

GENERAL NOTES

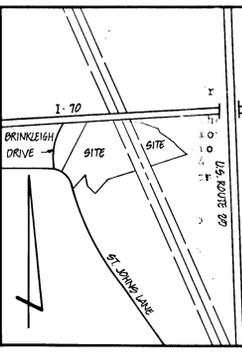
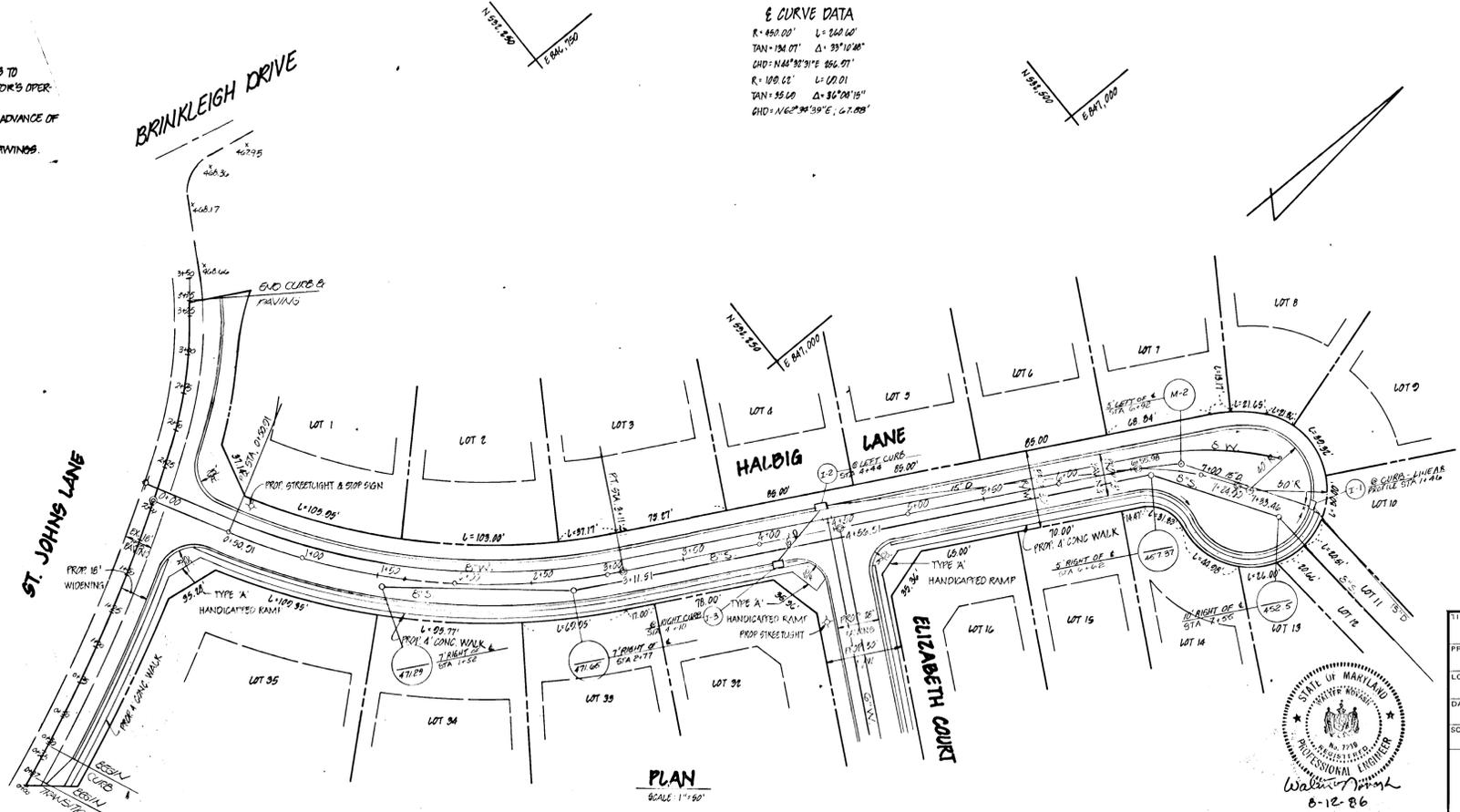
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MD. CO. DESIGN MANUAL, VOL. IV, I.E. STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- APPROXIMATE LOCATION OF EX. UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EX. UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL TEST PIT EX. UTILITIES WHERE DIRECTED BY THE ENGINEER A MINIMUM OF 2 WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS.
- CONTRACTOR TO NOTIFY THE FOLLOWING UTILITIES AT LEAST 5 DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.

MISO UTILITY	850-0100
BELL TELEPHONE SYSTEM	800-9440
LONG DISTANCE CABLE DIVISION	900-9499 OR 9554
PAUCO GAS & ELECTRIC COMPANY	890-8000 EXT. 021
MD. CO. BUREAU OF UTILITIES	900-1366
MD. CO. CONSTRUCTION/INSPECTION SURVEY DIVISION	702-7876

 (24 HRS. NOTICE PRIOR TO COMMENCEMENT OF WORK.)
- ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MD. CO. STANDARDS.
- ALL STREET CURBS RETURNING SHALL HAVE 96" RADIUS UNLESS OTHERWISE NOTED.
- 60CM DRAIN TRENCHES WITHIN ROAD RIGHT-OF-WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH MD. CO. DESIGN MANUAL, VOL. IV, I.E. STD. SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- INSTALLATION OF TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 1978 REVISED EDITION.
- PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
- DESIGNATED TRAFFIC SPEED IN ACCORDANCE WITH THE A.A.S.H.O. E.
- ALL ELEVATIONS SHOWN ARE BASED ON U.S.C. AND G.S. MEAN SEA LEVEL DATUM 1929.
- ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM 95% COMPACTION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
- SUBJECT PROPERTY ZONED P.O. R. PER 10-09-TT COMPREHENSIVE ZONING PLAN.
- TOPD TAKEN FROM FIELD RUN SURVEY DATED JUNE, 1984 BY BOENDER ASSOCIATES, INC.
- NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.

E CURVE DATA

R = 850.00' L = 260.60'
 TAN = 184.01' Δ = 33°12'40"
 CHD = N44°30'31"E 856.91'
 R = 100.00' L = 0.01'
 TAN = 55.60' Δ = 32°08'15"
 CHD = N162°34'39"E 67.88'



OWNER & DEVELOPER
 ELIZABETH A. HALBIG
 2895 ST. JOHNS LANE
 ELLICOTT CITY, MARYLAND 21043
 WILLIAM R. HOPKINS
 3138 ROBERTS AVENUE
 ELLICOTT CITY, MARYLAND 21043

TITLE			
ROAD CONSTRUCTION PLAN - HALBIG LANE			
ST. JOHN'S WOODS			
RNO ELECTION DISTRICT - HOWARD COUNTY, MD.			
DATE: MAY, 1985	DESIGN BY: AP60	DRAWN BY: D.M.R.	CHECKED BY: W.N.D.R.
SCALE: AS SHOWN	JOB NO.: 8605	DRAWING NO.: 1 OF 7	
boender associates 3565 ELLICOTT MILLS DRIVE ELLICOTT CITY, MARYLAND 21043 BALTIMORE 301-465-7777		engineers surveyors planners	

