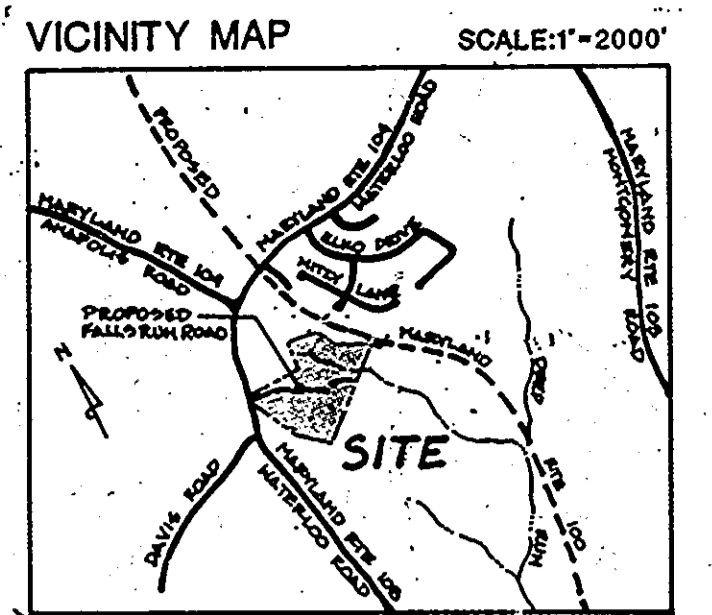


# SITE DEVELOPMENT PLANS FOR ASHTON WOODS



DEVELOPER/OWNER

**SUMMIT PROPERTIES**  
203 KEY HIGHWAY  
BALTIMORE, MARYLAND 21230

LOT NUMBER	ADDRESS	CHART STREET ADDRESS
Bldg. 1/3	8419 - 8415	OAKTON LANE (PRIVATE)
" 2/1	8405 - 8409	" " "
" 4/1	8425 - 8429	" " "
" 5/1	8439 - 8439	" " "
" 6/1	8445 - 8449	" " "
" 7/1	8469 - 8465	" " "
" 8/1	8459 - 8455	" " "
" 9	8401	" " "
" 12/3	8430 - 8434	COTONEASTER DRIVE (PRIVATE)
" 11/1	8424 - 8420	" " "
" 10/1	8414 - 8410	" " "
" 9/1	8404 - 8400	" " "
" 14/1	8450 - 8454	" " "
" 13/3	8440 - 8444	" " "

**SITE ANALYSIS**

- A. AREA OF PARCEL: 26.2526 ACRES 1,143,563.25 S.F.
- B. PRESENT ZONING: R-SA-8 (NO CHANGE) HOWARD COUNTY FILE # S-89-34 REFERENCE: WP-89-41 WP-89-94 WP-89-66
- C. NUMBER OF UNITS ALLOWED: 202 D.U.
- D. NUMBER OF UNITS PROVIDED: 202 D.U.
- E. MINIMUM SQUARE FOOT FLOOR AREA OF APARTMENTS:
 

	TYPE I	TYPE II	TYPE III
1 BEDROOM	730 S.F.	6	4
1 BEDROOM/DEN	831 S.F.	3	3
2 BEDROOM	967 S.F.	4	6
2 BEDROOM/	1075 S.F.	1	1
TERRACE			
2 BEDROOM/DEN	1274 S.F.	2	
- F. MAXIMUM NUMBER OF EMPLOYEES ON SITE PER USE: 6
- G. NUMBER OF PARKING SPACES REQUIRED: 375
- H. NUMBER OF PARKING SPACES PROVIDED: 383
- I. OPEN SPACE (GREEN AREA) TO REMAIN ON SITE: 862,082.25 S.F. AREA AND 75.38%
- J. BUILDING COVERAGE OF SITE: 62,025 S.F. AREA AND 2.32%
- K. ALLOWABLE UNIT DENSITY: 8.0 UNITS/ACRE ACTUAL UNIT DENSITY: 7.7 UNITS/ACRE
- L. AREA OF PROPOSED ROADS - 5.39 ACRES
- 2. CURRENTLY, NO UTILITY STRUCTURES EXIST ON SITE. WATER AND SEWER SERVICE WILL BE PUBLIC.
- 3. ALL REMAINING WALLS SHALL BE LESS THAN 3 FEET IN HEIGHT, MEASURED FROM BOTTOM OF WALL TO TOP OF WALL, AT THE HIGHEST POINT, UNLESS OTHERWISE NOTED. SEE SHEETS 2 AND 3 OF 33 FOR SPOT ELEVATIONS.
- 4. SOIL MAP NUMBER 25, HOWARD COUNTY SOILS BOOK.
- 5. BUILDINGS WILL BE PROTECTED WITH APPROVED AUTOMATIC SPRINKLER SYSTEM.
- 6. ALL AREAS BETWEEN BUILDINGS AND COMMON PARKING AREAS TO HAVE A MIN. 15 FOOT LANDSCAPE BUFFER AREA.
- 7. VEGETATION EXISTING ON-SITE CONSISTS OF MATURE MIXED HARDWOOD FOREST WITH TREES 4" TO 3 FOOT CALIPER.
- 8. STATE WATER QUALITY CERTIFICATION AND SECTION 404 PERMITS HAVE BEEN APPLIED FOR IN CONJUNCTION WITH THIS DEVELOPMENT.
- 9. A TRAFFIC STUDY OF PROPOSED ROADWAYS WITHIN AND ADJACENT TO THIS SITE HAS BEEN CONDUCTED.
- 10. MARYLAND ROUTE 100 ALIGNMENT TO BE ADDED TO PLAN AS FINISHED.
- 11. FOR RECOMMENDED BY-PASS AND CONFIGURATION AND DIMENSIONS REFERENCE SHEET 4, 5 OF 33
- 12. A TRAFFIC NOISE ANALYSIS HAS BEEN CONDUCTED WITH WHICH THE SDP SUBMISSION OF THIS SITE PLAN COMPLIES.
- 13. NEAREST INTERSECTION TO SITE ENTRANCE ALONG ROUTE 108 IS DAVIS ROAD, APPROXIMATELY 550' SOUTH OF THE CENTERLINE OF HALLS RUN ROAD AT THE INTERSECTION WITH ROUTE 108.
- 14. REFER TO SHEETS 2 AND 3 OF 33 FOR EXISTING TREES TO REMAIN.
- 15. REFERENCE SHEET 2 AND 3 OF 33 FOR SIDEWALK LOCATIONS. SIDEWALK WIDTHS VARY; SEE PLAN. SEE DETAIL # 5, SHEET 3 OF 33 FOR SIDEWALK DIMENSIONS.
- 16. STORMWATER MANAGEMENT TO BE ON-SITE.
- 17. APPLICABLE PLANNING AND ZONING FILES: WP-89-49 WAIVER OF REQUIREMENT FOR SPECIFIC SIDEWALKS. WP-89-94 WAIVER OF REQUIREMENT FOR PRELIMINARY PLAN. S-89-34 SEARCH PLAN. WP-89-66 WAIVER OF RESUBDIVISION PLAN.
- 18. ALL RECREATION FACILITIES ARE INTENDED FOR THE RESIDENTS AND GUESTS OF ASHTON WOODS ONLY.
- 19. PROPOSED STREET NAMES: COTONEASTER DRIVE OAKTON LANE

- 20. ALL APPLICABLE MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH HOWARD COUNTY ROAD CONSTRUCTION CODE AND SPECIFICATIONS.
- 21. ANY DAMAGE TO COUNTY OWNED RIGHTS-OF-WAY TO BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- 22. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTION SURVEY DIVISION 24 HOURS IN ADVANCE OF WORK (592-2417 OR 792-7272).
- 23. ALL DOWNSPOUT DRAINS SHALL BE HANDLED BY DOWNSPOUT TO SEWAGE BLOCKS AND DISCHARGED TO GROUND HAVING GOOD PERCOLATION.
- 24. THE DEVELOPER AGREES TO WORK WITH DEPARTMENT OF LICENSES & INSPECTION TO RESOLVE ANY PROBLEMS CAUSED BY ROOF WATER DISCHARGE.
- 25. ALL INTERIOR ROADS ARE TO BE PRIVATE. FALLS RUN ROAD IS PUBLIC.
- 26. FIRE LANE LOCATION - SEE SHEET 4 AND 5 OF 33.
- 27. ADDITIONAL BERING AND LANDSCAPING TO BE SHOWN ON DETAILED SITE LANDSCAPING PLANS.
- 28. BUILDING ELEVATIONS ARE DIMENSIONED TO THE MEDIAN HEIGHT LEVEL BETWEEN THE ROOF RIDGE AND EAVES FROM THE AVERAGE ADJOINING GRADE ELEVATION. THE AVERAGE GRADE ELEVATIONS TAKE INTO ACCOUNT THE GREATEST GRADE CHANGE AROUND BUILDINGS.
- 29. BOUNDARY SURVEY AND WETLANDS LIMITS PROVIDED BY DEMBERRY & DAVIS, 3300 NORTH RIDGE ROAD, ELICOTT CITY, MARYLAND 21045 DATED FEBRUARY 8, 1989. SHEET TITLES: BOUNDARY SURVEY "ASHTON WOODS" LOT 2 MONTGOMERY ROAD 1.
- 30. TOPOGRAPHIC SURVEY AND GRID TICKS BY DEMBERRY & DAVIS, 3300 NORTH RIDGE ROAD, ELICOTT CITY, MARYLAND 21045. RECEIVED BY LAND DESIGN, INCORPORATED ON MARCH 7, 1989.
- 31. OFF-SITE TOPOGRAPHY SOUTH OF PROPERTY ONLY PROVIDED BY DEMBERRY & DAVIS, 3300 NORTH RIDGE ROAD, ELICOTT CITY, MARYLAND 21045. DATED APRIL 7, 1988. SHEET TITLES: SECTION 1 ON SITE. SPRAINAGE AREA MAP SHEET 14 OF 14. OFF-SITE TOPOGRAPHY PROVIDED BY KIRDS CONSULTANTS, 1100 WEST STREET, LAUREL, MARYLAND 20707. DATED DECEMBER 1984. SHEET TITLES: RESUBMISSION SKETCH PLAN, MONTGOMERY FOREST.
- 32. FLOODPLAIN LIMITS PROVIDED BY STV/LYON, 21 GOVERNOR'S COURT, BALTIMORE, MARYLAND 21207. WETLANDS LIMITS PROVIDED BY LAND DESIGN, INCORPORATED ON NOVEMBER 16, 1988.
- 33. TRASH COLLECTION SERVICE TO BE PROVIDED BY HOWARD COUNTY.
- 34. DENSITY TABULATION:
 

GROSS AREA	26.2526 ACRES
FLOODPLAIN	1.1176 ACRES
25% SLOPES	1.0521 ACRES
	24.0829 ACRES
	193 UNITS
FLOODPLAIN ADJUSTMENT	1.1176 X 0.9 = 1.0058
TOTAL UNITS	202 UNITS
- 35. THE MARYLAND STATE HIGHWAY ADMINISTRATION HAS GRANTED ENTRANCE APPROVAL ONTO MARYLAND ROUTE 108 PER THE CORRESPONDENCE RECEIVED AT THE MATCH PLAN STAGE.
- 36. ALL DOWNSPOUTS ALONG PARKING TO BE 6" WIDE ALL SEWERLINES UP TO HANDICAP UNITS TO BE 6" WIDE ALL OTHER SEWERLINES UP TO BLDG AND ALONG ROADS TO BE 4" WIDE.
- 37. VEHICULAR INGRESS AND EGRESS IS RESTRICTED ALONG PROPOSED MD ROUTE 108 HIGHWAY.
- 38. WETLANDS LIMITS FLAGGED BY WILKINSON & COMPANY INC., ELICOTT CITY, MARYLAND. WETLANDS LIMITS SURVEYED AND DELINEATED BY DEMBERRY & DAVIS, INC., ELICOTT CITY, MARYLAND. WETLANDS LIMITS FIELD VERIFIED BY ARBIE BUCKLEY OF THE CORPS OF ENGINEERS, BALTIMORE, MARYLAND (PERMIT NO. 88-1947-4).
- 39. THE WETLAND (STREAM) BUFFER INDICATED ON THIS SHEET (SDP) DOES NOT EFFECT THE INITIAL CONSTRUCTION OF A RESIDENTIAL UNIT ON ANY LOT. IT DOES PROHIBIT SUBSEQUENT CLEARING, GRADING OR CONSTRUCTION IN THE BUFFER AREA. MAINTENANCE OF RESIDENCES, LANDSCAPING, AND UTILITIES IS PERMITTED.
- 40. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH STANDARDS SET FORTH BY CORPS OF ENGINEERS (SECTION 404) AND STATE DEPARTMENT OF THE ENVIRONMENT (SECTION 401). CORPS OF ENGINEERS PERMIT 88-1947-4 MARYLAND WATER QUALITY CERTIFICATION 89-WQ-0572

**SHEET INDEX**

- 1 SITE DATA SHEET
- 2 50 SCALE GRADING PLAN
- 3 50 SCALE GRADING PLAN
- 4 50 SCALE DIMENSIONING PLAN
- 5 50 SCALE DIMENSIONING PLAN
- 6 50 SCALE LIGHTING AND REQUIRED PLANTING PLAN
- 7 50 SCALE LIGHTING AND REQUIRED PLANTING PLAN
- 8 PLANTING NOTES, DETAILS AND PLANT LIST
- 9 SITE DETAILS
- 10 SITE DETAILS
- 11 SITE DETAILS
- 12 SITE DETAILS
- 13 WATER & SANITARY SEWER PLAN
- 14 WATER & SANITARY SEWER PLAN
- 15 WATER PROFILES
- 16 WATER PROFILES
- 17 WATER PROFILES
- 18 SANITARY PROFILES
- 19 SANITARY PROFILES
- 20 SEDIMENT CONTROL PLAN
- 21 SEDIMENT CONTROL PLAN
- 22 SEDIMENT CONTROL DETAILS
- 23 ROAD PROFILE - COTONEASTER DRIVE
- 24 ROAD PROFILE - OAKTON LANE
- 25 STORM DRAIN PLAN & DRAINAGE AREA MAP
- 26 STORM DRAIN PLAN & DRAINAGE AREA MAP
- 27 STORM DRAIN PROFILES
- 28 STORM DRAIN PROFILES
- 29 CULVERT PIPE ELEVATIONS & DETAILS
- 30 STORM WATER MANAGEMENT FACILITIES NOS. 1 & 2
- 31 WATER QUALITY INLETS
- 32 S.W.M. NOTES AND BORING LOGS
- 33 SITE DETAILS

**PARKING TABULATION**

UNITS LESS THAN 800 S.F.	72 EACH X 1.5 SPACES	= 108
UNITS MORE THAN 800 S.F.	130 EACH X 2 SPACES	= 260
CLUB BUILDING 2500 S.F.	1 EACH X 7 SPACES	= 7
	SPACES REQUIRED	375
	SPACES PROVIDED	383

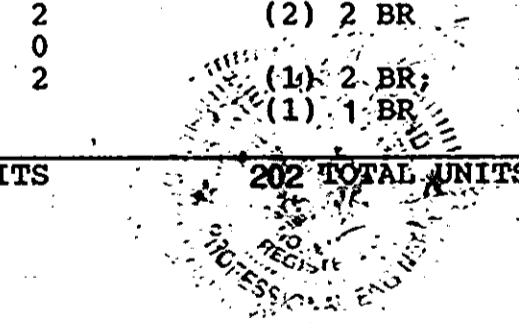
374 REGULAR SPACES PROVIDED  
9 HANDICAPPED SPACES PROVIDED  
383 TOTAL SPACES PROVIDED

**UNITS PER BUILDING**

BUILDING NUMBER	NUMBER OF REGULAR UNITS	NUMBER OF HC UNITS	TYPE OF HC UNITS
1	14	0	
2	16	0	
3	0	0	
4	16	0	
5	16	0	
6	14	2	(2) 1 BR
7	14	2	(1) 2 BR; (1) 1 BR
8	16	0	
9	16	0	
10	16	0	
11	16	0	
12	12	2	(2) 2 BR
13	14	0	
14	14	2	(1) 2 BR; (1) 1 BR
194 UNITS		8 UNITS	202 TOTAL UNITS

OWNER / DEVELOPER:  
SUMMIT PROPERTIES  
203 KEY HIGHWAY  
BALTIMORE, MARYLAND 21230  
(301) 294-0070

ENGINEER:  
STV/LYON ASSOCIATES  
21 GOVERNOR'S COURT  
BALTIMORE, MARYLAND 21207  
(301) 944-9112



DATE: 6-5-89  
PROJECT NO: 88074  
REVISIONS:  
REVISED 7-12-89  
REVISED 9-5-89  
REVISED 5-1-90

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

*Paul R. Deane*  
DATE: 6/6/89

**DEVELOPER'S CERTIFICATE**  
I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*James M. Helm*  
DATE: 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*James M. Helm*  
DATE: 6/6/89

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

*John P. Robertson*  
DATE: 6/2/89

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*James M. Helm*  
DATE: 1/10/90

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*Source m boy w*  
DATE: 1-9-90

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

*Roman P. Deane*  
DATE: 1/8/90

CHIEF, BUREAU OF ENGINEERING

DATE: 1-8-90

**APPROVED**  
DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
HOWARD COUNTY, MARYLAND  
DATE: 11-7-89

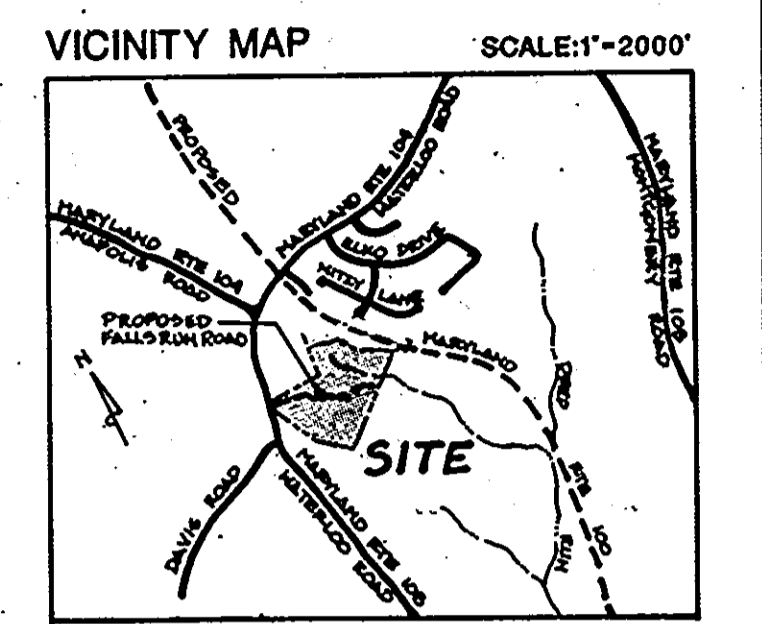
1701 East Boulevard, Charlotte, NC 28203 704/333-0325  
1216 Prince Street, Alexandria, VA 22314 703/549-7784  
225 Hillborough Street, Raleigh, NC 919/834-0127

**Land Design**  
Landscape Architecture Land Planning  
Urban Design  
SITE DATA SHEET  
SHEET NO: 1  
OF: 33/42  
SDP 89-254

# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

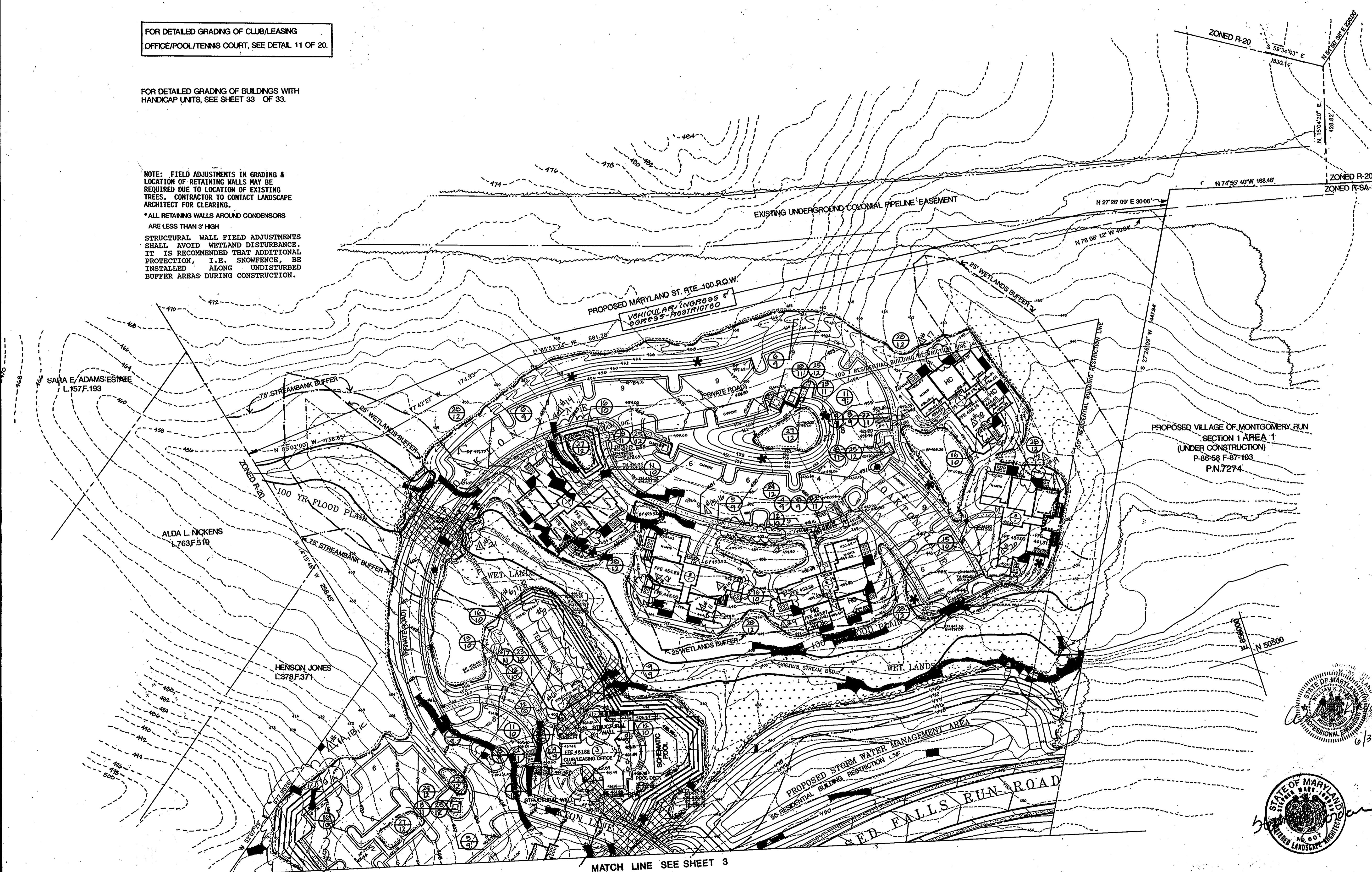
An Apartment Community  
 by  
 Summit Properties



FOR DETAILED GRADING OF CLUB/LEASING  
 OFFICE/POOL/TENNIS COURT, SEE DETAIL 11 OF 20.

FOR DETAILED GRADING OF BUILDINGS WITH  
 HANDICAP UNITS, SEE SHEET 33 OF 33.

NOTE: FIELD ADJUSTMENTS IN GRADING &  
 LOCATION OF RETAINING WALLS MAY BE  
 REQUIRED DUE TO LOCATION OF EXISTING  
 TREES. CONTRACTOR TO CONTACT LANDSCAPE  
 ARCHITECT FOR CLEARING.  
 \*ALL RETAINING WALLS AROUND CONDENSORS  
 ARE LESS THAN 3' HIGH  
 STRUCTURAL WALL FIELD ADJUSTMENTS  
 SHALL AVOID WETLAND DISTURBANCE.  
 IT IS RECOMMENDED THAT ADDITIONAL  
 PROTECTION, I.E. SNOWFENCE, BE  
 INSTALLED ALONG UNDISTURBED  
 BUFFER AREAS DURING CONSTRUCTION.



- LEGEND**
- BUILDING NUMBER: [Symbol]
  - BUILDING TYPE: [Symbol]
  - FINISHED FLOOR ELEVATION: FFE 300.67
  - PROPOSED SPOT ELEVATION: [Symbol] -35.50
  - HIGH POINT: HP
  - BREAK POINT: BP
  - PROPOSED SMALE: [Symbol]
  - EXISTING CONTOURS: [Symbol]
  - STAIRS: [Symbol]
  - TIMBER RETAINING WALLS W/ ELEVATIONS (S.M.G. = STEP WITH GRADE): TW, BW, MW, HW
  - WOOD WALK OVER FLUME: [Symbol]
  - PEDESTRIAN BRIDGE OVER SMALE: [Symbol]
  - EXISTING TREES TO REMAIN: [Symbol]
  - HANDICAP UNIT: [Symbol]
  - HANDICAP PARKING: [Symbol]
  - CHECKER PLATE: [Symbol]
  - STER WALL: [Symbol]
  - WOOD DECK: [Symbol]
  - LIMITS OF DISTURBANCE: [Symbol]
  - CRITICAL SLOPES: [Symbol]
  - FIRE HYDRANT: [Symbol]
  - EXISTING 25% SLOPES: [Symbol]
  - WETLANDS TO BE FILLED OWNER/DEVELOPER: SUMMIT PROPERTIES, 203 KEY HIGHWAY BALTIMORE, MARYLAND (301) 234-0070

1"=50'

Professional Engineer Seal: STATE OF MARYLAND, PROFESSIONAL ENGINEER, No. 807, 6/30/11

DATE: 6-5-89  
 PROJECT NO.: 88074  
 REVISIONS:  
 REVISED 7-12-89  
 REVISED 8-5-89  
 REVISED 6-30-11 TIMBER WALLS TO BE REPLACED W/ SEGMENTAL WALLS. REFER TO ADDENDUM SHEETS 34-42 FOR LOCATIONS, SECTIONS & ELEVATIONS.

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

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 No. 807  
 6/6/89

**DEVELOPER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

James M. Nelson 1/2/90  
 U.S. SOIL CONSERVATION SERVICE

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

John P. Robertson 1/2/90  
 DISTRICT HOWARD SOIL CONSERVATION DISTRICT

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

James M. Nelson 1/10/90  
 PLANNING DIRECTOR

Mark S. ... 1/10/90  
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS:

James M. ... 1/9/90  
 HEALTH OFFICER

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

James M. Nelson 1/8/90  
 DIRECTOR, PUBLIC WORKS

James M. ... 1-8-90  
 CHIEF, BUREAU OF ENGINEERING

SUBDIVISION NAME: ASHTON WOODS APARTMENTS	SECTION/AREA	PARCEL
PLAY NO. 9103-9110	TAX/ZONE 31	ELEC DIST 2
BLOCK NO. 8	CENSUS TR	
WATER CODE	SEWER CODE	

**APPROVED**  
 DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
 HOWARD COUNTY, MARYLAND  
 DATE: 11-7-89

1701 East Boulevard, Charlotte, NC 28203 704/333-0325  
 1216 Prince Street, Alexandria, VA 22314 703/548-7764  
 225 Hillborough Street, Raleigh, NC 919/334-8127

**Land Design**  
 Landscape Architecture Land Planning  
 Urban Design  
**50 SCALE GRADING PLAN**  
 SHEET NO. 2 OF 33-42  
 SDP 89-254

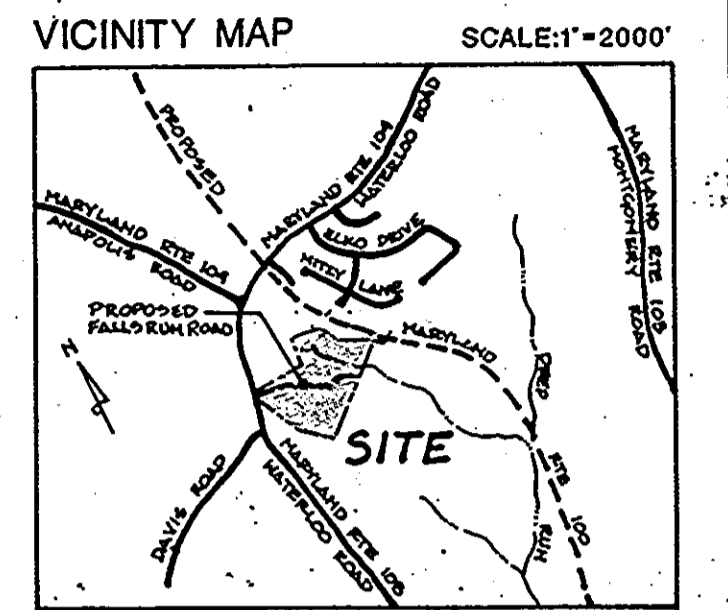
FOR DETAILED GRADING OF BUILDINGS WITH HANDICAP UNITS, SEE SHEET 33A OF 33.

MATCH LINE SEE SHEET 2

# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8.  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties



NOTE: FIELD ADJUSTMENTS IN GRADING & LOCATION OF RETAINING WALLS MAY BE REQUIRED DUE TO LOCATION OF EXISTING TREES. CONTRACTOR TO CONTACT LANDSCAPE ARCHITECT FOR CLEARING.

- ALL RETAINING WALLS AROUND CONDENSORS ARE LESS THAN 3' HIGH

STRUCTURAL WALL FIELD ADJUSTMENTS SHALL AVOID WETLAND DISTURBANCE. IT IS RECOMMENDED THAT ADDITIONAL PROTECTION, I.E. SNOWFENCE, BE INSTALLED ALONG UNDISTURBED BUFFER AREAS DURING CONSTRUCTION.

- LEGEND**
- BUILDING NUMBER
  - BUILDING TYPE
  - FINISHED FLOOR ELEVATION
  - PROPOSED SPOT ELEVATION
  - HIGH POINT
  - BREAK POINT
  - PROPOSED SCALE
  - EXISTING CONTOURS
  - STAIRS
  - TIMBER RETAINING WALLS W/ ELEVATIONS (5% = STEP WITH GRADE)
  - WOOD WALK OVER FLUME
  - PEDESTRIAN BRIDGE OVER SCALE
  - EXISTING TREES TO REMAIN
  - HANDICAP UNIT
  - HANDICAP PARKING
  - CHECKER PLATE
  - STEM WALL
  - WOOD DECK
  - LIMITS OF DISTURBANCE
  - CRITICAL SLOPES
  - FIRE HYDRANT
  - EXISTING 25% SLOPES
  - WETLANDS TO BE FILLED, OWNER / DEVELOPER: SUMMIT PROPERTIES 203 KEY HIGHWAY BALTIMORE, MARYLAND 21230 (301) 234-0070
  - ENGINEER: STV/LYON ASSOCIATES 21 GOVERNOR'S COURT BALTIMORE, MARYLAND 21207 (301) 944-9112



DATE: 6-5-89  
 PROJECT NO.: 88074  
 REVISIONS:  
 REVISED 7-12-89  
 REVISED 8-5-89  
 REVISED 6-28-11: A TIMBER WALLS TO BE REPLACED W/ SEGMENTAL WALLS REFER TO ADDENDUM SHEETS 24-47 FOR LOCATIONS, SECTIONS & ELEVATIONS.

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

STATE OF MARYLAND  
 REGISTERED PROFESSIONAL ENGINEER  
 SIGNATURE: [Signature] DATE: 6/6/89

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

SIGNATURE OF DEVELOPER: [Signature] DATE: 6/6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

US SOIL CONSERVATION SERVICE  
 DATE: 1/2/90

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

DISTRICT HOWARD SOIL CONSERVATION DISTRICT  
 DATE: 1/2/90

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

PLANNING DIRECTOR: [Signature] DATE: 1/16/90  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT: [Signature] DATE: 1/1/90

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

HEALTH OFFICER: [Signature] DATE: 1-9-90

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

DIRECTOR, PUBLIC WORKS: [Signature] DATE: 1/16/90  
 CHIEF, BUREAU OF ENGINEERING: [Signature] DATE: 1-8-90

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO.	BLOCK NO.	TAX/ZONE
9103-9110	R-8	31 2
WATER CODE	SEWER CODE	

**APPROVED**  
 DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
 HOWARD COUNTY, MARYLAND  
 DATE: 11-7-89

1701 East Boulevard, Charlotte, NC 28203 704/333-0325  
 1216 Prince Street, Alexandria, VA 22314 703/549-8784  
 225 Hillsborough Street, Raleigh, NC 919/34-8127

**Land Design**  
 Landscape Architecture Land Planning  
 Urban Design  
 50 SCALE GRADING PLAN

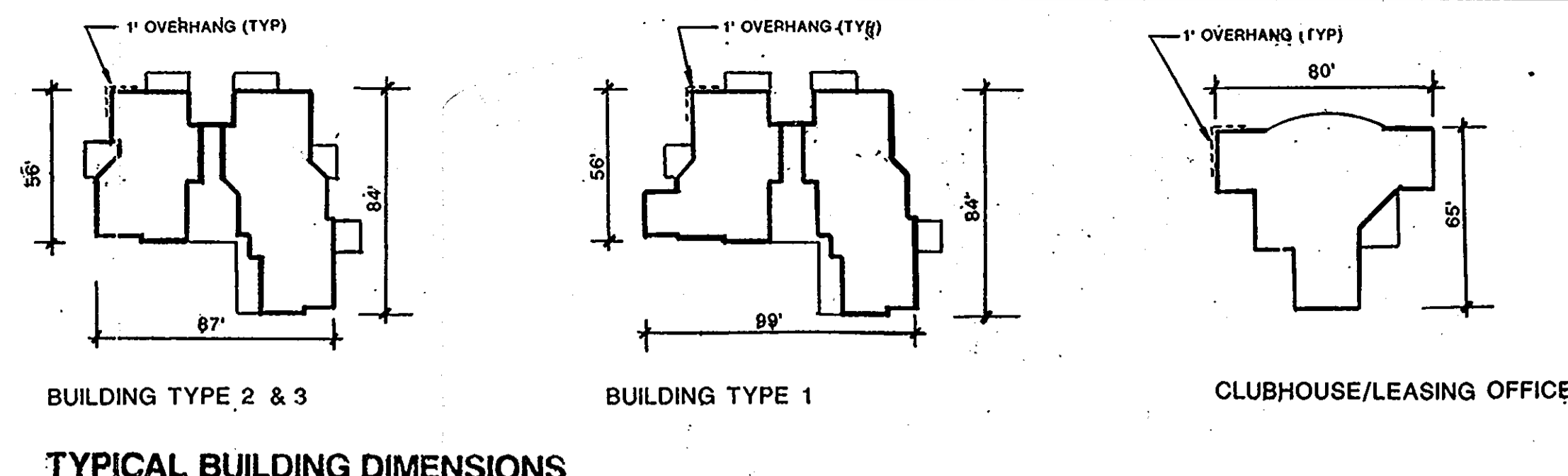
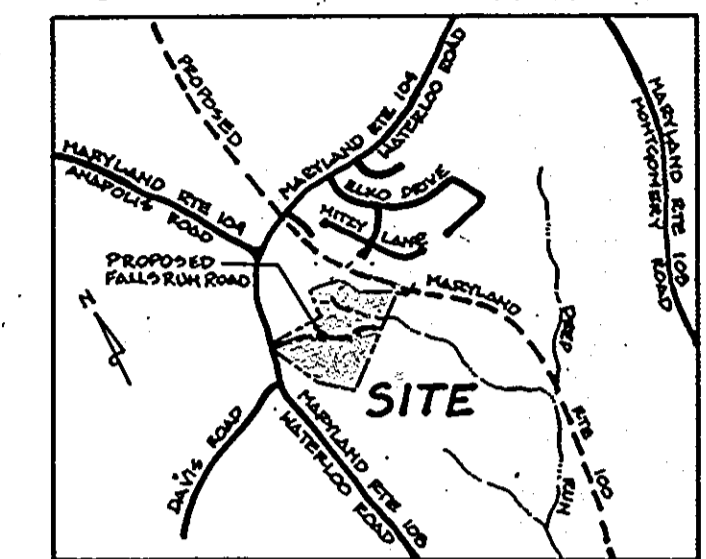
SHEET NO. 3 OF 33-42  
 SDP 89-254

# ASHTON WOODS

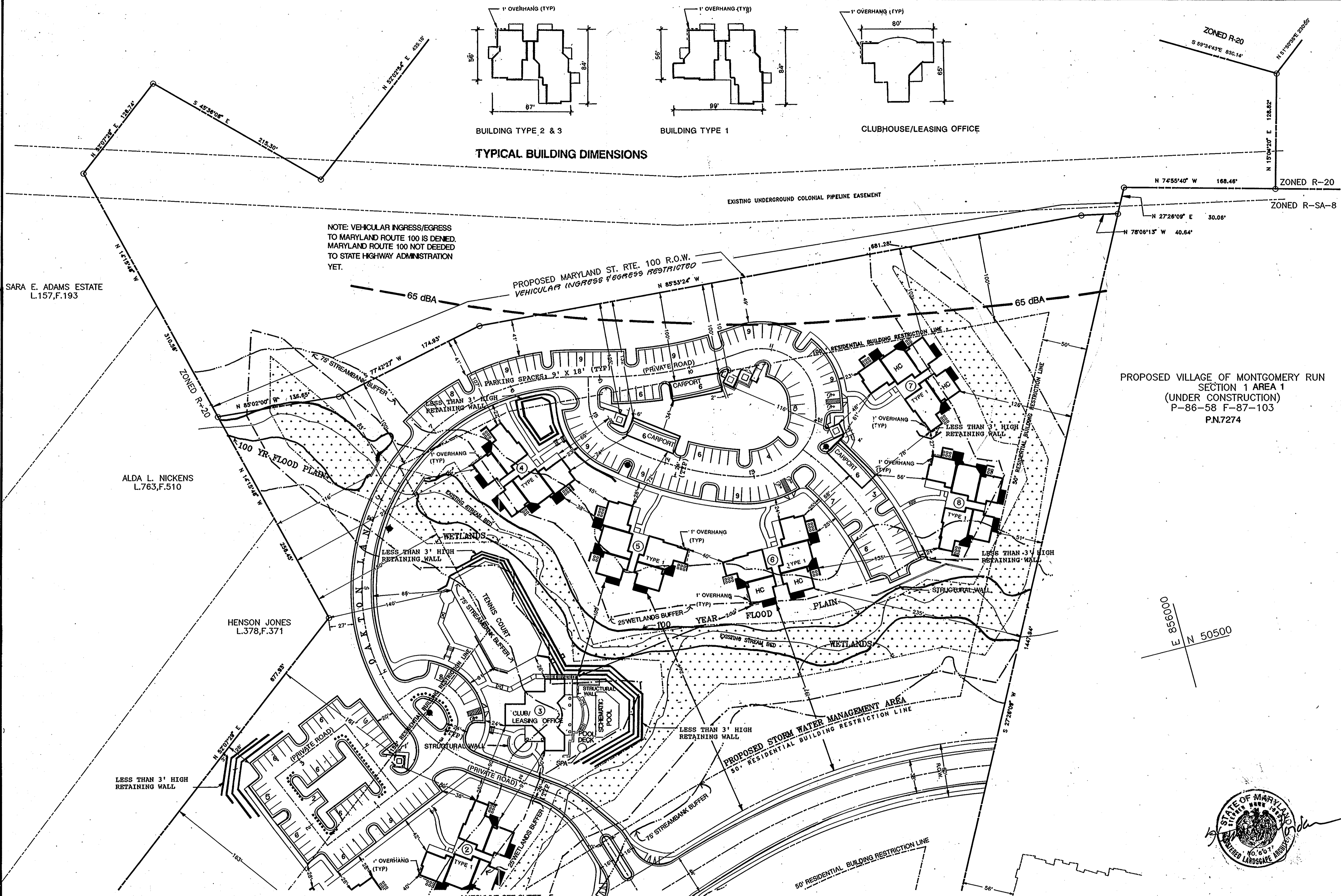
Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8.  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties

VICINITY MAP SCALE: 1"=2000'



TYPICAL BUILDING DIMENSIONS



NOTE: VEHICULAR INGRESS/EGRESS TO MARYLAND ROUTE 100 IS DENIED. MARYLAND ROUTE 100 NOT DEDICATED TO STATE HIGHWAY ADMINISTRATION YET.

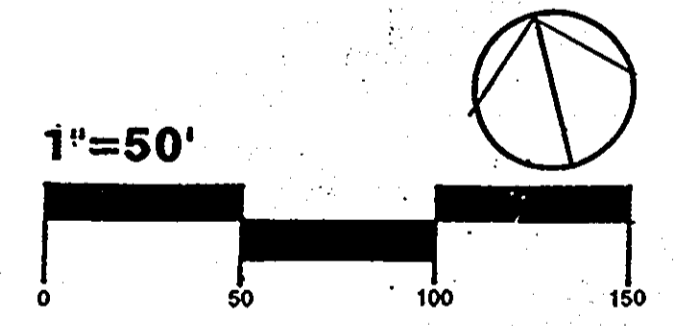
SARA E. ADAMS ESTATE  
 L.157.F.193

ALDA L. NICKENS  
 L.763.F.510

HENSON JONES  
 L.378.F.371

PROPOSED VILLAGE OF MONTGOMERY RUN  
 SECTION 1 AREA 1  
 (UNDER CONSTRUCTION)  
 P-86-58 F-87-103  
 P.N.7274

- LEGEND**
- BUILDING NUMBER: [Symbol]
  - BUILDING TYPE: [Symbol]
  - FINISHED FLOOR ELEVATION: FFE 300.67
  - PROPOSED SPOT ELEVATION: [Symbol] -35.50
  - HIGH POINT: [Symbol] HP
  - BREAK POINT: [Symbol] BP
  - PROPOSED SWALE: [Symbol]
  - EXISTING CONTOURS: [Symbol]
  - STAIRS: [Symbol]
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SIS = STEP WITH GRADE): [Symbol] TW
  - WOOD WALK OVER FLORE: [Symbol] WF
  - PEDESTRIAN BRIDGE OVER SWALE: [Symbol] SB
  - EXISTING TREES TO REMAIN: [Symbol]
  - HANDICAP UNIT: [Symbol] HC
  - HANDICAP PARKING: [Symbol]
  - CHECKER PLATE: [Symbol] CP
  - STEM WALL: [Symbol] SW
  - WOOD DECK: [Symbol]
  - LIMITS OF DISTURBANCE: [Symbol]
  - CRITICAL SLOPES: [Symbol]
  - FIRE HYDRANT: [Symbol]
  - FIRE LANE: [Symbol]
  - OWNER / DEVELOPER: SUMMIT PROPERTIES, 203 KEY HIGHWAY, BALTIMORE, MARYLAND. 21230, (301) 234-0070
  - ENGINEER: STV/LYON ASSOCIATES, 21 GOVERNOR'S COURT, BALTIMORE, MARYLAND 21207, (301) 944-9112



DATE: 6-5-89  
 PROJECT NO: 88074  
 REVISIONS:  
 REVISED 7-12-89  
 REVISED 9-5-89

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

Signature: [Signature]  
 DATE: 6/6/89

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

Signature: [Signature]  
 DATE: 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

Signature: [Signature]  
 DATE: 1/2/90

Signature: [Signature]  
 DATE: 1/2/90

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature: [Signature]  
 DATE: 1/10/90

Signature: [Signature]  
 DATE: 1/1/90

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

Signature: [Signature]  
 DATE: 1-9-90

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

Signature: [Signature]  
 DATE: 1/8/90

Signature: [Signature]  
 DATE: 1-8-90

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO	BLOCK NO	TAX/ZONE
9109-9110	R-8	31
WATER CODE	ELEC DIST	CENSUS TR
	2	
	SEWER CODE	

**APPROVED**  
 DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
 HOWARD COUNTY, MARYLAND  
 DATE: 11-7-89

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 © 1218 Prince Street, Alexandria, VA 22314 703/549-7704  
 © 225 Hillsborough Street, Raleigh, NC 919/834-6127

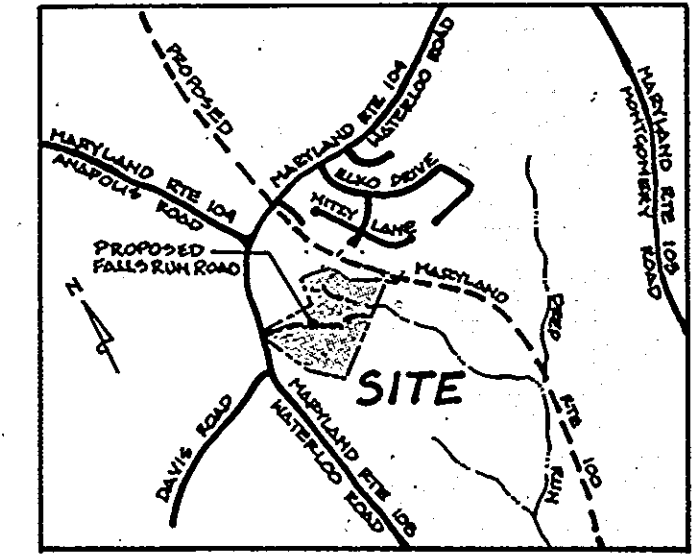
**Land Design**  
 Landscape Architecture Land Planning  
 Urban Design  
 50 SCALE  
 DIMENSIONING PLAN  
 SHEET NO: 4  
 SDR 89-254 OF: 38/42

**ASHTON WOODS**

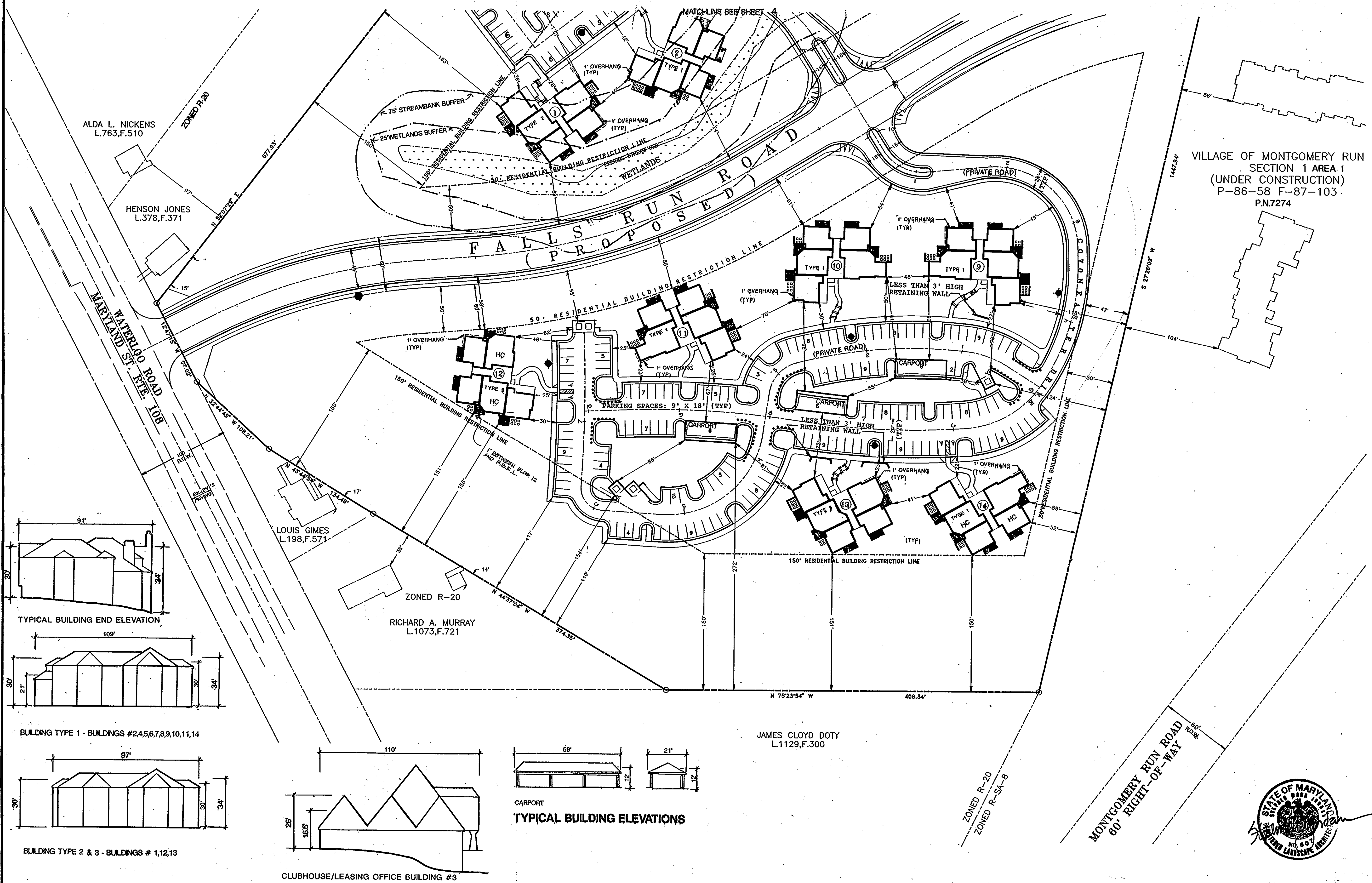
Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8.  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties

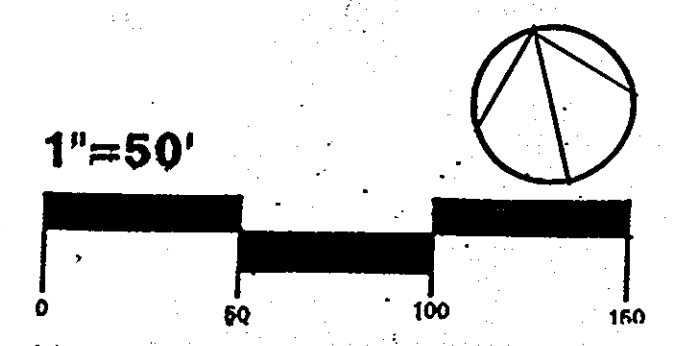
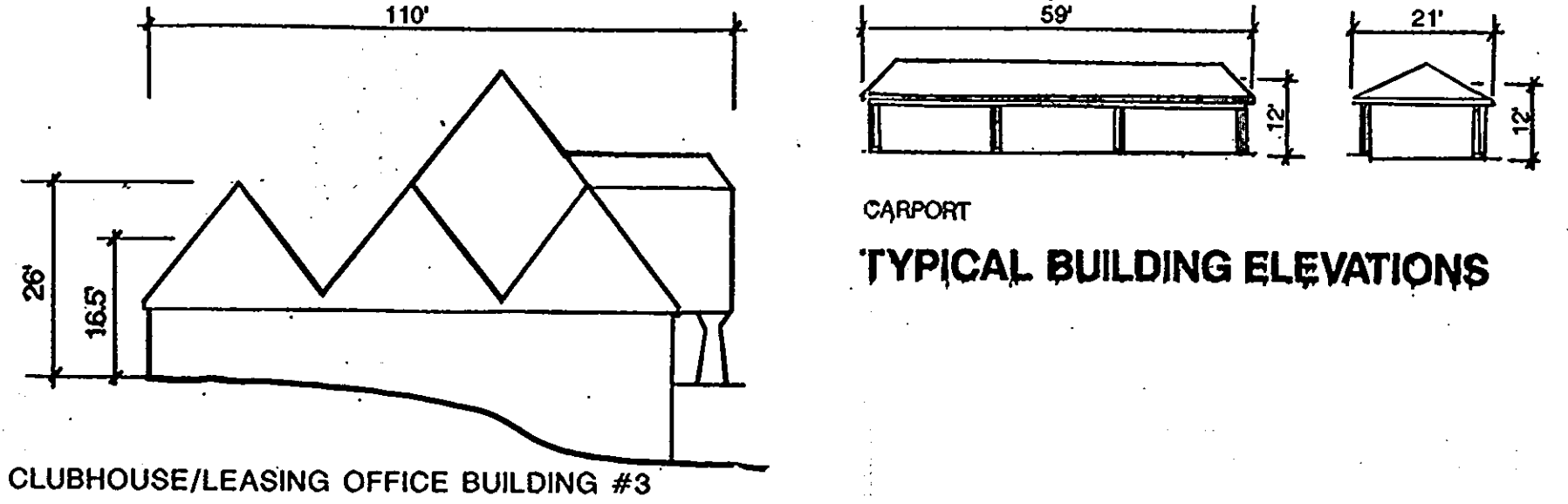
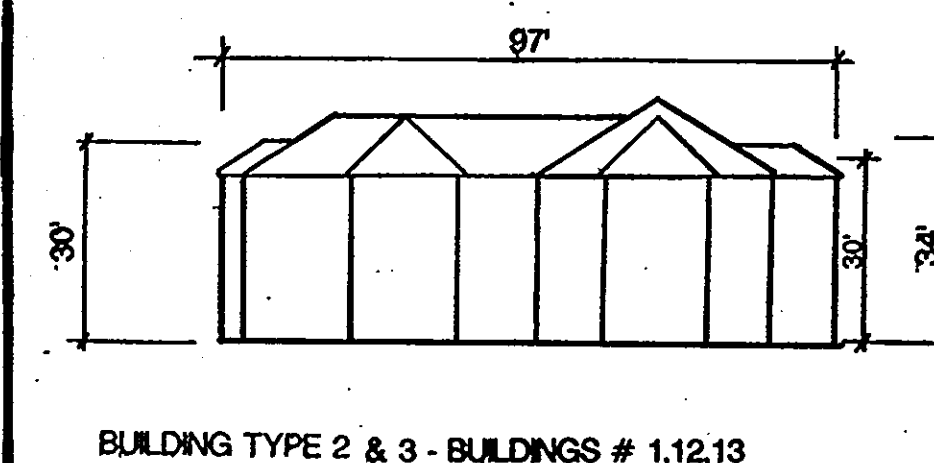
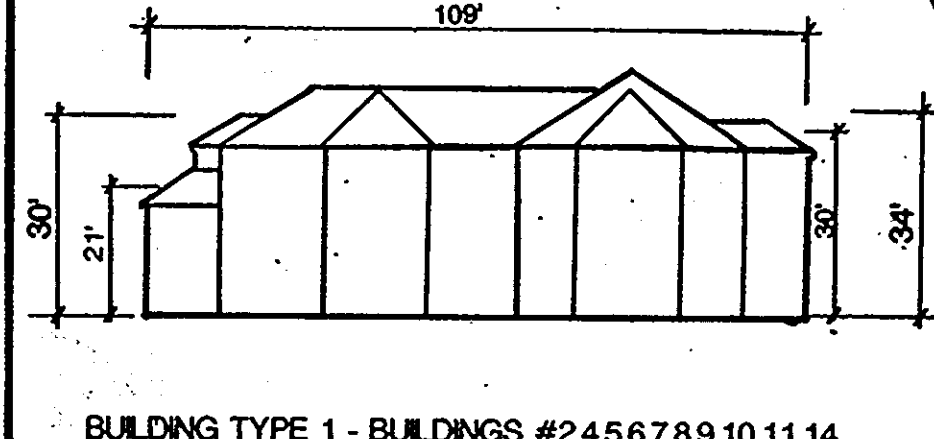
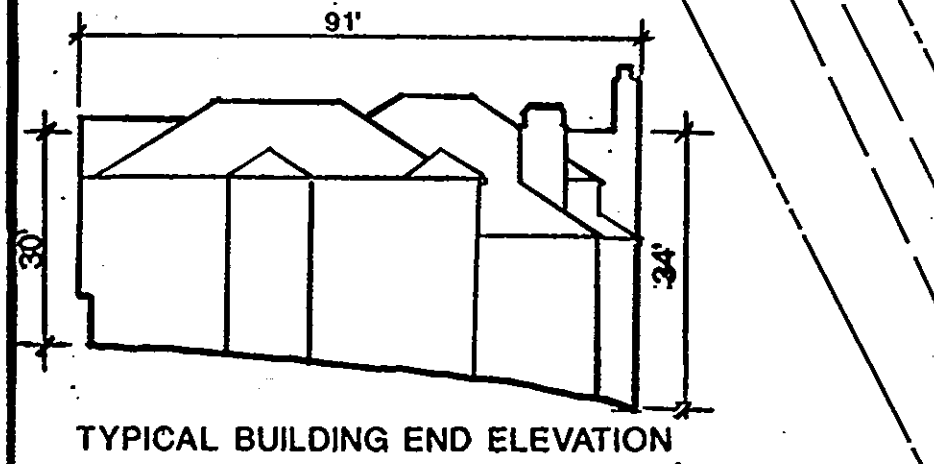
VICINITY MAP SCALE: 1"=2000'



VILLAGE OF MONTGOMERY RUN  
 SECTION 1 AREA 1  
 (UNDER CONSTRUCTION)  
 P-86-58 F-87-103  
 P.N.7274



- LEGEND**
- BUILDING NUMBER: (1-14)
  - BUILDING TYPE: HC, TYR
  - FINISHED FLOOR ELEVATION: FFE 300.67
  - PROPOSED SPOT ELEVATION: 35.50
  - HIGH POINT: HP
  - BREAK POINT: BP
  - PROPOSED SHALE: (Symbol)
  - EXISTING CONTOURS: (Symbol)
  - STAIRS: (Symbol)
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SIC + STEP WITH GRADE): TW, BW, SW
  - WOOD WALK OVER FLUME: (Symbol)
  - PEDESTRIAN BRIDGE OVER SHALE: (Symbol)
  - EXISTING TREES TO REMAIN: (Symbol)
  - HANDICAP UNIT: HC
  - HANDICAP PARKING: (Symbol)
  - CHECKER PLATE: (Symbol)
  - STEP WALL: (Symbol)
  - WOOD DECK: (Symbol)
  - LIMITS OF DISTURBANCE: (Symbol)
  - CRITICAL SLOPES: (Symbol)
  - FIRE HYDRANT: (Symbol)
  - FIRE LANE: (Symbol)
  - OWNER / DEVELOPER: SUMMIT PROPERTIES, 203 KEY HIGHWAY, BALTIMORE, MARYLAND 21230, (301) 234-0070
  - ENGINEER: STV/LYON ASSOCIATES, 21 GOVERNOR'S COURT, BALTIMORE, MARYLAND 21207, (301) 944-9112



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

DATE: 6/6/89  
 SIGNATURE OF ENGINEER: [Signature]

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

DATE: 6-6-89  
 SIGNATURE OF DEVELOPER: [Signature]

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

DATE: 1/2/90  
 SIGNATURE: [Signature]  
 U.S. SOIL CONSERVATION SERVICE

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

DATE: 1/2/90  
 SIGNATURE: [Signature]  
 DISTRICT HOWARD SOIL CONSERVATION DISTRICT

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 1/10/90  
 SIGNATURE: [Signature]  
 PLANNING DIRECTOR

DATE: 1/10/90  
 SIGNATURE: [Signature]  
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

DATE: 1-9-90  
 SIGNATURE: [Signature]  
 HEALTH OFFICER

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

DATE: 1/8/90  
 SIGNATURE: [Signature]  
 DIRECTOR, PUBLIC WORKS

DATE: 1-8-90  
 SIGNATURE: [Signature]  
 CHIEF, BUREAU OF ENGINEERING

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAY NO.	BLOCK NO.	TAX/ZONE
9109-0110	R-8	31
WATER CODE	SEWER CODE	ELEC DIST
		2
		CENSUS TR

**APPROVED**

DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT

HOWARD COUNTY, MARYLAND

DATE: 11-7-89

JR

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 1216 Prince Street, Alexandria, VA 22314 703/549-7784  
 225 Hillsborough Street, Raleigh, NC 919/834-6127

**Land Design**  
 Landscape Architecture Land Planning  
 Urban Design

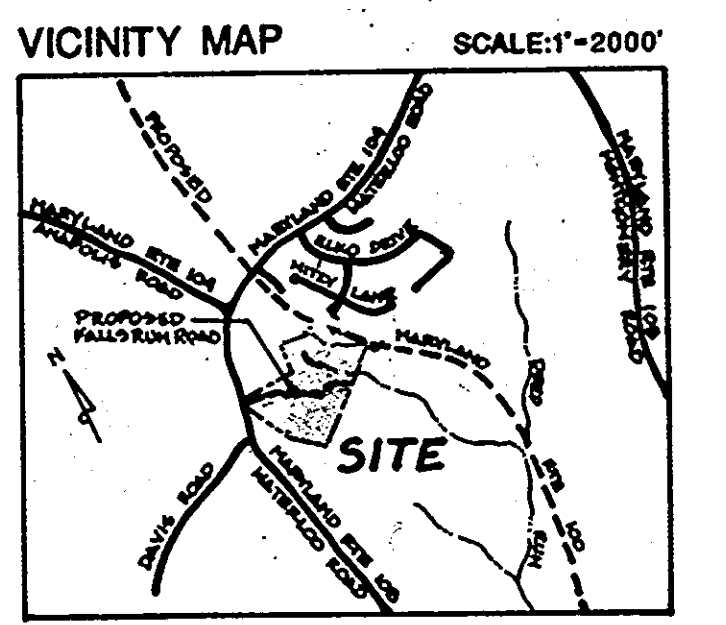
50 SCALE  
 DIMENSIONING PLAN  
 SHEET NO. 5 OF 38-42

SDP 89-254

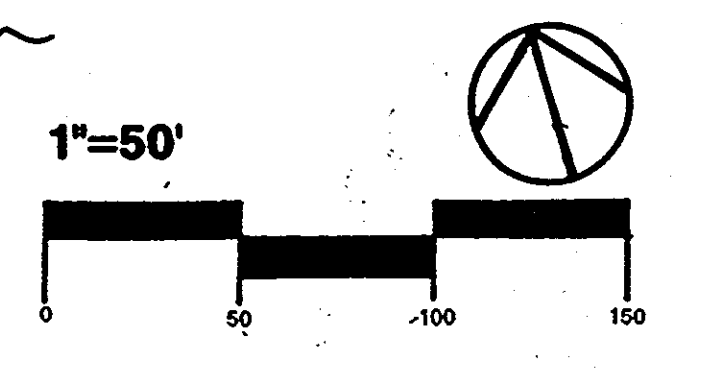
# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties

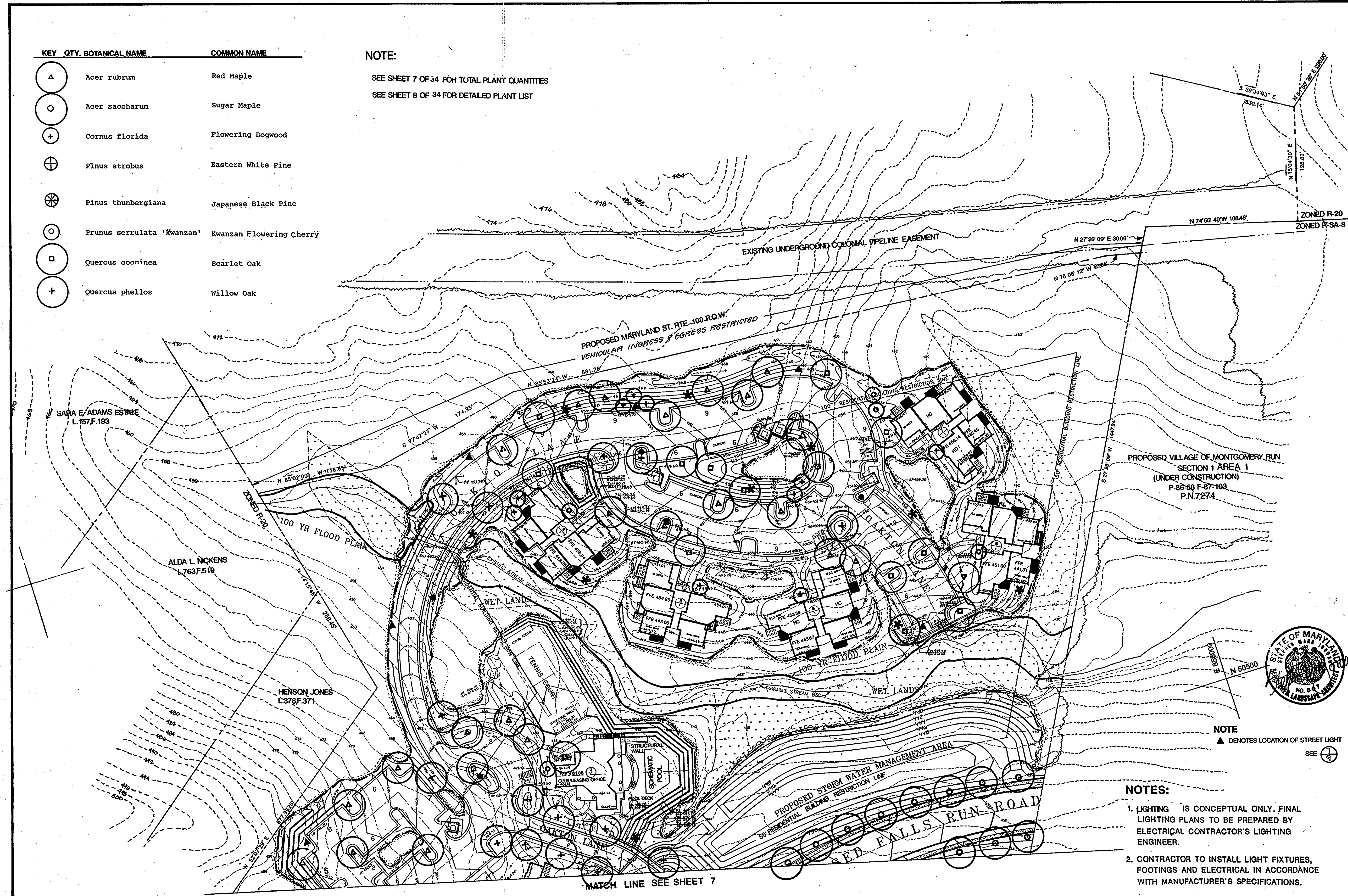


- LEGEND**
- BUILDING NUMBER: [Symbol]
  - BUILDING TYPE: [Symbol]
  - FINISHED FLOOR ELEVATION: FFE 300.87
  - PROPOSED SPOT ELEVATION: [Symbol] - 35.50
  - HIGH POINT: [Symbol] HP
  - BREAK POINT: [Symbol] BP
  - PROPOSED SHALE: [Symbol]
  - EXISTING CONTOURS: [Symbol]
  - STAIRS: [Symbol]
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SNG + STEP WITH GRADE): [Symbol]
  - WOOD WALK OVER FLUME: [Symbol]
  - PEDESTRIAN BRIDGE OVER SHALE: [Symbol]
  - EXISTING TREES TO REMAIN: [Symbol]
  - HANDICAP UNIT: [Symbol]
  - HANDICAP PARKING: [Symbol]
  - CHECKER PLATE: [Symbol]
  - STEM WALL: [Symbol]
  - WOOD DECK: [Symbol]
  - LIMITS OF DISTURBANCE: [Symbol]
  - CRITICAL SLOPES: [Symbol]
  - FIRE HYDRANT: [Symbol]
  - OWNER / DEVELOPER: SUMMIT PROPERTIES, 203 KEY HIGHWAY, BALTIMORE, MARYLAND 21230 (301) 234-0070
  - ENGINEER: STVLVON ASSOCIATES, 21 GOVERNOR'S COURT, BALTIMORE, MARYLAND 21207 (301) 944-9112



KEY	QTY.	BOTANICAL NAME	COMMON NAME
△		Acer rubrum	Red Maple
○		Acer saccharum	Sugar Maple
+		Cornus florida	Flowering Dogwood
⊕		Pinus strobus	Eastern White Pine
⊗		Pinus thunbergiana	Japanese Black Pine
○		Prunus serrulata 'Kwanzan'	Kwanzan Flowering Cherry
□		Quercus coccinea	Scarlet Oak
+		Quercus phellos	Willow Oak

**NOTE:**  
 SEE SHEET 7 OF 34 FOR TOTAL PLANT QUANTITIES  
 SEE SHEET 8 OF 34 FOR DETAILED PLANT LIST



- NOTES:**
- LIGHTING IS CONCEPTUAL ONLY. FINAL LIGHTING PLANS TO BE PREPARED BY ELECTRICAL CONTRACTOR'S LIGHTING ENGINEER.
  - CONTRACTOR TO INSTALL LIGHT FIXTURES, FOOTINGS AND ELECTRICAL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

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

*Signature of Engineer*  
 DATE: 6/6/89

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*Signature of Developer*  
 DATE: 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*Signature of Soil Conservation District*  
 DATE: 1/2/90

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

*Signature of Health Department*  
 DATE: 1/2/90

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Signature of Planning Director*  
 DATE: 1/10/90

*Signature of Chief of Community Planning*  
 DATE: 1/10/90

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*Signature of Health Officer*  
 DATE: 1-9-90

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.

*Signature of Director of Public Works*  
 DATE: 1/8/90

*Signature of Chief of Bureau of Engineering*  
 DATE: 1-8-90

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO	TAX/ZONE	ELEC/DIST
9129-9112	R-SA-8	2
WATER CODE	SEWER CODE	
	31	

**APPROVED**  
 DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
 HOWARD COUNTY, MARYLAND  
 DATE: 11-7-89

*Signature*

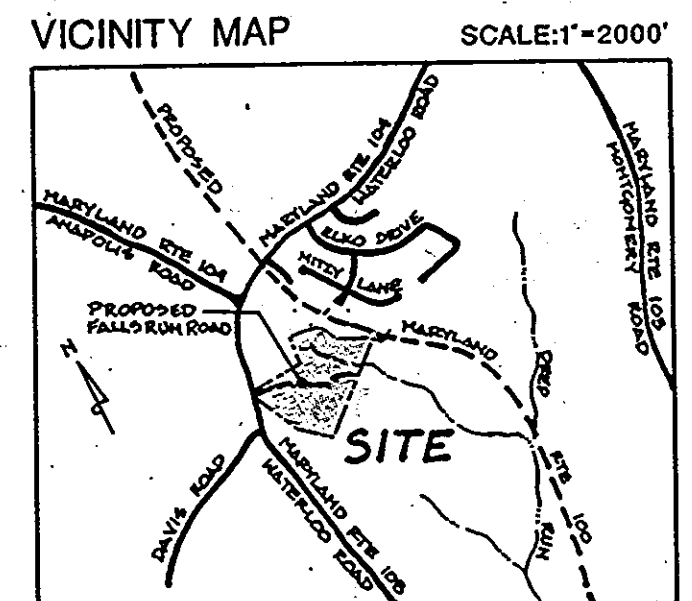
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 © 1216 Prince Street, Alexandria, VA 22314 703/549-7784  
 © 225 Highborough Street, Raleigh, NC 919/854-9127

**Land Design**  
 Landscape Architecture Land Planning  
 Urban Design  
 50 SCALE LIGHTING AND REQUIRED PLANTING PLAN  
 SHEET NO. 6 OF 23 42  
 SDP 89-254

# ASHTON WOODS

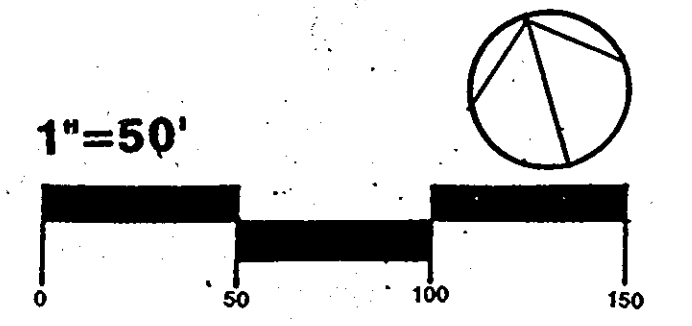
Tax Map #31 Parcel 423 Lot 2  
 Second Elect'n District  
 Pla: #7522 & 7523 Zoning R-SA-8.  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties



- LEGEND**
- BUILDING NUMBER
  - BUILDING TYPE
  - FINISHED FLOOR ELEVATION
  - PROPOSED SPOT ELEVATION
  - HIGH POINT
  - BREAK POINT
  - PROPOSED SWALE
  - EXISTING CONTOURS
  - STAIRS
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SIC = STEP WITH GRADE)
  - WOOD WALK OVER FLUME
  - PEDESTRIAN BRIDGE OVER SWALE
  - EXISTING TREES TO REMAIN
  - HANDICAP UNIT
  - HANDICAP PARKING
  - CHECKER PLATE
  - STEM WALL
  - WOOD DECK
  - LIMITS OF DISTURBANCE
  - CRITICAL SLOPES
  - FIRE HYDRANT
  - OWNER / DEVELOPER:  
 SUMMIT PROPERTIES  
 203 KEY HIGHWAY  
 BALTIMORE, MARYLAND 21230  
 (301) 234-0070

ENGINEER:  
 STV/LYON ASSOCIATES  
 21 GOVERNOR'S COURT  
 BALTIMORE, MARYLAND 21207  
 (301) 944-9112

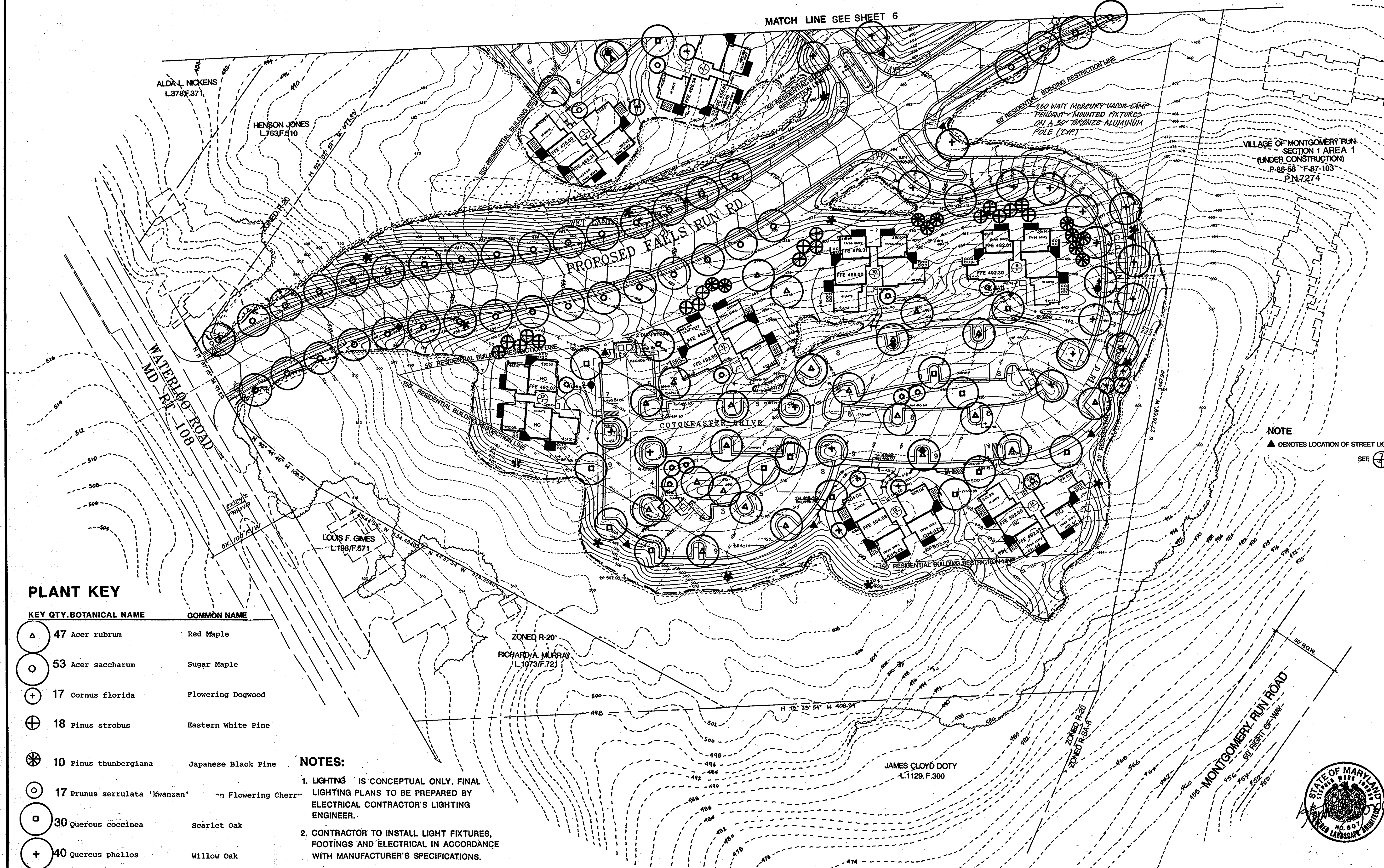


*Fred R. ...*  
 DATE: 6-5-89  
 PROJECT NO: 88074  
 REVISIONS:  
 REVISED 7-12-89  
 REVISED 9-5-89

APPROVED  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE 11-7-89

Land Design  
 Landscape Architecture Land Planning  
 Urban Design  
 50 SCALE LIGHTING AND  
 REQUIRED PLANTING PLAN  
 SHEET NO: 7  
 OF 38 42

MATCH LINE SEE SHEET 6



## PLANT KEY

KEY QTY.	BOTANICAL NAME	COMMON NAME
47	Acer rubrum	Red Maple
53	Acer saccharum	Sugar Maple
17	Cornus florida	Flowering Dogwood
18	Pinus strobus	Eastern White Pine
10	Pinus thunbergiana	Japanese Black Pine
17	Prunus serrulata 'Kwanzan'	Flowering Cherry
30	Quercus coccinea	Scarlet Oak
40	Quercus phellos	Willow Oak

- NOTES:**
- LIGHTING IS CONCEPTUAL ONLY. FINAL LIGHTING PLANS TO BE PREPARED BY ELECTRICAL CONTRACTOR'S LIGHTING ENGINEER.
  - CONTRACTOR TO INSTALL LIGHT FIXTURES, FOOTINGS AND ELECTRICAL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

**ENGINEER'S CERTIFICATE**  
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*[Signature]*  
 DATE 6/6/89

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*[Signature]*  
 DATE 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*[Signature]* 1/2/90  
 U.S. SOIL CONSERVATION SERVICE DATE

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

*[Signature]* 1/2/90  
 DISTRICT HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 1/10/90  
 PLANNING DIRECTOR DATE

*[Signature]* 1/12/90  
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*[Signature]* 1/9/90  
 HEALTH OFFICER DATE

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

*[Signature]* 1/9/90  
 DIRECTOR, PUBLIC WORKS DATE

*[Signature]* 1-8-90  
 CHIEF, BUREAU OF ENGINEERING DATE

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO.	BLOCK NO./ZONE	TAX/ZONE
5109-010	A-8	31
WATER CODE	ELEC/DIST	SEWER CODE
	2	

APPROVED  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE 11-7-89

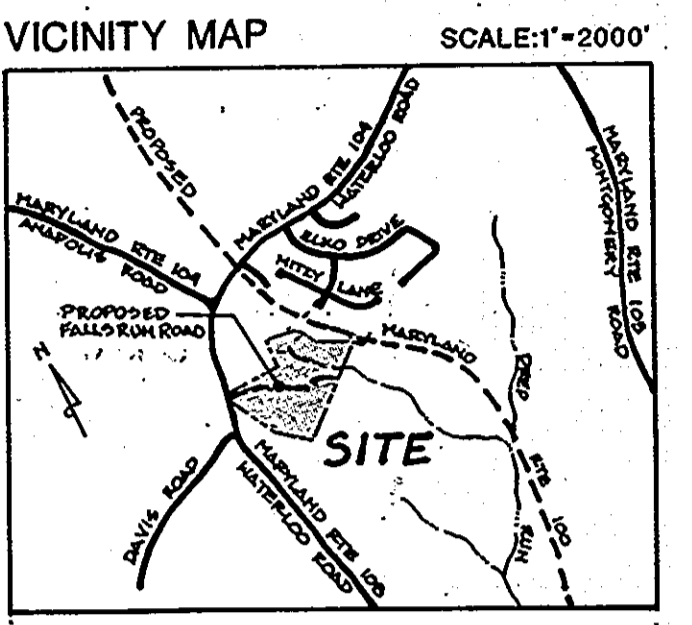
1701 East Boulevard, Charlotte, NC 28203 704/333-0225  
 1216 Prince Street, Alexandria, VA 22314 703/549-7784  
 225 Hillborough Street, Raleigh, NC 919/834-4127

SDP 89-254

**ASHTON WOODS**

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8.  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties



OWNER / DEVELOPER:  
 SUMMIT PROPERTIES  
 203 KEY HIGHWAY  
 BALTIMORE, MARYLAND 21230  
 (301) 234-0070

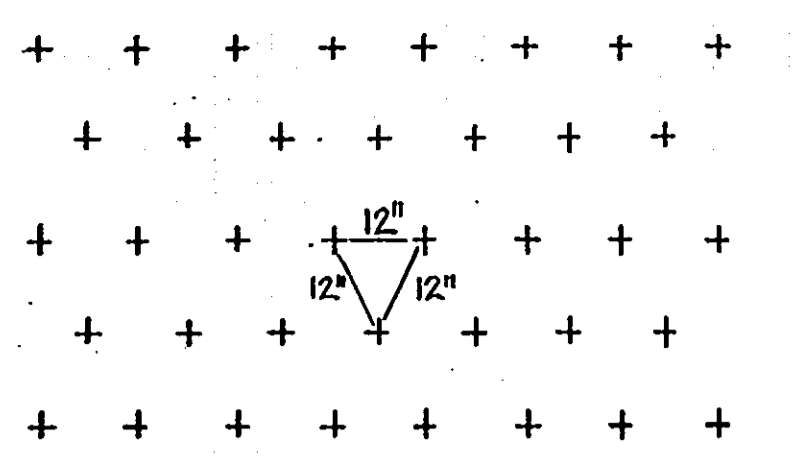
ENGINEER:  
 STV/LYON ASSOCIATES  
 21 GOVERNOR'S COURT  
 BALTIMORE, MARYLAND 21207  
 (301) 944-9112



DATE: 6-5-89  
 PROJECT NO. 88074  
 REVISIONS:  
 REVISED 7-12-89  
 REVISED 9-5-89

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 1216 Prince Street, Alexandria, VA 22314 703/548-7784  
 225 Hibernia Street, Raleigh, NC 919/834-0127

**Land Design**  
 Landscape Architecture Land Planning  
 Urban Design  
 PLANTING NOTES, DETAILS  
 AND PLANT LIST  
 SHEET NO. 8 OF 33 42



NOTE: EXAMPLE ILLUSTRATES TRIANGULAR SPACING 12" O.C. OTHER SPACING DISTANCES TO BE IMPLEMENTED USING SAME PROPORTION

**1 TRIANGULAR SPACING PLAN (SHRUBS AND GROUND COVER)**

1  
8

NOTE: PLANT SPACING VARIES - (SEE PLANT LIST PRUNE ALL BROKEN, DISEASED, AND WEAK BRANCHES)

ALL SHRUB BEDS TO BE COMPLETELY EXCAVATED OF ALL EXIST. SOIL TO REQ. DEPTH AND BACKFILLED W/ REQUIRED SOIL MIX.

COMPLETELY REMOVE ALL STINGS, FIBERS AND TAGS FROM PLANT.



REMOVE TOP 1/3 OF ALL BURLAP FABRIC AROUND ROOT BALL  
 SCARIFY ROOTS ON ROT BOUND PLANTS  
 COMPACT SOIL TO 85% AT OPTIMUM MOISTURE CONTENT

**2 SHRUB PLANTING BED**

2  
8

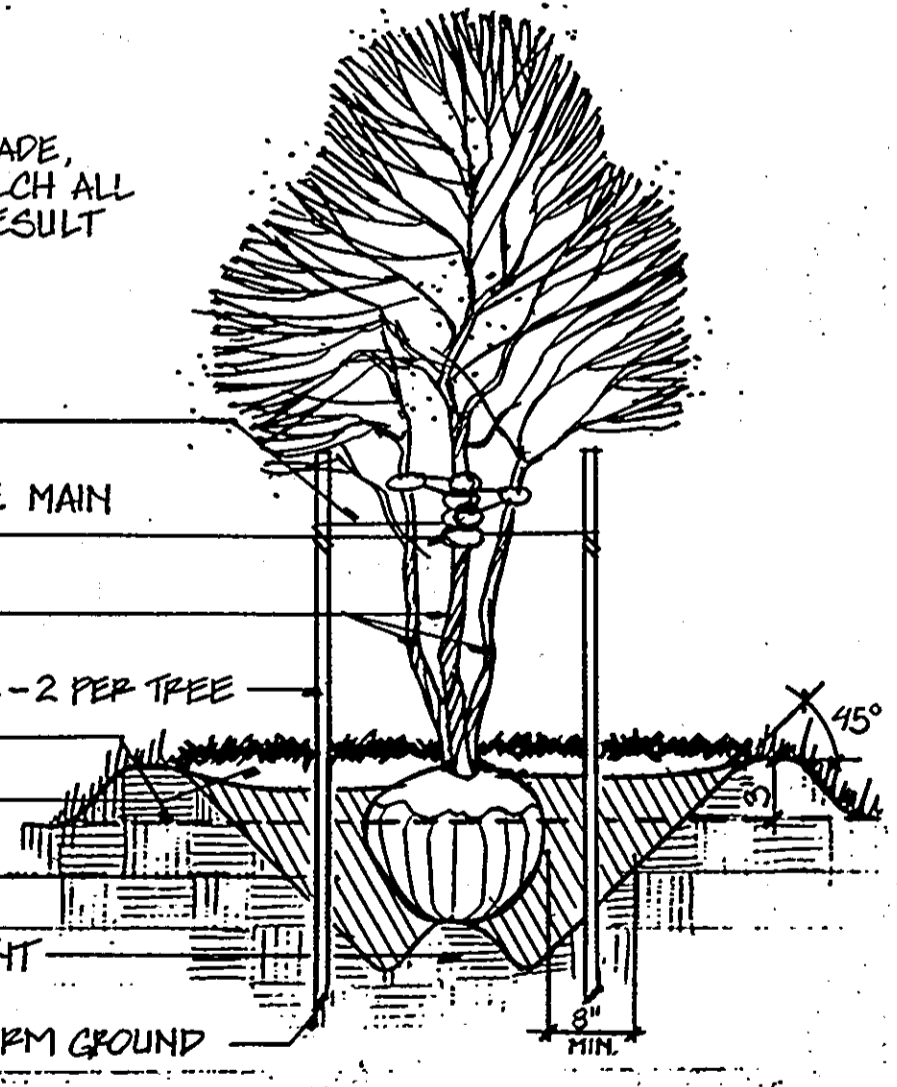
NOTE: CONTRACTOR TO REGRADE, RESEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK.

12 GA. GALVANIZED WIRE, DOUBLE STRAND TWISTED  
 RUBBER HOSE & WIRE - THE MAIN LEAFERS TOGETHER  
 TREE WRAP MAIN TRUNKS

2X2 HARDWOOD GUY STAKE - 2 PER TREE  
 EXISTING GRADE  
 3" MULCH

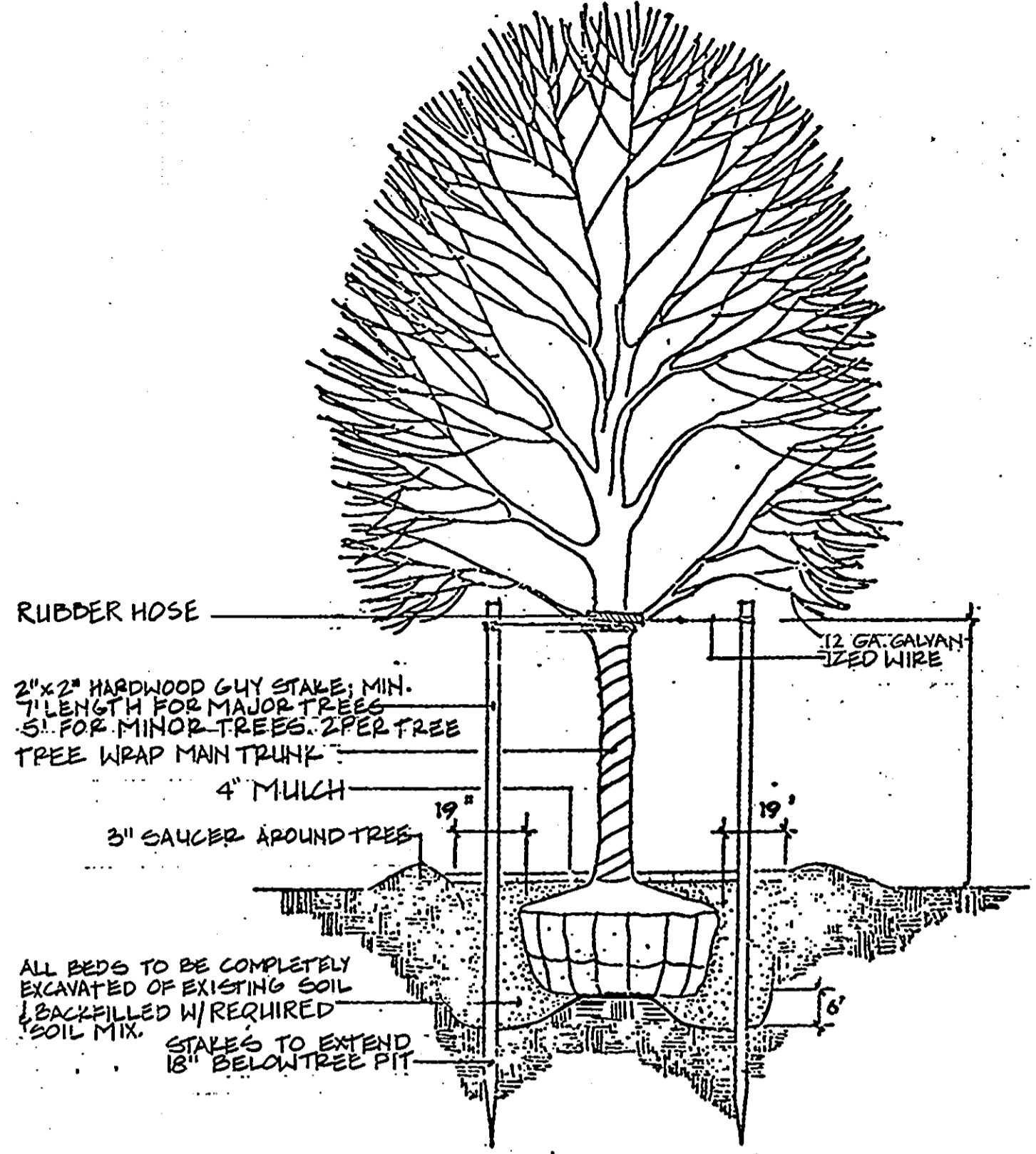
SOIL MIX: SEE NOTE

COMPACT MOUND TO PREVENT TREE FROM SETTLING  
 UPRIGHT STAKES EXTEND TO FIRM GROUND



**3 MULTI-TRUNK TREE PLANTING DETAIL**

3  
8



**4 TYPICAL TREE STAKING DETAIL**

4  
8

NOTE: CONTRACTOR TO REGRADE, RESEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK.

