

VICINITY MAP
SCALE: 1" = 2,000'

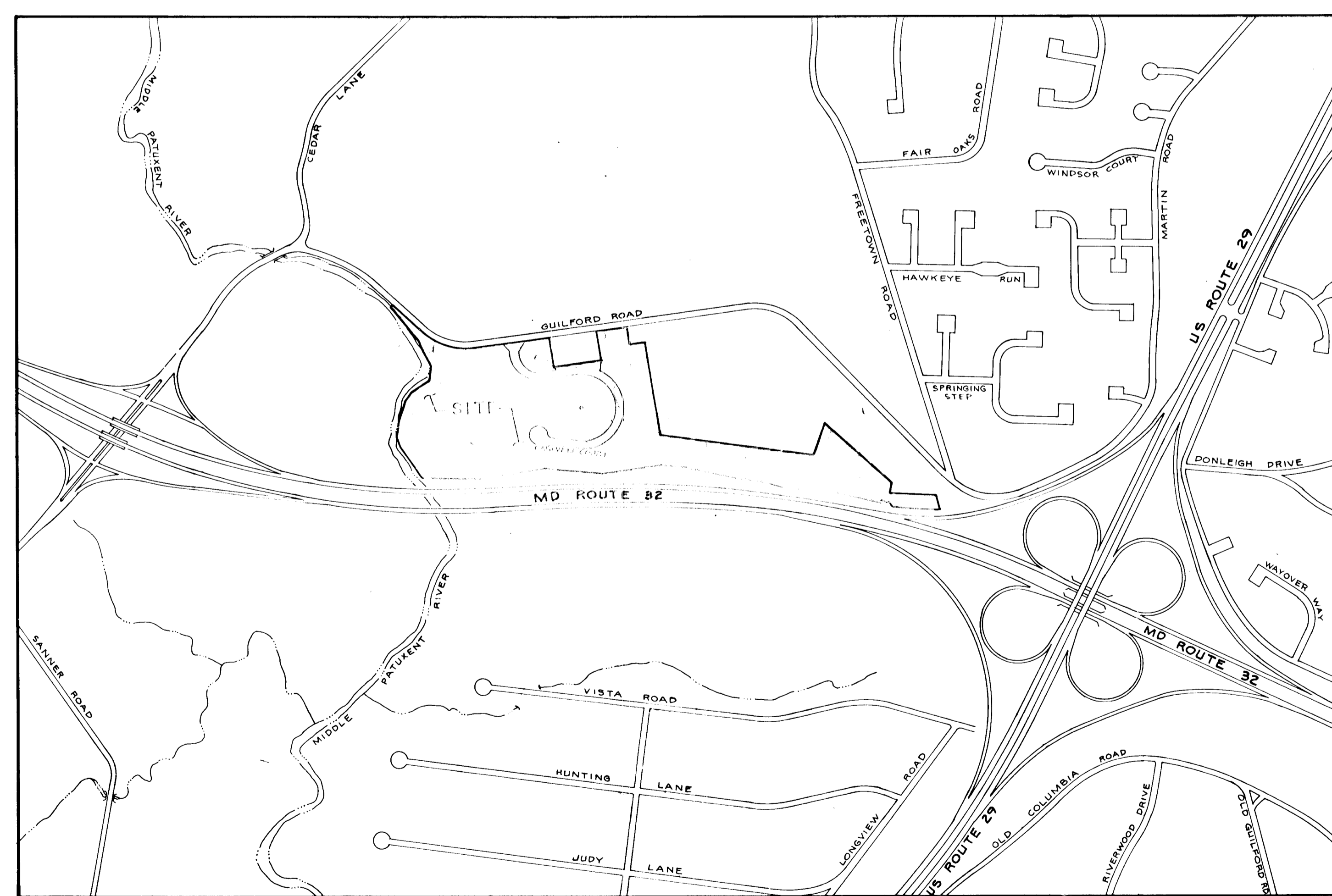
PATUXENT RUN

(VILLAGE OF HICKORY RIDGE - SECTION 6 AREA 4)

HOWARD COUNTY, MARYLAND FINAL CONSTRUCTION PLANS

SHEET INDEX

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2. OLD GUILFORD ROAD IMPROVEMENTS
CARAVAN COURT PLAN & PROFILE
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6. STORM WATER MANAGEMENT DETAILS
7. STORM WATER MANAGEMENT DETAILS
8. DRAINAGE AREA MAP
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10. GRADING AND SEDIMENT CONTROL
11. GRADING AND SEDIMENT CONTROL
12. SEDIMENT CONTROL DETAIL SHEET
13. ROADWAY DETAILS
14. STORM DRAIN DETAILS



VICINITY MAP
SCALE: 1" = 600'

GENERAL NOTES

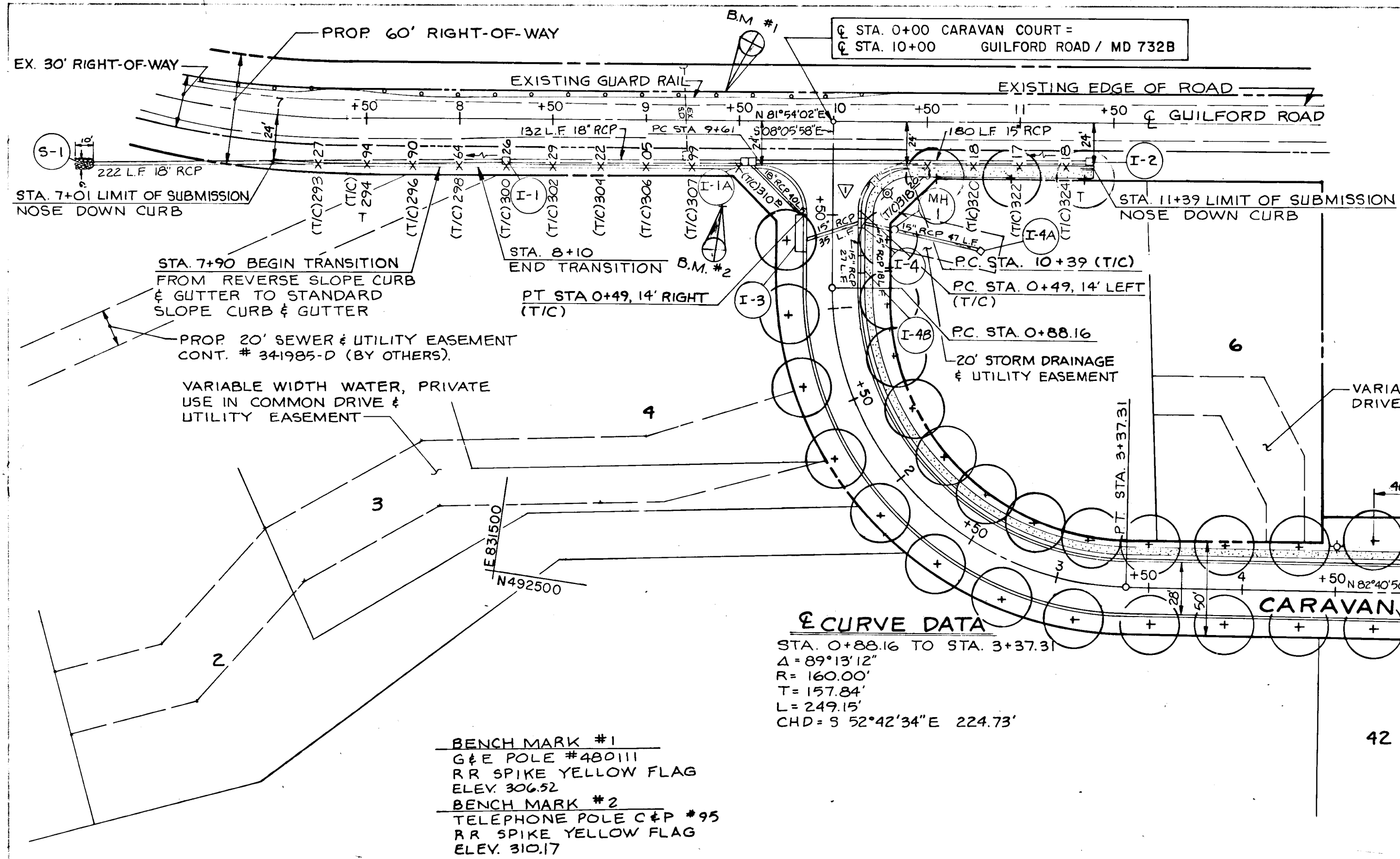
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH HOWARD COUNTY STANDARDS, SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
2. ALL UTILITY COMPANIES MUST BE NOTIFIED 24 HR. IN ADVANCE OF ANY CONSTRUCTION. CALL "MISS UTILITY" 48 HR. IN ADVANCE OF CONSTRUCTION - 1-800-257-7777.
3. CONTRACTOR TO NOTIFY THE HOWARD COUNTY INSPECTION DIVISION AT LEAST 3 DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS. TELEPHONE 792-7272.
4. ANY DAMAGE TO PUBLIC RIGHT-OF-WAYS, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.
5. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
6. ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3500 P.S.I.
7. ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 1978 EDITION.
8. TEMPORARY COMPACTED 18" HIGH EARTH FILL DIVERSION DIKES SHALL BE CONSTRUCTED ABOVE THE LIPS OF FILL SLOPES ON THE R.O.W. CONCURRENTLY WITH THE INITIAL GRADING AND DIRECTED TO UNDISTURBED SOD AREAS AT THE END OF EACH DAY.
9. ALL SWALES AND SLOPES SHALL BE PERMANENTLY SEEDED. SEE THE SEED SPECIFICATION SHEET.
10. ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING PERMIT FEES. SINCE FINAL EARTHWORK QUANTITIES AND PROPOSED/EXISTING ELEVATIONS ARE BASED ON MANY CONDITIONS OVER WHICH HARMS AND ASSOCIATES HAS NO CONTROL INCLUDING ACCURACY OF STANDARD METHODS OF CALCULATIONS, VARIABILITY OF SOILS, ALL LOWABLE SURVEY AND CONSTRUCTION TOLERANCES, AND COMPACTION RATIOS, HARMS AND ASSOCIATES DOES NOT GUARANTEE THE ACCURACY OF THESE ESTIMATES.
11. FOR LOCATION OF DRIVEWAY APRONS, SEE SITE DEVELOPMENT PLANS.
12. THE LOCATION TYPE AND NUMBER OF TREES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIRED AND ARE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMMODATE FIELD CONDITIONS AND BUILDER'S LANDSCAPE PROGRAM. BOND RELEASE IS CONTINGENT UPON SECTION 16.131 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
13. STREET LIGHT SCHEDULE IS PROVIDED ON SHEET 13.
14. LANDSCAPING FOR THE NOISE ABATEMENT BERM IS PROVIDED ON SHEETS 10 & 11 OF 14.

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Handwritten signature
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 DATE: 3/23/90

APPROVED HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Handwritten signature
 CHIEF, LAND DEVELOPMENT DIVISION
 DATE: 3/23/90
Handwritten signature
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 3/21/90
Handwritten signature
 CHIEF, BUREAU OF ENGINEERING
 DATE: 3-26-90

NO.	REVISION	BY	DATE
1	SUBDIVISION RENAMED	D&H	1/24/90

JOHN E. HARMS JR. AND ASSOCIATES INC.
 CONSULTING ENGINEERS - PLANNERS - SURVEYORS
 8818 CENTRE PARK DRIVE
 COLUMBIA, MARYLAND 21045
 SUITE 208
 TELEPHONE (301) 740-5200
 SHEET 1 OF 14



- ### STREET TREE NOTES
- STREET TREES SHALL BE TILIA CORDATA (LITTLE LINDEN) 2 1/2" - 3" CALIPER, AS MEASURED 1" ABOVE ROOT BALL.
 - TOTAL QUANTITY REQUIRED: 89
 - REFERENCE GENERAL NOTE 12 ON SHEET 1 OF 14.
 - SEE SHEET 13 FOR PLANTING DETAILS.
 - STREET TREES SHALL BE MIN. 10' CLEAR OF INLETS.

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

David V. Taylor 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE LS

APPROVED HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Donald Eason 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE

David W. Welland 3/21/90
 CHIEF, BUREAU OF HIGHWAYS DATE

William E. Ray 3/20/90
 CHIEF, BUREAU OF ENGINEERING DATE

NO.	REVISION	BY	DATE
1	PER HO. CO COMMENTS	DGH	1/23/90
2	PER S.H.A. COMMENTS	DGH	1/23/90
3	SUB DIVISION RENAMED	JRM	1/24/90

CURVE DATA
 STA. 0+88.16 TO STA. 3+37.31
 $\Delta = 89^{\circ}13'12''$
 $R = 160.00'$
 $T = 157.84'$
 $L = 249.15'$
 $CHD = S 52^{\circ}42'34'' E 224.73'$

CURVE DATA 38
 STA. 6+00.16 TO STA. 11+61.35
 $\Delta = 193^{\circ}30'00''$
 $R = 255.00'$
 $T = 215.448'$
 $L = 861.19'$
 $CHD = S 00^{\circ}34'10'' E 506.46'$

BENCH MARK #1
 G & E POLE #480111
 RR SPIKE YELLOW FLAG
 ELEV. 306.52

BENCH MARK #2
 TELEPHONE POLE C&P #95
 RR SPIKE YELLOW FLAG
 ELEV. 310.17

PLAN
 SCALE: 1"=50'

PATUXENT RUN
 (VHR 6/4)

TAX MAP 35 PARCEL 112, 25 & 110
 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 S-89-07, P-89-64, WP-89-07 & WP-89-155

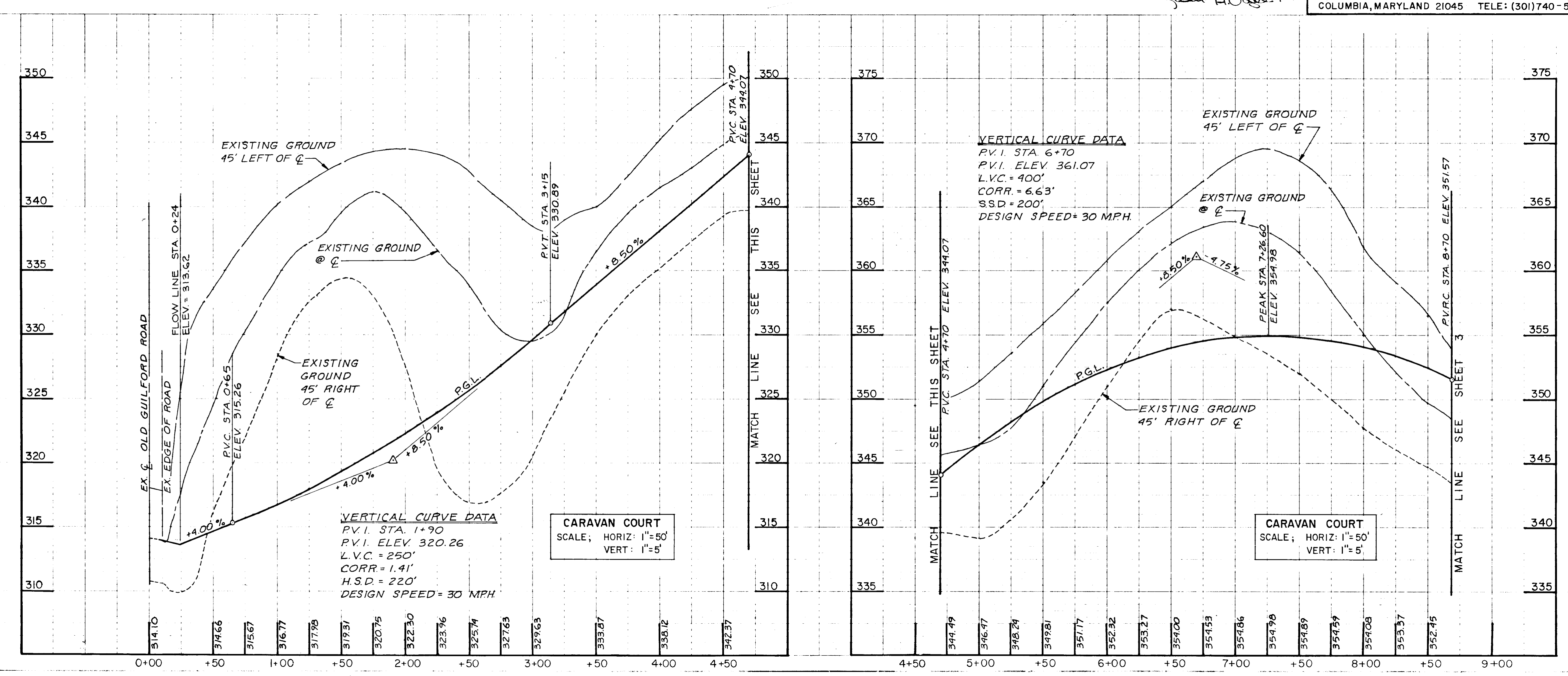
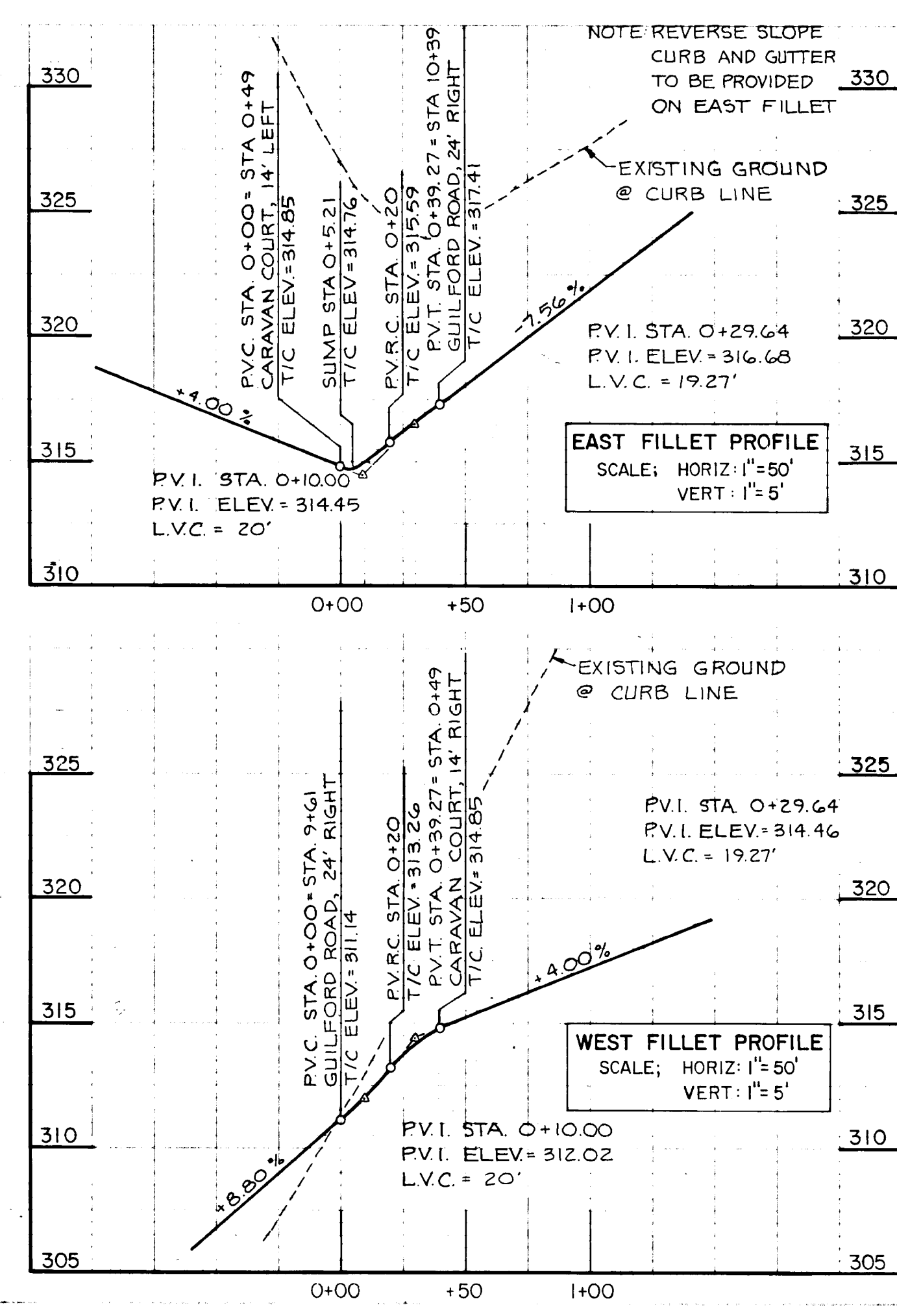
CARAVAN COURT
PLAN & PROFILE

OWNER: HOWARD RESEARCH & DEVELOPMENT LAND COMPANY
 DEVELOPER: HOWARD RESEARCH & DEVELOPMENT LAND COMPANY

10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044 (301)992-6000

SCALE: AS SHOWN DATE: 9-29-89 SHEET: 2 OF 14
 DES: T.A.B. DRN: RPE/D.G.H. CHK.: R.H.V.

JOHN E. HARMS JR. AND ASSOCIATES, INC.
 CONSULTING ENGINEERS - PLANNERS - SURVEYORS
 8818 CENTRE PARK DRIVE SUITE 208
 COLUMBIA, MARYLAND 21045 TELE: (301)740-5200



1540

Mark J. Campbell 0/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE LS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Franklin D. Pearson 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Granville W. Welland 3/21/91
 CHIEF, BUREAU OF HIGHWAYS DATE
W. Pearson & Riley 3-22-90
 CHIEF, BUREAU OF ENGINEERING DATE

NO.	REVISION	BY	DATE
1	PER HO. CO. COMMENTS	DGH	1/23/90
2	SUBDIVISION RENAMED	DGH	1/24/90

▽ PATUXENT RUN (VHR 6/4)

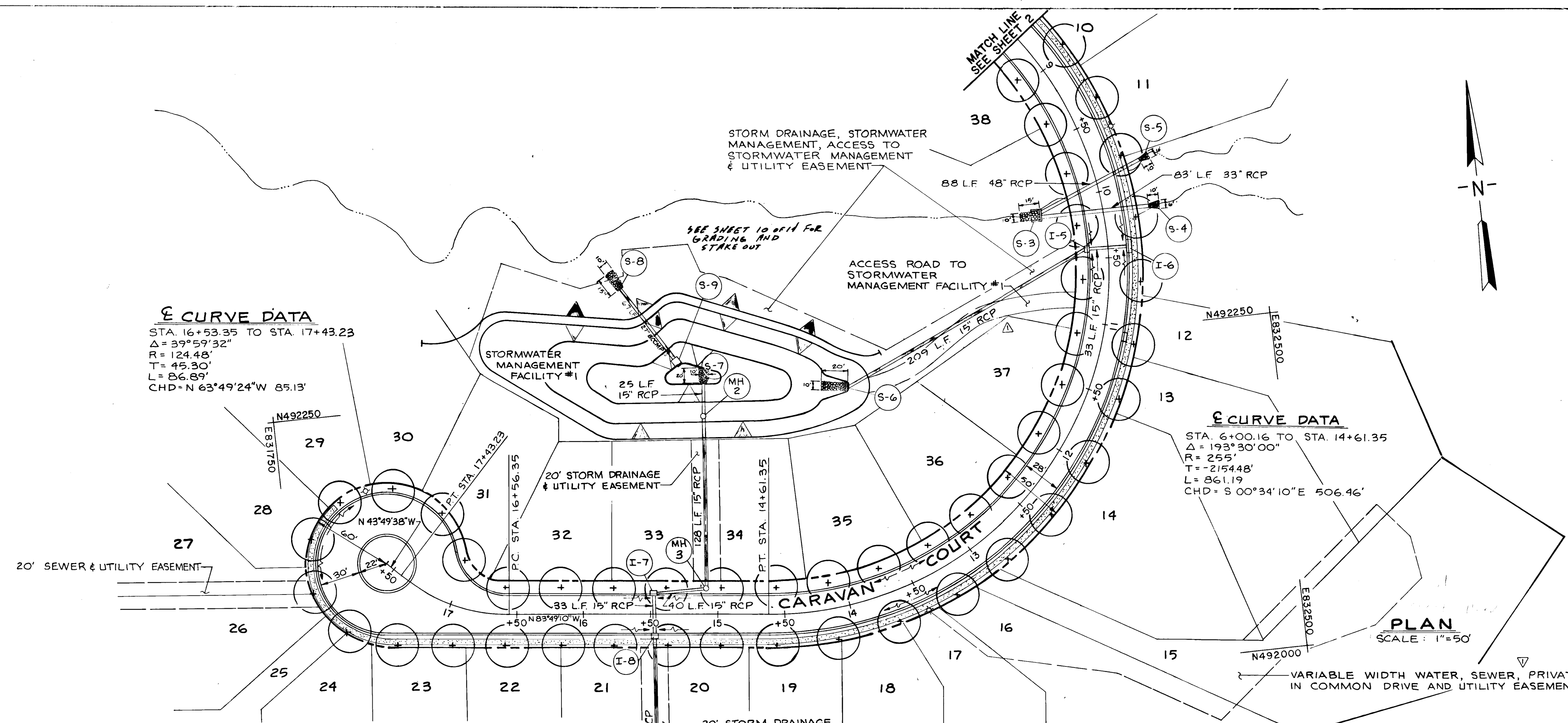
TAX MAP 35 PARCEL 112, 25 & 110
 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 S-89-07, P-89-64, WP-89-07 & WP-89-155

**CARAVAN COURT
 PLAN & PROFILE**

OWNER: HOWARD RESEARCH & DEVELOPMENT LAND COMPANY DEVELOPER: HOWARD RESEARCH & DEVELOPMENT LAND COMPANY
 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044 (301) 992-6000

SCALE: AS SHOWN DATE: 9-29-89 SHEET: 3 OF 14
 DES.: T.A.B. DRN.: RPE/DGH CHK.: R.H.V.

