## **Construction Notes**

- 1. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST 24 HOURS PRIOR TO STARTING ANY OF THE WORK SHOWN HEREON.
- 2. ALL AREAS NOT BEING PAVED OR RECEIVING BUILDING BETWEEN ANY SCALED DIMENSIONS AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN. 4. CONTRACTOR SHALL MEET ALL EXISTING IMPROVEMENTS
- SMOOTHLY FOR LINE, GRADE AND FINISH. 5. ALL WORK SHOWN ON THESE PLANS SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND OF THE COUNTY PLUMBING CODE, UNLESS OTHERWISE NOTED.
- 6. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM SUCH WORK. THE COST OF SUCH WORK SHALL BE INCLUDED IN THE BASE BID. 7. THE CONTRACTOR SHALL INSPECT THE SITE TO DETERMINE IF ANY TREES, PAVING, ETC. ARE TO BE REMOVED PRIOR TO PLACING
- 8. THE LOCATIONS OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE LOCATIONS ARE TAKEN FROM EXISTING RECORDS AND DO NOT REPRESENT FIELD-VERIFIED LOCATIONS. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 A MINIMUM OF 5 WORKING DAYS PRIOR TO DIGGING THE CONTRACTOR SHALL CONFIRM TO HIS OWN SATISFACTION THE LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION OR PLACEMENT OF MATERIALS. IF ANY CONFLICT IS FOUND BETWEEN CONSTRUCTION, THE CONTRACTOR SHALL CONTACT G. W. STEPHENS AND THE OWNER OF THE UTILITY IMMEDIATELY. ANY DAMAGE OR DISRUPTION OF SERVICE SHALL BE AT THE EXPENSE OF THE CONTRACTOR. RELOCATION OF ANY EXISTING UTILITIES, IF NECESSARY, SHALL BE AT THE EXPENSE OF THE OWNER. THE CONTRACTOR SHALL COORDINATE RELOCATION OF THESE FACILITIES, IF NECESSARY
- 9. CONTRACTOR SHALL PROTECT ALL EXISTING TREES OUTSIDE THE LIMIT OF DISTURBANCE AT ALL TIMES DURING CONSTRUCTION 10. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS NOT SCHEDULED FOR REMOVAL OR DEMOLITION. COST OF REPAIR TO EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE BASE BID. ALL EXISTING SITE FEATURES NOT BEING RETAINED SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION. ANY DAMAGE TO OFFSITE ROADS, RIGHTS OF WAY, OR ADJACENT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT THE EXPENSE OF
- 11. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE OF ALL TREES, PAVING, STRUCTURES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED ON THE PLAN.
- 12. ONLY SUITABLE MATERIAL SHALL BE USED AS FILL AND ALL FILE SHALL BE PLACED AND COMPACTED AS SPECIFIED IN THE SOILS REPORT PREPARED FOR THIS SITE OR AS RECOMMENDED BY THE EXCEPTING THOSE ASSOCIATED WITH LANDSCAPE BERMING, ALL GRADING UNDER PROPOSED PAVING, AND ALL FILL AND COMPACTION SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER 13. CONTRACTOR SHALL PROVIDE MINIMUM 4 FOOT BENCH AT EDGE OF PAVING IN FILL AREAS. MAXIMUM SLOPE OF BENCH SHALL BE
- 4% (1/4 IN PER FOOT) 14. MAXIMUM SLOPE SHALL BE 2 HORIZONTALLY TO 1
- 15. CONTRACTOR SHALL PLACE 4" MINIMUM TOPSOIL IN LANDSCAPE AREAS. TOPSOIL SHALL BE APPROVED BY LANDSCAPE 16. CONTRACTOR SHALL PLACE A WITNESS POST AT THE TERMINUS
- OF ALL UTILITY STUBS 17. CONTRACTOR SHALL PROVIDE A MINIMUM OF 1 FOOT OF
- PROTECTIVE FILL OVER STORM DRAIN PIPES DURING CONSTRUCTION.

Removable Pumping Station

Limit of Disturbance Silt Fence Flood Plain 58885 Stabilized Construction Entrance

NOTE:

The owner shall provide a separate and independent sewer connection for each tenant or occupant of any building, shown on this site development plan who will discharge non-domestic waste to the public sewerage system if each separate and independent sewer connection shall include a standard manhole and other waste pretreatment devices as required and approved by Howard County. Waste lines on the interior of the building shall be designed, constructed or modified such that non-domestic waste will be discharged to the separate and independent sewer connection. No tenant or occupant of any building shown on this site development plan shall discharge regulated non-domestic waste to the public sewerage system prior to installation of the separate and independent sewer connection and related interior waste lines. The above statement shall apply to all initial and future occupants or tenants.

GEORGE W. STEPHENS, JR.

AND ASSOCIATES, INC.

(410) 825-8120

18. ALL TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES." ALL STREET AND REGULATORY SIGNS SHALL BE INSTALLED PRIOR TO INSTALLATION

19. THE CONTRACTOR SHALL REPLACE ANY EXISTING BITUMINOUS PAVING OR SUB-BASE WHICH IS DAMAGED OR REMOVED DURING CONSTRUCTION. ALL EXCAVATED AREAS SHALL BE BACKFILLED AND IN ACCORDANCE WITH THE SOILS REPORT AND/OR AS DIRECTED BY GEOTECHNICAL ENGINEER. ANY AREAS TO BE PAVED WHICH EXHIBIT UNSTABLE SUBGRADE CONDITIONS SHALL BE EXCAYATED TO BEARING SOIL, REFILLED AND COMPACTED. 20. IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITHIN ONE (1) FOOT

21. WHERE FILL IS PROPOSED WITH IN THE ROAD RIGHT-OF-WAY. THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUBGRADE 22. THE TYPE OF STORMWATER MANAGEMENT IS PEAK

MANAGEMENT: PROVIDED BY DETENTION. 23. THE WATER QUALITY WILL BE PROVIDED FOR INDIVIDUAL PARCEL AT THE TIME OF SITE

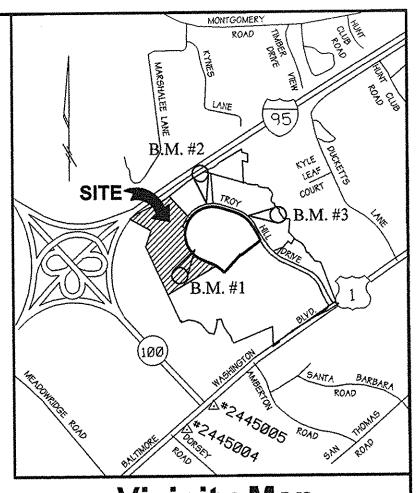
**BENCHMARKS** 

BENCHMARK #1 IRON PIN @ TRAVERSE #1066 N 496,501.3597 E 869,134.4576 ELEVATION = 175.92'

BENCHMARK #2 IRON PIN @ TRAVERSE #1061 N 498,036.6945 E 868,791.1502 ELEVATION = 242.49'

BENCHMARK #3 IRON PIN @ TRAVERSE #1034 N 497,636.7437 E 869,835.6586 ELEVATION = 214.85

COORDINATES BASED ON NAD 27, AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS #2445004 AND #2445005



Vicinity Map

## **Site Data**

TOTAL AREA OF SITE -AREA OF PLAN SUBMISSION **EXISTING ZONING -**PROPERTY REFERENCE

WAIVER PETITION

**EXISTING USE -PROPOSED USE -**AREA TO BE DISTURBED -AREA TO BE VEGETATIVELY STABILIZED -SKETCH PLAN NO. -PRELIMINARY PLAN NO. FINAL PLAT NO. -

PLAN NUMBER

WATER CODE CO4

141.83 Ac.+/-F 91-24; 1795/347; 1818/465;

(FUT.)WAREHOUSE/DISTRIBUTION 26 Ac. +/-S 90-05

COVER SHEET, GENERAL NOTES SHEET NO. 1 · OVERALL MASS GRADING PLAN SHEET NO. 2 -MASS GRADING SEDIMENT CONTROL PLAN SHEET NO. 3 -

SHEET NO. 13

MASS GRADING SEDIMENT CONTROL PLAN SHEET NO. 4 -MASS GRADING SEDIMENT CONTROL DETAILS SHEET NO. 5 MASS GRADING SEDIMENT CONTROL DETAILS SHEET NO. 6 SEDIMENT BASIN PLAN - BASIN #3 SHEET NO. 7 -SEDIMENT BASIN PROFILES & DETAILS SHEET NO. 8 -SEDIMENT BASIN BORINGS & DETAILS SHEET NO. 9 -SEDIMENT BASIN DETAILS & NOTES SHEET NO. 10 STORM WATER MANAGEMENT PLAN - POND #3 SHEET NO. 11 STORM WATER MANAGEMENT DETAILS SHEET NO. 12

**Index of Sheets** 

APPROVED: Howard County Department of Planning and Zoning ADDRESS CHART STREET ADDRESS PARCEL NO. PARCEL 1 SUBDIVISION NAME TROY HILL CORPORATE CENTER STORM WATER MANAGEMENT D.A. MAP ZONE^MAP

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

Reviewed for the Howard Conservation District and meets technical

COVER SHEET

SEWER CODE 4020000

TROY HILL CORPORATE CENTER

PHASE 11A PARCEL A - 4 PREVIOUS FILE #'S S90-05, P90-25, F91-24, WP 96-91, F96-136 SCALE: AS SHOWN HOWARD COUNTY, MARYLAND

SDP 98-143

JUNE 3, 1998 P/N: 8851 EAS NAME: 8851 sheetcovr. s01 05-01

MANEKIN

MANEKIN CORPORATION 7165 COLUMBIA GATEWAY DRIVE **COLUMBIA MARYLAND 21046** 410-290-1400

OWNER/DEVELOPER

TROY HILL BUSINESS PARK PARTNERSHIP c/o MANEKIN COPRORATION 7165 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND

Civil Engineers and Land Surveyors 658 Kenilworth Drive, Suite 100 Towson, Maryland 21204

