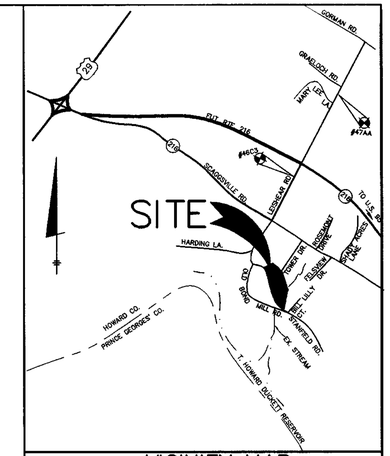
THE HILLSIDE AT ROCKY GORGE

6th, ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FINAL ROAD CONSTRUCTION, STORM DRAIN, AND STORMWATER MANAGEMENT PLANS

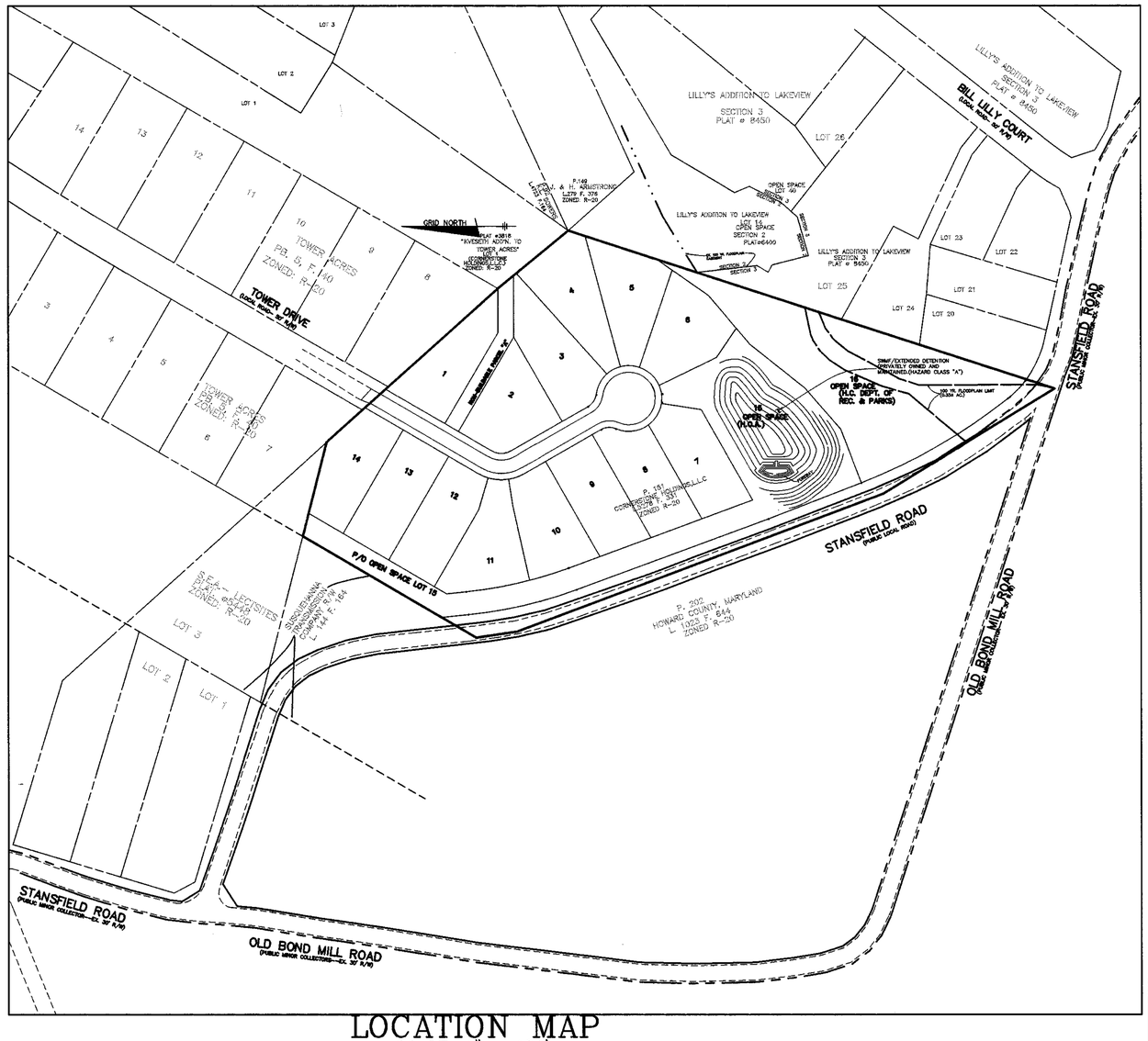


VICINITY MAP
SCALE: 1" = 2000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORK/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. PROJECT BACKGROUND:

   LOCATION: TAX MAP: 46, GRID 18, PARCEL 151
   ZONING: R-20
   ELECTION DISTRICT: 6th
   TOTAL TRACT AREA: 8.79 +/- AC.
   NUMBER OF PROPOSED BUILDABLE LOTS: 14
   NUMBER OF PROPOSED NON-BUILDABLE LOTS: 1
   NUMBER OF PROPOSED OPEN SPACE LOT: 2
   DPZ REFERENCE FILE: SP-00-07, WP-01-103
   SKETCH PRELIMINARY PLAN APPROVED ON NOV. 15, 2000.
5. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
6. TOPOGRAPHY SHOWN HEREON WAS TAKEN FROM FIELD RUN SURVEY DONE BY BENCHMARK ENGINEERING, INC. DATED 12/00. CONTOURS SHOWN ARE AT 2 FOOT INTERVALS AND SUPPLEMENTED WITH 200' TOPOGRAPHY MAP OF HOWARD COUNTY.
7. COORDINATES ARE BASED ON NAD 83, MARYLAND STATE PLAN GRID AS PROJECTED BY HOWARD CO. GEODETIC CONTROL STATIONS NO. 46C3 AND 47AA.
8. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROADS AND BRIDGES AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
9. THIS PROJECT IS WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER FOR THIS PROJECT SHALL BE PUBLIC AND WILL BE PROVIDED TO THE LOTS UNDER WATER & SEWER CONTRACT NO. 24-3879-D. THE DRAINAGE AREA FOR THIS PROJECT IS THE LITTLE PATUXENT.
10. WATER QUALITY AND QUANTITY TREATMENT FOR THE PROPOSED ROADWAY AND THE SITE IS BEING PROVIDED BY EXTENDED DETENTION. THIS FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.
11. WETLAND LIMITS SHOWN HEREON ARE BASED ON A DELINEATION BY ECO-SCIENCE PROFESSIONAL, INC. DATED APRIL, 2000 AND APPROVED UNDER SP-00-07.
12. ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS WAS PREPARED BY THE TRAFFIC GROUP, INC. DATED APRIL, 2000 AND APPROVED UNDER SP-00-07.
13. NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
14. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS-CARNES AND ASSOCIATES. DATED APRIL 3, 2000.
15. EXISTING UTILITIES SHOWN ARE TAKEN FROM RECORD INFORMATION AND FIELD LOCATIONS.
16. FOREST STAND DELINEATION AND FOREST CONSERVATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED APRIL, 2000.
17. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLANDS BUFFER, STREAM BUFFERS OR FOREST CONSERVATION AREAS EXCEPT FOR THE WORK APPROVED AS PART OF THESE PLANS.
18. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION.
19. THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN.
20. ALL COMPACTION IN FILL AREAS SHALL BE IN ACCORDANCE WITH AASHTO T-180 SPECIFICATIONS.
21. ALL SIDEWALK/HANDICAP RAMPS SHALL BE IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
22. 100 YEAR FLOODPLAIN STUDY WAS PREPARED BY BENCHMARK ENGINEERING, INC. DATED MARCH 29,2000 AND APPROVED UNDER THE SP-00-07.
23. WAIVER PETITION WP-01-103 FOR THIS SITE WAS APPROVED APRIL 26,2001 TO WAIVE SECTION 16.123.a(2). TO ALLOW THE SITE TO BE USED FOR A STOCKPILE AREA PRIOR TO THE APPROVAL OF A FINAL PLAN.
24. THE FOREST CONSERVATION OBLIGATION FOR THIS PROJECT HAD BEEN MET BY 1.3 ACRES OF FOREST RETENTION, 0.24 ACRES OF REFORESTATION, AND PAYMENT OF A FEE-IN-LIEU FOR 1.76 ACRES, IN THE AMOUNT OF $38,332.80



LOCATION MAP
SCALE: 1" = 100'

BENCH MARKS (NAD83)		
HO. CO. No. 46C3 CONC. MONUMENT FLUSH WITH SURFACE 30' OFF LEISHEAR ROAD AND 400' NW FROM RT. 216 N 537405.866	E 1,347,556.236	ELEV. 334.47
HO. CO. No. 47AA STANDARD STAMPED DISC SET ON TO CONCRETE COLUMN 22.4' OFF NORTH BOUND LEISHER RD. AND 262.5' SW OF GRAELOCH ROAD. N 538961.673	E 1,348,438..953	ELEV. 363.417

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	TOWER DRIVE PLAN AND PROFILES
3.	GRADING AND SEDIMENT CONTROL PLAN
4.	STORM DRAIN DRAINAGE AREA MAP, SOIL MAP, AND NOTES
5.	STORM DRAIN PROFILES AND DETAILS
6-8.	STORMWATER MANAGEMENT FACILTY DETAILS
9.	LANDSCAPE PLAN
10-11.	FOREST CONSERVATION PLAN

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — YOUNG SUK KIM — No. 21431 — REGISTERED PROFESSIONAL ENGINEER — 9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

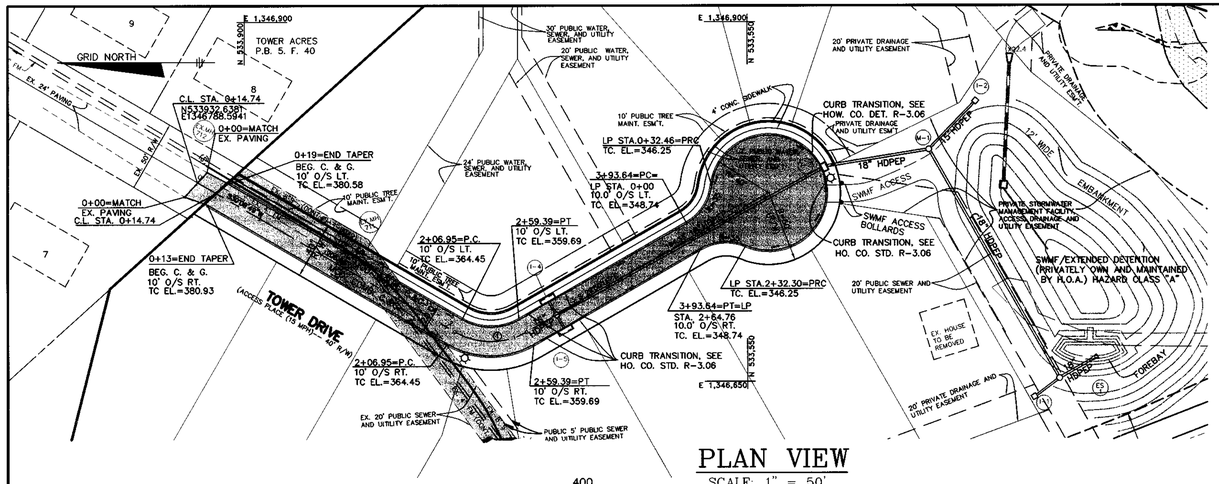
LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

REFERENCE FILE: SP-00-07, WP-01-103

TITLE: **TITLE SHEET**

DES: YSL	DRN: YSL	CHK: DAM	DATE: APRIL, 2000	PROJECT NO. 1349
			SCALE: AS SHOWN	DRAWING 1 OF 11

F-01-132



PLAN VIEW

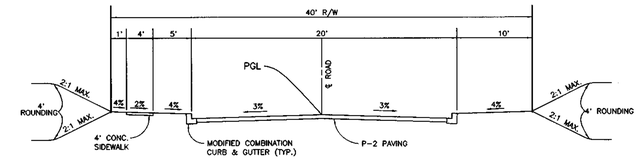
SCALE: 1" = 50'

CENTERLINE CURVE DATA

CURVE NO.	RADII	ARC LENGTH	TANGENT	CHORD	CHORD BEARING	DELTA	PC. STA.	PT. STA.
1	50.00'	52.36'	28.87'	50.00'	S 00° 09' 49" W	60°00'00"	2+06.95.	2+59.31

STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
	100 WATT HPS VAPOR "TRADITIONAIRE" POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	14.1' RT.,C.L. STA.2+19 TOWER DR. 4.1' LT. L.P. STA.1+45 TOWER DR.



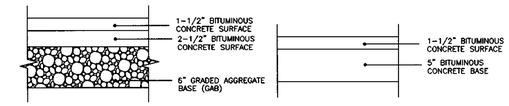
ACCESS PLACE - DESIGN SPEED 15 MPH/200 ADT

TYPICAL ROAD SECTION --TOWER DRIVE (PUBLIC STREET)

(FROM STA. 0+19 TO 3+93.64)

(NOTE: STA. 0+00 = TIE TO EX. PAVING & BEGIN TAPER AND STA. 0+19=END OF TAPER)

NOT TO SCALE

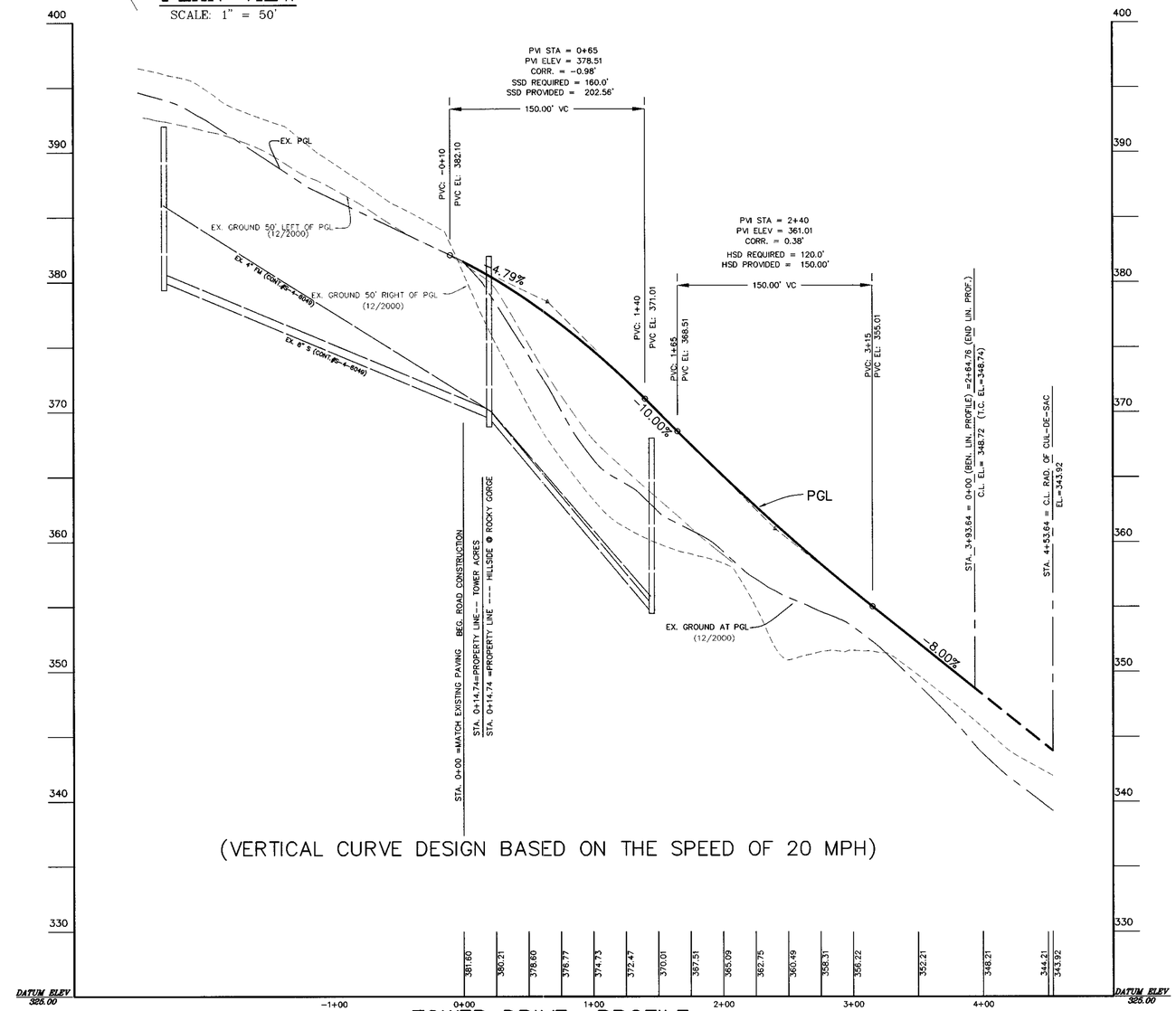


ALTERNATIVE PAVEMENT SECTION

NOT TO SCALE

TYPICAL PAVEMENT SECTION

NOT TO SCALE



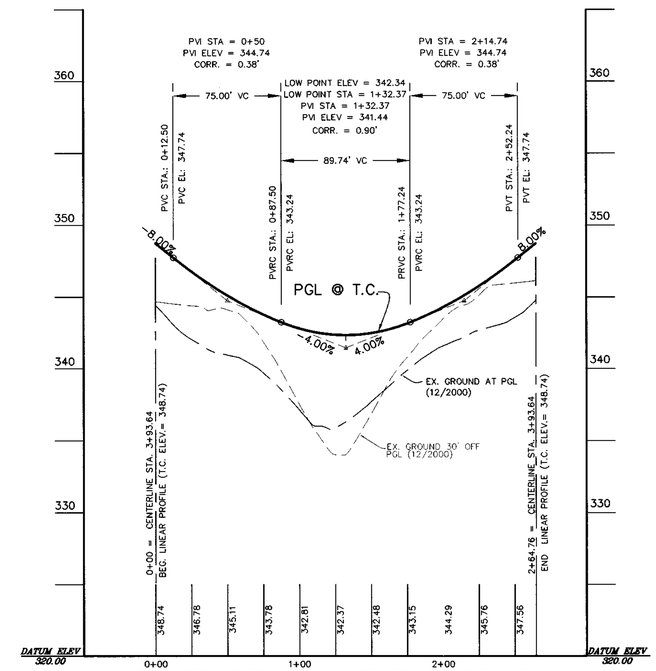
(VERTICAL CURVE DESIGN BASED ON THE SPEED OF 20 MPH)

TOWER DRIVE PROFILE

(PUBLIC ACCESS PLACE -- DESIGN SPEED = 15 MPH)

HOR. SCALE: 1" = 50'

VERT. SCALE: 1" = 5'



TOWER DRIVE LINEAR PROFILE

HOR. SCALE: 1" = 50'

VERT. SCALE: 1" = 5'

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN DAMM — REGISTERED PROFESSIONAL ENGINEER

9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
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PROJECT:
THE HILLSIDE AT ROCKY GORGE

LOCATION:
TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07,WP-01-103

TITLE:
TOWER DRIVE: PLAN AND PROFILES:

DES: YSL	DRN: YSL	CHK: DAM	DATE: FEB. 2001	PROJECT NO. 1349
			SCALE: AS SHOWN	DRAWING 2 OF 11

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

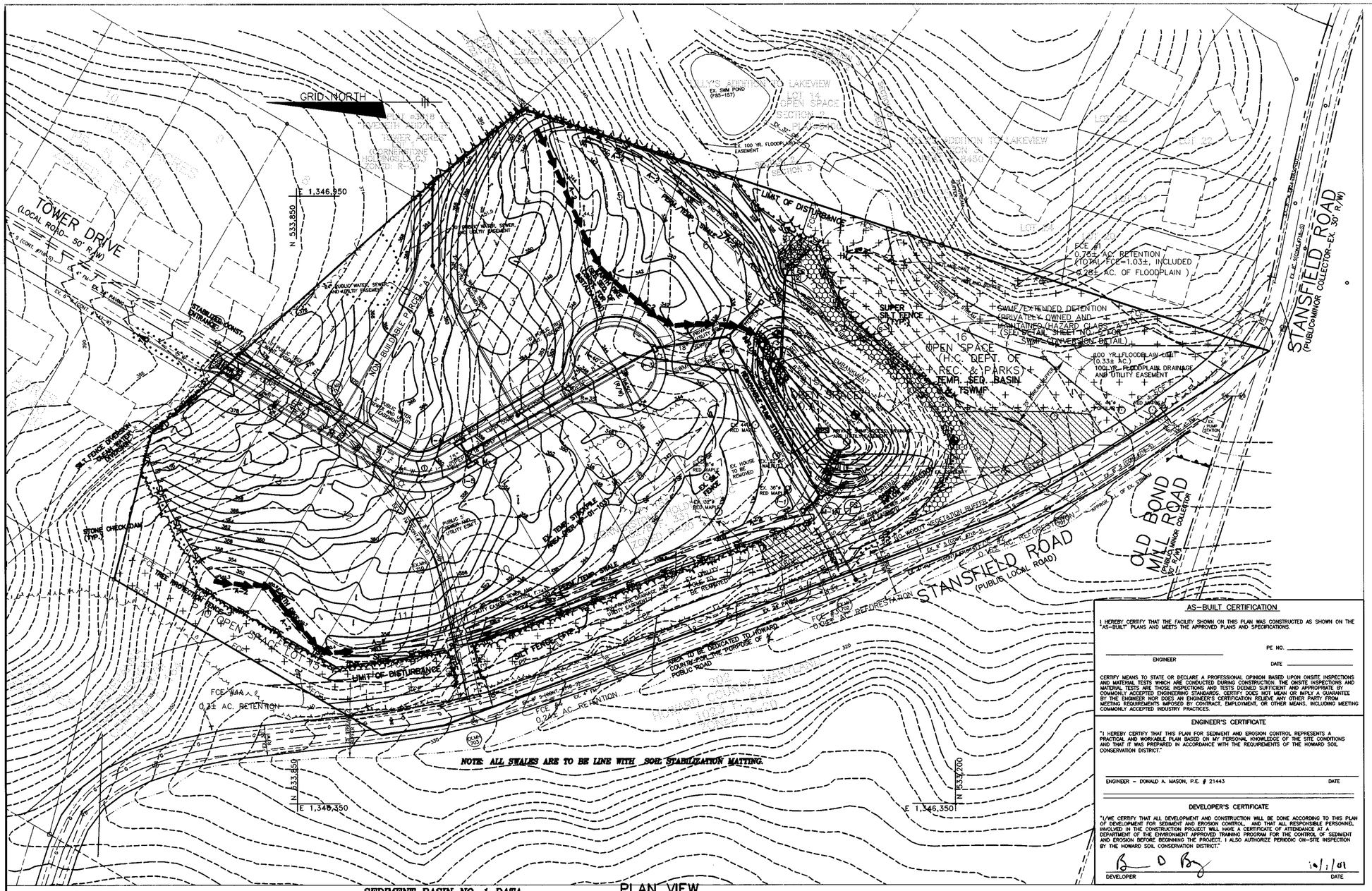
CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

F-01-132



21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF **TOPSOIL** OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE **SOIL** MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, **LOW** NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE **SOIL** GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS **LIMITED TO AREAS** HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLAT NUTRIENTS.

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN **FOR** ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA–SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

III. WHERE THE SUBSOIL IS EITHER ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4–8 TONS/ACRE (200–400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

I. ON SOIL **MEETING** TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE **PRESCRIBED** TO RAISE THE PH TO 6.5 OR HIGHER.

B. ORGANIC **CONTENT** OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.

C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.

D. NO **SOD OR** SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO–TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION 1 – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

I. WHEN TOP SOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

II. GRADES ON THE AREAS TO BE TOP SOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4"–8" HIGHER IN ELEVATION.

III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"–8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

VI. ALTERNATIVE FOR PERMANENT SEEDING – INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.

B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.

C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.

II. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING MD–VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

AS–BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS–BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

ENGINEER _____ PE NO. _____

DATE _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

ENGINEER – DONALD A. MASON, P.E. # 21443 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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."

DEVELOPER 10/1/01 DATE

TEMP. SWMF DATA		
STORM	WSEL	STORAGE (AC–FT.)
2 YR.	331.47	0.58
10 YR.	332.36	0.83

SEDIMENT BASIN NO. 1 DATA

D.A. = 7.34 AC.
WET STORAGE REQUIRED : 13212 C.F.
WET STORAGE PROVIDED : 13213 C.F.
DRY STORAGE REQUIRED : 13212 C.F.
DRY STORAGE PROVIDED : 13212 C.F.
BOTTOM ELEVATION: 322.00
WET STORAGE FROM EL. 322.0 TO 326.87
DRY STORAGE FROM EL. 326.87 TO 328.87
CLEANOUT ELEVATION : 325.21
TOP OF EMBANKMENT ELEVATION : 334.0
RISER CREST ELEVATION : 331.47
2 YR. RELEASE RATE : 1.77 CFS (EXIST.)
DURING CONSTRUCTION: 1.44 CFS (DEV.)

PLAN VIEW

SCALE: 1" = 50'

LEGEND

CONTOUR INTERVAL — 2 FEET
EXISTING CONTOUR — 200
PROPOSED CONTOUR — 200
PROPOSED SEWER MAIN — 8" S
PROPOSED WATER MAIN — 8" W
PROPOSED STORM DRAIN — EX. 18" RCP
STABILIZED CONSTRUCTION ENTRANCE
PROPOSED EARTH DIKE — A–3
TEMP. SWALE — A–3
SILT FENCE — SF
SUPER SILT FENCE — SSF
SILT FENCE DIVERSION — SFD
TREE PROTECTION FENCE — TPF
LIMIT OF DISTURBED AREA
EXISTING TREE LINE
PROPOSED TREE LINE
FOREST CONSERVATION EASEMENT (AREA TO BE RETAINED)
FOREST CONSERVATION EASEMENT (AREA TO BE PLANTED)
UTILITY OR POWER POLE

SEQUENCE OF CONSTRUCTION

DAY 1	OBTAIN GRADING PERMIT.
DAY 2–4	INSTALL SUPER SILT FENCE AS SHOWN ON THE PLAN AROUND THE FOREST CONSERVATION EASEMENTS PRIOR TO ANY CLEARING AND GRUBBING OF THE SITE. (USE FOREST CONSERVATION PLAN IN CONJUNCTION WITH THE SEDIMENT CONTROL PLAN FOR LOCATION).
DAY 5–8	CLEAR AND GRUB FOR SEDIMENT CONTROL DEVICES, INSTALL STABILIZED CONSTRUCTION ENTRANCE, SUPER SILT FENCE, SILT FENCE , INSTALL TSWM BASIN #1.
DAY 9–19	INSTALL, EARTH DIKES, SILT FENCE DIVERSION, TREE PROTECTION FENCE AND TEMP. SWALE AT LOTS 7 – 11.
DAY 17–25	INSTALL REMAINING SEDIMENT DEVICES. CLEAR AND GRUB REMAINDER OF THE SITE.
DAY 26–46	UPON THE APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR COMMENCE MASS GRADING OF THE SITE.
DAY 46–47	INSTALL TEMP. SWALE AT LOTS 5–6 WHEN PROPOSED MASS GRADING ENABLES THE TEMP. SWALE TO HAVE POSITIVE DRAINAGE INTO THE SEDIMENT BASIN.
DAY 47–48	REMOVE THE EARTH DIKE BETWEEN LOTS 4 –6.
DAY 48–56	FINALIZE MASS GRADING OF THE SITE.
DAY 57–62	STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES..
DAY 63–93	INSTALL STORM DRAIN AND OTHER UTILITIES.
DAY 94–109	INSTALL CURB AND GUTTER.
DAY 110–115	INSTALL PAVING FOR ROADS.
DAY 116–121	FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDED NOTES.
DAY 122–127	WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR CONVERT TSWM BASIN #1 TO SWMF.
DAY 128–133	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
USDA–NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01

NO.	DATE	REVISION

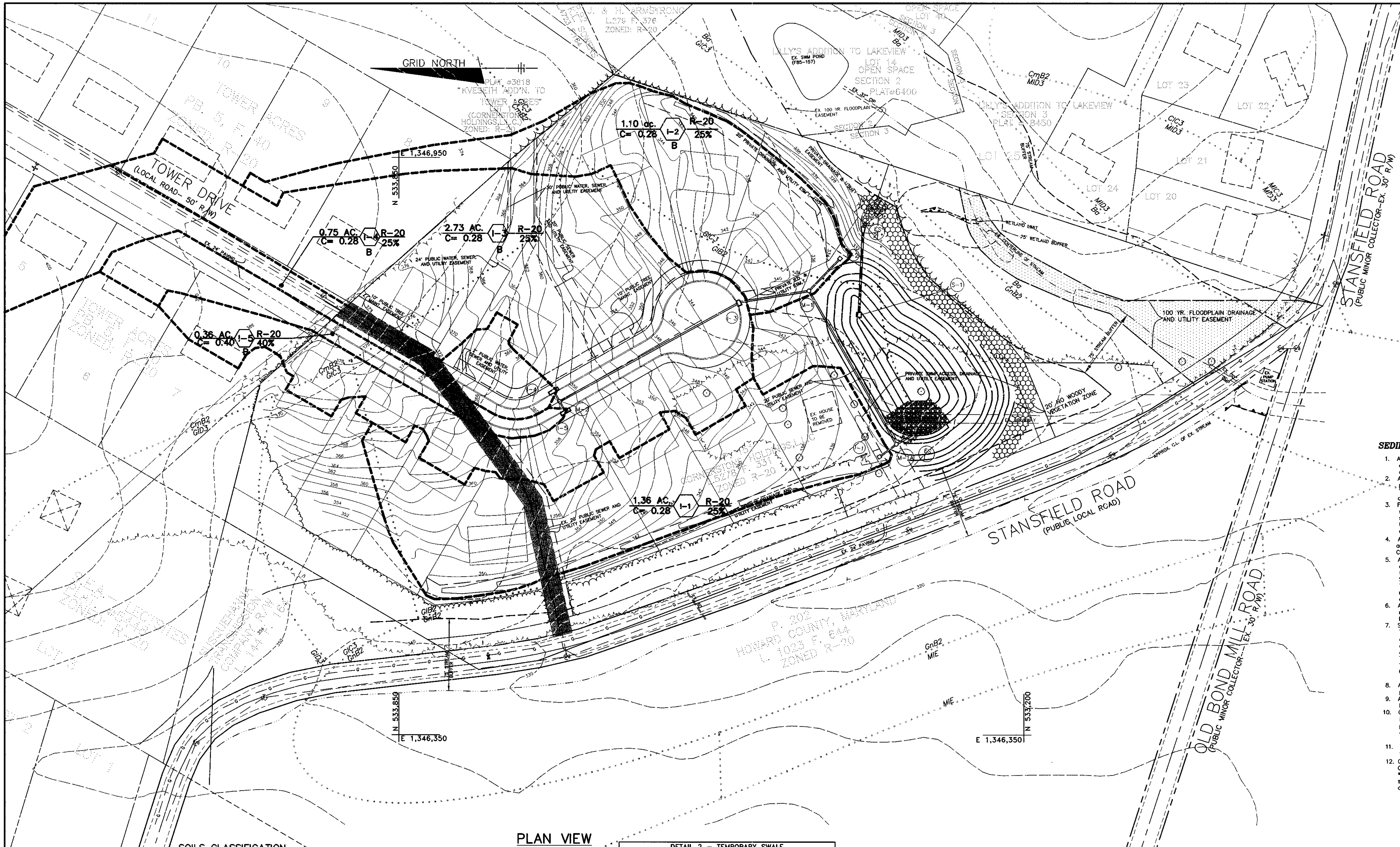
BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410–465–6105 FAX: 410–465–6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**
LOCATION: TAX MAP 46, GRID 18, PARCEL 151, 6 th. ELECTON DISTRICT, HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP–00–07, WP–01–103
TITLE: **GRADING, SEDIMENT & EROSION CONTROL PLAN AND NOTES**
DATE: FEB.,2001 — PROJECT NO. 1349
DES: YSL — DRN: YSL — CHK: DAM — SCALE: AS SHOWN — DRAWING 3 OF 11

F–01–132



PLAN VIEW
SCALE: 1" = 50'

PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil be raking, discing or other acceptable means before seeding. (If not previously loosened)

Soil Amendments: In lieu of soil test recommendations, use on the following schedules.

1) Preferred – Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sf).

2) Acceptable – Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 through April 30 and August 1 through October 15, seed with 60 lbs per acre (1.4 lbs/1000 sf) of Kentucky 31 Tall Fescue. For the period May 1 through July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (0.05 lbs/1000 sf) of Weeping Lovegrass. During the period of October 16 through February 28, protect site by: Option 1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2) use sod. Option 3) seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1-1/12 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. (If not previously loosened)

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf).

Seeding: For periods March 1 through April 30 and from August 15 through November 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sf). For the period May 1 through August 14, seed with 3 lbs per acre of Weeping Lovegrass (0.07 lbs/1000 sf). For the period November 16 through February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Refer to the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for rate and methods not covered.

SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections and Permits,Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed accordingly to the provisions of this plan and are to be in conformance with the most current "Maryland Standards and Specifications for Soil Erosion and Sediment Control", and revisions thereto.
3. Following initial soil disturbances or redisturbance, 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 3:1, b) 14 calendar days as to 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 12, of the "Howard County Design Manual, Storm Drainage".
5. All disturbed areas must be stabilized within the time period specified above in accordance with the "1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control" for Permanent Seedings (Sec. 51) Sod (Sec. 54), Temporary Seeding (Sec. 50) and Mulching (Sec. 52). Temporary stabilization with mulch alone can 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 has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

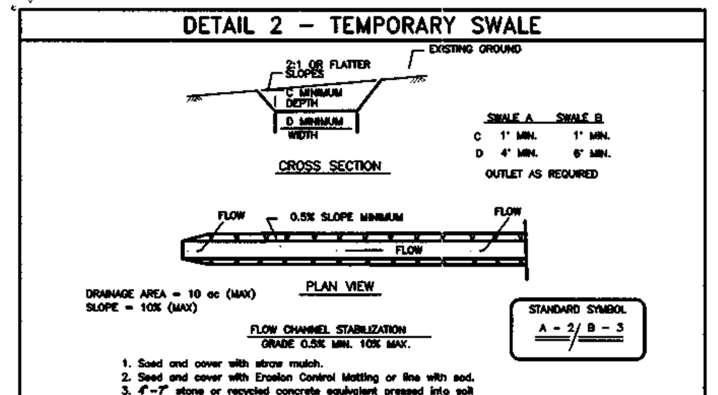
Total Area of Site:	8.79± acres
Area to be Disturbed:	6.28± acre
Area to be roofed or paved:	0.54± acre
Area to be vegetatively stabilized:	5.74± acre
Total Cut:	10,890 C.Y.
Total Fill:	28,246 C.Y.
Offsite Waste/Borrow Area Location : *	

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 DPW 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 or that which can be back filled and stabilized within one working day, whichever is shorter.
12. Quantities and estimates shown are for sediment control purposes only. Contractor shall prepare his/her own quantity estimates to his/her satisfaction.
* It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
Ba	BAILE SILT LOAM	D
ClC3	CHILLUM GRAVELLY LOAM, 5-10 % SLOPES, SEVERELY ERODED	B
CmB2	CHILLUM GRAVELLY LOAM, 1-5 % SLOPES, MODERATELY ERODED	B
GlB2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
GlC3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
GlD3	GLENELG LOAM, 15-25% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
MlC3	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
MlE	MANOR LOAM, 25 TO 45% SLOPES.	B

DETAIL 2 – TEMPORARY SWALE



DRAINAGE AREA = 10 ac (MAX)
SLOPE = 10% (MAX)

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4"-7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive 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 trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill, if necessary, shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
8. Inspection and maintenance must be provided periodically and after each rain event.

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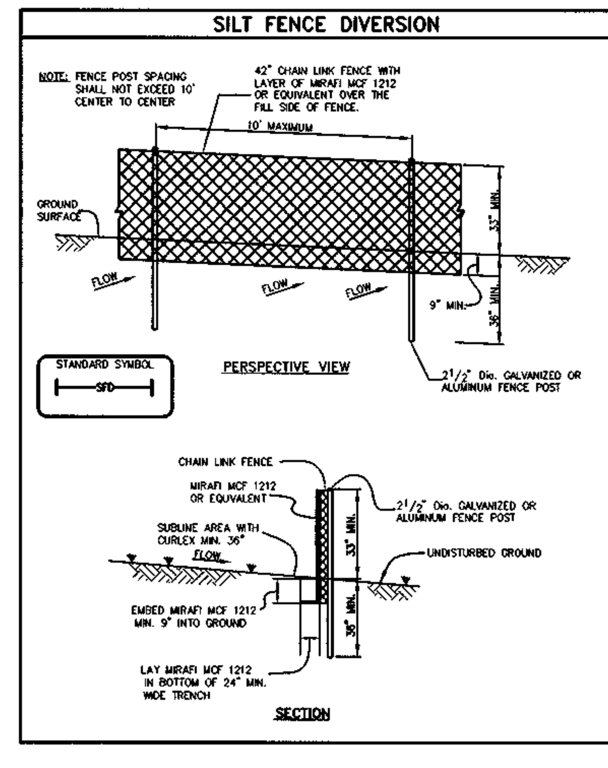
SILT FENCE DIVERSION



SILT FENCE DIVERSION

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Standard Details 690.01 & 690.02 for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric & 70" posts. Posts shall be placed without concrete embedment.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Diversion cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Diversion cloth shall be embedded a minimum of 9" into the ground.
5. When two sections of diversion cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

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HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01

NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER — 9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

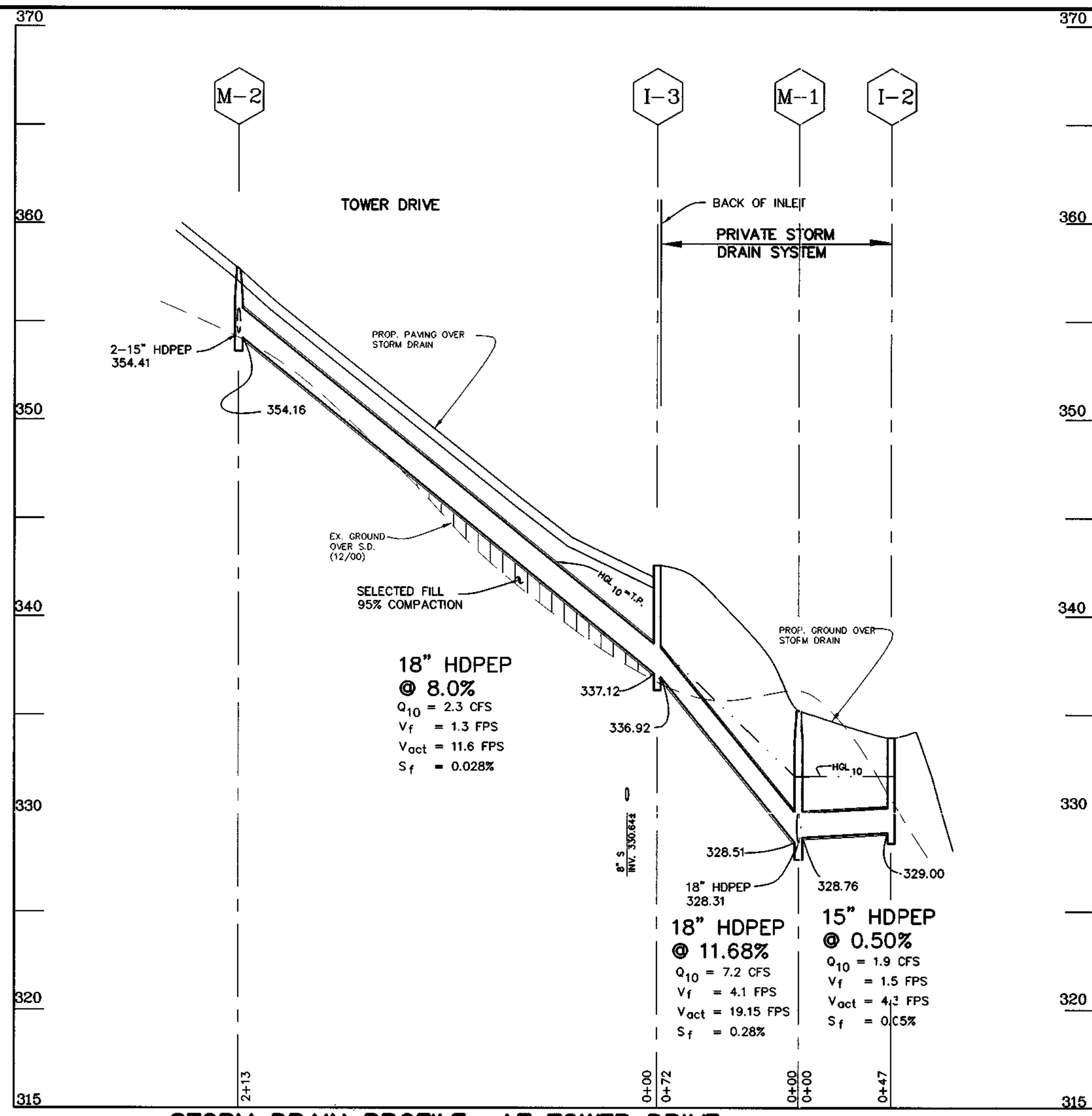
LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

TITLE: **STORM DRAIN DRAINAGE AREA MAP, SOIL MAP AND NOTES**

DATE: FEB.2001	PROJECT NO. 1349
SCALE: AS SHOWN	DRAWING 4 OF 11

DES: YSL DRN: YSL CHK: DAM

F-01-132



STORM DRAIN PROFILE AT TOWER DRIVE

SCALE: HOR.: 1" = 50' VER.: 1" = 5"

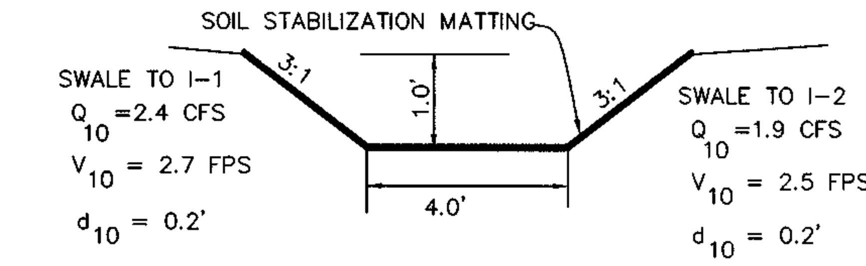
STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	TYPE	INVERT (OUT)	INVERT (IN)	INVERT (IN)	TOP ELEVATION	LOCATION	REMARKS
I-1	TYPE "D" INLET	327.86 (15" ø.)	--	--	334.03	N 533350.2245 E 1346639.0835	HOWARD COUNTY STD. SD-4.39 (PRECAST) TWO (2) OPENINGS
I-2	TYPE "D" INLET	329.00 (15" ø.)	--	--	333.83	N 533391.2125 E 1346844.8383	HOWARD COUNTY STD. SD-4.39 (PRECAST) TWO (2) OPENINGS
I-3	"A-5" INLET (WIDTH=2.5')	336.92 (18" ø.)	337.12 (18" ø.)	--	342.62	L.P. STA. 1+36.04 0.43' O/S LT. TOWER DRIVE	HOWARD COUNTY STD. SD-4.40
I-4	"A-10" INLET (WIDTH=2.5')	354.53 (15" ø.)	--	--	357.91	STA. 2.+83.28 10.43' O/S LT. TOWER DRIVE	HOWARD COUNTY STD. SD-4.41
I-5	"A-10" INLET (WIDTH=2.5')	354.53 (15" ø.)	--	--	357.91	STA. 2.+83.28 10.43' O/S RT. TOWER DRIVE	HOWARD COUNTY STD. SD-4.41
M-1	MANHOLE	328.31 (18" ø.)	328.51 (18" ø.)	328.76 (15" ø.)	335.2	N 533423.5723 E 1346811.3254	HOWARD COUNTY STD. G5.12
M-1A	MANHOLE	327.19 (18" ø.)	327.39 (18" ø.)	327.64 (15" ø.)	334.3	N 533332.7015 E 1346652.0120	HOWARD COUNTY STD. G5.12
M-2	MANHOLE	354.16 (18" ø.)	354.41 (15" ø)	354.41 (15" ø.)	357.61	STA. 2.+83.28 0' O/S LT. TOWER DRIVE	HOWARD COUNTY STD. G5.12
ES-1	END SECTION	327.00 (18" ø.)	327.04 (18" ø)	--	---	N 533315.7731 E 1346661.6626	HOWARD COUNTY STD. SD5.51

NOTES: 1.) STRUCTURE ELEVATION FOR MANHOLE IS AT THE TOP CENTER OF THE RIM.
2.) STRUCTURE ELEVATION FOR THE INLET IS THE TOP OF CURB ELEVATION LOCATED AT THE MID-POINT OF THE INLET.

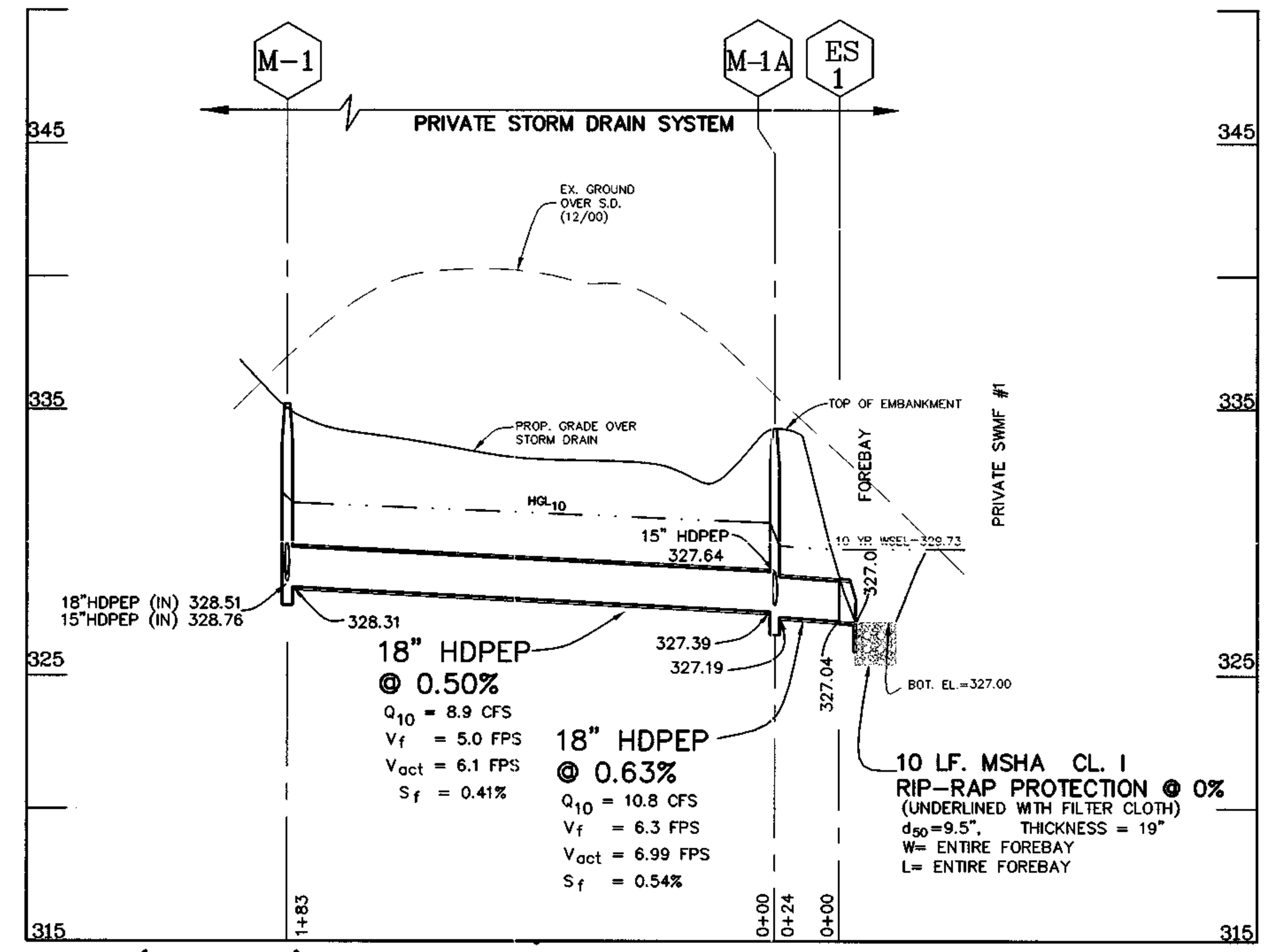
PIPE SCHEDULE

LOCATION	SIZE & TYPE	LENGTH (ft)
ES-1 TO M-1A	18" HDPEP	24'
M-1A TO M-1	18" HDPEP	183'
M-1 TO I-3	18" HDPEP	72'
I-3 TO M-2	18" HDPEP	213'
M-2 TO I-4	15" HDPEP	11.75'
M-2 TO I-5	15" HDPEP	11.75'
I-2 TO M-1	15" HDPEP	47'
I-1 TO M-1A	15" HDPEP	22'



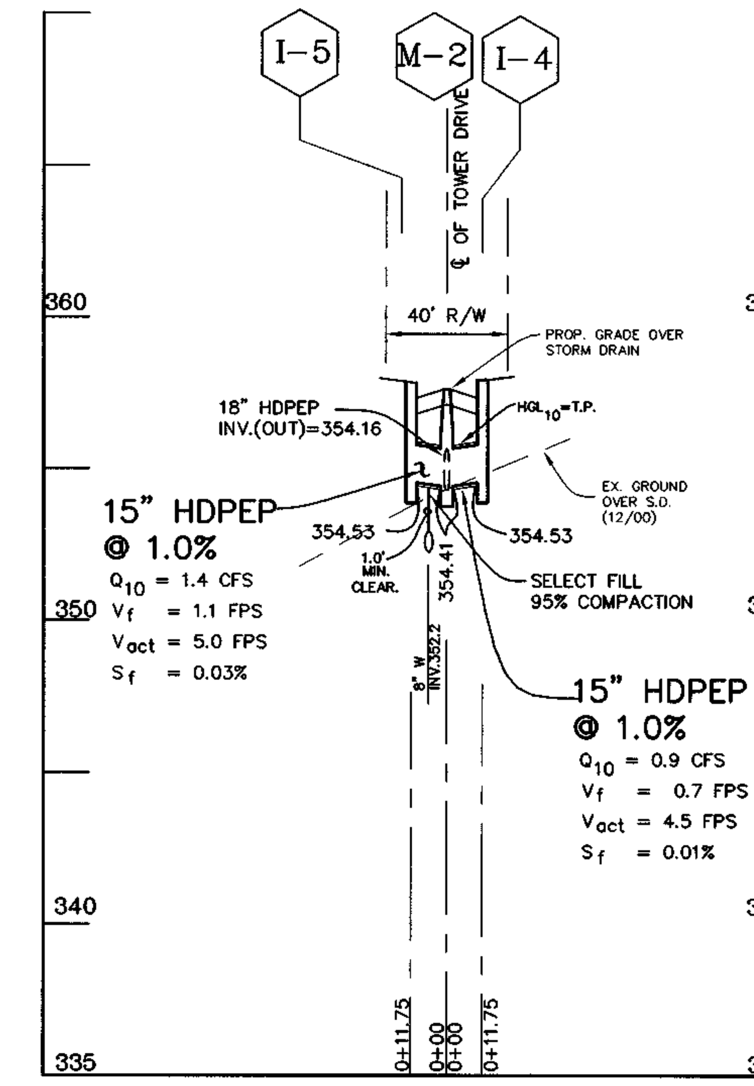
TYPICAL SWALE SECTION

NOT TO SCALE



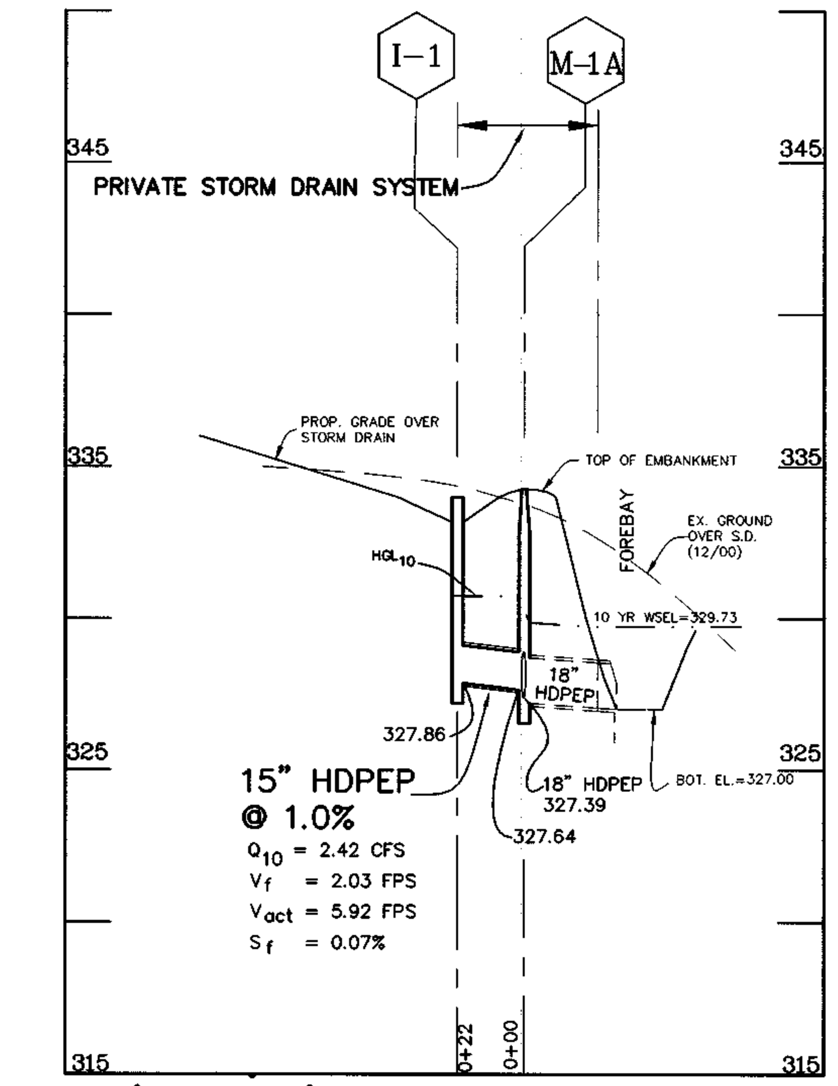
(PRIVATE) STORM DRAIN PROFILE TO THE SWMF

SCALE: HOR.: 1" = 50' VER.: 1" = 5"



I-4 TO I-5 S.D. PROFILE

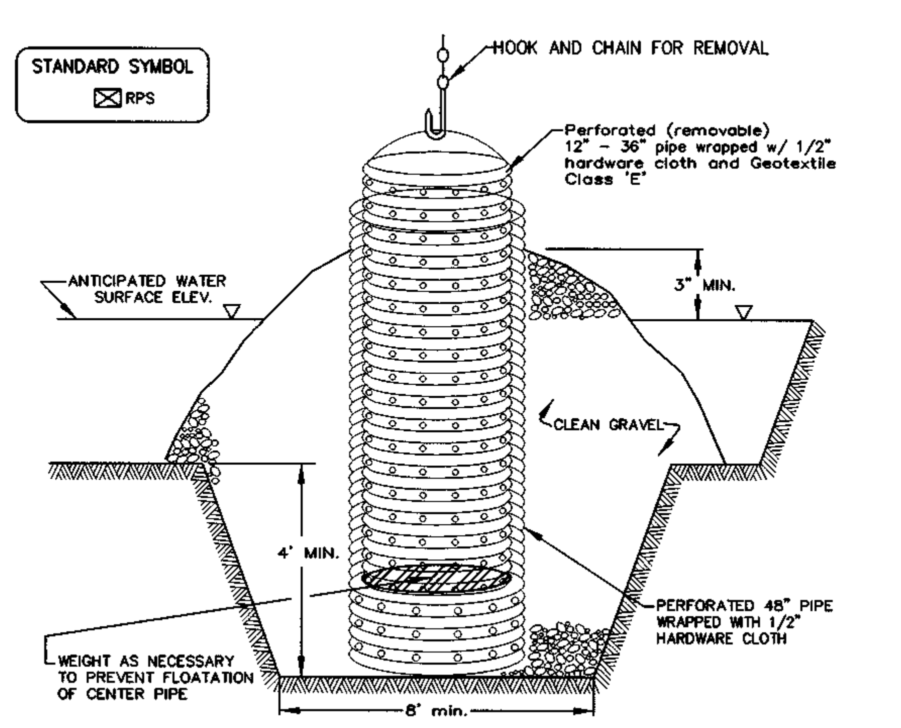
SCALE: HOR.: 1" = 50' VER.: 1" = 5"



(PRIVATE) STORM DRAIN PROFILE

SCALE: HOR.: 1" = 50' VER.: 1" = 5"

DETAIL 20A – REMOVABLE PUMPING STATION



ELEVATION (CUT AWAY)

Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

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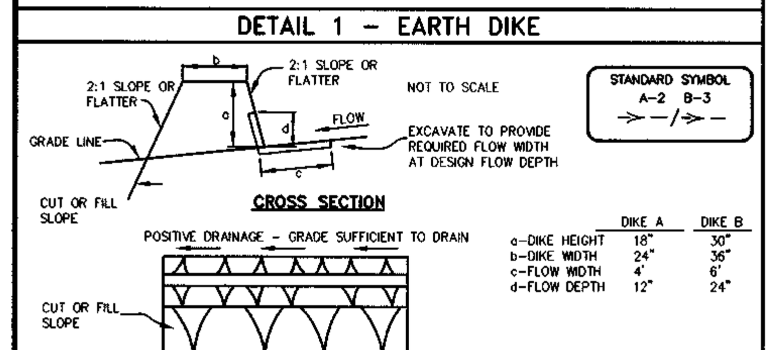
DETAIL 1 – EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

1. All temporary earth dikes shall have uninterrupted positive 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 trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

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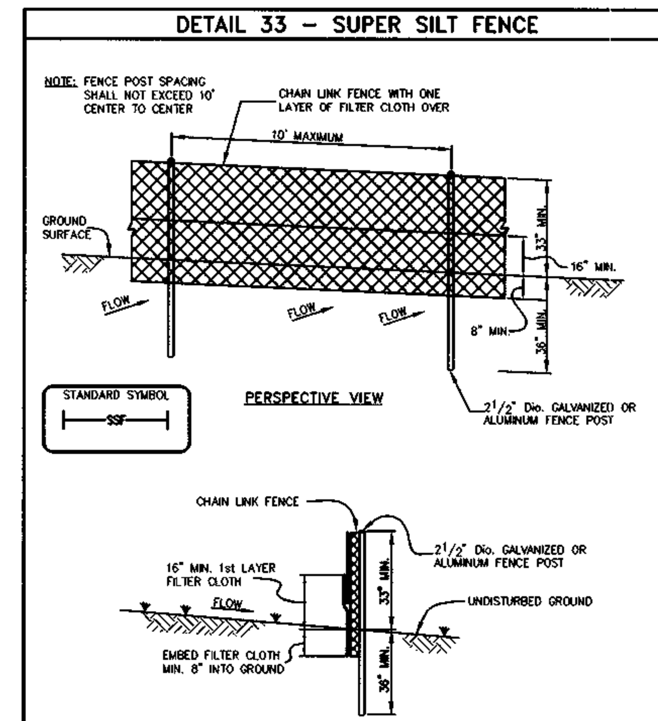
DETAIL 33 – SUPER SILT FENCE



SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

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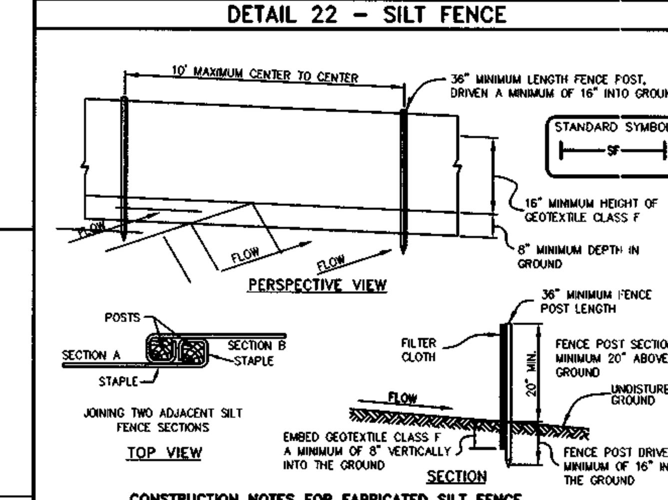
DETAIL 22 – SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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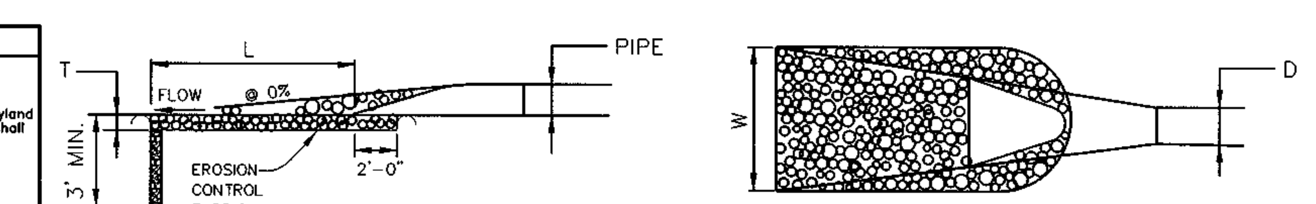
SILT FENCE

SILT FENCE DESIGN CRITERIA

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



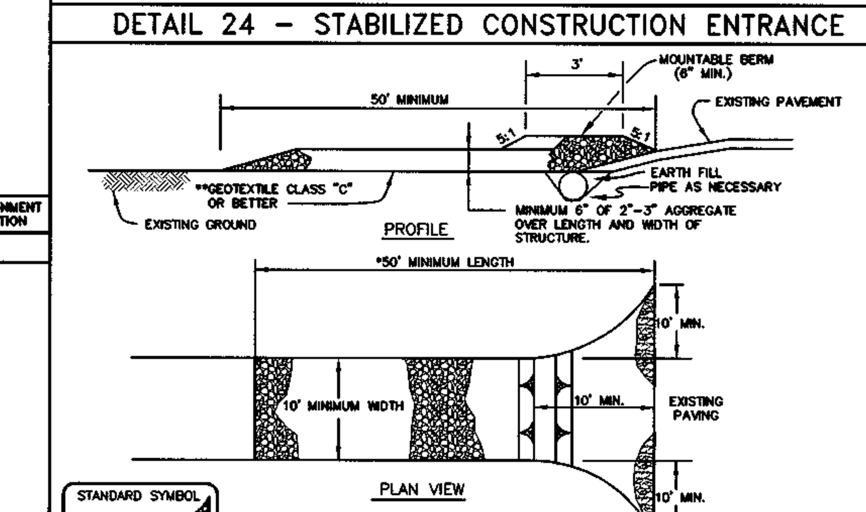
SECTION PLAN

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
ES-1	9.5"	ENTIRE FOREBAY	ENTIRE FOREBAY	19"	I
ES-2	9.5"	23'	9.0'	19"	I

OUTLET PROTECTION DETAIL

NOT TO SCALE

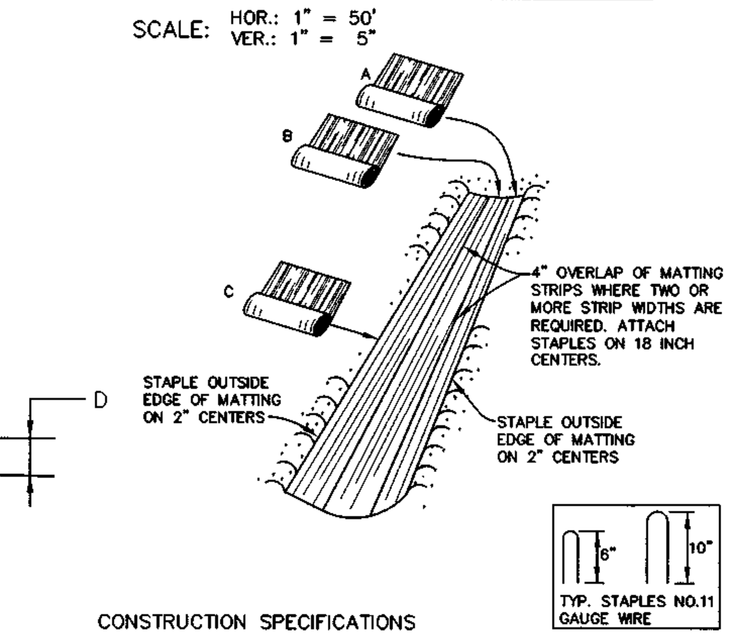
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residence to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounted berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



CONSTRUCTION SPECIFICATIONS

1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH. 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
4. STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

SOIL STABILIZATION MATTING

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01

NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

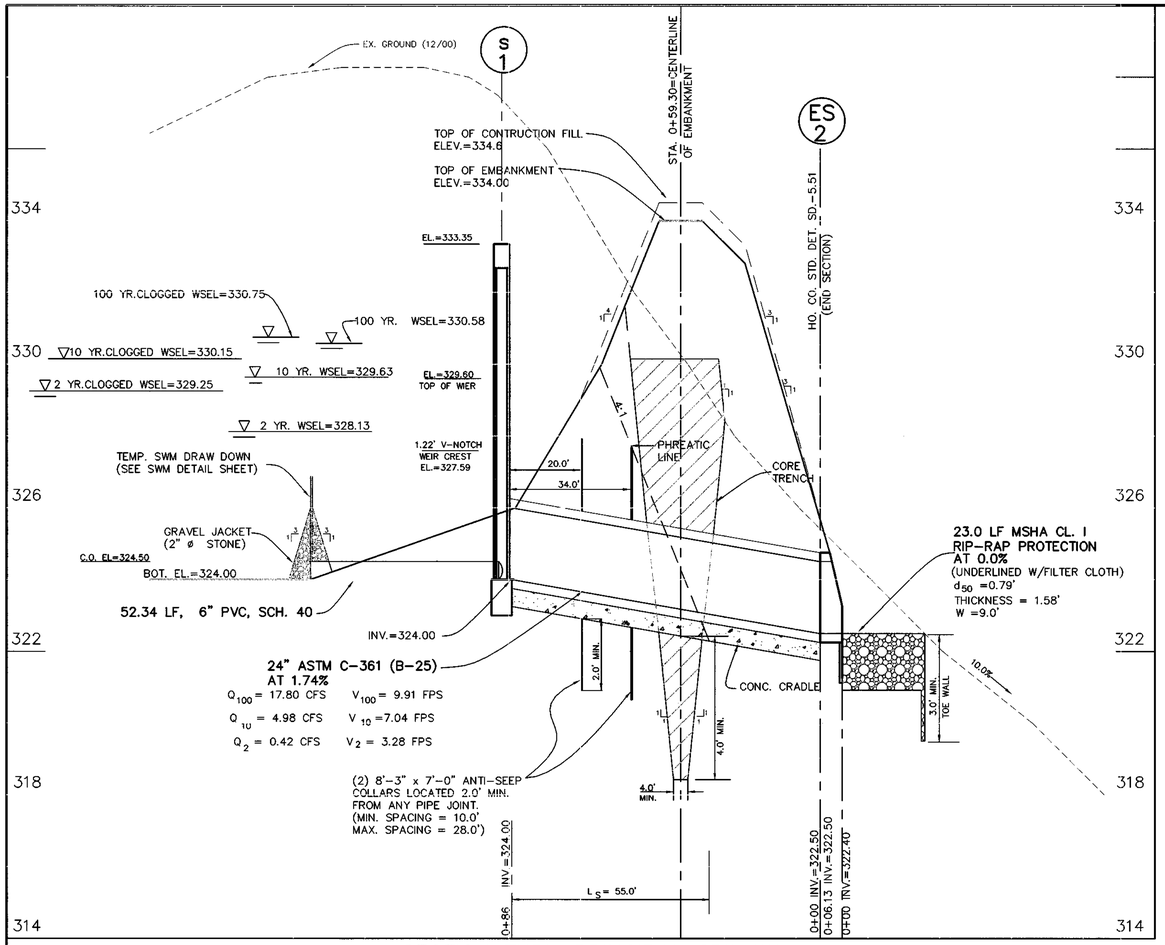
PROJECT: **THE HILLSIDE AT ROCKY GORGE**

