

| STRUCTURE SCHEDULE | | | | | | | | | | |
|--------------------|-----------------------|--|---------|----------|-----------|--------------------|--|--|--|--|
| No. | TYPE | LOCATION | INV. IN | INV. OUT | TOP ELEV. | HO. CO. STD. | | | | |
| I-1 | A-5 W/DEFL | 13.92' LT. STA. 0+07.52 WESLEY LANE | 307.37 | 307.17 | 320.34 | SD 4.01 & R 3.06 A | | | | |
| I-2 | A-10 | 13.92' LT. STA. 5+79.36 WESLEY LA | 309.22 | 308.44 | 317.52 | SD 4.02 & R 3.06 A | | | | |
| I-3 | A-10 | 13.92' RT. STA. 5+79.36 WESLEY LA | | 310.64 | 317.52 | SD 4.02 & R 3.06 A | | | | |
| I-4 | A-5 W/DEFL | 13.92' LT. STA. 8+96.71 WESLEY LANE | 314.00 | 313.80 | 326.80 | SD 4.01 & R 3.06 A | | | | |
| I-5 | A-10 | 13.92' LT. STA. 18+04.89 WESLEY LANE | 321.40 | 320.90 | 326.80 | SD 4.01 & R 3.06 A | | | | |
| I-6 | A-10 | 13.92' RT. STA. 18+04.89 WESLEY LANE | | 321.60 | 326.80 | SD 4.01 & R 3.06 A | | | | |
| I-7 | A-5 | 13.92' RT. STA. 3+20.75 WOODVALE PL. | 309.28 | 306.42 | 314.42 | SD 4.01 & R 3.06 A | | | | |
| I-8 | A-10 | 13.92' LT. STA. 3+20.75 WOODVALE PL. | | 308.42 | 314.42 | SD 4.02 & R 3.06 A | | | | |
| I-9 | A-10 | 13.92' LT. STA. 3+00 GREENMOUNT | 284.93 | 284.73 | 289.94 | SD 4.01 & R 3.06 A | | | | |
| I-10 | A-5 | 13.92' RT. STA. 3+00 GREENMOUNT DR. | | 285.09 | 289.94 | SD 4.01 & R 3.06 A | | | | |
| I-11 | A-5 | 13.92' LT. STA. 10+75.17 WESLEY LA. | | 292.21 | 298.21 | SD 4.01 & R 3.06 A | | | | |
| I-12 | A-5 W/DEFL | 13.92' LT. STA. 13+20.00 WESLEY LA. | | 312.15 | 317.12 | SD 4.01 & R 3.06 A | | | | |
| I-13 | A-5 W/DEFL | 13.92' LT. STA. 0+47.00 SOUTHAMPTON | | 309.60 | 314.74 | SD 4.01 & R 3.06 A | | | | |
| M-1 | MANHOLE | N 498560.72 E 862855.03 | 295.50 | 295.00 | 302.25 | 4 5.13 | | | | |
| M-2 | MANHOLE | 16.00 LT. STA. 0+12.50 WESLEY LANE | 320.63 | 320.43 | 326.43 | 4 5.13 | | | | |
| M-3 | MANHOLE | 46.94 LT. STA. 10+75.17 WESLEY LA. | 289.95 | 289.75 | 296.00 | 4 5.13 | | | | |
| M-4 | MANHOLE | 7.00 RT. STA. 0+30.80 GREENMOUNT DRIVE | 290.45 | 290.21 | 296.00 | 4 5.13 | | | | |
| M-5 | MANHOLE | N 498003.20 E 863582.49 | 287.25 | 287.00 | 293.00 | 4 5.12 | | | | |
| M-6 | MANHOLE | 20.00 LT. STA. 15+27.45 WESLEY LA. | 299.00 | 298.80 | 304.00 | 4 5.12 | | | | |
| M-7 | MANHOLE | 14.91 LT. STA. 13+80.29 WESLEY LA. | 308.70 | 308.50 | 313.80 | 4 5.12 | | | | |
| E-1 | 30" CONC. END SECTION | N 498595.81 E 862834.41 | | 284.00 | | SD 5.51 | | | | |
| E-2 | 30" CONC. END SECTION | 60' RT. STA. 16+42.34 WESLEY LANE | | 289.59 | | SD 5.51 | | | | |
| E-3 | 24" CONC. END SECTION | 40' RT. STA. 17+48.54 WESLEY LANE | | 291.50 | | SD 5.51 | | | | |
| E-4 | 18" CONC. END SECTION | 58' RT. STA. 3+38.48 WOODVALE PL. | | 304.50 | | SD 5.51 | | | | |
| E-5 | 18" CONC. END SECTION | N 498015.58 E 863448.75 | | 284.50 | | SD 5.51 | | | | |
| E-6 | 30" CONC. END SECTION | N 498414.37 E 862706.35 | | 293.78 | | SD 5.51 | | | | |
| E-7 | 48" CONC. END SECTION | N 497902.30 E 863795.58 | | 273.00 | | SD 5.51 | | | | |
| E-8 | 18" CONC. END SECTION | N 498021.80 E 863652.76 | | 286.40 | | SD 5.51 | | | | |
| E-9 | 18" CONC. END SECTION | 60' LT. STA. 15+80.00 WESLEY LA. | | 289.95 | | SD 5.51 | | | | |
| S-1 | SWM CONT. STRUCT. | N 498428.11 E 862747.62 | | 294.00 | 302.00 | | | | | |
| S-2 | SWM CONT. STRUCT. | N 498015.68 E 863743.63 | | 276.50 | 289.25 | | | | | |
| I-14 | A-5 | 13.92' RT. STA. 13+20.00 WESLEY LA. | | 312.62 | 317.12 | SD 4.01 & R 3.06 A | | | | |
| I-15 | A-5 | 13.92' RT. STA. 0+37.61 COXWOLD DR. | 320.63 | 320.43 | 325.63 | SD 4.01 & R 3.06 A | | | | |
| I-16 | A-5 | 13.92' LT. STA. 0+45.22 COXWOLD DR. | | 321.00 | 326.00 | SD 4.01 & R 3.06 A | | | | |
| M-8 | MANHOLE | 20.00 LT. STA. 11+05.00 WESLEY LA. | 319.63 | 319.43 | 324.63 | 4 5.13 | | | | |

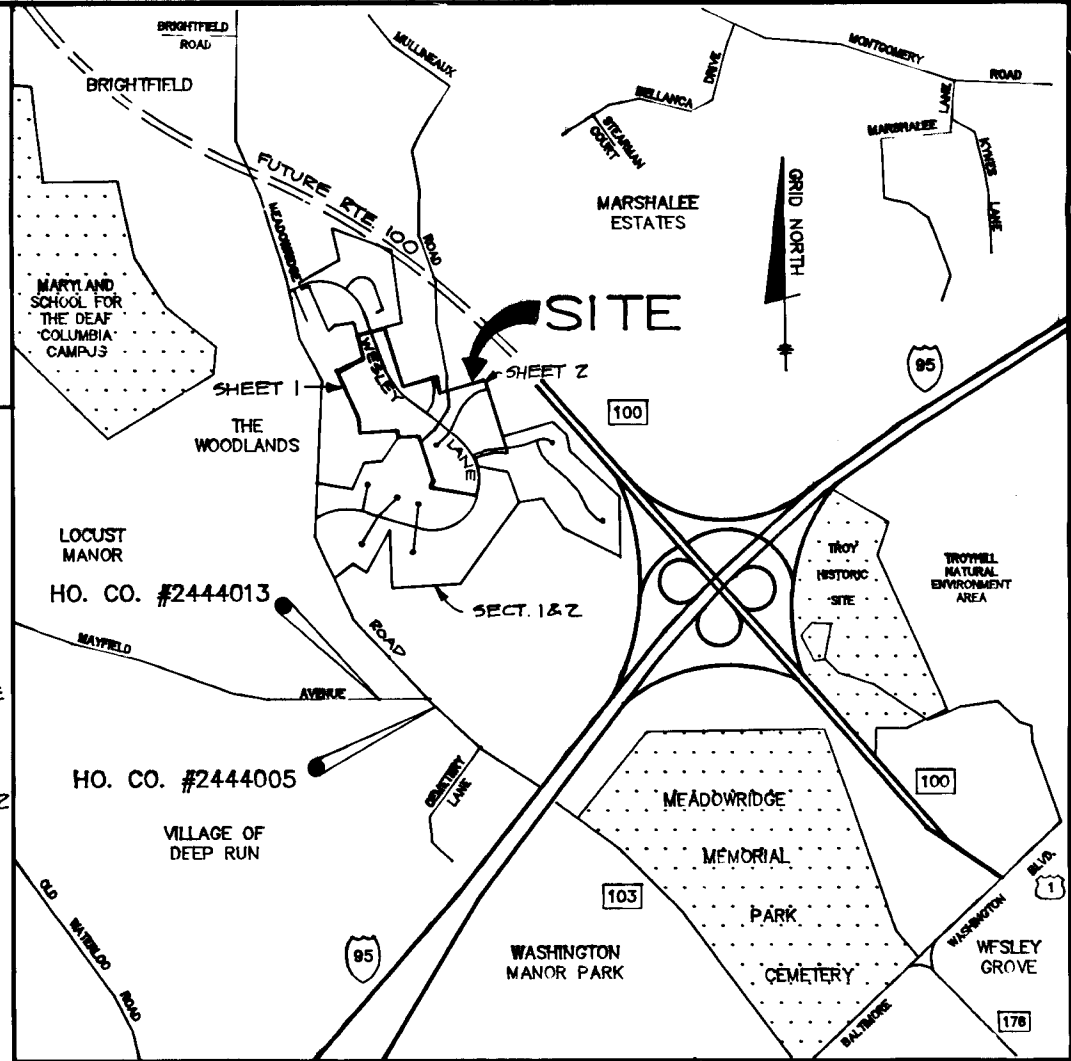
UNLESS OTHERWISE NOTED: 1. ALL STORM DRAIN BEDDING SHALL BE CLASS C. 2. ALL STORM DRAIN PIPE SHALL BE CLASS 4 REINFORCED CONC.

| CENTERLINE CURVE DATA | | | | | | |
|--------------------------------|----------|---------|---------|---------|---------------|-----------|
| Q STA. | RADIUS | LENGTH | TANGENT | CHORD | BEARING | DELTA |
| 0+00 TO 0+12.52 WESLEY LANE | 1750.00' | 76.34' | 38.18' | 76.33' | N 10°07'56" W | 02°29'58" |
| 3+10.53 TO 7+71.29 WESLEY LANE | 800.00' | 460.76' | 236.97' | 454.42' | S 25°22'57" E | 33°00'00" |
| 0+00 TO 3+08.65 COXWOLD DRIVE | 395.00' | 308.65' | 162.69' | 300.86' | N 25°43'57" E | 44°46'18" |

| STREET LIGHT LEGEND | | | |
|---------------------|-----------|------------|--|
| ROAD | Q STATION | OFFSET | TYPE |
| WESLEY LANE | 1+50 | 24' RIGHT | 150 WATT HP 5000MM W/IDE LAMP FRONT MOUNTED FIXTURE ON 25 FOOT GALVANIZED STEEL POLE |
| | 6+10 | 24' LEFT | |
| | 10+19 | 40' LEFT | |
| | 13+29 | 40' LEFT | |
| WOODVALE PLACE | 17+48 | 40' LEFT | |
| | 4+89 | 17.5' LEFT | 100 WATT TRADITIONAL 2500MM W/IDE LAMP FRONT MOUNTED FIXTURE ON 14 FOOT BLACK FINISH GALVANIZED STEEL POLE |

| CENTERLINE CONTROL DATA | | | |
|-------------------------|-----------------|---------------|---------------|
| ROAD | Q STATION | NORTH | EAST |
| WESLEY LANE | LIMIT P.C. 0+00 | N 499400.7688 | E 862893.8058 |
| | P.T. 0+47.634 | N 499326.6255 | E 862707.2344 |
| | P.C. 3+10.53 | N 499094.2410 | E 862743.3958 |
| | P.T. 7+71.14 | N 498683.8851 | E 862938.1885 |
| | MATCH 12+38.73 | N 498337.1587 | E 863248.9178 |
| COXWOLD DRIVE | P.C. 0+00 | N 498470.9703 | E 863128.9293 |
| | P.C. 3+08.65 | N 497411.9954 | E 863259.5543 |
| | L.O.S. 3+08.65 | N 498022.0508 | E 863264.2369 |

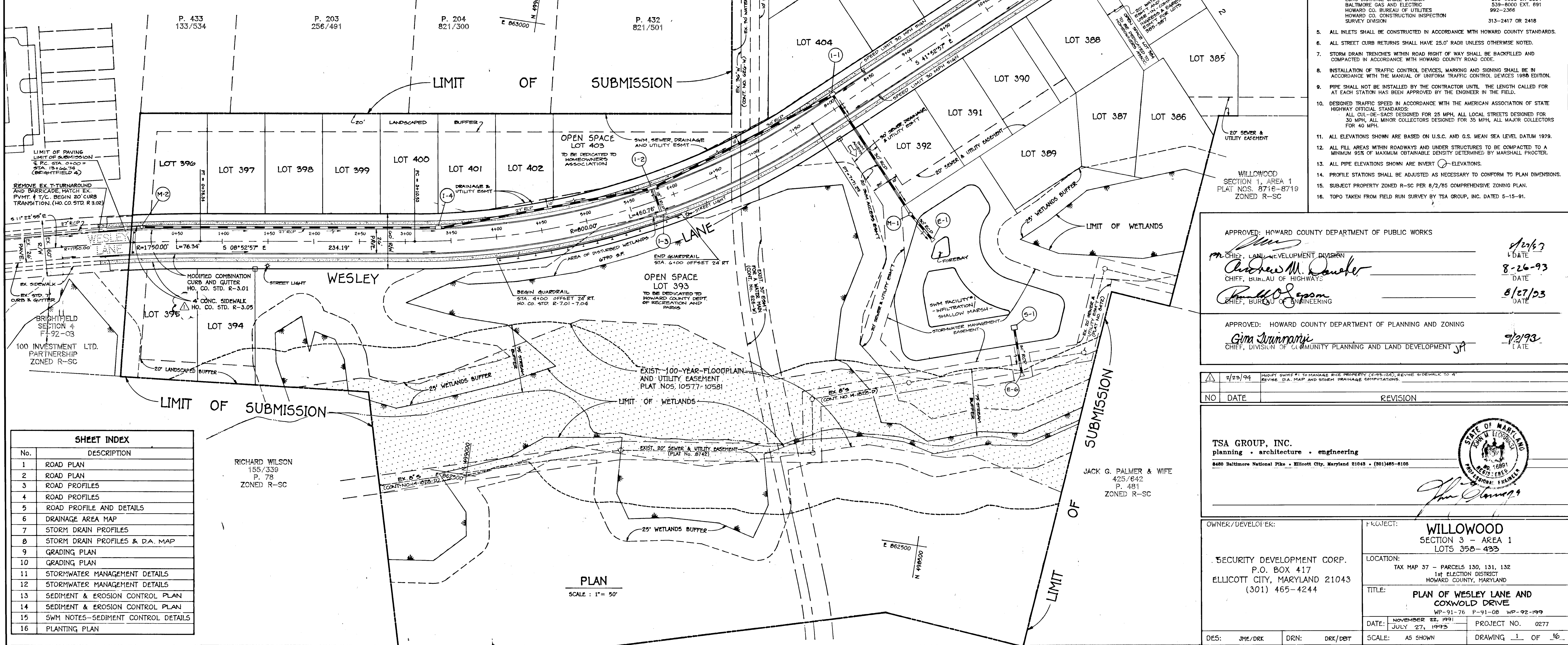
| BENCH MARKS | |
|---|---------------|
| HO. CO. #2444005 | ELEV. 271.249 |
| CONC. MONUMENT 0.5' BELOW SURFACE, ON THE WEST SIDE OF MEADOWBRIDGE RD. SOUTH OF MAYFIELD RD. | |
| N 499508.271 | E 863128.170 |
| HO. CO. #2444013 | ELEV. 268.109 |
| CONC. MONUMENT AT SURFACE, 17.1' NORTH OF CENTERLINE OF MAYFIELD AVE. | |
| N 495646.964 | E 862542.349 |



NOTE
MODE WATER QUALITY CERTIFICATION NO. 93-WQ-0076 HAS BEEN ISSUED FOR THIS PROJECT. EXPIRATION DATE 4/25/96. WETLANDS MITIGATION PLAN IS TO BE PROVIDED FOR THIS PROJECT. 0.50 AC (24,400 S.F.) OF WETLANDS ARE DISTURBED AT THE WESLEY LANE AND GREENMOUNT DRIVE ROAD CROSSINGS. THE MITIGATION PLAN SHALL PROVIDE FOR A 2:1 MITIGATION AREA OF 1120 AC (48,800 S.F.)
THE CORPS OF ENGINEERS AUTHORIZED THE WORK UNDER A NATIONWIDE PERMIT #26, CENAS-OP-RW-91-0690-B, ON FEBRUARY 22, 1993, VALID FOR TWO YEARS.
PDR WATERWAY CONSTRUCTION PERMIT IS NOT REQUIRED FOR THIS PROJECT.

NOTE
THE CONSTRUCTION OF STORMWATER MANAGEMENT FACILITY #1 AND THE STORM DRAIN CONNECTION TO BRIGHTFIELD 4 SHALL BE DONE IN CONJUNCTION WITH F-92-03 (BRIGHTFIELD 4) CONSTRUCTION.

THOMAS C. RICE ZONED R-SC



| SHEET INDEX | |
|-------------|------------------------------------|
| No. | DESCRIPTION |
| 1 | ROAD PLAN |
| 2 | ROAD PLAN |
| 3 | ROAD PROFILES |
| 4 | ROAD PROFILES |
| 5 | ROAD PROFILE AND DETAILS |
| 6 | DRAINAGE AREA MAP |
| 7 | STORM DRAIN PROFILES |
| 8 | STORM DRAIN PROFILES & D.A. MAP |
| 9 | GRADING PLAN |
| 10 | GRADING PLAN |
| 11 | STORMWATER MANAGEMENT DETAILS |
| 12 | STORMWATER MANAGEMENT DETAILS |
| 13 | SEDIMENT & EROSION CONTROL PLAN |
| 14 | SEDIMENT & EROSION CONTROL PLAN |
| 15 | SWM NOTES-SEDIMENT CONTROL DETAILS |
| 16 | PLANTING PLAN |

RICHARD WILSON
155/339
P. 78
ZONED R-SC

PLAN
SCALE: 1" = 50'

- GENERAL NOTES**
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR ROAD CONSTRUCTION.
 - APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
 - THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES, WHERE DIRECTED BY THE ENGINEER, A MINIMUM OF TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS.
 - CONTRACTOR TO NOTIFY THE FOLLOWING UTILITIES AT LEAST THREE DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
BELL TELEPHONE SYSTEM 393-3849
LONG DISTANCE CABLE DIVISION 383-3553 OR 3554
BALTIMORE GAS AND ELECTRIC 539-8000 EXT. 691
HOWARD CO. BUREAU OF UTILITIES 992-2366
HOWARD CO. CONSTRUCTION INSPECTION SURVEY DIVISION 313-2417 OR 2418
 - ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
 - ALL STREET CURB RETURNS SHALL HAVE 25.0' RADI UNLESS OTHERWISE NOTED.
 - STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY ROAD CODE.
 - INSTALLATION OF TRAFFIC CONTROL DEVICES, MARKING AND SIGNING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES 1988 EDITION.
 - PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
 - DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIAL STANDARDS.
ALL CUL-DE-SACS DESIGNED FOR 25 MPH. ALL LOCAL STREETS DESIGNED FOR 30 MPH. ALL MAJOR COLLECTORS DESIGNED FOR 35 MPH. ALL MAJOR COLLECTORS FOR 40 MPH.
 - ALL ELEVATIONS SHOWN ARE BASED ON U.S.C. AND G.S. MEAN SEA LEVEL DATUM 1929.
 - ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM 95% OF MAXIMUM OBTAINABLE DENSITY DETERMINED BY MARSHALL PROCTER.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
 - PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
 - SUBJECT PROPERTY ZONED R-SC PER 8/2/85 COMPREHENSIVE ZONING PLAN.
 - TOPO TAKEN FROM FIELD RUN SURVEY BY TSA GROUP, INC. DATED 5-15-91.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DATE: 8/26/93
DATE: 8-26-93
DATE: 8/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 9/2/93

| NO. | DATE | REVISION |
|-----|--------|---|
| 1 | 9/2/93 | MODIFY SWMF #1 TO MANAGE RICE PROPERTY (P-93-124), REVISE SIDEWALK TO 4' REVISE D.A. MAP AND STORM DRAINAGE COMPUTATIONS. |

TSA GROUP, INC.
planning • architecture • engineering
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)465-8105

JACK G. PALMER & WIFE
425/642
P. 481
ZONED R-SC

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
P.O. BOX 417
ELLCOTT CITY, MARYLAND 21043
(301) 465-4244

PROJECT: WILLOWOOD SECTION 3 - AREA 1 LOTS 358-433

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: PLAN OF WESLEY LANE AND COXWOLD DRIVE
WP-91-76 P-91-08 WP-92-199

DATE: NOVEMBER 22, 1991 PROJECT NO. 0277
JULY 27, 1993

DES: JME/DRK DRN: DRK/DBT SCALE: AS SHOWN DRAWING: 1 OF 16

12421

NOTE:
THE DIRECTOR OF THE DEPARTMENT OF PUBLIC WORKS APPROVED WAIVER FROM SECTION 9-29 OF THE DESIGN MANUAL, VOLUME III TO PROVIDE NOISE MITIGATION FOR LOT 424, DECEMBER 28, 1992.

CHARLES T. HALCOMB
AND WIFE
991/221
P. 205
ZONED R-SC

NOTE:
1. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE WETLAND OR STREAM BUFFERS EXCEPT AS PERMITTED FOR THE WESLEY LANE AND GREENMOUNT DRIVE ROAD CROSSINGS AND STORM DRAIN ENDWALL E-4 AS APPROVED BY THE DEPARTMENT OF NATURAL RESOURCES AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT PERMITS AND AS PER WAIVER PETITION WP-92-199, APPROVED 6-26-92 FOR THE CONSTRUCTION OF THE STORM WATER QUALITY FACILITIES.
2. WAIVER PETITION WP-92-199 REQUEST TO WAIVE SECTION 16.116 (C)(4) OF THE SUBDIVISION REGULATIONS TO ALLOW INFREINGEMENT WITHIN THE 75' STREAM BANK BUFFER FOR STORMWATER MANAGEMENT FACILITY #1 AND WATER QUALITY FACILITY #1 (AS SHOWN) ON THE APPROVED PLAN F-92-82) WAS APPROVED ON JUNE 22, 1992 BY THE DIRECTOR OF PLANNING AND ZONING.

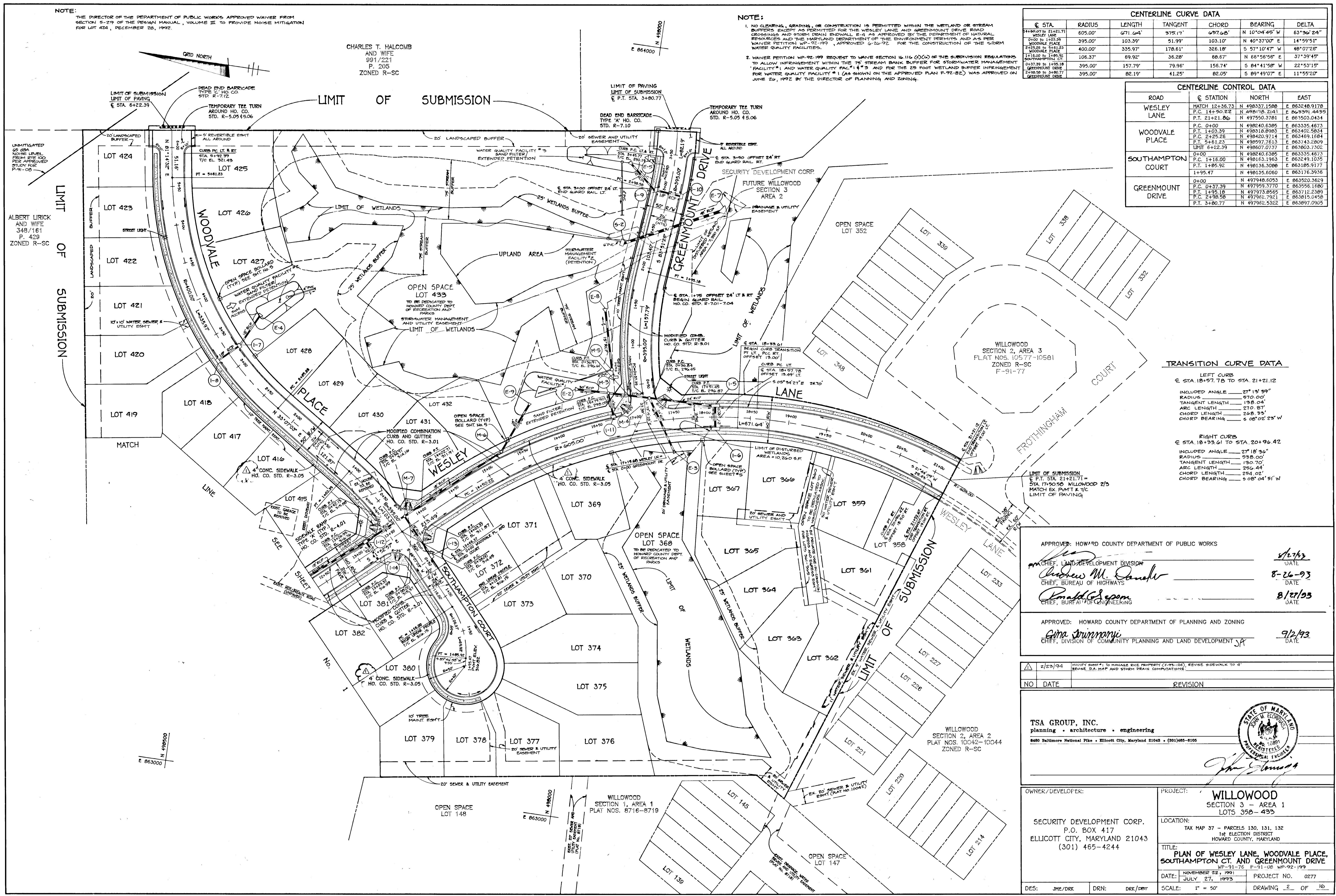
| CENTERLINE CURVE DATA | | | | | | |
|-----------------------|---------|---------|---------|---------|---------------|-----------|
| STA | RADIUS | LENGTH | TANGENT | CHORD | BEARING | DELTA |
| 6+40.00 TO 21+21.71 | 605.00' | 671.64' | 375.17' | 637.65' | N 10°04'45" W | 63°36'24" |
| WESLEY LANE | 395.00' | 103.39' | 51.99' | 103.10' | N 40°37'00" E | 14°59'51" |
| WOODVALE PLACE | 400.00' | 335.97' | 178.61' | 328.18' | S 57°10'47" W | 48°07'26" |
| WESLEY LANE | 106.37' | 69.92' | 36.28' | 68.67' | N 66°56'56" E | 37°39'45" |
| SOUTHAMPTON COURT | 395.00' | 157.79' | 79.98' | 156.74' | S 84°41'58" W | 22°53'15" |
| GREENMOUNT DRIVE | 395.00' | 82.19' | 41.25' | 82.05' | S 89°49'07" E | 11°55'20" |

| CENTERLINE CONTROL DATA | | | |
|-------------------------|----------------|---------------|---------------|
| ROAD | STATION | NORTH | EAST |
| WESLEY LANE | MATCH 12+36.73 | N 498337.1508 | E 863240.9170 |
| | P.C. 14+50.22 | N 498178.2141 | E 863391.4495 |
| | P.T. 21+21.26 | N 497550.3781 | E 863503.0434 |
| WOODVALE PLACE | P.C. 0+00 | N 498240.6385 | E 863335.4673 |
| | P.T. 1+03.39 | N 498318.8983 | E 863402.5834 |
| | P.C. 2+25.26 | N 498209.7114 | E 863469.1684 |
| | P.T. 5+61.23 | N 498597.7613 | E 863743.2809 |
| | LIMIT 6+42.39 | N 498807.0737 | E 863803.7302 |
| SOUTHAMPTON COURT | 0+00 | N 498240.6385 | E 863335.4673 |
| | P.C. 1+16.00 | N 498163.1963 | E 863249.1035 |
| | P.T. 1+85.92 | N 498136.3080 | E 863185.9177 |
| | 1+95.47 | N 498135.6060 | E 863176.3936 |
| GREENMOUNT DRIVE | 0+00 | N 497948.6053 | E 863520.3629 |
| | P.C. 0+37.39 | N 497959.3770 | E 863556.1680 |
| | P.T. 1+95.18 | N 497973.9585 | E 863712.2389 |
| | T.C. 2+38.58 | N 497922.7921 | E 863615.0458 |
| | P.T. 3+80.77 | N 497962.5322 | E 863897.0905 |

TRANSITION CURVE DATA

| LEFT CURB | |
|----------------|---------------------------|
| STATION | 18+97.78 TO STA. 21+21.12 |
| INCLUDED ANGLE | 27°13'39" |
| RADIUS | 570.00' |
| TANGENT LENGTH | 138.04' |
| ARC LENGTH | 270.87' |
| CHORD LENGTH | 268.33' |
| CHORD BEARING | S 08°02'23" W |

| RIGHT CURB | |
|----------------|---------------------------|
| STATION | 18+33.61 TO STA. 20+96.42 |
| INCLUDED ANGLE | 27°18'36" |
| RADIUS | 538.00' |
| TANGENT LENGTH | 130.70' |
| ARC LENGTH | 256.44' |
| CHORD LENGTH | 254.02' |
| CHORD BEARING | S 08°04'51" W |



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division
 Andrew M. Danaher
 Chief, Bureau of Highways
 Ronald G. Seaman
 Chief, Bureau of Engineering

8/27/93
 8-26-93
 8/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Gina Trunnicci
 Chief, Division of Community Planning and Land Development

9/2/93

| NO. | DATE | REVISION |
|---------|------|--|
| 2/23/94 | | MODIFY SHEET #1 TO MANAGE RISE PROPERTY (L-95-154) REVISE SIDEWALK TO 4' REVISE D.A. MAP AND STORM DRAIN COMPUTATIONS. |

TSA GROUP, INC.
 planning • architecture • engineering
 8650 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)465-6105

STATE OF MARYLAND
 JOHN W. ELLIOTT
 REGISTERED PROFESSIONAL ENGINEER

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21043
 (301) 465-4244

PROJECT: WILLOWOOD SECTION 3 - AREA 1 LOTS 358-435

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: PLAN OF WESLEY LANE, WOODVALE PLACE, SOUTHAMPTON COURT AND GREENMOUNT DRIVE

