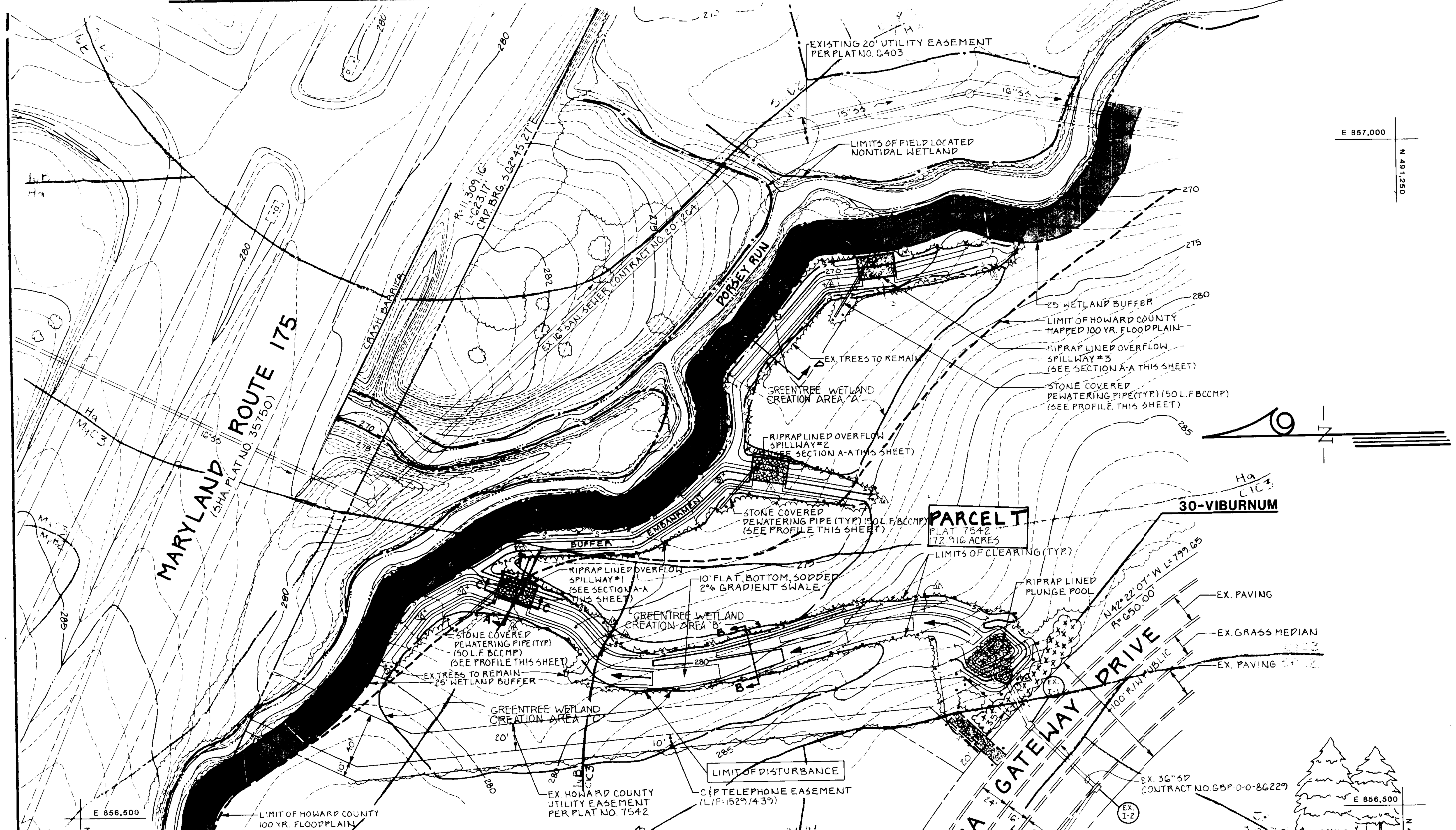


PLAN
SCALE: 1" = 50'

SITE ANALYSIS
AREA OF PARCEL T: 172.916 ACRES
AREA DISTURBED: 0.79 ACRES
ZONED M-1

GREENTREE WETLAND AREA .85 AC.

GRASSED SWALE 305 L.F.

LEGEND
S—S—S SILT FENCE
• • • • LIMIT OF DISTURBANCE
▨ STABILIZED CONSTRUCTION ENTRANCE
—·— LIMITS OF FIELD LOCATED NONTIDAL WETLANDS
■ 25' WETLAND BUFFER
– – – LIMIT OF HOWARD COUNTY MAPPED 100 YR FLOODPLAIN

PLANT SCHEDULE

SYMBOL	KEY	BOTANICAL-COMMON NAME	QTY.	SIZE	ROOT
	VIBURNUM	VIBURNUM RHYTIDOPHYLLUM-LEATHERLEAF VIBURNUM	30	2'-2½'	CONT.

NOTE: PLANTING MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS.

