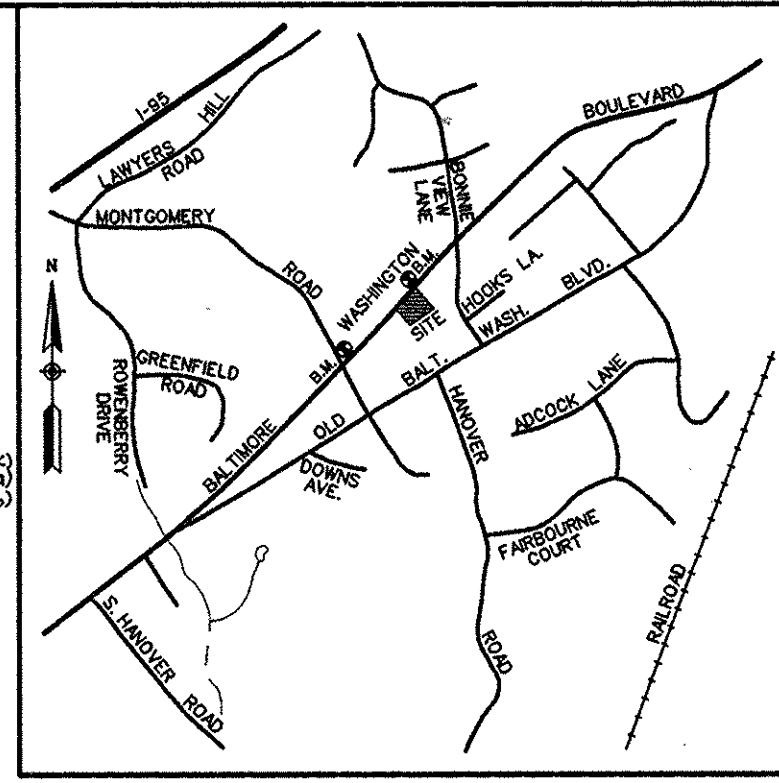


U. S. ROUTE 1 BALTIMORE WASHINGTON BOULEVARD

SHA CONTRACT • H O 735-501-776

SITE TABULATION

AREA OF PARCEL	GROSS AREA 1.8160 AC. OR 79,105 S.F. Hwy. Widening 0.0886 AC. OR 4,208 S.F. NET AREA 1.7274 AC. OR 74,897 S.F.
ZONING	B-2 (BUSINESS GENERAL) 1-14-94 VOID 1-14-94
LAND USE	COMMERCIAL (VACANT) & 2 RESIDENCES
PROPOSED USE	COMMERCIAL (FAST FOOD RESTAURANT), BANK & JIFFY LUBE
FLOOR SPACE/COVERED COVERAGE	2,932 S.F. - BURGER KING 2,702 S.F. - BANK 2,085 S.F. - JIFFY LUBE TOTAL 7,719 S.F.
BUILDING FOOTPRINT	2,932 S.F. - BURGER KING 2,085 S.F. - JIFFY LUBE TOTAL 5,017 S.F.
MAXIMUM NUMBER OF EMPLOYEES	12 PER SHIFT - BURGER KING 3 PER SHIFT - BANK 5 PER SHIFT - JIFFY LUBE TOTAL 20 PER SHIFT
PARKING REQUIRED	14 X 2.93 = 42 SPACES - BURGER KING 5 X 2.7 = 13 SPACES - BANK 20 X 3 = 60 SPACES - JIFFY LUBE TOTAL 115 SPACES
PARKING PROVIDED	BURGER KING 41-SP. (INCL. 1-SHARED SPACE WITH BANK) (INCL. 2-H.C.) BANK 18-SP. (INCL. 1-SHARED SPACE WITH BURGER KING) (INCL. 1-H.C.) JIFFY LUBE 12-SP. (INCL. 1-H.C.) TOTAL 71 SPACES



VICINITY MAP

SCALE: 1" = 1000'

BENCH MARK DESCRIPTION:

HOWARD COUNTY SURVEY CONTROL:
B.M. #6247006 ELEV. 160.6163
CONCRETE MONUMENT SET FLUSH WITH
GROUND BETWEEN ENTRANCE AND EXIST
DRIVES AT ELKRIDGE DRIVE IN THEATER.

B.M. #6247007 ELEV. 223.084
CONCRETE MONUMENT SET FLUSH WITH
GROUND IN GRASS ISLAND IN WESTERN
CORNER OF INTERSECTION OF U.S. ROUTE
1 AND MONTGOMERY ROAD.

FLOOR AREA RATIO TO SITE AREA: 0.53% (PRIOR TO RTE. 1 R/W RESERVATION)
15.7% (AFTER SITE R/W RESERVATION)

AREA OF PARKING LOT: PRIOR TO RTE.1 R/W RESERVATION 41,775 S.F. OR 1.10 AC.
AFTER RTE.1 R/W RESERVATION 47,150 S.F. OR 1.08 AC.

GREEN AREA ON SITE: PRIOR TO RTE.1 R/W RESERVATION 21,727 S.F. OR 0.7% OF GROSS AREA
AFTER RTE.1 R/W RESERVATION 19,653 S.F. OR 0.24% OF GROSS AREA

THERE ARE NO FLOODPLAINS ON SITE

SOILS ARE INTERMEDIATE TO LOW AND LOAM; CLAY-LOAM SILT LOAM; SILT LOAM; CLAY LOAM AND SAND-CLAY AND CLAYEY SAND

THE SITE IS NOT IN A FLOOD AREA AND FALLS IN ZONE C ON THE FEMA MAP PANEL 240044 00408

LANDSCAPE AND FOREST BUFFER PLANTING WILL BE PROVIDED IN CONFORMANCE WITH HOWARD COUNTY REGULATIONS. SEE SHEET 7 FOR LANDSCAPE AND FOREST CONSERVATION PLAN.

THERE ARE 0-FT. SIDE BUILDING SETBACKS SINCE ADJACENT ZONING IS B-2, A 10-FT. SETBACK FOR PARKING IS PROVIDED ALONG THE FRONTAGE - PUBLIC R/W RTE. 1 A 30-FT. REAR SETBACK IS PROVIDED ADJACENT TO RESIDENTIAL ZONING.

GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUME IV STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION
- ALL EXISTING STRUCTURES, PAVING, AND OTHER IMPROVEMENTS ON THE SITE SHALL BE REMOVED
- THE LOCATION OF UTILITIES SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION AND DEPTH OF ANY UTILITIES AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING WORK.
- FAILURE TO MENTION SPECIFICALLY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PREPARE WORK.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIFTEEN (15) DAYS BEFORE STARTING WORK SHOWN ON THE DRAWINGS:
NATURAL GAS 1-800-257-7777
C & P TELEPHONE 725-9976
HOWARD COUNTY BUREAU OF UTILITIES 313-4800
AT&T CABLE LOCATION DIVISION 392-5523
ROAD 685-0123
STATE HIGHWAY ADMINISTRATION 531-5333
HOWARD COUNTY CONSTRUCTION INSPECTION 313-1880
SURVEY DIVISION 124 HOURS PRIOR TO START OF WORK 313-1817
- SEE ARCHITECTURAL DRAWINGS FOR BUILDING SPECIFICATIONS.
- MAXIMUM BUILDING HEIGHT - 17'-6" BURGER KING, 25'-6" JIFFY LUBE.
- ALL AREAS TO BE PAVED OR RECEIVING BUILDING COVERAGE SHALL BE STABILIZED IN ACCORDANCE WITH THE APPROVED BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
- ANY DAMAGE TO PUBLIC UTILITY AND/OR ADJACENT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL EROSION SHALL BE 211 OF FLATLANDS COVER ON WATER MAINS
- THE CONTRACTOR SHALL MAINTAIN MINIMUM 4' COVER ON WATER MAINS
- ALL PROPOSED UTILITIES SHALL RECEIVE FULL TRENCH COMPACTION FOR DETAILS OF RIMS AND STIONS FOR THE HANDICAPPED, SEE MARYLAND BUILDING CODE FOR THE HANDICAPPED AND AGED AND 15.5 SHOWN ON SHEET 25
- ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED
- THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES TO HIS OWN SATISFACTION BEFORE STARTING CONSTRUCTION
- WATER CONTRACT NO. 88-2 SHEET 9 OF 25
- SANITARY SEWER CONTRACT 88-2 SHEETS 2, 3, & 4
- OUTLINE SURVEY PREPARED BY PHENIX ENGINEERING, INC.
- PROPOSED SHA HIGHWAY WIDENING FOR BALTIMORE WASHINGTON BLVD. TO SLOPE AT 2% PER FOOT PROGRADE OF EXISTING PAVEMENT TO PROPOSED SHA CURB LOCATED 39.5 FEET FROM THE CENTERLINE OF THE ROAD.
- RIGHT OF WAY WIDENING DETAILS.
- SIGHT DISTANCE AT THE PROPOSED ENTRANCE INTERSECTION WITH RTE. 1 IS 150 FEET, (G.S.D. IS GREATER THAN 70')
- W/P 98-27 WAS APPROVED FOR VALUE OF PRELIMINARY SKETCH PLAN FOR SECURE PLAY AND CENTER NATIVE PLANTS
- TWO PARCELS EXIST ON THE PROPERTY ELKRIDGE VILLAGE CENTER, LLC. OWNS THE BURGER KING & BANK PARCELS. JIFFY LUBE, PROP. L.L.C. OWNS THE JIFFY LUBE PARCEL. THE CONTRACTOR SHALL MAINTAIN MINIMUM 4' COVER ON WATER MAINS
- CROSS EASEMENTS SHALL BE PROVIDED IN COMPLIANCE WITH THE LIGHTING REQUIREMENTS IN ZONING SECTION 154. NO LIGHTING WILL BE REFLECTED TO BALTIMORE WASHINGTON BOULEVARD OR TO ADJACENT COMMERCIAL OR RESIDENTIAL PROPERTIES. DETAILS OF THE LIGHTING SHALL BE PROVIDED UPON APPLICATION FOR ELECTRICAL PERMIT.
- LOADING AREAS WILL BE AS FOLLOWS:
BURGER KING: AT THE DUMPER AREA
BANK: IN THE DRIVE-THRU AT THE FRONT OF THE BUILDING
JIFFY LUBE: IN FRONT DRIVE-THRU, LEAVING CLEARANCE FROM THE BUILDING ACCESSIBLE AT ALL TIMES
- ALL WATER METERS WILL BE LOCATED INSIDE OF THE BLDG.
- A PORTION OF THE FOREST CONSERVATION OBLIGATIONS INCURRED BY THE DEVELOPER (IF AFFORESTATION) HAVE BEEN MET BY PAYMENT OF \$22,720 TO THE HOWARD COUNTY FOREST CONSERVATION FUND. SURETY OF \$100,000 FOR ON-SITE AFFORESTATION IS INCLUDED IN THE FOREST CONSERVATION DEVELOPER'S AGREEMENT AND SURETY OF \$3,900,000 IS INCLUDED IN A SEPARATE DEVELOPER'S AGREEMENT.
- SHA PAVING SECTIONS IN WIDENING TO BE CONSISTENT WITH EXISTING PAVING SECTIONS.
- RESTRICTED AREA IS A NON-BUILDABLE AREA ESTABLISHED ADJACENT TO AN EXISTING DECEDED PROPERTY LINE AS REQUESTED BY PD #2008-04-08-098. RECEIPT # 854 68 - TO BE ABANDONED UPON RECORDECTION OF A SUBDIVISION PLAT.

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C-4	SEDIMENT & EROSION CONTROL DETAILS
C-5	STORMWATER MANAGEMENT PLAN
C-6	STORMWATER MGMT. DETAILS AND SPECS.
C-7	LANDSCAPE & FOREST CONSERVATION PLAN
C-8	WALL DETAILS, PROFILE AND SITE PLAN VIEWS
C-9	WALL NOTES & SPECIFICATIONS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

John J. Williams 3/30/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION (DATE)

Arvid Hamstra 4/19/98
CHIEF, DIVISION OF LAND DEVELOPMENT (DATE)

Joseph R. Smith 4/16/98
DIRECTOR (DATE)

APPROVED: FOR PUBLIC WATER AND SEWER SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT

Joyce M. Boyd, M.D., Ph.D. 4-6-98
COUNTY HEALTH OFFICER (DATE)

APPROVED: FOR PUBLIC WATER, SEWER, AND STORM DRAIN SYSTEMS & PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

DIRECTOR _____ DATE _____

CHIEF, BUREAU OF ENGINEERING _____ DATE _____

C.L. WARFIELD & ASSOC., INC.
CONSULTING ENGINEERS
4900 KEMP ROAD
REISTERSTOWN, MARYLAND 21136
(410) 833-6233

SITE DEVELOPMENT PLAN ELKRIDGE VILLAGE CENTER

OWNER:
ELKRIDGE VILLAGE CENTER, INC.
P.O. BOX 498
FINKSBURG, MARYLAND 21048
(410) 833-0057
LIBER 3334-237
LIBER 3334-242

ELKRIDGE VILLAGE CENTER
17 WEST PENNSYLVANIA AVENUE
BALTIMORE, MARYLAND 21204
LIBER 3334-237
(410) 256-4800

SCALE: 1" = 20'	OCTOBER 23, 1997	SHEET 1 OF 9
ADDRESS CHART		
LQT NUMBER	STREET ADDRESS	
PARCEL 121	6241, 6245, & 6247 ELKRIDGE WASHINGTON BLVD., ROUTE-1	
ELLICOTT CITY, MARYLAND 21043		
PERMIT INFORMATION BLOCK		
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL
ELKRIDGE VILLAGE CENTER	-----	PARCEL 121
PLAT* OR L/F	BLOCK ZONE	TAX/ZONE MAP ELECT. DIST CENSUS TRACT
LIBER 3334-237	2 B-2	38 1 6012
LIBER 3334-242		
WATER CODE	SEWER CODE	
D09	2022427	

C-1



ENGINEER CERTIFICATION:
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.

Engineer: *C.L. WARFIELD & ASSOC., INC.* Date: 10-23-97
Name: *Catherine Warfield* PE: 10571

DEVELOPERS CERTIFICATION:
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 the 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.

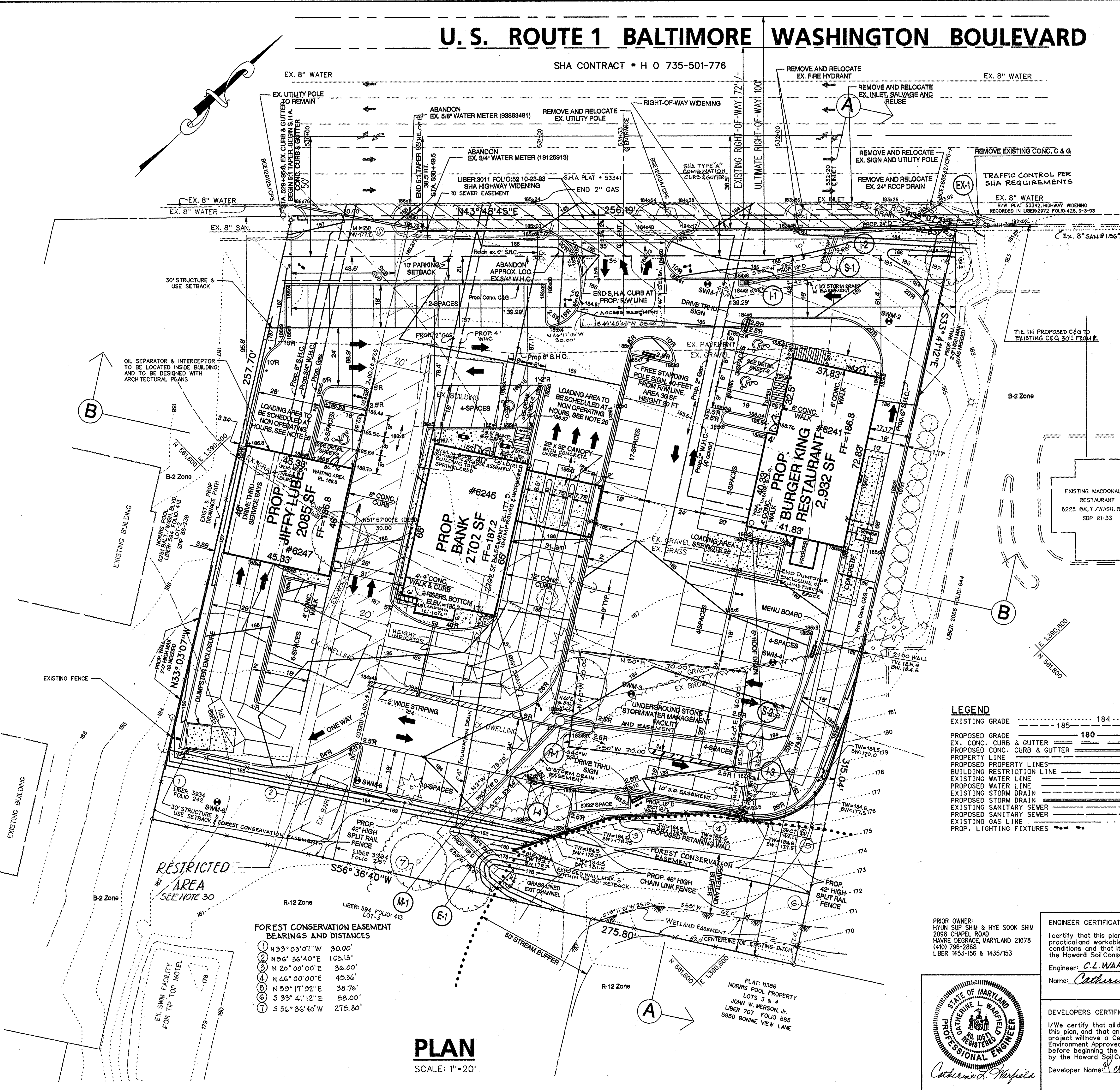
Developer Name: *Arvid Hamstra* Date: 10/24/97

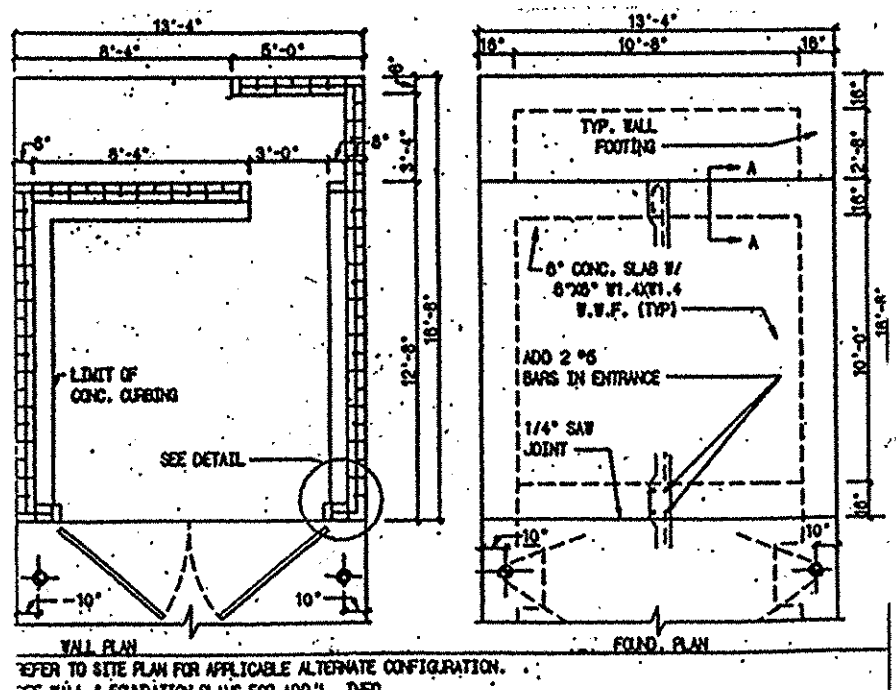
FOREST CONSERVATION EASEMENT BEARINGS AND DISTANCES

- N33°03'07"W 30.00'
- N56°36'40"E 163.13'
- N20°00'00"E 36.00'
- N46°00'00"E 45.36'
- N59°17'52"E 38.76'
- S33°41'12"E 58.00'
- S56°36'40"W 275.80'

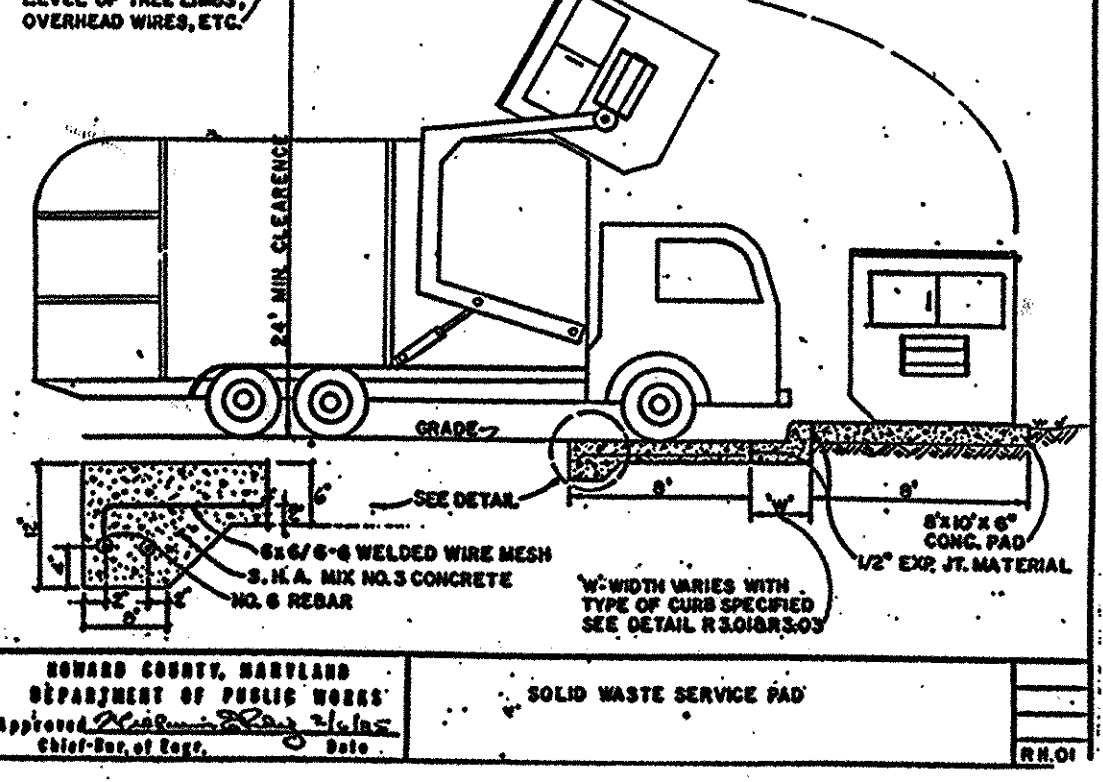
PLAN

SCALE: 1" = 20'

