

OPEN SPACE LOT 8
V.O.L.R. 3/2
PLATS 9191 & 9192
ZONED: NTSFA

OPEN SPACE LOT 7
V.O.L.R. 3/2
PLAT 8576
ZONED: NT

OPEN SPACE LOT 5
V.O.L.R. 3/2
PLAT 8111
ZONED: NT

HOWARD RESEARCH DEVELOPMENT
L. 1835
F. 193
ZONED: NEWTOWN

V.O.L.R. 2/2
PLAT 7820
ZONED: NTSFMD

SCALE: 1" = 200'

DRAWING LIST	
NO.	DESCRIPTION
1	COVER SHEET
2	APRIL BROOK CIRCLE STA. 0+00-12+50
3	APRIL BROOK CIRCLE STA. 12+50-22+00
4	APRIL BROOK CIRCLE STA. 22+00-30+35.53
5	PAINTED YELLOW GATE
6	BROKEN WING COURT & TWENTY YEAR CHASE
7	DEER SEASON RUN
8	BIRD RACE
9	THREE APPLE DOWNS
10	SOFT THUNDER TRAIL STA. 0+00-5+50
11	SOFT THUNDER TRAIL STA. 5+50-10+80.81
12	BURNT MOUNTAIN PATH STA. 0+00-7+00
13	BURNT MOUNTAIN PATH STA. 7+00-12+37.40
14	CANYON HEAD LANE
15	GRAY SEA WAY
16	DRIED EARTH BOULEVARD
17	PAVING DETAILS
18	STORM DRAIN PROFILES, CONCRETE RAMP DETAILS
19	STORM DRAIN PROFILES
20	STORM DRAIN PROFILES & STRUCTURE SCHEDULE
21	STORM DRAIN PROFILES
22	STORM DRAIN & WATER QUALITY FACILITY PROFILES
23	WATER QUALITY FACILITY PROFILES
24	S.W.M. POND NO. 1 AND POND SPECIFICATIONS
25	S.W.M. POND NO. 4 DETAILS
26	S.W.M. POND NO. 3 DETAILS
27	S.W.M. POND NO. 2 DETAILS
28	DRAINAGE AREA MAP (NORTH HALF)
29	DRAINAGE AREA MAP (SOUTH HALF)
30	SEDIMENT, EROSION CONTROL & GRADING PLAN
31	SEDIMENT, EROSION CONTROL & GRADING PLAN
32	SEDIMENT, EROSION CONTROL & GRADING PLAN
33	SEDIMENT, EROSION CONTROL & GRADING PLAN
34	SEDIMENT, EROSION CONTROL & GRADING PLAN
35	SEDIMENT, EROSION CONTROL DETAILS
36	WATER QUALITY & S.W.M. POND LANDSCAPE PLAN
37	SOIL BORING LOGS

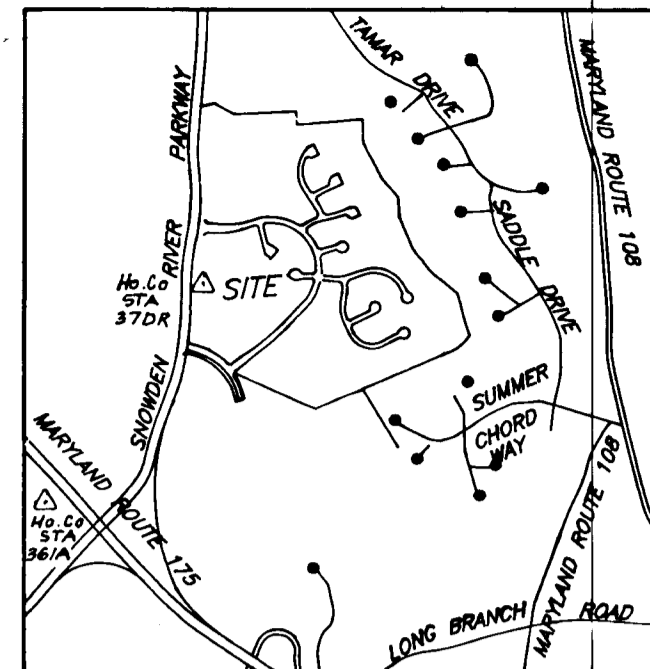
STREET LIGHT SCHEDULE				
SHEET NO.	STREET NAME	@ STATION	OFFSET	TYPE
2	APRIL BROOK CIRCLE	2+35	38'R	TYPE 2
2	APRIL BROOK CIRCLE	8+20	22'R	TYPE 3
2	APRIL BROOK CIRCLE	8+90	22'L	TYPE 3
2	APRIL BROOK CIRCLE	11+28	22'L	TYPE 3
3	APRIL BROOK CIRCLE	14+38	22'L	TYPE 3
3	APRIL BROOK CIRCLE	16+87	22'L	TYPE 3
3	APRIL BROOK CIRCLE	20+00	23'L	TYPE 2
4	APRIL BROOK CIRCLE	22+47	23'R	TYPE 2
4	APRIL BROOK CIRCLE	27+80	20'L	TYPE 2
7	DEER SEASON RUN	0+24	20'R	TYPE 3
7	DEER SEASON RUN	2+22	18'R	TYPE 3
7	DEER SEASON RUN	6+65	10'L	TYPE 3
10	SOFT THUNDER TRAIL	2+32	18'R	TYPE 3
11	SOFT THUNDER TRAIL	6+54	16'L	TYPE 3
11	SOFT THUNDER TRAIL	10+01	16'L	TYPE 3
12	BURNT MOUNTAIN PATH	5+22	20'L	TYPE 3
13	BURNT MOUNTAIN PATH	8+48	16'R	TYPE 3
13	BURNT MOUNTAIN PATH	12+21	0'	TYPE 3
15	GRAY SEA WAY	1+97	18'R	TYPE 3
16	SNOWDEN RIVER PKWY	18+08	52'R	TYPE 1
16	DRIED EARTH BLVD	8+00	27'L	TYPE 2
16	DRIED EARTH BLVD	6+41	22'L	TYPE 2 (Angle Arm 45°)

GENERAL NOTES:

- Topography and existing centerline grades on street profiles, grades right and left of centerline shown hereon is from aerial survey by Maps, Inc. supplemented by field survey by Clark, Finefrock & Sackett, Inc., November 1993.
- Minimum building setback restrictions from property lines & the right-of-way of any public road will be in accordance with the final Development Plan Ordinance Phase 216, recorded as Plat No. 3054-A Sheets 1463 thru 1468.
- Wetlands shown have been determined by field delineation by Klode Consultants and surveyed by Fisher, Collins and Carter and by field delineation by GTA and surveyed by Gutschick, Little & Weber.
- Noise study prepared by Wildman Environmental.
- Geotechnical report prepared by Robert B. Butler, Inc.
- Public water and sewer to be utilized. (Dorsey Drainage Area) Site is in Metropolitan District.
- Horizontal and vertical control based on No. Co. control station 36 IA Elev. 400.81 and 370R Elev. 380.34.
- Existing utilities were located by field survey and available records.
- Floodplain study for tributaries to Dorsey Run prepared by Clark, Finefrock & Sackett, Inc. Floodplain study for Dorsey Run taken from previously approved study by Perdum & Jeschke, dated March 1987.
- See previously approved plans F-90-53 for improvements to southbound lane of Snowden River Parkway.
- Traffic study prepared by Wells & Associates, dated July 20, 1993.
- See soil map #25.
- No slopes of 25% or greater that are a contiguous area of 20,000 S.F. exist on site.
- See County File Nos. S-93-16, F-90-53, F-94-1G, Ord. Ref. L.1835 F.108, S0P 93-107 (TOT LOT)
- All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications, if applicable.
- The contractor shall notify the Department of Public Works/Bureau of Construction Inspection at least five (5) days prior to the start of work; 110-9 918-1882.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work.
- Types of storm drainage refer to the standard details of Howard County and MDSA.
- Trench compaction for storm drains within roads and street right-of-ways limits shall be in accordance with Howard County Design Manual, Volume IV, Standard G-2.01.
- Information concerning underground utilities was obtained from available records, but the contractor must determine the exact location and elevation of mains by digging test pits, by hand, at all utility crossings, well in advance of construction.
- Sag and Crest Vertical Curves were designed in accordance with "Howard County Design Manual", Vol. III.
- Concrete sidewalk ramps shall be provided at all intersections and as indicated on the plans. The ramp shall meet the latest handicap code and shall be constructed in accordance with details shown on sheet 10.
- Plan subject to Army Corps of Engineers Permit 24-NY-0527.
- Street trees shown are tentative and are to be used for bond purposes only. The final location and variety of trees may vary to accommodate field conditions and builders landscape program. Bond release is contingent upon section 18.124 of the Howard County Code and Landscape Manual. Financial surety for the required 382 trees in the amount of \$25,000 shall be part of the Developers Agreement.
- See sheet 36 for street tree detail.
- Water and Sewer construction for this subdivision to be in accordance with Howard County DPW Contract No. 24-3355-D.
- For Bench Mark Information see General Note No. 7 above and sheets 9, 12 & 13.
- All traffic control signs shall be in accordance with the Manual on Uniform Traffic Control Devices.
TYPES:
a: Stop Signs R1-1, 30"x30" octagon
b: Stop Ahead Signs, R3-1A, 30"x30" diamond
c: Speed Limit Signs R2-1, 24"x30" rectangular
- Street Trees shall be planted a minimum of 5 feet from storm drain, water line or sewer pipe manholes; also a minimum of 20 feet from street lights.
- All fill areas shall be 95% compaction as determined by AASHTO T-100 or other compaction specifications allowed by the Howard County Specifications.

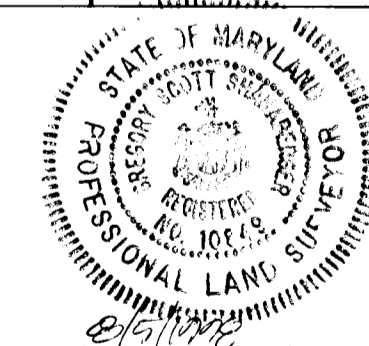
STREET LIGHT INFORMATION

- TYPE 1 - 250 watt high pressure sodium vapor cobra fixture (arm) with cut-off optics mounted at 30' on a brown metallic steel pole with breakaway transformer base with a 15' arm.
- TYPE 2 - 150 watt high pressure sodium vapor pendant fixture (bracket) mounted at 30' on a bronze aluminum embossed pole with a 6' arm. Place 4' from face of curb.
- TYPE 3 - 100 Watt high pressure sodium vapor Modern Post top fixture (trunche) mounted on a 14' bronze fiberglass embedded pole. Place 3' from face of curb.



VICINITY MAP

SCALE: 1" = 2000'



G. Scott Shanaberger
PROFESSIONAL LAND SURVEYOR
STATE OF MARYLAND
LICENSE NO. 10849
7726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21143

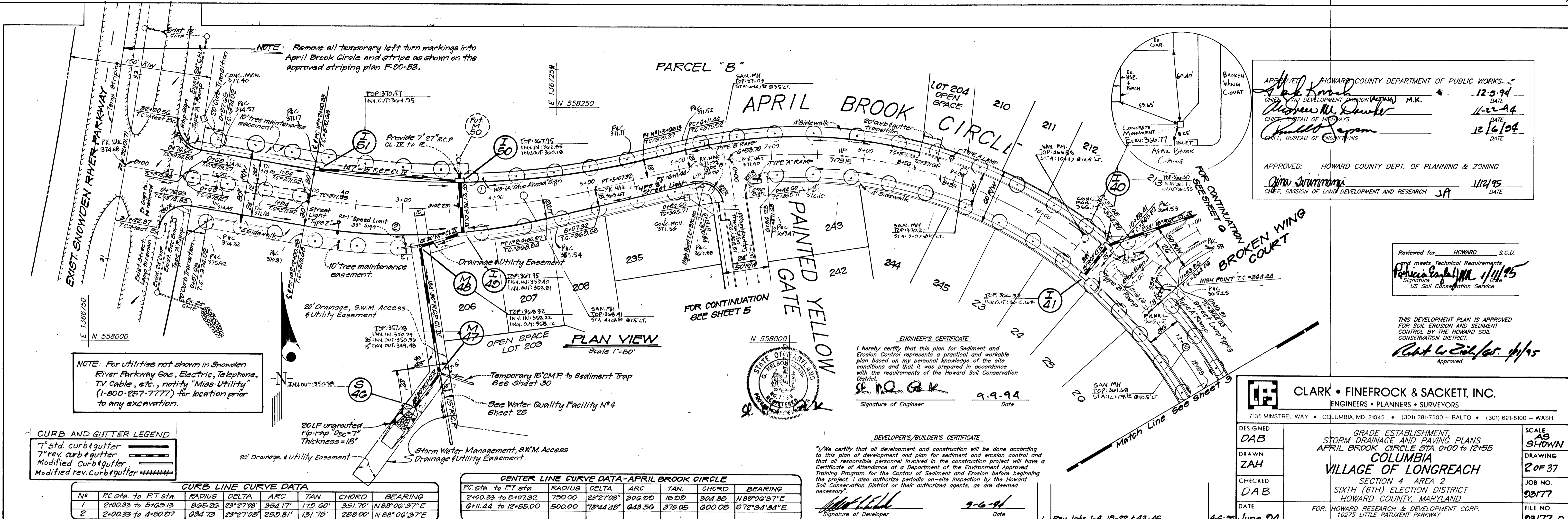
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
12.5.94
DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
1/2/95
DATE



CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	COVER SHEET COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DRAWN ZAH		DRAWING 10#37
CHECKED DAB	JOB NO. 03177	FILE NO. 03177-D
DATE Aug. 94	OWNER: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS...
 Chief, Development Division (Highways) M.K. 12-5-94
 Chief, Bureau of Highways 11-22-94
 Chief, Bureau of Engineering 12-16-94

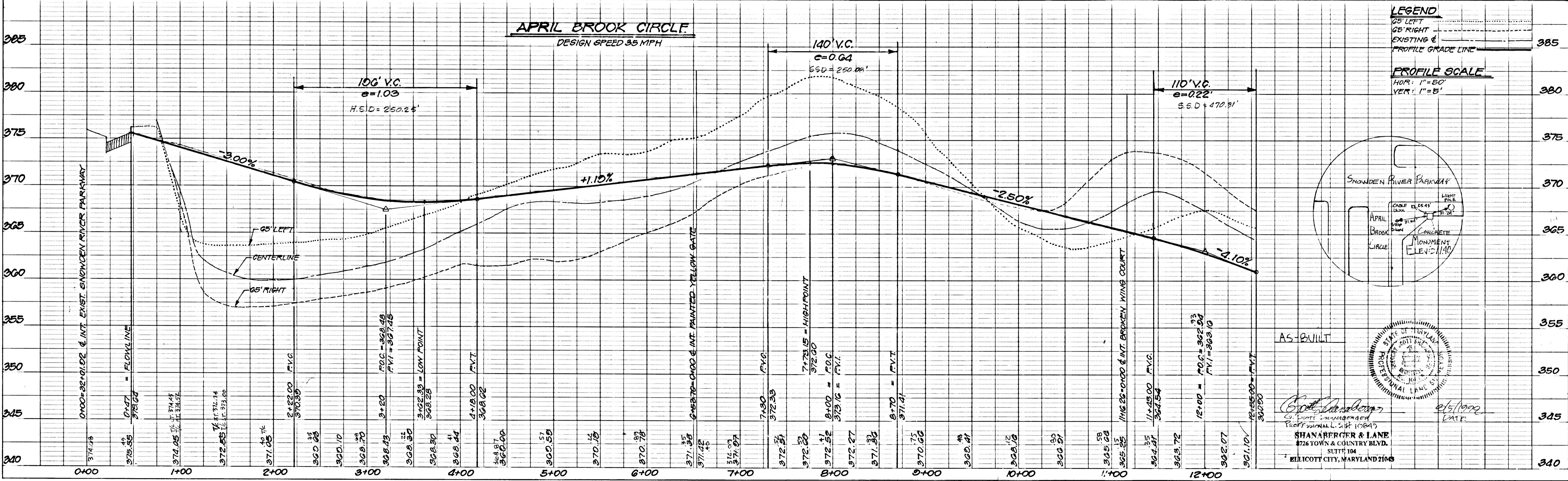
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 Chief, Division of Land Development and Research J.A. 11/21/95

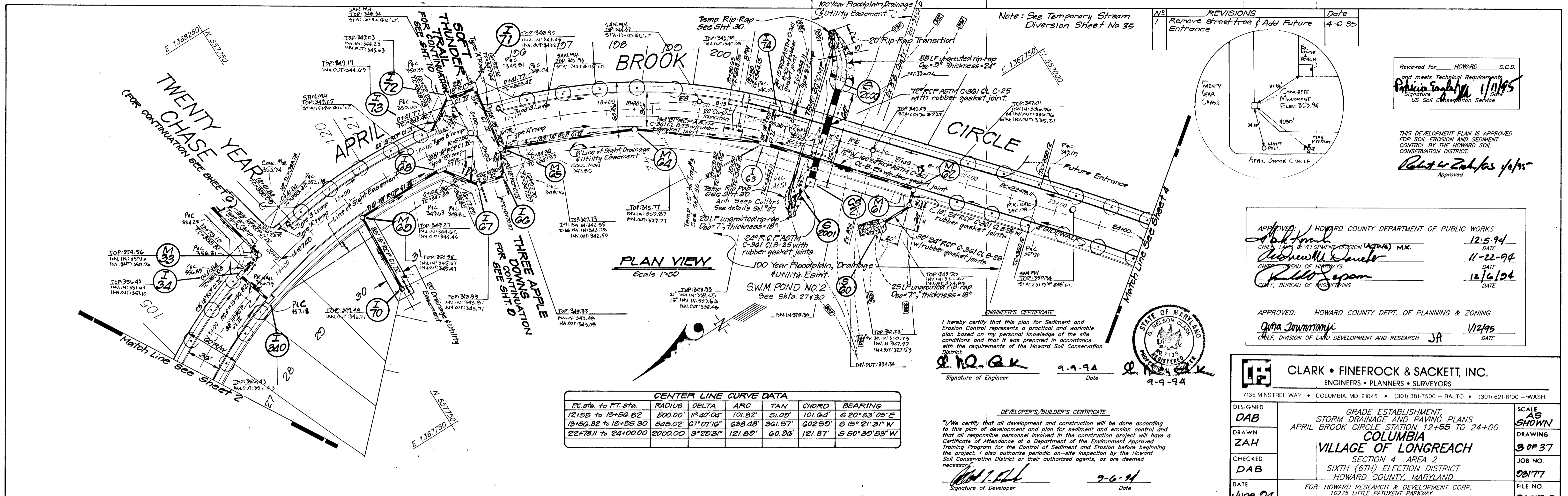
Reviewed for HOWARD S.C.D. and meets Technical Requirements
 Patricia Engelhardt 4/1/95
 US Soil Conservation Service

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

CLARK • FINEROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH.

DESIGNED DAB	GRADE ESTABLISHMENT AND PAVING PLANS APRIL BROOK CIRCLE STA. 0+00 TO 12+55 COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATRIOT PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN
DRAWN ZAH		DRAWING 2 OF 37
CHECKED DAB		JOB NO. 03177
DATE June 94		FILE NO. 03177-D



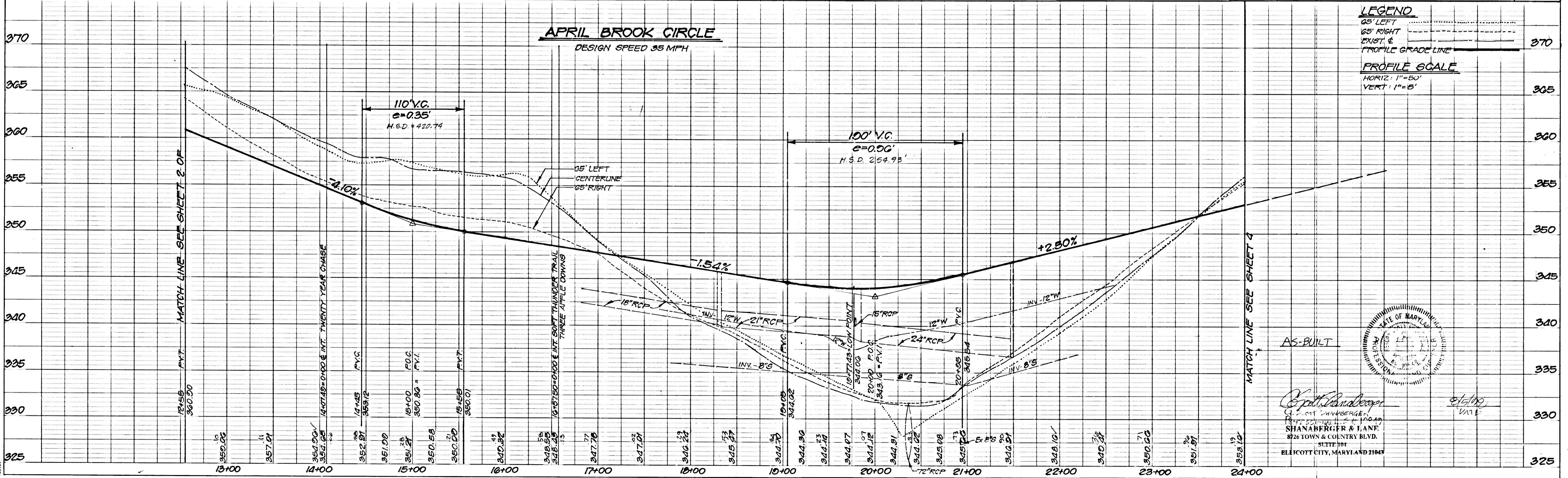


CENTER LINE CURVE DATA

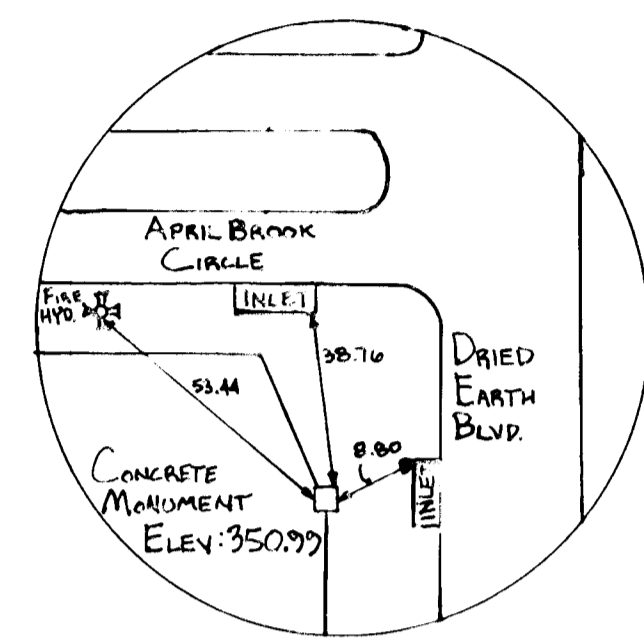
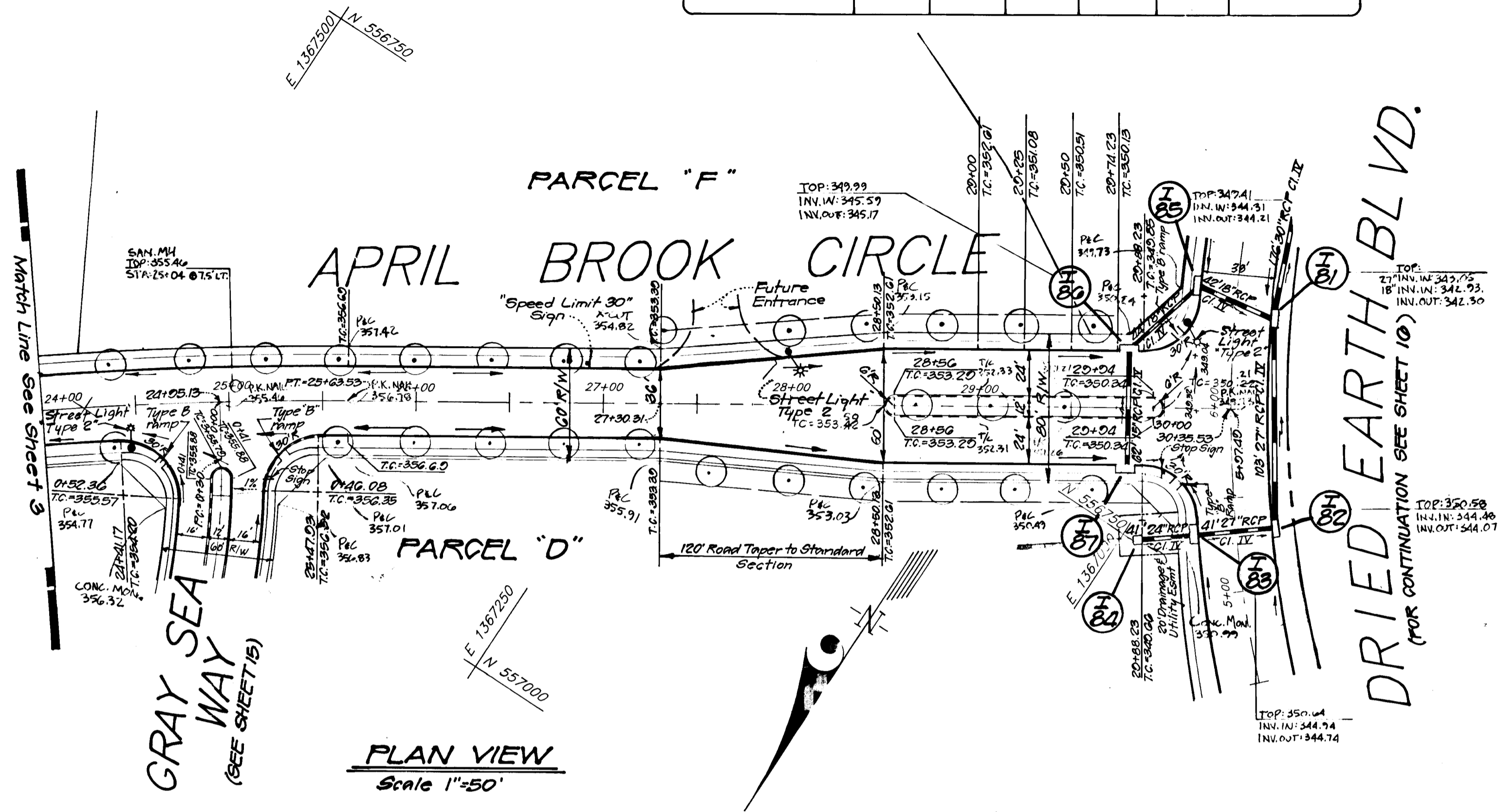
P.C. Sta. to P.T. Sta.	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
12+55 to 13+52.82	500.00'	11°40'04"	101.82'	51.00'	101.04'	S 20°53'05"E
13+52.82 to 19+25.90	545.02'	67°07'16"	638.48'	261.57'	602.55'	S 15°21'31"W
22+78.11 to 24+00.00	2000.00'	3°29'31"	121.89'	60.98'	121.87'	S 50°30'53"W

CLARK • FINEROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS APRIL BROOK CIRCLE STATION 12+55 TO 24+00 COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATIENT PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN
DRAWN ZAH		3 OF 37
CHECKED DAB		JOB NO. 03177
DATE June 94		FILE NO. 03177-D



CENTER LINE CURVE DATA						
PC STA. TO PT. STA.	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
24+00 TO 25+63.53	2000.00	4° 31' 05"	163.53	81.81'	163.48	8.87° 31' 21" W.

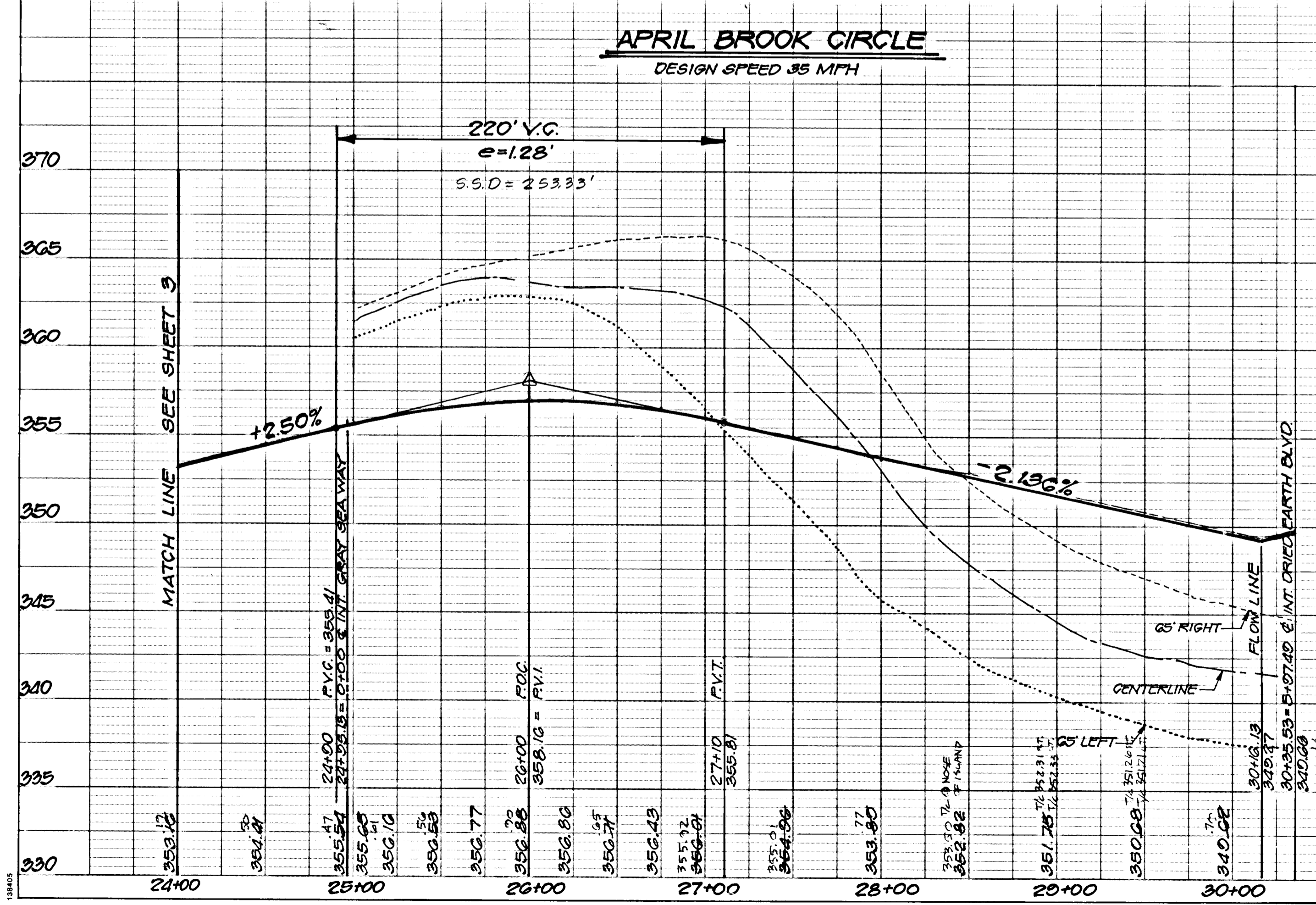


NO	REVISIONS	DATE
1	Relocated Street Light and Speed Limit Sign	4-6-95

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Shab Kneib CHIEF, LAND DEVELOPMENT DIVISION (MCM) M.K. 12-5-94
Andrew M. Sackett CHIEF, BUREAU OF HIGHWAYS 11-22-94
Donald Sapon CHIEF, BUREAU OF ENGINEERING 12/6/94
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Anna Drummond CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH JA 1/12/95

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8700 - WASH

DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS APRIL BROOK CIRCLE STA. 24+00 TO 30+35.53 COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DRAWN ZAH		DRAWING 4 OF 37
CHECKED DAB		JOB NO. 93177
DATE June 94		FILE NO. 93177-D
		FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044

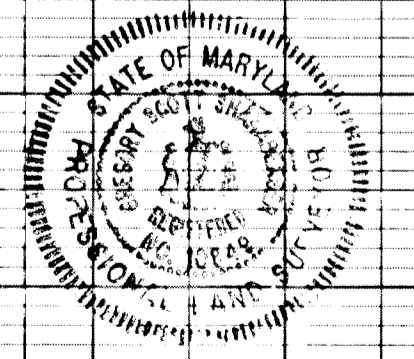


LEGEND
 65' LEFT
 65' RIGHT
 EXIST. G.
 PROFILE GRADE LINE

PROFILE SCALE
 HORIZ. 1"=50'
 VERT. 1"=5'

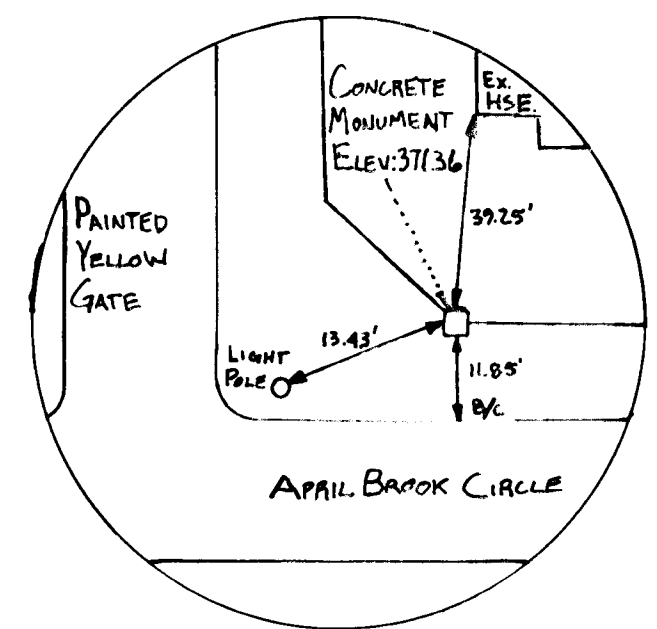
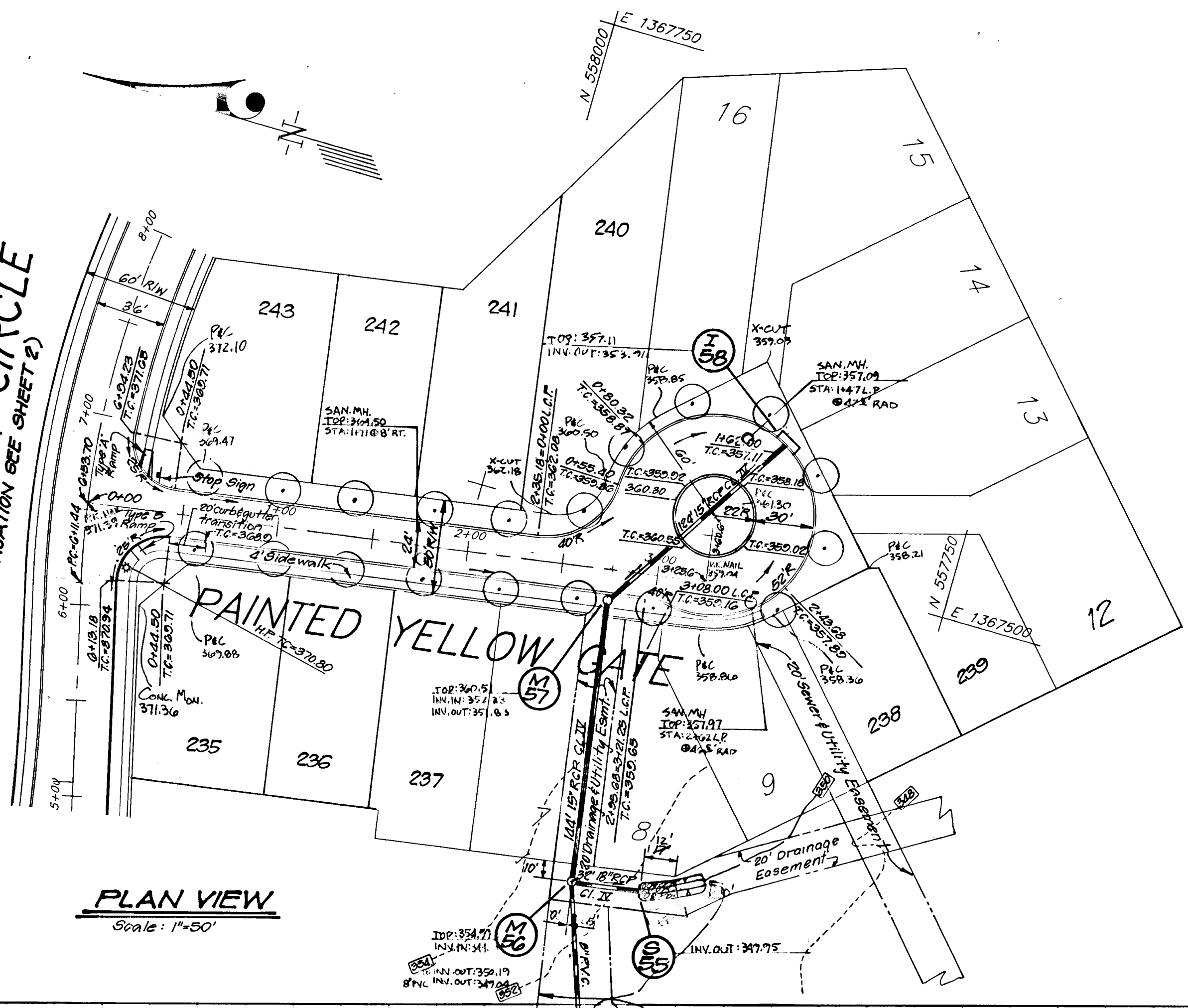
AS-BUILT

Scott Anderson
 SHANAN FRIEGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043



NO	REVISIONS	Date
1	Revise lots 4-6, 10-11 & 17-20	4-6-95

APRIL BROOK CIRCLE
(FOR CONTINUATION SEE SHEET 2)



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Mark Kuciel M.E. 12-5-94
 CHIEF, LAND DEVELOPMENT DIVISION (H&P)
 DATE
Robert M. Sauer M.E. 11-22-94
 CHIEF, BUREAU OF HIGHWAYS
 DATE
Samuel Sapon M.E. 10/6/94
 CHIEF, BUREAU OF ENGINEERING
 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Ana Drummond 1/12/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
 DATE



ENGINEER'S CERTIFICATE
 I hereby certify that this plan for Sediment and Erosion 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.
Robert M. Sauer 9-9-94
 Signature of Engineer Date

Reviewed for HOWARD S.C.D.
 and meets Technical Requirements
Patricia Engle 1/14/95
 Signature Date
 US Soil Conservation Service

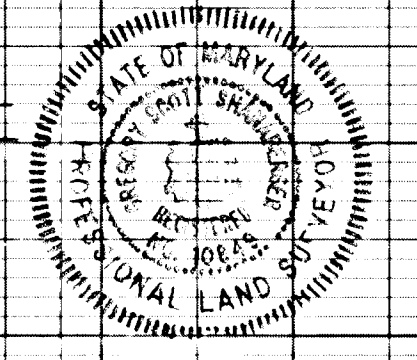
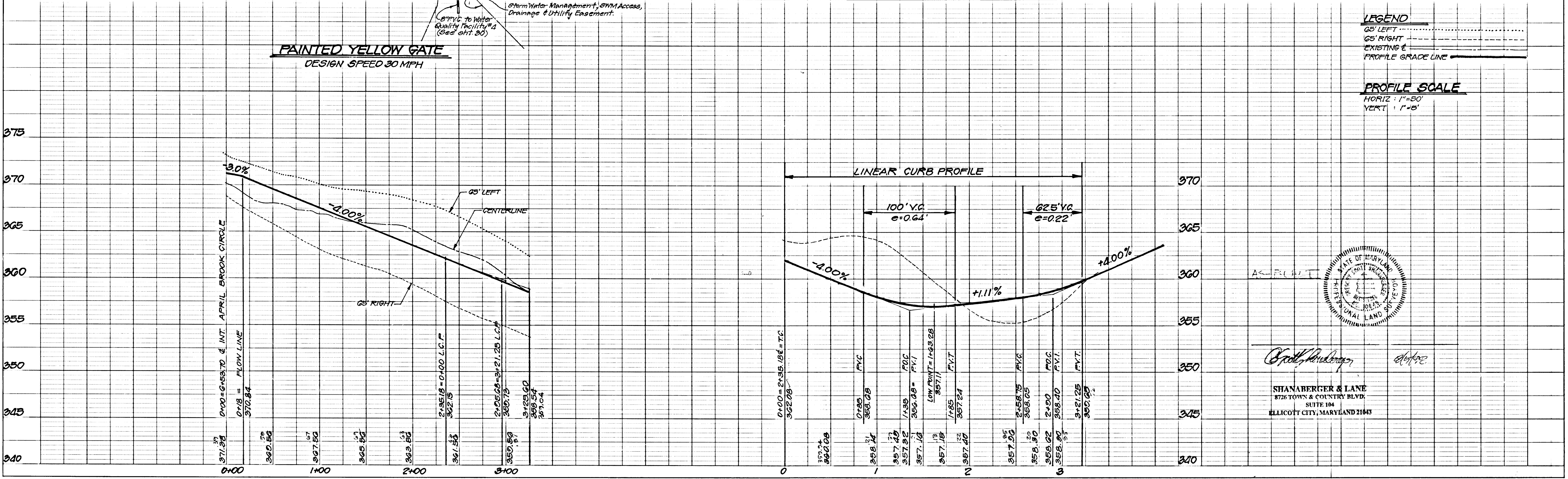
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert M. Sauer 1/14/95
 Approved

DEVELOPER'S/BUILDER'S CERTIFICATE
 I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 or their authorized agents, as are deemed necessary.
William I. ELL 9-9-94
 Signature of Developer Date

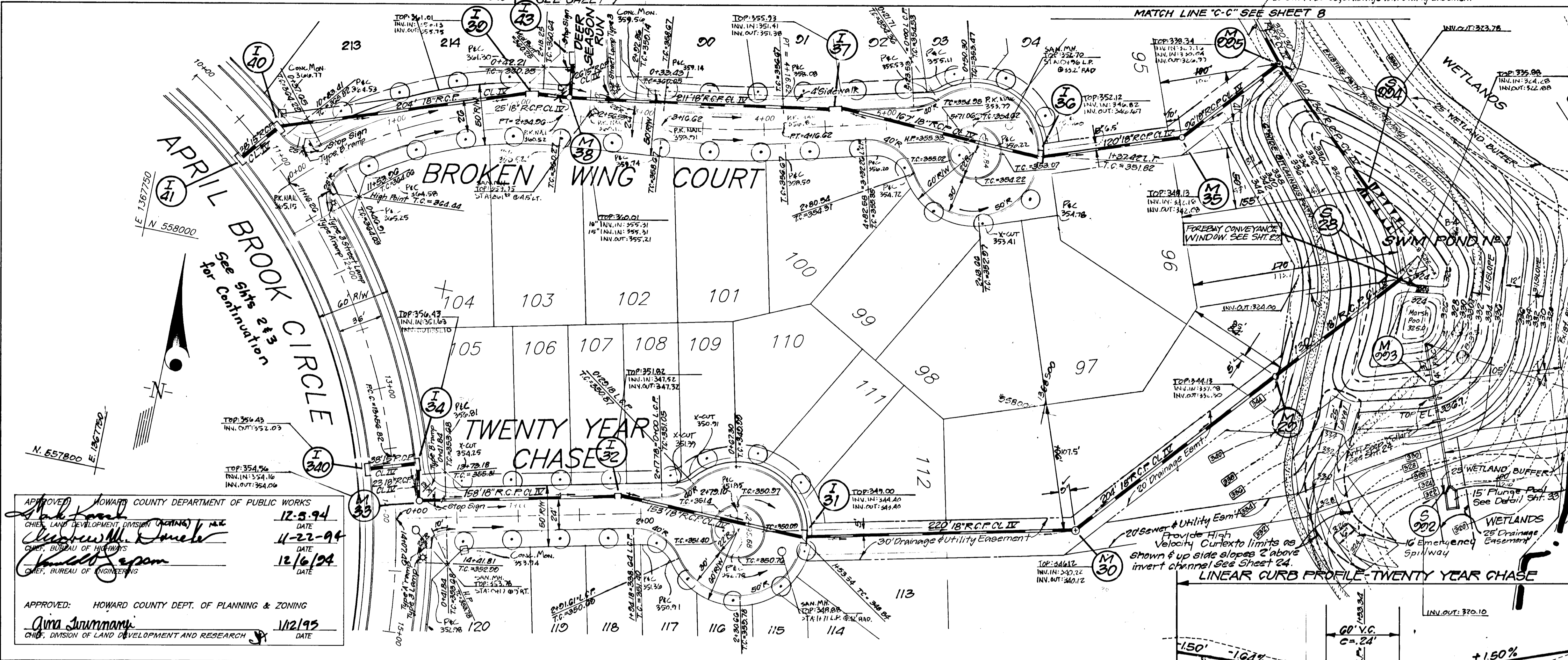
CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH.

DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS PAINTED YELLOW GATE	SCALE AS SHOWN
DRAWN ZAH	COLUMBIA VILLAGE OF LONGREACH	DRAWING 5 of 37
CHECKED DAB	SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 03177
DATE June 94	FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	FILE NO. 03177-D

PAINTED YELLOW GATE
DESIGN SPEED 30 MPH

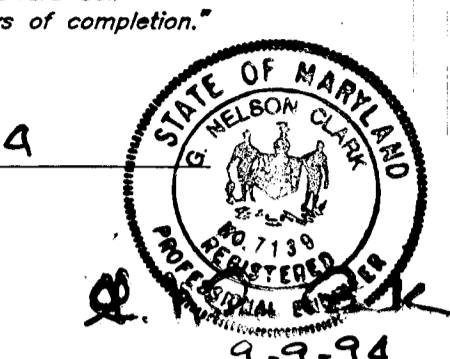


Robert M. Sauer
 SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043



PC STA. to PT. STA.	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
0+00 to 2+34.06	935.00'	40°11'11"	234.06'	122.55'	230.18'	N64°10'31"E
3+10.62 to 4+16.62	648.52'	85°07'17"	100.00'	50.10'	00.00'	N80°00'00"E

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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.



Signature of Engineer
Q. Q. Q. K.
Date 9-9-94

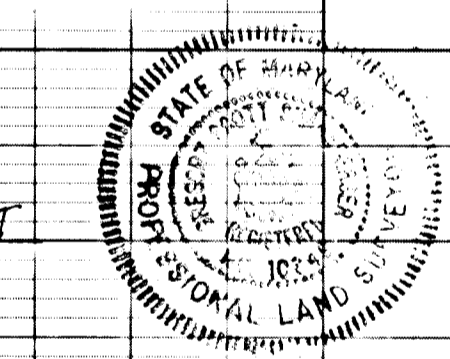
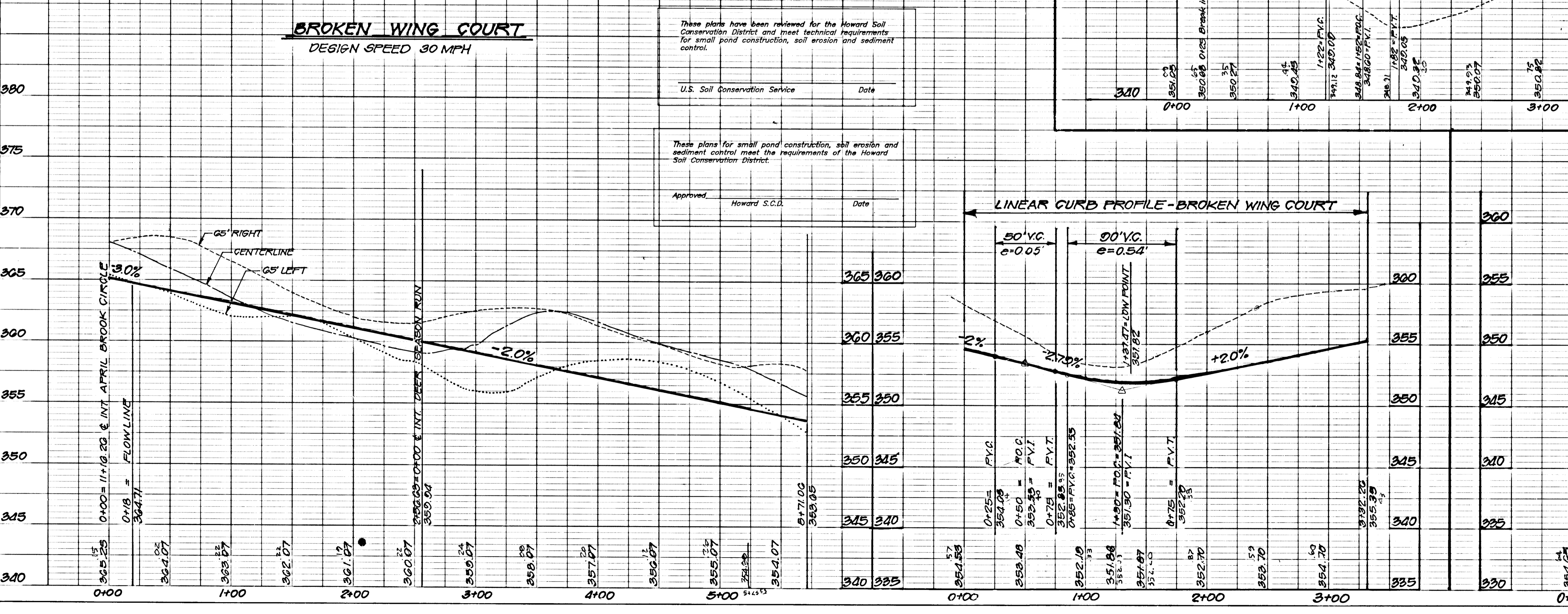
By the Developer:
I/we certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance of a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Signature of Developer
M. L. Hill
Date 9-6-94

Rev. Enkamat to High Velocity Curlex
Rev. lots 46 & 47, Add Plunge Pool, Remove Rip Rap 4 & 95
REVISIONS
NS

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINTREL WAY • COLUMBIA MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

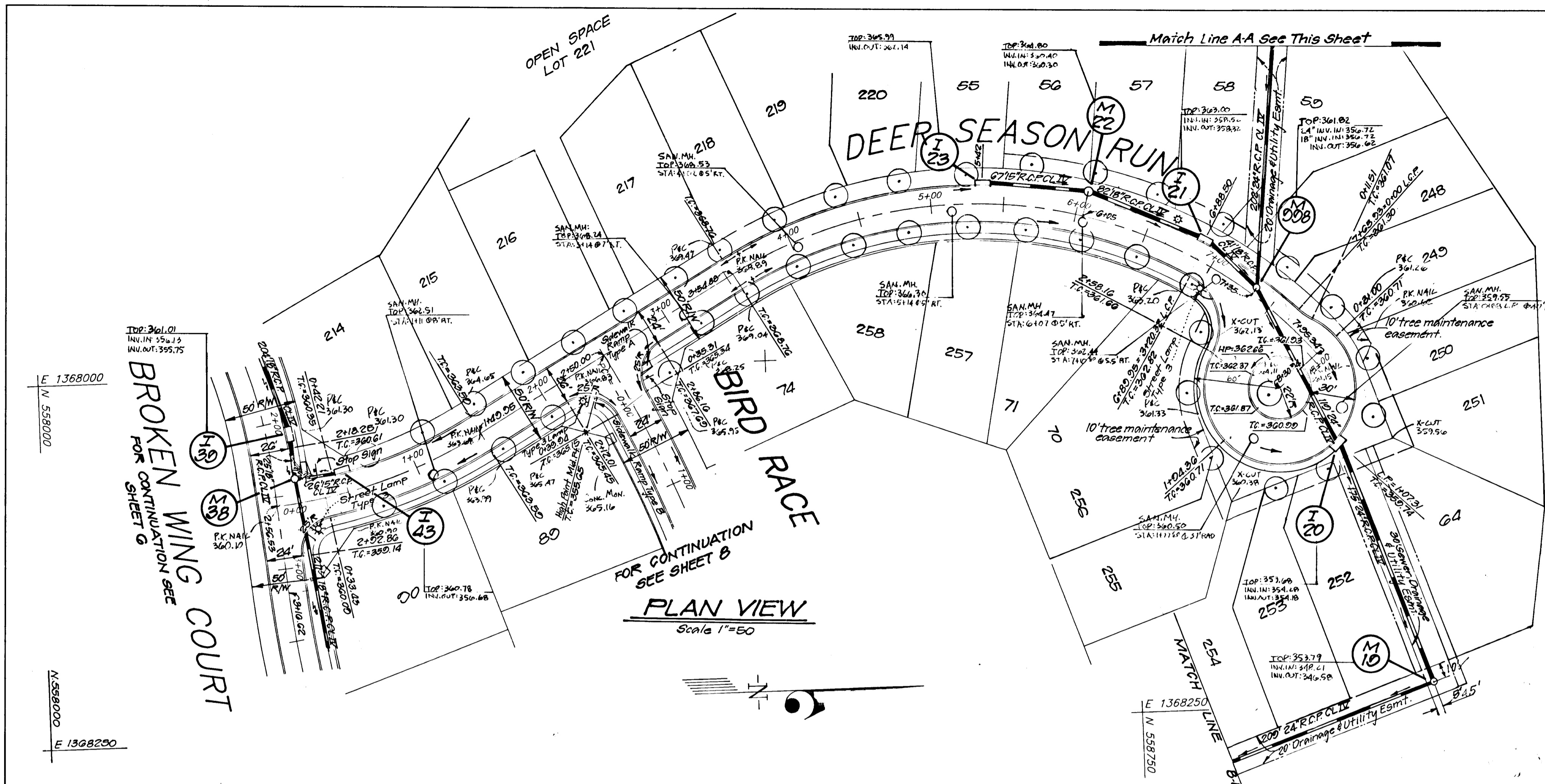
DESIGNED DAB	GRADE ESTABLISHMENT STORM DRAINAGE AND PAVING PLANS BROKEN WING COURT & TWENTY YEAR CHASE COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN DRAWING C of 37 JOB NO. 03177 FILE NO. 03177-D
DRAWN ZAH		
CHECKED DAB		
DATE June 04		



Signature of Engineer
Shana Berger & Lane
Date 6/4/92

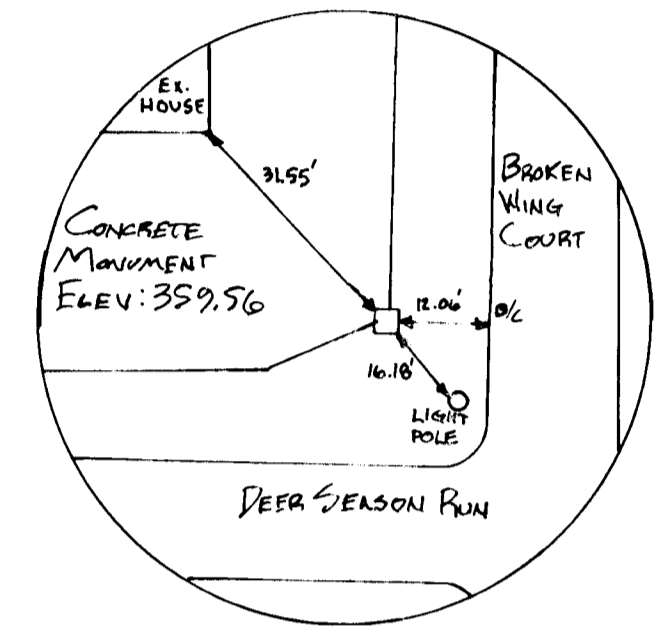
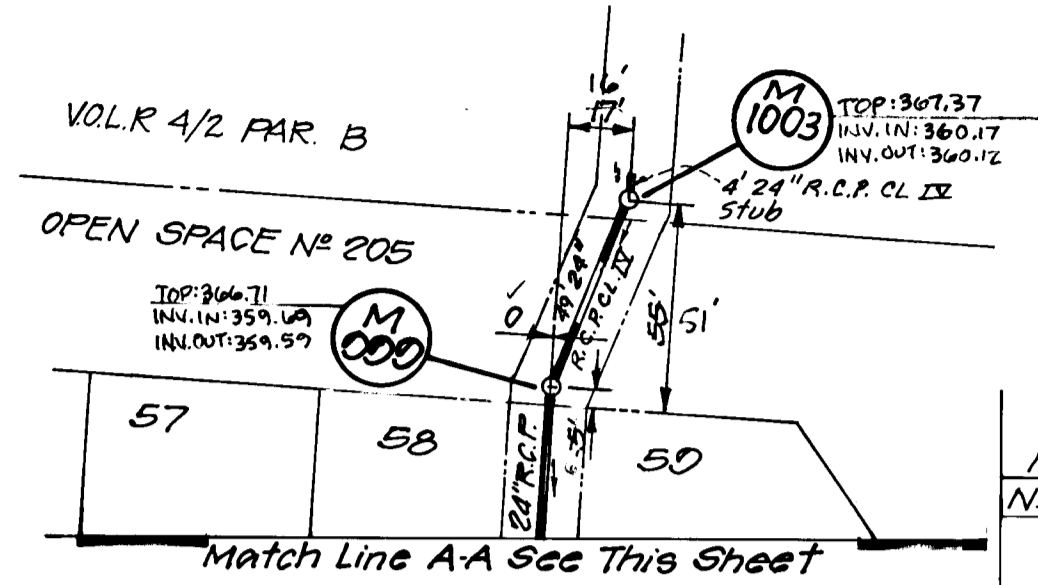
SHANA BERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 103
BELLICOTT CITY, MARYLAND 21043

100



CENTER LINE CURVE DATA - DEER SEASON RUN

PC Sta to FT Sta	RADIUS	DELTA	ARC TAN.	CHORD BEARING
0+00 to 1+43.55	250.00'	24°32'49"	145.05'	76.11'
3+54.88 to 7+25.24	316.00'	70°51'44"	440.46'	204.50'
				405.66'



1 Rev. lots 47-54, 60-63, 65-69, 72 & 73

4-6-95

REVISION

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Mark Knoch CHIEF, LAND DEVELOPMENT DIVISION (A/C/16) M.K. 12-5-94

Andrew M. Daniels CHIEF, BUREAU OF HIGHWAYS 4-22-94

Sheld Sporn CHIEF, BUREAU OF ENGINEERING 12/6/04

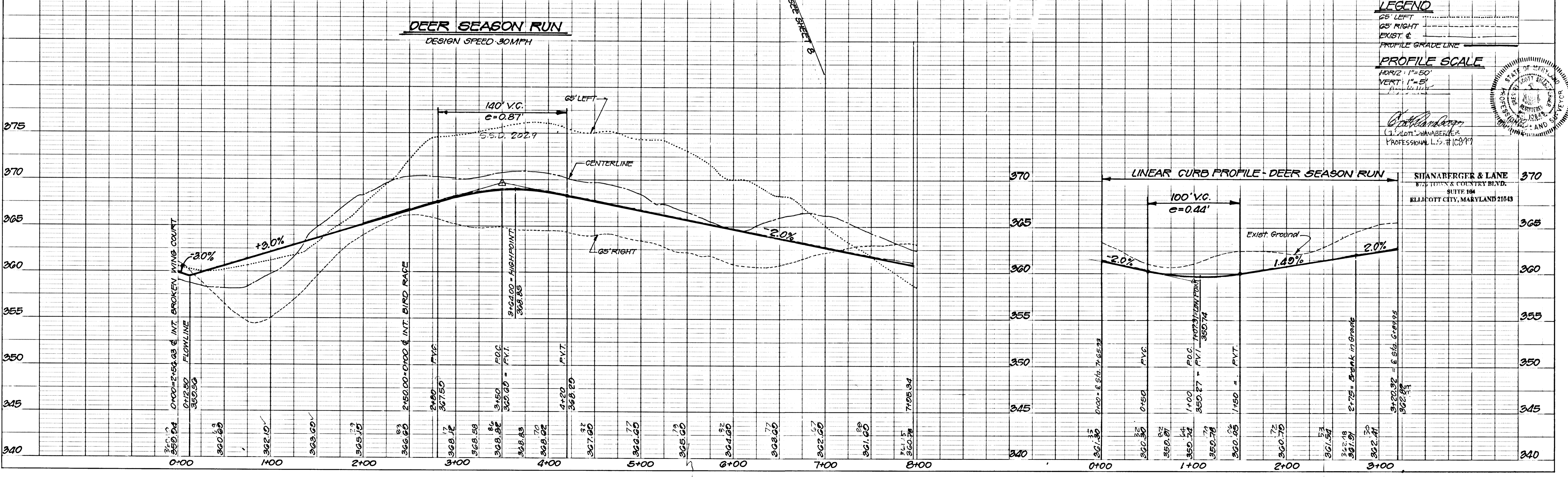
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

