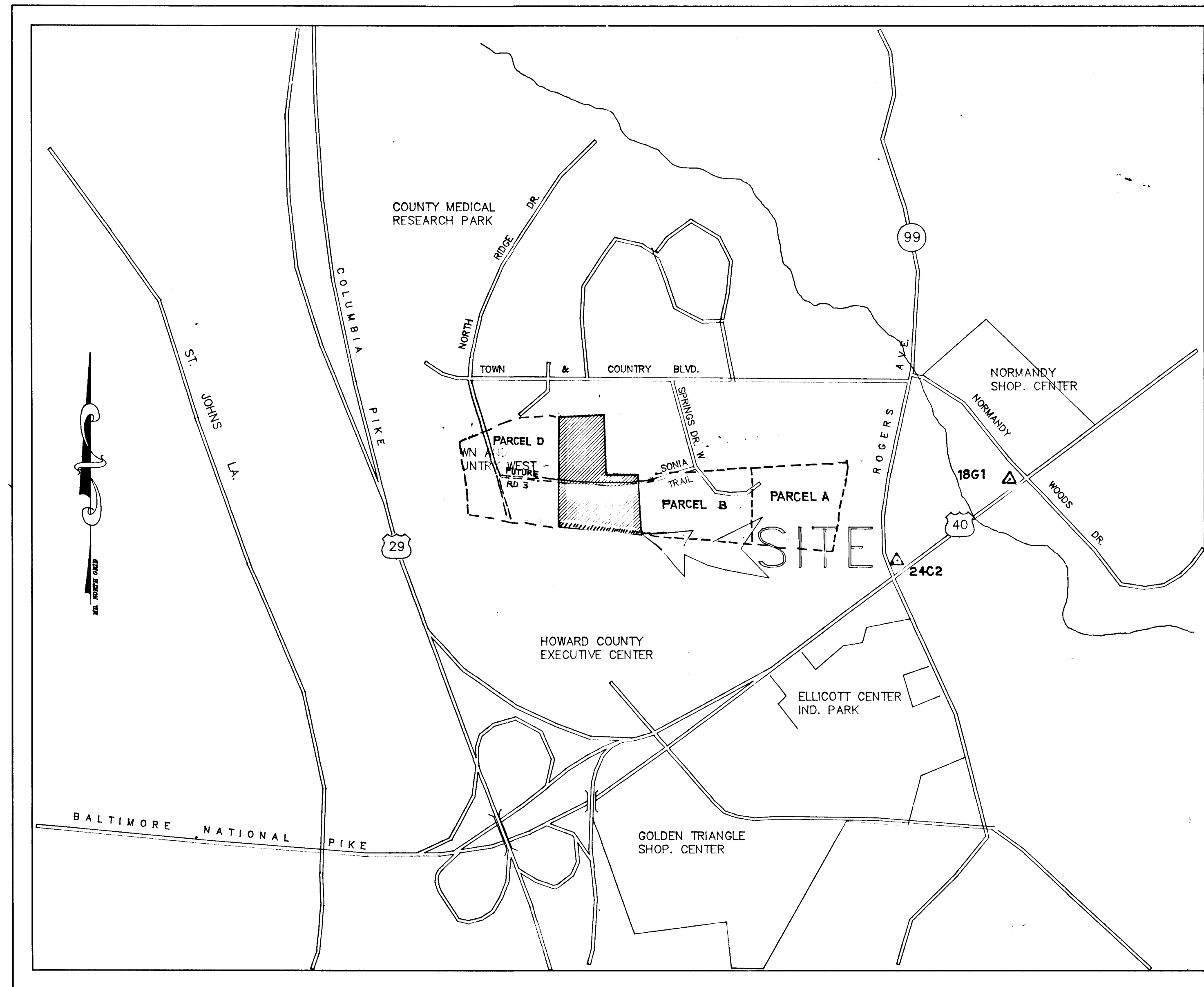


**I N D E X**

- 1 COVER SHEET
- 2 PLAN & PROFILE, SONIA TRAIL
- 3 DRAINAGE PROFILE, DETAILS
- 4 DRAINAGE AREA MAP
- 5 SEDIMENT CONTROL PLAN
- 6 SEDIMENT CONTROL NOTES



**LOCATION MAP**  
SCALE: 1" = 600'

**GENERAL NOTES**

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATION OF THE HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTION DIVISION 24 HRS IN ADVANCE ON COMMENCEMENT OF WORK AT 313-1879.
3. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORKS.
4. PROJECT BACKGROUND :
  - a. TAX MAP 17, PARCEL 711, LIBER 1854, FOLIO 0656
  - b. TOTAL AREA OF SUBDIVISION = 9.404 ACRES
  - c. NUMBER OF LOTS PROPOSED = 2 BUILDABLE, 1 OPEN SPACE
  - d. SKETCH PLAN WAS APPROVED ON APRIL 2, 1993 UNDER S-92-14
  - e. PRELIMINARY PLAN WAS APPROVED ON **NOVEMBER 12**, 1992 UNDER P-93-08.
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 STREETS AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO PLACEMENT OF ANY ASPHALT.
6. BOUNDARY AND TOPOGRAPHIC SURVEY PERFORMED BY JOHN MELLEMA, INC ON DECEMBER 1992.
7. HORIZONTAL AND VERTICAL DATUM ARE BASED ON MARYLAND STATE COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY CONTROL STA. (NAD 83) 24C2 AND 1861.
8. LIGHT POLES AND FIXTURES SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROAD AND BRIDGES.
9. PUBLIC WATER AND PUBLIC SEWER WILL BE USED. THE DRAINAGE AREA IS LITTLE PATUXENT.
10. A COMBINATION OF INFILTRATION AND UNDERGROUND TRENCH IS PROPOSED TO CONTROL ALL LOTS. WATER QUALITY FOR SONIA TRAIL IS PROVIDED BY AN INFILTRATION BASIN.
11. THERE ARE NO WETLANDS WITHIN THE SITE.
12. EXISTING UTILITIES ARE BASED ON HOWARD COUNTY AS BUILT PLANS AND THE TOPOGRAPHIC SURVEY BY JOHN MELLEMA, INC.
13. GEOTECHNICAL REPORT WAS PREPARED BY HILLIS AND CARNES ASSOCIATES ON DEC. 11, 1992.