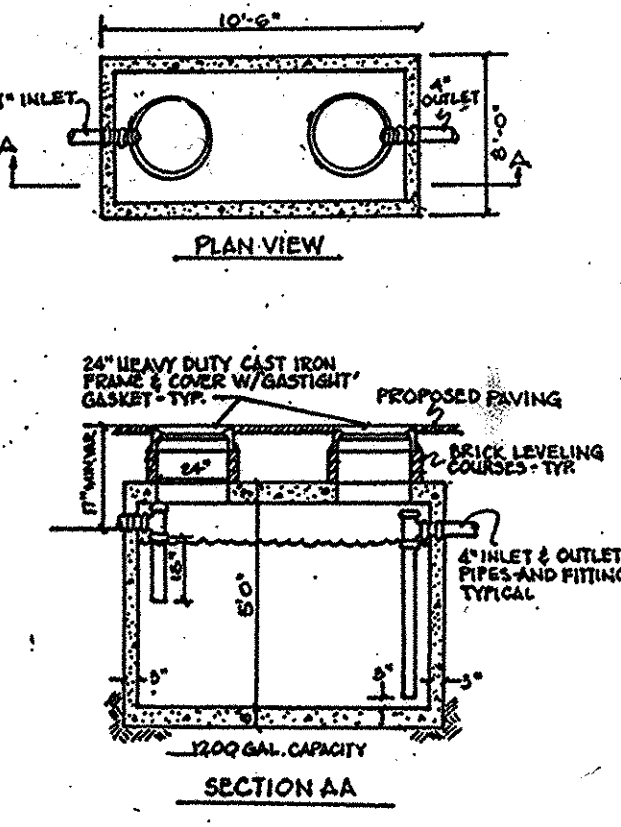




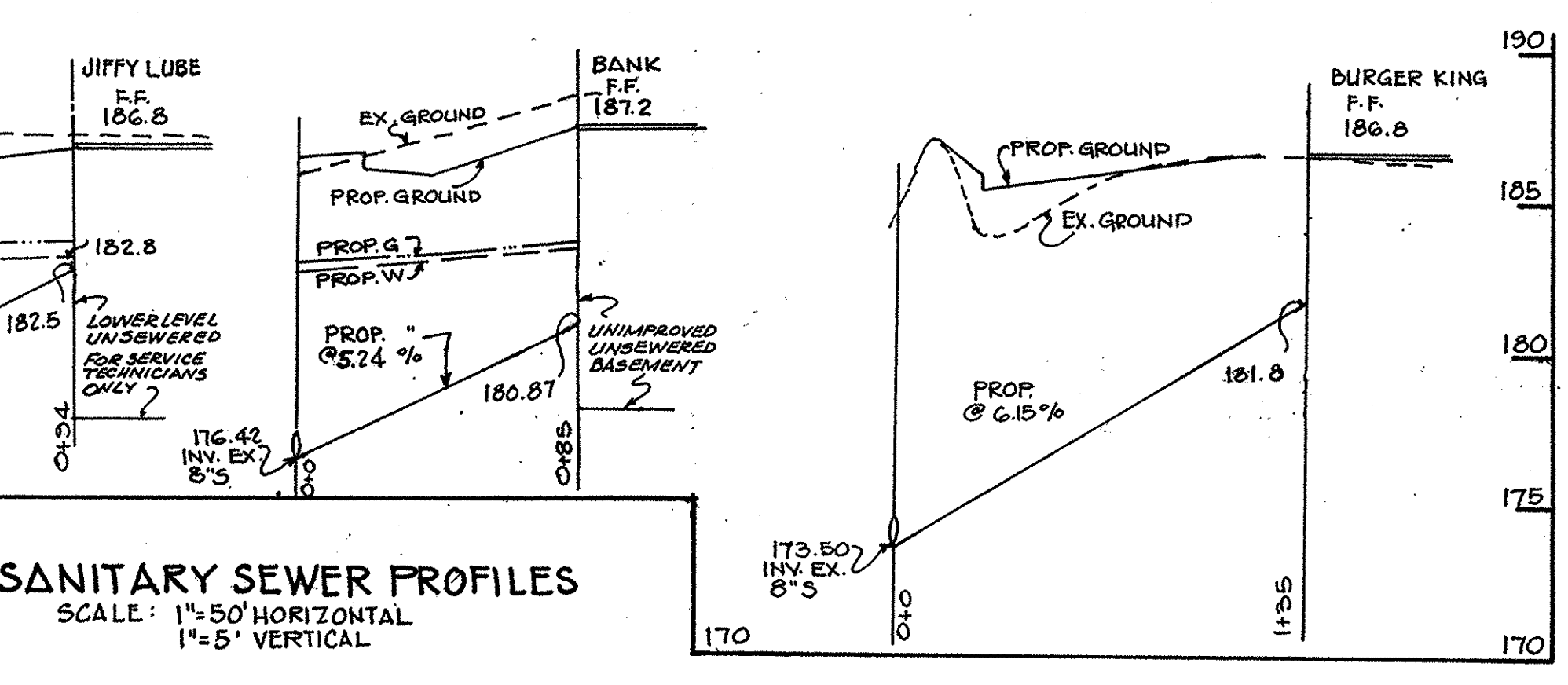
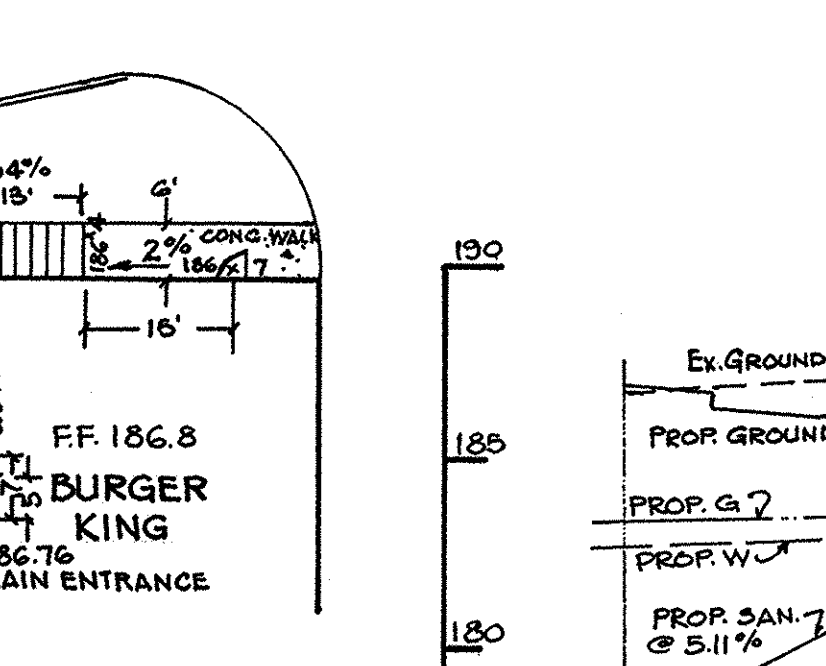
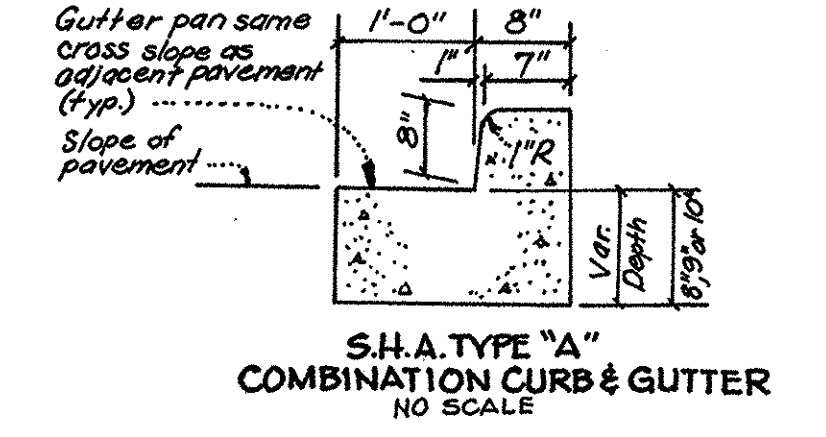
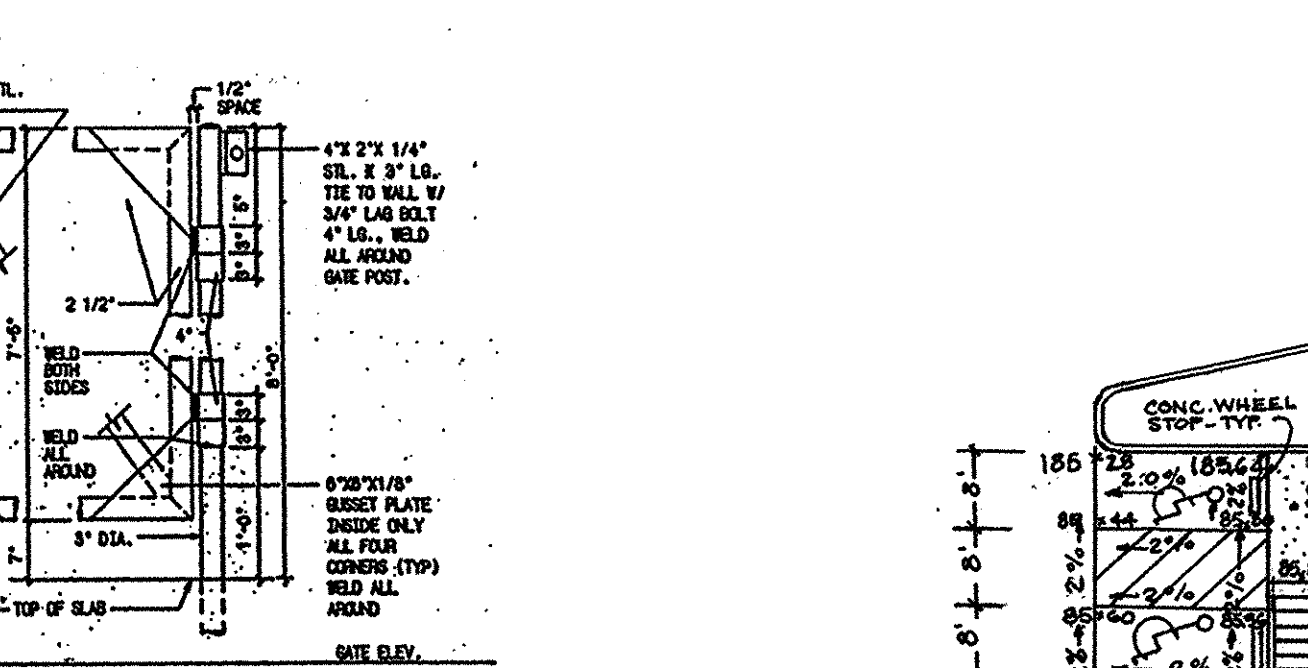
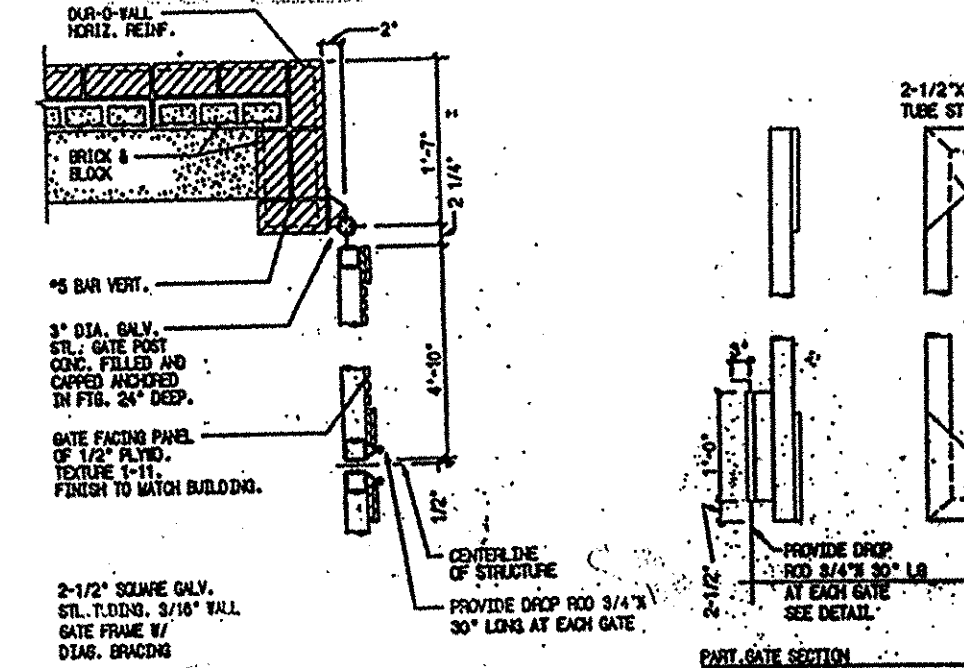
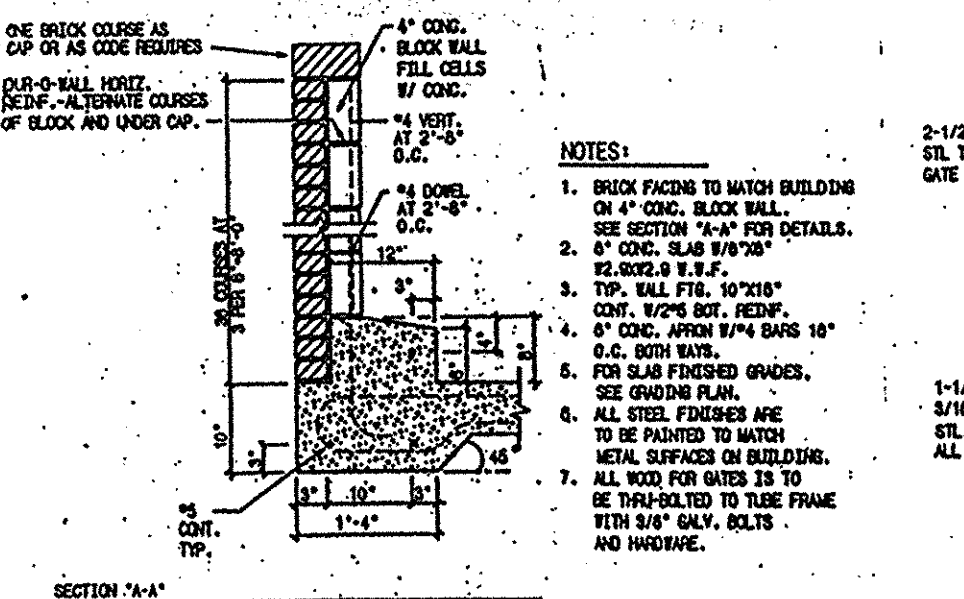
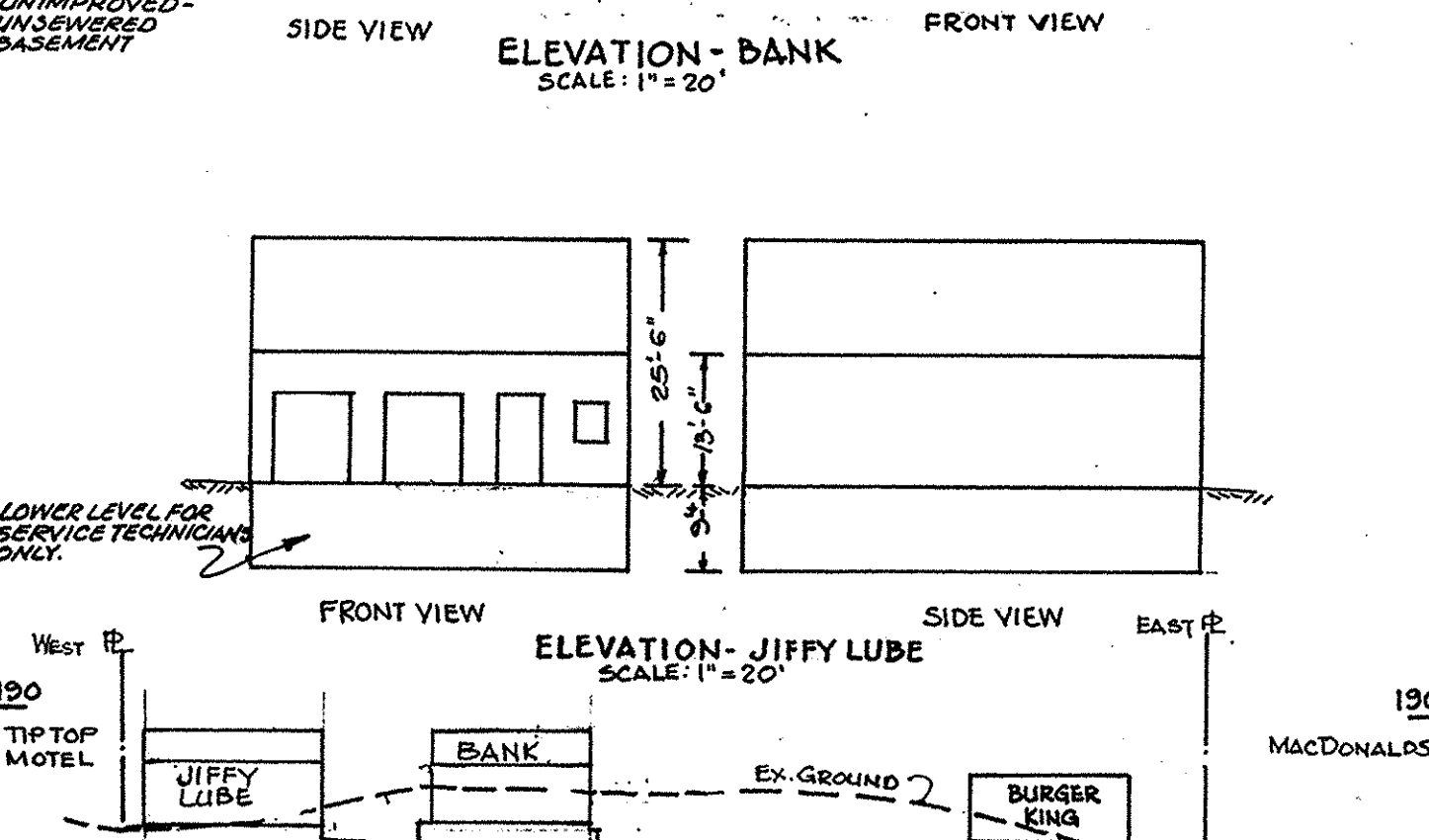
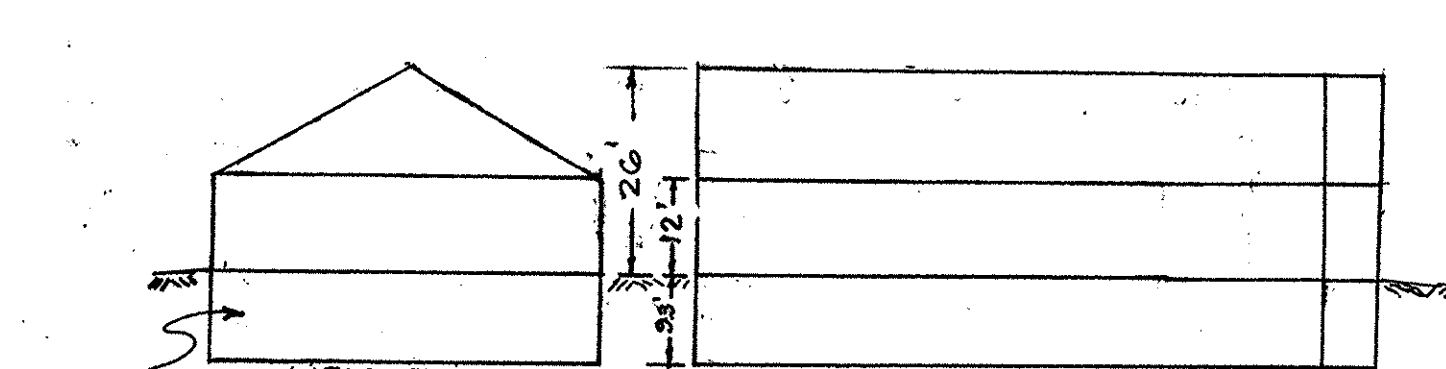
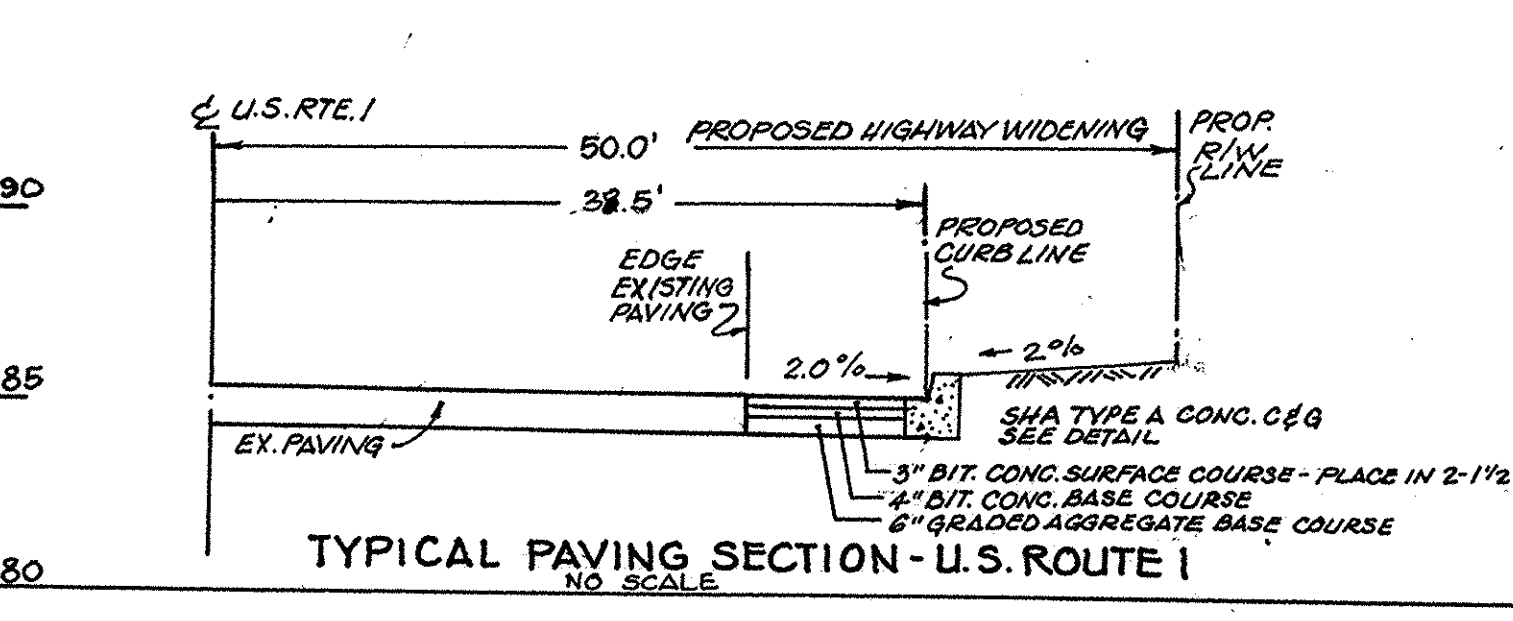
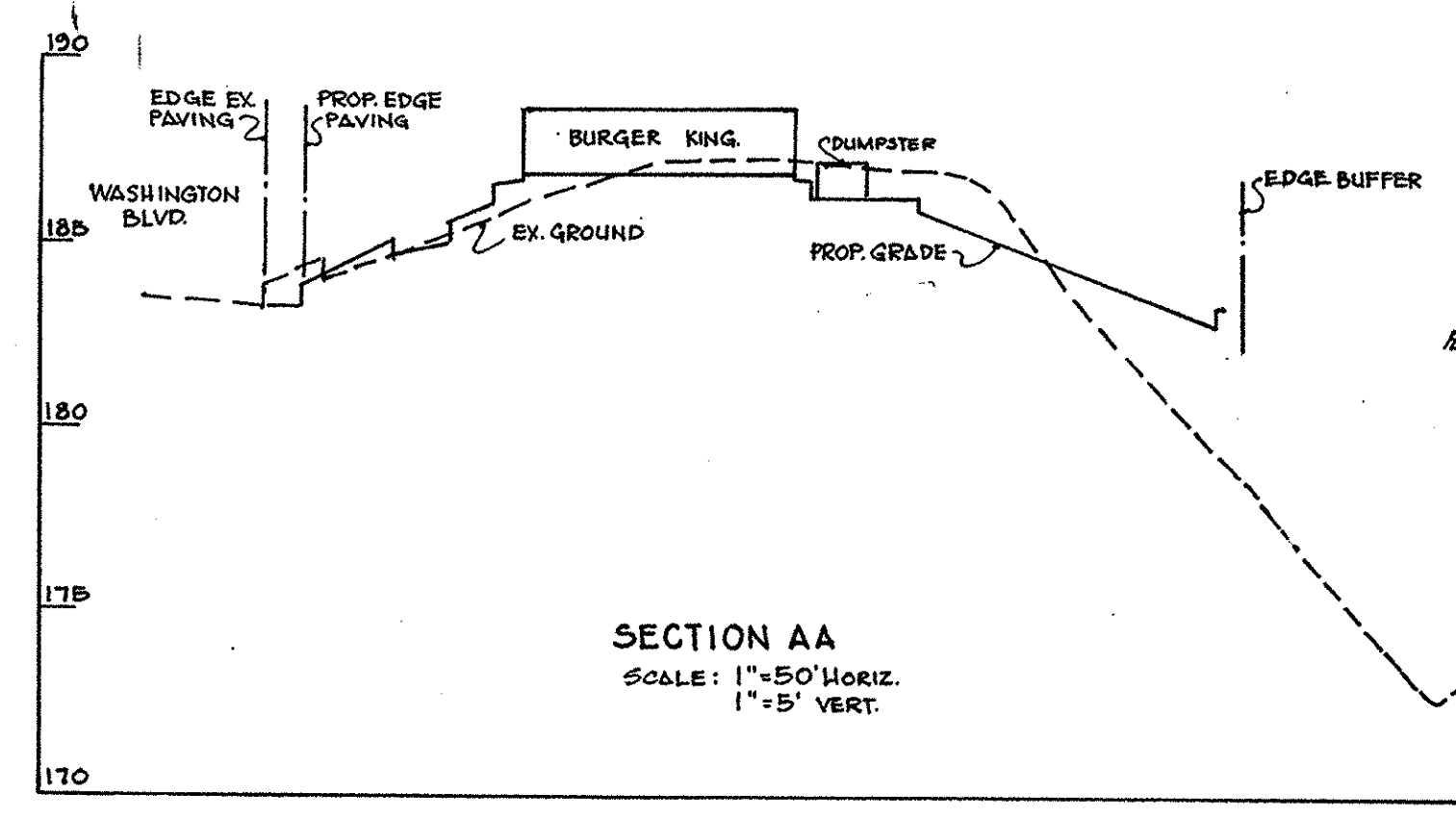
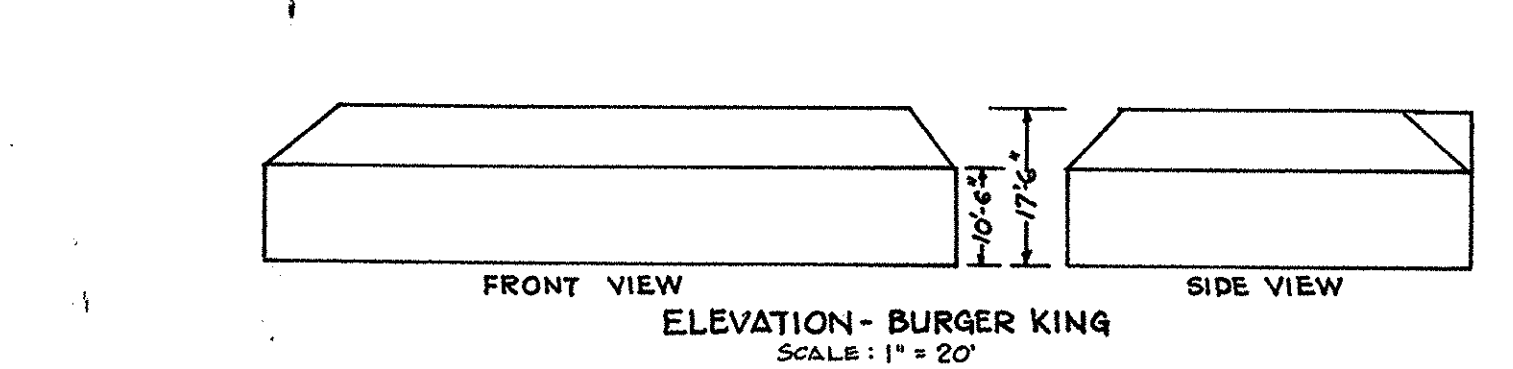
SINGLE DUMPSTER DETAIL NOT TO SCALE



LEVEL OF TREE LIMBS, OVERHEAD WIRES, ETC.