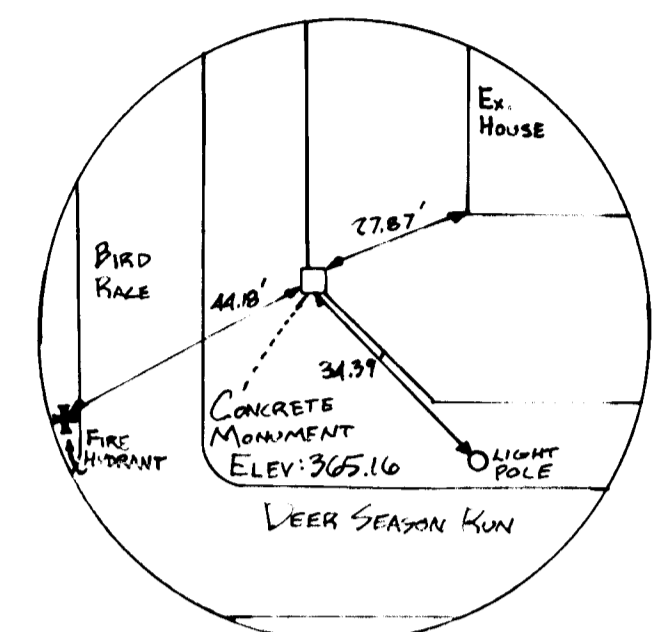
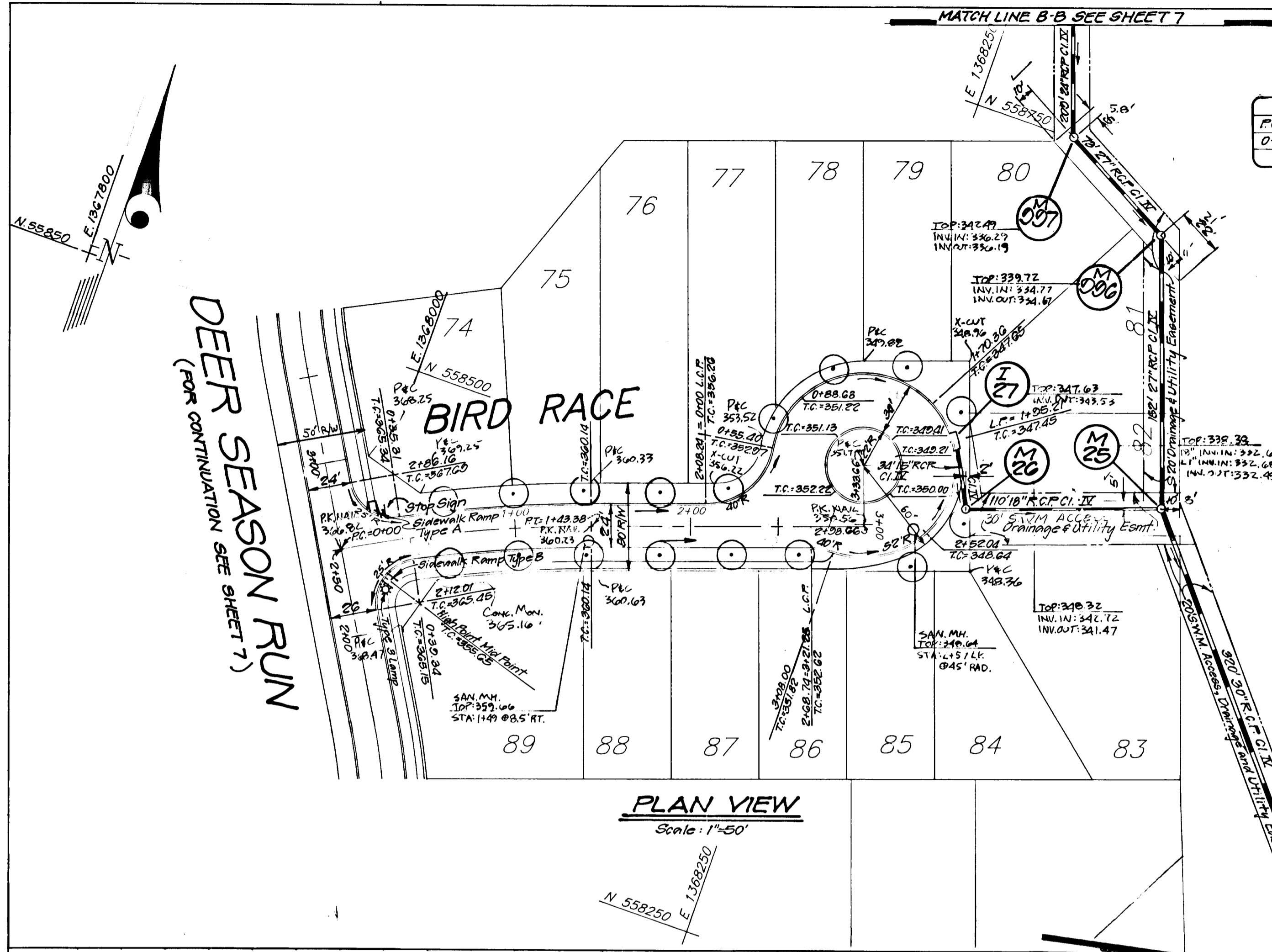
Quira Swannamy CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH 1/12/95

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS

7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS DEER SEASON RUN COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DRAWN ZAH		70#37
CHECKED DAB		JOB NO. 03177
DATE June 04		FILE NO. 03177-D
		FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATRIOT PARKWAY COLUMBIA, MARYLAND 21044



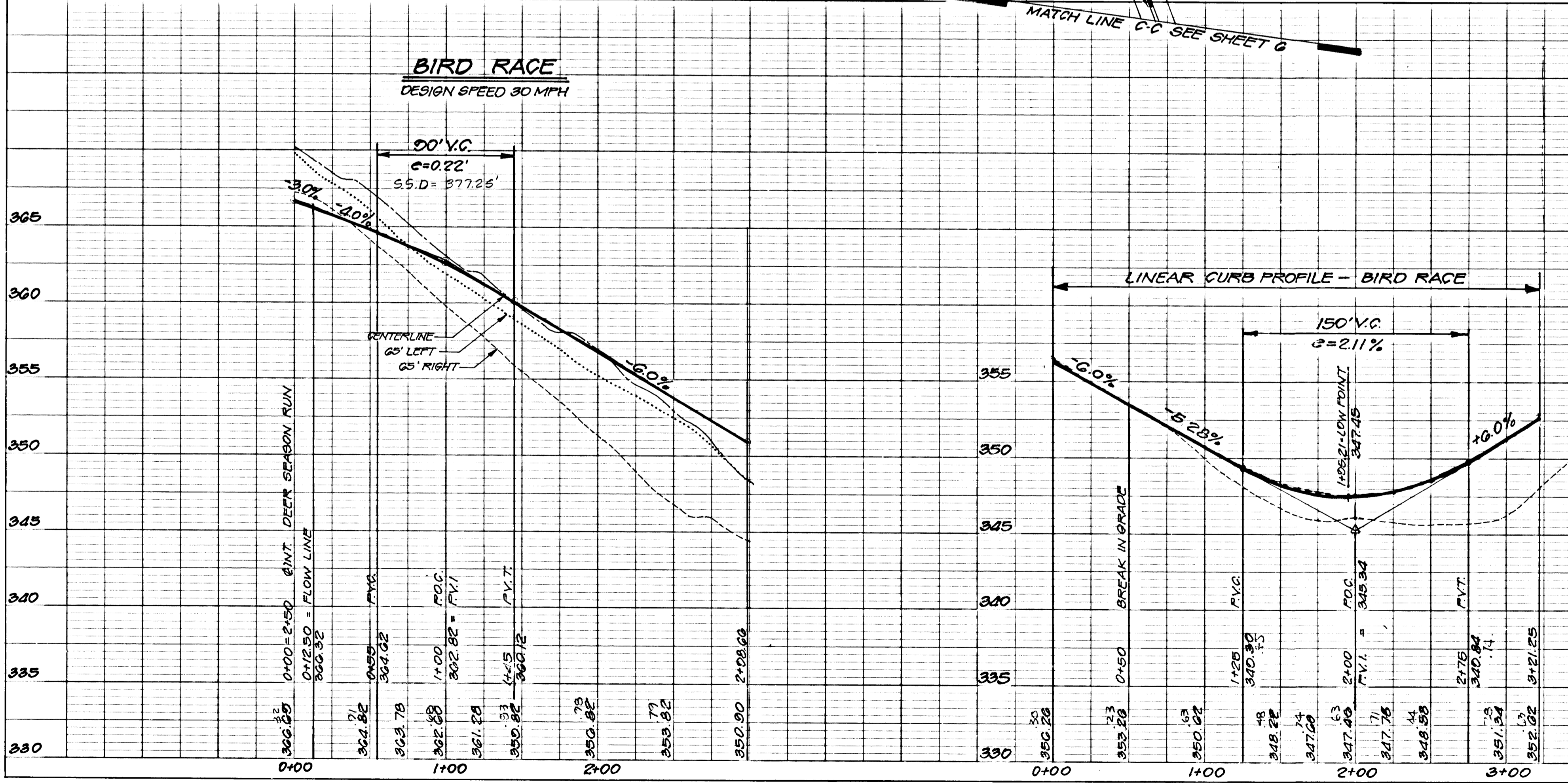


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Mark Kovalch CHIEF, LAND DEVELOPMENT DIVISION (ACTING) M.M. 12-5-94 DATE
Stephen M. Davelos CHIEF, BUREAU OF HIGHWAYS 11-22-94 DATE
Donald Eppson CHIEF, BUREAU OF ENGINEERING 12/6/94 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Gina Drummond CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH JA 1/12/95 DATE

CLARK • FINEROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS BIRD RACE COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN
DRAWN ZAH		DRAWING 80437
CHECKED DAB		JOB NO. 03177
DATE June 94		FILE NO. 03177-D



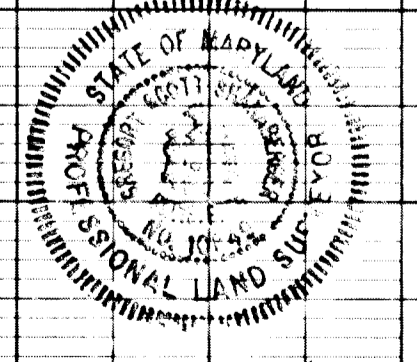
LEGEND
 GS' LEFT
 GS' RIGHT
 EXIST. E
 PROFILE GRADE LINE

PROFILE SCALE
 HORIZ: 1"=50'
 VERT: 1"=5'

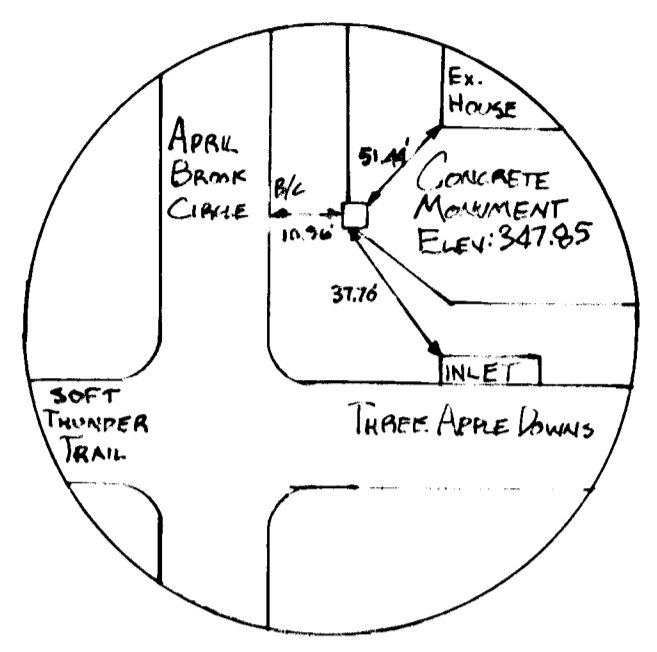
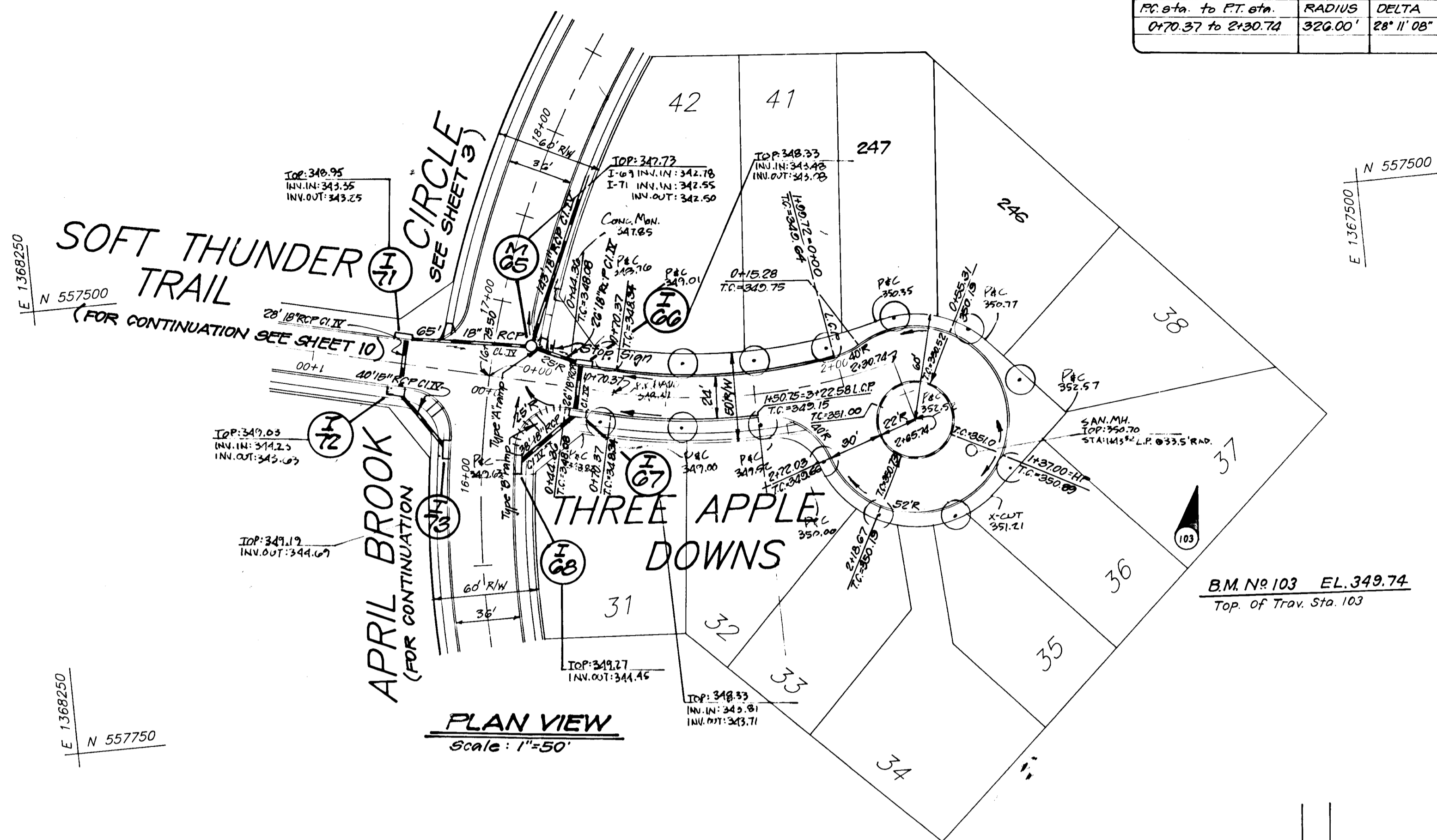
SHANBERGER & LANE
 3726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

AS-BUILT

Shan Berger
 SHANBERGER
 PROFESSIONAL L.S. #10049



CENTER LINE CURVE DATA - THREE APPLE DOWNS						
PC Sta. to PT Sta.	RADIUS	DELTA	ARC	TAN.	CHORD	BEARING
0+70.37 to 2+30.73	326.00'	28° 11' 08"	160.37'	81.84'	158.76'	S. 80° 18' 52" W



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John L. ... DATE 12-5-94
 CHIEF, LAND DEVELOPMENT DIVISION
Thomas M. ... DATE 11-22-94
 CHIEF, BUREAU OF HIGHWAYS
... DATE 12-16-94
 CHIEF, BUREAU OF ENGINEERING

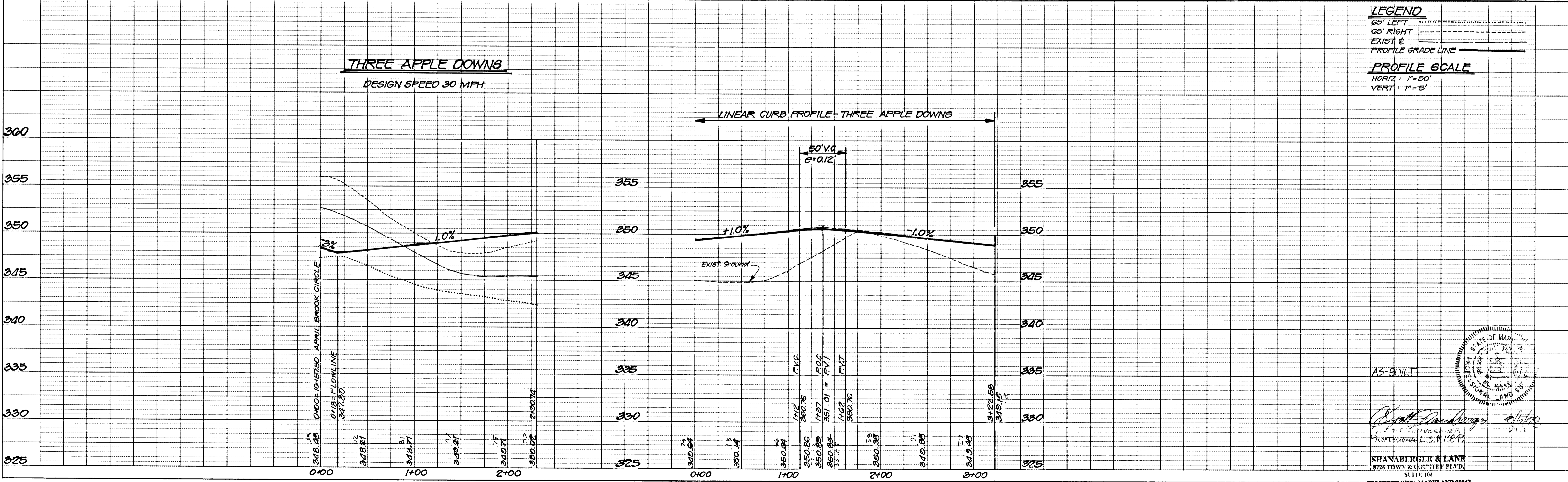
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Gina ... DATE 1/24/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH

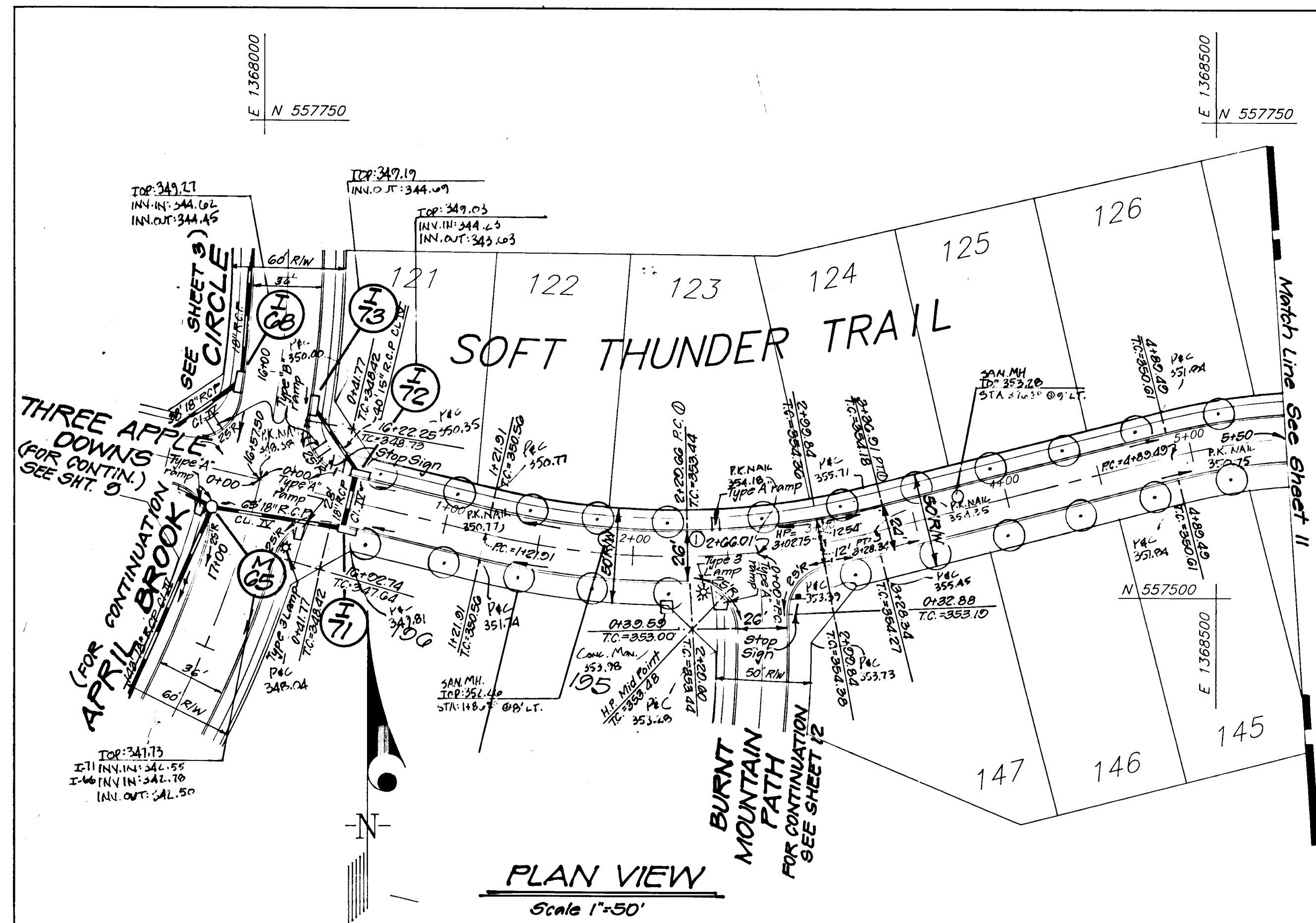
CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH.

DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS THREE APPLE DOWNS COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATRICK PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN
DRAWN ZAH		DRAWING 2 of 37
CHECKED DAB		JOB NO. 93177
DATE June 94		FILE NO. 93177-D



No.	Rev.	Street grad. elevations, lot lines lot No's 30 & 40	Date
1			4-6-95





CENTER LINE CURVE DATA - SOFT THUNDER TRAIL						
P.C. STA. TO P.T. STA.	RADIUS	DELTA	ARC	TAN.	CHORD	BEARING
1+21.91 to 3+28.34	425.00'	27°49'47"	206.43'	105.20'	204.41'	N. 83°29'23"E.
4+80.40 to 5+04.57	325.00'	83°45'17"	475.08'	251.37'	433.90'	S. 82°32'42"E.

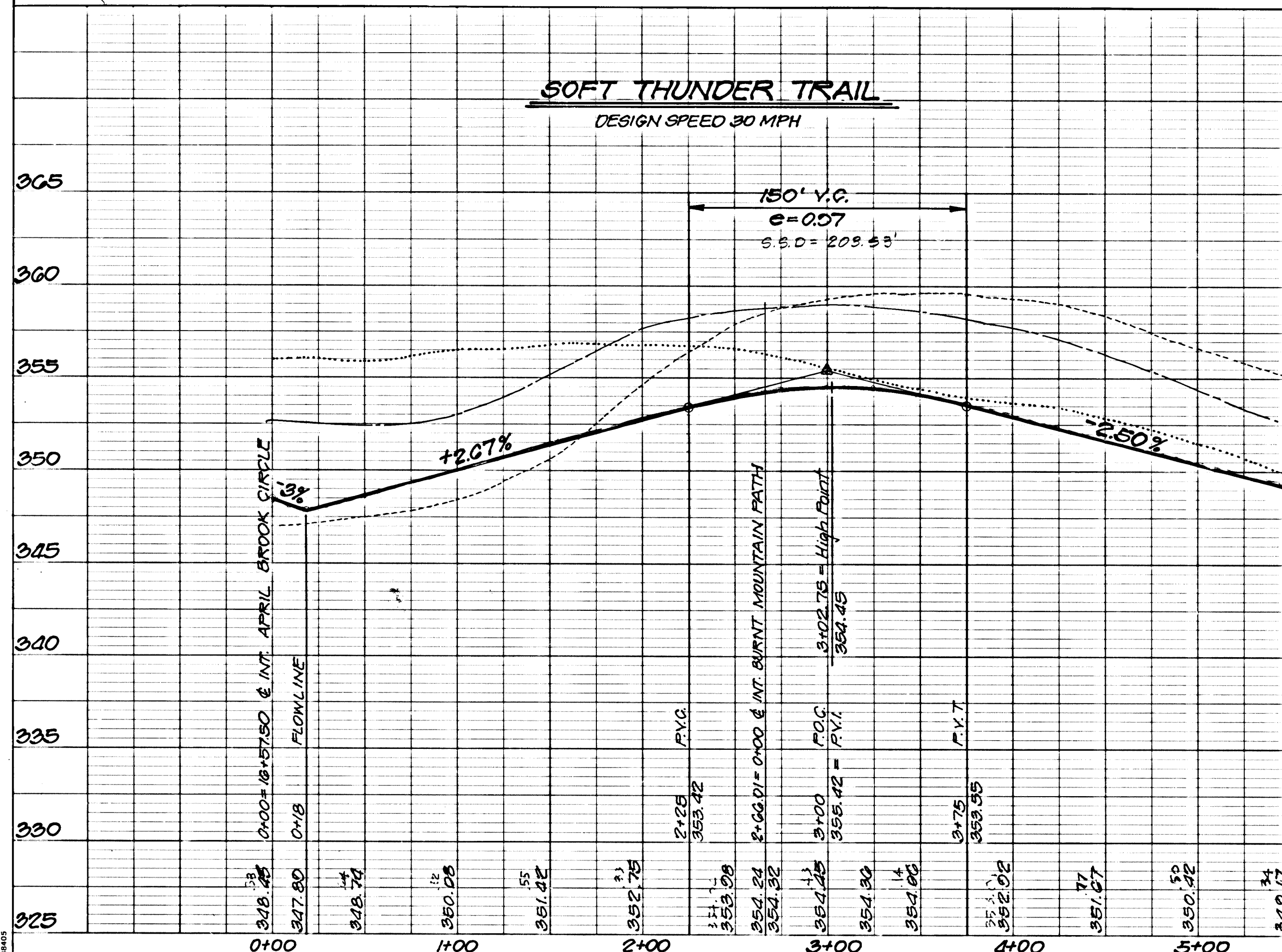
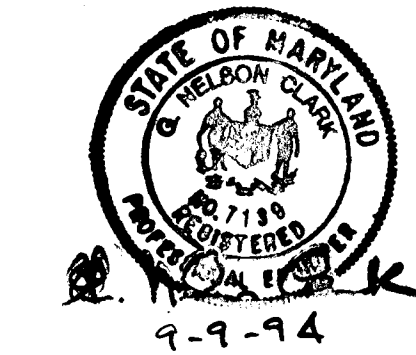
CURVE LINE CURVE DATA - LEFT SIDE							
STATION	P.C. STA. TO P.T. STA.	RADIUS	DELTA	ARC	TAN.	CHORD	BEARING
1	2+20.00 to 3+36.01	440.27'	10°18'13"	104.32'	52.30'	104.08'	N. 82°13'46"E.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John Koval CHIEF, LAND DEVELOPMENT DIVISION (ACTING) MAX DATE 12-5-94
Richard W. Lander CHIEF, BUREAU OF HIGHWAYS DATE 11-22-94
James J. Sporn CHIEF, BUREAU OF ENGINEERING DATE 12/6/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Gina Drummond CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH, JA DATE 1/2/95

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	GRADE ESTABLISHMENT STORM DRAINAGE AND PAVING PLANS SOFT THUNDER TRAIL STATION 0+00 TO 5+50 COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DRAWN ZAH		DRAWING 10 of 37
CHECKED DAB		JOB NO. 03177
DATE June 94		FILE NO. 03177-D
		FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044



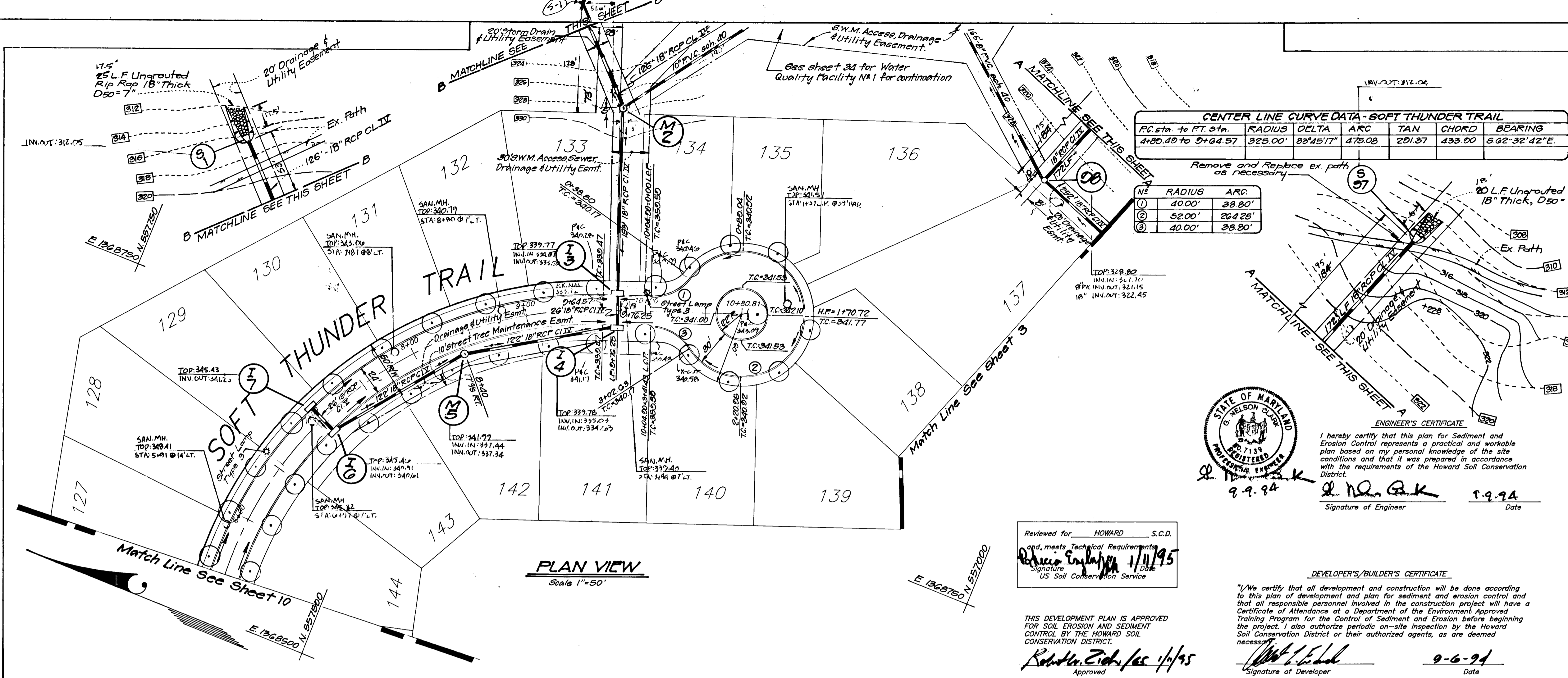
LEGEND
 25' LEFT - - - - -
 25' RIGHT - - - - -
 EXIST. E - - - - -
 PROFILE GRADE LINE - - - - -
PROFILE SCALE
 HORIZ. 1"=50'
 VERT. 1"=5'

AS BUILT

Scott J. ...
 PROFESSIONAL LAND SURVEYOR
 STATE OF MARYLAND
 No. 10000

SPINARBERGER & LANE
 8721 TOWNES COUNTY BLVD.
 SUITE 104
 MILLICOTT CITY, MARYLAND 21043

100



CENTER LINE CURVE DATA - SOFT THUNDER TRAIL

PC Sta to PT Sta	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
4+80.49 to 9+64.57	325.00'	88°45'17"	475.08	201.97	433.00	S.02°32'42"E.

Remove and Replace ex path as necessary

N°	RADIUS	ARC
1	40.00'	38.80'
2	52.00'	26.425'
3	40.00'	38.80'



ENGINEER'S CERTIFICATE
 I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Signature of Engineer: J. N. G. K. Date: 9-9-94

N°	REVISIONS	Date
1	Extend Storm Drains S-1 to M-2 & S-7 to M-28	4-6-95

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division: M. K. Date: 12-5-94
 Chief, Bureau of Engineering: J. N. G. K. Date: 11-22-94
 Chief, Bureau of Engineering: J. N. G. K. Date: 12/6/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 Chief, Division of Land Development and Research: J. N. G. K. Date: 1/2/95

Reviewed for HOWARD S.C.D. and meets Technical Requirements
 Signature: J. N. G. K. Date: 1/11/95
 US Soil Conservation Service

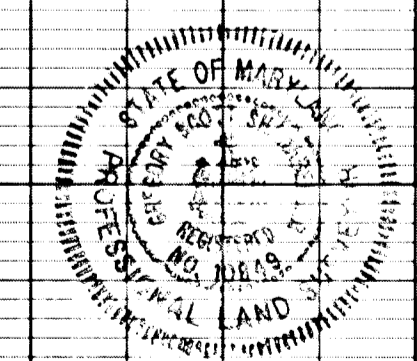
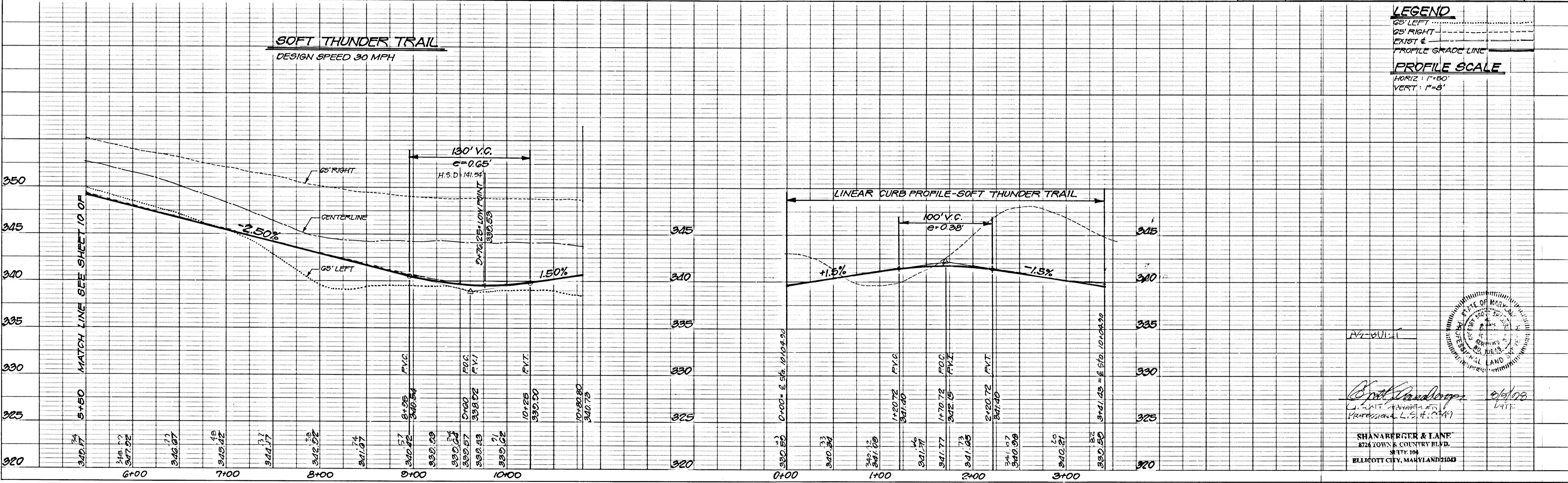
DEVELOPER'S/BUILDER'S CERTIFICATE
 I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department 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 or their authorized agents, as are deemed necessary.
 Signature of Developer: J. N. G. K. Date: 9-6-94

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Approved: J. N. G. K. Date: 1/1/95

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH

DESIGNED: DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS SOFT THUNDER TRAIL STA. 5+50 to 10+80.81 COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATRICK PARKWAY COLUMBIA, MARYLAND 21044	SCALE: AS SHOWN
DRAWN: ZAH		DRAWING: 11 of 37
CHECKED: DAB		JOB NO.: 03177
DATE: June 94		FILE NO.: 03177-0

LEGEND
 65' LEFT
 65' RIGHT
 EXIST &
 PROFILE GRADE LINE
PROFILE SCALE
 HORIZ: 1"=50'
 VERT: 1"=5'

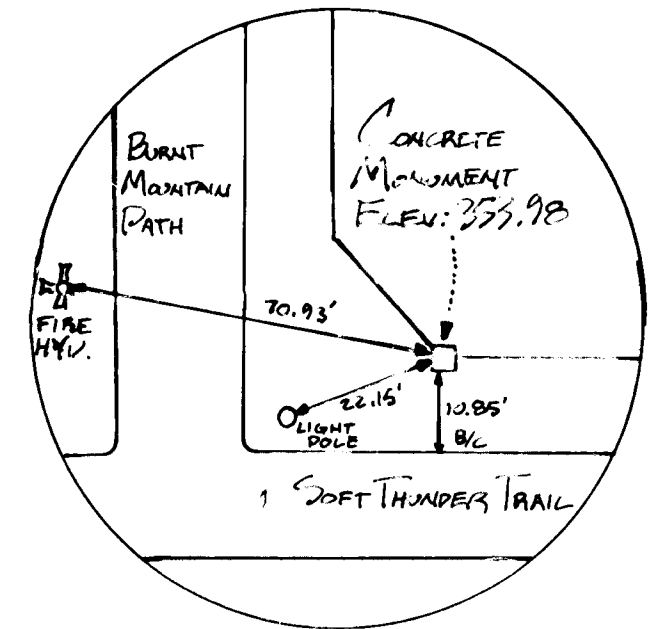
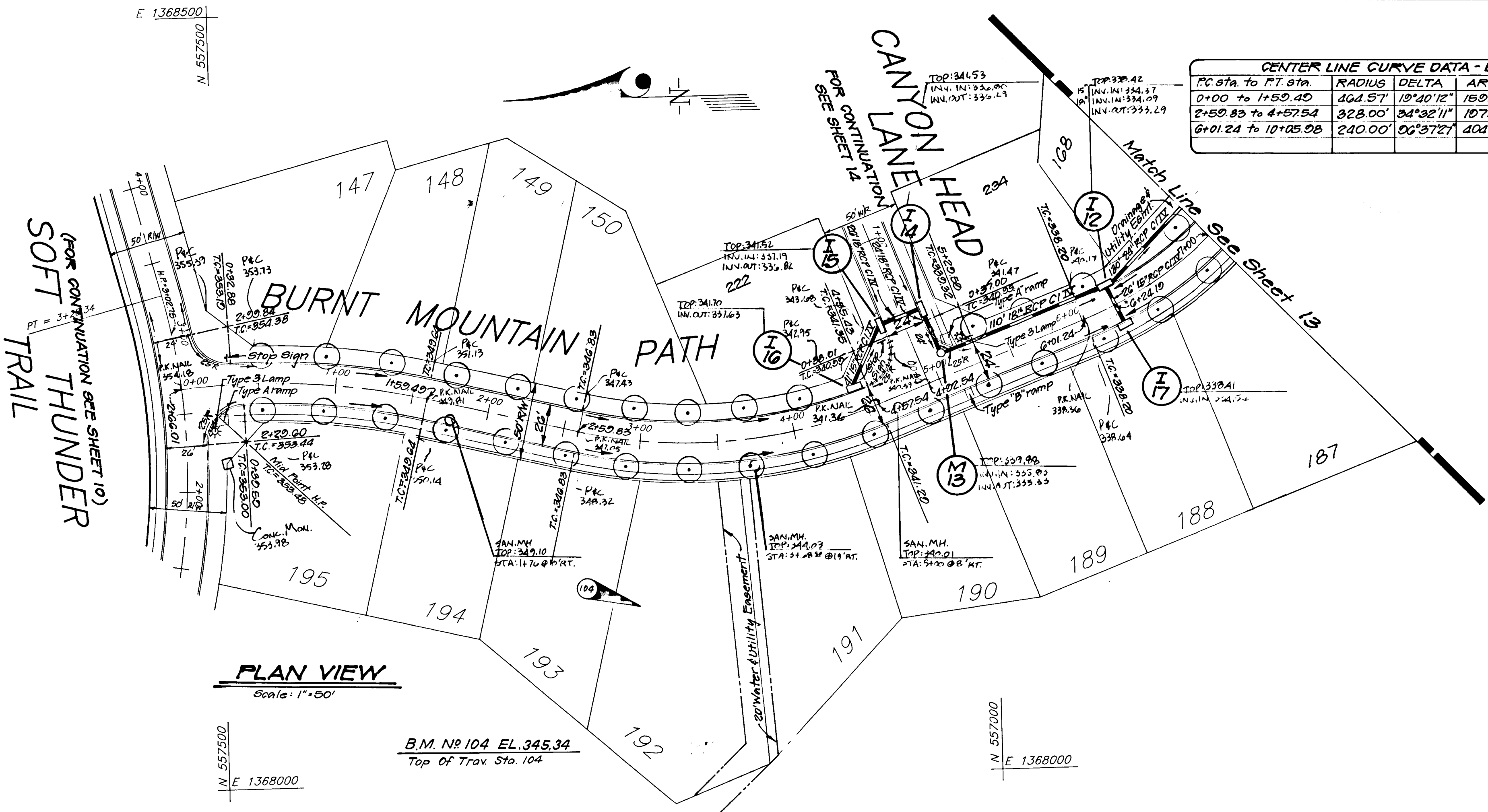


SHANBERGER & LANE
 8724 TOWN & COUNTRY BLVD.
 SUITE 104
 BELLICOTT CITY, MARYLAND 21043

100

NO	REVISIONS	Date
1	Rev. lot lines 151 & 167	4-6-95

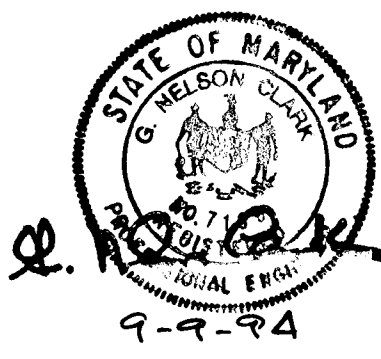
P.C. STA TO P.T. STA	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
0+00 to 1+50.40	404.57'	18°40'12"	189.40'	80.54'	158.71'	S.03°48'58"W
2+50.83 to 4+57.54	328.00'	34°32'11"	107.71'	101.06'	104.73'	S.03°37'01"E
6+01.24 to 10+05.08	240.00'	06°37'27"	404.74'	260.48'	358.45'	S.60°11'50"E



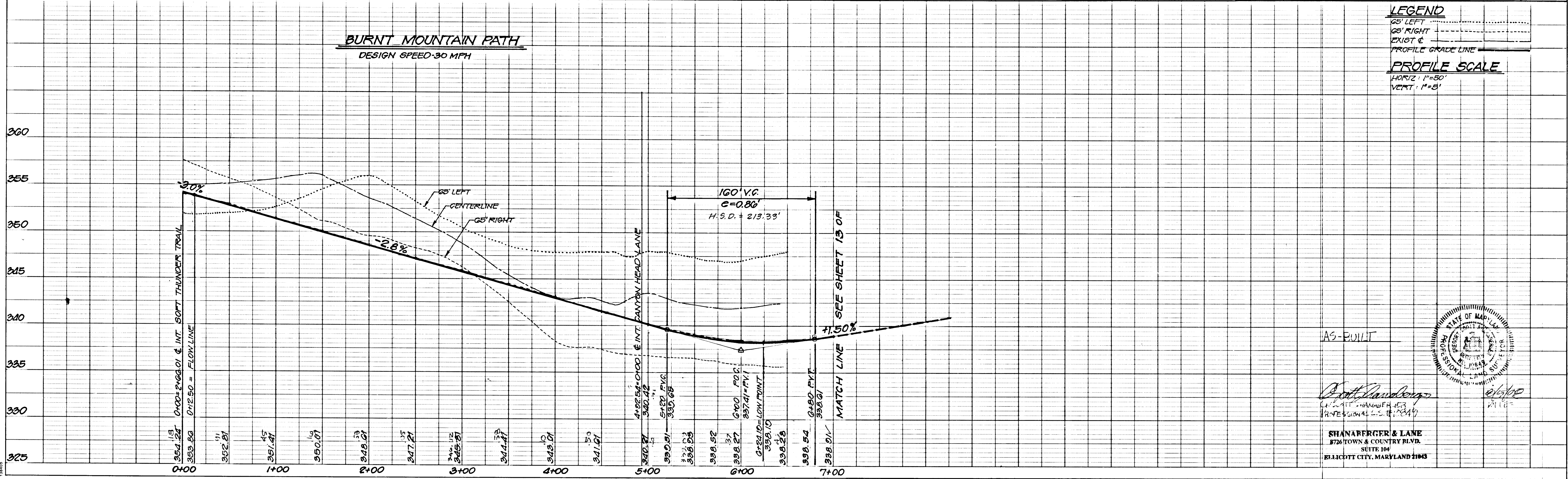
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Mark Smith CHIEF, LAND DEVELOPMENT DIVISION/MCK. DATE: 12-5-94
Christopher M. ... DATE: 11-22-94
Donald ... DATE: 12/6/94
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Anna ... DATE: 1/12/95

CLARK • FINEROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH.

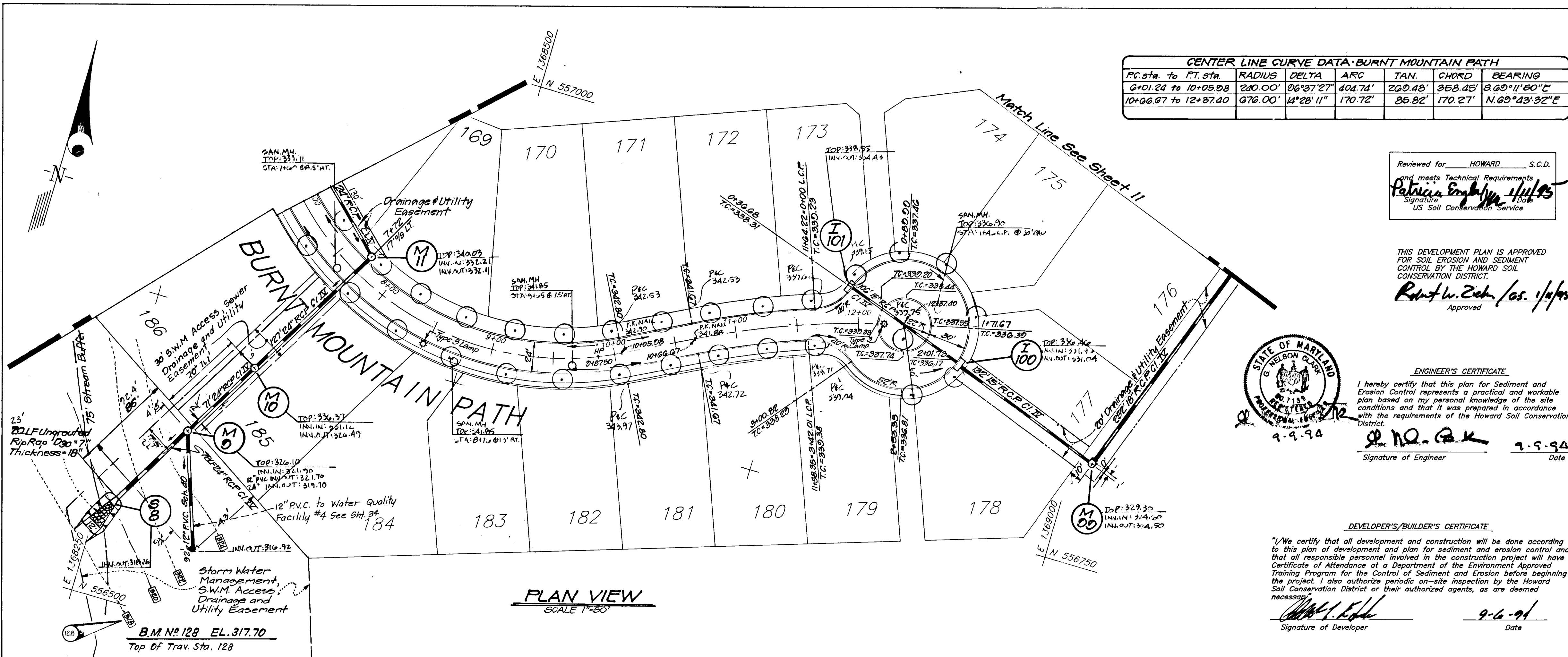
DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS BURNT MOUNTAIN PATH STATION 0+00 TO 7+00 COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN
DRAWN ZAH		DRAWING 12 of 37
CHECKED DAB		JOB NO. 03177
DATE June 94		FILE NO. 03177-D



BURNT MOUNTAIN PATH
 DESIGN SPEED-30 MPH



100



NO.	REVISIONS	Date
1	Extend Storm Drain 5-8 to M-9	4-7-95

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Danek 12-5-94
 CHIEF, LAND DEVELOPMENT DIVISION DATE

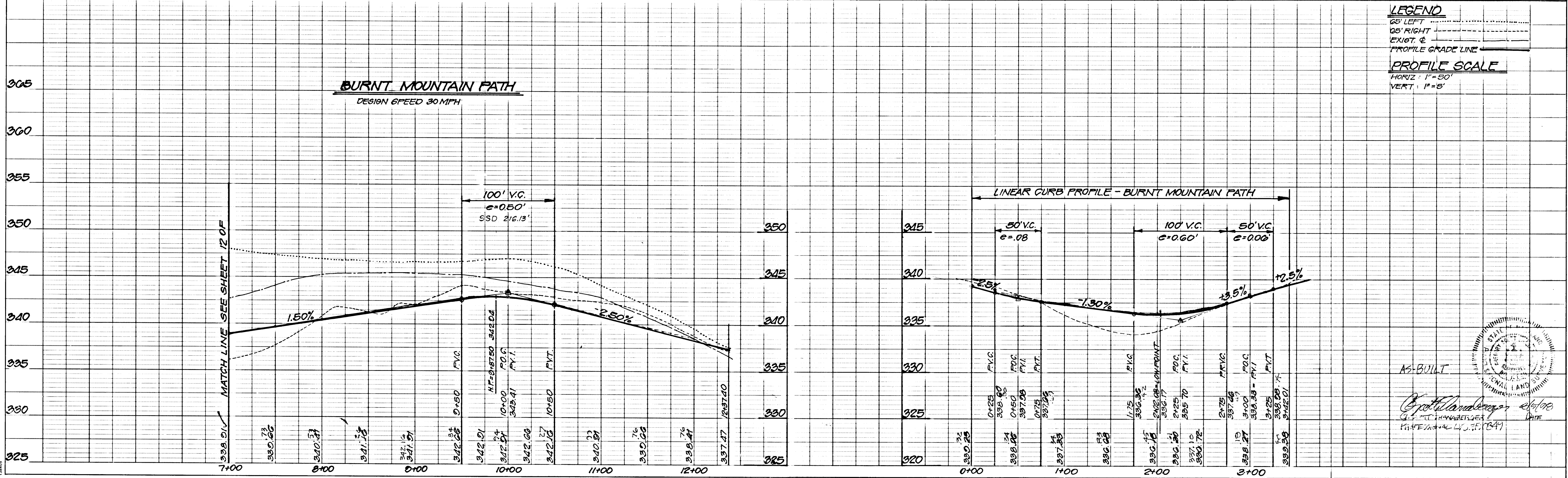
Charles M. Danek 11-22-94
 CHIEF, BUREAU OF HIGHWAYS DATE

Charles M. Danek 12-16-94
 CHIEF, BUREAU OF ENGINEERING DATE

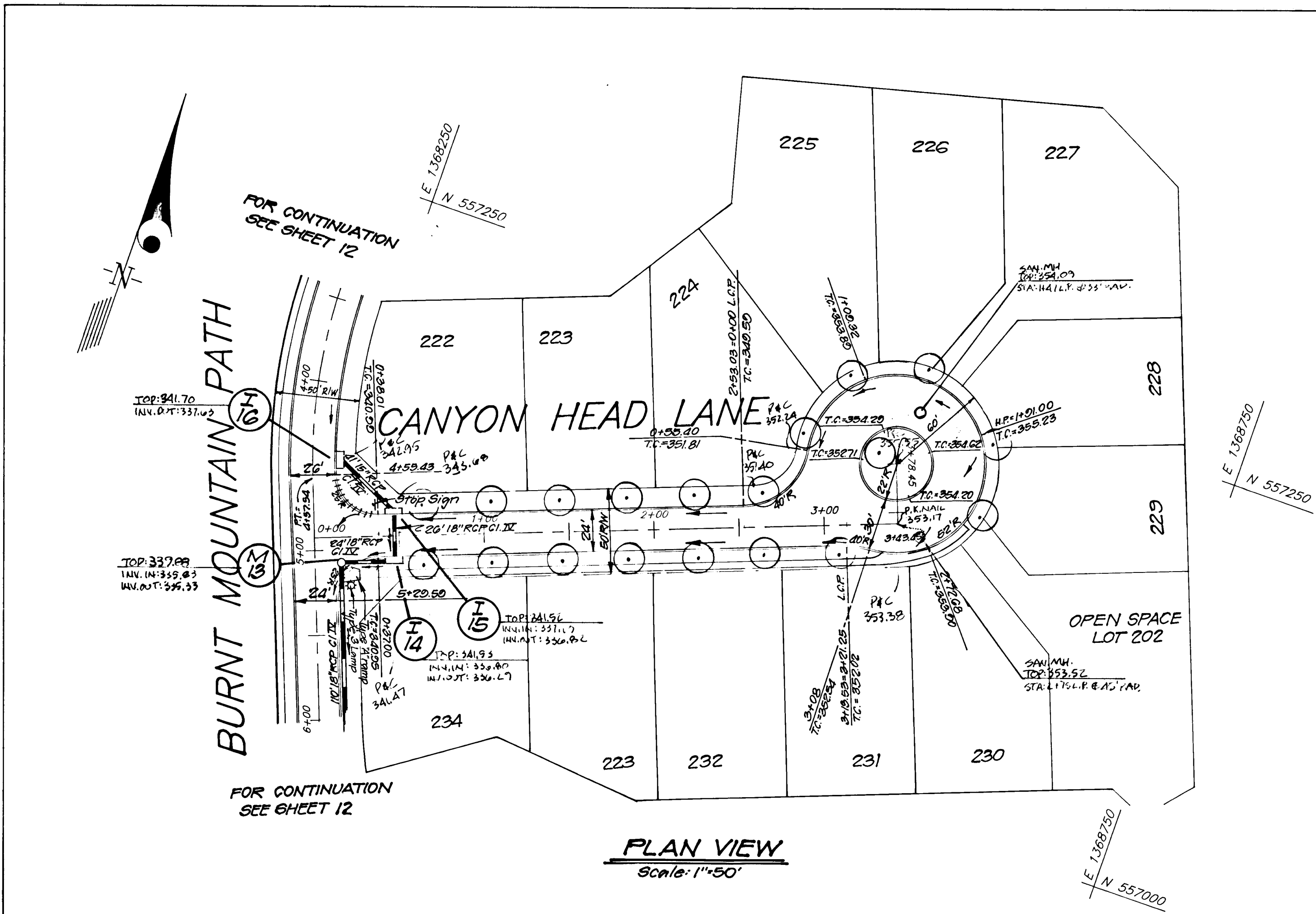
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Quinn Summerville 1/2/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINISTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH

DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS BURNT MOUNTAIN PATH STA. 7+00 TO 12+37.40 COLUMBIA VILLAGE OF LONGREACH SECTION 4, AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATIENT PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN
DRAWN ZAH		DRAWING 13 of 37
CHECKED DAB		JOB NO. 03177
DATE June 94		FILE NO. 03177-D



