

Stabilization Specifications

ection I - Yegetative Stabilization Methods and Materials

Site Preparation

Unatall erosion and sediment control structures (either temporary or permanent) such as diversion

grade stabilization structures, berms, waterways, or sediment control basins II. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually

ili. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

Soil Amendments (Fertilizer and Lime Specifications)

necessary for temporary seeding

I. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 areas. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples may be taken for engineering purposes may

ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the

iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mosh sleve and 96 - 100% will pass through a #20 mosh sleve.

ly, incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means

v. Soil Amendments: Use only one of the following schedules:

i. Preferred - Apply 2 tone per acre dolomtic limestone (92 lbs. / 100 s.f.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs. / 100 s.f.). Before seeding, harrow or disc into upper three inches of soil. At time of seeding, apply 400 bs. per acre 30-0-0 auriform fertilizer (9.1 bs / 100 s.f.)

II. Acceptable - Apply 2 tone per acre delemble limestone (92bs / 1000 s.f.) and 1000 bs her acre 10-10-10 fertilizer (23 lbs. / 1000 s.f.) before seeding, harrow or disc upper three inches of soil.

. Seedbed Preparation

i. Temporary Seeding

a. Seedbed preparation shall consist of loosening soil to a depth of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:1) should not be tracked leaving the surface in an irregular condition with ridge running parallel to the contour of the slope.

b. Apply fertilizer and lime as prescribed on the plans

c. incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means

il. Permanent Seeding

a. Minimum soil conditions required for permanent vegetative establishment

1. Soil oH shall be between 6.0 and 7.0. 2. Soluble salts shall be less than 500 parts per million (ppm)

c. Apply soil amendments as per soil test or as included on the plane

3. The soil shall contain less than 40% clay but enough fine grained material (> 30% slit plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedeza is to be planted, then a sandy soll (<30% slit plus clay) would be acceptable. Soll shall contain 1.5% minimum organic matter by weight.

5. Soll must contain sufficient pore space to permit adequate root penetration 6. If these conditions cannot be met by solls on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.

b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 - 5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.

d. Mix soll amendments into the top 3 - 5" of topsoll by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. edited loosening may not be necessary on newly disturbed areas.

D. Seed Specifications

i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material in this job.

il. Inoculant - The inoculant for treating legume seed in the seed mixture shall be a pure culture of nitrogen-fixing bacteria gropared specifically for the species. Inoculants shall not be used later that the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding, NOTE: It is very important to keep inoculant as gool as possible untiused. Temperatures above 75 - 80 degrees F. can weaken bacteria and make inoculant less effective.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED. E. Methods of Seeding

I. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seede

a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 bs. per acre total soluble nitrogen; F205 (phosphorus): 200 bs./ac.: K2O (potassium): 200 bs./ac

b. Lime - use only ground agricultural limestone. (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated

c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

II. Dry Seeding: This includes use of conventional drop or broadcast spreaders a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or

Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact. b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the

seeding rate in each direction.

iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

inch of soil covering. Seedbed must be firm after planting.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4

. Mulch Specifications (in order of preference)

I. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law

II. Wood Cellulose Fiber Mulch (WCFM)

a 4 1€

a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state

b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

c. WCFM, including dye, shall contain no germination or growth inhibiting factors.

d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic. f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum

OTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding

I. If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications

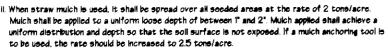
PREPARED BY :



GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.

Civil Engineers and land Surveyors

658 Kenilworth Drive, Suite 100 Towson, Maryland 21204 (410) 825-8120



iii Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 bs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 bs

of wood callulose fiber per 100 gallons of water. H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by

I. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used

on the contour if possible II. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall

contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. III. Application of liquid binders should be heavier at the edges where wind catches muich, such as in Synthetic binders - such as Acrylic DLR (Argo-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or

other approved equal may be used at rates recommended by the manufacturer to anchor mulch.

IV. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations Netting is usually available in rolls 4' to 15' feet wide and 300 to 3000 feet long. Section II - Temporary Seeding

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

reference), depending upon size of area and erosion hazard:

. select one or more off the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from figure 5) and enter them in Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans, Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes or for special purposes such as wildlife or asthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintainance areas, see Sections IV Sod

II. For sites having disturbed areas over 5 acres, the rates shownon this table shall be deleted and the

iii. For areas recieving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 be/1000 sq. ft. (150 be/ac). In addition to the above soil ammendments shown in the table below, to be performed at the time of seeding

Section III - Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance. A. Seed Mixtures - Permanent Seeding

1. select one or more off the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from figure 5) and enter them in Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary le not put on the construction plane and completed, then Table 25 must be put on the plans, Additional planting specifications for exceptional sites such as shorolines, streambanks, dunes or for special purposes such as wildlife or asthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintainance areas, see Sections IV Sod

ii. For sites having disturbed areas over 5 acres, the rates shownon this table shall be deleted and the rates recommended by the testing agency shall be written in.

III. For areas recieving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 bs/1000 sq. ft. (150 be/ac), in addition to the above soil ammendments shown in the table below, to be performed at the

Section IV - Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector

ii. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pade and torn or uneven ends will not be acceptable

III. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may

v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation

vi. Site Proparation : Fertilizer and Lime application rates will be determined by soil test. Under unusual circumstances where there is insufficent time for a complete soil test, fertilizer and lime may be applied in amounts shown under vi-b. below

a. Prior to sodding, the surface will be cleared of all trash, debris, and of all roots, brush, wire, grade stakes and other objects that would interfere with planting, fertilizing, or maintenance operations

. Where soil is acid or composted of heavy clays, ground limestone will be spread at the rate of 2 tons per acre(100 bs. / 1000 s.f.). In all soils 1000 bs. per acre (25 bs. / 1000 s.f.) of 10-10-10 fertilizer or equivalent will be uniformly applied and mixed into the top thre inches of soil with the required time.

c. All areas recieving sod will be uniformly fine graded. Hard packed earth will be scarified prior to placement of sod.

500 200 320 200 320 145 146

90

0.40-0.80* F (SILT FENCE)

he properties shall be determined in accordance with the following procedures - Apparent opening size MSMT 525

-Grab tenelle strength ASTM 0 1682: 4 x 8" specimen, 1x2" clamps, 12" /min. strain rate in both

The fabric shall be mert to commonly encountered chemicals and hydrocarbons, and will be rot and milidew

In addition, Classes A through E shall have a 0.01 cm/sec, minimum permeability when tested in accordance with MSMT 507, and an apparent minimum elongation of 20 percent (20%) when tested in accordance with the grab tendile strength requirements listed above.