Site / Mass Grading /

Sediment Control Plans

Phase IIA, Parcel A-4

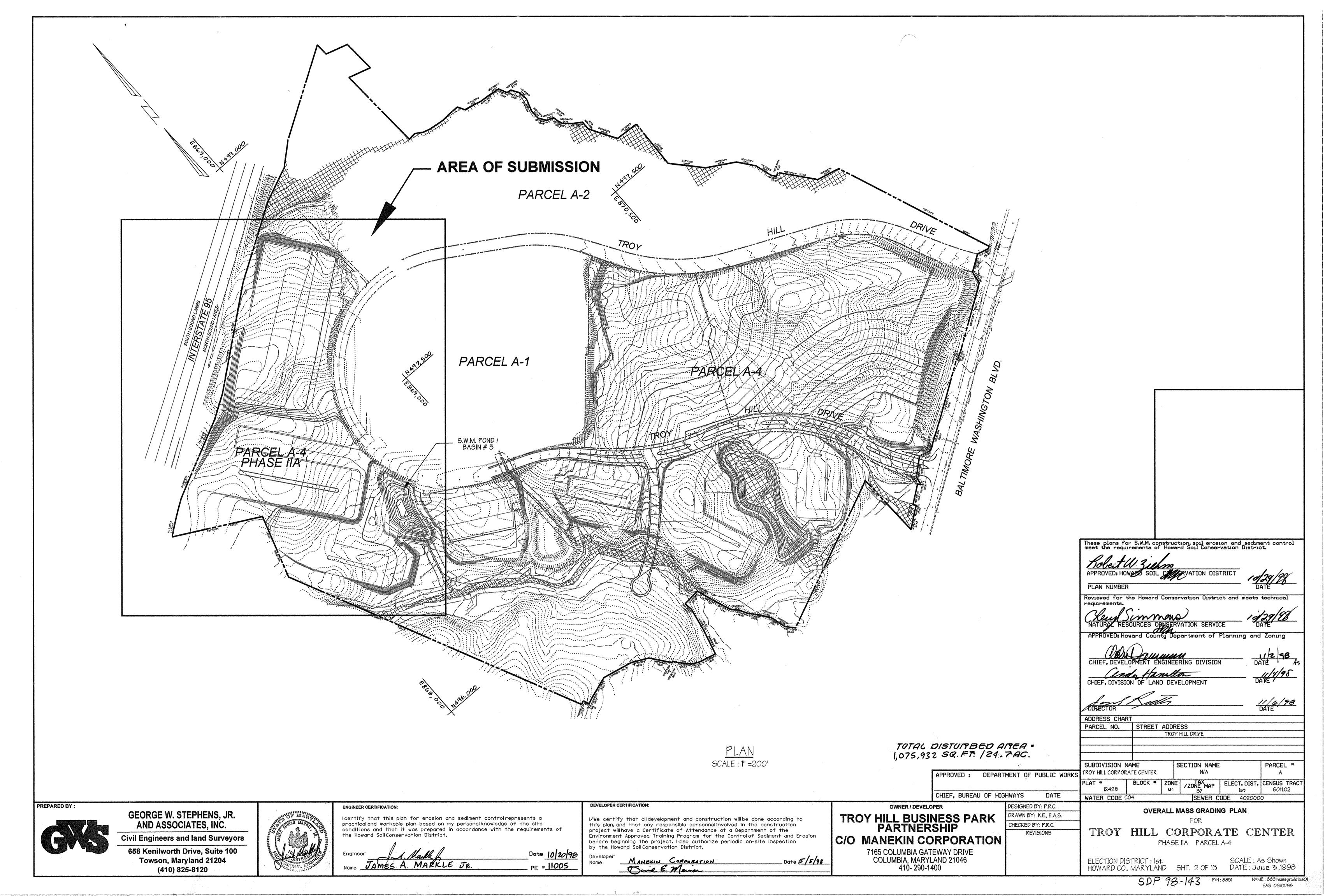
Troy Hill Corporate Center

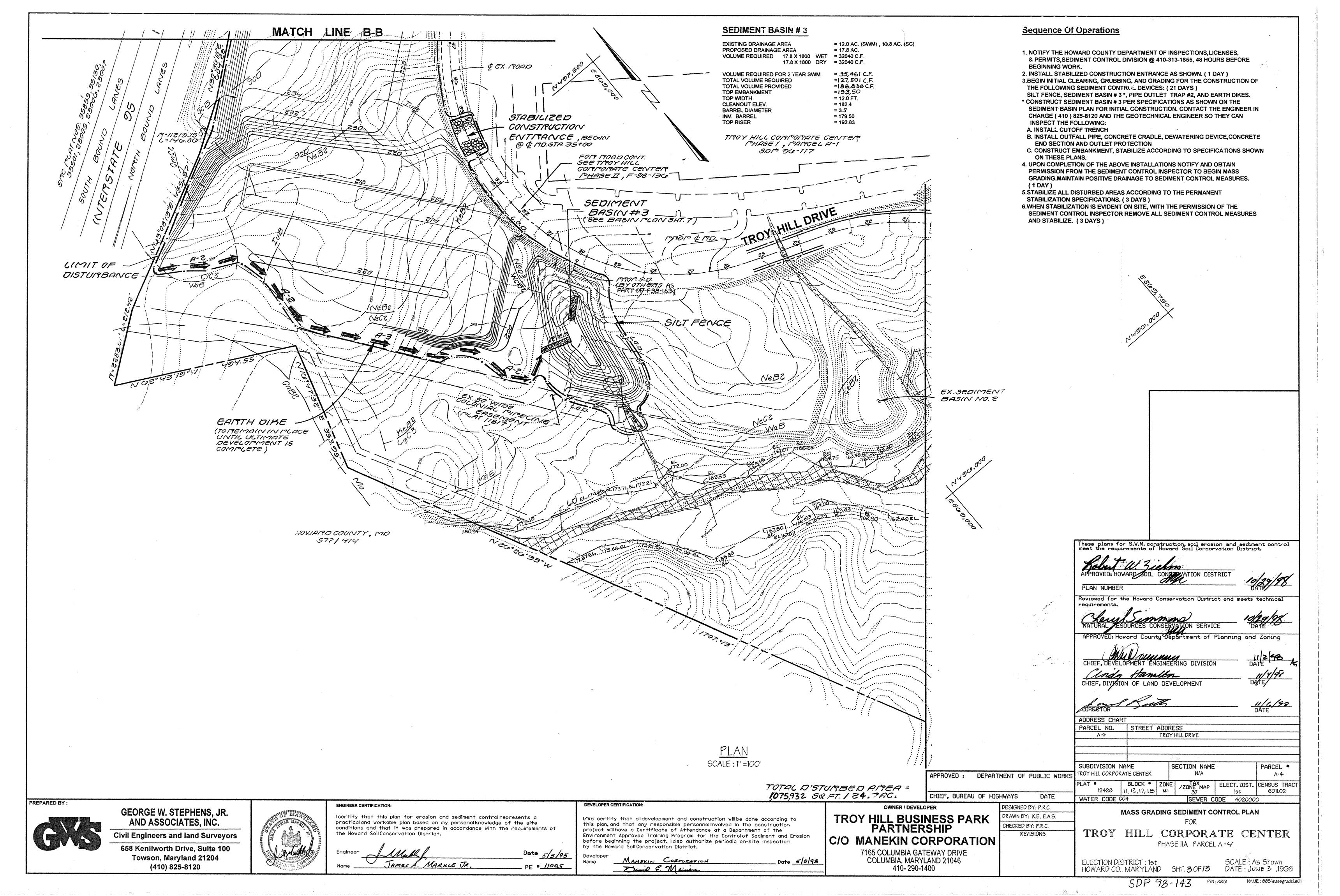
Howard County, Maryland

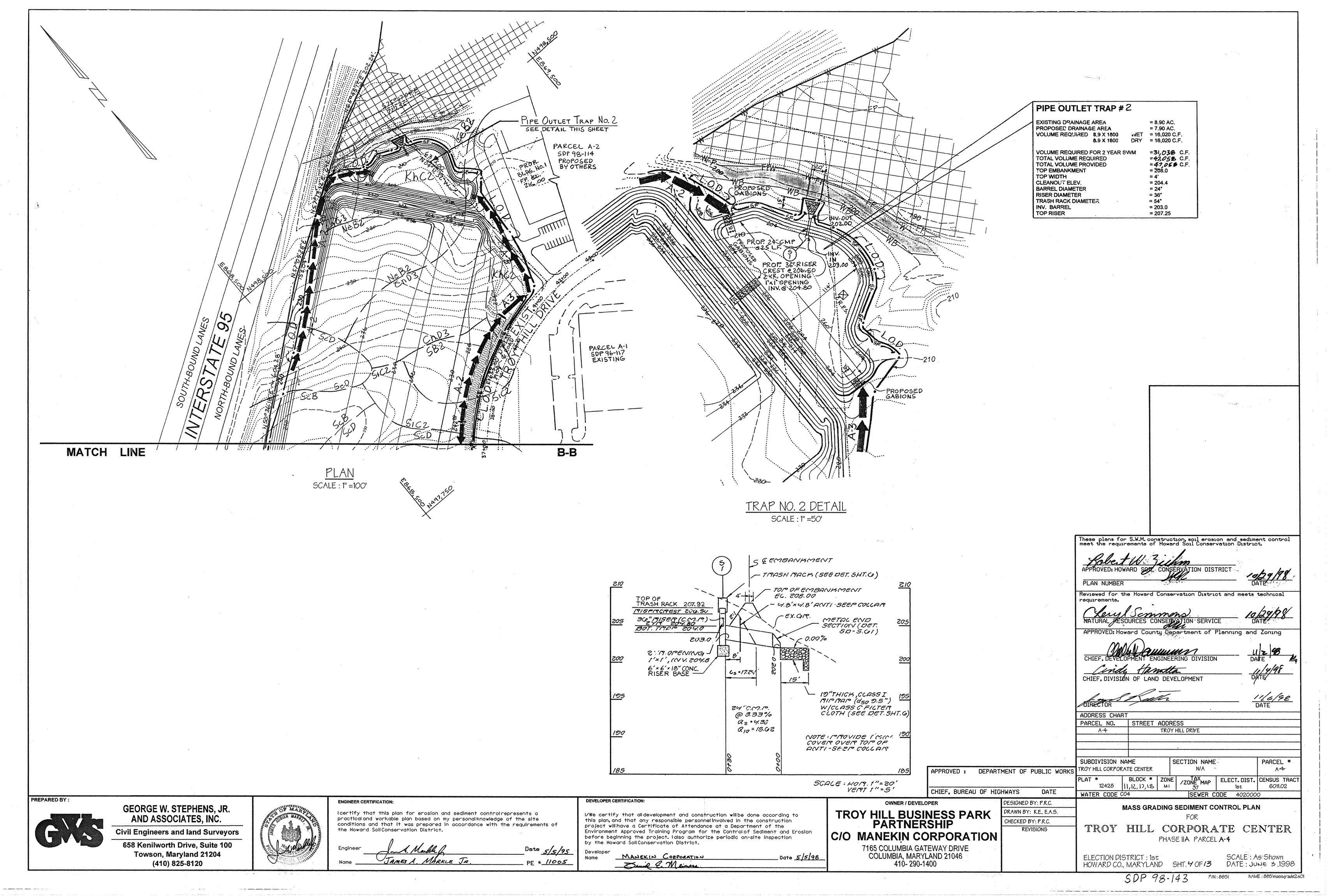
SDP-98-143

1st ELECTION DISTRICT

410-290-1400







## **Stabilization Specifications**

ction I - Vegetative Stabilization Methods and Materials

#### . Site Preparation

- i install erosion and sediment control atructures (either temporary or permanent) such as diversions 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 necessary for temporary seeding.
- iii. 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)
- 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 also be used for chemical analysis
- il Fertilizera shall be uniform in composition free flowing and sultable 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 fortilizer 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 around to such fineness that at least 50% will pass through a #100 mesh sieve and 98 - 100% will pass through a #20 mesh sieve.
- iv. incorporate lime and fertilizer into the top  $3-5^{\circ}$  of soil by disking or other suitable means.
- v. Soli Amendments: Use only one of the following schedules
- I. Preferred Apply 2 tons per acre dolomtic limestone (92 bs. / 100 s.f.) and 600 bs. per acre 10-10-10 fertilizer (14 bs. / 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 tons per acre dolomtic limestone (92bs. / 1000 s.f.) and 1000 bs. per acre 10-10-10 fertilizer (23 lbs. / 1000 s.f.) before seeding, harrow or disc upper three inches of soil

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

#### C. 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 soll 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 ridges running parallel to the contour of the slope
- b. Apply fertilizer and lime as prescribed on the plans
- II. Permanent Seeding
- a. Minimum soil conditions required for permanent vegetative establishment:
- 1. Soil off shall be between 6.0 and 7.0
- 2. Solible salts shall be less than 500 parts per million (ppm). 3. The soil shall contain less than 40% clay but enough fine grained material (> 30% silt 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 soil (<30% silt plus clay) would be acceptable.
- 4. Soll shall contain 1.5% minimum organic matter by weight. 5. Soil must contain sufficient pore space to permit adequate root penetration. 6. If these conditions cannot be met by soils 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. c. Apply soil amendments as per soil test or as included on the plans
- d. Mix soil amendments into the top 3 5° of topsoil 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. Seedbed loosening may not be necessary on newly disturbed areas.

#### D. Seed Specifications

- 1. 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.
- it, inoculant The inoculant for treating legume seed in the seed mixture shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species, inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydrogeodina NOTE: it is very important to keep inoculant as gool as possible until used. 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 lbs. per acre total soluble nitrogen; P205 (phosphorus): 200 belac; K20 (potassium): 200 belac.
- 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
- il. Dry Seeding: This includes use of conventional drop or broadcast spreader.
- 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.
- a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 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.
- 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
- II. Wood Cellulose Fiber Mulch (WCFM)

as specified in the Maryland Seed Law

- 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 dve, 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 sturry. The mulch material shall form a blotter-like around 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
- NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED. 3. 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

Mulch shall be applied to a uniform loose depth of between I' and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.

II. When straw mulch is used, it shall be soread over all seeded areas at the rate of 2 tons/acre

- 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 cellulose fiber per 100 gallons of water
- H. Securina 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 preference), depending upon size of area and erosion hazard:
- 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
- III. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on the crests of banks. The remainder of area should appear uniform after binder application. 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.
- ly. Lightweight plastic notting 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.

contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water

## A. Seed Mixtures - Permanent Seedina

- t 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 Plantina, For special lawn maintainance areas, see Sections IV Sod and V Turfarass.
- 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 time of seeding

## Section III - Permanent Seeding

and V Turfarase.

A Seed Mixtures - Permanent Seeding

- Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.
- i. 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 Seedina 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 out 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 scree, the rates shownon this table shall be deleted and the rates recommended by the testing agency shall be written in
- ill. 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 time of seeding

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

- I. Class of turfgrass sod shall be Maryland or Yirginia 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 pads and torn or lineven ende 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.
- ly. 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 Preparation: 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. b. Where soil is acid or composted of heavy clavs, around 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 recleving sod will be uniformly fine graded. Hard packed earth will be scarified prior to placement of sod.

## B. Sod installation

- I. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod
- 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 volds 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, pegged or otherwise secured to prevent slippage on slopes and to ensure solld contact between sod roots and the underlying soil surface.
- ly. 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.

## C. Sod Maintenance

- 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 depth of 4°. Watering should be done during the heat of the day to prevent wilting.
- ii. After the first week, sod watering is required as necessary to maintain adequate moisture content. 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

## Section IV - Turfgrass Establishment

maintained between 2° and 3° unless otherwise specified.

- 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 methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and lebris over 1 1/2 inches in diameter shall be removed. The resulting seedbed shall be in such condition that future moving of grasses will pose no difficulty.
- NOTE: Choose 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 genetic line.

#### A. Turfgrass Mixtures

- 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: 15 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 Bluegraes/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 Perennial Ryegrass Cultivars/ Certified Kentucky Biuegrass 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
- 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 sun to medium shade. Recommended mixture includes; certified Tall Fescue Cultivare 95 - 100%, certified Kentucky Bluegrass Cultivare 0 - 5%. Seeding rate 5 to 8 b/1000 square feet. One or more cultivars may be blended
- ly. Kentucky Bluegrass/Fine Fescue Shade Mixture For use in areas with shade in Bluegrass lawns. For cotablishment 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 a minimum of 10% to a maximum of 35% of the mixture by weight.

