remove and Reinstall:** Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

**Existing to Remain:** Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

### **Execution**

**Removed and Salvaged Items:**

- Clean salvaged items.
- Pack or crate items after cleaning. Identify contents of containers.
- Store items in a secure area until delivery to Owner.
- Transport items to storage area designated by Owner, Contractor or other authorized party.
- Protect items from damage during transport and storage.

#### Removed and Reinstalled Items:

- Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
- Pack or crate items after cleaning and repairing. Identify contents of containers.
- Protect items from damage during transport and storage.
- Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

#### Existing Items to Remain:

- Protect construction indicated to remain against damage and soiling during selective demolition.

When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

## **02200 Earthwork**

### **General Excavation, Backfill, and Compaction**

The Contractor shall exercise care, when excavating for footings and foundations, not to disturb the bottom of the excavation; use hand tools to reach final grade. Prevent surface and subsurface water from flowing into or standing in excavations. Remove water by pumping if necessary. This water can not be pumped to the storm sewer system without first going through a sediment basin or other sediment filtering device prior to its discharge to the storm sewer system. Divert storm water away from excavation areas. Excess clean earth removed from the site may be used by the University (Contact the Grounds Department) or the Orange Regional Landfill, contact the Landfill manager at (919) 929-9823.

Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface. When existing ground surface has a density less than that specified below for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

To avoid subsurface problems during the life of a new building, place particular emphasis upon the selection of backfill material around the walls of buildings. Take the following precautions to ensure that backfilling proceeds satisfactorily:

- Remove mortar spoil and other debris that is injurious to desired growth of plant materials.
- Remove sharp objects such as broken blocks, stones, etc., to prevent the puncturing of waterproof membranes.
- Remove wood, paper, and other organic material to prevent the fostering of termite colonies and eventual subsidence of the backfill.

Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

Place backfill and fill materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Control soil and fill compaction, providing minimum percentages of maximum density, accordance with ASTM D 1557, specified for each area classification indicated below. Correct improperly compacted areas or lifts as directed by the Designer if soil density tests indicate inadequate compaction:

- Under structures, building slabs and steps, and pavements, scarify and recompact top 12 inches of subgrade and each layer of backfill or fill material at 95% maximum density.
- Under lawn or unpaved areas, compact top 6 inches of subgrade and each layer of backfill or fill material at 90% maximum density for areas of shallow fill. For areas of deep fill compact to minimum density % recommended by geotechnical engineer to avoid settlement, but no less than 90%
- Under walkways, scarify and recompact top 6 inches of subgrade and each layer of backfill or fill material at 95% maximum density.

### **Excavation and Backfilling of Utilities Trenches**

All trenching and backfilling work shall conform to the N.C. Department of Labor, Division of Standards and Inspection Construction Bureau, Article No. XXI, Bulletin No. 1.

Any trenching, excavation, or backfill in the street or crossing sidewalk will require a traffic control plan and approval by the appropriate agency (UNC-DPS, Town of CH, and/or NCDOT)

Any trenching work requires a tree protection plan approved by the University Grounds Department, Directional boring may be required.

Perform all excavation required for the installation of utility work to the depth indicated and/or required. During excavation, place material suitable for backfilling in an orderly manner a sufficient distance from trench banks to avoid overloading and to prevent cave-ins. Remove waste materials from site. Provide adequate support of trench sidewalls for protection of the work and personnel. All trenches 4 feet and deeper require shoring.

Flowable fill should be used as a standard unless noted otherwise to reduce settlement and lack of compaction.

Clay, silt, and sand, muck, gravel, hardpan, loose shale, loose stones in masses, old building materials and roots is classified as earth excavation and is excavated without extra compensation.

Excavate trenches to sufficient width for the proper pipe laying; make trench banks as near to vertical as practicable. Grade the bottom of the trenches accurately to provide uniform bearing and support on undisturbed soil for each section of the pipe. Form depressions for joints only sufficiently large to properly make the joints. Remove wet or otherwise unstable soil incapable of properly supporting the pipe and backfill the trench to proper grade with coarse sand, fine gravel, or other suitable material. Excavate trenches to a depth that will provide a minimum cover of three feet (3') above the top of the pipe, and will avoid interference with other utilities.