TREES LARGER THAN 16' TO BE GUYED, SMALLER TREES TO BE STAKED (SEE DETAIL # 5, 6, 7, 8 & 10)

STAKES TO BE DRIVEN INTO FIRM GROUND, OUTSIDE OF SOIL MIX AREA.

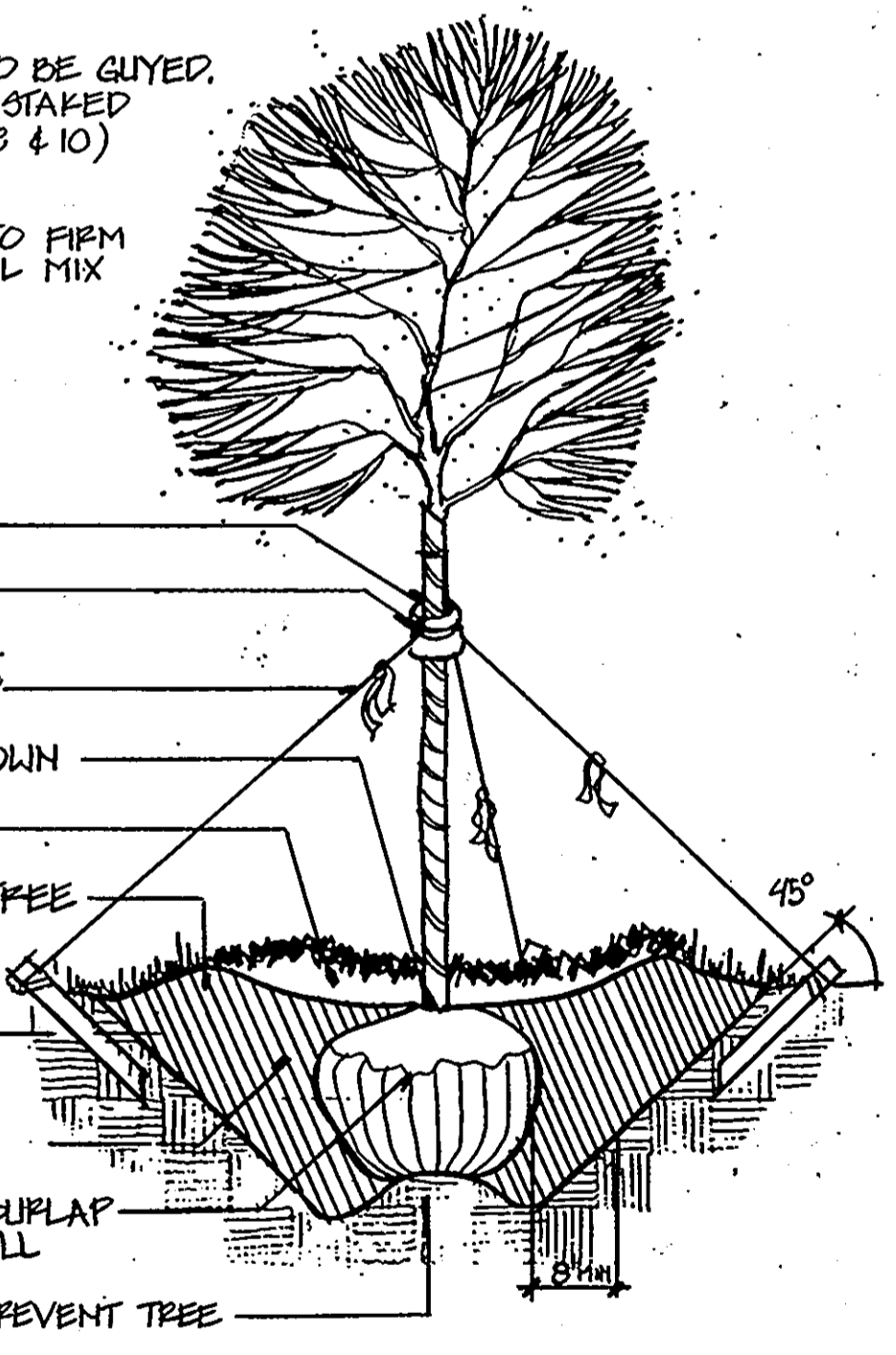
TREE WRAP MAIN TRUNK  
 RUBBER HOSE  
 12 GA. GALVANIZED WIRE - DOUBLE STRAND TWISTED  
 DO NOT COVER ROOT CROWN

3" MULCH  
 3" HGT. SAUCER AROUND TREE

2X2 HARDWOOD GUY STAKE - 3 PER TREE  
 DRIVEN AT 45° ANGLE

SOIL MIX: SEE NOTE

REMOVE TOP 1/3 OF ALL BURLAP FABRIC AROUND ROOT BALL  
 COMPACT MOUND TO PREVENT TREE FROM SETTLING



**5 TREE GUYING DETAIL FOR LARGE SPECIMEN TREES**

5  
8

NOTE: CONTRACTOR TO REGRADE, RESEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK.

(2) UPRIGHT STAKES TO BE USED ON TREES UP TO 12-14' HGT. LARGER TREES TO BE GUYED (SEE DETAIL # 9)

TREE WRAP TRUNK

2X2" HARDWOOD GUY STAKE  
 2 PER TREE

RUBBER HOSE

12 GA. GALVANIZED WIRE - DOUBLE STRAND TWISTED

2:1 SLOPE (TYP)

DO NOT COVER ROOT CROWN W/ SOIL

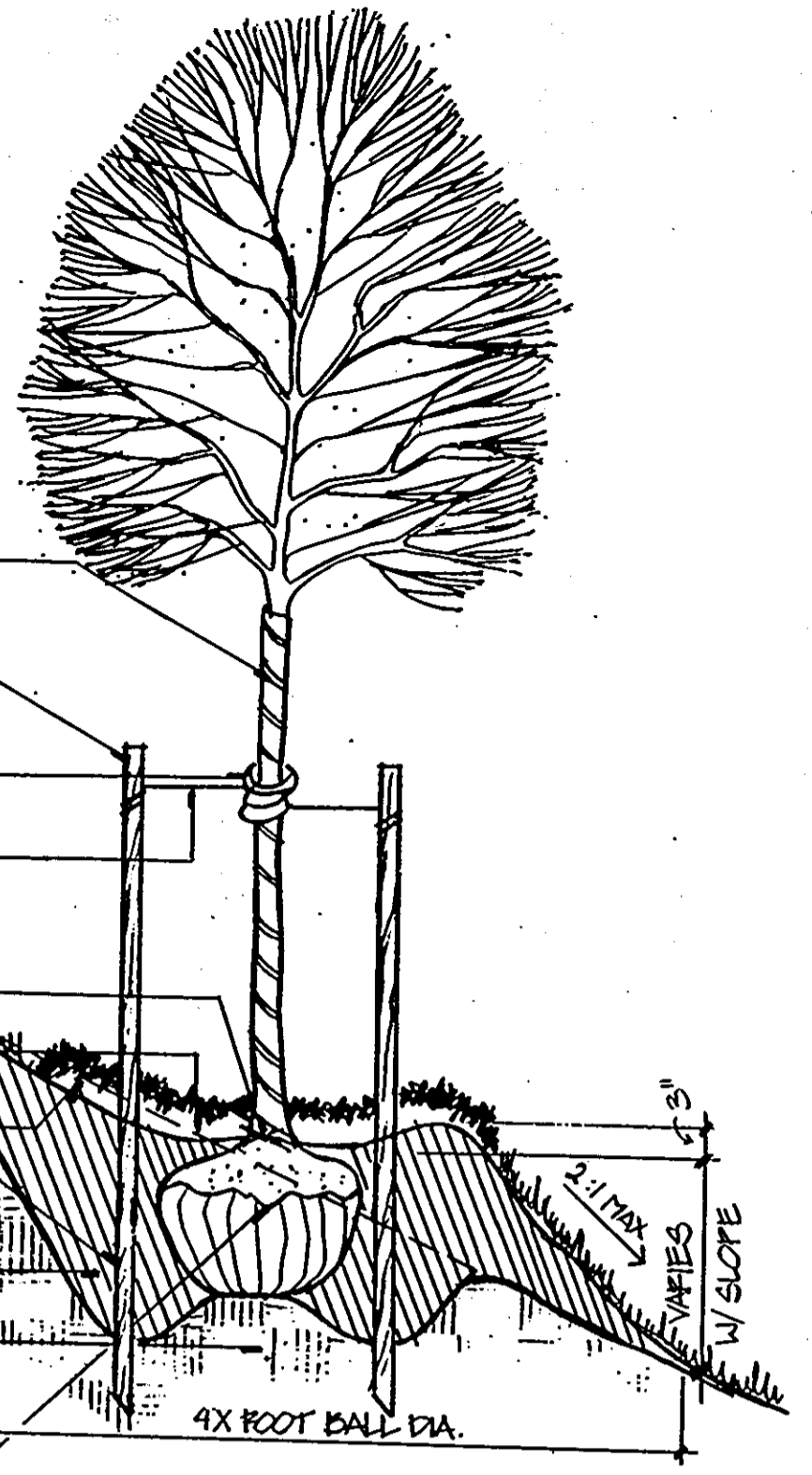
3" MULCH

EXISTING GRADE

UPRIGHT STAKES EXTENDED TO FIRM BEARING

SOIL MIX: SEE NOTE

COMPACTED MOUND TO PREVENT SETTLING - (6" MIN.)  
 REMOVE TOP 1/3 OF ALL BURLAP AND ROPE FROM ROOT BALL



**6 TREE ON SLOPE**

6  
8

**PLANTING NOTES**

- THIS PLAN FOR PLANTING LOCATIONS ONLY.
- Contractor shall be solely responsible for all plant maintenance during construction and throughout the one year warranty period.
- All dimensions to be taken from back of curb typical.
- Contractor to lay out and clearly stake all proposed improvements included on this plan.
- Contractor responsible for contacting MISS utility prior to beginning construction for location of all utility lines. Trees to be located a minimum of 5' from sewer/water connections.
- Contractor to verify quantities shown on plant list with totals indicated on plan. Landscape Architect to be alerted by contractor to any discrepancies prior to final bid negotiation. Unit prices for all materials shall be supplied to the Owner at bidding time.
- All materials shall be subject to approval by the Landscape Architect. Owner shall receive tag from each plant species and a list of plants suppliers. Where any requirements are omitted from the plant list, the plants furnished shall meet the normal requirements for the variety per A.M. standards. Plants shall be grown prior to delivery only upon the approval of the Landscape Architect.
- All plants shall be freshly dug, sound, healthy, vigorous, well branched, free of disease, insect eggs, and larvae, and shall have adequate root systems.
- Where trees are planted in rows, they shall be uniform in size and shape.
- Sizes specified in the plant list are minimum sizes to which the plants are to be judged. To the nearest minimum size on any plant will result in rejection of that plant.
- All container-grown material shall be healthy, vigorous, well-rooted plants as established in the container in which they are sold. The plants shall have tops which are good quality and are in a healthy growing condition.
- All plants shall conform to A.M. standards and shall be full, healthy plants.
- Groups of shrubs shall be placed in a continuous mulch bed with smooth continuous lines. All mulched bed edges shall be curvilinear in shape following the contour of the plant mass.
- No existing trees shall be removed without written authorization from the Owner except where noted on plans.
- Tree shall be located a minimum of 3' from walls and walks within the project. If conflicts arise between actual size of area and plant, Contractor to contact Landscape Architect for resolution. Failure to make such conflicts known to the Owner or Landscape Architect will result in Contractor's liability to relocate materials.
- Tree staking and guying shall be done per details. Contractor shall be responsible for the tree's stability for the duration of the guarantee period.
- All tree pits, shrub beds and prepared planting beds to be completely excavated in accordance with the planting details.
- Mulch to be shredded hardwood bark for trees and shrubs. Fine bark mulch to be used for perennial beds. Shredded hardwood bark to be used at "soaking trees to remain".
- Crown of all plants shall be higher (after settling) than adjacent soil.
- Tags and twine are to be removed and burlap is to be rolled back on all B&B plant material.
- Shrubs and groundcovers shall be triangularly spaced at spacing shown on plant list.
- Shade Trees: Height shall be measured from ground to the average height of canopy. Spread shall be measured to the end of branching equally around the crown from the center of the trunk. Measurements are not to include any terminal growth. Single trunk trees shall be free of "v" crotches that could be points of weak limb structure or disease infestation.
- Shrubs: Height shall be measured from the ground to the average point where mature plant growth stops. Spread shall be measured to the end of branching equally around the shrub mass. Measurements are not to include any terminal growth.
- All bulbs to be planted with their roots down.
- Contractor shall inspect all bulbs and bring any damaged material to the attention of the Owner prior to planting.
- All seasonal color will be selected by the Landscape Architect prior to installation. All seasonal color shall be triangularly spaced at spacing shown on planting plans. One year (seasonal) color to be bid. Install the first portion which is "in season" at time that adjacent plantings are installed.
- Contractor is responsible for maintaining all shrubs and groundcover areas in a weed and debris-free condition throughout the guarantee period.
- All substitutions of plant material are to be requested in writing to the Landscape Architect and approved in writing by the Owner. Failure to obtain substitution approval in writing may result in liability to the Contractor.
- All contractors shall be required to completely remove all trash, debris, and excess materials from the work area and the property (especially all curb and gutter) daily.
- Large growing plants are not to be placed directly in front of windows, under building overhangs or in drainage swales, adjust in field as necessary. All plants to be located off sight lines. No trees allowed within easements.

**PLANT LIST**

TREES	KEY QTY	BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD/ CALIPERS	REMARKS
AR	47	Acer rubrum	Red Maple	12-14'	21-3"	B&B; Min branching; Height 6' max. 8'
AS	59	Acer saccharum	Sugar Maple	12-14'	21-3"	B&B; Min branching; Height 6' max. 8'
CF	17	Cornus florida	Flowering Dogwood	8-10'	2-2 1/2"	B&B; White Flowers
PS	18	Pinus strobus	White Pine	6-8'		B&B; Full Specimen
PR	17	Prunus serotina	Kwanan Cherry	8-10'	2-2 1/2"	B&B; Pink Flowers
PR	10	Pinus thunbergiana	Japanese Black Pine	6-8'		B&B; Full Specimen
OC	30	Quercus coccinea	Scarlet Oak	12-14'	21-3"	B&B; Min Branching; Height 6' max. 8'
OPH	40	Quercus phellos	Willow Oak	12-14'	21-3"	B&B; Min Branching; Height 6' max. 8'

**NOTE: SOIL MIX**

SOIL MIX FOR ALL SHRUB BEDS AND TREES SHALL BE:  
 2/3 TOPSOIL  
 1/6 COARSE SAND  
 1/6 PEAT MOSS

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

*Signature of Engineer*  
 DATE: 6/6/89

DEVELOPER'S CERTIFICATE  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*Signature of Developer*  
 DATE: 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*Signature of Soil Conservation District*  
 DATE: 4/6/90

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

*Signature of District*  
 DATE: 4/2/90

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Signature of Planning Director*  
 DATE: 1/16/90

*Signature of Chief*  
 DATE: 1/6/90

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*Signature of Health Officer*  
 DATE: 1-9-90

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

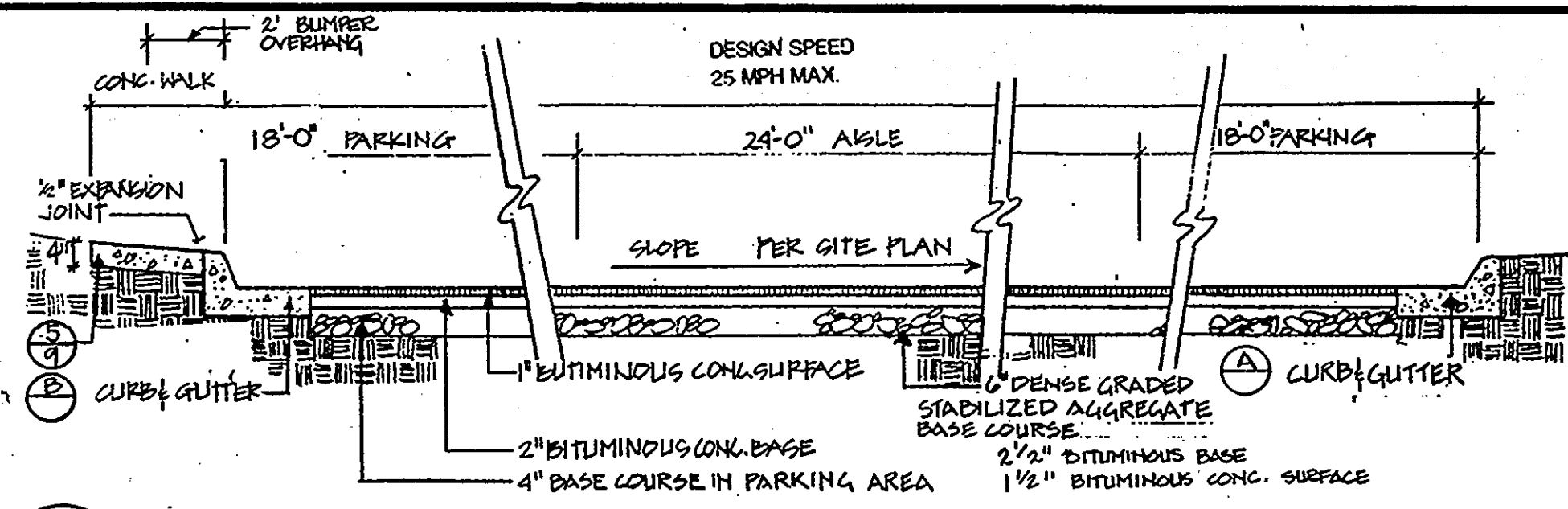
*Signature of Director*  
 DATE: 1/8/90

*Signature of Chief*  
 DATE: 1-8-90

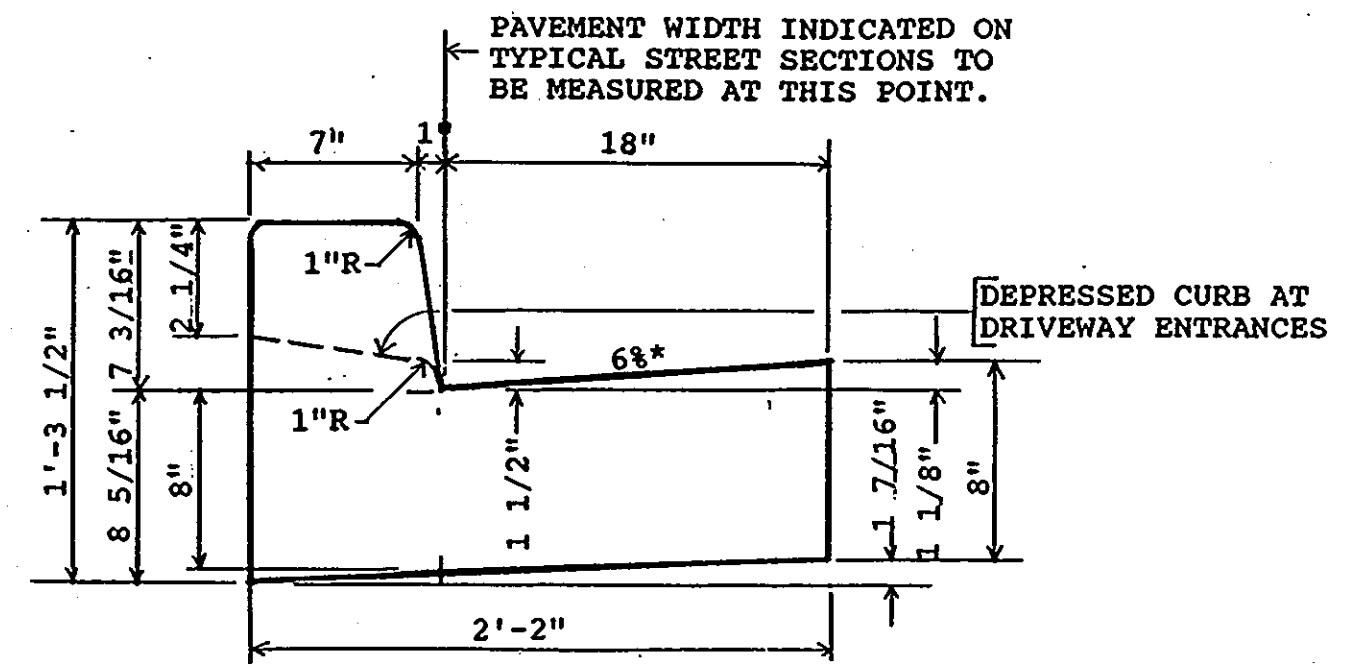
SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAY NO.	TAX/ZONE	ELEC DIST
	R-SA	2
WATER CODE	SEWER CODE	CENSUS TR

APPROVED  
 DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
 HOWARD COUNTY, MARYLAND  
 DATE: 11-7-89

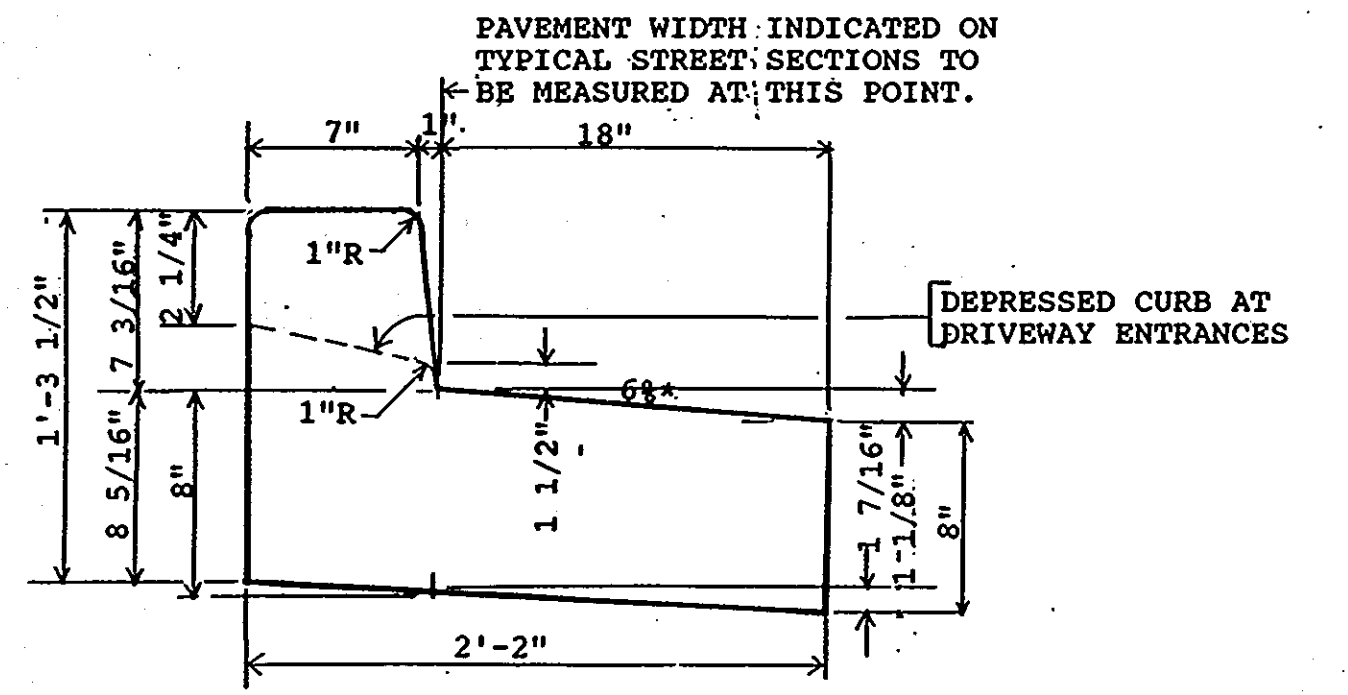




**1** **9** **TYPICAL PARKING SECTION WITH DRIVE AISLE** NTS



**A** **R-3.01** **STANDARD CURB & GUTTER**

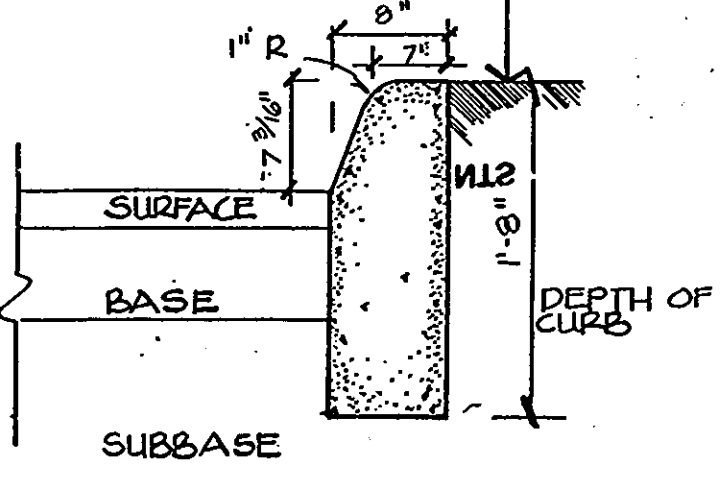


**B** **R-3.01** **REVERSED CURB & GUTTER**

**2** **9** **HOWARD COUNTY CURB & GUTTER TYPICAL** NTS

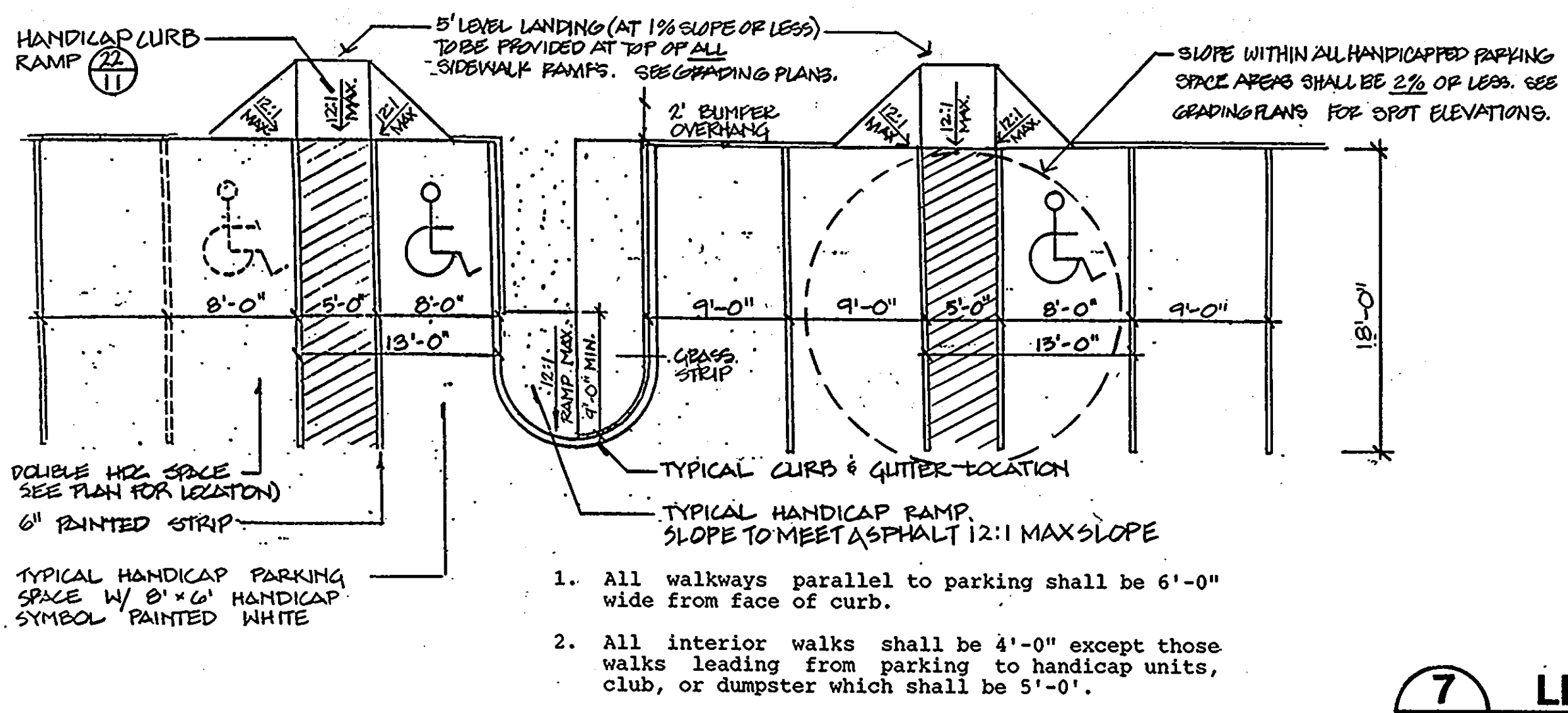
THE DEPTH OF CURB MAY BE REDUCED AS MUCH AS 3" (15" DEPTH) OR INCREASED AS MUCH AS 3" (21" DEPTH) IN ORDER THAT THE BOTTOM OF CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENT SUBSTRUCTURE. OTHERWISE THE DEPTH IS TO BE 18" AS SHOWN.

USE MIX NO. 2 CONCRETE FOR CURB



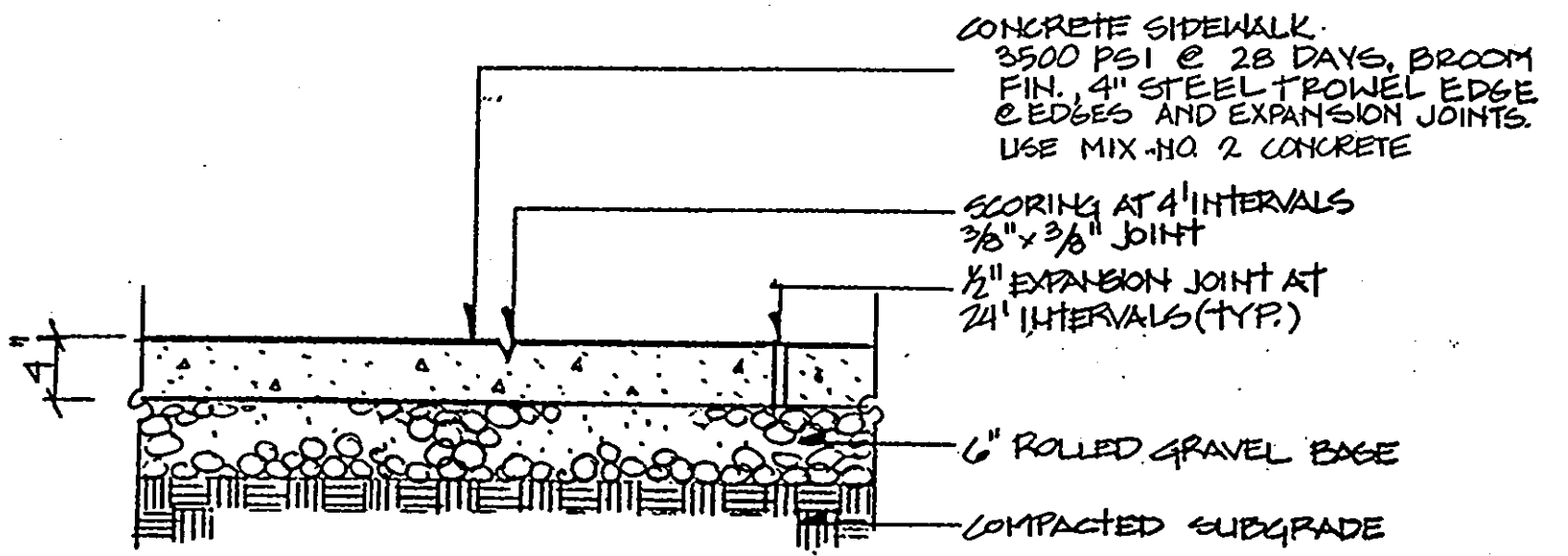
**R-3.03**

**3** **9** **MEDIAN CURB TYPICAL** NTS



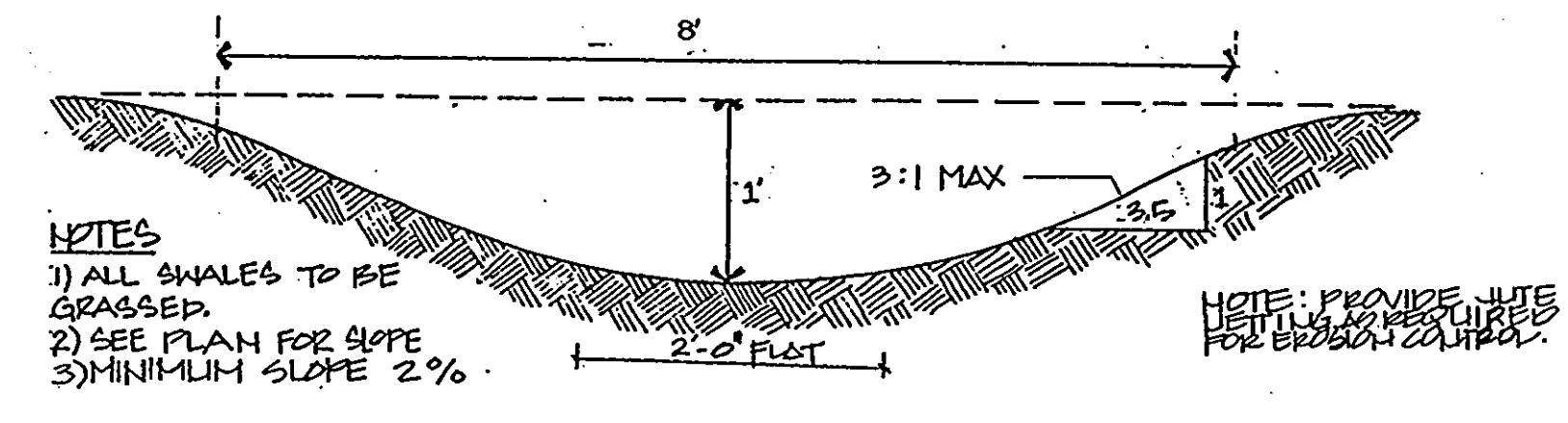
1. All walkways parallel to parking shall be 6'-0" wide from face of curb.
2. All interior walks shall be 4'-0" except those walks leading from parking to handicap units, club, or dumpster which shall be 5'-0".

**4** **9** **TYPICAL PARKING SPACES** NTS



1. All walkways adjacent to parking shall be 6'-0" wide from face of curb.
2. All interior walks shall be 4'-0", except those walks leading from handicap spaces to handicap units, club or dumpster which shall be 5'-0".
3. All other walkways along streets where no parking occurs shall be 4'-0" wide, unless otherwise indicated.
4. For walkway plan see sheets

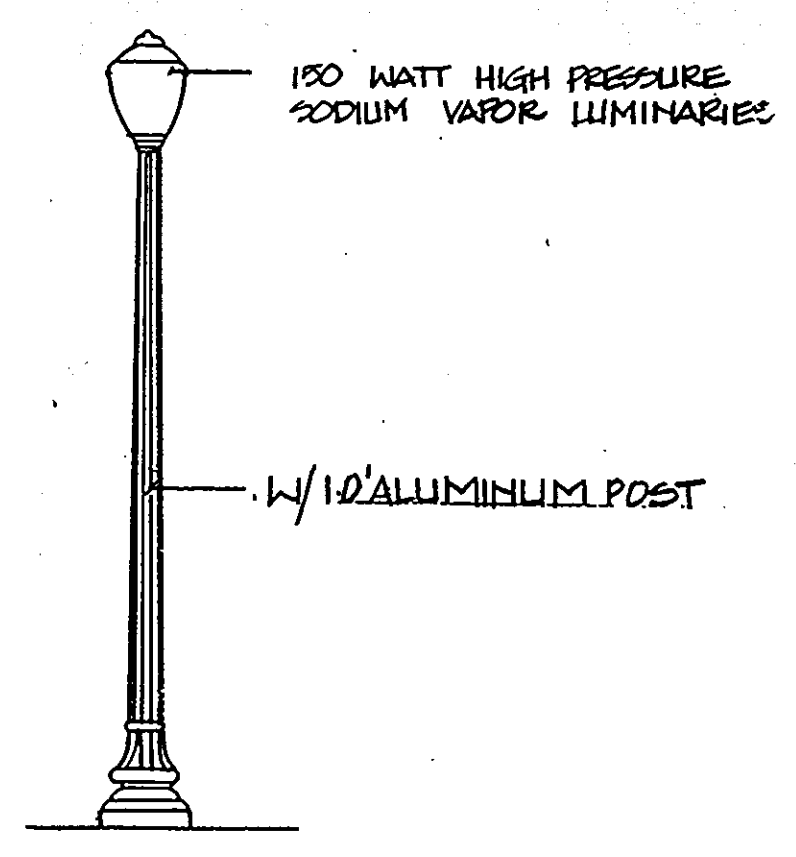
**5** **9** **TYPICAL CONCRETE WALK** NTS



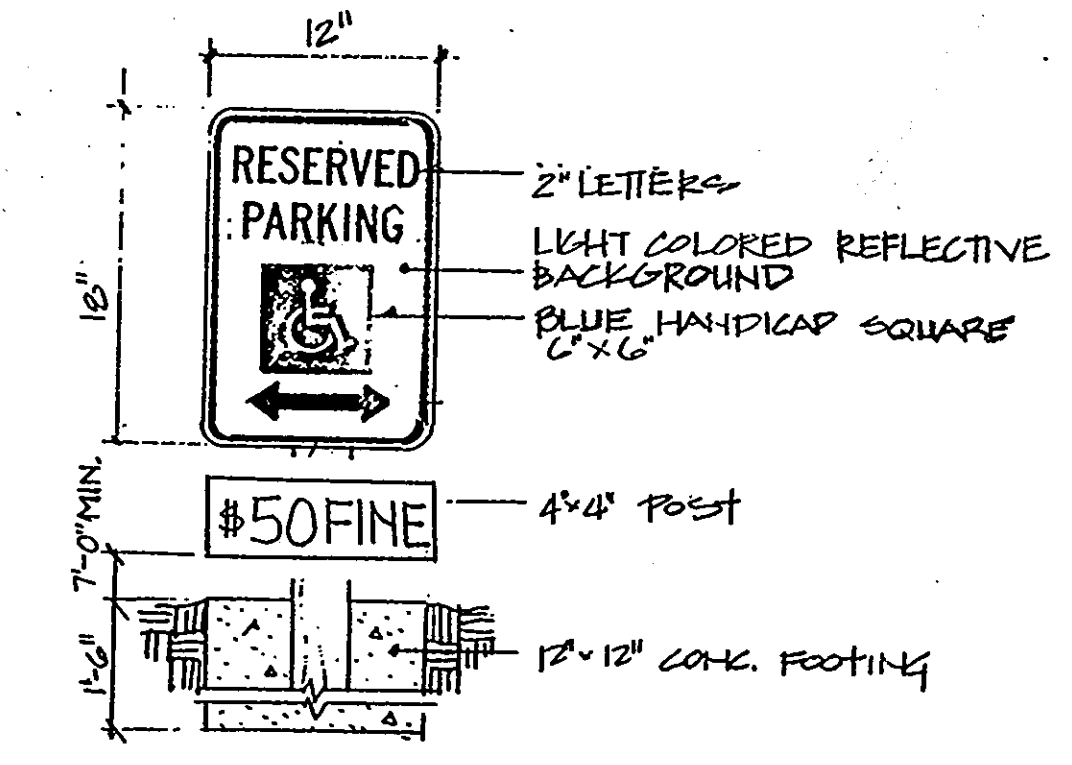
- NOTES
- 1) ALL SWALES TO BE GRASSED.
  - 2) SEE PLAN FOR SLOPE.
  - 3) MINIMUM SLOPE 2%.

NOTE: PROVIDE HITE DETAIL FOR SWALE CURB.

**6** **9** **TYPICAL SWALE** NTS



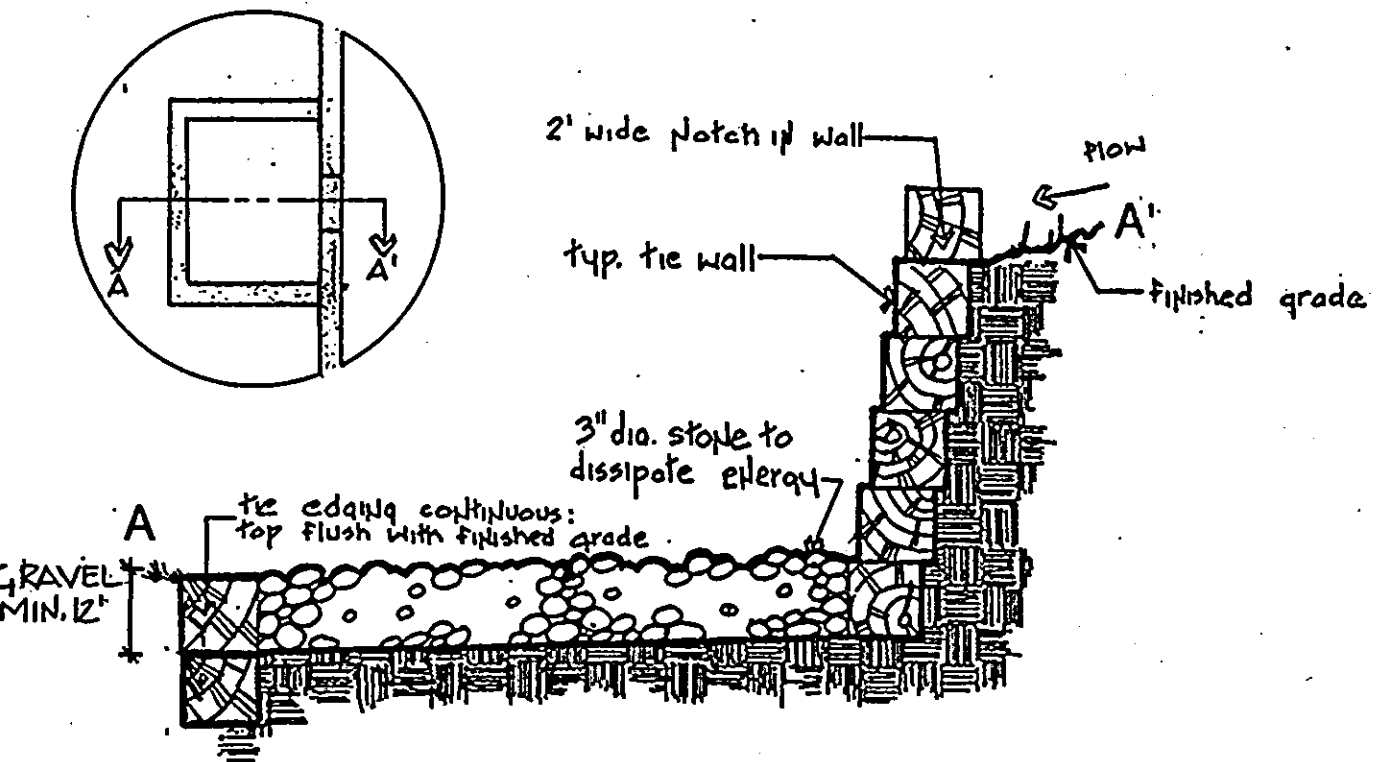
**7** **9** **LIGHT DETAIL** NTS



\$50.00 FINE SIGN TO UTILIZE AN ALUMINUM BLANK 6" X 12" X 0.080 INCH THICK WITH TWO (2) SINGLE POST MOUNTING HOLES. THE TEXT AND BORDER SHALL BE STANDARD GREEN TO MATCH THE R7-8 RESERVED PARKING SIGN AND THE BACKGROUND SHALL BE REFLECTIVE WHITE. THE TEXT SHALL BE 3" CHARACTERS.

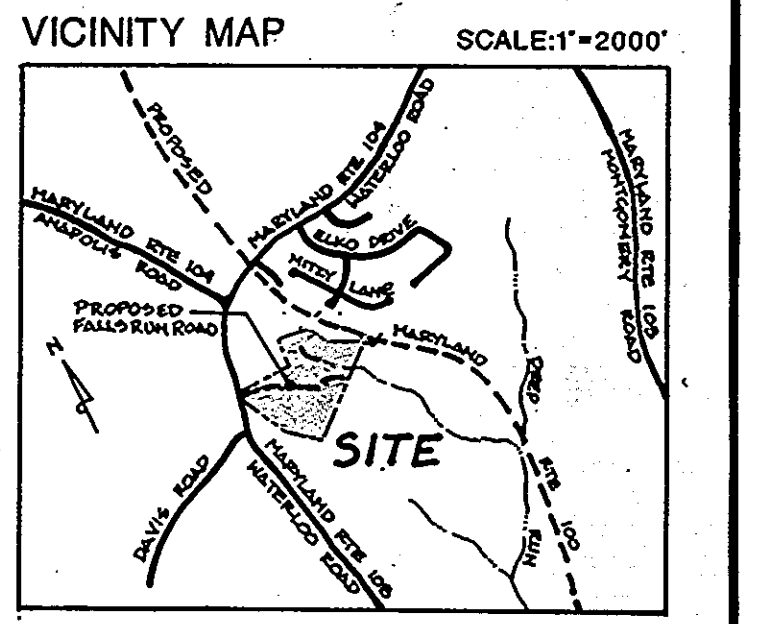
RESERVED PARKING SIGN COLORS  
LEGEND AND BORDER - GREEN  
WHITE SYMBOL ON BLUE BACKGROUND  
BACKGROUND - WHITE

**8** **9** **HANDICAP SIGN (R7-8)** NTS



**9** **9** **TYPICAL SWALE DROP OVER RETAINING WALL** NTS

**ASHTON WOODS**  
Tax Map #31 Parcel 423 Lot 2  
Second Election District  
Plat #7522 & 7523 Zoning R-SA-8.  
Howard County, Maryland  
An Apartment Community  
by  
Summit Properties



OWNER / DEVELOPER:  
SUMMIT PROPERTIES  
203 KEY HIGHWAY  
BALTIMORE, MARYLAND 21230  
(301) 234-0070

ENGINEER:  
STV/LYON ASSOCIATES  
21 GOVERNOR'S COURT  
BALTIMORE, MARYLAND 21207  
(301) 944-9112



*Fred R. ...*

DATE: 6-5-89  
PROJECT NO.: 88074  
REVISIONS:  
REVISED 7-12-89  
REVISED 9-5-89

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

*[Signature]*  
DATE: 6/6/89

DEVELOPER'S CERTIFICATE  
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*[Signature]*  
DATE: 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*[Signature]* 1/2/90  
DATE

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

*[Signature]* 1/2/90  
DATE

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 1/10/90  
DATE

*[Signature]* 1/10/90  
DATE

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*[Signature]* 1-9-90  
DATE

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

*[Signature]* 1/8/90  
DATE

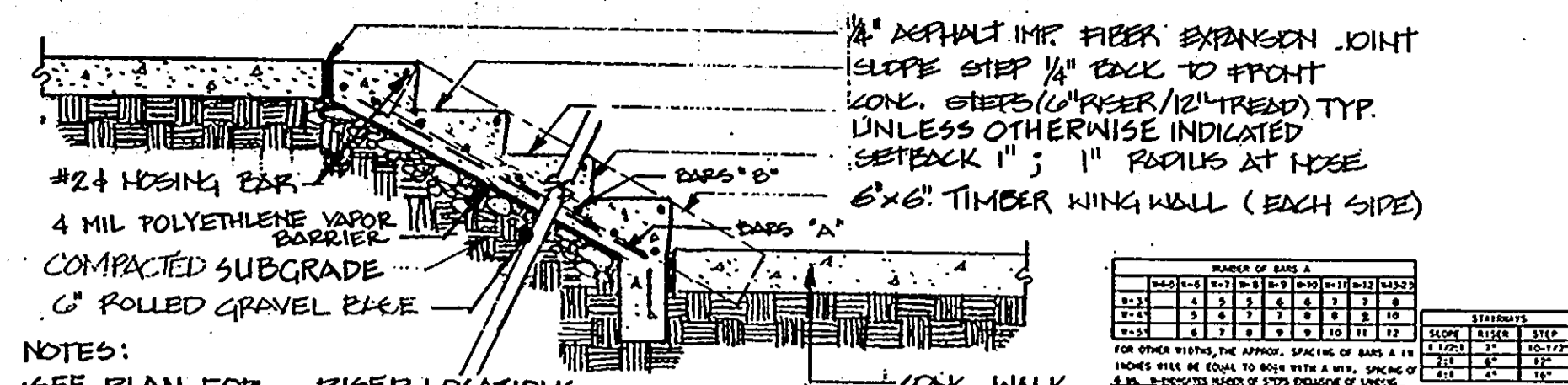
*[Signature]* 1-8-90  
DATE

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO	BLOCK NO	ZONE
	31	R-SA-8
TAX/ZONE	ELEC DIST	CENSUS TR
	2	
WATER CODE	SEWER CODE	

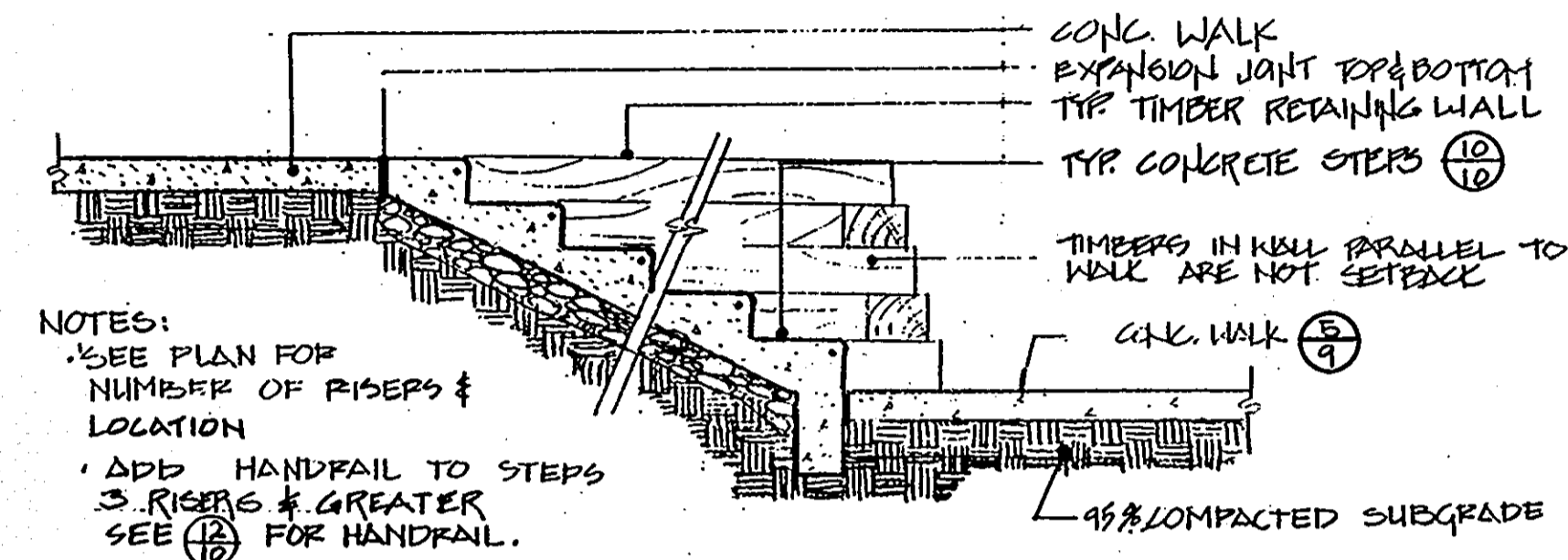
APPROVED  
DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
HOWARD COUNTY, MARYLAND  
DATE: 11-7-89

© 1701 East Boulevard, Charlotte, NC 28203 704/333-0225  
© 1216 Prince Street, Alexandria, VA 22314 703/549-7784  
© 225 Hillsborough Street, Raleigh, NC 919/834-8127

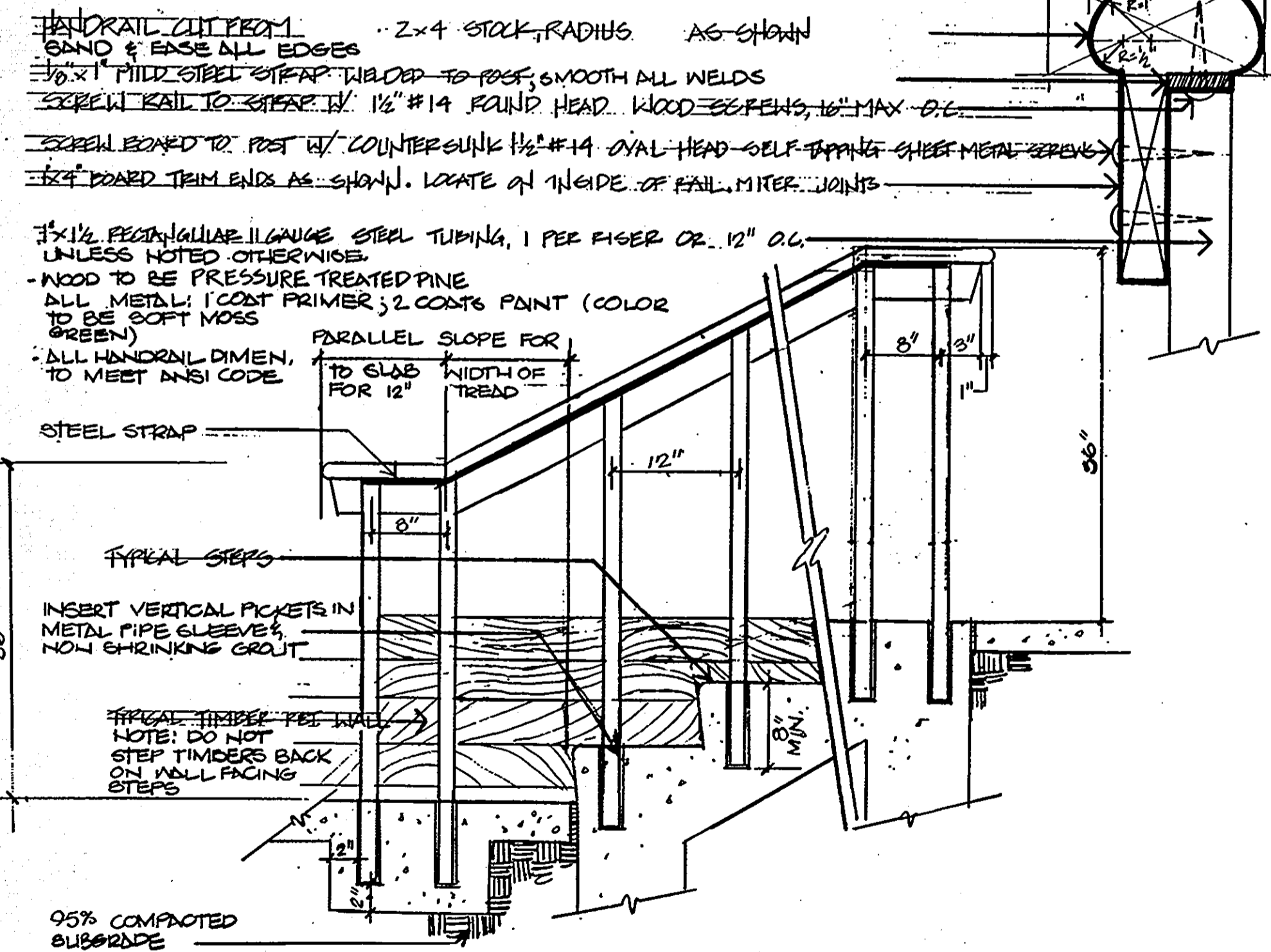
**Land Design**  
Landscape Architecture Land Planning  
Urban Design  
SITE DETAILS  
SHEET NO.: 9 OF 38 42  
SDP 89-254



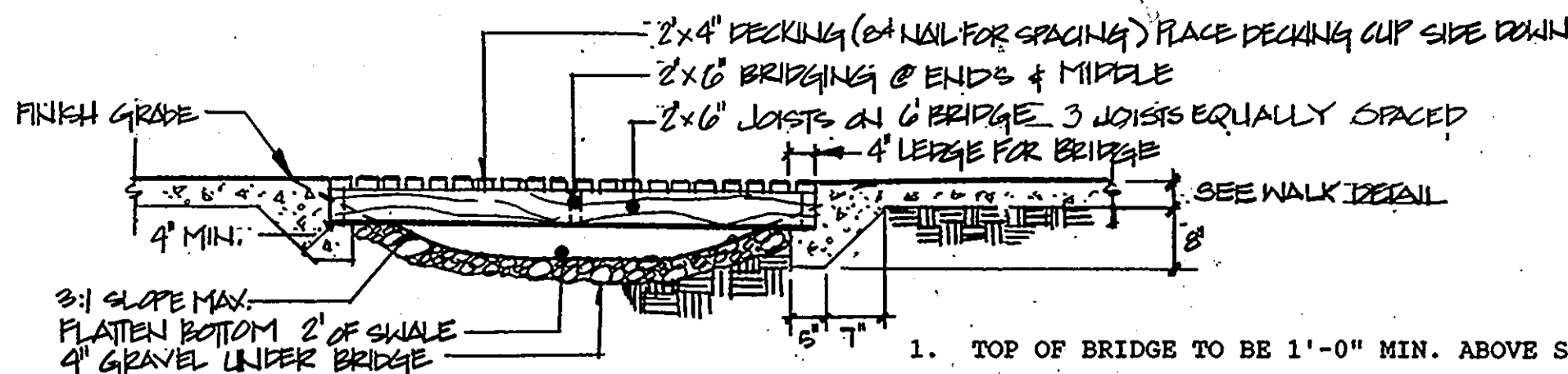
10 CONCRETE STEPS NTS



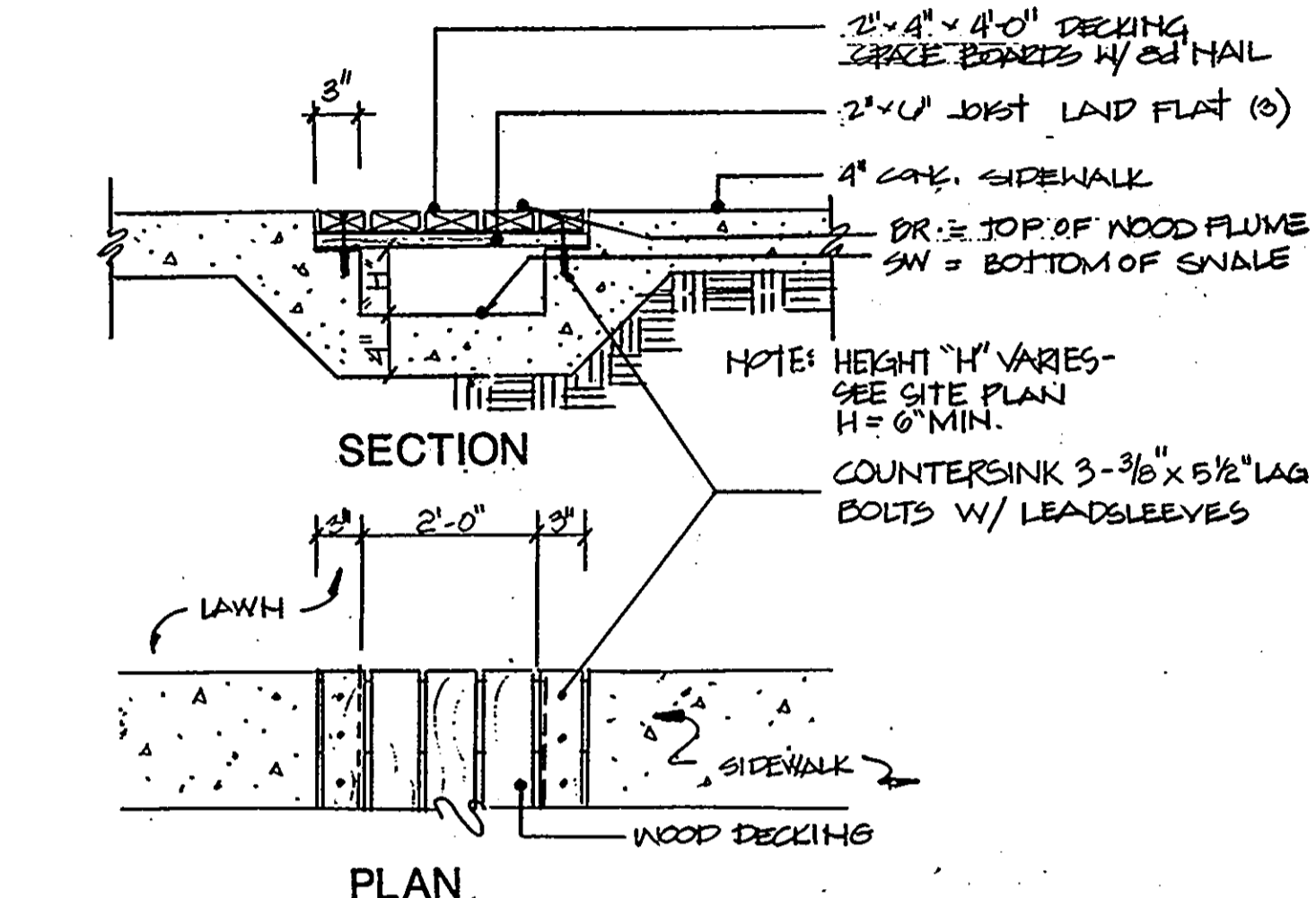
11 STEPS @ TIMBER WALL NTS



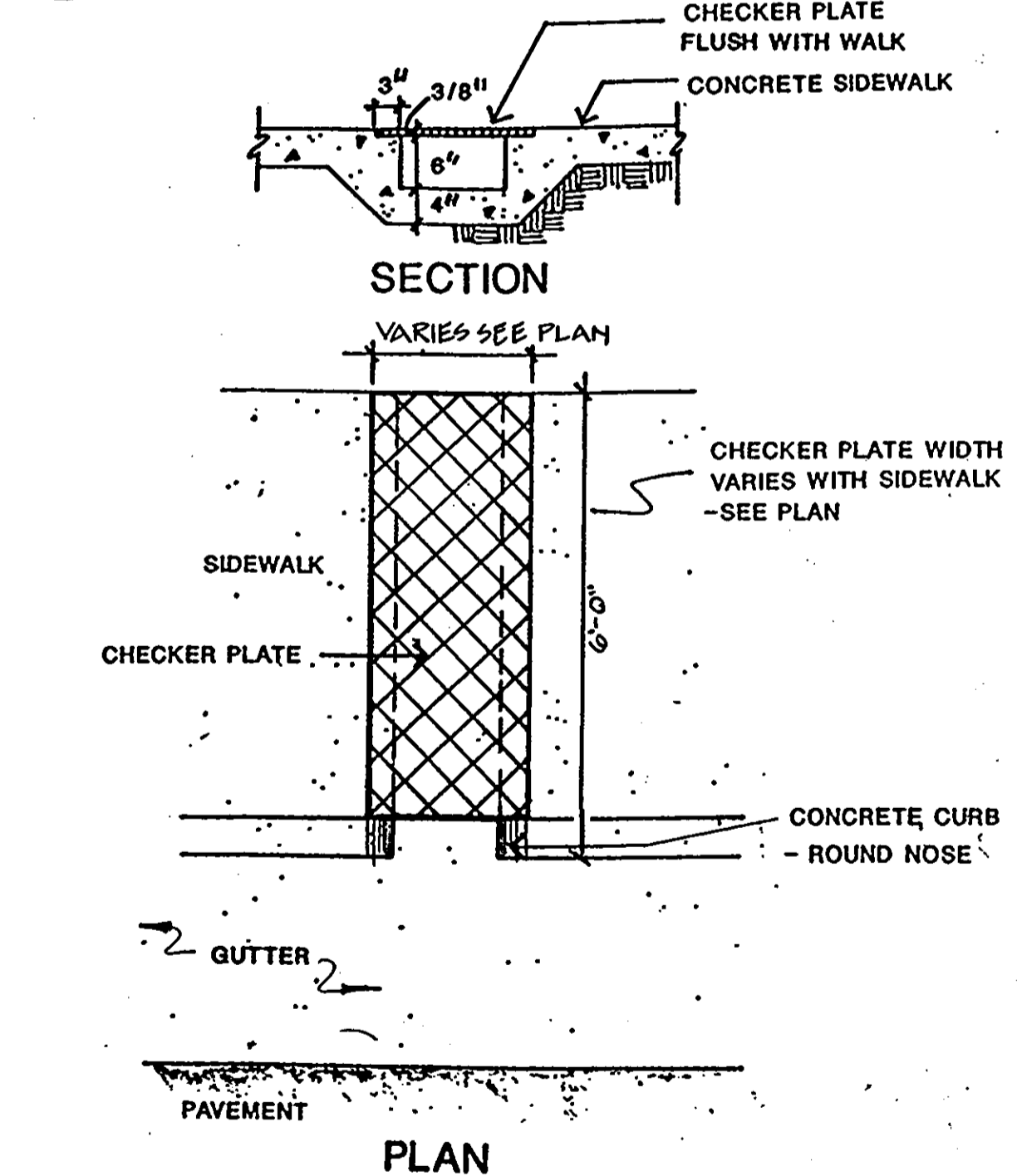
12 WOOD HANDRAIL DETAIL NTS



13 SECTION WOOD FOOTBRIDGE NTS



14 WOODWALK OVER FLUME NTS



15 METAL CHECKER PLATE NTS

**TIMBER WALL CHART**

HEIGHT OF UNCHARGED DEADMEN	# OF DEADMEN	LOCATION IN # OF COURSE ABOVE SURFACE
2'-0"	0	NA
2'-0" TO 2'-11"	1 ROW	5

HEIGHT OF SURCHARGED WALL	# OF DEADMEN	LOCATION IN # OF COURSE BELOW TOP OF WALL
2'-0"	1 ROW	2
2'-0" TO 2'-11"	3 ROWS	2, 4, 6

6. WITH MULTIPLE ROWS OF DEADME BRAGERS TO ELIMINATE VERTICAL ALIGNMENT OF DEADMEN

FINISH GRADE: IF SLOPE EXCEEDS 1:10 USE CHART NO. 2, OTHERWISE, USE CHART NO. 1

TW = TOP OF WALL AT FINISH GRADE

INSTALL TIMBERS PLUMB & LEVEL W/ ADJOINING FACES FLUSH AND IN PROPER ALIGNMENT. ATTACH W/ 60d GALV. NAILS

BATTER WALL 3/4" PER COURSE

6X6 TIMBERS & DEADMEN

3' LONG TIE, ANCHOR TO DEADMAN W/ 7/16" φ X 1' LONG GALV. SPIKE

BL = BOTTOM OF WALL AT FINISH GRADE

1' BELOW FIN. GRADE (TYP)

FILTER FABRIC - LAP JOINTS 12" MIN.

POUROUS GRANULAR BACKFILL

4" PERK. PIPE, WRAPPED IN FILTER FABRIC, SLOPE TO OUTLET (1% MIN)

UNDISTURBED EARTH SUBGRADE OF BACKFILL COMPACTED IN 6" LIFTS

NOTES:  
1. TREAT WOOD MEMBERS TO MEET ANPD SPEC. LP-22.  
2. STEP TOP OF WALL WITH FINISH GRADE UNLESS OTHERWISE NOTED.  
3. MAXIMUM WALL HEIGHT - 2'-11" FROM FINISH GRADE.  
4. MINIMUM DISTANCE BETWEEN WALLS IS 4'-0"  
5. USE UN-CUT 6" OR 16" TIMBERS  
6. DEADMEN ARE SPACED 6'-6" O.C. PER EACH ROW. (SEE ELEVATION BELOW)  
7. ALL WALLS ABOVE 3'-0" REQ. SPECIAL BLDG PERMIT

ELEVATION - 1/4" = 1'-0"

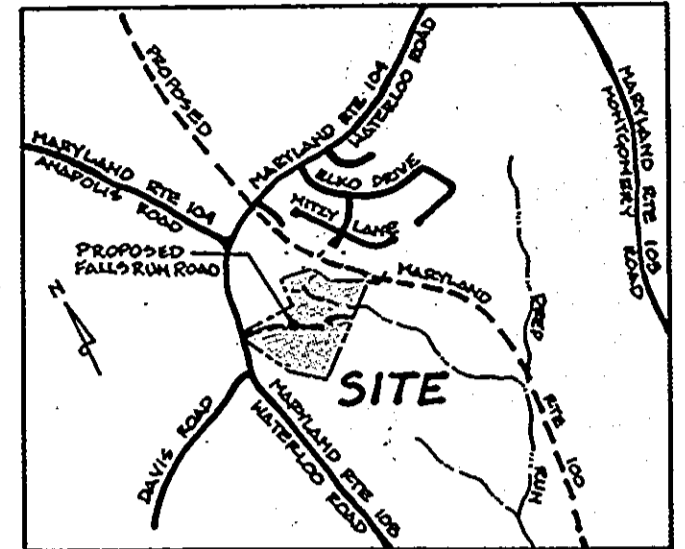
16 WOOD TIMBER WALL NTS

ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
Second Election District  
Plat #7522 & 7523 Zoning R-SA-8.  
Howard County, Maryland

An Apartment Community  
by  
Summit Properties

VICINITY MAP SCALE: 1" = 2000'



6/30/11

OWNER / DEVELOPER:  
SUMMIT PROPERTIES  
203 KEY HIGHWAY  
BALTIMORE, MARYLAND 21230  
(301) 234-0070

ENGINEER:  
STV/LYON ASSOCIATES  
21 GOVERNOR'S COURT  
BALTIMORE, MARYLAND 21207  
(301) 944-9112



Paul R. Ryan

DATE: 6-5-89  
PROJECT NO.: 88074  
REVISIONS:  
REVISED 7-12-89  
REVISED 9-5-89  
REVISED 6-30-11 A TIMBER WALLS TO BE REPLACED W/ SEGMENTAL WALLS REFER TO ADDENDUM SHEETS 34-42 FOR LOCATIONS, SECTIONS & ELEVATIONS.

APPROVED  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE 11-7-89

Land Design  
Landscape Architecture Land Planning  
Urban Design  
SITE DETAILS  
SHEET NO. 10 OF 38-42

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

6/6/89  
DATE

DEVELOPER'S CERTIFICATE  
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

6-6-89  
DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

James M. Helm 1/2/90  
DATE

U.S. SOIL CONSERVATION SERVICE

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

APPROVED:  
John L. Robertson 1/2/90  
DATE

DISTRICT HOWARD SOIL CONSERVATION DISTRICT

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

James M. Helm 1/10/90  
DATE

PLANNING DIRECTOR

APPROVED DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

James M. Helm 1-9-9  
DATE

HEALTH OFFICER

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

James M. Helm 1/8/90  
DATE

DIRECTOR, PUBLIC WORKS

APPROVED BUREAU OF ENGINEERING

1-8-90  
DATE

SUBDIVISION NAME ASHTON WOODS APARTMENTS  
SECTION/AREA 423  
PARCEL 423

PLAY NO. BLOCK NO. TAX/ZONE ELEC DIST CENSUS TR

WATER CODE SEWER CODE

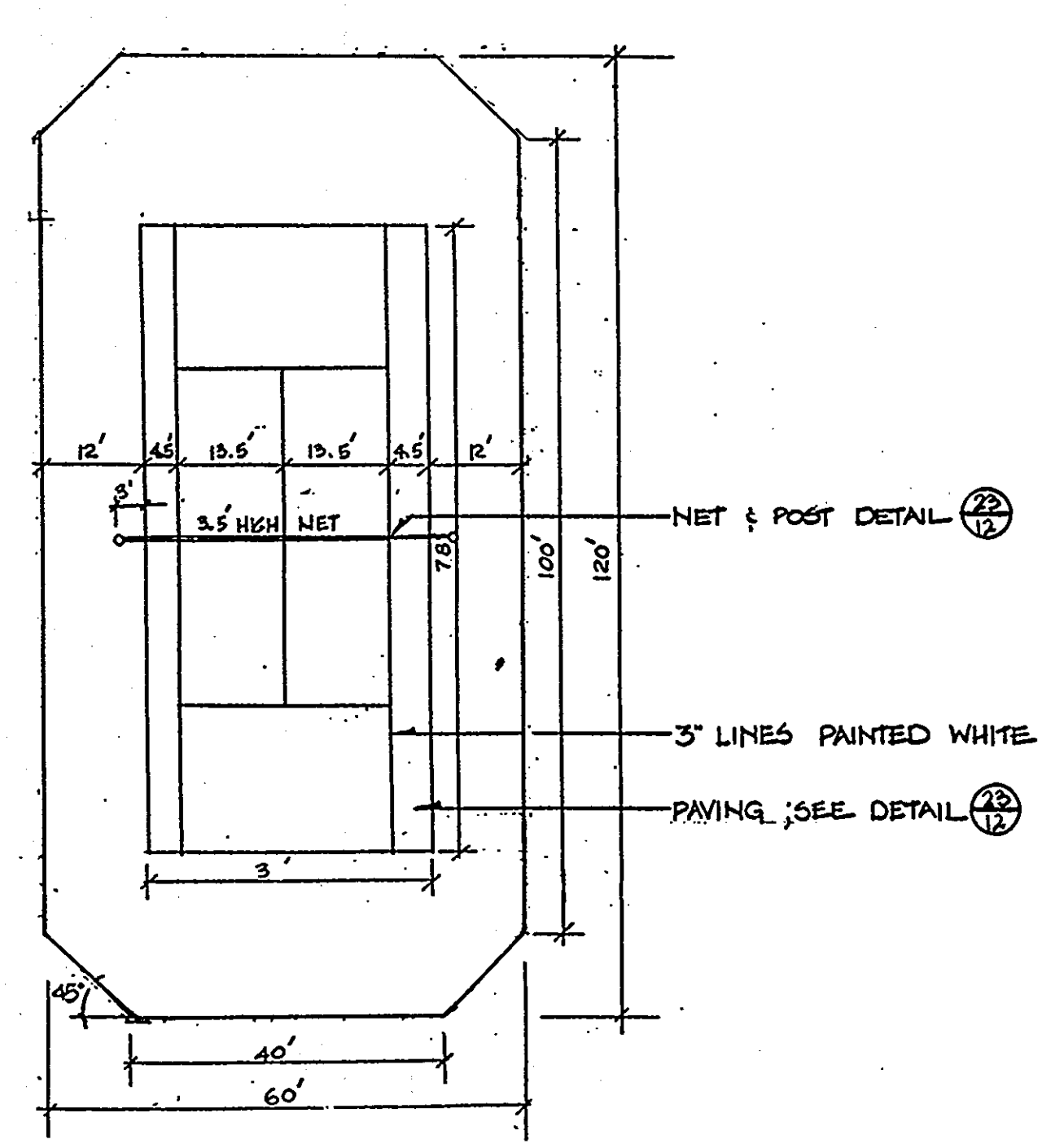
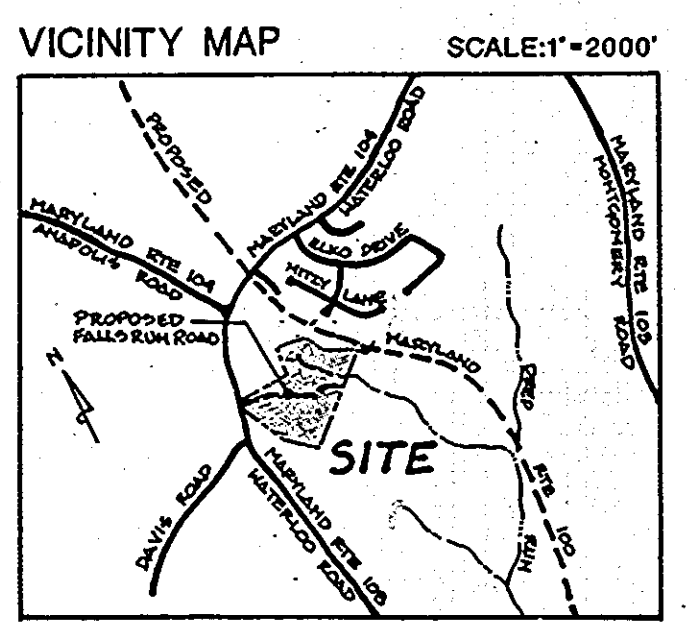
APPROVED  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE 11-7-89

38.

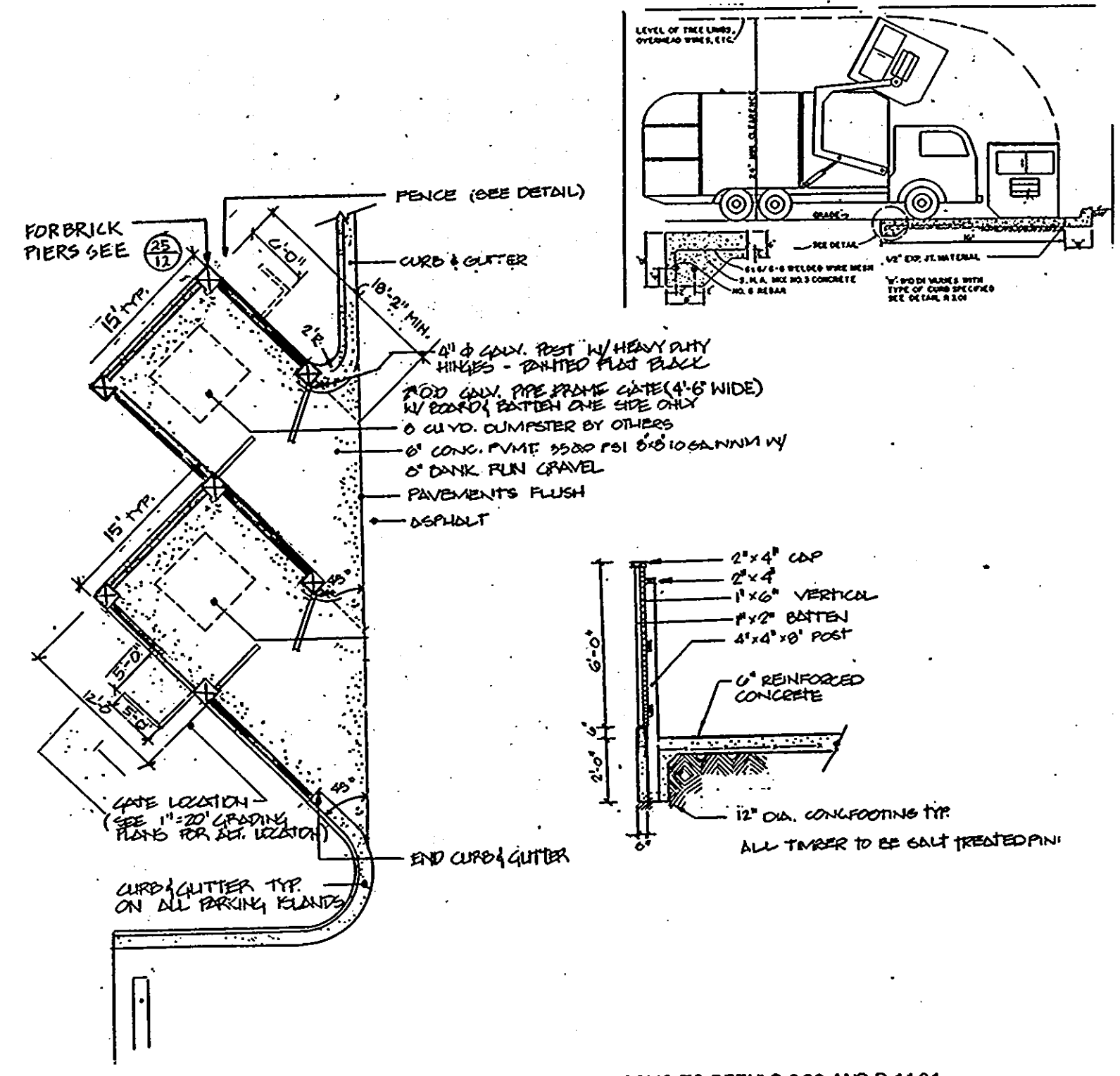
**ASHTON WOODS**

Tax Map #31 Parcel 423 Lot 2  
Second Election District  
Plat #7522 & 7523 Zoning R-SA-8.  
Howard County, Maryland

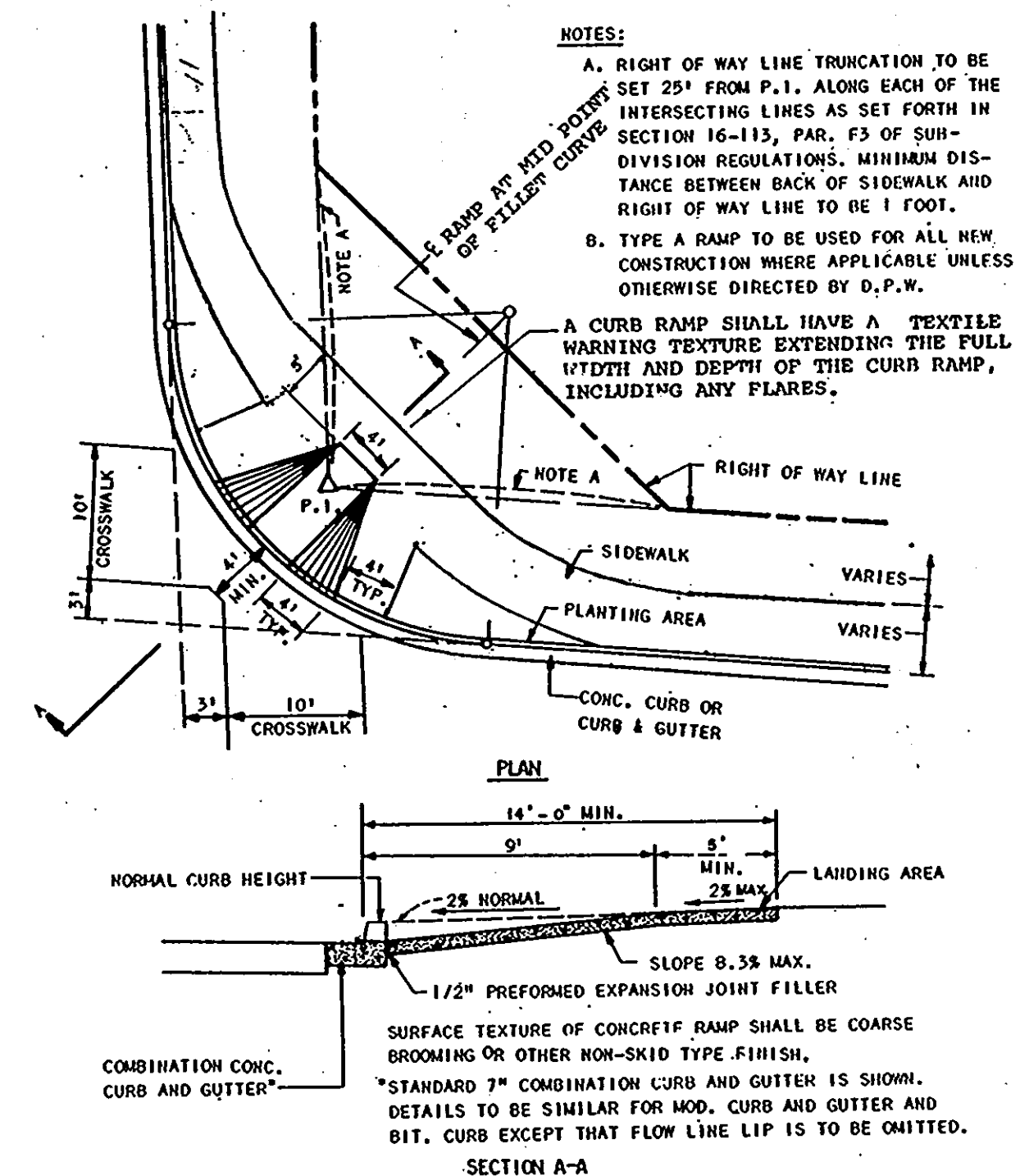
An Apartment Community  
by  
Summit Properties



- FENCE NOTES**
- Fabric - 11 gauge 1/2" galvanized steel wire in a chain link mesh with 40% green plastic sheathing. The fence to be 10 feet high except as shown otherwise at tennis court.
  - Corner, end and gate posts - 3 inch schedule 40 galvanized pipe. Color to be dark green.
  - Line post - 2 1/2 inch schedule 40 galvanized pipe. Color to match corner posts.
  - Top rails, intermediate rails and corner braces - 1 1/2 inch .065 galvanized tubing. Color to match corner post.
  - Bottom tension wire - 7 gauge galvanized steel wire.
  - Gate - 1-5/8 inch .065 galvanized tubing. Color to match corner post.
  - Post tops - All posts shall have malleable iron tops to exclude moisture. Color to match corner posts.



CONFORMS TO DETAILS 226 AND R-11.01 OF HOWARD COUNTY DESIGN MANUALS.