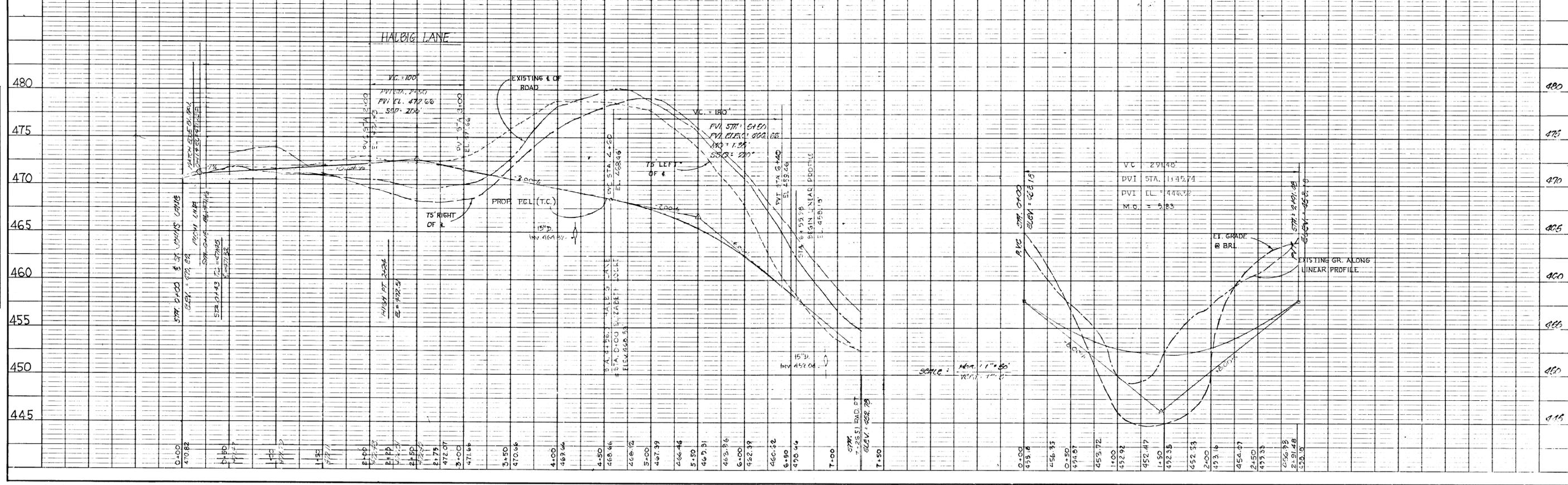
APPROVED DEPARTMENT OF PUBLIC WORKS

[Signature] 8-20-85
 CHIEF, BUREAU OF ENGINEERING

APPROVED OFFICE OF PLANNING AND CONTROL

[Signature] 8-15-86
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

JCD	SHOW STA. & SUPER. R. ST. JOHNS WOODS	REVISIONS	DATE
85			



PROFILE
 SURVIVAL: _____
 NOTE BOOK: _____
 B.M.'S NOTED: _____
 STRUCTURE LOCATIONS CHECKED: _____

12.32

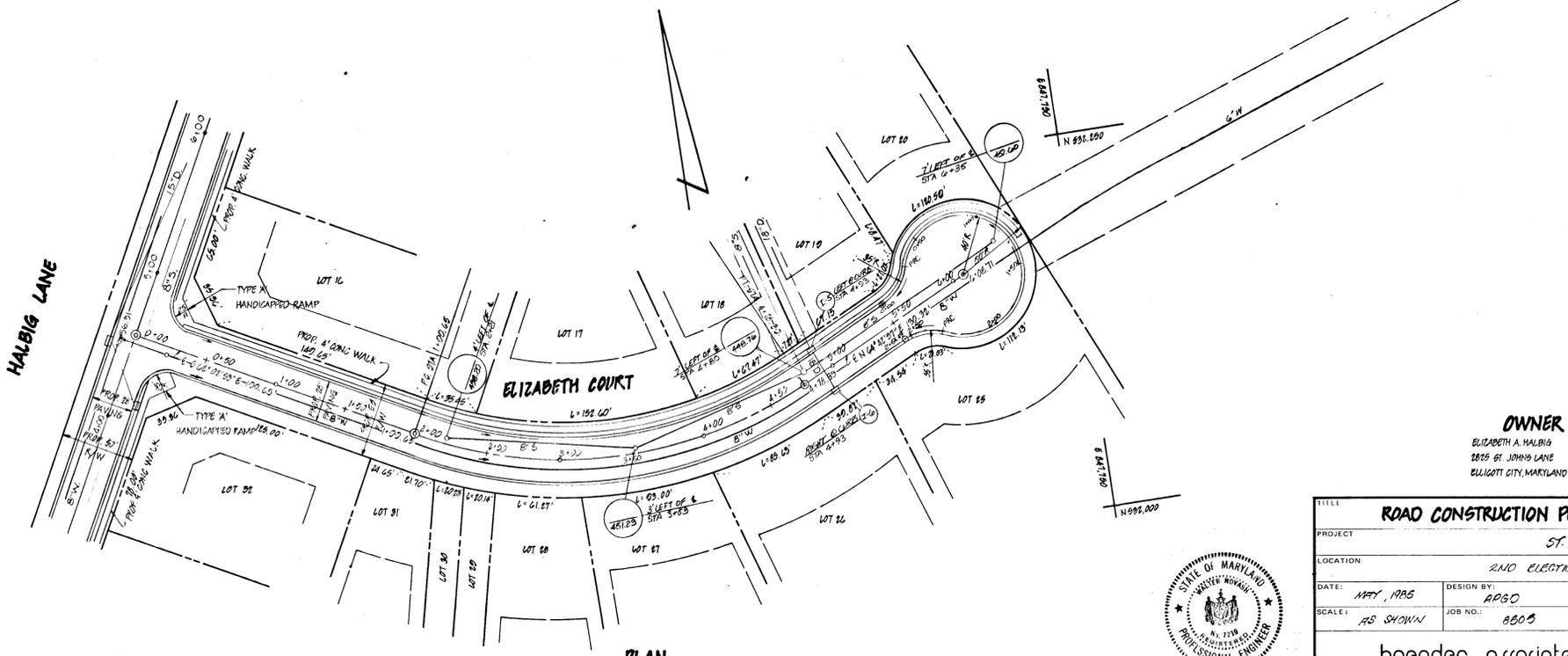
F-86-144

8505

DATE: _____
 BY: _____
 SURVEYED: _____
 PLAN NOTE BOOK: _____
 PLACEMENT CHECKED: _____
 E.T. OF WAY CHECKED: _____

DATE: _____
 BY: _____
 SURVEYED: _____
 PROFILE NOTE BOOK: _____
 R.M.'S. NOTED: _____
 STRUCTURE LOCATIONS CHECKED: _____

ε CURVE DATA
 R = 800.00' L = 278.74'
 TAN = 120.35 Δ = 53°41'10"
 CHD = 508'50.58" E 204.02'



APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 8-23-86
 CHIEF, BUREAU OF ENGINEERING
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 8-15-86
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



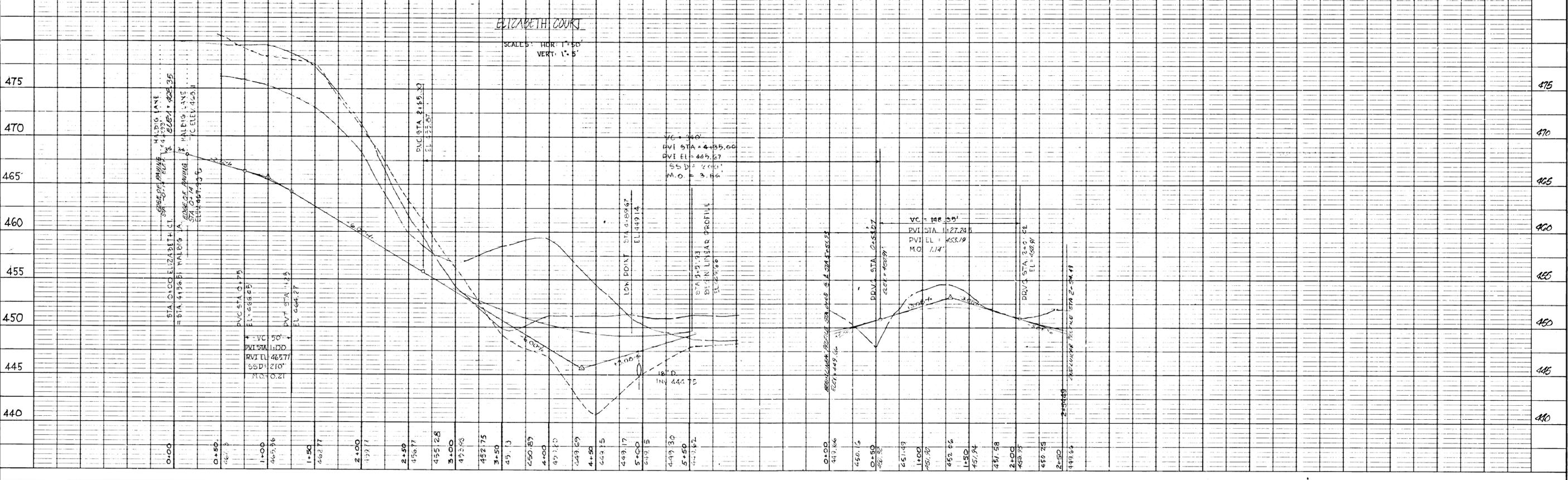
OWNER & DEVELOPER
 ELIZABETH A. HALBIG
 2825 ST. JOHN'S LANE
 ELLICOTT CITY, MARYLAND 21043
 WILLIAM R. HOPKIN
 9190 ROBERTS AVENUE
 ELLICOTT CITY, MARYLAND 21043

