19. SOIL BORING PLAN 20. REFORESTATION PLAN REFORESTATION PLAN RETAINING WALL DESIGN PLAN RETAINING WALL DESIGN PLAN

SEDIMENT AND EROSION CONTROL PLAN - PHASE III 24. RETAINING WALL DESIGN PLAN EROSION AND SEDIMENT DETAILS 25. RETAINING WALL DESIGN PLAN STORMWATER MANAGEMENT DETAILS

GENERAL NOTES

SCHEMATIC PLAN

MASS GRADING PLAN

MASS GRADING PLAN

MASS GRADING PLAN

EROSION AND SEDIMENT CONTROL PLAN - PHASE I

EROSION AND SEDIMENT CONTROL PLAN - PHASE I

SEDIMENT AND EROSION CONTROL PLAN - PHASE II

EROSION AND SEDIMENT CONTROL PLAN - PHASE II

INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE

ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

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

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL

ESOURCES CONSERVATION SERVICE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

MUNDERMAN CHIEF, DEVELOPMENT ENGINEERING DIVISION

DIVISION AND LAND DEVELOPMENT AND RESEARCH

E.C. WALMART, PARCELS B, C / D, HOFNES CECTION (ADEA)

	PROP, PARCEL A-3, PARCELS 47 (970			SECTION/AREA	970, 47, A-3, &, C, D.		
				N/A			
	PLAT # 12106,12107,12108	BLOCK #	ZONE	TAX/ZONE MAP	ELEC. DIST.	CENSUS TRACT	
	11976 L1577/F489 L1244/F251	23, 24 & 5, 6	RA-15 B-2 & P.O.R.	17 & 24	2nd	3026	
	WATER CODE F-03			SEWER CODE			
				1452800			
	ADDRESS CHART						
	LOT NUMBER		STF	REET ADDRESS			

3200 NORTH RIDGE ROAD

N. RIDGE RD

Vicinity Map

TOTAL AREA OF PARCELS - 69.40 AC. PARCEL A-1 - 6.25 AC. PARCEL B - 18.36 AC. PARCEL C - 1.70 AC. BULK PARCEL D - 17.12 AC. BULK PARCEL E - 7.30 AC. PARCEL F - 8.27 AC. PARCEL G - 10.40 AC. TOTAL GROSS AREA OF SUBDIVISION - 69.40 AC.

THE LOCATION OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY. CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION AND DEPTH OF ANY EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING WORK.

THE CONTRACTOR SHALL NOTE THAT IN CASE OF A DISCREPANCY BETWEEN THE SCALED AND FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.

WATER AND SEWER CONTRACT NUMBER 14-3444-D. ALL WATER AND SEWER ARE PROPOSED AS PUBLIC. THIS PROJECT IS LOCATED WITHIN THE METROPOLITIAN DISTRICT

THERE ARE NO CONTIGUOUS SLOPES OF 25% OR GREATER WHICH ARE GREATER THAN 20.000 SQ.FT. IN AREA.

THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS. WITH THE EXCEPTION OF STORMWATER MANAGEMENT WAIVER, APPROVED MAY 2, 1995 FROM DESIGN MANUAL VOLUME I, SECTION 10.2.6.5,a AND SECTION 10.2.6.6.a. OFFICIAL LETTER FROM DPW ATTACHED TO THIS PLAN SET ON SHEET 14.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/ BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE

THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN OR AERIAL SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY RIEMER MUEGGE AND ASSOCIATES, INC. DATED MAY 5, 1994.

10) THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NUMBERS 24C2 AND 18G1 WERE USED FOR THIS PROJECT.

11) STORMWATER MANAGEMENT FOR THE ENTIRE SITE WILL BE PROVIDED IN THE PROPOSED "PRIVATE" FACILITY AS DESIGNED IN THIS PLAN SET. WATER QUALITY WILL BE PROVIDED BY A STORMCEPTOR SEWER SYSTEM ON THE PARCELS ZONED COMMERCIAL. EXTENDED DETENTION BY FOREBAY WILL PROVIDE WATER QUALITY MANAGEMENT FOR THE RESIDENTIAL SECTION. THE STORMWATER MANAGEMENT POND WILL BE OWNED AND MAINTAINED BY WAL-MART STORES, INC.

REFERENCE FILE NUMBERS: F-96-01 (FINAL ROAD CONSTRUCTION PLANS FOR NORTH RIDGE ROAD), F-96-09 (FINAL RECORD PLAT), SDP-96-11 (WAL-MART FINAL SITE PLAN) AND C#14-3444-D (FINAL WATER PLAN)

13) THE OWNER SHALL BE ADVISED THAT A BUILDING PERMIT IS REQUIRED FOR THE CONSTRUCTION OF THE ON-SITE RETAINING WALLS. TWO (2) COMPLETE SETS OF STRUCTURAL DRAWINGS BEARING THE SEAL AND ORIGINAL SIGNATURE OF MARYLAND STATE REGISTERED PROFESSIONAL

NO CLEARING. GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS OR STREAM BUFFERS, OR FOREST CONSERVATION AREAS

15) THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO COUNTY CODE CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF THE FOREST CONSERVATION EASEMENT ARE ALLOWED

RESOURCE LIST:

SURVEYOR (TOPOGRAPHY)

RIEMER MUEGGE AND ASSOCIATES, INC. MR. RON ANDERSON 8818 CENTER PARK DRIVE, SUITE 200 COLUMBIA, MD 21045 (410) 997-8900

SURVEYOR (EASEMENT INFORMATION)

SET, INC. MR. JOHN MOSELEY 3098 NEWINGTON DR. RIVA. MD 21140-1440 (410) 974-8086

MARYLAND STATE HIGHWAY ADMIN.

ENGINEERING ACCESS PERMITS DIVISION 707 N. CALVERT STREET P.O. BOX 717 BALTIMORE, MARYLAND 21203 (410) 333-1350

BELL ATLANTIC TELEPHONE

MR. JOHN FIDLER 7133 RUTHERFORD RD. 2nd FLOOR WOODLAWN, MD 21244 (410) 281-7532

HOWARD COUNTY

GEORGE HOWARD BUILDING 3430 COURTHOUSE DRIVE ELLICOTT CITY, MARYLAND 21043 (410) 313-2393

DEPARTMENT OF PLANNING AND ZONING

HOENES PROPERTY.

970, 47, A-3, B, C.D

DEVELOPMENT ENGINEERING DIVISION MR. CHARLES DAMMERS, P.E. (410) 313-2420

DEPARTMENT OF PLANNING AND ZONING

MS. REGINA TIRINNANZI (410) 313-2354

DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS DEPARTMENT

(410) 313-2455

DEVELOPER

WAL-MART STORES, INC. MOHSEN GHADIMKHANI 701 SOUTH WALTON BLVD. BENTONVILLE, AR 72716 (501) 273-4940

CONTRACT PURCHASER

MANGIONE FAMILY ENTERPRISES 1205 YORK ROAD PENTHOUSE LUTHERVILLE, MARYLAND 21093 (410) 825-9400

OWNER OF DEVELOPMENT

LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD 21043 (410) 465-2321

STORE NUMBER 2412

SITE ANALYSIS: (PROPOSED UNDER SDP-96-11)

AREA OF PARCEL: PRESENT ZONING: TOTAL AREA OF SITE: AREA DISTURBED:

799,847 So.Ft. OR 18,36 AC B-2 ZONING BOARD CASE ZB-941

65.79 ACRES

AREA TO BE VEGETATIVELY STABILIZED: TOTAL CUT: 130,000 CU YD

TOTAL FILL:

46.00 ACRES 4.04 ACRES

130,000 CU YD

JULY 02, 2018 CAPITAL PROJECT PA-132-2017 ELLICOTT CITY WALMART RETROFIT. CAPITAL PROJECT INVOLVES RETROFIT OF EXISTING CONCRETE RISER. PROPOSED RETROFIT PROVIDES CONTINUOUS MONITORING AND ADAPTIVE CONTROL CLMAC) TO THE POND BY INSTALLING A 10-INCH ACTUATED BUTTERFLY VALVE. A WATER LEVEL SENSOR WILL BE INSTALLED TO PROVIDE REAL TIME MONITORING OF THE WATER LEVEL WITHIN THE POND. EXISTING RISER WILL BE MODIFIED TO MEET MDE SAFETY REQUIREMENTS.

ENGINEERS

ENGINEERING ASSOCIATES, INC

PLANNERS SURVEYORS 9175 Guilford Road, Suite 306 (301) 490-4145 FAX (301) 490-4149 Columbia, MD 21046

SUBDIVISION "ELLICOTT CITY WAL-MART"

ELECTION DISTRICT NO. 2 TAX MAP 17 & 24 REZONING CASE NUMBER ZB-941 SKETCH PLAN S-95-01 PRELIMINARY PLAN P-95-21

HOWARD COUNTY, MARYLAND P/O PARCEL 848 DATED: OCTOBER 18, 1993 APPROVED: 12-2-1994 APPROVED: 6-6-95 DATE: NOVEMBER 17, 1995

STORMWATER MANAGEMENT WAIVER APPROVED MAY 2, 1995 FROM DESIGN MANUAL VOLUME 1, SECTION 10.2.6.5a AND SECTION 10.2.6.6a. ENGINEER SHALL ACCOMPANY THE BUILDING PERMIT APPLICATION.

HAZARD CLASSIFICATION

CLASS "A" - STRUCTURES LOCATED IN RURAL, AGRICULTURAL OR URBAN AREAS DEDICATED TO REMAIN IN FLOOD TOLERANT USAGES WHERE FAILURE MAY DAMAGE NON-INHABITED BUILDINGS, AGRICULTURAL LAND, FLOODPLANS OR COUNTY ROADS.

NOTICE TO BIDDERS:

ALL QUESTIONS REGARDING THE GENERAL CONTRACTOR'S PREPARATION OF HIS BID SHALL BE DIRECTED TO THE WAL-MART CONSTRUCTION DEPARTMENT AT (501) 273-4940. SUBCONTRACTORS MUST DIRECT THEIR QUESTIONS THROUGH THE GENERAL CONTRACTOR ONLY. THE CONSULTING ARCHITECT AND/OR THE CONSULTING ENGINEER SHALL NOT BE CONTACTED DIRECT WITHOUT PRIOR AUTHORIZATION FROM WAL-MART.

FLOOD CERTIFICATION:

THIS PROPERTY IS NOT LOCATED WITHIN ANY PRESENTLY ESTABLISHED 100-YEAR FLOOD PLAIN, AS DETERMINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP FOR THE ELLICOTT CITY, MARYLAND. COMMUNITY PANEL NUMBER 2400440 023 B

WETLAND CERTIFICATION:

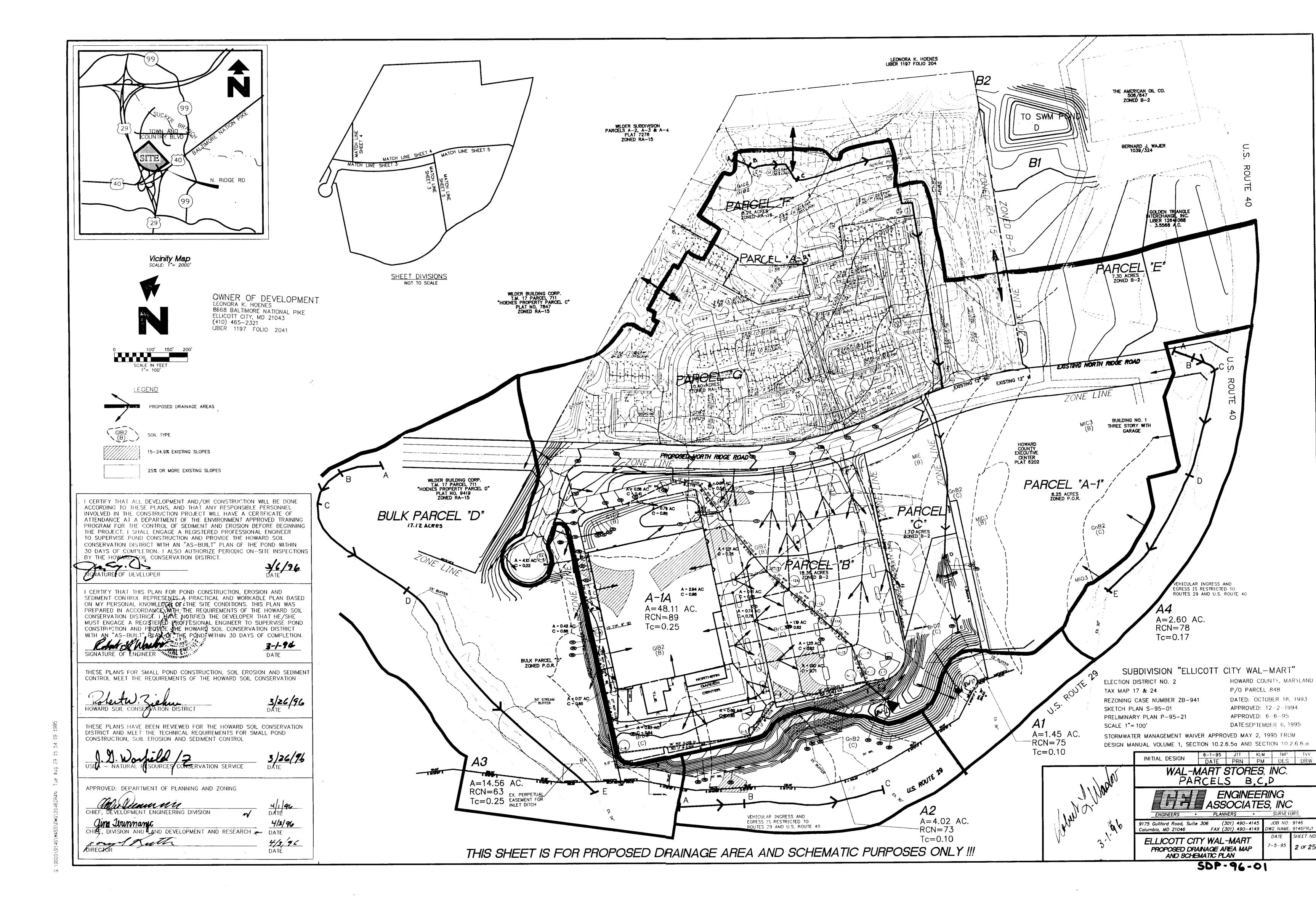
THIS PROJECT DOES NOT REQUIRE A DEPARTMENT OF THE ARMY SECTION 404 PERMIT PER A DETERMINATION BY THE CORPS OF ENGINEERS, BALTIMORE DISTRICT.

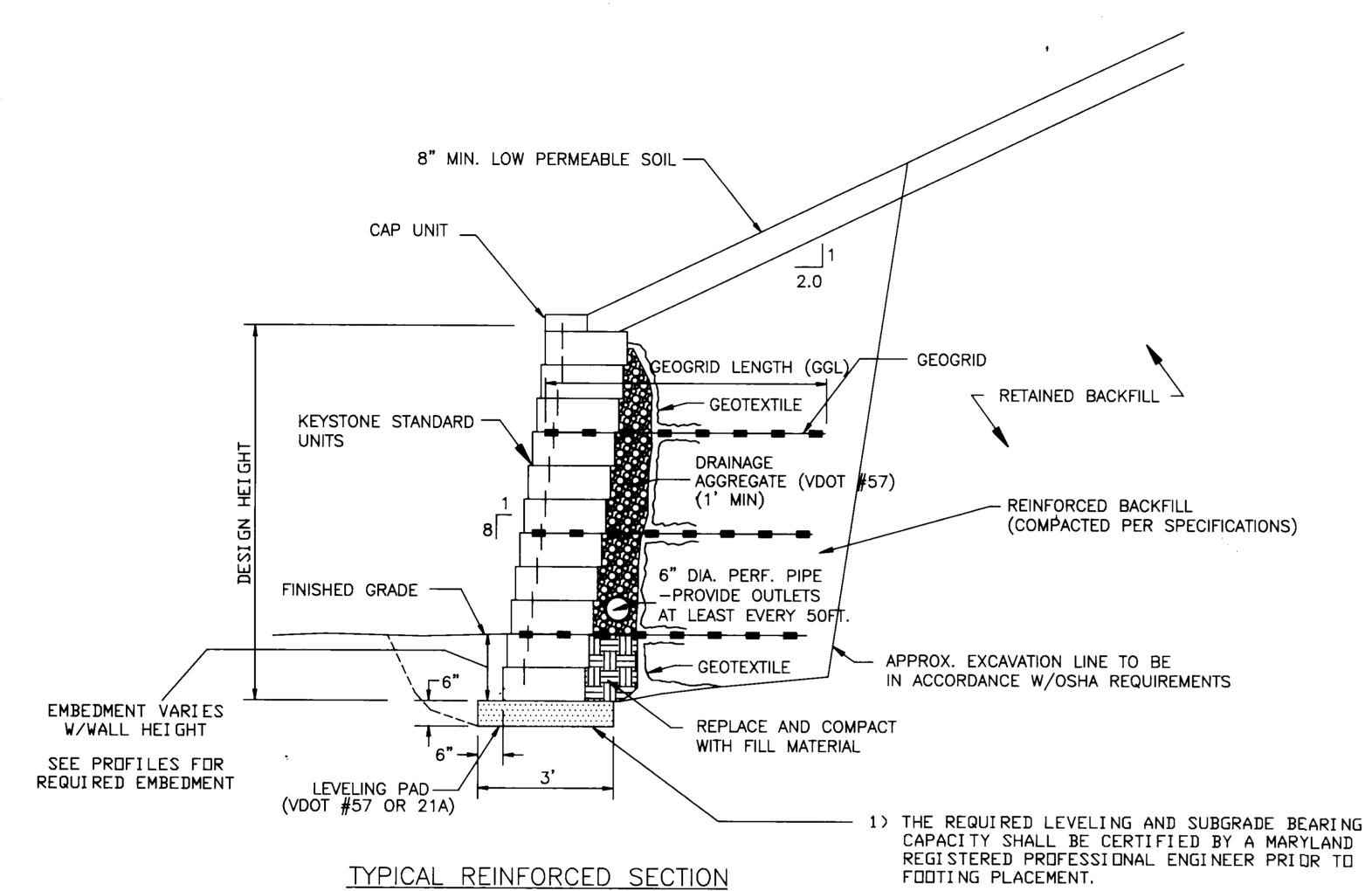
NOTICE TO CONTRACTOR:

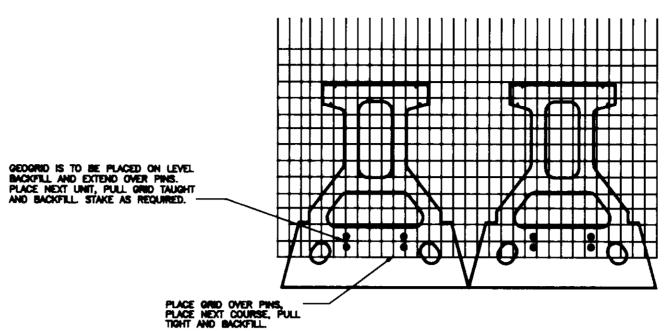
THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 THREE (3) WORKING DAYS PRIOR TO BEGINING ANY WORK IN THE VICINITY OF EXISTING UTILITIES.

JOB NO.: 9146 DWG NAME: 9146COV DATE 11–17–95 1 OF 25

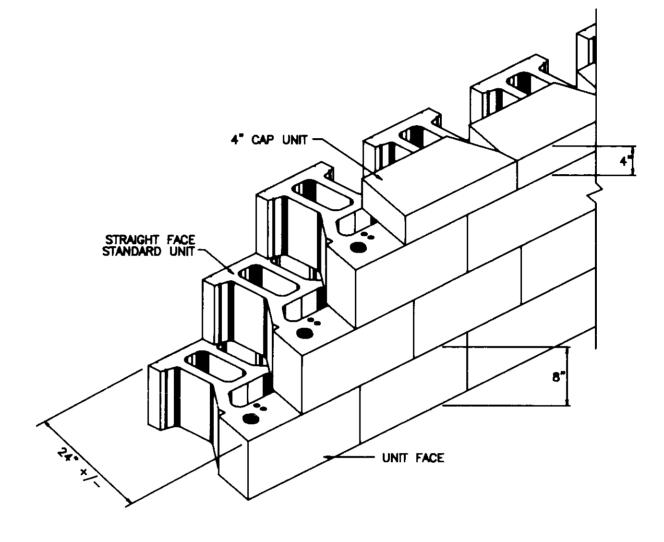
Bentonville, Arkansas * Fresno, California * San Francisco, California * Columbia, Maryland * St. Augustine, Florida ** Nashville, Tennessee * Atlanta, Georgia



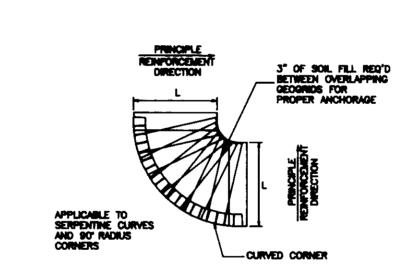




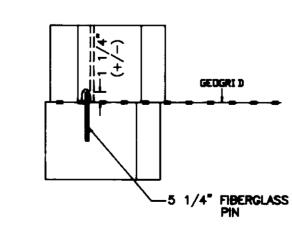
KEYSTONE STANDARD UNIT



KEYSTONE STANDARD UNIT ISOMETRIC SCALE: NONE - KD7S



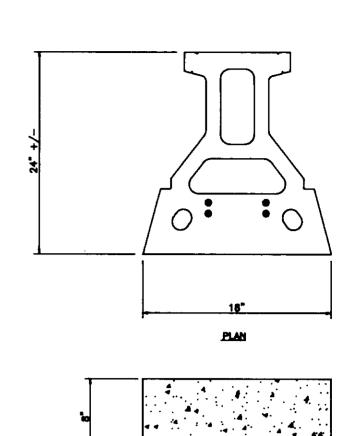
CONVEX CORNER GEOGRID PLACEMENT DETAIL SCALE: NONE - KD28



GRID/PIN CONNECTION DETAIL SCALE: NONE - KD13

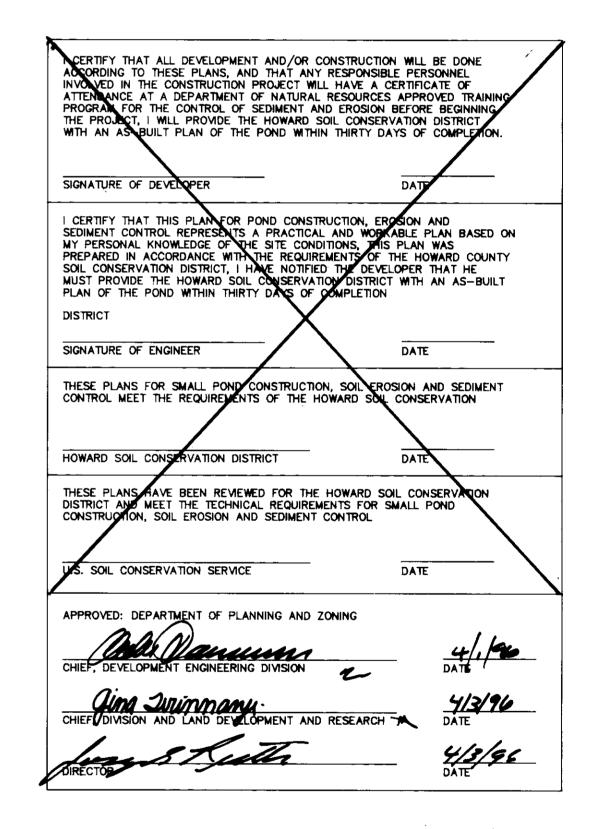
OWNER OF DEVELOPMENT LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE ELLKOTT CITY, MD 21043 (410) 465-2321

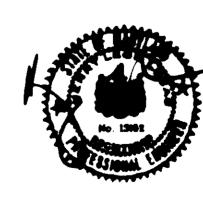
ELECTION DISTRICT NO.Z HOWARD COUNTY, MD TAX MAP 17 \$ 24



KEYSTONE STANDARD UNIT

NDTE: 1) THE PROPOSED CONSTRUCTION OF ALL RETAINING WALLS SHALL BE PERFORMED UNDER THE DIRECTION OF A MARYLAND REGISTERED PROFESSIONAL ENGINEER

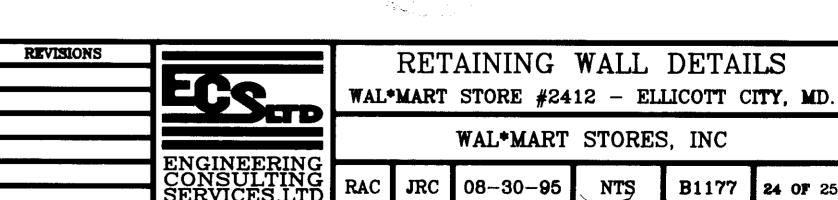






B1177 24 OF 25

50P-95-01

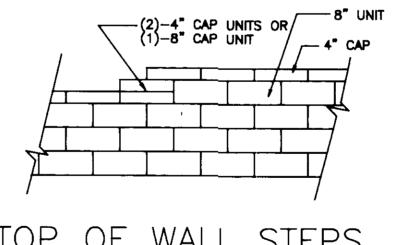


8" MIN. LOW PERMEABLE SOIL LOCKING PINS (2 PER UNIT) ---CAP UNIT-KEYSTONE STANDARD UNIT -RETAINED BACKFILL DESIGN HEIGHT - UNIT CORE FILL (MAX HT. = 4.0')(1' min.) 6" DIA. PERF. PIPE FINISHED GRADE--PROVIDE OUTLETS AT LEAST EVERY 50FT. REPLACE AND COMPACT WITH FILL MATERIAL GEOTEXTILE KEYSTONE STANDARD UNITS - MIN. 2 LEVELING PAD BELOW GRADE TYPICAL GRAVITY SECTION

STANDARD UNIT - 1" SETBACK

SCALE: NONE

STANDARD UNITS - 1" SETBACK SCALE: NONE - KD5S



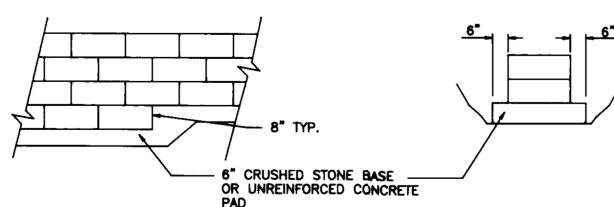


2) THE FOUNDATION SOIL MUST BE EXAMINED BY A

STRENGTH.

