

GARR  
505/335  
ZONED R-12

OPEN SPACE  
LOT 38  
17,565 SF  
DEDICATED TO THE  
HOMEOWNER'S ASSOCIATION

OPEN SPACE  
LOT 83  
103,963 SF  
DEDICATED TO THE  
HOMEOWNER'S ASSOCIATION

FOREST CONSERVATION  
EASEMENT "A"  
0.55 AC.  
PLAT No. 13061-62

FOREST CONSERVATION  
EASEMENT "A"  
0.55 AC.  
PLAT No. 13061-62

ABEL (PUBLIC ROAD) STREET

DOWN'S  
RIDGE  
COURT  
(PUBLIC ROAD)

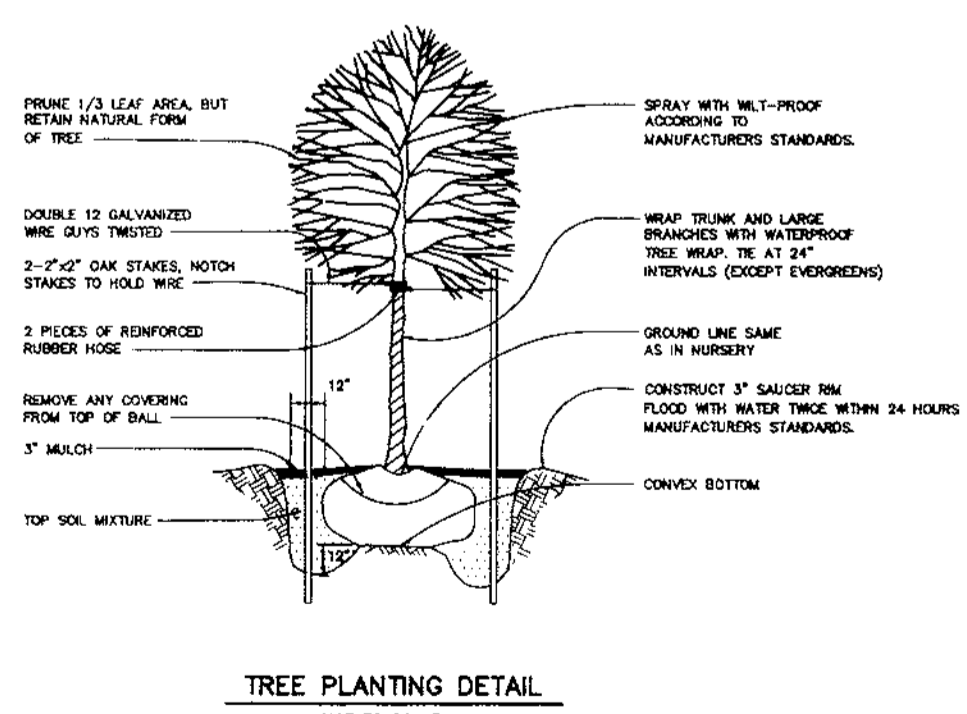
MERLE  
(PUBLIC ROAD)

SEE  
SHEET  
4 OF 9

MATCH LINE  
GRID NORTH

MATCH LINE

SEE SHEET 2 OF 9



| NO | DATE     | REVISION  |
|----|----------|---|
| 4  | 7-6-99   | SITE HALIFAX WITH SIDE EXT. ON LOT 88.  |
| 3  | 5-13-99  | REVISE A STANFORD ON LOTS 27 & 42, A SEBASTIAN ON LOTS 14 & 55, AND A BIRCHWOOD ON LOT 19 |
| 2  | 2/2/99   | REV STANFORD SITING ON LOT 22, SITE SEBASTIAN ON LOT 27, REV. GRADING                     |
| 1  | 11-10-98 | SITE STANFORD ON LOT 12 AND 2D, REVISE GRADES   |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

**ENGINEERING, INC.**

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard R. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
10/22/98 DATE

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
10/22/98 DATE

*...*  
DIRECTOR  
10/28/98 DATE

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

PROJECT: **WILLIAMS KNOLL**  
SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION: BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

BUILDER: RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

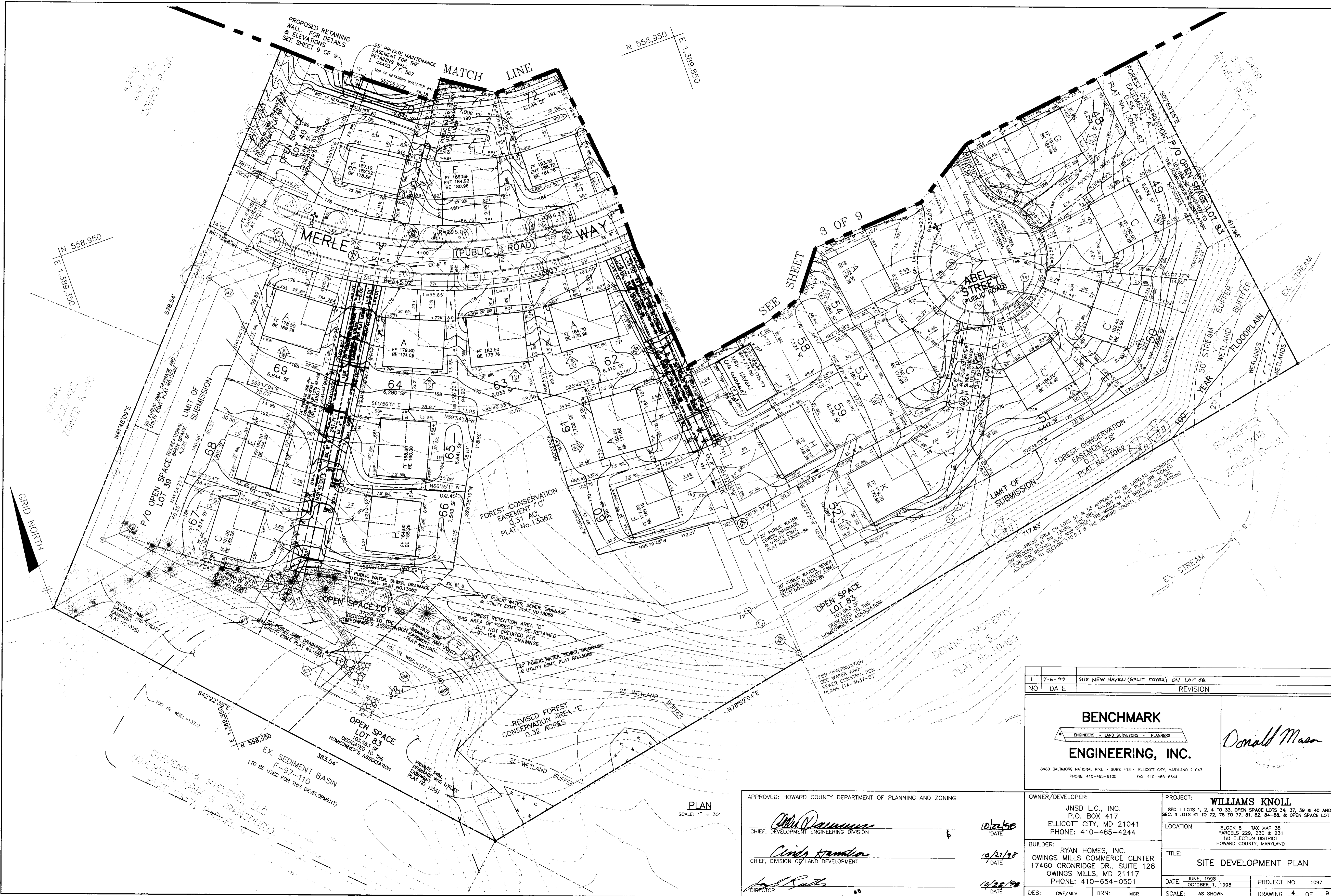
TITLE: **SITE DEVELOPMENT PLAN, LANDSCAPE PLAN & DETAIL**

DATE: JUNE, 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

DES: GWF/MLV DRN: MCR SCALE: AS SHOWN DRAWING 3 OF 9

PLAN  
SCALE: 1" = 30'



| NO | DATE   | REVISION                                |
|----|--------|---|
| 1  | 7-6-99 | SITE NEW HAVEN (SPLIT FOYER) ON LOT 38. |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21045  
PHONE: 410-465-6105 FAX: 410-465-6844

*Donald Mason*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*John P. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*James ...*  
DIRECTOR

DATE: 10/21/98

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

PROJECT:  
**WILLIAMS KNOLL**  
SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND  
SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION:  
BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE:  
**SITE DEVELOPMENT PLAN**

DATE: JUNE, 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

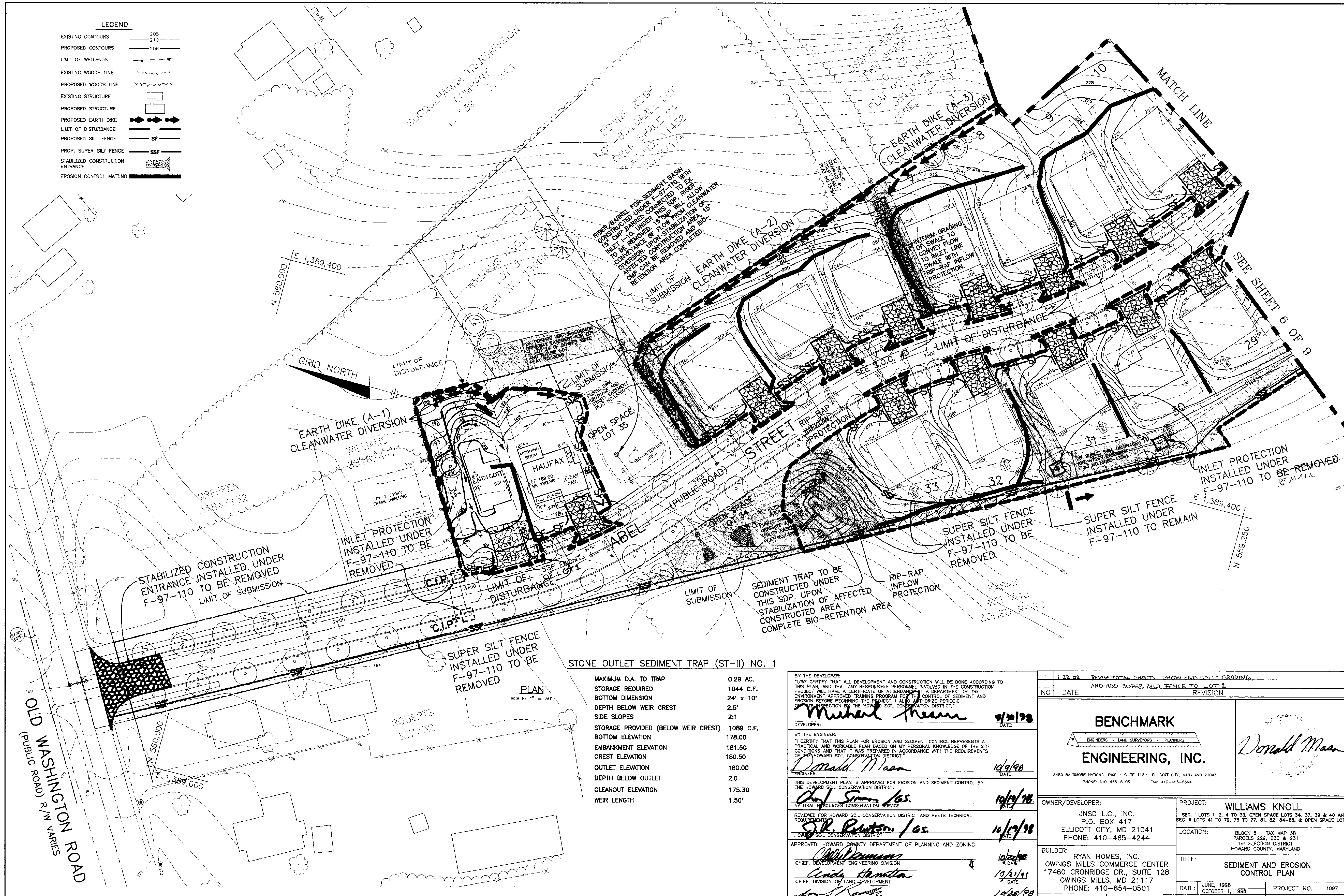
SCALE: AS SHOWN

DRAWING 4 OF 9

PLAN  
SCALE: 1" = 30'

**LEGEND**

|                                  |      |
|----------------------------------|------|
| EXISTING CONTOURS                | -208 |
| PROPOSED CONTOURS                | -210 |
| PROPOSED CONTOURS                | -206 |
| LIMIT OF WETLANDS                | →    |
| EXISTING WOODS LINE              | ~    |
| PROPOSED WOODS LINE              | ~    |
| EXISTING STRUCTURE               | [ ]  |
| PROPOSED STRUCTURE               | [ ]  |
| PROPOSED EARTH DIKE              | →    |
| LIMIT OF DISTURBANCE             | ---  |
| PROPOSED SILT FENCE              | SF   |
| PROP. SUPER SILT FENCE           | SSF  |
| STABILIZED CONSTRUCTION ENTRANCE | [ ]  |
| EROSION CONTROL MATTING          | [ ]  |



**STONE OUTLET SEDIMENT TRAP (ST-II) NO. 1**

|                                     |           |
|-------------------------------------|-----------|
| MAXIMUM D.A. TO TRAP                | 0.29 AC.  |
| STORAGE REQUIRED                    | 1044 C.F. |
| BOTTOM DIMENSION                    | 24' x 10' |
| DEPTH BELOW WEIR CREST              | 2.5'      |
| SIDE SLOPES                         | 2:1       |
| STORAGE PROVIDED (BELOW WEIR CREST) | 1089 C.F. |
| BOTTOM ELEVATION                    | 178.00    |
| EMBANKMENT ELEVATION                | 181.50    |
| CREST ELEVATION                     | 180.50    |
| OUTLET ELEVATION                    | 180.00    |
| DEPTH BELOW OUTLET                  | 2.0       |
| CLEANOUT ELEVATION                  | 175.30    |
| WEIR LENGTH                         | 1.50'     |

PLAN  
SCALE: 1" = 30'

BY THE DEVELOPER:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC DATE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Michael Thum* 9/30/98  
DEVELOPER: DATE:

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Donald Mason* 10/9/98  
ENGINEER: DATE:

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

*Paul Simon / as.* 10/19/98  
NATURAL RESOURCES CONSERVATION SERVICE DATE:

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS:  
*D.P. Ruston / as.* 10/19/98  
HOWARD SOIL CONSERVATION DISTRICT DATE:

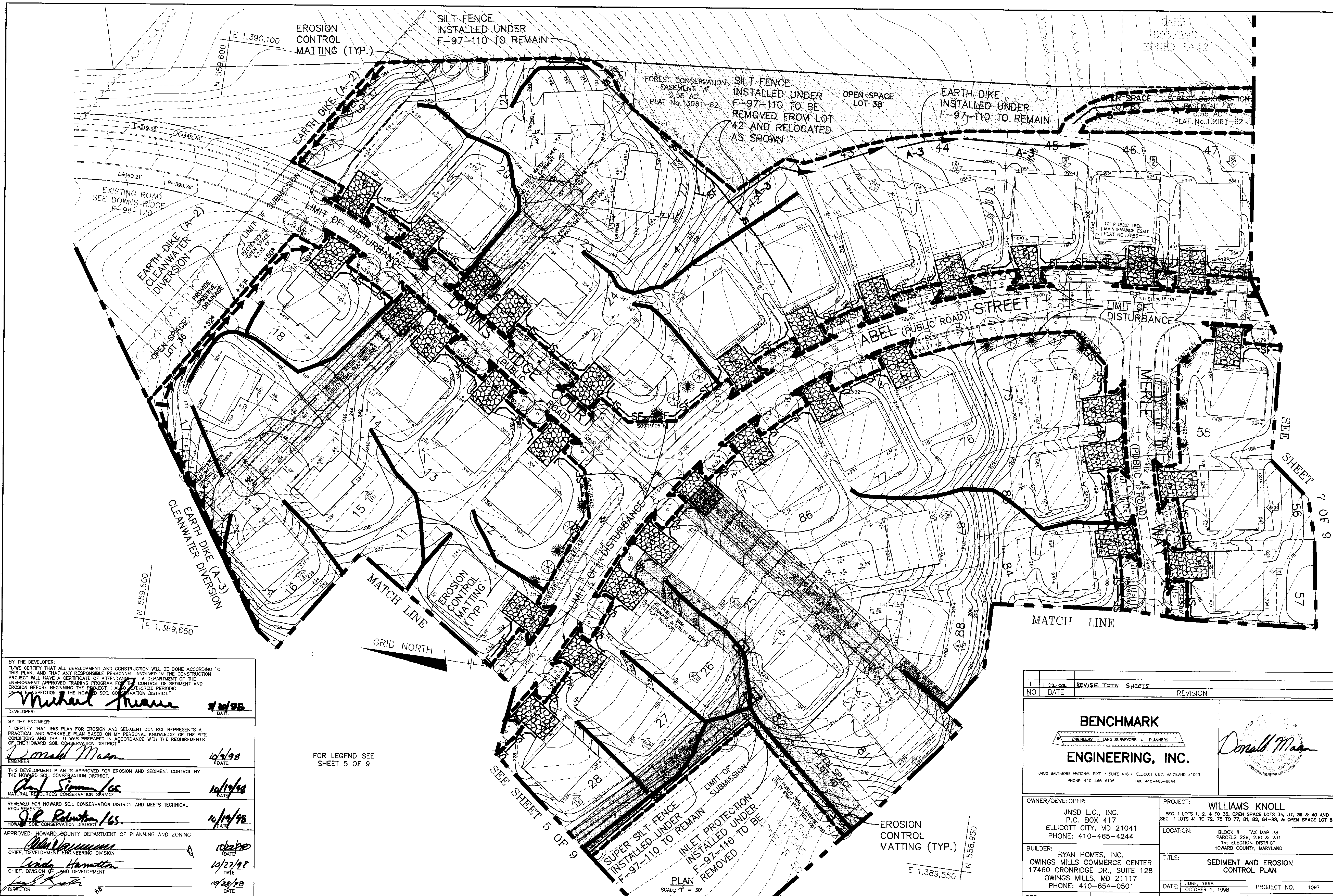
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*William...* 10/23/98  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE:  
*Lynda Hamilton* 10/23/98  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE:  
*...* 10/23/98  
DIRECTOR DATE:

|         |  |          |
|---------|--|----------|
| 1-22-92 | REVISE TOTAL SHEETS, SHOW ENDICOTT, GRADING, AND ADD SUPER SILT FENCE TO LOT 4 |          |
| NO      | DATE   | REVISION |

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

*Donald Mason*

|   |  |
|---|--|
| OWNER/DEVELOPER:  | PROJECT:   |
| JNSD L.C., INC.<br>P.O. BOX 417<br>ELLCOTT CITY, MD 21041<br>PHONE: 410-465-4244  | WILLIAMS KNOLL<br>SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 38 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-86, & OPEN SPACE LOT 83 |
| BUILDER:  | LOCATION:  |
| RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CRONRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501 | BLOCK 8 TAX MAP 38<br>PARCELS 229, 230 & 231<br>1st ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND   |
| TITLE:  | DATE:  |
| SEDIMENT AND EROSION CONTROL PLAN   | JUNE, 1998<br>OCTOBER 1, 1998  |
| DES:  | DRN:   |
| GWF/MLV   | MGR  |
| PROJECT NO. 1097  | DRAWING 5 OF 11  |



BY THE DEVELOPER:  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Michael Thorne* 9/20/96  
 DEVELOPER DATE

BY THE ENGINEER:  
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Donald Mason* 10/1/98  
 ENGINEER DATE

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

*Ann Simons* 10/19/98  
 NATURAL RESOURCES CONSERVATION SERVICE DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS:

*J.R. Redman* 10/19/98  
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

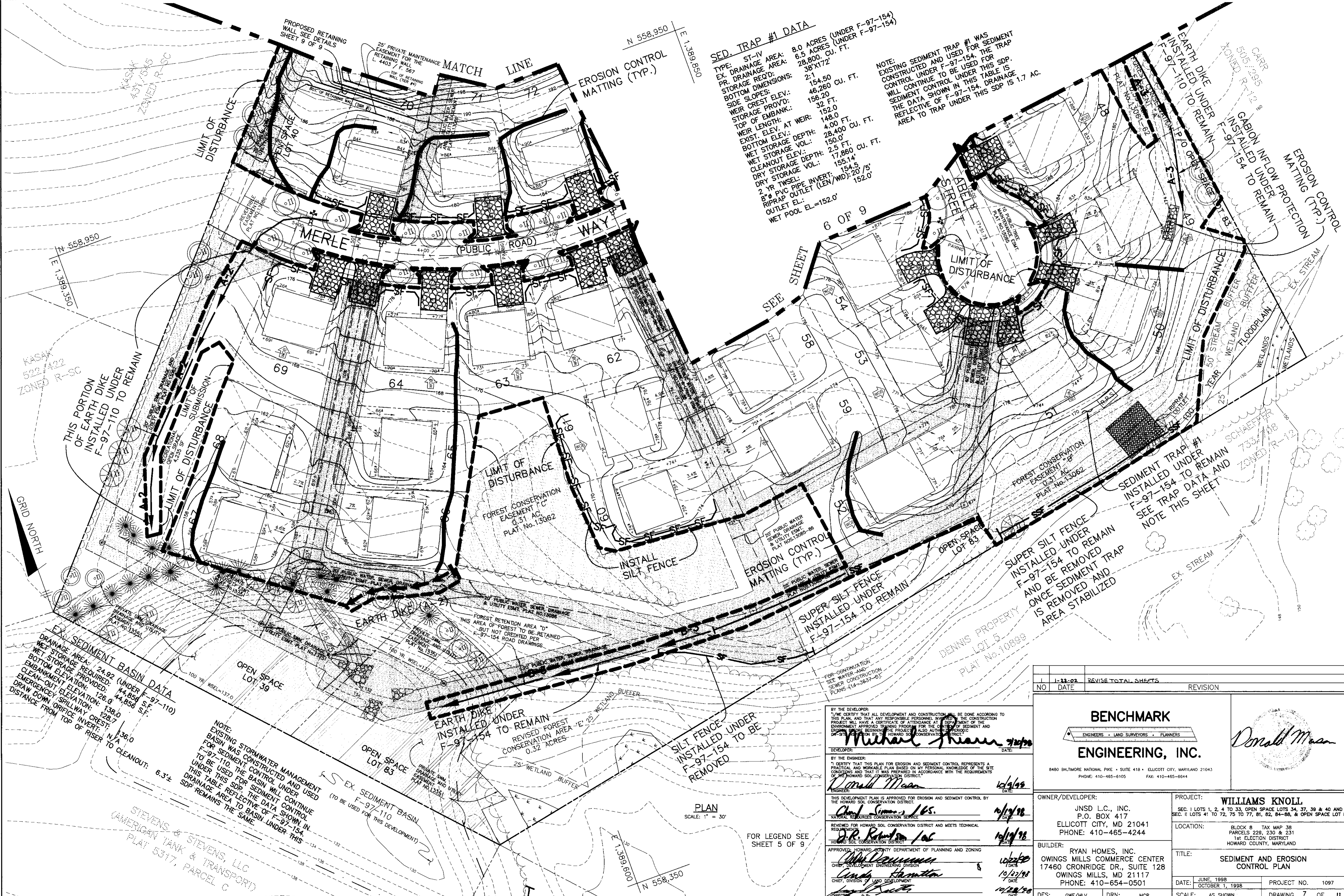
*John D. Williams* 10/20/98  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Wendy Hammett* 10/27/98  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Paul H. Smith* 10/29/98  
 DIRECTOR DATE

FOR LEGEND SEE SHEET 5 OF 9

|   |   |   |
|---|---|---|
| NO  | DATE  | REVISION  |
| 1   | 1-22-02   | REVISE TOTAL SHEETS   |
| REVISION  |   |   |
| <b>BENCHMARK</b>  |   |   |
| ENGINEERS • LAND SURVEYORS • PLANNERS   |   |   |
| <b>ENGINEERING, INC.</b>  |   |   |
| 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043<br>PHONE: 410-465-6105 FAX: 410-465-6644 |   |   |
| OWNER/DEVELOPER:  | JNSD L.C., INC.<br>P.O. BOX 417<br>ELLICOTT CITY, MD 21041<br>PHONE: 410-465-4244   | PROJECT: WILLIAMS KNOLL<br>SEC. 1 LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41, 70, 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83 |
| BUILDER:  | RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CRONRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501 | LOCATION: BLOCK 8 TAX MAP 38<br>PARCELS 228, 230 & 231<br>1st ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND  |
| DES: GWF/MLV  | DRN: MCR  | TITLE: SEDIMENT AND EROSION CONTROL PLAN  |
| DATE: JUNE, 1998  | DATE: OCTOBER 1, 1998   | PROJECT NO. 1097  |
| SCALE: AS SHOWN   | SCALE: AS SHOWN   | DRAWING 6 OF 11   |



**SED. TRAP #1 DATA**

TYPE: ST-IV  
 EX. DRAINAGE AREA: 8.0 ACRES (UNDER F-97-154)  
 PR. DRAINAGE AREA: 6.5 ACRES (UNDER F-97-154)  
 STORAGE AREA: 28,800 CU. FT.  
 STORAGE DIMENSIONS: 38'x172'  
 BOTTOM SLOPES: 2:1  
 WEIR CREST ELEV.: 154.50  
 STORAGE PROVIDED: 46,260 CU. FT.  
 TOP OF EMBANK.: 32 FT.  
 WEIR LENGTH: 152.0  
 WEIR AT WEIR: 148.0  
 EXIST. ELEV.: 4.00 FT.  
 BOTTOM DEPTH: 28,400 CU. FT.  
 WET STORAGE VOL.: 150.0'  
 CLEANOUT ELEV.: 154.5  
 DRY STORAGE VOL.: 17,880 CU. FT.  
 2 YR TWSEL: 154.5  
 8" PVC PIPE INVERT: 152.5  
 RIPRAP OUTLET (LEN/MID): 20/5'  
 OUTLET EL.: 152.0'  
 WET POOL EL.=152.0'

NOTE: EXISTING SEDIMENT TRAP #1 WAS CONSTRUCTED AND USED FOR SEDIMENT CONTROL UNDER F-97-154. THE TRAP WILL CONTINUE TO BE USED FOR SEDIMENT CONTROL UNDER THIS SDP. THE DATA SHOWN IN THIS TABLE IS REFLECTIVE OF F-97-154. DRAINAGE AREA TO TRAP UNDER THIS SDP IS 1.7 AC.

**EX. SEDIMENT BASIN DATA**

DRAINAGE AREA: 24.92 (UNDER F-97-110)  
 WET STORAGE REQUIRED: 44,856 S.F.  
 BOTTOM ELEVATION: 126.6  
 EMBANKMENT ELEVATION: 128.7  
 CLEAN-OUT ELEVATION: 136.0  
 DRAW DOWN (ORIFICE INVERT): N/A  
 DISTANCE FROM TOP OF RIDGE TO CLEANOUT: 6.3±

NOTE: EXISTING STORMWATER MANAGEMENT BASIN WAS CONSTRUCTED AND USED FOR SEDIMENT CONTROL UNDER F-97-110. THIS SDP WILL CONTINUE TO BE USED FOR SEDIMENT CONTROL UNDER THIS SDP. THE DATA SHOWN IN THIS TABLE REFLECTIVE OF F-97-154. DRAINAGE AREA TO BASIN UNDER THIS SDP REMAINS THE SAME.

**EARTH DIKE UNDER F-97-154 TO REMAIN**

REVISED FOREST CONSERVATION AREA 0.32 ACRES

**SILT FENCE UNDER F-97-154 TO BE REMOVED**

**SUPER SILT FENCE UNDER F-97-154 TO REMAIN AND BE REMOVED ONCE SEDIMENT TRAP IS REMOVED AND AREA STABILIZED**

**SEDIMENT TRAP #1 UNDER F-97-154 TO REMAIN**

SEE TRAP DATA AND NOTE THIS SHEET

BY THE DEVELOPER:  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CARE OF SEDIMENT AND EROSION CONTROL MEASURES. THE PROJECT ALSO AUTHORIZES PERIODIC VISITS BY HOWARD SOIL CONSERVATION DISTRICT.

*Michael Shauer* 10/19/98  
 DEVELOPER DATE

BY THE ENGINEER:  
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Donald Mean* 10/19/98  
 ENGINEER DATE

FOR CORRECTION:  
 SEE WRITER AND/OR SEWER CONSTRUCTION PLANS (19-3632-D)

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS:  
*D.R. Kuntz* 10/19/98  
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*William C. ...* 10/20/98  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*...* 10/20/98  
 CHIEF, DIVISION OF LAND DEVELOPMENT

| NO | DATE    | REVISION            |
|----|---------|---------------------|
| 1  | 1-22-02 | REVISE TOTAL SHEETS |

**BENCHMARK ENGINEERING, INC.**

ENGINEERS • LAND SURVEYORS • PLANNERS

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

*Donald Mean*

|   |  |
|---|--|
| OWNER/DEVELOPER:<br>JNSD L.C., INC.<br>P.O. BOX 417<br>ELLICOTT CITY, MD 21041<br>PHONE: 410-465-4244   | PROJECT:<br><b>WILLIAMS KNOLL</b><br>SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41, 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83 |
| BUILDER:<br>RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CRONRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501 | LOCATION:<br>BLOCK 8 TAX MAP 38<br>PARCELS 228, 230 & 231<br>14 <sup>TH</sup> ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND   |
| TITLE:<br><b>SEDIMENT AND EROSION CONTROL PLAN</b>  | DATE:<br>JUNE, 1998<br>OCTOBER 1, 1998   |
| DES: GWF/MLV DRN: MCR   | PROJECT NO. 1097<br>SCALE: AS SHOWN DRAWING 7 OF 11  |

SEDIMENT CONTROL NOTES

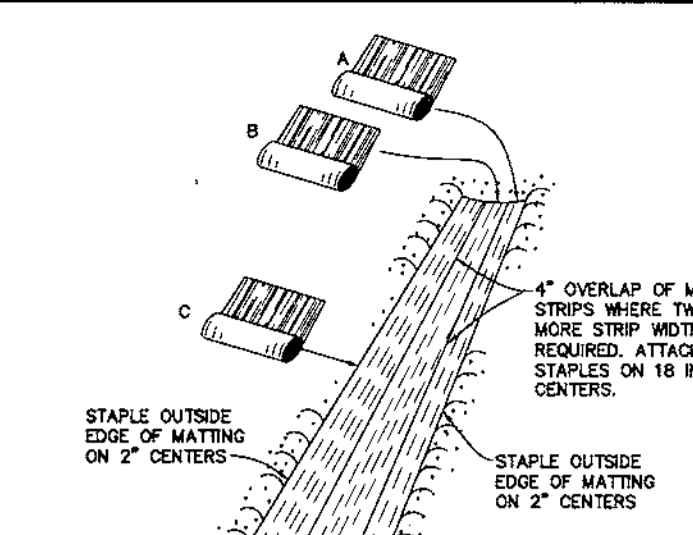
- 1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION... 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT 'MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL', REVISIONS THERETO...

TOPSOIL SPECIFICATIONS

- I. Topsoil salvaged from the existing site may be used provided that it meets the standards set forth in these specifications... II. Topsoil specifications - Soil to be used as topsoil must meet the following: 1. Topsoil shall be a loam, sandy loam, loam, silt loam, sandy clay loam, loamy sand, or other soils...

TEMPORARY SEEDBED PREPARATIONS

- 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... SEED AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT)...

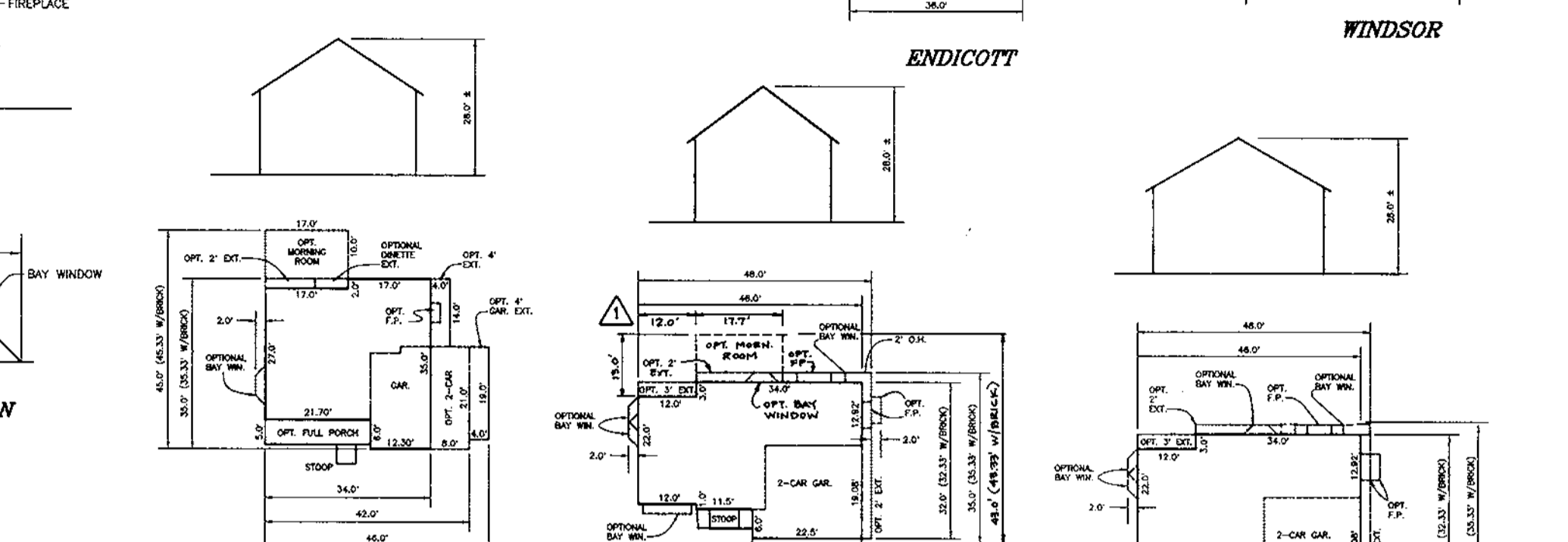
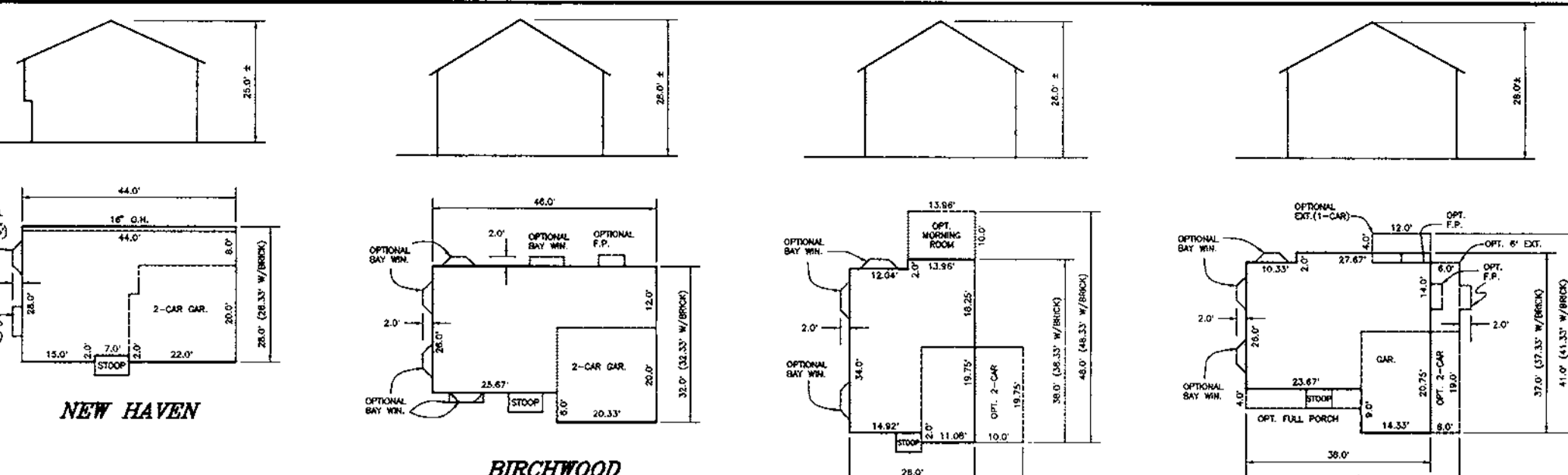


SEQUENCE OF CONSTRUCTION

- DAY 1 - OBTAIN GRADING PERMIT. DAY 2-8 - INSTALL SEDIMENT CONTROLS THAT ARE NOTED TO BE INSTALLED UNDER THIS SUP. THE EXISTING CONTROLS THAT ARE INSTALLED UNDER F-7-110 AND F-97-154 THAT ARE TO REMAIN SHALL BE INSPECTED AND/OR MODIFIED AS SHOWN ON PLAN... DAY 9-12 - EXCAVATE FOR FOUNDATION, ROUGH GRADE AND STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES...

SOIL STABILIZATION MATTING

NOT TO SCALE



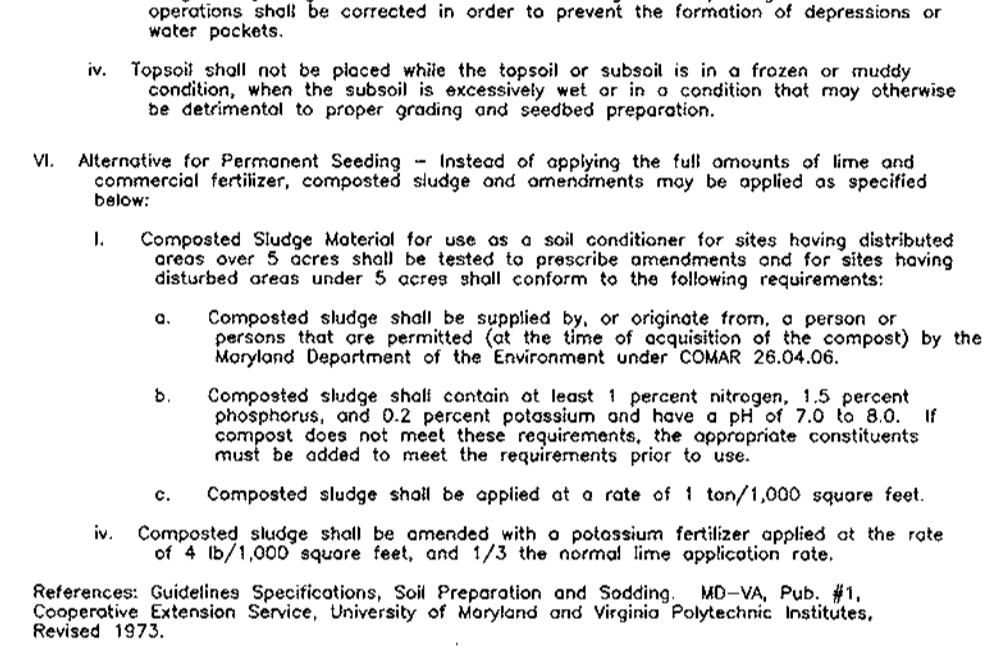
HOUSE TYPICALS SCALE: 1" = 30'

A HOUSE-TYPE REVISION (RESITE) WILL BE REQUIRED WHEN ONE OR MORE OF THE FOLLOWING OCCURS: 1. ADDING AND/OR DELETING A HOUSE TYPE. 2. REVERSING THE DRIVEWAY FROM A FRONT-LOAD TO A SIDE-LOAD GARAGE...

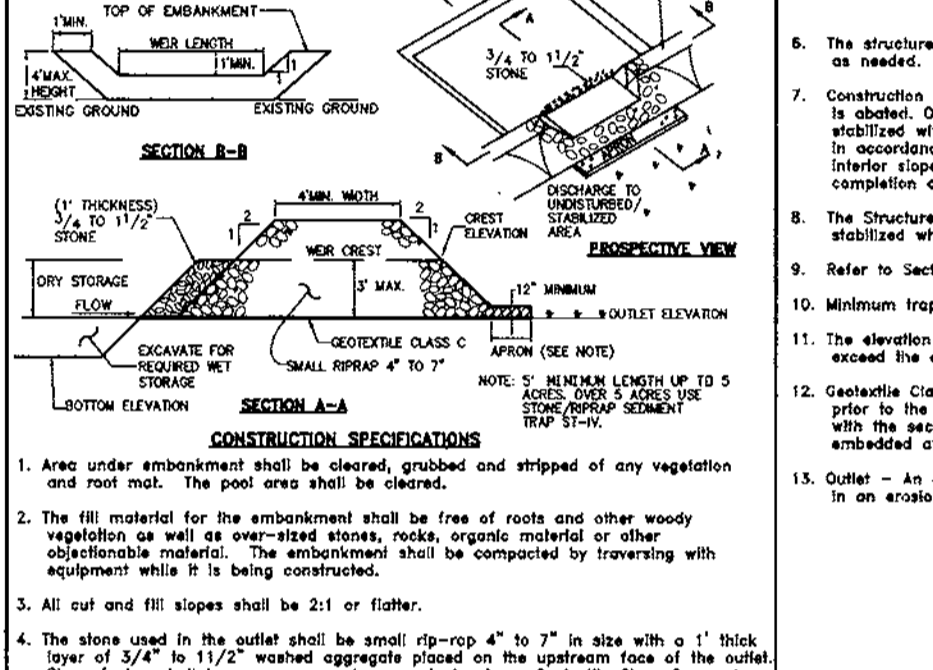
PERMANENT SEEDBED PREPARATIONS

- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING... 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... 2. ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (25 LBS/1000 SQ FT) BEFORE SEEDING...