NOTE: COORDINATES GIVEN ARE FOR PRELIMINARY STAKE OUT ONLY. EXACT LOCATION OF PROPOSED FEATURES TO BE DETERMINED IN FIELD BY ENVIRONMENTAL CONSULTANT AFTER PRELIMINARY STAKEOUT HAS BEEN COMPLETED.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
[illegible] 3/12/91
SIGNATURE DATE
U.S. SOIL CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
John R. [illegible] 3/6/91
HOWARD S.C.D. DATE

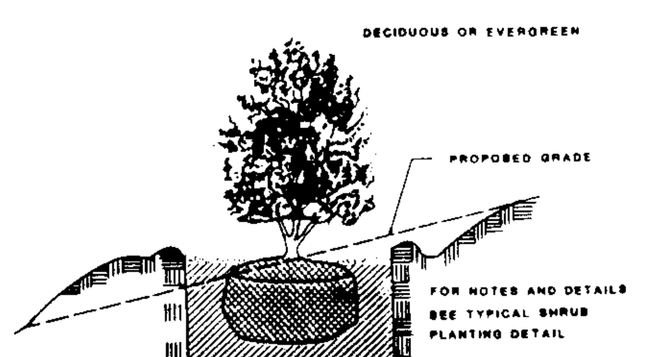
APPROVED: [illegible]
Joseph Bozdur 4-17-91

APPROVED: [illegible]
[illegible] 4/30/91
[illegible] 4/23/91

APPROVED: [illegible]
James M. [illegible] 4/9/91
[illegible] 4-24-91

COORDINATE CHART

					SPOT ELEVATION
1	N491,544 E856,911	272.2	1	N491,957 E856,670	279.2
2	N491,566 E856,920	272.2	2	N491,988 E856,653	279.2
3	N491,643 E856,902	271.2	3	N492,019 E856,612	279.2
4	N491,684 E856,896	272.2	4	N491,922 E856,659	278.2
5	N491,751 E856,820	272.2	5	N491,875 E856,639	279.2
6	N491,652 E856,734	2750	6	N491,855 E856,618	279.2
7	N491,729 E856,748	274.2	7	N491,611 E856,651	284.2
8	N491,762 E856,753	275.2	8	N491,540 E856,600	289.2
9	N491,831 E856,704	275.2			
10	N491,919 E856,701	275.2			

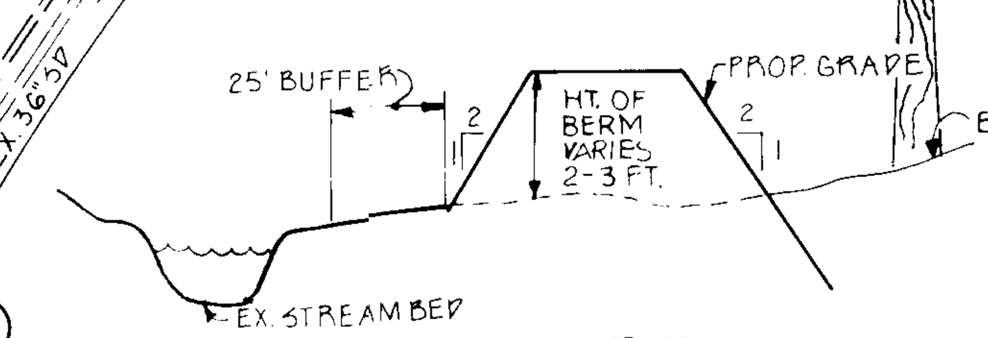


SLOPE PLANTING DETAIL FOR ALL SHRUBS
NOT TO SCALE

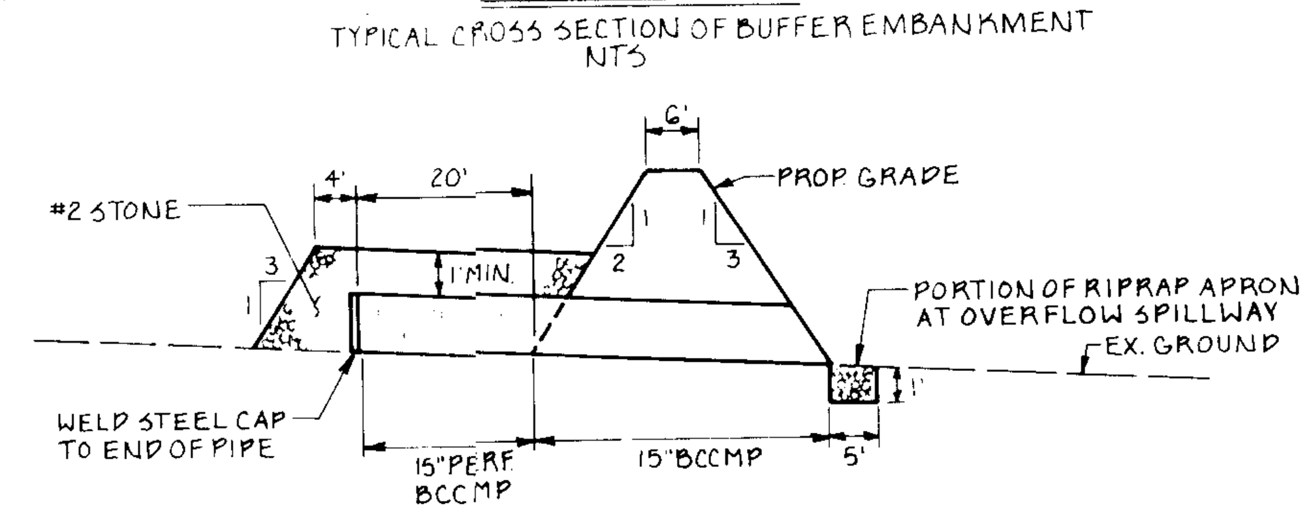
OWNERS/DEVELOPERS CERTIFICATION

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. ALSO THAT THE SITE WILL BE INSPECTED AT THE END OF EACH WORKING DAY, AND THAT ANY NEEDED MAINTENANCE WILL BE COMPLETED SO AS TO INSURE THAT ALL SEDIMENT CONTROL PRACTICES ARE LEFT IN OPERATIONAL CONDITION. I/WE AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON SITE EVALUATION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT OR ~~THEIR~~ AUTHORIZED AGENTS.