JOHN E. HARMS JR. AND ASSOCIATES, INC.
 CONSULTING ENGINEERS - PLANNERS - SURVEYORS
 8818 CENTRE PARK DRIVE SUITE 208
 COLUMBIA, MARYLAND 21045 TELE: (301) 740-5200



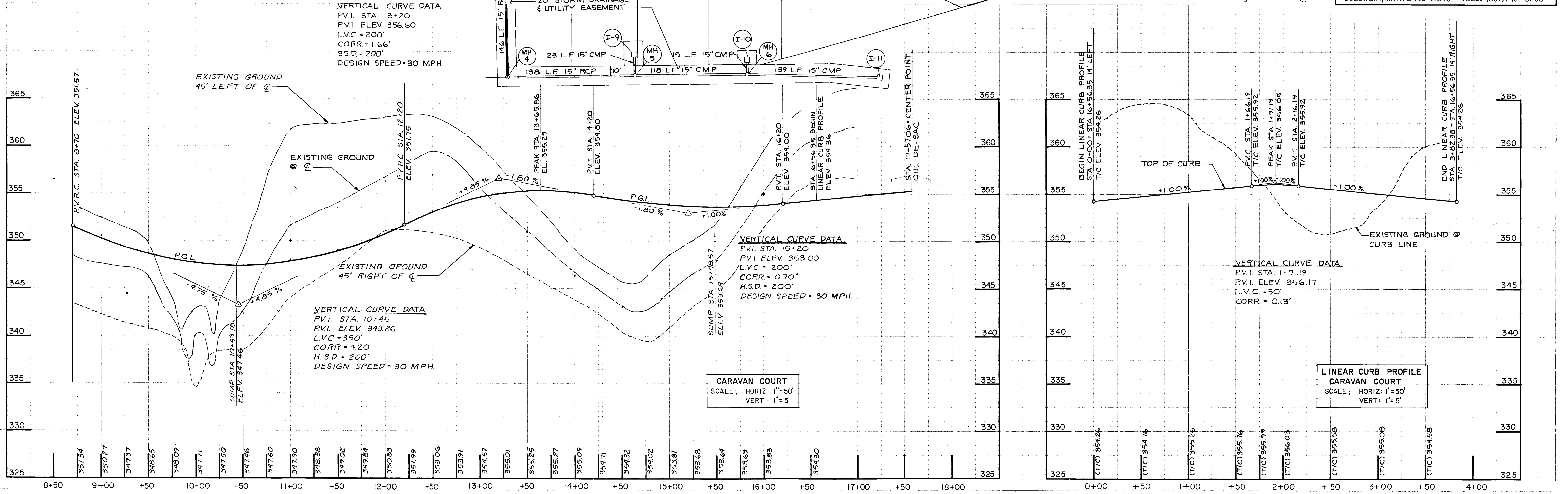
ε CURVE DATA
 STA. 16+53.35 TO STA. 17+43.23
 $\Delta = 39^{\circ}59'32''$
 $R = 124.48'$
 $T = 45.30'$
 $L = 86.89'$
 $CHD = N 63^{\circ}49'24''W 85.13'$

ε CURVE DATA
 STA. 6+00.16 TO STA. 14+61.35
 $\Delta = 193^{\circ}30'00''$
 $R = 255'$
 $T = 215.448'$
 $L = 861.19'$
 $CHD = S 00^{\circ}34'10''E 506.46'$

VERTICAL CURVE DATA
 P.V.I. STA. 13+20
 P.V.I. ELEV. 356.60
 L.V.C. = 200'
 CORR. = 1.66'
 S.S.D. = 200'
 DESIGN SPEED = 30 MPH

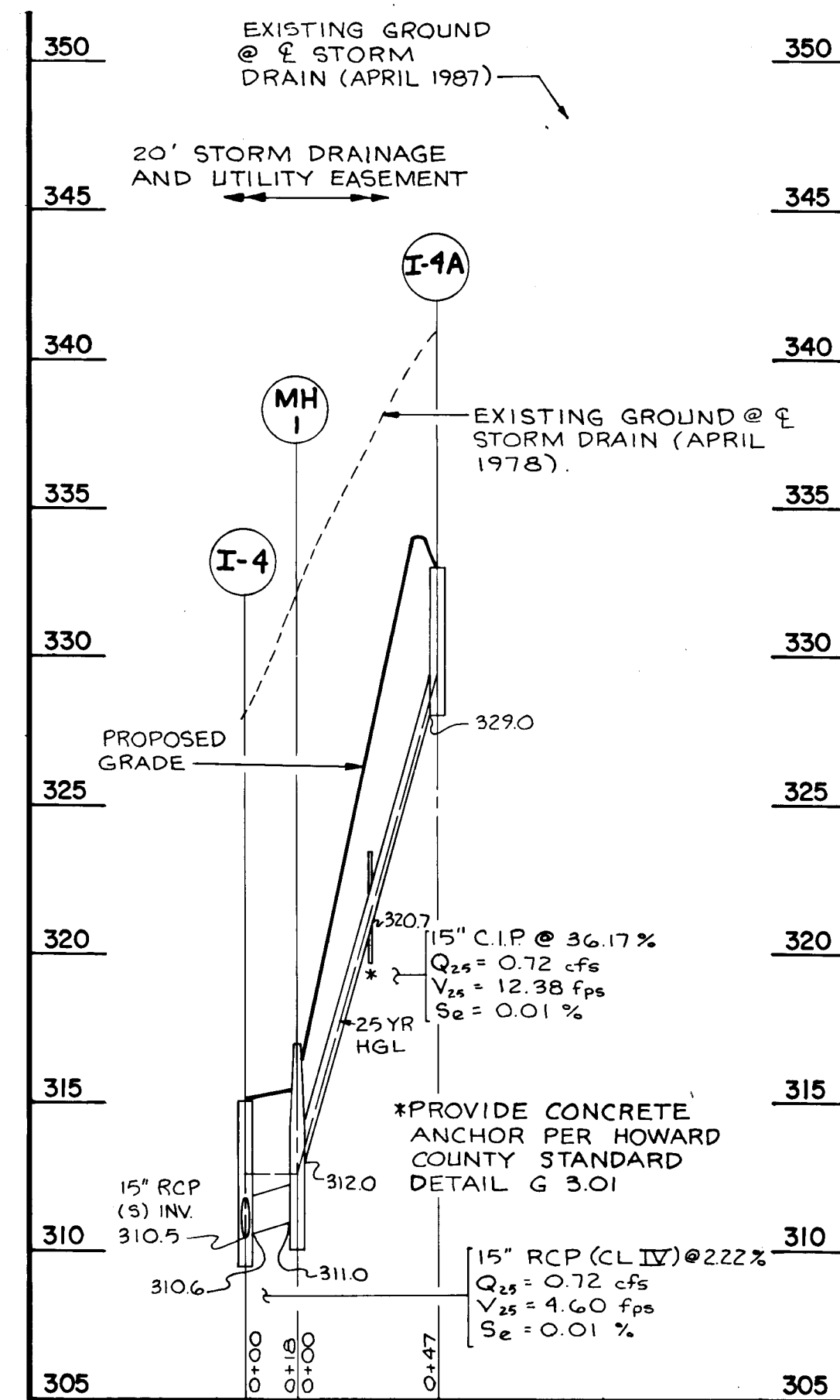
VERTICAL CURVE DATA
 P.V.I. STA. 15+20
 P.V.I. ELEV. 353.00
 L.V.C. = 200'
 CORR. = 0.70'
 H.S.D. = 200'
 DESIGN SPEED = 30 MPH

VERTICAL CURVE DATA
 P.V.I. STA. 10+45
 P.V.I. ELEV. 343.26
 L.V.C. = 350'
 CORR. = 4.20
 H.S.D. = 200'
 DESIGN SPEED = 30 MPH

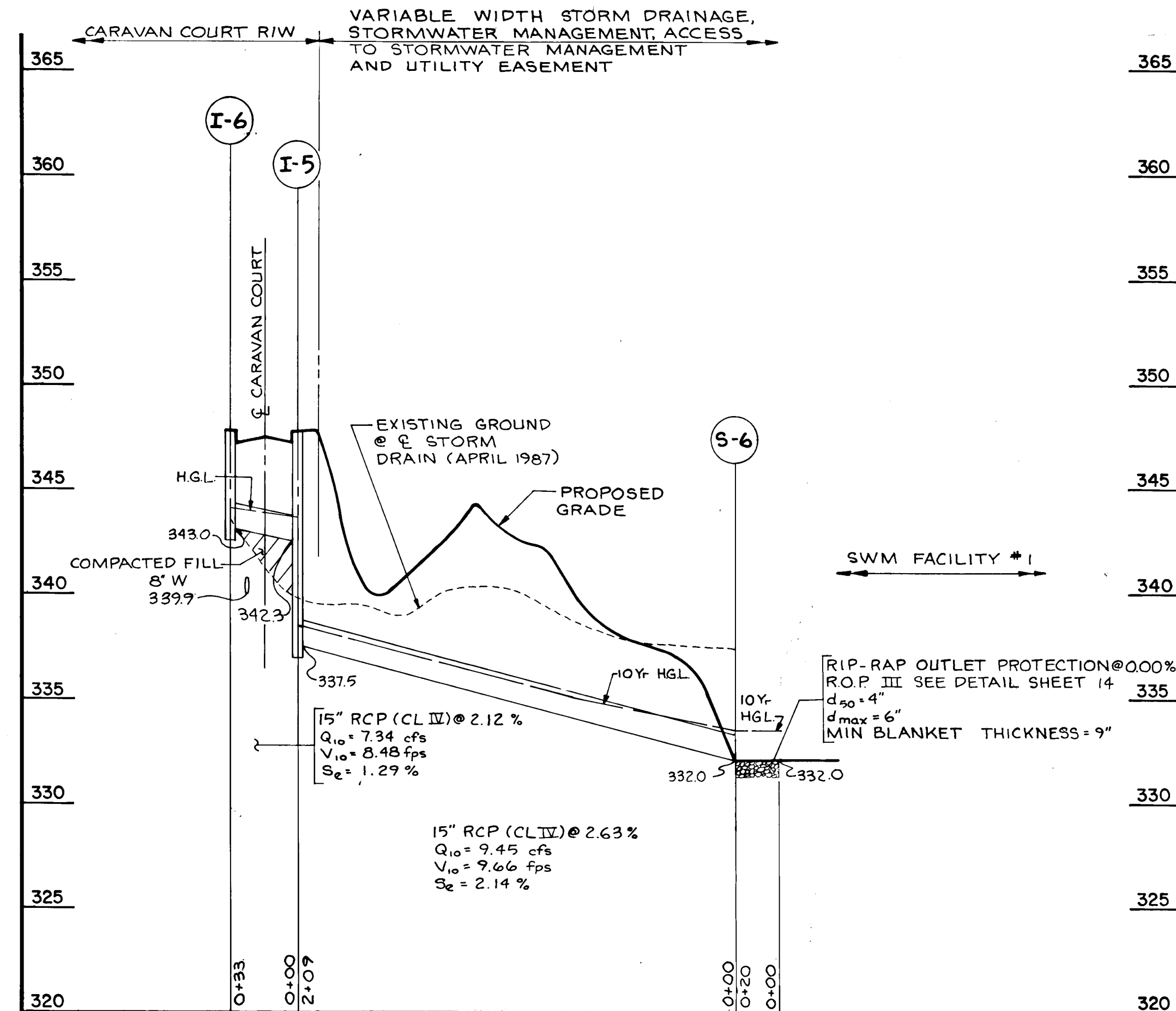


CARAVAN COURT
 SCALE: HORIZ: 1"=50'
 VERT: 1"=5'

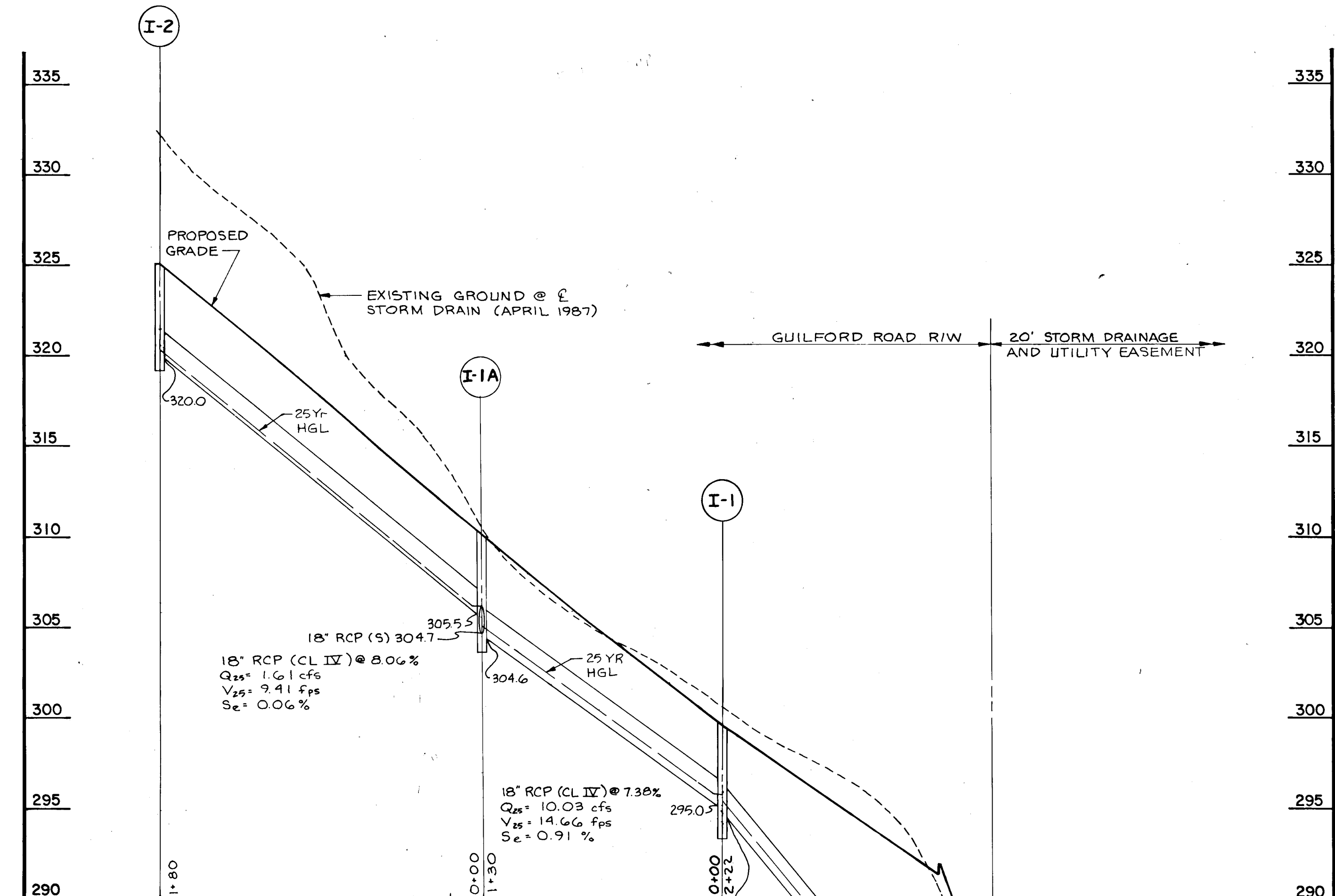
**LINEAR CURB PROFILE
 CARAVAN COURT**
 SCALE: HORIZ: 1"=50'
 VERT: 1"=5'



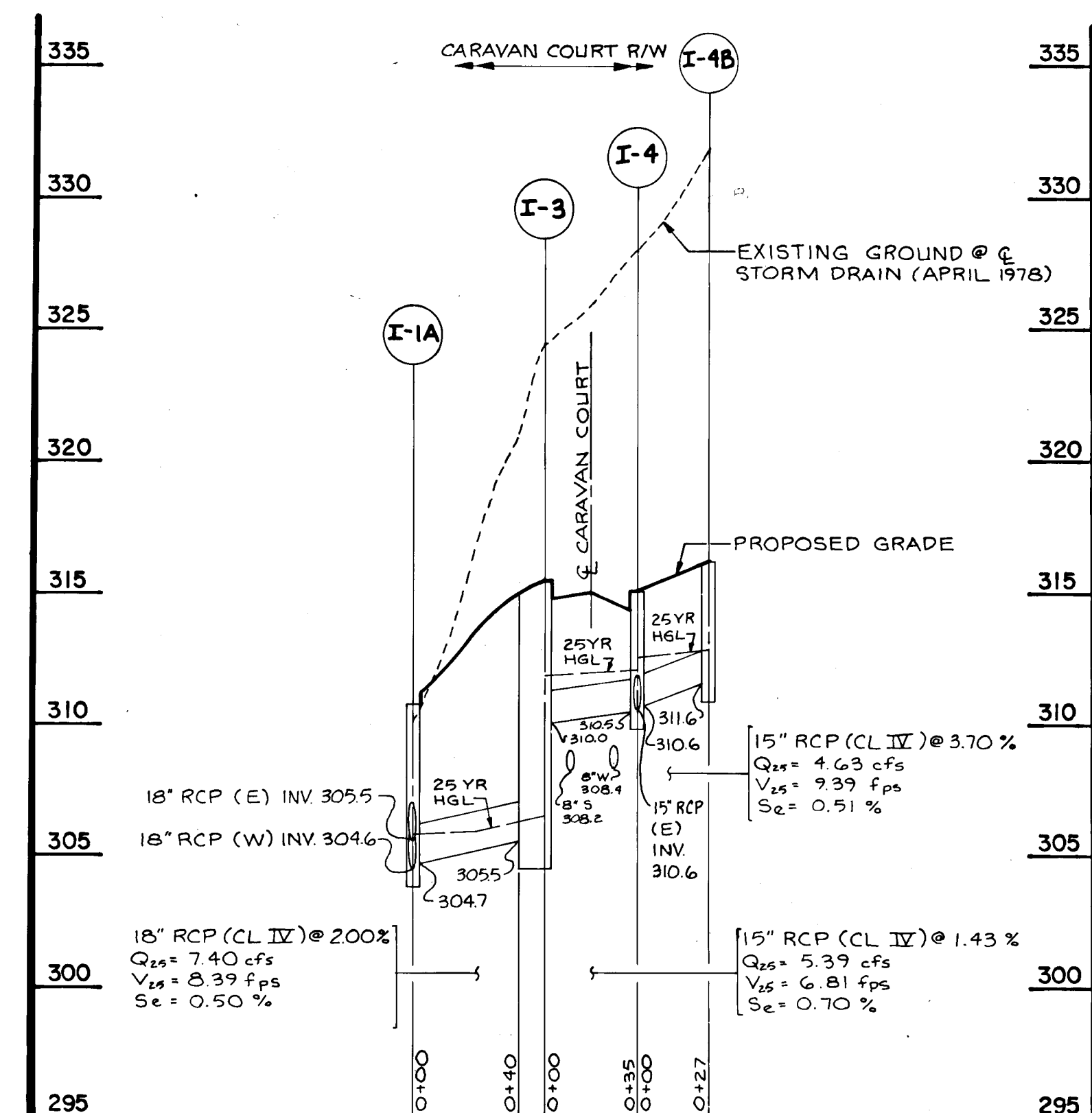
SCALE: HORIZ. 1"=50' Δ
VERT. 1"=5'



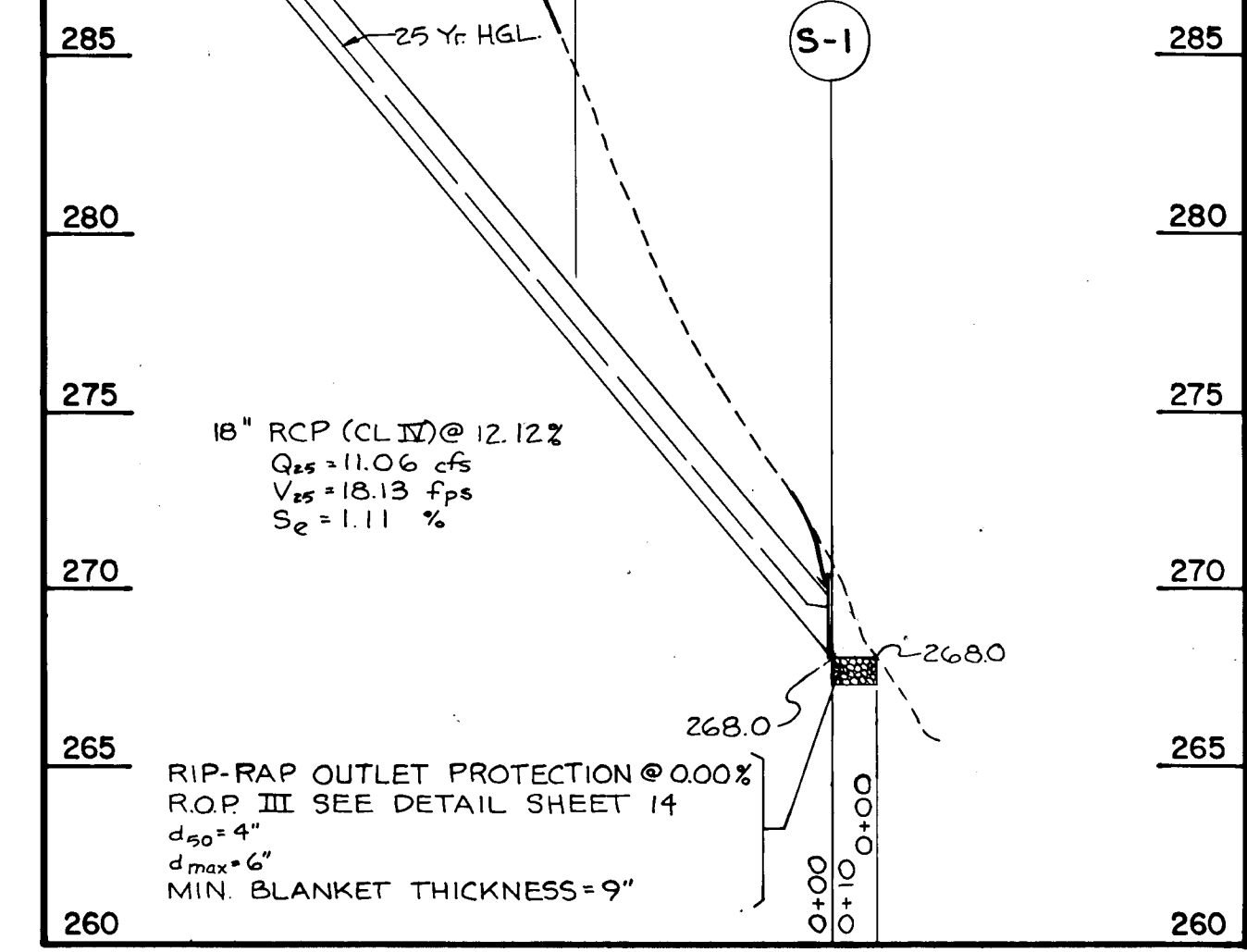
SCALE: HORIZ. 1"=50' Δ
VERT. 1"=5'



SCALE: HORIZ. 1"=50' Δ
VERT. 1"=5'



SCALE: HORIZ. 1"=50' Δ
VERT. 1"=5'



STORM DRAIN PROFILES
 Δ PATUXENT RUN
(VHR 6/4)
(OP&Z REF NOS-89-07, P-89-64, WP-89-07& WP-89-155)
TAX MAP 35 PARCEL 112, 25 & 110
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

JOHN E. HARMS JR. AND ASSOCIATES INC.
CONSULTING ENGINEERS - PLANNERS - SURVEYORS
2 CENTRE PARK COLUMBIA, MARYLAND 21045 8818 CENTRE PARK DRIVE SUITE 208 COLUMBIA, MARYLAND 21045 TELEPHONE (301) 740-5200

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 3/23/90
CHIEF, LAND DEVELOPMENT DIVISION
[Signature] 3/21/90
CHIEF, BUREAU OF HIGHWAYS
[Signature] 3-26-90
CHIEF, BUREAU OF ENGINEERING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 3/23/90
DATE
[Signature] 3/21/90
DATE
[Signature] 3-26-90
DATE

OWNER / DEVELOPER
HOWARD RESEARCH & DEVELOPMENT
LAND COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
(301) 992-6000

NO.	REVISION	BY	DATE
1	PER SHA COMMENTS	CAG	11/23/90
2	PER HO. CO. COMMENTS	CAG	1/23/90
3	SUB DIVISION RENAMED	J.R.M.	11/21/90