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

TITLE: *STORM DRAIN PROFILES AND DETAILS*

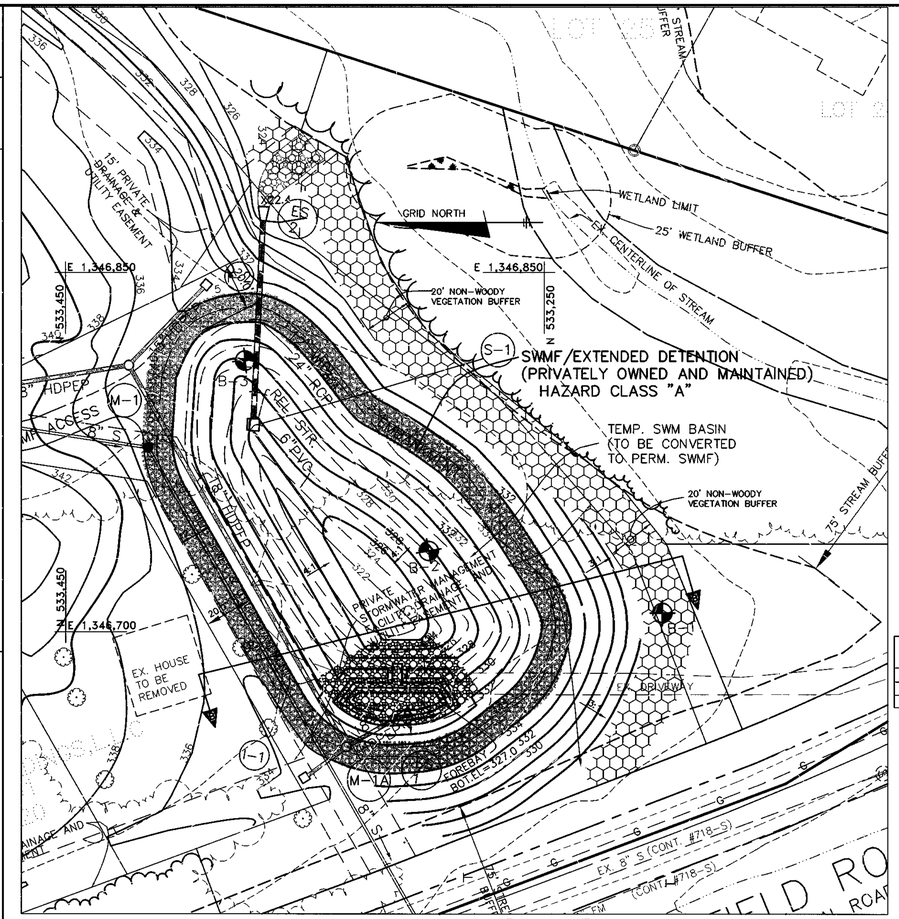
			DATE: FEB.,2001	PROJECT NO. 1349
DES: GWF	DRN: YSL	CHK: DAM	SCALE: AS SHOWN	DRAWING 5 OF 11

F-01-132



SECTION THRU PRINCIPAL SPILLWAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



PLAN VIEW

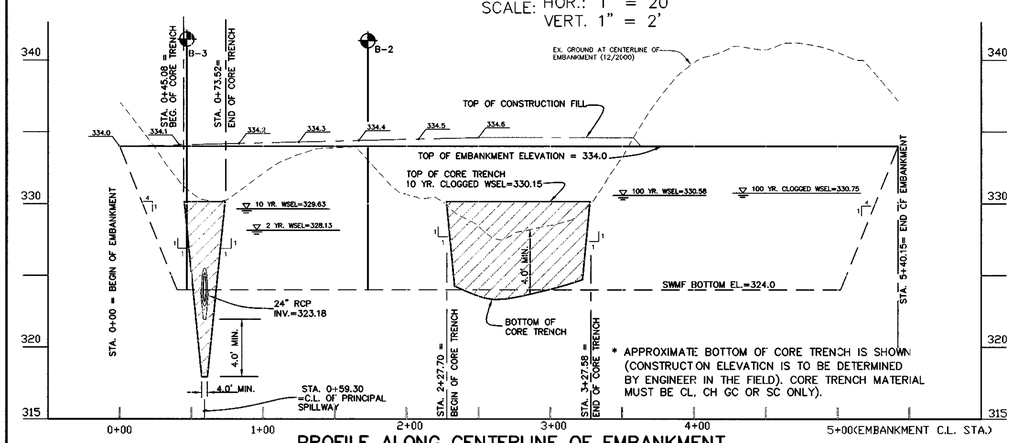
SCALE: 1" = 30'

CENTERLINE OF EMBANKMENT CURVE DATA

0+28.04(PC) N 533411.78 E 1346778.46
0+41.07(PT) N 533409.32 E 1346765.80
DELTA: 29°52'47" RAD.: 25.0' ARC. :13.04' TANGENT: 6.67'
CHORD: S 79°00'27"E 12.89'
1+59.10 (PC) N 533350.93 E 1346663.28
1+72.49 (PT) N 533341.03 E 1346654.50
DELTA: 30°41'47" RAD.: 25.0' ARC. :13.39' TANGENT: 6.86'
CHORD: S41°35'02"W 13.23'
1+81.23 (PC) N 533333.18 E 1346650.63
1+92.46(PT) N 533322.35 E 1346648.06
DELTA: 25°44'17" RAD.: 25.0' ARC. :11.23' TANGENT: 5.71'
CHORD: S 13°22'00"W 11.14'
2+11.47 (PC) N 533303.34 E 134647.89
2+20.57 (PT) N 533294.43 E 1346649.45
DELTA: 20°51'19" RAD.: 25.0' ARC. :9.10' TANGENT: 4.60'
CHORD: S 09°55'48"W 9.05'
2+30.97 (PC) N 533284.68 E 1346653.07
2+38.97 (PT) N 533277.75 E 1346657.00
DELTA: 18°20'03" RAD.: 25.0' ARC. :8.00' TANGENT: 4.03'
CHORD: S 29°31'29"W 7.97'
2+65.25 (PC) N 533257.23 E 1346673.43
2+79.96 (PT) N 533249.03 E 1346685.38
DELTA: 33°41'57" RAD.: 25.0' ARC. :14.70' TANGENT: 7.57'
CHORD: S 55°32'29"E 14.49'
2+88.49 (PC) N 533246.45 E 1346693.51
2+99.90 (PT) N 533245.56 E 1346704.79
DELTA: 26°09'23" RAD.: 25.0' ARC. :11.41' TANGENT: 5.81'
CHORD: S 85°28'09"E 11.31'
3+03.98 (PC) N 533246.1641 E 1346708.82
3+14.64 (PT) N 533249.92 E 1346718.71
DELTA: 24°26'12" RAD.: 25.0' ARC. :10.66' TANGENT: 5.41'
CHORD: N 69°14'04"E 10.58'
3+65.73 (PC) N 533278.77 E 1346760.86
3+85.90 (PT) N 533293.43 E 1346774.51
DELTA: 23°07'05" RAD.: 50.0' ARC. :20.17' TANGENT: 10.23'
CHORD: N 42°57'46"E 20.04'
4+14.57 (PC) N 533317.90 E 1346789.45
4+33.33 (PT) N 533331.73 E 1346801.97
DELTA: 21°29'49" RAD.: 50.0' ARC. :18.76' TANGENT: 9.49'
CHORD: N 42°09'09"E 18.65'
4+47.83 (PC) N 533340.47 E 1346813.53
4+58.23 (PT) N 533347.56 E 1346821.12
DELTA: 11°55'13" RAD.: 50.0' ARC. :10.40' TANGENT: 5.22'
CHORD: N 46°56'26"E 10.38'
4+71.71 (PC) N 533357.73 E 1346829.96
4+80.81 (PT) N 533365.53 E 1346834.56
DELTA: 20°51'46" RAD.: 25.0' ARC. :9.10' TANGENT: 4.60'
CHORD: N 30°32'57"E 9.05'
4+97.21 (PC) N 533381.68 E 1346834.81
5+05.18 (PT) N 533389.40 E 1346832.96
DELTA: 18°16'17" RAD.: 25.0' ARC. :7.97' TANGENT: 4.02'
CHORD: N 13°27'49"W 7.94'
5+07.14 (PC) N 533391.20 E 1346832.21
5+21.30 (PT) N 533402.09 E 1346823.44
DELTA: 32°28'16" RAD.: 25.0' ARC. :14.17' TANGENT: 7.28'
CHORD: N38°50'06"W 13.98'

STORMWATER MANAGEMENT SUMMARY DATA

STORM FREQUENCY	PRE-DEVELOPED COMBINED DISCHARGE (CFS)	POST-DEVELOPED COMBINED DISCHARGE (CFS) WITH SWM
2	10.68	4.48
10	28.21	12.15
100	50.26	30.68

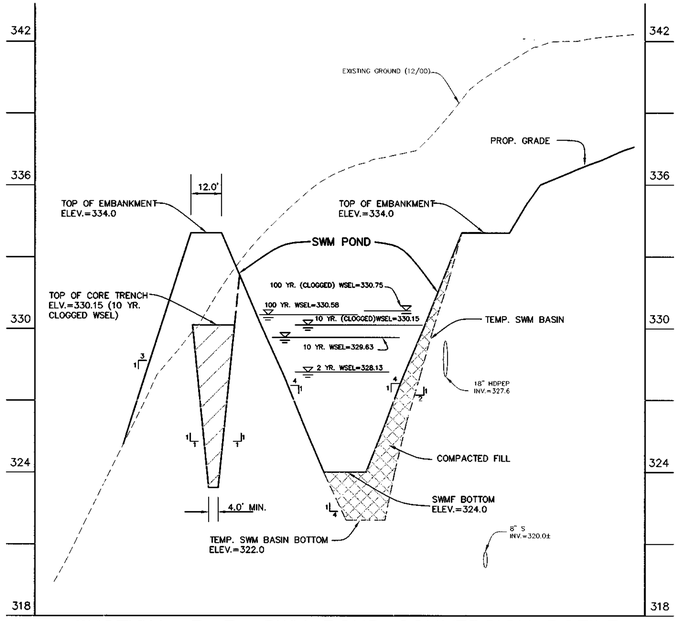


PROFILE ALONG CENTERLINE OF EMBANKMENT

SCALE: HOR.: 1"=50'
VERT. 1" = 5'

POND #1			
STORM FREQUENCY	2	10	100
INFLOW Q (CFS)	5.84	15.96	28.82
DISCHARGE Q (CFS)	0.42	4.98	17.80
ELEVATION	328.13	329.63	330.58
STORAGE VOLUME PROVIDED (AC.-FT)	0.26	0.48	0.69

WATER QUALITY STORAGE ELEVATION AT 327.59
BOTTOM ELEV.: 324.00
EMBANKMENT ELEV.: 334.00
FOREBAY BOTTOM ELEV.: 327.00
FOREBAY CREST ELEV.: 329.00



SECTION B-B: SWM POND CONVERSION POFILE

SCALE: HOR.: 1"=30'
VERT.: 1"=3'

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED 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 SOIL CONSERVATION DISTRICT."

10/1/01
DEVELOPER - CORNERSTONE HOLDINGS, LLC DATE

BY THE ENGINEER:

"I/WE 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 CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

9/27/01
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER
9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT:
THE HILLSIDE AT ROCKY GORGE

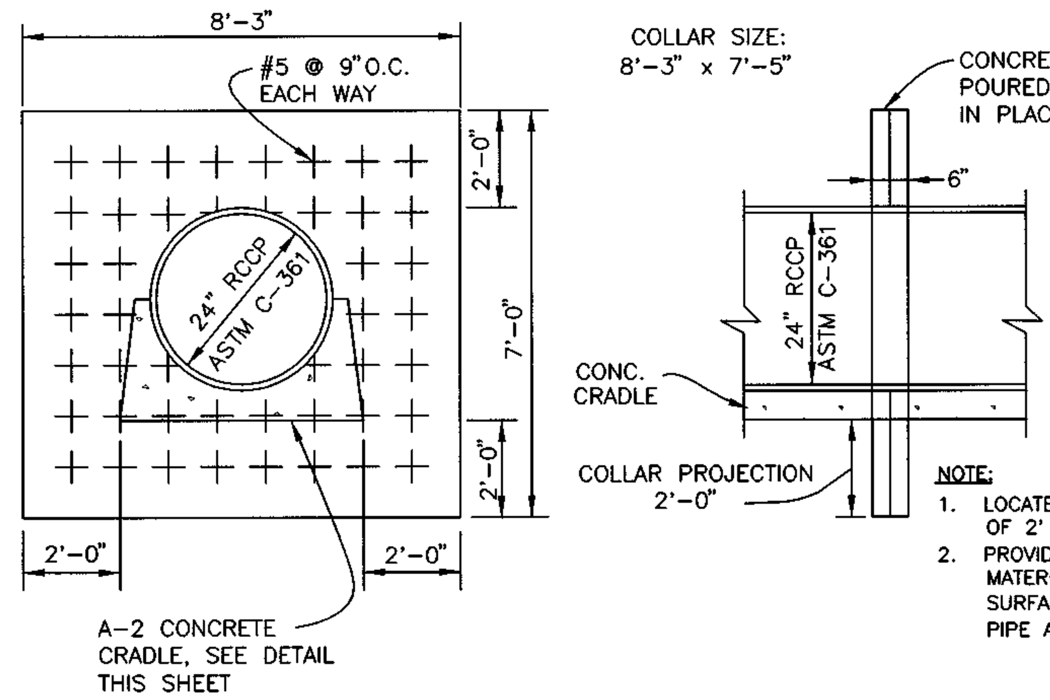
LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

TITLE:
STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES

DATE: FEB.,2001 PROJECT NO. 1349

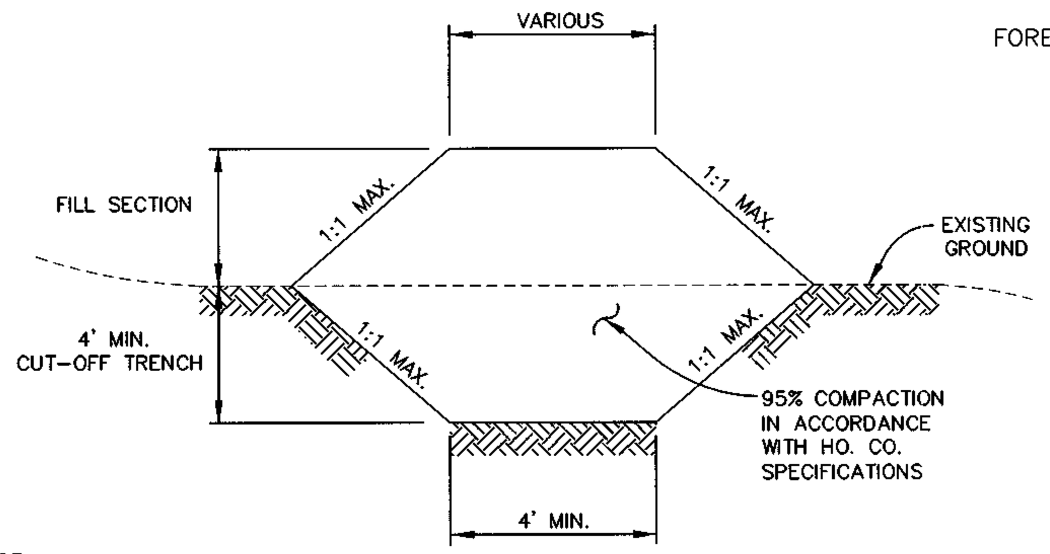
DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING 6 OF 11

F-01-132



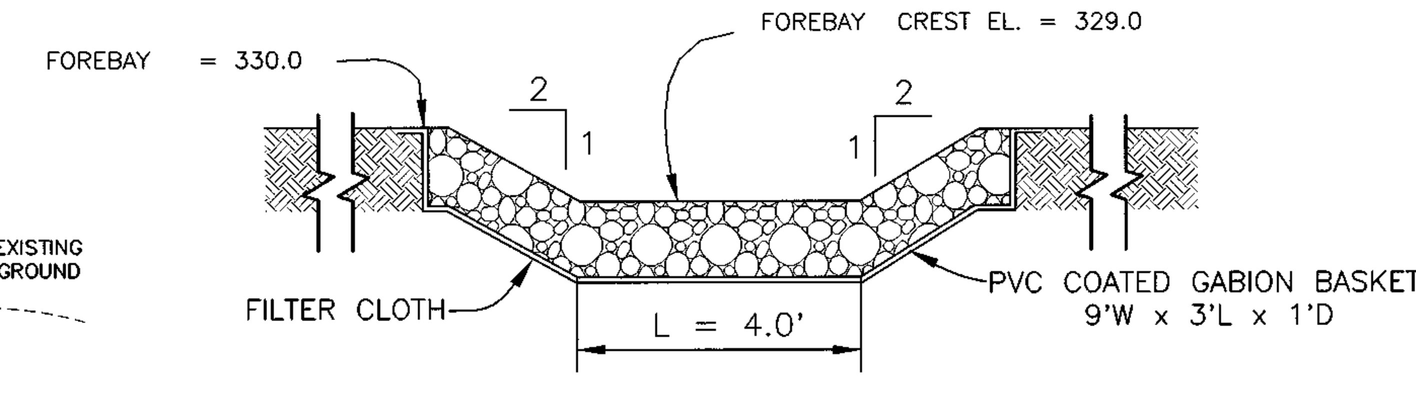
NOTE:
1. LOCATE COLLARS A MINIMUN OF OF 2' FROM ANY PIPE JOINT.
2. PROVIDE ASPHALT JOINT FILLER MATERIAL BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND CRADLE.

ANTI-SEEP COLLAR
NOT TO SCALE

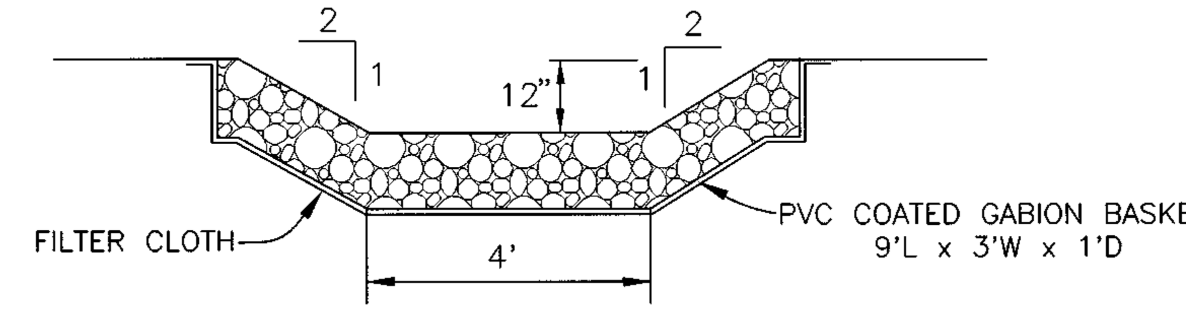


NOTES:
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (CL, CH, GC OR SC) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

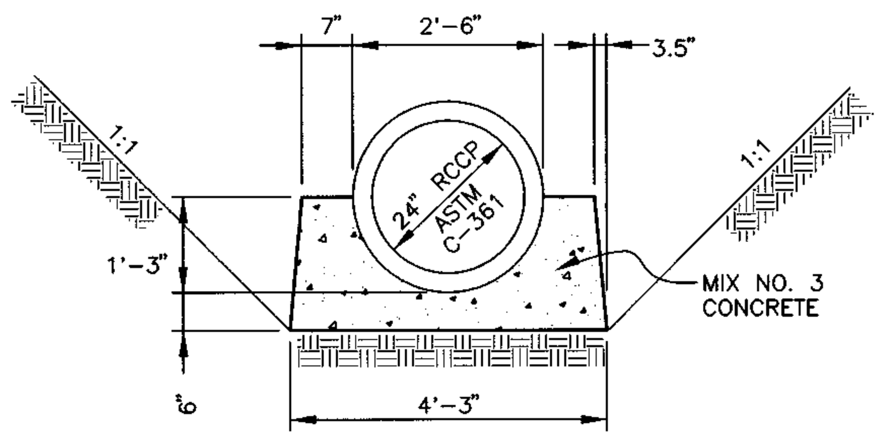
CORE TRENCH SECTION
NOT TO SCALE



PROFILE THROUGH FOREBAY WEIR
NOT TO SCALE

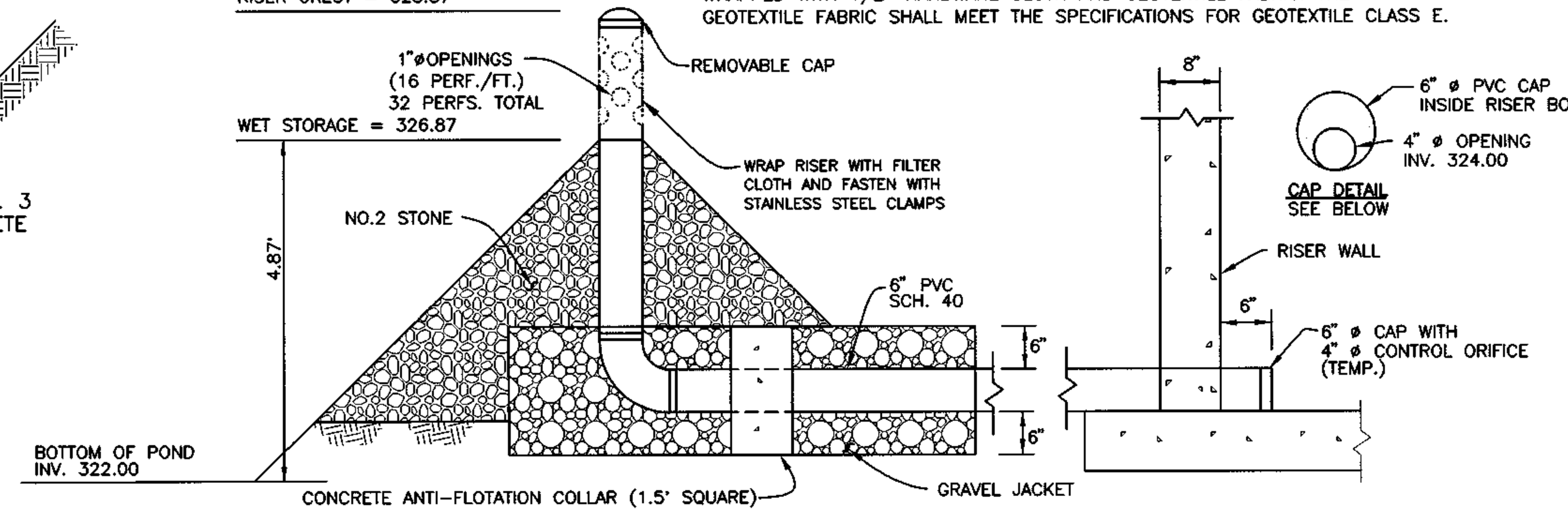


GABION INFLOW PROTECTION CHANNEL
NOT TO SCALE

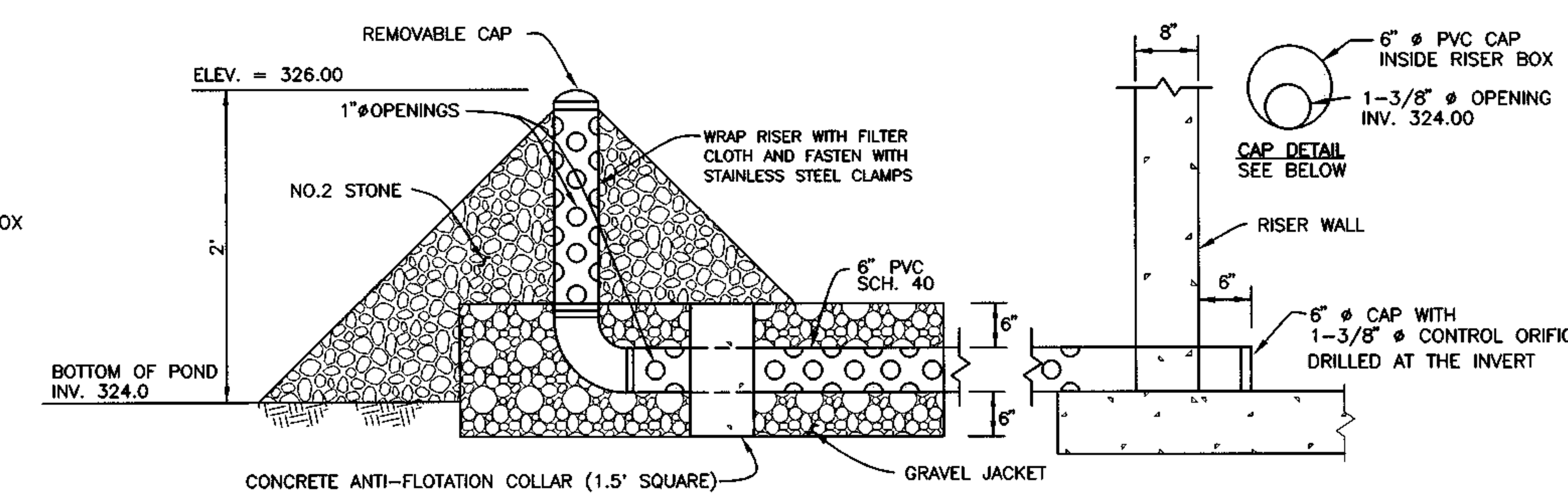


TYPE A-2 CONCRETE CRADLE
NOT TO SCALE

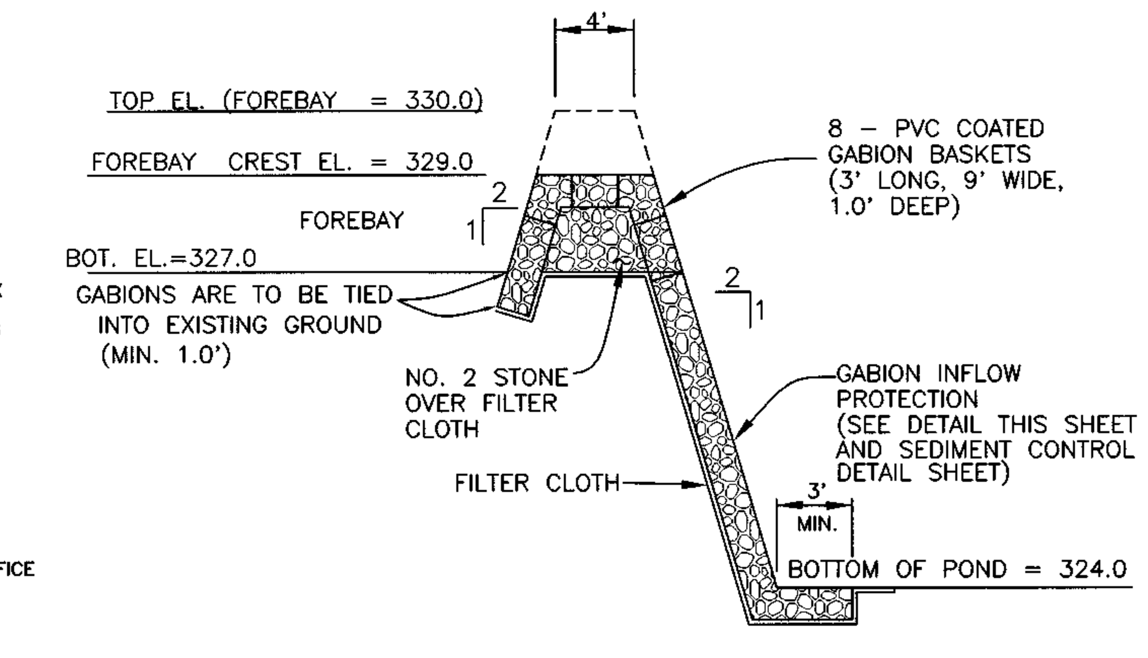
NOTE: THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.



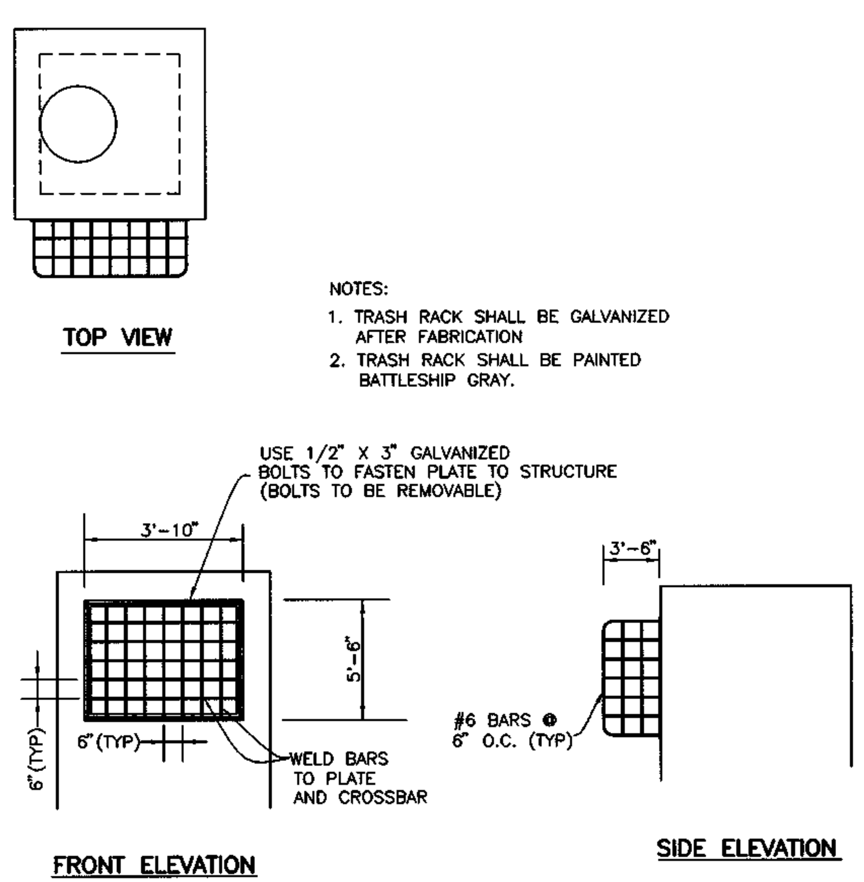
6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE



6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE

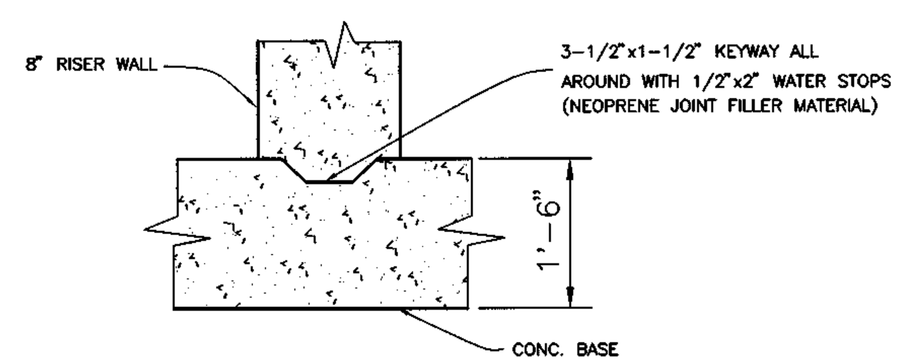


TYPICAL SECTION OF GABION WEIR AT FOREBAY
NOT TO SCALE

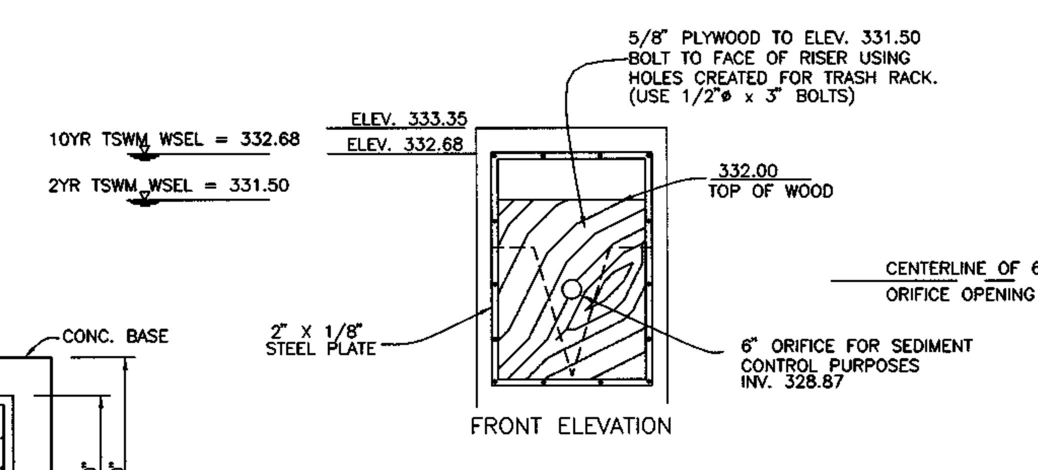


NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.

