SHEET INDEX	
NO.	DESCRIPTION
1	PLAN OF PATUXENT QUARTER ROAD AND PLANTING PLAN.
2	ROAD PROFILE AND DRAINAGE AREA MAP FOR E-3 AND E-5
3	DRAINAGE AREA MAP
4	STORM DRAIN PROFILES AND DETAILS
5	GRADING AND SEDIMENT CONTROL PLAN
6	SEDIMENT CONTROL NOTES AND DETAILS
7	STORMWATER MANAGEMENT SPECIFICATIONS AND DETAILS
8	STORMWATER MANAGEMENT DETAILS

PLANT LIST

SYMBOL	QUANTITY	NAME	REMARKS
⊙	38	ACER RUMBRUM (Red Maple)	2 1/2" MIN CAL. B & B FULL HEAD

NOTES:
1. TREE MUST BE A MINIMUM OF 4' FROM THE CURB OR SIDEWALK
2. SEE TREE PLANTING DETAIL SHEET NO. 4
3. A 20' MINIMUM DISTANCE SHALL BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND ANY STREET LIGHT.
4. TREES MUST BE A MINIMUM OF 5' FROM ANY STORM DRAIN

BENCH MARKS

HO CO BM 2447002 ELEV. 89.82
N 494994.546 E 878209.658
CONC. MONUMENT NE CORNER RR TRACKS AND HANOVER ROAD, 0.3' BELOW SURFACE

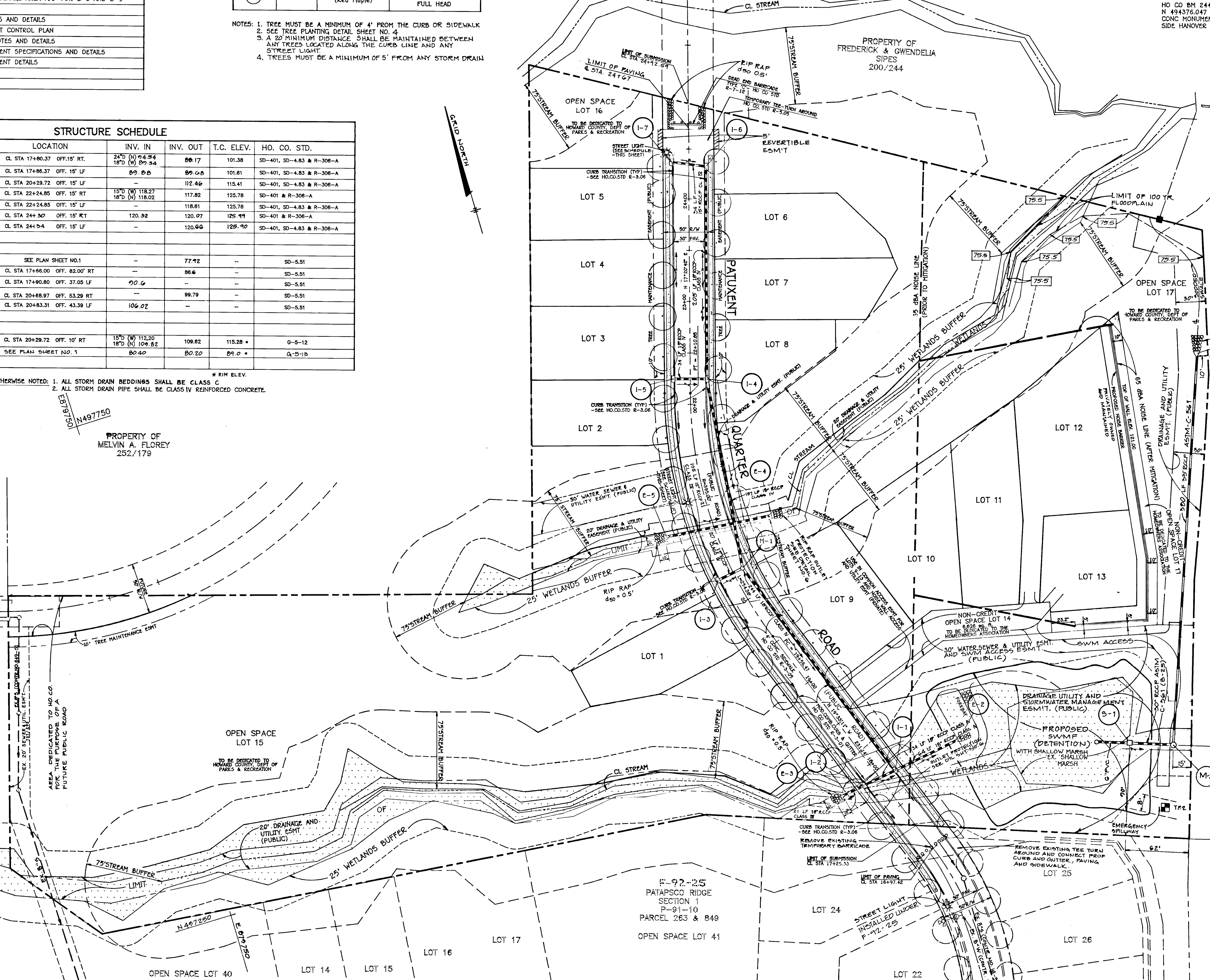
HO CO BM 2447003 ELEV. 46.266
N 494376.047 E 879030.173
CONC MONUMENT 0.2' BELOW SURFACE NW SIDE HANOVER ROAD AND RACE ROAD

STRUCTURE SCHEDULE

No.	TYPE	LOCATION	INV. IN	INV. OUT	T.C. ELEV.	HO. CO. STD.
I-1	A-5 W/ DEFLECTOR	CL STA 17+80.37 OFF.15' RT.	24"D (N) 94.54 18"D (W) 89.34	88.17	101.38	SD-401, SD-4.83 & R-306-A
I-2	A-5 W/ DEFLECTOR	CL STA 17+86.37 OFF. 15' LF	89.88	89.68	101.61	SD-401, SD-4.83 & R-306-A
I-3	A-5 W/ DEFLECTOR	CL STA 20+29.72 OFF. 15' LF	–	112.46	115.41	SD-401, SD-4.83 & R-306-A
I-4	A-5	CL STA 22+24.85 OFF. 15' RT	15"D (W) 118.27 18"D (N) 118.02	117.82	125.78	SD-401 & R-306-A
I-5	A-5 W/ DEFLECTOR	CL STA 22+24.85 OFF. 15' LF	–	118.61	125.78	SD-401, SD-4.83 & R-306-A
I-6	A-5	CL STA 24+30 OFF. 15' RT	120.32	120.07	125.99	SD-401 & R-306-A
I-7	A-5 W/ DEFLECTOR	CL STA 24+34 OFF. 15' LF	–	120.66	125.90	SD-401, SD-4.83 & R-306-A
E-1	33" CONC.	SEE PLAN SHEET NO.1	–	77.92	–	SD-5.51
E-2	18" CONC.	CL STA 17+66.00 OFF. 82.00' RT	–	86.6	–	SD-5.51
E-3	18" CONC.	CL STA 17+90.80 OFF. 37.05 LF	90.6	–	–	SD-5.51
E-4	15" CONC.	CL STA 20+68.97 OFF. 53.29 RT	–	99.79	–	SD-5.51
E-5	15" CONC.	CL STA 20+83.31 OFF. 43.39 LF	106.02	–	–	SD-5.51
M-1	4' MANHOLE	CL STA 20+29.72 OFF. 10' RT	15"D (W) 112.20 18"D (N) 109.82	109.62	115.28 *	G-5-12
M-2	5' MANHOLE	SEE PLAN SHEET NO. 1	80.40	80.20	89.0 *	G-5-13

* RIM ELEV.

UNLESS OTHERWISE NOTED: 1. ALL STORM DRAIN BEDDINGS SHALL BE CLASS C
2. ALL STORM DRAIN PIPE SHALL BE CLASS IV REINFORCED CONCRETE.



PLAN
SCALE: 1" = 50'

LEGEND
- PROPOSED STORM DRAIN
- EXISTING SEWER
- EXISTING WATER
- PROPOSED CURB AND GUTTER
- EXISTING CURB AND GUTTER
- STREET LIGHT
- PROPOSED CONCRETE WALK
- STREAM

STREET LIGHT SCHEDULE

CL STA 21+00 OFFSET 18' LEFT
CL STA 24+50 OFFSET 18' LEFT

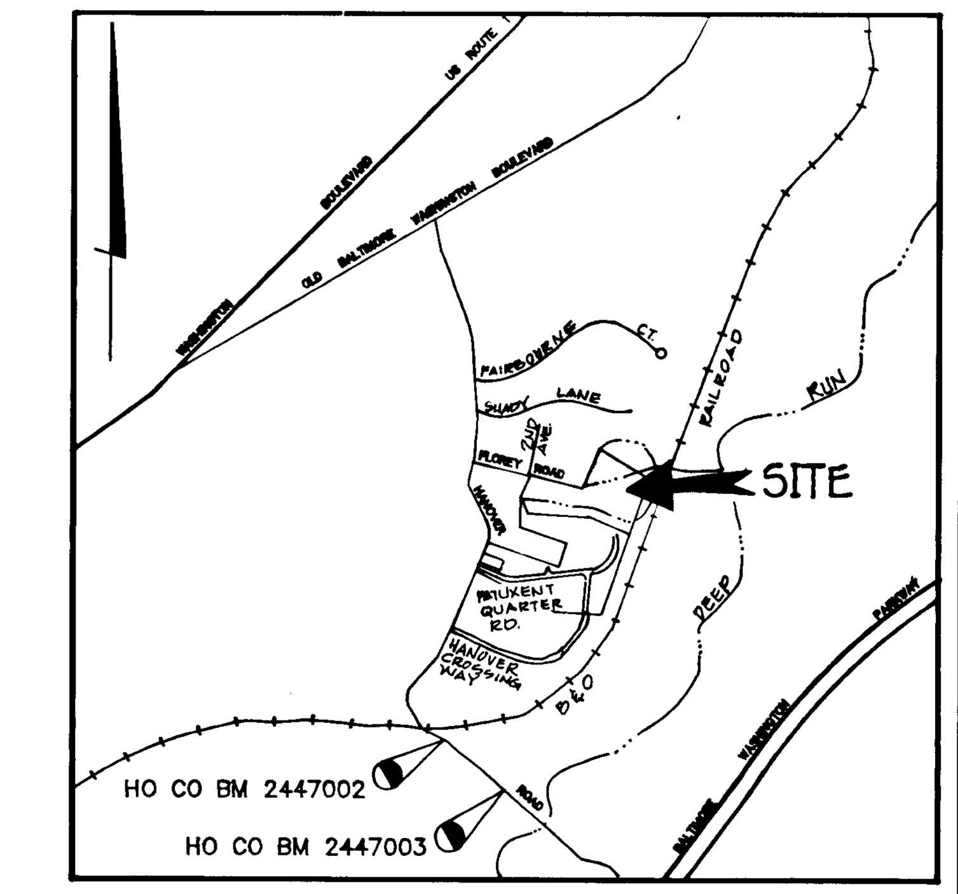
STREET LIGHTS SHALL BE 100 WATT TRADITIONAIRE SODIUM VAPOR LAMP POST TOP FIXTURE ON 14' BLACK FIBERGLASS POLE