DESIGNED BY: T.A.B.
DRAWN BY: D.G.H.
CHECKED BY: R.H.V.
DATE: 9-29-89
SCALE: AS SHOWN
W.O. NO. 44-88-010C
4 SHEET OF 14

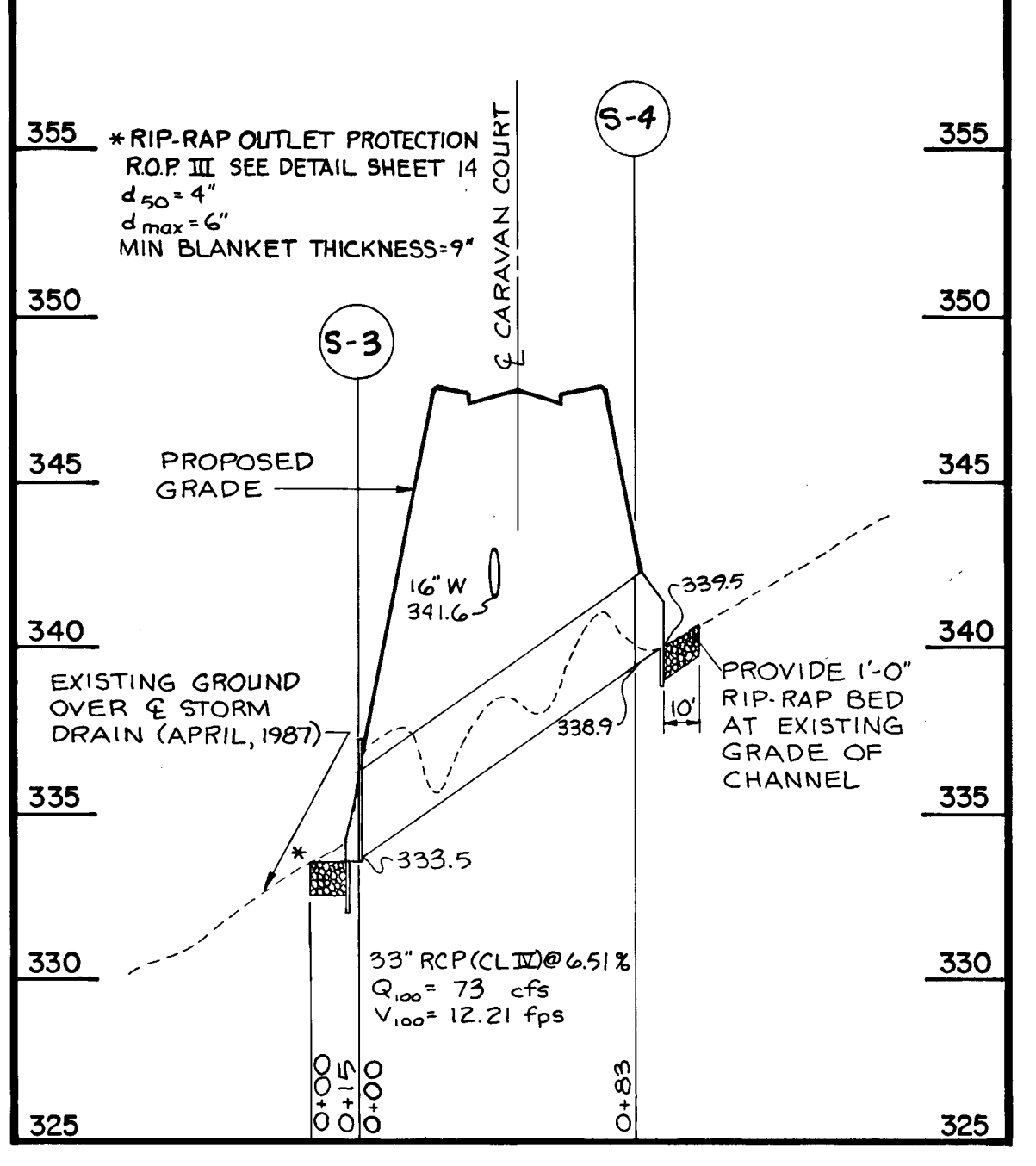
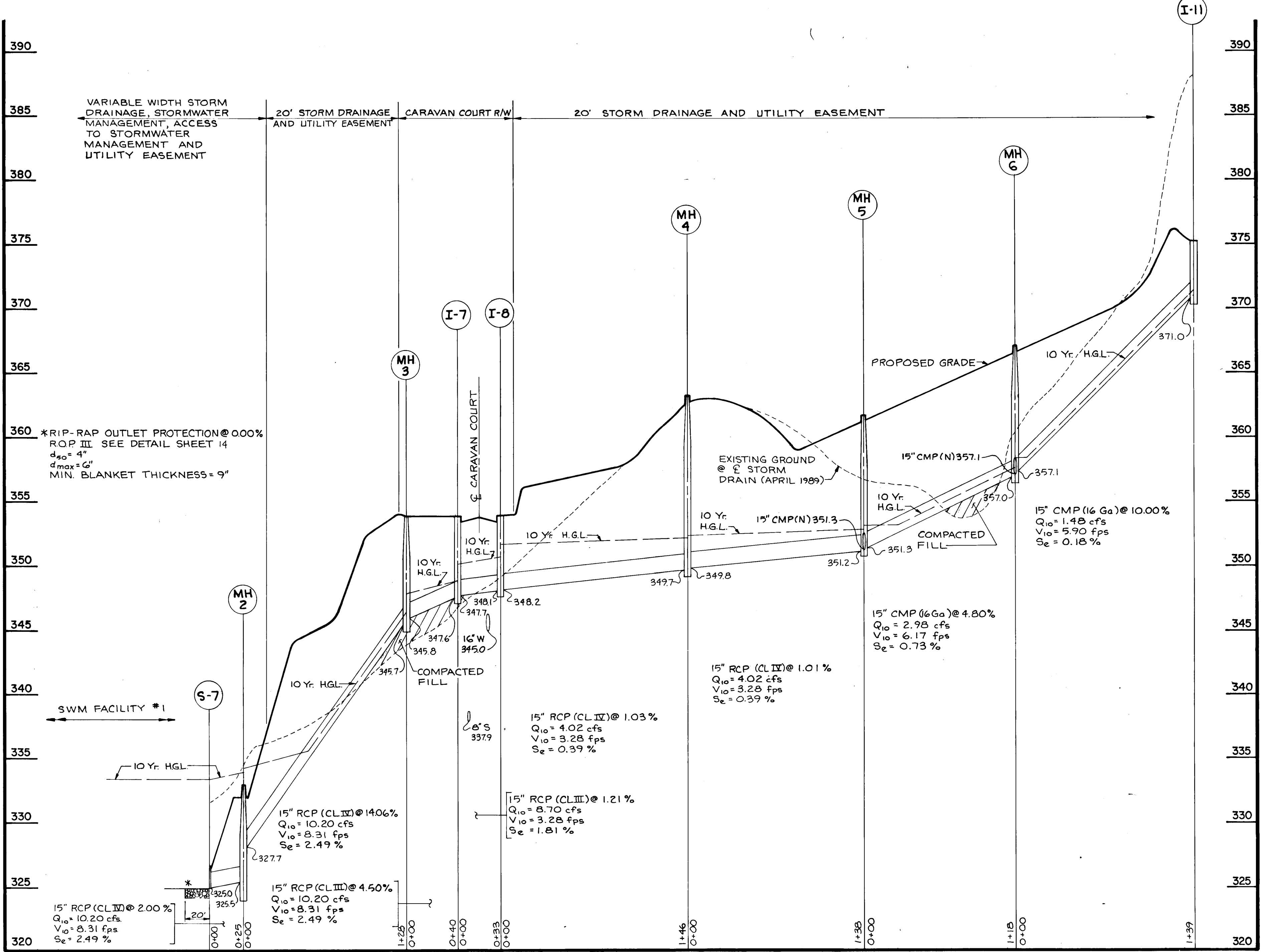
INLET SCHEDULE								
NO.	TYPE	† TOP ELEVATION	ROADWAY SLOPE	CROSS SLOPE	LOCATION	INV IN	INV OUT	REMARKS
I-1	SINGLE WR INLET	299.61	8.12%	2.00%	* STA 8+25 GUILFORD ROAD; 24' RIGHT	295.0	294.9	M.D. 374.06
I-2	SINGLE WR INLET	324.49	7.88%	2.00%	* STA 11+37 GUILFORD ROAD; 24' RIGHT	—	320.0	M.D. 374.06
I-3	WATER QUALITY INLET	315.28	4.00%	3.00%	* STA 0+61 CARAVAN COURT; 14' RIGHT	310.0	305.5	S.D. 4.01
I-4	A-5 INLET	315.00	4.00%	3.00%	* STA 0+54 CARAVAN COURT; 14' LEFT	310.2	310.5	S.D. 4.01
I-5	A-5 INLET (DEPRESSED)	347.64	SUMP	3.00%	* STA 10+43 CARAVAN COURT; 14' RIGHT	342.3	337.5	S.D. 4.01
I-6	A-10 INLET (DEPRESSED)	347.64	SUMP	3.00%	* STA 10+43 CARAVAN COURT; 14' LEFT	—	343.0	S.D. 4.02
I-7	A-5 INLET (DEPRESSED)	353.82	SUMP	3.00%	* STA 15+48 CARAVAN COURT; 14' RIGHT	347.7	347.6	S.D. 4.01
I-8	A-10 INLET (DEPRESSED)	353.82	SUMP	3.00%	* STA 15+48 CARAVAN COURT; 14' LEFT	348.2	348.1	S.D. 4.02
I-9	TYPE 'D' INLET	356.03	SUMP	N/A	* N 491,929 E 831,138	—	351.6	S.D. 4.11
I-10	TYPE 'D' INLET	361.83	SUMP	N/A	* N 491,902 E 832,260	—	357.3	S.D. 4.11
I-11	TYPE 'D' INLET	375.83	SUMP	N/A	* N 491,873 E 832,395	—	371.0	S.D. 4.11
I-4A	TYPE 'D' INLET	333.83	SUMP	N/A	* N 492,708 E 831,733	—	329.0	S.D. 4.11
I-4B	A-10 INLET W/DEFLECTORS	316.10	4.29%	3.00%	* STA. 0+81 CARAVAN COURT; 14' LEFT	—	311.6	S.D. 4.02/S.D.483
I-1A	STD. WR INLET	309.96	8.18%	2.00%	* STA. 9+55 GUILFORD ROAD; 24' RIGHT	304.7	304.6	M.D. 374.06

* FACE OF INLET AT CURBLINE
 † WR INLETS REFERENCED BY TOP OF GRATE ELEVATION

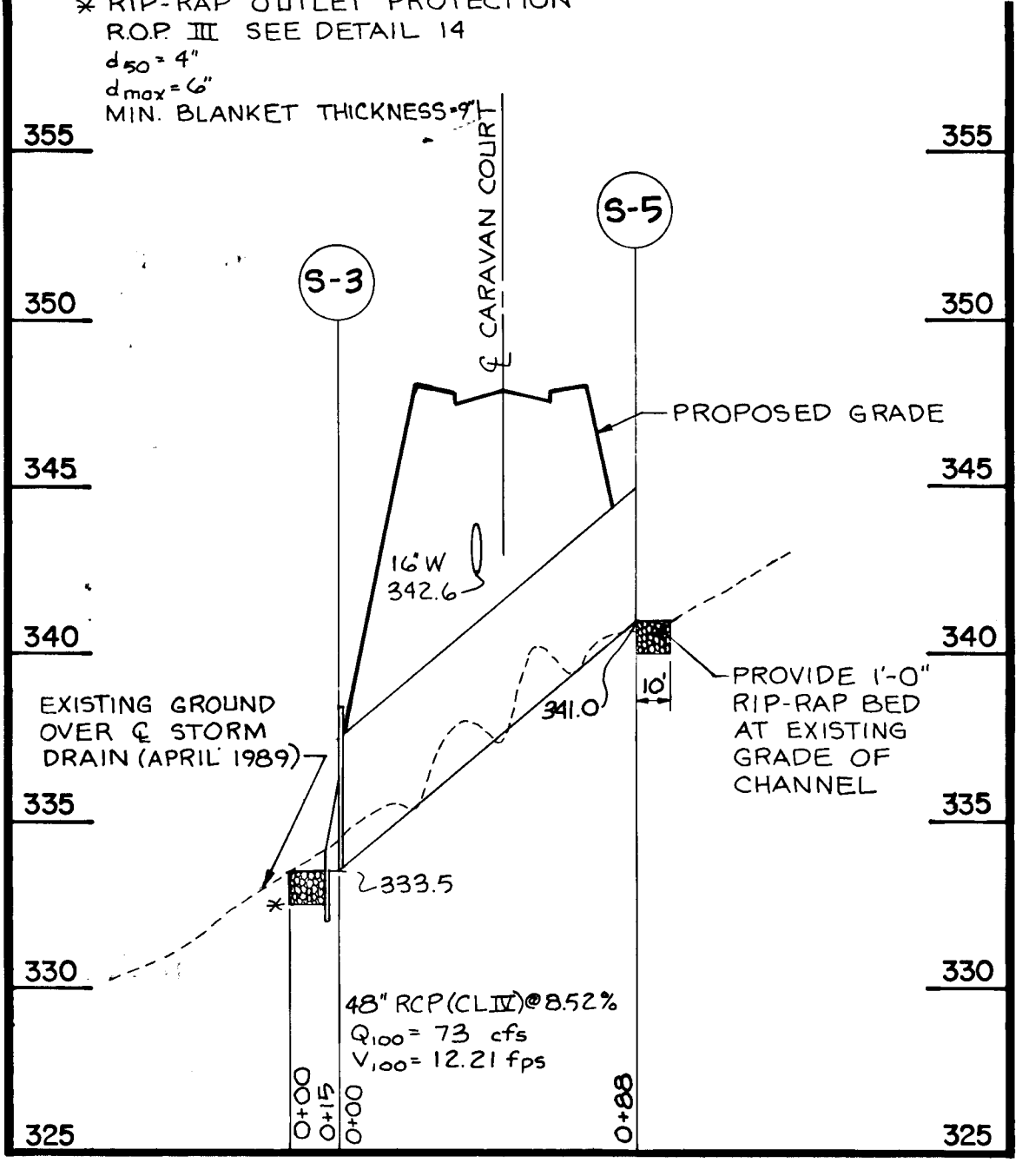
MANHOLE SCHEDULE								
NO.	TYPE	TOP ELEVATION	ROADWAY SLOPE	CROSS SLOPE	LOCATION (CENTERLINE OF MANHOLE)	INV IN	INV OUT	REMARKS
M-1	STANDARD MANHOLE	316.80	N/A	N/A	STA. 0+58 CARAVAN COURT; 33' LEFT	312.0	311.0	G. 5.01
M-2	STANDARD MANHOLE	333.00	N/A	N/A	N 492,220 E 832,070	327.7	325.5	G. 5.01
M-3	STANDARD MANHOLE	353.90	N/A	4.00%	STA. 15+08 CARAVAN COURT; 19' RIGHT	345.8	345.7	G. 5.01
M-4	STANDARD MANHOLE	363.00	N/A	N/A	N 491,926 E 832,002	349.8	349.7	G. 5.01
M-5	STANDARD MANHOLE	362.00	N/A	N/A	N 491,913 E 832,137	351.3	351.2	G. 5.01
M-6	STANDARD MANHOLE	368.00	N/A	N/A	N 491,891 E 832,254	357.1	357.0	G. 5.01

STRUCTURE SCHEDULE							
NO.	TYPE	INV. IN	INV. OUT	LOCATION	INV. IN	INV. OUT	REMARKS
S-1	TYPE 'A' ENDWALL			N 492,683 E 831,256	268.0	—	S.D. 5.11
S-2	15" RCP END SECTION			N 492,491 E 831,551	—	309.5	SEE DETAIL, SHEET 14
S-3	MODIFIED TYPE 'G' ENDWALL			STA. 10+08 CARAVAN COURT; 47' RIGHT	333.5	—	SEE DETAIL, SHEET 14
S-4	33" RCP END SECTION			STA. 10+18 CARAVAN COURT; 35' LEFT	—	338.9	S.D. 5.51
S-5	48" RCP END SECTION			STA. 9+87 CARAVAN COURT; 34' LEFT	—	341.0	S.D. 5.51
S-6	15" RCP END SECTION			N 492,231 E 832,180	332.0	—	S.D. 5.51
S-7	TYPE 'A' ENDWALL			N 492,245 E 832,072	325.0	—	S.D. 5.11
S-8	TYPE 'A' ENDWALL			N 492,320 E 832,018	320.0	—	S.D. 5.11
S-9	SWM RELEASE STRUCTURE			N 492,263 E 832,054	—	324.0	SEE DETAIL, SHEET 6

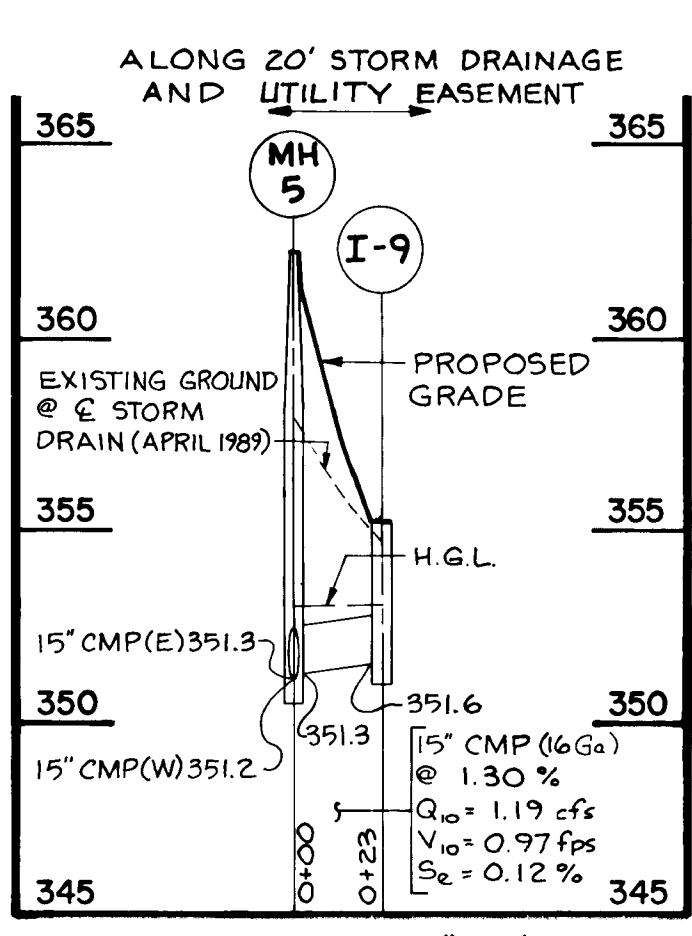
CLASS C PIPE BEDDING CLASS SHALL BE UTILIZED AS PERMITTED BY FIELD CONDITIONS.



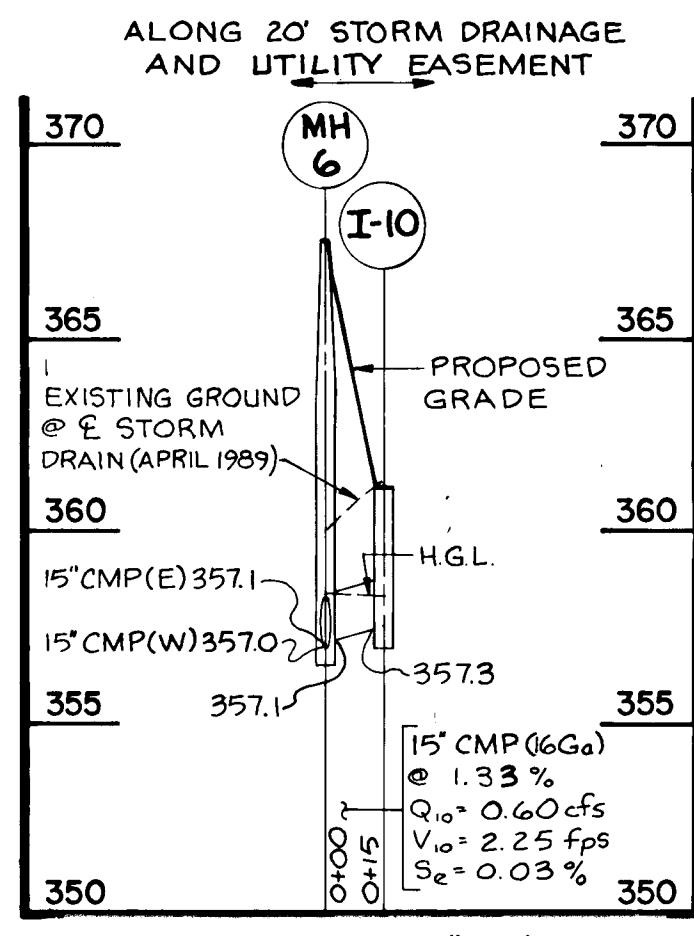
SCALE: HORIZ. 1"=50'
 VERT. 1"=5'



SCALE: HORIZ. 1"=50'
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STORM DRAIN PROFILES
 PATUXENT RUN
 (VHR 6/4)

(OP&Z REF NOS-89-07, P-89-64, WP-89-07 & WP-89-155)
 TAX MAP 35 PARCEL 112, 25 & 110
 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

JOHN E. HARMS JR. AND ASSOCIATES INC.
 CONSULTING ENGINEERS - PLANNERS - SURVEYORS

2 CENTRE PARK COLUMBIA, MARYLAND 21045 8818 CENTRE PARK DRIVE SUITE 208 TELEPHONE (301) 740-5200

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Mark S. ...
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Paul D. ...
 CHIEF, LAND DEVELOPMENT DIVISION

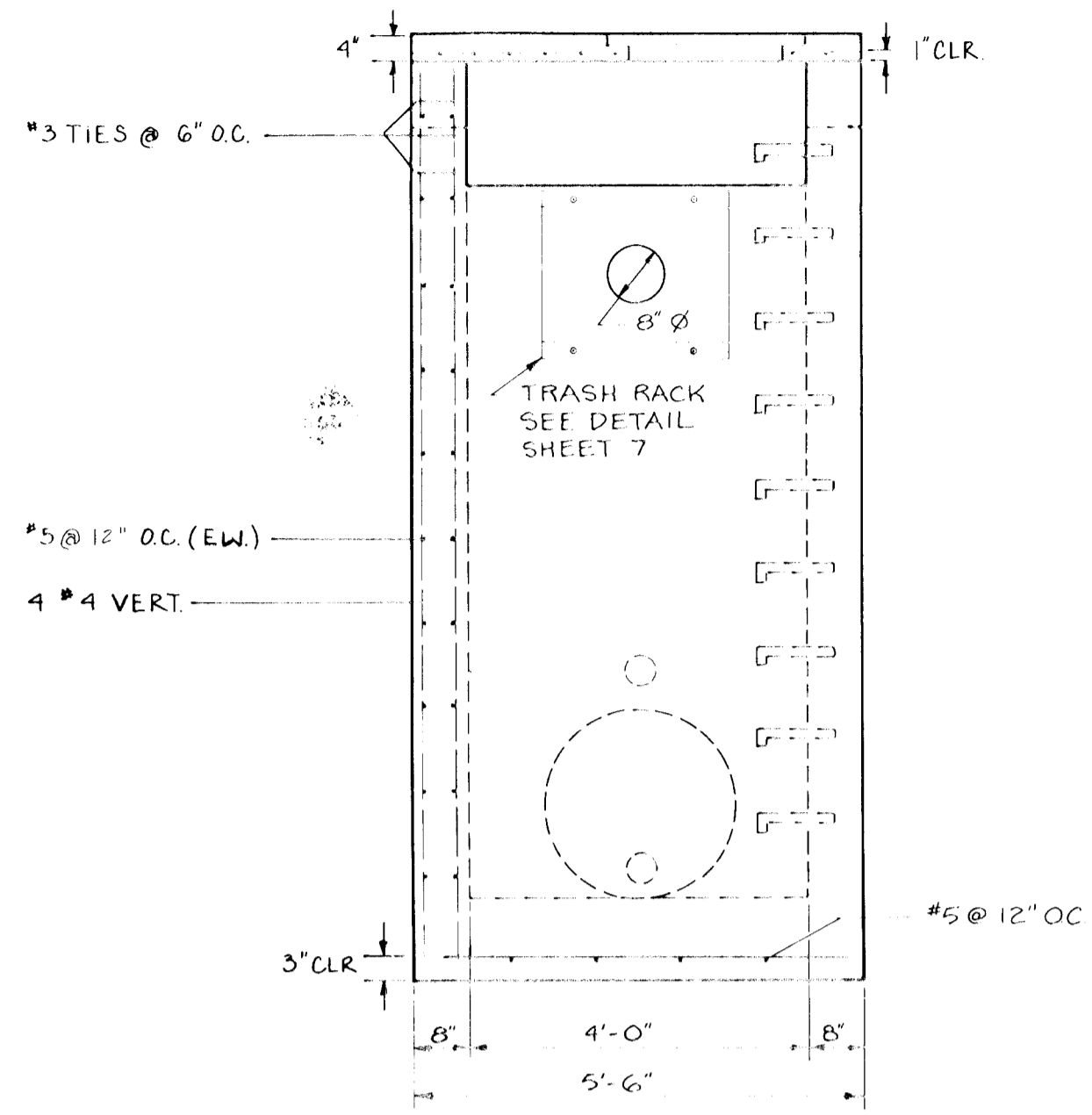
Francis W. ...
 CHIEF, BUREAU OF HIGHWAYS

William B. ...
 CHIEF, BUREAU OF ENGINEERING

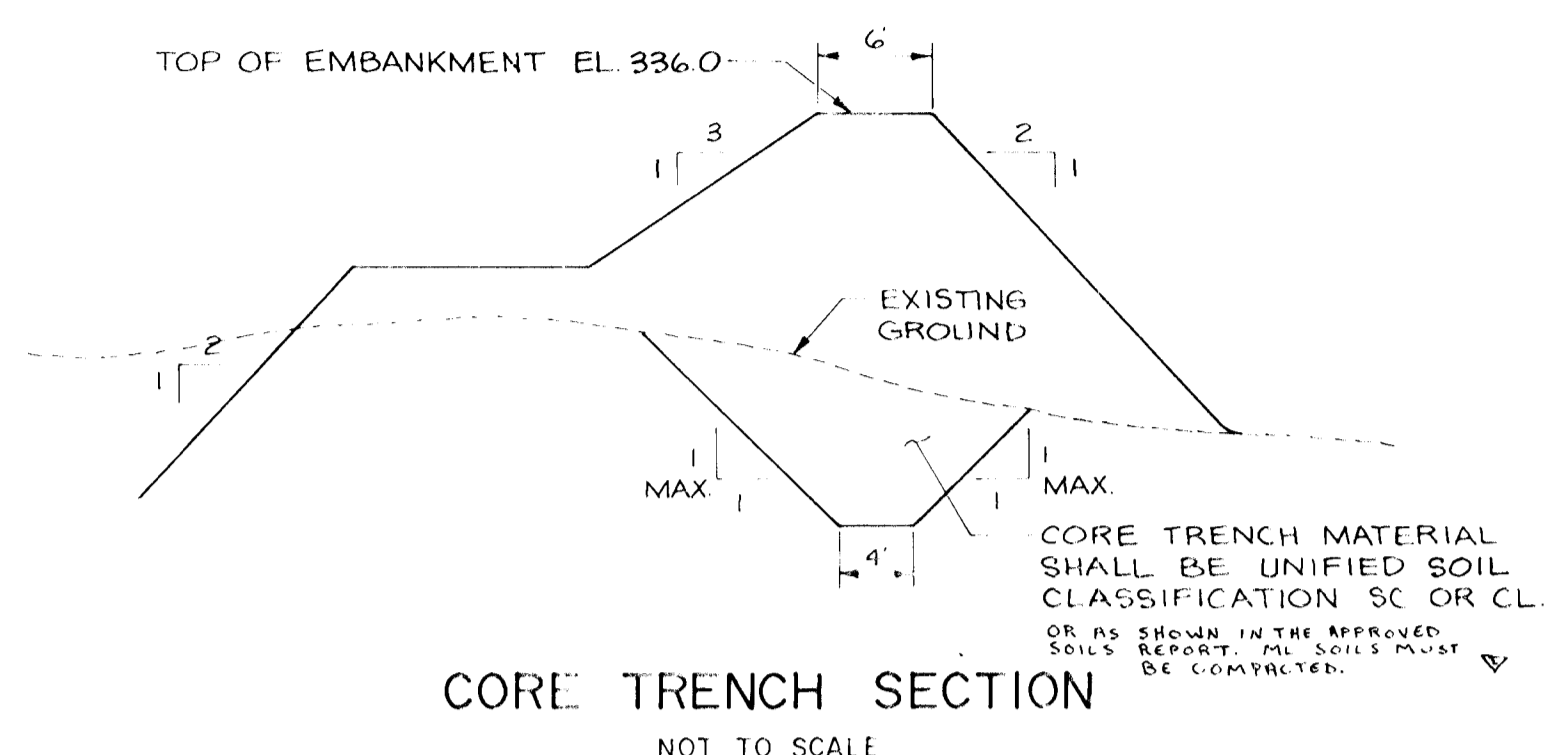
OWNER / DEVELOPER
 HOWARD RESEARCH & DEVELOPMENT
 LAND COMPANY
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 (301) 992-6000

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1	PER SHA COMMENTS	DGH	1/23/90
2	PER HO. CO COMMENTS	DGH	1/23/90
3	SUBDIVISION RENAMED	DGH	1/24/90