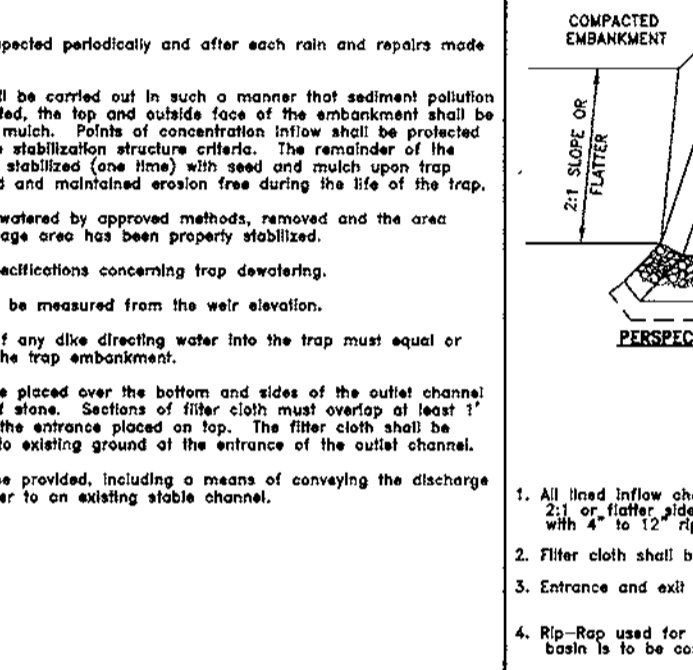
STONE OUTLET SEDIMENT TRAP - ST II



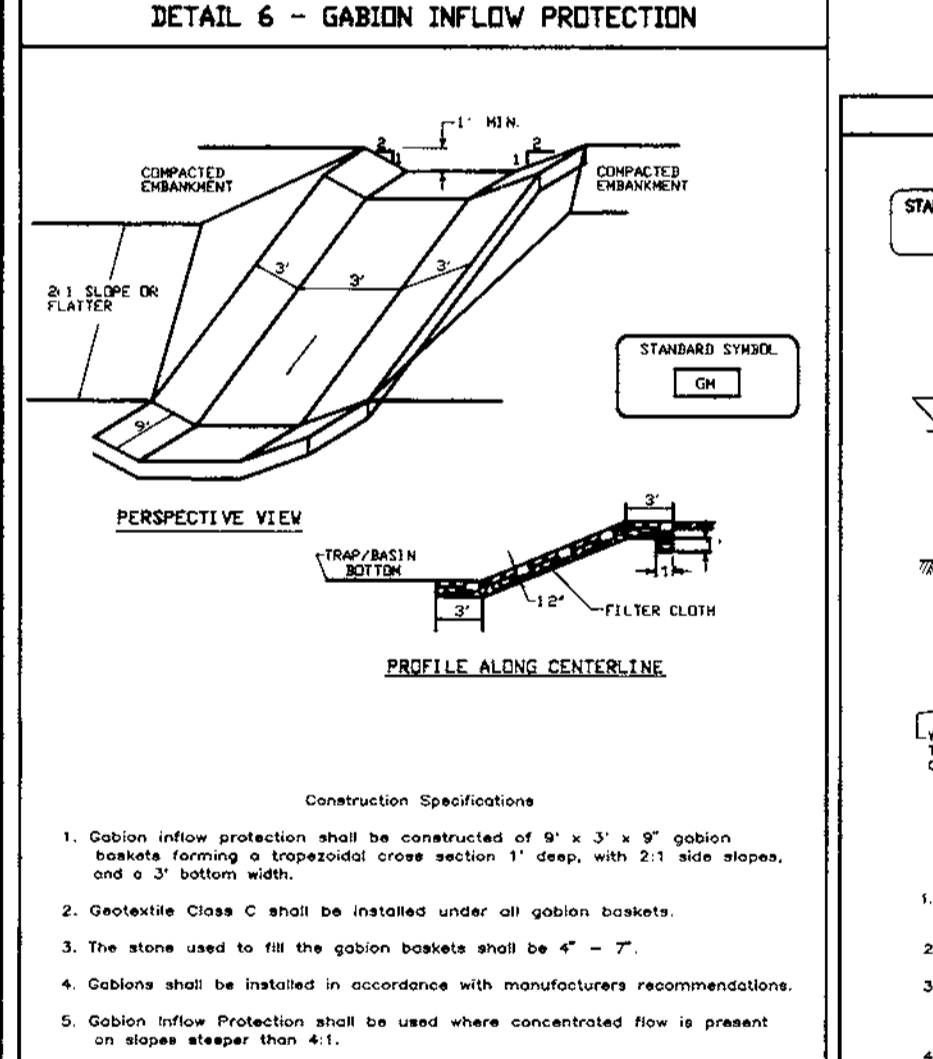
STONE OUTLET SEDIMENT TRAP - ST II



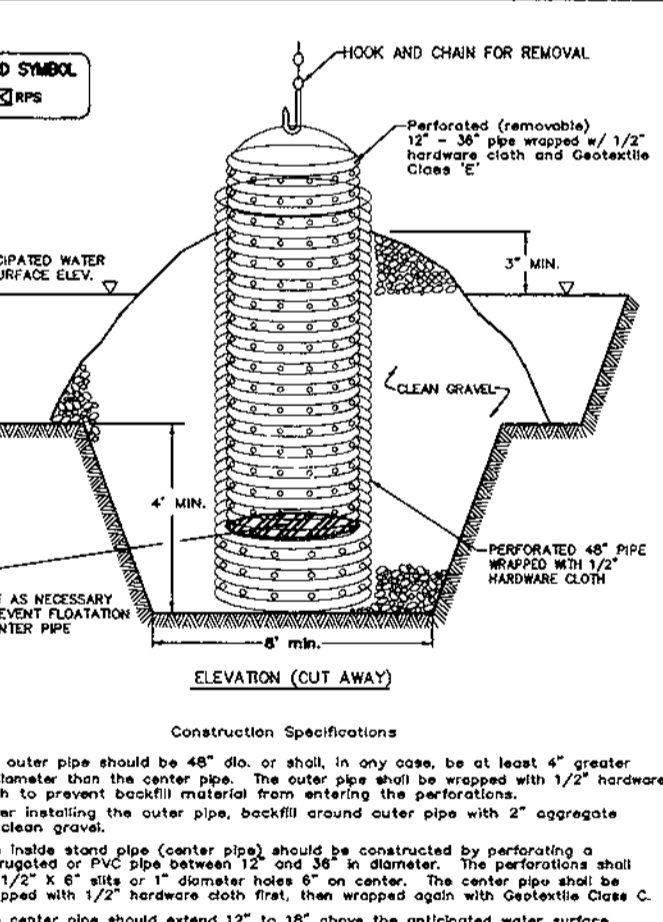
RIP-RAP INFLOW PROTECTION



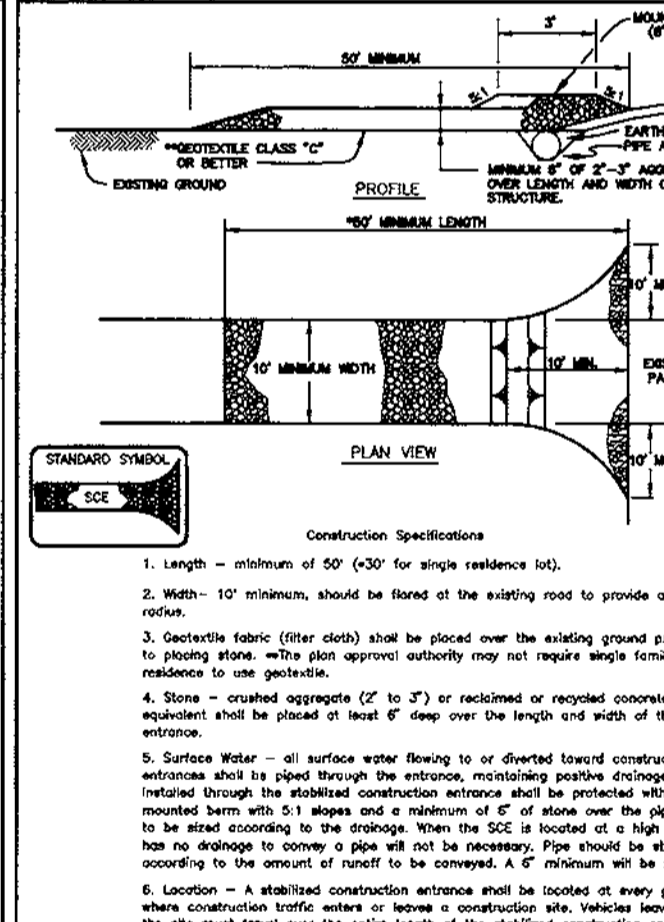
GABION INFLOW PROTECTION



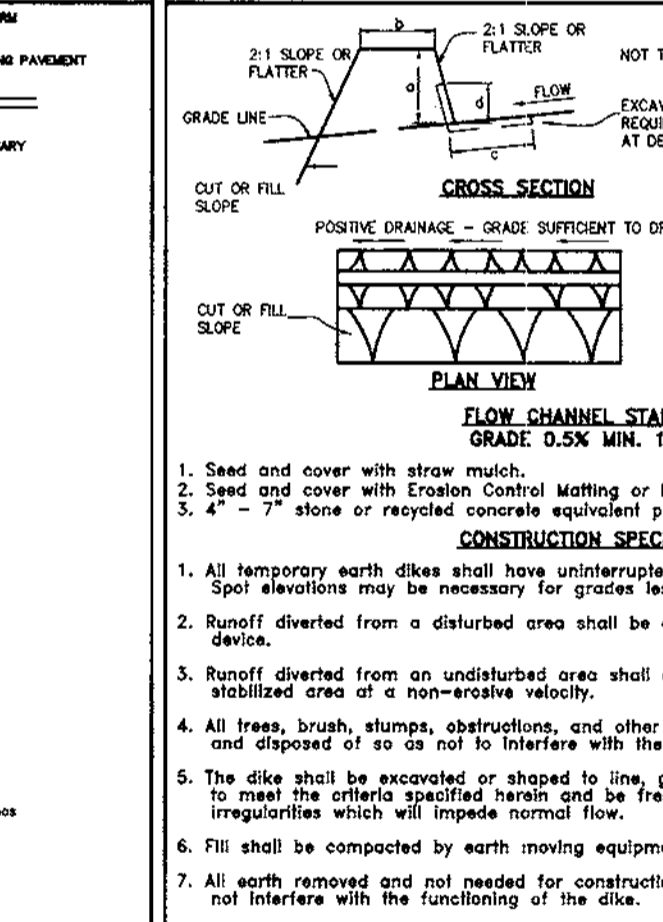
REMOVABLE PUMPING STATION



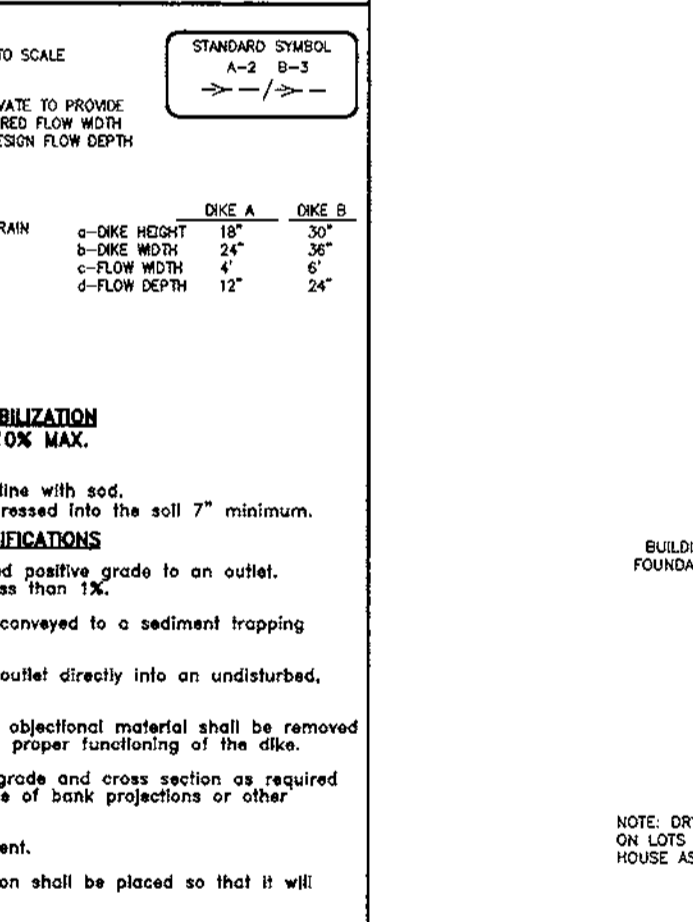
STABILIZED CONSTRUCTION ENTRANCE



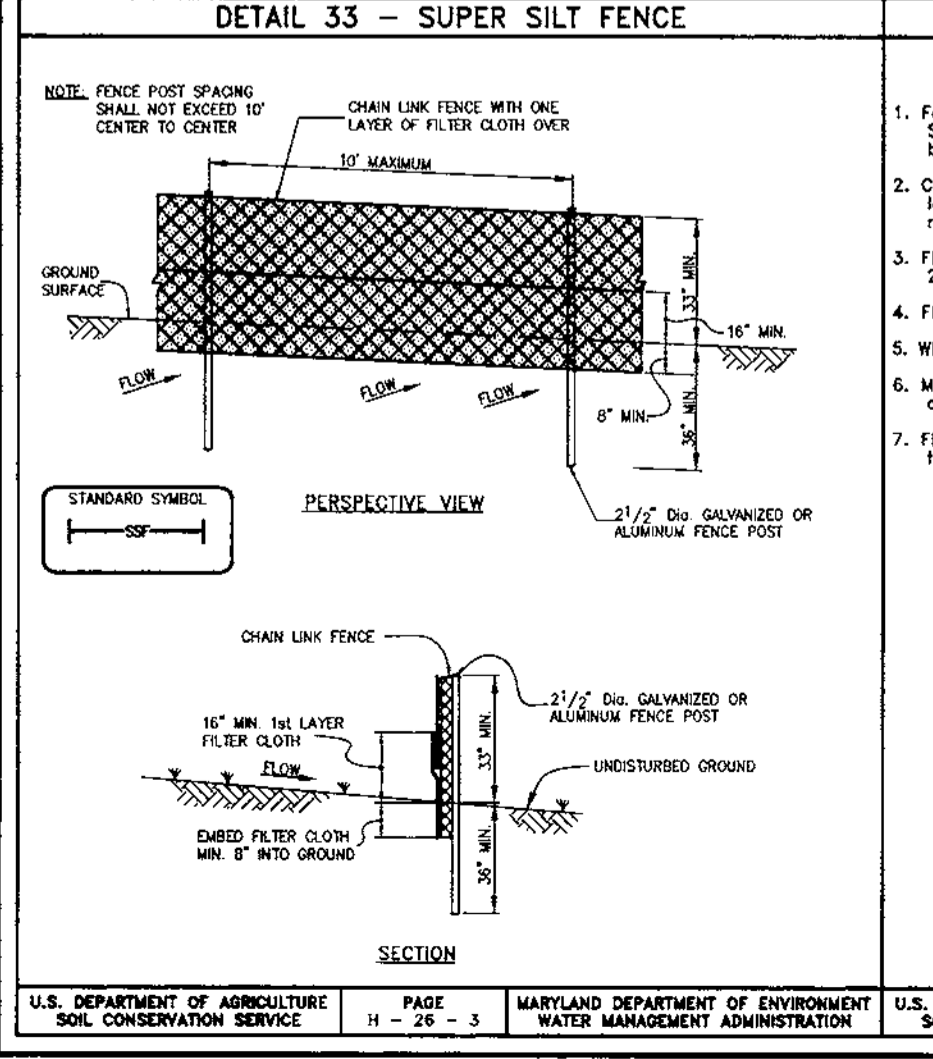
EARTH DIKE



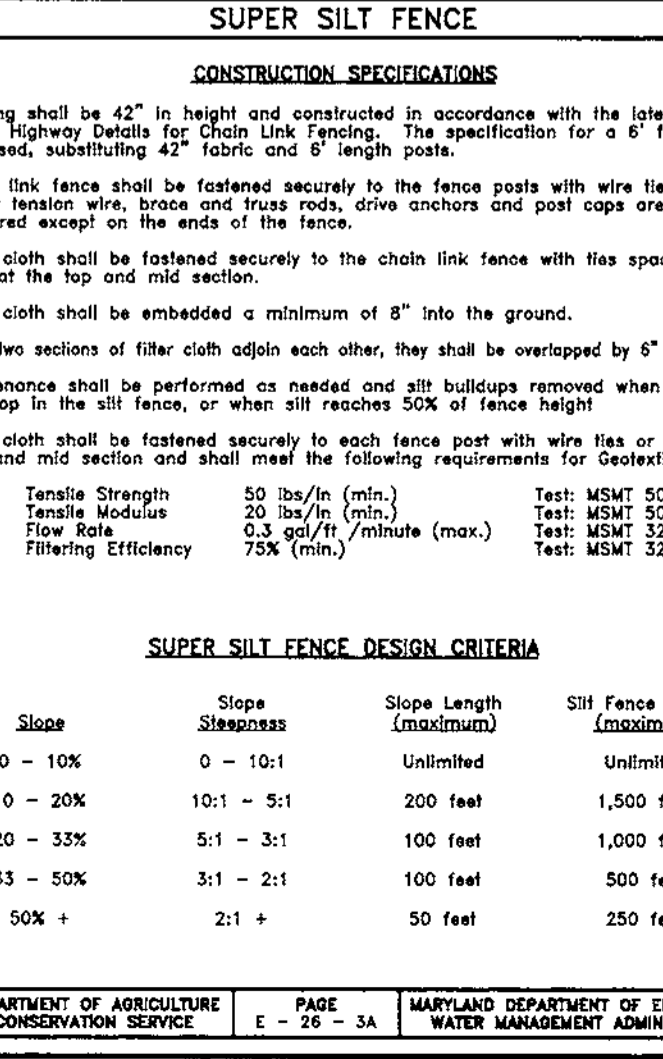
DRY WELL



SUPER SILT FENCE



SILT FENCE



SILT FENCE DESIGN CRITERIA

Table with columns for Slope Steepness, Filter, Flow Rate, and Silt Fence Length. It provides design criteria for different slope conditions.

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

- 1. Fence posts shall be a minimum 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round steel pipe... 2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F...

CONSTRUCTION SPECIFICATIONS

- 1. Seed and cover with straw mulch. 2. Seed and cover with Erosion Control Matting or line with sod. 3. 4" - 7" temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%...

Professional seal and signature of Michael Sheeran, dated 9/23/98. Includes text: 'BY THE DEVELOPER: I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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...'

Revision table and project information for Williams Knoll. Includes: 'REVISION: 1. 11-10-98 ADD MORNING ROOM OPTION TO STANFORD, ADD OPTION TO D' BOX', 'PROJECT: WILLIAMS KNOLL SEC. 1 LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. 1 LOTS 41 TO 72, 75 TO 77, 81, 82, 84-86, & OPEN SPACE LOT 83', 'OWNER/DEVELOPER: JNSD L.C., INC. P.O. BOX 417 ELLICOTT CITY, MD 21041 PHONE: 410-465-4244', 'BUILDER: RYAN HOMES, INC. OWINGS MILLS COMMERCE CENTER 17460 CRONRIDGE DR., SUITE 128 OWINGS MILLS, MD 21117 PHONE: 410-654-0501', 'DATE: JUNE, 1998', 'PROJECT NO. 1097', 'SCALE: AS SHOWN', 'DRAWING 8 OF 11'.

**SPECIFICATION GUIDELINES  
KEYSTONE CONCRETE MODULAR RETAINING WALL**

**PART 1: GENERAL**

**1.01 DESCRIPTION**

- A. Work includes furnishing and installing modular block retaining wall units to the lines and grades designated on the construction drawings and as specified herein.
- B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and backfill to the lines and grades designated on the construction drawings.
- C. Furnishing and installing all appurtenant materials required for construction of the retaining wall as shown on the construction drawings.

**1.02 RELATED WORK**

- A. Section 02275 - Geogrid Soil Reinforcement.

**1.03 REFERENCE STANDARDS**

- A. ASTM C90 - 85 Hollow Load Bearing Masonry Units
- B. ASTM C140 - 75 Sampling and Testing Concrete Masonry Units
- C. ASTM C145 - 85 Solid Load Bearing Concrete Masonry Units

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Contractor shall check the materials upon delivery to assure that proper material has been received.
- B. Contractor shall prevent excessive mud, wet cement, epoxy, and like materials which may affix themselves, from coming in contact with the materials.
- C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated into the retaining wall structure.

**1.05 SUBMITTALS**

- A. Samples of all products used in the work of this section.
- B. Latest edition of manufacturers specifications for proposed materials, method of installation and list of material proposed for use.

**1.06 QUALITY ASSURANCE**

- A. Soil testing and inspection services for quality control testing during earthwork operations will be supplied by the owner.

**PART 2: PRODUCTS**

**2.01 CONCRETE UNITS**

- A. Masonry units shall be Keystone® Retaining Wall Units as manufactured by:
  - B. Concrete wall units shall have a minimum net 28 day compressive strength of 3000 psi. The concrete shall have a maximum moisture absorption of 8 to 9 parts.
  - C. Exterior dimensions may vary in accordance with ASTM C90 - 85. Standard and Compac units shall have a minimum 1' square foot face area each. Mini units shall have a minimum 1/2 square foot face area each.
  - D. Keystone Standard units shall provide a minimum of 150 psi of wall face area. Fill which is contained within the dimensions of the units may be considered as 80% effective weight.

- E. Units shall have angled sides capable of concave and convex alignment curves with a minimum radius of 35 feet.
  - NOTE: Where applicable, for straight walls use non-angled straight side cap units.
- F. Units shall be interlocked with non-corrosive fiberglass pins.
- G. Units shall be interlocked as to provide a minimum 1/4 inch setback per each course of wall height.
  - NOTE: Where applicable, zero setback or one inch setback per course options can be used.

**2.02 FIBERGLASS CONNECTING PINS**

- A. Connecting pins shall be 1/2 inch diameter thermoset (epithalic polyester) resin/pultruded fiberglass reinforcement rods.
- B. Pins shall have a minimum flexural strength of 128,000 psi and short beam shear of 8400 psi.

**2.03 BASE LEVELING PAD MATERIAL**

- A. Material shall consist of compacted sand, gravel, crushed rock or leveling concrete (non reinforced) as shown on construction drawing. The compacted leveling pad shall be a minimum 8 inches thick. When using a non-reinforced leveling concrete option, 1" to 3" thick, maintain the total leveling pad thickness.

**2.04 UNIT FILL**

- A. Fill for units shall be free draining crushed stone, 3/8" to 3/4" or coarse gravel (no more than 5% shall pass the No. 200 sieve with a maximum size of 3/4"). Gradation of the fill shall be approved by the Engineer.
- B. Place recommended fill behind the retaining wall units.

**2.05 BACKFILL**

- A. Material shall be inert soils when approved by the engineer unless otherwise specified in the drawings. Unsuitable soils for backfill (heavy clays or organic soils) shall not be used in the backfill or in the reinforced soil mass.
- B. Where additional fill is required contractor shall submit sample and specifications to the engineer to determine if acceptable.

**PART 3: EXECUTION**

**3.01 EXCAVATION**

- A. Contractor shall excavate to the lines and grades shown on the construction drawings. Over excavation shall not be paid for and replacement with compacted fill and/or wall system components will be required at contractor expense. Contractor shall be careful not to disturb embankment materials beyond lines shown.

**3.02 FOUNDATION SOIL PREPARATION**

- A. Foundation soil shall be excavated as required for footing dimensions shown on the construction drawings, or as directed by the Engineer.

- B. Foundation soil shall be examined by the Engineer to assure that the actual found at soil strength meets or exceeds assumed design strength. Soils not meeting required strength shall be removed and replaced with acceptable material.
- C. Over-excavated areas shall be filled with approved compacted backfill material.

**3.03 BASE LEVELING PAD**

- A. Leveling pad materials shall be placed as shown on the construction drawings, "non undisturbed" in situ soils, to a minimum thickness of 6 inches.
- B. Material shall be compacted so as to provide a level hard surface on which to place the first course of units. Compaction shall be to 95% of standard proctor for sand or gravel type materials. For crushed rock, material shall be densely compacted.

**3.04 UNIT INSTALLATION**

- A. First course of concrete wall units shall be placed on the base leveling pad. The units shall be checked for level and alignment. The first course is the most important to insure accurate and acceptable results.
- B. Insure that units are in full contact with base.
- C. Units are placed side by side for full length of wall alignment. Alignment may be done by means of a string line or offset from base line.
- D. Install fiberglass connecting pins and fill all voids at units with unit fill material. Tamp fill.
- E. Sweep all excess material from top of units and install next course. Insure each course is completely unit filled, backfilled and compacted prior to proceeding to next course.
- F. Lay up each course insuring that pins protrude into adjoining courses above a minimum of one inch. Two pins are required per unit. Pull each unit forward, away from the embankment, against pins in the previous course and backfill as the course is completed. Repeat procedure to the extent of wall height.
- G. As appropriate where the wall changes elevation, units can be slopped with grade or turned into the embankment with a convex return and provide appropriate buried units on compacted leveling pad in area of convex return end.

**3.05 CAP INSTALLATION**

- A. Place Keystone Cap units over projecting pins from units below. Pull forward to set back position. Back fill and compact to finished grade.
- B. As required, provide permanent mechanical connection to wall units with construction adhesive or epoxy. Apply adhesive or epoxy to bottom surface of cap units and install on units below.

**3.06 GEOGRID INSTALLATION**

- A. Follow the requirements of Section 02275, GEOGRID SOIL REINFORCEMENT.

**GEOGRID SOIL REINFORCEMENT**

**PART 1: GENERAL**

**1.01 DESCRIPTION**

- A. Work includes furnishing and installing geogrid reinforcement, wall fill, and backfill to the lines and grades designated on the construction drawings.
- B. Work includes furnishing and installing all appurtenant materials required for construction of the geogrid reinforced soil retaining wall as shown on the construction drawings.

**1.02 RELATED WORK**

- A. Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.

**1.03 REFERENCE STANDARDS**

- A. See specific geogrid manufacturers reference standards.

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Contractor shall check the geogrid upon delivery to assure that the proper material has been received.
- B. Geogrid shall be stored above -- 20°F.
- C. Contractor shall prevent excessive mud, wet cement, epoxy and like materials which may affix themselves to the geogrid, from coming in contact with the geogrid material.
- D. Rolled geogrid material may be laid flat or stood on end for storage.

**1.05 SUBMITTALS**

- A. Samples of all products used in the work of this section.
- B. Latest edition of manufacturers specifications for proposed materials, method of installation and list of material proposed for use.

**1.06 QUALITY ASSURANCE**

- A. Soil testing and inspection services for quality control testing during earthwork operation will be supplied by the owner.

**PART 2: PRODUCTS**

**2.01 DEFINITIONS**

- A. Geogrid products shall be high density polyethylene expanded sheet or polyester woven fiber materials, specifically fabricated for use as soil reinforcement.
- B. Concrete retaining wall units are as detailed on the drawings and are specified under Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.
- C. Wall fill is a free draining granular material used within the concrete units.
- D. Backfill is the soil which is used as fill for the reinforced soil mass.
- E. Foundation soil is the in situ soil.

**2.02 GEOGRID**

- A. Geogrid shall be the type as shown on the drawings having the property requirements as described within the manufacturers specifications.

**2.03 ACCEPTABLE MANUFACTURERS**

- A. A manufacturer's product shall be approved by the Engineer prior to bid opening.

**PART 3: EXECUTION**

**3.01 FOUNDATION SOIL PREPARATION**

- A. Foundation soil shall be excavated to the lines and grades as shown on the construction drawings or as directed by the Engineer.
- B. Foundation soil shall be examined by the Engineer to assure that the actual foundation soil strength meets or exceeds assumed design strength.
- C. Over-excavated areas shall be filled with approved compacted backfill material.
- D. Foundation soil shall be proof rolled prior to fill and geogrid placement.

**3.02 WALL ERECTION**

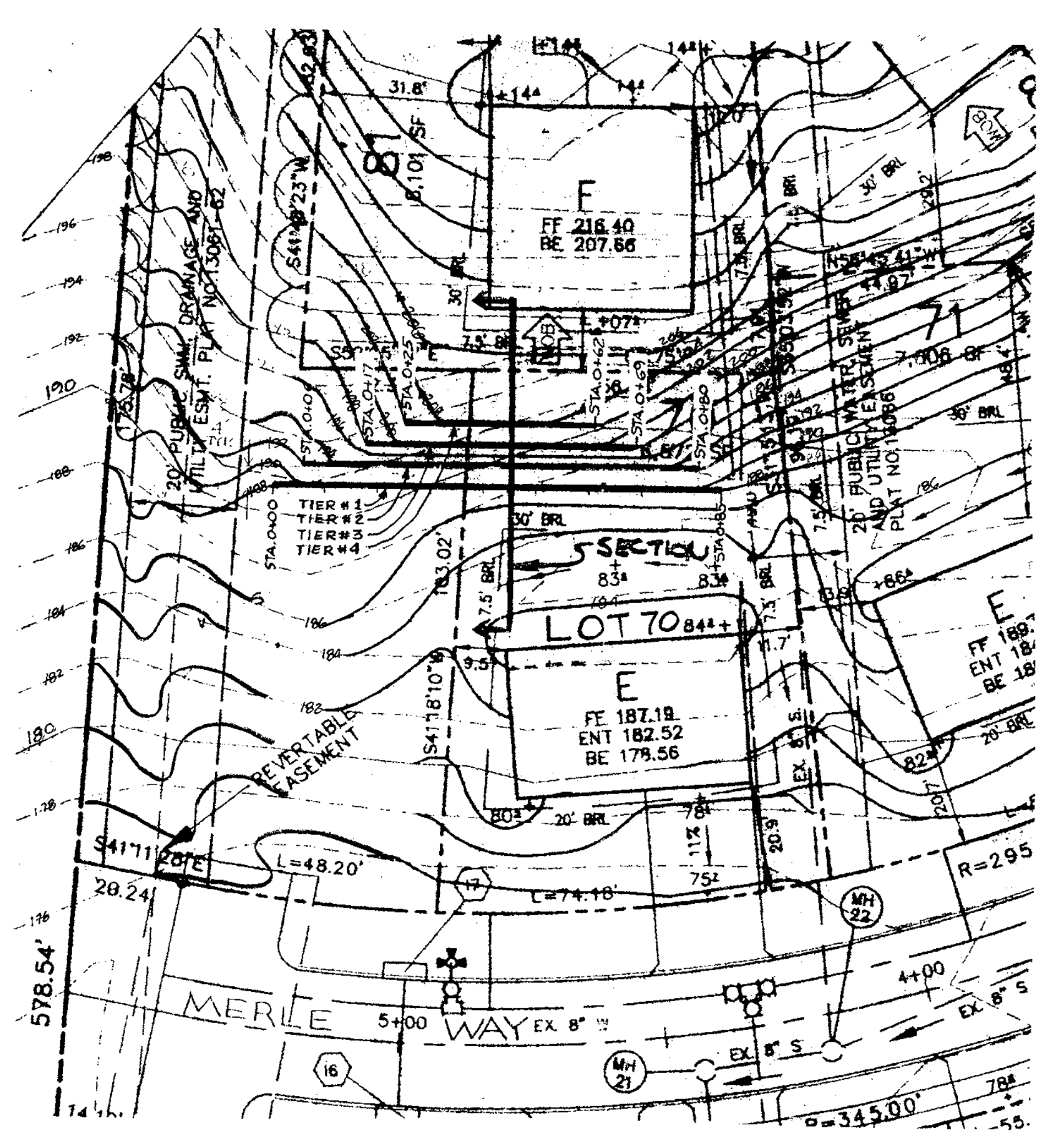
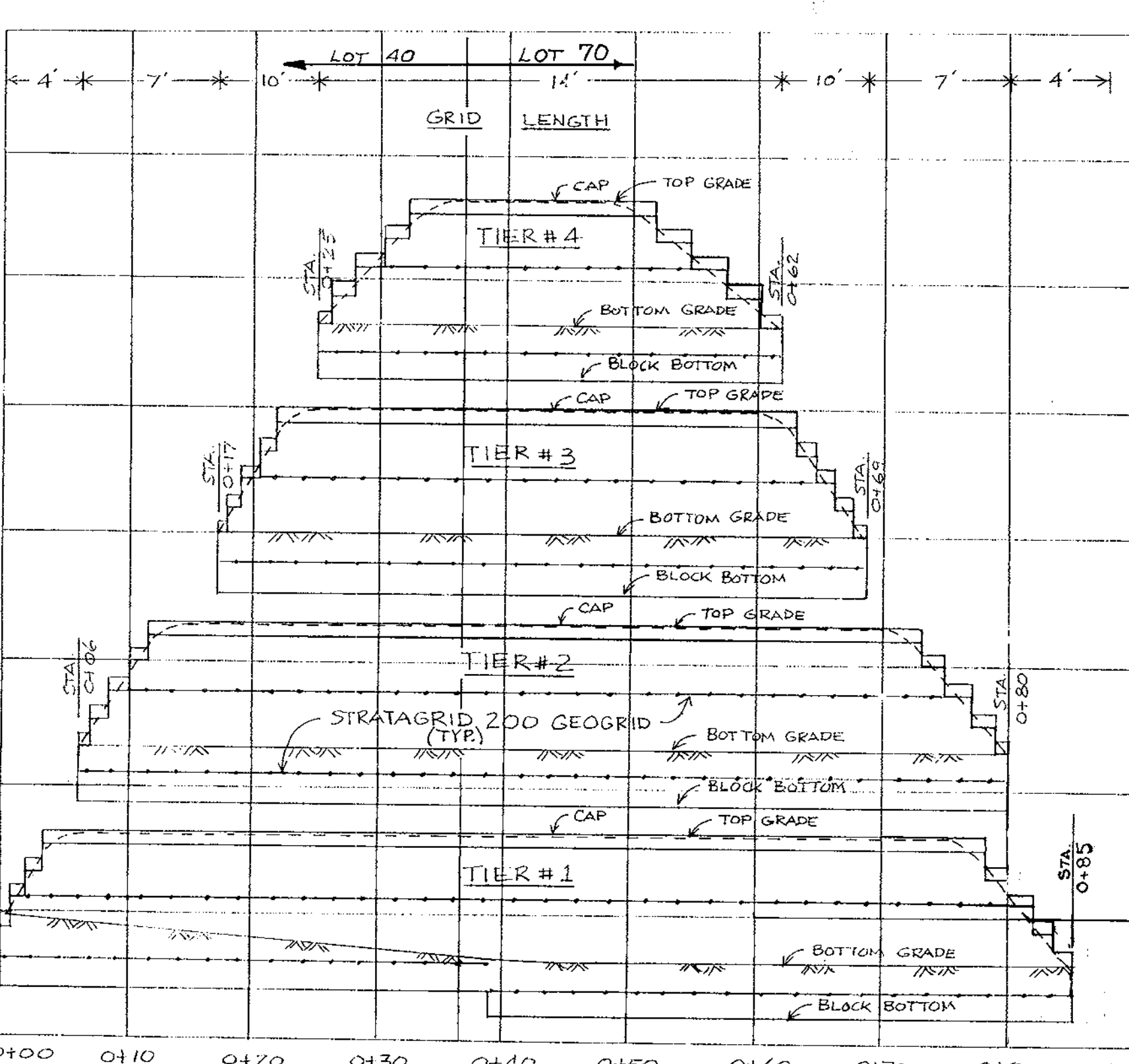
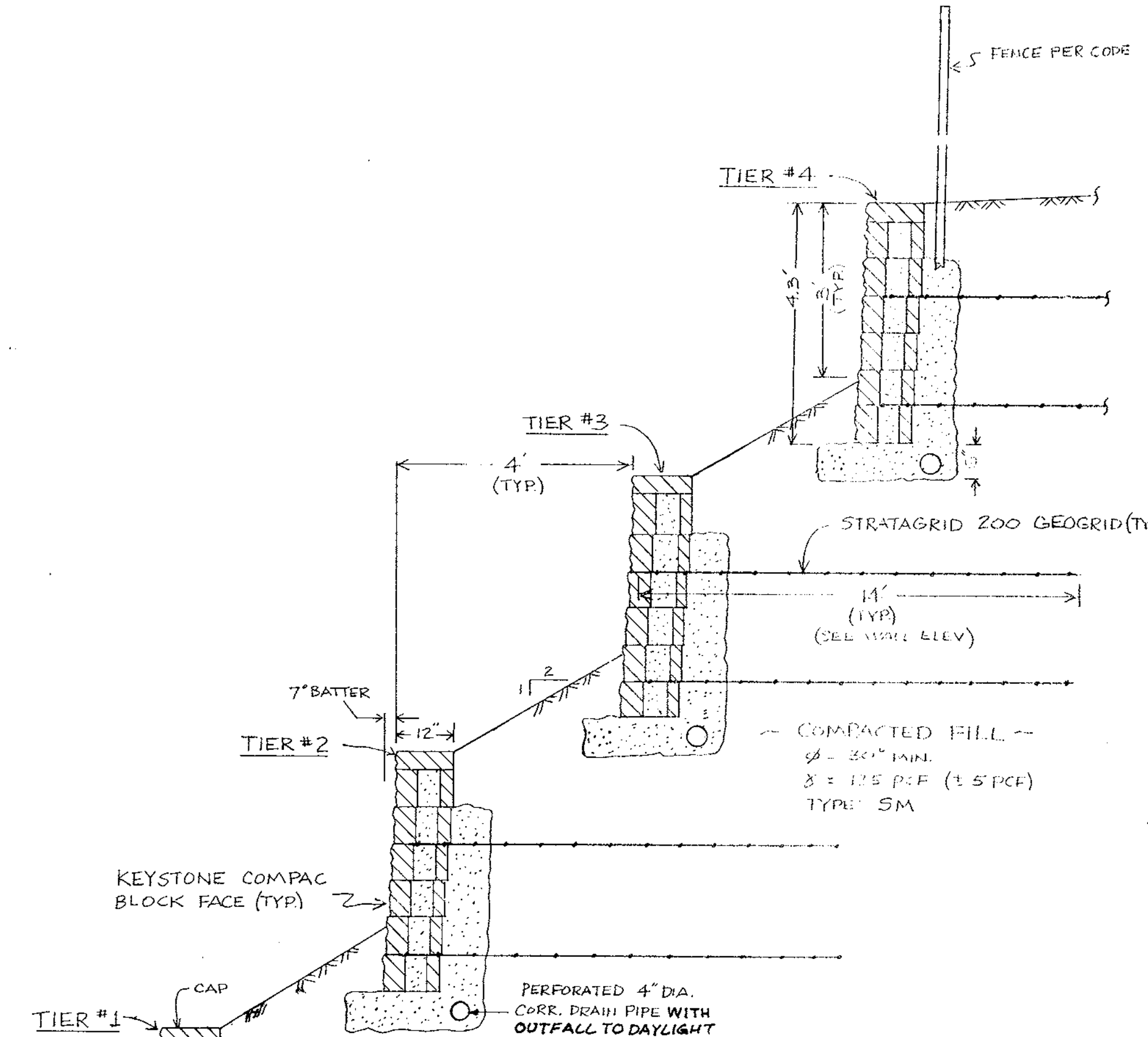
- A. Wall erection shall be as specified under Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.

**3.03 GEOGRID INSTALLATION**

- A. The geogrid soil reinforcement shall be laid horizontally on compacted backfill. Connect to the concrete wall units by hooking geogrid over fiberglass pins. Pull taut, and anchor before backfill is placed on the geogrid.
- B. Stack in the geogrid at the wall unit connections shall be removed.
- C. Geogrid shall be laid at the proper elevation and orientation as shown on the construction drawings or as directed by the Engineer.
- D. Correct orientation (roll direction) of the geogrid shall be verified by the contractor.
- E. To pretension geogrid, pull pinned geogrid taut to eliminate loose folds. Stake or secure back edge of geogrid prior to and during backfill and compaction.
- F. Follow manufacturers guidelines relative to overlap requirements of uniaxial and biaxial geogrids.

**3.04 FILL PLACEMENT**

- A. Backfill material shall be placed in 8 inch lifts and compacted to 85% of Standard Proctor.
- B. Backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slump or loss of pretension of the geogrid.
- C. Only hand-operated compaction equipment shall be allowed within 3 feet of the surface of the Keystone units.
- D. Backfill shall be placed from the wall rearward into the embankment to insure that the geogrid remains taut.
- E. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
- F. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.



WALL LOCATION PLAN  
1" = 20'

WALL SECTION  
N.T.S.

WALL STATION  
1" = 10'  
WALL ELEVATION

NOTE: RETAINING WALL CONSTRUCTION SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND REGISTERED PROFESSIONAL ENGINEER. THE FOUNDATION SOIL SHALL BE TESTED AND CERTIFIED BY A MARYLAND REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER TO ASSURE THAT THE ACTUAL FOUNDATION STRENGTH MEETS OR EXCEEDS THE ASSUMED DESIGN STRENGTH PRIOR TO FOOTING PLACEMENT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*Howard County Department of Planning & Zoning*  
10/23/98  
DATE

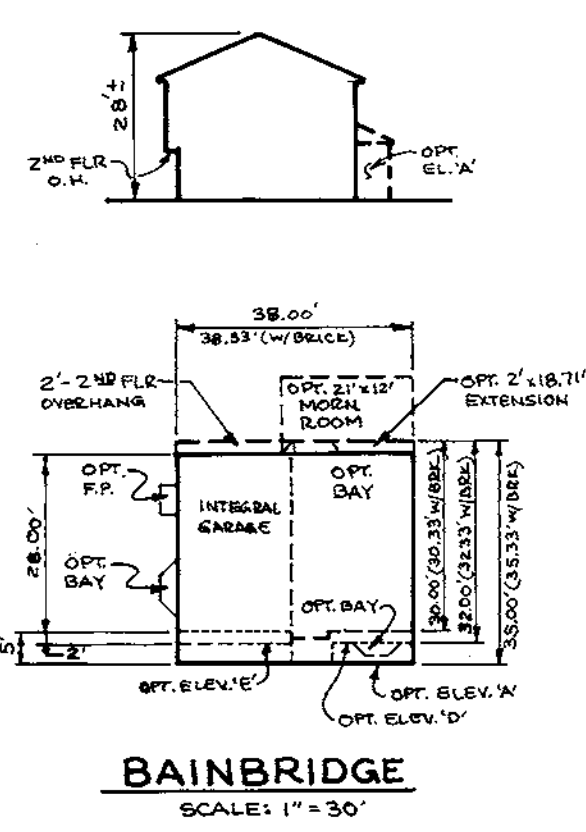
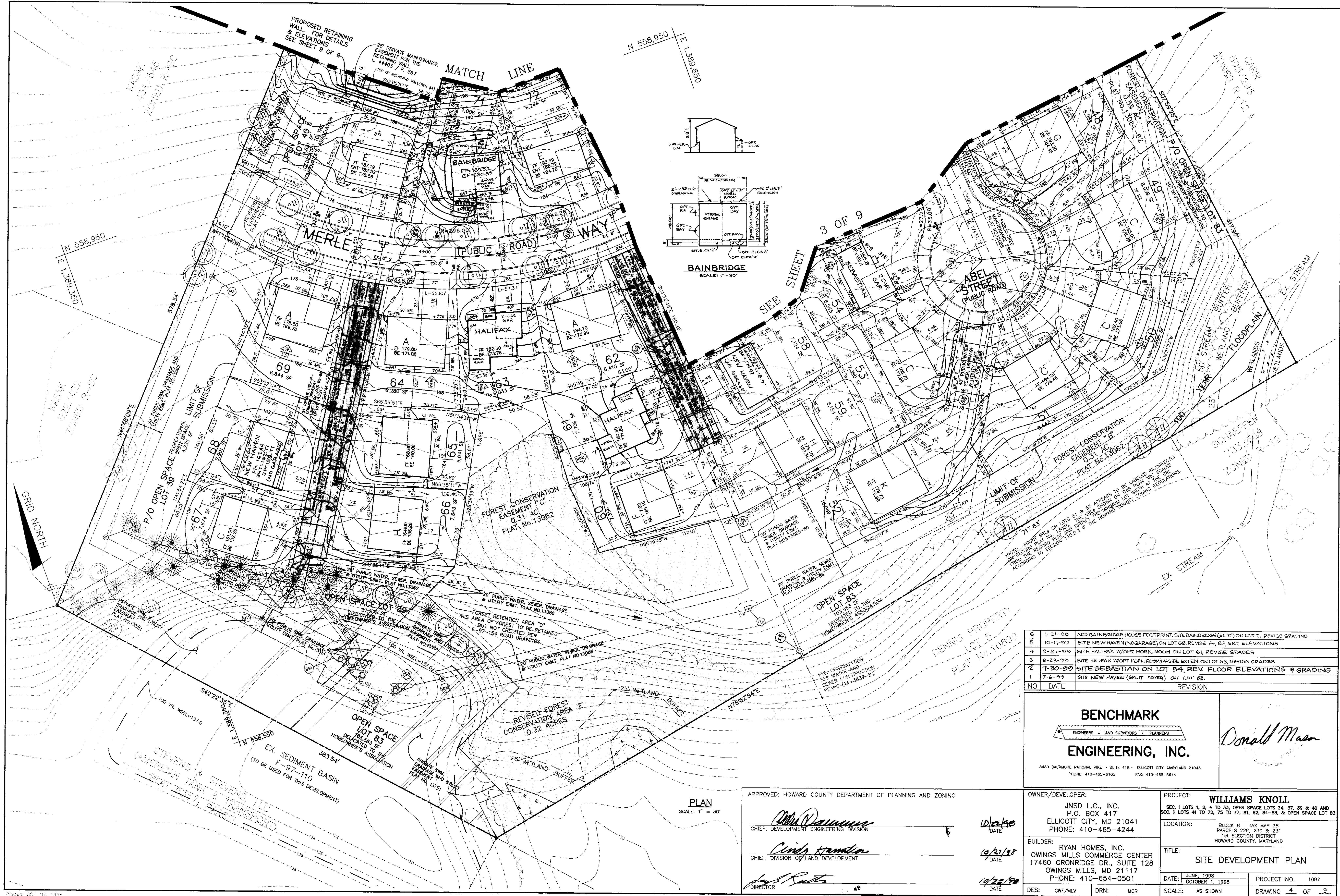
*Howard County Department of Land Development*  
10/21/98  
DATE

*Howard County Department of Planning & Zoning*  
10/20/98  
DATE



|          |         |                     |   |  |   |  |                  |                                      |                             |  |
|----------|---------|---------------------|---|--|---|--|------------------|--------------------------------------|-----------------------------|--|
| Drafting | DATE    | REVISIONS           | <b>HILLIS-CARNES ENGINEERING ASSOCIATES, INC.</b><br>12011 GULFORD ROAD, SUITE 106, ANNAPOLIS JUNCTION, MARYLAND 20701 (410) 860-4788 WASH. AREA (301) 470-4239 | OWNER/DEVELOPER:<br>JNSD L.C., INC.<br>P.O. BOX 417<br>ELLCOTT CITY, MD. 21041 | CIVIL ENGINEER:<br>BENCHMARK ENGINEERING, INC.<br>8480 BALTIMORE NATIONAL PIKE - SUITE 418<br>ELLCOTT CITY, MD. 21043 | <b>RETAINING WALL DETAIL - LOT 70</b><br>WILLIAMS KNOLL, SECTIONS I & II, LOTS 1, 2, 4 THRU 33, O.S. LOTS 34, 37, 39 & 40<br>41-72, 75-77, 81, 82, 84-88 + O.S. LOT 83, T.M. 30, 81, 82, PARCELS 229, 230 & 231 1st EL. DIST. HO. CO., MD. | SHEET<br>9 of 11 | DATE<br>10/1/98<br>SCALE<br>AS SHOWN | JOB NUMBER<br>96244<br>1097 |  |
| Check    |         |                     |   |  |   |  |                  |                                      |                             |  |
| Design   |         |                     |   |  |   |  |                  |                                      |                             |  |
| Check    | 1-22-00 | REVISE TOTAL SHEETS |   |  |   |  |                  |                                      |                             |  |





NOTE: FRONT BRK'S ON LOTS 51 & 52 APPEARS TO BE LABELED INCORRECTLY ON RECORD PLAT NO. 13062. THE BELLS SHOWN ON THIS PLAN WERE SCALED FROM THE RECORD PLAT AND SAVED THE MINIMUM ZONING REGULATIONS ACCORDING TO SECTION 110.0.3 IF THE HOWARD COUNTY ZONING REGULATIONS.

| NO | DATE     | REVISION   |
|----|----------|--|
| 6  | 1-21-00  | ADD BAINBRIDGE HOUSE FOOTPRINT, SITE BAINBRIDGE (E.L.'D) ON LOT 71, REVISE GRADING |
| 5  | 10-11-99 | SITE NEW HAVEN (NO GARAGE) ON LOT 68, REVISE FF, BF, ENT. ELEVATIONS               |
| 4  | 9-27-99  | SITE HALIFAX W/OPT MORN. ROOM ON LOT 61, REVISE GRADES                             |
| 3  | 8-23-99  | SITE HALIFAX W/OPT MORN. ROOM 4-SIDE EXTN ON LOT 63, REVISE GRADES                 |
| 2  | 7-30-99  | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING                          |
| 1  | 7-6-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 98.  |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

**ENGINEERING, INC.**

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chris Dammas*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Kramer*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Paul Rutter*  
DIRECTOR

10/21/98 DATE

10/21/98 DATE

10/22/98 DATE

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

DES: GWF/MLV DRN: MCR

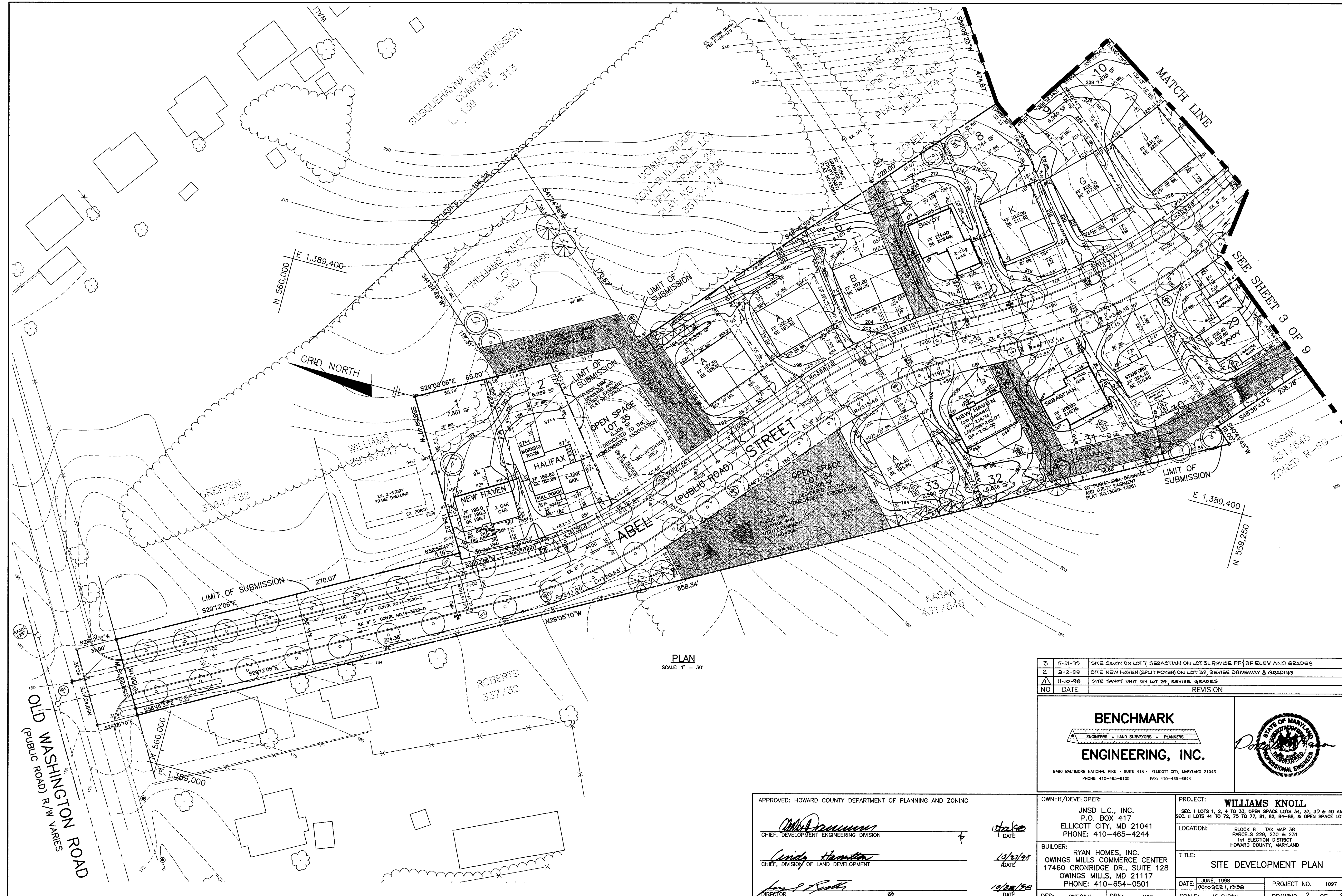
PROJECT:  
**WILLIAMS KNOLL**  
SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 38 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION:  
BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE:  
**SITE DEVELOPMENT PLAN**

DATE: JUNE, 1998 PROJECT NO. 1097  
OCTOBER 1, 1998

SCALE: AS SHOWN DRAWING 4 OF 9




PLAN  
SCALE: 1" = 30'

| NO | DATE     | REVISION  |
|----|----------|---|
| 3  | 5-21-99  | SITE SAVOY ON LOT 7, SEBASTIAN ON LOT 31, REVISE FF & ELEV AND GRADES |
| 2  | 3-2-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 32, REVISE DRIVEWAY & GRADING     |
| 1  | 11-10-98 | SITE SAVOY UNIT ON LOT 29, REVISE GRADES                              |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

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



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard D. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*James P. ...*  
DIRECTOR

10/21/98 DATE

10/21/98 DATE

10/21/98 DATE

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

DES: GWF/MLV DRN: MCR

PROJECT: **WILLIAMS KNOLL**  
SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-86, & OPEN SPACE LOT 83