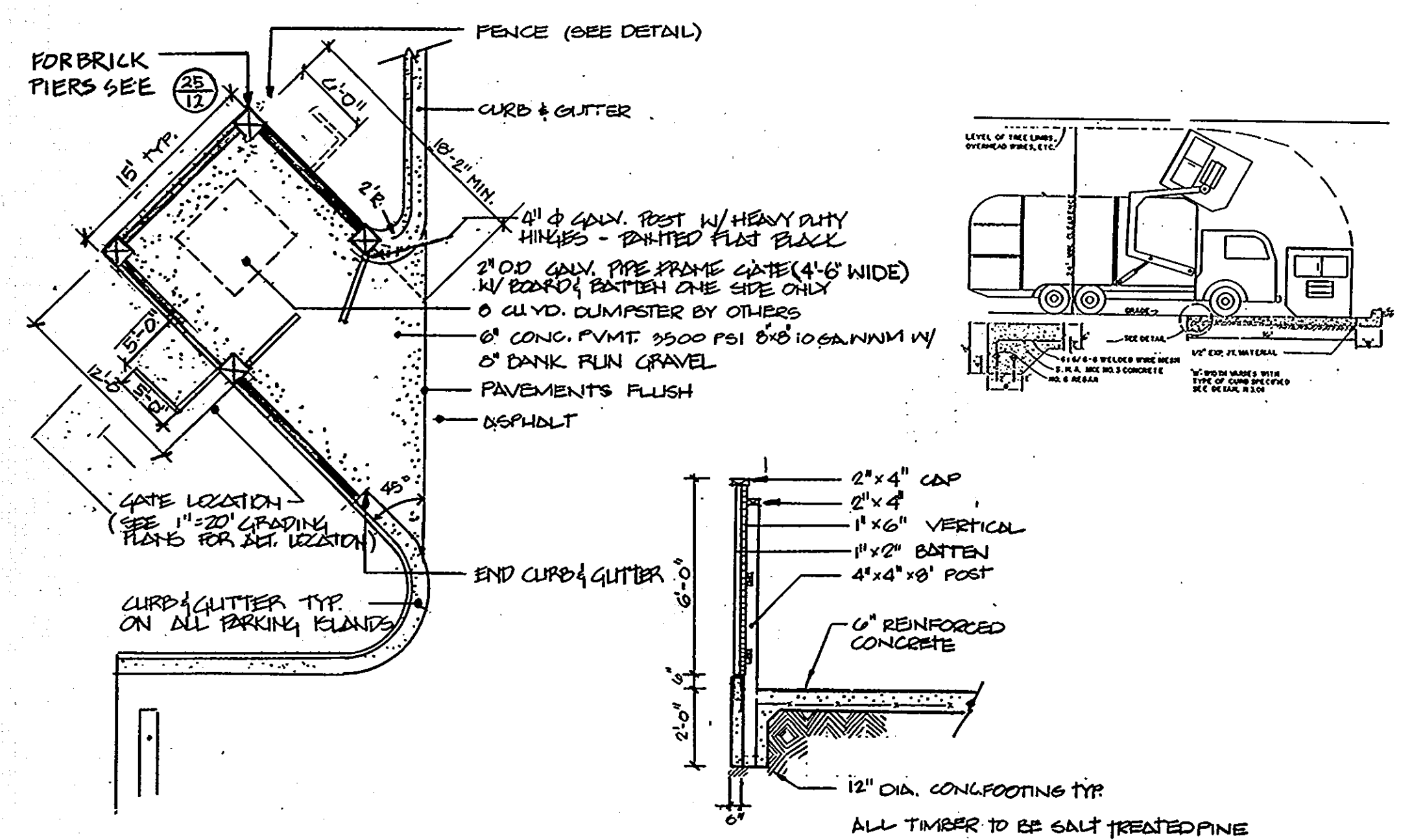


SECTION A-A  
SURFACE TEXTURE OF CONCRETE RAMP SHALL BE COARSE BROOMING OR OTHER NON-SKID TYPE FINISH.  
STANDARD 7" COMBINATION CURB AND GUTTER IS SHOWN. DETAILS TO BE SIMILAR FOR MOD. CURB AND GUTTER AND BIT. CURB EXCEPT THAT FLOW LINE LIP IS TO BE OMITTED.

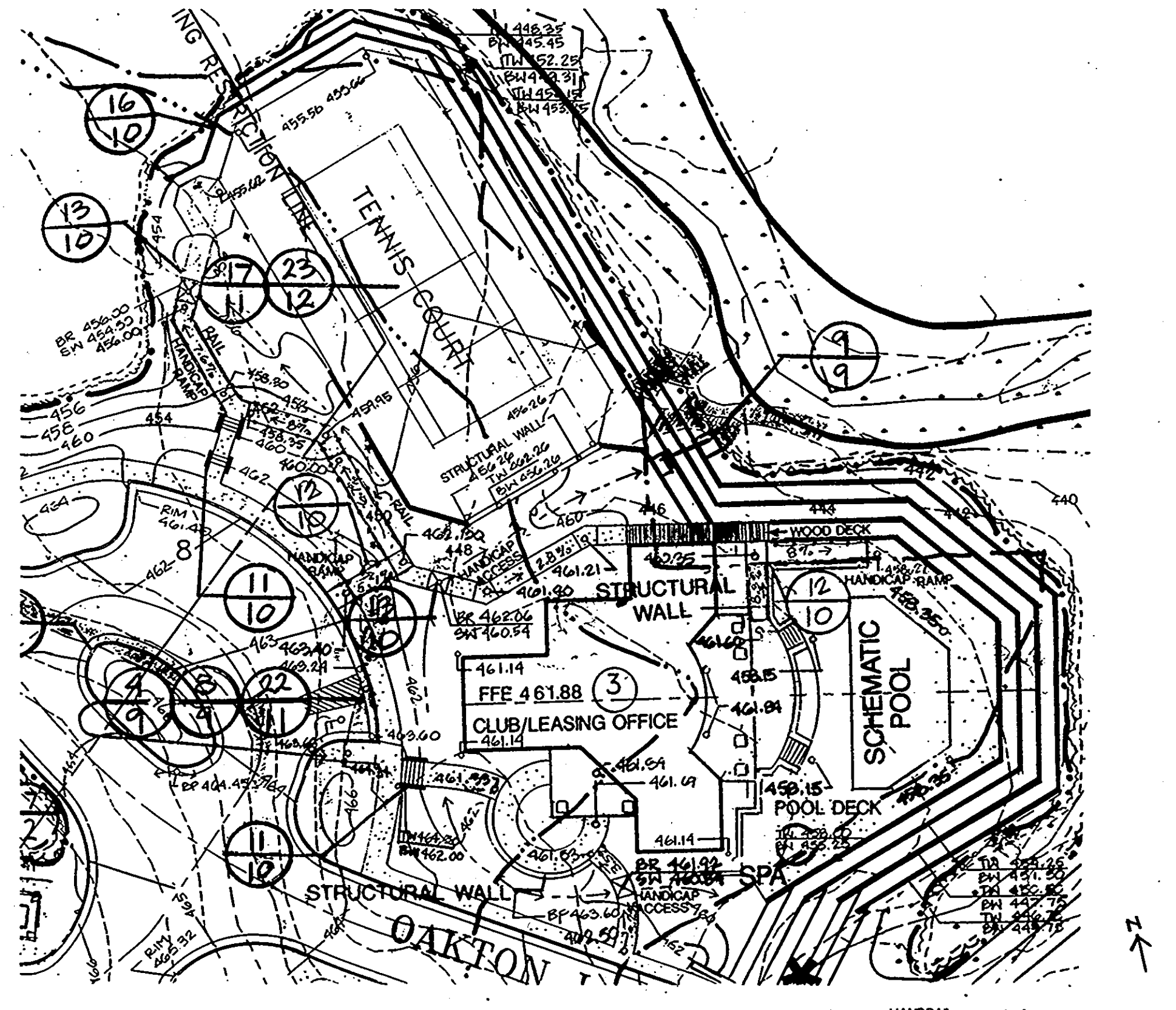
**17** TENNIS COURT PLAN  
**11** NTS

**19** DOUBLE DUMPSTER DETAIL  
**11** NTS

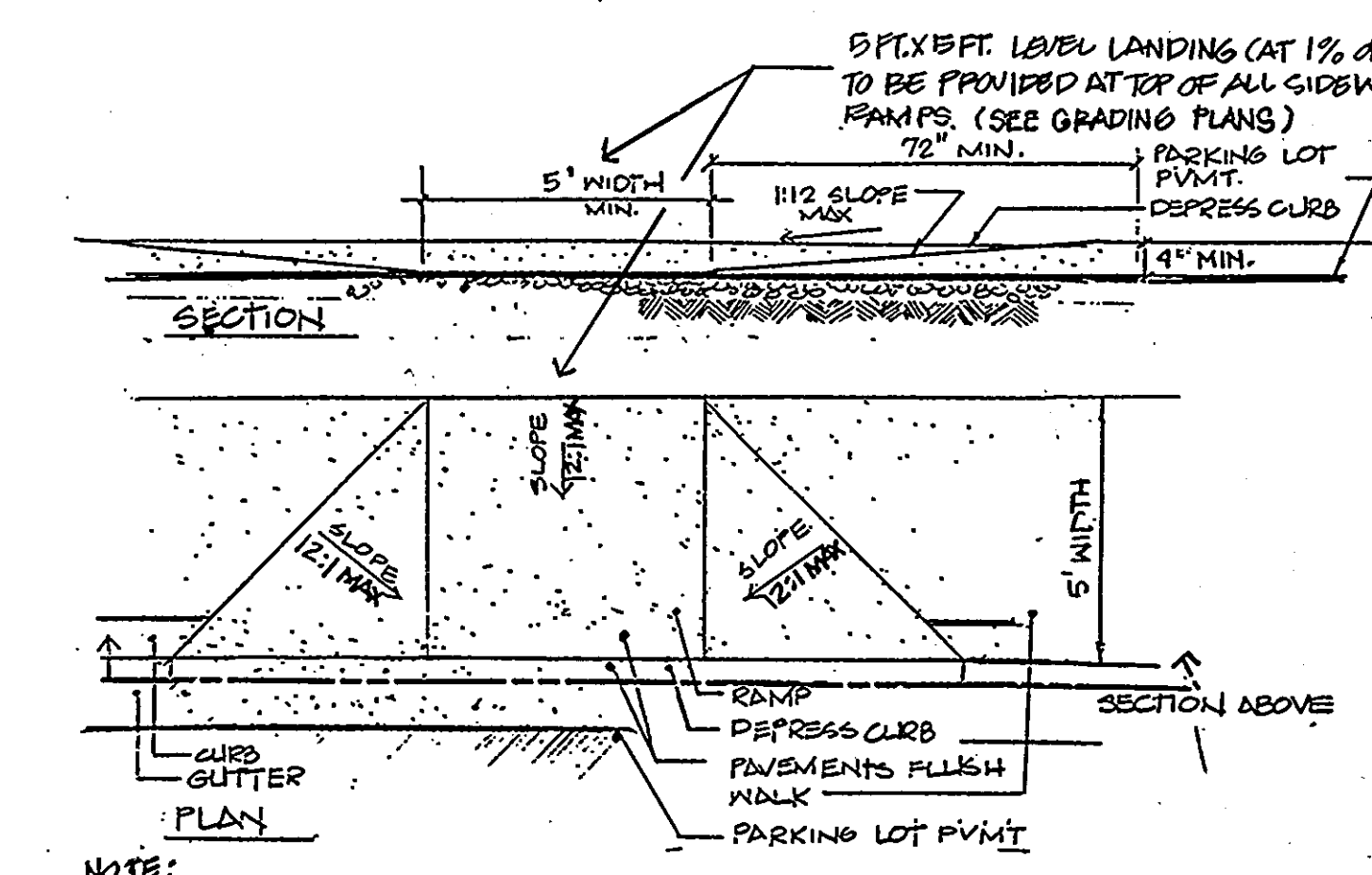
**21** SIDEWALK RAMP (TYPE A)  
**11** NTS



CONFORMS TO DETAILS 226 AND R-11.01 OF HOWARD COUNTY DESIGN MANUALS.



**20** CLUB/LEASING OFFICE/POOL/TENNIS COURT GRADING  
**11** 1"=30'



NOTE: 12:1 MAX SLOPE AT HANDICAPPED CURB/RAMP AT SIDEWALK PER AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).

**22** HANDICAP CURB/RAMP DETAIL  
**11** NTS

OWNER/DEVELOPER:  
SUMMIT PROPERTIES  
203 KEY HIGHWAY  
BALTIMORE, MARYLAND 21230  
(301) 234-0070

ENGINEER:  
STVLON ASSOCIATES  
21 GOVERNOR'S COURT  
BALTIMORE, MARYLAND 21207  
(301) 944-9112



*Paul R. Stylon*

DATE: 6-5-89  
PROJECT NO.: 88074  
REVISIONS:  
REVISED 7-12-89  
REVISED 9-5-89

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

*Paul R. Stylon*  
SIGNATURE OF ENGINEER  
6/6/89  
DATE

**DEVELOPER'S CERTIFICATE**  
"I" WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*Summit Properties*  
SIGNATURE OF DEVELOPER  
6-6-89  
DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*James M. Kelly*  
U.S. SOIL CONSERVATION SERVICE  
1/2/90  
DATE

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

*John R. Robertson*  
DISTRICT HOWARD SOIL CONSERVATION DISTRICT  
1/2/90  
DATE

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*James M. Kelly*  
PLANNING DIRECTOR  
1/10/90  
DATE

*James J. Langell*  
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT  
1/10/90  
DATE

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*James J. Langell*  
HEALTH OFFICER  
1-9-90  
DATE

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

*James J. Langell*  
DIRECTOR, PUBLIC WORKS  
1/8/90  
DATE

*William S. Kelly*  
CHIEF, BUREAU OF ENGINEERING  
1-8-90  
DATE

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO.	BLOCK NO.	TAX/ZONE ELEC DIST
		31 2
WATER CODE	SEWER CODE	

**APPROVED**  
DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
HOWARD COUNTY, MARYLAND  
DATE: 11-7-89

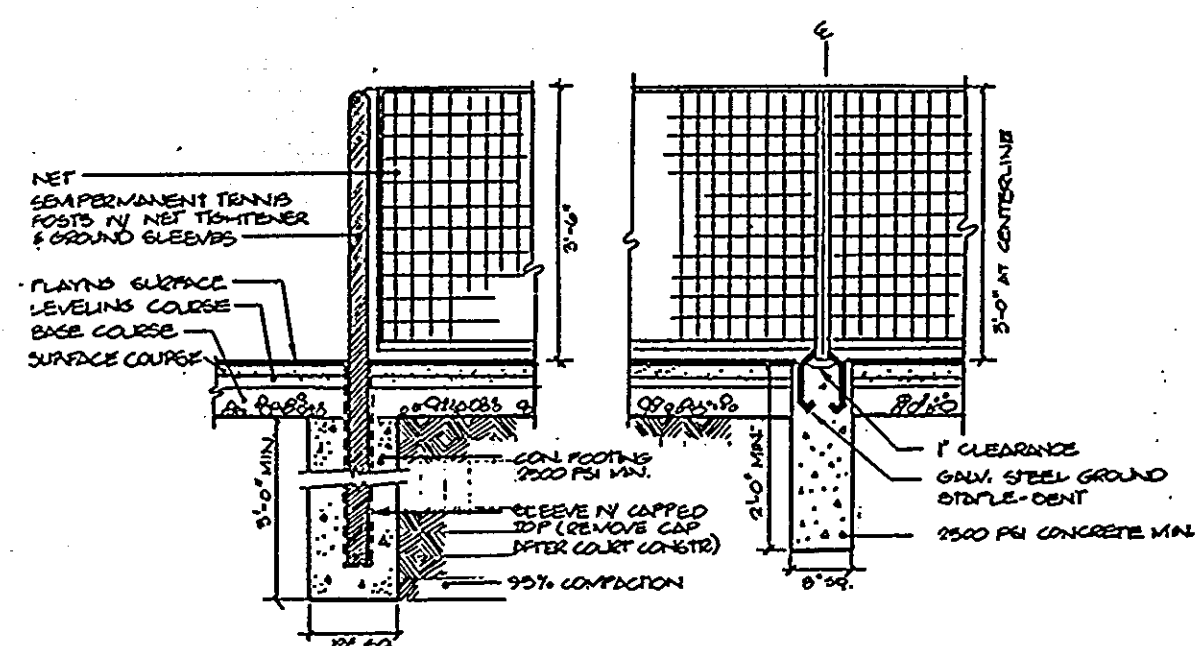
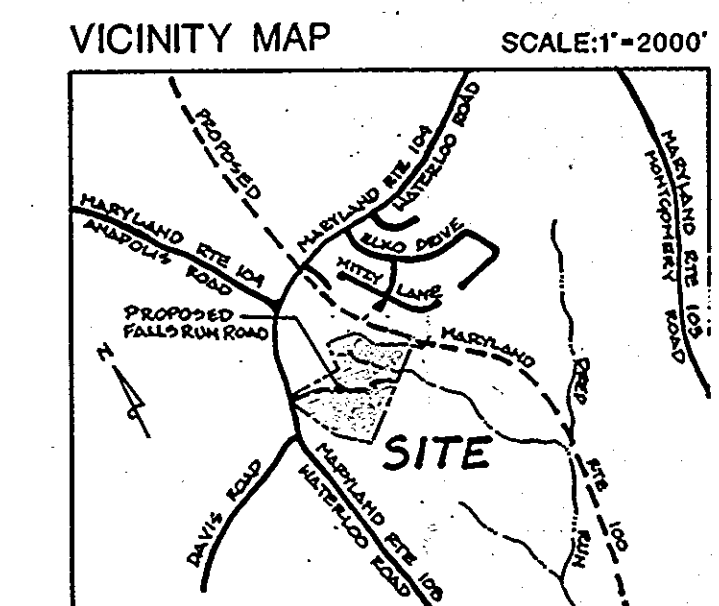
1701 East Boulevard, Charlotte, NC 28203 704/333-0325  
1216 Prince Street, Alexandria, VA 22314 703/549-7784  
225 Hillsborough Street, Raleigh, NC 919/834-8127

**Land Design**  
Landscape Architecture Land Planning  
Urban Design  
SITE DETAILS  
SHEET NO.: 11  
OF: 38/42  
SDP 89-254

# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8.  
 Howard County, Maryland

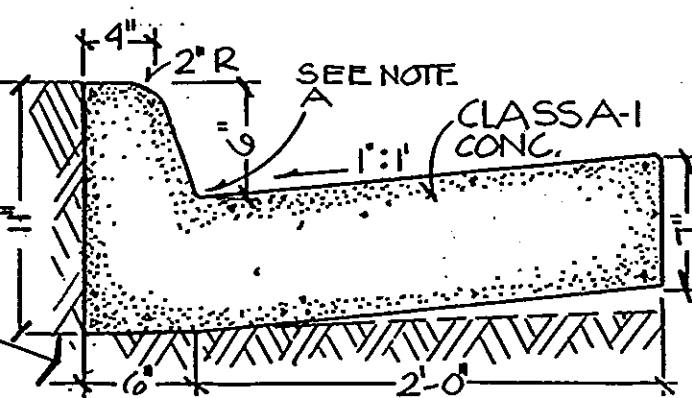
An Apartment Community  
 by  
 Summit Properties



**23**  
**12** TENNIS COURT NET & POSTS  
 W/ PAVEMENT SECTION

NTS

THE BOTTOM OF THE CURB AND GUTTER MAY BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBSURFACE COURSES PROVIDED A MINIMUM DEPTH OF 7" IS MAINTAINED.



**B** CG-6 STANDARD CURB & GUTTER

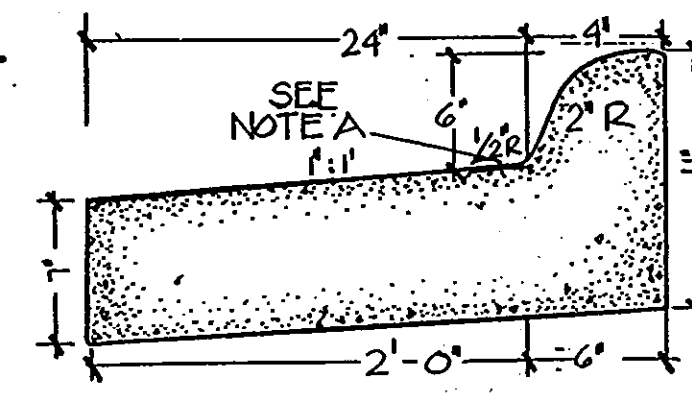
NOTE:

SUBGRADE FOR ALL SIDEWALKS, CURB AND GUTTER SHALL BE COMPACTED TO MINIMUM 95% DENSITY AT OPTIMUM MOISTURE TO FULL WIDTH OF RIGHT-OF-WAY IN ACCORDANCE WITH AASHTO T99-61.

NOTE:

CURB HAVING A RADIUS OF 300' OR LESS (ALONG FACE OF CURB) SHALL BE CONSIDERED RADIAL CURB.

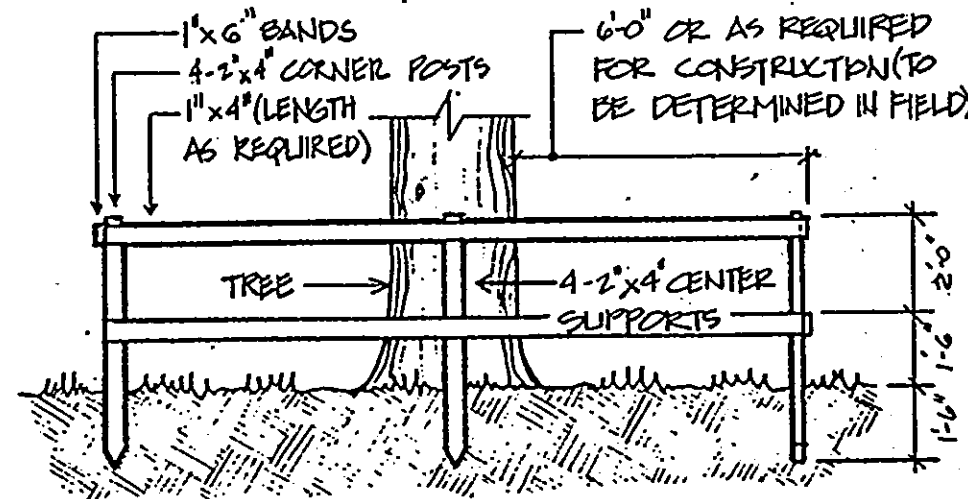
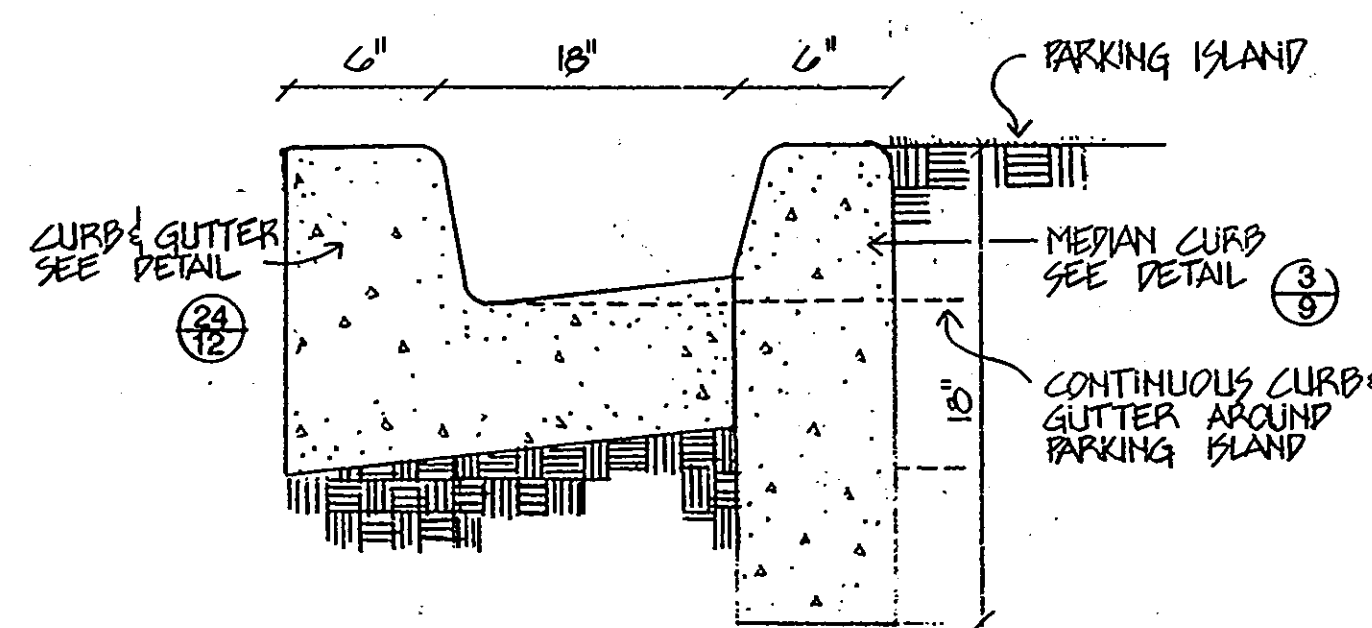
NOTE A: 2" RADIUS WILL BE ALLOWED WITH CURB AND GUTTER.



**C** CG-6R REVERSED CURB & GUTTER

**26**  
**12** CONCRETE FLUME

NTS



NOTES:

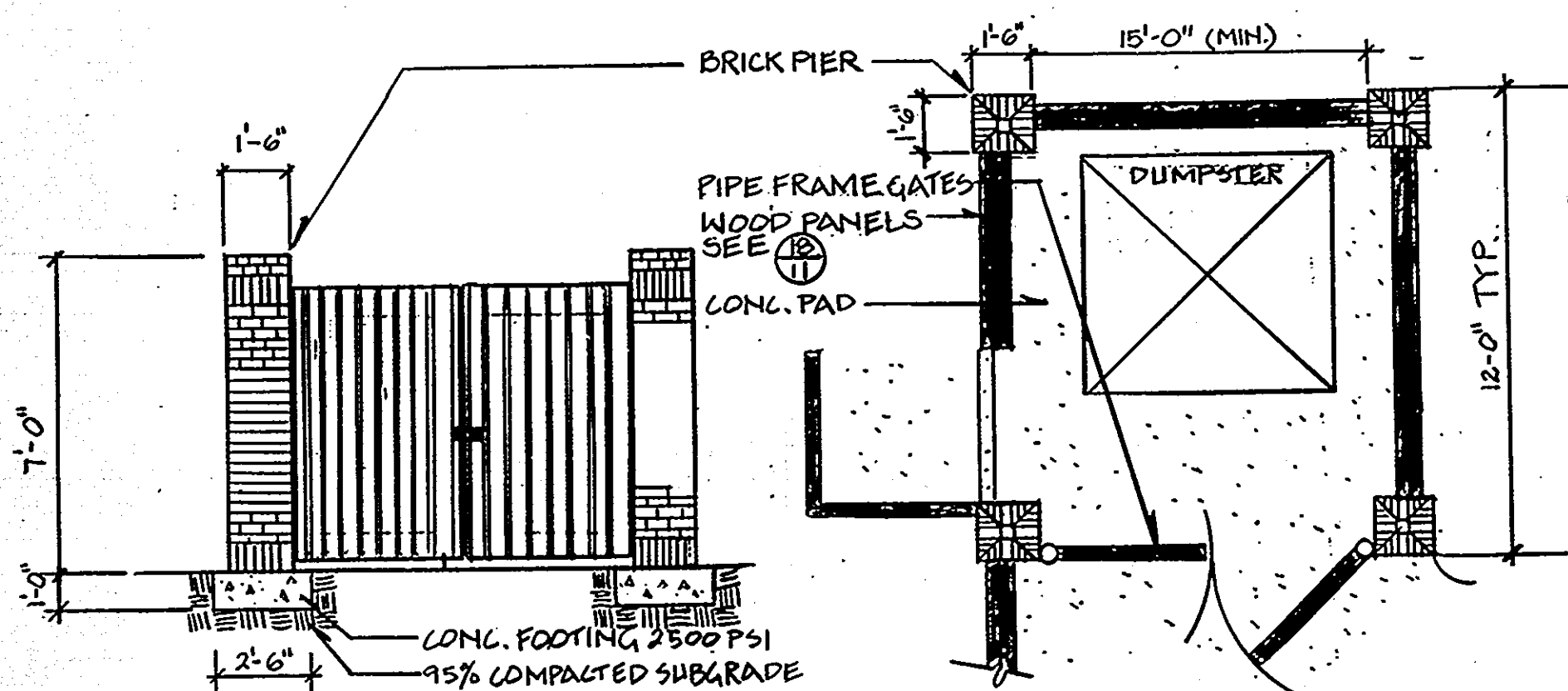
FENCE SHALL BE PAINTED WHITE  
 NO BUILDING MATERIALS, OIL,  
 OR EQUIPMENT SHALL BE STORED  
 INSIDE THE FENCE.

**27**  
**12** SPECIMEN TREE PROTECTION FENCE

NTS

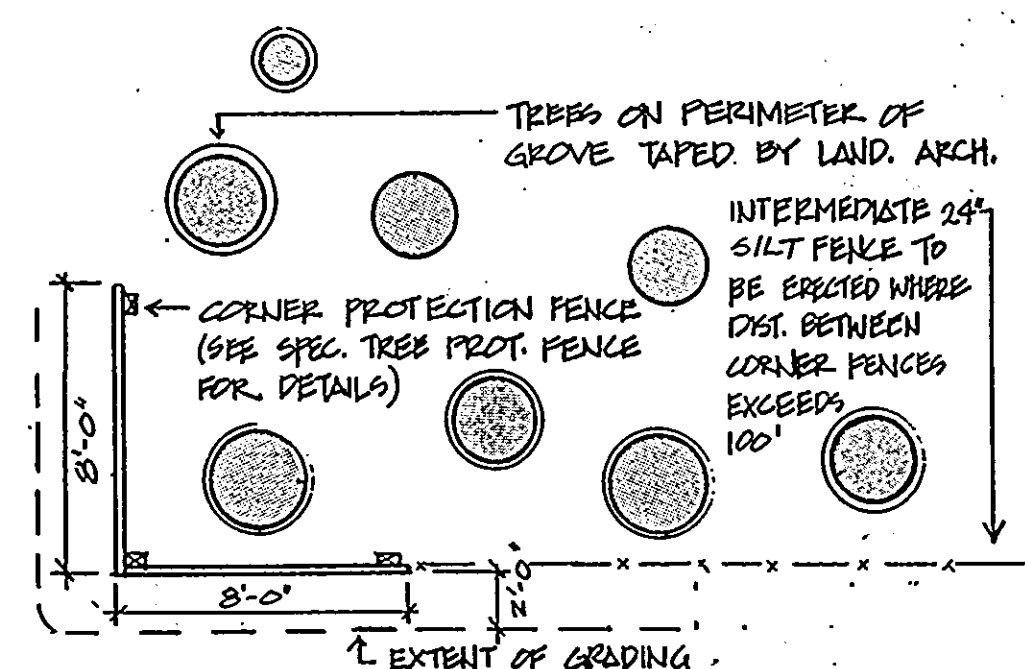
**24**  
**12** CURB & GUTTER DETAIL

NTS



**25**  
**12** BRICK DUMPSTER PIERS & GATE

NTS



**28**  
**12** TREE GROVE PROTECTION DETAIL

NTS

OWNER / DEVELOPER:  
 SUMMIT PROPERTIES  
 203 KEY HIGHWAY  
 BALTIMORE, MARYLAND 21230  
 (301) 234-0070

ENGINEER:  
 STV/LYON ASSOCIATES  
 21 GOVERNOR'S COURT  
 BALTIMORE, MARYLAND 21207  
 (301) 944-9112



Paul R. Lyman

DATE: 6-5-89  
 PROJECT NO: 88074  
 REVISIONS:  
 REVISED 7-12-89  
 REVISED 9-5-89

APPROVED  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE 11-7-89

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS		APPROVED DEPARTMENT OF PLANNING AND ZONING	
James P. Lyman 1/8/90 DIRECTOR, PUBLIC WORKS		James M. Helm 1/2/90 PLANNING DIRECTOR	
K. G. ... 1-8-90 CHIEF, BUREAU OF ENGINEERING		... 1/2/90 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	
APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS		APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
John L. ... 1-9-90 HEALTH OFFICER		... 1/2/90 PLANNING DIRECTOR	

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS		APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
James M. Helm 1/2/90 U.S. SOIL CONSERVATION SERVICE		James P. Lyman 1/8/90 PLANNING DIRECTOR	
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT APPROVED		... 1/2/90 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	
John L. ... 1/2/90 DISTRICT HOWARD SOIL CONSERVATION DISTRICT		APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS	
... 6-6-89 SIGNATURE OF DEVELOPER		John L. ... 1-9-90 HEALTH OFFICER	

DEVELOPER'S CERTIFICATE  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY

Signature: Samuel ...  
 Date: 6-6-89

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

Signature: Paul R. Lyman  
 Date: 6/6/89

01701 East Boulevard, Charlotte, NC 28203 704/333-0325  
 # 1216 Prince Street, Alexandria, VA 22314 703/549-7784  
 0225 Hillsborough Street, Raleigh, NC 919/834-6127

Land Design  
 Landscape Architecture Land Planning  
 Urban Design  
 SITE DETAILS

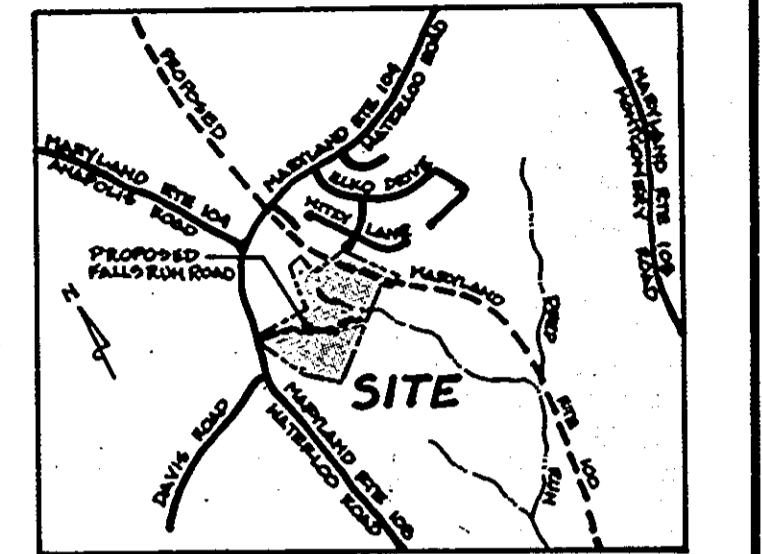
SHEET NO: 12  
 OF 38

# ASHTON WOODS

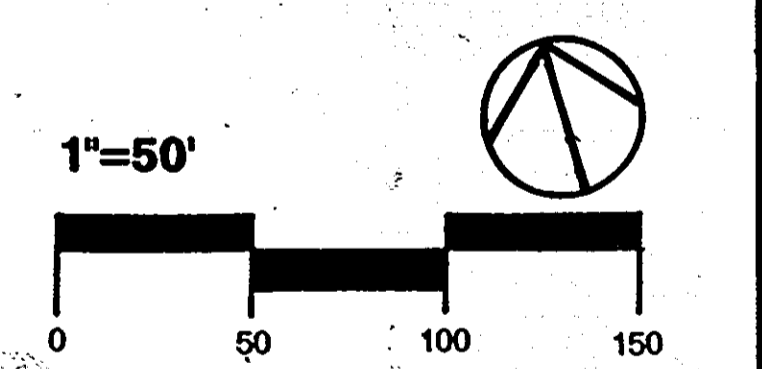
Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties

VICINITY MAP SCALE: 1" = 200'



- LEGEND**
- BUILDING NUMBER: [Symbol]
  - BUILDING TYPE: [Symbol]
  - FINISHED FLOOR ELEVATION: FFE 300.87
  - PROPOSED SPOT ELEVATION: O-35.50
  - HIGH POINT: HP
  - BREAK POINT: BP
  - PROPOSED SCALE: [Symbol]
  - EXISTING CONTOURS: [Symbol]
  - STAIRS W/ ELEVATIONS: [Symbol]
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SIS + STEP WITH GRADE): [Symbol]
  - WOOD WALK OVER FLORE: [Symbol]
  - PEDESTRIAN BRIDGE OVER SCALE: [Symbol]
  - EXISTING TREES TO REMAIN: [Symbol]
  - HANDICAP UNIT: [Symbol]
  - HANDICAP PARKING: [Symbol]
  - CHECKER PLATE: [Symbol]
  - STEN WALL: [Symbol]
  - WOOD DECK: WD
  - LIMITS OF DISTURBANCE: [Symbol]
  - MANHOLE No.: [Symbol]
  - INLET No.: [Symbol]
  - OWNER / DEVELOPER: SUMMIT PROPERTIES, 203 FRANCIS SCOTT KEY HIGHWAY, BALTIMORE, MARYLAND 21230, (301) 234-0070
  - ENGINEER: STV/LYON ASSOCIATES, 21 GOVERNOR'S COURT, BALTIMORE, MARYLAND 21207, (301) 944-9112



**APPROVED**  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE: 11-7-89



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

STATE OF MARYLAND  
 JAMES M. HELM  
 PROFESSIONAL ENGINEER  
 No. 1740  
 DATE: 6/6/89

**DEVELOPER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

HOWARD SOIL CONSERVATION DISTRICT  
 APPROVED: [Signature]  
 DATE: 6-6-89

SIGNATURE OF DEVELOPER: [Signature]  
 DATE: 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 PLANNING DIRECTOR: [Signature]  
 DATE: 1/2/90

CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT: [Signature]  
 DATE: 1/2/90

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.  
 HEALTH OFFICER: [Signature]  
 DATE: 1-9-90

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

DIRECTOR, PUBLIC WORKS: [Signature]  
 DATE: 1/8/90

CHIEF, BUREAU OF ENGINEERING: [Signature]  
 DATE: 1-8-90

SUBDIVISION NAME		SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423	423
PLAT NO.	BLOCK NO.	TAX / ZONE	ELEC DIST
9103-9110	8	31	8
WATER CODE		SEWER CODE	CENSUS TR

STV/LYON ASSOCIATES  
 ENGINEERS · SURVEYORS · PLANNERS  
 21 GOVERNORS COURT  
 BALTIMORE, MD 21207  
 (301-944-9112)

DRAWN BY: W.K.C.  
 CHECKED BY: B.C.R.

DESIGNED BY: W.K.C.  
 JOB NUMBER: 8215

**WATER & SANITARY SEWER PLAN**  
**ASHTON WOODS**  
 TAX MAP #31, PARCEL 423, LOT 2  
 HOWARD COUNTY, MARYLAND

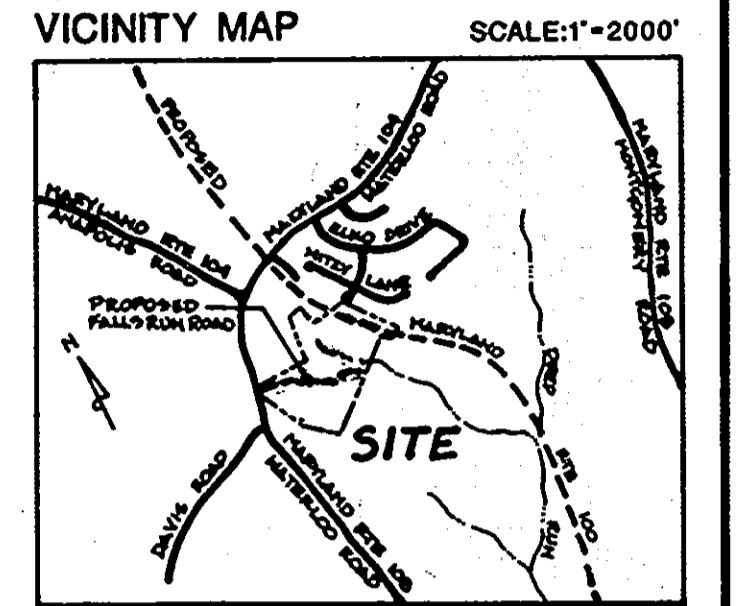
SHEET NO. 13 OF 342  
 SCALE: AS SHOWN  
 DATE: JUNE 7, 1989  
 1ST ELECTION DISTRICT

SDP 89-254

# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties

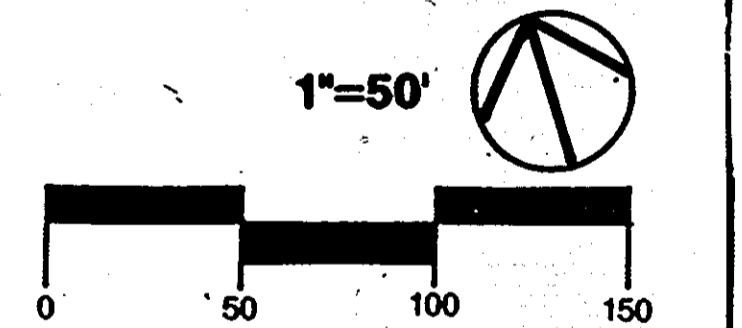


**LEGEND**

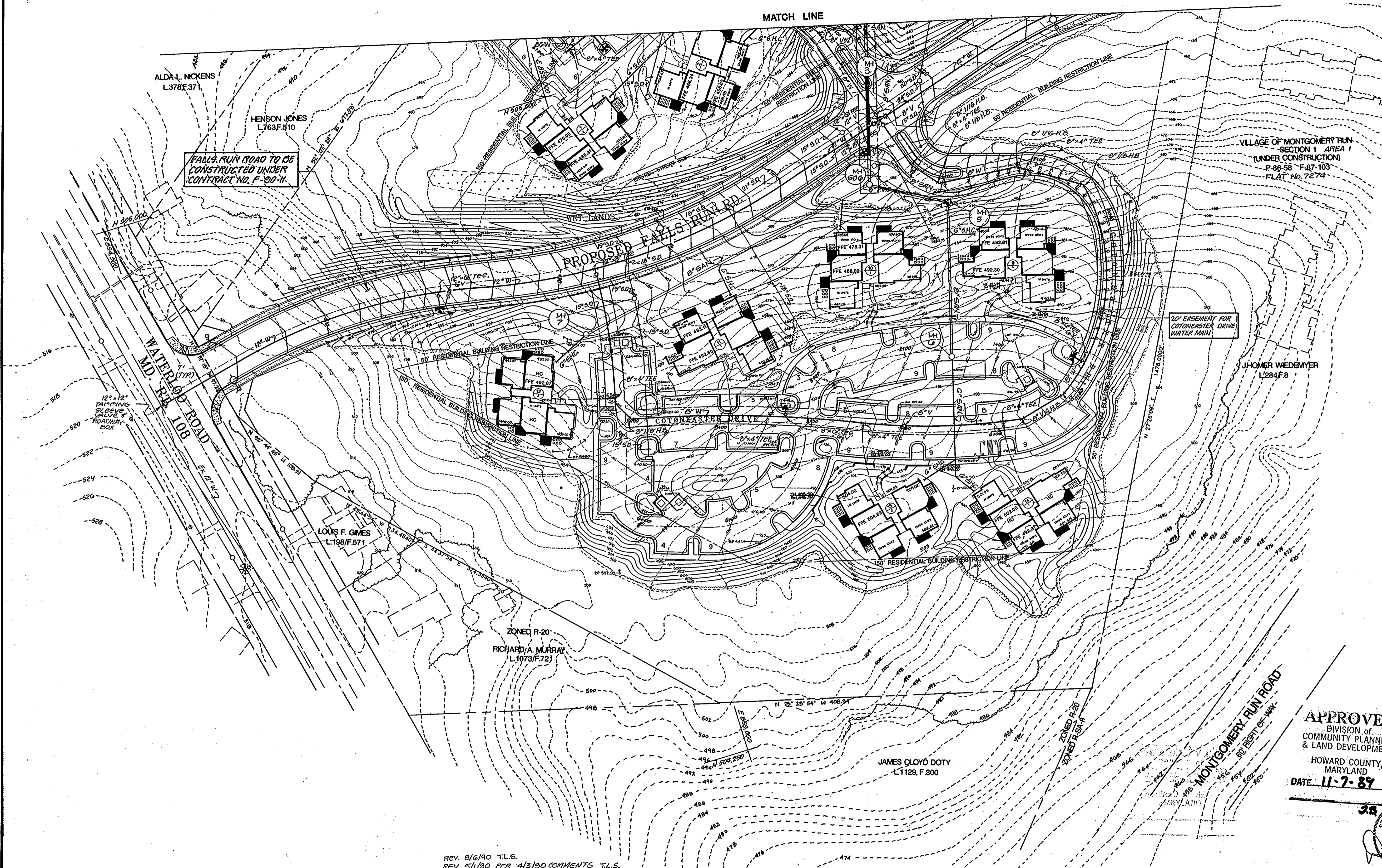
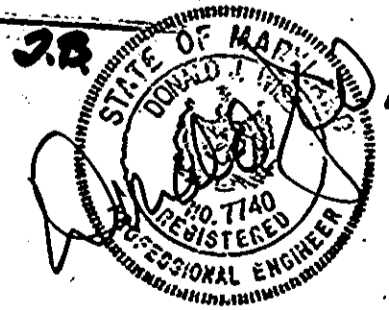
BUILDING NUMBER	(Symbol)
BUILDING TYPE	(Symbol)
FINISHED FLOOR ELEVATION	FFE 300.67
PROPOSED SPOT ELEVATION	○ 35.50
HIGH POINT	(Symbol)
BREAK POINT	(Symbol)
PROPOSED SHALE	(Symbol)
EXISTING CONTOURS	(Symbol)
STAIRS W/ ELEVATIONS	(Symbol)
TIMBER RETAINING WALLS W/ ELEVATIONS (SNG + STEP WITH GRADE)	(Symbol)
WOOD WALK OVER FLUME	(Symbol)
PEDESTRIAN BRIDGE OVER SHALE	(Symbol)
EXISTING TREES TO REMAIN	(Symbol)
HANDICAP UNIT	(Symbol)
HANDICAP PARKING	(Symbol)
CHECKER PLATE	(Symbol)
STEM WALL	(Symbol)
WOOD DECK	(Symbol)
LIMITS OF DISTURBANCE	(Symbol)
MANHOLE No.	(Symbol)
INLET No.	(Symbol)

OWNER / DEVELOPER:  
 SUMMIT PROPERTIES  
 803 FRANCIS SCOTT KEY HIGHWAY  
 BALTIMORE, MARYLAND 21230  
 (301) 234-0070

ENGINEER:  
 STV/LYON ASSOCIATES  
 21 GOVERNORS COURT  
 BALTIMORE, MARYLAND 21207  
 (301) 944-9112



**APPROVED**  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE 11-7-89



REV. 8/6/90 T.L.G.  
 REV. 5/1/90 PER 4/3/90 COMMENTS T.L.G.

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

DATE: 6/6/89

**DEVELOPER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

DATE: 6-6-89

**REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS**

DATE: 1/2/90

DATE: 4/2/90

**HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**

DATE: 1/10/90

DATE: 1/1/90

DATE: 1-9-90

**APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS**

DATE: 1/8/90

DATE: 1-2-90

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAY NO	BLOCK NO	ZONE
3109-0110	R-SA-8	31
WATER CODE	ELEC DIST	CENSUS TR
	1	
	SEWER CODE	

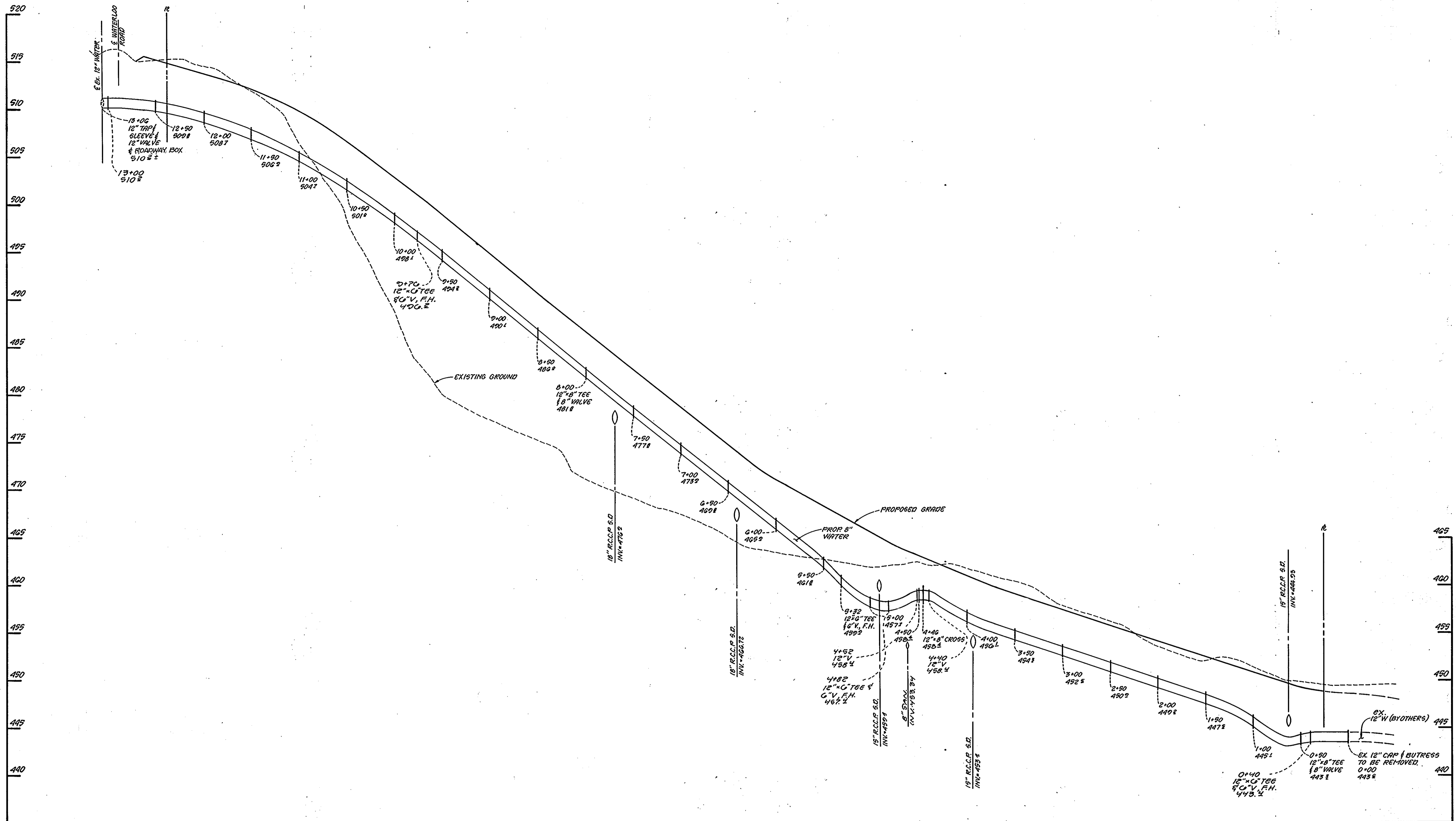
**STV/LYON ASSOCIATES**  
 ENGINEERS · SURVEYORS · PLANNERS  
 21 GOVERNORS COURT  
 BALTIMORE, MD 21207  
 (301-944-9112)

DRAWN BY: W.K.C.  
 DESIGNED BY: W.K.C.  
 CHECKED BY: P.C.R.  
 JOB NUMBER: 8215

**WATER & SANITARY SEWER PLAN**  
**ASHTON WOODS**  
 TAX MAP 31, PARCEL 423, LOT 2  
 HOWARD COUNTY, MARYLAND

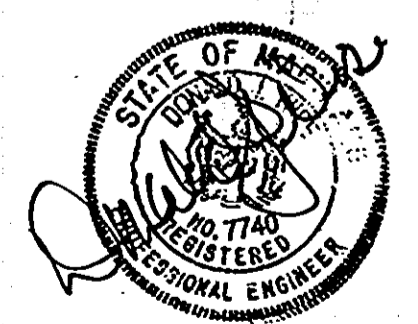
SHEET NO. 14 OF 3542  
 SCALE: AS SHOWN

DATE: JUNE 7, 1989  
 1ST ELECTION DISTRICT



FALLS RUN ROAD  
SCALE: 1" = 50' HOR.  
1" = 5' VERT.

APPROVED  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY  
MARYLAND  
DATE 11-7-89

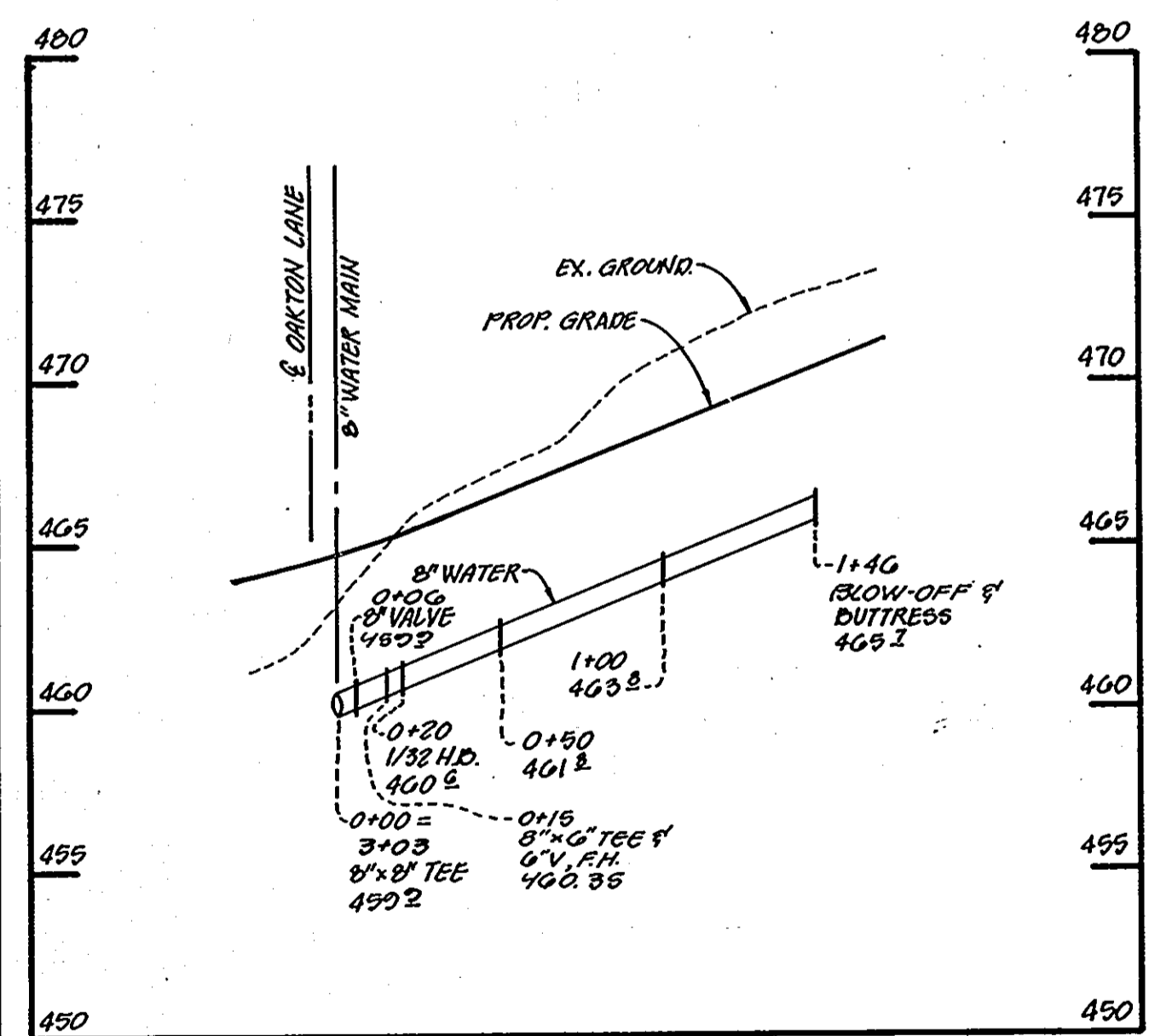
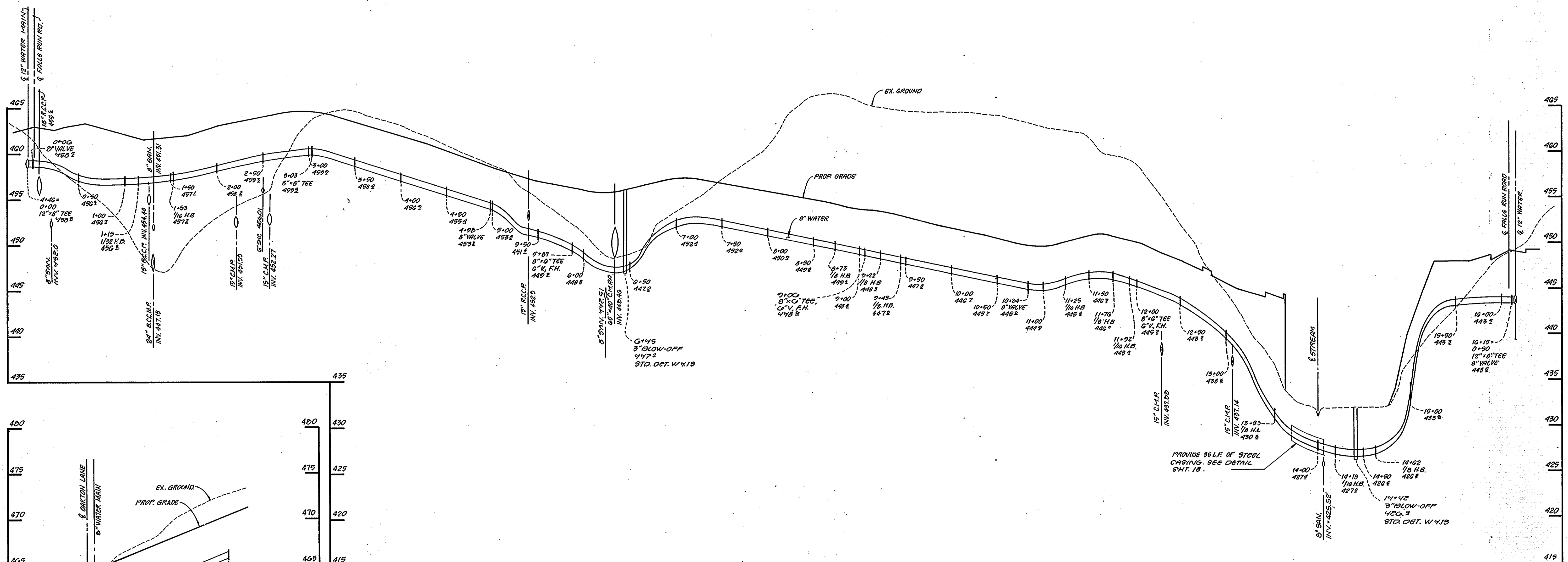


1216 Prince Street, Alexandria, VA 22314 703/549-7784

Land Design  
Landscape Architecture Land Planning  
Urban Design

REV. 8/6/90 T.L.B.

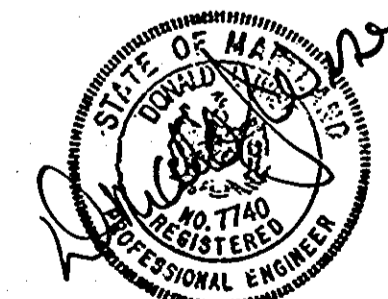
<p>ENGINEER'S CERTIFICATE I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.</p> <p><i>Patrick J. Richman</i> SIGNATURE OF ENGINEER 6/6/89 DATE</p>	<p>DEVELOPER'S CERTIFICATE "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.</p> <p><i>Samuel H. Hales</i> SIGNATURE OF DEVELOPER 6-6-89 DATE</p>	<p>REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS</p> <p><i>James M. Nelson</i> U.S. SOIL CONSERVATION SERVICE 1/2/90 DATE</p> <p>THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.</p> <p>APPROVED: <i>John R. Robertson</i> DISTRICT HOWARD SOIL CONSERVATION DISTRICT 1/2/90 DATE</p>	<p>HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING</p> <p><i>James M. Nelson</i> PLANNING DIRECTOR 1/10/90 DATE</p> <p><i>Paul C. Campbell</i> CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION 1/10/90 DATE</p> <p>APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.</p> <p><i>John M. Long</i> HEALTH OFFICER 1-9-90 DATE</p>	<p>APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.</p> <p><i>James M. Nelson</i> DIRECTOR, PUBLIC WORKS 1/8/90 DATE</p> <p><i>James M. Nelson</i> CHIEF, BUREAU OF ENGINEERING 1-8-90 DATE</p> <table border="1"> <tr> <td>SUBDIVISION NAME</td> <td>SECTION/AREA</td> <td>PARCEL</td> </tr> <tr> <td>ASHTON WOODS APARTMENTS</td> <td></td> <td>423</td> </tr> <tr> <td>PLAT NO.</td> <td>BLOCK NO.</td> <td>ZONE</td> </tr> <tr> <td></td> <td></td> <td>R-SA</td> </tr> <tr> <td></td> <td></td> <td>-8</td> </tr> <tr> <td>WATER CODE</td> <td>SEWER CODE</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	SUBDIVISION NAME	SECTION/AREA	PARCEL	ASHTON WOODS APARTMENTS		423	PLAT NO.	BLOCK NO.	ZONE			R-SA			-8	WATER CODE	SEWER CODE					<p>STV/LYON ASSOCIATES ENGINEERS · SURVEYORS · PLANNERS 21 GOVERNOR'S COURT BALTIMORE, MD 21207 (301-944-9112)</p> <p>DRAWN BY: W.K.C. DESIGNED BY: W.K.C. CHECKED BY: R.C.R. JOB NUMBER: 8215</p>	<p>WATER PROFILES FALLS RUN ROAD ASHTON WOODS TAX MAP #31, PARCEL 423, LOT 2 HOWARD COUNTY, MARYLAND</p> <p>SHEET NO. 15 OF 3542 SCALE: AS SHOWN DATE: JUNE 7, 1989 1ST ELECTION DISTRICT</p> <p>SDP 89-254</p>
SUBDIVISION NAME	SECTION/AREA	PARCEL																									
ASHTON WOODS APARTMENTS		423																									
PLAT NO.	BLOCK NO.	ZONE																									
		R-SA																									
		-8																									
WATER CODE	SEWER CODE																										



**OAKTON LANE**  
SCALE: 1"=50' HOR.  
1"=5' VERT.

**OAKTON LANE**  
SCALE: 1"=50' HOR.  
1"=5' VERT.

**APPROVED**  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE **11-7-89**



1216 Prince Street, Alexandria VA 22314 703/549-7784  
**Land Design**  
Landscape Architecture Land Planning  
Urban Design

REV 5/11/90 PER 4/13/90 COMMENTS PER  
REV. 5/11/90 PER 4/13/90 COMMENTS T.L.S.

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

*James M. Helm*  
DATE **6/6/89**

**DEVELOPER'S CERTIFICATE**  
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

*James M. Helm*  
DATE **6-6-89**

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

*James M. Helm* **1/2/90**  
U.S. SOIL CONSERVATION SERVICE DATE

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

*John L. Robertson* **1/2/90**  
DISTRICT HOWARD SOIL CONSERVATION DISTRICT DATE

**HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**

*James M. Helm* **1/16/90**  
PLANNING DIRECTOR DATE

*James M. Helm* **1/2/90**  
CHIEF, DIVISION OF LAND-DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*James M. Helm* **1-9-90**  
HEALTH OFFICER DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.

*James M. Helm* **1/8/90**  
DIRECTOR, PUBLIC WORKS DATE

*James M. Helm* **1-8-90**  
CHIEF, BUREAU OF ENGINEERING DATE

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO.	BLOCK NO.	ZONE
		R-SA
		31
		8
WATER CODE	TAX/ZONE	ELEC DIST
	31	1
	SEWER CODE	CENSUS TR

**STY/LYON ASSOCIATES**  
ENGINEERS - SURVEYORS - PLANNERS  
21 GOVERNOR'S COURT  
BALTIMORE, MD 21207  
(301-944-9112)

DRAWN BY: K.E.B. DESIGNED BY: W.K.C.  
CHECKED BY: P.C.R. JOB NUMBER: 8215

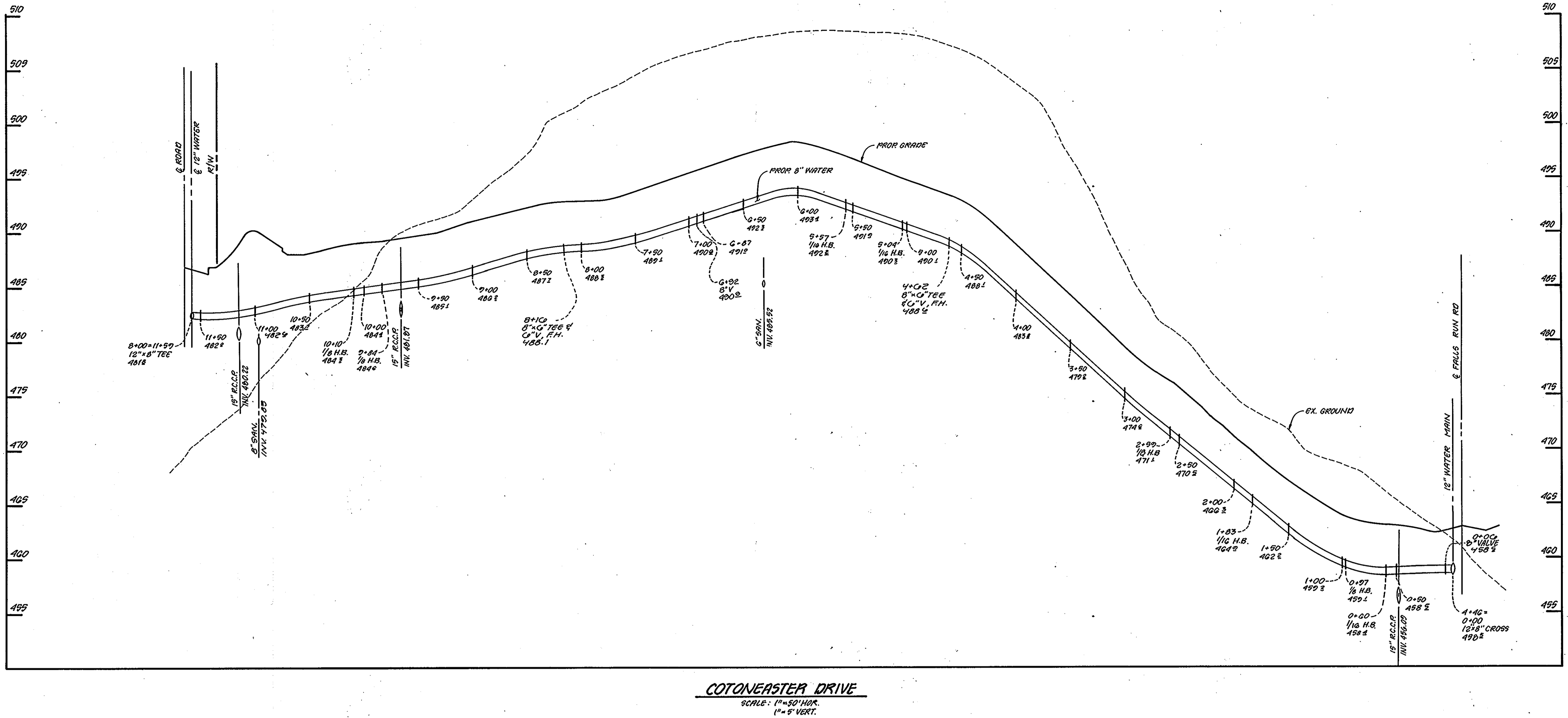
**WATER PROFILES**  
**OAKTON LANE**  
**ASHTON WOODS**  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND

SHEET NO. 16 OF 35-42  
SCALE: AS SHOWN

DATE: JUNE 7, 1989  
1ST ELECTION DISTRICT

SDP 89-254





**COTONEASTER DRIVE**  
 SCALE: 1" = 50' HOR.  
 1" = 5' VERT.

**APPROVED**  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE: 11-7-89



1216 Prince Street Alexandria, VA 22314 703-549-7784  
**Land Design**  
 Landscape Architecture Land Planning  
 Urban Design

REV. 5/11/90 PER 4/3/90 COMMENTS PER  
 REV. 5/1/90 PER 4/3/90 COMMENTS T.L.S.

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

*Richard P. ...*  
 SIGNATURE OF ENGINEER  
 6/6/89  
 DATE

**DEVELOPER'S CERTIFICATE**  
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

*Richard P. ...*  
 SIGNATURE OF DEVELOPER  
 6-6-89  
 DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*James M. Helm*  
 U.S. SOIL CONSERVATION SERVICE  
 DATE: 1/2/90

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

APPROVED:  
*John R. Robertson*  
 DISTRICT HOWARD SOIL CONSERVATION DISTRICT  
 DATE: 1/2/90

**HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**

*James M. Helm*  
 PLANNING DIRECTOR  
 DATE: 1/10/90

*James J. ...*  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION  
 DATE: 1/10/90

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*James M. ...*  
 HEALTH OFFICER  
 DATE: 1-9-90

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.

*James M. ...*  
 DIRECTOR, PUBLIC WORKS  
 DATE: 1/2/90

*William S. ...*  
 CHIEF, BUREAU OF ENGINEERING  
 DATE: 1-8-90

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO.	TAX/ZONE	ELEC/DIST
	R-SA	1
WATER CODE	SEWER CODE	

**STV/LYON ASSOCIATES**  
 ENGINEERS · SURVEYORS · PLANNERS  
 21 GOVERNOR'S COURT  
 BALTIMORE, MD 21207  
 (301-944-9112)

DRAWN BY: K.E.B.  
 CHECKED BY: P.C.R.

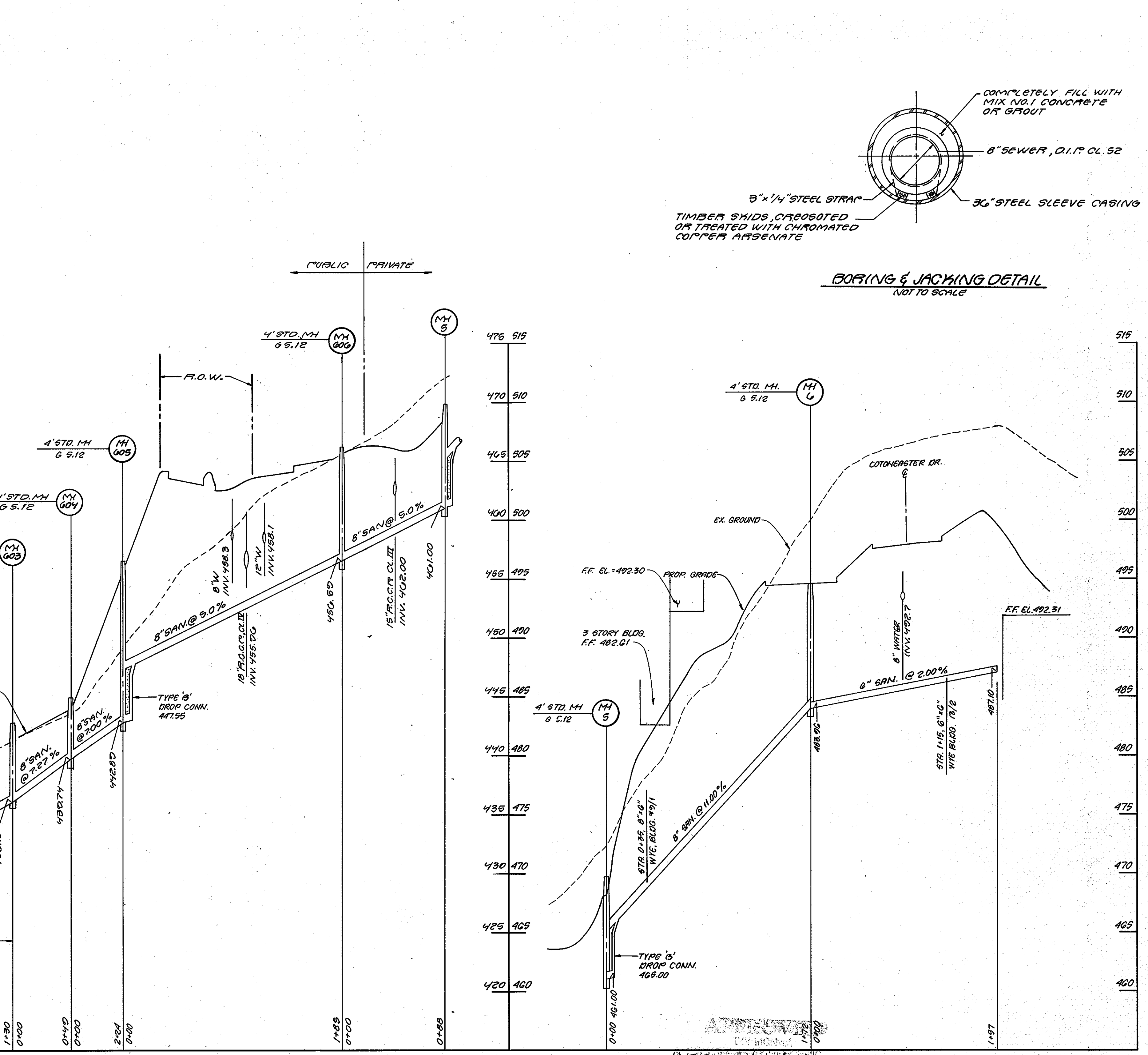
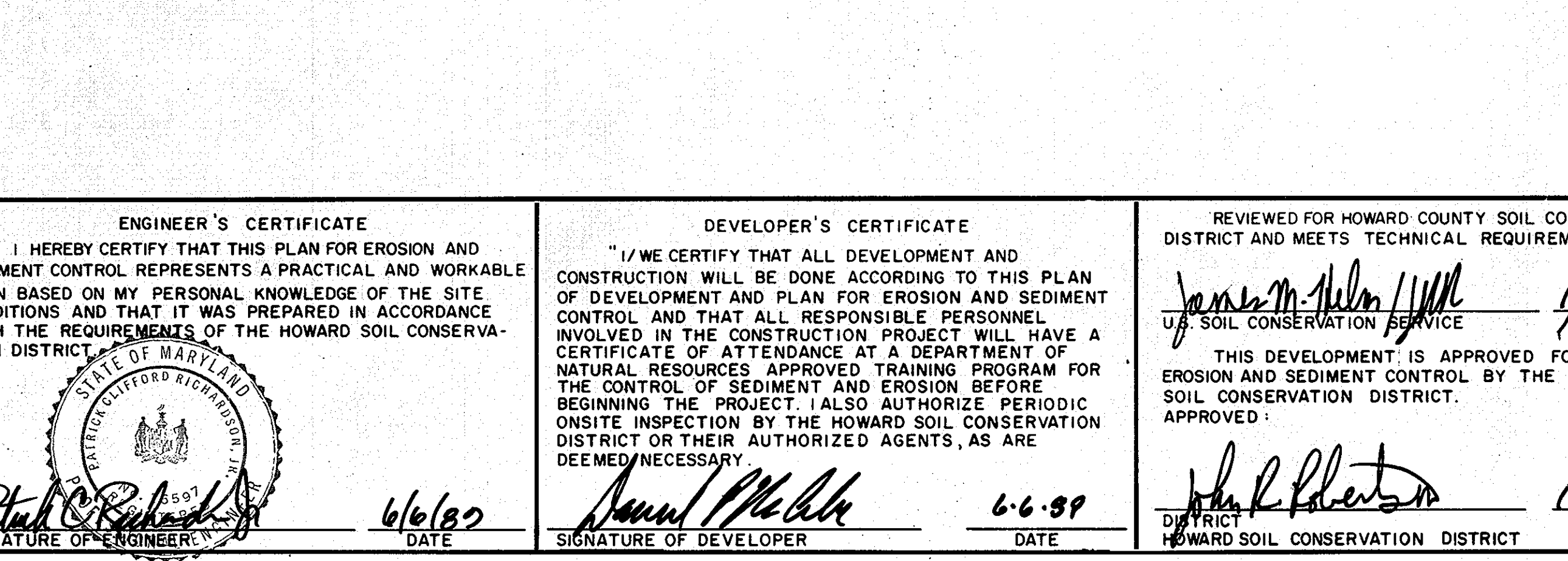
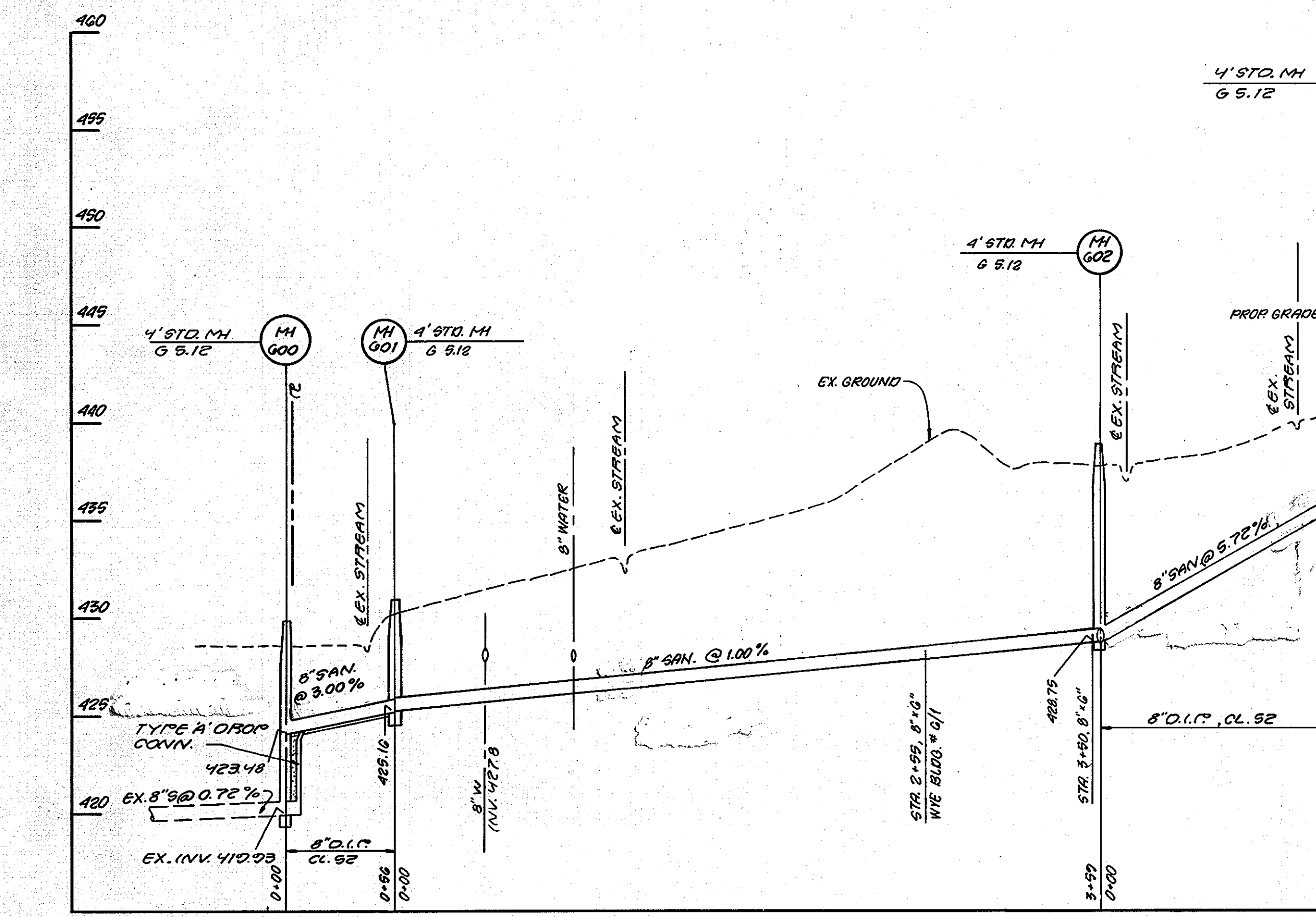
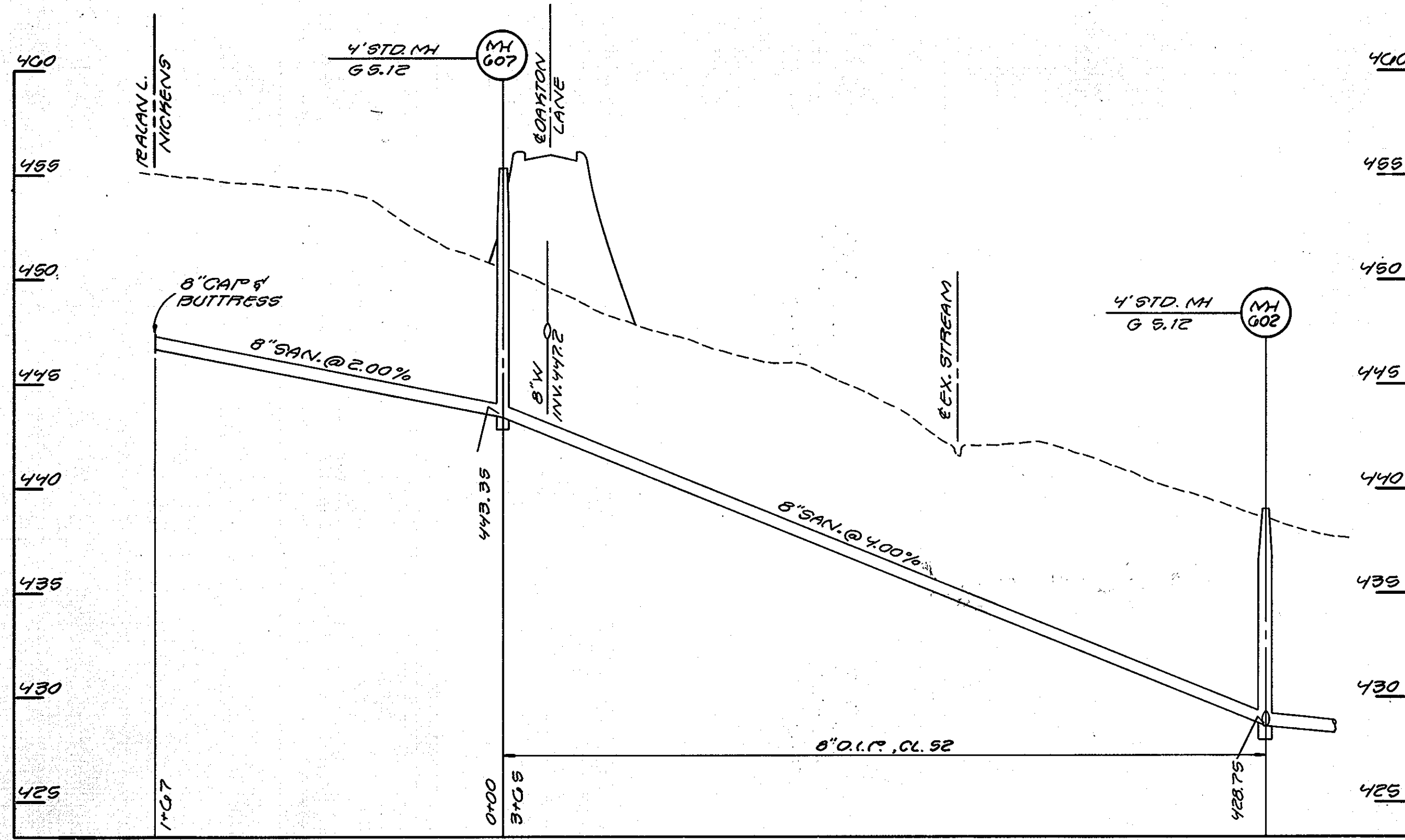
DESIGNED BY: W.K.C.  
 JOB NUMBER: 8215

**WATER PROFILES**  
**COTONEASTER DRIVE**  
**ASHTON WOODS**  
 TAX MAP #31, PARCEL 423, LOT 2  
 HOWARD COUNTY, MARYLAND

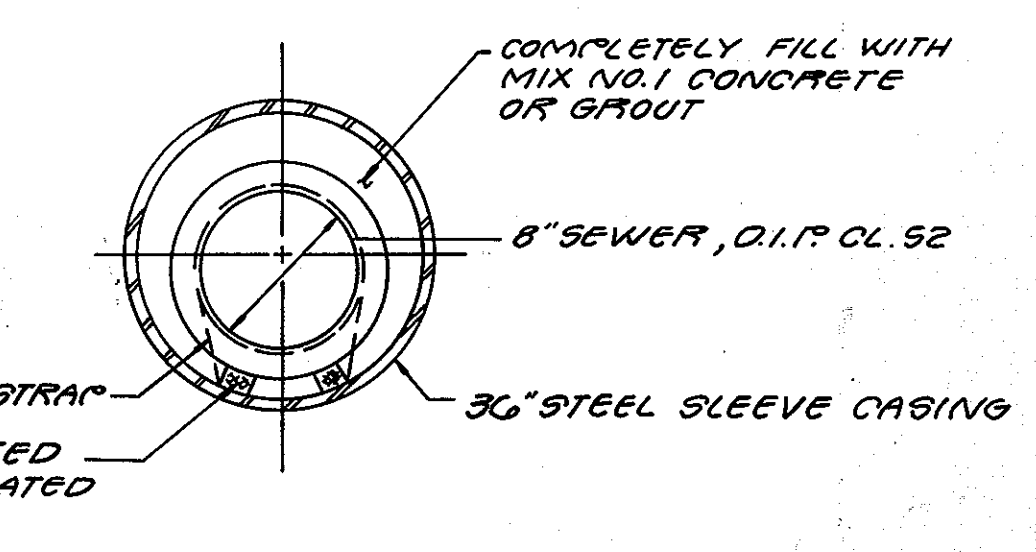
SHEET NO. 17 OF 3342  
 SCALE: AS SHOWN

DATE: JUNE 7, 1989  
 1ST ELECTION DISTRICT

SDP 89-254

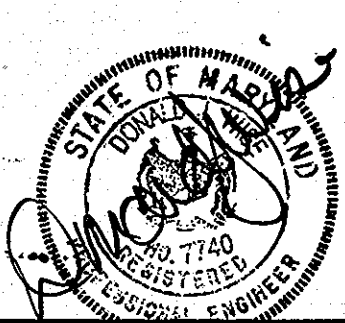


**SANITARY PROFILE**  
SCALE: 1" = 5' VERT.  
1" = 50' HORIZ.



**BORING & JACKING DETAIL**  
NOT TO SCALE

APPROVED  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE 11-7-89



1216 Prince Street, Alexandria VA 22314 703/549-7784  
**Land Design**  
Landscape Architecture Land Planning  
Urban Design

REV. 8/6/90 T.L.S.  
REV. 5/1/90 PER 4/3/90 COMMENTS T.L.S.