#### NOTE: Turfarass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mineo #77, Turfgrase Cultivar Recommendations for Maryland

#### B. Ideal times of seeding

- Western MD: March 15-June 1, August 1-October 1 (Hardiness Zones 5b, 6a)
- 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)
- C. Irrigation If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2" - 1" every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when
- seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites. D. Repairs and Maintenance
- inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the

i. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately

- ii. If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer,
- III. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary
- v. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium to high maintenance turigrass areas, refer to the University of Maryland publication "Lawn Care in

## Table 25 - Permanent Seeding for Low Maintenance Areas

-											<del></del>		
м	SEED MIX		iting Ite	SITE	USDA		RECO	MMEND	ED PLA	NTING	DATES		NO
X	(USE CERTIFIED MATERIAL IF AVAILABLE)	LBS/AC.	LBS./1000 SQ. FT.	CONDITIONS	HARDINESS ZONES	3/1 - 5/15	3/15 - 6/1	5/16 - 8/14	6/2 - 7/31	8/1- 10/1	8/15 · 10/15	8/15 - 11/15	T E S
Н	TALL FESCUE (75%)	150	3.4	MOIST	56		X			X	T		
	CANADA BLUEGRASS (10%)		ŀ	TO DRY	64		X		1	Х	1		ı
	KENTUCKY BLUEGRASS (10%)			i '	(6b)	X					X		٨
	REDTOP (5%)			]	72	X						Χ	ĺ
				i	75	Х				1		Χ	
	KENTUCKY BLUEGRASS (50%)	150	3.4	MOIST TO	55		Х			X	1		Г
2	CREEPING RED FESCUE OR A HARD FESCUE (40%)		l	MODERATELY DRY TO DRY	ളെ		X		1	X			В
	REDTOP (10%)		1	A IOW	(6b)	Х					X		
П	TALL FESCUE (85%)	125	2.9	MOIST	58		X			X	1		Γ
1	PERENMAL RYEGRÁSS (10%)	55 55 55 55 55 55 55 55 55 55 55 55 55	2.9 .34 .23	TODRY	64		Х			X	1		
3	KENTUCKY BLUEGRASS (5%)	10	.23	1	<b>(68)</b>	X					Х		С
			1	j	77	Х						Х	
1			Ì	}	7B	Х						Х	
	RED FESCUE OR	60	.92,	MOIST	50		Х			Х			Γ
4	CHEWINGS FESCUE (80%)	#88	.92 .92 .34	TO DRY	64_		Х			Х			P
	PERENNAL RYEGRASS (20%)	Ð	.54	1	<b>(6b)</b>	Χ					X		L
П	TALL FESCUE (85%) OR	110	2.5	MOIST	56		Х			Х			Г
	PERENNAL RYEGRASS (50%)	110 20 20 20	46	TODRY	64		Х	T		X			ı
5	PLUS CROWNVETCH OR THE	20	.46 .46	}	(6b)	X		T	T	1	X		ĮΕ
	PENIFER	20		}	75	X		1	1	T	1	X	ı
			i	l	75	X	T		1	T		X	L
	WEEPING LOVEGRASS (17%)	4	.09	DRYTO	6a	Χ	1	X	1		1		Г
6	SERECIA LESPEDEZA (83%)	20	.46	VERY DRY	7 a	X	1	X	T	1	1		1 #
				i	76	X	1	X	1	1	1		1
	TALL FESCUE (83%)	110	2.5	DRY TO	5b		X	<b>†</b>	X	X	1		Г
	WEEPING LOVEGRASS (2%)	110 3 20	2.5 .07	VERY DRY	64	<b></b>	X	t	X	X			1
7	PLUS	20	.46	i	(66)	Х	T	X		1	X		1 6
	Serecia Lespedeza (15%)		l	1	73	X	<del> </del>	X	1	1	1	X	1
			l	1	75	X	T	X	<b>1</b>	1	1	X	1
	REED CANARYGRASS (75%)	40	.92	WET TO	56	T	X	T	T	Х	T	T	Г
	REDTOP (6%) PLUS	40 3 10	.92 .07 .23	MODERATELY		T	X	T	1	X	1	T	1
8	BIRDSFOOT TREEFOIL (19%)	10	23	DRY	(6b)	X	T	T	T	T	×	T	1 н
1		l		1	72	X	Т	T	T	T	T	X	1
1		l	]		7b	X	1	T	1	T	T****	X	1
<b></b>	TALL FESCUE (86%)	125	2.9	WET TO	55	T	X	T	T	X	T	1	<b></b>
9	POA TRMALIS (7%)	125 10 10	2.9 .23 .23	MODERATELY		T	X	T	T	×	T	T	1
	BIRDSFOOT TREEFOIL (7%)	K)	.23	DRY	(66)	X	T	1	1	1	Х		1
۳	TALL FESCUE (80%)	120 30	3.4 .69	WET TO DRY		1	X	T	T	X	T	T .	Г
	HARD FESCUE (20%)	30	.69	1	64	T	X	T	T	Х	T		
10			1	1	(66)	X	T	1	1	T .	Х	T	<b>1</b> J
		l	1	1	72	Х	1	T	1	T	T	X	]
		l			7b	Х				T	I	X	1
	HARD FESCUE (100%)	75	1.7	MOIST TO	5b	T	Х			X			Γ
1 11	\ <i>'</i>	1	1	DRY	ůa.	T	X	T	T	X	Ι		].
1"			1		(6b)	X	Π			I	Х	T	1 ×
1					7a	X	T	Ι.	1	T.	I	X	1
		***************************************					***************************************	***********	<del></del>	***************************************			Menn

## Table 26 - Temporary Seeding Rates, Depths, and Dates

SPECIES	MINMUM SE	EDING	PLANTING				ESS ZON	es and	SEEDIN			
SPECIES	RATES		DEPTH	7a and 7b			69			6a and 5b		
	PER ACRE	LBS:/1000 SQ. FT.	INCHES	2/1- 4/30	5/1- 8/14	8/15 - 11/30	3/1- 4/30	5/1 - 8/14	8/15 - 11/15	3/15 - 5/31	6/1 - 7/31	8/1- 10/31
CHOOSE ONE: BARLEY OATS RYE	2.5 B.U. (122 bs.) 3 B.U. (96 bs.) 2.5 B.U. (140 bs.)	2.80 2.21 3.22	1-2 1-2 1-2	X X		8Y 80/15 X	X X	* *	8Y 10/15 x	X X	:	8Y 10/1 X
BARLEY OR RYE PLUS FOXTAIL MILLET	150 bs.	3.45	1	X	X	10/15 X	X X	X X	10/15 X	X X	X X	10/1 X
WEEPING LOYEGRASS	4 bs.	.09	1/4 - 1/2	-	х	-		х	-	ŗ	x	
ANNUAL RYEGRASS	50 ks.	1.15	1/4 - 1/2	х	_	11/1	х	-	11/1	Х	v	8/15
MILLET	50 lps.	1.15	1/2	-	×	-	-	Х	-	-	Х	-

Fertilizer Rates

2 Tons/ac (100b/1000 s

Temporary Seeding

## Parmanent Seeding

rem	anen	( 366	anng
F	ertilizer Rai (10-20-20)		Lime Rate
N	P205	K20	
90 b/sc (2.0b/ 1000 s.f.)	175 b/ac (4.0b/ 1000 s.f.)	175 b/ac (4.0b/ 1000 s.f.)	2 tons/ac (100 lb/ 1000 s.f.)

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSI. MIN.
A	0.30 **	250	500
В	0.60	200	320
С	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40-0.80*	90	190

24.0 MATERIALS SPECIFICATIONS

Table 27 Geotextile Fabrics

DETAIL 1 - EARTH DIKE

<del>~~~~~~~</del>

2. Seed and cover with Erosion Control Matting or line with sod.

Construction Specifications

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

5. The dike shall be excavated or shaped to line, grade and cross section as

7. All earth removed and not needed for construction shall be piaced so that

8. Inspection and maintenance must be provided periodically and after

required to meet the criteria specified herein and be free of bank projections

shall be removed and disposed of so as not to interfere with the proper

1. All temporary earth dikes shall have uninterrupted positive

undisturbed, stabilized area at a non-erosive velocity.

or other irrequigrities which will impede normal flow

6. Fill shall be compacted by earth moving equipment.

It will not interfere with the functioning of the dike

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

PLAN VIEW

functioning of the dike.

each rain event.

1. Seed and cover with straw mulch.

1 D 2:1 SLOPE OR FLATTER

"US Std. Sieve CW-02215" "" 0.50 MM. MAX. FOR SUPER SILT FENCE The properties shall be determined in accordance with the following procedures:

- Apparent opening size MSMT 323

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

deterioration from ultraviolet exposure.

principal directions of acotextile fabric.

The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be rot and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers, and composed of a minimum of 85% by weight of polyolephins, polyesters, or polymides. The geotextile fabric shall resist

in addition, Classes A through E shall have a O.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 tensile strength requirements listed above.

Class F geotextile fabrics for silt fence have a 50 lb./in. minimum tensile strength and a 20 lb./in. minimum tensile modules when tested in accordance with MSMT 509. The material shall also have a 0.3 gal./ft.<sup>2</sup>/min. flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance

Geotextile fabrics used in the construction of silt 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 O to 12O degrees F.

## **Sediment Control Notes**

DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855) TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE CONTROL." AND REVISIONS THERETO 3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL

SLOPES GREATER THAN 3: B) 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. 4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOYE IN ACCORDANCE WITH THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR PERMANENT SEEDING, SOD. TEMPORARY SEEDING AND MULCHING (SEC G). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES. 6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HA BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

TOTAL AREA OF SITE 141,8 ACRES AREA DISTURBED 24-7 ACRES AREA TO BE ROOFED OR PAVED O ACRES AREA TO BE VEGETATIVELY STABILIZED 24.7 ACRES TOTAL CUT 153,780 C.Y. TOTAL FILL 122,055 C.Y.

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE. 9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS SEDIMENT CONTROL INSPECTOR 10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES. APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. 11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS

# 1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY

2. ALL YEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING \*1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT

DETAIL 8 - PIPE OUTLET SEDIMENT TRAP - ST I

CREST

T STORAGE

(MIN.)

Y STORAGE 4' MAXIMUM

NOTE: RISER EMBEDDED 9" INTO

CONCRETE OR "4" STEEL

PLATE ATTACHED TO RISER

WITH A CONTINUOUS WELD

PLACED ON STEEL PLATE

ON BOTTOM AND 2' OF STONE

TWICE THE RISER DIAMETER

FILTER CLOTH SECURELY FASTENED TO

PERSPECTIVE VIE

10' MINIMUM LENGTH

GEDTEXTILE CLASS C

with equipment while it is being constructed.

such a manner that it will not erode.

made as necessary.

S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

EMBANKMENT SECTION

THROUGH RISER

any vegetation and root mat. The pool area shall be cleared

embankment must be  $\geq$  1' above the riser crest elevation.

Construction Specifications

1. The area under the embankment shall be cleared, arubbed and stripped of

2. The fill material for the embankment shall be free of roots or other woody

vegetation as well as oversized stones, rocks, organic material, or other

objectionable material. The embankment shall be compacted by traversing

. The total trap volume as measured from the bottom to riser crest elevation

. Sediment shall be removed and the trap restored to its original dimensions

shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of

when the sediment has accumulated to one half of the wet storage depth of the

trap (900cf/ac). The sediment shall be deposited in a suitable area and in

The structure shall be inspected periodically and after each rain and repair:

PERFORATED RISER

COMPACTED EARTH

OUTLET PROTECTION -

RIP-RAP PROTECTION

THICKNESS OF 4"-12"

DIKE A DIKE B

STANDARD SYMBO

a-DIKE HEIGHT 18"

b-DIKE WIDTH

o-FLOW WIDTH

d-FLOW DEPTH

7. SITE ANALYSIS: OFFSITE WASTE/BORROW AREA LOCATION: FILL MATERIAL SHALL COME FROM A SITE WITH AN OPEN GRADING PERMIT.

OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY. WHICHEVER IS SHORTER.

Reviewed for the Howard Conservation District and meets technical reauirements. County Contract of Planning and Zoning ADDRESS CHART PARCEL NO. | STREET ADDRESS TROY HILL DRIVE SUBDIVISION NAME SECTION NAME PARCEL # ROY HILL CORPORATE CENTER ELECT. DIST. CENSUS TRACT BLOCK # | ZONE | /ZONE^MAP 12428 11,12,17,18 M-1 WATER CODE CO4 ISEWER CODE 4020000

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

PIPE OUTLET SEDIMENT TRAP - ST I

6. Construction operations shall be carried out in such a manner that erosion

should be stabilized (one time) with seed and mulch upon trap completion and

10. Above the wet storage elevation, the riser shall be perforated with  $\frac{1}{2}$  wide

11. The riser shall be wrapped with  $\frac{1}{2}$  hardware cloth (wire) then wrapped with

12. Straps or connecting bands shall be used to hold the filter cloth and wire

by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally.

Geotextile Class E. The filter cloth shall extend 6" above the highest slit

and 6" below the lowest slit. Where ends of filter cloth come together.

they shall be overlapped, folded and fastened to prevent bypass. Filter

fabric in place. They shall be placed at the top and bottom of the cloth.

layers. A minimum of 2' of hand-compacted backfill shall be placed over the

13. Fill material around the pipe spillway shall be hand compacted in 4"

14. The riser shall be anchored with either a concrete base or steel plate

riser diameter and 12" deep with the riser embedded 9". Steel plate bases

base to prevent flotation. Concrete bases shall be at least twice the

shall be at least twice the riser diameter. 1/4" minimum thickness and

watertight connection. Then place 2' of stone, gravel or tamped earth

15. Anti seep collars shall be constructed in accordance with plans (ref.

17. Refer to Section D for dewatering requirements of sediment trops.

the discharge in an erosion free manner to an existing stable channel.

16. Concentric trash rack and anti-vortex device design details are on Detail 16.

18. Dutlet - An outlet shall be provided, which includes a means of conveying

19. Where discharge occurs at the property line, local ordinances and drainage

attached to the bottom of the riser by a continuous weld to form a

and water pollution are abated. Once constructed, the top and outside

face of the embankment shall be stabilized with seed and mulch. Points

Stabilization Structure criteria. The remainder of the Interior slopes

?. The structure shall be removed and area stabilized when the drainage

of concentrated Inflow shall be protected In accordance with Grade

monitored and maintained erosion free during the life of the trap.

No perforations will be allowed within 6" of the horizontal barrel.

