

SEE CHART FOR

METROPOLITAN ST. LOUIS SEWER DISTRICT

2000

Standard Details of Sewer Construction

MINIMUM DIMENSIONS.

SHEET 35

INLET BASE &
NLET MANHOLE BASE

Dr. JLG/SAM Ch. J.C.K.

AREA INLET

PRECAST CONCRETE

BIORETENTION CELL

NOT TO SCALE

ELEVATION

PRECAST CONCRETE MANHOLE

THE MINIMUM INSIDE DIAMETER FOR THE BASE AND RISER SECTIONS SHALL BE 42 INCHES FOR B INCH DIAMETER SANITARY SEWERS AND ALL STORM SEWERS. THE MINIMUM INSIDE DIAMETER FOR SANITARY SEWERS LARGER THAN 8 INCH DIAMETER IS 48 INCHES. MANHOLE SHALL MEET ASTM C-478 REQUIREMEN

pipe sizes larger than 24 inch diameter may require manhole diameters of 60 inch, 72 inch of 96 inch as determined by outside diameters and orientations of connecting pipes.

ECCENTRIC CONES SHALL BE USED ON DIAMETERS 60 INCH AND LARGER. STEPS SHALL EXTEND DOWN VERTICAL WALL OF CONE.

PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL OF MANHOLES ON PIPE DIAMETERS LARGER THANK 24 INCH AND ALSO FOR THOSE STRUCTURES WITH A DROP PIPE CONNECTION.

Or. WSH/SAM Ch. J.C.K.

METROPOLITAN ST. LOUIS SEWER DISTRICT

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SHEET 21

ELEVATION

Ch. P.W.S.

METROPOLITAN ST. LOUIS SEWER DISTRICT

2000

Standard Details of Sewer Construction

SHEET 22

NOTE: WATER STOP REQUIRED FOR P.V.C

PRECAST MANHOLE ON EXIST.

PIPE W/CONTINUOUS FLOW ONLY

FLOWLINE ELEVATION OF INCOMING PIPES SHALL BE 1 INCH HIGHER THAN THAT OF OUTGOING PIPE.

SIL 42-1/2" DIA. GRADE RING SECTION 1) IF BRICK IS USED <u>DO NOT</u> PLASTER INSIDE OF MANHOLE. 2) IF MANHOLE IS BURIED MORE THAN 18 INCHES, A RISER SECTION WILL HAVE TO BE ADDED. 3) DIMMENSION "A" STOCK GRADE RING HEIGHT OPTIONS. (3 INCHES MINIMUM TO 11 INCHES MAXIMUM.)
4) DIMMENSION "B" STOCK RISER SECTION HEIGHT OPTIONS. (12 INCH, 24 INCH, 36 INCH AND 48 INCH) ADJUST TO GRADE r. S.A.M. n. P.W.S. 2000 X

Underdrain. Underdrains shall be outletted into drainage structures whenever possible. Outlets that empty into a drainage structure shall be positioned a minimum of 6 in. above the normal flow level in the structure and shall be constructed of normal underdrain pige.

A minimum of 18 in. of cover over the pipe shall be maintained. When outletted to a slope or ditch, the outlet pipe shall slope a minimum of 0.5% percent directed by the Engineer.

CONSTRUCTION. Bioretention facilities shall not be constructed until all contributing drainage areas are stabilized as shown on the Contract Plans and to the satisfaction of the Engineer. Bioretention facilities shall not be used as sediment control facilities. No heavy equipment shall operate within the perimeter of a bioretention facility during

excavation, underdrain placement, backfilling, planting, or mulching of the facility.

Excavation. The bioretention facility shall be excavated to the dimensions, side slopes, and elevations shown on the Contract Plans. The method of excavation shall minimize the compaction of the bottom of the bioretention facility. Excavators and backhoes, operating on the ground adjacent to the bioretention facility, shall be used to excavate the facility if possible. Low ground—contact pressure equipment may also be used for excavation, heavy equipment shall be allowed on the bottom of the bioretention facility.

Excavated materials shall be removed from the bioretention facility site. Excavated materials shall be used or disposed of in conformance with Section 201.

Prior to placing the underdrain and the BSM, the bottom of the excavation shall be roto—tilled to a minimum depth of 6 inches to alleviate any compaction of the facility bottom. Any substitute method for roto—tilling must be approved by the Engineer prior to use. Any ponded water shall be removed from the bottom of the facility and the soil shall be friable before roto-tilling.

Underdrain. The underdrain system shall be placed on a 3-ft wide bed of No. 57 aggregate. The minimum thickness of the ASTM No. 57 aggregate shall be 3 inches. Underdrain shall be covered with 6 inches of No. 57 aggregate and topped with an additional layer of No. aggregate (layer thickness shall be 2 inches, minimum). All aggregate shall be placed according to dimensions shown on the Contract Plans.

Observation wells/cleanouts of 6-inch non-perforated pipe shall be placed vertically in the bioretention facility as shown on the Contract Plans. The wells/cleanouts shall be connected to the perforated underdrain with the appropriate manufactured connections as shown on ne Contract Plans. The wells/cleanouts shall extend 6 inches above the top elevation of the bioretention facility mulch, and shall be capped with a screw cap. The ends of underdrain pipes not terminating in an abservation well/cleanout shall be capped.