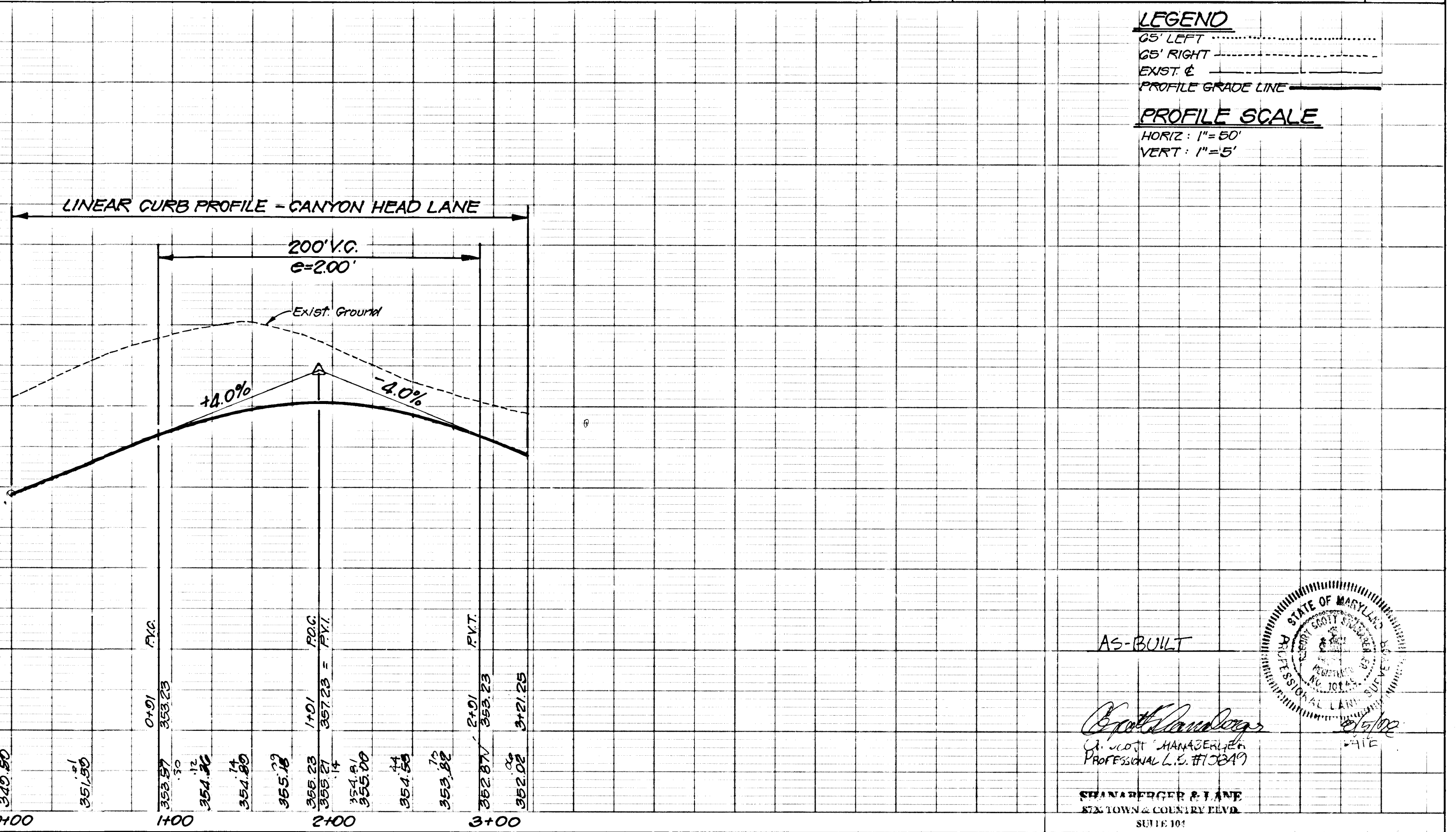
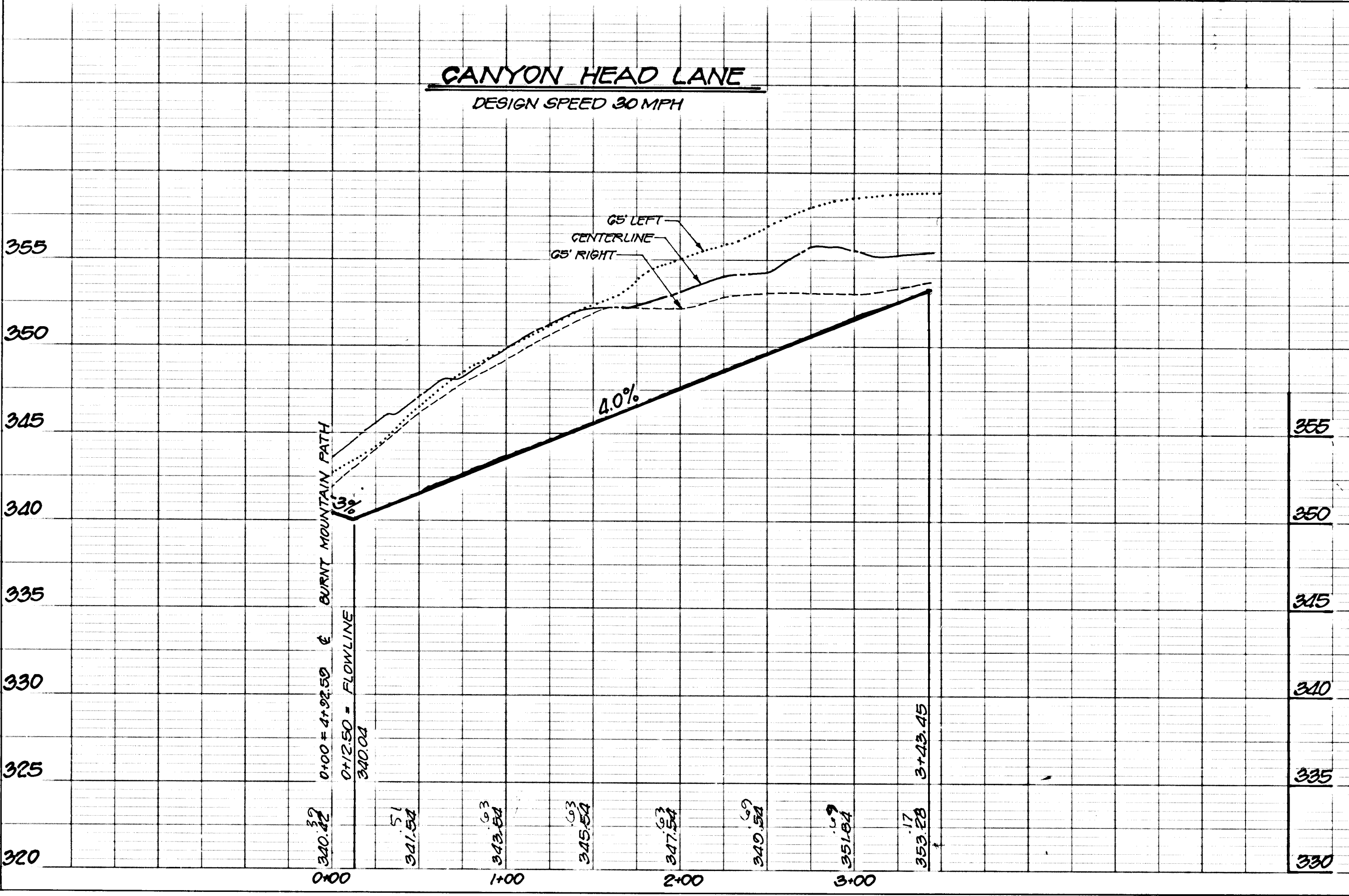
No	REVISIONS	Date
1	Rev. lots 151-167	4-7-95



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Mark Kovich 12-5-94
 CHIEF, LAND DEVELOPMENT DIVISION (P.L.C.) P.M.K. DATE
Richard M. Donoho 4-22-99
 CHIEF, BUREAU OF HIGHWAYS DATE
Donald Seppan 12-16-94
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Aime Jaramani 1/12/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH		
DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS CANYON HEAD LANE COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN
DRAWN ZAH		DRAWING 14 of 37
CHECKED DAB		JOB NO. 03177
DATE June 94		FILE NO. 03177-D



LEGEND
 GS' LEFT
 GS' RIGHT
 EXIST. E
 PROFILE GRADE LINE ———

PROFILE SCALE
 HORIZ: 1"=50'
 VERT: 1"=5'

AS-BUILT

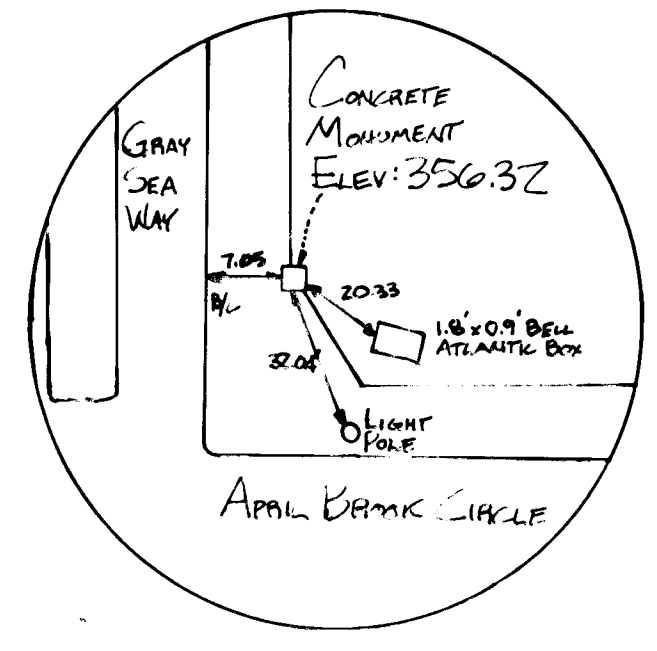
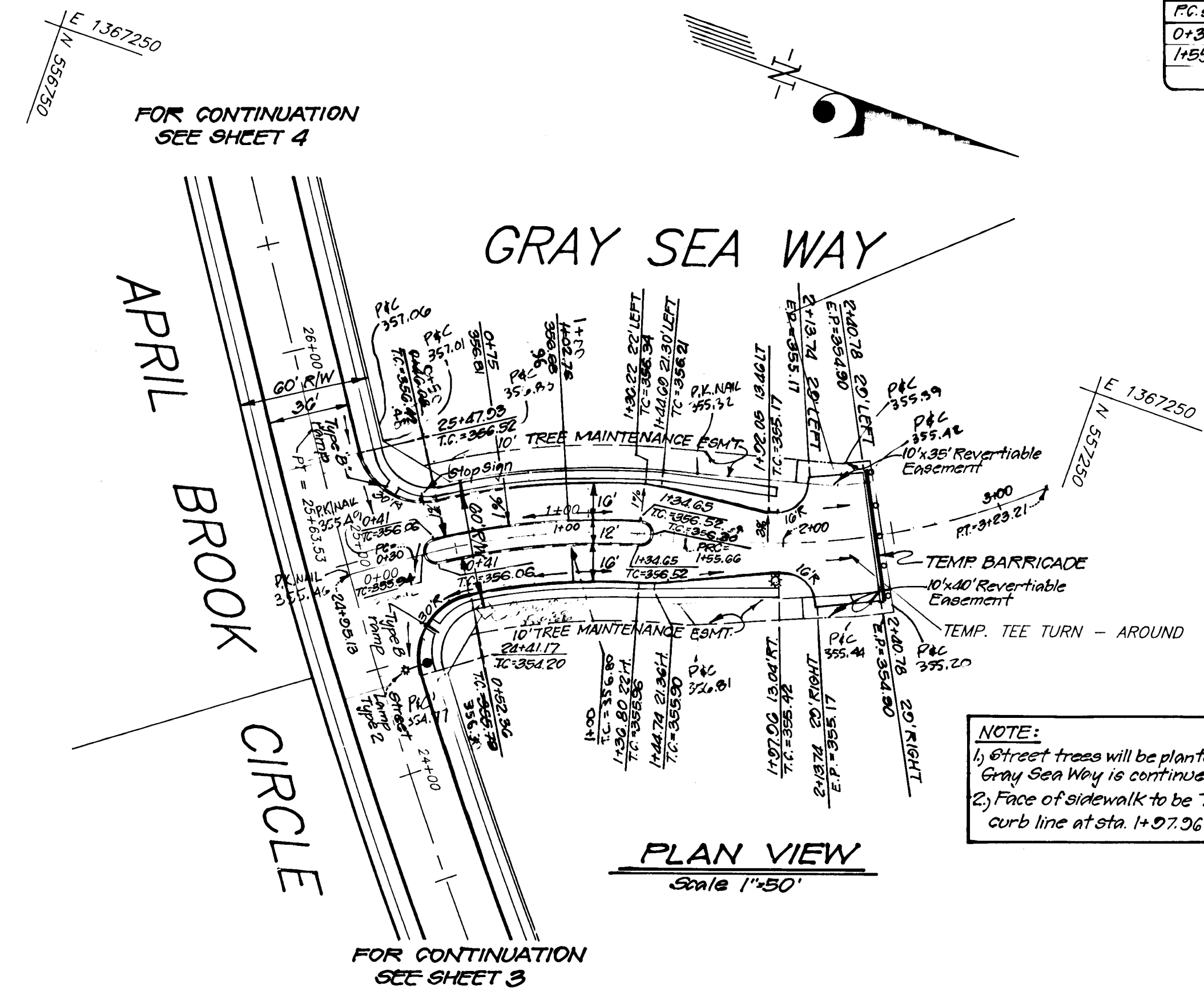
Donald Seppan 6/1/94
 PROJECT MANAGER
 PROFESSIONAL L.S. #11387

STANBERGER & JANE
 SIX TOWN & COUNTRY ELEV.
 SUITE 101

6/25

NO	REVISIONS	Date
1	Rev. Street Grades Gray Sea Way	4-7-95

CENTER LINE CURVE DATA - GRAY SEA WAY						
P.C. Sta. to P.T. Sta.	RADIUS	DELTA	ARC	TAN.	CHORD	BEARING
0+30 to 1+59.66	320.00'	22°30'00"	125.66'	63.65'	124.86'	N 23° 36' 00" W
1+59.66 to 3+23.21	320.00'	30°00'00"	167.95'	85.74'	165.44'	N 27° 21' 50" W



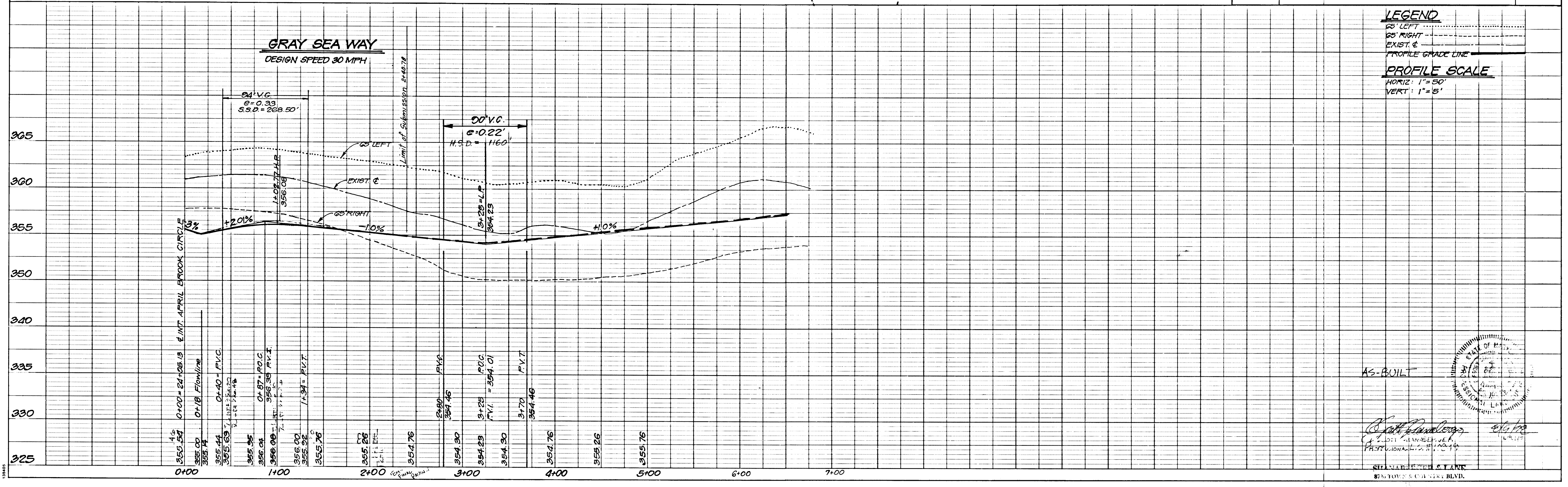
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Paul Howard CHIEF, LAND DEVELOPMENT DIVISION DATE 12-5-94
Richard M. Hancock CHIEF, BUREAU OF HIGHWAYS DATE 11-22-94
Michael Sporn CHIEF, BUREAU OF ENGINEERING DATE 12/6/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Anna Strummons CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE 1/2/95



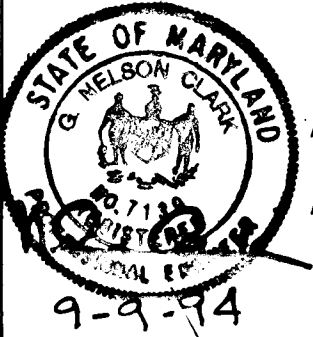
CLARK • FINEROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH.

DESIGNED DAB	GRADE ESTABLISHMENT, STORM DRAINAGE AND PAVING PLANS GRAY SEA WAY COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 12275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	SCALE AS SHOWN
DRAWN ZAH		DRAWING 15 of 37
CHECKED DAB		JOB NO. 93177
DATE June 94		FILE NO. 93177-D



CURB LINE CURVE DATA						
NO	PC STA to PT STA	RADIUS	ARC	DELTA	TAN	CHORD BEARING
1	2+64.05 to 5+41.17	618.72'	266.80'	24°53'50"	136.00'	266.67' S50°10'12"E
2	2+500.00 to 5+41.17	669.10'	300.42'	29°43'20"	152.70'	207.91' S40°45'31"E

CENTER LINE CURVE DATA - DRIED EARTH BLVD.						
PC STA to PT STA	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
0+00.00 to 0+27.00	670.00'	7°17'41"	833.70'	480.51'	780.95'	S-40°-28'-22"E



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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.

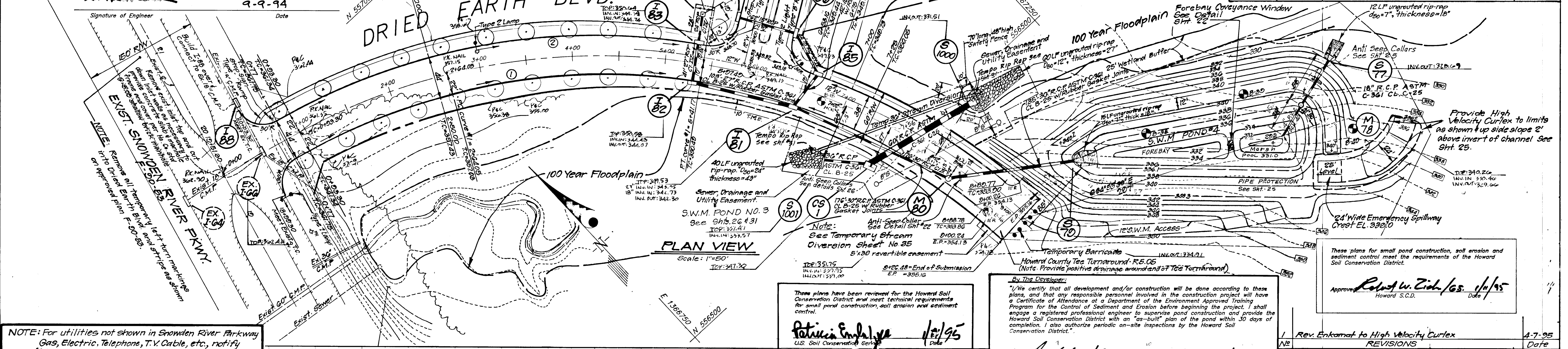
Signature of Engineer: *Q. H. Q. K.*
 Date: 9-9-94

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DATE: 12-5-94
 DATE: 11-22-94
 DATE: 12/6/94
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 DATE: 1/12/95
 DATE: June 94

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINISTREL WAY • COLUMBIA, MD 21045 • (410)381-7500 BALT. • (301)621-8100 W

DESIGNED: O.A.B. SCALE AS SHOWN
 DRAWN: ZAH. DRAWN: 16 of 37
 CHECKED: DAB. JOB NO: 93177
 DATE: June 94. FILE: 93177-D

GRADE ESTABLISHMENT
 DRAINAGE AND PAVING PLANS
 DRIED EARTH BOULEVARD
 COLUMBIA
 VILLAGE OF LONGREACH
 SECTION 4 AREA 2
 SIXTH (6TH) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 FOR: HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

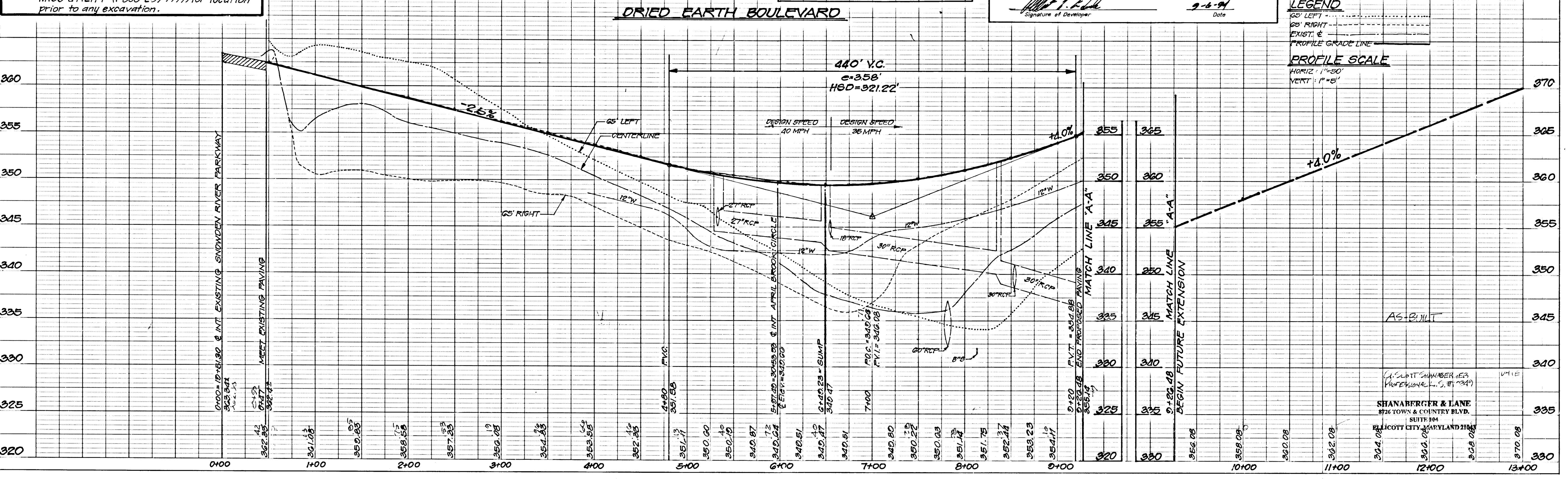


NOTE: For utilities not shown in Snowden River Parkway Gas, Electric, Telephone, T.V. Cable, etc., notify "MISS-UTILITY" (1-800-257-7777) for location prior to any excavation.

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.
Patricia Engle 1/1/95
 U.S. Soil Conservation Service

By the Developer:
 I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.
Robert W. Zick 1/1/95
 Howard S.C.D.

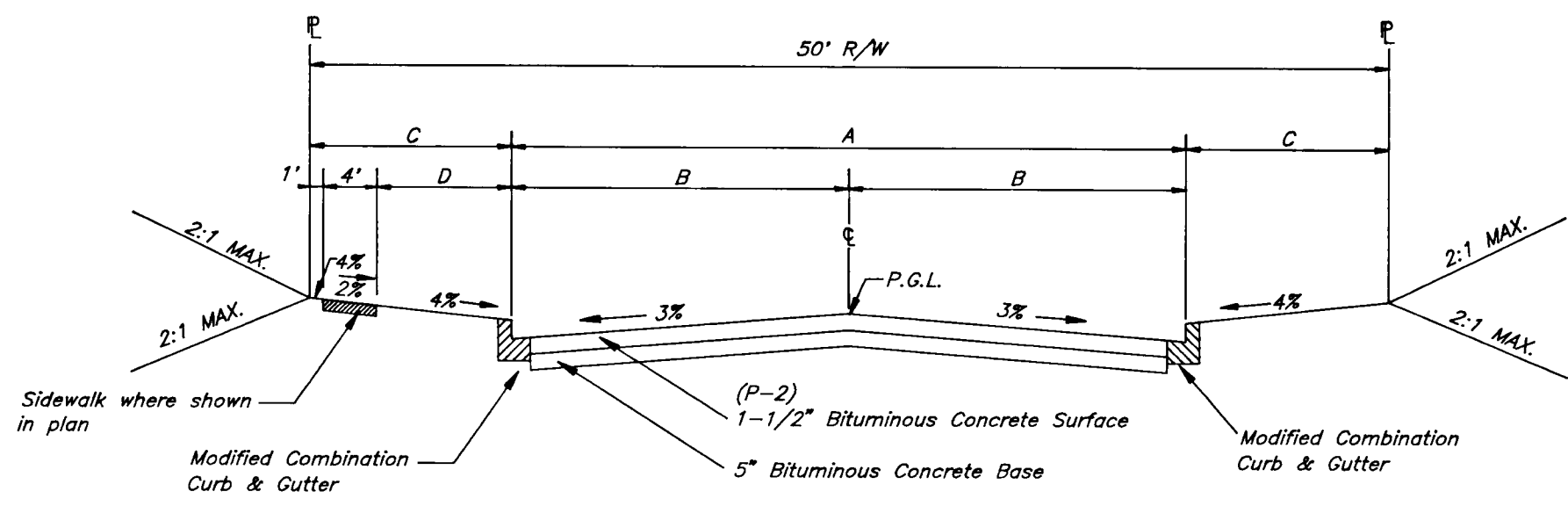
NO	REVISIONS	DATE
1	Rev. Enkamat to High Velocity Curlex	4-7-95



LEGEND
 GS' LEFT
 GS' RIGHT
 EXIST. G.
 PROFILE GRADE LINE

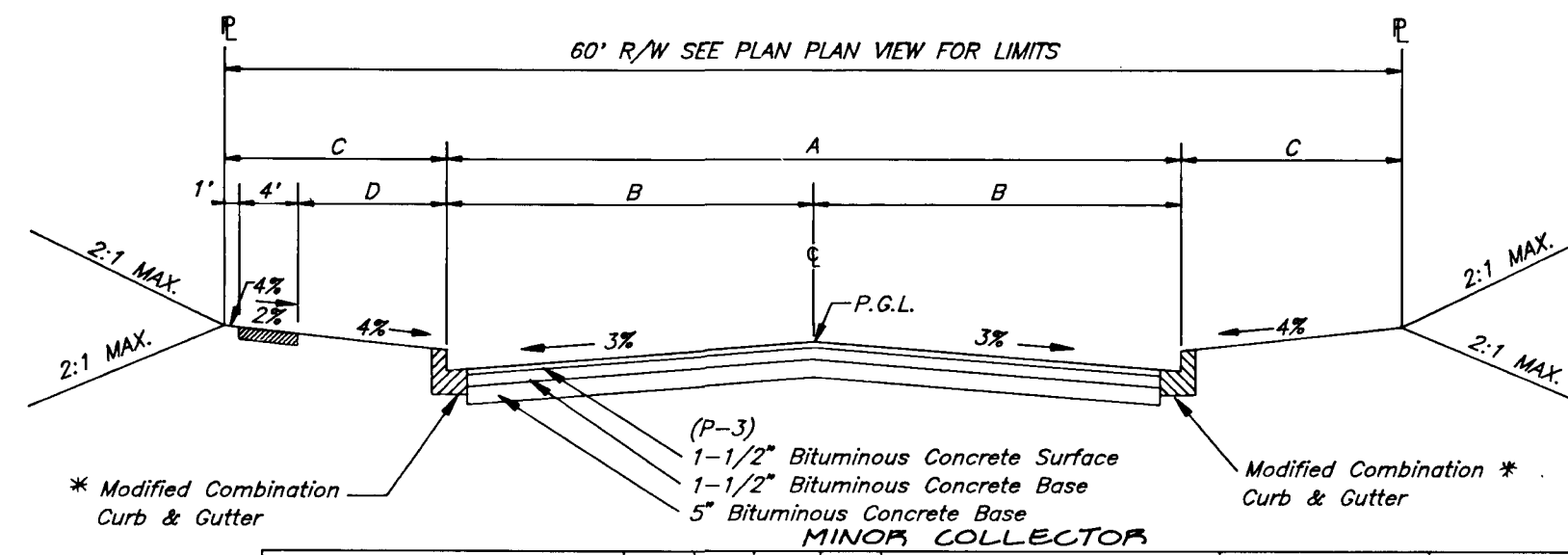
PROFILE SCALE
 HORIZ: 1"=50'
 VERT: 1"=5'

AS-BUILT
 SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELICOTT CITY, MARYLAND 21043



STREET NAME	A	B	C	D	LIMITS	ZONING	DESIGN SPEED
PAINTED YELLOW GATE	24'	12'	13'	8'	0+00± TO 3+25±	NTSFD	30 MPH
BROKEN WING COURT	26'	13'	12'	7'	0+00± TO 2+60±	NTSFD	30 MPH
BROKEN WING COURT	24'	12'	13'	8'	2+62± TO 5+70±	NTSFD	30 MPH
TWENTY YEARS CHASE	24'	12'	13'	8'	0+00± TO 2+75±	NTSFD	30 MPH
THREE APPLE DOWNS	24'	12'	13'	8'	0+00± TO 2+51±	NTSFD	30 MPH
DEER SEASON RUN	26'	13'	12'	7'	0+00± TO 2+50±	NTSFD	30 MPH
DEER SEASON RUN	24'	12'	13'	8'	2+50± TO 7+20±	NTSFD	30 MPH
BIRD RACE	24'	12'	13'	8'	0+00± TO 2+28±	NTSFD	30 MPH
SOFT THUNDER TRAIL	26'	13'	12'	7'	0+00± TO 2+30±	NTSFD	30 MPH
SOFT THUNDER TRAIL	24'	12'	13'	8'	2+30± TO 10+80±	NTSFD	30 MPH
BURNT MOUNTAIN PATH	26'	13'	12'	7'	0+00± TO 4+22±	NTSFD	30 MPH
BURNT MOUNTAIN PATH	24'	12'	13'	8'	4+22± TO 12+57±	NTSFD	30 MPH
CANYON HEAD LANE	24'	12'	13'	8'	0+00± TO 3+43±	NTSFD	30 MPH

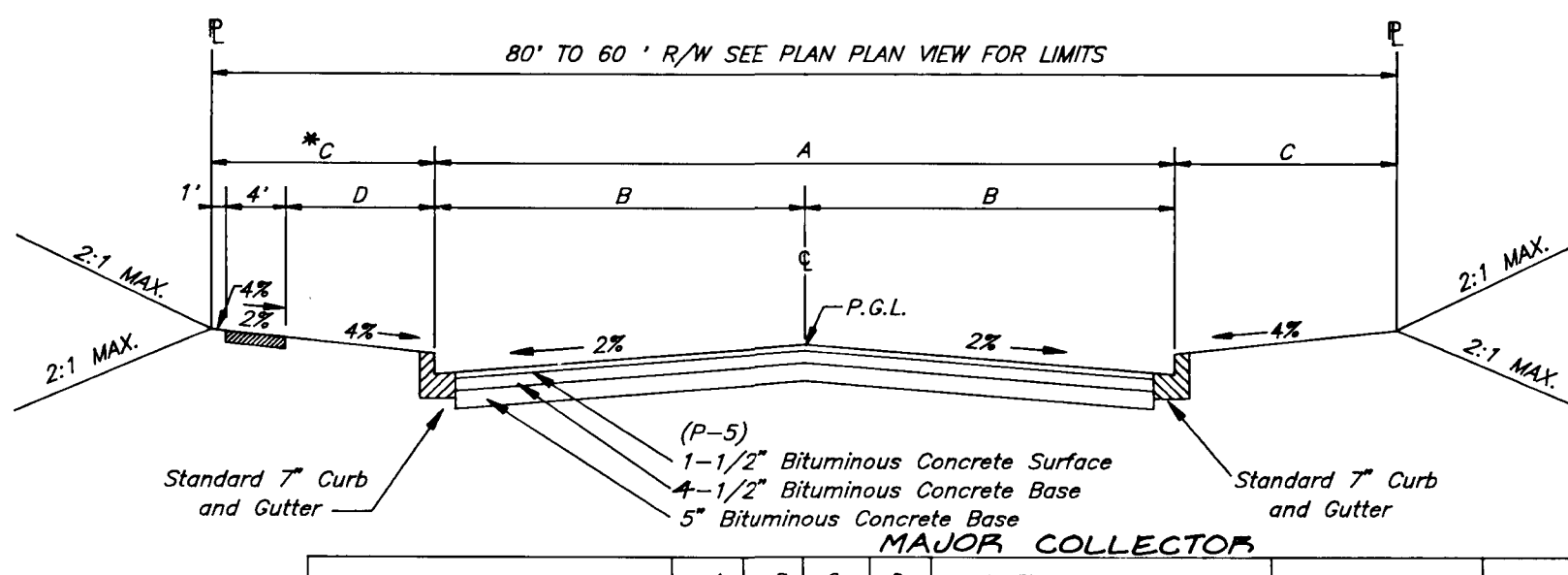
TYPICAL PAVING SECTION
NO SCALE



STREET NAME	A	B	C	D	LIMITS	ZONING	DESIGN SPEED
APRIL BROOK CIRCLE	36'	18'	12'	7'	5+07± TO 27+30±	NT SFA & SFD	35 MPH
DRIED EARTH BOULEVARD	38'	19'	11'	6'	6+55± TO 9+27±	NT COMM	35 MPH

TYPICAL PAVING SECTION - MINOR COLLECTOR
NO SCALE

Note: See Plan View for Transitions of Curb & Gutter from Modified to 7' Std.
* Provide 7' Std. Curb & Gutter 0+46 to 8+56 April Brook Circle Left Side and 0+46 to 6+13.18 April Brook Circle Right Side.

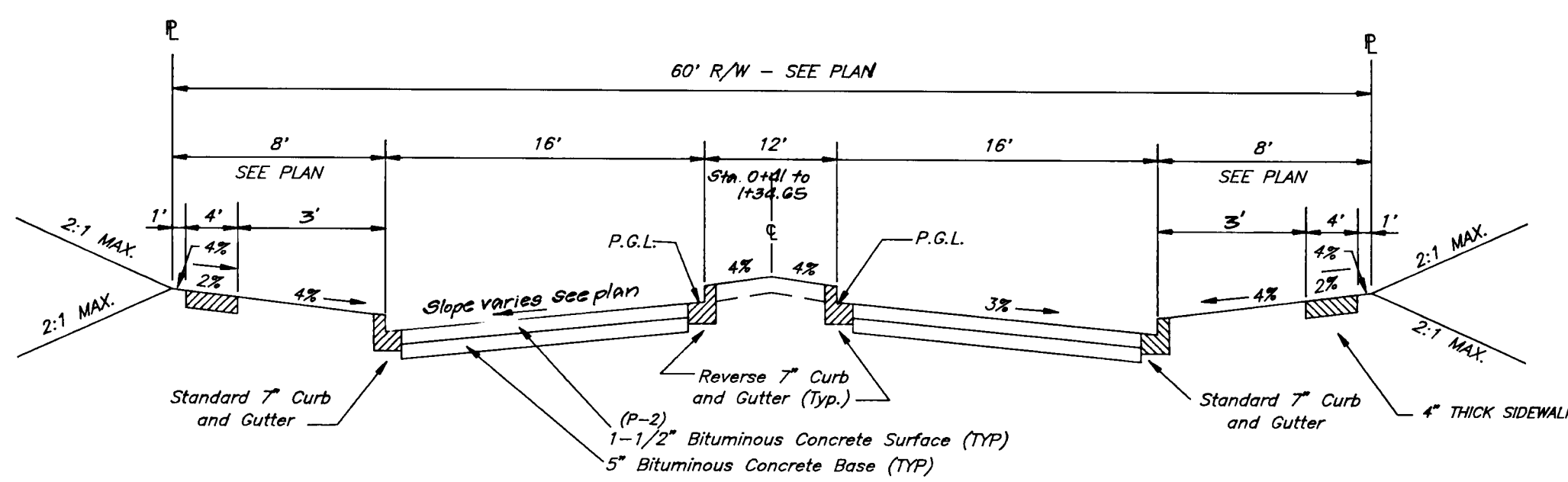


STREET NAME	A	B	C	D	LIMITS	ZONING	DESIGN SPEED
DRIED EARTH BOULEVARD	38'	19'	11'	6'	0+00± TO 6+55±	NT COMM	40 MPH

TYPICAL PAVING SECTION - MAJOR COLLECTOR
NO SCALE

* C Varies From 21' to 11'

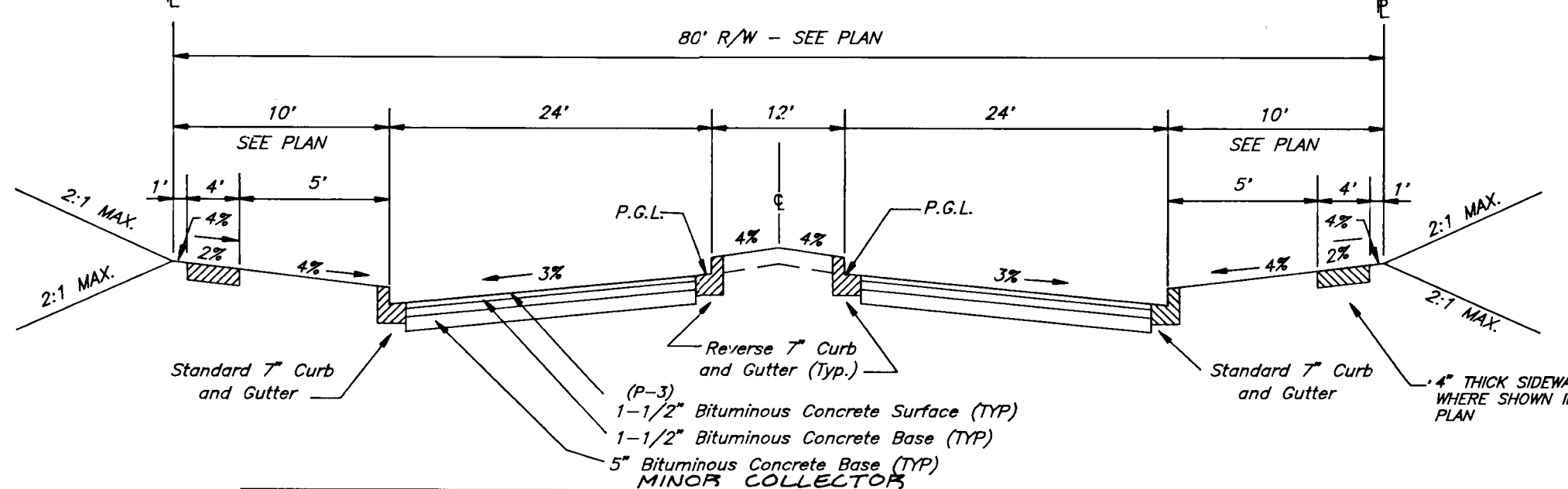
NOTE: TRANSITION PAVING FROM 80' RW TO 60' RW FROM STATIONS 2+00± TO 5+07± AND FROM 27+30 TO 28+50±



STREET NAME	LIMITS	ZONING	DESIGN SPEED
GRAY SEA WAY	0+00 TO 2+45	NTSFA	30 MPH

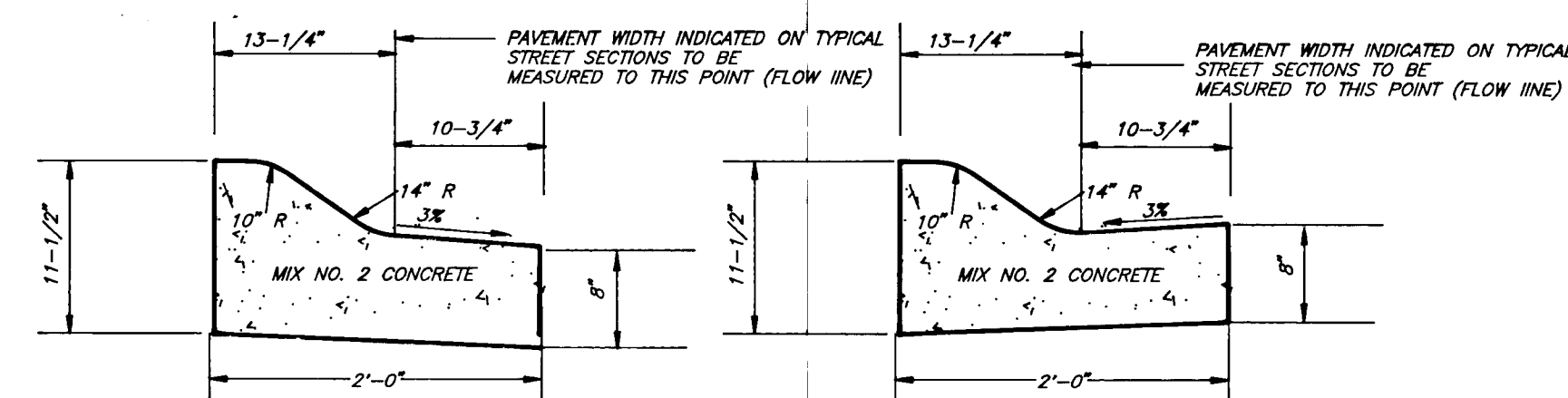
NOTE: Transition R/W to 60' and paving width to 26'. See Plan.

TYPICAL PAVING SECTION
NO SCALE



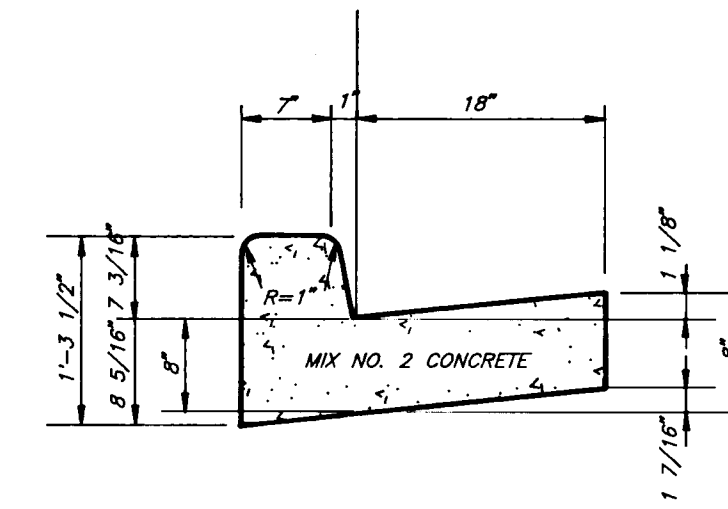
STREET NAME	LIMITS	ZONING	DESIGN SPEED
APRIL BROOK CIRCLE	0+00± TO 2+00±	NTSFA	35 MPH
APRIL BROOK CIRCLE	28+56 TO 30+35±	NTSFA	35 MPH

TYPICAL PAVING SECTION - MINOR COLLECTOR
NO SCALE

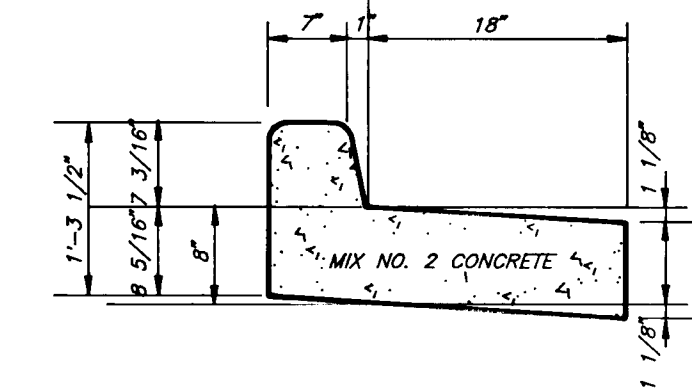


REVERSE MODIFIED COMBINATION CURB AND GUTTER
NO SCALE

MODIFIED COMBINATION CURB AND GUTTER
NO SCALE



STANDARD 7" COMBINATION CURB AND GUTTER
NO SCALE



REVERSE 7" COMBINATION CURB AND GUTTER
NO SCALE

1-1/2" Bituminous Concrete Surface	1-1/2"
1-1/2" Bit. Conc. Course	1-1/2"
5" Bituminous Concrete Base	5"
Prime	5" OR 6"
5" Crusher Run Base Course or 6" Dense Graded Stabilized Aggregate Base Course	5" OR 6"

1-1/2" Bituminous Concrete Surface	1-1/2"
2-1/2" Bituminous Concrete Base	2-1/2"
Prime	5" OR 6"
5" Crusher Run Base Course or 6" Dense Graded Stabilized Aggregate Base Course	5" OR 6"

ALTERNATE PAVING SECTION DRIED EARTH BOULEVARD
NO SCALE

(SECTION P-5)

ALTERNATE PAVING SECTION FOR PUBLIC ROADS
NO SCALE

(SECTION P-2)

1-1/2" Bituminous Conc. Surface (E Course)	1-1/2"
2" Bit Conc. Base	2"
4" Bit Conc. Base	4"
5" Bit Conc. Base	5"

1-1/2" Bit Conc. Surface	1-1/2"
2-1/2" Bit Conc. Base	2-1/2"
5" Bit Conc. Base	5"
Prime	5" OR 6"
5" Crusher Run Base Course or 4-1/2" Dense Graded Stabilized Aggregate Base Course	5" OR 6"

TYPICAL PAVING SECTIONS SNOWDEN RIVER PKWY.
NO SCALE

(SECTION F-6) SHOWN

ALTERNATE PAVING SECTION FOR APRIL BROOK CIRCLE
NO SCALE

(SECTION P-3)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	DATE: 12-5-94
Mark Kozak, CHIEF, LAND DEVELOPMENT DIVISION (P&Z)	DATE: 11-22-99
Robert M. Kuebler, CHIEF, BUREAU OF HIGHWAYS	DATE: 12-16-94
James J. Eason, CHIEF, BUREAU OF ENGINEERING	DATE: 11-2-95
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	DATE: 11-2-95
Anna Summerville, CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH	DATE: 11-2-95

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS

7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED JLS	PAVING SECTIONS AND DETAILS LOTS 1 THRU 196 & PARCELS A THRU F COLUMBIA	SCALE AS SHOWN
DRAWN CADD	VILLAGE OF LONGREACH SECTION 4 AREA 2 PHASE 216	DRAWING 170P37
CHECKED JLS	TAX MAP 37 PARCELS 254 & P/O 255 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 93-177
DATE MARCH 1994	FOR: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	FILE NO. 93-177D

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.

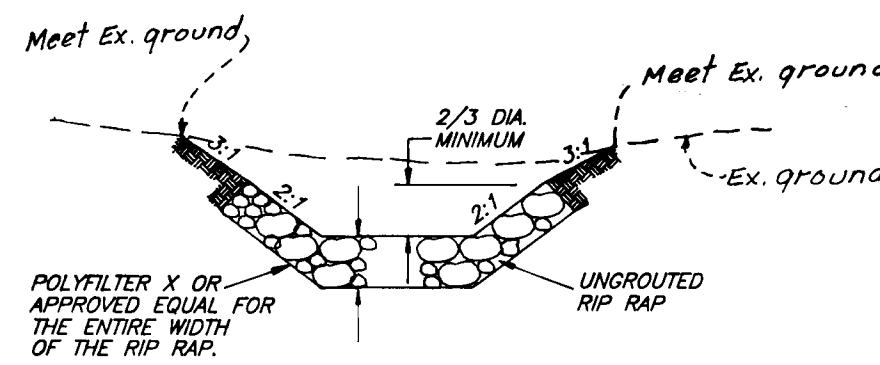
Retina Embury 1/11/95
U.S. Soil Conservation District

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved: Howard S.C.D. Date: 1/11/95

* See Plunge Pool Sht. 33

N#	DIA.	L	W	D ₉₀	T
S-1	2 1/2"	25'	14"	7"	18"
S-2	3"	20'	12"	7"	18"
S-3	3 1/2"	15'	14"	7"	18"
S-4	4"	10'	12"	7"	18"
S-5	4 1/2"	10'	12"	7"	18"
S-6	5"	10'	12"	7"	18"
S-7	5 1/2"	10'	12"	7"	18"
S-8	6"	10'	12"	7"	18"
S-9	6 1/2"	10'	12"	7"	18"
S-10	7"	10'	12"	7"	18"
S-11	7 1/2"	10'	12"	7"	18"
S-12	8"	10'	12"	7"	18"
S-13	8 1/2"	10'	12"	7"	18"
S-14	9"	10'	12"	7"	18"
S-15	9 1/2"	10'	12"	7"	18"
S-16	10"	10'	12"	7"	18"
S-17	10 1/2"	10'	12"	7"	18"
S-18	11"	10'	12"	7"	18"
S-19	11 1/2"	10'	12"	7"	18"
S-20	12"	10'	12"	7"	18"
S-21	12 1/2"	10'	12"	7"	18"
S-22	13"	10'	12"	7"	18"
S-23	13 1/2"	10'	12"	7"	18"
S-24	14"	10'	12"	7"	18"



UNGRouted RIP RAP DETAILS
NO SCALE

I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.

Signature of Engineer: [Signature] Date: 9-9-94

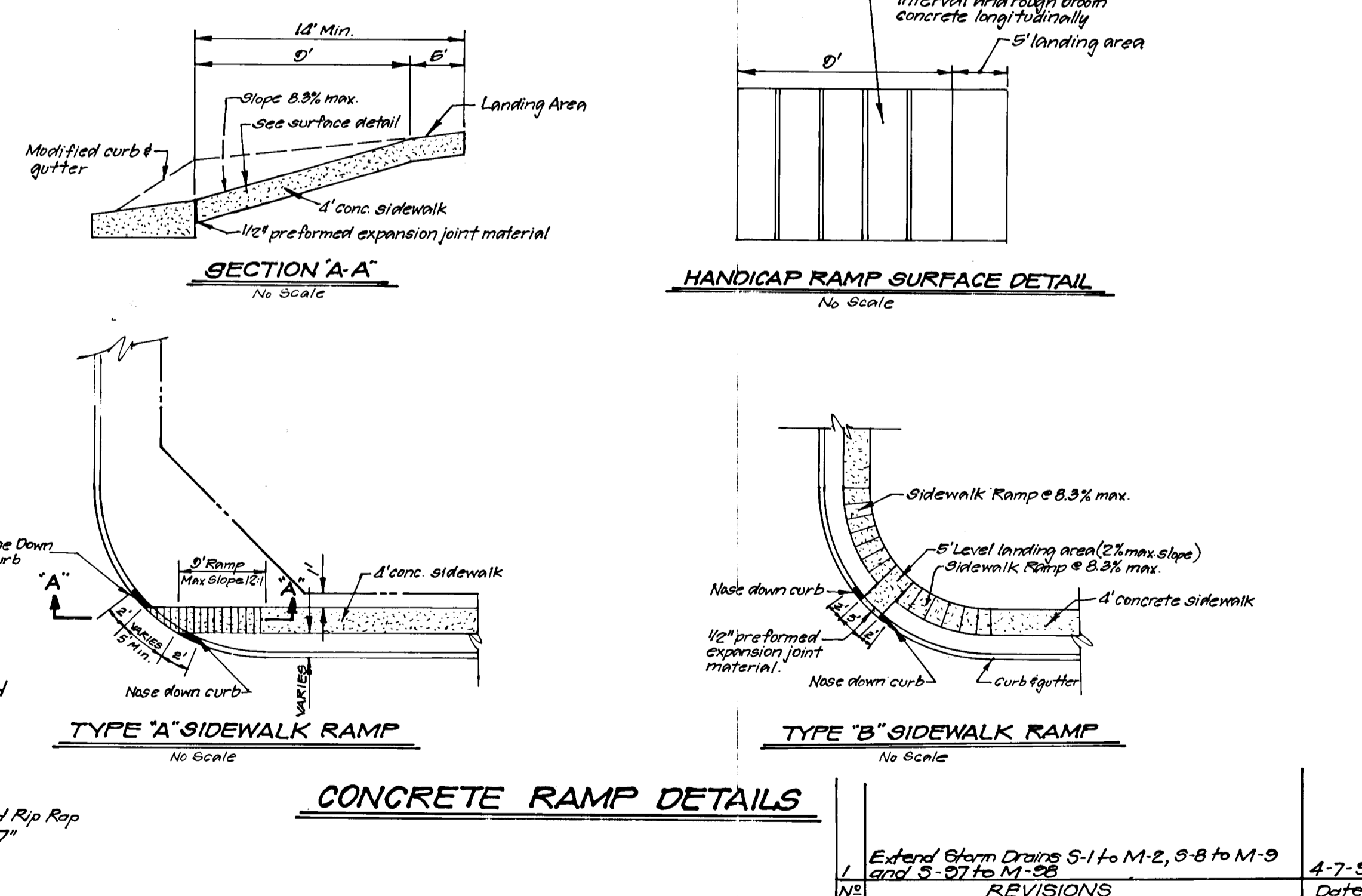
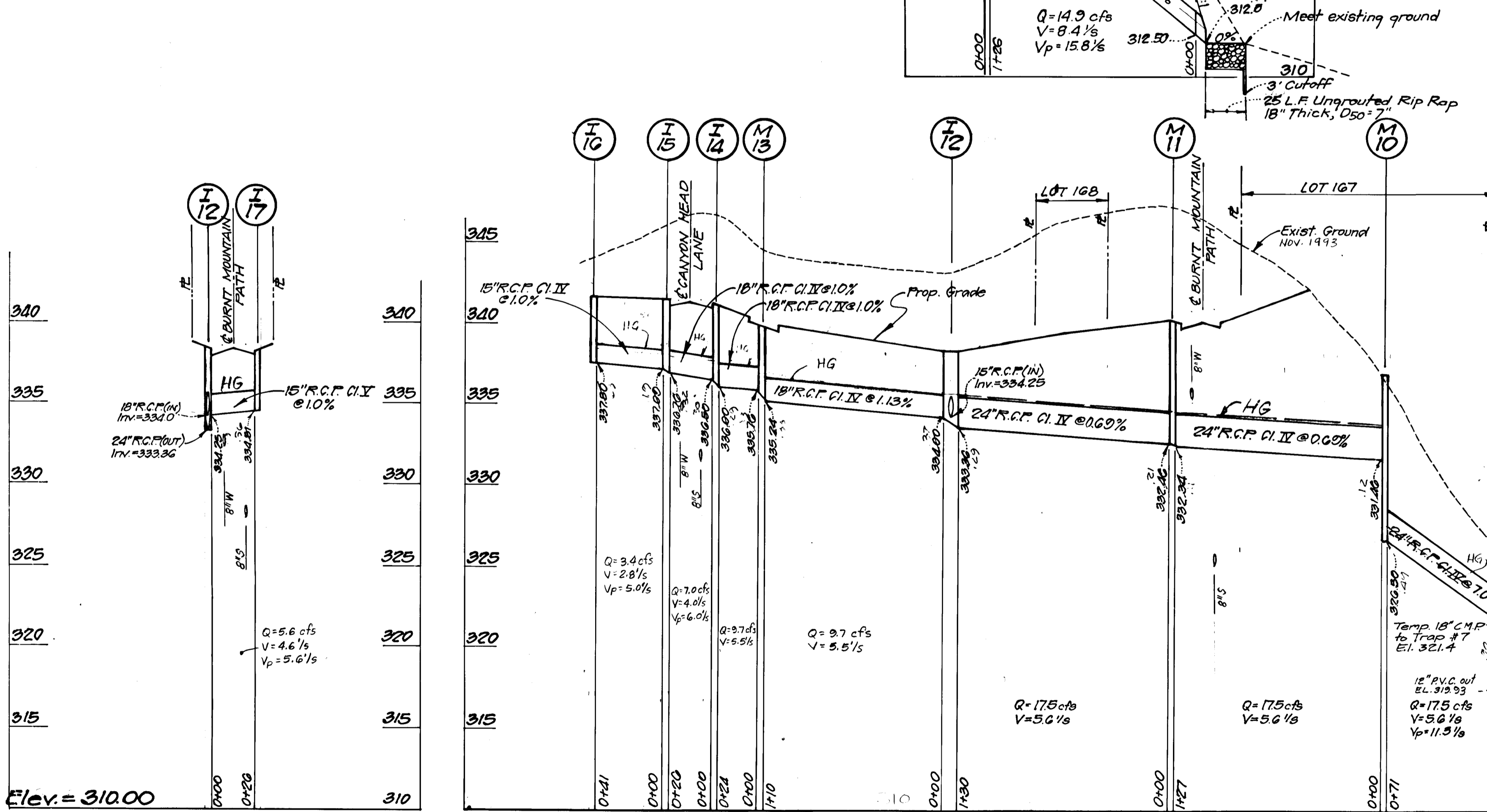
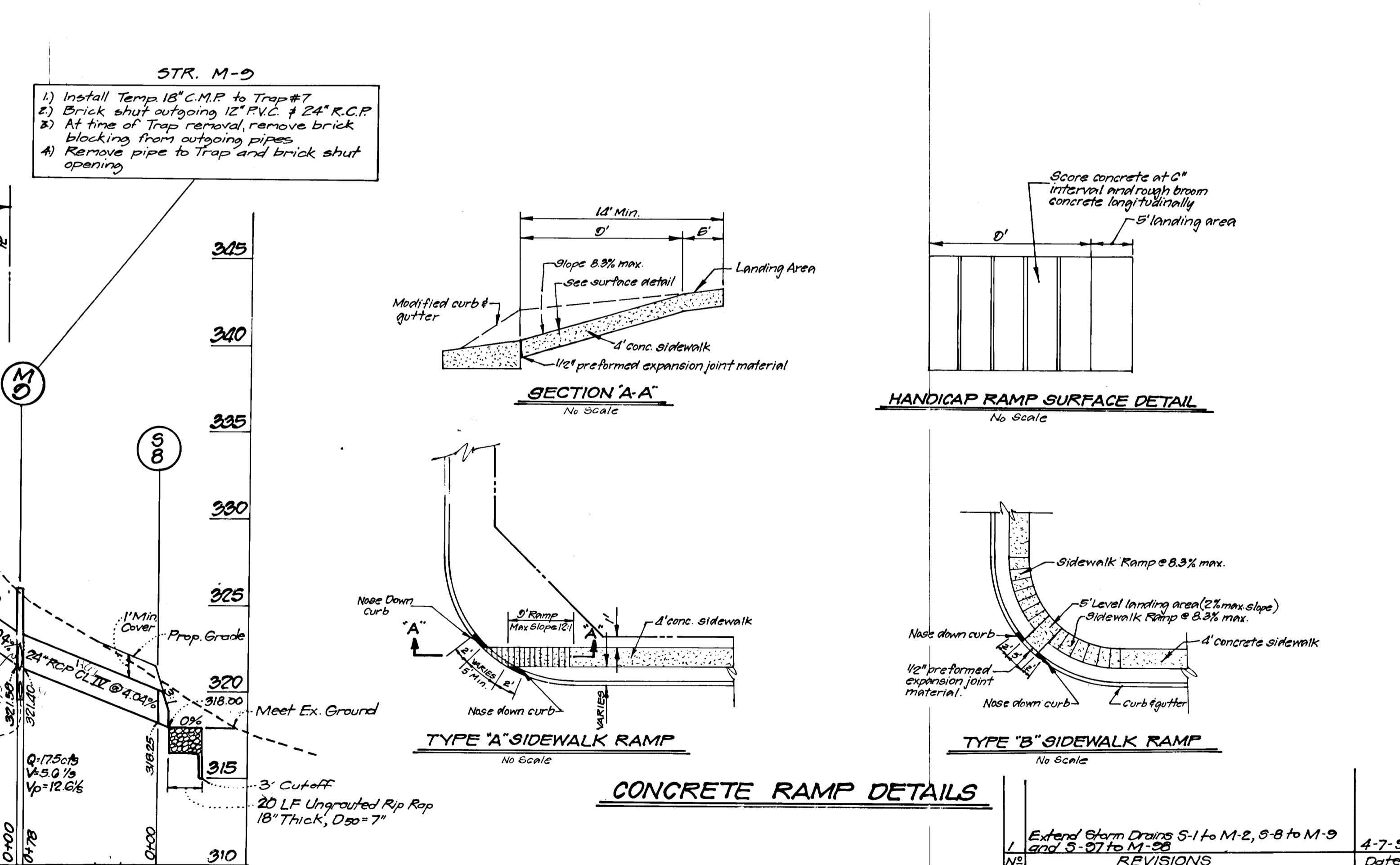
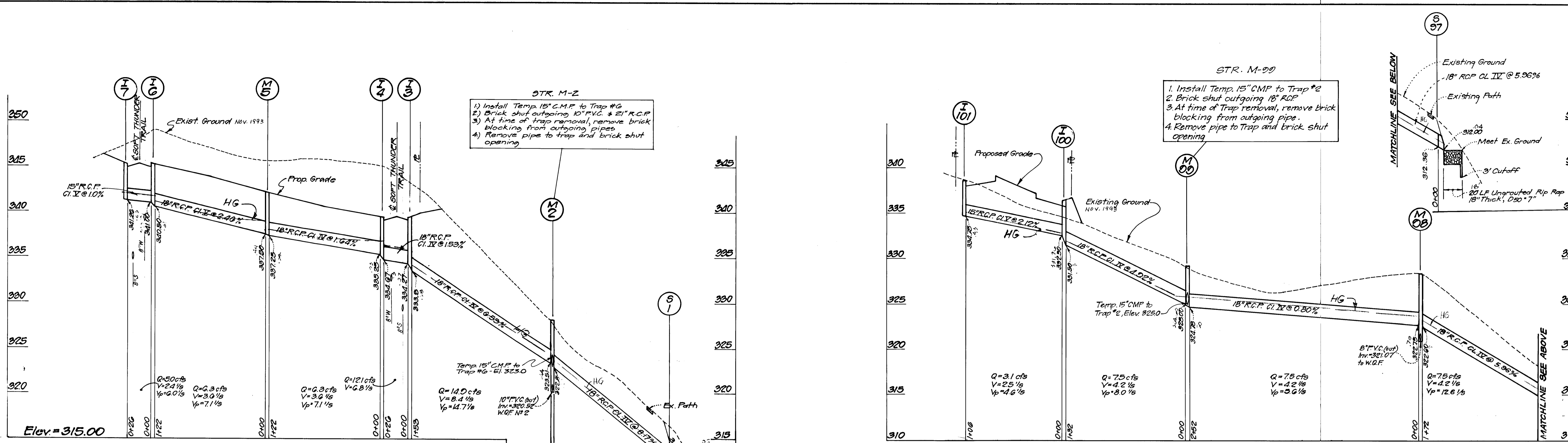
By The Developer:

I certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Signature of Developer: [Signature] Date: 11-10-94



001



DEVELOPER'S/BUILDER'S CERTIFICATE
 I, the undersigned, certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 or their authorized agents, as are deemed necessary.
 Signature of Developer: [Signature] Date: 9-9-94

ENGINEER'S CERTIFICATE
 I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Signature of Engineer: [Signature] Date: 9-9-94

Reviewed for HOWARD S.C.D. by [Signature] Date: 1/11/95
 Signature of [Signature] Date: 1-9-94
 US Soil Conservation Service