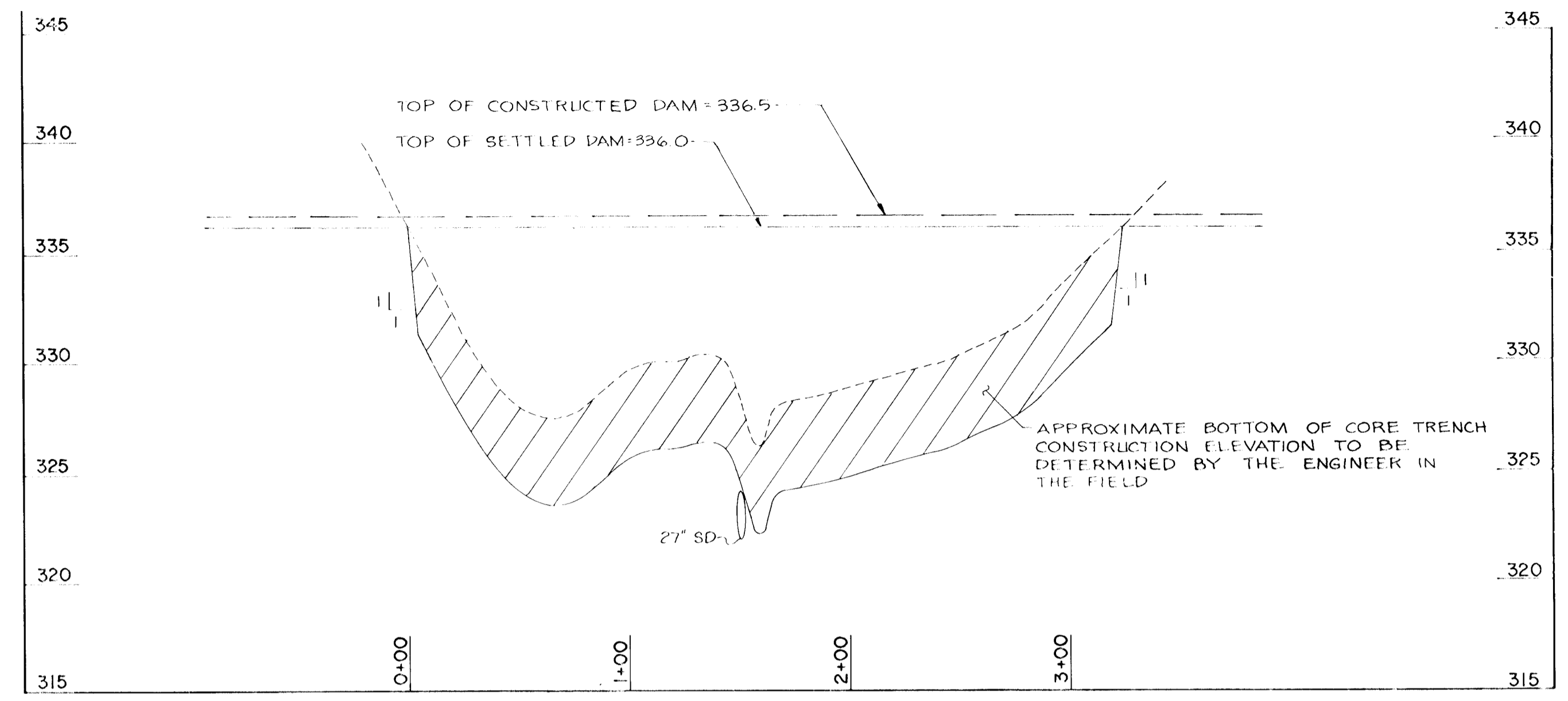
DESIGNED BY: T.A.B.
 DRAWN BY: D.G.H.
 CHECKED BY: R.H.V.
 DATE: 9-29-89
 SCALE: AS SHOWN
 W.O. NO. 44-88-010C



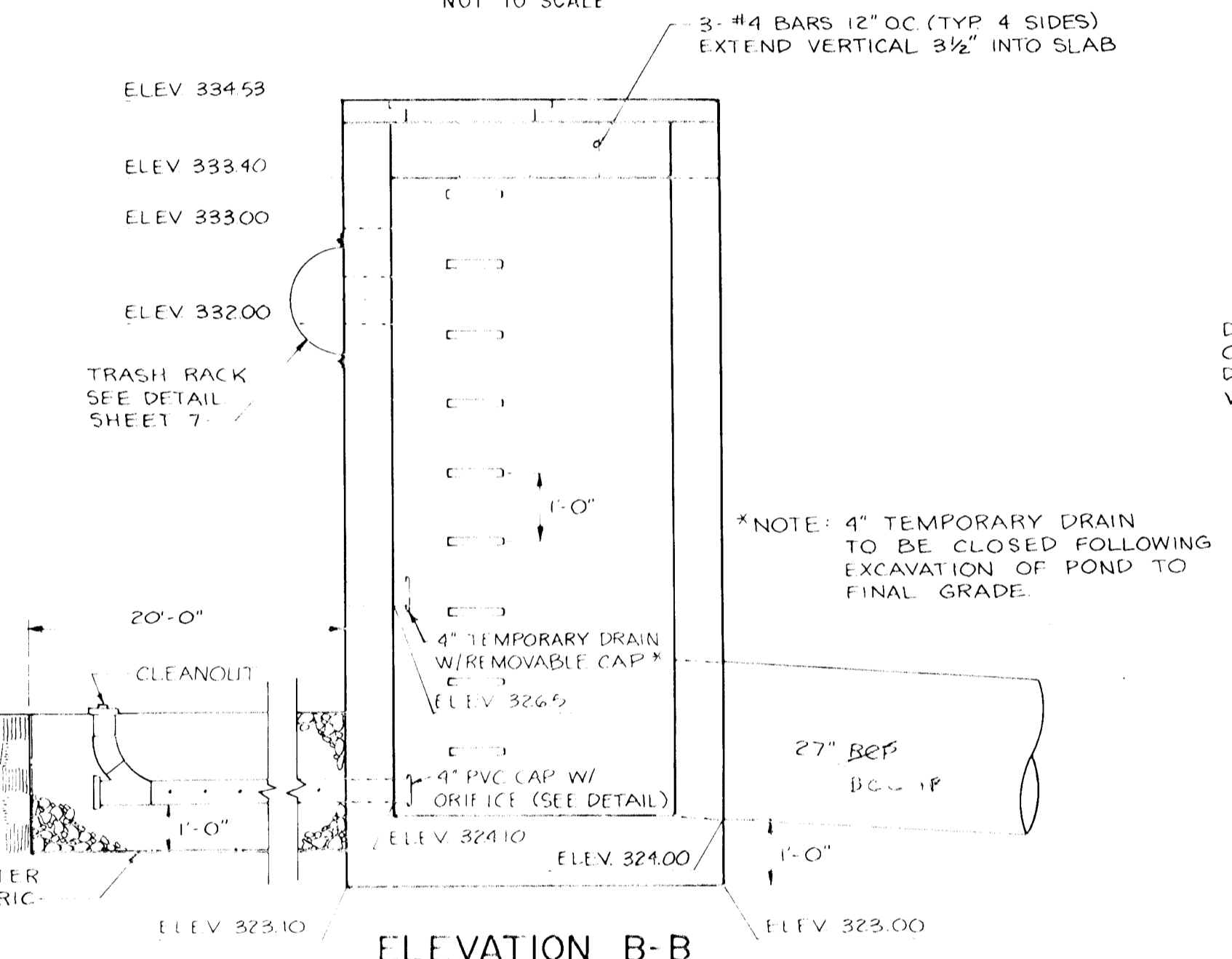
ELEVATION A-A
NOT TO SCALE



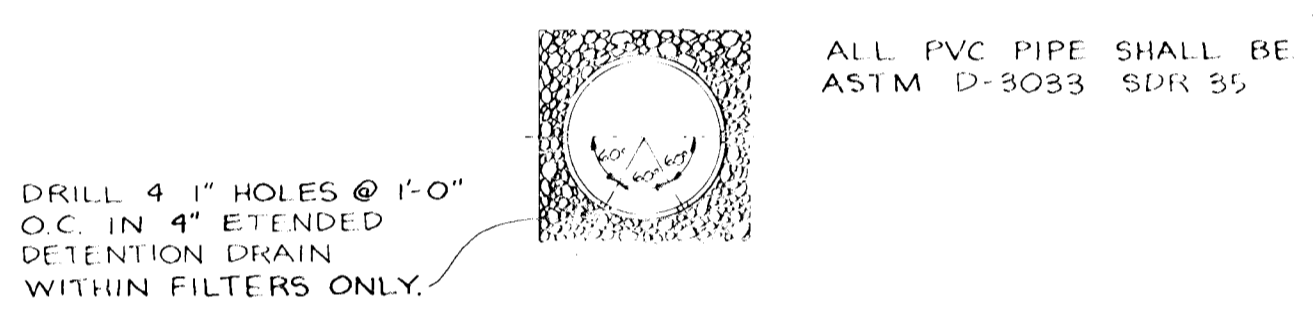
CORE TRENCH SECTION
NOT TO SCALE



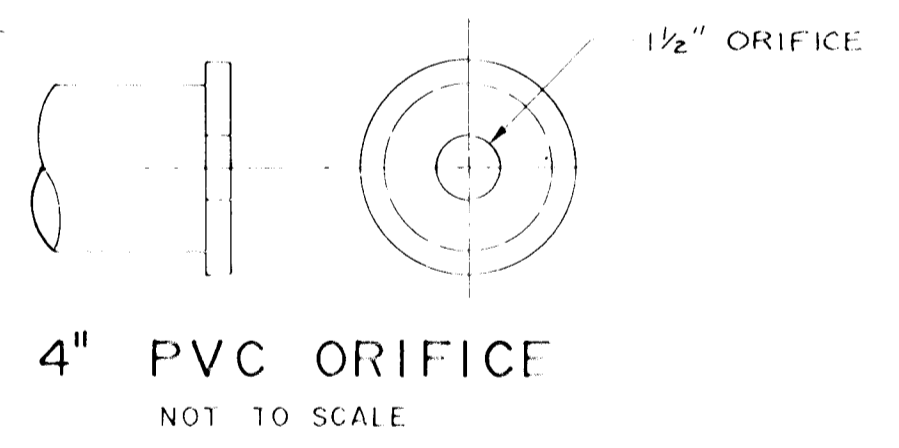
CROSS SECTION ALONG C OF EMBANKMENT
SCALE: HORIZ 1"=50'
VERT 1"=5'



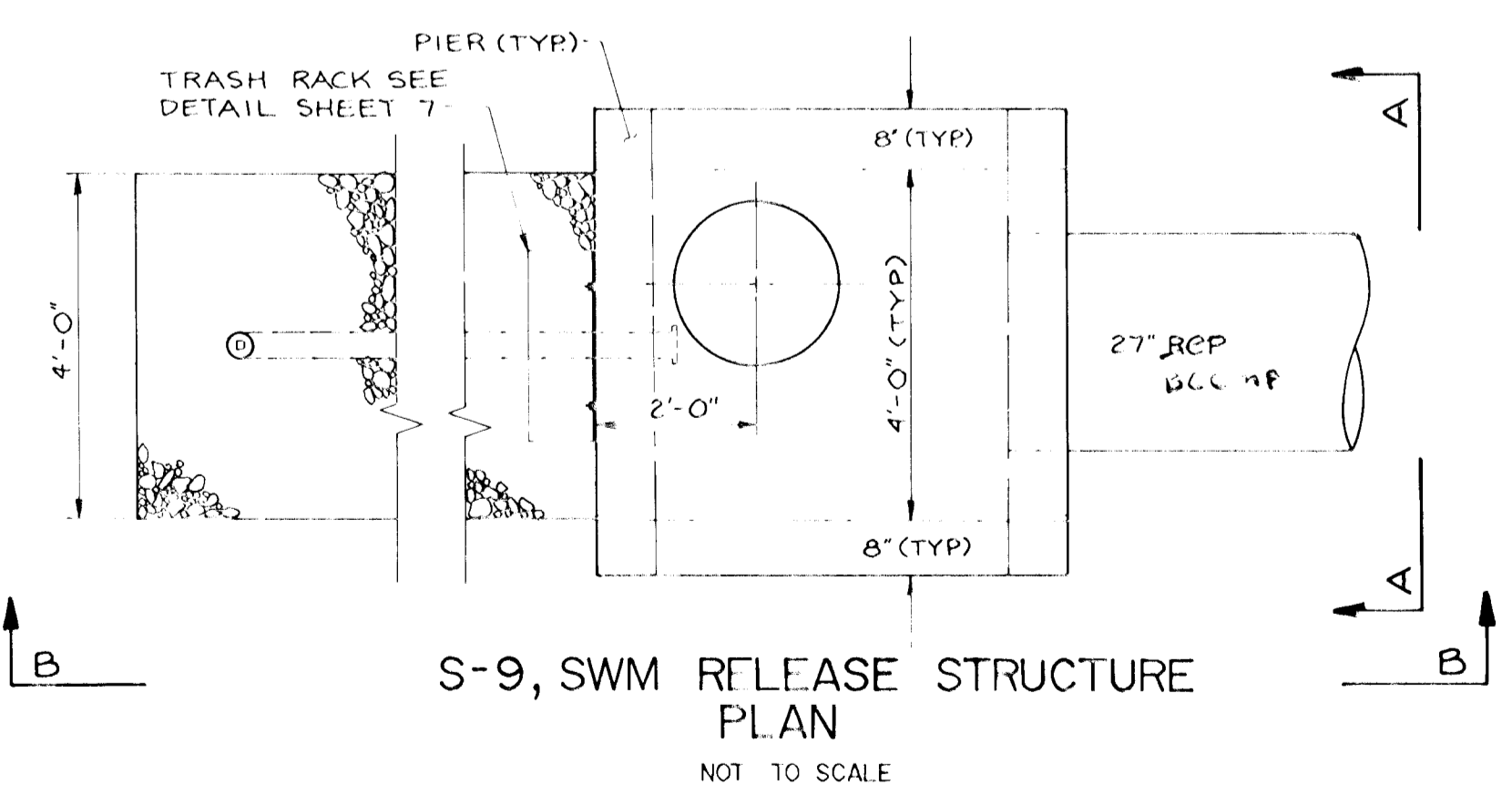
ELEVATION B-B
NOT TO SCALE



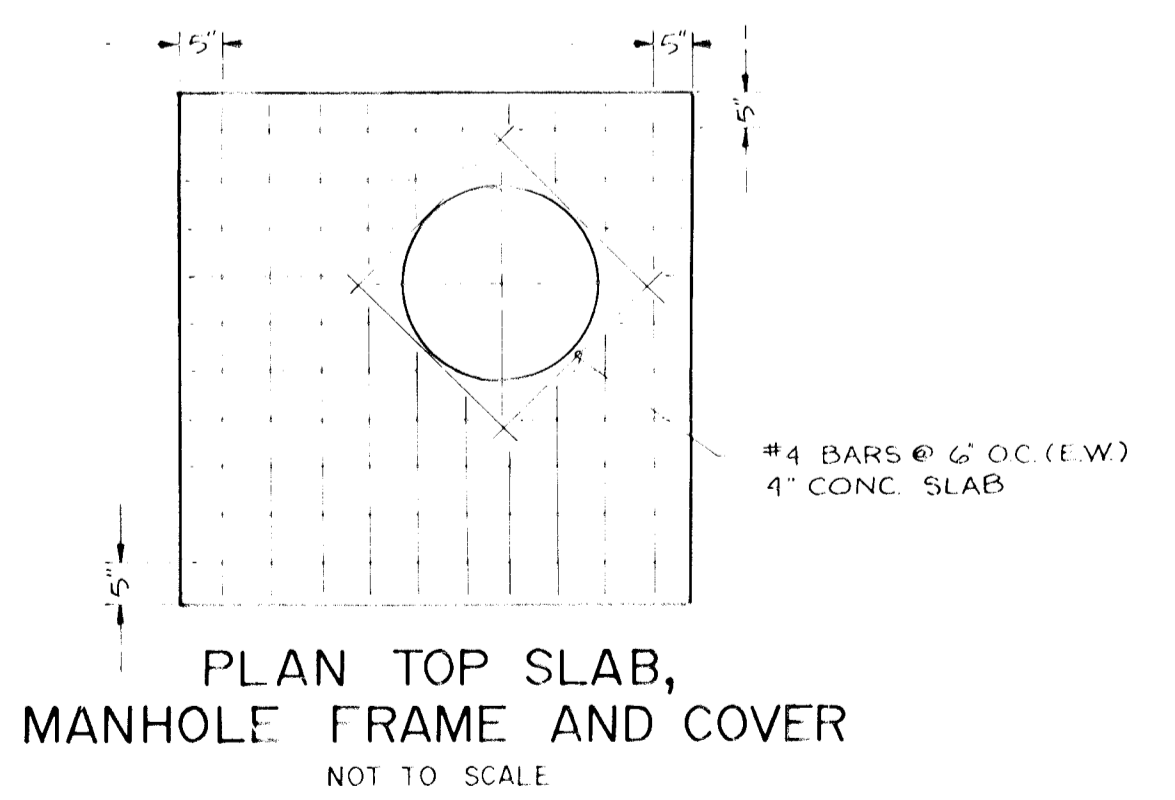
PVC PERFORATION DETAIL



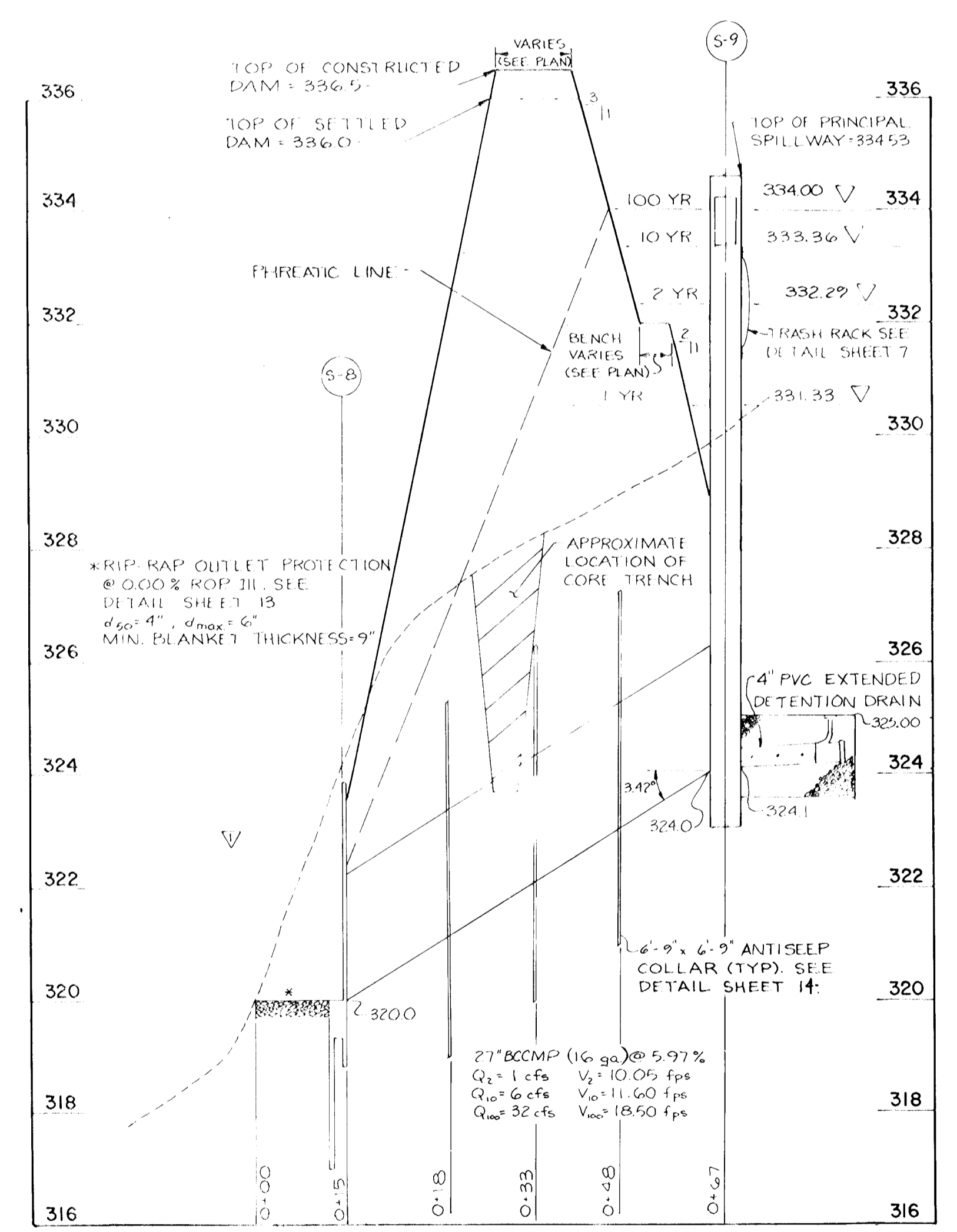
4" PVC ORIFICE
NOT TO SCALE



S-9, SWM RELEASE STRUCTURE
PLAN
NOT TO SCALE



PLAN TOP SLAB,
MANHOLE FRAME AND COVER
NOT TO SCALE



CROSS SECTION ALONG PRINCIPAL SPILLWAY
SCALE: HORIZ 1"=20'
VERT 1"=2'

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

[Signature]
SIGNATURE OF ENGINEER
DATE: 2-1-90

BY THE DEVELOPER:
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature]
SIGNATURE OF DEVELOPER
DATE: 2-1-90

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

[Signature]
U.S. SOIL CONSERVATION SERVICE
DATE: 2-11-90

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

[Signature]
HOWARD SOIL CONSERVATION DISTRICT
DATE: 3-12-90

STORM WATER MANAGEMENT DETAILS
PATUXENT RUN (VHR 6/4)
(OP&Z REF NOS-89-07, P-89-64, WP-89-07 & WP 89-E5)
TAX MAP 35 PARCEL 11, 25 & 10
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

JOHN F. HARMS JR. AND ASSOCIATES INC.
CONSULTING ENGINEERS - PLANNERS - SURVEYORS
2 CENTRE PARK COLUMBIA, MARYLAND 21045
8818 CENTRE PARK DRIVE 21045
SUITE 208 TELEPHONE (301) 740-5200

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION
CHIEF, BUREAU OF HIGHWAYS
CHIEF, BUREAU OF ENGINEERING

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION
CHIEF, BUREAU OF HIGHWAYS
CHIEF, BUREAU OF ENGINEERING

OWNER / DEVELOPER
HOWARD RESEARCH & DEVELOPMENT LAND COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
(301) 992-6000

NO.	REVISION	BY	DATE
1	PER HQ CO. COMMENTS	DGH	1/23/90
2	SUB-DIVISION REVISION	JRM	1/27/90
3	CORE TRENCH DETAIL	ARE	3/21/90

DESIGNED BY: J.A.B.
DRAWN BY: D.G.H./P.F.A.
CHECKED BY: R.H.V.
DATE: 9-29-89
SCALE: NO SCALE
W.O. NO. 44-88-010C
6 SHEET OF 14

STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

I. SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1.

AREAS TO BE COVERED BY THE POND OR RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

II. EARTH FILL

MATERIAL
THE FILL MATERIAL SHALL BE THAT FROM APPROVED DESIGNATED BORROW AREA OR AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, RUBBISH, COVERED STONES, PILES OR OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION WHICH PROVIDES FOR ANTICIPATED SETTLEMENT TO THE DESIGN ELEVATION. THE FILL MATERIAL SHALL BE COMPACTED TO THE DESIGN ELEVATION. THE FILL SHALL BE INCREASED ABOVE THE DESIGN ELEVATION (INCLUDING FREEBOARD) AS SHOWN ON THE PLANS.

PLACEMENT
AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN 8-INCH MAXIMUM THICKNESS (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST POROUS BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT.

COMPACTION
THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TRAIL TRACK OF THE EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TREAD OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION CAN BE OBTAINED WITH THE EQUIPMENT USED. WHERE A MINIMUM MOISTURE PERCENT IS SPECIFIED, EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY AND IS TO BE CERTIFIED BY THE ENGINEER.

CUTOFF TRENCH
WHERE SPECIFIED, A CUT-OFF TRENCH SHALL BE EXCAVATED ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE AS SHOWN ON THE DRAWINGS, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL MATERIAL FOR THE CUTOFF TRENCH SHALL BE THE MOST IMPROVISED MATERIAL AVAILABLE AND SHALL BE COMPACTED WITH EQUIPMENT OR ROLLERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

III. STRUCTURAL BACKFILL

BACKFILL MATERIAL SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF TWENTY-FOUR INCHES OR GREATER OVER THE STRUCTURE OR PIPE.

IV. PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

A. CORRUGATED METAL PIPE

1. **MATERIALS (STEEL PIPE)** - THIS PIPE AND ITS FITTINGS SHALL BE GALVANIZED AND FULLY BITUMINOUS COATED AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION M-190 TYPE A WITH WATER-TIGHT COUPLING BANGES. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COAT COMPOUND.

STEEL PIPES WITH POLYMERIC COATINGS SHALL BE OF MINIMUM COATING THICKNESS OF 0.01 INCH (1 MIL) ON BOTH SIDES OF THE PIPE. THE FOLLOWING ARE COMMERCIALY AVAILABLE: NIXON, PLASTI-COAT, BLACK-GLAD, AND BETH-CO-LOY. COATED CORRUGATED PIPE SHALL MEET THE REQUIREMENTS OF ASTM M-742.

2. **DESIGN MIX** - THE CONCRETE SHALL BE MIXED IN PROPORTIONS, MEASURED BY WEIGHT. THE MIX SHALL BE 5-1/2 TO 6 U.S. GALLONS OF WATER PER BAG OF CEMENT. THE PROPORTION OF MATERIALS TO BE USED SHALL BE 1:2-1/2:2-1/2. THE COMPACTION OF CONCRETE MAY BE ADJUSTED TO PRODUCE A PLASTIC AND WORKABLE MIX THAT WILL NOT PRODUCE CRACKING IN PLACING OR SETTING IN THE STRUCTURE.

3. **MIXING** - THE CONCRETE INGREDIENTS SHALL BE MIXED IN BATCH MIXERS UNTIL THE MIXTURE IS HOMOGENEOUS AND OF UNIFORM CONSISTENCY. THE MIXING OF EACH BATCH SHALL CONTINUE FOR NOT LESS THAN ONE AND ONE-HALF MINUTES AFTER ALL THE INGREDIENTS, EXCEPT THE FULL AMOUNT OF WATER, ARE IN THE MIXER. THE MINIMUM MIXING TIME IS PROHIBITED OR PROPER CONTROL OF THE SPEED OF ROTATION OF THE MIXER AND OF THE INTRODUCTION OF THE MATERIALS, INCLUDING WATER, INTO THE MIXER. WATER SHALL BE ADDED PRIOR TO, DURING, AND FOLLOWING THE MIXER-CHARGING OPERATIONS. EXCESSIVE OVERMIXING REQUIRING THE ADDITION OF WATER TO PRESERVE THE REQUIRED CONCRETE CONSISTENCY SHALL NOT BE PERMITTED. TRUCK MIXING WILL BE ALLOWED PROVIDED THAT THE USE OF THIS METHOD SHALL CAUSE NO VIOLATION OF ANY APPLICABLE PROVISIONS OF THE SPECIFICATIONS GIVEN HEREIN.

4. **FORMS** - THE FORMS SHALL HAVE SUFFICIENT STRENGTH AND RIGIDITY TO HOLD THE CONCRETE AND TO WITHSTAND THE NECESSARY PRESSURE, TAMPING, AND VIBRATION WITHOUT DEFLECTION FROM THE PRESCRIBED LINES. THEY SHALL BE WATER-TIGHT AND CONSTRUCTED SO THAT THEY CAN BE REMOVED WITHOUT HAMMERS OR TRYING AGAINST THE CONCRETE. THE INSIDE FORMS SHALL BE OILED WITH A NON-STAINING MINERAL OIL OR THOROUGHLY WETTED BEFORE CONCRETE IS PLACED.

FORMS MAY BE REMOVED 24 HOURS AFTER THE PLACEMENT OF CONCRETE. ALL WIRE TIES AND OTHER DEVICES USED SHALL BE RECESSED FROM THE SURFACE OF THE CONCRETE.

5. **REINFORCING STEEL** - ALL REINFORCING MATERIAL SHALL BE FREE OF DIRT, RUST, SCALE, OIL, PAINT OR ANY OTHER COATINGS. THE STEEL SHALL BE ACCURATELY PLACED AND SECURELY TIED AND BLOCKED INTO POSITION SO THAT NO MOVEMENT OF THE STEEL WILL OCCUR DURING PLACEMENT OF CONCRETE.