DATE: NOVEMBER 22, 1991
 JULY 27, 1993

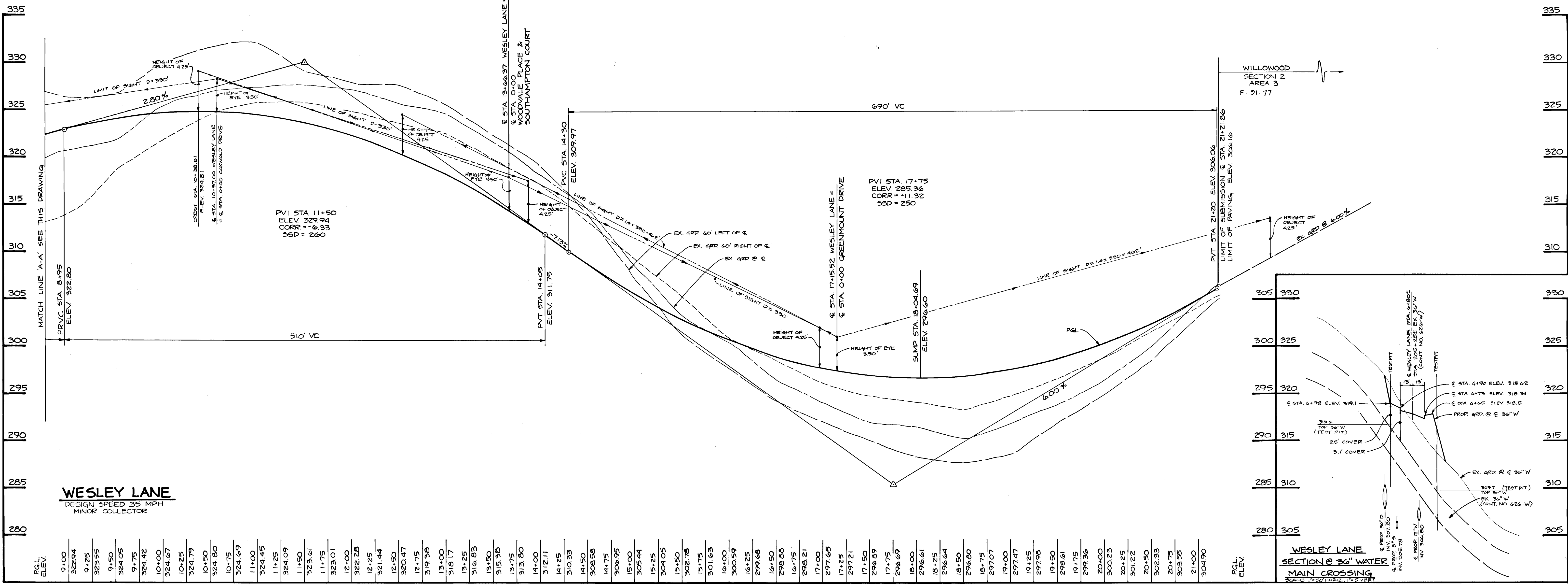
PROJECT NO. 0277

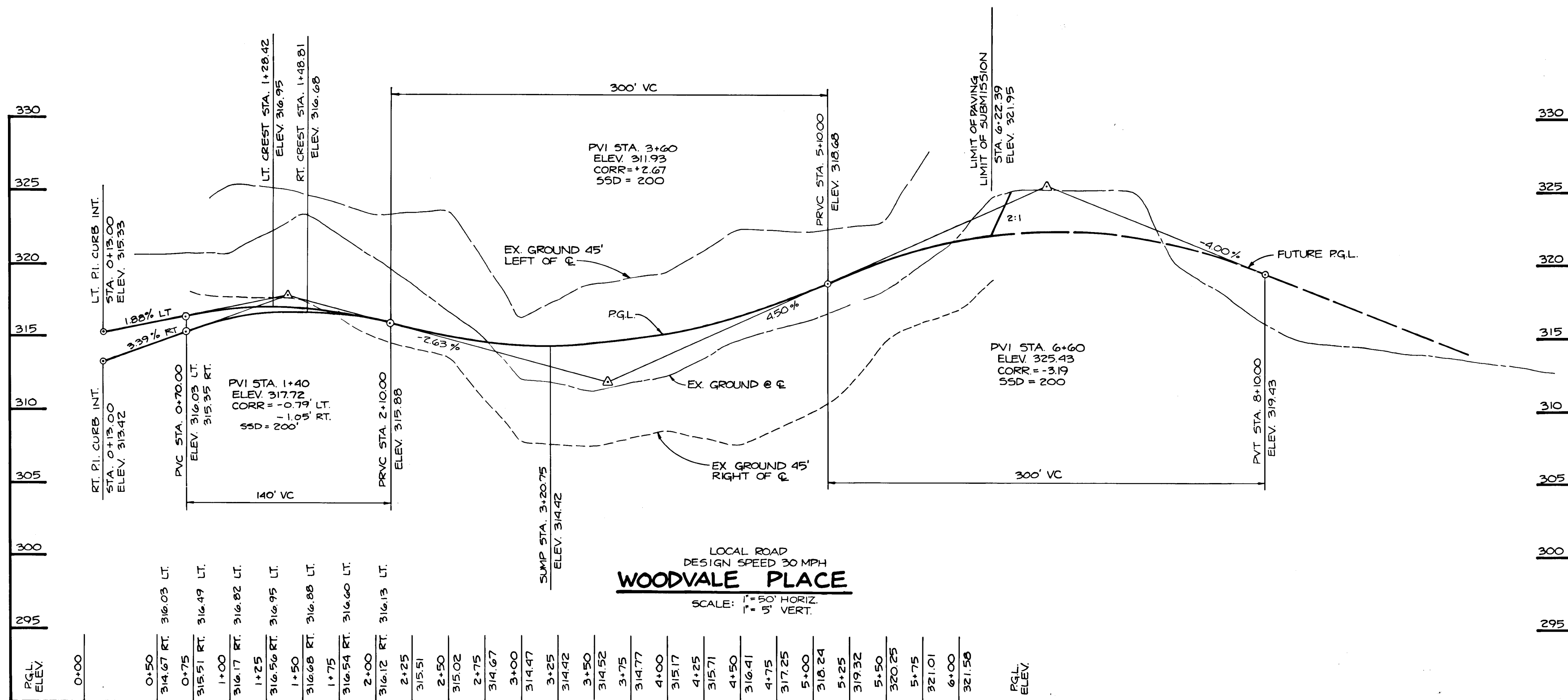
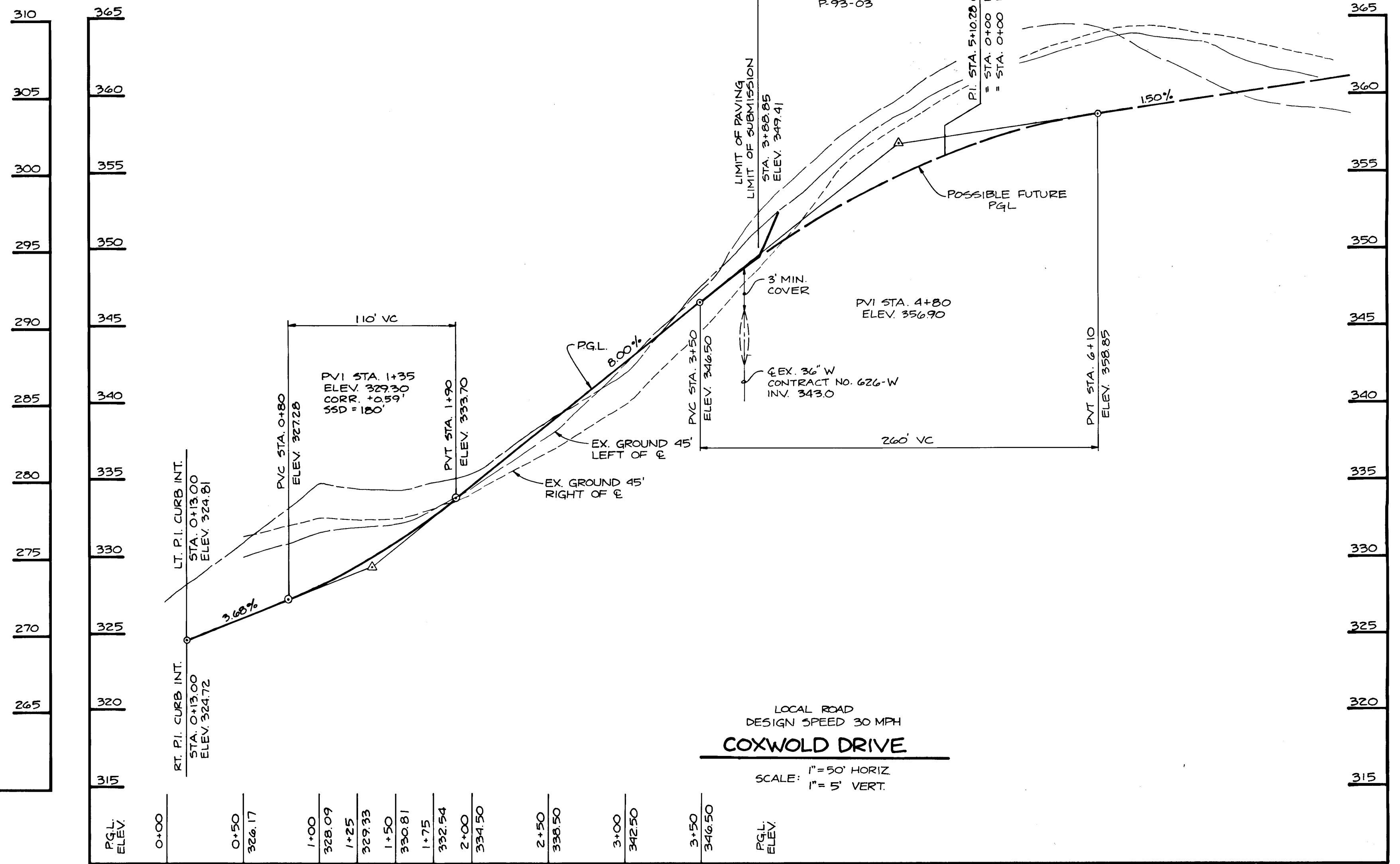
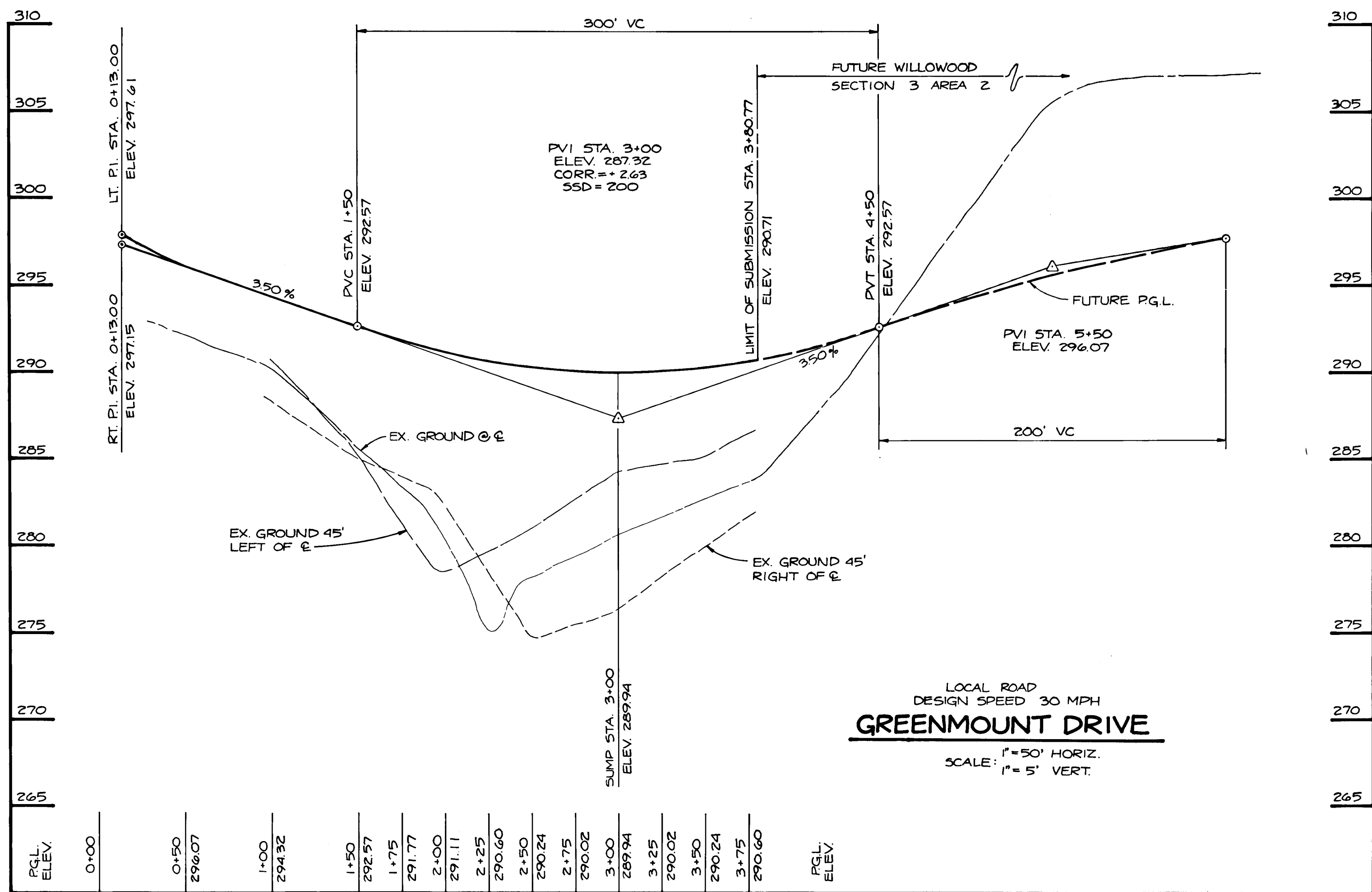
SCALE: 1" = 50'

DRAWING 2 OF 10

DES: JME/DRK DRN: DRK/DEF

1248





APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, LAND DEVELOPMENT DIVISION
Richard M. Duerke
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 8-26-93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
Gina Swinmamji
 DATE: 9/2/93

NO. DATE REVISION

TSA GROUP, INC.
 planning • architecture • engineering
 5800 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)465-6105

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21043
 (301) 465-4244

PROJECT: WILLOWOOD
 SECTION 3 - AREA 1
 LOTS 358-433

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132
 1st ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES
 WP-91-76 P-91-08 WP-92-199

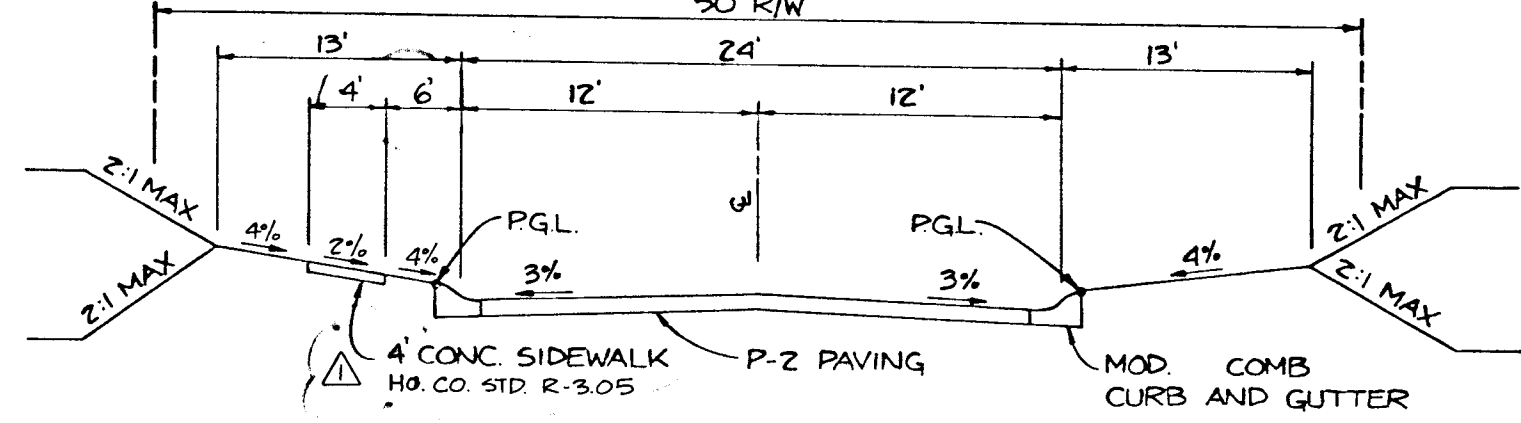
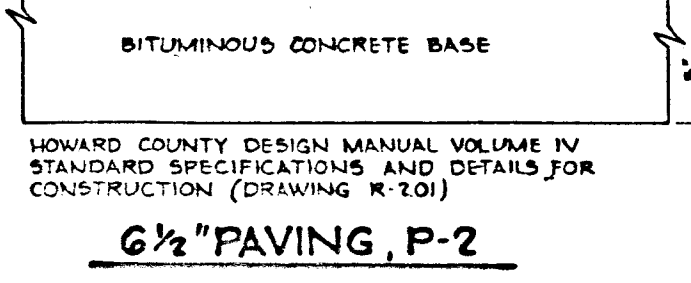
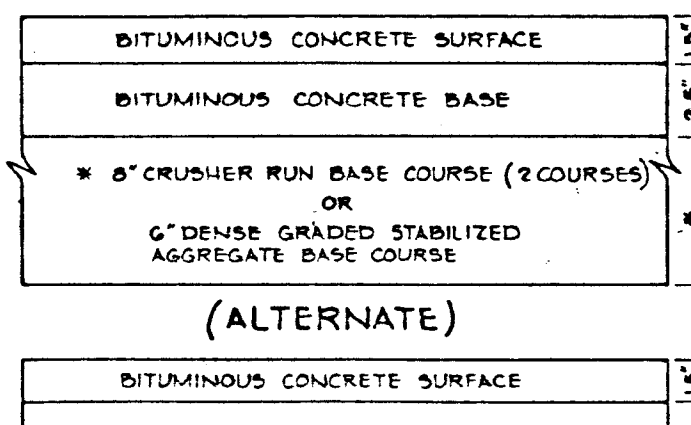
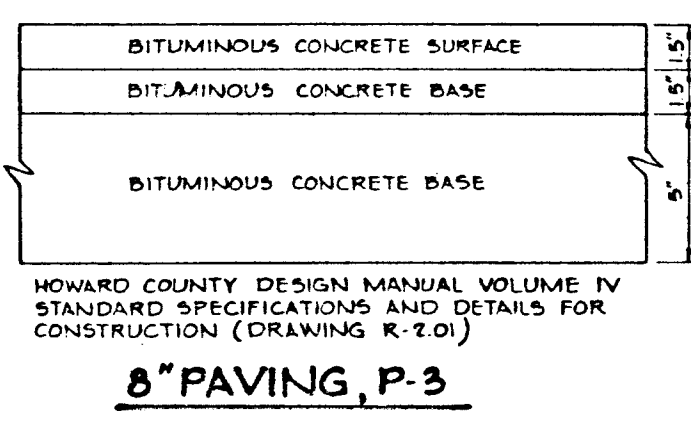
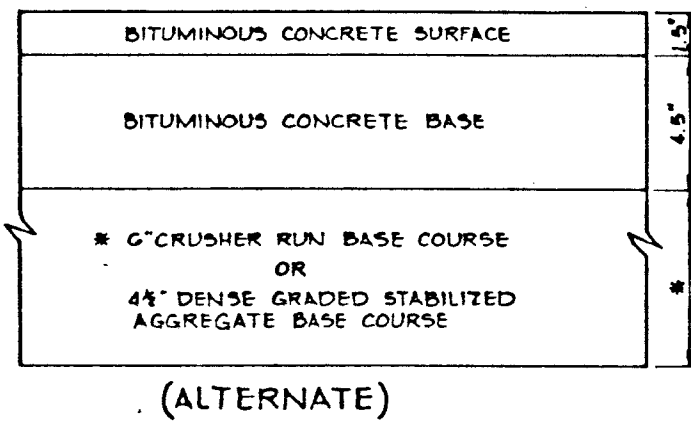
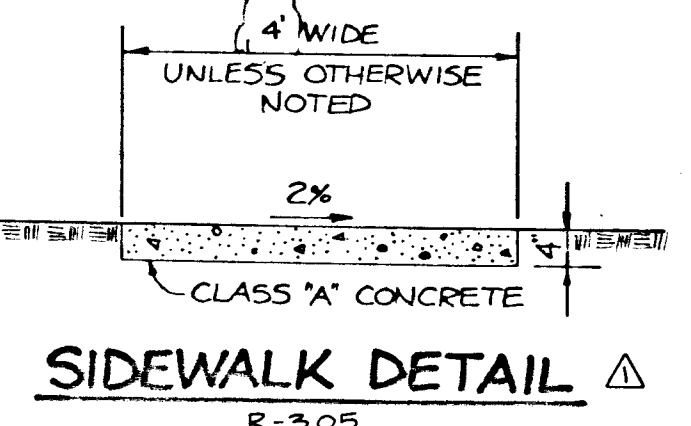
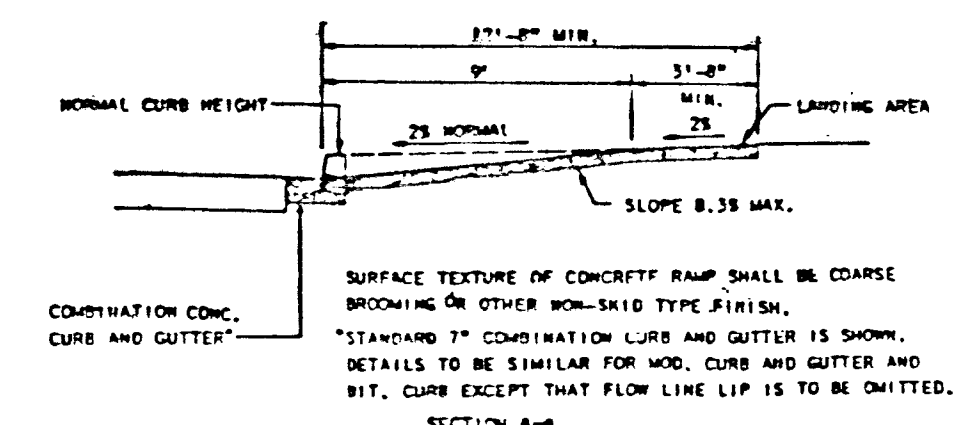
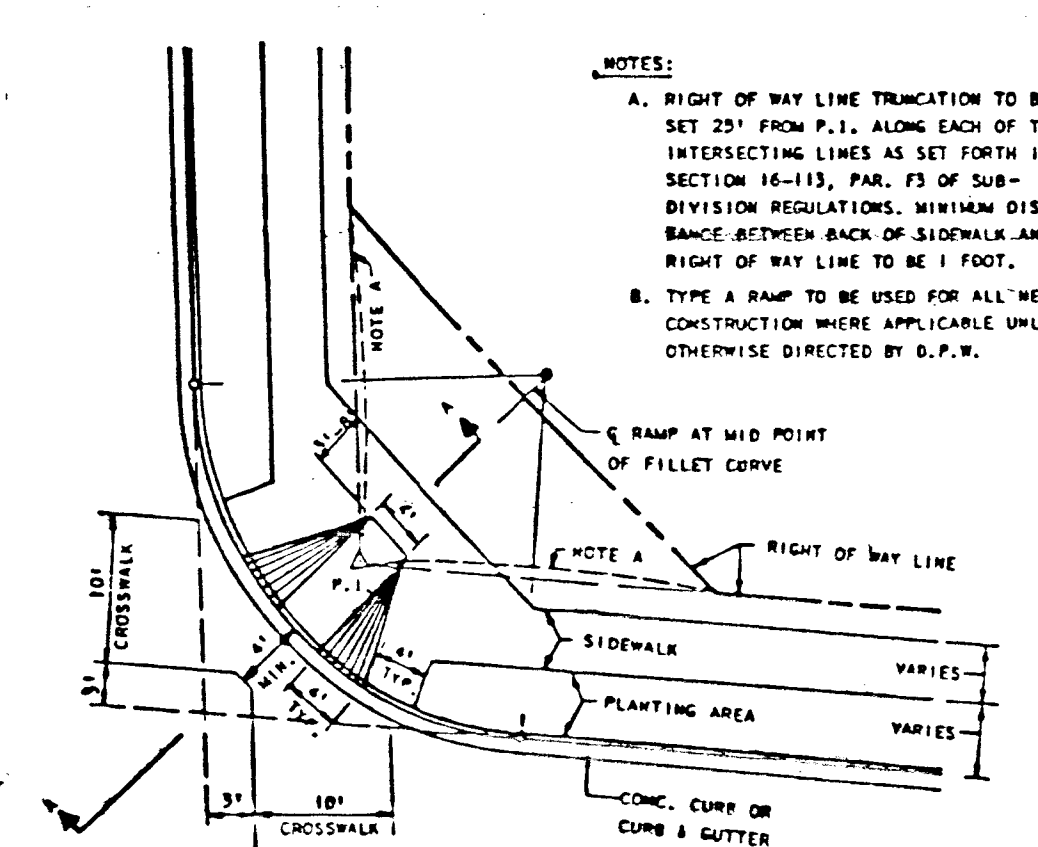
DATE: NOVEMBER 22, 1991
 JULY 27, 1993

DES: JMC/DRK DRN: DBT

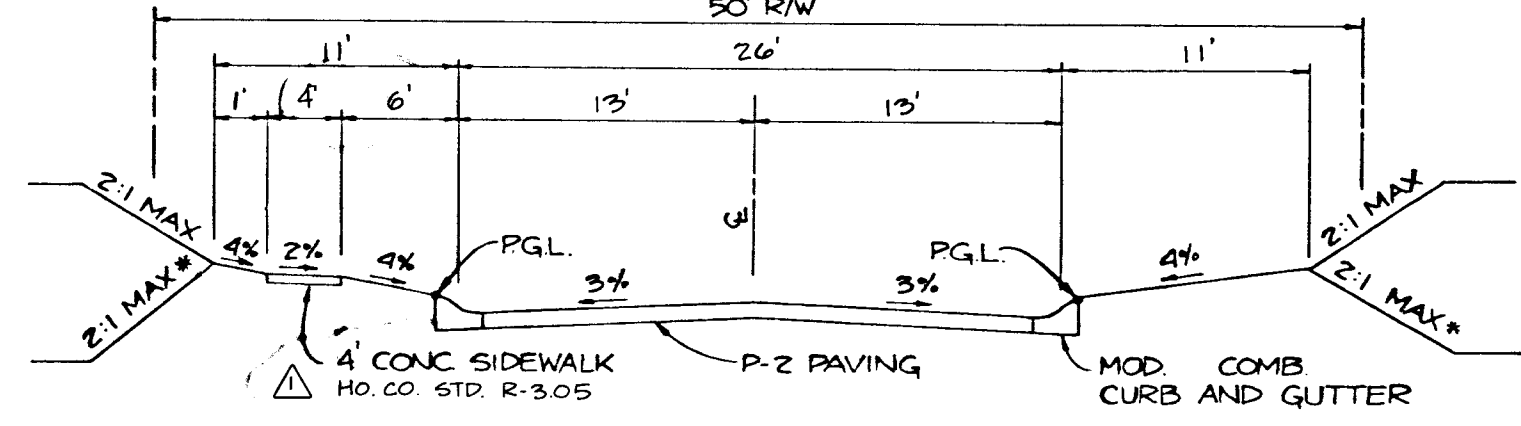
SCALE: AS SHOWN

PROJECT NO. 0277
 DRAWING 4 OF 10

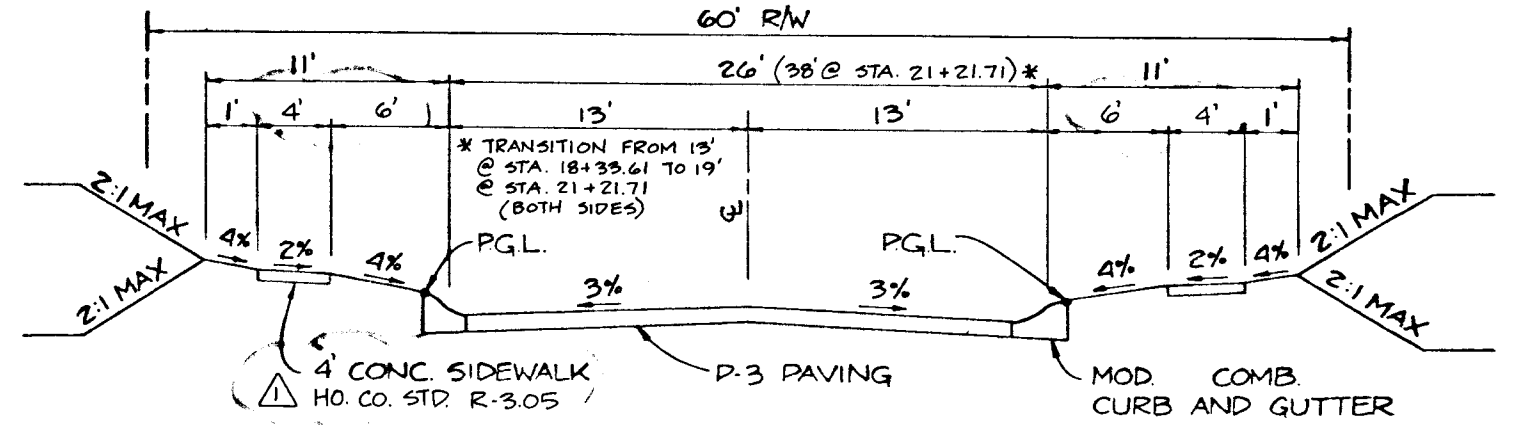
1248



SOUTHAMPTON COURT
TYPICAL SECTION
 NO SCALE
 CUL-DE-SAC
 DESIGN SPEED 25 MPH

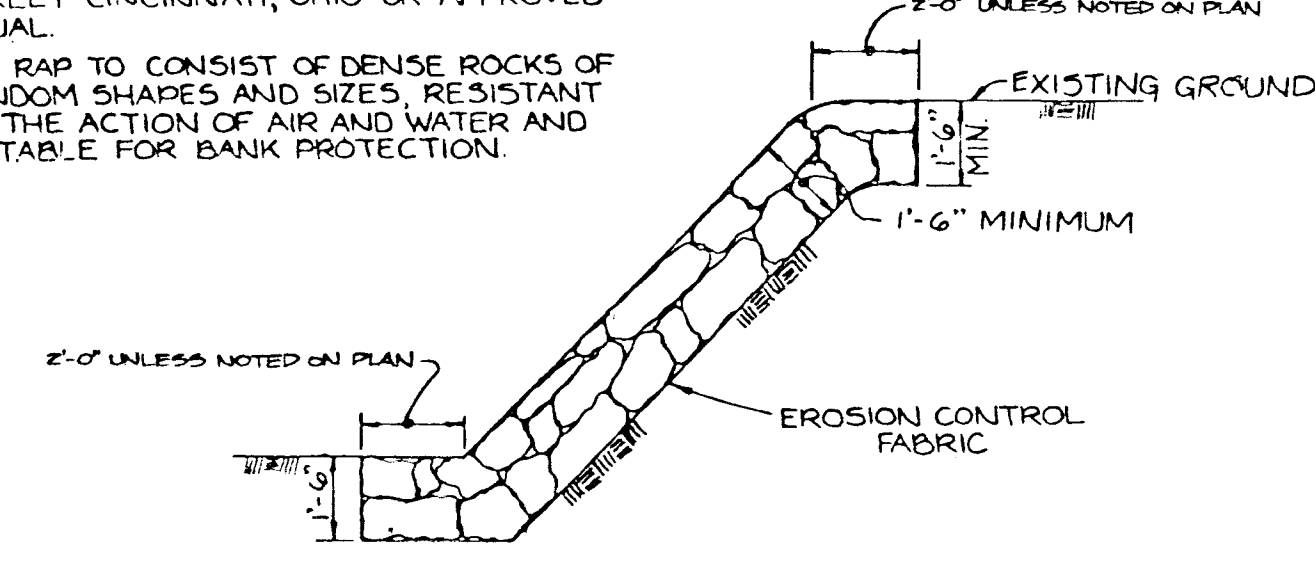


COXWOLD DRIVE
WOODVALE PLACE
GREENMOUNT DRIVE
TYPICAL SECTION
 NO SCALE
 LOCAL ROAD
 DESIGN SPEED 30 MPH

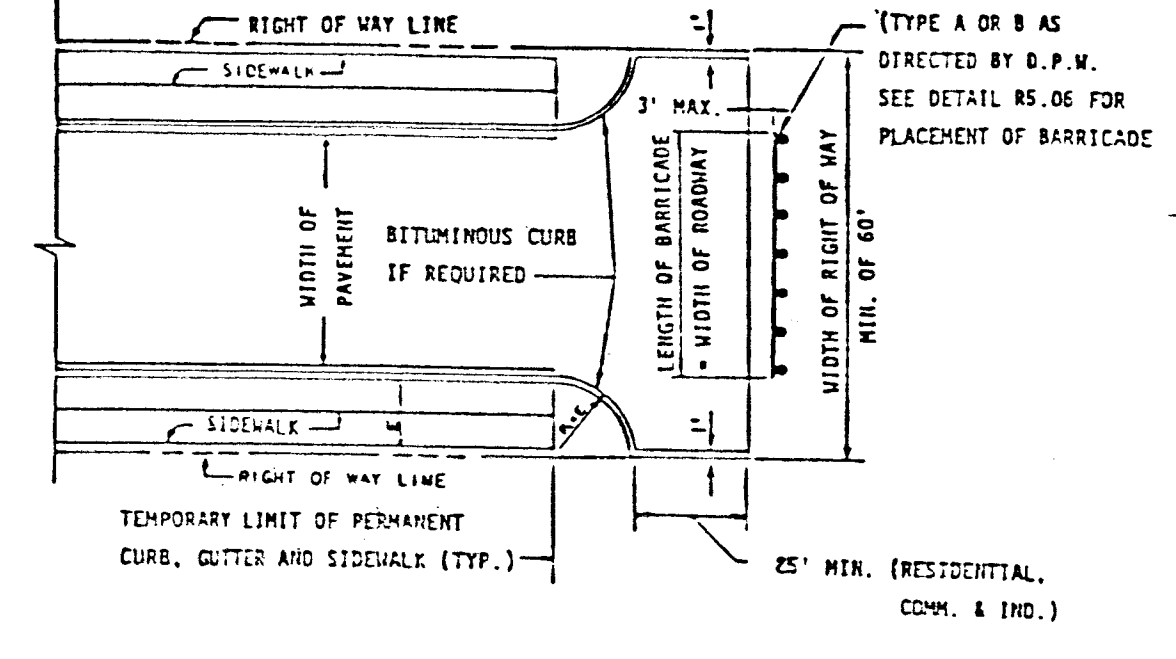


WESLEY LANE
TYPICAL SECTION
 NO SCALE
 MINOR COLLECTOR
 DESIGN SPEED 35 MPH

- EROSION CONTROL FABRIC SHALL BE AS MANUFACTURED BY CARTHAGE MILLS, INC. EROSION CONTROL DIVISION, 124 W 66th STREET CINCINNATI, OHIO OR APPROVED EQUAL.
- RIP RAP TO CONSIST OF DENSE ROCKS OF RANDOM SHAPES AND SIZES, RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE FOR BANK PROTECTION.