The width of the trench at and below the top of the pipe shall be such that the clear space between the pipe barrel and the trench wall shall not exceed eight inches (8") on either side of the pipe pipe and shall be sufficient for proper compaction of fill around pipe. Round the trench bottom so that at least the bottom quadrant of the pipe rests firmly upon undisturbed soil for as close to the full length of the pipe as practicable. Perform this portion of the work manually only a few feet in advance of the pipe laying. Allow only personnel skilled in this type of excavation to perform this work.

Exercise extreme caution in advance to avoid damage to existing underground utility lines. Protect existing utilities indicated in the drawings or which are located for the Contractor in advance, from damage. If underground utility lines are damaged, the Contractor shall repaired them at his or her expense. Prior to any digging below, mark the utility lines in the area on site. Do not rely entirely on "as built" drawings.

Do not backfill trenches until all required pressure tests are performed and until the installed system conforms to the requirements of the specifications and the as-built location has been surveyed to the University survey requirements and recorded. Backfill trenches carefully with materials approved for backfilling. Backfill material shall consist of earth, loam, sandy clay, soft shale, sand and gravel, and other approved materials free from stones or large earth clods. Deposit materials in 4 inch layers where hand held compaction equipment is used and 6-inch layers for mechanical compaction and ram carefully and thoroughly until the top of the pipe has a cover of one foot (1'). Take special care to avoid penetrating protective coatings of piping. Place the remainder of the backfill in 6 inch layers, and tamp after each layer is placed. Compact backfill to 95% of maximum density at optimum moisture content using the modified proctor method under buildings, structures, and paving and to 12 inches below finish grade in other areas continue at 90% to finish grade in areas not under buildings, structures or pavement. The Contractor shall inform the Owner and Designer before any backfill work is done so that the Owner can arrange for a testing laboratory to test the backfill as it is placed by the Contractor. This Contractor shall reimburse the Owner for the cost of any additional tests required because of the failure of a previous test.

Compact all backfilling under streets, sidewalks and drives as described above and allow to settle for three days. Patch all pavement and concrete with the same materials that are removed. The asphalt shall conform to the N.C. State Highway Commission requirements. The concrete shall be rated at 3000 PSI and shall conform to the general construction portion of the specification for concrete.

Place safety markers or barriers around all work areas and light work areas at night with flambeaux or other suitable lights.

### **Erosion and Sediment Control (ESC) Principles**

This section provides basic information on the principles of erosion and sediment control that shall be applied to all The University of North Carolina at Chapel Hill (UNC-CH) construction projects. This section highlights key principles that are particularly critical to achieving effective control. These principles are required to be incorporated into every UNC-CH project, including force account, open-end, informal, and formal contracts. The specific ESC measures to be installed at each project shall be designed by the designer and implemented by the contractor. The specific methods described in this document are not prescriptive, but each of the concepts described below shall be applied to each construction project.

**Design the project to fit the natural topography, soils and drainage patterns.** Through such practices as limiting disturbance of steeper slopes and avoiding disturbance of natural drainage ways the characteristics of the site can be used to minimize erosion and sediment transport.

### **Emphasize erosion control rather than sediment control.**

Erosion control minimizes the entrainment of sediment by runoff, while sediment control removes entrained sediment from runoff. Erosion control is more efficient and cost-effective because it is impossible to entirely remove sediment from runoff once it is entrained. Examples of erosion control include covering disturbed soils and controlling surface runoff using measures such a dikes and lined ditches. One illustration of the relative effectiveness of erosion control is straw mulch, which can reduce sediment concentrations in runoff over 90%.

Since it is nearly impossible to entirely prevent erosion, it will also be necessary to incorporate sediment control facilities such as sedimentation ponds and silt fences. Sediment controls vary in their effectiveness, but typically reduce sediment concentrations by 50 to 75%. However, sediment controls have little effect on the very fine



sediment that causes turbidity, whereas cover measures, such as straw mulch, can be highly effective in reducing turbidity.