6. **CONSOLIDATING** - CONCRETE SHALL BE CONSOLIDATED WITH INTERNAL TYPE MECHANICAL VIBRATORS. VIBRATION SHALL BE SUPPLEMENTED BY SPADING AND HAND TAMPING AS NECESSARY TO INSURE SMOOTH AND DENSE CONCRETE ALONG FORM SURFACES, IN CORNERS, AND AROUND EMBEDDED ITEMS.

7. **FINISHING** - DEFECTIVE CONCRETE, NONUNIFORM AREAS, VOIDS LEFT BY THE REMOVAL OF THE FORMS, RIDGES ON ALL CONCRETE SURFACES PERMANENTLY EXPOSED TO VIEW OR EXPOSED TO WATER ON THE FINISHED STRUCTURE, SHALL BE REPAIRED IMMEDIATELY AFTER THE REMOVAL OF THE FORMS. ALL VOIDS SHALL BE REAMED AND COMPLETELY FILLED WITH DRY-PATCHING MORTAR.

8. **PROTECTION AND CURING** - EXPOSED SURFACES OF CONCRETE SHALL BE PROTECTED FROM THE DIRECT RAYS OF THE SUN FOR AT LEAST THE FIRST THREE (3) DAYS. ALL CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR AT LEAST TEN (10) DAYS AFTER BEING PLACED. MOISTURE MAY BE APPLIED BY SPRAYING OR SPRINKLING AS NECESSARY TO PREVENT THE CONCRETE FROM DRYING. CONCRETE SHALL NOT BE EXPOSED TO FREEZING DURING THE CURING PERIOD. CURING COMPOUNDS MAY ALSO BE USED.

9. **PLACING TEMPERATURE** - CONCRETE MAY NOT BE PLACED AT TEMPERATURE BELOW 37 DEGREES F WITH THE TEMPERATURE FALLING, OR 34 DEGREES F WITH THE TEMPERATURE RISING.

VI. STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING (IF REQUIRED) IN ACCORDANCE WITH THE VEGETATIVE TREATMENT SPECIFICATIONS.

VII. EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. DETAIL OF EROSION AND SEDIMENT CONTROL MEASURES TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS SHALL BE IN ACCORDANCE WITH EROSION AND SEDIMENT CONTROL PLANS FOR THIS PROJECT.

2. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATER-TIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. WATER-TIGHT COUPLING BANGES OR FLANGES SHALL BE USED AT ALL JOINTS. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATER-TIGHT. DUFFLE BANGES ARE NOT CONSIDERED TO BE WATER-TIGHT.

3. **BEDDING** - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. **LAYING PIPE** - THE PIPE SHALL BE PLACED WITH INSIDE CIRCUMFERENTIAL LAPS POINTING DOWNSTREAM AND WITH THE LONGITUDINAL LAPS AT THE SIDES.

5. **BACKFILLING** SHALL CONFORM TO STRUCTURAL BACKFILL AS SHOWN ABOVE.

V. CONCRETE

A. MATERIALS

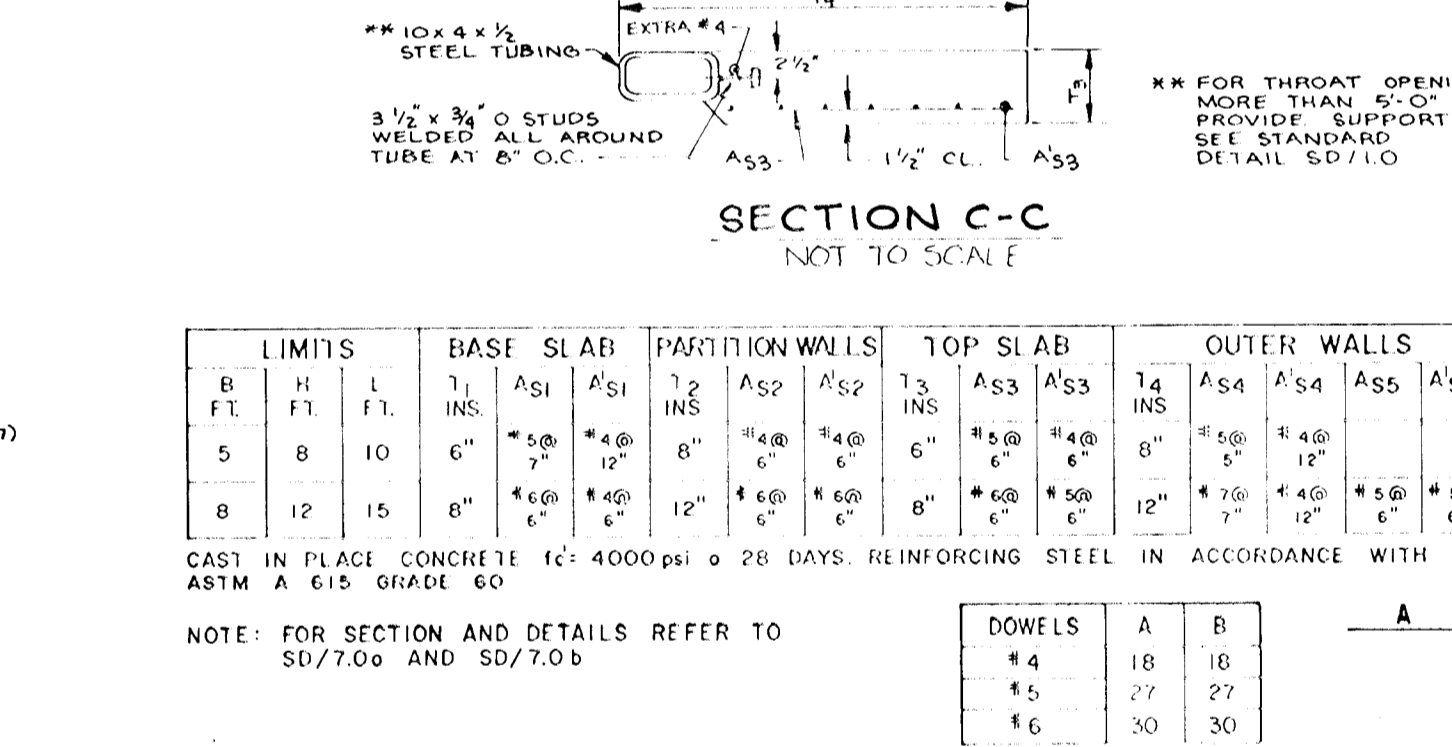
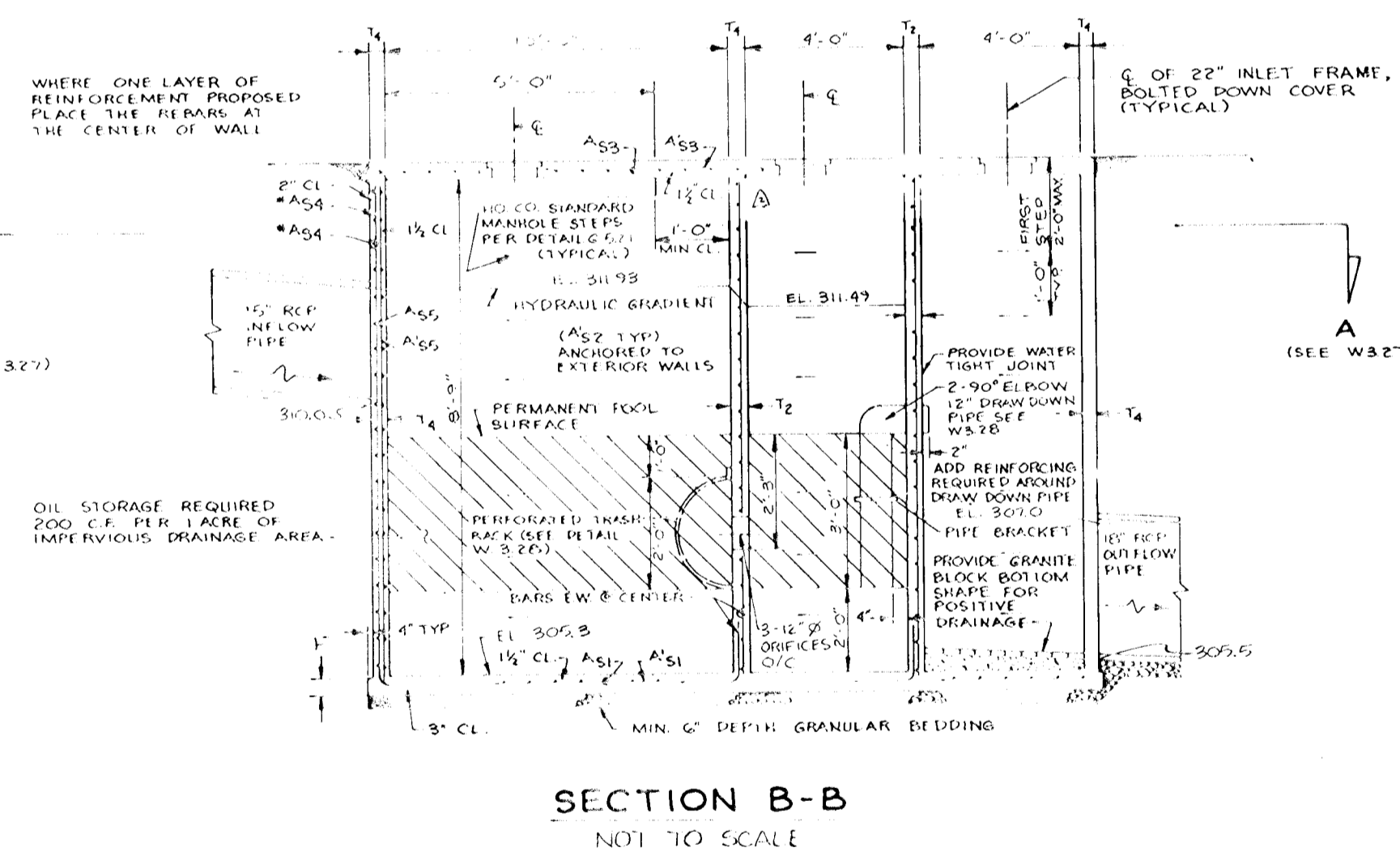
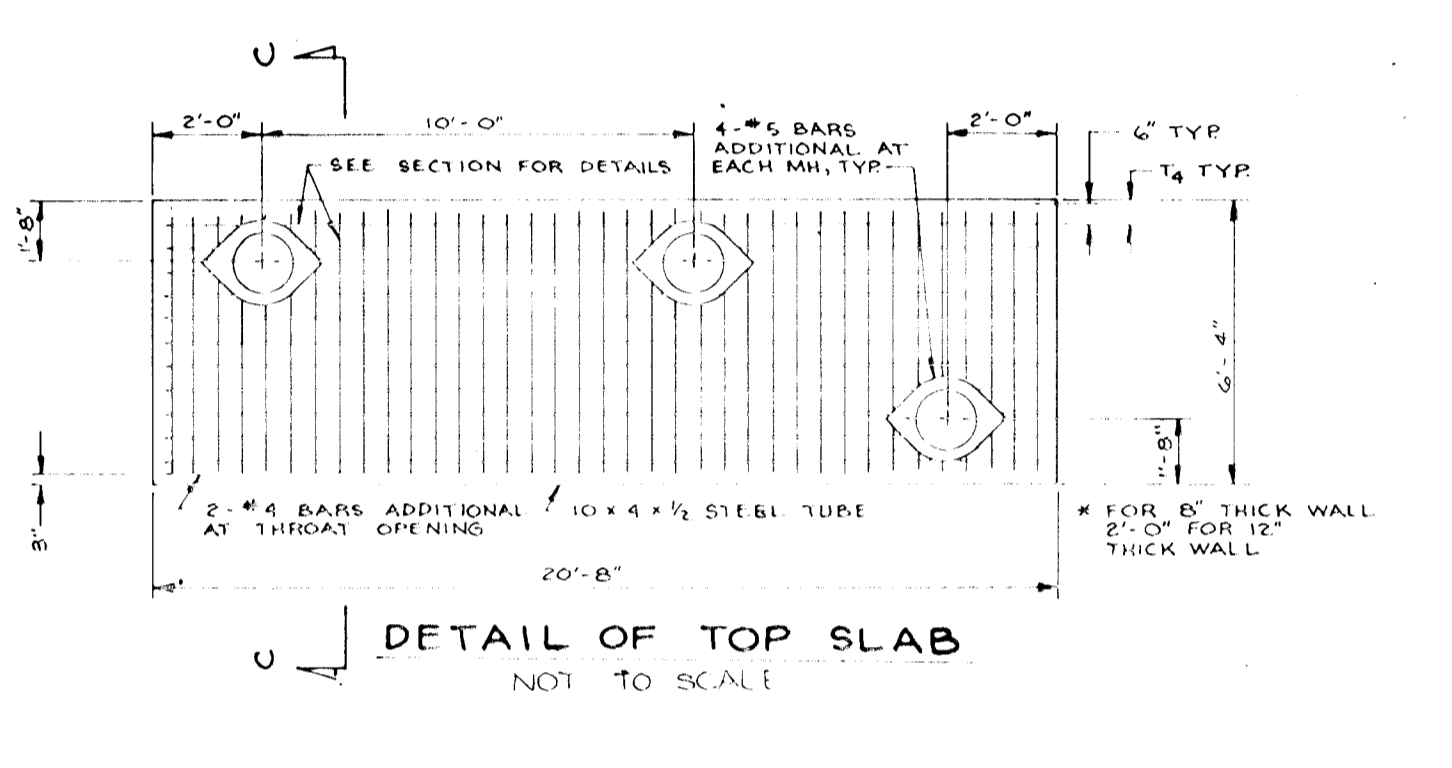
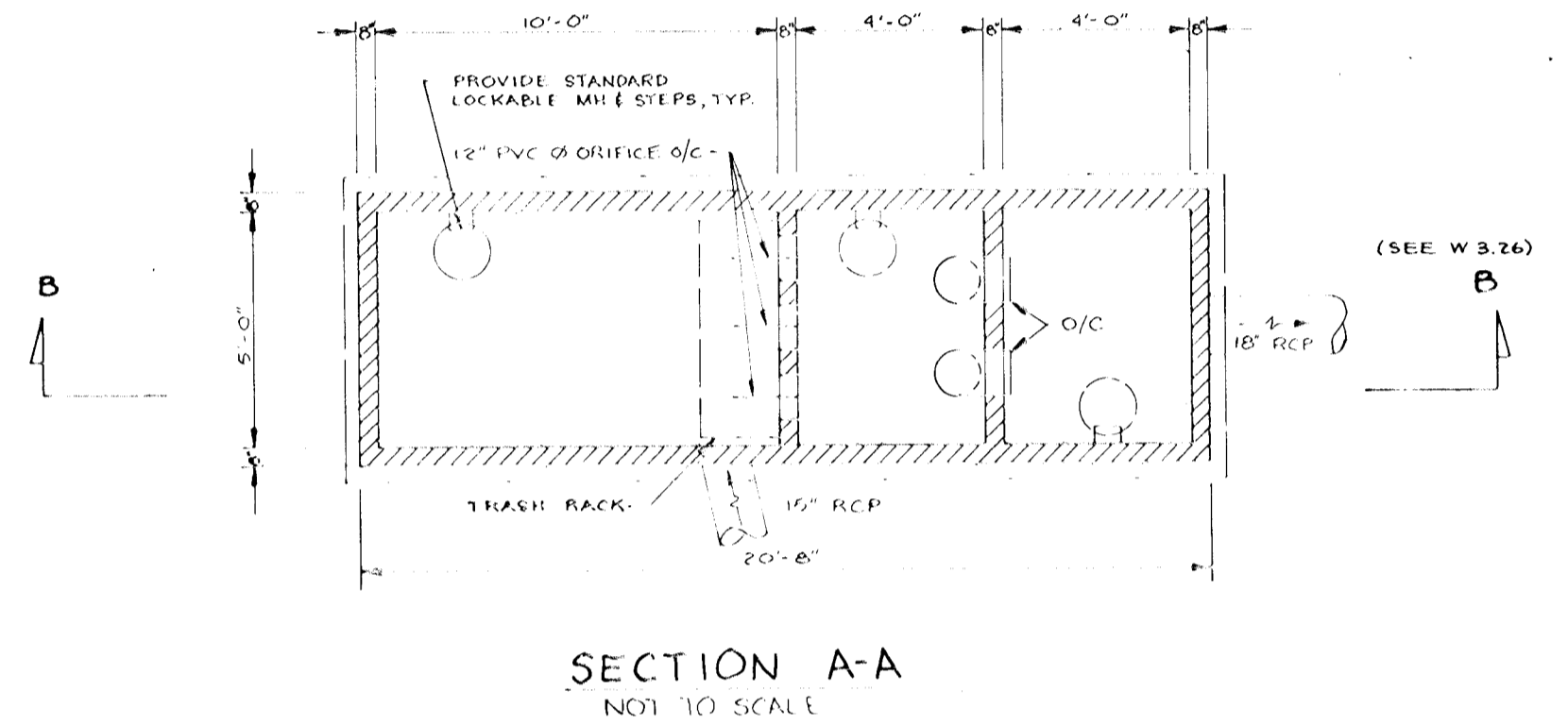
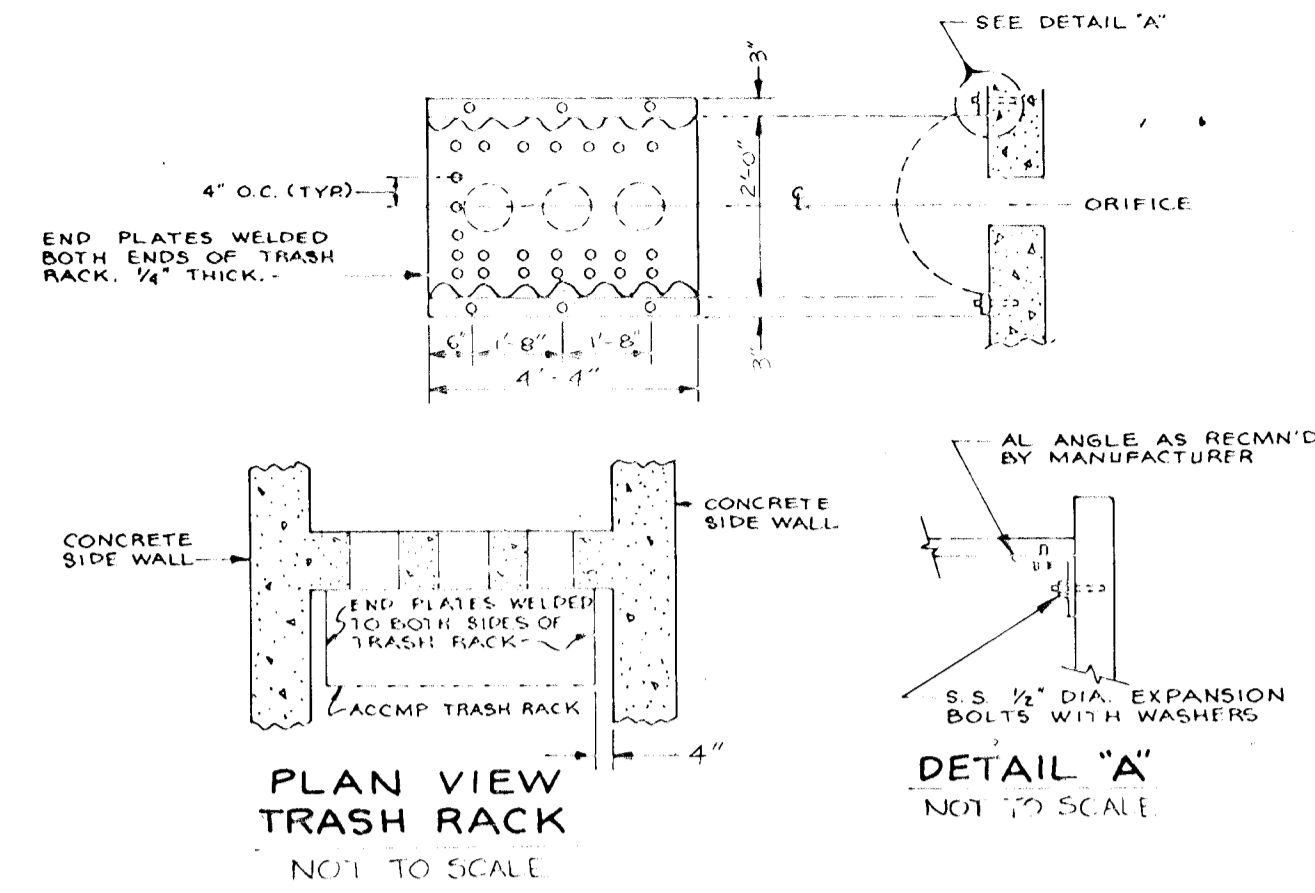
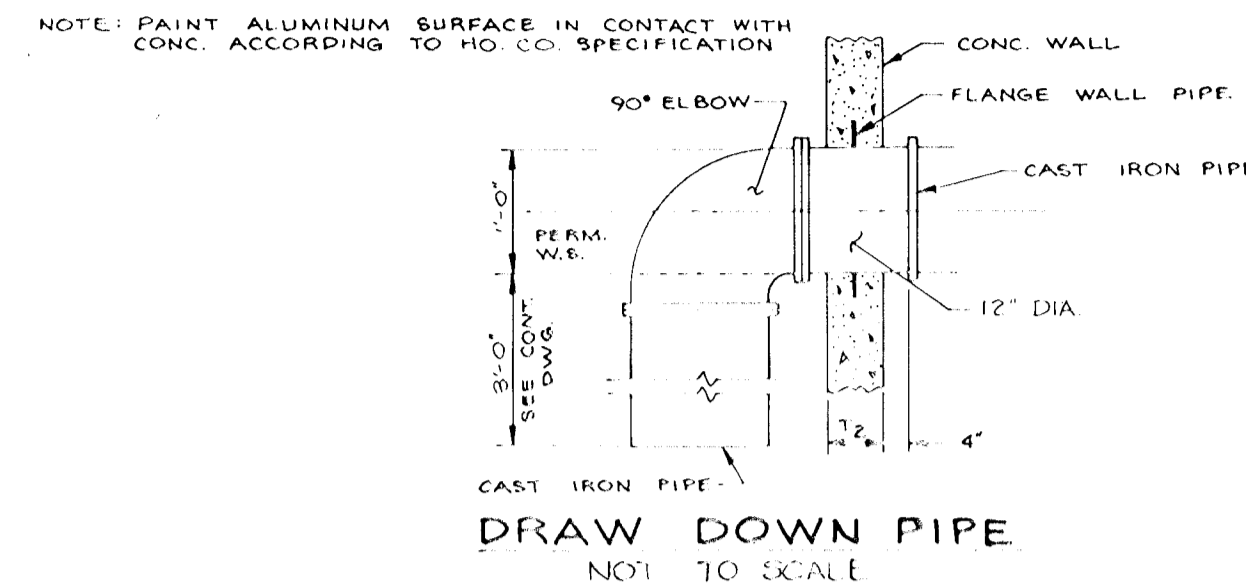
1. **CEMENT** - NORMAL PORTLAND CEMENT SHALL CONFORM TO THE LATEST ASTM SPECIFICATION C-150.

2. **WATER** - THE WATER USED IN CONCRETE SHALL BE CLEAN, FREE FROM OIL, ACID, ALKALI, SCALES, ORGANIC MATTER OR OTHER OBJECTIONABLE SUBSTANCES.

3. **SAND** - THE SAND USED IN CONCRETE SHALL BE CLEAN, HARD, STRONG AND DURABLE AND SHALL BE WELL GRADED WITH 100 PERCENT PASSING A ONE-QUARTER INCH SIEVE. LIMESTONE SAND SHALL NOT BE USED.

4. **COARSE AGGREGATE** - THE COARSE AGGREGATE SHALL BE CLEAN, HARD, STRONG AND DURABLE, AND FREE FROM CLAY OR DIRT. IT SHALL BE WELL GRADED WITH A MAXIMUM SIZE OF ONE AND ONE-HALF (1-1/2) INCHES.

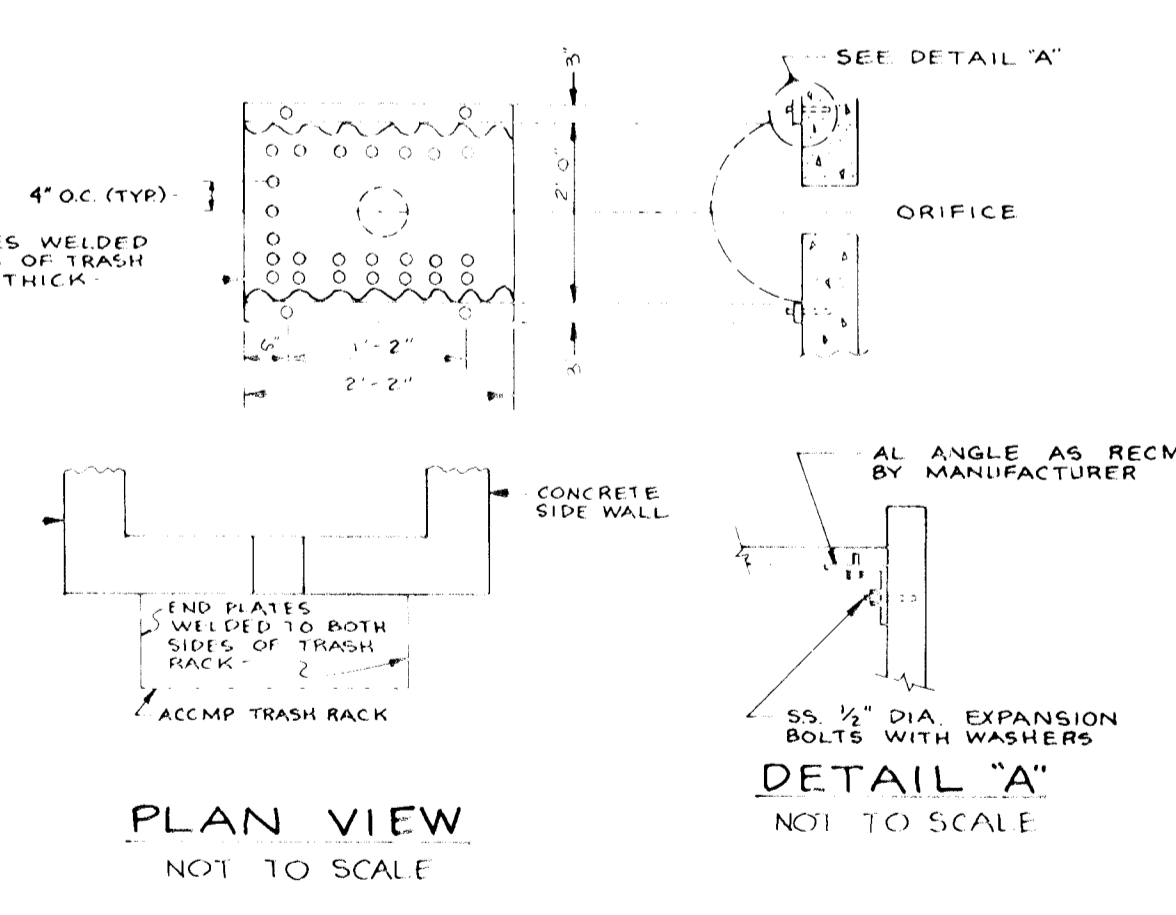
5. **REINFORCING STEEL** - THE REINFORCING STEEL SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE BILLET STEEL OR RAIL STEEL CONFORMING TO ASTM SPECIFICATION A-165.