LOCATION: BLOCK 8 TAX MAP 38 PARCELS 229, 230 & 231 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: **SITE DEVELOPMENT PLAN**

DATE: JUNE, 1998 PROJECT NO. 1097  
OCTOBER 1, 1998

SCALE: AS SHOWN DRAWING 2 OF 9




PLAN  
SCALE: 1" = 30'

| NO | DATE     | REVISION  |
|----|----------|---|
| 5  | 10-15-99 | SITE NEW HAVEN (SPLIT FOYER) ON LOT 5, REVISE GRADES                                  |
| 4  | 8-23-99  | SITE HALIFAX W/MORN ROOM ON LOT 6, REVERSE DRIVE TO LEFT, REVISE FLOOR ELEV & GRADING |
| 3  | 5-21-99  | SITE SAYDY ON LOT 7, SEBASTIAN ON LOT 31, REVISE FF & BF ELEV AND GRADES              |
| 2  | 3-2-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 32, REVISE DRIVEWAY & GRADING                     |
| 1  | 11-10-98 | SITE SAYDY UNIT ON LOT 29, REVISE GRADES  |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

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



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard D. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cinda Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*John P. ...*  
DIRECTOR

10/22/99 DATE

10/23/99 DATE

10/23/99 DATE

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CROWNDRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

DES: GWF/MLV DRN: MCR

PROJECT: **WILLIAMS KNOLL**  
SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 89

LOCATION: BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
14<sup>TH</sup> ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: **SITE DEVELOPMENT PLAN**

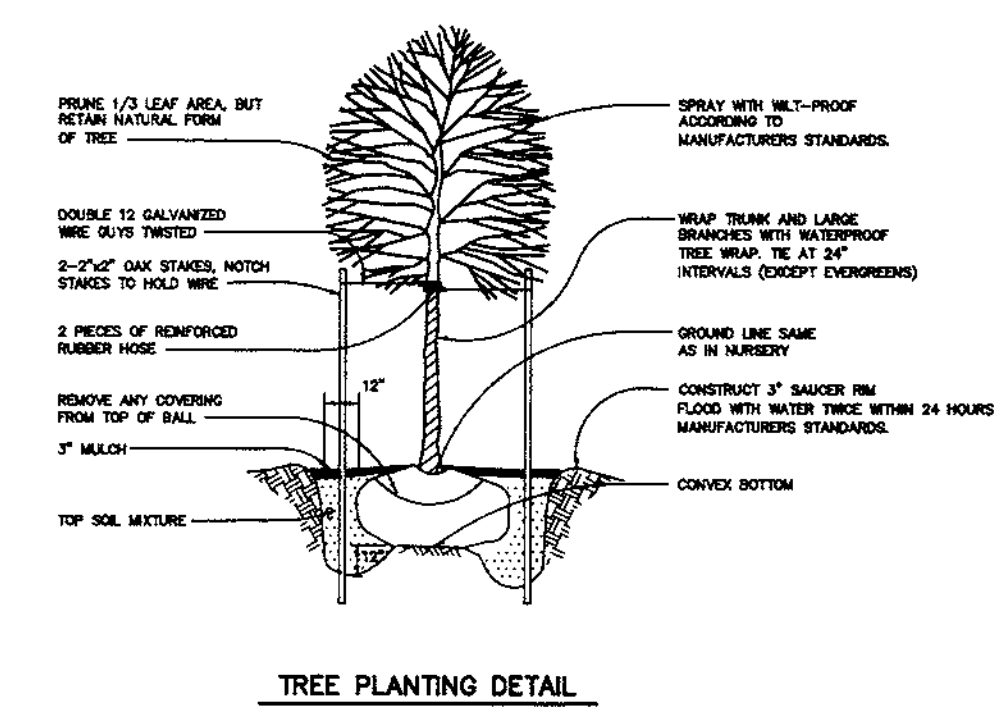
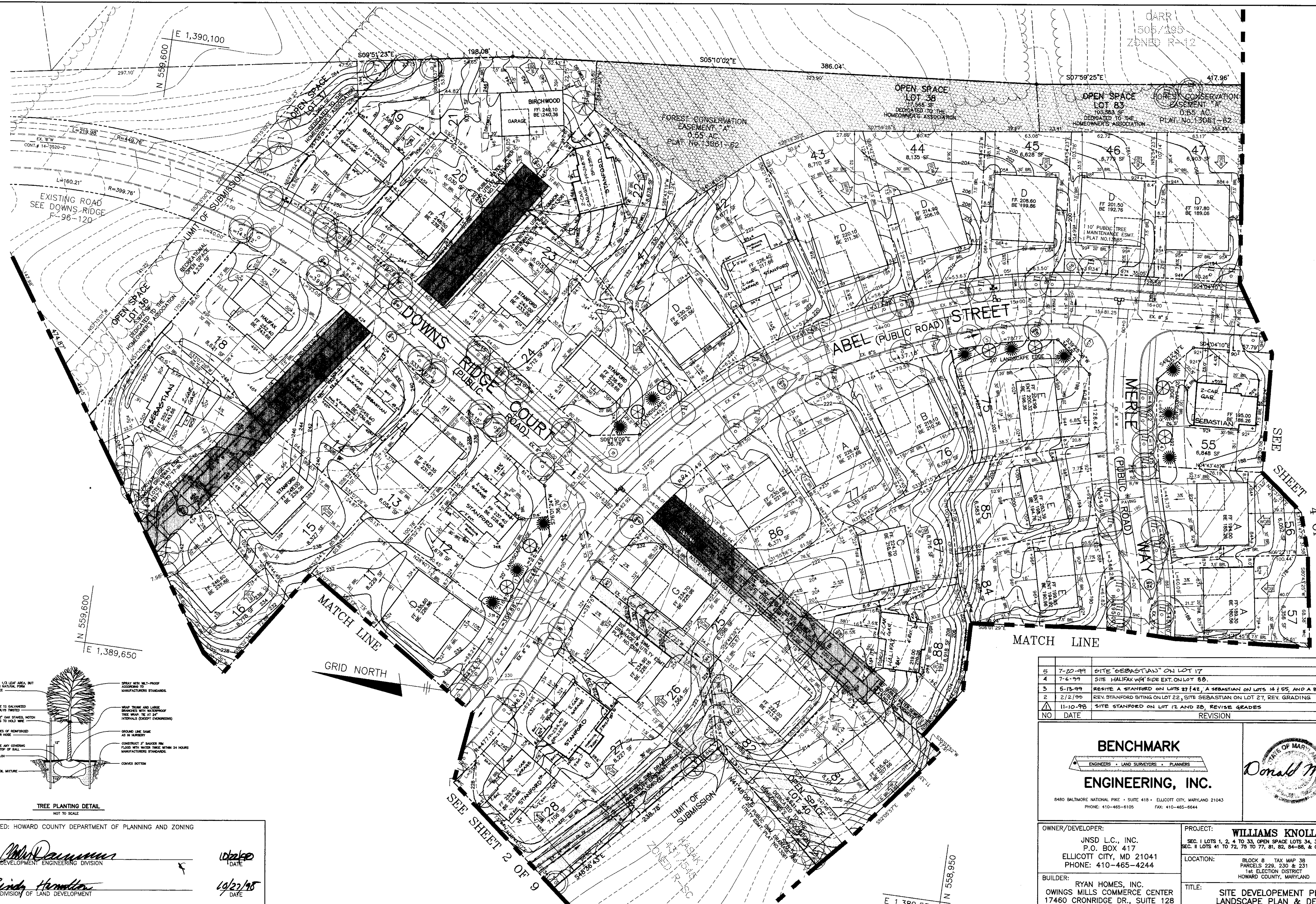
DATE: JUNE, 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

SCALE: AS SHOWN

DRAWING 2 OF 9

DARR  
506/135  
ZONED R-12



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*David Rutz*  
DIRECTOR

10/21/98 DATE

10/27/98 DATE

10/28/98 DATE

|    |          |   |
|----|----------|---|
| 5  | 7-20-99  | SITE "SEBASTIAN" ON LOT 17  |
| 4  | 7-6-99   | SITE HALIFAX W/ SIDE EXT. ON LOT 88.  |
| 3  | 5-13-99  | RESITE A STANFORD ON LOTS 27 & 42, A SEBASTIAN ON LOTS 14 & 55, AND A BIRCHWOOD ON LOT 19 |
| 2  | 2/2/99   | REV STANFORD SITING ON LOT 22, SITE SEBASTIAN ON LOT 27, REV. GRADING                     |
| 1  | 11-10-98 | SITE STANFORD ON LOT 12 AND 20, REVISE GRADES   |
| NO | DATE     | REVISION  |

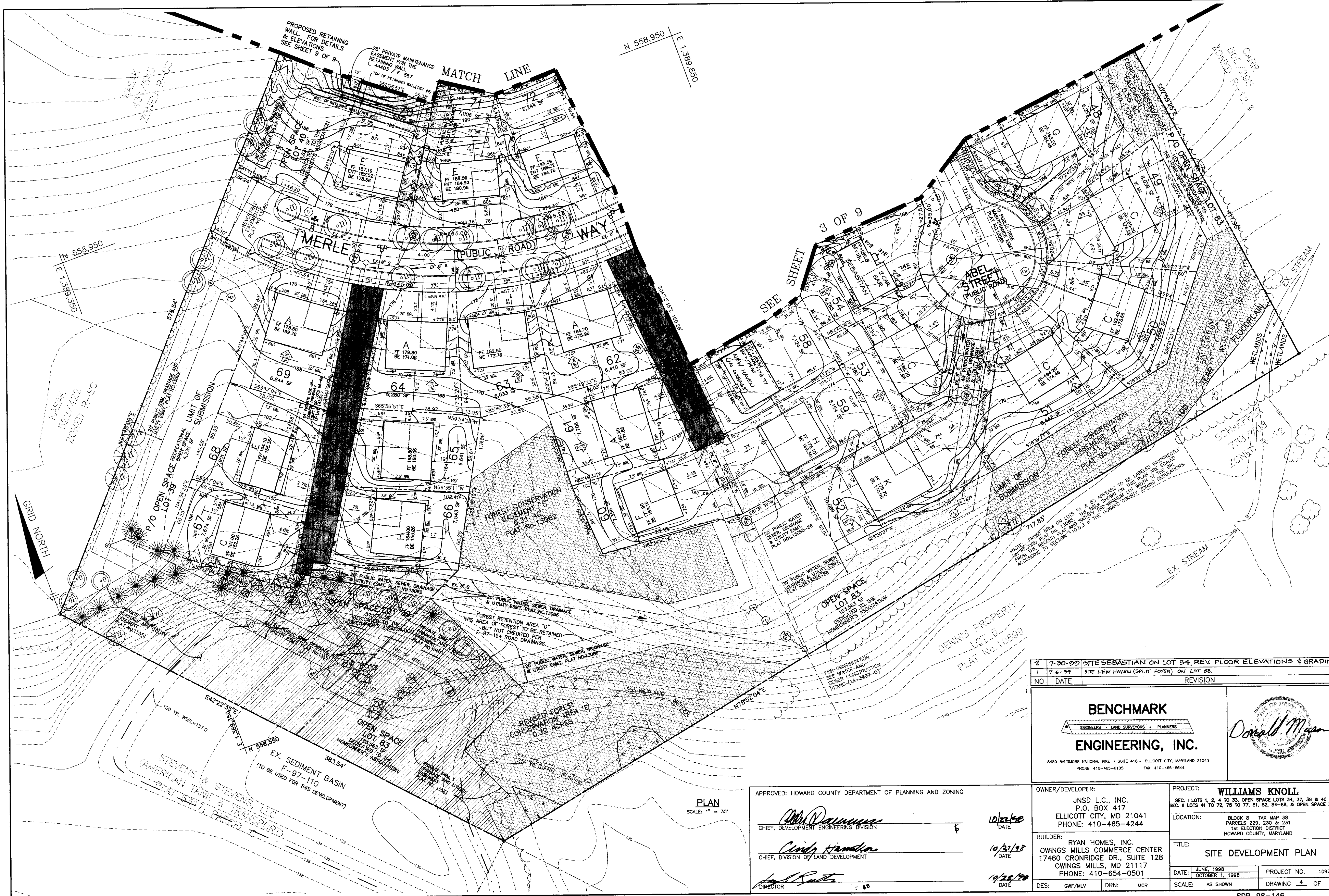
**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-8105 FAX: 410-465-8844

*Donald Mason*  
STATE OF MARYLAND  
REGISTERED PROFESSIONAL LAND SURVEYOR  
NO. 12345

|   |  |
|---|--|
| OWNER/DEVELOPER:<br>JNSD L.C., INC.<br>P.O. BOX 417<br>ELLICOTT CITY, MD 21041<br>PHONE: 410-465-4244   | PROJECT:<br><b>WILLIAMS KNOLL</b><br>SEC. 1 LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. 2 LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83 |
| BUILDER:<br>RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CRONRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501 | LOCATION:<br>BLOCK 8 TAX MAP 38<br>PARCELS 229, 230 & 231<br>1st ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND  |
| DES: GWF/MLV DRN: MCR   | TITLE:<br><b>SITE DEVELOPMENT PLAN,<br/>LANDSCAPE PLAN &amp; DETAIL</b>  |
| DATE: JUNE, 1998<br>OCTOBER 1, 1998   | PROJECT NO. 1097   |
| SCALE: AS SHOWN   | DRAWING 3 OF 9   |



|    |         |   |
|----|---------|---|
| 2  | 7-30-99 | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING |
| 1  | 7-6-99  | SITE NEW HAVEN (SPLIT FOYER) ON LOT 58                    |
| NO | DATE    | REVISION  |

**BENCHMARK ENGINEERING, INC.**

ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

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

|  |   |
|--|---|
| <b>OWNER/DEVELOPER:</b><br>JNSD L.C., INC.<br>P.O. BOX 417<br>ELLICOTT CITY, MD 21041<br>PHONE: 410-465-4244   | <b>PROJECT:</b><br><b>WILLIAMS KNOLL</b><br>SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND<br>SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 93 |
| <b>BUILDER:</b><br>RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CRONRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501 | <b>LOCATION:</b><br>BLOCK 8 TAX MAP 38<br>PARCELS 229, 230 & 231<br>1st ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND  |
| <b>DES:</b> GWF/MLV DRN: MCR   | <b>TITLE:</b><br><b>SITE DEVELOPMENT PLAN</b>   |
| <b>DATE:</b> 10/21/98<br><b>SCALE:</b> AS SHOWN  | <b>DATE:</b> JUNE, 1998 PROJECT NO. 1097<br>OCTOBER 1, 1998<br><b>SCALE:</b> AS SHOWN DRAWING 4 OF 9  |

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard D. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

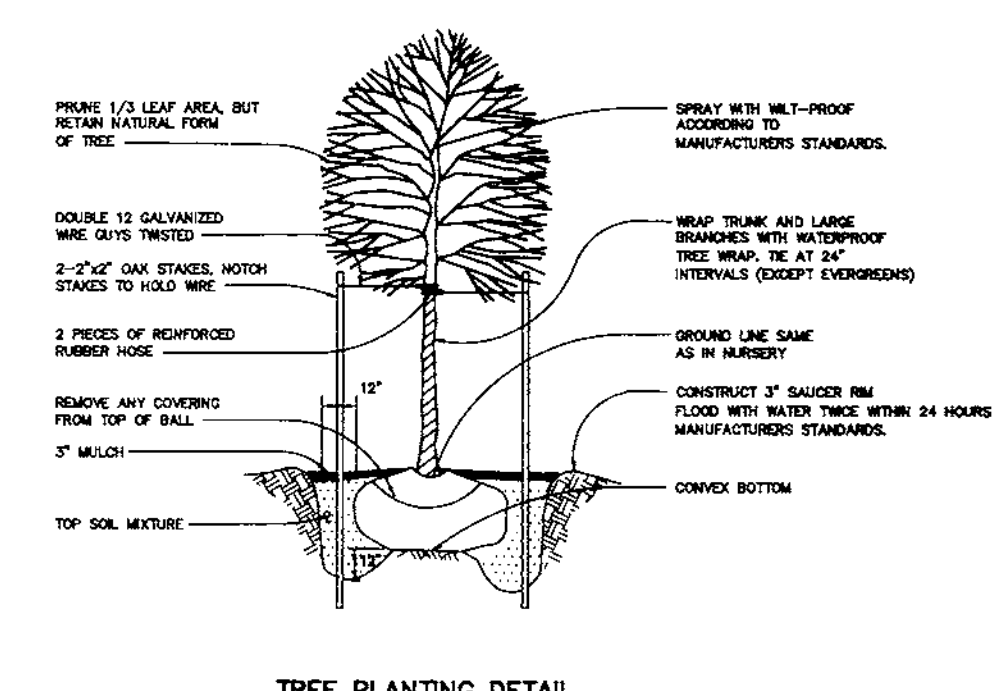
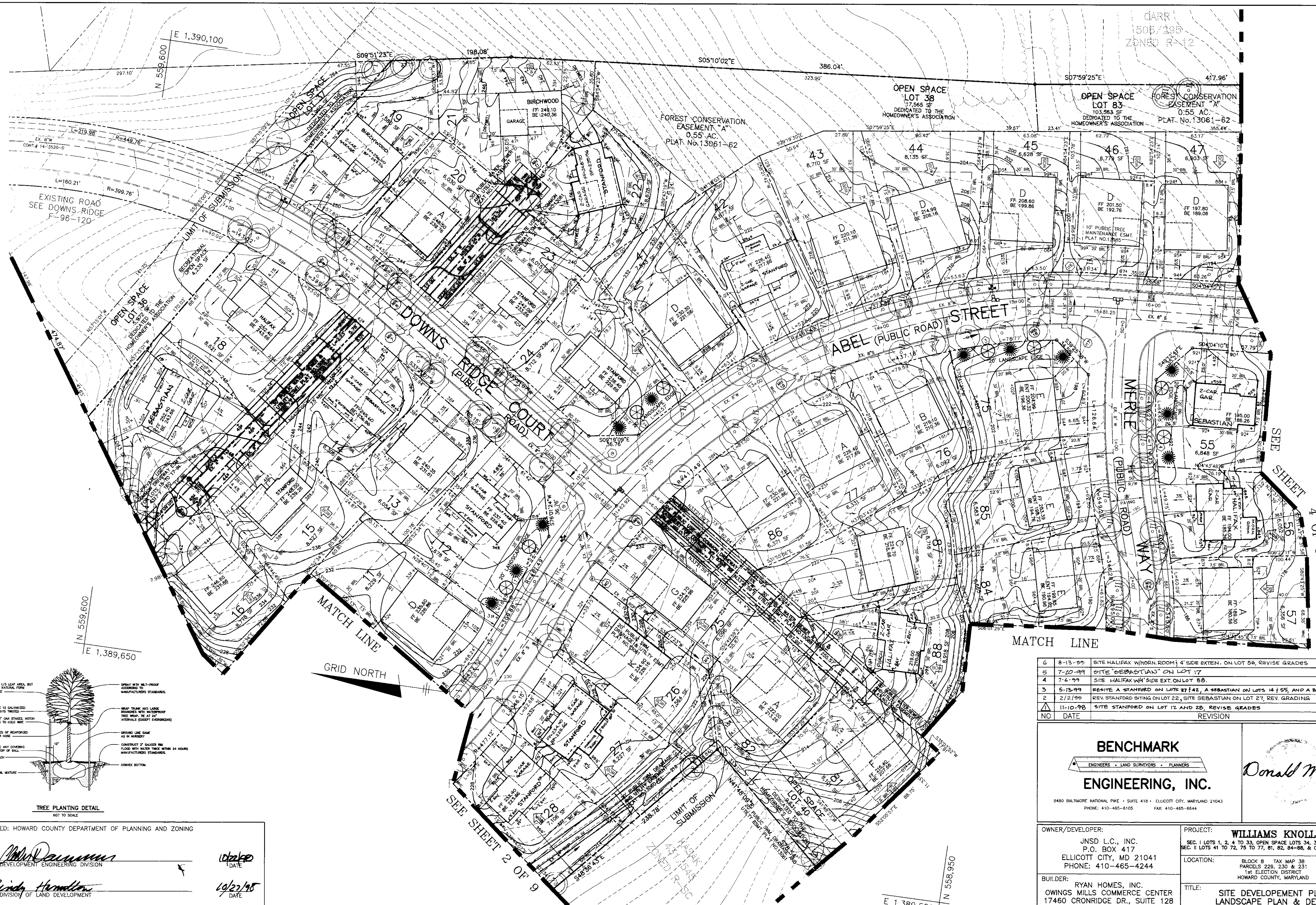
*James ...*  
DIRECTOR

**DATE:** 10/21/98

**DATE:** 10/21/98

**DATE:** 10/21/98

CARR  
5067486  
ZONED R-42



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*David R. Smith*  
DIRECTOR

10/22/98 DATE

10/27/98 DATE

10/28/98 DATE

|    |          |   |
|----|----------|---|
| 6  | 8-13-99  | SITE HALIFAX W/HORN ROOM 4' SIDE EXTN. ON LOT 56, REVISE GRADES                           |
| 5  | 7-20-99  | SITE "SEBASTIAN" ON LOT 17  |
| 4  | 7-6-99   | SITE HALIFAX W/4' SIDE EXTN. ON LOT 88  |
| 3  | 5-13-99  | RESITE A STANFORD ON LOTS 27 & 42, A SEBASTIAN ON LOTS 14 & 55, AND A BIRCHWOOD ON LOT 19 |
| 2  | 2/2/99   | REV. STANFORD SITING ON LOT 22, SITE SEBASTIAN ON LOT 27, REV. GRADING                    |
| 1  | 11-10-98 | SITE STANFORD ON LOT 12 AND 20, REVISE GRADES   |
| NO | DATE     | REVISION  |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

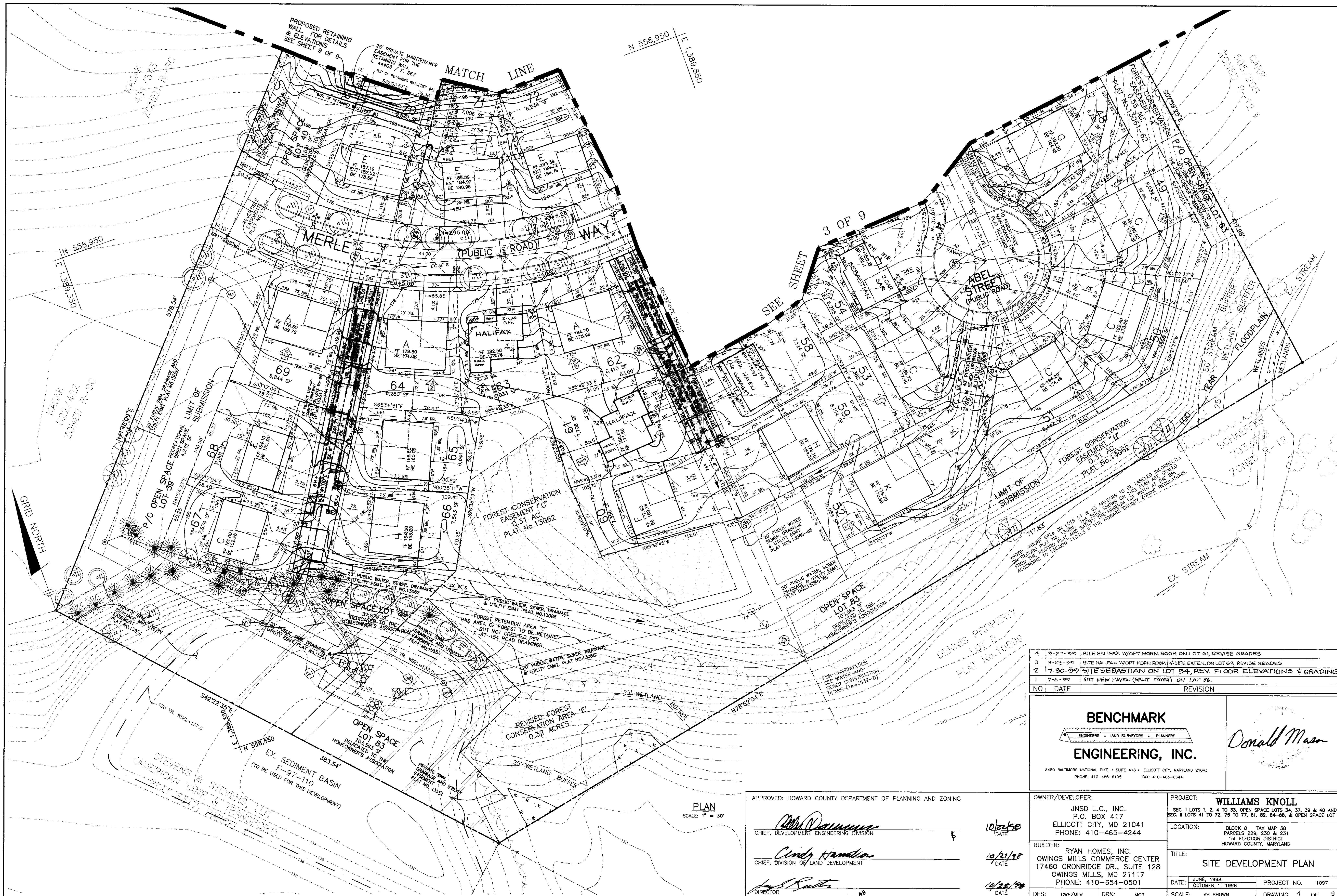
*Donald Mason*

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6544

|   |  |
|---|--|
| OWNER/DEVELOPER:<br>JNSD L.C., INC.<br>P.O. BOX 417<br>ELLICOTT CITY, MD 21041<br>PHONE: 410-465-4244   | PROJECT:<br><b>WILLIAMS KNOLL</b><br>SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND<br>SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83 |
| BUILDER:<br>RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CRONRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501 | LOCATION:<br>BLOCK B TAX MAP 38<br>PARCELS 229, 230 & 231<br>1st ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND  |
| TITLE:<br><b>SITE DEVELOPMENT PLAN,<br/>LANDSCAPE PLAN &amp; DETAIL</b>   | DATE: JUNE, 1998<br>OCTOBER 1, 1998  |
| DES: GWF/MLV DRN: MCR   | PROJECT NO. 1097<br>SCALE: AS SHOWN DRAWING 3 OF 9   |

PLAN  
SCALE: 1" = 30'



N 558,950  
E 1,389,850

N 558,950  
E 1,389,350

GRID NORTH

PLAN  
SCALE: 1" = 30'

| NO. | DATE    | REVISION  |
|-----|---------|---|
| 4   | 9-27-99 | SITE HALIFAX W/OPT. MORN. ROOM ON LOT 61, REVISE GRADES               |
| 3   | 8-23-99 | SITE HALIFAX W/OPT. MORN. ROOM; 4-SIDE EXTN. ON LOT 63, REVISE GRADES |
| 2   | 7-30-99 | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING             |
| 1   | 7-6-99  | SITE NEW HAVEN (SPLIT FOYER) ON LOT 58                                |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

**ENGINEERING, INC.**

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Mr. [Signature]*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Chris Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*[Signature]*  
DIRECTOR

DATE: 10/22/98  
DATE: 10/23/98  
DATE: 10/23/98

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

DES: GWF/MLV DRN: MCR

PROJECT: **WILLIAMS KNOLL**  
SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION: BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

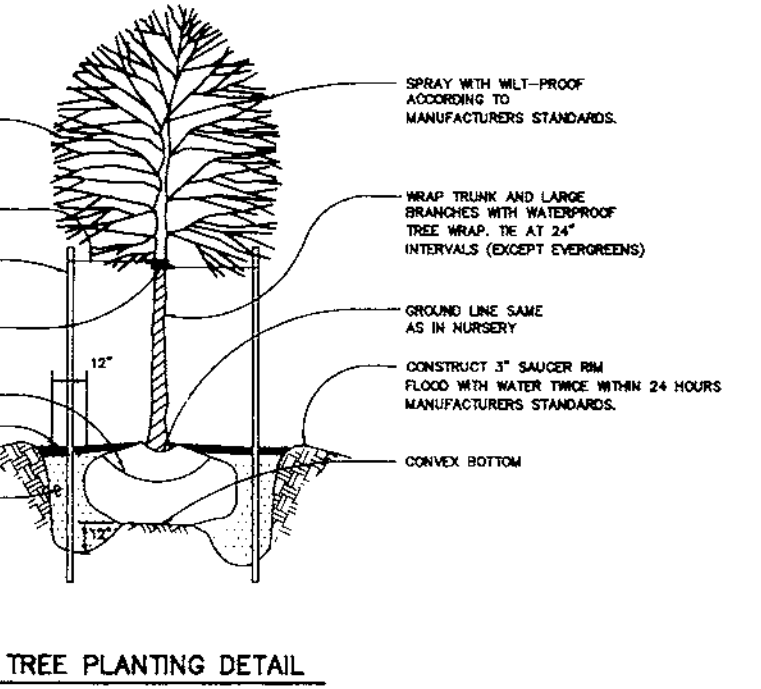
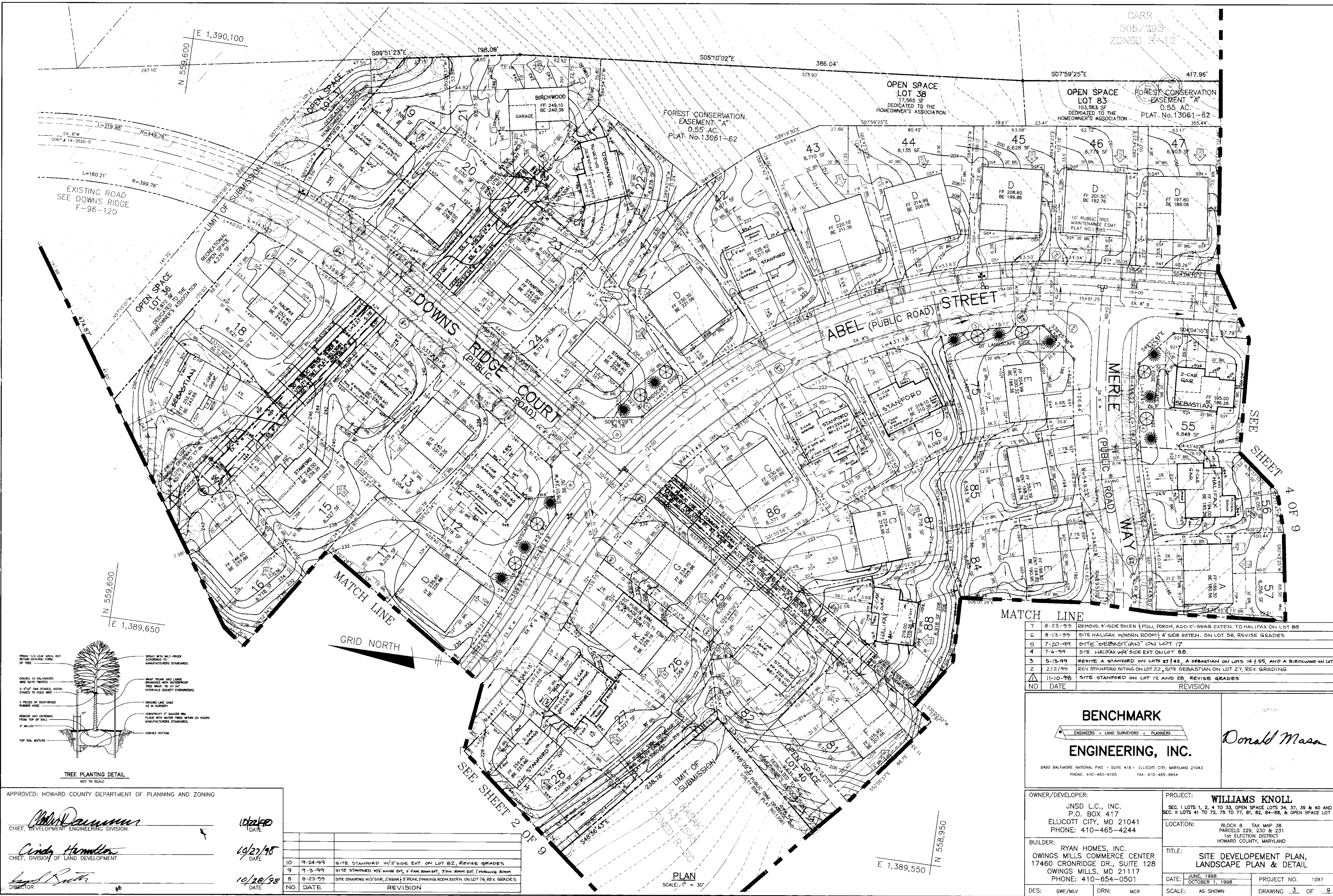
TITLE: **SITE DEVELOPMENT PLAN**

DATE: JUNE, 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

SCALE: AS SHOWN DRAWING 4 OF 9

CARR  
505/235  
ZONED R-42



TREE PLANTING DETAIL  
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard Dammann*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*David Rutter*  
DIRECTOR

10/26/98  
10/27/98  
10/28/98

| NO. | DATE    | REVISION   |
|-----|---------|--|
| 10  | 9-24-99 | SITE STANFORD W/7' SIDE EXT. ON LOT 82, REVISE GRADES                                  |
| 9   | 9-3-99  | SITE STANFORD W/2' HOUSE EXT, 2' FIRM ROOM EXT, 3' DIM. ROOM EXT, 1' INTERMEDIATE ROOM |
| 8   | 8-23-99 | SITE STANFORD W/2' SIDE, 2' REAR, 3' REAR DINING ROOM EXTEN. ON LOT 76, REV. GRADES    |

| NO. | DATE     | REVISION  |
|-----|----------|---|
| 7   | 8-23-99  | REMOVE 4'-SIDE EXTEN. FULL PORCH, ADD 2'-REAR EXTEN. TO HALIFAX ON LOT 88                 |
| 6   | 8-13-99  | SITE HALIFAX W/HORN ROOM, 4' SIDE EXTEN. ON LOT 56, REVISE GRADES                         |
| 5   | 7-20-99  | SITE "SEBASTIAN" ON LOT 17  |
| 4   | 7-6-99   | SITE HALIFAX W/4' SIDE EXT. ON LOT 88.  |
| 3   | 5-13-99  | RESITE A STANFORD ON LOTS 27 & 42, A SEBASTIAN ON LOTS 14 & 55, AND A BIRCHWOOD ON LOT 19 |
| 2   | 2/2/99   | REV STANFORD SITING ON LOT 22, SITE SEBASTIAN ON LOT 27, REV. GRADING                     |
| 1   | 11-10-98 | SITE STANFORD ON LOT 12 AND 28, REVISE GRADES   |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

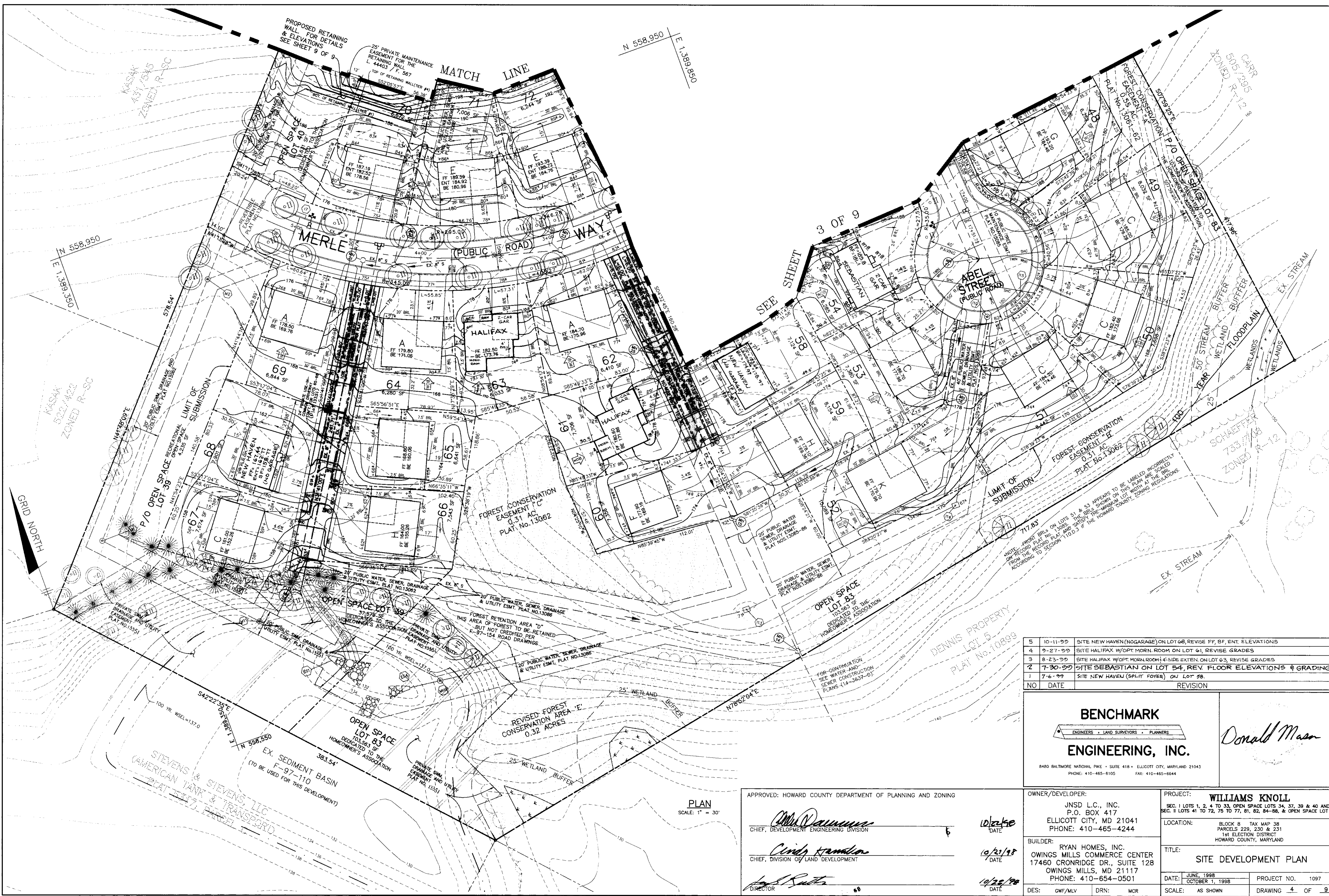
**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6664

|   |  |
|---|--|
| OWNER/DEVELOPER:<br>JNSD L.C., INC.<br>P.O. BOX 417<br>ELLICOTT CITY, MD 21041<br>PHONE: 410-465-4244   | PROJECT:<br><b>WILLIAMS KNOLL</b><br>SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83 |
| BUILDER:<br>RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CRONRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501 | LOCATION:<br>BLOCK 8 TAX MAP 38<br>PARCELS 229, 230 & 231<br>1st ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND  |
| TITLE:<br><b>SITE DEVELOPMENT PLAN,<br/>LANDSCAPE PLAN &amp; DETAIL</b>   | DATE:<br>JUNE, 1998<br>OCTOBER 1, 1998   |
| DES: GWF/MLV DRN: MCR   | PROJECT NO. 1097<br>SCALE: AS SHOWN DRAWING 3 OF 9   |

PLAN  
SCALE: 1" = 30'





| NO | DATE     | REVISION  |
|----|----------|---|
| 5  | 10-11-99 | SITE NEW HAVEN (NOGARAGE) ON LOT 68, REVISE FF, BF, ENT. ELEVATIONS   |
| 4  | 9-27-99  | SITE HALIFAX W/OPT MORN. ROOM ON LOT 61, REVISE GRADES                |
| 3  | 8-23-99  | SITE HALIFAX W/OPT MORN. ROOM; 4-SIDE EXTER. ON LOT 63, REVISE GRADES |
| 2  | 7-30-99  | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING             |
| 1  | 7-6-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 58                                |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-8105 FAX: 410-465-6644

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Wm. Dawson*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Paul Rutz*  
DIRECTOR

10/21/99  
DATE

10/21/99  
DATE

10/22/99  
DATE

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

DES: GWF/MLV DRN: MCR

PROJECT: **WILLIAMS KNOLL**  
SEC. 1, LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. 2 LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION: BLOCK 8 TAX MAP 38  
PARCELS 228, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: **SITE DEVELOPMENT PLAN**

DATE: JUNE, 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

SCALE: AS SHOWN DRAWING 4 OF 9

SEEDING CONTROL NOTES

- 1. A MINIMUM OF 24 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).

TOPSOIL SPECIFICATIONS

- 1. Topsoil salvaged from the existing site may be used provided that it meets the standards set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USGS in cooperation with Maryland Agricultural Experiment Station.

TEMPORARY SEEDBED PREPARATIONS

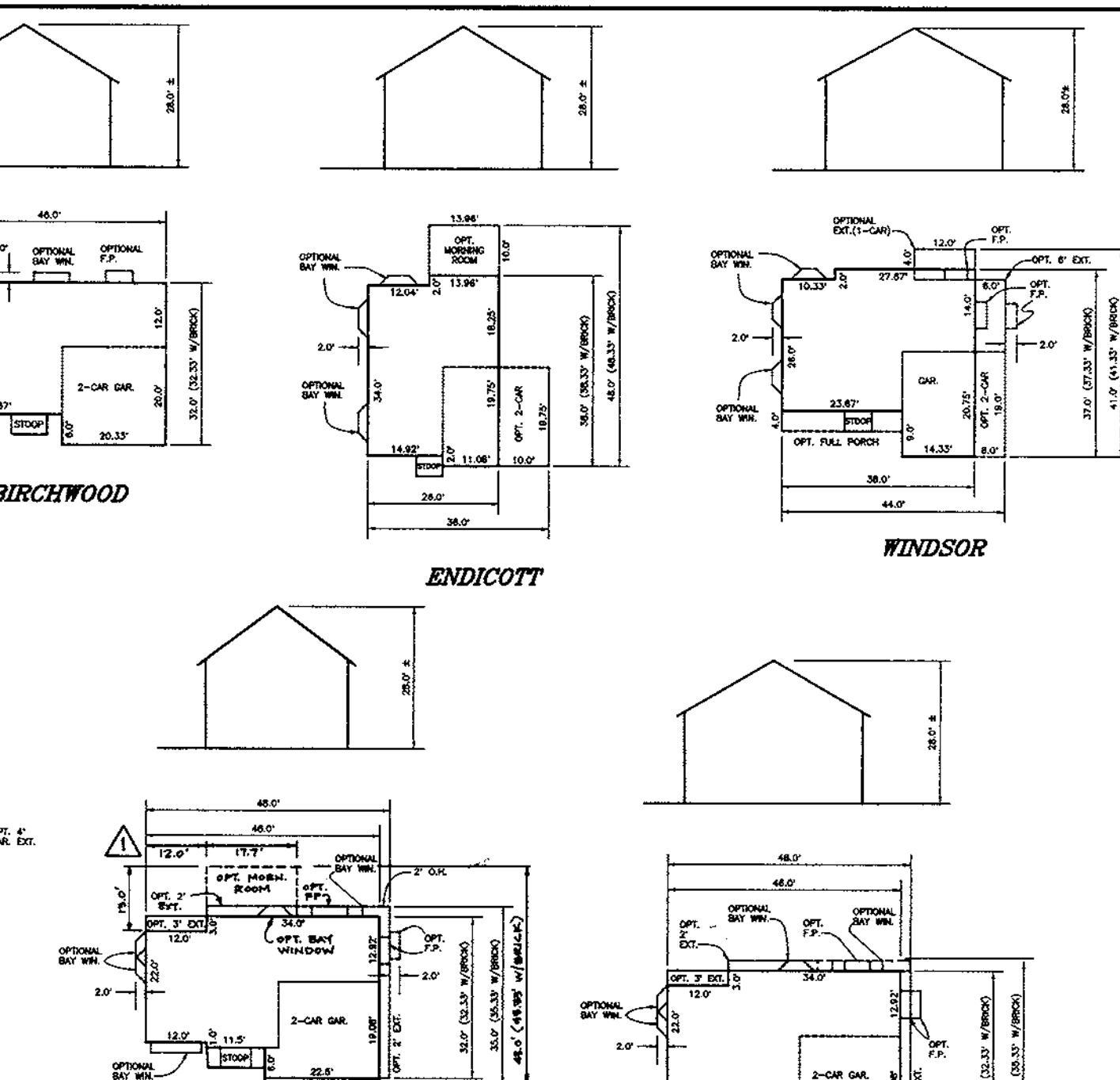
- APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEQUENCE OF CONSTRUCTION

- DAY 1-1) OBTAIN GRADING PERMIT.

CONSTRUCTION SPECIFICATIONS

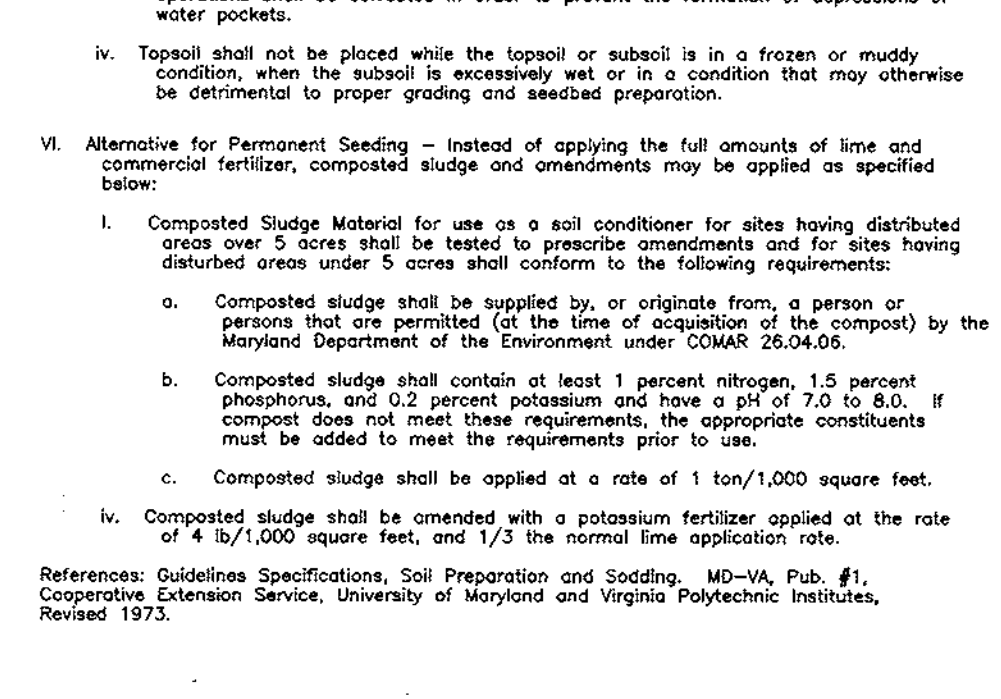
- 1. KEY-IN THE MATTING BY PLACING THE TOP EDGES OF THE MATTING IN A NARROW TRENCH 4" IN DEPTH.



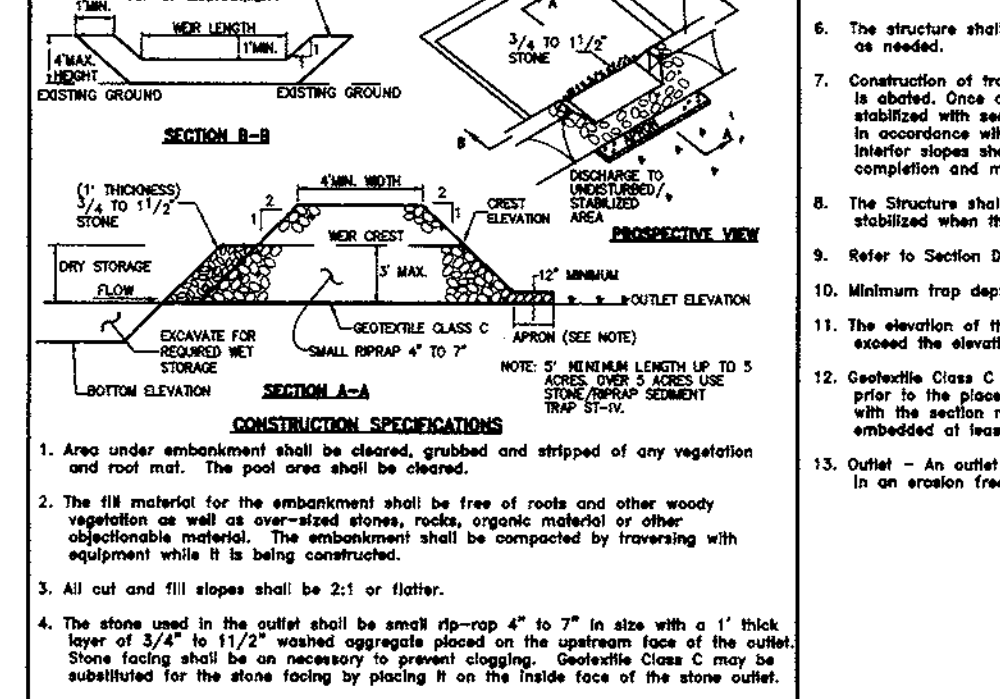
PERMANENT SEEDBED PREPARATIONS

- 1. PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 400 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING.