**Minimize the extent and duration of area exposed.**

Restricting clearing to only those areas necessary for construction is probably the single most effective form of erosion control. Additionally, exposing areas only as long as necessary reduces the risk of erosion substantially. This can be accomplished by planning the project so that areas are disturbed only when construction is imminent, and by mulching or seeding disturbed areas as soon as grading is completed.

**Keep runoff velocities low.**

While erosion of exposed soil begins with a single raindrop, the largest volumes of eroded materials are typically associated with concentrated runoff forming rills and gullies. One of the best ways to minimize erosion, therefore, is to reduce the possibility of concentrated runoff by intercepting runoff and conveying it in a non-erosive manner to a sediment pond or trap. This can include the use of dikes, swales, and benches to intercept runoff on slopes and ditches or drains to convey the intercepted runoff.

**Retain sediment on site.**

Sediment retention is less effective than erosion control measures, such as cover, but is a vital part of most projects because it is impossible to completely prevent erosion and the entrainment of sediment by runoff. Sediment can be retained by allowing it to settle out in ponds and traps or by filtering runoff from small areas through vegetation or a silt fence. Note that settling and filtration typically only remove sand-sized and coarse silt particles. Fine silts and clays cannot be removed in these ways, unless the runoff is released to vegetated areas or if flocculants, such as chitosan, are used.

**Thoroughly monitor the site and maintain all ESC measures.**

Maintenance and vigilance are the most vital components of effective ESC management. All measures require regular maintenance. The overall site also needs to be constantly examined to ensure that all areas are protected, that the measures are working together to provide maximum protection, and that all areas are mulched and/or vegetated as soon as possible. The contractor shall identify personnel to serve as the ESC point of contact. This person shall be tasked with inspecting, maintaining, and repairing ESC measures.

**02280 Termite Treatment**

The soil in the entire building area shall be poisoned or termite treated. Provide a five-year guarantee for termite treatment. Do not use any chemical which has been banned in any State.

Termite control should be accomplished by use of borax traps and non-wood building materials.

**02283 Pest Control**

To eliminate problems of rodent and pest infestation, when evidence of a problem is observed, the Contractor shall periodically treat the construction site and storage areas during construction and immediately before building acceptance.

The UNC Grounds Department employs an integrated pest management program for controlling insect pests and weeds. The Designer should consult the Grounds Department before using any chemical means of pest control. Organic soil amendments are preferred over chemical fertilizers.

## **02444 Permanent Fencing**

If required, chain link type fencing may be used on campus in areas away from public view. Any permanent chain link type fencing shall be at least six feet (6') high, with landscape fabric on one side of the fence to reduce noise, dust, and visual impact, a top rail and lockable gate(s).

## **02450 Walks - Steps and Ramp Construction**

Construct all walks of paving brick laid on sand, with pattern identical to existing walks. Do not use soldier courses. Construct walk surfaces one inch (1") above finish grade. Provide pavers, 3 5/8" x 7 5/8" x 2 1/4" in dimension, similar in color to those currently installed on campus and complying with ASTM Specifications C-62-50, grade SW, hard burned. (Do not use marginal brick). Set brick edging stretcher courses in mortar (cement). (See Chapter VI, Section N. Standard Details & Drawings - [Brick Walks](#).)

Minimize steps where possible and replace with ramps on a gradient not to exceed one foot (1') in twelve feet (12'). Design steps to comply with the North Carolina Building Code and ADA requirements. Provide handrails at steps and ramps to comply with the North Carolina Building Code, ADA requirements, and N.C. OSHA regulations.

Also see Section 02475 regarding the width of ramps for service areas.

## **02475 Refuse and Recyclables Collection System**

Note: For Walkway Site information, see Section 02870, Site Furnishings, Walkway Trash and Recycling Receptacles.

