

PART 1 - GENERAL CONDITIONS

1.1 RELATED DOCUMENTS

- A The contractor is responsible for rectifying any of the grounds in accordance with the attached document titled Attachment 1. Section 02920 - Site Grading and Lawn Establishment or facilities that are damaged during construction by its employees or subcontractors.

1.2 SUMMARY OF WORK

- A The contractor will supply all permits, materials, labor, and equipment necessary to manufacture/deliver, assemble, construct and install at each park:
- B **Redwing Park:** 1398 General Booth Blvd.
- C (1) 35' x 70' x 6" concrete basketball court, (12) 3' x 3' x 4" concrete pads, (4) 3' x 6' x 4" concrete pads (20) new vinyl coated trash receptacle sleeves, (12) 3.5' x 8' x 4" bench concrete pads with new 6' long vinyl coated surface mounted benches, (2) 3.5' x 18' x 4" bench concrete pads with (2) new 6' long vinyl coated surface mounted benches for each pad, (2) 8' x 18' Shade Structures ("T" cantilever style), (approx. 260LF) 6' wide concrete walks, (1) 12' x 12' x 4" bike rack concrete slab, (16) 8' x 10' x 4" picnic table concrete slabs, (34) 6' long aluminum surface mounted picnic tables, (3) 8' long aluminum surface mounted ADA picnic tables, (1) 15' x 15' pre-fab. laminated shelter (2) 30' x 60' pre-fab. Laminated shelters with underground electrical utilities, (2) 30' x 31' x 6" concrete grill pads, (1) 14' x 24' x 4" concrete slab for the dog park entrance. (see attached detail plans)
- D **Mt. Trashmore Park:** 300 Edwin Dr.
- E (1) 15' x 40' x 6" concrete bleacher pad, (16) 3' x 3' x 4" concrete pads, (12) 3' x 6' x 4" concrete pads, (50) new vinyl coated trash receptacle sleeves, (21) 3.5' x 8' x 4" bench concrete pads with new 6' long vinyl coated surface mounted benches, (approx. 800LF) 6' wide concrete walks, (12) 8' x 10' x 4" picnic table concrete slabs, (42) 6' long aluminum surface mounted picnic tables, (7) 8' long aluminum surface mounted ADA picnic tables, (1) 15' x 15' pre-fab. laminated shelter, (1) 20' x 20' pre-fab. laminated shelter, (1) 30' x 60' pre-fab. Laminated shelters with electrical utilities, (1) 30' x 31' x 6" concrete grill pad, Replace roofing with stand seam metal on (6) existing small shelters. (install approx. 2805 LF of timber guard rail, (2) 12' x 18' Shade Structure ("T" cantilever style), (1) Handicap Ramp VDOT CG-12.(see attached detail plans)

- F **Woodstock Park:** 5709 Providence Rd.
- G (10) 3'x 3'x4" concrete pads, (1) 3'x6'x4" concrete pad, (19) new vinyl coated trash receptacle sleeves, (1) 3.5' x 8'x4" bench concrete pads with new 6' long vinyl coated surface mounted benches, (2) 3.5' x 18'x4" bench concrete pads with (2) new 6' long vinyl coated surface mounted benches for each pad, (1) 12' x 25' Shade Structure ("T" cantilever style), (2) 8' x 18' Shade Structures ("T" cantilever style), (1) 20' x8'x6" concrete slab (dumpster pad) (5) 8' x 10'x4" picnic table concrete slabs, (33) 6' long aluminum surface mounted picnic tables, (3) 8' long aluminum surface mounted ADA picnic tables, (see attached detail plans)
- H **Removal Scope of Work:** Contractor to remove and dispose of existing trees/grind stumps (near large shelters at Redwing Park. Trees are marked with white paint), Contractor will remove concrete steps, concrete planter and flag pole form Mt. Trashmore's "Encor Hill" as well as other components, existing shelters, foundations, footings, concrete pads and concrete walks from the park site. Items to be removed will be marked by city staff and/or identified on attached plans. Areas where trees and equipment has been removed are to be backfilled and graded uniformly. Seeding and fertilizer to be applied to these areas using methods identified in this bid document. If unsure of Item removal please contact the Contract Administrator, or his designee.
- I The contractor will be responsible for hauling and disposing of the components and excavated material from the site.
- J The contractor is responsible for obtaining all necessary permits and for payment of all fees for work resulting from this invitation to bid. All city procurement guidelines must be followed.
- K Submission of a bid/cost estimate on this project shall imply that the bidder/contractor has examined the site of work upon which he/she is bidding and is aware of any existing and probable conditions under which he/she will be obligated to perform the work. Therefore, no extra charges will be allowed for failure of any bidder to have not examined the site.
- L Awarded contractor upon notification will have 100 days to complete the project. Site cleanup after each day during construction and installation is mandatory.
- M The awarded contractor, will field stake the location of the improvements and notify the contractor administrator for approval prior to beginning construction.

PART 2 - SUBMITTALS

2.1 Contractor will submit manufacturer product specifications for:

- A 30x60, 20x20 & 15x15 pre-fabricated laminated shelters
- B Standing Seam aluminum roofing systems.
- C Vinyl coated 6' long surface mounted benches.
- D Vinyl coated 6' surface mounted picnic tables
- E Vinyl coated 8' long surface mounted ADA picnic tables
- F Vinyl coated trash receptacles
- G Shade Structures ("T" cantilever style)
- H Cost Data Sheets for each park.

PART 3 - CONSTRUCTION COMPONENTS

3.1 Prefabricated Laminated Shelters:

- A 30' x 60' shelters shall be similar to the manufacturer "Enwood Structures" model known as the "Raleigh".
- B Contractor shall install underground electrical utilizes/conduit and supply a GFI receptacle for each new 30' x 60' shelter.(see site plans)
- C 20'x20' & 15' x15' shelters shall be similar to the manufacturer "Enwood Structures" model known as the "Timberland".
- D All Shelters shall comply with the following guidelines and standards:
- E Manufacture of the structural glued laminated wood components Shall conform to the manufacturing requirements of the AMERICAN INSTITUTE OF TIMBER CONSTRUCTION STANDARDS and STANDARD SPECIFICATIONS for GLUED LAMINATED TIMBER,AITC 117.
- F Quality Control shall be provided in accordance with ANSI/AITC A190.1, AMERICAN NATIONAL STANDARD for WOOD PRODUCTS- STRUCTURAL GLUED LAMINATED TIMBER,and the AMERICAN INSTITUTE of TIMBER CONSTRUCTION INSPECTION MANUAL AITC-200.Walkways:

- G Laminated lumber shall be kiln dried Southern Pine graded to meet the requirements of Standard Specifications for Structural Glued Laminated timber, AITC 117. Adhesives shall be wet-use (waterproof) complying with ANSI/AITC A190.1-Latest edition.
- H Shelter to have embedded glued laminated wood columns. Glulam columns to be pressure treated in accordance with AMERICAN WOOD PRESERVERS ASSOCIATION STANDARDS.
- I Roof deck to be 2 inch (nominal) #1 grade, single tongue and groove with V-joint bottom face, kiln-dried Southern Pine.
- J **(Redwing Park)** Roofing to be class "A" fire rated fiber glass architectural grade shingles (Slate Gray) (25 year warranty) with one layer of 15 lb. Felt paper.
- K **(Mt. Trashmore Park)** Roofing to be Standing Seam Metal over 15 lb. Felt paper, prefinished .040" alloy 3004-H26 aluminum panels. Panel width: 16 inches wide, with metal covered fascias.
- L **(Mt. Trashmore Park)** Fluoropolymer-coating: Full-strength 70% "Kynar 500" or "Hylar" resin coating baked-on for 15 minutes at 450 deg. (232 deg. C), in a dry film thickness of 1.0 Mils, smooth texture, dull matte specular gloss 25-35% @ 60 deg. (ASTM D 523), over 0.3 mil baked-on epoxy primer.
- M **(Mt. Trashmore Park)** Accepted/approved manufacturer: "Ryerson Inc-AlumaKlad" (773-762-2121) Color: "Slate Grey".
- N Fascia to be 2" x 6" Southern Pine, #1 SPIB Grade, pressure treated in accordance with American Wood Preservers' Association Standards. Fascia, to be mitered at each corner. (Butt joints will not be acceptable)
- O All Steel and Hardware to be **HOT DIPPED GALVANIZED**.
- P Exposed faces of glulam members to receive one coat of factory-applied clear penetrating sealer.
- Q The Contractor is responsible for protection of the materials after arrival at destination. If stored temporarily, members should be placed on blocks well off the ground and separated with wood strips so that air can circulate around each member. Cover top and bottom with moisture-resistance paper. Use non-marring slings when handling.
- R Concrete footings/slabs shall be constructed as shown on attached city detail plans.

3.2 Concrete walkways:

- A Walks shall adhere to ADA accessibility standards. The walks shall not have a running slope greater than 1:20 and a cross slope greater than 1:50.
- B Contractor to excavate 10" of soil and compact subsurface prior to installing a 6" aggregate base (Type I Size 21B). A 6" layer of class A3 concrete shall then be poured. Existing or new walks, roads and parking lots to be separated by pre-molded fiber strip expansion joints. Additional expansion joints are to be placed in not greater than 50' intervals. False joints are to be troweled in at 5' intervals. Concrete shall be finished by floating, troweling to a smooth non-slip finish and lite brushing. All outer edges and joints shall be finished to a 1/4" radius. (See attached detail sheets).

3.3 6' long Benches (surface mounted):

- A. All bench metal components shall be fabricated from steel complying with ASTM A-135, A-500 or A-513. Interiors of pipes shall be treated with a corrosion resistance coating and exteriors shall be hot dipped galvanized.
- B. Vinyl color: Dark Green
- C. Leg and support bracing components shall be oven baked powder coated.
- D. Frame color: Black
- E. Seats and Backs shall be expanded perforated hot rolled steel minimum of 13 gauge or one piece punched steel minimum of 12 gauge construction, welded to a steel reinforced frame minimum of 3/16" thick.
- F. Assembly shall have a factory applied poly-vinyl-chloride, vinyl-coated, or equal finish.
- G. Benches shall be mounted on 3.5' x 8' x 4" class A3 fiber reinforced concrete pads using the same finishing methods as stated in section 3.2.

3.4 Bike Rack, Benches, Picnic Tables, Basketball Court, Shelter Grill and Bleacher Concrete Pads:

- A. Bike Rack Pad dimensions shall be 12' x 12' x 4" Contractor to excavate 4" of soil prior to pouring a 4" thick fiber reinforced class A3 concrete pads. (See attached site plan)
- B. Bench Pad dimensions shall be 3.5' x 8' x 4". Contractor to excavate 4" of soil prior to pouring a 4" thick fiber reinforced class A3 concrete pads.(see attached site plan)

- C. Bench Pad dimensions shall be 3.5' x 16'x4". Contractor to excavate 4" of soil prior to pouring a 4" thick fiber reinforced class A3 concrete pads.(see attached site plan)
- D. Picnic Table & Small Grill Pad dimensions shall be 8' x 10'x4" Contractor to excavate 4" of soil prior to pouring a 4" thick fiber reinforced class A3 concrete pads. (See attached site plan)
- E. Additional (Shelter Grill pads) Slab dimensions shall be 30' x 31'x6" and shall be adjacent to the (2) new 30' x 60' shelters only. Contractor to excavate 6" of soil prior to pouring a 6" thick fiber reinforced class A3 concrete slab. (see attached site plan)
- F. Basketball Court Slab dimensions shall be 35' x 70'x6" and shall have a thickened edge. Contractor to excavate 6" of soil prior to pouring a 6" thick fiber reinforced class A3 concrete slab. Contractor shall install new goals and strip each court (white). (see attached detail & site plan)
- G. Bleacher pad dimensions shall be 15' x 20' x 6". Contractor to excavate 6" of soil prior to pouring a 6" thick fiber reinforced class A3 concrete pad. (see attached detail sheet and site plan)
- H. New concrete pads, slabs or walks that will be adjacent to existing walks/slabs to be separated by pre-molded fiber strip expansion joints. All concrete shall be finished by floating, troweling to a smooth non-slip finish and lite brushing. All outer edges and joints shall be finished to a 1/4" radius. (See attached site plan).

3.5 Vinyl Coated Trash Receptacles and Concrete Pads:

- A. Trash receptacles shall be similar to the manufacturer "Diversified Metal Fabricators" model # ETR55D "55 gallon trash receptacle with dual swinging doors".
- B. Flat lid with bonnet lid similar to the manufacturer "Diversified Metal Fabricators" model# FLB55.
- C. Vinyl and powder coating colors: Dark Green
- D. Pad dimensions shall be 3'x 3'x4" or 3' x6'x4". Contractor to excavate 4" of soil prior to pouring class A3 fiber reinforced concrete.(see site plans for locations)
- E. New concrete pads/slabs that will be adjacent to existing walks/slabs to be separated by pre-molded fiber strip expansion joints. All concrete shall be finished by floating, troweling to a smooth non-slip finish and lite brushing. All outer edges and joints shall be finished to a 1/4" radius. (See attached site plan)

3.6 Dog Park Entrance Concrete Pads:

- A. Contractor will excavate 4" and then compact the existing grade and pour a class A3 fiber reinforced 3000 P.S.I. concrete pads as shown on plans.
- B. 14'x24'x4" thick concrete fiber reinforced slabs shall be leveled by floating, troweling to a smooth non-slip finish and brushing for safety. All outer edges and joints shall be finished to a 1/4" radius.
- C. The pads to match existing grade of asphalt multi-use/sidewalks.
- D. An expansion joint to be placed where the concrete pads and multi-use/sidewalks meet.
- E. Pad dimensions and location are shown on plans.
- F. ***Note: Contractor will coordinate dog park related work with the city's fencing contractor who will be installing the fencing for the dog park.**

3.7 8' long ADA Picnic tables & 6' long Picnic tables (surface mounted):

- A. Seats and table tops are to be 3/4" 9 gauge expanded metal in a 12 gauge formed and welded steel frame. Vinyl coated has a 3/16" thickness per surface. Seats extend 72" and braced at center and attached 6 inches from either end.
- B. Vinyl color: Dark Green
- C. Frames are 2 3/8" O.D. structural steel tubing formed and welded with 12 gauge steel cross members and tabs. Powder coated shall have nominal 4-10 mil thickness.
- D. Frame color: Black
- E. Pad dimensions shall be 8' x 10' x 4". Contractor to excavate 4" of soil prior to pouring class A3 fiber reinforced concrete.

3.8 Shade Structures:

- A. Shade Structures shall be similar to the manufacturer "Shade Systems" (T-Cantilever) Model#s TC 0818 x 12' high, TC 1218 x 12' high and TC 1225 x 12' high.
- B. Shade structures are to be installed into concrete footings as recommended by the manufacturer. (colors of support framing/posts and canopies will be chosen by city)
- C. **The awarded contractor will be supplied a letter from the city. This letter must be submitted to the Permits and Inspections Department to obtain the building permit for these shade structures only.**

PART 4 - REQUIREMENTS OF REGULATORY AGENCIES

- 4.1 Contractor to procure and provide all regulator permits required, including but not limited to the following items.

- A City of Virginia Beach Building Permit
- B Erosion and Sediment Control Permit - All work to be performed on City property will require the acquisition of a Right of Way Permit from the City of Virginia Beach, Planning/Civil Inspections. Fees for Right of Way Permits for work being done at the direction of the City of Virginia Beach shall be the responsibility of the Contractor. Failure to comply with these regulatory requirements will result in placement of a Stop-Work Order until the Contractor corrects discrepancies. Any associated costs for a delay in construction caused by the Contractor's failure to comply with these regulatory requirements shall be the responsibility of the Contractor.

PART 5 - OBSTRUCTIONS TO WORK PERFORMANCE

- 5.1 The Contractor shall contact Miss Utility of Virginia as required by the Virginia Underground Utility Damage Prevention Act before any digging is performed on the site.
- A The Contractor shall notify the Contractor Administrator, or his designee, immediately of any unforeseen conditions (buried debris, plan discrepancies, etc.) that may affect the installation of the park improvements.

PART 6 - SUBSTITUTIONS

- 6.1 Substitutions of materials designated in the plans and specifications will be permitted only upon written approval by the Contract Administrator, or his designee.
- 6.2 Substitutions shall be requested in writing by the Contractor within ten days after the award of contract.
- A If the reason for substitution is lack of availability, the request shall include a list of suppliers contacted by the Contractor to locate the originally specified material.
 - B A sample of the material may also be required by the Contract Administrator, or his designee.