**ENGINEER'S CERTIFICATE**  
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
DATE 6/6/89  
SIGNATURE OF ENGINEER: [Signature]

**DEVELOPER'S CERTIFICATE**  
"I WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."  
DATE 6-6-89  
SIGNATURE OF DEVELOPER: [Signature]

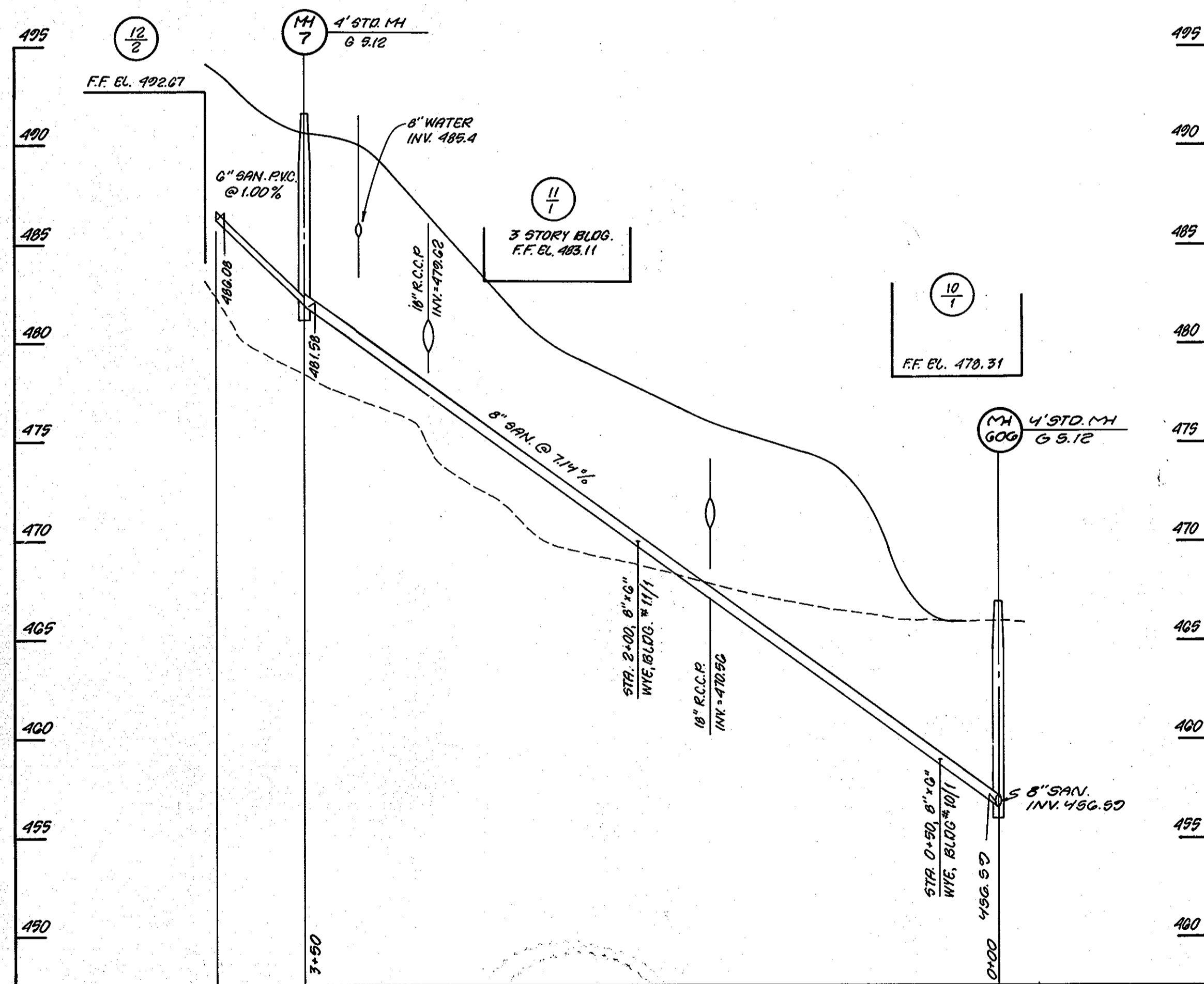
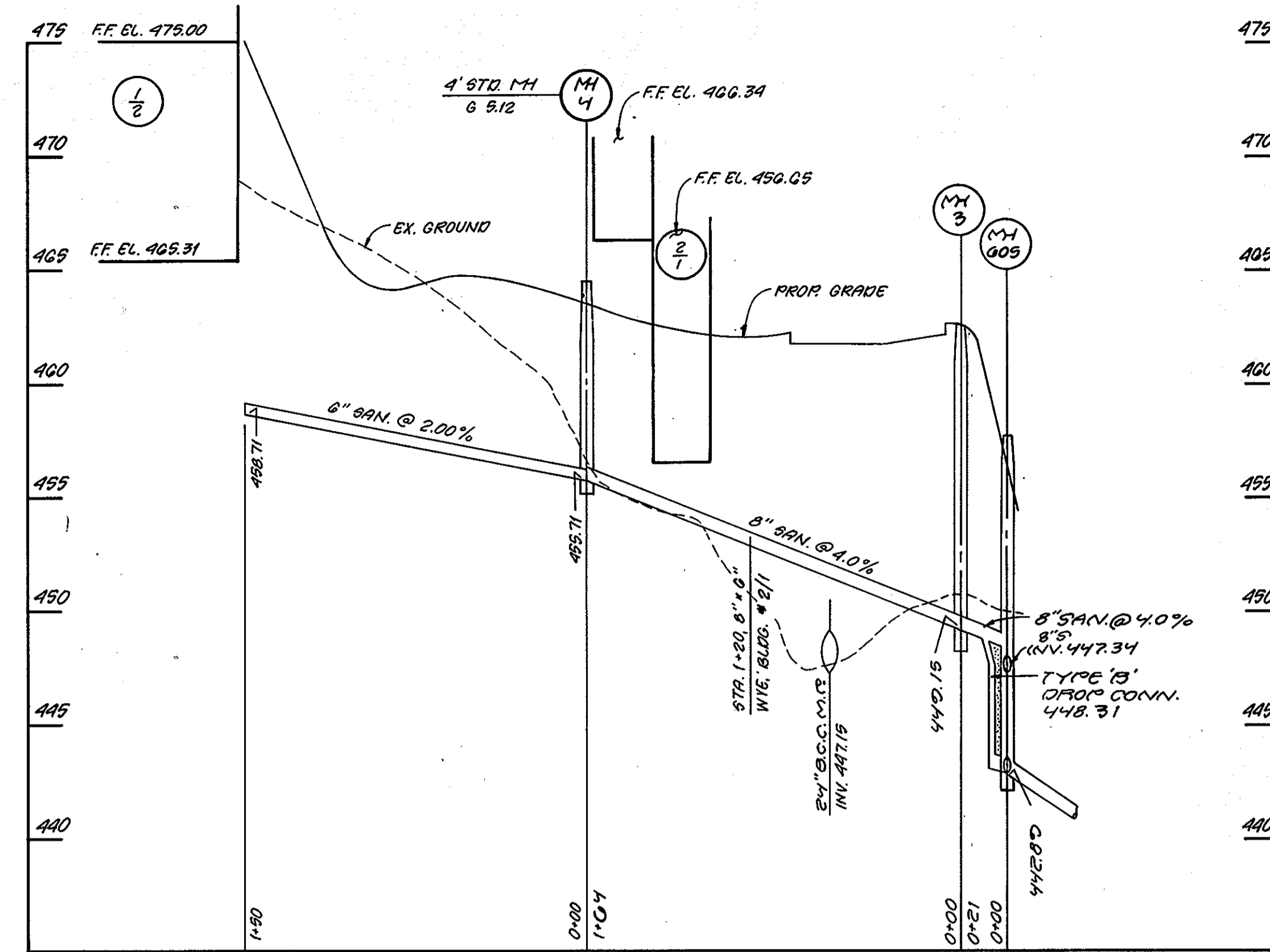
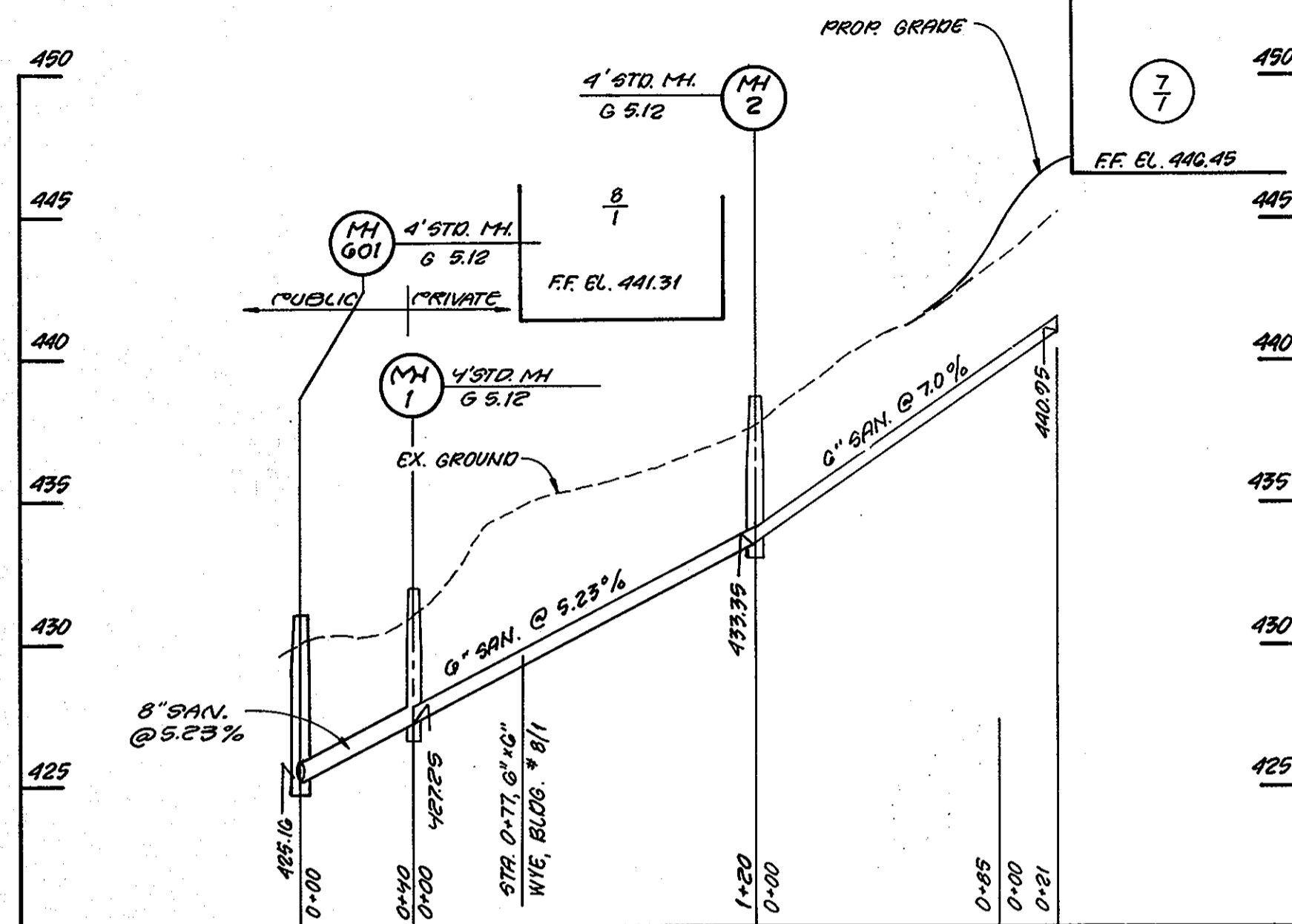
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS  
DATE 1/16/90  
U.S. SOIL CONSERVATION SERVICE  
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
APPROVED: [Signature]  
DATE 1/2/90  
DISTRICT HOWARD SOIL CONSERVATION DISTRICT

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
PLANNING DIRECTOR [Signature] DATE 1/10/90  
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION [Signature] DATE 1/16/90  
APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.  
HEALTH OFFICER [Signature] DATE 1-9-90

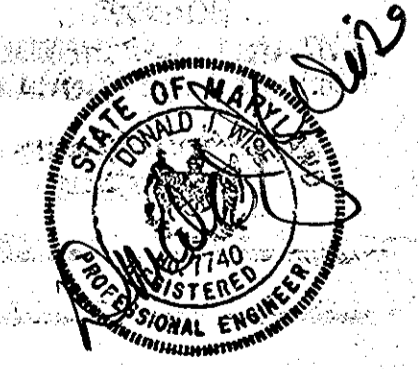
APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.  
DIRECTOR, PUBLIC WORKS [Signature] DATE 1-8-90  
CHIEF, BUREAU OF ENGINEERING [Signature] DATE 1-2-90  
SUBDIVISION NAME ASHTON WOODS APARTMENTS SECTION/AREA PARCEL 423  
PLAT NO. BLOCK NO. ZONE TAX/ZONE MAP R-SA-8 ELEC DIST CENSUS TR 31 I  
WATER CODE SEWER CODE

STV/LYON ASSOCIATES  
ENGINEERS · SURVEYORS · PLANNERS  
21 GOVERNOR'S COURT  
BALTIMORE, MD 21207  
(301-944-9112)  
DRAWN BY: W.K.C. DESIGNED BY: W.K.C.  
CHECKED BY: P.C.R. JOB NUMBER: 8215

**SANITARY PROFILES**  
ASHTON WOODS  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND  
SHEET NO. 18 OF 25 42 SCALE: AS SHOWN DATE: JUNE 7, 1989 1ST ELECTION DISTRICT  
SDP 89-254



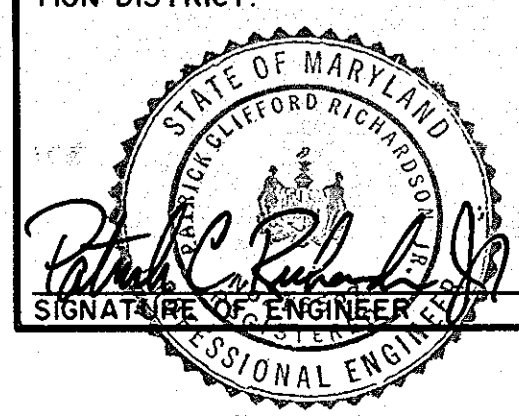
**APPROVED**  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE **11-7-89**



1216 Prince Street Alexandria VA 22314 703/549-7764  
**Land Design**  
Landscape Architecture Land Planning  
Urban Design

REV. 5/1/90 PER 4/3/90 COMMENTS T.L.S.

<p><b>ENGINEER'S CERTIFICATE</b> I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.</p> <p><i>James M. ...</i> DATE <b>6/6/89</b></p>	<p><b>DEVELOPER'S CERTIFICATE</b> I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.</p> <p><i>James M. ...</i> DATE <b>6-6-89</b></p>	<p>REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS</p> <p><i>James M. ...</i> <b>1/2/90</b> DATE</p> <p>THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.</p> <p><i>John R. ...</i> <b>1/2/90</b> DATE</p>	<p><b>HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING</b></p> <p><i>James B. ...</i> <b>1/10/90</b> DATE</p> <p><i>James B. ...</i> <b>1/10/90</b> DATE</p> <p>APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.</p> <p><i>James B. ...</i> <b>1-9-90</b> DATE</p>	<p>APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.</p> <p><i>James B. ...</i> <b>1/8/90</b> DATE</p> <p><i>James B. ...</i> <b>1-8-90</b> DATE</p> <table border="1"> <tr> <td>SUBDIVISION NAME</td> <td>SECTION/AREA</td> <td>PARCEL</td> </tr> <tr> <td>ASHTON WOODS APARTMENTS</td> <td></td> <td>423</td> </tr> <tr> <td>PLAT NO.</td> <td>BLOCK NO.</td> <td>ZONE</td> </tr> <tr> <td></td> <td></td> <td>R-SA</td> </tr> <tr> <td></td> <td></td> <td>-8</td> </tr> <tr> <td></td> <td></td> <td>51</td> </tr> <tr> <td></td> <td></td> <td>1</td> </tr> <tr> <td>WATER CODE</td> <td>SEWER CODE</td> <td></td> </tr> </table>	SUBDIVISION NAME	SECTION/AREA	PARCEL	ASHTON WOODS APARTMENTS		423	PLAT NO.	BLOCK NO.	ZONE			R-SA			-8			51			1	WATER CODE	SEWER CODE		<p><b>STV/LYON ASSOCIATES</b> ENGINEERS · SURVEYORS · PLANNERS 21 GOVERNOR'S COURT BALTIMORE, MD 21207 (301-944-9112)</p> <p>DRAWN BY: W.K.C. DESIGNED BY: W.K.C. CHECKED BY: P.C.R. JOB NUMBER: 8215</p>	<p><b>SANITARY PROFILES</b></p> <p><b>ASHTON WOODS</b></p> <p>TAX MAP #31, PARCEL 423, LOT 2 HOWARD COUNTY, MARYLAND</p> <p>SHEET NO. 19 OF 3842 SCALE: AS SHOWN DATE: JUNE 7, 1989 1ST ELECTION DISTRICT</p>
SUBDIVISION NAME	SECTION/AREA	PARCEL																												
ASHTON WOODS APARTMENTS		423																												
PLAT NO.	BLOCK NO.	ZONE																												
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		-8																												
		51																												
		1																												
WATER CODE	SEWER CODE																													



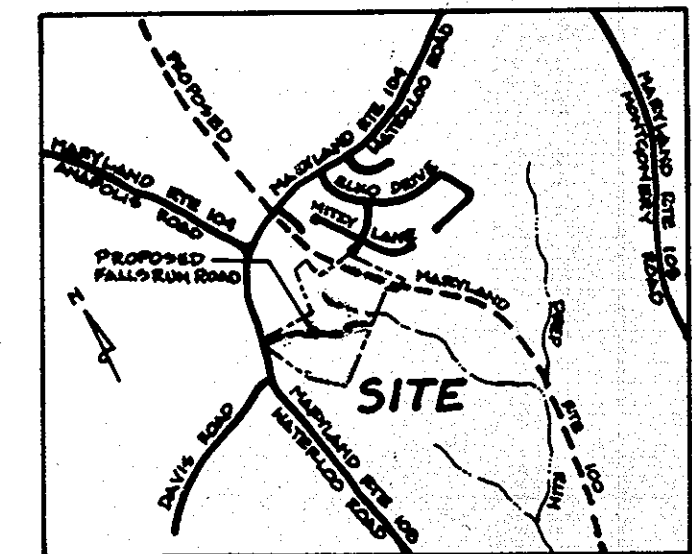
SDP 89-254

# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties

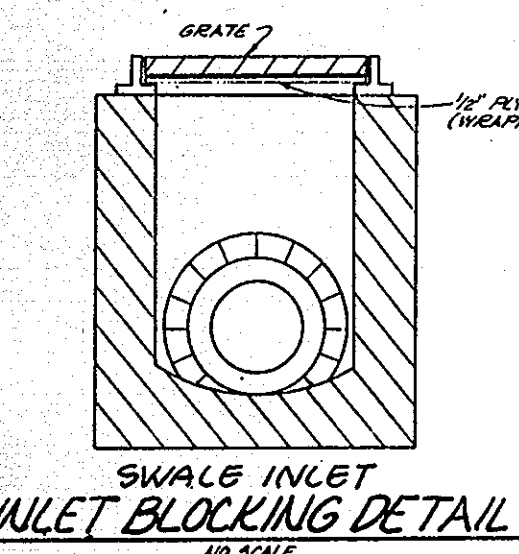
VICINITY MAP SCALE: 1"=2000'



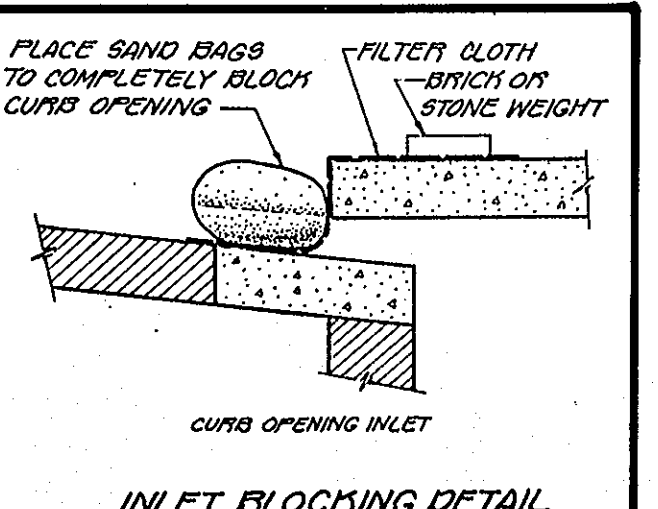
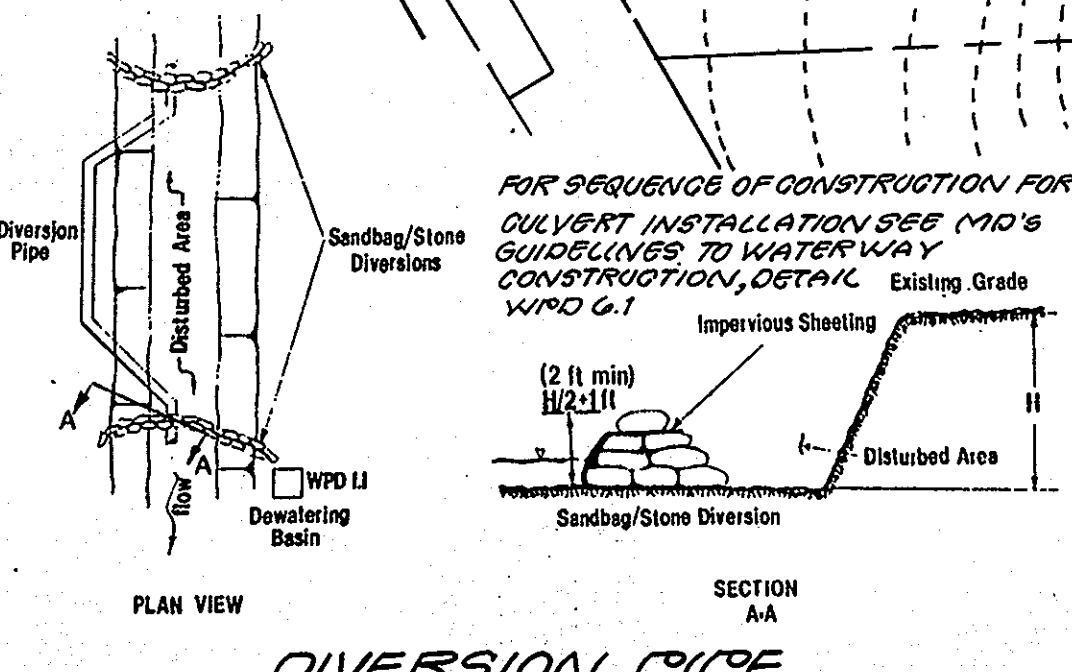
- LEGEND**
- BUILDING NUMBER
  - BUILDING TYPE
  - FINISHED FLOOR ELEVATION
  - PROPOSED SPOT ELEVATION
  - HIGH POINT
  - BREAK POINT
  - PROPOSED SWALE
  - EXISTING CONTOURS
  - STAIRS W/ ELEVATIONS
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SNG = STEP WITH GRADE)
  - WOOD WALK OVER FLUME
  - PEDESTRIAN BRIDGE OVER SWALE
  - EXISTING TREES TO REMAIN
  - HANDICAP UNIT
  - HANDICAP PARKING
  - CHECKER PLATE
  - STEM WALL
  - WOOD DECK
  - LIMITS OF DISTURBANCE
  - MANHOLE No.
  - INLET No.
- OWNER / DEVELOPER:  
 SUMMIT PROPERTIES  
 203 FRANCIS SCOTT KEY HIGHWAY  
 BALTIMORE, MARYLAND 21230  
 (301) 234-0070
- ENGINEER:  
 STV/LYON ASSOCIATES  
 21 GOVERNOR'S COURT  
 BALTIMORE, MARYLAND 21207  
 (301) 944-9112

**TYPE F.I.C. RAC OUTLET TRAC**  
 TRAC #1  
 1. DRAINAGE AREA = 8.0 AC.  
 2. STORAGE REQUIRED = 8.0 x 67 = 536 C.Y.  
 3. STORAGE PROVIDED = 27 x 71 x 54 x 60 = 594 C.Y., OVER 10%  
 4. WEIR LENGTH = 34.4'  
 5. BOTTOM EL. = 452.0  
 6. TOP OF ENHANCEMENT = 466.0  
 7. TOP OF CREST EL. = 465.0  
 8. CLEANOUT EL. = 461.0

**TYPE STONE OUTLET ST-V**  
 TRAC #4  
 1. DRAINAGE AREA = .51 AC.  
 2. STORAGE AREA = .01 x 67 = 0.67 C.Y.  
 3. STORAGE PROVIDED = 24 x 24 x 3 = 64 C.Y.  
 4. WEIR LENGTH = 3.0'  
 5. BOT. ELEV. = 488.0  
 6. TOP OF ENHANCEMENT = 492.0  
 7. TOP OF CREST EL. = 491.0  
 8. CLEANOUT EL. = 487.5



- LEGEND**
- EXISTING CONTOUR
  - EXISTING SPOT ELEVATION
  - PROPOSED CONTOUR
  - PROPOSED SPOT ELEVATION
  - SILT FENCE
  - STABILIZED CONSTRUCTION ENTRANCE
  - EARTH DIKE
  - LIMITS OF DISTURBANCE
  - PERIMETER DIKE/SWALE
  - STOCKPILE AREA
  - INLET PROTECTION
  - SEDIMENT TRAP



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

DATE: 1/13/89

DEVELOPER'S CERTIFICATE  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

DATE: 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

DATE: 1/2/90

APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

DATE: 1/2/90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 1/16/90

CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

DATE: 1-9-90

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

DATE: 1/8/90

CHIEF, BUREAU OF ENGINEERING

DATE: 1-8-90

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAY NO.	BLOCK NO.	ZONE
2102-2110	R-SA	8
WATER CODE	SEWER CODE	ELEC DIST
	31	1

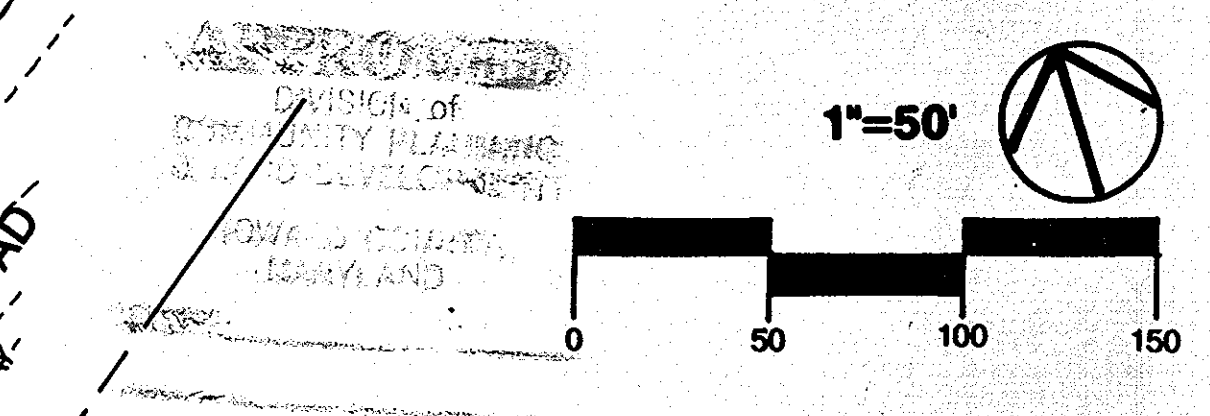
STV/LYON ASSOCIATES  
 ENGINEERS · SURVEYORS · PLANNERS  
 21 GOVERNOR'S COURT  
 BALTIMORE, MD. 21207  
 (301) 944-9112

DRAWN BY: E.A.S.  
 DESIGNED BY: E.A.S.  
 CHECKED BY: P.C.R.  
 JOB NUMBER: 8215

**SEDIMENT CONTROL PLAN**

ASHTON WOODS  
 TAX MAP 31, PARCEL 423, LOT 2  
 HOWARD COUNTY, MARYLAND

SHEET NO. 20 OF 342  
 SCALE: AS SHOWN  
 DATE: JUNE 7, 1989  
 1ST ELECTION DISTRICT



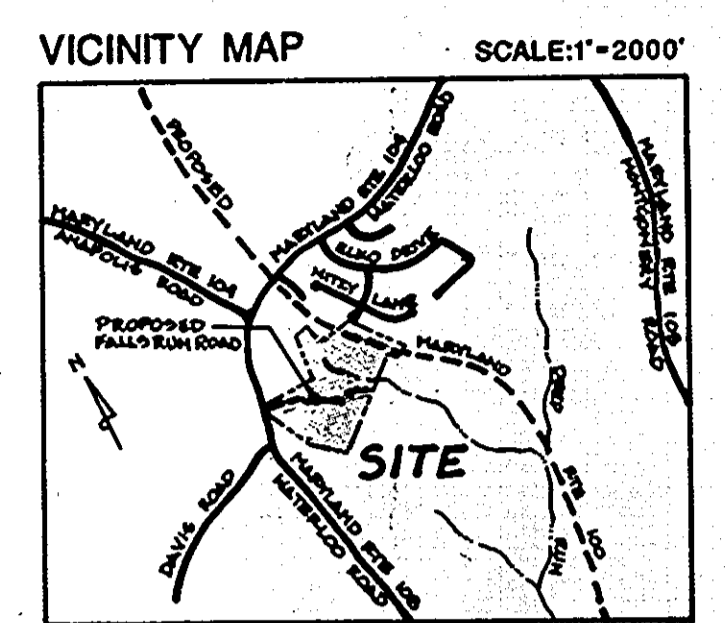
NOTE: SEDIMENT CONTROL TO BE REMOVED ONLY AFTER RECEIVING PERMISSION OF SEDIMENT CONTROL INSPECTOR.

APPROVED  
 DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
 HOWARD COUNTY, MARYLAND  
 DATE: 11-7-89

# ASHTON WOODS

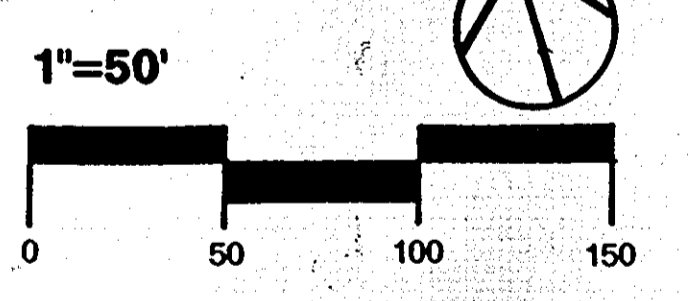
Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties

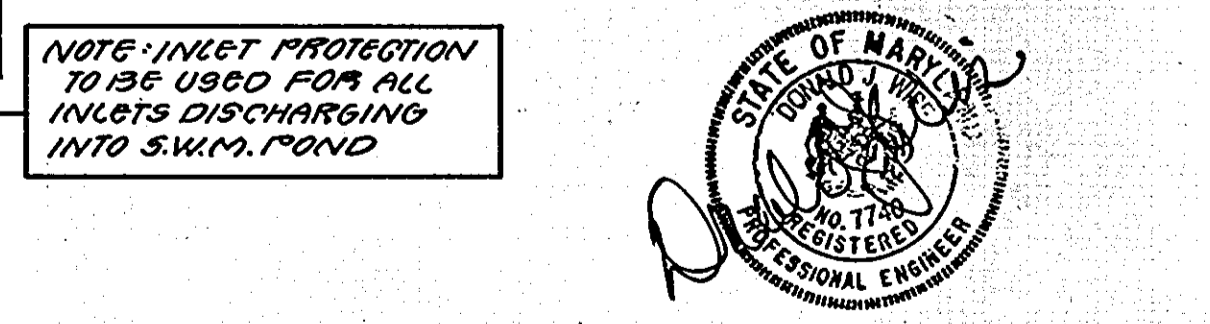


- LEGEND**
- BUILDING NUMBER
  - BUILDING TYPE
  - FINISHED FLOOR ELEVATION
  - PROPOSED SPOT ELEVATION
  - HIGH POINT
  - BREAK POINT
  - PROPOSED SWALE
  - EXISTING CONTOURS
  - STAIRS W/ ELEVATIONS
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SWG = STEP WITH GRADE)
  - WOOD WALK OVER FLUME
  - PEDESTRIAN BRIDGE OVER SWALE
  - EXISTING TREES TO REMAIN
  - HANDICAP UNIT
  - HANDICAP PARKING
  - CHECKER PLATE
  - STEM WALL
  - WOOD DECK
  - LIMITS OF DISTURBANCE
  - HANDHOLE NO.
  - INLET NO.
  - OWNER / DEVELOPER: SUMMIT PROPERTIES, 203 FRANCIS SCOTT KEY HIGHWAY, BALTIMORE, MARYLAND 21230, (301) 234-0070
  - ENGINEER: STV/LYON ASSOCIATES, 21 GOVERNORS COURT, BALTIMORE, MARYLAND 21207, (301) 944-9112

**APPROVED**  
 DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
 HOWARD COUNTY, MARYLAND  
 DATE: 11-7-89



NOTE: SEDIMENT CONTROL IS TO BE REMOVED ONLY AFTER RECEIVING PERMISSION OF SEDIMENT CONTROL INSPECTOR.



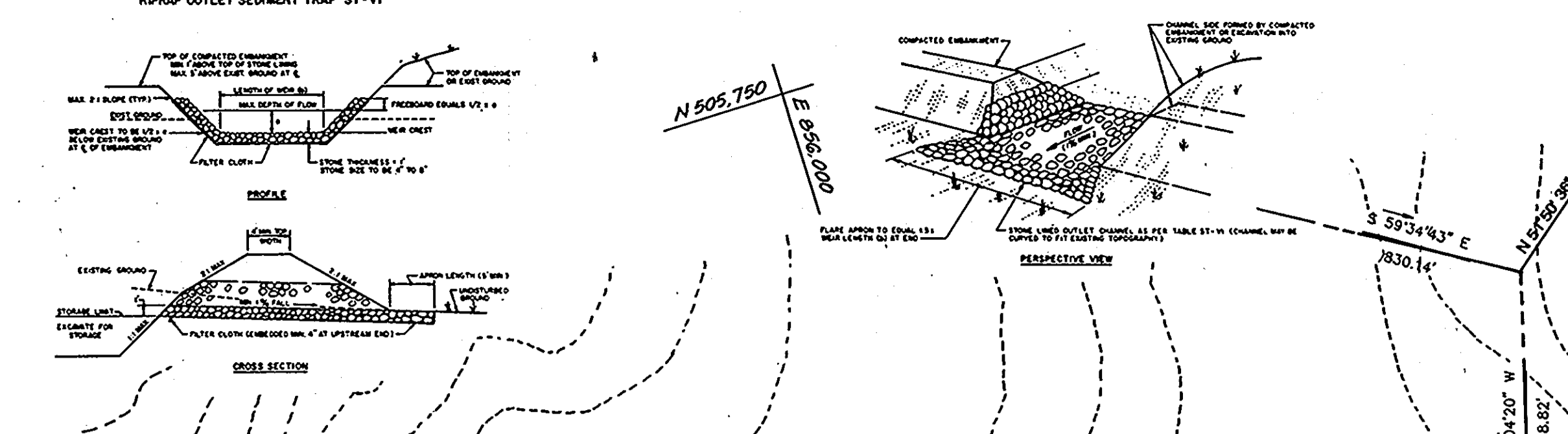
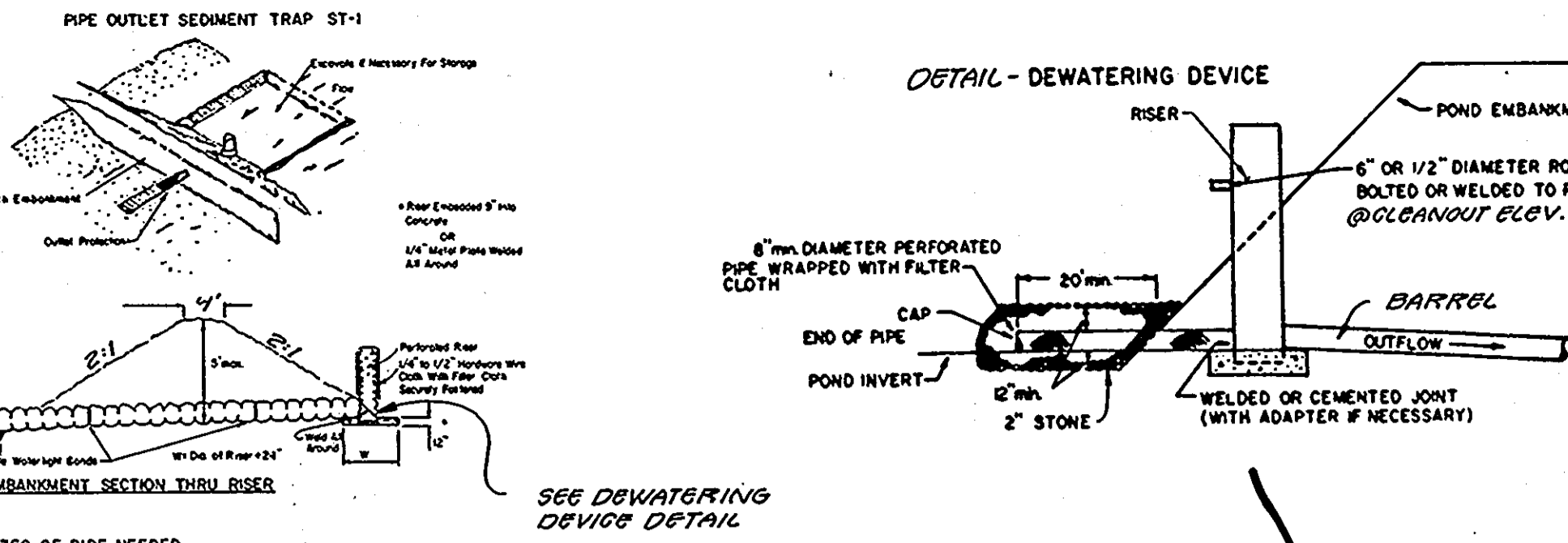
**TYPE C PIPE OUTLET TRAP TRAP NO. 2**

- DRAINAGE AREA = 3.0 ACRES
- STORAGE REQUIRED = 19,359 C.F.
- STORAGE PROVIDED = 10,344 C.F.
- BARREL DIA. = 18"
- BOTTOM ELEV. = 442.0
- TOP OF EMBANKMENT = 450.0
- RISER DIAMETER = 27", TOP OF RISER = 447.73
- CLEAROUT ELEV. = 443.0
- SIDE SLOPE = 2:1
- SEDIMENT CONTROL STORAGE REQ'D = 5,400 C.F.

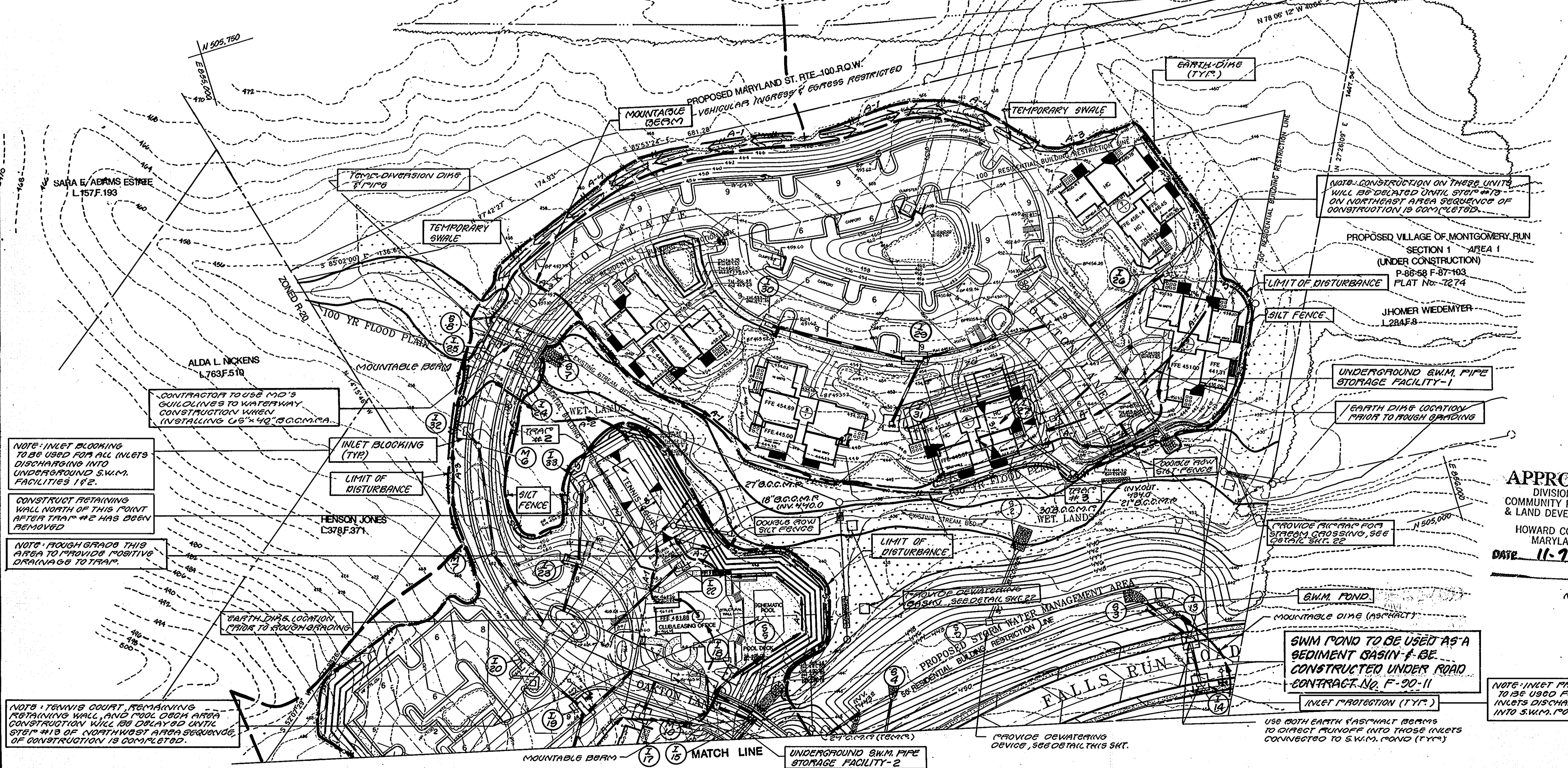
**TYPE A PIPE OUTLET TRAP TRAP NO. 2**

- DRAINAGE AREA = 3.70 ACRES
- STORAGE REQUIRED = 23,098 C.F.
- STORAGE PROVIDED = 23,508 C.F.
- BARREL DIAMETER = 21"
- BOTTOM ELEV. = 435.00
- TOP OF EMBANKMENT = 443.00
- RISER DIAMETER = 30", TOP OF RISER = 440.07
- CLEAROUT ELEV. = 439.0
- SIDE SLOPE = 2:1
- SEDIMENT CONTROL STORAGE REQ'D = 10,000 C.F.

NOTE: FOR CONSTRUCTION SPECIFICATIONS SEE SH-10.08 OF MD-SD-3. SED. CONT. STD.



NOTE: ALL EARTH DICES MUST BE MAINTAINED TO PROVIDE POSITIVE DRAINAGE TO TRAPS #2 & #3 AT ALL TIMES.



NOTE: INLET BLOCKING TO BE USED FOR ALL INLETS DISCHARGING INTO UNDERGROUND S.W.M. FACILITIES 1&2.

CONSTRUCT RETAINING WALL NORTH OF THIS POINT AFTER TRAP #2 HAS BEEN REMOVED.

NOTE: ROUGH GRADE THIS AREA TO PROVIDE POSITIVE DRAINAGE TO TRAP.

NOTE: TENNIS COURT REMAINING RETAINING WALL, AND POOL OCK AREA CONSTRUCTION WILL BE DELAYED UNTIL STEP #13 OF NORTHEAST AREA SEQUENCE OF CONSTRUCTION IS COMPLETED.

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

STATE OF MARYLAND  
 REGISTERED PROFESSIONAL ENGINEER  
 James P. Lyon  
 11/6/89

**DEVELOPER'S CERTIFICATE**  
 "I" WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

Summit Properties  
 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

Howard County Soil Conservation District  
 12/90

APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

Howard County Soil Conservation District  
 12/90

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Approved  
 11/89

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

Health Officer  
 1-9-90

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

James P. Lyon  
 11/89

DIRECTOR, PUBLIC WORKS

William S. Ray  
 11-8-89

CHIEF, BUREAU OF ENGINEERING

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO.	BLOCK NO.	FAX/ZONE ELEC DIST CENSUS TR
9109-9110	R-SA-8	31 1
WATER CODE	SEWER CODE	

STV/LYON ASSOCIATES  
 ENGINEERS - SURVEYORS - PLANNERS  
 21 GOVERNORS COURT  
 BALTIMORE, MD 21207  
 (301-944-9112)

DRAWN BY: E.A.S.  
 DESIGNED BY: L.P.B.

CHECKED BY: P.C.R.  
 JOB NUMBER: 8215

**SEDIMENT CONTROL PLAN**

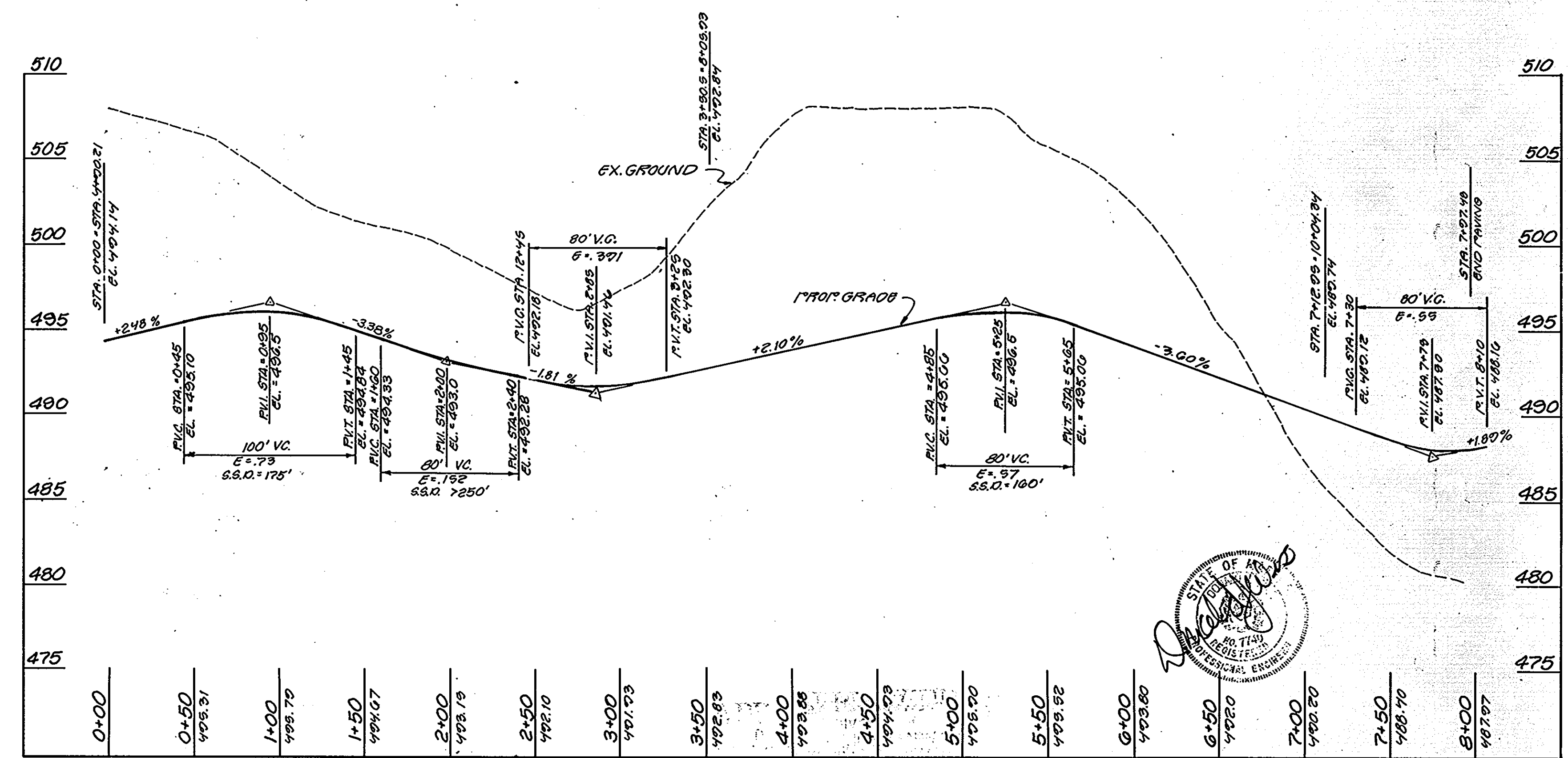
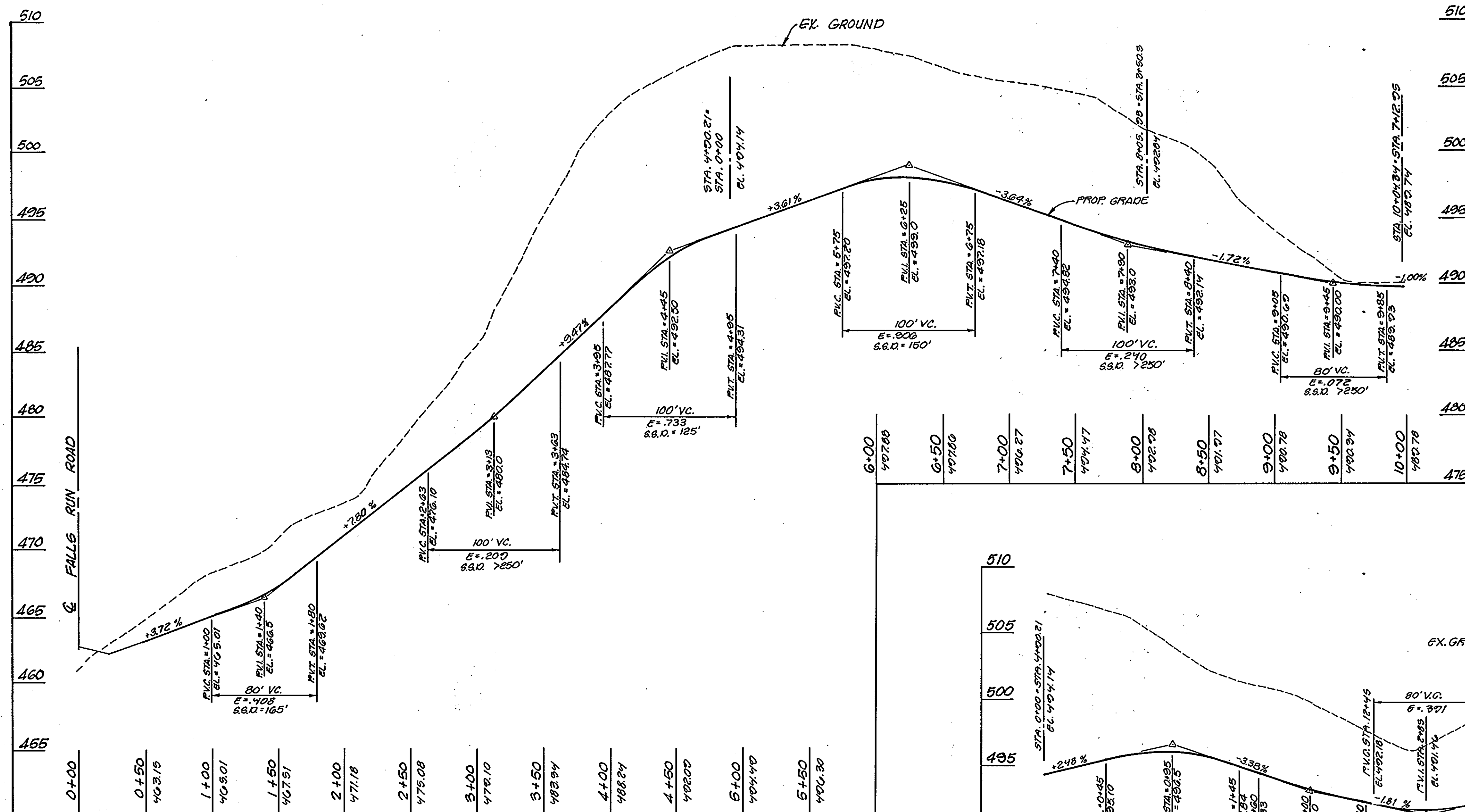
**ASHTON WOODS**

TAX MAP 31, PARCEL 423, LOT 2  
 HOWARD COUNTY, MARYLAND

SHEET NO. 21 OF 3542  
 SCALE: AS SHOWN

DATE: JUNE 7, 1989  
 1ST ELECTION DISTRICT





**APPROVED**  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE 11-7-87



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

DATE 6/6/89

**DEVELOPER'S CERTIFICATE**  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

DATE 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

DATE 1/2/90

APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DATE 1/2/90

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE 1/12/90

DATE 1/12/90

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

DATE 1-9-90

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.

DATE 1/18/90

DATE 1-8-90

SUBDIVISION NAME		SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS			423
PLAT NO	BLOCK NO	TAX / ZONE	ELEC DIST
		R-SA	31
WATER CODE	SEWER CODE	CENSUS TR	

STV/LYON ASSOCIATES  
ENGINEERS · SURVEYORS · PLANNERS  
21 GOVERNOR'S COURT  
BALTIMORE, MD 21207  
(301-944-9112)

DRAWN BY: K.E.B.  
DESIGNED BY: E.A.S.

CHECKED BY: P.C.R.  
JOB NUMBER: 8215

**ROAD PROFILE**  
**COTONEASTER DRIVE**  
**ASHTON WOODS**  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND

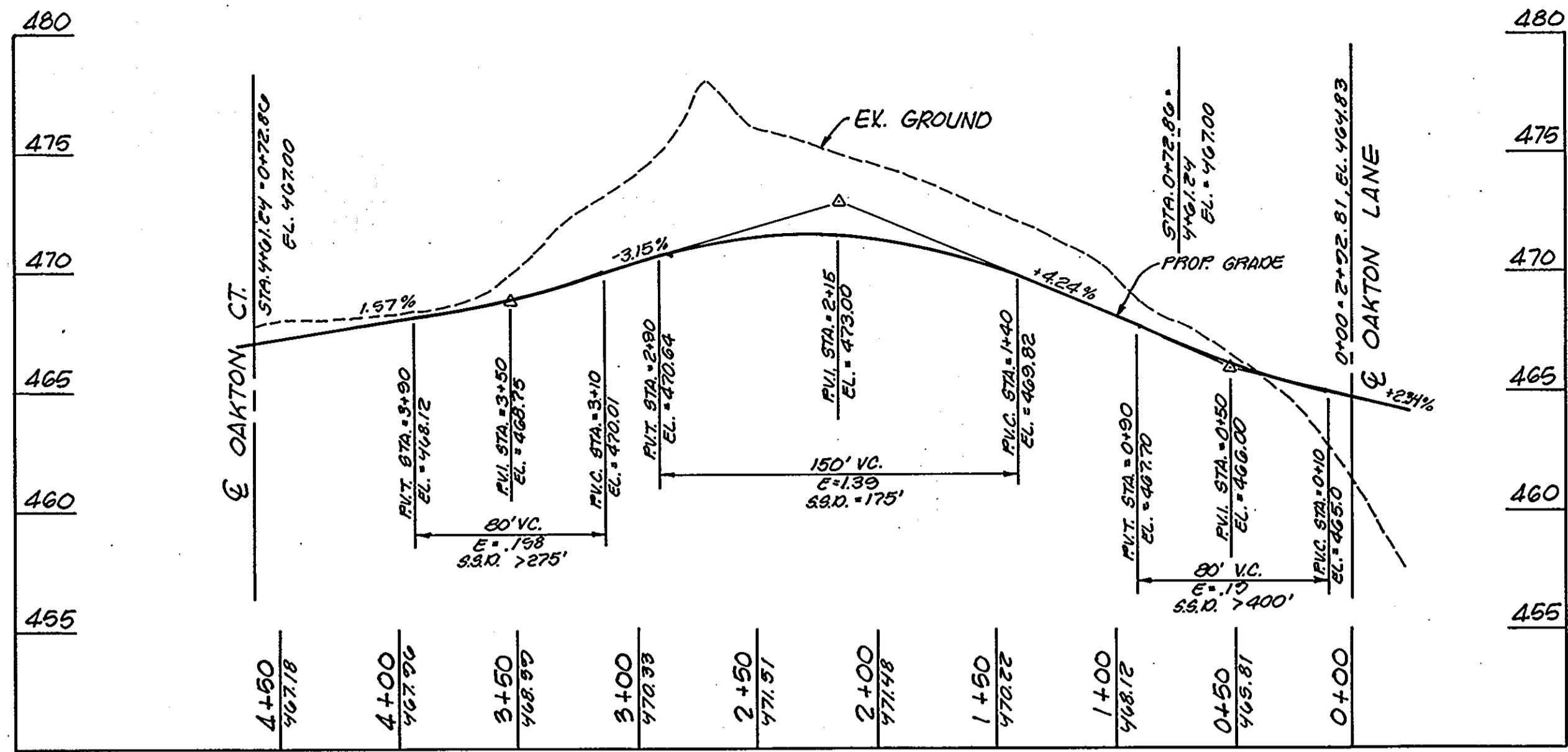
SHEET NO. 23 OF 342  
SCALE: AS SHOWN

DATE: JUNE 7, 1989  
1ST ELECTION DISTRICT

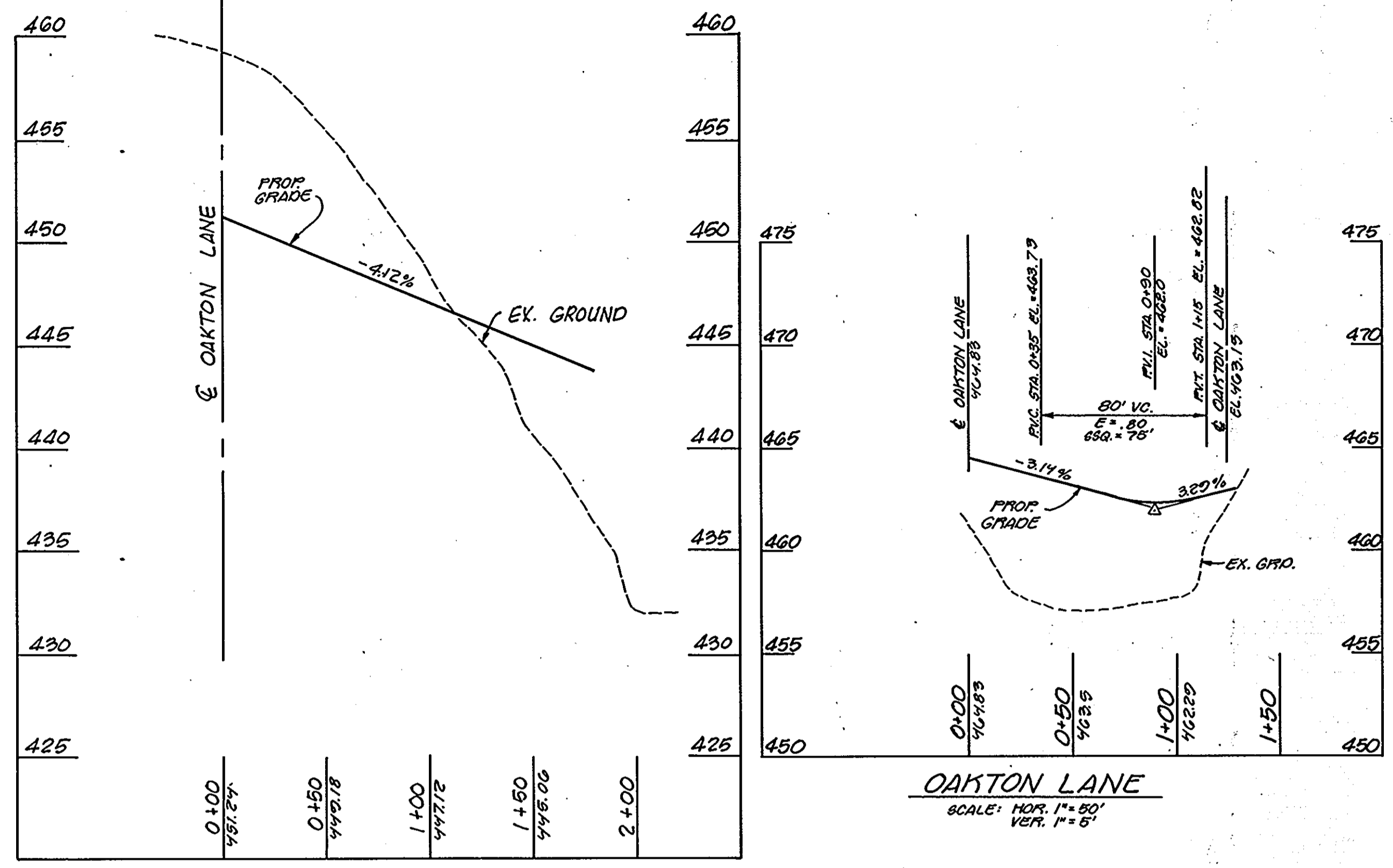
Land Design  
Landscape Architecture Land Planning  
Urban Design

1216 Prince Street, Alexandria, VA 22314 703/549-1784

SDP 89-254

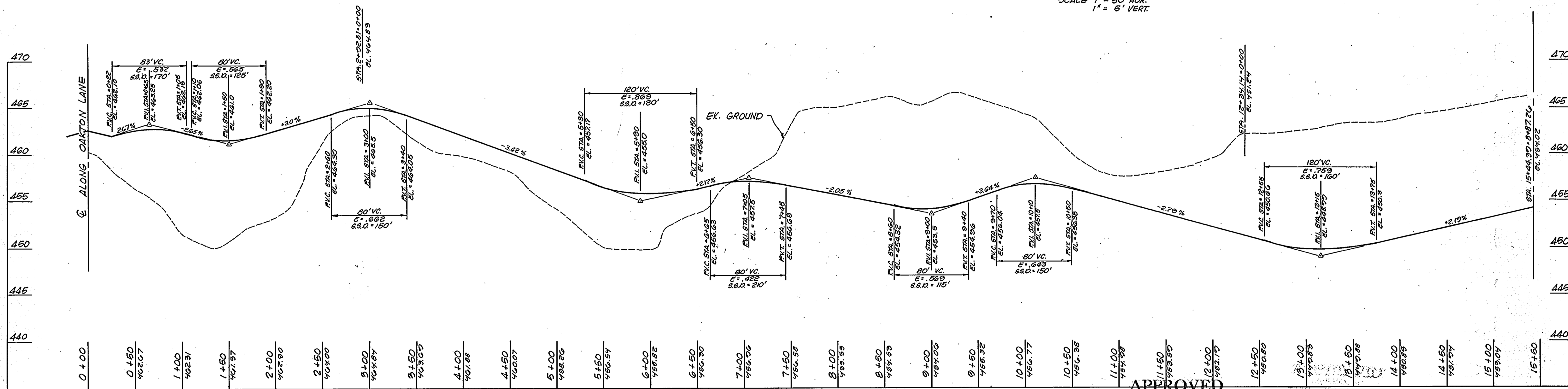


OAKTON LANE  
SCALE 1" = 50' HOR.  
1" = 5' VERT.



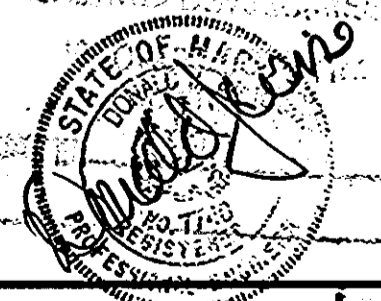
OAKTON LANE  
SCALE 1" = 50' HOR.  
1" = 5' VERT.

OAKTON LANE  
SCALE: HOR. 1" = 50'  
VERT. 1" = 5'



OAKTON LANE  
SCALE 1" = 50' HOR.  
1" = 5' VERT.

APPROVED  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE 11-7-89



1216 Prince Street, Alexandria, VA 22314 703-549-7784

Land Design  
Landscape Architecture Land Planning  
Urban Design

ENGINEER'S CERTIFICATE  
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
6/6/89  
DATE

DEVELOPER'S CERTIFICATE  
"I" WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.  
6.6.89  
DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
James M. Johnson 1/2/90  
U.S. SOIL CONSERVATION SERVICE  
DATE  
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
APPROVED:  
John R. Robertson 1/2/90  
DATE  
DISTRICT HOWARD SOIL CONSERVATION DISTRICT

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
James M. Johnson 1/10/90  
PLANNING DIRECTOR  
DATE  
James M. Johnson 1/1/90  
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION  
DATE  
APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.  
James M. Johnson 1-9-90  
DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.  
James M. Johnson 1/8/90  
DIRECTOR, PUBLIC WORKS  
DATE  
James M. Johnson 1-2-89  
CHIEF, BUREAU OF ENGINEERING  
DATE  
SUBDIVISION NAME ASHTON WOODS APARTMENTS SECTION/AREA PARCEL 423  
PLAT NO. BLOCK NO. ZONE TAX/ZONE ELEC DIST CENSUS TR  
WATER CODE SEWER CODE

STV/LYON ASSOCIATES  
ENGINEERS - SURVEYORS - PLANNERS  
21 GOVERNOR'S COURT  
BALTIMORE, MD 21207  
(301-944-9112)  
DRAWN BY: K.E.B. DESIGNED BY: E.A.S.  
CHECKED BY: P.C.R. JOB NUMBER: 8215

ROAD PROFILE  
OAKTON LANE  
ASHTON WOODS  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND  
SHEET NO. 24 OF 33  
SCALE: AS SHOWN  
DATE: JUNE 7, 1989  
1ST ELECTION DISTRICT

508.87.254



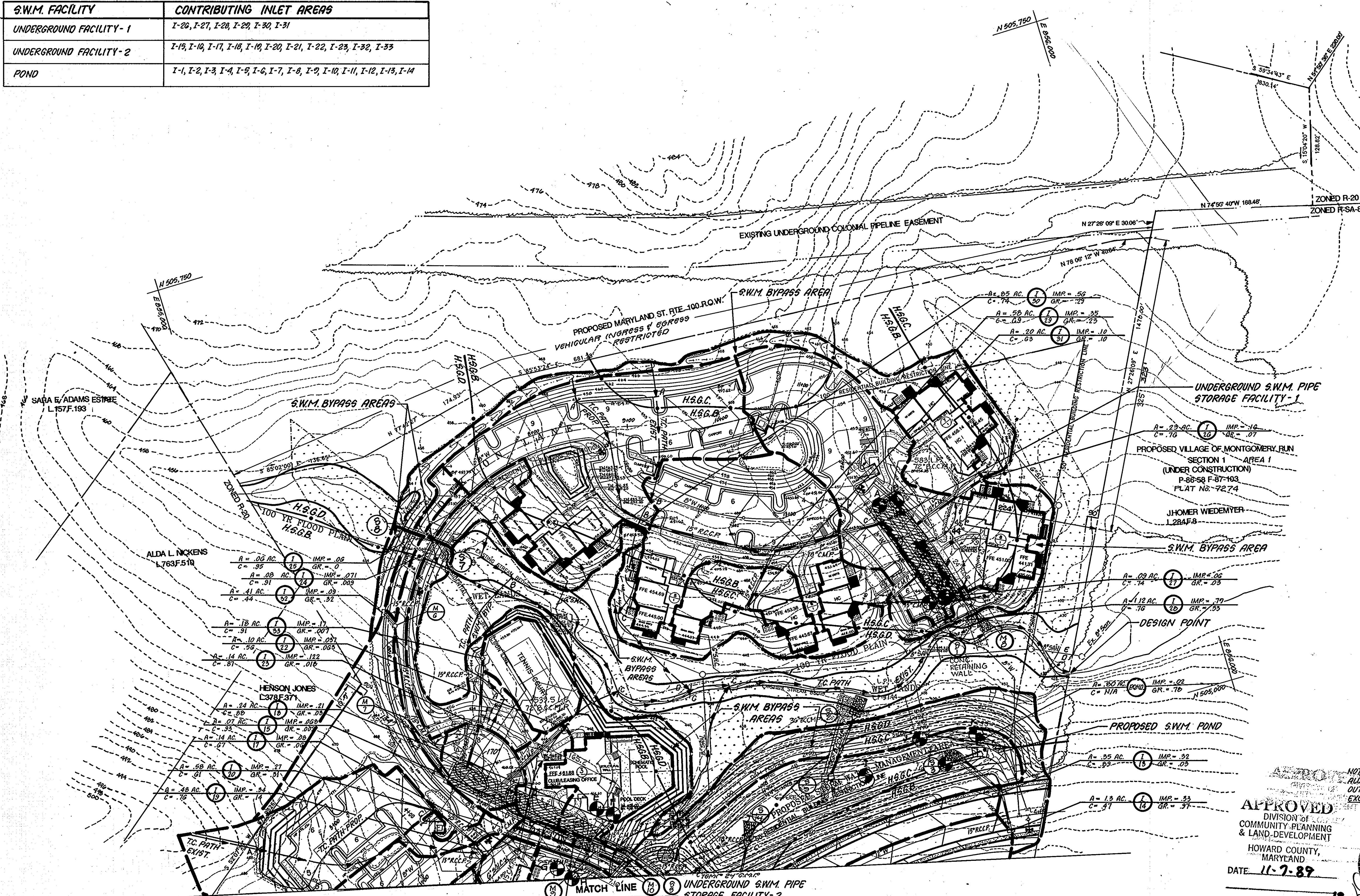
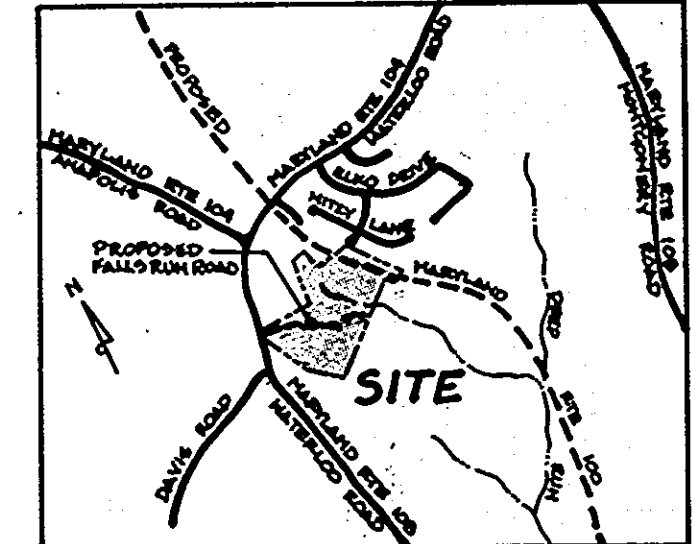
S.W.M. FACILITY	CONTRIBUTING INLET AREAS
UNDERGROUND FACILITY - 1	I-26, I-27, I-28, I-29, I-30, I-31
UNDERGROUND FACILITY - 2	I-19, I-10, I-17, I-18, I-19, I-20, I-21, I-22, I-23, I-32, I-33
POND	I-1, I-2, I-3, I-4, I-5, I-6, I-7, I-8, I-9, I-10, I-11, I-12, I-13, I-14

# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties

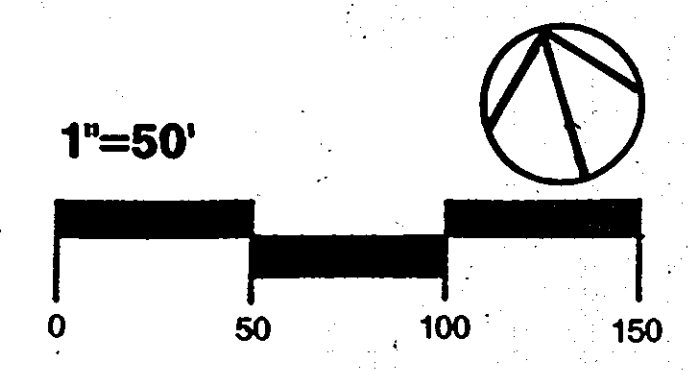
VICINITY MAP SCALE: 1"=2000'



**LEGEND**

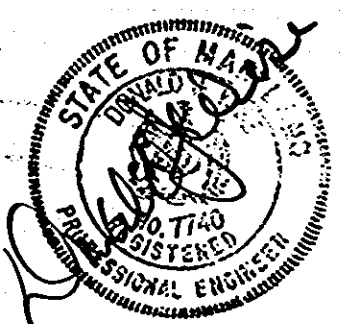
BUILDING NUMBER	①
BUILDING TYPE	②
FINISHED FLOOR ELEVATION	FFE 300.67
PROPOSED SPOT ELEVATION	O-35.50
HIGH POINT	HP
BREAK POINT	BP
PROPOSED SHALE	→
EXISTING SHALES	→
STAIRS W/ ELEVATIONS	↑
TIMBER RETAINING WALLS W/ ELEVATIONS (SMG - STEP WITH GRADE)	TW
WOOD WALK OVER FLUME	BW
PEDESTRIAN BRIDGE OVER SHALE	DB
EXISTING TREES TO REMAIN	HT
HANDICAP UNIT	HU
HANDICAP PARKING	HPK
CHECKER PLATE	CP
STEM WALL	SW
WOOD DECK	WD
LIMITS OF DISTURBANCE	LD
MANHOLE No.	MH
INLET No.	I
OWNER / DEVELOPER:	④

ENGINEER:  
 STV/LYON ASSOCIATES  
 21 GOVERNOR'S COURT  
 BALTIMORE, MARYLAND 21207  
 (301) 944-9112



NOTES:  
 ALL INLET DRAINAGE AREAS  
 OUTFALL TO S.W.M. FACILITIES  
 EXCEPT I 24 & I 25.

APPROVED  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE 11-7-89



AS-BUILT  
 2-20-92

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

Signature of Engineer: *[Signature]*  
 DATE: 11/6/89

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

Signature of Developer: *[Signature]*  
 DATE: 6-6-99

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

Signature: *[Signature]* DATE: 1/2/90  
 U.S. SOIL CONSERVATION SERVICE

Signature: *[Signature]* DATE: 1/2/90  
 APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature: *[Signature]* DATE: 11/10/90  
 PLANNING DIRECTOR

Signature: *[Signature]* DATE: 11/10/90  
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

Signature: *[Signature]* DATE: 1-9-90  
 HEALTH OFFICER

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

Signature: *[Signature]* DATE: 11/8/90  
 DIRECTOR, PUBLIC WORKS

Signature: *[Signature]* DATE: 1-8-90  
 CHIEF, BUREAU OF ENGINEERING

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS	31	423
PLAT NO.	BLOCK NO.	TAX/ZONE ELEC DIST CENSUS TR
9108-0110	8	31
WATER CODE	SEWER CODE	

STV/LYON ASSOCIATES  
 ENGINEERS · SURVEYORS · PLANNERS  
 21 GOVERNORS COURT  
 BALTIMORE, MD 21207  
 (301-944-9112)

DRAWN BY: K.E.B. DESIGNED BY: E.A.S.  
 CHECKED BY: P.C.R. JOB NUMBER: 8215

**STORM DRAIN PLAN & DRAINAGE AREA MAP ASHTON WOODS**

TAX MAP 31, PARCEL 423, LOT 2  
 HOWARD COUNTY, MARYLAND

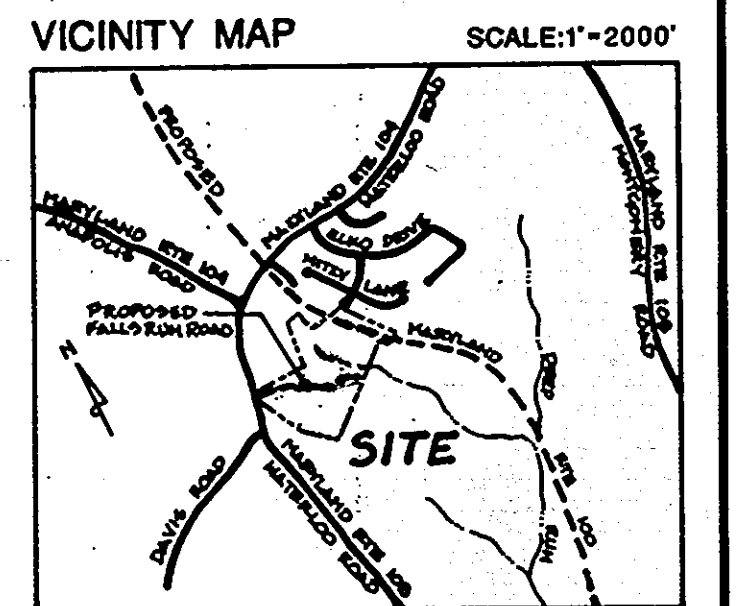
AS-BUILT 2-20-92

SHEET NO. 25 OF 37 42 DATE: JUNE 7, 1989  
 SCALE: AS SHOWN 1ST ELECTION DISTRICT

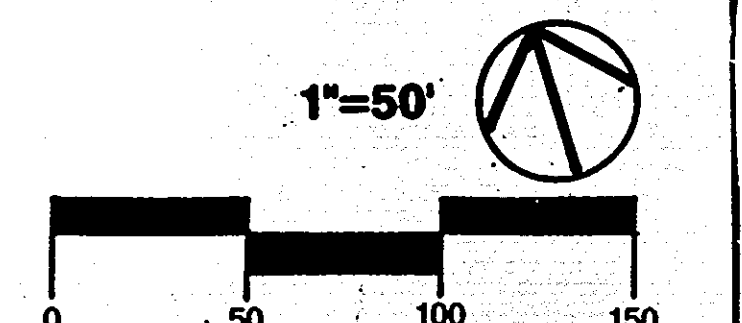
# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

An Apartment Community  
 by  
 Summit Properties



- LEGEND**
- BUILDING NUMBER: (Symbol)
  - BUILDING TYPE: (Symbol)
  - FINISHED FLOOR ELEVATION: FFE 300.67
  - PROPOSED SPOT ELEVATION: (Symbol) - 35.50
  - HIGH POINT: (Symbol) - HP
  - BREAK POINT: (Symbol) - BP
  - PROPOSED SHALE: (Symbol)
  - EXISTING CONTOURS: (Symbol)
  - STAIRS W/ ELEVATIONS: (Symbol)
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SNG + STEP WITH GRADE): (Symbol)
  - WOOD WALK OVER FLUME: (Symbol)
  - PEDESTRIAN BRIDGE OVER SHALE: (Symbol)
  - EXISTING TREES TO REMAIN: (Symbol)
  - HANDICAP UNIT: (Symbol)
  - HANDICAP PARKING: (Symbol)
  - CHECKER PLATE: (Symbol)
  - STEM WALL: (Symbol)
  - WOOD DECK: (Symbol)
  - LIMITS OF DISTURBANCE: (Symbol)
  - MANHOLE No. (Symbol)
  - INLET No. (Symbol)
  - OWNER / DEVELOPER: SUMMIT PROPERTIES, 203 FRANCIS SCOTT KEY HIGHWAY, BALTIMORE, MARYLAND 21230, (301) 234-0070
  - ENGINEER: STV/LYON ASSOCIATES, 21 GOVERNOR'S COURT, BALTIMORE, MARYLAND 21207, (301) 944-9112



**APPROVED**  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE 11-7-89



NOTE:  
 ALL INLET DRAINAGE  
 AREAS OUTFALL TO  
 S.W.M. FACILITIES

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

*John P. Stvallyon*  
 SIGNATURE OF ENGINEER  
 6/6/89  
 DATE

**DEVELOPER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*David M. Cole*  
 SIGNATURE OF DEVELOPER  
 6-6-89  
 DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*James M. Nelson* 1/2/90  
 U.S. SOIL CONSERVATION SERVICE  
 DATE

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

*John P. Stvallyon* 1/2/90  
 DISTRICT HOWARD SOIL CONSERVATION DISTRICT  
 DATE

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*James M. Nelson* 1/10/90  
 PLANNING DIRECTOR  
 DATE

*James M. Nelson* 1/10/90  
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT  
 DATE

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*James M. Nelson* 1-9-90  
 HEALTH OFFICER  
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

*James M. Nelson* 1/10/90  
 DIRECTOR, PUBLIC WORKS  
 DATE

*James M. Nelson* 1-8-90  
 CHIEF, BUREAU OF ENGINEERING  
 DATE

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS		423
PLAT NO.	BLOCK NO.	ZONE
9100-9110	8	R-SA-8
WATER CODE	SEWER CODE	ELEC DIST
		1
		CENSUS TR

STV/LYON ASSOCIATES  
 ENGINEERS - SURVEYORS - PLANNERS  
 21 GOVERNOR'S COURT  
 BALTIMORE, MD. 21207  
 (301-944-9112)

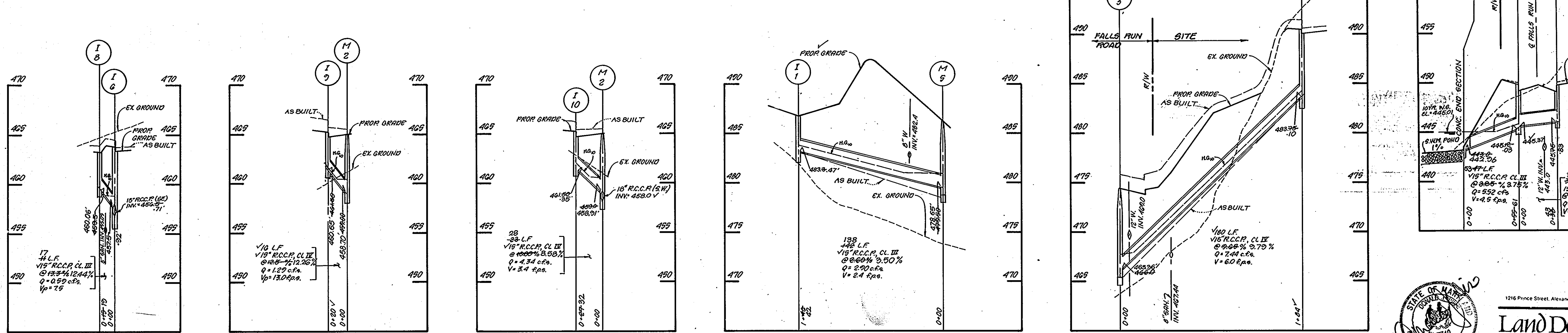
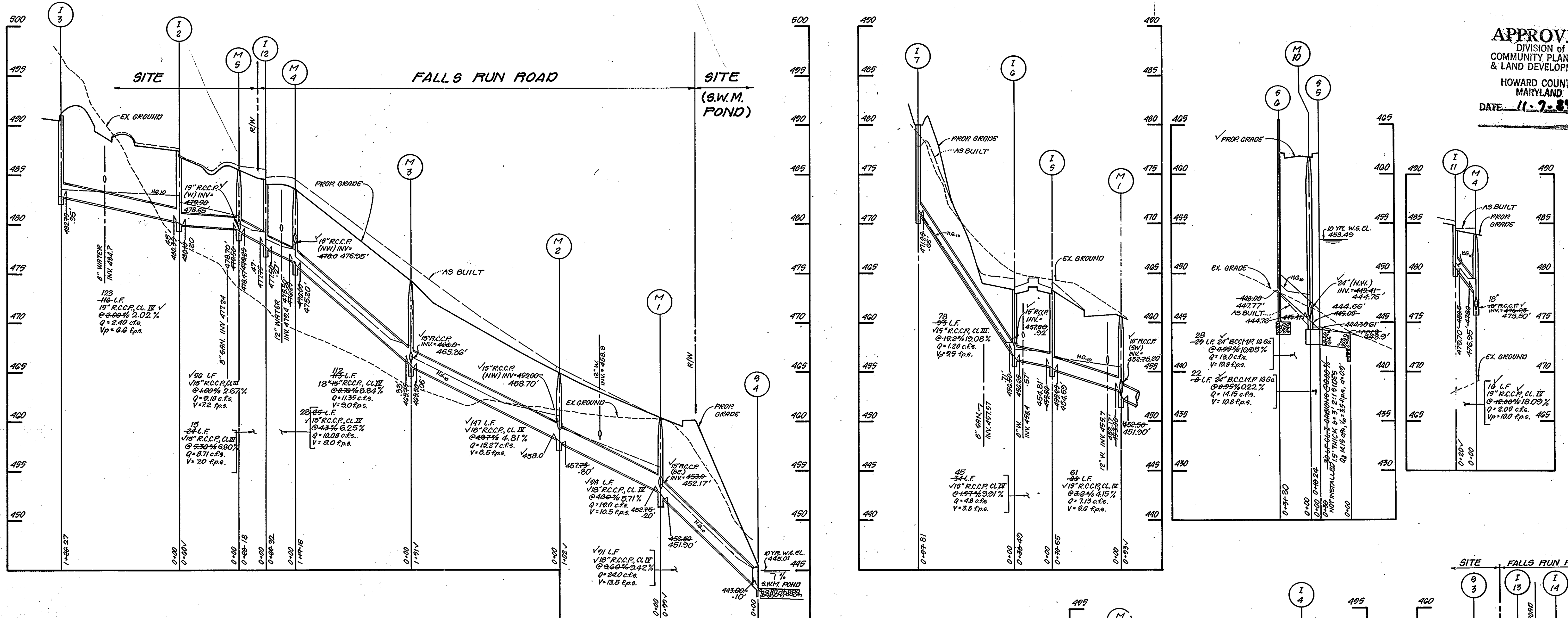
DRAWN BY: K.E.B.  
 DESIGNED BY: E.A.S.  
 CHECKED BY: P.C.R.  
 JOB NUMBER: 8215

**STORM DRAIN PLAN & DRAINAGE AREA MAP**  
**ASHTON WOODS**  
 TAX MAP 31, PARCEL 423, LOT 2  
 HOWARD COUNTY, MARYLAND

SHEET NO. 26 OF 342  
 SCALE: AS SHOWN  
 DATE: JUNE 7, 1989  
 1ST ELECTION DISTRICT

SDP 89-254

J.B.



STORM DRAIN PROFILES  
SCALE: 1" = 5' VERT.; 1" = 50' HORIZ.