8. All cut and fill slopes shall be 2:1 or flatter.

cloth shall be replaced as necessary to prevent clogging.

pipe spillway before crossing it with construction equipment.

9. All pipe connections shall be watertight.

area has been properly stabilize

table 16 and Details 13 and 14).

easement requirements shall be met.

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



## **ENGINEER CERTIFICATION:**

Icertify that this plan for erosion and sediment controlrepresents 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.

PE # /1005

## DEVELOPER CERTIFICATION:

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 Eroslon before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

> MANEKIN CORPORATION Date <u>5 5 98</u>

# TROY HILL BUSINESS PARK PARTNERSHIP C/O MANEKIN CORPORATION

**OWNER / DEVELOPER** 

7165 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046 410-290-1400

DESIGNED BY: P.R.C. DRAWN BY: K.E., E.A.S. CHECKED BY: P.R.C. REVISIONS

APPROVED: DEPARTMENT OF PUBLIC WORK

CHIEF, BUREAU OF HIGHWAYS

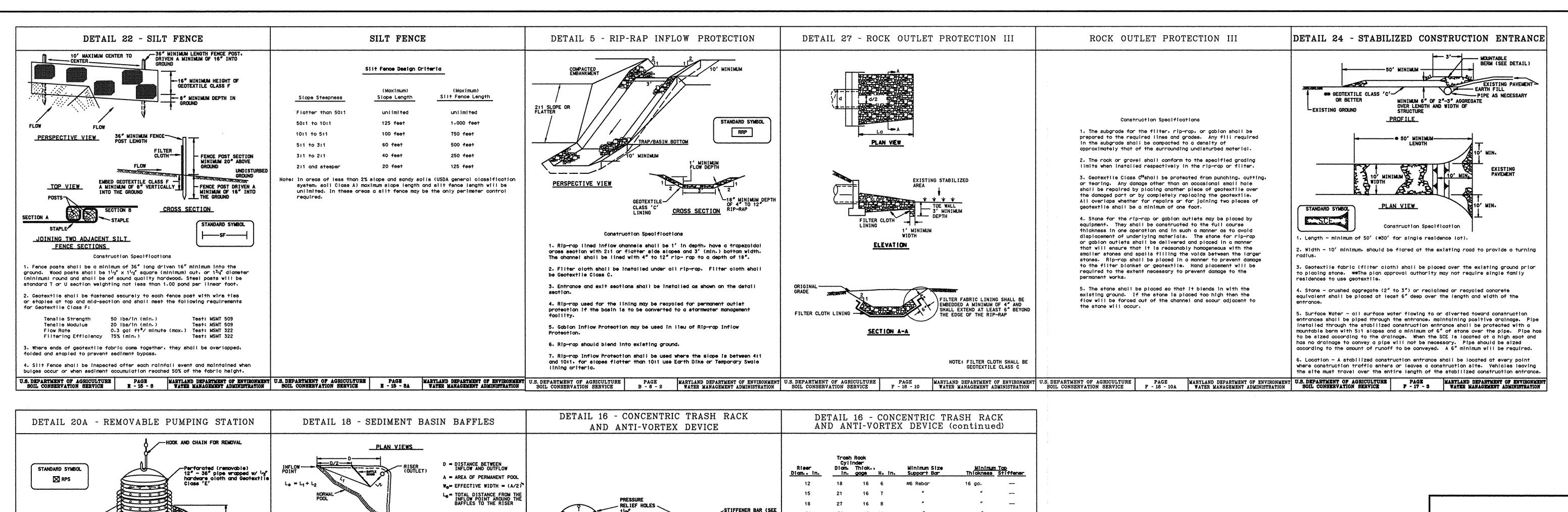
MASS GRADING SEDIMENT CONTROL DETAILS

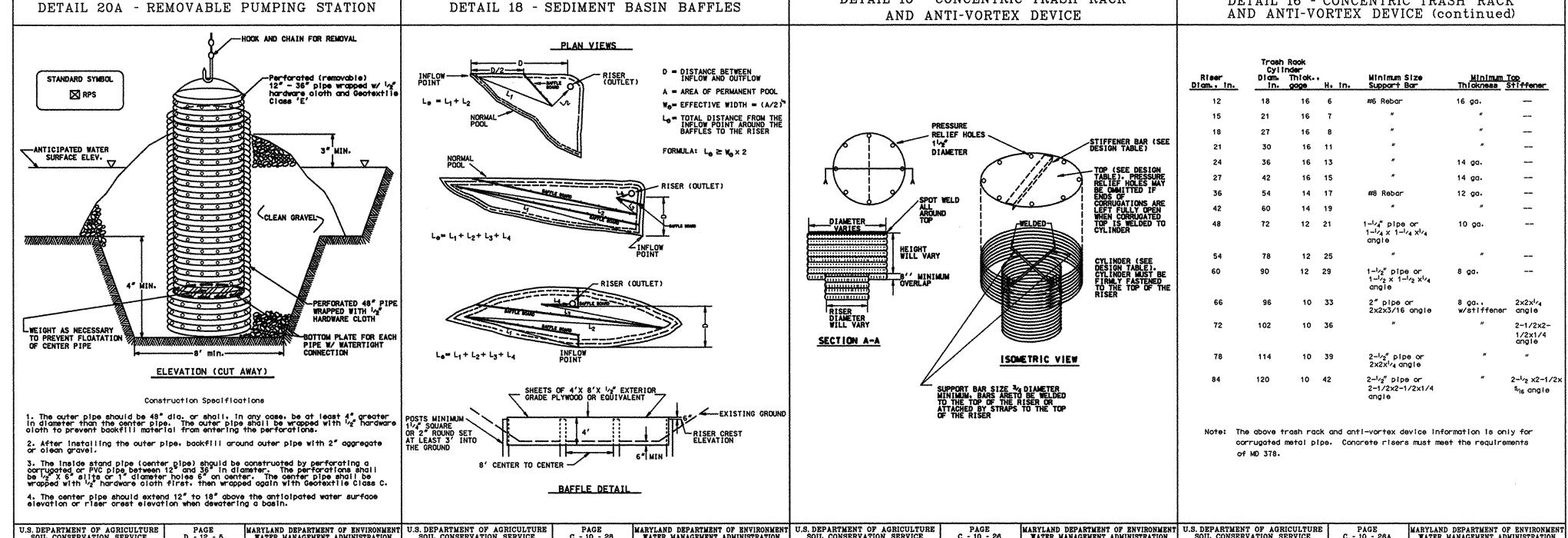
TROY HILL CORPORATE CENTER PHASE !!A PARCEL A-4

SCALE : As Shown ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 5 OF 13 DATE: JUNE 3,1998

NAME: 885 mass details.s0

EAS 05/01/98





These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District. deviewed for the Howard Conservation District and meets technical Department of Planning and Zoning ADDRESS CHART STREET ADDRESS TROY HILL DRIVE SUBDIVISION NAME PARCEL # TROY HILL CORPORATE CENTER /ZONE MAP ELECT. DIST. CENSUS TRACT 12428 WATER CODE CO4 SEWER CODE 4020000

REPARED BY:

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

Civil Engineers and land Surveyors 658 Kenilworth Drive, Suite 100 Towson, Maryland 21204

(410) 825-8120



**ENGINEER CERTIFICATION:** 

Icertify that this plan for erosion and sediment controlrepresents 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.

JAMES A. MARKLE JR

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. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

> . Date <u>5 /5/98</u> MANEKIN CORPORATION

TROY HILL BUSINESS PARK PARTNERSHIP

410- 290-1400

OWNER / DEVELOPER

C/O MANEKIN CORPORATION 7165 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046

DESIGNED BY: P.R.C. DRAWN BY: K.E., E.A.S. CHECKED BY: P.R.C. REVISIONS

DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS

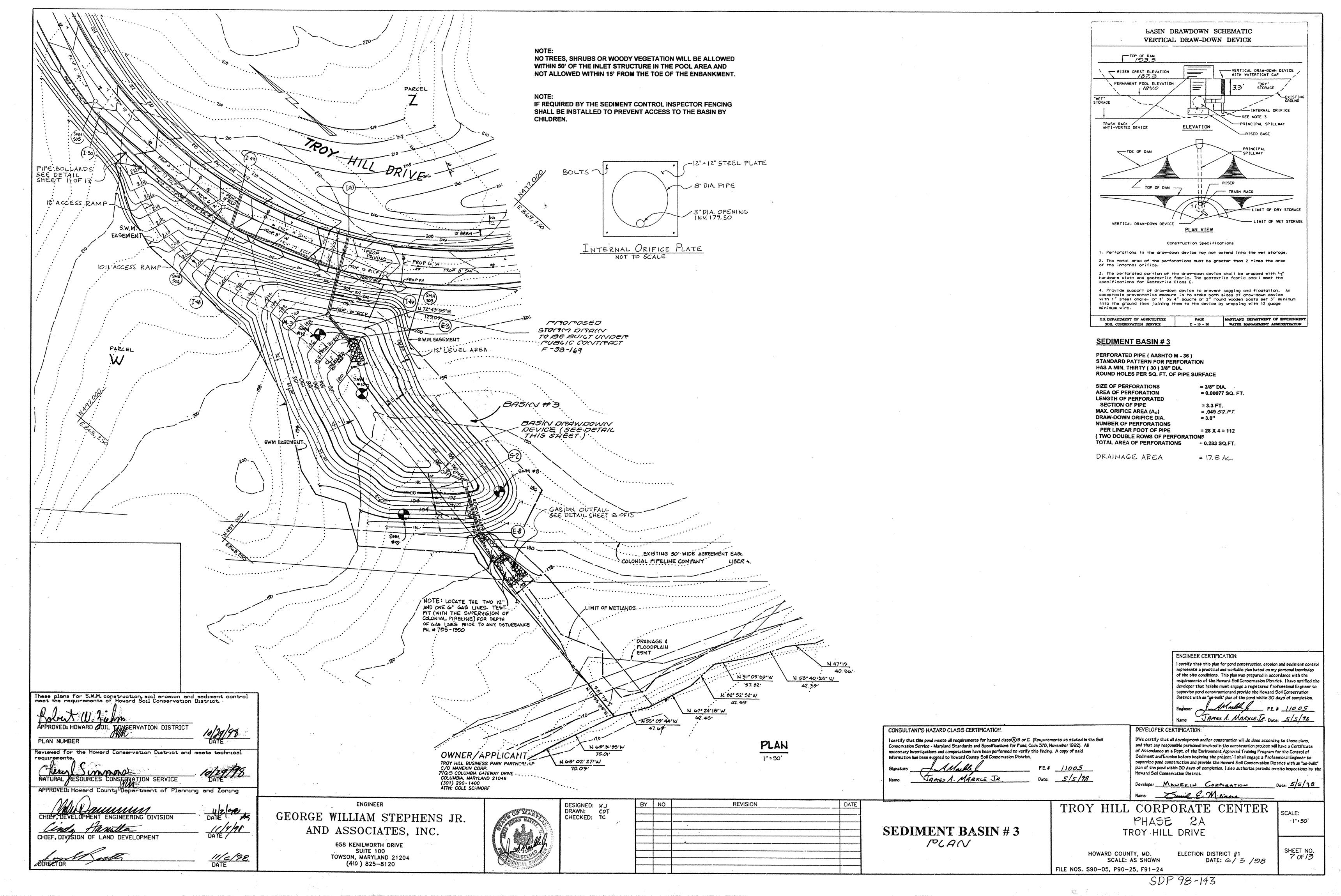
MASS GRADING SEDIMENT CONTROL DETAILS

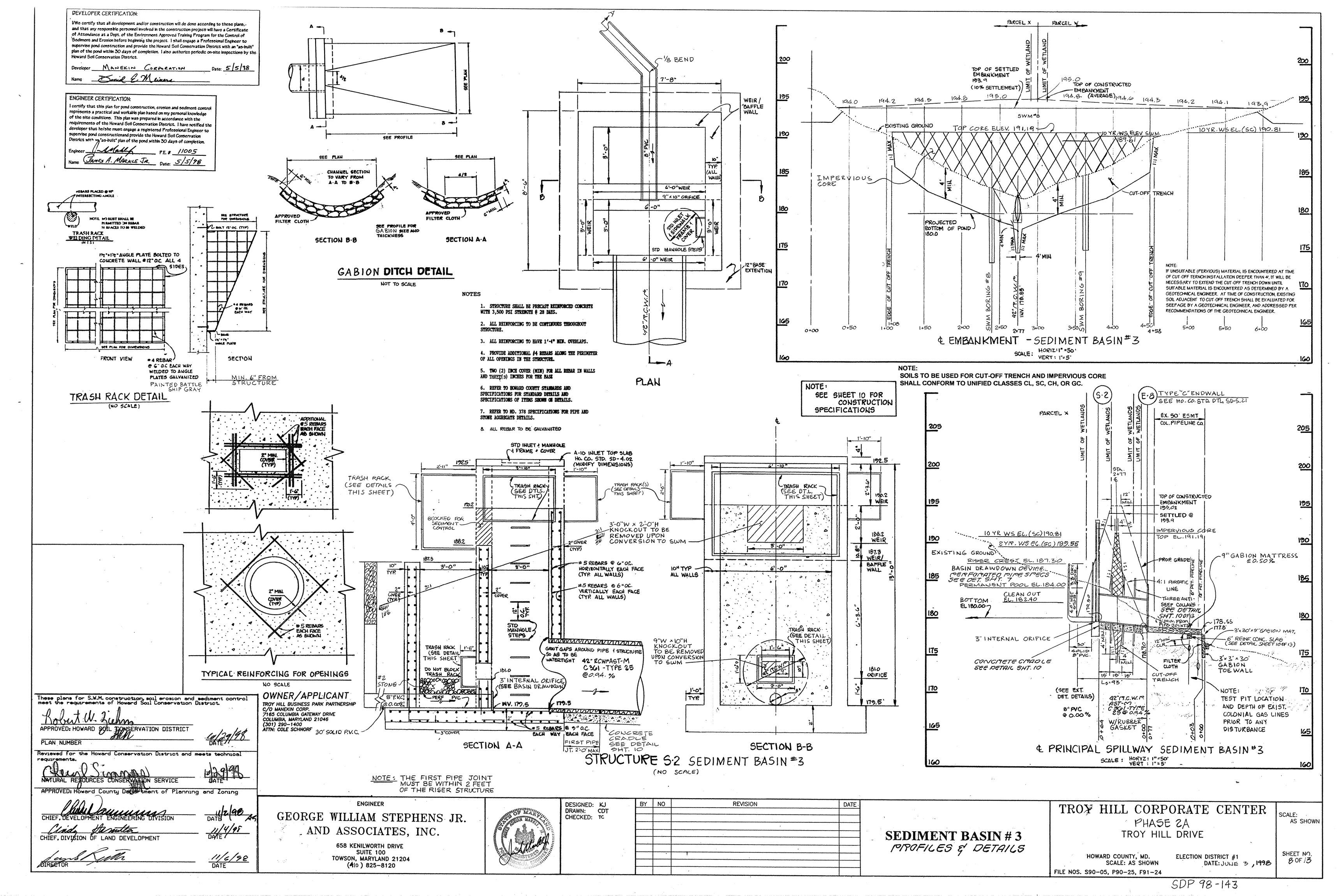
TROY HILL CORPORATE CENTER PHASE IIA PARCEL A-4