Sit Fence.
Class F geotextilo fabrics for silt fence have a 50 b./in. minimum tensile strength and a 20 b./in.
minimum tensile modules when tested in accordance with MSMT 509. The material shall also have a 0.5
gail/ft/min. flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance

Geotextile fabrice used in the construction of slit fence shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amounts of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

Fertilizer Rates Permanent Seeding

I	Fertilizer Rate (10-20-20)			uime Rate
İ	N	P205	K20	
	90 lb/ac (2.0lb/ 1000 s.f.)	175 b/ac (4.0b/ 1000 s.f.)	175 lb/ac (4.0lb/ 1000 s.f.)	2 tons/ac (100 lb/ 1000 s.f.)

DEVELOPER CERTIFICATION:

190

I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project willhave a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. Lalso authorize periodic on site inspection

by the Howard So<u>il</u>Conservation District. Zoger Walsche Ii ROGER A WASSCHE TR

ENGINEER CERTIFICATION: licentify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of

the Howard Soil Conservation District.

B. Sod Installation

I. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be

II. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause drying of the roots.

iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, peaged or otherwise secured to prevent slippage on slopes and to

ensure solid contact between sod roots and the underlying soli surface iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad

and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for

any piece of sod shall be completed within eight hours.

lightly irrigated immediately prior to laying the sod

I. in the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a deoth of 4" Watering should be done during the heat of the day to prevent wilting.

III. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

II. After the first week, sod watering is required as necessary to maintain adequate moisture conten

Section N - Turfarass Establishment

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methode to a depth of 2 to 4 inches, leveled and raked to propare a proper seedbed. Stones and debris over 1 1/2 inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.

NOTE: Change certified material Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure senetic line

A. Turfgrass Mixtures

planting scason

JUSE CERTIFIED MATERIA

IF AVAILABLE)

CANADA BLUEGRASS (10%) KENTUCKY BLUEGRASS (10%)

PERENNIAL RYEGRASS (10% KENTUCKY BLUEGRASS (5%)

CHEWINGS FESCUE (80%) PERENNIAL RYEGRASS (20

PERENNIAL RYEGRASS (50% PLUS CROWN/ETCH OR

WEEPING LOVEGRASS (2%

PLUS SERECIA LESPEDEZA (15%)

BIRDSFOOT TREEFOIL (19%

HARD FESCUE (20%)

I. Kentucky Bluegrass - Fall sun mixture - For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the mixture by weight

II. Kentucky Bluegrass/Perennial Rye - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennia Ryegrass Cultivars/ Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.

III. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium management in full our to medium shade. Recommended mixture includes: certified Tall Fescue Cultivars 95 - 100%, certified Kentucky Bluegrass Cultivars 0 - 5%. Seeding rate 5 to 8 b./1000 square feet. One or more cultivars may be blended.

Iv. Kentucky Bluegrass/Fine Fescue - Shade Mixture - For use in areas with shade in Bluegrass lawns. For ostablishment in high quality, intensively managed turf area. Mixture includes; certified Kentucky Bluegrass Cultivars 30 - 40% and certified Fine Fescue and 60 - 70%. Seeding rate: 11/2 - 3 bs./1000 square feet. A minimum of 3 Kentucky bluegrass cultivars must be chosen, with each cultivar ranging from

NOTE: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, "Turfgrass Cultivar Recommendations for Maryland".

Western MD: March 15-June 1, August 1-October 1 (Hardiness Zones - 5b, 6a)

seedbed preparation and seeding recommendations.

a minimum of 10% to a maximum of 35% of the mixture by weight.

Central MD: March 1-May 15, August 15-October 15 (Hardiness Zones - 6b) Southern MD, Eastern Shore: March 1-May 15, August 15-October 15 (Hardiness Zones - 7a, 7b)

If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2" - 1" every 3 to 4 days depending on soll texture) until they are firmly established. This is especially true when

inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the

1. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately il if the stand provides less than 40% ground coverage, reestablish following criginal lime, fortilizer

iv. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium

to high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in

Table 25 - Permanent Seeding

for Low Maintenance Areas

seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

injet notch elevation. Fasten the geotestile firmly to the frame. The ends of the geotectile must meet at a post- be overlapped and en 40% and 94% around coverage, overseeding and fertilizing using half of the rates originally applied may be necessary. 5. Beskill ground the inlet in esspecied 6" layers until the layer of earth is level with the notah elevation on the ends and

RECOMMENDED PLANTING DATES

X Au X

GESTEXTILE CLASS E

Temporary Seeding

Fertilizer Rate (10-10-10)

corese the direk line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame. 7. The structure must be inspected periodically and ofter each rain and the gestactile replaced when it became alegged.

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANC

PROFILE

1. Length - minimum of 80' (480' for single residence lot).

Sectoral to the control of the country and the sector of t

to pleates atoms. With pier expressi authority may not require single family

equivolent shell be placed at least 6" deep over the length and width of the

5. Surface Nater - all surface water flowing to ar diverted toward construction

entrances shall be piped through the entrance, mainteining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a

munitable berm with Sci elepes and a minimum of 5" of atoms over the pipe. Pipe h to be sized eccording to the decinose. When the SEE is isocial of a high apply and has no decinose to convey a pipe viii not be necessary. Pipe should be sized eccording to the amount of runoff to be conveyed. A 6" minimum viii be required.

Legation - A stabilized construction entrance shall be located at every soint

where construction traffic enters or leaves a construction site. Vehicles leaving

DEPARTMENT OF ASSOCIATION PAGE MARTIAID REPARTMENT OF INVISIONMENT

TALL CHARGE TATHER MARKET ASSOCIATION

DETAIL 23A - STANDARD INLET PROTECTION

construction Specifications

1. Exercise employers and the injet to a depth of 18" below the

2. Or Ive the 2" x 4" construction grade lumber posts 1" into the ground at each corner of the Iniet. Place not! strips between the

posts on the ends of the Inlet. Assemble the top parties of the $2^{\prime\prime} \times 4^{\prime\prime}$ from using the everlap joint shown an Boteli 23A. The

on of the from (watr) must be \$" below edjecent recovers where

3. Stretch the 1/2" x 1/2" wire much highly ground the frame and fasten securely. The ends must meet and overlap at a

4. Stratch the Septemblic Close E tightly over the wire much with

the gentixtile extending from the top of the from to 18" below the

5. If the injet is not in a sum, construct a competed out the disc

R. REPARTMENT OF AGRECULTURE PAGE MARTLAND REPARTMENT OF SITVINGES

COMPACTED EARTH

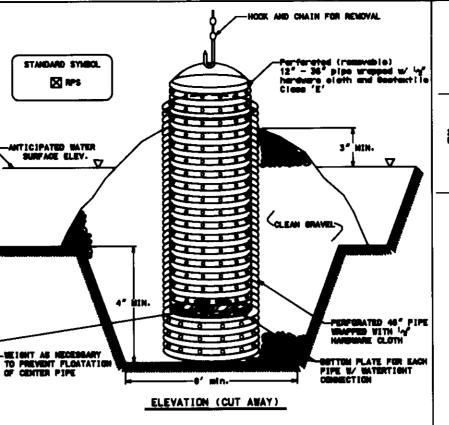
DETAIL IOA - STONE/RIPRAP OUTLET SEDIMENT TRAP-ST N

looding and safety leaves may arise.