1216 Prince Street, Alexandria VA 22314 703/549-7784  
**Land Design**  
Landscape Architecture Land Planning  
Urban Design

ENGINEER'S CERTIFICATE  
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
DATE 11/6/89  
SIGNATURE OF ENGINEER

DEVELOPER'S CERTIFICATE  
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.  
DATE 6-6-89  
SIGNATURE OF DEVELOPER

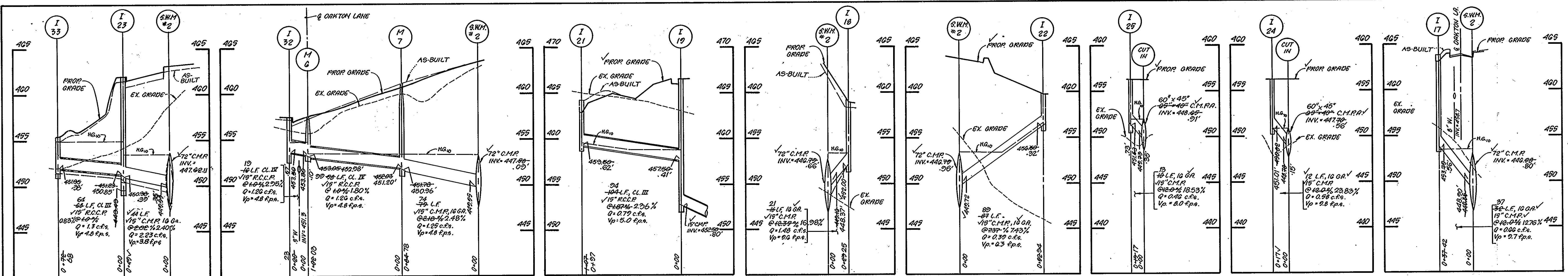
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS  
DATE 1/2/90  
U.S. SOIL CONSERVATION SERVICE  
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
APPROVED:  
DATE 1/2/90  
DISTRICT HOWARD SOIL CONSERVATION DISTRICT

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE 1/10/90  
PLANNING DIRECTOR  
DATE 1/10/90  
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION  
APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.  
DATE 1-9-90  
HEALTH OFFICER

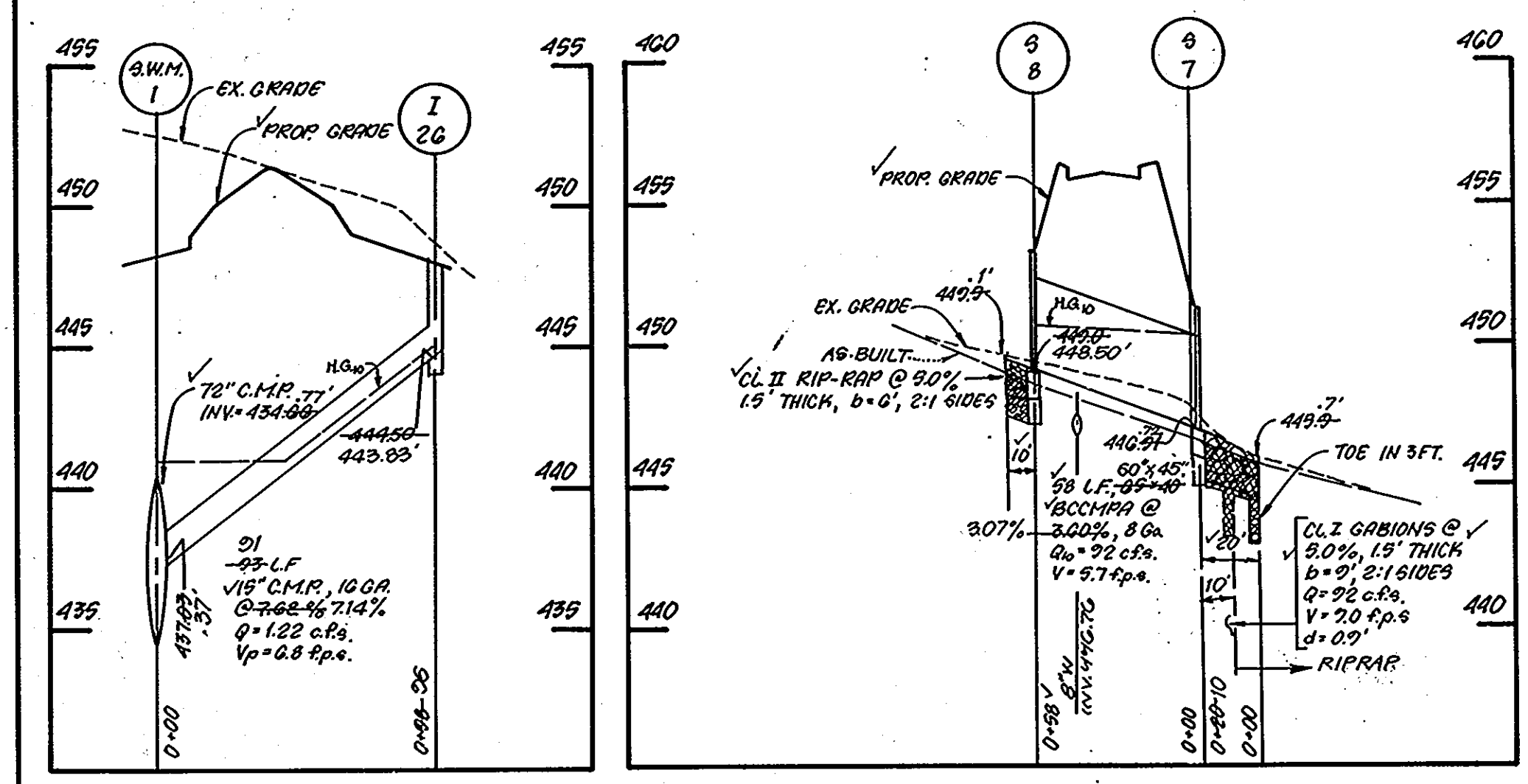
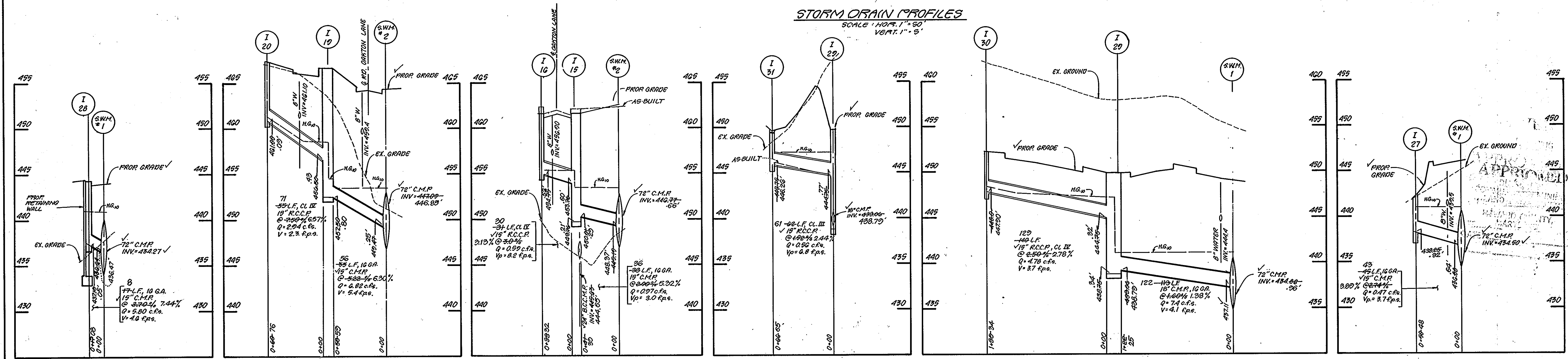
APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.  
DATE 1/8/90  
DIRECTOR, PUBLIC WORKS  
DATE 1-8-90  
CHIEF, BUREAU OF ENGINEERING  
SUBDIVISION NAME ASHTON WOODS APARTMENTS  
SECTION/AREA PARCEL 423  
PLAT NO. BLOCK NO. ZONE TAX/ZONE ELEC DIST. CENSUS TR  
WATER CODE SEWER CODE

STV/LYON ASSOCIATES  
ENGINEERS · SURVEYORS · PLANNERS  
21 GOVERNOR'S COURT  
BALTIMORE, MD 21207  
(301-944-9112)  
DRAWN BY: K.E.B.  
DESIGNED BY: E.A.S.  
CHECKED BY: P.C.R.  
JOB NUMBER: 8215

STORM DRAIN PROFILES  
ASHTON WOODS  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND  
AS-BUILT  
DATE: JUNE 7, 1989  
SHEET NO. 27 OF 34  
SCALE: AS SHOWN  
1ST ELECTION DISTRICT  
509 89-254



STORM DRAIN PROFILES  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 5'



AS-BUILT

STORM DRAIN STRUCTURE SCHEDULE									
No.	TYPE	TOP ELEV.	INV. IN	INV. OUT	TOP IN	OUT	REMARKS		
I-1	YARD INLET	486.00	483.30	486.84	483.47	486.84	HO. CO. PL. SD. 4.14		
I-2	A-10	487.16	480.36	480.10	487.78	480.49	HO. CO. PL. SD. 4.02		
I-3	A-10	481.16	482.75	491.33	482.95	491.33	HO. CO. PL. SD. 4.02		
I-4	A-10	491.08	489.75	491.40	483.10	491.40	HO. CO. PL. SD. 4.02		
I-5	A-10 W/DEF	493.83	455.50	455.25	454.14	454.81	HO. CO. PL. SD. 4.02		
I-6	A-10 W/DEF	493.83	455.50	455.25	454.40	455.71	HO. CO. PL. SD. 4.02		
I-7	YARD INLET	480.00	471.25	477.80	471.65	477.80	HO. CO. PL. SD. 4.14		
I-8	YARD INLET	483.50	459.50	463.86	450.06	463.86	HO. CO. PL. SD. 4.14		
I-9	A-10 W/DEF	490.00	461.50	464.04	450.35	464.04	HO. CO. PL. SD. 4.02		
I-10	A-10 W/DEF	488.80	461.50	464.56	461.35	464.56	HO. CO. PL. SD. 4.02		
I-11	A-10 W/DEF	484.80	480.50	485.00	478.70	485.00	HO. CO. PL. SD. 4.02		
I-12	A-10 W/DEF	483.50	477.50	485.75	477.27	485.75	HO. CO. PL. SD. 4.02		
I-13	A-10	492.00	445.37	445.12	449.70	443.37	HO. CO. PL. SD. 4.02		
I-14	A-10	492.00	445.75	449.91	443.83	449.91	HO. CO. PL. SD. 4.02		
I-15	WATER QUALITY INLET	482.00	453.76	450.01	452.02	453.60	SEE DETAIL SHT 31		
I-16	A-5	482.10	454.75	462.28	453.52	462.28	HO. CO. PL. SD. 4.01		
I-17	YARD INLET	482.75	453.75	463.72	453.56	463.72	HO. CO. PL. SD. 4.14		
I-18	YARD INLET	493.00	452.00	458.30	452.00	458.30	HO. CO. PL. SD. 4.14		
I-19	WATER QUALITY INLET	484.30	454.50	452.50	454.16	457.41	SEE DETAIL SHT 31		
I-20	A-10	492.25	461.00	467.28	461.00	467.28	HO. CO. PL. SD. 4.02		
I-21	YARD INLET	483.00	457.50	464.02	453.62	464.02	HO. CO. PL. SD. 4.14		
I-22	YARD INLET	493.50	456.50	459.42	456.32	459.42	HO. CO. PL. SD. 4.14		
I-23	WATER QUALITY INLET	481.20	450.75	451.32	450.85	450.85	SEE DETAIL SHT 31		
I-24	A-5 INLET	480.19	450.82	455.08	451.01	455.08	HO. CO. PL. SD. 4.01		
I-25	A-5 INLET	496.19	451.38	456.06	451.73	456.06	HO. CO. PL. SD. 4.01		

AS-BUILT

	TOP	IN	OUT			
I-26	YARD INLET	493.00	444.50	448.24	443.83	HO. CO. PL. SD. 4.14
I-27	YARD INLET	492.00	438.25	441.26	438.32	HO. CO. PL. SD. 4.14
I-28	WATER QUALITY INLET	494.30	437.10	444.31	437.06	SEE DETAIL SHT 31
I-29	WATER QUALITY INLET	492.70	444.75	439.06	443.76	SEE DETAIL SHT 31
I-30	A-10	492.25	448.00	452.44	447.90	HO. CO. PL. SD. 4.02
I-31	YARD INLET	493.00	445.75	449.44	446.26	HO. CO. PL. SD. 4.14
I-32	A-10	492.25	453.50	457.00	453.67	HO. CO. PL. SD. 4.02
I-33	YARD INLET	493.00	451.95	456.86	451.38	HO. CO. PL. SD. 4.14
M-1	STD. MANHOLE	490.40	453.00	452.50	452.17	HO. CO. PL. G. 5.11
M-2	"	490.60	458.00	457.75	456.46	HO. CO. PL. G. 5.11
M-3	"	474.40	405.75	405.50	403.78	HO. CO. PL. G. 5.11
M-4	"	484.00	476.25	476.00	475.50	HO. CO. PL. G. 5.11
M-5	"	480.10	478.50	478.25	478.47	HO. CO. PL. G. 5.11
M-6	"	457.40	452.00	453.05	452.20	HO. CO. PL. G. 5.11
M-7	"	461.00	451.50	451.75	451.00	HO. CO. PL. G. 5.11
M-8	FLOW CONTROL VALVE	444.50	434.20	433.30	434.07	SEE DETAIL SHT 31
M-9	FLOW CONTROL VALVE	461.80	442.70	443.40	442.35	SEE DETAIL SHT 31
M-10	STD. MANHOLE	461.00	445.40	441.24	441.66	HO. CO. PL. G. 5.11
S-1	CONC. END SECTION	433.05	433.50	433.76	433.50	HO. CO. PL. SD. 5.51
S-2	METAL END SECTION	443.10	443.00	443.18	443.00	HO. CO. PL. SD. 5.51
S-3	CONC. END SECTION	443.10	443.00	443.18	443.00	HO. CO. PL. SD. 5.51
S-4	CONC. END SECTION	443.15	443.00	443.18	443.00	HO. CO. PL. SD. 5.51
S-5	CONC. END WALL	448.00	444.30	444.30	444.61	SEE DETAIL SHT 30
S-6	CONC. END WALL	448.00	444.30	444.30	444.61	SEE DETAIL SHT 30
S-7	STD. TYPE C'ENH.	443.00	440.01	440.01	440.72	HO. SH. 395.01
S-8	STD. TYPE C'ENH.	443.00	440.01	440.01	440.72	HO. SH. 395.01
S-9	FLOW CONTROL VALVE	440.55	441.00	440.00	440.22	SEE DETAIL SHT 32

APPROVED  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE 11-7-87



1216 Prince Street Alexandria VA 22314 703-549-7784  
**Land Design**  
Landscape Architecture Land Planning  
Urban Design

ENGINEER'S CERTIFICATE  
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
DATE 6/6/89  
SIGNATURE OF ENGINEER

DEVELOPER'S CERTIFICATE  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.  
DATE 6-6-89  
SIGNATURE OF DEVELOPER

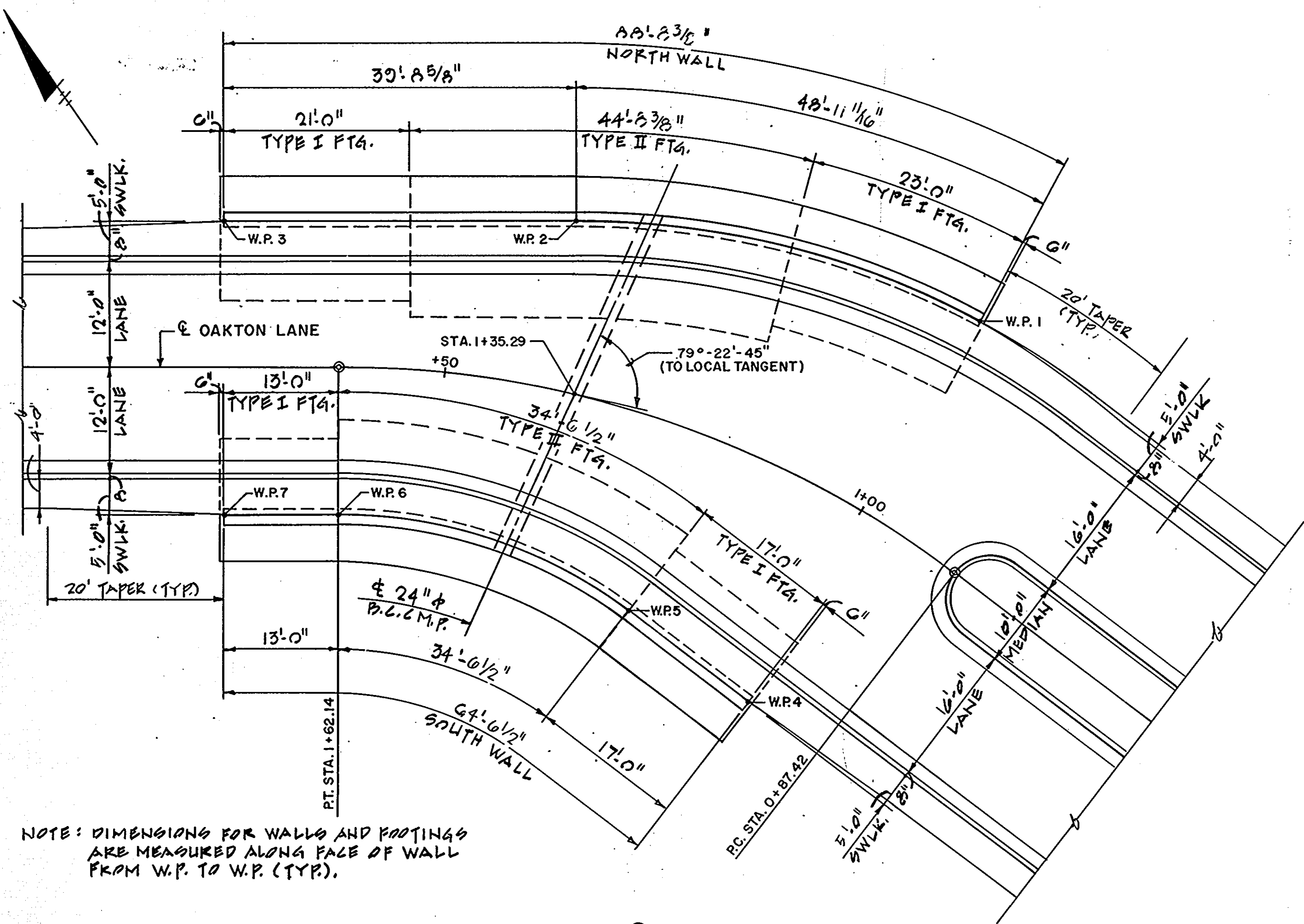
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
DATE 1/2/90  
U.S. SOIL CONSERVATION SERVICE  
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
DATE 1/2/90  
DISTRICT HOWARD SOIL CONSERVATION DISTRICT

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
ANNING DIRECTOR DATE 1/10/90  
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE 1/10/90  
APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.  
DATE 1-9-90  
HEALTH OFFICER

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER DRAINAGE SYSTEMS AND ROADS.  
DIRECTOR, PUBLIC WORKS DATE 1/8/90  
CHIEF, BUREAU OF ENGINEERING DATE 1-8-90  
SUBDIVISION NAME ASHTON WOODS APARTMENTS SECTION/AREA PARCEL 423  
PLAT NO. BLOCK NO. ZONE TAX/ZONE ELEC/DIST CENSUS TR  
WATER CODE SEWER CODE

STV/LYON ASSOCIATES  
ENGINEERS · SURVEYORS · PLANNERS  
21 GOVERNOR'S COURT  
BALTIMORE, MD 21207  
(301-944-9112)  
DRAWN BY: K.E.B. DESIGNED BY: E.A.S.  
CHECKED BY: P.C.R. JOB NUMBER: 8215

STORM DRAIN PROFILES  
ASHTON WOODS  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND  
AS-BUILT  
SHEET NO. 28 OF 32  
SCALE: AS SHOWN  
DATE: JUNE 7, 1989  
1ST ELECTION DISTRICT  
SDP 87-254



**PARTIAL PLAN @ ENTRANCE**  
SCALE: 1"=10'

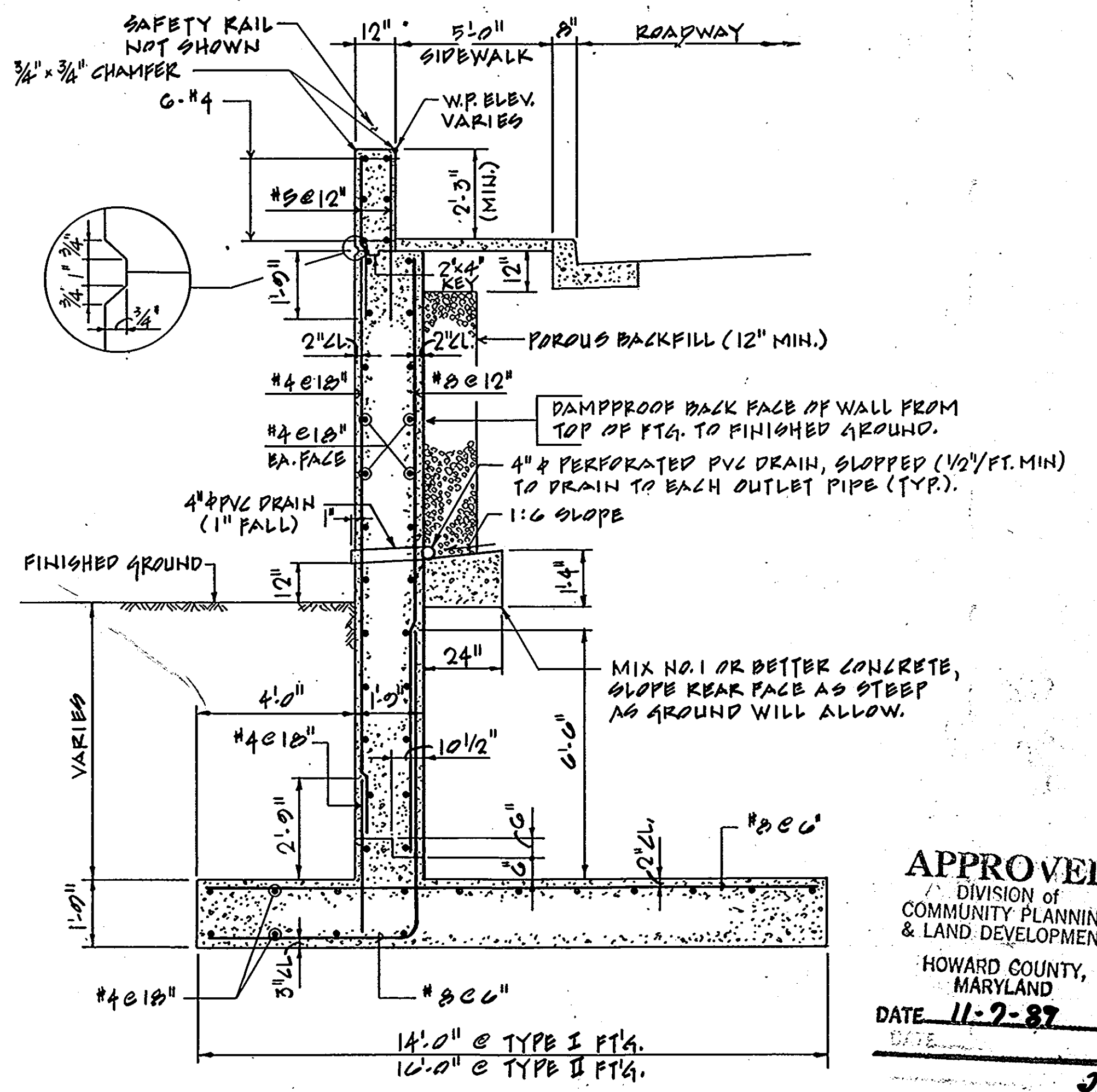
GEOMETRY TABLE			
LOCATION	STATION	OFFSET	REMARKS
W.P.1	0+99.10	26.34'RT.	P.C./BEGIN NORTH WALL
W.P.2	1+39.29	20.33'RT.	P.T.
W.P.3	1+75.14	17.67'RT.	END NORTH WALL
W.P.4	1+00.03	26.14'LT.	BEGIN SOUTH WALL
W.P.5	1+21.20	22.72'LT.	P.C.
W.P.6	1+62.14	17.67'LT.	P.T.
W.P.7	1+75.14	17.67'LT.	END SOUTH WALL

**CURVE DATA**

Ø OAKTON LANE	NORTH WALL	SOUTH WALL
Δ = 37°-13'-44"LT.	Δ = 28°-46'-46"LT.	Δ = 37°-13'-44"LT.
Dc = 49°-49'-21"	Dc = 58°-45'-46"	Dc = 107°-46'-24"
R = 115.00'	R = 97.50'	R = 53.16'
T = 38.73'	T = 25.02'	T = 17.91'
L = 74.72'	L = 48.98'	L = 34.54'
E = 6.35'	E = 3.16'	E = 2.93'

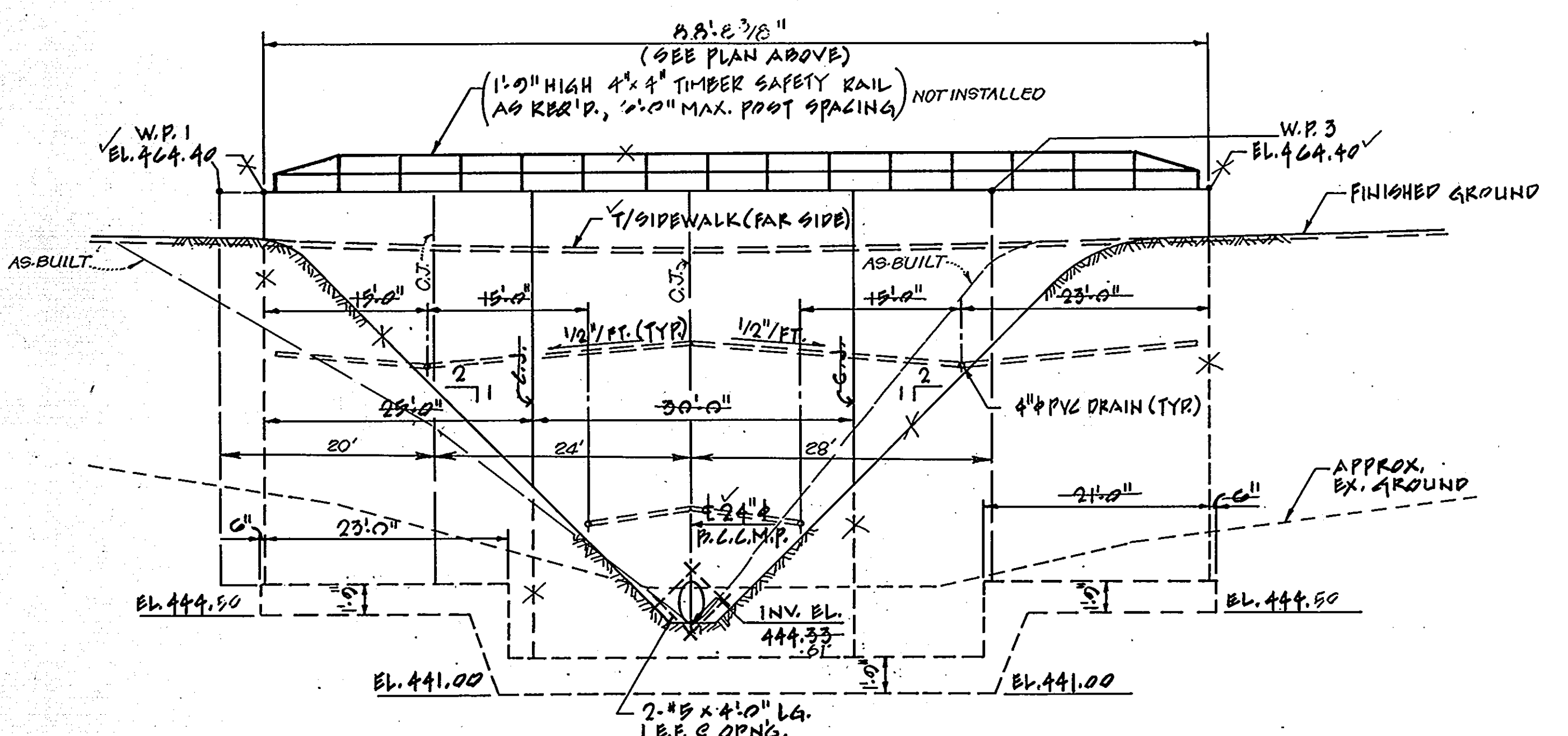
**GENERAL NOTES**

1. THE MINIMUM COMPRESSIVE STRENGTH OF REINFORCED CONCRETE @ 28 DAYS,  $f_c = 3,000$  P.S.I.
2. DEFORMED REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60,  $F_y = 60$  K.S.I.
3. DESIGN SOIL BEARING PRESSURE = 3,000 P.S.I.
4. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DWGS. FOR REIN. STEEL TO THE ENGINEER, STV/LYON, FOR REVIEW.

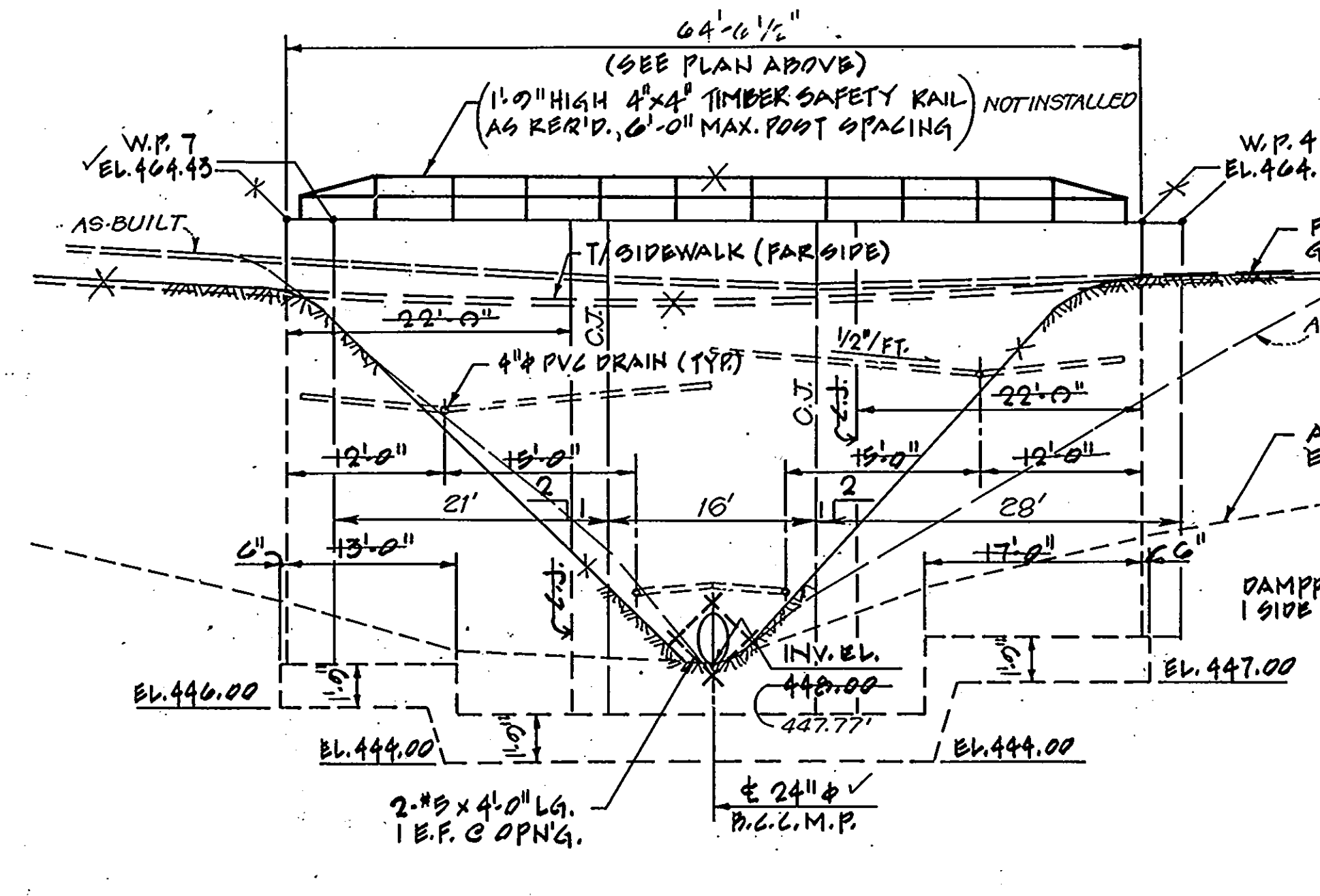


**TYPICAL SECTION THRU WALL**  
SCALE: 3/8"=1'-0"

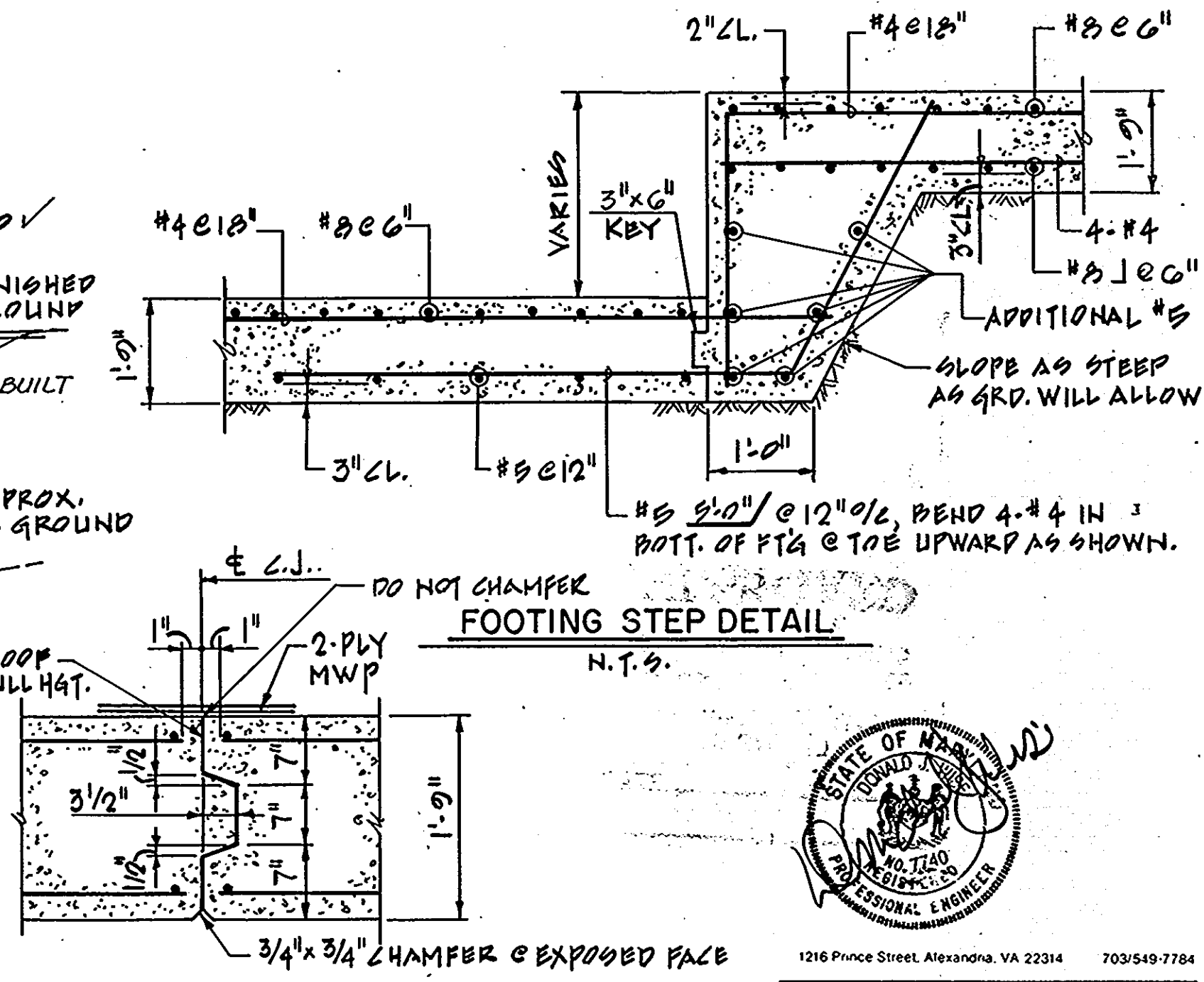
**APPROVED**  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE 11-2-87  
DATE \_\_\_\_\_  
\_\_\_\_\_ J.S.



**ELEVATION - NORTH WALL (LOOKING SOUTH)**  
SCALE: 1"=10' HORIZ. / 1"=5' VERT.



**ELEVATION - SOUTH WALL (LOOKING NORTH)**  
SCALE: 1"=10' HORIZ. / 1"=5' VERT.



**CONTRACTION JOINT DETAIL**  
N.T.S.



1216 Prince Street, Alexandria, VA 22314 703/549-7784

**Land Design**  
Landscape Architecture Land Planning  
Urban Design

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

DATE 12/18/89  
SIGNATURE OF ENGINEER \_\_\_\_\_

**DEVELOPER'S CERTIFICATE**  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

DATE 6-6-89  
SIGNATURE OF DEVELOPER \_\_\_\_\_

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

DATE 1/2/90  
SIGNATURE OF REVIEWER \_\_\_\_\_  
U.S. SOIL CONSERVATION SERVICE

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

DATE 1/2/90  
SIGNATURE OF APPROVER \_\_\_\_\_  
DISTRICT HOWARD SOIL CONSERVATION DISTRICT

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE 1/10/90  
SIGNATURE OF PLANNING DIRECTOR \_\_\_\_\_

DATE 1/1/90  
SIGNATURE OF CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION \_\_\_\_\_

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

DATE 1-9-90  
SIGNATURE OF HEALTH OFFICER \_\_\_\_\_

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.

DATE 1/8/90  
SIGNATURE OF DIRECTOR, PUBLIC WORKS \_\_\_\_\_

DATE 1-8-90  
SIGNATURE OF CHIEF, BUREAU OF ENGINEERING \_\_\_\_\_

SUBDIVISION NAME ASHTON WOODS	SECTION/AREA 423	PARCEL 423
PLAT NO.	BLOCK NO.	ZONE
	R-8A	31
	TAX/ZONE	ELEC/DIST
	1	1
	CENSUS TR	
WATER CODE	SEWER CODE	

STV/LYON ASSOCIATES  
ENGINEERS · SURVEYORS · PLANNERS  
21 GOVERNOR'S COURT  
BALTIMORE, MD 21207  
(301-944-9112)

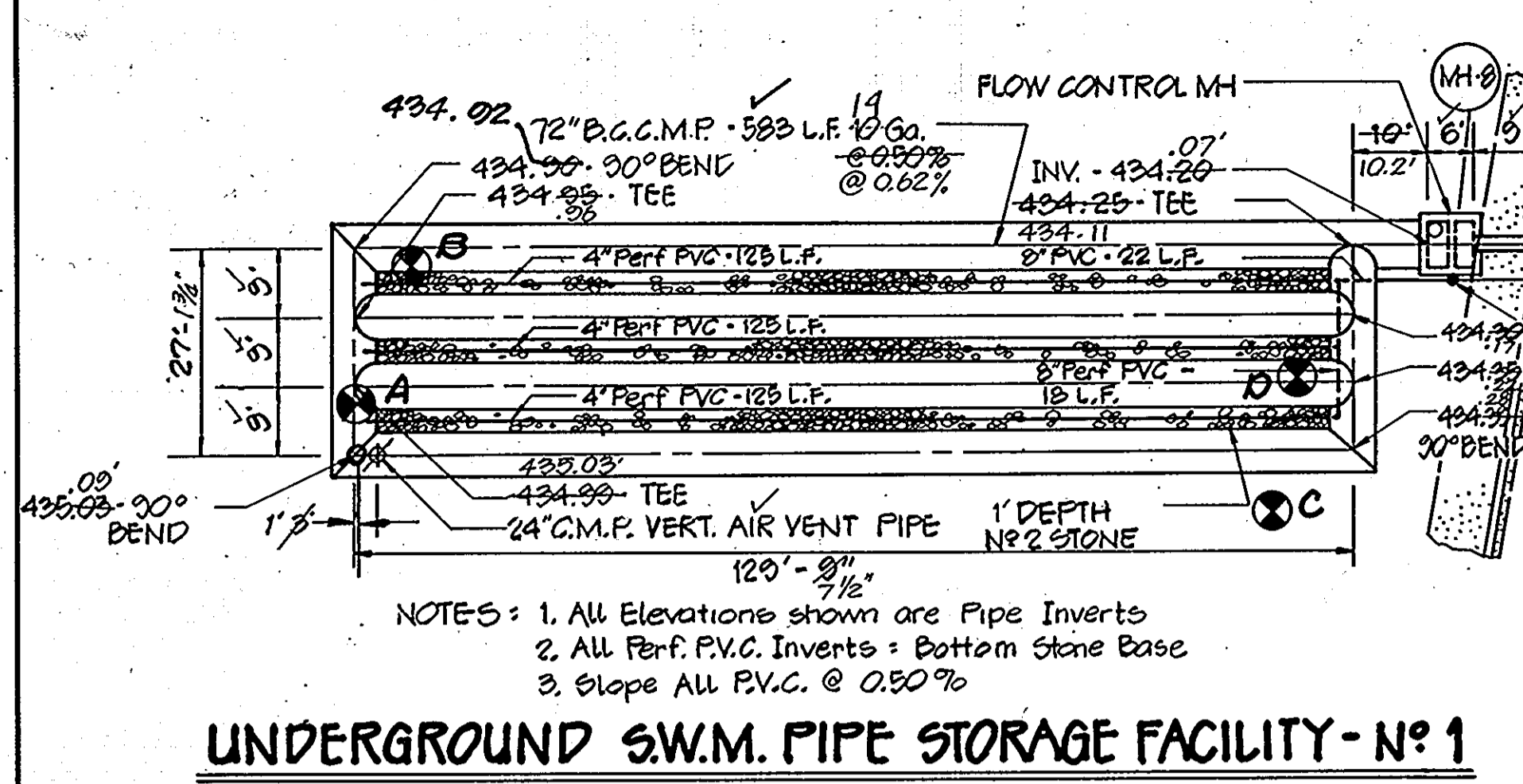
DRAWN BY: J.D.R.  
DESIGNED BY: W.E.S.

CHECKED BY: W.E.S.  
JOB NUMBER: 8215

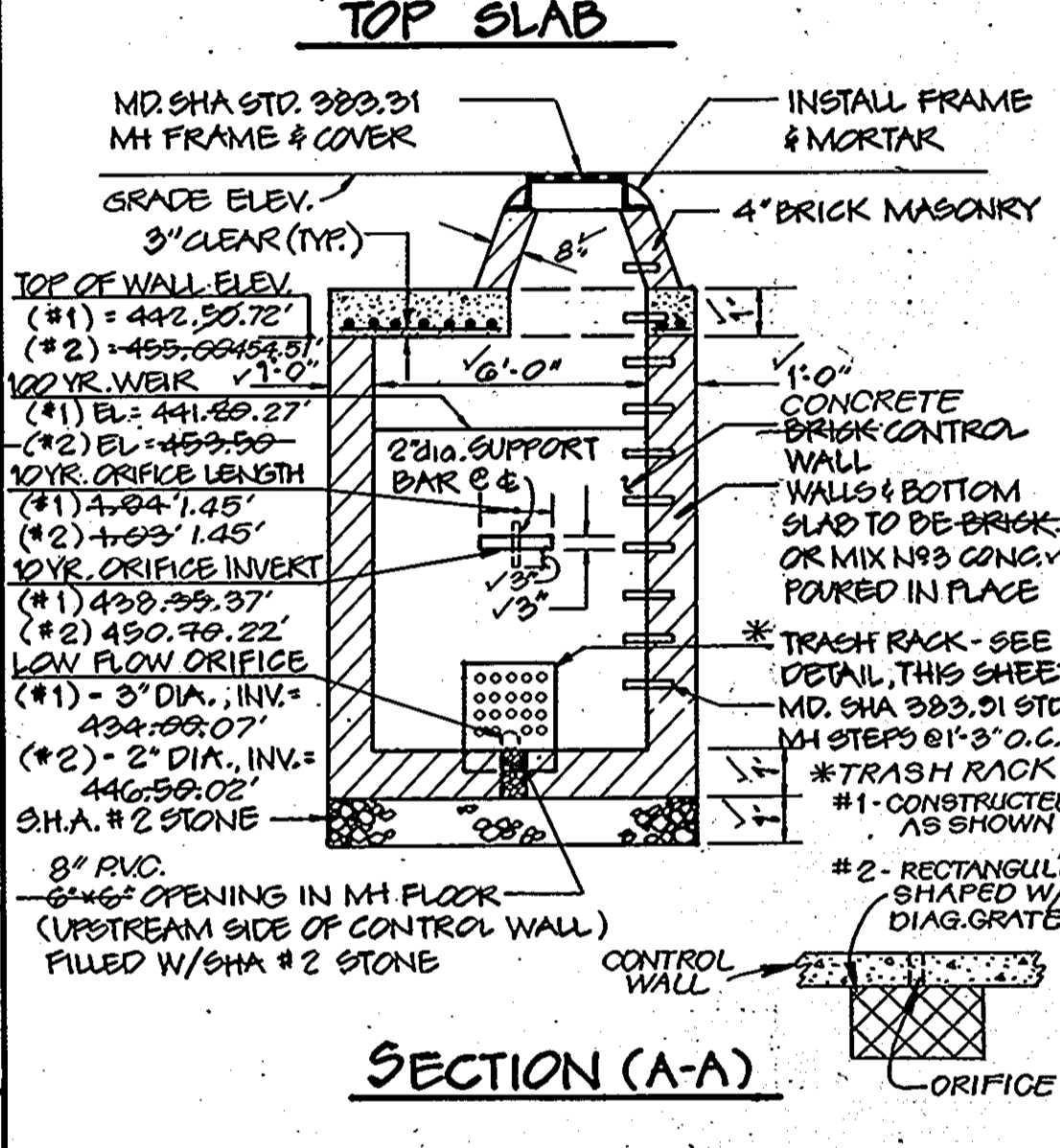
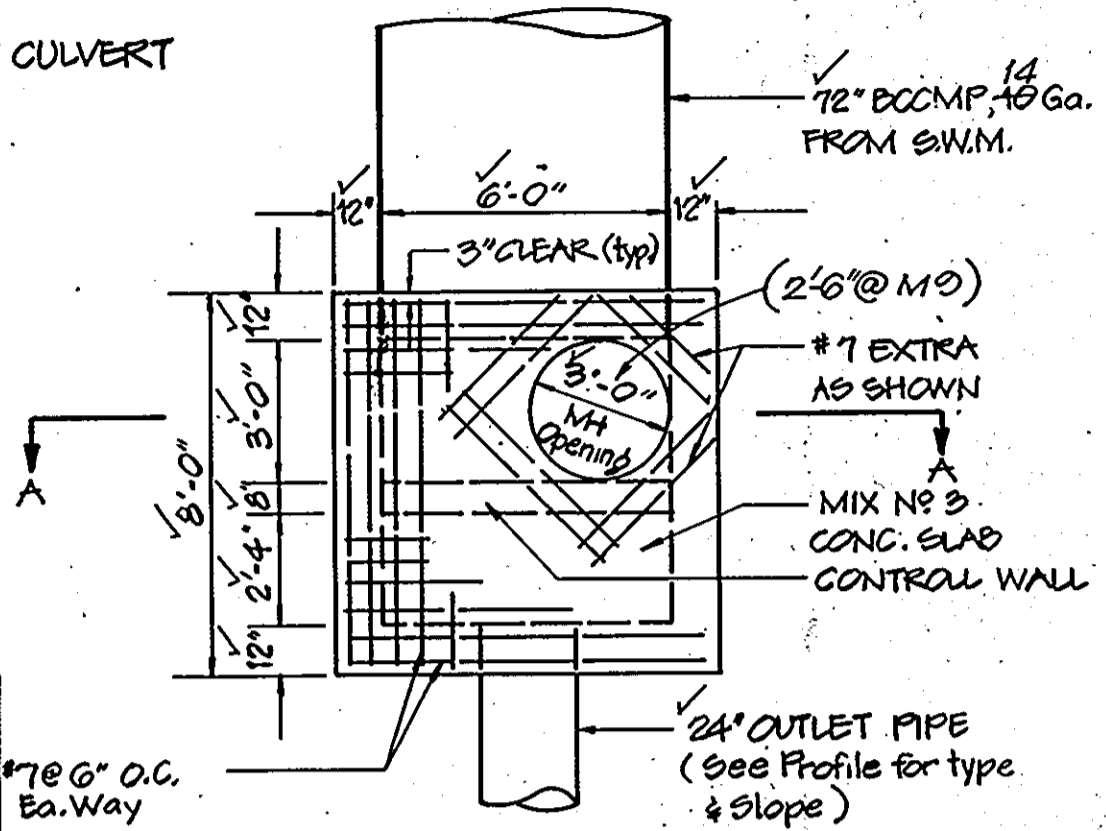
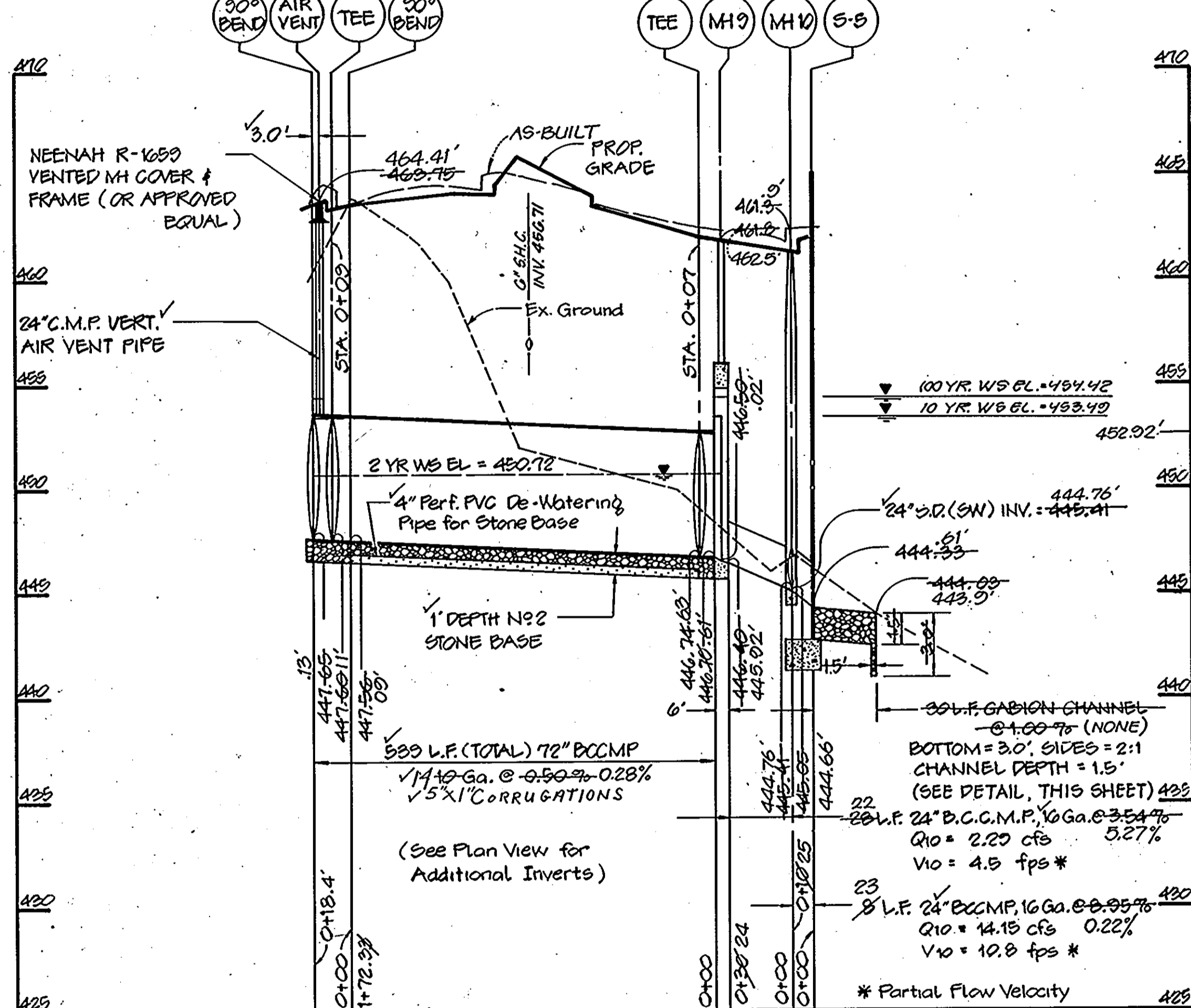
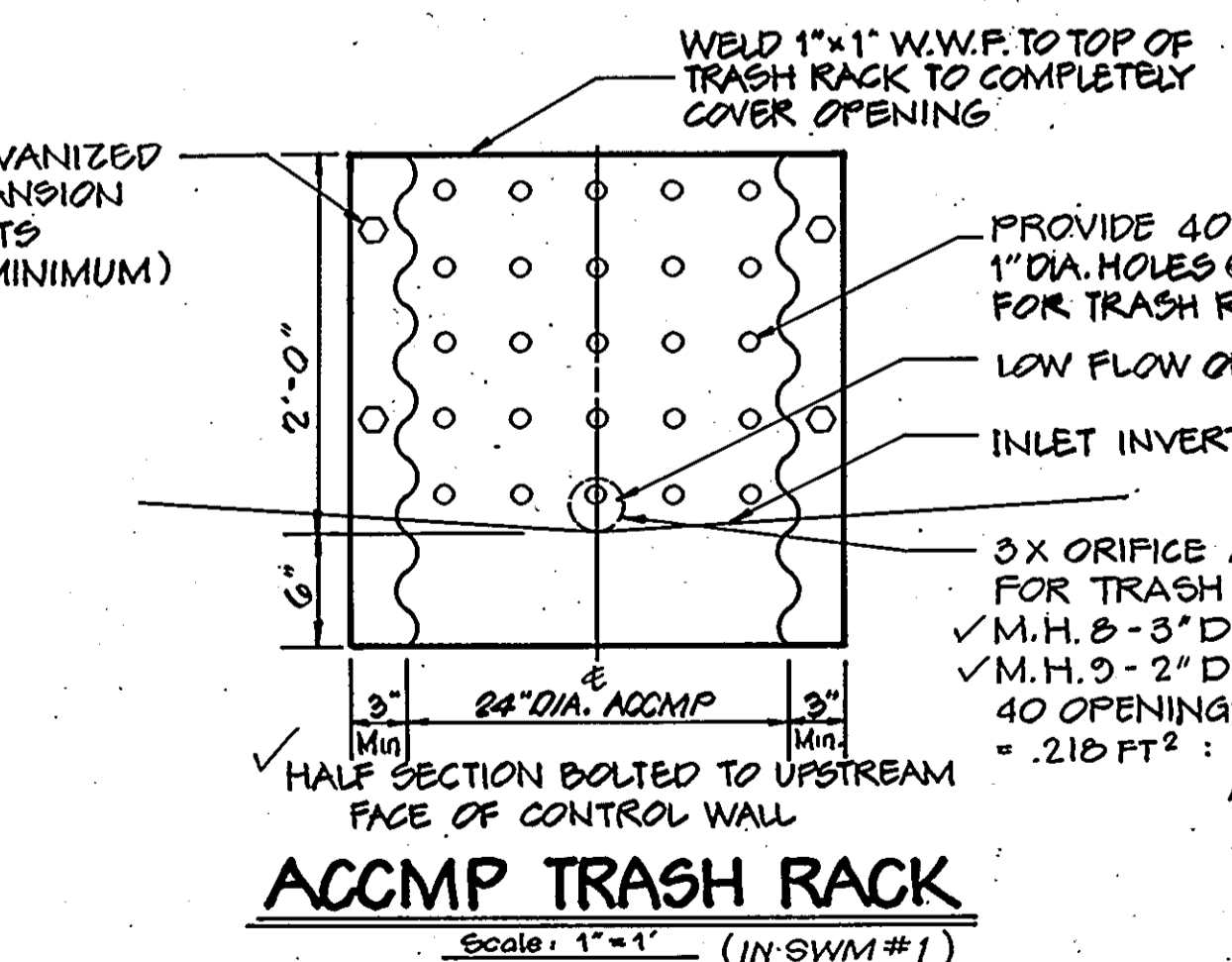
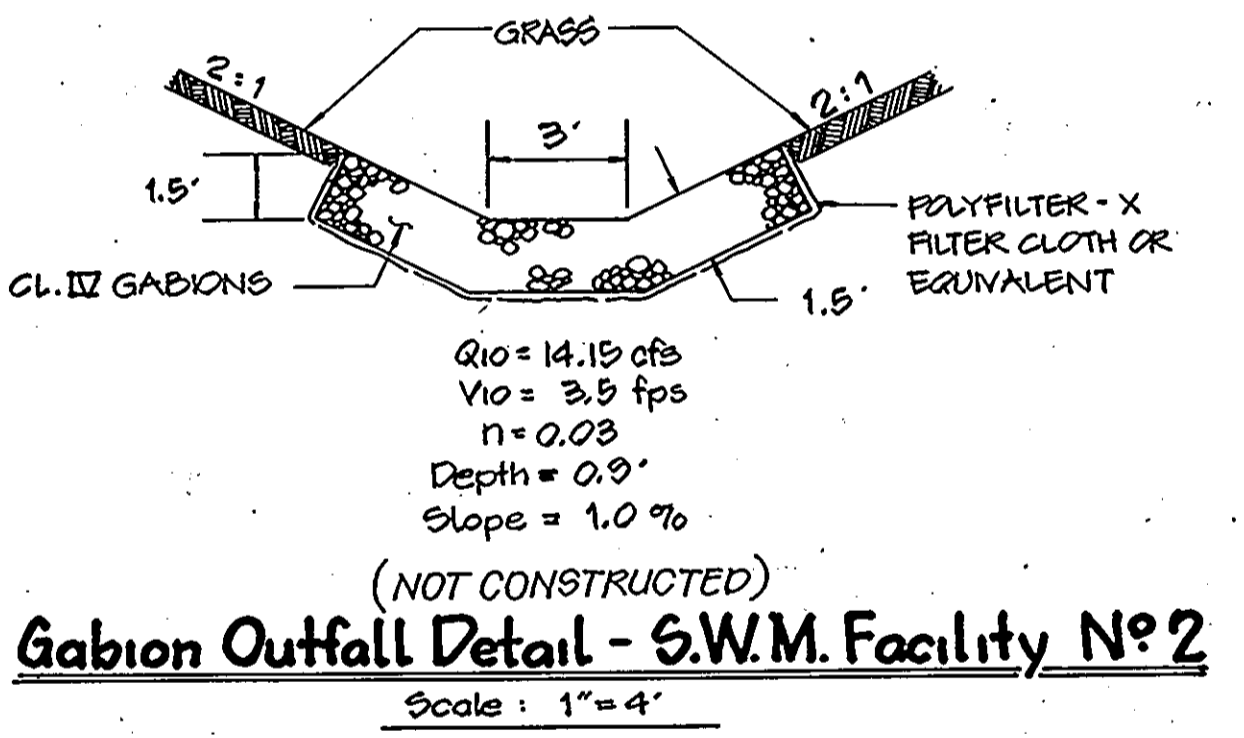
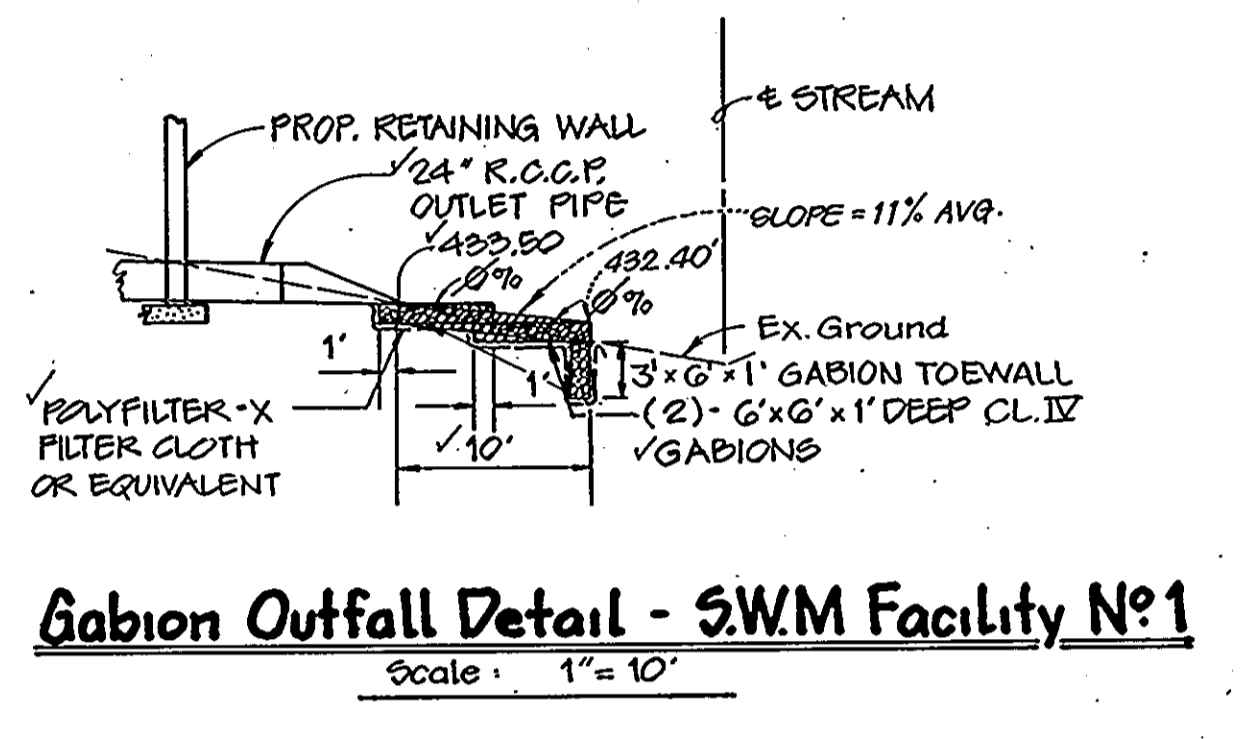
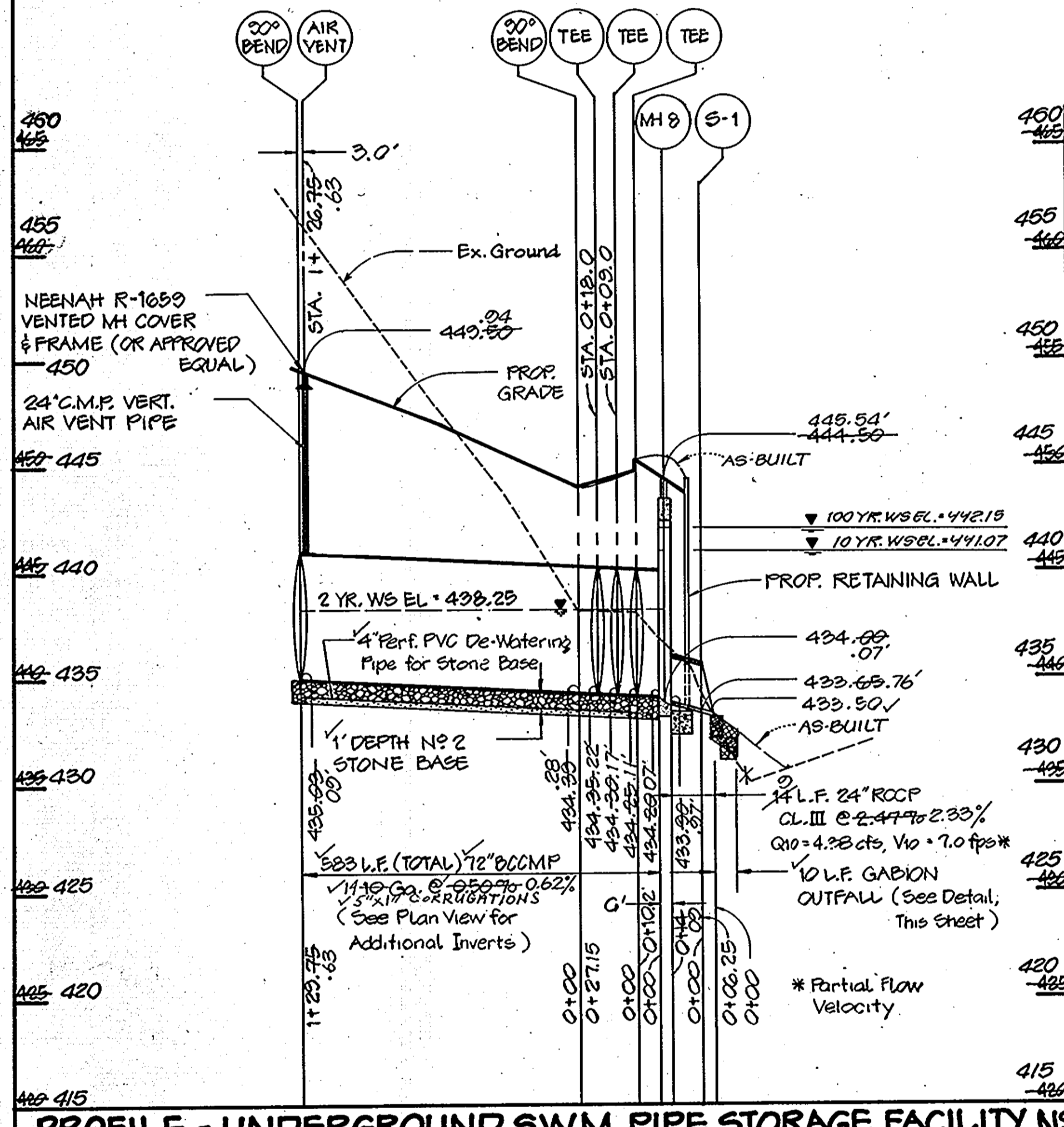
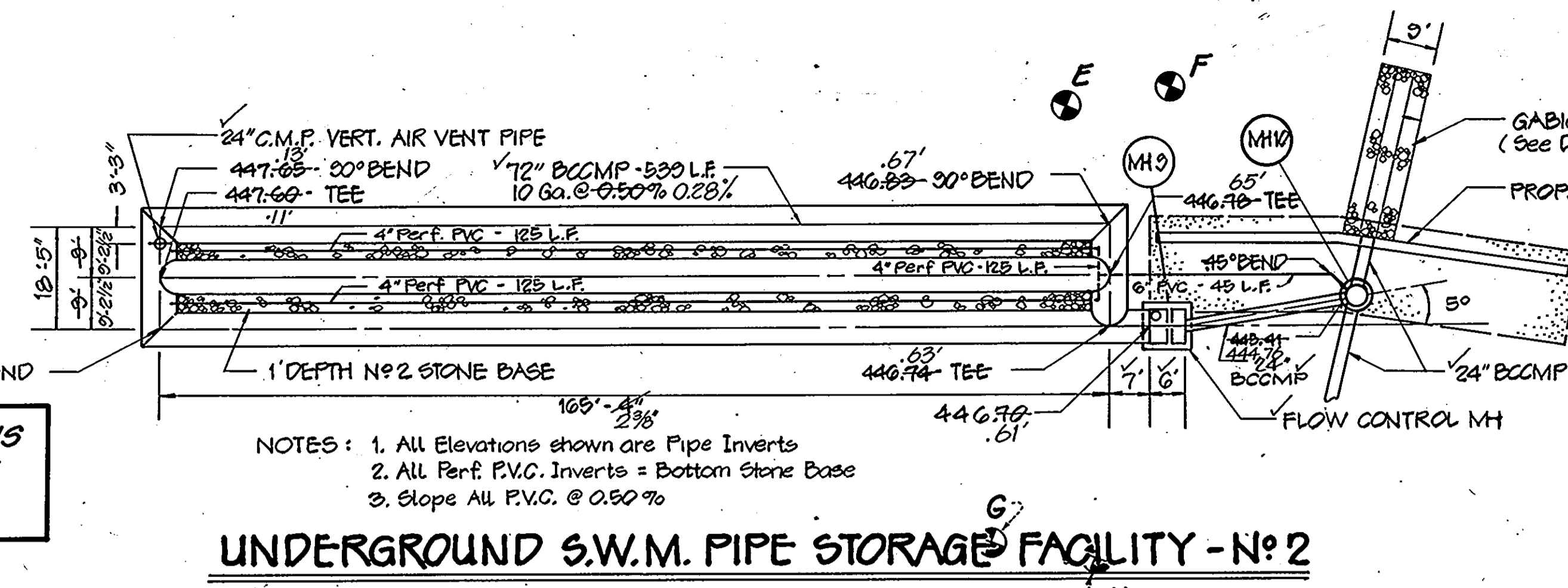
**CULVERT PIPE ELEVATIONS & DETAILS**  
**ASHTON WOODS**  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND

AS-BUILT 2-20-92  
SHEET NO. 29 OF 35  
SCALE: AS SHOWN  
DATE: JUNE 7, 1989  
1ST ELECTION DISTRICT

SDP 87-254



**NOTE: BORING LOCATIONS ALSO SHOWN ON SHEET 26 OF 33.**



**FLOW CONTROL MH DETAIL**  
S.W.M. FACILITIES No. 1 & No. 2  
Scale: 1" = 4'

**APPROVED**  
DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT  
HOWARD COUNTY, MARYLAND  
DATE: 11-7-87



1216 Prince Street, Alexandria, VA 22314 703/549-1774  
**Land Design**  
Landscape Architecture Land Planning Urban Design

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

6/6/89  
DATE

**DEVELOPER'S CERTIFICATE**  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

6-6-89  
DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

James M. Helm / JMH 1/2/90  
DATE

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

John R. Robertson / JRR 1/2/90  
DATE

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Planning Director: 1/19/90  
DATE

Chief, Division of Land Development, and Zoning Administration: 1/19/90  
DATE

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

John P. ... 1-9-90  
DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.

Director, Public Works: 1/8/90  
DATE

Chief, Bureau of Engineering: 1-8-90  
DATE

SUBDIVISION NAME	SECTION/AREA	PARCEL
ASHTON WOODS	423	423

PLAT NO.	BLOCK NO.	ZONE	TAX / ZONE	ELEC DIST	CENSUS TR
		R-5B	31	1	

WATER CODE	SEWER CODE

STV/LYON ASSOCIATES  
ENGINEERS · SURVEYORS · PLANNERS  
21 GOVERNORS COURT  
BALTIMORE, MD 21207  
(301-944-9112)

DRAWN BY: R.M.  
DESIGNED BY: L.P.B.  
CHECKED BY: P.C.R.  
JOB NUMBER: 8215

**S.W.M. FACILITIES Nos. 1 & 2**  
**ASHTON WOODS**  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND

AS-BUILT  
2-20-92  
DATE: JUNE 7, 1989  
SHEET NO. 30 OF 42  
SCALE: AS SHOWN  
1ST ELECTION DISTRICT

SDP 87-254



SOIL CONSERVATION SERVICE  
MARYLAND  
CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to ponds within the scope of the Standard for practice 378.

I. SITE PREPARATION

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

II. EARTH FILL

Material

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

Placement

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

Compaction

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with the equipment used.

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

Cutoff Trench

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

III. STRUCTURAL BACKFILL

Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS

All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

1. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Lay. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

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

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Coupling bands, anti-seep collars, and sections, etc. must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be less than 9 and greater than 4.

- Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Watertight coupling bands or flanges shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to the completely watertight. Dimple bands are not considered to be watertight.
- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.
- Backfilling shall conform to structural backfill as shown above.
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

B. Reinforced Concrete Pipe

- Materials - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. An approved equivalent is AWWA Specification C-301.
- Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3", or as shown on the drawings.
- Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.
- Backfilling shall conform to structural backfill as shown above.
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

V. CONCRETE

1. Materials

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

- Design Mix - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. Gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.
- Mixing - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the

speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

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

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

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

- Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.
- Consolidating - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.
- Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.
- Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.
- Placing Temperature - Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature rising.

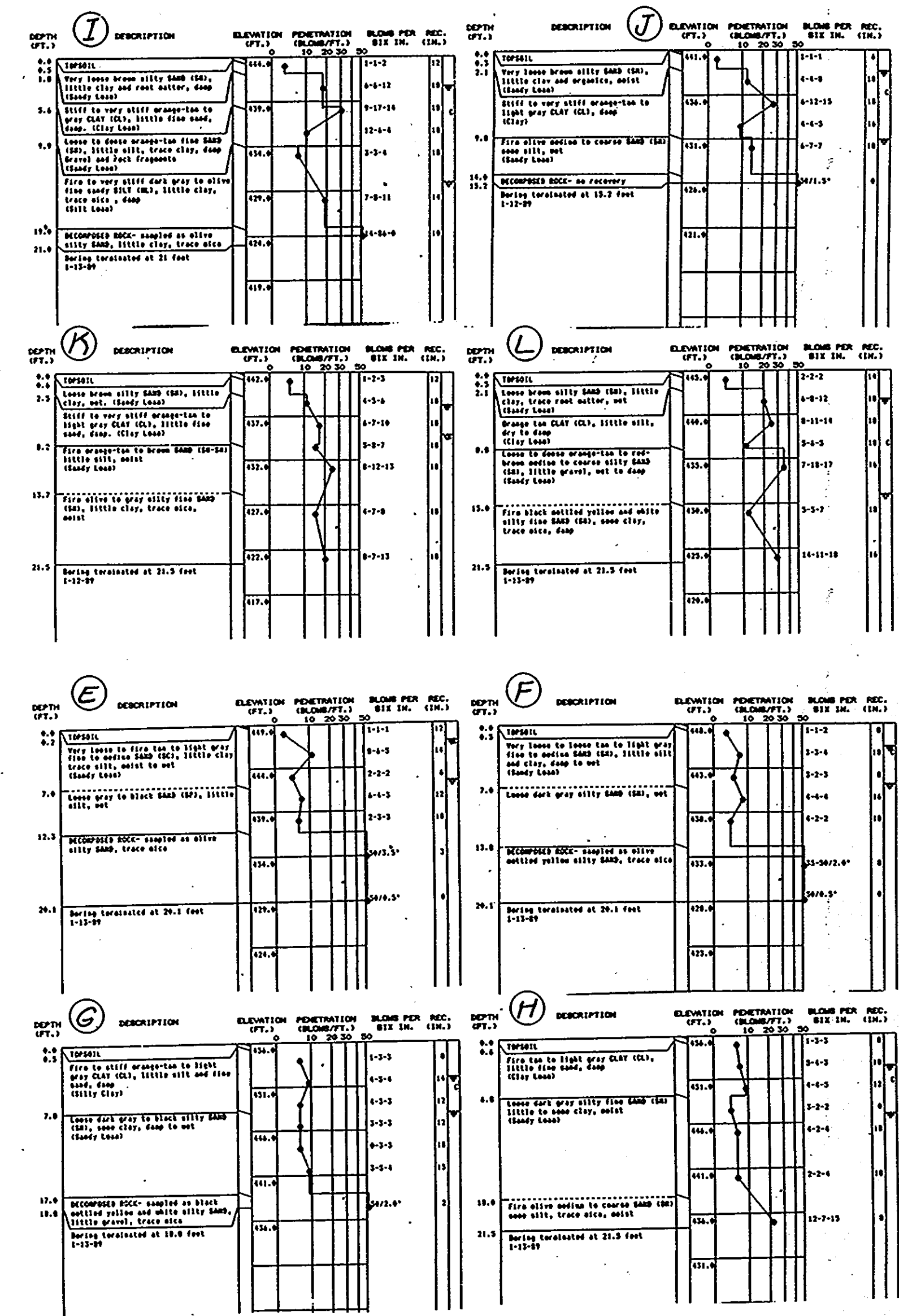
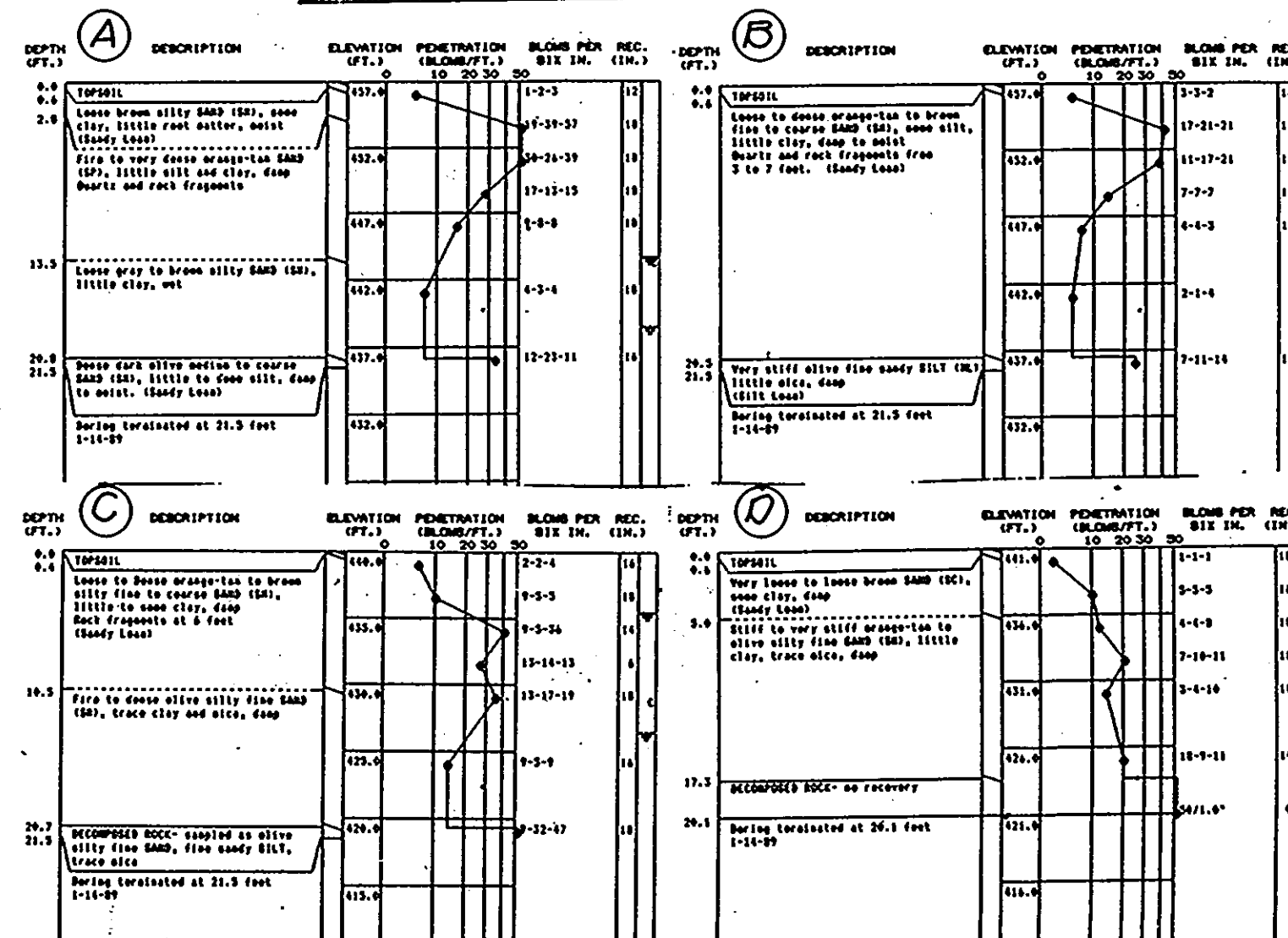
VI. STABILIZATION

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

VII. EROSION AND SEDIMENT CONTROL

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

TEST BORING RECORD



(A) BORING 10 - SEE S.W.M. PLAN FOR LOCATION.

NOTE: SEE STORMWATER MANAGEMENT COMPUTATIONS FOR LABORATORY TESTS PERFORMED ON THE ABOVE BORINGS.

APPROVED  
DIVISION OF  
COMMUNITY PLANNING  
& LAND DEVELOPMENT  
HOWARD COUNTY,  
MARYLAND  
DATE: 11-7-89



1216 Prince Street, Alexandria, VA 22314 703/549-7784

Land Design  
Landscape Architecture Land Planning  
Urban Design

ENGINEER'S CERTIFICATE  
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
STATE OF MARYLAND  
REGISTERED PROFESSIONAL ENGINEER  
DATE: 6/6/89

DEVELOPER'S CERTIFICATE  
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."  
DATE: 6-6-89

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
DATE: 1/6/90  
DATE: 1/2/90

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
PLANNING DIRECTOR  
DATE: 1/16/90  
DATE: 1/16/90  
APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.  
DATE: 1-9-90

APPROVED: DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS.  
DIRECTOR, PUBLIC WORKS  
DATE: 1/8/90  
DATE: 1-8-90  
SUBDIVISION NAME: ASHTON WOODS  
PLAT NO.: 423  
BLOCK NO.: 31  
SECTION/AREA: 1  
PARCEL: 423  
WATER CODE: 1  
SEWER CODE: 1

STV/LYON ASSOCIATES  
ENGINEERS · SURVEYORS · PLANNERS  
21 GOVERNORS COURT  
BALTIMORE, MD 21207  
(301 - 944 - 9112)  
DRAWN BY: L.P.B.  
DESIGNED BY: L.P.B.  
CHECKED BY: P.C.R.  
JOB NUMBER: 8215

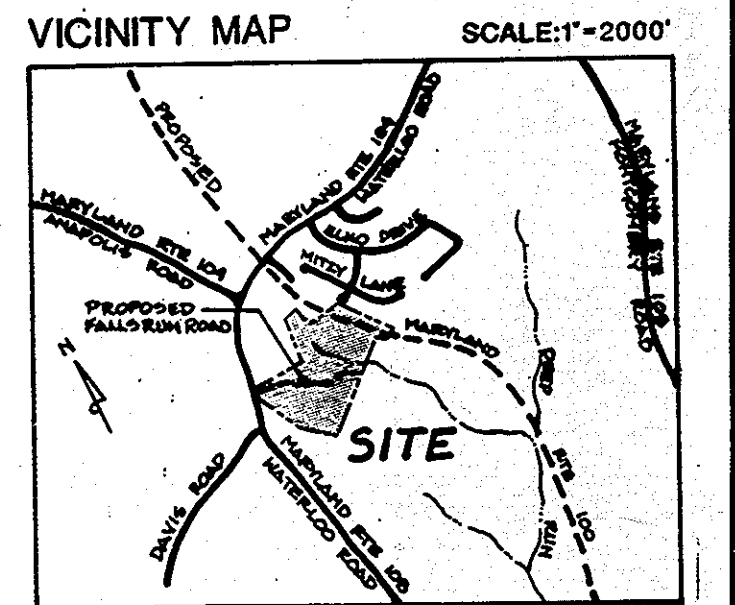
S.W.M. NOTES AND BORING LOGS  
ASHTON WOODS  
TAX MAP #31, PARCEL 423, LOT 2  
HOWARD COUNTY, MARYLAND  
SHEET NO. 32 OF 38-42  
SCALE: AS SHOWN  
DATE: JUNE 7, 1989  
1ST ELECTION DISTRICT  
SDP 89-254



# ASHTON WOODS

Tax Map #31 Parcel 423 Lot 2  
 Second Election District  
 Plat #7522 & 7523 Zoning R-SA-8  
 Howard County, Maryland

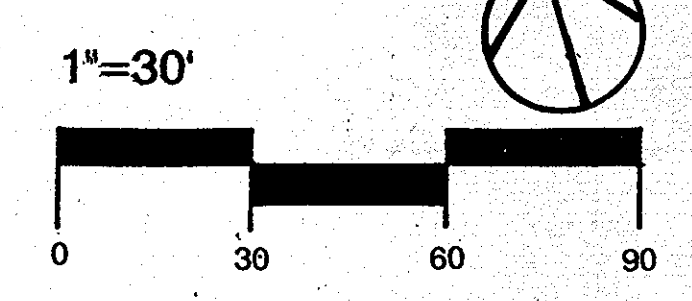
An Apartment Community  
 by  
 Summit Properties



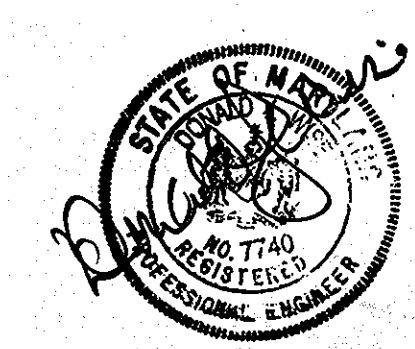
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  - BUILDING TYPE: (Symbol)
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  - PROPOSED SPOT ELEVATION: O-35.50
  - HIGH POINT: HP
  - BREAK POINT: BP
  - PROPOSED SMALE: (Symbol)
  - EXISTING CONTOURS: (Symbol)
  - STAIRS W/ ELEVATIONS: (Symbol)
  - TIMBER RETAINING WALLS W/ ELEVATIONS (SNG = STEP WITH GRADE): (Symbol)
  - WOOD WALK OVER FLUME: (Symbol)
  - PEDESTRIAN BRIDGE OVER SMALE: (Symbol)
  - EXISTING TREES TO REMAIN: (Symbol)
  - HANDICAP UNIT: (Symbol)
  - HANDICAP PARKING: (Symbol)
  - CHECKER PLATE: (Symbol)
  - STEP WALL: (Symbol)
  - WOOD DECK: (Symbol)
  - LIMITS OF DISTURBANCE: (Symbol)
  - CRITICAL SLOPES: (Symbol)
  - FIRE HYDRANT: (Symbol)
  - EXISTING 25% SLOPES: (Symbol)

OWNER / DEVELOPER:  
 SUMMIT PROPERTIES  
 203 KEY HIGHWAY  
 BALTIMORE, MARYLAND  
 (301) 234-0070

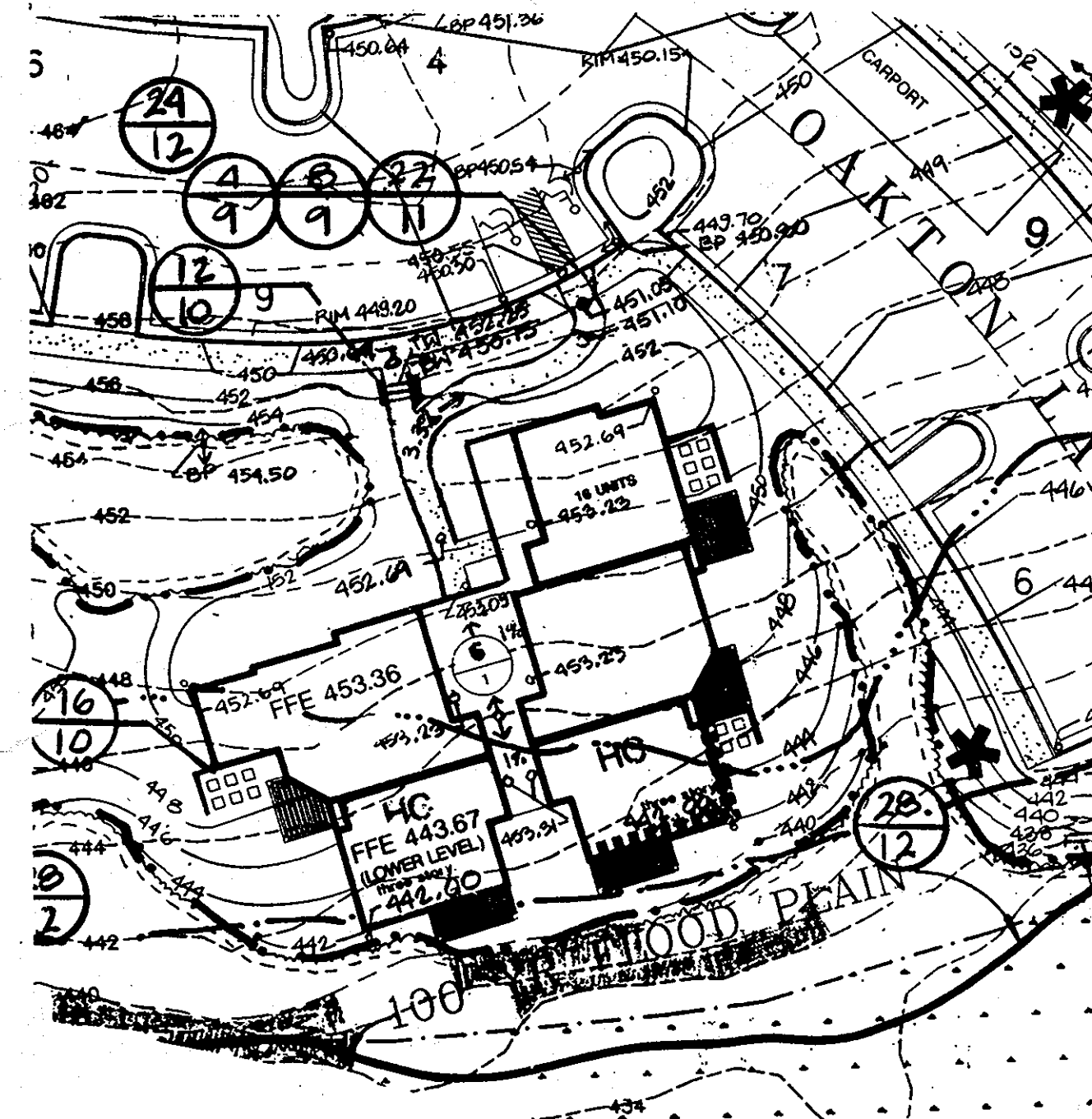
ENGINEER:  
 STV/LYON ASSOCIATES  
 21 GOVERNOR'S COURT  
 BALTIMORE, MARYLAND 21207  
 (301) 944-9112



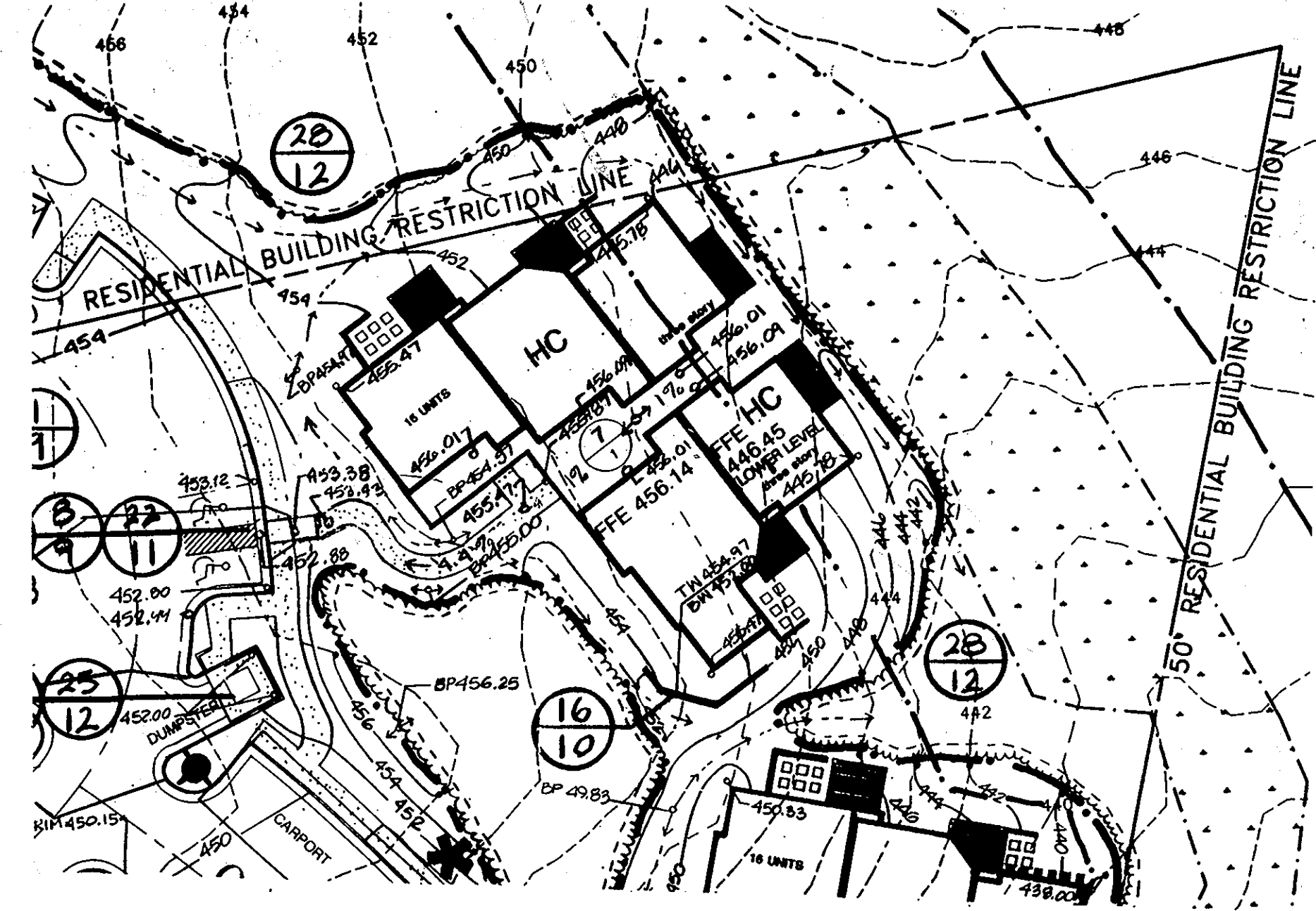
**APPROVED**  
 DIVISION OF  
 COMMUNITY PLANNING  
 & LAND DEVELOPMENT  
 HOWARD COUNTY,  
 MARYLAND  
 DATE: 11-7-89



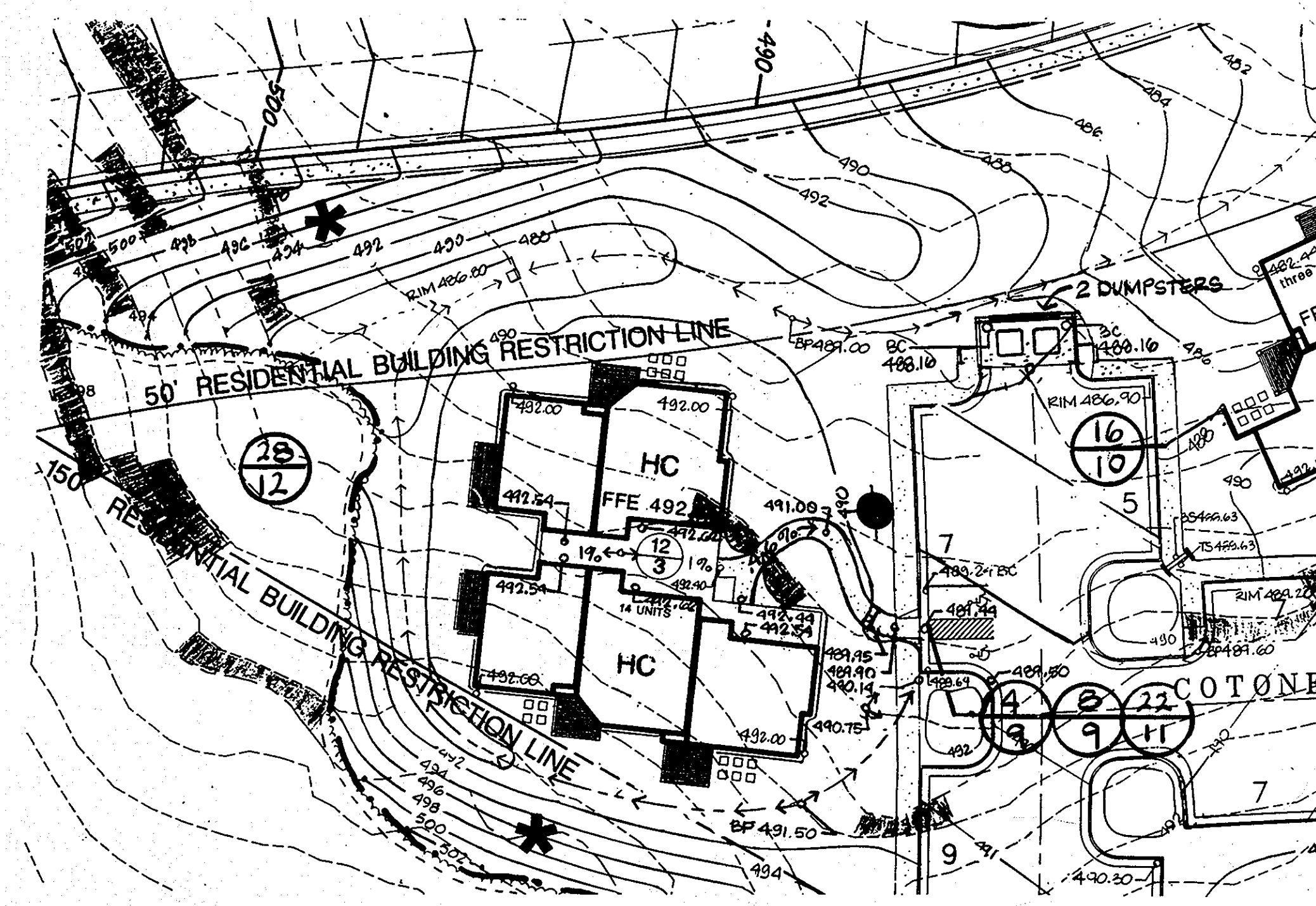
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 REVISIONS:



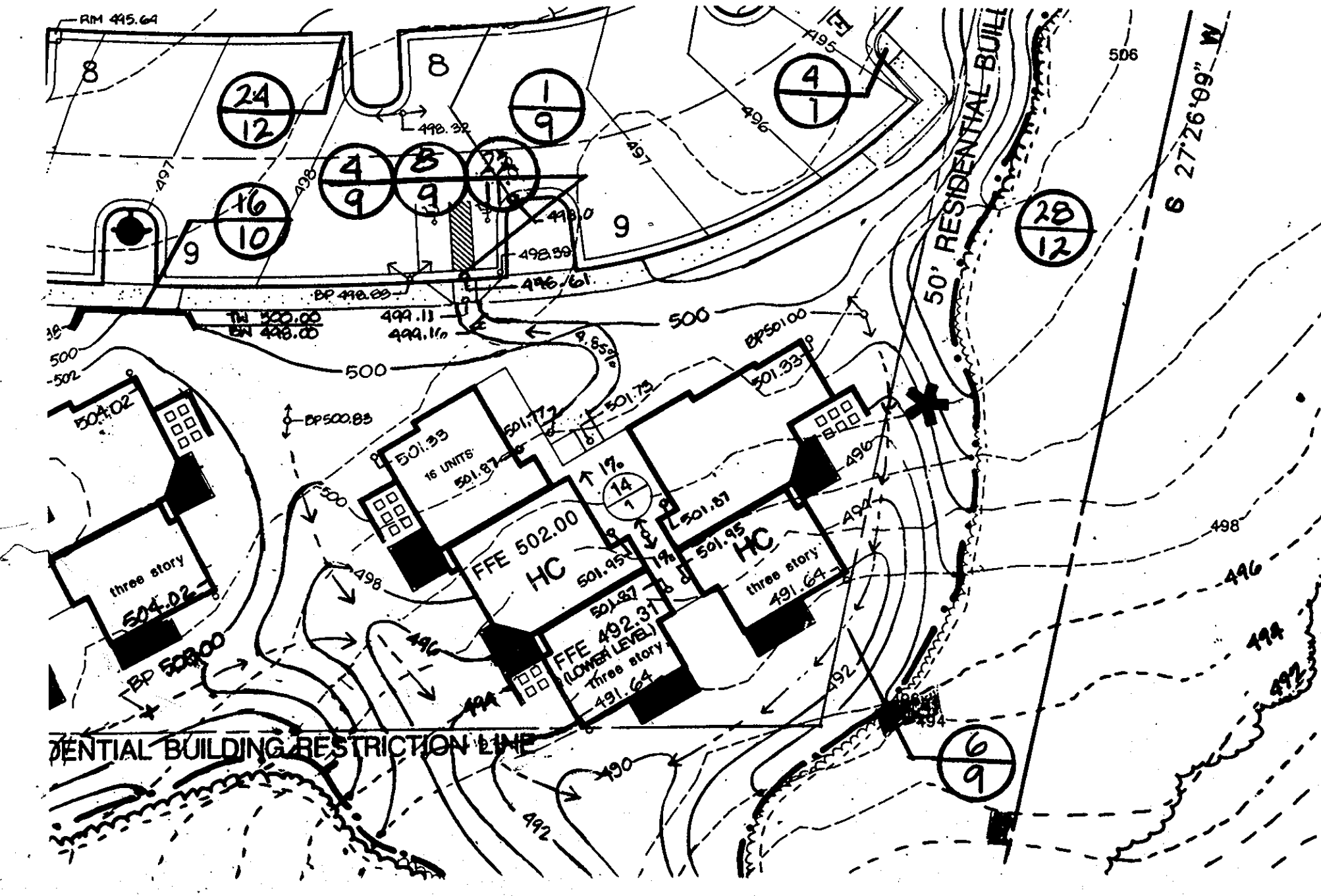
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**33A**



**31 BUILDING #7 GRADING**  
**33A**



**30 BUILDING #12 GRADING**  
**33A**



**32 BUILDING #14 GRADING**  
**33A**

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

*[Signature]*  
 SIGNATURE OF ENGINEER

12/18/89  
 DATE

**DEVELOPER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*[Signature]*  
 SIGNATURE OF DEVELOPER

6-6-89  
 DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*[Signature]* 1/2/90  
 U.S. SOIL CONSERVATION SERVICE DATE

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

*[Signature]* 1/2/90  
 DISTRICT HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 1/10/90  
 PLANNING DIRECTOR DATE

*[Signature]* 1/10/90  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR PUBLIC WATER AND SEWERAGE SYSTEMS.