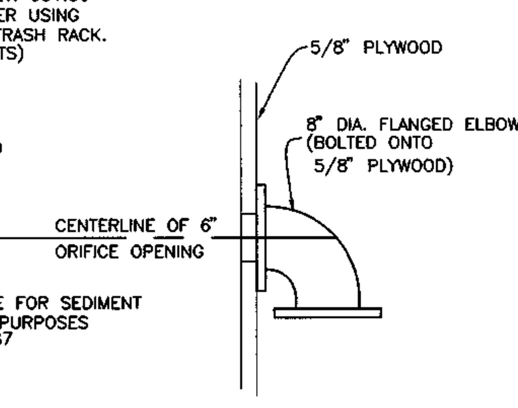
TRASH RACK
NOT SCALE



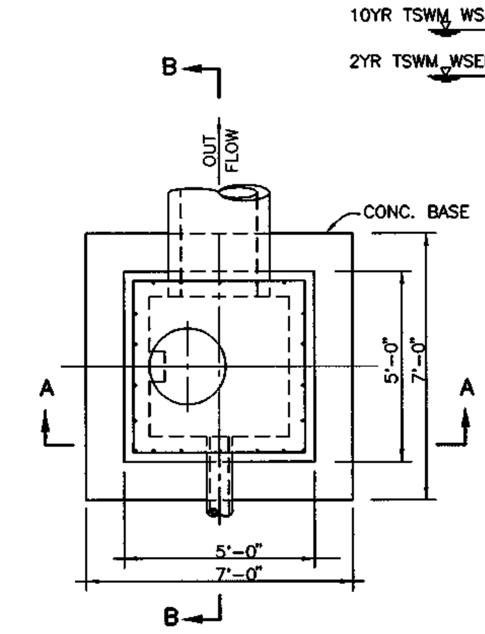
KEYWAY DETAIL
NOT TO SCALE



BLOCKING DETAIL FOR TEMPORARY SWM DURING CONSTRUCTION
NOT TO SCALE

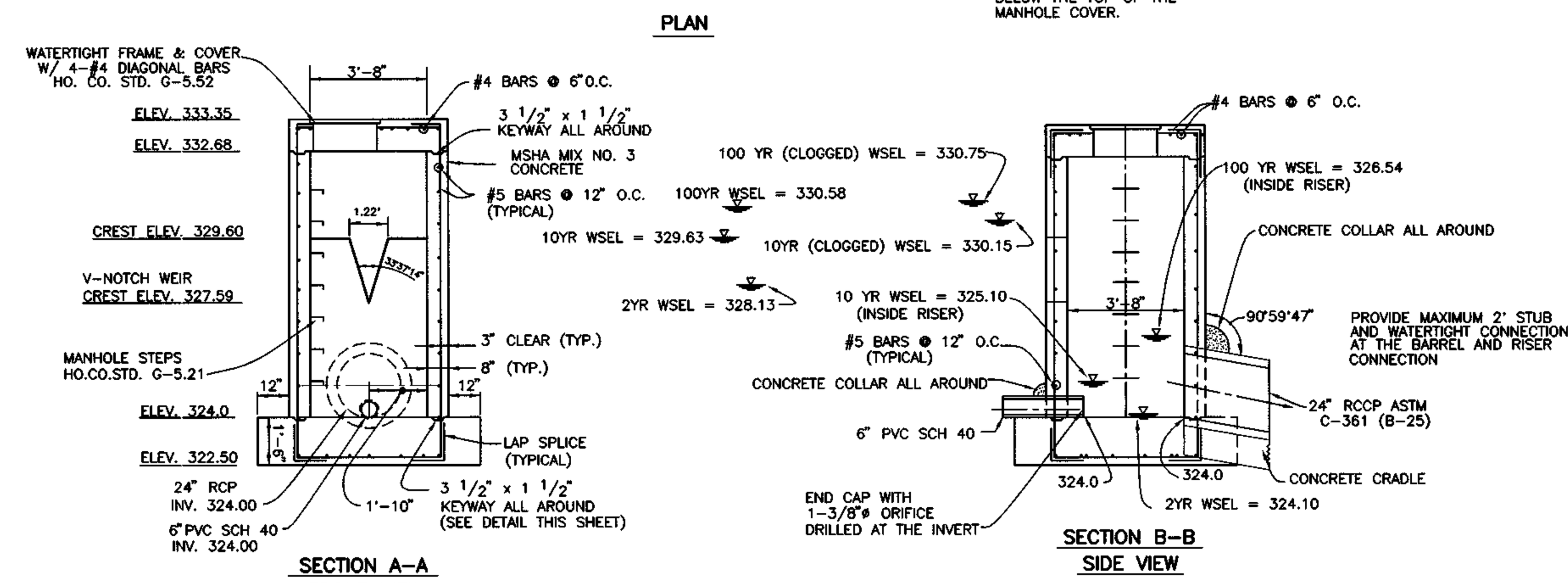


PROTECTION DETAIL FOR TEMP. 6" ORIFICE
NOT TO SCALE



PLAN

NOTE:
TOP MANHOLE STEP SHALL BE A MAXIMUM OF 2'-0" BELOW THE TOP OF THE MANHOLE COVER.



CONTROL STRUCTURE DETAIL
SCALE: 1" = 4'

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

DONALD A. MASON — PE NO. 21443 — DATE ______

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED 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 SOIL CONSERVATION DISTRICT."

DEVELOPER – CORNERSTONE HOLDINGS, L.L.C. — DATE 10/1/01

BY THE ENGINEER:

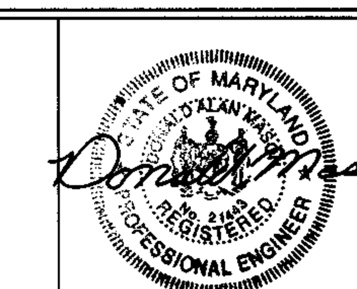
"I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason — 9/27/01
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01	*APPROVED:* THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01 CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01	*APPROVED:* THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL. USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644



9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07 , WP-01-103

TITLE: **STORMWATER MANAGEMENT NOTES AND DETAILS**

DATE: FEB.,2001	PROJECT NO. 1268
SCALE: AS SHOWN	DRAWING 7 OF 11

DES: YSL | DRN: YSL | CHK: DAM

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F-01- 132

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CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for 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 to 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. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

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 25-foot radius 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. If shall be free of roots, stumps, wood, rubbish, stones greater than 5", frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch 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 heavy 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 teh 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 water can be squeezed out.

When required by the reviewing agency the 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 (Standard Proctor).

Cut Off Trench – The cutoff 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 a least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core – The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the cores shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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 or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistively of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sided of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining backfill 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 shall completely fill all voids adjacent to the flowable fill zone. 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 structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section

Corrugated Metal Pipe – all of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Polymer Coated steel pipe) – Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Maerials – (Aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connection shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".

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

Reinforced Concrete Pipe – All of 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 C-361.

2. Bedding – Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used a described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be places 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 form the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

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

Plastic Pipe – The following criteria shall apply for plastic pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" – 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

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

Drainage Diaphragms – When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

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

Rock Riprap

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

Geotextile 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, Section 921.09, Class C.

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 various parts of the work and for maintaining the evacuations, 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 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 location being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the 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, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

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 pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

HILLIS-CARNES
ENGINEERING ASSOCIATES,INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

PROJECT NAME: The Hillside at Rocky Gorge — Boring Number B-1
LOCATION: Howard County, Maryland — Job Number 00142A

SAMPLER: Datum ____; Hammer Wt. 140 Lbs.; Hole Diameter 6"; Foreman Lamont Smith; Surf. Elev. ____; Hammer Drop 30 inches; Rock Core Dia. –; Inspector ____; Date Started 04-03-00; Pipe Size 2.0 inches OD; Boring Method HSA; Complete 04-03-00

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA.	DEPTH (DEPTH)	DEPTH (SCALE)	SAMPLE CON	SAMPLE BLOWS 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE			0.0					
	Brown,moist,very soft,silt trace clay with rock (ML)		2.0		I	1-2-3-5	1	14"	4" Topsoil
	Brown,moist,medium dense to very dense,micaceous silty sand with rock fragments (SM)				D	7-7-10-10	2	15"	No groundwater encountered while drilling
	USDA-Loamy Sand			5.0	D	6-6-20-51/3"	3	12"	Caved in at 10.0' at Completion
					D	48-51/5"	4	8"	Caved in at 11.5' after 24 hrs.
				10.0	D	11-13-51/3"	5	10"	
				15.0	D	51/0"	6	No Rec	
	Decomposed Rock		16.5		D	51/3"	7	3"	
	Bottom of Boring Hole at 16.5'			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE

SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST

GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hrs. 10.5 FT.; AFTER ____ FT.

BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS-CARNES
ENGINEERING ASSOCIATES,INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

PROJECT NAME: The Hillside at Rocky Gorge — Boring Number B-2
LOCATION: Howard County, Maryland — Job Number 00142A

SAMPLER: Datum ____; Hammer Wt. 140 Lbs.; Hole Diameter 6"; Foreman Lamont Smith; Surf. Elev. ____; Hammer Drop 30 inches; Rock Core Dia. –; Inspector ____; Date Started 04-03-00; Pipe Size 2.0 inches OD; Boring Method HSA; Complete 04-03-00

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA.	DEPTH (DEPTH)	DEPTH (SCALE)	SAMPLE CON	SAMPLE BLOWS 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE			0.0					
	Red,moist,medium stiff silt, little clay,trace fine sand, trace mica (ML)		2.0		I/D	1-2-3-3	1	16"	2" Topsoil
	Red/Brown/Orange,moist,loose, micaceous silty sand with weathered rock fragments (SM)				D	4-4-4-4	2	15"	No groundwater encountered while drilling
	USDA-Loamy Sand			5.0	D	2-2-3-4	3	24"	Caved in at 9.5' at Completion
					D	4-4-6-8	4	14"	Caved in at 8.5' after 24 hrs.
			9.5	10.0					
	Gray,moist,medium dense to very dense,micaceous silty sand with rock fragments (SM)				D	8-9-14-14	5	15"	
	USDA-Loamy Sand / Sand				D	18-21-32-28	6	18"	
	Bottom of Test Hole at 16.5'		16.5	20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE

SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST

GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hrs. Dry FT.; AFTER ____ FT.

BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS-CARNES
ENGINEERING ASSOCIATES,INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

PROJECT NAME: The Hillside at Rocky Gorge — Boring Number B-3
LOCATION: Howard County, Maryland — Job Number 00142A

SAMPLER: Datum ____; Hammer Wt. 140 Lbs.; Hole Diameter 6"; Foreman Lamont Smith; Surf. Elev. ____; Hammer Drop 30 inches; Rock Core Dia. –; Inspector ____; Date Started 04-05-00; Pipe Size 2.0 inches OD; Boring Method HSA; Complete 04-03-00

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA.	DEPTH (DEPTH)	DEPTH (SCALE)	SAMPLE CON	SAMPLE BLOWS 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE			0.0					
	Brown,moist,soft,silt,trace fine sand and mica (ML) trace mica (ML)		2.0		I	1-2-3-3	1	18"	3" Topsoil
	Red/Brown/Orange,moist,loose, micaceous silty sand with weathered rock fragments (SM)				D	6-8-12-9	2	24"	No groundwater encountered while drilling
	USDA-Loamy Sand			5.0	D	3-6-7-8	3	14"	Caved in at 9.0' at Completion
					D	3-5-6-12	4	15"	Caved in at 1.5' after 24 hrs.
				10.0	D	8-9-14-14	5	16"	
			16.5		D	4-7-7-11	6	18"	
	Bottom of Test Hole at 16.5'			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE

SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST

GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hrs. Dry FT.; AFTER ____ FT.

BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. RECOMMENDATIONS

Embankment and Cut-off trench Construction

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dumptruck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and cut-off trench. In accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL.
It is our professional opinion that in addition to the soil materials above a fine grained soil, including Silt (ML) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

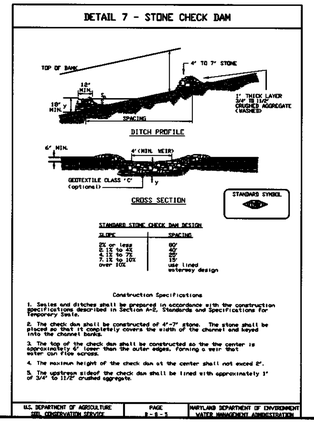
ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY. NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

DETAIL 7 - STONE CHECK DAM



STANDARD STONE CHECK DAM DESIGN

SLOPE	SPACING
5% or less	80'
5.1% to 2%	60'
2.1% to 5%	40'
5.1% to 10%	25'
over 10%	use lined waterway design

Construction Specifications

1. Sands and ditches shall be prepared in accordance with the construction specifications described in Section A-6, Standards and Specifications for Temporary Swale.

2. The check dam shall be constructed of 4"-7" stone. The stone shall be placed so that it completely covers the width of the channel and keyed into the channel banks.

3. The top of the check dam shall be constructed so the the center is approximately 6" lower than the outer edges, forming a weir that will direct flow across.

4. The maximum height of the check dam at the center shall not exceed 2'.

5. The upstream side of the check dam shall be lined with approximately 1" or 3/4" to 1 1/2" crushed aggregate.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE 8-8-5 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

DONALD A. MASON — PE NO. 21443
DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED 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 SOIL CONSERVATION DISTRICT."

DEVELOPER – CORNERSTONE HOLDINGS L.L.C. — 10/1/01 DATE

BY THE ENGINEER:

"I/WE 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 CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER – DONALD A. MASON, P.E. # 21443 — 9/27/01 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 10-25-01 DATE

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — 10/15/01 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — 11/2/01 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 10/29/01 DATE

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
USDA-NATURAL RESOURCES CONSERVATION SERVICE — 10/15/01 DATE

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

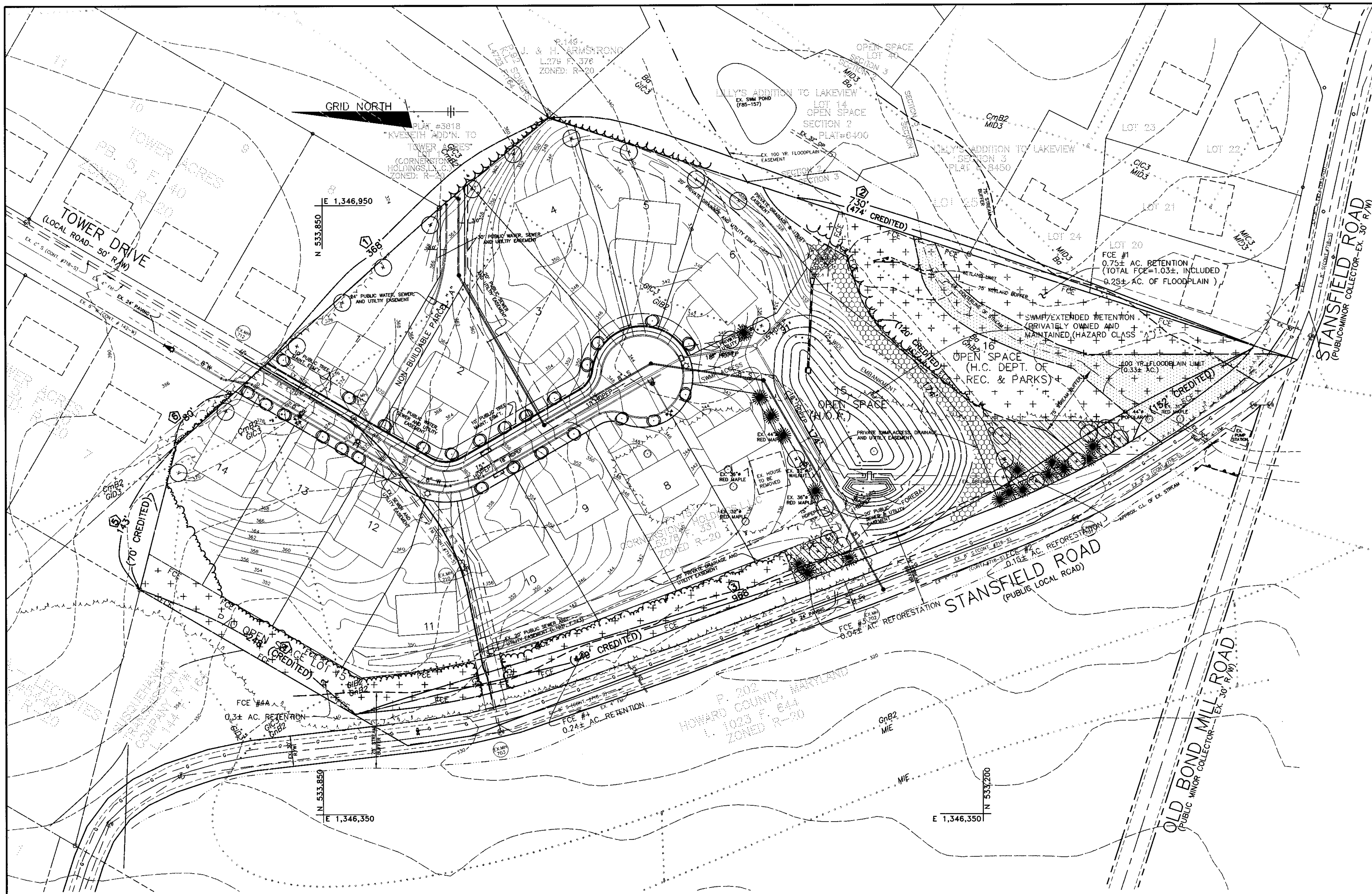
STATE OF MARYLAND — DONALD A. MASON — REGISTERED PROFESSIONAL ENGINEER — 9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: THE HILLSIDE AT ROCKY GORGE
LOCATION: TAX MAP 46, GRID 18, PARCEL 151; 6 th. ELECTION DISTRICT; HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103
TITLE: STORMWATER MANAGEMENT NOTES & DETAILS

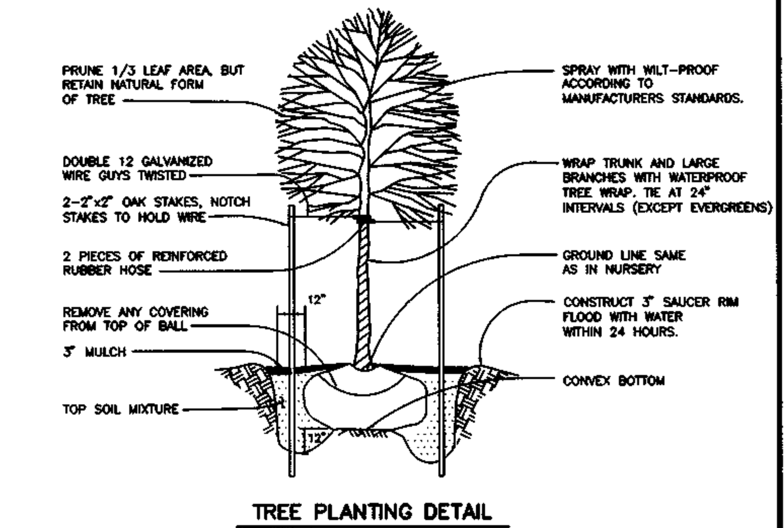
DES: YSL	DRN: YSL	CHK: DAM	DATE: FEB.,2001	PROJECT NO.:1349
			SCALE: AS SHOWN	DRAWING 8 OF 11

F-01-132



PLAN VIEW

SCALE: 1" = 50'



TREE PLANTING DETAIL

NOT TO SCALE

NOTES

1.) TREES MUST BE A MINIMUM OF FOUR(4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN.

2.) TREE MUST BE PLANTED A MINIMUM OF FIVE(5) FEET FROM AN OPEN SPACE ACCESSS STRIP AND TEN(10) FEET FROM A DRIVEWAY.

LEGEND

- FOREST CONSERVATION EASEMENT (AREA TO BE RETAINED)
- FOREST CONSERVATION EASEMENT (AREA TO BE PLANTED)
- 20' NO WOODY VEGETATION ZONE

LANDSCAPING NOTES

1.) PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.

2.) THE DEVELOPER SHALL BE RESPONSIBLE FOR THE STREET TREES, STORMWATER MANAGEMENT POND PLANTING, THE PRESERVATION OF THE PERIMETER VEGETATION AS SHOWN ON THESE PLANS AND FOR THE PERIMETER PLANTING ON PERIMETERS. BONDING FOR PERIMETER PLANTING IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPERS AGREEMENT.

3.) A MINIMUM OF TWENTY(20) FEET SHALL BE MAINTAINED BETWEEN TREES AND STREET LIGHTS.

4.) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

5.) FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $10,050 FOR 25 SHADE TREES AND 17 EVERGREENS.

STREET TREE TABULATION

STREET TREE REQUIRED (1 TREE / 40') : 1031'(STREET LENGTH)/ 40' = 25.77= 26 TREES

STREET TREE PROVIDED : 26 TREES

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY							
CATEGORY	ADJACENT TO ROADWAY	NO	NO	YES	NO	NO	NO
	ADJACENT TO PERIMETER PROPERTIES	YES	YES	NO	YES	YES	YES
PERIMETER NO. / LANDSCAPE TYPE		1 A	2 A	3 B	4 A	5 A	6 A
LINEAR FEET OF FRONTAGE/PERIMETER		368'	730'	968'	248'	143'	80'
CREDIT FOR EXISTING VEGETATION: (NO OR YES W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	YES 474' WOODS	YES 601' WOODS	YES 248' WOODS	YES 70' WOODS	NO
CREDIT FOR WALL, FENCE OR BERM: (NO OR YES W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTE) / SHRUBS		6 / - / - / -	4 / 0 / - / -	7 / 9 / - / -	0 / - / - / -	1 / - / - / -	1 / - / - / -
NUMBER OF PLANTS PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTE) / SHRUBS (10:1 SUBSTITUTE) / (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)		6 / - / - / -	4 / - / - / -	7 / 9 / - / -	0 / - / - / -	1 / - / - / -	1 / - / - / -

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING
TYPE "B" BUFFER

SWM FACILITY NO.	1
LINEAR FEET OF PERIMETER	439'
CREDIT FOR EXISTING VEGETATION: (NO OR YES W/L.F.)	YES, 120'
CREDIT FOR OTHER LANDSCAPING: (NO OR YES W/%)	NO
NUMBER OF TREES REQUIRED: SHADE TREES (1:50) / EVERGREEN TREES (1:40)	6 / 8
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTE)	6 / 8 / -

PERIMETER & SWMF LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
(circle with dot)	28	PLANTANUS ACERFOLIA "BLOODGOOD" (BLOODGOOD LONDON PLANE)	2 1/2" MIN. CAL. B & B FULL HEAD
(starburst)	17	PINUS STROBUS (EASTERN WHITE PINE)	6'- 8' HT. UNSHEARED

STREET TREE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
(double circle)	26	ACER RUBRA (RED MAPLE)	2 1/2" MIN. CAL. B & B FULL HEAD

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 10-25-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 11/2/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 10/29/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

[seal: STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER] 9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07,WP-01-103

TITLE: **LANDSCAPE PLAN**

DATE: FEB., 2000 | PROJECT NO. 1349

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 9 OF 11

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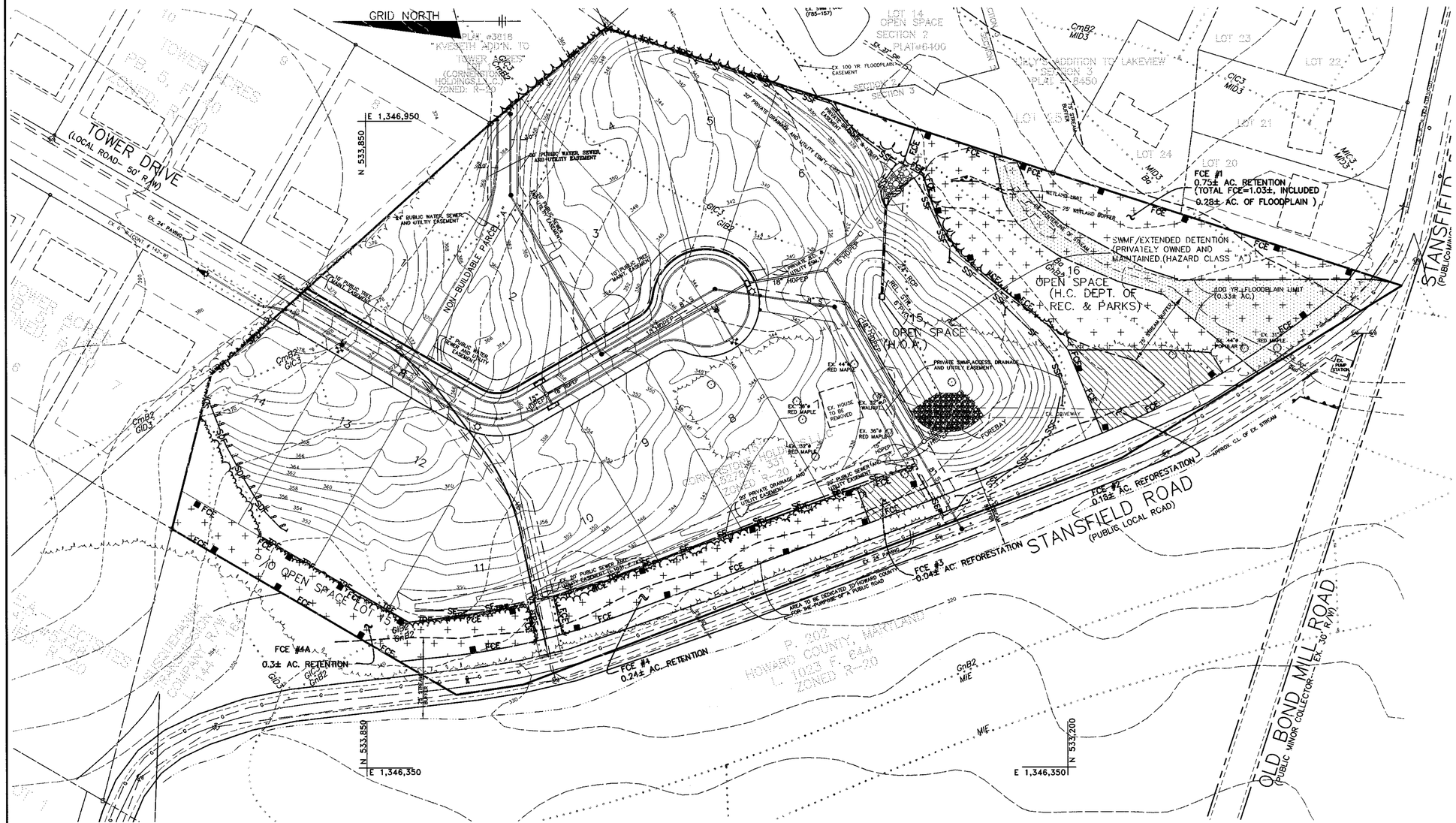


PLAN VIEW

SCALE: 1" = 50'

FCP LEGEND

EXISTING CONTOURS	
PROPOSED CONTOURS	
FOREST TO BE RETAINED	
FORESTATION AREA	
LIMITS OF FOREST CONSERVATION EASEMENT	FCE
EXISTING SPECIMEN TREE	
SIGNAGE	
TREE PROTECTION FENCE	TPF
SUPER SILT FENCE	SSF

LEGEND

CONTOUR INTERVAL	2 FEET
EXISTING CONTOUR	200
PROPOSED CONTOUR	200
PROPOSED SEWER MAIN	8" S
PROPOSED WATER MAIN	8" W
PROPOSED STORM DRAIN	EX 14" RCP
LIMIT OF DISTURBED AREA	
EXISTING TREE LINE	
PROPOSED TREE LINE	

NOTE: INSTALL TREE PROTECTION FENCES AT THE PERIMETER OF LIMIT OF DISTURBANCE WHERE EXISTING VEGETATION ARE TO BE RETAINED . (SUPER SILT FENCES ARE TO BE USED INSTEAD OF TREE PROTECTION FENCES WHERE SEDIMENT CONTROL DEVICES ARE WITHIN THE SAME LOCATION.)

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
Ba	BAILE SILT LOAM	D
C1C3	CHILLUM GRAVELLY LOAM, 5-10 % SLOPES, SEVERELY ERODED	B
CmB2	CHILLUM GRAVELLY LOAM, 1-5 % SLOPES, MODERATELY ERODED	B
G1B2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
G1C3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
G1D3	GLENELG LOAM, 15-25% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
M1C3	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
M1E	MANOR LOAM, 25 TO 45% SLOPES.	B

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. BOX 5006 GLEN ARM, MD 21057 (410)592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification #WDCP93MD0610044B2

John P. Canoles 10/8/01

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

Donald Mason 10/8/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT:
THE HILLSIDE AT ROCKY GORGE

LOCATION:
TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07,WP-01-103

TITLE:
FOREST CONSERVATION PLAN

DATE: FEB.,2001 PROJECT NO. 1349

DES: DRN: CHK: SCALE: AS SHOWN DRAWING 10 OF 11

F-01-132

FOREST RETENTION AREA

MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS
PROHIBITED

VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1992

MIN. 15"

MIN. 11"

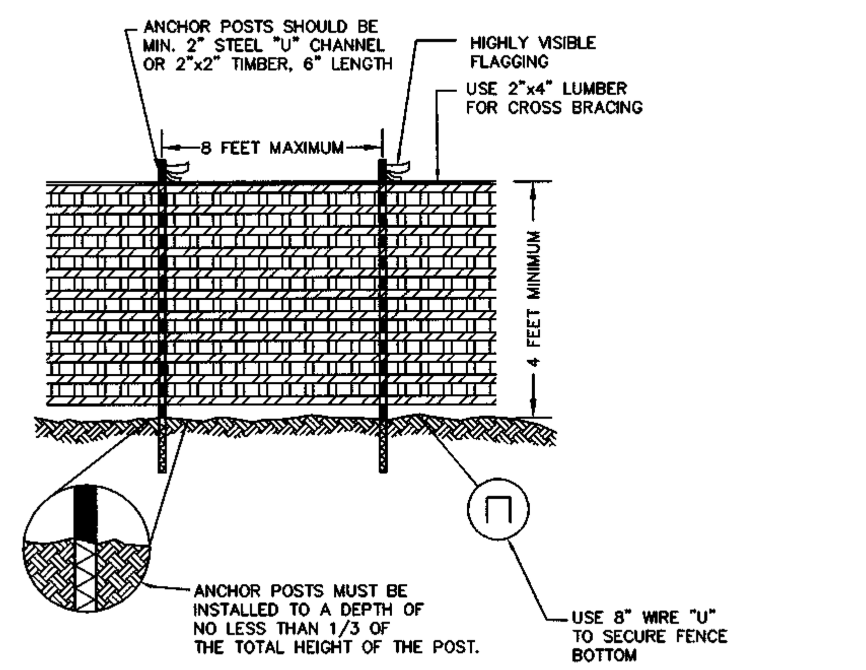
Forest Conservation Area

REFORESTATION PROJECT

Trees for Your Future

MIN. 15"

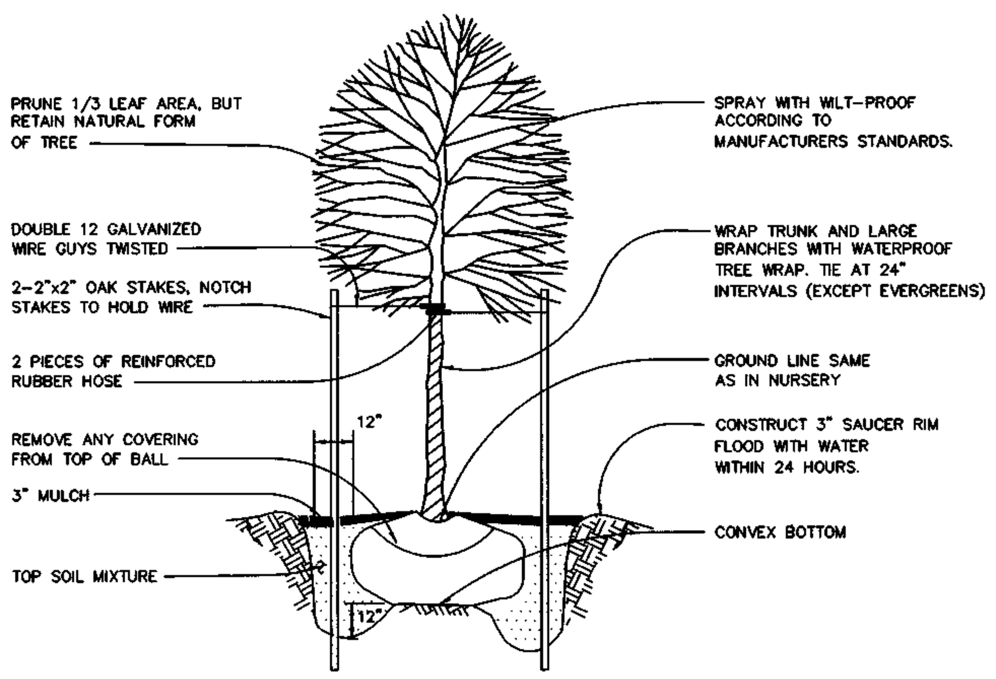
MIN. 11"



NOTES:
1. BLAZE ORANGE OF BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OF SEVER LARGE ROOTS WHEN INSTALLING POSTS.
5. PROTECTIVE SIGNS ARE REQUIRED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

ADAPTED FROM PRINCE GEORGE'S COUNTY, MARYLAND. WOODLAND CONSERVATION MANUAL AND FOREST CONSERVATION MANUAL, 1991.