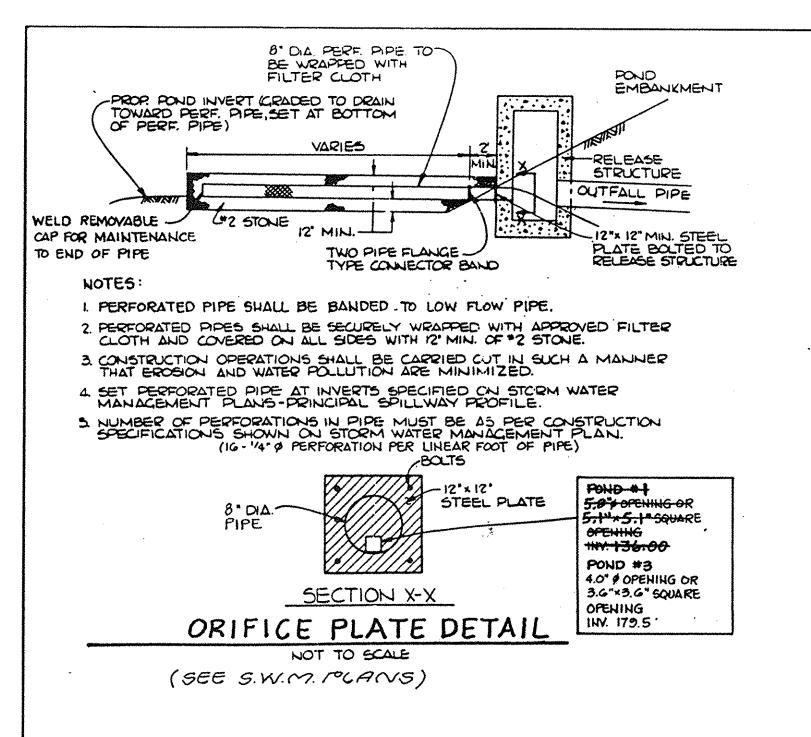
ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 6 OF 13

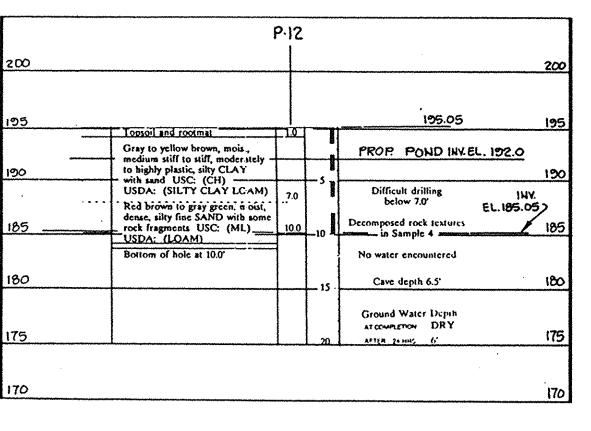
NAME: 8851massdetails1.s0 KE 09/28/98

SCALE: As Shown









#### DEVELOPER CERTIFICATION: ANALYSIS/RECOMMENDATIONS

I'We certify that all development and/or construction will de done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a Professional Engineer to supervise pond construction and provide the Howard Soli Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soll Conservation District.

Developer MANEKIN CORPORATION Date: 5/5/98 David E.M. einers

## ENGINEER CERTIFICATION:

certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered Professional Engineer to supervise pond constructionand provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.

This evaluation is dependent on the specific design requirements established by the site

The subsurface conditions encountered on this site are generally suitable for the

construction of the proposed stormwater management facilities. The general evaluation

of soils encountered relative to stormwater management by infiltration is; near surface

soils are not favorable, the soils encountered at depths below the clayey soils are

The subsurface conditions are favorable for infiltration at SWM-3, SWM-6, SWM-7, SWM-

10 and SWM-11, after establishment of final grades. Conditions are not favorable at

SWM-8 due to clayey soils. Conditions are not favorable at SWM-1 and SWM-4 due to

The use of stormwater management infiltration systems on fill material is not

recommended according to the Maryland Department of Natural Resources Standards

and Specifications for Infiltration Practices. Fills of 6 to 12 feet are proposed for locations

SWM-2, SWM-5, and SWM-9. The conditions would be improved to favorable if the

device was designed to extend through the fill and the near surface clayey soils. Location

SWM-12 would similarly be improved to favorable if the device is designed to extend

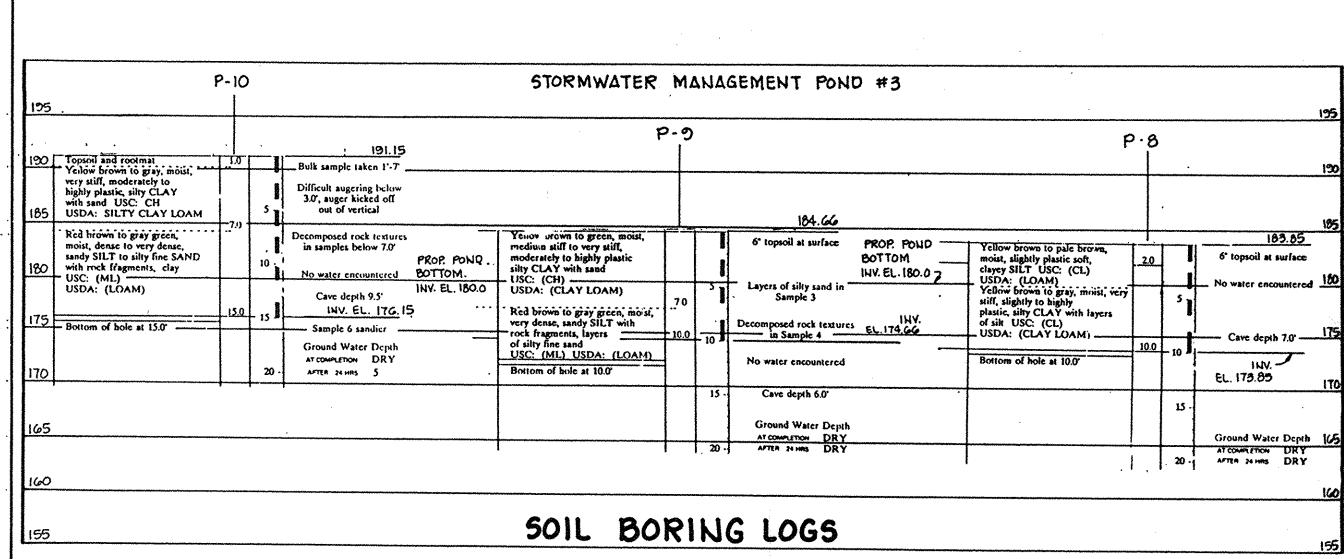
shallow water after establishment of final grades.

through the clayey surface soils.

favorable.

The native soils encountered in this investigation are generally satisfactory for the proposed basin construction. We recommend that the entire basin bottom be compacted to provide a uniform and more impervious condition. Native on-site soils meeting the classification requirements for SM, SC, ML, CL, or CH, as classified in accordance with the Unified Soil Classification system, may be used for construction of the core trench and dike embankment. Soils meeting the requirements for SM or SC must contain a minimum of 30% silt and/or clay. Other soils may be used with the approval of the soils engineer based on laboratory test results. We recommend that the core and dike embankment be compacted to a minimum of 90% of the maximum dry density as determined in accordance with the modified moisture density relationship test (ASTM 1557).

The subsurface conditions are favorable for support of outlet structures and the dike embankment. Principle structures should be founded on footings proportioned for an allowable soils pressure of 2,000 psf. Results of the soil sample recovered from the surficial soils at the site and tested for the moisture content and standard moisture-density relationship test (ASTM 1557), indicate that these soils will be suitable for the construction of the embankment for stormwater management facility provided that they can be properly compacted. The soils encountered in cut areas have natural moisture contents well in excess of the optimum moisture content and, therefore, should be dried prior to use in construction to facilitate compaction. The most significant influence on the earthwork operations will likely be the weather conditions during which the operations are conducted. We recommend scheduling the earthwork operations during the summer if



OWNER/APPLICANT TROY HILL BUSINESS PARK PARTNERSHIP C/O MANEKIN CORP. 7165 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046 (301) 290-1400 ATTN: COLE SCHNORF

#### STORMWATER MANAGEMENT POND #1 - SECTION 1 Biown to olive, moist, loose Offset 15' east up to moderatuly dense, slightly plastic, sandy clayey SILT (FILL) USC: (CL) USDA: (LOAM) Yellow brown to gray, moist 6" topsoil at surface slightly to moderately plastic, very stiff, silty, sandy CLAY (FILL) USC: (CL) Trace organics in Samples 4 & 5 P- 1 USDA, (CLAY LOAM) SILT with sand, trace clay topsoil at surface moderately plastic, silty CLAY with some sand, rock fragments USDA: (CLAY LOAM) 11SC: (CL) 5.5 USDA: (SILT LOAM) Yellow to gray green, moist, medium dease, silty fine SAND to sandy SILT with trace Cave depth 15.5° PROP. POND BOTTOM INV EL Gray green, moist, very dense, silty fine SAND with rock fragments USC: (ML) USC: (CL) USDA: (CLAY LOAM) Olive to gray green, moist, medium dense sandy SILT in sample 3 & 4 CPROP. POND BOTTOM Yellow brown to pale brown, moist, soft to very still, 138.00 8" topsoil at surface slightly to moderately plasti silty sandy CLAY with gravel USC: (CL) USDA: (CLAY LOAM) trace clay, gravel USDA: (ML) USC: (LOTAL) Beacon of hole at 10.0 LINV. EL. 133.22 EL. 154.34 Encountered water at 9.5" medium dense, silty clayey SAN with gravel, rock fragments CINV. EL 127.52 Fround Water Depth Ground Water Dept AT COMPLETION DRY AFTER 24 HRS DRY SOIL BORING LOGS

## **ENGINEER** GEORGE WILLIAM STEPHENS JR AND ASSOCIATES, INC.

658 KENILWORTH DRIVE SUITE 100 TOWSON, MARYLAND 21204 (410) 825-8120



DESIGNED:	KJ	BY	NO .	REVISION	DATE
DRAWN: CHECKED:	CDT TC				
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SEDIMENT BASIN # 3 DETAILS

///6/98 DATE TROY HILL CORPORATE CENTER SCALE: PHASE TROY HILL DRIVE

CHIEF, DIVISION OF LAND DEVELOPMENT

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

Reviewed for the Howard Conservation District and meets technical

APPROVED: Howard County Department of Planning and Zoning

AS SHOWN

SHEET NO.

9 OF 13

APPROVED: HOWARD SOME CONSERVATION DISTRICT

PLAN NUMBER

requirements.

**ELECTION DISTRICT #1** HOWARD COUNTY, MD. DATE: 6-3-98 SCALE: AS SHOWN FILE NOS. \$90-05, P90-25, F91-24

SDP 98-143

## POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

#### SITE PREPARATION

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed, and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences rubbish, and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radkis around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

#### EARTH FILL

MATERIAL - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to United Soil Classification GC. SC. CH. or CL.

PLACEMENT - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in a maximum 8" thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

COMPACTION - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that the water can be squeezed out.

Minimum required density shall not be less than 95% of maximum dry density with a moisture content within +/- 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

#### STRUCTURE BACKFILL

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24° or greater over the structure

## PIPE CONDUITS All pipes shall be circular in cross section.

REINFORCED CONCRETE PIPE - All pipe to be circular in cross section

All the following criteria shall apply for reinforced concrete pipe

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361.

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the

3. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.

## 4. Backfilling shall conform to "Structure Backfill."

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the

## PERFORATED PIPE

Bituminous coated corrugated metal pipe (BCCMP) shall conform to the requirements of AASHTO M36 (pipe should be specified to be fully bituminous coated in accordance with AASHTO MISO). Perforated pipe is TYPE III. Pipe shall have CLASS 2 perforations 3/8" in diameter.