[illegible] 3-7-91
DEVELOPER DATE
[illegible]
PRINT NAME, TITLE, FIRM & ADDRESS



SECTION D-D
TYPICAL CROSS SECTION OF BUFFER EMBANKMENT
NTS



NOTE: • CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE ON DEWATERING PIPE.
• PERFORATED PIPE SHALL BE SECURELY WRAPPED WITH DUPONT TYPAR #3341 FILTER CLOTH OR APPROVED EQUAL AND COVERED ON ALL SIDES WITH 12" MINIMUM #2 STONE.
• CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.

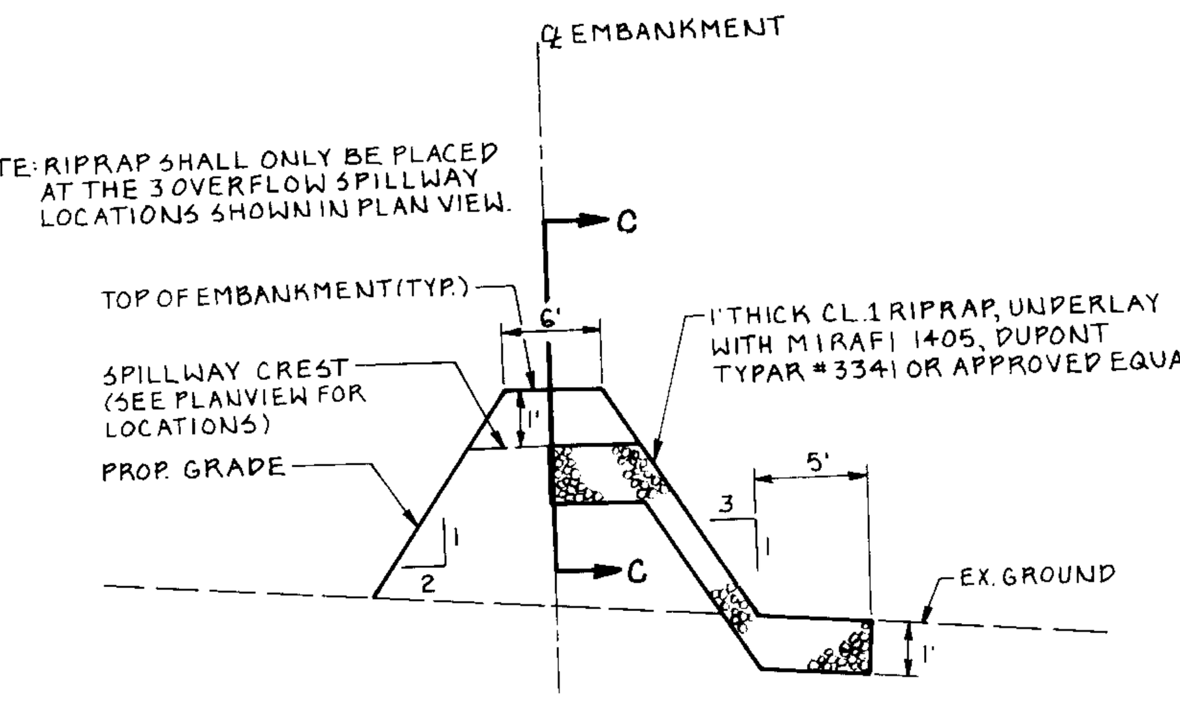
DEWATERING PIPE PROFILE (TYP.)
NTS

CONSULTANT'S CERTIFICATION

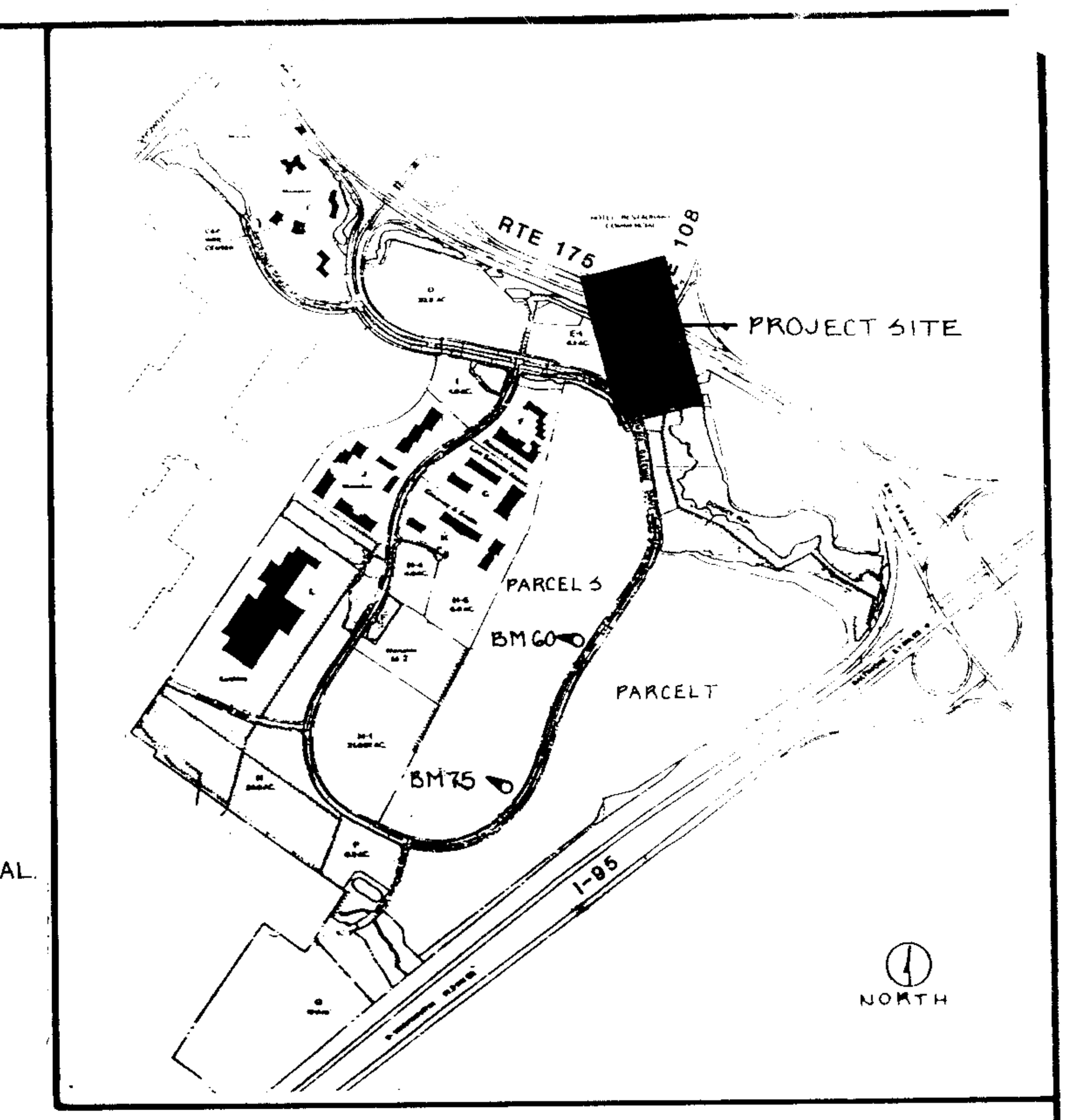
I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT AND "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL". I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE: Donald N. Mitten MD. LICENSE NO. 16581
NAME: DONALD N. MITTEN DATE: 3/7/91.