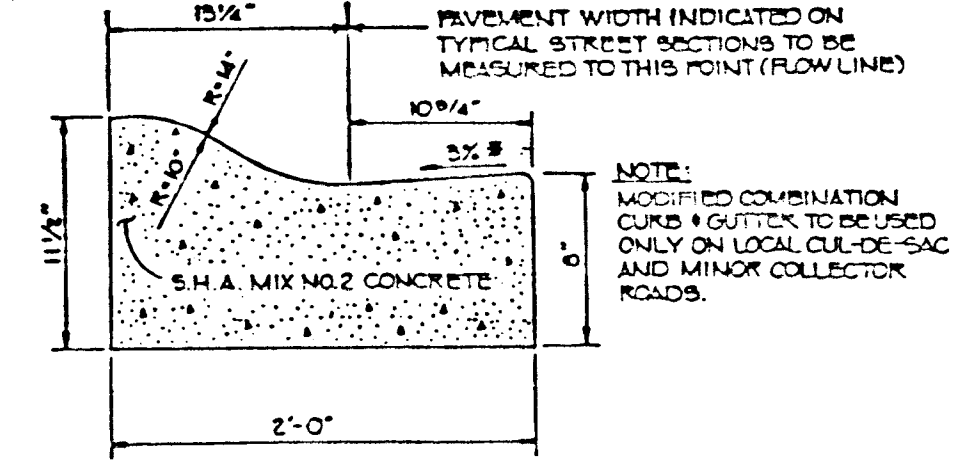
SLOPE PROTECTION
 NO SCALE



- NOTES:
- A TEE TURN-AROUND SHALL BE USED IN LIEU OF A CUL-DE-SAC ONLY IF THE STREET IS TO BE EXTENDED IN THE FUTURE.
 - BITUMINOUS CURB SHALL EXTEND AROUND THE TEE TURN-AROUND IF AND AS REQUIRED TO CONTROL CURB DRAINAGE FROM THE ROADWAY SECTION.
 - REFER TO STANDARD R-5.06 FOR TYPICAL ROADWAY PROFILE OF TEMPORARY LIMIT OF PAVING.
 - FOR LOCAL ROADS, PROVIDE 5' REVERTIBLE EASEMENT EACH END OF THE TEE.
 - PROVIDE EASEMENTS AS REQUIRED FOR PLACEMENT OF BARRICADE AND ANY NECESSARY GRADING (SEE DETAIL RS.06)

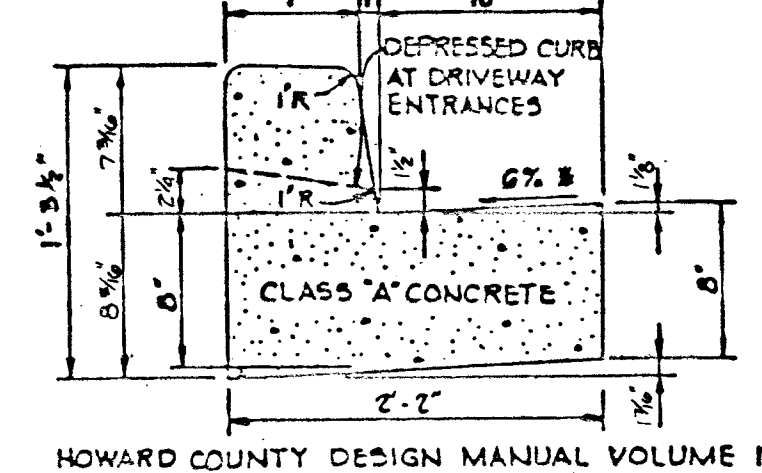
TEE TURN-AROUND
 NO SCALE

NOTE: TO BE USED FOR ALL BUILDING ENTRANCES EXCEPT THOSE THAT ARE EXCLUSIVELY FIRE ENITS.



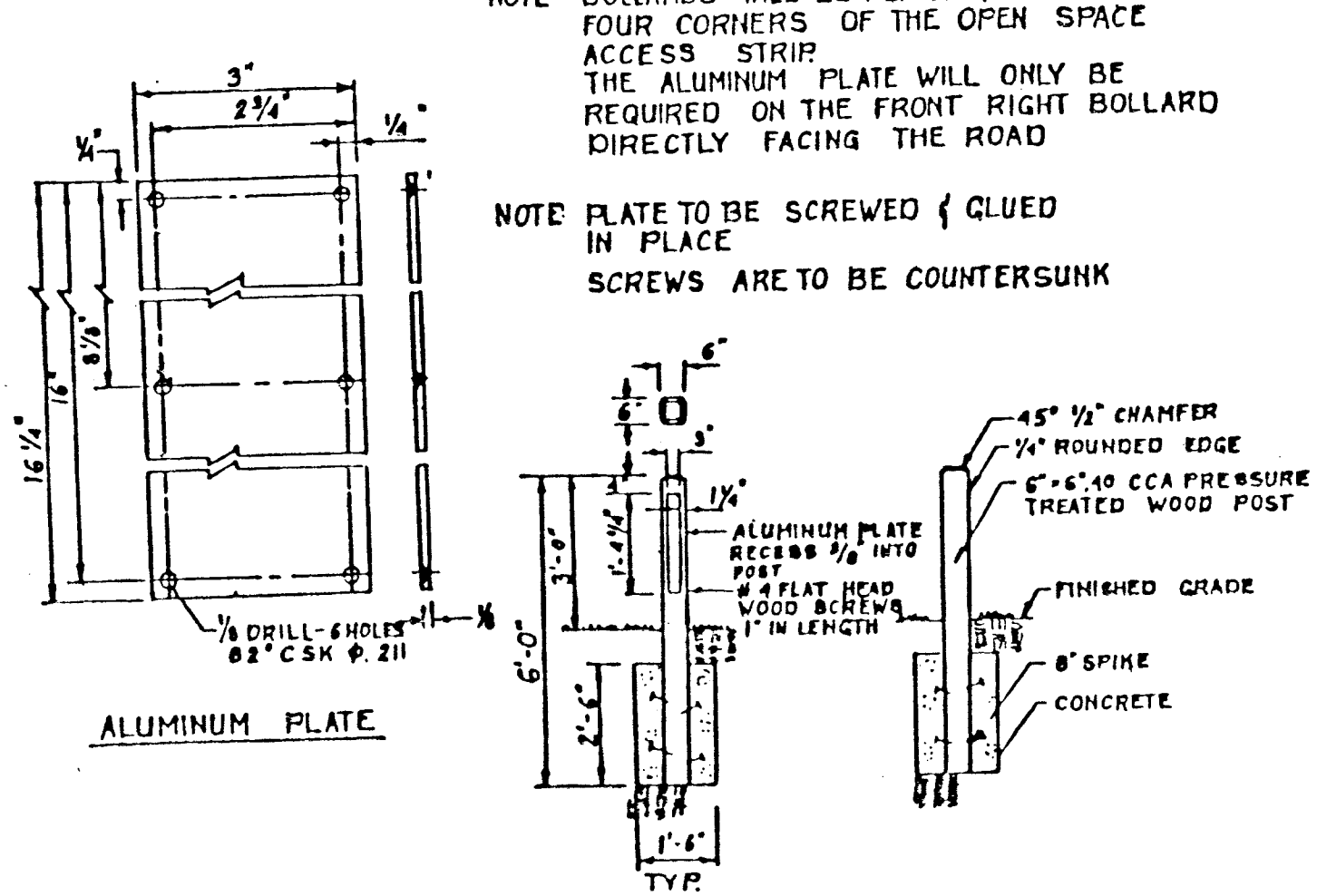
* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON LOW-SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.

MODIFIED COMBINATION CURB AND GUTTER
 NO SCALE

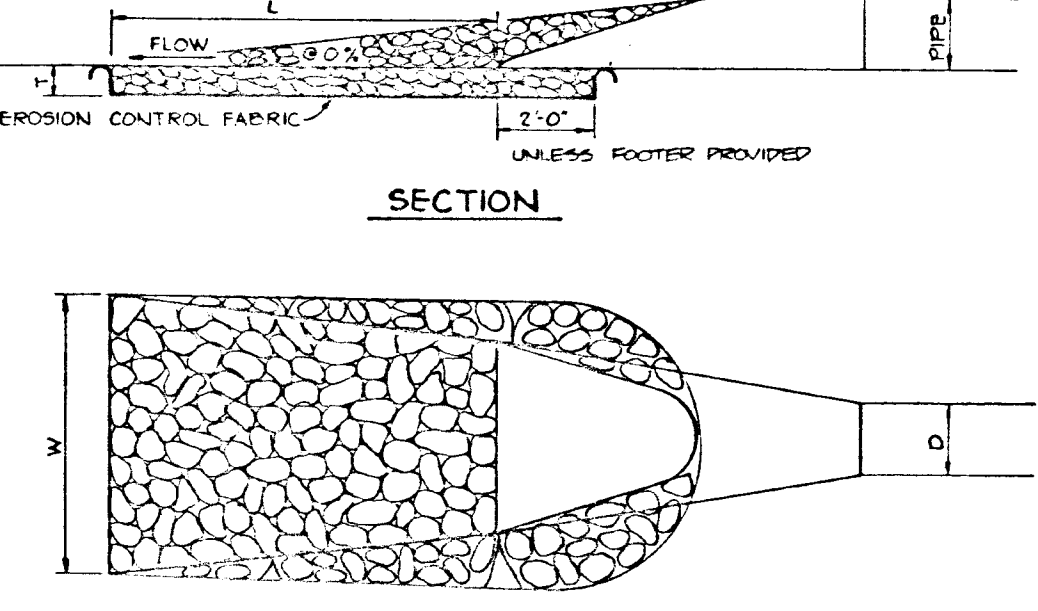


* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AS THE PAVEMENT.

STANDARD 7" COMBINATION CURB AND GUTTER
 NO SCALE

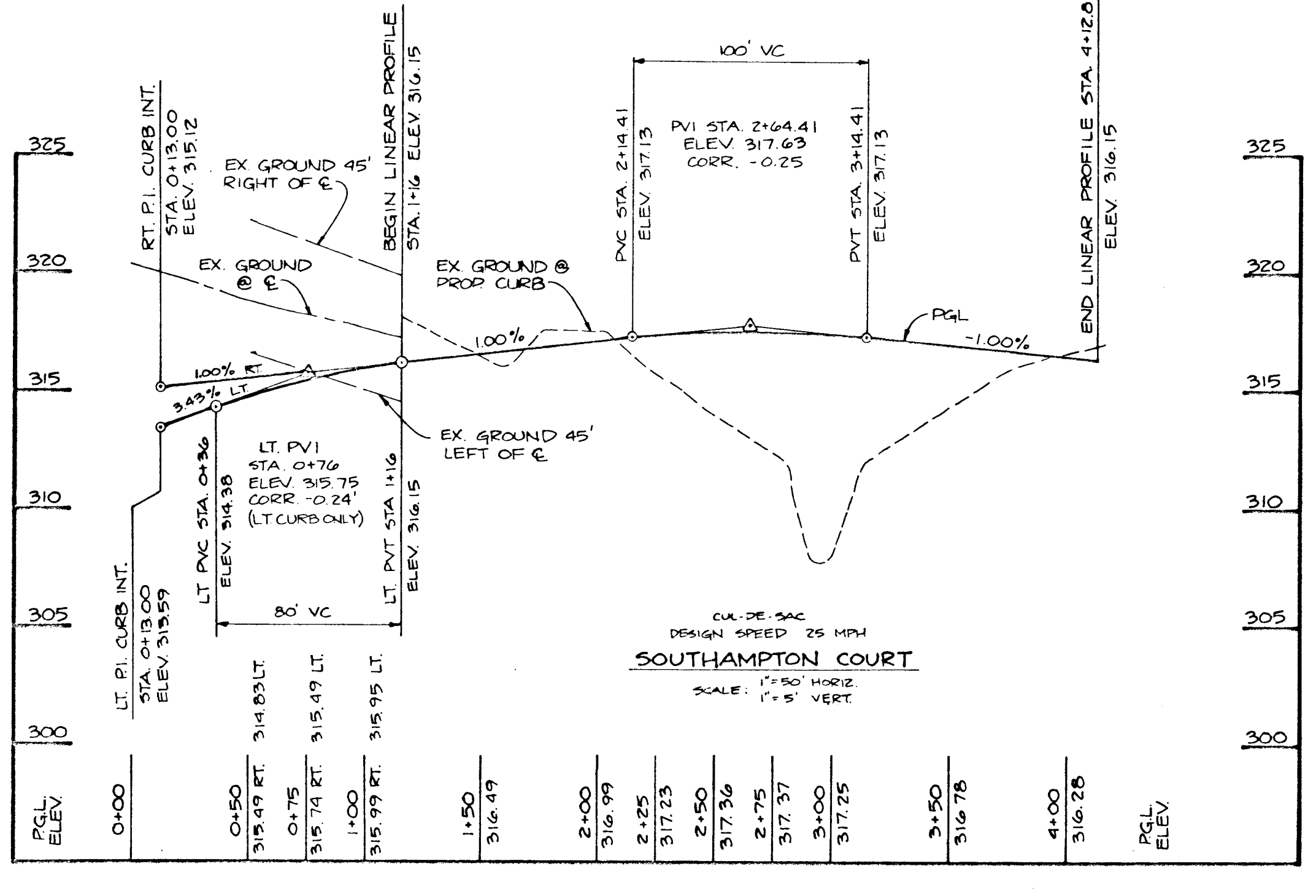


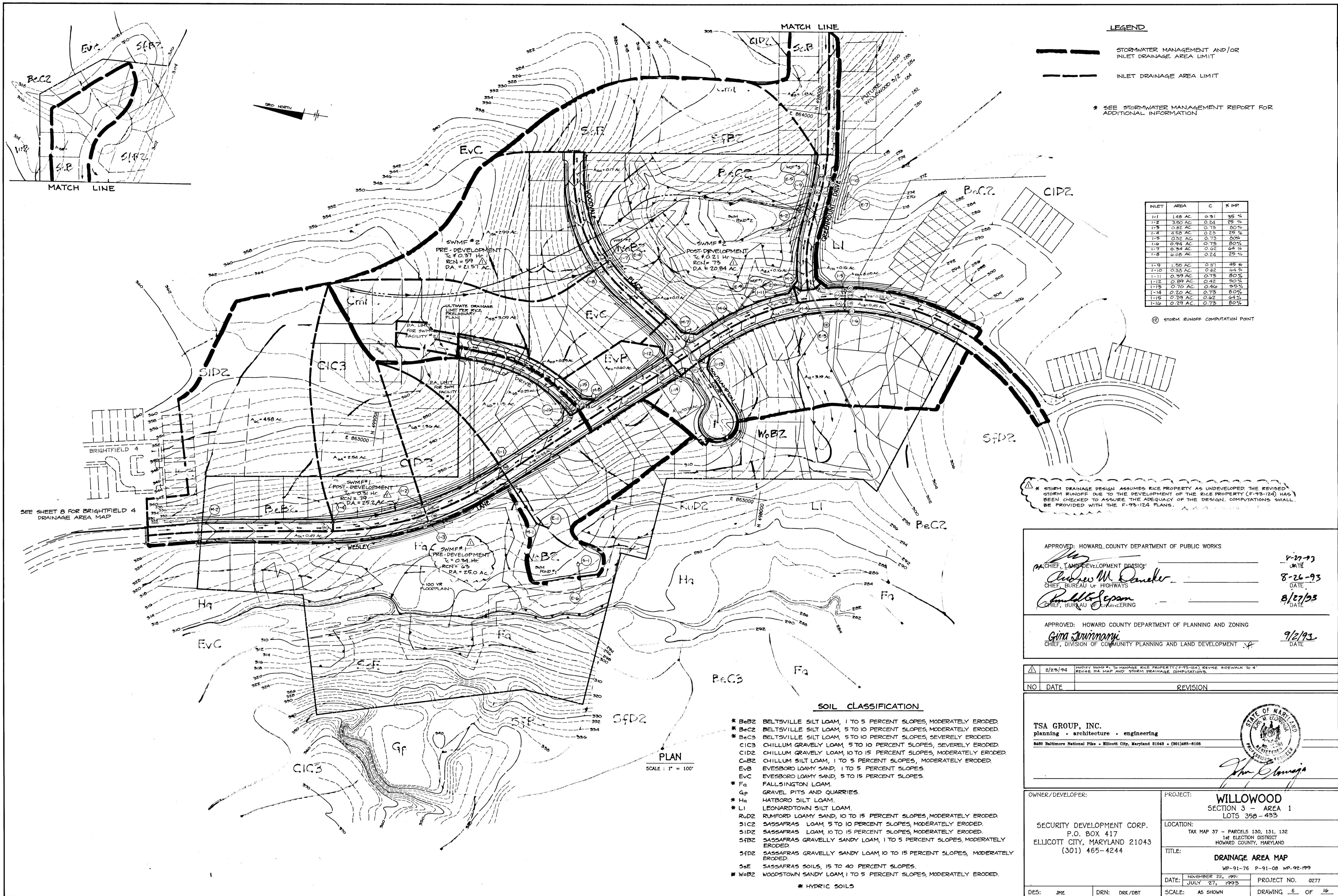
OPEN SPACE BOLLARD DETAIL
 NO SCALE



| STRUCTURE | d | LENGTH (L) | WIDTH (W) | THICKNESS (T) |
|-----------|------|------------|-----------|---------------|
| E-1 | 0.50 | 5.0 | 6.5 | 1'-0" |
| E-2 | 0.50 | 10' | 6.5 | 1'-0" |
| E-3 | 0.50 | 5.0 | 6' | 1'-0" |
| E-4 | 0.50 | 10' | 5.5 | 1'-0" |
| E-5 | 0.50 | 5' | 5' | 1'-0" |
| E-6 | 0.75 | 10' | 18.5' | 1'-6" |
| E-7 | 1.00 | 20' | 28' | 2'-3" |
| E-8 | 0.50 | 5' | 5' | 1'-0" |
| E-9 | 0.75 | 10' | 5.5' | 1'-6" |

OUTLET PROTECTION DETAIL
 NO SCALE





MATCH LINE

MATCH LINE

LEGEND

- STORMWATER MANAGEMENT AND/OR INLET DRAINAGE AREA LIMIT
- INLET DRAINAGE AREA LIMIT

* SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION

| INLET | AREA | C | % IMP |
|-------|---------|------|-------|
| 1-1 | 1.48 AC | 0.31 | 35 % |
| 1-2 | 3.80 AC | 0.24 | 25 % |
| 1-3 | 0.82 AC | 0.75 | 80 % |
| 1-4 | 4.58 AC | 0.25 | 25 % |
| 1-5 | 0.52 AC | 0.75 | 80 % |
| 1-6 | 0.94 AC | 0.73 | 80 % |
| 1-7 | 0.94 AC | 0.62 | 64 % |
| 1-8 | 6.08 AC | 0.24 | 25 % |
| 1-9 | 1.50 AC | 0.37 | 45 % |
| 1-10 | 0.35 AC | 0.62 | 64 % |
| 1-11 | 0.99 AC | 0.73 | 80 % |
| 1-12 | 0.89 AC | 0.46 | 50 % |
| 1-13 | 0.70 AC | 0.40 | 40 % |
| 1-14 | 0.20 AC | 0.73 | 80 % |
| 1-15 | 0.29 AC | 0.62 | 64 % |
| 1-16 | 0.29 AC | 0.73 | 80 % |

Ⓢ STORM RUNOFF COMPUTATION POINT

SEE SHEET B FOR BRIGHTFIELD 4 DRAINAGE AREA MAP

* STORM DRAINAGE DESIGN ASSUMES RICE PROPERTY AS UNDEVELOPED. THE REVISED STORM RUNOFF DUE TO THE DEVELOPMENT OF THE RICE PROPERTY (F-93-124) HAS BEEN CHECKED TO ASSURE THE ADEQUACY OF THE DESIGN. COMPUTATIONS SHALL BE PROVIDED WITH THE F-93-124 PLANS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Daneker
CHIEF, BUREAU OF HIGHWAYS
DATE: 8-26-93

Paul G. Spon
CHIEF, BUREAU OF ENGINEERING
DATE: 8/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Gina Triviani
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
DATE: 9/2/93

| NO. | DATE | REVISION |
|---------|------|--|
| 2/25/94 | | MODIFY SWMP #1 TO MANAGE RICE PROPERTY (F-93-124). REVISE SIDEWALK TO 4' WIDE. DA MAP AND STORM DRAINAGE COMPUTATIONS. |

SOIL CLASSIFICATION

- * BeB2 BELTSVILLE SILT LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED
- * BeC2 BELTSVILLE SILT LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED
- * BeC3 BELTSVILLE SILT LOAM, 5 TO 10 PERCENT SLOPES, SEVERELY ERODED
- * C1C3 CHILLUM GRAVELLY LOAM, 5 TO 10 PERCENT SLOPES, SEVERELY ERODED
- * C1C2 CHILLUM GRAVELLY LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED
- * C1B2 CHILLUM SILT LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED
- * EvB EVESBORO LOAMY SAND, 1 TO 5 PERCENT SLOPES
- * EvC EVESBORO LOAMY SAND, 5 TO 15 PERCENT SLOPES
- * Fa FALLSINGTON LOAM
- * Gp GRAVEL PITS AND QUARRIES
- * Ha HATBORO SILT LOAM
- * LI LEONARDTOWN SILT LOAM
- * RuD2 RUMFORD LOAMY SAND, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED
- * S1C2 SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED
- * S1D2 SASSAFRAS LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED
- * S1F2 SASSAFRAS GRAVELLY SANDY LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED
- * S1D2 SASSAFRAS GRAVELLY SANDY LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED
- * S1E SASSAFRAS SOILS, 15 TO 40 PERCENT SLOPES
- * W1B2 WOODSTOWN SANDY LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED

PLAN
SCALE: 1" = 100'

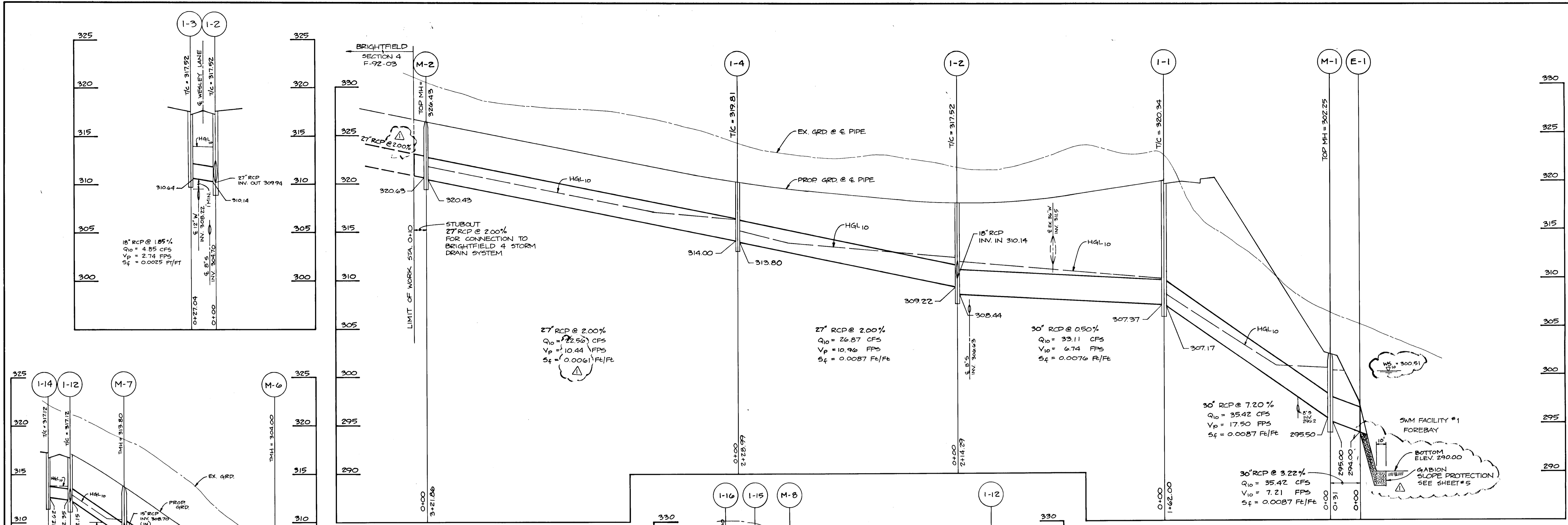
1248

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planning • architecture • engineering
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)465-6106

John Blum

| | |
|---|--|
| OWNER/DEVELOPER: | PROJECT: |
| SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21043 (301) 465-4244 | WILLOWOOD SECTION 3 - AREA 1 LOTS 358-433 |
| DATE: | LOCATION: |
| NOVEMBER 22, 1991 JULY 27, 1993 | TAX MAP 37 - PARCELS 130, 131, 132 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND |
| DES: JME | TITLE: |
| DRN: DRK/DBT | DRAINAGE AREA MAP WP-91-76 P-91-08 WP-92-199 |
| SCALE: AS SHOWN | DATE: |
| DRAWING 6 OF 16 | NOVEMBER 22, 1991 JULY 27, 1993 |
| | PROJECT NO. 0277 |

242



UNLESS OTHERWISE NOTED:
 1. ALL STORM DRAIN BEDDING SHALL BE CLASS C.
 2. ALL STORM DRAIN PIPE SHALL BE CLASS 4 REINFORCED CONCRETE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, LAND DEVELOPMENT DIVISION
 Andrew M. Daneker
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 8-22-93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Gina Jaurimanyi
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 DATE: 9/2/93

| NO | DATE | REVISION |
|----|---------|---|
| 1 | 2/23/94 | MODIFY SHEET #1 TO MANAGE ELEC PROPERTY (P-95-12A), REVISE SIDEWALK TO "A" REUSE PA MAP AND STREET DRAINAGE DIMENSIONS. |

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 8480 Baltimore National Pike • Elllicott City, Maryland 21043 • (801)465-6100

STATE OF MARYLAND
 REGISTERED PROFESSIONAL ENGINEER
 No. 16891
 John E. Shwayda

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21043
 (301) 465-4244

PROJECT: WILLOWOOD
 SECTION 3 - AREA 1
 LOTS 358-433

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132
 1st ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES
 P-91-08 WP-91-76 WP-92-199

DATE: NOVEMBER 22, 1991
 JULY 27, 1993

PROJECT NO. 0277

DES: JME DRN: DBT SCALE: 1" = 50' HORIZ.
 1" = 5' VERT. DRAWING 7 OF 10

GROUND ELEV 293.00 B-1

| DEPTH (FEET) | DESCRIPTION | CLASSIFICATION |
|--------------|--------------------------------------|----------------|
| 0 | Topsoil: 10 inch | |
| 1-1 | Water on Rod: Completion: Water: Dry | |
| 2 | Cave-in: 10 ft | |
| 3 | | |
| 4 | | |
| 5 | | |
| 7.5 | | |
| 8-8 | | |
| 11 | | |
| 12 | | |
| 15 | | |
| 16.5 | | |
| 20 | | |

GROUND ELEV 301.20 B-2

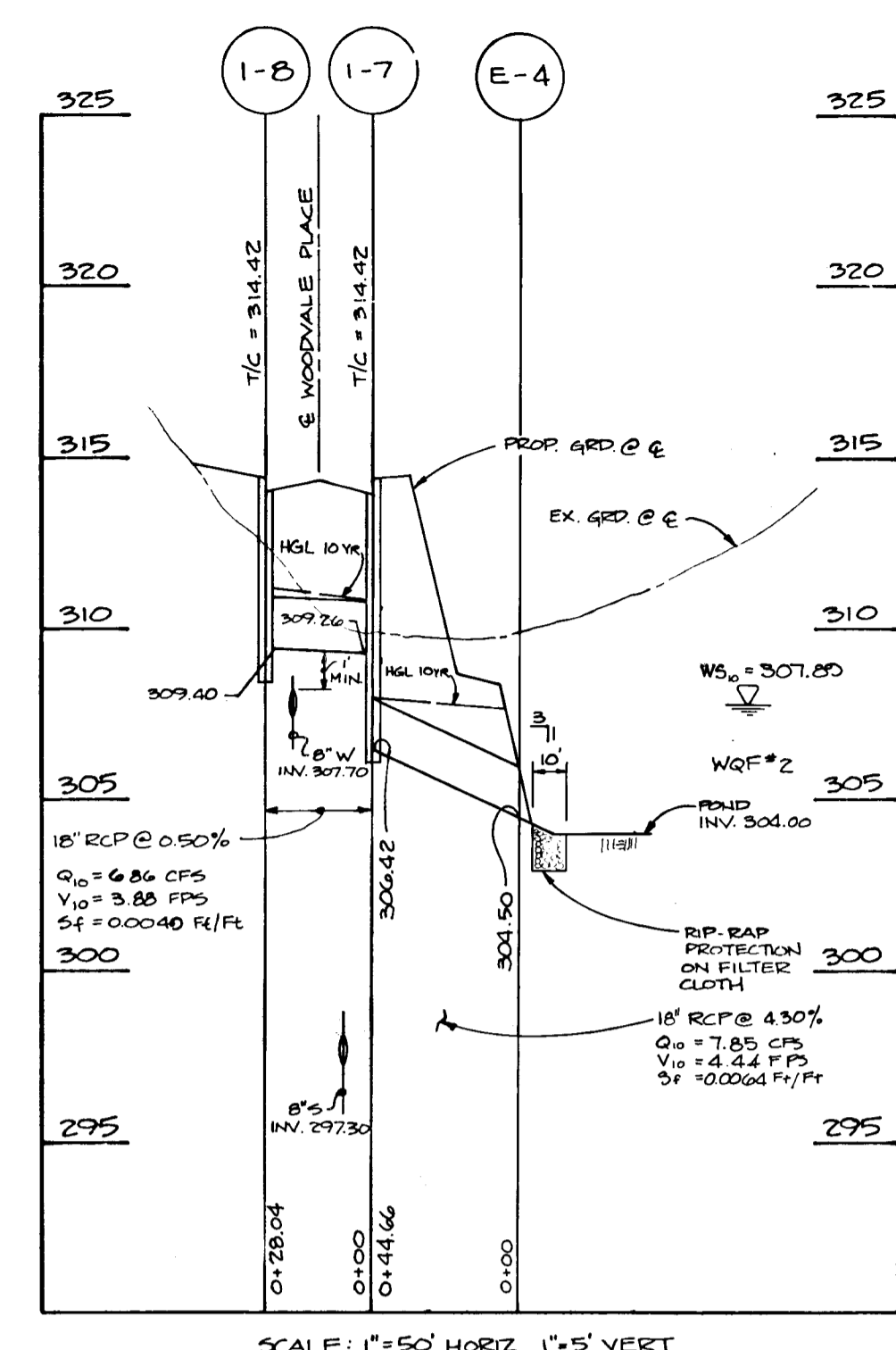
| DEPTH (FEET) | DESCRIPTION | CLASSIFICATION |
|--------------|--------------------------------------|----------------|
| 0 | Topsoil: 1 ft | |
| 1-2 | Water on Rod: Completion: Water: Dry | |
| 3 | | |
| 4.4 | | |
| 5 | | |
| 7 | | |
| 11 | | |
| 17 | | |
| 20 | | |

GROUND ELEV 302.00 B-3

| DEPTH (FEET) | DESCRIPTION | CLASSIFICATION |
|--------------|--------------------------------------|----------------|
| 0 | Topsoil: 1 ft | |
| 1-2 | Water on Rod: Completion: Water: Dry | |
| 3 | | |
| 4.4 | | |
| 5 | | |
| 7 | | |
| 11 | | |
| 17 | | |
| 20 | | |