**WILDER SUBDIVISION PARCEL C-1, C-2, & C-3**  
**A RESUBDIVISION OF PARCEL C**  
**ROAD CONSTRUCTION DRAWING**  
**HOWARD COUNTY, MARYLAND**  
**DEPARTMENT OF PUBLIC WORKS**

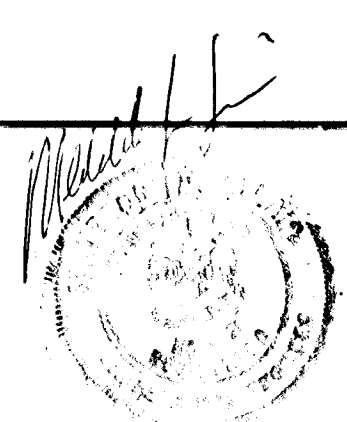
APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Gina Swinmansi* 10/1/93  
 CHIEF, DIVISION OF PLANNING AND LAND DEVELOPMENT  
 JA

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Danek* 8-20-93  
 DIVISION CHIEF  
 DATE

*Paul W. Jenson* 9/20/93  
 ENGINEER  
 DATE

DES : MLL			
DRN : AVG			
CHK : MLL			
DATE : 7-1-93			
	PY	NO.	REVISION

**loria Engineering Inc.**  
 CONSULTING ENGINEERS-LAND PLANNERS-SURVEYORS  
 3230 BETHANY LANE, SUITE 4, ELLICOTT CITY, MD.  
 410-465-0400



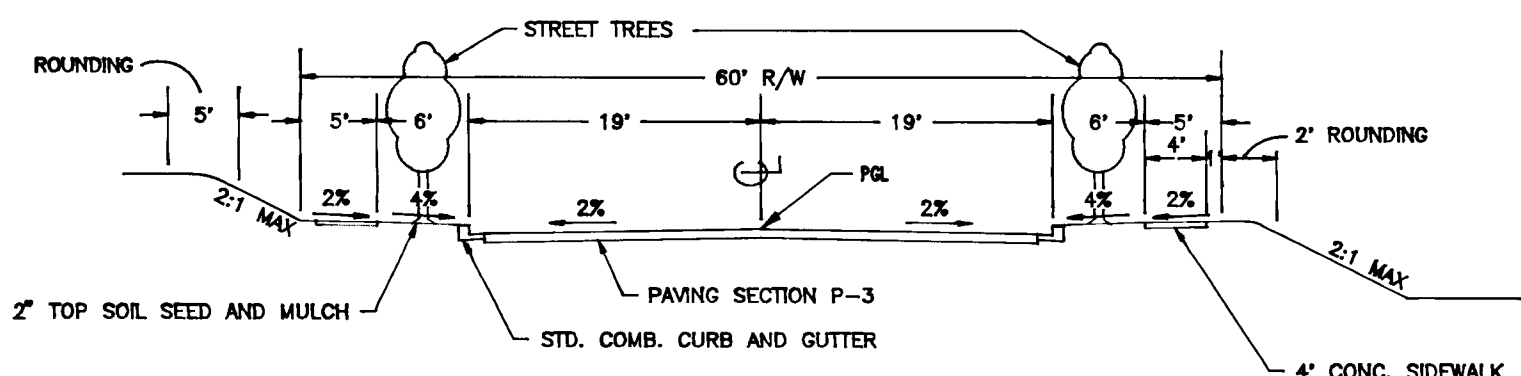
OWNER :  
 WILDER BUILDING CORPORATION  
 1514 NEAR THICKET LANE  
 STEVENSON, MD. 21153

DEVELOPER :  
 WILDER BUILDING CORPORATION  
 1514 NEAR THICKET LANE  
 STEVENSON, MD. 21153

COVER SHEET  
**WILDER SUBDIVISION PARCEL C-1, C-2, & C-3**  
 A RESUBDIVISION OF PARCEL C  
 TAX MAP 17 PARCEL 711  
 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

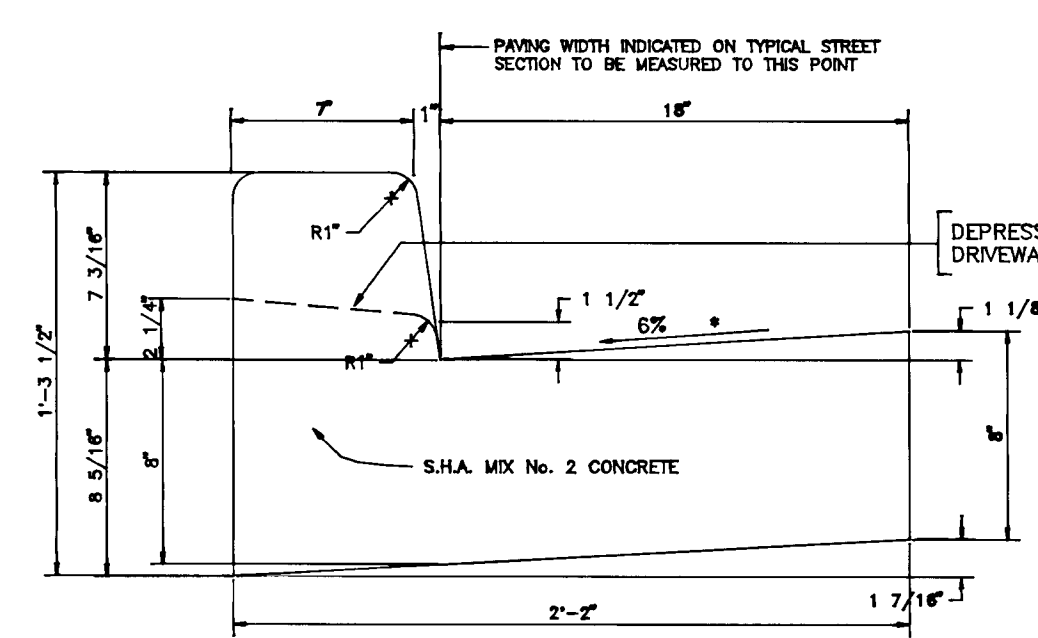
SCALE AS SHOWN  
 SHEET 1 OF 6

1249



TYPICAL ROAD SECTION  
NOT TO SCALE

STA 4+21.19 TO STA 10+45.98  
OF SONIA TRAIL  
DESIGN SPEED 35 MPH  
MINOR COLLECTOR ROAD



STANDARD 7" COMBINATION CURB AND GUTTER  
NOT TO SCALE

☉ CURVE DATA  
P.C. STA. 6+05.35  
P.T. STA. 8+05.63  
 $\Delta = 18^{\circ}58'02''$   
R = 605.00'  
T = 101.06'  
L = 200.28'  
CHD. = 199.37'