LIMITS		BASE SLAB		PARTITION WALLS		TOP SLAB		OUTER WALLS	
B	H	A51	A51	A52	A52	A53	A53	A54	A55
FT	FT	INS	INS	INS	INS	INS	INS	INS	INS
5	8	10	6"	#5@ 12"	#5@ 6"	#5@ 6"	#5@ 6"	#5@ 6"	#5@ 6"
8	12	15	8"	#5@ 12"	#5@ 6"	#5@ 6"	#5@ 6"	#5@ 6"	#5@ 6"

CAST IN PLACE CONCRETE f'c: 4000 psi @ 28 DAYS; REINFORCING STEEL IN ACCORDANCE WITH ASTM A 615 GRADE 60

NOTE: FOR SECTION AND DETAILS REFER TO SD/700 AND SD/700



WATER QUALITY INLET NOT TO SCALE

STORM WATER MANAGEMENT DETAILS

PATUXENT RUN Δ (VHR 6/4)

(OP&Z REF NOS-89-07, P-89-64, WP-89-07 & WP-89-155)
TAX MAP 35 PARCEL 112, 25 & 110
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

JOHN E. HARMS JR. AND ASSOCIATES INC.

CONSULTING ENGINEERS - PLANNERS - SURVEYORS
2 CENTRE PARK COLUMBIA, MARYLAND 21045
8818 CENTRE PARK DRIVE 21045
SUITE 208 TELEPHONE (301) 740-5200

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
J. Helmert 3-12-90
U.S. SOIL CONSERVATION SERVICE

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
I ALSO AUTHORIZE PERIODIC ON SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Zehn 3-12-90
HOWARD SOIL CONSERVATION DISTRICT

ENGINEERING CERTIFICATE
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL PRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
John E. Harms Jr. 1/31/90
161923
SIGNATURE OF ENGINEER
MD P.E. NO.

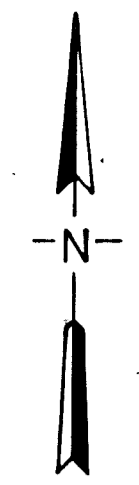
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
James L. D. ... 4/2/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
... 3/26-90
CHIEF, BUREAU OF ENGINEERING

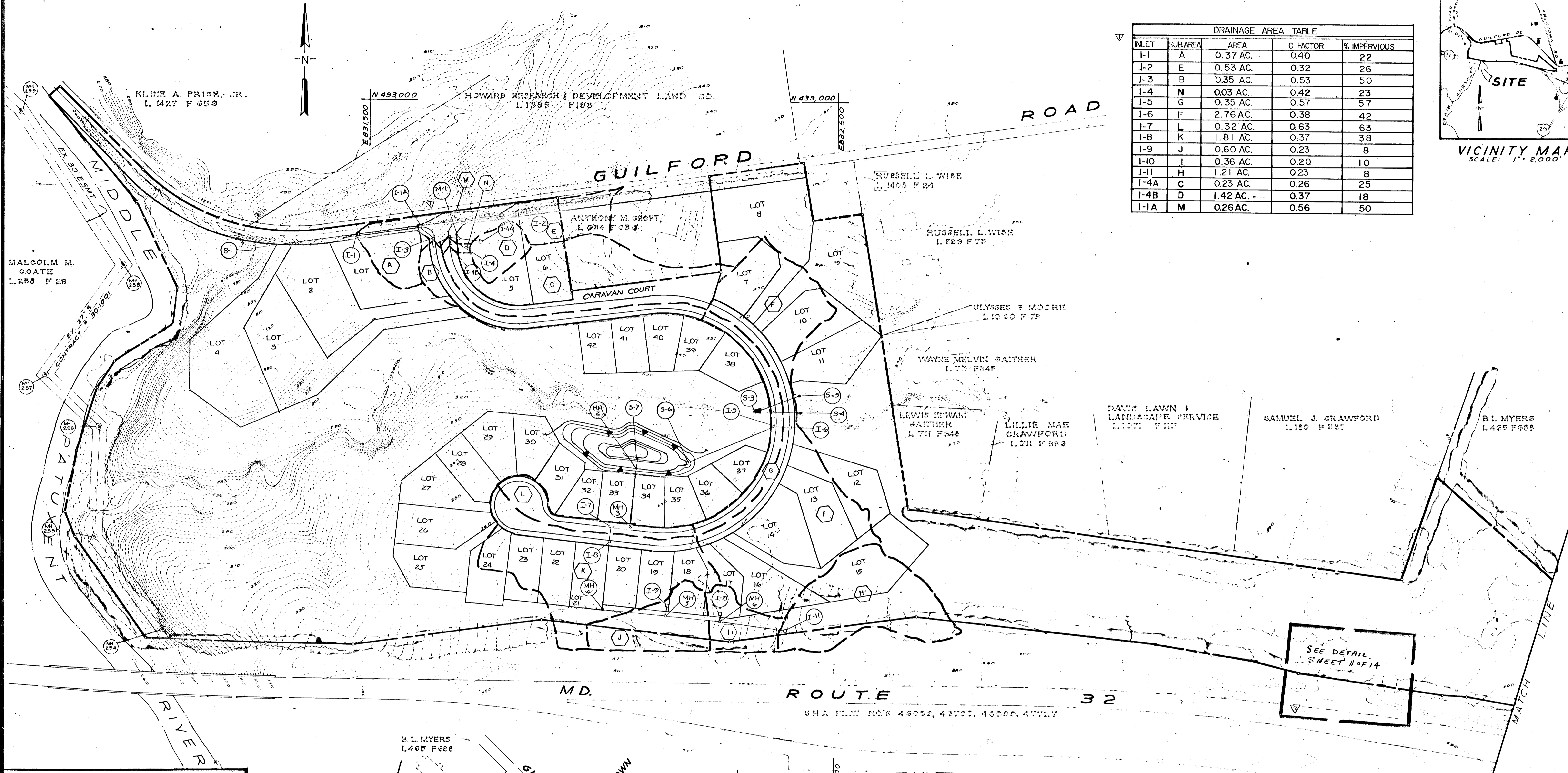
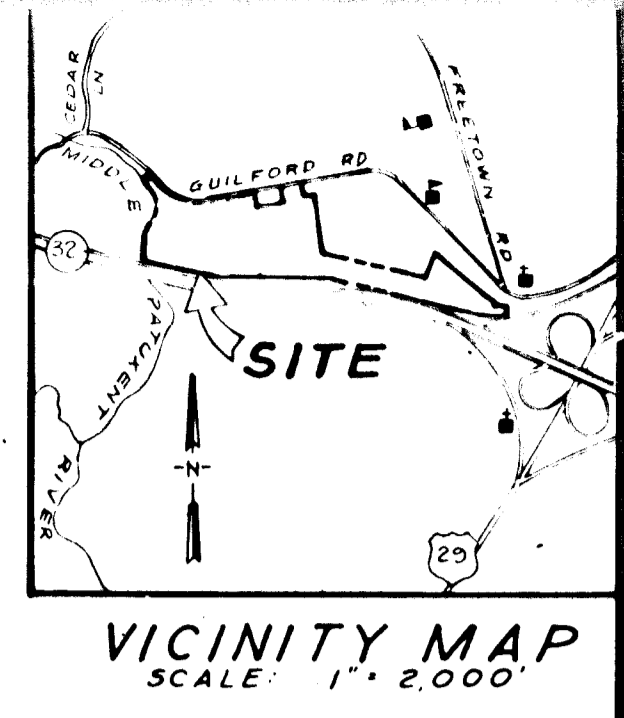
OWNER / DEVELOPER
HOWARD RESEARCH & DEVELOPMENT LAND COMPANY
10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044
(301) 992-6000

NO. REVISION BY DATE
1 PER HOCO COMMENTS DGH 11/23/90
2 SUB DIVISION REVISION JTKM 11/29/90
3 TRASH DETAIL - EXTEND WALLS RFE 6/1/90

DESIGNED BY: J.A.B.
DRAWN BY: D.G.H./P.E.A.
CHECKED BY: R.H.V.
DATE: 9-29-89
SCALE: NO SCALE
W.O. NO. 44-88-010C 7 SHEET OF 14



DRAINAGE AREA TABLE				
INLET	SUBAREA	ARFA	C FACTOR	% IMPERVIOUS
I-1	A	0.37 AC.	0.40	22
I-2	E	0.53 AC.	0.32	26
I-3	B	0.35 AC.	0.53	50
I-4	N	0.03 AC.	0.42	23
I-5	G	0.35 AC.	0.57	57
I-6	F	2.76 AC.	0.38	42
I-7	L	0.32 AC.	0.63	63
I-8	K	1.81 AC.	0.37	38
I-9	J	0.60 AC.	0.23	8
I-10	I	0.36 AC.	0.20	10
I-11	H	1.21 AC.	0.23	8
I-4A	C	0.23 AC.	0.26	25
I-4B	D	1.42 AC.	0.37	18
I-1A	M	0.26 AC.	0.56	50



SEE DETAIL SHEET 11 OF 14

OWNER / DEVELOPER
HOWARD RESEARCH & DEVELOPMENT
LAND COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
(301) 992-6000

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

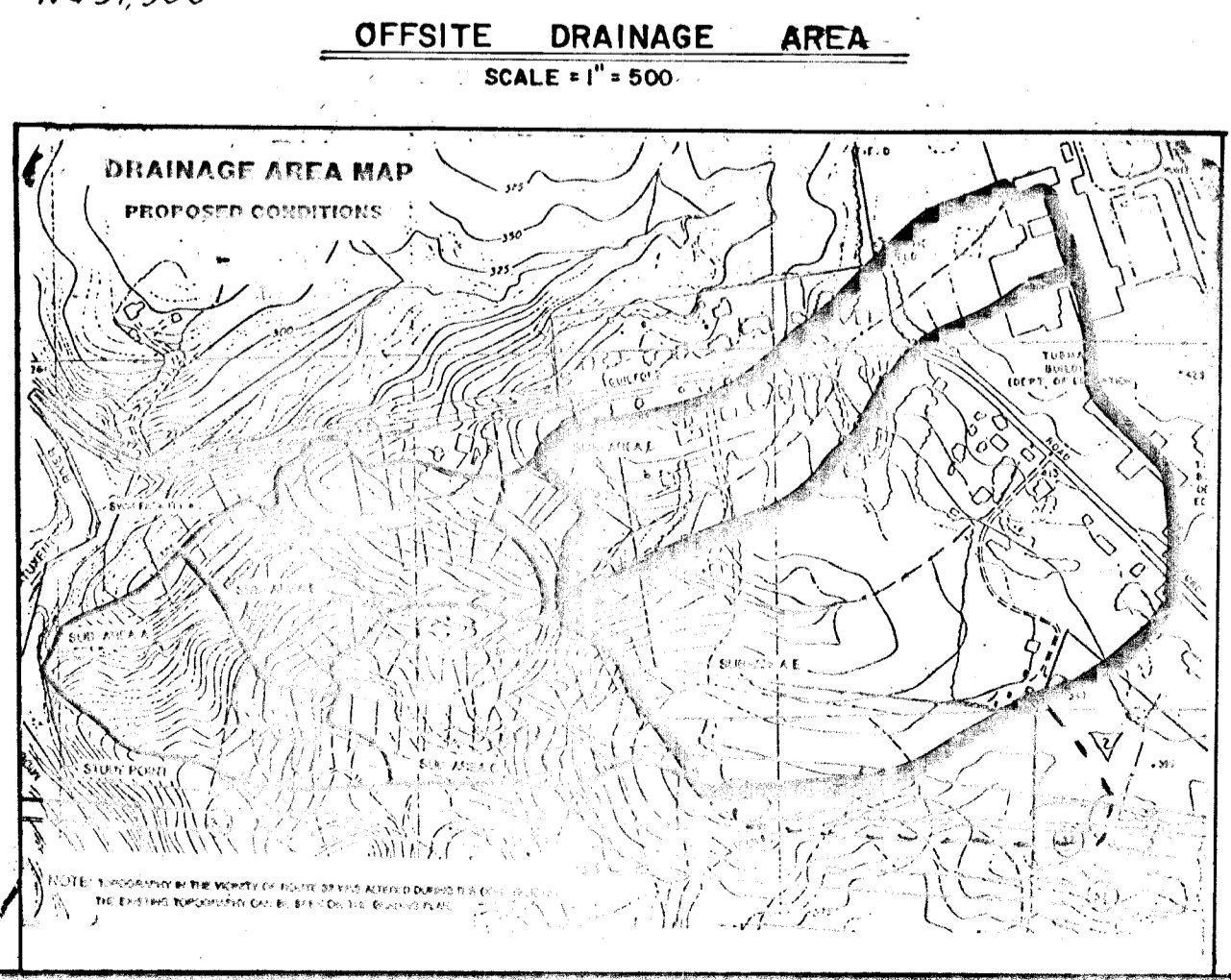
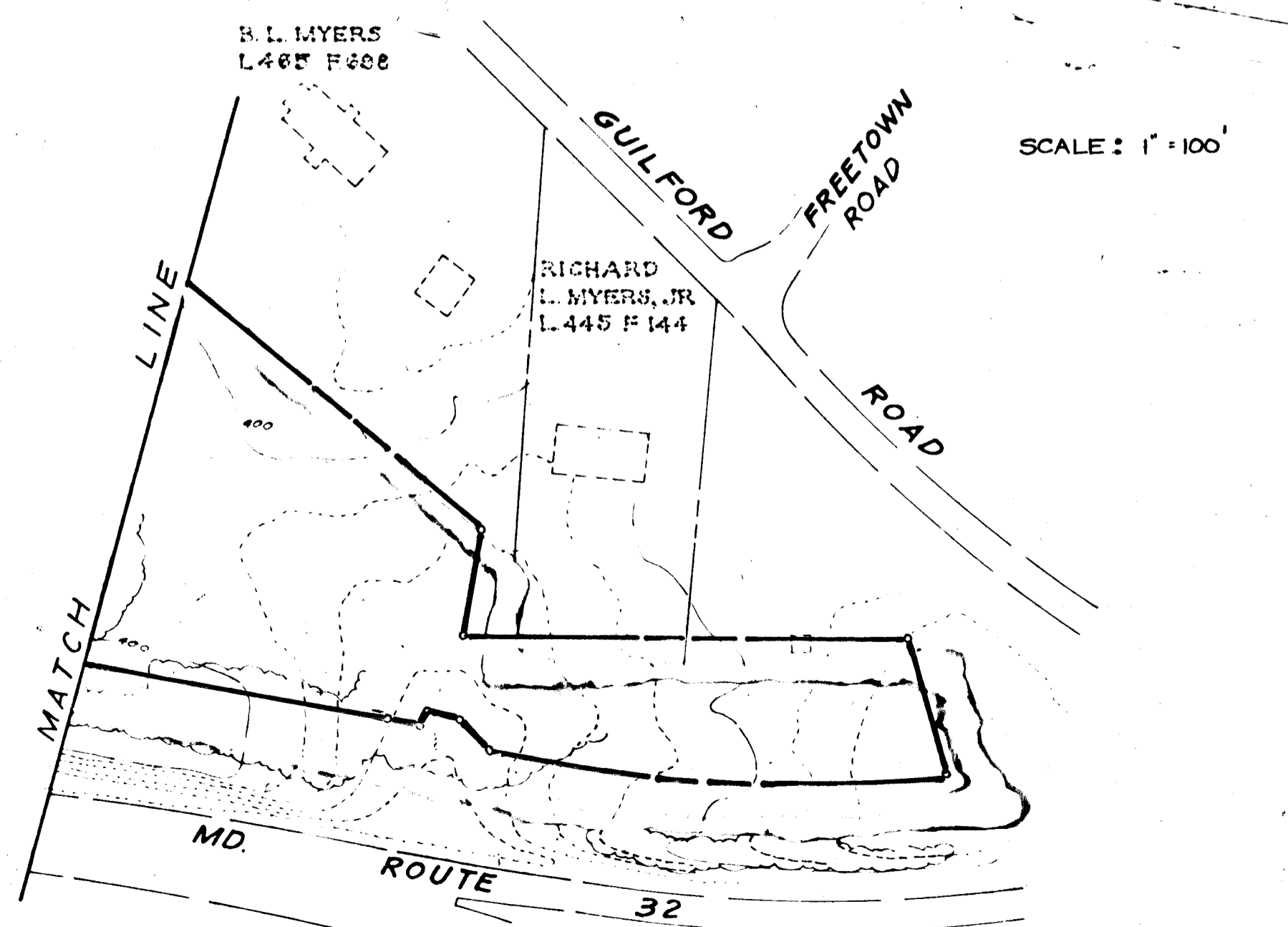
Richard J. Prange 4/23/90
CHIEF, DIVISION OF COMMUNITY
PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Paul D. Lopez 3/23/90
CHIEF, LAND DEVELOPMENT DIVISION

Francis W. Whelan 3/21/90
CHIEF, BUREAU OF HIGHWAYS

William E. Ray 3-21-90
CHIEF, BUREAU OF ENGINEERING



STRUCTURE	SUBAREA	AREA	RCN	Tc
S-4, S-5	D	11.33 Ac	74	0.36 Hrs.
	E	30.48 Ac	69	0.37 Hrs.

DRAINAGE AREA MAP
PATUXENT RUN Δ
(VHR G/4)
(OP&Z REF NO. S-89-07, P-89-64, WP-89-07 & WP-89-155)
TAX MAP 35 PARCEL 112, 25 & 110
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

JOHN E. HARMS JR. AND ASSOCIATES INC.
CONSULTING ENGINEERS PLANNERS SURVEYORS
2 CENTRE PARK SUITE 208
COLUMBIA, MARYLAND 21045 TELEPHONE (301) 740-5700

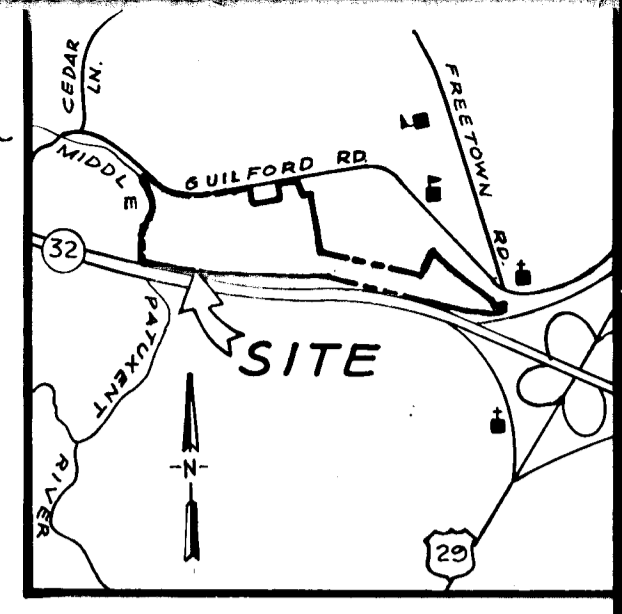
NO.	REVISION	BY	DATE
1	SUB DIVISION RENAMED PER SHA COMMENTS.	JRM	1/24/90
2	Use DAMP Show Detail	DGH	1/24/90

DESIGNED BY: T.A.B.
DRAWN BY: J.R.M.
CHECKED BY: R.H.V.
DATE: 9-29-89
SCALE: AS SHOWN
W.O. NO. 44-88-010C

HOWARD RESEARCH & DEVELOPMENT CORP
L 1535 F 193

BENCH MARK #1
G&E POLE #480111
RR SPIKE YELLOW FLAG
ELEV 306.52
BENCH MARK #2
TELEPHONE POLE C&P #95
RR SPIKE YELLOW FLAG
ELEV. 310.17

KLINE A. PRICE, JR.
L 1427 F 859



VICINITY MAP
SCALE: 1" = 2,000'

N 45° 06' 44" E
2.05'

N 493,000



LEGEND

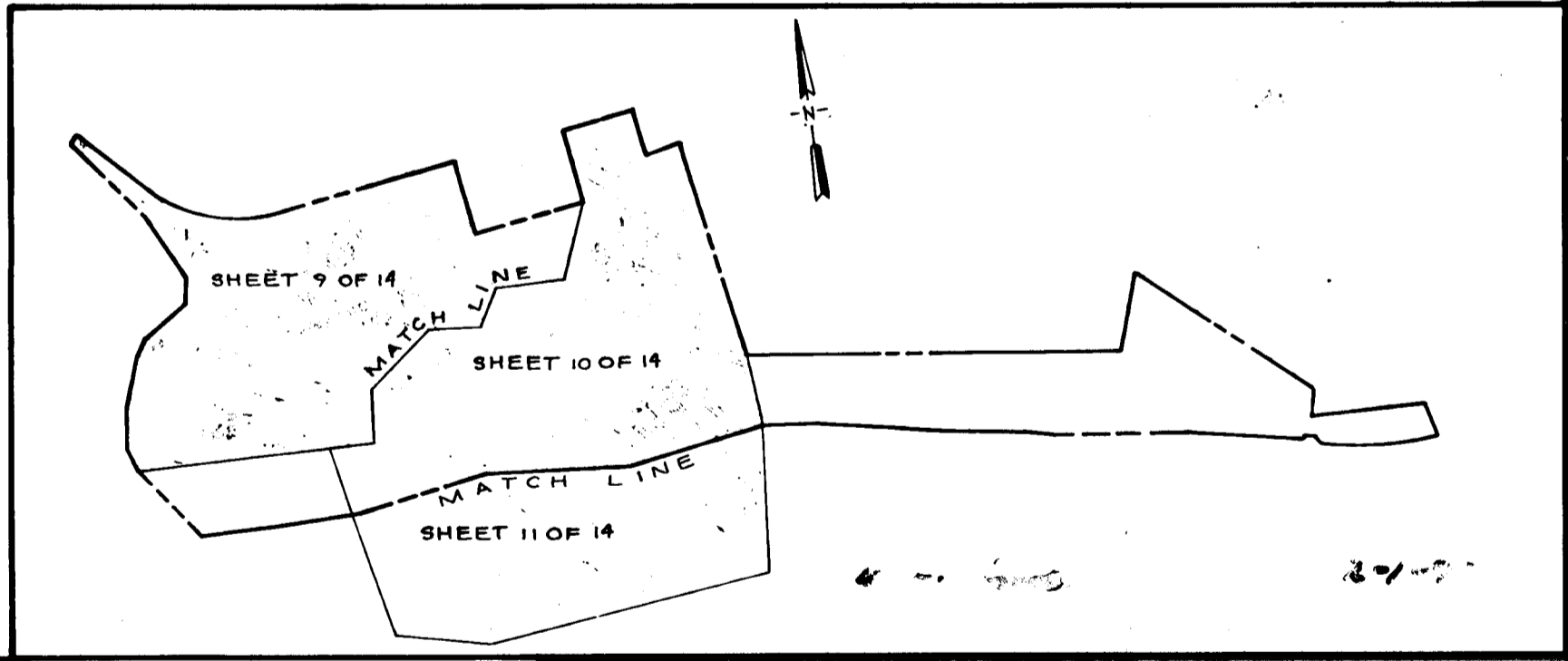
— LOD —	LIMIT OF DISTURBANCE
— S — S —	SILT FENCE
— 310 —	EXISTING CONTOUR
— 310 —	PROPOSED CONTOUR
—>—	EARTH DIKE
[Symbol]	WETLANDS
[Symbol]	100 YEAR FLOOD PLAIN
[Symbol]	STABILIZED CONSTRUCTION ENTRANCE
— — —	75' STREAM BUFFER
— · · · —	25' WETLAND BUFFER
[Symbol]	ALTERNATE SLOPE SECTION (SEE NOTE THIS SHEET)
[Symbol]	EXISTING LIMITS OF WOODS
[Symbol]	PROPOSED LIMITS OF WOODS

NOTE:
IF FIELD ENGINEER DETERMINES ADDITIONAL SLOPE STABILIZATION IS NECESSARY, PROVIDE ALTERNATE SLOPE SECTION; SEE SHEET 12.

NOTE:
WAIVER PETITION W.P.-89-155 WAS APPROVED 10/11/89 TO ALLOW GRADING ON EXISTING SLOPES EXCEEDING 25 PERCENT ADJACENT TO THE WETLANDS AND TO ALLOW STORM WATER MANAGEMENT FACILITY AND GRADING WITHIN THE REQUIRED ENVIRONMENTAL BUFFER.