PLASTIC MESH TREE PROTECTION FENCE



TREE PLANTING DETAIL

NOT TO SCALE

PLANTING/SOIL SPECIFICATIONS

1. PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH OR SEPTEMBER 15TH – NOVEMBER 15TH.
2. A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL FORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. ALL BAREROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICANT GEL PRIOR TO PLANTING.
4. PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE.
5. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
6. A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
7. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
8. ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

1. SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION PLANS.
2. PROPOSED FORESTATION AREAS IMPACTED BY SITE GRADING SHALL BE TOPSOILED AND STABILIZED AS PER #2 OF PLANTING/SOIL SPECIFICATIONS FOR PROJECT.
3. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
4. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
5. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

1. MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
2. ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
3. INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM FORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
4. PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

1. A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON. AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD.
2. THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO VANDALISM.

SURETY FOR REFORESTATION

1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

FCP NOTES:

1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE CONVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. FORESTED AREAS OCCURRING OUTSIDE THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
5. NO STOCKPILES, PARKING AREAS,EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
6. TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
7. PERMANENT SIGNAGE SHALL BE PLACED 50 – 100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSTRUCTION EASEMENTS.
8. THE OUTSTANDING REFORESTATION OBLIGATION OF 1.76 ACRES FOR THIS PROJECT SHALL BE MET THROUGH OFF-SITE PLANTING AND/OR THE PAYMENT OF THE COUNTY'S FEE-IN-LIEU. NOT MORE THAN 1.0 ACRES OF THIS OBLIGATION SHALL BE MET THROUGH THE FEE-IN-LIEU OPTION WITHOUT SPECIFIC APPROVAL FROM HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
9. SURETY COSTS:

RETENTION:	1.3 ACRES @ 0.20/SQ. FT.=$11,325.60	
REFORESTATION::	0.24 ACRES @ 0.50/SQ. FT.=$5,227.20	
		TOTAL =$16,552.80

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT # 2 (0.2± ACRES)

QTY.	SPECIES	SIZE	SPACING
20	ACER RUBRUM – RED MAPLE	2-3' WHIP	**
30	FRAXINUS PENNSYLVANICA– GREEN ASH	2-3' WHIP	**
15	VIBURNUM DENTATUM – ARROWWOOD	18-24" B.T.	**

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT # 3 (0.04± ACRES)

QTY.	SPECIES	SIZE	SPACING
5	ACER RUBRUM – RED MAPLE	2-3' WHIP	**
5	QUERCUS RUBRA – RED OAK	2-3' WHIP	**
5	VIBURNUM PRUNIFOLIUM-BLACKHAW	18-24" B.T.	**

KEY:
CAL. – CALIPER WHIP – MAY BE CONTAINER GROWN OR BAREROOT B.T. BRANCHED TRANSPLANT
– ONE INCH CALIPER TREES SHALL BE SPACED AROUND PERIMETER OF FCE EASEMENT IN RANDOM PATTERN.

** – WHIPS AND SHRUBS SHALL BE PLANTED, ON AVERAGE, AT A SPACING OF 11 FEET ON CENTER, NOT IN A GRID PATTERN, LIMITED CLUMPING OF SHRUBS IS PERMITTED.

PLANTING NOTES:

1. FCEs 'G' AND 'P' ARE HEAVILY INFLUENCED BY A MULTIFLORA ROSE. IT IS RECOMMENDED THAT THE MULTIFLORA ROSE BE REMOVED AND CONTROLLED PRIOR TO FORESTATION. IF THE ROSE IS NOT REMOVED IT WILL BE A CHRONIC MAINTENANCE PROBLEM FOR THE SITE. EXISTING NATIVE TREES MAY BE RETAINED.

2. THE POTENTIAL FOR DEER AND RODENT DAMAGE ON THIS FORESTATION PROJECT IS HIGH. THE PLANTING CONTRACTOR MAY UTILIZE PHYSICAL AND CHEMICAL TECHNIQUES TO IMPROVE THE SUCCESS OF THE PLANTINGS. THESE TECHNIQUES MUST BE APPROVED BY THE OWNER PRIOR TO INITIATION OF WORK.

FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA

GROSS SITE AREA	8.8± AC.
AREA WITHIN 100 YEAR FLOODPLAIN	0.3± AC.
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	
NET TRACT AREA	8.5± AC.
LAND USE CATEGORY (R-RLD,R-RMD, R-S,C/I/O) R-20	

II. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA	8.5± AC.
B. REFORESTATION THRESHOLD (20 % x A)	1.7± AC.
C. AFFORESTATION MINIMUM (15 % x A)	1.3± AC.
D. EXISTING FOREST ON NET TRACT AREA	6.4± AC.
E. FOREST AREAS TO BE CLEARED	5.1± AC.
F. FOREST AREAS TO BE RETAINED	1.3± AC.

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. REFORESTATION

IF EXISTING FOREST AREAS EQUAL OR EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C), AND CLEARING OF FOREST AREAS IS PROPOSED, REFORESTATION REQUIREMENT MAY APPLY.

GO TO SECTION IV

IF EXISTING FORESTS EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C) AND NO CLEARING OF EXISTING FOREST RESOURCES IS PROPOSED, NO REFORESTATION IS REQUIRED. NO FURTHER CALCULATIONS ARE NEEDED.

2. AFFORESTATION

IF EXISTING FOREST AREA ARE LESS THAN THE AFFORESTATION MINIMUM (IF D IS LESS THAN C). AFFORESTATION REQUIREMENTS APPLY.

GO TO SECTION V

IV. REFORESTATION CALCULATIONS

A. NET TRACT AREA	8.2± AC.
B. REFORESTATION THRESHOLD (20 % x A)	1.7± AC.
D. EXISTING FOREST ON NET TRACT AREA	6.4± AC.
E. FOREST AREAS TO BE CLEARED	5.1± AC.
F. FOREST AREAS TO BE RETAINED	1.3± AC.
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D – F, IF F EQUALS OR IS GREATER THAN B, ALTERNATE 1) (D – B, IF F IS LESS THAN B, ALTERNATE 2)	4.7± AC.
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B – F, IF APPLICABLE)	0.4 AC.
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F – B, RETENTION CREDIT, IF APPLICABLE)	0 AC.

SELECTION THE ALTERNATIVE THAT APPLIES:

1. CLEARING ABOVE THE THRESHOLD ONLY

IF FOREST AREAS TO BE RETAINED EQUAL OR ARE GREATER THAN THE REFORESTATION THRESHOLD (IF F EQUALS OR IS GREATER THAN B). THE FOLLOWING CALCULATIONS APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	___
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD I = RETENTION CREDIT	___
TOTAL REFORESTATION REQUIRED G x 1/4 – I	___

2. CLEARING BELOW THRESHOLD

IF FOREST AREAS TO BE RETAINED ARE LESS THAN THE REFORESTATION THRESHOLD (IF F IS LESS THAN B), THE FOLLOWING CALCULATION APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	1.2± AC.
REFORESTATION FOR CLEARING BELOW THRESHOLD H x 2	0.8± AC.
TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	2.0± AC.

SINCE CLEARING OCCURS BELOW THE THRESHOLD, NO FOREST RETENTION CREDIT IS POSSIBLE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 10-25-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 11/2/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 10/29/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

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Certification #WDCP93MD0610044B2
[signature] 9/27/01
John P. Canoles

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
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[signature] 9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07,WP-01-103

TITLE: **FOREST CONSERVATION NOTES AND DETAILS**

			DATE: FEB.,2001	1349
DES:	DRN:	CHK:	SCALE: AS SHOWN	DRAWING 11 OF 11

F-01-132

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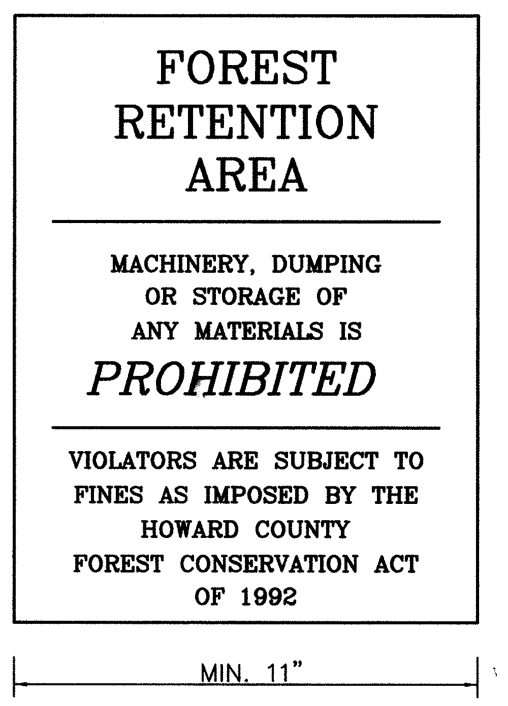
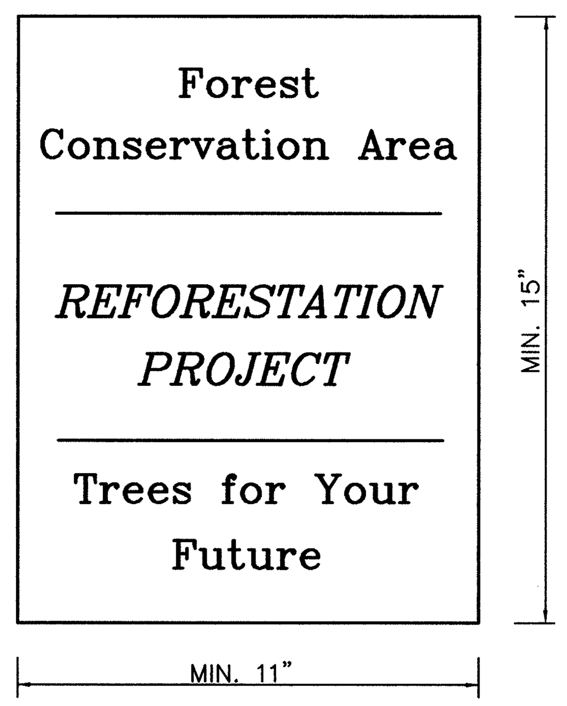
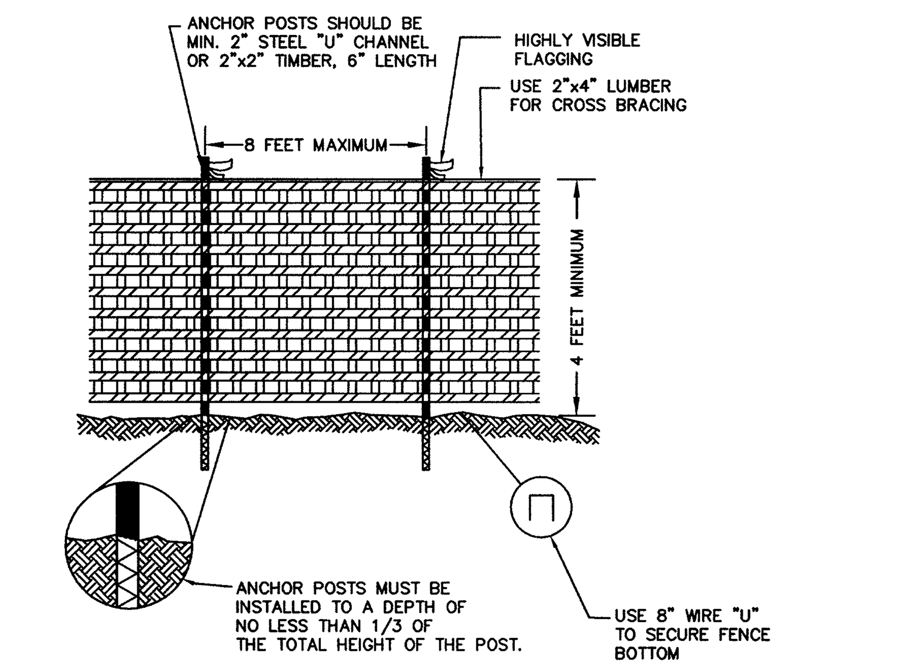


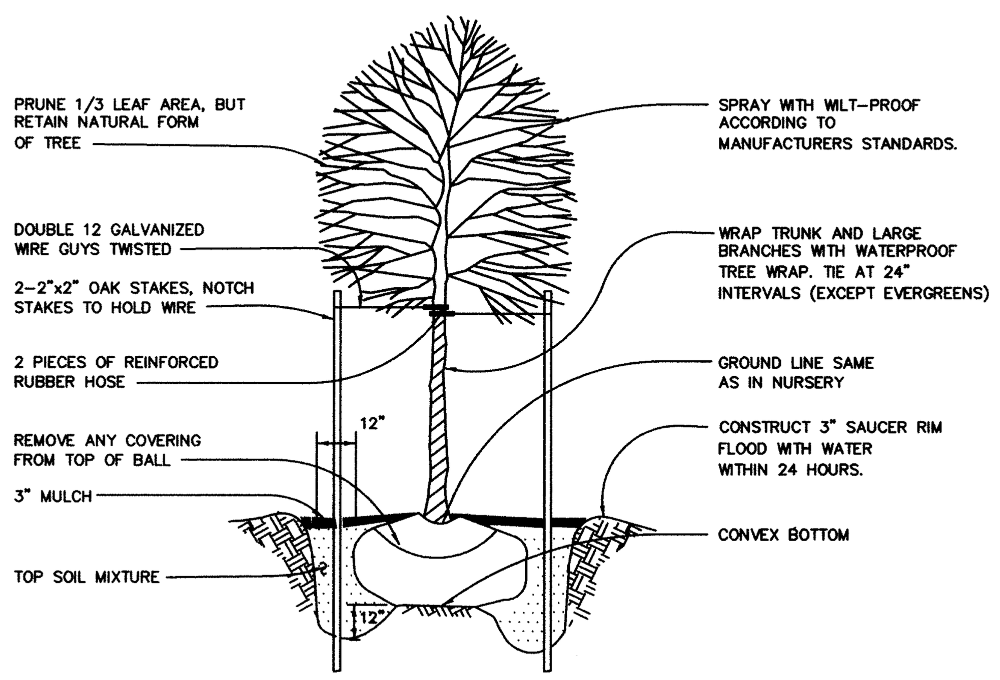




NOTES:
1. BLAZE ORANGE OF BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OF SEVER LARGE ROOTS WHEN INSTALLING POSTS.
5. PROTECTIVE SIGNS ARE REQUIRED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

ADAPTED FROM PRINCE GEORGE'S COUNTY, MARYLAND. WOODLAND CONSERVATION MANUAL AND FOREST CONSERVATION MANUAL, 1991.

PLASTIC MESH TREE PROTECTION FENCE



TREE PLANTING DETAIL

NOT TO SCALE

PLANTING/SOIL SPECIFICATIONS

1. PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH OR SEPTEMBER 15TH – NOVEMBER 15TH.
2. A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL FORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. ALL BAREROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICANT GEL PRIOR TO PLANTING.
4. PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE.
5. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
6. A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
7. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
8. ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

1. SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION PLANS.
2. PROPOSED FORESTATION AREAS IMPACTED BY SITE GRADING SHALL BE TOPSOILED AND STABILIZED AS PER #2 OF PLANTING/SOIL SPECIFICATIONS FOR PROJECT.
3. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
4. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
5. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

1. MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
2. ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
3. INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM FORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
4. PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

1. A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON. AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD.
2. THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO VANDALISM.

SURETY FOR REFORESTATION

1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

FCP NOTES:

1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE CONVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. FORESTED AREAS OCCURRING OUTSIDE THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
5. NO STOCKPILES, PARKING AREAS,EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
6. TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
7. PERMANENT SIGNAGE SHALL BE PLACED 50 – 100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSTRUCTION EASEMENTS.
8. THE OUTSTANDING REFORESTATION OBLIGATION OF 1.76 ACRES FOR THIS PROJECT SHALL BE MET THROUGH OFF-SITE PLANTING AND/OR THE PAYMENT OF THE COUNTY'S FEE-IN-LIEU. NOT MORE THAN 1.0 ACRES OF THIS OBLIGATION SHALL BE MET THROUGH THE FEE-IN-LIEU OPTION WITHOUT SPECIFIC APPROVAL FROM HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
9. SURETY COSTS:

RETENTION:	1.3 ACRES @ 0.20/SQ. FT.=$11,325.60	
REFORESTATION::	0.24 ACRES @ 0.50/SQ. FT.=$5,227.20	
		TOTAL =$16,552.80

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT # 2 (0.2± ACRES)

QTY.	SPECIES	SIZE	SPACING
20	ACER RUBRUM – RED MAPLE	2-3' WHIP	**
30	FRAXINUS PENNSYLVANICA– GREEN ASH	2-3' WHIP	**
15	VIBURNUM DENTATUM – ARROWWOOD	18-24" B.T.	**

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT # 3 (0.04± ACRES)

QTY.	SPECIES	SIZE	SPACING
5	ACER RUBRUM – RED MAPLE	2-3' WHIP	**
5	QUERCUS RUBRA – RED OAK	2-3' WHIP	**
5	VIBURNUM PRUNIFOLIUM–BLACKHAW	18-24" B.T.	**

KEY:
CAL. – CALIPER WHIP – MAY BE CONTAINER GROWN OR BAREROOT B.T. BRANCHED TRANSPLANT
– ONE INCH CALIPER TREES SHALL BE SPACED AROUND PERIMETER OF FCE EASEMENT IN RANDOM PATTERN.

** – WHIPS AND SHRUBS SHALL BE PLANTED, ON AVERAGE, AT A SPACING OF 11 FEET ON CENTER, NOT IN A GRID PATTERN, LIMITED CLUMPING OF SHRUBS IS PERMITTED.

PLANTING NOTES:

1. FCEs 'G' AND 'P' ARE HEAVILY INFLUENCED BY A MULTIFLORA ROSE. IT IS RECOMMENDED THAT THE MULTIFLORA ROSE BE REMOVED AND CONTROLLED PRIOR TO FORESTATION. IF THE ROSE IS NOT REMOVED IT WILL BE A CHRONIC MAINTENANCE PROBLEM FOR THE SITE. EXISTING NATIVE TREES MAY BE RETAINED.

2. THE POTENTIAL FOR DEER AND RODENT DAMAGE ON THIS FORESTATION PROJECT IS HIGH. THE PLANTING CONTRACTOR MAY UTILIZE PHYSICAL AND CHEMICAL TECHNIQUES TO IMPROVE THE SUCCESS OF THE PLANTINGS. THESE TECHNIQUES MUST BE APPROVED BY THE OWNER PRIOR TO INITIATION OF WORK.

FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA

GROSS SITE AREA	8.8± AC.
AREA WITHIN 100 YEAR FLOODPLAIN	0.3± AC.
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	
NET TRACT AREA	8.5± AC.
LAND USE CATEGORY (R-RLD,R-RMD, R-S,C/I/O) R-20	

II. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA	8.5± AC.
B. REFORESTATION THRESHOLD (20 % x A)	1.7± AC.
C. AFFORESTATION MINIMUM (15 % x A)	1.3± AC.
D. EXISTING FOREST ON NET TRACT AREA	6.4± AC.
E. FOREST AREAS TO BE CLEARED	5.1± AC.
F. FOREST AREAS TO BE RETAINED	1.3± AC.

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. REFORESTATION

IF EXISTING FOREST AREAS EQUAL OR EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C), AND CLEARING OF FOREST AREAS IS PROPOSED, REFORESTATION REQUIREMENT MAY APPLY.

GO TO SECTION IV

IF EXISTING FORESTS EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C) AND NO CLEARING OF EXISTING FOREST RESOURCES IS PROPOSED, NO REFORESTATION IS REQUIRED. NO FURTHER CALCULATIONS ARE NEEDED.

2. AFFORESTATION

IF EXISTING FOREST AREA ARE LESS THAN THE AFFORESTATION MINIMUM (IF D IS LESS THAN C). AFFORESTATION REQUIREMENTS APPLY.

GO TO SECTION V

IV. REFORESTATION CALCULATIONS

A. NET TRACT AREA	8.2± AC.
B. REFORESTATION THRESHOLD (20 % x A)	1.7± AC.
D. EXISTING FOREST ON NET TRACT AREA	6.4± AC.
E. FOREST AREAS TO BE CLEARED	5.1± AC.
F. FOREST AREAS TO BE RETAINED	1.3± AC.
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D – F, IF F EQUALS OR IS GREATER THAN B, ALTERNATE 1) (D – B, IF F IS LESS THAN B, ALTERNATE 2)	4.7± AC.
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B – F, IF APPLICABLE)	0.4 AC.
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F – B, RETENTION CREDIT, IF APPLICABLE)	0 AC.

SELECTION THE ALTERNATIVE THAT APPLIES:

1. CLEARING ABOVE THE THRESHOLD ONLY

IF FOREST AREAS TO BE RETAINED EQUAL OR ARE GREATER THAN THE REFORESTATION THRESHOLD (IF F EQUALS OR IS GREATER THAN B). THE FOLLOWING CALCULATIONS APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	____
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD I = RETENTION CREDIT	____
TOTAL REFORESTATION REQUIRED G x 1/4 – I	____

2. CLEARING BELOW THRESHOLD

IF FOREST AREAS TO BE RETAINED ARE LESS THAN THE REFORESTATION THRESHOLD (IF F IS LESS THAN B), THE FOLLOWING CALCULATION APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	1.2± AC.
REFORESTATION FOR CLEARING BELOW THRESHOLD H x 2	0.8± AC.
TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	2.0± AC.

SINCE CLEARING OCCURS BELOW THE THRESHOLD, NO FOREST RETENTION CREDIT IS POSSIBLE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 10-25-01
CHIEF, BUREAU OF HIGHWAYS HB — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 11/2/01
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE

[signature] 10/29/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION CE — DATE

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MD DNR Qualified Professional
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Certification #WDCP93MD0610044B2
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[signature] 9/27/01

OWNER/DEVELOPER:
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9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07,WP-01-103

TITLE: **FOREST CONSERVATION NOTES AND DETAILS**

			DATE: FEB.,2001	1349
DES:	DRN:	CHK:	SCALE: AS SHOWN	DRAWING 11 OF 11

F-01-132

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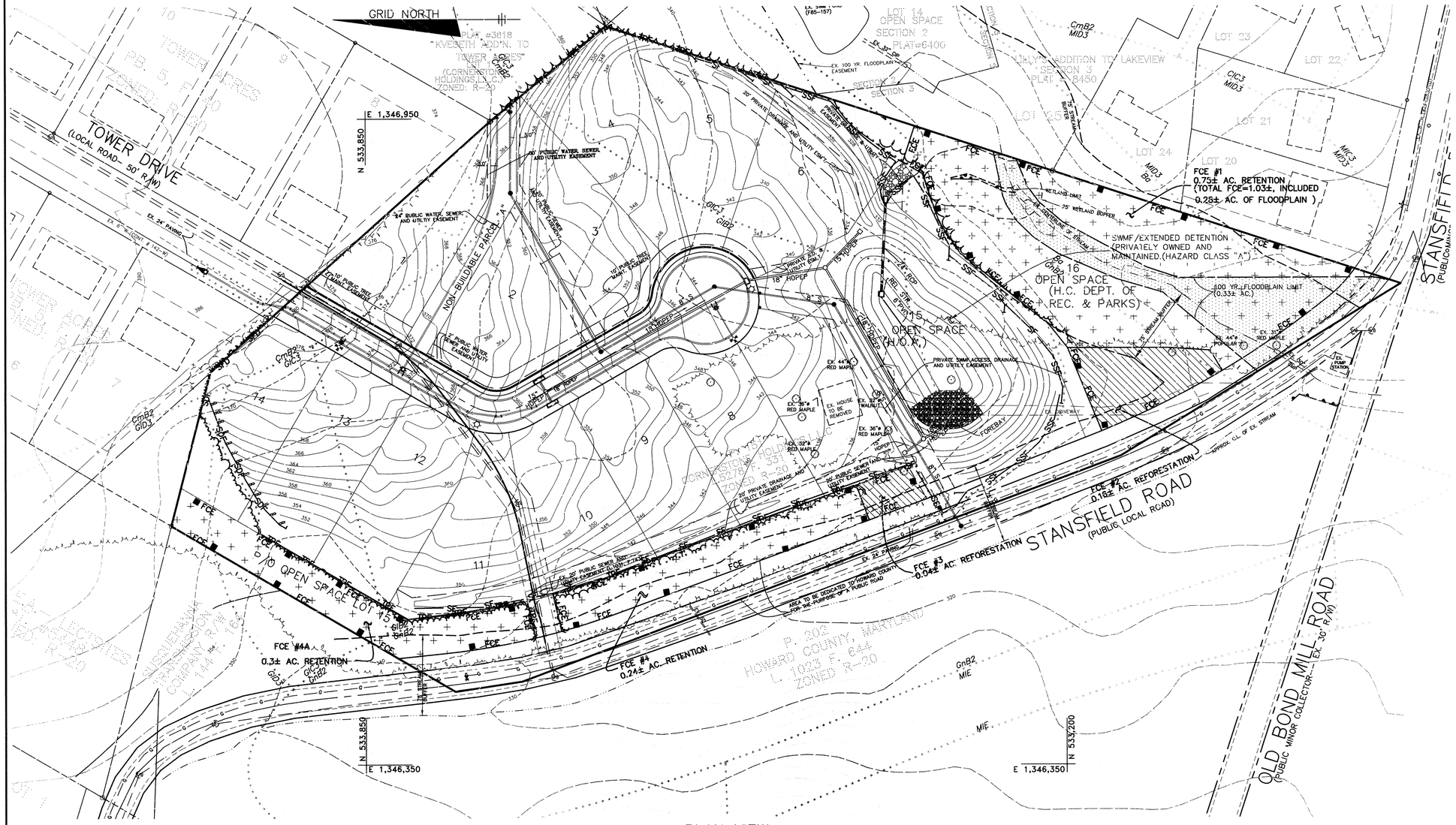

PLAN VIEW

SCALE: 1" = 50'

FCP LEGEND

EXISTING CONTOURS	
PROPOSED CONTOURS	
FOREST TO BE RETAINED	
FORESTATION AREA	
LIMITS OF FOREST CONSERVATION EASEMENT	FCE
EXISTING SPECIMEN TREE	
SIGNAGE	
TREE PROTECTION FENCE	TPF
SUPER SILT FENCE	SSF

LEGEND

CONTOUR INTERVAL	2 FEET
EXISTING CONTOUR	200
PROPOSED CONTOUR	100
PROPOSED SEWER MAIN	8" S
PROPOSED WATER MAIN	8" W
PROPOSED STORM DRAIN	EX. 18" RCP
LIMIT OF DISTURBED AREA	
EXISTING TREE LINE	
PROPOSED TREE LINE	

NOTE: INSTALL TREE PROTECTION FENCES AT THE PERIMETER OF LIMIT OF DISTURBANCE WHERE EXISTING VEGETATION ARE TO BE RETAINED . (SUPER SILT FENCES ARE TO BE USED INSTEAD OF TREE PROTECTION FENCES WHERE SEDIMENT CONTROL DEVICES ARE WITHIN THE SAME LOCATION.)

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
Ba	BAILE SILT LOAM	D
C1C3	CHILLUM GRAVELLY LOAM, 5-10 % SLOPES, SEVERELY ERODED	B
CmB2	CHILLUM GRAVELLY LOAM, 1-5 % SLOPES, MODERATELY ERODED	B
G1B2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
G1C3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
G1D3	GLENELG LOAM, 15-25% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
M1C3	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
M1E	MANOR LOAM, 25 TO 45% SLOPES.	B

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

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CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

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Donald Moan 10/8/01

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(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

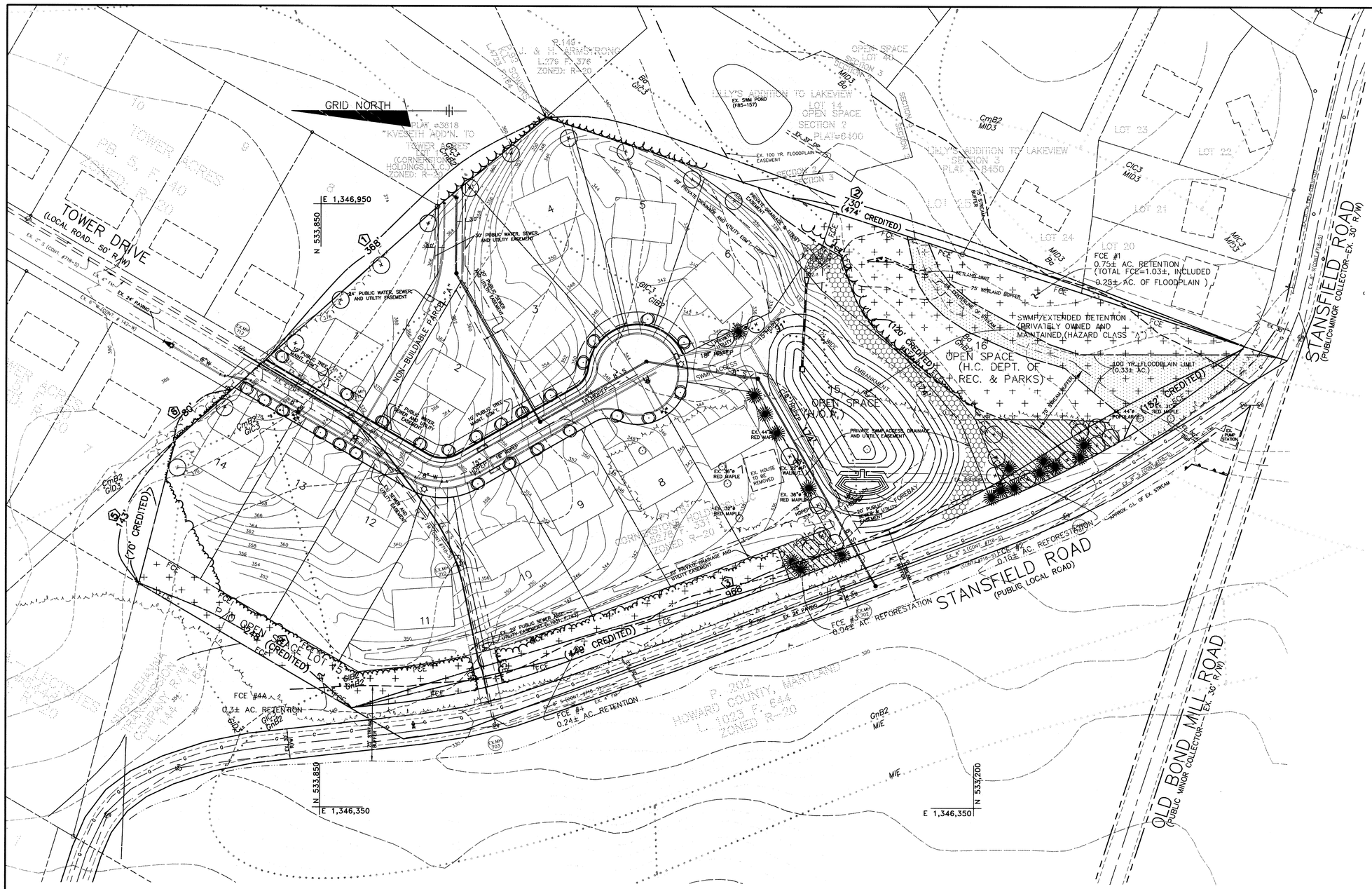
LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07,WP-01-103

TITLE: ***FOREST CONSERVATION PLAN***

DATE: FEB.,2001 PROJECT NO. 1349

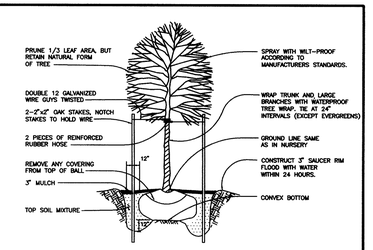
DES: DRN: CHK: SCALE: AS SHOWN DRAWING 10 OF 11

F-01-132



PLAN VIEW

SCALE: 1" = 50'



TREE PLANTING DETAIL

NOT TO SCALE

NOTES:

1.) TREES MUST BE A MINIMUM OF FOUR(4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN.

2.) TREE MUST BE PLANTED A MINIMUM OF FIVE(5) FEET FROM AN OPEN SPACE ACCESSS STRIP AND TEN(10) FEET FROM A DRIVEWAY.

LEGEND

FOREST CONSERVATION EASEMENT (AREA TO BE RETAINED)

FOREST CONSERVATION EASEMENT (AREA TO BE PLANTED)

20' NO WOODY VEGETATION ZONE

LANDSCAPING NOTES

1.) PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.

2.) THE DEVELOPER SHALL BE RESPONSIBLE FOR THE STREET TREES, STORMWATER MANAGEMENT POND PLANTING, THE PRESERVATION OF THE PERIMETER VEGETATION AS SHOWN ON THESE PLANS AND FOR THE PERIMETER PLANTING ON PERIMETERS. BONDING FOR PERIMETER PLANTING IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPERS AGREEMENT.

3.) A MINIMUM OF TWENTY(20) FEET SHALL BE MAINTAINED BETWEEN TREES AND STREET LIGHTS.