TITLE: ROAD CONSTRUCTION PLAN - ELIZABETH COURT

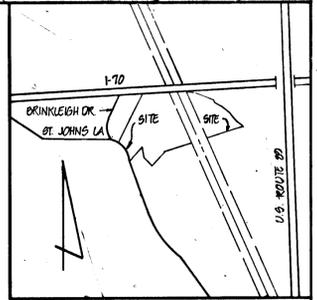
PROJECT: ST. JOHN'S WOODS
 LOCATION: 2ND ELECTION DISTRICT - HOWARD COUNTY, MD.
 DATE: MAY, 1985 DESIGN BY: ARSO DRAWN BY: C.M.R. CHECKED BY: W.N./D.R.
 SCALE: AS SHOWN JOB NO.: 8608 DRAWING NO.: 2 OF 7

boender associates
 3565 ELLICOTT MILLS DRIVE
 ELLICOTT CITY, MD 21043
 BALTIMORE 301 465-7777

engineers
 surveyors
 planners



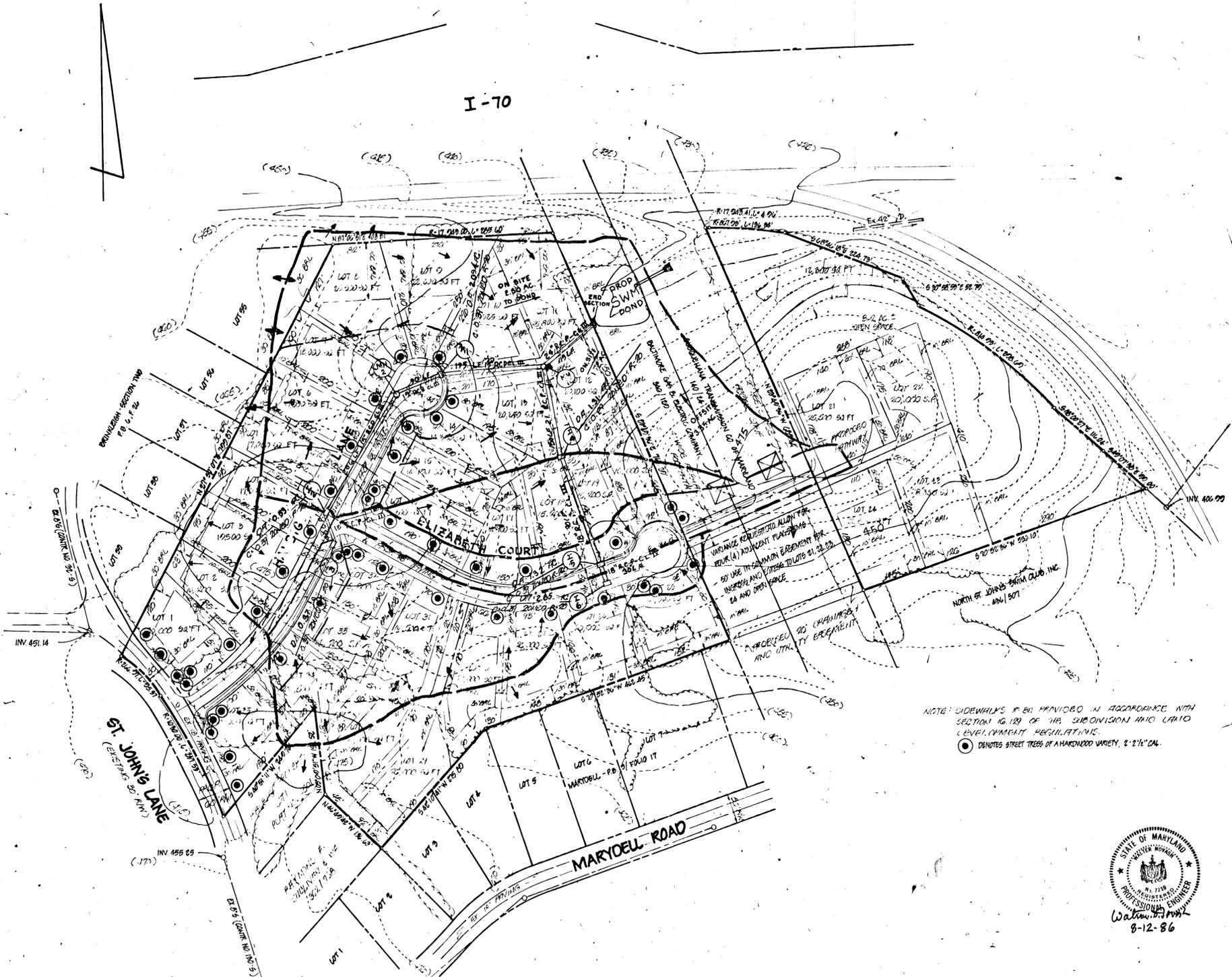
1232



VICINITY MAP
SCALE: 1" = 100'

GENERAL NOTES

- TAX MAP: 17, PARCEL: 79
- PROPERTY DEED REFERENCE: 161/415
- EX ZONING: R-22
- PUBLIC WATER AND PUBLIC SEWERAGE ARE TO BE UTILIZED.
- ST. JOHN'S LANE AND INTERSTATE 29 ARE EXISTING PUBLIC ROADS.
- TOTAL AREA OF SITE: 60.8 AC.
TOTAL NO. OF LOTS: 35 TOTAL AREA OF LOTS: 10.6 AC. ±
TOTAL AREA OF RAIN DEDICATION: 2.1 AC. ±
TOTAL AREA OF OPEN SPACE: 3.8 AC. ± STEEP SLOPES: 2.9 AC. ± NET
- TOPD SHOWN HEREON IS BASED ON HOWARD COUNTY 1" = 200' AGRICAL TOPD MAPS.
- BOUNDARY SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY THE RIEMER GROUP, INC.
- REPRESENTS GROUND AT 25% SLOPE OR GREATER.
- SEE SCHEDULE OF PLUMBING & MECHANICAL VIEWS 5-A1 - C1, V.P. 85-06, & V.P. 85-01.
- 35 BUILDABLE LOTS (S.F.O.) AND 1 OPEN SPACE LOT INCLUDED IN THIS SUBMISSION.



NOTE: SIDEWALKS TO BE PROVIDED IN ACCORDANCE WITH SECTION 16.129 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
● DENOTES STREET TREES OF A HAZARDOUS VARIETY, 2" x 12" DIA.



DEVELOPER'S CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

Dennis M. Rush 4/29/86
SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE

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 COUNTY SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

Walter J. Jank 8-12-86
SIGNATURE OF ENGINEER DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 8-20-86
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: OFFICE OF PLANNING AND ZONING
[Signature] 8/15/86
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.
[Signature] 8/14/86
U.S. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT IS APPROVED SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] 8-14-86
SOIL CONSERVATION DISTRICT DATE

OPEN SPACE REGULATIONS

LOT SIZE (SQ. FT.)	NO. OF LOTS	AREA OF LOTS IN ACRES	MINIMUM OPEN SPACE PERCENTAGE	AREA OF OPEN SPACE IN ACRES
20,000 OR GREATER	19	7.6	6%	0.67
15,000 TO 19,999	2	0.9	10%	0.09
10,000 TO 14,999	7	2.7	20%	0.54
5,000 TO 9,999	7	2.4	30%	0.72
TOTALS	35	13.6		1.92

DENSITY TABULATION

GROSS AREA	60.8 AC.
POND (RAIN) OPEN SPACE / STORM WATER MANAGEMENT FACILITY AREA	2.47 AC.
NET AREA	58.33 AC.
NO. OF DWELLING UNITS ALLOWED (BASED ON NET AREA)	44.28 UN.
ADJUSTMENT OF ALLOWANCE	0
TOTAL NO. OF DWELLING UNITS ALLOWED	44.28 UN.
TOTAL NO. OF DWELLING UNITS PROPOSED	36
DENSITY PER ACRE	1.72

OWNER & DEVELOPER
ELIZABETH G. HALBIG WILLIAM R. HOPKIN
2806 91 JOHN'S LANE 3138 ROGERS AVENUE
ELICOTT CITY, MD 21043 ELICOTT CITY, MD 21043