MARYLAND REGISTERED PROFESSIONAL ENGINEER

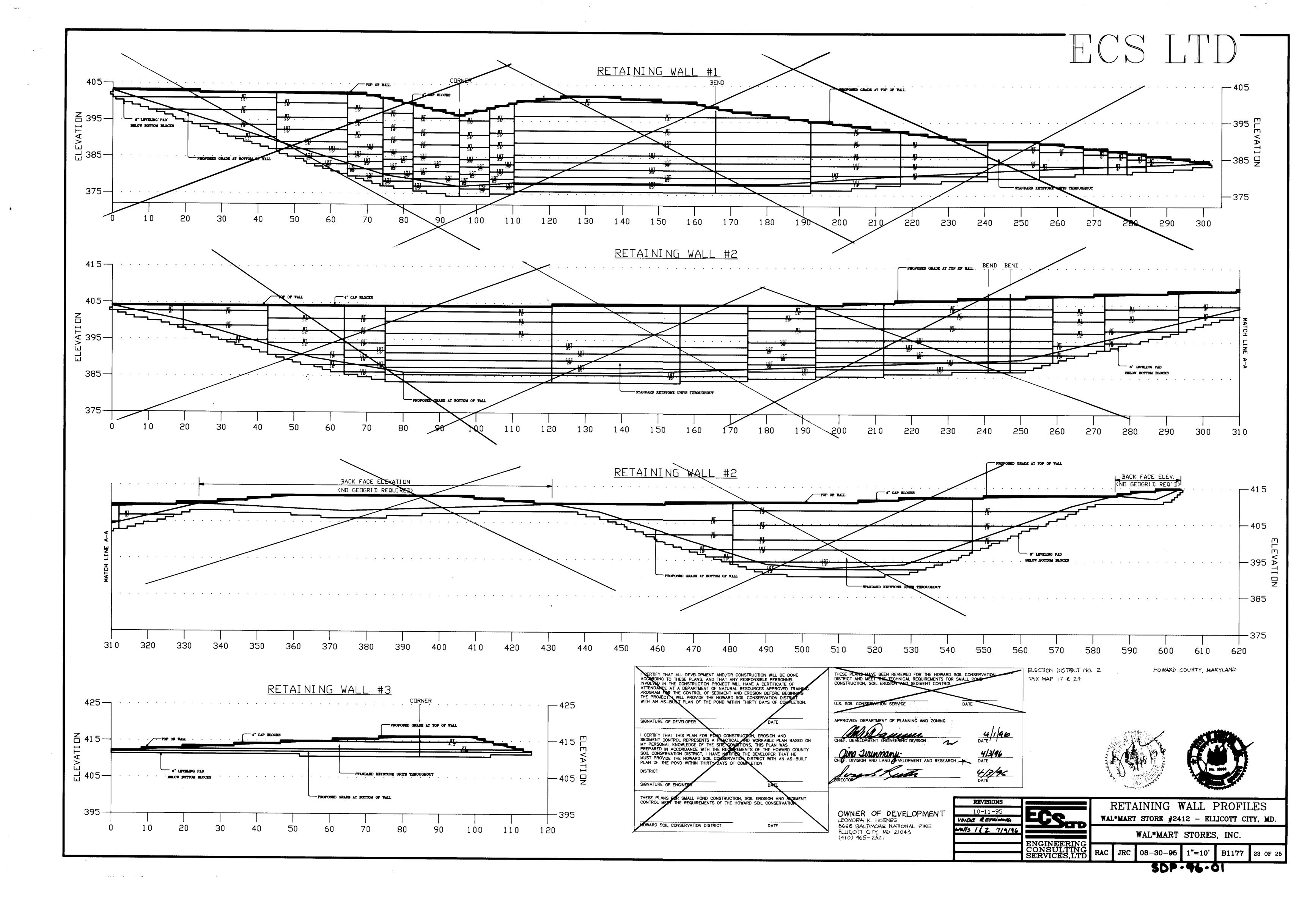
TO ASSURE THAT THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS ASSUMED DESIGN

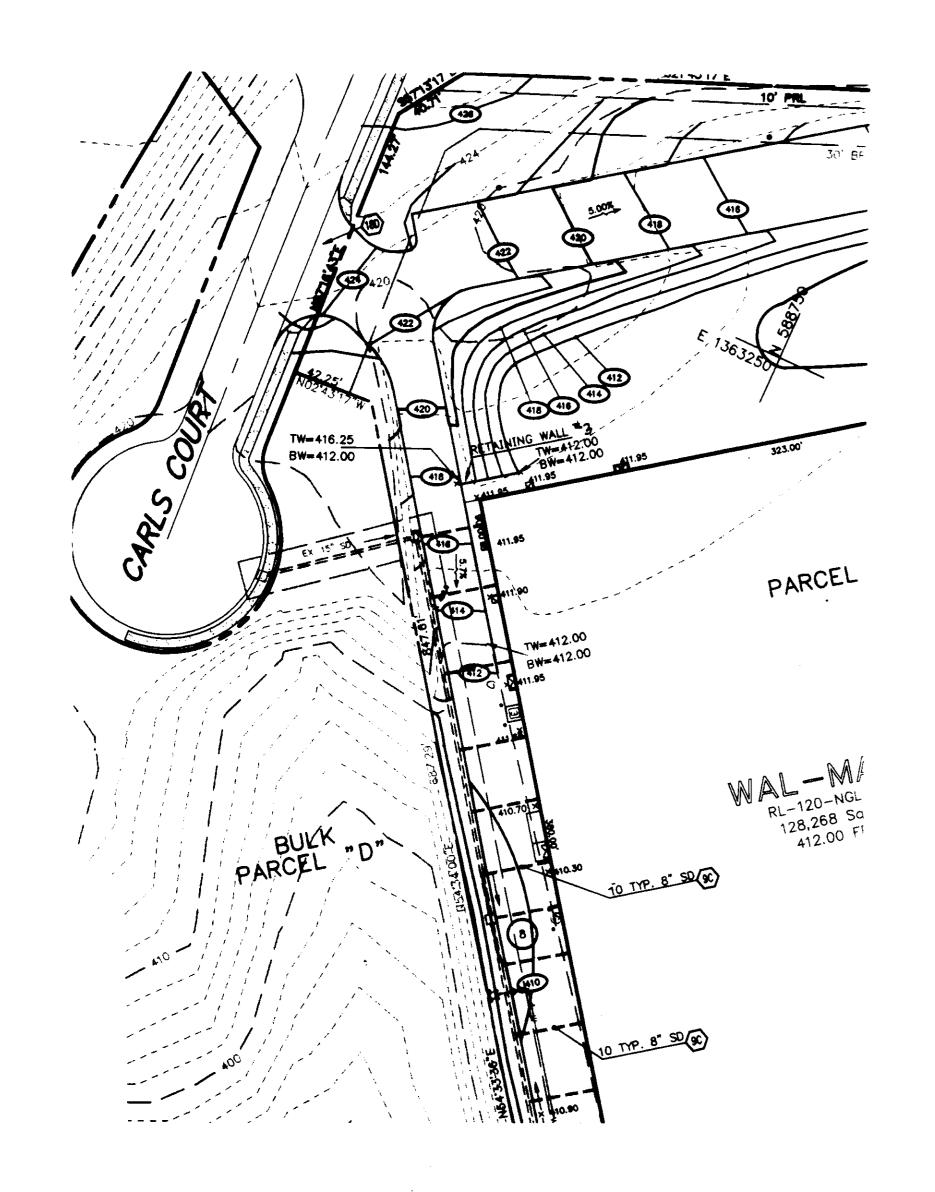


LEVELING PAD AND STEP DETAILS

SCALE: NONE - KD24

NOTE: REFER TO SHEET 25 OF 25 FOR RETAINING WALL SPECIFICATIONS





DESIGN PARAMETERS

See Profiles

WALL PROMETRY

Expeced Height:

Back Better of Face (deg): 7.1° See Profiles Minimum Block Embedment: 2H:1V (= 26.6°) Meximum Backfill Slope:

REMFORCED FILL ZONE Density of Backfill (pcf):

125 32° Phi (deg): Cohesion (psf):

RETAINED ZONE

125 Density (pcf): 32° Phi (deg): 25 Cohesion (psf):

FOUNDATION SOIL

Density (pcf): Phi (deg): Cohesion (psf):

Allowable Bearing Pressure (psf): 0'<H<10': 2,000

10'<H<20': 4,000 20' < H < 25': 5,000 Where "H" is the total wall height from leveling pad to

125

32°

top of wall Crushed Stone (AASHTO #57), or Leveling Pad: Graded Aggregate (MDOT CR-467)

MINCHARGE LOADS Surcharge (pef):

Unpeved Areas: 0 Parking Stalls: 125 Truck Lanes: 250

MODULAR PLOCK DATA Modular Block System:

Block Type:

Unit Fill:

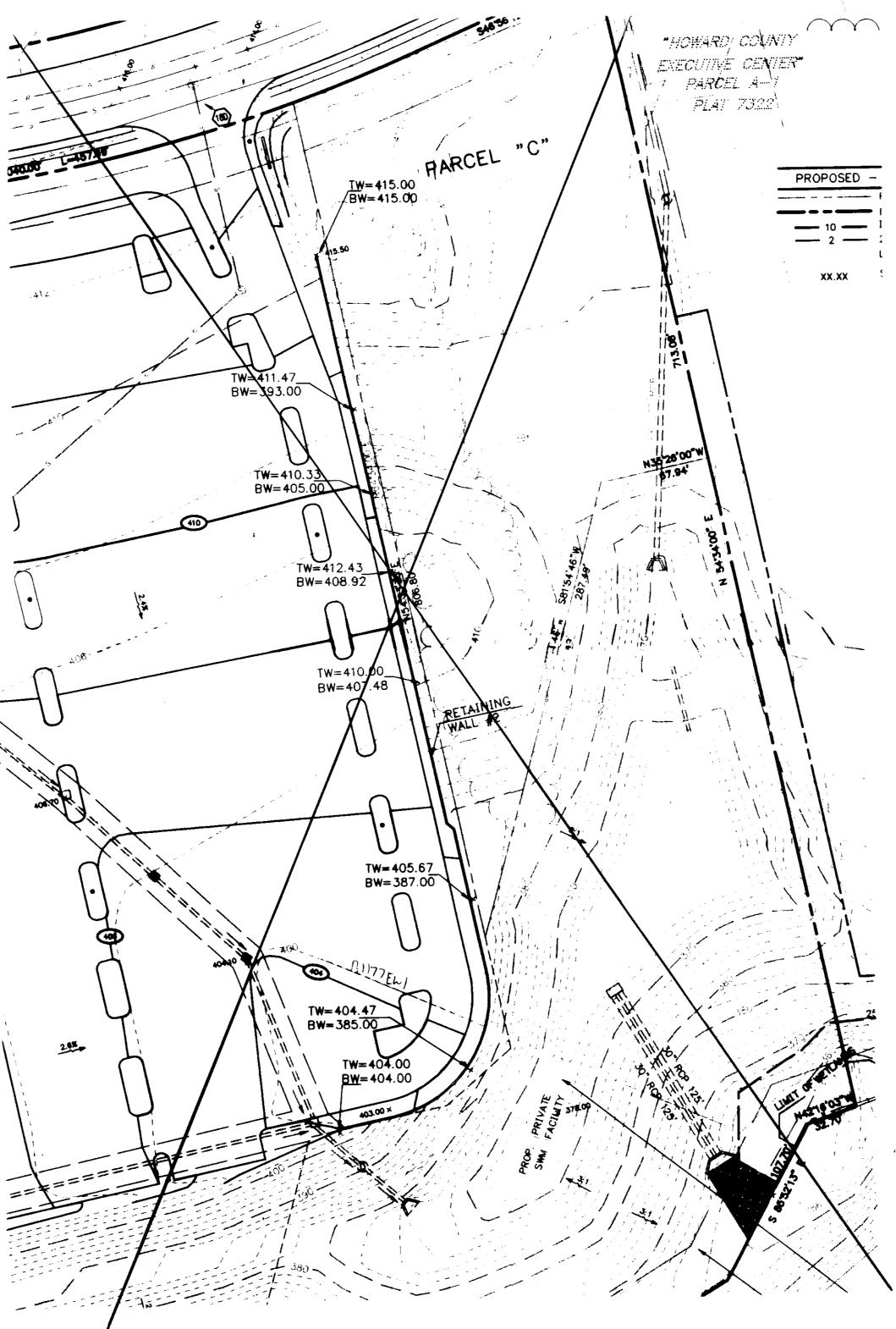
GEOGRID DATA

Geogrid Type: Coverage of Geogrids (%): Construction Damage Based on:

Keystone Blocks and Caps Keystone Standard Units (Straight Face), with 4" Cap Units Crushed Stone (AASHTO # 57)

Mirafi (or approved equivalent; See Profiles)

Sand, Silt, or Clay



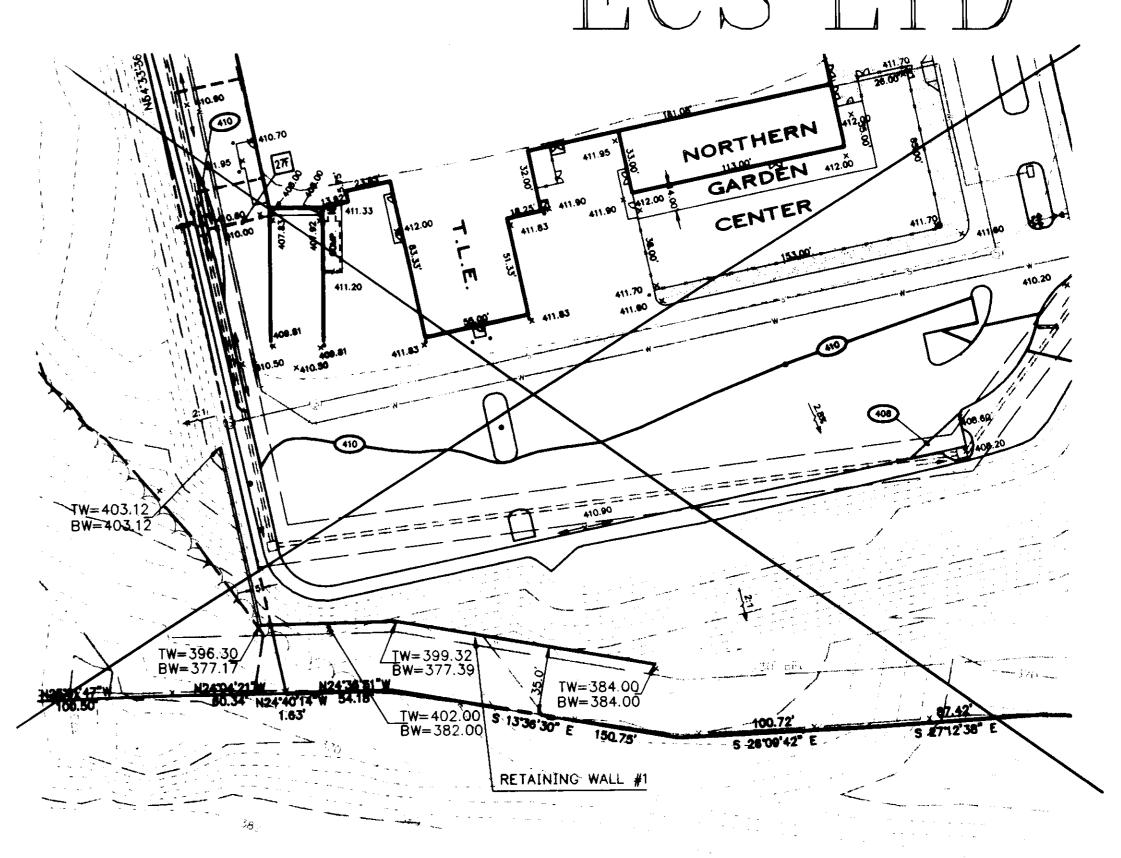
FACTORS OF SAFETY F.S. against Sliding: F.S. against Overturning: 2.0 F.S. against Bearing Capacity Failure 3.0 F.S. against Global Instability: F.S. against Uncertainties: 1.5 F.S. against Geogrid Pullout: 1.5

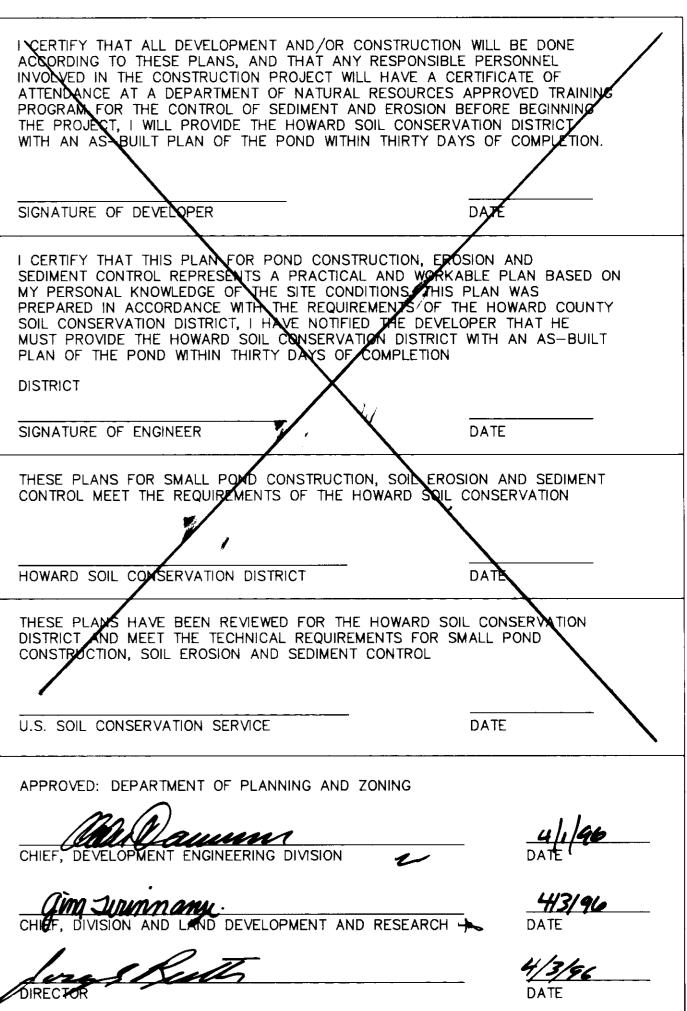
NOTE: The design is based on a local borrow source with a Unified Soil Classification System Designation of SM or better for the Reinforced Backfill and a soil friction angle of 32° or better.

.....

MOTE: Site Plan Taken From CEI Engineering Associates, Inc. Grading Plan, Latest Revision Dated 7-21-95, Scale: 1" = 50'

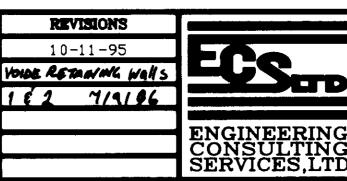
OWNER OF DEVELOPMENT LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE FLUCOTT CITY, MD 21043 (410) 465-2321







ELECTION DISTRICT NO. 2 HOWARD COUNTY MARYLAND TAX MAP 17 \$ 24



RETAINING WALL SITE PLANS WAL*MART STORE #2412 - ELLICOTT CITY, MD.

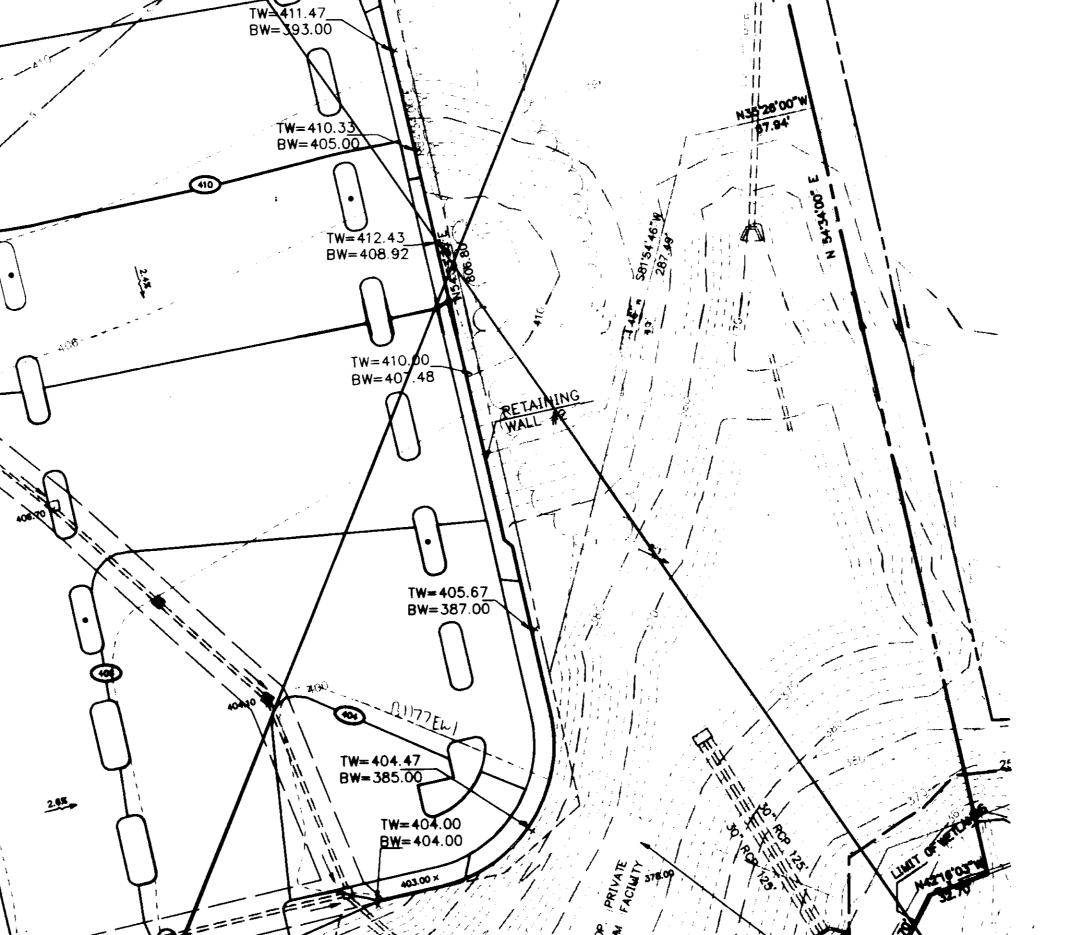
WAL*MART STORES, INC.

JRC 08-30-95

NTS

B1177 22 OF 25

SDP-96-01



- ANCHOR POSTS SHOULD BE

MINIMUM 2" STEEL U' CHANNEL

OF 2" X 2" TIMBER, 6" IN LENGTH

15E 2" 84"

LUMBER FOR

CROCKS BRACING

ACRES

(1/10 acre)

66.33 XC

66.35 AC

9.95

5.23

8.671

SITE PREPARATION FOR PLANTING

Undisturbed Sites: Soils disturbance should be limited to the planting field for each plant. Planting field is a new term that reflects a change in recommended planting specifications. Research has shown that root systems of trees planted in the traditional holes with amended soils are likely to remain confined to the amended soil area. Such trees have lower survival rates. A planting field of radius = 5 x diameter of the root ball is recommended.

On steep slopes or erodible soils, soil disturbance should be limited to the planting field whose radius is equal to 2.5 diameter of the root ball.

Disturbed Areas: Soils should be treated by incorporating natural mulch within the top 12 inches or by amendments as determined by a soils analysis. Soil amendments, by definition, include modifications of soils to improve such structural characteristics as bulk density or porosity. On development sites, the common use of fill materials may increase the need for such amendments. Natural amendments such as organic mulch or leaf mold compost are preferred.

When fill material is used at the planting site, it should be clean fill topped with 12 inches of native soil. Stockpiling of native top soils must be done in such a way that the height of the pile does not damage the seed bank.

Planting Period: Planting windows are the time during the year when, depending on the size stock being used, planting windows differ. Recommended planting windows are shown in Exhibit M - 1

d. Plant Material Storage: Planting should occur within 24 hours of delivery to the site. Plant materials left unplanted for more than 24 hours should be protected from direct sun and weather and kept moist. Bare root stock unplanted for more than 24 hours should be heeled in as shown in Exhibit M - 2. Nursery stock should be planted within 2 weeks. On-site or local transplanted materials should be stored in tree banks if unplanted for more than 24 hours, following the example

On Site Inspection: Planting stock should be inspected prior to planting. Plants not conforming to standard nurseryman specifications for size, form, vigor, roots. trunk wounds, insects and disease should be replaced.

PLANT INSTALLATION

Seedlings/Whips: Small stock, such as seedlings and whips, and ball and burlap stock up to 2" caliper, can be planted by manual methods of planting using shovels, planting or dibble bars, and mattocks (See Exhibit M - 4). For large areas, planting machines are occasionally used but have the drawback of creating linear, plantation-type forests.

Extreme care should be taken to insure retained moisture of the roots. When planting seedlings and whips, a moist carrying container should be used to prevent desiccation (See Exhibit M - 5). For greater protection, seedlings may be planted

Areas planted with seedlings or whips should be mulched after planting as shown

GENERAL GUIDANCE FOR MAINTENANCE OF PLANTED AREAS

Watering: A watering plan should only be implemented to compensate for deficient ainfall patterns. Trees can die from too much water as well as too little. Newly planted trees may need water as much as once a week for the entire first growing season. The next two years, in contrast, may require watering only a few times a year (one a month during July and August). After that, trees should only need water in severe droughts. Bare root transplants, if sufficiently watered during planting, may not need water for almost 2-4 weeks after growth begins. Balled and burlap material may require more frequent watering.

Soil and Watering: Soil texture influences the downward flow of water. Soils with more clay tend to retain more water and can be watered less often; soils with more sand drain more quickly and need to be watered more often. For examples of onsite evaluation recommendations. If the soil was well prepared before planting, there should be few drainage problems. Restricted downward penetration indicates the soil may have been compacted during construction and not aerated before planting, or there may be a clay hardpan.

How to Water: The best way to water is deeply and slowly using a regular hose, a soaker hose, or drip irrigation. For larger trees, start by watering the root ball thoroughly. The watered area shall be enlarged to include the whole root zone as the tree becomes more established. Mulching around the base of newly transplanted trees prevents roots from drying too quickly while still providing air movement to the roots.

PLANTING SPECIFICATIONS

Fertilizing: Fertilizing is the chemical modification of soils to correct for a specific nutrient deficiency. These deficiencies are most effectively identified in a laboratory soils analysis. Nothing should be added to the soil without first testing to determine any nutrient needs.

> What Nutrients to Apply: Trees depend on three major nutrients, nitrogen, phosphorus, and potassium and a host of other minor ones (or micronutrients) such as calcium, magnesium and iron. In most soils, most of the micronutrients are available in abundance. Of the major nutrients, nitrogen is usually the limiting

When to Fertilize: Even when soils are deficient in nitrogen, fertilizing within the first growing season after planting is not recommended. Too much nitrogen may cause a spurt of canopy growth which the roots cannot support. It is, therefore, best to wait until after the end of the first growing season, either in the late fall or

What Type of Fertilizer: Organic fertilizers are preferred to synthetic fertilizers. Bone meal or seaweed based products are available commercially. Organic fertilizers have a slow-release effect that can supply nutrients to the plant as needed while minimizing the risk of excess nutrients entering the forest system and the water supply. Some synthetic fertilizers can mimic this slow-release action and may be appropriate for use.