### **Outdoor Service Areas**

Outdoor Service Areas are based on the building usage, space and site considerations. Please access the OWRR Design Guideline website: Site and Space Planning for Recycling and Solid Waste Management—Outdoor Service Areas for detailed information on following outdoor service area configurations and needs:

- Standard Outdoor Service Area (Trash, Cardboard, and Outdoor Recycling Carts)
- Dumpsters (Trash and Cardboard)
- Outdoor Recycling Carts (Bottles/Cans, Newspapers/Magazines)
- Compactors (Trash and Cardboard)
- Rolloff Containers
- Animal Bedding
- Food Waste Carts
- Grease Collection

The website includes detailed information needed for designing space for and building cabinets for indoor recycling, such as:

- general information,
- pad dimensions (including links to sample drawings),
- container and equipment information and links,
- enclosure and screen wall information (including sample drawings and photos),
- placement and vehicular access information (including vehicle dimensions),
- concrete specifications,
- bollards,
- drainage,
- lighting, and

- electrical information (for compactors).

### **Indoor Recycling**

Indoor Recycling Areas are based on the building usage, space and site considerations. Please access the OWRR Design Guideline website: Site and Space Planning for Recycling and Solid Waste Management—Indoor Recycling Sites for detailed information on following indoor recycling site configurations and needs:

#### **Indoor Recycling Site Container Options**

- Cabinets (Bin Enclosures)
- Standard Round Bins (Rubbermaid)
- Standard Square Bins (Toter)

The website includes detailed information needed to design and build outdoor service areas, such as:

- general information,
- dimensions (including links to sample drawings, photos, and specifications),
- installation,
- service vehicles,
- dimensions (including links to sample drawings, photos, and specifications)
- lid openings
- labels, and
- color.

For complete requirements go to the OWRR Design Guideline website: Site and Space Planning for Recycling and Solid Waste Management: <http://www.fac.unc.edu/OWRRGuidelines/>

### **02510 Water Supply Piping**

Water supply piping shall comply with OWASA standards. Water supply piping on UNC Chapel Hill campus shall be ductile iron restrained joint pipe.

Tees and Crosses shall have valves at all sides of tee or cross.

### **02511 Asphalt Paving**

Streets, Service Drives, and Parking Lots (there should be information in this section about the use of porous pavement)

All streets, service drives, and parking lots are constructed on fully compacted soil as described under Section 02200. After compaction, proof roll the areas to be paved with a fully loaded dump truck. The University's Construction Manager shall observe proof rolling process; pronounced deflection indicates inadequate compaction or soil-moisture content that is too high. If additional rolling does not correct the unstable condition, scarify the subgrade to a depth of at least 8 inches, aerate, recompact, and retest to ensure uniform compaction. In some cases, it may be necessary to remove the upper portion of the subgrade and replace it with select material. Protect excess material from contamination and return for remanufacturing or reuse on-site for walkways, patching, ditch beds, speed bumps, or curbs.

After the subgrade is properly compacted and tested by proof rolling, pave the street, driveway or parking area to the following standards.

#### **Streets and Driveways with Bus Traffic**

Paving shall consist of a minimum of five (5) inches of Type HB asphalt base, two (2) inches of Type H asphalt binder, and two (2) inches of Type I-2 asphalt surface course. Roll each course with a steel-wheeled roller, followed by a pneumatic-tired roller.

#### **Driveways with No Heavy Traffic**

For driveways with no bus traffic and fewer than 20 heavy trucks per day, the paving shall consist of 4 inches of Type HB Asphalt Base Course or Type H Asphalt Binder Course; roll the base first with a steel-wheeled roller, followed by a pneumatic-tired roller. The surface course shall consist of Type I-2 asphalt concrete placed in a minimum thickness of 2 inches, and rolled with the steel-wheeled roller followed by the pneumatic-tired roller.

#### **Parking Lots**

Paving shall consist of a minimum of 6 inches of coarse aggregate stone base fully compacted. The surface course shall consist of Type I-2 asphalt concrete placed in a minimum thickness of 2 inches, and rolled with a steel-wheeled roller.

#### **Curbs and Gutters**

All curbs and gutters are Portland cement concrete and shall conform to NCDOT standards (6" curb and 24" gutter).