TITLE: DRAINAGE AREA MAP & LANDSCAPING PLAN

PROJECT: ST. JOHN'S WOODS

LOCATION: 2ND ELECTION DISTRICT TAX MAP: 17 HOWARD COUNTY, MARYLAND PARCEL: 79

DATE: JANUARY, 1985 SCALE: 1" = 100' DESIGN BY: JJB DRAWN BY: O.P. CHECKED BY: JAB DRAWING NO: 3047 JOB NO: 83026

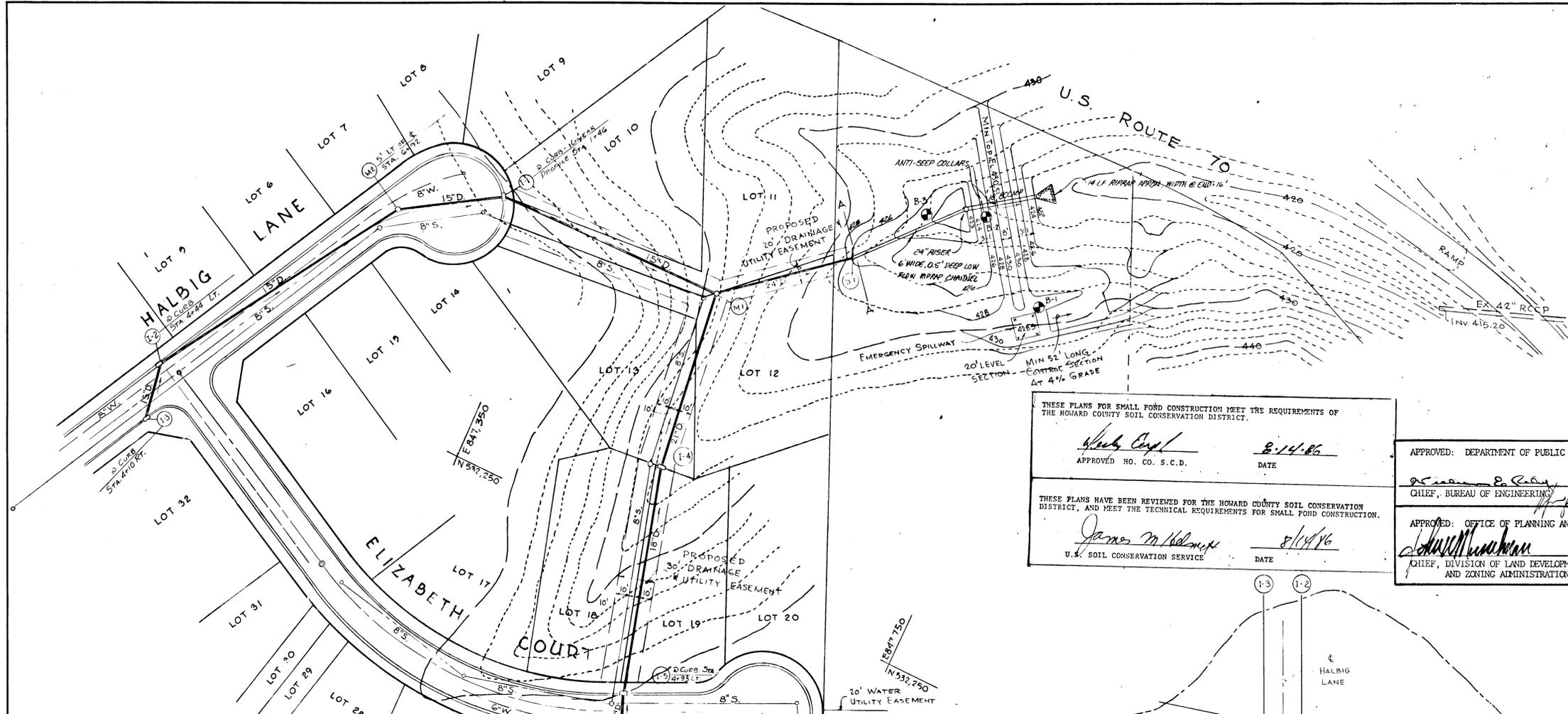
boender associates engineers, surveyors, planners
3015 ELLICOTT MILLS DRIVE
ELICOTT CITY, MARYLAND 21042

F-86-144

1232

STRUCTURE SCHEDULE

NO.	TYPE	INV. IN	INV. OUT	TOP EL.	REMARKS
I-1	INLET TYPE A-5	447.00	446.75	452.35	HOWARD COUNTY STANDARD DETAIL SD 4.01
I-2	INLET TYPE A-10	464.18	463.93	468.78	HOWARD COUNTY STANDARD DETAIL SD 4.02
I-3	INLET TYPE A-5	---	464.45	469.46	HOWARD COUNTY STANDARD DETAIL SD 4.01
I-4	INLET TYPE 'D'	434.25	433.90	439.00	HOWARD COUNTY STANDARD DETAIL SD 4.11
I-5	INLET TYPE A-5	444.66	444.41	449.14	HOWARD COUNTY STANDARD DETAIL SD 4.01
I-6	INLET TYPE A-5	---	444.64	449.14	HOWARD COUNTY STANDARD DETAIL SD 4.01
I-7	---	---	---	---	---
M-1	STANDARD 4'-0"	433.00	432.75	439.85	HOWARD COUNTY STANDARD DETAIL G 5.12
M-2	STANDARD 4'-0"	452.04	451.79	455.68	HOWARD COUNTY STANDARD DETAIL G 5.12
S-1	CONCRETE END SECTION	425.40	424.97	427.40	HOWARD COUNTY STANDARD DETAIL SD 5.52



THESE PLANS FOR SMALL POND CONSTRUCTION MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

Wanda Cloyd
APPROVED HO. CO. S.C.D. DATE: 8/14/86

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD COUNTY SOIL CONSERVATION DISTRICT, AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION.

James M. Holman
U.S. SOIL CONSERVATION SERVICE DATE: 8/14/86

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF ENGINEERING DATE: 8-20-86

APPROVED: OFFICE OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE: 8/15/86

DEVELOPER'S CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

Dennis M. Rusk
SIGNATURE OF DEVELOPER DATE: 8/14/86

ENGINEER'S CERTIFICATE

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 COUNTY SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

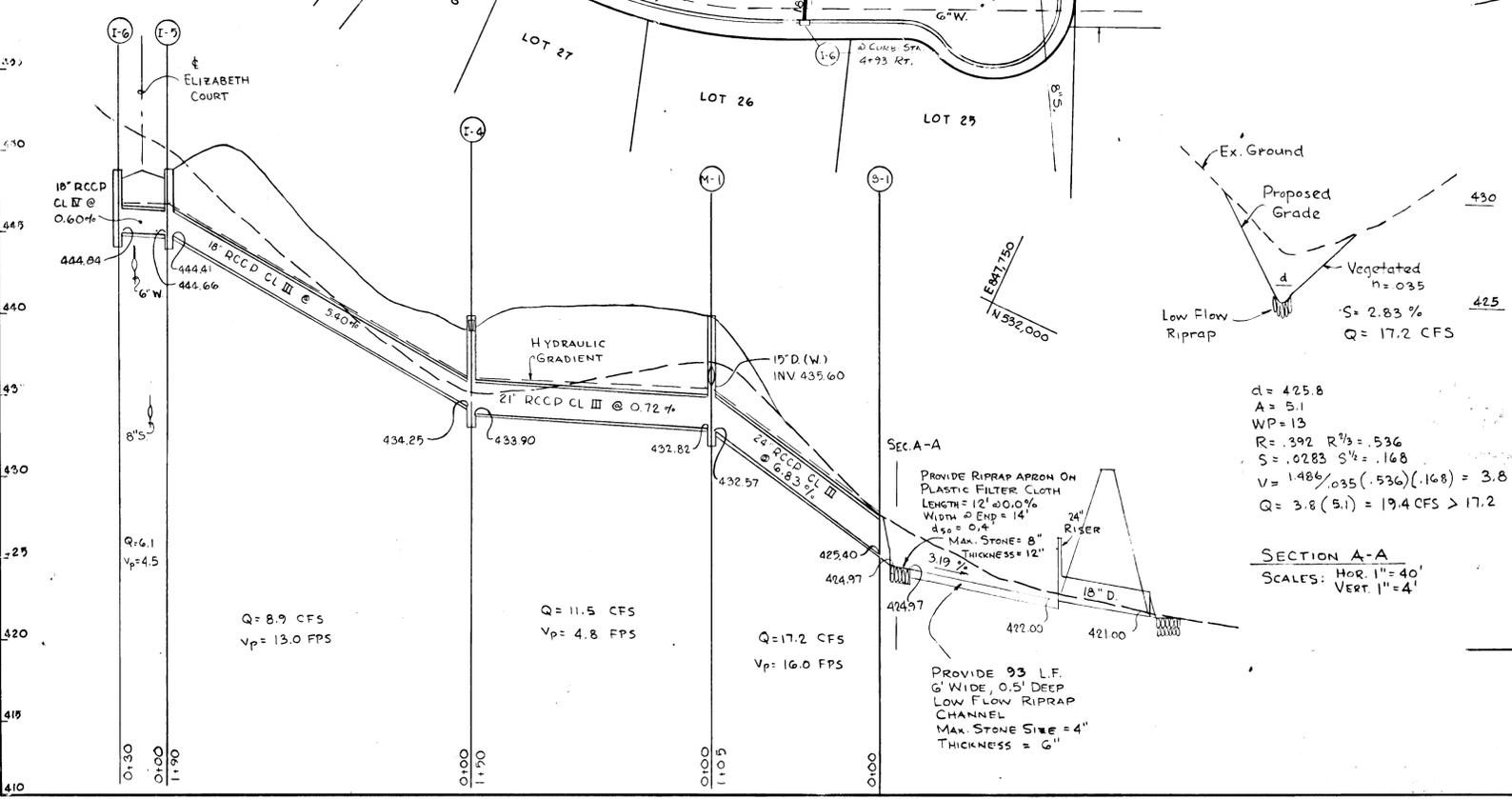
Walter A. Farnish
SIGNATURE OF ENGINEER DATE: 4-30-86