Control of Competing Vegetation: Unfortunately, good sites for reforestation and afforestation are generally good sites for unwanted vegetation as well. Unwanted vegetation growing near newly planted trees can take over the site. The need to control this problem depends on the ability of the planted material to withstand the intrusion. Smaller trees may need more care, although some seedlings survive with the overgrowth and will shade it out as the trees grow. As a preventative measure, consider the potential for growth of invasive species while choosing a reforestation or afforestation area.

the root area of the newly planted trees avoiding direct contact with the trunk, a prime spot for fungal growth. (Mulch also helps maintain the soil moisture level and may provide a buffer for any equipment such as mowers that may be used to maintain the area.) Mulching and manual control of competing vegetation is more compatible with the long term forest health than the use of herbicides.

Mulch is one of the best weed deterrents. Spread a 2" to 4" layer of mulch over

Protection: Pests, Diseases and Mechanical Injury.

-THIN TREES OF REDUCING CROWN BY

TELE WRAP, EURLAP, OR EQUAL.

2 PIECES 1/2" RUBBER HOSE.

WIRE TWISTED FOR SUPPORT.

-2"-3" MULCH

-2"-3" EARTH SAUCER.

DECIDUOUS TREE

NOT TO SCALE

- MANTING MIXTURE EACKFILL.

APPROXIMATELY 30%. DO NOT REMOVE MAIN

LEADER, MAINTAIN A BALANCED BRANCHING HABIT,

AND MAKE ALL CUTS FLUSH TO PEMAINING RPANCHES.

. 4" STRIP OF WATERPROOF 30.30.30 'KRINKELKRAFT'

-2 pollere strailed of 14 galge galvanized

2. 2.2 UPRIGHT STAYES - PLACE PARALLEL TO

HALKS AND BUILDINGS-EXTEND TO FIRM BEARING.

·FINICH GRADE - 2:1 SLOTE MAXIMUM.

- 1/8 DEPTH OF ROOT BALL SET ADONE FINISH GRADE.

-CUT AND REMOVE TOP 1/2 OF BURLAP FROM ROOT BALL

(2 1/2"-3" CAL. AND SMALLER) PLANTING DETAIL

-UNDICITUADED SUBGRADE BELOW POOT BALL

Integrated Pest Management (IPM) is one of the most effective and safest approaches for maintaining a healthy forest. IPM basics include proper species selection for the site, good pruning, mulching and fertilizing practices, regular monitoring, and proper timing of necessary sprays. Good cultural practices will minimize the amount of spraying. Professional IPM programs have reduced pesticide use by 90%. Some aspects of a full IPM program include:

1) Elimination of some low vegetation before planting to help control the rodent population which thrives in brushy environments.

2) Use of tree shelters to protect the trunks of seedlings or whips from animal damage. The shelters act as mini-greenhouses to speed growth. (These trees need more water than those planted without tree shelters, however.) Mulching around the trees to minimize trunk damage from mowers.

Wounds provide an entry way for pests. Pruning dead and diseased branches with a clean cut to prevent establishment or spreading of disease.

Sunscald is a problem for thin barked young trees. Tree wrap was commonly used to protect trees from sunscald but is no longer recommended due to the increased opportunities for insect infestallen and disease. An alternative to wrapping is to allow small non-competitive branches, commonly pruned during or before planting, to grow on the sunny side of the trunk to help shade the trunk.

FOREST RETENTION SIGNAGE

HIGHLY VISABLE FLACTING. MAXIMUM BFEET MENEN WE MENENENEN WEATHER OF THEME ANCHOR POSTS MUST BE USE B"WIRE INSTALLED TO A DEPTH OF 'U' TO SECURE NO LEGS THAN 1/3 OF THE. FENCE BOTTOM TOTAL HEIGHT OF POST

Forest protection device only. Retention Area will be set as part of the review process. Boundaries of Retention Area should be staked and flagged prior to installing device. Root damage should be avoided. Protective signage may also be used.

Device should be maintained throughout construction.

FOREST RETENTION DETXILS

----- Min 11`----**FOREST** RETENTION AREA MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS **PROHIBITED** VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF

ATTACH SIGHAGE SECURELY TO TREE PROTECTION DEVICE POSTS @ :200 00. SIGHS SHALL BE BRIGHT RED OR ORAHGE IN COLOR WITH A

less than C), afforestation requirements apply.

GO TO SECTION V

REFORESTATION CALCULATIONS

BASIC SITE DATA

GROSS SITE AREA

NET TRACT AREA

AREA WITHIN 100 YEAR FLOODPLAIN

INFORMATION FOR CALCULATIONS

NET TRACT AREA

Reforestation

(IF APPLICABLE)

AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL

LAND USE CATEGORY (R-RLD, R-RMD, P.-S, C/I/O, I) C/I/O

REFORESTATION THRESHOLD (__15 % x A)

DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

If existing forest areas equal or exceed the afforestation minimum (if

D equals or is more than C), and clearing of forest areas is proposed,

GO TO SECTION IV

If existing forests exceed the afforestation minimum (if D equals or is

more than C) and no clearing of existing forest resources is proposed,

If existing forest area are less than the afforestation minimum (if D is

no reforestation is required. No further calculations are needed.

AFFORESTATION MINIMUM (___15__ % x A)

EXISTING FOREST ON NET TRACT AREA

FOREST AREAS TO BE CLEARED

FOREST AREAS TO BE RETAINED

reforestation requirements may apply.

NET TRACT AREA REFORESTATION THRESHOLD (15 % x A) EXISTING FOREST ON NET TRACT AREA FOREST AREAS TO BE CLEARED 5.23 FOREST AREAS TO BE RETAINED FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD 4.15 (D - F, if F equals or is greater than B, Alternate 1) (D - B, if F is less than B, Alternate 2) FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD 1.06

(B - F, if applicable)

FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F - B, Retention Credit, if applicable)

Select the alternative that applies:

Clearing above the threshold only

If forest areas to be retained equal or are greater than the reforestation threshold (if F equals or is greater than B), the following calculations apply:

REFORESTATION FOR CLEARING ABOVE THRESHOLD N. , K. CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD H.A. I = Retention Credit TOTAL REFORESTATION REQUIRED $(G \times 1/4) - I$

If the total reforestation requirement is equal to or less than 0, no reforestation is required.

Clearing below the threshold

If forest areas to be retained are less than the reforestation threshold (if F is less than B), the following calculations apply:

REFORESTATION FOR CLEARING ABOVE THRESHOLD REFORESTATION FOR CLEARING BELOW THRESHOLD 2.16 3.2000 TOTAL REFORESTATION REQUIRED $(G \times 1/4) + (H \times 2)$

Since clearing occurs below the threshold, no forest retention credit is

A TOTAL OF 15 ACRES OF REFORESTATION HAS BEEN INDICATED ON THE PLAN (SEE SHEET 1). THIS PLANTING SHALL BE 12 CAL WIRSERY STOCK, PLANTED AT A DENSITY OF 150 PEP ACRE, APPROXIMATELY & O.C. - SEE DETAILS AND PLANTING SPECIFICATIONS

SEEDLINGS SHALL BE COMPOSED OF THE FOLLOWING SPECIES. LOW LYING HETLAND AREAS AND WETLAND BUFFERS:

± 40% ± 30% ± 30%	RED MAPLE BLACK GUM STCAMORE	ACER RUBRUH HYSSA STLYATICA PLATAHUS OCCIDENTAL
ALL OTHER	AREAS:	
± 30 % ± 20 %	TULIP TREE RED MAPLE	LIRIODENDRON TULIPIFEI

APPROVED: DEPARTMENT OF PLANNING AND ZONING Musamu JIM JUMMONY 4/3/96

WEF, DIVISION AND CAND DEVELOPMENT AND RESEARCH (No DATE

CONTRASTING COLOR LETTERING

HANDLING SEEDLINGS IN THE FIELD



Correct In bucket with sufficient water to cover roots



Incorrect In hand: roots dry out. MULCH __

SKEDLING MULCHING DETAIL

REFORESTATION SIGNAGE

Forest

Conservation Area

REFORESTATION

PROJECT

Trees for Your

Future

ATTACH SIGNAGE TO STEEL ""

OWNER OF DEVELOPMENT

8668 BALTIMORE NATIONAL PIKE

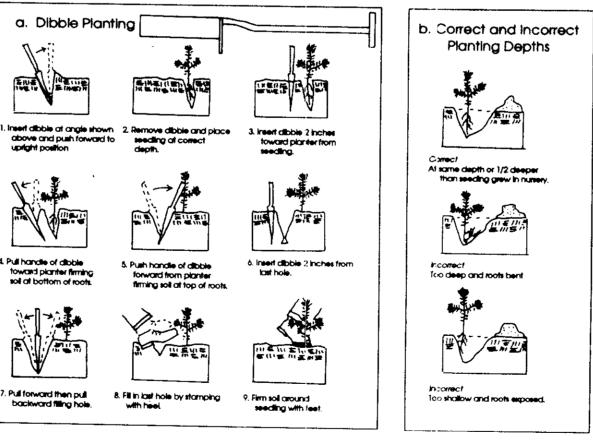
LEONORA K. HOENES

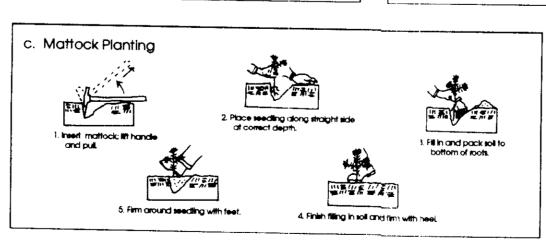
CHANNEL POSTS. LOCATE AT PERIPHERY

OF PEFORESTATION APEAS @ \$ 200' O.C.

SIGHS SHALL BE BRIGHT RED OF ORMHIGE WITH A CONTRASTING COLOR LETTERING.

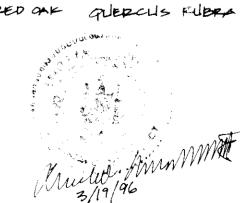
SEEDLING PLANTING DETAILS





REFORESTATION DETAILS ELLICOTT CITY, MD 21043 (410) 465-2321 TAX MAP 17 & 24

BLACK GUM NYSSA SYLVATICA HORTHERH RED ONK QUERCUS FUERA 110%

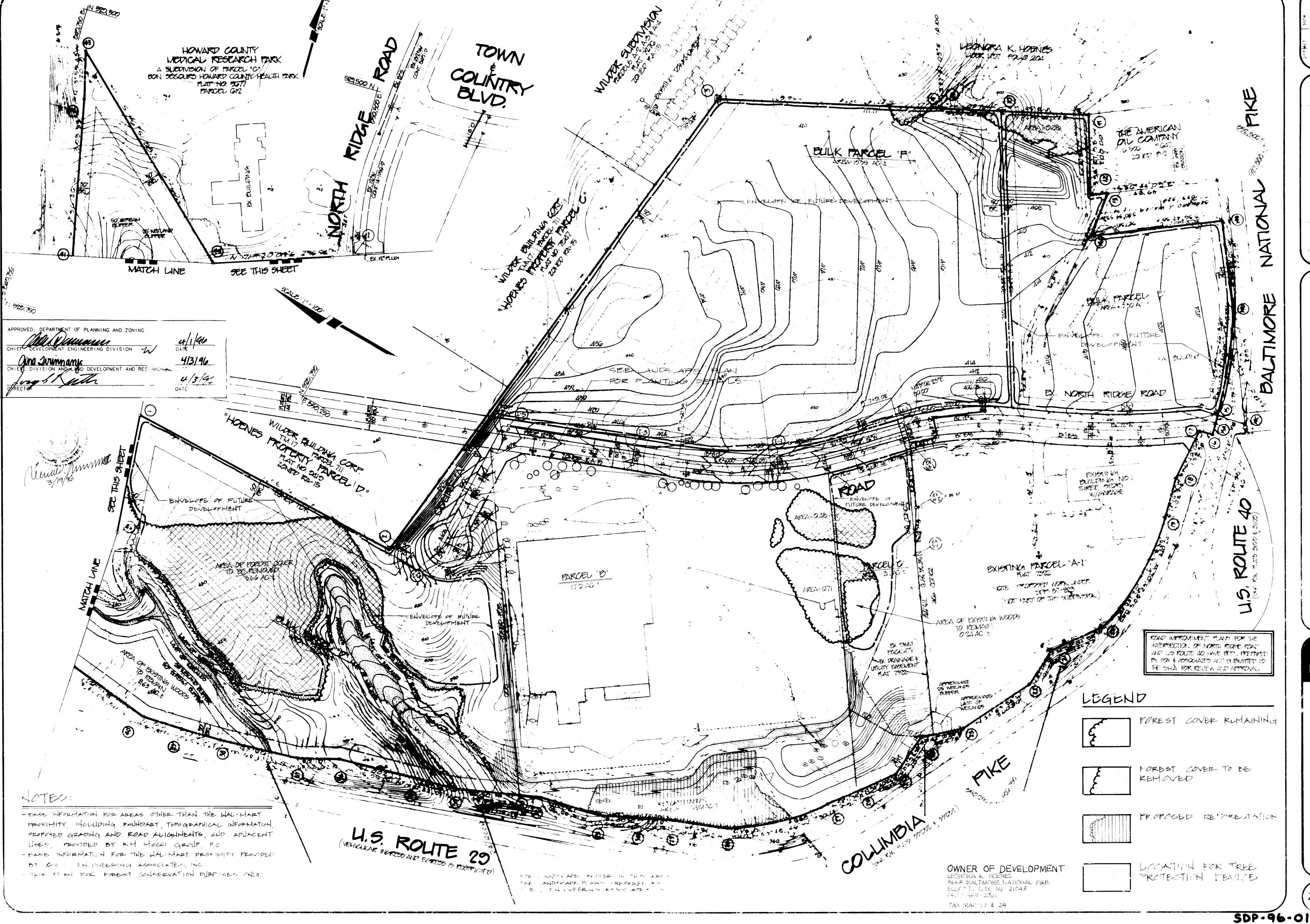


SHEET: 21 of 25

SDP-96-01

£ 25 5 \triangleleft MM

 \geq



SOIL BORINGS BY ECS, LTD

SOIL BORINGS BY ATEC ASSOC., INC.

NOTE:
SOIL BORING LOCATIONS ARE APPROXIMATE.
RECENT BORING ARE STILL LOCATED IN THE FIELD,
HOWEVER CONTRACTOR SHOULD COMPLETE THEIR OWN BORING IF ADDITIONAL INFORMATION IS REQUIRED FOR MASS GRADING.

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFFESIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

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

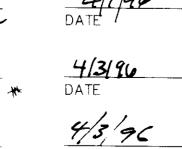
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL

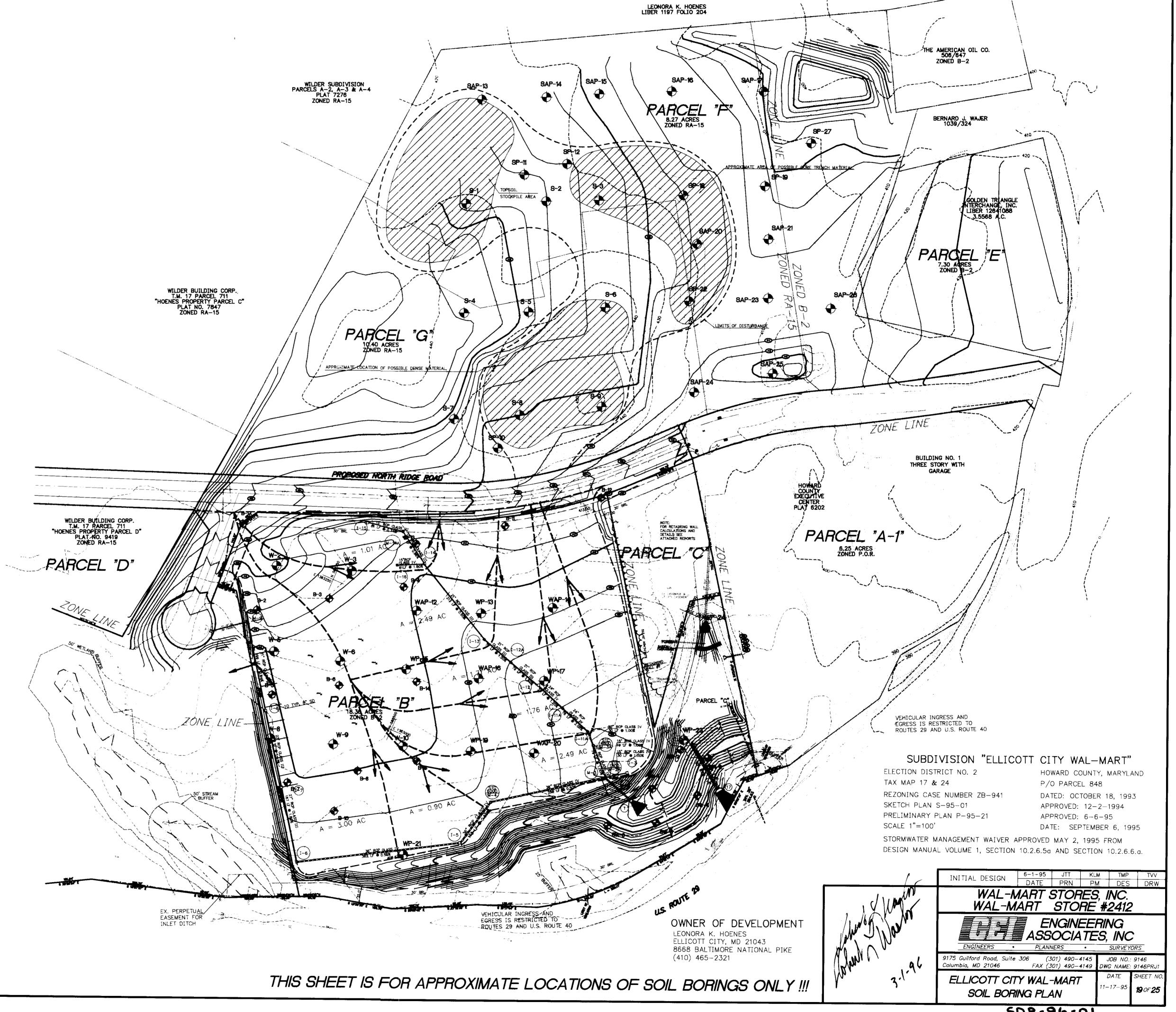
- NATURAL RESOURCES CONSERVATION SERVICE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

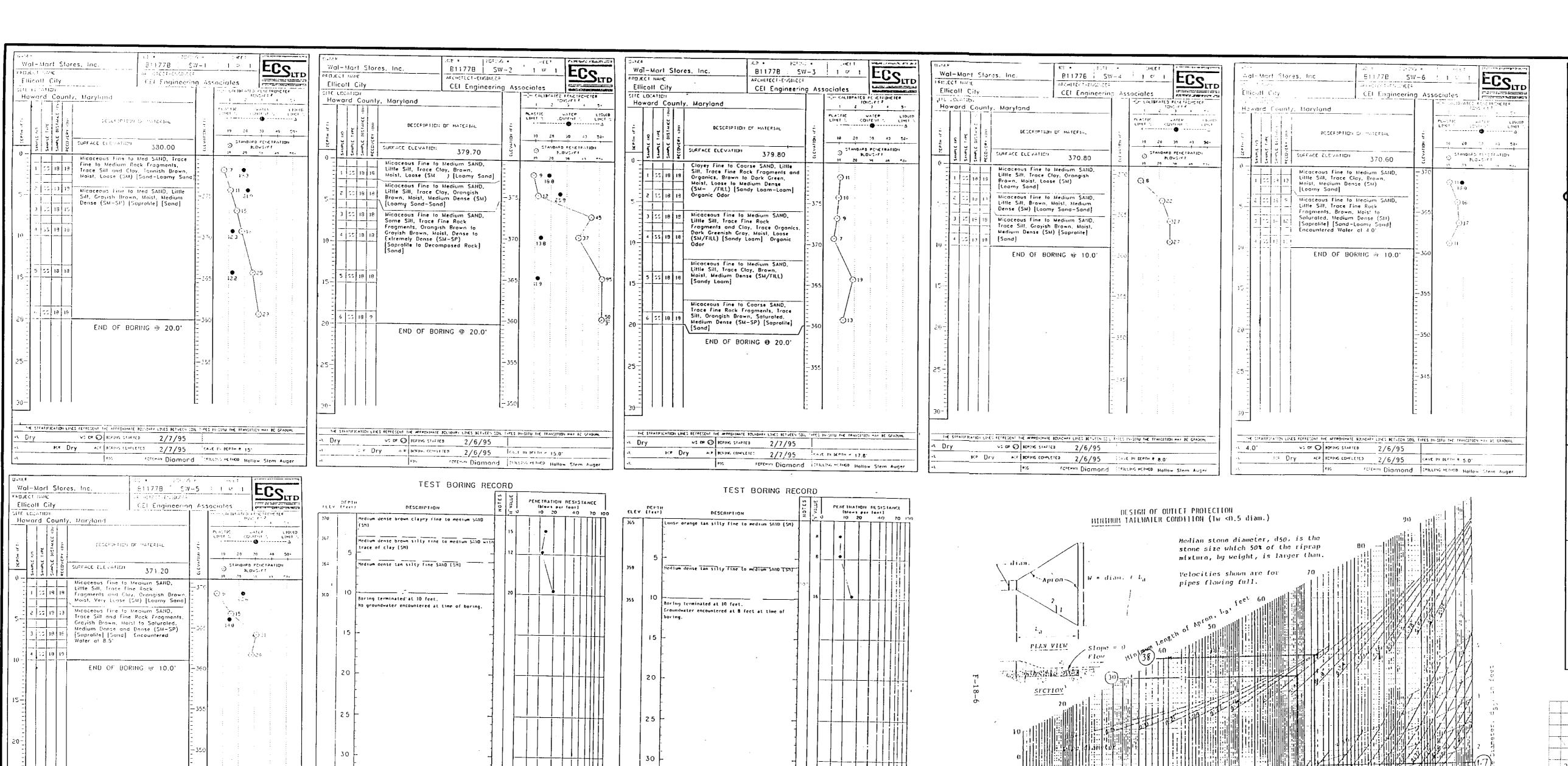
CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION AND LAND DEVELOPMENT AND RESEARCH *





SDP-96-01



POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds—compaction shall be achieved by a minimum of four within the scope of the Standard for practice MD-378. complete passes of a sheepsfoot, rubber tired or All references to ASTM and AASHTO specifications vibratory roller. Fill material shall contain sufficient

and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and Where a minimum required density is specified, it shall other objectionable material shall be removed. Channel — not be less than 95% of maximum dry density with a banks and sharp breaks shall be sloped to no steeper moisture content within $\pm 2\%$ of the optimum. Each

all trees, brush, logs, fences, rubbish and other determined by AASHTO Method T-99, objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut Cut Off Trench - The cutoff trench shall be excavated approximately level with the ground surface. For dry into impervious material along or parallel to the center(ne

outside and below the limits of the dam and reservoir feet below existing grade or as shown on the plans. as directed by the owner or his representative. When The side slopes of the trench shall be 1 to 1 or flatter. in a suitable location for use on the embankment and equipment, rolers, or hand tampers to assure maximum other designated areas.

conform to Unified Soil Classification GC, SC, CH, or compaction equipment. The material needs to fill CL. Consideration may be given to the use of other completely all spaces under and adjacent to the pipe. are supervised by a geotechnical engineer.

layers which are to be continuous over the entire structure or pipe. length of the fill. The most permeable borrow material shall be placed in the downstream portions of the Pipe Conduits embankment. The principal spillway must be installed concurrently with fill placement and not excavated. All pipes shall be circular in cross section.

Compection - The movement of the hauling and shall apply for corrugated metal pipe: spreading equipment over the fill shall be controlled

so that the entire surface of each lift shall be traversed. by not less than one tread track of the equipment or moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet Areas designated for borrow areas, embankment, that water can be squeezed out.

layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at Areas to be covered by the reservoir will be cleared of the time of construction. All compaction is to be

stormwater management ponds, a minimum of a 50 of the embankment as shown on the plans. The foot radius around the inlet structure shall be cleared. bottom width of the trench shall be governed by the equipment used for excavation, with the minimum All cleared and grubbed material shall be disposed of width being four feet. The depth shall be at least four specified, a sufficient quantity of topsoil will be stockpiled. The backfill shall be compacted with construction density and minimum permeability.

FOREMAIN Diamond PERCENS NETHER Hollow Stem Auger

designated borrow areas. It shall be free of roots, type and quality conforming to that specified for the stumps, wood, rubbish, stones greater than 61, frozen acjoining fill material. The fill shall be placed in horizontal or other objectionable materials. Fill material for the layers not to exceed four inches in thickness and center of the embankment and cut off trench shall compacted by hand tampers or other manually directed materials in the embankment if design and construction — At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Placement - Areas on which fill is to be placed shall be Under no circumstances shall equipment be driven scarified prior to placement of fill. Fill materials shall be over any part of a concrete structure or pipe, unless placed in maximum 8 inch thick (before compaction) there is a compacted fill of 24° or greater over the

Compated Metal Pipe - All of the following criteria

Material - The fill material shall be taken from approved Backfill adjacent to pipes or structures shall be of the materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for 4. Backfilling shall conform to "Structure Backfill pipes less than 24" in diameter: flanges on both ends of the pipe, a 12t wide standard tap type 5. Other details (anti-seep collars, valves, etc.) shall band with 12' wide by 3/8' thick closed cell circular

Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with waterlight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plasti-Cote, Blac-Mad, and Beth-

SHEET ____ of_____

the requirements of AASHTO M-245 and M-246. Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be

Cu-Loy, Coated corrugated steel pipe shall meet

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements watertight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one cost of zinc chromate 1.

connections. The pH of the surrounding soils shall be between 4 and 9. 2. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar

primer. Hot dip galvanized botts may be used for

Connections - All connections with pipes must be completely watertight. The drain pipe or barrel 3. Laying pipe - Bell and spigot pipe shall be placed

be as shown on the drawings.

neoprene gasket; and a 12' wide hugger typ band with 0-ring gaskets having a minimu diameter of 1/2" greater than the corrugation dept. Pipes 24" in diameter and larger shall be connected by a 24' long annular corrugated band using roc and lugs. A 12' wide by 3/8' thick closed ce circular neoprene gasket will be installed on the end of each pipe for a total of 24°.

Helically corrugated pipe shall have either continuously walded seams or have lock seam with internal caulking or a neoprene bead.

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

replaced with cold applied bituminous coating 5. Backfilling shall conform to "Structure Backfill."