TOWN AND COUNTY SECT. III  
PB 16 FOLIO 56

LIGHTING LEGEND :  
★ 100 WATT HIGH PRESSURE SODIUM  
VAPOR POST TOP MOUNTED ON 14 FOOT HIGH BLACK  
FIBERGLASS POLE.

SYMBOLS	LOCATION	BOTANICAL	COMMON NAME	QUANTITY	SIZE
☉	SONIA TRAIL	PIRUS CALLERYANA RED SPINE	BRADFORD PEAR	28	2.5 CAL 26 P.
☉	POND	PIRUS STROBUS	WHITE PINE	42	4-6" dia

LEGEND:  
PROPOSED EXISTING  
CURBS  
DRAINAGE  
STREET LIGHT  
SIDEWALK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Gina J. Jaramila* 10/1/93  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William M. S. ...* 9/20/93  
DATE  
*William M. S. ...* 8-10-93  
DATE  
*William M. S. ...* 2/20/93  
DATE

NO.	DATE	REVISION

WILDER SUBDIVISION PARCEL C-1, C-2, & C-3  
A RESUBDIVISION OF PARCEL C

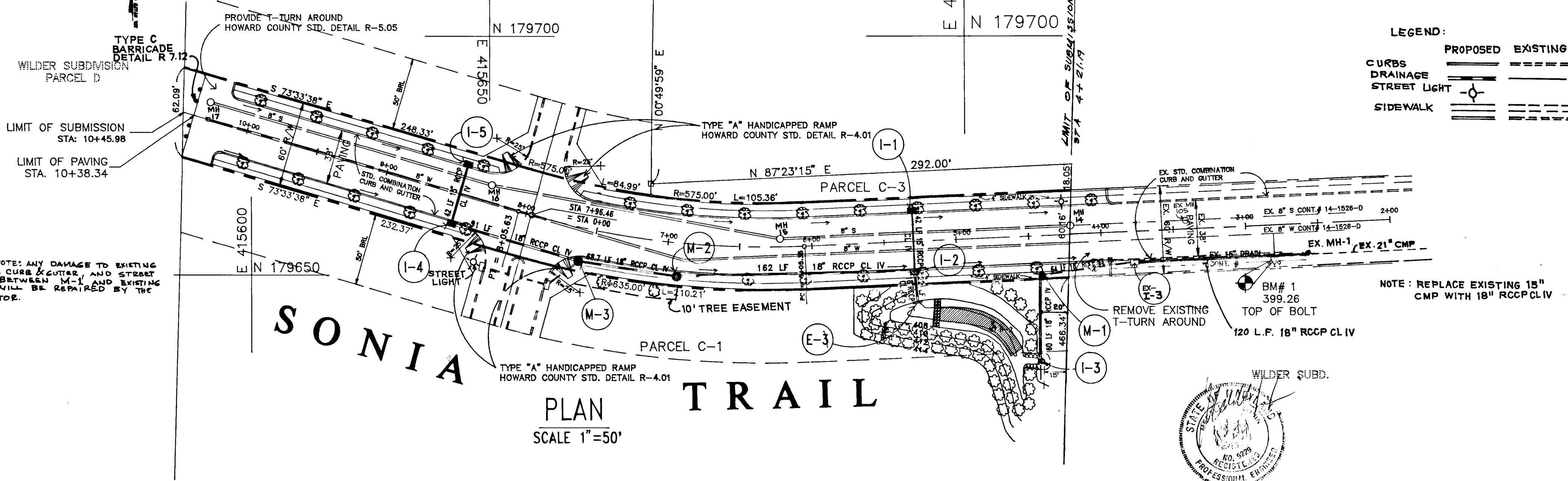
TAX MAP 17 PARCEL 711 2nd ELECTION DISTRICT HOWARD CO.