The sample shall be provided by the Contractor at no cost to the City.

6.3 CLEAN-UP OF SITE

- A At the end of each day's work, the Contractor shall remove all work-related trash or other debris from the site.
- B At all times rubbish and trash generated by the Contractor shall be kept clear of vehicular and pedestrian circulation throughout the site.
- C Prior to final acceptance, all paved areas adjacent to planting areas shall be cleaned thoroughly by sweeping and/or washing.
- D Any defacement or stains on paving caused by the installation/construction shall be removed at no additional cost to the City.
- E All construction equipment, excess materials, tools, rubbish or debris shall be removed from the site.
- F All drains on the sites that have accumulated soil, mulch or any other material due to the lawn establishment operation shall be cleaned and approved by the Contract Administrator, or his designee.
- G Any disturbed soil shall be graded and seeded in accordance with the attached document titled Attachment 1. Section 02920 - Site Grading and Lawn Establishment.

PART 7 - WARRANTIES

- A Minimum 1 year warranty required on installation, construction, concrete work, and workmanship.
- B Pre-fabricated Laminated Shelters: Provide Manufacturers Warranty on all main structures including steel and hardware for laminated curved and tapered beam and column connections against structural failure due to corrosion, deterioration, or workmanship.
- C Provide Manufactures Warranty on benches, picnic tables.
- D Provide Manufactures Warranty on vinyl coated trash receptacles.
- E Provide Manufactures Warranty on Shade Structures

PART 8 - ACCEPTANCE:

- 8.1 Prior to acceptance of this project, the Contract Administrator, or his designee will conduct a walk through with the successful bidder/contractor, noting items which need to be corrected.
- 8.2 The successful bidder/contractor will have fourteen (14) working days from the inspection to correct any discrepancies.

END OF SECTION

ATTACHMENT 1.**SECTION 02920 – SITE GRADING AND LAWN ESTABLISHMENT****PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. Successful bidder shall provide all materials, equipment and labor necessary for placing topsoil, fine grading and lawn establishment for **Redwing Metro Park Improvements** as shown on the drawings or inferable there from and/or as specified in accordance with the requirements of the Contract Documents.
- B. These specifications include standards necessary for and incidental to the execution and completion of lawn establishment, including addition of topsoil, fine grading, and establishment of lawn areas using seed or sod as indicated on the prepared drawings and specified herein.
- C. During construction, protect all turf, trees, shrubs, and other specified vegetation, site features and improvements, structures and utilities specified herein and/or on prepared drawings. Removal or destruction of existing turf or plantings is prohibited unless specifically authorized by the Contract Administrator.

1.02 RELATED DOCUMENTS

- A. Section 02930 – EXTERIOR LANDSCAPE PLANTING.
- B. *Virginia Work Area Protection Manual*. Virginia Department of Transportation, Traffic Engineering Division, Work Zone Safety Coordinator, 1401 East Broad Street, Richmond, VA 23219.
- C. *Professional Excavators' Manual*. Miss Utility of Virginia, 204 Rivers Bend Boulevard, Chester, VA 23831.
- D. All standards publications shall be the latest editions, including any amendments, as of the date of advertisement for bids.

1.03 REQUIREMENTS OF REGULATORY AGENCIES

- A. Any certificates of inspection shall accompany the invoice for each shipment of sod when required by law for transportation. Provide copies of certificates of inspection with the Contract Administrator prior to the acceptance of the material. Inspection by federal or state authorities at place of growth does not preclude rejection of the sod at the site.
- B. All work to be performed on City property will require the acquisition of a Right of Way Permit from the City of Virginia Beach, Planning/Civil Inspections. Fees for Right of Way Permits for work being done at the direction of the City of Virginia Beach shall be the re-

sponsibility of the Contractor.

- C. Work to be performed within a City street Right of Way will require the Contractor to obtain approval of a traffic control plan by City of Virginia Beach, Public Works/Traffic Engineering before a Right of Way Permit can be obtained. Unless otherwise directed by Traffic Engineering, the traffic control plan should adhere to the most current edition of the Virginia Department of Transportation Work Zone Safety Guidelines. All required signage and/or traffic control devices shall be in place prior to commencement of work each day. Shortened workdays, which may be required as part of the traffic control plan, shall be strictly adhered to by the Contractor. A copy of the Right of Way permit shall be kept in each of the Contractor's vehicles on site while the work is being performed. All costs of traffic control, including equipment, signage and all added costs due to shortened workdays shall be the responsibility of the Contractor.
- D. Failure to comply with these regulatory requirements will result in placement of a Stop-Work Order until the Contractor corrects discrepancies. Any associated costs for a delay in construction caused by the Contractor's failure to comply with these regulatory requirements shall be the responsibility of the Contractor.

1.04 OBSTRUCTIONS TO WORK PERFORMANCE

- A. The Contractor shall contact Miss Utility of Virginia as required by the Virginia Underground Utility Damage Prevention Act before any digging is performed on the site. If underground or overhead utilities prevent grading or lawn establishment as specified and/or as shown on the plans, the Contract Administrator or his designee should be contacted immediately. Any damage to utility lines during lawn establishment operations shall be the responsibility of the Contractor and shall be repaired at no additional cost to the City.
- B. The Contractor shall notify the Contractor Administrator, or his designee, immediately of any unforeseen conditions (buried debris, plan discrepancies, etc.) that may affect lawn establishment or growth. In addition, it shall be the responsibility of the Contractor to advise the Contract Administrator immediately if he/she believes the existing soil on the site is unsuitable to maintain healthy turf grass. If the Contractor gives no notification, it shall be understood that the existing soil is acceptable.

1.05 SUBMITTALS

- A. For each type of sod or seed to be installed, submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentages of purity, germination and weed seed for each grass species.
- B. Submit fertilizer analysis for each type of fertilizer to be used for lawn establishment.
- C. Soil Testing: The Contract Administrator, or his designee, shall have the option to inspect topsoil intended for use by the Contractor in completion of the work to determine whether it is in accordance with plans and specifications. At the discretion of the Contract Administrator, a soil test analysis report may be required for each stock-

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pile of existing topsoil, or source of imported topsoil and/or planting mix. This test shall be performed at no cost to the City. The soil testing laboratory shall be approved by the Contract Administrator, and there shall be no cost to the City for any requested testing. Material or materials that are not in accordance with plans and specifications shall be replaced with approved material or materials at no additional cost to the City. If required, the soil test analysis report shall include the following information:

1. Provide a particle analysis based on the following sieve size chart or the following USDA gradient of mineral content:

Sieve Size
1 inch mesh
1/4 inch mesh
No. 100 mesh
No. 200 mesh

<u>USDA Designation</u>	<u>Size in mm</u>
Gravel	2+ mm
Very Coarse Sand	1-2 mm
Coarse Sand	0.5-1 mm
Medium Sand	0.25-0.5 mm
Fine Sand	0.1-0.25 mm
Very Fine Sand	0.05-0.1 mm
Silt	0.002-0.05 mm
Clay	Smaller than 0.002 mm

2. Provide a chemical analysis including the following:
 - a. pH and buffer pH.
 - b. Percentage of organic content by oven-dried weight.
 - c. Nutrient levels in parts per million (ppm), including phosphorous, potassium, magnesium, iron, zinc, and calcium. Nutrient test shall include the testing laboratory's recommendations for supplemental additions to the soil based on the requirements of horticultural plants.
 - d. Soluble salts by electrical conductivity of a 1:2 soil :water sample measured in mmhos/cm.
 - e. Cation exchange capacity (CEC).

1.06 SUBSTITUTIONS

- A. Substitutions of materials designated in the plans and specifications will be permitted only upon written approval by the Contract Administrator or his designee. Substitutions shall be requested in writing by the Contractor within ten days after the award of contract. If the reason for substitution is lack of availability, the request shall include a list of suppliers contacted by the Contractor to locate the originally specified material. A sample of the material may also be required by the Contract Administrator. The sample shall be provided by the Contractor at no cost to the City.
- B. All proposed sod or seed substitutions shall possess the same essential characteristics as the turf species originally specified in regard to appearance, ultimate height, habit or rate of growth, required soil conditions, climatic conditions and any other characteristics. In no case shall average wholesale cost of a substituted turf species or blend be less than the average wholesale cost of the turf species or blend originally specified. Species or blends of greater wholesale cost may be accepted without additional cost to the City.

1.07 CLEAN-UP OF SITE

- A. At the end of each day's work, the Contractor shall remove all work-related trash or other debris from the site. At all times rubbish and trash generated by the Contractor shall be kept clear of vehicular and pedestrian circulation throughout the site. Prior to final acceptance, all paved areas adjacent to planting areas shall be cleaned thoroughly by sweeping and/or washing. Any defacement or stains on paving caused by lawn establishment operations shall be removed at no additional cost to the City. All construction equipment, excess materials, tools, rubbish or debris shall be removed from the site. All drains on the sites that have accumulated soil, mulch or any other material due to the lawn establishment operation shall be cleaned and approved by the Contract Administrator, or his designee.

1.08 INSPECTION AND ACCEPTANCE

- A. Acceptance of Fine Grading: The Contract Administrator or his designee will inspect all fine grading work for acceptance upon written request by the Contractor. Written notice requesting such inspection shall be submitted by the Contractor at least ten days prior to the anticipated date of inspection. Fine grading shall be accepted by the Contract Administrator or his designee before the Contractor begins sod or seeding operations.
- B. Initial Acceptance: The Contract Administrator or his designee will inspect all seeding and/or sod work for acceptance upon written request by the Contractor. Written notice requesting such inspection shall be submitted by the Contractor at least ten days prior to the anticipated date of inspection. After inspection, the Contractor will be notified in writing by the Contract Administrator, or his designee, of the acceptance or rejection of any work not completed in accordance with the plans and specifications. Work found not to be in accordance with plans and specifications shall be subject to re-inspection after being corrected by the Contractor.

- C. Acceptance in Part: Work may be accepted in parts when the Contract Administrator and the Contractor deem that practice to be in their mutual interest. Approval must be given in writing by the Contract Administrator to the Contractor verifying that the work is to be completed in parts. Acceptance of the work in parts shall not waive any other provisions of this Contract.
- D. Final Acceptance: The Contract Administrator or his designee will inspect all seeding and/or sod work for acceptance at the end of the Contractor's one-year maintenance period. After inspection, the Contractor will be notified in writing by the Contract Administrator, or his designee, of the acceptance or rejection of any work not completed in accordance with the plans and specifications. Work found not to be in accordance with plans and specifications shall be subject to re-inspection after being corrected by the Contractor.
- E. Basis for Final Acceptance: At the end of the Contractor's one-year maintenance period, lawns shall be uniform in texture, density and color, substantially weed free, without gaps or bare spots, and with vigorous growth of proper species and variety. For the purposes of establishing an acceptable standard, scattered bare spots, none of which are larger than one square foot, will be allowed up to a maximum of three percent of the entire lawn area.

1.09 WARRANTY

- A. General Warranty: The Contractor warrants to the City of Virginia Beach that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all work performed will be of good quality, free from faults and defects and in conformance with the plans and specifications. Except as otherwise specified, all work shall be warranted by the Contractor against defects resulting from the use of inferior materials, equipment, or workmanship for one year from the date of acceptance by the Contract Administrator, or his designee.
- B. Repair of Deficient Lawn Areas: Any deficiency in lawn establishment, as determined by the Contract Administrator, or his designee, shall be corrected by the Contractor within ten (10) working days, weather conditions permitting at no additional cost to the City. All corrected grading and lawn areas shall be in compliance with the original plans and specifications.

PART 2 - MATERIALS

2.01 MATERIALS OTHER THAN SOD

- A. Imported Topsoil: The Contractor shall furnish, at his expense, sufficient topsoil to properly perform all work as specified herein, and as shown on the drawings. Topsoil furnished shall be a natural, fertile, friable loam soil, possessing characteristics of representative of productive soils in the vicinity. It shall be obtained from naturally well-drained areas. It shall not contain toxic substances that may be harmful to plant growth. Topsoil shall be without admixture of subsoil and shall be cleaned and reasonably free from clay, lumps, stones, stumps, roots or similar substances two inches

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or more in diameter, debris, or other objects which might be a hindrance to planting operations. Topsoil shall contain at least six percent organic matter. The acidity range shall be between 5.5 and 7.0 inclusive. The mechanical analysis of the soil, which shall be based on either sieve size or USDA Particle Size Designation, shall be as follows:

Sieve Size	Percent Passing
1 inch mesh	99-100 percent
1/4 inch mesh	97-99 percent
No. 100 mesh	40-60 percent
No. 200 mesh	20-40 percent

Particle Distribution of Imported Topsoil (USDA Designation)

Gravel	Less than 10%
Coarse to Medium Sand	30 to 65%
Fine Sand	5 to 20%
Very Fine Sand	0 to 20%
Silt	15 to 25%
Clay	15 to 25%

A representative sample of topsoil shall be delivered to the Contract Administrator or his designee within ten days of award of contract and before work begins. A soil test of imported topsoil may be required at the discretion of the Contract Administrator. Required soil amendments for lawn establishment, as indicated on the soil test report, shall be added by the Contractor at the time of spreading/grading.

- B. Existing Topsoil: Topsoil may be stockpiled on the site to be used by the Contractor in performance of this contract. Any stockpiled topsoil shall meet or exceed all of the specifications for Imported Topsoil. A soil test report shall be provided to the Contract Administrator by the Contractor for any stockpiled topsoil to be used.
- C. Starter Fertilizer: Initial fertilizer for seeding and sodding shall be a granular, non-burning turfgrass fertilizer with an N:P₂O₅:K₂O analysis ratio of 1:2:1, or equivalent. Fertilizer shall be uniform in composition, free-flowing, and suitable for application with approved equipment. Fertilizer shall be delivered to the site in original, unopened containers, each bearing the manufacturer's guaranteed analysis label. At least 25% of available nitrogen shall be in a slow-release form.
- D. Maintenance Fertilizer: Fertilizer for all applications other than the initial fertilization shall be a granular, non-burning turfgrass fertilizer that with an N:P₂O₅:K₂O analysis ratio of 3:1:2 or 4:1:2, or equivalent. Fertilizer shall be uniform in composition, free flowing, and suitable for application with mechanized rotary spreaders, drop spreaders, hydraulic seeders, or other equipment capable of uniformly distributing fertilizer over the soil surface. Fertilizer shall be delivered to the site in original, unopened containers, each bearing the manufacturer's guaranteed analysis label. At least 25% of available nitrogen shall be in a slow-release form.
- E. Lime for Lawn Establishment: Shall be composed of finely ground calcitic or dolomitic

limestone (calcium carbonate or calcium carbonate + magnesium carbonate), and shall contain a minimum of 50% total oxide equivalent (calcium oxide + magnesium oxide); neither hydrated or burnt lime shall be used for turfgrass seeding. Limestone shall be uniform in composition, free flowing, and suitable for application with mechanized rotary spreaders, drop spreaders, hydraulic seeders, or other equipment capable of uniformly distributing limestone over the soil surface.