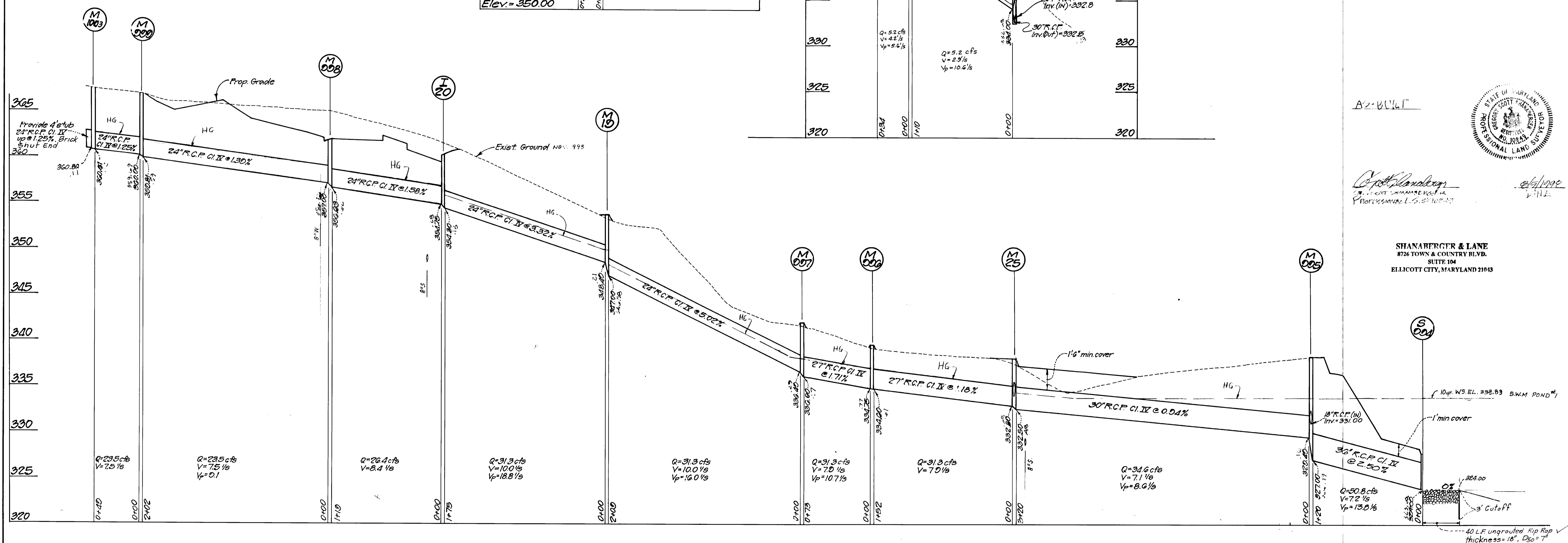
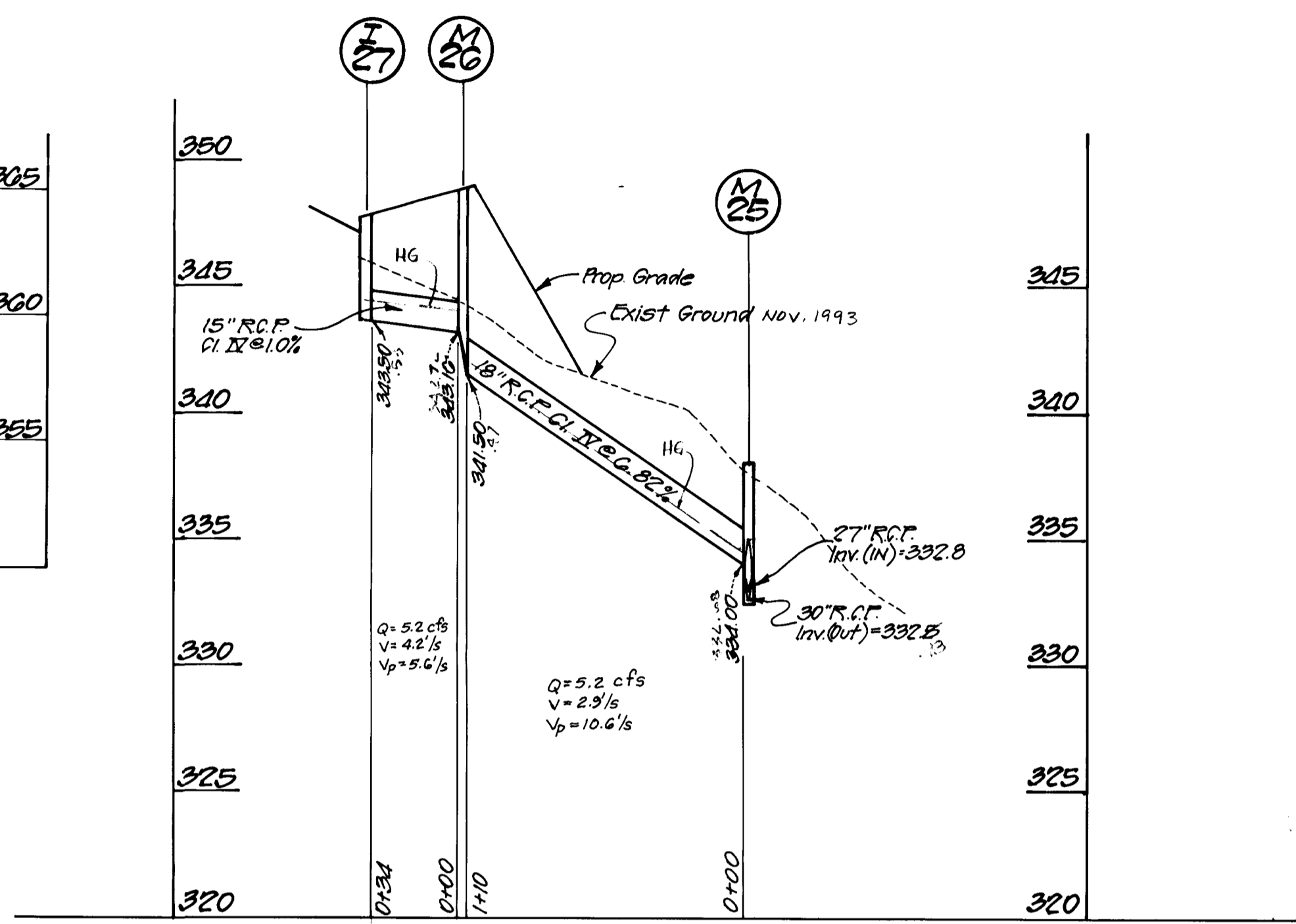
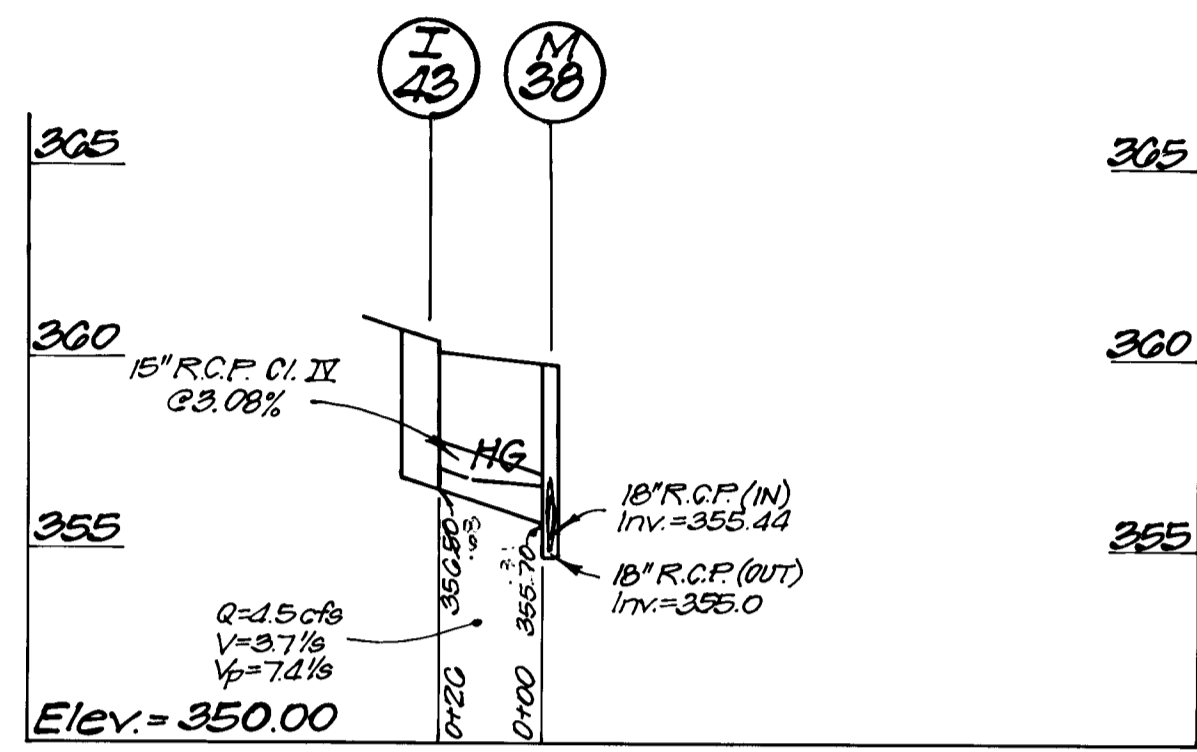
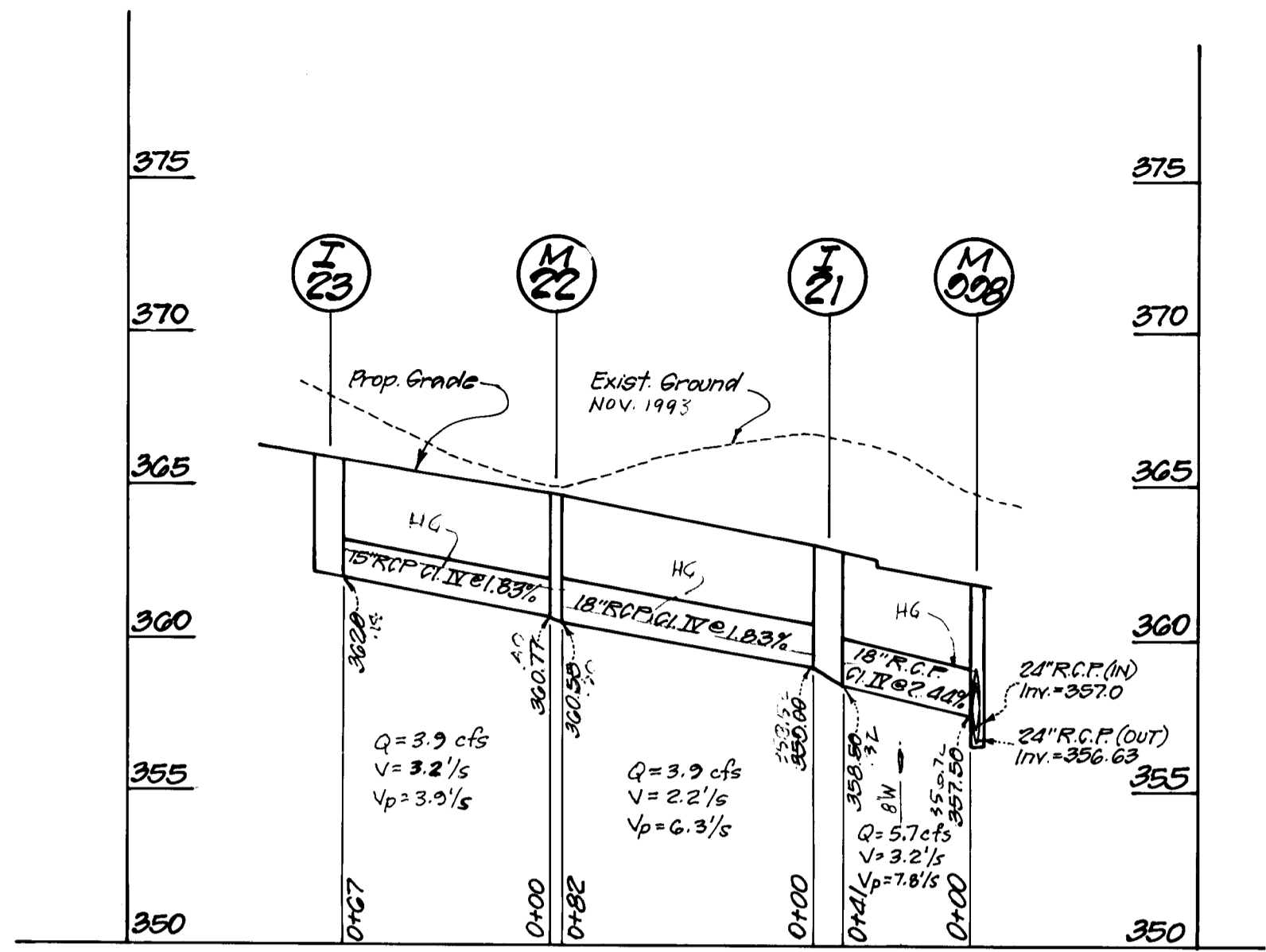
AS-BUILT
 SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] DATE: 12-5-94
 [Signature] DATE: 11-22-94
 [Signature] DATE: 12/6/94
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 [Signature] DATE: 1/12/95

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	STORM DRAIN PROFILES COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE Hor: 1"=50' Ver: 1"=5'
DRAWN ZAH		DRAWING 18 of 37
CHECKED DAB		JOB NO. 93177
DATE July 94		FILE NO. 93177-D
		DATE July 94

Small text at bottom: 02/14/95 HOWARD RESEARCH & DEVELOPMENT UNIT, 10275 LITTLE PATUXENT PARKWAY, COLUMBIA, MARYLAND 21044



A2-B/C/G/F

Shanabarger
 SHANABARGER & LANE
 PROFESSIONAL LAND SURVEYORS



SHANABARGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

10yr. W.S. EL. 332.93 SWM POND #1
 1 min. cover
 3' Cutoff
 40 L.F. ungrouted Rip Rap
 thickness = 18", D₅₀ = 7"

DEVELOPER'S/BUILDER'S CERTIFICATE
 "I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 or their authorized agents, as are deemed necessary."
 Signature of Developer: *[Signature]* Date: 9-6-94

ENGINEER'S CERTIFICATE
 I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Signature of Engineer: *[Signature]* Date: 9-9-94



Reviewed for HOWARD COUNTY DEPT. OF PUBLIC WORKS
 and meets Technical Requirements
 Signature: *[Signature]* Date: 1/11/95
 US Soil Conservation Service

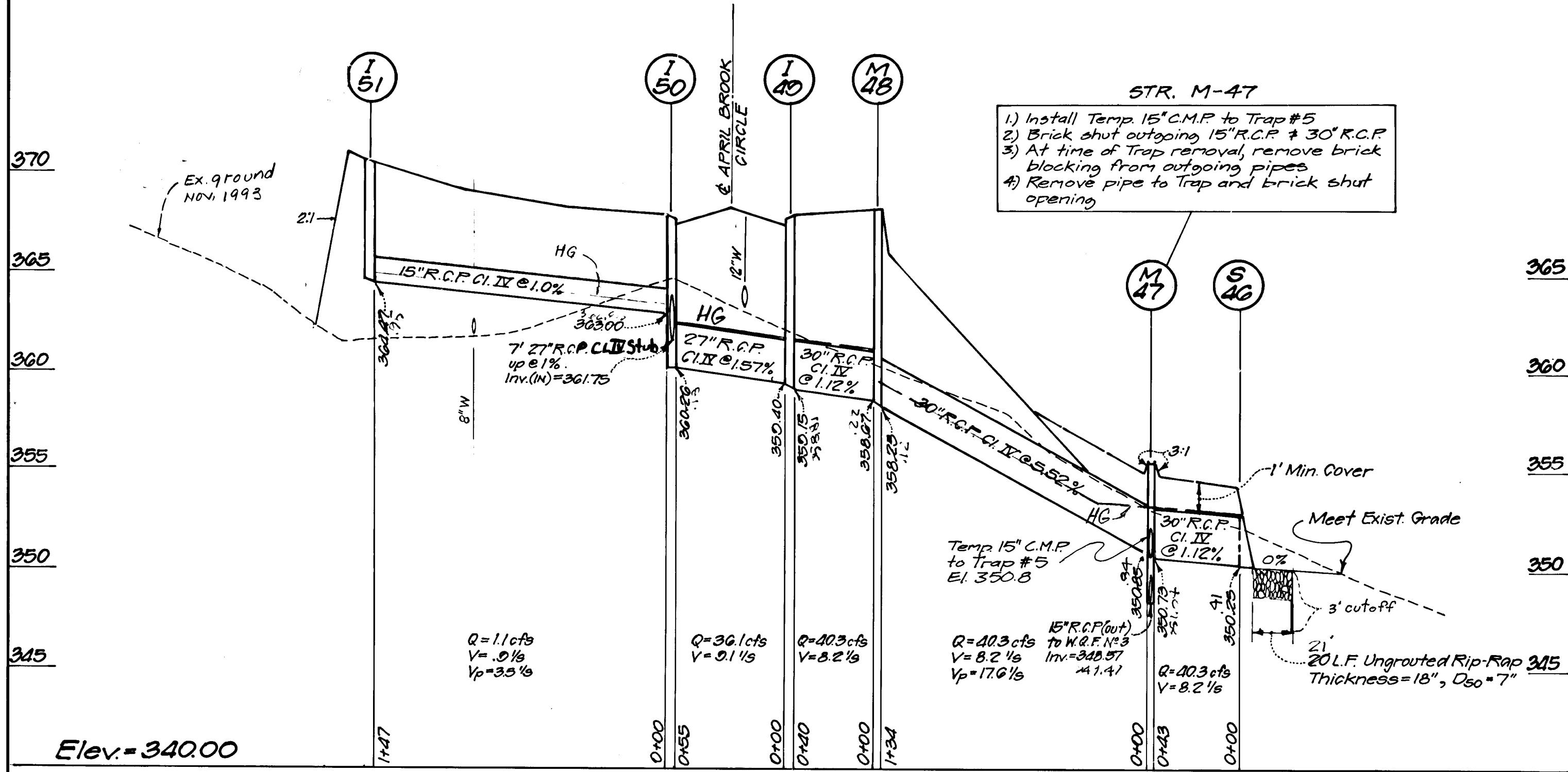
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Signature: *[Signature]* Date: 1/11/95
 Approved

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division
 Signature: *[Signature]* Date: 12-5-94
 Signature: *[Signature]* Date: 11-22-92
 Signature: *[Signature]* Date: 12/6/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 Chief, Division of Land Development and Research
 Signature: *[Signature]* Date: 1/12/95

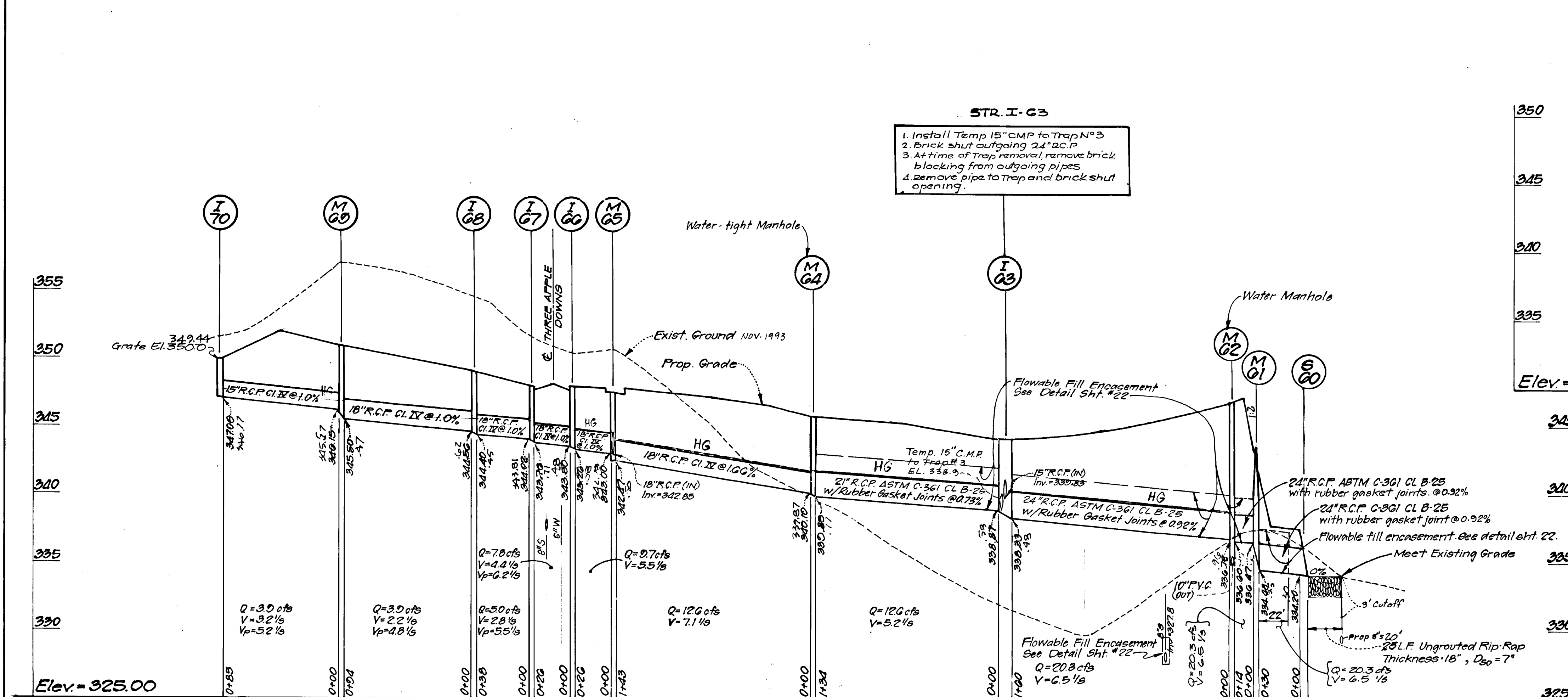
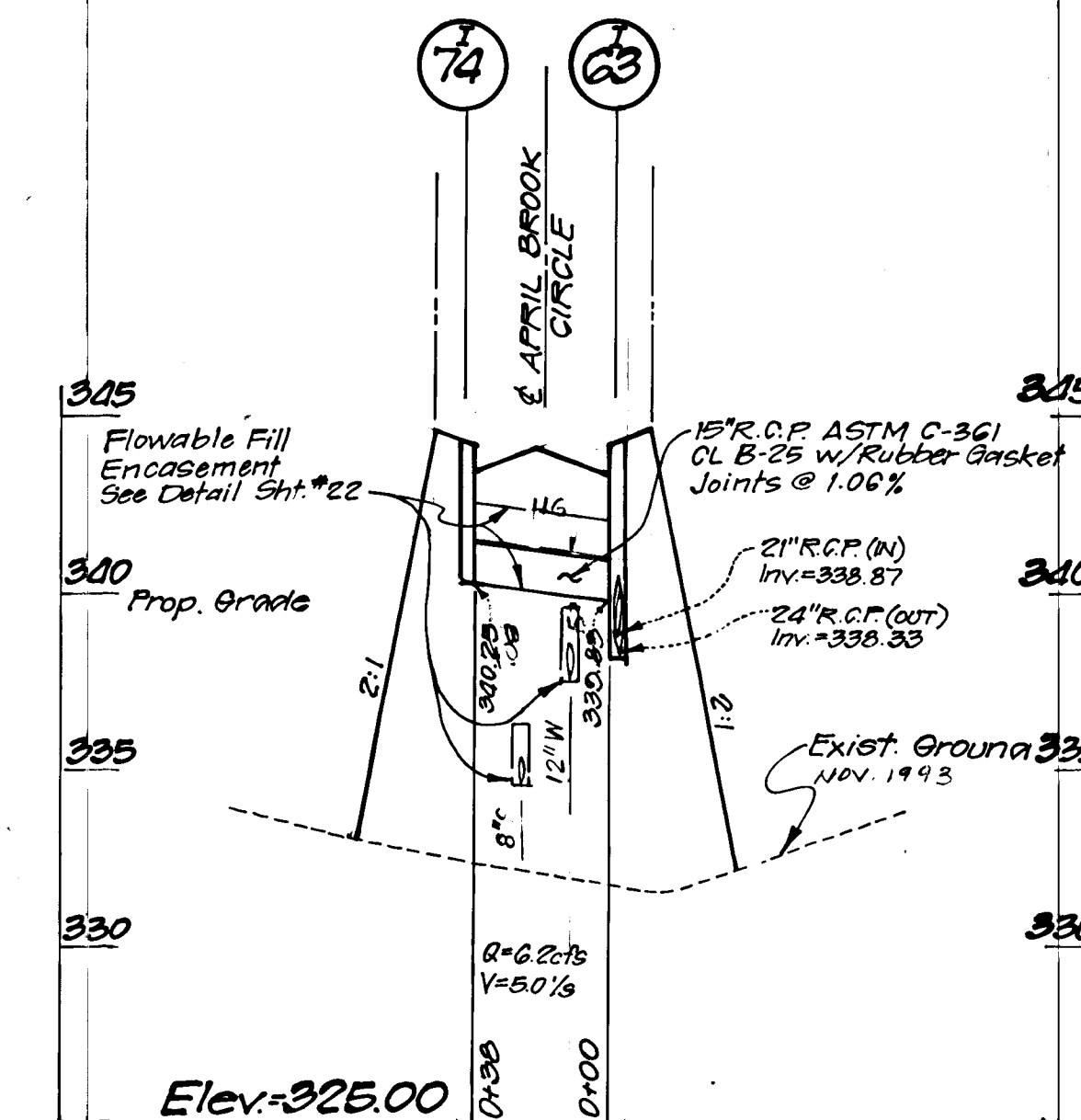
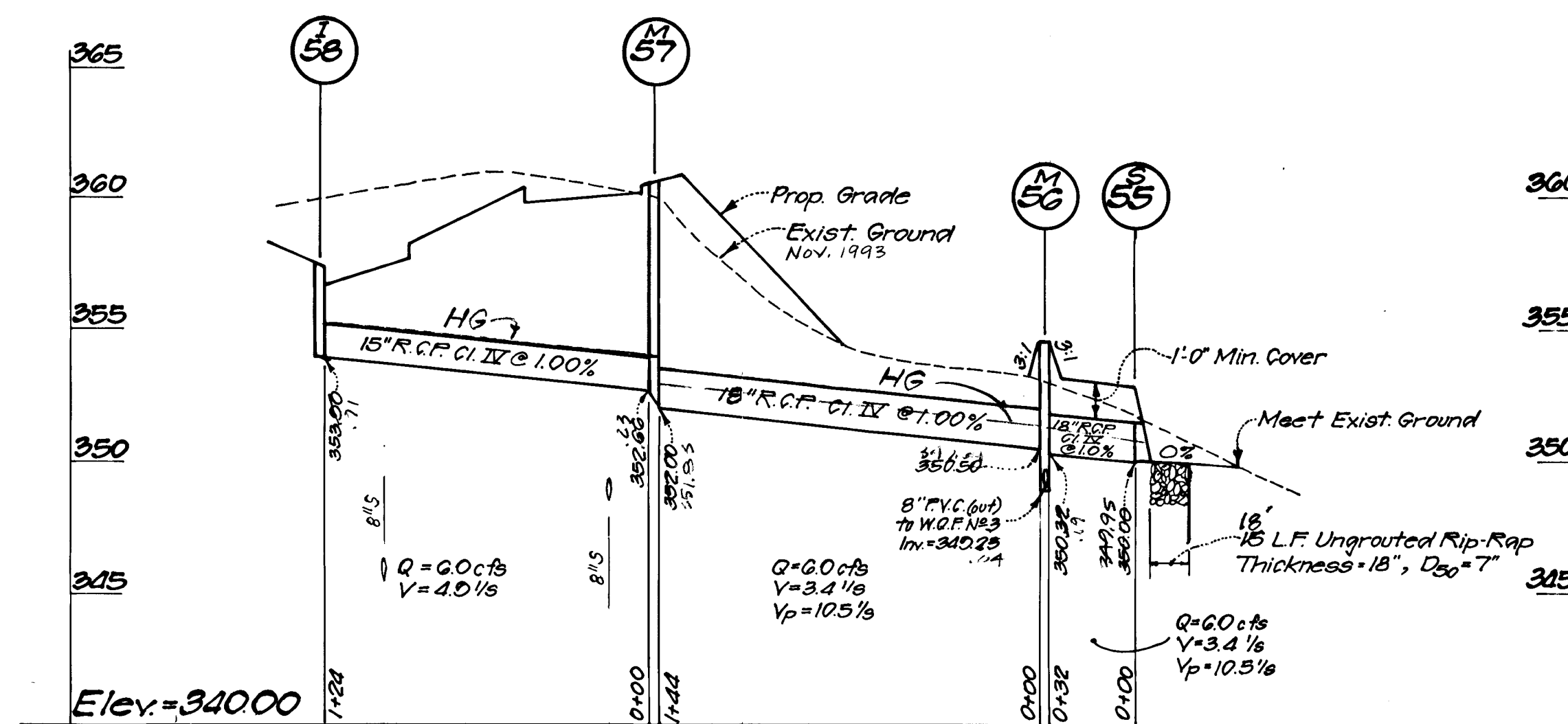
CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.	
DESIGNED DAB	SCALE Hor: 1"=50' Ver: 1"=5'
DRAWN ZAH	DRAWING 19 of 37
CHECKED DAB	JOB NO. 03177
DATE Aug 04	FILE NO. 03177-D
STORM DRAIN PROFILES COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6th) LLECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	

F-95-75



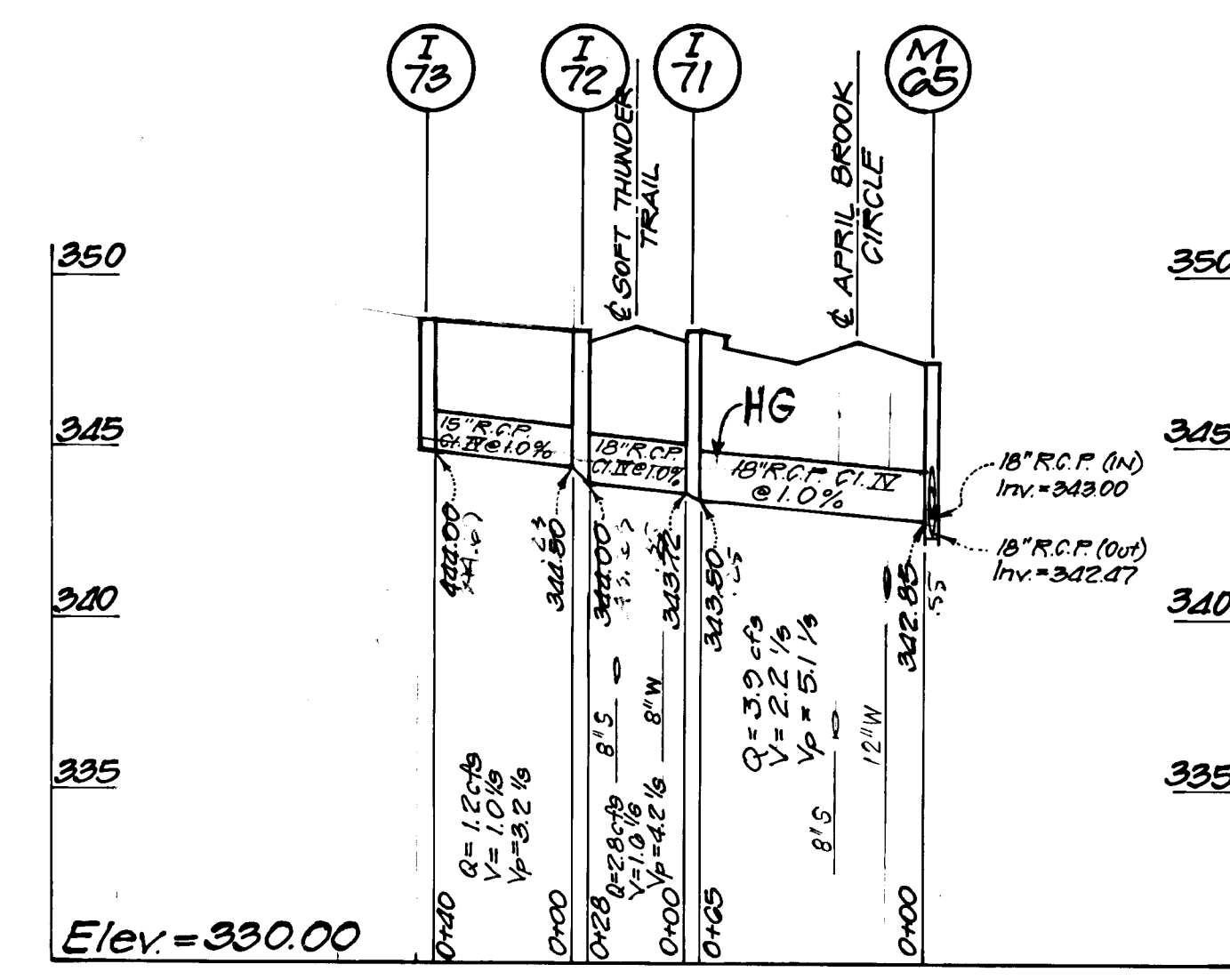
STR. M-47

- 1) Install Temp 15" CMP to Trap #5
- 2) Brick shut outgoing 15" R.C.P. & 30" R.C.P.
- 3) At time of Trap removal, remove brick blocking from outgoing pipes
- 4) Remove pipe to Trap and brick shut opening



STR. I-G3

1. Install Temp 15" CMP to Trap N°3
2. Brick shut outgoing 24" R.C.P.
3. At time of Trap removal, remove brick blocking from outgoing pipes
4. Remove pipe to Trap and brick shut opening



AS-BUILT

Shanaberger & Lane
 CLAUDE SHANABERGER
 PROFESSIONAL L.S. #10819

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21103

Reviewed for HOWARD S.C.D.
 meets Technical Requirements
Robert E. H. Walker
 Signature of Engineer
 US Soil Conservation Service

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John F. Smith
 CHIEF, PLANNING & DEVELOPMENT DIVISION (RETIREE) M.M.K. 12-5-94
 DATE

Richard M. Sank
 CHIEF, DEPT. OF PUBLIC WORKS 11-22-94
 DATE

Samuel S. Japen
 CHIEF, BUREAU OF ENGINEERING 11-16-94
 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert E. H. Walker
 Approved

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Quia J. Jaramila
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH J.A. 1/12/95
 DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 or their authorized agents, as deemed necessary."

Robert E. H. Walker
 Signature of Developer 9-2-91
 Date

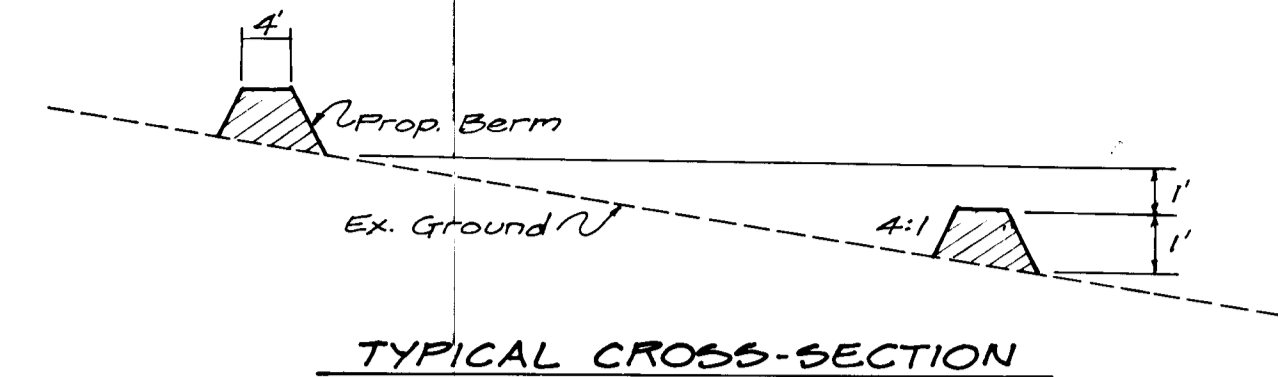
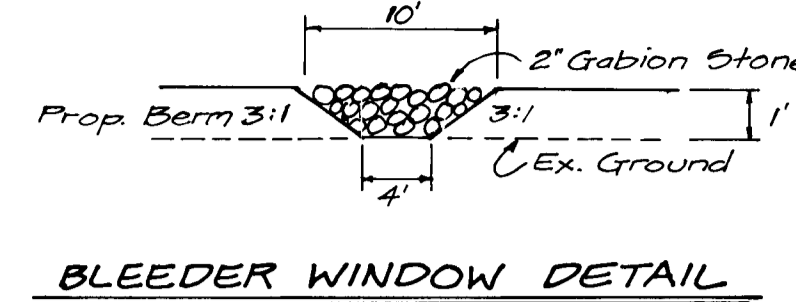
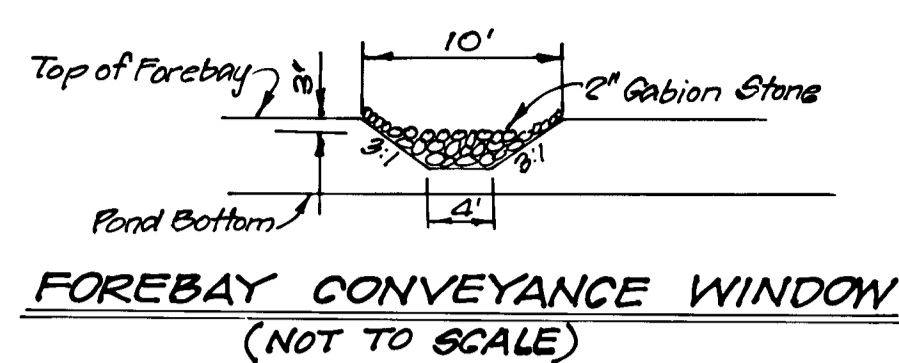
ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion 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.

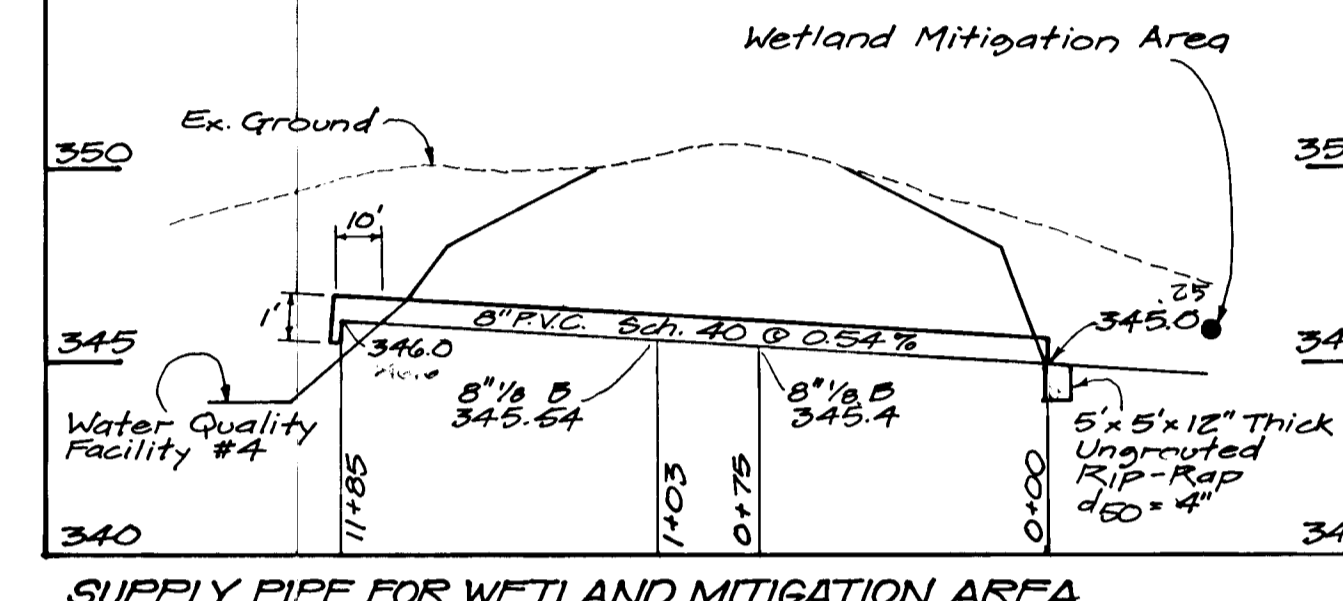
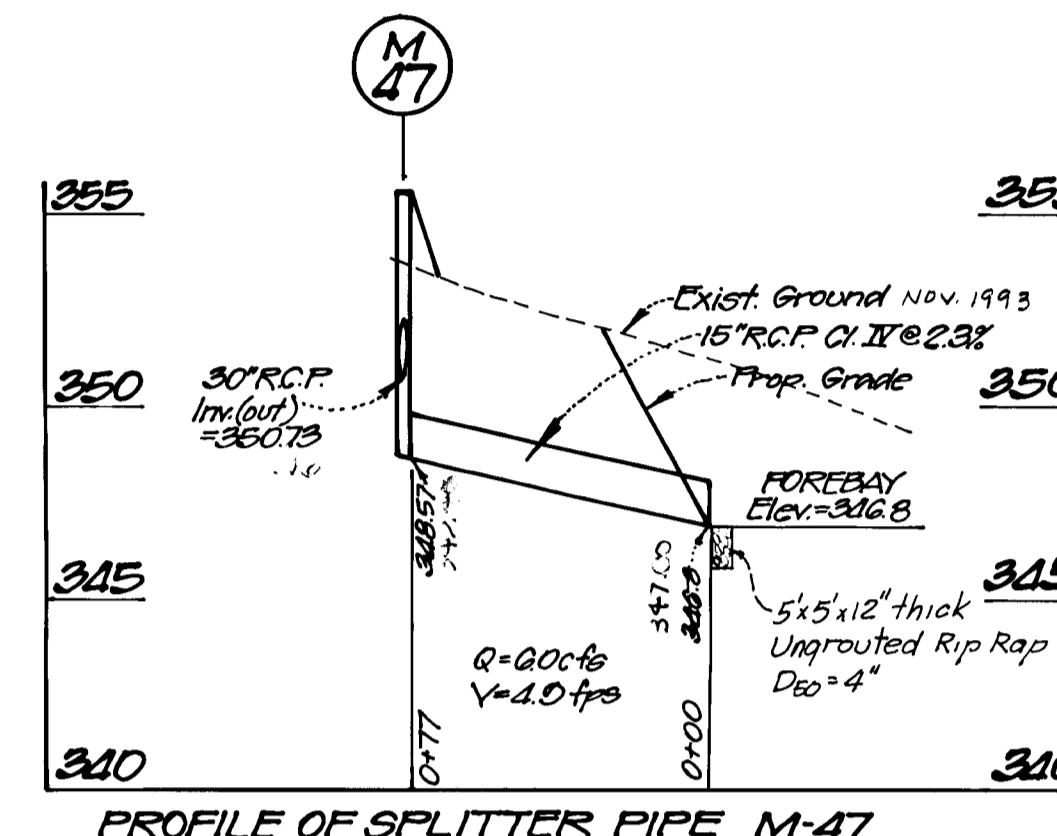
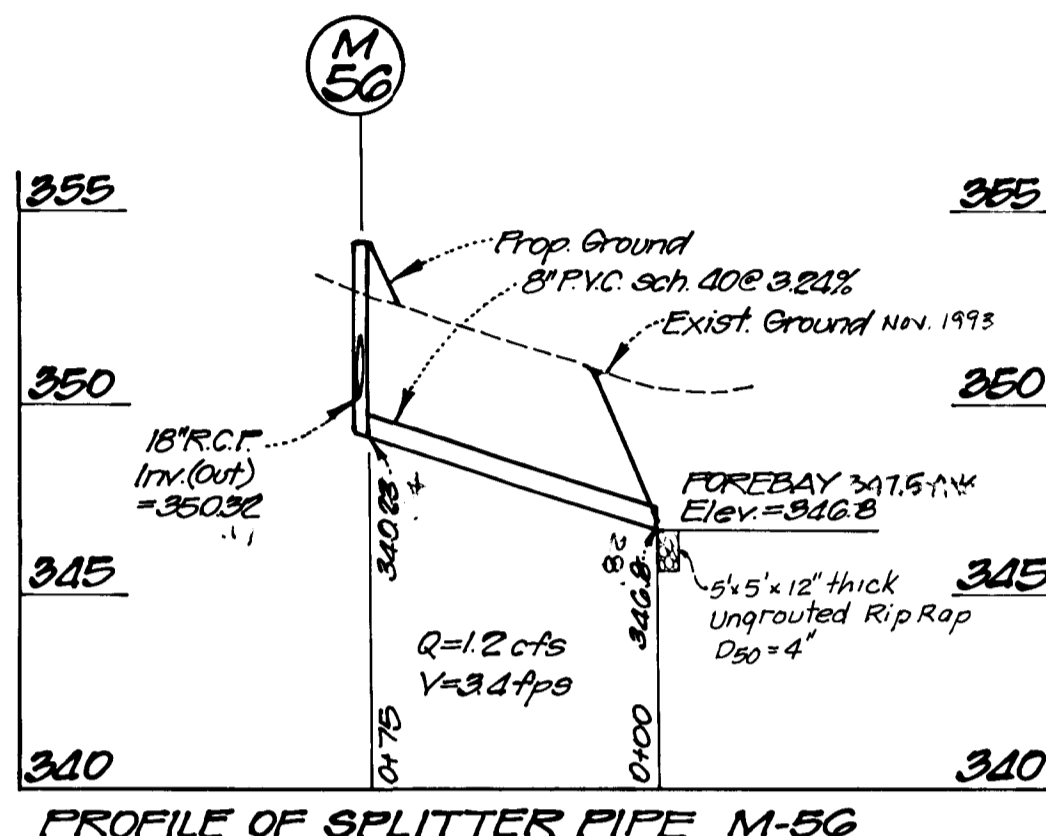
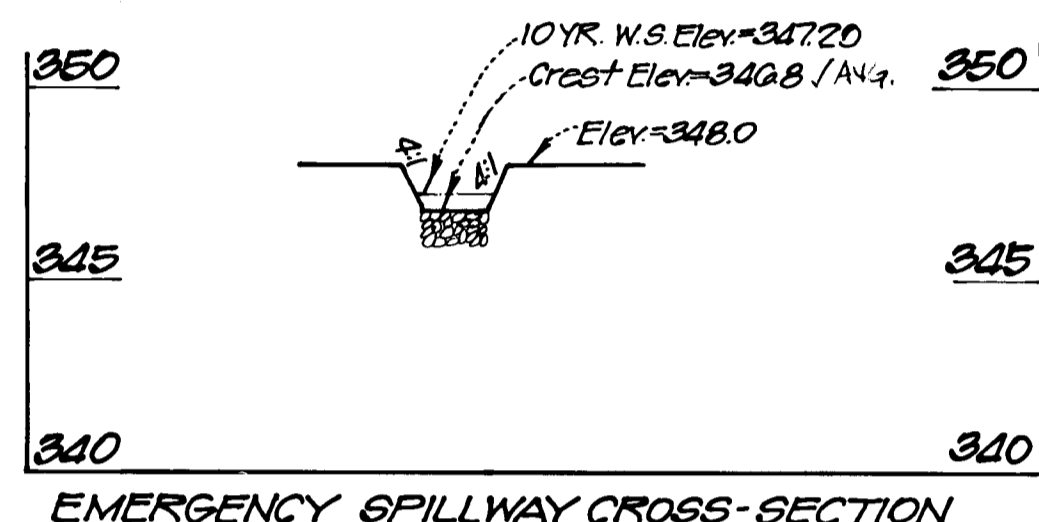
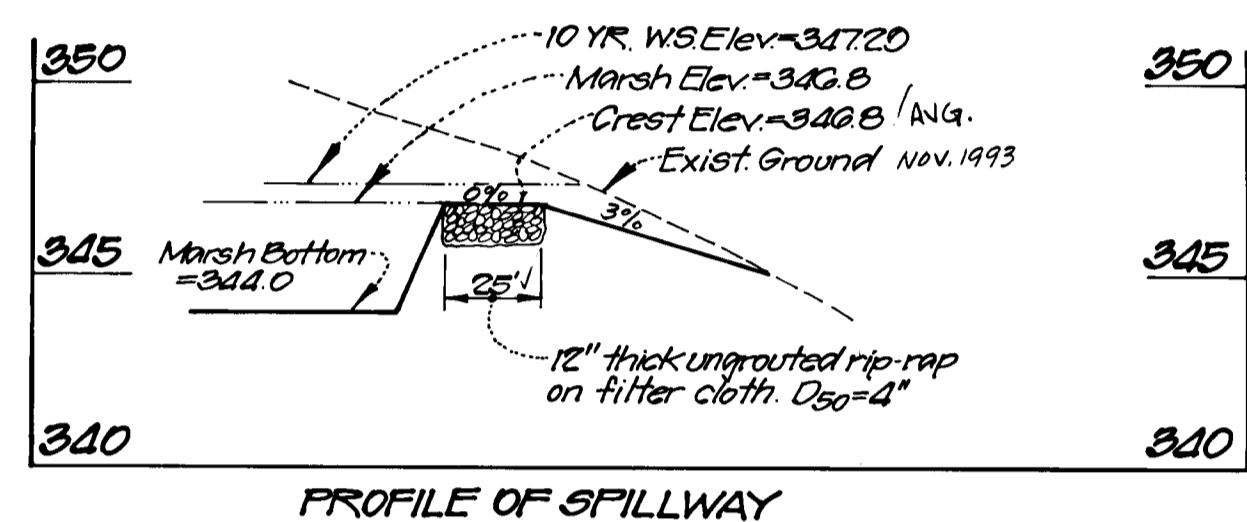
Robert E. H. Walker
 Signature of Engineer 9-9-94
 Date

CLARK • FINEROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

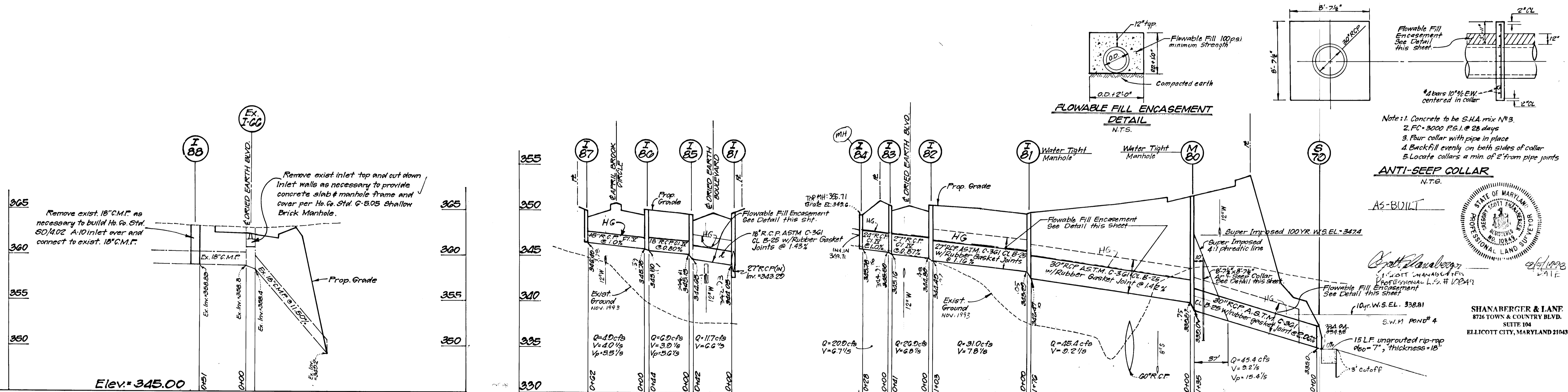
DESIGNED DAB	STORM DRAIN PROFILES COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND <small>OWNED BY: HOWARD RESTAURANT & DEVELOPMENT CORP. 10276 LITTLE PATRIOT PARKWAY COLUMBIA, MARYLAND 21044</small>	SCALE Horizontal 1"=50' Vertical 1"=3'
DRAWN ZAH		DRAWING 21 of 37
CHECKED DAB		JOB NO. 03177
DATE July 02		FILE NO. 03177D



MITIGATION AREA DETAILS
NOT TO SCALE



WATER QUALITY FACILITY N° 4



These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.