PLAN AND PROFILE  
SONIA TRAIL

OWNER / DEVELOPER :  
WILDER BUILDING CORPORATION  
1514 NEAR THicket LANE  
STEVENSON, MD. 21153

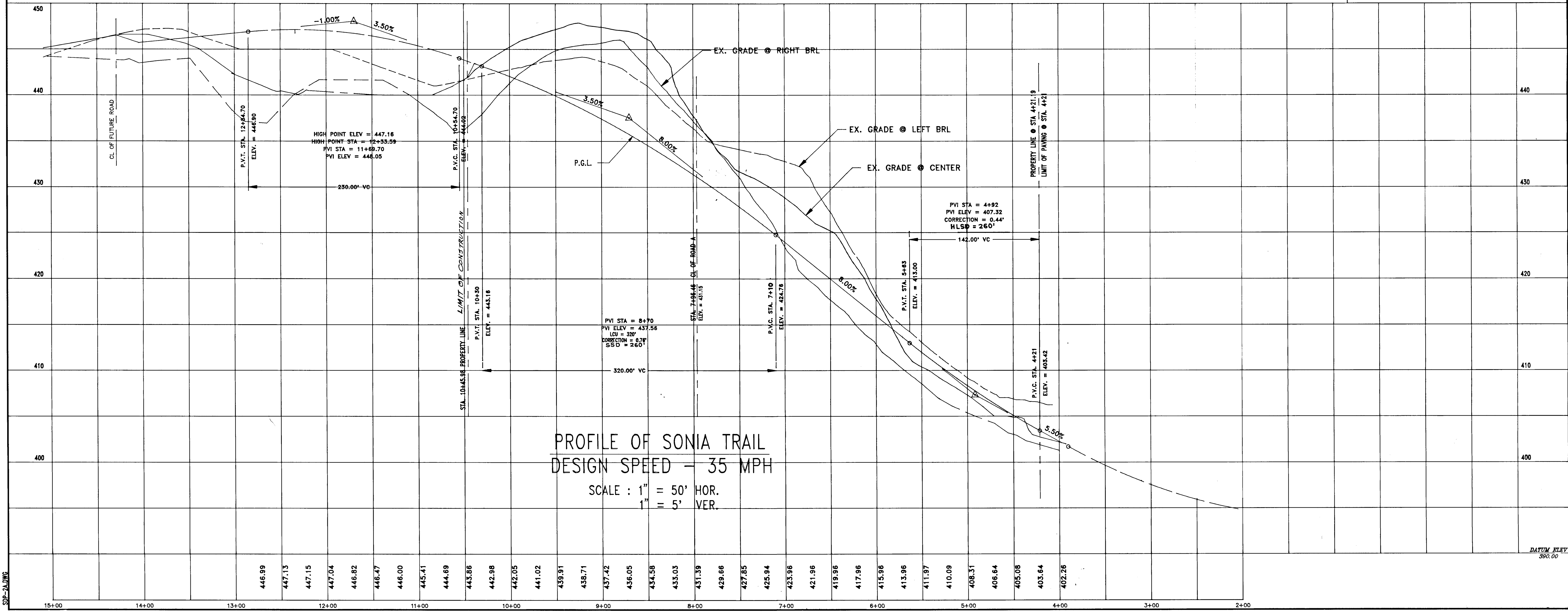
DESIGNED: MLL CHECKED: MLL DATE: 7-1-93 PROJ. No.  
DRAWN: AVG APPROVED: MLL SCALE: 1" = 50' SHEET 2 OF 6

**Loria Engineering Inc.**  
CONSULTING ENGINEERS-LAND PLANNERS-SURVEYORS  
3200 RETRIAY LANE, SUITE 4, GAITHERSBURG, MD.  
410-465-0400



PROFILE OF SONIA TRAIL  
DESIGN SPEED - 35 MPH

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

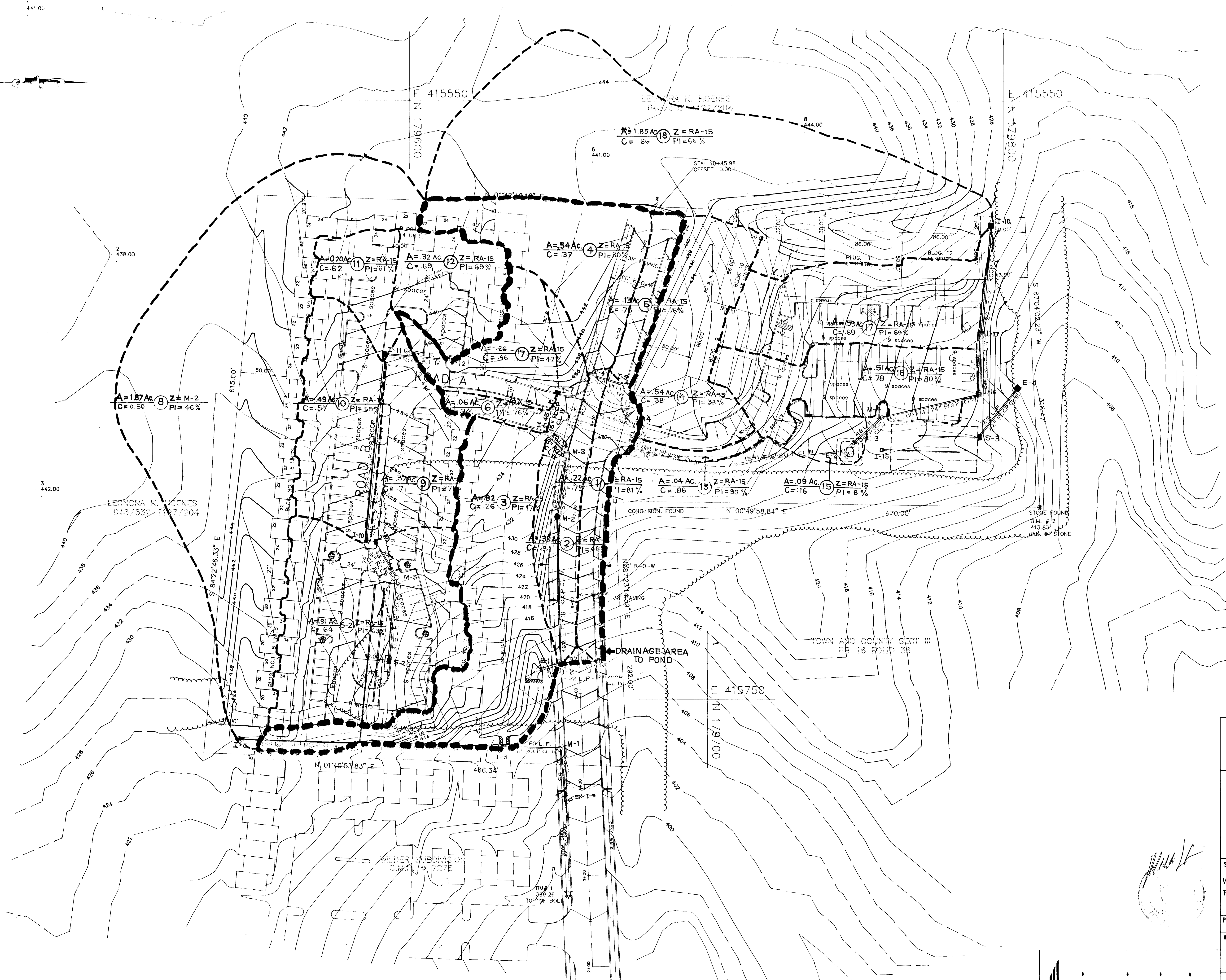
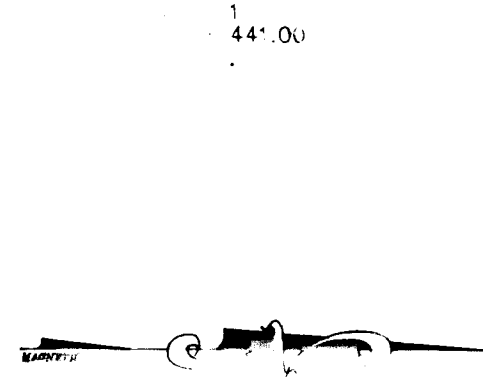