(. Stane - crushed approprie (2" to 3") or recialized or recycled esserate

MINIMAN 6" OF 2"-3" ASSRESATE OWER LENGTH AND VISTH OF STRUCTURE

OR BETTER



DETAIL 20A - REMOVABLE PUMPING STATION

1. The exter pipe should be 40" die, or shell. In one case, be of least 4" greater in dismotor than the exter pipe. The exter pipe shell be wraped with by herder-colon to prevent beautil in mid-let from entering the perfect than 2. After Installing the autor pipe, baskfill around autor pipe with 2" aggregate or elean gravel.

DETAIL 22 - SILT FENCE

PERSPECTIVE VIEW

JOINING TWO ADJACENT SILT

Construction Secol-Floritans

. Fence posts shall be a minimum of 36" long driven 16" minimum into the

ground. Wood posts shell be 11/2 x 11/2 square (minimum) out- or 12/2 diameter (minimum) round and shell be of sound quelity hardwood. Steel posts will be

2. Septemblie shall be fastened securely to each fence post with wire ties

4. Slif Force shell be inspected after each reinfell event and maintelned when bulges easir or when codiment assumilation received 80% of the fabric height.

SPECIES

PER ACRE

2.5 B.U. (122 lbs.) 3 B.U. (96 lbs.) 2.5 B.U. (140 lbs.)

DEVELOPER

CONSTELLATION

GATESPRING LLC

CPI GATESPRING, INC.

8815 CENTRE PARK DRIVE, SUITE 400

COLUMBIA, MARYLAND 21045

(410) 730-9092

STONE/RIPRAP OUTLET SEDIMENT TRAP - ST N

Construites Spealfleatten

vagetation as well as over-dead elemen, replan expense authorist or other ab functionable material, Tile embedament abult be asspected by freezeding with applyment widle it to being constructed, Martinum helpff of emb

4. Excellen of the top of any after directing under little frep most equal to

5.Storage area provided shall be figured by computing the volume measured

&.Outlet - An earlief shall heaterly a means of conveying the effectivenes in an

eresten free messer to an adulting abolic channel. Fratestion against coose of the allocatorys paint shall be provided as necessary.

10. Suddent shall be removed and true restored to the original discontin when the authors has assumitated to 1/2. If the set decraps digits of the true (800 of Jain, Removed authors shall be deposited to a suitable area.

X.The structure shall be inspected perfectively effor each rain and repaired

IZ.Construction of trace shall be carried out in such a money that sedimen

politikan la abatul. Once constructed, the top and exhibite face of the embassisses shall be ababilized with axed and mutch. Politic of concentrated

Indian shall be probabled in apparatures with Brade Simblification Structure

with each and mulch upon true completes and manifered and maintain

(3.The structure shall be devalured by approved multiple, removed and the

HOWARD RESEARCH

DEVELOPMENT CORPORATION

10275 LITTLE PATUXENT PARKWAY

COLUMBIA, MARYLAND 21044

(410) 992-6027

criteria. The remainder of the interior stapes about he stabilized form them

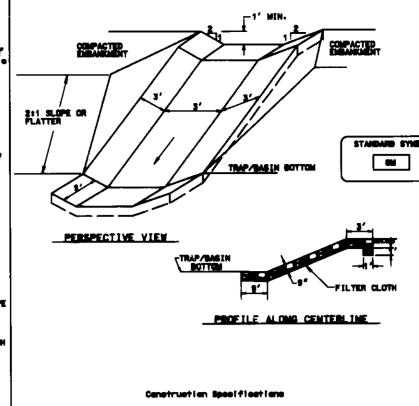
A Codist absence must been applified displaces from the free

3.88 act and 198 above shall be 3d or fielder

or steples at top and mid-section and shall meet the following requirements

FENCE SECTIONS

S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE



DETAIL 6 - GABION INFLOW PROTECTION

2. Sectoritie Class C shall be installed under all gabien backets. 3. The etane used to fill the gablen baskets shall be 4'' - 7''. 4. Subject that i he installed in apparence with manufacturers recommendations

Subten Inflow protection shall be constructed of $8' \times 3' \times 9''$ gablen

i. Bebien Inflow Protection shell be used where concentrated flow is present

SILT FENCE

Slape Length

125 foot

system, soil Class A) maximum alope length and slit fence length will be

unitalited. In these greas a stit fence may be the only perimeter contro

Siepo Steephees

10:1 to 5:1

U.S. DEPARTMENT OF AGRICULTURE PAGE MARTLAND DEPARTMENT OF DIVIDINAL U.S. DEPARTMENT OF AGRICULTURE PAGE MARTLAND DEPARTMENT OF DIVIDINAL U.S. DEPARTMENT OF AGRICULTURE PAGE MARTLAND DEPARTMENT ADMINISTRATION SOCI. COMMENTATION SERVICE 3 - 15 - SA VALUE MARAGEMENT ADMINISTRATION

Table 26 - Temporary Seeding

DESIGNED BY: P.R.C.

CHECKED BY: P.R.C.

DRAWN BY: E.M.T. / K.E.

REVISIONS

Rates, Depths, and Dates

Silt Fence Deelgn Criteria

\$11+ Fence Length

uni infred

1.000 fee

750 feet

500 feet

beskete forming a trapezoidal cross sestion 1' deep. vith 2:1 side siapse.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the oritoria appointed herein and be free of bank projections or other trrequiarities which will impede normal flow. 6. Fill shall be compacted by earth moving equipment. It will not interfere with the functioning of the dike.

undisturbed, stabilized area at a non-erosive velocity.

7. All earth removed and not needed for construction shall be placed so that 8. Inspection and maintenance must be provided periodically and after

PAGE MARYLAND DEPARTMENT OF ENVIRONMENT B - 7 - 2 VATER MANAGEMENT ADMINISTRATION - 6" CURLEX 21/2" DIAMETER GALVANIZED ALUMINUM FENCE POSTS

L-9" MIRAF CHAIN LINK FENCING-- 2 1/2 DIAMETER GALVANIZED MIRAFI MCF 1212 OR EQUIVALENT-TABLETZE AREA WITH CURLEX MIN. 24" WIDE WITH 6" EMBEDMENT AGAINST MIRAFI. SECURE --33" MINIMUM-POST " NO. 11 GAUGE STAPLES AT 2'-0" O/C EMBED MIRAFI 9" MIN. INTO GROUND-Y MIRAFI IN BOTTOM OF 24" MIN. WIDE TRENCH ----

CONSTRUCTION SPECIFICATION

70 Inch posts shall be placed without concrete . Chain link fence to be fastened securely to fence posts with wire ties on staples.