CL CURVE DATA

CL STA	RADIUS	LENGTH	TAN	CHORD	CHD. BEAR.	△
PATUXENT QUARTER ROAD 19+56.47 TO 22+10.85	395.00'	254.38'	131.77'	250.00'	N 01°06'14" W	36°53'53"

CENTERLINE CONTROL DATA

STATION	DESCRIPTION	NORTH	EAST
CL STA 16+97.42	LIMIT OF EX. PAVING	497106.3800	880170.7300
CL STA 17+25.33	LIMIT OF SUBMISSION	497132.6846	880161.3850
CL STA 19+56.47	PC STA	497350.4992	880084.0260
CL STA 22+10.85	PT STA	497600.4568	880079.2093
CL STA 24+92.59	LIMIT OF SUBMISSION	497869.3795	880163.2014



VICINITY MAP
SCALE : 1"=2000'

GENERAL NOTES
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/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: 38 ,PARCEL: 793
ZONING:	R-12
ELECTON DISTRICT:	1ST
SECTION/AREA:	1/1
TOTAL TRACT AREA:	13.32 AC+/-
SECTION AREA:	13.32+/-
NO. OF BUILDABLE LOTS	13
DPZ REFERENCE NO.S:	S-92-03, WP-92-23, P-93-04

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. TOPOGRAPHIC SURVEY IS FIELD RUN, PERFORMED BY TSA GROUP INC. MAY, 1992. CONTOURS ARE SHOWN AT 2' INTERVALS.
7. ALL ELEVATIONS SHOWN ARE BASED ON USC AND GS MEAN SEA LEVEL DATUM 1929.
8. HORIZONTAL AND VERTICAL CONTROL ARE AS PROJECTED FROM HOWARD COUNTY GEODETIC CONTROL STATIONS 2447002 AND 2447003.
9. LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROADS AND BRIDGES.
10. WATER AND SEWER WILL BE PUBLIC FOR THIS SITE AS SHOWN ON CONTRACT DWGS. NO. 14-3281-D DRAINAGE AREA IS PATAPSCO
11. STORM WATER MANAGEMENT FOR THIS SITE IS BY EXTENDED DETENTION.
12. FLOODPLAIN STUDY PERFORMED BY TSA GROUP DATED: JULY 1992
13. NOISE EVALUATION WAS PERFORMED BY TSA GROUP AND SUBMITTED AND REVIEWED WITH S-92-03, DATED: 12/3/92.
14. WETLAND DELINATION WAS PERFORMED BY M.A.DIRCKS & CO. DATED: 11/3/91
15. EXISTING UTILITIES SHOWN ARE FROM CONTRACT DRAWINGS NO. 649-S AND 14-3192-D
16. WP-92-23 WAS APPROVED ON 2/13/92 PERTAINING TO SECTION 16.116(c) (4), TO PERMIT CLEARING AND GRADING ON AREAS OF STEEP SLOPES ADJACENT TO WETLANDS AND/OR CONTAINING A CONTIGUOUS AREA OF 20,000 SF OR GREATER; 16.116(c) (6), TO PERMIT CLEARING AND GRADING WITHIN THE 75 FOOT STREAM BANK BUFFER AND/OR 25 FOOT WETLANDS BUFFER; AND 16.115.B.5, TO PERMIT A SHARED DRIVEWAY ON A COMMONLY OWNED LOT TO EXCEED THE MAXIMUM 200 FOOT LENGTH BY 18 FEET.
17. SIDEWALKS AND SIDEWALK RAMPS SHALL MEET THE CURRENT ADA REQUIREMENTS.
18. THIS PROJECT IS SUBJECT TO NONTIDAL WETLANDS/WATERWAY PERMIT No. 92-NT-1140 AND WATER QUALITY CERTIFICATION No. 93-WQ-0396.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2/16/94
CHIEF, LAND DEVELOPMENT DIVISION — DATE

[signature] 2-4-94
CHIEF, BUREAU OF HIGHWAYS — DATE

[signature] 2/17/94
CHIEF, BUREAU OF ENGINEERING — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 2/18/94
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott CITY, Maryland 21043 • (410) 465-6105

OWNER: CHARLES A. REESE, GEORGE A. PARROTT, BARBARA ANN FINAMORE, SUSAN M. LAZAR, C/O 10715 CHARTER DRIVE, COLUMBIA, MD. 21044

DEVELOPER: SECURITY DEVELOPMENT CORP., P.O. BOX 417, ELLICOTT CITY, MARYLAND 21043, (410) 465-4244

PROJECT: **ELK HILL** SECTION 1, AREA 1 LOTS 1 THRU 17

LOCATION: TAX MAP 38 – PARCEL 793, 1st ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: **PLAN OF PATUXENT QUARTER ROAD AND PLANTING PLAN**

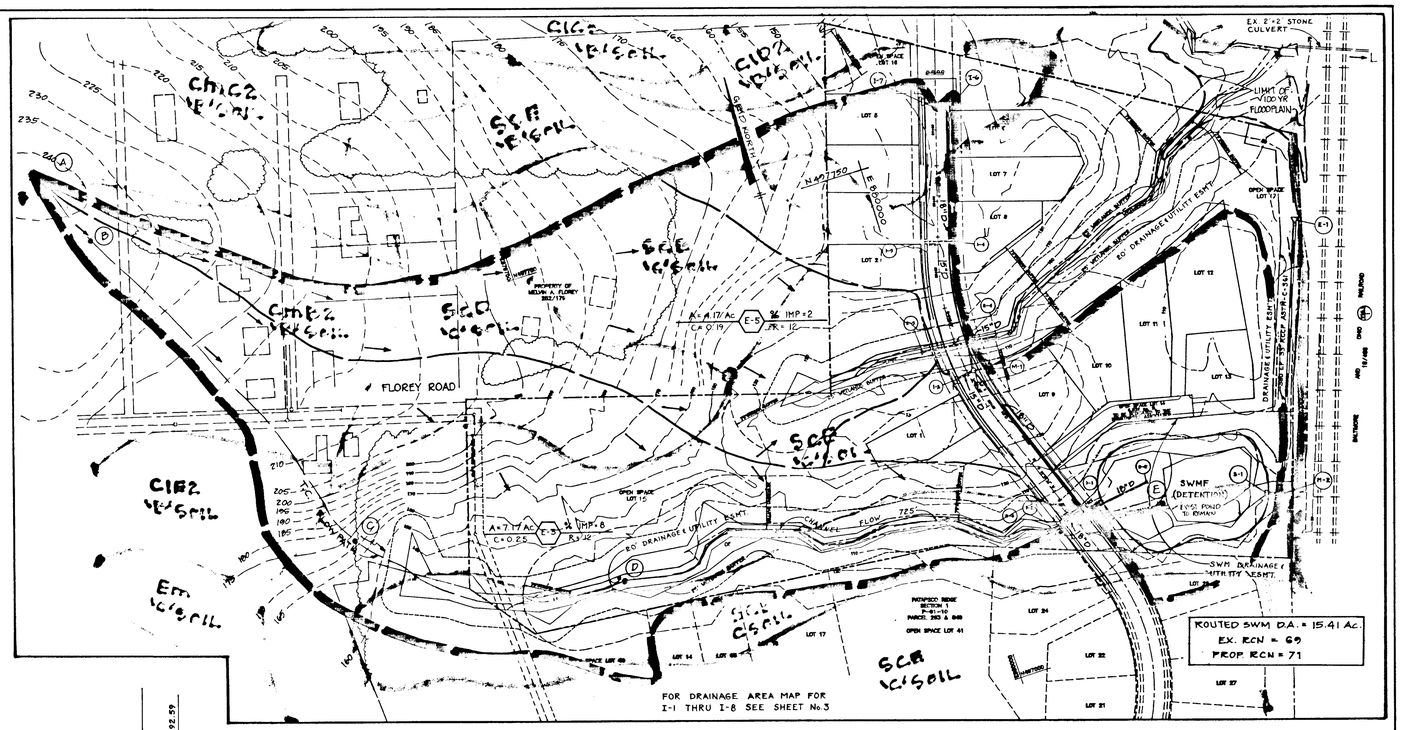
S-92-03 WP-92-23 P-93-04

DATE: MARCH 5, 1993 / JAN. 11, 1994 — PROJECT NO. 0458

DES: JH — DRN: JWG — SCALE: AS SHOWN — DRAWING 1 OF 8

F-93-99

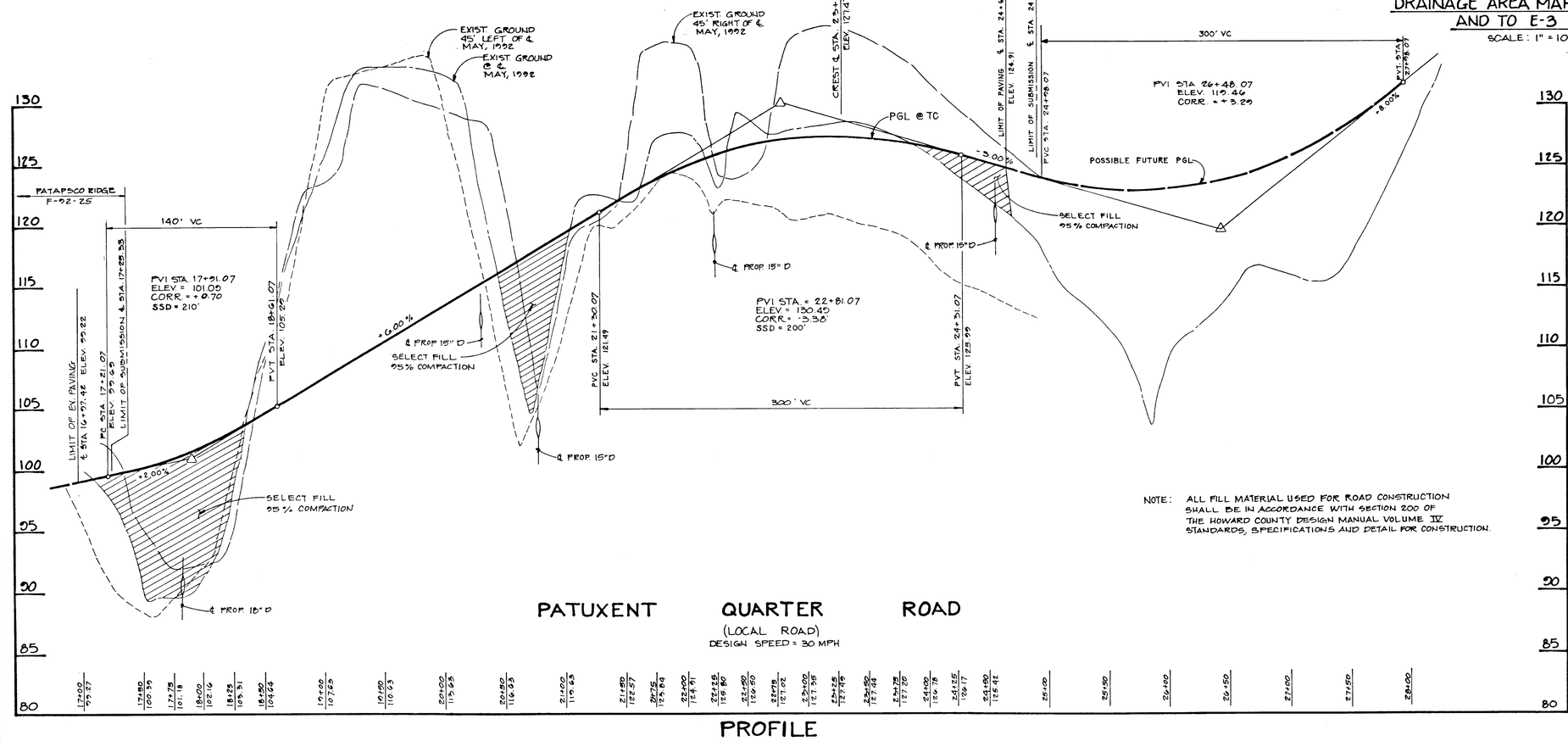
1689



FOR DRAINAGE AREA MAP FOR I-1 THRU I-8 SEE SHEET No.3

DRAINAGE AREA MAP FOR SWMF AND TO E-3 & E-5

SCALE: 1" = 100'