Patricia Enshelmann 1/11/95
U.S. Soil Conservation Service

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved: *Robert M. Zick* 1/11/95
Howard S.C.D. Date

By the Engineer:

"I certify that this plan for pond construction, erosion and sediment control is a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

Q. H. Q. K.
Signature of Engineer Date 9-9-94

By The Developer:

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Q. H. Q. K.
Signature of Developer Date 9-6-94

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Mark Frank 12-5-94
CHIEF, LAND DEVELOPMENT DIVISION (ACTING) DATE

Robert M. Zick 11-22-94
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Uma Jovanovici 1/12/95
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

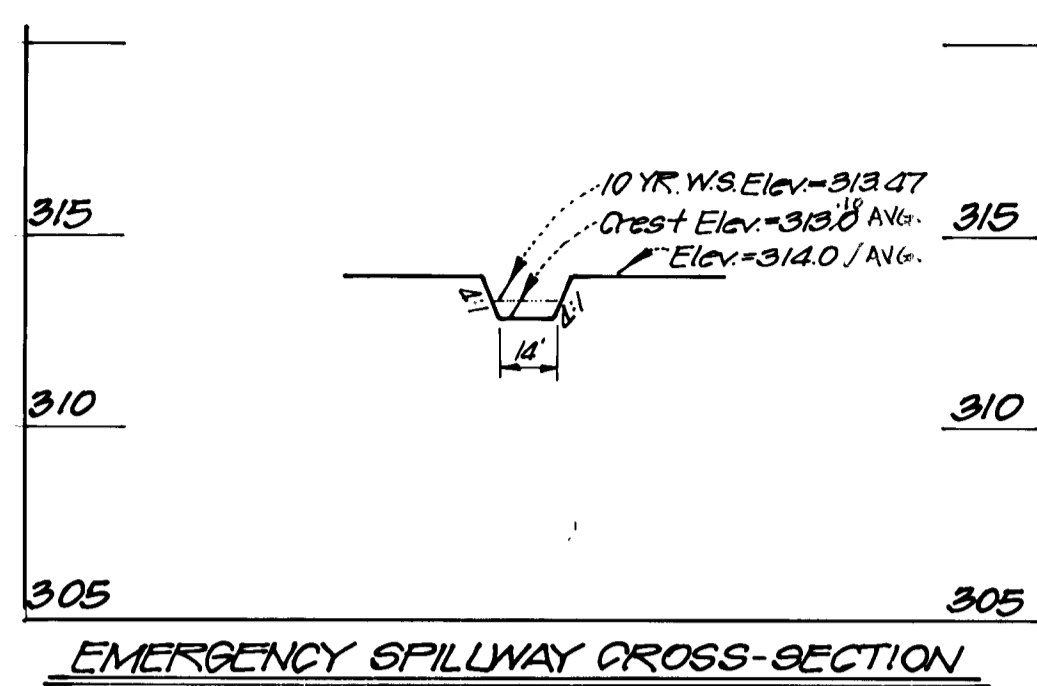
DESIGNED: DAB
DRAWN: ZAH
CHECKED: DAB
DATE: July 94

STORM DRAIN AND WATER QUALITY PROFILES
COLUMBIA
VILLAGE OF LONGREACH
SECTION 4 AREA 2
SIXTH (6th) ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

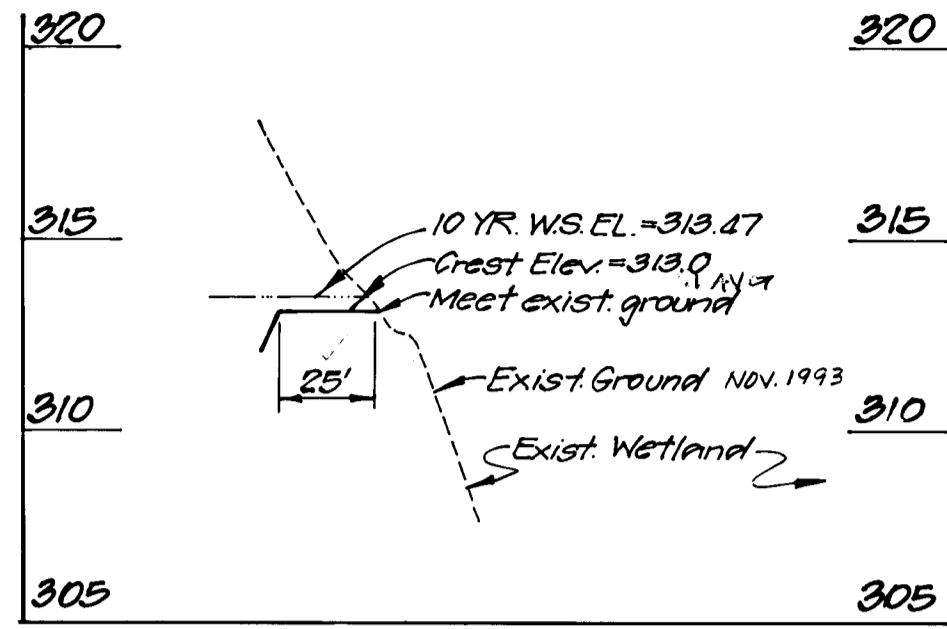
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Ver: 1"=5'
DRAWING: 22 of 37
JOB NO: 93177
FILE NO: 93177-D

DATE: July 94

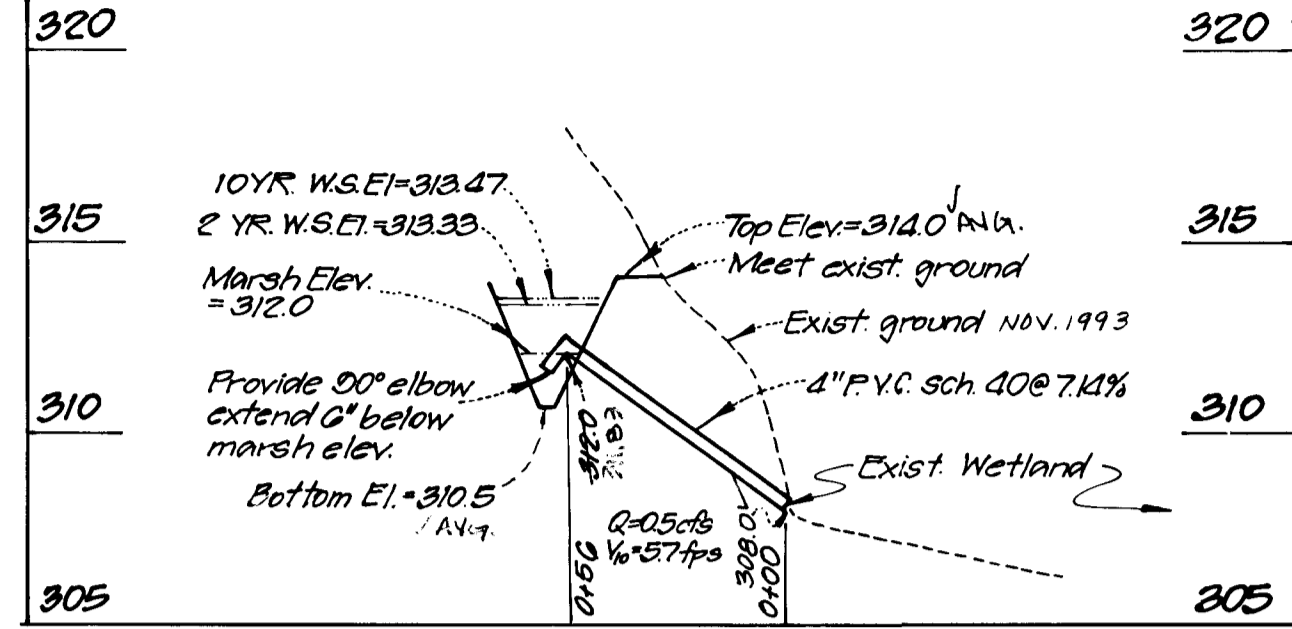
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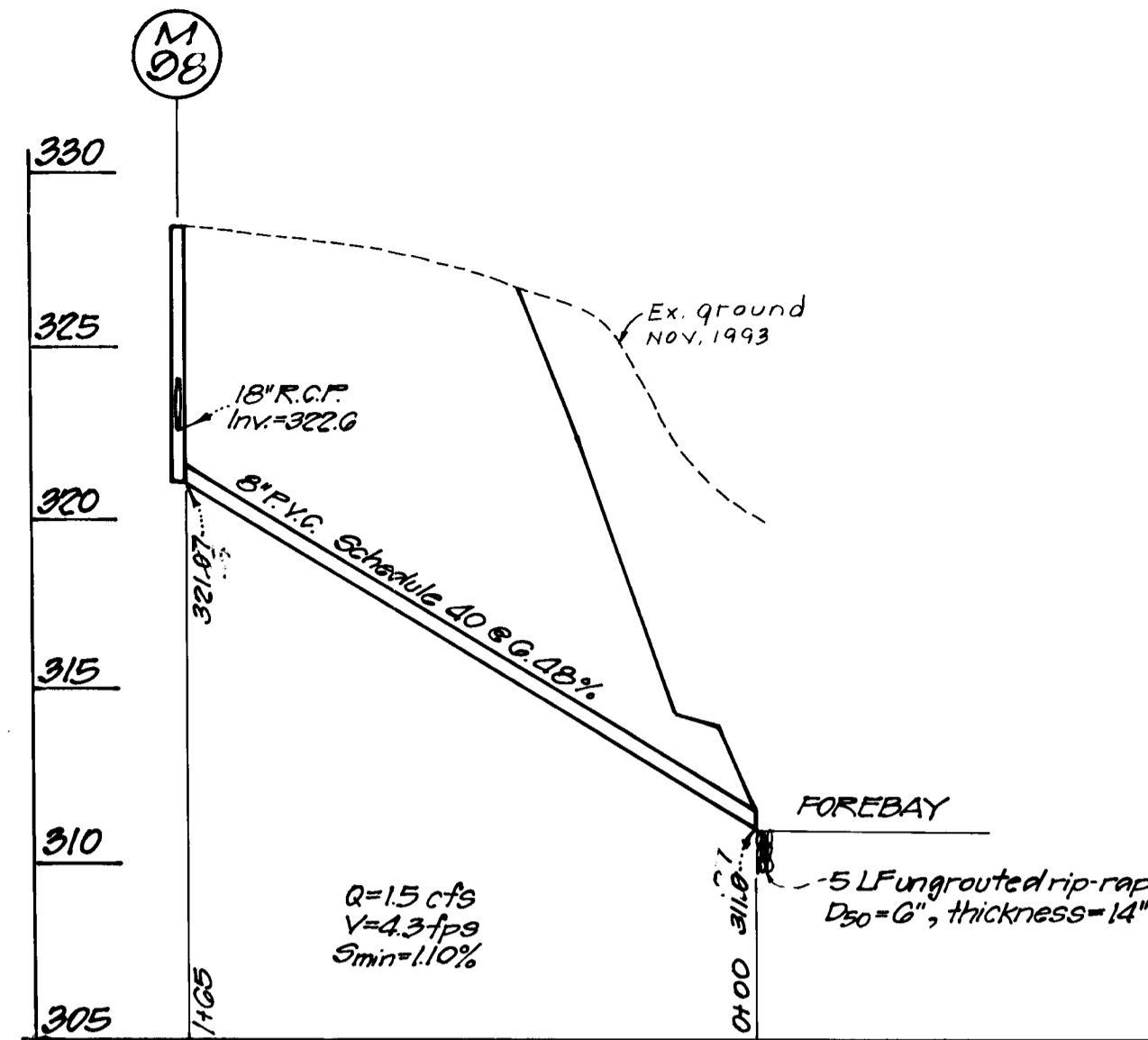
EMERGENCY SPILLWAY CROSS-SECTION



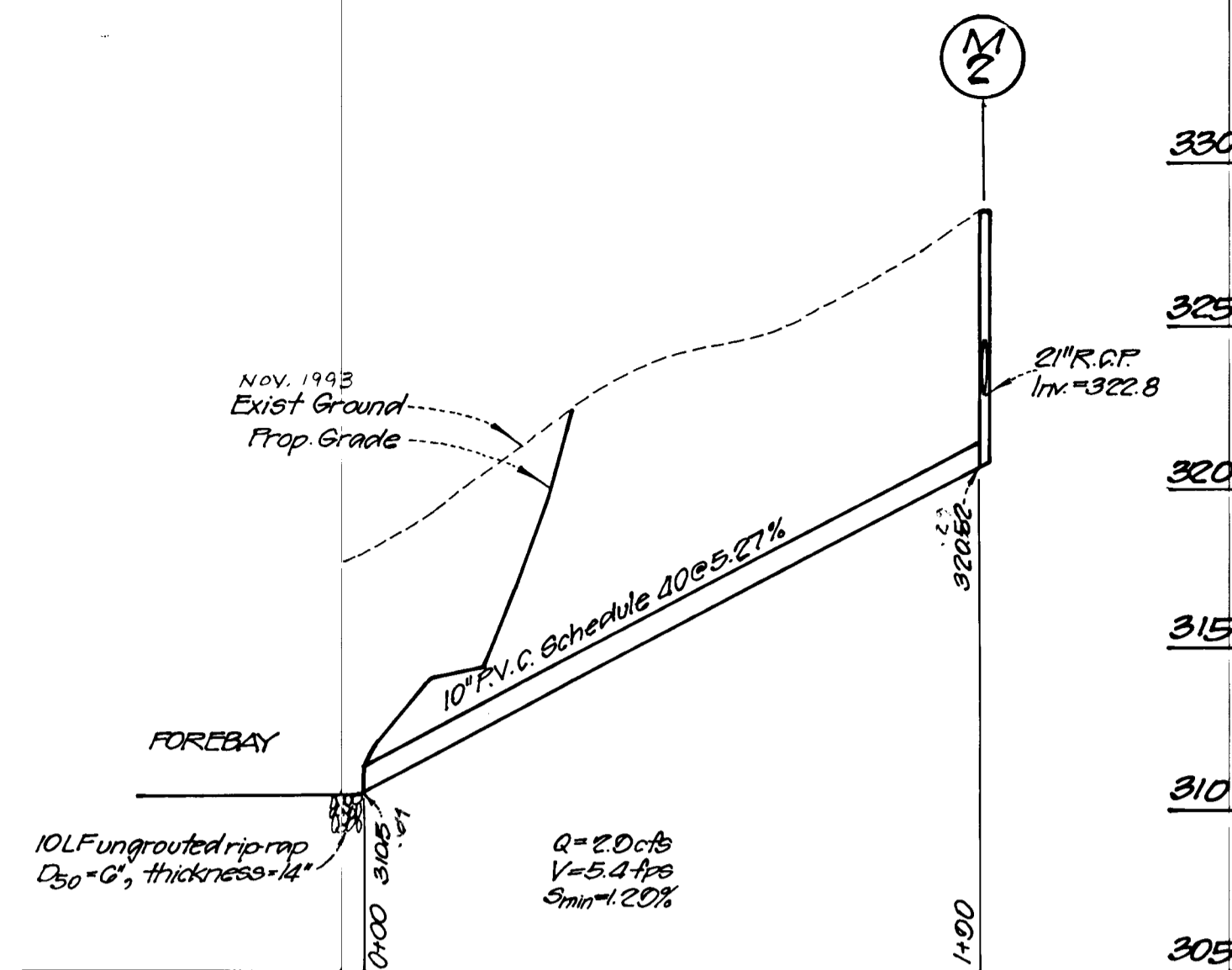
PROFILE OF EMERGENCY SPILLWAY



PROFILE OF SPILLWAY

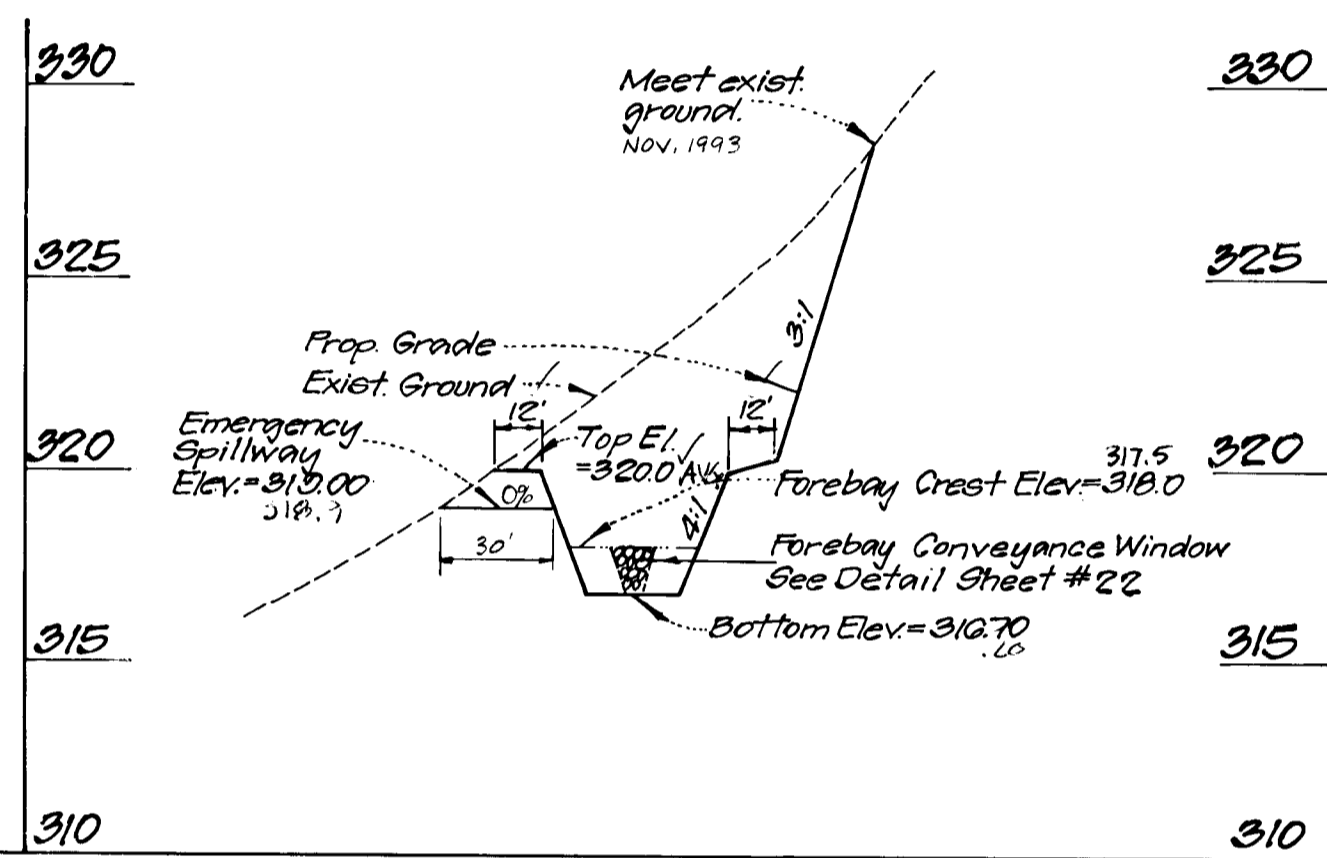


PROFILE OF SPLITTER PIPE M-08

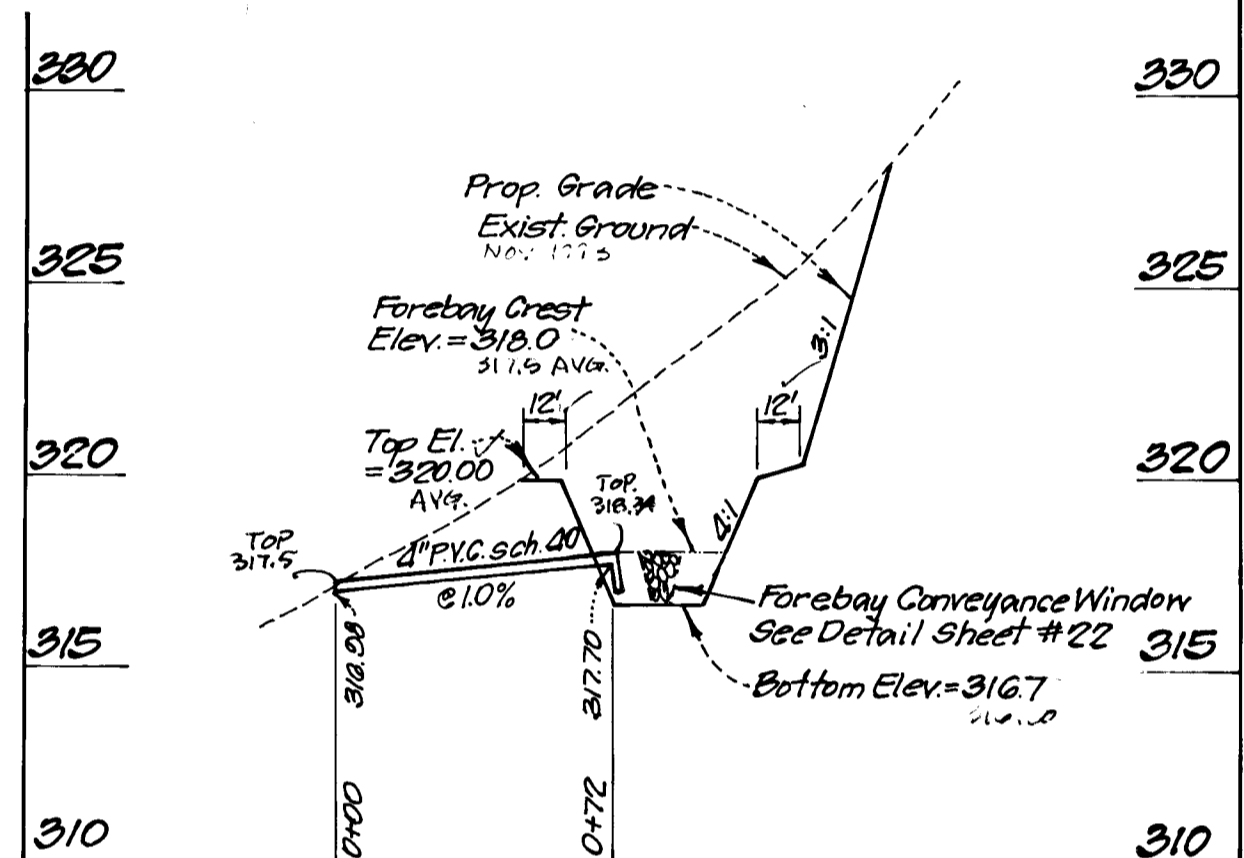


PROFILE OF SPLITTER PIPE M-2

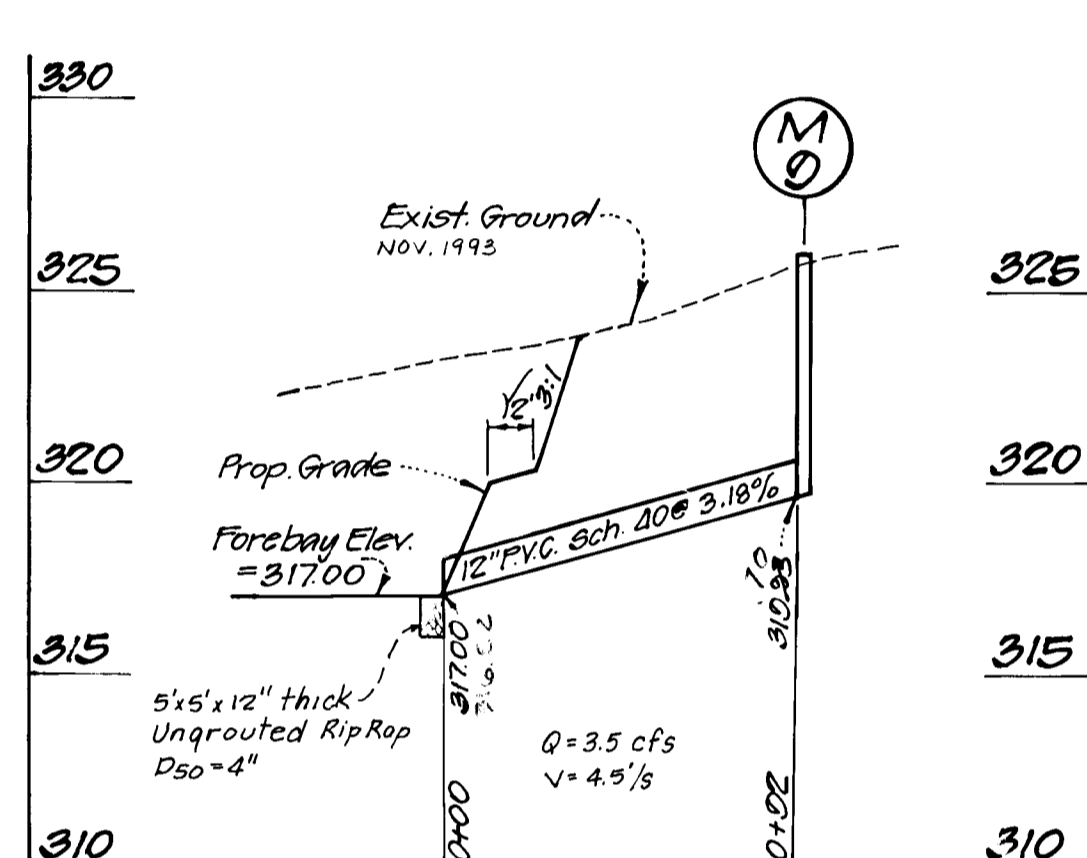
WATER QUALITY FACILITY No 1



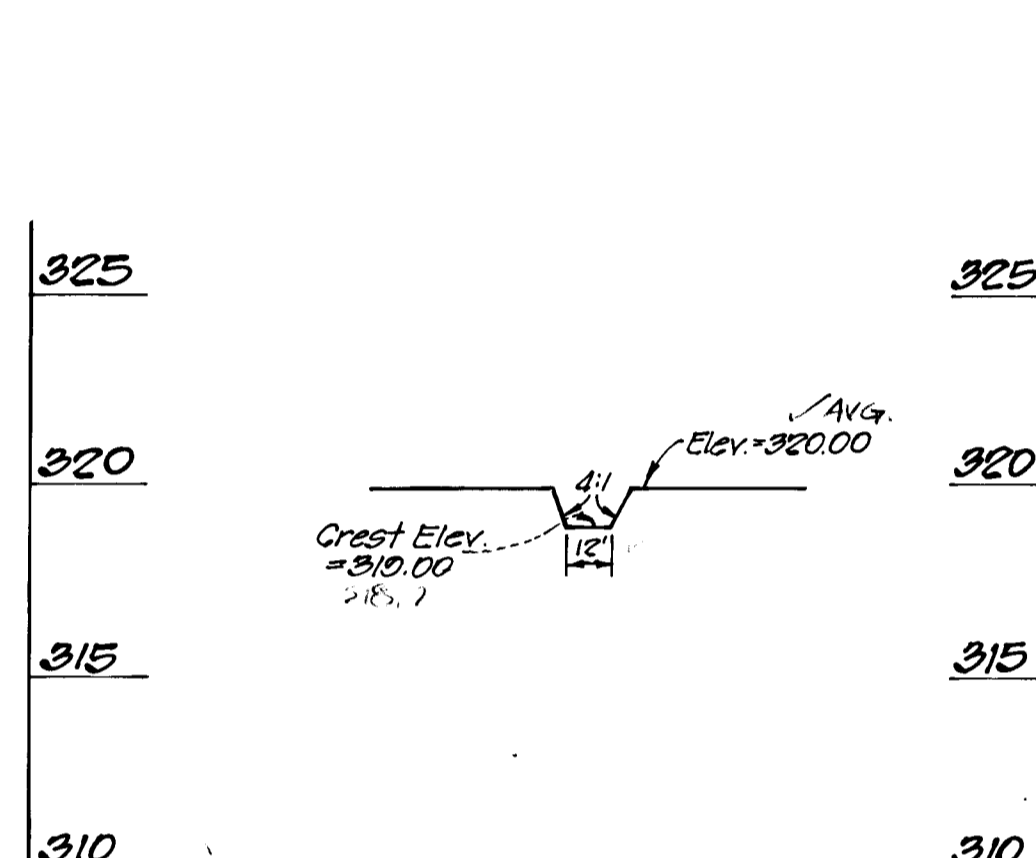
PROFILE OF EMERGENCY SPILLWAY



PROFILE OF SPILLWAY

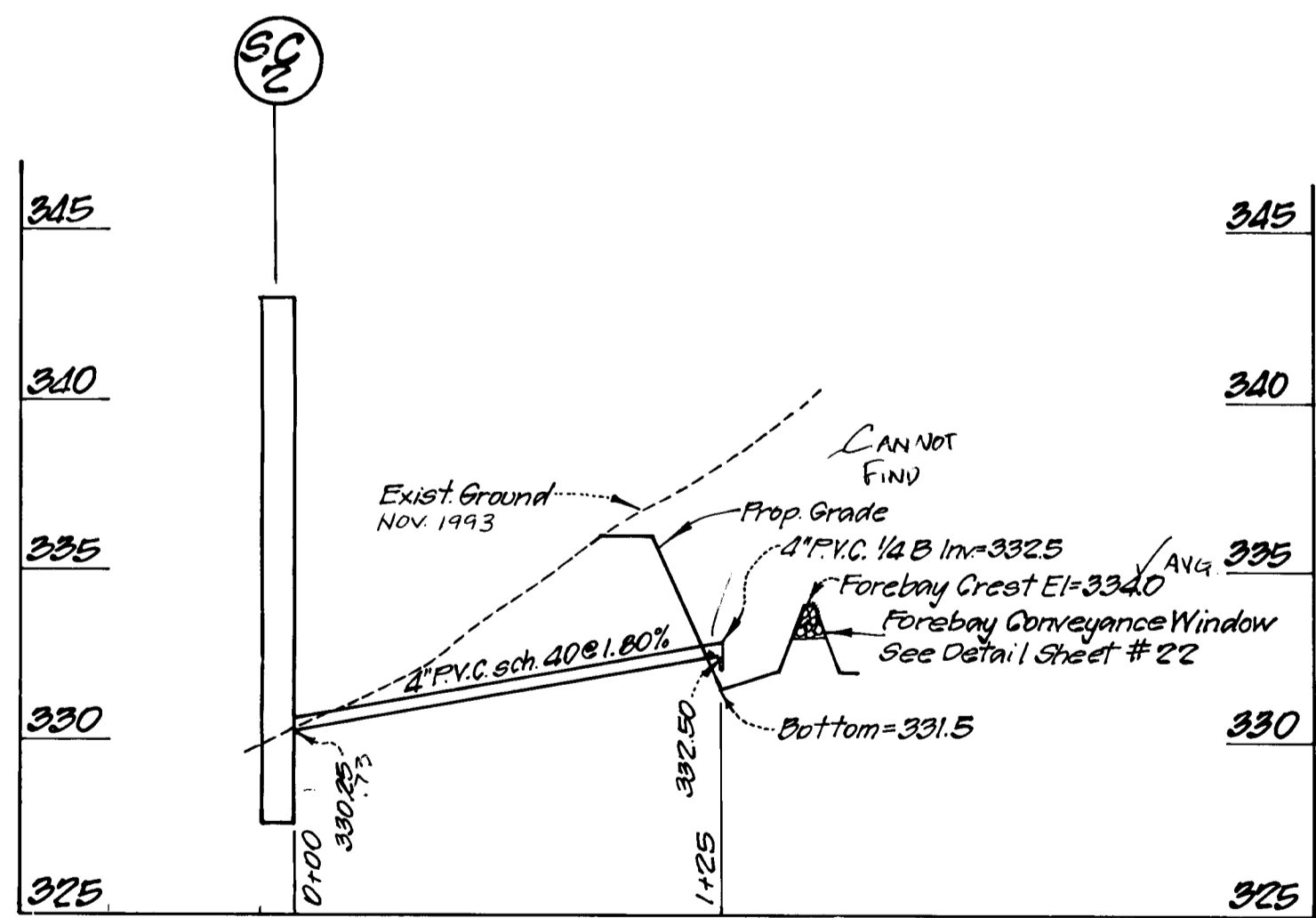


PROFILE OF SPLITTER PIPE

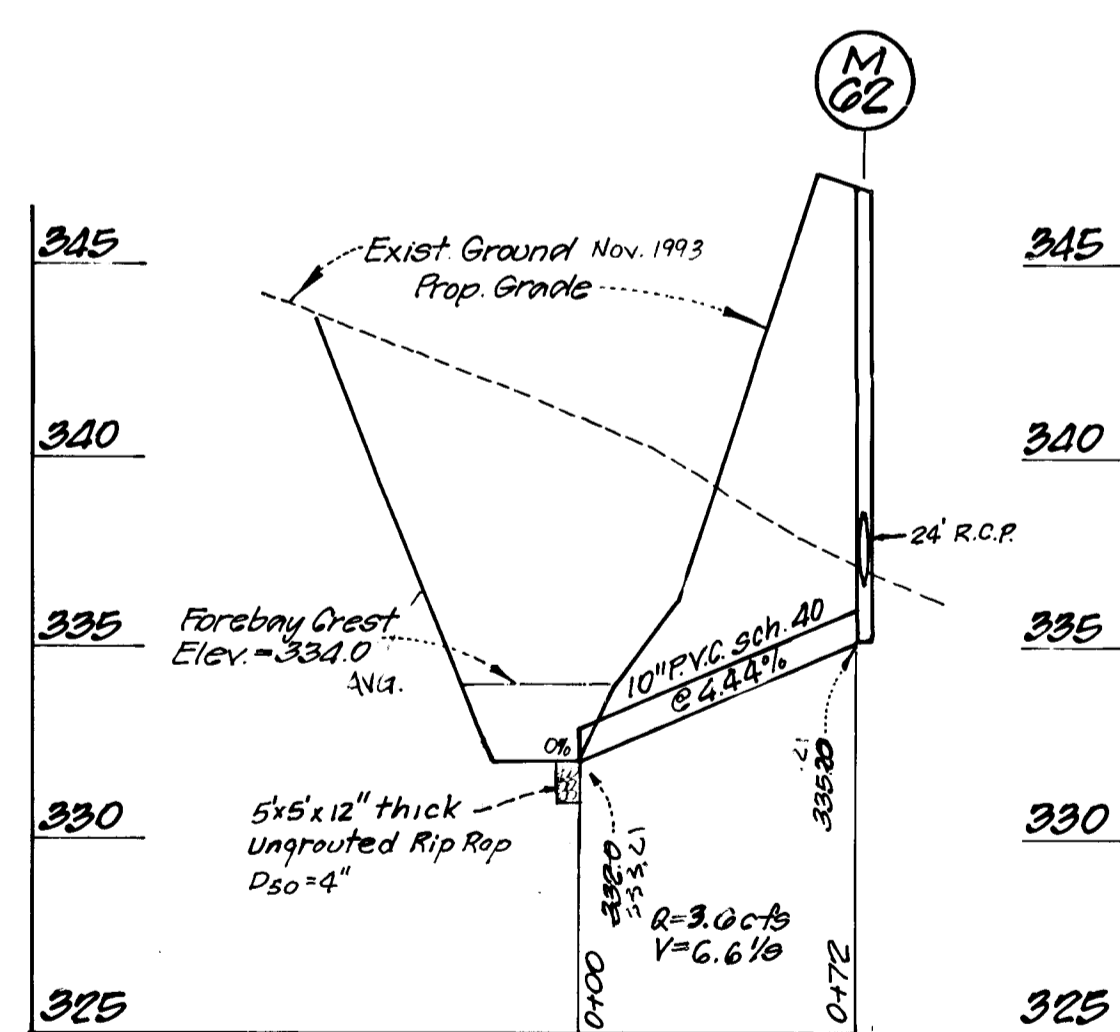


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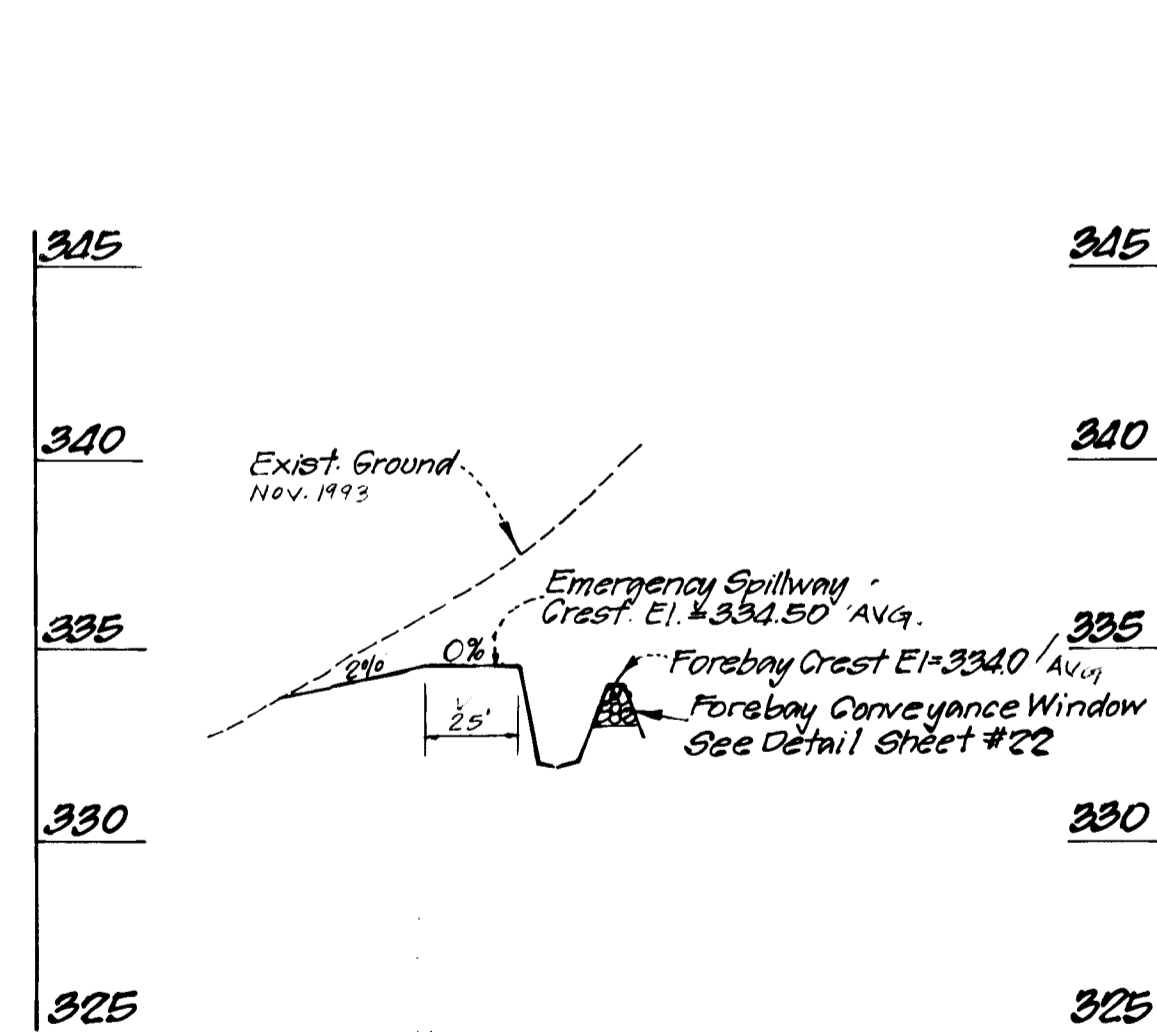
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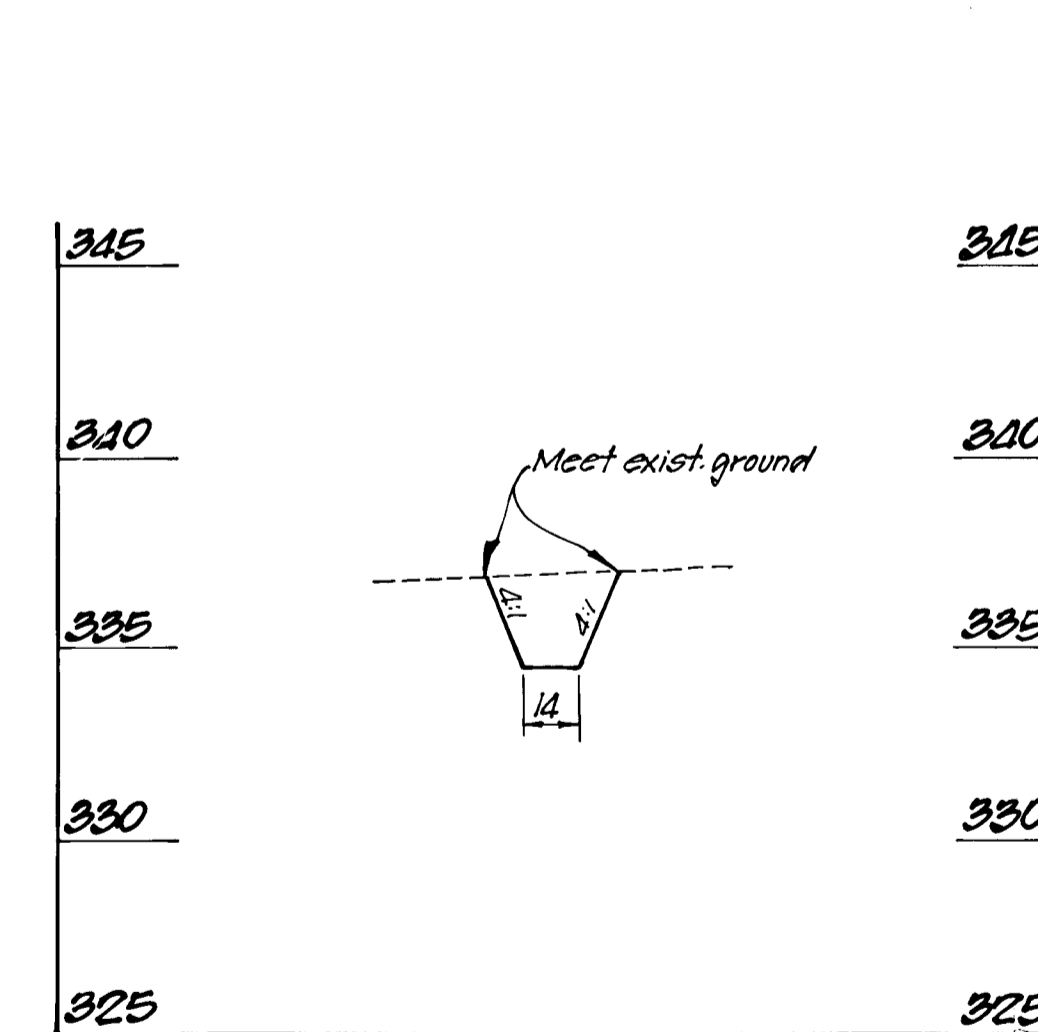
PROFILE OF SPILLWAY



PROFILE OF SPLITTER PIPE

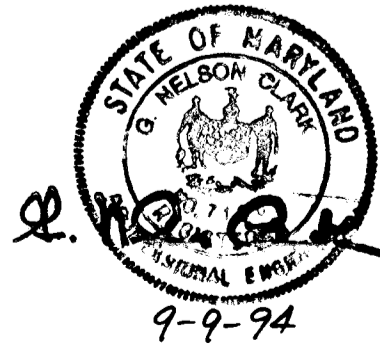


PROFILE OF SPILLWAY



EMERGENCY SPILLWAY CROSS-SECTION

WATER QUALITY FACILITY No 3



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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.

[Signature]
 Signature of Engineer
 9-9-94
 Date

By the Developer:
 I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

[Signature]
 Signature of Developer
 9-6-94
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] DATE 12-5-94
[Signature] DATE 11-22-94
[Signature] DATE 12/6/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
[Signature] DATE 1/12/95

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED: JLS
 DRAWN: ZAH
 CHECKED: DAB
 DATE: Aug. 94

WATER QUALITY FACILITY PROFILES
COLUMBIA
 VILLAGE OF LONGREACH
 SECTION 4 AREA 2
 SIXTH (6th) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: HORIZ. 1"=50'
 VERT. 1"=5'
 DRAWING: 23 of 37
 JOB NO.: 93177
 FILE NO.: 93177-D

FOR: HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044



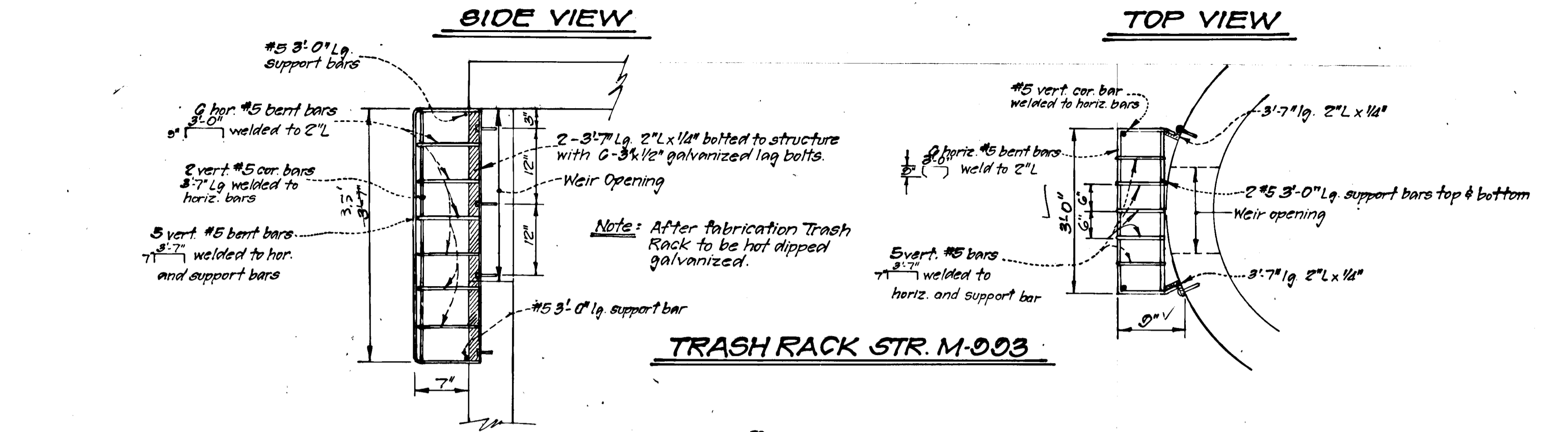
SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.

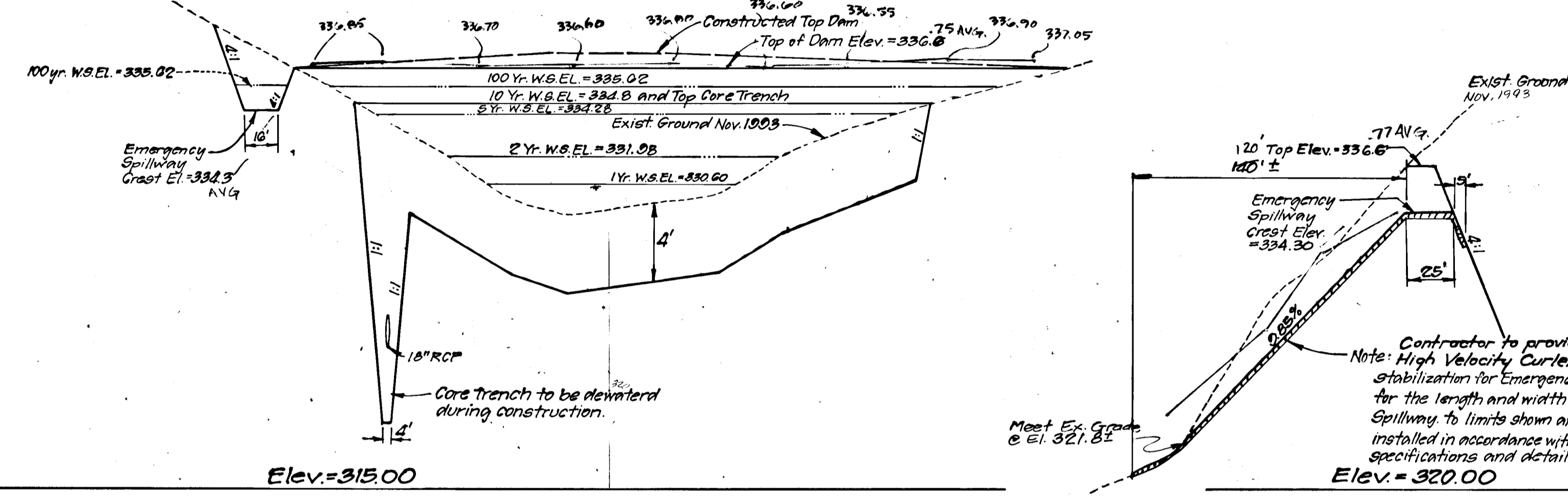
[Signature] DATE 1/1/95
 U.S. Soil Conservation Service

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved: *[Signature]* DATE 1/1/95
 Howard S.C.D.

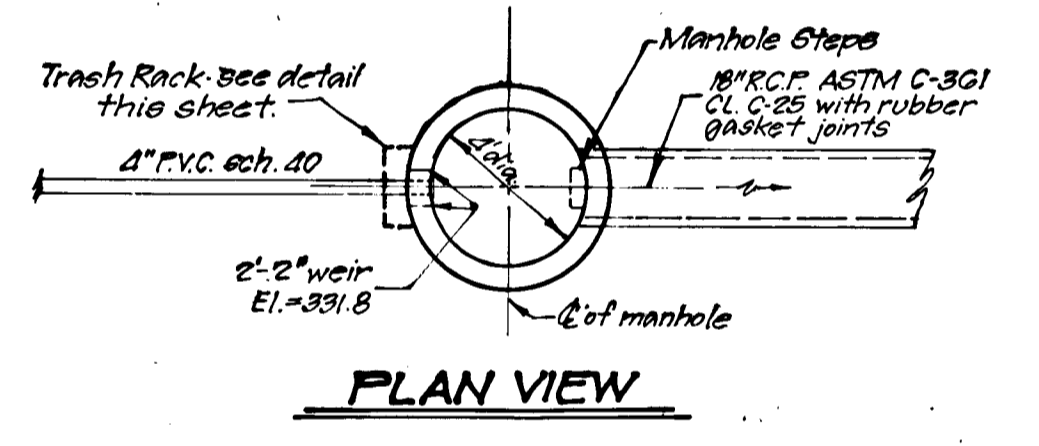


TRASH RACK STR. M-003

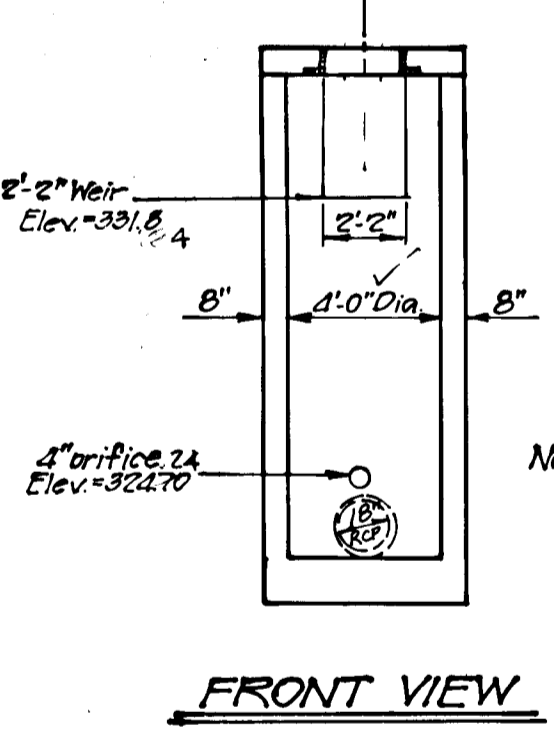


DAM PROFILE - POND N° 1

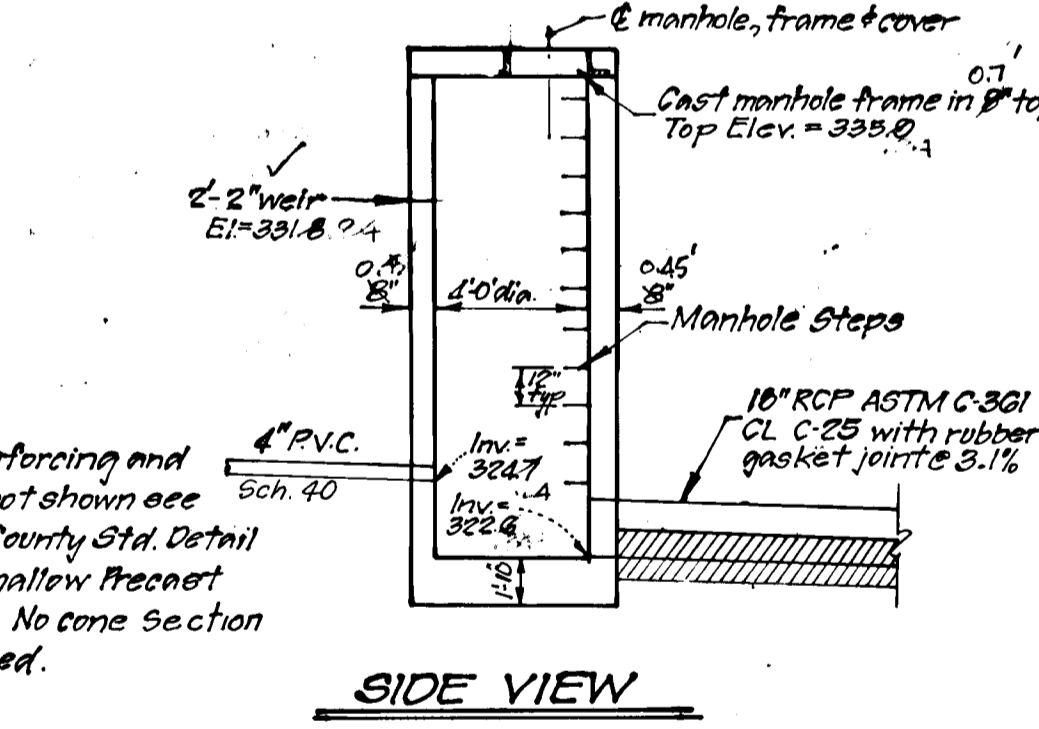
EMERGENCY SPILLWAY PROFILE



PLAN VIEW

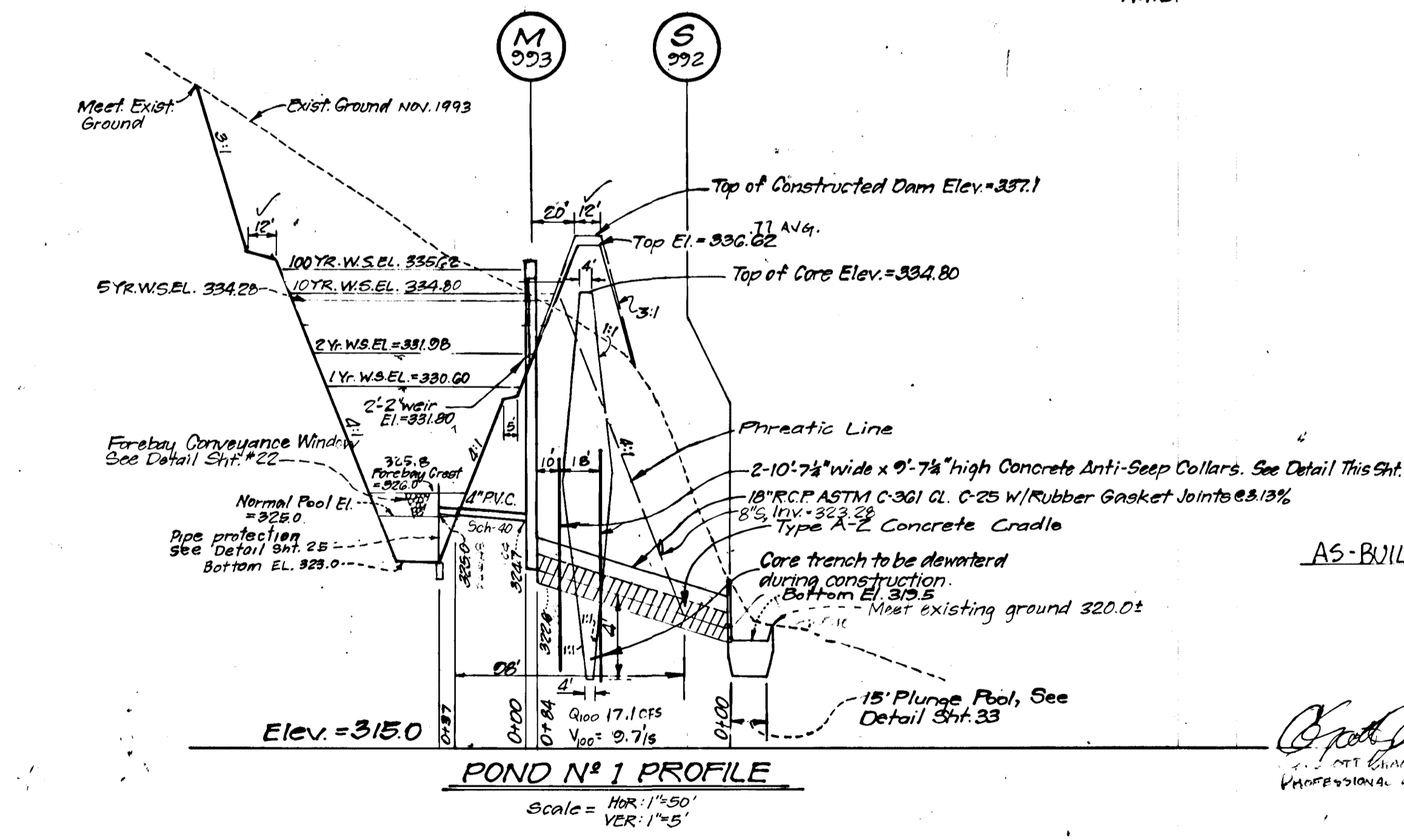


FRONT VIEW

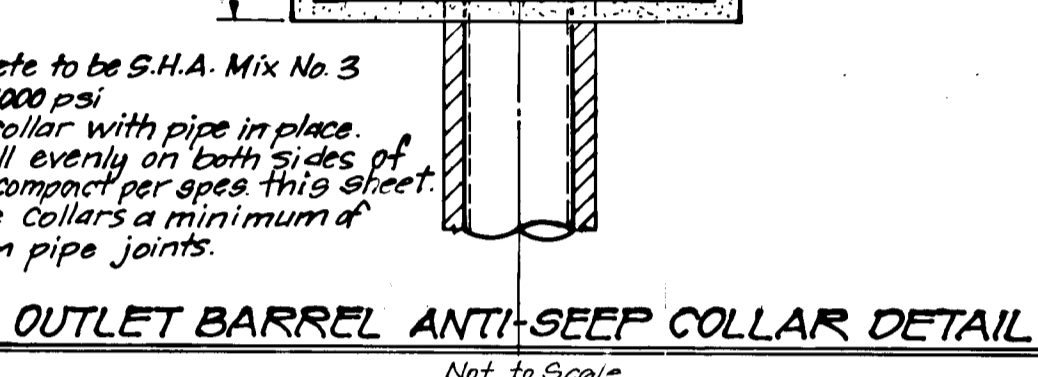


SIDE VIEW

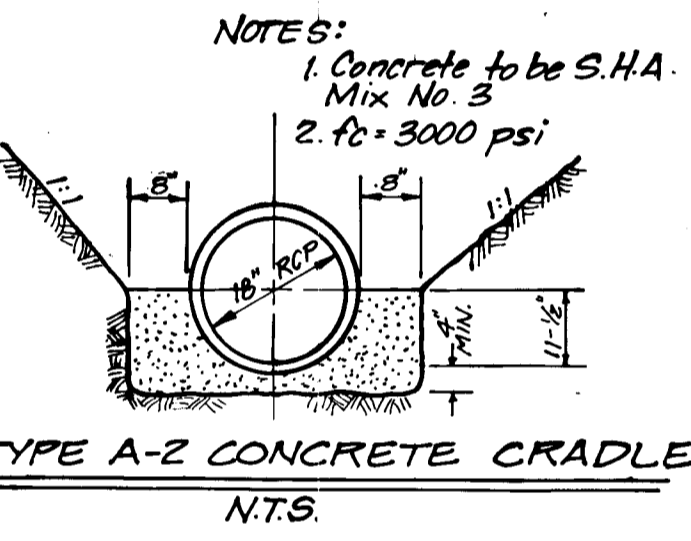
STRUCTURE N° M-003 DETAILS POND N° 1



POND N° 1 PROFILE



OUTLET BARREL ANTI-SEEP COLLAR DETAIL



TYPE A-2 CONCRETE CRADLE

POND SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

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. Channels 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 objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

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 embankment and core of 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 materials 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 traversed by no less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepfoot, 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 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 or other method approved by the State.

Core Trench - The core trench shall be excavated to remove excess material along 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, rollers, 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 type and quality of the pipe or structure. 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 fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a completed 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 - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation G-361.
2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.
4. Backfilling shall conform to "Structure Backfill."
5. 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:
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Pipe Conduits
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4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

* Pond construction is also subject to specifications in Geotechnical Reports prepared by the Robert B. Baltzer Company dated March 24 and July 7, 1994 and January 4th 1995 letter of Addendum.

Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully coated with a minimum of two coats of zinc. All references to ASTM and AASHTO specifications apply to the most recent version.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be 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 in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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.

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 24" 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 huggler type band with O-ring gaskets having a minimum diameter of 1/2" greater than the connection depth. Pipes 24" 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 have lock seams with internal caulking or a neoprene bead.

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

Backfilling shall conform to "Structure Backfill."

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 bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation G-361.
2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
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Pipe Conduits
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Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:
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Borrow Areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, lining, 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 and sediment control measures to be employed during the construction process.

NO.	REVISIONS	Date
1	Add plunge Pool, Rev. Enkamat to High Velocity Curlex	4-7-95

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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

[Signature]
9-9-94

By the Developer:
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[Signature]
9-6-94

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.