GROUND ELEV 306.10 B-4

| DEPTH (FEET) | DESCRIPTION | CLASSIFICATION |
|--------------|---------------------------------------|----------------|
| 0 | Topsoil: 10 inch | |
| 1-1 | Water on Rod: Completion: Water: 9 ft | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |



BRIGHTFIELD 4 (F-92-03) INLET DATA

| NO. | AREA (AC) | C.O. | IMP. |
|-----|-----------|--------|---------|
| (1) | A=1.52 AC | C=0.48 | 30% IMP |
| (2) | A=0.28 AC | C=0.80 | 80% IMP |
| (3) | A=0.43 AC | C=0.80 | 80% IMP |
| (4) | A=0.41 AC | C=0.80 | 80% IMP |
| (5) | A=0.36 AC | C=0.66 | 60% IMP |
| (6) | A=1.55 AC | C=0.40 | 20% IMP |
| (7) | A=0.60 AC | C=0.77 | 75% IMP |
| (8) | A=2.35 AC | C=0.39 | 15% IMP |
| (9) | A=1.98 AC | C=0.20 | 0% IMP |

ZONE: RSC

GROUND ELEV 297.30 TP-1

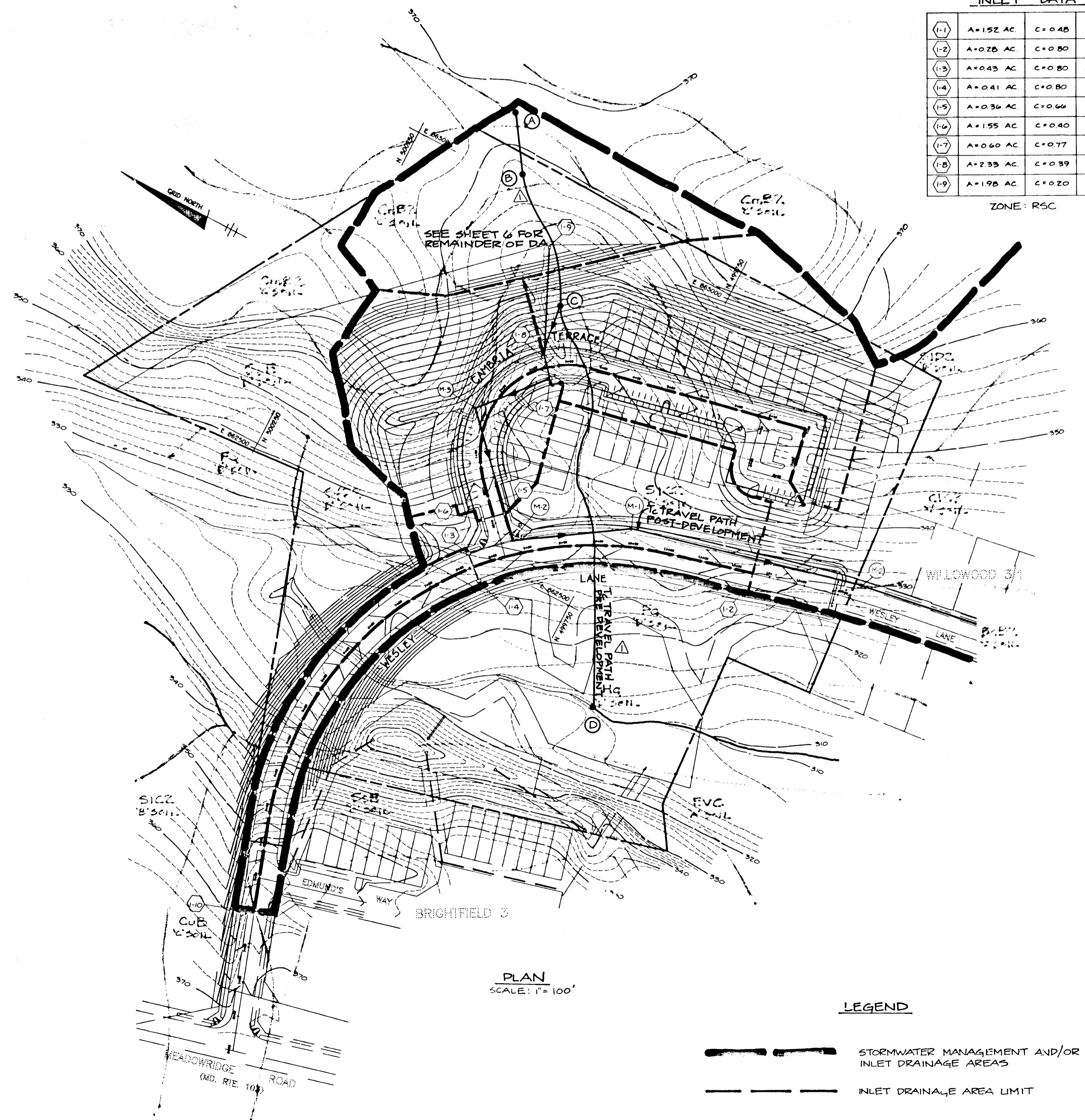
| DEPTH (FEET) | DESCRIPTION OF MATERIALS | REMARKS |
|--------------|--------------------------|---------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |

GROUND ELEV 298.60 TP-2

| DEPTH (FEET) | DESCRIPTION OF MATERIALS | REMARKS |
|--------------|--------------------------|---------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |

GROUND ELEV 306.00 TP-3

| DEPTH (FEET) | DESCRIPTION OF MATERIALS | REMARKS |
|--------------|--------------------------|---------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |



UNLESS OTHERWISE NOTED:
 1. ALL STORM DRAIN BEDDING SHALL BE CLASS C.
 2. ALL STORM DRAIN PIPE SHALL BE CLASS 4 REINFORCED CONCRETE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION
Christopher M. Deneke
 DATE: 8-27-93

CHIEF, BUREAU OF HIGHWAYS
Ronald G. Eason
 DATE: 8-16-93

CHIEF, BUREAU OF ENGINEERING
 DATE: 8/17/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
Gina Juranian
 DATE: 9/2/93

| NO. | DATE | REVISION |
|-----|---------|---|
| 1 | 2/23/94 | MODIFY SHEET #1 TO MANAGE RISE PROPERTY (F-92-124) REVISE SIDEWALK TO 4' REVISE D.A. MAP AND STORM DRAINAGE COMPUTATIONS. |

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 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)485-8105

John Elaniga

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21043
 (301) 465-4244

PROJECT: WILLOWOOD SECTION 3 - AREA 1 LOTS 358-433

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: DRAINAGE AREA MAP AND STORM DRAIN PROFILES

P-91-08 WP-91-76 WP-92-199

DATE: NOVEMBER 22, 1991 PROJECT NO. 0217
 JULY 27, 1993

DES: JME DRN: DBT SCALE: AS SHOWN DRAWING 8 OF 16

1248

NOTES:

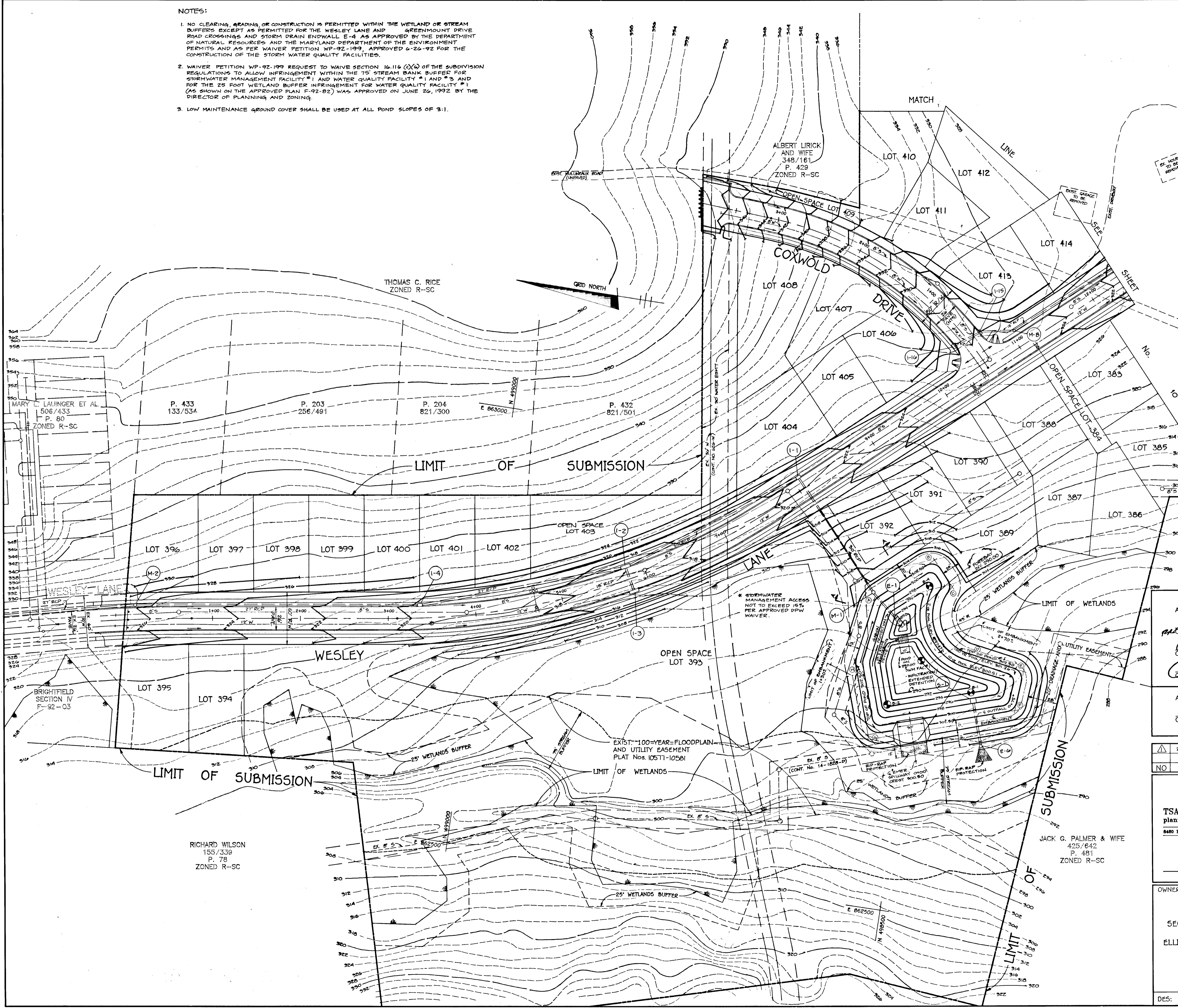
- NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE WETLAND OR STREAM BUFFERS EXCEPT AS PERMITTED FOR THE WESLEY LANE AND GREENMOUNT DRIVE ROAD CROSSINGS AND STORM DRAIN ENDWALL E-4 AS APPROVED BY THE DEPARTMENT OF NATURAL RESOURCES, AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT PERMITS AND AS PER WAIVER PETITION WP-92-199, APPROVED 6-26-92 FOR THE CONSTRUCTION OF THE STORM WATER QUALITY FACILITIES.
- WAIVER PETITION WP-92-199 REQUEST TO WAIVE SECTION 16.116 (C)(6) OF THE SUBDIVISION REGULATIONS TO ALLOW INFILTRATION WITHIN THE 75' STREAM BANK BUFFER FOR STORMWATER MANAGEMENT FACILITY #1 AND WATER QUALITY FACILITY #1 AND #3 AND FOR THE 25 FOOT WETLAND BUFFER INFILTRATION FOR WATER QUALITY FACILITY #1 (AS SHOWN ON THE APPROVED PLAN F-92-82) WAS APPROVED ON JUNE 26, 1992 BY THE DIRECTOR OF PLANNING AND ZONING.
- LOW MAINTENANCE GROUND COVER SHALL BE USED AT ALL POND SLOPES OF 3:1.

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
 James R. Moxley, Jr. 11-20-91
 DEVELOPER: JAMES R. MOXLEY, JR. DATE
 SECURITY DEVELOPMENT CORPORATION PRESIDENT

BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
 John M. Elorriaga, P.E. 11-22-91
 ENGINEER: JOHN M. ELORRIAGA, P.E. # 16891 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 John M. Elorriaga, P.E. 7/8/93
 U.S. SOIL CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 Robert W. Ziehm, P.E. 7/8/93
 HOWARD S.C.D. DATE



SWM FACILITY #1
TOP OF BANK CONTROL

| | |
|---------------|-------------|
| ⓐ N 498557.44 | E 862849.92 |
| ⓑ N 498478.24 | E 862903.01 |
| ⓒ N 498472.82 | E 862874.06 |
| ⓓ N 498447.18 | E 862806.07 |
| ⓔ N 498372.87 | E 862791.46 |
| ⓕ N 498376.85 | E 862748.89 |
| ⓖ N 498544.61 | E 862699.01 |
| ⓗ N 498569.96 | E 862767.12 |

NOTE:
SEE SHEET 8 FOR SOIL BORING LOGS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Andrew M. Danek 8-26-93
 CHIEF, LAND DEVELOPMENT DIVISION DATE
 Chief, Bureau of Highways
 Ronald G. Egan 8/27/93
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Gina J. Jurney 9/2/93
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

| | | |
|---------|--|----------|
| 2/23/94 | MODIFY SWM#1 TO MANAGE EXE PROPERTY (F-93-124), REVISE SIDEWALK TO 4' REVISE P.A. MAP AND STORM DRAINAGE COMPUTATIONS. | |
| NO | DATE | REVISION |

TSA GROUP, INC.
 planning • architecture • engineering
 5680 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)465-8105
 STATE OF MARYLAND
 JOHN M. ELORRIAGA
 PROFESSIONAL ENGINEER
 No. 16891
 REGISTERED

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21043
 (301) 465-4244

PROJECT: WILLOWOOD SECTION 3 - AREA 1
 LOTS 358-433

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132
 1st ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: GRADING PLAN
 WP-91-76 P-91-08 WP-92-199

DATE: NOVEMBER 22, 1991
 JULY 27, 1993

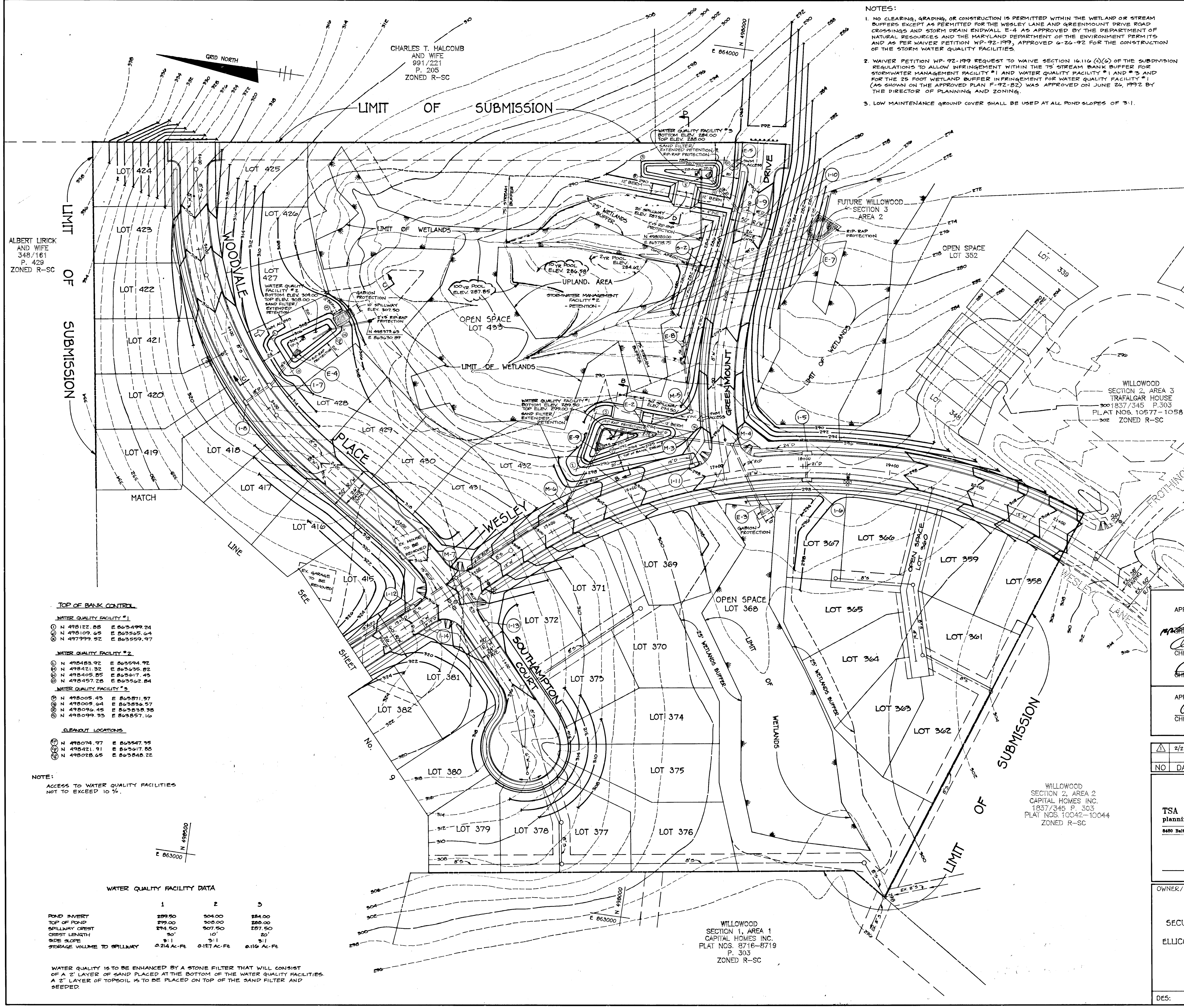
PROJECT NO. 0277

DES: JME/DRK DRN: DRK/DBT

SCALE: 1" = 50'

DRAWING 9 OF 16

1248



NOTES:

- NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE WETLAND OR STREAM BUFFERS EXCEPT AS PERMITTED FOR THE WESLEY LANE AND GREENMOUNT DRIVE ROAD CROSSINGS AND STORM DRAIN ENDWALL E-4 AS APPROVED BY THE DEPARTMENT OF NATURAL RESOURCES AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT PERMITS AND AS PER WAIVER PETITION WP-92-199, APPROVED 6-26-92 FOR THE CONSTRUCTION OF THE STORM WATER QUALITY FACILITIES.
- WAIVER PETITION WP-92-199 REQUEST TO WAIVE SECTION 16.116 (D)(6) OF THE SUBDIVISION REGULATIONS TO ALLOW INFREINGEMENT WITHIN THE 75' STREAM BANK BUFFER FOR STORMWATER MANAGEMENT FACILITY #1 AND WATER QUALITY FACILITY #1 AND #3 AND FOR THE 25 FOOT WETLAND BUFFER INFREINGEMENT FOR WATER QUALITY FACILITY #1 (AS SHOWN ON THE APPROVED PLAN F-92-82) WAS APPROVED ON JUNE 26, 1992 BY THE DIRECTOR OF PLANNING AND ZONING.
- LOW MAINTENANCE GROUND COVER SHALL BE USED AT ALL POND SLOPES OF 3:1.

BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
 James R. Moxley, Jr.
 DEVELOPER: JAMES R. MOXLEY, JR.
 SECURITY DEVELOPMENT CORPORATION - PRESIDENT
 11-20-91
 DATE

BY THE ENGINEER:
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
 John M. Elorriaga, C.E.
 ENGINEER: JOHN M. ELORRIAGA, C.E. # 16891
 11-22-91
 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 James M. Helm, JRM
 J.S. SOIL CONSERVATION SERVICE
 7/8/93
 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 Robert W. Zielon, RWM
 HOWARD S.C.D.
 7/8/93
 DATE

ALBERT LIRICK AND WIFE
 348/181
 P. 428
 ZONED R-SC

TOP OF BANK CONTROL

- WATER QUALITY FACILITY #1**
- ① N 498122.88 E 863499.24
 - ② N 498109.45 E 863505.64
 - ③ N 497999.82 E 863559.97
- WATER QUALITY FACILITY #2**
- ④ N 498483.92 E 863594.92
 - ⑤ N 498421.32 E 863635.82
 - ⑥ N 498405.85 E 863617.43
 - ⑦ N 498457.28 E 863562.84
- WATER QUALITY FACILITY #3**
- ⑧ N 498005.43 E 863871.57
 - ⑨ N 498005.64 E 863856.57
 - ⑩ N 498096.45 E 863838.98
 - ⑪ N 498099.33 E 863857.16
- CLEANOUT LOCATIONS**
- ⑫ N 498074.97 E 863547.95
 - ⑬ N 498421.91 E 863617.58
 - ⑭ N 498028.65 E 863848.22

NOTE:
 ACCESS TO WATER QUALITY FACILITIES NOT TO EXCEED 10 %.

WATER QUALITY FACILITY DATA

| | 1 | 2 | 3 |
|----------------------------|------------|-------------|-------------|
| POND INVERT | 289.50 | 304.00 | 284.00 |
| TOP OF POND | 299.00 | 308.00 | 288.00 |
| SPILLWAY CREST | 294.50 | 307.50 | 287.50 |
| CREST LENGTH | 5' | 10' | 20' |
| SIDE SLOPE | 3:1 | 3:1 | 3:1 |
| STORAGE VOLUME TO SPILLWAY | 2.24 AC-FE | 0.127 AC-FE | 8.116 AC-FE |

WATER QUALITY IS TO BE ENHANCED BY A STONE FILTER THAT WILL CONSIST OF A 2" LAYER OF SAND PLACED AT THE BOTTOM OF THE WATER QUALITY FACILITIES. A 2" LAYER OF TOPSOIL IS TO BE PLACED ON TOP OF THE SAND FILTER AND SEEDED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division
 Christopher M. Daniels
 CHIEF, BUREAU OF HIGHWAYS
 8-27-93
 DATE
 8-26-93
 DATE
 Donald G. Evans
 CHIEF, BUREAU OF ENGINEERING
 8/27/93
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Gina Surranany
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 9/2/93
 DATE

| NO | DATE | REVISION |
|---------|------|---|
| 2/23/94 | | MODIFY SWM#1 TO MANAGE RICE PROPERTY (F-93-124), REVISE SIDEWALK TO 4' REVISE P.A. MAP AND STORM DRAINAGE COMPUTATIONS. |

TSA GROUP, INC.
 planning • architecture • engineering
 8609 Baltimore National Pike • Ellicott City, Maryland 21043 • (801)485-8106

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21043
 (301) 465-4244

PROJECT: **WILLOWOOD SECTION 3 - AREA 1**
 LOTS 358-433

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132
 1st ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: **GRADING PLAN**