## CONCRETE

Concrete shall meet the requirements of Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, Section 414 (Portland Cement Concrete Mixture), Mix No. 3

## REINFORCING STEEL IN CONCRETE STRUCTURES

Reinforcing steel shall be ASTM A 615, Grade 60. Steel angles and anchor bars shall be ASTM 1-36.

## ROCK RIP-RAP

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311 & Section 9012.

The rigrap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the volds between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials,

#### CARE OF WATER DURING CONSTRUCTION

All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which water shall be pumped.

#### STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, splilway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soll Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

## Stormwater management facility will be stabilized with permanent slope seeding as

1. Seedbed Preparation - lossen upper 3 inches of soil by raking, discing or other acceptable means before seeding.

2. Soil Amendments - apply 2 tons per acre Dolomitic Limestone (92 bs./1000sq. ft.). 600 bs. per acre 10-10-10 fertilizer (14 bs./1000 sq. ft.), and 400 bs. per acre of 30-0-0 Ureaform Fertilizer (9.2 bs./1000 sq. ft.). Harrow or disc lime and fortilizer into upper 3 inches of soil. At time of seeding, apply 400 bs. (9.2 bs./1000 sq. ft.) of 30-0-0 Ureaform Fertilizer and 500 bs. per acre (11.5 bs./1000 sq. ft.), of 10-0-0

3. Seeding - for the period March I through April 30 seed with 40 lbs. per acre Kentucky 31 Tall Fescue, and 15 bs. per acre inoculated Crown Vetch. For the period May 1 through July 31 seed with 60 bs. per acre Kentucky 31 Tall Fescue and 2 bs. per acre inoculated Weeping Lovegrass. For the period August 1 through October 15 seed with 40 lbs. per acre Kentucky 31 Tall Fesue, and 20 lbs. per acre inoculated interstate Serica Lespedeza. For the period October 16 through February 28 protect the site by Option (i): 2 tons per acre of well anchored straw. For the period May 1 through February 28 inoculated Crown Vetch shall be applied during the subsequent period of March 1 through April 30 at the rate of 15 bs. per acre. 4. Mulching - apply 15 to 2 tons per acre of un-rotted small grain straw immediately after seeding. Anchor mulch immediately after application using 218 gallons per acre of emulsified ashphalt. On flat areas of slope 8 feet or higher, use 348 gallons per acre of anchoring.

5. Maintenance - inspect all seeded areas and make needed repairs, replacements

#### **EROSION AND SEDIMENT CONTROL**

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning poliution abatement will be followed. Construction plans shall detail crosion and sediment control measures to be employed during the construction process.

## PERMANENT SLOPE SEEDING

After spreading 4" topsoil, seed with a mixture of 30% inoculated Crown Vetch and 70% Kentucky 31 Tall Fescue applied at a rate of 60 bs./ acre; 10-20-20 fertilizer shall be applied at a rate of 25 bs./1000 sq. ft.; lime at a rate of 92 bs / 1000 s.f.; mulch area with unweathered small grain straw at a rate of 1.5 Tons/acre; anchor with a rapid curing asphalt (RC-70, R-250 or RC-800 at a rate of 0.1 gal/S.Y.

## FILTER CLOTH

Filter cloth shall meet or exceed the requirements in Section 20.25-5 of the Baltimore County Standard Specifications and Details for Construction. Durable filter fabrics for drainage purposes are not limited to Mirafi 1405, DuPont TYPAC No. 3341 or 3401.

Filter cloth shall be protected from punching or tearing. Any damage other than an occasional small hole shall be repaired by placing another small piece of filter cloth over the damaged area or by replacing the cloth section. All overlaps shall be a minimum of one foot.

Gablons shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials. Section 312 and must be Cl. IV. PVC coated.

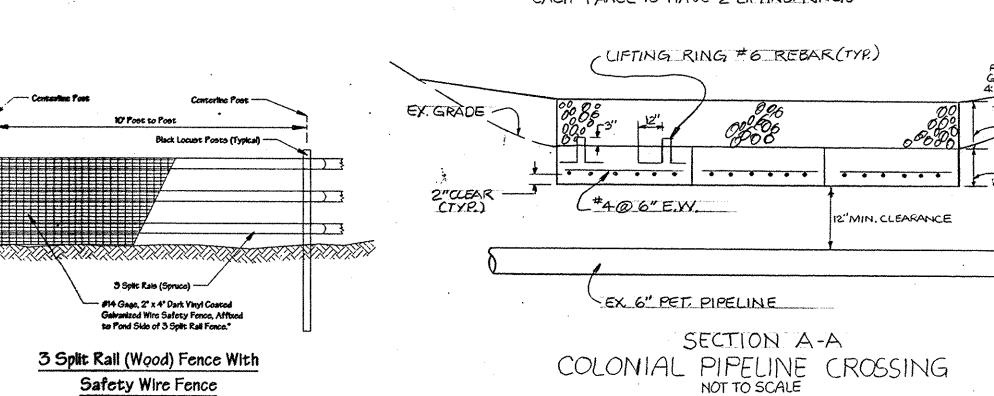
## **OUTFALL PROTECTION**

Subgrade for riprap or gabion outfalls shall be prepared to the required line and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undistrubed material. All rock or gravel shall conform to the specified grading limits when installed in the riprap or gablon. All stone shall be delivered and placed in a manner that will insure the stone in place shall be reasonably homgeneous with the larger rocks uniformly distributed and firmly In contact one to another, with the smaller rocks filling the volds between the larger rocks. Stone for outfalls may be placed by equipment. Riprap or gabion outlets shall be constructed to full course thickness in one operation and in such a manner as to avoid any displacement of underlying materials. The contractor shall avoid damage to the filter blanket or cloth during placement of rigrap. Hand placement shall be required as needed to prevent damage to the permanent works. Filter cloth shall be placed under all riprap and gablons.

Construct fencing in accordance with the State Highway Administration standard details 690.01 and 690.02. Use specifications for a 6' fence, substituting 42' fabric and 6'8" line posts. Construct the gate in accordance with the S.H.A. standard detail 690.01 with 42° fabric. The fabric used for the fence and gate must conform to AASHTO designation M-181-74. Dark vinyl coating is required for the fence posts and wire fabric in accordance with the landscape manual adopted by resolution 56-90, October 1, 1990. "3 Split rall (wood) fence is optional

CUT-OFF TRENCH - THE CUT-OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION. WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1:1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT. ROLLERS, OR HAND TAMPERS TO ASSUER MAXIMUM DENSITY AND MINIMUM

IMPERVIOUS CORE - THE CORE SHALL BE FILLED ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE FILL SHALL BE GOVERNED BY THE EQUIPMENT USED, WITH MINIMUM WIDTH BEING FOUR FEET. THE TOP WIDTH SHALL BE SHOWN ON THE PLAN. THE SIDE SLOPES OF THE FILL SHALL BE 1:1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS OR HAND TAMPERS TO ASSURE MAX.

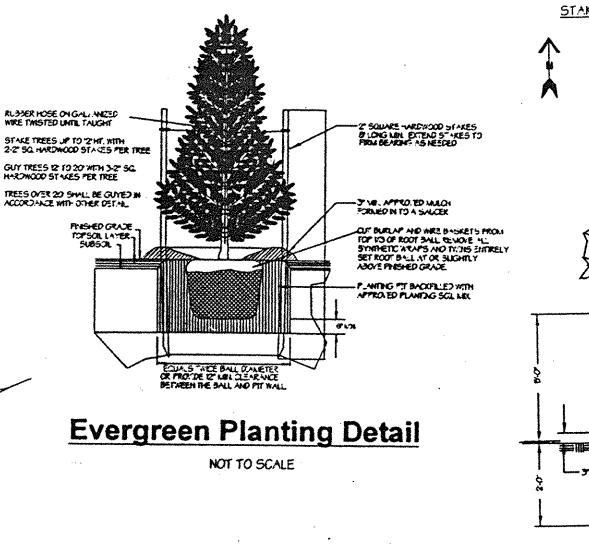


EX. 6" PET.

PIPELINE 1

EXPANSION JOINT MATERIAL CONCRETE TO BE MIX NO. 3 REINFORCEMENT TO BE #4@6"E,W, EACH PANEL TO HAVE 2 LIFTING RINGS -6" REINE.

1/2" PREFORMED BITUMINOUS

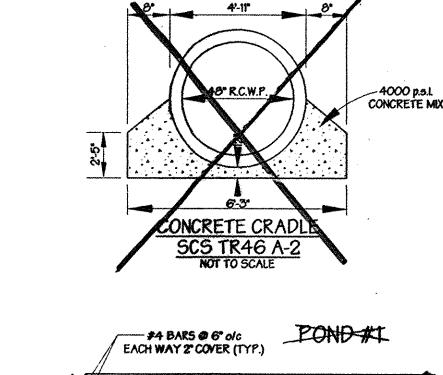


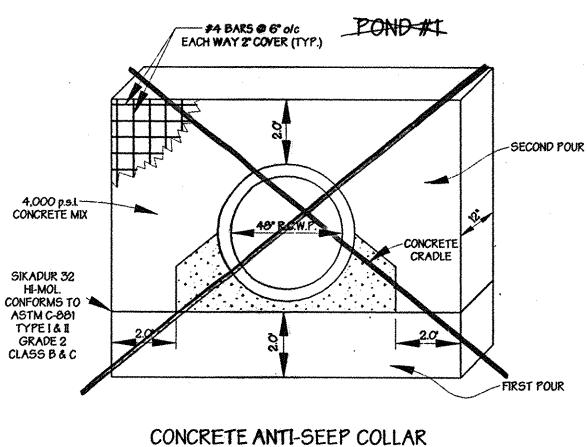
STAKING DETAIL WEAP TRUNK WITH TREE WRAP TO SECON TER OF BRANCHES J' SOL WELL REMOVE COVERING FRO TOP 1/3 OF ROOTSALL Tree Planting Detail

MAX, ALLOWED CROSS SLOPE = 33 SLOPE VARIES-8" CRUSHER CROWN VETCH ACCESS RAMP NOT TO SCALE POND#1

Safety Wire Fence

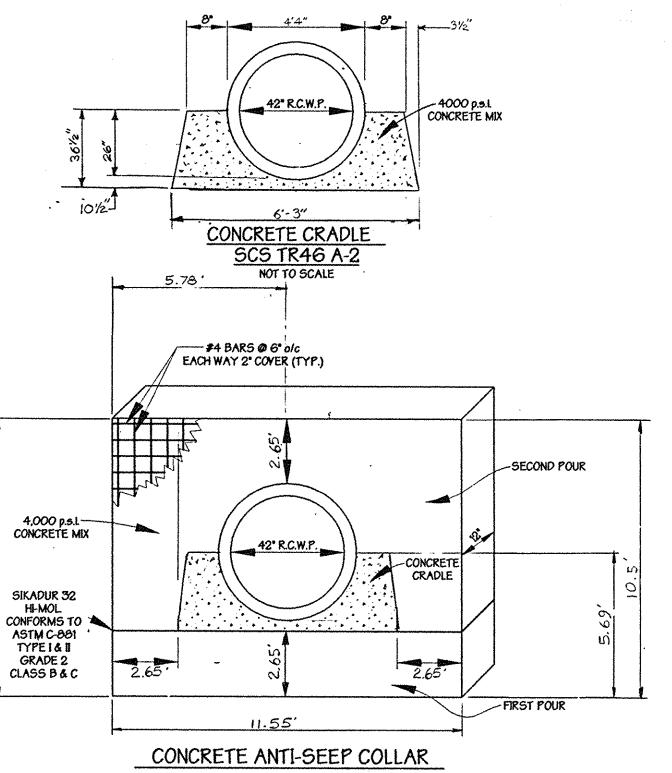
NOT TO SCALE





1 LOCATE 2' MIN FROM ALL PIPE JOINTS. 2. ALL MATERIAL TO BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIALS SPECIFICATIONS. 3. THE SEAL BETWEEN THE PIPE AND COLLAR SHALL BE WATER TIGHT. 4. COLLAR SHALL PROJECT A MIN. OF 2.0' FROM THE EXTERIOR OF THE CONCRETE CRADLE AND THE PIPE ON ALL FOUR SIDES.

NOT TO SCALE



POND # 3

NOT TO SCALE

USE A 11.55' × 10.5' CONG. COLLAR (THREE COLLARS REQUIRED)

**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



**ENGINEER CERTIFICATION:** 

certify that this plan for pond construction, crosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soll Conservation District. I have notified the developer that he/she must engage a registered Professional Engineer to supervise pond constructionand provide the Howard Soil Conservation District with an "45-built" plan of the pond within 30 days of completion.

JAMES A. MARRIE JR. Date: \_

OWNER/DEVELOPER

TROY HILL BUSINESS PARK PARTNERSHIP c/o MANEKIN COPRORATION 7165 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046 (410) 290-1400

DEVELOPER CERTIFICATION:

I/We certify that all development and/or construction will de done according to these plans. and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soll Conservation District.

Developer MANEKIN CORPORATION Date: 5/5/98 Name David & Minera

CONSULTANT'S HAZARD CLASS CERTIFICATION:

I certify that this pond meets all requirements for hazard class(A) B or C. (Requirements as stated in the Soil Conservation Service - Maryland Standards and Specifications for Pond, Code 378, November 1992). All necessary investigations and computations have been performed to verify this finding. A copy of said Information has been supplied to Howard County Soil Conservation District.

PE# /1005

Name JAMES A. MARKLE JA.