PROFILE

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

PATUXENT QUARTER ROAD

(LOCAL ROAD)
DESIGN SPEED = 30 MPH

NOTE: ALL FILL MATERIAL USED FOR ROAD CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 200 OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV STANDARDS, SPECIFICATIONS AND DETAIL FOR CONSTRUCTION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 2/16/94

CHIEF, BUREAU OF HIGHWAYS — DATE 2-4-94

CHIEF, BUREAU OF ENGINEERING — DATE 2/17/94 JH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 2/18/94

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-8100

OWNER: CHARLES A. REESE, GEORGE A. PARROTT, BARBARA ANN FINAMORE, SUSAN M. LAZAR
C/O 10715 CHARTER DRIVE
COLUMBIA, MD. 21044

DEVELOPER: SECURITY DEVELOPMENT CORP.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21043
(410) 465-4244

PROJECT: ELK HILL
SECTION 1, AREA 1
LOTS 1 THRU 17

LOCATION: TAX MAP 38 – PARCEL 793
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILE FOR PATUXENT QUARTER ROAD, DRAINAGE AREA MAP AND DETAILS

S-92-03 WP-92-93 F-93-04

DATE: MARCH 5, 1993; JAN. 11, 1994

PROJECT NO. 0458

DES: JH | DRN: CAB | SCALE: AS SHOWN | DRAWING 2 OF 8

1689

F-93-99

SOILS CLASSIFICATION

SOILS MAP # 26

CID2	CHILLUM GRAVELLY LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED.
CIE2	CHILLUM GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES, MODERATELY ERODED.
ScB	SANDY AND CLAYEY LAND, GENTLY SLOPING.
ScD	SANDY AND CLAYEY LAND, MODERATELY SLOPING.
ScE	SANDY AND CLAYEY LAND, MODERATELY STEEP.
SsE	SASSAFRAS SOILS, 15 TO 30 PERCENT SLOPES.

NOTE:
FOR DRAINAGE AREAS TO E-3 AND E-5 ~ SEE SHEET NO. 2

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	2/16/94 DATE
CHIEF, BUREAU OF HIGHWAYS	2-4-94 DATE HS
CHIEF, BUREAU OF ENGINEERING	2/17/94 DATE JH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH	2/18/94 DATE

NO	DATE	REVISION

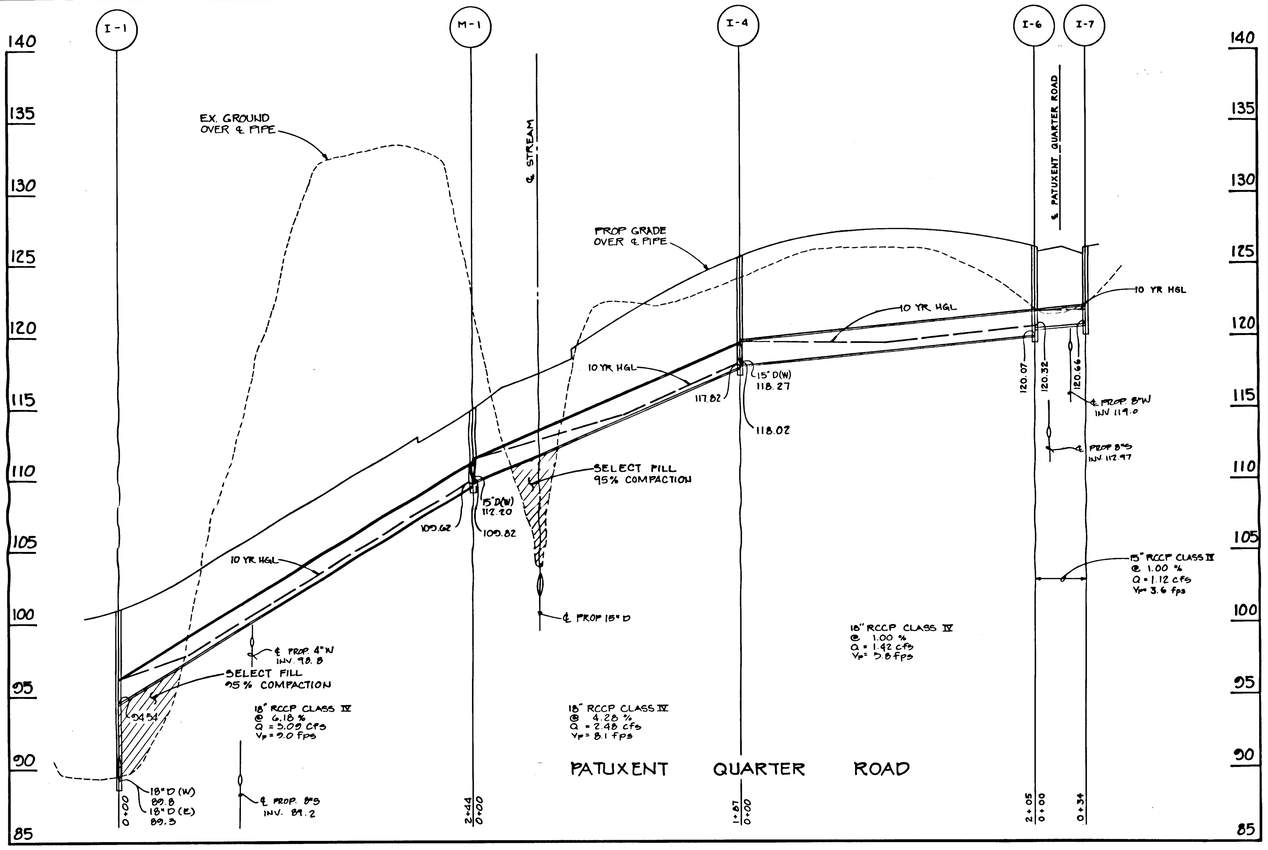
TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott CITY, Maryland 21043 • (410) 465-6105

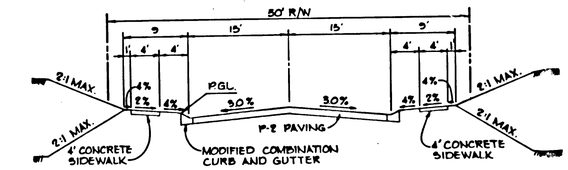
STATE OF MARYLAND

OWNER CHARLES A. REESE, GEORGE A. PARROTT, BARBARA ANN FINAMORE, SUSAN M. LAZAR C/O 10715 CHARTER DRIVE COLUMBIA, MD. 21044	PROJECT: ELK HILL SECTION 1, AREA 1 LOTS 1 THRU 17
	LOCATION: TAX MAP 38 – PARCEL 793 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DEVELOPER SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21043 (410) 465-4244	TITLE: DRAINAGE AREA MAP
	S-92-03 WP-92-23 P-93-04
	DATE: MARCH 5, 1993 JAN. 11, 1994 / PROJECT NO. 0458
DES: JH/DAM / DRN: CAB/JWG	SCALE: AS SHOWN / DRAWING 3 OF 8

F-93-99

1689



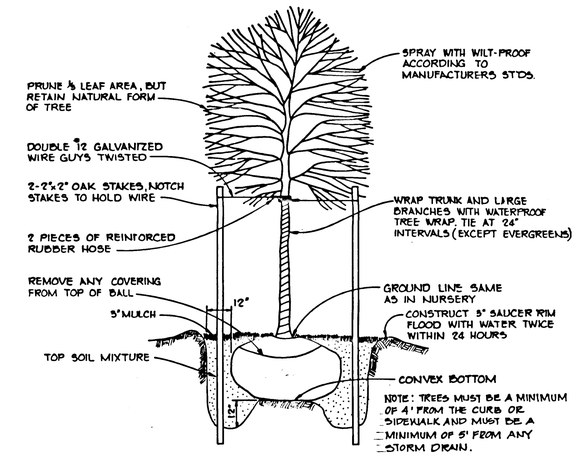


TYPICAL SECTION

NO SCALE

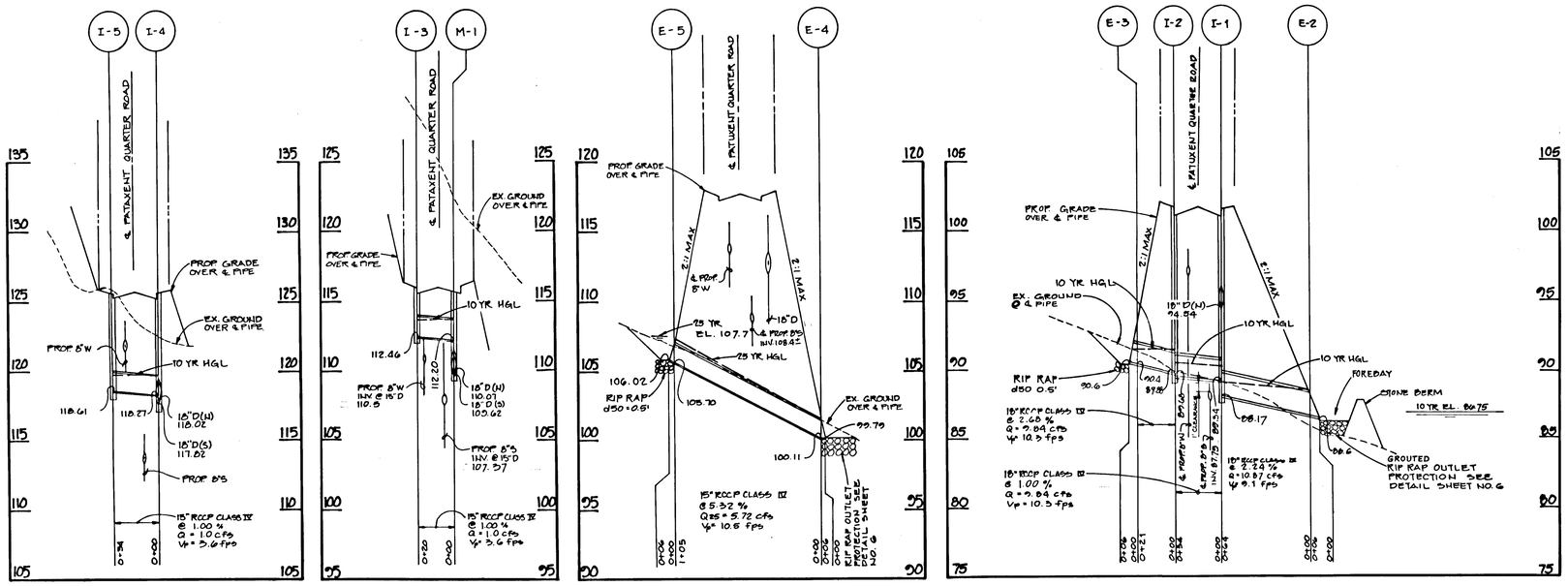
PATUXENT QUARTER ROAD

(STA. 16+97.42 TO STA. 24+92.59)
(LOCAL ROAD)