NOTE: RIPRAP SHALL ONLY BE PLACED AT THE 3 OVERFLOW SPILLWAY LOCATIONS SHOWN IN PLAN VIEW.

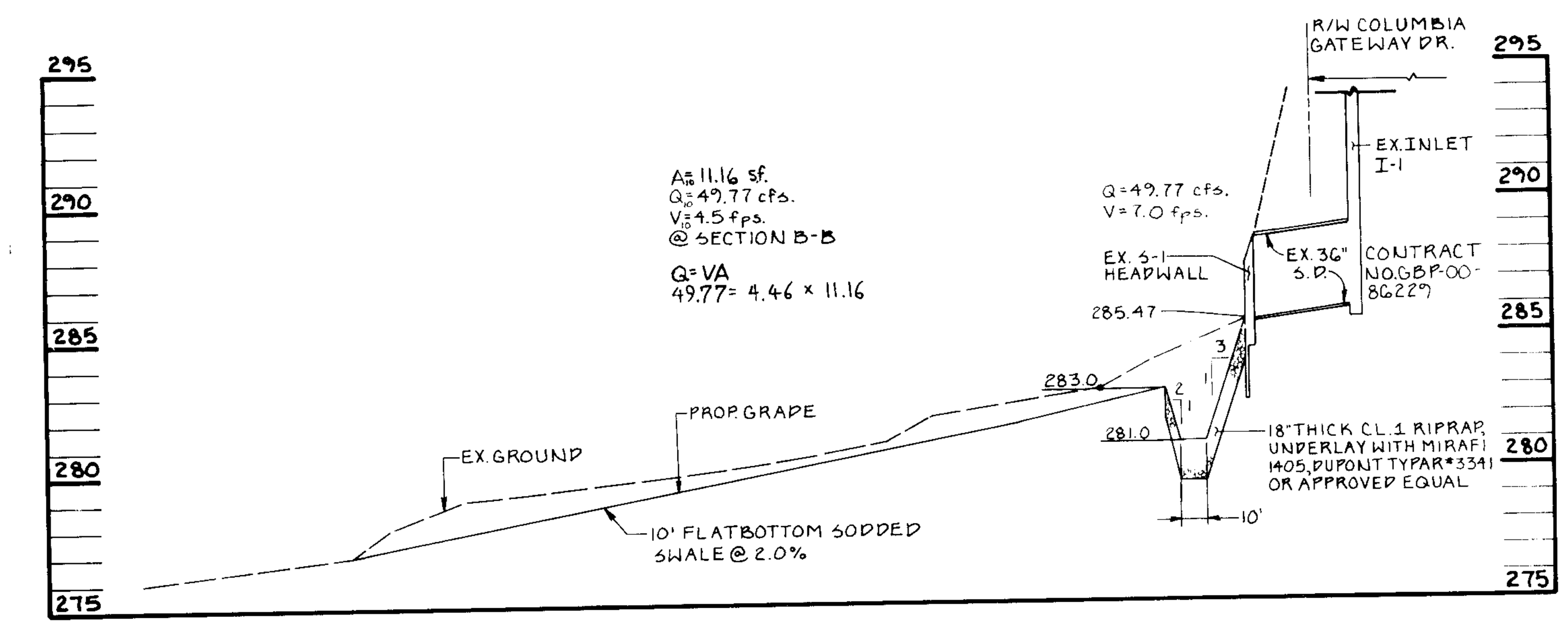


SECTION A-A
CROSS SECTION OF EMBANKMENT (TYP.)
NTS

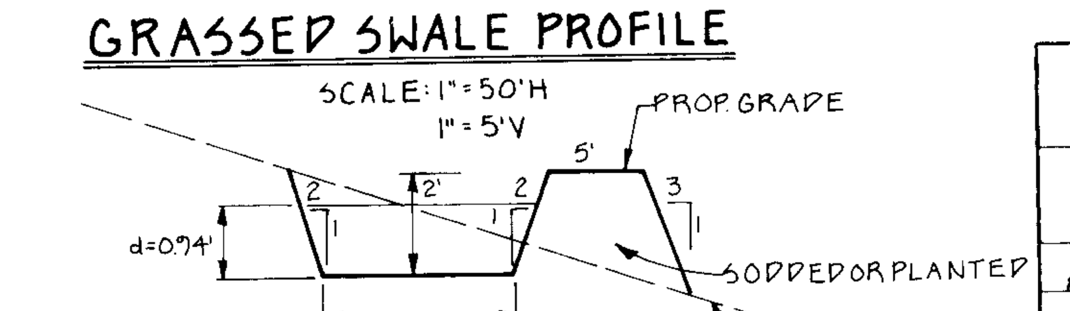


VICINITY MAP
SCALE: 1" = 1,660'±

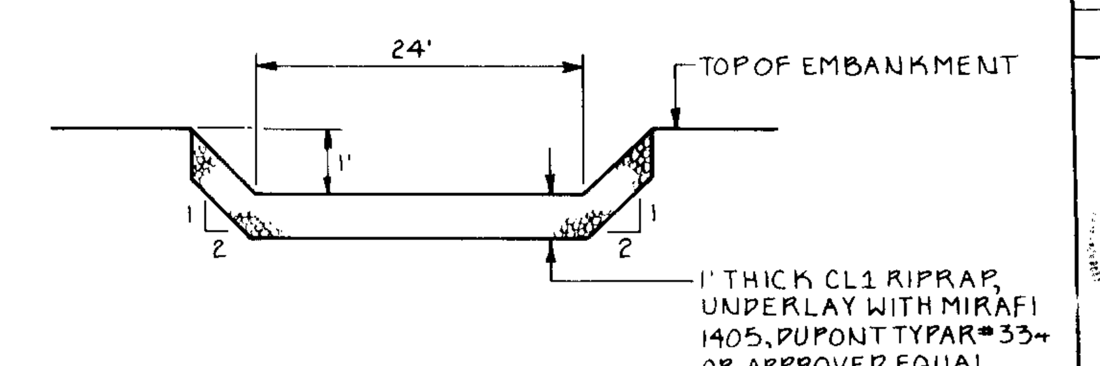
BENCH MARKS
WR&A BM-TACK IN HUB 150' RIGHT OF ℄ STA. 59+82.05
#60 COLUMBIA GATEWAY DRIVE.
ELEV. 343.19
WR&A BM-TACK IN HUB 150' RIGHT OF ℄ STA. 75+13.53
#75 COLUMBIA GATEWAY DRIVE.
ELEV. 320.81



GRASSED SWALE PROFILE
SCALE: 1" = 50'H
1" = 5'V



SECTION B-B
CROSS SECTION OF SODDED SWALE (TYP.)
NTS



SECTION C-C
CROSS SECTION OF OVERFLOW SPILLWAY
NTS

TOTAL WETLAND CREATION AREA SHOWN ON THIS PLAN IS .85 AC.±

NOTE: The purpose of this site dev. plan is for grading only to create wetlands for mitigation as required by the U.S. Army Corps of Engineers (CENAB-OP-RW 89-1010-3) and Maryland Department of the Environment (88-WQ-0481)

DATE	REVISION
6/25/90	REVISED AS PER COUNTY COMMENTS C.L.Y.

ADDRESS CHART

LOT NUMBER	STREET ADDRESS
Parcel 'T'	6901 Columbia Gateway Drive

KIDDE CONSULTANTS, INC.
ENGINEERS PLANNERS SURVEYORS
1020 CROMWELL BRIDGE ROAD
BALTIMORE, MARYLAND
301 321 5500

Donald N. Mitten

DESIGNED JHK	SITE DEVELOPMENT PLAN FOR THE GREENTREE WETLAND AREA OF	SCALE AS SHOWN
DRAWN CLY	**COLUMBIA GATEWAY**	DRAWING 1 OF 2
CHECKED MSR	6TH ELECTION DISTRICT	JOB NO.
DATE 9/89	HOWARD COUNTY, MARYLAND	

OWNER DEVELOPER
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