STONE OUTLET SEDIMENT TRAP - ST II



STONE OUTLET SEDIMENT TRAP - ST II



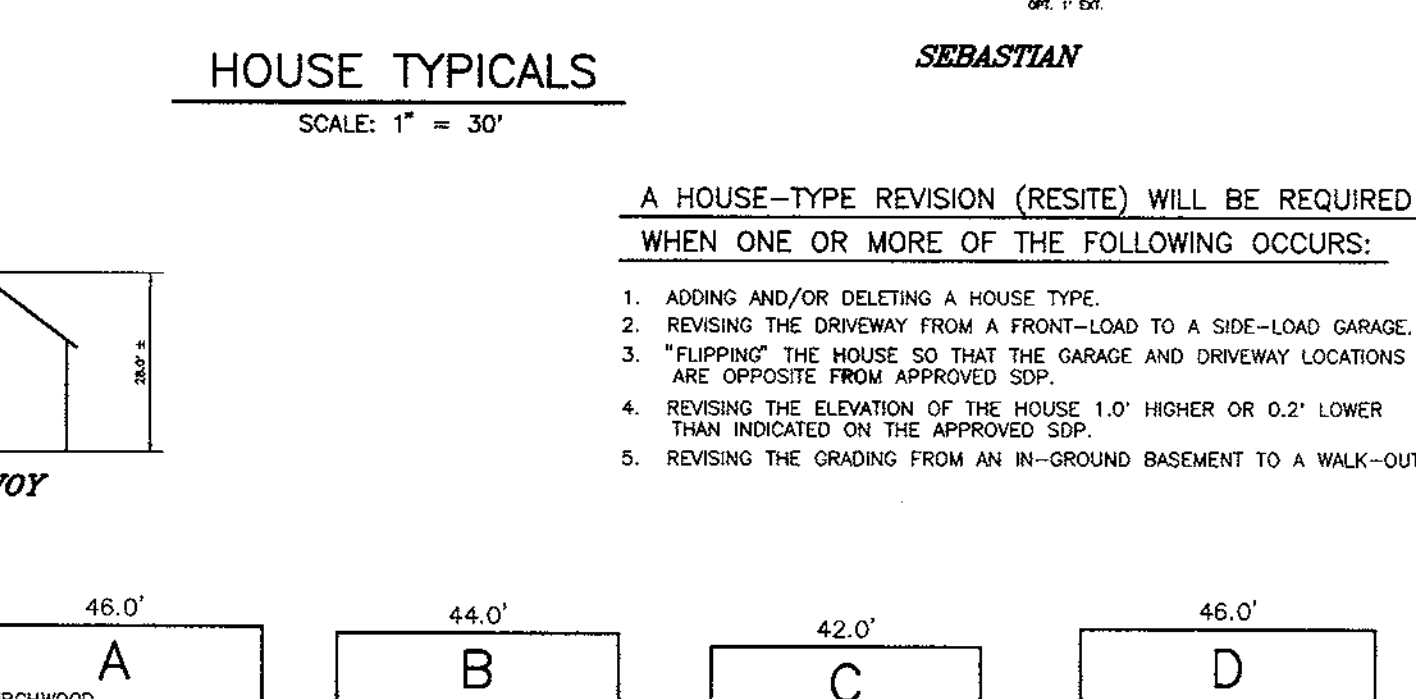
CONSTRUCTION SPECIFICATIONS

- 1. The structure shall be inspected periodically and each catch and repairs made as needed.

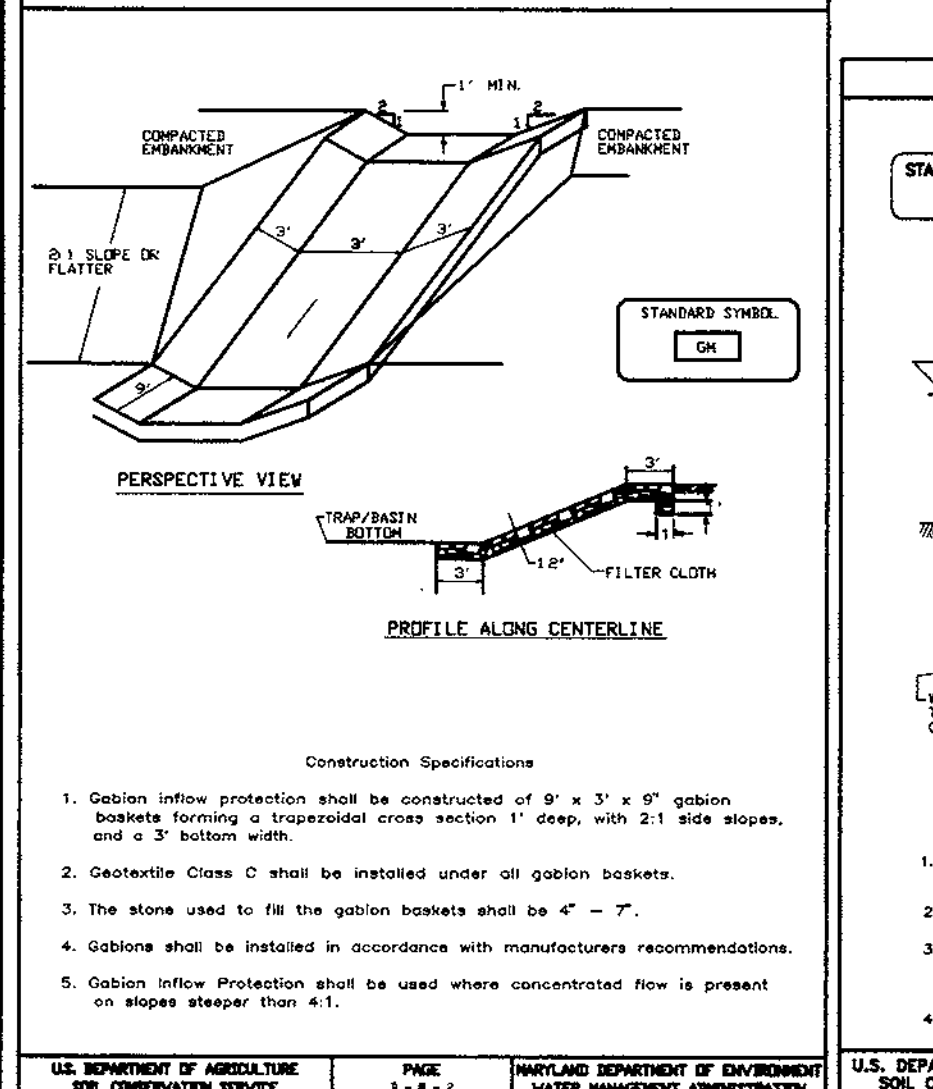
CONSTRUCTION SPECIFICATIONS

- 1. All lined inflow channels shall be 12" in depth, have a horizontal cross section with bottom to be 2" lined bottom width.

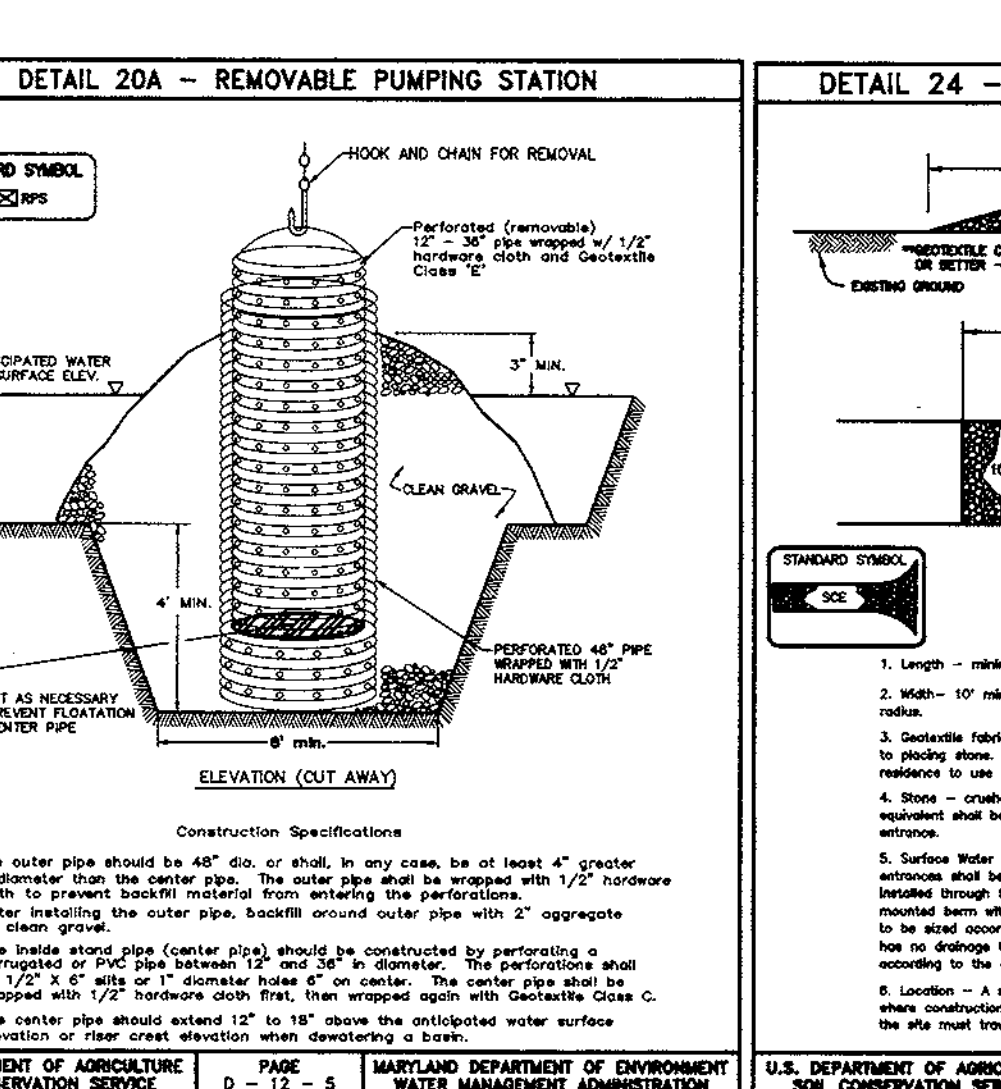
HOUSE TYPICALS



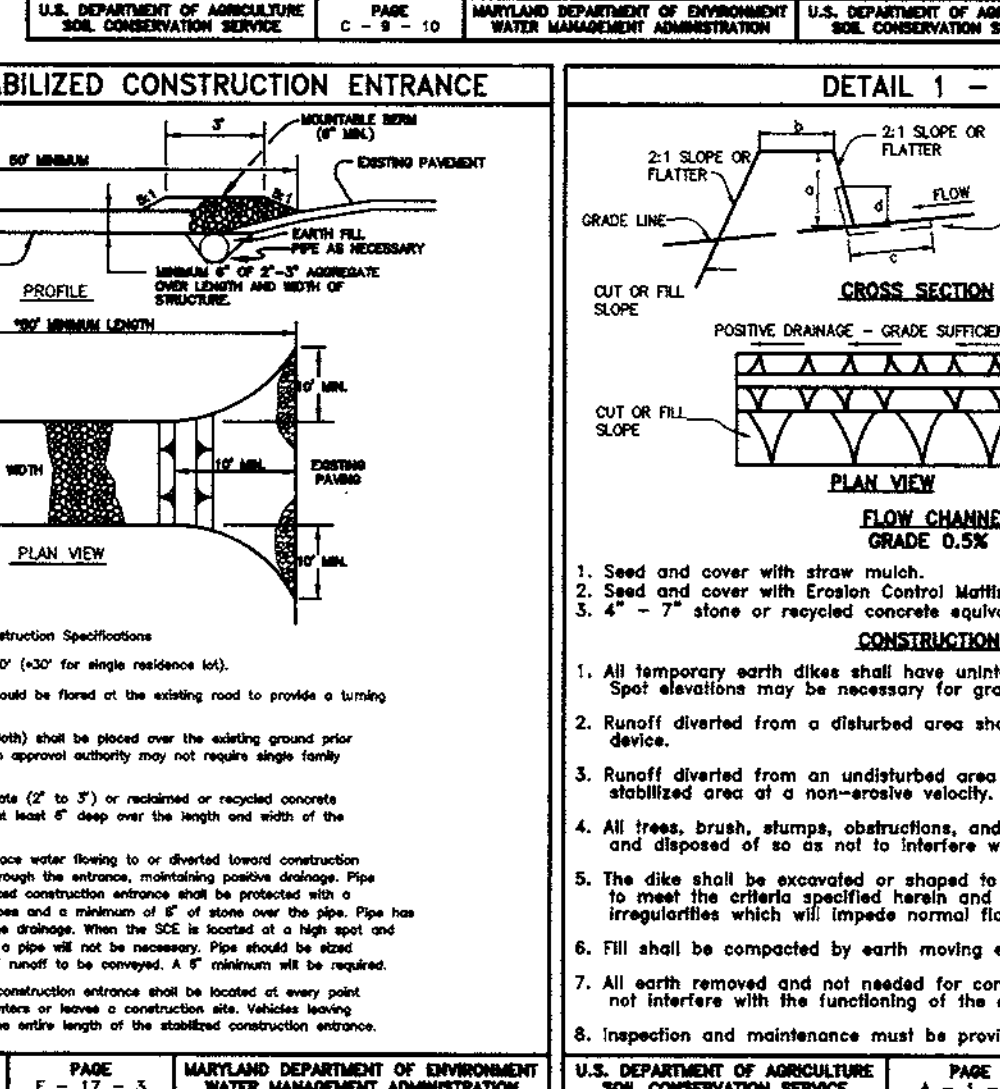
DETAIL 6 - GABION INFLOW PROTECTION



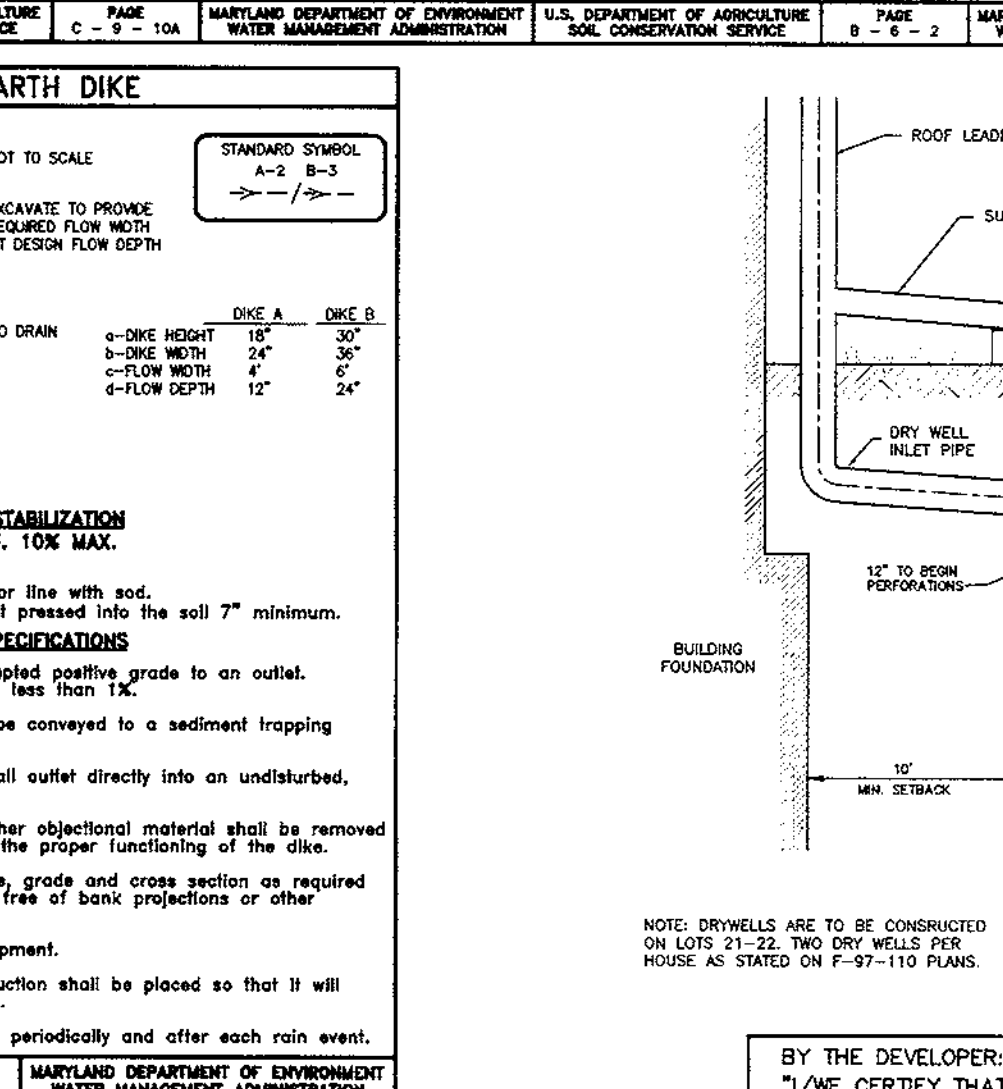
DETAIL 20A - REMOVABLE PUMPING STATION



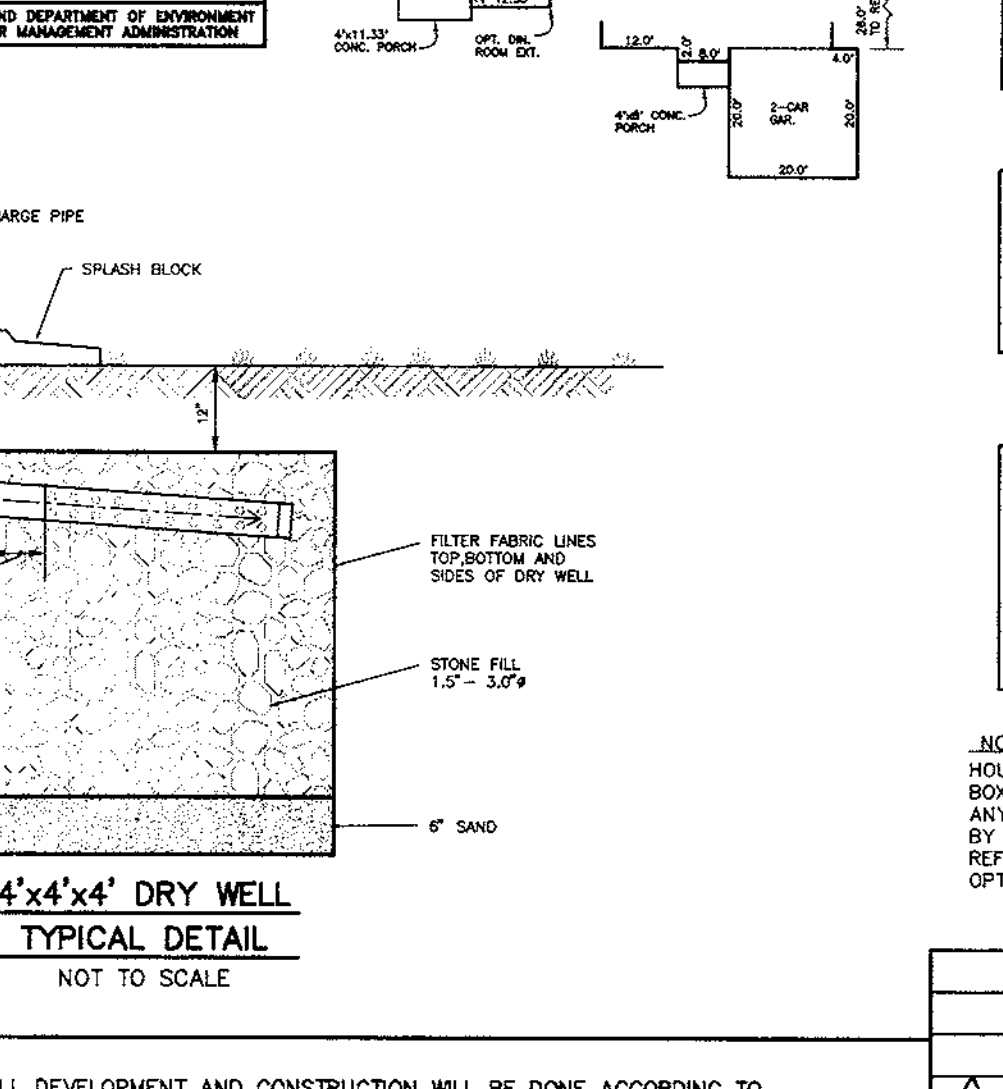
DETAIL 21 - STABILIZED CONSTRUCTION ENTRANCE



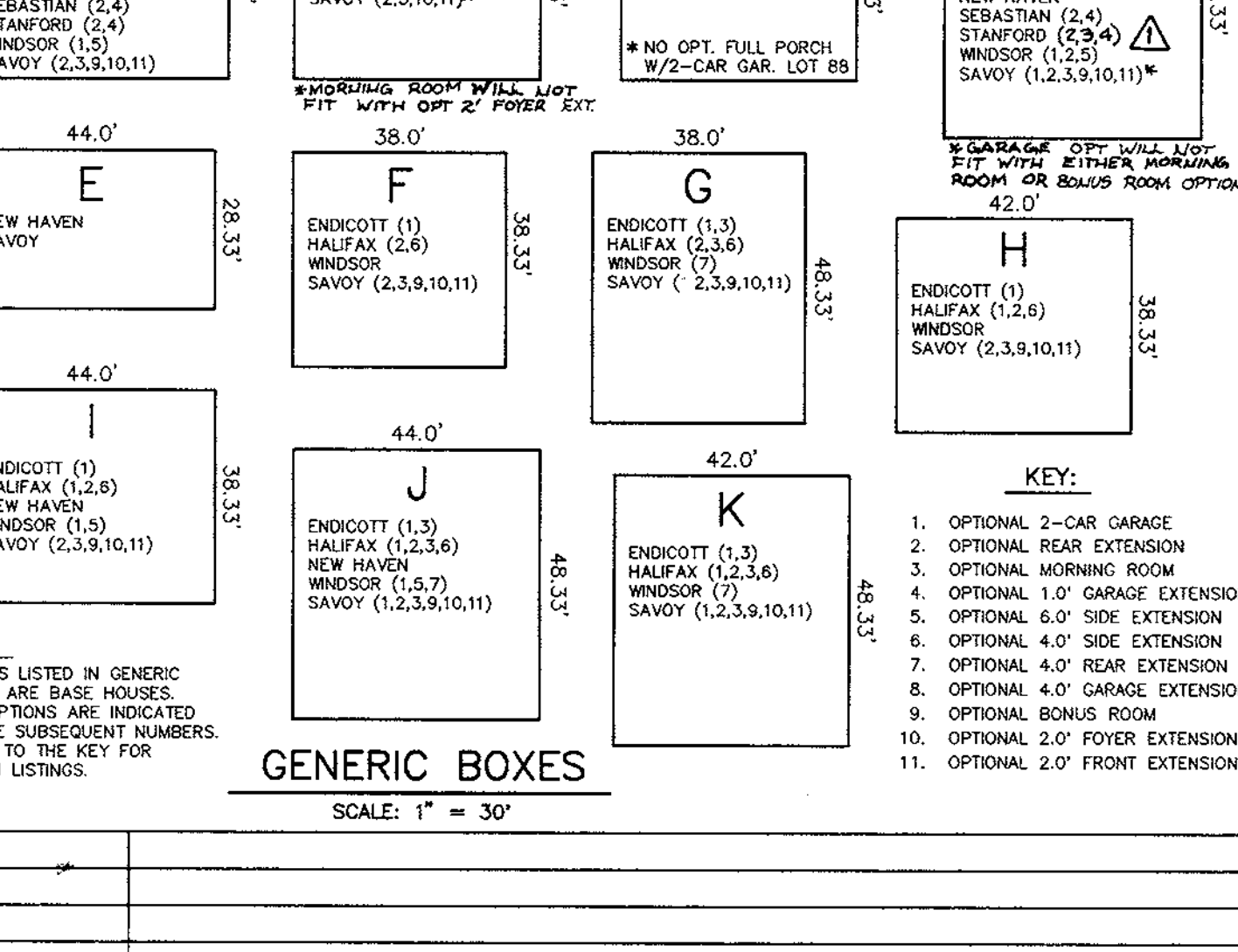
DETAIL 1 - EARTH DIKE



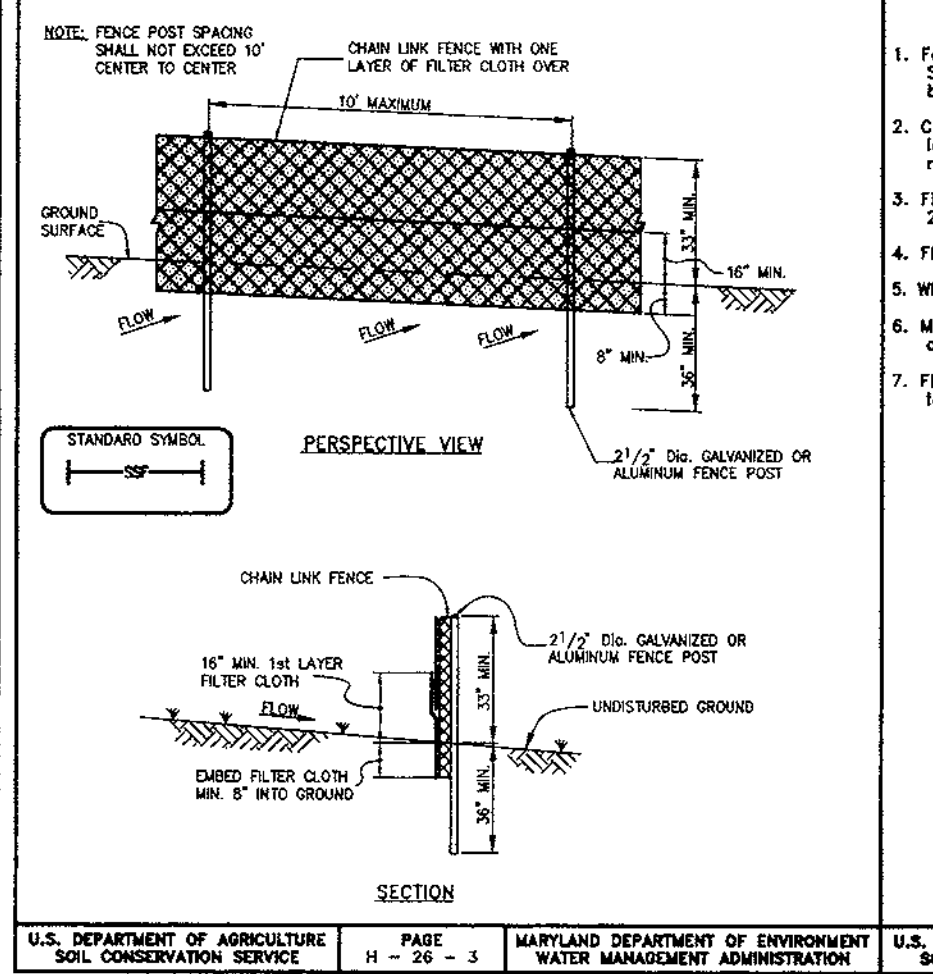
4'x4'x4' DRY WELL



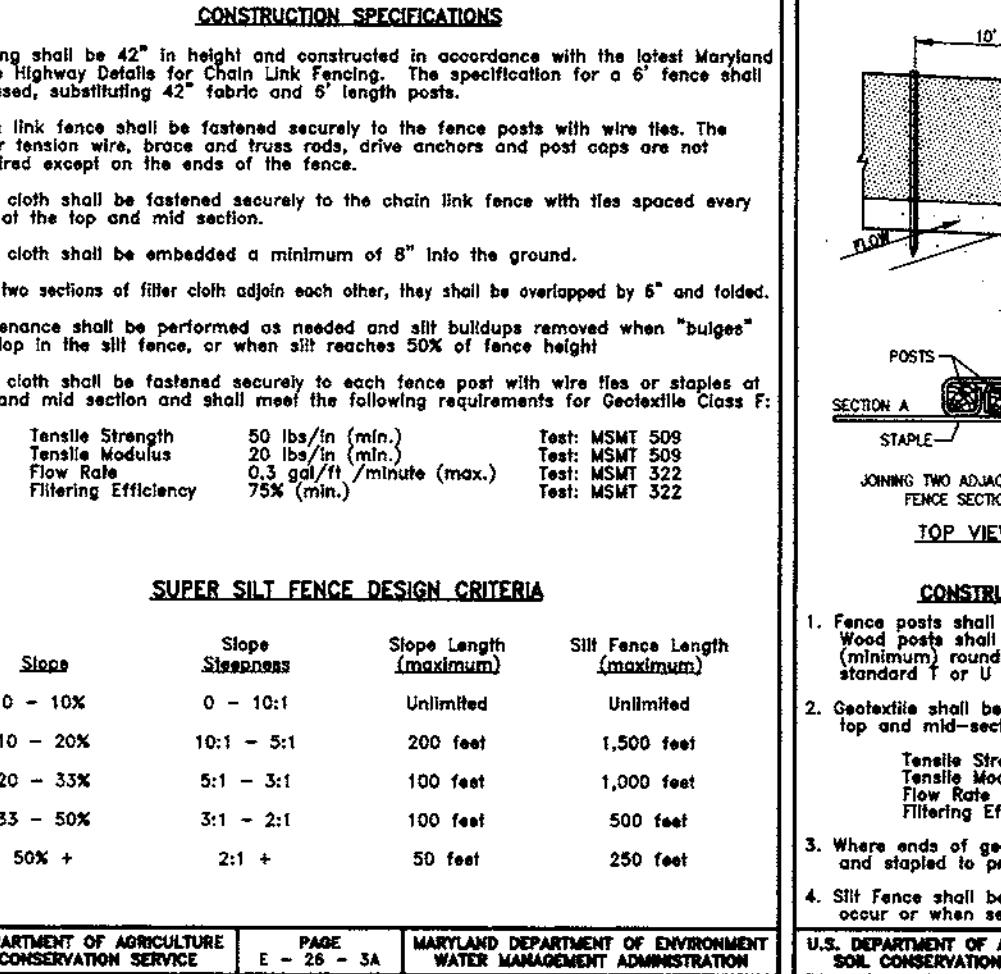
GENERIC BOXES



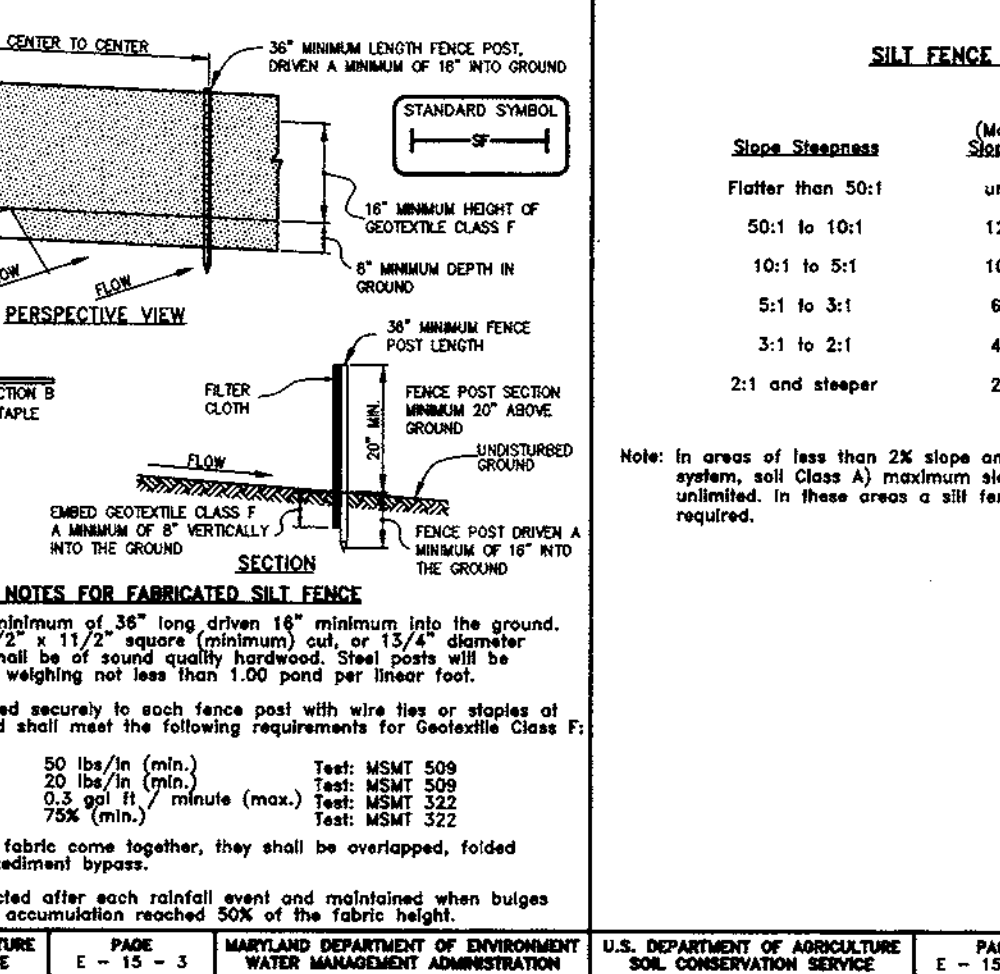
DETAIL 33 - SUPER SILT FENCE



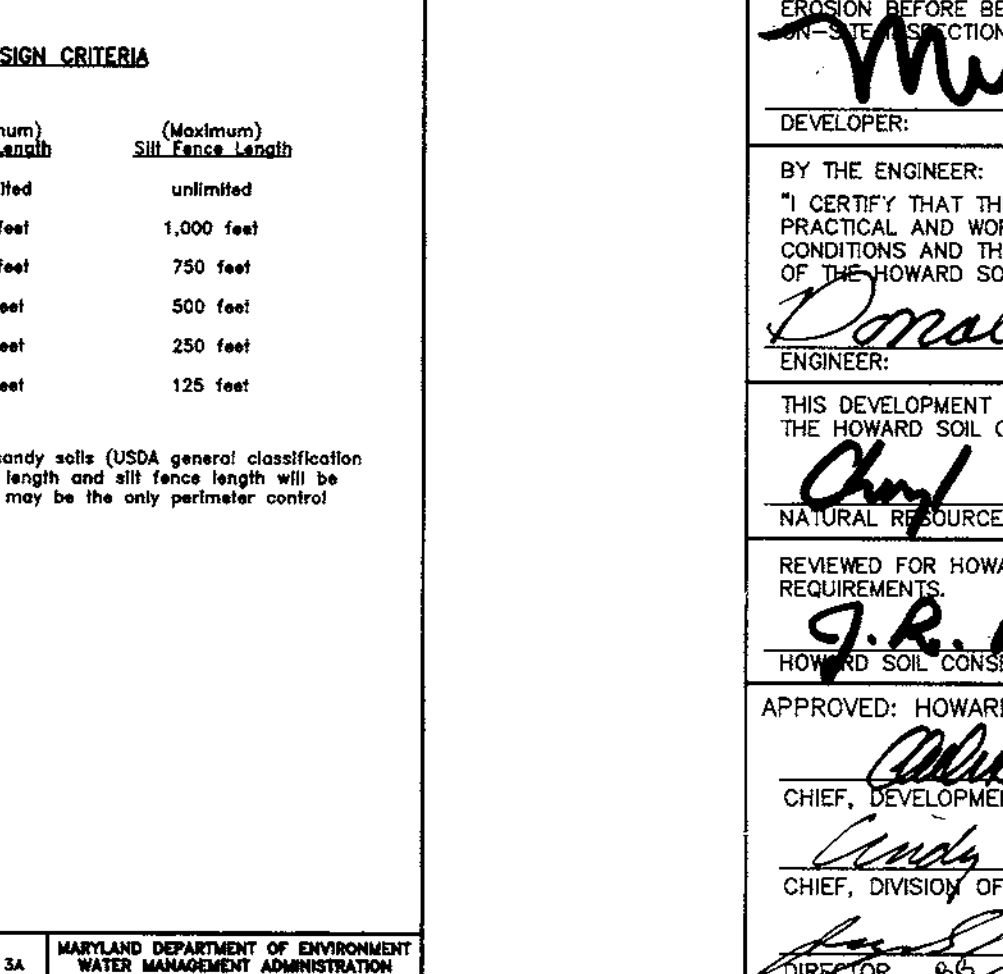
SUPER SILT FENCE



DETAIL 22 - SILT FENCE



SILT FENCE



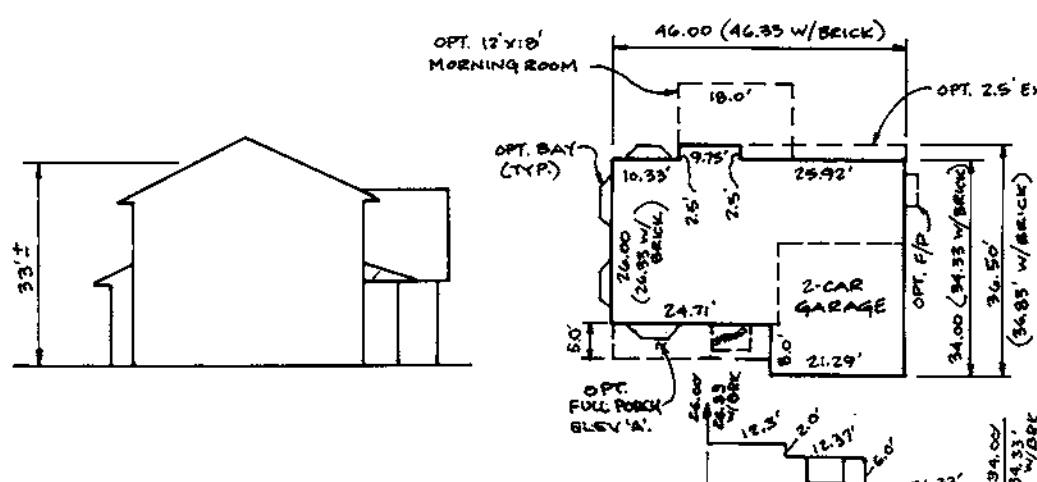
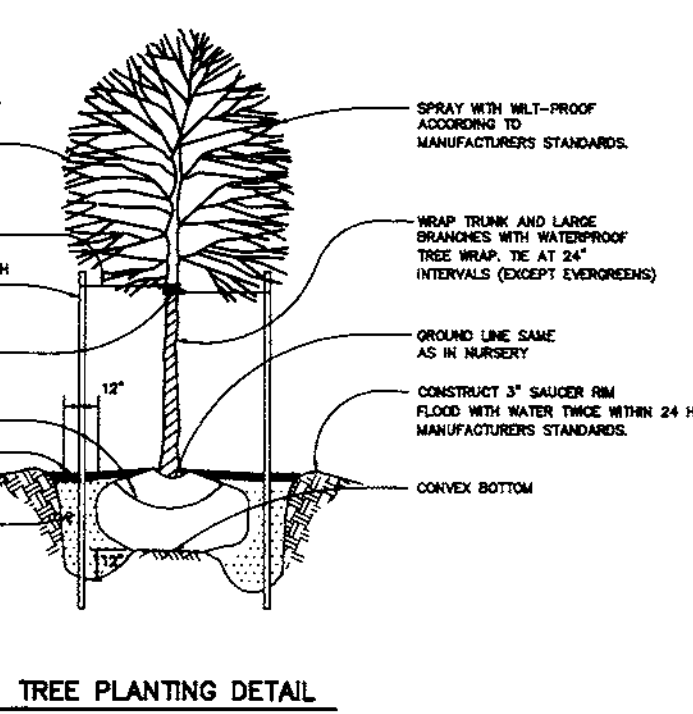
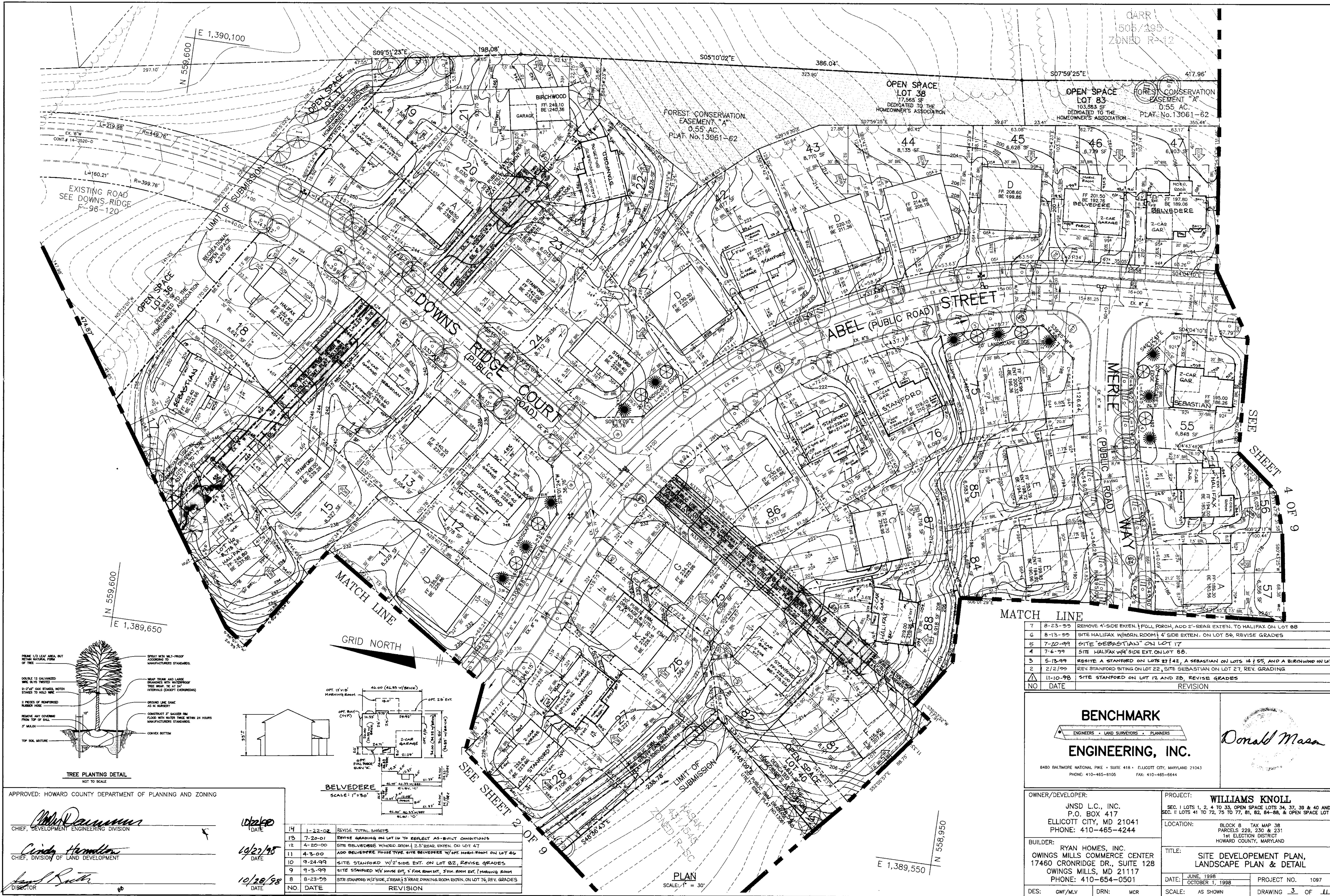
SILT FENCE DESIGN CRITERIA

Table with columns for Slope Steepness, Slope Length (Maximum), and Silt Fence Length (Maximum).

BY THE DEVELOPER:

Professional seal and signature of Michael Moore, Engineer, and other project details.