- F. Water: Shall be free from oil, acid, alkali, salt, and other substances harmful to plant growth. The Contractor shall make, at his expense, whatever arrangements may be necessary to ensure an adequate supply of water to meet the needs of this Contract. He shall also furnish all necessary hose equipment, attachments and accessories for the adequate irrigation of planted areas as may be required to complete the work as specified.
- G. Straw Mulch: Shall be specially grown for use as a seed mulch, and shall be entirely composed of the air-dried stems and leaves of wheat, barley, oats, or cereal rye. Straw mulch shall be cut and baled before its seed has matured, or shall be very thoroughly threshed. Straw mulch may be used as a seed mulch for rough turfgrass areas, temporary seeding, or erosion control seeding.
- H. Wood Fiber Hydraulic Mulch: Wood fiber hydraulic mulch products shall consist of specially prepared wood that has been processed to a uniform fibrous state, and shall be packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment. The wood fibers of wood fiber hydraulic mulch products shall have a length of approximately 0.5 inches (13 millimeters) and a diameter of approximately 0.0625 inches (1.5 millimeters). The wood fibers shall be dyed green, or the wood fiber hydraulic mulch product shall be mixed with a dye in a separate operation that will provide appropriate color to aid visual inspection of the material when it is spread. Wood fiber hydraulic mulch products shall have a pH range of pH 4.0-8.5, and an ash content which shall not exceed 7.0% of the product by weight. Wood fiber hydraulic mulch products shall be capable of remaining in suspension with water under agitation so that such products shall readily blend with seed, fertilizer, and limestone to form a uniform slurry.
- I. Wood Cellulose Fiber Hydraulic Mulch: Wood cellulose fiber hydraulic mulch products shall consist of specially prepared newspaper, newsprint, magazines, or other paper that has been processed to a uniform fibrous state, and shall be packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment. The wood cellulose fiber hydraulic mulch may be derived from recycled materials, or be newly manufactured. The wood cellulose fibers shall be dyed green, or the wood cellulose fiber hydraulic mulch product shall be mixed with a dye in a separate operation that will provide appropriate color to aid visual inspection of the material when it is spread. Wood cellulose fiber hydraulic mulch products shall have a pH range of pH 4.0-8.5, and an ash content which shall not exceed 7.0% of the product by weight. Wood cellulose fiber hydraulic mulch products shall be capable of remaining in suspension (slurry) with water under agitation so that such products shall readily blend with seed, fertilizer, and limestone to form a uniform slurry.
- J. Mulch Tackifier: Shall be a non-asphaltic, biodegradable tackifier material suitable for application with approved equipment. Tackifier products shall be delivered to site in factory-labeled packages and stored and handled in strict compliance with manufactur-

er's instructions and recommendations. Tackifier products shall be applied according to the label directions of the manufacturer of the products.

- K. Steel Staples: Staples shall be either of 'U' or 'T' shape. 'U' shape staples shall be 11-gauge U-shaped wire, with width not less than 1.5 inches and length not less than 6.0 inches. 'T' shape staples shall be 8-gauge T-shaped wire, with main leg not less than 8.0 inches long and secondary leg not less than 1.0 inch long and head not less than 4.0 inches wide.
- L. Post-Emergent Weed Control: In newly established lawn areas, a post-emergence weed control chemical shall be used to control the growth of broadleaf weeds in strict accordance with labeled instructions. Contractor shall provide Contract Administrator with label of chemical before applying.
- M. Seed: All grass seed mixtures and blends used for temporary or permanent lawn establishment shall have an official Certification label affixed to each container identifying the Certifying agency, the reference number, the variety name (if Certified as to variety), and the kind and class of seed. Where the complete labeling information is printed on the Certification tag, the percentage of other crops and other varieties will be shown as a total of the two and listed as other crops. Labels shall be attached to containers in a manner that prevents removal and reattachment without tampering being obvious.

2.02 SOD

- A. The species of sod required for lawn establishment shall be indicated on the plans and/or described in the cover letter accompanying these specifications. Sod shall be certified by the grower to be true to the specified species and cultivar. All sod will have an official certification label accompanying each load and the label must be attached to a dated invoice or labeling information. Sod shall be strongly rooted machine-cut sod of uniform density, color and texture. Sod shall be free of disease, weeds and undesirable native grasses and machine-cut to pad thickness of 3/4" to 1", excluding top growth and thatch. Pads shall a minimum of 16" and a maximum of 42" in width.
- B. Sod shall be harvested, delivered, and installed within a period of thirty-six (36) hours. Sod shall be inspected and approved or rejected by the Contract Administrator, or his designee, prior to its installation.

PART 3 - EXECUTION

3.01 GENERAL

- A. Limits of Topsoiling and Lawn Establishment: Topsoil, whether stockpiled or imported to site, shall be placed to a depth of 4" within the entire limits of construction unless otherwise noted on plans. Areas to receive seeded lawn or sodded lawn shall be indicated on the plans and/or described in the cover letter accompanying these specifications.
- B. Time of Planting: Grading and lawn establishment operations shall be conducted under favorable weather conditions. These operations may, however, be conducted under un-

seasonable conditions at the option and on the full responsibility of the Contractor and with the approval of the Contract Administrator, or his designee. If losses occur, there shall be no additional cost to the City.

- C. Protection of Lawn Areas: Before any construction begins, precautionary measures shall be taken to protect all existing lawn areas that are to be trucked over and upon which soil is to be temporarily stockpiled. Any existing lawn areas on or off the construction site that have been damaged by the Contractor shall be repaired to the satisfaction of the Contract Administrator, or his designee, with no additional cost to the City.

3.02 SUB-GRADE PREPARATION, TOPSOILING AND FINE GRADING

A. Sub-Grade Preparation

1. Eliminate uneven areas and low spots. Remove debris, roots, branches, and stones in excess of one inch in size. Remove any subsoil contaminated with petroleum products or other construction-related material.
2. Scarify or rip sub grade to depth of 4 inches where topsoil is scheduled. Scarify or rip soil in areas where equipment used for hauling and spreading topsoil has compacted subsoil (6 inch minimum depth is required). Any existing vegetation in the area of lawn establishment shall be sprayed with Roundup or other approved herbicide prior to disturbance of the area. Herbicides are to be applied by licensed applicators in strict accordance with labeled instructions. After appropriate time lapse they are to be sprayed again and dead organic matter removed from the site before grading operations are begun.

B. Topsoiling and Fine Grading

1. Place and spread 4" of stockpiled or imported topsoil on entire site within the limits of work or as otherwise noted on plans.
2. Grade topsoil to eliminate rough or low areas. Remove stones, roots, grass, weeds, debris, and foreign material while spreading. Maintain levels, profiles, and contours of sub-grade. Manually spread topsoil around trees, plants, buildings and new work to prevent damage.
3. For conventional lawn seeding or sodding, in the absence of a site-specific soil test which indicates otherwise, apply lime at a rate of 50 lbs. per 1000 sq. ft., and starter fertilizer at a rate which provides 1 lb. of total nitrogen per 1000 sq. ft. based on fertilizer analysis. Fertilizer and limestone applications shall be made with appropriately calibrated equipment in one or more separate operations. Limestone and fertilizer shall be worked into the top six inches of the soil before fine grading or seeding. Fertilizer may be applied up to 10 days before seeding. Limestone may be applied up to 30 days before seeding.
4. Lightly compact topsoil. Stones and other debris with a diameter over one inch shall be removed from the surface of the topsoil. A raked, uniform fine grade shall be established so that no depressions or high spots greater than 1/2 inch

are present and water drains to structures, ditches, swales and paved surfaces as intended on the site plan. Topsoil shall be hand-raked around trees, plants, buildings and new work to prevent damage. If lawn is to be established by sodding, an allowance for sod thickness shall be allowed adjacent to sidewalks, curbs and any other fixed final elevations.

3.03 CONVENTIONAL LAWN SEEDING

A. Seed Application

1. Seed distributed by conventional seeding methods, or by culti-packer/seeder equipment, shall be uniformly spread in two directions at right angles to each other, using one half of the total seed to be distributed in each direction. If extreme slopes interfere with the safe or practical use of the seeding equipment, one or more passes in the same direction shall be an acceptable substitute. After the seed is distributed, the seed shall be incorporated into the soil to an average depth of 1/8 to 1/4 inch below the soil surface. Areas which receive seed by conventional seeding methods shall be rolled with a weighted roller after seeding, so that the seed is pressed firmly into the soil.

B. Mulching

1. Straw and hay seed mulches shall be spread uniformly over the soil surface at a rate of 1.5 bales per 1000 sq. ft. The straw or hay mulch shall cover a minimum of 80% of the soil surface in a layer from 0.5 to 1.5 inches thick, with a maximum of 10% of the soil surface covered with straw or hay mulch over 2.5 inches in thickness. Liquid mulch binder and/or tackifier products shall be used to anchor straw or hay seed mulches when the liquid mulch binder and/or tackifier products are applied according to the manufacturer's label directions or according to application rates and methods that ensure that the straw or hay seed mulch is firmly held from erosion while still allowing the passage of emerging seedlings.
2. As an alternative straw or hay mulch, and on all slopes steeper than 4:1, wood fiber or wood cellulose fiber plus a liquid tackifier product used as hydraulic mulch for turfgrass seeding shall be applied in accordance with the label directions of the manufacturer. A minimum of 80% of the soil surface shall be covered with hydraulic mulch, or as may be necessary to ensure that the wood fiber, wood cellulose fiber hydraulic mulch is securely held in place so that minimal amounts of seed and/or soil are permitted to erode from the seeding site, while still allowing the passage of emerging seedlings.

3.04 HYDRAULIC SEEDING (HYDRO-SEEDING)

A. Hydraulic Seeding Suspension (Slurry)

1. Fertilizer and limestone may be applied as described in 3.02.B.2 of these specifications before hydro-seeding operation is begun. Alternatively limestone and fertilizer shall be mixed into hydraulic seeding suspension. In the absence of a site-specific soil test which indicates otherwise, apply lime at a rate of 50 lbs. per

1000 sq. ft., and starter fertilizer at a rate which provides 1 lb. of total nitrogen per 1000 sq. ft. based on fertilizer analysis. When seed is included in the hydraulic seeding suspension, the amount of fertilizer added to the hydraulic seeding suspension shall not exceed 2lbs. pounds of nitrogen per 1000 sq. ft. When limestone is applied with seed in the hydraulic seeding suspension, the amount of limestone included shall not exceed 50 lbs per 1000 ft² (2,200 lbs. per acre). Pulverized limestone or pelletized limestone shall be the only limestone used for this application: neither granulated limestone, nor burnt lime, nor hydrated lime shall be used for hydraulic seeding. When fertilizer and/or limestone is included in the hydraulic seeding suspension with seed, the maximum combined weight of fertilizer and limestone included in the hydraulic seeding suspension shall not exceed 150 pounds per 100 gallons of water.

2. Hydraulic seeding equipment shall be operated according to the directions for operation provided by the manufacturer of the hydraulic seeding equipment. Hydraulic seeding applications shall ensure that all materials which may be included in the hydraulic seeding suspension, including seed, hydraulic mulch, tackifier, mulch binder, dye, fertilizer, and limestone, are added in the required amounts and sequence, and are fully mixed before and during application. Hydraulic seeding applications shall be made so that the hydraulic seeding suspension falls as a uniform spray onto the soil, and so that minimal areas within the seeding site shall receive significant underapplication or overapplication.

B. Mulching

1. In all cases, hydraulic seeding suspension shall contain the appropriate hydraulic mulch, green dye, and a non-asphaltic mulch tackifier.

3.05 SODDING

- A. Time of Sodding: Sodding operations shall be conducted under favorable weather conditions. Sodding operations may, however, be conducted under unseasonable conditions at the option and on the full responsibility of the Contractor and with the approval of the Contract Administrator, or his designee. If losses occur, there shall be no additional cost to the City.

B. Installation Procedure

1. During periods of high temperature and after all unevenness in the soil surface has been corrected, the soil shall be lightly irrigated immediately prior to laying the sod.
2. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly against each other. If the area is a slope steeper than 4:1, sod shall be placed in rows perpendicular to the direction of the steepest part of the slope. Lateral joints shall be staggered to promote more uniform growth and strength. All joints shall be butted tightly in order to prevent voids which would cause air drying of the roots. On slopes 3:1 or steeper, sod shall be anchored with steel staples placed 3' apart, with at least two staples per sod strip.

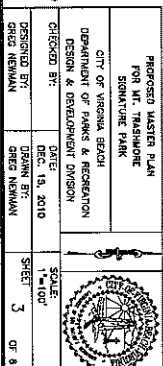
GENERAL SPECIFICATIONS
Redwing , Mt. Trashmore and Woodstock
Park Improvements
Phase I

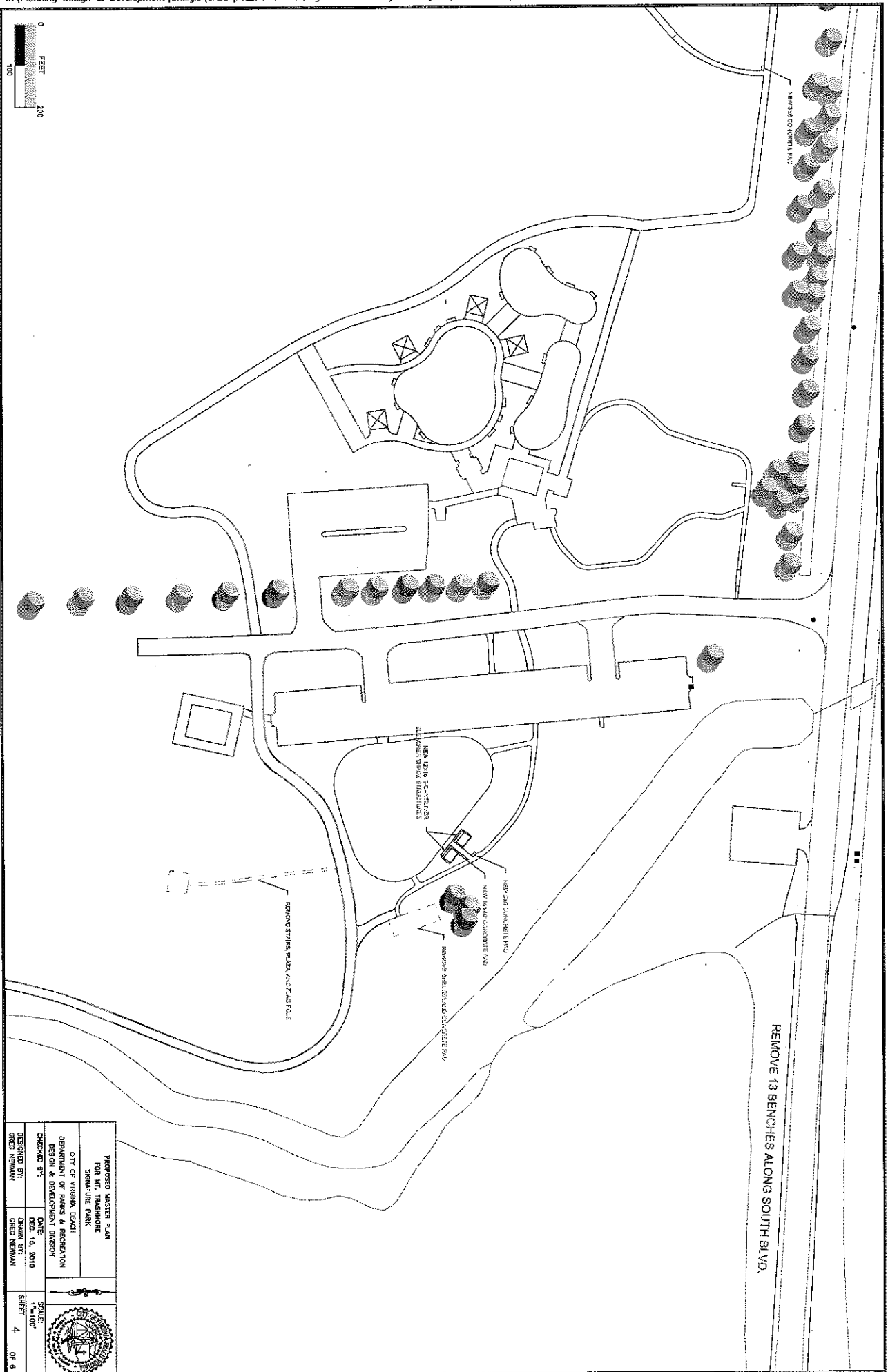
3. Immediately upon completion of a section of sodding, sod shall be rolled or tamped to ensure direct contact with the topsoil. Sifted topsoil (sand may be used for Bermudagrass sod) shall be used to level minor cracks in the joints between sod pads. Excess soil shall be removed to avoid smothering of adjacent grass.
4. Immediately after, planting, sodded areas shall be watered thoroughly. Sufficient water shall be applied to ensure penetration of moisture through the bottom of sod pads and into topsoil to a depth of 4 to 6 inches.
5. Protection of newly sodded areas with boundary fencing, stakes with ribbon, or other means shall be the responsibility of the contractor.