GREASE INTERCEPTOR DETAIL NOT TO SCALE

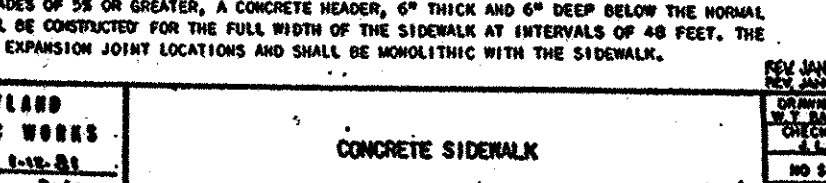
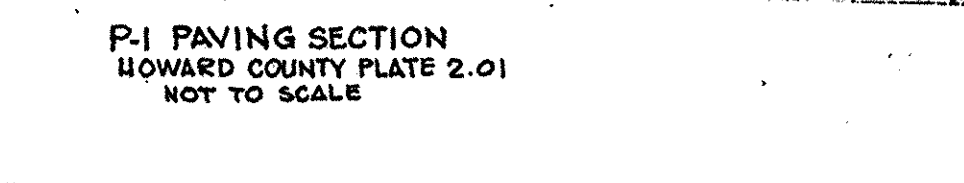
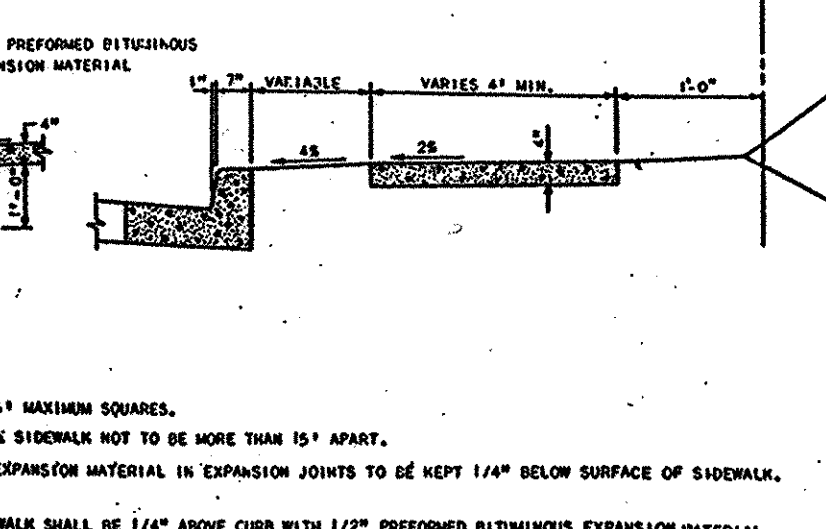
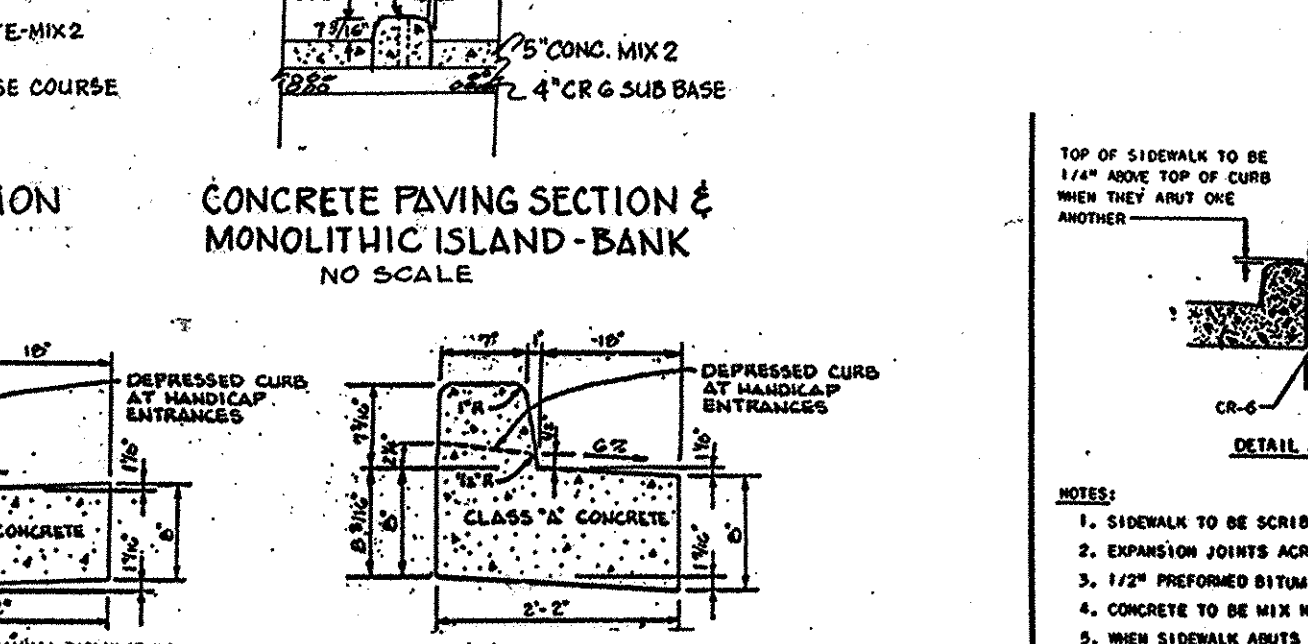
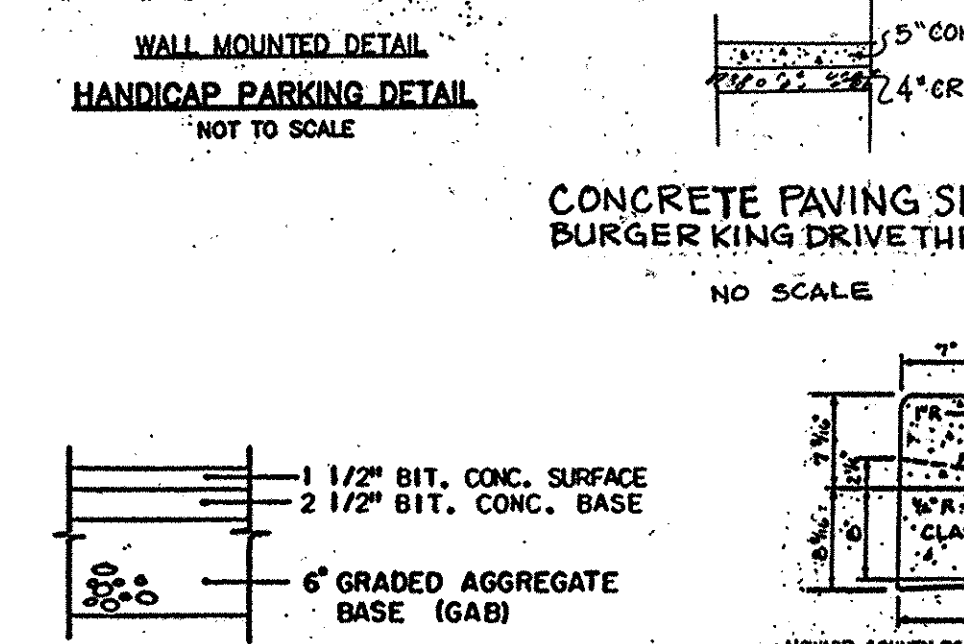
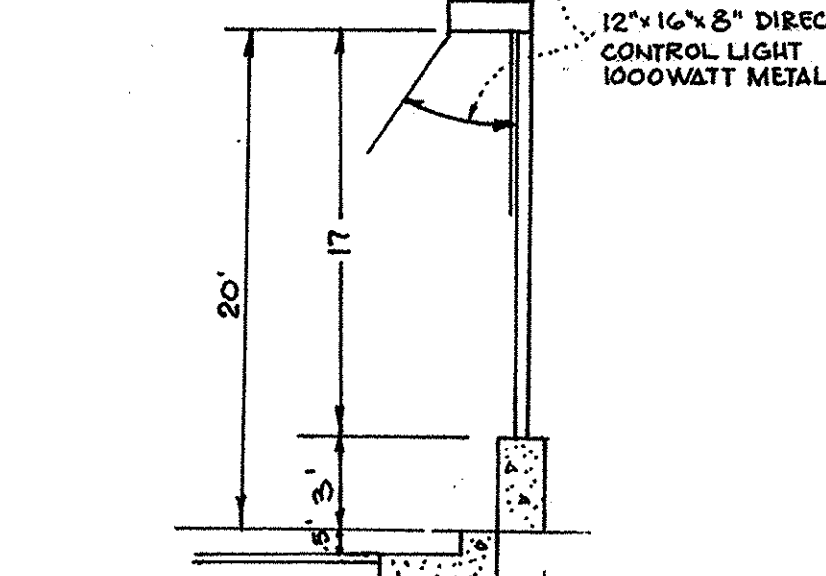
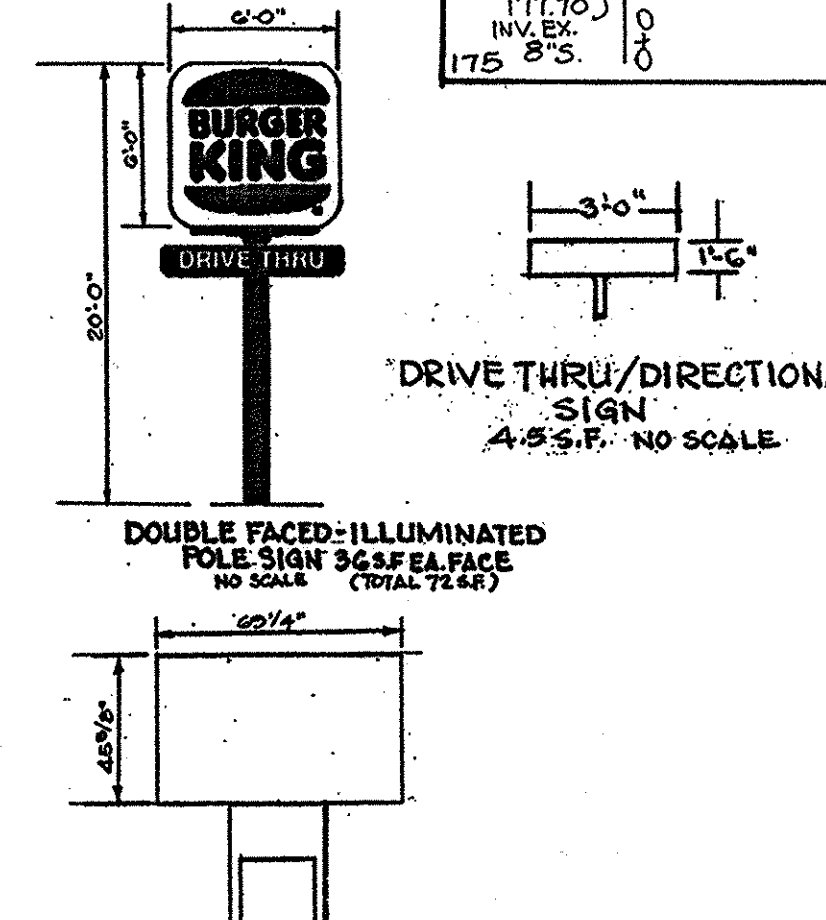
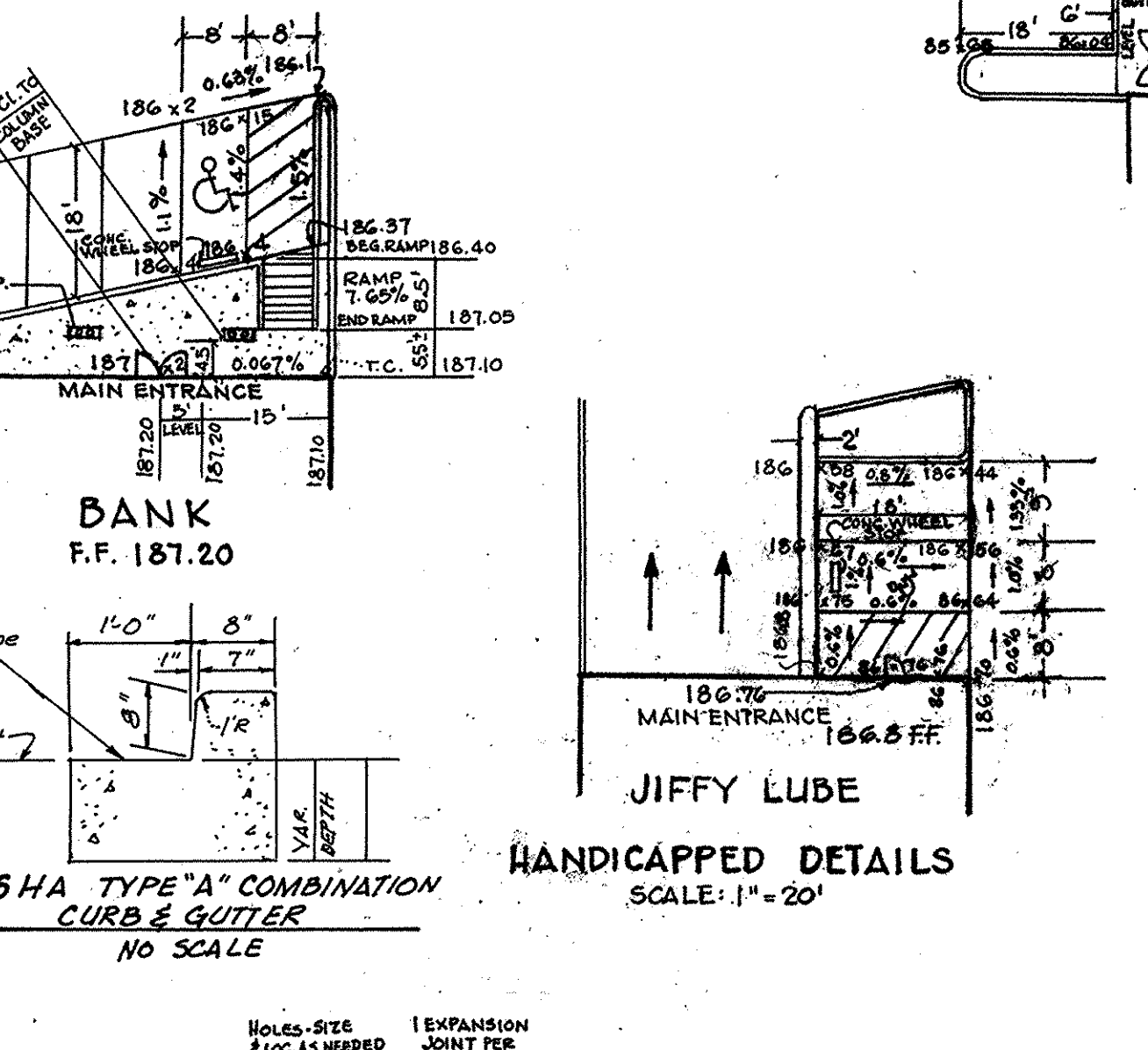
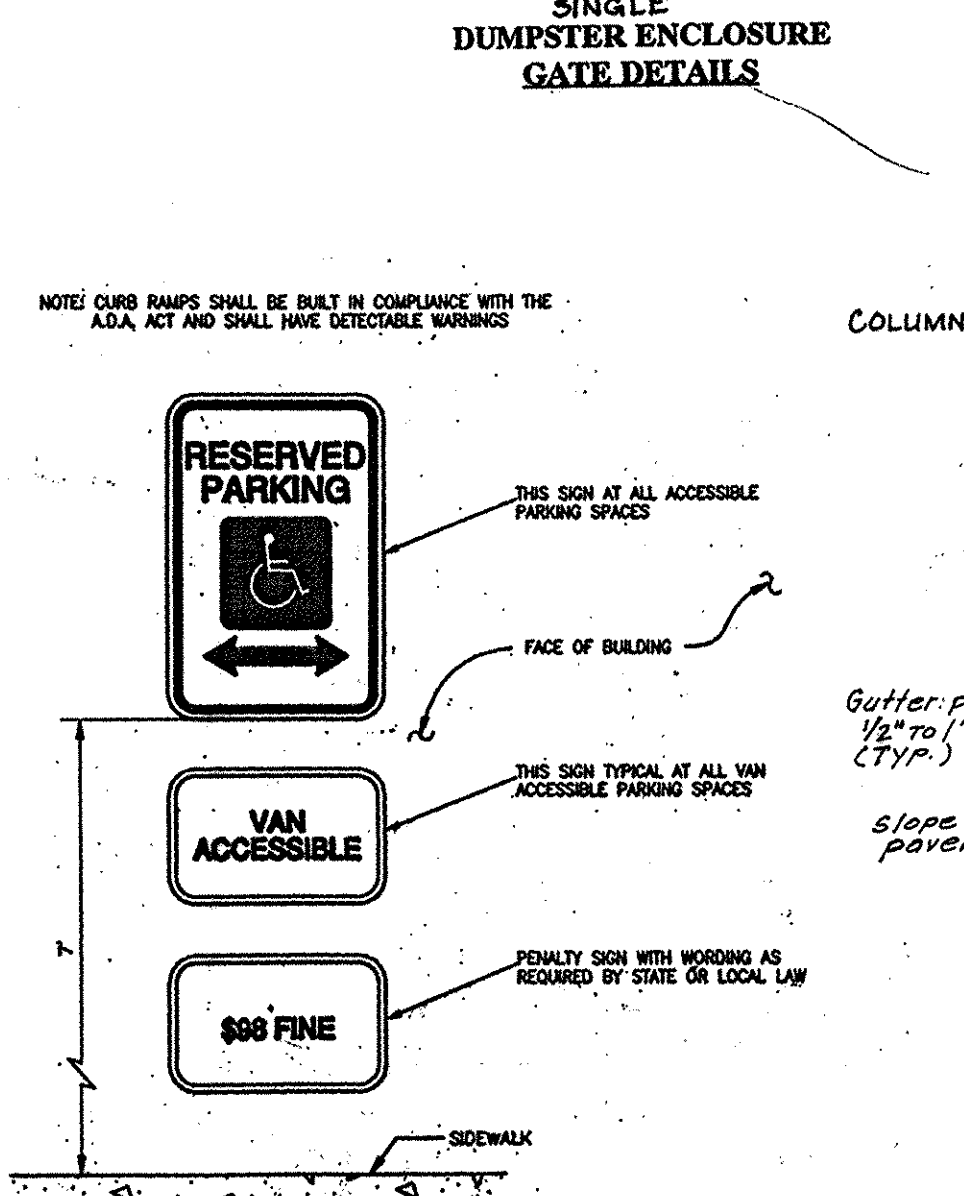


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C-6	STORMWATER MGMT DETAILS
C-7	LANDSCAPE & FOREST CONSERVATION PLAN
C-8	WALL DETAILS
C-9	WALL NOTES

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

APPROVED: FOR PUBLIC WATER AND SEWER SYSTEM
 HOWARD COUNTY HEALTH DEPARTMENT
 County Health Officer

APPROVED: FOR PUBLIC WATER, SEWER, AND STORM DRAIN SYSTEMS, & PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 Director
 Chief, Bureau of Engineering



C.L. WARFIELD & ASSOC., INC.
 CONSULTING ENGINEERS
 4900 KEMP ROAD
 REISTERSTOWN, MARYLAND 21136
 (410) 429-2981

ENGINEER CERTIFICATION:
 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.
 Engineer: C.L. WARFIELD AND ASSOCIATES, INC. Date: 7-25-97
 Name: Catherine Warfield PE#: 10571

DEVELOPERS CERTIFICATION:
 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.
 Developer Name: Ernest S. Bean Date: 7/25/97

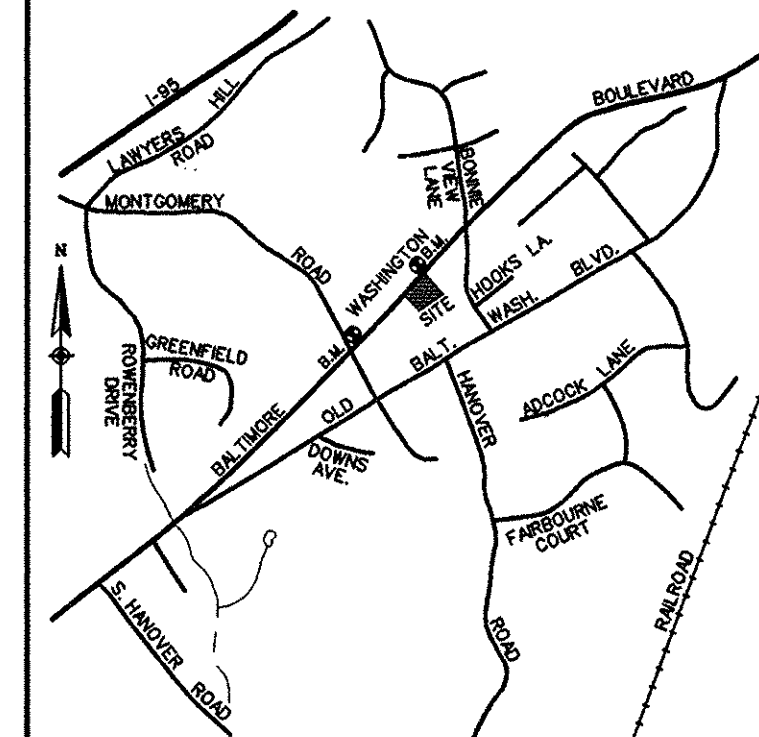
DETAILS ELKRIDGE VILLAGE CENTER

OWNER: ELKRIDGE VILLAGE CENTER, INC. BY ELKRIDGE L.L.C. P.O. BOX 498 FINNSBURG, MD 21048 (410) 833-0057		DATE: 3/30/98	
SCALE: AS NOTED		OCTOBER 23, 1997	
ADDRESS CHART			
LOT NUMBER	STREET ADDRESS		
PARCEL 121	6241, 6245, & 6247 WASHINGTON BLVD., ROUTE-1 ELLCOTT CITY, MARYLAND 21043		
PERMIT INFORMATION BLOCK			
SUBDIVISION NAME ELKRIDGE VILLAGE CENTER	SECTION/AREA	LOT/PARCEL PARCEL 121	
PLAN OR L/F LIBER 3324-237	BLOCK 2	TAX/ZONE MAP B-2	ELECT. DIST. 1
WATER CODE D09	CONTRACT 2W	SEWER CODE 2022427	CONTRACT 86S

U. S. ROUTE 1 BALTIMORE WASHINGTON BOULEVARD

SHA CONTRACT • H O 735-501-776

- ### SEDIMENT CONTROL NOTES
1. A PERMIT TO CONSTRUCT MUST BE OBTAINED FROM THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSING AND PERMITS. SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION. (410-313-1855)
 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 1984 MARYLAND STANDARD SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. AND REVISIONS THERE TO.
 3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMITS OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, PERMETER SLOPES AND ALL SLOPES STEEPER THAN 5:1; B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
 4. ALL SEDIMENT TRAP/DIAPHRAGMS MUST BE FENCED AND MAINTAINED WITH SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL. STORM DRAINAGE.
 5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1984 MARYLAND STANDARD SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING. TEMPORARY STABILIZATION WITH MULCH SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
 6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
 7. SITE ANALYSIS:
 - 1.82 ACRES AREA DISTURBED
 - 1.45 ACRES AREA TO BE ROOFED OR PAVED
 - 1.33 ACRES AREA TO BE VEGETATIVELY STABILIZED
 - 0.33 ACRES TOTAL CUT
 - 750 CU YD TOTAL FILL
 OFFSITE WASTE/BORROW LOCATION: TO BE ARRANGED BY CONTRACTOR
 8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
 9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED IF DEEMED NECESSARY BY THE HOWARD COUNTY DPW SEDIMENT CONTROL INSPECTOR.
 10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROL. BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL INSPECTION APPROVAL IS OBTAINED FROM THE INSPECTION AGENCY IS MADE.
 11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY. WHICHEVER IS SHORTER.



VICINITY MAP

SCALE: 1" = 1000'

BENCH MARK DESCRIPTION:
 HOWARD COUNTY SURVEY CONTROL ELEV. 180.6163
 B.M. #247006 CONCRETE MONUMENT SET FLUSH WITH GROUND BETWEEN ENTRANCE AND EXISTING DRIVES AT ELKRIDGE DRIVE IN THEATER.
 B.M. #247007 ELEV. 223.084
 CONCRETE MONUMENT SET FLUSH WITH GROUND IN GRASS ISLAND IN WESTERN CORNER OF INTERSECTION OF U.S. ROUTE 1 AND MONTGOMERY ROAD.

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C-9	WALL NOTES AND SPECIFICATIONS

Offsite drainage area for existing and proposed conditions draining to the subject site. Area=500-sf.

SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT.
2. INSTALL TREE PROTECTION FENCE.
3. DEMOLISH ALL EXISTING STRUCTURES AND PHYSICAL IMPROVEMENTS ON THE SITE.
4. CLEAR AND GRUB WITHIN LIMITS OF DISTURBANCE AND INSTALL PERMETER SEDIMENT CONTROL DEVICES.
5. CONSTRUCT TRENCH WALLS AND GRADE SITE.
6. INSTALL UTILITIES - WATER, SANITARY SEWER, STORM DRAIN, STORM WATER MANAGEMENT FACILITY, GAS, ELECTRIC ETC. AND INSTALL INLET PROTECTION AT 1-1, 1-2, AND 1-3.
7. STABILIZE SLOPES IN ACCORDANCE WITH PERMANENT SEEDING NOTES AND STABILIZE DRIVEWAYS AND PARKING AREAS WITH STONE SUBBASE.
8. COMPLETE ALL CONSTRUCTION AND STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES.
9. INSTALL AFFORESTATION MATERIAL PER FOREST CONSERVATION PLAN C-7.
10. AFTER SITE HAS BEEN STABILIZED, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES.

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

John R. Robertson 3/25/98
 HOWARD S.C.D. DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

Cheryl Simmons 3/25/98
 NATURAL RESOURCES CONSERVATION SERVICE DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

W. Deamus 3/30/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Andy Hester 4/14/98
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paul R. ... 4/16/98
 DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND SEWER SYSTEM HOWARD COUNTY HEALTH DEPARTMENT

Josie M. Bond 4-6-98
 COUNTY HEALTH OFFICER DATE

APPROVED: FOR PUBLIC WATER, SEWER, AND STORM DRAIN SYSTEMS, & PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

DIRECTOR _____ DATE _____

CHIEF BUREAU OF ENGINEERING _____ DATE _____

SEDIMENT & EROSION CONTROL PLAN

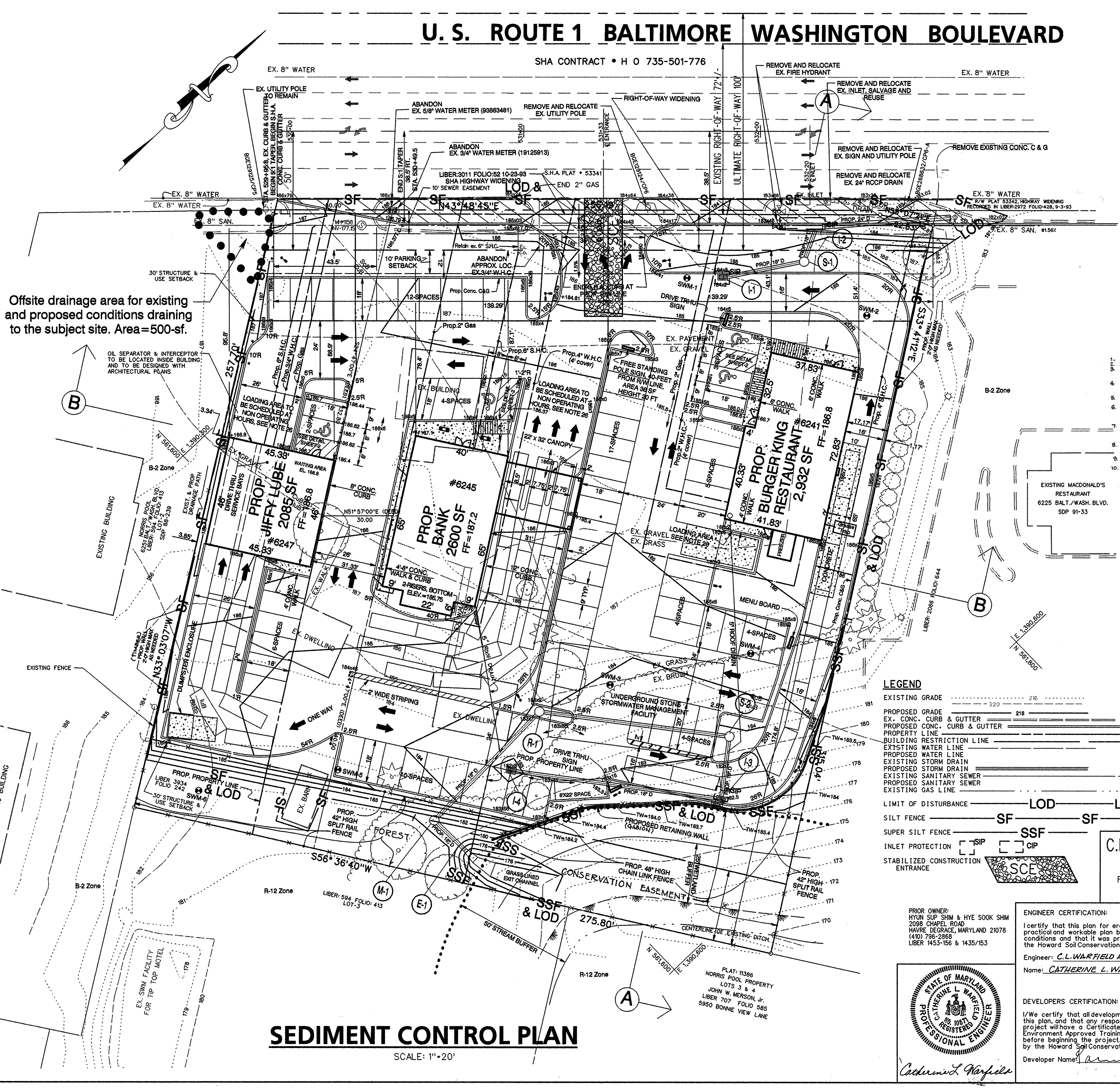
ELKRIDGE VILLAGE CENTER

OWNER: ELKRIDGE VILLAGE CENTER, INC. BK ELKRIDGE L.L.C. 17 WEST PENNSYLVANIA AVENUE FINKSBURG, MARYLAND 21048 (410) 596-4500

C-3

SCALE: 1" = 20' OCTOBER 23, 1997 SHEET 3 OF 9

ADDRESS CHART			
LOT NUMBER	STREET ADDRESS		
PARCEL 121	6241, 6245, & 6247 WASHINGTON BLVD, ROUTE-1 ELLICOTT CITY, MARYLAND 21043		
PERMIT INFORMATION BLOCK			
SUBDIVISION NAME	SECTION/AREA	TAX/ZONE MAP	LOT/PARCEL
ELKRIDGE VILLAGE CENTER			PARCEL 121
PLAT OR L/F	BLOCK/ZONE	TAX/ZONE MAP	ELECT. DIST
LIBER 3034-242	2	B-2	38
LIBER 3034-237			6012
WATER CODE	SEWER CODE		
D09	2022427		



LEGEND

- EXISTING GRADE: - - - - - 220 216
- PROPOSED GRADE: - - - - - 220 216
- EX. CONC. CURB & GUTTER
- PROPOSED CONC. CURB & GUTTER
- PROPERTY LINE
- BUILDING RESTRICTION LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING GAS LINE
- LIMIT OF DISTURBANCE: - - - - - LOD LOD
- SILT FENCE: - - - - - SF SF
- SUPER SILT FENCE: - - - - - SSF
- INLET PROTECTION: [SIP] [CIP]
- STABILIZED CONSTRUCTION ENTRANCE: [SCE]

C.L. WARFIELD & ASSOC., INC.
 CONSULTING ENGINEERS
 4900 KEMP ROAD
 REISTERSTOWN, MARYLAND 21136
 (410) 833-6233

PRIOR OWNER:
 HYUN SIP SHIM & HYE SOOK SHIM
 2098 CHAPEL ROAD
 HAVRE DEGRACE, MARYLAND 21078
 (410) 785-2868
 LIBER 1453-156 & 1435/153



ENGINEER CERTIFICATION:
 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.

Engineer: **C.L. WARFIELD AND ASSOCIATES, INC.** Date: **OCTOBER 24, 1997**
 Name: **CATHERINE L. WARFIELD** PE#: **10571**

DEVELOPERS CERTIFICATION:
 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 to the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. Also authorize periodic on-site inspection by the Howard Soil Conservation District.

Developer Name: **Samuel J. Dean** Date: **10/21/97**

SEDIMENT CONTROL PLAN

SCALE: 1" = 20'

Section I-Vegetative Stabilization Methods and Materials

- A. Site Preparation
1. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
iii. Schedule required soil test to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.

- B. Soil Amendments (Fertilizer and Lime Specifications)
1. Soil test must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory.
ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment.
iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide).

- C. Seeded Preparation
1. Temporary Seeding
a. Seeded preparation shall consist of loosening soil to a depth of 3-5" by means of suitable agricultural or construction equipment, such as disc harrows or chiselplows or rippers mounted on construction equipment.

- ii. Permanent Seeding
a. Minimum soil conditions required for permanent vegetative establishment:
1. Soil pH shall be between 6.0 and 7.0.
2. Soluble salts shall be less than 500 parts per million (PPM).

- b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.

- c. Apply soil amendments per soil test or as included on the plans.
d. Mix soil amendments into the top 3-5" of topsoil by disking or other suitable means.

- D. Seed Specifications
1. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory.
ii. Inoculant: The inoculant for treating legume seed in the seed mixtures shall be pure culture of nitrogen-fixing bacteria prepared specifically for the species.

- E. Methods of Seeding
1. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cutlifter seeder.
a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen: maximum of 100 lbs. per acre total of soluble nitrogen; P2O5 (phosphorous): 200 lbs/acre; K2O (potassium): 200 lbs/acre.

- ii. Drill or Cutlifter Seeding: Mechanized seeders that apply and cover seed with soil.
a. Cutlifter seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after planting.

- F. Mulch Specifications (in order of preference)
1. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
ii. Wood Cellulose Fiber Mulch (WCFM)
a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

- b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
d. WCFM materials shall be processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry.

- iii. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
1. A mulch anchoring tool a tractor draw implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely.

- ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and mixture shall contain a minimum of 50 pounds of wood cellulose fiber per 100 gallons of water.
iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on areas subject to bank erosion. The remainder of area should be covered with binder application. Synthetic binders such as Acrylic DLR (Ago-Tack), DCA-70, Petrosat, Terra Tac II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.

Section II-Temporary Seeding

Vegetation-annual grass or grain used to provide cover on disturbed areas for up to 12 months, for longer duration of vegetative cover, Permanent Seeding is required.

Table 26: Temporary Seeding Summary. Columns: Species, Application Rate (lb/acre), Seeding Dates, Seeding Depths, Fertilizer Rate, Lime Rate. Rows: Rye Plus, Foxtail, Millet.