Placement and Compaction of the Bioretention Sail Mixture. The Bioretention Sail Mixture (BSM) shall be placed and graded using low ground-contact pressure equipment or by excavators and/or backhoes operating on the ground adjacent to the bioretention facility No heavy equipment shall be used within the perimeter of the bioretention facility before, during, or after the placement of the BSM. The BSM shall be placed in horizontal layers not to exceed 12 inches for the entire area of the bioretention facility. The BSM shall be compacted by saturating the entire area of the bioretention facility after each lift of BSM is placed until water flows from the underdrain. Water for saturation shall be applied by spraying or sprinkling. Saturation of each lift shall be performed in the presence of the Engineer. An appropriate sediment control device shall be used to treat any sediment—laden water discharged from the underdrain. If the BSM becomes contaminate during the construction of the facility, the contaminated material shall be removed and replaced with uncontaminated material at no additional cost to the Administration. Final grading of the BSM shall be performed after a 24-hour settling period. Final elevations shall be within 2 inches of elevations shown on the Contract Plans.

Plant Installation. Trees, shrubs, and other plant materials specified for Bioretention Facilities shall be planted as specified in the Contract Plans and applicable landscaping standards with the exception that pesticides, herbicides, and fertilizer shall not be applied during planting under any circumstances. Furthermore, pesticides, fertilizer, and any other soil amendments shall not be applied to the bioretention facility during landscape

Mulching. Once the plants are in place, the entire bioretention facility shall be mulched to a uniform thickness of 3 inches. Well aged (minimum age of 6 months) shredded hardwood bark mulch is the only acceptable mulch.

MEASUREMENT AND PAYMENT. Bioretention Facilities will not be measured but will be paid for at the Contract Bid Lump Sum Price. The payment will be full compensation for all applicable excavation, sheeting, shoring, de—watering, hauling, storing, re—handling of material, removal and disposal of excess and unsuitable material, underdrain, aggregate, underdrain outlet, furnishing, mixing, pH correction, potassium correction, magnesium correction, and placement of the BSM backfill, compaction of the BSM backfill by saturation, grading and slope adjustments, and for all material, labor, equipment, tools, and incidentals necessary satisfactorily complete the work.

Mulch. Shredded hardwood bark shall consist of the bark from hardwood trees which has been milled and screened to a maximum 4 in. particle size and provide a uniform texture free from sawdust, foreign materials, and any artificially introduced chemical compounds that would be detrimental to plant or animal life.

Plantings. Plant materials will be measured and paid for at the Contract unit price per each item specified in the Contract Documents. The payment will be full compensation for all supports, watering during the construction period and for all material, labor, equipment, taols, and incidentals necessary to complete the work. If at any time during the Contract period any plants become unacceptable, they shall be replaced at no additional cost to the contracting highway agency.

as magnesium oxide and 85 percent calcium and magnesium carbonates.

produced as a fertilizer for supplying iron and as a soil acidifier.

SIEVE SIZE MINIMUM PERCENT PASSING BY WEIGHT No. 10100 No. 2098 No. 100Ad50

Iron Sulfate. Iron sulfate shall be a constituent of an approved horticultural product

Magnesium Sulfate. Magnesium sulfate shall be a constituent of an approved horticultural

Potash. Potash (patassium oxide) shall be a constituent of an approved horticultural

Excavation. If the soil is classified as a clay soil (USDA textural classification), the

rota-tilling shall not be done where the soil supports the aggregate bed underneath the

aggregate bed shall be first overlain with a BSM layer 3 inches thick, and then roto—tilled to a depth 6 inches below the surface of the BSM layer.

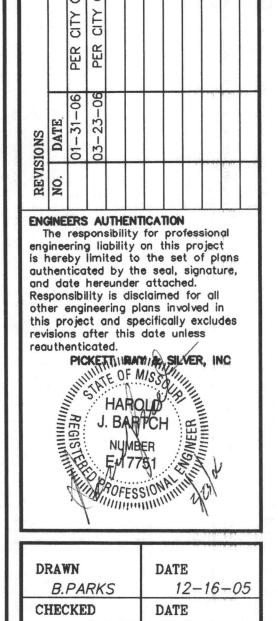
underdrain. (See underdrain specifications below.) Clay sails beyond the edge of the

Limestone shall conform to the following gradation:

product produced as a fertilizer.

product produced as a fertilizer.

Additional Watering of Plants. Additional Watering of Plants within bioretention facilities will be measured and paid for at the Contract unit price per 1000 gallons of water applied to the planting beds. Water will be measured by means of satisfactorily installed meters, or by measurements of tank capacities, or by acceptable documentation of tanks of predetermined capacity. The Contractor shall furnish the Engineer's representative with measurement and capacities to provide a complete and accurate record of the quantity of water furnished and applied. The payment will be full compensation for all water, material, labor, equipment, tools, and incidentals necessary to complete the work. No compensation will be allowed for water wasted or excess watering as determined by the Engineer.



CONSTRUCTION DETAILS

COUNTRY SIDE CARPETS IMPROVEMENT PLANS

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D.BYRD12-16-05 PROJECT # 01212.BRST.01C

FIELD

BOOK

ROAD MO. 63

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