4.) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

5.) FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $10,050 FOR 25 SHADE TREES AND 17 EVERGREENS.

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY		NO	NO	YES	NO	NO	NO
	ADJACENT TO ROADWAY	YES	YES	NO	YES	YES	YES
	ADJACENT TO PERIMETER PROPERTIES						
PERIMETER NO. / LANDSCAPE TYPE		1 A	2 A	3 B	4 A	5 A	6 A
LINEAR FEET OF FRONTAGE/PERIMETER		368'	730'	968'	248'	143'	80'
CREDIT FOR EXISTING VEGETATION: (NO OR YES W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	YES 474' WOODS	YES 601' WOODS	YES 248' WOODS	YES 70' WOODS	NO
CREDIT FOR WALL, FENCE OR BERM: (NO OR YES W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED:	SHADE TREES	6	4	7	0	1	1
	EVERGREEN TREES	–	0	9	–	–	–
	OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–
	SHRUBS	–	–	–	–	–	–
NUMBER OF PLANTS PROVIDED:	SHADE TREES	6	4	7	0	1	1
	EVERGREEN TREES	–	–	9	–	–	–
	OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–
	SHRUBS (10:1 SUBSTITUTE)	–	–	–	–	–	–
	(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)						

STREET TREE TABULATION

STREET TREE REQUIRED (1 TREE / 40') : 1031'(STREET LENGTH)/ 40' = 25.77= 26 TREES

STREET TREE PROVIDED : 26 TREES

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING
TYPE "B" BUFFER

SWM FACILITY NO.	1
LINEAR FEET OF PERIMETER	439'
CREDIT FOR EXISTING VEGETATION: (NO OR YES W/L.F.)	YES, 120'
CREDIT FOR OTHER LANDSCAPING: (NO OR YES W/%)	NO
NUMBER OF TREES REQUIRED: SHADE TREES (1:50)	6
EVERGREEN TREES (1:40)	8
NUMBER OF TREES PROVIDED: SHADE TREES	6
EVERGREEN TREES	8
OTHER TREES (2:1 SUBSTITUTE)	–

PERIMETER & SWMF LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
⊕	28	PLANTANUS ACERFOLIA 'BLOODGOOD' (BLOODGOOD LONDON PLANE)	2 1/2" MIN. CAL. B & B FULL HEAD
✺	17	PINUS STROBUS (EASTERN WHITE PINE)	6'- 8' HT. UNSHEARED

STREET TREE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
⊙	26	ACER RUBRA (RED MAPLE)	2 1/2" MIN. CAL. B & B FULL HEAD

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD A. KIM — No. 21843 — REGISTERED PROFESSIONAL ENGINEER

9/27/01

OWNER/DEVELOPER:

CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT:

THE HILLSIDE AT ROCKY GORGE

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

REFERENCE FILE: SP-00-07,WP-01-103

TITLE:

LANDSCAPE PLAN

DATE: FEB., 2000 PROJECT NO. 1349

DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING 9 OF 11

F-01-132

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CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for 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 to 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. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

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 25-foot radius 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. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch 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 heavy 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 teh 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 water can be squeezed out.

When required by the reviewing agency the 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 (Standard Proctor).

Cut Off Trench – The cutoff 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 a least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core – The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the cores shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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 or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistively of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sided of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil 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 shall completely fill all voids adjacent to the flowable fill zone. 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 structure or pipe unless there is a compacted fill of 24' or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section

Corrugated Metal Pipe – all of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Polymer Coated steel pipe) – Steel pipes with polymeric coatings shall bave a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Maerials – (Aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connection shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".

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

Reinforced Concrete Pipe – All of 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 C-361.

2. Bedding – Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used a described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be places 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 form the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

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

Plastic Pipe – The following criteria shall apply for plastic pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4' – 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

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

Drainage Diaphragms – When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

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

Rock Riprap

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

Geotextile 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, Section 921.09, Class C.

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 various parts of the work and for maintaining the evacuations, 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 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 location being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the 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, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

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 pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

HILLIS-CARNES ENGINEERING ASSOCIATES,INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

PROJECT NAME: The Hillside at Rocky Gorge — Boring Number B-1
LOCATION: Howard County, Maryland — Job Number 00142A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 6" Foreman Lamont Smith
Surf. Elev. ____ Hammer Drop 30 Inches Rock Core Dia. – Inspector .
Date Started 04-03-00 Pipe Size 2.0 Inches OD Boring Method HSA Complete 04-03-00

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown,moist,very soft,silt trace clay with rock (ML)	2.0		I	1-2-3-5	1	14"	4" Topsoil
	Brown,moist,medium dense to very dense,micaceous silty sand with rock fragments (SM) USDA-Loamy Sand			D	7-7-10-10	2	15"	No groundwater encountered while drilling
			5.0	D	6-6-20-51/3"	3	12"	Caved in at 10.0' at Completion
				D	48-51/5"	4	8"	Caved in at 11.5' after 24 hrs.
			10.0	D	11-13-51/3"	5	10"	
			15.0	D	51/0"	6	No Rec	
	Decomposed Rock	16.5						
	Bottom of Boring Hole at 16.5'			D	51/3"	7	3"	
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE CA-CONTINUOUS FLIGHT AUGER RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED I-INTACT U-UNDISTURBED L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs. 10.5 FT. AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS CFA-CONT. FLIGHT AUGERS DC-DRIVING CASING MD-MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS-CARNES ENGINEERING ASSOCIATES,INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

PROJECT NAME: The Hillside at Rocky Gorge — Boring Number B-2
LOCATION: Howard County, Maryland — Job Number 00142A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 6" Foreman Lamont Smith
Surf. Elev. ____ Hammer Drop 30 Inches Rock Core Dia. – Inspector .
Date Started 04-03-00 Pipe Size 2.0 Inches OD Boring Method HSA Complete 04-03-00

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Red,moist,medium stiff silt, little clay,trace fine sand, trace mica (ML)	2.0		I/D	1-2-3-3	1	16"	2" Topsoil
	Red/Brown/Orange,moist,loose, micaceous silty sand with westhered rock fragments (SM) USDA-Loamy Sand			D	4-4-4-4	2	15"	No groundwater encountered while drilling
			5.0	D	2-2-3-4	3	24"	Caved in at 9.5' at Completion
				D	4-4-6-8	4	14"	Caved in at 8.5' after 24 hrs.
		9.5	10.0					
	Gray,moist,medium dense to very dense,micaceous silty sand with rock fragments (SM) USDA-Loamy Sand / Sand			D	8-9-14-14	5	16"	
		16.5		D	18-21-32-28	6	18"	
	Bottom of Test Hole at 16.5'							
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE CA-CONTINUOUS FLIGHT AUGER RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED I-INTACT U-UNDISTURBED L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs. Dry FT. AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS CFA-CONT. FLIGHT AUGERS DC-DRIVING CASING MD-MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS-CARNES ENGINEERING ASSOCIATES,INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

PROJECT NAME: The Hillside at Rocky Gorge — Boring Number B-3
LOCATION: Howard County, Maryland — Job Number 00142A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 6" Foreman Lamont Smith
Surf. Elev. ____ Hammer Drop 30 Inches Rock Core Dia. – Inspector .
Date Started 04-05-00 Pipe Size 2.0 Inches OD Boring Method HSA Complete 04-03-00

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown,moist,soft,silt,trace fine sand and mica (ML) trace mica (ML)	2.0		I	1-2-3-3	1	18"	3" Topsoil
	Red/Brown/Orange,moist,loose, micaceous silty sand with westhered rock fragments (SM) USDA-Loamy Sand			D	6-8-12-9	2	24"	No groundwater encountered while drilling
			5.0	D	3-6-7-8	3	14"	Caved in at 9.0' at Completion
				D	3-5-6-12	4	15"	Caved in at 1.5' after 24 hrs.
			10.0	D	8-9-14-14	5	16"	
		16.5		D	4-7-7-11	6	18"	
	Bottom of Test Hole at 16.5'							
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE CA-CONTINUOUS FLIGHT AUGER RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED I-INTACT U-UNDISTURBED L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs. Dry FT. AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS CFA-CONT. FLIGHT AUGERS DC-DRIVING CASING MD-MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. RECOMMENDATIONS

Embankment and Cut-off trench Construction

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dumptruck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and cut-off trench. In accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL.
It is our professional opinion that in addition to the soil materials above a fine grained soil, including Silt (ML) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

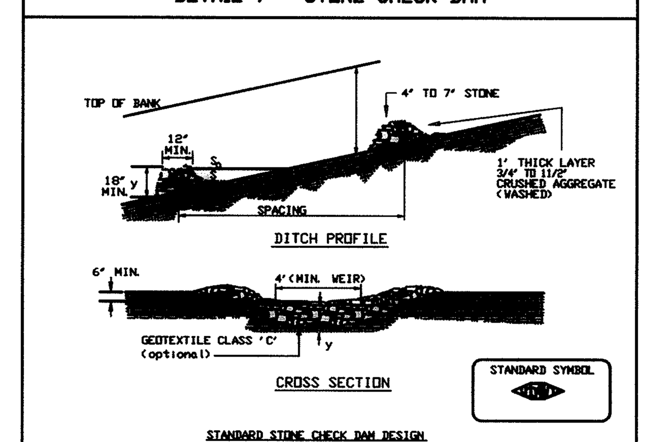
ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

DETAIL 7 - STONE CHECK DAM



STANDARD STONE CHECK DAM DESIGN

SLOPE	SPACING
2% or less	80'
2.1% to 4%	40'
4.1% to 7%	25'
7.1% to 10%	15'
over 10%	use lined waterway design

Construction Specifications

1. Swales and ditches shall be prepared in accordance with the construction specifications described in Section A-2, Standards and Specifications for Temporary Swale.
2. The check dam shall be constructed of 4'-7' stone. The stone shall be placed so that it completely covers the width of the channel and keyed into the channel banks.
3. The top of the check dam shall be constructed so the the center is approximately 6' lower than the outer edges, forming a weir that water can flow across.
4. The maximum height of the check dam at the center shall not exced 2'.
5. The upstream sideof the check dam shall be lined with approximately 1' of 3/4' to 11/2' crushed aggregate.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE B-8-5 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

DONALD A. MASON — PE NO. 21443 — DATE ____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED 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 SOIL CONSERVATION DISTRICT."

DEVELOPER – CORNERSTONE HOLDINGS, L.L.C. — DATE 10/1/01

BY THE ENGINEER:

"I/WE 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 CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason — 9/27/01
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 10-25-01 DATE

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 10/15/01 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/2/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 10/29/01 DATE

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — 10/15/01 DATE

NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

LOCATION: TAX MAP 46, GRID 18, PARCEL 151; 6 th. ELECTION DISTRICT; HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

TITLE: **STORMWATER MANAGEMENT NOTES & DETAILS**

DATE: FEB.,2001 — PROJECT NO.:1349
DES: YSL — DRN: YSL — CHK: DAM — SCALE: AS SHOWN — DRAWING 8 OF 11

F-01-132

P:\PROJECTS\1349\DWG\7024S3.DWG

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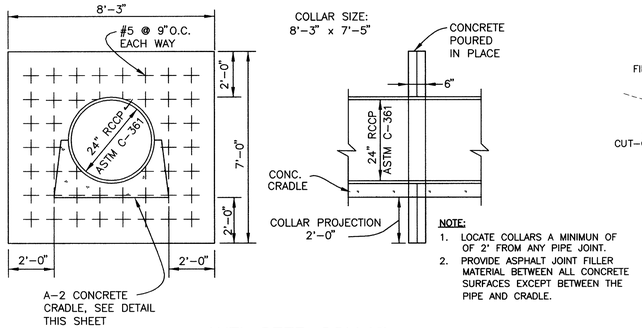
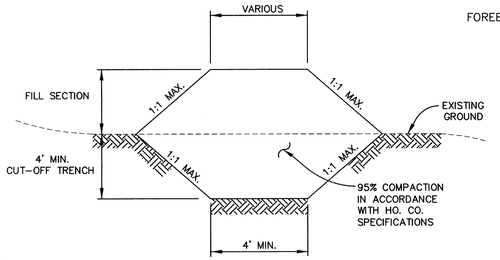


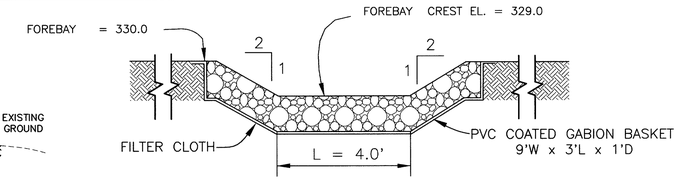
NOTE:
1. LOCATE COLLARS A MINIMUN OF OF 2' FROM ANY PIPE JOINT.
2. PROVIDE ASPHALT JOINT FILLER MATERIAL BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND CRADLE.

ANTI-SEEP COLLAR
NOT TO SCALE

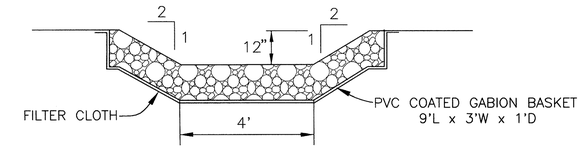


NOTES:
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (CL, CH, GC OR SC) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

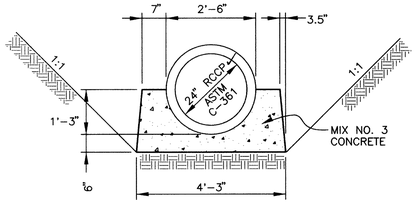
CORE TRENCH SECTION
NOT TO SCALE



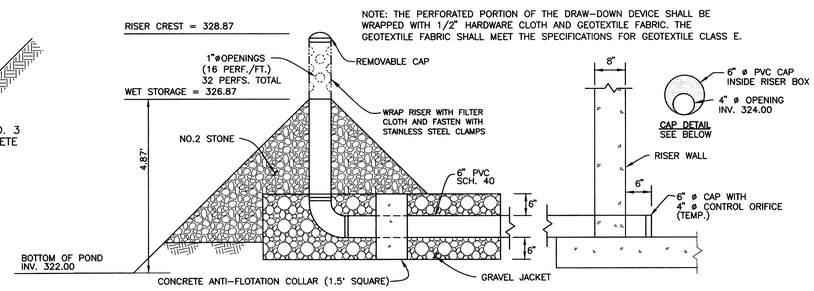
PROFILE THROUGH FOREBAY WEIR
NOT TO SCALE



GABION INFLOW PROTECTION CHANNEL
NOT TO SCALE

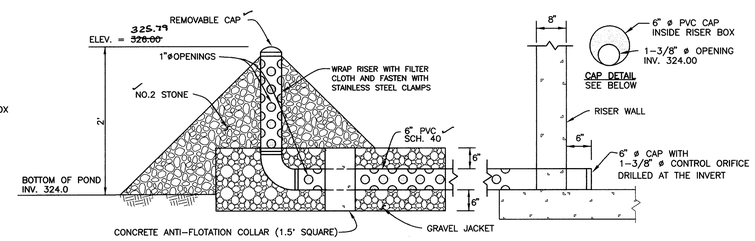


TYPE A-2 CONCRETE CRADLE
NOT TO SCALE

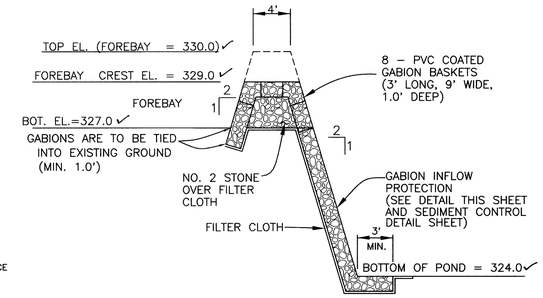


NOTE: THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.

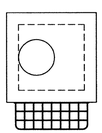
6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE



6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE

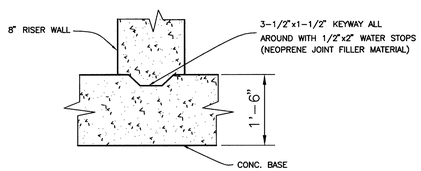


TYPICAL SECTION OF GABION WEIR AT FOREBAY
NOT TO SCALE

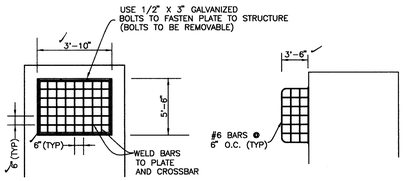


TOP VIEW

NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.



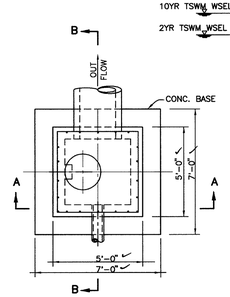
KEYWAY DETAIL
NOT TO SCALE



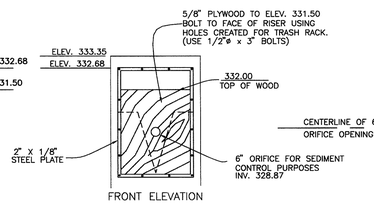
FRONT ELEVATION

SIDE ELEVATION

TRASH RACK
NOT SCALE

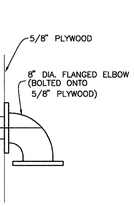


PLAN



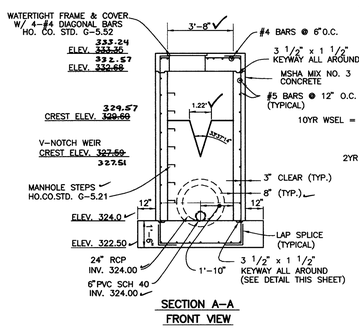
FRONT ELEVATION

BLOCKING DETAIL FOR TEMPORARY SWM DURING CONSTRUCTION
NOT TO SCALE

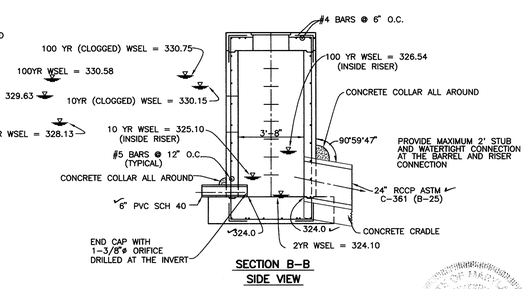


PROTECTION DETAIL FOR TEMP. 6" ORIFICE
NOT TO SCALE

NOTE:
TOP MANHOLE STEP SHALL BE A MAXIMUM OF 2'-0" BELOW THE TOP OF THE MANHOLE COVER.



SECTION A-A
FRONT VIEW



SECTION B-B
SIDE VIEW

CONTROL STRUCTURE DETAIL
SCALE: 1" = 4'

AS-BUILT 2/10/05

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Donald Mason — DONALD A. MASON — PE NO. 21443 — DATE 2/10/05

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED 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 SOIL CONSERVATION DISTRICT."

DEVELOPER – CORNERSTONE HOLDINGS, L.L.C. — DATE 10/1/01

BY THE ENGINEER:

"I/WE 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 CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 9/27/01

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER
9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

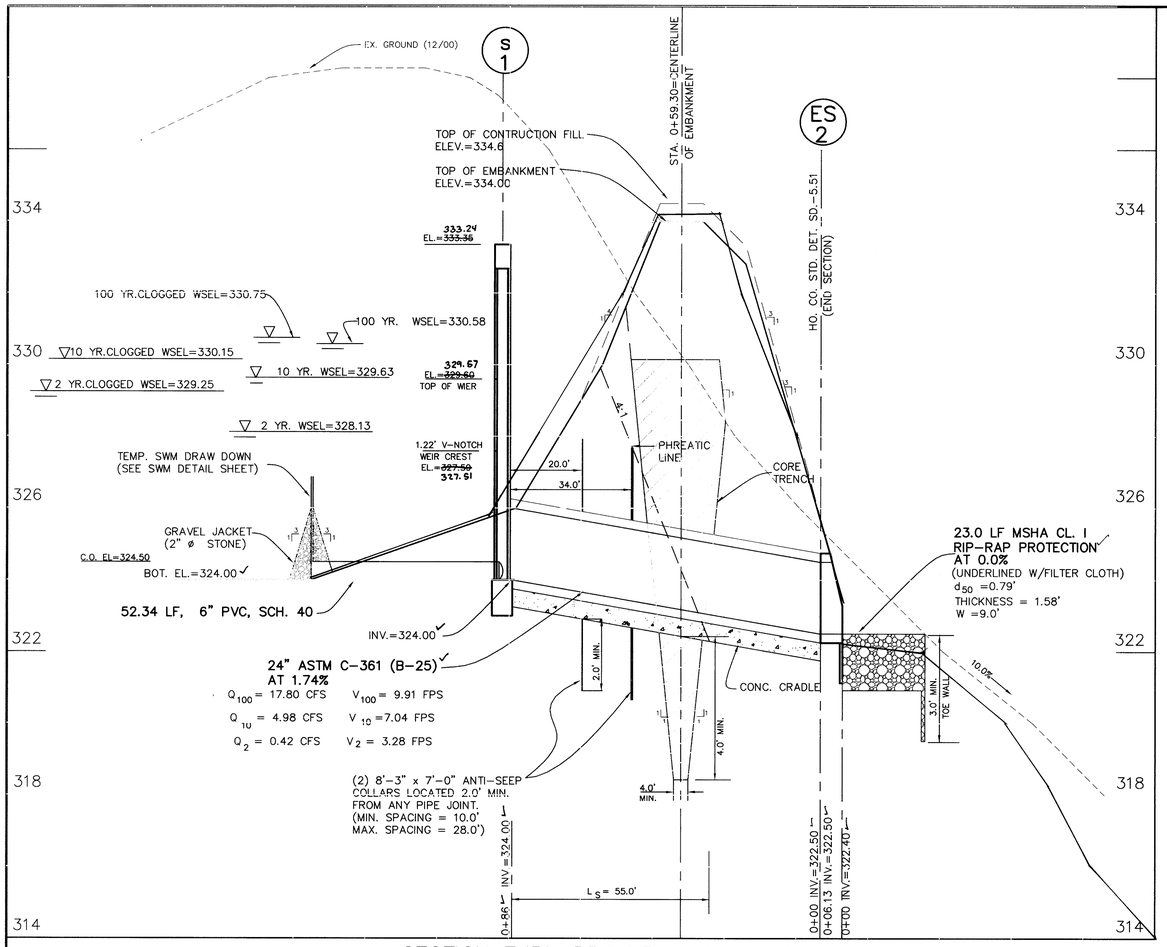
LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07 , WP-01-103

TITLE: **STORMWATER MANAGEMENT NOTES AND DETAILS**

DATE: FEB.,2001 — PROJECT NO. 1268

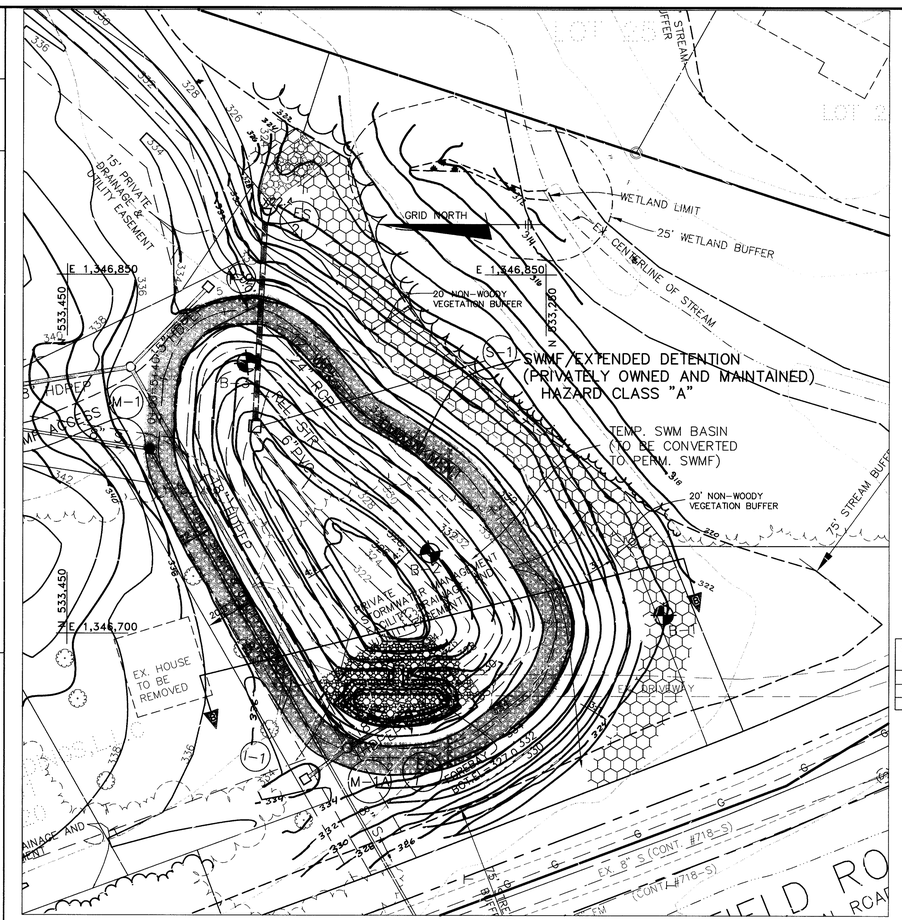
DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 7 OF 11

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS — CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01	APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. — HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING — CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01 — CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01	APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL. — USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01



SECTION THRU PRINCIPAL SPILLWAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



PLAN VIEW

SCALE: 1" = 30'

CENTERLINE OF EMBANKMENT CURVE DATA

0+28.04(PC) N 533411.78 E 1346778.46
0+41.07(PT) N 533409.32 E 1346765.80
DELTA: 29°52'47" RAD.: 25.0' ARC. :13.04' TANGENT: 6.67'
CHORD: S 79°00'27"E 12.89'

1+59.10 (PC) N 533350.93 E 1346663.28
1+72.49 (PT) N 533341.03 E 1346654.50
DELTA: 30°41'47" RAD.: 25.0' ARC. :13.39' TANGENT: 6.86'
CHORD: S41°35'02"W 13.23'

1+81.23 (PC) N 533333.18 E 1346650.63
1+92.46(PT) N 533322.35 E 1346648.06
DELTA: 25°44'17" RAD.: 25.0' ARC. :11.23' TANGENT: 5.71'
CHORD: S 13°22'00"W 11.14'

2+11.47 (PC) N 533303.34 E 134647.89
2+20.57 (PT) N 533294.43 E 1346649.45
DELTA: 20°51'19" RAD.: 25.0' ARC. :9.10' TANGENT: 4.60'
CHORD: S 09°55'48"W 9.05'

2+30.97 (PC) N 533284.68 E 1346653.07
2+38.97 (PT) N 533277.75 E 1346657.00
DELTA: 18°20'03" RAD.: 25.0' ARC. :8.00' TANGENT: 4.03'
CHORD: S 29°31'29"W 7.97'

2+65.25 (PC) N 533257.23 E 1346673.43
2+79.96 (PT) N 533249.03 E 1346685.38
DELTA: 33°41'57" RAD.: 25.0' ARC. :14.70' TANGENT: 7.57'
CHORD: S 55°32'29"E 14.49'

2+88.49 (PC) N 533246.45 E 1346693.51
2+99.90 (PT) N 533245.56 E 1346704.79
DELTA: 26°09'23" RAD.: 25.0' ARC. :11.41' TANGENT: 5.81'
CHORD: S 85°28'09"E 11.31'

3+03.98 (PC) N 533246.1641 E 1346708.82
3+14.64 (PT) N 533249.92 E 1346718.71
DELTA: 24°26'12" RAD.: 25.0' ARC. :10.66' TANGENT: 5.41'
CHORD: N 69°14'04"E 10.58'

3+65.73 (PC) N 533278.77 E 1346760.86
3+85.90 (PT) N 533293.43 E 1346774.51
DELTA: 23°07'05" RAD.: 50.0' ARC. :20.17' TANGENT: 10.23'
CHORD: N 42°57'46"E 20.04'

4+14.57 (PC) N 533317.90 E 1346789.45
4+33.33 (PT) N 533331.73 E 1346801.97
DELTA: 21°29'49" RAD.: 50.0' ARC. :18.76' TANGENT: 9.49'
CHORD: N 42°09'09"E 18.65'

4+47.83 (PC) N 533340.47 E 1346813.53
4+58.23 (PT) N 533347.56 E 1346821.12
DELTA: 11°55'13" RAD.: 50.0' ARC. :10.40' TANGENT: 5.22'
CHORD: N 46°56'26"E 10.38'

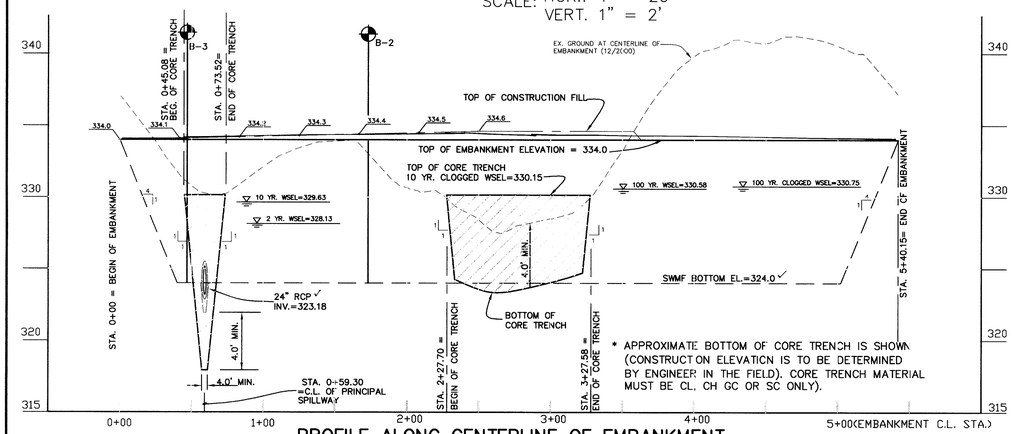
4+71.71 (PC) N 533357.73 E 1346829.96
4+80.81 (PT) N 533365.53 E 1346834.56
DELTA: 20°51'46" RAD.: 25.0' ARC. :9.10' TANGENT: 4.60'
CHORD: N 30°32'57"E 9.05'

4+97.21 (PC) N 533381.68 E 1346834.81
5+05.18 (PT) N 533389.40 E 1346832.96
DELTA: 18°16'17" RAD.: 25.0' ARC. :7.97' TANGENT: 4.02'
CHORD: N 13°27'49"W 7.94'

5+07.14 (PC) N 533391.20 E 1346832.21
5+21.30 (PT) N 533402.09 E 1346823.44
DELTA: 32°28'16" RAD.: 25.0' ARC. :14.17' TANGENT: 7.28'
CHORD: N38°50'06"W 13.98'

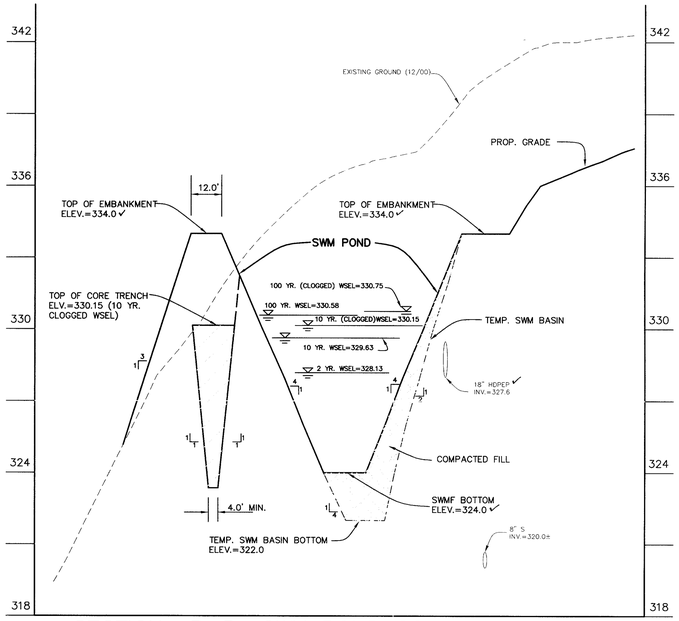
STORMWATER MANAGEMENT SUMMARY DATA

STORM FREQUENCY	PRE-DEVELOPED COMBINED DISCHARGE (CFS)	POST-DEVELOPED COMBINED DISCHARGE (CFS) WITH SWM
2	10.68	4.48
10	28.21	12.15
100	50.26	30.68



PROFILE ALONG CENTERLINE OF EMBANKMENT

SCALE: HOR.: 1"=50'
VERT. 1" = 5'



SECTION B-B: SWM POND CONVERSION POFILE

SCALE: HOR.: 1"=30'
VERT.: 1"=3'

	POND #1		
STORM FREQUENCY	2	10	100
INFLOW Q (CFS)	5.84	15.96	28.82
DISCHARGE Q (CFS)	0.42	4.98	17.80
ELEVATION	328.13	329.63	330.58
STORAGE VOLUME PROVIDED (AC.-FT)	0.26	0.48	0.69

WATER QUALITY STORAGE ELEVATION AT 327.59
BOTTOM ELEV.: 324.00
EMBANKMENT ELEV.: 334.00
FOREBAY BOTTOM ELEV.: 327.00
FOREBAY CREST ELEV.: 329.00

OPERATION, MAINTENANCE AND INSPECTION NOTE

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AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Donald Mason
DONALD A. MASON
PE NO. 21443
DATE 2/10/05

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER. NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

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DEVELOPER - CORNERSTONE HOLDINGS, LLC — DATE 10/1/01

BY THE ENGINEER:

"I/WE 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 CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason
ENGINEER - DONALD A. MASON, P.E. # 21443 — DATE 9/27/01