TREE PLANTING DETAIL

NO SCALE



STORM DRAIN PROFILES

SCALE: HORIZ 1"=50'
VERT 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 2/16/94

CHIEF, BUREAU OF HIGHWAYS — DATE 2-4-94

CHIEF, BUREAU OF ENGINEERING — DATE 2/17/94 JH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 2/18/94

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-6105

OWNER: CHARLES A. REESE, GEORGE A. PARROTT, BARBARA ANN FINAMORE, SUSAN M. LAZAR, C/O 10715 CHARTER DRIVE, COLUMBIA, MD. 21044

DEVELOPER: SECURITY DEVELOPMENT CORP., P.O. BOX 417, ELLICOTT CITY, MARYLAND 21043, (410) 465-4244

PROJECT: ELK HILL
SECTION 1, AREA 1
LOTS 1 THRU 17

LOCATION: TAX MAP 38 - PARCEL 793
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES AND DETAILS

5-92-03 WP-92-23 P-93-04

DATE: MARCH 5, 1993; JAN. 11, 1994

PROJECT NO. 0458

DES: JH/DAM DRN: CAB

SCALE: AS SHOWN

DRAWING 4 OF 8

F-93-99

1689

SEQUENCE OF CONSTRUCTION

DAY 1	OBTAIN A GRADING PERMIT.
DAY 2-6	INSTALL STABILIZED CONSTRUCTION ENTRANCE, TEMPORARY 18" RCCP AND STREAM CROSSING AT STATION 17+75 +/-.
DAY 7-20	INSTALL STORMWATER MANAGEMENT FACILITY AND SEDIMENT CONTROL DEVICES SOUTH OF STREAM CROSSING AT STATION 20+75 +/- AND TREE PROTECTION FENCES.
DAY 21-23	INSTALL TEMPORARY STONE OUTLET SEDIMENT TRAP NO. 2.
DAY 24-26	INSTALL STORM DRAIN FROM E-4 TO E-5 AND GRADE STREAM CROSSING AT STATION 20+75 +/-. TO PROVIDE POSITIVE SLOPE AND EARTH DIKE DRAINAGE TO TRAP NO. 2.
DAY 27-30	INSTALL SEDIMENT CONTROL DEVICES NORTH OF STATION 20+75 +/- INCLUDING TEMPORARY STONE OUTLET SEDIMENT TRAP NO. 1.
DAY 31-40	GRADE SITE TO SUBGRADE AND STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES.
DAY 41-50	INSTALL WATER, SEWER AND STORM DRAINS EXCEPT FOR DRAIN FROM I-1 TO I-2 AND I-2 TO E-3.
DAY 51-55	STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDBED NOTES.
DAY 56-58	REMOVE TEMPORARY SEDIMENT TRAP NO. 2 AND TEMPORARY 18" RCCP. INSTALL STORM DRAIN FROM I-1 TO I-2 AND I-2 TO E-3.
DAY 59-77	INSTALL CURB AND GUTTER, SIDEWALK AND PAVING.
DAY 78-88	UPON APPROVAL OF THE APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS SEDIMENT CONTROL INSPECTOR REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDBED NOTES.

OPERATION, MAINTENANCE AND INSPECTION

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.

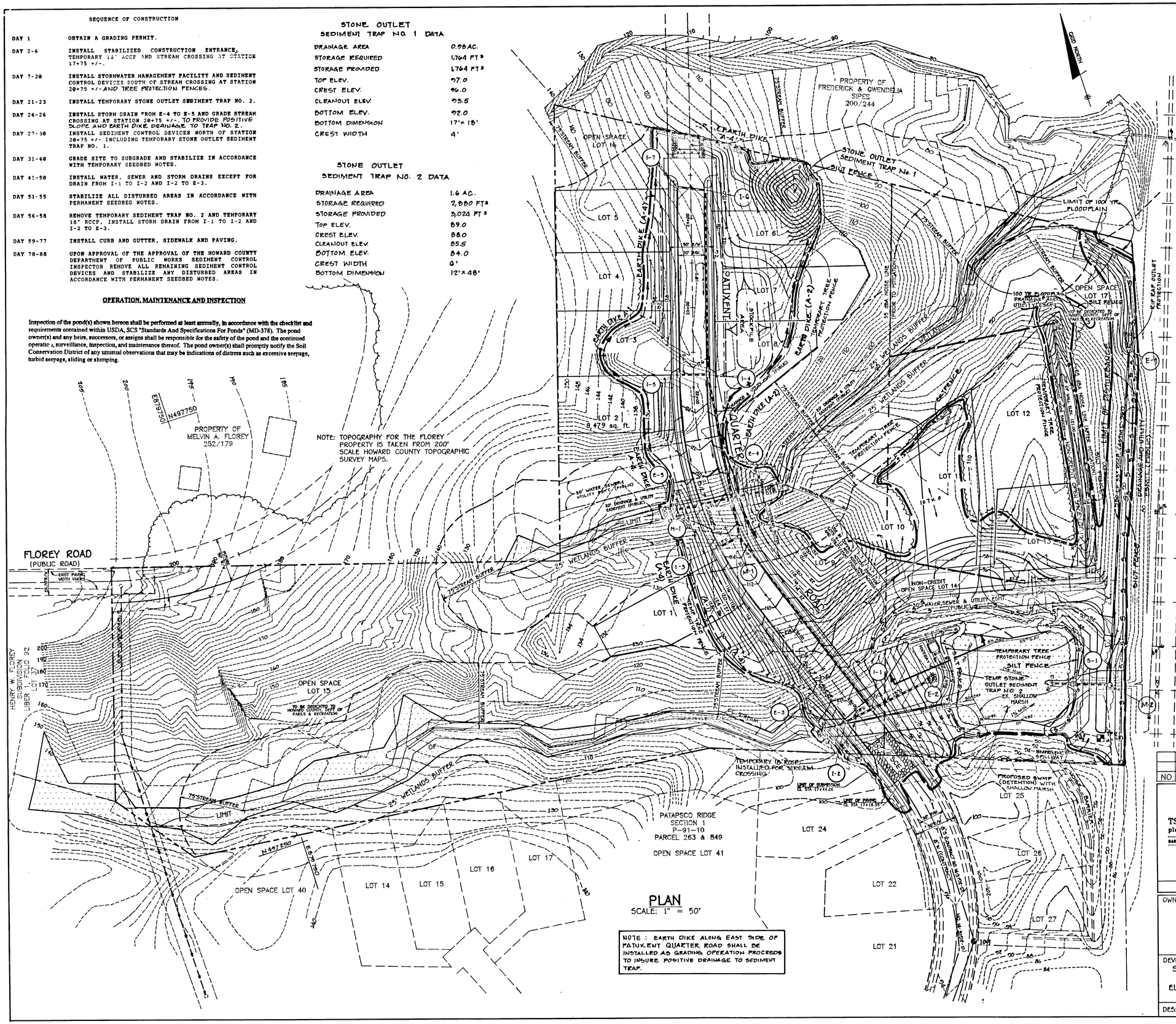
STONE OUTLET SEDIMENT TRAP NO. 1 DATA

DRAINAGE AREA	0.98 AC.
STORAGE REQUIRED	1,764 FT³
STORAGE PROVIDED	1,764 FT³
TOP ELEV.	97.0
CREST ELEV.	96.0
CLEANOUT ELEV.	93.5
BOTTOM ELEV.	92.0
BOTTOM DIMENSION	17'x 15'
CREST WIDTH	4'

STONE OUTLET SEDIMENT TRAP NO. 2 DATA

DRAINAGE AREA	1.6 AC.
STORAGE REQUIRED	2,880 FT³
STORAGE PROVIDED	3,024 FT³
TOP ELEV.	89.0
CREST ELEV.	88.0
CLEANOUT ELEV.	85.5
BOTTOM ELEV.	84.0
CREST WIDTH	8'
BOTTOM DIMENSION	12'x 48'

NOTE: TOPOGRAPHY FOR THE FLOREY PROPERTY IS TAKEN FROM 200' SCALE HOWARD COUNTY TOPOGRAPHIC SURVEY MAPS.



PLAN
SCALE: 1" = 50'

NOTE : EARTH DIKE ALONG EAST SIDE OF PATUXENT QUARTER ROAD SHALL BE INSTALLED AS GRADING OPERATION PROCEEDS TO INSURE POSITIVE DRAINAGE TO SEDIMENT TRAP.

LEGEND

- LIMIT OF DISTURBANCE
- X—X—X TEMP. TREE PROTECTION FENCE
- S—S—S SILT FENCE
- EARTH DIKE

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.

Signature _____ 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.

By the Developer:

"I/We certify that all development and/or construction will by 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."

Signature of Developer _____ Date 1-14-94

By the Engineer:

"I 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."

Signature of Engineer _____ Date 1/13/94
JOHN M. ELORRIAGA, P.E. #16891

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.

U.S. SOIL CONSERVATION SERVICE _____ DATE 1/21/94

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

HOWARD S.C.D. _____ DATE 1/26/94

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION _____ DATE 2/14/94

CHIEF, BUREAU OF HIGHWAYS _____ DATE 2-8-94 MS

CHIEF, BUREAU OF ENGINEERING _____ DATE 2/17/94 JH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH _____ DATE 2/18/94

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-6105

OWNER: CHARLES A. REESE, GEORGE A. PARROTT, BARBARA ANN FINAMORE, SUSAN M. LAZAR, C/O 10715 CHARTER DRIVE, COLUMBIA, MD. 21044	PROJECT: ELK HILL, SECTION 1, AREA 1, LOTS 1 THRU 17
DEVELOPER: SECURITY DEVELOPMENT CORP., P.O. BOX 417, ELLICOTT CITY, MARYLAND 21043, (410) 465-4244	LOCATION: TAX MAP 38 - PARCEL 793, 1st ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
DES: JH/DAM DRN: CAB	TITLE: GRADING AND SEDIMENT CONTROL PLAN
	S-92-03 WP-92-23 P-93-04
	DATE: MARCH 3, 1993 / JAN. 11, 1994
	PROJECT NO. 0458
	SCALE: AS SHOWN
	DRAWING 5 OF 5

1689

F-93-99

PERMANENT SEEDBED PREPARATION

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 lbs/1000 sq ft) AND 600 lbs PER ACRE 10-10-10 FERTILIZER (14 lbs/1000 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/10000 sq ft)

2) ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 lbs/1000 sq ft) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 lbs/1000 sq ft) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30 AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 lbs/1000 sq ft) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 lbs/1000 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 PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 lbs/1000 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/1000 sq ft) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 gal/1000 sq ft) FOR ANCHORING.