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings, of AASHTO Specification M-196 or M-211 with Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361.

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

with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the

Polyring Chloride (PVC) Pipo - All of the following and maintain all temporary dikes, levees, cofferdams. criteria shall apply for polyvirryl chloride (PVC) pipe:

BORING HUMBER WP-22

DATE DRILLED 12/7/91 JOB NUMBER 5627015

be completely waterlight.

Bedding - The pipe shall be firmly and uniformly

Backfilling shall conform to "Structure Backfill" Other details (anti-seep collars, valves, etc.) shall

be as shown on the drawings.

Concrete shall meet the requirements of Maryland excavations, the water level at the locations being Department of Transportation, State Highway refilled shall be maintained below the bottom of the Administration Standard Specifications for Construction excavation at such locations which may require draining and Materials, Section 608, Mix No. 3

Rock riprap shall meet the requirements of Maryland

uniformly distributed and firmly in contact one to

the larger rocks. Filter cloth shall be placed under all

and Materials, Section 905.

and Materials, Section 919.12.

Care of Water during Construction

another with the smaller rocks filling the voids between Erosion and Sediment Control

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct

Department of Transportation, State Highway All borrow areas shall be graded to provide proper Administration Standard Specifications for Construction drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding. The riprap shall be placed to the required thickness in liming, lertilizing and mulching in accordance with the one operation. The rock shall be delivered and placed Maryland Soil Conservation Service Standards and in a manner that will insure the riprap in place shall be Specifications for Critical Area Planting (MD-342) or as reasonably homogeneous with the larger rocks shown on the accompanying drawings.

riprap and shall meet the requirements of Maryland — Construction operations will be carried out in such a Department of Transportation, State Highway manner that erosion will be controlled and water and Administration Standard Specifications for Construction air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail trosion and sediment control measures to be employed during the construction process.

drainage channels, and stream diversions necessar; to protect the areas to be occupied by the permanent Materials - PVC pipe shall be PVC-1120 or PVC- works. The contractor shall also furnish, install, operate, 1220 conforming to ASTM D-1785 or ASTM D- and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the Joints and connections to anti-seep collars shall excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works bedded throughout its entire length. Where rock shall be removed or leveled and graded to the extent a sat spongy a other unstable soil is encountered, required to prevent obstruction in any degree all such material shall be removed and replaced whatsoever of the flow of water to the spillway or outlet with suitable earth compacted to provide adequate works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory. performance of all construction operations. During the placing and compacting of material in required the water to sumps from which the water shall be pumped.

VELOCITY

Discharge, cfs

. THE Q SHOWN FOR STRUCTURE 17 IS A 100 YEAR DESIGN FLOW FOR EACH PIPE

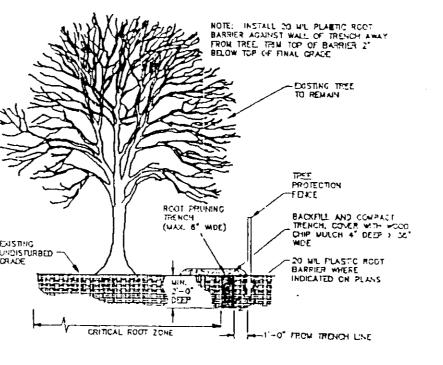
RIP-RAP SCHEDULE

CONTRACTOR TO EMPLOY THE RECOMMENDATIONS CONTAINED WITHIN THE GEOTECHNICAL REPORT PREPARED BY ECS, LTD. DATED FEBRUARY 27, 1995, INCLUDING, BUT NOT LIMITED TO:

1. OFF-SITE CLAY MATERIAL WILL BE NEEDED FOR CORE CONSTRUCTION 2. USE CARE IN ADEQUATELY BENCHING THE NEW CORE INTO THE EXISTING

CORE AND PERFORM IT WHILE UNDER GEOTECH SUPERVISION. 3. THE CORE TRENCH MUST BE DEWATERED DURING CONSTRUCTION.

4. A SHEEPSFOOT ROLLER MUST BE USED FOR COMPACTION.



OWNER OF DEVELOPMENT LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD 21043 (410) 465-2321

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS. AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL MEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARE.

ONSELVATION OF THE HOWARD SOIL.

CONSELVATION OF THE HOWARD SOIL.

ENGAGE A REGISTER OF ROFFESIONAL ENGINEER TO SUPERVISE POND ROFFESIONAL ENGINEER TO SUPERVISE POND
OF THE HOWARD SOIL CONSERVATION DISTRIC PROMOE THE HOWARD SOIL CONSERVATION DISTRICT WITH QE"THE POND WITHIN 30 DAYS OF COMPLETION.

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

IS**B**RVATION DISTRICT

DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL

MNSERVATION SERVICE

APPROVED: DEPARTMENT OF PLANNING AND ZONING Militanum CHIEF. DEVELOPMENT ENGINEERING DIVISION

DIVISION AND LAND DEVELOPMENT AND RESEARCH > DATE

4/3/96

GABION EMBANKMENT O LF CL II RIP-RAP ON FILTER FABRIC

PROFILE THROUGH FOREBAY EMBANKMENT

SCALE: HORIZ. 1"- 50"

SUBDIVISION "ELLICOTT CITY WAL-MART"

ELECTION DISTRICT NO. 2 TAX MAP 17 & 24 REZONING CASE NUMBER ZB-941 SKETCH PLAN S-95-01

PRELIMINARY PLAN P-95-21

HOWARD COUNTY, MARYLAND P/O PARCEL 848 DATED: OCTOBER 18, 1993 APPROVED: 12-2-1994 **APPROVED:** 6-6-95 DATE: SEPTEMBER 6, 1995

7-5-95 18 of 25

STORMWATER MANAGEMENT WAIVER APPROVED MAY 2, 1995 FROM DESIGN MANUAL VOLUME 1, SECTION 10.2.6.5a AND SECTION 10 2.6.6.a

 6-1-95
 JTT
 KLM
 TMP
 TVV

 DATE
 PRN
 PM
 DES
 DRW
 WAL-MART STORES, INC. WAL-MART STORE #2412 **ENGINEERING** ENGINEERS • PLATINERS • 1175 Gullford Road, Suite 306 (301) 490-4145 JOB NO.: 9146 Columbia, MD 21046 FAX (301) 490-4149 DWG NAME: 9146MISC

ELLICOTT CITY WAL-MART

POND SOIL BORINGS/MISC. DETAILS SDP-96-01

Excavation for the installation of the Stormceptor should conform to state highway or local specifications. Topsoil that is removed during the excavation for the Stormceptor should be stockpiled in designated areas and should not be mixed with subsoil or other materials. Topsoil stockpiles, and the general site preparation for the installation of the Stormceptor® should conform to state highway or local specifications.

The Stormceptor® should not be installed on frozen ground. Excavation should extend a minimum of 12 inches from the precast concrete surfaces plus an allowance for shoring and bracing where required. If the bottom of the excavation provides an unsuitable foundation additional excavation may be required.

In areas with a high water table, continuous dewatering should be provided to ensure that the excavation is stable and free of water.

Leveling

A 6 to 12 inch layer of granular material (conforming to local or state highway backfill specifications) should be installed, compacted, and leveled at the bottom of the excavation to the proper elevation for the installation of the interceptor

Backfill material should conform to state highway or local specifications. Generally, backfult material should be placed in uniform layers not exceeding 12 inches in depth. Each layer should be compacted to 95% of the maximum dry density. *Backfill is not to contain topsoil.

The concrete Stormceptor is installed in sections in the following sequence:

- 1. aggregate base
- base slab treatment chamber section(s)
- 4. transition slab (if required) by-pass section
- 6. connect inlet and outlet pipes 7. transition slab
- maintenance access way 9. frame and access cover

The precambase should be placed level at the specified grade. The entire base should be in contact with the underlying compacted granular material. Subsequent sections, complete with joint seals, should be installed in accordance with the precast concrete manufacturer's recommendations.

Adjustment of the Stormceptor® can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets should be replaced. Once the Stormceptor® has been constructed, the lift holes should be plugged with mortar.

Once the by-pass section has been attached to the treatment chamber the down

Down Pipe and Riser Pipe

pipe and riser pipe can be attached. To install these pipes a worker enters the treatment chamber through the central access way in the by-pass section.

STC 900, STC 1200, STC 1800

The infet pipe (pipe with the tee at the end) is Installed by coating the outside of the end of the pipe with quick dry PVC cement and pushing the pipe into the coupling provided on the underside of the by-pass section. The tee must be oriented such that water which enters the treatment chamber is directed tangentially around the inside walls of the chamber.

The outlet riser pipe (straight pipe without the tee) is installed in a similar fashion using the quick day PVC cement and coupling provided underneath the by-pass section near the description pipe.

SIC 2400, SIC 3600, SIC 4800, SIC 6000, SIC 7200

The inlet pipe (pipe with the tee at the end) is installed by coating the outside of the end of the pipe with lubricant and pushing the pipe into the pressure coupling provided on the underside of the by-pass section. The tee must be oriented such that water which enters the treatment enamber is directed tangentially around the

The outlet riser pipe (straight pipe without the tee) is installed in a similar fashion using pipe lubricant and a pressure coupling provided underneath the by-pass section near the downstream pipe.

Inlet and Outlet Pipes

Inlet and outlet pipes should be securely set into the by-pass chamber using grout or approved pipe scals so that the structure is watertight. Kor-N-Scal® boots are normally used and installed at the precast concrete plant prior to shipping. The Kor-N-Seal® boots are applicable for pipes with an outside diameter up to 46 inches. Stormcepter Corporation should be notified if the pipe is to be grouted in the field at the time of ordering (i.e. Kor-N-Seal® boots will not be used) since the boots are generally included in the price quotations.

Installation of the Kor-N-Seal® boots should follow the manufacturer's recommendations. As previously mentioned, the boots will already be attached to the Stormceptor® at the concrete plant. Accordingly, the following procedure should be followed to attach the inlet and outlet pipes to the Storniceptor® in the

1. Center the pipe in the boot opening

- 2. Lubricate the outside of the pipe and/or inside of the boot if the pipe ourside diameter is the same as the inside diameter of the boot 3. Position the pipe clamp in the groove of the boot with the screw at the
- Tighten the pipe clamp screw to 60 inch pounds 5. On minimum outside diameter installations lift the boot such that it contacts the bottom of the pipe while tightening the pipe clamp to ensure even contraction of the rubber.

6. Move the pipe horizontally and/or vertically to bring it to grade

Frame and Cover Installation

Precast concrete adjustment units should be installed to set the frame and cover at the required elevation. The adjustment units should be laid in a full bed of mortar with successive units being joined using sealant recommended by the manufacturer. Frames for the cover should be set in a full bed of mortar at the elevation specified

DEPARTMENT OF PUBLIC WORKS

James M. Irvin, Director May 2, 1995

CEI Engineering Associates, Inc. 9175 Guilford Road Suite 306 Columbia, Maryland 21046

Attn: Ms. Kim Morgan Re: Walmart - Ellicott City Waiver Request P-95-21

Dear Ms. Morgan:

I am writing in reference to your letter dated April 19, 1995 requesting a waiver from Design Manual Volume I, Section 10.2.3.D. prohibiting stormwater management facilities within wetlands or 100-year floodplains, Section 10.2.6.5.a. which requires a 12 level area around the entire facility for maintenance and Section 10.2.6.6.a. which requires that the side slopes of the facility be no steeper than 3:1 anywhere around the facility.

After reviewing the information enclosed with your request, this Department has decided to approve your request for a waiver to Design Manual Volume I, Sections 10.2.6.5.a. and 10.2.6.6.a.

This approval is based principally on:

- The waiving of the requirements would be in the best interest of the County.
- The facility is to remain as a privately maintained facility. A detailed Operation & Haintenance Schedule must be included at time of Final Plan submittal outlining the owners maintenance requirements.
- 3430 Courthouse Drive Ellicott City, Maryland 21043 (410) 313-4400 TDD 313-2323 Walmart - Ellicott City Waiver Request
- This department has decided, however, to deny your request for a waiver to Design Manual Volume I, Section 10.2.1.D.

This denial is based principally on that a disturbance of the wetlands buffer requires a waiver of the Subdivision and Land Development Regulations through the Department of Planning and Zoning not a Design Manual Waiver. Any wetlands filling requires permitting through State and Federal regulators and a waiver would not be granted until those permits were appropriated.

Please contact Mr. Charles Dammers, Chief of the Land Development Division at 313-2420 if you have any further questions on this matter.

Very truly yours,

JMI/pmt

cc: Ron Lepson Charles Dammers Gina Tirinnanzi Phil Thompson file (DPW 5)

INSTALLATION INSTRUCTIONS: PRECAST CONCRETE STORMCEPTOR

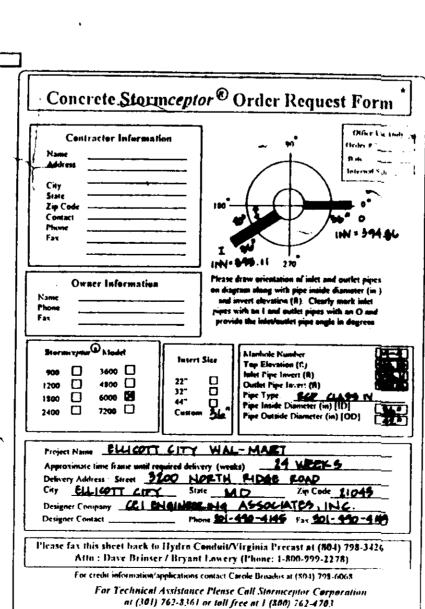
- STAKE-OUT THE LOCATION OF THE STORMCEPTOR AND EXCAVATE HOLE. EXCAVATE ADEQUATE SPACE TO CONNECT INLET AND OUTLET PIPES TO UNIT. INSTALL A 12' DEEP (OR AS REQUIRED) LAYER OF COMPACTED (95% STANDARD PROCTOR DENSITY) AGGREGATE SUBBASE AT BOTTOM OF EXCAVATION. INSTALL MULE OR SHOL CHECK ELEVATION OF UNIT BY MEASURING ITS SECTIONS FROM BASE OF THE STORAGE CHAMBER (BOTTOM OF UNIT'S SLAB) TO THE INVERT OF STORMCEPTOR BYPASS CHAMBER INLET ELEVATION (FIBERGLASS INSERT). SUBTRACT THIS DISTANCE FROM DESIGN INVERT ELEVATION TO DETERMINE TOP OF SUBBASE ELEVATION OF INSTALLED SUBBASE AND ADJUST AS NEEDED.
- SECURE INSPECTOR APPROVAL OF SUBGRADE AND SUBBASE.
- INSTALL STORAGE CHAMBER. INSTALL SCREW INSERTS INTO BASE OF STORAGE CHAMBER ATTACH CABLES OR CHAINS TO ALL 3 LIFTING LUGS ON THE BASE SLAB. USING LARGE EQUIPMENT OR CRANE LIFT AND PLACE THE BASE SECTION OF THE STORAGE CHAMBER IN THE EXCAVATED HOLE ON THE SUBBASE. MAKE SURE THAT THE BASE IS EVEL SPECIFIC ALIGNMENT OF THIS PART IS NOT REQUIRED. INSTALL RUBBER GASKET ON BASE UNIT AND COAT WITH LUBRICATING GREASE (PROVIDED IN SHIPMENT), IF NOT PRELUBRICATED. INSTALL ADDITIONAL STORAGE CHAMBER SECTIONS, AS REQUIRED (PROCEDURE IS SAME AS STEP 8.).
- (FOR STORMCEPTOR MODELS STC-900, STC-1200 AND STC-1800 SKIP STEP 6 AND GO TO STEP 6) INSTALL REDUCING SLAB. (STORMCEPTOR MODELS STC-2400, STC-3600, STC-4800, STC-6000 AND STC-7200) CHECK THAT SECTION IS SET FLUSH, LEVEL AND IS AT THE PROPER
- ELEMATICM. ANSTALL RUBBER GASKET ON THE TRANSITION SLAB SPIGOT AND COAT WITH LUBRICATING GREATE (PROVIDED IN SHIPMEN INSTALL BYPASS CHAMBER OF STORMCEPTOR WITH FACTORY INSTALLED STORMCEPTOR INSERT LET BYPASS SPORMS AND RESTALL BYPASS CHAMBER OF INLET AND OUTLET DRINNAGE PIPES. CHECK TO MAKE SURE THE BYPASS CHAMBER IS SET FLUBH, LEVEL AND IS AT THE PROPER ELEVATION. THE BYPASS CHAMBER MUST BE ORIENTED SUCH THAT INLET PIPE DISCHARGES INTO THE V-SHAPED FIBERGLASS WEIRS (INSIDE INSERT). INSTALL RUBBER GASKET ON TOP OF BYPASS. SECTION AND COAT WITH LUBRICATING GREASE, IF NOT PRELUBRICATED.
- INSTALL STORMCEPTOR DROP PIPES ACCORDING TO STC PIPE INSTALLATION PROCEDURE ON REVERSE SIDE OF THESE INSTRUCTIONS
- INSTALL RISER SECTION. LIFT RISER SECTION AND INSTALL, WHILE CHECKING THAT SECTION IS SET FLUSH AND IS AT PROPER ELEVATION AND THAT UNIT IS LEVEL. SPECIFIC ALIGNMENT OF THIS PART IS REQUIRED IF STEP(S) ARE INCLUDED. ALIGN STEPS ABOVE INLET INSPECTION PORT. NOTE, FOR SHALLOW INSTALLATIONS THIS SECTION MAY NOT
- 9. INSTALL TOP CAP WITH OPENING FOR STORMCEPTOR COVER. IF OPENING IS OFFSET (NOT CENTERED) THE TOP CAP OPENING SHOULD BE ORIENTED ABOVE THE
- 10. BACKFILL STORMCEPTOR WITH APPROVED BACKFILL MATERIAL (NO ORGANIC OR TOPSOIL IS TO BE USED FOR BACKFILL). BACKFILL AND COMPACT IN 8 INCH LIFTS. BACKFILL SHOULD BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.
- 14. INSTALL AND SET GRADE ADJUSTING RINGS, AS NEEDED.
- 12. INSTALL AND SET STORMCEPTOR FRAME AND COVER.
- I. WISTALL, INLET AND OUTLET STORM DRAIN PIPES. CONNECT INLET AND OUTLET STORM DRAIN PIPES WITH FLEXIBLE BOOTS (WHEN PROVIDED) AND WITH NON-SHRINK GROUT WHEN NO FLEXIBLE BOOTS ARE PROVIDED. THE INVERT OF THE INLET AND OUTLET PIPE IS TO MATCH WITH THE INVERT OF THE STORMCEPTOR INSERT, FLEXIBLE BOOT INSTALLATION PROCEDURES: CENTER THE PIPE IN THE BOOT OPENING, LUBRICATE THE OUTSIDE OF THE PIPE AND/OR THE INSIDE OF THE BOOT IF THE PIPE OUTSIDE DIAMPETER IS THE SAME AS THE INSIDE DIAMETER OF THE BOOT. POSITION THE PIPE CLAMP IN THE GROOVE OF THE BOOT WITH THE SCREW AT THE TOP. TIGHTENING THE PIPE IS MUCH SMALLER THAN THE BOOT LIFT THE BOOT SUCH THAT IT CONTACTS THE BOTTOM OF THE PIPE WHILE TIGHTENING THE CLAMP TO ENSURE EVEN CONTRACTION OF THE BURBLE IMMERSE. THE CLAMP TO ENSURE EVEN CONTRACTION OF THE RUBBER, MOVE-ENE PIPE HORIZONTALLY ANDIOR VERTICALLY TO BRING IT TO GRADE 14. THE STORMCEPTOR SHOULD BE PUMPED OUT WHEN THE SEDIMENT CONTROL MEASURES ARE REMOVED (SITE PERMANENTLY STABILIZED).
- 15. FINAL INSPECTION.

FOR TECHNICAL INFORMATION CALL STORMCEPTOR AT 1-809-742-4703

MAINTENANCE NOTES (WATER QUALITY STRUCTURE WASTE)

1. WATER QUALITY STRUCTURES WILL REQUIRE PERIODIC CLEANING. OWNERS OF THESE FACILITIES WILL HAVE TO CLEAN THEM AS NEEDED.

- 2. MAINTENANCE OF THESE FACILITIES WILL CONSIST OF CLEANING OUT THE STORMCEPTOR AND DISPOSAL OF THE WASTE AND REPAIR OF THE FACILITY AS NEEDED. PERIODIC INSPECTIONS OF THESE FACILITIES WILL BE MADE BY THE OWNER.
- 3. THE DISPOSAL OF THE LIQUID AND SOLID MATTER SHALL BE AS FOLLOWS: A. ALL LIQUID MATERIAL TO THE STORMCEPTOR SHALL BE PUMPED INTO A SUITABLE TANK TRUCK AND DISPOSED OF AT AN APPROVED SANITARY DISTRICT DISCHARGE MANHOLE OR BE TAKEN TO AN APPROVED SEWAGE TREATMENT PLANT FOR
- B. THE SOLID MATERIAL SHALL BE LANDFILLED IN AN APPROVED SANITARY LANDFILL.
- 4. THE INLET PIPES AND STRUCTURAL PARTS SHALL BE REPAIRED AS NEEDED.
- 5. STORMCEPTOR INLET AND OUTLET ASSEMBLY SHALL BE PERIODICALLY INSPECTED. BLOCKAGES SHALL BE REMOVED AND DISPOSED OF AS REQUIRED IN 3B ABOVE.



TO BE INCLUDED ON SWALPLAN BY DESIGNAL

1 ASIM C 478 2. BASE WEIGHT w18.53 TOMS

STC 1800 PRECAST CONCRETE STORMCEPTOR

STRUCTURE M 2A

CRADE ADJUSTERS

TO SUIT FINISHED CRADE

HOTE I HAN-SMOOTH OUTSIDE WILL PINE TO BE CROUTED IN PLACE (NO KOR N-SEAL BOOTS)

MINIMUM OF 80" OR TO THE CRADE (WHICHEVER IS THE LESSER)

2 RISER SECTION ABOVE THE INSERT TO BE 72" # FOR A

3 COVER TO BE LOCATED AGJACENT TO INLET INSPECTION PORT

STC 4800 PRECAST CONCRETE STORMCEPTOR

STRUCTURE M-3A

NOTE: 1. HON-SWIGHT BUTSHE WILL FIRE TO BE CREATED OF PLACE (HB HON-N-DEAL BOOTS).

2. ONDS SECTION ABOVE THE WILLET TO BE 73° or ITEL A
MINISTRUM OF 00° OR TO THE COLLEGE (HOMBOLTER AS THE LETSEN).

3. CRIVER TO BE ANGAIND ABJANCENT TO BALET OVERFECTION FORT

4800 US GALLON CAPACITY

(PER ASTI

FLEXIBLE

(12" PIPE SHOWN

<u>ENLARGED OUTLE</u>

ONNECTION DETAIL

ENLARGED QUILET

- PIPE CONSECTOR

394./6

Design Spacifications.

1 ASTU C 415 2 BASE WELLT = 1972 TORS

1800 US GALLON CAPACITY

STORMCEPTOR COVER AND GRATE

STORMCEPTO

INSER

-8' DROP PIPES

Design Specifications:

2 BASE WEIGHT = 6.35 TONS

1 ASIM C 478

OWNER OF DEVELOPMENT LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD 21043 (410) 465-2321

The ricor pipe MUST be connected to the DUTLET ripple using the respired PVC commit.

STC PIPE INSTALLATION PROCEDURE

-

ELECTION DISTRICT NO. 2 TAX MAP 17 & 24

REZONING CASE NUMBER ZB-941 SKETCH PLAN S-95-01 PRELIMINARY PLAN P-95-21

SUBDIVISION "ELLICOTT CITY WAL-MART" HOWARD COUNTY, MARYLAND

rap pipe and the riser pipe MUST HOT be attached to Stormceptor's couplings until by-PAIR CHANGER paction has been personaled to the installed TRANSPIRM SLAR

The river pipe MIST be connected to the BUTLET genteted coupling using the supplied

STC 6000 PRECAST CONCRETE STORMCEPTOR

STRUCTURE M-4

MITE : 1 NON-SHOOTH OUTSIDE WILL PUT TO BE GROUTER BY PLACE (NO HOR H SEAL BOOTS 2 MISER SECTION ABOVE THE MISTALL DIAZE 22' A FOR A SHIMLAN OF BOT ON TO THE CRUZE (MISCHELINE THE LESSER).

3 COVER TO BE LOCATED ANJACENT TO BELLY MESPECTION PORT

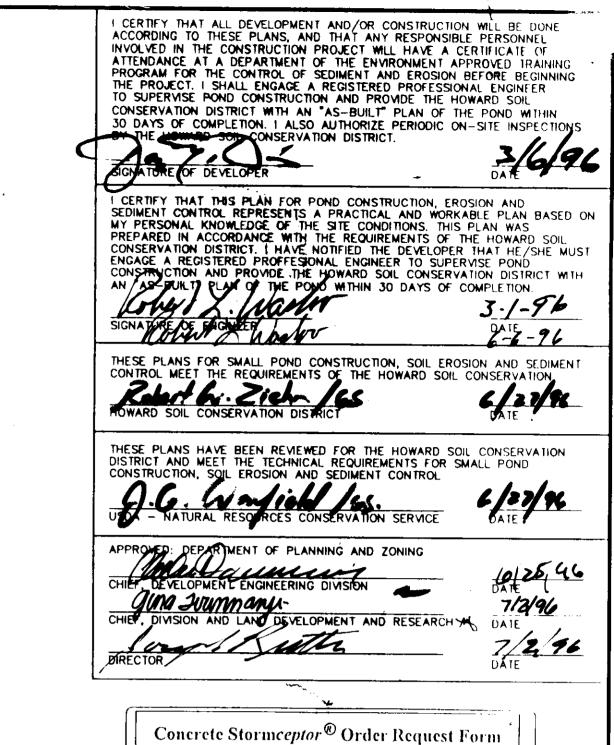
6000 US GALLON CAPACITY

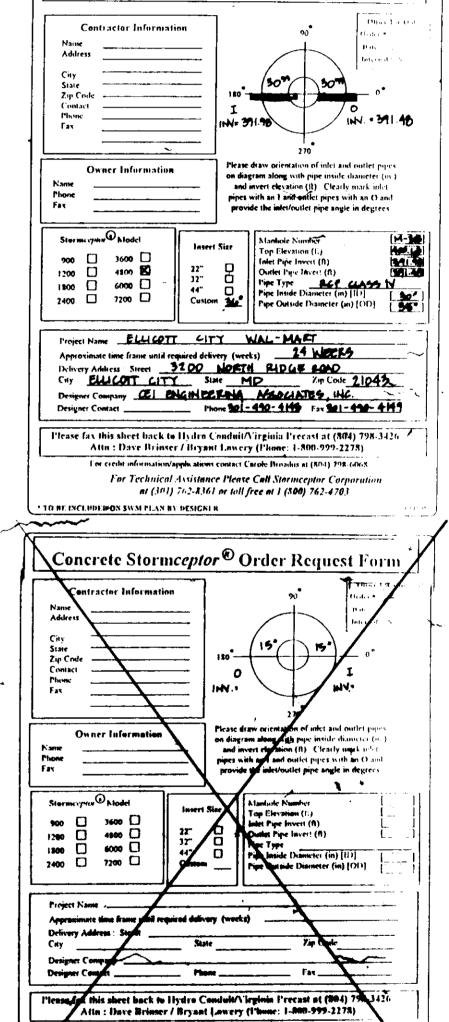
VARIABLE DIAL

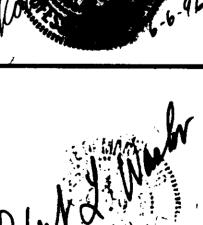
ENLARGED OUTLET

N-ME -

P/O PARCEL 848 DATED: OCTOBER 18, 1993 APPROVED: 12-2-1994 APPROVED: 6-6-95 DATE: SEPTEMBER 6 , 1995









O RE INCLUDED ON SWM PLAN BY DESIGNER

For Technical Assistance Please Cull Stormceptor Corporation

nt (101) 762-8161 or will free at 1 (800) 762-4703

10-18-95 17 OF 25 MISCELLANEOUS DETAILS

STRUCTURES 10 AND THE 15" STORM DRAIN FROM STR.10 TO STR.9 TO BE CONSTRUCTED BY OTHER'S. OTHE DRAINAGE AREA OF 1.55 BETWEEN STRUCTURES 9 AND 8 IS THROUGH A SERIES OF ROOF DRAIN CONNECTIONS. ACTUAL DRAINAGE AREA TO STRUCTURE 9 IS 0.0 ACRES AS IT IS A MANHOLE.