Attachment 2.
 City of Virginia Beach – Landscape Services
 Lawn Establishment Seeding Chart

1.06 SEEDING CHART				
	Time of Year	PART 4 - GRASS SEED #1	Grass Seed #2	Grass Seed #3
Permanent Seeding	May 1 to July 30	Hybrid Turf-Type Tall Fescue* at a rate of 5-7 lbs. per 1000 sq. ft. (220-310 lbs./acre)	Hulled Common Bermudagrass seed at a rate of 1-2 lbs. per 1000 sq. ft. (45-90 lbs./acre)	None
	August 1 to November 15	Hybrid Turf-Type Tall Fescue* at a rate of 5-7 lbs. per 1000 sq. ft. (220-310 lbs./acre)	Un-hulled Common Bermudagrass seed at a rate of 3-5 lbs. per 1000 sq. ft. (130-220 lbs./acre)	None
	November 16 to April 30	Hybrid Turf-Type Tall Fescue* at a rate of 5-7 lbs. per 1000 sq. ft. (220-310 lbs./acre)	Un-hulled Common Bermudagrass at a rate of 3-5 lbs. per 1000 sq. ft. (130-220 lbs./acre)	Perennial Ryegrass ⁺ at a rate of 7-9 lbs. per 1000 sq. ft. (300-400 lbs./acre)
Temporary Seeding	All Year	Annual Ryegrass at a rate of 7-9 lbs. per 1000 sq. ft. (300-400 lbs./acre)	Lime and/or fertilizer are not required with temporary seeding, however seeding shall be performed as necessary to maintain cover.	

PROPOSED PHASE 1 WATER PLAN FOR RED WING METRO PARK			
CITY OF VIRGINIA BEACH DEPARTMENT OF PLANNING & RECREATION DESIGN & DEVELOPMENT DIVISION		SCALE: 1"=40' SHEET 1 OF 2	
REVISIONS:	DATE: JUN. 05, 2011	DESIGNED BY: BRIAN PHILLIPS	
CHECKED BY: BRIAN PHILLIPS		DESIGNED BY: BRIAN PHILLIPS	





PROPOSED MASTER PLAN FOR THE MT. TRASHMORE-SENTINEL PARK CITY OF VIRGINIA BEACH DEPARTMENT OF PARKS & RECREATION DESIGN & DEVELOPMENT DIVISION		
CHECKED BY: _____ DATE: _____ DESIGNED BY: _____ DATE: 10.16.2010	SCALE: 1" = 40'	
DESIGNED BY: _____ CHECKED BY: _____ DATE: _____	SHEET: 4 OF 6	

CITY OF IRVING, TEXAS DEPARTMENT OF PARKS AND RECREATION DESIGN & DEVELOPMENT DIVISION		POSTED MASTER PLAN FOR UPT. TASHIRO SIGNATURE PARK	
CHECKED BY: _____ DESIGNED BY: _____ DATED: 08/01/2007	DATE: DEC. 15, 2010 DRAWN BY: _____ CHECKED BY: _____		
SCALE: 1"=200'		SHEET 6 OF 8	

COST DATA SHEET
MT TRASHMORE SIGNATURE PARK

COMPONENTS			COST DATA		
EXCAVATION	QUANTITY	UNIT	MATERIAL	LABOR	TOTAL
COMPONENTS LOCATED ON "ENCOR HILL" REMOVAL:					
LARGE SHELTERS REMOVAL:	2	EA.			
REMAINING COMPONENTS & MATERIALS REMOVAL:					
EXCAV./ GRADING					
INSTALLATION	QUANTITY	UNIT	MATERIAL	LABOR	TOTAL
30'X60' SHELTER W/UTILITES	1	EA.			
31'X30' CONCRETE PAD	1	EA.			
15'X15' SHELTER	1	EA.			
RE-ROOF SMALL SHELTERS (standing seam metal)	6	EA.			
12'X18' SHADE STRUCTURES	2	EA.			
15'X40' CONCRETE BLEACHER PAD	1	EA.			
3.5'X8' CONCRETE BENCH PADS	21	EA.			
8'X10' CONCRETE PADS	12	EA.			
3'X6' CONCRETE PAD	12	EA.			
3'X3' CONCRETE PADS	16	EA.			

COST DATA SHEET
MT TRASHMORE SIGNATURE PARK

VINYL COATED TRASH CAN SLEEVES	50	EA.			
6' VINYL COATED BENCHES	21	EA.			
6' VINYL COATED PICNIC TABLES	42	EA.			
8' VINYL COATED ADA PICNIC TABLES	7	EA.			
6' WIDE CONCRETE WALKS	800	LF.			
CONCRETE HANDICAP RAMP (VDOT CG-12)	1	EA.			

TOTAL PRICE:\$_____

COST DATA SHEET
REDWING METRO PARK

COMPONENTS			COST DATA		
EXCAVATION	QUANTITY	UNIT	MATERIAL	LABOR	TOTAL
LARGE SHELTER REMOVALS:	2				
TREE REMOVAL:	16				
REMAINING COMPONENTS & MATERIALS REMOVAL:					
EXCAV./ GRADING					
INSTALLATION	QUANTITY	UNIT	MATERIAL	LABOR	TOTAL
30'X60' SHELTER W/UTILITES	2	EA.			
31'X30' CONCRETE PAD	2	EA.			
15'X15' SHELTER	1	EA.			
8'X18' SHADE STRUCTURES	2	EA.			
3.5'X18' CONCRETE BENCH PADS	2	EA.			
3.5'X8' CONCRETE BENCH PADS	12	EA.			
35'x70' CONCRETE SLAB (BASKETBALL COURT)	1	EA.			
14'X24' CONCRETE PAD (DOG PARK)	1	EA.			
12'X12' CONCRETE PADS	1	EA.			
8'X10' CONCRETE PADS	15	EA.			
3'X6' CONCRETE PAD	4	EA.			
3'X3' CONCRETE PADS	12	EA.			

COST DATA SHEET
REDWING METRO PARK

VINYL COATED TRASH CAN SLEEVES	20	EA.			
6' VINYL COATED BENCHES	14	EA.			
6' VINYL COATED PICNIC TABLES	34	EA.			
8' VINYL COATED ADA PICNIC TABLES	3	EA.			
6' WIDE CONCRETE WALKS	260	LF.			

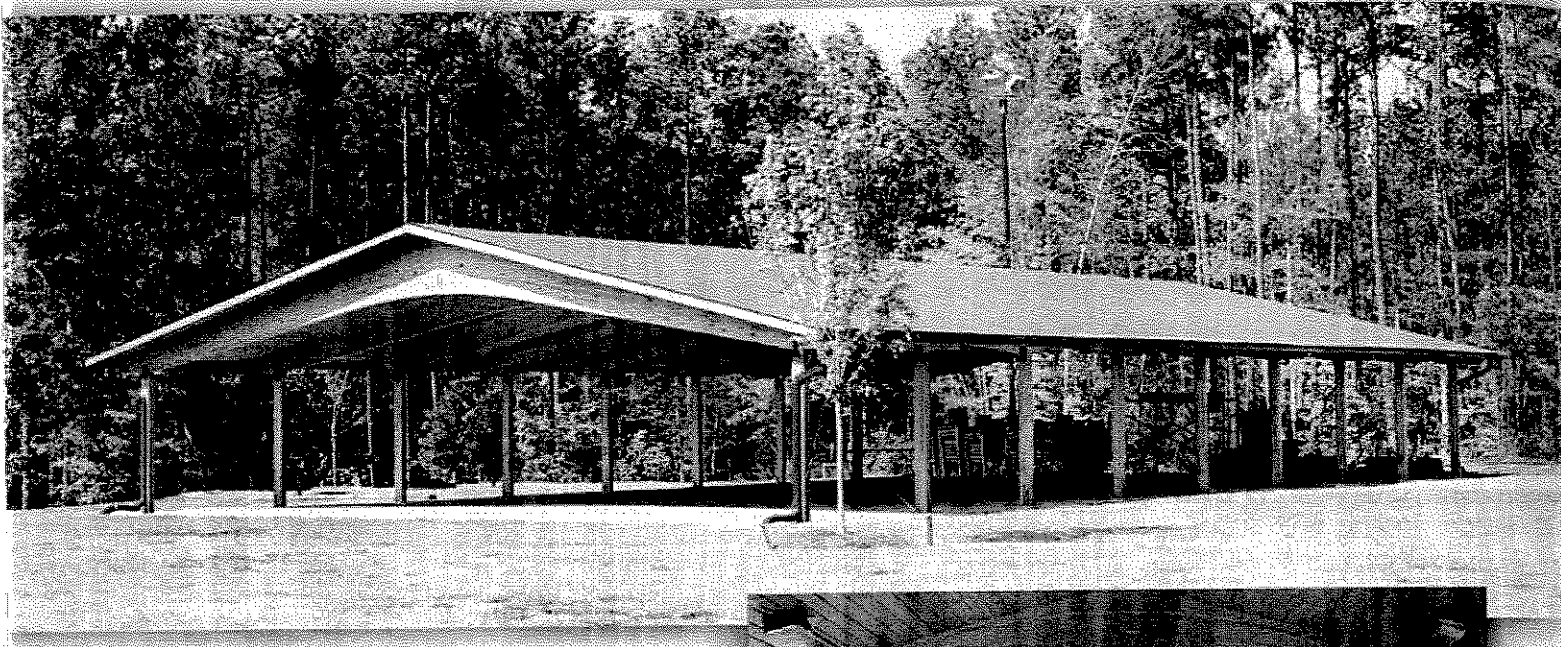
TOTAL PRICE:\$_____

COST DATA SHEET
WOODSTOCK COMMUNITY PARK

COMPONENTS			COST DATA		
EXCAVATION	QUANTITY	UNIT	MATERIAL	LABOR	TOTAL
EQUIPMENT REMOVAL:					
EXCAV./ GRADING					
INSTALLATION	QUANTITY	UNIT	MATERIAL	LABOR	TOTAL
12'X25' SHADE STRUCTURE	1	EA.			
8'X18' SHADE STRUCTURES	2	EA.			
3.5'X18' CONCRETE BENCH PADS	2	EA.			
3.5'X8' CONCRETE BENCH PADS	1	EA.			
20'X8' DUMPSTER CONCRETE PAD	1	EA.			
8'X10' CONCRETE PADS	5	EA.			
3'X6' CONCRETE PAD	1	EA.			
3'X3' CONCRETE PADS	10	EA.			
VINYL COATED TRASH CAN SLEEVES	19	EA.			
6' VINYL COATED BENCHES	5	EA.			
6' VINYL COATED PICNIC TABLES	33	EA.			
8' VINYL COATED ADA PICNIC TABLES	3	EA.			

TOTAL PRICE:\$ _____

The Raleigh

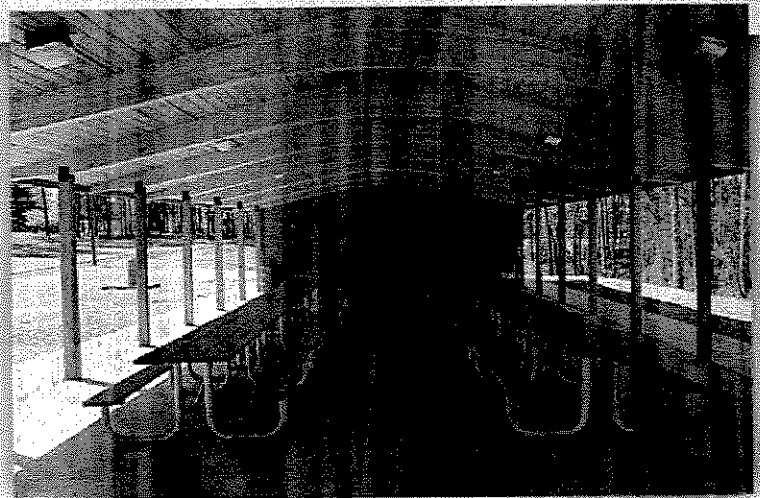


Distinguished by its appealing laminated curved beams, the Raleigh shelter combines economy with versatility. It has been especially popular for municipal parks.

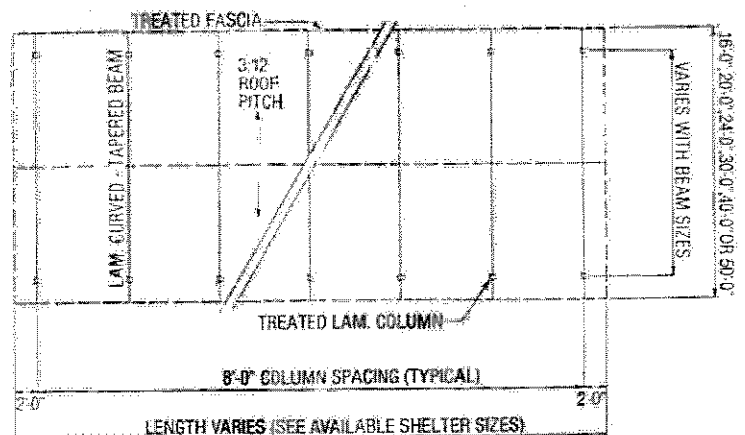
Standard Shelter Sizes Available

16' x 20'	24' x 36'	40' x 52'
16' x 28'	24' x 44'	40' x 60'
16' x 36'	24' x 52'	40' x 68'
20' x 20'	30' x 36'	40' x 76'
20' x 28'	30' x 44'	50' x 68'
20' x 36'	30' x 52'	50' x 76'
20' x 44'	30' x 60'	50' x 84'
20' x 52'	30' x 68'	50' x 92'
24' x 28'	30' x 76'	50' x 100'

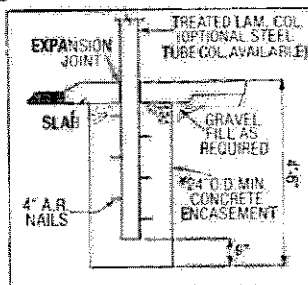
Custom Sizes & Designs Available



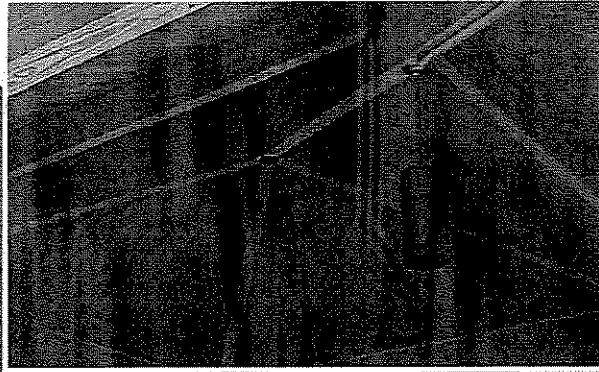
Roof Framing - Raleigh



Suggested Column Embedment

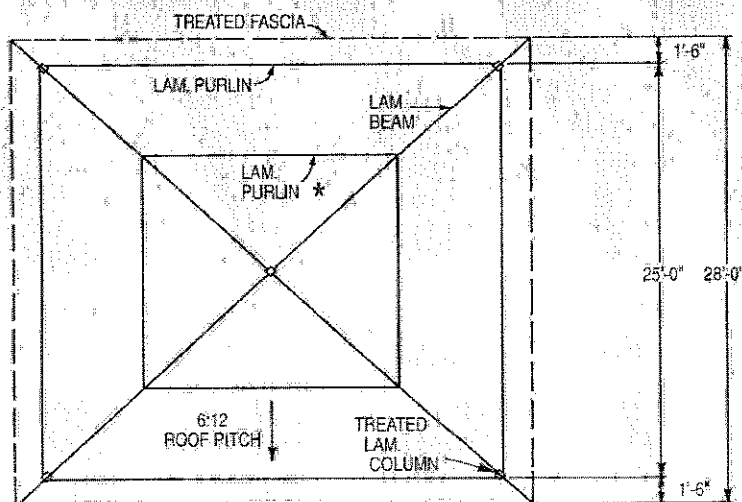


*30" O.D. Concrete for 40' and 50'



The simplicity of the Timberland Shelter makes it economical as well as attractive. The roof covers a square area and is available in five sizes.