Section III- Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

Table 27: Seed Mixture For Hardiness Zone 6b. Columns: No., Species, Application Rate, Seeding Dates, Seeding Depths, Fertilizer Rate, Lime Rate. Rows: 3 Tall Fescue, 7 Tall Fescue, Weeping Lovegrass, Serotia Lespedeza.

Section IV-Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

- A. General Specifications
1. Class of turf-grass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.
ii. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at a time of cutting.

- iii. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

- v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

- B. Sod Installation
1. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
ii. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to the tightly wedged against each other.

- iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sods and the underlying soil surface.
iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet.

- C. Sod Maintenance
1. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week, and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.
ii. After the first week, sod watering is required as necessary to maintain adequate moisture content.

- iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cuttings or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

24.0 Materials Specifications

Table 27: Geotextile Fabrics. Columns: CLASS, APPARENT OPENING SIZE (MM. MAX.), GRAB TENSILE STRENGTH (LB. MIN.), BURST STRENGTH (PSI. MIN.). Rows: A, B, C, D, E, F SILT FENCE.

US Std Sieve CW-02215
The properties shall be determined in accordance with the following procedures:
-Apparent opening size MSMT 323
-Grab tensile strength ASTM 1682: 4x8" specimen, 1x 2" clamps, 12"/min. strain rate in both
-Burst strength ASTM D 3786

The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be rot and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers, and composed of a minimum of 85% by weight of polyolefins, polyesters, or polyamides.

Silt Fence
Class F geotextile fabrics for silt fence shall have a 50 lb./in. minimum tensile strength and a 20 lb./in. minimum tensile modulus when tested in accordance with MSMT 509. The material shall also have a 0.3 gal/ft²/min. flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance with MSMT 322.

Geotextile fabrics used in the construction of silt fence shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amounts of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

PRIOR OWNER: HYUN SUP SHIM & HYE SOOK SHIM, 2098 CHAPEL ROAD, HAVRE DE GRACE, MARYLAND 21078. Includes professional engineer seal for Catherine Warfield.

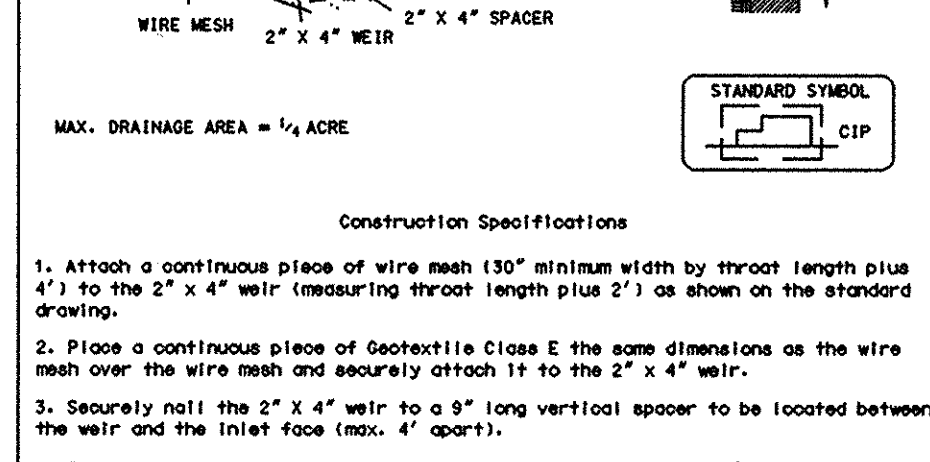
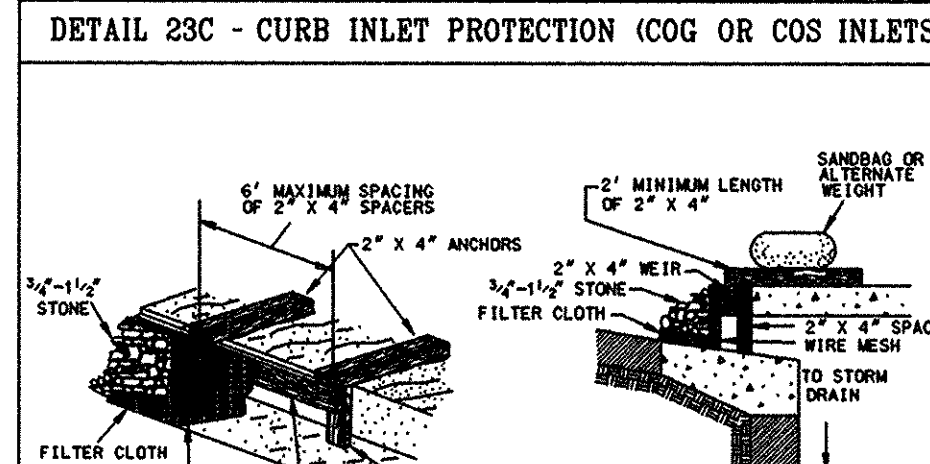
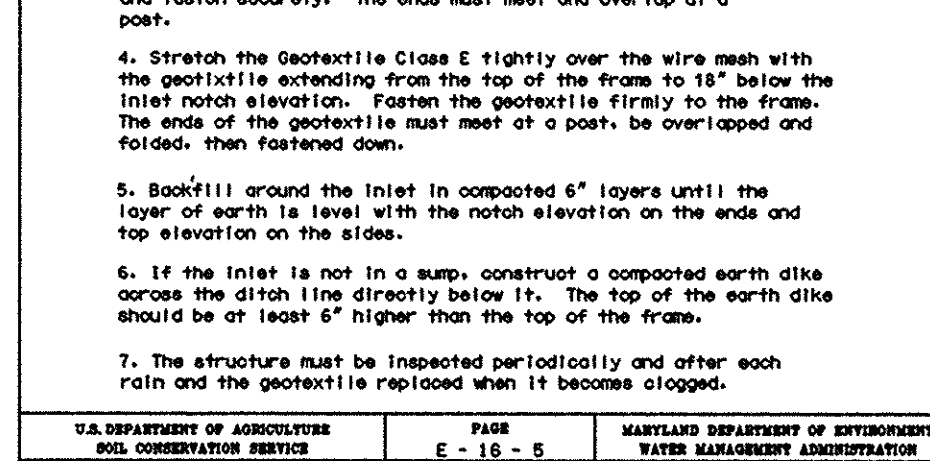
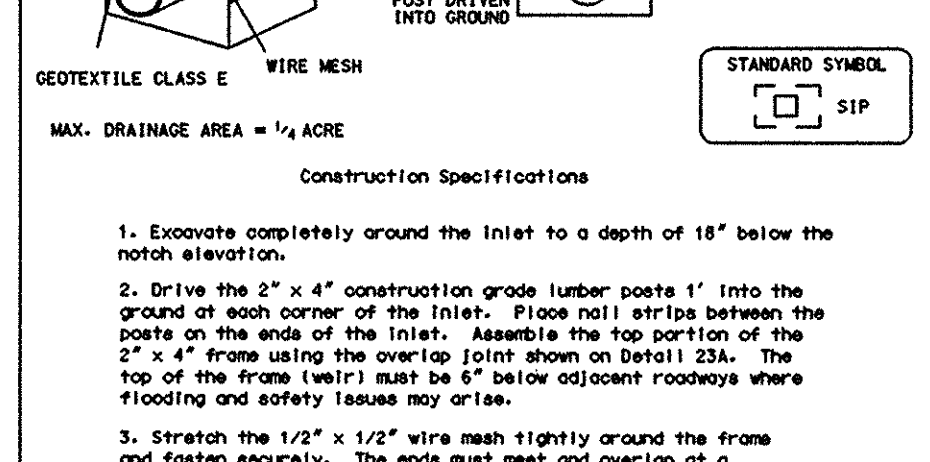
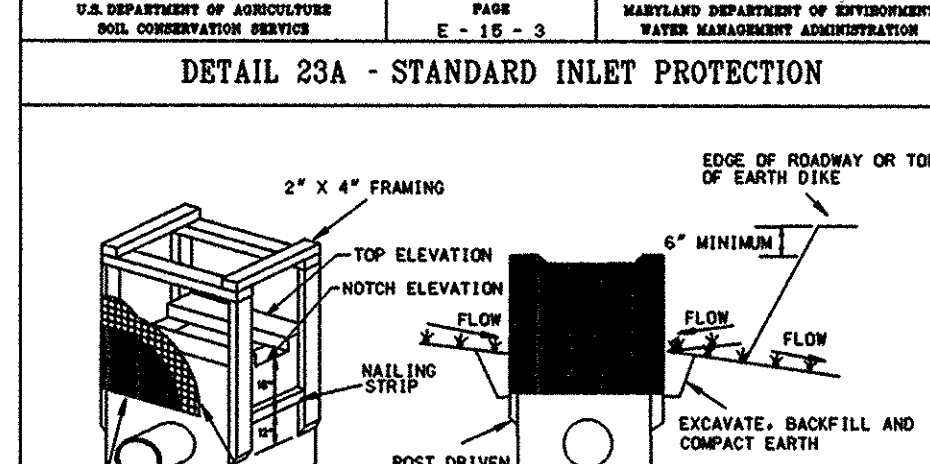
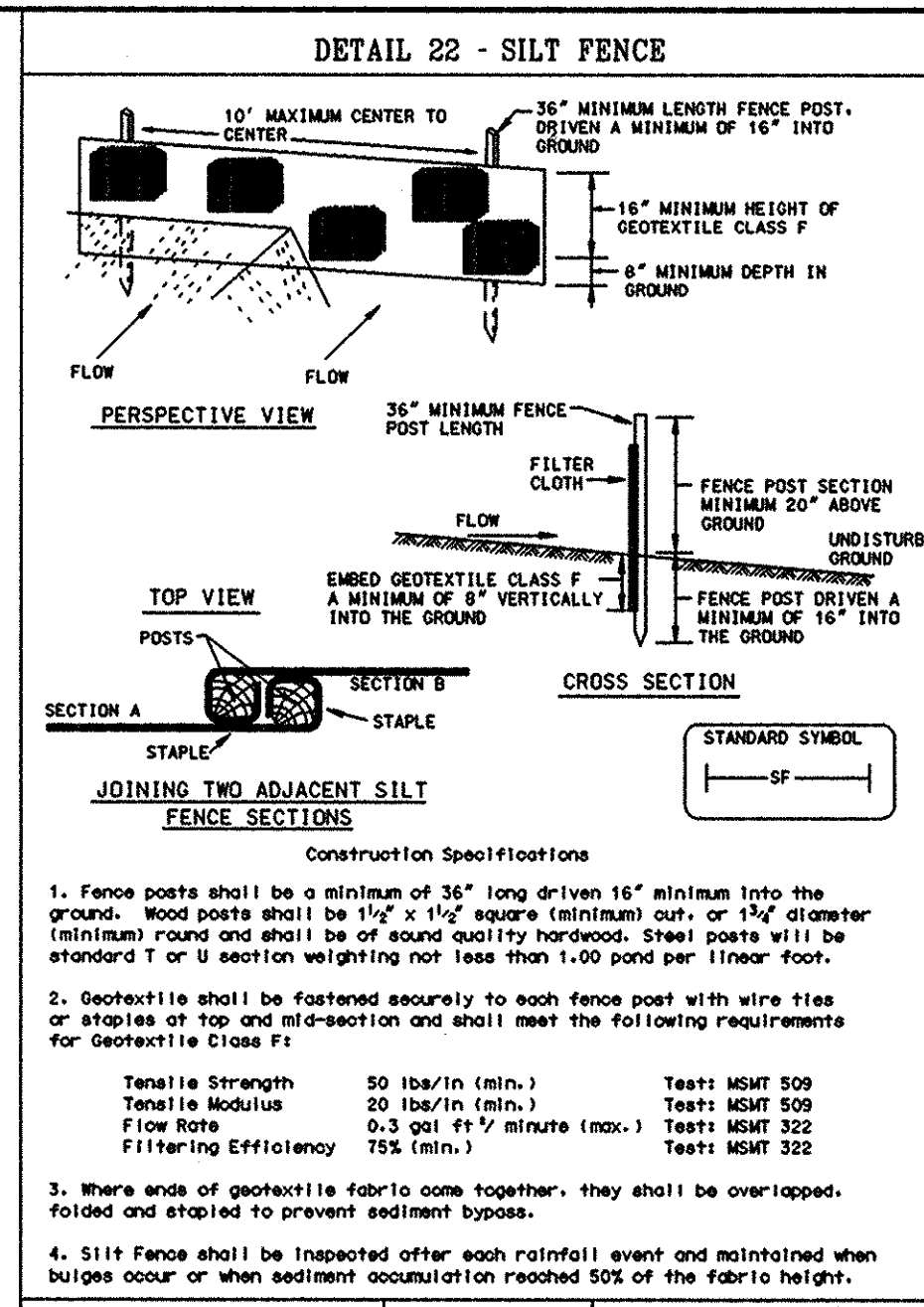


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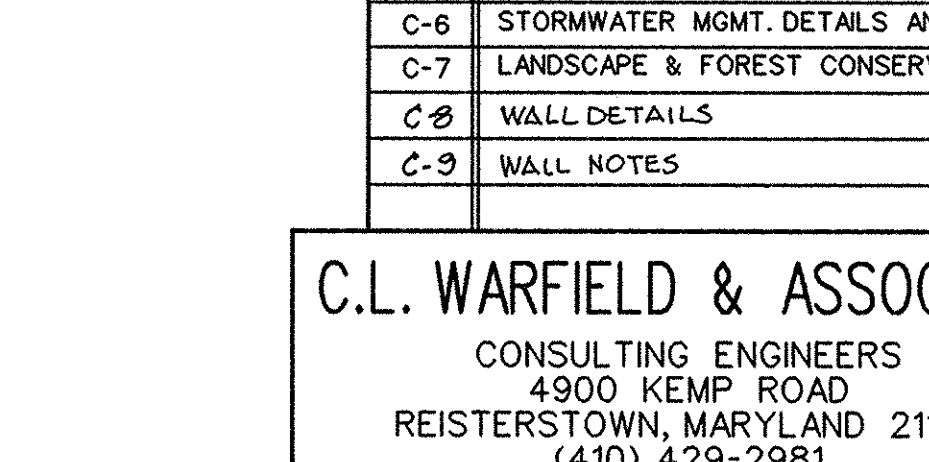
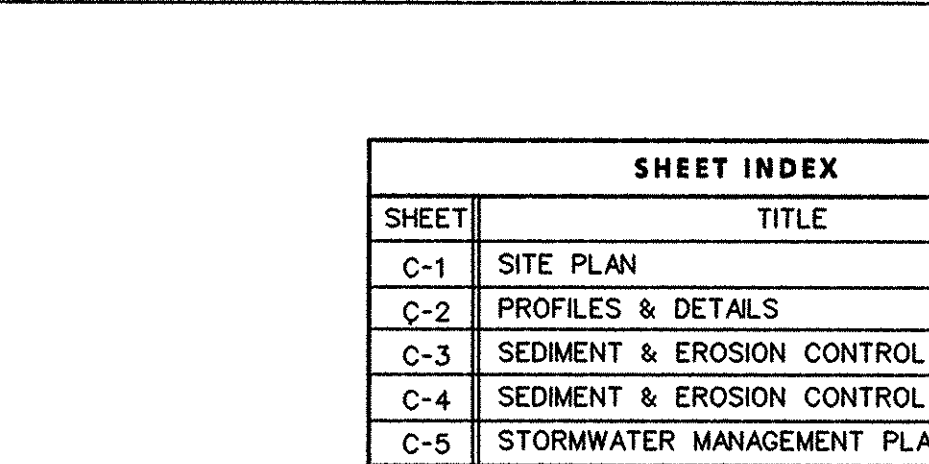
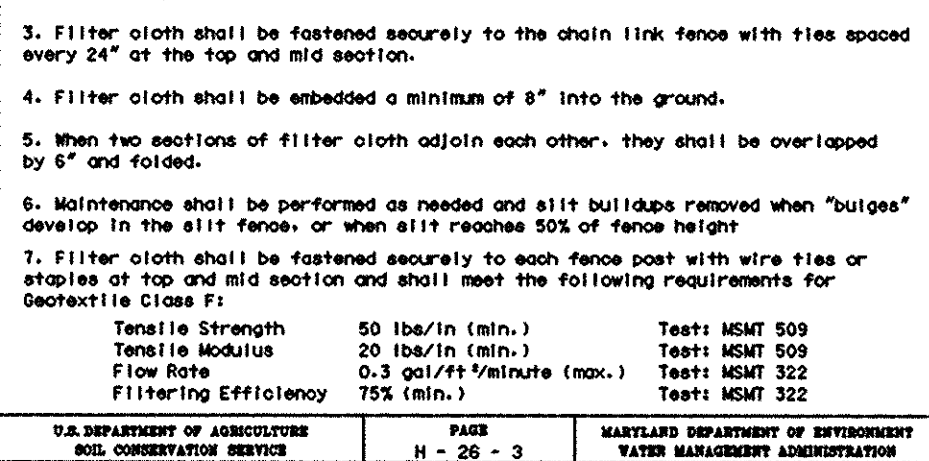
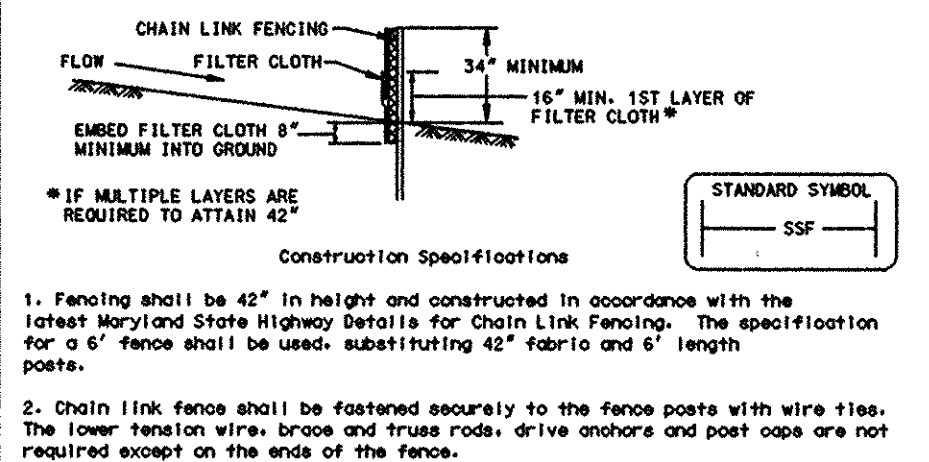
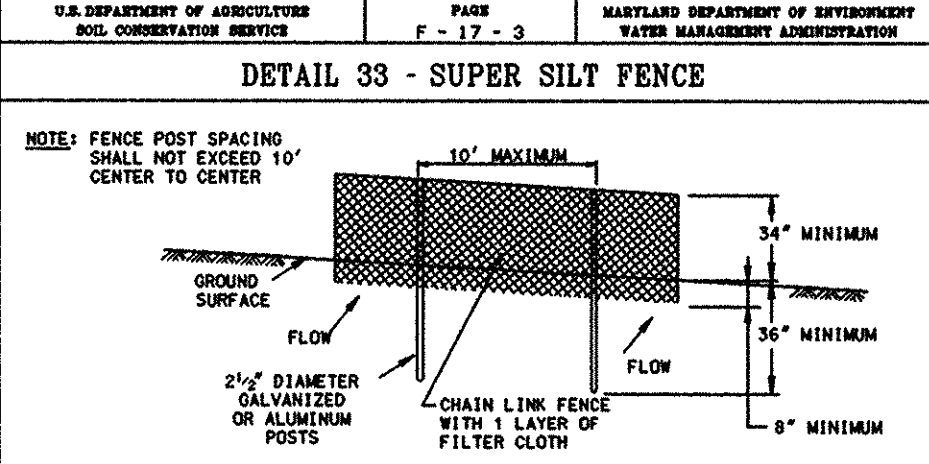
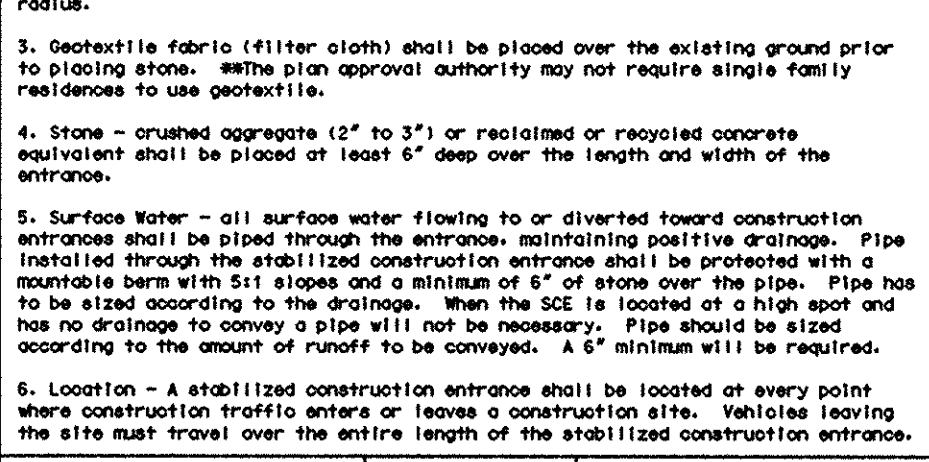
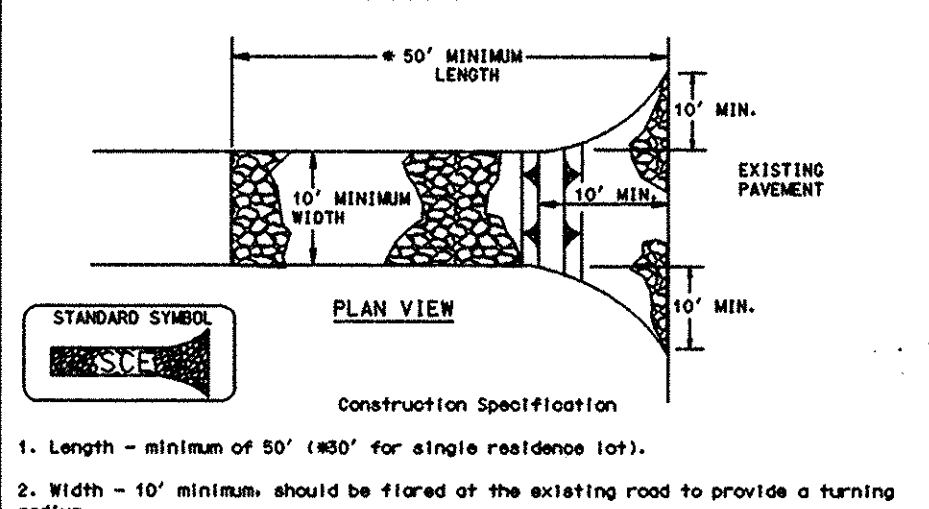
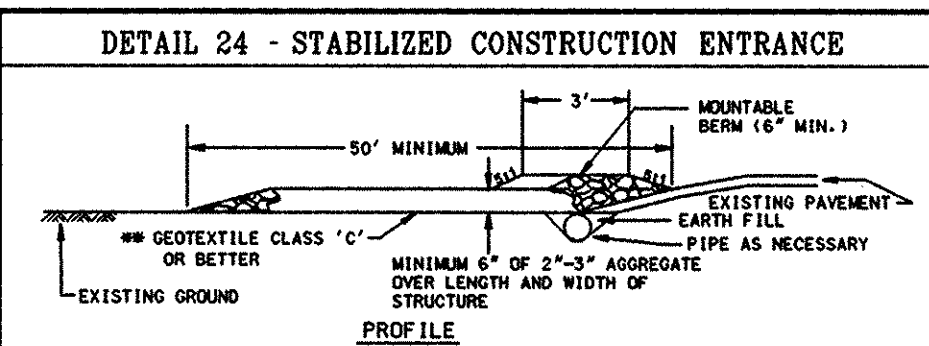