OTHERE IS 0.5 ACRES OF FLOW TO THIS INLET. THE REMAINING DRAINAGE AREA IS THROUGH A SERIES OF ROOF DRAIN CONNECTIONS.

SEQUENCE OF CONSTRUCTION

- NOTIFY THE HOWARD COUNTY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO THE START OF WORK.
- CLEAR FOR AND INSTALL STABILIZED CONSTRUCTION ENTRANCE.
- CLEAR FOR AND INSTALL SILT FENCE AND DIVERSION DIKE AS SHOWN.
- CLEAR FOR AND INSTALL DIVERSION DIKES, SILT FENCE AND TEMPORARY SEDIMENT TRAPS ON SITE EAST OF NORTH RIDGE ROAD, AS SHOWN ON THE PHASE I SEDIMENT AND EROSION CONTROL PLAN. INSTALL CULVERT INLET PROTECTION AT EXISTING PIPE IN LOW POINT ALONG NORTH RIDGE ROAD. INSTALL ALL TREE PROTECTION DEVICES AS SHOWEN ON THE PHASE EROSION AND SEDIMENT PLANS.
- CLEAR AND GRUB WITHIN LIMITS OF DISTURBANCE. THE PHASE PLANS SHOW AN APPROXIMATE LOCATION OF AN ACCESS POINT BETWEEN THE SWM POND AND THE AREA MARKED FOR CORE TRENCH MATERIAL AND ROCK AND/OR DENSE MATERIAL. THE CONTRACTOR SHALL FIELD LOCATE THE BEST ACCESS BETWEEN THE LOCATIONS. THE ACCESS SHALL BE EAST OF THE DIVERSION DIKE TO ENSURE THAT DISTURBED DRAINAGE FROM THE ACCESS IS DIVERTED TO THE TEMPORARY SEDIMENT BASIN. THE ACCESS SHOULD BE LINED WITH A DIVERSION DIKE, MUCH LIKE THE PHASE I PLAN SHOWS, AND A TEMPORARY CROSSING TO ALLOW THE CLEAN WATER TO BY PASS THE SEDIMENT BASIN. (2 WEEKS)
- REMOVE TOPSOIL AND STOCKPILE WHERE INDICATED ON PLAN. (1 WEEK) CONSTRUCT COFFER DAM.(3 DAYS) THE STORAGE AREA OF THE COFFER DAM SHALL BE DRAINED BY PUMPING UPON REQUEST OF THE INSPECTOR. THE HEIGHT OF THE DAM WILL ACCOMODATE STORAGE OF THE 2 YEAR STORM. BEGIN POND CONSTRUCTION OPERATIONS BY CUTTING AT THE MORTHEASTERN PORTION OF THE SITE EAST OF NORTH RIDGE ROAD, IN THE AREA DESIGNATED AS POSSIBLE CORE TRENCH MATERIAL (CONTRACTOR TO FIELD LOCATE THIS AREA AND COMPLETE BORINGS, IF NEEDED, TO ACCURATELY DEPICT LOCATION AND QUANTITY OF MATERIAL). FILL
- OPERATIONS TO BEGIN AT THE SOUTHWESTERN PORTION OF SITE WEST OF NORTH RIDGE ROAD BY CONSTRUCTING THE STORMWATER MANAGEMENT POND IN THE AREA ALONG RTE. 29. POSITIVE DRAINAGE OF THE DISTURBED AREA MUST ALWAYS BE MAINTAINED TO THE POND. PLACE DENSE MATERIAL (LOCATED IN THE APPROXIMATE AREA SHOWN ON SHEET 6) IN ACCORDANCE WITH THE GEOTECHNICAL REQUIREMENTS REGARDING THE SIZE OF MATERIAL VERSUS THE DEPTH OF FILL. (2 MONTHS) NOTE: UPON FINAL CONSTRUCTION OF THE POND OUTFALL STRUCTURE, PLUG
- ORIFICE WITH WATERTIGHT SEALS UNTIL SUCH TIME AS THE SWM POND IS CONVERTED FROM A TEMPORARY SEDIMENT BASIN TO A SWM POND. INSTALL OUTLET PROTECTION AT THE EXISTING TWIN OUTFALL PIPES. (1 DAY) REMOVE EMBANKMENT ON WESTERN PORTION OF EX. SWM POND NEAR COFFER DAM AND ENLARGE POND AS SHOWN ON PLAN. (3 MONTHS) ONCE SWM POND IS ENLARGED, STABILIZE AND REMOVE COFFER DAM. (1 WEEK) UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL DIVISION INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES FOR PHASE I AND STABILIZE ANY AREAS STEEPER THAN 3:1 SLOPES WHICH WILL NOT BE WORKED FOR 7 DAYS IN ACCORDANCE WITH THE PERMANENT
- SEEDING NOTES. (2 WEEKS) PHASE II
 NOTE: EXISTING STORMWATER MANAGEMENT POND TO BE USED AS A TEMPORARY SEDIMENT BASIN (TSB). CLEAR FOR AND INSTALL DIVERSION DIKES, SILT FENCE AND TEMPORARY SEDIMENT TRAPS ON SITE WEST OF NORTH RIDGE ROAD. (1 WEEK) CLEAR AND GRUB WITHIN LIMITS OF DISTURBANCE FOR PHASE II. (2 WEEKS) REMOVE TOPSOIL AND STOCKPILE WHERE INDICATED ON PLAN. (1 WEEK)

CONTINUE MASS GRADING OPERATIONS BY CUTTING AT THE HORTHEASTERN PORTION OF SITE, EAST OF NORTH RIDGE ROAD. CUTTING OPERATIONS TO PROCEED IN A NORTHEAST TO SOUTHWEST DIRECTION TOWARD RT. 28 ALWAYS MAINTAINING POSITIVE DRAINAGE TO THE TEMPORARY SEDIMENT BASIN BY FLOW ALONG THE DIVERSION DIKE. AS THE AREA IS FILLED TOWARD THE POND BEGIN TO REMOVE SED. TRAP #1 THROUGH #4 WITH PERMISSION OF THE SEDIMENT/EROSION CONTROL INSPECTOR, PLACE SILT FENCE AT THE TOE OF THE 2:1 SLOPE. STABILIZE THE SEDIMENT TRAP AREAS TO ORIGINAL CONDITION TO BE VERIFIED BY GEOTECHNICAL ENGINEER (3 WEEKS)

BEGIN CONSTRUCTION OF RETAINING WALLS. PROCEED WITH PLACEMENT OF COMPACTED FILL ALONG WESTERN PORTION OF SITE UNTIL ENTINE AREA WEST OF NORTH RIDGE ROAD IS BROUGHT TO GRADE. (3 MONTHS)

CONTRACTOR SHALL RECONSTRUCT DIKES AT THE END OF EACH WORKING DAY TO ENSURE POSITIVE DRAINAGE TO THE TSB AND SEMMENT TRAPS. PORTIONS OF THE TSB AND SEDIMENT TRAPS MAY BE FILLED, UPON RECIEVING PERMISSION FROM INSPECTOR, AS UPOLOFE AMEAS ARE STABILIZED PROVIDED SUFFICIENT VOLUME IS MAINTAINED FOR REMAINING DISTURBED AREAS.

CONTINUE MARE GRADING OPERATIONS TOWARD WESTERN PORTION OF SITE, CRICE THE POND ACCESS ROAD IS CONSTRUCTED AND STABILIZED, GRASE SITCH IN CENTER FOR CHANNELIZATION OF WATER TO THE JUMB POND. (CONTINUATION OF PHASE II)

CONTINUE CONSTRUCTION OF RETAINING WALL IN AREA OF SWM POND AND FILE CONSTRUCTION OF RETAINING WALL IN AREA OF SWM POND AND FILE CONSTRUCTION OF THE TOP OF THE &1 SLOPE AS SHOWN IN PHASE II. (CONTINUATION OF PHASE II) COMPLETE MASS CRASING, CONSTRUCT STORM SEVER SYSTEM, INSTALL PLET PROPERTIES ON ALL STORM STRUCTURES. (3 MONTHS)

REMANE THE STEEM IN THE CENTER OF THE POND ACCESS ROAD AND STAGE WIND THE 25 CROSS-BLOPE. (3 DAYS)

STORMCEPTOR WATER QUALITY MANAGEMENT FOR ELLICOTT CITY, MD WAL-MART SITE

	STRUCTURE NUMBER	STORMCEPTOR MODEL	ACTUAL DRAINAGE AREA	% IMPERVIOUS DRAINAGE AREA	SIZE OF STORM DRAIN DISCHARGING INTO STORMCEPTOR	
					SIZE IN	SIZE OUT
	M-4	STC 6000	8.26	0.85	36	36
	M-3B	STC 6000	8.36	0. 8 5	30	30

FOR ADDITIONAL TECHNICAL QUESTIONS ON THE STORMCEPTOR DESIGN, PLEASE NOTIFY

A MAINTENANCE AGREEMENT WILL BE PREPARED TO ENSURE THAT THE SYSTEM IS MAINTAINED ON AN ANNUAL BASIS. ONCE THE SITE IS STABILIZED, THE SYSTEM WILL BE MONITORED TO DETERMINE THE FREQUENCY OF MAINTENANCE BASED ON THE SITE CONDITIONS. THE SEDIMENT WILL BE TESTED TO DETERMINE THE DISPOSAL OPTIONS. THE HAZARDOUS MATERIALS (OIL, CHEMICALS, FUEL) WILL BE REMOVED

STD TYPE "C" ENDWALL

STD. MANHOLE/STC 4800

STD. MANHOLE/STC 6000

STD. MANHOLE

STD. MANHOLE

COG INLET

COG INLET

COG INLET

COG INLET

COG INLET

COG INLET

STD. MANHOLE

STD. MANHOLE

STD. "WR" INLET

STD. "WR" INLET

STD. "WR" INLET

STD. "WR" INLET

STD. MANHOLE

MOD TYPE "A" ENDWALL

RISER STRUCTURE

COG INLET

• BY OTHERS SEE F-88-01 FOR CO-CROMATES TO EXISTRUCTURE 1-6

STR. NO. S.D. COORD.

N 587955.2976

N 587973.8360

N 587996.6209

E 1363114.0274

N 587987.9555

E 1363206.9064

N 588037.6353

N 588234.1105

N 588281.8216

E 1362942.7092

E 1362892.8320 N 588594.2020

E 1362766.6452

N 588668.8611

E 1362785.3761

N 588767.2793

E 1362927.3856

N 588877.6970

E 1363078.8608

N 588061.5618

E 1363200.0569

N 588145,8558

E 1363214.2540

N 588243.9077

E 1363219.8999

N 586317.9433

E 1363242.0797

N 588391.9906

E 1363264.2513

N 586562.7485

E 1363352.1942

N 588646.1336

E 1363379.7943

N 587786.87436

N 567865.16923

E 1363240.72291

E 1363171.36961

E 1363169.8863

E 1363072.3502

E 1363090.6754

EW-1

M-2

M-3

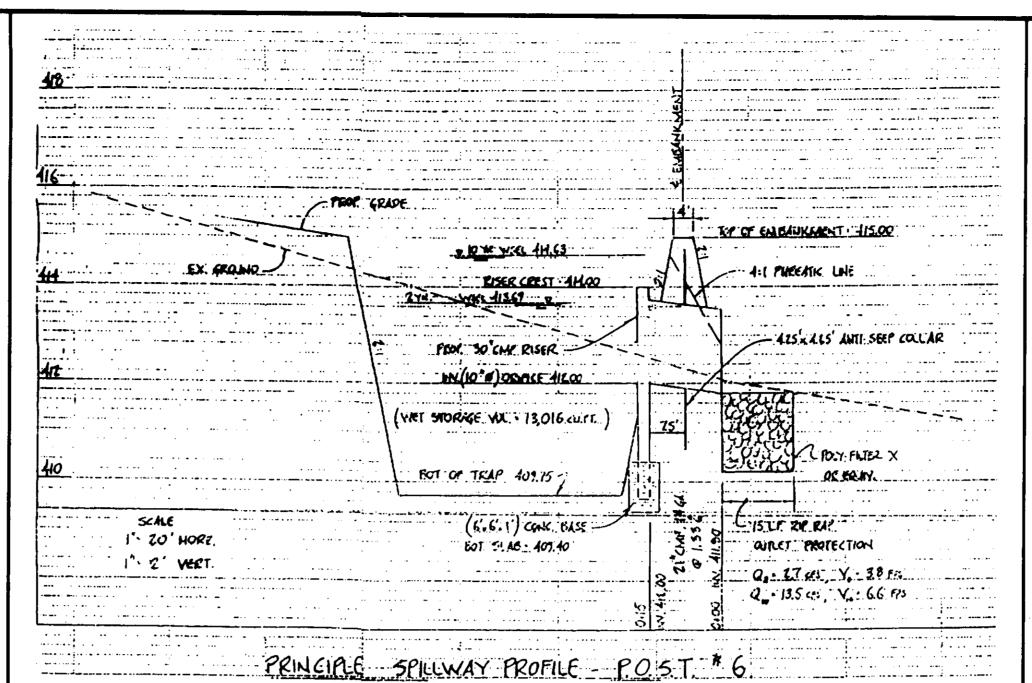
M-9

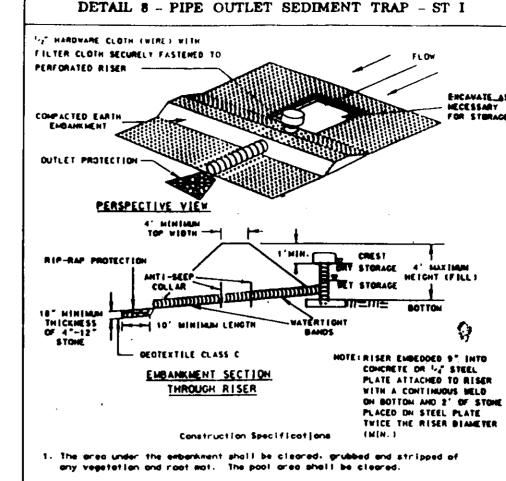
•EX.I−6

1-11

I-12A

EW-17





vegetation as well as oversized stones, rocks, organic material, or other

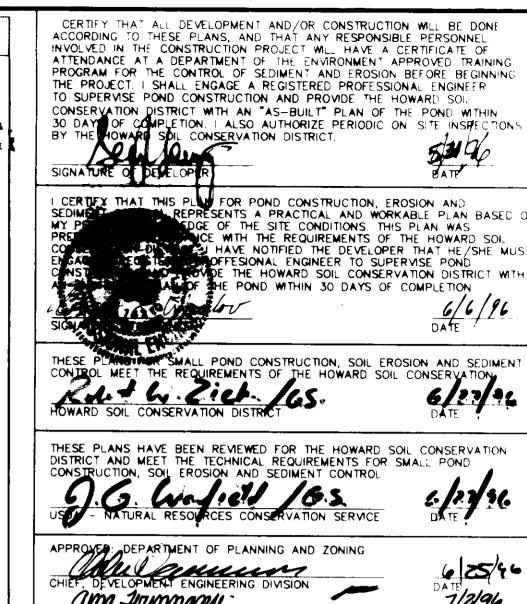
objectionable material. The expeniumnt shall be compacted by traversing

The total trap volume as measured from the bottom to riser creat elevation shell be 3600 cubic feet per ecre of drainage area (see Table 9). The top of

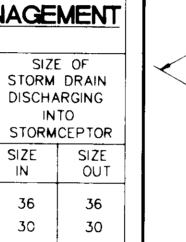
with equipment while it is being constructed.

. Sediment that I be removed and the trap restored to 1ts original dimensions when the sediment has accumulated to one holf of the wet storage depth of the trap (900cf/cc). The sediment shall be deposited in a suitable area and in i. The structure shalt be inspected periodically and after each rain and repairs

mode as necessory. PAGE MAINTAND DEPARTMENT OF ENVIRONMENT C - 9 - 7 WATER MANAGEMENT ADMINISTRATION



DIVISION AND LAND DEVELOPMENT AND RESEARCH-AL



STRUCTURE SCHEDULE

ELEV. TOP

379.01

3**88**.00

400.50

399.30

400.15

410.10

410.46

410.50

410.00

415.50

417.89

400.35

402.54

405.60

408.90

418.26

409.50

365.00

MD - 384.03

MD-374.62 THT=15

MD-374.62 THT=15'

.____

G -- 5.02

G · 5.02

SD. 4.41

SD. 4.41

SD 4.41

G - 5.01

SD 4.41

SD 4.35

SD. 4.35

SD. 4.41

SD. 4.35

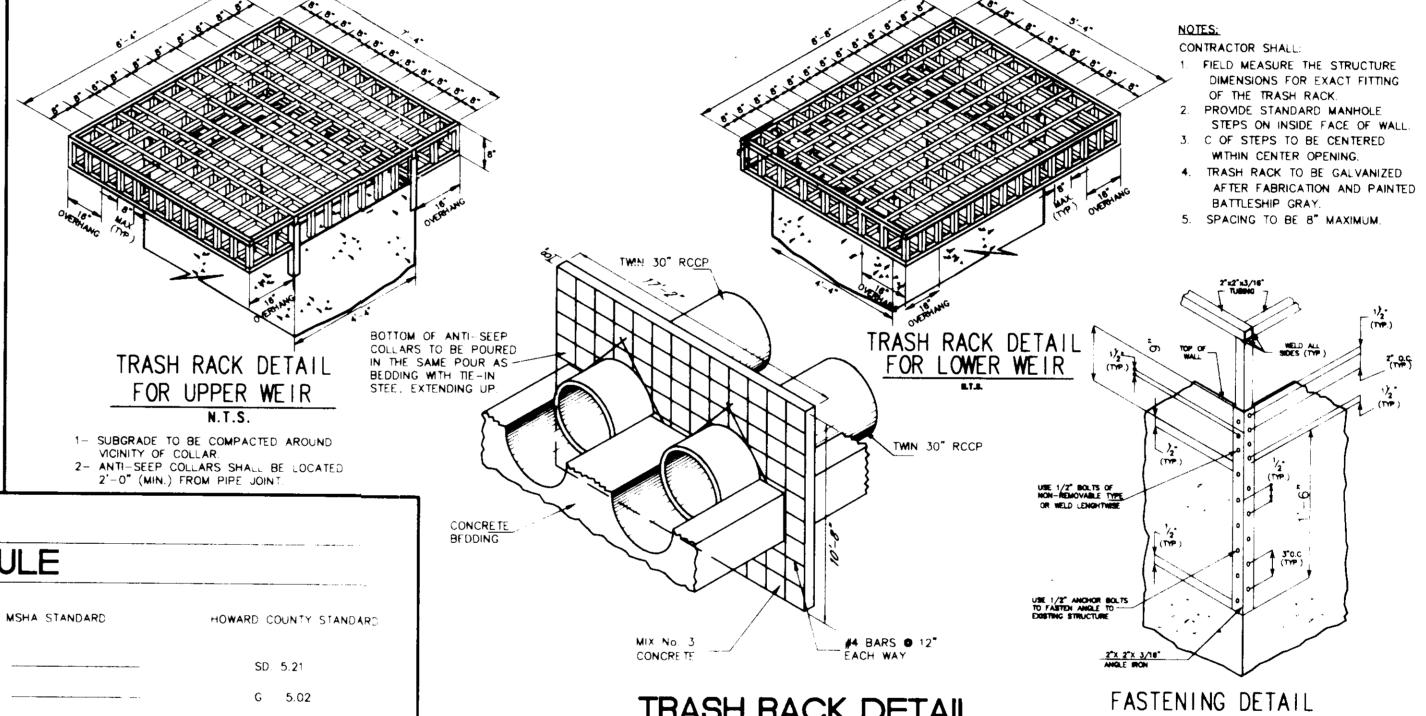
SD. 4.35

SD. 4.41

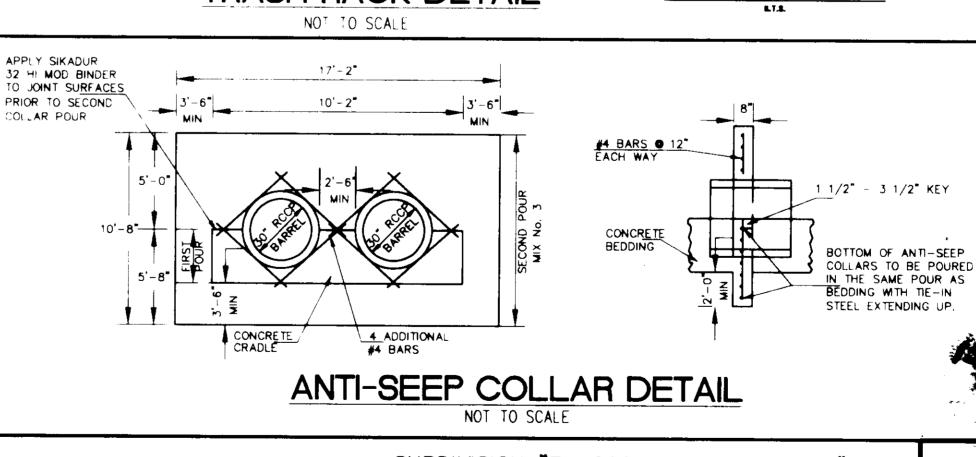
SD. 4.14

SD. 5.11

BY A LICENSED WASTE MANAGEMENT COMPANY AND DISPOSED OF ACCORDINGLY.







PRELIMINARY PLAN P-95-21

OWNER OF DEVELOPMENT LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD 21043 (410) 465-2321

SUBDIVISION "ELLICOTT CITY WAL-MART" ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND TAX MAP 17 & 24 P/O PARCEL 848 REZONING CASE NUMBER ZB-941 DATED: OCTOBER 18, 1993 SKETCH PLAN S-95-01 APPROVED: 12-2-1994

DATE: NOVEMBER 17, 1995 STORMWATER MANAGEMENT WAIVER APPROVED MAY 2, 1995 FROM DESIGN MANUAL VOLUME 1, SECTION 10.2.6.5a AND SECTION 10.2.6.6.a.

APPROVED: 6-6-95

30.0 DUST CONTROL

To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off sire

Controlling dust blowing and movement on construction sites and roads.

Purpose

Temporary Methods

damage, health hazards, and improve traffic safety. Conditions Where Practice Applies

This practice is applicable to areas subject to dust blowing and movement where on and off site damage is likely without treatment.

Specifications

Mulches - See standards for vegetative stabilization with mulches only. Mulch should

2. Vegetative Cover - See standards for temporary vegetative cover

3. Tillage - To roughen surface and bring clods to the surface. This is an emergence measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12th apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect

4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.

5. Barriers - Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.

6. Calcium Chloride - Apply at rates that will keep surface moist. May need treatment Permanent Methods

1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection

2 Topsofling - Covering with less erosive soil materials. See standards for topsofling 3. Stone - Cover surface with crushed stone or coarse grave-

1. Agriculture Handbook 346 Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss.

-2. Agriculture Information Bulletin 354. How to Control Wind Erosion , SOA ARS \leftrightarrow 30.