WP-91-76 P-91-08 WP-92-199

DATE: NOVEMBER 22, 1991
 JULY 27, 1993

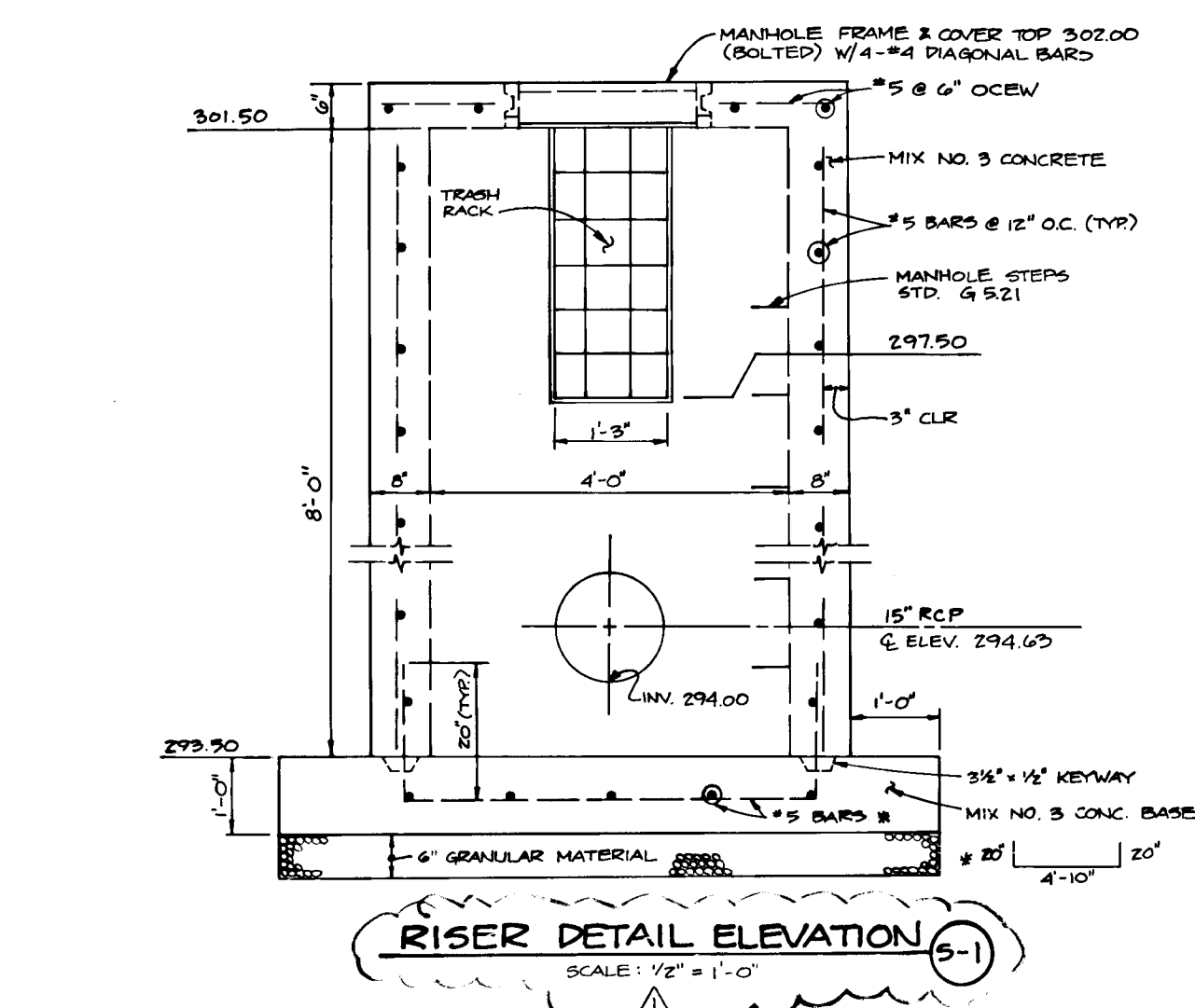
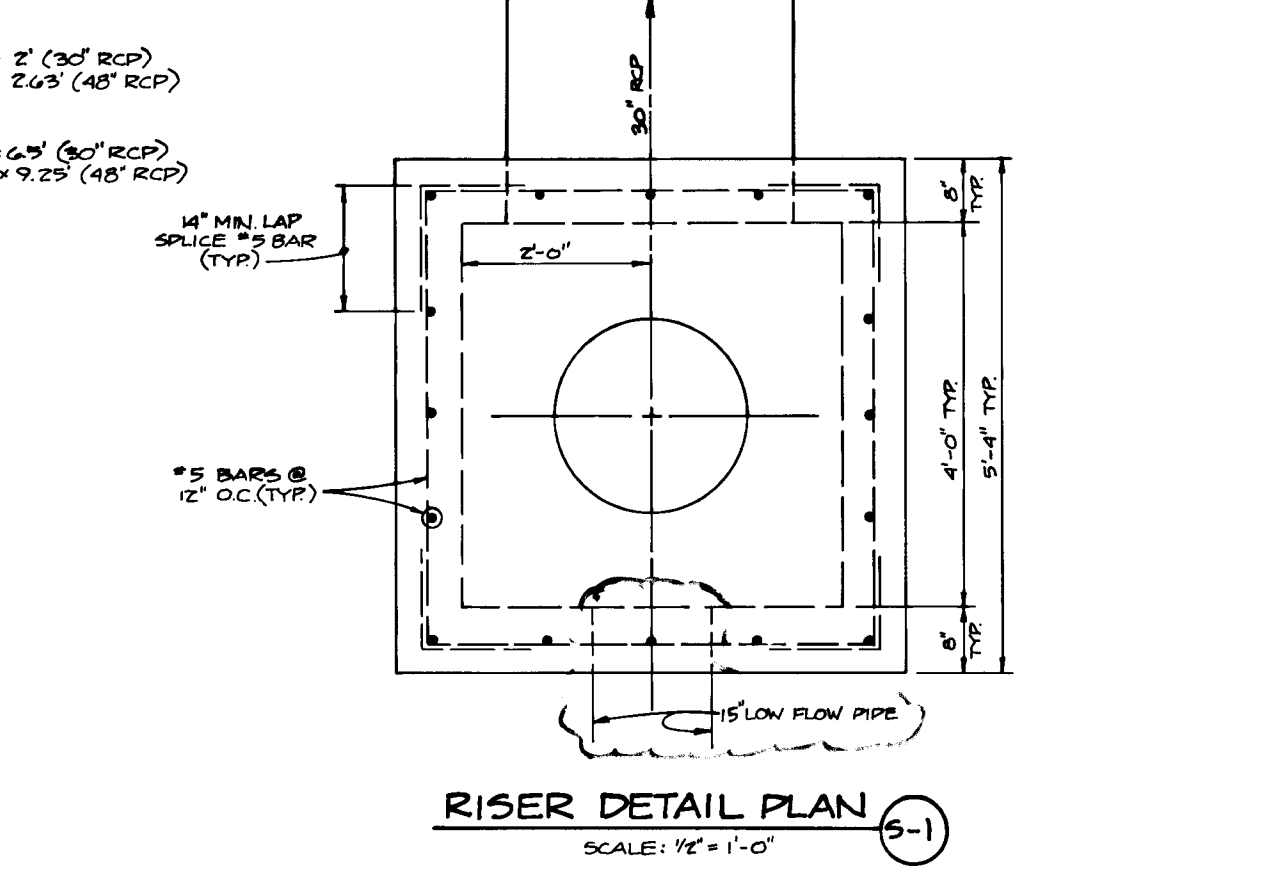
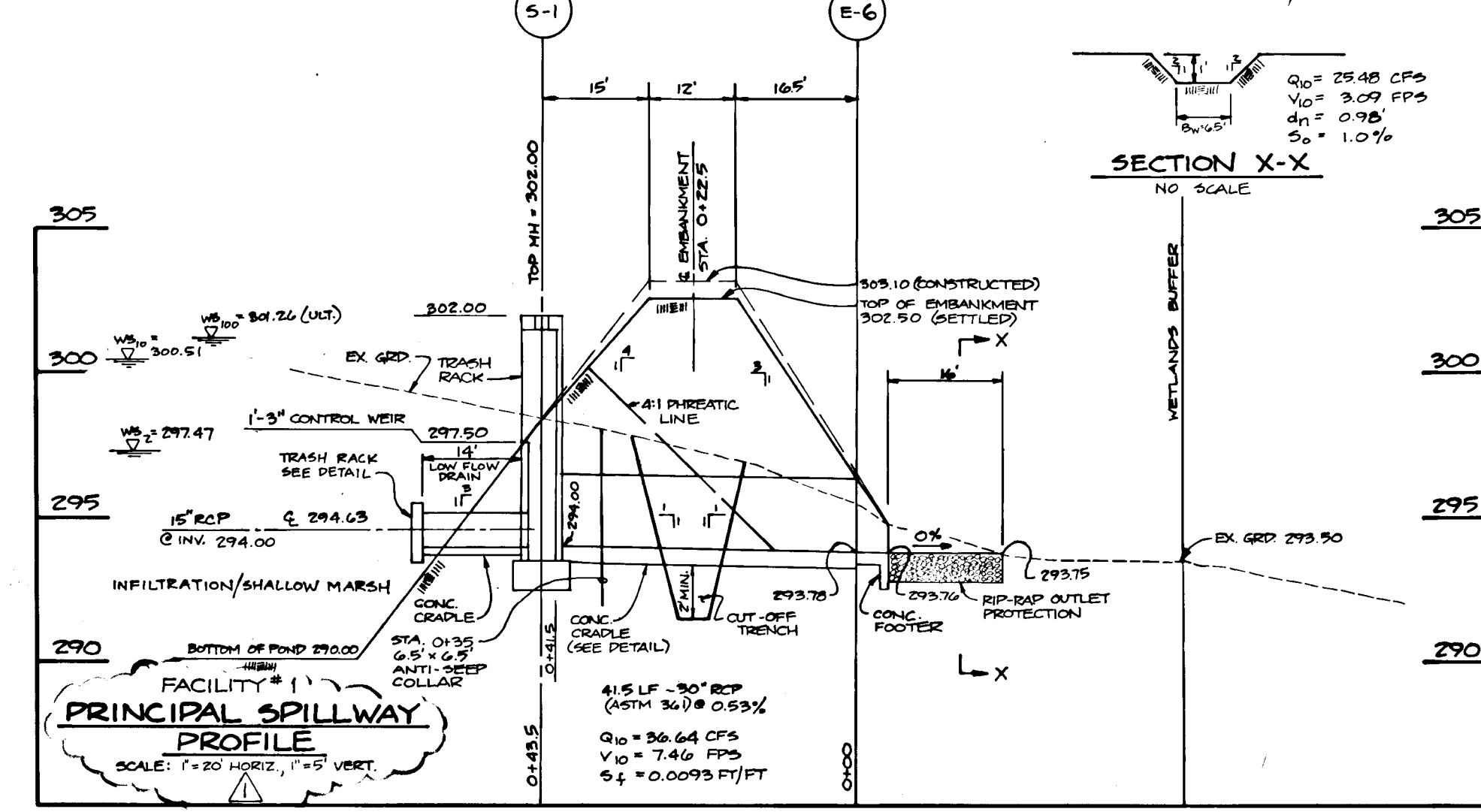
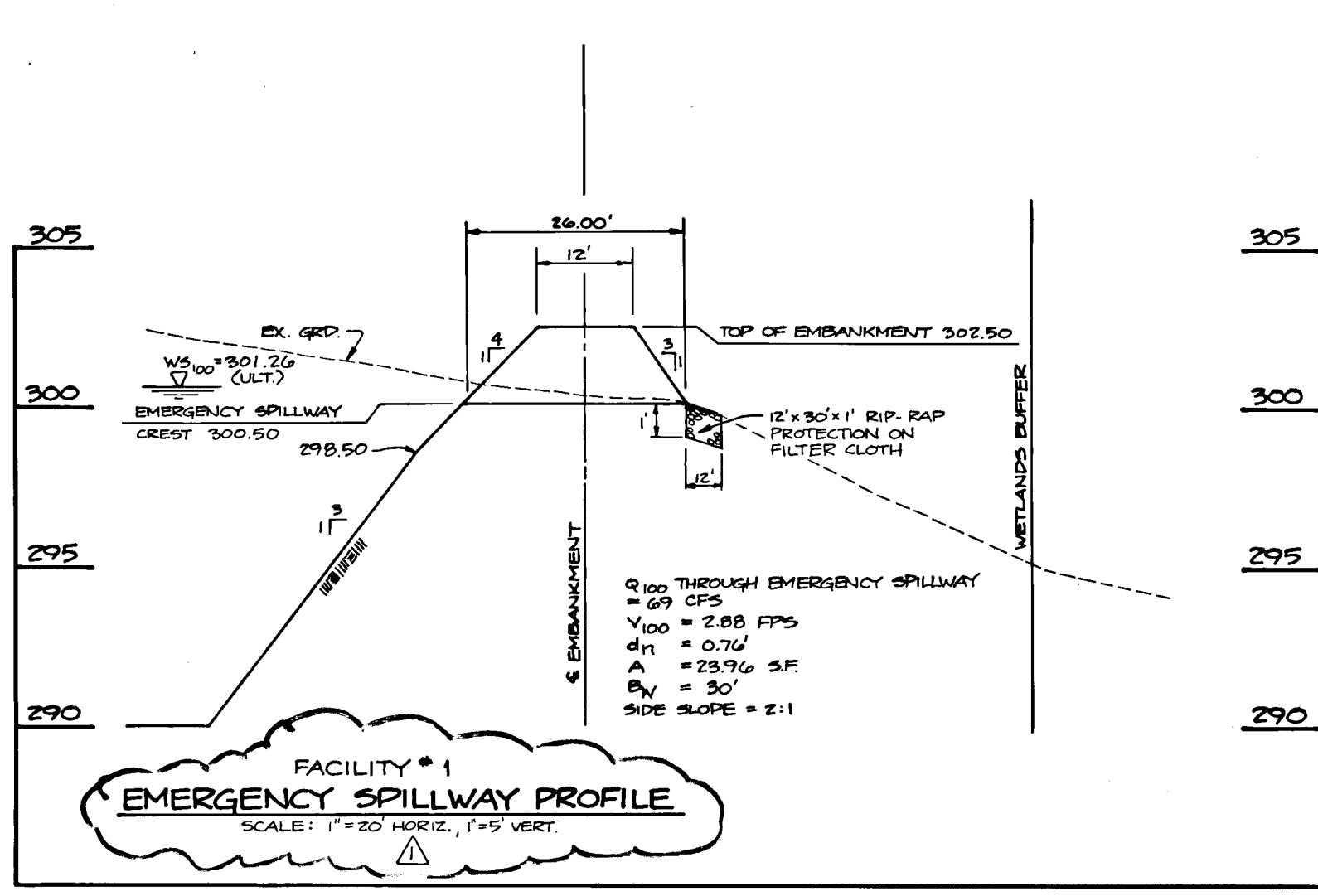
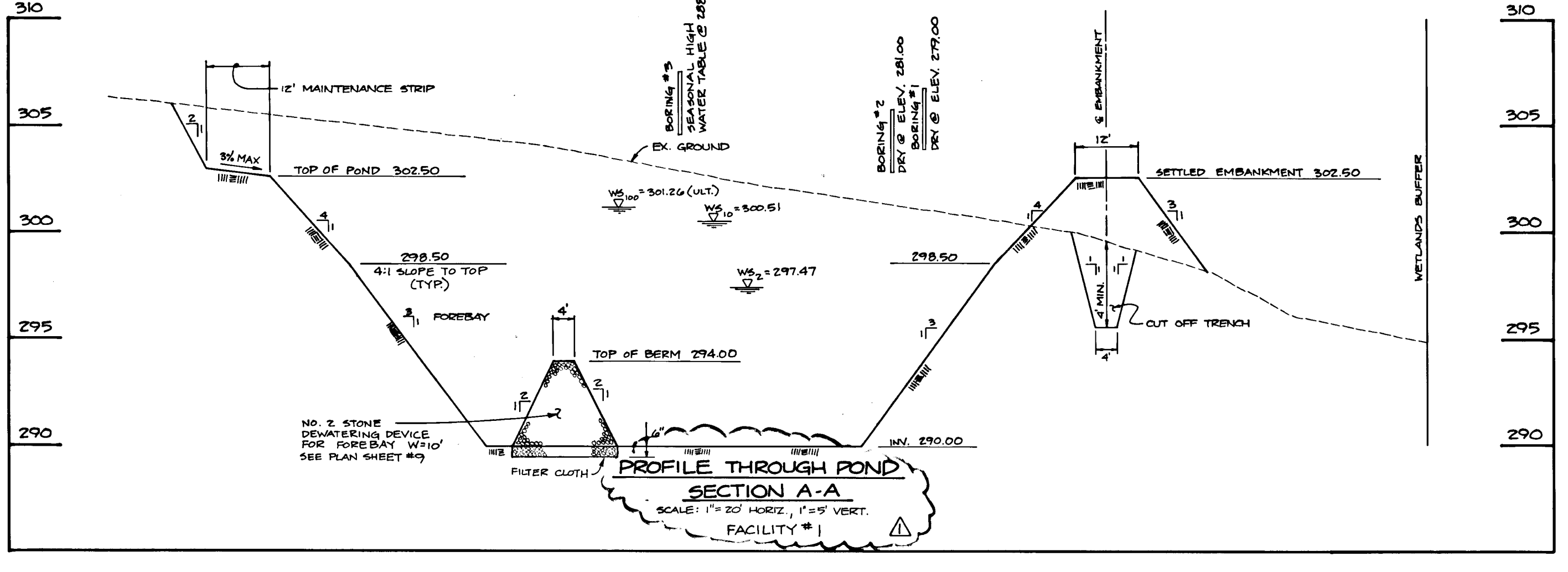
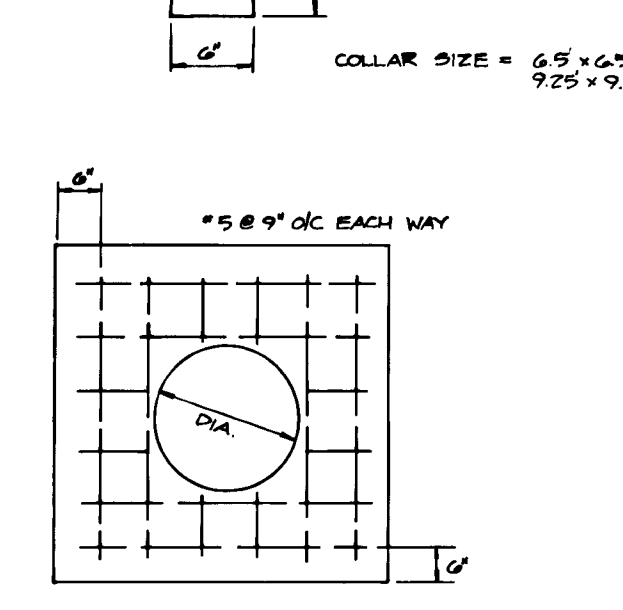
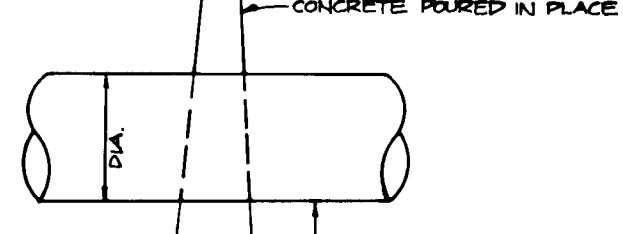
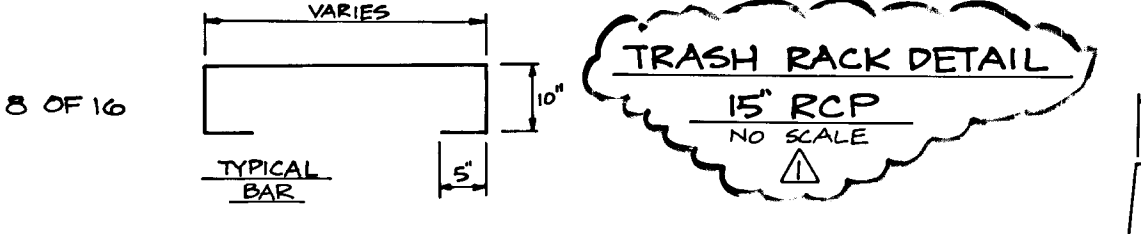
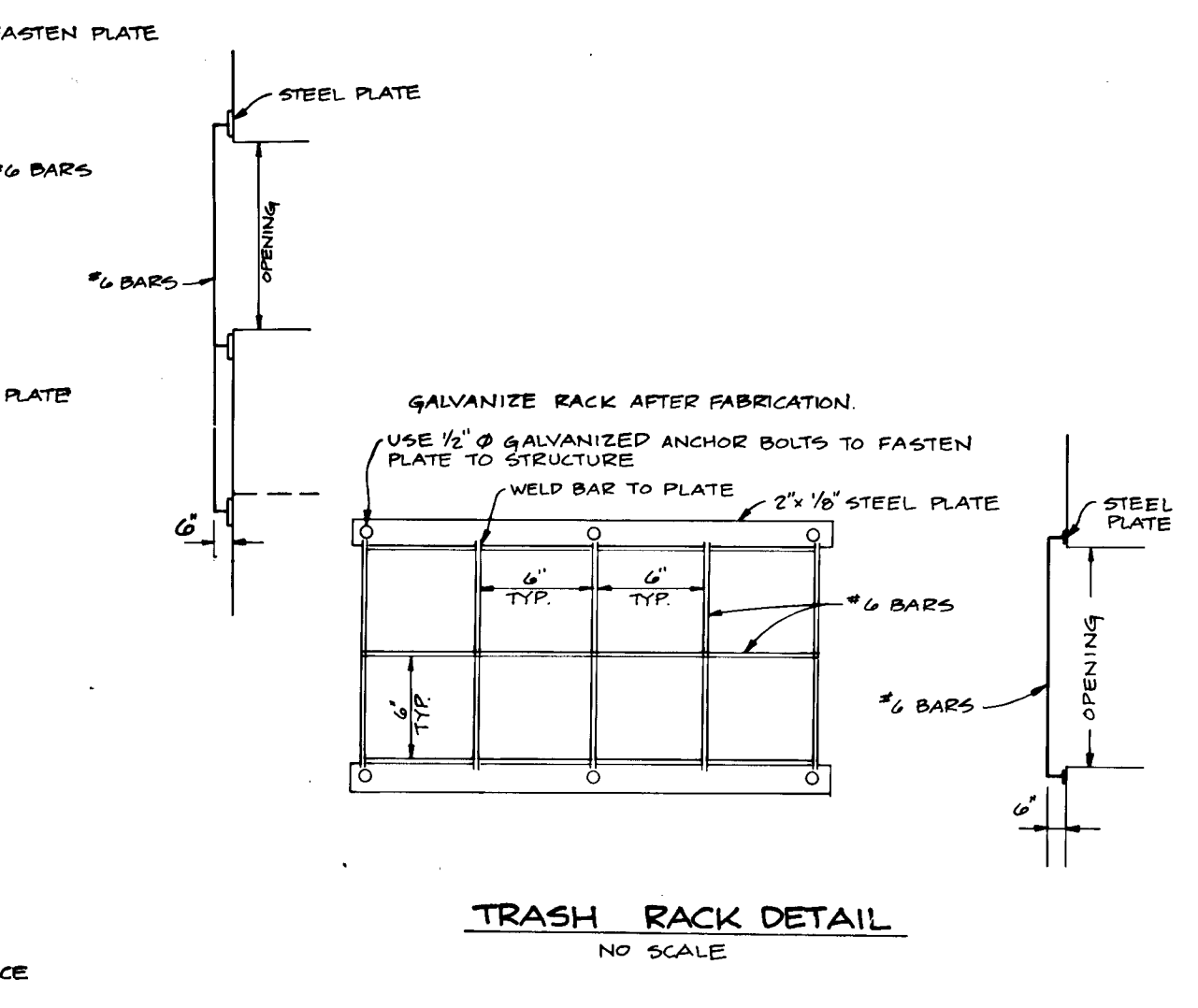
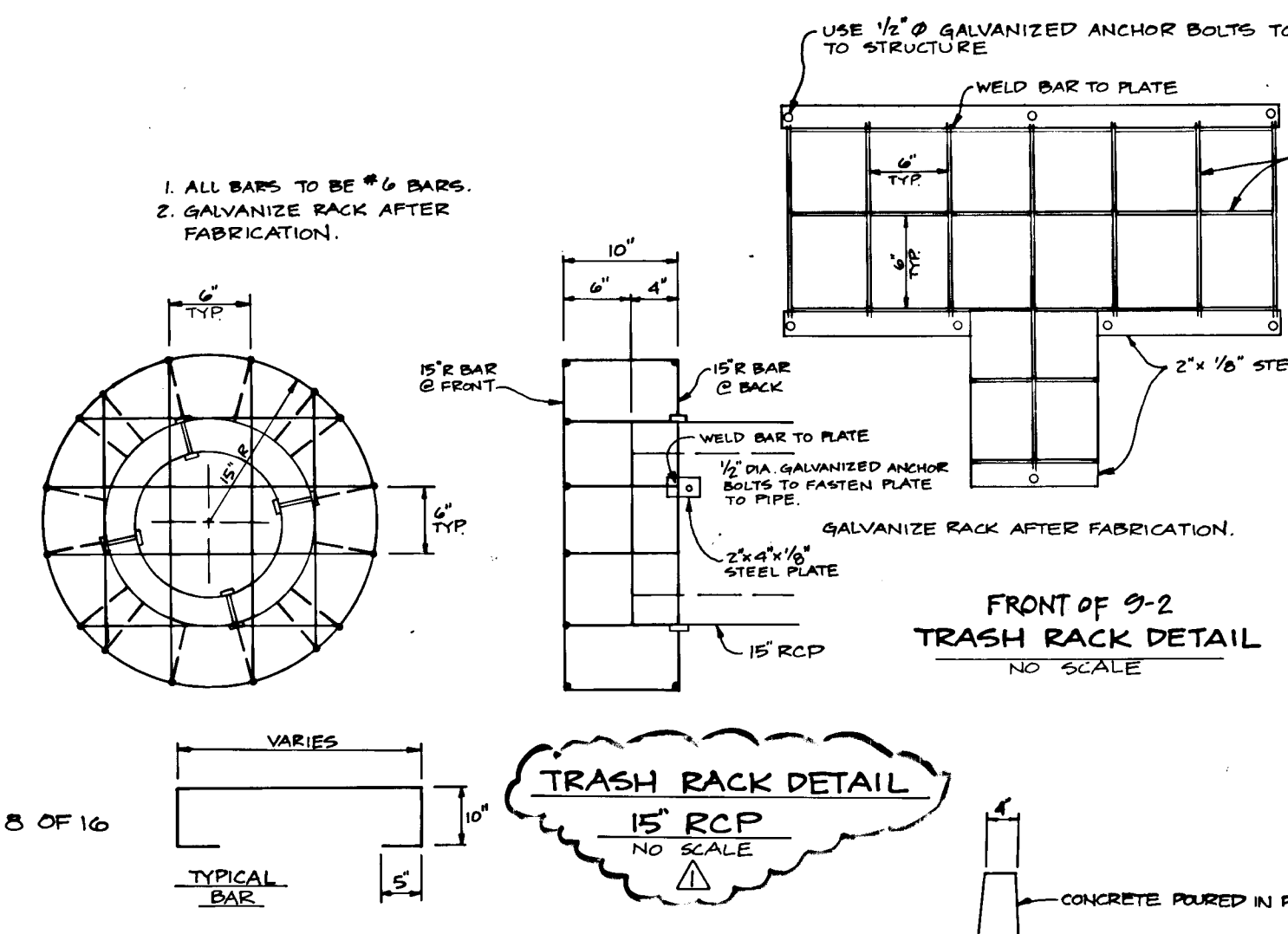
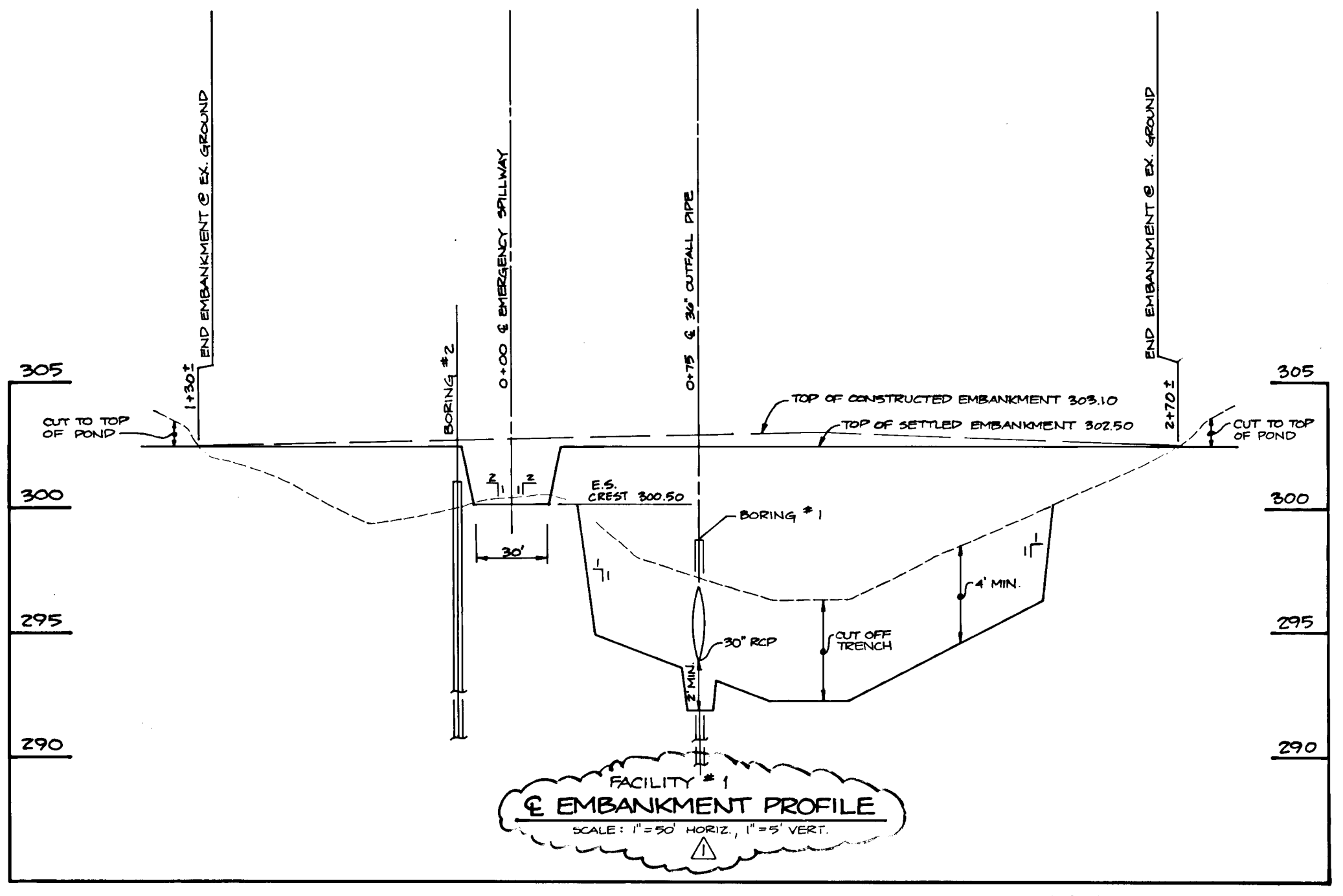
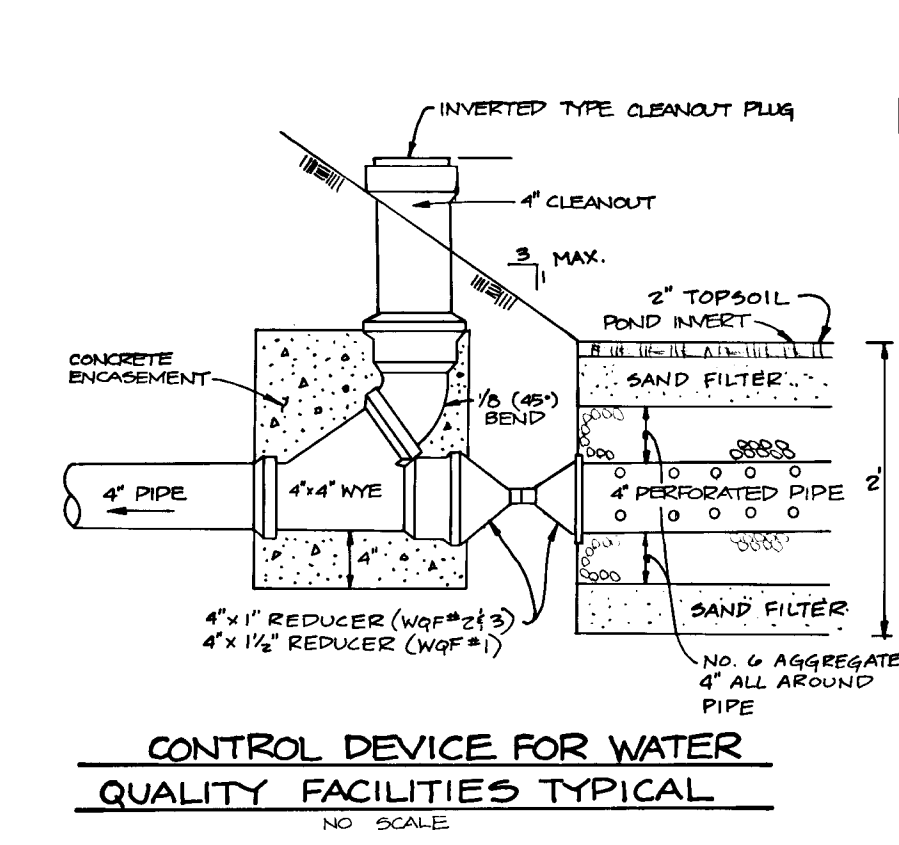
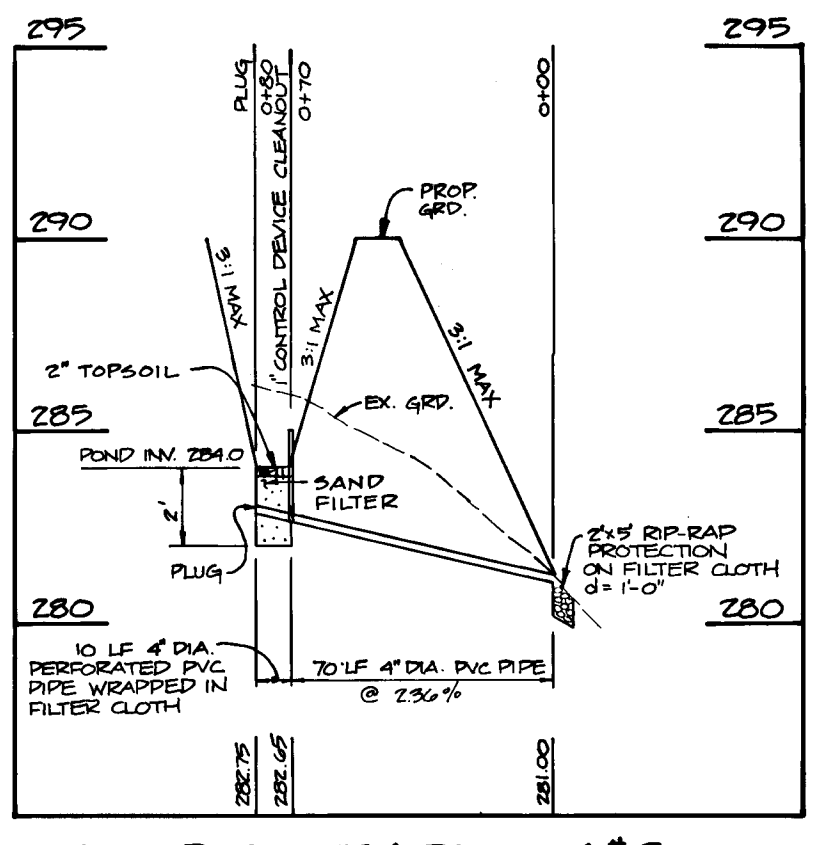
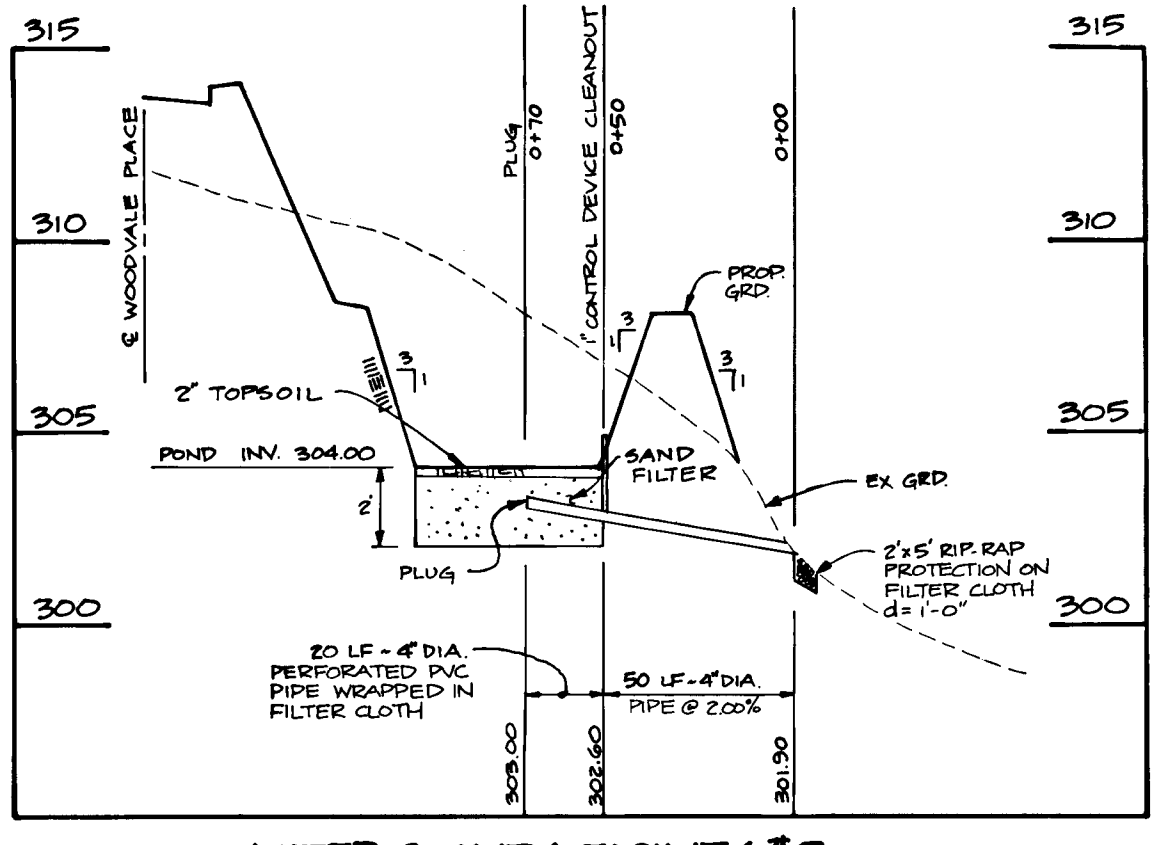
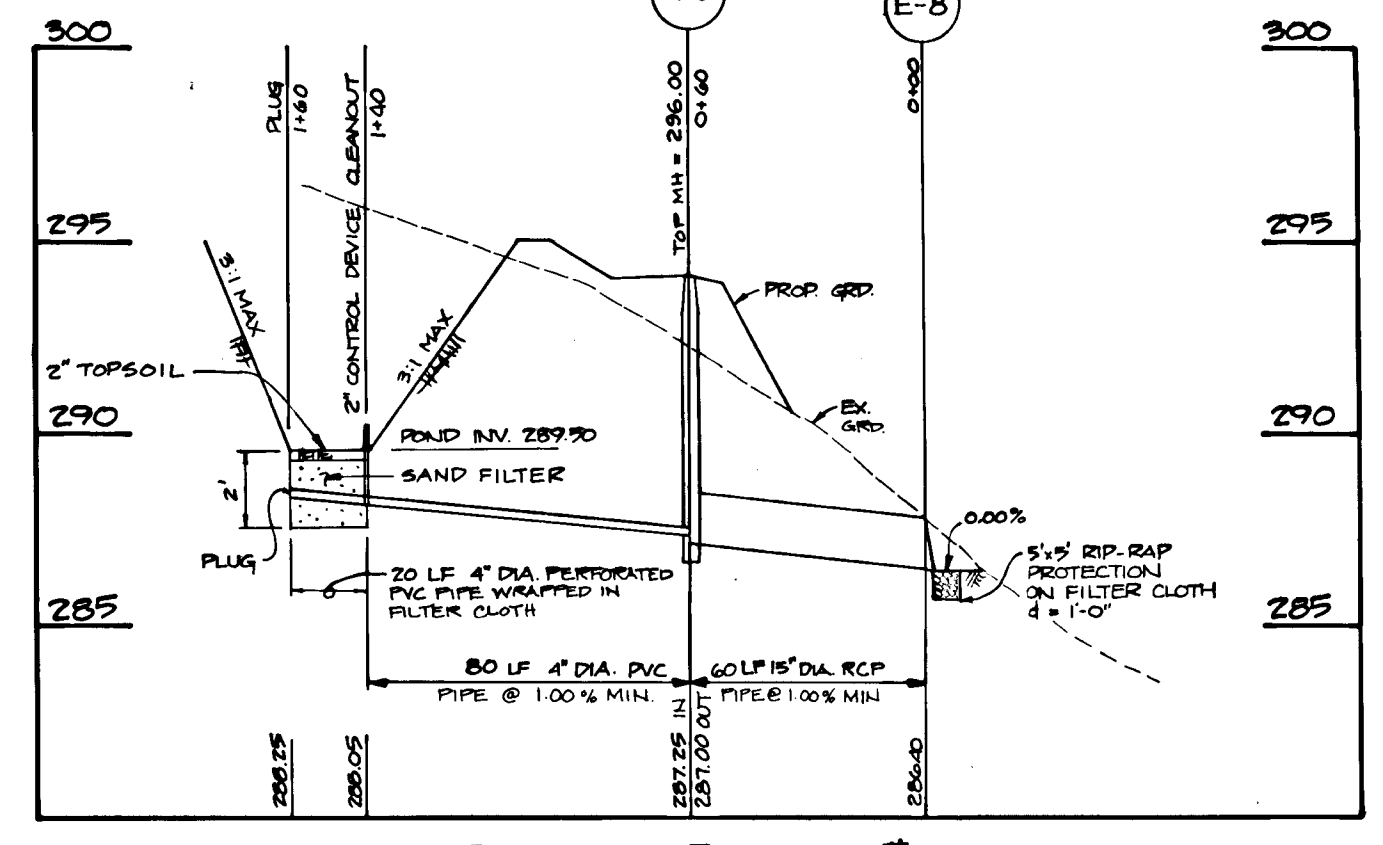
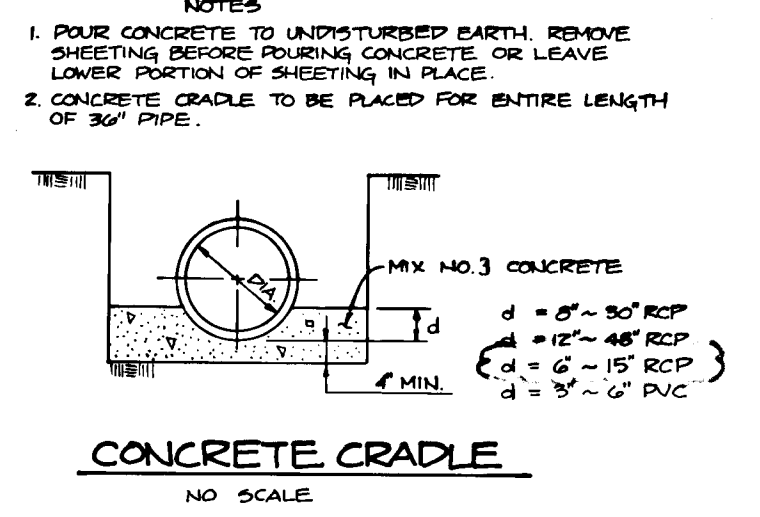
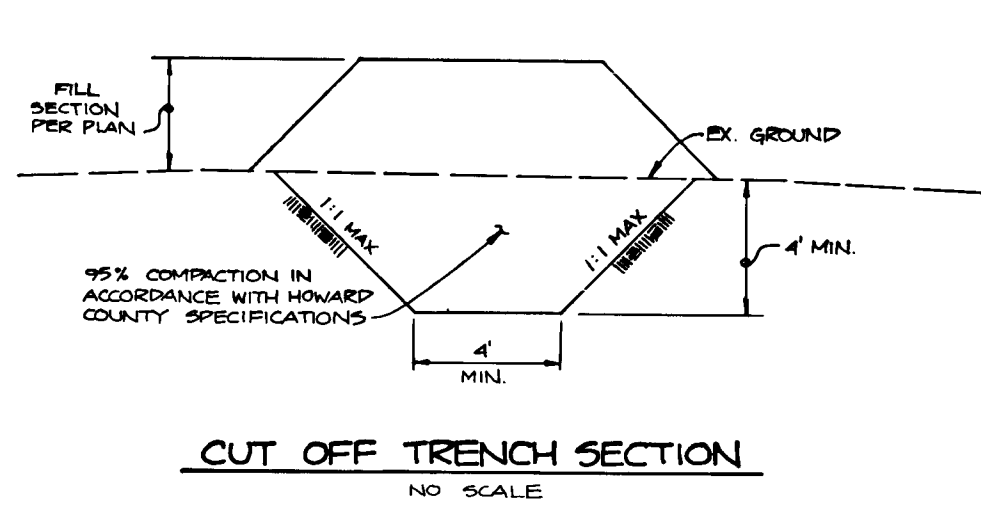
PROJECT NO. 0277