[Signature]
11/1/95

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

[Signature]
11/1/95

STORM WATER MANAGEMENT POND N° 1 DETAILS

SHANERBERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELICOTT CITY, MARYLAND 21043

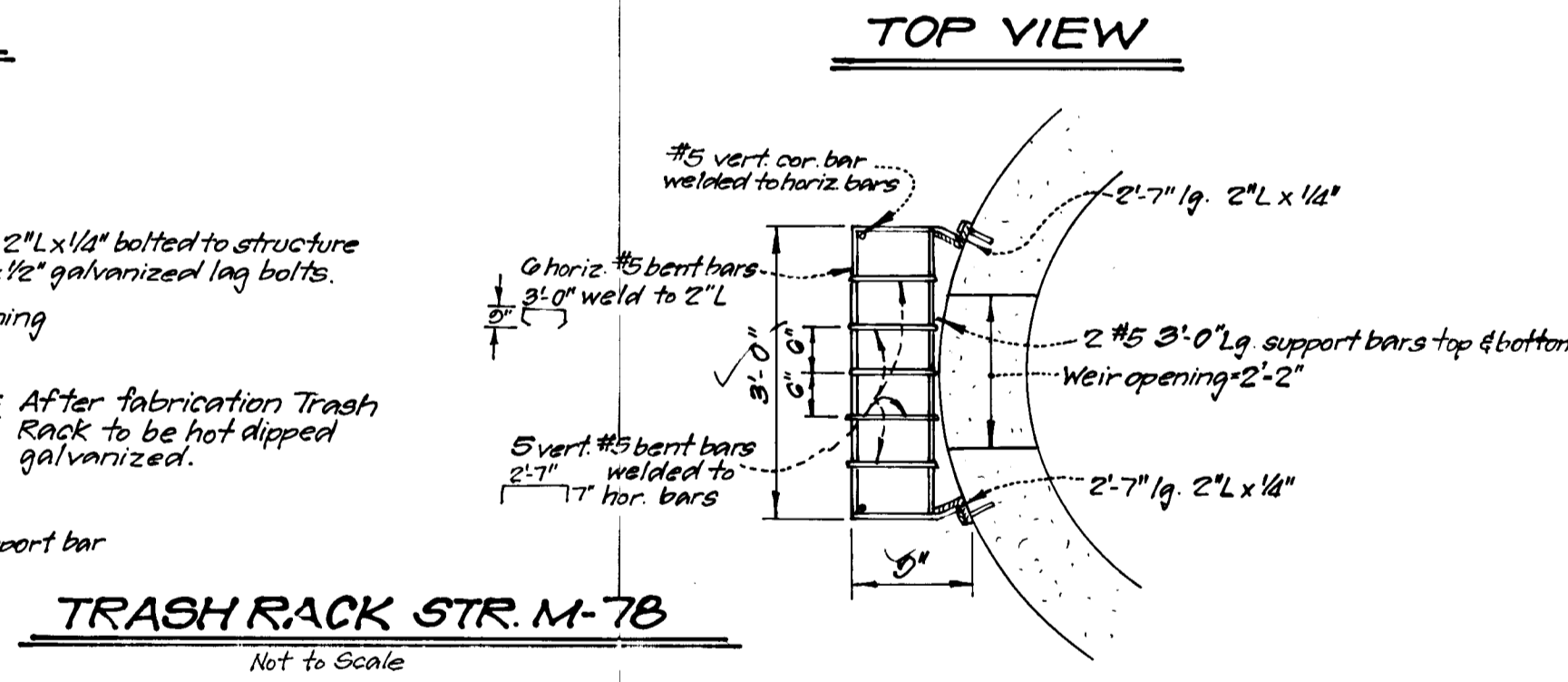
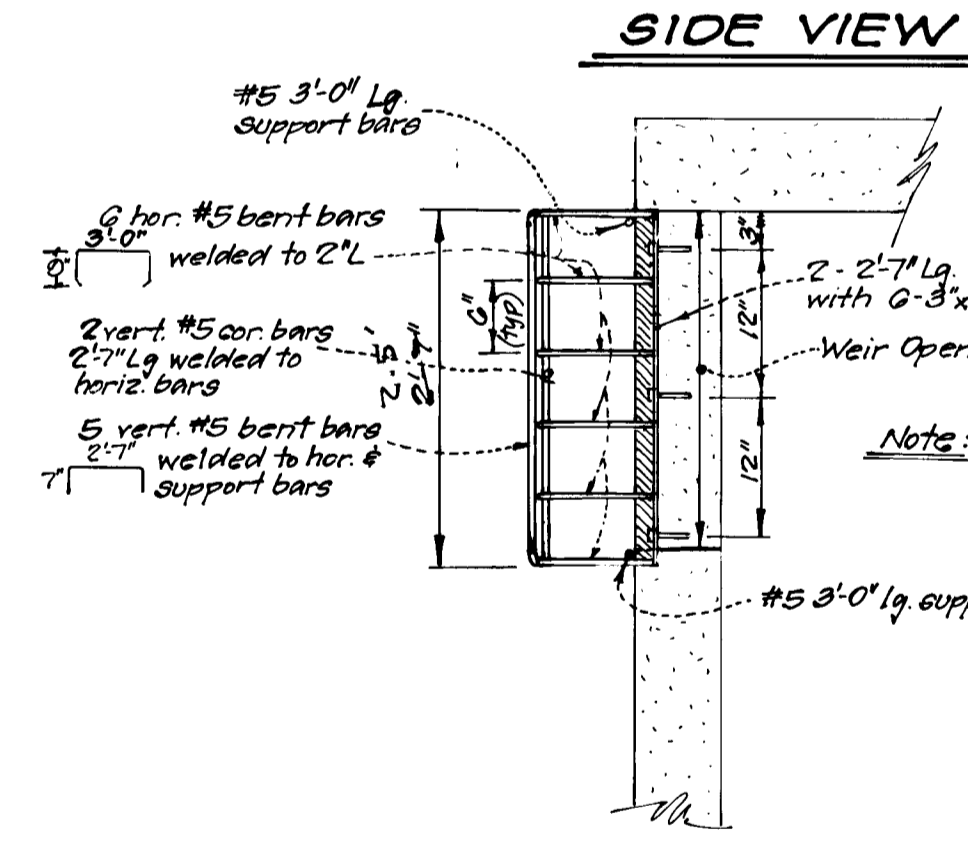
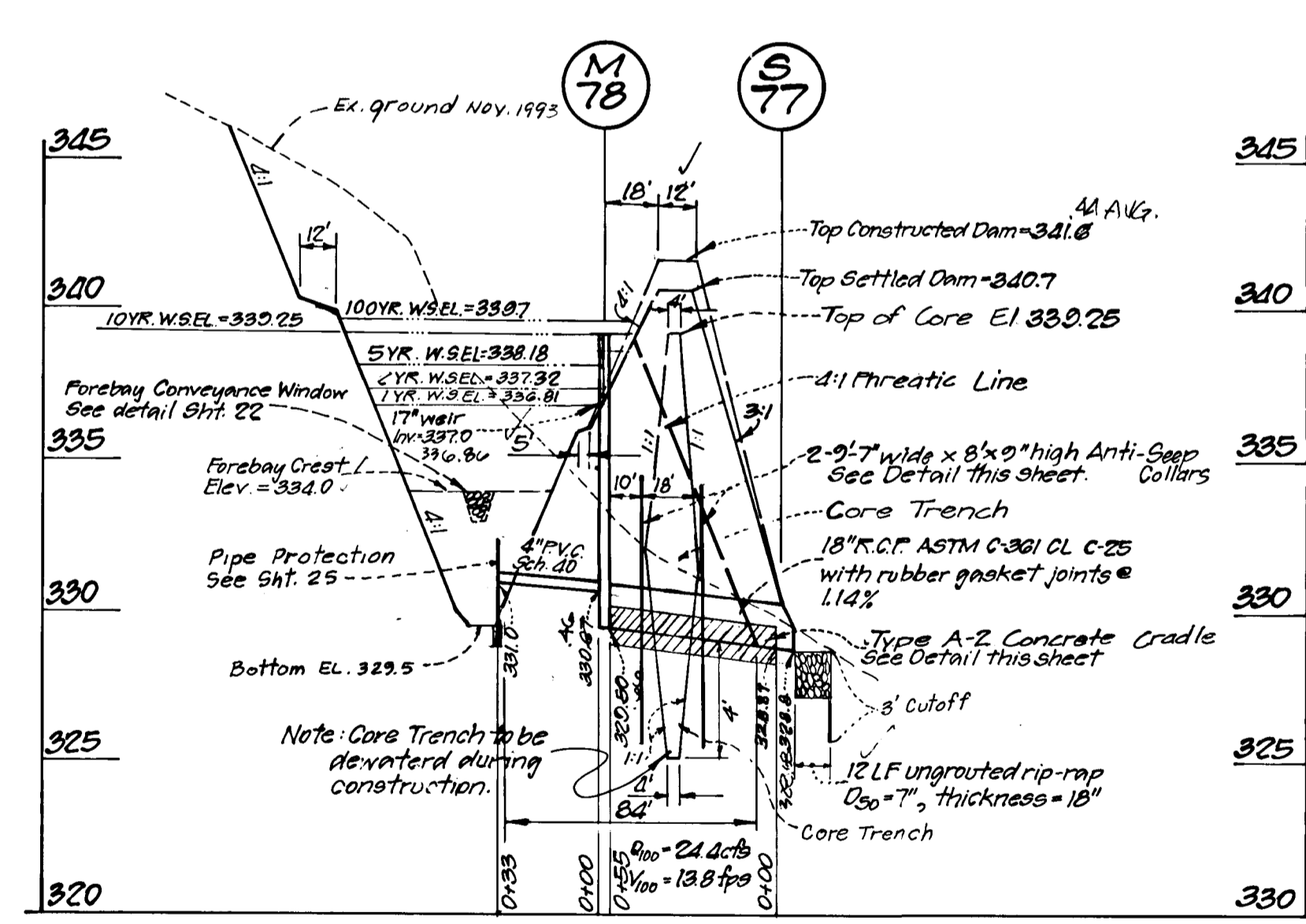
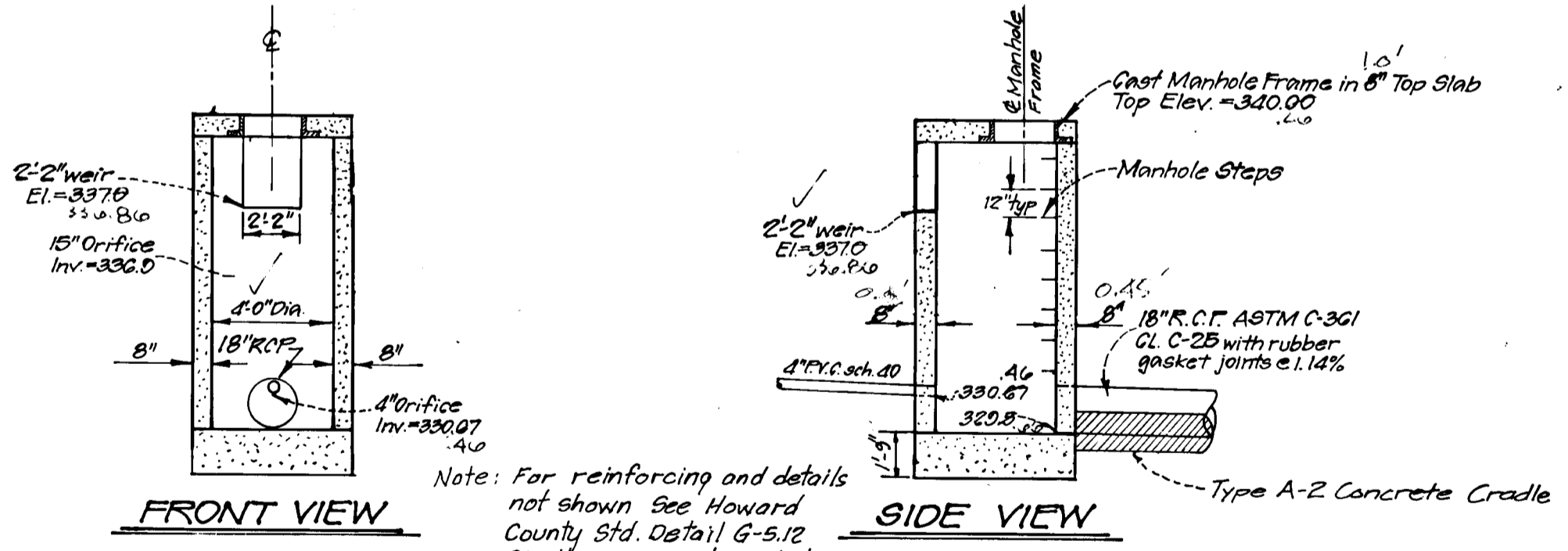
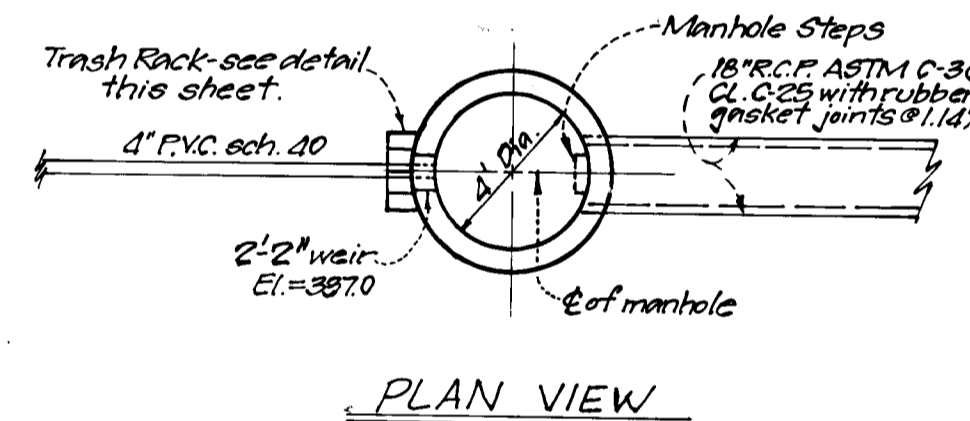
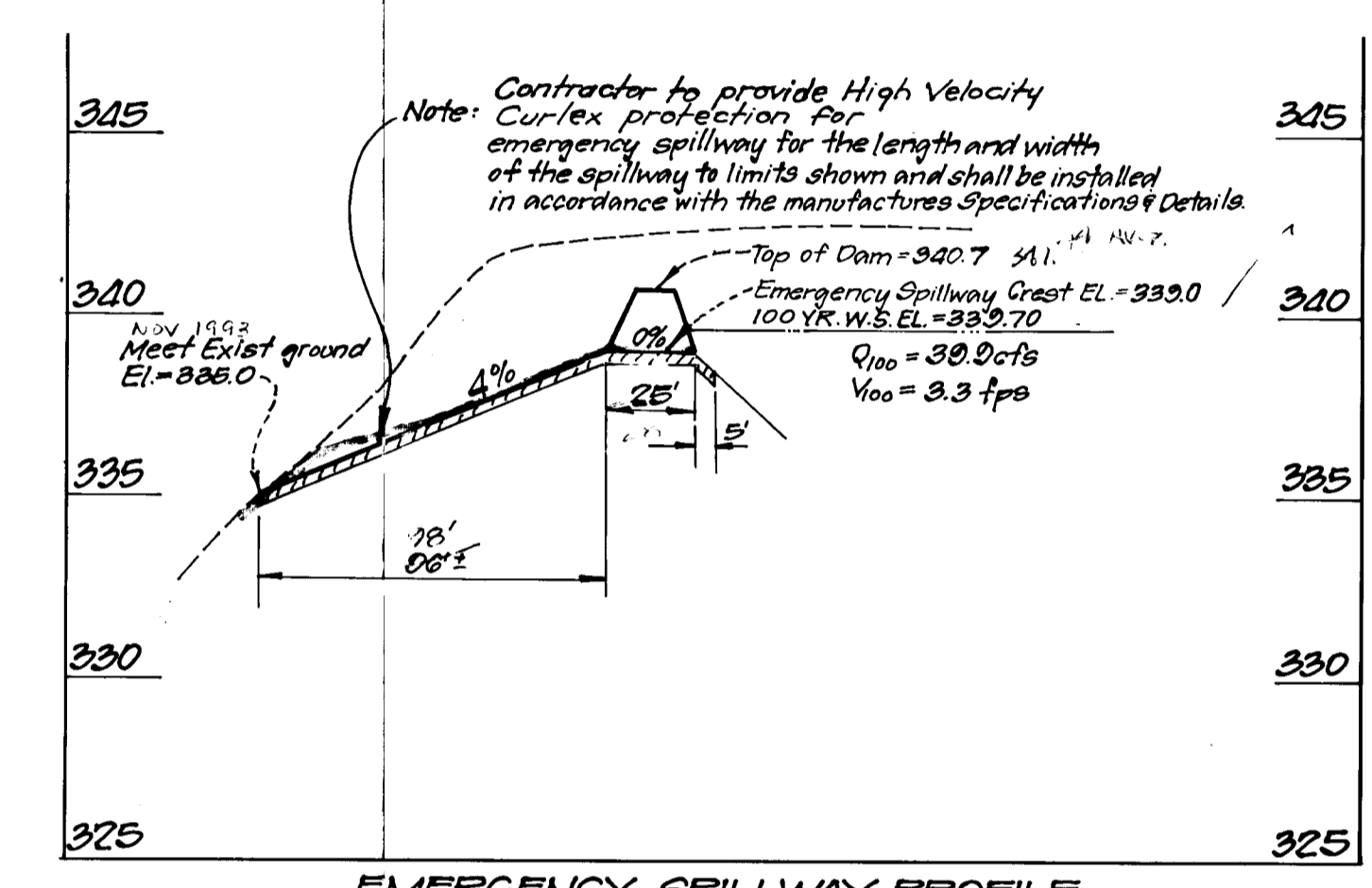
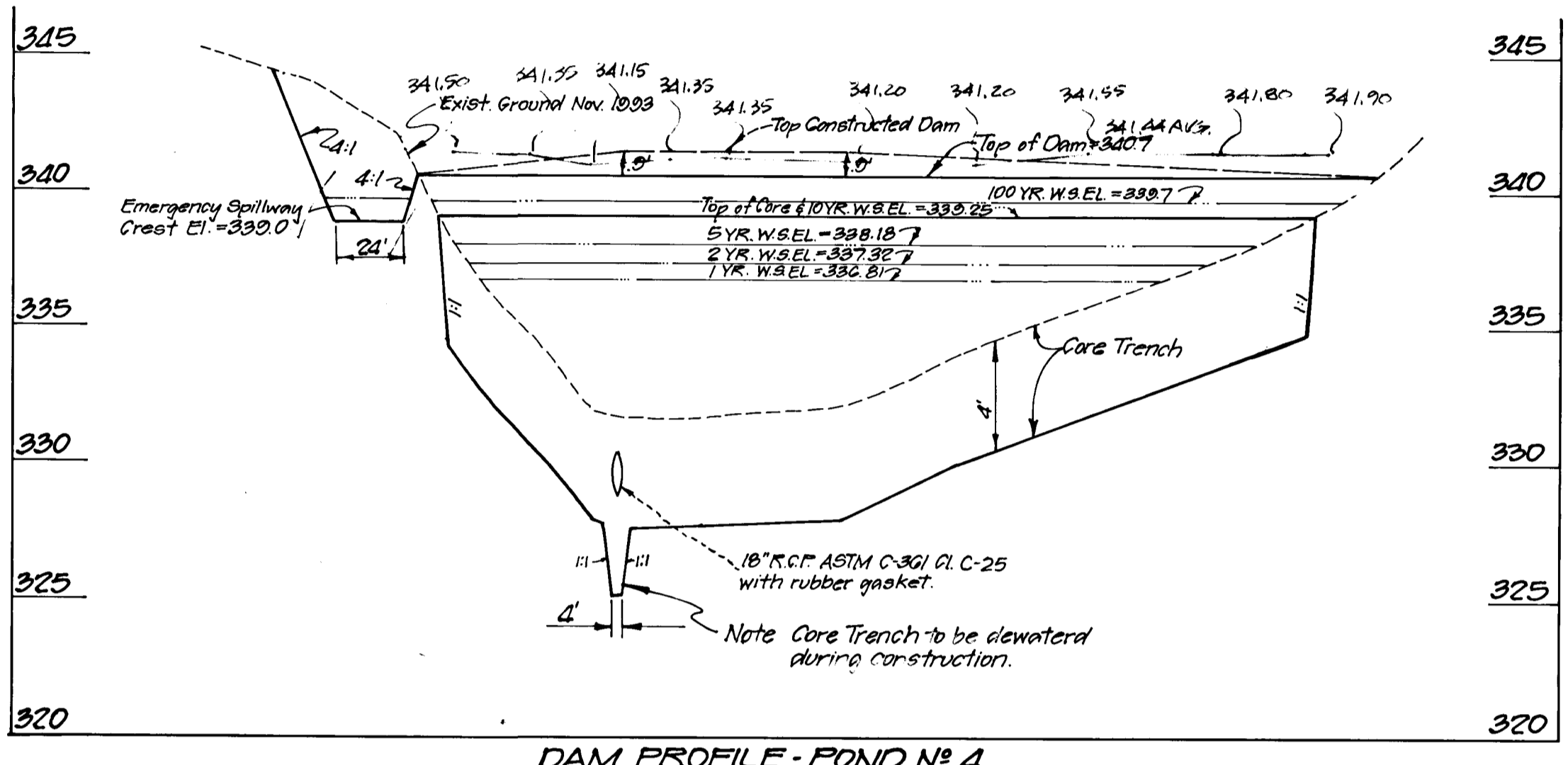
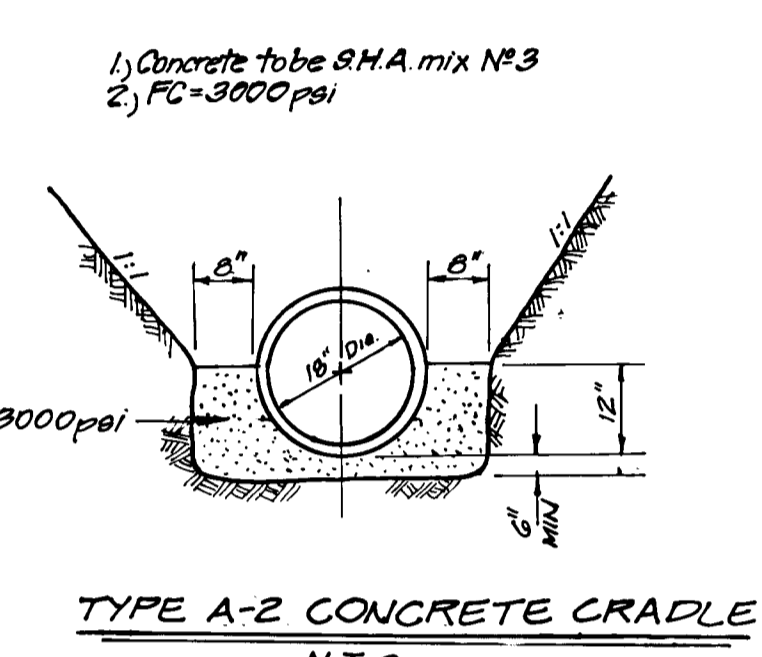
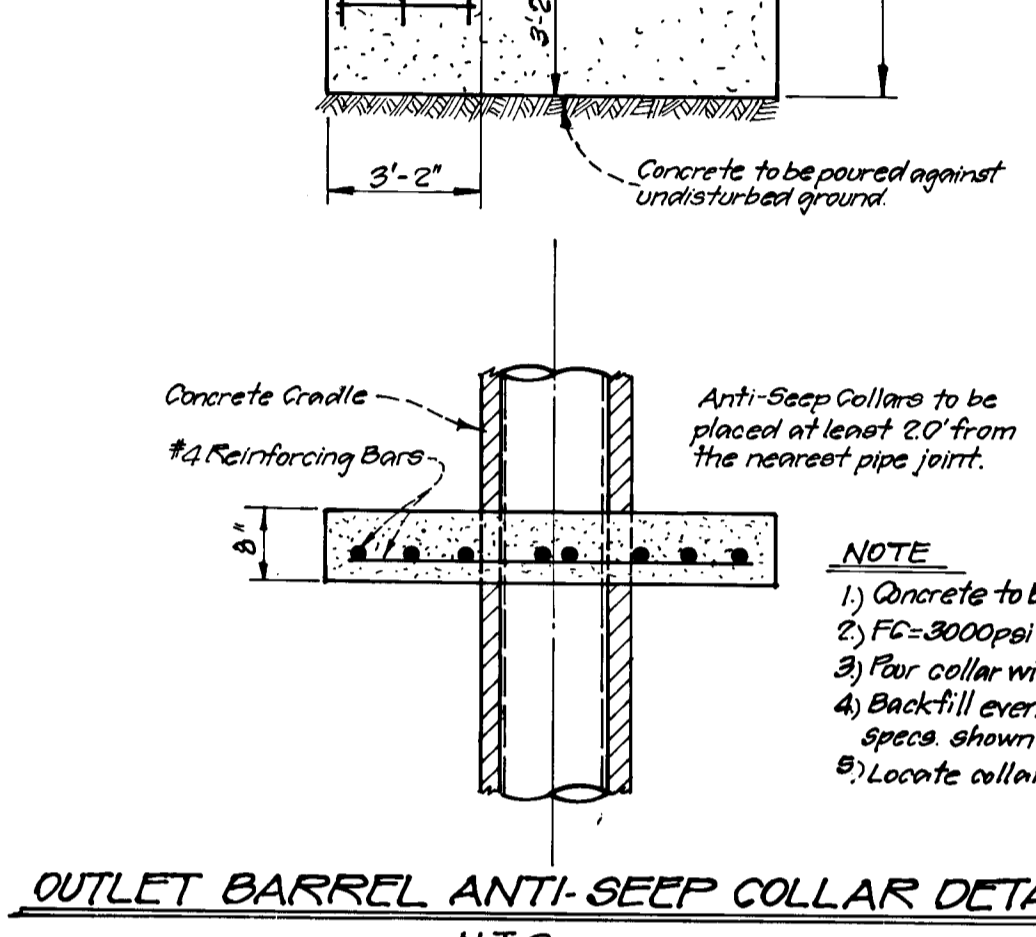
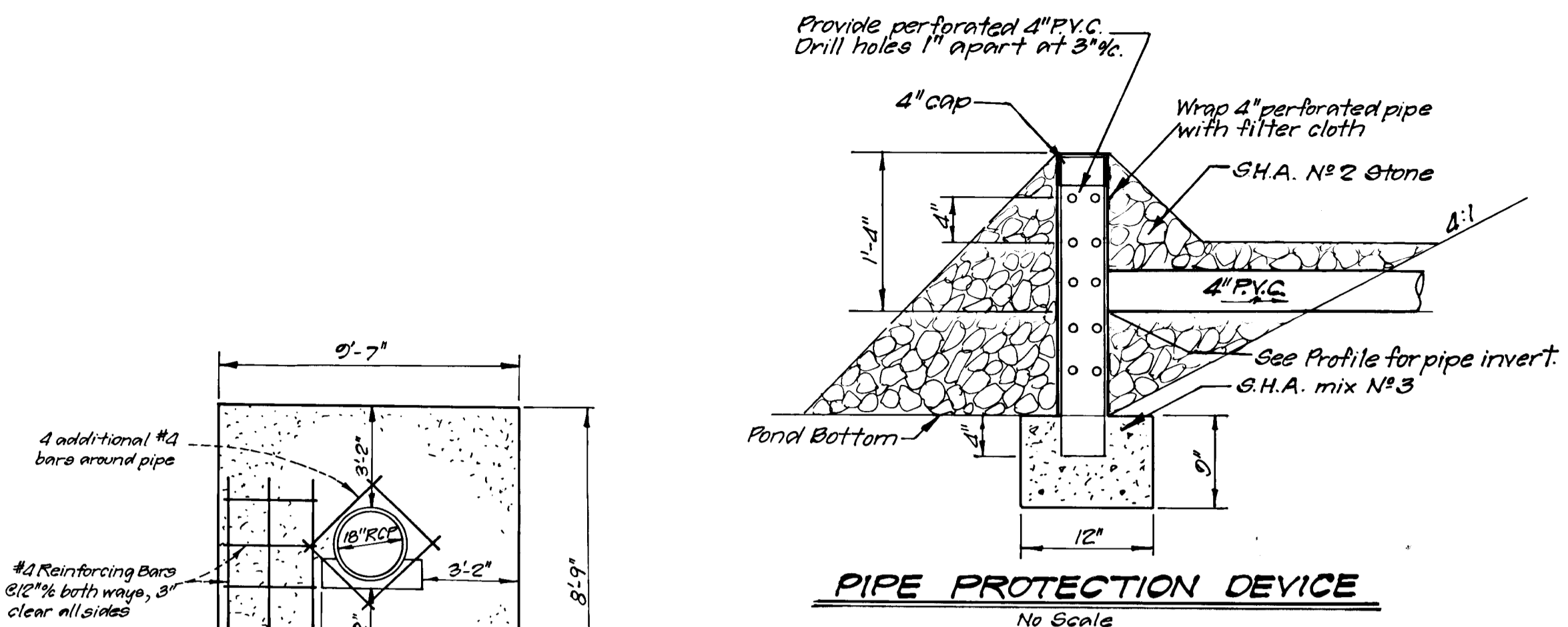
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 12-5-94
[Signature] 11-22-94
[Signature] 12/6/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
[Signature] 1/12/95

CLARK • FINEROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	STORMWATER MANAGEMENT DETAILS - POND N° 1 & POND SPECIFICATION SHEET COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DRAWN ZAH		DRAWING 24 of 37
CHECKED DAB		JOB NO. 03177
DATE Aug. 94		FILE NO. 03177D
OWNER: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		

No.	REVISIONS	Date
1	Revise Enkanat to High Velocity Curlex	4-7-95



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division (ACRM) 12-5-94
 Chief, Bureau of Highways 11-22-94
 Chief, Bureau of Engineering 12/16/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 Chief, Division of Land Development and Research 1/12/95

By the Developer:
 Stanaberger & Lane
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELlicOTT CITY, MARYLAND 21043

I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Signature of Developer: [Signature] 9-6-94
 Date

POND No. 4 DETAILS

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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.

Signature of Engineer: [Signature] 9-9-94
 Date

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.

Approved: Patricia English/MS 4/11/95
 U.S. Soil Conservation District
 Howard S.C.U.

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

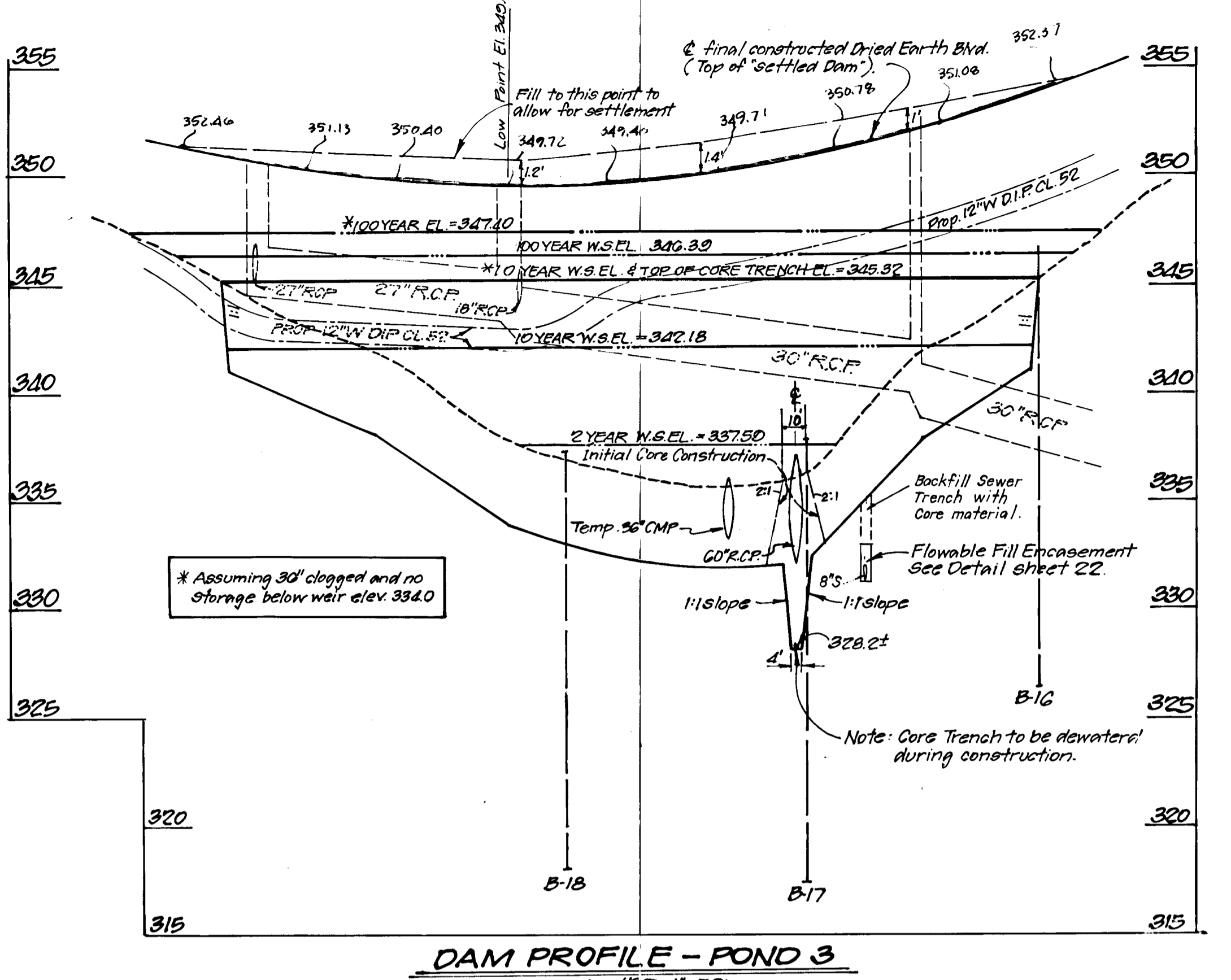
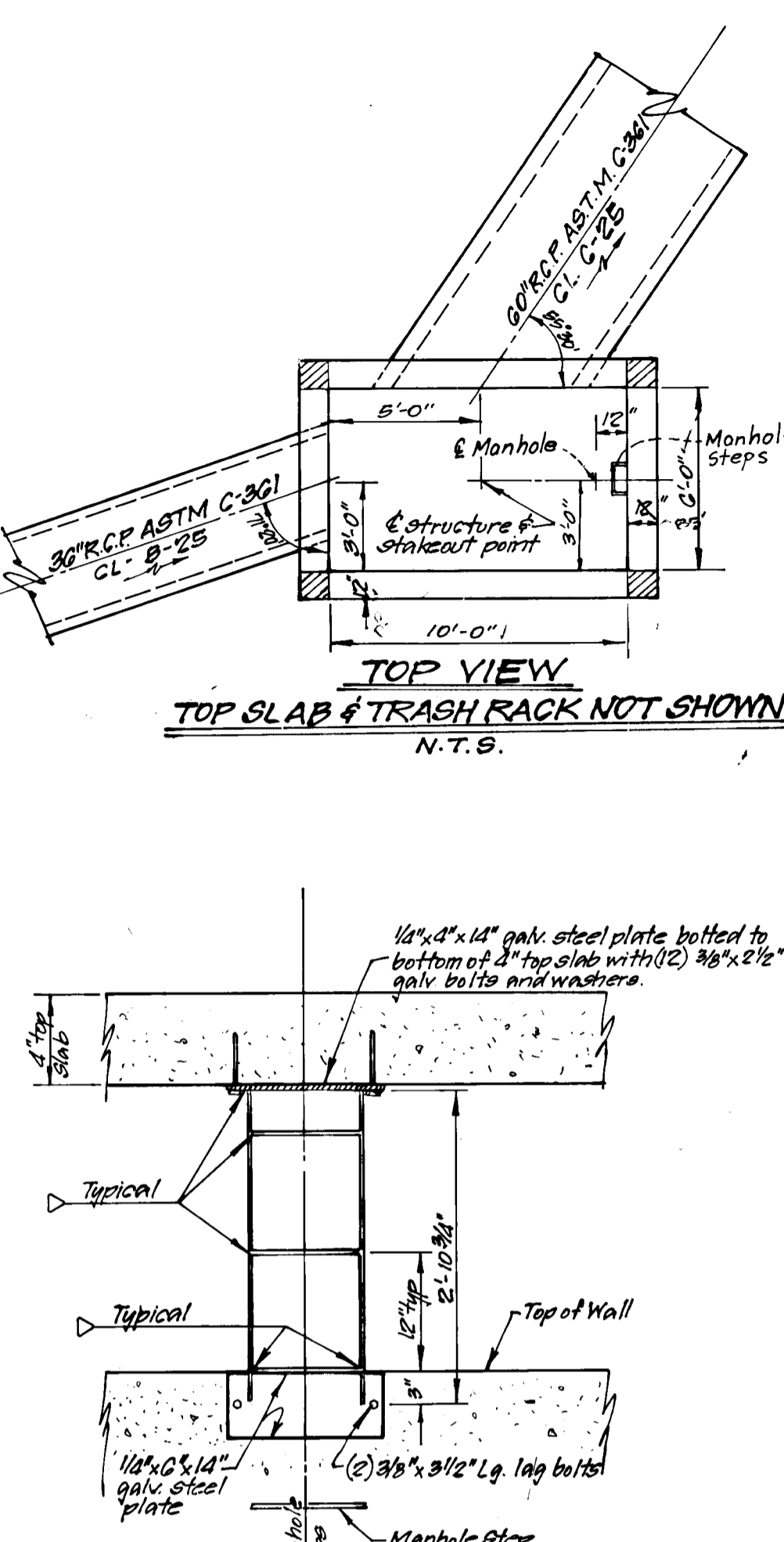
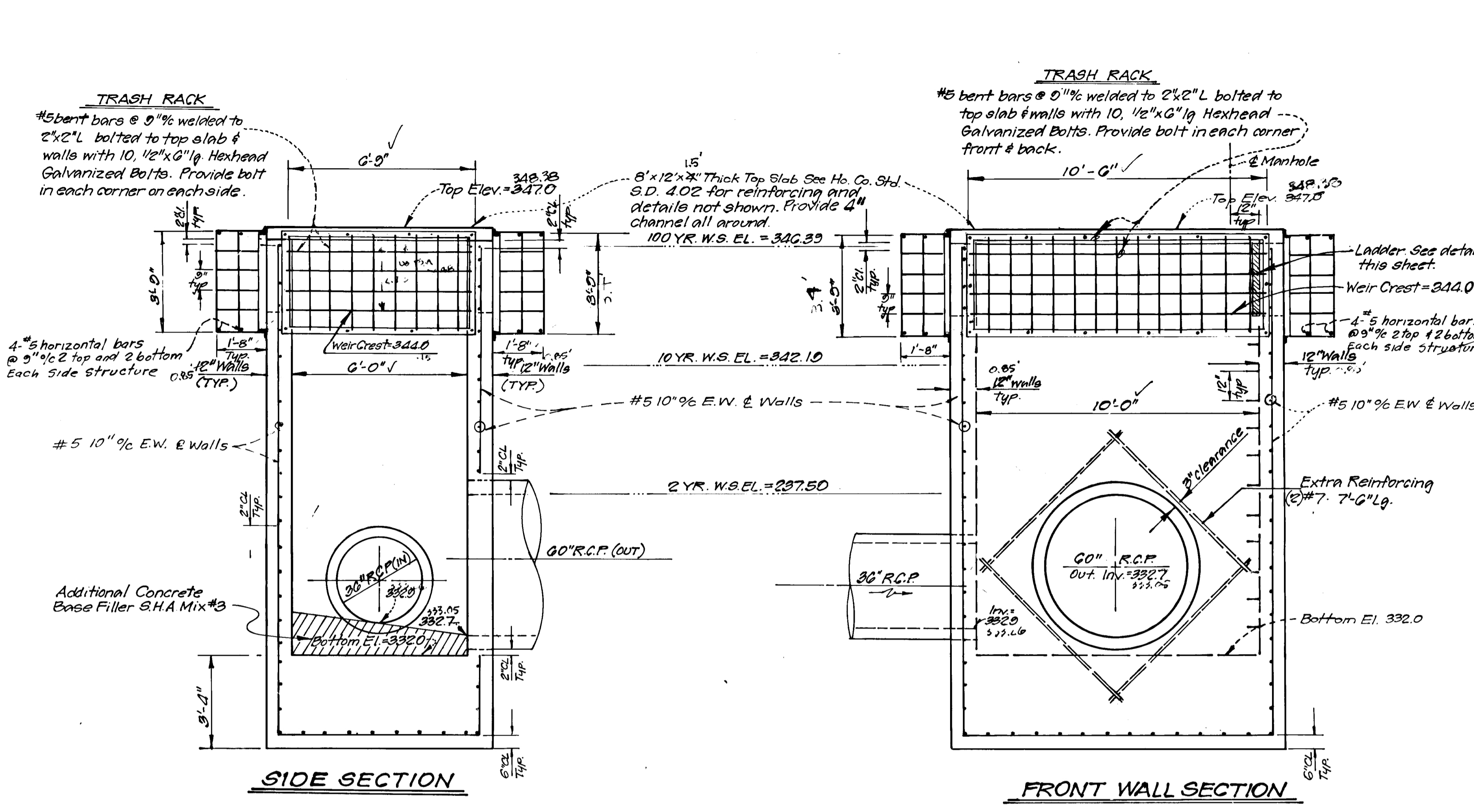
DESIGNED: DAB
 DRAWN: ZAH
 CHECKED: DAB
 DATE: Aug. 94

OWNER: HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

SCALE: AS SHOWN
 DRAWING: 25 of 37
 JOB NO.: 03177
 FILE NO.: 03177-D

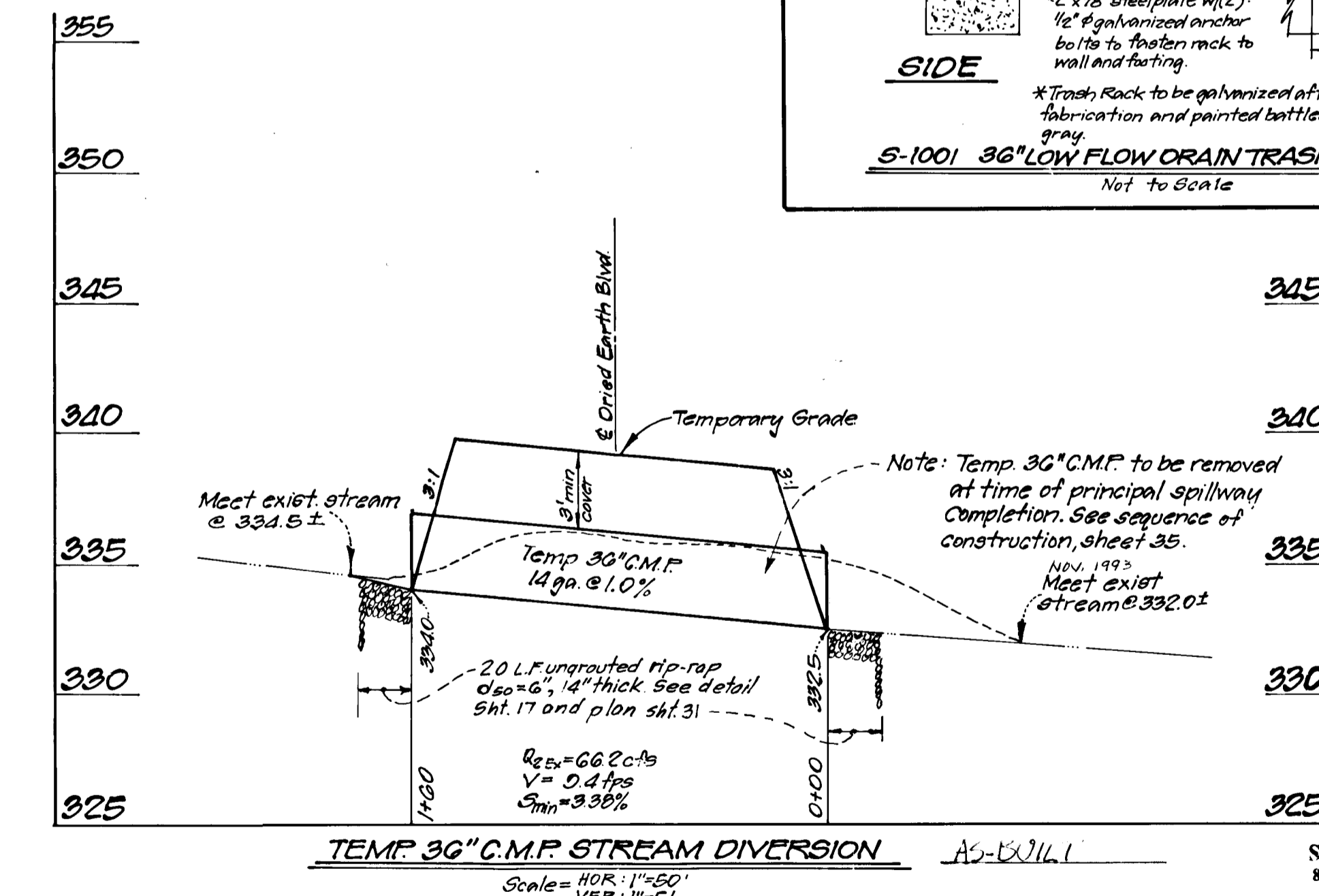
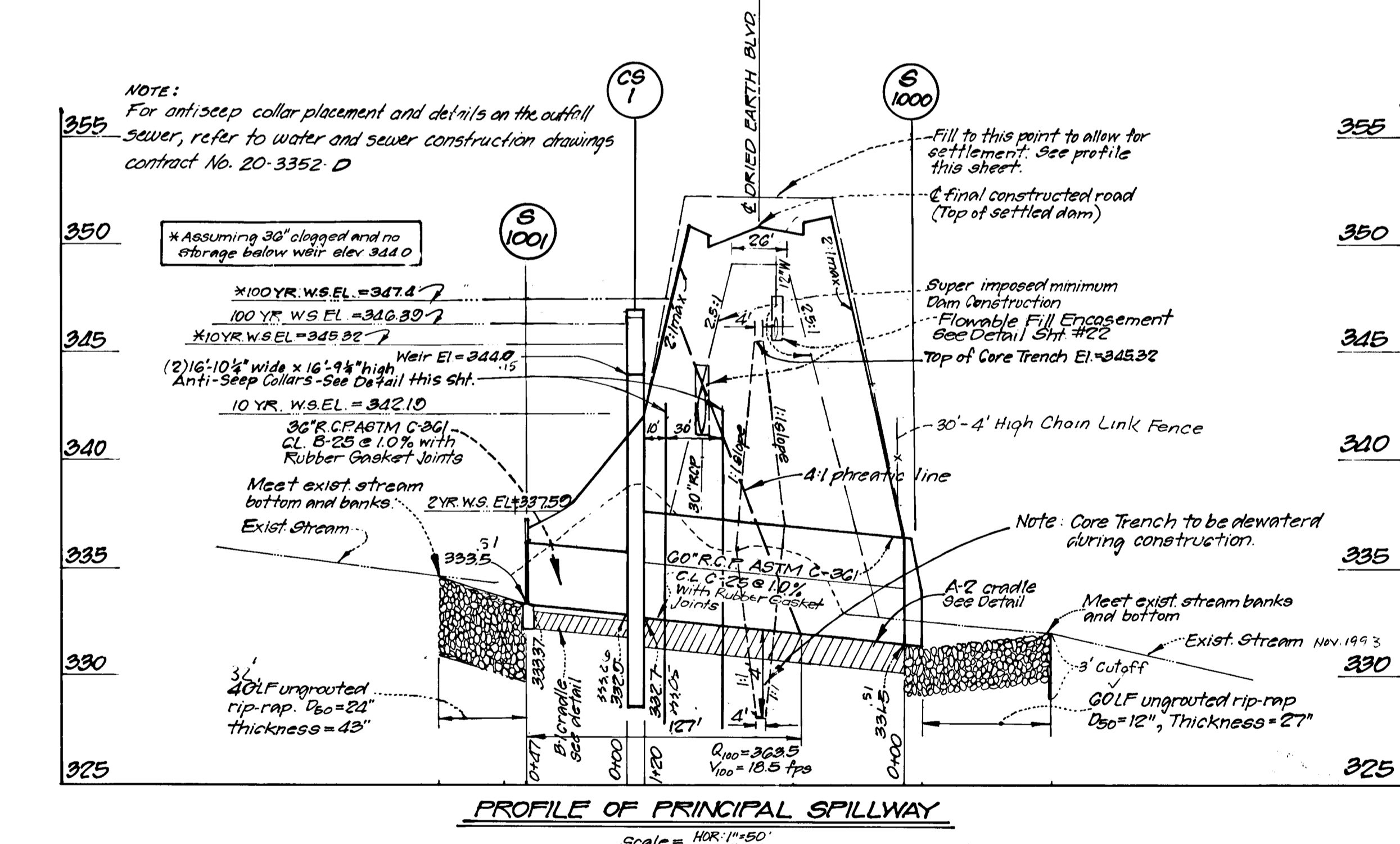
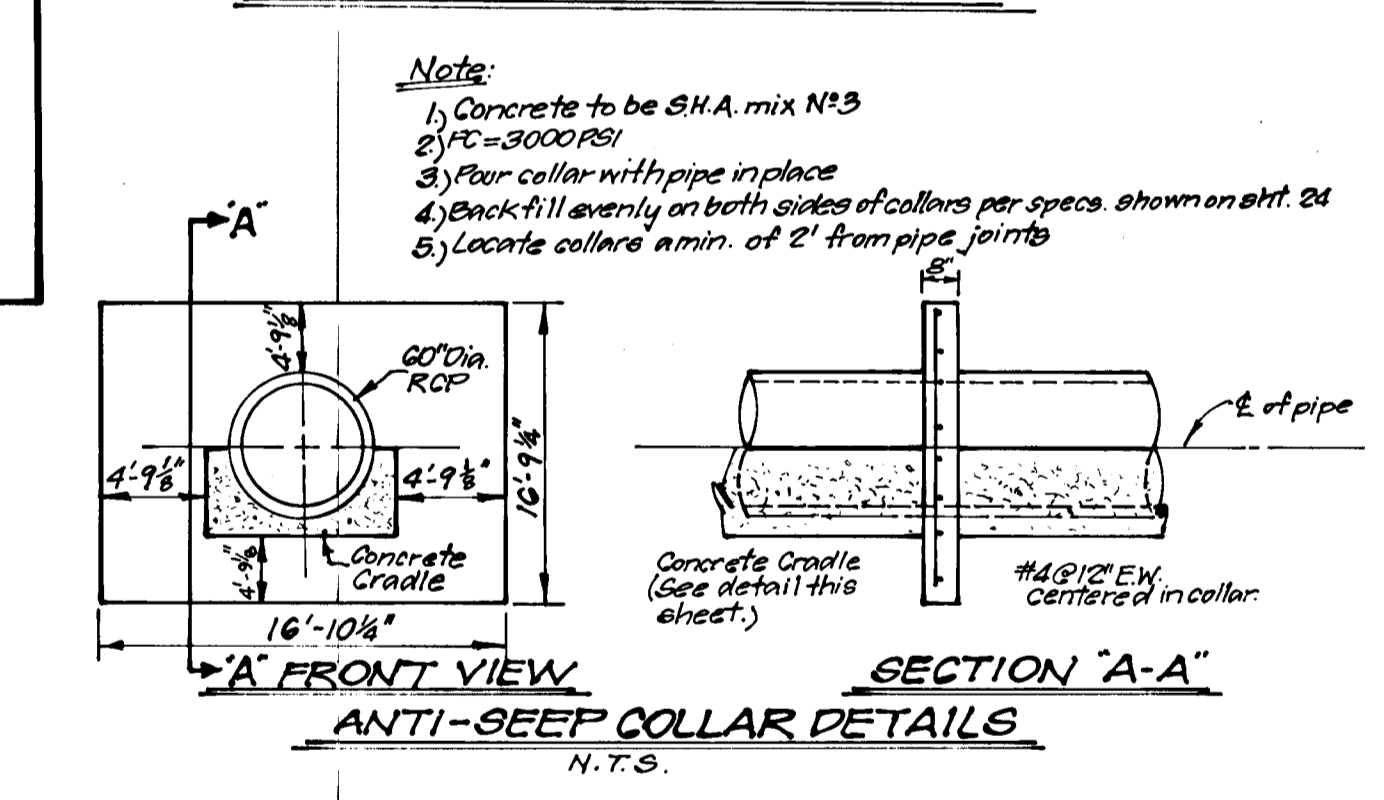
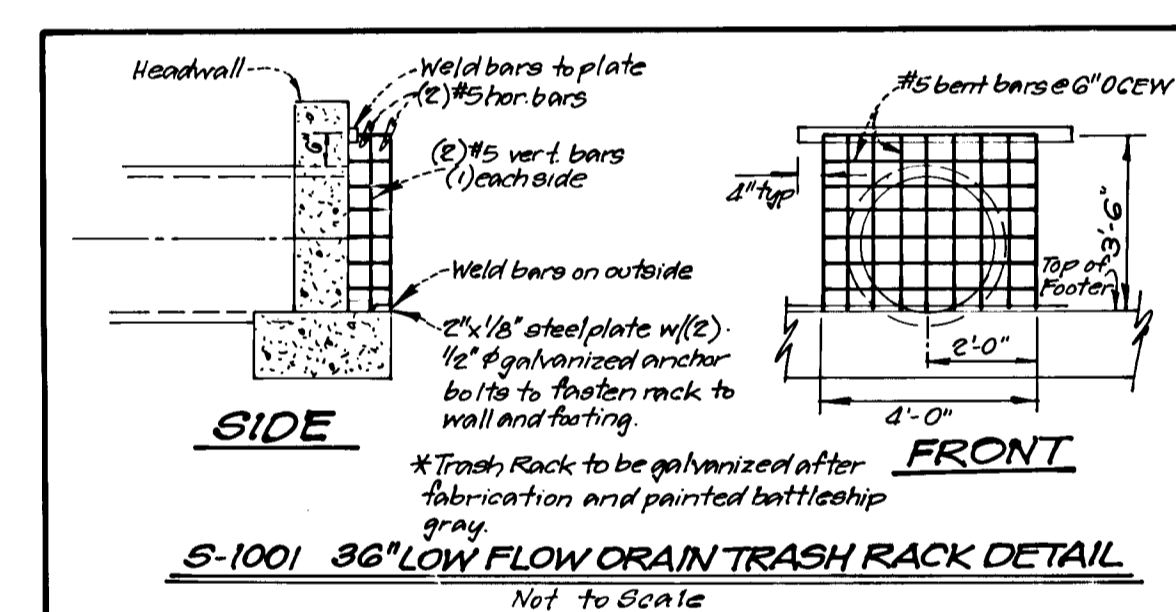
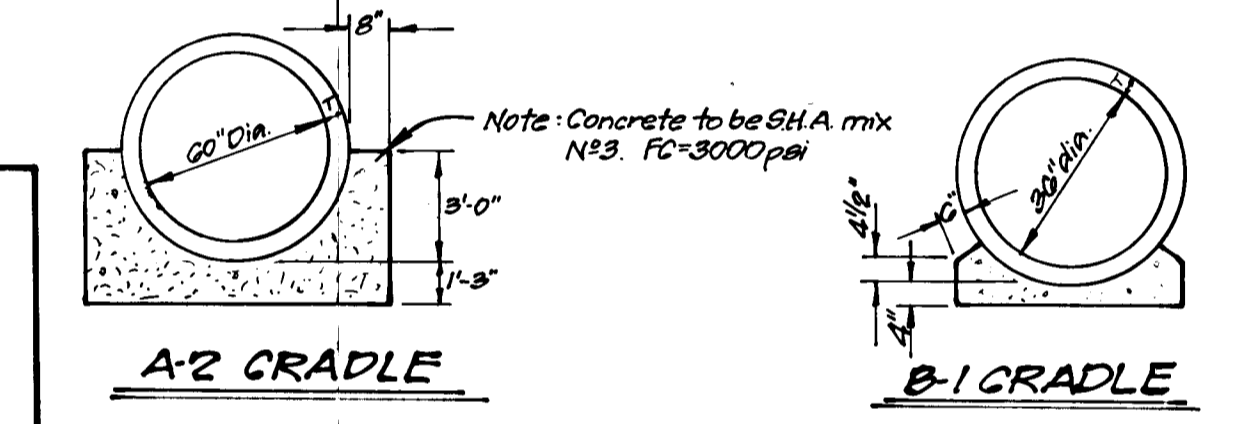
100

F-96-25



STRUCTURE CS-1 DETAILS
 Not to Scale

Note:
 All utilities must be constructed concurrently with the embankment, to eliminate trenching through the controlled compacted fill.



STORM WATER MANAGEMENT POND NO 3 DETAILS

SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 12-5-94
 11-22-94
 12/6/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 1/12/95

By The Developer:
 Signature of Developer: [Signature]
 Date: 9-6-94

Patricia Engle
 U.S. Soil Conservation Service
 Date: 1/1/95

Approved: [Signature]
 Howard S.C.U.
 Date: 1/1/95

By the Engineer:
 Signature of Engineer: [Signature]
 Date: 9-9-94

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED: DAB
 DRAWN: ZAH
 CHECKED: DAB
 DATE: Sept. 04

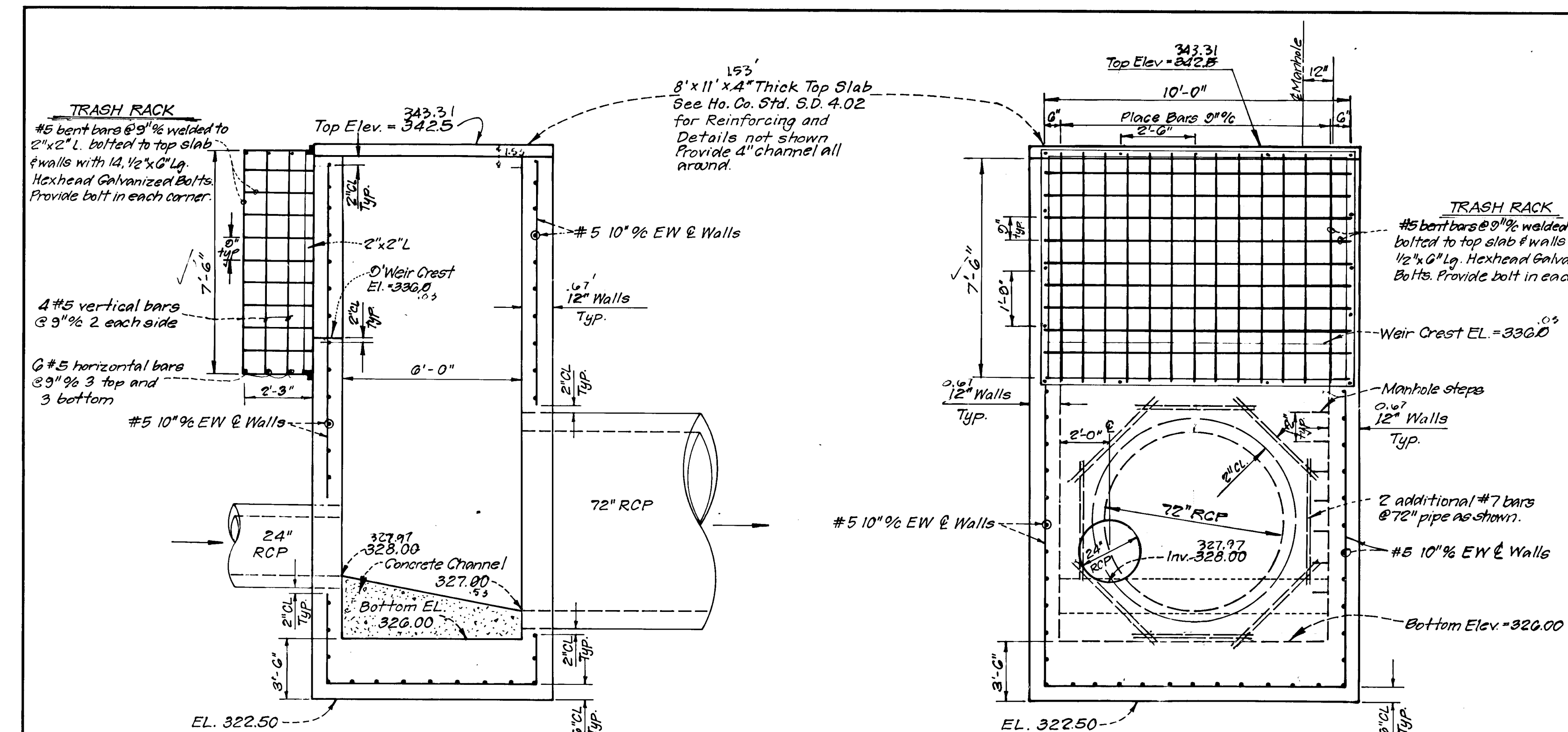
STORM WATER MANAGEMENT DETAIL SHEET
 POND #3
COLUMBIA
 VILLAGE OF LONGREACH
 SECTION 4 AREA 2
 SIXTH (6th) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER: HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

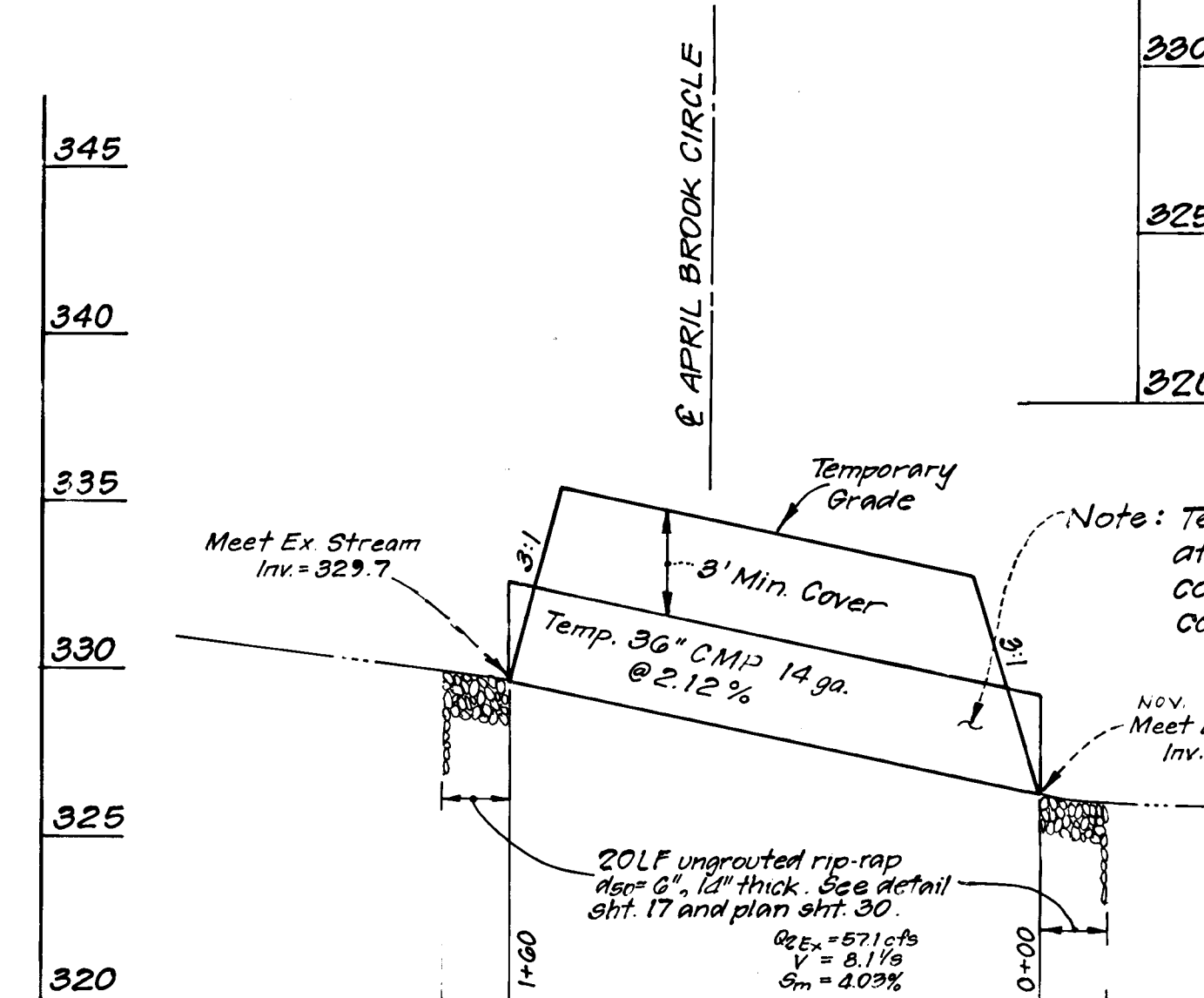
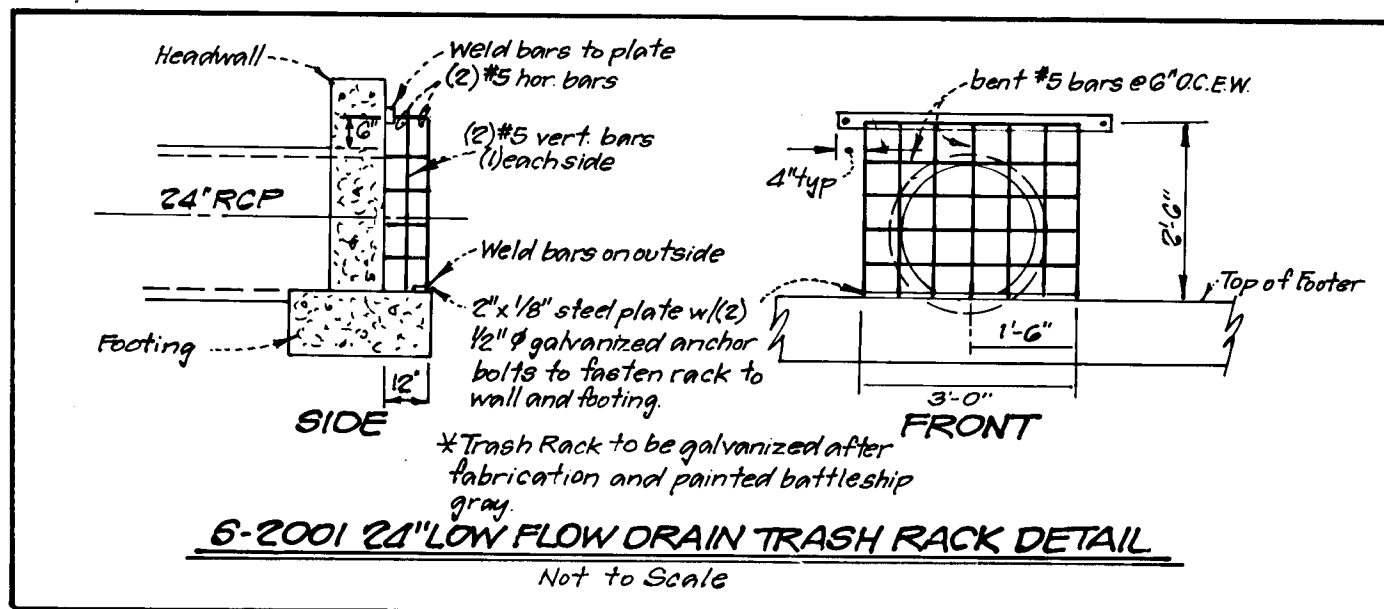
SCALE AS SHOWN
 DRAWING 26 of 37
 JOB NO. 03177
 FILE NO. 03177-D