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

James M. Holman
U.S. SOIL CONSERVATION SERVICE DATE: 8/14/86

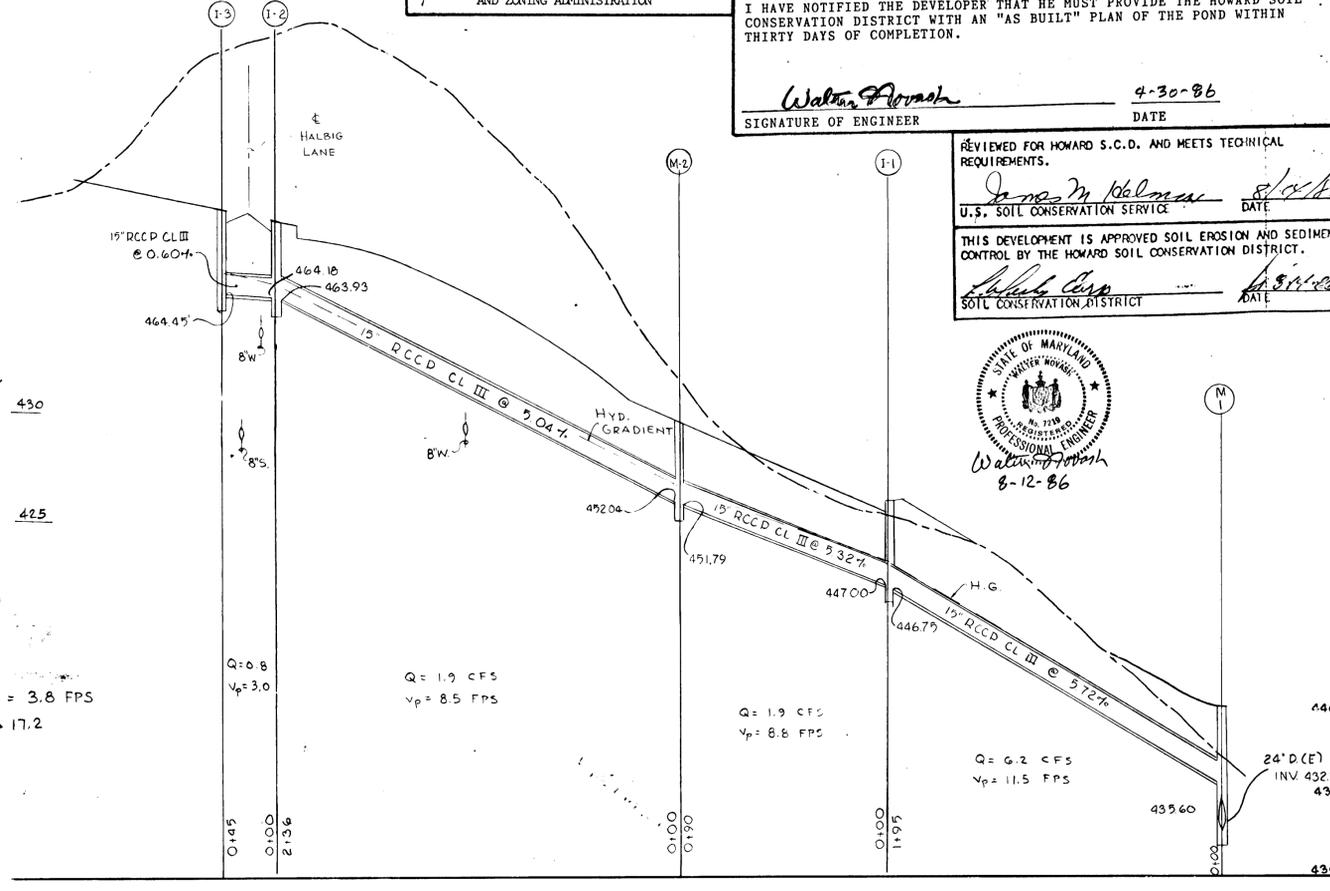
THIS DEVELOPMENT IS APPROVED SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Wanda Cloyd
SOIL CONSERVATION DISTRICT DATE: 8/14/86



$d = 425.8$
 $A = 5.1$
 $WP = 13$
 $R = .392 R^{2/3} = .536$
 $S = .0283 S^{1/2} = .168$
 $V = 1.486 / .035 (.536) (.168) = 3.8 \text{ FPS}$
 $Q = 3.8 (5.1) = 19.4 \text{ CFS} > 17.2$

SECTION A-A
 SCALES: HOR. 1"=40'
 VERT. 1"=4'



HALBIG LANE PROFILE
 SCALES: HOR. 1"=50'
 VERT. 1"=4'

1232

ELIZABETH COURT PROFILE
 SCALES: HOR. 1"=50'
 VERT. 1"=5'

TITLE: STOP DRAINS - S.W.M. POND
 PROJECT: ST JOHN'S WOODS

LOCATION: 2ND ELECTION DISTRICT HOWARD CO. MD.

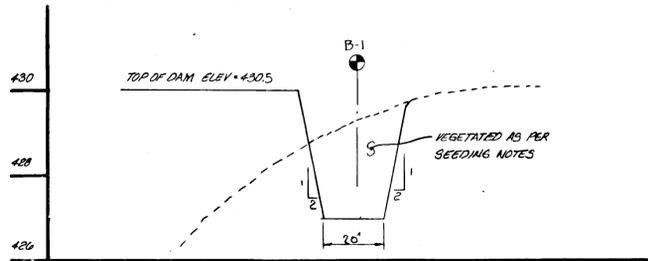
SCALE: NOTED
 DESIGNED BY: W.A.
 DRAWN BY: D.G.
 CHECKED BY: W.N.D.R.
 DATE: NOV 1985

FIELD BOOK: PAGE NO.: 87-005
 JOB NO.: 4067

boender associates inc.
 land surveyors
 land planners

COURTHOUSE SQUARE
 3565 ELLICOTT MILLS DRIVE
 ELLICOTT CITY, MD. 21042
 (301) 465-7777

**SOIL CONSERVATION SERVICE OF MARYLAND
STANDARDS AND SPECIFICATIONS
FOR STORM WATER MANAGEMENT PONDS**



SOIL BORINGS

B-1
0'-6" TOPSOIL
6"-8.5" SILTY FINE SAND (SM)
WATER AT 7.0'

B-2
0'-6" TOPSOIL
6"-8.5" FINE SILTY SAND (SM)
WATER AT 1.5'

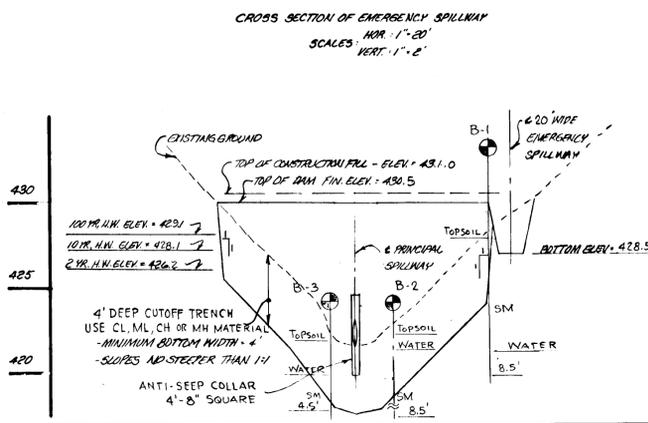
B-3
0'-6" TOPSOIL
6"-4.5" FINE SAND (SM)
AUGER REFUSAL @ 4.5'
WATER AT 2.5'

THESE PLANS FOR SMALL POND CONSTRUCTION MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