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

TEMPORARY SEEDBED PREPARATION

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 sq ft).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 lbs/1000 sq ft). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 lbs/1000 sq ft). FOR THE PERIOD NOVEMBER 16 THRU 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 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/1000 sq ft) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 gal/1000 sq ft) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1) A minimum of 48 hours notice must be given to the Howard County Department of Inspection, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1850).

2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL", 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 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 Volume 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 seeding (Section 51), sod (Section 54), temporary seeding (Section 50) and mulching (Section 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do no 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:

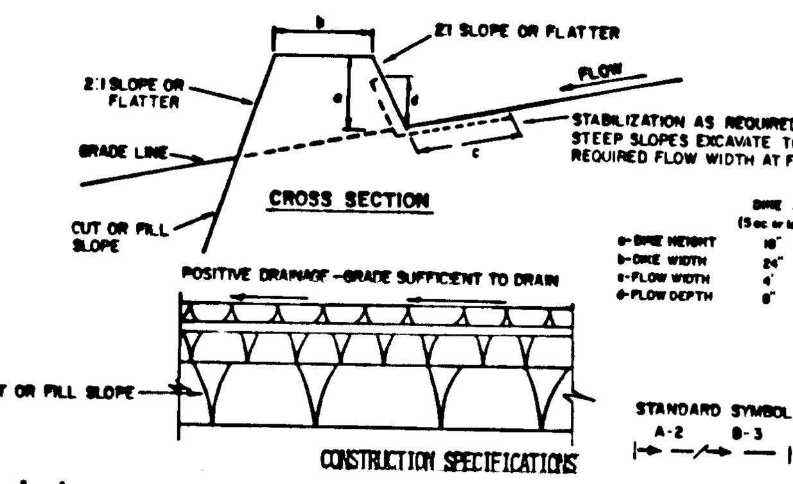
Total Area of Site	13.32 Acres
Area Disturbed	4.1 Acres
Area to be Roofed or Paved	0.7 Acres
Area to be Vegetatively Stabilized	3.4 Acres
Total Cut	12316 Cu. Yds.
Total Fill	8360 Cu. Yds.
Offsite Waste/Borrow Area Location	ON-SITE STOCKPILE

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 control must be provided, if deemed necessary by the Howard County 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 inspections 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.



	DIKE A (5ac or less)	DIKE B (5-10 ac)
a-DIKE HEIGHT	18"	36"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	8"	15"

CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

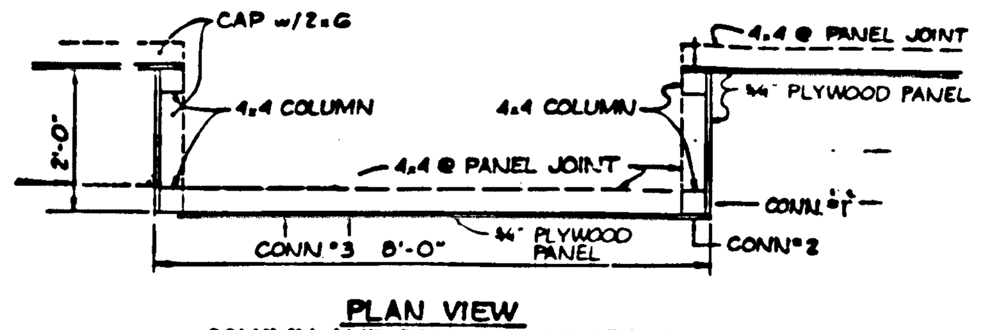
FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

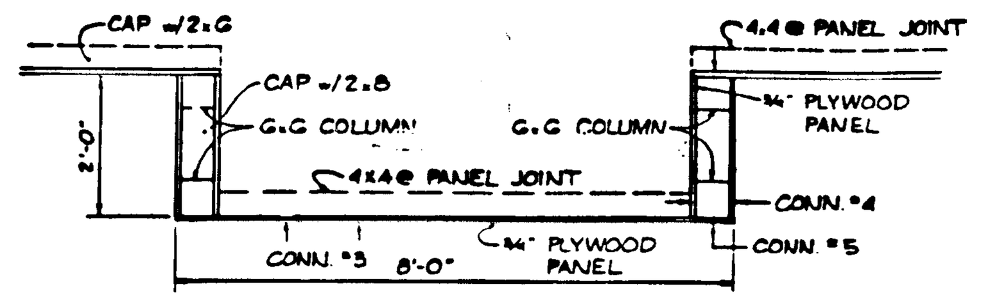
A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

EARTH DIKE

NO SCALE

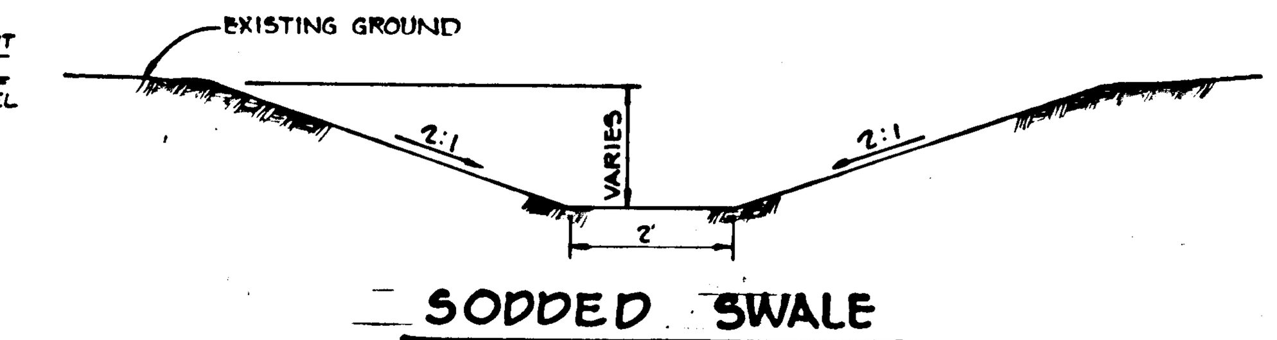


PLAN VIEW
COLUMN AND PANEL ASSEMBLY
SECTION 'A' (UP TO 12' HIGH)
SCALE: ½" = 1'



PLAN VIEW
COLUMN AND PANEL ASSEMBLY
SECTION 'B' (UP TO 26' HIGH)
SCALE: ½" = 1'

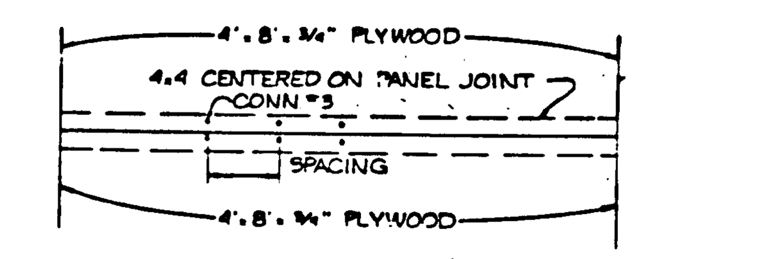
NOTES:
1. 4x4 TO BE CENTERED AT ALL PANEL JOINTS AND INSTALLED FLUSH WITH TOP OR BOTTOM OF WALL.
2. END CAP TO BE LAID HORIZONTALLY AND FASTENED WITH GALVINIZED NAILS, STAGGERED AT 12" O.C.
3. ALL OTHER CONNECTIONS TO BE STANDARD DRYWALL SCREW, 3" MIN. LENGTH AS PER DETAIL AND SPACING TABLE.
4. ALL WOOD TO BE PRESSURE TREATED RATED "GROUND CONTACT".



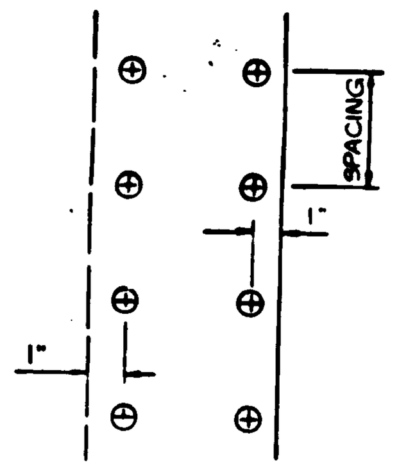
SODDED SWALE

NO SCALE

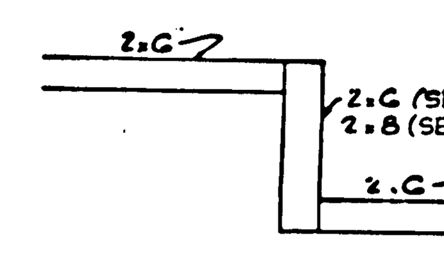
NOTE: SOD SHALL MEET THE SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH THE SOD ESTABLISHMENT GUIDELINES INDICATED ON PAGES G-20-9 AND G-20-10 OF THE 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.



ELEVATION VIEW
TYPICAL PANEL JOINT
SECTION 'A' AND 'B'
SCALE: ½" = 1'