SCALE: 1" = 50'

DRAWING 12 OF 16

DES: JME/DRK DRN: DRK/DBT

1248



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

James R. Moxley, Jr.
 DEVELOPER: JAMES R. MOXLEY, JR. 11-20-91
 SECURITY DEVELOPMENT CORPORATION - PRESIDENT DATE

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

John M. Corriaga, Jr.
 ENGINEER: JOHN M. CORRIAGA, J.E. # 16891 11-22-91
 DATE

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

James M. Helm, Jr. 7/8/93
 SOIL CONSERVATION SERVICE DATE

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

Robert W. Zichman 7/8/93
 HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Richard M. Daniels 8-26-93
 CHIEF, BUREAU OF HIGHWAYS DATE

Richard C. Mason 8/27/93
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

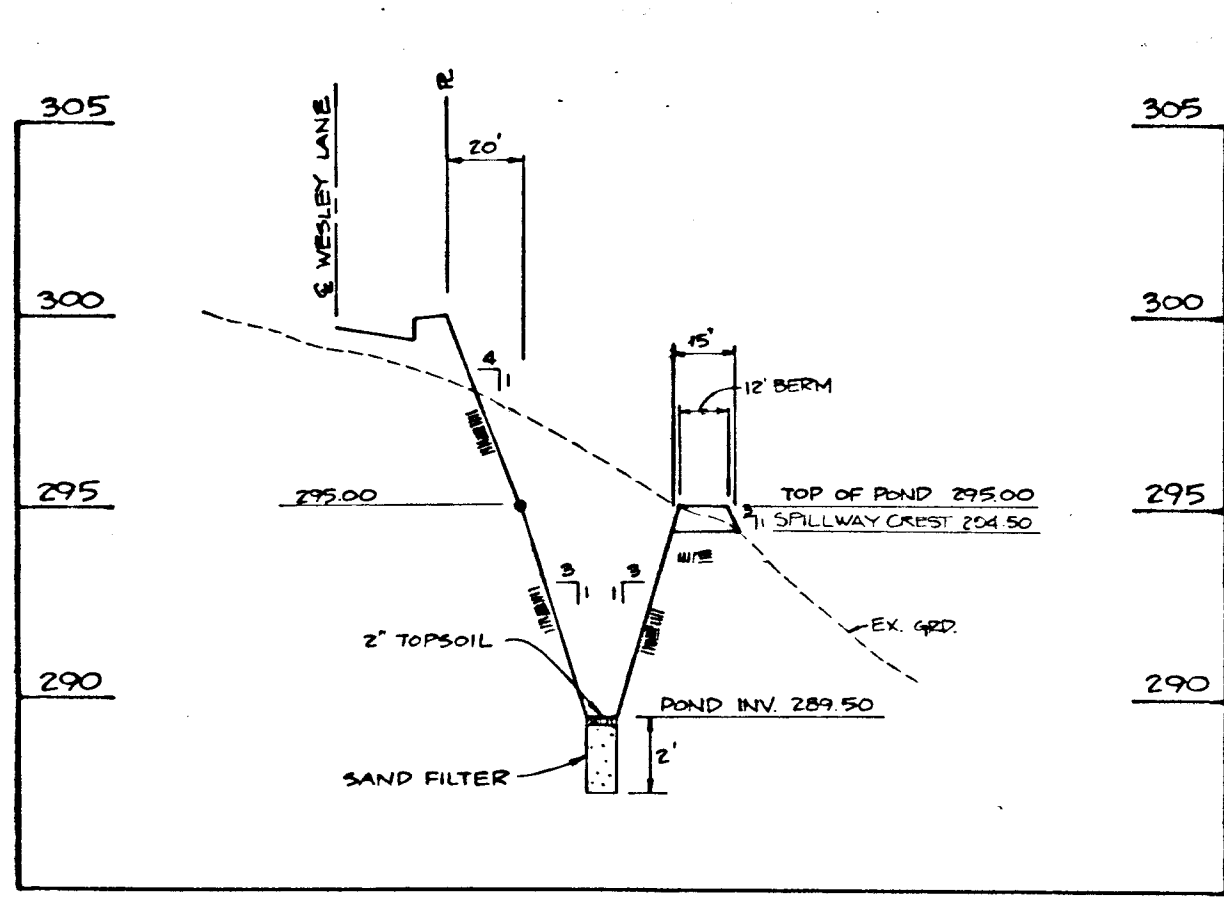
Gina Jounnanji 9/2/93
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

| | |
|---------|---|
| 2/25/94 | MODIFY SWMP #1 TO MANAGE RICE PROPERTY (7-93-124). REVISE SIDEWALK TO 4' REVISE D.A. MAP AND STORE DRAINAGE COMPUTATIONS. |
| NO DATE | REVISION |

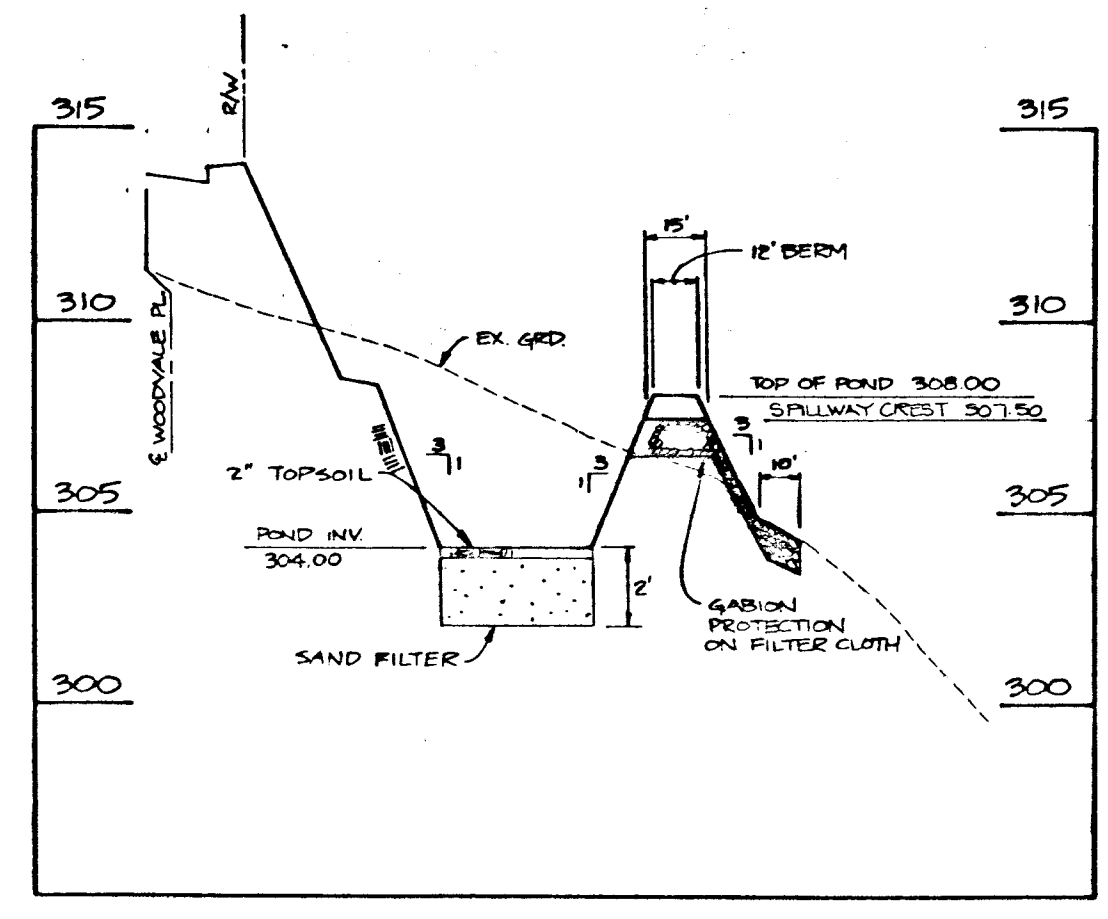
TSA GROUP, INC.
 planning • architecture • engineering
 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (801)465-8100

| | |
|--|---|
| OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELLCOTT CITY, MARYLAND 21043 (301) 465-4244 | PROJECT: WILLOWOOD SECTION 3, AREA 1 LOTS 358-433 |
| DATE: NOVEMBER 22, 1991 JULY 27, 1993 | LOCATION: TAX MAP 37-PARCELS 130,131,132 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND |
| DES: JME | TITLE: STORMWATER MANAGEMENT DETAILS WP-91-76 P-91-08 WP-92-199 |
| DRN: DBT | DATE: NOVEMBER 22, 1991 JULY 27, 1993 |
| SCALE: AS SHOWN | PROJECT NO. 0277 |
| DRAWING 11 OF 16 | SCALE: AS SHOWN |

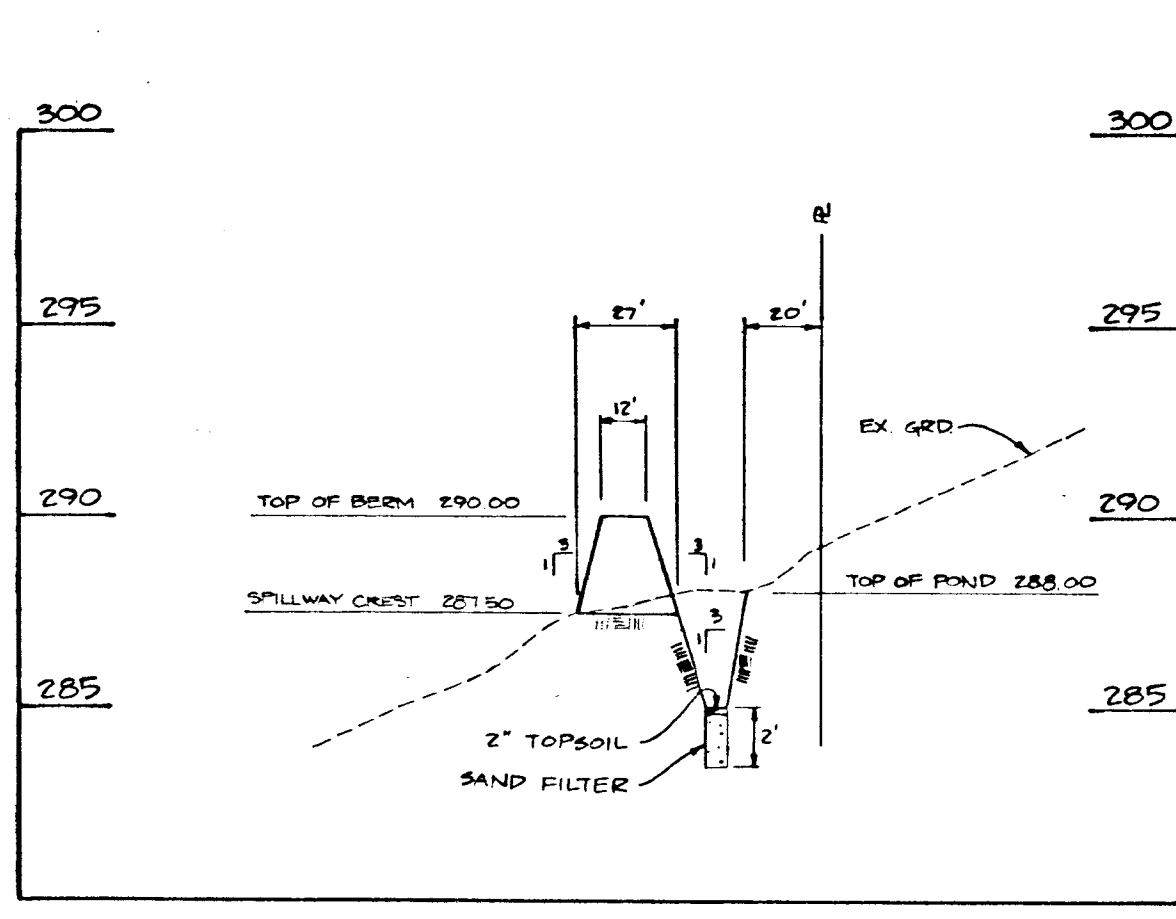
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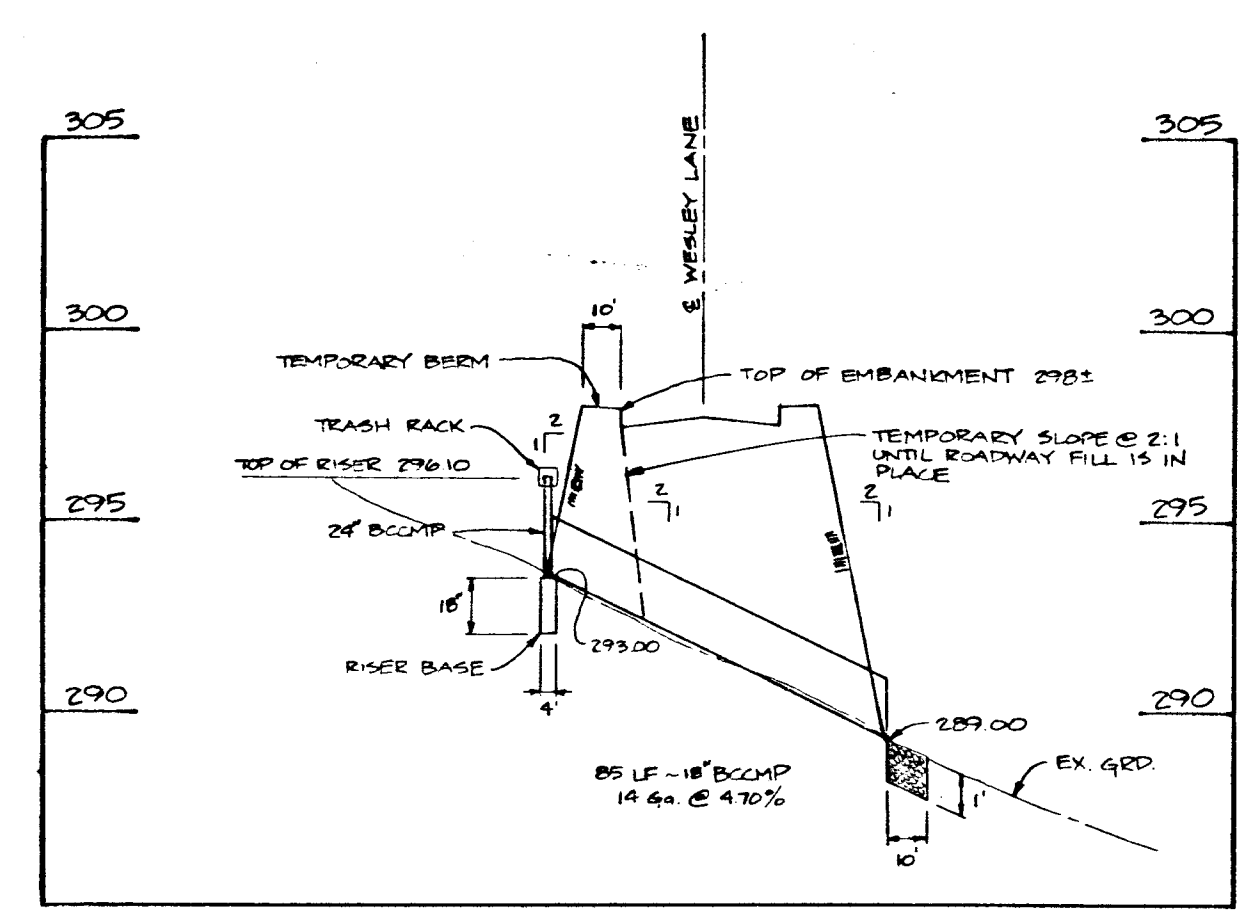
WATER QUALITY FACILITY #1
SECTION B-B
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.



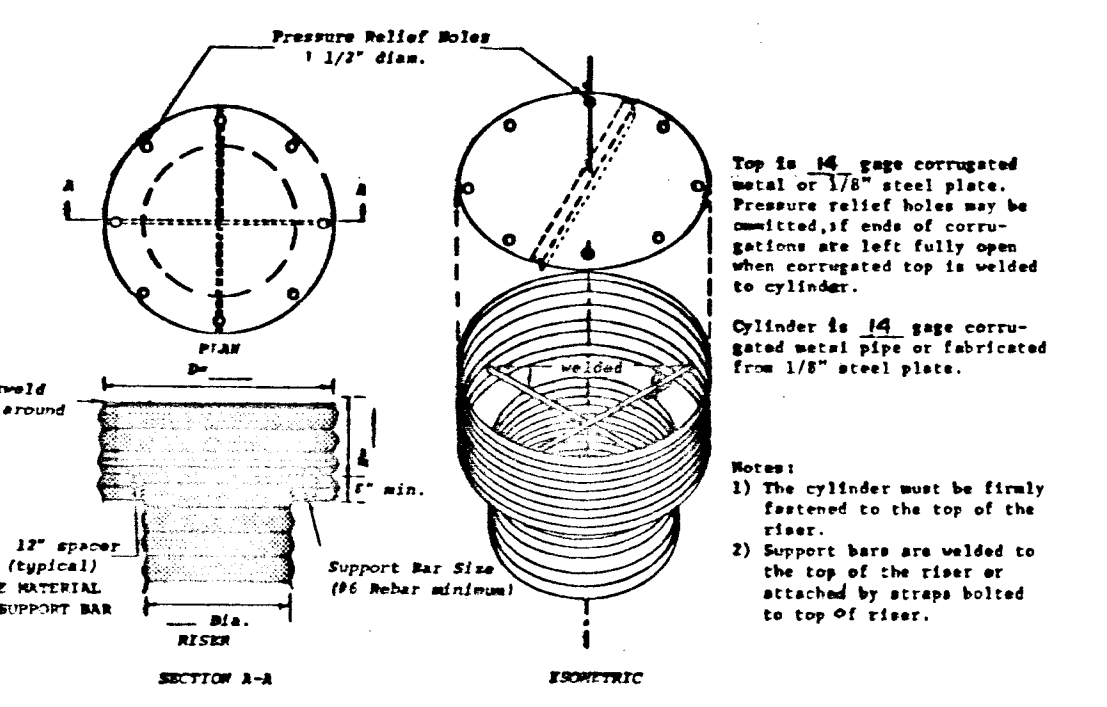
WATER QUALITY FACILITY #2
SECTION C-C
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.



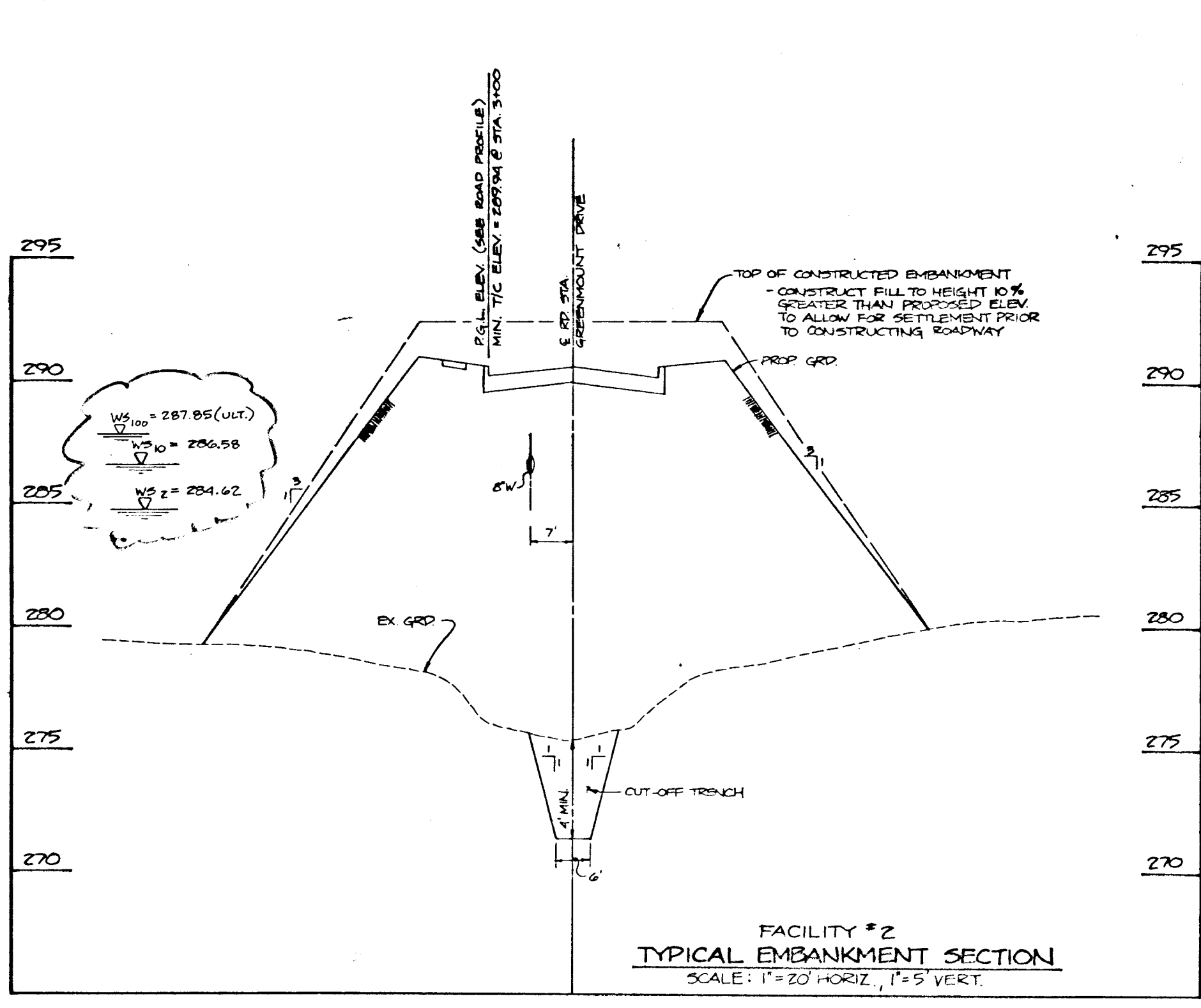
WATER QUALITY FACILITY #3
SECTION D-D
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.



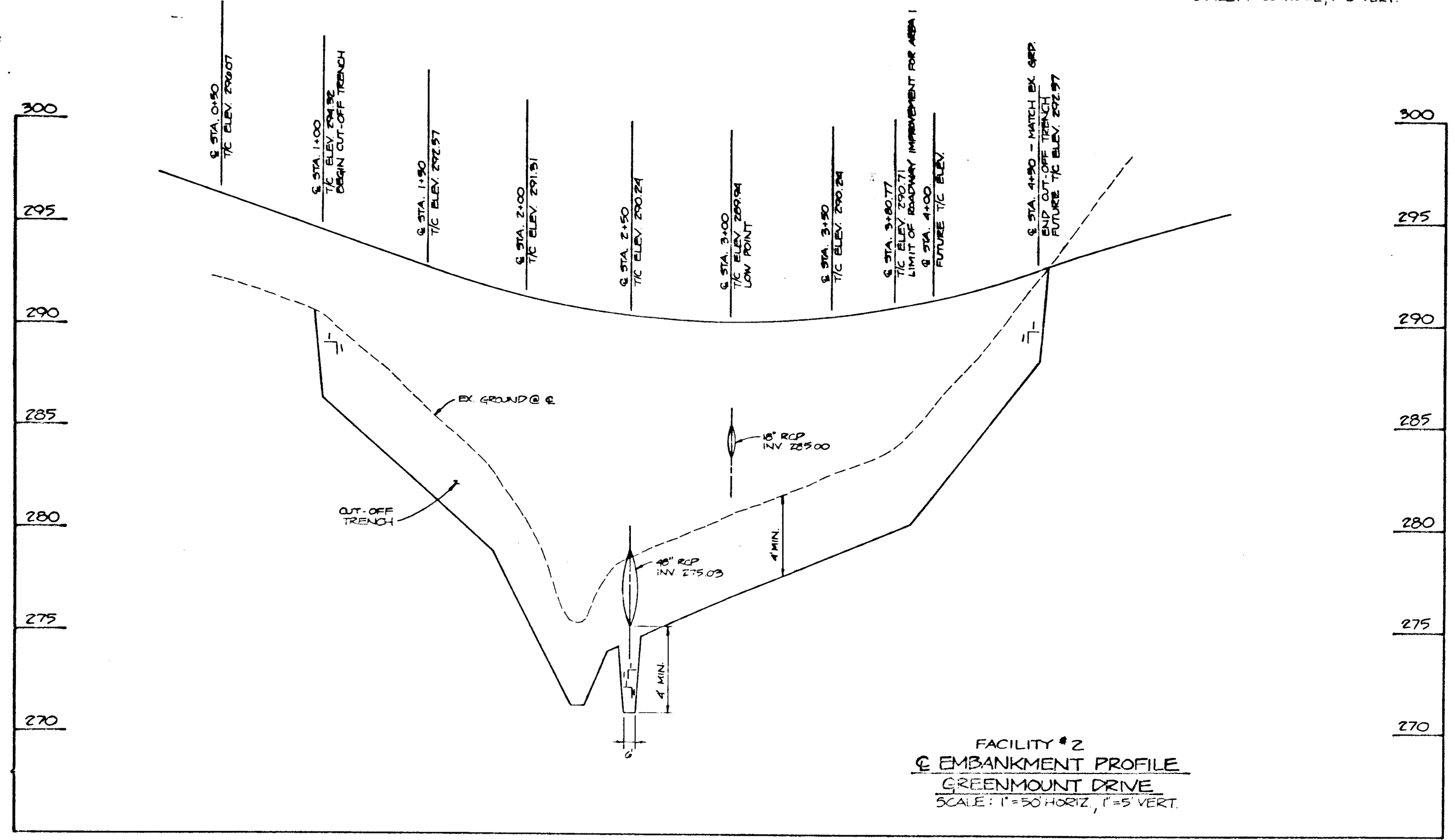
TEMPORARY PIPE AND RISER #2
PROFILE
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.