CARR  
506/450  
ZONED R-42



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chad Dammann*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cinda Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*David Rutter*  
DIRECTOR

10/29/98  
DATE

| NO. | DATE    | REVISION  |
|-----|---------|---|
| 14  | 1-22-02 | REVISE TOTAL SHEETS   |
| 13  | 7-20-01 | REVISE GRADING ON LOT 16 TO REFLECT AS-BUILT CONDITIONS                             |
| 12  | 4-20-00 | SITE BELVEDERE W/NO. ROOM 1/2' REAR EXTN. ON LOT 47                                 |
| 11  | 4-3-00  | ADD BELVEDERE HOUSE TYPE, SITE BELVEDERE W/OPT. MORN. ROOM ON LOT 46                |
| 10  | 9-24-99 | SITE STANFORD W/2' SIDE EXT. ON LOT 82, REVISE GRADES                               |
| 9   | 9-3-99  | SITE STANFORD W/2' HOUSE EXT., 1' PAN. ROOM EXT., 3' DIN. ROOM EXT., 1' MORN. ROOM  |
| 8   | 8-23-99 | SITE STANFORD W/2' SIDE, 2' REAR 1/2' REAR DINING ROOM EXTN. ON LOT 76, REV. GRADES |

| NO. | DATE     | REVISION   |
|-----|----------|--|
| 7   | 8-23-99  | REMOVE 4'-SIDE EXTN. FULL PORCH, ADD 2'-REAR EXTN. TO HALIFAX ON LOT 88                  |
| 6   | 8-13-99  | SITE HALIFAX W/NO. ROOM 1/4' SIDE EXTN. ON LOT 56, REVISE GRADES                         |
| 5   | 7-20-99  | SITE 'SEBASTIAN' ON LOT 17   |
| 4   | 7-6-99   | SITE HALIFAX W/1' SIDE EXT. ON LOT 88  |
| 3   | 5-13-99  | RESITE A STANFORD ON LOTS 27 & 42, A SEBASTIAN ON LOTS 4 & 55, AND A BIRCHWOOD ON LOT 19 |
| 2   | 2/2/99   | REV. STANFORD SITING ON LOT 22, SITE SEBASTIAN ON LOT 27, REV. GRADING                   |
| 1   | 11-10-98 | SITE STANFORD ON LOT 12 AND 28, REVISE GRADES  |

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-8105 FAX: 410-465-6644

*Donald Mason*

OWNER/DEVELOPER: JNSD L.C., INC. P.O. BOX 417 ELLICOTT CITY, MD 21041 PHONE: 410-465-4244

PROJECT: **WILLIAMS KNOLL**  
SEC. 1 LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

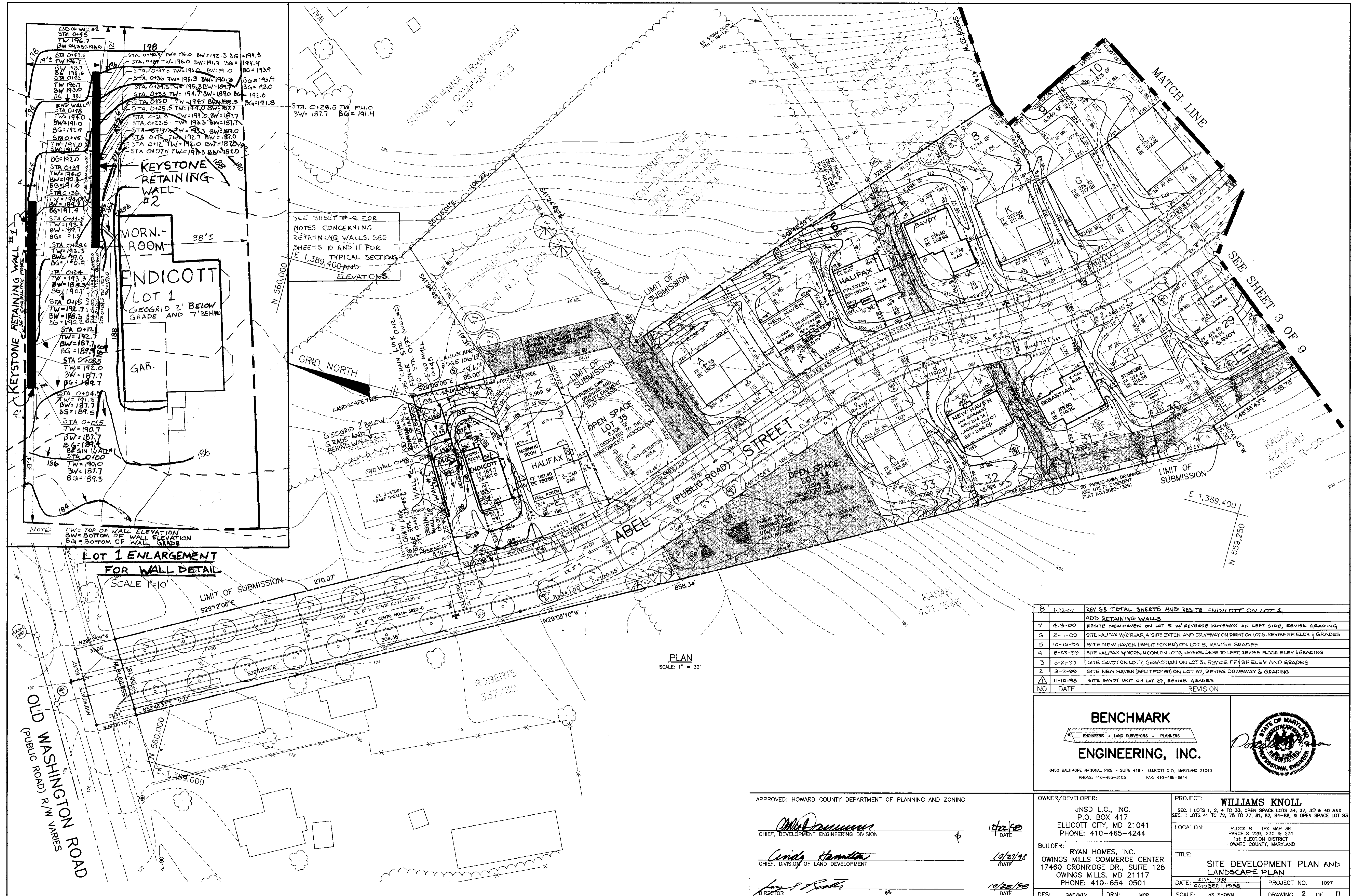
LOCATION: BLOCK 8 TAX MAP 38 PARCELS 229, 230 & 231 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

BUILDER: RYAN HOMES, INC. OWINGS MILLS COMMERCE CENTER 17460 CRONRIDGE DR., SUITE 128 OWINGS MILLS, MD 21117 PHONE: 410-654-0501

TITLE: **SITE DEVELOPMENT PLAN, LANDSCAPE PLAN & DETAIL**

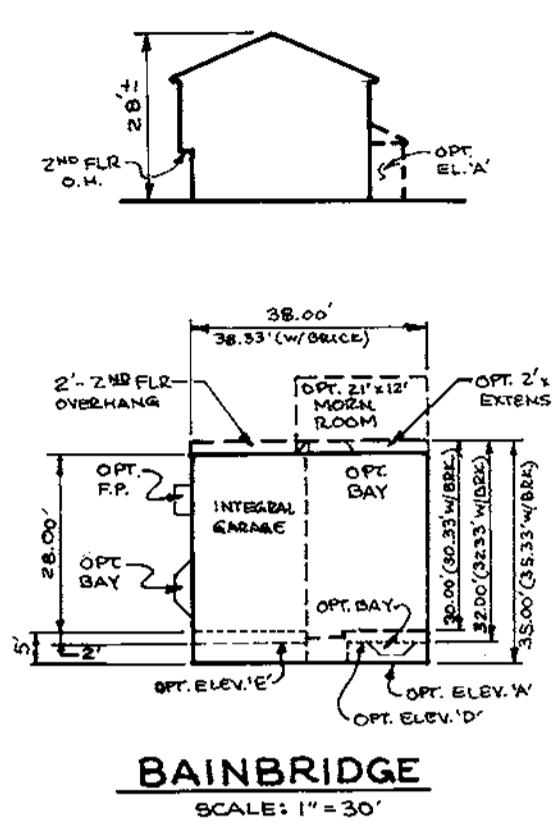
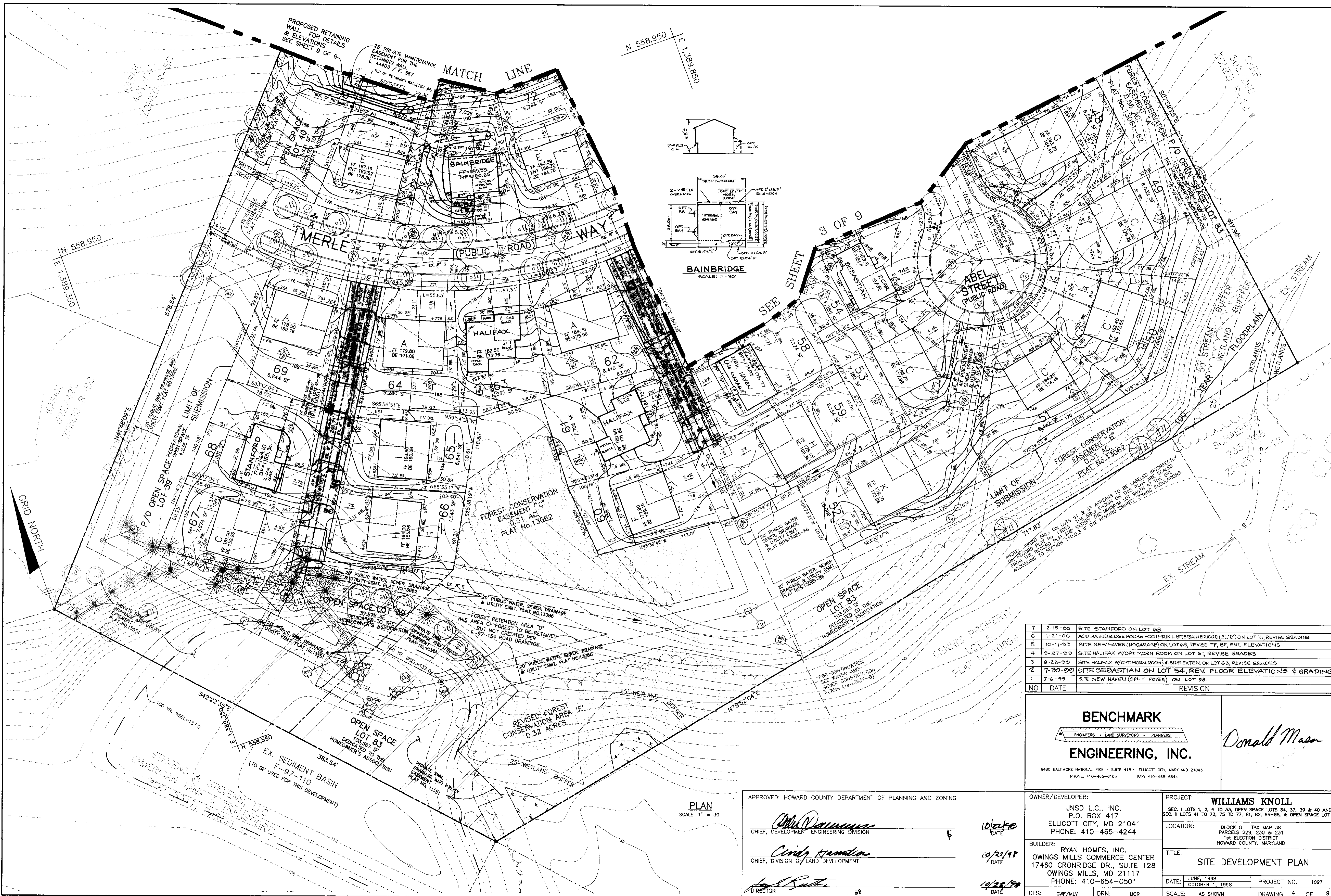
DATE: JUNE 1998 PROJECT NO. 1097  
OCTOBER 1, 1998

DES: GWF/MLV DRN: MCR SCALE: AS SHOWN DRAWING 3 OF 11



Plotted: Sept. 29, 1998  
Acad Dwg: 802151

SDP-98-146



NOTE: FRONT BRLE ON LOTS 51 & 53 APPEARS TO BE LABELED INCORRECTLY ON RECORD PLAT NO. 13062. THE BRLE SHOWN ON LOT 53 IS THE BRLE SHOWN ON LOT 51. THE BRLE SHOWN ON LOT 51 IS THE BRLE SHOWN ON LOT 53. THE BRLE SHOWN ON LOT 53 IS THE BRLE SHOWN ON LOT 51. THE BRLE SHOWN ON LOT 51 IS THE BRLE SHOWN ON LOT 53. THE BRLE SHOWN ON LOT 53 IS THE BRLE SHOWN ON LOT 51.

| NO | DATE     | REVISION   |
|----|----------|--|
| 1  | 2-15-00  | SITE STANFORD ON LOT 68  |
| 2  | 1-21-00  | ADD BAINBRIDGE HOUSE FOOTPRINT, SITE BAINBRIDGE (EL'D) ON LOT 71, REVISE GRADING |
| 3  | 10-11-99 | SITE NEW HAVEN (NOGARAGE) ON LOT 68, REVISE FF, 8'F, ENT. ELEVATIONS             |
| 4  | 9-27-99  | SITE HALIFAX W/OPT MORN ROOM ON LOT 61, REVISE GRADES                            |
| 3  | 8-23-99  | SITE HALIFAX W/OPT MORN ROOM; 4'-SIDE EXTEN. ON LOT 63, REVISE GRADES            |
| 2  | 7-30-99  | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING                        |
| 1  | 7-6-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 58   |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-0105 FAX: 410-465-6644

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*John P. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*James Butler*  
DIRECTOR

DATE: 10/22/98

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

PROJECT:  
**WILLIAMS KNOLL**  
SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND  
SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION:  
BLOCK 8 TAX MAP 38  
PARCELS 228, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE:  
**SITE DEVELOPMENT PLAN**

DATE: JUNE, 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

SCALE: AS SHOWN

DRAWING 4 OF 9

**SPECIFICATION GUIDELINES  
KEYSTONE CONCRETE MODULAR RETAINING WALL**

**PART 1: GENERAL**

**1.01 DESCRIPTION**

- A. Work includes furnishing and installing modular retaining wall units to the lines and grades designated on the construction drawings and as specified herein.
- B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and backfill to the lines and grades designated on the construction drawings.
- C. Furnishing and installing all appurtenant materials required for construction of the retaining wall as shown on the construction drawings.

**1.02 RELATED WORK**

- A. Section 02275 - Geogrid Soil Reinforcement.

**1.03 REFERENCE STANDARDS**

- A. ASTM C90 - 85 Hollow Load Bearing Masonry Units.
- B. ASTM C140 - 75 Sampling and Testing Concrete Masonry Units.
- C. ASTM C145 - 85 Solid Load Bearing Concrete Masonry Units.

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Contractor shall check the materials upon delivery to assure that proper material has been received.
- B. Contractor shall prevent excessive mud, wet cement, epoxy, and materials which may affix themselves, from coming in contact with the materials.
- C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated into the retaining wall structure.

**1.05 SUBMITTALS**

- A. Samples of all products used in the work of this section.
- B. Latest edition of manufacturers specifications for proposed materials, method of installation and list of material proposed for use.

**1.06 QUALITY ASSURANCE**

- A. Soil testing and inspection service for quality control testing during earthwork operations will be supplied by the owner.

**PART 2: PRODUCTS**

**2.01 CONCRETE UNITS**

- A. Masonry units shall be Keystone® Retaining Wall Units as manufactured by:
  - B. Concrete wall units shall have a minimum net 28 day compressive strength of 3000 psi. The concrete shall have a maximum moisture absorption of 8 to 9 (BIM).
  - C. Exterior dimensions may vary in accordance with ASTM C90 - 85. Standard and Compact units shall have a minimum of 1 square foot face area each. Mini units shall have a minimum 1/2 square foot face area each.
  - D. Keystone Standard units shall provide a minimum of 150 psi of wall face area. Fill which is contained within the dimensions of the units may be considered as 85% effective weight.

**PART 3: EXECUTION**

**3.01 EXCAVATION**

- A. Contractor shall excavate to the lines and grades shown on the construction drawings. Over excavation shall not be paid for and replacement with compacted fill and/or wall system components will be required at contractor expense. Contractor shall be careful not to disturb embankment materials beyond lines shown.

**3.02 FOUNDATION SOIL PREPARATION**

- A. Foundation soil shall be excavated as required for footing dimensions shown on the construction drawings, or as directed by the Engineer.

- B. Foundation soil shall be examined by the Engineer to assure that the actual found at an soil strength meets or exceeds assumed design strength. Soils not meeting required strength shall be removed and replaced with acceptable material.
- C. Over excavated areas shall be filled with approved compacted backfill material.

**3.03 BASE LEVELING PAD**

- A. Leveling pad materials shall be placed as shown on the construction drawings, "non undisturbed" in situ soils, to a minimum thickness of 6 inches.
- B. Material shall be compacted so as to provide a level hard surface on which to place the first course of units. Compaction shall be to 85% of standard proctor for sand or gravel type materials. For crushed rock, material shall be densely compacted.

**3.04 UNIT INSTALLATION**

- A. First course of concrete wall units shall be placed on the base leveling pad. The units shall be checked for level and alignment. The first course is the most important to insure accurate and acceptable results.
- B. Insure that units are in full contact with base.
- C. Units are placed side by side for full length of wall alignment. Alignment may be done by means of a string line or offset from base line.
- D. Install fiberglass connecting pins and fill all voids at units with unit fill material. Tamp fill.
- E. Sweep all excess material from top of units and install next course. Insure each course is completely unit filled, backfilled and compacted prior to proceeding to next course.
- F. Lay up each course insuring that pins protrude into adjoining courses above a minimum of one inch. Two pins are required per unit. Pull each course forward, away from the embankment, against pins in the previous course and backfill as the course is completed. Repeat procedure to the extent of wall height.
- G. As appropriate where the wall changes elevation, units can be stepped with grade or turned into the embankment with a convex return end. Provide appropriate buried units on compacted leveling pad in area of convex return end.

**3.05 CAP INSTALLATION**

- A. Place Keystone Cap units over projecting pins from units below. Pull forward to set back position. Back fill and compact to finished grade.
- B. As required, provide permanent mechanical connection to wall units with construction adhesive or epoxy. Apply adhesive or epoxy to bottom surface of cap units and install on units below.

**3.06 GEOGRID INSTALLATION**

- A. Follow the requirements of Section 02275, GEOGRID SOIL REINFORCEMENT.

**GEOGRID SOIL REINFORCEMENT**

**PART 1: GENERAL**

**1.01 DESCRIPTION**

- A. Work includes furnishing and installing geogrid reinforcement, wall fill, and backfill to the lines and grades designated on the construction drawings.
- B. Work includes furnishing and installing all appurtenant materials required for construction of the geogrid reinforced soil retaining wall as shown on the construction drawings.

**1.02 RELATED WORK**

- A. Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.

**1.03 REFERENCE STANDARDS**

- A. See specific geogrid manufacturers reference standards.

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Contractor shall check the geogrid upon delivery to assure that the proper material has been received.
- B. Geogrids shall be stored above -20°F.
- C. Contractor shall prevent excessive mud, wet cement, epoxy and like materials which may affix themselves to the geogrid, from coming in contact with the geogrid material.
- D. Rolled geogrid material may be laid flat or stood on end for storage.

**1.05 SUBMITTALS**

- A. Samples of all products used in the work of this section.
- B. Latest edition of manufacturers specifications for proposed materials, method of installation and list of material proposed for use.

**1.06 QUALITY ASSURANCE**

- A. Soil testing and inspection service for quality control testing during earthwork operation will be supplied by the owner.

**PART 2: PRODUCTS**

**2.01 DEFINITIONS**

- A. Geogrid products shall be high density polyethylene expanded sheet or polyester woven fiber materials, specifically fabricated for use as soil reinforcement.
- B. Concrete retaining wall units are as detailed on the drawings and are specified under Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.
- C. Wall fill is a free draining granular material used within the concrete units.
- D. Backfill is the soil which is used as fill for the reinforced soil mass.
- E. Foundation soil is the in situ soil.

**2.02 GEOGRID**

- A. Geogrid shall be the type as shown on the drawings having the property requirements as described within the manufacturers specifications.

**2.03 ACCEPTABLE MANUFACTURERS**

- A. A manufacturer's product shall be approved by the Engineer prior to bid opening.

**PART 3: EXECUTION**

**3.01 FOUNDATION SOIL PREPARATION**

- A. Foundation soil shall be excavated to the lines and grades as shown on the construction drawings or as directed by the Engineer.
- B. Foundation soil shall be examined by the Engineer to assure that the actual foundation soil strength meets or exceeds assumed design strength.
- C. Over excavated areas shall be filled with approved compacted backfill material.
- D. Foundation soil shall be proof rolled prior to fill and geogrid placement.

**3.02 WALL ERECTION**

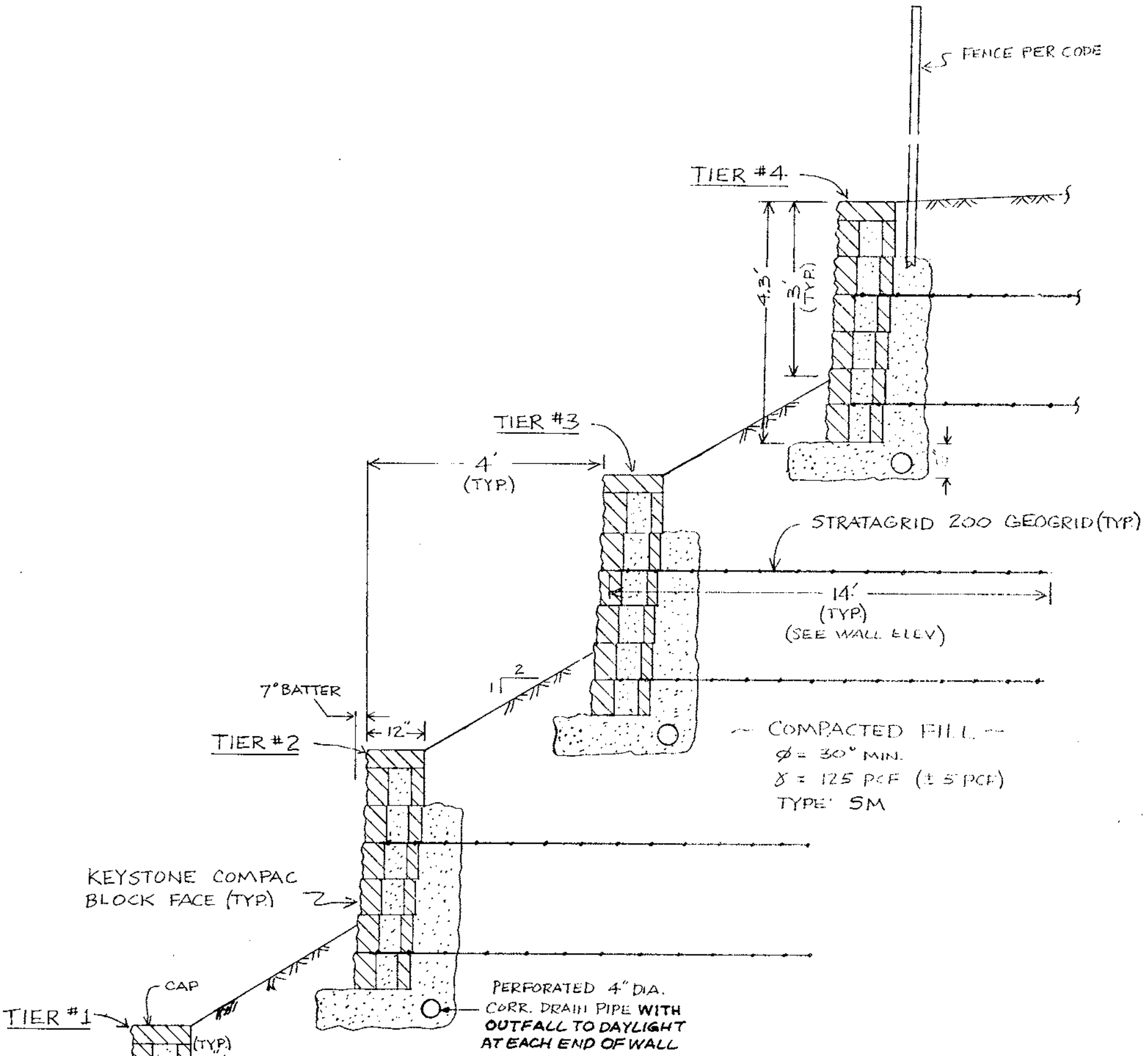
- A. Wall erection shall be as specified under Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.

**3.03 GEOGRID INSTALLATION**

- A. The geogrid soil reinforcement shall be laid horizontally on compacted backfill. Connect to the concrete wall units by hooking geogrid over fiberglass pins. Pull taut, and anchor before backfill is placed on the geogrid.
- B. Stack in the geogrid at the wall unit connections shall be removed.
- C. Geogrid shall be laid at the proper elevation and orientation as shown on the construction drawings or as directed by the Engineer.
- D. Correct orientation (roll direction) of the geogrid shall be verified by the contractor.
- E. To pretension geogrid, pull pinned geogrid taut to eliminate loose folds. Stakes or secure back edge of geogrid prior to and during backfill and compaction.
- F. Follow manufacturers guidelines relative to overlap requirements of uniaxial and biaxial geogrids.

**3.04 FILL PLACEMENT**

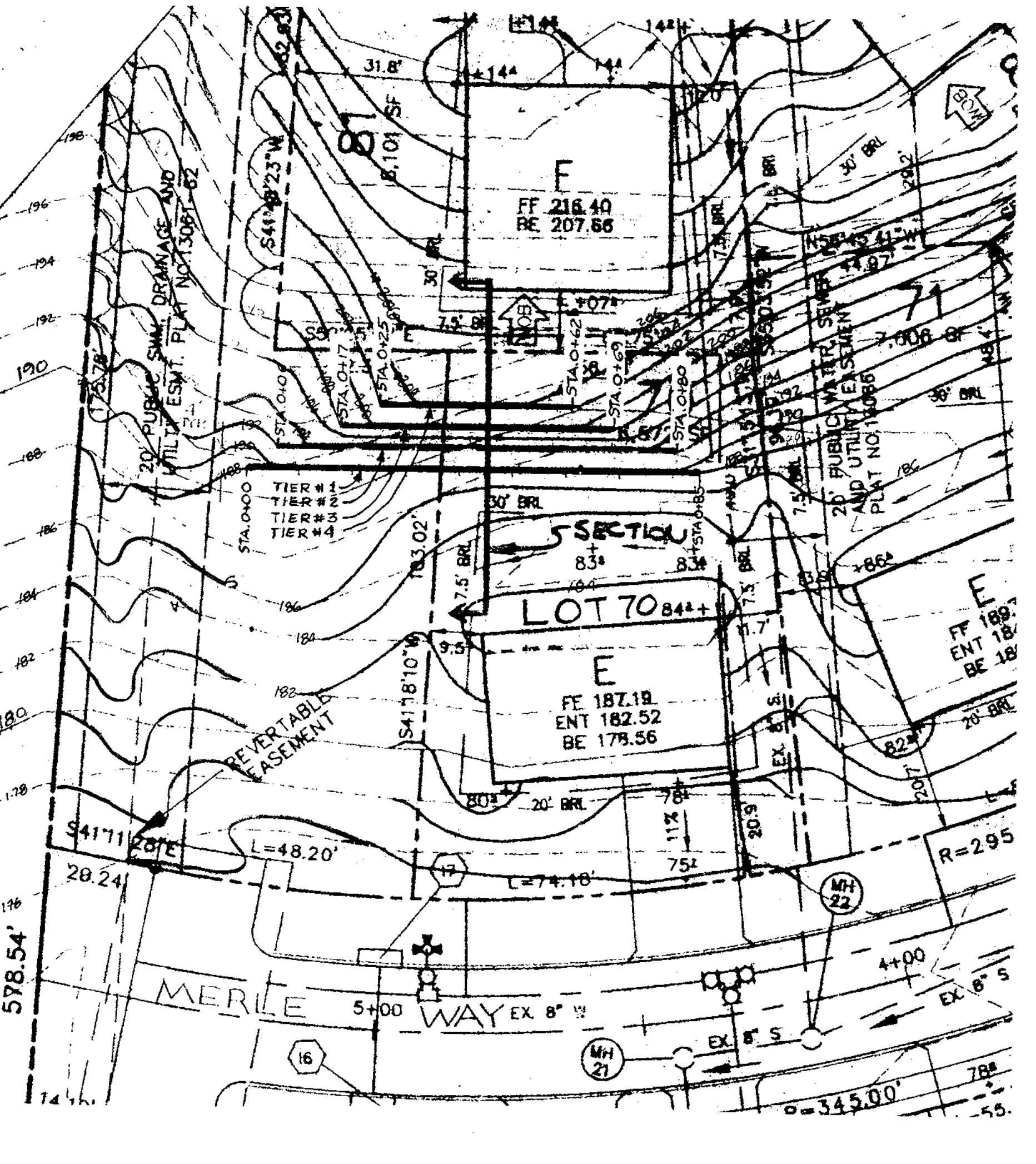
- A. Backfill material shall be placed in 8 inch lifts and compacted to 95% of Standard Proctor.
- B. Backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slick or loss of pretension of the geogrid.
- C. Only hand-operated compaction equipment shall be allowed within 3 feet of the back surface of the Keystone units.
- D. Backfill shall be placed from the wall rearward into the embankment to insure that the geogrid remains taut.
- E. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 8 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
- F. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.



NOTE: ANY WATER SEEPAGE FROM CUT SLOPE FACE MUST BE EVALUATED BY HILLIS-CARNES. ADDITIONAL DRAIN MATERIAL MAY BE REQUIRED IN THE SEEPAGE AREAS.

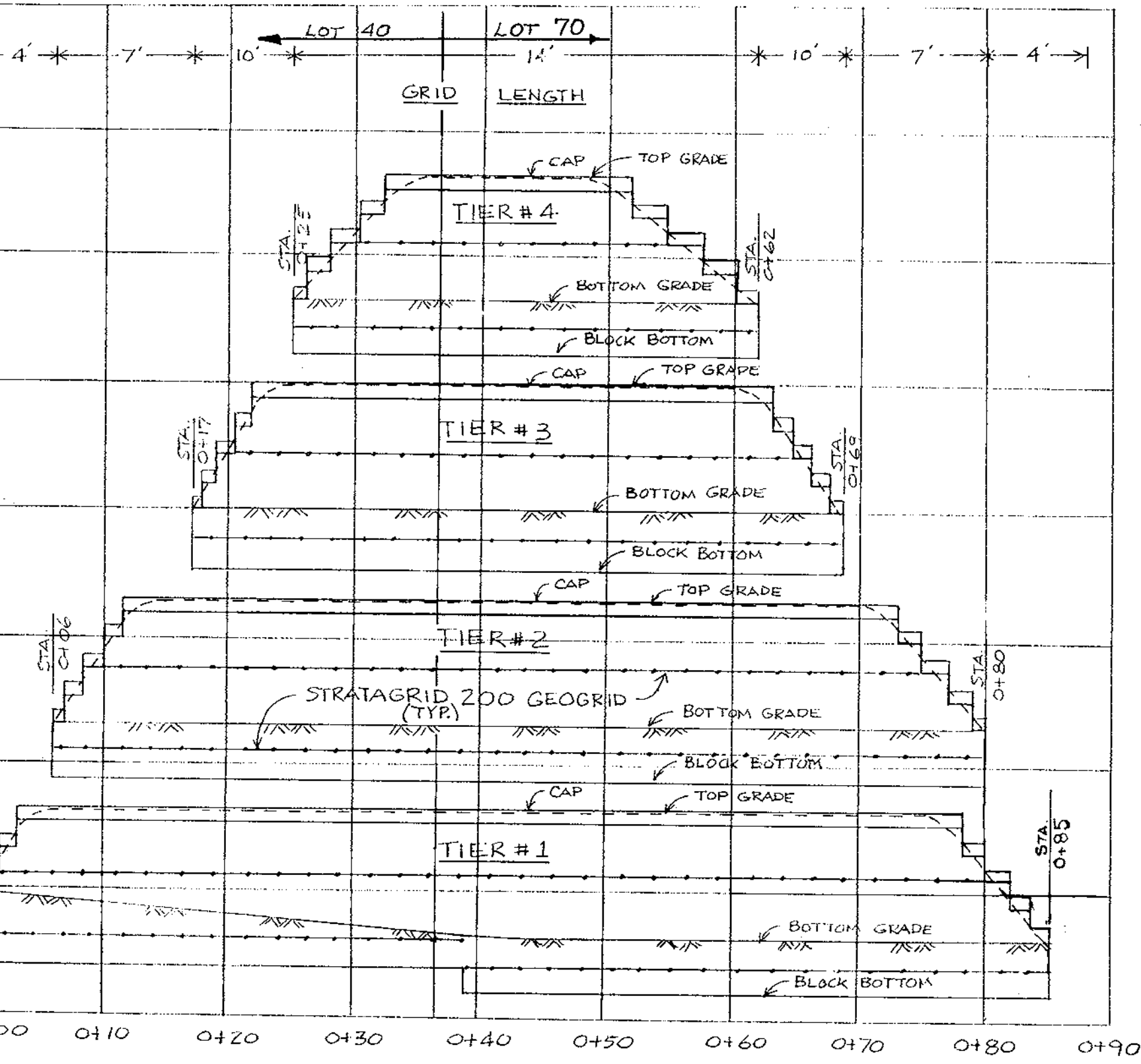
SUBGRADE APPROVED FOR 2500 PSF BEARING SEE NOTE BELOW.

**WALL SECTION  
N.T.S.**



**WALL LOCATION PLAN  
1"=20"**

NOTE: RETAINING WALL CONSTRUCTION SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND REGISTERED PROFESSIONAL ENGINEER. THE FOUNDATION SOIL SHALL BE TESTED AND CERTIFIED BY A MARYLAND REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER TO ASSURE THAT THE ACTUAL FOUNDATION STRENGTH MEETS OR EXCEEDS THE ASSUMED DESIGN STRENGTH PRIOR TO FOOTING PLACEMENT.



**WALL STATION  
1"=10"**

**WALL ELEVATION**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*John D. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
10/22/98  
DATE

*Chris ...*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
10/21/98  
DATE

*...*  
10/20/98  
DATE



WP-95-39, 5-95-06, P-26-17, KP-26-69, F-27-110, AA-26-13, F-27-154

| Drafting | DATE | REVISIONS |
|----------|------|-----------|
| Check    |      |           |
| Design   |      |           |
| Check    |      |           |

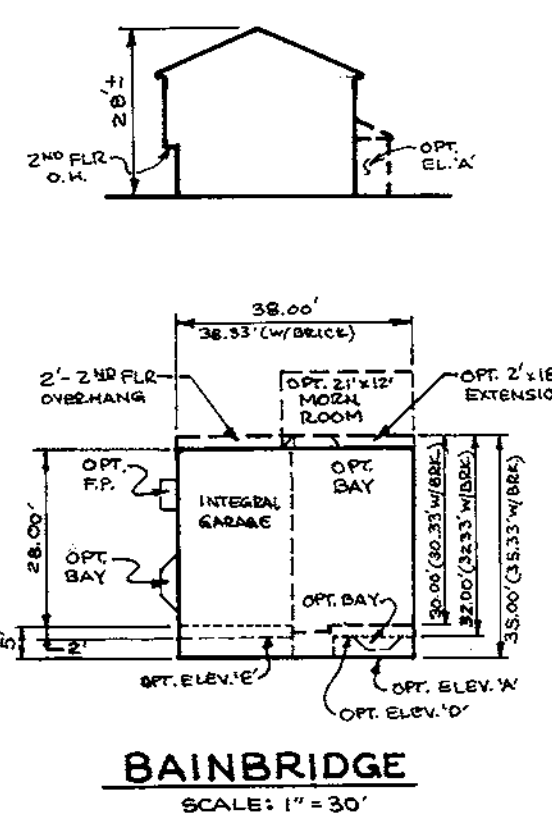
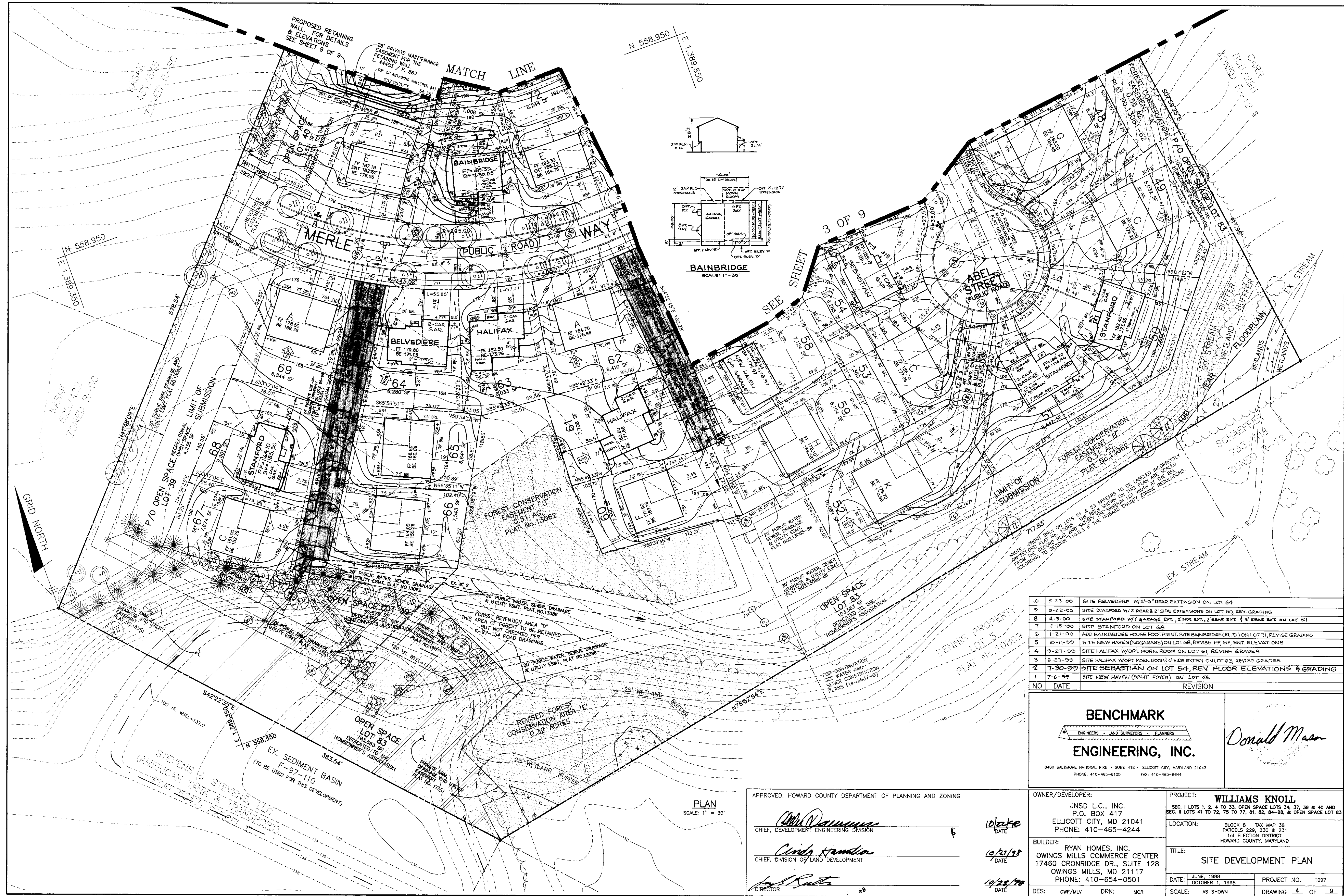
**HILLIS-CARNES ENGINEERING ASSOCIATES, INC.**  
12011 GULFORD ROAD, SUITE 106, ANNAPOLIS JUNCTION, MARYLAND 20701 (410) 860-4788 WASH. AREA (301) 470-4239

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLCOTT CITY, MD. 21041

CIVIL ENGINEER:  
BENCHMARK ENGINEERING, INC.  
8480 BALTIMORE NATIONAL PIKE - SUITE 418  
ELLCOTT CITY, MD. 21043

**RETAINING WALL DETAIL - LOT 70**  
WILLIAMS KNOLL, SECTIONS I & II, LOTS 1, 2, 4 THRU 33, O.S. LOTS 34, 37, 39 & 40  
41-72.75-77, 81, 82, 84-88 + O.S. LOT 83, T.M. 38, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100  
18 EL. DIST. HO. CO. MD.

| SHEET  | DATE    | JOB NUMBER |
|--------|---------|------------|
| 9 OF 9 | 10/1/98 | 96244 A    |
|        | SCALE   | 1097       |



| NO | DATE     | REVISION  |
|----|----------|---|
| 10 | 5-23-00  | SITE BELVEDERE W/2'-6" REAR EXTENSION ON LOT 64                                   |
| 9  | 5-22-00  | SITE STANFORD W/2' REAR & 2' SIDE EXTENSIONS ON LOT 50, REV. GRADING              |
| 8  | 4-3-00   | SITE STANFORD W/1 GARAGE EXT., 2' SIDE EXT., 2' REAR EXT., 1' SIDE EXT. ON LOT 51 |
| 7  | 2-15-00  | SITE STANFORD ON LOT 68   |
| 6  | 1-21-00  | ADD BAINBRIDGE HOUSE FOOTPRINT, SITE BAINBRIDGE (EL'D) ON LOT 11, REVISE GRADING  |
| 5  | 10-11-99 | SITE NEW HAVEN (NOGARAGE) ON LOT 68, REVISE FF, BF, ENT. ELEVATIONS               |
| 4  | 9-27-99  | SITE HALIFAX W/OPT. MORN. ROOM ON LOT 61, REVISE GRADES                           |
| 3  | 8-23-99  | SITE HALIFAX W/OPT. MORN. ROOM; 4-SIDE EXTEN. ON LOT 63, REVISE GRADES            |
| 2  | 7-30-99  | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING                         |
| 1  | 7-6-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 58  |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

**ENGINEERING, INC.**

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chris Damiano*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Chris Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Paul Rutter*  
DIRECTOR

DATE: 10/25/98

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

PROJECT:  
**WILLIAMS KNOLL**  
SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 38 & 40 AND  
SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION:  
BLOCK 8 TAX MAP 38  
PARCELS 228, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE:  
**SITE DEVELOPMENT PLAN**

DATE: JUNE, 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

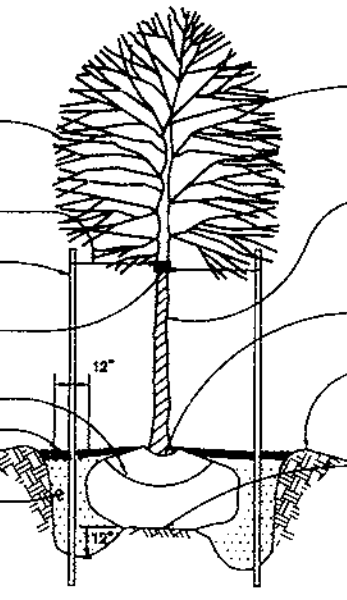
SCALE: AS SHOWN

DRAWING 4 OF 9

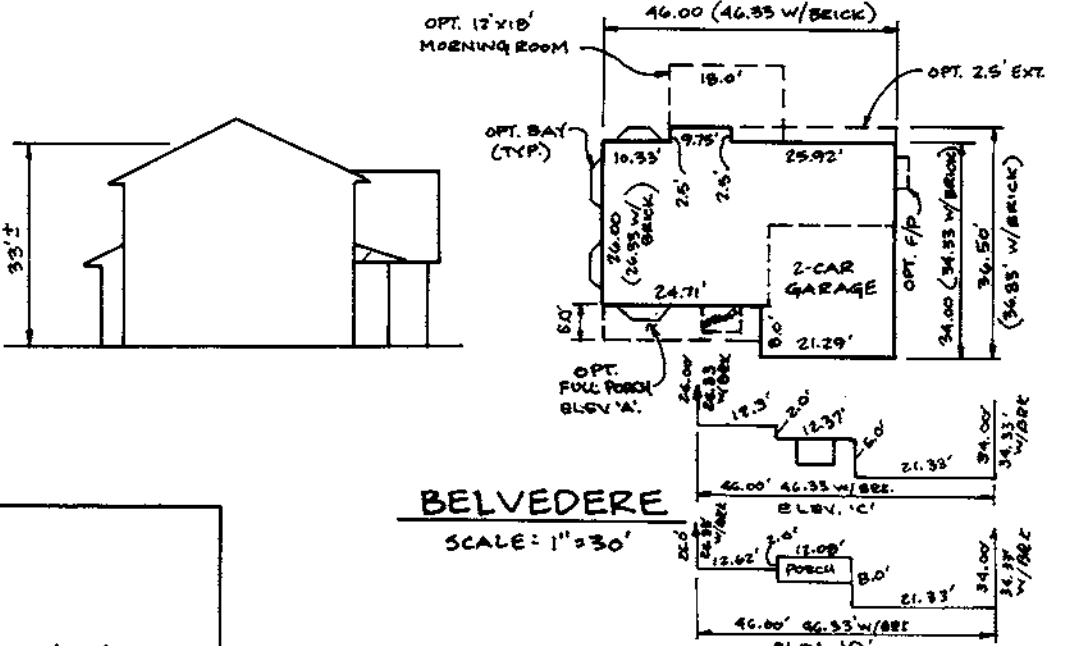
CARR  
805/138  
ZONED R-12



SEE SHEET 4 OF 9



TREE PLANTING DETAIL  
NOT TO SCALE



BELVEDERE  
SCALE: 1" = 30'

| NO | DATE     | REVISION  |
|----|----------|---|
| 7  | 8-23-99  | REMOVE 4'-SIDE EXTN. FULL PORCH, ADD 2'-REAR EXTN. TO HALIFAX ON LOT 88                   |
| 6  | 8-13-99  | SITE HALIFAX W/NORM. ROOM; 4'-SIDE EXTN. ON LOT 86, REVISE GRADES                         |
| 5  | 7-20-99  | SITE "SEBASTIAN" ON LOT 17  |
| 4  | 7-6-99   | SITE HALIFAX W/4'-SIDE EXTN. ON LOT 88  |
| 3  | 5-13-99  | RESITE A STANFORD ON LOTS 27 & 42, A SEBASTIAN ON LOTS 14 & 55, AND A BIRCHWOOD ON LOT 19 |
| 2  | 2/2/99   | REV. STANFORD SITING ON LOT 22, SITE SEBASTIAN ON LOT 27, REV. GRADING                    |
| 1  | 11-10-98 | SITE STANFORD ON LOT 12 AND 28, REVISE GRADES   |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PKWY • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6544

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard Dammann*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*David R. Rutter*  
DIRECTOR

10/22/98  
DATE

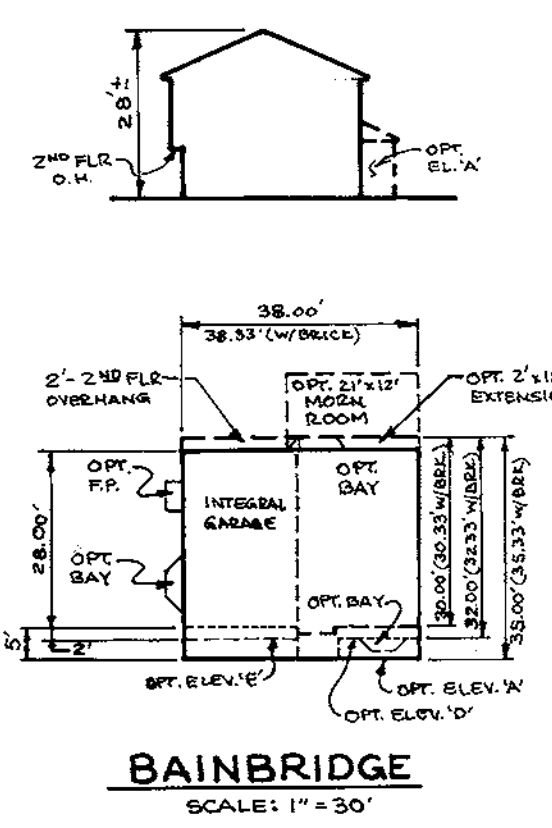
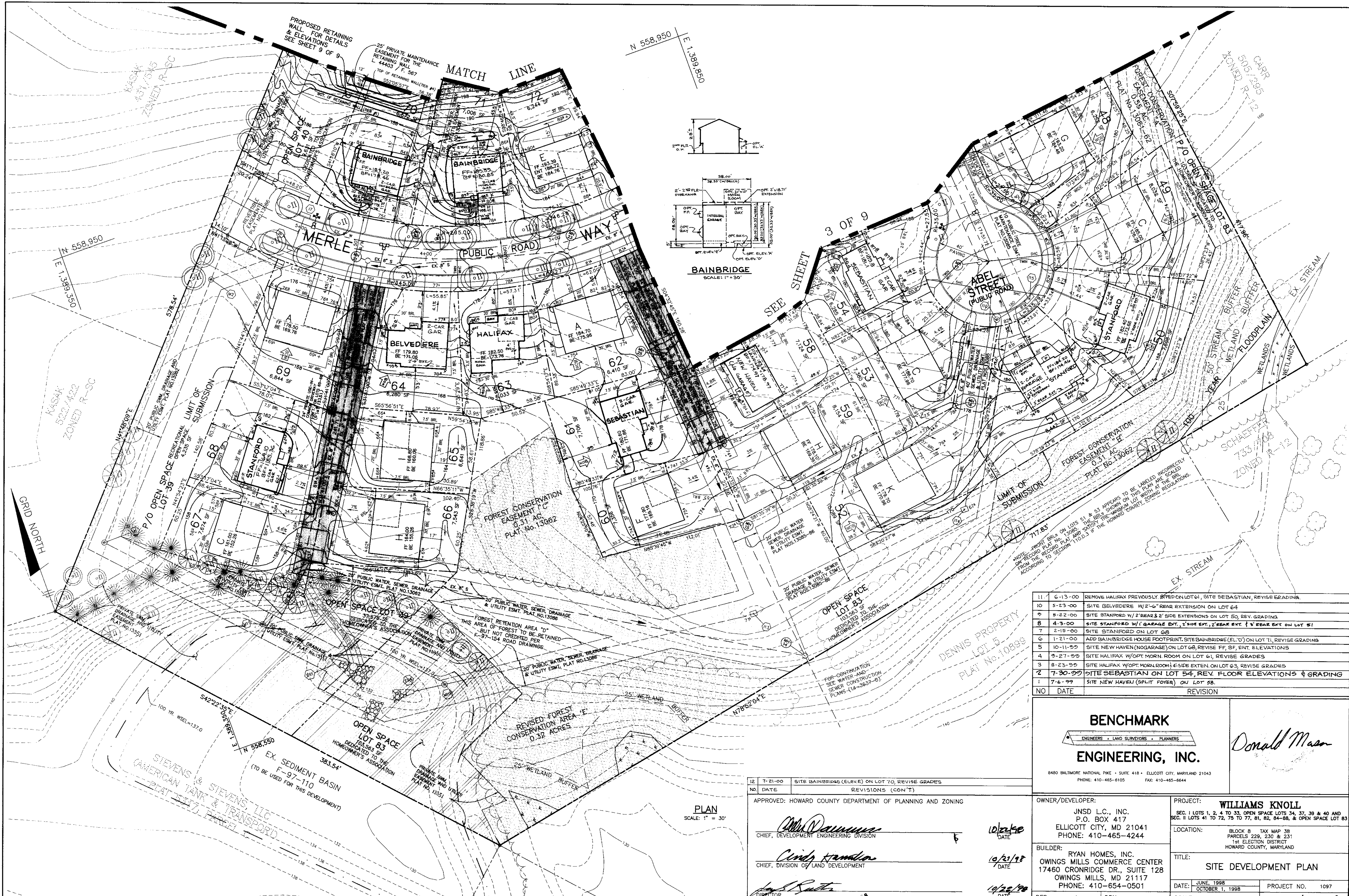
10/22/98  
DATE