**Laminated purlins not required on the 12'x12' and 15'x15' sizes.*

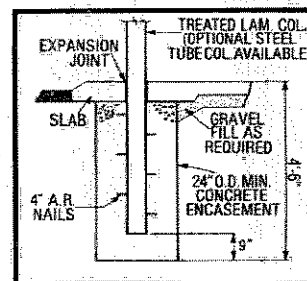


**Roof Framing -
28' Timberland**

Standard Shelter Sizes Available:

12' x 12'	28' x 28'
15' x 15'	36' x 36'
20' x 20'	

Custom Sizes & Designs Available

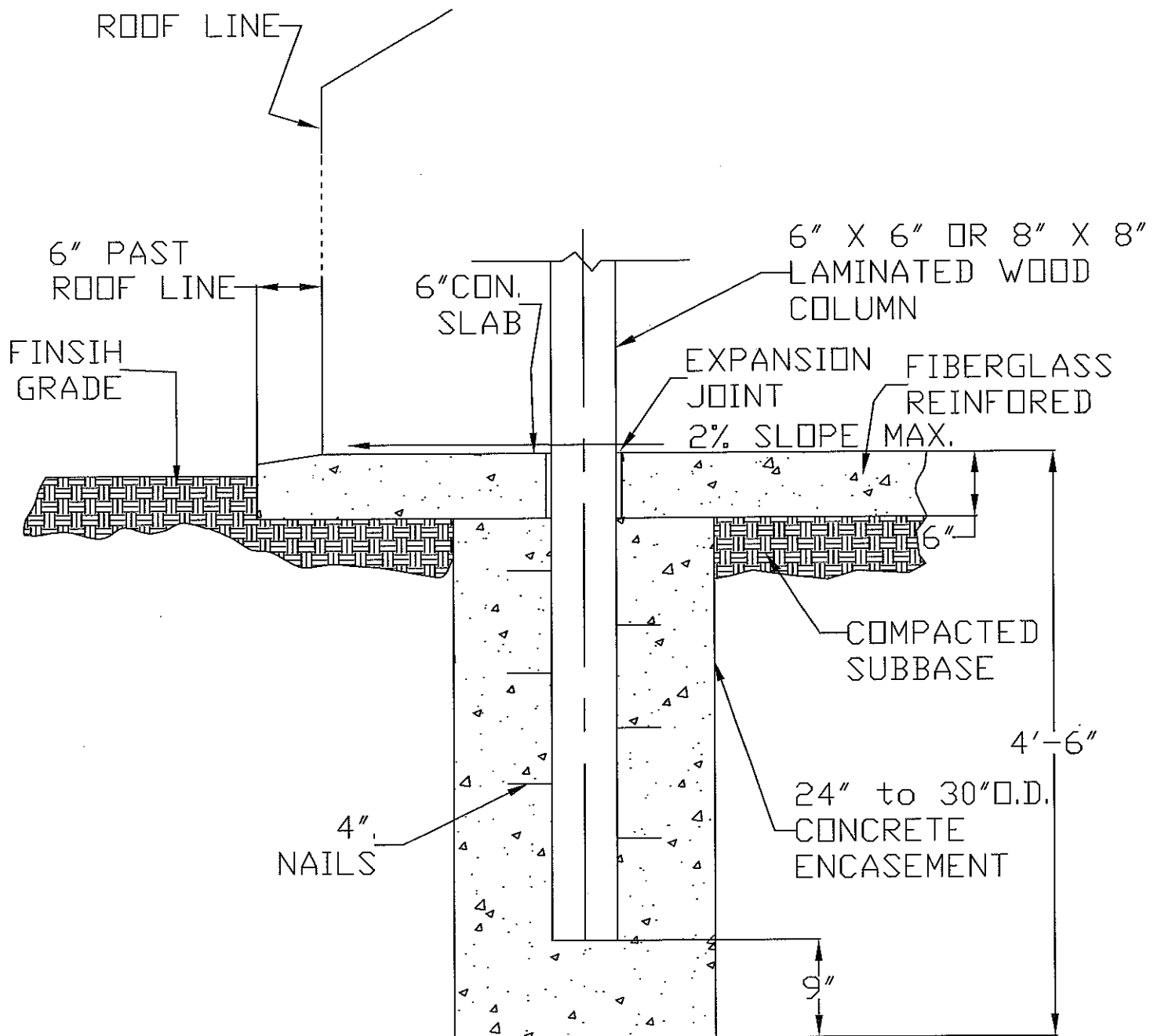


30" O.D. CONCRETE FOR 40' AND 50'

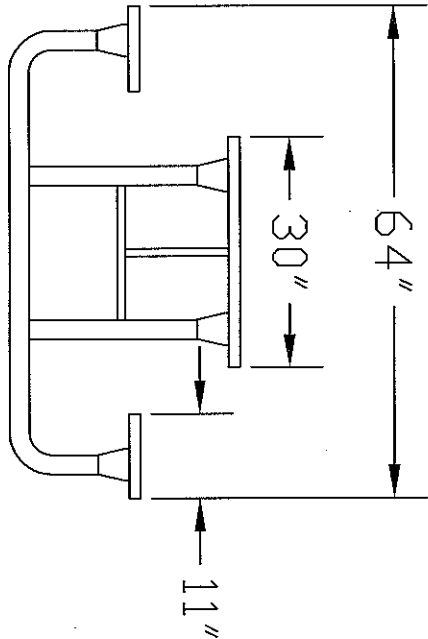
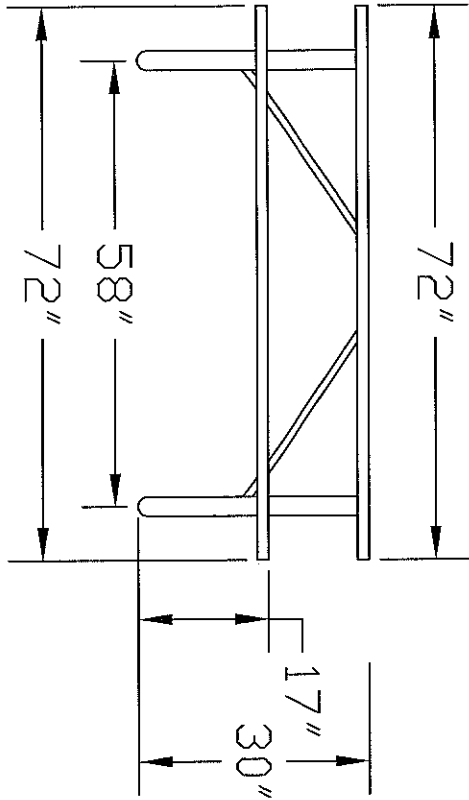
**Suggested
Column
Embedment**

The Timberland

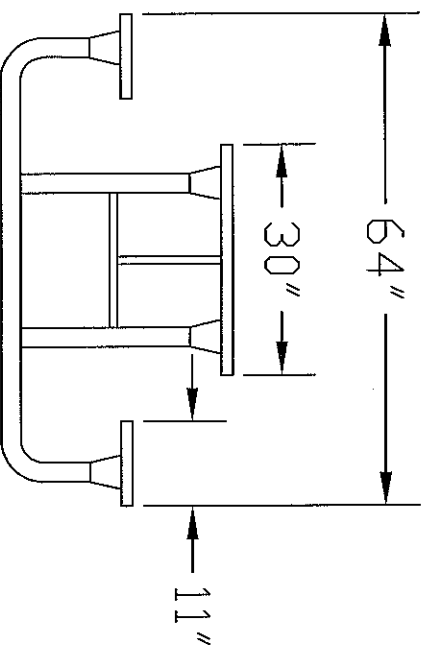
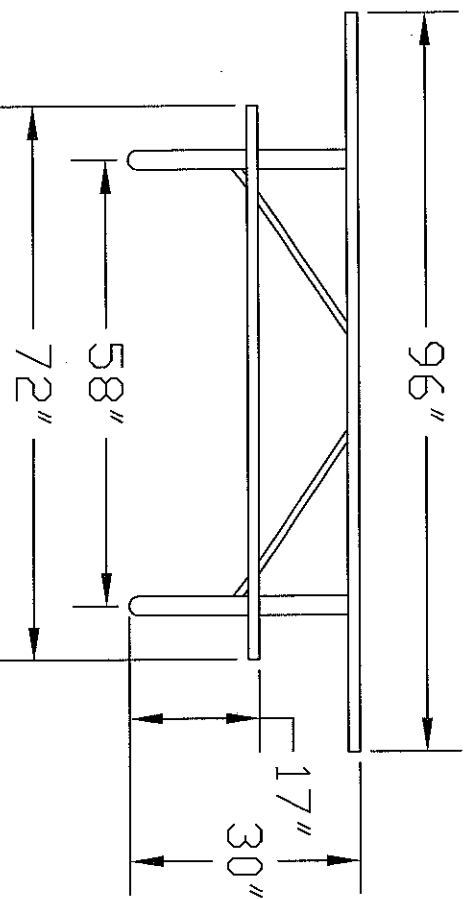
PREFABRICATED LAMINATED WOOD SHELTER FOOTING AND FOUNDATION DETAIL



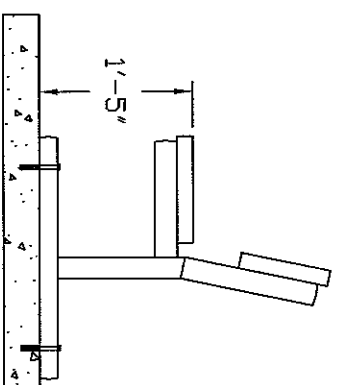
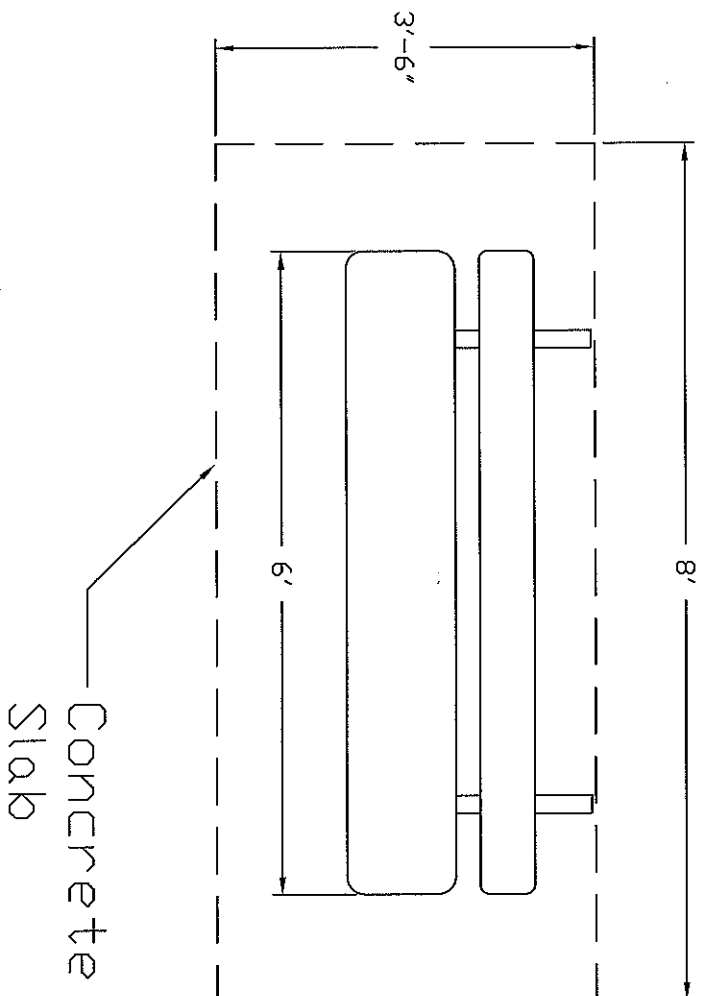
6' Long Picnic Table