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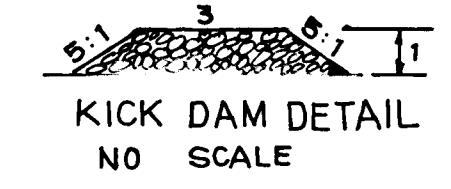
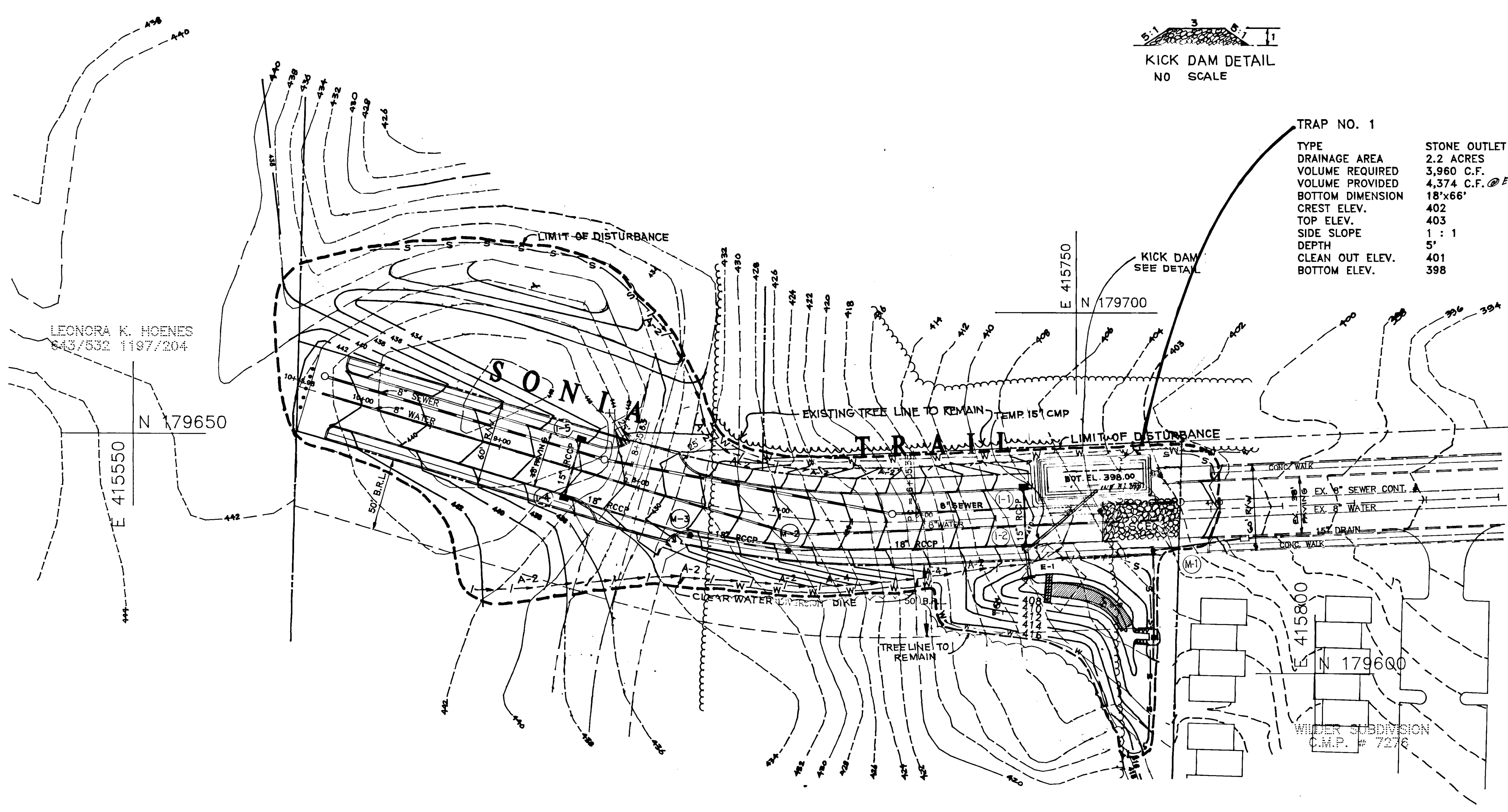


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING <i>Gina Summari</i> 10/1/93 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT			
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS <i>Charles Summari</i> 9/20/93 CHIEF, LAND DEVELOPMENT DIVISION <i>Andrew M. Ometo</i> 8-20-93 CHIEF, BUREAU OF HIGHWAYS <i>Paul D. Jovan</i> 9/20/93 CHIEF, BUREAU OF ENGINEERING			
SUBDIVISION NAME	SECTION/AREA	LOT NO.	
WILDER SUBDIVISION			
PARCEL C-1, C-2, & C-3			
PLAT NO. BLOCK NO. ZONE	TAX-ZONE	ELECT. DIST	CENSUS TR
	R-A-15	17	2nd 6026
WATER CODE	SEWER CODE		
DESIGNED MLL	DRAWN AVG		
CHECKED MLL	DATE 7-1-93		
<b>DRAINAGE AREA MAP</b>		SCALE 1"=50' Sheet 4 OF 6	
WILDER BUILDING CORPORATION 1514 NEAR THICKET LANE STEYNSON, MD. 21152			

**loria engineering inc.**  
 CONSULTING ENGINEERS-LAND PLANNERS-SURVEYORS  
 3230 BETHANY LANE, SUITE 4, ELLICOTT CITY, MD.  
 410-465-0400