SEDIMENT BASIN DETAILS &NOTES TROY HILL CORPORATE CENTER

SECTION NAME

PARCEL \*

SCALE: AS SHOWN

JUNE 3 ,1998

ZONE MAP ELECT. DIST. CENSUS TRAC

SEWER CODE 4020000

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

Reviewed for the Howard Conservation District and meets technical

APPROVED: Howard County Department of Planning and Zoning

APPROVED: HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBER

ADDRESS CHART

SUBDIVISION NAME

12428

WATER CODE CO4

TROY HILL CORPORATE CENTER

HOWARD COUNTY, MARYLAND

PHASE 2A

1st ELECTION DISTRICT SHEET/Oof 13

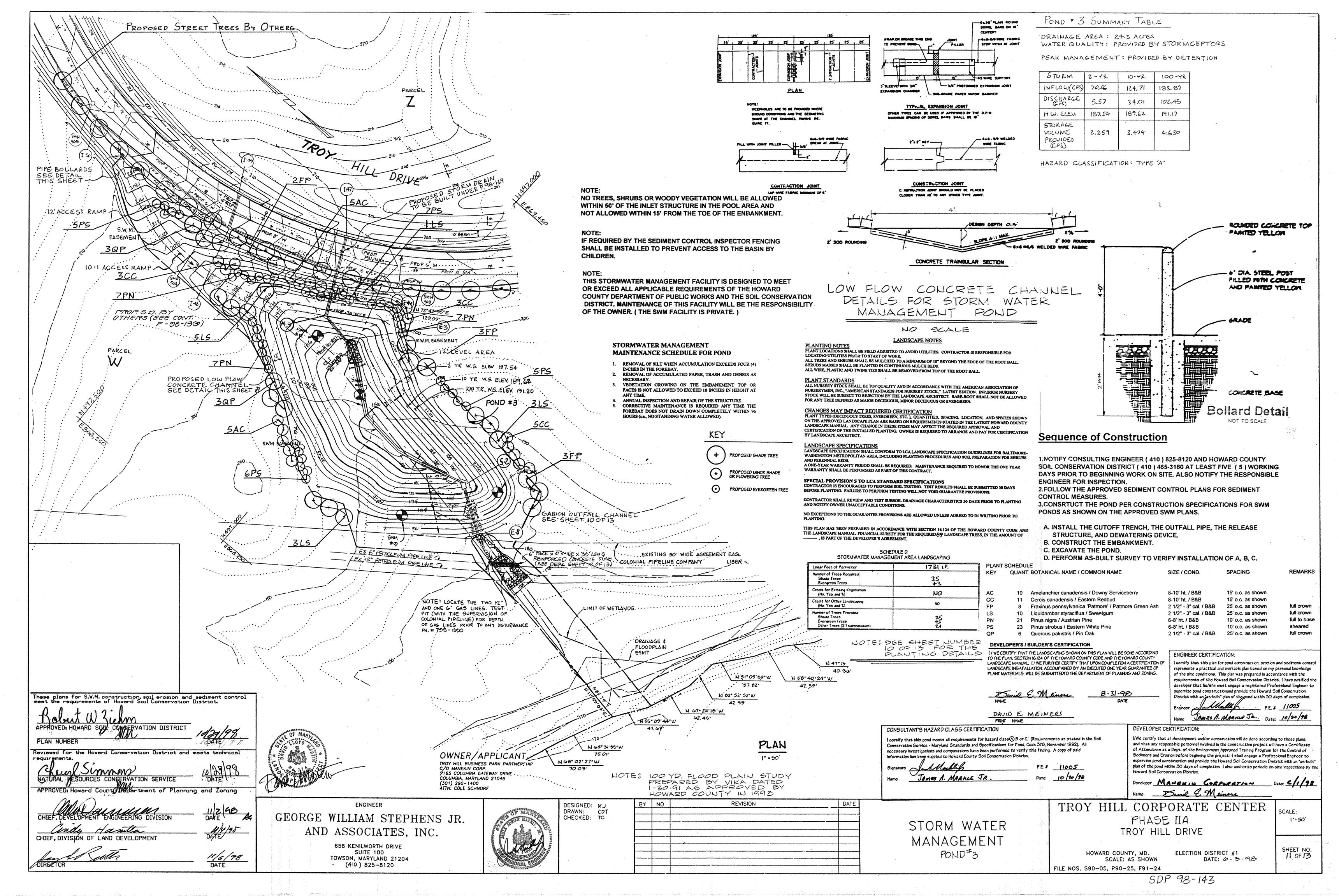
STREET ADDRESS

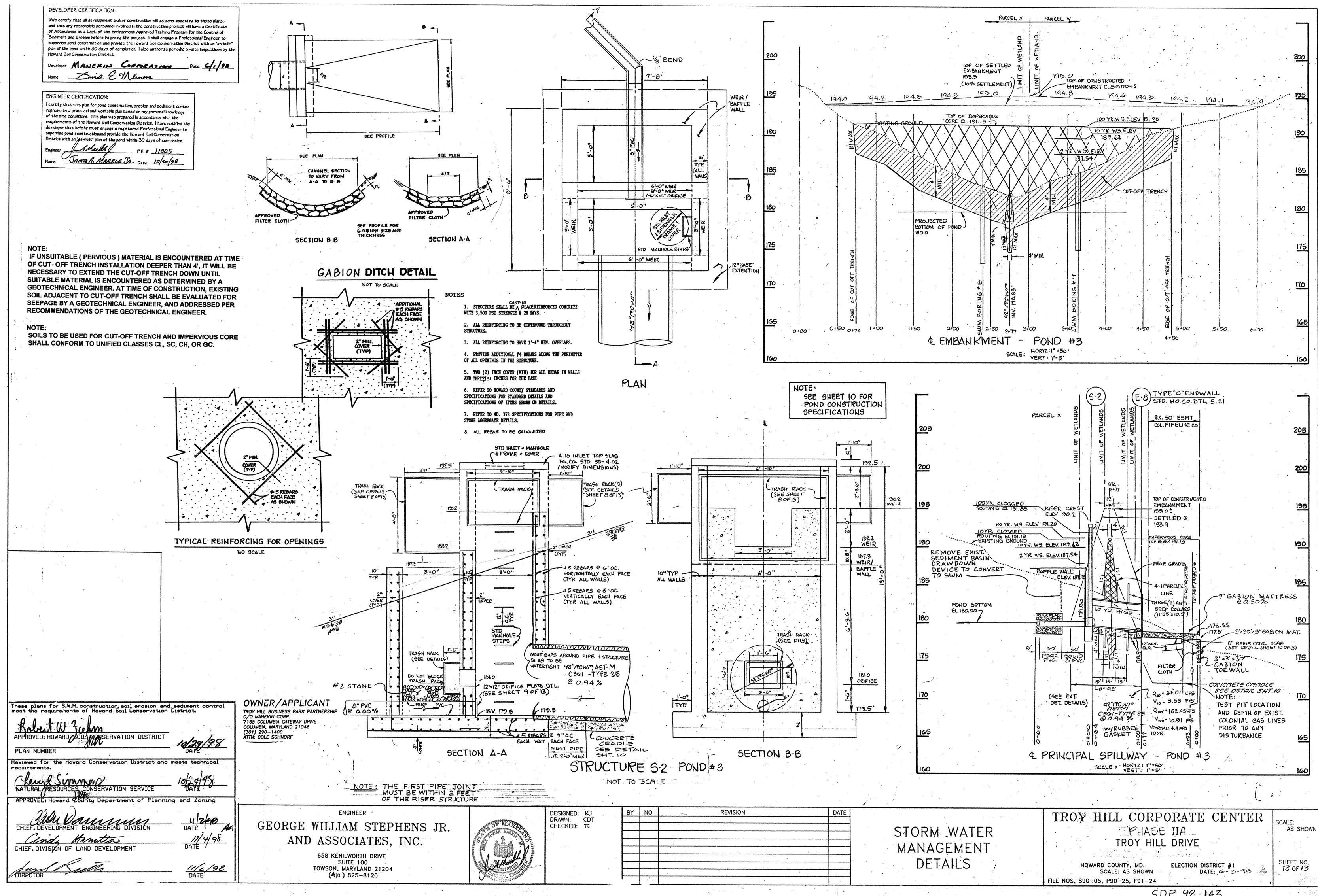
BLOCK \* ZONE

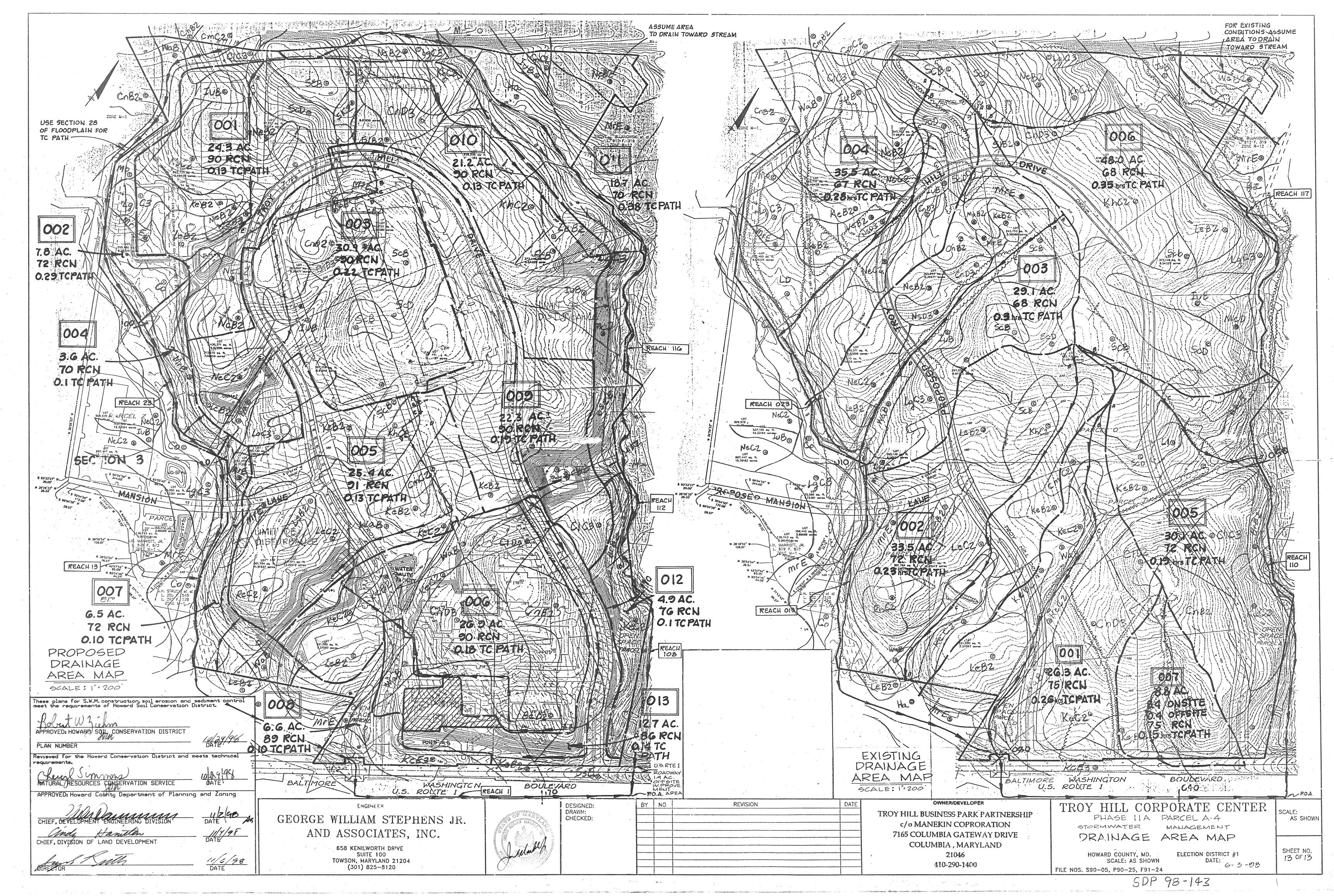
11,12,17,18 M-1

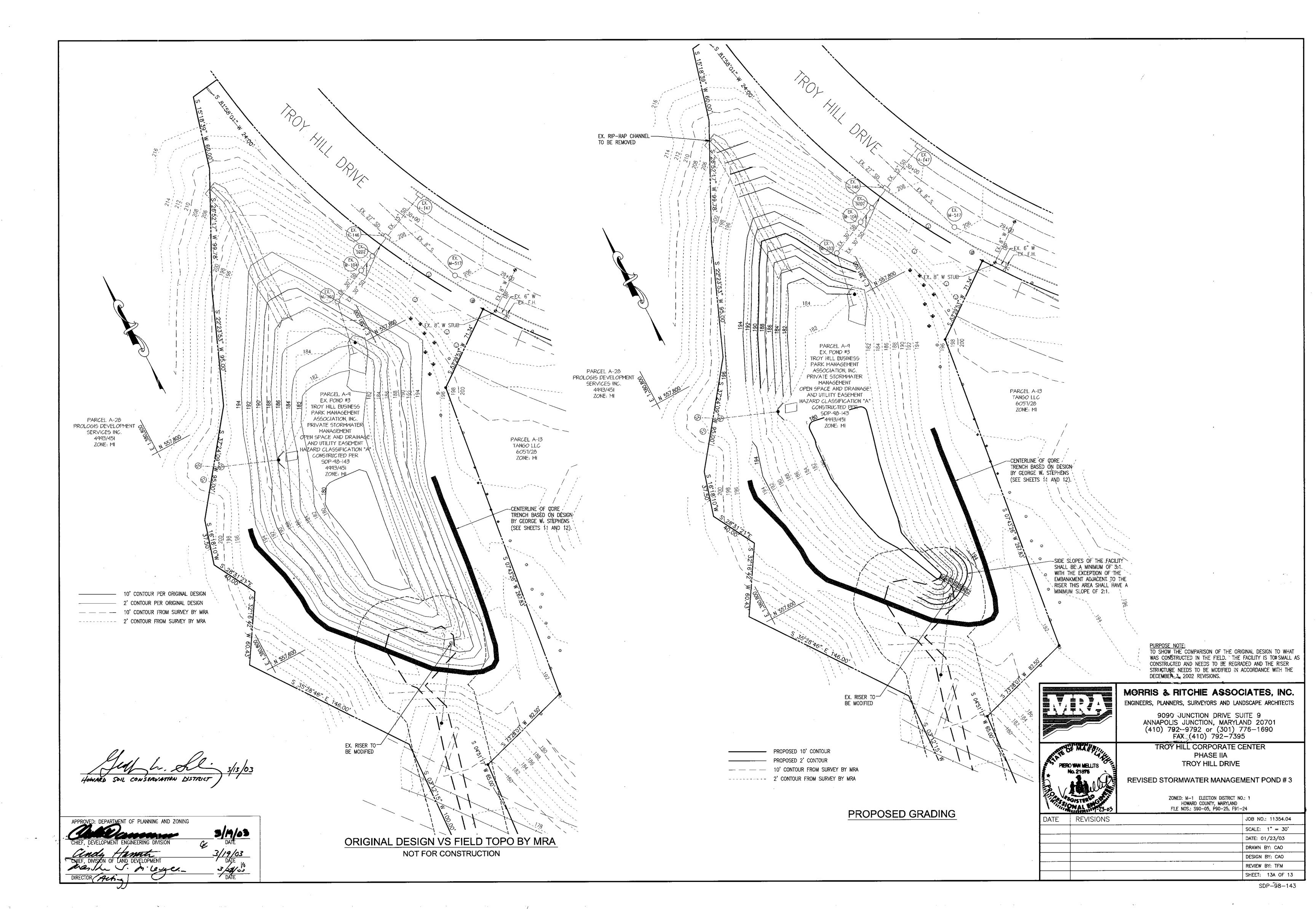
Troy Hill Drive

SDP 98-143









## **Construction Notes**

1. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST 24 HOURS PRIOR TO STARTING ANY OF THE WORK SHOWN HEREON. 2. ALL AREAS NOT BEING PAVED OR RECEIVING BUILDING

COVERAGE SHALL BE STABILIZED IN ACCORDANCE WITH THE PLANS APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT. 3. THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY

BETWEEN ANY SCALED DIMENSIONS AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN. 4. CONTRACTOR SHALL MEET ALL EXISTING IMPROVEMENTS SMOOTHLY FOR LINE, GRADE AND FINISH.

5. ALL WORK SHOWN ON THESE PLANS SHALL BE COMPLETED IN ACCORDANCE MITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND OF THE MARYLAND STATE HIGHWAY ADMINISTRATION AND THE HOWARD COUNTY PLUMBING CODE, UNLESS OTHERWISE NOTED. 6. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM SUCH WORK

THE COST OF SUCH WORK SHALL BE INCLUDED IN THE BASE BID. 7. THE CONTRACTOR SHALL INSPECT THE SITE TO DETERMINE IF ANY TREES, PAVING, ETC. ARE TO BE REMOVED PRIOR TO PLACING

8. THE LOCATIONS OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE PROVIDED FOR THE CONVENIENCE O THE CONTRACTOR ONLY. THE LOCATIONS ARE TAKEN FROM EMISTING RECORDS AND DO NOT REPRESENT FIELD-VERIFIED LOCATIONS. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7772 A MINIMUM OF 5 WORKING DAYS PRIOR TO DIGGING THE CONTRACTOR SHALL CONFIRM TO HIS OWN SATISFACTION THE LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION OR PLACEMENT OF MATERIALS, IF ANY CONFLICT IS FOUND BETWEEN UNDERGROUND UTILITIES AND THE PROPOSED LOCATION OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT G. W. STEPHENS AND THE OWNER OF THE UTILITY IMMEDIATELY. ANY DAMAGE OR DISRUPTION OF SERVICE SHALL BE AT THE EXPENSE OF THE CONTRACTOR, RELOCATION OF ANY EXISTING UTILITIES, IF NECESSARY, SHALL BE AT THE EXPENSE OF THE OWNER. THE CONTRACTOR SHALL COORDINATE RELOCATION OF THESE

9. CONTRACTOR SHALL PROTECT ALL EXISTING TREES OUTSIDE THE LIMIT OF DISTURBANCE AT ALL TIMES DURING CONSTRUCTION 10. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS INCT SCHEDULED FOR REMOVAL OR DEMOLITION, COST OF REPAIR TO EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE BASE. BID. ALL EXISTING SITE FEATURES NOT BEING RETAINED SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION. AN DAMAGE TO OFFSITE ROADS, RIGHTS OF WAY, OR ADJACENT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT THE EXPENSE OF THE CONTRACTOR.

11. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE OF ALL TREES, PAVING, STRUCTURES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED ON THE PLAN. 12. ONLY SUITABLE MATERIAL SHALL BE USED AS FILL AND ALL FILL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN THE SOILS REPORT PREPARED FOR THIS SITE OR AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. ALL 24 SLOPES SHOWN HEREON, EXCEPTING THOSE ASSOCIATED WITH LANDSCAPE BERMING, ALL GRADING UNDER PROPOSED PAYING, AND ALL FILL AND COMPACTION SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER 13. CONTRACTOR SHALL PROMDE MINIMUM 4 FOOT BENCH AT EDGE

OF PAYING IN FILL AREAS. MAXIMUM SLOPE OF BENCH SHALL BE 4% (1/4 IN PER FOOT) 14. MAXIMUM SLOPE SHALL BE 2 HORIZONTALLY TO 1