### **02530 Sanitary Sewer**

Sanitary sewer piping and laterals shall comply with OWASA standards.

### **02600 Drainage System**

#### **General**

Provide positive surface drainage away from buildings 2.5% minimum slope for unpaved areas, 2 % minimum slope for paved areas.

Design piping systems in individual building areas for a 10 year storm frequency. Design piping for grouping of buildings for the 25 year storm frequency. Design piping for main trunk lines for 50 year to 100 year storm (verify location requirements with UNC Water, Wastewater and Stormwater Systems). Design piping adjacent to building foundations or under buildings for the 100 year storm.

Storm drainage design shall provide treatment of the first 1" for 85% TSS (which must be released over a 48 to 120 hour period of time), for retention and detention of storm water run-off so that there is no net change in the 2 year storm run-off volume and the post-development run-off rate does not exceed the pre-development run-off rate for the 2, 10, 25 and 50 year storms. The 100 year storm shall be evaluated to assure that the project or adjacent facilities will not be affected by the 100 year storm. The detained water shall be released over a 2 to 5 day period of time at no greater rate than the 1 year, 24 hour storm. Storm water detention may be accomplished by shallow ponding areas within landscaped areas, underground rock-filled areas, underground piping, or other BMPs.

The storm drainage system shall be properly coordinated with surrounding terrain and improvements to ensure that run-off does not cause damage to adjoining area. Storm drains and culverts shall have a minimum diameter of 8 inches. Inlets shall be hydraulically designed to admit design quantities.

Minimum grades for surface drainage shall be 1.5% for paved gutters and small paved swales, 2.5% for small unlined swales, 2% for area drainage of paved surfaces and 2.5% for area drainage of unpaved yard areas.

The natural gradients of the existing terrain shall be retained with a minimum of cutting required. Cut and fill slopes shall not exceed 3:1.

Underground storm drainage collection and disposal systems shall be designed to provide a minimum velocity of 3.0 fps when flowing ½ full.

Design gravity pipes to flow 90% full, without surcharge.

Provide for trapping of sediments prior to entering piping system.

Provide a minimum of 6" diameter pipe from rain water leaders and sumps. The University's CamelJET sewer cleaner cannot negotiate drain lines with a diameter of less than 6.

Flexible drain line is not allowed for storm drainage piping, or subsurface (foundation drainage) piping.

Provide a ground level catch basin or grated junction box at all "Y" and "T" intersections.

Grated open area for inlets and sumps shall be oversized 100%.

## **Materials**

Acceptable piping materials are:

- Ductile Iron Pipe (DIP).
- Reinforced Concrete Pipe (RCP). 12 inch diameter and over.
- Polyvinyl Chloride (PVC). For perforated sub drainage piping. Schedule 40 or better.

Drain inlets need to be 24 inches minimum inside dimension to allow for maintenance. (This is a minimum for a shallow structure.) Provide sufficient working room inside underground structures to allow for maintenance of the stormwater system. Provide ADA compliant grates in walking areas, pathways, plazas, courtyards, or other walking surfaces.

If site drainage is required adjacent to dumpster, the dumpster drainage shall drain to the sanitary sewer, with the area confined to the area beneath the dumpster and remainder of the pavement draining to the site storm drainage system.

## **02870 Site Furnishings**

### **Walkway Trash and Recycling Receptacles**

This section is to include all the necessary information and specifications regarding walkway trash and recycling receptacles. It is the responsibility of the project to reserve the funds, order the equipment, receive it, install it, and pay the invoice for the equipment.

A walkway site consists of the following receptacles:

- Trash
- Bottles and Cans
- Newspapers

The website includes detailed information needed to design for, order, and install walkway recycling sites.

- general information
- container and equipment information and links
- container and equipment information and links (including information on color, capacity, lids, labels, etc.)

The project design team must complete this table and include it in this specification along with other information about walkway containers.