SUBDIVISION NAME			ELEC. AREA	
COLUMBIA GATEWAY			N/A	Parcel T

PLAT # OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELEC. DIST.	CENSUS
7542	1	M-1	43	6	6065.02

WATER CODE
SEWER CODE

SDP-90-138

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION WITH SOD

SPECIFICATIONS

1. CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED, OR MARYLAND OR VIRGINIA STATE APPROVED SOD.
2. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH.
3. STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
4. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
5. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
6. SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE INSPECTED AND APPROVED PRIOR TO ITS INSTALLATION.

I. SITE PREPARATION

FERTILIZER AND LIME APPLICATION RATES SHALL BE DETERMINED BY SOIL TESTS. UNDER UNUSUAL CIRCUMSTANCES WHERE THERE IS INSUFFICIENT TIME FOR A COMPLETE SOIL TEST, FERTILIZER AND LIME MATERIALS MAY BE APPLIED IN AMOUNTS SHOWN UNDER B, BELOW.

A. PRIOR TO SODDING, THE SURFACE SHALL BE CLEARED OF ALL TRASH, DEBRIS, AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.

B. WHERE THE SOIL IS ACID OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 2 TONS/ACRE OR 100 POUNDS PER 1,000 SQUARE FEET. IN ALL SOILS 1,000 POUNDS PER ACRE OR 25 POUNDS PER 1,000 SQUARE FEET OF 10-10-10 FERTILIZER OR EQUIVALENT SHALL BE UNIFORMLY APPLIED AND MIXED INTO THE TOP 3 INCHES OF SOIL WITH THE REQUIRED LIME.