DETAIL
CONNECTION 1,2,4,5
NO SCALE



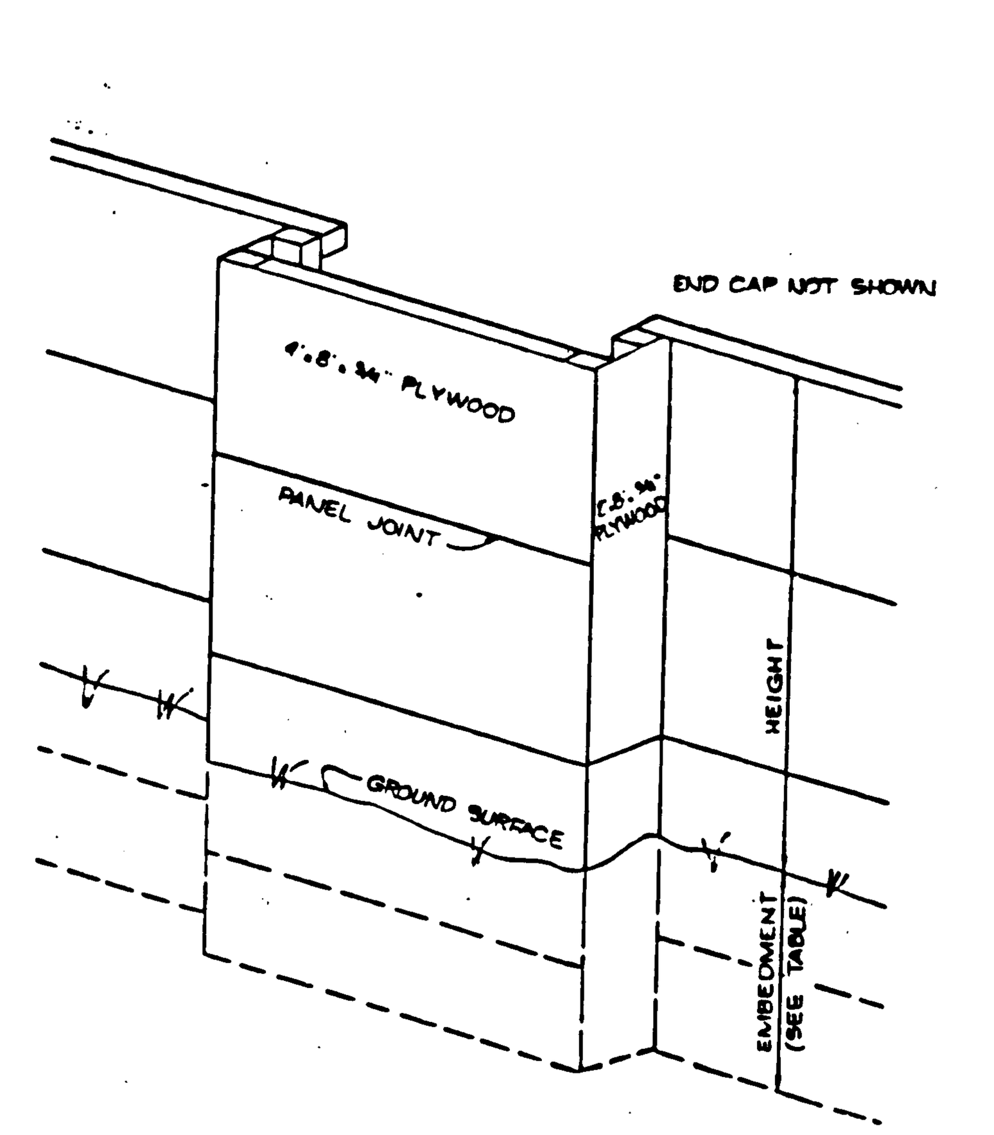
DETAIL
END CAP PLAN
NO SCALE

CONNECTION SPACING TABLE

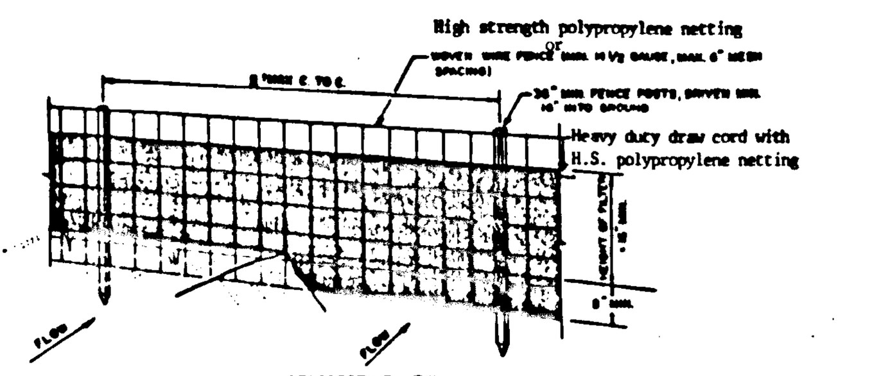
CONNECTION NO.	MAX. SPACING
1	3"
2	3"
3	12"
4	3"
5	3"

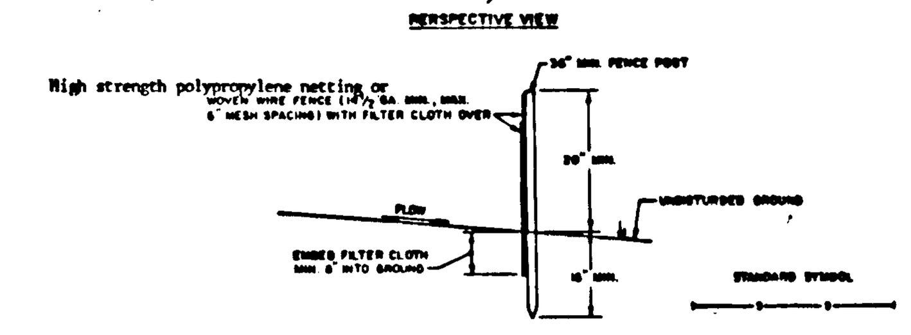
EMBEDMENT TABLE

MAX. HEIGHT	EMBEDMENT
5'	3'
10'	4'
15'	5'
20'	6'
26	7'



TYPICAL ISOMETRIC VIEW
NO SCALE





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 OVER-LAPPED 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 1½"x1½" Min. (Actual) Hardwood

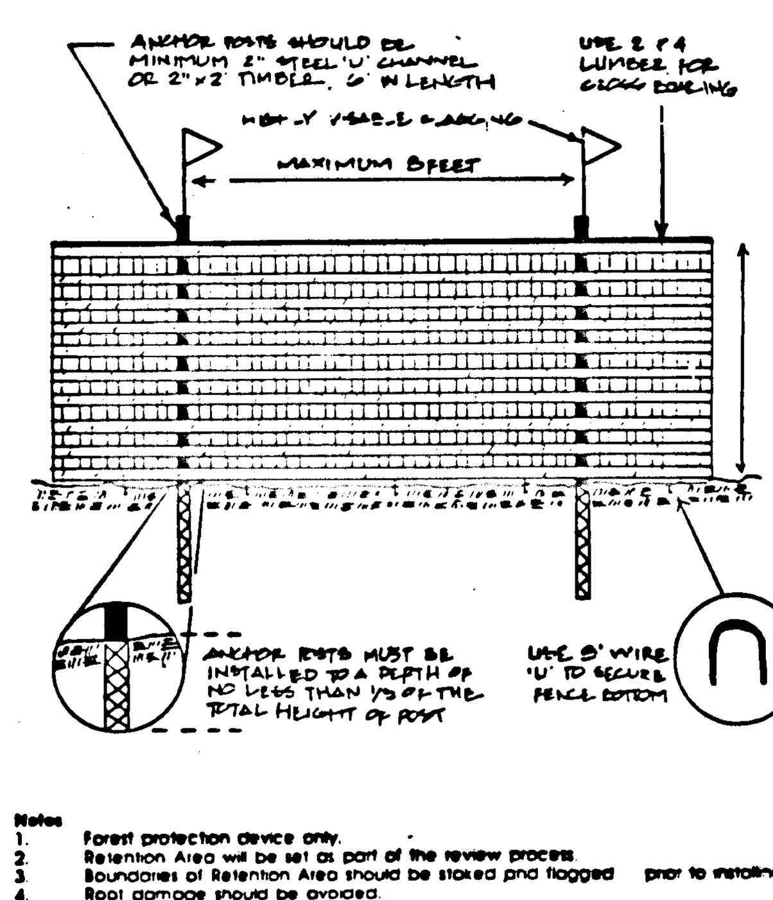
FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING or high strength polypropylene netting

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

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE

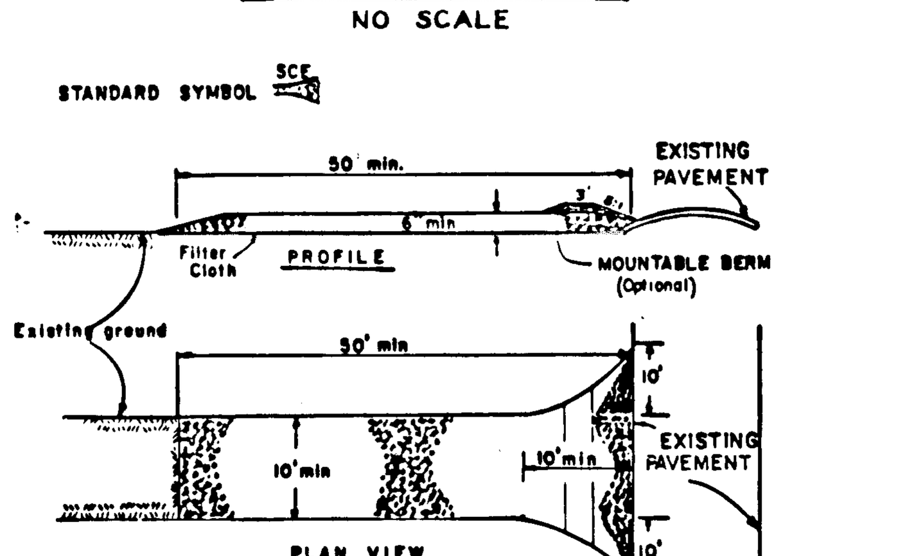
NO SCALE



Notes
1. Forest protection device only.
2. Retention Area will be set as part of the review process.
3. Boundaries of Retention Area should be staked and flagged prior to installing device
4. Root damage should be avoided.
5. Protective signage may also be used.
6. Device should be maintained throughout construction.

TEMPORARY TREE PROTECTION FENCE

NO SCALE

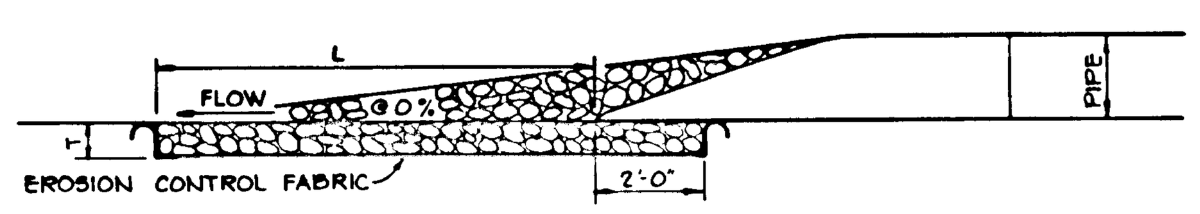


CONSTRUCTION SPECIFICATIONS

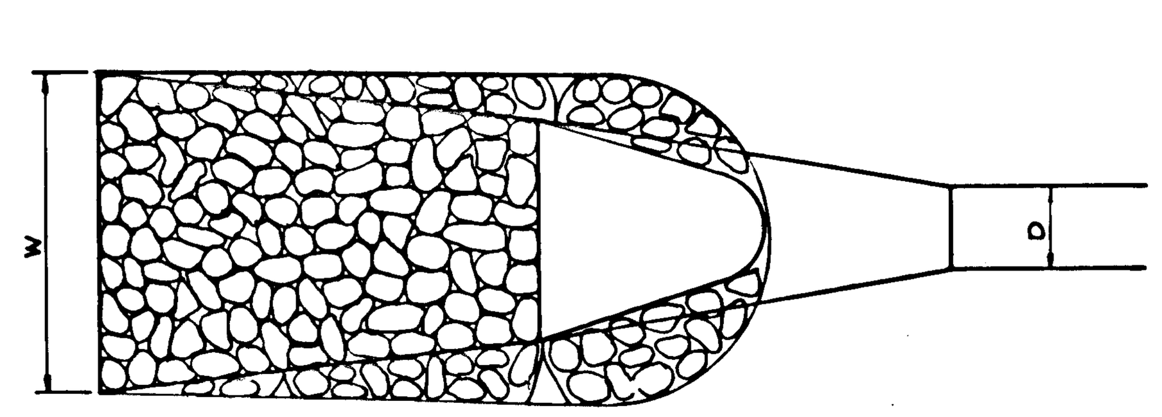
1. Stone Size - Use 2" stone, or reclaimed or recycled concrete equivalent.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness - Not less than six (6) inches.
4. Width - Ten (10) foot minimum, but not less than 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.