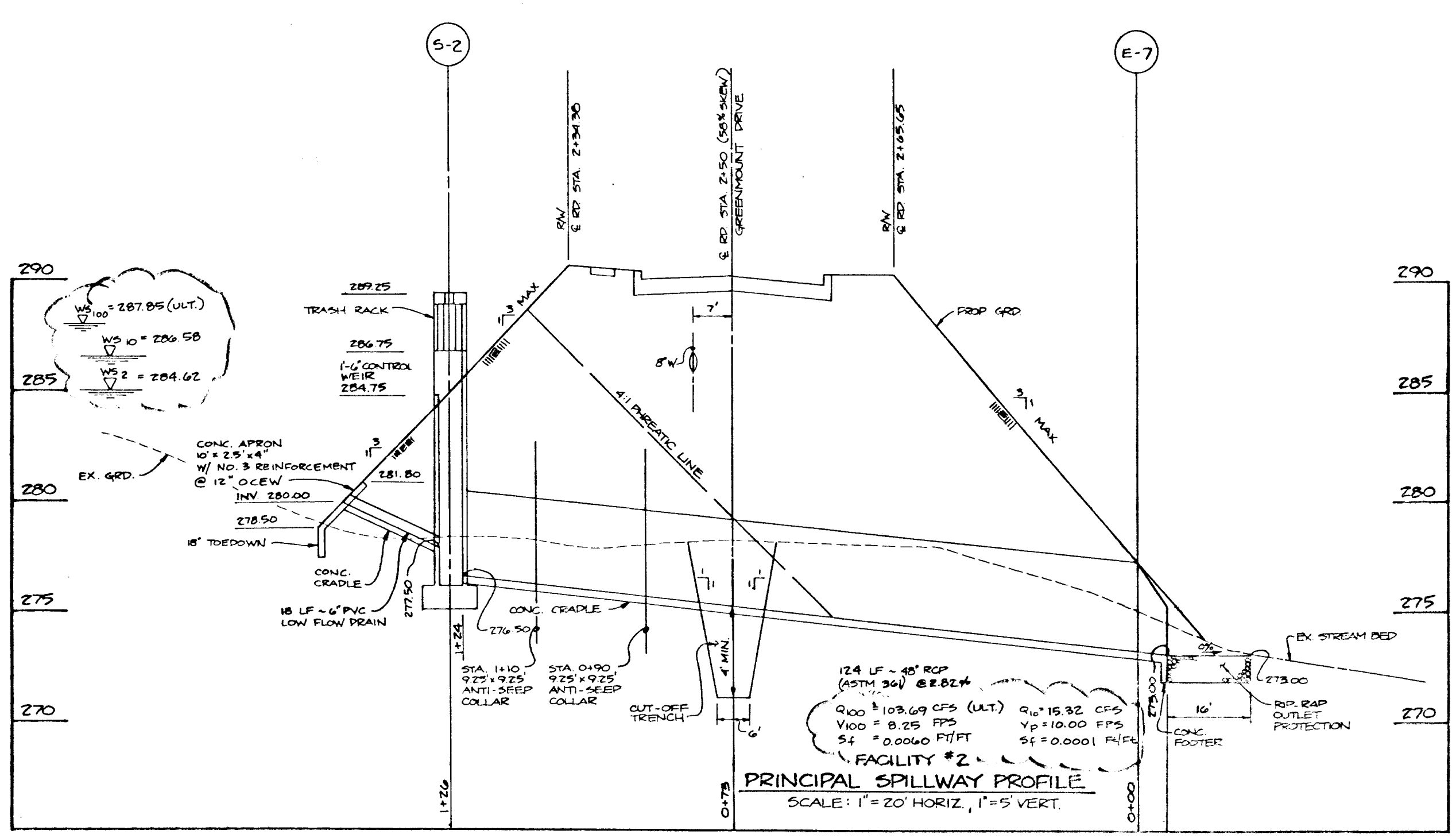
CONCENTRIC TRASH RACK AND ANTI-VORTEX
DETAIL



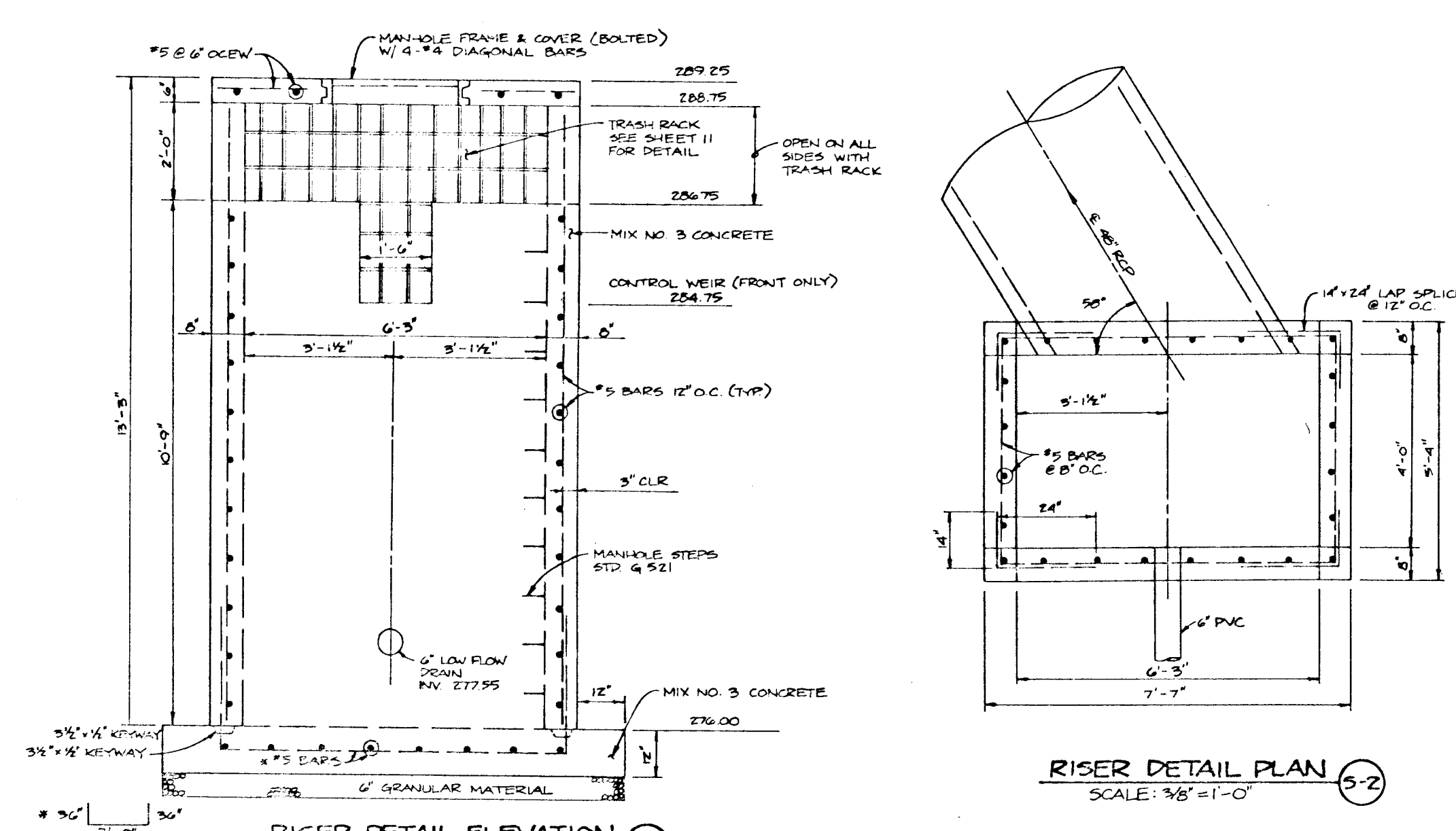
FACILITY #2
TYPICAL EMBANKMENT SECTION
SCALE: 1" = 20' HORIZ., 1" = 5' VERT.



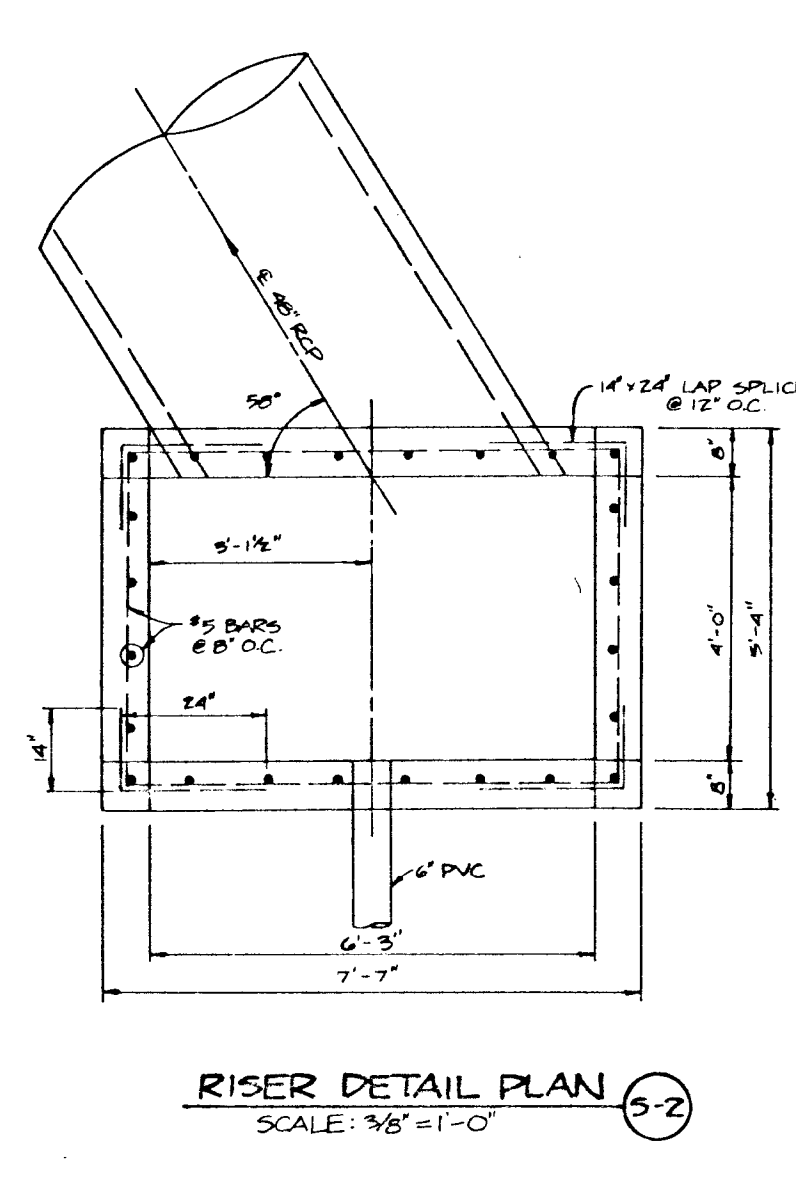
FACILITY #2
EMBANKMENT PROFILE
GREENMOUNT DRIVE
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.



PRINCIPAL SPILLWAY PROFILE
SCALE: 1" = 20' HORIZ., 1" = 5' VERT.



RISER DETAIL ELEVATION
SCALE: 3/8" = 1'-0"



RISER DETAIL PLAN
SCALE: 3/8" = 1'-0"

BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
James R. Moxley, Jr.
DEVELOPER: JAMES R. MOXLEY, JR., SECURITY DEVELOPMENT CORPORATION - PRESIDENT 11-20-91 DATE

BY THE ENGINEER:
"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
John M. Florriaga, P.E.
ENGINEER: JOHN M. FLORRIAGA, P.E. # 16891 11-22-91 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
James M. Helm, Jr.
HOWARD S.C.D. 7/8/93 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Ziehm, Jr.
HOWARD S.C.D. 7/8/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Charles M. Danaher
CHIEF, LAND DEVELOPMENT DIVISION 8/19/93 DATE
Donald G. Span
CHIEF, BUREAU OF HIGHWAYS 8-26-93 DATE
Donald G. Span
CHIEF, BUREAU OF ENGINEERING 8/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Gina Suminang
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT 9/2/93 DATE

| | |
|--|--|
| 2/23/94 | REVISION |
| NO | DATE |
| REVISION | |
| TSA GROUP, INC. planning • architecture • engineering 8440 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)465-6106 | |
| OWNER/DEVELOPER: | PROJECT: |
| SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21043 (301) 465-4244 | WILLOWOOD SECTION 3, AREA 1 LOTS 358-433 |
| LOCATION: | TITLE: |
| TAX MAP 37-PARCELS 130,131,132 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND | STORMWATER MANAGEMENT DETAILS |
| DATE: | PROJECT NO.: |
| NOVEMBER 22, 1991 JULY 27, 1993 | 0277 |
| DES: | DRAWING: |
| JME DRN: DBT | AS SHOWN 12 OF 100 |

1248

PERMANENT SEEDING PREPARATION

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

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1. PREFERRED - APPLY 2 TONS PER ACRE DOLICITE LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 18-18-18 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. BROADCAST OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 48 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT).
2. ACCEPTABLE - APPLY 2 TONS PER ACRE DOLICITE LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 18-18-18 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. BROADCAST OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND AUGUST 1 THRU OCTOBER 15, SEED WITH 48 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF REPUTABLE 31 TALL FESCUE. FOR PERIOD MAY 1 THRU JULY 31, SEED WITH 48 LBS OF REPUTABLE 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (0.6 LBS/1000 SQ FT) OF WEEDING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY, OPTION (1) 2 TONS PER ACRE OF MOUNTAIN MULCH OR 2 TONS PER ACRE OF MOUNTAIN MULCH AND 2 TONS PER ACRE OF WOOD CHIPS OR 2 TONS PER ACRE OF WOOD CHIPS AND 2 TONS PER ACRE OF WOOD CHIPS IN THE SPRING. OPTION (2) USE SOO. OPTION (3) SEED WITH 48 LBS PER ACRE OF REPUTABLE 31 FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (78 TO 98 LBS/1000 SQ FT) OF UNCHIPPED SMALL DRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GALLONS/1000 SQ FT) OF ENHANCED ASPHALT OR FLAT AREAS, OR SLOPES, 8 FT OR HIGHER, USE 348 GALLONS PER ACRE (18 GALLONS/1000 SQ FT) FOR ANCHORING.

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

TEMPORARY SEEDING PREPARATION

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

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

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 18-18-18 FERTILIZER (14 LBS/1000 SQ FT).

SEEDING: FOR PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-1/2 TONS PER ACRE OF ANNUAL RYE (13.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEDING LOVEGRASS (0.9 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 15 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (78 TO 98 LBS/1000 SQ FT) OF UNCHIPPED SMALL DRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GALLONS/1000 SQ FT) OF ENHANCED ASPHALT OR FLAT AREAS, OR SLOPES, 8 FT OR HIGHER, USE 348 GALLONS PER ACRE (18 GALLONS/1000 SQ FT) FOR ANCHORING.

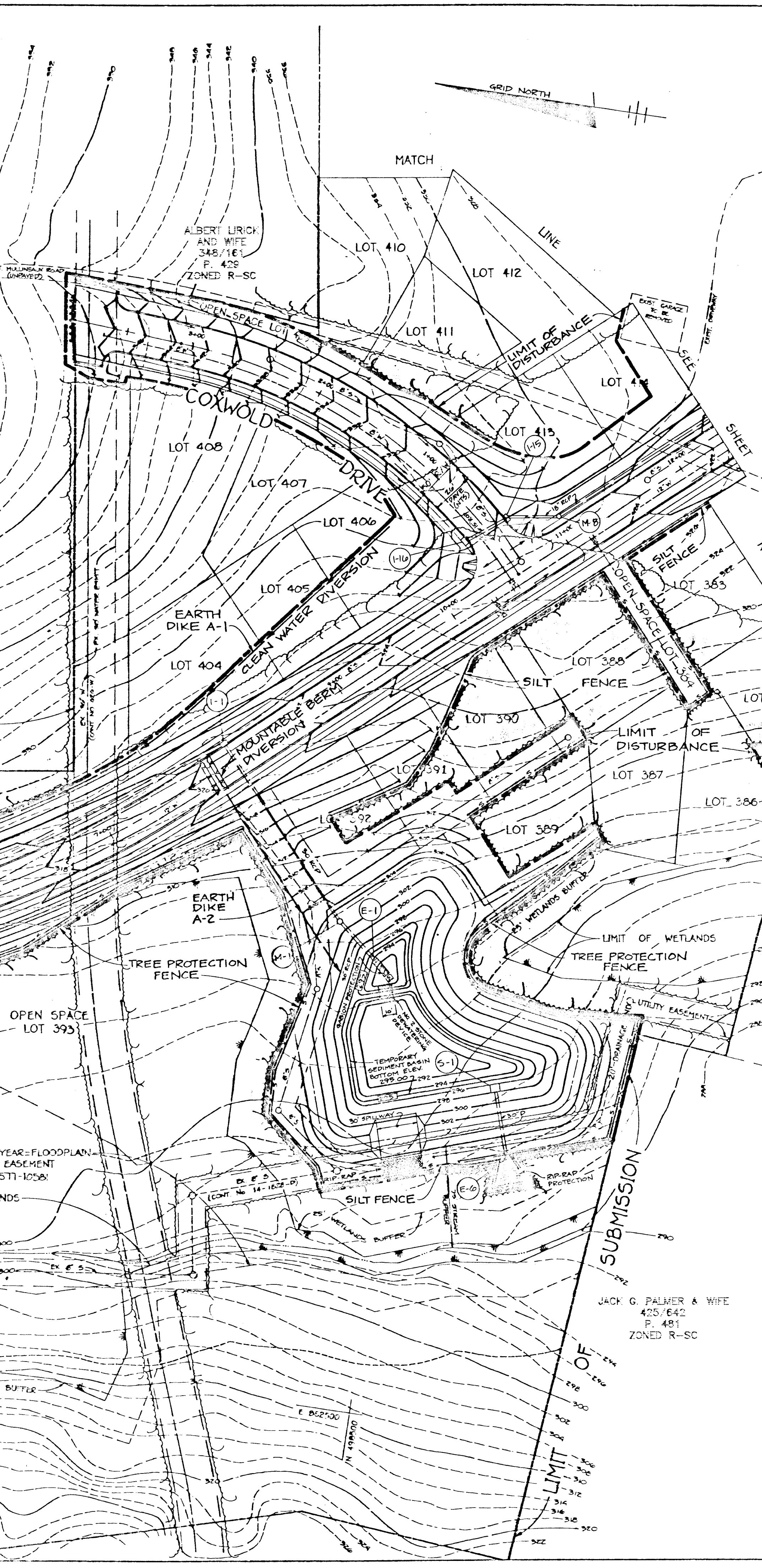
REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE AND TREE PROTECTION FENCE.
3. CONSTRUCT STORMWATER MANAGEMENT FACILITY # 1/TEMPORARY SEDIMENT BASIN TO DIVERGENT 250.00. CONSTRUCT RIVER, BLOCK LOW FLOW DRAIN WITH STONE FILTER. STABILIZE BASIN.
4. INSTALL TEMPORARY CATCH BASIN AND 18" CMP CROSSING AT WESLEY LANE STA 5+25. STABILIZE BASIN WITH SEEDING AND DRAIN WITH RIP-RAP AT UPSTREAM AND DOWNSTREAM ENDS.
5. INSTALL EARTH DIKES TO CATCH BASIN TO DIVERT CLEAN WATER FROM CONSTRUCTION SITE.
6. INSTALL SEDIMENT TRAPS AND REMAINING BATHY DIKES. CONSTRUCT TEMPORARY PIPE/PIPES AND BEAM AS SHOWN ON PLAN. INSTALL WOP #1 AND #3 AS TEMPORARY SEDIMENT TRAPS.
7. INSTALL TEMPORARY STREAM CROSSING AT GREENHOUSE DRIVE. CROSSING IS TO REMAIN IN PLACE UNTIL 48" RCP AND DIVERSION ARE IN PLACE. PLACE SILT FENCE PROTECTION AS NEEDED TO MINIMIZE IMPACT TO STREAM.
8. CONSTRUCT CUTOFF TRENCH FOR GREENHOUSE DRIVE.
9. GRADE SITE TO SUBGRADE. STABILIZE ALL DISTURBED AREA. MAINTAIN MOUNTABLE BERMS ON WESLEY LANE TO DIVERT RUNOFF FROM DISTURBED AREA TO SEDIMENT TRAPS AND BASIN.
10. CONSTRUCT 48" DRAIN AND ANTI-SEEP COLLARS FOR SWM FACILITY #2 AT GREENHOUSE DRIVE. INSTALL A TEMPORARY ERM WALL AT UPSTREAM AND STABILIZE ERM WITH RIP-RAP AND SEEDING AS NECESSARY.
11. DIVERT FLOW FROM EXISTING STREAM AT 48" PIPE.
12. COMPLETE CONSTRUCTION OF CUTOFF TRENCH AND PLACEMENT OF FILL MATERIAL FOR ROADWAY. REMOVE GRASS SEEDLINGS SEDIMENT TRAPS AND STABILIZE SLOPES.
13. CONSTRUCT SEWER, STORM DRAINS AND WATER. CONTRACTOR TO NOTIFY THE BUREAU OF UTILITIES PRIOR TO ANY WORK IN THE VICINITY OF THE EXISTING 36" WATER MAIN. CONTRACTOR IS TO USE EXTREME CAUTION IN THE INSTALLATION OF THE STORM DRAIN, WATER, AND SEWER UNDER THE EXISTING 36" WATER MAIN. THE EXISTING WATER MAIN IS TO BE SECURELY BRACED AND SUPPORTED AT ALL TIMES DURING THE STORM DRAIN AND UTILITY INSTALLATION. ALL TRENCH WORK UNDER THE 36" WATER MAIN MUST BE BACKFILLED THE SAME DAY. ALL TRENCH BACKFILL SHALL BE TO 95% MAXIMUM DRY DENSITY. ANY DAMAGE TO THE EXISTING 36" WATER MAIN DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

NOTES:

1. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLAND OR STREAM BUFFERS EXCEPT AS PERMITTED FOR THE WESLEY LANE AND GREENHOUSE DRIVE ROAD CROSSING AND STORM DRAIN REMOVAL E-4 AS APPROVED BY THE DEPARTMENT OF NATURAL RESOURCES AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT PERMITS AND AS PER WAIVER PETITION WF-92-199, APPROVED 4-24-92 FOR THE CONSTRUCTION OF THE STORM WATER QUALITY FACILITIES.
2. WAIVER PETITION WF-92-199 REQUEST TO WAIVER SECTION 16.116(C)(1) OF THE SUBDIVISION REGULATIONS TO ALLOW IMPROVEMENT WITH THE 75 FOOT STREAM BANK BUFFER FOR STORMWATER MANAGEMENT FACILITY #1 AND WATER QUALITY FACILITY #1 AND #3 AND FOR THE 25 FOOT WETLAND BUFFER IMPROVEMENT FOR WATER QUALITY FACILITY #1 (AS SHOWN ON THE APPROVED PLAN P-92-42) WAS APPROVED ON JUNE 24, 1992 BY THE DIRECTOR OF PLANNING AND ZONING.
3. LOW MAINTENANCE GROUND COVER SHALL BE USED AT ALL POND SLOPES OF 3:1.



BY THE DEVELOPER:

I, JAMES R. MCKEY, JR., CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

James R. McKey, Jr.
DEVELOPER, JAMES R. MCKEY, JR. SECURITY DEVELOPMENT CORPORATION - PRESIDENT
DATE: 11-30-91

BY THE ENGINEER:

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

John V. Elorriaga, P.E., 1669
ENGINEER: JOHN V. ELORRIAGA, P.E. & ASSOCIATES
DATE: 11-22-91

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

James M. Helm, Jr.
HOWARD SCD
DATE: 7/8/93

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

Robert W. Zuhn, Jr.
HOWARD SCD
DATE: 7/8/93

SEDIMENT CONTROL NOTE

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (311-1856).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THEREOF.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, REPAIRMENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: (A) 7 CALENDAR DAYS FOR ALL PERMITTED SEDIMENT CONTROL STRUCTURES, DIKES, PERMITTED SLOPES AND ALL SLOPES GREATER THAN 3:1, (B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPPING SHOWS MUST BE RENEWED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT PRACTICES (S.E.C. 513), SOO (S.E.C. 540), TEMPORARY PRACTICES (S.E.C. 589) AND MULCHING (S.E.C. 521). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING RATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ASK TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAVE BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

| | |
|------------------------------------|------------------|
| TOTAL AREA OF SITE | 31.24 ACRES |
| AREA TO BE ROOFED | 11.58 ACRES |
| AREA TO BE VEGETATIVELY STABILIZED | 7.59 ACRES |
| TOTAL CUT (15000 CF TOP SOIL) | 22,500 CU YDS |
| TOTAL FILL | 22,500 CU YDS |
| OFFSITE WASTE/BORROW AREA LOCATION | TO BE DETERMINED |
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMANENT EROSION AND SEDIMENT CONTROL, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING, OTHER BUILDING OR GRADING. INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES ARE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Danaher
CHIEF, BUREAU OF HIGHWAYS
DATE: 8-26-93

Richard G. Spain
CHIEF, BUREAU OF PLANNING
DATE: 8/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Gina Brummanji
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
DATE: 9/2/93

| NO. | DATE | REVISION |
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| | | |
| | | |

TSA GROUP, INC.
planning • architecture • engineering
800 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)465-8100

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
P.O. BOX 417
ELLCOTT CITY, MARYLAND 21043
(301) 465-4244

PROJECT: WILLOWOOD SECTION 3 - AREA 1 LOTS 395-433

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT CONTROL PLAN
WF-91-76 P-91-08 WP-92-199

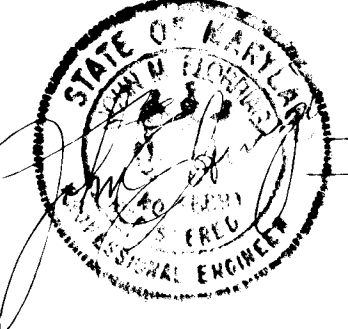
DATE: NOVEMBER 22, 1991
JULY 27, 1993

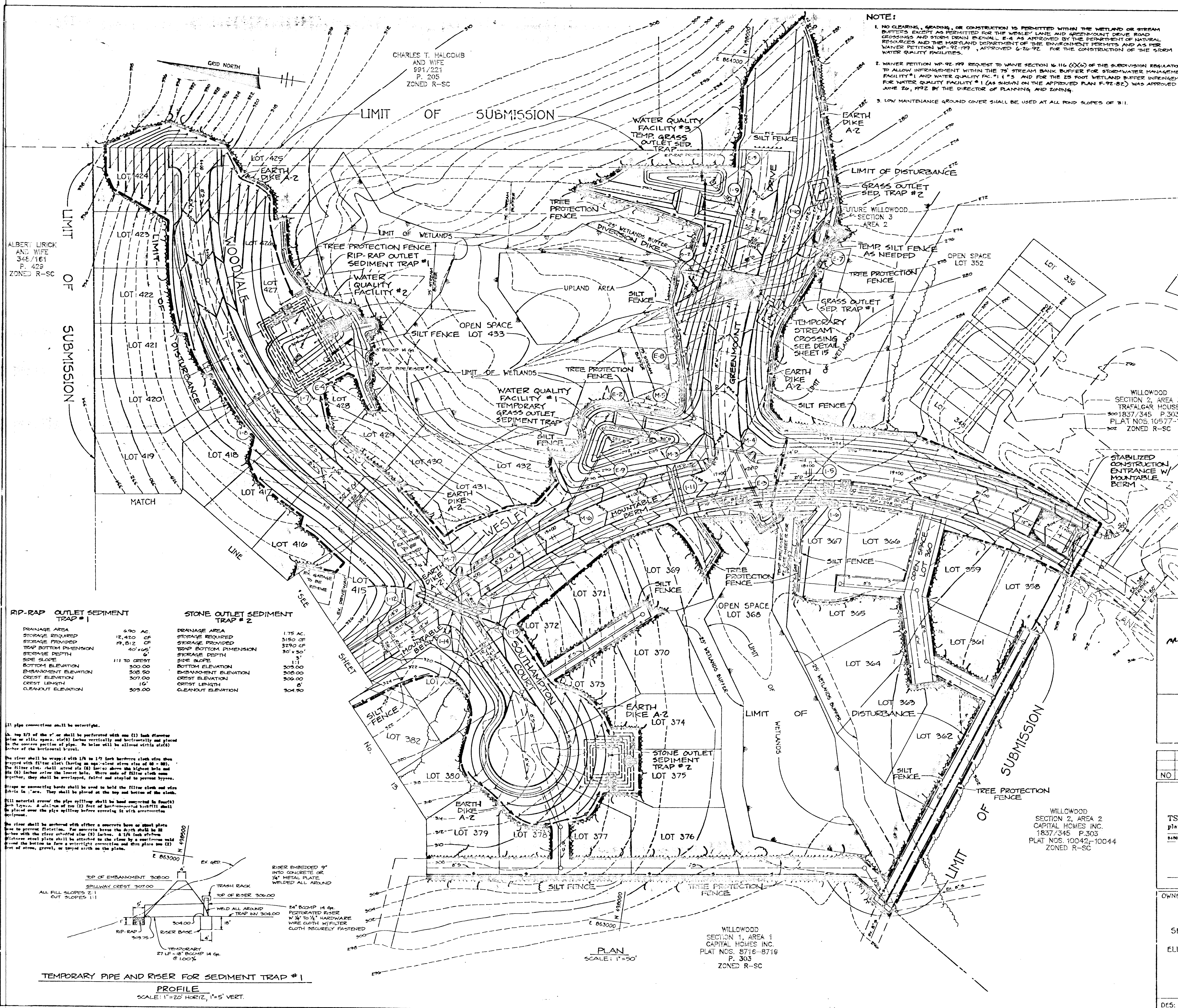
PROJECT NO. 0277

DES: JHL/DRE DRN: DRK/DET SCALE: 1" = 50'

DRAWING 13 OF 16

1248





NOTE:

- NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE WETLAND OR STREAM BUFFERS EXCEPT AS PERMITTED FOR THE WESLEY LANE AND GREENMOUNT DRIVE ROAD CROSSINGS AND STORM DRAIN REPAIRS AS APPROVED BY THE DEPARTMENT OF NATURAL RESOURCES AND THE MARLAND DEPARTMENT OF THE ENVIRONMENT PERMITS AND AS PER WAIVER PETITION WP-92-199, APPROVED 6-26-92, FOR THE CONSTRUCTION OF THE STORM WATER QUALITY FACILITIES.
- WAIVER PETITION WP-92-199 REQUEST TO WAIVE SECTION 16.116 (C)(6) OF THE SUBDIVISION REGULATIONS TO ALLOW IMPROVEMENT WITHIN THE 75' STREAM BANK BUFFER FOR STORMWATER MANAGEMENT FACILITY #1 AND WATER QUALITY FACILITY #2 AND FOR THE 25 FOOT WETLAND BUFFER IMPROVEMENT FOR WATER QUALITY FACILITY #1 (AS SHOWN ON THE APPROVED PLAN F-92-82) WAS APPROVED ON JUNE 20, 1992 BY THE DIRECTOR OF PLANNING AND ZONING.
- LOW MAINTENANCE GROUND COVER SHALL BE USED AT ALL POND SLOPES OF 3:1.

BY THE DEVELOPER:
 I, James R. Mable, Jr., CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION OF THIS PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
 DEVELOPER: JAMES R. MABLE, JR. DATE: 11-20-91
 SECURITY DEVELOPMENT CORPORATION - PRESIDENT

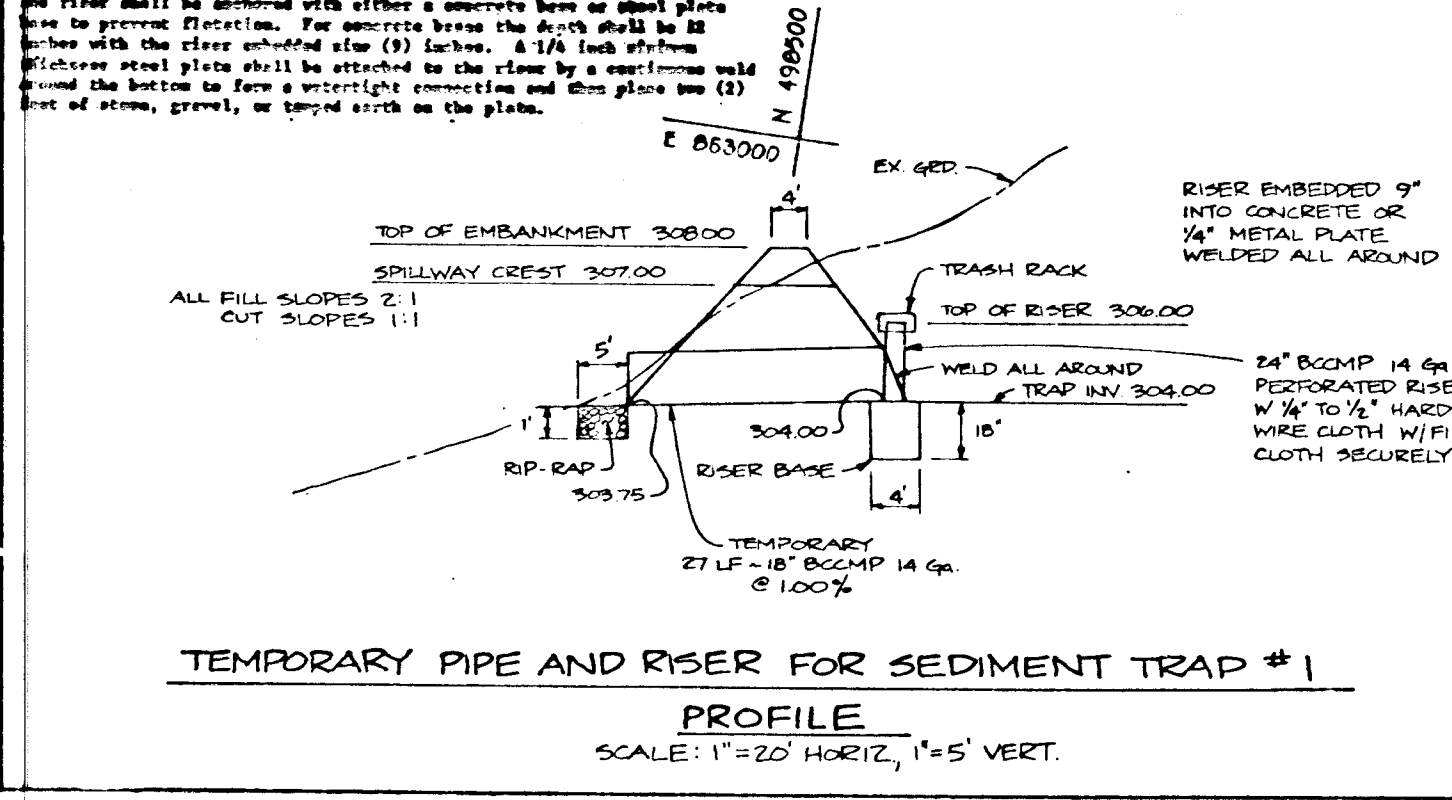
BY THE ENGINEER:
 I, John M. Elorriaga, P.E., CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 ENGINEER: JOHN M. ELORRIAGA, P.E. # 16891 DATE: 11-22-91

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
James M. Helm, Jnr. DATE: 7/6/93
 HOWARD SOIL CONSERVATION DISTRICT
Robert W. Ziehm, Jnr. DATE: 7/6/93
 HOWARD SOIL CONSERVATION DISTRICT

| | #1 | #2 | WQP #1 | WQP #2 |
|-------------------------|-----------|-----------|----------|----------|
| DRAINAGE AREA (MAXIMUM) | 0.32 AC. | 0.22 AC. | 3.24 AC. | 2.43 AC. |
| STORAGE REQUIRED | 576 CF | 396 CF | 5832 CF | 4374 CF |
| STORAGE PROVIDED | 756 CF | 756 CF | 9320 CF | 9050 CF |
| TRAP BOTTOM DIMENSION | 15' x 20' | 15' x 20' | | |
| STORAGE DEPTH | 2' | 2' | | |
| SIDE SLOPE | 1:1 | 1:1 | | |
| BOTTOM ELEVATION | 279.00 | 279.00 | | |
| EMBANKMENT ELEVATION | 282.00 | 276.00 | | |
| CREST ELEVATION | 281.00 | 275.00 | | |
| CREST LENGTH | 4' | 4' | | |
| CLEANOUT ELEVATION | 280.00 | 274.00 | 272.00 | 285.50 |

| | DRIP-RAP OUTLET SEDIMENT TRAP #1 | STONE OUTLET SEDIMENT TRAP #2 |
|-----------------------|----------------------------------|-------------------------------|
| DRAINAGE AREA | 6.90 AC. | 1.75 AC. |
| STORAGE REQUIRED | 12,420 CF | 5150 CF |
| STORAGE PROVIDED | 40,162 CF | 3270 CF |
| TRAP BOTTOM DIMENSION | 40' x 60' | 30' x 50' |
| STORAGE DEPTH | 1:1 TO CREST | 1:1 TO CREST |
| SIDE SLOPE | 1:1 TO CREST | 1:1 TO CREST |
| BOTTOM ELEVATION | 300.00 | 303.00 |
| EMBANKMENT ELEVATION | 308.50 | 308.00 |
| CREST ELEVATION | 307.00 | 306.00 |
| CREST LENGTH | 16' | 6' |
| CLEANOUT ELEVATION | 309.00 | 304.50 |

1) All pipe connections shall be watertight.
 2) All pipe 24" or larger shall be perforated with one (1) inch diameter holes or slots spaced 12" apart vertically and horizontally and placed in the bottom portion of pipe. No holes will be allowed within six (6) inches of the horizontal centerline.
 3) The riser shall be wrapped with 1/2" to 1/4" hardware cloth when exposed with filter cloth (having an open-cloth size of 40-60 mesh). The filter cloth shall extend six (6) feet to above the highest hole and six (6) inches below the lowest hole. Where ends of filter cloth meet together, they shall be overlapped, lapped and stapled to prevent bypass.
 4) Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.
 5) All material around the pipe openings shall be hand compacted to 95% of Proctor. A minimum of two (2) feet of hand-compacted backfill shall be placed over the pipe openings before starting to backfill with conventional equipment.
 6) The riser shall be anchored with other concrete base or steel plate base to prevent flotation. For anchors below the deck shall be 12" diameter with the clear embedment (12" diameter). A 1/2" thick minimum thickness steel plate shall be attached to the riser by a minimum of two (2) bolts around the bottom to form a watertight connection and three (3) feet of stone, gravel, or topped earth on the plate.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Daniels DATE: 8-27-93
 CHIEF, BUREAU OF HIGHWAYS
Paul G. Jordan DATE: 8-16-93
 CHIEF, BUREAU OF PLANNING AND ZONING
Gina Swannery DATE: 9/2/93
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

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

TSA GROUP, INC.
 planning • architecture • engineering
 8400 Parkmore National Pike • Ellicott City, Maryland 21043 • (801) 465-4244

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21043
 (301) 465-4244

PROJECT: WILLOWOOD SECTION 3 - AREA 1 LOTS 358-433

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT AND EROSION CONTROL PLAN

DATE: NOVEMBER 22, 1991 PROJECT NO. 0277
 JULY 27, 1993

SCALE: AS SHOWN DRAWING 14 OF 16

DES: JME/DRC DRN: DRC/DBT

8291

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 reservoir will be cleared of all trees, brush, logs, fences, rubbish and other debris 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.