1249

F-98-112



TRAP NO. 1

TYPE	STONE OUTLET
DRAINAGE AREA	2.2 ACRES
VOLUME REQUIRED	3,960 C.F.
VOLUME PROVIDED	4,374 C.F. @ EL 401
BOTTOM DIMENSION	18'x66'
CREST ELEV.	402
TOP ELEV.	403
SIDE SLOPE	1 : 1
DEPTH	5'
CLEAN OUT ELEV.	401
BOTTOM ELEV.	398

**PLAN**  
SCALE 1" = 50'

LEGEND:

SILT FENCE	A-2	S	S
EARTH DIKE	A-2	→	→
EX. GRADE	---	396	---
PROP. GRADE	---	396	---
ORANGE BLAZE PROTECTION	---	W	---

- SEQUENCE OF CONSTRUCTION
- OBTAIN GRADING PERMIT.
  - INSTALL ORANGE BLAZE WIRE MESH TREE PROTECTION.
  - INSTALL ALL SEDIMENT CONTROL MEASURES SHOWN ON THIS PLAN SUCH AS STONE CONSTRUCTION ENTRANCE, SILT FENCE AND EARTH DIKE.
  - GRADE AREAS AS SHOWN WITH THE EXCEPTION OF THE STORMWATER MANAGEMENT BASIN. CONSTRUCT ALL UTILITIES SUCH AS DRAINAGE, WATER AND SEWER. DO NOT CONSTRUCT PIPE FROM 1-2 TO E- BUT INSTALL THE TEMPORARY 15' CMP.
  - STABILIZE ALL DISTURBED AREAS.
  - CONSTRUCT STORM WATER MANAGEMENT BASIN AND PIPE FROM 1-2 TO E-1. PERMANENTLY BLOCK 15' TEMPORARY CMP.
  - REMOVE ALL SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE HOWARD COUNTY SOIL CONSERVATION SERVICE REQUIREMENTS.

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Gina Jrummanix* 10/11/93  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daveler* 8-20-93  
 CHIEF, BUREAU OF HIGHWAYS

*John L. Robertson* 7/6/93  
 CHIEF, BUREAU OF ENGINEERING

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for the Soil and Sediment Control.  
*James M. Helm* 7/6/93  
 S.S. Soil Conservation Service

These plans for Soil and Sediment Control meet the requirements of the Howard County Soil Conservation District.  
*John L. Robertson* 7/6/93  
 Howard Soil Conservation District

DEVELOPER'S/BUILDER'S CERTIFICATE

I/We certify that all development and construction will be done in accordance with this plan, and that any responsible personnel involved in the construction will have a Certificate of Attendance at the Department of the Environment Approved Training Program for the Control of Sediment before beginning the project.  
*Joseph Wilde* 4-4/93  
 BUILDER/DEVELOPER

ENGINEER'S CERTIFICATE

I hereby certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site and conditions and it was prepared in accordance with the requirements of Howard Soil Conservation District.  
*Michael H.* 4-5-93  
 SIGNATURE OF ENGINEER

SUBDIVISION NAME		SECTION/AREA	LOT NO.
WILDER SUBDIVISION PARCEL C-1, C-2, & C-3			
FLAT NO. BLOCK NO.	ZONE	TAX-ZONE	ELECT. DIST
	R-A-15	17	6026
WATER CODE		SEWER CODE	
DESIGNED	SEDIMENT AND EROSION CONTROL PLAN		SCALE
MLL	WILDER SUBDIVISION PARCEL C-1, C-2, & C-3		1" = 50'
DRAWN	A RESUBDIVISION OF PARCEL C		SHEET
GUS			5 OF 6
CHECKED			JOB NO.
MLL	OWNER-DEVELOPER :		FILE
DATE	WILDER BUILDING CORPORATION		
7-1-93	1514 NEAR THICKEY LANE		
	STEVENSON, MD. 21152		

**loria engineering inc.**  
 CONSULTING ENGINEERS-LAND PLANNERS-SURVEYORS  
 3230 BETHANY LANE, SUITE 4, ELLICOTT CITY, MD.  
 410-465-0400

1249



**PERMANENT SEEDING NOTES**

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

Seeded Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, unless previously loosened.

Soil Amendments: In lieu of soil test recommendations, use

- 1) Preferred - apply 2 tons per acre dolomitic limestone (52 lbs/1000 square feet) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding; or apply 2 tons per acre of well-rotted straw mulch, and seed as soon as possible in the spring. Option (2) use soil (3) seed with 60 lbs/acre Kentucky 31 tall fescue and mulch with 2 tons/acre well-rotted straw.
- 2) Acceptable - apply 2 tons per acre dolomitic limestone (52 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding; or apply 2 tons per acre of well-rotted straw mulch, and seed as soon as possible in the spring. Option (2) use soil (3) seed with 60 lbs/acre Kentucky 31 tall fescue and mulch with 2 tons/acre well-rotted straw.

Seeding - For the period March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (14 lbs/1000 sq ft) of Kentucky 31 tall fescue for the period May 1 thru July 31, seed with 60 lbs Kentucky 31 tall fescue per acre and 2 lbs per acre (0.5 lbs/1000 sq ft) of weeping lovegrass during the period of October 16 thru February 28, protect site by applying (1) 2 tons per acre of well-rotted straw mulch, and seed as soon as possible in the spring. Option (2) use soil (3) seed with 60 lbs/acre Kentucky 31 tall fescue and mulch with 2 tons/acre well-rotted straw.

Mulching - Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/100 sq ft) of unrotted small grain straw immediately after seeding, anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas, or slope, 8 ft or higher, use 348 gal 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.

Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseedings temporary seeding notes apply for the period November 15 thru February 28, protect site by applying 2 tons per acre of well-rotted straw mulch and seed as soon as possible in the spring, or use soil.

**TEMPORARY SEEDING NOTES**

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

Seeded Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, unless previously loosened.

Soil amendments: Apply 800 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 bushel per acre of annual ryegrass (3.2 lbs/1000 sq ft), for the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (0.7 lbs/1000 sq ft).

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 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas, or slope, 8 ft or higher, use 348 gal 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.

**STANDARD AND SPECIFICATION FOR VEGETATIVE STABILIZATION WITH SOD**

1. Close 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 shape and slope 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 supplier's 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.