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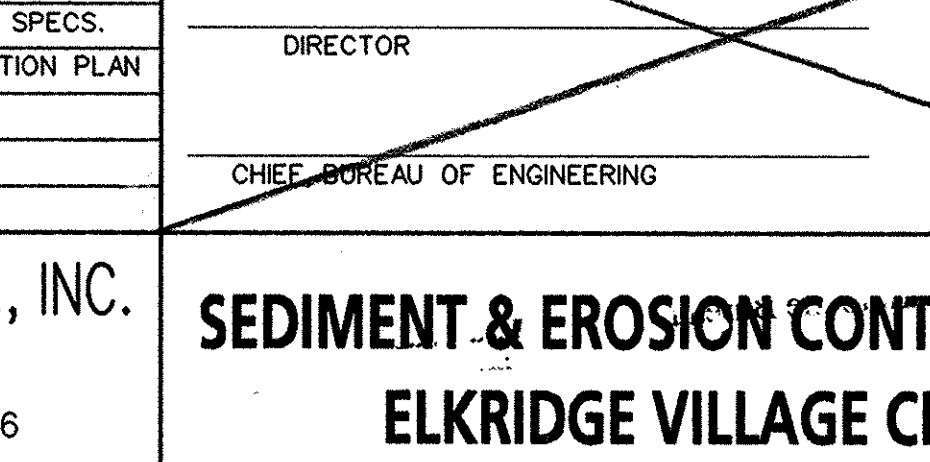
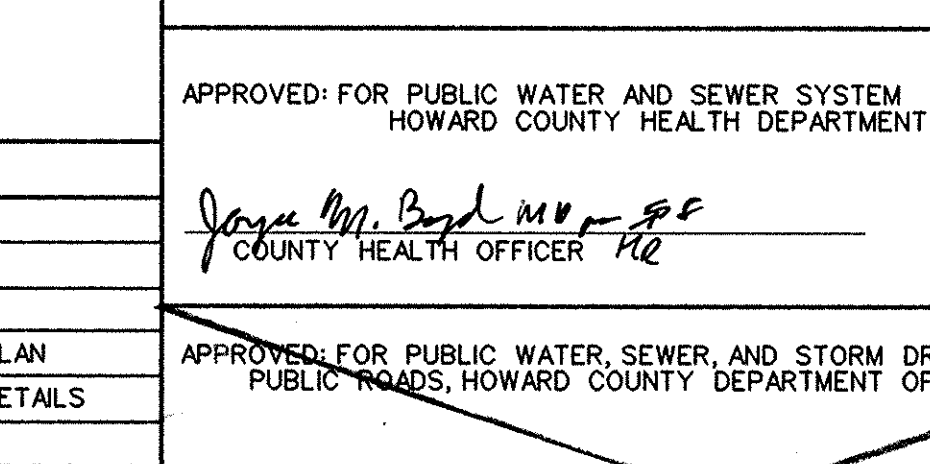
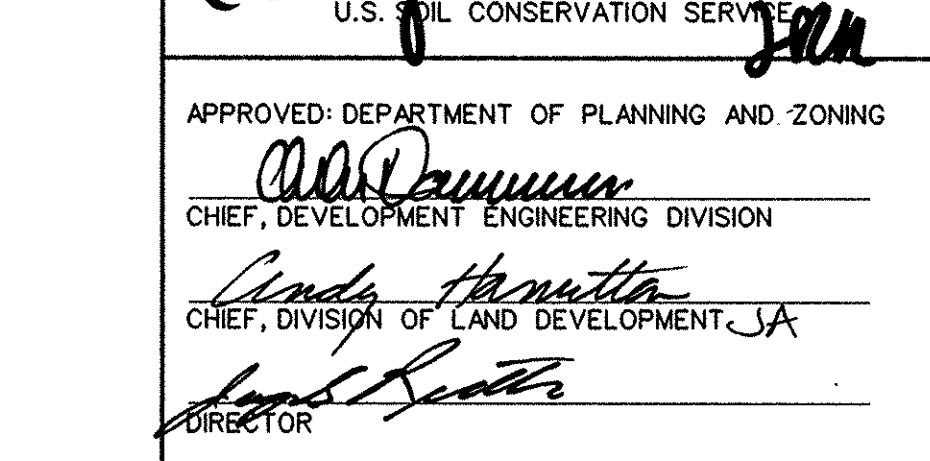
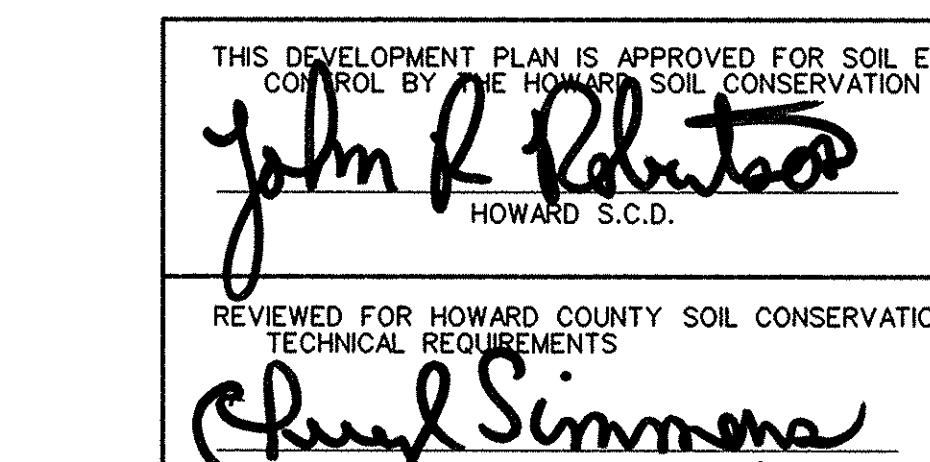
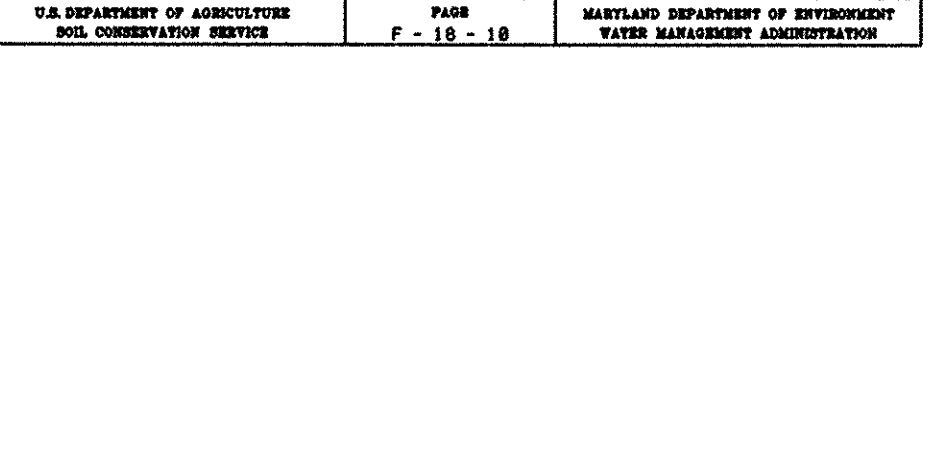
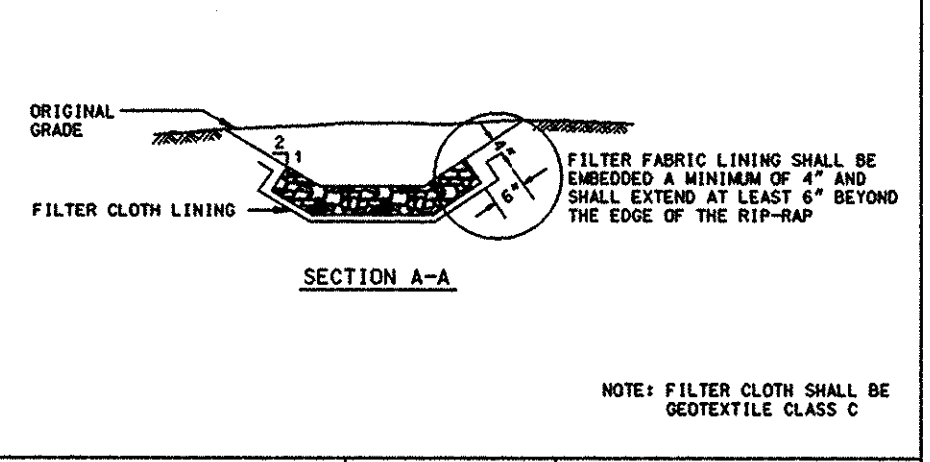
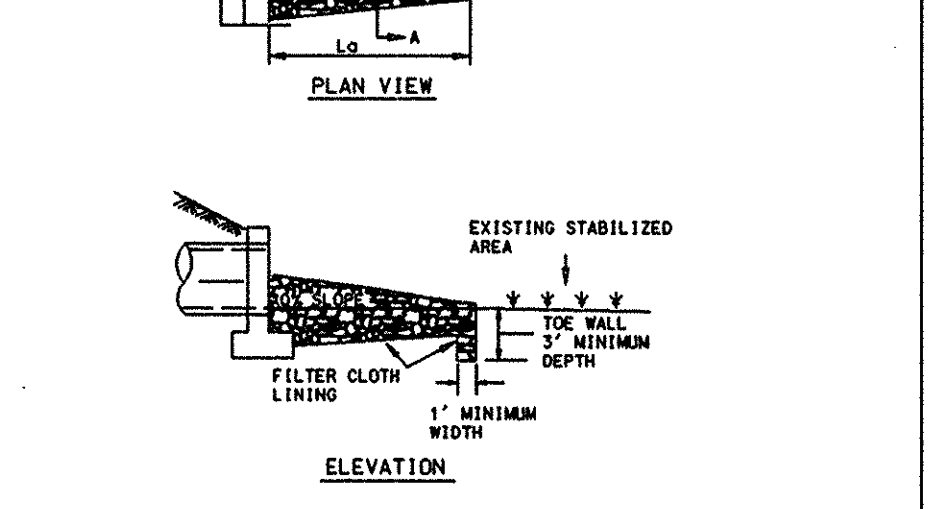
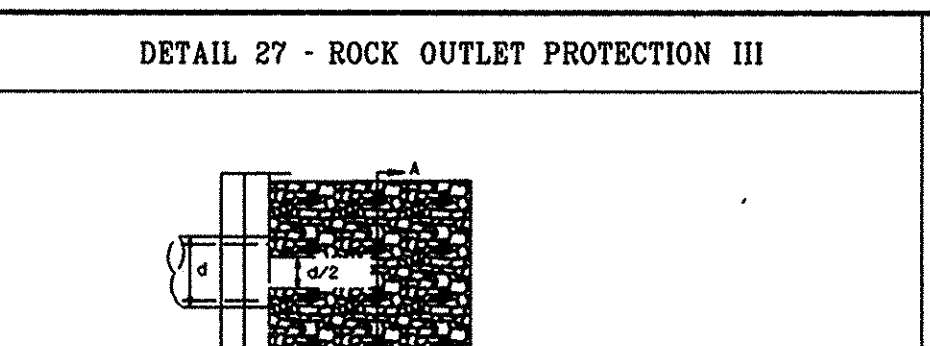


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SHEET INDEX. Columns: SHEET, TITLE. Rows: C-1 SITE PLAN, C-2 PROFILES & DETAILS, C-3 SEDIMENT & EROSION CONTROL PLAN, C-4 SEDIMENT & EROSION CONTROL DETAILS, C-5 STORMWATER MANAGEMENT PLAN, C-6 STORMWATER MGMT. DETAILS AND SPECS., C-7 LANDSCAPE & FOREST CONSERVATION PLAN, C-8 WALL DETAILS, C-9 WALL NOTES.

C.L. WARFIELD & ASSOC., INC. CONSULTING ENGINEERS, 4900 KEMP ROAD, REISTERSTOWN, MARYLAND 21136 (410) 429-2981

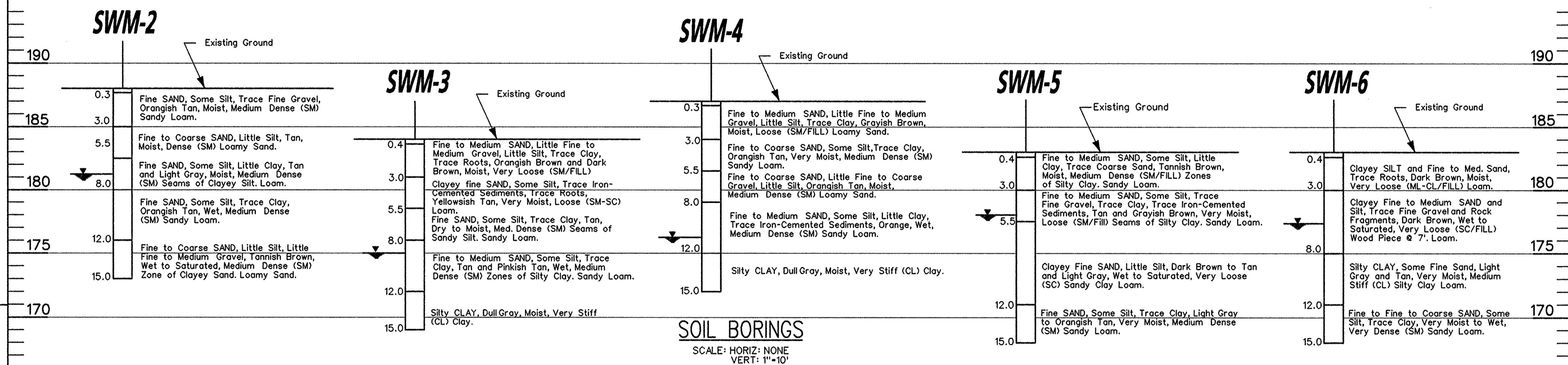
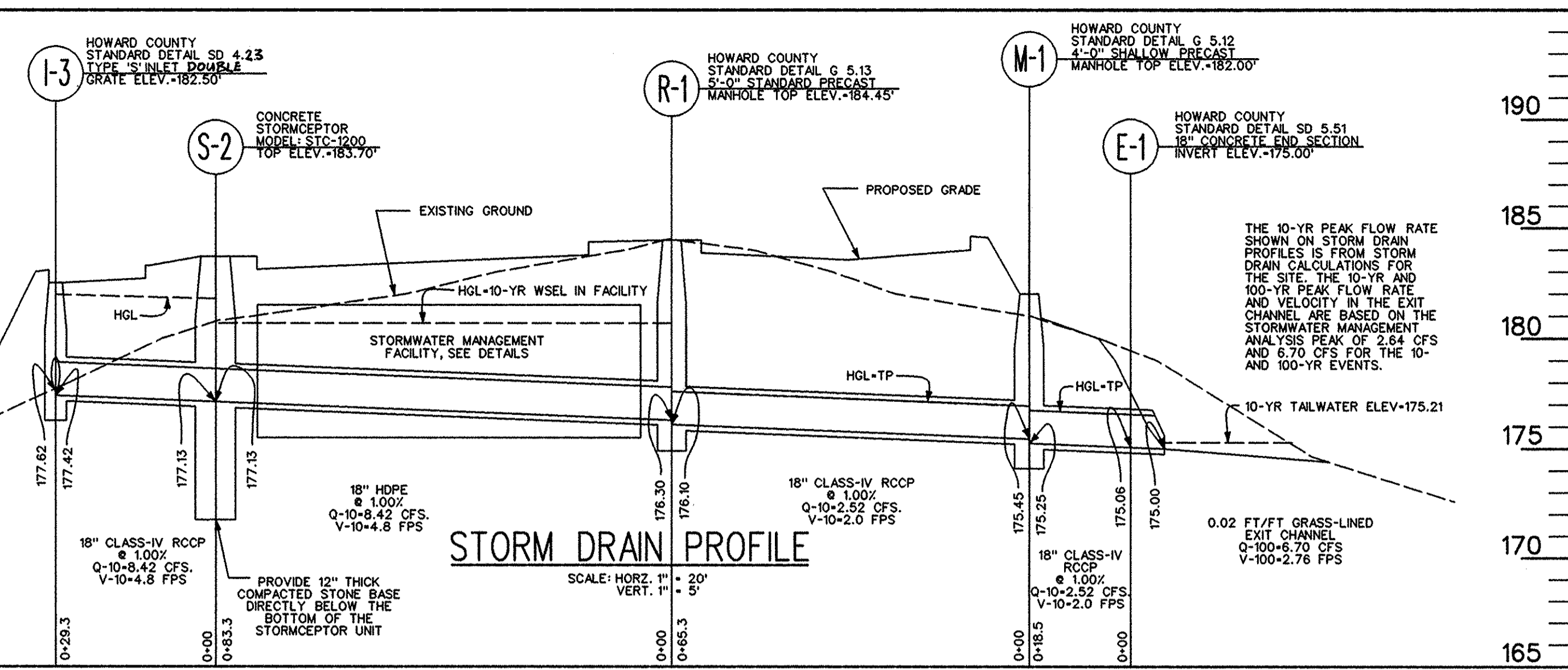
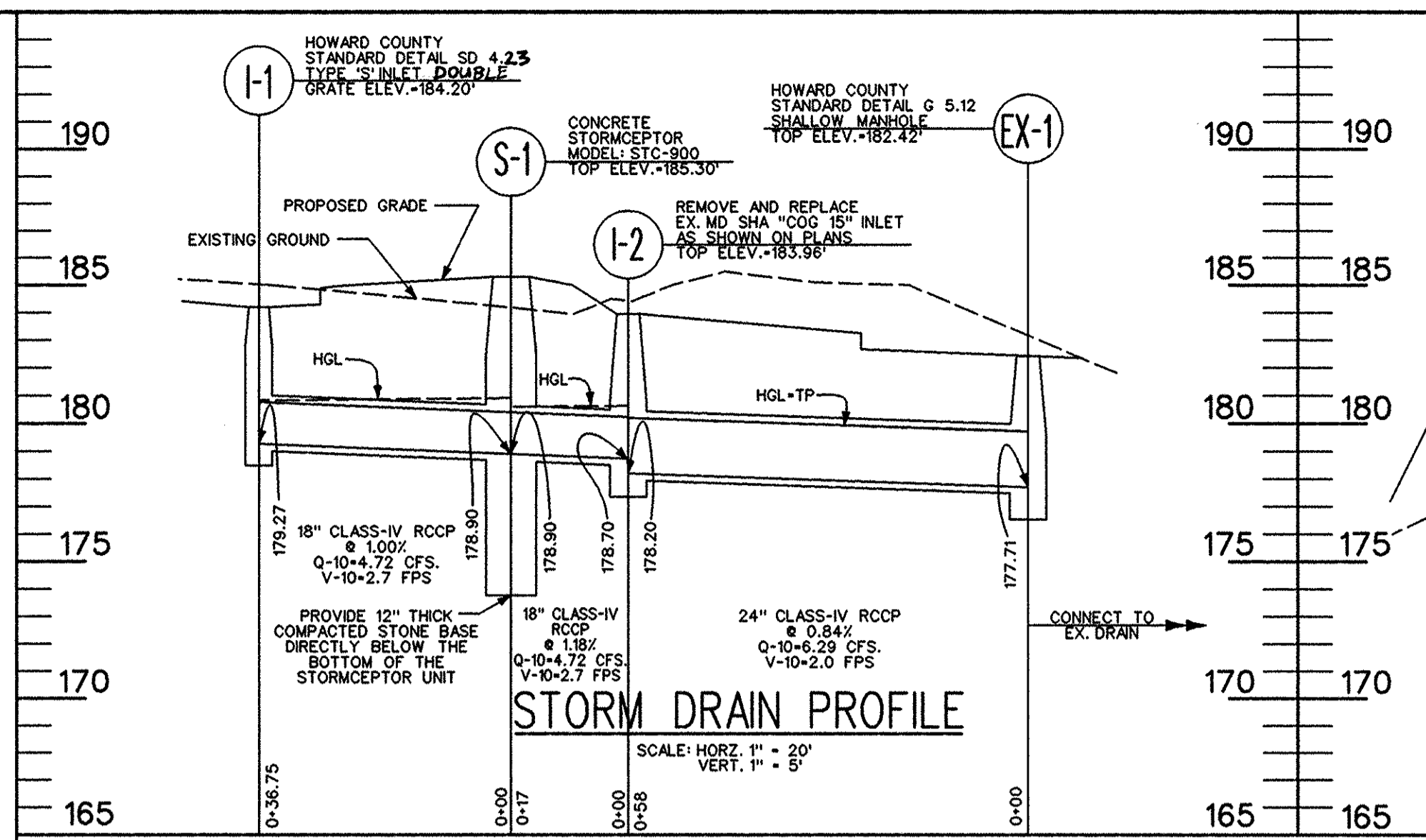
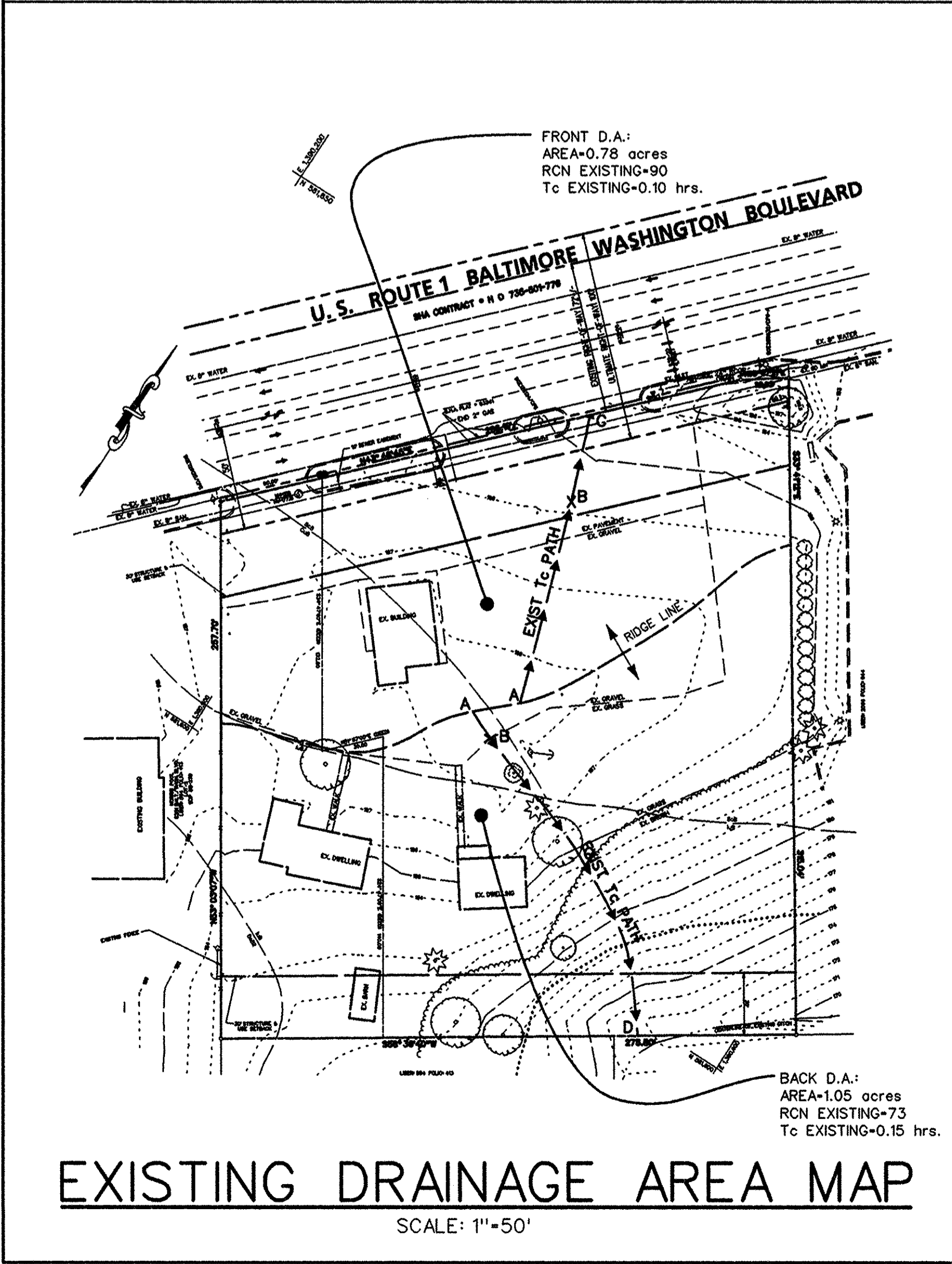
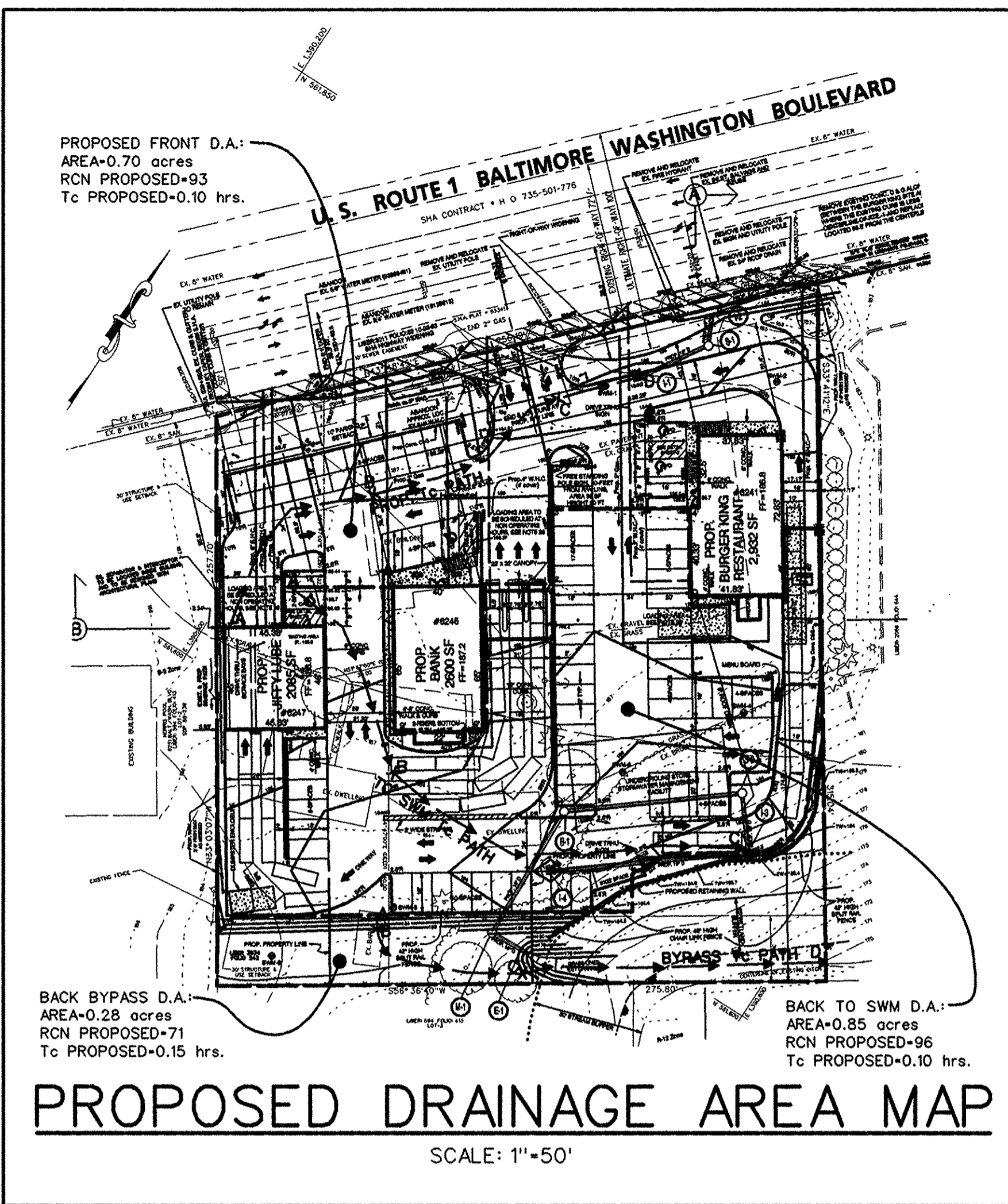
ENGINEER CERTIFICATION: I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

DEVELOPERS CERTIFICATION: 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 to the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project.

APPROVED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS. Includes signatures of John R. Robertson (3/25/98) and Cheryl Simmons (3/25/98).

APPROVED FOR PUBLIC WATER AND SEWER SYSTEM HOWARD COUNTY HEALTH DEPARTMENT. Includes signature of Joyce M. Boyd (4-6-98).

SEDIMENT & EROSION CONTROL DETAILS ELKRIDGE VILLAGE CENTER. Includes permit information block with project details and sheet information.



FRONT FACILITY TYPE: NO QUANTITY MANAGEMENT REQUIRED SINCE PROPOSED PEAK DISCHARGE IS LESS THAN EXISTING PEAK DISCHARGE. QUALITY MANAGEMENT PROVIDED BY STORMCEPTOR #1.

BACK FACILITY TYPE: PRIVATELY MAINTAINED, UNDERGROUND STONE ATTENUATION DEVICE FOR QUANTITY MANAGEMENT, AND STORMCEPTOR #2 FOR WATER QUALITY MANAGEMENT. HAZARD CLASSIFICATION FOR BOTH FRONT AND BACK: N/A

WATER QUALITY MANAGEMENT PROVIDED IN FRONT AND BACK 60% TSS REMOVAL FOR STORMCEPTOR DEVICE #1 AND #2 BASED ON DISCHARGING INTO ARTIFICIAL DRAINAGE CHANNELS. THIS CORRESPONDS TO A TYPE-3 STORMCEPTOR HABITAT FOR BOTH STORMCEPTORS.

BACK FACILITY DATA:
0.78 AC. IMPERVIOUS PROPOSED
-0.06 AC. IMPERVIOUS EXISTING
0.72 AC. NET ADDED IMPERVIOUS
2, & 10-YR. QUANTITY MANAGEMENT PROVIDED
TOTAL DRAINAGE AREA TO FACILITY: 0.85 AC.
IMPERVIOUS DRAINAGE AREA TO FACILITY: 0.78 AC

BACK SUMMARY TABLE						FRONT SUMMARY TABLE			
STORM EVENT (YR.)	EXISTING RELEASE RATE (CFS.)	COMPUTED INFLOW TO FACILITY (CFS.)	RELEASE FROM FACILITY (CFS.)	TOTAL PROPOSED DISC. (CFS.)	WSEL IN FACILITY AT DISC. (FT.)	STORAGE VOLUME PROVIDED (AC. FT.)	STORM EVENT (YR.)	EXISTING RELEASE RATE (CFS.)	PROPOSED RELEASE RATE (CFS.)
2	1.40	2.97	1.10	1.39	179.18	0.1903	2	2.34	2.29
10	3.34	4.83	2.64	3.34	180.68	0.2867	10	4.11	3.86
100	5.74	6.88	6.70	8.16	181.22	0.3214	100	6.04	5.57

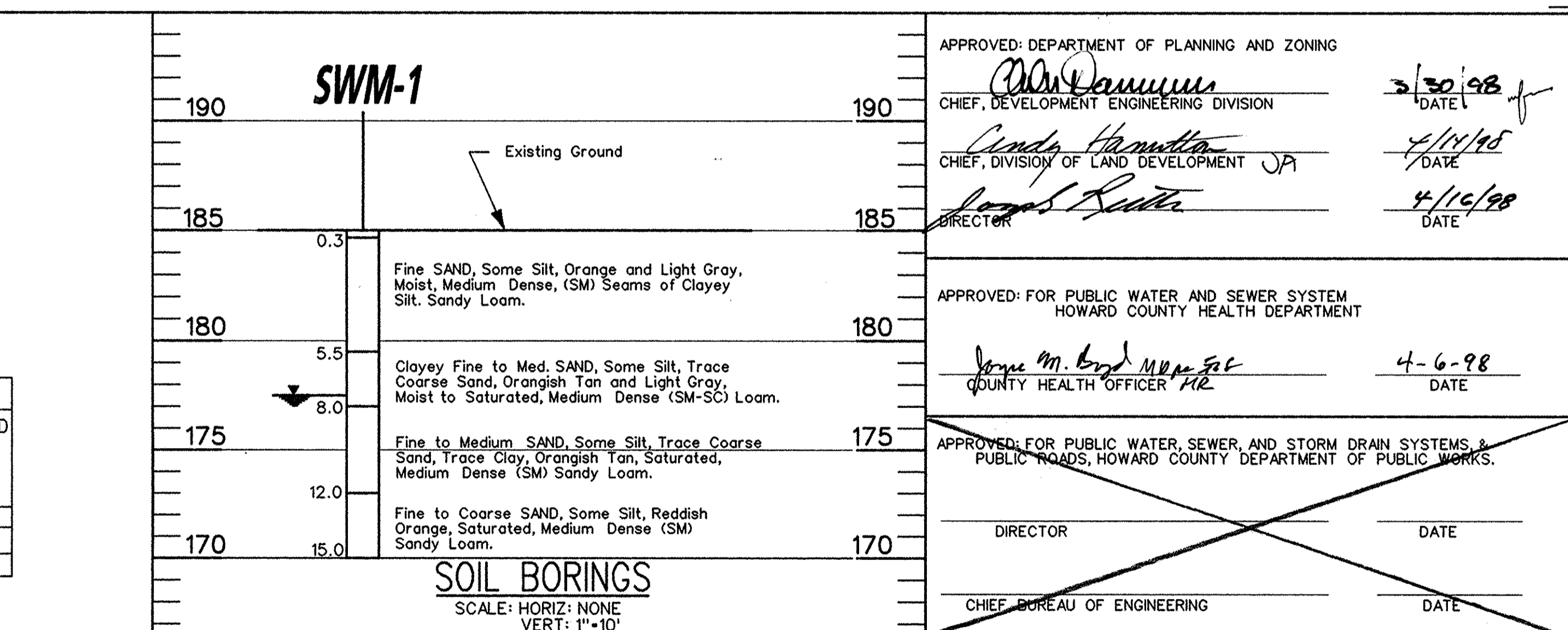
STRUCTURE SCHEDULE:					
NO.	TYPE	INV. IN	INV. OUT	TOP OF CURB OR RIM EL	REMARKS
I-1	TYPE 'S' INLET	-	179.27	184.20	Double Grate
I-2	COG-15' INLET	178.70	178.20	183.96	
I-3	TYPE 'S' INLET	177.62	177.42	182.50	Double Grate
I-4	TYPE 'S' INLET	-	178.52	182.80	Double Grate
M-1	STD. 4' MH	175.45	175.25	182.00	
S-1	STORMCEPTOR	178.90	178.90	185.30	MODEL: STC-900
S-2	STORMCEPTOR	177.13	177.13	183.70	MODEL: STC-1200
R-1	STD. 5' MH	176.30	176.10	184.45	
E-1	18" END SECT.	175.06	175.00	-	