STABILIZED CONSTRUCTION ENTRANCE

NO SCALE



SECTION

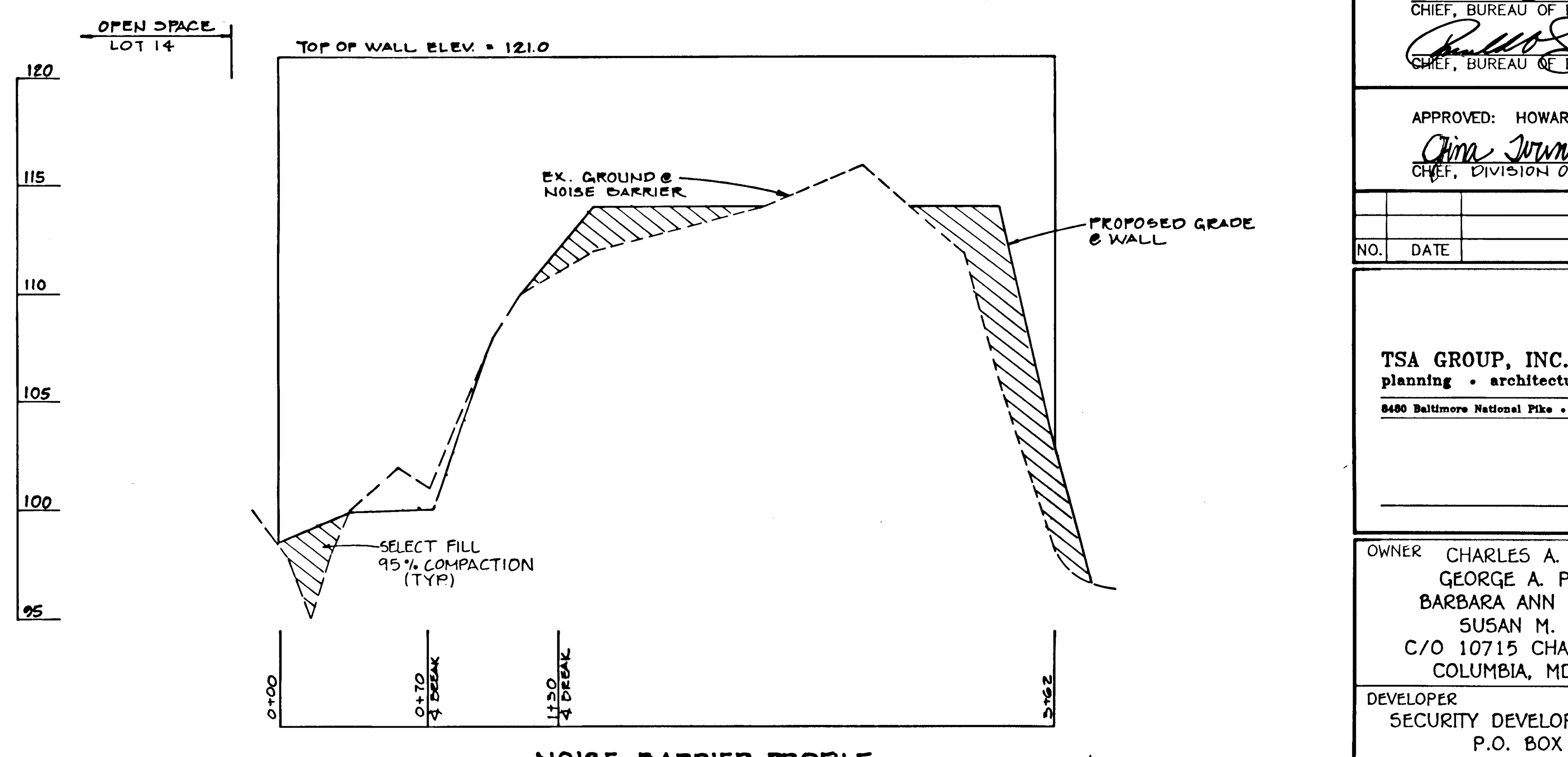


PLAN

STRUCTURE	d - 50	LENGTH (L)	WIDTH (W)	THICKNESS (T)
E-2	0.5'	10'	12'	1.15'
E-4	0.5'	10'	12'	1.15'
E-1	0.5'	12'	15'	1.15'

OUTLET PROTECTION DETAIL

NO SCALE



NOISE BARRIER PROFILE

SCALE: HORIZ 1"=50'
VERT 1"=5'

By the Developer:

"I/We certify that all development and/or construction will by 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."

[illegible] 1-14-94
SIGNATURE OF DEVELOPER Date

By the Engineer:

"I 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."

[illegible] 1/13/94
SIGNATURE OF ENGINEER Date
JOHN M. ELORRIAGA, P.E. No. 16891

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.

Patricia Engler GS 1/21/94
U.S. SOIL CONSERVATION SERVICE DATE

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

Robert W. Zisler [illegible] 1/24/94
HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[illegible] 2/16/94
CHIEF, LAND DEVELOPMENT DIVISION DATE

[illegible] 2-4-94
CHIEF, BUREAU OF HIGHWAYS DATE

[illegible] 2/17/94
CHIEF, BUREAU OF ENGINEERING DATE JH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[illegible] 2/18/94
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott CITY, Maryland 21043 • (410) 465-6105

[illegible]

OWNER CHARLES A. REESE, GEORGE A. PARROTT, BARBARA ANN FINAMORE, SUSAN M. LAZAR C/O 10715 CHARTER DRIVE COLUMBIA, MD. 21044	PROJECT ELK HILL SECTION 1, AREA 1 LOTS 1 THRU 17
	LOCATION TAX MAP 38 - PARCEL 793 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DEVELOPER SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21043 (410) 465-4244	TITLE SEDIMENT CONTROL NOTES AND DETAILS 5-92-03 WP-92-23 P-93-04
	DATE: MARCH 5, 1993 JAN. 11, 1994 — PROJECT NO. 0458
DES. JH/DAM — DRN. JWG	SCALE: AS SHOWN — DRAWING 6 OF 8

F-93-99

1689

Site Preparation

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

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot 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. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

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 the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

Where a minimum required density is specified, it 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.

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 minimum width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

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.

Pipe Conduits

All pipes shall be circular in cross section.

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 Designation C-361. An approved equivalent is AWWA Specification C-302.
2. Bedding – All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe – All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
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.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3.

Rock Riprap

All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments shall be angular to subrounded in shape. The least dimension of an individual rock fragment shall be not less than one third the greatest dimension of the fragment.

The rock shall have the following properties:

1. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
2. Absorption not more than three percent.
3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

Care of Water during Construction

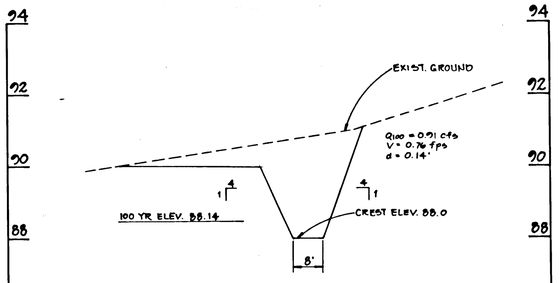
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which 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 Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

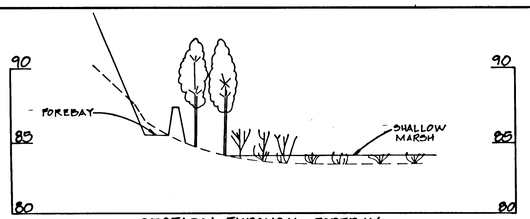
Erosion and Sediment Control

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 to be employed during the construction process.



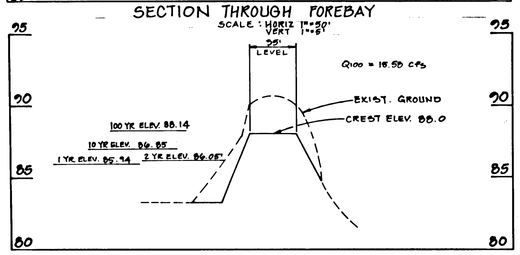
SECTION THROUGH EMERGENCY SPILLWAY

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



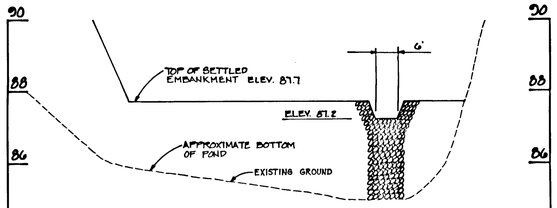
SECTION THROUGH FOREBAY

SCALE: HORIZ 1"=50'
VERT 1"=5'