C. ALL AREAS RECEIVING SOD SHALL BE UNIFORMLY FINE GRADED. HARD-PACKED EARTH SHALL BE SCAREFIED PRIOR TO PLACEMENT OF SOD.

II. SOD INSTALLATION

A. DURING PERIODS OF EXCESSIVELY HIGH TERMPERATURE THE SOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING OF SOD.

B. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. INSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

C. ON SLOPING AREAS WHERE EROSION MAY BE A PROBLEM, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SECURE THE SOD BY TAMPING AND PEGGING OR OTHER APPROVED METHODS.

D. AS SODDING IS COMPLETED IN ANY ONE SECTION, THE ENTIRE AREA SHALL BE ROLLED OR TAMPED TO INSURE SOLID CONTACT OF ROOTS WITH THE SOIL SURFACE. SOD SHALL BE WATERED IMMEDIATELY AFTER ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

III. SOD MAINTENANCE

A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.

B. AFTER THE FIRST WEEK, SOD SHALL BE WATERED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE AND INSURE ESTABLISHMENT.

C. FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED.

E. MAINTENANCE OF ESTABLISHED SOD SHOULD FOLLOW SPECIFICATIONS OUTLINED IN TABLE 54-1.

SEDIMENT CONTROL NOTES

1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction.

2) All vegetative and structural practices are to be intalled according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

3) Following initial soil disturbance 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 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 1983 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	172.916 Acres
Area Disturbed	1.0 Acres
Area to be roofed or paved	0 Acres
Area to be vegetatively stabilized	.79 Acres
Total Cut	120 Cu. yds.
Total Fill	464 Cu. yd

Offsite waste/borrow area location Borrow from Columbia Gateway permit No. GP-87-49

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 deemend 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.

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION:
LOOSEN UPPER 3 INCHES BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SOIL AMENDMENTS:
APPLY 600 LBS. PER ACRE (14 LBS./1,000 SQ. FT.) OF 10-10-10 FERTILIZER.

SEEDING:
FOR PERIODS MARCH 1 THRU APRIL 30, AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 BU. PER ACRE OF ANNUAL RYE (3.2 LBS./1,000 SQ.FT.). FOR THE PERIOD MAY 1, THRU AUG. 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1,000 SQ. FT.). FOR PERIOD NOV. 16 THRU FEB. 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./1,000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 218 GALLONS PER ACRE (5 GALLONS/1,000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER USE 348 GALLONS PER ACRE (8 GALLONS/1,000 SQ. FT.) FOR ANCHORING.

PERMANENT SEEDING NOTES

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

SEEDBED PREPARATION:
LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BERFORE SEEDING.

SOIL AMENDMENTS:
APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1,000 SQ. FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1,000 SQ. FT.). 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./1,000 SQ. FT.).

SEEDING:
FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS./1,000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD OF MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (0.05 LBS./1,000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU 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 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1,000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL./1,000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES OF 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1,000 SQ. FT.) FOR ANCHORING.

MAINTENANCE:
INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS, AND RESEEDINGS.

GENERAL NOTES

1. REFER TO "1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN.
2. WITH THE APPROVAL OF SEDIMENT CONTROL INSPECTOR, MINOR FIELD ADJUSTMENTS CAN AND WILL BE MADE TO INSURE THE CONTROL OF ANY SEDIMENT CHANGES IN SEDIMENT CONTROL PRACTICES REQUIRE PRIOR APPROVAL OF SEDIMENT CONTROL INSPECTOR AND THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
3. AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT IN OPERATIONAL CONDITION.
4. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (A) SEVEN CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND (B) FOURTEEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
5. ANY CHANGE TO THE GRADING PROPOSED ON THIS PLAN REQUIRES RE-SUBMISSION TO HOWARD COUNTY SOIL CONSERVATION DISTRICT FOR APPROVAL.
6. DUST CONTROL WILL BE PROVIDED FOR ALL DISTURBED AREAS. REFER TO "1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", P.P. 62.01 AND 62.02 FOR ACCEPTABLE METHODS AND SPECIFICATIONS FOR DUST CONTROL.
7. ANY VARIATION FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE HOWARD COUNTY SOIL CONSERVATION DISTRICT PRIOR TO THE INITIATION OF THE CHANGE.
8. ANY EXCESS CUT OR BORROW MATERIAL WILL BE TAKEN TO OR BROUGHT FROM A SITE WITH AN APPROVED SEDIMENT CONTROL PLAN.
9. TOTAL AREA OF TRACT: N/A
10. TOTAL DISTURBED AREA: N/A
11. REFER TO "MARYLAND GUIDELINES TO WATERWAY CONSTRUCTION" BY THE WATER RESOURCES ADMINISTRATION (WRA), DATED JANUARY, 1986 FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN FOR WATERWAY CONSTRUCTION.

CONSTRUCTION SPECIFICATIONS

I. SITE PREPARATION

AREAS DESIGNED FOR BORROW AREAS, EMBANKMENT AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED.

AREAS TO BE COVERED BY THE POND OR RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE.

II. EARTH FILL

MATERIAL

THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREA OR AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, OVERSIZE STONES, FROZEN OR OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION WHICH PROVIDES FOR ANTICIPATED SETTLEMENT TO THE DESIGN ELEVATION.

PLACEMENT

AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN 8-INCH MAXIMUM THICKNESS (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST POROUS BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF 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 IS COMPACTED TO 95 PERCENT OF AASHTO SPECIFICATION T-99 (OR EQUIVALENT ASTM SPECIFICATION) DENSITY AND CERTIFIED BY THE ENGINEER. FILL MATERIAL MUST CONTAIN ENOUGH MOISTURE TO YIELD THE REQUIRED DEGREE OF COMPACTION WITH THE EQUIPMENT USED.