LEGEND

EXISTING GRADE
PROPOSED GRADE
EX. CONC. CURB & GUTTER
PROPOSED CONC. CURB & GUTTER
PROPERTY LINE
BUILDING RESTRICTION LINE
EXISTING WATER LINE
EXISTING STORM DRAIN
PROPOSED STORM DRAIN
EXISTING SANITARY SEWER
EXISTING GAS LINE
STORM DRAIN & SWM DRAINAGE AREA BOUNDARY
TO PATH

SOIL TYPES

SYMBOL	NAME	GROUP
IuB	Iuka Loam	C
CuB	Comus Silt Loam	B
BeB2	Beitsville Silt Loam	C
ScB	Sandy/Clayey Land	C



C.L. WARFIELD & ASSOC., INC.
CONSULTING ENGINEERS
4900 KEMP ROAD
REISTERSTOWN, MARYLAND 21136
(410) 833-6233

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Date: 3/30/98

APPROVED: FOR PUBLIC WATER AND SEWER SYSTEM HOWARD COUNTY HEALTH DEPARTMENT
Date: 4-6-98

APPROVED: FOR PUBLIC WATER, SEWER, AND STORM DRAIN SYSTEMS & PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

DRAINAGE AREA MAP & STORMWATER MANAGEMENT PROFILES AND DETAILS ELKRIDGE VILLAGE CENTER

OWNER: ELKRIDGE VILLAGE CENTER, INC. BK ELKRIDGE L.L.C. 17 WEST PENNSYLVANIA AVENUE BALTIMORE, MARYLAND 21204 (410) 833-0057

SCALE: 1"=20' OCTOBER 23, 1997 SHEET 5 OF 9

ADDRESS CHART

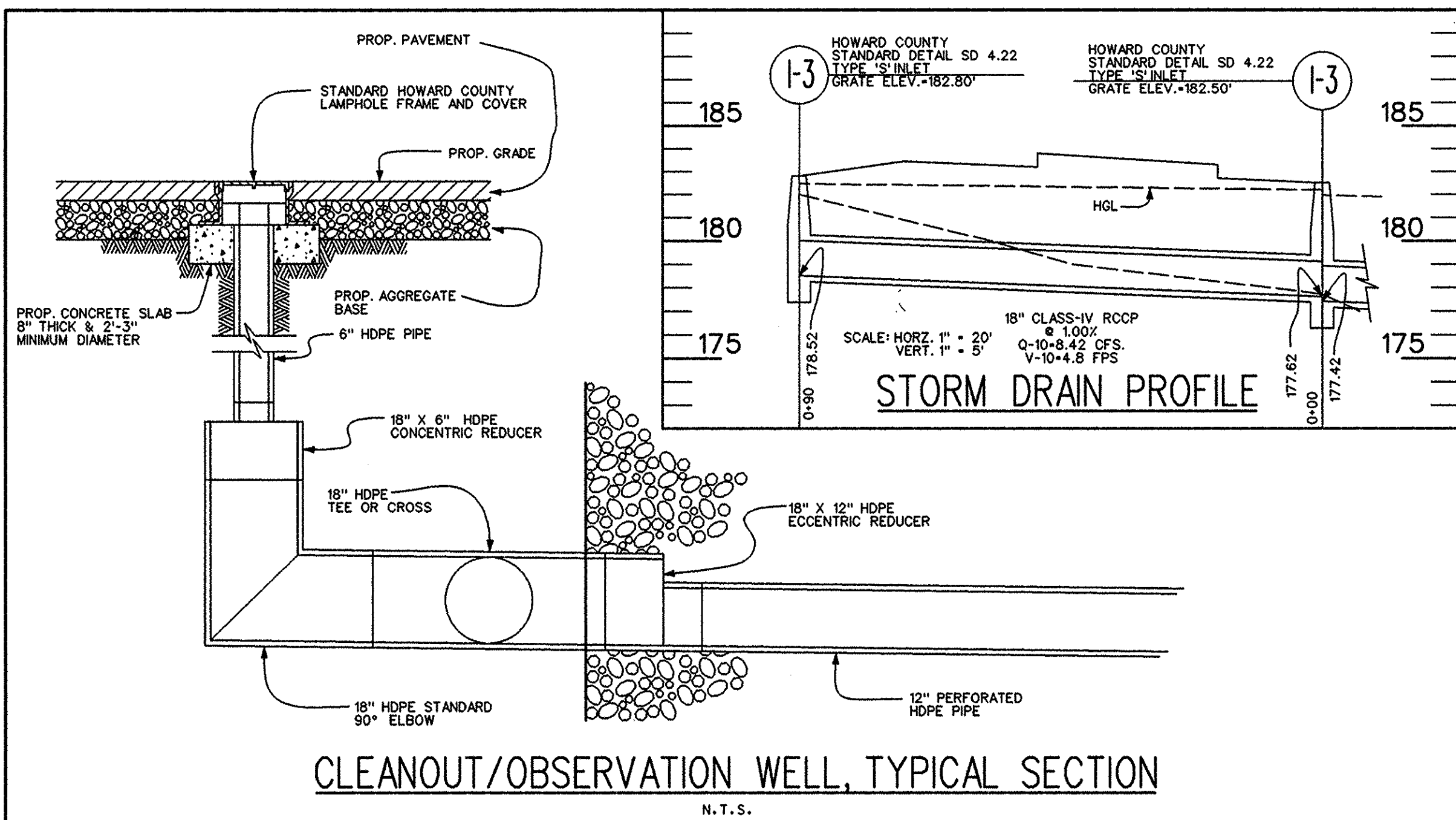
LOT NUMBER	STREET ADDRESS
PARCEL 121	6241, 6245, & 6247 WASHINGTON BLVD, ROUTE-1

PERMIT INFORMATION BLOCK

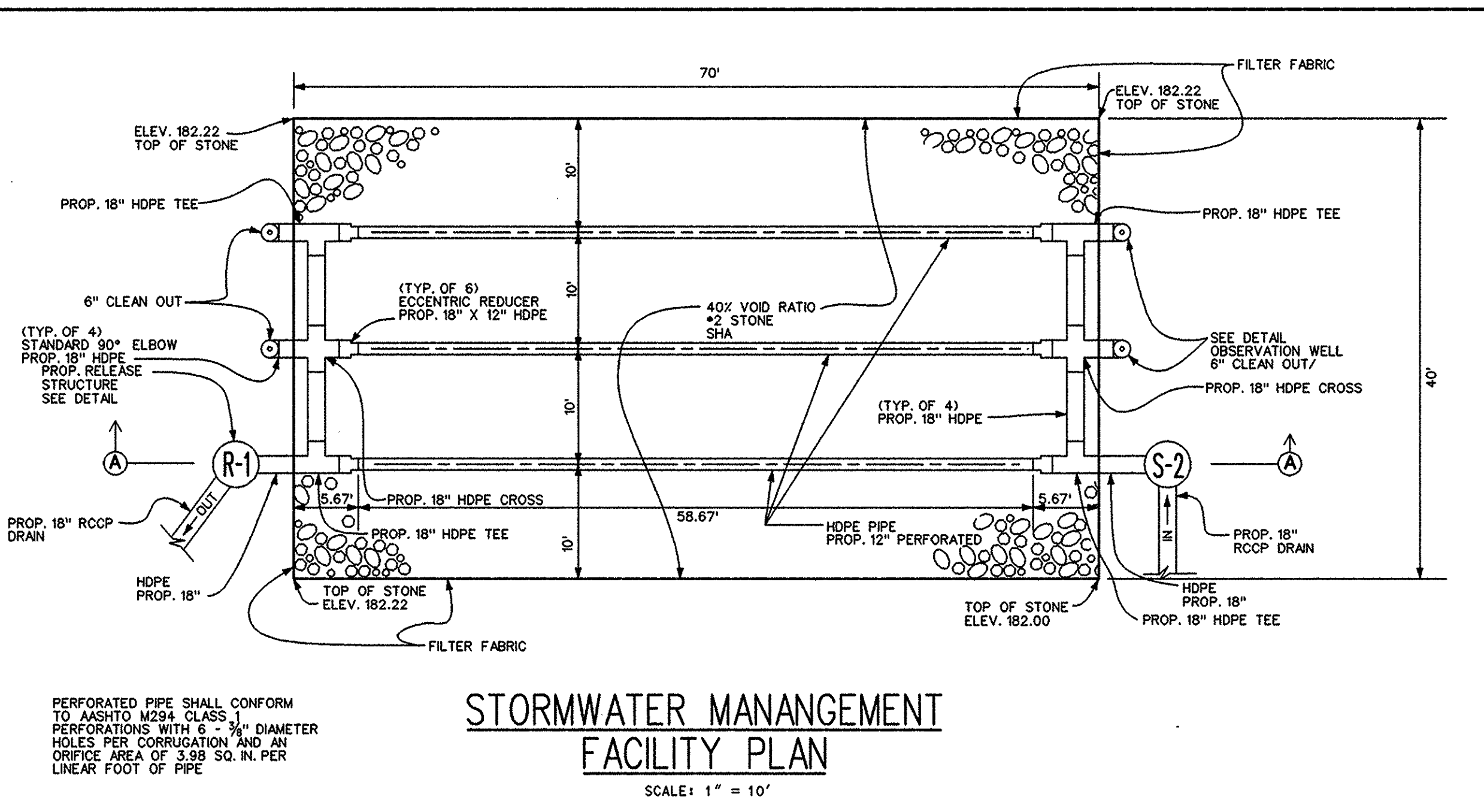
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL
ELKRIDGE VILLAGE CENTER	---	121

WATER CODE D09 SEWER CODE 2022427

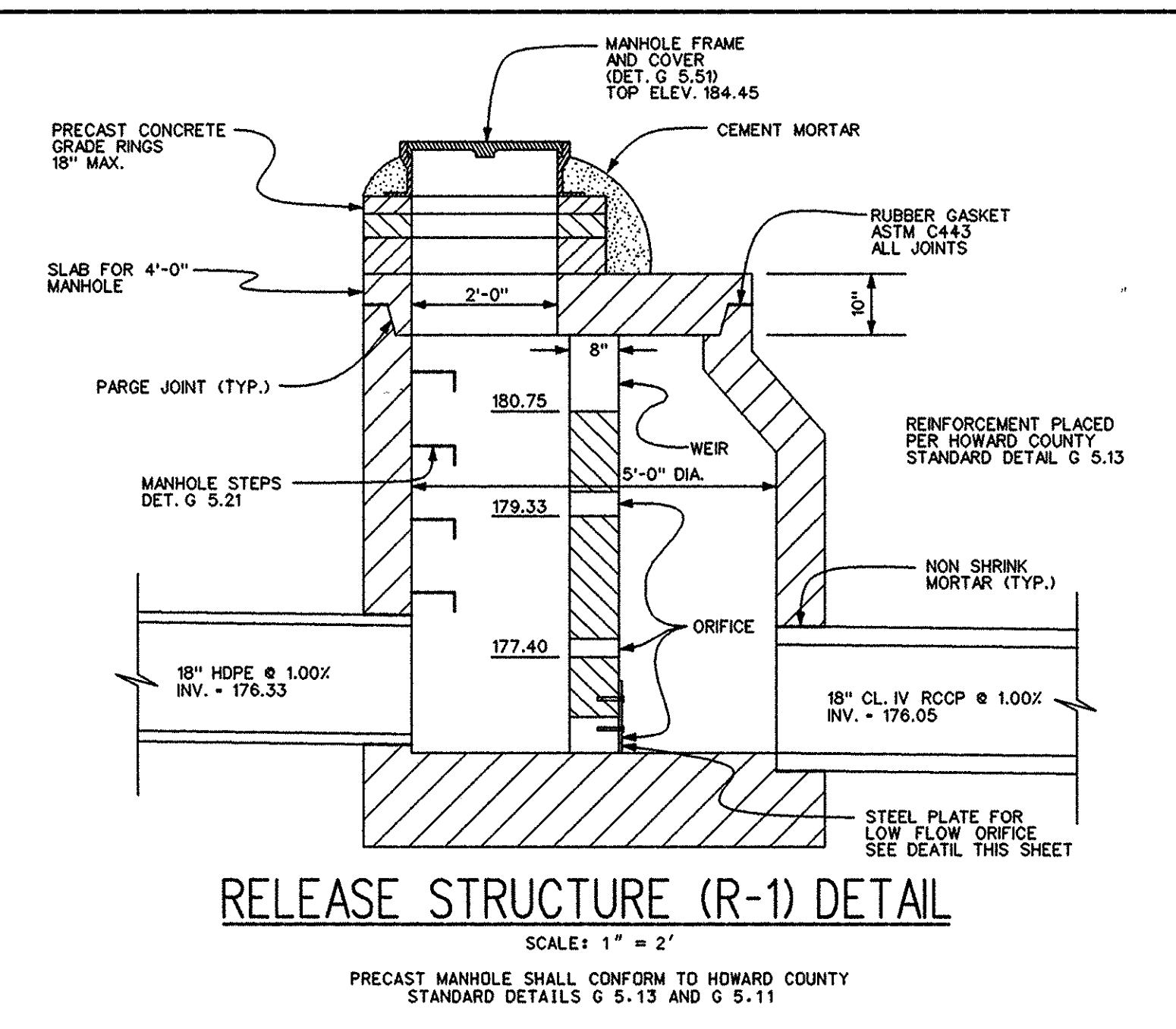
SDP 98-17



CLEANOUT/OBSERVATION WELL, TYPICAL SECTION
N.T.S.



STORMWATER MANAGEMENT FACILITY PLAN
SCALE: 1" = 10'



RELEASE STRUCTURE (R-1) DETAIL
SCALE: 1" = 2'

STORMWATER MANAGEMENT FACILITY OPERATION & MAINTENANCE SCHEDULE

Underground Stone Facility (Observation Wells)
The observation well/cleanouts shall be monitored quarterly and after large storms for the first year after completion of construction. A log book shall be maintained indicating the depth of water in the well, and the time of the measurements for each observation. The rate at which the device dewaterers after large storms shall also be recorded in the log book. If available, the rainfall depth and duration shall be recorded as well. After the first year of monitoring, the monitoring schedule shall be reduced to an annual basis (preferably in the fall) unless the performance data indicate that a more frequent basis is required. If a more frequent basis is required, conversion to an annual basis will be investigated after another year. This process will repeat as necessary.

Stormceptor and Storm Drain Structures
Manhole R-1 and Stormceptors S-1 and S-2 and the connecting pipes shall be inspected by owner once every six months. Any material in the system that is preventing the facility from functioning properly shall be removed during inspection. Accumulated debris and material shall be removed by a Vacuum Waste Disposal Contractor when the sediment and material in the bottom of the chamber accumulates to six inches deep. All silt and debris shall be removed from the Stormceptor, storm drain and connecting pipes. Material removed from the facility, including any liquid, shall be disposed of by an approved "Best Management Practice" method.

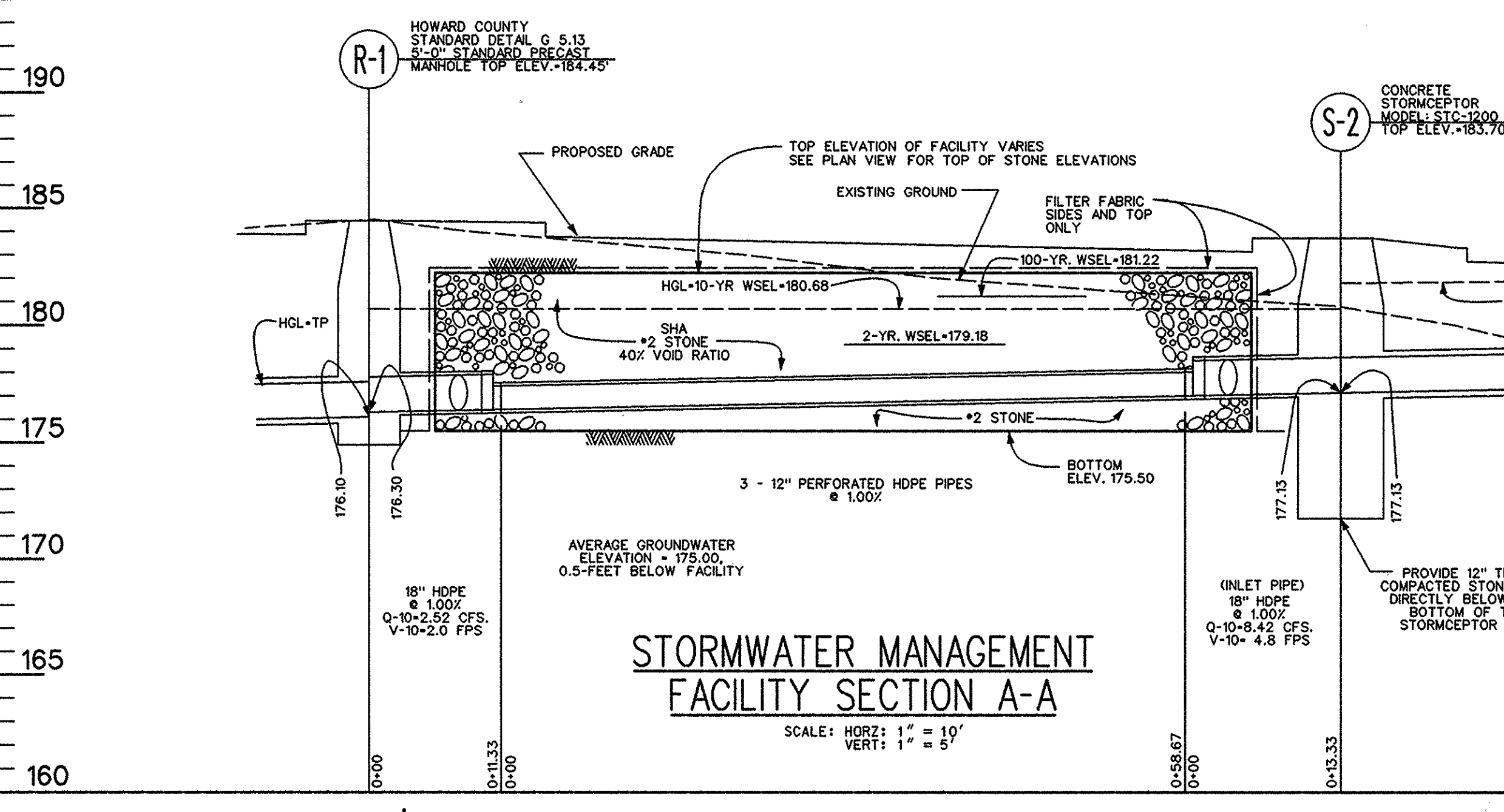
Responsibility
The owner will be responsible for all inspecting, maintaining, and keeping records for this private stormwater management facility.

REQUIRED SEQUENCE OF INSTALLATION FOR STORMWATER MANAGEMENT FACILITY

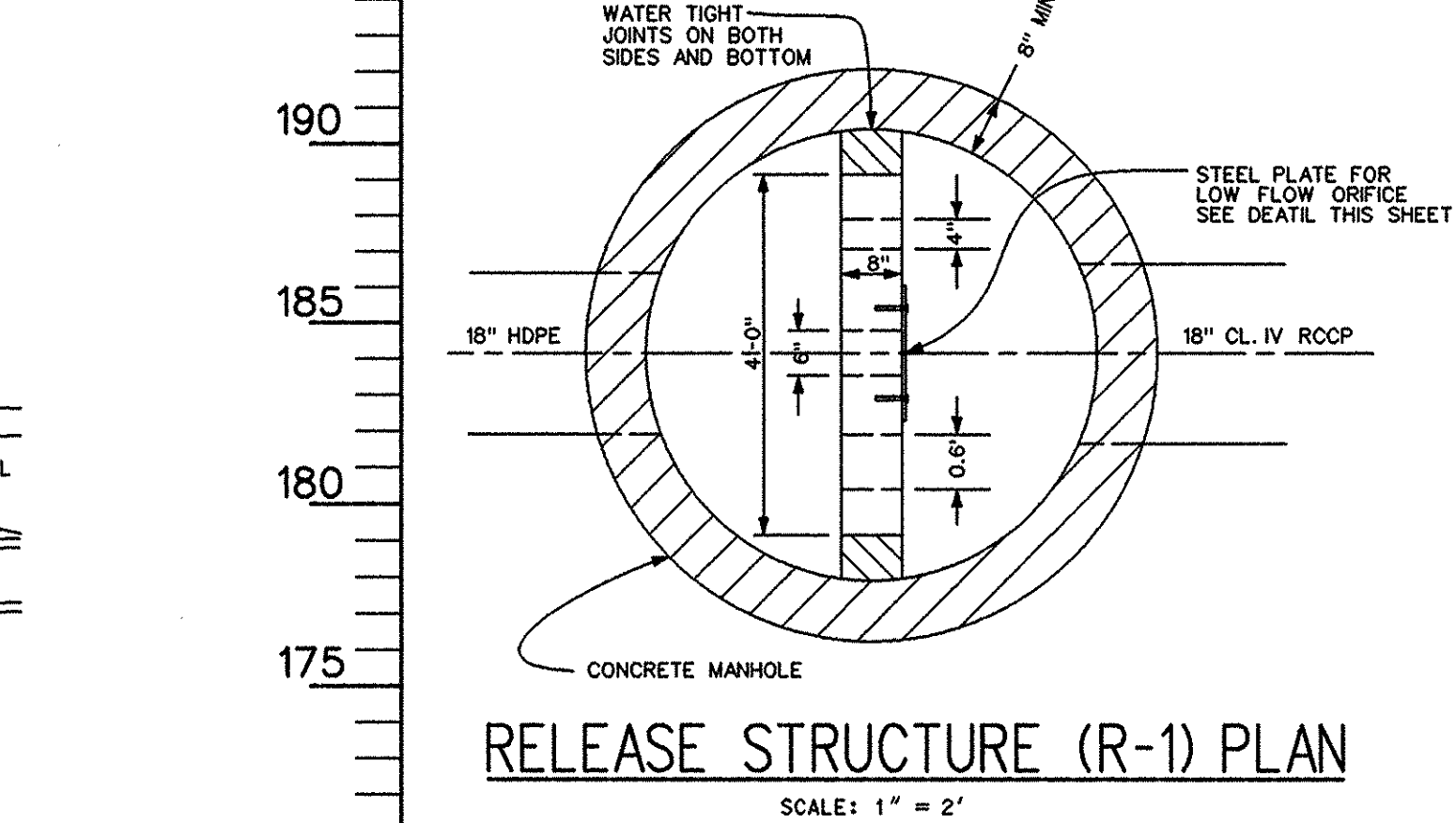
- Construction of the stormwater management device shall be in accordance with the Sequence of Construction on the Erosion and Sediment Control Plan. Construction of the stormwater management facility shall be undertaken during a 5-day dry weather forecast time frame. Install Stormceptor along with storm drain system and in accordance with the recommendations of the Stormceptor Corporation, dewatering as necessary.
- The stormwater management facility shall not be constructed or placed in service until the contributing drainage area has been stabilized.
- Excavate to the design dimensions of the stormwater management facility. Place the excavated material away from the excavated site. Sides and bottom of the facility shall be smooth and free of any roots, organics, or other objectionable material. If vertically excavated walls for the stone fill are difficult to maintain, the sides may be laid back to maintain stability. A trapezoidal rather than a rectangular excavation cross section may result; however, the stone walls shall remain vertical. Dewater excavation as necessary.
- Cut all filter cloth to the proper size prior to installation. The filter cloth for the walls must be of sufficient size to conform to the wall irregularities and for a 8-inch minimum top overlap. Place the wall filter cloth into the excavation and anchor at the top with stones. For overlaps between rolls of filter cloth the upstream roll shall overlap the downstream roll by a minimum of 2-feet to provide a shingled effect. No filter cloth shall be installed on the bottom of the excavation.
- Place the stone aggregate in accordance with the specifications. Install the HDPE pipes and fittings located between S-2 and R-1 at the design elevations, but do not connect the pipes to the drainage structures. Install the filter cloth around the projecting pipes as the stone is filled in. While installing the aggregate, natural and fill soils shall be prevented from entering and intermingling with the aggregate. All aggregate that becomes contaminated by natural or fill soils shall be removed and replaced with uncontaminated aggregate. All voids between the filter cloth and the excavation walls shall be eliminated during the aggregate fill operation by placing natural soils in the voids.
- Connect pipes to the drainage structures S-2 and R-1. Place filter cloth over the top of the aggregate and backfill to the pavement subgrade elevation in accordance with the specifications.
- Place aggregate pavement base and pavement.
- As built plans are required for this facility. These plans must be prepared and sealed by a registered professional engineer. Each stage of construction outlined above must be witnessed and approved by a registered professional engineer or his representatives prior to proceeding to the next step. The engineer shall make necessary measurements including but not limited to pipe lengths, perforation size, perforation spacing, filter cloth placement, invert elevations, stone placement, etc. The contractor shall not proceed with any work involving the stormwater management facility unless the engineer is present.

STORMWATER MANAGEMENT FACILITY SPECIFICATIONS

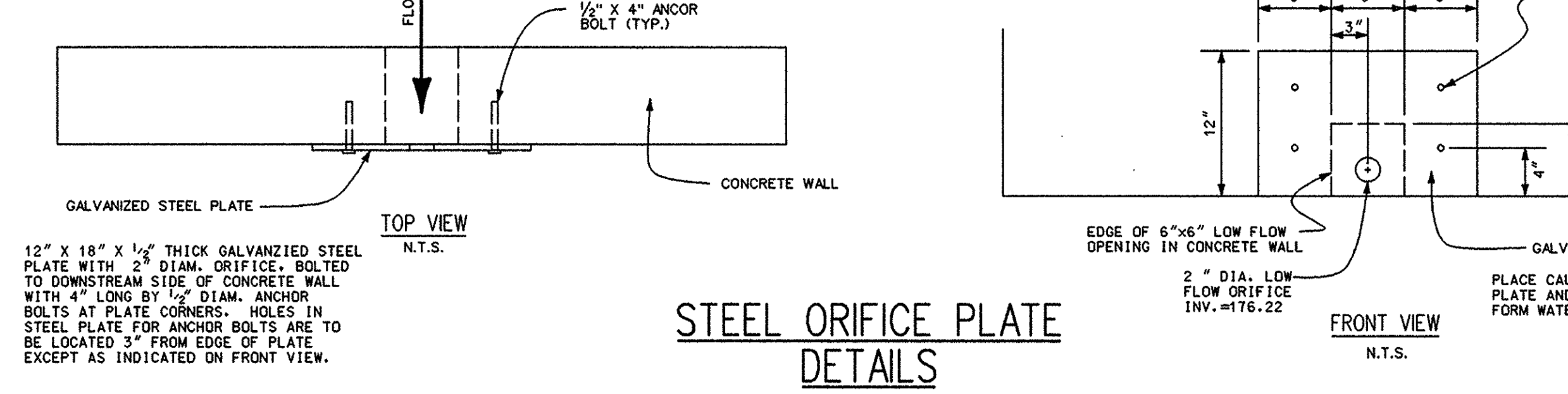
- Soil Backfill:**
- The backfill material shall be approved material from the stormwater management facility excavation, or from other approved borrow areas. The material shall be free of roots, organics, or other objectionable material. The material shall be placed in horizontal 6" thick lifts and compacted by hand tamping, manually directed hand tamping, or plate vibrators.
- Aggregate:**
- Stormwater management facility stone shall be clean aggregate conforming to MDOT #2 stone for use in stone stormwater management devices. The aggregate shall be poorly graded with no fines. Void space shall be greater than or equal to 40 percent. The aggregate shall be placed in 9-inch lifts, and compacted using plate vibrators.
- Pipe:**
- Materials:**
 - HDPE pipe and fitting material shall be high density polyethylene meeting the requirements of ASTM D3350 Cell Classification 324420C1 or ASTM D1248 Type III, Class C, Category 4, Grade P33. The pipe shall have a smooth interior and annular-corrugated exterior. Joints shall meet the requirements of AASHTO M294. The joints shall provide a minimum pull-apart strength of 400 lbs. The joints shall incorporate a silt tight gasket.
 - Bedding and backfill apply to the sections of pipe located outside of the stone device.
 - Bedding: The pipe shall be firmly and uniformly bedded throughout its entire length.
 - Backfill: Backfill shall conform to soil backfill as stated above.
 - Installation: Installation shall be in accordance with the manufacturer's requirements.
 - Connection to Structures: Fill annular space between the outside of the pipe and the opening in the structure with water proof mortar. Trowel mortar to a smooth flat finish.
- Filter Fabrics:**
- MIRAF 140N or equivalent shall be used.
- Stormceptor:**
- See shop drawings from the Stormceptor Corporation for detailed dimensions of the Stormceptor unit. The unit shall consist of the Treatment Chamber, Access Way, By-pass Insert, Fittings, Manhole Frame and Cover, and Appurtenances. Further technical information is available through the Stormceptor Corporation at 1-(800)-762-4703. The concrete unit shall be pre-designed for H-20 loading. The concrete manhole sections shall conform to ASTM C-478.
 - Provide rubber gasket joints per ASTM C-443 between concrete sections of the structure.
 - Two eight inch inspection ports shall be provided in the Stormceptor insert. One above the inflow drop pipe and one above the outflow riser pipe.
 - Provide copolymer polypropylene plastic encapsulated manhole steps at 16-inches on center. Minimum concrete strength shall be 4,000 psi. Minimum strength shall be 4,000 psi.
 - Reinforcement design shall meet ASTM C-478.
 - Flexible pipe connectors shall meet ASTM C-923.
 - Installation and handling shall be in accordance with the Stormceptor Corporation Recommendations and State and Local codes.