SEDIMENT TRAP #1

1	TYPE OF TRAP	STONE OUTLET
2	DRAINAGE AREA (Ac)	3.7
3	STORAGE REQ'D (Cy)	247
4	STORAGE PROVIDED (Cy)	258
5	STORAGE ELEVATION	332
6	STORAGE DEPTH	4'
7	WEIR LENGTH	15'
8	BOTTOM ELEVATION	328
9	CLEANOUT ELEVATION	330
10	CREST ELEVATION	333
11	TOP OF DIKE	334
12	TRAP DIMENSIONS	(SEE PLAN)



OWNER/DEVELOPER
HOWARD RESEARCH & DEVELOPMENT LAND CO.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
(301) 992-6000

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
David L. 2. 1990
DATE: 3-26-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Paul W. 3/23/90
DATE: 3/23/90
William W. 3/19/90
DATE: 3/19/90
James 3-26-90
DATE: 3-26-90

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. 3-12-90
DATE: 3-12-90

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
John 2-1-90
SIGNATURE OF DEVELOPER DATE: 2-1-90

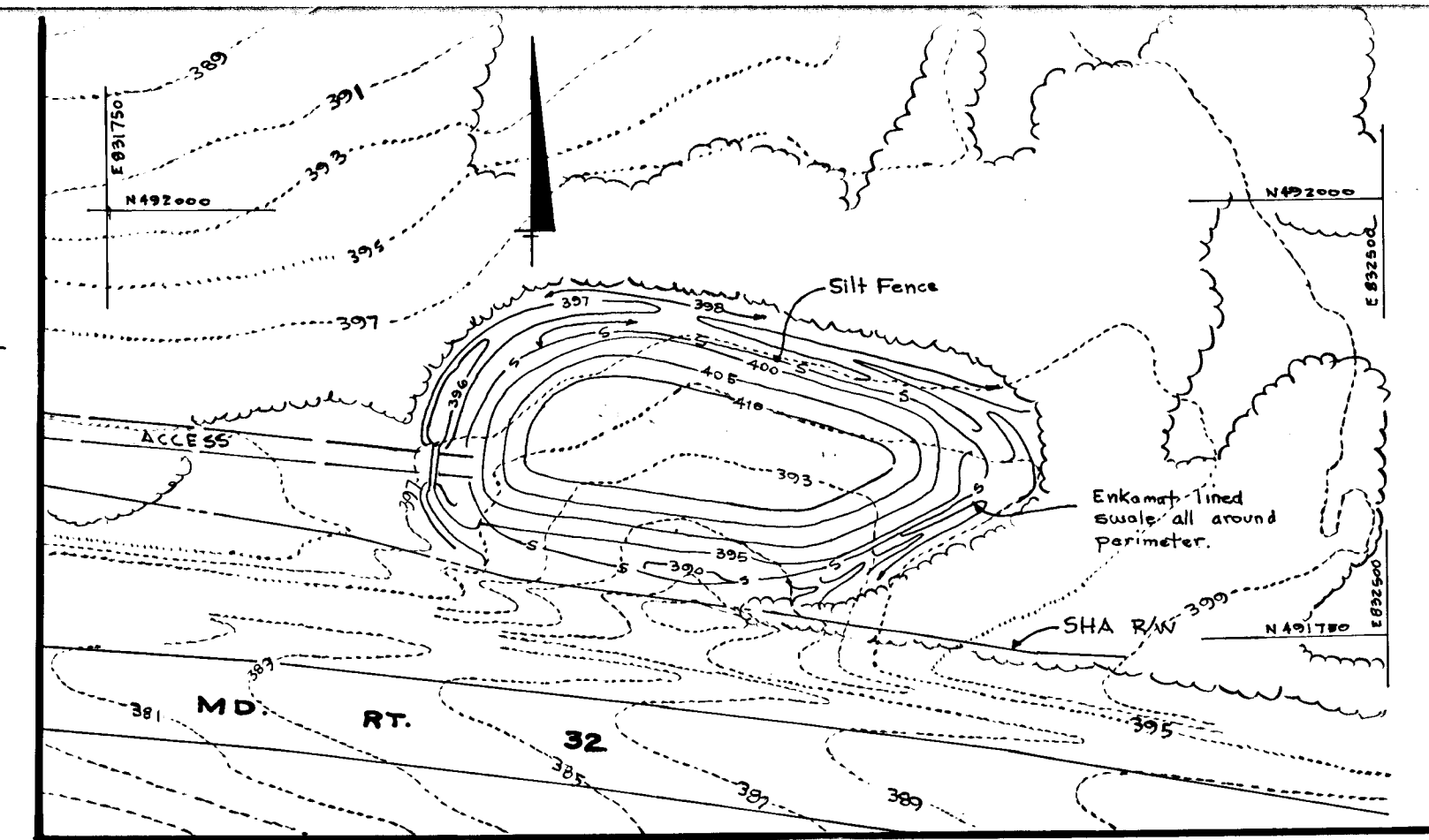
ENGINEERING CERTIFICATE
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
John 1/31/90
SIGNATURE OF ENGINEER DATE: 1/31/90

GRADING AND SEDIMENT CONTROL
PATUXENT RUN
(VHR 6/4)
(OPB Z REF NOS. 89-07, P-89-64, WP-89-07 & WP-89-55)
TAX MAP 35 PARCEL 112, 25 & 110
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

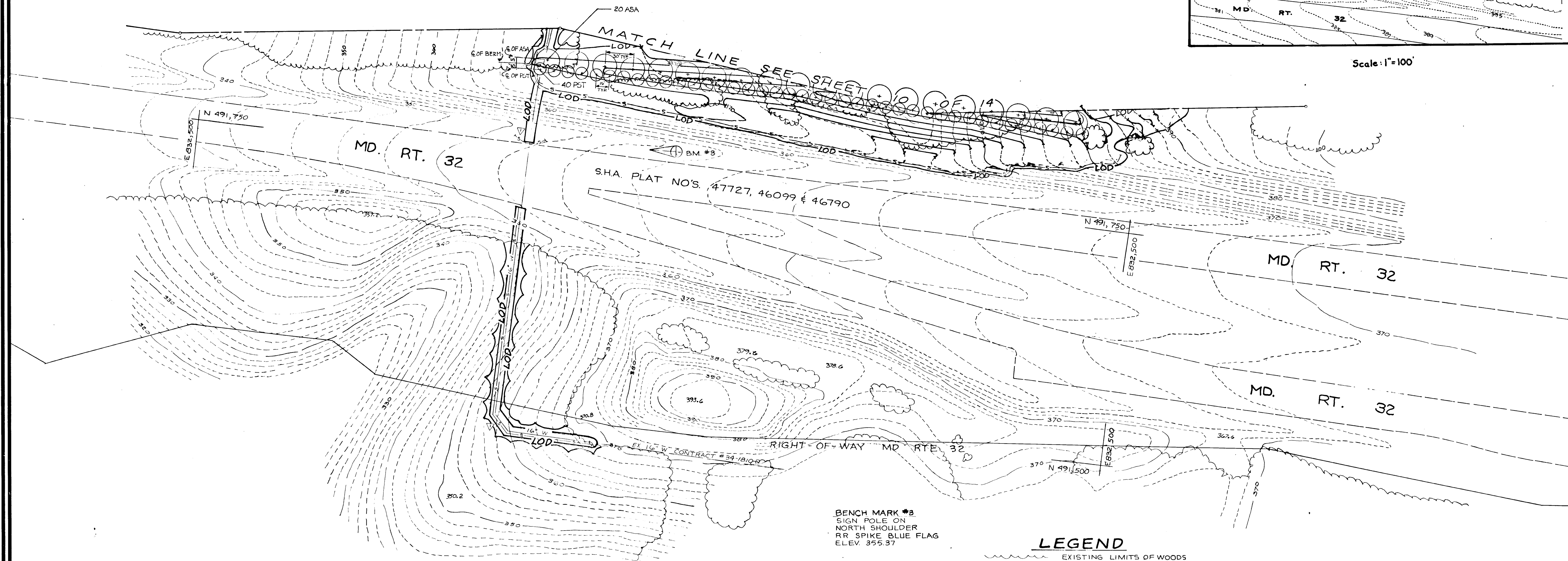
JOHN E. HARMS JR. AND ASSOCIATES INC.
CONSULTING ENGINEERS - PLANNERS - SURVEYORS
2 CENTRE PARK COLUMBIA, MARYLAND 21045
8818 CENTRE PARK DRIVE 21045
SUITE 208 TELEPHONE (301) 740-5200

NO.	REVISION	BY	DATE
1	PER HO CO COMMENTS	DGH	1/23/90
2	SUBDIVISION RENAMED	DGH	1/25/90

DESIGNED BY: T.A.B.
DRAWN BY: C.A.G.
CHECKED BY: R.H.V.
DATE: 9-29-89
SCALE: 1" = 50'
W.D. NO. 44-88-010C
9 SHEET OF 14



Scale: 1"=100'



BENCH MARK #3
SIGN POLE ON
NORTH SHOULDER
RR SPIKE BLUE FLAG
ELEV. 355.37

LEGEND

- EXISTING LIMITS OF WOODS
- PROPOSED LIMITS OF WOODS
- LIMIT OF DISTURBANCE
- SILT FENCE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EARTH DIKE
- WETLANDS
- 100 YEAR FLOOD PLAIN
- STABILIZED CONSTRUCTION ENTRANCE
- 65 dBA Ldn NOISE CONTOUR AS PROVIDED BY POLYSONICS ACOUSTICAL ENGINEERS REPORT DATED 1/17/90.

PLANT LIST - BERM PLANTING					
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	REMARKS
PST	40	PINUS STROBUS / WHITE PINE	3'-4" HT. B&B		FULL, DENSE
ASA	20	ACER SACCHARUM / SUGAR MAPLE	5'-6" HT. B&B		SINGLE STRAIGHT LEADER

OWNER/DEVELOPER
HOWARD RESEARCH & DEVELOPMENT LAND CO.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
A. Helms 3-12-90
U.S. SOIL CONSERVATION SERVICE DATE

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

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

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED:
Robert W. Zielinski 3-12-90
HOWARD SOIL CONSERVATION DISTRICT DATE

Michael L. Edell 2-1-90
SIGNATURE OF DEVELOPER DATE

Robert H. [Signature] 1/21/90
SIGNATURE OF ENGINEER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald J. [Signature] 3/23/90
CHIEF, LAND DEVELOPMENT DIVISION DATE
Francis W. [Signature] 3/21/90
CHIEF, BUREAU OF HIGHWAYS DATE
Kevin E. [Signature] 3-26-90
CHIEF, BUREAU OF ENGINEERING DATE

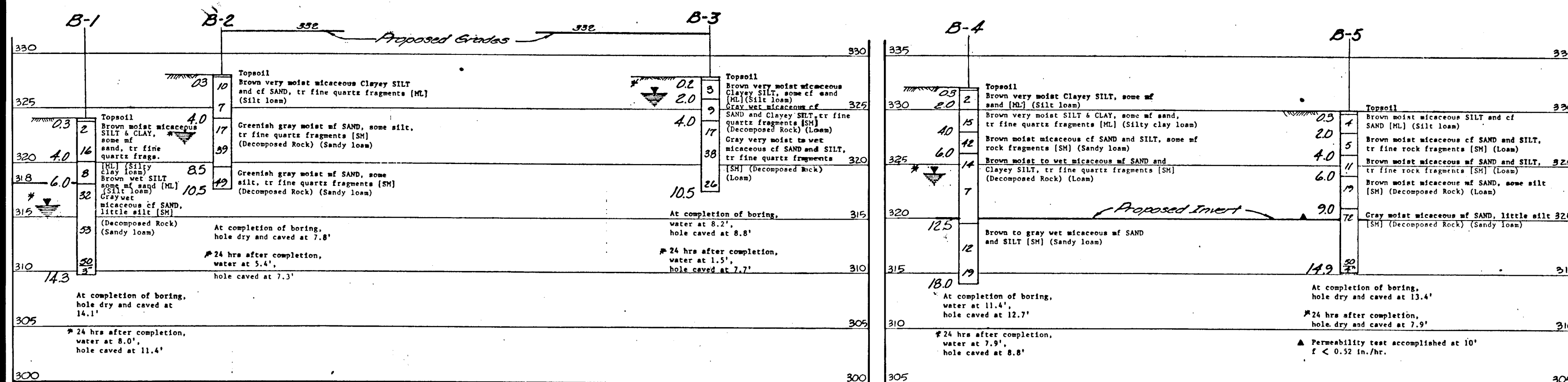
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Paul V. [Signature] [Date]
CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT DATE

GRADING AND SEDIMENT CONTROL
PATUXENT RUN (VHR G/4)
(OP&Z REF NO.S-89-07, P-89-64, WP-89-07 & WP-89-155)
TAX MAP 35 PARCEL 112, 25 & 110
5th ELECTION DISTRICT HOWARD COUNTY MARYLAND

JOHN E. HARMS JR. AND ASSOCIATES INC.
CONSULTING ENGINEERS - PLANNERS - SURVEYORS
2 CENTRE PARK COLUMBIA, MARYLAND 21045 8818 CENTRE PARK DRIVE SUITE 208 TELEPHONE (301) 740-5200

NO.	REVISION	BY	DATE
V	PER HO CO COMMENT	DGH	1/23/90
V	SUB DIVISION RENAMED	JRM	1/24/90
	ADDED BERM DETAIL	HRM	5/21/90

DESIGNED BY: TAB
DRAWN BY: JRM.
CHECKED BY: RHV
DATE: 9-29-89
SCALE: 1"=50'
W.O. NO. 44-88-010C 11 SHEET OF 14



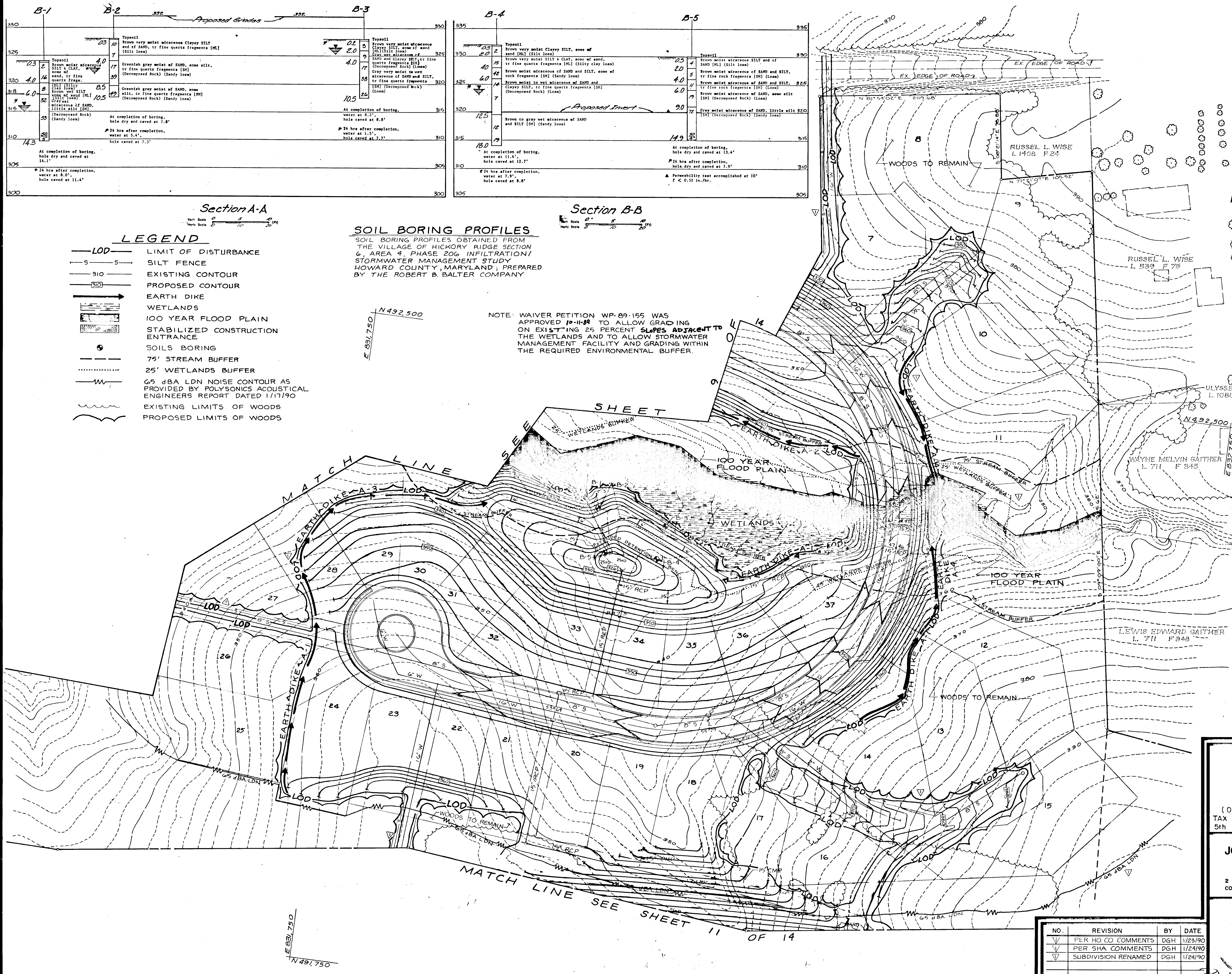
Section A-A

Section B-B

- LEGEND**
- LOD — LIMIT OF DISTURBANCE
 - S — SILT FENCE
 - 310 — EXISTING CONTOUR
 - 310 — PROPOSED CONTOUR
 - EARTH DIKE
 - WETLANDS
 - 100 YEAR FLOOD PLAIN
 - STABILIZED CONSTRUCTION ENTRANCE
 - SOILS BORING
 - 75' STREAM BUFFER
 - 25' WETLANDS BUFFER
 - 65 dBA LDN NOISE CONTOUR AS PROVIDED BY POLYSONICS ACOUSTICAL ENGINEERS REPORT DATED 1/17/90
 - EXISTING LIMITS OF WOODS
 - PROPOSED LIMITS OF WOODS

SOIL BORING PROFILES
 SOIL BORING PROFILES OBTAINED FROM THE VILLAGE OF HICKORY RIDGE SECTION 6, AREA 4, PHASE 206 INFILTRATION/STORMWATER MANAGEMENT STUDY HOWARD COUNTY, MARYLAND, PREPARED BY THE ROBERT B. BALTER COMPANY

NOTE: WAIVER PETITION WP-89-155 WAS APPROVED 10-11-89 TO ALLOW GRADING ON EXISTING 25 PERCENT SLOPES ADJACENT TO THE WETLANDS AND TO ALLOW STORMWATER MANAGEMENT FACILITY AND GRADING WITHIN THE REQUIRED ENVIRONMENTAL BUFFER.



OWNER/DEVELOPER
 HOWARD RESEARCH & DEVELOPMENT LAND CO.
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 J. Holm 3-12-90
 U.S. SOIL CONSERVATION SERVICE DATE

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

Robert W. Ziehm 3-12-90
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Donald J. Gannon 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE

Lawrence W. Wileland 3/11/90
 CHIEF, BUREAU OF HIGHWAYS DATE

William S. Egan 3-24-90
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Frank J. Taylor 3/11/90
 CHIEF DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT DATE

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

Robert H. C. MDPE. 16193 1/31/90
 SIGNATURE OF ENGINEER DATE
 MD PE. N#

BY THE DEVELOPER
 I HAVE CERTIFIED 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 NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AGREE TO PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Robert H. C. 3-1-90
 SIGNATURE OF DEVELOPER DATE

GRADING AND SEDIMENT CONTROL
 PATUXENT RUN
 (VHR 6/4)
 (OP&Z REF NO. 3-89-07, P-89-64, WP-89-07 & WP-89-155)
 TAX MAP 35 PARCEL 112, 25 & 110
 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

JOHN E. HARMS JR. AND ASSOCIATES INC.
 CONSULTING ENGINEERS - PLANNERS - SURVEYORS
 2 CENTRE PARK COLUMBIA, MARYLAND 21045 8818 CENTRE PARK DRIVE SUITE 208 TELEPHONE (301) 740-5200

NO.	REVISION	BY	DATE
1	PER HO CO COMMENTS	DGH	1/23/90
2	PER SHA COMMENTS	DGH	1/24/90
3	SUBDIVISION RENAMED	DGH	1/24/90

DESIGNED BY: T.A.B.
 DRAWN BY: C.A.G.
 CHECKED BY: R.H.V.
 DATE: 9-29-89
 SCALE: 1" = 50'
 W.O. NO. 44-88-010C 10 SHEET OF 14

SEDIMENT CONTROL NOTES

- 1) 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)
- 2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- 3) 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 for all other disturbed or graded areas on the project site.
- 4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) and (Sec. 54), temporary seedings (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.
- 6) 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.
- 7) Site Analysis:
 - Total Area of Site: 43.6± Acres
 - Area Disturbed: 12± Acres
 - Area to be seeded or paved: 7± Acres
 - Area to be vegetatively stabilized: 10.4± Acres
 - Total Cut: 54,450 Cu. yds
 - Total Fill: 50,350 Cu. yds
 - Offsite waste/borrow area location: ON-SITE
- 8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules.

- 1) Preferred -- Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At 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 (92 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 60 lbs per acre of Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchor.