*[Signature]* 1-9-90  
 HEALTH OFFICER DATE

APPROVED DEPARTMENT OF PUBLIC WORKS FOR PUBLIC WATER AND SEWER AND STORM DRAINAGE SYSTEMS AND ROADS

*[Signature]* 1/8/90  
 DIRECTOR, PUBLIC WORKS DATE

*[Signature]* 1-8-90  
 CHIEF, BUREAU OF ENGINEERING DATE

SUBDIVISION NAME		SECTION/AREA	PARCEL
ASHTON WOODS APARTMENTS			423
PLAT NO	BLOCK NO	TAX / ZONE	ELEC DIST
		31	2
WATER CODE		SEWER CODE	

OWNER	ASHTON WOODS APARTMENTS
DEVELOPER	SUMMIT PROPERTIES
ENGINEER	STV/LYON ASSOCIATES
DATE	11-7-89

01701 East Boulevard, Charlotte, NC 28203 704/333-0325  
 916 Prince Street, Alexandria, VA 22304 703/549-7784  
 0225 Hillsborough Street, Raleigh, NC 919/834-6127

**Land Design**  
 Landscape Architecture Land Planning

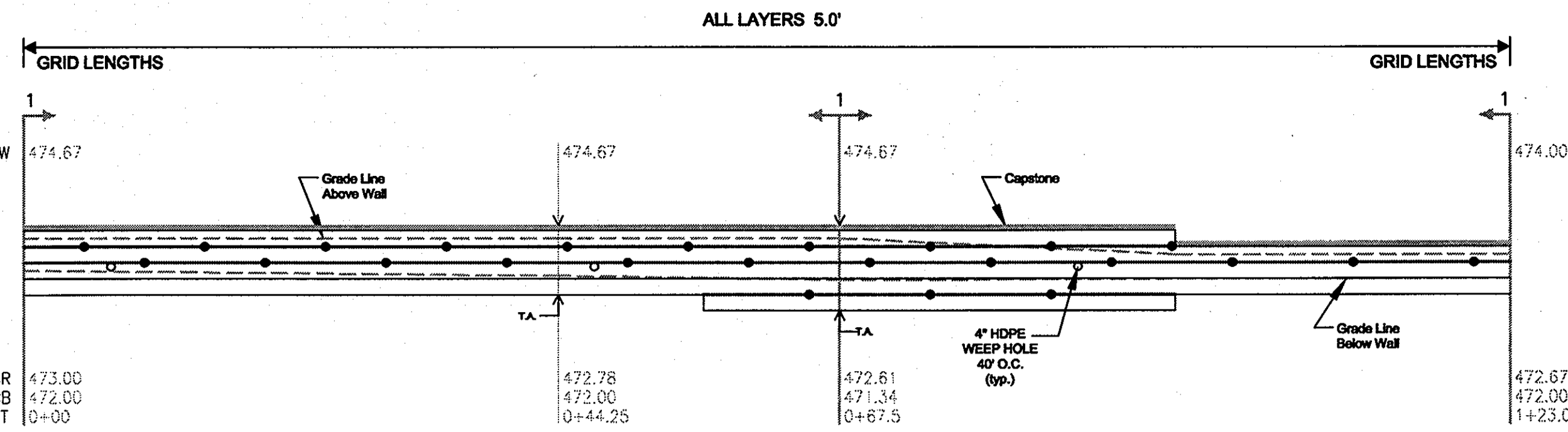
**SITE DETAILS**

SHEET NO: 33 OF 38/42

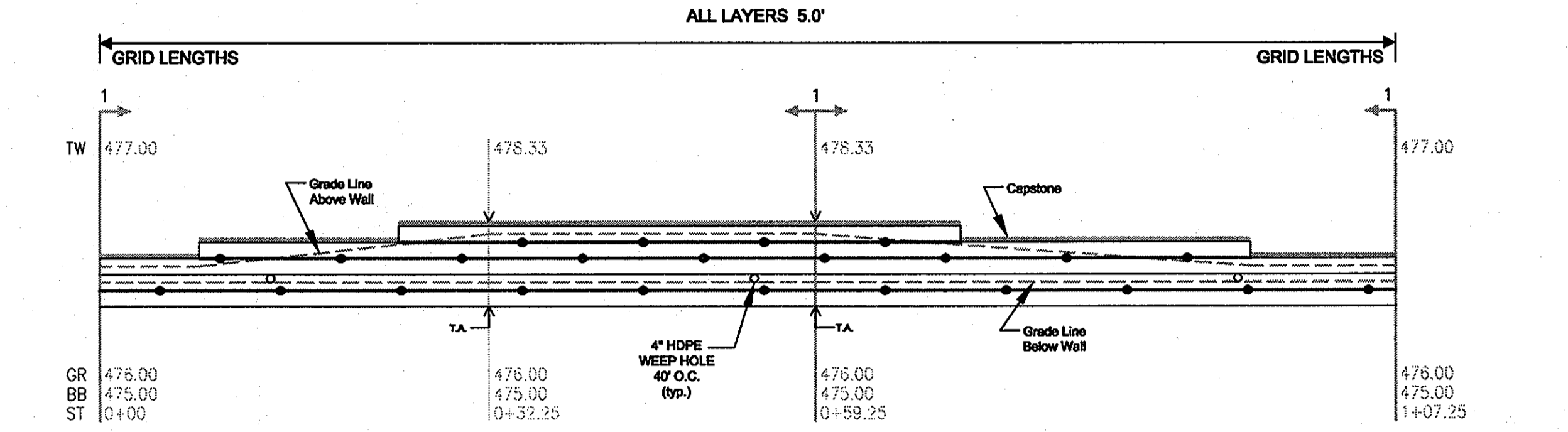
SDP 89-254



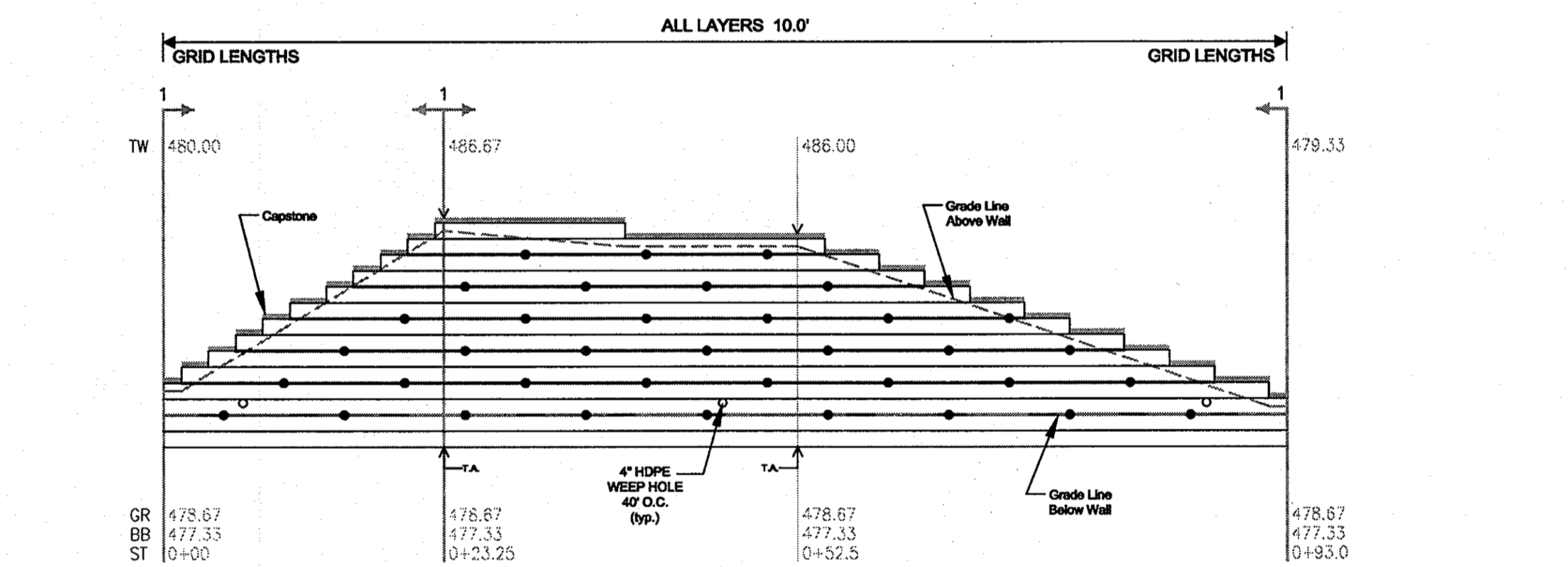
**WALL #1A PROFILE  
(W. OF CLUB HOUSE/LEASING OFFICE)**



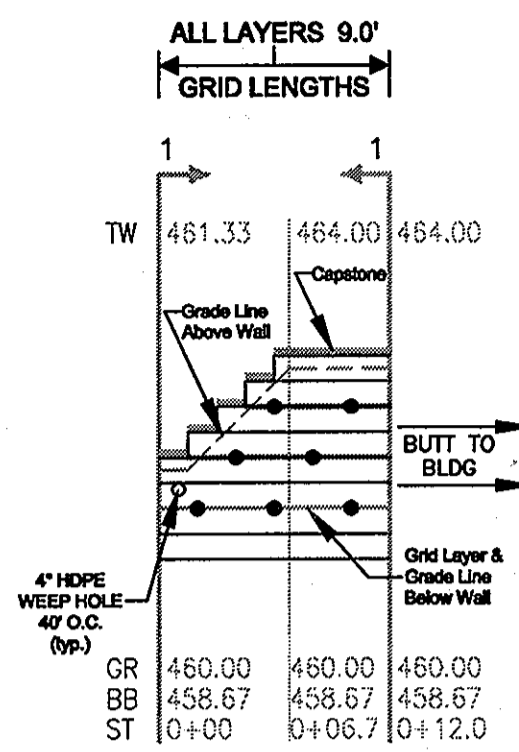
**WALL #1B PROFILE  
(W. OF CLUB HOUSE/LEASING OFFICE)**



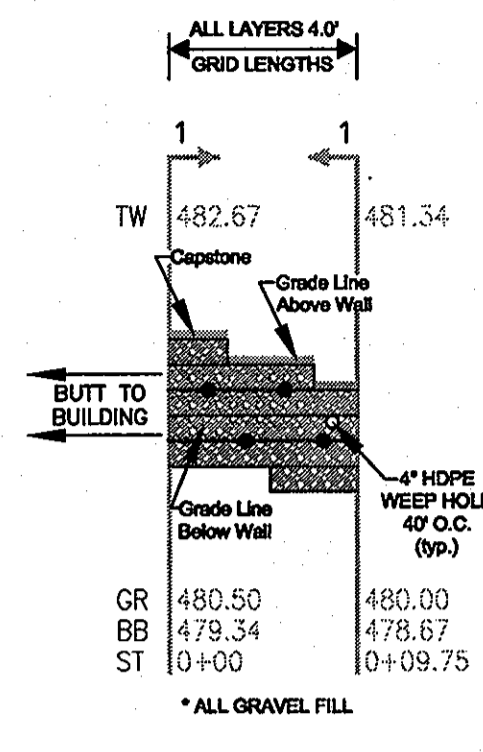
**WALL #1C PROFILE  
(W. OF CLUB HOUSE/LEASING OFFICE)**



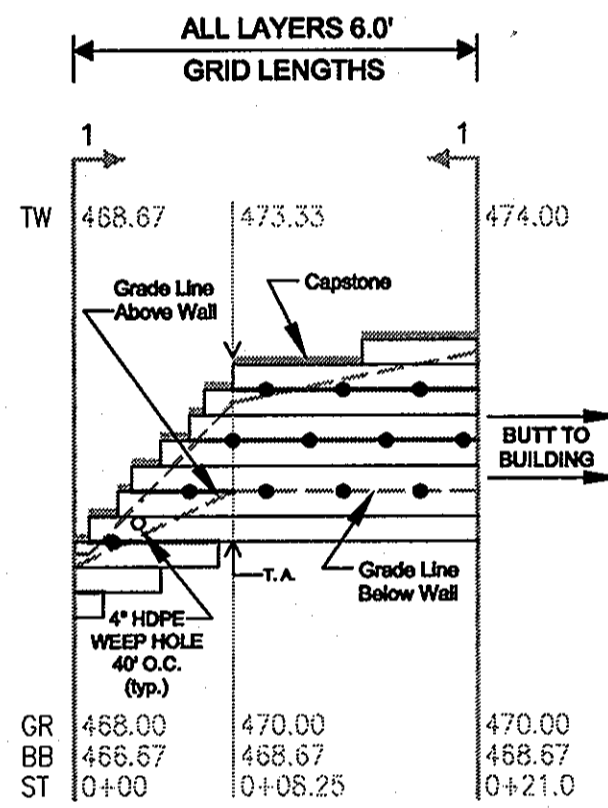
**WALL #2 PROFILE  
(S. OF WALLS 1A, 1B & 1C)**



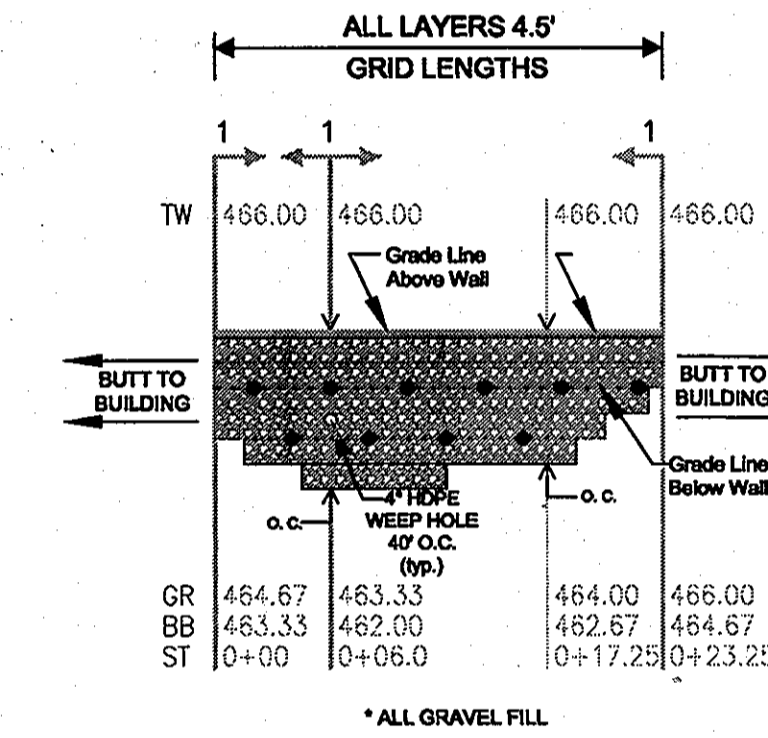
**WALL #3 PROFILE  
(BETWEEN BUILDINGS 1 & 2)**



**WALL #4 PROFILE  
(BETWEEN BUILDINGS 1 & 2)**



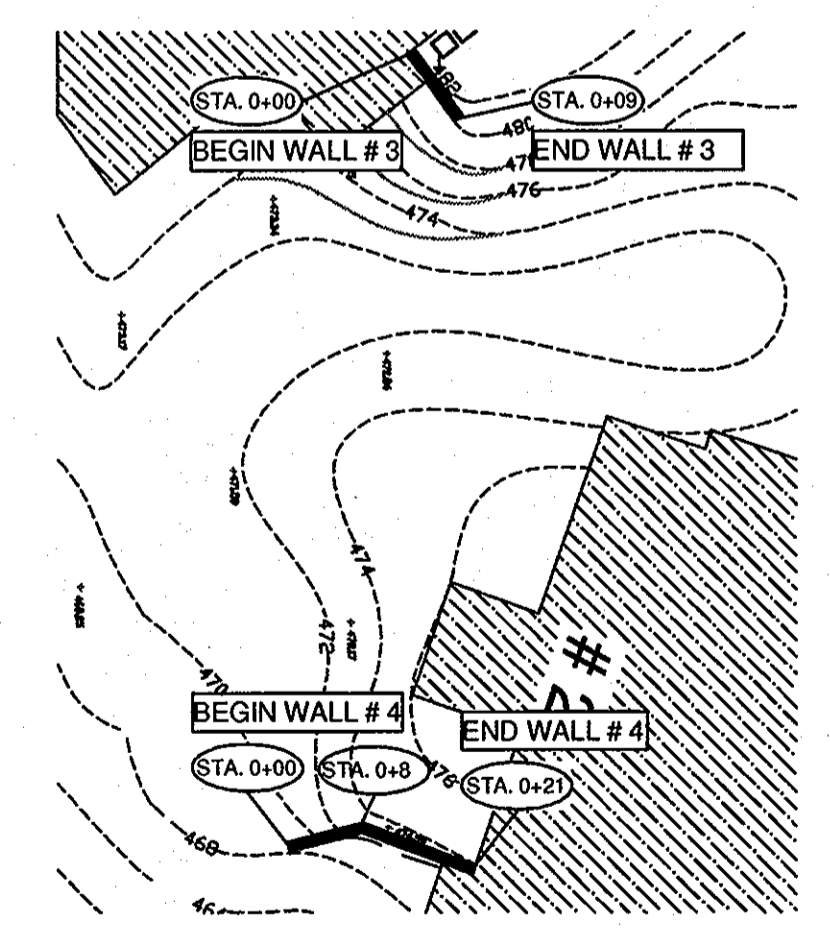
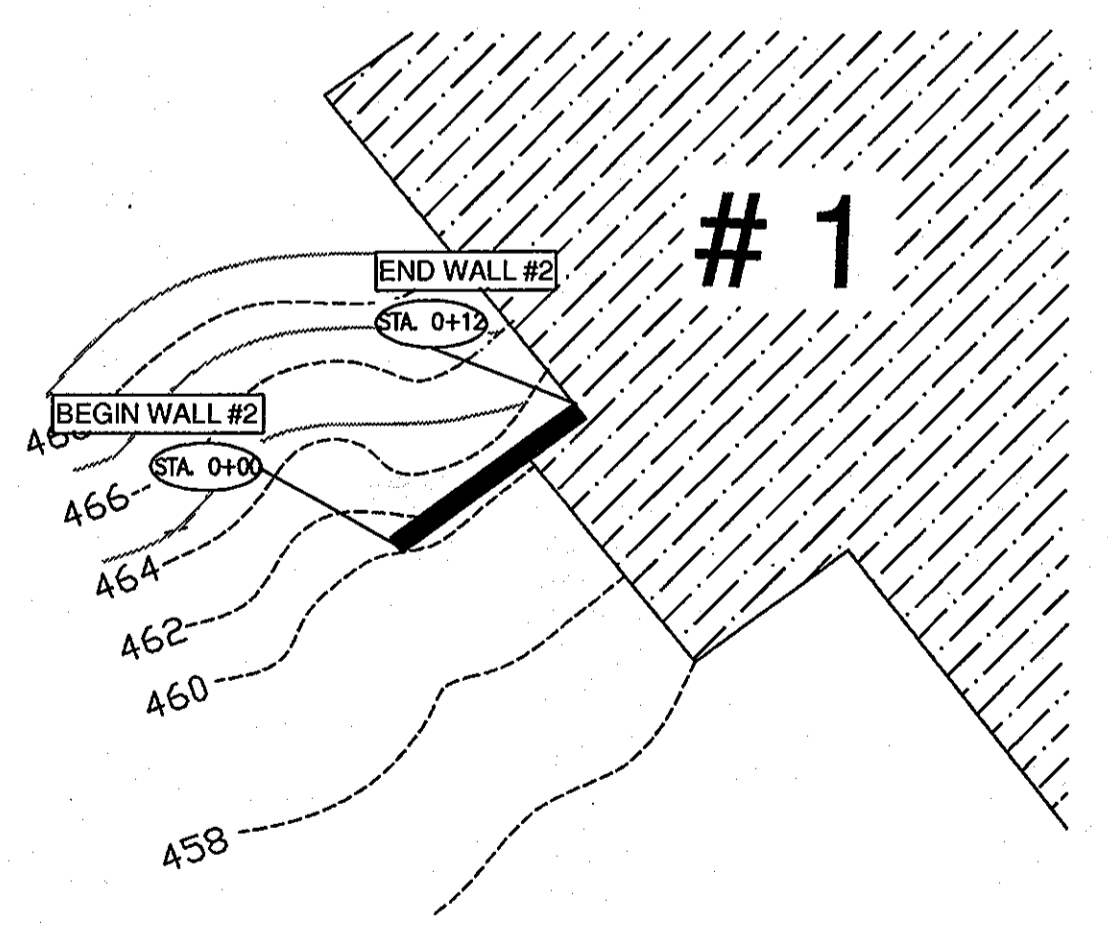
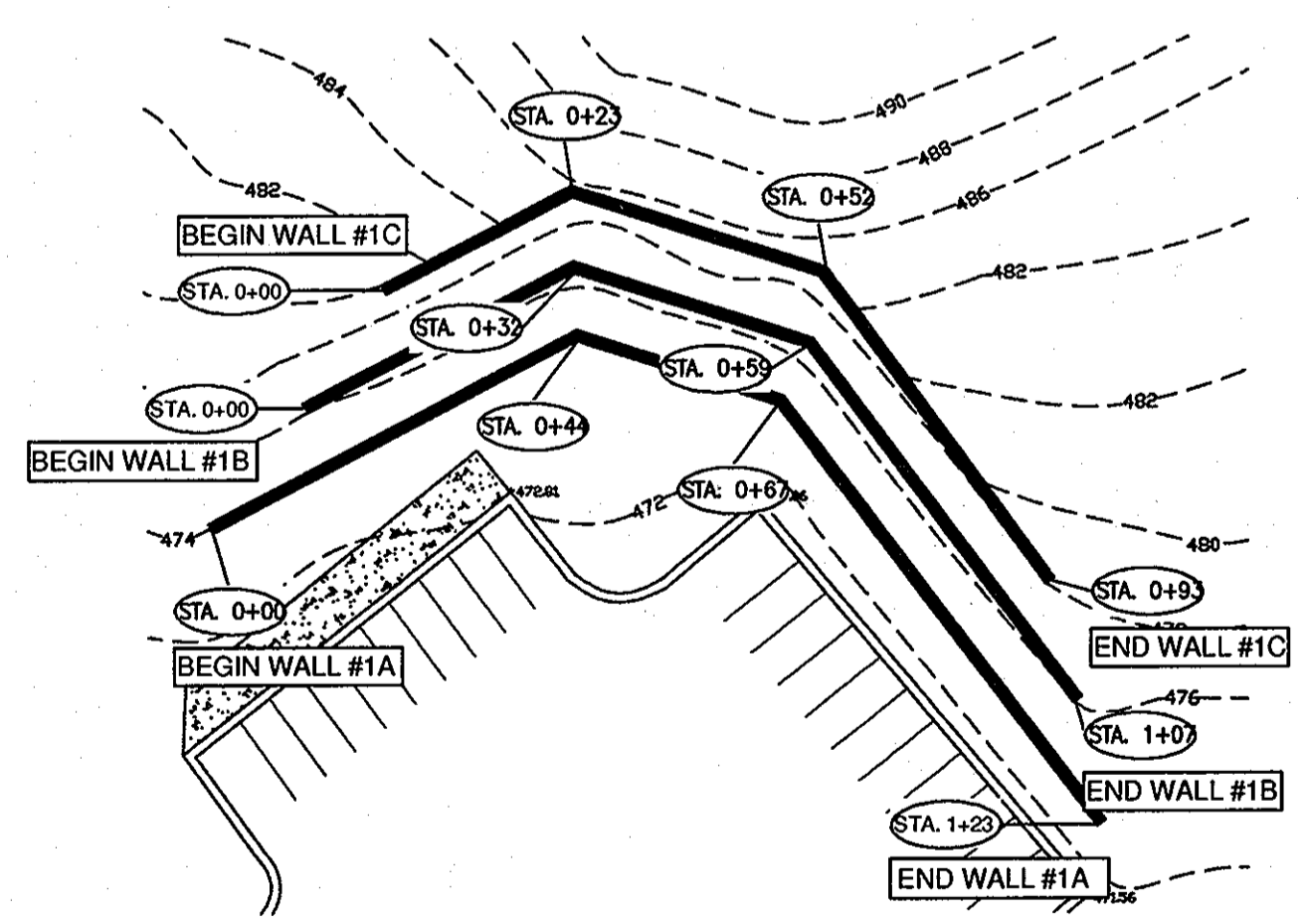
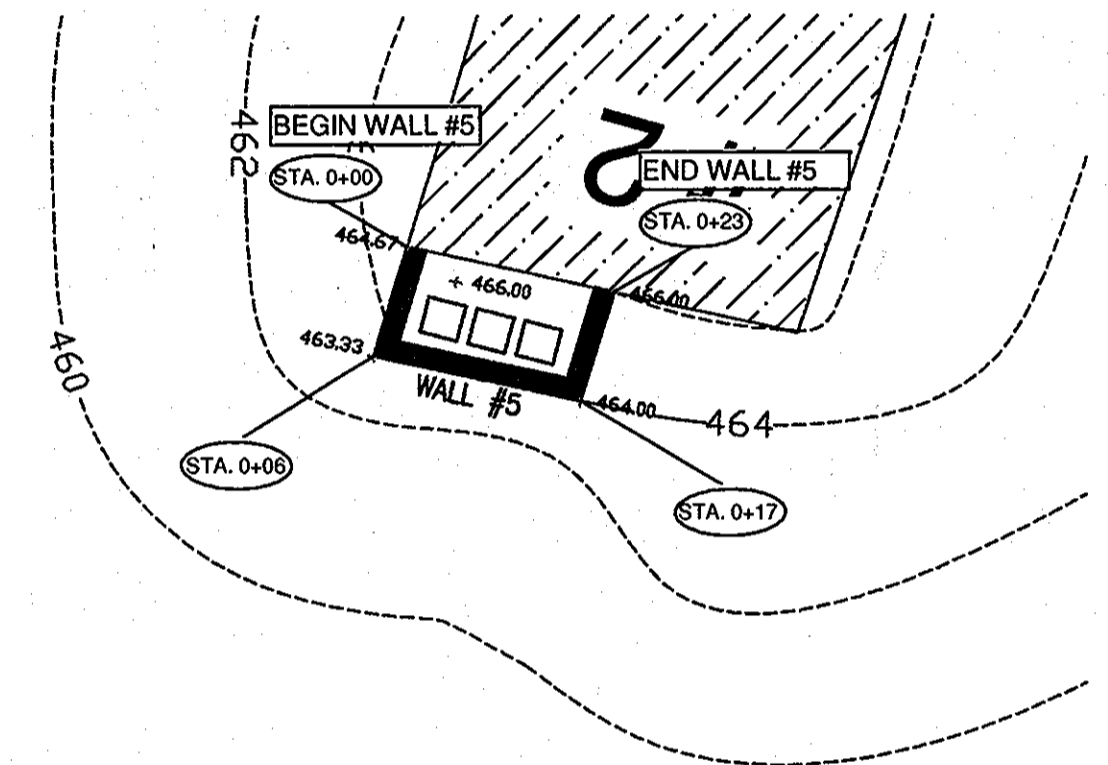
**WALL #5 PROFILE  
(S. OF CLUB HOUSE/LEASING OFFICE)**



Wall	Total Sq. Ft.	Block (1.0 S.F.)	Cape (500 S.F.)	Corners (1.0 S.F.)
1A	346	304	42	0
1B	552	313	39	0
1C	660	636	42	0
2	62	56	6	0
3	34	30	4	0
4	104	93	11	0
5	88	67	8	11
6	278	251	27	0
7	33	30	3	0
8	754	703	81	0
9	37	30	7	0
10	71	54	9	8
11	71	63	8	0
12	51	44	7	0
13	60	53	7	0
14	501	846	79	6
15	**	**	**	**
16	**	**	**	**
17	71	64	7	0
18	89	78	11	0
19	81	73	8	0
20	92	78	6	8
21	180	168	14	0
22	49	37	5	7
23	83	75	8	0
24	43	37	6	0
25	73	66	7	0
26	25	17	3	5
27	32	23	6	6
28	98	88	10	0
29	48	37	4	7
30	97	89	8	0
31	238	222	16	0
32A	327	302	25	0
32B	125	13	4	47
32C	225	239	16	0
32D	107	14	3	35
Totals	6,382	6,800	622	43

Wall	Grid (Eq. Yd.)	Drain Gravel (Cu. Yd.)	Footing Gravel (Cu. Yd.)	Wall Length (Ft.)	Max. Exposed Height (Ft.)
1A	197	20	10	123	2.67
1B	193	21	9	107	2.33
1C	507	40	7	93	8.0
2	36	4	1	12	4.0
3	17	2	1	9	2.17
4	42	5	2	21	4.0
5	22	5	2	23	2.67
6	96	16	6	84	4.0
7	13	2	1	8	5.0
8	304	45	11	143	3.67
9	12	2	1	12	2.33
10	18	4	1	13	4.0
11	24	4	1	17	3.0
12	21	3	1	11	4.67
13	20	4	1	12	4.67
14	481	55	16	209	5.38
15	**	**	**	**	**
16	**	**	**	**	**
17	21	4	1	18	2.67
18	17	5	2	20	3.0
19	32	5	1	18	4.67
20	25	5	1	18	3.67
21	64	11	2	32	4.0
22	16	3	1	11	3.67
23	21	5	2	20	3.33
24	13	3	1	15	1.67
25	24	4	2	20	2.34
26	4	1	1	8	2.0
27	6	2	1	9	2.67
28	38	6	2	21	3.67
29	12	3	1	12	3.33
30	39	6	2	22	4.0
31	114	14	4	45	4.0
32A	280	19	6	74	3.34
32B	125	13	4	47	3.33
32C	107	14	3	35	8.33
Totals	2,948	378	103		

**GRID KEY: MIRAFI 3XT**  
 TW = TOP OF WALL (NOT INCLUDING CAP)  
 GR = PROPOSED FINISHED GRADE AT BASE OF WALL  
 BB = BOTTOM OF BLOCK / TOP OF LEVELING PAD  
 ST = WALL STATION  
 IC = INSIDE CORNER  
 OC = OUTSIDE CORNER  
 TA = TANGENT ANGLE  
**SCALE: H. 1"=10' V. 1"=5'**



PERMIT INFORMATION CHART		
SUBDIVISION NAME: ASHTON WOODS	SECTION/AREA: N/A	LOT/PARCEL NO: 423 LOT 2
PLAT# OR L/F: #7522 & 7523	GRID#N/A	ZONING: R-SA-8
APPROVED FOR PUBLIC OR PRIVATE (pick only one) WATER AND PUBLIC OR PRIVATE (pick only one) SEWERAGE SYSTEMS		
COUNTY HEALTH OFFICER	HOWARD COUNTY HEALTH DEPARTMENT	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>[Signature]</i>	DATE: 8/28/11	
<i>[Signature]</i>	DATE: 8/29/11	
<i>[Signature]</i>	DATE: 8/29/11	

No.	DATE	BY	DESCRIPTION
1	10-28-08	WKR	REVISED IN FULL DUE TO POOR ON SITE SOILS
2	08-30-11	CRD	REVISED SITE DEVELOPMENT PLAN SUBMITTAL TO COUNTY, ADDENDUM TO SDP-89-254

CLIENT: U.S. LAWS OF BALTIMORE

OWNER: DOLBEN COMPANIES

JOB No: 1123-07-03

DRAWN BY: JO

DESIGN BY: JO/CH

CHECKED BY: WKR

DATE: 3/26/09

DO NOT SCALE THIS DRAWING. DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWING.

**Ryan & Associates**  
A Division of WKR Consulting Inc.

Hagerstown, MD Office  
1825 Howell Road, Suite 3  
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301-360-9574 (fx)

Frederick, MD Office  
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Frederick, MD 21702  
301-360-9534 (ph)  
301-360-9574 (fx)

**ANCHOR DIAMOND PRO RETAINING WALL DESIGNS**  
WALL PLAN(S)/PROFILE(S) & MATERIAL ESTIMATE

**ASHTON WOODS**

FALLS RUN ROAD, ELLICOTT CITY, MD 21043-7260

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

*[Signature]*

W. Ryan, J.E.  
License No. 21198  
Expiration Date: 8/09/2009

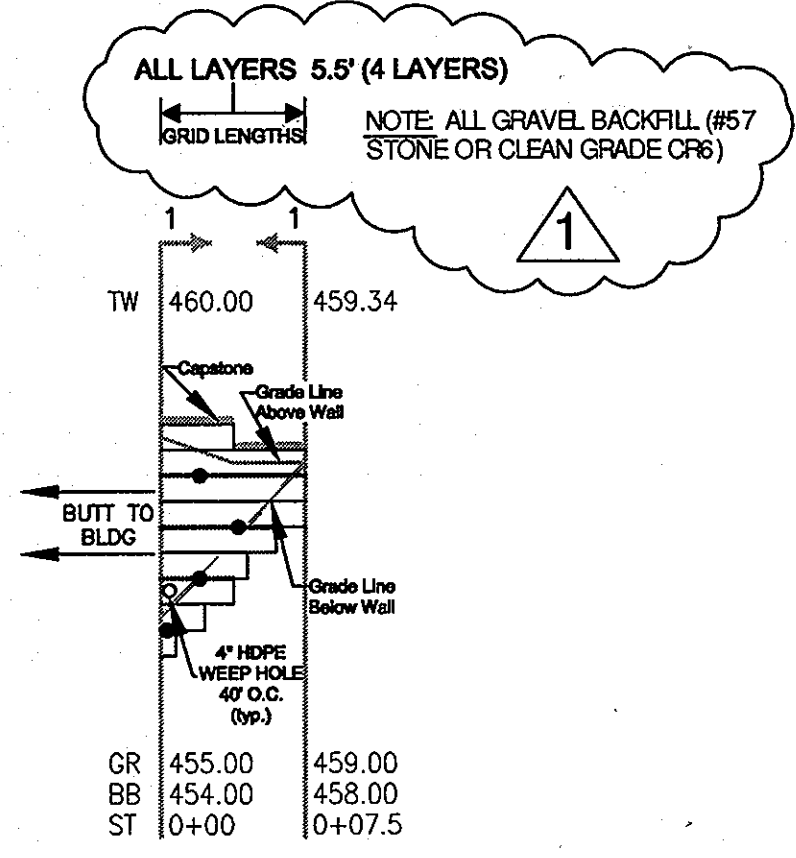
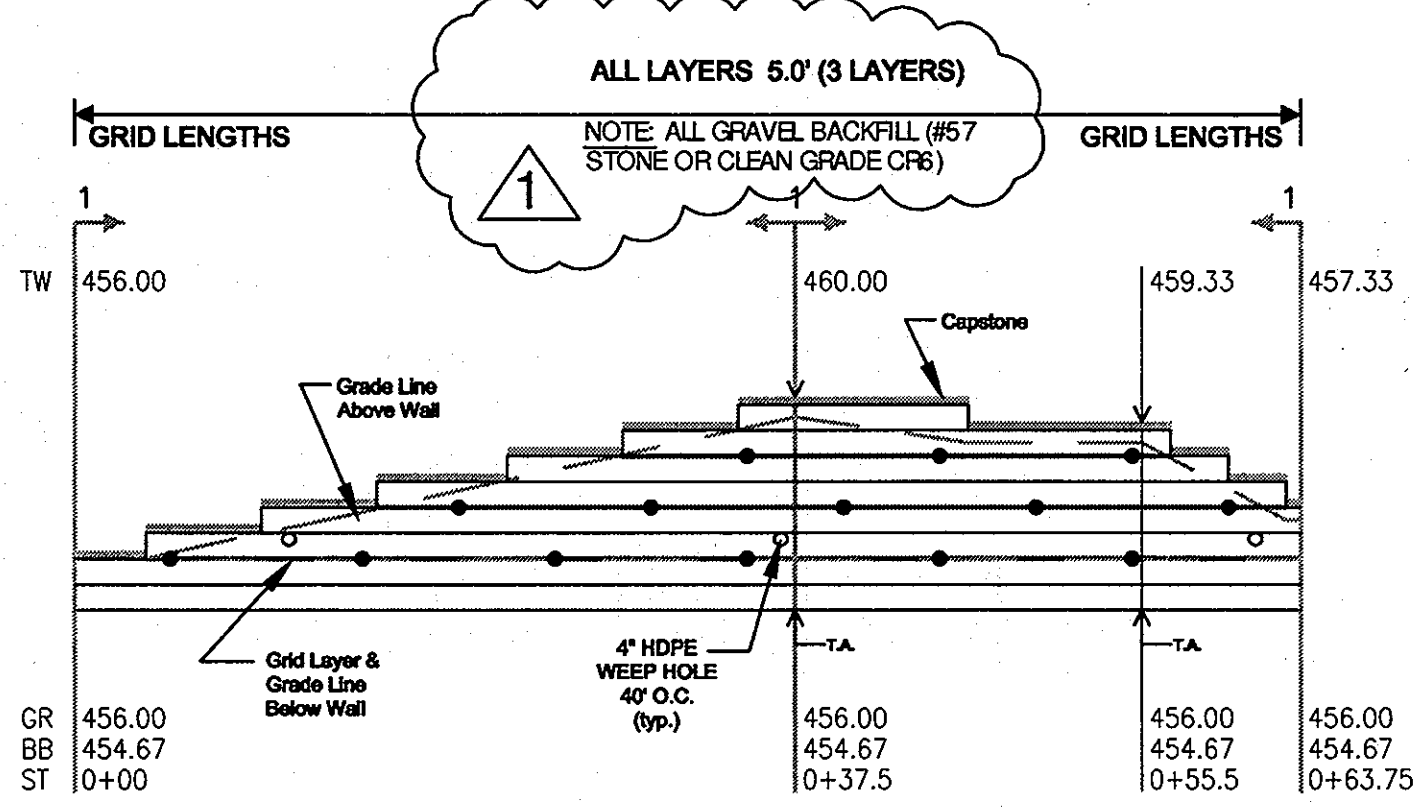
ENGINEER SEAL

**WALL #6 PROFILE (WRAPPING AROUND TENNIS COURT)**

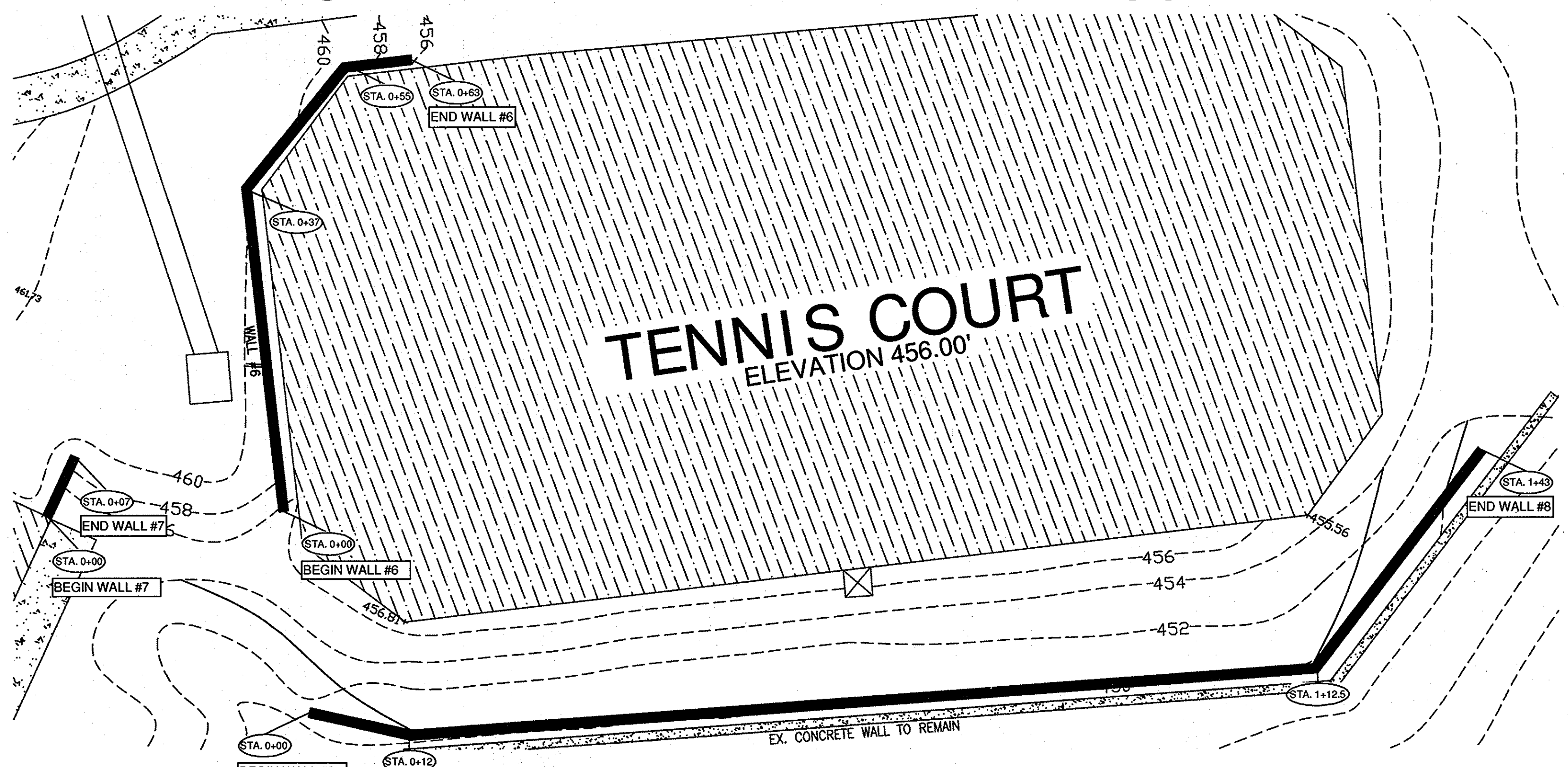
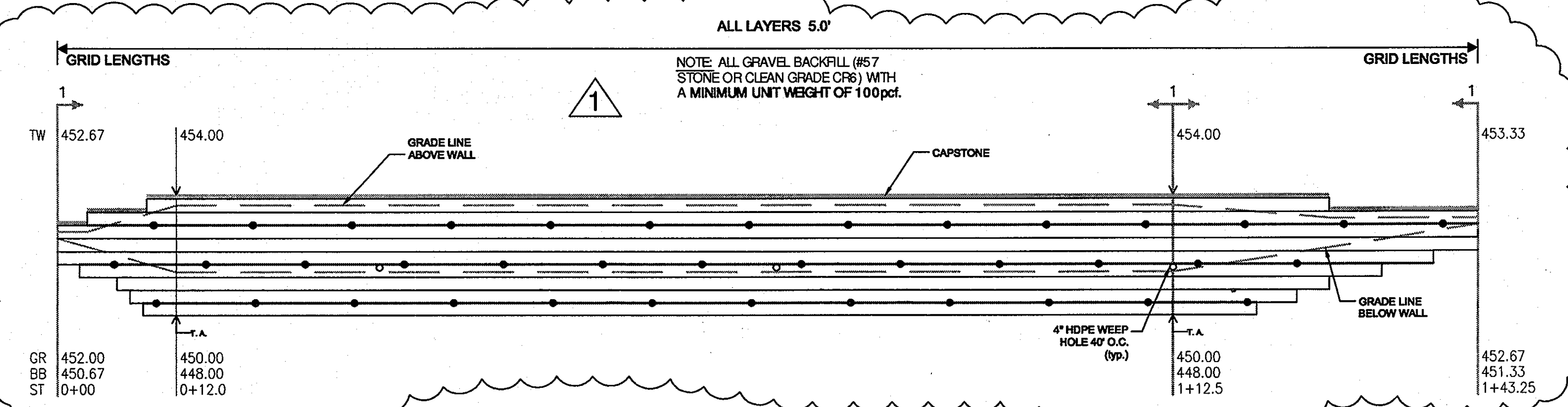
**WALL #7 PROFILE (@ CLUB HOUSE)**

**STRUCTURAL NOTES**

- SOIL PARAMETERS:** Ryan and Associates has performed a geotechnical investigation for this site and due to the wide range of soil types present throughout the site an internal angle of friction of 27° was assumed for all walls except those supporting AC units (see wall profiles). Due to the potential for water infiltration and limited space for excavation for walls supporting AC units, Ryan & Associates (RA) has substituted all gravel infill. The internal angle of friction of 27° is for worst case CL (Lean Clay) soil types and must be verified prior to wall construction by the site geotechnical engineer. CH (fat clay), MH (elastic silt) and OH/OLPT (organic) soils are not acceptable for wall construction. If these unsuitable soils are encountered they must be removed and replaced with soils that meet or exceed the design friction angle of 27°. The on site geotechnical engineer must monitor this closely during the construction process. **Select infill soil (gravel-#57 stone) will be replaced and used to backfill walls supporting AC units and walls #6, #7 and #8.** An internal angle of friction of 36° was used for this material; therefore the infill soil must be classified as gravel (GP) or GW with a minimum density of 100pcf. This material must also meet the additional requirements listed in the RA Specifications under section 2.07A. Assumed unit weights (maximum wet densities) of 120 PCF for the 27° soils and 95 PCF for the 36° soils were used. All 27° soils used for wall backfill must also meet the following additional requirements: maximum liquid limit of 40, maximum optimum moisture of 20%, minimum dry unit weight of 100 PCF and maximum of 65% passing the #200 sieve (minimum of 35% retained on the #200 sieve). Fluctuations of 5 PCF higher or lower will not affect this design, however if the unit weights vary by more than 5 PCF Ryan & Associates (RA) must be notified and the cross sections rerun to verify that all factors of safety are still met.
- BEARING CAPACITY:** The sub-grade (the soils under the wall's gravel leveling pad and the soils under the wall's reinforced geogrid zone) must be tested by the site geotechnical engineer prior to wall construction and have a minimum allowable bearing capacity of 3,000 PSF. The actual bearing pressure exerted by each specific wall section is shown on the Cross Section Details and Factors of Safety table so that the site geotechnical engineer may determine specifically how to handle any areas where low bearing capacity soils are encountered on an individual wall section basis. Areas of the sub-grades that do not meet these maximum pressures will require undercutting or geogrid reinforcing. The sub-grade must be virgin (natural undisturbed soil with blow counts  $\geq 12$ ) or suitable fill ( $\geq 27$ ) compacted to 95% of a standard proctor or maximum dry density.
- SLOPES & SURCHARGES:** Refer to load table (sheet 7-this submittal).
- SPECIFICATIONS:** Construction and materials must conform to the attached "Ryan & Associates segmental retaining wall specifications and installation guidelines for Anchor Diamond Pro".
- BLOCK SYSTEM:** This design is valid only for the Anchor Diamond Pro system. Each segmental wall system has unique dimensions, connection devices and interacts differently with geogrids; therefore other block types may not be substituted without a partial or total redesign.
- WALL BATTER:** The Anchor Diamond Pro Blocks have a 7.1° batter (1" setback per block course.) It is important for the wall installer, general contractor and the civil engineer/surveyor to predetermine the wall's batter during stake out. The base of the wall will need to be moved forward if there are critical dimensions that need to be met on the high side of the wall (such as distances to curbs or guardrails).
- GEOGRIDS:** These walls were designed with Mirafi 3XT which has a LTDS (Long Term Design Strength) of 1705. All geogrid substitutions must have prior approval of RA.
- DESIGN BUILD:** These walls are a "design build" situation and are based on field measurements taken during RA's site visit conducted on 1/07/08 & 01/08/08. Since it is a "design build" situation the wall installer may need to slightly modify the wall lengths and heights to accomplish the necessary grade changes. Lineal footage may be added or subtracted as needed if the walls' heights are equal to or less than the design heights. If the walls need to be raised in height, RA shall be notified and new structural cross sections must be provided before the wall installer proceeds.
- EMBEDMENT:** Wall embedment varies from one to three blocks. The exact amount of buried blocks can be determined by subtracting the "BB" elevations from the "GR" elevations on the RA profile drawing.
- WALL PROFILE:** The elevation drawings were done to represent the grade changes necessary on the civil drawings and was done in even block course increments of 0.667' (8.0"). Minor field changes may be necessary by the wall installer. Lineal footage may be added or subtracted as needed if the wall's height is equal to or less than the design height. If the wall needs to be raised in height, RA shall be notified and new structural cross sections must be provided before the installer proceeds. The cap height of 0.33' (4.0") is not shown on the profile drawing however its height may have been used in some cases to achieve the desired TW elevations.
- TANGENT ANGLES:** Any angle points as drawn on the civil plans (refer to wall plans/profiles for specific stationing) must be built as radii (inside or outside curves) or as structural inside or outside corners (with the blocks interlocked and overlapped in accordance with the Anchor Diamond Pro construction guidelines). Continuous vertical joints are not permitted.
- INSIDE & OUTSIDE CORNERS:** Any inside or outside corners as drawn on the civil plans (see wall plans/profiles for specific stationing) must be built structurally (with the blocks interlocked and overlapped) in accordance with the Anchor Diamond Design Manual. The outside corners must be built structurally with the special Anchor Diamond Pro corner units. Continuous vertical joints are not permitted.
- GLOBAL STABILITY:** Global stability analyses were required in areas where the walls front slope meets or exceeds a 3:1 ratio or in terraced wall situations. Analyses were done with G-Slope design software and the geogrid layers were lengthened as necessary until a factor of safety of 1.3 was met for external stability. A minimum of 25# of cohesion was assumed for all foundation soils in the analyses. The assumed cohesion values can be verified by the site geotechnical engineer by conducting direct shear, triaxial or unconfined compression tests. A factor of safety of 1.5 was also met for internal stability (geogrid rupture). A copy of these analyses are included behind the structural cross section calculations.
- DESIGN SOFTWARE:** Internal and external wall calculations were performed with SWWall (version 3.22). A table has been included ("Cross Section Details and Factors of Safety") which has the following information: section location (area of wall referenced), total wall height, loads applied, factors of safety (for sliding, overturning and bearing capacity) and bearing pressure (the weight exerted by the wall structure- block and geogrid zone). Factors of safety of 1.5 were also met for: geogrid pullout (from the soil and from the block), geogrid overstress (geogrid rupture) and connection (block to geogrid).
- BACK SLOPES:** Water management is especially critical since there are back slopes above these walls. Since water is being directed to the walls, the water must be directed over them (sheet flow- the fill soils must come to tops of caps) or swales must be constructed behind the walls to divert the water around the end(s) of the walls. The surface water runoff must not be permitted to enter or pond above the reinforced geogrid zones or be introduced into the 12" gravel drainage layers (saturation of the reinforced geogrid zones will cause the reinforced backfill soils to lose their shear strength and may ultimately lead to wall failure). If swales are done they must have minimum depths of 8" and minimum 1-2% slopes laterally from the high points to the end(s) of the walls (see swale details for clarification). They shall be lined with asphalt, concrete, impermeable soils (clay; CL, GC or SC), low permeable soils (ML meeting the requirements in the RA Specifications) or an underlying geomembrane (see Section 1.16A of the RA Specifications for details on low permeable soils and the geomembrane). The soils in the back slopes and the retained zones (within the walls' zones of influence: behind the reinforced geogrid zones and extending to distances that are twice the walls' exposed heights) must be virgin (natural undisturbed soil with blow counts  $\geq 12$ ) or suitable fill ( $\geq 27$ ) compacted to 95% of a standard proctor or maximum dry density. This must be verified by the site geotechnical engineer. The requirements for the impermeable layer/geomembrane may be waived if the infill soils are free-draining gravel or sand (classified by USCS as GP, GW, SP or SW).
- FENCE/RAILING:** Fence/railing installation behind the wall(s) for a wall exposed height of 30 inches or taller (varies by local jurisdiction) is required. Fence/railing post (non-wind/ non-load bearing) foundation details are shown on sheet 8.
- WEEP HOLES:** Weep hole(s) shown in wall profile(s) are for guidance purposes only, actual locations to be decided at site in consultation with site geotech engineer with a maximum spacing of 40' O.C.
- CONSTRUCTION OVERSIGHT:** The construction of this wall must be performed under the observation/review of a Maryland Registered Professional Engineer or their designated representative to ensure that it is built in accordance with the RA Structural Notes and Specifications. All wall construction must be certified by a registered professional geotechnical/structural engineer.
- SAFETY:** The contractor is responsible for the following: a) safety and protection within and adjacent to the site; b) Adhere to OSHA's health & safety laws; c) any special inspections required by the building codes; d) any temporary bracing or shoring; e) verification of all conditions, dimensions & elevations; f) erosion and sediment control of the site; g) notifying the design engineer (RA) of any conflicts or discrepancies between the design condition and site condition.



**WALL #8 PROFILE (ABOVE EXISTING C.I.P WALL @ TENNIS COURT)**



**GRID KEY: MIRAFI 3XT**

- TW = TOP OF WALL (NOT INCLUDING CAP)
- GR = PROPOSED FINISHED GRADE AT BASE OF WALL
- BB = BOTTOM OF BLOCK / TOP OF LEVELING PAD
- ST = WALL STATION
- IC = INSIDE CORNER
- OC = OUTSIDE CORNER
- TA= TANGENT ANGLE

SCALE: H. 1"=10' V. 1"=5'

PERMIT INFORMATION CHART		
SUBDIVISION NAME: ASHTON WOODS	SECTION/AREA: N/A	LOT/PARCEL NO: 423 LOT 2
PLAT# OR L/F: #7522 & 7523	GRID#/ZONING: R-SA-8	TAX MAP NO:#31 ELECT. DIST: 2ND CENSUS TRACT: N/A
APPROVED FOR PUBLIC OR PRIVATE (pick only one) WATER AND PUBLIC OR PRIVATE (pick only one) SEWERAGE SYSTEMS		
COUNTY HEALTH OFFICER	DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	
DIRECTOR	DATE	

REVISIONS		
No.	DATE	DESCRIPTION
1	10-28-08	WKR REVISED INFILL DUE TO POOR ON SITE SOILS
2	08-30-11	WKR REVISED SITE DEVELOPMENT PLAN SUBMITTAL TO COUNTY, APPENDUM TO SDP-89-294

DRAWN BY: CJH  
DESIGN BY: WKR  
CHECKED BY: WKR  
DATE: 08/08

CLIENT: U.S. LAWS OF BALTIMORE  
OWNER: DOLBEN COMPANIES  
JOB No: 1123-07-03

**Ryan & Associates**  
A Division of WKR Consulting Inc.

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2412 Wynfield Ct.  
Frederick, MD 21702  
301-360-9534 (ph)  
301-360-9574 (fx)

**ANCHOR DIAMOND PRO RETAINING WALL DESIGNS**  
WALL PLAN(S)/PROFILE(S) & STRUCTURAL NOTES

**ASHTON WOODS**  
FALLS RUN ROAD, ELLICOTT CITY, MD 21043-7260

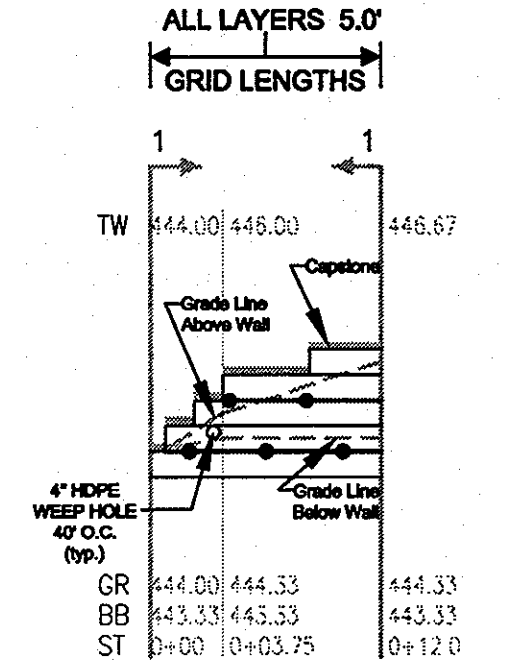
PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

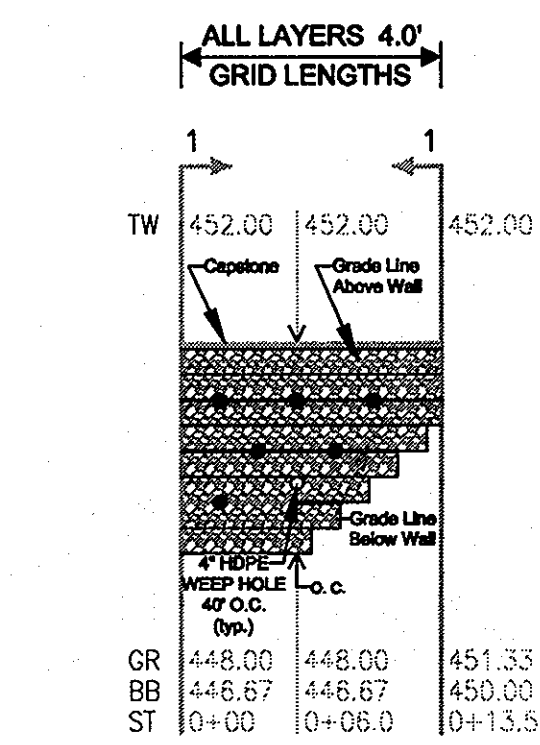
William K. Ryan, P.E.  
License No: 21584  
Expiration Date: 05/09/2009

ENGINEER SEAL

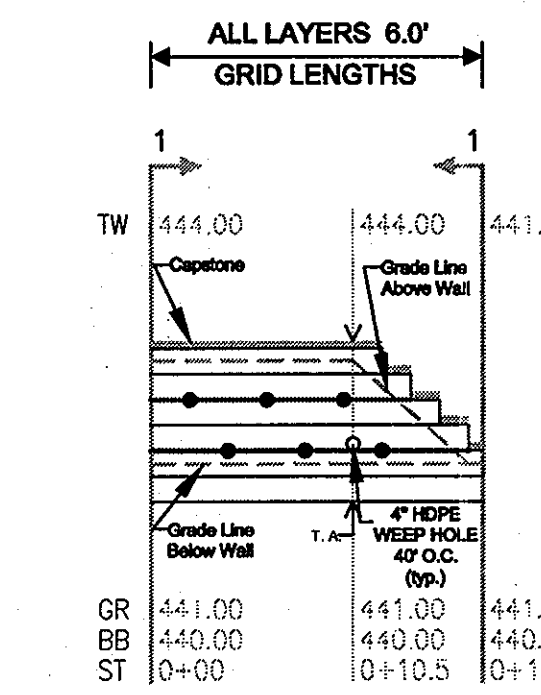
**WALL #9 PROFILE  
(@ BUILDING 8439)**



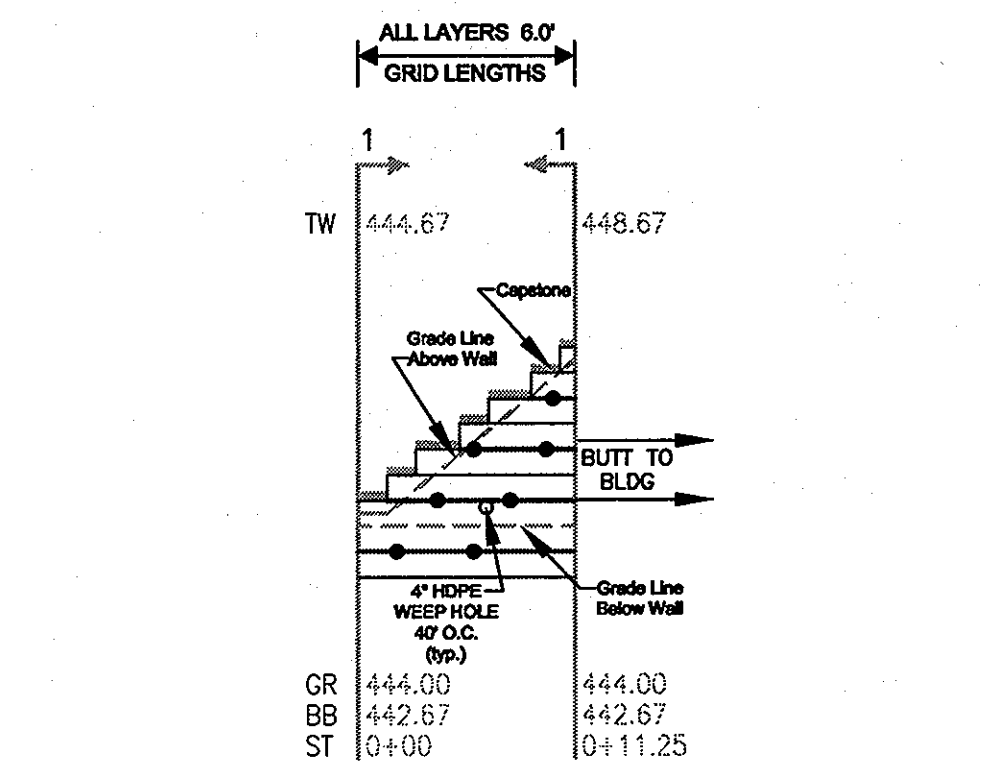
**WALL #10 PROFILE  
(@ BUILDING 8439)**



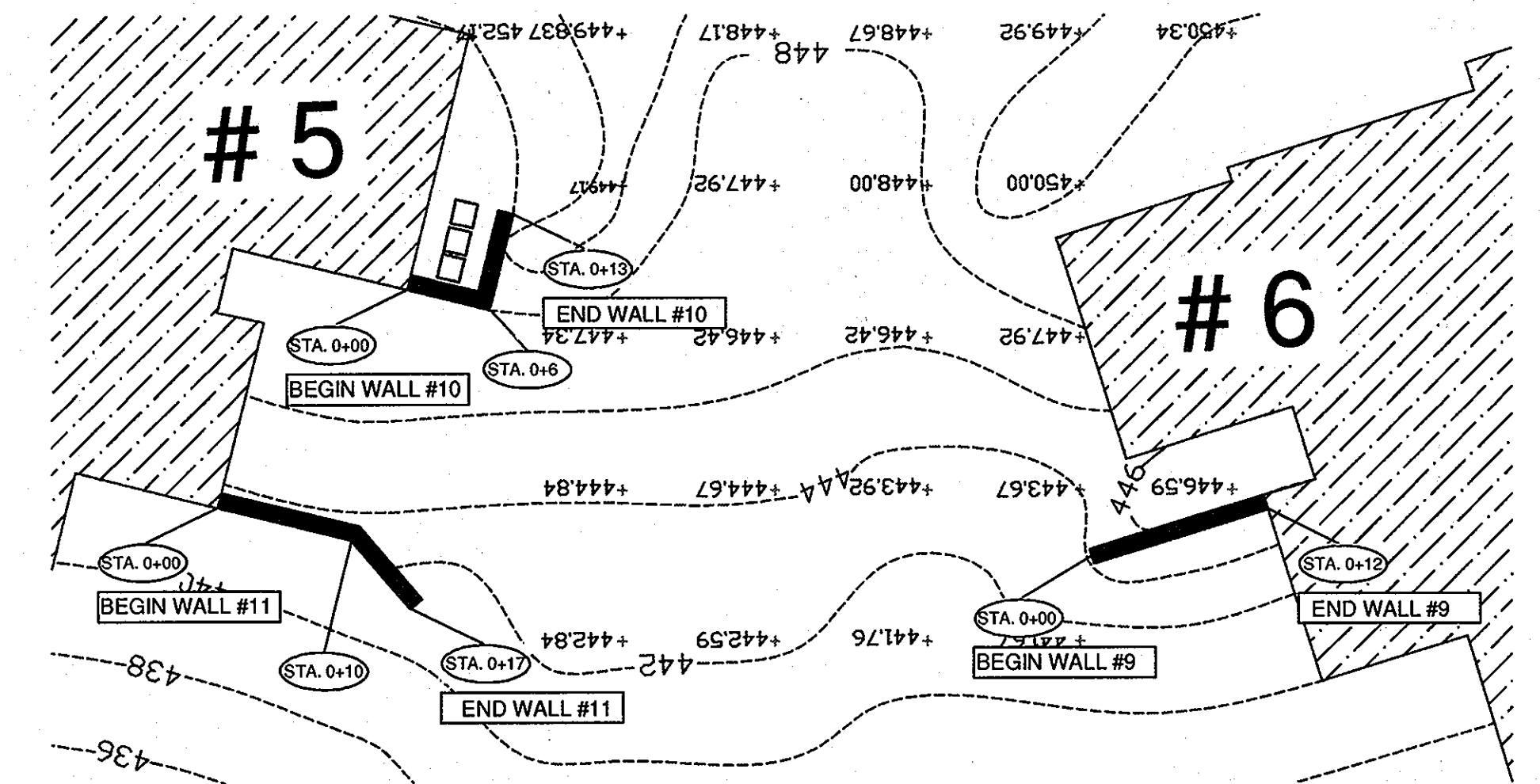
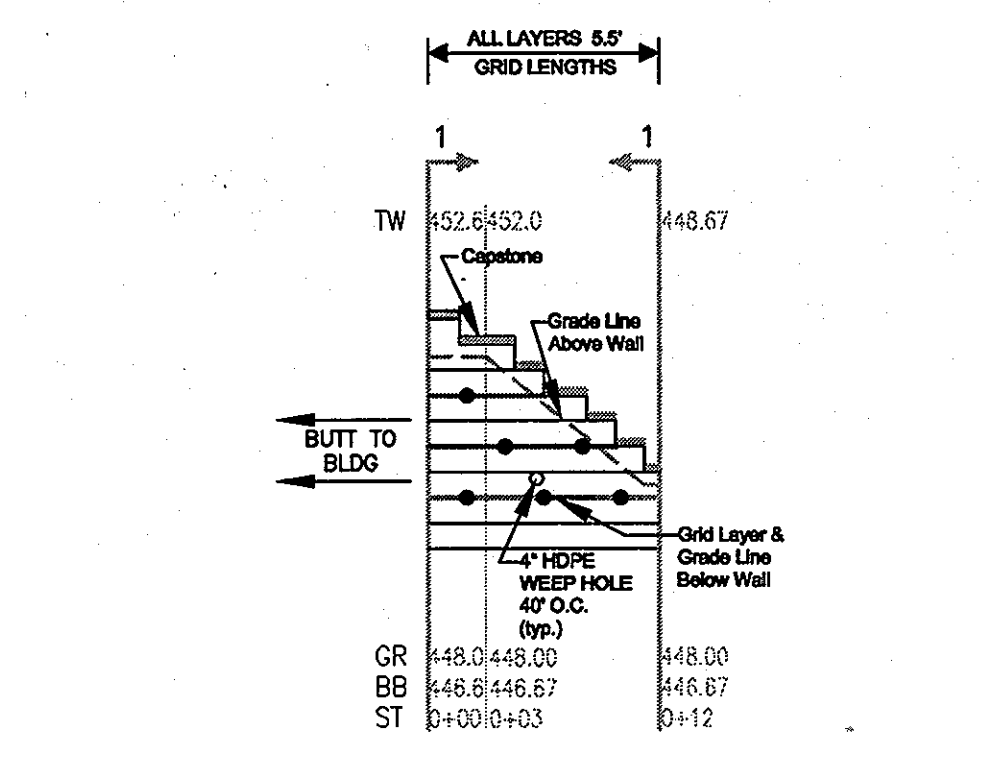
**WALL #11 PROFILE  
(@ BUILDING 8439)**



**WALL #12 PROFILE  
(BETWEEN BUILDINGS 8439 @ 8425)**

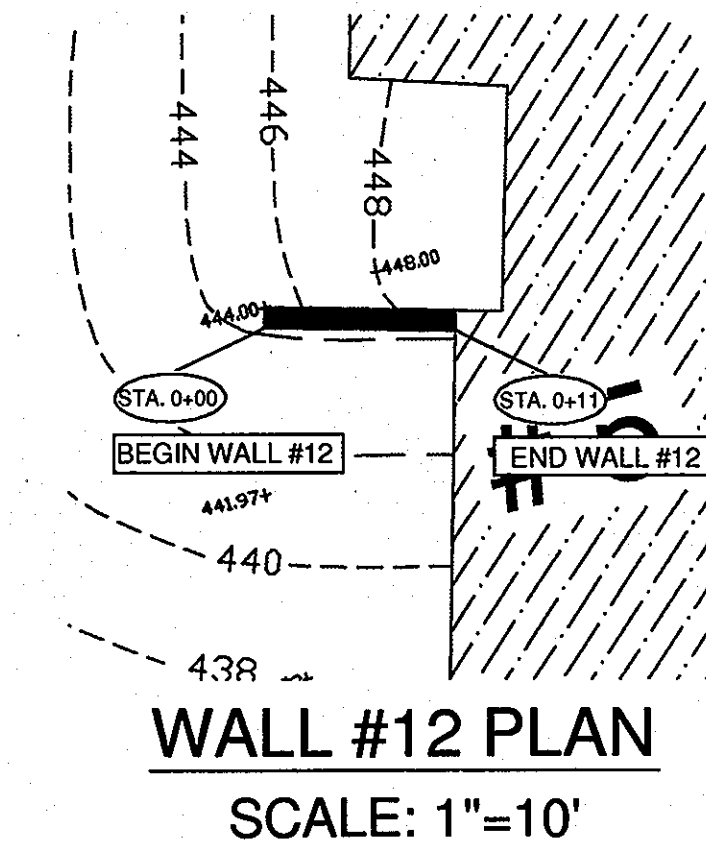
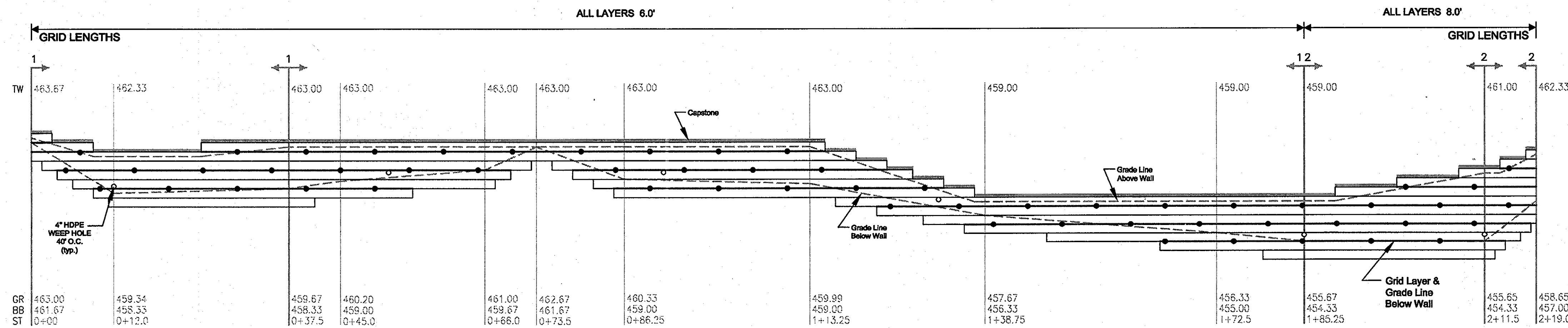


**WALL #13 PROFILE  
(BETWEEN BUILDINGS 8439 @ 8425)**

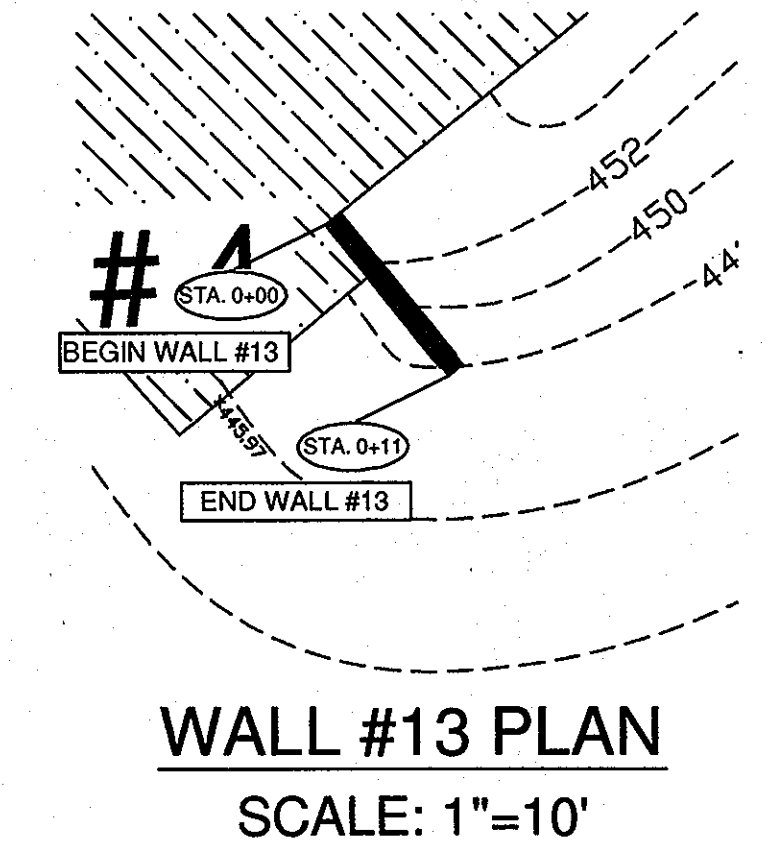


**WALLS #9,10 & 11 PLAN  
SCALE: 1"=10'**

**WALL #14 PROFILE  
(@ BUILDING 8425)**



**WALL #12 PLAN  
SCALE: 1"=10'**



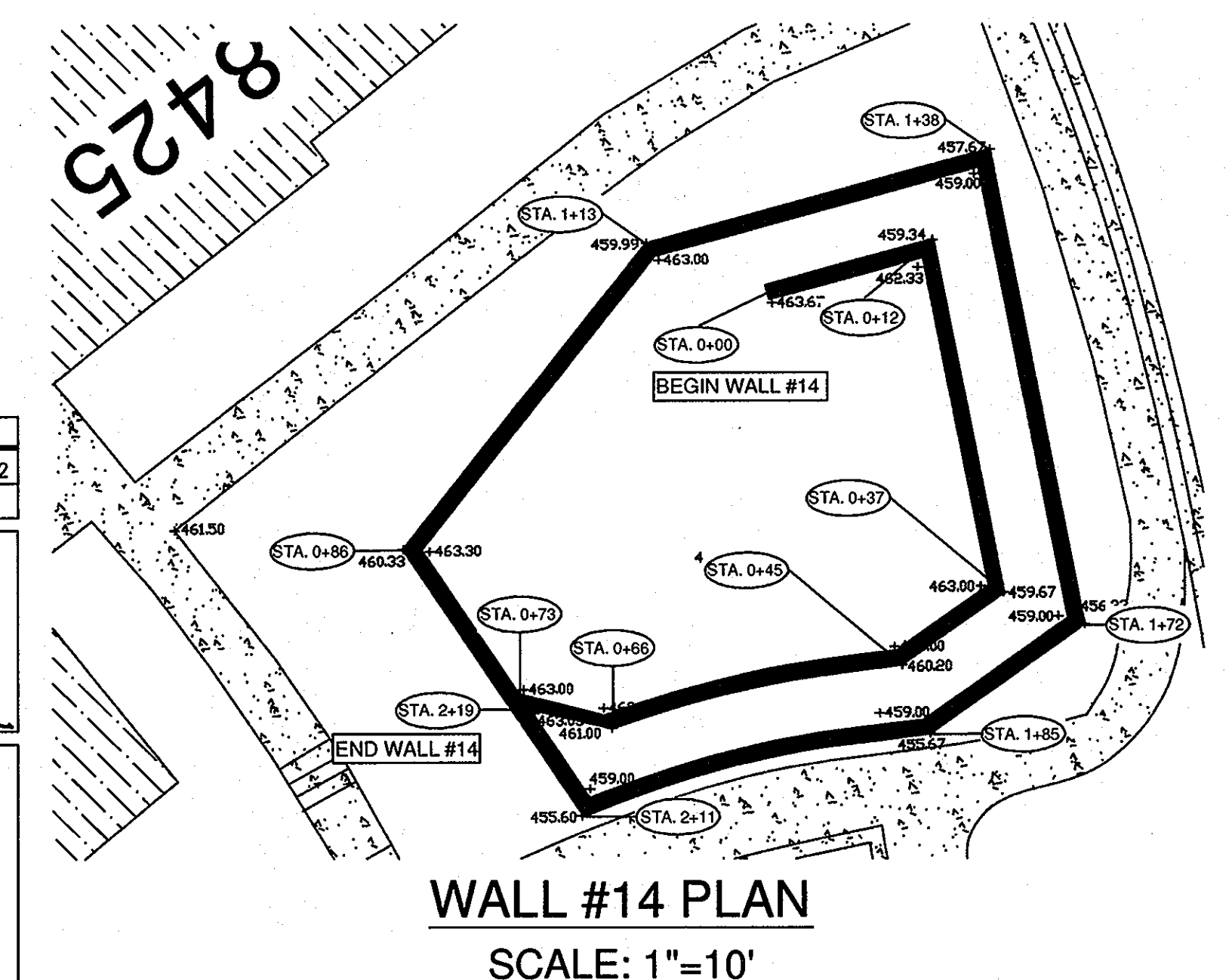
**WALL #13 PLAN  
SCALE: 1"=10'**

CROSS SECTION DETAILS & FACTORS OF SAFETY:								
SECTION	STATION	TOTAL WALL HEIGHT (Including Embedment) (Excluding Guard)	LOAD APPLIER	SLIDING (minimum 1.50)	OVERTURNING (minimum 2.00)	BEARING CAPACITY (minimum 2.00)	BEARING PRESSURE PSF	
WALL 1A	1	ENTIRE WALL	3.33'	300 PSF DL / 120 PSF LL	1.72	5.43	7.97	811
WALL 1B	1	ENTIRE WALL	3.33'	1,000 PSF DL / 120 PSF LL	1.61	4.91	4.09	1,452
WALL 1C	1	ENTIRE WALL	9.33'	120 PSF LL	1.58	4.24	7.17	1,471
WALL 2	1	ENTIRE WALL	5.33'	120 PSF LL	1.53	5.09	10.77	940
WALL 3	1	ENTIRE WALL	3.33'	75 PSF DL / 120 PSF LL	2.43	8.29	9.83	543
WALL 4	1	ENTIRE WALL	5.33'	120 PSF LL	2.90	9.75	10.23	728
WALL 5	1	ENTIRE WALL	4.0'	75 PSF DL / 120 PSF LL	2.46	7.97	9.76	624
WALL 6	1	ENTIRE WALL	5.33'	120 PSF LL	2.64	8.23	9.88	714
WALL 7	1	ENTIRE WALL	6.0'	120 PSF LL	1.96	5.12	5.29	1,225
WALL 8	1	ENTIRE WALL	5.33'	120 PSF LL	1.87	5.37	9.49	799
WALL 9	1	ENTIRE WALL	3.33'	120 PSF LL	2.93	11.27	11.48	454
WALL 10	1	ENTIRE WALL	5.33'	120 PSF LL / 75 PSF DL	1.53	3.59	7.58	721
WALL 11	1	ENTIRE WALL	4.0'	3:1 BACK SLOPE / 20LL	1.61	4.82	9.43	633
WALL 12	1	ENTIRE WALL	6.0'	120 PSF LL	2.65	8.11	9.44	796
WALL 13	1	ENTIRE WALL	5.33'	5:1 BACK SLOPE / 120 LL	1.83	5.09	9.05	773
WALL 14	1	0+00 TO 1+85	4.67'	310 PSF DL / 3 BACKSLOPE	1.50	4.19	7.35	1,004
WALL 14	2	1+85 TO 2+19	6.67'	375 PSF DL / 3:1 BACKSLOPE	1.53	4.05	6.49	1,387
WALL 15	1	"TO BE REMOVED"						
WALL 16	1	"TO BE REMOVED"						

WALL	ENTIRE WALL	GRID LENGTHS	LOAD	SLIDING	OVERTURNING	BEARING CAPACITY	BEARING PRESSURE	
WALL 17	1	ENTIRE WALL	4.0'	120 PSF LL	1.75	5.37	10.79	613
WALL 18	1	ENTIRE WALL	4.67'	120 PSF LL	1.67	4.59	11.06	565
WALL 19	1	ENTIRE WALL	6.0'	120 PSF LL	1.70	4.68	8.51	916
WALL 20	1	ENTIRE WALL	5.33'	75 PSF DL / 120 PSF LL	1.69	4.25	8.52	697
WALL 21	1	ENTIRE WALL	5.33'	120 PSF LL	2.64	8.23	9.88	715
WALL 22	1	ENTIRE WALL	4.67'	120 PSF LL / 75 PSF DL	1.64	4.16	7.96	624
WALL 23	1	ENTIRE WALL	4.67'	120 PSF LL / 5:1 BACK SLOPE	1.97	6.02	10.53	677
WALL 24	1	ENTIRE WALL	2.67'	120 PSF LL / 75 PSF DL	2.81	11.93	9.27	479
WALL 25	1	ENTIRE WALL	4.0'	2.5:1 BACK SLOPE / 120 PSF LL	1.59	4.69	10.63	655
WALL 26	1	ENTIRE WALL	3.33'	75 PSF DL	4.11	11.49	11.63	452
WALL 27	1	ENTIRE WALL	4.0'	120 PSF LL / 75 PSF DL	2.89	7.19	10.69	527
WALL 28	1	ENTIRE WALL	5.33'	4:1 BACK SLOPE / 120 PSF LL	1.51	3.81	7.58	627
WALL 29	1	ENTIRE WALL	4.67'	120 PSF LL / 75 PSF DL	1.54	3.70	8.18	623
WALL 30	1	ENTIRE WALL	5.33'	120 PSF LL	2.64	8.23	9.88	714
WALL 31	1	ENTIRE WALL	5.33'	3:1 BACK SLOPE / 120 PSF LL	1.55	4.49	8.99	890
WALL 32A	1	ENTIRE WALL	4.67'	120 PSF LL / 1133 PSF DL	1.85	5.40	4.10	1,281
WALL 32B	1	ENTIRE WALL	4.67'	120 PSF LL / 800 PSF DL	1.72	4.73	4.96	1,412
WALL 32C	1	ENTIRE WALL	6.67'	120 PSF LL / 5:1 BACK SLOPE	1.84	4.96	8.20	957

**GRID KEY: MIRAFI 3XT**  
 TW = TOP OF WALL (NOT INCLUDING CAP)  
 GR = PROPOSED FINISHED GRADE AT BASE OF WALL  
 BB = BOTTOM OF BLOCK / TOP OF LEVELING PAD  
 ST = WALL STATION  
 IC = INSIDE CORNER  
 OC = OUTSIDE CORNER  
 TA = TANGENT ANGLE  
**SCALE: H. 1"=10' V. 1"=5'**

PERMIT INFORMATION CHART		
SUBMISSION NAME: ASHTON WOODS	SECTION/AREA: N/A	LOT/PARCEL NO: 423 LOT 2
PLAT# OR L/F: #7522 & 7523 GRID#N/A ZONING: R-SA-8	TAX MAP NO:#51	ELECT. DIST: 2ND CENSUS TRACT: N/A
APPROVED FOR PUBLIC OR PRIVATE (pick only one) WATER AND PUBLIC OR PRIVATE (pick only one) SEWERAGE SYSTEMS		
COUNTY HEALTH OFFICER HOWARD COUNTY HEALTH DEPARTMENT		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
Chief, Development Engineering Division HSP		DATE: 8/29/11
Chief, Division of Land Development B		DATE: 8/29/11
Director Thomas J. Buttle		DATE



**WALL #14 PLAN  
SCALE: 1"=10'**

**SDP-89-254**

REVISIONS			
No.	DATE	BY	DESCRIPTION
1	10-28-08	WKR	REVISIONS IN WALL PLAN TO POSITION SITE SOILS
2	08-30-11	GRD	REVISED SITE DEVELOPMENT PLAN SUBMITTAL TO COUNTY, ADDENDUM TO SDP-89-254

DRAWN BY: JO  
 DESIGN BY: JOYCH  
 CHECKED BY: WKR  
 DATE: 3/30/09  
 DO NOT SCALE THIS DRAWING. DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWING.