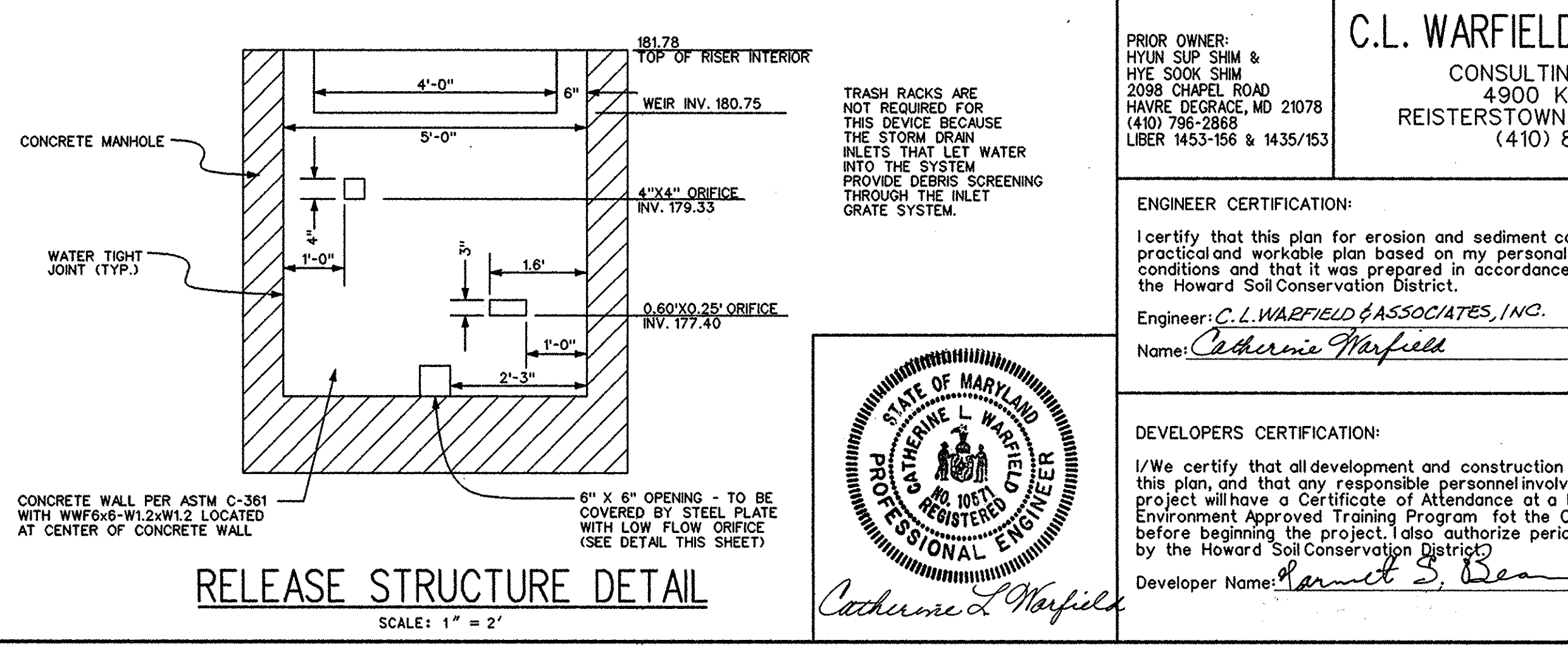
STORMWATER MANAGEMENT FACILITY SECTION A-A
SCALE: HORIZ: 1" = 10'
VERT: 1" = 5'



RELEASE STRUCTURE (R-1) PLAN
SCALE: 1" = 2'



STEEL ORIFICE PLATE DETAILS
N.T.S.



RELEASE STRUCTURE DETAIL
SCALE: 1" = 2'

APPROVED: DEPARTMENT OF PLANNING AND ZONING
W. Lawrence 3/20/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
David Hamilton 4/14/98
 CHIEF, DIVISION OF LAND DEVELOPMENT, JA
Joseph B. Smith 4/16/98
 DIRECTOR

APPROVED: FOR PUBLIC WATER AND SEWER SYSTEM
 HOWARD COUNTY HEALTH DEPARTMENT
Joseph M. Boyd 4-6-98
 COUNTY HEALTH OFFICER

APPROVED: FOR PUBLIC WATER, SEWER, AND STORM DRAIN SYSTEMS, & PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 DIRECTOR _____ DATE _____
 CHIEF, BUREAU OF ENGINEERING _____ DATE _____

C.L. WARFIELD & ASSOC., INC.
 CONSULTING ENGINEERS
 4900 KEMP ROAD
 REISTERSTOWN, MARYLAND 21136
 (410) 833-6233

STORMWATER MANAGEMENT DETAILS
ELKBRIDGE VILLAGE CENTER

OWNER:
 ELKBRIDGE VILLAGE CENTER, INC.
 P.O. BOX 498
 FINNSBURG, MARYLAND 21048
 LIBER:3934 FOLIO:242

OWNER:
 BK ELKBRIDGE L.L.C.
 17 WEST PENNSYLVANIA AVENUE
 BALTIMORE, MARYLAND 21204
 LIBER:3934 FOLIO:237

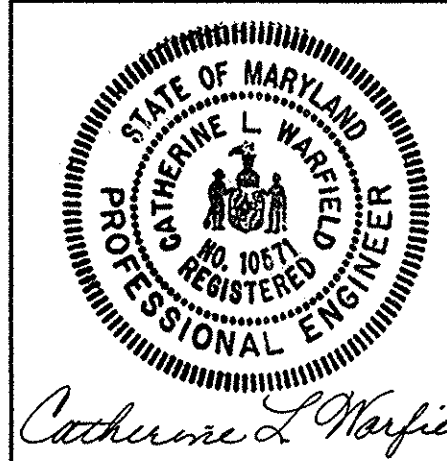
C-6

SCALE: 1" = 20' OCTOBER 23, 1997 SHEET 6 OF 9

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
PARCEL 121	8241, 6245, & 6247 WASHINGTON BLVD, ROUTE-1

PERMIT INFORMATION BLOCK			
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL	TRACT
ELKBRIDGE NEIGHBORHOOD CENTER		PARCEL 121	
PLAN OR 1/2" BLOCK ZONE	TAX/ZONE MAP ELEC. DIST	CENSUS TRACT	
LIBER:3934 FOLIO:237	2 B-2 38	6012	
LIBER:3934 FOLIO:242	2 B-2 38		
WATER CODE 009	SEWER CODE 2022427		

DEVELOPER NAME: *Samuel S. Dean* DATE: 10-27-97



- 1. All planting shall be done between October 1 and December 1 or between March 25 and April 30.
- 2. Contractor shall prepare a planting pit for each plant.
- 3. It is recommended that planting occur within 24 hours of delivery to the site. Plant materials left unplanted for more than 24 hours shall be protected from direct sun and weather and kept moist. Nursery stock should not be left unplanted for more than two weeks.
- 4. Afforestation plants are to be located as shown on plan.
- 5. Proper mulching will deter the establishment of competing vegetation and help maintain the soil moisture level. Each plant shall receive an 18" ring of mulch, 2"-4" in depth, avoiding contact between the mulch and the trunk of the tree.
- 6. Protective signage is permanent and shall be maintained during planting and remain after the three-year maintenance period.
- 7. Owner agrees to maintain the forest conservation planting for three years, to include:
 - a. Watering to occur when planted and as required to assure good plant growth.
 - b. Fertilizing to occur during the second year. Each tree will be given 1/2 pound of 10-10-10 fertilizer.
 - c. Control of competing vegetation - see note 3 for mulching information. Specific incidences of competing vegetation will be dealt with by hand-pulling.
 - d. Protection from disease, pests and mechanical injury. These issues will be handled on an "as needed" basis based on the maintenance inspection (see note 8).
 - e. Reinforcement planting of same size plants as originally used will be required if survival falls below accepted levels.
- 8. A maintenance inspection shall be made of the afforestation site three times a year (i.e., March, July, and November) to assess impacts from competing vegetation, pests disease etc.
- 9. The minimal survival rate shall be 75% of the total number of trees planted per acre at the end of the three year maintenance period. Wild tree seedlings from natural regeneration on the planting site may be counted towards the total survival number if they are healthy, native species at least 12 inches tall.

AFFORESTATION CALCULATIONS

A. NET TRACT AREA	1.21
B. AFFORESTATION MINIMUM (1% x A)	0.0121
C. EXISTING FOREST ON NET TRACT AREA	0.21
D. FOREST AREAS TO BE CLEARED	1.00
E. FOREST AREAS TO BE RETAINED	0.21

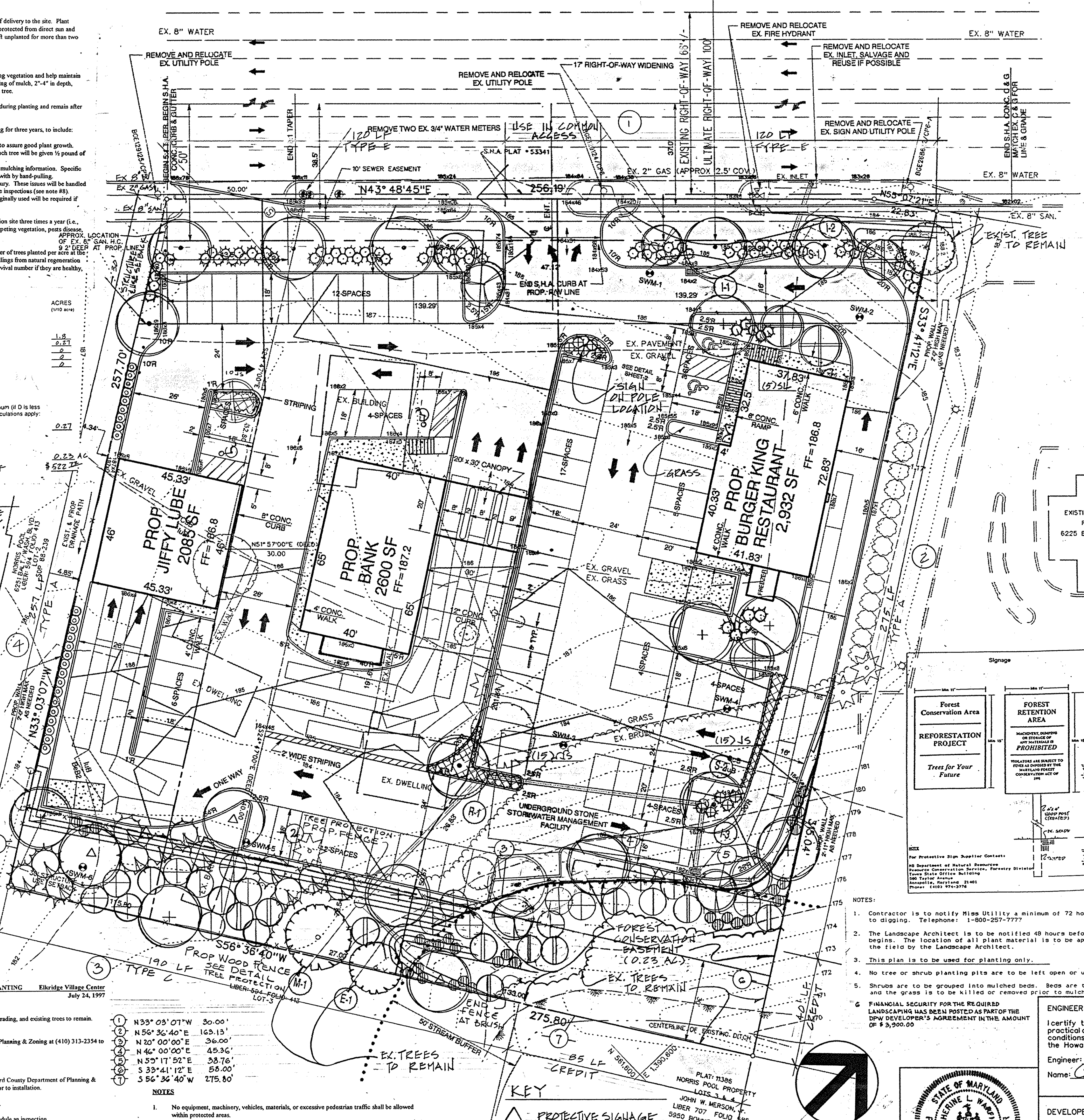
Select the alternative that applies:

- 1. No clearing below the Minimum
- 2. If existing forests are less than the afforestation minimum (if D is less than C) and no clearing is proposed, the following calculations apply:
TOTAL AFFORESTATION REQUIRED C - D

REMARKS:
ON-SITE AFFORESTATION PROVIDED
FEE IN LIB#1 (0.24 AC) X 0.20 / SF

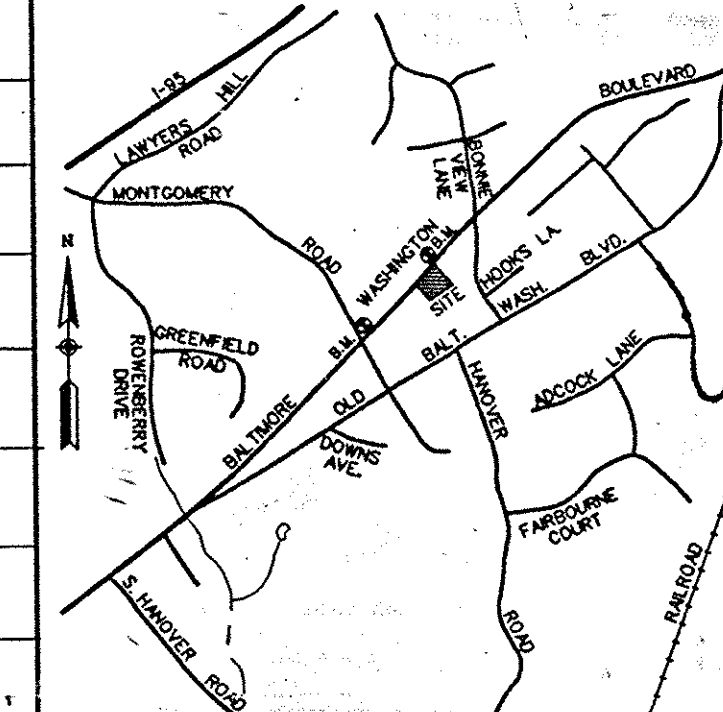
NOTE:
ALL AFFORESTATION PLANTS ARE TO BE SPRAYED WITH DEER AWAY.

U. S. ROUTE 1 BALTIMORE WASHINGTON BOULEVARD



PLANT LIST (LANDSCAPE PLAN):

KEY	QTY	BOTANICAL NAME COMMON NAME	SIZE	COND.	REMARKS
+	7	ACER RUBRUM RED SUNSET MAPLE	2'-3' CAL.	B & B	
△	3	QUERCUS PALUSTRIS PIN OAK	2'-3' CAL.	B & B	
○	10	ZELKOVA SERATA 'G. VASE' GREEN VASE ZELKOVA	2'-3' CAL.	B & B	
⊕	6	AMELANCHIER CANADENSIS SERVICE BERRY	8-10' HT.	B & B	MULTI-STEM
⊙	6	PRUNUS YEDONIS YOSHINO CHERRY	8-10' HT.	B & B	
⊙	12	PRUNUS STEPBIS WHITE PINE	6-8' HT.	B & B	
⊙	75	EUONYMUS 'SIBBOLDIANA' SIEBOLD EUONYMUS	2'-3' HT.	B & B	42" O.C. STAGGERED
⊙	35	JUNIPERUS CHIN. SARGENTII SARGENT JUNIPER	18-24' SP.	CAN.	3' O.C. STAGGERED
⊙	25	PYRACANTHA COL. 'LOWBOY' LOWBOY PYRACANTHA	2'-3' HT.	CAN.	42" O.C.
⊙	5	SPIREA BALHAPPA LIMEGOLD LIMEGOLD SPIREA	2'-3' HT.	CAN.	3' O.C.
⊙	10	TAXUS M. DENSIFORMIS PENSE YEW	2'-3' HT.	B & B	42" O.C. STAGGERED



VICINITY MAP
SCALE 1" = 1000'

PLANTING CALCULATIONS:
TREES PER ACRE

PERMITS TO PLANT 240 LF PARSONIA TO PLANT 240 LF 1 SHRUBS / 4 LF	60
PERMITS TO PLANT 175 LF 1 SHAPE TREE / 20 LF	4
PERMITS TO PLANT 175 LF 1 HYDRANGEA TREE / 20 LF	4
PERMITS TO PLANT 175 LF 1 SPREADER TREE / 20 LF	9
PERMITS TO PLANT 175 LF 1 SPREADER TREE / 20 LF CREDIT FOR EX. TREES	0
PERMITS TO PLANT 175 LF 1 SHAPE TREE / 20 LF HYDRANGEA TREE	4
PERMITS TO PLANT 175 LF 1 SPREADER TREE	4
PERMITS TO PLANT 175 LF 1 SPREADER TREE	4
PERMITS TO PLANT 175 LF 1 SPREADER TREE	4

TOTAL PLANTING PROVIDED:
120 TREES
110 SPREADER TREES
19 HYDRANGEA TREES
150 SHRUBS
CREDIT FOR EX. TREES
49 PLANT ITEMS

PLANT LIST (FOREST CONSERVATION PLAN):

KEY	QTY	BOTANICAL NAME COMMON NAME	SIZE	COND.	REMARKS
⊙	10	ACER RUBRUM RED MAPLE	2-3 HT.	CAN.	
⊙	10	FRAXINUS PENNSYLVANICA GREEN ASH	2-3 HT.	CAN.	
⊙	30	VIBURNUM DENTATUM AERHOOD	2-3 HT.	CAN.	
⊙	11	QUERCUS PALUSTRIS PIN OAK	2-3 HT.	CAN.	

SHEET INDEX

SHEET	TITLE
C-1	SITE PLAN
C-2	PROFILES & DETAILS
C-3	SEDIMENT & EROSION CONTROL PLAN
C-4	SEDIMENT & EROSION CONTROL DETAILS
C-5	STORMWATER QUALITY PLAN
C-6	STORMWATER QUALITY DETAILS AND SPECS.
C-7	LANDSCAPE & FOREST CONSERVATION PLAN
C-8	WALL DETAILS
C-9	WALL NOTES

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

Number of Parking Spaces	74
Number of Trees Required @ 1:20	4
Number of Trees Provided	5
Shade Trees	5
Other Trees (2:1 substitution)	5
PLUS SHRUBS PROVIDED	55

SCHEDULE A
PERIMETER LANDSCAPE EDGE

Category	Assessment to Roadways	Assessment to Perimeter Properties
Landscape Type	E	A B C D
Linear Feet of Roadway	240	315 275 257
Frontage/Perimeter		24 15 21 25
Credit for Existing Vegetation (Yes, No, Linear Feet)	(1) YES TREES	(40) LF (50) LF
Credit for Wall, Fence or Berm (Yes, No, Linear Feet)		
Number of Plants Required		
Shade Trees	6	4 5 4
Evergreen Trees	0	0 4.5 0
Shrubs	60	0 0 0
Number of Plants Provided		
Shade Trees	5	1 6 3
Evergreen Trees	0	2 0 0
Other Trees (2:1 substitution)	3	3 0 0
Shrubs (10:1 substitution)	64	0 0 0

Comments: PLANTING AREA AVAILABLE FOR PERIMETER (C) IS LIMITED AND NO CREDIT WAS TAKEN FOR EXISTING VEGETATION ON ADJACENT OFF-SITE PROPERTY

APPROVED: DEPARTMENT OF PLANNING AND ZONING

David Cummins 3/20/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION
Christa Handley 4/14/98
CHIEF, DIVISION OF LAND DEVELOPMENT
Lucretia Rutter 4/16/98
DIRECTOR

APPROVED: FOR PUBLIC WATER AND SEWER SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER: **Neil** DATE

APPROVED: FOR PUBLIC WATER, SEWER, AND STORM DRAIN SYSTEMS & PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

DIRECTOR: DATE
CHIEF BUREAU OF ENGINEERING: DATE

LANDSCAPE AND FOREST CONSERVATION PLAN ELKRIDGE VILLAGE CENTER

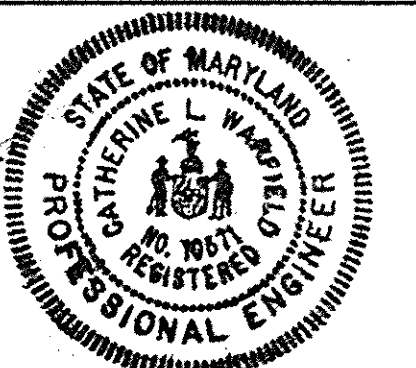
OWNER: ELKRIDGE VILLAGE CENTER, INC. BK ELKRIDGE L.L.C.
P.O. BOX 498 17 WEST PENNSYLVANIA AVENUE
FINKSBURG, MARYLAND 21048 BALTIMORE, MARYLAND 21204
(410) 833-0057

SCALE: 1" = 20'	DATE: 7-24-97	SHEET 7 OF 9
LOT NUMBER: 121	STREET ADDRESS: 6241, 6245, & 6247 BALTIMORE WASHINGTON BLVD., ROUTE-1	
SUBDIVISION NAME: ELKRIDGE VILLAGE CENTER	SECTION/AREA: 38	LOT/PARCEL: 121
PLAT: OR V/L/F	BLOCK: 2	ZONE: B-2
TAX/ZONE MAP: 38	ELECT. DIST: 1	CENSUS TRACT: 6012
WATER CODE: D09	SEWER CODE: 2022427	

C.L. WARFIELD & ASSOC., INC.
CONSULTING ENGINEERS
4900 KEMP ROAD
REISTERSTOWN, MARYLAND 21136
(410) 429-2981

ENGINEER CERTIFICATION:
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.
Engineer: **C.L. Warfield & Associates, Inc.** Date: 7-28-97
Name: **Catherine Warfield** PE: 10571

DEVELOPERS CERTIFICATION:
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/We authorize periodic on-site inspection by the Howard Soil Conservation District.
Developer Name: **David S. Dean** Date: 7-29-97



HUMAN & ROHDE, INC.
Landscape Architects
512 Virginia Avenue
Towson, Maryland 21286
(410) 825-3885

CONSTRUCTION SEQUENCE - REFORESTATION PLANTING

- 1. Contractor is to coordinate sediment control, clearing, grading, and existing trees to remain. Contractor is to stake and flag the reforestation area.
- 2. Notify Tim Callahan at Howard County Department of Planning & Zoning at (410) 313-2354 to examine the area to be reforested.
- 3. Install protective signage.
- 4. Begin site preparation and notify Tim Callahan at Howard County Department of Planning & Zoning at (410) 313-2354 to examine plant material prior to installation.
- 5. Plant reforestation areas per Standards & Specifications.
- 6. Notify Tim Callahan when planting is complete and schedule an inspection.
- 7. Monitor planting and take appropriate maintenance measures to insure survivability of plants (see Standards & Specifications).
- 8. One year after reforestation is complete an inspection by Howard County will take place to guarantee that at least 75% of the original trees planted have survived.
- 9. A final inspection by Howard County will take place at the end of the three year maintenance period.

1	N 33° 03' 07" W	30.00'
2	N 56° 36' 40" E	163.13'
3	N 20° 00' 00" E	36.00'
4	N 46° 00' 00" E	45.36'
5	N 53° 17' 52" E	38.76'
6	S 33° 41' 12" E	55.00'
7	S 56° 36' 40" W	275.80'

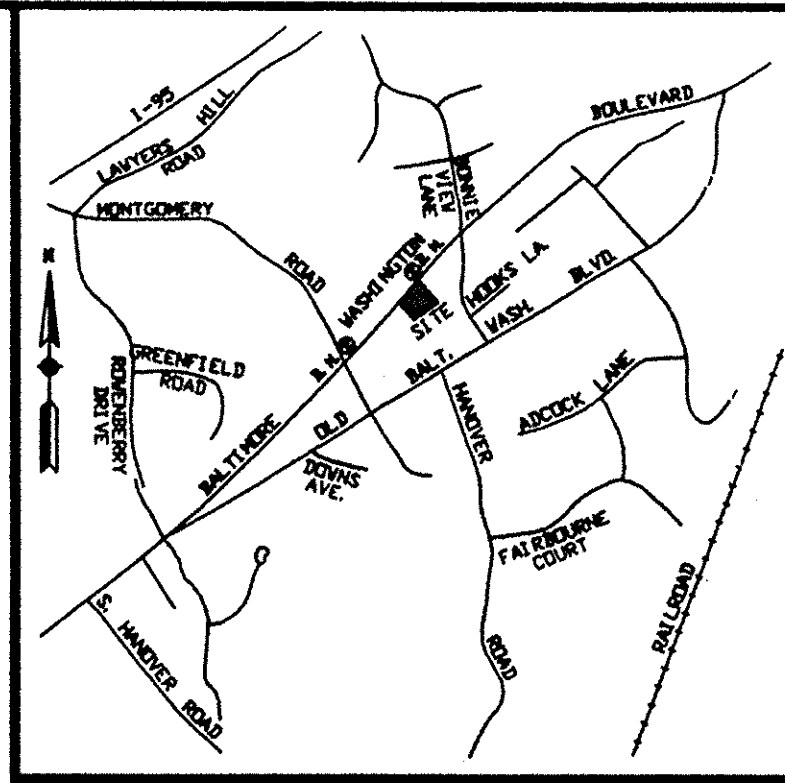
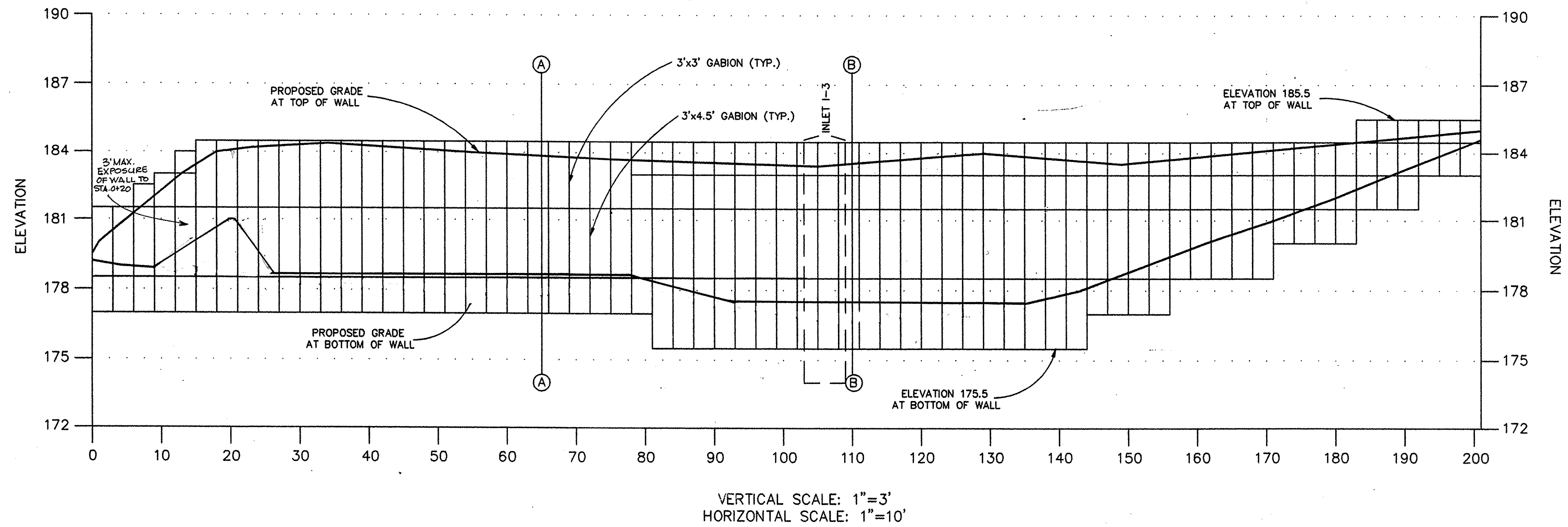
NOTES

- 1. No equipment, machinery, vehicles, materials, or excessive pedestrian traffic shall be allowed within protected areas.
- 2. Attachment of signs or any other objects to trees is prohibited.