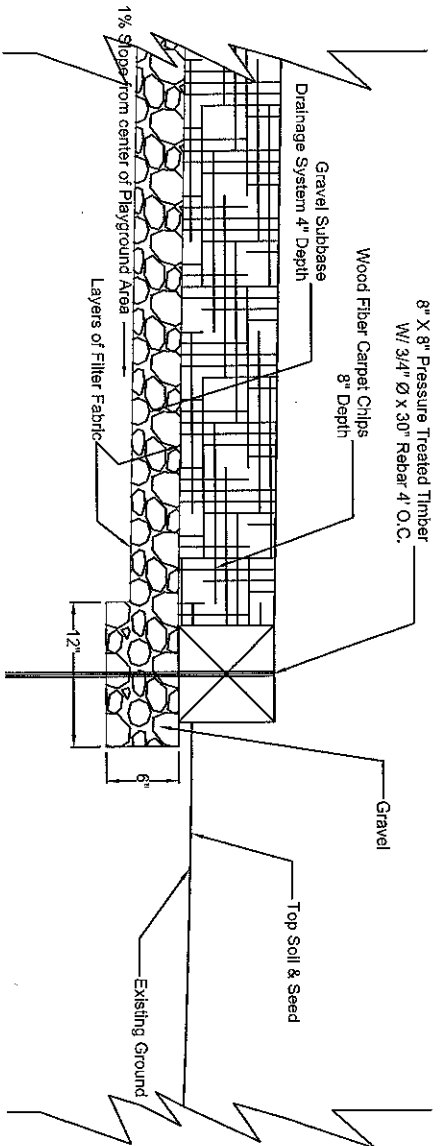
ADA Picnic Table



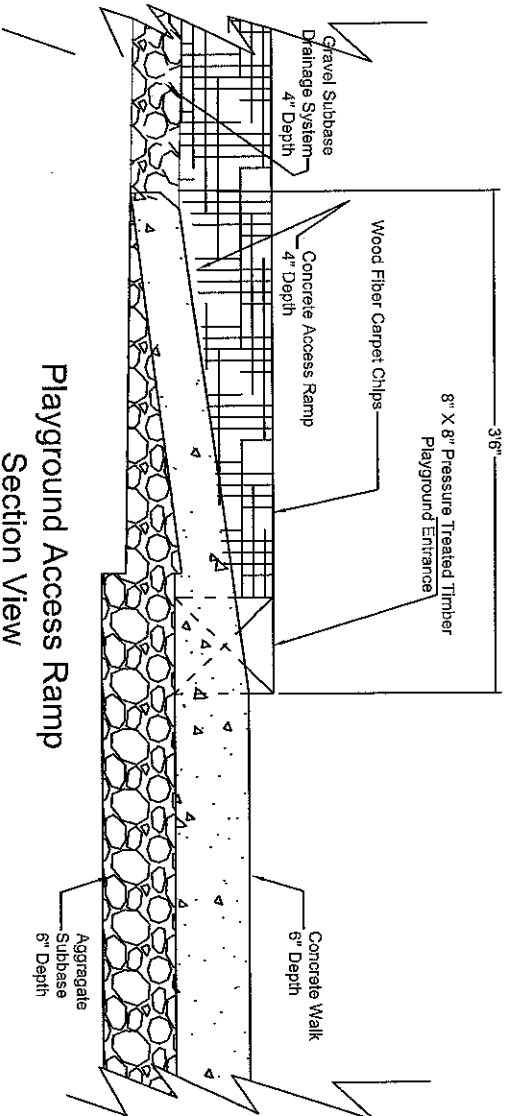
Bench Detail Surface Mount



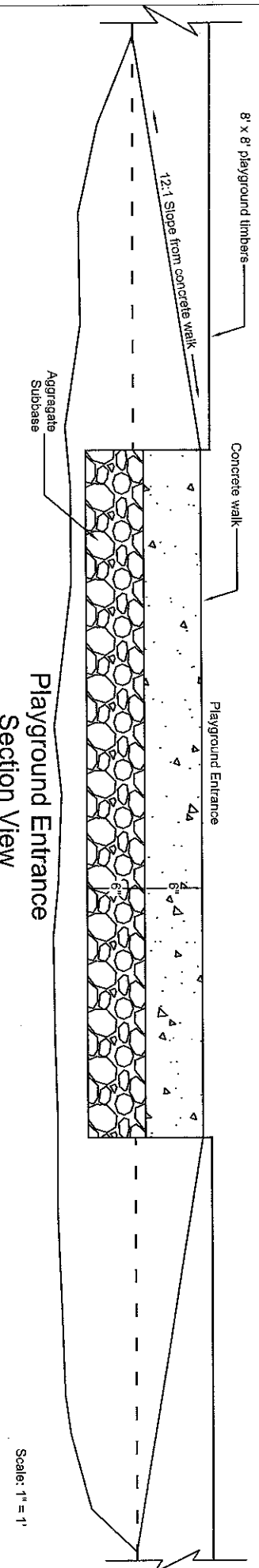
Playground Border Detail Sheet



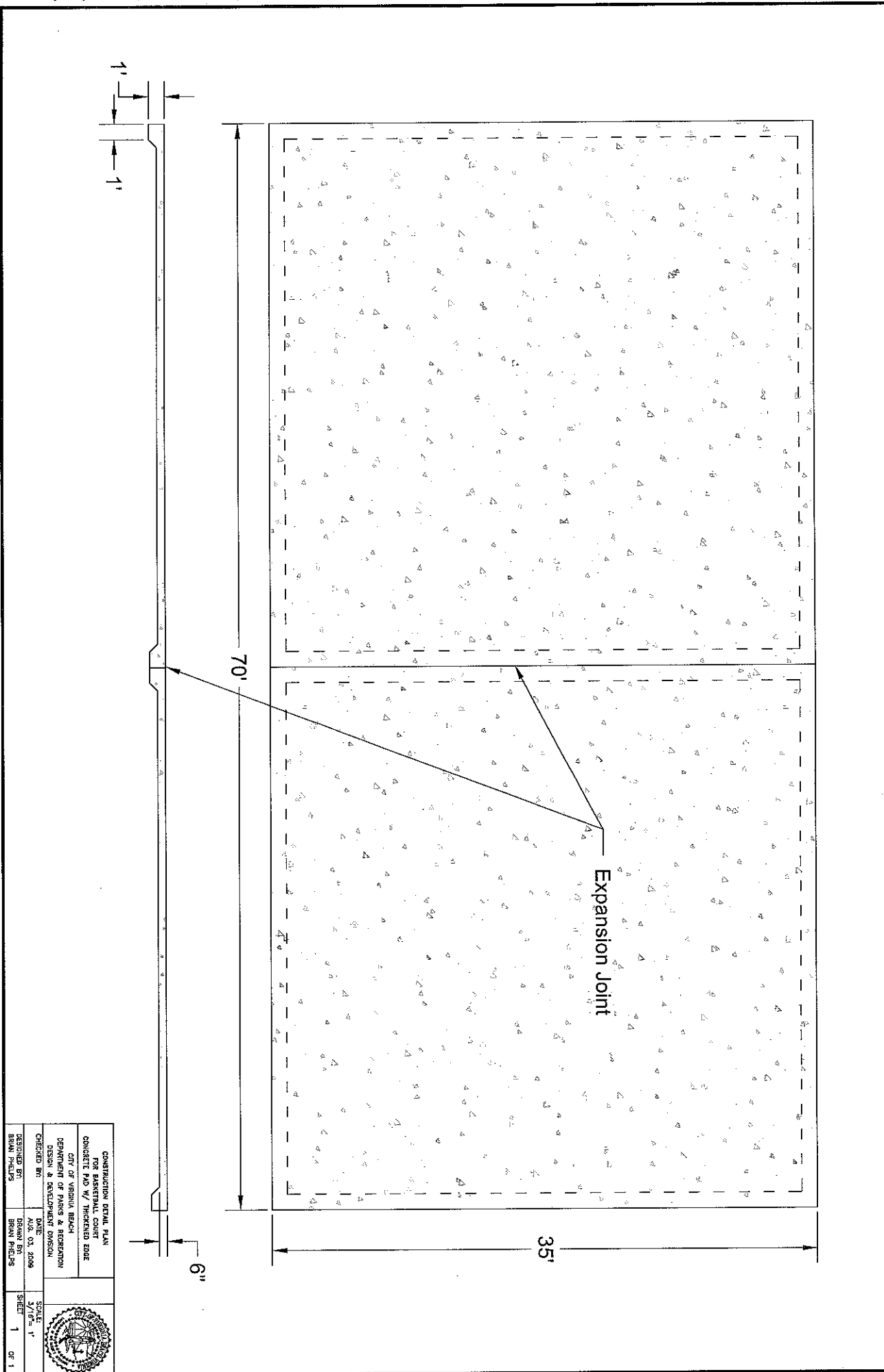
Playground Border & Drainage System
Section View



Playground Access Ramp
Section View



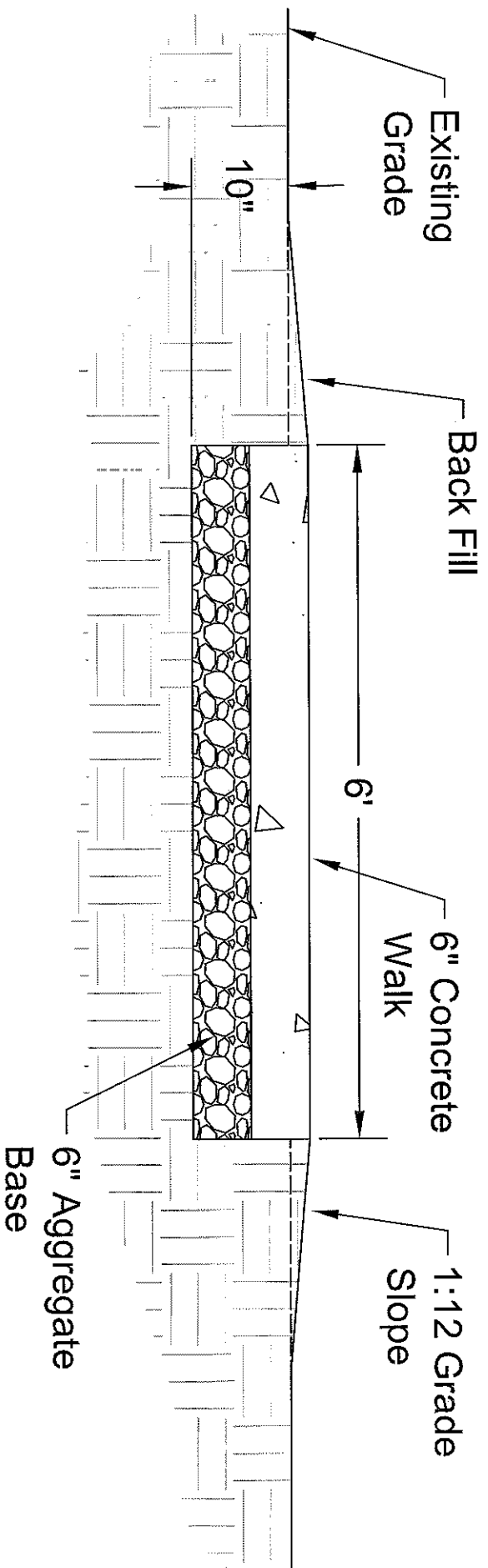
Playground Entrance
Section View



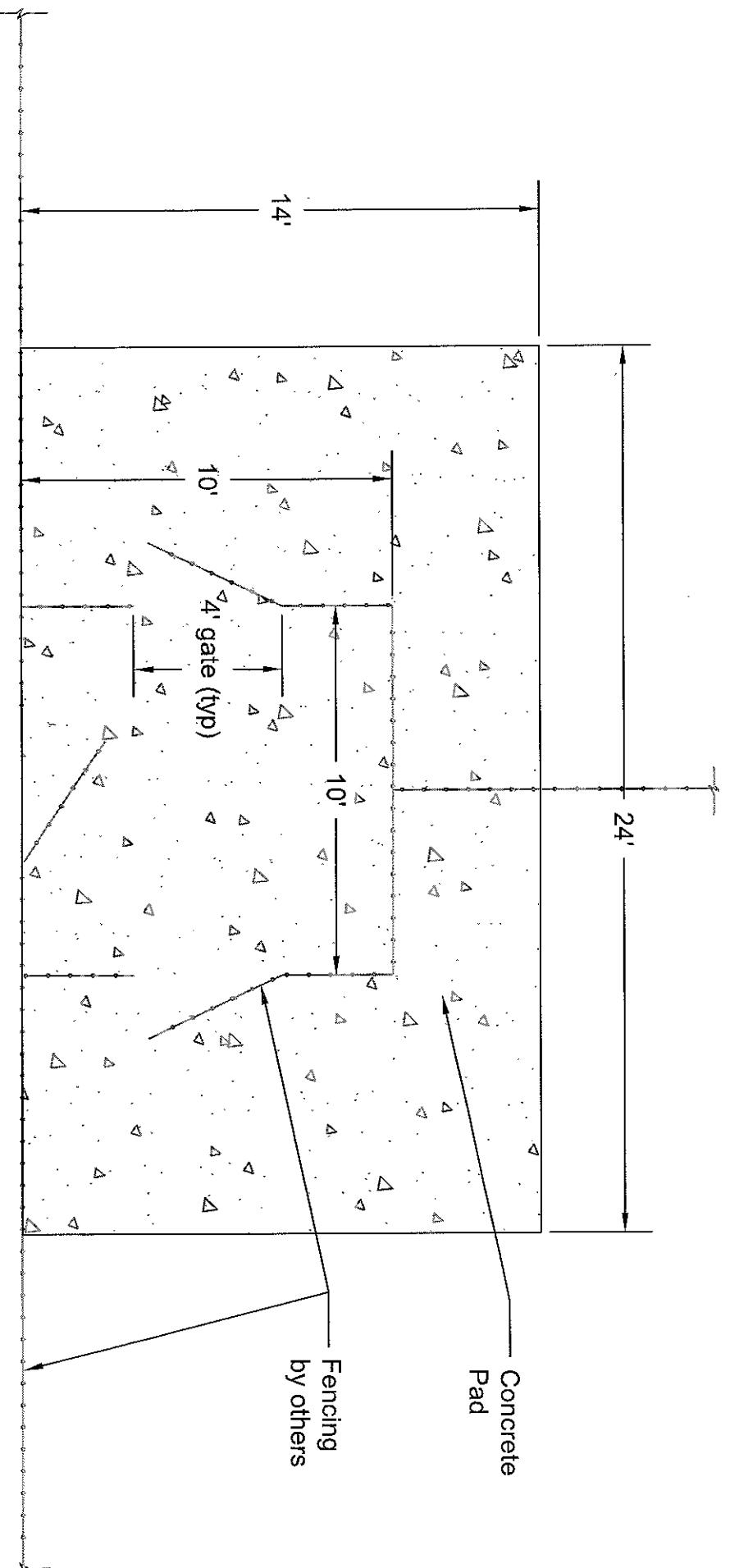
CONSTRUCTION DETAIL PLAN FOR BASKETBALL COURT CONCRETE PAD W/ THICKENED EDGE			
CITY OF VIRGINIA BEACH DEPARTMENT OF PARKS & RECREATION DESIGN & DEVELOPMENT DIVISION			
CHECKED BY:	DATE:	SCALE:	
DESIGNED BY:	AUG. 03, 2009	3/16" = 1'	
BRIAN PHILLIPS	DRAWN BY:	SHEET	1 OF 1
	BRIAN PHILLIPS	1	



6' Wide Concrete Walk Detail



Dog Park Entrance Detail



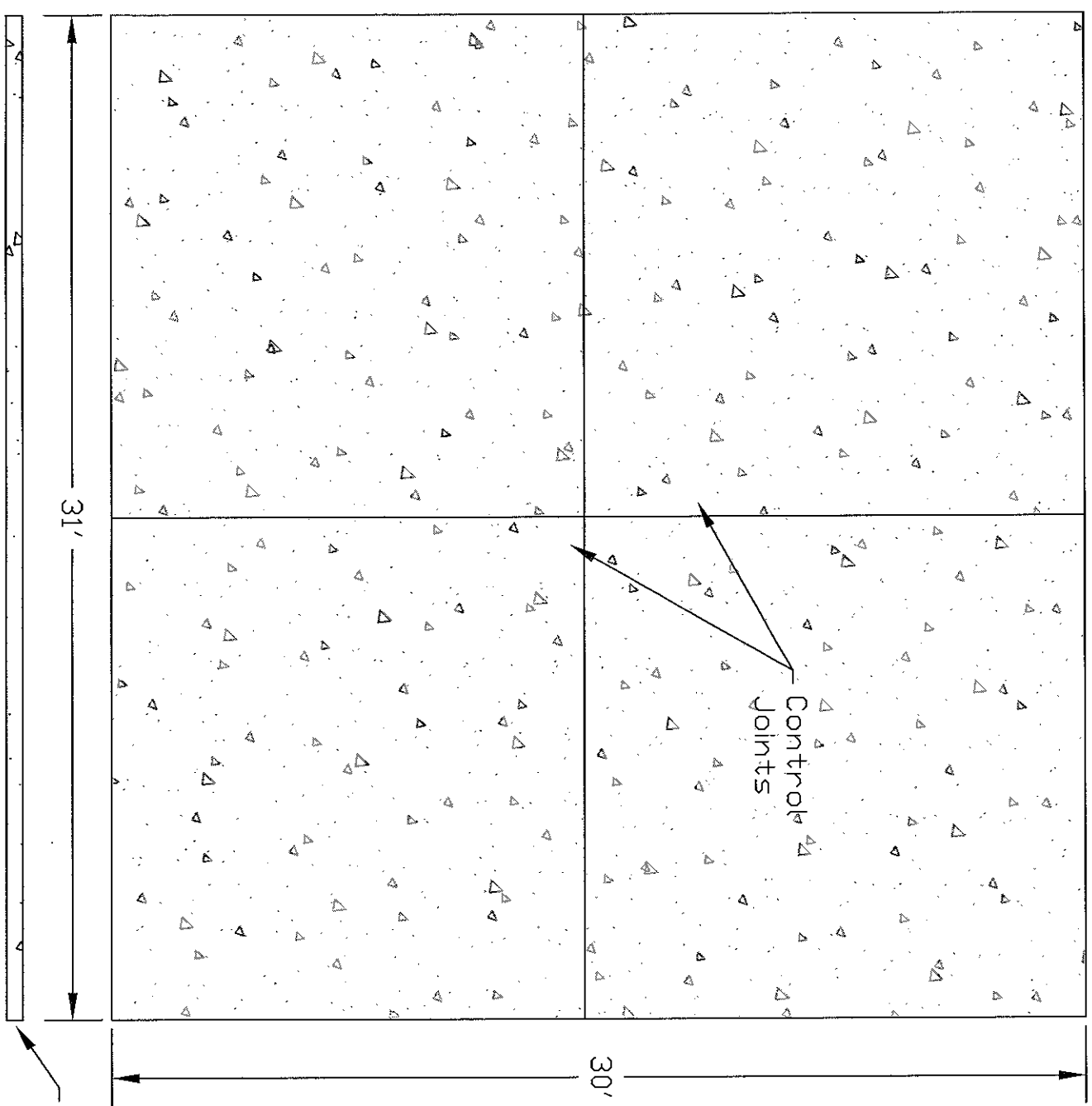
Additional Concrete Slab

Control Joints

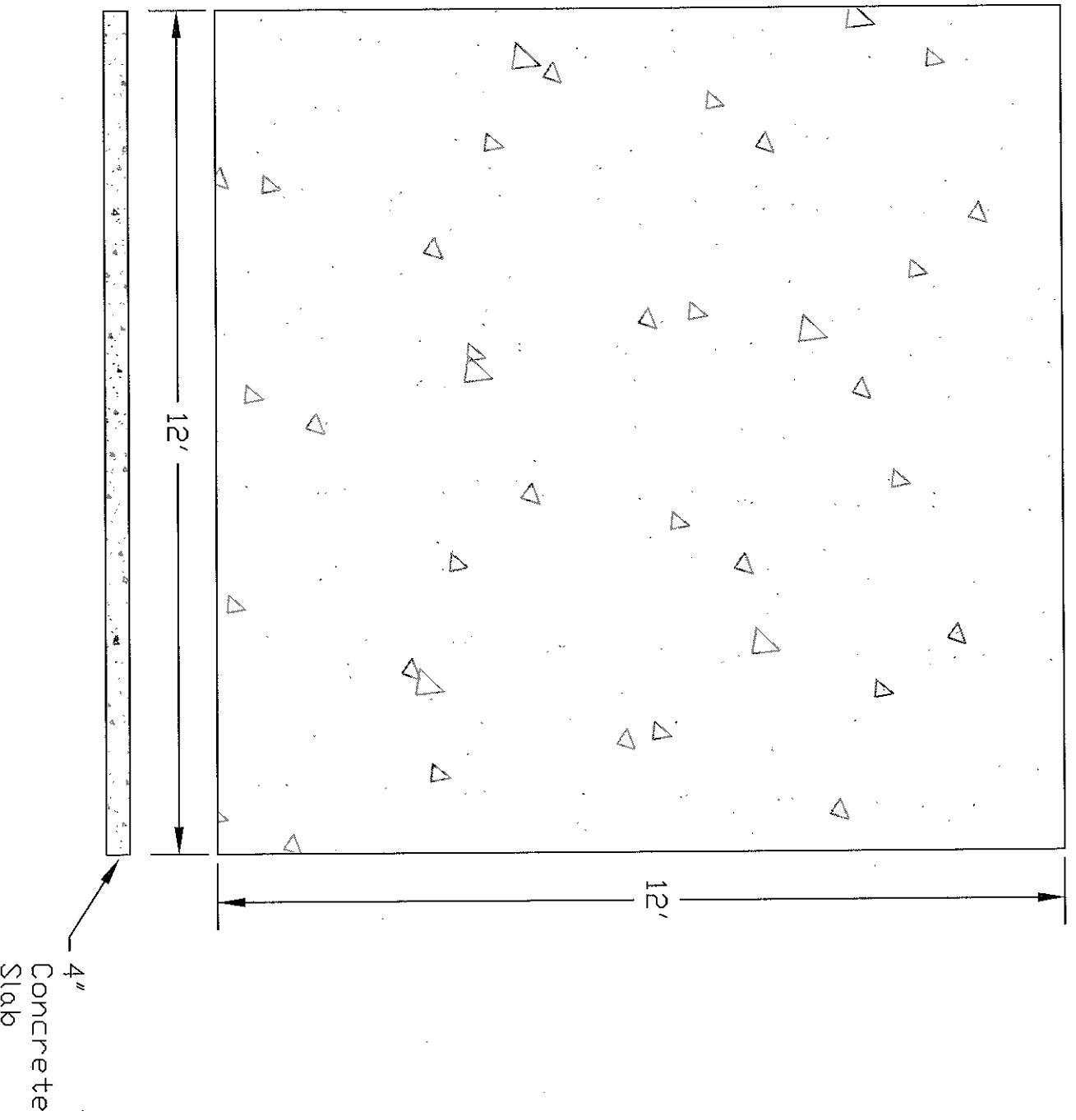
30'