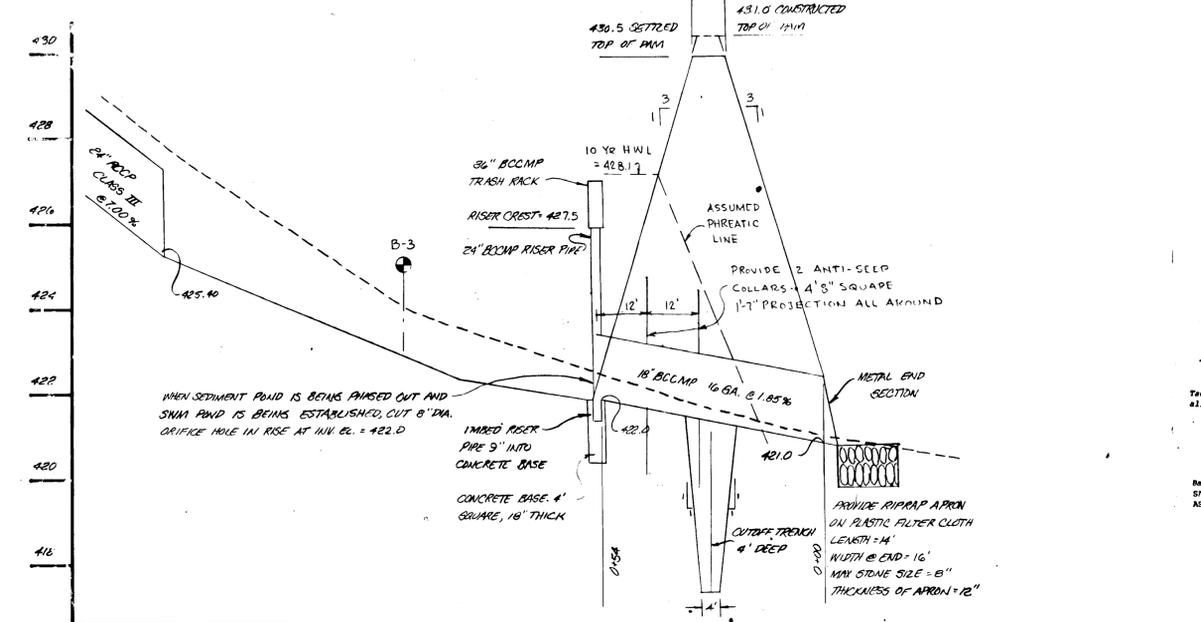
Walter Engel
APPROVED HO. CO. S.C.D. DATE 8-14-86

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD COUNTY SOIL CONSERVATION DISTRICT, AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION.

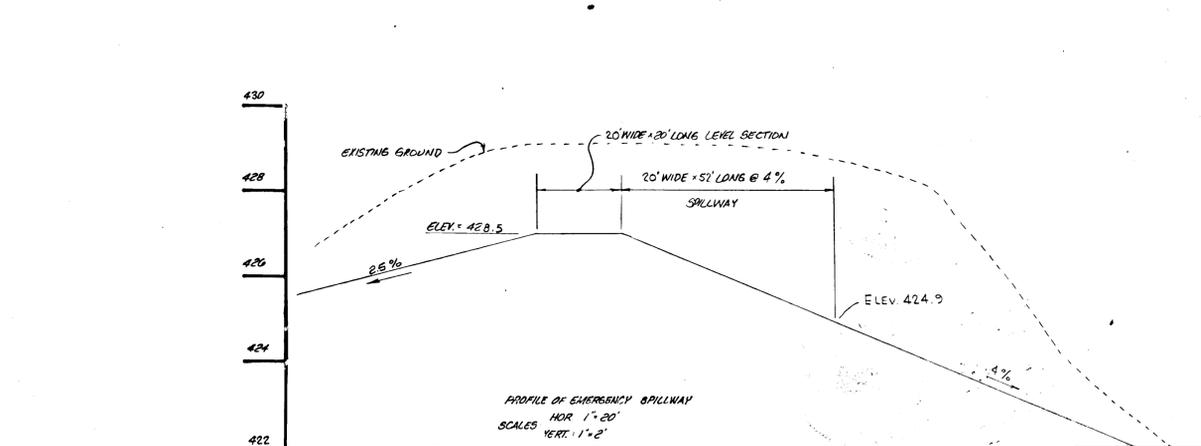
James M. Helman
U.S. SOIL CONSERVATION SERVICE DATE 8/14/86



CROSS SECTION OF DAM
SCALE: HOR. 1"=50'
VERT. 1"=5'



CROSS SECTION OF PRINCIPAL SPILLWAY
SCALE: HOR. 1"=20'
VERT. 1"=2'



I. 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 pond or 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.

All cleared and grubbed material shall be disposed of outside and below the 1 mile 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.

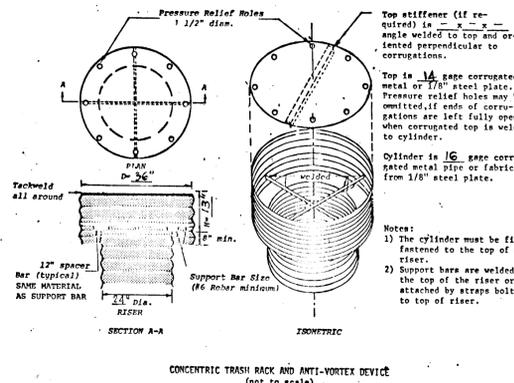
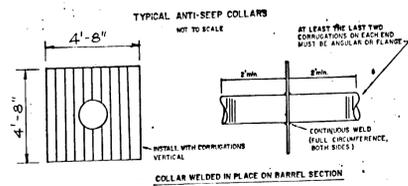
II. EARTH FILL

Material

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, covering stones, frozen or other objectionable material. 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 frostboard) as shown on the plans.

Placement

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment.



APPROVED: DEPARTMENT OF PUBLIC WORKS
James M. Helman 8-20-86
CHIEF, BUREAU OF ENGINEERING

APPROVED: OFFICE OF PLANNING AND ZONING
Walter Engel 8-15-86
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.
James M. Helman 8/14/86
U.S. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT IS APPROVED SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Walter Engel 8/14/86
SOIL CONSERVATION DISTRICT DATE

DEVELOPER'S CERTIFICATE
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.
Dennis M. Ruff 4/26/86
SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE
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 COUNTY SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.
Walter Engel 4-29-86
SIGNATURE OF ENGINEER DATE

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 can be obtained with the equipment used.

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.

Cutoff Trench

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

III. STRUCTURAL BACKFILL

Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipes. 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 twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS

All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

1. **Materials - (Steel Pipe)** - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The Plastico-Cote, Bisc-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

Materials - (Aluminized Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274-791 with watertight coupling bands or flanges.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or 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. 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 less than 9 and greater than 4.

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

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

4. **Laying Pipe** - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.

5. **Backfilling** shall conform to structural backfill as shown above.

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

B. Reinforced Concrete Pipe

1. **Materials** - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. An approved equivalent is AWA Specification C-301.

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" 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.

4. **Backfilling** shall conform to structural backfill as shown above.

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

C. For pipes of other materials, specific specifications shall be shown on the drawings.

V. CONCRETE

1. Materials

- a. **Cement** - Normal Portland cement shall conform to the latest ASTM Specification C-150.
- b. **Water** - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.
- c. **Sand** - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.
- d. **Coarse Aggregate** - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.
- e. **Reinforcing Steel** - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

2. **Design Mix** - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. Gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:1-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.

3. **Mixing** - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

4. **Forms** - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.

The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.

Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.

5. **Reinforcing Steel** - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

6. **Consolidating** - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.

7. **Finishing** - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be resmed and completely filled with dry-patching mortar.

8. **Protection and Curing** - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.

VI. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying drawings.