PLAN SCALE: 1" = 20'

The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code Forest Conservation Act. No clearing, grading, or construction is permitted within the forest conservation easement; however, forest management practices as defined in the Deed of Forest Conservation Easement are allowed.

GABION WALL PROFILE

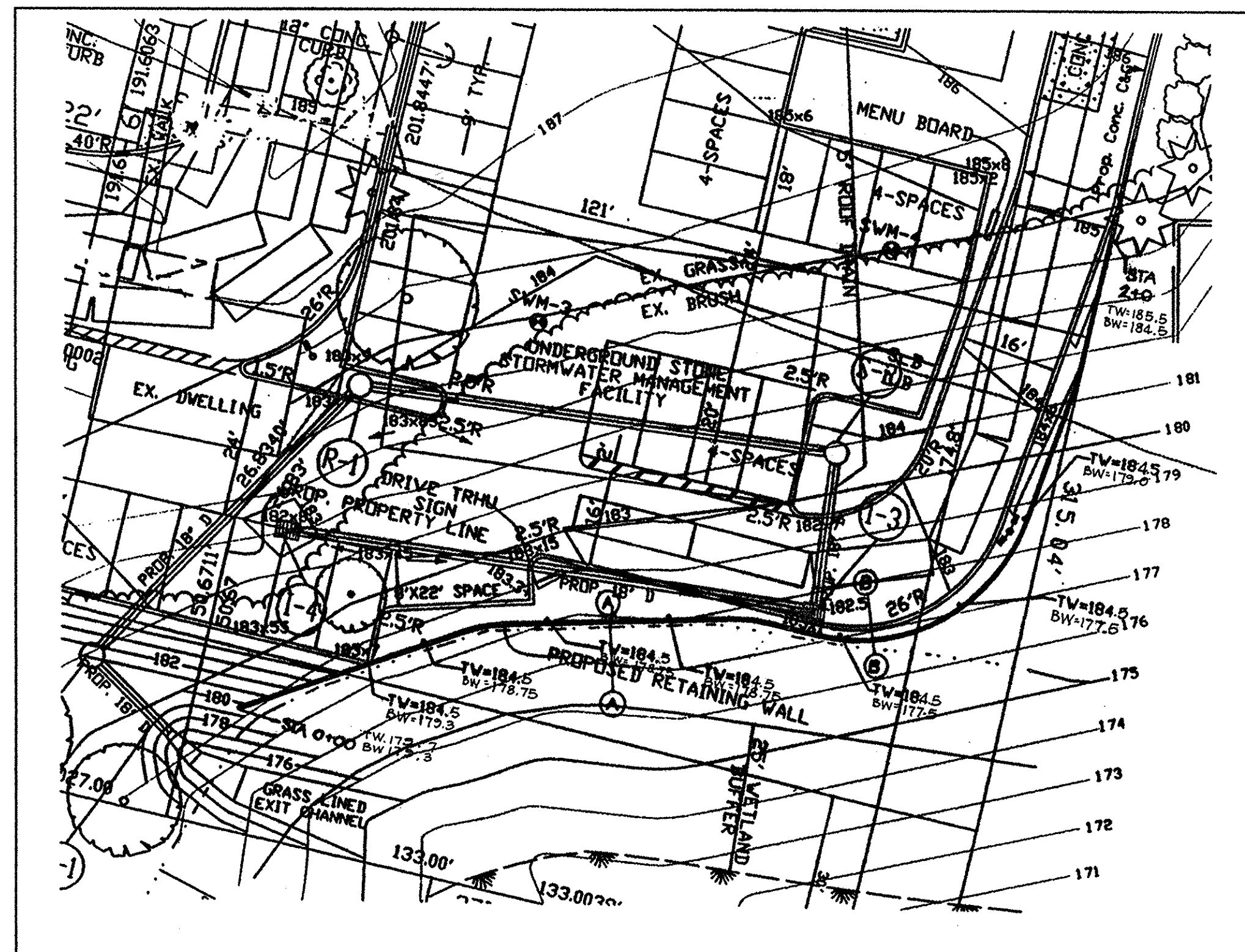


VICINITY MAP
SCALE: 1" = 1000'

BENCH MARK DESCRIPTION:
HOWARD COUNTY SURVEY CONTROL
B.M. #247007 ELEV. 223.084
CONCRETE MONUMENT SET FLUSH WITH
GROUND IN GRASS ISLAND IN WESTERN
CORNER OF INTERSECTION OF U.S. ROUTE
1 AND MONTGOMERY ROAD.

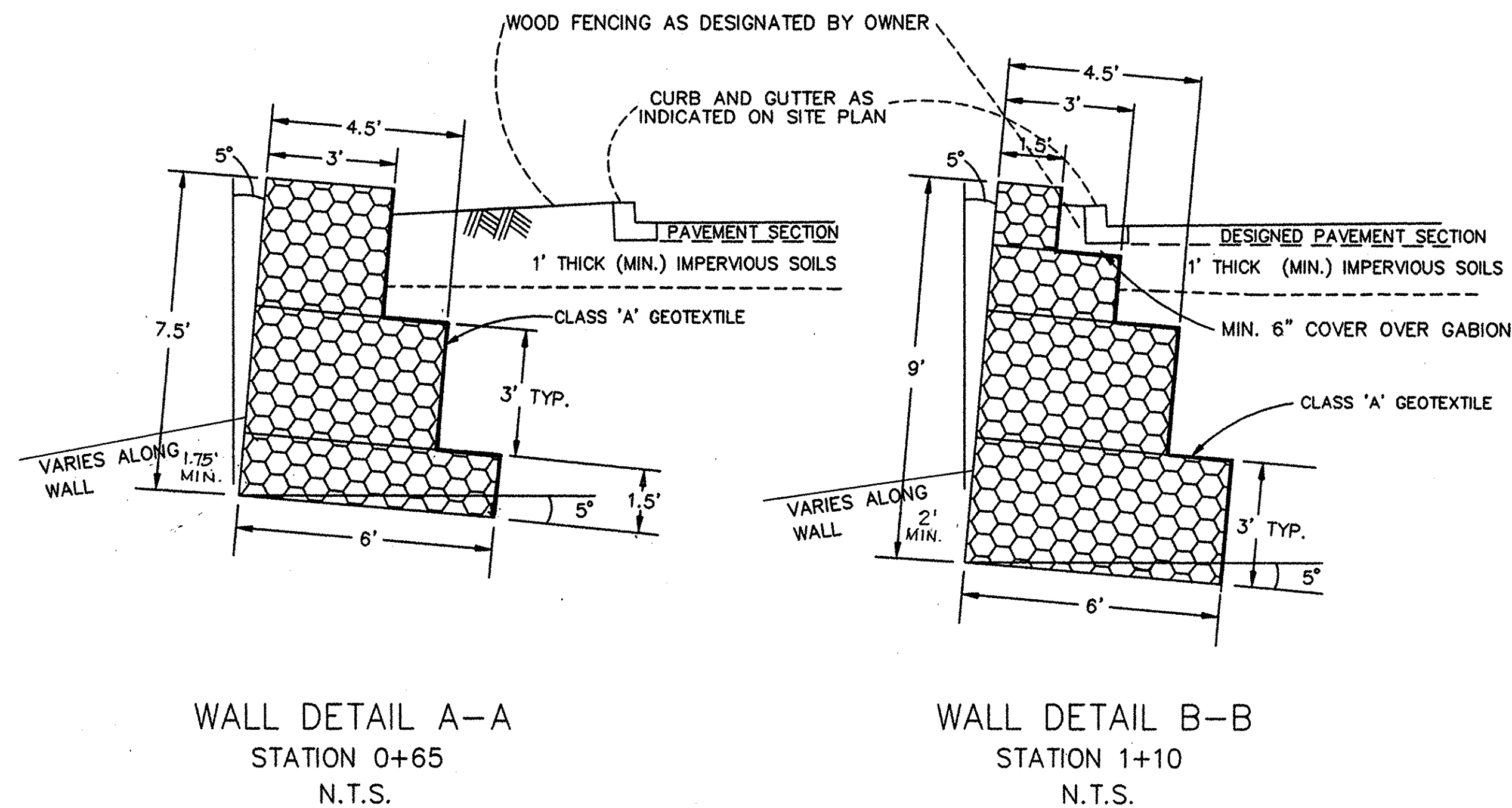
SHEET INDEX	
SHEET	TITLE
C-1	SITE PLAN
C-2	PROFILES & DETAILS
C-3	SEDIMENT & EROSION CONTROL PLAN
C-4	SEDIMENT & EROSION CONTROL DETAILS
C-5	STORMWATER MANAGEMENT PLAN
C-6	STORMWATER MGMT. DETAILS AND SPECS.
C-7	LANDSCAPE & FOREST CONSERVATION PLAN
C-8	WALL DETAILS, PROFILE AND PLAN VIEWS
C-9	WALL NOTES & SPECIFICATIONS

GABION WALL PLAN VIEW



DRAWING MODIFIED FROM SITE PLAN PROVIDED BY C.L. WARFIELD.

SCALE: 1" = 20'



WALL DETAIL A-A
STATION 0+65
N.T.S.

WALL DETAIL B-B
STATION 1+10
N.T.S.

APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>John D. ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	3/30/98 DATE
<i>Linda Hamilton</i> CHIEF, DIVISION OF LAND DEVELOPMENT	4/14/98 DATE
<i>Frank ...</i> DIRECTOR	4/16/98 DATE
APPROVED: FOR PUBLIC WATER AND SEWER SYSTEM HOWARD COUNTY HEALTH DEPARTMENT <i>John M. ...</i> COUNTY HEALTH OFFICER	4-6-98 DATE
APPROVED: FOR PUBLIC WATER, SEWER, AND STORM DRAIN SYSTEMS, & PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DIRECTOR	DATE

SITE DEVELOPMENT PLAN ELKRIDGE VILLAGE CENTER

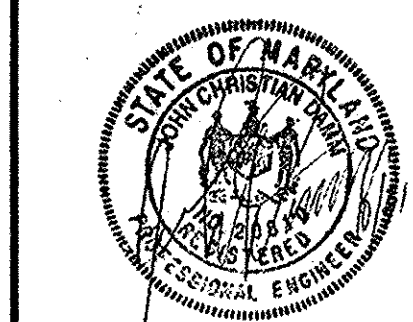
OWNER:
ELKRIDGE VILLAGE CENTER, INC. 17 WEST PENNSYLVANIA AVENUE
P.O. BOX 498 FINKSBURG, MARYLAND 21048
(410) 833-0057

SCALE: NOTED OCTOBER 30, 1997 SHEET 8 OF 9

STREET ADDRESS
PARCEL 121 6241, 6245, & 6247 BALTIMORE WASHINGTON BLVD, RTE 1

SUBDIVISION NAME		SECTION/AREA	LOT/PARCEL
ELKRIDGE VILLAGE CENTER		STREET ADDRESS	PARCEL 121
PLAT # OR L/F	BLOCK	TAX/ZONE MAP	EL. DIST. CENSUS TRACT
2	B-2	38	1 6012
WATER CODE D09		SEWER CODE 2022427	

WALL DETAILS, PROFILE AND PLAN VIEWS



ENGINEERING CONSULTING SERVICES, LTD.
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SPECIFICATIONS FOR CONSTRUCTION

Elkridge Gabion Retaining Wall
Howard County, Maryland

1.0 GENERAL

1.1 Work Includes furnishing and installing gabion units to the lines and grades designated on the construction drawings or as directed by the Geotechnical Engineer. Also included is furnishing and installing appurtenant materials required for construction of the retaining walls as shown on the construction drawings.

1.2 Related Standards

- ASTM D 698 - Moisture Density Relationship for Soils, Standard Method
- ASTM D 3034 - Specification for Polyvinyl Chloride (PVC) Plastic Pipe
- ASTM D 1248 - Specification for Corrugated Plastic Pipe
- Maryland Department of Transportation Standard and Specifications for Construction and Material, dated October 1993

1.3 Approved Suppliers/Installers

- A. Suppliers of the gabion units** shall have demonstrated experience in the supply of similar size and types of components on previous projects.
- B. Installer of retaining wall system** shall be experienced in construction of similar systems and provide documentation of at least 5 years of experience.
- 1.4 Delivery, Storage, and Handling**
 - A. Contractor** shall check the materials upon delivery to assure that specified type and grade has been received.
 - B. Contractor** shall prevent excessive mud, wet concrete, epoxides, and like materials which may silt themselves from coming in contact with the materials.
 - C. Contractor** shall protect the materials from damage. Damaged materials shall not be incorporated into the gabion wall.
 - D. Geosynthetics** shall be protected from exposure to sunlight while being stored.

2.0 MATERIALS

2.1 Gabions Units

Galvanized Coated Wire Mesh Gabions - Galvanized-coated wire mesh gabion units shall be fabricated in accordance with Section 906 and constructed in accordance with Section 312 of the Maryland Department of Transportation Standard and Specifications for Construction and Material, dated October 1993. The gabion units shall be of nonwelding construction, fabricated from a double-twisted hexagonal mesh of hot dipped galvanized steel wire coated with not less than 0.8 oz/square foot. Mesh openings shall be hexagonal in shape and uniform in size measuring approximately 3 1/4 inches by 4 1/2 inches. Maccaferri gabions or equivalent shall be utilized.

2.2 Gabion Fasteners

Wire fasteners including ring fasteners, twist ties, and spiral binders may be used in lieu of lacing wire, provided they are approved by the Engineer or the gabion manufacturer. The proposed fastener system shall not cause damage to the protective coating on the wire. Alternate wire fasteners shall be installed at each mesh opening at the location where mesh wire meets salvage or edge wire. Stainless steel fasteners shall be used with PVC-coated gabions. Twist tie or spiral binder fasteners shall meet the requirements of lacing wires.

2.3 Gabion Fill

Stone fill used in the gabions shall be a well-graded mixture conforming with Section 901.5 of the Maryland Department of Transportation Standard and Specifications for Construction and Material, dated October 1993. Stone sizes shall range between 4 inches and 7 inches, based on US Standard square mesh sieves. No stone shall have a minimum dimension less than 4 inches and a maximum dimension greater than 7 inches in any direction. The ratio of the maximum dimension to the minimum dimension shall not be greater than two. Stone shall be angular and durable and of suitable quality to ensure permanence in the structure and climate in which it is to be used. It shall be free of cracks, seams, and other defects that would tend to increase its deterioration from natural causes or reduce its size to that which could not be retained in the gabion units. The inclusion of more than 5% by weight of dirt, sand, clay, and rock fines will not be permitted.

2.4 Geotextile

Geotextile shall conform to Section 921.09 of the Maryland Department of Transportation Standard and Specifications for Construction and Material, dated October 1993, for Geotextile Class A.

2.6 Common Backfill

Fill materials behind the gabion units consist of approved soils having a Unified Soil Classification designation of SM, SM-SC, SM-SP, SP, SW, GM, or GP and shall be free of organic matter, cobbles greater than 3 inches (maximum dimension), or debris. The Liquid Limit and Plastic Index of the material shall not exceed 30 and 10, respectively. The strength characteristics of the material shall meet or exceed the requirements of the design parameters. A minimum compaction of 95 percent of the maximum dry density (ASTM D 698) is required.

2.6 Unacceptable Fill Soils

Fill materials such as topsoil, organic soils (OH and OL), plastic silts and clays (SC, CL, CH, MH, and GC) and soils not meeting the criteria previously stated.

2.7 Drainage Pipe

If drainage pipe is utilized, it shall be slotted or perforated, PVC or corrugated HDPE pipe manufactured in accordance with ASTM D 3034 and/or ASTM D 1248. Compatible T-connections and solid wall pipe shall be used to provide outlets through the face of the wall as shown on the plans. The pipe collection system shall be joined and sealed according to the manufacturer's recommendations.

2.8 Drainage Blanket

If a drainage blanket is utilized, it may be a geosynthetic drainage net or an open graded aggregate sandwiched between a filtering geotextile.

3.0 TEMPORARY DIVERSION AND DEWATERING

3.1 Berms and Trenches

The Contractor shall provide shallow berms and trenches as necessary or as requested by the Owner's representative to maintain dry working conditions and to divert water away from the construction area.

3.2 Dewatering Excavations

When excavations extend below the steam bed or ground water level, the Contractor shall provide constant dewatering from sumps to maintain the groundwater at least 2 feet below the excavation level.

3.3 Siltation and Erosion Control

Precautions shall be taken throughout the construction period against the erosion of soils in all areas affected by the Contractor's operations. Sediment and erosion control devices shall be installed as provided on the Sediment and Erosion Control Plans. All erosion and sediment control practices and structures shall meet Maryland State and Howard County requirements.

4.0 EXECUTION

4.1 Site Preparation

Areas designated for borrow and structural works shall be stripped of topsoil and cleared and grubbed. All trees, vegetation, roots and other objectionable material shall be removed.

All cleared and grubbed material shall be disposed of outside the limits of the construction as directed by the Owner's representative. Topsoil shall be stockpiled in a suitable location for use on the embankment and other designated areas.

4.2 Excavation

A. Contractor shall excavate to the lines and grades shown on the plans. Contractor shall take precautions to minimize over-excavation. Over-excavation shall be filled with compacted backfill as directed by the Geotechnical Engineer.

B. Clearing limits shall extend a minimum of 5 feet beyond the work area. All topsoil, rootmat, or other soft or unsuitable materials shall be removed.

C. The excavations shall be observed and approved by the Geotechnical Engineer, or his representative, prior to placement of the base material for the bearing pad. The bearing capacity of the subgrade soils beneath the wall foot print shall exhibit a minimum allowable bearing pressure of 2000 pounds per square foot. The subgrade support shall be verified by the Geotechnical Engineer or his representative.

E. The Contractor shall verify location of all existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation.

F. Backslope excavation - The backslope should be excavated at such an angle to provide a safe working environment but no steeper than 1(h) to 1(v). If free water is present in the excavation face or/and if other conditions warrant, a drainage blanket should be established on the excavation face. The drainage blanket should be daylighted away from the wall either through the face of the wall or at the downstream terminus of the wall.

G. Foundation preparation - No foundation preparation work shall take place on frozen or snow-covered ground. After excavation or stripping, all remaining loose or otherwise unsuitable materials shall be removed. All depressions shall be carefully backfilled to grade with compacted fill. The prepared foundation surface shall be inspected by the Engineer. No material shall be placed thereon until that area has been approved.

4.3 Leveling Pad Construction

A leveling pad shall be prepared at the base on the gabion units to provide uniform support beneath the units. The material for the pad shall consist of a free draining, granular soils such as SW, SM, or GM with a minimum thickness of 6 inches and a minimum compaction effort of 95 percent of the maximum dry density (ASTM D 698). On-site soils, meeting the above criteria, may be left in place provided the compaction is confirmed.

4.4 Wall Construction

A. Assembly and Installation - The gabion units shall be constructed in accordance with Section 312 of the Maryland Department of Transportation Standard and Specifications for Construction and Material, dated October 1993.

B. A Geotextile shall be placed on the back of the gabion units. Geotextile sheets shall be overlapped by 12-inches on all sides. Seams shall be made in accordance with the manufacturer's recommendations. The material shall be secured to the units according to the manufacturer's recommendations.

C. Gabions shall be fabricated in such a manner that the sides, ends, lid, and diaphragms can be assembled at the construction site into rectangular units. Each gabion basket (the base, lid, ends, and sides) shall be woven into a single unit. The corner or selvaged edges shall be so wrapped and reinforced with the mesh ends that the corner supporting wire (selvage wire) will not be deformed locally about the lacing wire or wire fasteners when units are filled or during lid closing. Lacing wire, connecting wire, and/or wire fasteners shall be supplied in sufficient quantity for securely fastening all diaphragms and edges of the gabion.

D. Empty gabion units shall be assembled individually and placed on the approved surface, as shown on the drawings, or as directed by the Engineer, with the sides, ends, and diaphragms erected in such a manner to ensure the correct position of all creases and that the tops of all sides are level. Filling of gabion units in one place and then transporting them to their final position in the work will not be permitted.

E. The completed gabion structure shall have no gaps along the perimeter of the contact surfaces between adjoining gabion units. All adjoining empty gabion units shall be connected by lacing wire or wire fasteners along the perimeter of their contact surfaces including the gabion toe walls in order to obtain a monolithic structure. Lacing of adjoining units shall be accomplished by continuous stitching with alternating single and double loops at intervals of not more than 5 inches, and a half hitch shall be included at every double loop. All lacing wire terminals shall be securely fastened. Wire fasteners may be used in lieu of lacing wire for forming individual units and joining empty units together prior to stone filling. All joining shall be made through selvage-to-selvage or selvage-to-edge wire connection; mesh-to-mesh or selvage-to-mesh wire connection is prohibited except in the case where baskets are offset or stacked and selvage-to-mesh or mesh-to-mesh wire connection would be necessary. If wire fasteners are used, at a minimum, a fastener shall be installed at each mesh opening at the location where mesh wire meets selvage or edge wire.

F. The initial line of units shall be placed on the prepared leveling pad and partially filled to provide anchorage against deformation and displacement during filling operations. After adjoining empty units are set and common sides with adjacent units thoroughly laced or fastened, they shall be placed in tension and stretched to remove any kinks from the mesh and to a uniform alignment. The stretching of empty units shall be accomplished in such a manner as to prevent any possible unraveling. Stone filling operations shall carefully proceed with placement by hand or machine so as not to damage galvanized wire coating, to assure a minimum of voids between the stones, and the maintenance of alignment throughout the filling process. Undue deformation and bulging of the mesh shall be corrected prior to further stone filling. The maximum height from which the stone may be dropped into the units shall be 36 inches.

G. Connecting wires or alternatively the performed stiffeners shall be looped around two twisted wire mesh openings or a welded wire joint at each basket face and the wire terminals shall be securely twisted to prevent their loosening. Along all exposed faces, the outer layer of stone shall be carefully placed and arranged by hand to ensure a neat and compact appearance. The last layer of stone shall be uniformly overfilled 1 to 2 inches to compensate for the future settlement in rock but still allow for the proper closing of the lid and to provide an even surface that is uniform in appearance.

H. Final adjustments for compaction and surface tolerance shall be completed by hand. Lids shall be stretched tight over the stone fill using only an approved lid closing tool, until the lid meets the perimeter edges of the front and end panels. Using crowbars or other single point leverage bars for basket lid closing shall be prohibited. The gabion lids shall then be tightly tied with lacing wire, or with wire fasteners, along all edges, ends, and internal cell diaphragms by continuous stitching with alternating single and double loops at intervals of not more than 5 inches, and a half hitch shall be included at every double loop. Special attention shall be given to see that all projections or wire ends are turned into the units. Where a complete gabion unit cannot be installed because of space limitations, the unit shall be cut, folded, and wired together to suit existing site conditions.

4.5 Storm water Management Structure

Where inlet structures (I-3) are located in proximity to the wall, the structure shall be constructed jointly with the gabion units and in such a manner as not to compromise the integrity of the wall. The Engineer and gabion manufacturer shall be consulted in the inlet is located within the footprint of the wall.

4.6 Fill Placement

A. Place and compact soil behind the gabion wall concurrently with wall construction to the elevations shown on the plans. Place fill in 8 inch loose lifts

maintaining continuous horizontal fill placement. Compact fill to at least 95 percent of the maximum dry density (ASTM D 698). The fill shall be sloped to prevent ponding of water if precipitation occurs. If rainfall is expected or at the end of each day, the surface shall be sealed by rolling with a smooth steel-drum roller.

B. Use only light weight, hand operated compaction equipment within 3 feet of the wall.

C. Compaction - Fill material shall be compacted to at least 95% of maximum dry density with a moisture content within -2 to +4 percentage points of optimum. Fill placement shall be observed and fill density tested by the Geotechnical Engineer or his representative. The maximum dry density shall be determined by American Society For Testing and Materials (ASTM) Method D 698.

5.0 GRADING

Provide relatively impervious subgrade soils (SC with at least 35 percent fines, ML, MH, CL, or CH) at least one-foot thick, behind the wall as noted on the plans. Grade the backslope area and indicated on the plans, providing drainage as needed. Provide a minimum 6-inch cover between bottom of gutter pan and top of gabion unit.

Provide a fencing (or barricade, or guard rail) behind wall to conform to BOCA and Howard County Building Code. Avoid founding fencing in the wall, if necessary, consult gabion manufacturer.

DESIGN CONSIDERATIONS

Soil Parameters:

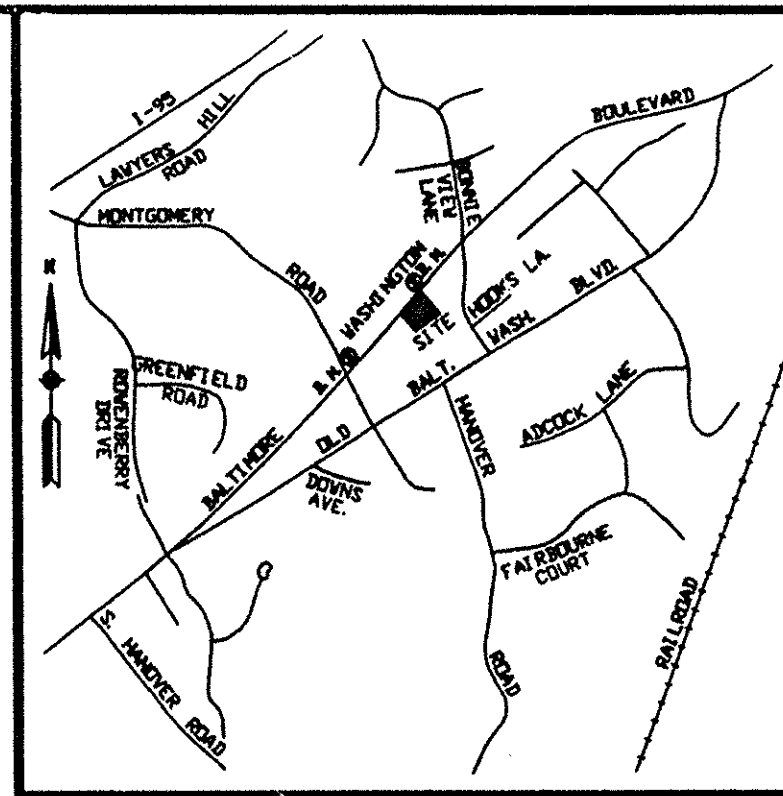
Soil Type	Moist Unit Weight (pcf)	Cohesion (psf)	Friction Angle
Foundation	120	0	30
Common Backfill	120	0	30
Gabion Backfill	140	0	45

Loading Conditions:

Surcharge	125 pcf live load on level backslope
Backslope angle	varies to level area behind wall
Foreslope angle	8(h) : 1(v)
Allowable Bearing Capacity	2000 pcf
Wall Embedment	1.5 feet ±

Factors of Safety (minimum provided):

Global	1.5 against circular- and sliding block-shaped potential failure surfaces behind the gabion wall
Sliding	1.5
Overturning	2.0
Bearing	3.0



VICINITY MAP

SCALE: 1" = 1000'

BENCH MARK DESCRIPTION:
HOWARD COUNTY SURVEY CONTROL
B.M. #247008 ELEV. 180.6163
CONCRETE MONUMENT SET FLUSH WITH
GROUND BETWEEN ENTRANCE AND EXIST
DRIVES AT ELKRIEDE DRIVE IN THEATER.

B.M. #247007 ELEV. 223.064
CONCRETE MONUMENT SET FLUSH WITH
GROUND IN GRASS ISLAND IN WESTERN
CORNER OF INTERSECTION OF U.S. ROUTE
1 AND MONTGOMERY ROAD.

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SHEET	TITLE
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C-4	SEDIMENT & EROSION CONTROL DETAILS
C-5	STORMWATER MANAGEMENT PLAN
C-6	STORMWATER MGMT. DETAILS AND SPECS.
C-7	LANDSCAPE & FOREST CONSERVATION PLAN
C-8	WALL DETAILS, PROFILE AND PLAN VIEWS
C-9	WALL NOTES AND SPECIFICATIONS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chris Dammus 3/30/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamilton 4/14/98
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paul R. ... 4/16/98
DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND SEWER SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT

James M. ... 4-6-98
COUNTY HEALTH OFFICER DATE

APPROVED: FOR PUBLIC WATER, SEWER, AND STORM DRAIN SYSTEMS, & PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DIRECTOR DATE

**SITE DEVELOPMENT PLAN
ELKRIEDE VILLAGE CENTER**

OWNER:
ELKRIEDE VILLAGE CENTER, INC. BK ELKRIEDE L.L.C.
P.O. BOX 498 17 WEST PENNSYLVANIA AVENUE
FINKSBURG, MARYLAND 21048 BALTIMORE, MARYLAND 21204
(410) 833-0057

SCALE: NOTED OCTOBER 30, 1997 SHEET 9 OF 9

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SUBDIVISION NAME: ELKRIEDE VILLAGE CENTER SECTION/AREA: CENTER STREET ADDRESS: LOT/PARCEL: PARCEL 121

PLAT # OR L/F: BLOCK: ZONE: TAX/ZONE MAP: EL. DIST.: CENSUS TRACT:
2 B-2 38 1 6012

WATER CODE: D09 SEWER CODE: 2022427