THIS SHEET WILL SUPERSEDE SHEET NUMBER 16 (DATED 11/7/95) APPROVED BY HOWARD COUNTY

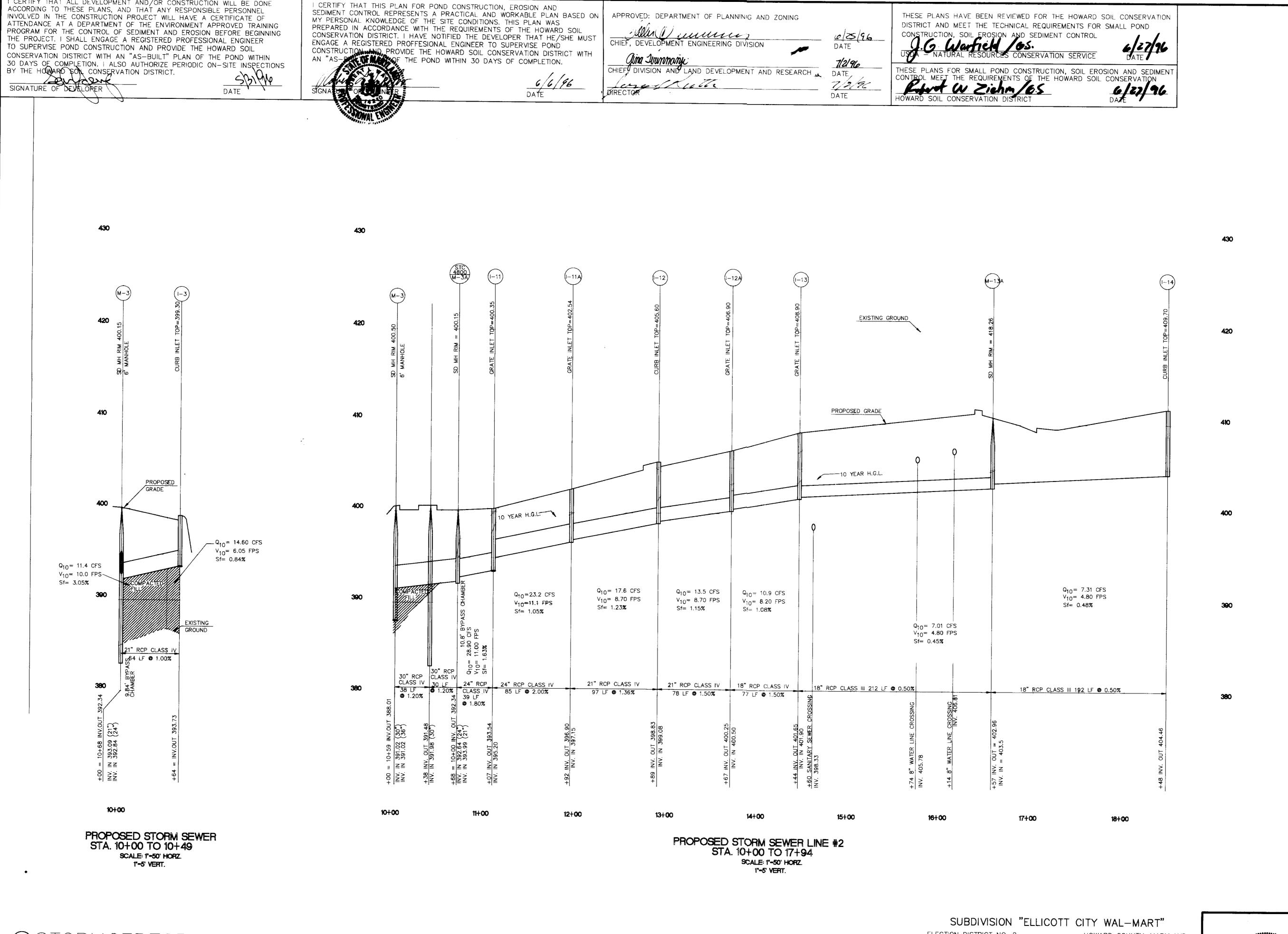
4 5/20/96 H.C. REDLINE REVISION 3 11/15/95 COUNTY COMMENTS REVISION 2 10/18/95 COUNTY COMMENTS REVISION 9/22/95 COUNTY COMMENTS REVISION NO. DATE DESCRIPTION 8-1-95 JTT KLM TMP INITIAL DESIGN DATE | PRN | PM | DES

WAL-MART STORES, INC PARCEL B,C,D **ENGINEERING**

ASSOCIATES, INC PLANNERS (301) 490-4145 JOB NO.: 9146 Columbia, MD 21046 FAX (301) 490-4149 DWG NAME: 9146MISC

ELLICOTT CITY WAL-MART j-30-96 16 0F 2€ MISC. NOTES AND DETAILS

SHEET N

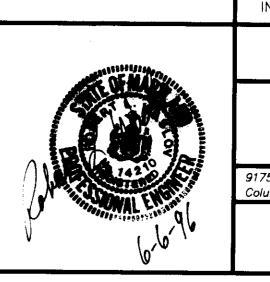


OWNER OF DEVELOPMENT LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD 21043 (410) 465-2321

ELECTION DISTRICT NO. 2 TAX MAP 17 & 24 REZONING CASE NUMBER ZB-941 SKETCH PLAN S-95-01 PRELIMINARY PLAN P-95-21

HOWARD COUNTY, MARYLAND P/O PARCEL 848 DATED: OCTOBER 18, 1993 APPROVED: 12-2-1994 APPROVED: 6-6-95 DATE: NOVEMBER 17, 1995

STORMWATER MANAGEMENT WAIVER APPROVED MAY 2, 1995 FROM DESIGN MANUAL VOLUME 1, SECTION 10.2.6.5a AND SECTION 10.2.6.6a.



5/20/96 REVISED PER H.C. REDLINE COMMENTS DATE REVISIONS WAL-MART STORES, INC. PARCELS B,C,D ASSOCIATES, INC • PLANNERS • 9175 Guilford Road, Suite 306 (301) 490-4145 JOB NO.: 9146.0.35

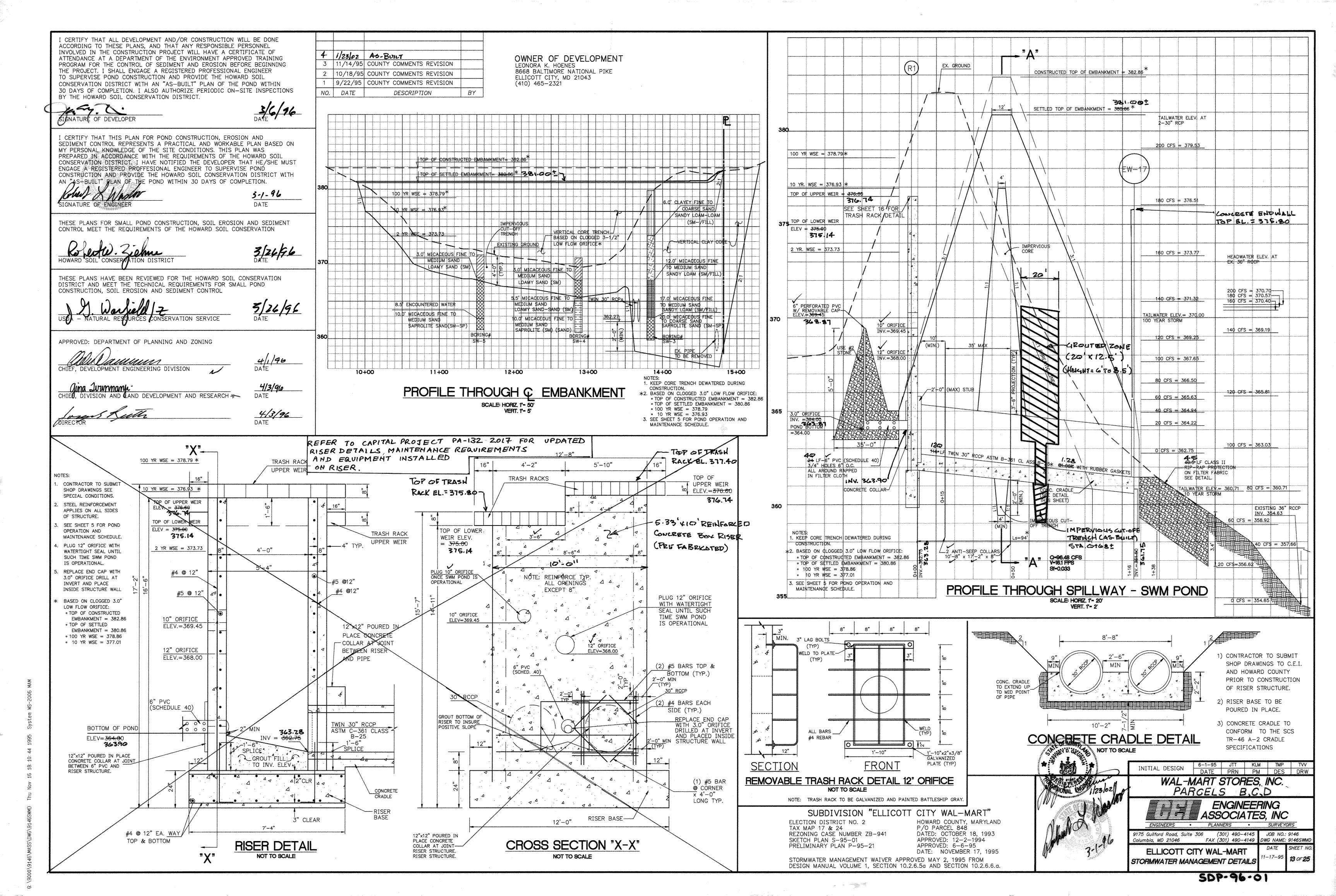
THIS SHEET WILL SUPERSEDE SHEET NUMBER 15 (DATED 11/17/95) APPROVED BY HOWARD COUNTY.

Columbia, MD 21046 FAX (301) 490-4149 DWG NAME: 9146PROF ELLICOTT CITY WAL-MART 05-30-96 **15** 0F **25** STORM SEWER PROFILES

SDP-96-01

OSTORMCEPTOR STRUCTURES

CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE



I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS
BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER

DATE

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON APPROVED: DEPARTMENT OF PLANNING AND ZONING MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFFESIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

CHIEF, DEVELOPMENT ENGINEERING DIVISION 8 25 96 CHIEF, DIVISION AND LAND DEVELOPMENT AND RESEARCH DATE DIRECTOR

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL

USD - NATURAL RESOURCES CONSERVATION SERVICE THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION HOWARD SOIL CONSERVATION DISTRICT

DATE

EXISTING GROUND PROPOSED GRADE 18" RCP CLASS III 86 LF @ 2.99% (BY OTHERS) - 5 LF 18"STUB Q₂₅= 8.80 CFS V₂₅= 10.20 FPS Q₂₅= 33.50 CFS V₂₅= 10.70 FPS Sf= 0.70% Q₂₅= 87.2 CF\$ Q_{25} = 36.40 CFS V_{25} = 7.40 FPS Sf= 0.30% 7EAR W.S.= 376.93 Q₂₅= 34.10 CFS Q₂₅= 20.00 CFS V₂₅= 7.40 FPS V₂₅= 10.70 FPS $Q_{10} = 38.30 \text{ CFS}$ V₂₅= 12.20 FP\$ V₁₀= 9.70 FPS Sf= 0.31% Sf=1.19% Q_{25} = 38.40 OFS V_{25} = 7.40 FPS Sf= 0.31% Sf= 1.55% Sf= 0.30% 27" RCP CLASS III 78 LF 🧔 1.47% 36" RCP CLASS IV 36" RCP CLASS IV 292 LF @ 1.32% 36" RCP CLASS IV 193 LF @ 0.50% 126 LF @ 0.50% 36" RCP CLASS IV 30 LF **9**2.00**% 3**5 LF **9**13.9**%** 27" RCP CLASS III 173 LF @ 1.47% 21" RCP CLASS III 187 LF @ 2.84% 70 LF **0** 0.50% $Q_{10} = 75.60 \text{ CFS}$ $V_{10} = 14.80 \text{ FPS}$ Sf = 1.30

THIS SHEET WILL SUPERSEDE SHEET NUMBER 14 (DATED 11/17/95) APPROVED BY HOWARD COUNTY.

PROPOSED STORM SEWER LINE #1 STA. 10+00 TO 23+44 SCALE: 1"-50" HORZ. 1"-5" VERT.

OSTORMCEPTOR STRUCTURES

ELECTION DISTRICT NO. 2

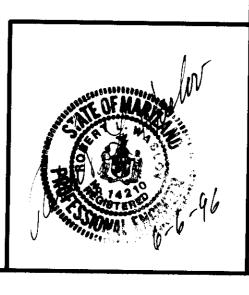
OWNER OF DEVELOPMENT LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD 21043 (410) 465-2321

SUBDIVISION "ELLICOTT CITY WAL-MART" HOWARD COUNTY, MARYLAND

TAX MAP 17 & 24 REZONING CASE NUMBER ZB-941 SKETCH PLAN S-95-01 PRELIMINARY PLAN P-95-21

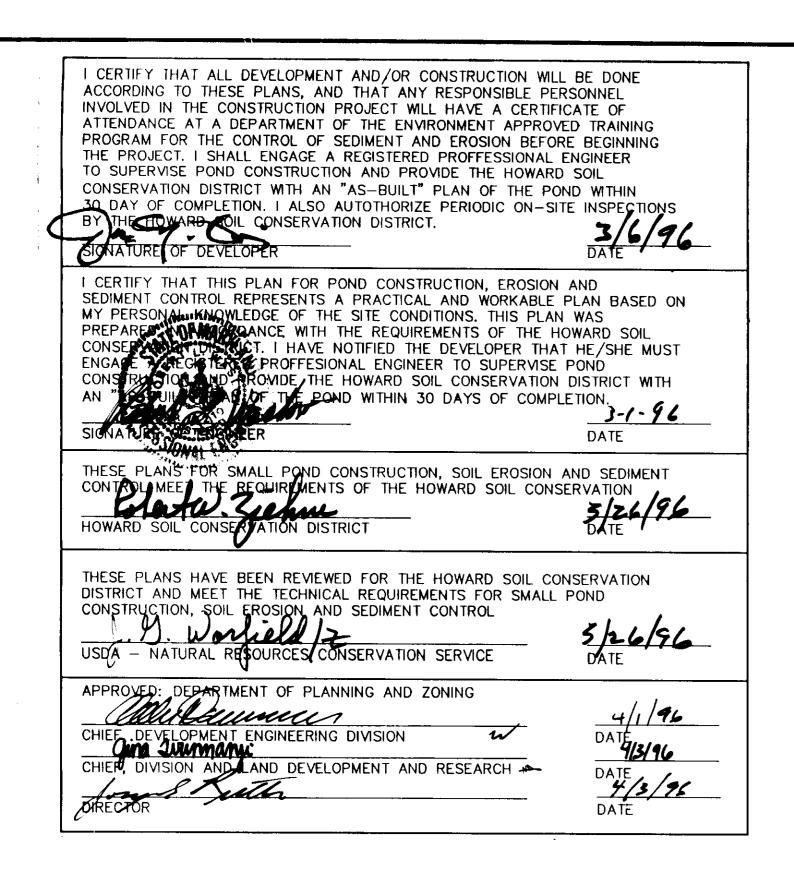
P/O PARCEL 848 DATED: OCTOBER 18, 1993 APPROVED: 12-2-1994 APPROVED: 6-6-95 DATE: NOVEMBER 17, 1995

STORMWATER MANAGEMENT WAIVER APPROVED MAY 2, 1995 FROM DESIGN MANUAL VOLUME 1, SECTION 10.2.6.5a AND SECTION 10.2.6.6a



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	5/20/96	REVISED P	ER H.C. REDL	INE COMMI	ENTS			
NO.	DATE	DESCRIPTION						
			REVISIONS		*			
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91	75 Guilford	Road, Suite	306 (3	01) 490-4	1145	JOB NO.:	9146.0.35	
Co	lumbia, MD	21046	FAX (3	01) 490–4	4149 DI		9146PR0F	
ELLICOTT CITY WAL-MART STORM SEWER PROFILES						DATE	SHEET NO	
					0.5	-30-96	44 05	
							14 OF 25	

5DP-96-01



HOWARD SOIL CONSERVATION DISTRICT PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

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

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES: PREFERRED -- APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ. FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ.FT.)

ACCEPTABLE -- APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE 92 LBS./1000 SQ. FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK

SEEDING -- FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THROUGH JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) - 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) - USE SOD. OPTION (3) - SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING -- APPLY 1- 1/2 TO 2 TONS PER ACRE (70-90 LBS./1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

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

TEMPORARY SEEDING NOTES

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

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

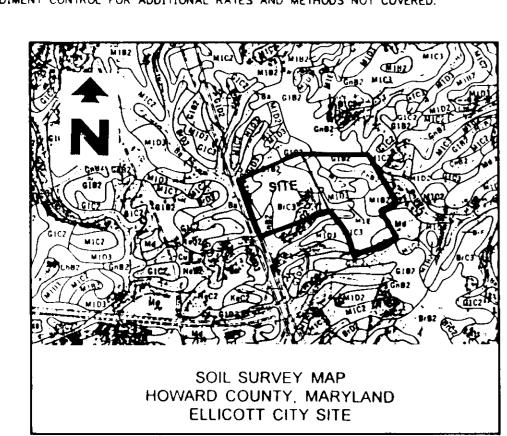
SOIL AMENDMENTS -- APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.).

SEEDING -- FOR PERIODS MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH OCTOBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ.FT.). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED

MULCHING -- APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GAL. PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1995 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.



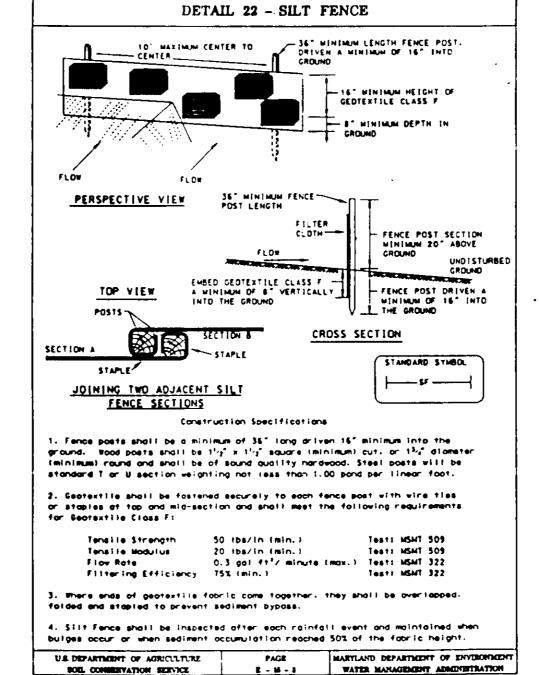
HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

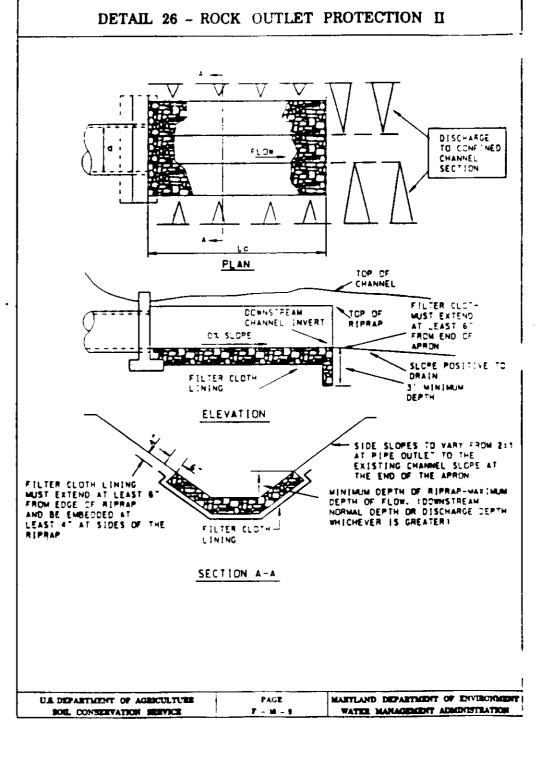
OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

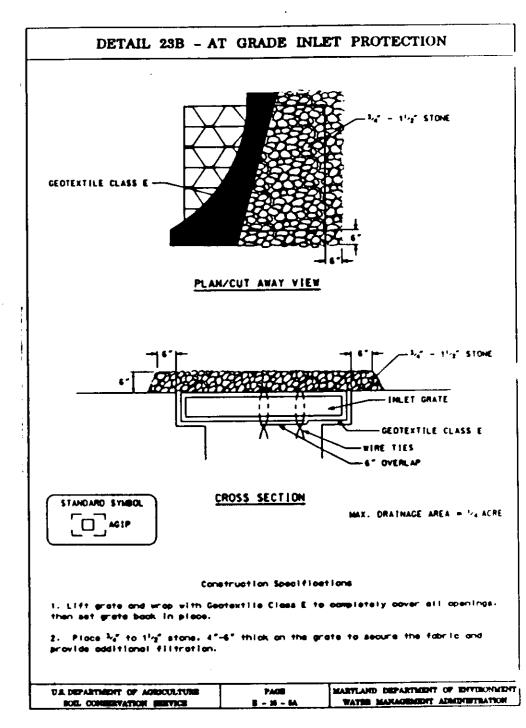
- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVE TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (410-313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT
- CONTROL." AND REVISIONS THERETO. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISBURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL

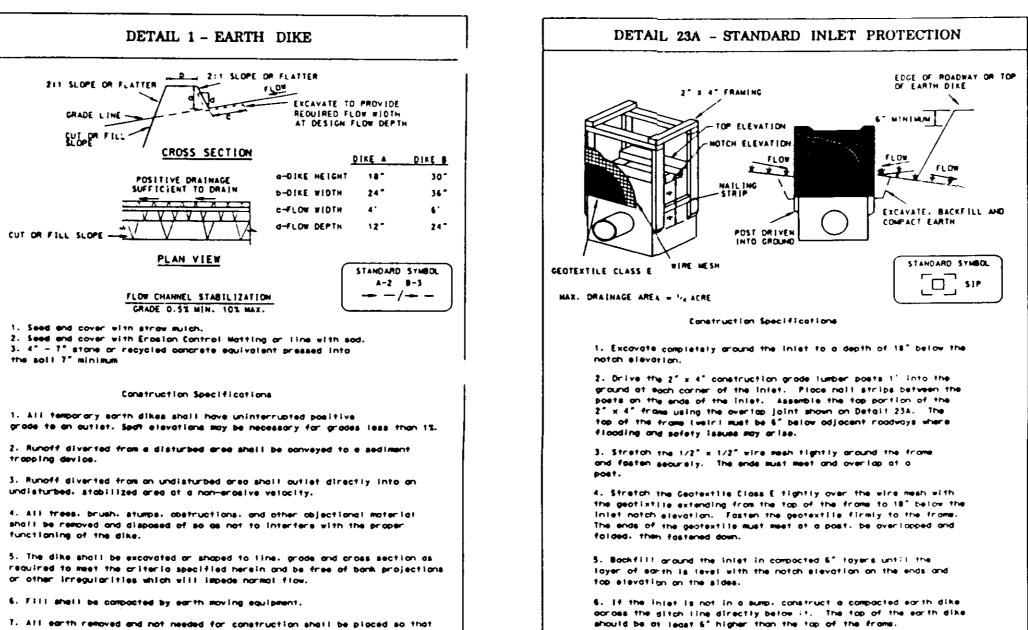
STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAT 3:1, B) 14 DAYS AS TO ALL

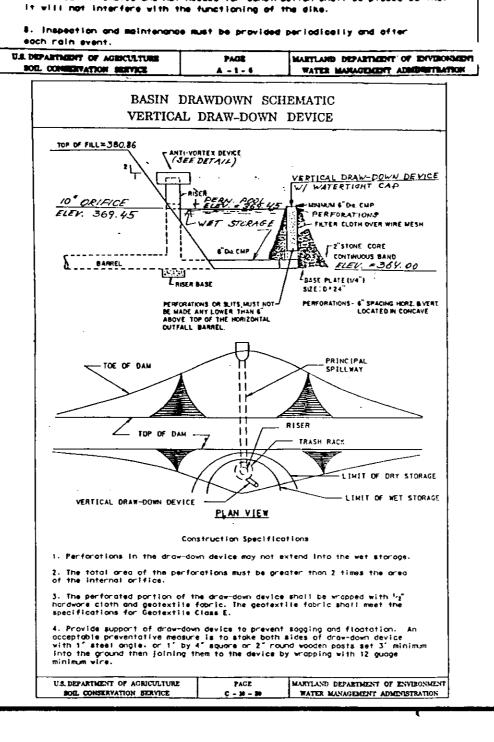
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL.1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1995 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD
- COUNTY SEDIMENT CONTROL INSPECTOR. TOTAL AREA OF SITE 65: 19 ACRES AREA DISTURBED 46.00 ACRES AREA TO BE ROOFED OR PAVED N/A ACRES AREA TO BE VEGETATIVELY STABILIZED 4 04 ACRES TOTAL CUT 100,000 CU YO TOTAL FILL 100,000 CU YO OFFSITE WASTE/BORROW AREA LOCATED AT NORTHEASTEN PORTION OF SITE EAST OF NORTH RIDGE ROAD.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

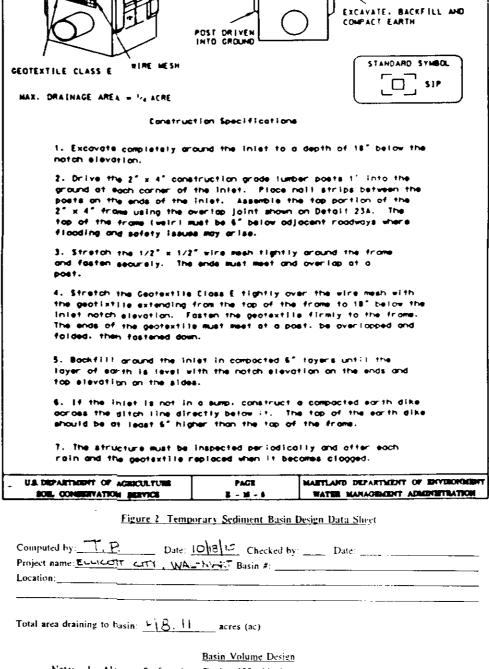






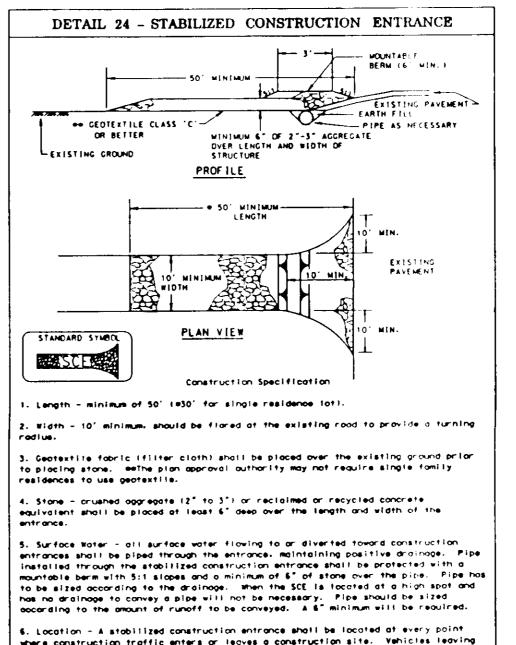






Note: 1. Also see Surface Area Design #30, this form. 2. To convert ft3 to yd3, divide ft3 by 27. To convert ft3 to yd3, divide ft3 by 9. 1. Min. required vol. = 3600 ft /ac x 48.11 ac, drainage = 175 80 ft 2. Actual Volume of basin = 431, 950 ft' 3. Excavate 2, 210 ft (31.9 yd) to obtain required capacity 4. Vol. at dewatering elev. = 1800 ft³/ac x 49.11 ac. = 86.576 ft³ 5. Vol. of basin at cleanout = 900 ft /ac x $\frac{48.0}{}$ ac. = $\frac{42.249}{}$ ft 6. Elevation corresponding to min. required volume of basin (riser crest elevation) 372.70 ft. 7. Permanent pool elevation 269,45 ft. 8. Distance from riser crest elevation to permanent pool elevation 3,25 ti. 9. Basin cleanout elevation 267, 20 ft. 10. Distance from riser crest elevation to cleanout elevation 5.50 tt Spillway Design 11. $Q_{10} = 192$ cfs (peak discharge from 10-yr, 24-hr storm event, attach computations) Principal Spillway (Qps) (See Detail 11) 12. Design Principal Sp Ilway (Barrel) discharge, Design $Q_{pq} = 192$ cts (min. 10% of 10

year peak or 8" Diameter Pipe) 13. H = 19.4 ft.; Barrel length = 116 ft. 14. Barrel Diam. 2620 in. Note: Qp must equal or exceed Design Qp $Q_{pq} = Q$ (from Table 13 or 14) 228.43x (length correction factor) $\frac{C_1 3 \frac{T}{L}}{C_1 3 \frac{T}{L}} = \frac{2 \cdot 2 \cdot \frac{1}{2}}{C_1 3 \cdot \frac{1}{2}}$ ets. 15. Riser Diameter ____ in.; Riser Height ____ ft.; Riser Head (h) = ____ ft. 16. Trash Rack Diam. in.; Trash Rack Height = in. * SEE RISER STRUCTURE DETAIL



where construction traffic enters or leaves a construction site. Vehicles leaving the alte must travel over the entire length of the stabilized construction entrance. U.S. DEPARTMENT OF ACROCULTURE MARYLAND DEPARTMENT OF ENVIRONMEN PAGE NOTER MANAGEMENT ATHERTHAN SOE, CONSERVATION BERYICE

OWNER OF DEVELOPMENT LEONORA K. HOENES 8668 BALTIMORE NATIONAL PIKE

Emergency Spillway (Oes) ELLICOTT CITY, MD 21043 (410) **4**65-2321 17. Emergency spillway cap., $Q_{cs} = Q_{10} - Q_{ps} = 1$ 18. Width _____ ft; Hp _____ft 19. Entrance channel slope 20. Exit channel slope _____ %

21. y = 12.60 ft.; z = 3.1; pipe slope = 1.08%; Ls = 94%22. Use $\frac{2}{}$ collars, $\frac{10}{}$ ft. $\frac{8}{}$ in. square; projection = $\frac{3.5}{}$ ft.