VII. EROSION AND SEDIMENT CONTROL

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

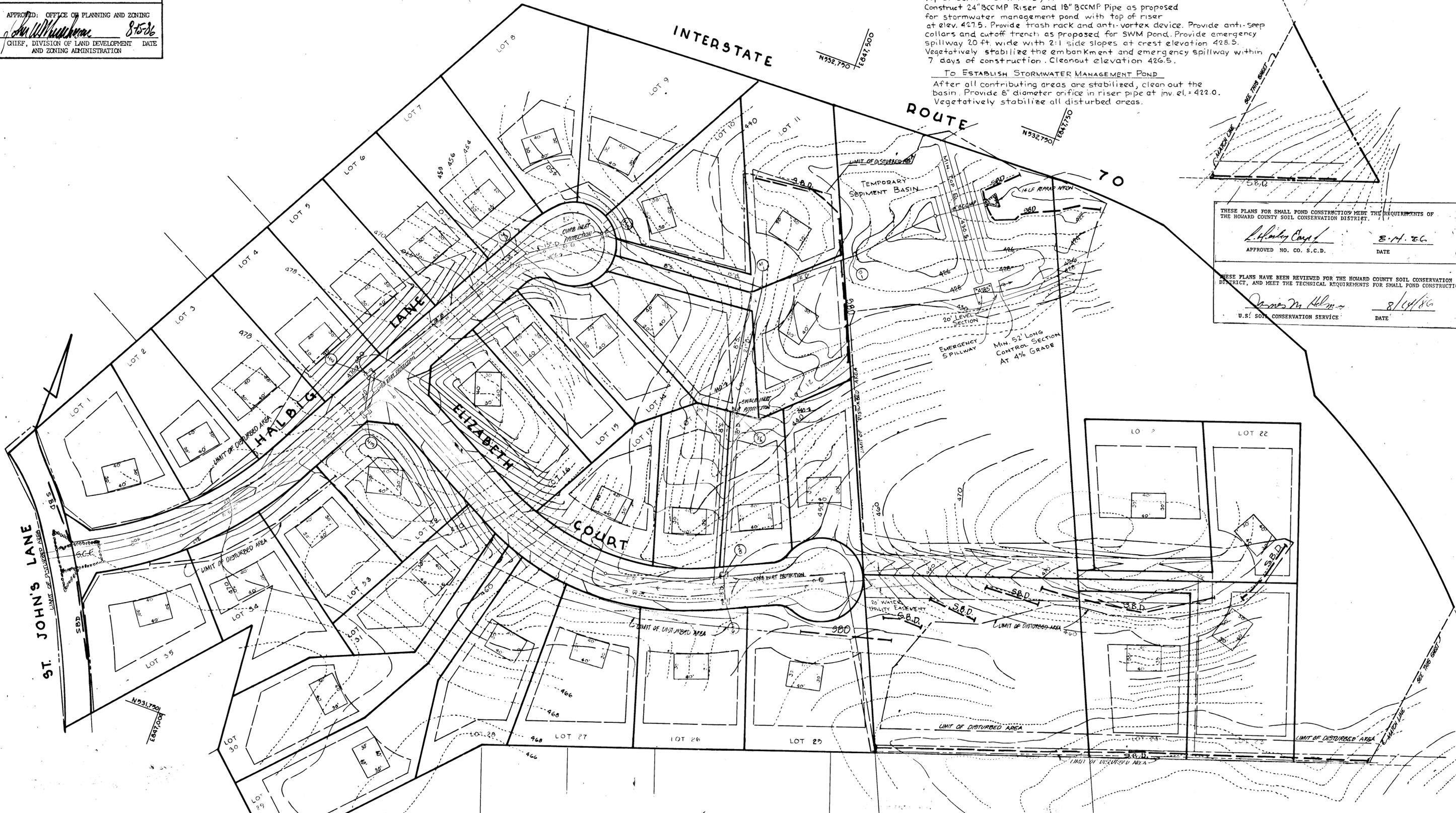
TITLE: DETAILS & PROFILES		PROJECT: ST. JOHN'S WOODS		boender associates inc.	
LOCATION: HOWARD CO. MD.		SCALE: AS NOTED		consulting engineers	
DESIGNED BY: W.N.	DRAWN BY: J.T.N.	CHECKED BY: W.N./D.P.A.	DATE: 10/17/1985	land surveyors	
FIELD BOOK: AS NOTED	PAGE NO: 05005	JOB NO: 05005	DRAWING NO: 5 OF 7	land planners	
COURTHOUSE SQUARE		3565 ELLICOTT MILLS DRIVE		ELLICOTT CITY, MD. 21043	
13011 465-7177					

APPROVED: DEPARTMENT OF PUBLIC WORKS
W. S. ... 8-29-86
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: OFFICE OF PLANNING AND ZONING
W. M. ... 8-15-86
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

TEMPORARY SEDIMENT BASIN
 Construct in location of permanent stormwater management pond.
 Top of Berm - Elev. 430.5, Width = 8'
 Construct 24" BCCMP Riser and 18" BCCMP Pipe as proposed
 for stormwater management pond with top of riser
 at elev. 427.5. Provide trash rack and anti-vortex device. Provide anti-seep
 collars and cutoff trench as proposed for SWM pond. Provide emergency
 spillway 20 ft wide with 2:1 side slopes at crest elevation 428.5.
 Vegetatively stabilize the embankment and emergency spillway within
 7 days of construction. Cleanout elevation 426.5.

TO ESTABLISH STORMWATER MANAGEMENT POND
 After all contributing areas are stabilized, clean out the
 basin. Provide 8" diameter orifice in riser pipe at inv. el. = 422.0.
 Vegetatively stabilize all disturbed areas.



THESE PLANS FOR SMALL POND CONSTRUCTION MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

L. ... 8-17-86
 APPROVED HO. CO. S.C.D. DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD COUNTY SOIL CONSERVATION DISTRICT, AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION.

Dennis M. ... 8/14/86
 U.S. SOIL CONSERVATION SERVICE DATE

1232

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

Dennis M. ... 8/14/86
 U.S. SOIL CONSERVATION SERVICE DATE

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

L. ... 8-14-86
 SOIL CONSERVATION DISTRICT DATE



ENGINEER'S CERTIFICATE

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 COUNTY SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

Walter F. ... 8-29-86
 SIGNATURE OF ENGINEER DATE

DEVELOPER'S CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

Dennis M. ... 8/26/86
 SIGNATURE OF DEVELOPER DATE

TITLE: ST. JOHN'S WOODS

PROJECT: GRADING AND SEDIMENT CONTROL PLAN

LOCATION: SECOND ELECTION DISTRICT HOWARD CO., MD.

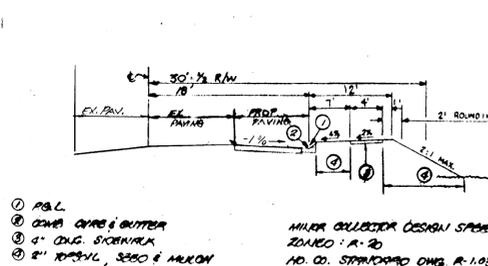
SCALE: 1" = 30'

DESIGNED BY: W.A.J. DRAWN BY: B.G. CHECKED BY: E.A. W.A.J. DATE: FEB. 1986

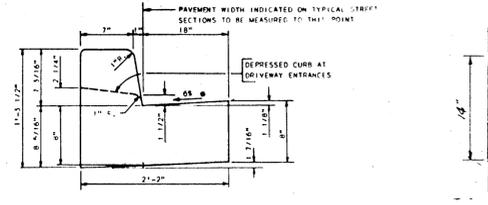
FIELD BOOK: PAGE NO.: JOB NO.: 85005 DRAWING NO.: 7 OF 7

boender associates inc.
 consulting engineers
 land surveyors
 land planners

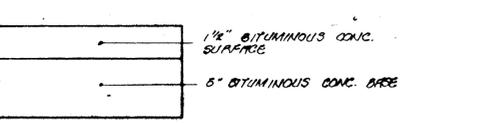
COURTHOUSE SQUARE
 3565 ELLICOTT MILLS DRIVE
 ELLICOTT CITY, MD. 21043
 (301) 465-7777



TYPICAL HALF SECTION - ST. JOHNS LANE
(AREA OF WIDENING - STA. 0+30 TO 3+35)
NOT TO SCALE



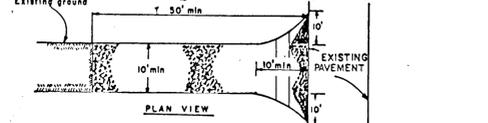
TYPICAL PAVINE SECTION - P-3
NOT TO SCALE



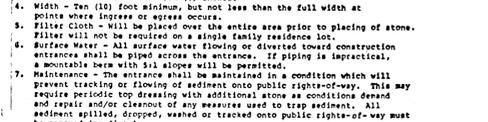
STABILIZED CONSTRUCTION ENTRANCE - S.C.E.
NOT TO SCALE



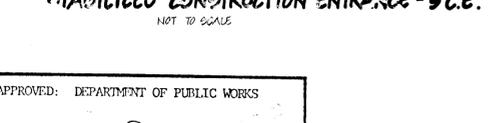
TYPICAL PAVINE SECTION - P-2
NOT TO SCALE



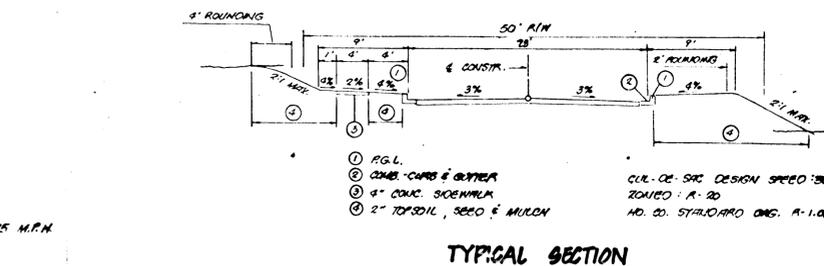
TYPICAL PAVINE SECTION - P-3
NOT TO SCALE