3. Diversion cloth to be fastend security to chain link fence with wire ties epaced 4. When two sections of diversion cloth adjoin each other they shall be overlappe

5. Maintenance shall be performed as needed

SUPER FENCE DIVERSION

APPROVED: HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBE Reviewed for the Howard Conservation District and meets technical

requirements.

APPROVED: Howard County Department of Planning and Zoning

CHIEF. DEVELOPMENT ENGINEERING DIVISION

CHIEF. DIVISION OF LAND DEVELOPMENT parche U. d'earde

> ADDRESS CHART STREET ADDRESS PARCEL NO. 6950 COLUMBIA GATEWAY DRIVE

PARCEL * SUBDIVISION NAME COLUMBIA GATEWAY ZONE MAP ELECT. DIST. CENSUS TRAC BLOCK # ZONE

M-1 WATER CODE -E06 **Sediment Control Notes & Details**

> PARCEL S-19 COLUMBIA GATEWAY

SCALE : As Shown ELECTION DISTRICT: 6 HOWARD CO., MARYLAND SHT. 7 OF 8 DATE : JUNE 27, 1997

P-DIKE MIDTH

o-FLOW WIDTH

d-FLOW DEPTH

DIKE A

STANDARD SYMBOL

A-2 B-3

Construction Specifications 1. All temporary earth dikes shall have uninterrupted positive

DETAIL 1 - EARTH DIKE

ستثسيتك

PLAN YIEW

2. Seed and cover with Erasian Control Matting or line with sod-

3. 4" - 7" stone or recycled concrete equivalent pressed into

CUT OR FILL SLOPE

. Seed and cover with etraw mulch.

grade to an outlet. Spot elevations may be necessary for grades less than 1%. 2. Runoff diverted from a disturbed area shall be conveyed to a sediment 3. Runoff diverted from an undisturbed area shall outlet directly into an

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper

Fencing shall be 42 inch high chain constructed in accordance with the latest Maryland State Highway Administration Standard Details and 680-02. The specifications for a 6'-0" fence shall be used, substituting 42" inch fabria and

STANDARD SYMBOL

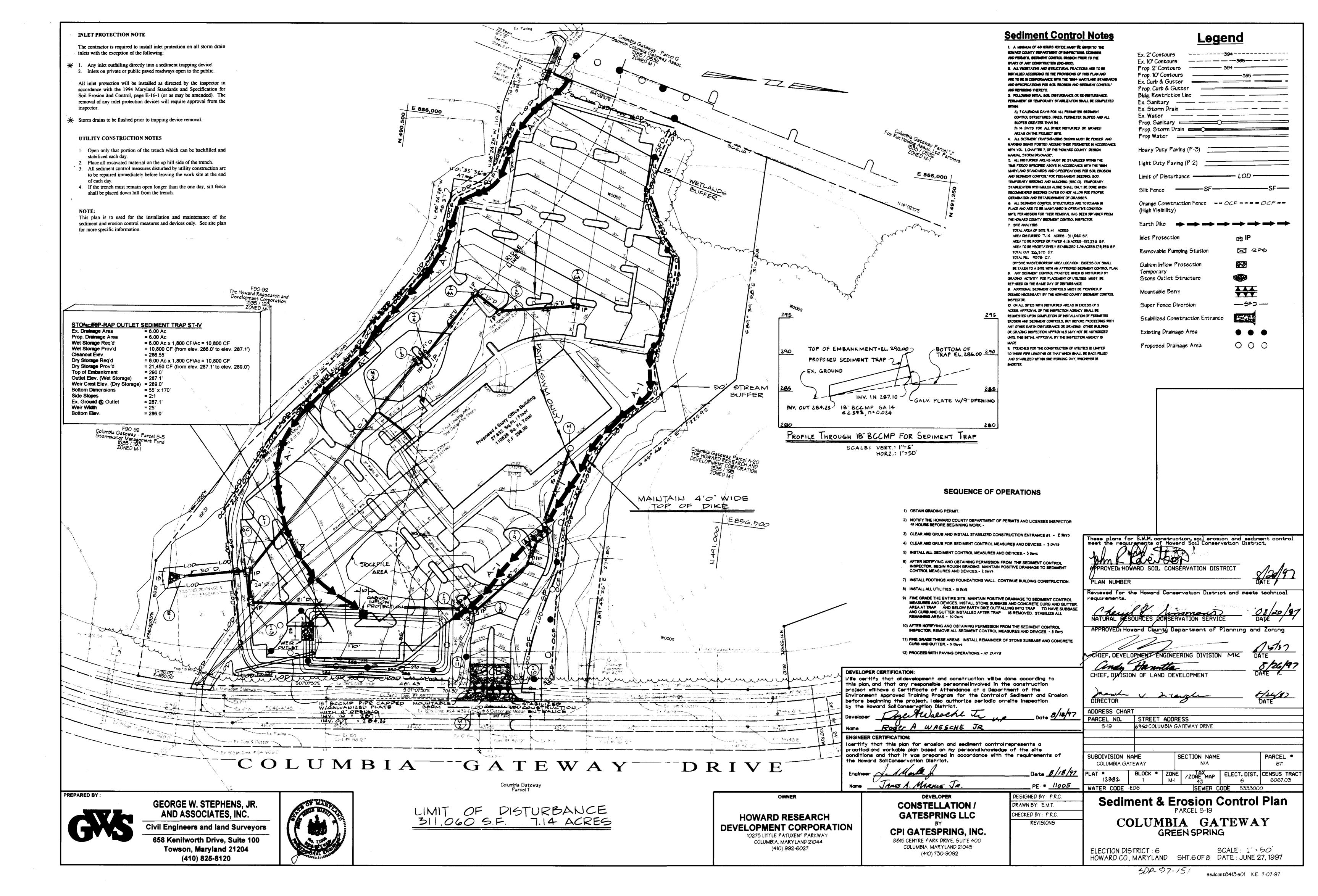
These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