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.

Earth Fill
Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill material shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into 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 covered 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 will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within +/- 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rammers, or hand tampers to assure maximum density and minimum permeability.

Structure Backfill
Backfill adjacent to pipes or structures 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 manually directed compaction equipment. The material needs to be completely compacted 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 or against a concrete pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Pipe Conduits
All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for 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 of approved materials may be used: Nexon, Plastico-Cote, Blac-Klad, and Beth-Co-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

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

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. Aluminum surfaces that are to be in contact with concrete shall be primed with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. 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. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide hugger type band with O-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helically corrugated pipe shall have either continuously welded seams or hose lock seams.

4. 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.

5. Backfilling shall conform to "Structure Backfill."

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

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have ball and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.

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

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

4. Backfilling shall conform to "Structure Backfill."

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

Polyvinyl Chloride (PVC) Pipe - All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.

2. Joints and connections to anti-seep collars shall be completely watertight.

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

4. Backfilling shall conform to "Structure Backfill."

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

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 605, Mix No. 3.

Rock Riprap

All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments shall be angular to subangular in shape. The least dimension of an individual rock fragment shall not be less than one third the greatest dimension of the fragment.

The rock shall have the following properties:

- 1. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
2. Absorption not more than three percent.
3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be installed in a condition which will prevent traveling or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or placement of any resources used to trap sediment. All sediment applied, dropped, washed or tracked onto public rights-of-way must be removed immediately.
Warning - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trap/pit device.
Periodic inspection and needed maintenance shall be provided after each rain.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, furnish, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to pumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a satisfactory condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and betail, shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

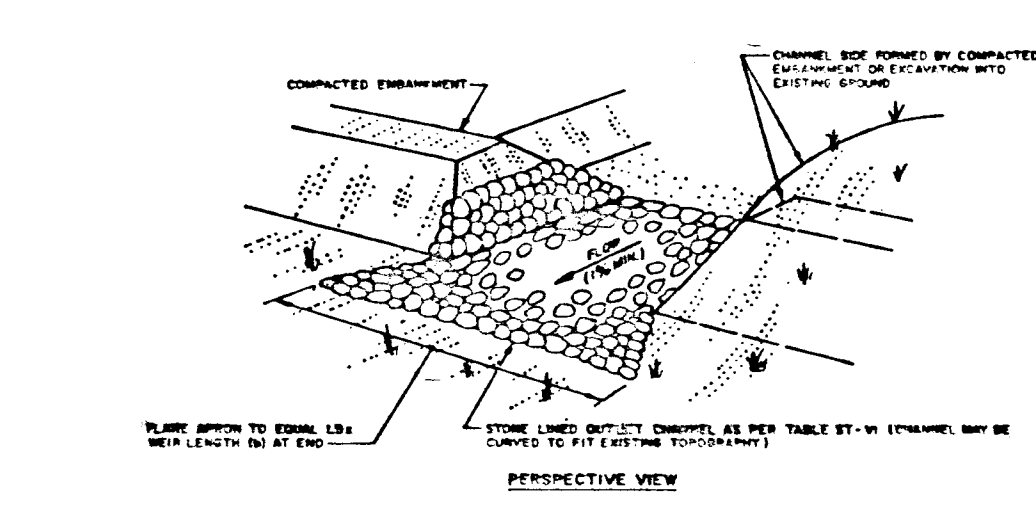
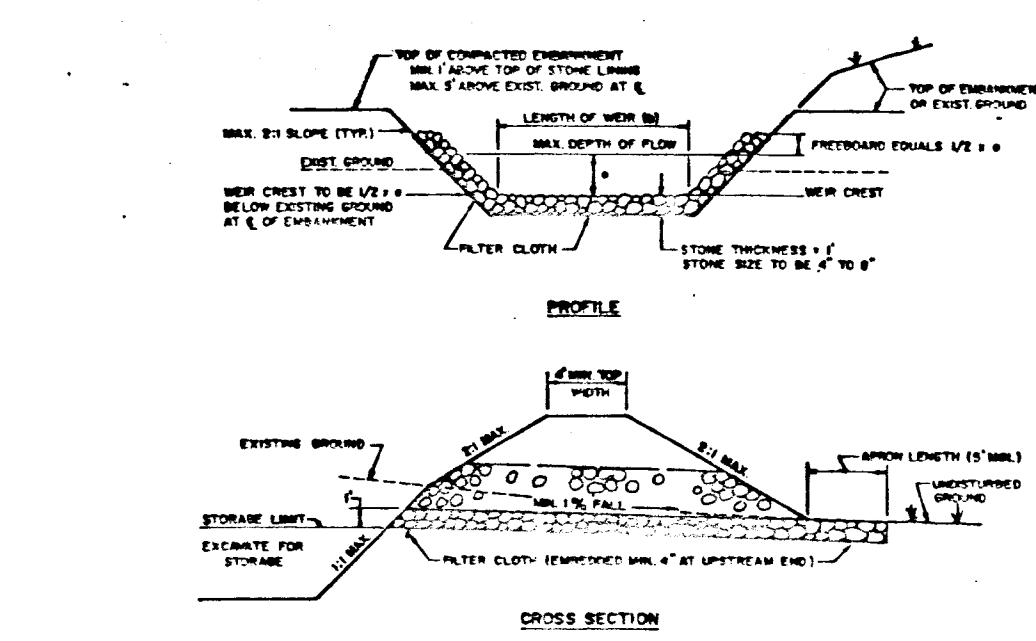
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction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

Tree Protection Fence

1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLATION.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

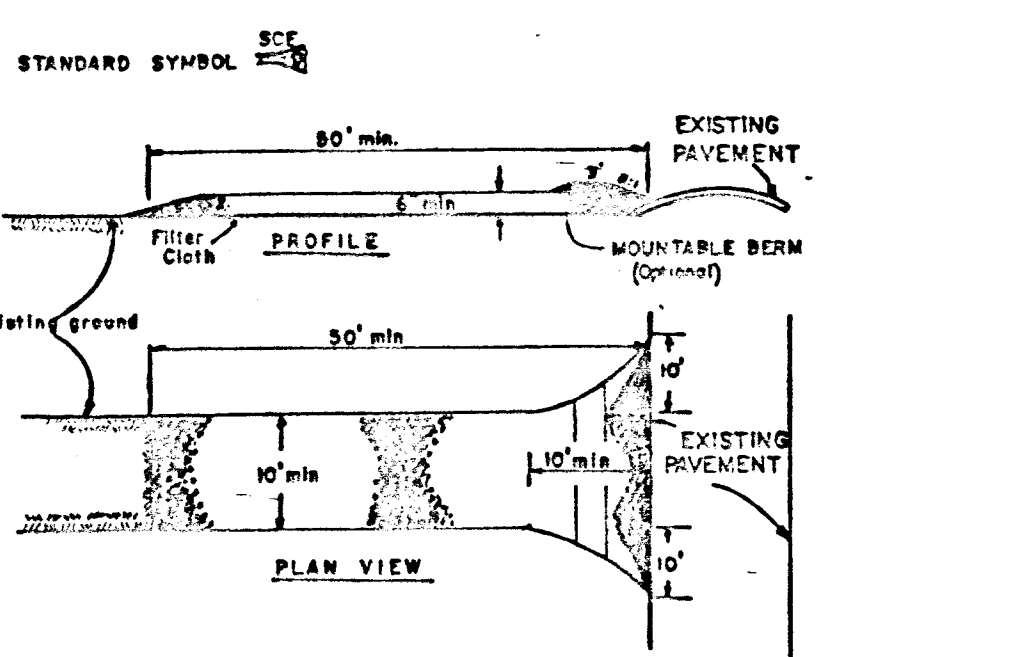
STONE FILTER BLOCKING DETAIL

1. RAMP TO ANY ZPSO RISER AND OUTLET DRAIN ARE TO BE CONSTRUCTED PRIOR TO ANY OTHER SITE DISTURBANCE.
2. UPRUN CONSTRUCTION AND ACCEPTANCE OF ALL SITE DISTURBANCES SEDIMENT BASIN TO BE CLEANED OUT, EXCAVATED TO SWM INV, PERMANENTLY STABILIZED AND CONVERTED TO SWM POND.



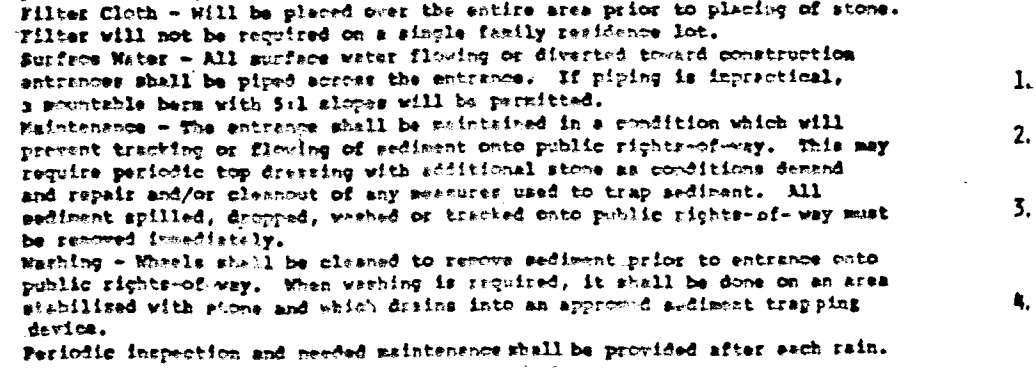
RIP-RAP OUTLET SEDIMENT TRAP

NO SCALE



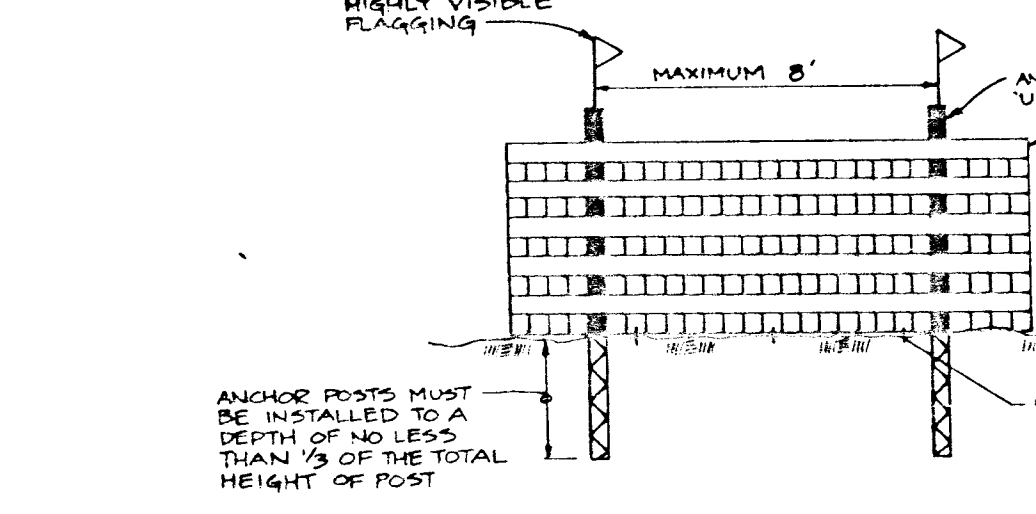
STABILIZED CONSTRUCTION ENTRANCE

NO SCALE



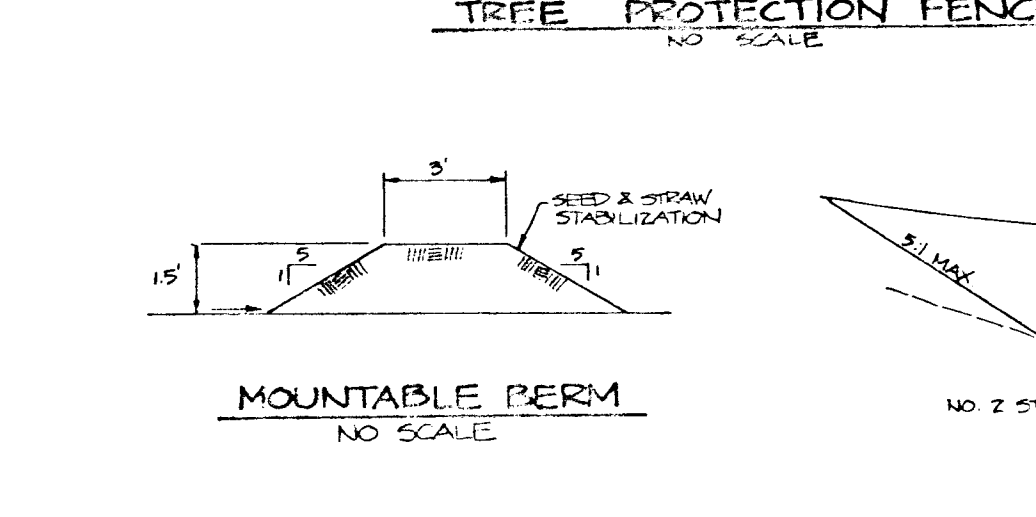
SILT FENCE

NO SCALE



STONE OUTLET SEDIMENT TRAP

NO SCALE

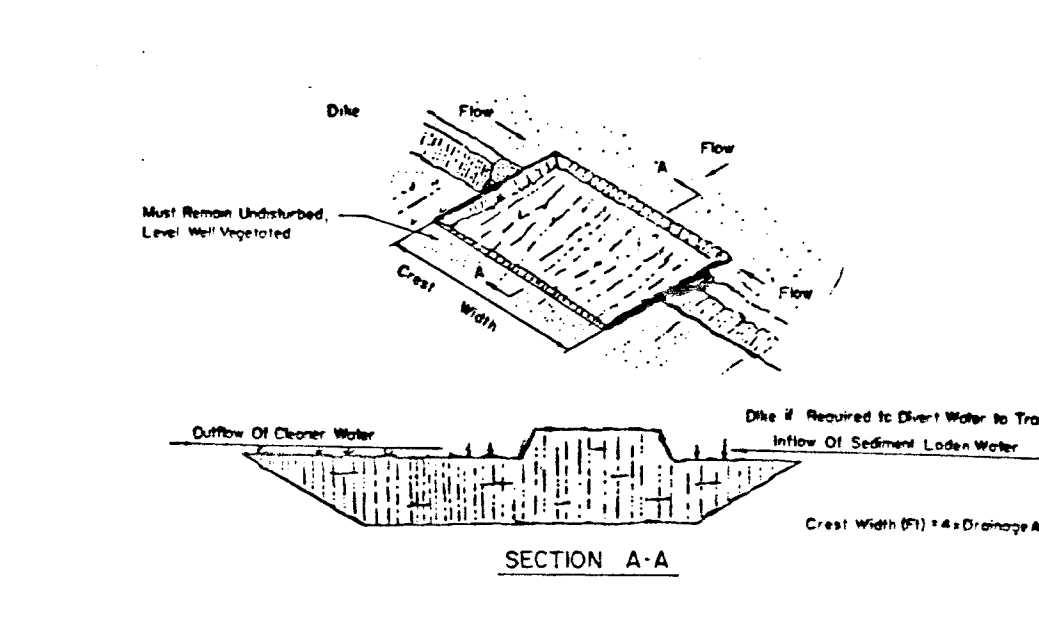


TEMPORARY STREAM CROSSING

NO SCALE

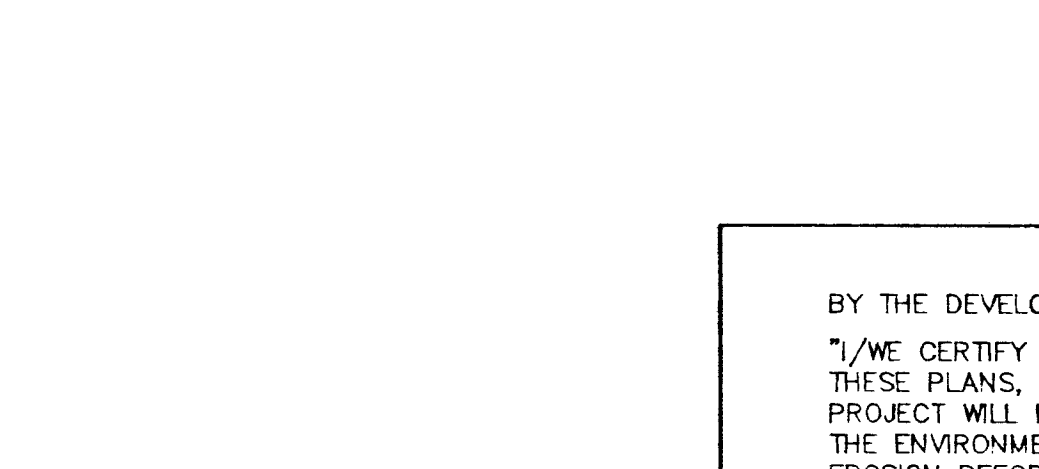
CONSTRUCTION SPECIFICATIONS FOR ST-1

- 1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be five (5) feet, measured at centerline of embankment.
3. All fill slopes shall be 2:1 or flatter; cut slopes 1:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of embankment.
5. Storage area provided shall be figured by computing the volume available behind the outlet channel up to an elevation of one (1) foot below the level weir crest.
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least one (1) foot with section nearest the entrance placed on top. Fabric shall be embedded at least six (6) inches into existing ground at entrance of outlet channel.
7. Stone used in the outlet channel shall be four (4) to eight(8) inches (rip-rap). To provide a filtering effect, a layer of filter cloth shall be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.
8. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
9. The structure shall be inspected after each rain and repaired as needed.
10. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
11. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.
12. Drainage area for this practice is limited to 15 acres or less.



EXCAVATED GRASS OUTLET SEDIMENT TRAP

NO SCALE



CONSTRUCTION SPECIFICATIONS FOR ST-2

- 1. Volume of sediment storage shall be 1800 cubic feet per acre of contributory drainage area.
2. Minimum crest width shall be 4 X Drainage Area.
3. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
4. The structure shall be inspected after each rain and repairs made as needed.
5. Construction operations shall be carried out in such a manner that erosion and water pollution shall be minimized.
6. The sediment trap shall be removed and area stabilized when the remaining drainage area has been properly stabilized.
7. All cut slopes shall be 1:1 or flatter.

CONSTRUCTION SPECIFICATIONS FOR ST-1

- 1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4\"/>

CONSTRUCTION SPECIFICATIONS FOR ST-2

- 1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4\"/>

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2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4\"/>

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- 1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
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3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4\"/>

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- 1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
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3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4\"/>

CONSTRUCTION SPECIFICATIONS FOR ST-2

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3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4\"/>

CONSTRUCTION SPECIFICATION FOR ST-2

- 1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4\"/>

BY THE DEVELOPER:
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

James R. Moxley, Jr.
DEVELOPER: JAMES R. MOXLEY, JR.
SECURITY DEVELOPMENT CORPORATION - PRESIDENT
11-20-91 DATE

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

John M. Elcorriaga, P.E. # 16891
ENGINEER: JOHN M. ELCORRIAGA, P.E. # 16891
11-22-91 DATE

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

James M. Helm, Jr.
SOIL CONSERVATION SERVICE
7/8/93 DATE

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

Robert W. Zahm, Jr.
HOWARD S.C.D.
7/8/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION
8-27-93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
8-26-93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
8/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
9/2/93 DATE

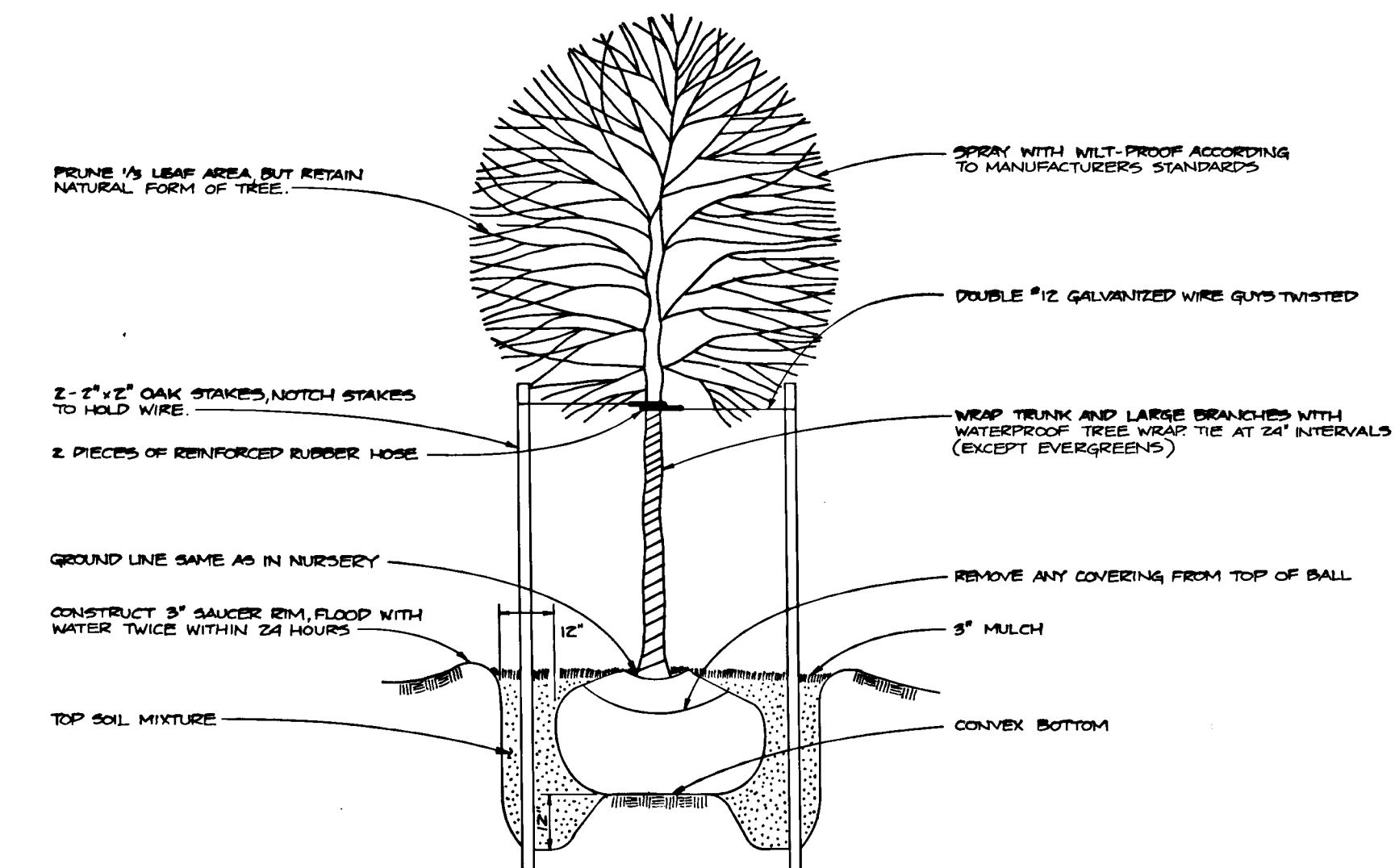
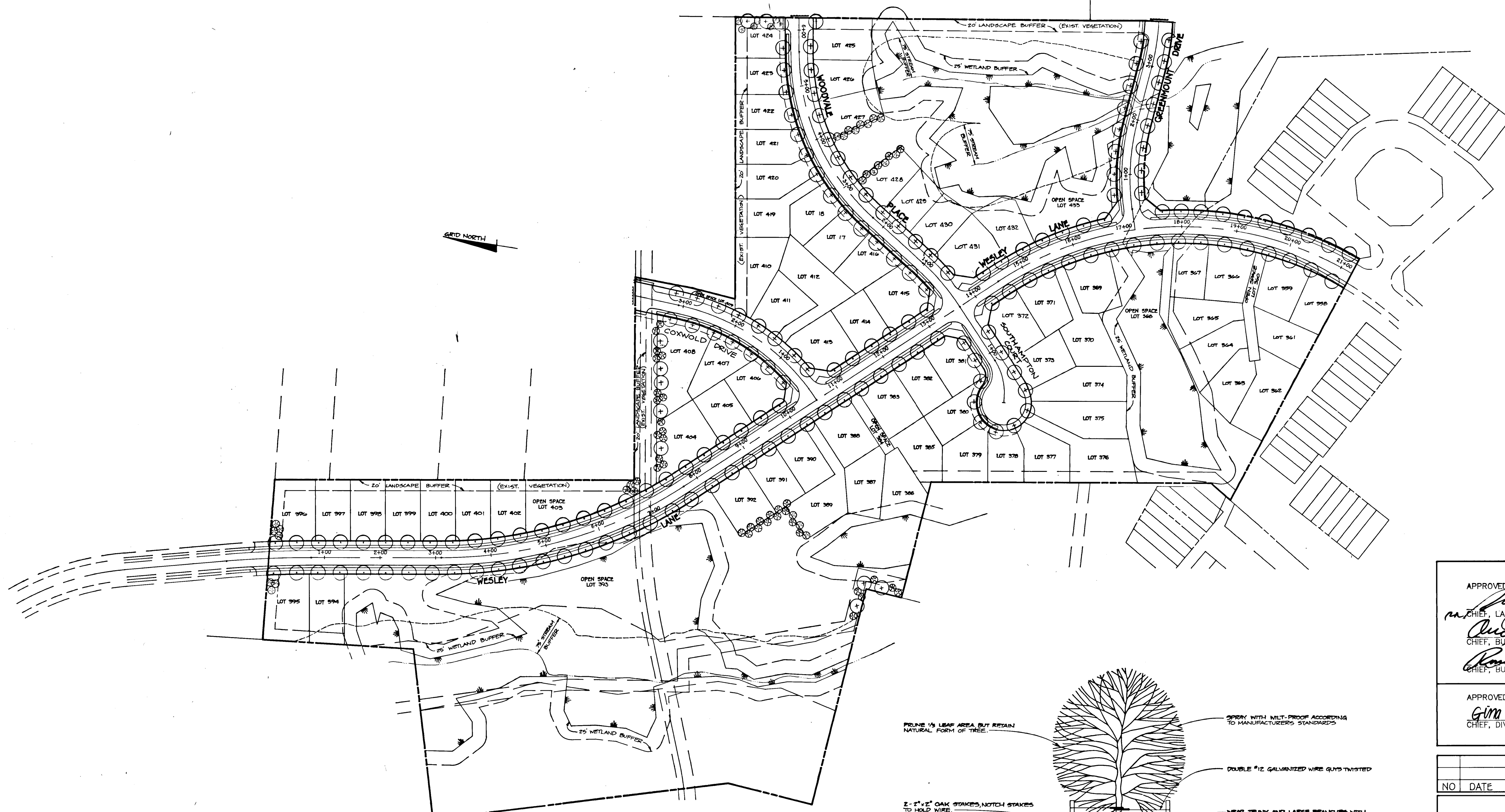
NO DATE REVISION

TSA GROUP, INC.
planning • architecture • engineering
8600 Baltimore National Pike • Elkton City, Maryland 21043 • (410)465-6100

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
PROJECT: WILLOWOOD SECTION 3, AREA 1 LOTS 350-433
LOCATION: TAX MAP 37-PARCELS 130,131,132 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS
DATE: NOVEMBER 22, 1991
PROJECT NO. 0277
SCALE: AS SHOWN DRAWING 15 OF 16

1249

| PLANT LIST | | | |
|------------|----------|-----------------------------|--|
| SYMBOL | QUANTITY | NAME | REMARKS |
| ⊙ | 98 | QUERCUS RUBRA RED OAK | 2 1/2" MINIMUM CALIPER 8 & 8" FULL HEAD |
| ⊕ | 82 | ACER RUBRUM RED MAPLE | 2 1/2" MINIMUM CALIPER 8 & 8" FULL HEAD |
| ⊗ | 70 | PINUS STROBUS WHITE PINE | 5'-6" UNSHEARED |
| TOTAL | 250 | | |



TREE PLANTING DETAIL
NO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature]
 CHIEF, LAND DEVELOPMENT DIVISION
 DATE: 8-27-93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 8-26-93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, BUREAU OF ENGINEERING
 DATE: 8/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 DATE: 9/2/93

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

TSA GROUP, INC.
 planning • architecture • engineering
 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)465-8106

[Signature]
 REGISTERED PROFESSIONAL ENGINEER

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21043
 (301) 465-4244

PROJECT: **WILLOWOOD**
 SECTION 3 - AREA 1
 LOTS 358-435

LOCATION: TAX MAP 37 - PARCELS 130, 131, 132
 14th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: **PLANTING PLAN**
 WP-91-76 P-91-08 WP-92-199

DATE: NOVEMBER 22, 1991
 JULY 27, 1993

DES: JME DRN: DBT

SCALE: 1" = 100'

PROJECT NO. 0277
 DRAWING 16 OF 16

8221