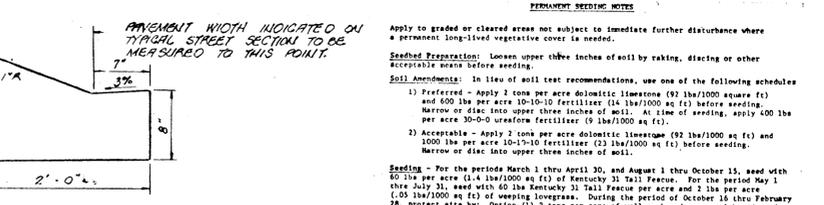
TYPICAL PAVINE SECTION - P-3
NOT TO SCALE



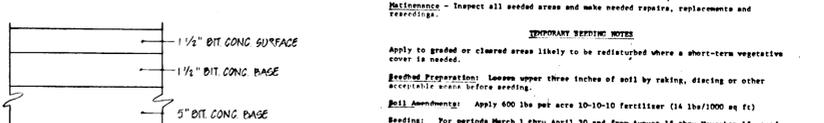
TYPICAL PAVINE SECTION - P-3
NOT TO SCALE



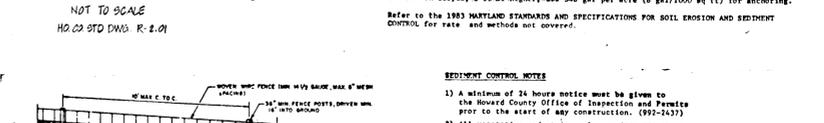
TYPICAL SECTION
HALIBURTON STA. 0+00 TO STA. 7+33.46
BURLEIGH COURT STA. 0+00 TO STA. 0+08.71
NOT TO SCALE



PERMANENT SEEDING NOTES



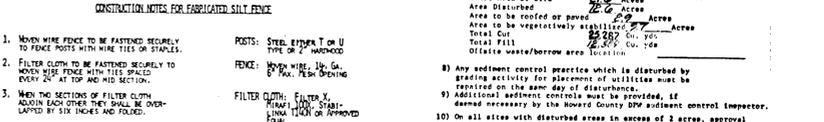
TEMPORARY SEEDING NOTES



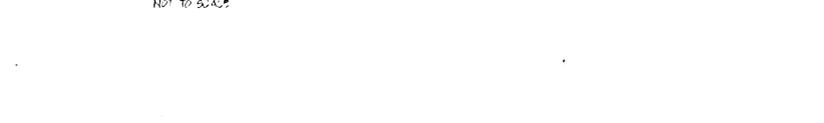
SILT FENCE - S.F.
NOT TO SCALE



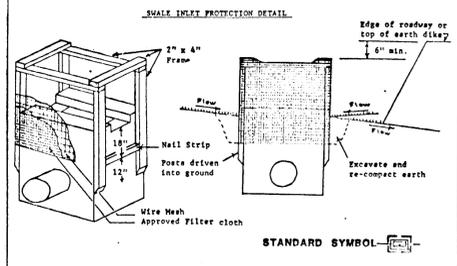
SILT FENCE - S.F.
NOT TO SCALE



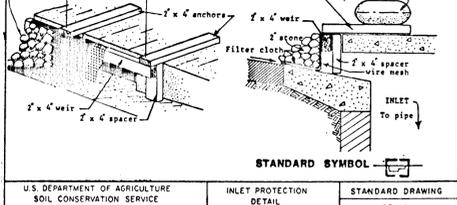
SILT FENCE - S.F.
NOT TO SCALE



SILT FENCE - S.F.
NOT TO SCALE



STRAW BALE DIKE



STRAW BALE DIKE



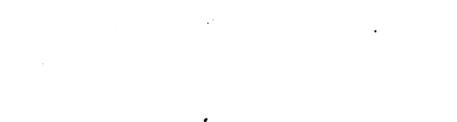
STRAW BALE DIKE



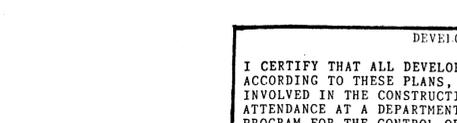
STRAW BALE DIKE



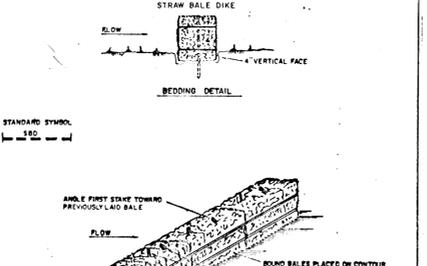
STRAW BALE DIKE



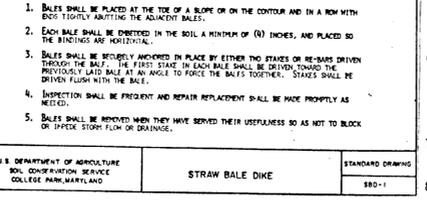
STRAW BALE DIKE



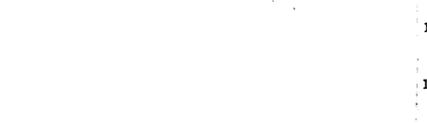
STRAW BALE DIKE



STRAW BALE DIKE



STRAW BALE DIKE



STRAW BALE DIKE



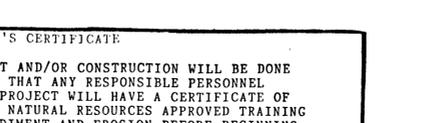
STRAW BALE DIKE



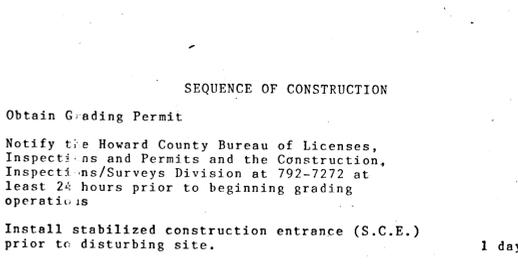
STRAW BALE DIKE



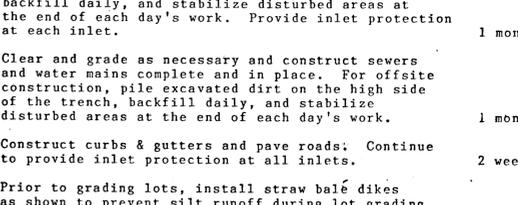
STRAW BALE DIKE



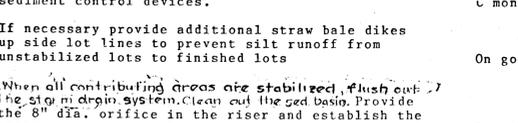
STRAW BALE DIKE



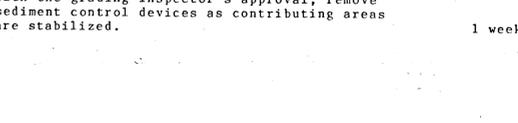
SEQUENCE OF CONSTRUCTION



SEQUENCE OF CONSTRUCTION



SEQUENCE OF CONSTRUCTION



SEQUENCE OF CONSTRUCTION



SEQUENCE OF CONSTRUCTION



SEQUENCE OF CONSTRUCTION



SEQUENCE OF CONSTRUCTION

APPROVED: DEPARTMENT OF PUBLIC WORKS
 8-23-86
 CHIEF, BUREAU OF ENGINEERING

APPROVED: OFFICE OF PLANNING AND ZONING
 8-15-86
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.
 8/14/86
 U.S. SOIL CONSERVATION SERVICE

THIS DEVELOPMENT IS APPROVED SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 8/14/86
 U.S. SOIL CONSERVATION DISTRICT

THESE PLANS FOR SMALL POND CONSTRUCTION MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
 8-14-86
 APPROVED HO. CO. S.C.D.

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD COUNTY SOIL CONSERVATION DISTRICT, AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION.
 8/14/86
 U.S. SOIL CONSERVATION SERVICE

JCD	SHDW SUPER	EG. ST. JOHNS LANE	6-23-86
BY	REVISION		DATE



DEVELOPER'S CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

Dennis M. Rush
 SIGNATURE OF DEVELOPER

8/14/86
 DATE

ENGINEER'S CERTIFICATE

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 COUNTY SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

Walter Pomeroy
 SIGNATURE OF ENGINEER

8-12-86
 DATE

TITLE:	DETAILS, TYP SECT, NOTES
PROJECT:	ST. JOHNS WOODS
LOCATION:	2 ND ELECTION DISTRICT HOWARD CO. MD
SCALE:	AS SHOWN
DESIGNED BY:	W.H.
DRAWN BY:	B.G.
CHECKED BY:	W.N./D.A.
DATE:	8/28/86
FIELD BOOK:	
PAGE NO.:	8509
JOB NO.:	
DRAWING NO.:	7 OF 7

boender & associates inc.
 consulting engineers
 land surveyors
 land planners

COURTHOUSE SQUARE
 3555 ELLICOTT MILLS DRIVE
 ELLICOTT CITY, MD 21043
 (301) 465-7777

1232

F-86-144