CATEGORY	CONTAINER TYPE	UNIT PRICE	QUANTITY	TOTAL	RESERVE OR BUDGET?
Walkway	Trash Bottles/Cans Newspaper/				
TOTAL RESERVE/BUDGET FOR WALKWAY CONTAINERS					

For information on placement of containers, see Chapter III, Section A.22. Landscaping, Trash Cans (including waste and recycling receptacles) for information on placement of walkway recycling sites. For detailed information on walkway trash and recycling receptacles and the set up, see the Site and Space Planning for Solid Waste Management: Walkway Sites section of the OWRR design guideline website: <http://www.fac.unc.edu/OWRRGuidelines/?Topic=cdSpec01505>

## 02900 Landscape Work

### Contractor Responsibilities in Areas to be Landscaped

The Designer is responsible for a landscape plan and estimate, as part of basic design services. The UNC-CH Grounds Department will review and comment on the plan and estimate. All landscape planting will be conducted by the UNC-CH Grounds Department.

The contractor is responsible for providing topsoil to the landscape areas and providing temporary seeding or site stabilization on the site until it is turned over to the University.

The contractor is also required to take appropriate precautions to prevent soil erosion of any disturbed ground surface area as well as any areas used for storage, staging, etc.

### Topsoil

The Designer shall approve all topsoil prior to installation. The Contractor shall provide soil tests for any topsoil brought onto the site, and obtain approval from the University before delivery. The Contractor shall insure that all topsoil is screened so that it contains no material larger than 1.0 inches in diameter or length and shall not contain slag, cinders, stones, lumps of soil, sticks, roots, trash, or other extraneous materials. The Contractor shall insure topsoil is free of plants or plant parts of Bermuda grass, Johnson grass, nut sedge, poison ivy, or other noxious weeds.

Prior to topsoil application, the contractor scarify the soil areas where topsoil is to be applied to a depth of one foot (1') and remove and haul off all construction debris before spreading the topsoil. No scarification or subsoiling should be done within the dripline of any existing tree. The first 4" of topsoil needs to be mixed into the scarified top layer of existing soil. Continue adding soil in 4" lifts until finish grade is established.

A minimum of four inches (4") of topsoil is to be applied in all disturbed areas. A minimum of twelve inches (12") of topsoil is to be applied in all landscape plant bed areas. Exceptional care should be taken when spreading topsoil around trees. Soil around existing trees should not exceed the grade which existed prior to construction. Grade lawn areas and beds to conform to finish grades and profiles indicated on drawings, assuring uninterrupted drainage pattern, free of hollows and pockets. In areas where subgrade is poorly draining provide corrective drainage

indicated on drawings, If these measures do not correct drainage notify Architect for his direction prior to further work.

### **TOPSOIL MIX**

Topsoil should be purchased pre-mixed or mixing should be done off site prior to soil testing unless otherwise approved by Architect.

- parts sandy-loam topsoil with additive required to bring pH to 5.5-6.5 range.
- 1 part composted pine bark organic material

### **Clean Up**

After the soils have been ripped, the required topsoil spread, and final grades approved, clear the site of all surface trash and other objects that will hinder the installation and maintenance of the planted areas. The clean up includes plant bed areas, lawn areas, rights-of-way adjacent to the site, buffer areas, lay down areas, and paved areas adjacent to the site. Inspect paved areas over which hauling operations are conducted for damage and promptly remove any soil tracked on the surface. Keep the wheels of all vehicles clean to avoid tracking soil on the surface of roads, walks, or other paved areas.

Surface Drainage of Lawns and Planted Areas: The Contractor shall bear final responsibility for proper surface drainage of all areas within the project limits.

Stabilization of Disturbed Areas: Repair and seed all areas that are disturbed during construction. Till disturbed area to a depth of 6 inches. Incorporate 18-24-12 fertilizer at a rate of 10 lb. per 1000 square feet. Evenly distribute Turf Type Fescue Blend grass seed at a rate of 15 lb. per 1000 square feet. Lightly rake seeded areas, mulch with 1" clean wheat straw, and water thoroughly.





THE UNIVERSITY  
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DEPARTMENT OF FACILITIES PLANNING & CONSTRUCTION