CLIENT: U.S. LAWN OF BALTIMORE  
 OWNER: DOLBEN COMPANIES  
 JOB No: 1123-07-03

**Ryan & Associates**  
 A Division of WKR Consulting Inc.  
 Hagerstown, MD Office  
 1825 Howell Road, Suite 3  
 Hagerstown, MD 21740  
 301-671-3200 (ph)  
 301-360-9574 (fx)

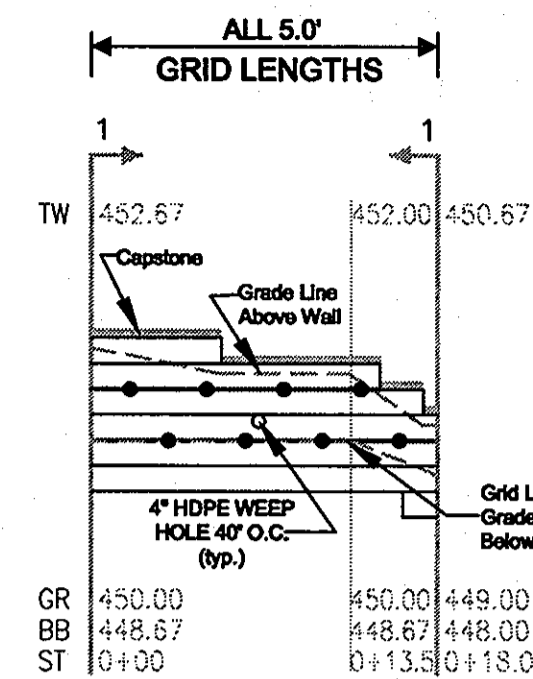
Frederick, MD Office  
 2412 Wynfield Ct.  
 Frederick, MD 21702  
 301-360-9534 (ph)  
 301-360-9574 (fx)

**ANCHOR DIAMOND PRO RETAINING WALL DESIGNS**  
**WALL PLANS/PROFILES & LOAD TABLE**  
**ASHTON WOODS**  
 FALLS RUN ROAD, ELLICOTT CITY, MD 21043-7260

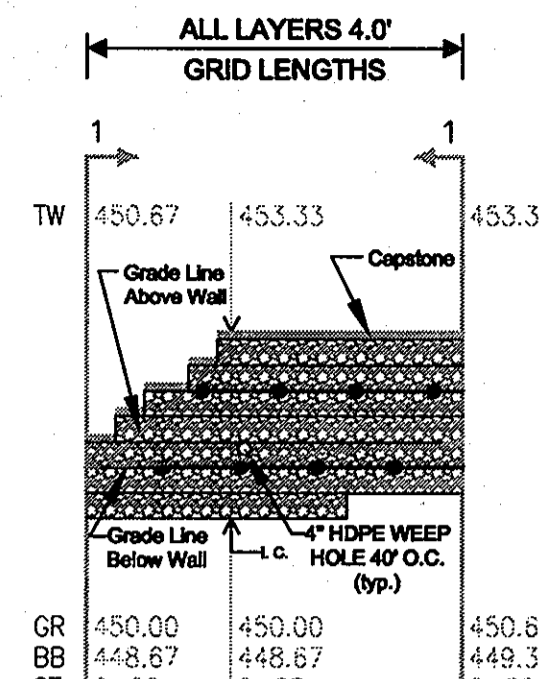
**PROFESSIONAL CERTIFICATION**  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 William K. Ryan, P.E.  
 License No: 21568  
 Expiration Date: 05/09/2009

ENGINEER SEAL

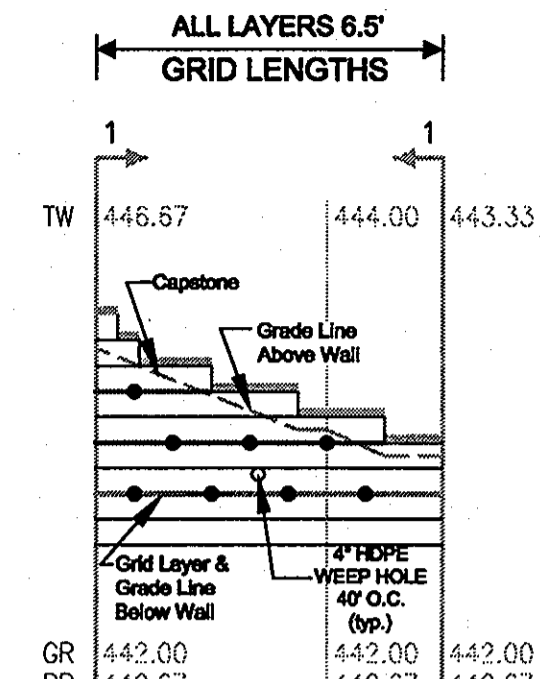
**WALL #17 PROFILE**  
(N. SIDE OF BUILDING 8469)



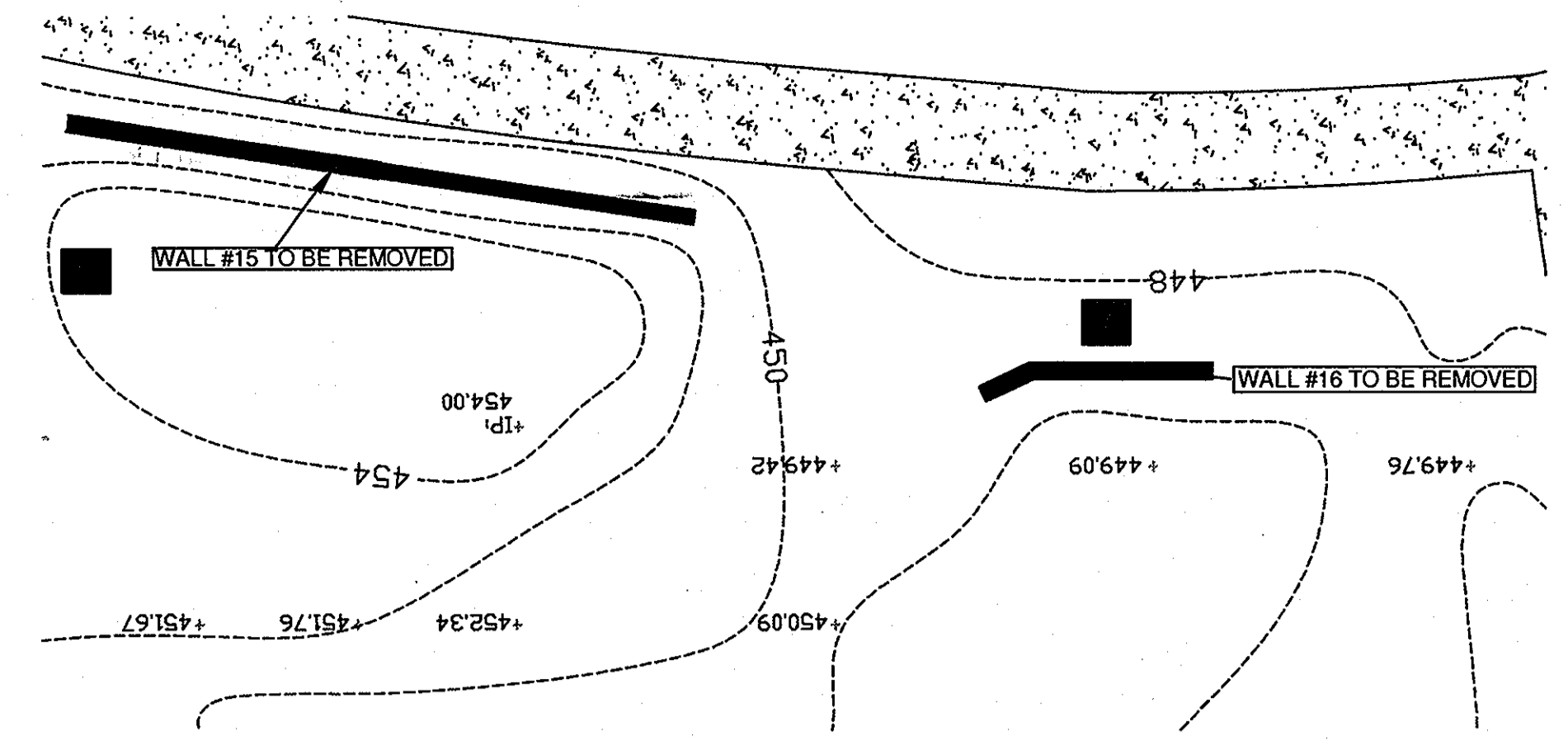
**WALL #18 PROFILE**  
(S. SIDE OF BUILDING 8469)



**WALL #19 PROFILE**  
(N. SIDE OF BUILDING 8459)

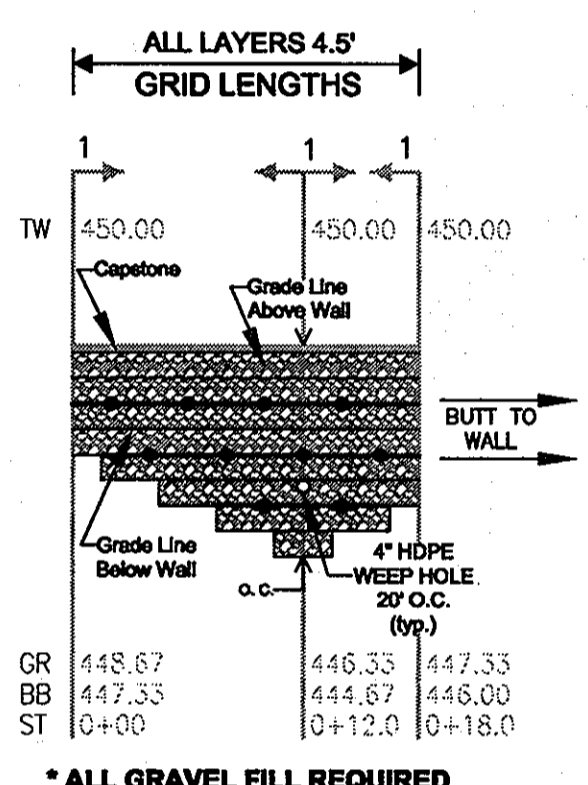


**GRID KEY: MIRAFI 3XT**  
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 BB = BOTTOM OF BLOCK / TOP OF LEVELING PAD  
 ST = WALL STATION  
 IC = INSIDE CORNER  
 OC = OUTSIDE CORNER  
 TA = TANGENT ANGLE  
**SCALE: H. 1"=10' V. 1"=5'**

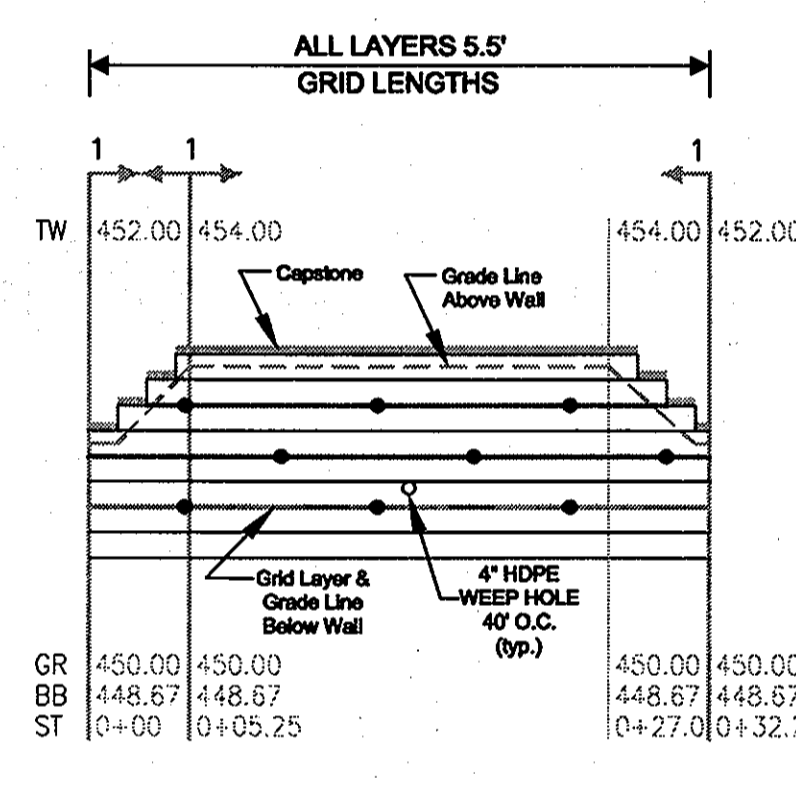


**WALLS #15 & 16 PLAN (@ BUILDING 8439)**

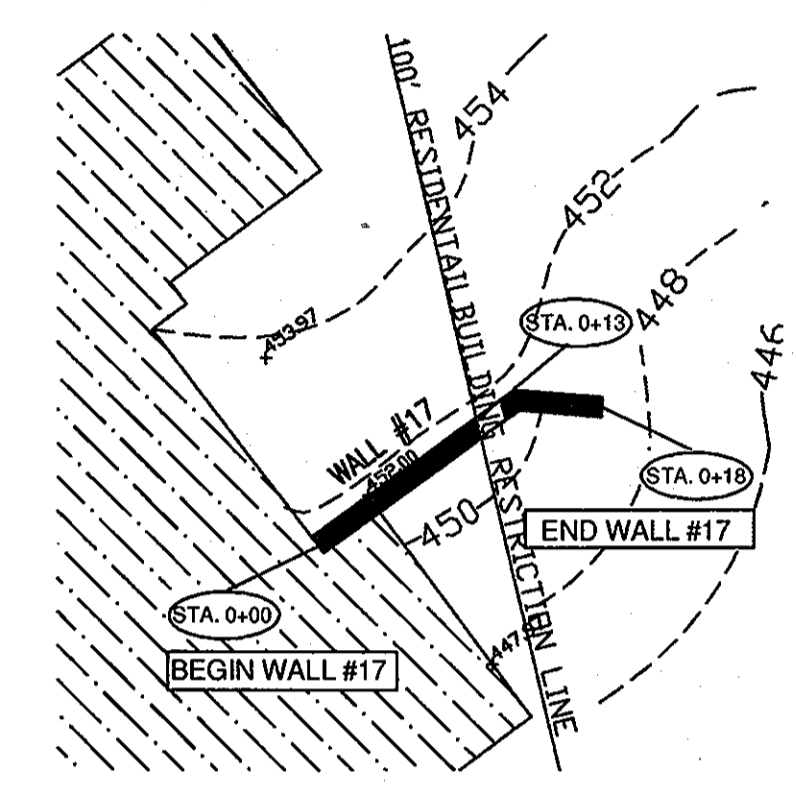
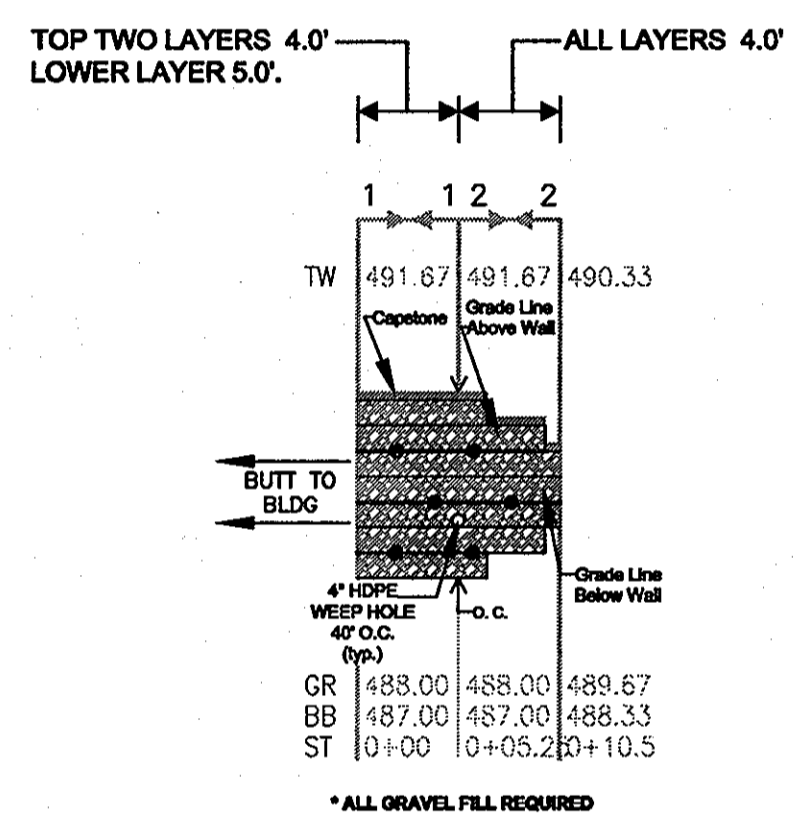
**WALL #20 PROFILE**  
(S. END OF OAKTON LANE)



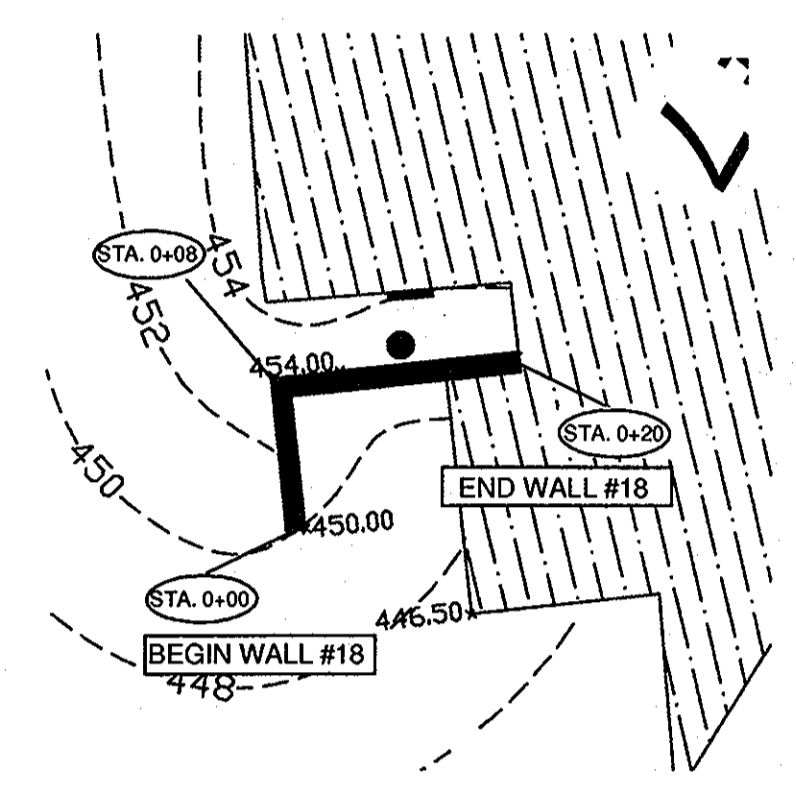
**WALL #21 PROFILE**  
(N. OF TENNIS COURTS ALONG OAKTON LANE)



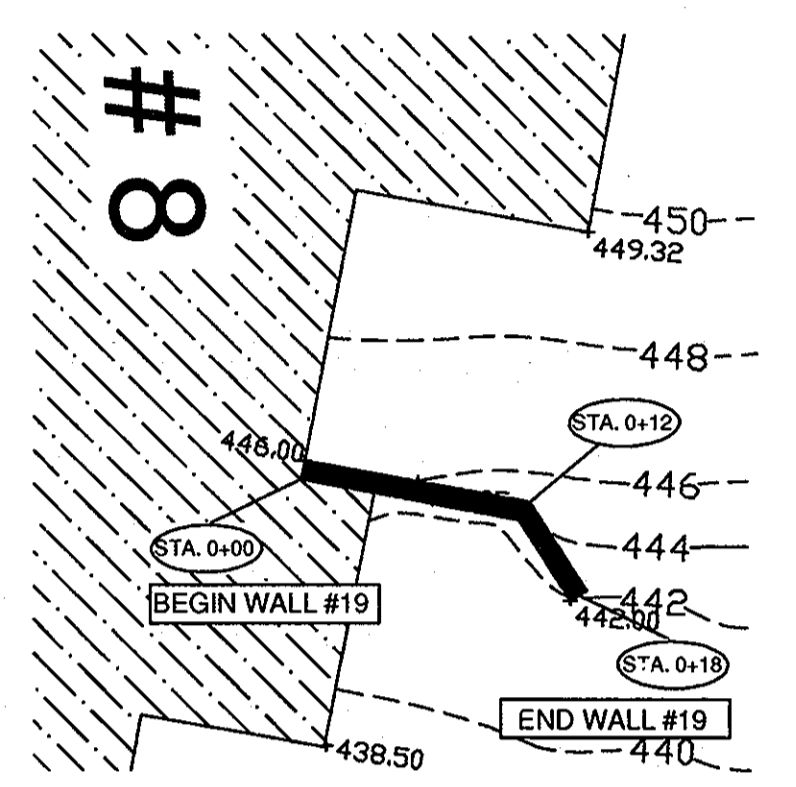
**WALL #22 PROFILE**  
(@ BUILDING 8424)



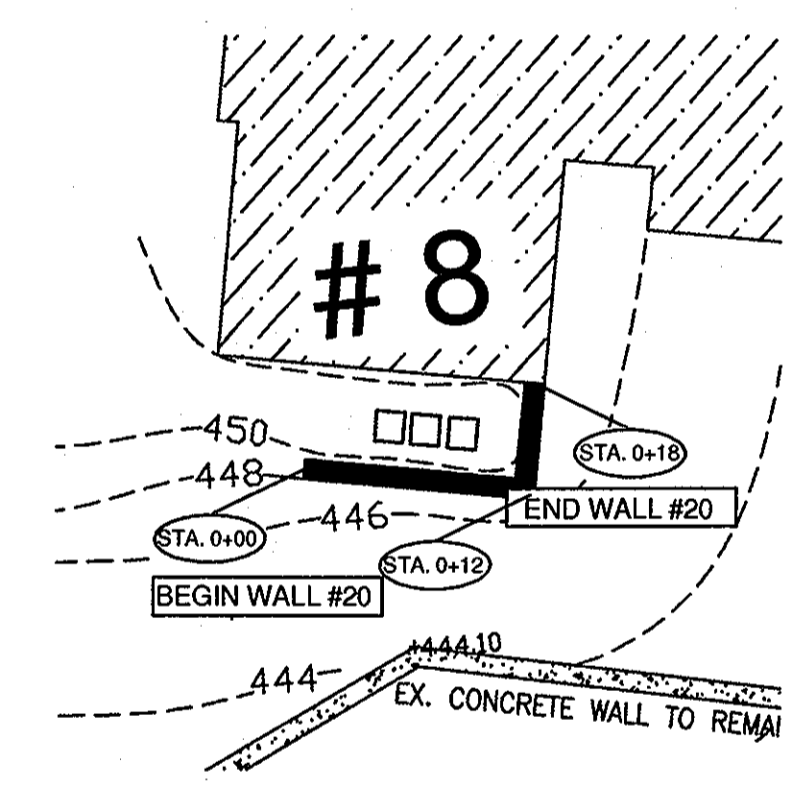
**WALL #17 PLAN**  
SCALE: 1"=10'



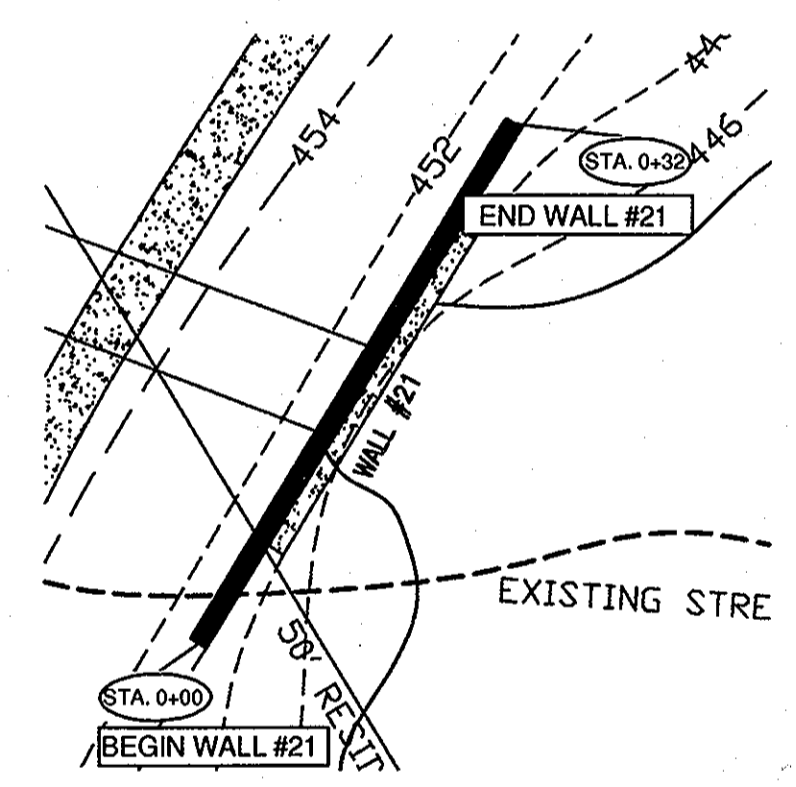
**WALL #18 PLAN**  
SCALE: 1"=10'



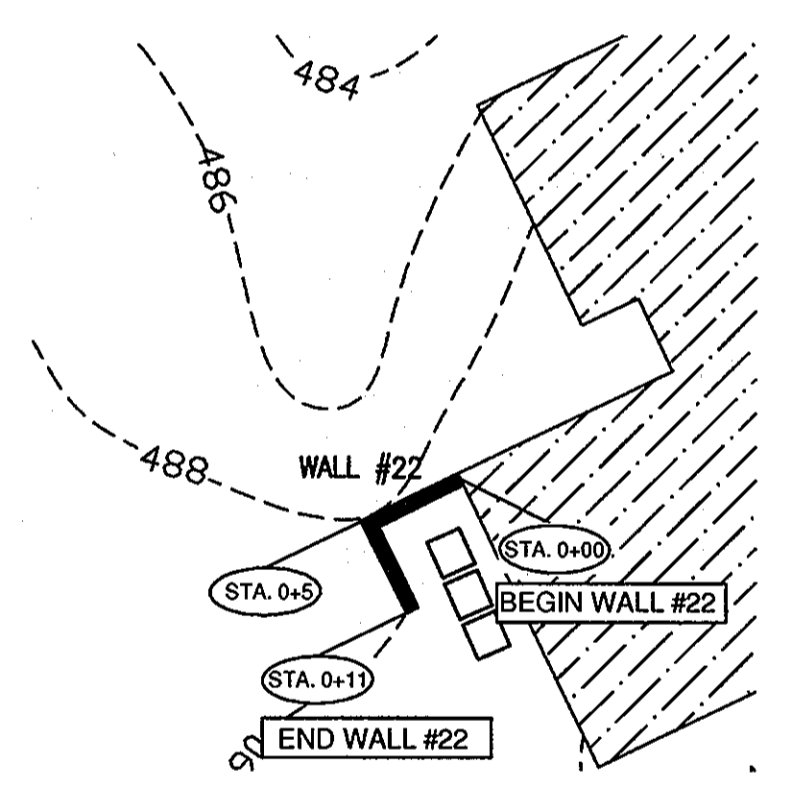
**WALL #19 PLAN**  
SCALE: 1"=10'



**WALL #20 PLAN**  
SCALE: 1"=10'

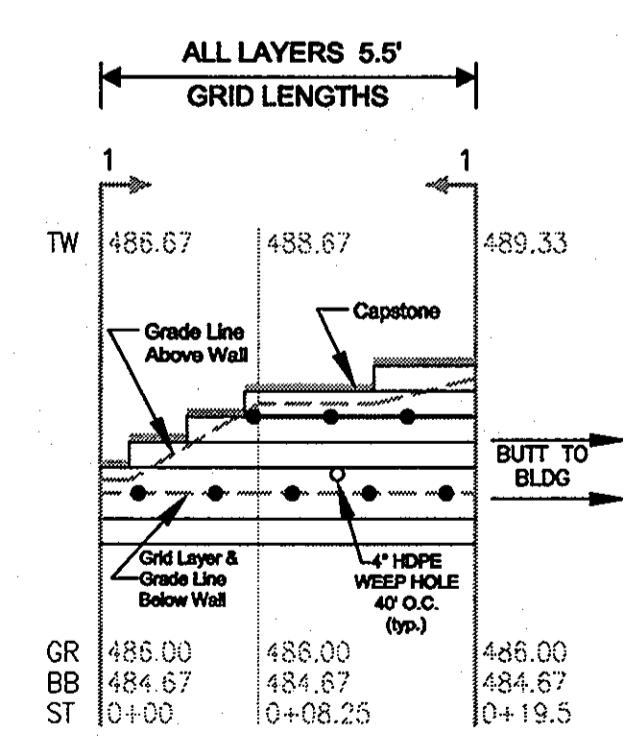


**WALL #21 PLAN**  
SCALE: 1"=10'

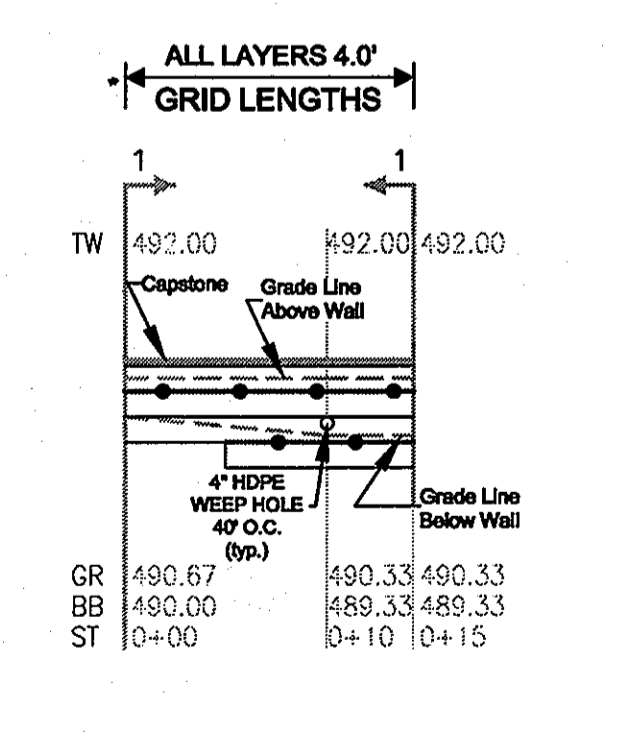


**WALL #22 PLAN**  
SCALE: 1"=10'

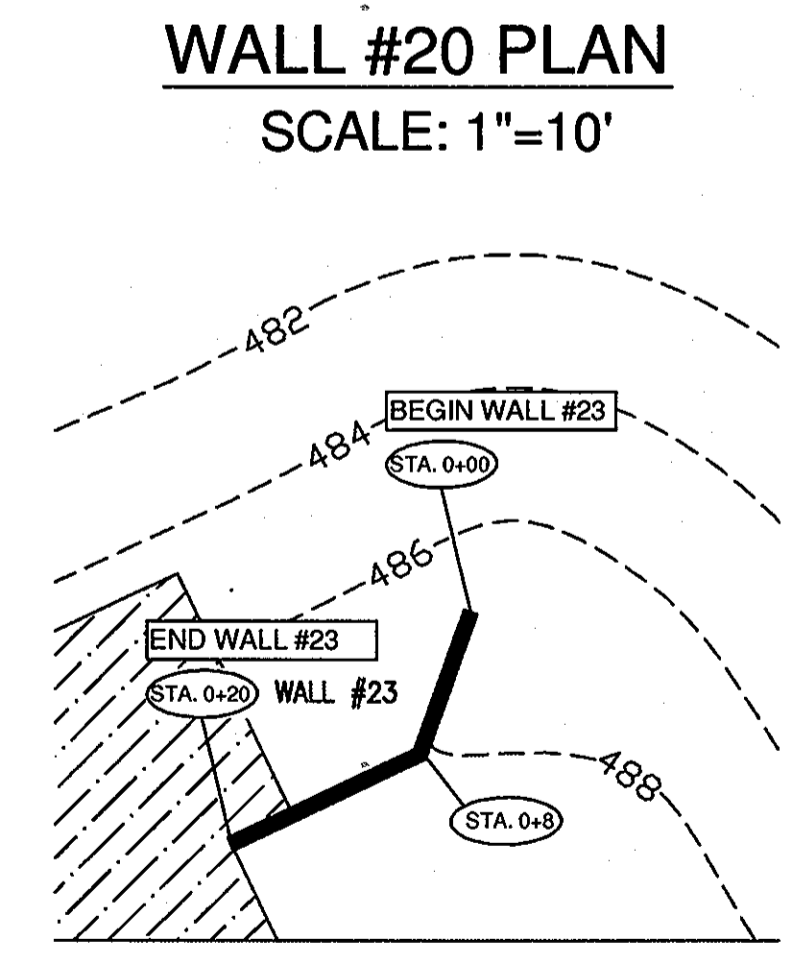
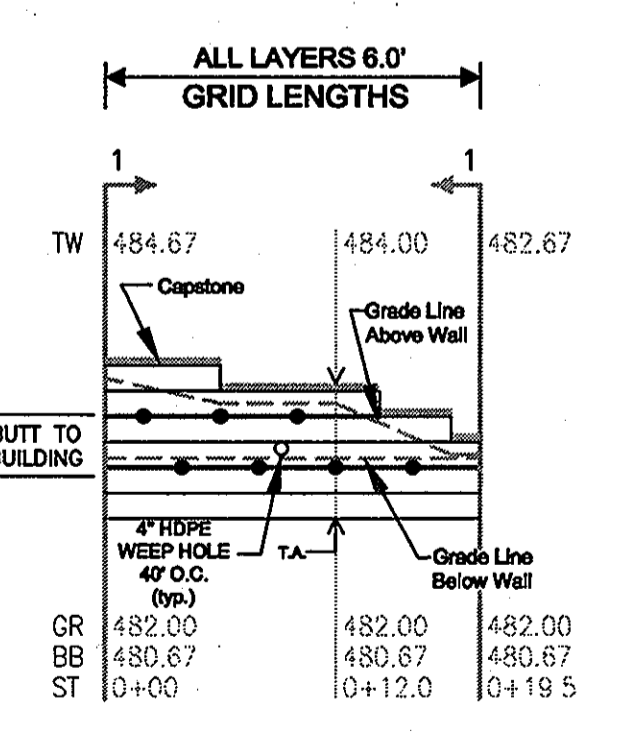
**WALL #23 PROFILE**  
(@ BUILDING 8420)



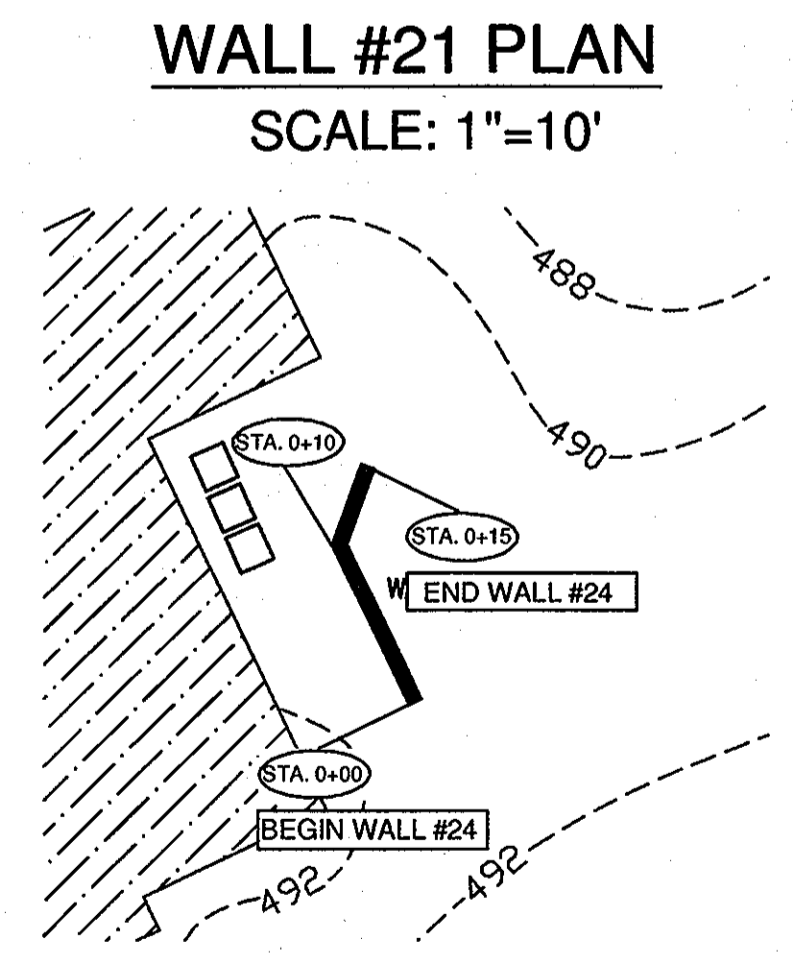
**WALL #24 PROFILE**  
(@ BUILDING 8420)



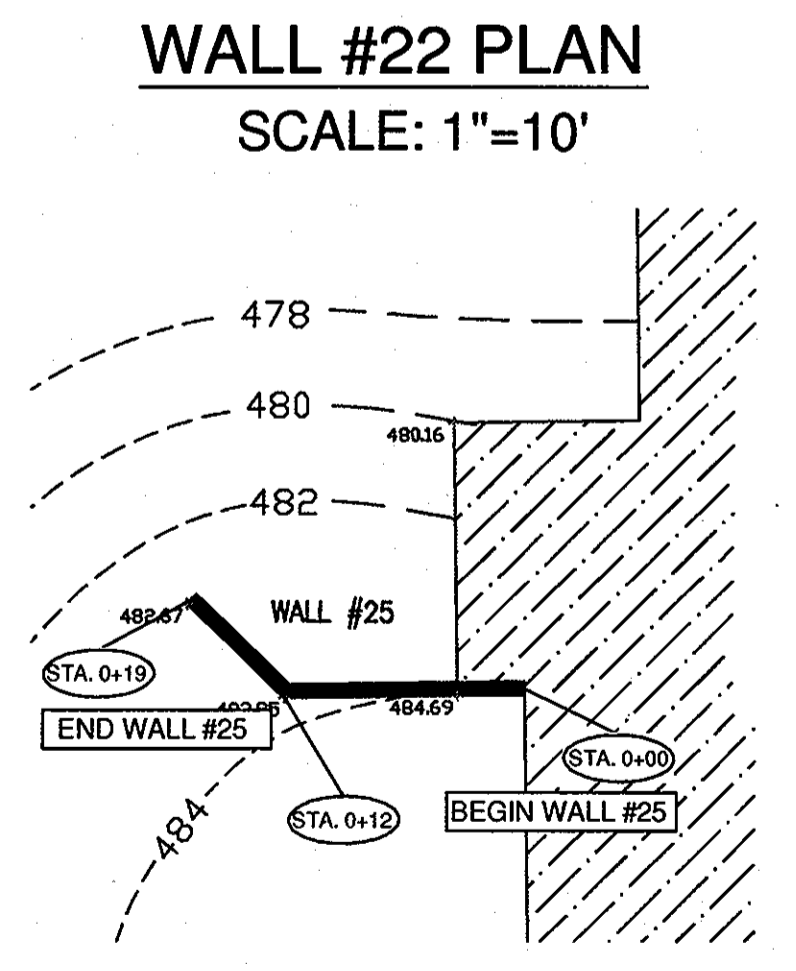
**WALL #25 PROFILE**  
(@ BUILDING 8414)



**WALL #23 PLAN**  
SCALE: 1"=10'



**WALL #24 PLAN**  
SCALE: 1"=10'



**WALL #25 PLAN**  
SCALE: 1"=10'

PERMIT INFORMATION CHART		
SUBDIVISION NAME: ASHTON WOODS	SECTION/AREA: N/A	LOT/PARCEL NO: 423 LOT 2
PLAT# OR L/F: #7522 & 7523	GRID#(M) ZONING: R-SA-8	TAX MAP NO:#31 ELECT. DIST: 2ND CENSUS TRACT: N/A
APPROVED: FOR PUBLIC OR PRIVATE (pick only one) WATER AND PUBLIC OR PRIVATE (pick only one) SEWERAGE SYSTEMS		
COUNTY HEALTH OFFICER HOWARD COUNTY HEALTH DEPARTMENT		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE: 08/21/11	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE: 8/29/11	
DIRECTOR	DATE: 8/29/11	

REVISIONS		
No.	DATE	DESCRIPTION
1	09-28-08	WKR REVISIONS IN WALL RIVER TO EXIST ON SITE SOILS
2	08-30-11	WKR REVISED SITE DEVELOPMENT PLANS SUBMITTAL TO COUNTY APPENDIX TO SDP-89-254

DRAWN BY: JO  
 DESIGN BY: JONCH  
 CHECKED BY: WKR  
 DATE: 3/26/08  
 DO NOT SCALE THIS DRAWING. DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWING.

CLIENT: U.S. LAWS OF BALTIMORE  
 OWNER: DOLBEN COMPANIES  
 JOB No: 1123-07-03

**Ryan & Associates**  
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 Hagerstown, MD Office  
 1825 Howell Road, Suite 3  
 Hagerstown, MD 21740  
 301-671-3200 (ph)  
 301-360-9574 (fx)

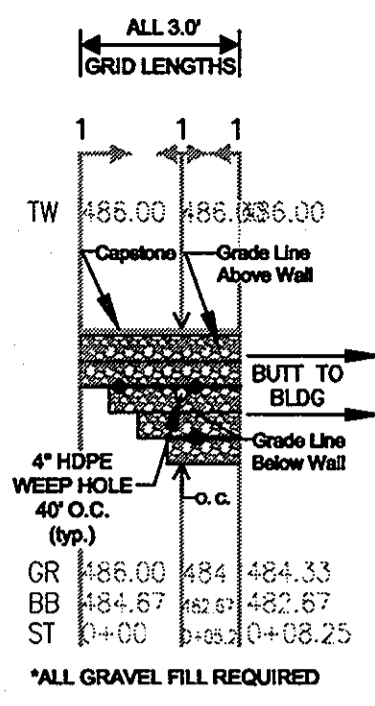
Frederick, MD Office  
 2412 Wynfield Ct.  
 Frederick, MD 21702  
 301-360-9534 (ph)  
 301-360-9574 (fx)

**ANCHOR DIAMOND PRO RETAINING WALL DESIGNS**  
 TYPICAL DETAILS  
**ASHTON WOODS**  
 FALLS RUN ROAD, ELLICOTT CITY, MD 21043-7260

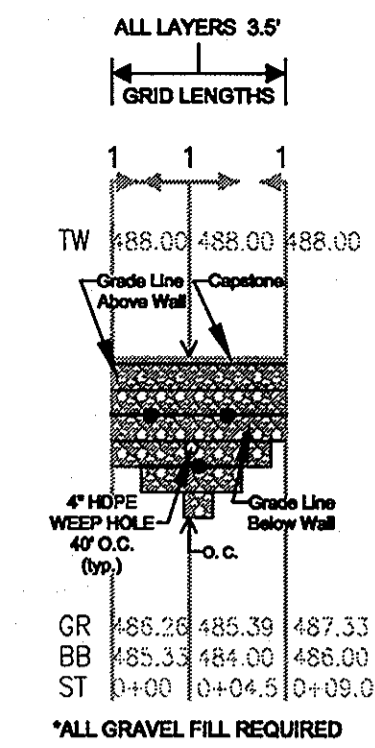
STATE OF MARYLAND  
 PROFESSIONAL ENGINEERING  
 WILLIAM K. RYAN, P.E.  
 LICENSE NO. 21190  
 EXPIRES 06/30/11  
 ENGINEER SEAL

PROFESSIONAL CERTIFICATION  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 SHEET 38 of 42

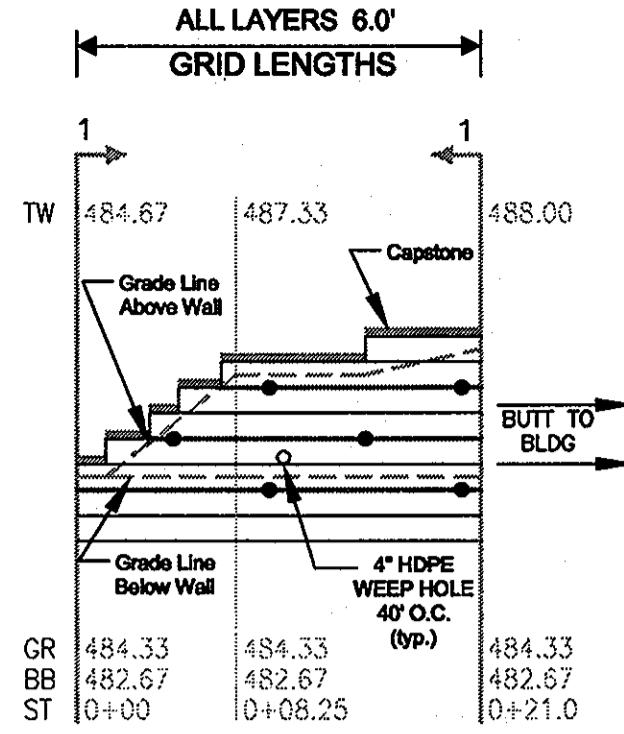
**WALL #26 PROFILE**  
 (@ BUILDING 8410)



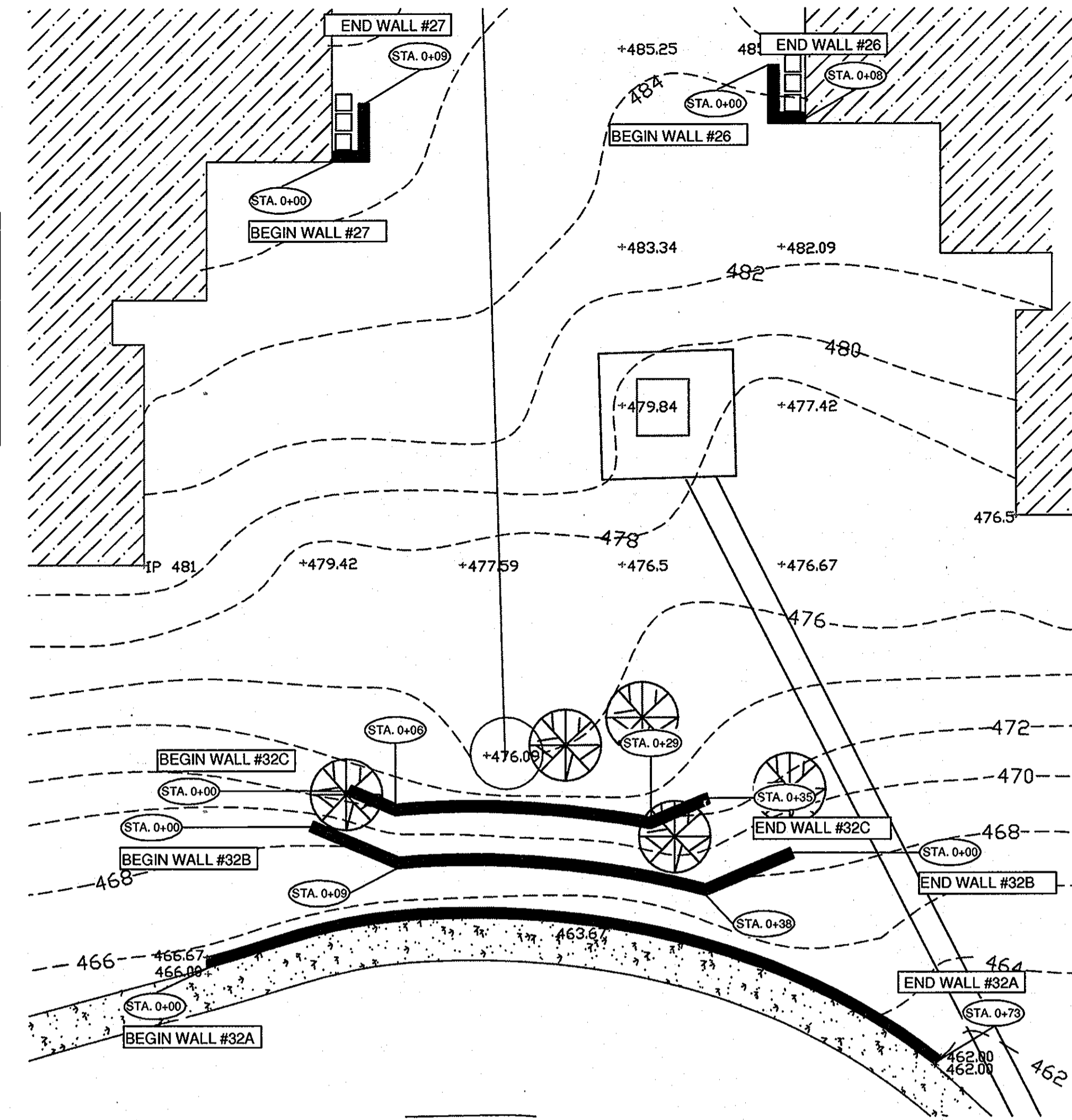
**WALL #27 PROFILE**  
 (@ BUILDING 8410)



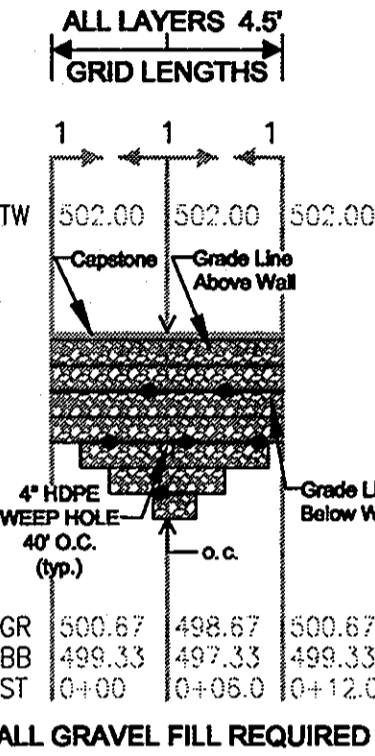
**WALL #28 PROFILE**  
 (@ BUILDING 8400)



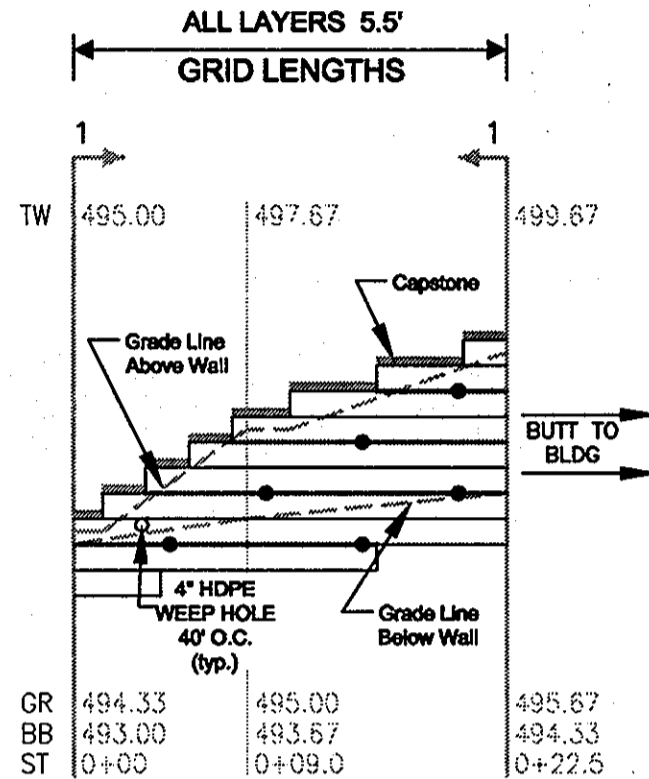
**GRID KEY: MIRAFI 3XT**  
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 GR = PROPOSED FINISHED GRADE AT BASE OF WALL  
 BB = BOTTOM OF BLOCK / TOP OF LEVELING PAD  
 ST = WALL STATION  
 IC = INSIDE CORNER  
 OC = OUTSIDE CORNER  
 TA = TANGENT ANGLE  
 SCALE: H. 1"=10' V. 1"=5'



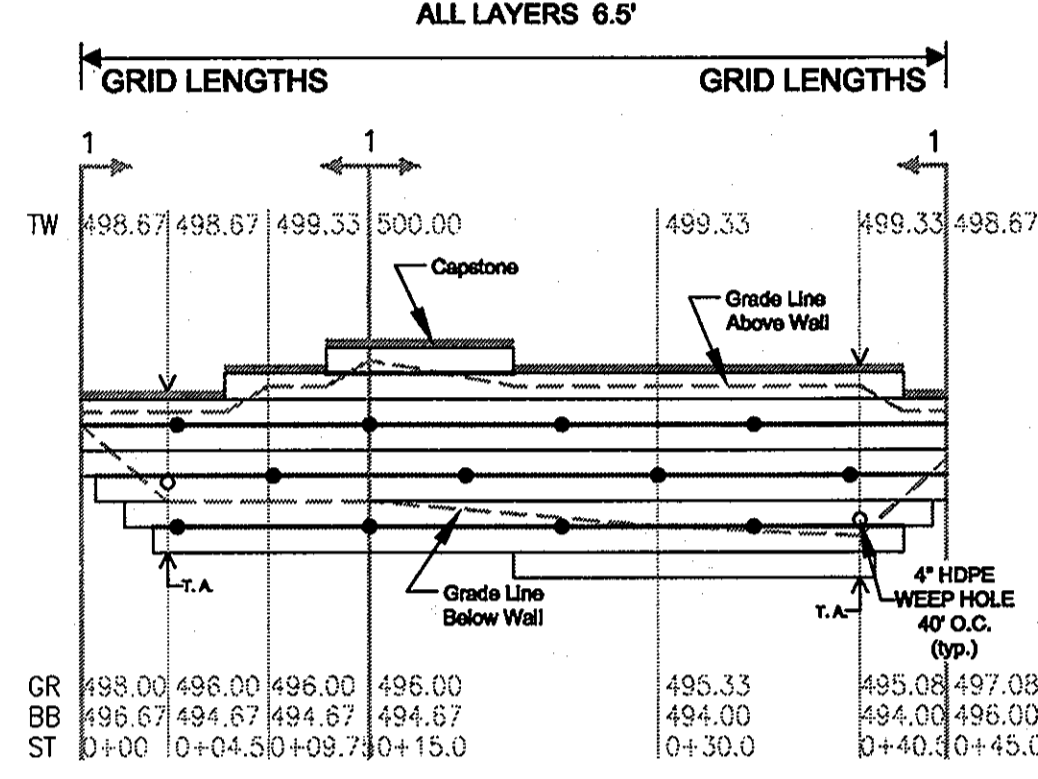
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 (@ BUILDING 8454)



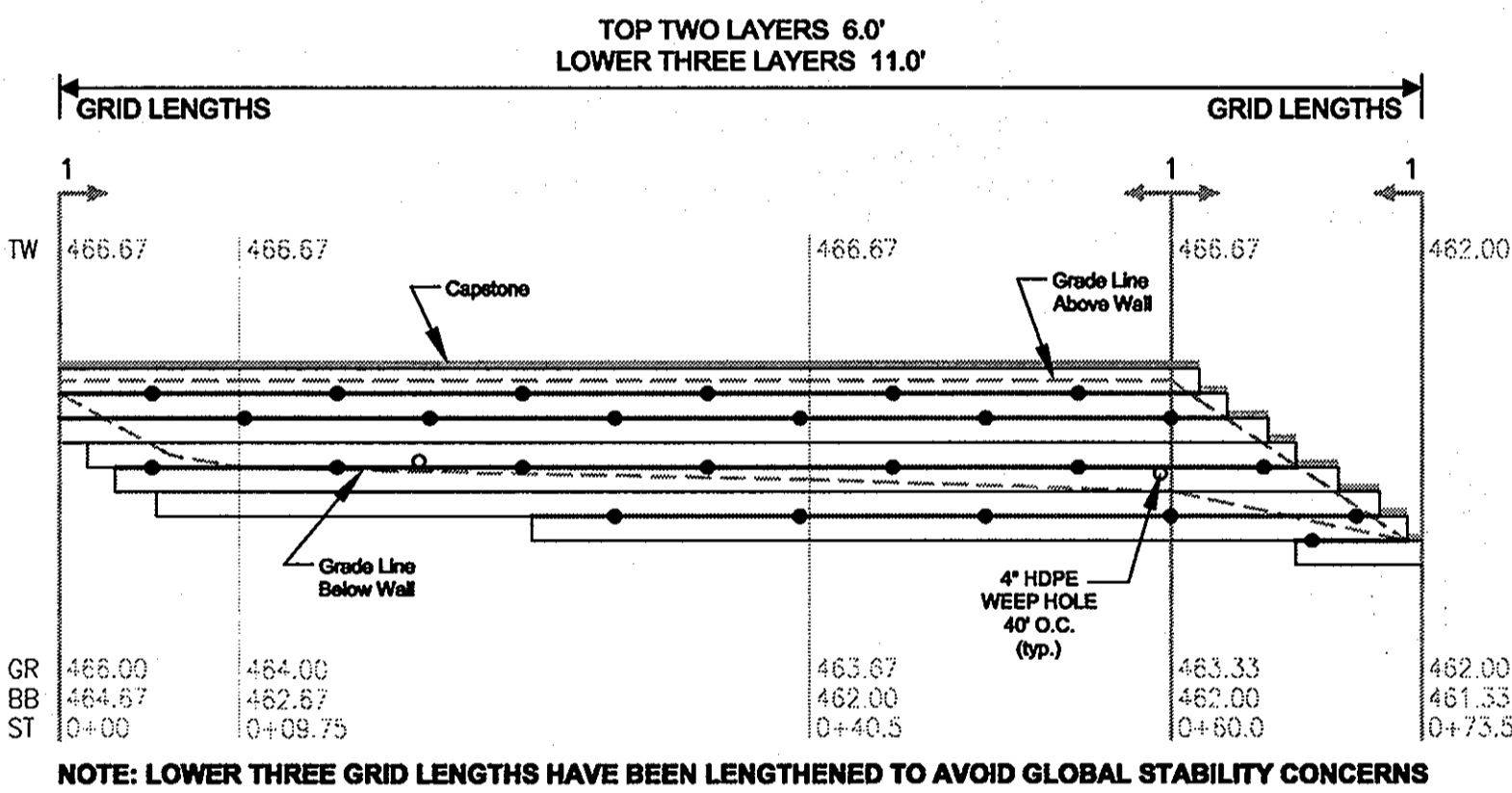
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 (@ BUILDING 8450)



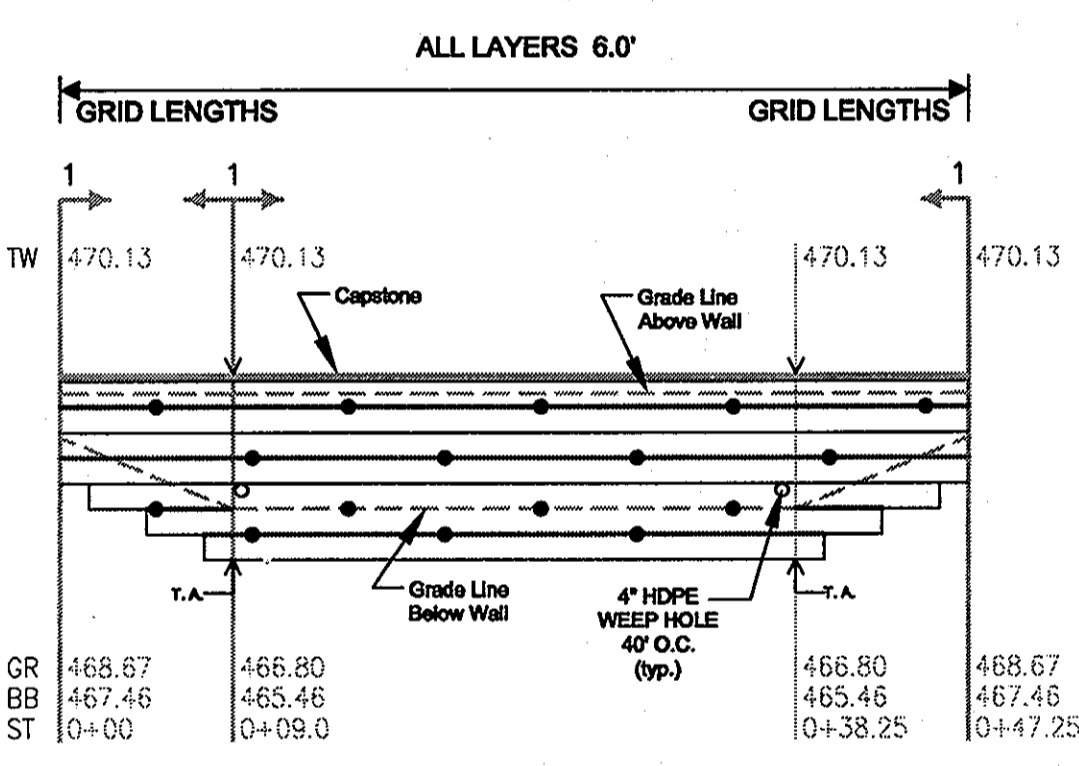
**WALL #31 PROFILE**  
 (@ BUILDING 8440)



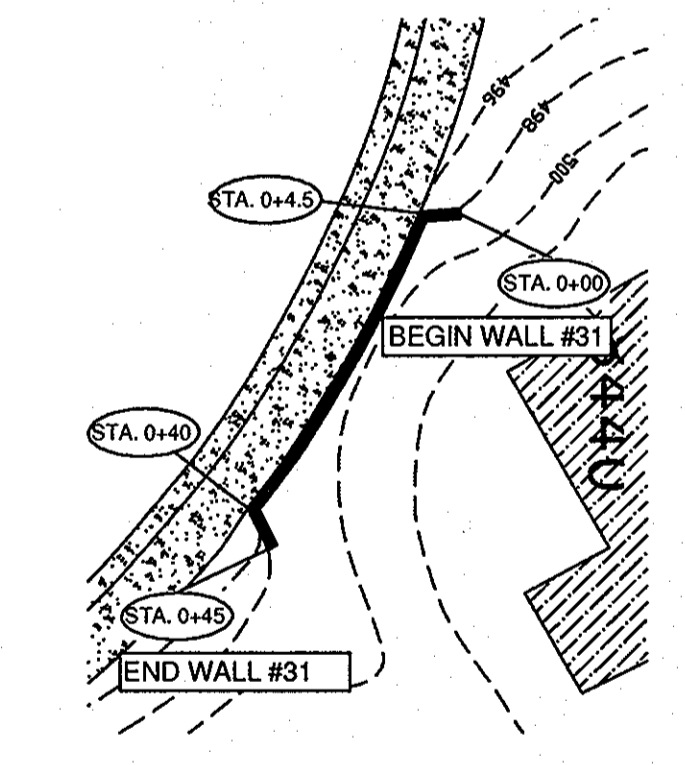
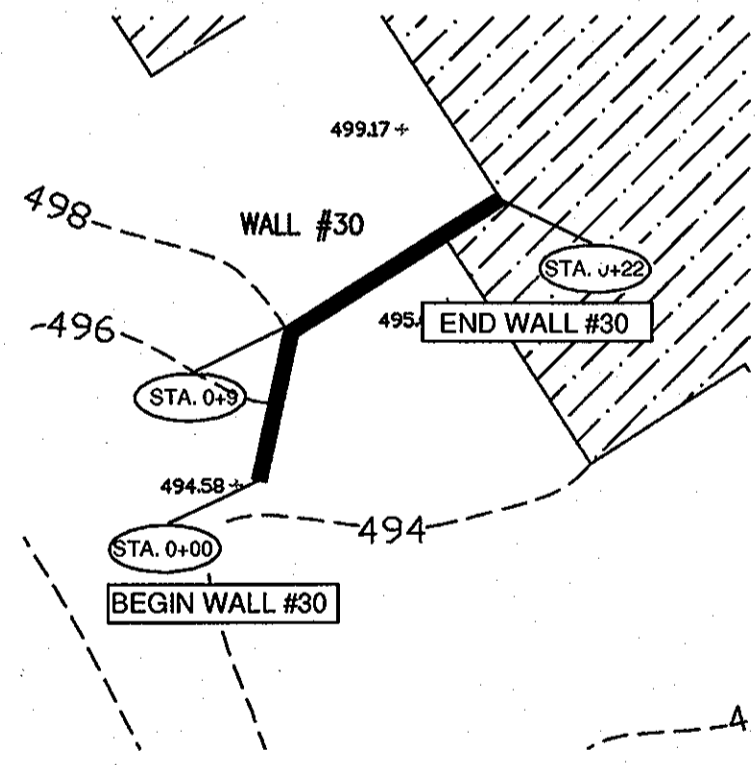
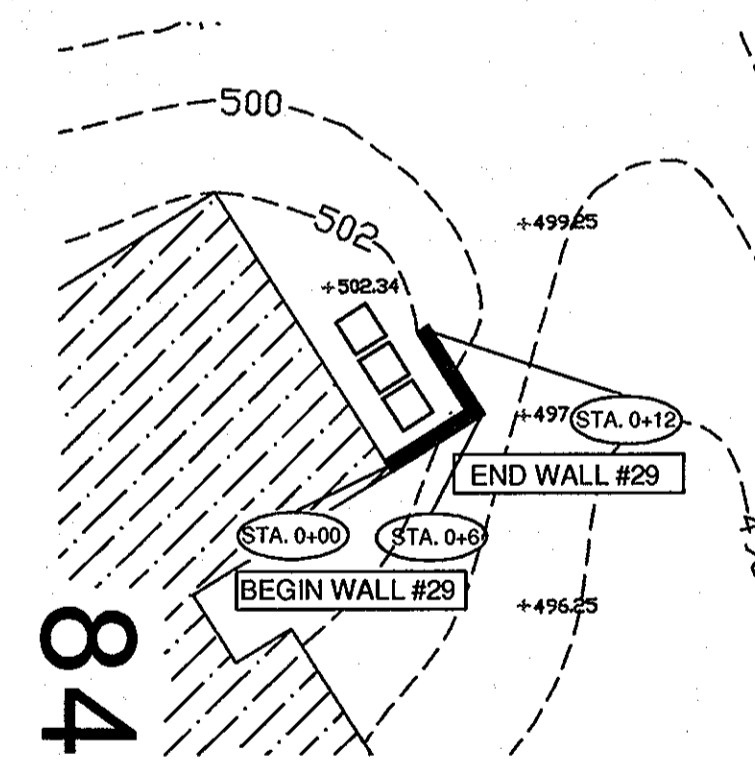
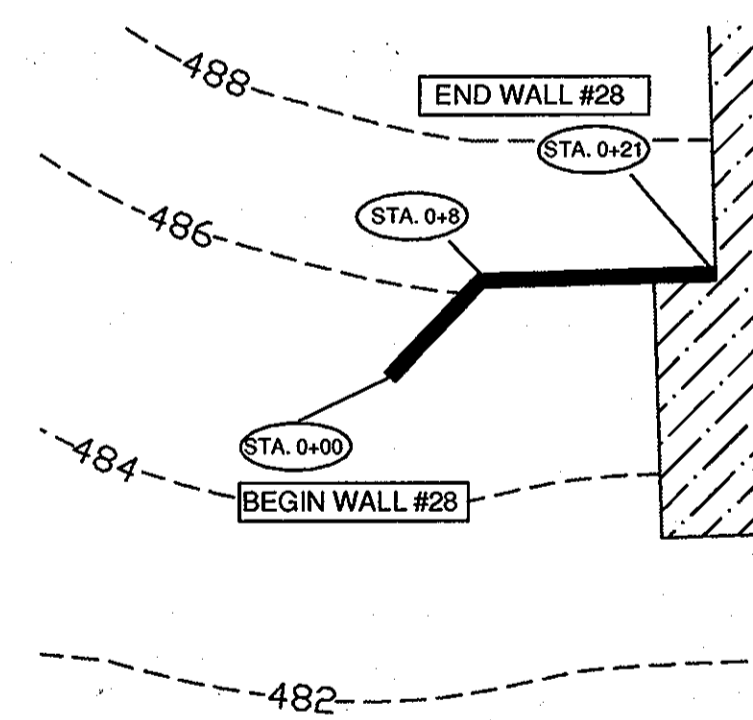
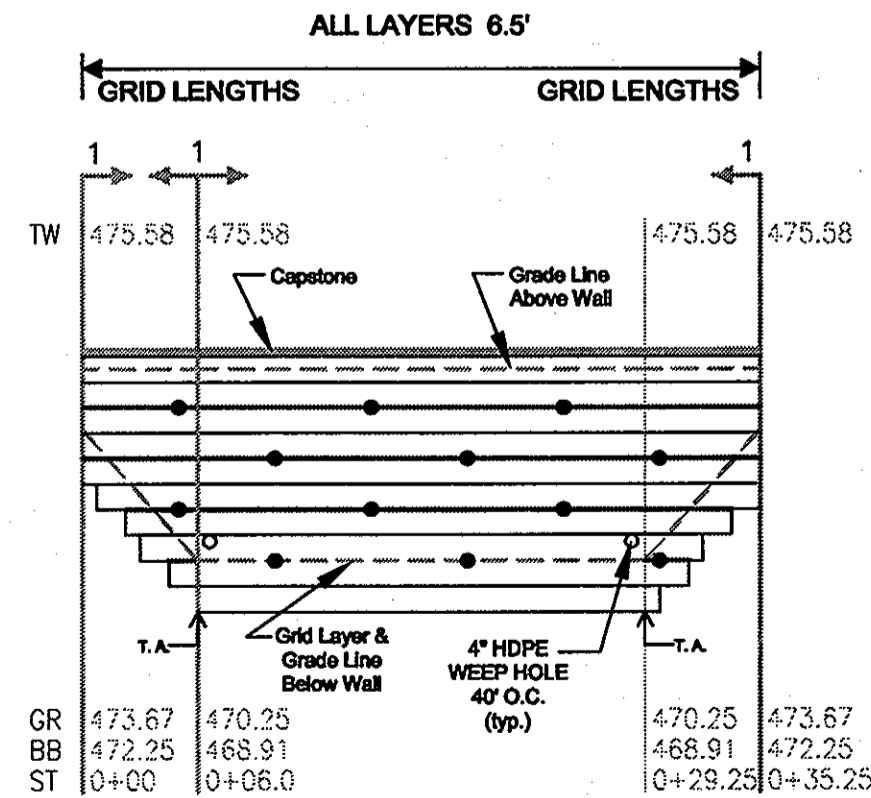
**WALL #32A PROFILE**  
 (BEHIND BUILDING 8410)



**WALL #32B PROFILE**  
 (BEHIND BUILDING 8410)



**WALL #32C PROFILE**  
 (BEHIND BUILDING 8410)



PERMIT INFORMATION CHART			
SUBDIVISION NAME: ASHTON WOODS	SECTION/AREA: N/A	LOT/PARCEL NO: 423 LOT 2	
PLAT# OR L/F: #7522 & 7523	GRID#/WALZONING: R-SA-8	TAX MAP NO:#31	ELECT. DIST: 2ND CENSUS TRACT: N/A
APPROVED: FOR PUBLIC OR PRIVATE (pick only one) WATER AND PUBLIC OR PRIVATE (pick only one) SEWERAGE SYSTEMS			
COUNTY HEALTH OFFICER	DATE		
HOWARD COUNTY HEALTH DEPARTMENT			
APPROVED: DEPARTMENT OF PLANNING AND ZONING			
<i>Mark D...</i>	DATE		
CHIEF, DEVELOPMENT ENGINEERING DIVISION	3/25/11		
<i>Kit De...</i>	DATE		
CHIEF, DIVISION OF LAND DEVELOPMENT	3/29/11		
<i>Thomas J. Butler</i>	DATE		
DIRECTOR			

REVISIONS		
No.	DATE	DESCRIPTION
1	10-28-08	WKR REVISED INHILL DUE TO POOR ON SITE SOILS
2	06-30-11	GRD REVISED SITE DEVELOPMENT PLAN SUBMITTAL TO COUNTY, ADDENDUM TO SDP-89-254

DRAWN BY: JD	CLIENT: U.S. LAWS OF BALTIMORE
DESIGN BY: JOIC7	OWNER: DOLBEN COMPANIES
CHECKED BY: WKR	JOB No: 1123-07-03
DATE: 3/29/11	

**Ryan & Associates**  
 A Division of WKR Consulting Inc.

Hagerstown, MD Office  
 1825 Howell Road, Suite 3  
 Hagerstown, MD 21740  
 301-671-3200 (ph)  
 301-360-9574 (fx)

Frederick, MD Office  
 2412 Wynfield Ct.  
 Frederick, MD 21702  
 301-360-9534 (ph)  
 301-360-9574 (fx)