15. CONTRACTOR SHALL PLACE 4" MINIMUM TOPSOIL IN LANDSCAPE AREAS, TOPSOIL SHALL BE APPROVED BY LANDSCAPE

16. CONTRACTOR SHALL PLACE A WITNESS POST AT THE TERMINUS OF ALL UTILITY STUBS 17. CONTRACTOR SHALL PROVIDE A MINIMUM OF 1 FOOT OF PROTECTIVE FILL OVER STORM DRAIN PIPES DURING

# Legend

Ex. 2' Contours Ex. 10' Contours Prop. 2' Contours Prop. 10' Contours

Earth Dike Limit of Disturbance Silt Fence Flood Plain Wetlands Stabilized Construction Entrance

Removable Pumping Station

The owner shall provide a separate and independent sewer connection for each tenant or occupant of any building, shown on this site development plan who will discharge non-domestic waste to the public sewerage system if each separate and independent sewer connection shall include a standard manhole and other waste pretreatment devices as required and approved by Howard County. Waste lines on the interior of the building shall be designed, constructed or modified such that non-domestic waste waste or occupant of any building shown

and independent sewer connection. No tenant or occupant of any building shown on this site development plan shall discharge regulated non-domestic waste to the public sewerage system prior to installation of the separate and

independent sewer connection and related interior waste lines. The above statement shall apply to all initial and future occupants or tenants.

13. ALL TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES." ALL STREET AND REGULATORY SIGNS SHALL BE INSTALLED PRIOR TO INSTALLATION.

19. THE CONTRACTOR SHALL REPLACE ANY EXISTING BITUMINOUS PAYING OR SUB-BASE WHICH IS DAMAGED OR REMOVED DURING CONSTRUCTION. ALL EXCAVATED AREAS SHALL BE BACKFILLED AND IN ACCORDANCE WITH THE SOILS REPORT AND/OR AS DIRECTE BY GEOTECHNICAL ENGINEER. ANY AREAS TO BE PAVED WHICH EXHIBIT UNSTABLE SUBGRADE CONDITIONS SHALL BE EXCAVATED TO BEARING SOIL, REFILLED AND COMPACTED. 20. IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITHIN ONE (1) FOOT OF THE FINAL SUBGRADE.

THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUBGRADE 22. THE TYPE OF STORMWATER MANAGEMENT IS PEAK MANAGEMENT: PROVIDED BY DETENTION.

23. THE WATER QUALITY WILL BE PROZIDED FOR INDIVIOUAL PARCEL AT THE TIME OF SITE DEVELOPMENT PLAN SUBMISSION

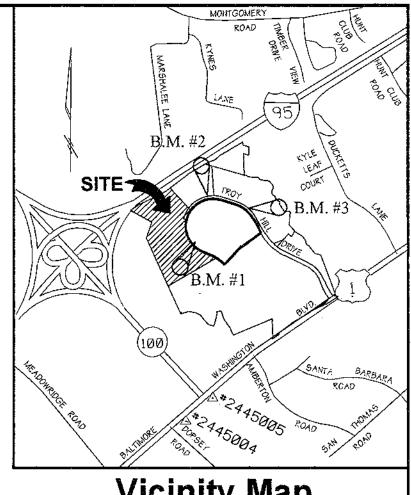
## **BENCHMARKS**

BENCHMARK #1 IRON PIN @ TRAVERSE #1066 N 496,501.3597 E 869,134.4576 ELEVATION = 175.92'

BENCHMARK #2 IRON PIN @ TRAVERSE #1061 N 498,036.6945 E 868,791.1502 ELEVATION = 242.49'

BENCHMARK #3 IRON PIN @ TRAVERSE #1034 N 497,636.7437 E 869,835.6586 ELEVATION = 214.85

COORDINATES BASED ON NAD 27, AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS #2445004 AND #2445005



Vicinity Map

## **Site Data**

TOTAL AREA OF SITE - AREA OF PLAN SUBMISSION EXISTING ZONING -PROPERTY REFERENCE

**EXISTING USE -**PROPOSED USE -AREA TO BE DISTURBED -AREA TO BE VEGETATIVELY STABILIZED -SKETCH PLAN NO. -PRELIMINARY PLAN NO. -FINAL PLAT NO. -

141.83 Ac.+/-26.7 Ac. F 91-24; 1795/347; 1818/465

2122/417; 2259/644 1818/472 ; 2689/276 **VACANT** (FUT.)WAREHOUSE/DISTRIBUTION 26 Ac. +/-

# MANEKIN

MANEKIN CORPORATION 7165 COLUMBIA GATEWAY DRIVE **COLUMBIA MARYLAND 21046** 410-290-1400

Site / Mass Grading /

Sediment Control Plans

Phase IIA, Parcel A-4

Troy Hill Corporate Center

Howard County, Maryland

SDP-98-143

c/o MANEKIN COPRORATION 7165 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 410-290-1400

REYISION REVISE ACCESS RAMP GRADES, MODIFY RISER,

ELIMINATE LOW FLOW CHANNEL

SHEET NO. 1 -

SHEET NO. 2 -

SHEET NO. 3 -

SHEET NO. 4

SHEET NO. 5 -

SHEET NO. 6 -

SHEET NO. 7 -

SHEET NO. 8 -

SHEET NO. 9 -

SHEET NO. 10

SHEET NO. 11

SHEET NO. 12

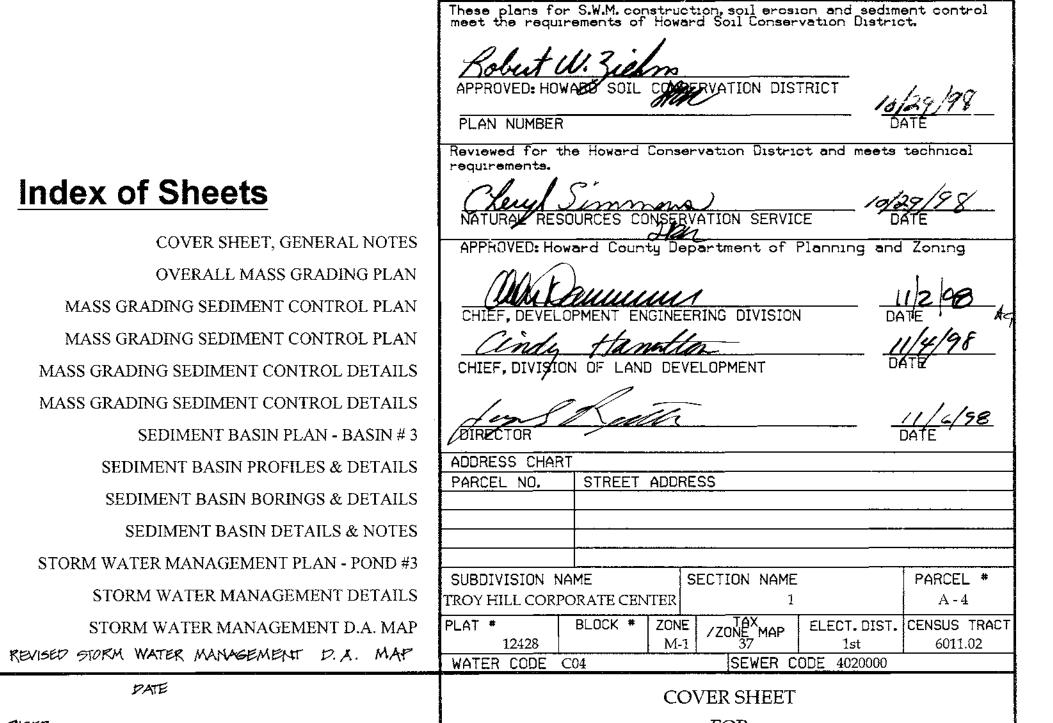
SHEET NO. 13

△ SHEET NO. I3 A

12/3/02

PATE

Index of Sheets



TROY HILL CORPORATE CENTER

PHASE 11A PARCEL A - 4

PREVIOUS FILE #'S S90-05, P90-25, F91-24, WP 96-91, F96-136

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



TROY HILL BUSINESS PARK PARTNERSHIP

SCALE: AS SHOWN

JUNE 3, 1998

HOWARD COUNTY, MARYLAND

1st ELECTION DISTRICT