10/28/98  
DATE

| NO. | DATE    | REVISION  |
|-----|---------|---|
| 12  | 4-20-00 | SITE BELVEDERE W/HOLD ROOM & 2.5' REAR EXTN. ON LOT 47                              |
| 11  | 4-3-00  | ADD BELVEDERE HOUSE TYPE, SITE BELVEDERE W/OPT. HOLD ROOM ON LOT 46                 |
| 10  | 9-24-99 | SITE STANFORD W/2'-SIDE EXTN. ON LOT 82, REVISE GRADES                              |
| 9   | 9-3-99  | SITE STANFORD W/2' HOUSE EXT., 2' FAN ROOM EXT., 5' DIN. ROOM EXT., 2' HALLWAY ROOM |
| 8   | 8-23-99 | SITE STANFORD W/2'-SIDE, 2' REAR 3' REAR DINING ROOM EXTN. ON LOT 76, REV. GRADES   |

PLAN  
SCALE: 1" = 30'





| NO. | DATE     | REVISION   |
|-----|----------|--|
| 11  | 6-13-00  | REMOVE HALIFAX PREVIOUSLY SITED ON LOT 61, SITE SEBASTIAN, REVISE GRADING.           |
| 10  | 5-23-00  | SITE BELVEDERE W/ 2'-6" REAR EXTENSION ON LOT 64                                     |
| 9   | 5-22-00  | SITE STANFORD W/ 2' REAR & 2' SIDE EXTENSIONS ON LOT 50, REV. GRADING                |
| 8   | 4-3-00   | SITE STANFORD W/ 1' GARAGE EXT., 2' SIDE EXT., 2' REAR EXT. & 3' REAR EXT. ON LOT 51 |
| 7   | 2-15-00  | SITE STANFORD ON LOT 68  |
| 6   | 1-21-00  | ADD BAINBRIDGE HOUSE FOOTPRINT, SITE BAINBRIDGE (EL. 'D') ON LOT 71, REVISE GRADING  |
| 5   | 10-11-99 | SITE NEW HAVEN (NO GARAGE) ON LOT 68, REVISE FF, BF, ENT. ELEVATIONS                 |
| 4   | 9-27-99  | SITE HALIFAX W/OPT. MORN. ROOM ON LOT 61, REVISE GRADES                              |
| 3   | 8-23-99  | SITE HALIFAX W/OPT. MORN. ROOM; 4' SIDE EXTEN. ON LOT 63, REVISE GRADES              |
| 2   | 7-30-99  | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING                            |
| 1   | 7-6-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 58   |


**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS


*Donald Mason*


**ENGINEERING, INC.**

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

  
 CHIEF, DIVISION OF LAND DEVELOPMENT

  
 DIRECTOR

10/25/98 DATE  
 10/21/98 DATE  
 10/25/98 DATE

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

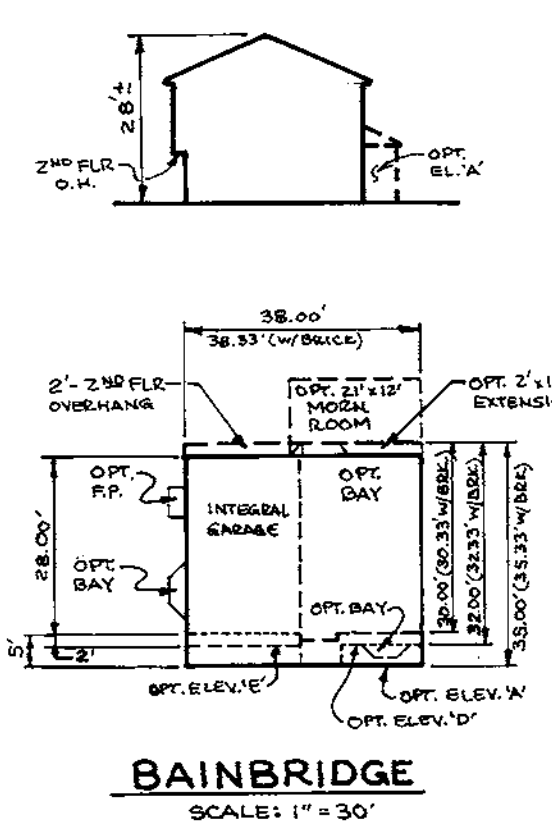
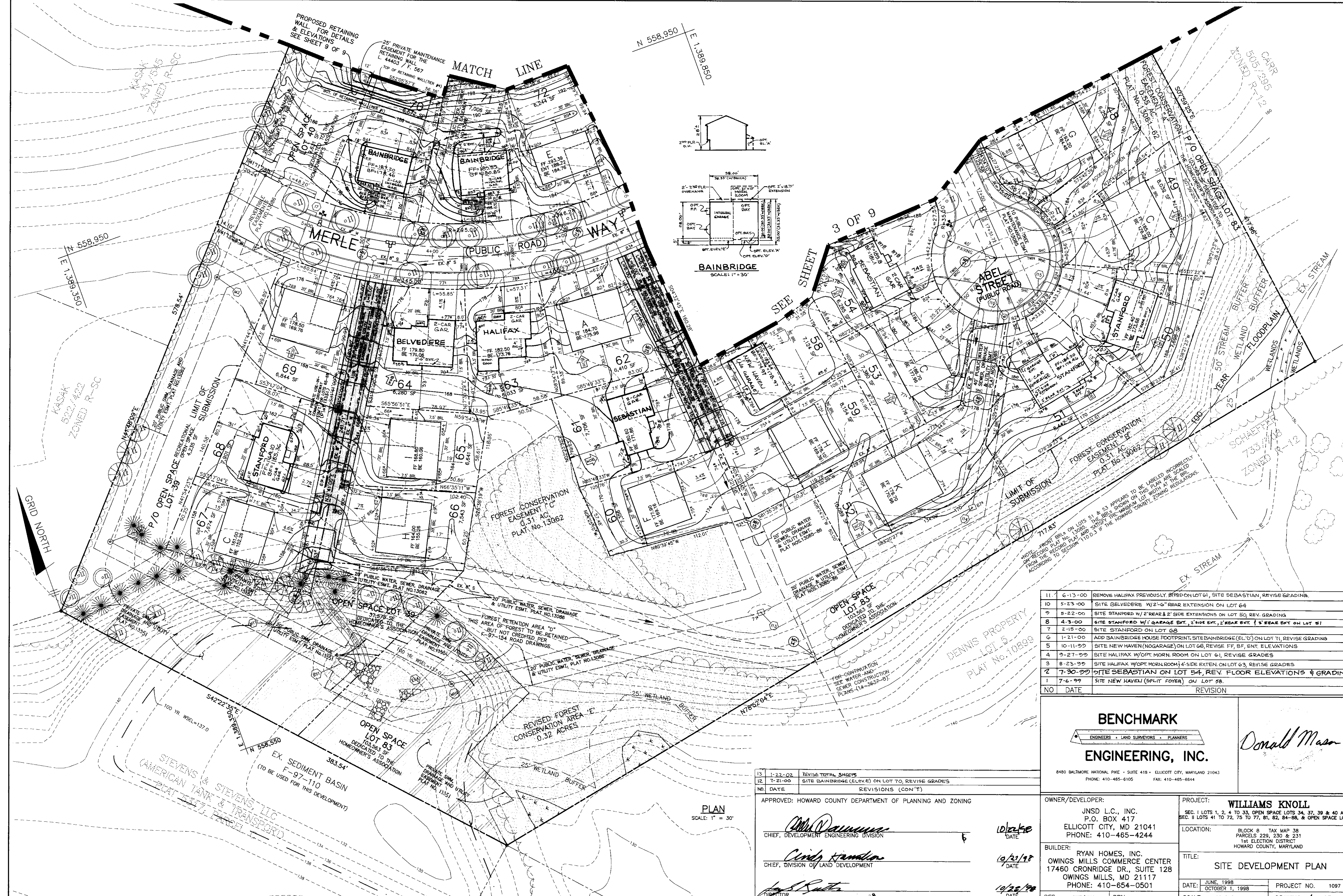
PROJECT:  
**WILLIAMS KNOLL**  
SEC. 1 LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND  
SEC. 1 LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION:  
BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE:  
**SITE DEVELOPMENT PLAN**

DATE: JUNE 1998 PROJECT NO. 1097  
OCTOBER 1, 1998

SCALE: AS SHOWN DRAWING 4 OF 9



| NO. | DATE     | REVISION   |
|-----|----------|--|
| 11  | 6-13-00  | REMOVE HALIFAX PREVIOUSLY SHOWN ON LOT 61, SITE SEBASTIAN, REVISE GRADING.           |
| 10  | 5-23-00  | SITE BELVEDERE W/ 2'-6" REAR EXTENSION ON LOT 64                                     |
| 9   | 5-22-00  | SITE STANFORD W/ 2' REAR & 2' SIDE EXTENSIONS ON LOT 50, REV. GRADING                |
| 8   | 4-3-00   | SITE STANFORD W/ 1' GARAGE EXT., 2' SIDE EXT., 2' REAR EXT. (3' REAR EXT. ON LOT 51) |
| 7   | 2-15-00  | SITE STANFORD ON LOT 68  |
| 6   | 1-21-00  | ADD BAINBRIDGE HOUSE FOOTPRINT, SITE BAINBRIDGE (EL. 'D') ON LOT 71, REVISE GRADING  |
| 5   | 10-11-99 | SITE NEW HAVEN (NO GARAGE) ON LOT 68, REVISE FF, BF, ENT. ELEVATIONS                 |
| 4   | 9-27-99  | SITE HALIFAX W/OPT. MORN. ROOM ON LOT 61, REVISE GRADES                              |
| 3   | 8-23-99  | SITE HALIFAX W/OPT. MORN. ROOM; 4' SIDE EXTEN. ON LOT 63, REVISE GRADES              |
| 2   | 7-30-99  | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING                            |
| 1   | 7-6-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 58   |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

*Donald Mason*

**ENGINEERING, INC.**

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Mr. [Signature]*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Chris Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*[Signature]*  
DIRECTOR

DATE: 10/21/98  
DATE: 10/22/98

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

PROJECT:  
**WILLIAMS KNOLL**  
SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND  
SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION:  
BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

TITLE:  
**SITE DEVELOPMENT PLAN**

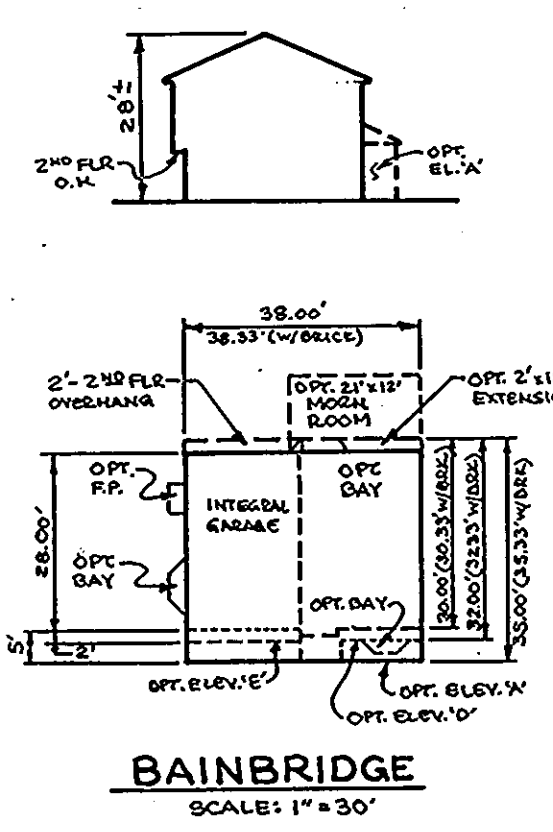
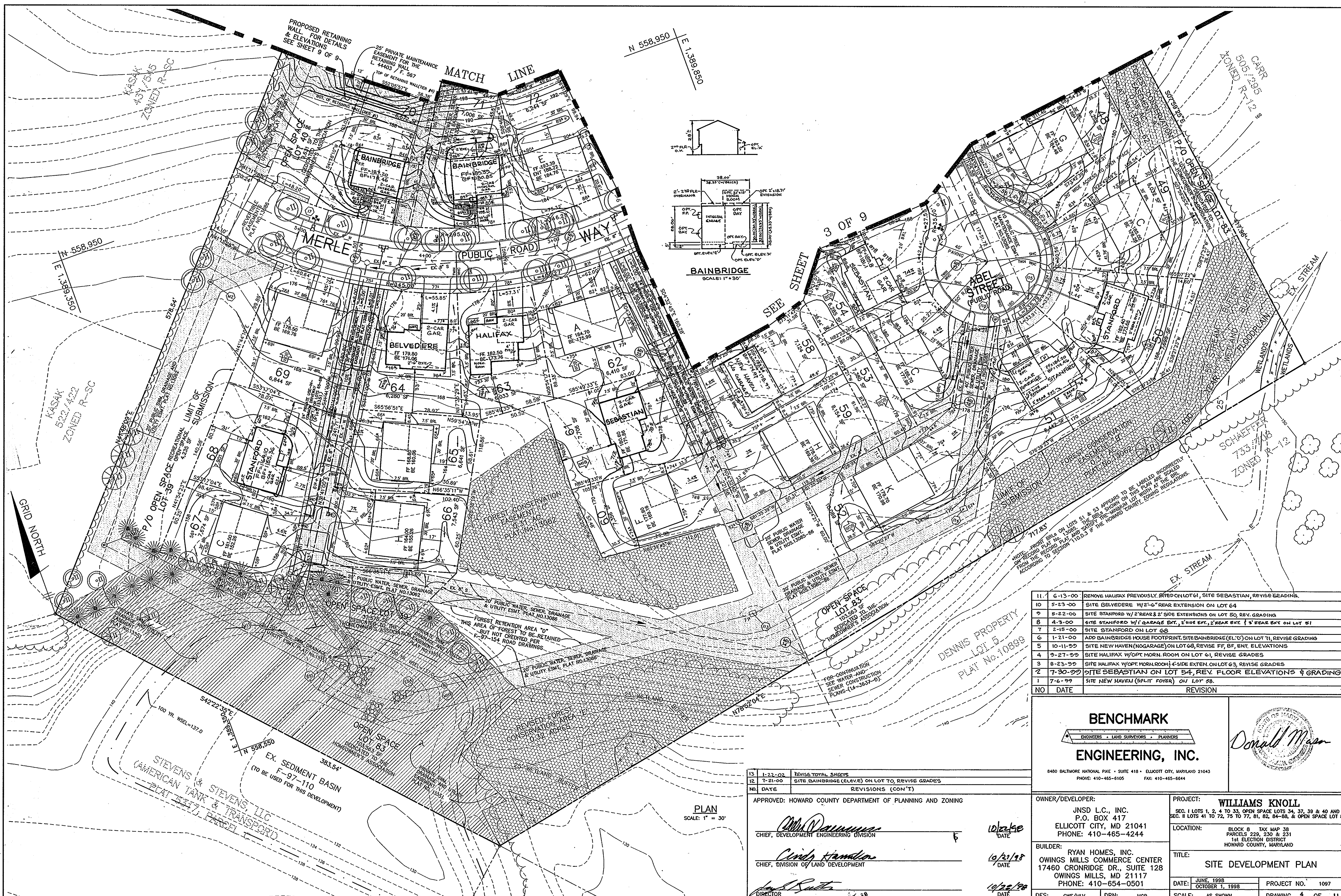
DATE: JUNE 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

SCALE: AS SHOWN

DRAWING 4 OF 11

DES: GWF/MLV DRN: MCR



BAINBRIDGE  
SCALE: 1" = 30'

| NO. | DATE     | REVISION   |
|-----|----------|--|
| 11  | 6-13-00  | REMOVE HALIFAX PREVIOUSLY SITED ON LOT 61, SITE SEBASTIAN, REVISE GRADING.           |
| 10  | 5-23-00  | SITE BELVEDERE W/ 2'-6" REAR EXTENSION ON LOT 64                                     |
| 9   | 5-22-00  | SITE STANFORD W/ 2' REAR & 2' SIDE EXTENSIONS ON LOT 50, REVISE GRADING              |
| 8   | 4-3-00   | SITE STANFORD W/ 1' GARAGE EXT., 2' SIDE EXT., 2' REAR EXT. & 3' REAR EXT. ON LOT 51 |
| 7   | 2-15-00  | SITE STANFORD ON LOT 68  |
| 6   | 1-21-00  | ADD BAINBRIDGE HOUSE FOOTPRINT, SITE BAINBRIDGE (EL. 'D') ON LOT 71, REVISE GRADING  |
| 5   | 10-11-99 | SITE NEW HAVEN (NO GARAGE) ON LOT 68, REVISE FF, BF, ENT. ELEVATIONS                 |
| 4   | 9-27-99  | SITE HALIFAX W/ OPT. MORN. ROOM ON LOT 61, REVISE GRADES                             |
| 3   | 8-23-99  | SITE HALIFAX W/ OPT. MORN. ROOM 4'-SIDE EXTEN. ON LOT 63, REVISE GRADES              |
| 2   | 7-30-99  | SITE SEBASTIAN ON LOT 54, REV. FLOOR ELEVATIONS & GRADING                            |
| 1   | 7-6-99   | SITE NEW HAVEN (SPLIT FOYER) ON LOT 58   |

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

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

*Donald Mason*

13 1-22-02 REVISE TOTAL SHEETS  
12 7-21-00 SITE BAINBRIDGE (ELEV.) ON LOT 70, REVISE GRADES

NO. DATE REVISIONS (CON'T)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*W. J. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Paul ...*  
DIRECTOR

DATE: 10/21/98  
DATE: 10/22/98

OWNER/DEVELOPER:  
JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER:  
RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

PROJECT:  
**WILLIAMS KNOLL**  
SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION:  
BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

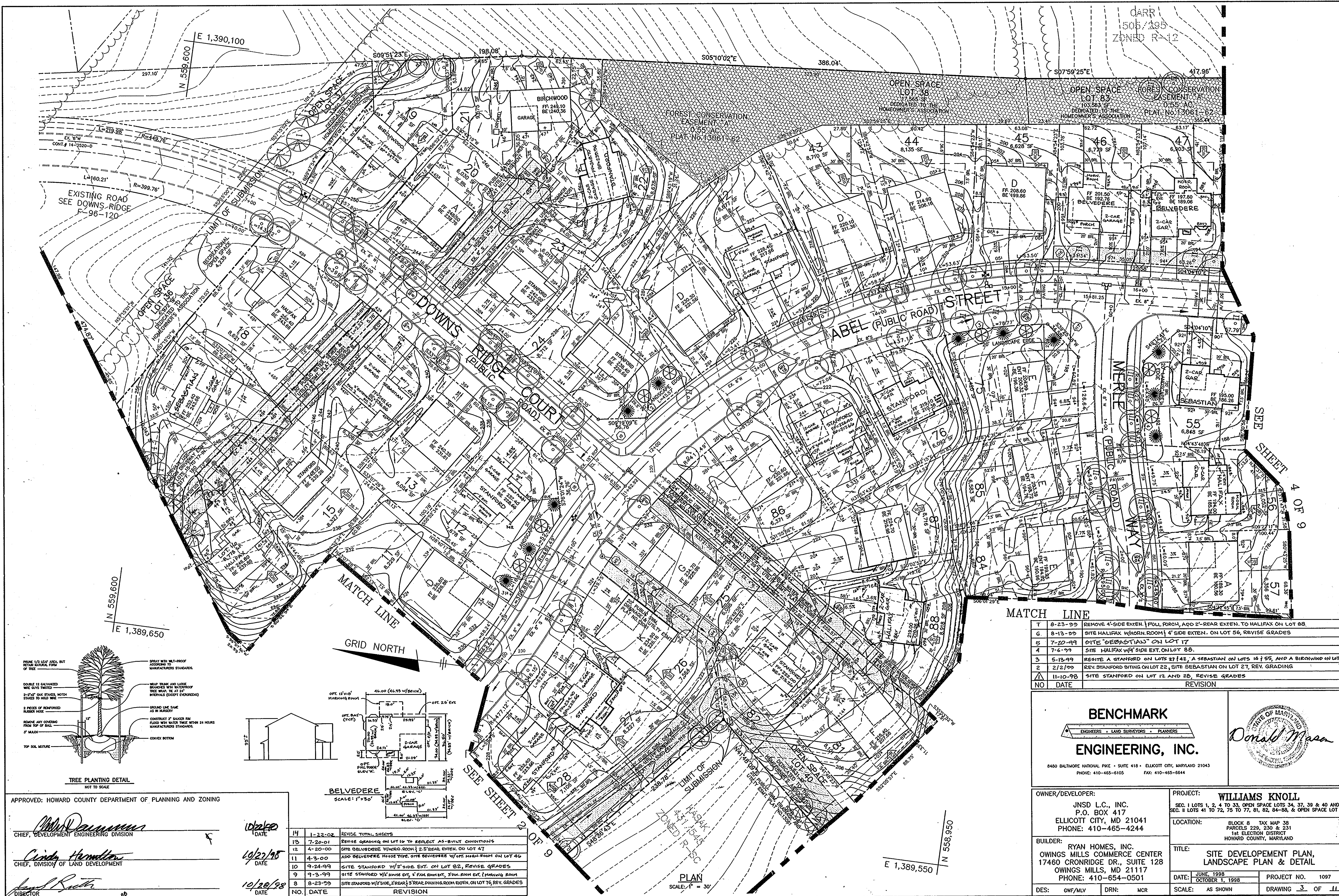
TITLE:  
**SITE DEVELOPMENT PLAN**

DATE: JUNE 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

DES: GWF/MLV DRN: MCR

SCALE: AS SHOWN DRAWING 4 OF 11



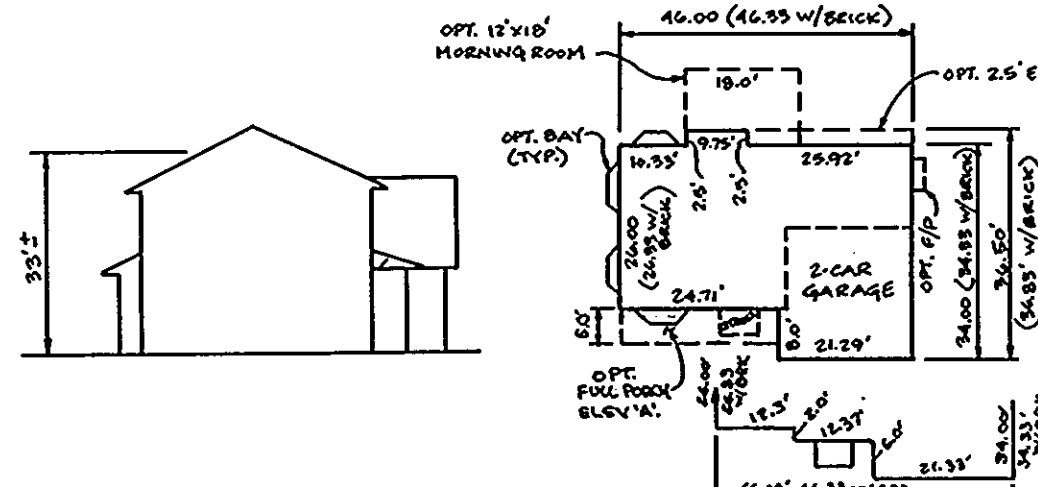
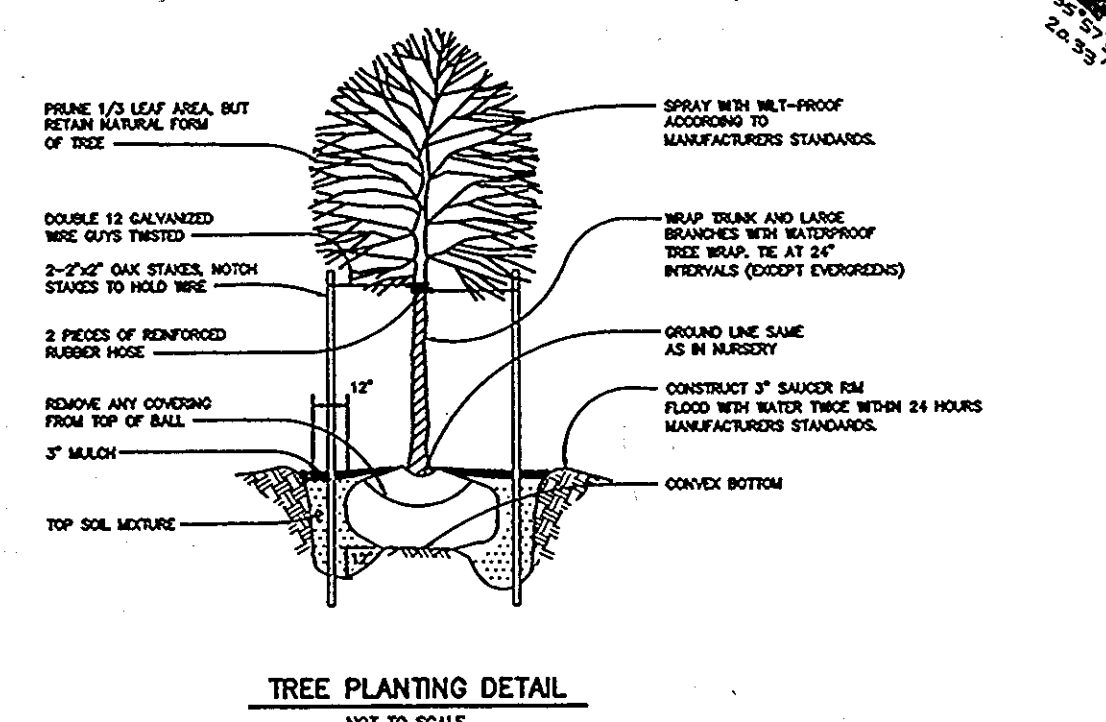
CARR  
507.435  
ZONED R-42

E 1,390,100

N 559,600  
E 1,389,650

MATCH LINE

SEE SHEET 4 OF 9



| NO | DATE     | REVISION  |
|----|----------|---|
| 7  | 8-23-99  | REMOVE 4'-SIDE EXTN. FULL PORCH, ADD 2'-REAR EXTN. TO HALIFAX ON LOT 88.                  |
| 6  | 8-13-99  | SITE HALIFAX W/HORN ROOM 4' SIDE EXTN. ON LOT 56, REVISE GRADES                           |
| 5  | 7-20-99  | SITE "SEBASTIAN" ON LOT 17  |
| 4  | 7-6-99   | SITE HALIFAX W/4' SIDE EXTN. ON LOT 80.   |
| 3  | 5-13-99  | RESITE A STANFORD ON LOTS 27 & 42, A SEBASTIAN ON LOTS 14 & 55, AND A BIRCHWOOD ON LOT 19 |
| 2  | 2/2/99   | REV. STANFORD SITING ON LOT 22, SITE SEBASTIAN ON LOT 27, REV. GRADING                    |
| 1  | 11-10-98 | SITE STANFORD ON LOT 12 AND 28, REVISE GRADES   |

**BENCHMARK**  
ENGINEERS - LAND SURVEYORS - PLANNERS

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6844

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard Hamilton*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*David Smith*  
DIRECTOR

DATE: 10/22/98

DATE: 10/28/98

| NO. | DATE    | REVISION  |
|-----|---------|---|
| 14  | 1-22-02 | REVISE TOTAL SHEETS   |
| 13  | 7-20-01 | REVISE GRADING ON LOT 19 TO REFLECT AS-BUILT CONDITIONS                             |
| 12  | 4-20-00 | SITE BELVEDERE W/HORN ROOM 4' 2.5' REAR EXTN. ON LOT 47                             |
| 11  | 4-3-00  | ADD BELVEDERE HOUSE TYPE, SITE BELVEDERE W/OPT. HORN ROOM ON LOT 46                 |
| 10  | 9-24-99 | SITE STANFORD W/2' SIDE EXTN. ON LOT 82, REVISE GRADES                              |
| 9   | 9-3-99  | SITE STANFORD W/2' HOUSE EXTN, 3' FAH. ROOM EXTN, 3' SWH. ROOM EXTN, (PARKING ROOM) |
| 8   | 8-23-99 | SITE STANFORD W/2' SIDE, 2' REAR 3' REAR DINING ROOM EXTN. ON LOT 76, REV. GRADES   |

OWNER/DEVELOPER: JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER: RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

DES: GWF/MLV DRN: MCR

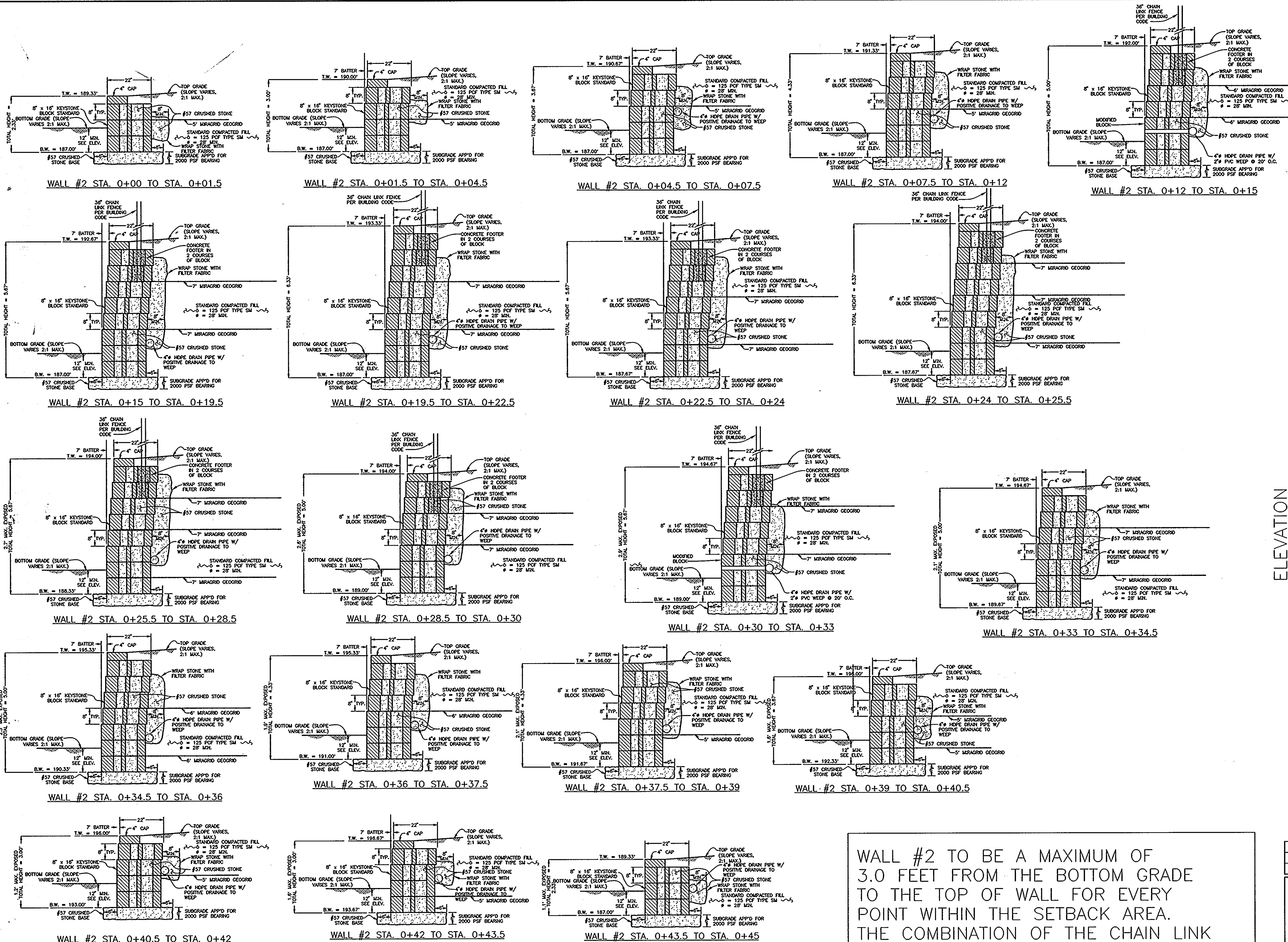
PROJECT: **WILLIAMS KNOLL**  
SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION: BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: **SITE DEVELOPMENT PLAN, LANDSCAPE PLAN & DETAIL**

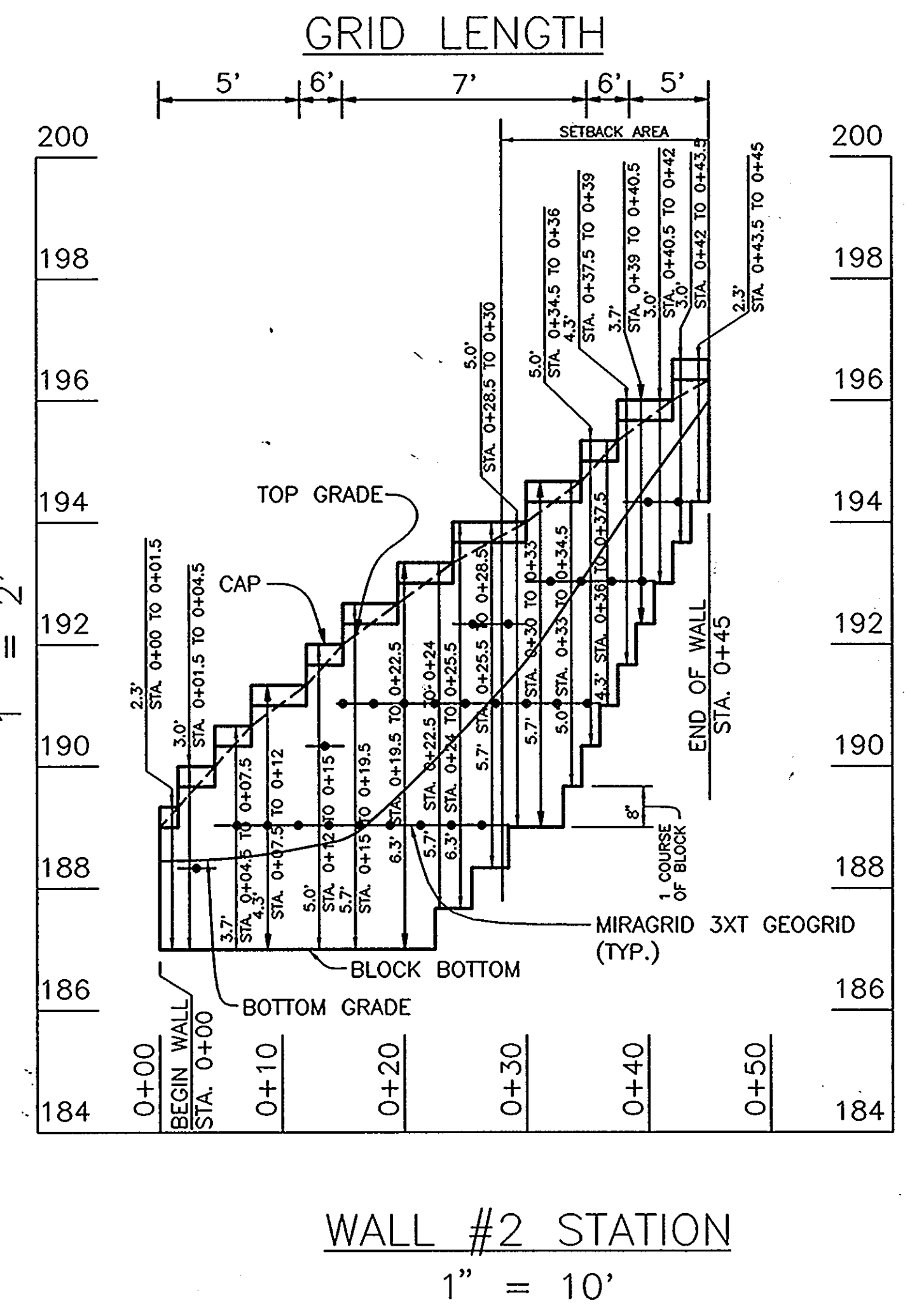
DATE: JUNE, 1998 PROJECT NO. 1097  
OCTOBER 1, 1998

SCALE: AS SHOWN DRAWING 3 OF 11



TYPICAL SECTIONS WALL #2  
NOT TO SCALE

WALL #2 TO BE A MAXIMUM OF 3.0 FEET FROM THE BOTTOM GRADE TO THE TOP OF WALL FOR EVERY POINT WITHIN THE SETBACK AREA. THE COMBINATION OF THE CHAIN LINK FENCE AND THE WALL IS NOT TO EXCEED 6.0 FEET AT ANY POINT WITHIN THE SETBACK AREA.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

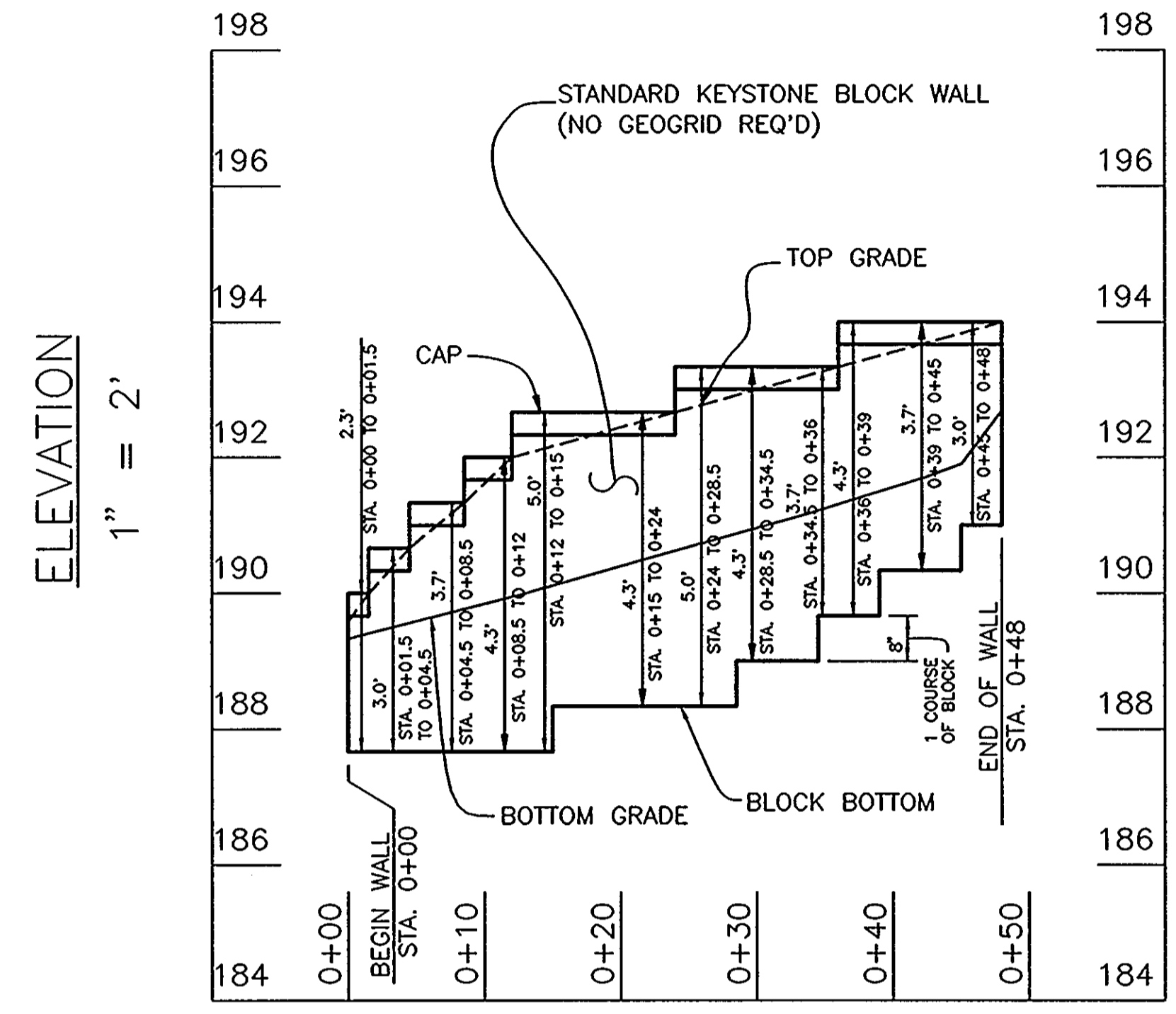
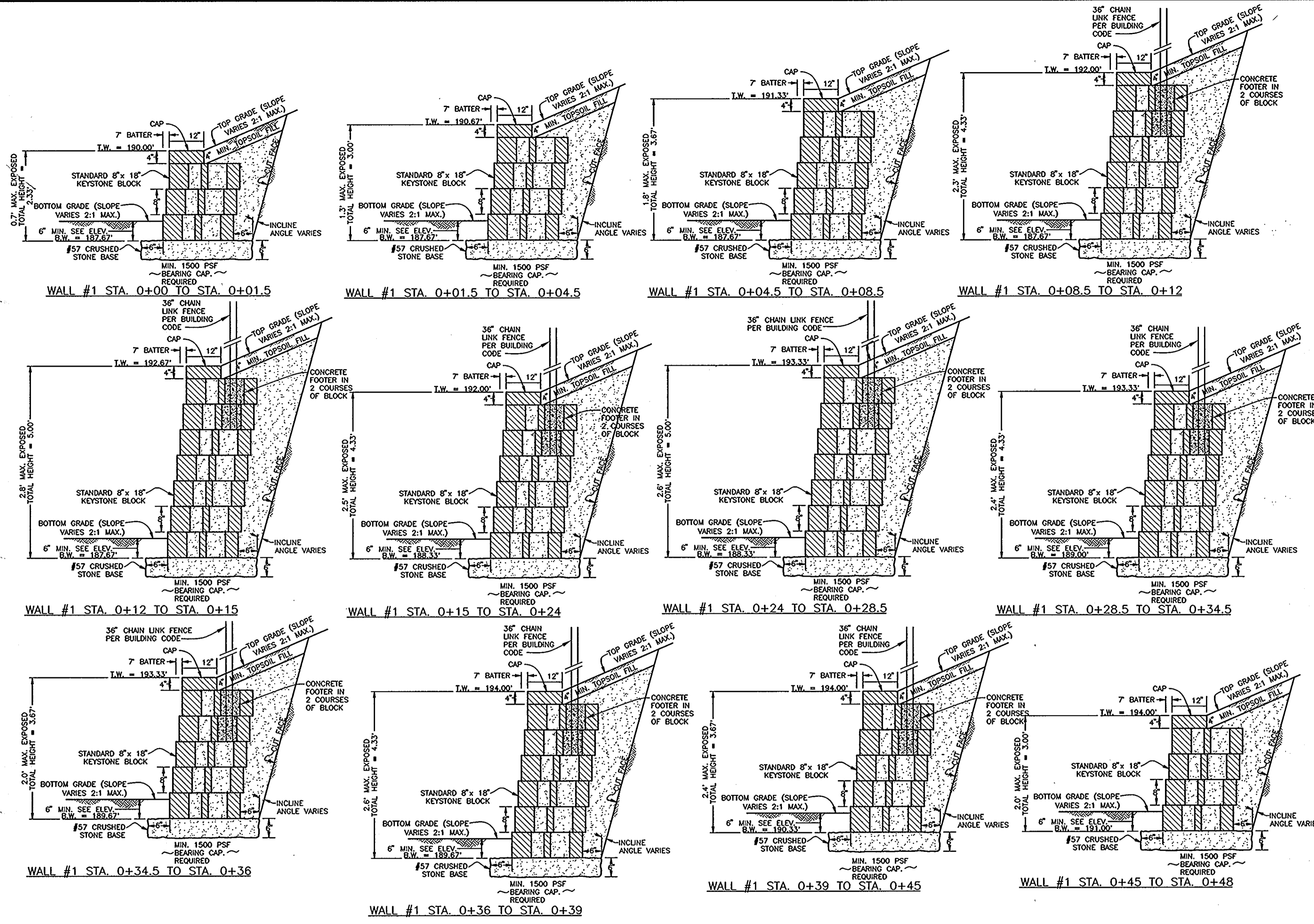
*Howard County Department of Planning and Zoning*