31'

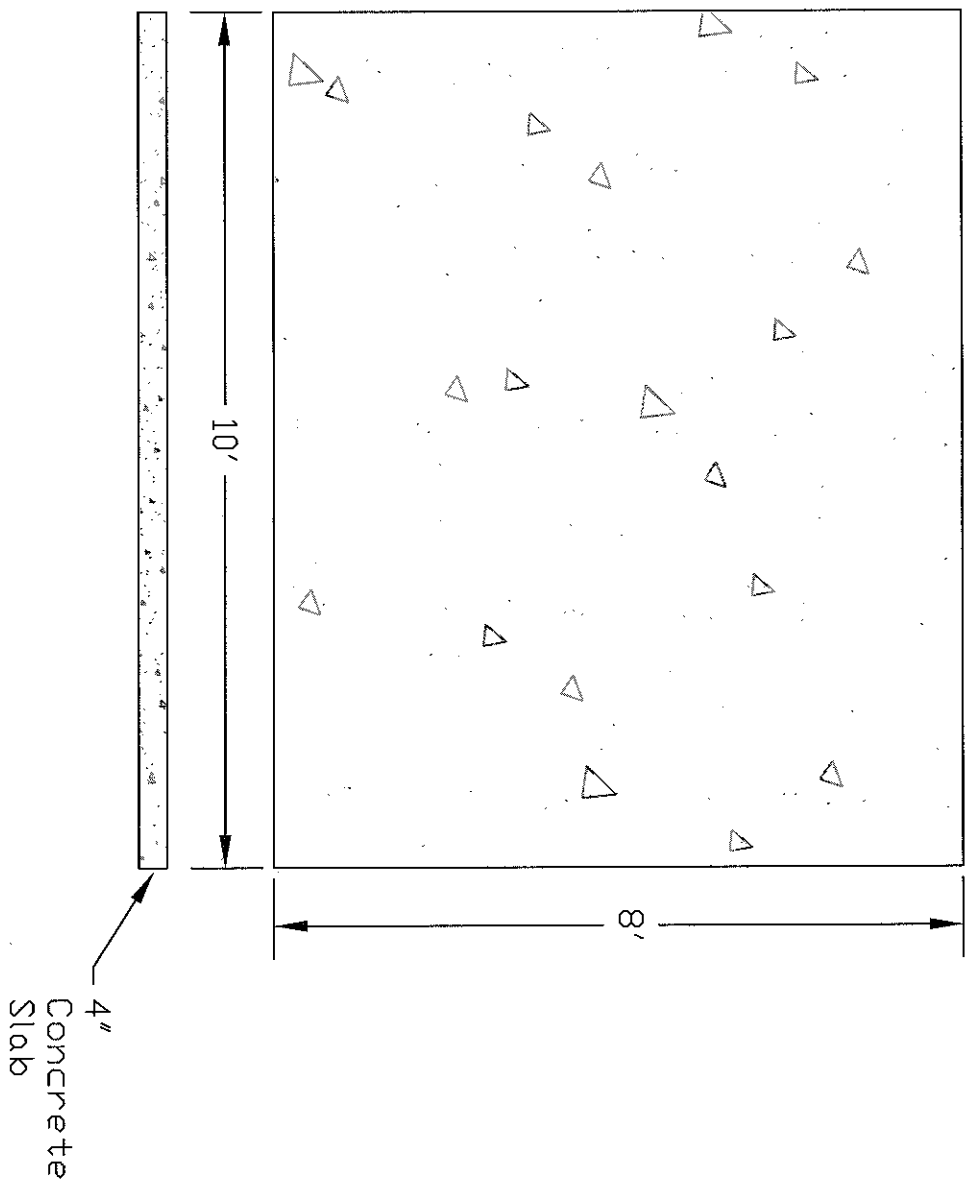
6" Concrete Slab

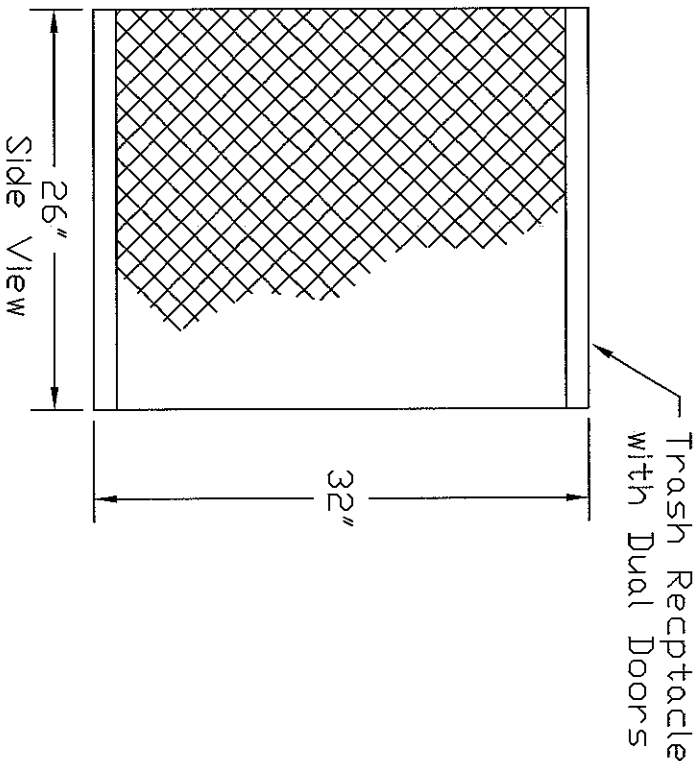
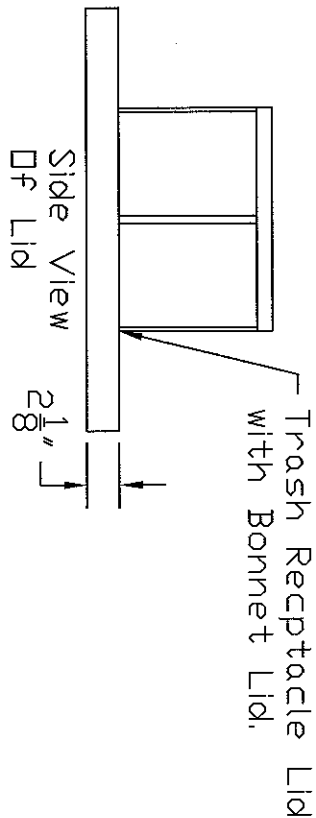
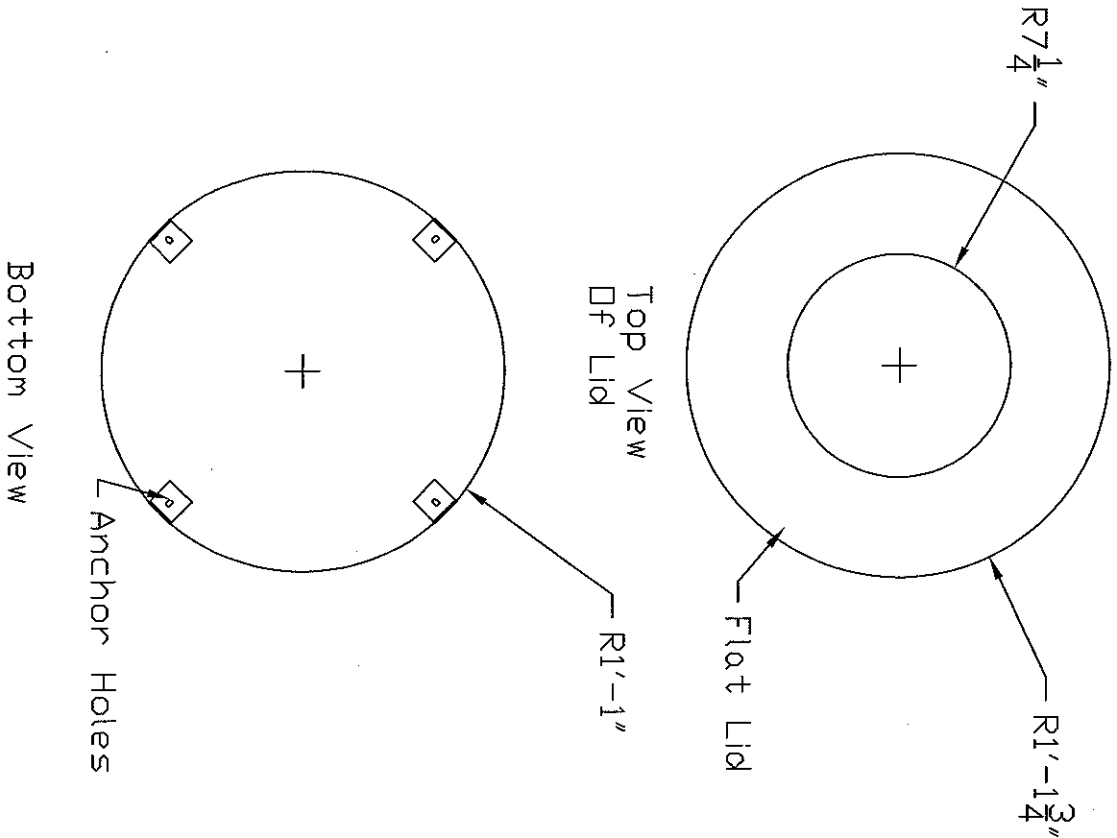


Bike Rack Concrete Slab



Picnic Table Concrete Slab





Materials:

- 3/4" 9 gauge vinyl coated expanded metal wrap.
- 12 gauge vertical bands.
- 12 gauge formed horizontal support bands.

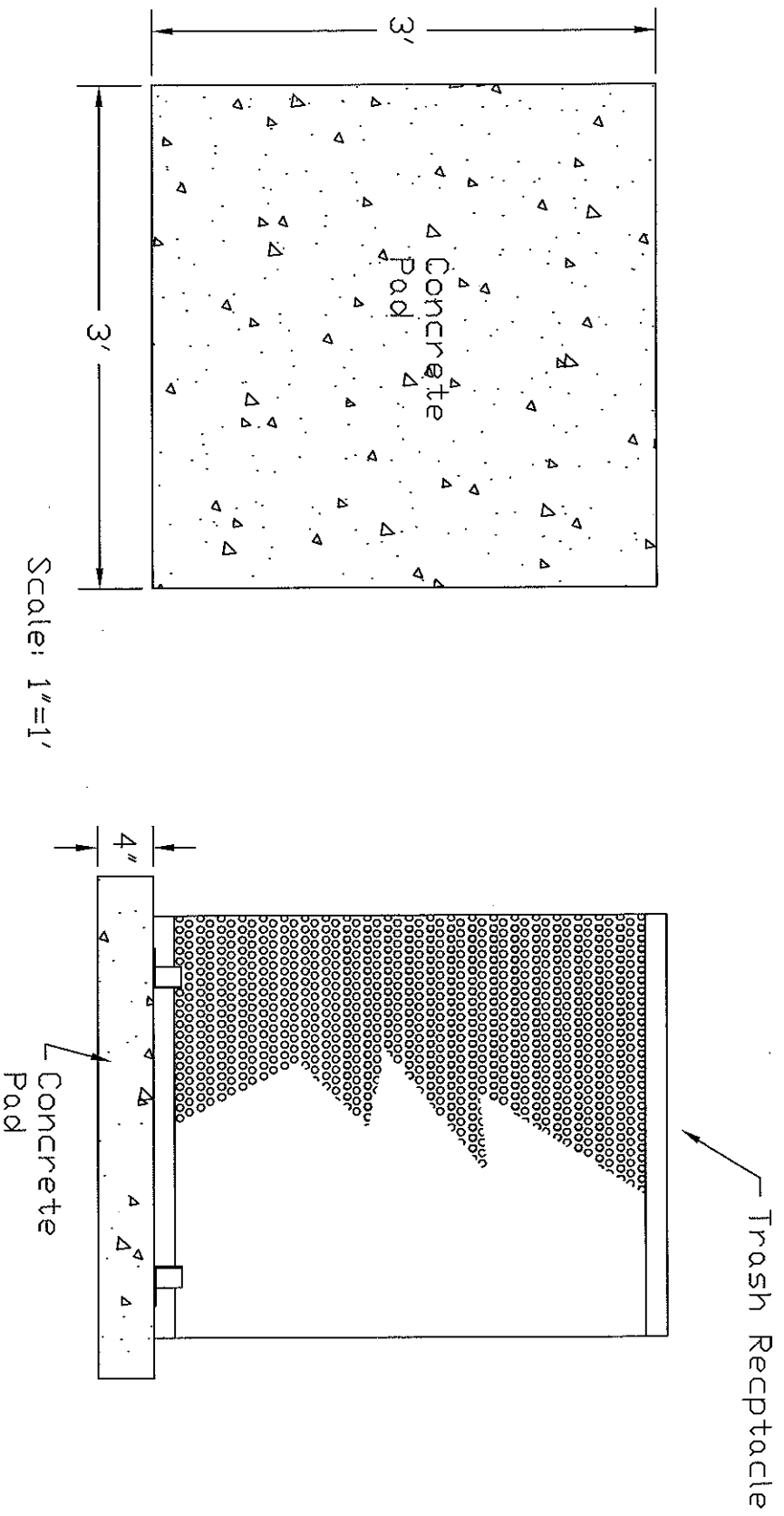
Unit shall be designed with two doors with latch system

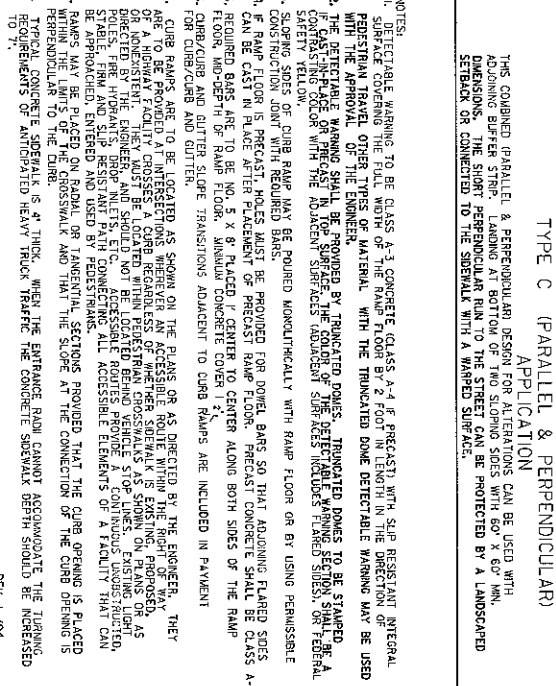
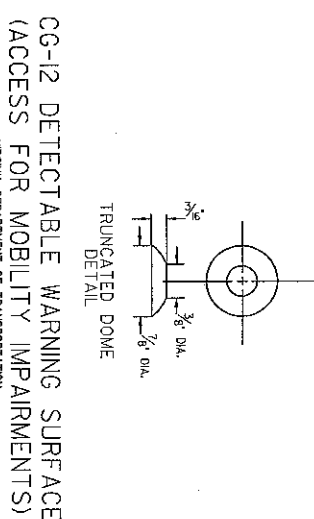
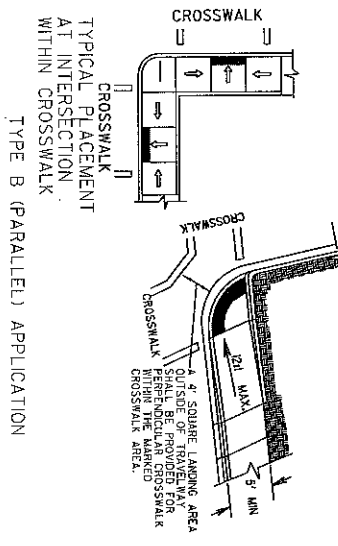
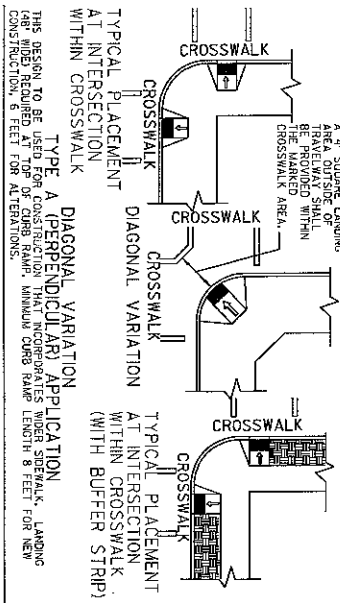
Lid is to be designed for bolt down application.