100

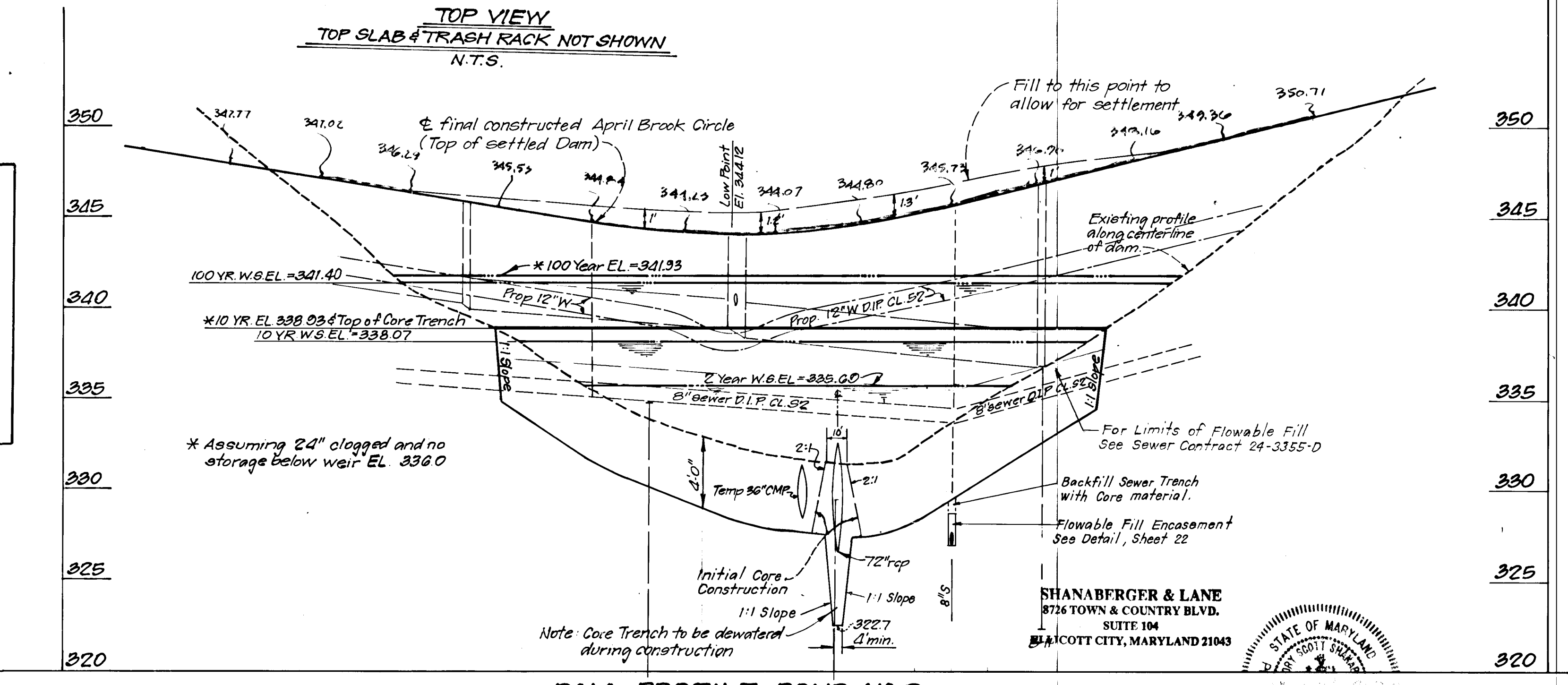
F-95-25



STRUCTURE CS-2
NOT TO SCALE

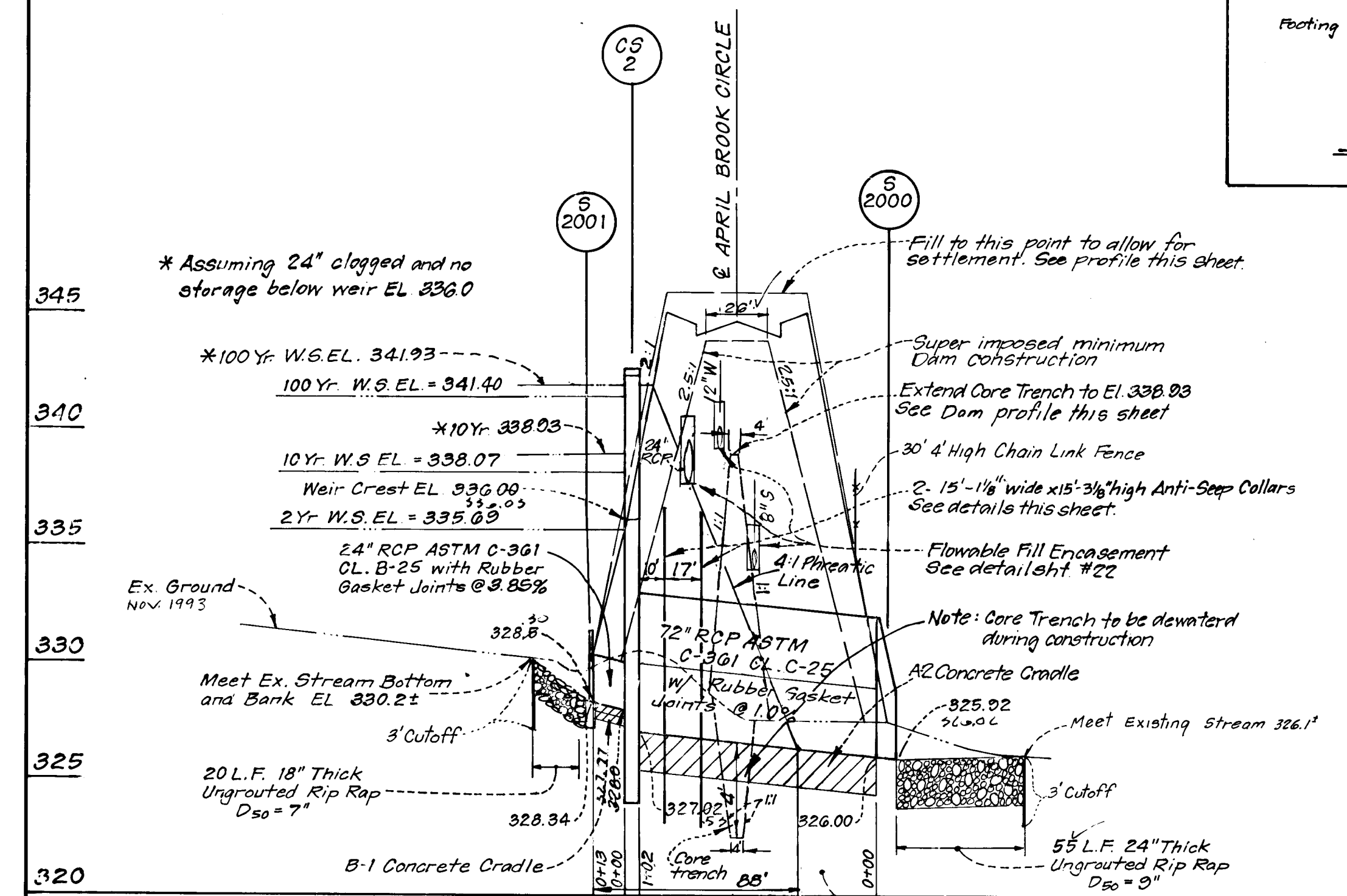


TEMP. 36" C.M.P. STREAM DIVERSION
SCALE: HORIZ: 1" = 50'
VERT: 1" = 5'

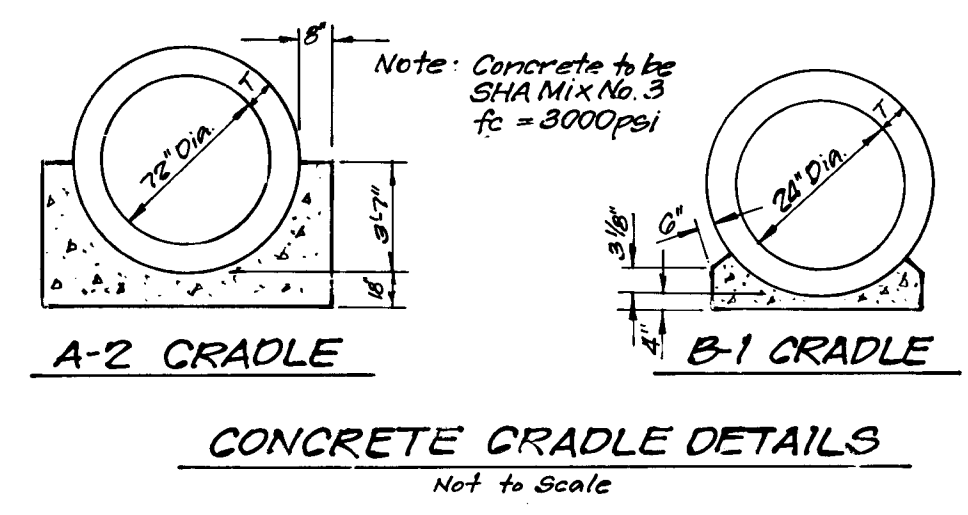


DAM PROFILE POND #2
SCALE: HOR: 1" = 50'
VER: 1" = 5'

Note: All utilities must be constructed concurrently with the embankment, to eliminate trenching through the controlled compacted fill.

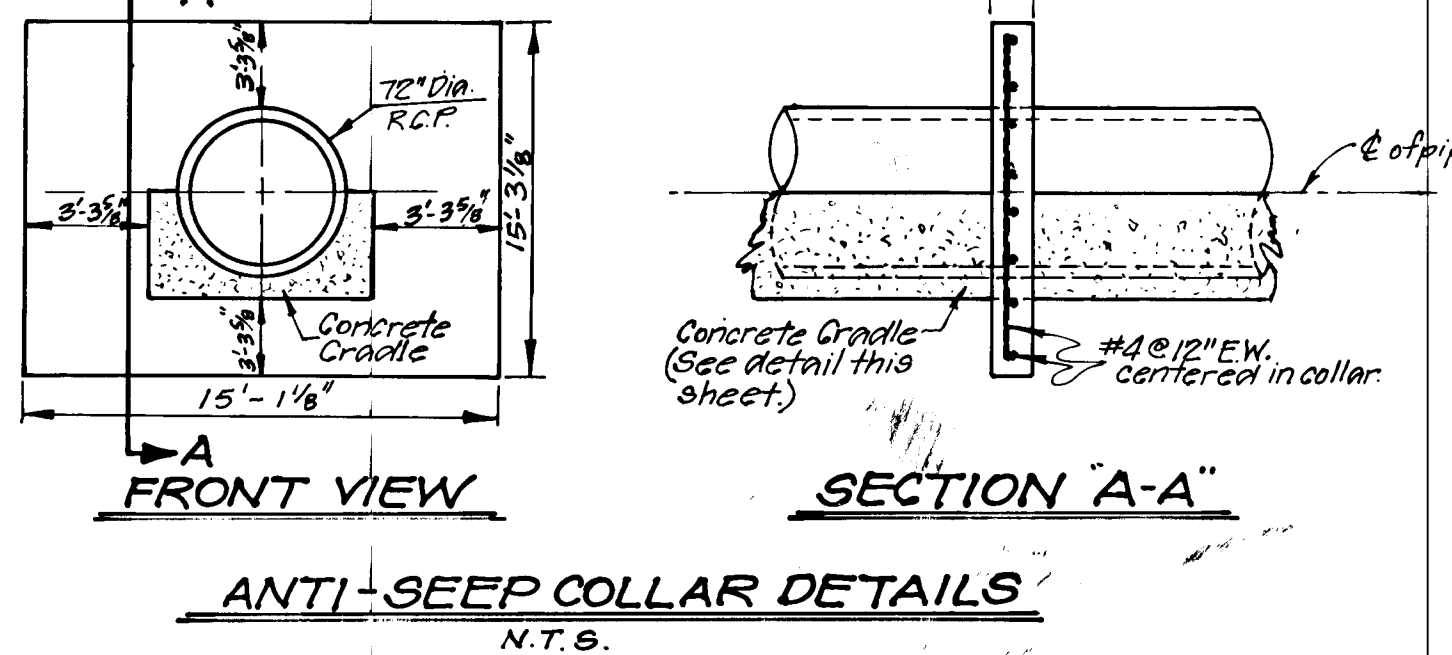


PROFILE OF PRINCIPAL SPILLWAY
SCALE: HORIZ: 1" = 50'
VERT: 1" = 5'



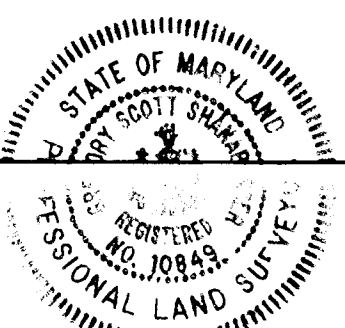
CONCRETE CRADLE DETAILS
NOT TO SCALE

- Notes:
- Concrete to be S.H.A. Mix No. 3.
 - FC = 3000 psi @ 28 days
 - Pour collar with pipe in place
 - Backfill evenly on both sides of collars per specs shown on sheet 24.
 - Locate collars a min. of 2' from pipe joints



ANTI-SEEP COLLAR DETAILS
N.T.S.

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
BRIGHT CITY, MARYLAND 21043



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
12-5-94
DATE
11-22-94
DATE
12/16/94
DATE

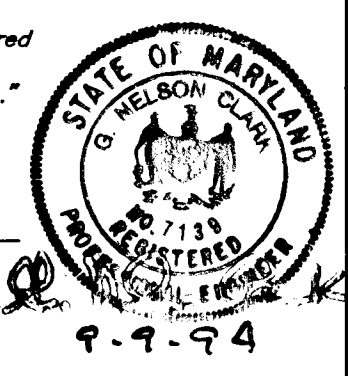
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
1/12/95
DATE

By The Developer:
Signature of Developer
Date: 9-6-94

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.
Signature of Soil Conservation District
Date: 1/11/95

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
Signature of Howard S.C.D.
Date: 1/11/95

By the Engineer:
Signature of Engineer
Date: 9-9-94



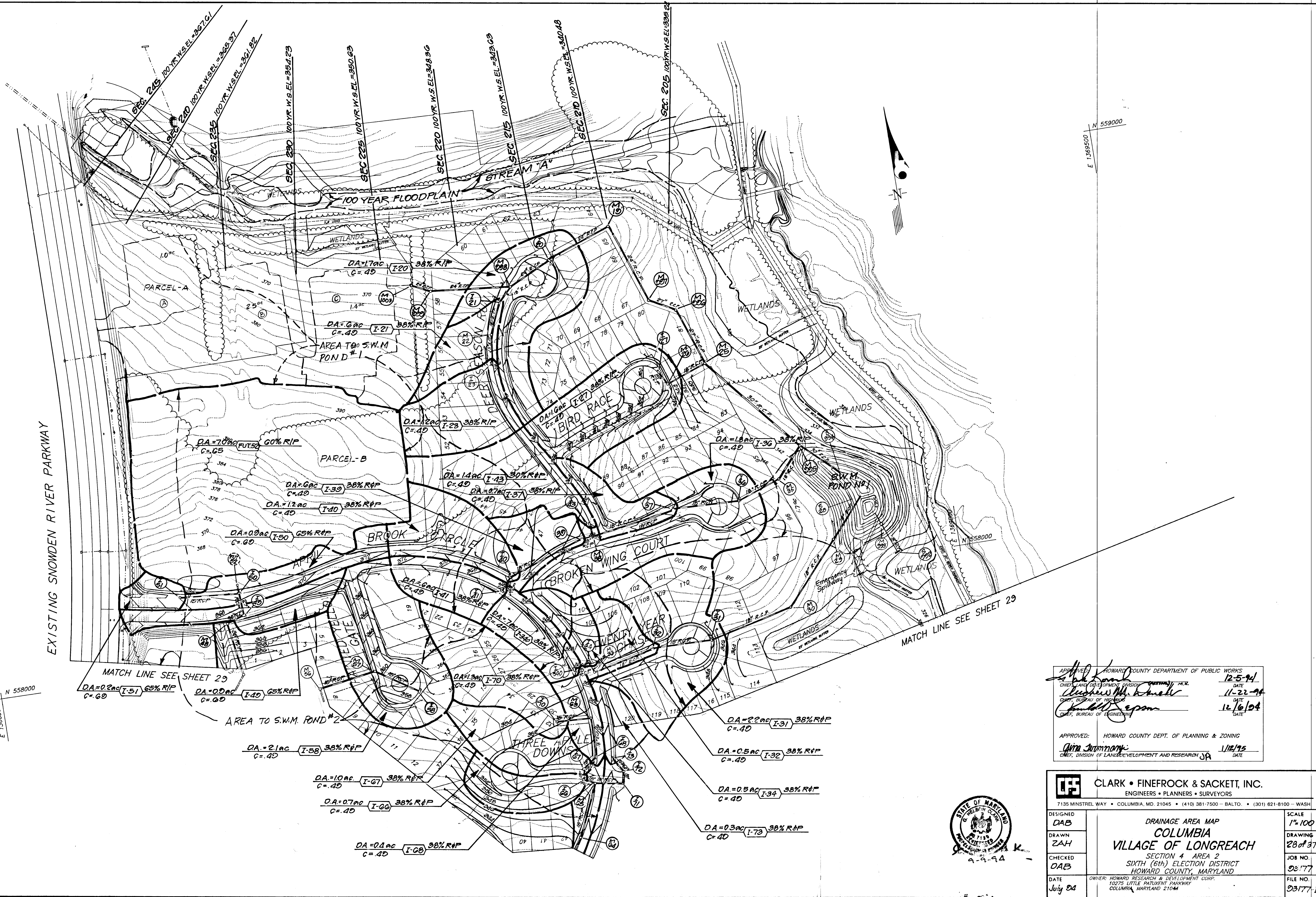
CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 821-8100 - WASH.

DESIGNED: DAB
DRAWN: LAI
CHECKED: DAB
DATE: SEPT, 94

STORM WATER MANAGEMENT DETAIL SHEET
POND # 2
COLUMBIA
VILLAGE OF LONGREACH
SECTION 4 AREA 2
SIXTH (6th) ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
DRAWING: 27 of 37
JOB NO.: 93-177
FILE NO.: 93 177-D

FOR: HOWARD RESEARCH & DEVELOPMENT CORP.
10275 LITTLE PATENT PARKWAY
COLUMBIA, MARYLAND 21044




EXISTING SNOWDEN RIVER PARKWAY

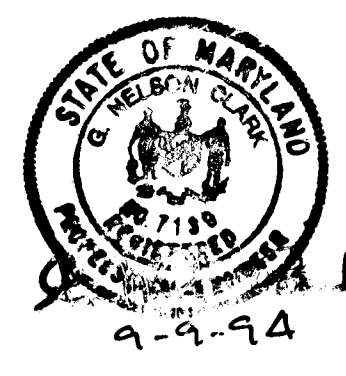
MATCH LINE SEE SHEET 29

MATCH LINE SEE SHEET 29

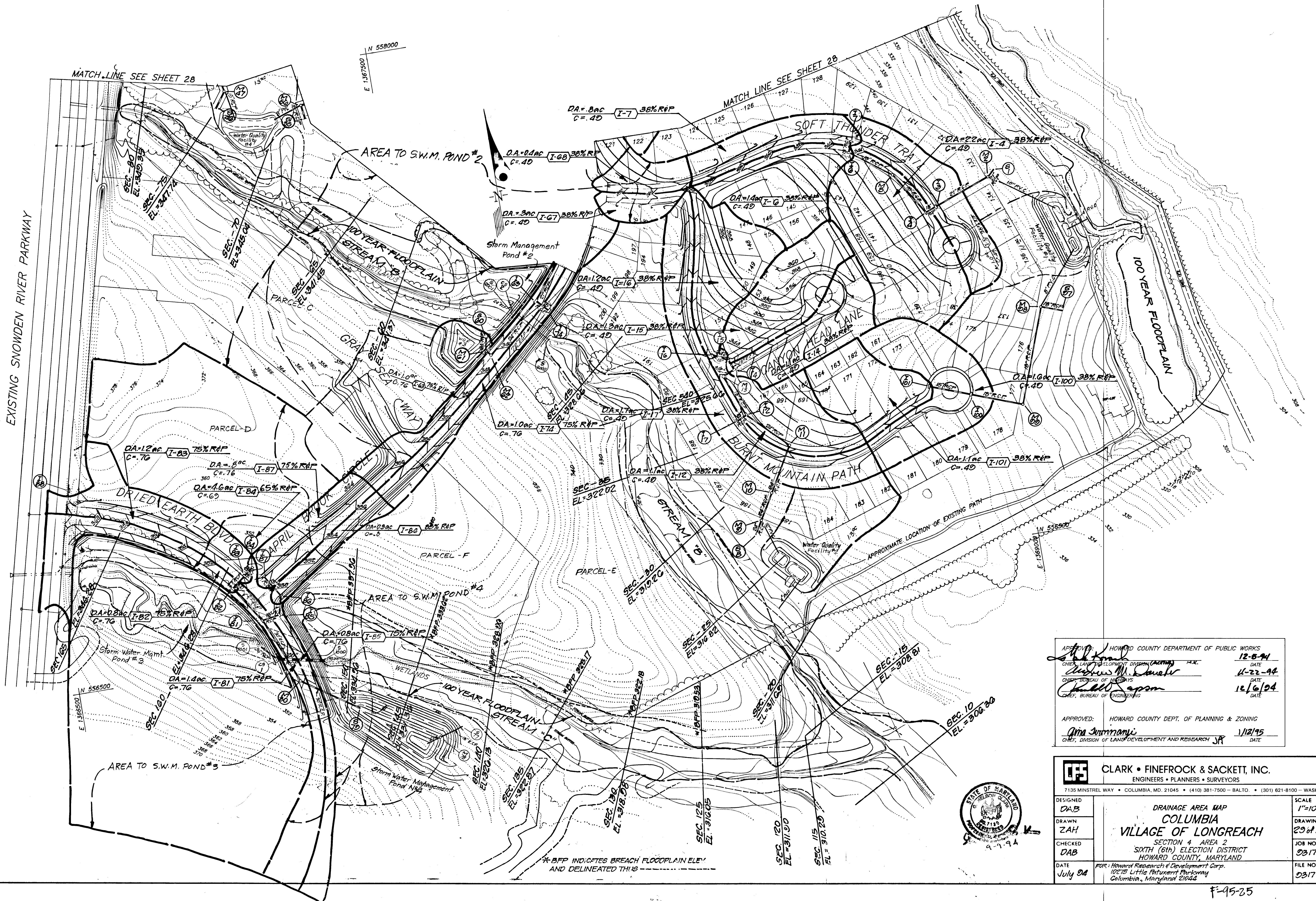
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, LAND DEVELOPMENT DIVISION
 CHIEF, BUREAU OF HIGHWAYS
 CHIEF, BUREAU OF ENGINEERING
 DATE: 12-5-94
 DATE: 11-22-94
 DATE: 12/6/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
 DATE: 1/16/95

 CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.		
DESIGNED DAB	DRAINAGE AREA MAP COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	SCALE 1"=100'
DRAWN ZAH		DRAWING 28 of 37
CHECKED DAB		JOB NO. 98177
DATE July 94		FILE NO. 93177-D



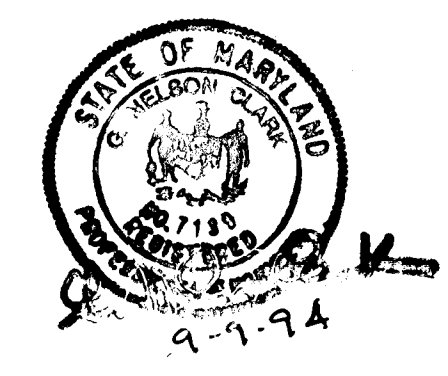
EXISTING SNOWDEN RIVER PARKWAY



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John P. ... 12-8-94
 CHIEF, LAND DEVELOPMENT DIVISION (acting) DATE
Andrew M. ... 11-22-94
 CHIEF, BUREAU OF HIGHWAYS DATE
Charles ... 11/6/94
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Ana ... 1/12/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

CLARK • FINEPROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.		DESIGNED	DAB	SCALE	1"=100'
		DRAWN	ZAH	DRAWING	29 of 37
CHECKED	DAB	JOB NO.	03177	FILE NO.	03177-D
DATE	July 04	FOR: Howard Research & Development Corp. 10215 Little River Parkway Columbia, Maryland 21044			



See Sheet 33

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief Land Development Director *James R. ...* 12-5-94
 Date 4-22-94
 Chief, Bureau of Engineering *William J. ...* 12-6-94
 Date 1/12/95

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 Chief, Division of Land Development and Research *John ...* 1/12/95
 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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.

John ... 9-9-94
 Signature of Engineer Date

By The Developer:
 I/we certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

John ... 9-6-94
 Signature of Developer Date

DNR'S BEST MANAGEMENT PRACTICES

- The limits of authorized area of disturbance must be fenced in the field. This can be accomplished with orange construction fencing, straw bales, silt fence or other suitable high visibility fencing. The purpose of this special condition is to prevent accidental/unauthorized encroachment into adjacent wetlands and buffer during the construction period.
- All stabilization in the wetland and buffer shall be of the following recommended species: Annual Ryegrass (*Lolium multiflorum*), Millet (*Seteria Italica*), Barley (*Hordeum sp.*), Oats (*Avena sp.*), and/or Rye (*Secale cereale*). These species will allow for the stabilization of the site while also allowing for the voluntary re-vegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Division, Kentucky J1 Paspalum and Birdfoot Trefoil shall not be utilized in the wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
- Properly maintain the structure or fill at all times.
- Conduct the activity so as not to restrict or impede the movement of wildlife indigenous to the nontidal wetland or adjacent water, or the passage of normal or expected high water flows.
- Maintain the hydrologic regime of the nontidal wetlands upstream, downstream or adjacent to the authorized activity.
- Remove excess fill or construction material or debris to an upland disposal area.
- Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of the nontidal wetland.
- If backfill is obtained from sources other than the originally excavated material, utilize clean fill, free from waste metal products, unsightly debris, toxic material or any other deleterious substance.
- Repair and maintain any serviceable structures or fills so as not to result in a substantial deviation from the plans or specifications of the original structure or fill, although minor deviations due to changes in materials or construction techniques and which are necessary for repair and maintenance are permitted.
- Rectify any nontidal wetlands temporarily impacted by any proposed repair and maintenance activity.
- Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands in excess of nontidal wetlands lost under the original construction or fill.
- Adhere to time-of-year restrictions as required by the Maryland Department of the Environment under COMAR 26.08.02.
- Conduct the activity so as not to cause or contribute to a degradation of water quality as determined by the Maryland Department of the Environment.



STONE OUTLET SEDIMENT TRAP #5
 DA = 3.0 ac
 Storage Required = 3' x 1800 = 5400 cf
 Storage Provided = 5470 cf
 Depth = 3'
 Top of Stone Crest = 353.00
 Bottom Elev. = 345.0
 Cleanout Elev. = 350.5
 Bottom Dimensions = 45' x 35'
 1:1 side slopes in cut

STONE OUTLET SEDIMENT TRAP #4
 DA = 2.0 ac
 Storage Required = 2' x 1800 = 3600 cf
 Storage Provided = 3600 cf
 Depth = 25'
 Top of Stone Crest = 340.5
 Bottom Elev. = 347.25
 Cleanout Elev. = 347.25
 Bottom Dimensions = 40' x 32'
 1:1 Side Slopes in cut

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: *Patricia ...* 1/11/95
 Howard S.C.D. Date

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.
 Approved: *Patricia ...* 1/11/95
 U.S. Soil Conservation Service Date

SHAN ... & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21103

STONE OUTLET SEDIMENT TRAP #3
 DA = 5.3 ac
 Storage Required = 53' x 1800 = 9540 cf
 Storage Provided = 9600 cf
 Depth = 25'
 Top of Stone Crest = 335.50
 Bottom Elev. = 332.00
 Cleanout Elev. = 335.25
 Bottom Dimensions = 115' x 27'
 Side Slopes = 2:1

Temporary 20" ungrouted Rip-Rap, 12" thick. See Detail Sheet 17.
 For final placement of Rip-Rap, see sheet 3.

30' High Chain Link Fence
 100 Year Floodplain Drainage Easement
 20' Easement
 Center Easement (200)

338 Double Row of Silt Fence to be Staked every 3' to 5'

1	Rev. lots 1-6, 10, 11, 17-22, 38 & 39	4-7-95
2	REVISIONS	Date

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED: DAB
 DRAWN: ZAH
 CHECKED: DAB
 DATE: Aug 04

SCALE: 1"=50'
 DRAWING: 30 of 37
 JOB NO.: 98177
 FILE NO.: 98177-D

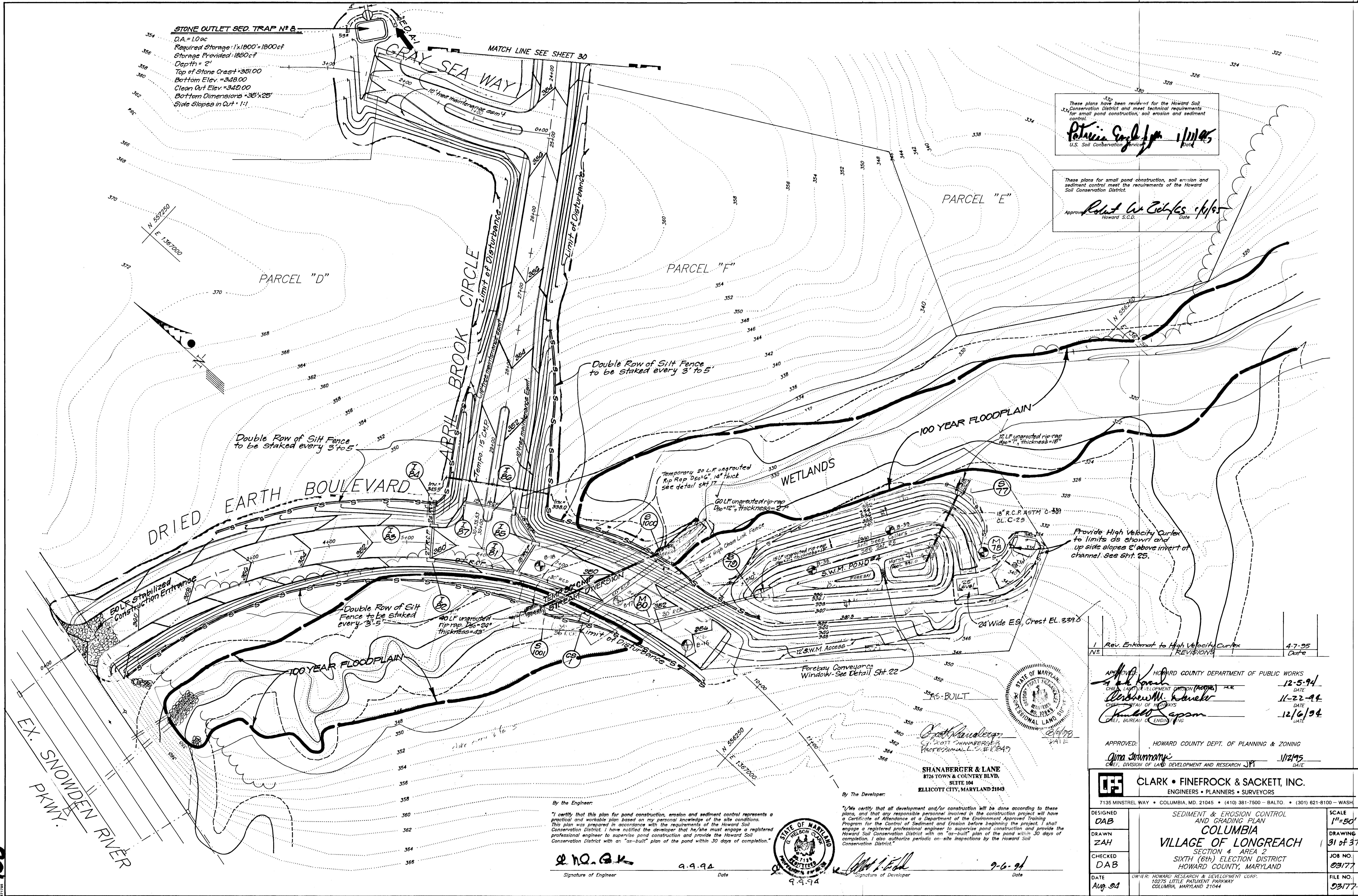
SEDIMENT & EROSION CONTROL AND GRADING PLAN
COLUMBIA VILLAGE OF LONGREACH
 SECTION 4 AREA 2
 SIXTH (6th) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER: HOWARD RESEARCH & DEVELOPMENT CORP.
 10225 LITTLE PATRIOT PARKWAY
 COLUMBIA, MARYLAND 21044

STONE OUTLET SED. TRAP N° 8
 D.A. = 1.0 ac
 Required Storage: 1' x 1800' = 1800cf
 Storage Provided: 1850cf
 Depth = 2'
 Top of Stone Crest = 351.00
 Bottom Elev. = 349.00
 Clean Out Elev. = 349.00
 Bottom Dimensions = 35' x 25'
 Side Slopes in Cut = 1:1

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.
Patricia Saylor 1/11/95
 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.
 Approved: *Robert W. Cichy* 1/11/95
 Howard S.C.D. Date



NO.	REVISIONS	DATE
1	Rev. Entom to High Velocity Culvert	4-7-95

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John K. ... 12-5-94
 CHIEF, LAND DEVELOPMENT DIVISION (ACTING)
 DATE
Robert W. Cichy 11-22-94
 CHIEF, BUREAU OF PERMITS
 DATE
James S. ... 12/6/94
 CHIEF, BUREAU OF ENGINEERING
 DATE
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Gina Strumony 1/12/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH JPT
 DATE

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	SEDIMENT & EROSION CONTROL AND GRADING PLAN COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE 1"=50'
DRAWN ZAH		DRAWING 31 of 37
CHECKED DAB		JOB NO. 03177
DATE Aug. 94		FILE NO. 03177-D

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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.
[Signature]
 Date: 9-9-94

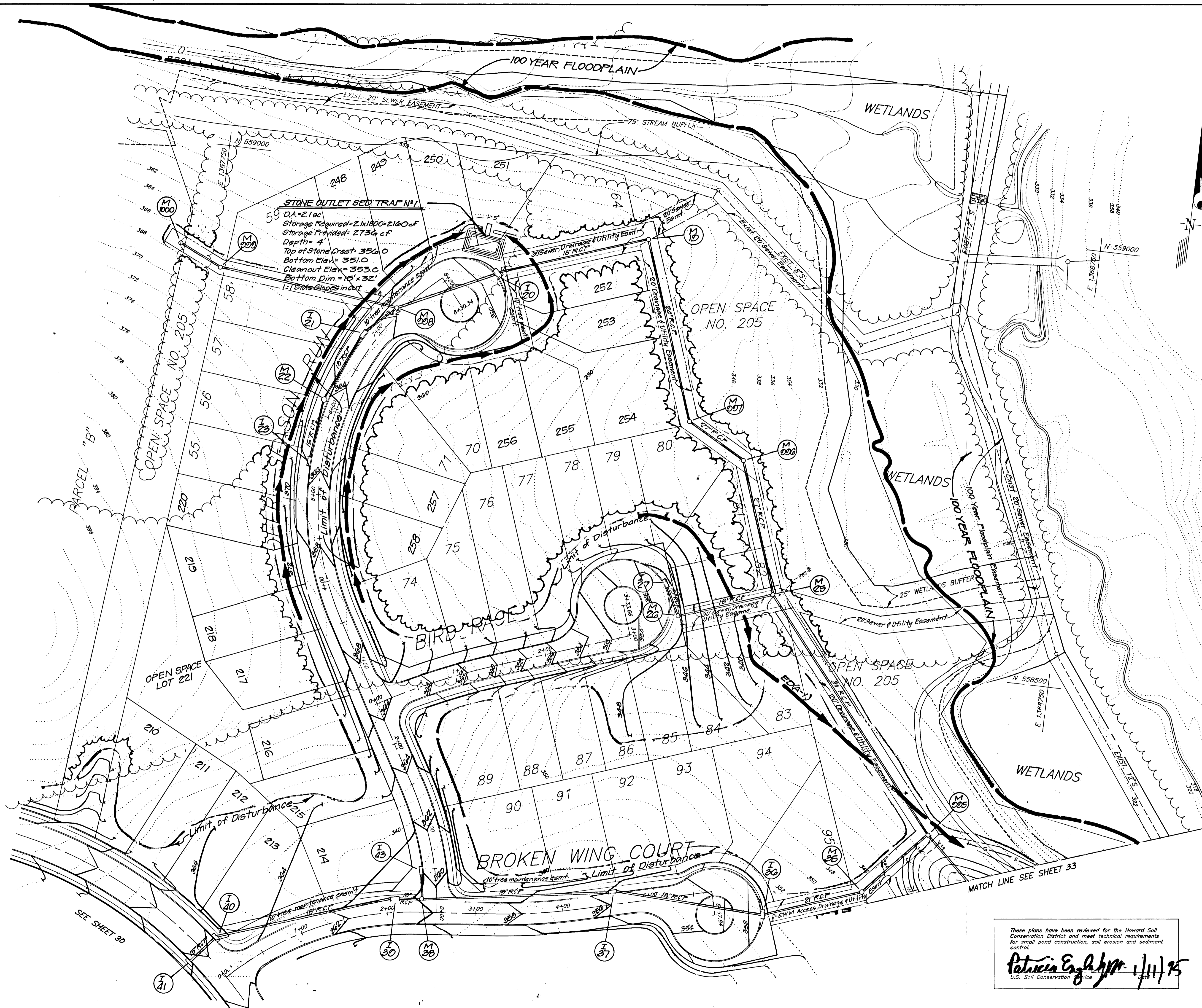


By the Developer:
 I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.
[Signature]
 Date: 9-6-94

SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

100

F-95-25



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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

Q. H. Q. K.
 Signature of Engineer
 9-9-94
 Date

By The Developer:
 "We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

John J. Hill
 Signature of Developer
 9-6-94
 Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: **Robert W. Zickler**
 Howard S.C.D. Date

1	Rev. lots 43-54, 65-69, 72, 73 & 80-83	4-7-95
N/S	REVISIONS	Date

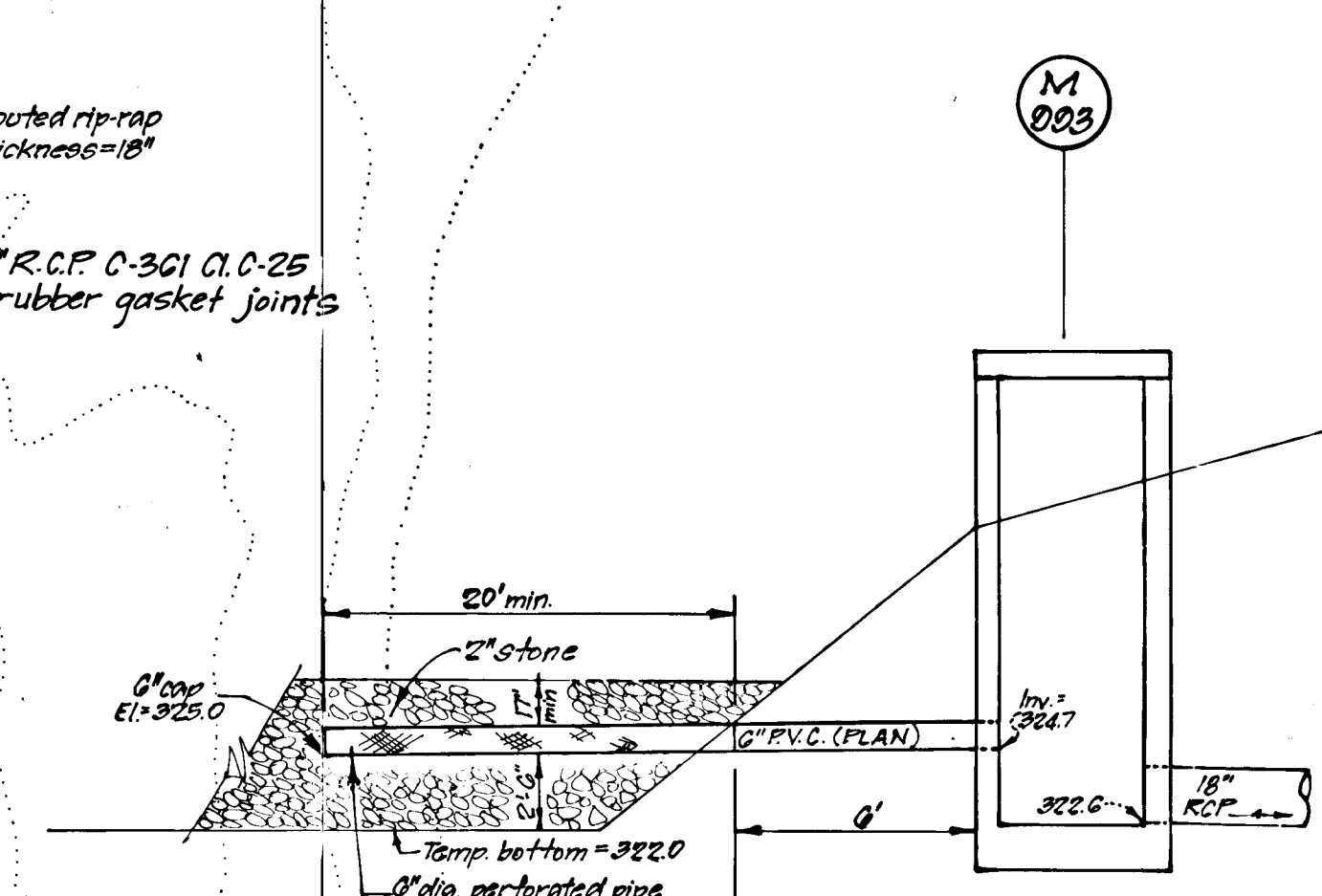
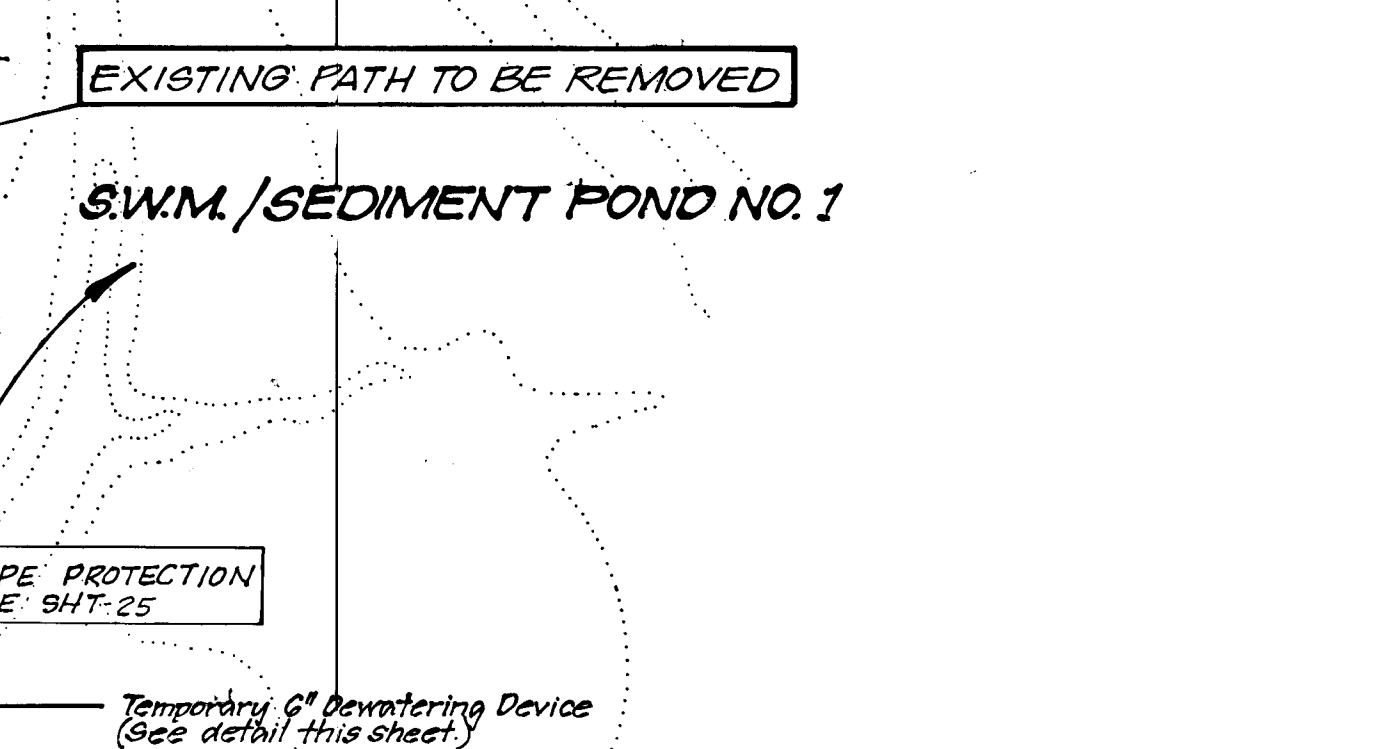
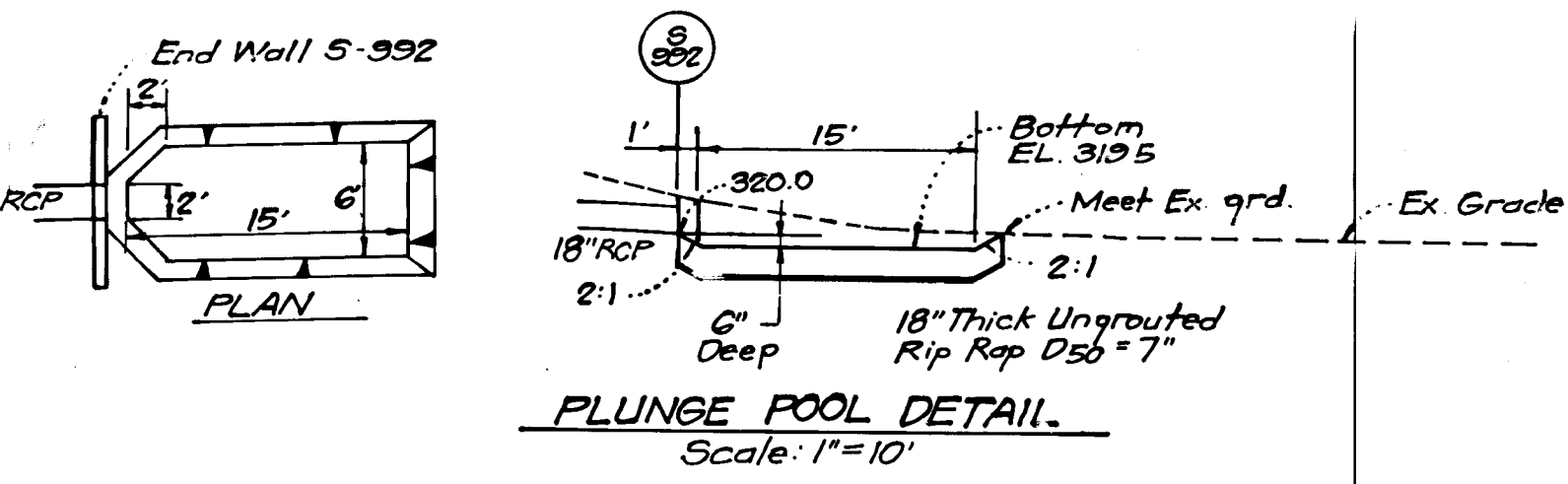
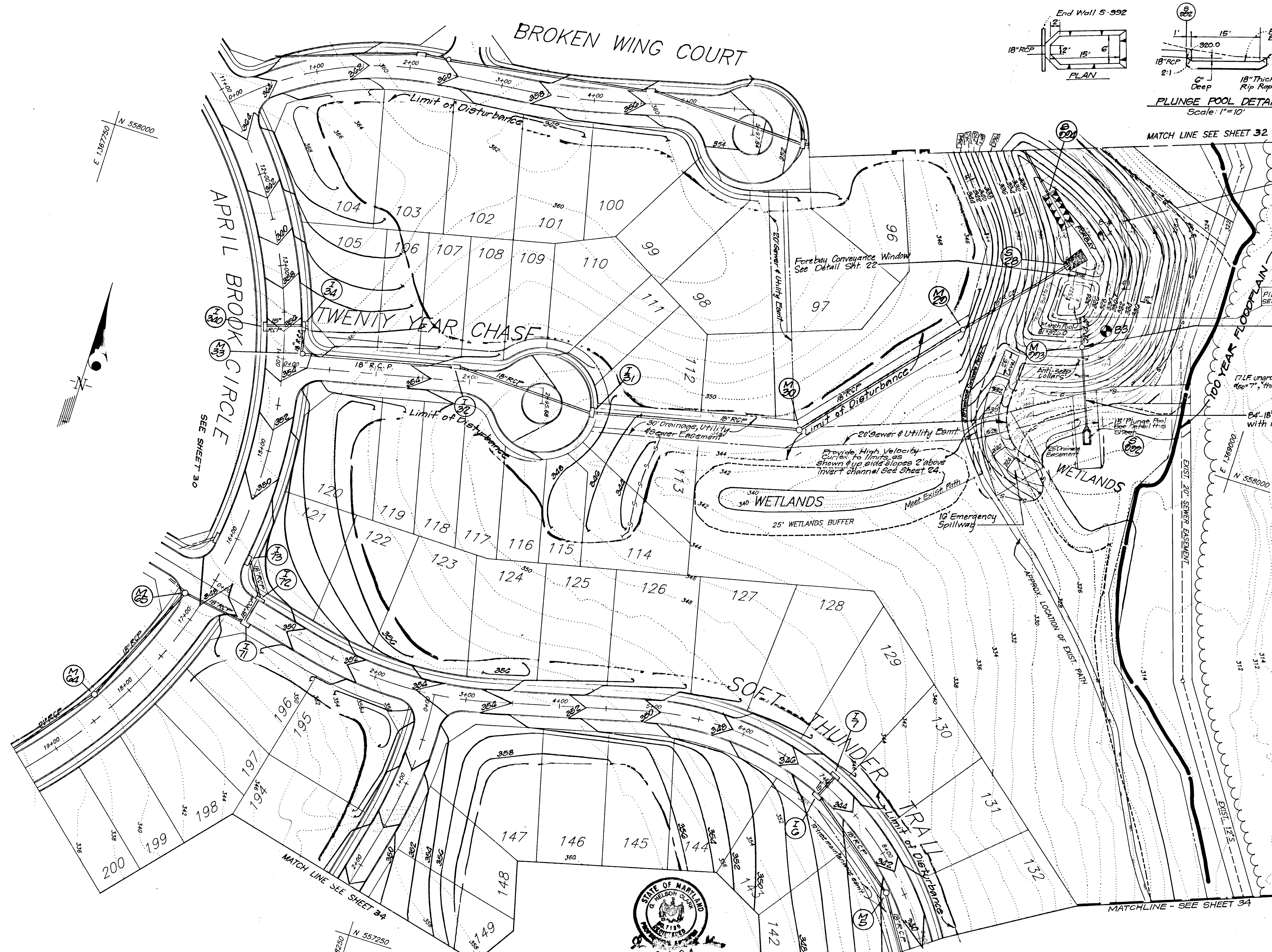
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John K. Kovich 12-5-94
 CHIEF, LAND DEVELOPMENT DIVISION (AGNRS) M.S.E. DATE
Andrew M. Kowale 11-22-94
 CHIEF, BUREAU OF PLANNING DATE
Paul J. Sepp 12/6/94
 CHIEF, BUREAU OF ENGINEERING

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Gina Strimmaric 1/12/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH JAF DATE

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED DAB	SEDIMENT & EROSION CONTROL AND GRADING PLAN COLUMBIA VILLAGE OF LONGREACH SECTION 4, AREA 2 SIXTH (6th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE 1"=50'
DRAWN ZAH		DRAWING 32 of 37
CHECKED DAB		JOB NO. 23177
DATE Aug. 04		FILE NO. 23177-D
OWNER: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.
Patricia Engle 1/11/95
 U.S. Soil Conservation Service



SHANBERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELICOTT CITY, MARYLAND 21043

Professional Engineer Seal: STATE OF MARYLAND, PROFESSIONAL LAND SURVEYOR, JOHN HANABERGER, PROFESSIONAL L.S. #10849.

1	Revise Matchlines, Add Plunge Pool and Detail, Enclosure to High Velocity Curlex	4-7-95
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		
CHIEF, (AND) DEVELOPMENT DIVISION (PERMITS) M.E.		12-5-94
CHIEF, (AND) PERMITS		11-22-94
CHIEF, BUREAU OF ENGINEERING		12/6/94
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING		
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH		1/12/95

CLARK • FINEBROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.		
DESIGNED DAB	SEDIMENT & EROSION CONTROL AND GRADING PLAN	SCALE 1"=50'
DRAWN ZAH	COLUMBIA	DRAWING 33 of 37
CHECKED DAB	VILLAGE OF LONGREACH	JOB NO. 29177
DATE Aug. 94	SECTION 4 AREA 2 SIXTH (6TH) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	FILE NO. 29177-D
OWNER: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.

Patricia S. G. [Signature] 11/1/95
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.

Approved: *[Signature]*
Howard S.C.D. Date

By the Engineer:

[Signature] 9-9-94
Signature of Engineer Date

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

By The Developer:

"I certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

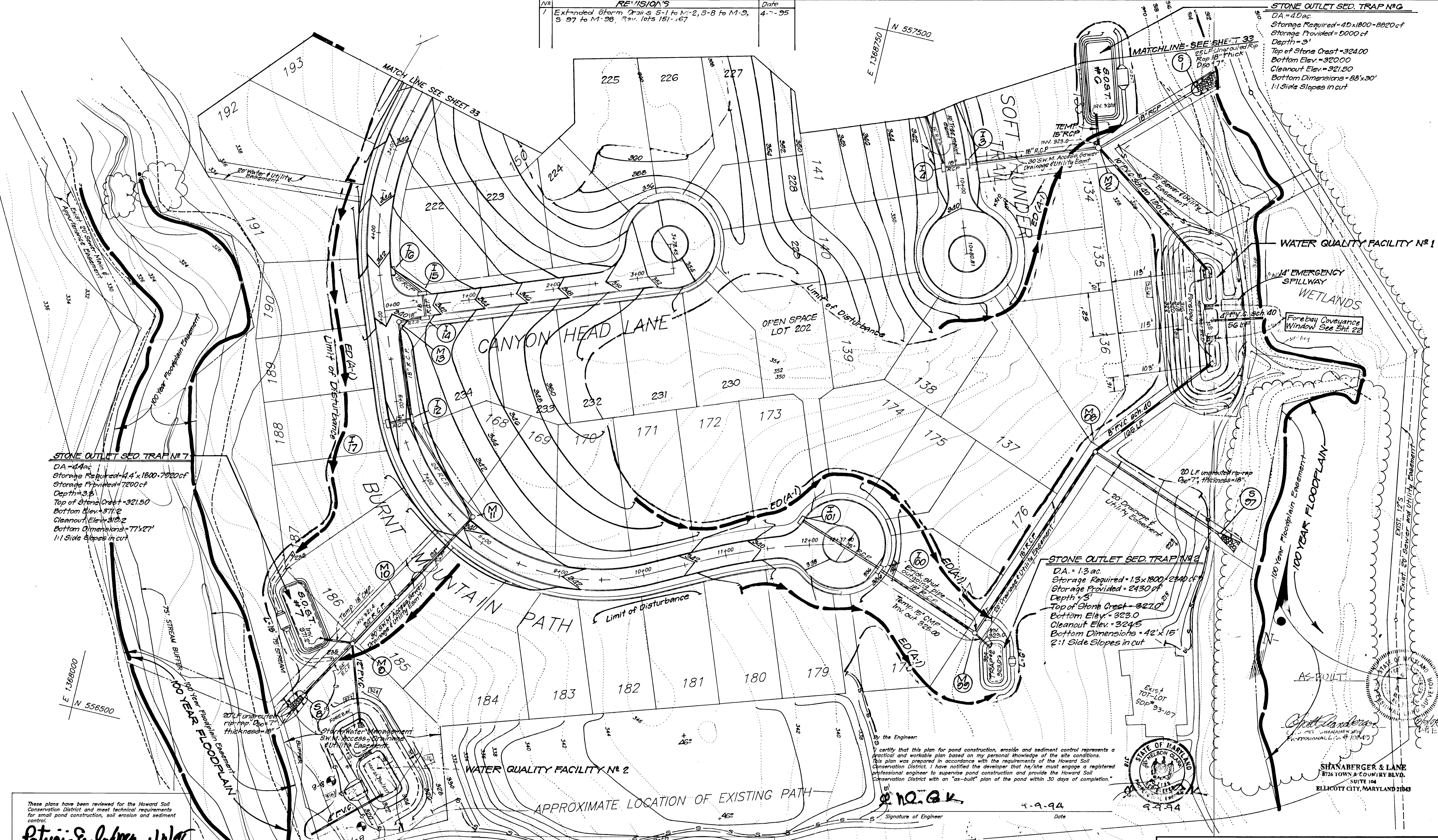
[Signature] 9-6-94
Signature of Developer Date

NO	REVISIONS	Date
1	Extended Storm Drains S-1 to M-2, S-8 to M-9, S-97 to M-98. Rev. lots 151-167	4-7-95

STONE OUTLET SED. TRAP #8
 DA = 4.0 ac
 Storage Required = 40 x 1800 = 8820 cf
 Storage Provided = 5000 cf
 Depth = 3'
 Top of Stone Crest = 324.00
 Bottom Elev. = 320.00
 Cleanout Elev. = 321.50
 Bottom Dimensions = 88' x 30'
 1:1 Side Slopes in cut

STONE OUTLET SED. TRAP #7
 DA = 4.4 ac
 Storage Required = 4.4 x 1800 = 7920 cf
 Storage Provided = 7200 cf
 Depth = 3.3'
 Top of Stone Crest = 321.50
 Bottom Elev. = 317.2
 Cleanout Elev. = 319.2
 Bottom Dimensions = 77' x 27'
 1:1 Side Slopes in cut

STONE OUTLET SED. TRAP #9
 DA = 1.3 ac
 Storage Required = 1.3 x 1800 = 2340 cf
 Storage Provided = 2430 cf
 Depth = 3'
 Top of Stone Crest = 327.0
 Bottom Elev. = 323.0
 Cleanout Elev. = 324.5
 Bottom Dimensions = 42' x 15'
 2:1 Side Slopes in cut



These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction, soil erosion and sediment control.
Patricia Engleber 1/11/95
 U.S. Soil Conservation Service

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
Robert W. Zich 1/11/95
 Howard S.C.D.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Shah Javed 12-5-94
 CHIEF, LAND DEVELOPMENT DIVISION (AG/MS) DATE
Christopher M. Sauer 11-22-94
 CHIEF, BUREAU OF HIGHWAYS DATE
Donald S. Brown 12/6/94
 CHIEF, BUREAU OF ENGINEERS DATE

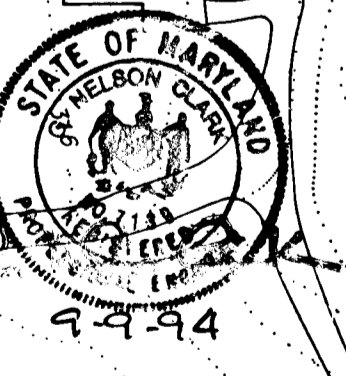
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Uma Juremowicz 1/12/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

By the Engineer:
NO. 2 1-9-94
 Signature of Engineer Date

I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.