**1. 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 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 a 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 scarified prior to placement of sod.

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. (992-2437)

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 1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

3. Following initial soil disturbance or redistribution, 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) and temporary seedings (sec. 50) and mulching (sec. 52). Temporary stabilization with mulch alone can only be done when recommended seedings 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	9.442 acres
area to be roofed or paved	2.2 acres
area to be vegetatively stabilized	7.242 acres
total cut	1,500 cu. yds.
total fill	1,000 cu. yds.
offsite waste/borrow area location	PARCEL C

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 DPM Sediment Control Inspector.

10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading, other building or grading operations may not be authorized until this initial approval by the inspection agency is made.

**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 the 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 the sediment control inspector and the 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 redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter 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.

5) Any change to the grading proposed on this plan requires re-submission to 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, pp. 82.01 and 82.02 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 county soil conservation district prior to the initiation of the change.

8) Excess cut or borrow material shall go to or come from, respectively, a site with an approved sediment control plan.

9) The following item may be used as applicable:

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 cut below.

**SITE PREPARATION**

Area under the borrow areas, embankment, and structural works shall be cleared, grubbed and the top soil stripped to remove all trees, vegetation, roots or other objectionable material. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable materials unless otherwise designated on the plans. Trees, brush, and stump 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 authorized representative. When specified, a sufficient quality of top soil 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 area or areas. It shall be free of rocks, stumps, wood, rubbish, over-size stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

Placement: Areas on which fill is to be placed shall be scarified prior to placement of the fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous 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 shall be traversed by not less than one third track of the equipment or compaction shall be achieved by aluminum 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 can be obtained with the equipment used.

Cut-off Trench: Where specified, a cut-off trench shall be excavated along or parallel to the center line of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation. With the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment rollers or hand tampers to assure maximum density and a minimum permeability.

**STRUCTURE BACKFILL**

Backfill adjacent to pipes or structures shall be of the type and quality conforming to the specifications 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**

Corrugated metal pipe: 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 water tight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of .03 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nevon, Plast-Cote, Bioc-Klad, and Bath-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with water tight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with water tight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

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 used a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled on adequate number of corrugations to accommodate the band width. The following type connection are acceptable for pipe larger than 48" inches diameter: flanges on both ends of the pipe, a 12" wide standard lip type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide hanger type band with curving gaskets having a minimum diameter of 1/2" greater than the corrugated depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated bands using rods and nuts. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helically corrugated pipe shall have either continuously welded seams or hose lock seams.

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.

Backfilling shall conform to "Structure Backfill".

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

**REINFORCED CONCRETE PIPE**

Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gasket and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA specification C-302.

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

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.

Backfilling shall conform to "Structure Backfill".

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

**POLYVINYL CHLORIDE (PVC) PIPE**

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

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

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.

**CONCRETE**

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specification for Construction and Materials, Section 606, 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 subangular in shape. The least dimension of an individual rock fragment shall be not less than one third the greatest dimension of the fragments.

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 cycle 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 uniformly distributed and firmly in contact one to another with the smaller rock a filling the voids between the larger rocks. Filter cloth shall be under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration 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 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 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.

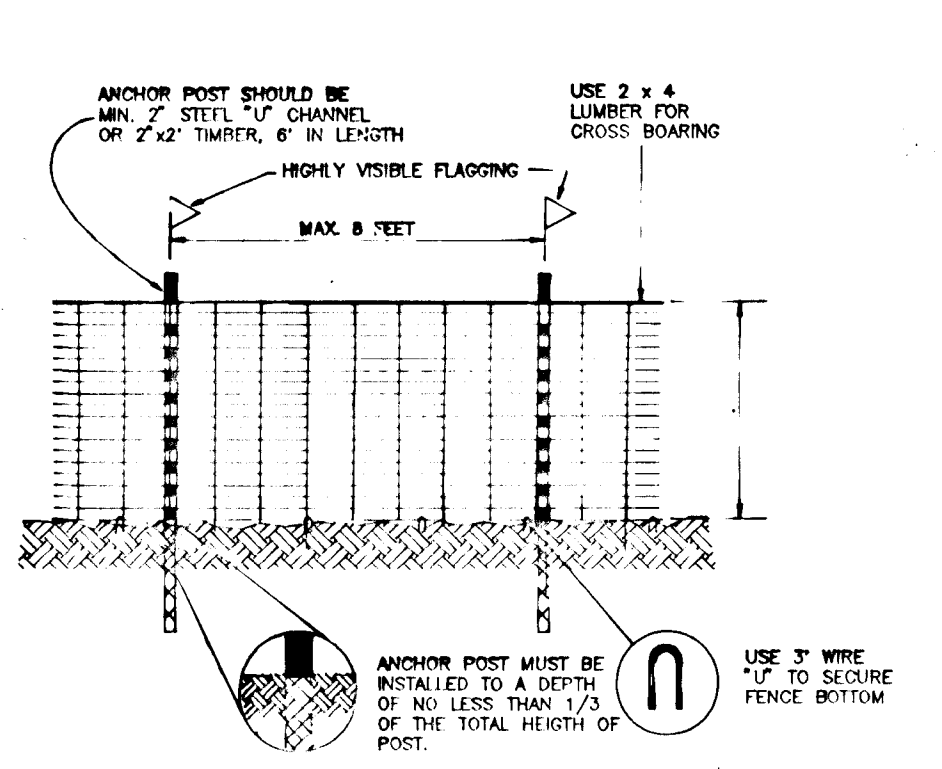
The removal of water from the required excavation and foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of the required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the location of 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 slightly eroded 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 (M-342) or as shown on the accompanying drawings.