Anti-Seep Collar Design (If Required)

Design Elevations

23. Riser Crest = 376.60 ft. 24. Design High Water = N/\triangle ft. 25. Emergency Spillway Crest = N/A ft. 26. Min. settled top of dam = 300.86 ft. 27. Permanent pool 27. Permanent pool = 369.45 ft. 28. Bottom of Basin = 364.00 ft.

29. Draw-down orifice invert = 368.25 ft.

Surface Area Design

30. Min. basin surface area; $SA \ge 0.0035 \times Q_{10} = 0.0035 \times 192$ cfs ≤ 0.67 ac.

Draw-down Device

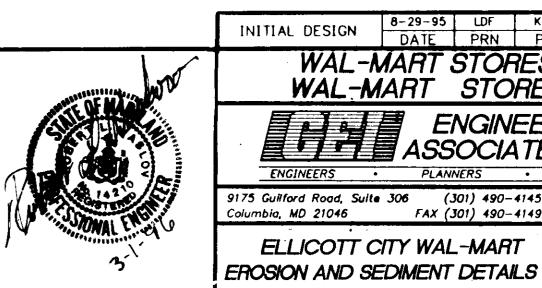
31. Draw-down device orifice diameter = ______ in. (From Table 11) 32. A₁ = Total area of perforations ≥ 4A_n A_i = (# of perforation/foot)(perforation area ft²)(perforated section length ft.) A,= 2.20 ft A_o = Internal orifice area (from Table 11 or computed) 0, 55 FT²

DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS) MINIMUM LENGTH OF 2" x 4" STANDARD SYMBOL MAX. DRAINAGE AREA - 1/4 ACRE Construction Specifications 1. Attach a continuous piece of wire mesh 130" minimum width by throat length plus 4') to the 2" \times 4" weir (measuring throat length plus 2') as shown on the standard 2. Place a continuous piece of Geotextile Class E the sens dimensions as the vire mesh over the wire much and securely attach it to the 2" x 4" well. 3. Securety not: the 2" x 4" weir to a \$" tang vertical apacer to be located between 4. Place the assembly against the injet throat and nail (minimum 2' lengths of $2^{\prime\prime}$ x 4" to the top of the well of spacer locations). These $2^{\prime\prime}$ x 4" anchors shall extend across the injet top and be held in place by sandbags or different weight-5. The pasembly shall be placed so that the end spacers are a minimum 1' beyond 5. Form the 1 / $_{2}^{\prime\prime}$ x 1 / $_{2}^{\prime\prime}$ wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the Inlet. Place clean 34" x 114" stone over the vire mesh and geotextile in such a manner to prevent water from entering the Intet under or around the geotegitle-7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clagged with sediment. Assure that storm flow does not bypass the inlet by installing a temporary. earth or asphalt dike to direct the flow to the inlet-SOIL CONSERVATION SERVICE

SUBDIVISION "ELLICOTT CITY WAL-MART" ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND TAX MAP 17 & 24 P/O PARCEL 848 REZONING CASE NUMBER ZB-941 DATED: OCTOBER 18, 1993

PRELIMINARY PLAN P-95-21 APPROVED: 6-6-95 DATE: SEPTEMBER 6, 1995 STORMWATER MANAGEMENT WAIVER APPROVED MAY 2, 1995 FROM

DESIGN MANUAL VOLUME 1, SECTION 10.2.6.5a AND SECTION 10.2.6.6a.



SKETCH PLAN S-95-01

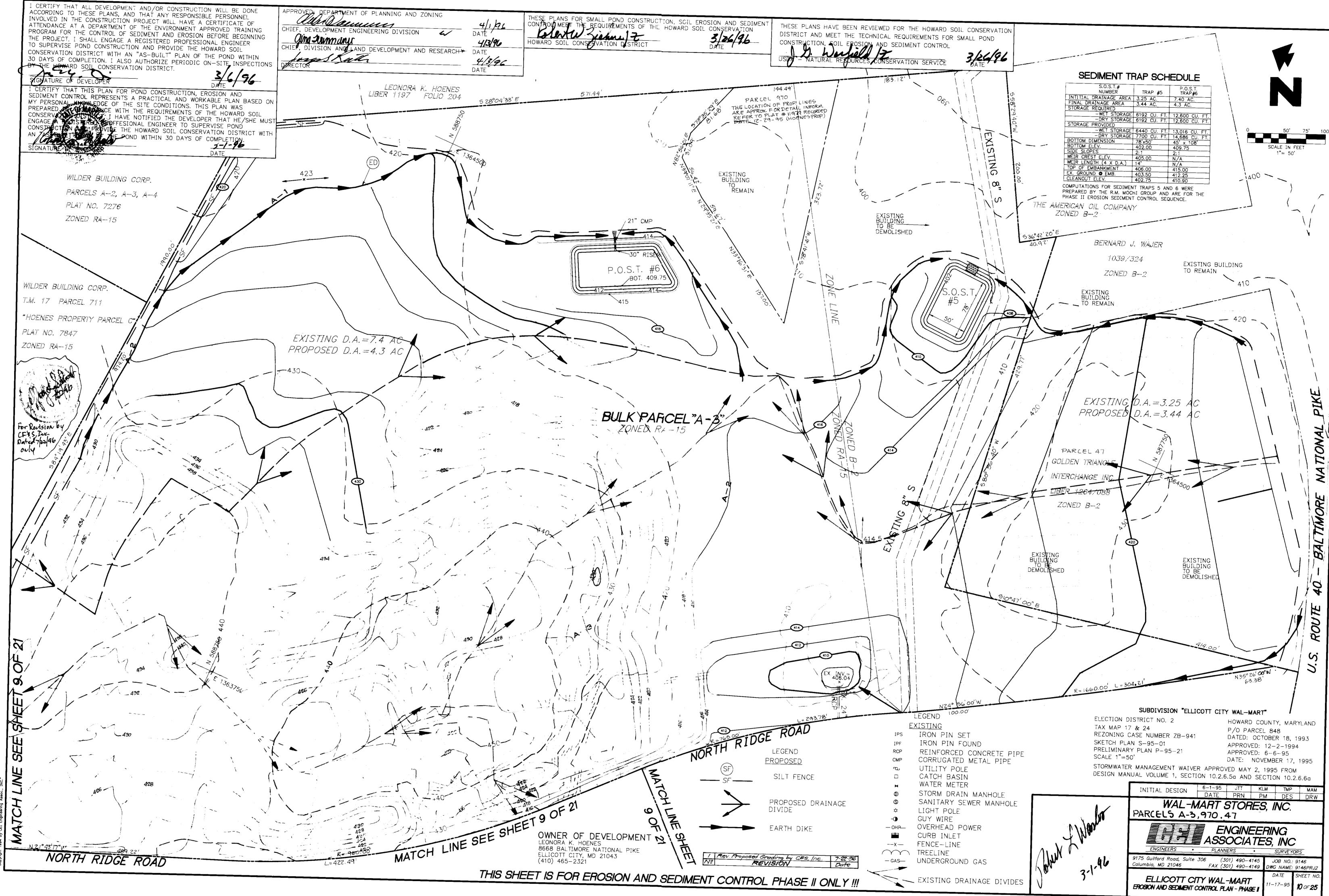
WAL-MART STORES, INC. WAL-MART STORE #2412 ENGINEERS • PLANNERS • 175 Guilford Road, Sulta 306 (301) 490-4145 JOB NO.: 9146 Columbia, MD 21046 FAX (301) 490-4149 DWG NAME: 9146PRJ#

ELLICOTT CITY WAL-MART

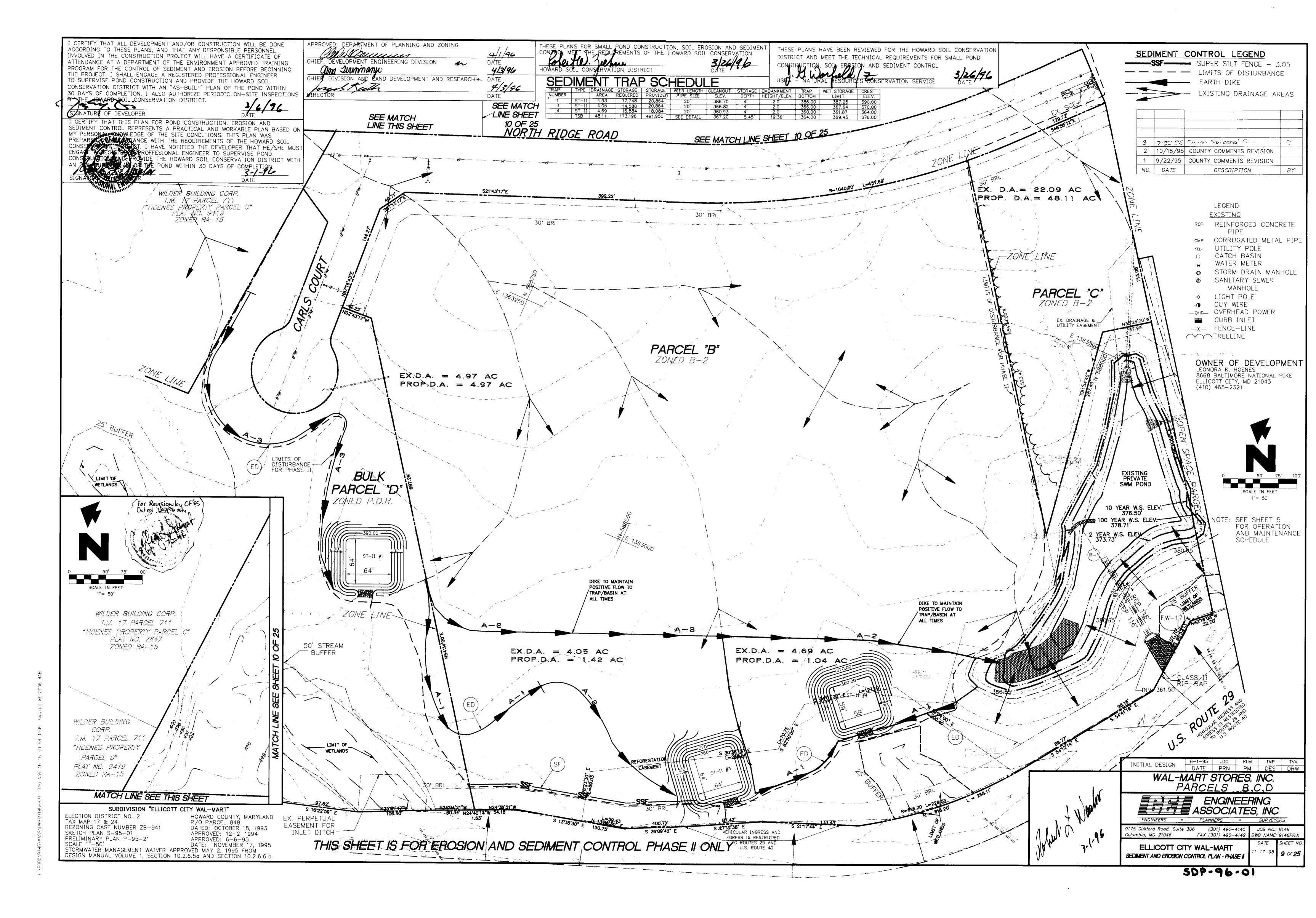
APPROVED: 12-2-1994

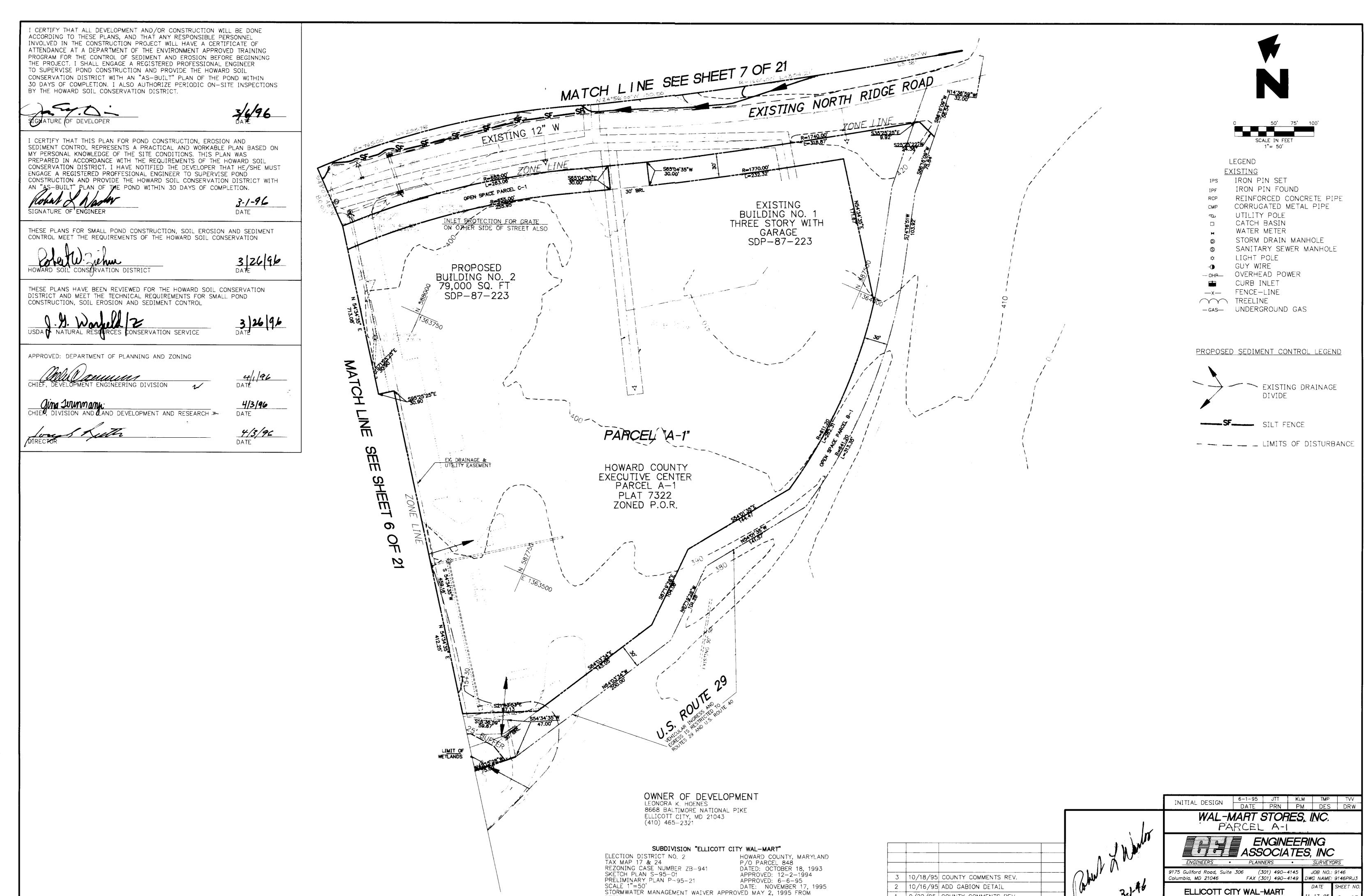
SDP - 96 - 01

7-5-95 12 OF 25



SDP-96-01





DESIGN MANUAL VOLUME 1, SECTION 10.2.6.5a AND SECTION 10.2.6.6.a.

a jaconjar46)MASS\DWG\ar46PRJ3 Thu Nov 16 16 24 47 1995 System WS-

SDP-96-01

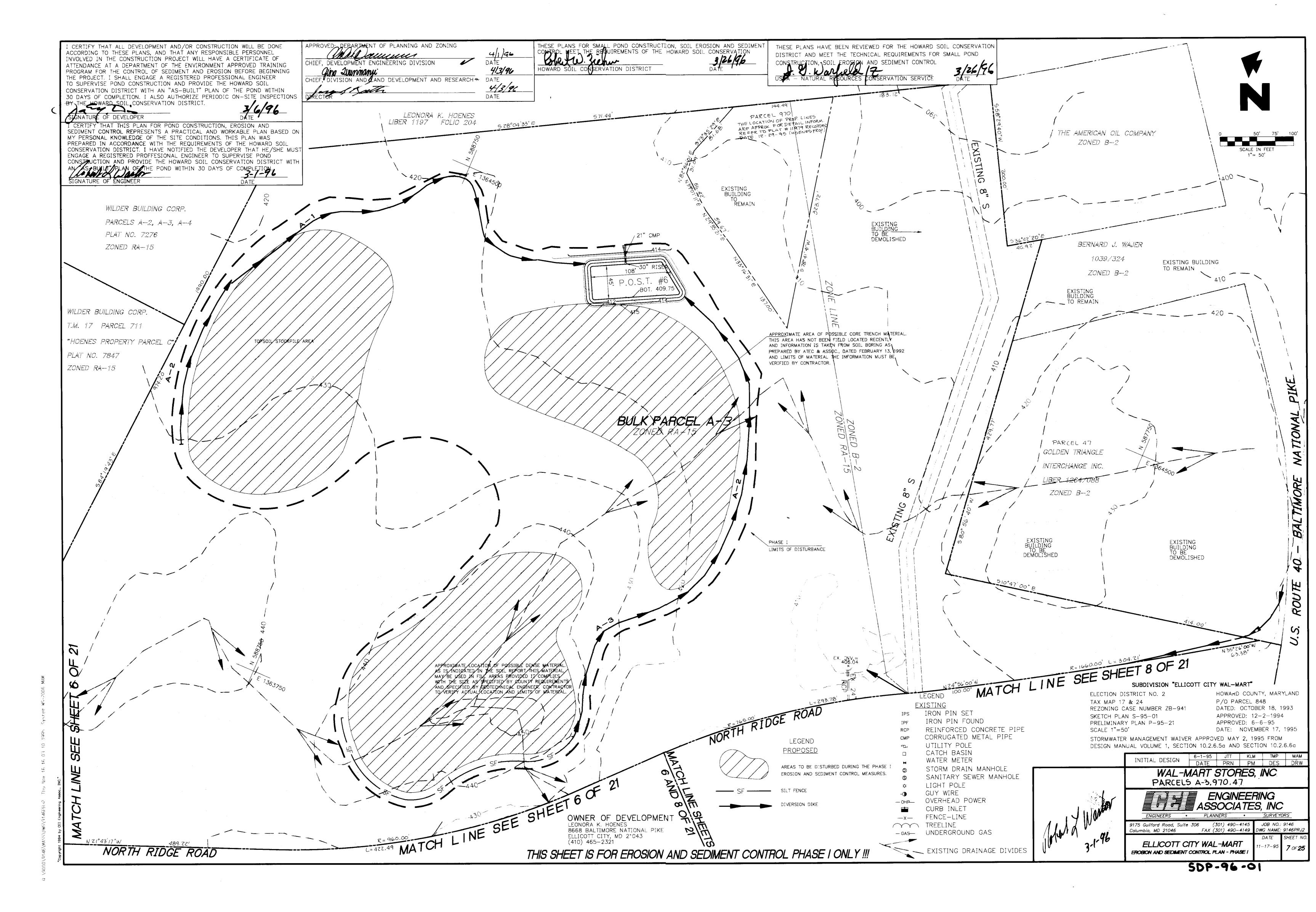
SEDIMENT AND EROSION CONTROL PLAN-PHASE

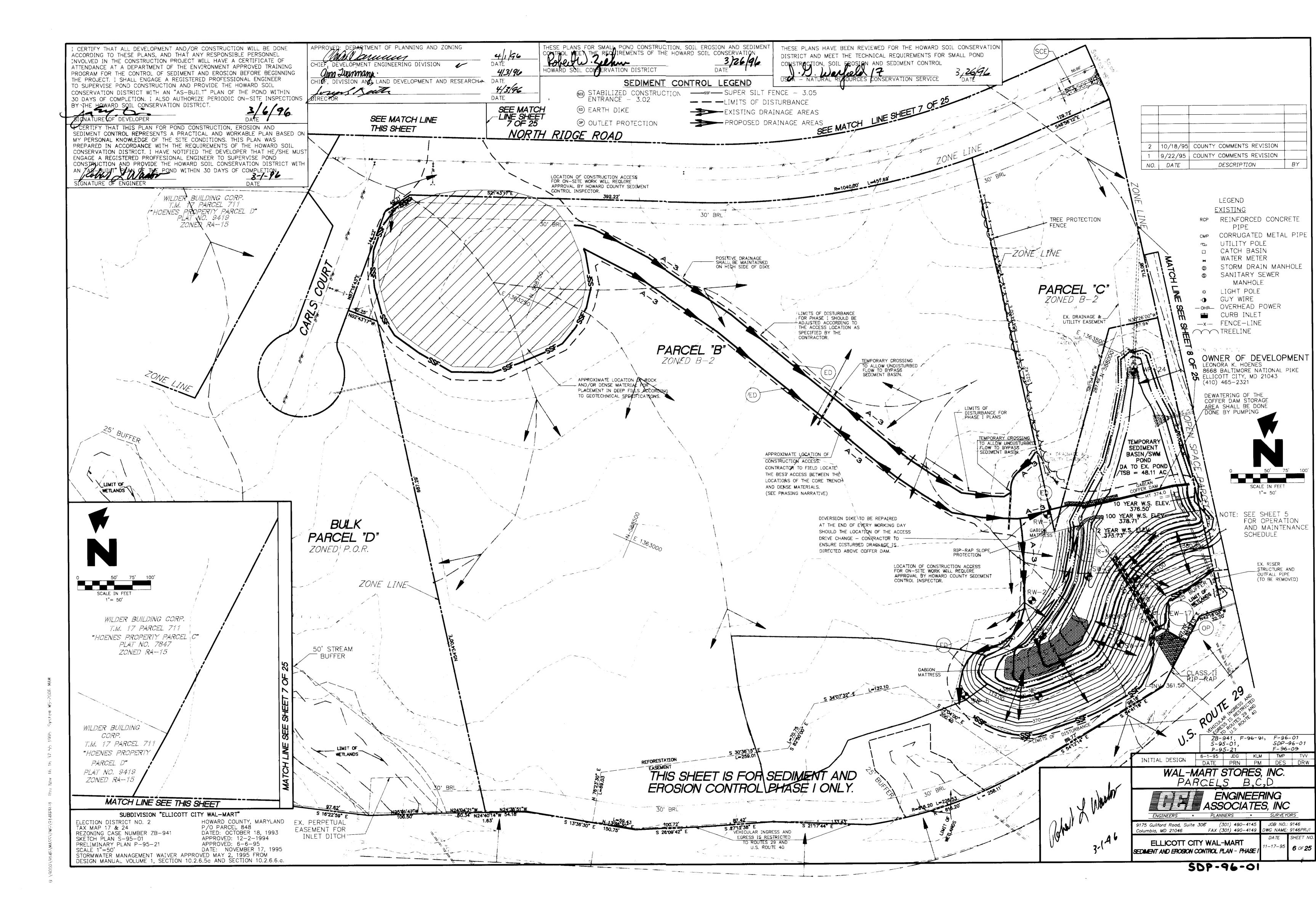
8 OF 25

1 9/22/95 COUNTY COMMENTS REV.

DESCRIPTION

NO. DATE





CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFFESIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

DATE

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

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL

USDA + NATURAL RESOURCES CONSERVATION SERVICE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

UM Lauman DEVELOPMENT ENGINEERING DIVISION

CHIEF DIVISION AND LAND DEVELOPMENT AND RESEARCH

4/3/90

OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY EXTENDED DETENTION POND

ROUTINE MAINTENANCE

- 1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
- 2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES SHALL NOT EXCEED 18 INCHES IN HEIGHT AT ANY TIME. OTHER SIDE SLOPES, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
- 3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- 4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE

THE ATTACHED FORM.

ROUTINE MAINTENANCE OPERATIONS.

- 1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING
- 2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY'S DEPARTMENT OF PUBLIC WORKS. IN ADDITION, REMOVAL OF SILT SHALL OCCUR WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE FOREBAY.
- CORRECTIVE MAINTENANCE WILL BE COMPLETED ANY TIME AN EXTENDED DETENTION BASIN DOES NOT DRAIN THE EQUIVALENT OF THE WATER QUALITY VOLUME WITHIN 60 HOURS, SO AS NOT TO ALLOW ANY STANDING WATER. IN ADDITION, CORRECTIVE MAINTENANCE WILL BE COMPLETED ANY TIME THE FOREBAY DOES NOT DRAIN DOWN COMPLETELY WITHIN 60 HOURS.