1/31/02 DATE

1/31/02 DATE

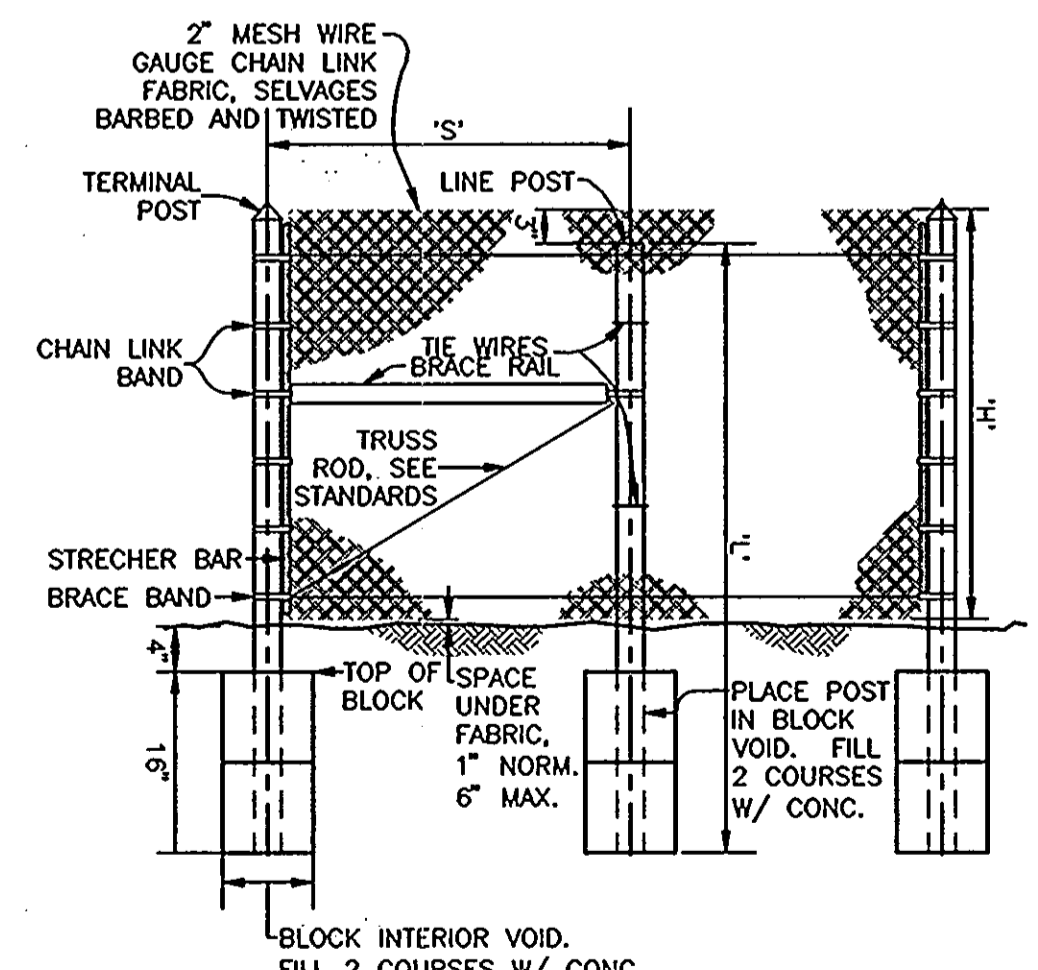
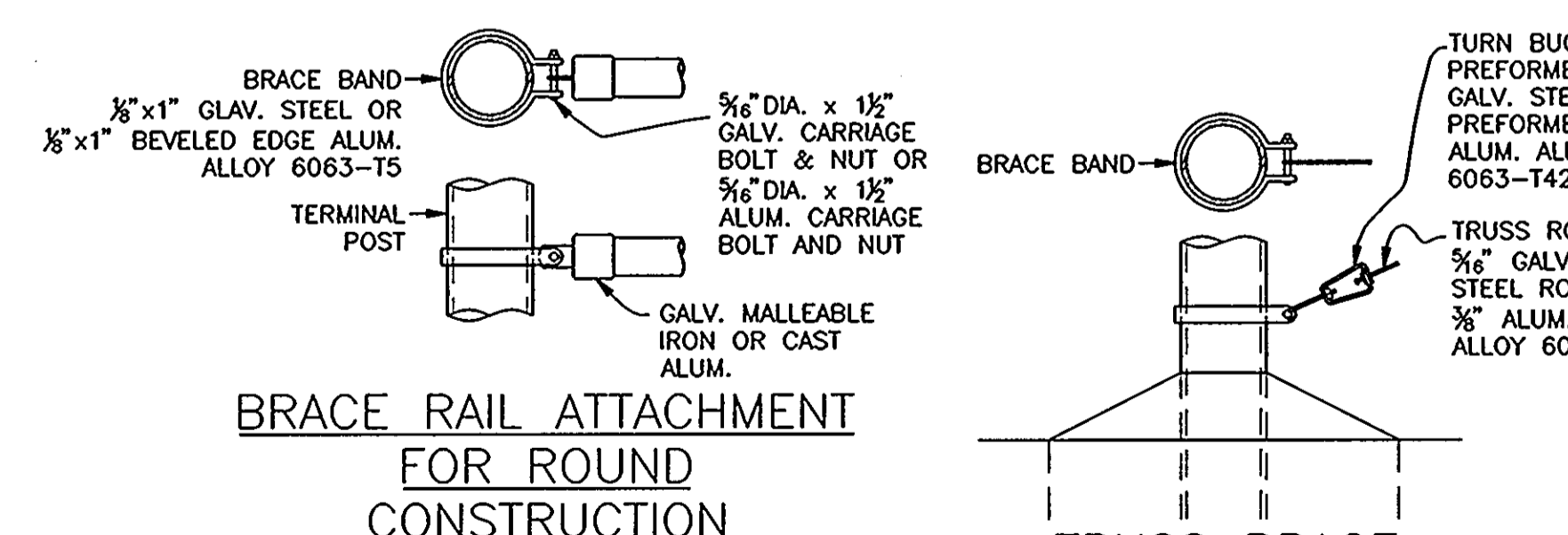
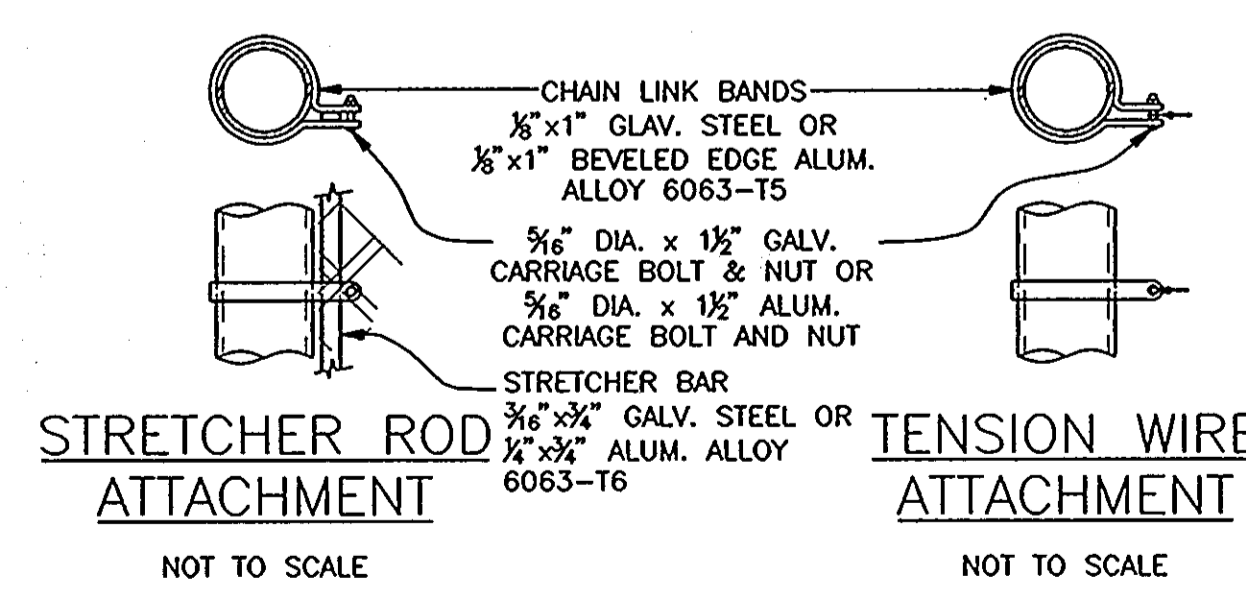
2/4/02 DATE

| NO  | DATE | REVISION  |
|---|------|---|
| <p><b>BENCHMARK</b><br/>ENGINEERS • LAND SURVEYORS • PLANNERS</p> <p><b>ENGINEERING, INC.</b></p> <p>8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043<br/>PHONE: 410-465-6105 • FAX: 410-465-6644</p> |      |   |
| <p>OWNER/DEVELOPER:<br/>JNSD L.C., INC.<br/>P.O. BOX 417<br/>ELLICOTT CITY, MD 21041<br/>PHONE: 410-465-4244</p>  |      | <p>PROJECT:<br/><b>WILLIAMS KNOLL</b><br/>SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 &amp; 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-86, &amp; OPEN SPACE LOT 83</p> |
| <p>BUILDER:<br/>RYAN HOMES, INC.<br/>OWINGS MILLS COMMERCE CENTER<br/>17460 CRONRIDGE DR., SUITE 128<br/>OWINGS MILLS, MD 21117<br/>PHONE: 410-654-0501</p>   |      | <p>LOCATION:<br/>BLOCK 8 TAX MAP 38<br/>PARCELS 229, 230 &amp; 231<br/>1st ELECTION DISTRICT<br/>HOWARD COUNTY, MARYLAND</p>  |
| <p>DES: JMC DRN: JTC</p>  |      | <p>TITLE: REVISED SITE DEVELOPMENT PLAN<br/>SUPPLEMENTAL SHEET FOR<br/>LOT 1, RETAINING WALL #2</p>   |
| <p>SCALE: AS SHOWN</p>  |      | <p>DATE: DECEMBER, 2001 PROJECT NO. 1097</p>  |
| <p>DRAWING 11 OF 11</p>   |      | <p>SDP-98-146</p>   |



TYPICAL SECTIONS WALL #1  
NOT TO SCALE

WALL #1 TO BE A MAXIMUM OF 3.0 FEET FROM THE BOTTOM GRADE TO THE TOP OF WALL FOR EVERY POINT ON THE WALL. THE COMBINATION OF THE CHAIN LINK FENCE AND THE WALL IS NOT TO EXCEED 6.0 FEET AT ANY POINT ON THE WALL.



|                           |                             |
|---------------------------|-----------------------------|
| 'H' HEIGHT OF FENCE       | 3'-0" (MAX.)                |
| 'S' POST SPACING (MAX.)   | 12'-0"                      |
| 'L' LENGTH OF POST (MIN.) | 4'-8"                       |
| POST TYPE                 | ALUM. 2.375 O.D. @ 1.26#/FT |

TYPICAL FENCE DETAIL  
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Robert*  
DIRECTOR

1/31/02 DATE

1/31/02 DATE

2/14/02 DATE

|    |      |          |
|----|------|----------|
| NO | DATE | REVISION |
|    |      |          |

**BENCHMARK**

ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

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

FOR HILLIS-CARNES ENGINEERING

|                  |   |              |   |
|------------------|---|--------------|---|
| OWNER/DEVELOPER: | JNSD L.C., INC.<br>P.O. BOX 417<br>ELICOTT CITY, MD 21041<br>PHONE: 410-465-4244  | PROJECT:     | <b>WILLIAMS KNOLL</b><br>SEC. 1 LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83 |
| BUILDER:         | RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CROWNDRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501 | LOCATION:    | BLOCK 8 TAX MAP 38<br>PARCELS 229, 230 & 231<br>1st ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND  |
| DES:             | JMC   | DRN:         | JTC   |
| DATE:            | DECEMBER, 2001  | PROJECT NO.: | 1097  |
| SCALE:           | AS SHOWN  | DRAWING      | 10 OF 11  |

**SPECIFICATION GUIDELINES  
KEYSTONE CONCRETE MODULAR RETAINING WALL**

**PART 1: GENERAL**

**1.01 DESCRIPTION**

- A. Work includes furnishing and installing modular block retaining wall units to the lines and grades designated on the construction drawings and as specified herein.
- B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and backfill to the lines and grades designated on the construction drawings.
- C. Furnishing and installing all appurtenant materials required for construction of the retaining wall as shown on the construction drawings.

**1.02 RELATED WORK**

- A. Section 02275 - Geogrid Soil Reinforcement.

**1.03 REFERENCE STANDARDS**

- A. ASTM C90-85 Hollow Load Bearing Masonry Units.
- B. ASTM C140-75 Sampling and Testing Concrete Masonry Units.
- C. ASTM C145-85 Solid Load Bearing Concrete Masonry Units.

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Contractor shall check the materials upon delivery to assure that proper material has been received.
- B. Contractor shall prevent excessive mud, wet cement, epoxy, and like materials which may affix themselves, from coming in contact with the materials.
- C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated into the retaining wall structure.

**1.05 SUBMITTALS**

- A. Samples of all products used in the work of this section.
- B. Latest edition of manufacturers specifications for proposed materials, method of installation and list of material proposed for use.

**1.06 QUALITY ASSURANCE**

- A. Soil testing and inspection services for quality control testing during earthwork operations will be supplied by the owner.

**PART 2: PRODUCTS**

**2.01 CONCRETE UNITS**

- A. Masonry units shall be Keystone® Retaining Wall Units as manufactured by:
  - B. Concrete wall units shall have a minimum net 28 day compressive strength of 5000 psi. The concrete shall have a maximum moisture absorption of 6 to 8 lbs/ft<sup>3</sup>.
  - C. Exterior dimensions may vary in accordance with ASTM C90-85, Standard and Compac units shall have a minimum of 1 square foot face area each. Mini units shall have a minimum 1/2 square foot face area each.
  - D. Keystone Standard units shall provide a minimum of 150 psf of wall face area. Fill which is contained within the dimensions of the units may be considered as 95% effective weight.

**PART 3: EXECUTION**

**3.01 EXCAVATION**

- A. Contractor shall excavate to the lines and grades shown on the construction drawings. Over excavation shall not be paid for and replacement with compacted fill and/or wall system components will be required at contractor expense. Contractor shall be careful not to disturb embankment materials beyond lines shown.

**3.02 FOUNDATION SOIL PREPARATION**

- A. Foundation soil shall be excavated as required for footing dimensions shown on the construction drawings, or as directed by the Engineer.

**B. Foundation soil shall be examined by the Engineer to assure that the actual foundation soil strength meets or exceeds assumed design strength. Soils not meeting required strength shall be removed and replaced with acceptable material.**

**C. Over-excavated areas shall be filled with approved compacted backfill material.**

**3.03 BASE LEVELING PAD**

- A. Leveling pad materials shall be placed as shown on the construction drawings, upon undisturbed in situ soils, to a minimum thickness of 6 inches.
- B. Material shall be compacted so as to provide a level hard surface on which to place the first course of units. Compaction shall be to 95% of standard proctor for sand or gravel type materials. For crushed rock, material shall be densely compacted.
- C. Leveling pad shall be prepared to insure complete contact of retaining wall unit with base.
- D. Leveling pad materials shall be to the depth and widths shown. Contractor may opt for using reduced depth of sands, gravel or crushed rock using a concrete topping. Concrete shall be unreinforced and a maximum of 1" to 3" thick.

**3.04 UNIT INSTALLATION**

- A. First course of concrete wall units shall be placed on the base leveling pad. The units shall be checked for level and alignment. The first course is the most important to insure accurate and acceptable results.
- B. Insure that units are in full contact with base.
- C. Units are placed side by side for full length of wall alignment. Alignment may be done by means of a string line or offset from base line.
- D. Install fiberglass connecting pins and fill all voids at units with unit fill material. Tamp fill.
- E. Sweep all excess material from top of units and install next course. Insure each course is completely unit filled, backfilled and compacted prior to proceeding to next course.
- F. Lay up each course insuring that pins protrude into adjoining courses above a minimum of one inch. Two pins are required per unit. Pull each unit forward, away from the embankment, against the pins in the previous course and backfill as the course is completed. Repeat procedure to the extent of wall height.
- G. As appropriate where the wall changes elevation, units can be stepped with grade or turned into the embankment with a convex return end. Provide appropriate buried units or compacted leveling pad in area of convex return end.

**3.05 CAP INSTALLATION**

- A. Place Keystone Cap units over projecting pins from units below. Pull forward to set back position. Back fill and compact to finished grade.
- B. As required, provide permanent mechanical connection to wall units with construction adhesive or epoxy. Apply adhesive or epoxy to bottom surface of cap units and install on units below.

**3.06 GEORGRID INSTALLATION**

- A. Follow the requirements of Section 02275, GEOGRID SOIL REINFORCEMENT.

**GEOGRID SOIL REINFORCEMENT**

**PART 1: GENERAL**

**1.01 DESCRIPTION**

- A. Work includes furnishing and installing geogrid reinforcement wall fill, and backfill to the lines and grades designated on the construction drawings.
- B. Work includes furnishing and installing all appurtenant materials required for construction of the geogrid reinforced soil retaining wall as shown on the construction drawings.

**1.02 RELATED WORK**

- A. Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.

**1.03 REFERENCE STANDARDS**

- A. See specific geogrid manufacturers reference standards.

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Contractor shall check the geogrid upon delivery to assure that the proper material has been received.
- B. Geogrids shall be stored above -20°F.
- C. Contractor shall prevent excessive mud, wet cement, epoxy and like materials which may affix themselves to the geogrid, from coming in contact with the geogrid material.
- D. Rolled geogrid material may be laid flat or stood on end for storage.

**1.05 SUBMITTALS**

- A. Samples of all products used in the work of this section.
- B. Latest edition of manufacturers specifications for proposed materials, method of installation and list of material proposed for use.

**1.06 QUALITY ASSURANCE**

- A. Soil testing and inspection services for quality control testing during earthwork operation will be supplied by the owner.

**PART 2: PRODUCTS**

**2.01 DEFINITIONS**

- A. Geogrid products shall be high density polyethylene expanded sheet or polyester woven fiber materials, specifically fabricated for use as soil reinforcement.
- B. Concrete retaining wall units are as detailed on the drawings and are specified under Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.
- C. Wall fill is a free draining granular material used within the concrete units.
- D. Backfill is the soil which is used as fill for the reinforced soil mass.
- E. Foundation soil is the in situ soil.

**2.02 GEOGRID**

- A. Geogrid shall be the type as shown on the drawings having the property requirements as described within the manufacturers specifications.

**2.03 ACCEPTABLE MANUFACTURERS**

- A. A manufacturer's product shall be approved by the Engineer prior to bid opening.

**PART 3: EXECUTION**

**3.01 FOUNDATION SOIL PREPARATION**

- A. Foundation soil shall be excavated to the lines and grades as shown on the construction drawings or as directed by the Engineer.
- B. Foundation soil shall be examined by the Engineer to assure that the actual foundation soil strength meets or exceeds assumed design strength.
- C. Over-excavated areas shall be filled with approved compacted backfill material.
- D. Foundation soil shall be good rolled prior to fill and geogrid placement.

**3.02 WALL ERECTION**

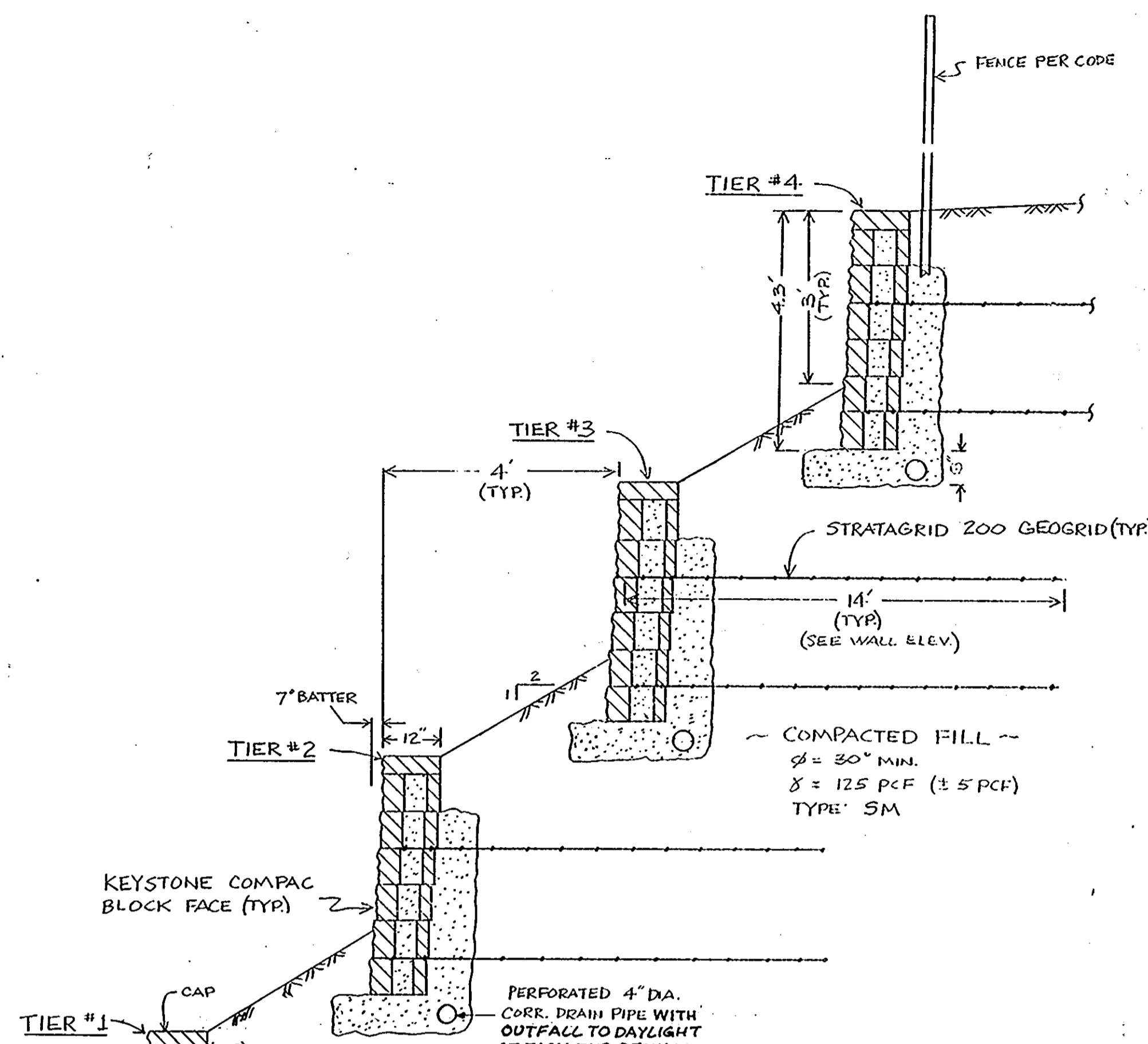
- A. Wall erection shall be as specified under Section 02275 - KEYSTONE CONCRETE MODULAR RETAINING WALL.

**3.03 GEOGRID INSTALLATION**

- A. The geogrid soil reinforcement shall be laid horizontally on compacted backfill. Connect to the concrete wall units by hooking geogrid over fiberglass pins. Pull taut, and anchor before backfill is placed on the geogrid.
- B. Slack in the geogrid at the wall unit connections shall be removed.
- C. Geogrid shall be laid at the proper elevation and orientation as shown on the construction drawings or as directed by the Engineer.
- D. Correct orientation (roll direction) of the geogrid shall be verified by the contractor.
- E. To pretension geogrid, pull geogrid taut to eliminate loose folds. Stakes or secure back edge of geogrid prior to and during backfill and compaction.
- F. Follow manufacturers guidelines relative to overlap requirements of uniaxial and biaxial geogrids.

**3.04 FILL PLACEMENT**

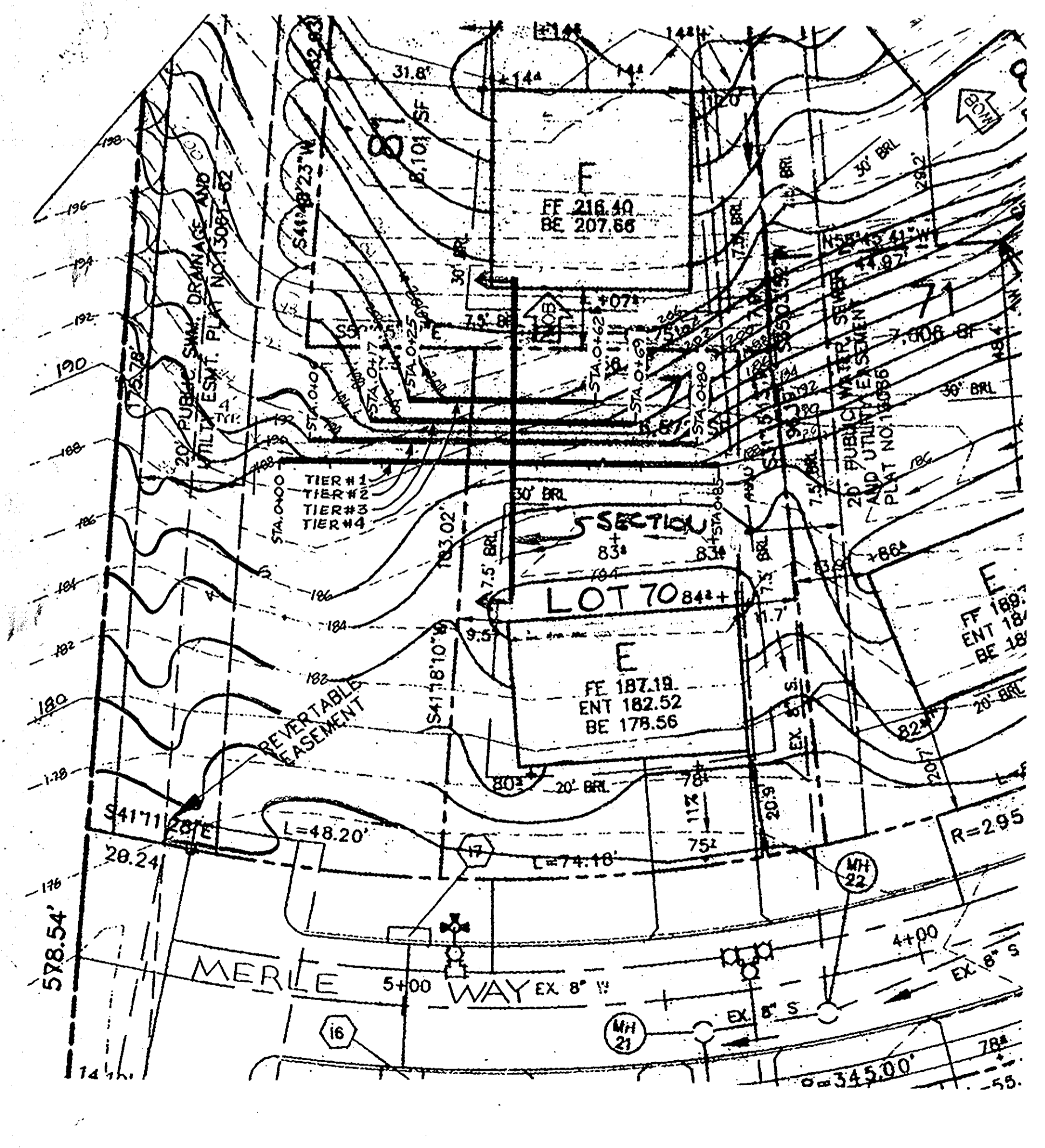
- A. Backfill material shall be placed in 8 inch lifts and compacted to 95% of Standard Proctor.
- B. Backfill shall be placed, spread, and compacted in such a manner that minimizes the development of stack or loss of pretension of the geogrid.
- C. Only hand-operated compaction equipment shall be allowed within 3 feet of the back surface of the Keystone units.
- D. Backfill shall be placed from the wall rearward into the embankment to insure that the geogrid remains taut.
- E. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 8 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
- F. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.



NOTE: ANY WATER SEEPAGE FROM CUT SLOPE FACE MUST BE EVALUATED BY HILLIS-CARNES. ADDITIONAL DRAIN MATERIAL MAY BE REQUIRED IN THE SEEPAGE AREAS.

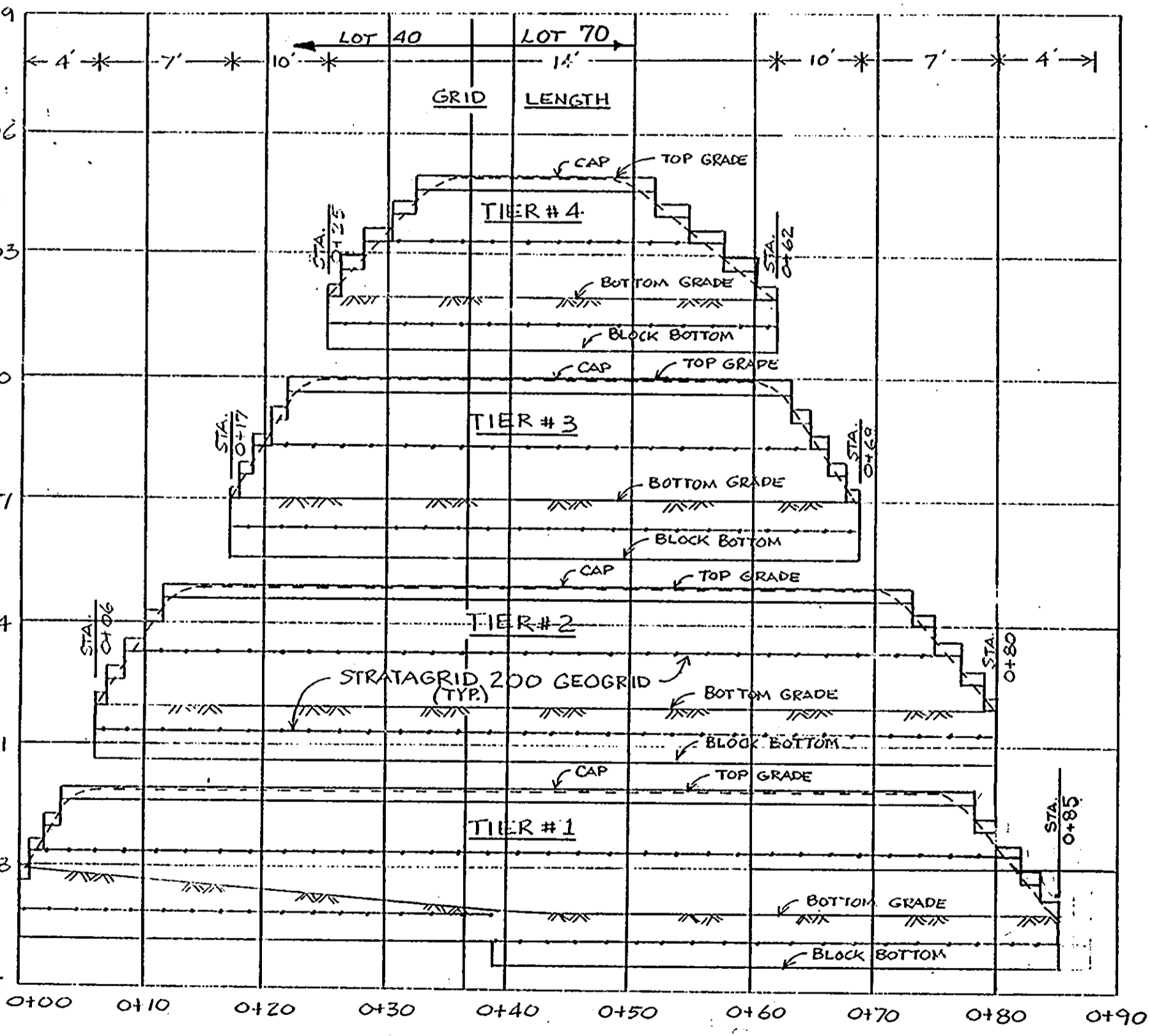
SUBGRADE APPROVED FOR 2500 PSF BEARING. SEE NOTE BELOW.

**WALL SECTION  
N.T.S.**



**WALL LOCATION PLAN  
1" = 20'**

NOTE: RETAINING WALL CONSTRUCTION SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND REGISTERED PROFESSIONAL ENGINEER. THE FOUNDATION SOIL SHALL BE TESTED AND CERTIFIED BY A MARYLAND REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER TO ASSURE THAT THE ACTUAL FOUNDATION STRENGTH MEETS OR EXCEEDS THE ASSUMED DESIGN STRENGTH PRIOR TO FOOTING PLACEMENT.



**WALL ELEVATION  
1" = 10'**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*Mr. [Signature]*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
10/21/98  
DATE

*Chris Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
10/21/98  
DATE

*[Signature]*  
DIRECTOR  
10/28/98  
DATE



WP-95-39, S-95-08, P-96-17, HP-96-69, F-97-110, AA-96-19, F-97-154

|          |         |                     |   |  |   |  |                  |                                      |                              |  |
|----------|---------|---------------------|---|--|---|--|------------------|--------------------------------------|------------------------------|--|
| Drafting | DATE    | REVISIONS           | <b>HILLIS-CARNES ENGINEERING ASSOCIATES, INC.</b><br>12011 GULFORD ROAD, SUITE 106, ANNAPOLIS JUNCTION, MARYLAND 20701 (410) 880-4788 WASH. AREA (301) 470-4239 | OWNER/DEVELOPER:<br>JNSD L.C., INC.<br>P.O. BOX 417<br>ELLCOTT CITY, MD. 21041 | CIVIL ENGINEER:<br>BENCHMARK ENGINEERING, INC.<br>8480 BALTIMORE NATIONAL PIKE - SUITE 418<br>ELLCOTT CITY, MD. 21043 | RETAINING WALL DETAIL - LOT 70<br>WILLIAMS KNOLL, SECTIONS I & II, LOTS 1, 2, 4 THRU 33, OS. LOTS 34, 37, 39 & 40<br>41-72, 75-77, 81, 82, 84-88 + O.S. LOT 83, T.M. 36, 81, 82, PARCELS 229, 230 & 231 1ST EL. DIST. HO. CO., MD. | SHEET<br>9 of 11 | DATE<br>10/1/98<br>SCALE<br>AS SHOWN | JOB NUMBER<br>9624-A<br>1097 |  |
| Check    |         |                     |   |  |   |  |                  |                                      |                              |  |
| Design   |         |                     |   |  |   |  |                  |                                      |                              |  |
| Check    | 1-22-98 | REVISE TOTAL SHEETS |   |  |   |  |                  |                                      |                              |  |

SEDIMENT CONTROL NOTES

- 1. A minimum of 24 hours notice must be given to the HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSING AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION...
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THESE SPECIFICATIONS...
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RESTORATION, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 47 CALENDAR DAYS FOR ALL PERMITS...

TOPSOIL SPECIFICATIONS

- 1. Topsoil salvaged from the existing site may be used provided that it meets the standards set forth in these specifications...
2. Topsoil Specifications - Soil to be used as topsoil must meet the following:
a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand...
b. Where the subsoil is other than loam or composed of heavy clay, ground limestone shall be spread at the rate of 4-8 tons/acre...

TEMPORARY SEEDBED PREPARATIONS

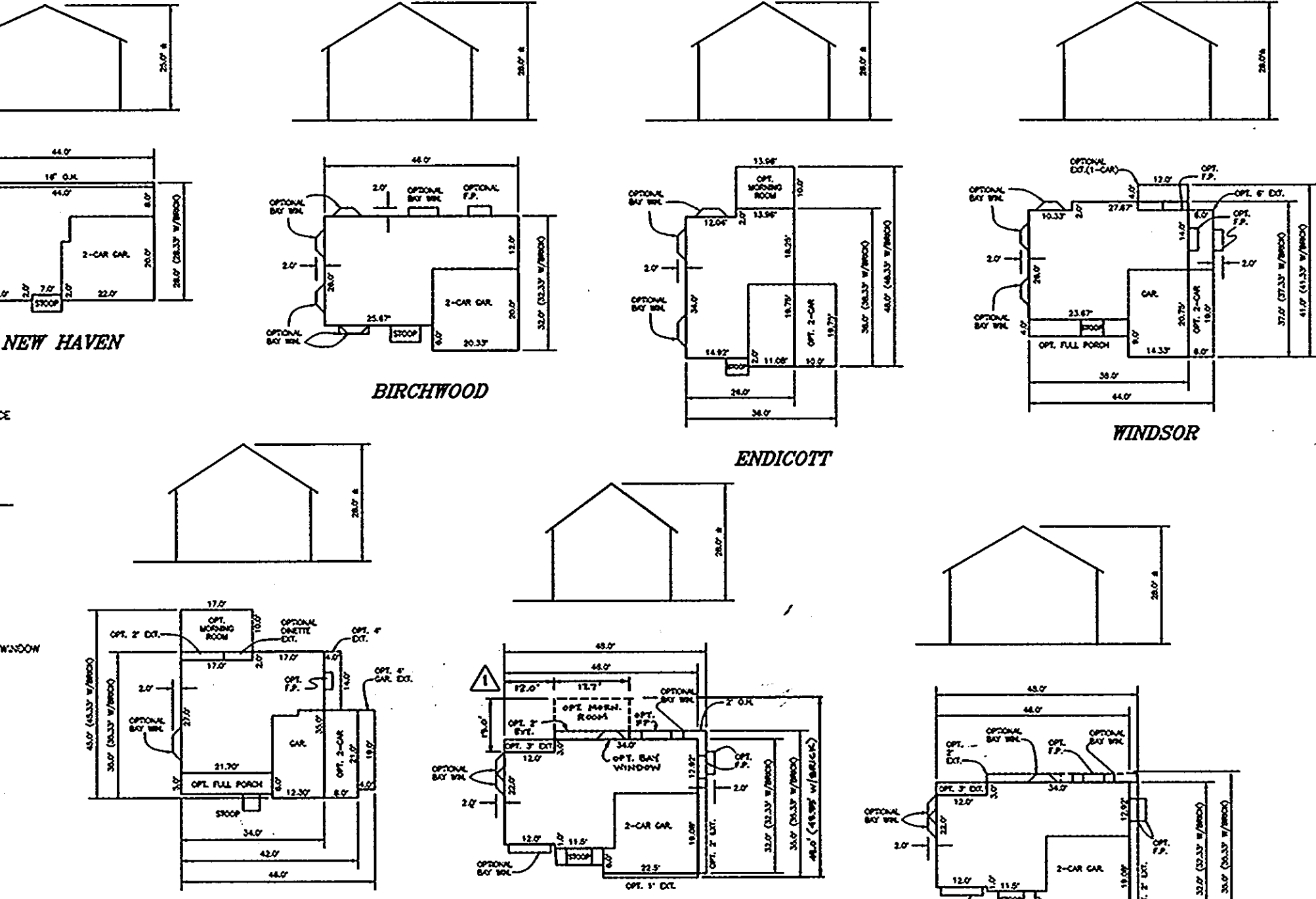
- 1. APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RESTORED WITH A SHORT-TERM VEGETATIVE COVER IS NEEDED...
2. SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCOING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING...
3. MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING...

SEQUENCE OF CONSTRUCTION

- DAY 1-1) OBTAIN GRADING PERMIT.
DAY 2-8) 2) INSTALL SEDIMENT CONTROLS THAT ARE NOTED TO BE INSTALLED UNDER THIS SOP...
DAY 9-12) 3) EXCAVATE FOR FOUNDATIONS, ROUGH GRADE AND STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES...
DAY 13-82) 4) CONSTRUCT HOUSES, BACKFILL AND CONSTRUCT DRIVEWAYS...
DAY 83-87) 5) FINAL GRADE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDBED NOTES...
DAY 88-91) 6) WITHIN THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE ANY REMAINING DISTURBED AREAS.

CONSTRUCTION SPECIFICATIONS

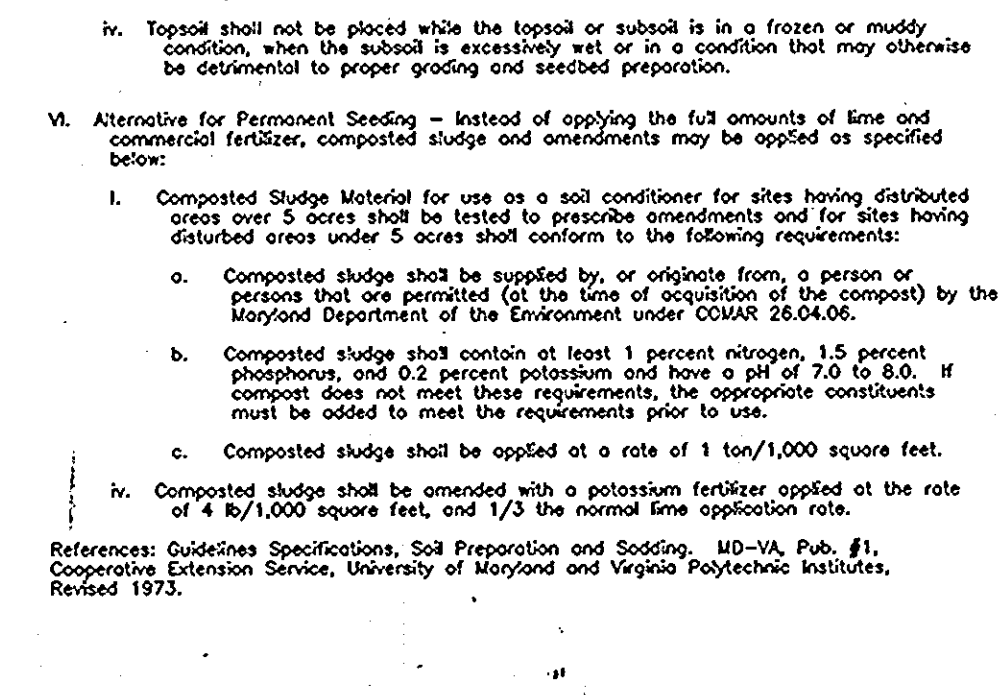
- 1. KEY-IN THE MATTING BY PLACING THE TOP EDGES OF THE MATTING IN A NARROW TRENCH 6" IN DEPTH...
2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES...
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL...
4. STAPLES SHALL BE PLACED 2' APART WITH 4' SPACING FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER...
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4"...



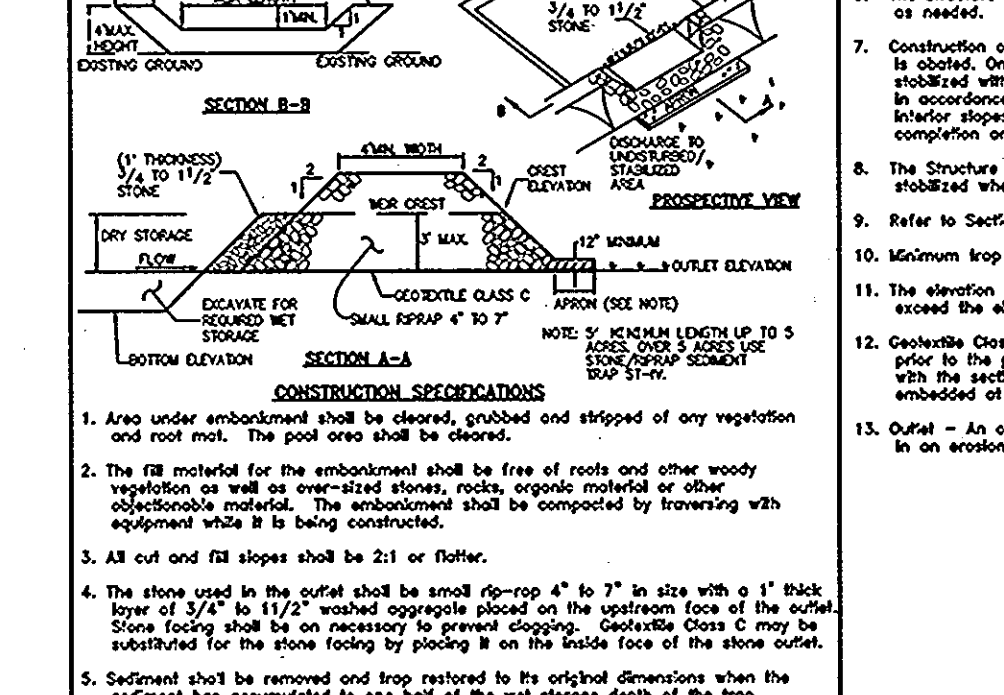
PERMANENT SEEDBED PREPARATIONS

- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCOING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING...
SOL AMENDMENTS: IN LIEU OF SOL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:
1. PREFERRED - APPLY 2 TONS PER ACRE DOMOLIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER...
2. ACCEPTABLE - APPLY 2 TONS PER ACRE DOMOLIC LIMESTONES (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER...