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01

Donald Mason
AS-BUILT 2/10/05

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER
9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT:
THE HILLSIDE AT ROCKY GORGE

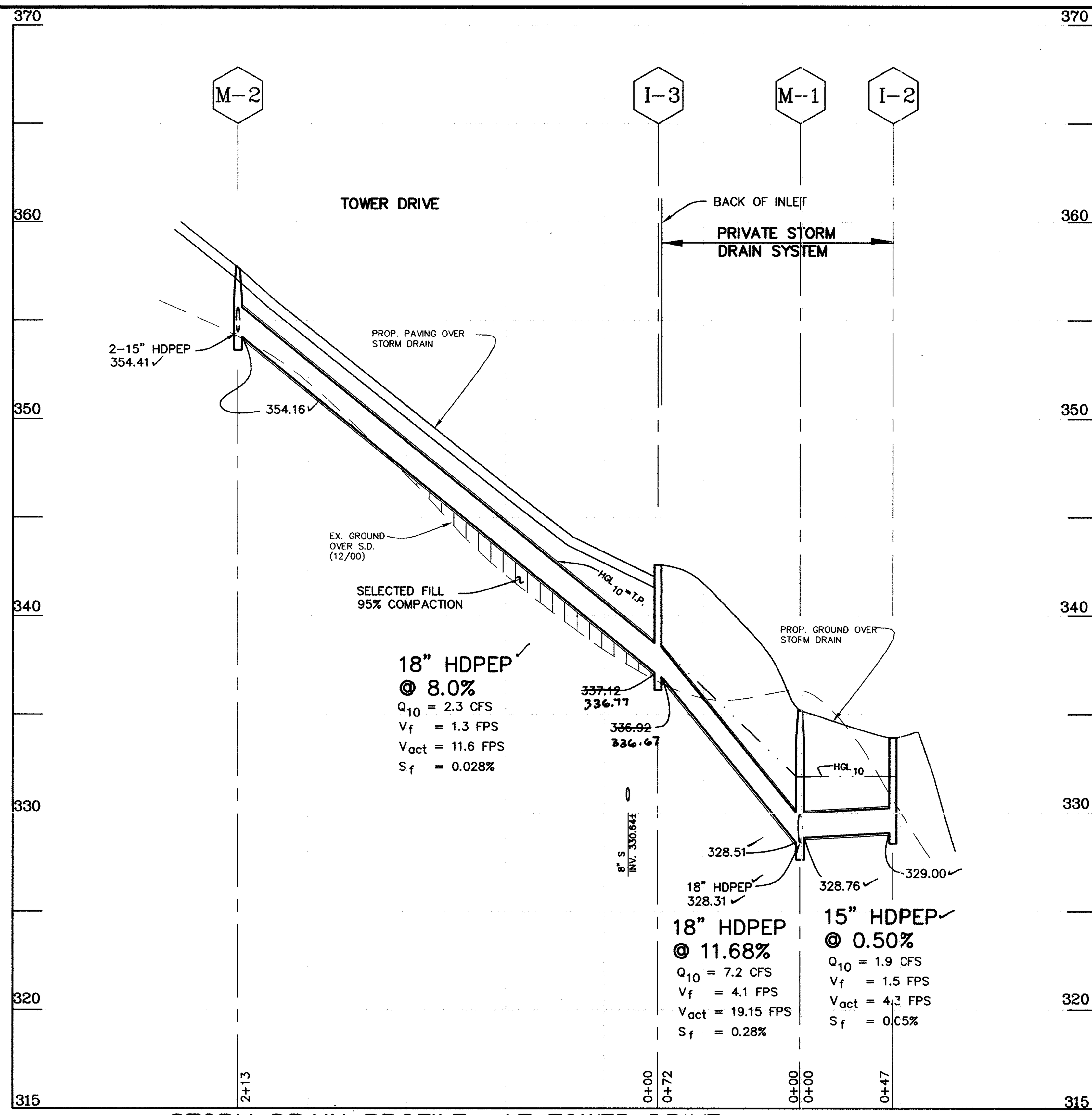
LOCATION:
TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

TITLE:
STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES

DATE: FEB.,2001 — PROJECT NO. 1349

DES: YSL	DRN: YSL	CHK: DAM	SCALE: AS SHOWN	DRAWING 6 OF 11

F-01-132



STORM DRAIN PROFILE AT TOWER DRIVE

SCALE: HOR.: 1" = 50' VER.: 1" = 5"

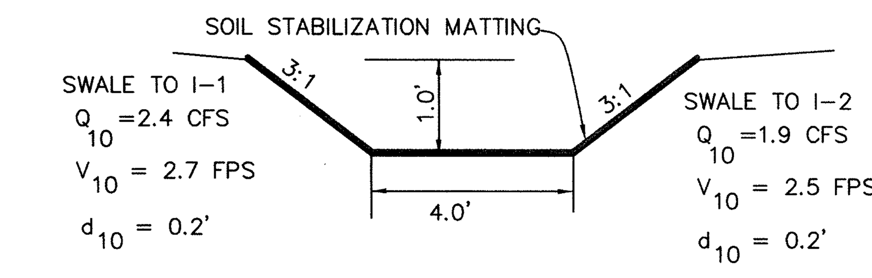
STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	TYPE	INVERT (OUT)	INVERT (IN)	INVERT (IN)	TOP ELEVATION	LOCATION	REMARKS
I-1	TYPE "D" INLET	327.86 (15" ø.)	--	--	334.03	N 533350.2245 E 1346639.0835	HOWARD COUNTY STD. SD-4.39 (PRECAST) TWO (2) OPENINGS
I-2	TYPE "D" INLET	329.00 (15" ø.)	--	--	333.83	N 533391.2125 E 1346844.8383	HOWARD COUNTY STD. SD-4.39 (PRECAST) TWO (2) OPENINGS
I-3	"A-5" INLET (WIDTH=2.5')	~~336.92~~ 336.67 (18" ø.)	~~337.12~~ 336.77 (18" ø.)	--	342.62	L.P. STA. 1+36.04 0.43' O/S LT. TOWER DRIVE	HOWARD COUNTY STD. SD-4.40
I-4	"A-10" INLET (WIDTH=2.5')	354.53 (15" ø.)	--	--	~~357.91~~ 358.05	STA. 2.+83.28 10.43' O/S LT. TOWER DRIVE	HOWARD COUNTY STD. SD-4.41
I-5	"A-10" INLET (WIDTH=2.5')	~~354.53~~ 354.79 (15" ø.)	--	--	~~357.91~~ 358.11	STA. 2.+83.28 10.43' O/S RT. TOWER DRIVE	HOWARD COUNTY STD. SD-4.41
M-1	MANHOLE	328.31 (18" ø.)	328.51 (18" ø.)	328.76 (15" ø.)	~~335.2~~ 334.72	N 533423.5723 E 1346811.3254	HOWARD COUNTY STD. G5.12
M-1A	MANHOLE	327.19 (18" ø.)	327.39 (18" ø.)	327.64 (15" ø.)	~~334.3~~ 334.42	N 533332.7015 E 1346652.0120	HOWARD COUNTY STD. G5.12
M-2	MANHOLE	354.16 (18" ø.)	354.41 (15" ø)	354.41 (15" ø.)	~~357.61~~ 357.91	STA. 2.+83.28 0' O/S LT. TOWER DRIVE	HOWARD COUNTY STD. G5.12
ES-1	END SECTION	327.00 (18" ø.)	327.04 (18" ø)	--	---	N 533315.7731 E 1346661.6626	HOWARD COUNTY STD. SD5.51

NOTES: 1.) STRUCTURE ELEVATION FOR MANHOLE IS AT THE TOP CENTER OF THE RIM.
2.) STRUCTURE ELEVATION FOR THE INLET IS THE TOP OF CURB ELEVATION LOCATED AT THE MID-POINT OF THE INLET.

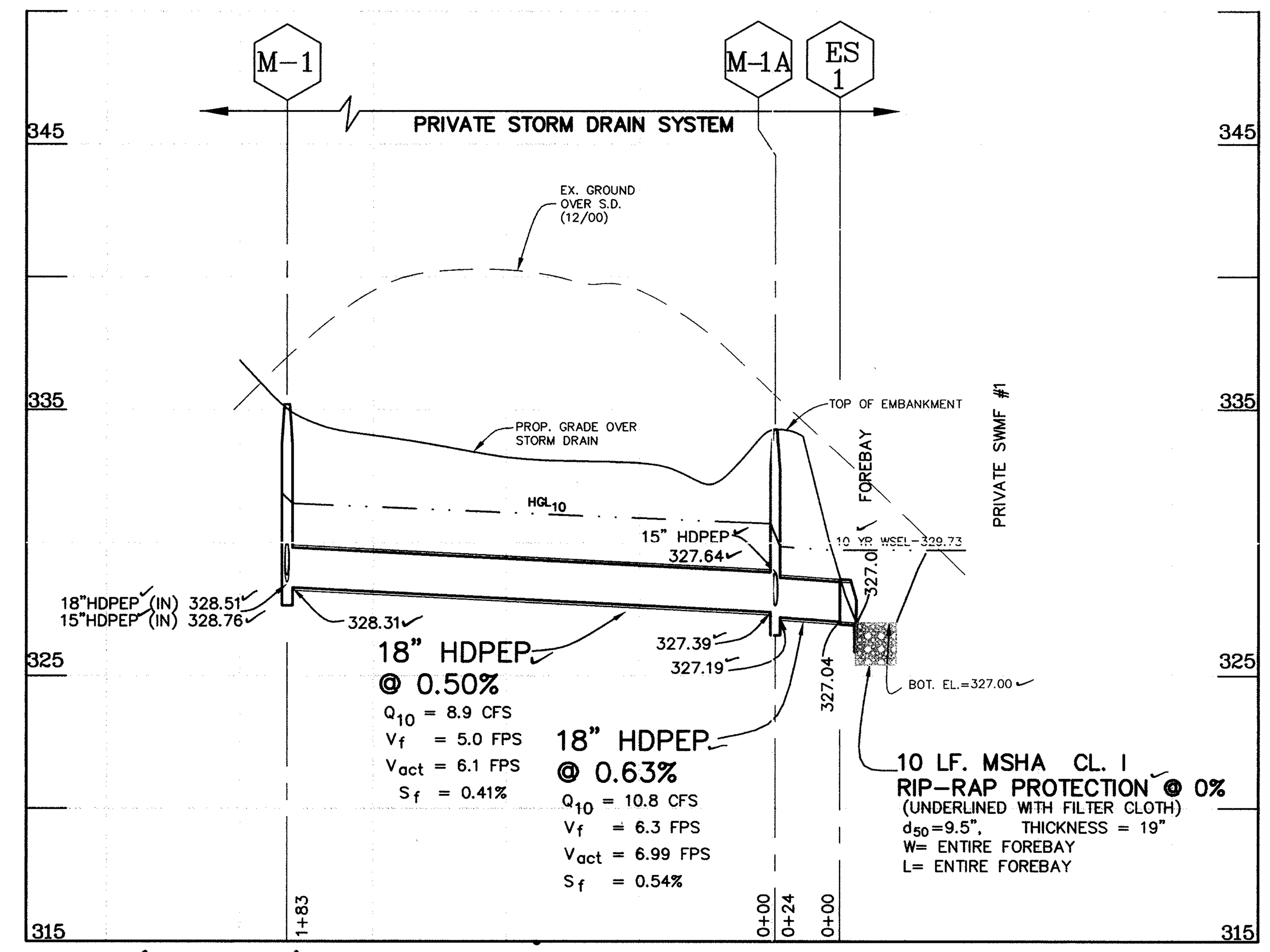
PIPE SCHEDULE

LOCATION	SIZE & TYPE	LENGTH (ft)
ES-1 TO M-1A	18" HDPEP	24'
M-1A TO M-1	18" HDPEP	183'
M-1 TO I-3	18" HDPEP	72'
I-3 TO M-2	18" HDPEP	213'
M-2 TO I-4	15" HDPEP	11.75'
M-2 TO I-5	15" HDPEP	11.75'
I-2 TO M-1	15" HDPEP	47'
I-1 TO M-1A	15" HDPEP	22'



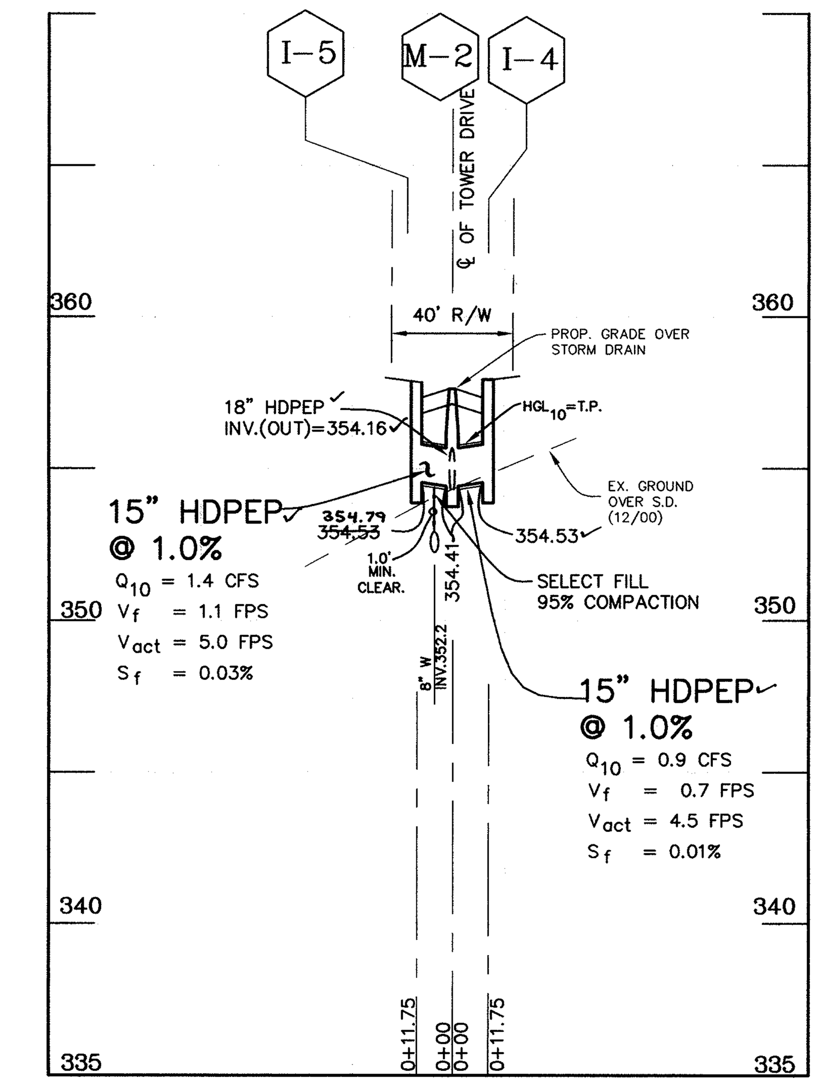
TYPICAL SWALE SECTION

NOT TO SCALE



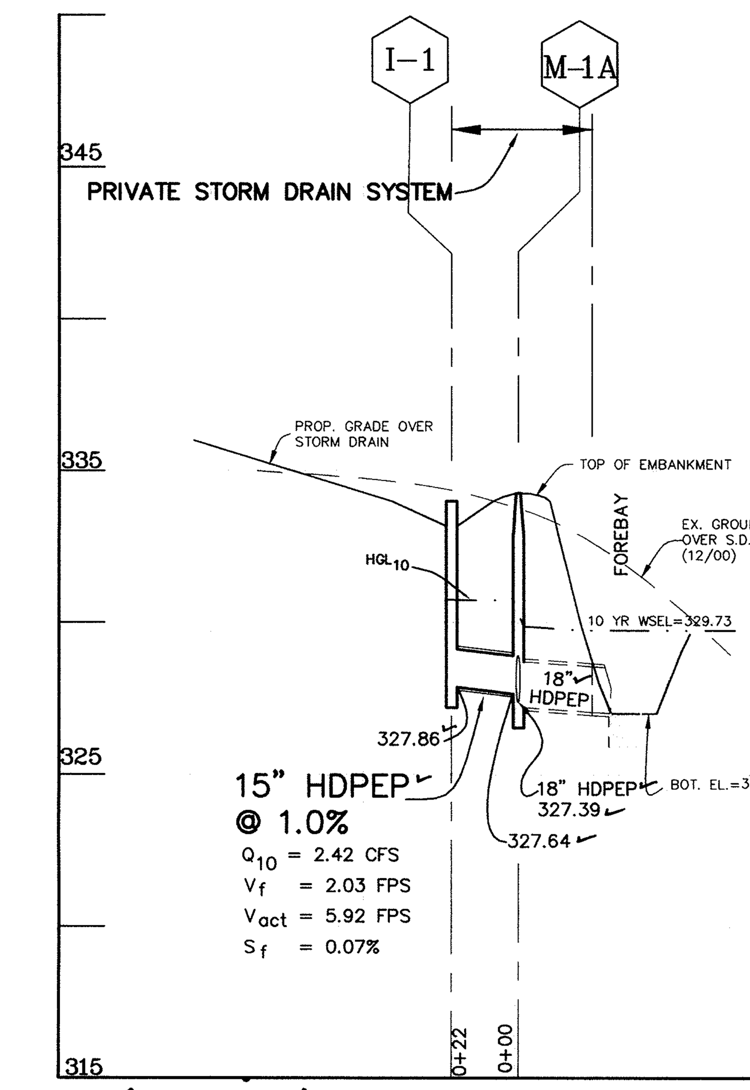
(PRIVATE) STORM DRAIN PROFILE TO THE SWMF

SCALE: HOR.: 1" = 50' VER.: 1" = 5"



I-4 TO I-5 S.D. PROFILE

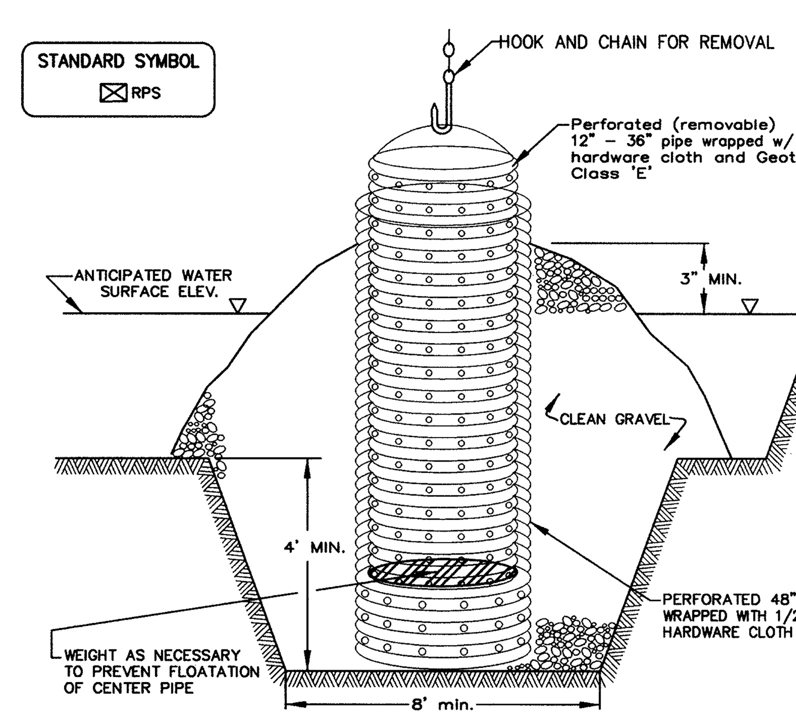
SCALE: HOR.: 1" = 50' VER.: 1" = 5"



(PRIVATE) STORM DRAIN PROFILE

SCALE: HOR.: 1" = 50' VER.: 1" = 5"

DETAIL 20A - REMOVABLE PUMPING STATION



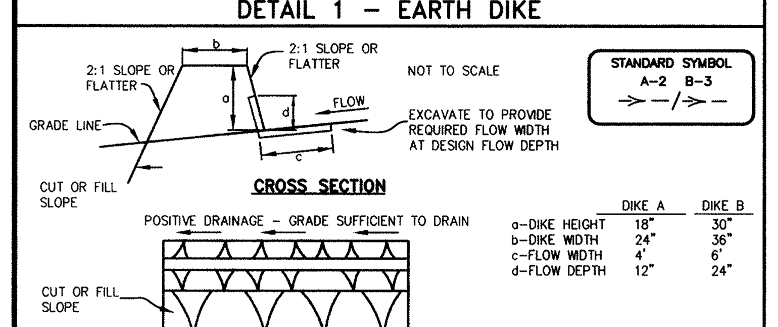
ELEVATION (CUT AWAY)

Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 12 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1 - EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

1. All temporary earth dikes shall have uninterrupted positive 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 trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A - 1 - 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

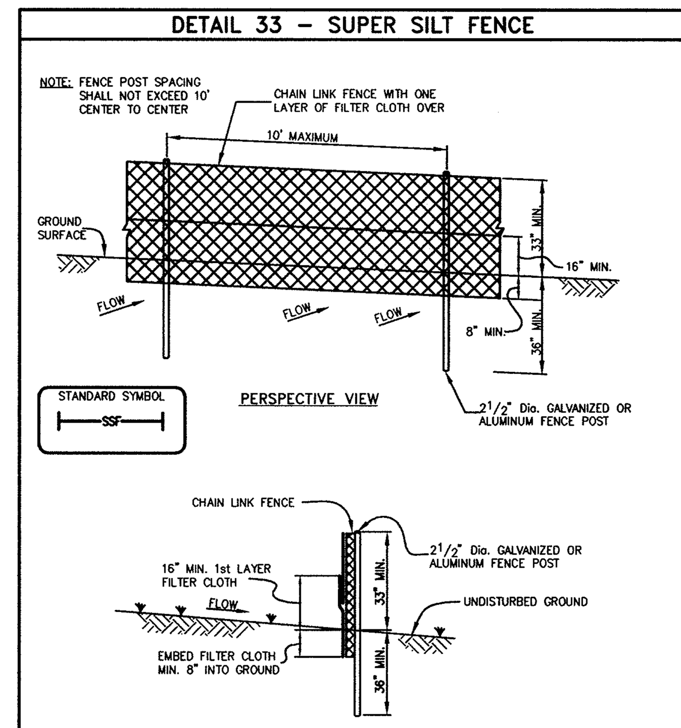
APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01

DETAIL 33 - SUPER SILT FENCE



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

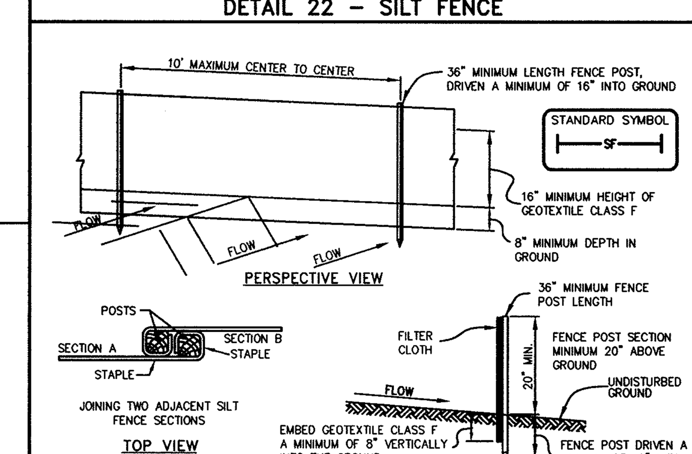
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

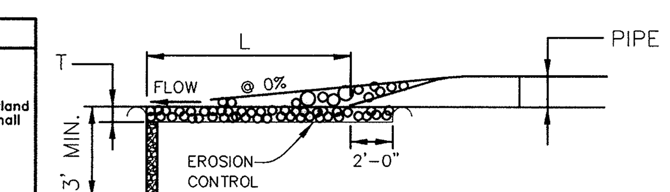
SILT FENCE

SILT FENCE DESIGN CRITERIA

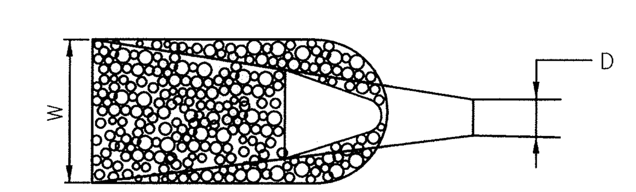
Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



SECTION



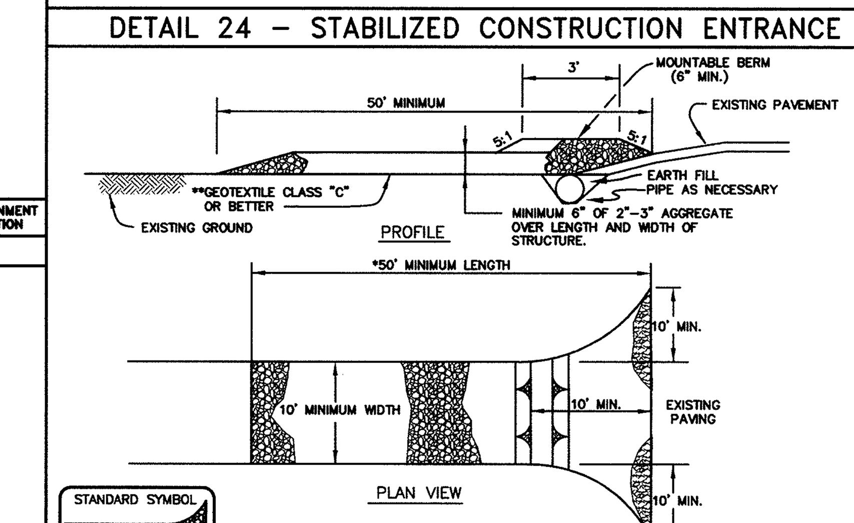
PLAN

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
ES-1	9.5"	ENTIRE FOREBAY	ENTIRE FOREBAY	19"	I
ES-2	9.5"	23'	9.0'	19"	I

OUTLET PROTECTION DETAIL

NOT TO SCALE

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

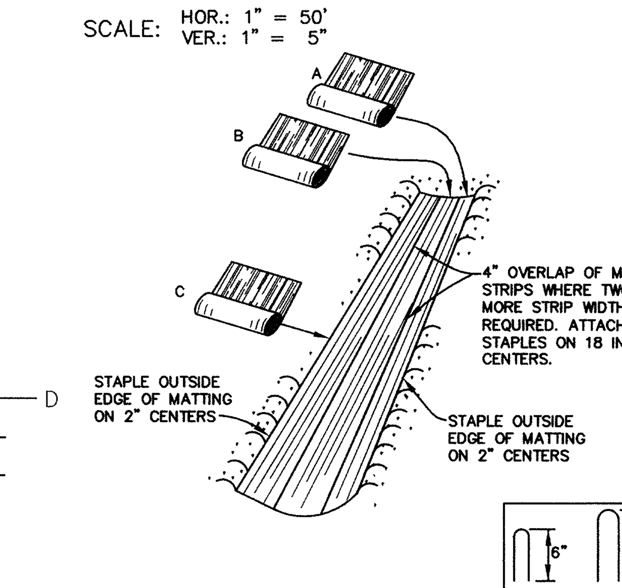


Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residence to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounted berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AS-BUILT 2/10/05



CONSTRUCTION SPECIFICATIONS

1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
4. STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

SOIL STABILIZATION MATTING

NOT TO SCALE

NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER No. 21443 — 9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: ***THE HILLSIDE AT ROCKY GORGE***

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

TITLE: ***STORM DRAIN PROFILES AND DETAILS***

DATE: FEB.,2001	PROJECT NO. 1349
DES: GWF	DRN: YSL	CHK: DAM	SCALE: AS SHOWN	DRAWING 5 OF 11

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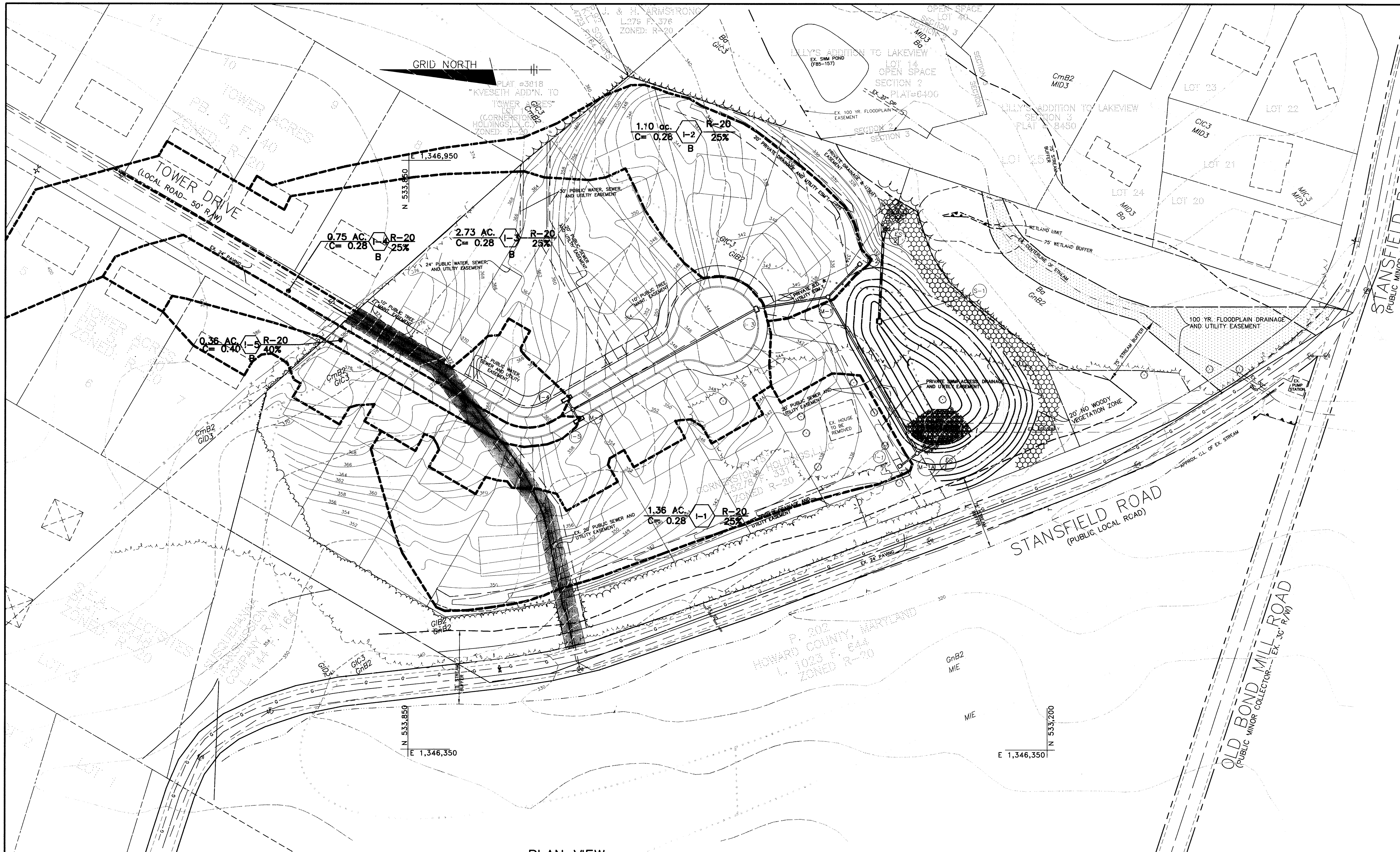


PLAN VIEW
SCALE: 1" = 50'

PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil be raking, discing or other acceptable means before seeding. (If not previously loosened)

Soil Amendments: In lieu of soil test recommendations, use on the following schedules.

1) Preferred – Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sf).

2) Acceptable – Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 through April 30 and August 1 through October 15, seed with 60 lbs per acre (1.4 lbs/1000 sf) of Kentucky 31 Tall Fescue. For the period May 1 through July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (0.05 lbs/1000 sf) of Weeping Lovegrass. During the period of October 16 through February 28, protect site by: Option 1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2) use sod. Option 3) seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1-1/12 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. (If not previously loosened)

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf).

Seeding: For periods March 1 through April 30 and from August 15 through November 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sf). For the period May 1 through August 14, seed with 3 lbs per acre of Weeping Lovegrass (0.07 lbs/1000 sf). For the period November 16 through February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Refer to the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for rate and methods not covered.

SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections and Permits,Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed accordingly to the provisions of this plan and are to be in conformance with the most current "Maryland Standards and Specifications for Soil Erosion and Sediment Control", and revisions thereto.
3. Following initial soil disturbances or redisturbance, 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 3:1, b) 14 calendar days as to 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 12, of the "Howard County Design Manual, Storm Drainage".
5. All disturbed areas must be stabilized within the time period specified above in accordance with the "1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control" for Permanent Seedings (Sec. 51) Sod (Sec. 54), Temporary Seeding (Sec. 50) and Mulching (Sec. 52). Temporary stabilization with mulch alone can 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 has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

Total Area of Site:	8.79± acres
Area to be Disturbed:	6.28± acre
Area to be roofed or paved:	0.54± acre
Area to be vegetatively stabilized:	5.74± acre
Total Cut:	10,890 C.Y.
Total Fill:	28,246 C.Y.
Offsite Waste/Borrow Area Location : *	

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 DPW 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 or that which can be back filled and stabilized within one working day, whichever is shorter.
12. Quantities and estimates shown are for sediment control purposes only. Contractor shall prepare his/her own quantity estimates to his/her satisfaction.
* It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
Ba	BAILE SILT LOAM	D
C1C3	CHILLUM GRAVELLY LOAM, 5-10 % SLOPES, SEVERELY ERODED	B
CmB2	CHILLUM GRAVELLY LOAM, 1-5 % SLOPES, MODERATELY ERODED	B
G1B2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
G1C3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
G1D3	GLENELG LOAM, 15-25% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
M1C3	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
M1E	MANOR LOAM, 25 TO 45% SLOPES.	B

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS HS — 10-25-01 DATE

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 10/15/01 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

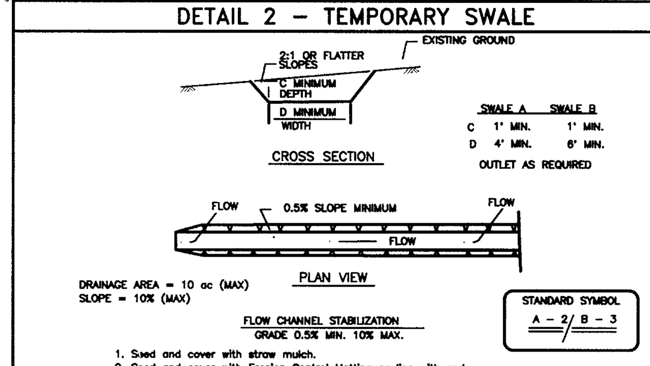
CHIEF, DIVISION OF LAND DEVELOPMENT HB — 11/2/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION CE — 10/29/01 DATE

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — 10/15/01 DATE

DETAIL 2 - TEMPORARY SWALE



DRAINAGE AREA = 10 ac (MAX)
SLOPE = 10% (MAX)

STANDARD SYMBOL A - 2/B - 3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

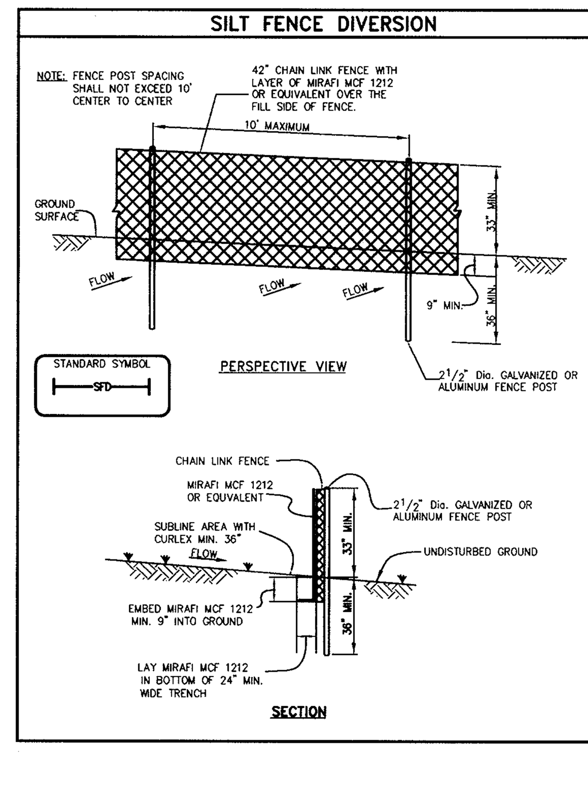
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4"-7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive 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 trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill, if necessary, shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A - 2 - 4	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE DIVERSION



SILT FENCE DIVERSION

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Standard Details 690.01 & 690.02 for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric & 70" posts. Posts shall be placed without concrete embedment.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Diversion cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Diversion cloth shall be embedded a minimum of 9" into the ground.
5. When two sections of diversion cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed.

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER
9/27/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

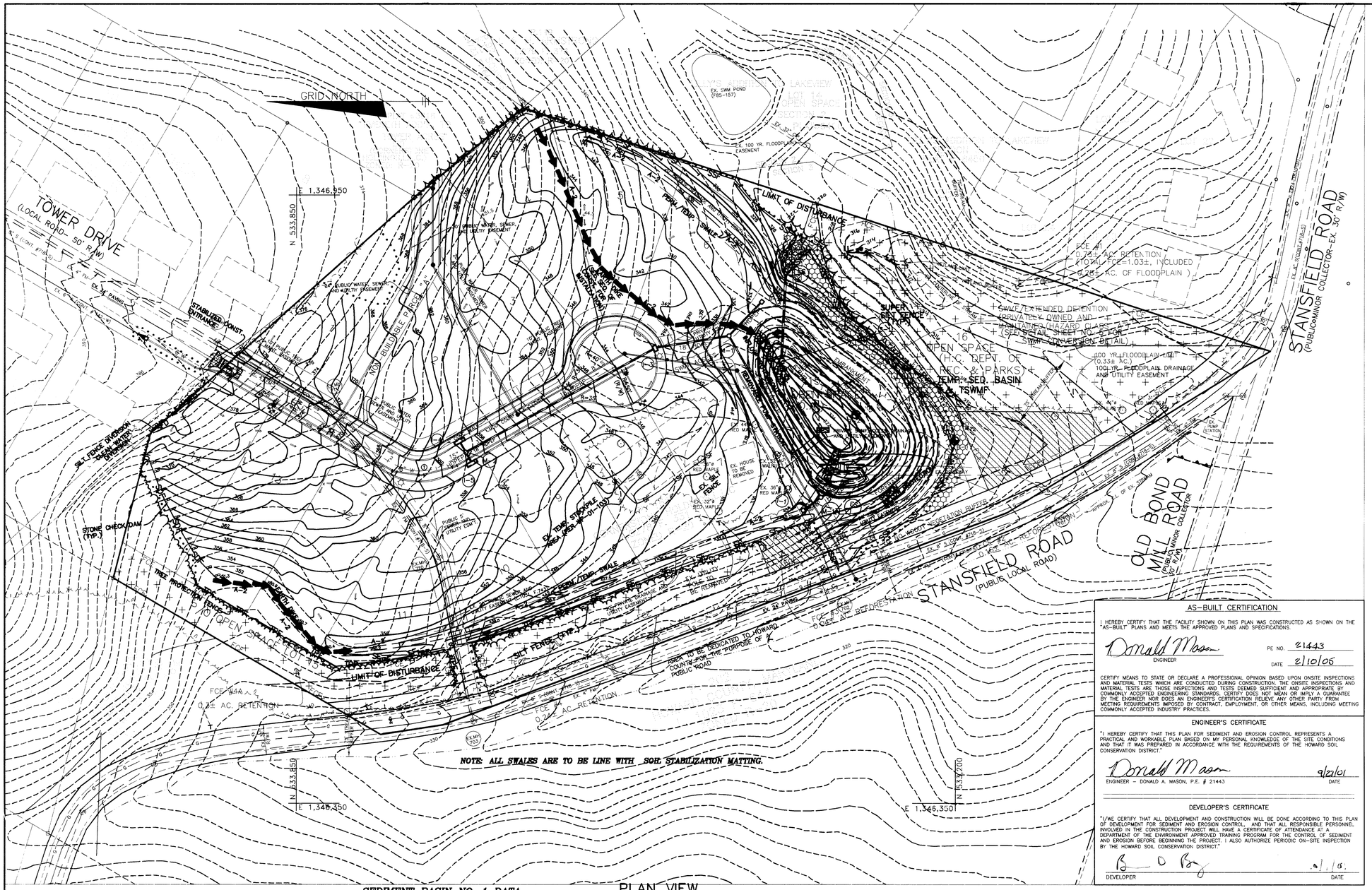
TITLE: **STORM DRAIN DRAINAGE AREA MAP, SOIL MAP AND NOTES**

DATE: FEB.2001	PROJECT NO. 1349
SCALE: AS SHOWN	DRAWING 4 OF 11

DES: YSL DRN: YSL CHK: DAM

P:\PROJECTS\1349\702551.DWG

F-01-132



21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF **TOPSOIL** OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE **SOIL MEDIUM** FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, **LOW** NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS **LIMITED TO AREAS** HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLAT NUTRIENTS.

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN **FOR** ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

III. WHERE THE SUBSOIL IS EITHER ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4–8 TONS/ACRE (200–400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING **DISTURBED** AREAS OVER 5 ACRES:

I. ON SOIL **MEETING** TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE **PRESCRIBED** TO RAISE THE PH TO 6.5 OR HIGHER.

B. ORGANIC **CONTENT** OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.

C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.

D. NO **SOD OR** SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN **TREATED WITH** SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

I. WHEN TOP SOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

II. GRADES ON THE AREAS TO BE TOP SOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4"–8" HIGHER 'N ELEVATION.

III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"–8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

VI. ALTERNATIVE FOR PERMANENT SEEDING – INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.

B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.

C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.

II. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD–VA. PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Donald Mason — ENGINEER — PE NO. 21443 — DATE 2/10/05

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

Donald Mason — ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 9/21/01

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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."

DEVELOPER — DATE

TEMP. SWMF DATA		
STORM	WSEL	STORAGE (AC-FT.)
2 YR.	331.47	0.58
10 YR.	332.36	0.83

SEDIMENT BASIN NO. 1 DATA

D.A. = 7.34 AC.
WET STORAGE REQUIRED : 13212 C.F.
WET STORAGE PROVIDED : 13213 C.F.
DRY STORAGE REQUIRED : 13212 C.F.
DRY STORAGE PROVIDED : 13212 C.F.
BOTTOM ELEVATION: 322.00
WET STORAGE FROM EL. 322.0 TO 326.87
DRY STORAGE FROM EL. 326.87 TO 328.87
CLEANOUT ELEVATION : 325.21
TOP OF EMBANKMENT ELEVATION : 334.0
RISER CREST ELEVATION : 331.47
2 YR. RELEASE RATE : 1.77 CFS (EXIST.)
DURING CONSTRUCTION: 1.44 CFS (DEV.)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 10/15/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/15/01

PLAN VIEW

SCALE: 1" = 50'

LEGEND

CONTOUR INTERVAL — 2 FEET
EXISTING CONTOUR — 200
PROPOSED CONTOUR — 200
PROPOSED SEWER MAIN — 8" S
PROPOSED WATER MAIN — 8" W
PROPOSED STORM DRAIN — EX. 18" RCP
STABILIZED CONSTRUCTION ENTRANCE
PROPOSED EARTH DIKE — A-3
TEMP. SWALE — A-3
SILT FENCE — SF
SUPER SILT FENCE — SSF
SILT FENCE DIVERSION — SFD
TREE PROTECTION FENCE — TPF
LIMIT OF DISTURBED AREA
EXISTING TREE LINE
PROPOSED TREE LINE
FOREST CONSERVATION EASEMENT (AREA TO BE RETAINED)
FOREST CONSERVATION EASEMENT (AREA TO BE PLANTED)
UTILITY OR POWER POLE

Donald Mason
AS-BUILT 2/10/05

SEQUENCE OF CONSTRUCTION

DAY 1 — OBTAIN GRADING PERMIT.
DAY 2–4 — INSTALL SUPER SILT FENCE AS SHOWN ON THE PLAN AROUND THE FOREST CONSERVATION EASEMENTS PRIOR TO ANY CLEARING AND GRUBBING OF THE SITE. (USE FOREST CONSERVATION PLAN IN CONJUNCTION WITH THE SEDIMENT CONTROL PLAN FOR LOCATION).
DAY 5–8 — CLEAR AND GRUB FOR SEDIMENT CONTROL DEVICES, INSTALL STABILIZED CONSTRUCTION ENTRANCE, SUPER SILT FENCE, SILT FENCE , INSTALL TSWM BASIN #1.
DAY 9–19 — INSTALL EARTH DIKES, SILT FENCE DIVERSION, TREE PROTECTION FENCE AND TEMP. SWALE AT LOTS 7 – 11.
DAY 17–25 — INSTALL REMAINING SEDIMENT DEVICES. CLEAR AND GRUB REMAINDER OF THE SITE.
DAY 26–46 — UPON THE APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR COMMENCE MASS GRADING OF THE SITE.
DAY 46–47 — INSTALL TEMP. SWALE AT LOTS 5–6 WHEN PROPOSED MASS GRADING ENABLES THE TEMP. SWALE TO HAVE POSITIVE DRAINAGE INTO THE SEDIMENT BASIN.
DAY 47–48 — REMOVE THE EARTH DIKE BETWEEN LOTS 4 –6.
DAY 48–56 — FINALIZE MASS GRADING OF THE SITE.
DAY 57–62 — STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES..
DAY 63–93 — INSTALL STORM DRAIN AND OTHER UTILITIES.
DAY 94–109 — INSTALL CURB AND GUTTER.
DAY 110–115 — INSTALL PAVING FOR ROADS.
DAY 116–121 — FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDED NOTES.
DAY 122–127 — WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR CONVERT TSWM BASIN #1 TO SWMF.
DAY 128–133 — UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE.

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

Donald Mason 9/21/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

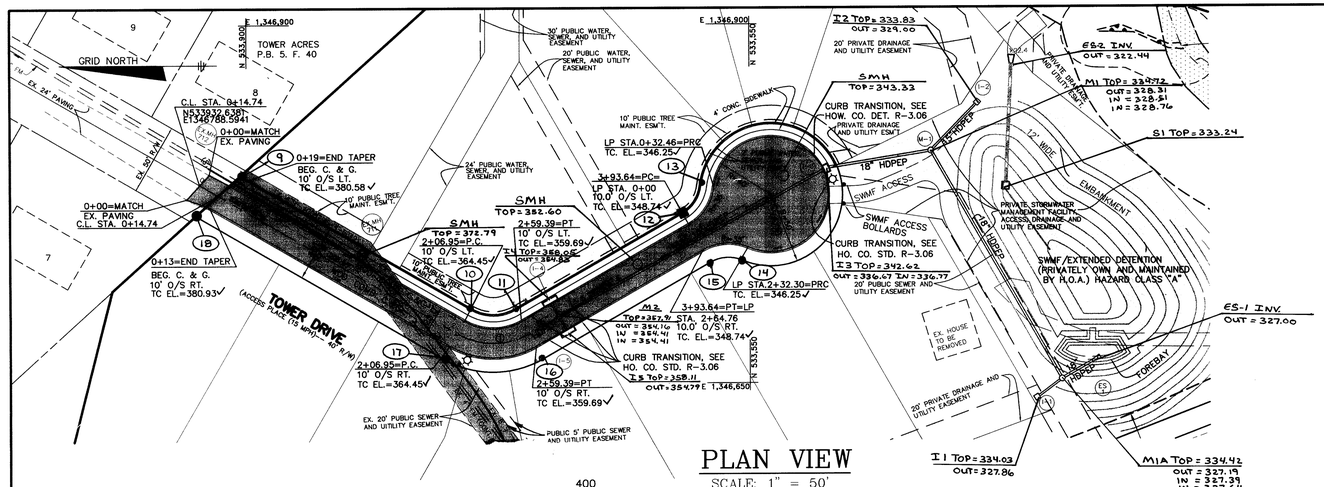
LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

TITLE: **GRADING, SEDIMENT & EROSION CONTROL PLAN AND NOTES**

DATE: FEB.,2001 — PROJECT NO. 1349

DES: YSL — DRN: YSL — CHK: DAM — SCALE: AS SHOWN — DRAWING 3 OF 11

F-01-132



PLAN VIEW

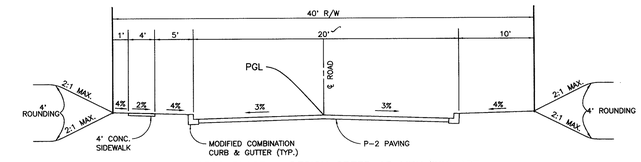
SCALE: 1" = 50'

CENTERLINE CURVE DATA

CURVE NO.	RADII	ARC LENGTH	TANGENT	CHORD	CHORD BEARING	DELTA	P.C. STA.	P.T. STA.
1	50.00'	52.36'	28.87'	50.00'	S 00° 09' 49" W	60°00'00"	2+06.95.	2+59.31

STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
	100 WATT HPS VAPOR "TRADITIONAIRE" POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	14.1' RT.,C.L. STA.2+19 TOWER DR. 4.1' LT. L.P. STA.1+45 TOWER DR.



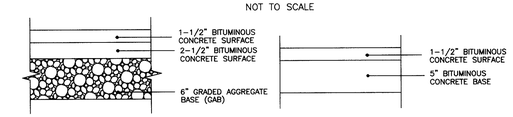
ACCESS PLACE – DESIGN SPEED 15 MPH/200 ADT

TYPICAL ROAD SECTION --TOWER DRIVE (PUBLIC STREET)

(FROM STA. 0+19 TO 3+93.64)

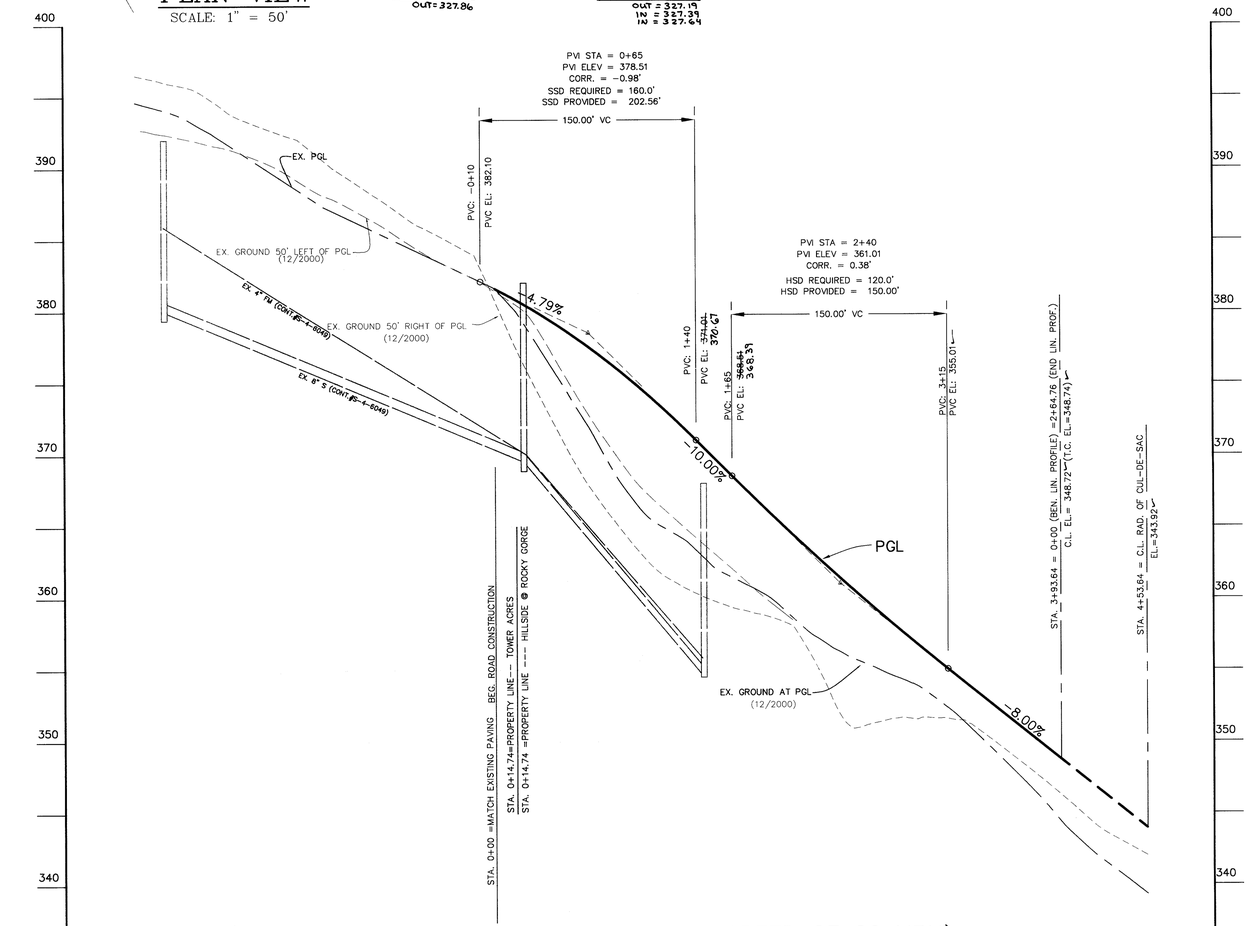
(NOTE: STA. 0+00 = TIE TO EX. PAVING & BEGIN TAPER AND STA. 0+19=END OF TAPER)

NOT TO SCALE



ALTERNATIVE PAVEMENT SECTION — NOT TO SCALE

TYPICAL PAVEMENT SECTION — NOT TO SCALE



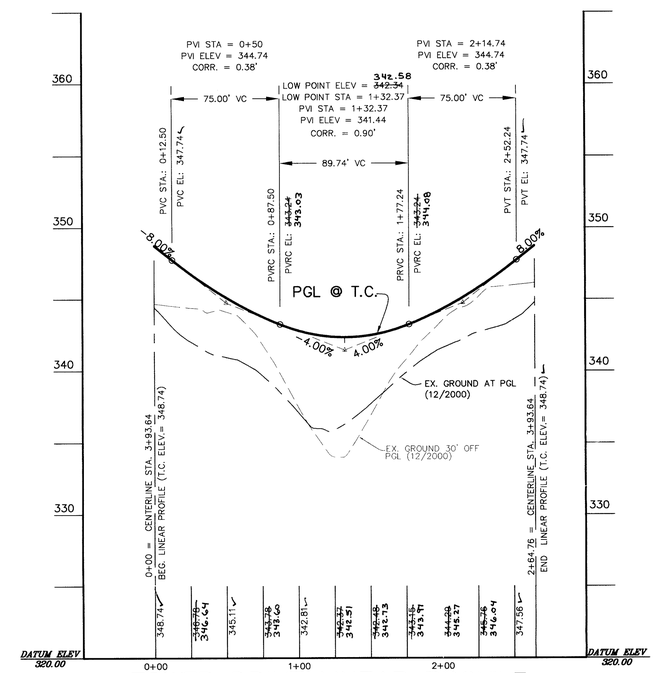
TOWER DRIVE PROFILE

(PUBLIC ACCESS PLACE -- DESIGN SPEED = 15 MPH)

HOR. SCALE: 1" = 50'

VERT. SCALE: 1" = 5'

(VERTICAL CURVE DESIGN BASED ON THE SPEED OF 20 MPH)



TOWER DRIVE LINEAR PROFILE

HOR. SCALE: 1" = 50'

VERT. SCALE: 1" = 5'

NO	DATE	REVISION

AS-BUILT 2/10/05

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
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ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALEXIS MOON — No. 22842 — PROFESSIONAL ENGINEER

9/27/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/26/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: **THE HILLSIDE AT ROCKY GORGE**

LOCATION: TAX MAP 46, GRID 18, PARCEL 151, 6 th. ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

REFERENCE FILE: SP-00-07,WP-01-103

TITLE: *TOWER DRIVE: PLAN AND PROFILES:*

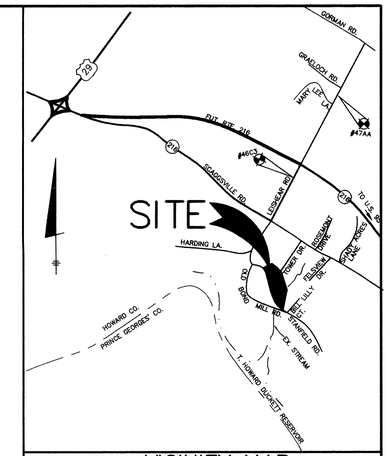
DES: YSL	DRN: YSL	CHK: DAM	DATE: FEB. 2001	PROJECT NO. 1349
			SCALE: AS SHOWN	DRAWING 2 OF 11

F-01-132

THE HILLSIDE AT ROCKY GORGE

6th, ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FINAL ROAD CONSTRUCTION, STORM DRAIN, AND STORMWATER MANAGEMENT PLANS

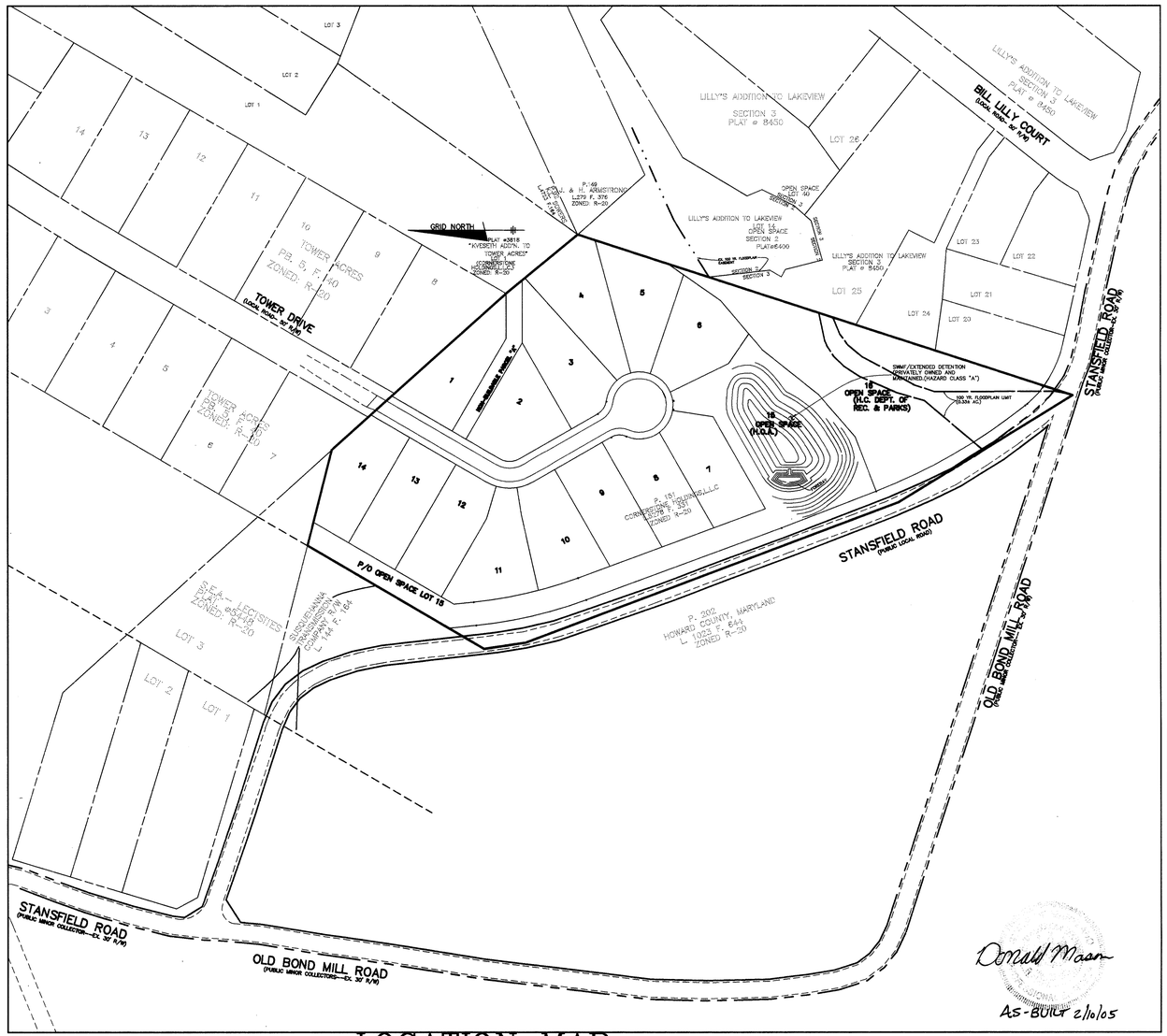


VICINITY MAP
SCALE: 1" = 2000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORK/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. PROJECT BACKGROUND:

   LOCATION: TAX MAP: 46, GRID 18, PARCEL 151
   ZONING: R-20
   ELECTION DISTRICT: 6th
   TOTAL TRACT AREA: 8.79 +/- AC.
   NUMBER OF PROPOSED BUILDABLE LOTS: 14
   NUMBER OF PROPOSED NON-BUILDABLE LOTS: 1
   NUMBER OF PROPOSED OPEN SPACE LOT: 2
   DPZ REFERENCE FILE: SP-00-07, WP-01-103
   SKETCH PRELIMINARY PLAN APPROVED ON NOV. 15, 2000.
5. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
6. TOPOGRAPHY SHOWN HEREON WAS TAKEN FROM FIELD RUN SURVEY DONE BY BENCHMARK ENGINEERING, INC. DATED 12/00. CONTOURS SHOWN ARE AT 2 FOOT INTERVALS AND SUPPLEMENTED WITH 200' TOPOGRAPHY MAP OF HOWARD COUNTY.
7. COORDINATES ARE BASED ON NAD 83, MARYLAND STATE PLAN GRID AS PROJECTED BY HOWARD CO. GEODETIC CONTROL STATIONS NO. 46C3 AND 47AA.
8. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROADS AND BRIDGES AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
9. THIS PROJECT IS WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER FOR THIS PROJECT SHALL BE PUBLIC AND WILL BE PROVIDED TO THE LOTS UNDER WATER & SEWER CONTRACT NO. 24-3879-D. THE DRAINAGE AREA FOR THIS PROJECT IS THE LITTLE PATUXENT.
10. WATER QUALITY AND QUANTITY TREATMENT FOR THE PROPOSED ROADWAY AND THE SITE IS BEING PROVIDED BY EXTENDED DETENTION. THIS FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.
11. WETLAND LIMITS SHOWN HEREON ARE BASED ON A DELINEATION BY ECO-SCIENCE PROFESSIONAL, INC. DATED APRIL, 2000 AND APPROVED UNDER SP-00-07.
12. ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS WAS PREPARED BY THE TRAFFIC GROUP, INC. DATED APRIL, 2000 AND APPROVED UNDER SP-00-07.
13. NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
14. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS-CARNES AND ASSOCIATES. DATED APRIL 3, 2000.
15. EXISTING UTILITIES SHOWN ARE TAKEN FROM RECORD INFORMATION AND FIELD LOCATIONS.
16. FOREST STAND DELINEATION AND FOREST CONSERVATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED APRIL, 2000.
17. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLANDS BUFFER, STREAM BUFFERS OR FOREST CONSERVATION AREAS EXCEPT FOR THE WORK APPROVED AS PART OF THESE PLANS.
18. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION.
19. THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN.
20. ALL COMPACTION IN FILL AREAS SHALL BE IN ACCORDANCE WITH AASHTO T-180 SPECIFICATIONS.
21. ALL SIDEWALK/HANDICAP RAMPS SHALL BE IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
22. 100 YEAR FLOODPLAIN STUDY WAS PREPARED BY BENCHMARK ENGINEERING, INC. DATED MARCH 29,2000 AND APPROVED UNDER THE SP-00-07.
23. WAIVER PETITION WP-01-103 FOR THIS SITE WAS APPROVED APRIL 26,2001 TO WAIVE SECTION 16.123.a(2). TO ALLOW THE SITE TO BE USED FOR A STOCKPILE AREA PRIOR TO THE APPROVAL OF A FINAL PLAN.
24. THE FOREST CONSERVATION OBLIGATION FOR THIS PROJECT HAD BEEN MET BY 1.3 ACRES OF FOREST RETENTION, 0.24 ACRES OF REFORESTATION, AND PAYMENT OF A FEE-IN-LIEU FOR 1.76 ACRES, IN THE AMOUNT OF $38,332.80



LOCATION MAP
SCALE: 1" = 100'

BENCH MARKS (NAD83)

HO. CO. No. 46C3
CONC. MONUMENT FLUSH WITH SURFACE
30' OFF LEISHEAR ROAD AND 400' NW FROM RT. 216
N 537405.866 E 1,347,556.236 ELEV. 334.47

HO. CO. No. 47AA
STANDARD STAMPED DISC SET ON TO CONCRETE COLUMN 22.4' OFF NORTH BOUND LEISHER RD. AND 262.5' SW OF GRAELOCH ROAD.
N 538961.673 E 1,348,438..953 ELEV. 363.417

RIGHT OF WAY ELEVATION CHART NAD 83

RW PT. NO	DESCRIPTION	ELEVATION
9	REBAR & CAP SET	380.18'
10	REBAR & CAP SET	364.48'
11	REBAR & CAP SET	360.37'
12	CONC. MONUMENT SET	348.80'
13	REBAR & CAP SET	346.60'
14	REBAR & CAP SET	346.94'
15	BRICK NAIL IN D/W	348.90'
16	REBAR & CAP SET	359.64'
17	REBAR & CAP SET	364.89'
18	REBAR & CAP SET	381.11'
19	REBAR & CAP SET	340.48'
20	REBAR & CAP SET	340.76'
21	REBAR & CAP SET	331.41'
22	REBAR & CAP SET	325.93'
23	REBAR & CAP SET	319.60'
24	REBAR & CAP SET	304.70'
25	REBAR & CAP SET	305.27'
26	REBAR & CAP SET	307.38'
27	REBAR & CAP SET	307.63'

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	TOWER DRIVE PLAN AND PROFILES
3.	GRADING AND SEDIMENT CONTROL PLAN
4.	STORM DRAIN DRAINAGE AREA MAP, SOIL MAP, AND NOTES
5.	STORM DRAIN PROFILES AND DETAILS
6-8.	STORMWATER MANAGEMENT FACILTY DETAILS
9.	LANDSCAPE PLAN
10-11.	FOREST CONSERVATION PLAN

NO	DATE	REVISION

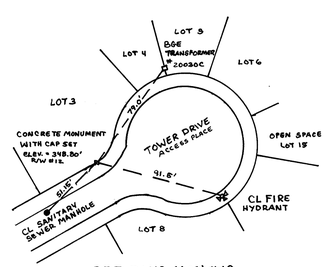
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-25-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/2/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/01



REF. CONC. MON. #12

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

9/6/01

OWNER/DEVELOPER:
CORNERSTONE HOLDINGS, L.L.C
9691 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

PROJECT: THE HILLSIDE AT ROCKY GORGE

LOCATION: TAX MAP 46, GRID 18, PARCEL 151
6 th. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: SP-00-07, WP-01-103

TITLE: TITLE SHEET

DATE: APRIL, 2000 | PROJECT NO. 1349

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 1 OF 11

F-01-132

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