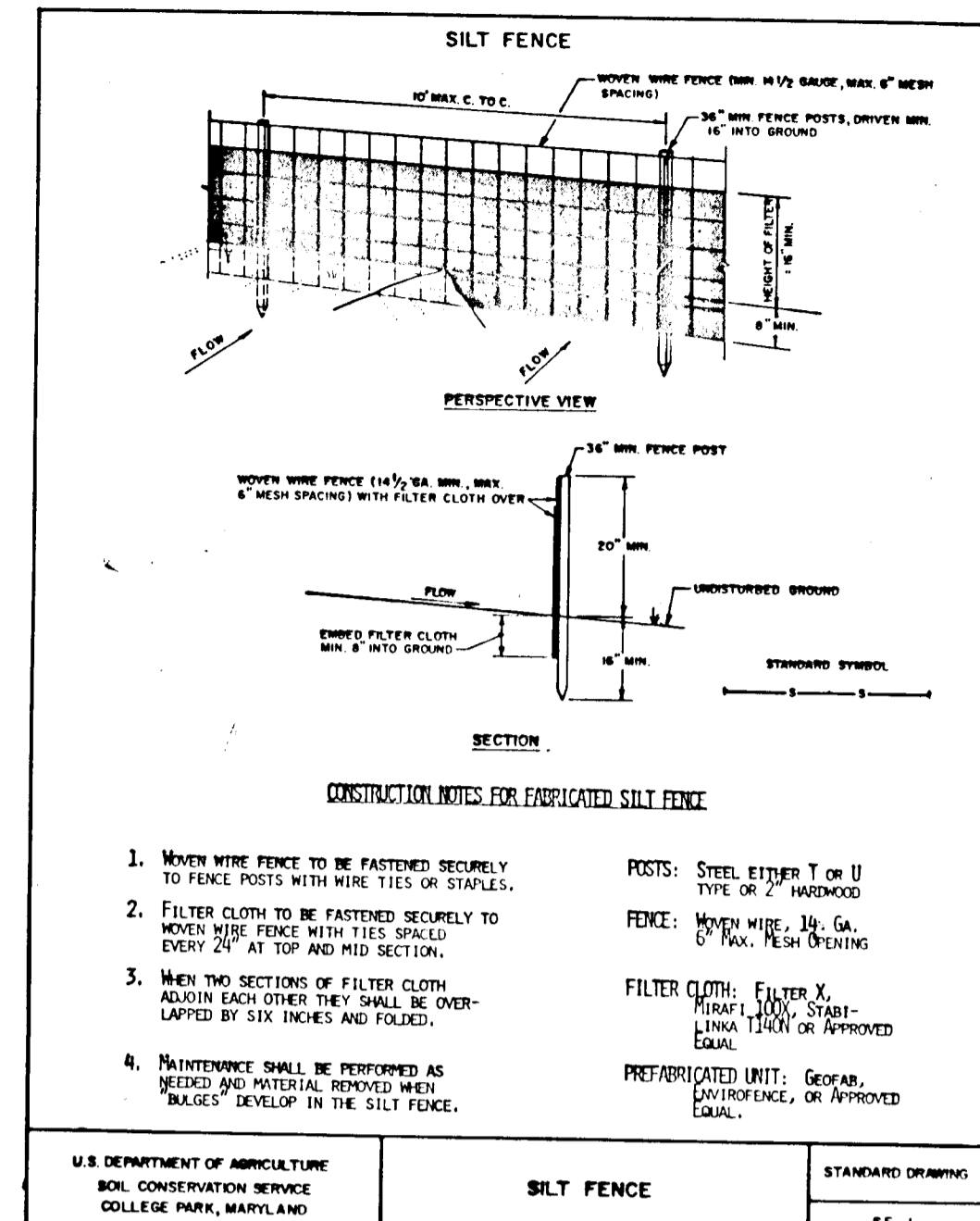
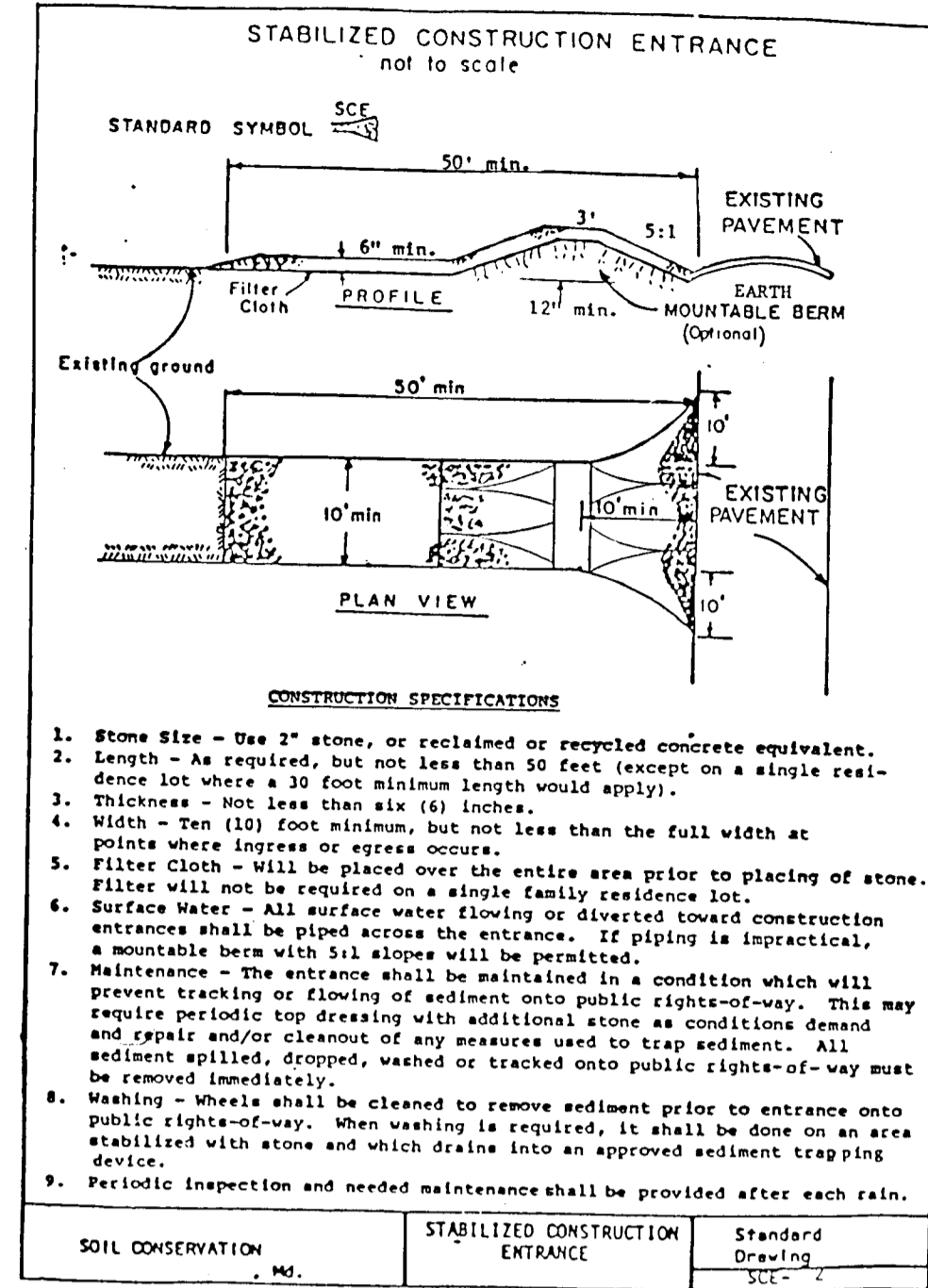
By the Developer:
NO. 2 2-0-94
 Signature of Developer Date

I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.



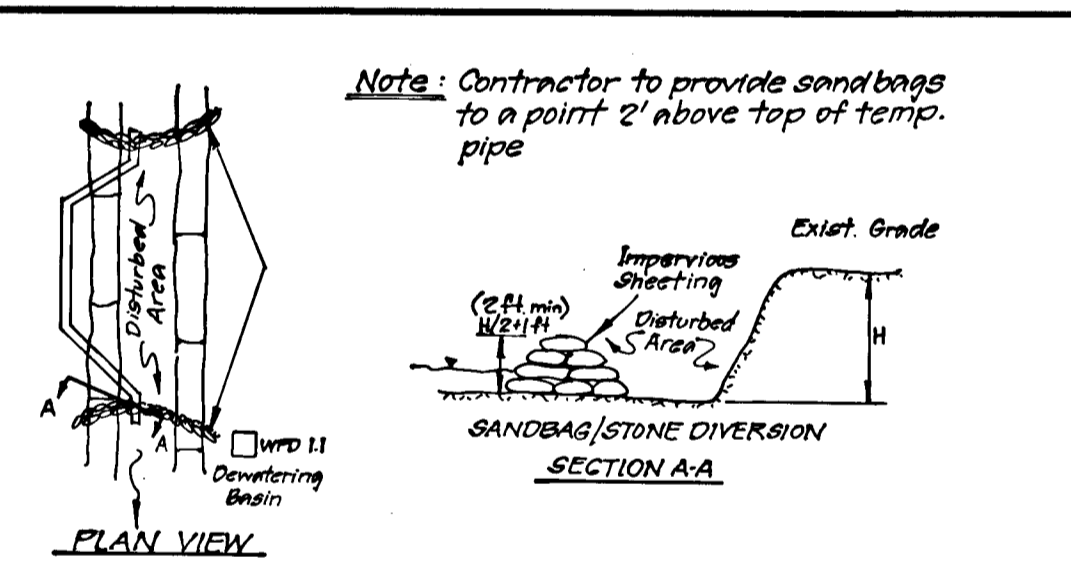
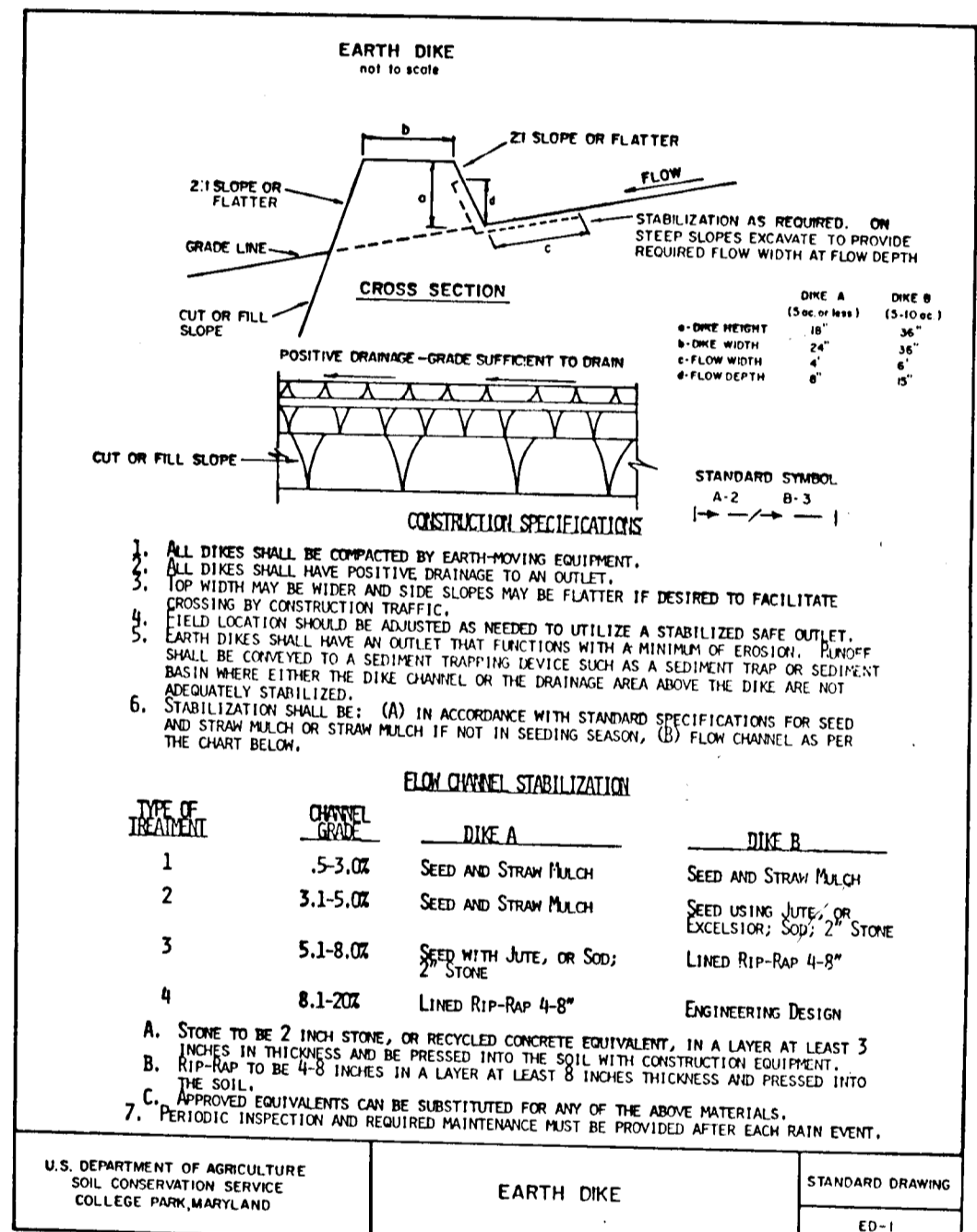
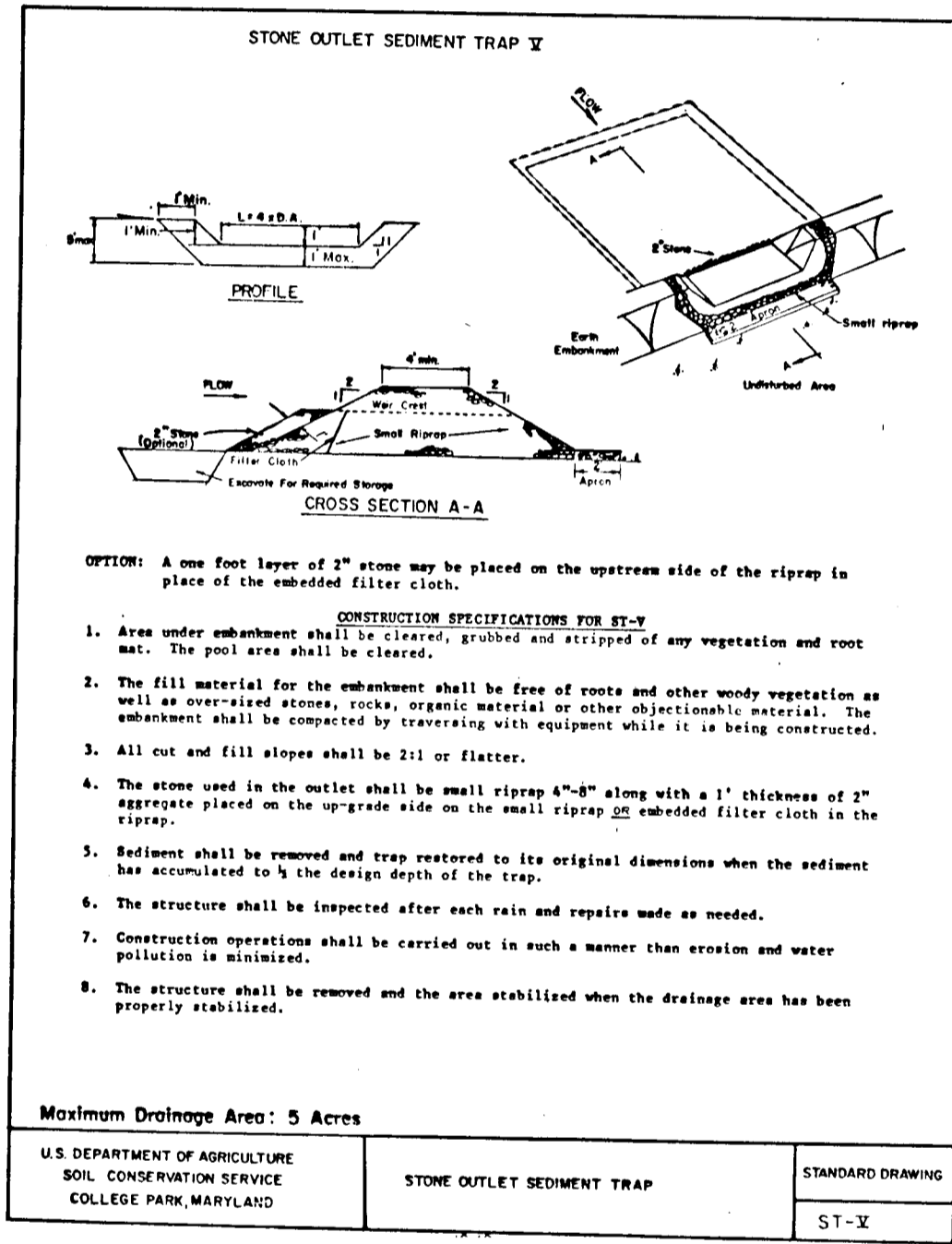
SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

CLARK • FINEROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS		SCALE 1"=50'
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 • BALTO. • (301) 621-8100 - WASH.		DRAWING 34 of 37
DESIGNED DAB	SEDIMENT & EROSION CONTROL AND GRADING PLAN COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 03177
DRAWN ZAH		FILE NO. 03177-D
CHECKED DAB	DATE Aug. 94	OWNER: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044



SEDIMENT AND EROSION CONTROL NOTES

- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECS. FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeters in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECS. FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec.51) sod (Sec.54), temporary seeding (Sec.50) and mulching (Sec.52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- SITE ANALYSIS:**
Total Area of Site: 145.53 Ac.
Area Disturbed: 24.0 AC.
Area to be roofed or paved: 2.6 AC.
Area to be vegetatively stabilized: 32.9 AC.
Total Fill: 102,000 CY
Total Cut: 102,000 CY
Off-site Waste/Borrow Area Location: _____
- Any sediment control practice which is disturbed by grading some day of disturbance.
On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
If houses are to be constructed on an "as sold" basis, at random, Single Family Sediment Control, as shown below shall be implemented.
All pipes to be blocked at the end of each day (see detail this sheet).
The total amount of silt fence = 8,550 LF.
- It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.
- Excavation from sewer trenches is to be placed on the uphill side of trench.



ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

[Signature]
Signature of Engineer Date 9-9-94

DEVELOPER'S CERTIFICATE

I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 or their authorized agents, as are deemed necessary.

[Signature]
Signature of Developer Date 9-6-94

PERMANENT SEEDING NOTES

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

SEEDING PREPARATION: Loosen upper three inches of soil by raking, discing 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 dolomitic limestone (82 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At the time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).

2) Acceptable - Apply 2 tons per acre dolomitic limestone (82 lbs/1000 sq ft) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 600 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Fall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Fall Fescue per acre and 2 lbs per acre (1.5 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, perfect site by Option (1) 2 tons per acre well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Fall Fescue and mulch with 2 tons/acre well anchored straw.

MULCHING: Apply 1 1/2 to 2 tons per acre (10 to 90 lbs/1000 sq ft) of unrefined small grain straw immediately after seeding. Anchor mulch immediately after application using grain straw anchoring tool or 216 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

MAINTENANCE: Inspect all seeded areas and make needed repairs, replacements and reseeding.

TEMPORARY SEEDING NOTES

SEEDING PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

SOIL AMENDMENTS: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft).

SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushels per acre of annual ryegrass (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (0.7 lbs/1000 sq ft). For the period November 16 thru February 28, perfect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

MULCHING: Apply 1 1/2 to 2 tons per acre (10 to 90 lbs/1000 sq ft) of unrefined small grain straw immediately after seeding. Anchor mulch immediately after application using grain straw anchoring tool or 216 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

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

CULVERT CONSTRUCTION SEQUENCE

- Excavate area as shown as initial core construction
- Install core trench, culvert and related appurtenances in the vicinity of the culvert.
- Complete core trench material around pipe
- Divert stream to the culvert
- Remove temporary diversion pipe
- Excavate core area on either side of the culvert.
- Complete core construction in homogeneous lifts.

OPERATION MAINTENANCE & INSPECTION

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, BCS "Standards and Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety and the continued operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.

SEQUENCE OF CONSTRUCTION

- | | |
|---|----------|
| 1. Obtain grading permit | 7 days |
| 2. Install stabilized construction entrances | 1 day |
| 3. Install 36" temp diversion pipe at April Brook Circle and install silt fence | 1 day |
| 4. Construct traps #6, #7 and #8 and corresponding earth dikes (Soft Thunder Trail, Canyon Head Lane, Burnt Mountain Path). | 7 days |
| 5. Install temporary diversion pipe | 2 days |
| 6. Install stream culvert, follow culvert construction sequence. See this sheet. | 14 days |
| 7. Install sanitary sewer: Ex M-7 to 10S and Ex M-7 to 10S simultaneously with road culvert. | 14 days |
| 7B. Install 12" H St8+00 to 12+00 in April storm drainage M-64 thru S-60, stabilize fill slopes of Pond #2 immediately after construction. | 28 days |
| 8A. Construct water quality facility #3 and outfall pipe as construction of storm drainage and embankment construction progresses. Note fill for culvert on April Brook Circle to be taken from Canyon Head Lane Area. Clear and grade as necessary to obtain fill. | 2 days |
| 8. Install Traps #1, 3, 4, 5 & 8 and associated earth dikes and silt fence along April Brook Circle 0+00 to 3+00+4 and install temp 18" CMP. | 14 days |
| 10. Install temp 36" stream diversion @ Dried Earth Boulevard and temp 15" CMP under April Brook Circle. | 1 day |
| 11. Install remaining silt fence along April Brook Circle and Dried Earth Boulevard. | 1 day |
| 12. Install stream culvert, follow culvert construction sequence. See this sheet. | 2 days |
| 13. Remove temporary 18" CMP. | 14 days |
| 14. Concurrently with construction of Pond #3, install silt fence along toe of SWM Pond #4 and construct SWM Pond #4 and stabilize. | 28 days |
| 15. As roadway fill for Pond #3 progresses install storm drainage S-79 thru I-87, upper core trench and 12" water main station 4+00 thru 9+05 in Dried Earth Boulevard. (Note: Fill for roadway embankment for Pond #3 to be taken from cut in SWM Pond #4, April Brook Circle and Gray Sea Way. Clear and Grade as necessary to obtain fill). Stabilize fill slopes of Pond #3 immediately after construction. | 28 days |
| 16. Construct SWM Pond #1 (Sediment Basin #1) and associated earth dikes. Install silt fence along toe of fill prior to start of work on pond. Delay installation of 4" PVC. Mark area and foray and temporary grade pond to elevation shown. | 28 days |
| 17. Install storm drainage S-994 thru M-995, M-995 thru I-43, S-28 thru I-340 and allow sediment laden water to enter inlets. Grade as necessary to install storm drainage. | 28 days |
| 18. Clear and grade remainder of site. | 60 days |
| 19. Install remaining storm drainage and temp diversion pipes in M-98, M-2, M-47, M-56, M-99 and I-63 | 60 days |
| 20. Install remaining sewer and water. | 90 days |
| 21. Install utilities. | 60 days |
| 22. Construct paving. | 120 days |
| 23. Stabilize all distributed areas onsite in accordance with standards and specifications. | 60 days |
| 24. Construct water quality facilities 1, 2, and 4 and install diversion pipes and silt fences as shown. Stabilize water quality facilities immediately after construction. | 30 days |
| 25. Upon approval of the sediment control inspector remove sediment and erosion control measures and stabilize. | 30 days |
| 26. Convert sediment basin to SWM pond as follows:
a. Flush storm drainage leading to sediment basin.
b. Grade pond as necessary to conform to plans.
c. Install 4" PVC flow orifice.
d. Stabilize pond immediately after construction. | 30 days |
| 27. Install silt fences around mitigation area and grade. Immediately stabilize after construction. | 14 days |
| 28. Install silt fences in water quality facilities, SWM ponds and wetland mitigation area. | 30 days |
| 29. Upon approval of S & E inspector removed remaining S & E control and stabilize. Note temp 15" & 18" CMP under April Brook Circle to remain until Ponds B and D are developed at which time they are to be filled with grout and bulkheaded. | 30 days |

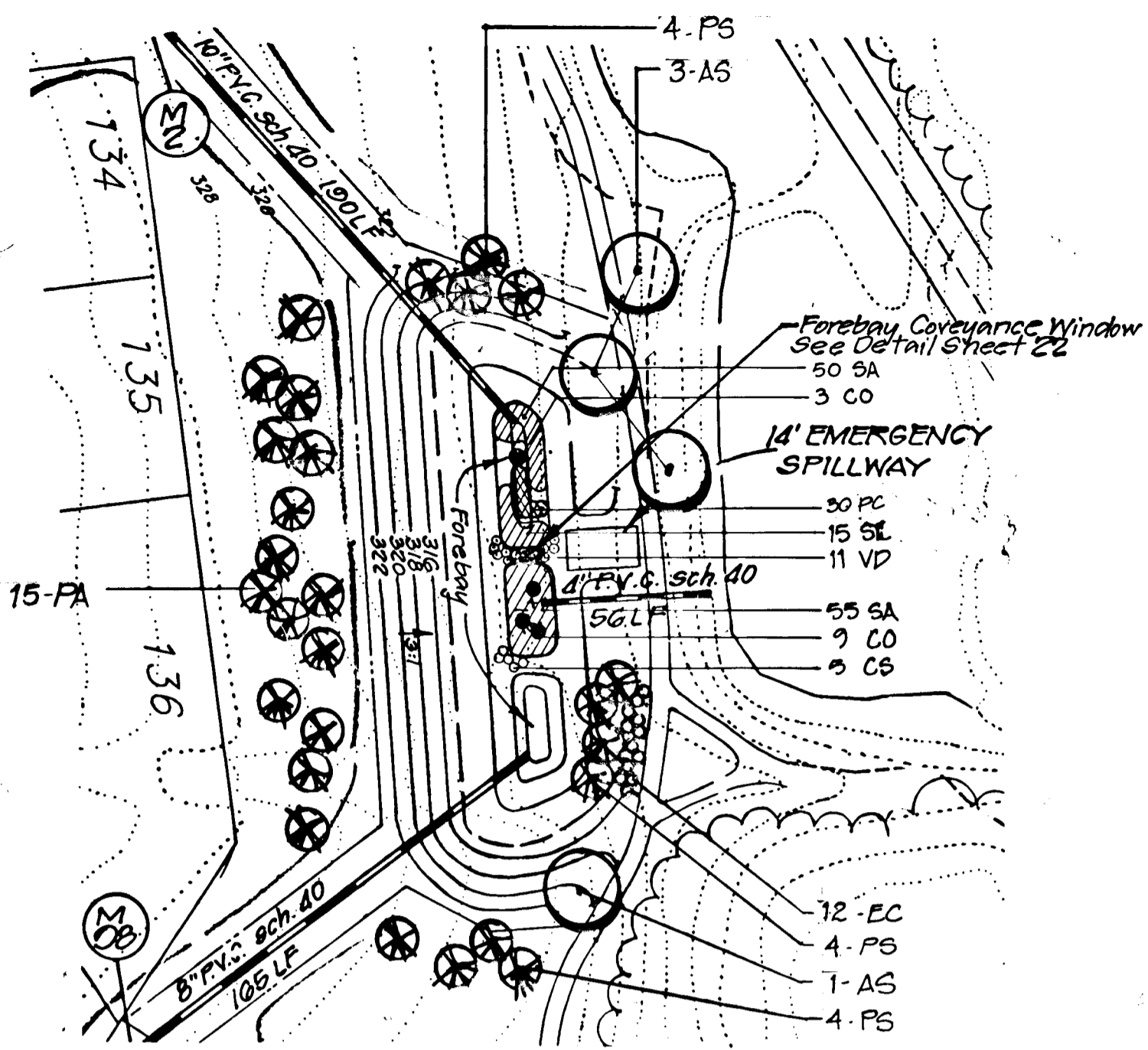
Maintenance Schedule for SWM Ponds #1 and #4 and Water Quality Facilities 1 thru 4.

- Forebays to be inspected after each major storm or every month. Trash to be removed as necessary.
- Marsh areas to be inspected once a month and excessive growth cut or mowed as required (No growth above 18" ever marsh plot allowed) during growing season.
- Pond slopes and benches to be mowed once every month during growing season.
- Trash to be removed from trash racks after each major storm or every month.
- An annual inspection of the pond is to be done.
- Remove sediment from forebay areas when depth exceed 4".
- Corrective maintenance is to be done as needed if the ponds are found to be unfunctional (i.e., water quality facilities or extended detention facilities don't drain back to the marsh plot elevation within 60 hours).

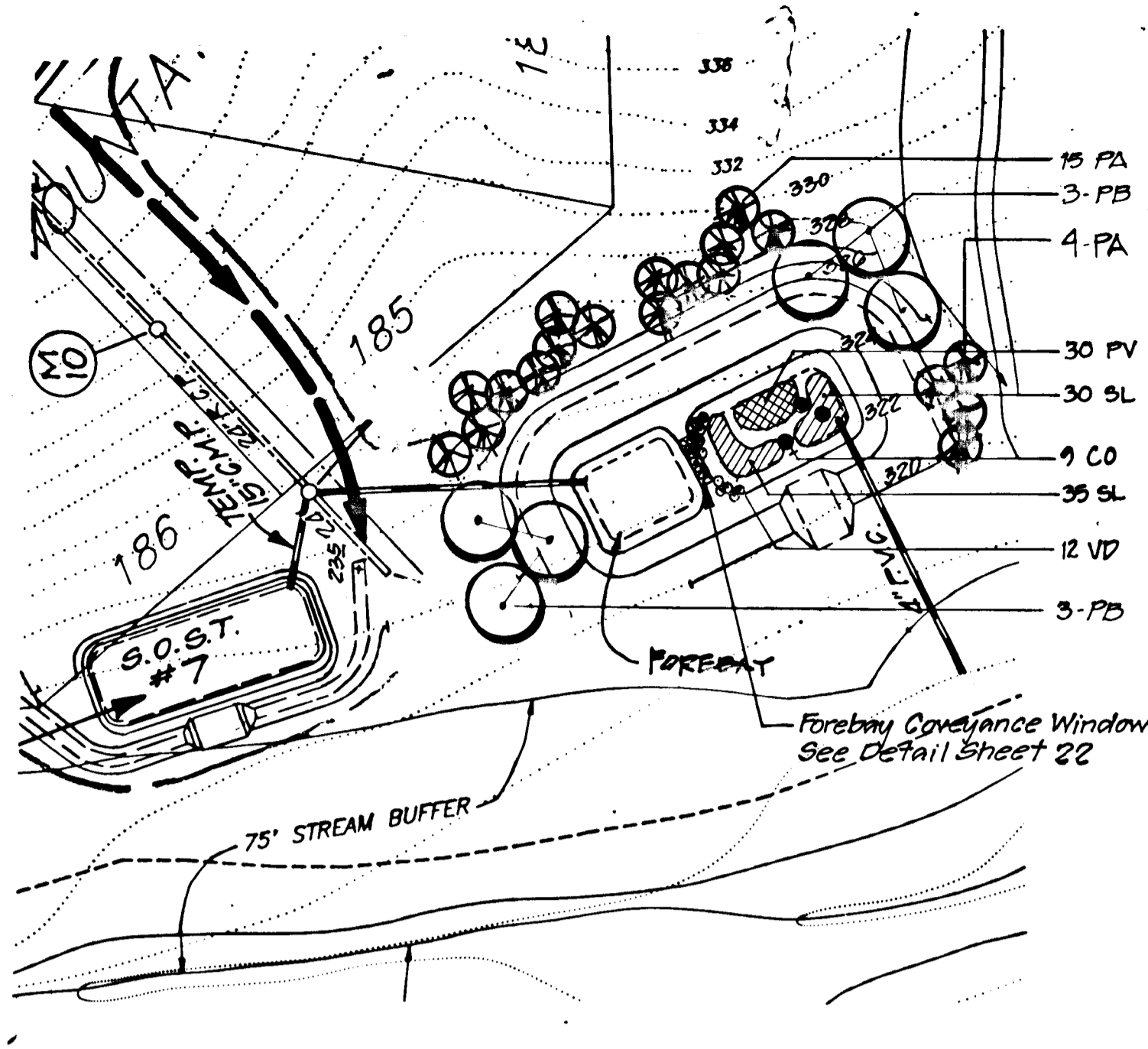
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i>	12-5-94 DATE
CHIEF, LAND DEVELOPMENT DIVISION (A&R&P) <i>[Signature]</i>	11-22-94 DATE
CHIEF, BUREAU OF HIGHWAYS <i>[Signature]</i>	12/6/94 DATE
CHIEF, BUREAU OF ENGINEERING <i>[Signature]</i>	

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH JA 11/2/95
DATE

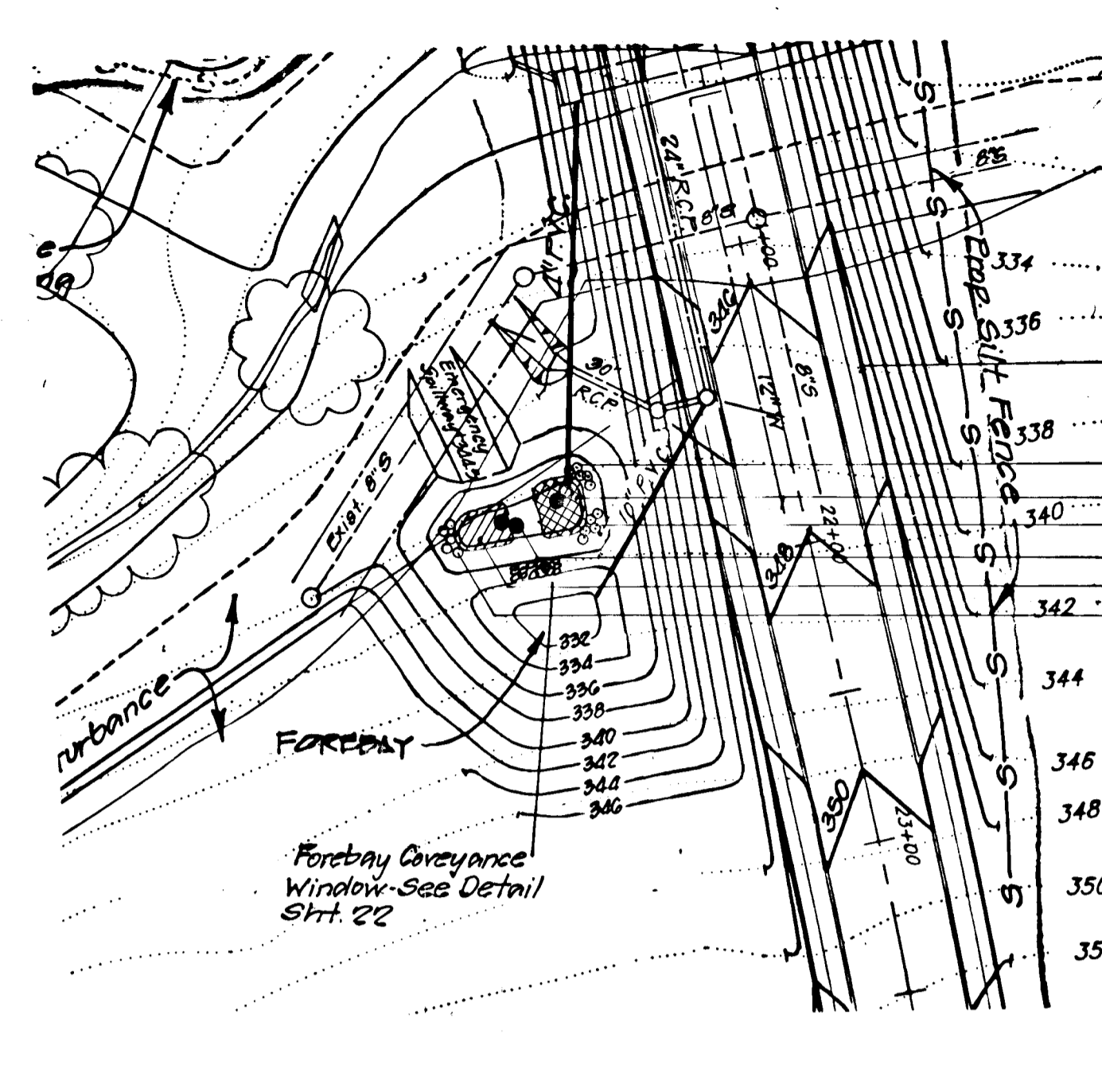
CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 715 N. MINNIE ST. WAY • COLUMBIA, MD 21045 • (410) 381-7500 • BAL TO • (301) 621-8100 • WASH DC		
DESIGNED DAB	SEDIMENT EROSION CONTROL DETAILS COLUMBIA VILLAGE OF LONGREACH SECTION 4 AREA 2 SIXTH (6th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE — DRAWING 35 of 37
DRAWN ZAH		JOB NO. 09177
CHECKED DAB		FILE NO. 03177-D
DATE Aug. 94	OWNER: HOWARD RESEARCH & DEVELOPMENT CORP. 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	



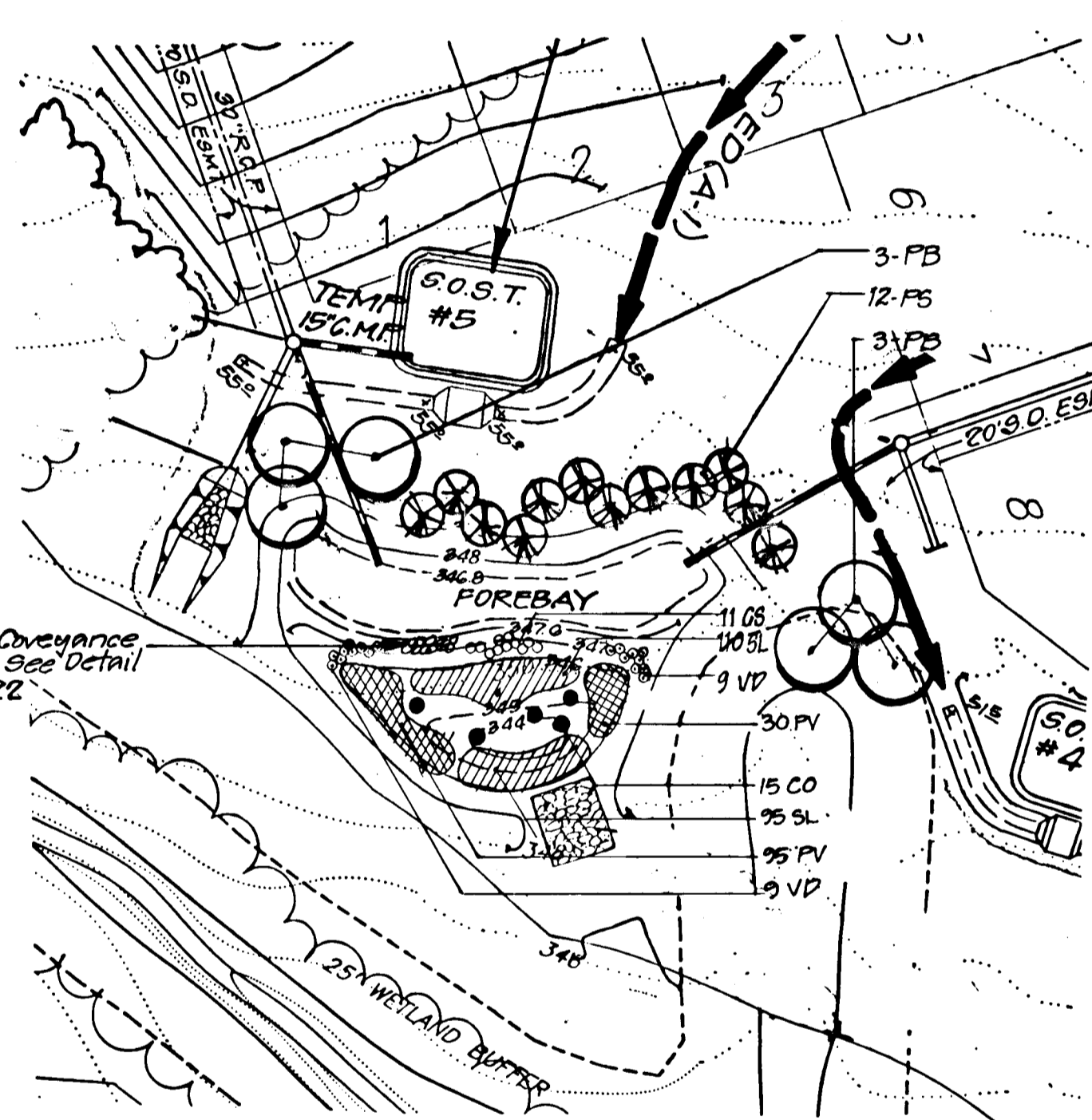
WATER QUALITY POND #1



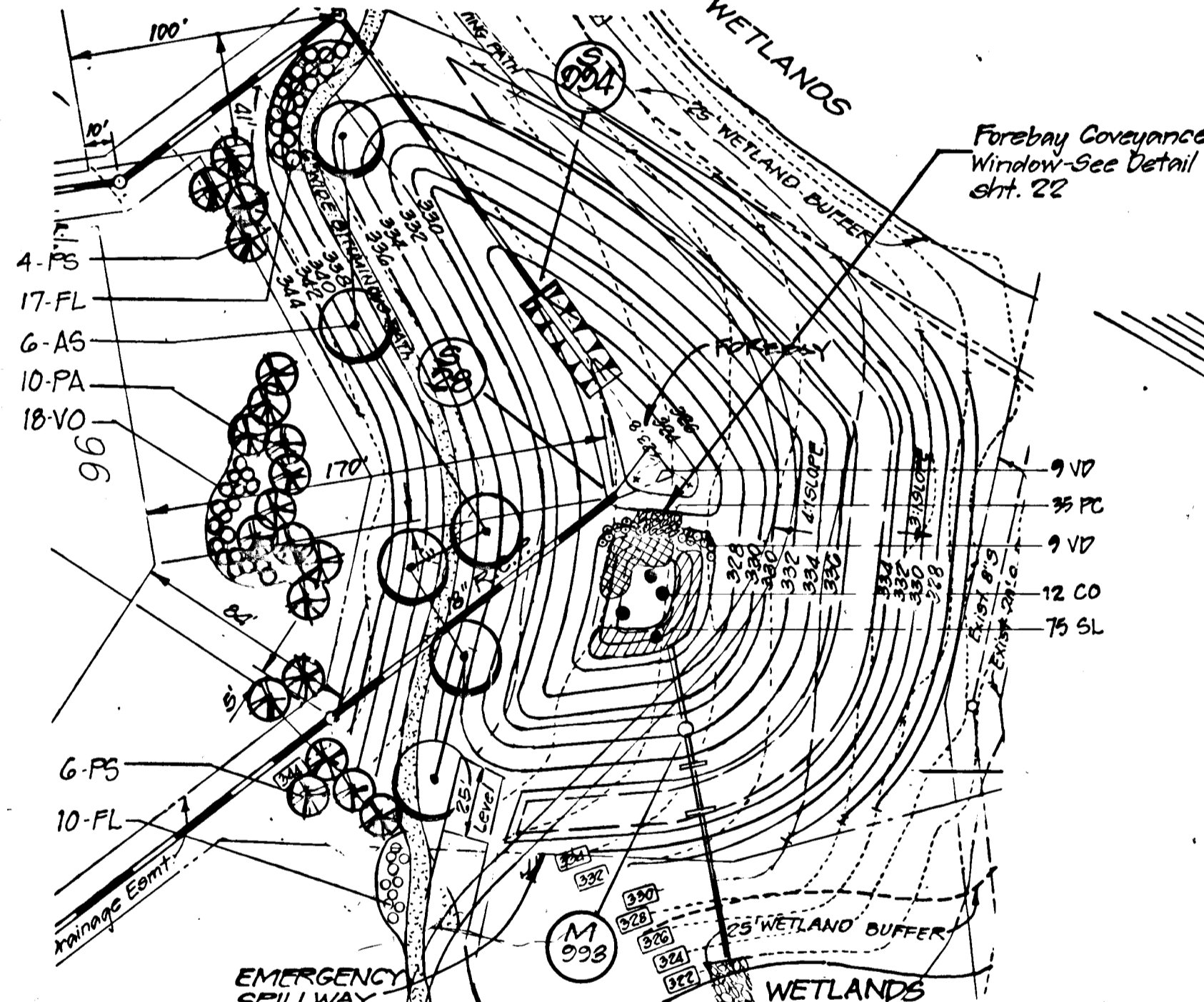
WATER QUALITY POND #2



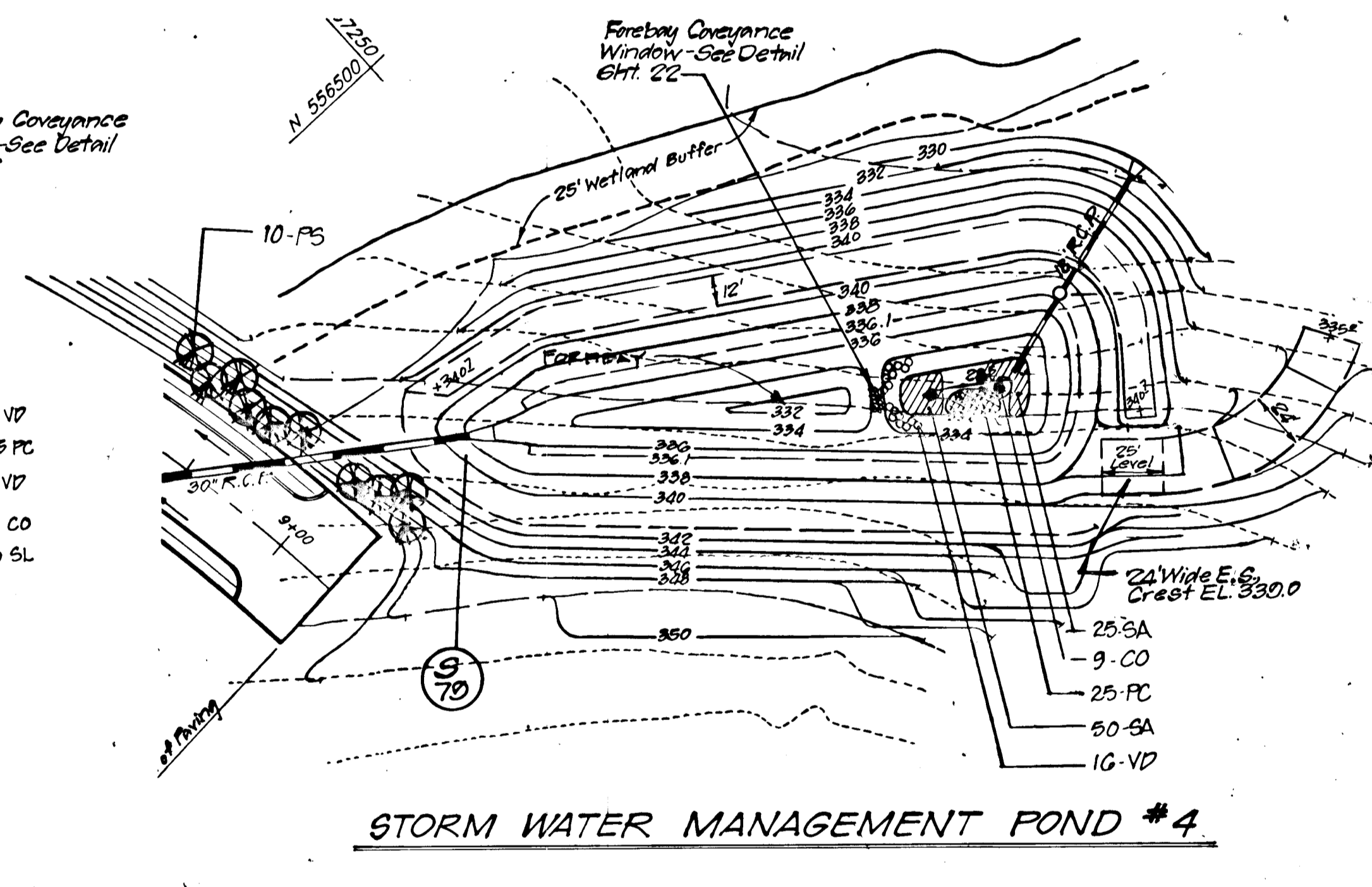
WATER QUALITY POND #3



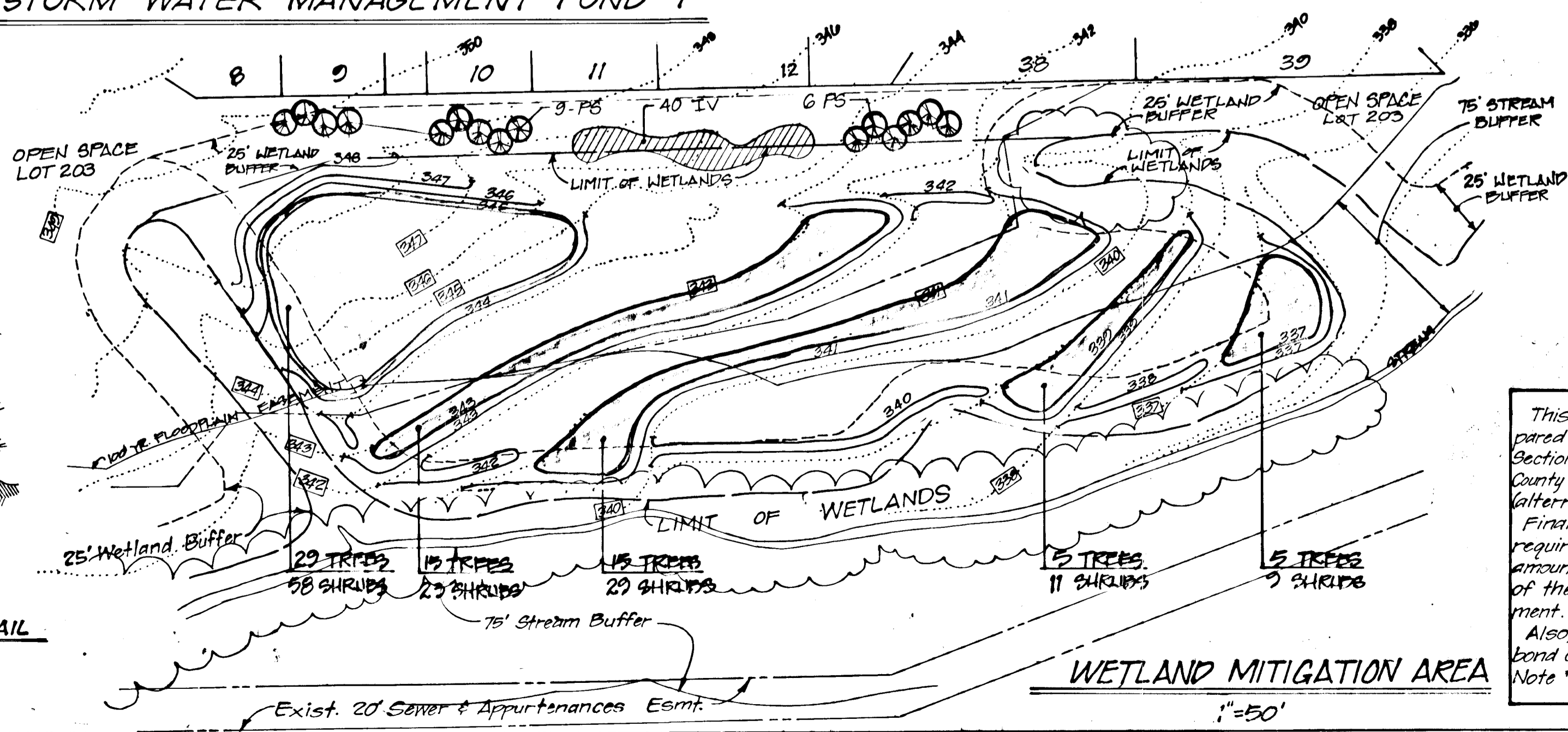
WATER QUALITY POND #4



STORM WATER MANAGEMENT POND #1



STORM WATER MANAGEMENT POND #2

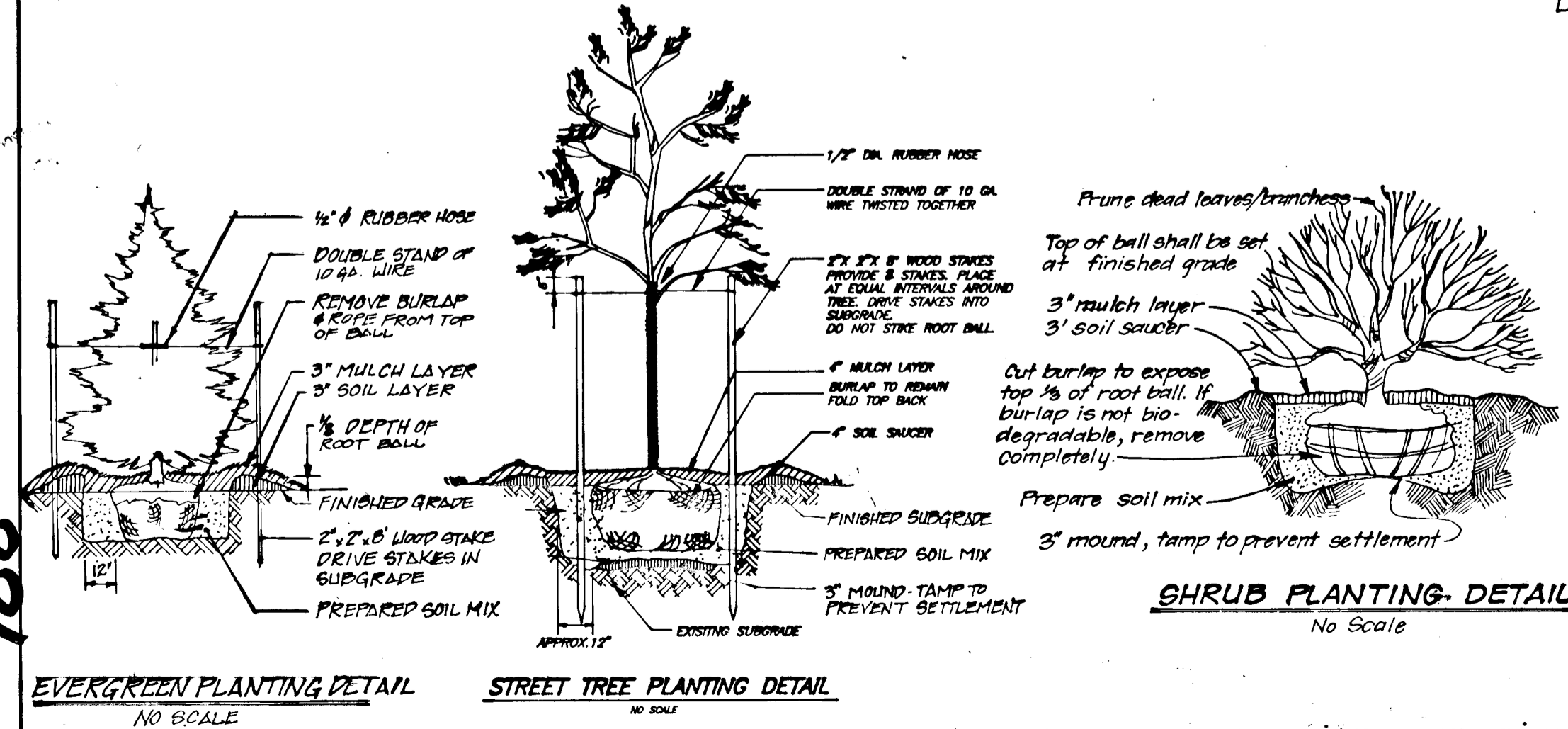


WETLAND MITIGATION AREA

KEY QTY	PLANT SPECIES	SIZE	REMARKS
CS 21	CORNUS STOLONIFERA Red Osier Dogwood	18"-24"	Container
VD 85	VERBENUM DECATUM Aronwood	18"-24"	Container
PRIMARY WETLAND VEGETATION			
SL	SAGITTARIA LATIFOLIA Duck Potato	ROOTS	30" OC
SA 180	SCIRPUS AMERICANUS Common Three Squares	ROOTS	30" OC
SECONDARY WETLAND VEGETATION			
CO 85	CEPHALANTHUS OCCIDENTALIS Button Bush	ROOTS	
FV 190	PELVANIA VIRGINICA Aron-Aron	ROOTS	30" OC
VC 85	PONTERERIA COREATA Pinebar Willow	ROOTS	30" OC

KEY QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
AS 10	Acer saccharum	"Legacy" Sugar Maple	2 1/2" - 3" Cal.	B & B
EC 12	Eucalyptus alata	"Connecticut" Dwarf Winged Euonymus	30" - 35" Ht.	B & B
FL 27	Erythraea intermedia	"Lynwood Gold" Forsythia	3" - 4" Ht.	B & B
IV 40	Ilex verticillata	Winterberry	30" - 35" Ht.	B & B
PA 44	Picea canadensis	Norway Spruce	8" - 8" Ht.	B & B
VS 44	Pinus strobus	White Pine	8" - 8" Ht.	B & B
PB 12	Platanus occidentalis	"Bloodroot" London Plane Tree	2 1/2" - 3" Cal.	B & B
VO 18	Viburnum opulus	European Cranberrybush	36" - 42" Ht.	B & B

QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	INDICATOR	REMARKS	STATUS
22	Acer negundo	Boxelder	3" - 4" Ht.	Container	Branching	Transplant	FAC
22	Fraxinus pennsylvanica	Green Ash	3" - 4" Ht.	Container	Branching	Transplant	FACW
22	Liquidambar styraciflua	Sweetgum	3" - 4" Ht.	Container	Branching	Transplant	FAC
SHRUBS IN THE WETLAND AREA:							
30	Alnus rugosa	Speckled Alder	18" - 24" Ht.	Container	Mulch-Shaded	Transplant	FACW
22	Cephalanthus occidentalis	Buttonbush	18" - 24" Ht.	Container	Mulch-Shaded	Transplant	OBL
30	Cornus stolonifera	Redosier Dogwood	18" - 24" Ht.	Container	Mulch-Shaded	Transplant	FACW
32	Salix discolor	Pussy Willow	18" - 24" Ht.	Container	Mulch-Shaded	Transplant	FACW



SHRUB PLANTING DETAIL

This plan has been prepared in accordance with Section 16.124 of the Howard County Code & Manual. (Alternative Compliance). Financial surety for the required 125 trees in the amount of \$2,500 is part of the Developer's agreement. Also, see street tree bond on sheet #1 (General Note #24).

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DATE: 12-5-94
 DATE: 11-22-94
 DATE: 12-16-94

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH

DESIGNED	MJP	SCALE	1"=30'
DRAWN	MJP	DRAWING	36 of 37
CHECKED	WHT	JOB NO.	03177
DATE	Sep 94	FILE NO.	03177-D

STORM WATER MANAGEMENT POND & WATER QUALITY FACILITY LANDSCAPING
 COLUMBIA VILLAGE OF LONGREACH
 SECTION 4 AREA 2
 SIXTH (6TH) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 FOR: HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 LITTLE BRYANT PARKWAY
 COLUMBIA, MARYLAND 21044

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, hole dry and caved at 7.8''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, hole dry and caved at 6.8''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, hole dry and caved at 6.5''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, hole dry and caved at 7.7''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, water at 7.3''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, water at 6.4''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, water at 9.0''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, water at 7.5''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, water at 7.0''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, water at 9.0''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, water at 15.5''

BORING REPORT table with columns: Depth, Soil Description, Sample No., Blows/6" Penetration, Rec./Alt. Includes notes: 'At completion of boring, water at 2.3''

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. Includes signatures of Howard County officials and dates: 12-5-94, 11-22-94, 12/6/94.

CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS. Project details for VILLAGE OF LONGREACH SECTION 4 AREA 2.

By The Developer: Signature of Patricia Engle, U.S. Soil Conservation Service, dated 11-14-94.

These plans have been reviewed for the Howard Soil Conservation District and meet technical requirements for small pond construction.

Signature of Billy Earl, U.S. Soil Conservation Service, dated 11/14/94.

By the Engineer: Signature of Billy Earl, dated 11/14/94.