**ANCHOR DIAMOND PRO RETAINING WALL DESIGNS**  
 WALL PLANS/PROFILES

**ASHTON WOODS**

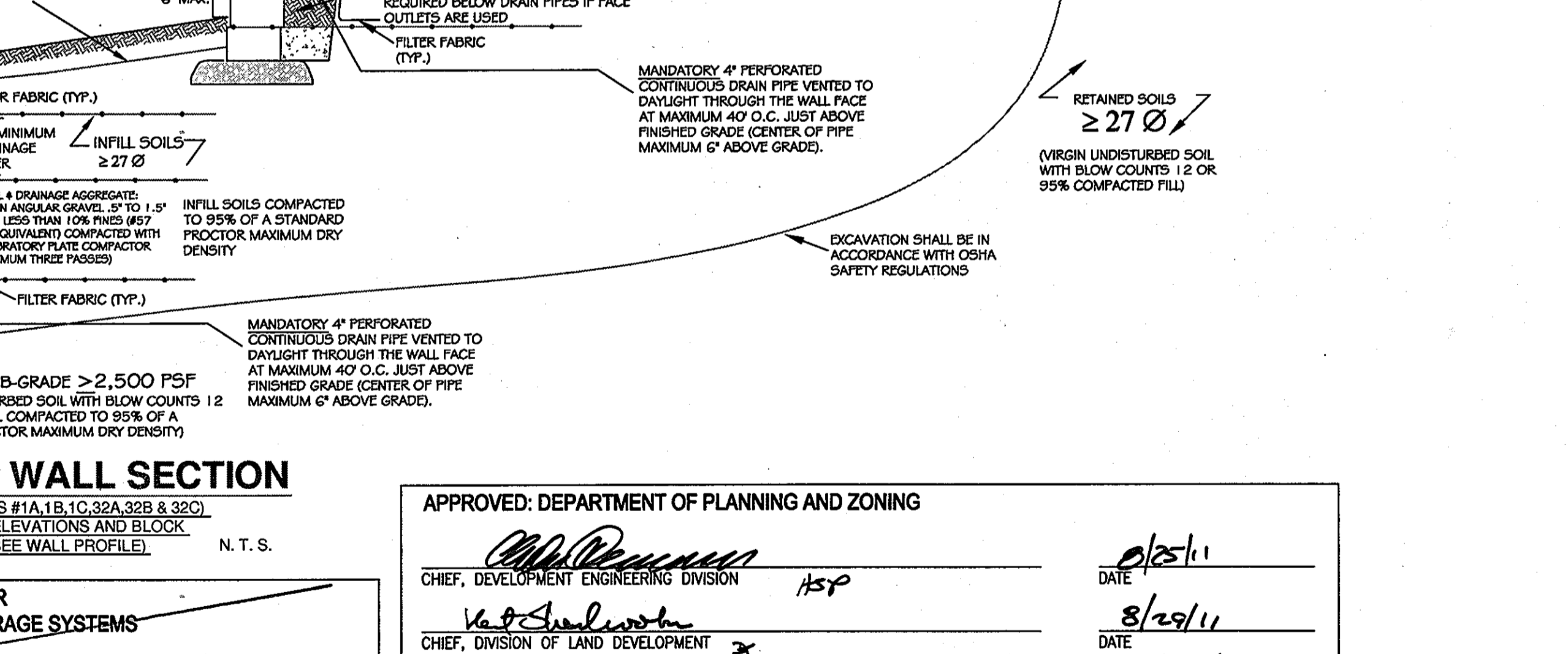
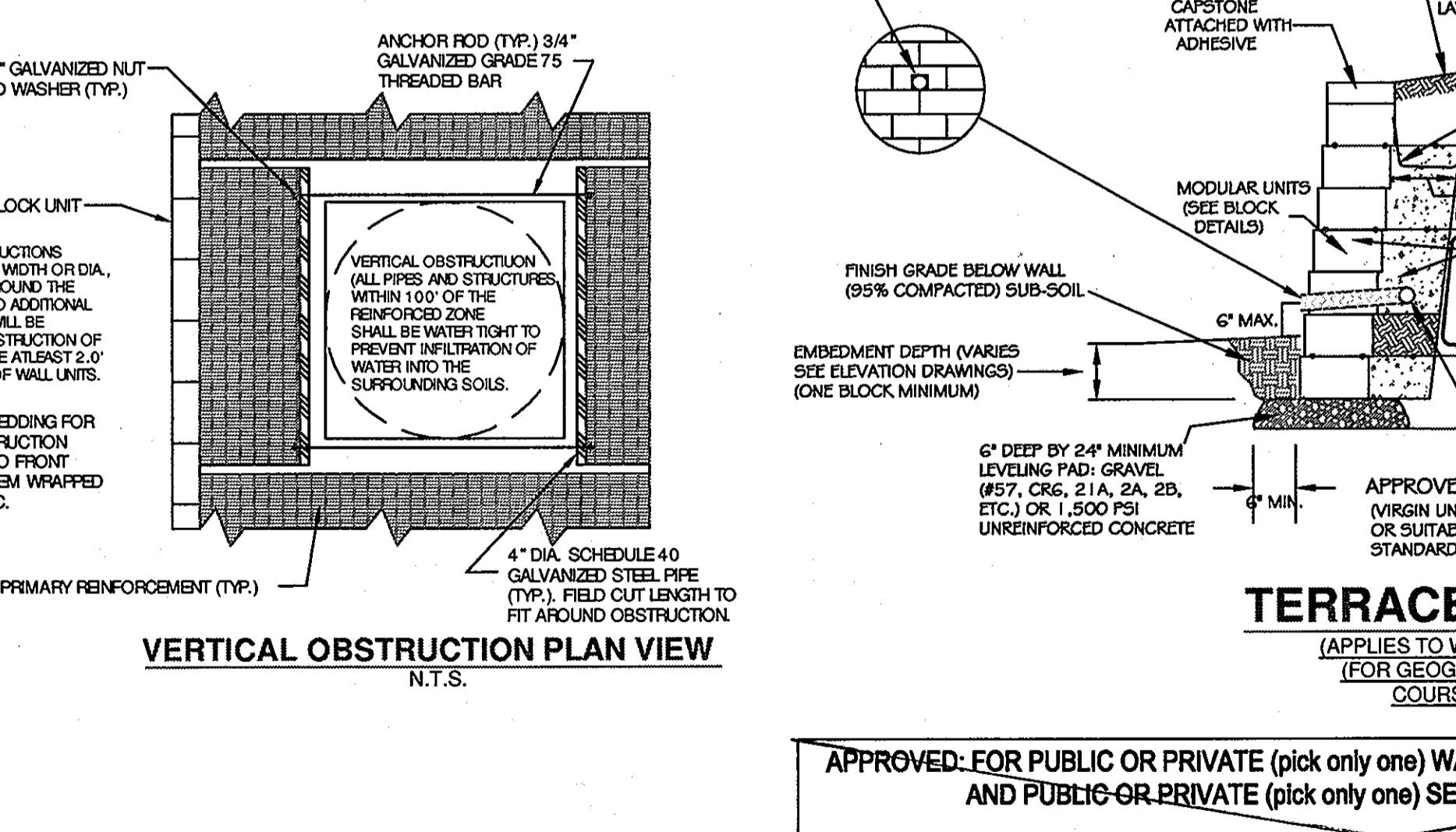
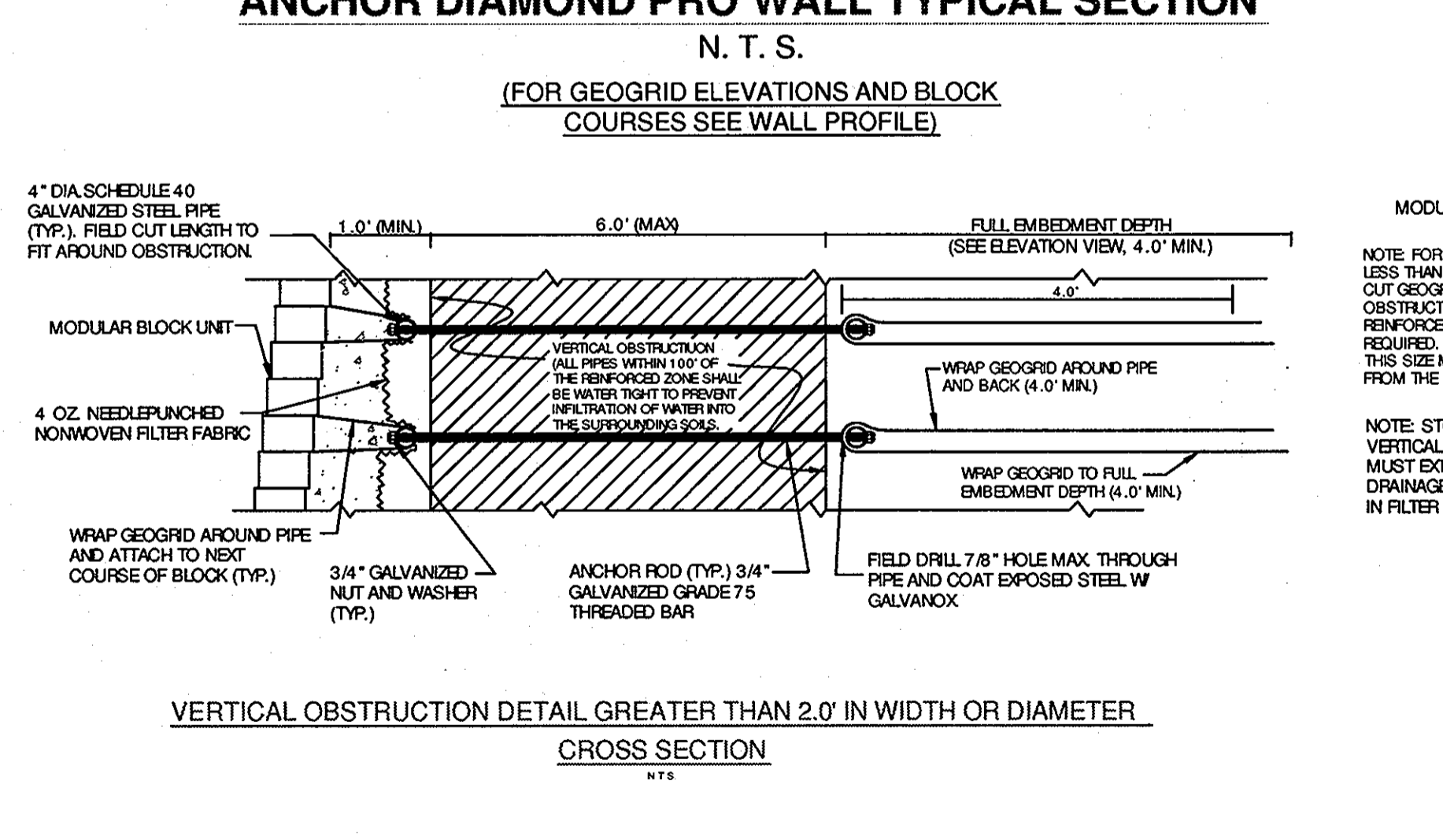
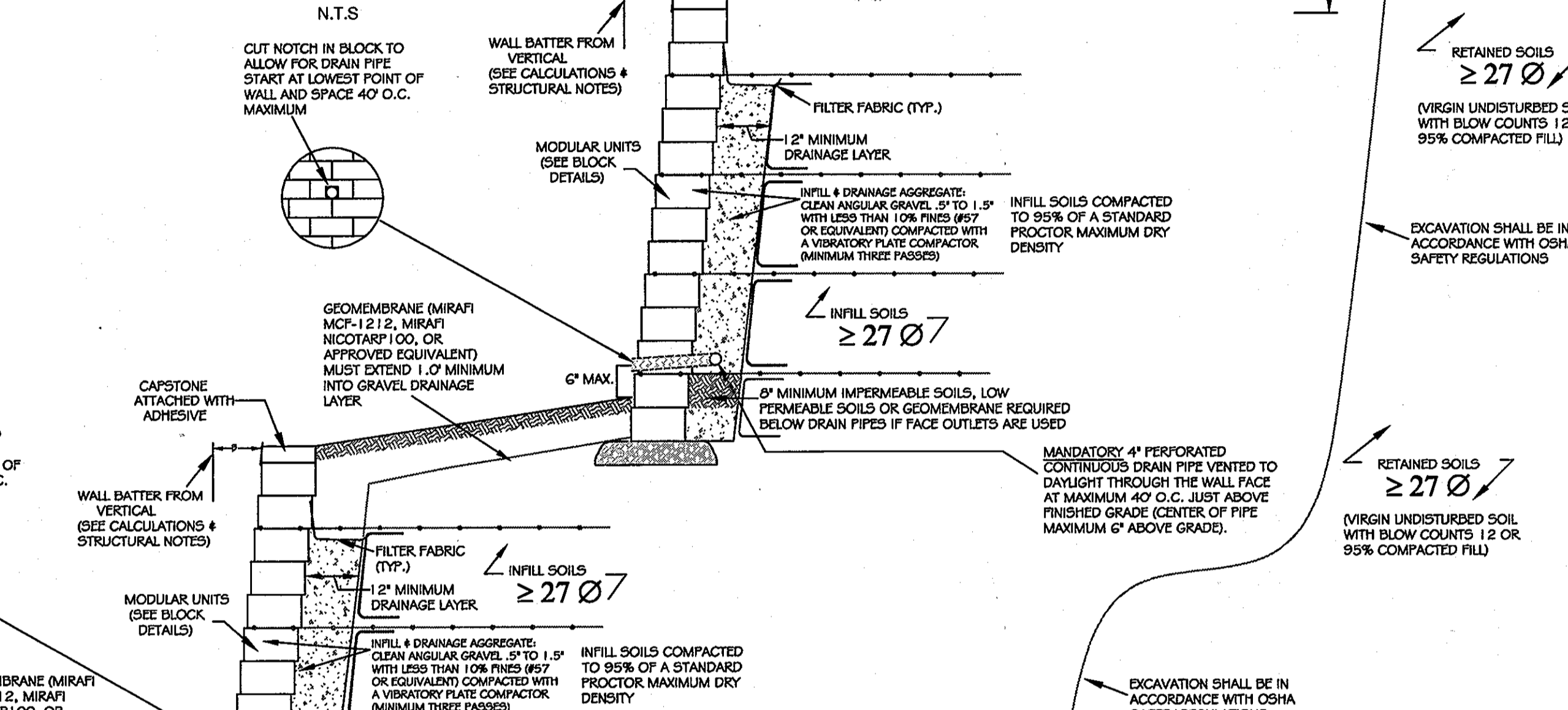
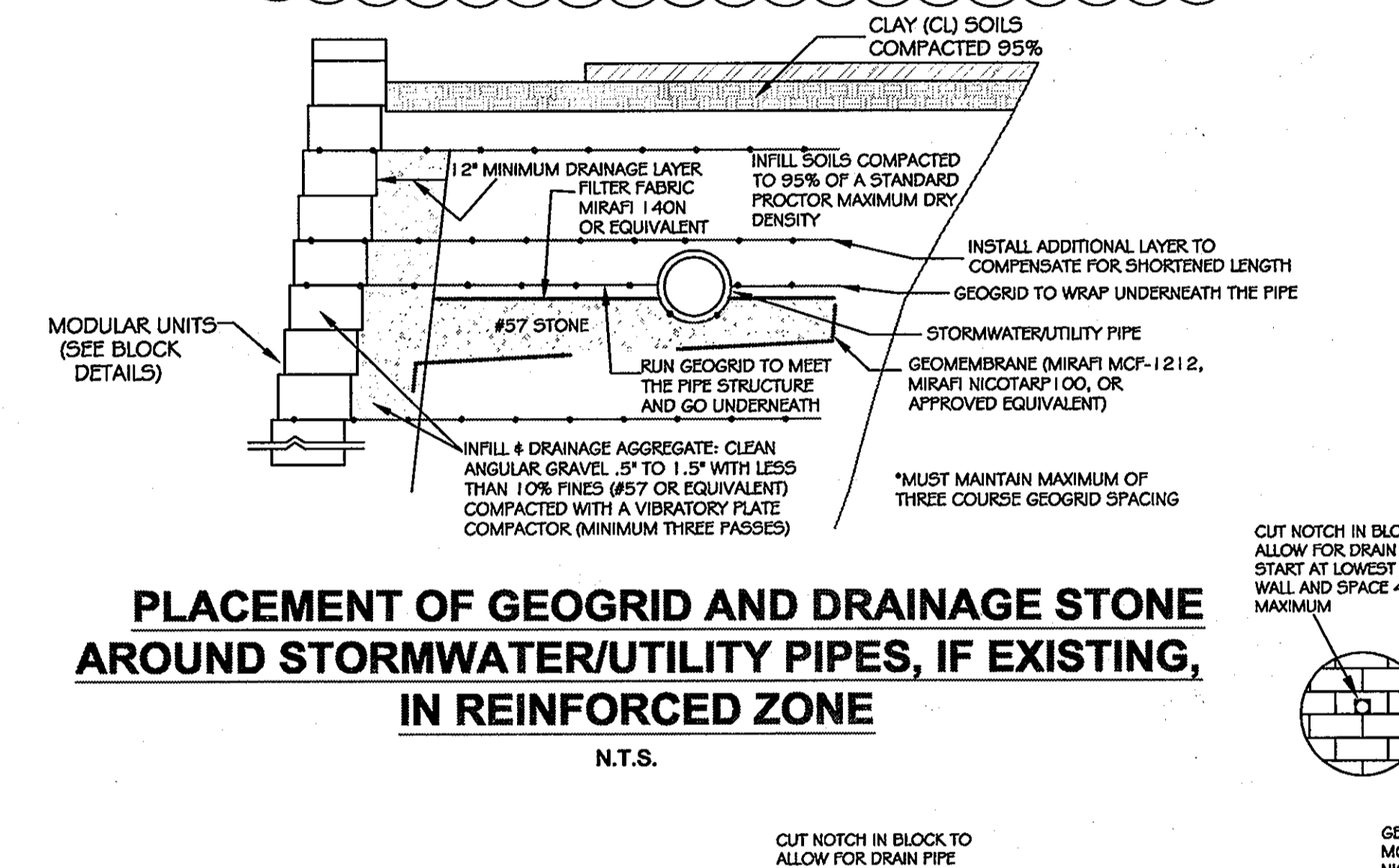
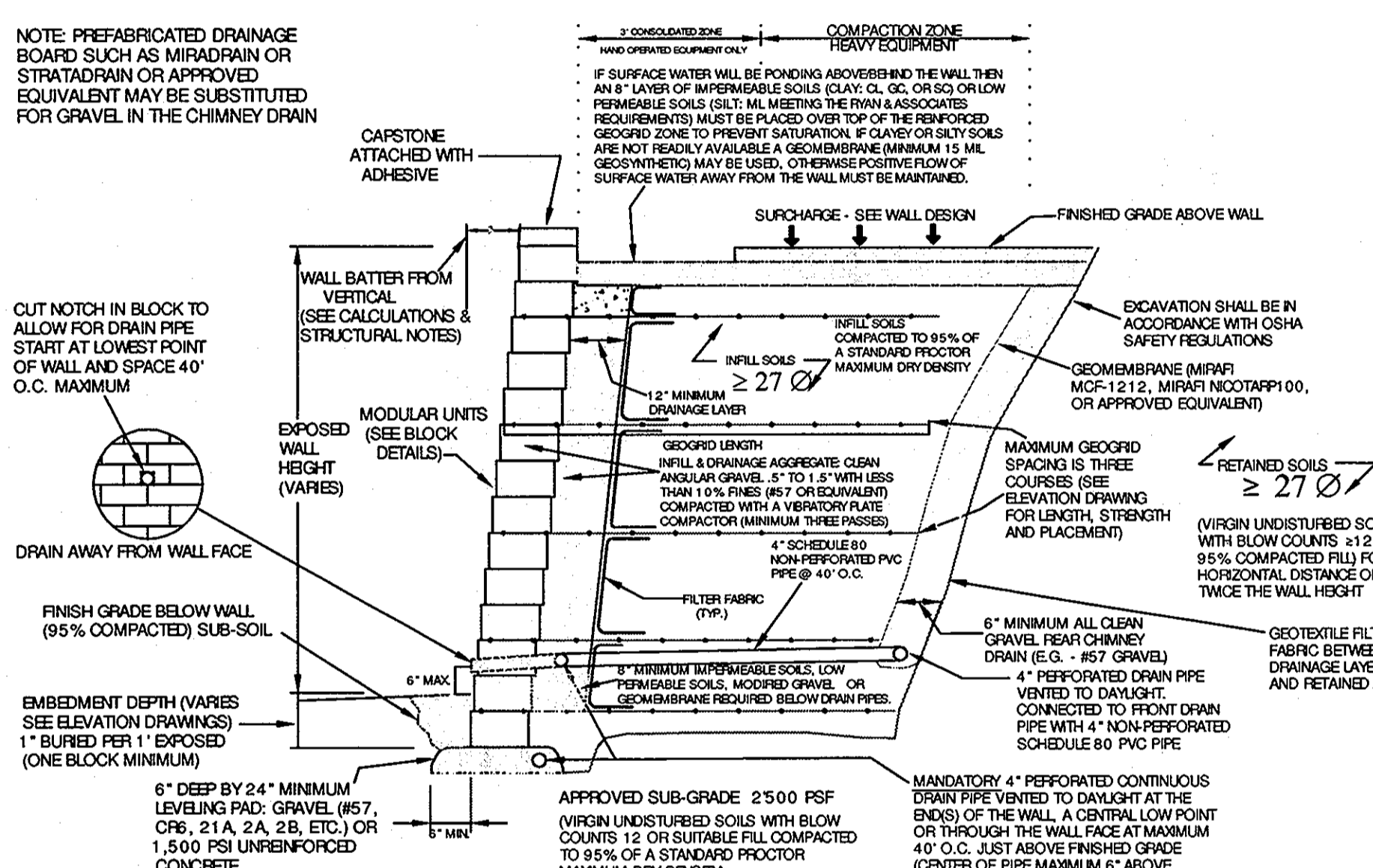
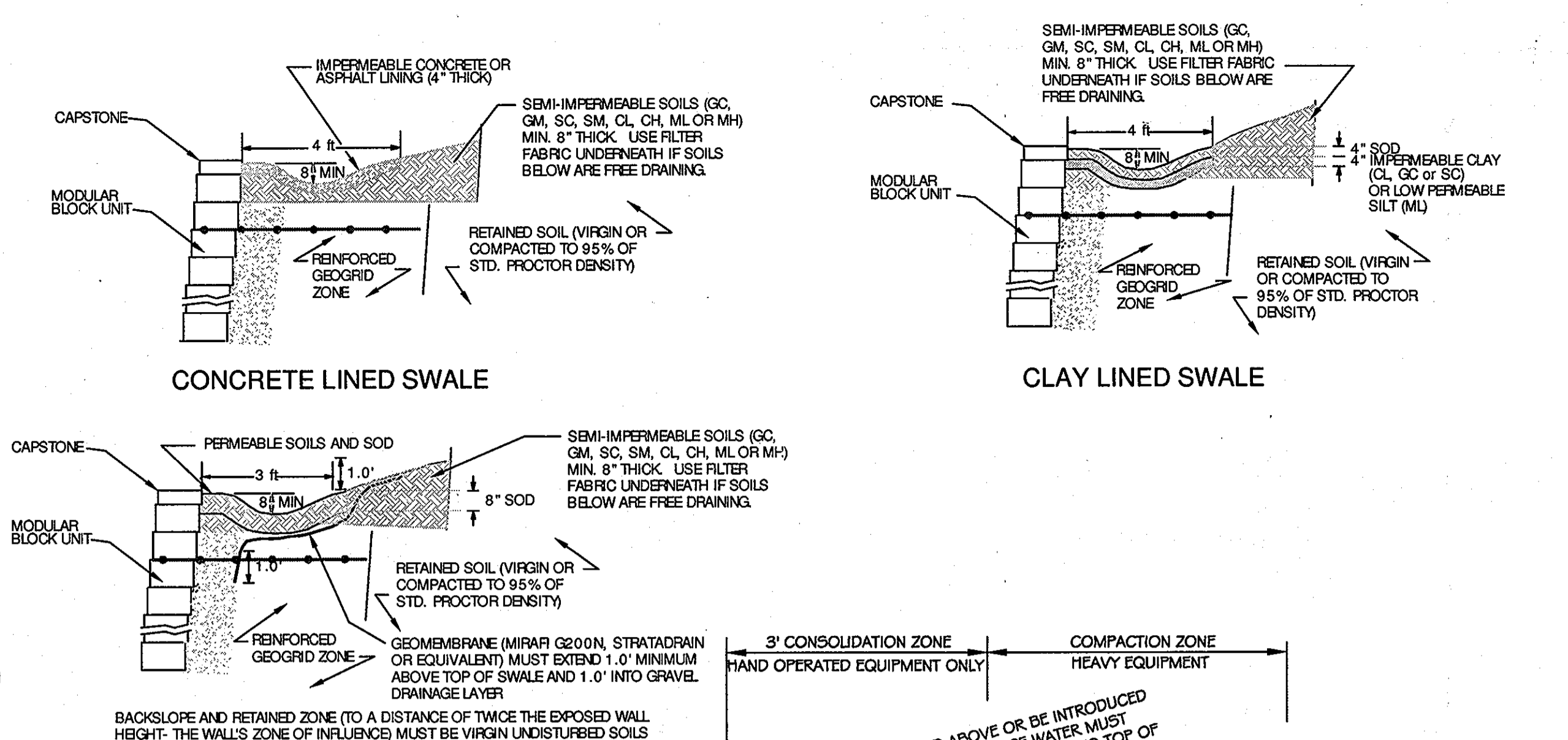
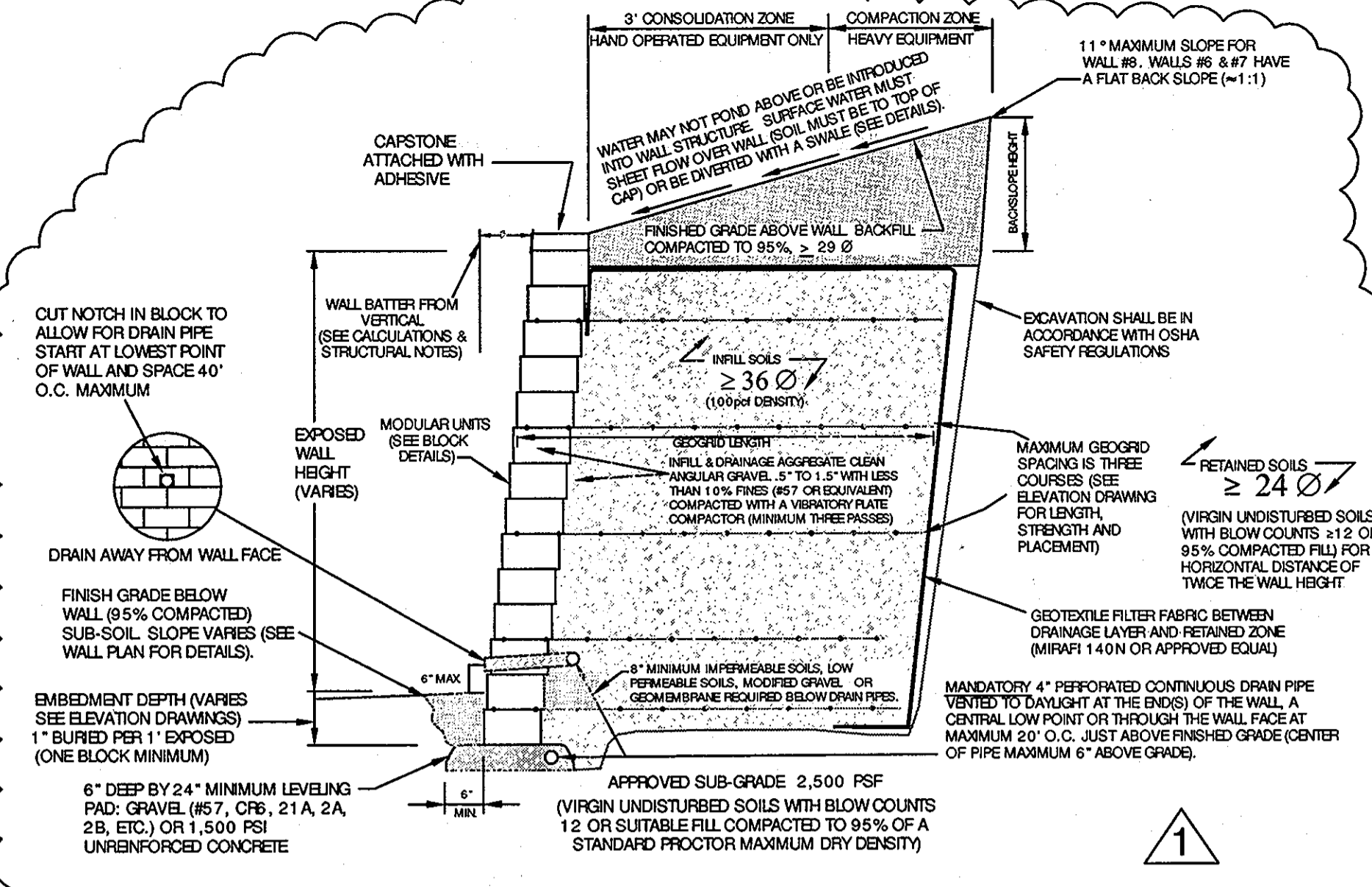
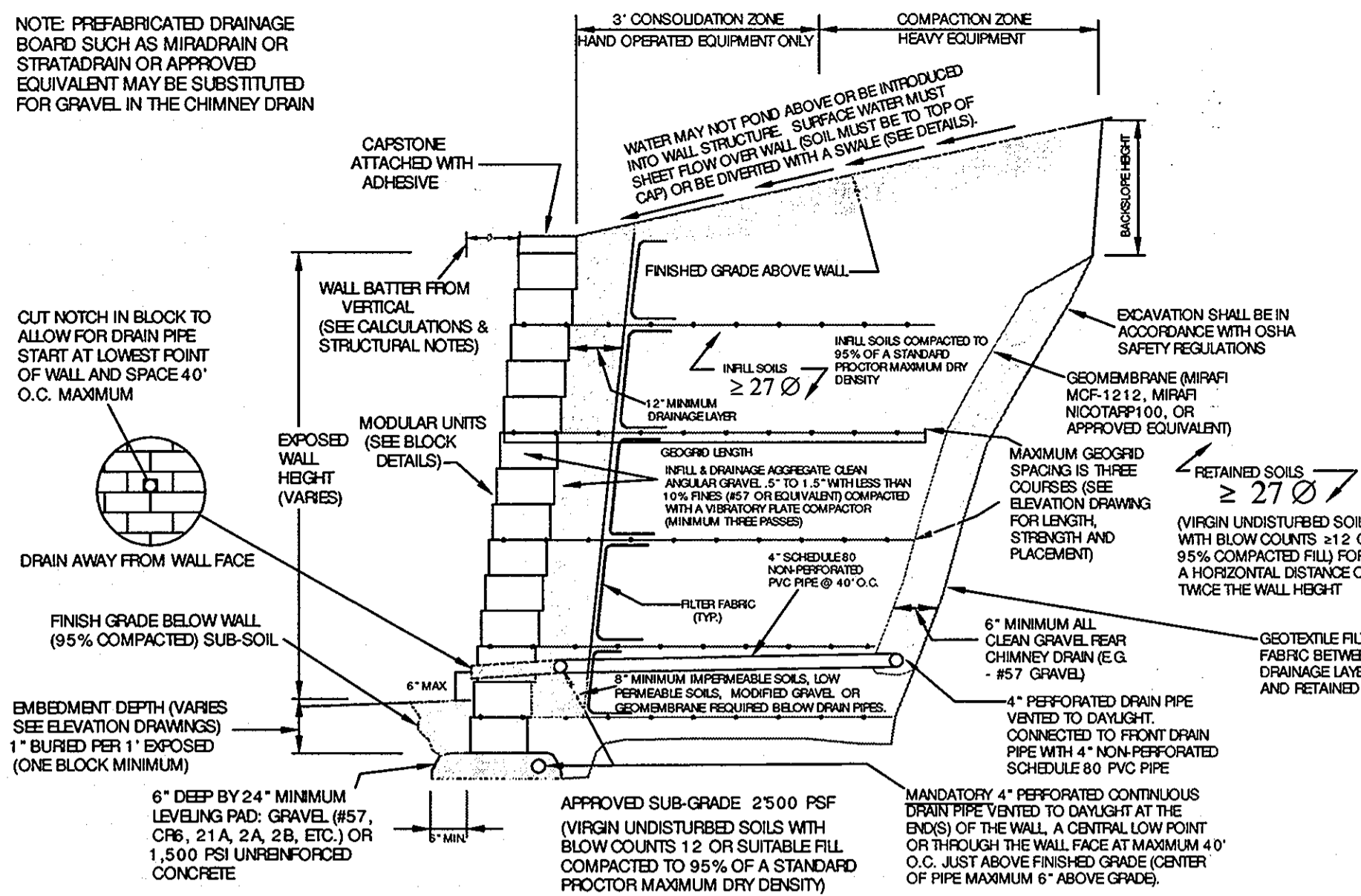
FALLS RUN ROAD, ELLICOTT CITY, MD 21043-7260

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

*William K. Ryan, P.E.*  
 License No: 21586  
 Expiration Date: 05/09/2009

ENGINEER SEAL



SUBMISSION NAME: ASHTON WOODS		SECTION/AREA: N/A	LOT/PARCEL NO: 423 LOT 2
PLAT# OR L/F: #7522 & 7523	GRID# N/A	ZONING: R-SA-8	TAX MAP NO: #31
ELECT. DIST: 2ND		CENSUS TRACT: N/A	

PERMIT INFORMATION CHART			
NO. 1	DATE 10/28/08	BY WKR	DESCRIPTION REVISED INFILL SUELO TO FLOOR ON SITE SOILS
2	08/30/11	WKR	REVISED SITE DEVELOPMENT PLAN SUBMITTAL TO COUNTY ADDENDUM TO SDP-89-254

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE 8/25/11

APPROVED: FOR PUBLIC OR PRIVATE (pick only one) WATER AND PUBLIC OR PRIVATE (pick only one) SEWERAGE SYSTEMS  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE 8/29/11

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE 8/29/11

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE 8/29/11

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE 8/29/11

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE 8/29/11

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE 8/29/11

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE 8/29/11

REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	10/28/08	WKR	REVISED INFILL SUELO TO FLOOR ON SITE SOILS
2	08/30/11	WKR	REVISED SITE DEVELOPMENT PLAN SUBMITTAL TO COUNTY ADDENDUM TO SDP-89-254

DRAWN BY: CJM  
 DESIGN BY: WKR  
 CHECKED BY: WKR  
 DATE: 3/30/08

DO NOT SCALE THIS DRAWING. PRECEDENCE OVER DRAWING.

**Ryan & Associates**  
 A Division of WKR Consulting Inc.

Hagerstown, MD Office  
 1825 Howell Road, Suite 3  
 Hagerstown, MD 21740  
 301-671-3200 (ph)  
 301-360-9574 (fx)

Frederick, MD Office  
 2412 Wynfield Ct.  
 Frederick, MD 21702  
 301-360-9534 (ph)  
 301-360-9574 (fx)

**ANCHOR DIAMOND PRO RETAINING WALL DESIGNS**  
 TYPICAL SECTIONS & DETAILS  
**ASHTON WOODS**  
 FALLS RUN ROAD, ELLICOTT CITY, MD 21043-7260

**PROFESSIONAL CERTIFICATION**

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

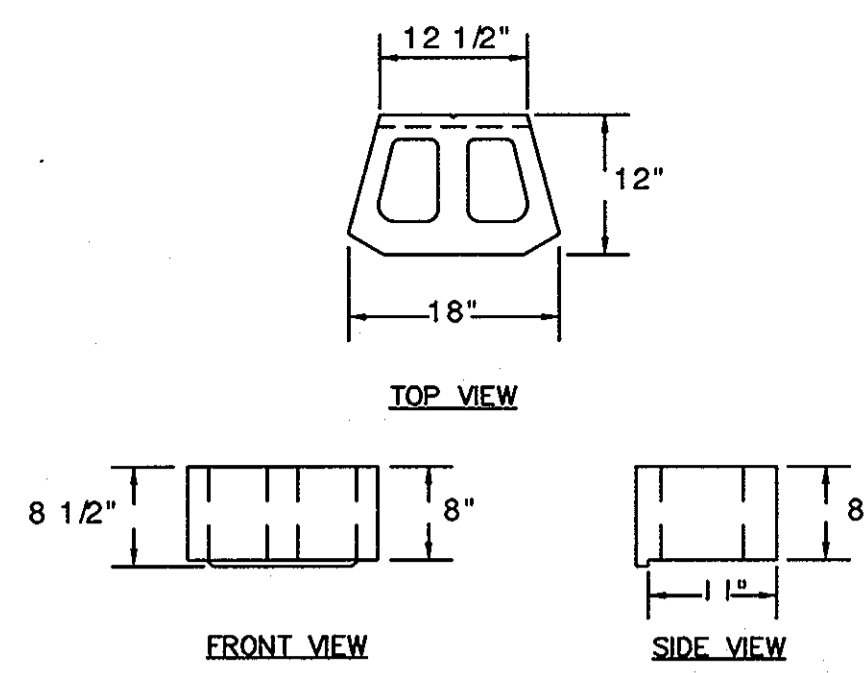
WKR  
 License No: 21566  
 Expiration Date: 05/09/2009

DATE: 8/30/11  
 ENGINEER SEAL

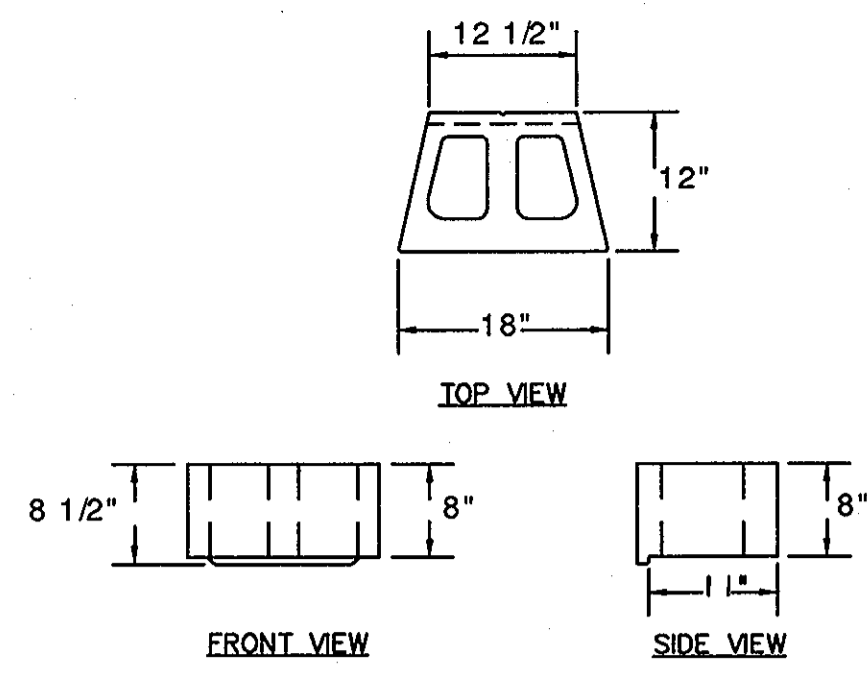
SHEET 40 of 42

SDP-89-254

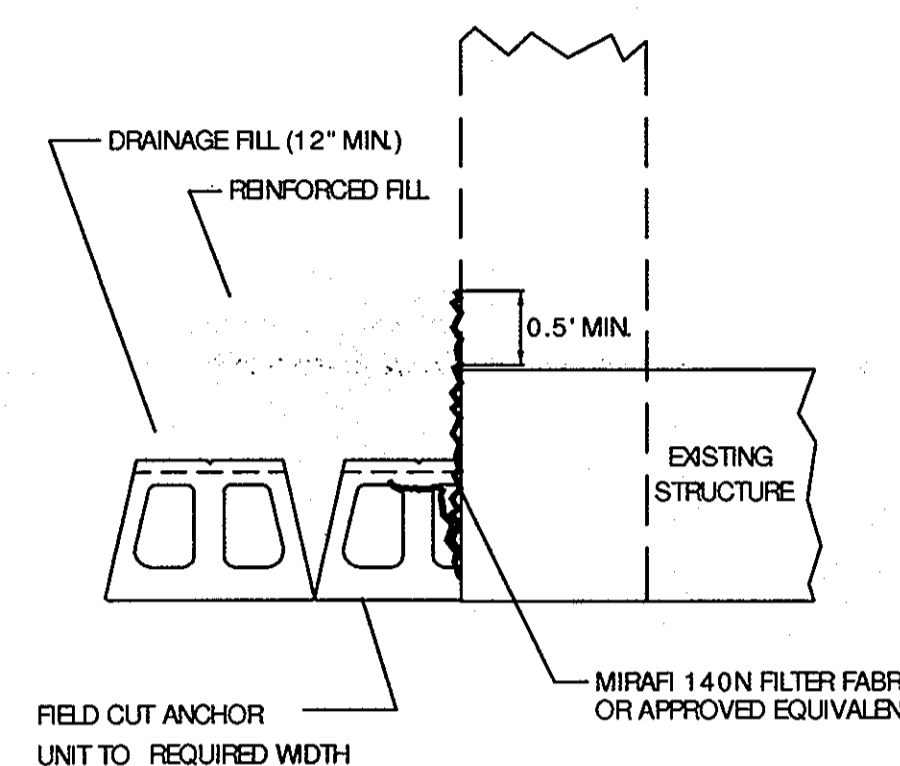




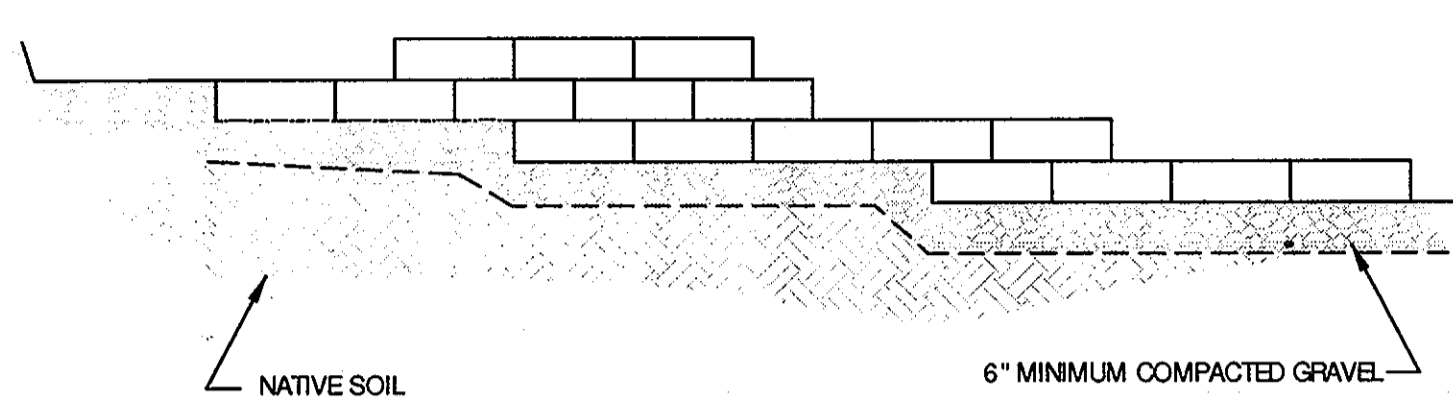
**ANCHOR DIAMOND PRO  
3-WAY BEVELED UNIT 3-D VIEW**  
N.T.S.



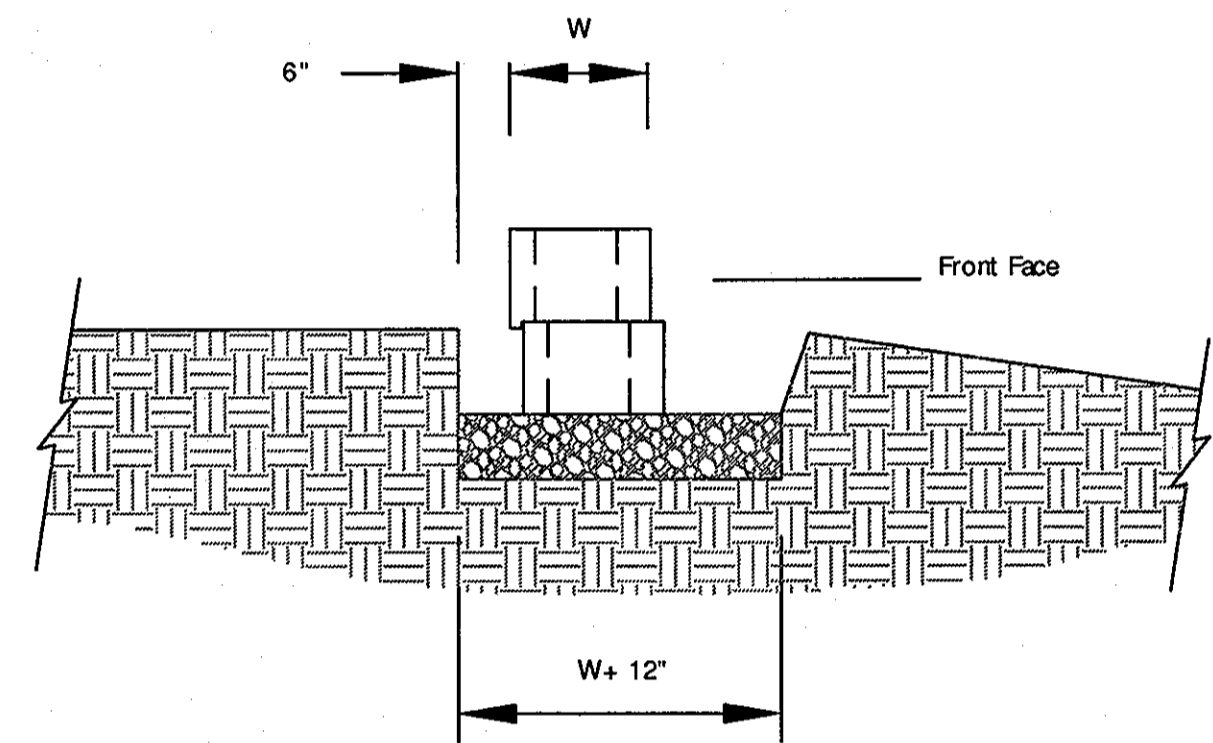
**ANCHOR DIAMOND PRO  
STRAIGHT UNIT 3-D VIEW**  
N.T.S.



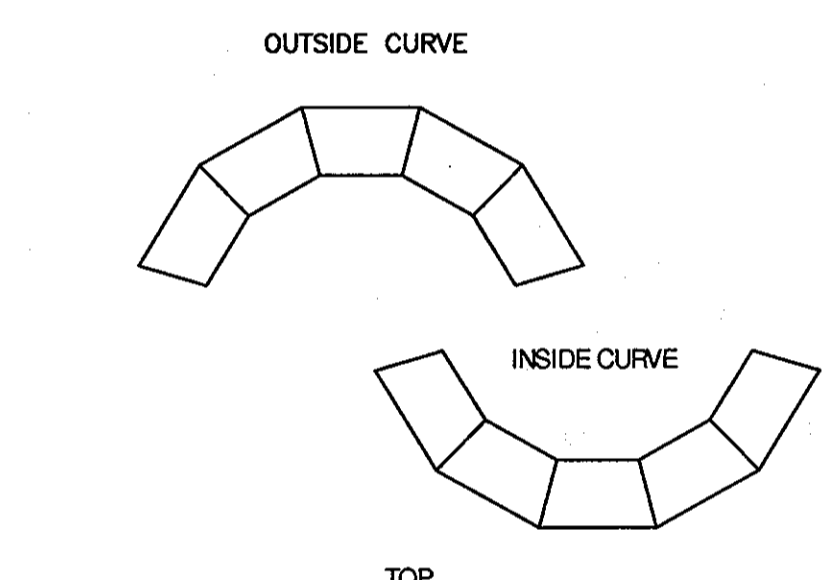
**ABUTMENT DETAIL (PLAN VIEW)  
AT SIDES AND ABOVE WALL**  
N.T.S.



**ANCHOR DIAMOND PRO BLOCK  
TYPICAL STEP-UP DETAIL**  
N.T.S.

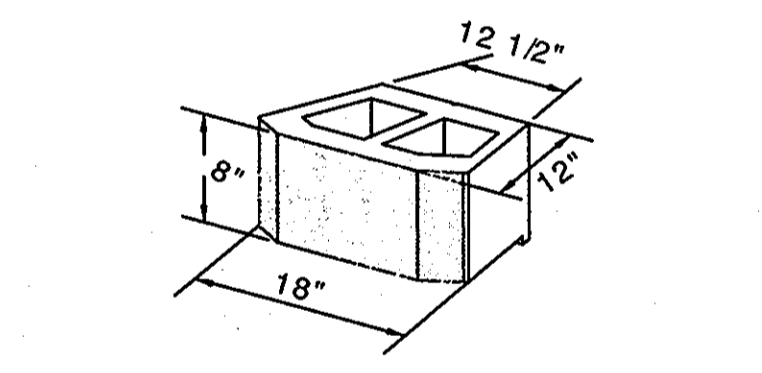


**LEVELING PAD DETAIL**  
N.T.S.

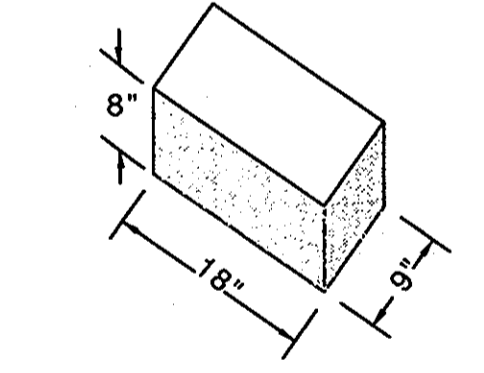


**ANCHOR DIAMOND PRO  
DESIGN DETAILS- CAP BLOCK**  
N.T.S.

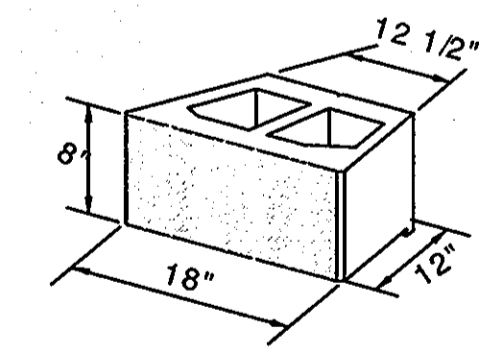
1. ALWAYS START CAPPING WALL FROM THE LOWEST ELEVATION.
2. LAYOUT CAPS PRIOR TO USING ADHESIVE.
3. CUT CAPS TO FIT. VARIOUS COMBINATIONS OF LONG AND SHORT CAP FACES WILL BE NECESSARY FOR RADII GREATER THAN THE MINIMUM.
4. ALTERNATE SHORT AND LONG CAP FACES EVERY OTHER CAP TO ACHIEVE A STRAIGHT ROW OF CAPS.
5. USE EXTERIOR-GRADE CONSTRUCTION ADHESIVE TO SECURE CAPS.



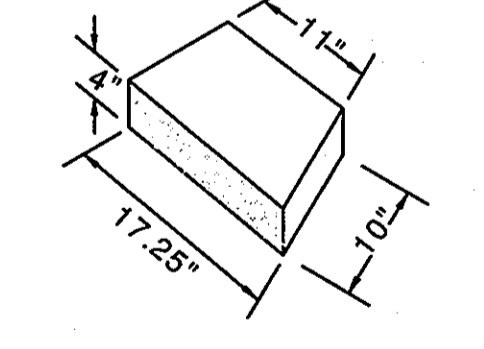
**ANCHOR DIAMOND PRO  
ISOMETRIC VIEW- BEVELED BLOCK**  
N.T.S.



**ANCHOR DIAMOND PRO  
CORNER UNIT ISOMETRIC**  
N.T.S.



**ANCHOR DIAMOND PRO  
ISOMETRIC VIEW- STRAIGHT BLOCK**  
N.T.S.



**ANCHOR DIAMOND PRO  
CAP UNIT ISOMETRIC**  
N.T.S.

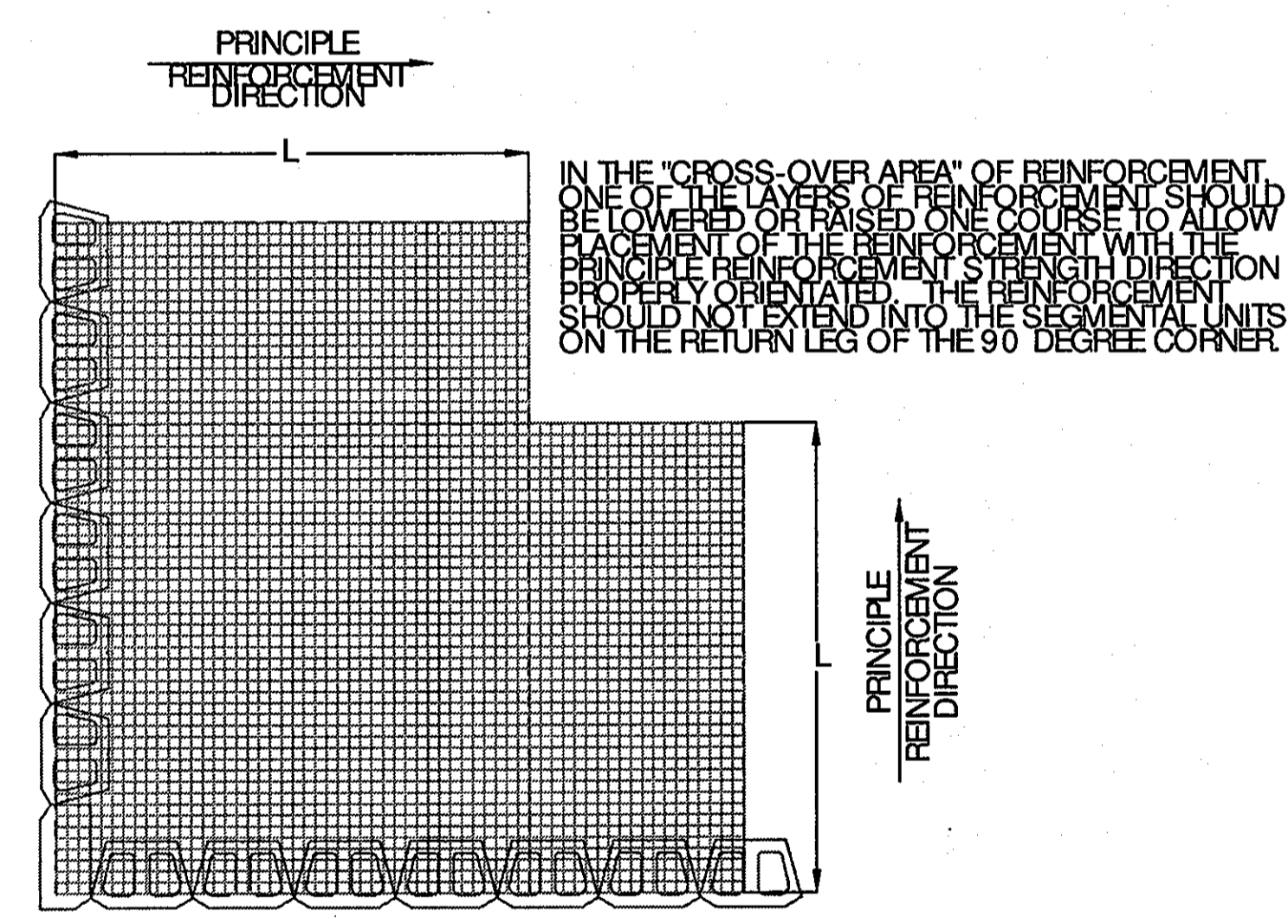
STEP 1 - PLACE REINFORCEMENT SO LITTLE OR NO OVERLAP OCCURS IN THE RADIUS AREA. IF OVERLAP OCCURS, PLACE 2 TO 3 INCHES OF SAND BETWEEN THE REINFORCEMENT LAYERS.

3\"/>

STEP 2 - LAY THE NEXT COURSE OF BLOCK. MAKE A MARK ON THE BACK OF THE BLOCKS IN THE AREAS THAT ARE NOT REINFORCED. BACKFILL AND COMPACT THAT COURSE.

STEP 3 - PLACE REINFORCEMENT IN THE AREAS WHERE THE MARKS SHOW GAPS. IN THE LOWER REINFORCEMENT PATTERN. CONTINUE NORMAL WALL CONSTRUCTION, REPEATING THESE STEPS AS NEEDED.

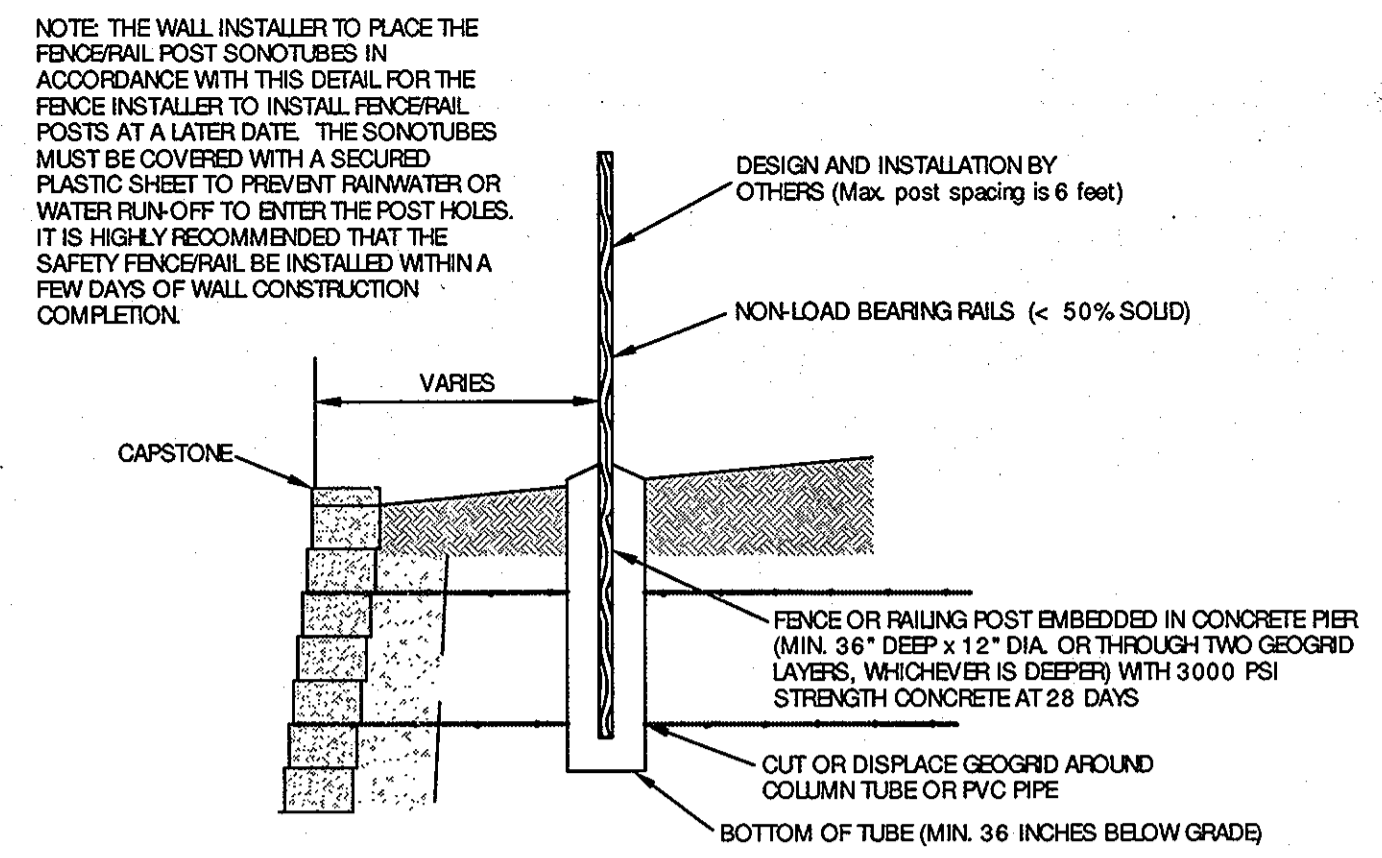
**ANCHOR DIAMOND PRO BLOCK  
OUTSIDE CURVE WITH REINFORCEMENT**  
(NOT TO SCALE)



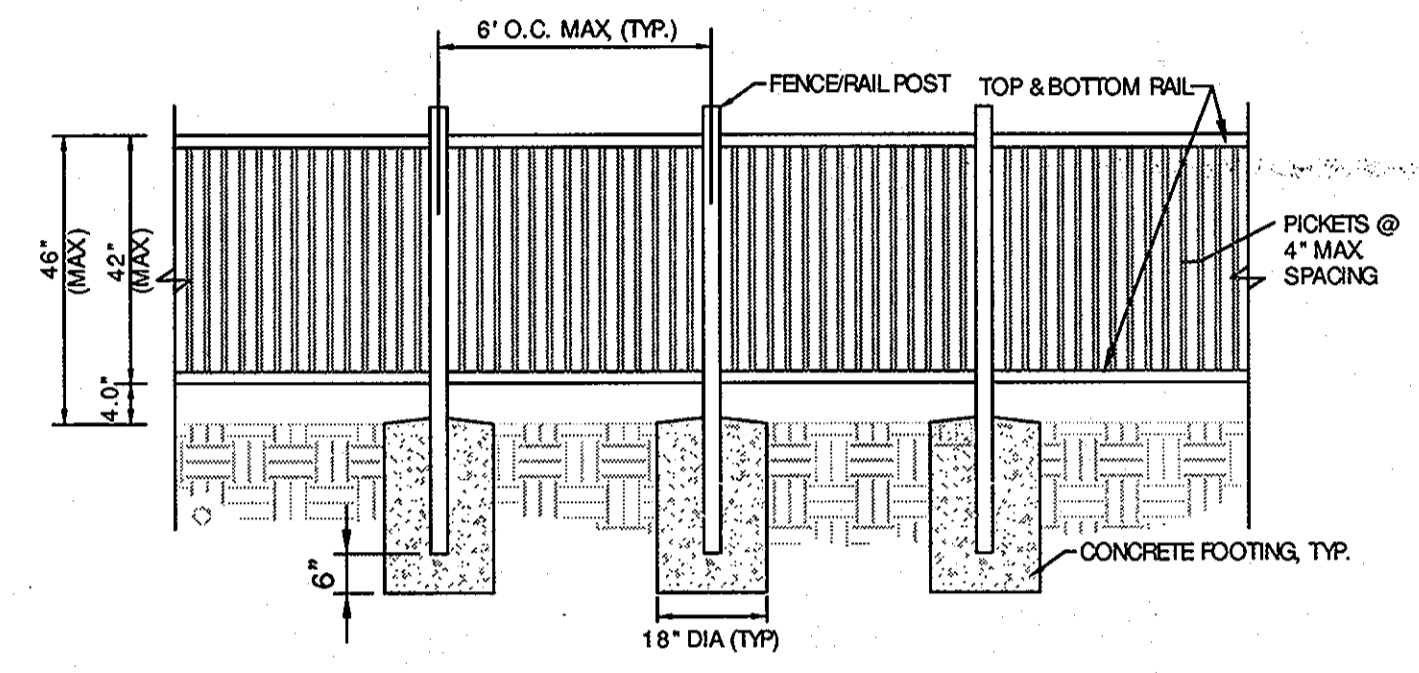
**ANCHOR DIAMOND PRO BLOCK  
90 DEGREE CORNER WITH REINFORCEMENT**  
(NOT TO SCALE)

IN THE "CROSS-OVER AREA" OF REINFORCEMENT, ONE OF THE LAYERS OF REINFORCEMENT SHOULD BE LOWERED OR RAISED ONE COURSE TO ALLOW PROPER PLACEMENT OF THE REINFORCEMENT WITH THE PRINCIPLE REINFORCEMENT STRENGTH DIRECTION PROPERLY ORIENTED. THE REINFORCEMENT SHOULD NOT EXTEND INTO THE SEGMENTAL UNITS ON THE RETURN LEG OF THE 90 DEGREE CORNER.

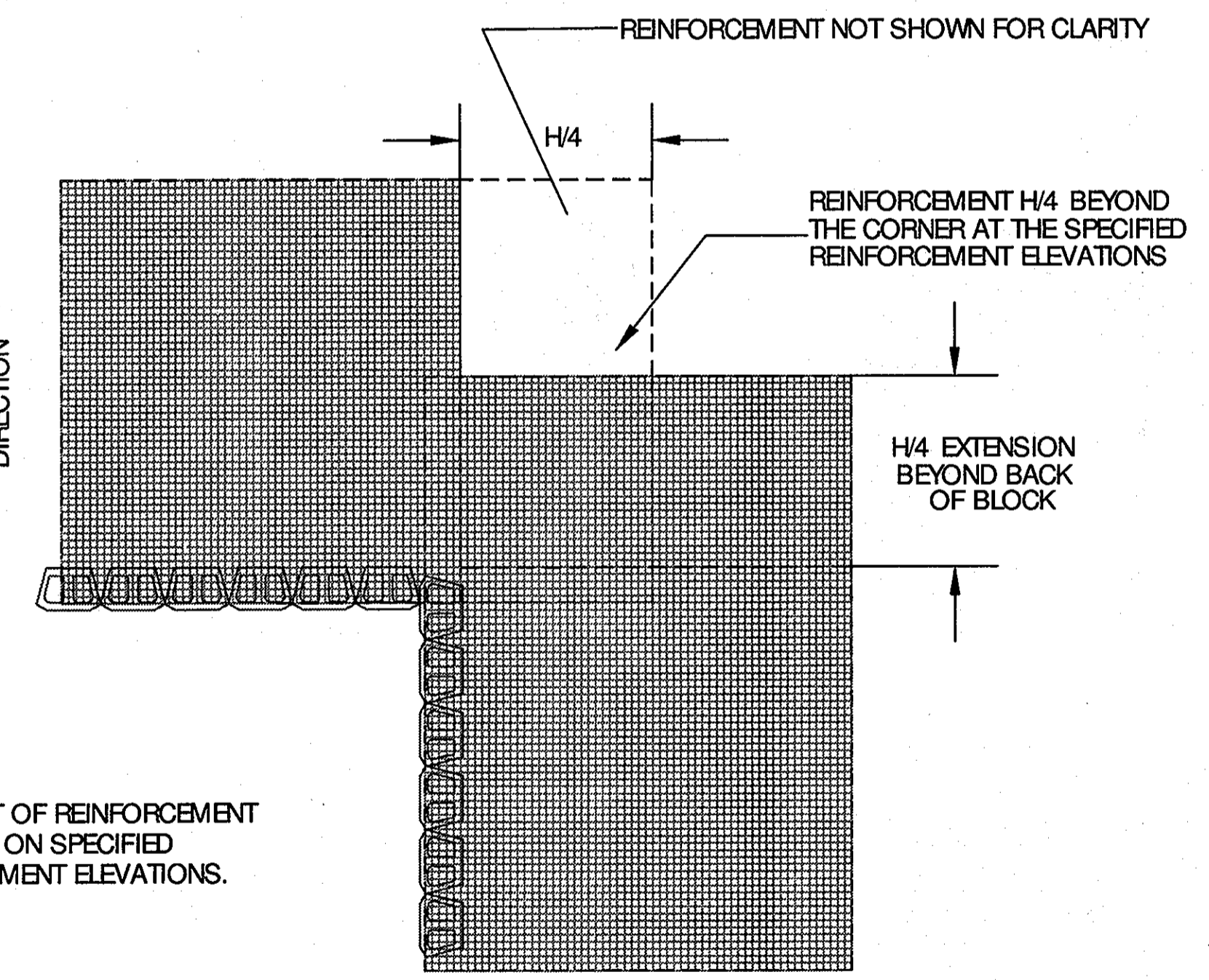
NOTES:  
PLACEMENT OF REINFORCEMENT EXTENSION ON SPECIFIED REINFORCEMENT ELEVATIONS.



**NON-LOAD BEARING & NON-WIND  
BEARING FENCE POST DETAIL**  
N.T.S.



**\*TO BE INSTALLED BEHIND ALL WALLS WITH  
AN EXPOSED HEIGHT OF 30\"/>**



**ANCHOR DIAMOND PRO BLOCK  
90 DEGREE CORNER WITH REINFORCEMENT**  
(NOT TO SCALE)

PERMIT INFORMATION CHART			
SUBMISSION NAME: ASHTON WOODS	SECTION/AREA: N/A	LOT/PARCEL NO: 423 LOT 2	
PLAT# OR L/F: #7522 & 7523	GRID#(N/A)	ZONING: R-SA-8	TAX MAP NO:#31 ELECT. DIST: 2ND CENSUS TRACT: N/A
APPROVED: FOR PUBLIC OR PRIVATE (pick only one) WATER AND PUBLIC OR PRIVATE (pick only one) SEWERAGE SYSTEMS			
COUNTY HEALTH OFFICER	DATE		
HOWARD COUNTY HEALTH DEPARTMENT			

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	8/25/11
CHIEF, DIVISION OF LAND DEVELOPMENT	8/29/11
DIRECTOR	8/29/11

REVISIONS	
No.	DATE BY DESCRIPTION
1	10-28-08 WKR REVISION DUE TO ERROR ON SITE SOILS
2	06-30-11 WRD REVISED SITE DEVELOPMENT PLAN SUBMITTAL TO COUNTY, ADDENDUM TO SDP-89-254

DRAWN BY: JO  
DESIGN BY: JOCH  
CHECKED BY: WKR  
DATE: 3/20/09  
DO NOT SCALE THIS DRAWING. DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWING.

CLIENT: U.S. LAWS OF BALTIMORE  
OWNER: DOLBEN COMPANIES  
JOB NO: 1123-07-03

**Ryan & Associates**  
A Division of WKR Consulting Inc.

Hagerstown, MD Office  
1925 Howell Road, Suite 3  
Hagerstown, MD 21740  
301-671-3200 (ph)  
301-360-9574 (fx)

Frederick, MD Office  
2412 Wynfield Ct.  
Frederick, MD 21702  
301-360-9534 (ph)  
301-360-9574 (fx)

**ANCHOR DIAMOND PRO RETAINING WALL DESIGNS  
TYPICAL DETAILS**

**ASHTON WOODS**

FALLS RUN ROAD, ELLICOTT CITY, MD 21043-7260

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

William K. Ryan P.E.  
License No: 21586  
Expiration Date: 05/09/2009

6/30/11  
ENGINEER SEAL

**SPECIFICATIONS FOR SEGMENTAL RETAINING WALL SYSTEMS**

**PART 1: GENERAL**

**1.01 Description**

A. Work includes furnishing and installing segmental retaining wall (SRW) Units to the lines and grades designated on the Final Design prepared by Ryan & Associates (RA). Also included are furnishing and installing appropriate materials required for construction of the retaining wall as shown on the RA Final Design.

**1.02 Reference Standards**

- A. ASTM 3034 - Specification for Polyvinyl Chloride (PVC) Plastic Pipe
- B. ASTM C 140 - Sampling and Testing Concrete Masonry Units and related units
- C. ASTM C 1372 - Standard Specification for Segmental Retaining Wall Units
- D. ASTM D 422 - Gradation of Soils
- E. ASTM D 698 - (ASTM D 1585) Standard Test Method for Laboratory Compaction Characteristics of Soil using Standard Effort
- F. ASTM D 1248 - Polyethylene Plastics Extrusion Materials for wire and Cable
- G. ASTM D 1557 - (ASTM D 1100) Standard Test Method for Laboratory Compaction Characteristics of Soil using Modified Effort
- H. ASTM D 568 - Standard Test Method for Penetration Test and Spike-Barrel Sampling of Soils
- I. ASTM D 2166 - Uncolored Compressive Strength of Cohesive Soil
- J. ASTM D 2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
- K. ASTM D 3099 - Direct Shear Test of Soils Under Consolidated/Drained Conditions
- L. ASTM D 4318 - Liquid Limit, Plastic Limit and Plasticity Index of Soils
- M. ASTM D 4595 - Tensile Properties of Geotextiles by the Wide-Width Strip Method
- N. ASTM D 5282 - Test Method for Evaluating the Unconfined Creep and Creep Rupture Behavior of Geosynthetic Reinforcing Materials
- O. GRI-GG-1 - Single Ring Geogrid Tensile Strength
- P. GRI-GG-5 - Geogrid Pullout

**1.03 Design Standards**

A. The following factors of safety have been met in this design: Sliding 1.5, Overturning 2.0, Bearing Capacity 2.0, Tensile Overstress 1.0, Geogrid Facing Connection (between the block and the geogrid) 1.5 Geogrid Pullout 1.5 (from the soil) and Global Stability 1.3 (if applicable typically for terraced walls and/or walls situated on front slopes 2:1).

**1.04 Scope of Work**

A. The retaining wall design engineers (Ryan & Associates) scope consists of preparing the wall design and professionally sealing into a single contract the design and construction of the wall. The design considers the internal and local stability of the reinforced soil mass and is in accordance with acceptable engineering practices and these specifications. Services outside this scope such as responding to the owner's engineering firm (civil, structural, geotechnical or otherwise), provision of quality control testing & inspection, investigation of failed or non-conforming walls or any other services may be provided on a time & materials basis or for a negotiated fee. The scope of work for Ryan & Associates does not include the preparation of a grading plan, site plan, geotechnical investigation, resolution of groundwater issues, sub-grade preparation, sub-grade repair, sub-grade leveling (including but not limited to mine subsidence and sinkholes), surveying, wall stakeout or any other civil or geotechnical engineering.

**1.05 Contractor's Responsibility and Qualifications**

A. This design has been done in an effort to achieve the required grade changes shown on the civil plans for the project or the owners (or wall installer's) desired grade changes (in the case of design build projects). The wall installer must verify the accuracy of these grades (elevations) by comparing them to the civil plans or actual field conditions prior to wall construction. The civil plans and actual field conditions govern and their grades must always be met. The final location of the wall and the TWISW of wall/footing elevations must be checked. If an error is discovered, RA shall be notified immediately and revisions will be provided. RA will not be responsible for correcting a wall that is being built or has been built incorrectly due to this design not being checked for accuracy prior to wall construction. Deviations from the RA Final Design will have ramifications; therefore all changes must be approved by RA in writing prior to wall construction. RA is not responsible for any future problems that result from unauthorized changes to the RA Final Design. The contractor must be qualified to do this work with a minimum of three years successful experience and minimum installation queue footage of 100,000 L.F.

**PART 2: MATERIALS & DESIGN PARAMETERS**

**2.01 Segmental Retaining Wall Units**

A. SRW Units shall be machine formed, Portland Cement concrete blocks specifically designed for retaining wall applications. The SRW Unit currently approved for this project is:

**Anchor Diamond Pro**

NOTE: Where Anchor specifications and reference documents conflict with these specifications the RA specifications hold precedence.

B. SRW Units shall be sound and free of cracks or other defects that would interfere with the proper playing of the blocks or significantly impair the strength or permanence of the structure. Cracking or excessive chipping may be grounds for rejection. Units showing cracks longer than 1/2 inch shall not be used in the wall. Units showing chips visible at a distance of 30 feet from the wall shall not be used in the wall.

C. Concrete used to manufacture SRW Units shall have a minimum 28 days compressive strength of 3,000 PSI and a maximum moisture absorption rate, by weight, of 8% as determined in accordance with ASTM C 140. Compressive strength test specimens shall conform to the tested specimen provisions of Section 5.2 of ASTM C 140 with the following exception: Coupon shall be taken from the least dimension of the unit of a size and shape representing the geometry of the unit as a whole.

D. SRW Units molded dimensions shall not differ more than 1/8 inch from that specified, except height which shall be ±1/16 inch as measured in accordance with ASTM C 140.

**2.02 Geosynthetic Reinforcement**

A. Geosynthetic reinforcement shall consist of geogrids as indicated on the RA Final Design. No geogrid substitutions shall be permitted without the prior approval of RA (a partial redesign may be necessary if geogrids are substituted). NOTE: It is always acceptable to substitute a higher strength geogrid if of the same manufacturer for a lower strength geogrid.

**2.03 Connectors**

A. The Anchor block system does not have separate connectors (clips or pins). The rear lower lip protrudes outside the connector alignment guide; therefore this rear lip must be in contact and structurally sound (cannot be cracked, loose or partially missing). The rear lip also determines the wall batter (7:1:1 setback per course).

**2.04 Leveling Pad**

A. Material for the leveling pad shall consist of compacted gravel or reinforced concrete. Typical gravels used for this leveling pad are #57, CR6, 21A, 2A modified, 28, RC6, RC5, etc. Lean un-reinforced concrete with a strength of 1500 PSI may also be used for the leveling pad.

**2.05 Drainage Aggregate**

A. Drainage aggregate shall be clean angular gravel (#57 or equivalent) with a size of 1/2 inch to 1 1/2 inches and less than 10% fines (passing the #200 sieve). Round "pea gravel" type aggregate is not permissible since it does not have the necessary frictional properties. Recycled gravel may be used if it meets the above criteria.

**2.06 Drainage Pipe**

A. The drainage collection pipe shall be a 4 inch perforated or slotted PVC or corrugated HDPE pipe.

**2.07 Infill Soils**

A. The soils used must meet or exceed the friction angle stated in the RA Final Design (in the Structural Notes, on the typical wall section and on the structural cross sections). The reinforced material shall be free of debris and organic material (i.e., no plants, roots, sod, top soil, trash, wood, etc.). The infill soils shall consist of CH (fat clay), MH (elastic silt) or OH/CU/PT (organic) soils. All soils used for wall infill must always meet the following requirements, regardless of the friction angle: maximum liquid limit of 40, maximum optimum moisture of 20%, maximum of 6% passing the #200 sieve (minimum of 35% retained on the #200 sieve) and minimum dry unit weight of 100 PCF (in fine soil). Soil moisture must be within 2% of optimum to obtain proper compaction results (no exceptions).

B. Blocks may be used as infill material as long as they have a maximum size of 4 inches and a mean diameter of 2 inches. Recycled concrete is permissible for infill except with certain polyester geogrids in water applications. In the case of water applications the geogrid manufacturer shall be consulted to see if the alkali in the recycled material will cause corrosive damage to their geogrid.

C. Select gravel (classified by USCS as GP or GW) is normally an acceptable substitution in the event suitable soils (those meeting RA's and the site geotechnical engineer's requirements) are not readily available or there are difficulties due to frost or moisture levels. However, the gravel must be clean gravel (typically 90-100 PCF and "crusher run" gravel is typically 130-140 PCF) so RA must be notified so that revised sections can be run prior to making any substitutions. In some cases clean gravel actually requires longer geogrid lengths because of its extremely light unit weight.

D. Asphalt tailings (blacktop millings) are only acceptable for wall infill or the leveling pad if authorized in writing by the municipality (county, township, etc.) and/or regulatory authority since they may be a potential environmental hazard. These materials must also meet the requirements for the backfill soils in the RA Final Design; therefore RA must be given a proctor test and gradation ( sieve analysis) for approval prior to wall construction.

E. For soils that have been treated with lime, only HDPE geogrids (such as Tensar) may be used. Polyester geogrids may only be used with lime treated soils when authorized in writing by the geogrid manufacturer.

**2.08 Retained Soils**

A. These soils must meet or exceed the friction angle stated in the RA Final Design (shown in the Structural Notes, on the typical wall section and on the structural cross sections). The sub-grade must be virgin (natural undisturbed soils with blow counts 212 or suitable fill (friction angle ≥ the RA Final Design requirement) compacted to 95% of a standard proctor (or 98% of a modified proctor) maximum dry density.

B. Surface water or groundwater must not be permitted to drain/inflow into the retained zone. This could cause hydrostatic pressure to build against the wall structure, leading to failure. The provision is when the wall has been designed as a "water application" with free draining infill gravel or sand (GP, GW, SP or SW).

**2.09 Foundation Soils**

A. The foundation soils (wall sub-grade) must meet or exceed the minimum allowable bearing capacity stated in the RA Final Design (in the General Notes and on the typical wall section). The sub-grade must be virgin (natural undisturbed soils with blow counts 212 or suitable fill (friction angle ≥ the RA Final Design requirement) compacted to 95% of a standard proctor maximum dry density (or 98% of a modified proctor). If highly plastic soils (CH or MH) or organic soils (OH, CL or PT) are encountered in the sub-grade they must be removed and replaced with suitable soils or placed in controlled lifts and compacted to 95% of a standard proctor maximum dry density. If the organic or plastic soils extend so deep that they cannot be totally removed, they shall be undercut a minimum of 4' (or as directed by the site geotechnical engineer) and replaced with suitable soils or gravel. It must be emphasized that the wall's sub-grade is not only the soil under the leveling pad, but also includes all soils under the entire reinforced geogrid zone. Therefore, the foundation soils extend from 5' in front of the base block back to the reinforced geogrid zone (back edge of the lowest geogrid layer).

**2.10 Soil Investigation**

A. RA recommends that every retaining wall design be preceded by an in-situ soil investigation with borings spaced 100' on center under the wall face and at the back of the proposed reinforced geogrid zone by a licensed geotechnical engineer. However, if the owner and/or wall installer elects not to have an investigation conducted, RA may assume soil design parameters based on published data by the Geotechnical Service (not maps), a verbal description by the owner and/or wall installer or RA's previous experience in certain geographic areas. It must be understood that the owner and/or wall installer bears full responsibility to the election not to have a soil investigation performed.

**2.11 Site History & Information**

A. Many factors other than soil information affect the performance and design of the retaining wall. RA relies on information provided by the owner and/or wall installer when designing a retaining wall. RA bears no responsibility if the owner and/or wall installer omits critical information to properly design the wall. Information critical to wall design from the site consists of: topographic features (such as slopes), soil types, utilities, storm water management, structures (including buildings, other existing or proposed walls, ground water and other features within the wall's zone of influence (such as driveways, other walls, patios, roadways, sidewalks, etc.) and any other readily known site factors that could potentially impact the RA Final Design.

**2.12 Civil Plans**

A. These designs are supplemental to the approved land development plans (civil plans). All erosion and sediment controls must be included in accordance with the approved land development plans (civil plans).

**PART 3: CONSTRUCTION**

**3.01 Inspection**

A. RA considers all retaining walls to be critical structures, meaning most walls require a considerable financial investment by the owner and failure of a wall will negatively impact a property both financially and from a public safety perspective. The owner or owner's representative is responsible for verifying that the wall installer meets all of the requirements of the RA Final Design (as stated in these specifications and the project's Structural Notes). This includes all materials and design, qualifications and proper installation of the wall system. All walls with an exposed height of 4 feet or greater, or those which require a retaining wall, must have the construction methods and the completed wall inspected by a licensed geotechnical engineer registered in the jurisdiction of the project. Additionally, after the wall has been completed it is highly recommended that it be surveyed to establish the wall's current horizontal and vertical alignment.

B. The wall installer's field construction supervisor shall have demonstrated experience and be qualified to direct all work at the site.

C. RA provides construction review on some retaining wall projects. RA verifies general compliance with the RA Final Design; however, it is the wall installer's ultimate responsibility to construct the structure properly in accordance with the RA Final Design. RA's liability is limited to the amount of our fees for the scope of work provided for the wall designs and construction oversight.

**3.02 Excavation**

A. The wall installer shall excavate to the lines and grades shown on the RA Final Design and the project's civil plans. The wall installer shall also excavate to the lines and grades shown on the RA Final Design and the project's civil plans (friction angle ≥ RA design parameters) or gravel (soils or gravel must be compacted to 95% of a standard proctor) as directed by the site geotechnical engineer.

B. The wall installer shall verify the location of existing structures and utilities prior to excavation. The wall installer shall ensure that all surrounding structures are protected from the effects of wall excavation. Excavation support (shoring), if required, is the responsibility of the general contractor and/or site contractor. All excavation must be conducted in accordance with OSHA (federal) and state safety regulations. All work to construct the wall must be in accordance with 29CFR1926 sub-part P (OSHA Excavation Safety Requirements).

**3.03 Foundation Preparation**

A. Following excavation, the foundation soils (the soils under the wall's gravel leveling pad and the soils under the wall's reinforced geogrid zone) shall be examined by the site geotechnical engineer to assure that the actual foundation soil strength meets or exceeds the minimum allowable bearing capacity in the RA Final Design (stated in the Structural Notes and shown on the typical wall section). Soils that do not meet the required strength shall be removed and replaced with approved select structural fill or gravel and be compacted to 95% of a standard proctor (or 98% of a modified proctor) maximum dry density for the full depth.

B. In cases of poor bearing capacity, deep fill soils, or when groundwater is encountered it may not be possible or practical to undercut to suitable soils. As an alternative, gravel geogrid reinforcement (or a combination of both) or an reinforced concrete footing (may be steel reinforced if required) may be utilized to meet the required soil bearing capacity. RA can provide a supplemental sub-grade design for an additional fee (it is not within RA's original scope of work for this project). However, it is the site geotechnical engineer's ultimate responsibility to ensure that the sub-grade meets or exceeds that specified by RA for the project (stated in the RA Final Design). The site geotechnical engineer must add a minimum factor of safety of 2.0 to the RA specified capacity (i.e. if RA requires 2,500 PSF the actual field ultimate bearing capacity must meet or exceed 5,000 PSF).

C. If competent rock (blow counts ≤50 blows/ft) is encountered in the sub-grade, or if the wall needs to span a concrete structure, the embedment may need to be reduced. RA must be consulted for an alternate embedment design (pinning to rock or the structure is typically an option).

**3.04 Leveling Pad Construction**

A. The leveling pad shall be placed so that its top elevation is the same as the bottom of block ("BB") elevation on the RA Final Design profile drawing. It shall have a minimum thickness of 4 inches and a minimum width of 2 feet (or 12" wide blocks). The leveling pad shall extend, at a minimum, extend laterally at least a distance of 6 inches from the toe and heel of the lower most SRW Unit. The leveling pad must have a minimum width of 30 inch for 18 inch wide blocks and a minimum width of 38 inch for 21.5 inch wide blocks.

B. The leveling pad material shall be compacted to 95% of a standard proctor maximum dry density with a vibratory plate compactor to provide a firm level-bearing surface on which to place the first course of SRW Units. A thin layer (not to exceed 1/2 inch) of well-graded sand or stone dust may be used to smooth the top of the leveling pad.

**3.05 SRW Unit Installation**

A. Embedment shall be a minimum of 1 inch buried for every 1 foot of exposed wall height with one block minimum when the front slope is 4H:1V or greater (more level). Walls constructed on 3H:1V front slopes or less (more steep) require additional buried blocks. See the profile drawing in the RA Final Design for the exact amount of embedment (the amount of buried block can be determined at each wall station by subtracting the "BB" elevations from the "GR" i.e. grade elevations). The wall's toe (front of face course) must be backfilled up to the proposed civil plan elevations with 95% compacted approved sub-soils no later than after the second course above the final grade is placed (two courses exposed). The wall's foundation shall not be left exposed for more than two to five days during clear weather, however it must be backfilled and compacted (in accordance with the RA Final Design) prior to a rain event. Clean gravel may not be used to fill against the buried blocks. They must be "locked in" with suitable sub-soil or modified gravel.

B. All SRW Units shall be installed at the proper elevation and orientation as shown on the RA Final Design profile drawing and in conjunction with the project's civil plans. The SRW Units shall be installed in general accordance with the manufacturer's recommendations (RA's Final Design shall govern in any conflict between the two requirements).

C. The first course of SRW Units shall be placed on the leveling pad. The units shall be leveled side-to-side, front-to-rear and with adjacent units, and aligned to ensure intimate contact with the leveling pad. The first course is the most important for accurate and acceptable results. Alignment may be done by means of a string line or an offset from the base line to the backs of the blocks. SRW Units shall have a minimum of 1/4 inch overlap between courses so the wall is interlocked and continuous. No horizontal gaps greater than 1/4 inch between the faces of adjacent units are permitted.

D. Because the wall has a setback, its batter must be predetermined during the stake out process by the site engineer/surveyor and wall installer. If there are critical dimensions that must be met on the high side of the wall then the batter (the angle) will need to be moved forward to compensate.

E. Lay out of curves and corners shall be installed in accordance with the civil plans and the RA Final Design. Construction techniques for curves and corners shall be in accordance with the SRW manufacturer's installation guidelines. In general, all tangent angles shown on the civil drawings should be changed into radii (inside and outside curves) to enhance the wall's strength and appearance. Continue vertical joints are not permitted. Inside and outside 90° corners may be constructed without compromising the wall's integrity if they are properly built. Inside corners should be constructed so that the SRW Units interlock and overlap (according to the manufacturer's recommendations) and outside corners should incorporate special corner blocks when possible. If special outside corner blocks are not available from the block manufacturer for the project then the manufacturer's guidelines for building structural outside corners shall be followed. Outside corners must be built so that the blocks interlock and overlap. If gapping is necessary (when there is not a positive connection from clips, lips, lugs, pins, etc.) only individual grade adhesives or sealants designed for concrete-to-concrete applications may be used (adhesives designed for plastic or wood applications are not acceptable).

F. Clean all excess debris from the tops of the SRW Units and install the next course.

G. Repeat procedures to the extent of wall height.

H. A ±2" construction tolerance is permitted horizontally for wall batter (block setback). In no case shall a wall go beyond vertical (have a negative batter). Some block systems have an optional near vertical batter (typically 0.5"). If the wall is to be built with a near vertical batter, the base course shall be laid so that it is tied back a minimum of 1/4 inch to compensate for movement that will likely occur from compaction equipment and from the geogrid losing its stack. Walls shall be built from left to right (not with grade), however a ±1.5 inch tolerance over a 10 foot distance is permitted vertically (as checked from left to right along the wall).

**3.06 Geogrid Reinforcement Placement**

A. All geogrid reinforcement shall be installed at the proper elevation, length (measured from the face of block) and strength as shown on the profile drawing and structural cross sections) in the RA Final Design. Partial geogrid coverage is not acceptable: no gaps shall be present between geogrid layers. 100% coverage is required, however it is not necessary to overlap the geogrid pieces (overlapping the geogrid may be detrimental since it will likely cause a "bump" in the wall). The geogrid shall be laid horizontally on the compacted infill soil and on top of the concrete SRW Units. The geogrid must be embedded into the SRW Units to the face. The wall installer shall verify that the orientation of the geogrid is in accordance with the geogrid manufacturer's recommendations. The highest strength direction of the geogrid must be perpendicular to the wall face (the geogrid must not be laid parallel to the wall - cannot be rolled out with the wall). The geogrid must be level (cannot be going "down hill" or "up hill").

B. Geogrid reinforcement layers shall be one continuous piece for their entire embedment length. Overlapping of the geogrid per design strength direction (perpendicular to the wall face) is not permitted.

C. Tracked construction equipment shall not operated directly on the geogrid. A minimum of 6 inches of backfill is required prior to operation of tracked vehicles over the geogrid. Turning should be kept to a minimum. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 5 MPH).

D. The geogrid shall be in tension and free of wrinkles prior to placement of the infill soil. Nominal tension shall be applied to the geogrid and secured in place with staples, stakes or by hand until it is covered by 6 inches of infill soil.

E. For inside & outside corners and inside & outside curves the geogrid shall be placed according to the manufacturer's instructions to provide total geogrid coverage. On outside corners the geogrid shall be shifted up or down one course and alternated so that the geogrid comes into the reinforced geogrid zone from both legs of the 90° angle. Geogrid layers shall never be placed on top of one another; there must be a minimum of 3 inches of compacted infill soil between geogrid layers.

F. RA must be notified if the geogrid cannot be placed to its full design length. This is typically caused by restrictions on the site such as rock being encountered, property line restrictions or unsafe excavation (embedment too steep). In some cases the geogrid can be shortened by using gravel infill. If the retained soils are competent rock, if the site retained soils exceed the RA Final Design requirements, etc. However, the geogrid length may never be less than 6 (60%) of the total wall height (exposed height plus embedment). In the absence of all lateral loads (only when the retained zone is all competent rock with blow counts ≤50 or when there is a full depth drainage aggregate within the wall's zone of influence (such as driveways, other walls, patios, roadways, sidewalks, etc.) and any other readily known site factors that could potentially impact the RA Final Design.

**3.07 Wall Drainage**

A. Drainage aggregate (clean gravel such as #57 or approved equivalent) shall be installed behind the entire wall face from the first course below grade to one course from the top of the wall. The drainage gravel shall be placed to a minimum thickness of 12 inches behind the SRW Units. Drainage gravel shall also fill all voids behind and within (if hollow) the SRW Units. SRW Units must be filled with drainage aggregate in one course lifts (SRW Units may not be stacked in two or three course lifts and then have the gravel dumped in from the top through multiple courses). An impermeable clay layer (CL, GC or SC) shall be placed on top of the 12" drainage layer. If clay soils are readily available, a layer of filter fabric (Miral 140N or equivalent) shall be placed on top of the gravel (below the topsoil) to prevent the downward migration of fines.

B. A continuous drainpipe is mandatory and shall be vented to daylight. The continuous drainpipe may run to the end(s) of the wall or to a central collection point of the wall. Or, the continuous drainpipe may be vented through the wall face at maximum intervals of 40 feet on center (no more than 6 inches above finished grade). The pipe must maintain gravity flow of water outside the reinforced geogrid zone. Water must drain into an outlet and have positive flow. If a pipe is run below grade, it shall daylight into a storm sewer manhole or along a slope at an elevation lower than the lowest point of the pipe within the drainage aggregate. When drainpipes are daylighted at the end(s) of a wall they must be visible and unobstructed. The drainpipes should be checked by the owner on a regular basis to ensure that they remain open (not blocked, filled in, grown over, pinched).

C. Rear drainpipes are required in the following situations: when groundwater can rise and approach within 1 foot of the wall's sub-grade and/or for walls that have an exposed height of 10.0' or greater in "cut" situations (since the potential exists for water to enter the interface between the reinforced geogrid zone and the retained zone). This rear drainpipe shall be surrounded by a minimum of 12 inches (6 inches on each side) of gravel (#57 or equivalent) and covered with filter fabric. The drainpipes shall be protected from migration of fines. The rear drainpipe must vent to daylight or be directed to a storm sewer manhole (see instructions for front drainpipe in section 3.07B above).

D. A chimney drain (a second 12 inch layer of drainage aggregate comprising the rear 1 foot of the reinforced geogrid zone or directly behind the reinforced geogrid zone) or composite block (Miral MCF-1212 or approved equivalent) must be installed when groundwater is present or likely (to an elevation that is a minimum of 1 foot above predicted levels as given by the site geotechnical engineer), when stated in the RA Final Design and when required by the site geotechnical engineer.

E. All drainage zone aggregate shall be compacted with a vibratory plate compactor (minimum of three passes).

**3.08 Backfill Placement**

A. The infill soils shall be placed as shown in the RA Final Design in the maximum compacted lift thickness of 8 inches and shall be compacted to a minimum of 95% of a standard proctor (or 98% of a modified proctor) maximum dry density (ASTM D 698) at a moisture content within 2% of optimum. The backfill shall be placed and spread in such a manner as to avoid the possibility of movement of the geogrid and the SRW Units. Compaction testing shall be done with a minimum of one compaction test per lift per 2,500 sq ft, but no fewer than two tests per lift for any lift. Approved compaction tests are the Nuclear Density Gauge or Sand Cone.

B. Only a vibratory plate or small-scale vibratory smooth drum compactor equipment shall be allowed within 3 feet of the front of the wall face. Compaction within 3 feet behind the wall face shall be achieved by at least three (3) passes of the lightweight mechanical plate compactor or roller. Heavy equipment (such as track hoes, ride on rollers, pavers, etc.) must be kept back a minimum of 3 feet from the rear of the wall.

C. At the end of each day's operation, the wall installer shall slope the last level of backfill away from the wall facing to direct water runoff away from the wall face and preferably covered with plastic sheets.

D. All completion of wall construction if final grading, paving, landscaping and/or storm drainage installation adjacent to the wall is not allowed immediately after wall completion. Temporary grading shall be provided to ensure that water runoff is not allowed to collect or pond behind the wall until final construction adjacent to the wall is completed.

E. Filter fabric (Miral 140N or equivalent) is required as shown on the details/sections and when the infill soil is classified as poorly graded sand (SP) or well graded sand (SW) since these soils are non-cohesive and could potentially clog, clogging the gravel drainage layer. Filter fabric (Miral 140N or approved equivalent) must go in front of the buried block, under the leveling pad, under the reinforced geogrid zone, behind the reinforced geogrid zone (vertically up to the extent of the gravel or sand infill) and on top of the gravel or sand infill (horizontally). This is required to prevent the migration of fines into the gravel or sand infill. Rip rap is required in front of the bottom three courses on walls installed near tidal waters or waters subject to wave action. Rip rap is also required when indicated on the civil plans and where pipes with active water flow exit through the wall (to prevent scour). The scope of work for RA on this project does not include a scour analysis (walls that have interface with flowing water must have a scour analysis performed to prevent undermining of the sub-grade). Contact RA if a scour analysis is needed.

**3.09 SRW Caps**

A. SRW caps shall be properly designed and glued (for safety reasons) to the underlying SRW Units with a flexible high-strength cohesive adhesive or sealant designed for "concrete to concrete" applications (not for plastic or wood). Rigid adhesive or mortar is not acceptable.

**3.10 Wall Geometry**

A. It is acceptable to modify the wall's configuration (angles to curves, corners to curves, etc.) from the civil plan layout as long as the RA design height is not exceeded and the loads do not increase (slopes do not get steeper, surcharges do not get greater, etc.). There may be differences between the civil plan dimensions and the RA Final Design wall length. This is due to differences in measuring techniques and/or due to copying and scaling of plans. Also, as a conservative measure, RA measures the longest dimension and rounds up. When there is a conflict, the civil plans govern for wall stakeout.

B. Some projects, such as "design build", will require the wall installer to change the wall length and heights as needed to meet the field conditions (since there may not be a specific grading plan). This is acceptable, but the wall height in the RA Final Design must not be exceeded. If the wall must be built to a height that exceeds the design, RA must be notified and a revised ( taller) cross section provided prior to wall construction.

**3.11 Water Applications**

A. When walls are installed in water applications (such as storm water ponds, streams, bulkheads, areas adjacent to flood plains, etc.) all free-draining gravel or sand (classified by USCS as GP, GW, SP or SW) must be used as infill up to 1 foot above the 100 year flood elevation, or the high water level or the top of dam/bemphing. This gravel or sand must be free draining and have less than 10% fines. Filter fabric (Miral 140N or approved equivalent) must go in front of the buried block, under the leveling pad, under the reinforced geogrid zone, behind the reinforced geogrid zone (vertically up to the extent of the gravel or sand infill) and on top of the gravel or sand infill (horizontally). This is required to prevent the migration of fines into the gravel or sand infill. Rip rap is required in front of the bottom three courses on walls installed near tidal waters or waters subject to wave action. Rip rap is also required when indicated on the civil plans and where pipes with active water flow exit through the wall (to prevent scour). The scope of work for RA on this project does not include a scour analysis (walls that have interface with flowing water must have a scour analysis performed to prevent undermining of the sub-grade). Contact RA if a scour analysis is needed.

B. Walls installed in ponds that hold water for extended periods of time may require special precautions. If the foundation soils (sub-grade) are not free-draining (classified by USCS as GP, GW, SP or SW) the following shall be done to prevent the wall's sub-grade from being compromised: an "I" impermeable clay layer (soils classified by USCS as CL, GC or SC) must be placed as the final 6" of soils (in front of the first block below grade). The clay layer shall extend forward from the base of the wall a minimum of 20' laterally into the pond. This will ensure that any water seepage does not intersect a 45° slope (1H:1V) downward from the front edge of the wall's leveling pad.

C. Responsibilities of the Site Geotechnical Engineer (construction oversight):

A. The site geotechnical engineer's responsibilities include, but are not limited to, verifying the following: sub-grade bearing capacity (must meet or exceed that stated in the RA Final Design); soil friction angles (foundation, infill and retained); soil compaction (≥95% of a standard proctor or ≥98% of a modified proctor maximum dry density); geogrid type (manufacturer and strength); length, coverage, orientation and placement of drainage aggregate (12" minimum placement); placement of filter fabric (to prevent migration of fines); wall geometry (wall must not exceed height of RA Final Design); site geometry (slopes and surcharges must be equal to or less than the RA Final Design and the civil plans); construction techniques (must be in accordance with previously stated procedures); water management (placement of swales, clay layers/gomembranes, flow of surface water to inlets, etc.); presence of ground water under and behind the walls (retained zone) and other activity that may impact the wall's integrity. RA must be notified if actual field conditions differ from the Final Design parameters and/or if there are activities on site that are not in accordance with these Specifications.

B. Field changes to the RA Final Design must be approved by RA in writing. Request(s) for design changes/field modifications must be made to RA in writing prior to RA issuing a written response. All correspondence must be documented with formal written response. These additional services are not included in RA's original scope of work and design fee. Therefore, a contract modification/change order must be signed by RA and the client prior to these additional services being provided.

**3.13 Rails, Fences & Other Structures**

A. RA recommends installation of safety fence or railing for walls with exposed height 30" or taller (varies by local jurisdiction). Typical non-load bearing fence/rail foundation details has been provided (see sheet 8) for the wall installer. This should be co-ordinated with the fence/rail installer.

B. As a general guideline, all post foundations, including guard rails subject to vehicular impact must be kept back a minimum of 3 feet from the face of the wall to prevent any loading on the wall.

**3.14 Storm Structures & Utilities**

A. Reinforced Concrete Pipes (