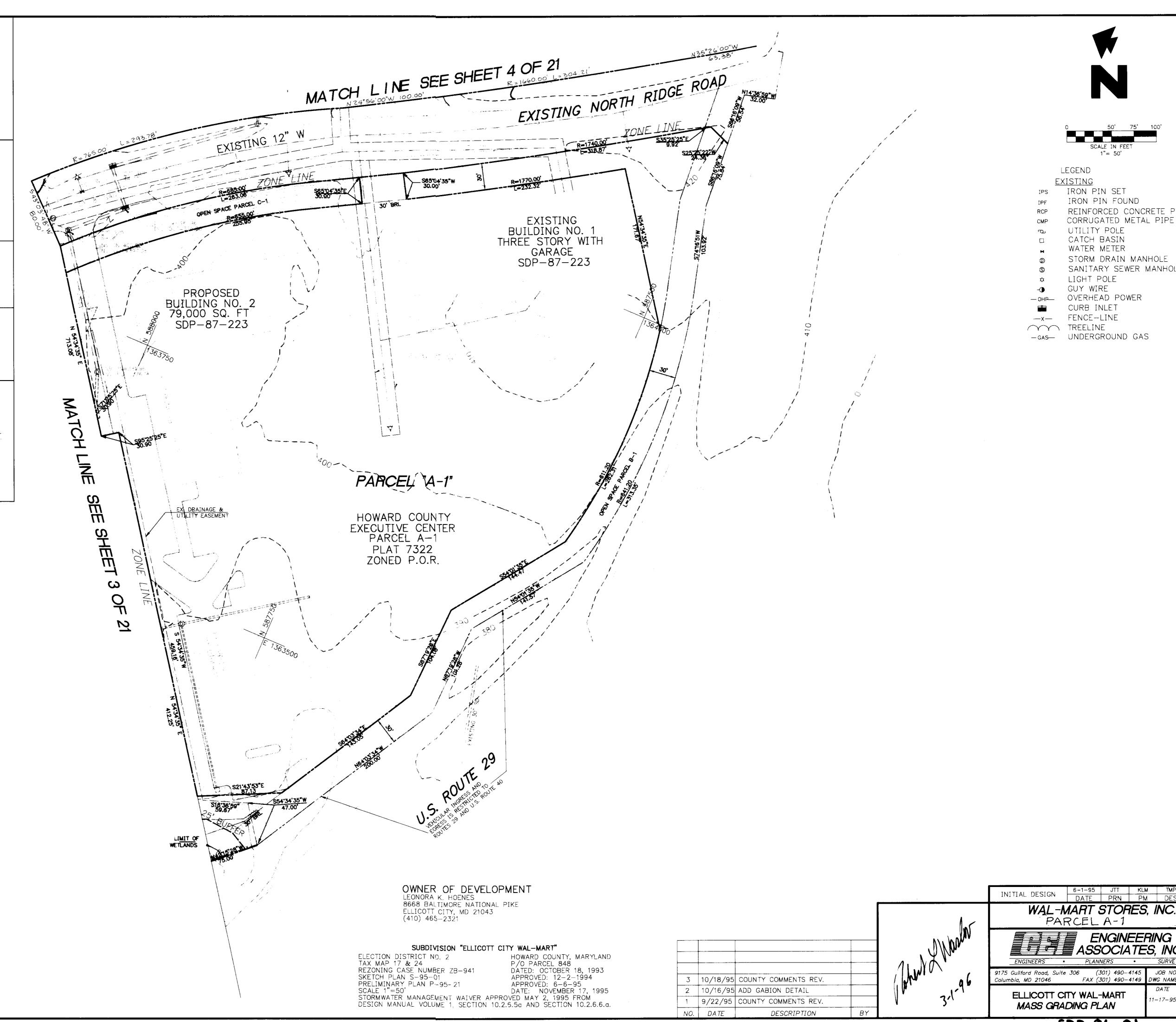
OPERATION AND MAINTENANCE SCHEDULE STORMCEPTOR DEVICES

AS RECOMMENDED BY THE MANUFACTURER OF THE STORMCEPTOR SYSTEM, THE SYSTEM WILL BE MAINTAINED BY CLEANING ON AN ANNUAL BASIS INITIALLY. AFTER THE SITE IS STABILIZED THE SYSTEM WILL BE MONITORED TO DETERMINE THE FREQUENCY OF MAINTENANCE BASED ON THE LOCAL SITE CONDITIONS.

SHOULD SOME TYPE OF SPILL OCCUR, THE STORMCEPTOR SHALL BE CLEANED IMMEDIATELY AFTER THE SPILL OCCURS. APPROPRIATE REGULATORY AGENCIES WILL ALSO BE NOTIFIED IN THE EVENT OF A SPILL.

THE SEDIMENT FROM THE STORMCEPTOR SHALL BE TESTED TO DETERMINE THE DISPOSAL OPTIONS. THE HAZARDOUS MATERIALS (OIL/CHEMICAL/FUEL) WILL BE REMOVED BY A LICENSED WASTE MANAGEMENT COMPANY AND DISPOSED OF ACCORDINGLY. ALL METHODS OF DISPOSAL SHALL BE APPROVED BY THE PROPER LOCAL AND STATE AGENCIES.

ALL INSPECTIONS AND MAINTENANCE PROCEDURES OF THE STORMCEPTOR SYSTEM SHALL BE COMPLETED USING



1"= 50'

IRON PIN FOUND

UTILITY POLE

CATCH BASIN WATER METER

LIGHT POLE GUY WIRE

CURB INLET

FENCE-LINE

-gas- UNDERGROUND GAS

PARCEL A-1

ENGINEERING

FAX (301) 490-4149 DWG NAME: 9146PRJ3

JOB NO.: 91**4**6

5 OF 25

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(301) 490-4145

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OVERHEAD POWER

REINFORCED CONCRETE PIPE

CORRUGATED METAL PIPE

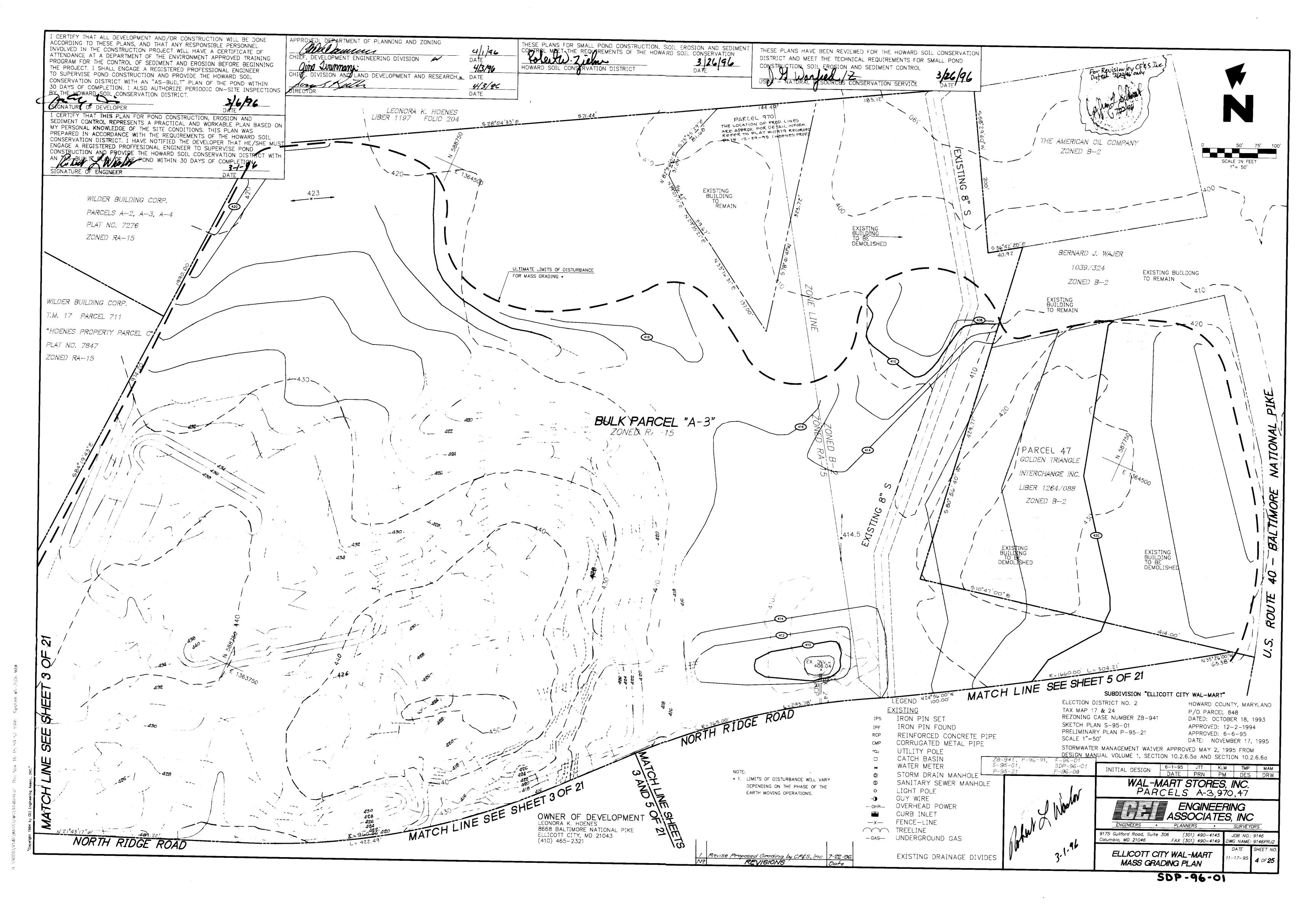
STORM DRAIN MANHOLE

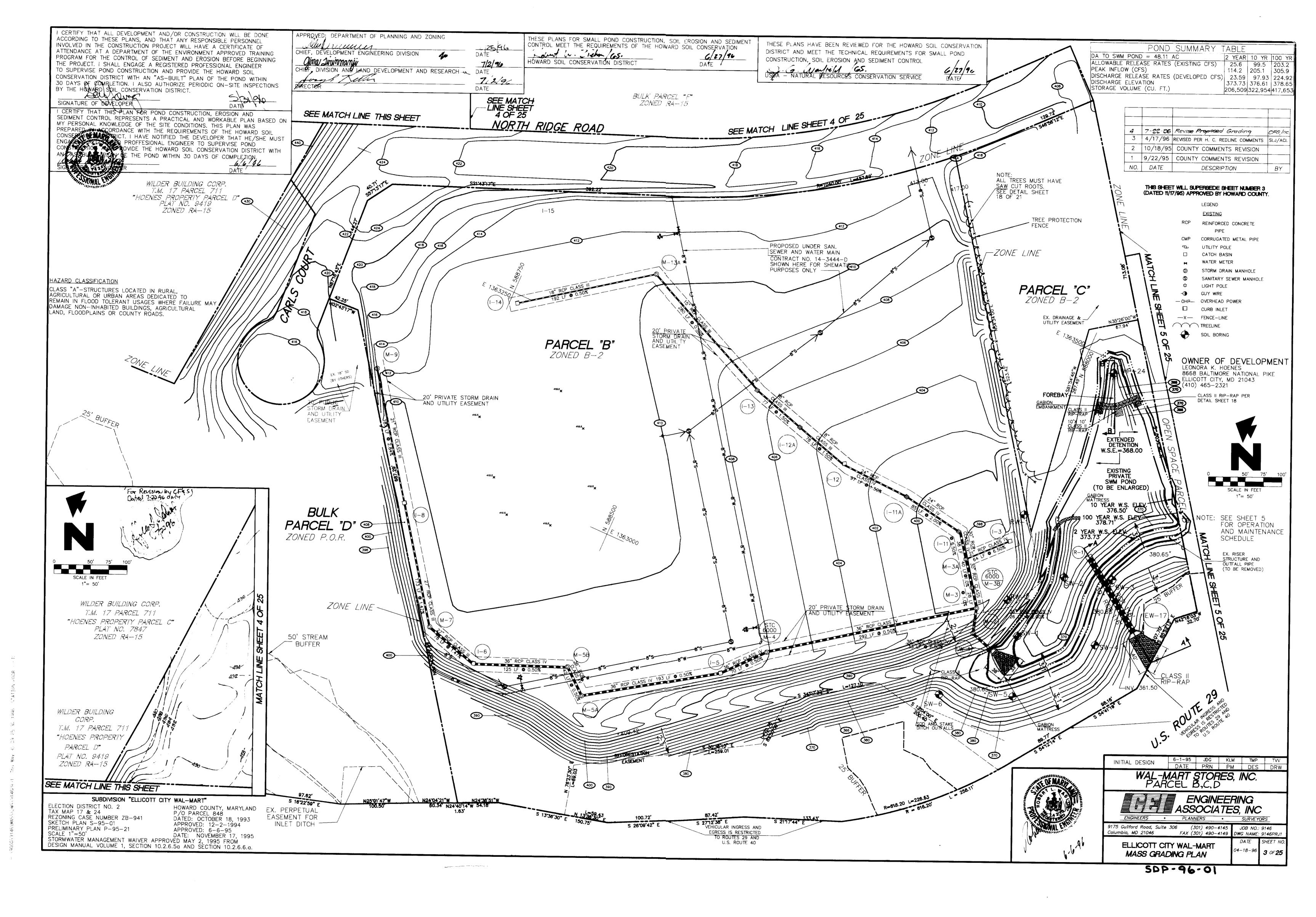
SANITARY SEWER MANHOLE

LEGEND

EXISTING

IPS IRON PIN SET





RETAINING WALL CONSTRUCTION SPECIFICATIONS

KEYSTONE SEGMENTAL BLOCK RETAINING WALLS REINPORCED WITH MERAGRID GEOGRIDS

CLEARING AND SUBGRADE PROPAGATION

- 1. Clearing and stripping limits shall be extended a minimum of 2 feet in front of the retaining walls and to the back of the reinforced zone.
- 2. All existing topsell, rootmet, and any other seft or unsuitable meterials shall be removed from the clearing and stripping limits.
- 3. Prior to initiation of construction operations or fill placement, the stripped area shall be observed by an experienced gestechnical engineer or his authorized representative to aid in locating unsultable meterials which require removal.
- 4. If fessible, proofrolling, using a loaded dump truck having an axie weight of at least 10 tons, or similar equipment, shall be used to identify localized soft or unsuitable material which required removal.
- 5. Any soft or unsuitable meterials encountered during this proofrolling shall be removed and replaced with an approved backfill compected to the criteria outlined in the section entitled COMPACTIVE EFFORT AND FILL PLACEMENT.

ENCANATION SUPPORT AND SLOPE

- 1. Temperary slopes shall be no steeper than 1H:1V.
- 2. Executions shall be constructed and braced in accordance with current OSHA requirements.
- 3. The Contractor shall not steekpile excevated materials or equipment immediately adjacent to the excevation walls or sleepes. All such materials shall be kest back from the top of the excevation a minimum distance equal to the excevation depth. Where equipment or meterials must be placed immediately adjacent to the excevation walls, the excevation walls shall be designed for the anticipated surcharge loading, or additional bracing must be provided to support the anticipated surcharge loading.

MATTERIALS

- 1. Retaining Wall Linits shall consist of KEYSTONE straight face mesonry units. All mesonry retaining well units shell be in strict accordance with the latest specifications furnished by KEYSTONE Retaining Wall Systems. Inc., Minneapolis, MN.
- 2. The color of block units to be selected by the Owner.
- 3. Fibersiess Fine shall be nylon resin rods with fibergless reinforcement as supplied by KEYSTONE Retaining Well Systems, Inc. and shall be in accordance with the letest KEYSTONE accordings.
- 4. Gangtide shall consist of Mirafi (Miragrid) geogrids. All geogrids shall be in strict accordance with the letest specifications furnished by the Nicolon/Mirefi Group, Nercross, GA.
- 5. Gastrutiles, shall consist of Mirefi 140N, or Americ 4551, or other equivalent as approved by ECS. Ltd.
- 6. Meterial handling and storage shall be in accordance with the menufacturar's specifications.
- 7. Designer Agreement shell consist of AASHTO #57 stone.
- 8. Lauring Pad shall consist of AASHTO #57 stone, MDOT CR-467, or VDOT 21-A graded aggregate.
- 9. Fill meterials for the <u>Baladanaed Fill</u> and <u>Batained Fill</u> zones shall consist of sells having a Unified Sell Classification System designation of SM, SC, SP, SW, GM, GC, GP, or GW, be free of organic matter, rocks greater than 6 inshes in maximum dimension, or debris, and have maximum Liquid Limit and Plasticity Index of 40 and 15, respectively. Furthermore, the reinferced and retained fill sense shall consist of materials that meet or exceed the requirements of the design parameters.
- 10. Unescaptable fill meterials include topsoil, organic meterials (OH, OL), low stastistity sits and clave (ML. CL), plastic sits and clave (CH, MH), and sells not meeting the criteria of the previous paragraph.
- 11. High plasticity materials (MH, CH) shall not be used as controlled fill. Acceptable fill soils shall be defined as those soils meeting the design parameters and the requirements of this section.

POMENTA TOM

- 1. The reinforced backfill zone shall beer on natural materials that have been prepared in accordance with the section CLEARING AND SUBGRADE PREPARATION.
- 2. The leveling sed shall also beer on suitable natural materials. The leveling ped should consist of a granular material such as graded appreciate (MDOT CR-467, VDOT 21-A) or crushed stone (VDOT # 57) that is at least 6 inches thick.
- 3. The bearing capacity of the subgrade supporting all retaining wall elements. including mesonry blocks and reinforced fill zone, shall be verified by a qualified sell technician or gestechnical engineer at a minimum frequency of 25 feet on center.

COMPACTIVE SPRORT AND PILL PLACEMENT

- 1. Leveline Ped
- a. Where No. 57 stone is used, temp in place w/a flat plate temper
- b. Where MDOT CR-467 or VDOT 21A is used, compact to a minimum of 95% of the meximum dry density in accordance with ASTM D-698. Standard Proctor method.
- 2. Drainage Agreeate Tamp and compact with a smooth plate walk-behind
- 3. Reinferred Fill Zene Compect to a minimum of 95% of the meximum dry density obtained in accordance with ASTM D-696 Standard Proctor
- 4. Betained Fill Zone Compact to a minimum of 95% of the meximum dry density obtained in accordance with ASTM D-698 Standard Proctor
- 5. Fill meterials shall not be placed on frozen or frost heaved soils. All such soils shall be removed prior to continuation of fill operations.
- 6. Fill meterials shall not be contain frozen meterials at the time of fill placement. All such materials shall be removed prior to continuation of fill operations.
- 7. Fill soils should be placed in lifts not exceeding 8 inches in loose thickness.
- moisture content, and should be compacted to a minimum of \$5% of the meximum dry density as determined in accordance: with ASTM Specification D-696, Standard Proctor Method.

8. At the time of compection, fill soils shall be within $\pm 2\%$ of the optimum

- 9. All fill and backfill operations shall be observed on a full-time basis by a qualified soil technician to determine if minimum compaction requirements are being met and that materials meeting or exceeding the specification requirements are used.
- 10. In-place density tests shall be performed with a minimum of 1 test per 1.000 square feet of fill area for each lift of fill placed. The elevation and location of the tests should be clearly identified at the time of fill plecement.
- 11. Granular soils (Unified Soil Classification SM or better) shall be compacted with smooth drum vibratory compection equipment or rubber tire
- 12. Low plasticity soils (Unified Soil Classifications ML, SC) shall be compacted with a sheepefoot roller.
- 13. Care should be exercised regarding the use of relatively heavy mechinery close to the wall. Lighter compection equipment should be used close to the wall.
- 14. The fill area shall be graded at the end of each day to facilitate the positive drainage of surface water associated with precipitation away from it.

DEWATERING AND SITE DRAWAGE

compactors.

- 1. The contractor shall provide sump pit and pumping operation as required for dewatering the retaining well excevations.
- 2. The Contractor shall provide and maintain adequate site drainage during earthwork operations, including providing for drainage of surface water away from the construction areas, and enhancement of natural drainage paths without interrupting its pettern.
- 3. All eresion and sedimentation control shall be controlled in accordance with sound engineering practice and current County requirements.

SCHOOL MOTTE

1. If the elevation, location, surcharge loading, or grading surrounding the retaining walls changes from that depicted on these plans, ECS, Ltd. shall be notified so that modifications to the geotechnical design can be made, as necessary.

< < End of Section > >

GENERAL CONSTRUCTION SEQUENCE

KEYSTONE SEGMENTAL BLOCK RETAINING WALLS REINFORCED WITH MIRAGRID GEOGRADS

STEP 1 - EXCAVATION AND LEVELING PAD

A. WALL LAYOUT AND GENERAL EXCAVATION

- 1. Survey stake wall location and general excavation limits for wall construction.
- 2. Ensure the wall is along proper alignment, and within appropriate preparty boundaries, and construction essements.
- 3. Perform general expension for well

R. LEVELING PAD COMETRUCTION

- 1. Stake wall location for leveling gad excevation.
- 2. Excavate trench to create the minimum leveling pad thickness and to the minimum width shown.
- 3. Install drain pipe with positive gravity flow to outlet, if required, and as shown on the plans.
- 4. Place, level and compact leveling pad meterial for retaining wall
- 5. Place and compact aggregate blanket drain. Install geotextile as

STEP 2 - INSTALLING FIRST COURSE OF BLOCK UNITS

A. SETTING FIRST COURSE OF BLOCK UNITS

- 1. Check leveling pad elevation and smooth leveling pad surface.
- Stake and string line the wall location paying close attention to exact location of curves, corners, and vertical and horizontal steps. String line must be along the molded face (back) of the block unit, and not along the broken block finish surface.
- 3. Install first course of blocks, checking level as placed.

B. BACKFILLING FIRST COURSE OF BLOCK UNITS

- 1. Recheck wall location.
- 2. Use drainage aggregate to fill any openings in and between block units, as required.
- 3. Carefully place drainage aggregate behind and up to the height of the block unit to create wall face drain.
- 4. Place gestextile as shown.
- 5. Place and compact reinforced soil behind well drain.
- 6. Place and compact fill soils in front of block unit.
- 7. Place and compact retained fill soils
- 8. Compact drainage aggregate

STEP 3 - PLACEMENT AND BACKPILLING OF BLOCK UNITS

A. IMSTALLING SUCCESSIVE COURSES OF BLOCK LINITS

- 1. Ensure that drainage aggregate is level with, or slightly below top of
- 2. Theroughly clean debris and aggregate off of top of block units
- 3. Install connecting sheer pins.
- 4. Place next course of block and push units forward to engage shear pins and establish proper setback, consistent with setback shown on the details and in accordance with manufacturer's specifications.

B. FILL PLACEMENT AND COMPACTION

- 1. Use drainage aggregate to fill openings in and between block units
- 2. Carefully sleep drainage aggregate behind and up to the height of the block unit to create well face drain.
- 3. Place gostaxtile as shown.
- 4. Place and compact reinforced soil behind wall drain.
- 5. Place and compact retained fill dells.
- 6. Compast drainage aggregate.

STEP 4 - GEOGRED REMPORCEMENT INSTALLATION

A. PLACEMENT OF GEOGRID REINFORCEMENT

- 1. Ensure that drainage aggregate is level with, or slightly below top of block unit below.
- 2. Thoroughly clean debris and aggregate off of top of block units.
- 3. Inetall connecting shear pins.
- 4. Cut geogrid to design length shown on plans (GGL) and install with strength direction perpendicular to the wall face. Hook geogrid over protruding pine as shown on details provided.
- 5. Place next course of block on geogrid and push units forward to engage shear pine and establish proper setback, consistent with setback shown on the details and in accordance with manufacturer's specifications.

B. BACKFILLING OVER GEOGRID

- 1. Pull geogrid tight using uniform tension so that there are no wrinkles in the geogrid. Hold or stake in place to maintain tension throughout fill plecement process.
- 2. Place drainage aggregate for wall face drain in and between block units as required.
- 3. Place gestextile as shown.
- 4. Place and compact reinforced fill sell behind well drain, working from the wall back towards the free and of the geogrid.

- 5. Place and compact retained fill sells
- 6. Compact drainage aggregate

MOTE: CONTINUE CONSTRUCTION OF THE WALL TO FULL HEIGHT LINE STEPS 3 AND 4

STEP 5 - CAPPING AND GRADING

- 1. Install cap/coping unit (optional) and secure in place per menufacturer's recommendations.
- 2. Place and compact final backfill
- 3. Finish grade for positive drainage away from the wall face.
- 4. Place topeoil and vegetate slopes above, below, and around wall terminations.

GENERAL NOTES:

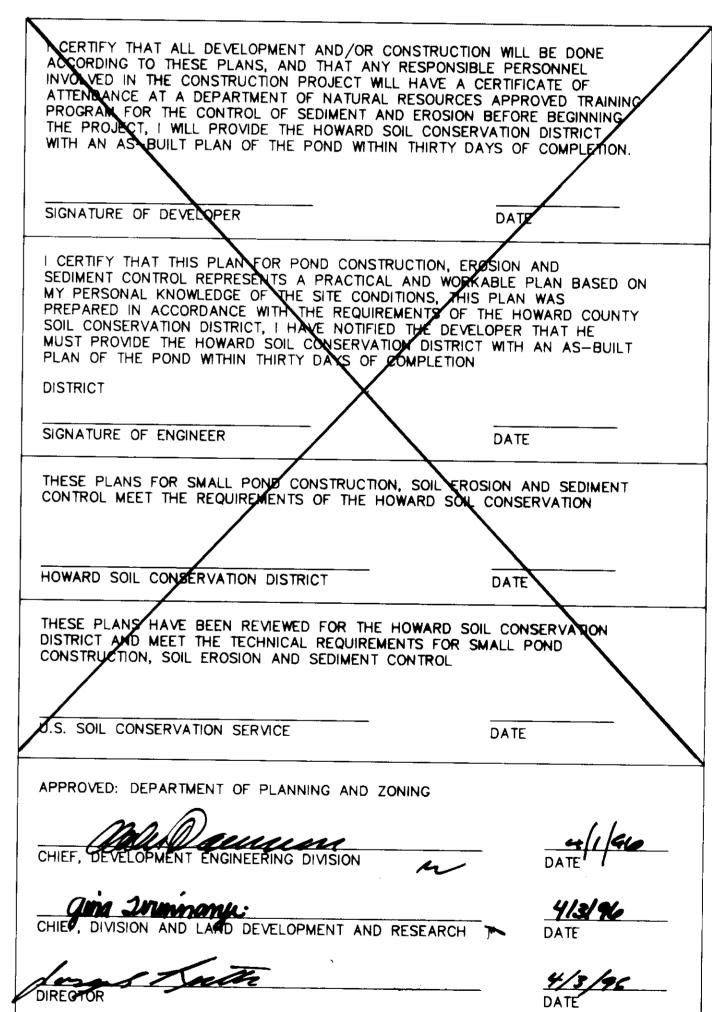
- 1. Alignment should be checked every other course, especially for straight walls.
- 2. Blocks, drainage aggregate, reinforced fill, and retained fill shall be brought up simultaneously. None of these items should lead another by more than one course height.

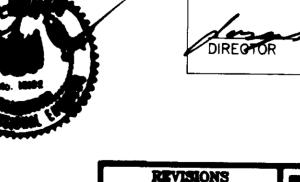
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OWNER OF DEVELOPMENT LEONORA K. HOENES

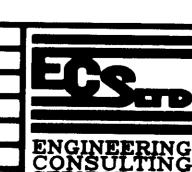
8668 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD 21043 (410) 465-2321

ELECTION DISTRICT NO. 2 HOWARD COUNTY MARYLAND TAX MAP 17 \$ 24





10-11-95



RETAINING WALL SPECIFICATIONS WAL-MART STORE #2412 - ELLICOTT CITY, MD.

WAL*MART STORES, INC.

JRC RAC 06-30-95 NTS

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