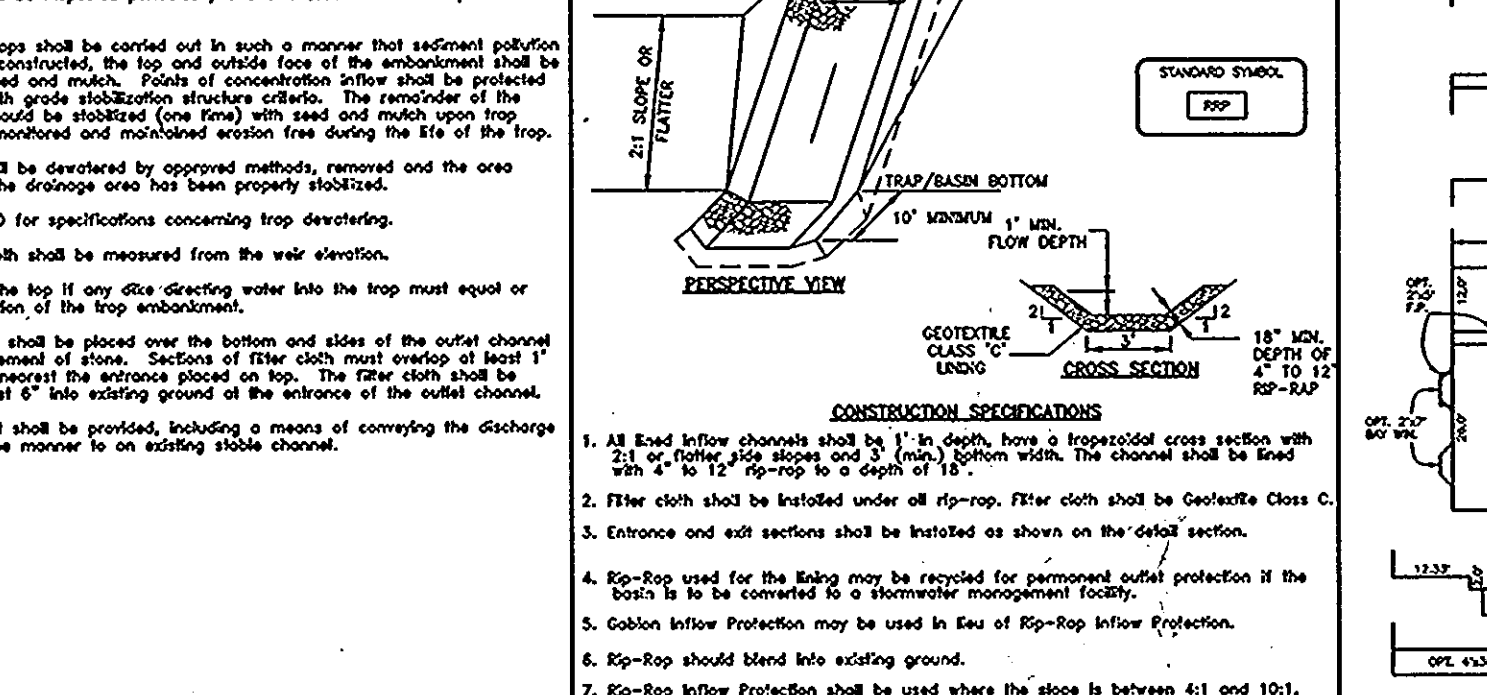
STONE OUTLET SEDIMENT TRAP - ST II



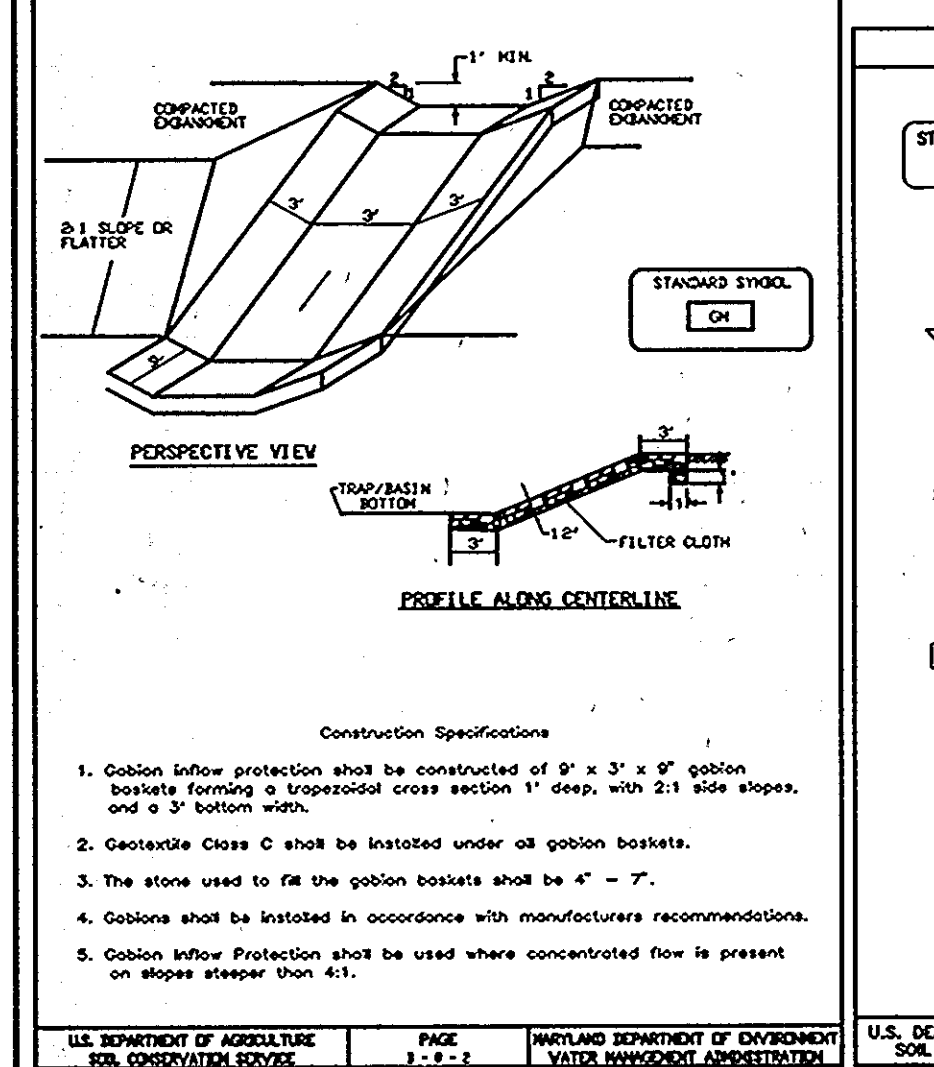
RIP-RAP INFLOW PROTECTION



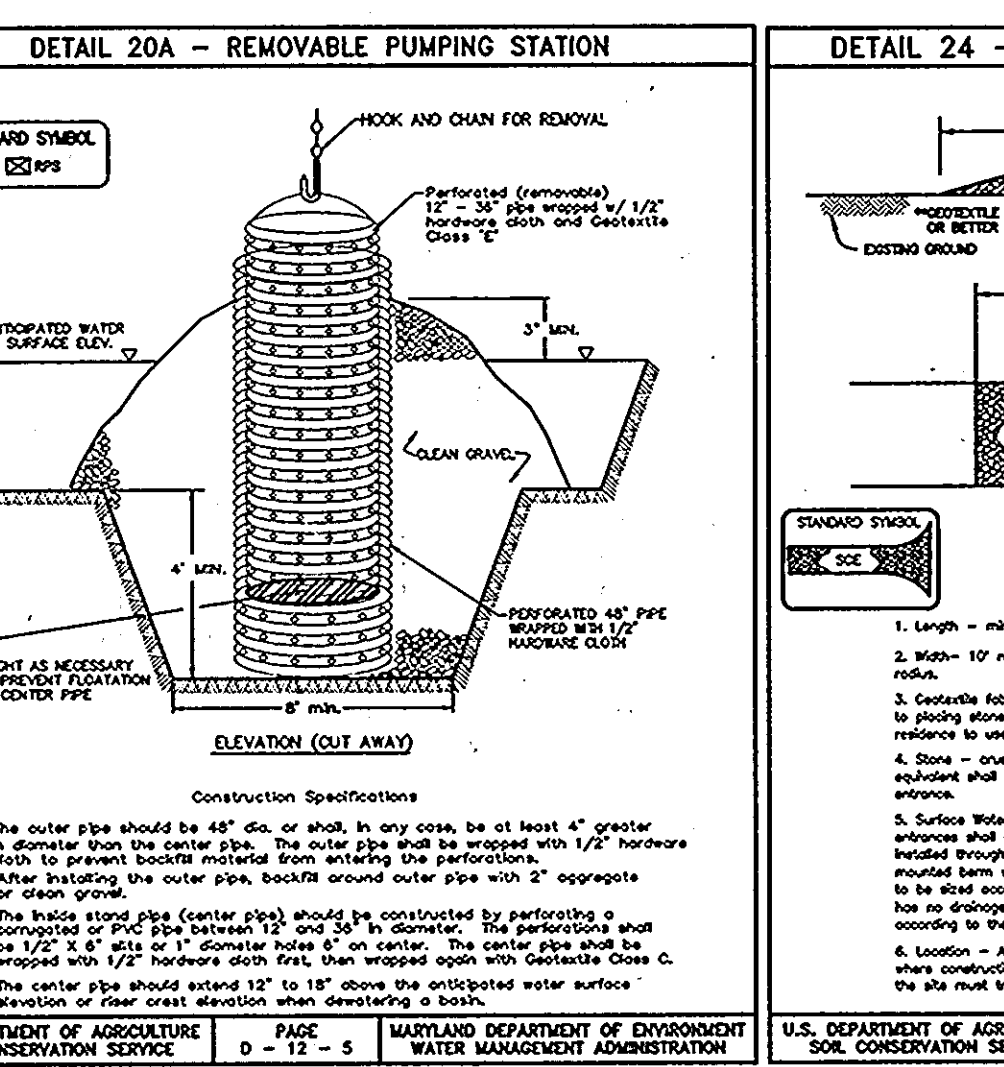
GENERIC BOXES



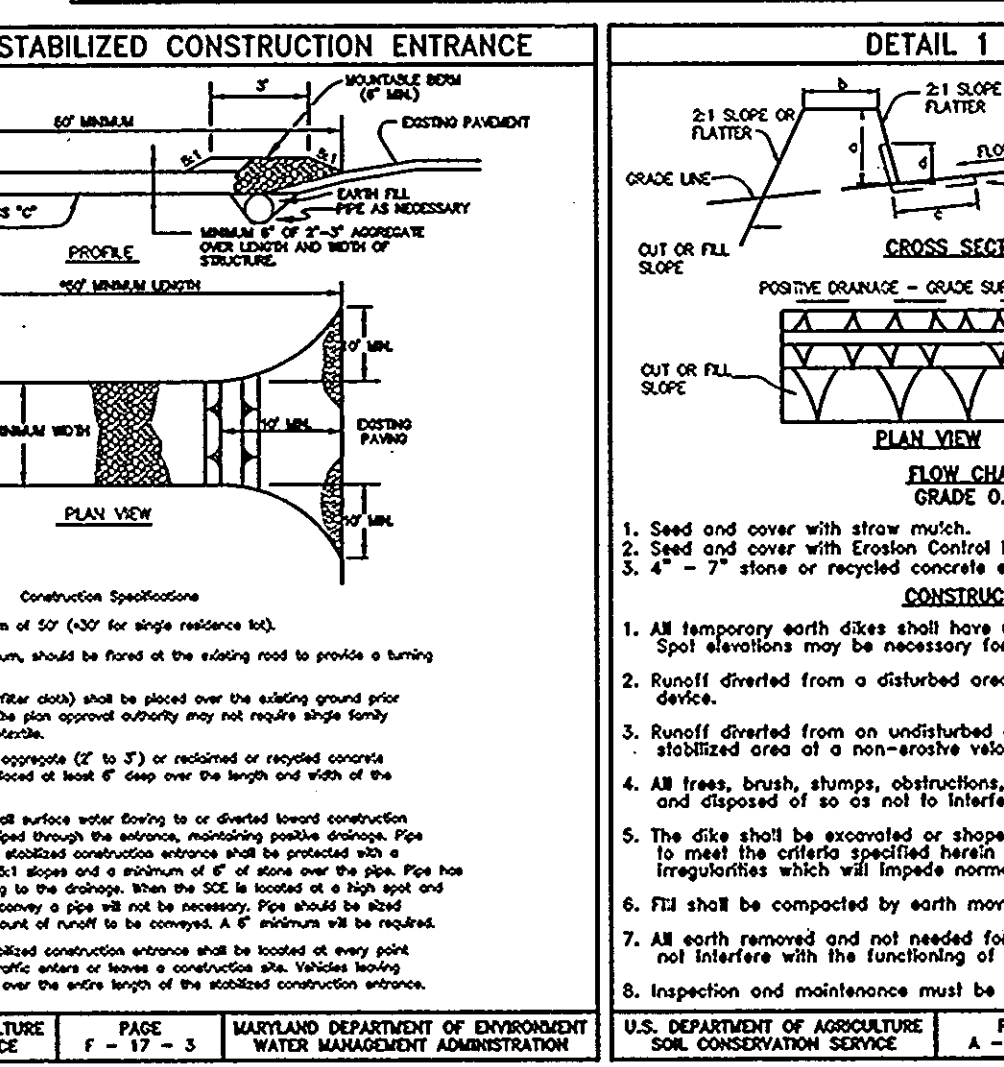
DETAIL 6 - GABION INFLOW PROTECTION



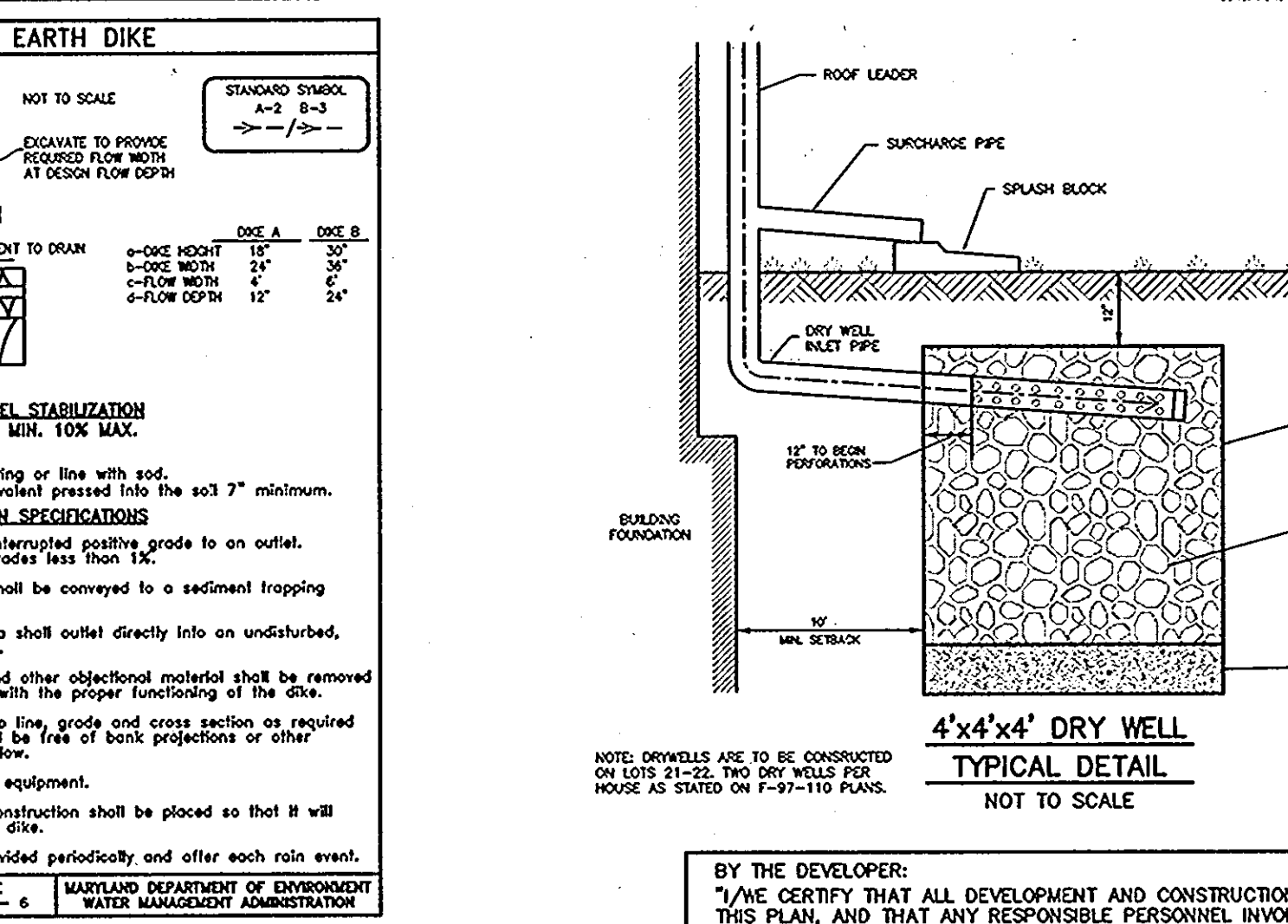
DETAIL 20A - REMOVABLE PUMPING STATION



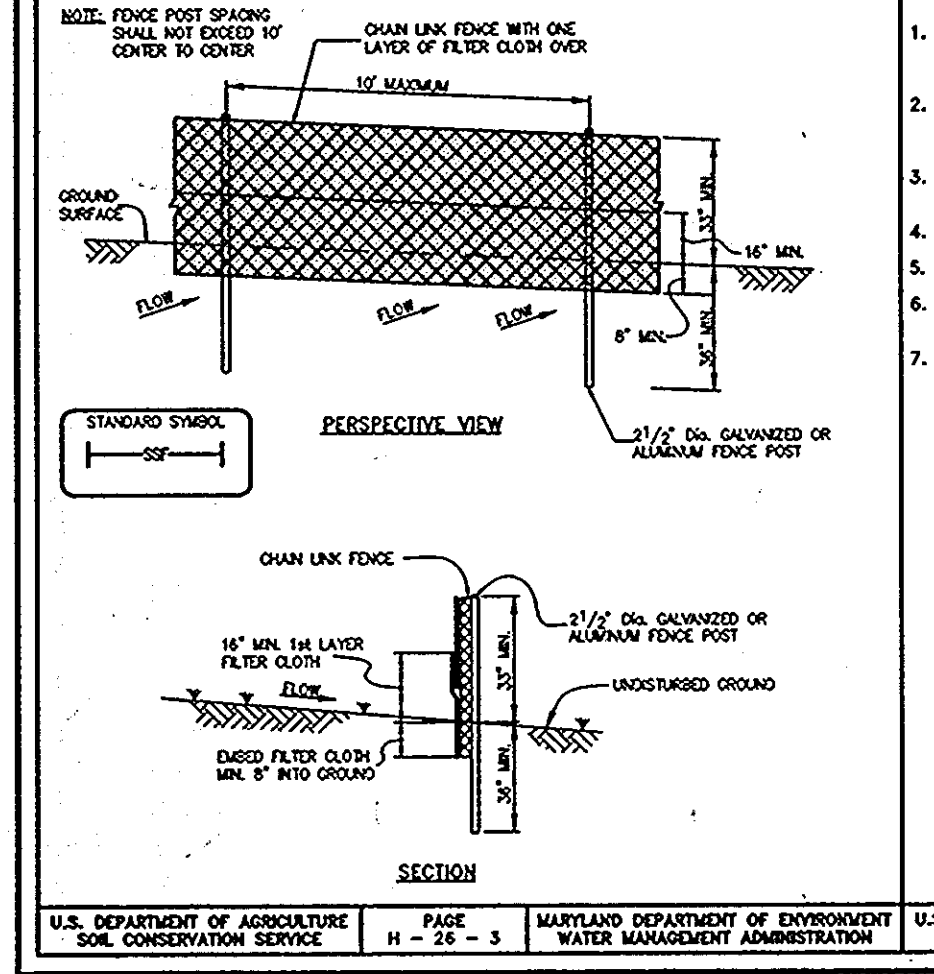
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



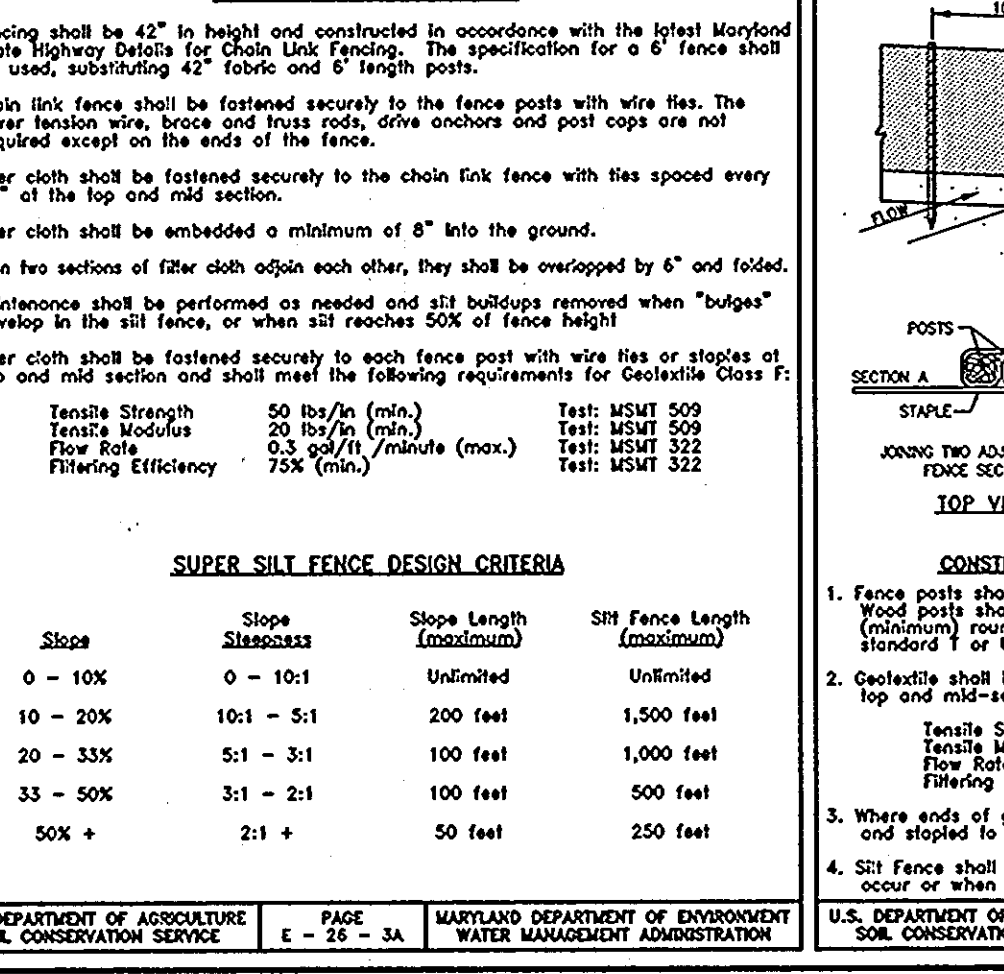
DETAIL 1 - EARTH DIKE



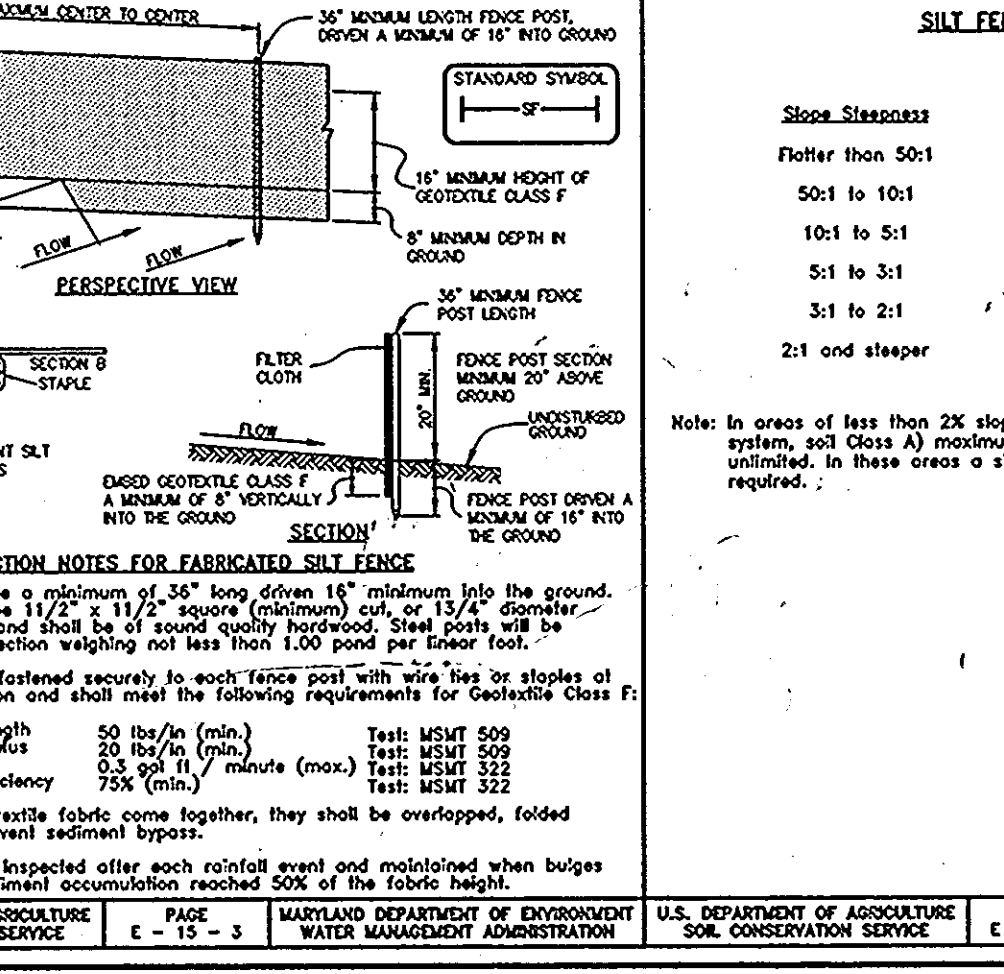
DETAIL 33 - SUPER SILT FENCE



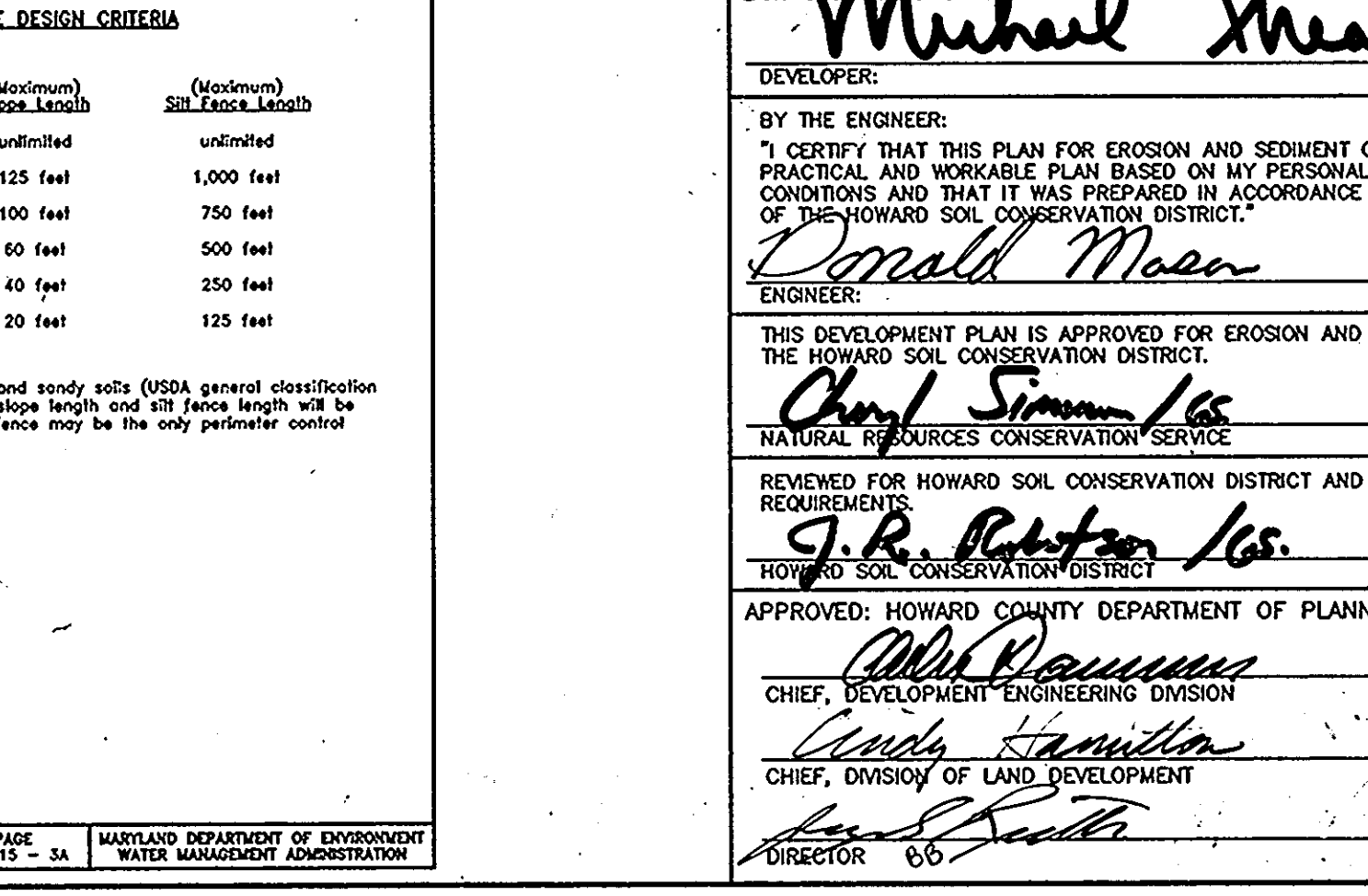
SUPER SILT FENCE



DETAIL 22 - SILT FENCE



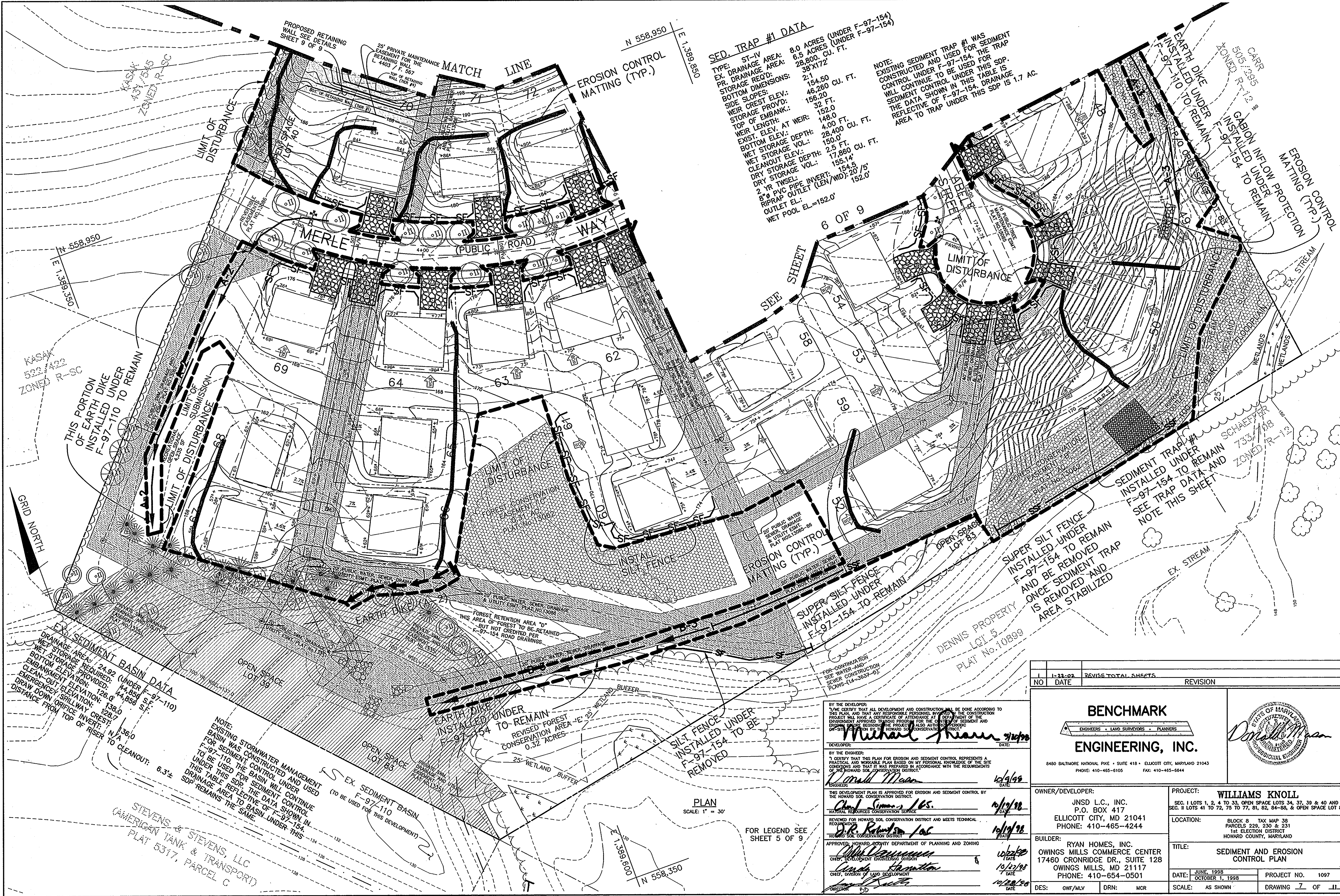
SILT FENCE



HOUSE-TYPE REVISION (RESITE) WILL BE REQUIRED

- 1. ADDING AND/OR DELETING A HOUSE TYPE.
2. REVISIONS TO THE DRIVEWAY FROM A FRONT-LOAD TO A SIDE-LOAD GARAGE.
3. 'FLIPPING' THE HOUSE SO THAT THE GARAGE AND DRIVEWAY LOCATIONS ARE OPPOSITE FROM APPROVED SOP.
4. REVISIONS TO THE ELEVATION OF THE HOUSE 1.0' HIGHER OR 0.2' LOWER THAN INDICATED ON THE APPROVED SOP.
5. REVISIONS TO THE GRADING FROM AN IN-GROUND BASEMENT TO A WALK-OUT.





**SED. TRAP #1 DATA**

TYPE: ST-IV  
 EX. DRAINAGE AREA: 8.0 ACRES (UNDER F-97-154)  
 PR. DRAINAGE AREA: 6.5 ACRES (UNDER F-97-154)  
 STORAGE REQ'D: 28,800 CU. FT.  
 STORAGE DIMENSIONS: 38'x172'  
 BOTTOM SLOPES: 2:1  
 SIDE SLOPES: 1.5:1  
 WEIR CREST ELEV.: 154.50  
 STORAGE PROVIDED: 46,280 CU. FT.  
 STORAGE PROVIDED: 32 FT.  
 TOP OF EMBANKMENT: 152.0  
 WEIR LENGTH AT WEIR: 148.0  
 EXIST. ELEV. AT WEIR: 4.00 FT.  
 BOTTOM STORAGE DEPTH: 28,400 CU. FT.  
 WET STORAGE VOL.: 150.0'  
 CLEANOUT ELEV.: 154.5  
 DRY STORAGE VOL.: 17,880 CU. FT.  
 2 YR TWSEL: 154.5  
 8" PVC PIPE INVERT: 154.5  
 RIPRAP OUTLET (LEN/MID): 20 / 5'  
 OUTLET EL.: 152.0'  
 WET POOL EL.=152.0'

**NOTE:**  
 EXISTING SEDIMENT TRAP #1 WAS CONSTRUCTED AND USED FOR SEDIMENT CONTROL UNDER F-97-154. THE TRAP WILL CONTINUE TO BE USED FOR SEDIMENT CONTROL UNDER THIS SDP. THE DATA SHOWN IN THIS TABLE IS REFLECTIVE OF F-97-154. DRAINAGE AREA TO TRAP UNDER THIS SDP IS 1.7 AC.

**EX. SEDIMENT BASIN DATA**

WET STORAGE AREA: 24.92 (UNDER F-97-110)  
 WET STORAGE PROVIDED: 44,858 SF.  
 EMBANKMENT ELEVATION: 126.6  
 CLEAN-OUT ELEVATION: 126.6  
 EMERGENCY SPILLWAY CREST: 128.7  
 DRAW DOWN ORIFICE INVERT: N/A  
 DISTANCE FROM TOP OF RISER TO CLEANOUT: 6.3'±

**NOTE:**  
 EXISTING STORMWATER MANAGEMENT FOR SEDIMENT CONTROL UNDER F-97-110. THE DATA SHOWN IN THIS TABLE IS REFLECTIVE OF F-97-154. SDP REMAINS THE SAME.

BY THE DEVELOPER:  
 I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THE PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION PROCESSES BEHIND THE PROJECT. I ALSO AUTHORIZE EROSION CONTROL PLAN REVIEW BY HOWARD SOIL CONSERVATION DISTRICT.

BY THE ENGINEER:  
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS OF THE DISTRICT.

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

| NO. | DATE    | REVISION            |
|-----|---------|---------------------|
| 1   | 1-22-02 | REVISE TOTAL SHEETS |

**BENCHMARK ENGINEERING, INC.**

ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844

|   |  |
|---|--|
| <p>OWNER/DEVELOPER: JNSD L.C., INC.<br/>         P.O. BOX 417<br/>         ELLICOTT CITY, MD 21041<br/>         PHONE: 410-465-4244</p>   | <p>PROJECT: <b>WILLIAMS KNOLL</b><br/>         SEC. II LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 38 &amp; 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, &amp; OPEN SPACE LOT 83</p> |
| <p>BUILDER: RYAN HOMES, INC.<br/>         OWINGS MILLS COMMERCE CENTER<br/>         17460 CRONRIDGE DR., SUITE 128<br/>         OWINGS MILLS, MD 21117<br/>         PHONE: 410-654-0501</p> | <p>LOCATION: BLOCK 8 TAX MAP 38<br/>         PARCELS 228, 230 &amp; 231<br/>         141 ELECTION DISTRICT<br/>         HOWARD COUNTY, MARYLAND</p>  |
| <p>TITLE: <b>SEDIMENT AND EROSION CONTROL PLAN</b></p>  | <p>DATE: JUNE, 1998<br/>         OCTOBER 1, 1998</p>   |
| <p>DES: GWF/MLV DRN: MCR</p>  | <p>PROJECT NO. 1097<br/>         DRAWING 7 OF 11</p>   |

**PLAN**  
 SCALE: 1" = 30'

FOR LEGEND SEE SHEET 5 OF 9

DARR  
505/100  
ZONED R-12



BY THE DEVELOPER:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Michael Trane 10/19/98  
DEVELOPER DATE

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Donald Mason 10/19/98  
ENGINEER DATE

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

Paul Simon 10/19/98  
NATURAL RESOURCES CONSERVATION SERVICE DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

J.P. Robinson 10/19/98  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief Development Engineering Division  
Chief, Division of Land Development  
Director

FOR LEGEND SEE SHEET 5 OF 9

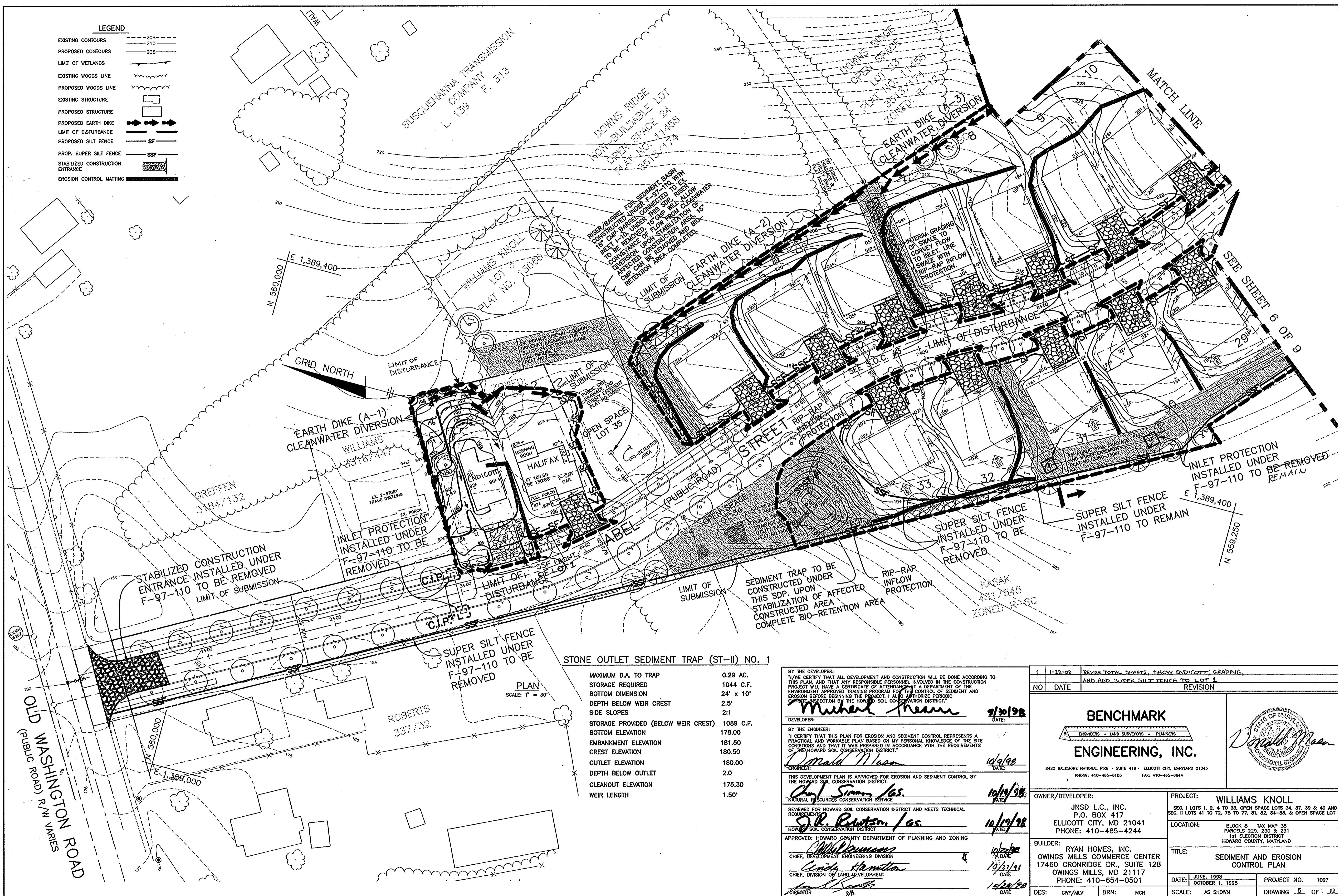
|    |         |                     |
|----|---------|---------------------|
| NO | DATE    | REVISION            |
| 1  | 1-22-02 | REVISE TOTAL SHEETS |

|  |   |                  |
|--|---|------------------|
| <p><b>BENCHMARK ENGINEERING, INC.</b></p> <p>ENGINEERS • LAND SURVEYORS • PLANNERS</p> <p>8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043<br/>PHONE: 410-465-6105 FAX: 410-465-6644</p> |   |                  |
| OWNER/DEVELOPER:   | PROJECT:  |                  |
| JNSD L.C., INC.<br>P.O. BOX 417<br>ELLICOTT CITY, MD 21041<br>PHONE: 410-465-4244  | WILLIAMS KNOLL<br>SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND<br>SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 93 |                  |
| BUILDER:   | LOCATION:   |                  |
| RYAN HOMES, INC.<br>OWINGS MILLS COMMERCE CENTER<br>17460 CRONRIDGE DR., SUITE 128<br>OWINGS MILLS, MD 21117<br>PHONE: 410-654-0501  | BLOCK 8 TAX MAP 38<br>PARCELS 229, 230 & 231<br>1st ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND  |                  |
| DES: GWF/MLV   | DRN: MCR  |                  |
| DATE: JUNE 1998<br>OCTOBER 1, 1998   | TITLE: SEDIMENT AND EROSION CONTROL PLAN  | PROJECT NO. 1097 |
| SCALE: AS SHOWN  | DRAWING 6 OF 11   |                  |

**LEGEND**

|                                  |           |
|----------------------------------|-----------|
| EXISTING CONTOURS                | ---208--- |
| PROPOSED CONTOURS                | ---210--- |
| LIMIT OF WETLANDS                | ---216--- |
| EXISTING WOODS LINE              | ---218--- |
| PROPOSED WOODS LINE              | ---220--- |
| EXISTING STRUCTURE               | ---222--- |
| PROPOSED STRUCTURE               | ---224--- |
| PROPOSED EARTH DIKE              | ---226--- |
| LIMIT OF DISTURBANCE             | ---228--- |
| PROPOSED SILT FENCE              | ---230--- |
| PROP. SUPER SILT FENCE           | ---232--- |
| STABILIZED CONSTRUCTION ENTRANCE | ---234--- |
| EROSION CONTROL MATTING          | ---236--- |



**STONE OUTLET SEDIMENT TRAP (ST-II) NO. 1**

|                                     |           |
|-------------------------------------|-----------|
| MAXIMUM D.A. TO TRAP                | 0.29 AC.  |
| STORAGE REQUIRED                    | 1044 C.F. |
| BOTTOM DIMENSION                    | 24' x 10' |
| DEPTH BELOW WEIR CREST              | 2.5'      |
| SIDE SLOPES                         | 2:1       |
| STORAGE PROVIDED (BELOW WEIR CREST) | 1089 C.F. |
| BOTTOM ELEVATION                    | 178.00    |
| EMBANKMENT ELEVATION                | 181.50    |
| CREST ELEVATION                     | 180.50    |
| OUTLET ELEVATION                    | 180.00    |
| DEPTH BELOW OUTLET                  | 2.0       |
| CLEANOUT ELEVATION                  | 175.30    |
| WEIR LENGTH                         | 1.50'     |

PLAN  
SCALE: 1" = 30'

BY THE DEVELOPER:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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 ALSO AUTHORIZE PERIODIC INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Michael Thamm* 9/30/98  
DEVELOPER: DATE:

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Donald Mason* 10/9/98  
ENGINEER: DATE:

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE NATURAL RESOURCES CONSERVATION SERVICE

*Carl Simon / as.* 10/19/98  
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS: DATE:

*J.R. Rutson / as.* 10/19/98  
HOWARD SOIL CONSERVATION DISTRICT: DATE:

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*William D. ...* 10/20/98  
CHIEF, DEVELOPMENT ENGINEERING DIVISION: DATE:

*Cindy Hamilton* 10/27/98  
CHIEF, DIVISION OF LAND DEVELOPMENT: DATE:

*Paul ...* 10/28/98  
DIRECTOR: DATE:

|    |         |  |
|----|---------|--|
| NO | DATE    | REVISION   |
| 1  | 1-22-92 | REVISE TOTAL SHEETS, SHOW ENDICOTT, GRADING, AND ADD SUPER SILT FENCE TO LOT 4 |
|    |         |  |
|    |         |  |

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

*Donald Mason*  
REGISTERED PROFESSIONAL ENGINEER

OWNER/DEVELOPER: JNSD L.C., INC.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER: RYAN HOMES, INC.  
OWINGS MILLS COMMERCE CENTER  
17460 CRONRIDGE DR., SUITE 128  
OWINGS MILLS, MD 21117  
PHONE: 410-654-0501

PROJECT: WILLIAMS KNOLL  
SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 38 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION: BLOCK 8 TAX MAP 38  
PARCELS 229, 230 & 231  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

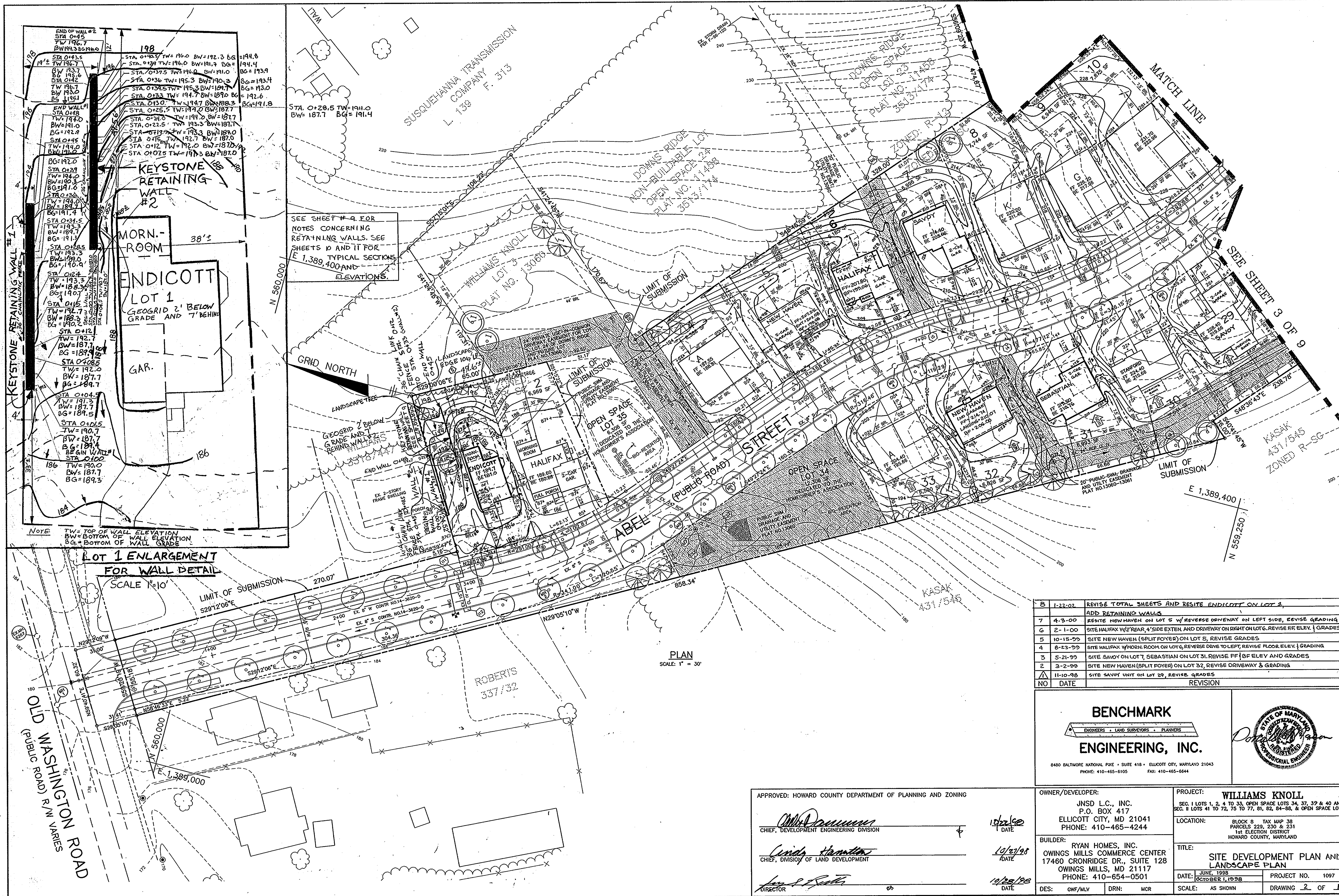
TITLE: SEDIMENT AND EROSION CONTROL PLAN

DATE: JUNE, 1998  
OCTOBER 1, 1998

PROJECT NO. 1097

DES: GWF/MLV DRN: MCR

SCALE: AS SHOWN DRAWING 5 OF 11



SEE SHEET # 9 FOR NOTES CONCERNING RETAINING WALLS. SEE SHEETS 10 AND 11 FOR TYPICAL SECTIONS E 1,389,400 AND ELEVATIONS.

Note: TW = TOP OF WALL ELEVATION  
 BW = BOTTOM OF WALL ELEVATION  
 BG = BOTTOM OF WALL GRADE

LOT 1 ENLARGEMENT FOR WALL DETAIL  
 SCALE 1" = 10'

PLAN SCALE: 1" = 30'

| NO | DATE     | REVISION   |
|----|----------|--|
| 8  | 1-22-02  | REVISE TOTAL SHEETS AND RESITE ENDICOTT ON LOT 1, ADD RETAINING WALLS                          |
| 7  | 4-3-00   | RESITE NEW HAVEN ON LOT 5 W/ REVERSE DRIVEWAY ON LEFT SIDE, REVISE GRADING                     |
| 6  | 2-1-00   | SITE HALIFAX W/ 2 REAR, 4 SIDE EXTER. AND DRIVEWAY ON RIGHT ON LOT 6. REVISE FF ELEV. & GRADES |
| 5  | 10-15-99 | SITE NEW HAVEN (SPLIT Foyer) ON LOT 5, REVISE GRADES   |
| 4  | 8-23-99  | SITE HALIFAX W/ MORN. ROOM ON LOT 6, REVERSE DRIVE TO LEFT, REVISE FLOOR ELEV. & GRADES        |
| 3  | 5-21-99  | SITE SAVOY ON LOT 7, SEBASTIAN ON LOT 31, REVISE FF & BF ELEV AND GRADES                       |
| 2  | 3-2-99   | SITE NEW HAVEN (SPLIT Foyer) ON LOT 32, REVISE DRIVEWAY & GRADING                              |
| 1  | 11-10-98 | SITE SAVOY UNIT ON LOT 29, REVISE GRADES   |

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard Hamilton*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Linda Hamilton*  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*John P. Smith*  
 DIRECTOR

DATE: 10/27/98  
 DATE: 10/27/98  
 DATE: 10/28/98

OWNER/DEVELOPER: JNSD L.C., INC.  
 P.O. BOX 417  
 ELLICOTT CITY, MD 21041  
 PHONE: 410-465-4244

BUILDER: RYAN HOMES, INC.  
 OWINGS MILLS COMMERCE CENTER  
 17460 CRONRIDGE DR., SUITE 128  
 OWINGS MILLS, MD 21117  
 PHONE: 410-654-0501

PROJECT: WILLIAMS KNOLL  
 SEC. I LOTS 1, 2, 4 TO 33, OPEN SPACE LOTS 34, 37, 39 & 40 AND SEC. II LOTS 41 TO 72, 75 TO 77, 81, 82, 84-88, & OPEN SPACE LOT 83

LOCATION: BLOCK 8 TAX MAP 38  
 PARCELS 229, 230 & 231  
 1st ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN AND LANDSCAPE PLAN

DATE: JUNE, 1998  
 OCTOBER 1, 1998

PROJECT NO. 1097

SCALE: AS SHOWN DRAWING 2 OF 11