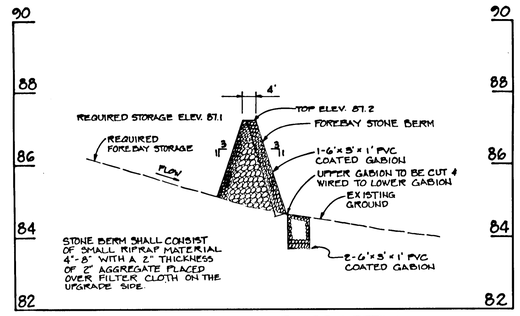
PROFILE THROUGH EMERGENCY SPILLWAY

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



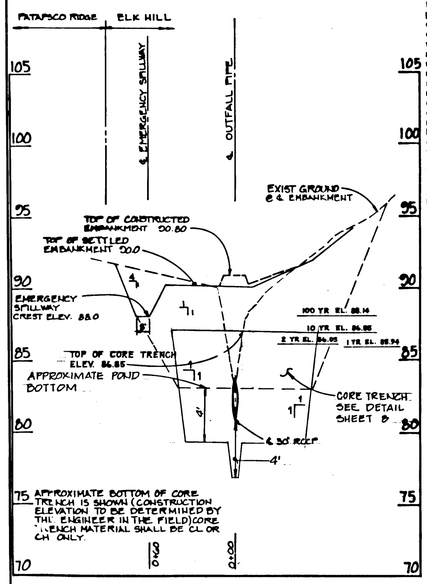
℄ FOREBAY EMBANKMENT PROFILE

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



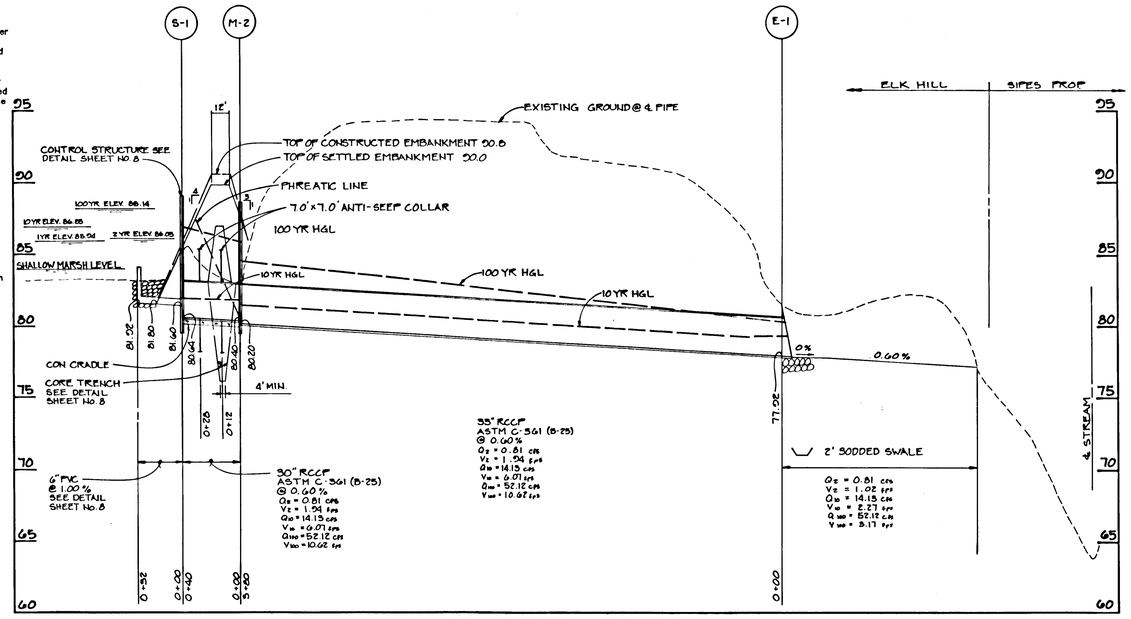
FOREBAY STONE BERM DETAIL

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



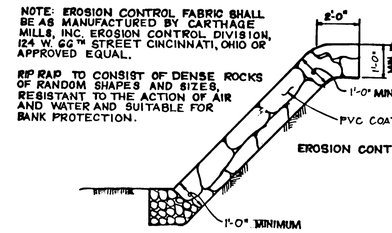
℄ EMBANKMENT PROFILE

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



PRINCIPLE SPILLWAY PROFILE

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



GABION SLOPE PROTECTION

NO SCALE

By the Developer:

"I/We certify that all development and/or construction will by 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."

Signature of Developer — Date: 1-14-94

By the Engineer:

"I 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."

Signature of Engineer — Date: 1/14/94
JOHN M. ELORRIAGA, P.E. # 16819

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.

U.S. SOIL CONSERVATION SERVICE — G.S. — DATE: 1/21/94

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

HOWARD S.C.D. — G.S. — DATE: 1/24/94

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 2/16/94
CHIEF, BUREAU OF HIGHWAYS — DATE: 2-4-94 MB
CHIEF, BUREAU OF ENGINEERING — DATE: 2/17/94 JH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE: 2/18/94

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-6105

OWNER: CHARLES A. REESE, GEORGE A. PARROTT, BARBARA ANN FINAMORE, SUSAN M. LAZAR
C/O 10715 CHARTER DRIVE
COLUMBIA, MD. 21044

DEVELOPER: SECURITY DEVELOPMENT CORP.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21043
(410) 465-4244

PROJECT: ELK HILL
SECTION 1, AREA 1
LOTS 1 THRU 17

LOCATION: TAX MAP 38 – PARCEL 793
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS

5-92-03 WP-92-23 P-93-04

DATE: MARCH 5, 1993; JAN. 11, 1994

PROJECT NO. 0458

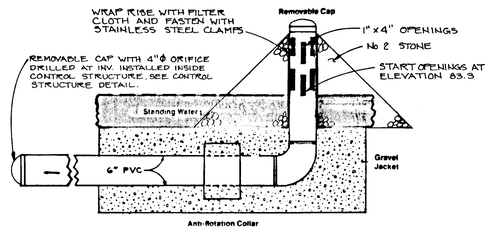
DES. JH | DRN. CAB | SCALE: AS SHOWN | DRAWING 7 OF 8

1689

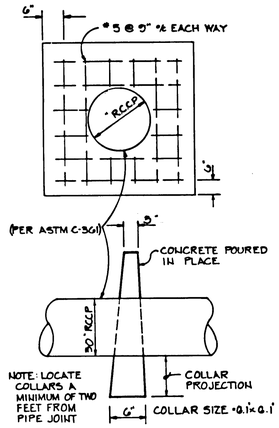
F-93-99

DEPTH (FEET)	SAMPLES #	SAMPLES DEPTH (FEET)	DESCRIPTION OF MATERIALS	REMARKS
1			Brown, grey, moist, Silty CLAY (CH-CL)	TOPSOIL: 12 inches
2				
3				
4				
5				
6				In-Situ test at 8± ft.
7				
8			Terminated at 8± ft.	
9				
10				
11				
12				
13				
14				WATER LEVEL: Dry

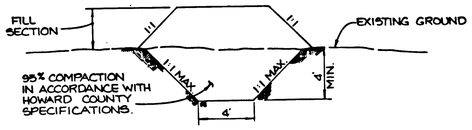
TP-2



LOW FLOW ORIFICE DETAIL
NO SCALE

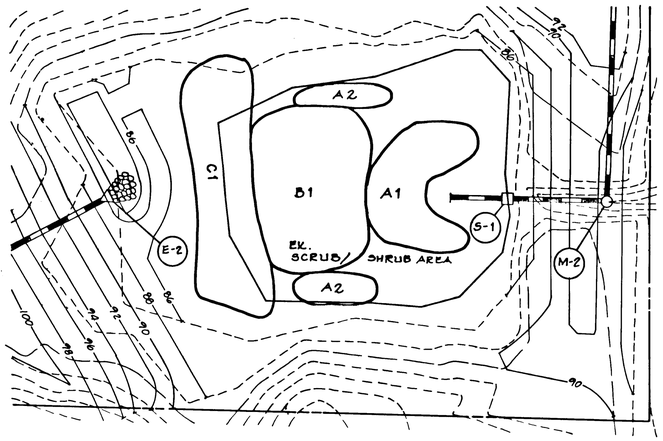


ANTI-SEEP COLLAR
NO SCALE



CORE TRENCH SECTION
NO SCALE

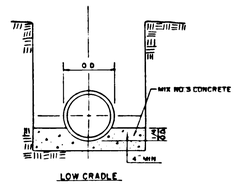
NOTE:
1. CORE TRENCH SHALL EXTEND TO IMPERVIOUS MATERIAL (CL, CH) AS DETERMINED BY A GEOTECHNICAL ENGINEER ON SITE, AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.
2. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH IT IS TO BE REMOVED BY PUMPING.



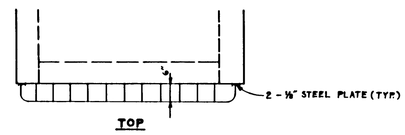
SHALLOW MARSH PLANTING
SCALE : 1" = 50'

SHALLOW MARSH PLANT LIST						
MAP SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE	SPACING	FORM	INDICATOR
A1	RICE CUT GRASS	LEERSIA ORYZOIDES	SEED MIXTURE	40 lbs/AC	GRASS	OBL
A2	BULRUSH	SCIRPUS CYPERINUS	ROOT-STOCK	3'OC.	SEDGE	FACW
B1	SOUTHERN ARROWWOOD	V. RECOGNITUM	18"-24"	5'O.C.	SCRUB	FACW
C1	PIN OAK	QUERCUS PALUSTRUS	4'-6'	20'OC.	TREE	FACW

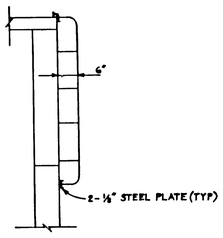
NOTE : EXISTING SHALLOW MARSH AREA HAS LIMITED VEGETATION EXISTING. THIS VEGETATION SHALL NOT BE REMOVED IN ORDER TO INSTALL PROPOSED PLANTINGS.



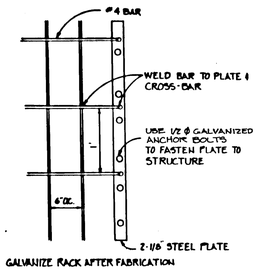
CONCRETE CRADLE DETAIL
NO SCALE



TOP

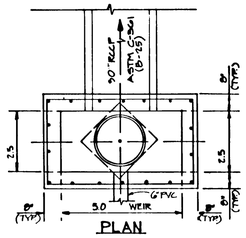


SIDE



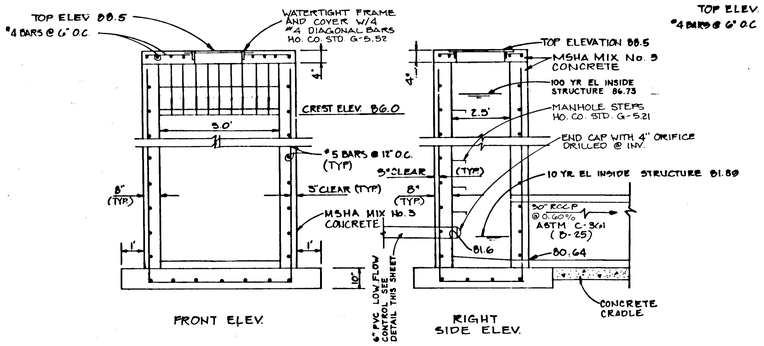
GALVANIZE RACK AFTER FABRICATION

TRASH RACK DETAIL
NO SCALE



PLAN

NOTE :
1) #4 DIAGONAL BARS @ STORM DRAIN PIPES AND MH OPENINGS
2) THE FIRST JOINT IN PIPING MUST BE LOCATED WITHIN 2 FEET OF THE RISER.



CONTROL STRUCTURE DETAIL
SCALE = 1" = 3'

By the Developer:

"I/We certify that all development and/or construction will by 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."

Signature of Developer — Date: 1-14-94

By the Engineer:

"I 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."

Signature of Engineer — Date: 1/21/94
JOHN M. ELORRIAGA, P.E. # 16691

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.

U.S. SOIL CONSERVATION SERVICE — GS — DATE: 1/21/94

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

HOWARD S.C.D. — DATE: 1/24/94

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 2/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE: 2-4-94 MS
CHIEF, BUREAU OF ENGINEERING — DATE: 2/17/94 JH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE: 2/18/94

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott CITY, Maryland 21043 • (410) 465-8105

OWNER: CHARLES A. REESE, GEORGE A. PARROTT, BARBARA ANN FINAMORE, SUSAN M. LAZAR, C/O 10715 CHARTER DRIVE, COLUMBIA, MD. 21044	PROJECT: ELK HILL, SECTION 1, AREA 1, LOTS 1 THRU 17
DEVELOPER: SECURITY DEVELOPMENT CORP., P.O. BOX 417, ELLICOTT CITY, MARYLAND 21043, (410) 465-4244	LOCATION: TAX MAP 38 - PARCEL 793, 1st ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
	TITLE: STORMWATER MANAGEMENT DETAILS
	5-92-03 WP-92-23 P-93-04
	DATE: MARCH 5, 1993 - JAN. 11, 1994 — PROJECT NO.: 0458
DES. JH — DRN. CAB	SCALE: AS SHOWN — DRAWING 8 OF 8

1689

F-93-99