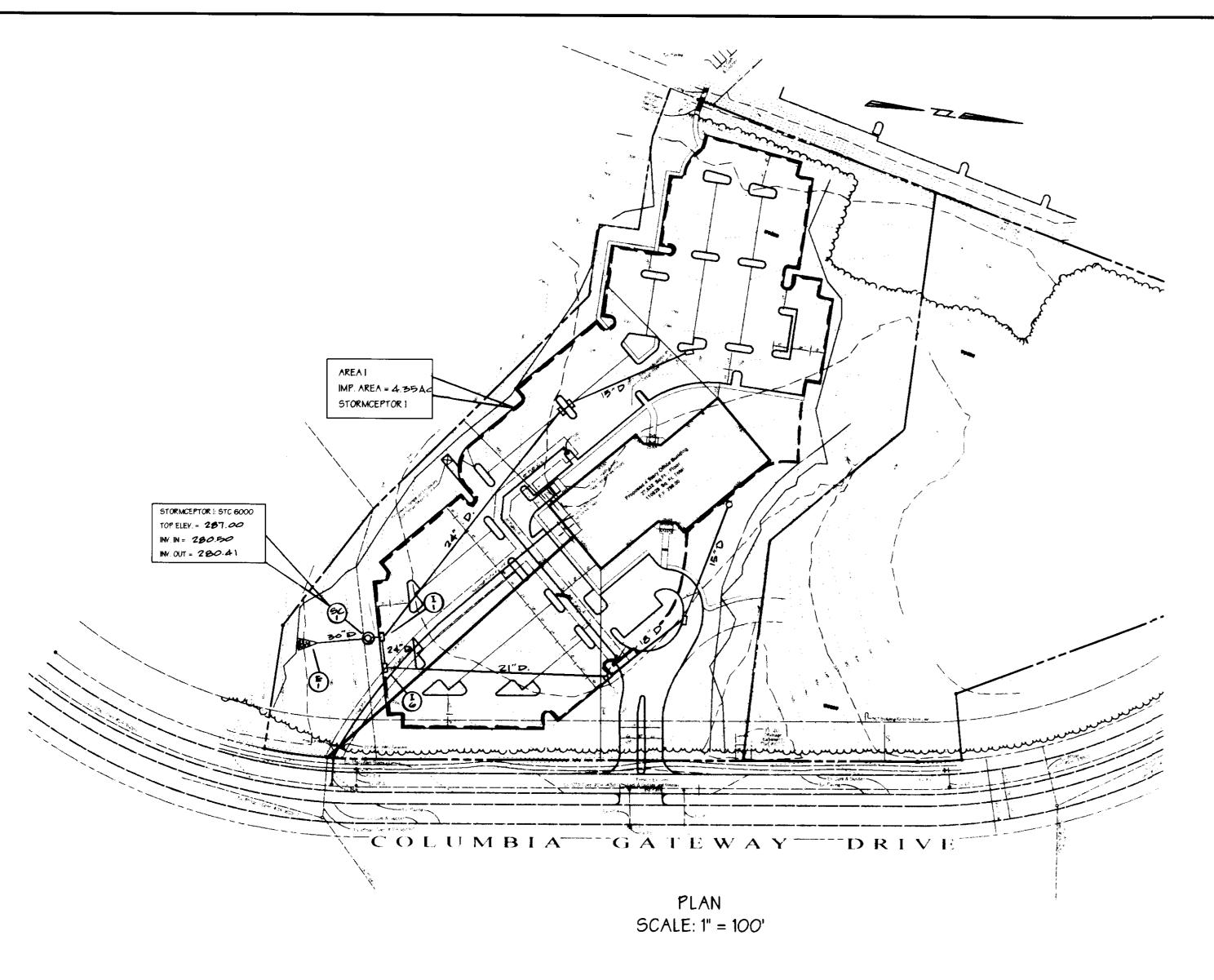
SEWER CODE 5333000

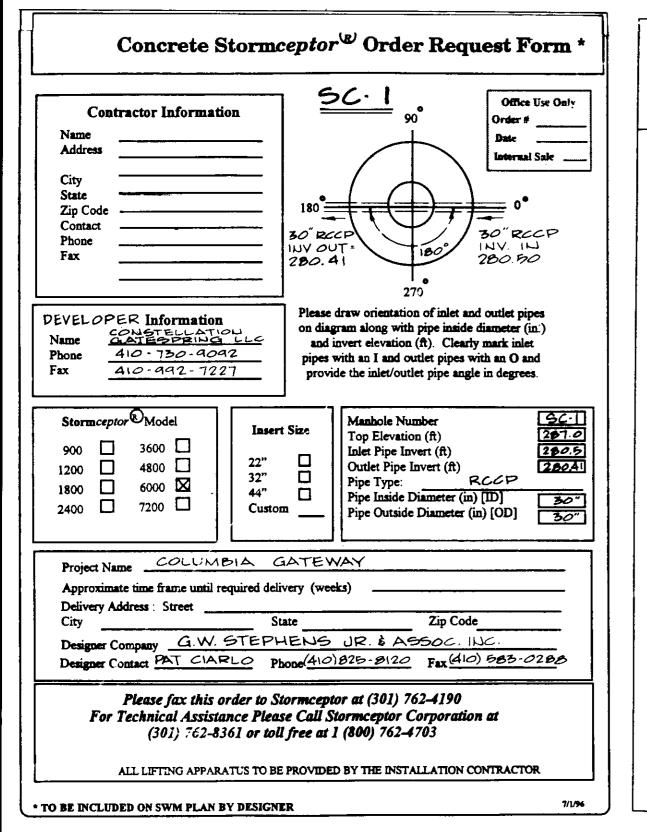
GREEN SPRING

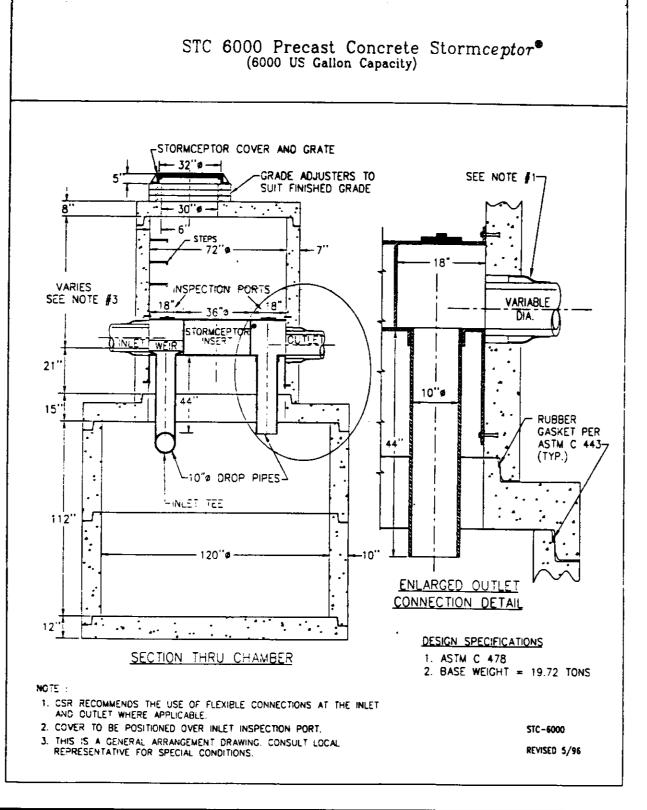
6067.03

1/25/9









HOWARD RESEARCH **DEVELOPMENT CORPORATION**

DEVELOPER

GATESPRING LLC

(410) 730-9092

CONSTELLATION

OWNER

10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044 (410) 992-6027

ENGINEER CERTIFICATION:

1.0 Installation Procedures

following sections

highway or local specifications.