Lid shall be designed to slide over top of trash receptacle.

CONSTRUCTION DETAIL		
FOR 55 GALLON TRASH RECEPTACLE VINYL COATED EXPANDED OR PUNCHED STEEL		
CITY OF VIRGINIA BEACH DEPARTMENT OF PARKS & RECREATION DESIGN & DEVELOPMENT DIVISION		
REVISED: MAY 26, 2010	DATE: JUNE 01, 2009	SCALE: ODD
DESIGNED BY: BRIAN PHILIPS	DRAWN BY: BRIAN PHILIPS	SHEET 1 OF 1

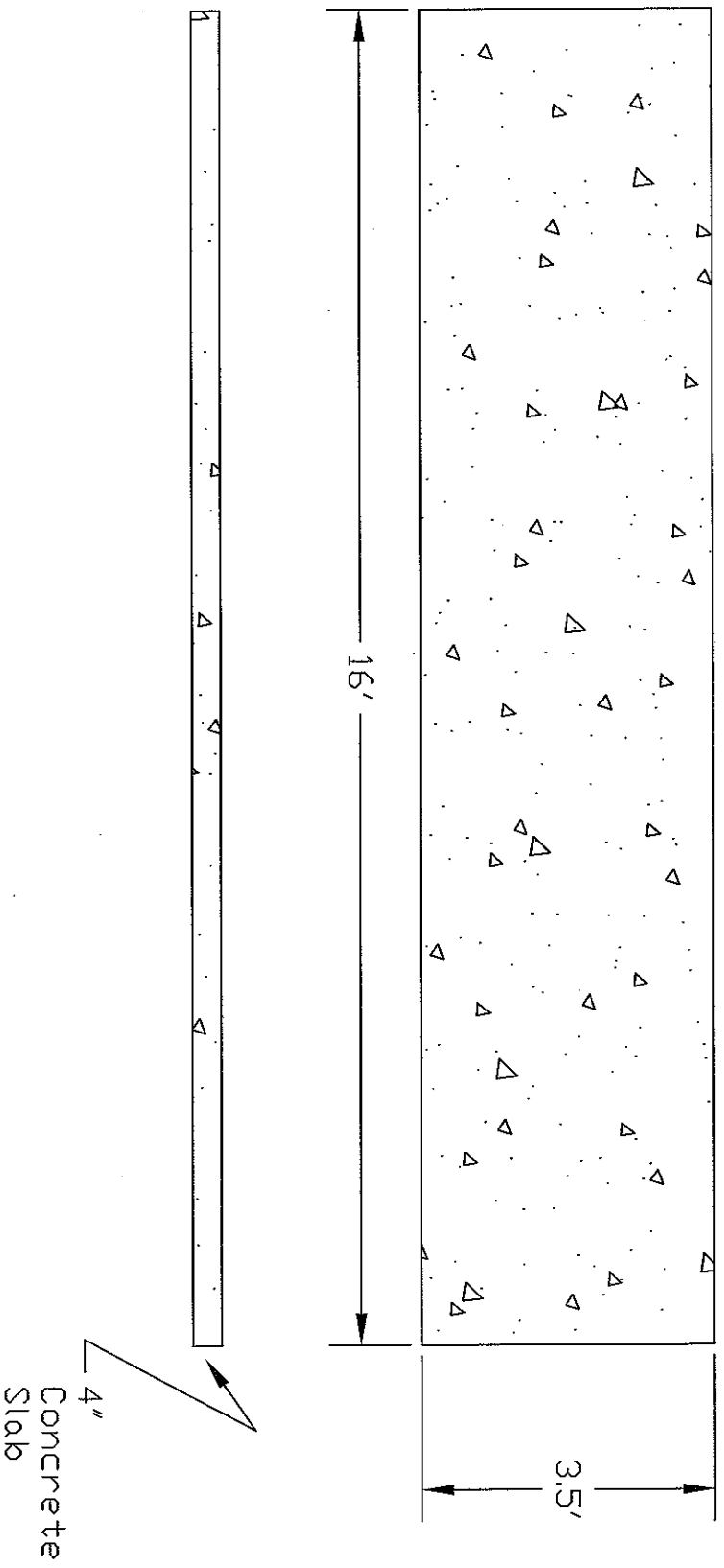
Trash Receptacle Concrete Pad Detail



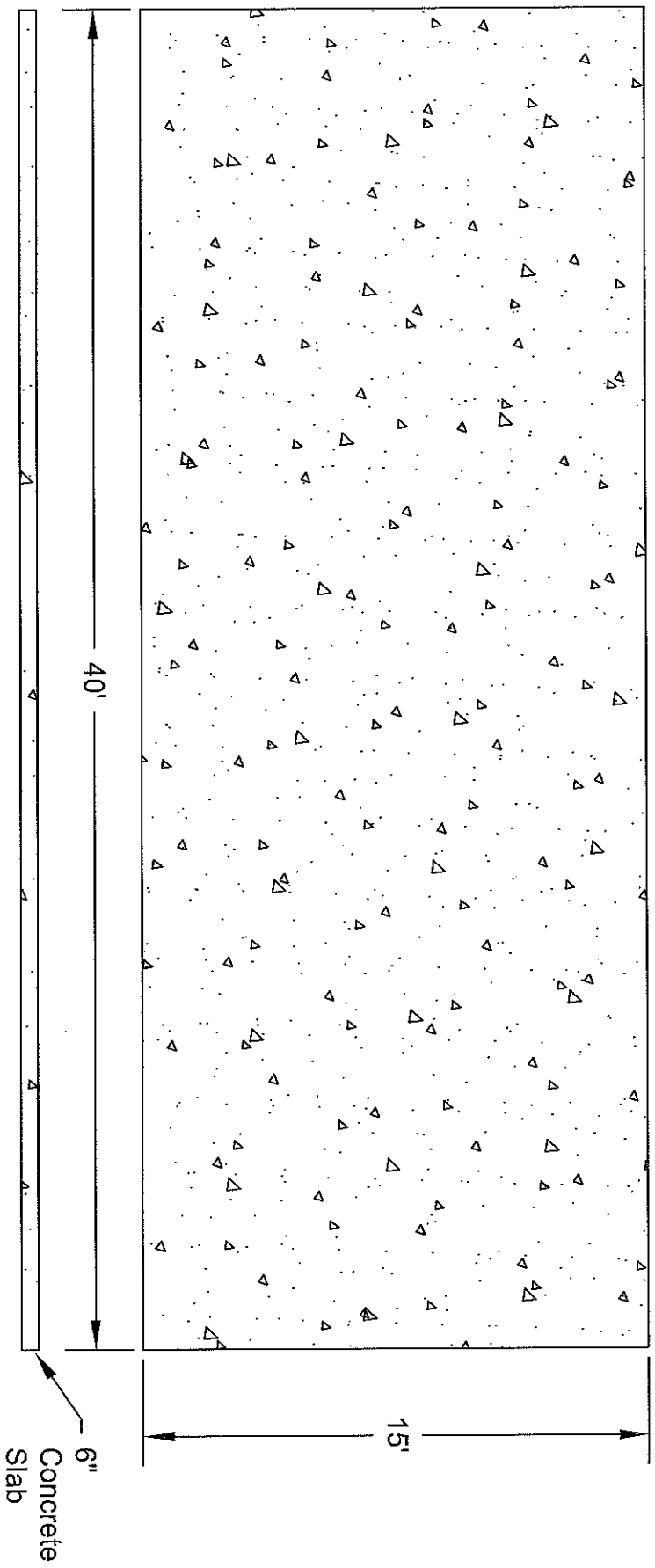


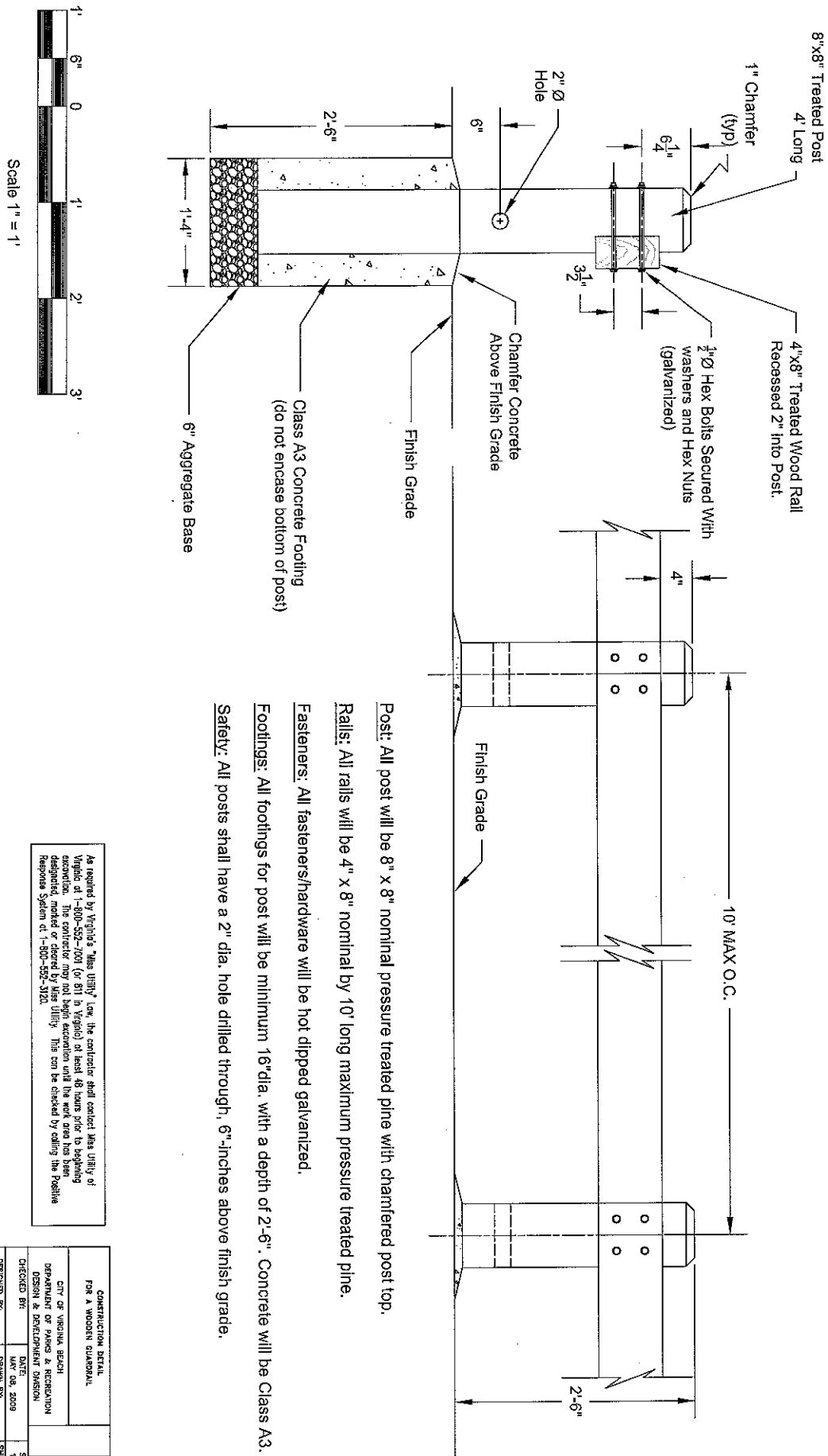
REV. 1 / 04
SPECIAL DESIGN SECTION
DRAWING NO. A 59

Benches Concrete Slab
(Used Under Dog Park Shade Structures)



Concrete Bleacher Slab





Post: All post will be 8" x 8" nominal pressure treated pine with chamfered post top.

Rails: All rails will be 4" x 8" nominal by 10' long maximum pressure treated pine.

Fasteners: All fasteners/hardware will be hot dipped galvanized.

Footings: All footings for post will be minimum 16" dia. with a depth of 2'-6". Concrete will be Class A3.

Safety: All posts shall have a 2" dia. hole drilled through, 6"-inches above finish grade.

As required by Virginia's "Miss Utility" Law, the contractor shall contact Miss Utility of Virginia at 1-800-552-7091 (or 811 in Virginia) at least 48 hours prior to beginning excavation. The contractor may not begin excavation until the work area has been designated, marked or cleared by Miss Utility. This can be checked by calling the Positive Response System at 1-800-552-5920.

CONSTRUCTION DETAIL FOR A WOODEN GUARDRAIL		SCALE 1"=1'	
DESIGNED BY:	DATE:	DRAWN BY:	SHEET 1 OF 1
CITY OF VIRGINIA, REGION DEPARTMENT OF HIGHWAYS & TRANSPORTATION	MAY 08, 2009	BRAUN FIELDS	
CHECKED BY:			
BRAUN FIELDS			

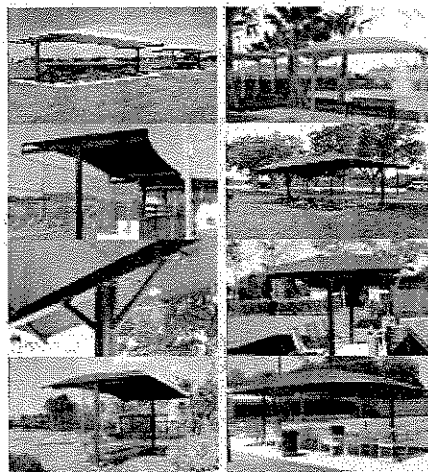
Shade systems[™]

the coolest solutions under the sun[™]

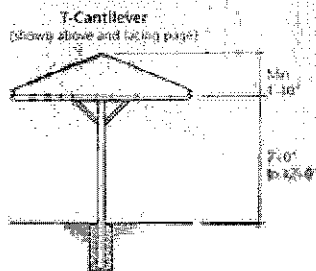


Toll Free 1-800-609-6066

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T-Cantilevers



Ideal for applications where the number of posts must be kept to a minimum, Shade Systems' T-Cantilever designs are engineered to provide a maximum of shade with the fewest possible post obstructions. T-Cantilevers are ideal for tennis and other sport courts, and are available in a wide variety of heights, lengths, and overhangs, all featuring our remarkable Turn-N-Slide[™] quick-release canopy fastening mechanism built right in!

For the best sun protection products, choose Shade Systems for our extensive line of shade structures, umbrellas, tents, canopies, and shelters to cover playgrounds, bleachers, dugouts, sports fields, pool areas, waterplay and waterpark areas, concessions, and other outdoor spaces where protection is needed from the sun's harmful U.V. rays.

More Information

- ▶ Technical Specs
- ▶ Available Colors
- ▶ Request a Catalog
- ▶ Turn-N-Slide[™]

Contact Shade Systems at 1-800-609-6066 to learn more about our shade solutions.