**EROSION AND SEDIMENT CONTROL**

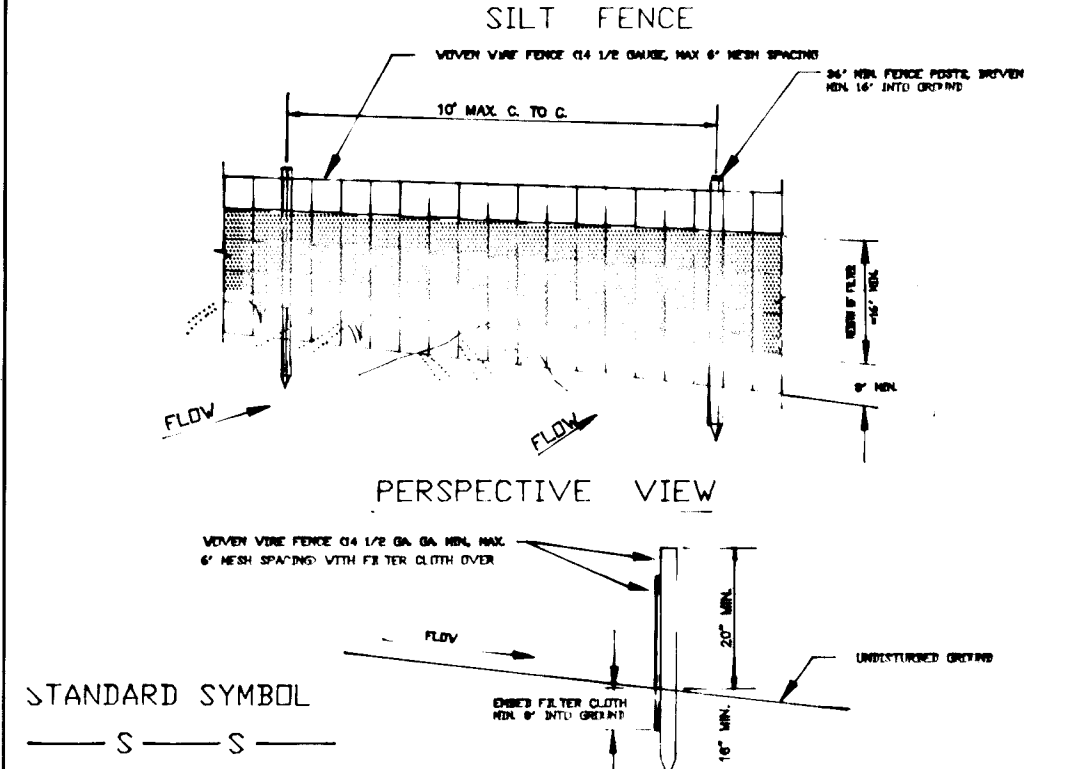
Construction operation will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction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



- NOTES:**
1. FOREST PROTECTION DEVICE ONLY
  2. RETENTION AREA WILL BE SETAS PART OF THE STAKE AND FLAGGED PRIOR TO INSTALLING DEVICE
  3. ROAD DAMAGE SHOULD BE AVOIDED
  4. PROTECTIVE SIGNALS MAY ALSO BE USED
  5. MAINTENANCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION

**BLAZE ORANGE PLASTIC MESH**

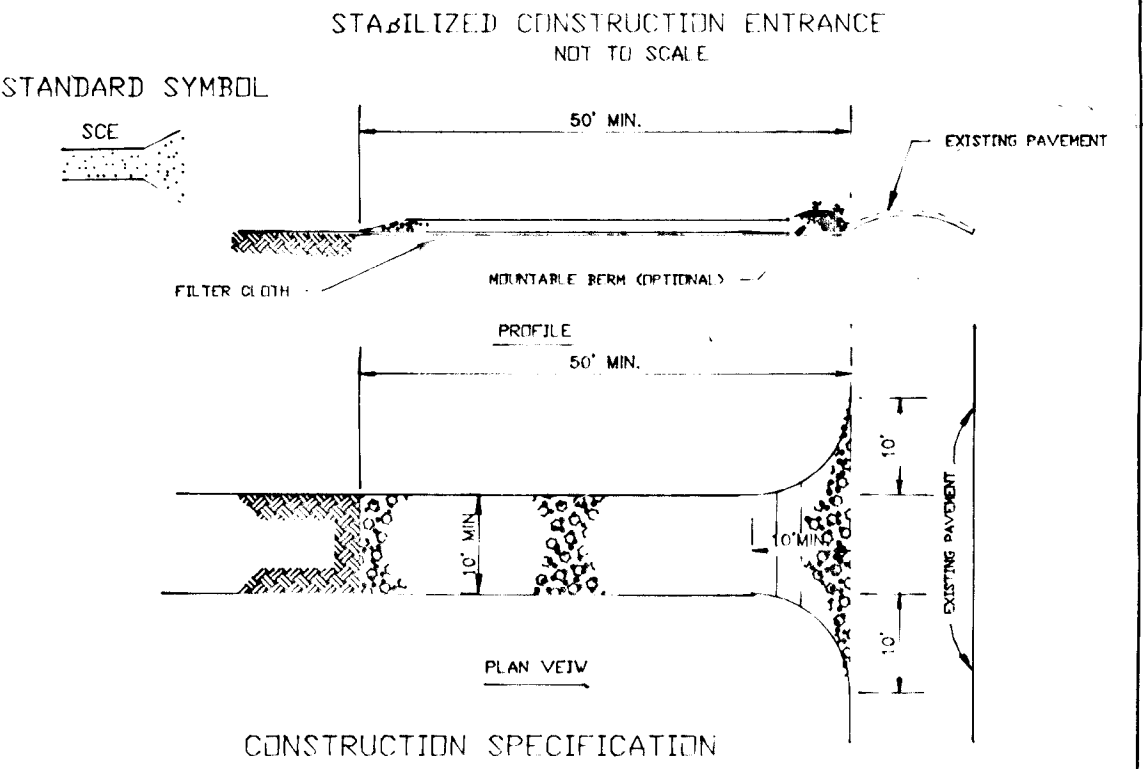
NOT TO SCALE



- CONSTRUCTION NOTES FOR FABRICATION SILT FENCE**
1. VIVON VINE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
  2. FILTER CLOTH TO BE FASTENED SECURELY TO VIVON VINE FENCE WITH TIES SPACED EVERY FEET AT TOP AND NEEL SECTION.
  3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND TIED TOGETHER.
  4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BURST" DEVELOPS IN THE SILT FENCE.

**CONSTRUCTION SPECIFICATION**

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