CUTOFF TRENCH

WHERE SPECIFIED, A CUTOFF TRENCH SHALL BE EXCAVATED ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE AS SHOWN ON THE DRAWINGS, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL MATERIAL (SC OR CL) FOR THE CUTOFF TRENCH SHALL BE THE MOST IMPERVIOUS MATERIAL AVAILABLE AND SHALL BE COMPACTED WITH EQUIPMENT OR ROLLERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

III. STRUCTURAL BACKFILL

BACKFILL MATERIAL 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 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 PIPE UNLESS THERE IS A COMPACTED FILL OF TWENTY-FOUR INCHES OR GREATER OVER THE STRUCTURE OR PIPE.

IV. PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

A. CORRUGATED METAL PIPE

1. MATERIALS - (STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL BE GALVANIZED AND FULLY BITUMINOUS COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE "A" WITH WATERTIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.
2. 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. WATERTIGHT COUPLING BANDS OR FLANGES SHALL BE USED AT ALL JOINTS. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE 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. LAYING PIPE - THE PIPE SHALL BE PLACED WITH INSIDE CIRCUMFERENTIAL LAPS POINTING DOWNSTREAM AND WITH THE LONGITUDINAL LAPS AT THE SIDES.
5. BACKFILLING SHALL CONFORM TO STRUCTURAL BACKFILL AS SHOWN ABOVE.
6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

V. CONCRETE

CONCRETE MUMT MEET MINIMUM REQUIREMENTS SET FORTH IN THE MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 918 (PORTLAND CEMENT CONCRETE MIXTURES), MIX NO. 3. REINFORCING STEEL MUST BE ASTM A615, GRADE 60. STEEL ANGLES AND ANCHOR BARS MUST BE ASTM A36.

VI. 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 (IF REQUIRED) IN ACCORDANCE WITH THE VEGETATIVE TREATMENT SPECIFICATIONS OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

VII. 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 TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS.

VIII. FILTER CLOTH

FILTER CLOTH SHALL BE MIRAFI 140S, DUPONT TYPAR #3341 OR APPROVED EQUAL.

IX. GABIONS

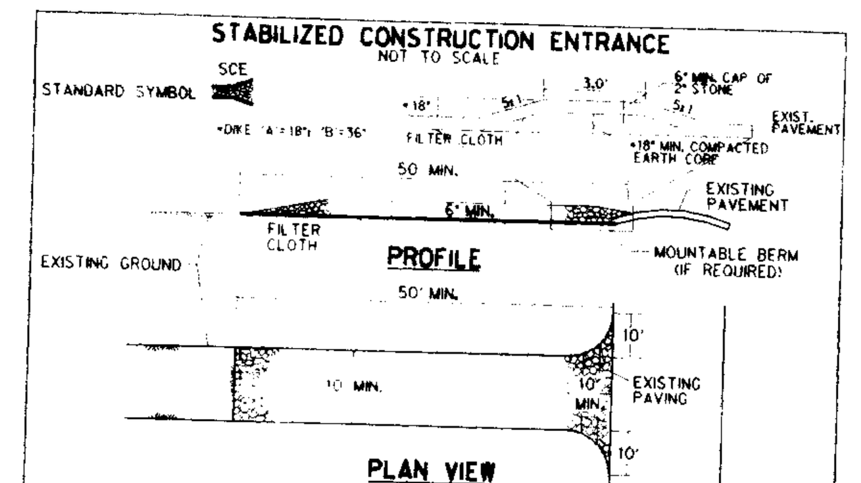
ALL GABIONS SHALL BE CLASS IV (PVC COATED).

X. PLASTIC

ALL PVC PLASTIC MATERIALS SHALL CONFORM TO ASTM D-1785.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

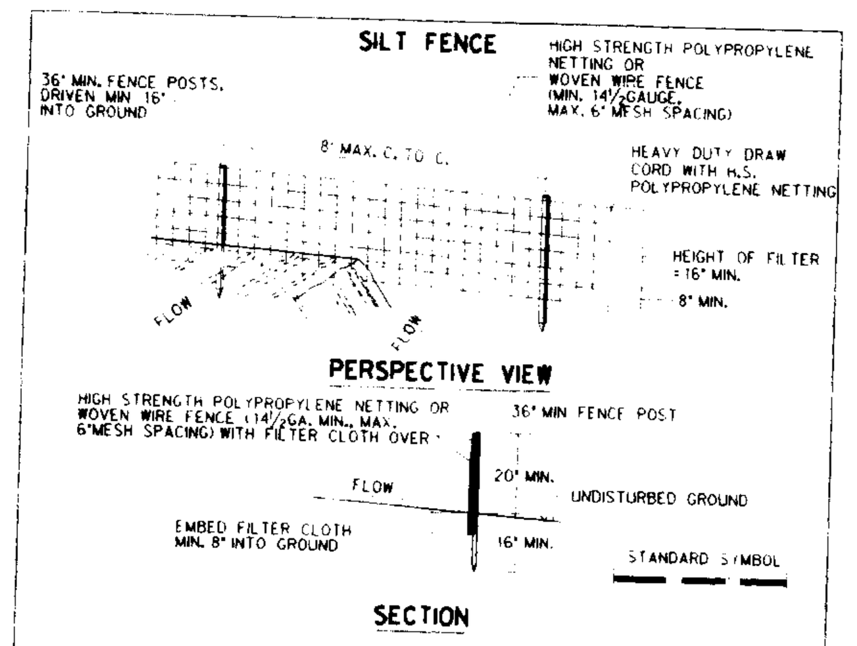


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	STABILIZED CONSTRUCTION ENTRANCE	STANDARD DRAWING SCE-1

SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. HIGH STRENGTH POLYPROPYLENE NETTING OR WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER T OR U TYPE OR 1 1/4" x 1 1/4" MIN. (ACTUAL) HARDWOOD

FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING OR HIGH STRENGTH POLYPROPYLENE NETTING

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	SILT FENCE	STANDARD DRAWING SF-1

SEQUENCE OF OPERATIONS

1. OBTAIN A GRADING PERMIT.
2. NOTIFY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR AT LEAST 24 HOURS BEFORE BEGINING WORK.
3. INSTALL SILT FENCE AS SHOWN ON PLAN.
4. CONSTRUCT PERMANENT EARTH BERMS AND STABILIZE THEM THE SAME DAY WITH SEED AND MULCH.
5. GRADE FOR SODDED SWALE AND STABILIZE WITH SOD THE SAME DAY.
6. CONSTRUCT RIP-RAP OVERFLOW SPILLWAYS AND INSTALL STONE COVERED DEWATERING PIPES.
7. WHEN ALL WORK IS COMPLETE, STABILIZE ALL DISTURBED AREAS WITH SEED AND MULCH.
8. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE SILT FENCE AND STABILIZE AREAS DISTURBED BY IT'S REMOVAL.

CONSTRUCTION NOTES

1. The proposed project shall be constructed in a manner which will not violate Maryland's Water Quality Standards as set forth in COMAR 26.08.02. The Maryland Department of the Environment, Division of Standards and Certification shall be notified ten (10) days prior to commencing work. Verbal notification is to be followed by written notice within ten (10) days.
2. Construction of the proposed project shall begin only when all the required licenses, permits, notifications of approval or letters of permission have been obtained from the appropriate approving authorities.
3. All fill and construction materials not used in the project shall be removed and disposed of in a manner which will prevent their entry into waters of this State.
4. The disturbance of the bottom of the water and sediment transport into the adjacent waters of the State shall be minimized.
5. During the construction period, all persons involved in the project shall use sanitary facilities and adhere to sanitary wastewater disposal practices and solid waste disposal practices as approved by the local health department.
6. In-stream work shall be done only in the period June 16 to February 28.
7. The wetland creation project will be either performed or supervised by an environmental consultant with documented success in wetland creation.
8. The environmental consultant will be notified when the project has been staked, prior to clearing, to determine if any field modifications are warranted.
9. The environmental consultant will survey the wetland creation site prior to any planting to insure the elevations of the existing wetland or newly graded surfaces are correct for successful growth of the wetland plants selected. All fill materials must be clean, free of contaminants, and suitable for growth and establishment of wetland plants. Should settlement of the fill material occur after planting, resulting in too low an elevation for marsh establishment, the elevation will be corrected and the area will be replanted.
10. The wetland creation site will be reinspected by the environmental consultant approximately one year after completion of all work. Any maintenance, repairs, or additional measures necessary to insure the integrity of the project will be performed by the environmental consultant or contractors under the supervision of the environmental consultant.
11. All earthwork operations will be carried out in a manner as to minimize erosion of the material into wetlands or waterways.
12. Upon completion of earthwork operations, all fills and other areas disturbed during construction shall be seeded, riprapped, or given some other type of protection from subsequent soil erosion.
13. The contractor shall employ measures during construction to prevent spills of fuels or lubricants. If a spill occurs, it shall be controlled to prevent its entry into the waterway.
14. Final grading and sediment control of both the proposed development and mitigation site shall be submitted to the Corps (CENAB-OP-RW) prior to commencement of any work. Department of the Army authorization must be obtained for any grading or filling in non-tidal wetlands to emplace any sediment control devices or temporary construction access roads.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

James M. T. Selm — 3/12/91
SIGNATURE — DATE
U.S. SOIL CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

John R. Robertson — 3/11/91
HOWARD — DATE

APPROVED:
Joseph Bogdue — 4-17-91

APPROVED:
[signature] — 4/30/91
[signature] — 4/23/91

APPROVED:
James Y. Lee — 4/9/91
William E. Riley — 4-24-91
MK

OWNERS/DEVELOPERS CERTIFICATION

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. ALSO THAT THE SITE WILL BE INSPECTED AT THE END OF EACH WORKING DAY, AND THAT ANY NEEDED MAINTENANCE WILL BE COMPLETED SO AS TO INSURE THAT ALL SEDIMENT CONTROL PRACTICES ARE LEFT IN OPERATIONAL CONDITION. I/WE AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS.

[signature] — 3-7-91
DEVELOPER — DATE

Albert F. Edwards HRD
PRINT NAME, TITLE, FIRM & ADDRESS

CONSULTANT'S CERTIFICATION

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT AND "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL". I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE: Donald N. Mitten MD. LICENSE NO. 16581
NAME: DONALD N. MITTEN DATE: 3/7/91.

DATE	REVISION

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS

Donald N. Mitten

KIDDE CONSULTANTS, INC.
ENGINEERS · PLANNERS · SURVEYORS
1020 CROMWELL BRIDGE ROAD
BALTIMORE, MARYLAND
301-321-5500

DESIGNED JMK	SITE DEVELOPMENT PLAN FOR THE GREENTREE WETLAND AREA OF **COLUMBIA GATEWAY** 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DRAWN CLY		DRAWING 2 OF 2
CHECKED MSR		JOB NO.
DATE 9/89		FILE NO.

OWNER DEVELOPER
THE HOWARD RESEARCH & DEVELOPMENT LAND COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

SUBDIVISION NAME				SECT./AREA	LOT/PARCEL #
COLUMBIA GATEWAY				N/A	PARCEL T
PLAT # OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELEC. DIST.	CENSUS TR.
7542		M 1	43	6	6065.0
WATER CODE			SEWER CODE		

SDP-90-138