Excavation

Backfilling

to contain topsoll.

1. aggregate base 2. base slab

5. by-pass section

7. transition slab

3. treatment chamber section(s)

4. transition slab (if required)

6. connect inlet and outlet pipes

8. maintenance access way

9. frame and access cover

Stormceptor® Construction Sequence

1.1 Concrete Stormceptor® Installation

The Installation of the concrete Stormceptor® should conform in general to state

highway or local specifications for the construction of manholes. Selected sections of a general specification that are applicable are summarized in the

Excavation for the installation of the Stormceptor® should conform to state

highway or local specifications. Topsoil that is removed during the excavation

site preparation for the installation of the Stormceptor® should conform to state

The Stormceptor® should not be installed on frozen ground. Excavation should

allowance for shoring and bracing where required. If the bottom of the excavation

extend a minimum of 12 inches from the precast concrete surfaces plus an

provides an unsuitable foundation additional excavation may be required.

ensure that the excavation is stable and free of water.

In areas with a high water table, continuous dewatering should be provided to

 \land 6 to 12 inch layer of granular material (conforming to local or state highway

backfill specifications) should be installed, compacted, and leveled at the bottom

of the excavation to the proper elevation for the installation of the interceptor base.

Backfill material should conform to state highway or local specifications. Generally,

Each layer should be compacted to 95% of the maximum dry density. Backfill is not

backfill material should be placed in uniform layers not exceeding 12 inches in depth.

The concrete Stormceptor® is installed in sections in the following sequence

The precast base should be placed level at the specified grade. The entire

base should be in contact with the underlying compacted granular material.

Subsequent sections, complete with joint seals, should be installed in

accordance with the precast concrete manufacturer's recommendations

has been constructed, the lift holes should be plugged with mortar.

Adjustment of the Stormceptor® can be performed by lifting the upper sections

free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets should be replaced. Once the Stormceptor®

for the Stormceptor® should be stockpilled in designated areas and should not be mixed with subsoil or other materials. Topsoil stockpiles, and the general

I certify that this plan for erosion and sediment control represents a

Down Pipe and Riser Pipe

Once the by-pass section has been attached to the treatment chamber the down pipe and riser pipe can be attached. To install these pipes a worker enters the treatment chamber through the central access way in the by-pass section.

STC 900, STC 1200, STC 1800

The inlet pipe (pipe with the tee at the end) is installed by coating the outside of the end of the pipe with quick dry PVC coment and pushing the pipe into the coupling provided on the underside of the by-pass section. The tee must be oriented such that water which enters the treatment chamber is directed tangentially around the inside walls of the chamber.

The outlet riser pipe (straight pipe without the tee) is installed in a similar fashion using the quick dry PVC cement and coupling provided underneath the by-pass section near the downstream pipe.

STC 2400, STC 3600, STC 4800, STC 6000, STC 7200

The inlet pipe (pipe with the tee at the end) is installed by coating the outside of the end of the pipe with lubricant and pushing the pipe into the pressure coupling provided on the underside of the by-pass section. The tee must be oriented such that water which enters the treatment chamber is directed tangentially around the Inside walls of the chamber.

The outlet riser pipe (straight pipe without the tee) is installed in a similar fashion using pipe lubricant and a pressure coupling provided underneath the by-pass section near the downstream pipe.

Inlet and Outlet Pipes

iniet and outlet pipes should be securely set into the by-pass chamber using grout or approved pipe seals so that the structure is watertight. Kor-N-Seal® boots are normally used and installed at the precast concrete plant prior to shipping. The Kor-N-Seal® boots are applicable for pipes with an outside diameter up to 46 inches. Stormceptor Corporation should be notified if the pipe is to be grouted in the field at the time of ordering (i.e. Kor-N-Seal® boots will not be used) since the boots are gene rally included in the price quotations.

Installation of the Kor-N-Seal® boots should follow the manufacturer's recommendations As previously mentioned, the boots will already be attached to the Stormceptor® at the concrete plant. Accordingly, the following procedure should be followed to attach the Inlet and outlet pipes to the Stormceptor® in the field:

1. Center the pipe in the boot opening

- 2. Lubricate the outside of the pipe and/or inside of the boot if the pipe outside diameter Is the same as the inside diameter of the boot
- 3. Position the pipe clamp in the groove of the boot with the screw at the top
- 4. Tighten the pipe clamp screw to 60 inch pounds
- 5. On minimum outside diameter installations lift the boot such that it contacts the bottom of the pipe while tightening the pipe clamp to ensure even contraction of the rubber.
- 6. Move the pipe horizontally and/or vertically to bring it to grade

Frame and Cover Installation

Precast concrete adjustment units should be installed to set the frame and cover at the required elevation. The adjustment units should be laid in a full bed of mortar with successive units being joined using sealant recommended by the manufacturer. Frames for the cover should be set in a full bed of mortar at the elevation specified.

LOCATION MAP SCALE: 1" = 2000'

BENCHMARKS:

WR & A BM #2352 ELEVATION: 335.29 IRON I'IPE 240 FEET RIGHT OF CENTERLINE STA. 15+00, COLUMBIA GATEWAY DRIVE

WR & A BM #714 ELEVATION: 315.29 250 FEET RIGHT OF CENTERLINE STA. 34+30 COLUMBIA GATEWAY DRIVE

OPERATIONS AND MAINTENANCE SCHEDULE FOR STORMCEPTOR WATER QUALITY DEVICE

- 1. The stormceptor water quality structure shall be periodically inspected and cleaned to maintain operation and function. The owner shall inspect the stormceptor unit yearly at a minimum, utilizing the stormceptor inspection/monitoring form. Inspection shall be done by using a clear plexiglass tube ("sludge judge") to extract a water column sample. When the sediment depts exceed the level specified in Table 6 of the Stormceptor Technical Manual, the unit must be cleaned.
- 2. The Stormceptor water quality structure shall be checked and cleaned immediately after petroleum spills. The owner shall contact the appropriate regulatory agencies.
- 3. The maintenance of the Stormceptor unit shall be done using a vacuum truck which will remove the water, sediment, debris, floating hydrocarbons and other materials in the unit. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner.
- 4. The inlet and outlet pipes shall be checked for any obstructions at least once every six months. If obstructions are found the owner shall have them removed. Structural parts of the Stormceptor unit shall be repaired as needed.
- 5. The owner shall retain and make the Stormceptor Inspection/Monitoring Forms available for the Howard County officials upon their request.
- 6. Upon receipt of a revised submission a more complete review will be performed.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT Reviewed for the Howard Conservation District and meets technical APPROVED: Howard County Department of Planning and Zoning CHIEF, DIVISION OF LAND DEVELOPMENT ADDRESS CHART PARCEL NO. STREET ADDRESS 6950 COLUMBIA GATEWAY DRIVE SUBDIVISION NAME SECTION NAME PARCEL * COLUMBIA GATEWAY BLOCK * ELECT. DIST. CENSUS TRACT 12882 6065.02 WATER CODE E06 SEWER CODE 5333000 STORMCEPTOR PLAN

COLUMBIA GATEWAY

PARCEL S 19

GREEN SPRING

These plans for S.W.M. construction, soil erosion and sediment control meet, the requirements of Howard Soil Conservation District.

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.

ivil Engineers and land Surveyors 658 Kenilworth Drive, Suite 100 Towson, Maryland 21204 (410) 825-8120



DEVELOPER CERTIFICATION:

/We certify that alldevelopment and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

Roger A WAESCHE UR

CPI GATESPRING, INC. 8615 CENTRE PARK DRIVE, SUITE 400 COLUMBIA, MARYLAND 21045

practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

5DP-97-151

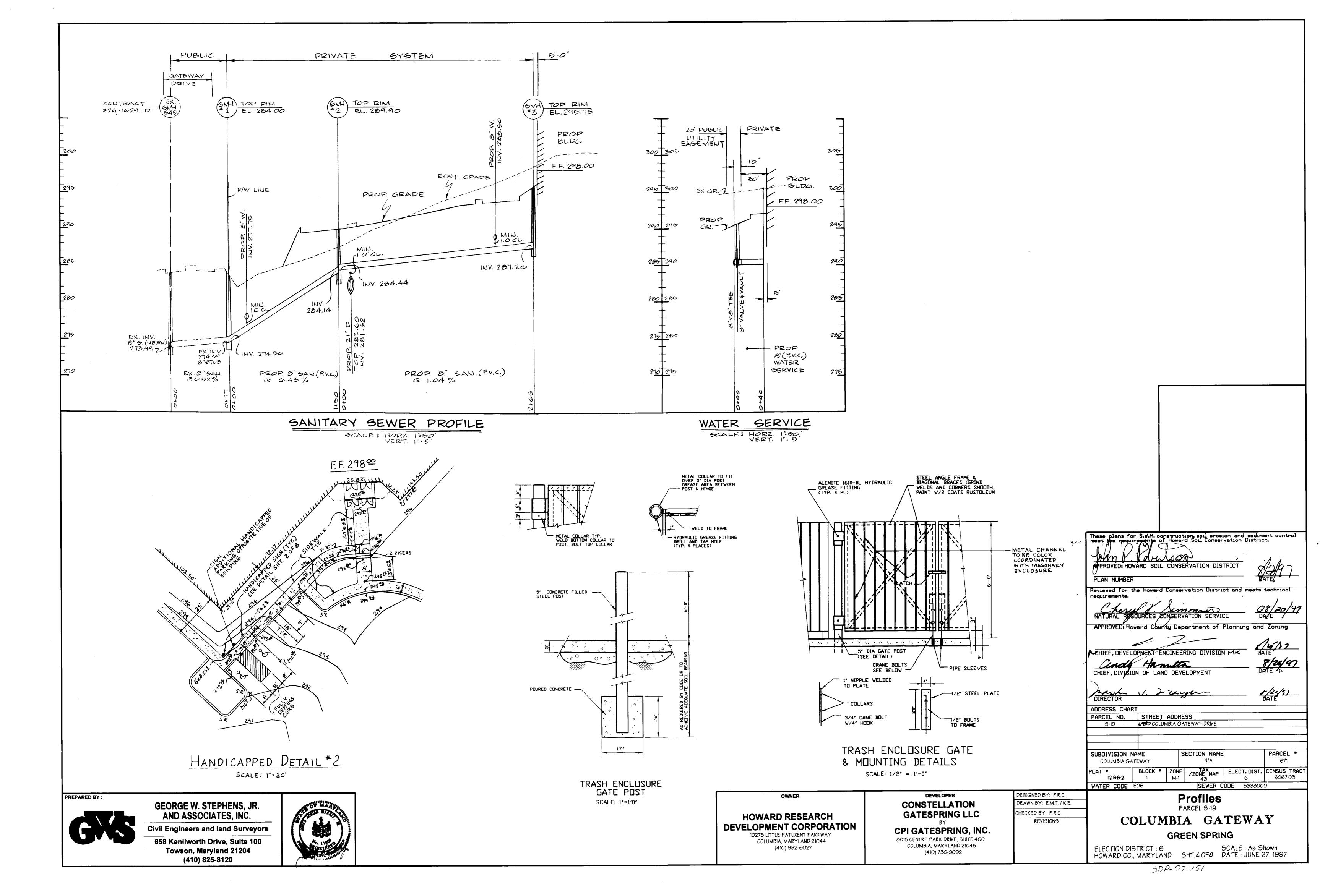
ELECTION DISTRICT: 6

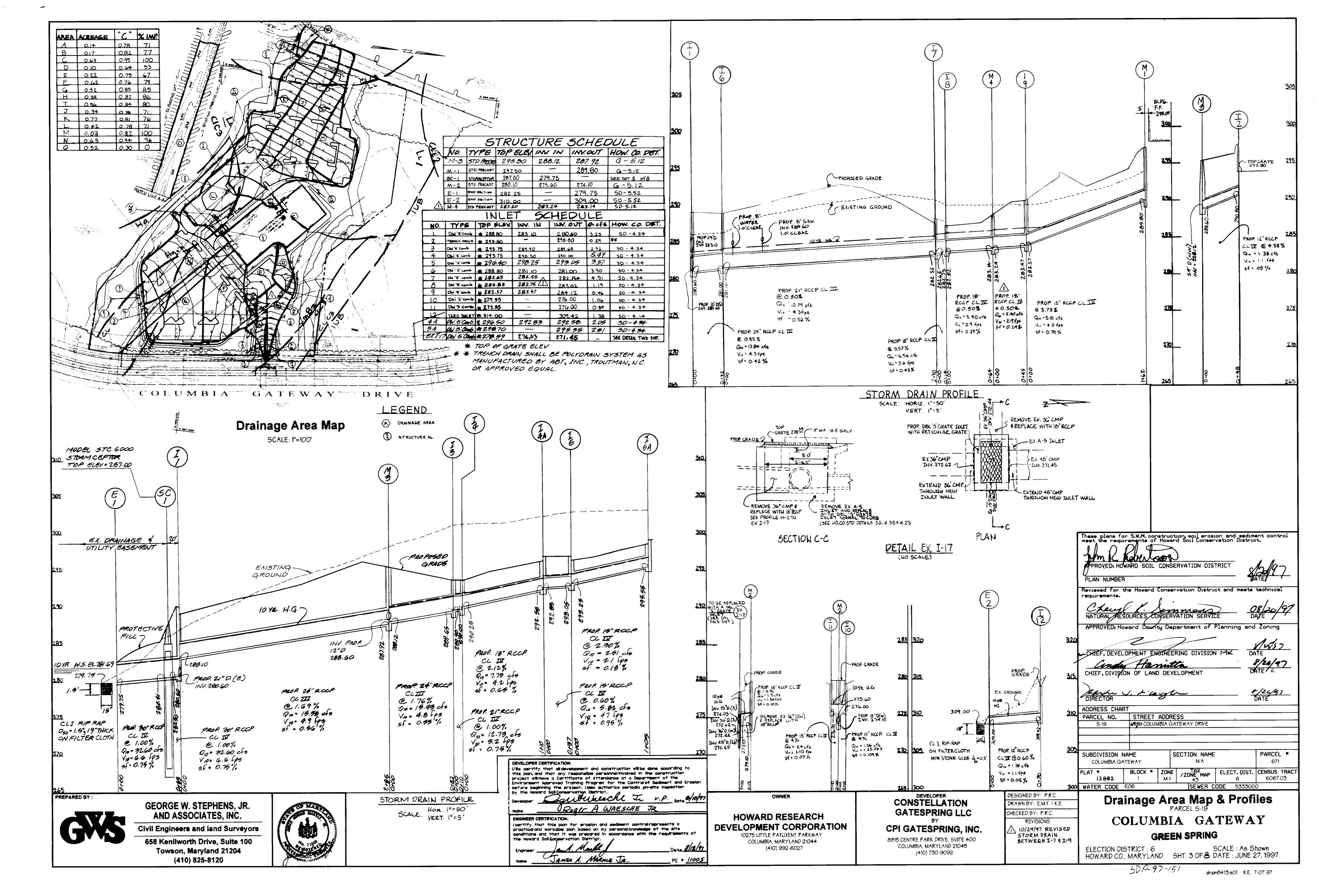
HOWARD COUNTY, MD

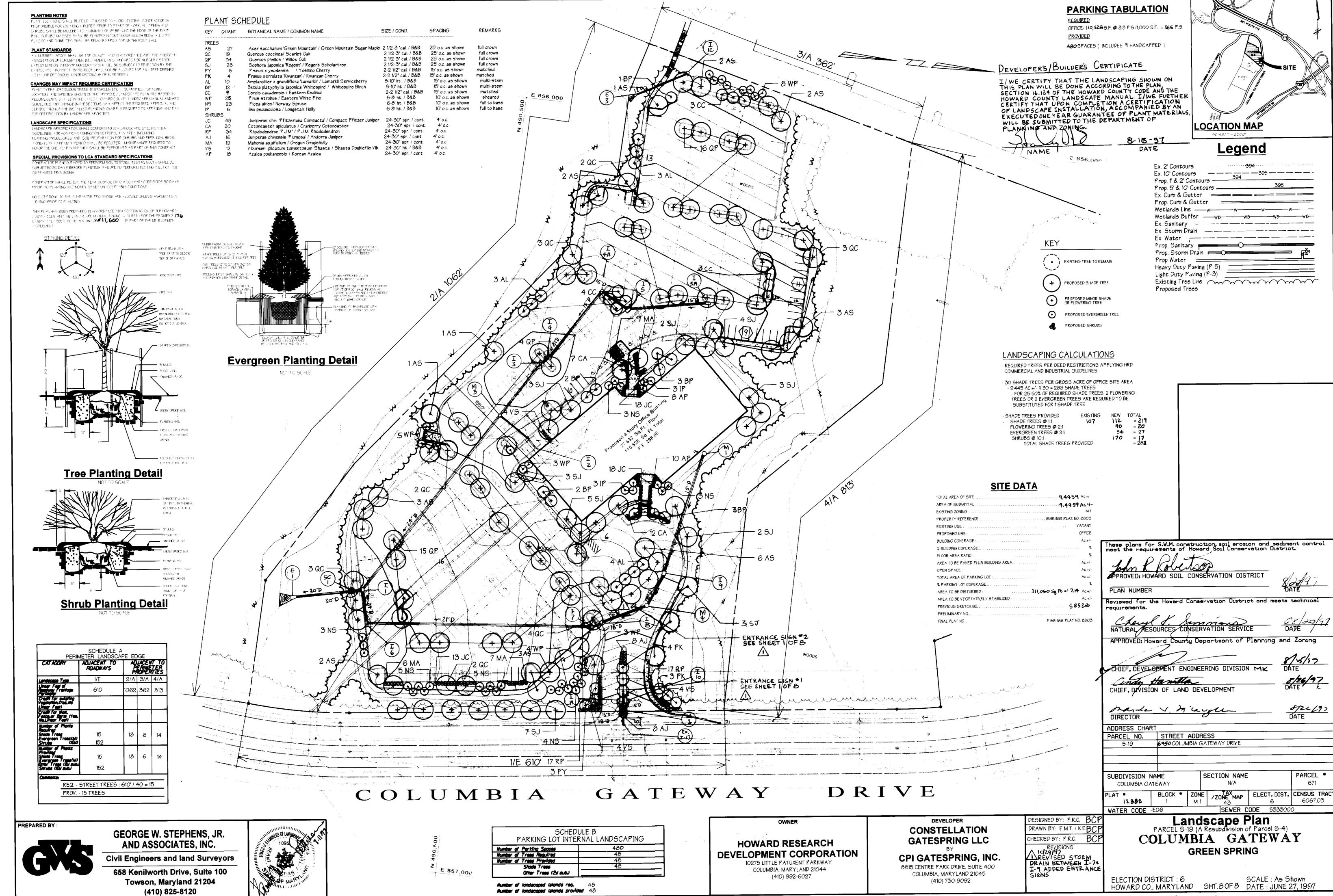
DATE: JUNE 27, 1997

SCALE: AS SHOWN

NAME: K.E...







50P-97-151 Landscape8413.501 EMT 5-28-97