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

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

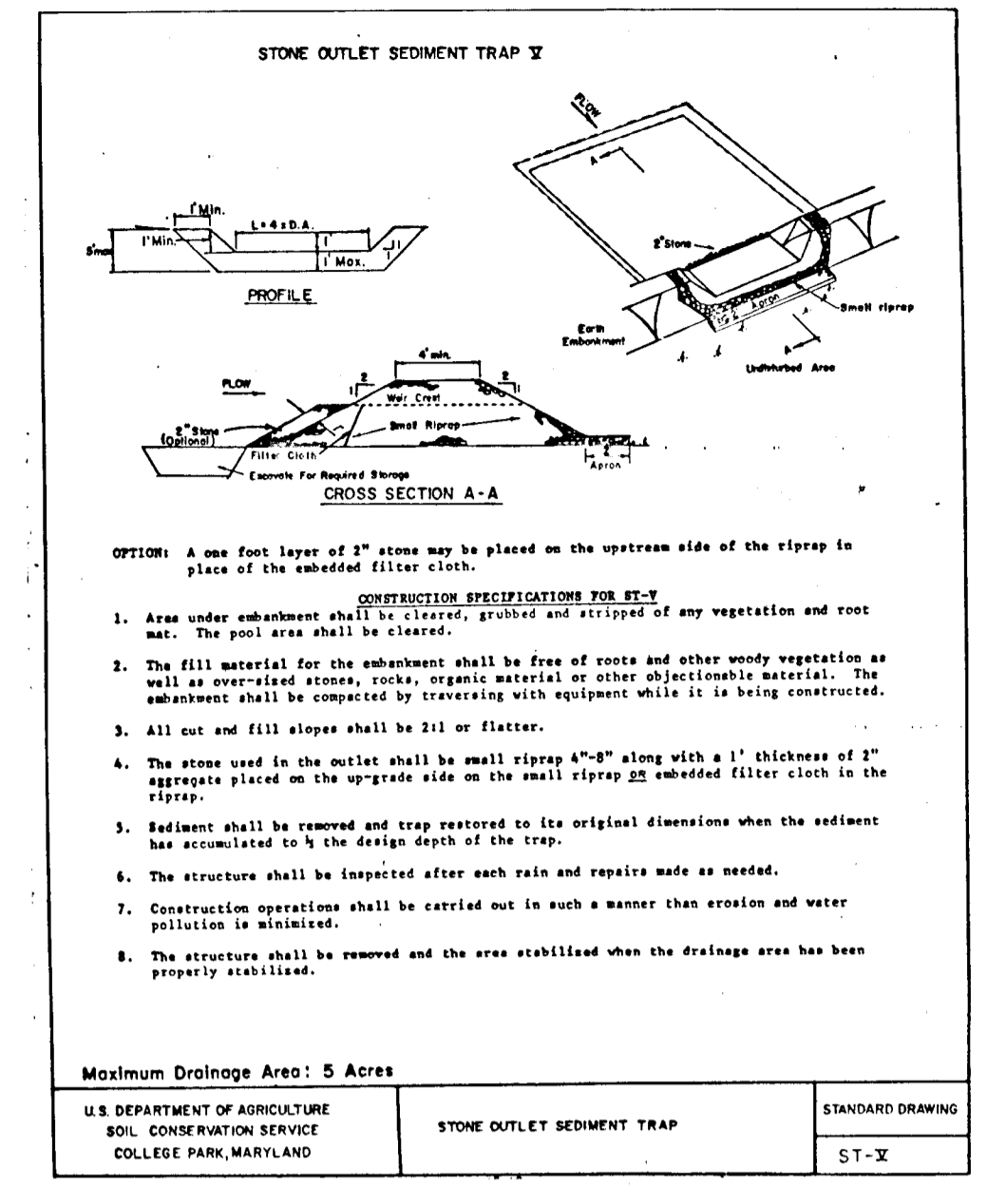
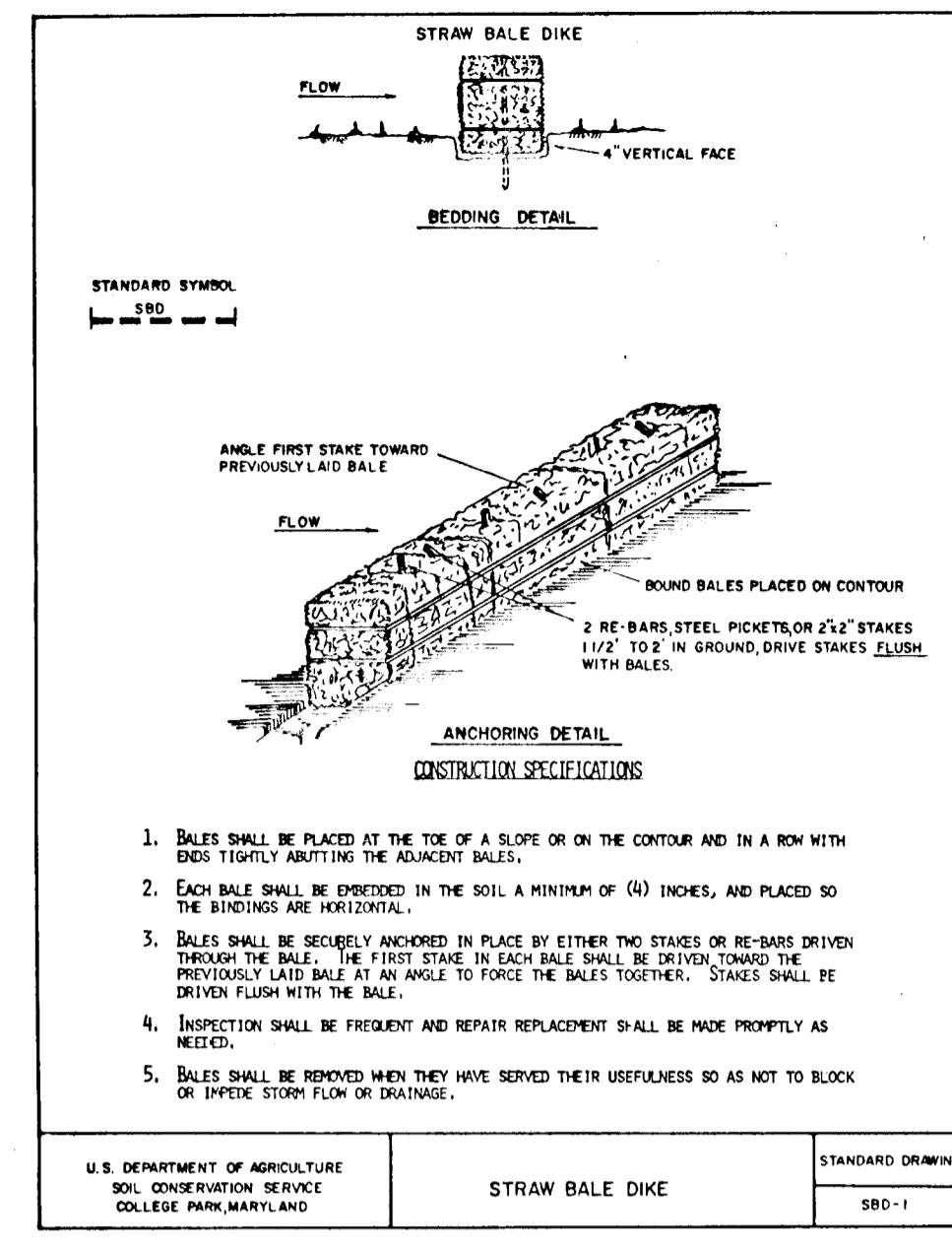
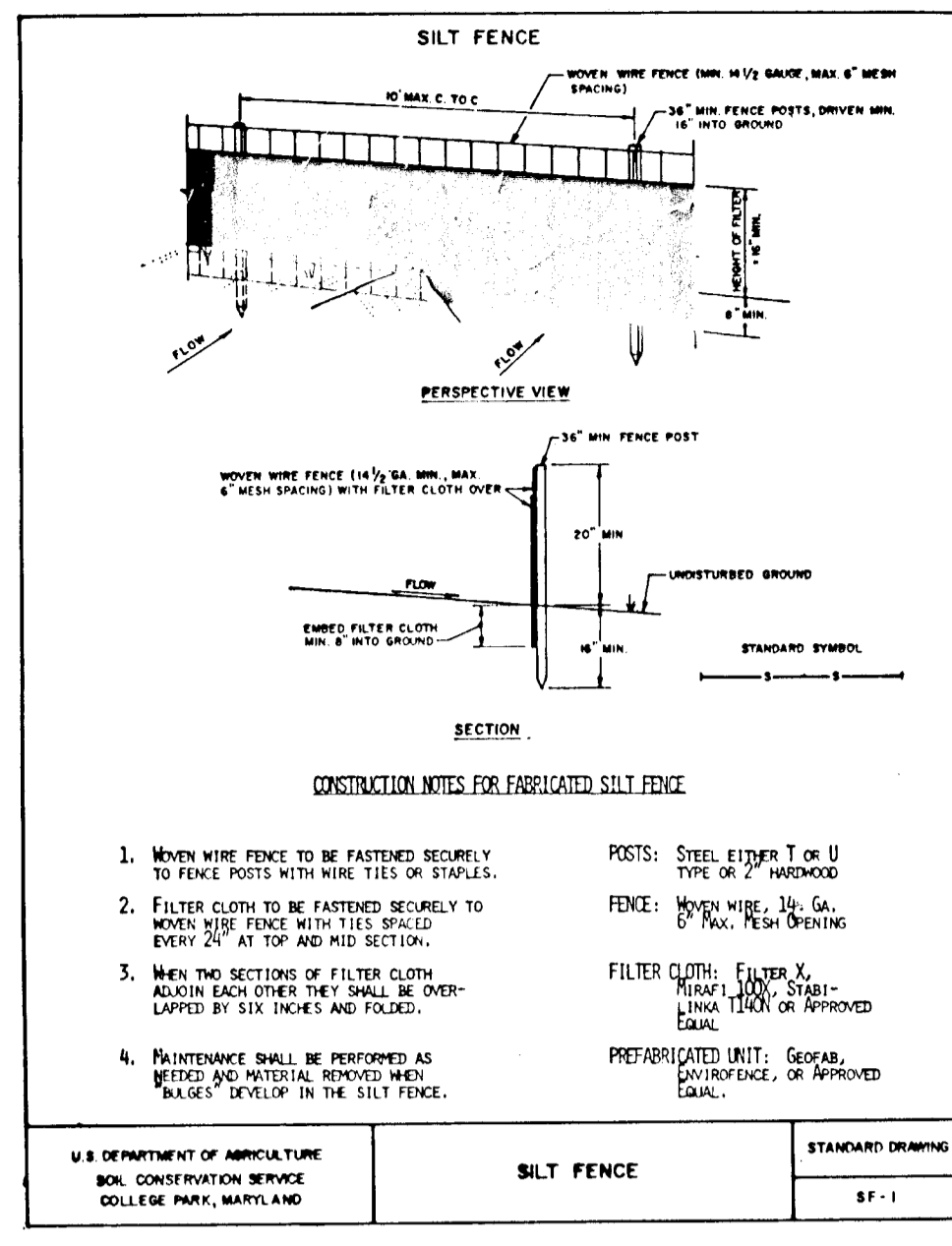
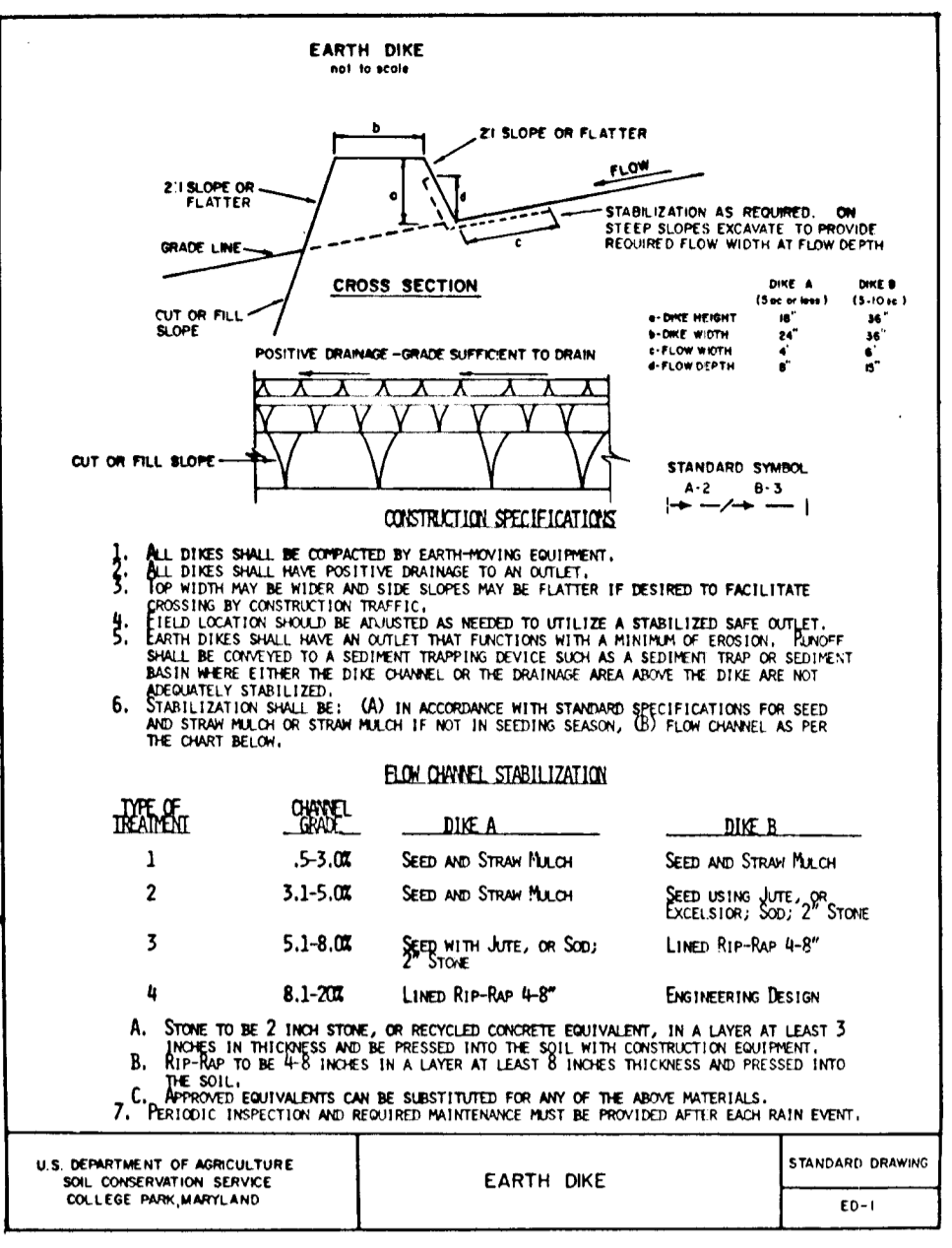
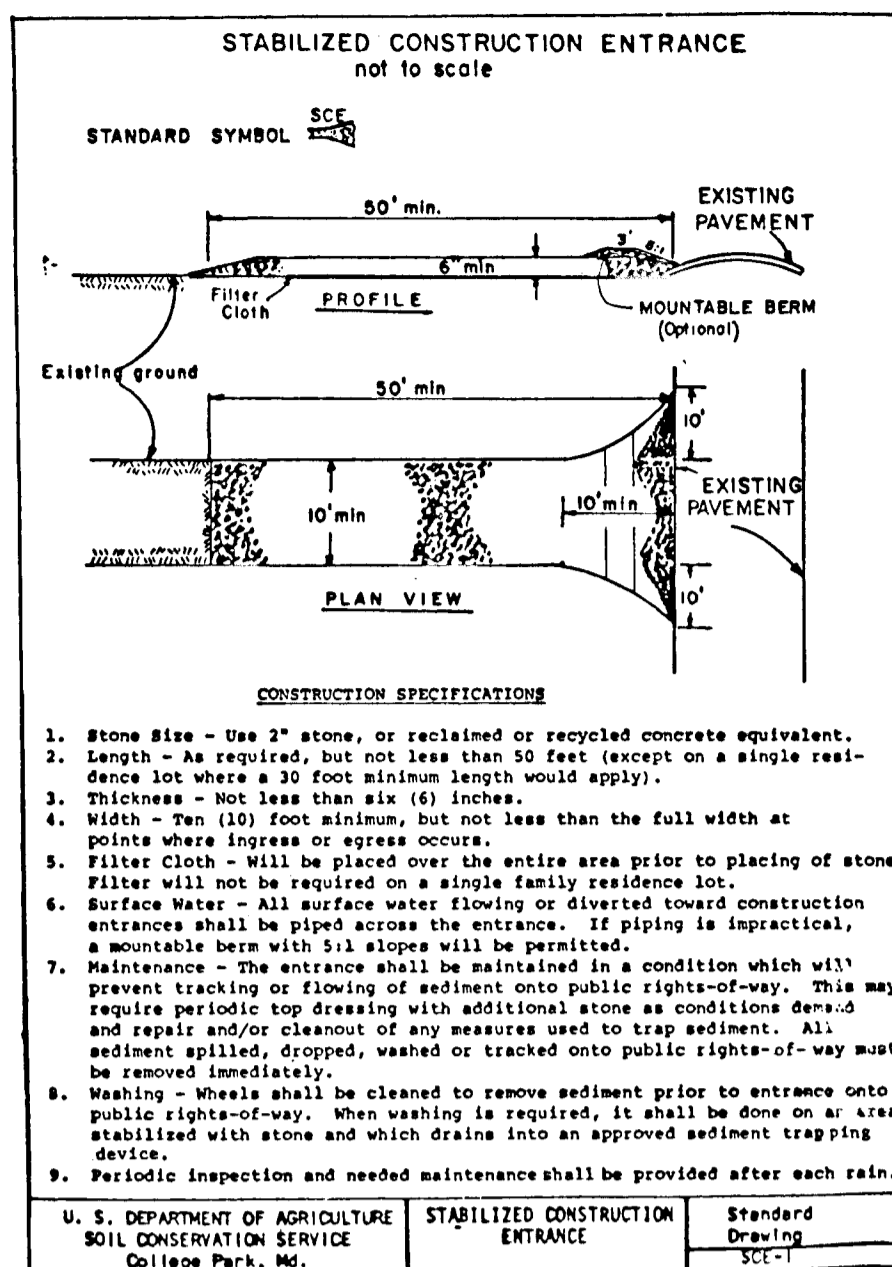
Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Apply 60 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 rye (3.2 lbs/1000 sq ft). For the period May 1 thru July 31, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

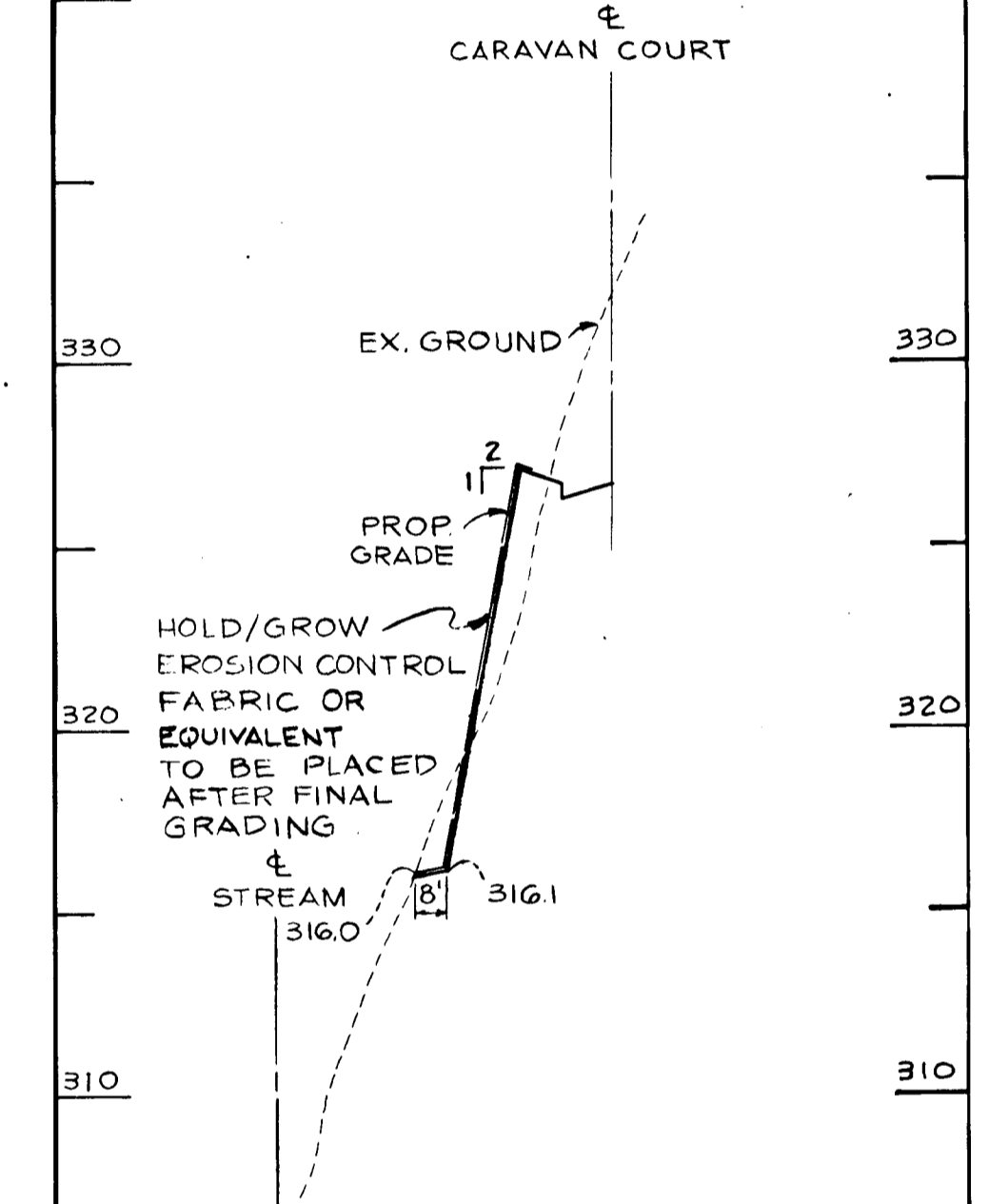
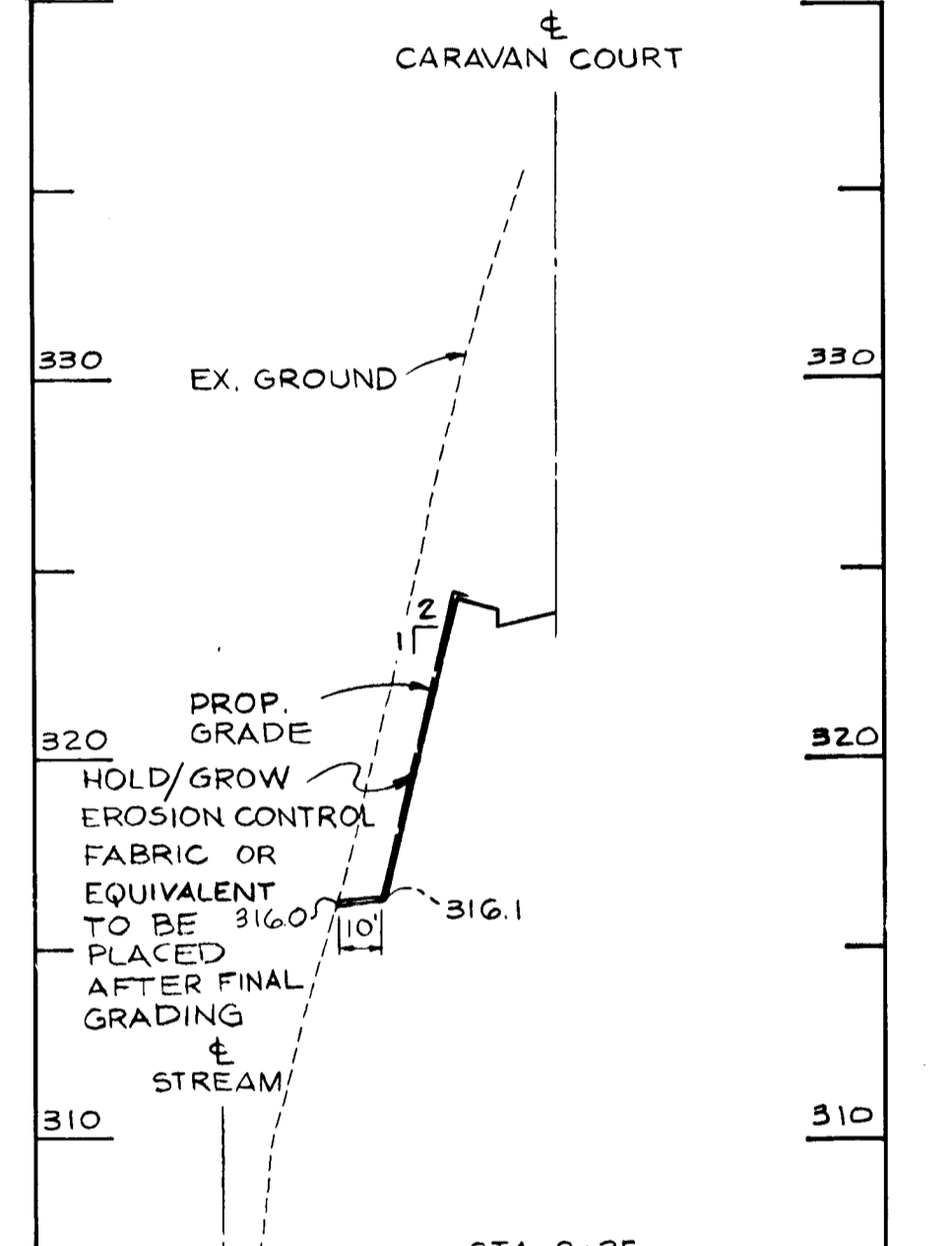
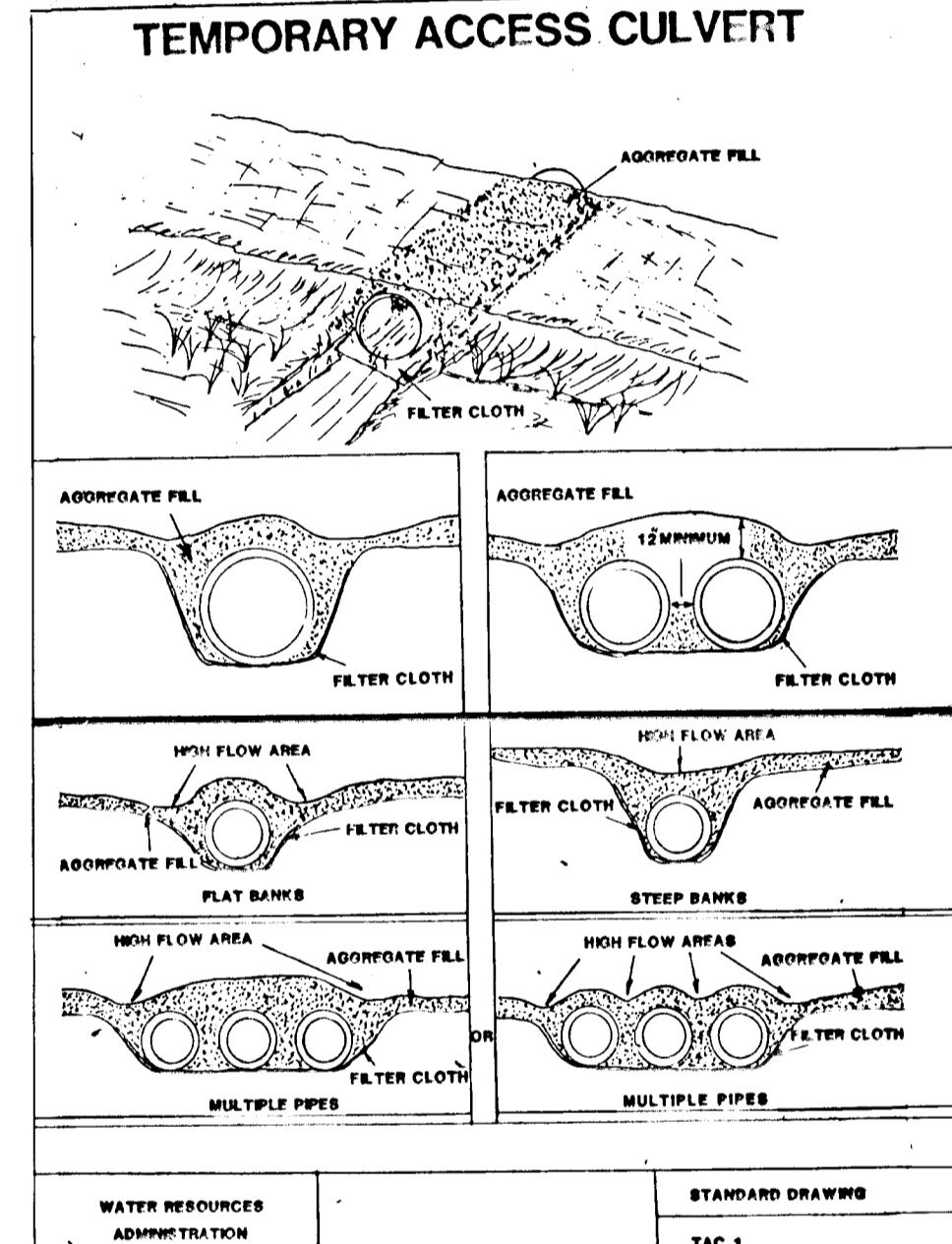
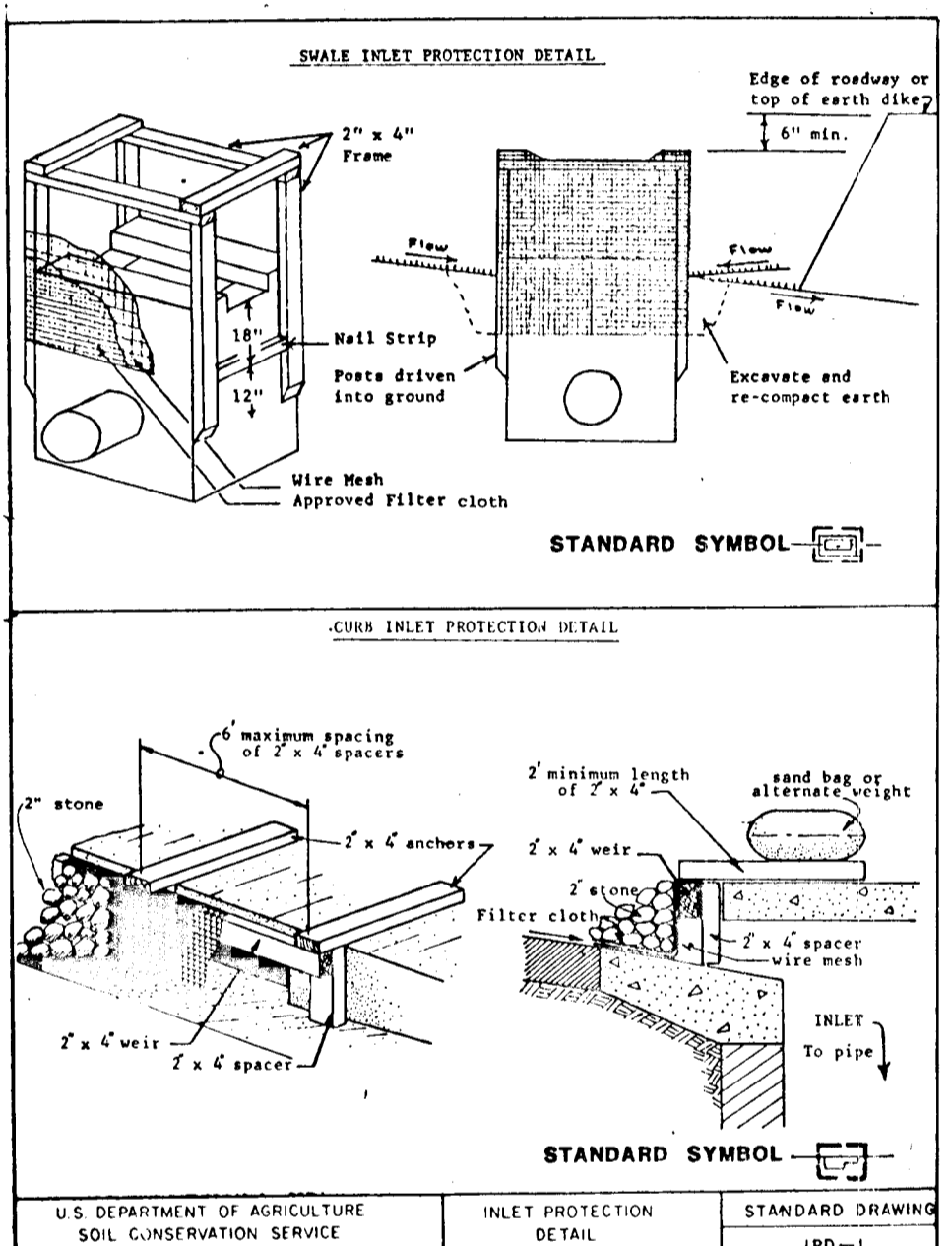
Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gal per acre (8 gal/1000 sq ft) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.



SEQUENCE OF CONSTRUCTION

1. Obtain grading permit.
2. Notify Howard County Bureau of Inspections and Permits (992-2437) at least 24 hours before starting any work.
3. Construct stabilized construction entrance.
4. Install perimeter controls.
5. Construct roadway culverts and associated structures (S-3, S-4, and S-5) or place temporary access culverts per detail, TAC-1.
6. Construct temporary sediment trap #1.
7. Construct stormwater management facility #1, excavation of pond shall be made only to elevation 325.0. Temporarily block 4" extended detention orifice. (Do not place 4" perforated PVC at this time).
8. Clear, grub, and begin grading the site.
9. Install water and sewer.
10. Construct remaining storm drain system.
11. Install inlet protection devices on specified inlets.
12. Construct curb and lay base course.
13. Upon stabilization of contributing drainage area to stormwater management facility #1, excavation of pond shall be made to finished bottom elevation 325.0. Install 4" perforated PVC extended detention drain and orifice.
14. During grading and after each rainfall, the contractor shall inspect and provide necessary maintenance on the sediment and erosion control measures shown hereon.
15. During grading, sediment shall be removed from the sediment traps when the cleanout elevation has been reached.
16. 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, swales, ditch perimeter slopes and all slopes greater than 3:1.
 - B. 14 days for all other disturbed areas.
17. With the approval of the Sediment Control Inspector, remove all sediment control structures.



OWNER/DEVELOPER

HOWARD RESEARCH & DEVELOPMENT LAND CO.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
(301) 992-6000

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
3/23/90
3/21/90
3-20-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
3/23/90
3/21/90
3-20-90

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

J. Helms
3-12-90
DATE

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

Robert J. Zehner
3-12-90
DATE

DEVELOPER'S CERTIFICATE

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

3-12-90
DATE

ENGINEERING CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT I WAS PRESENT AT A CONFORMANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

2-1-90
DATE

SEDIMENT CONTROL DETAIL SHEET

PATUXENT RUN
VHR 6/4

(OP&Z REF NOS-89-07, P-89-64, WP-89-07 & WP-89-155)
TAX MAP 35 PARCEL 112, 25 & 110
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

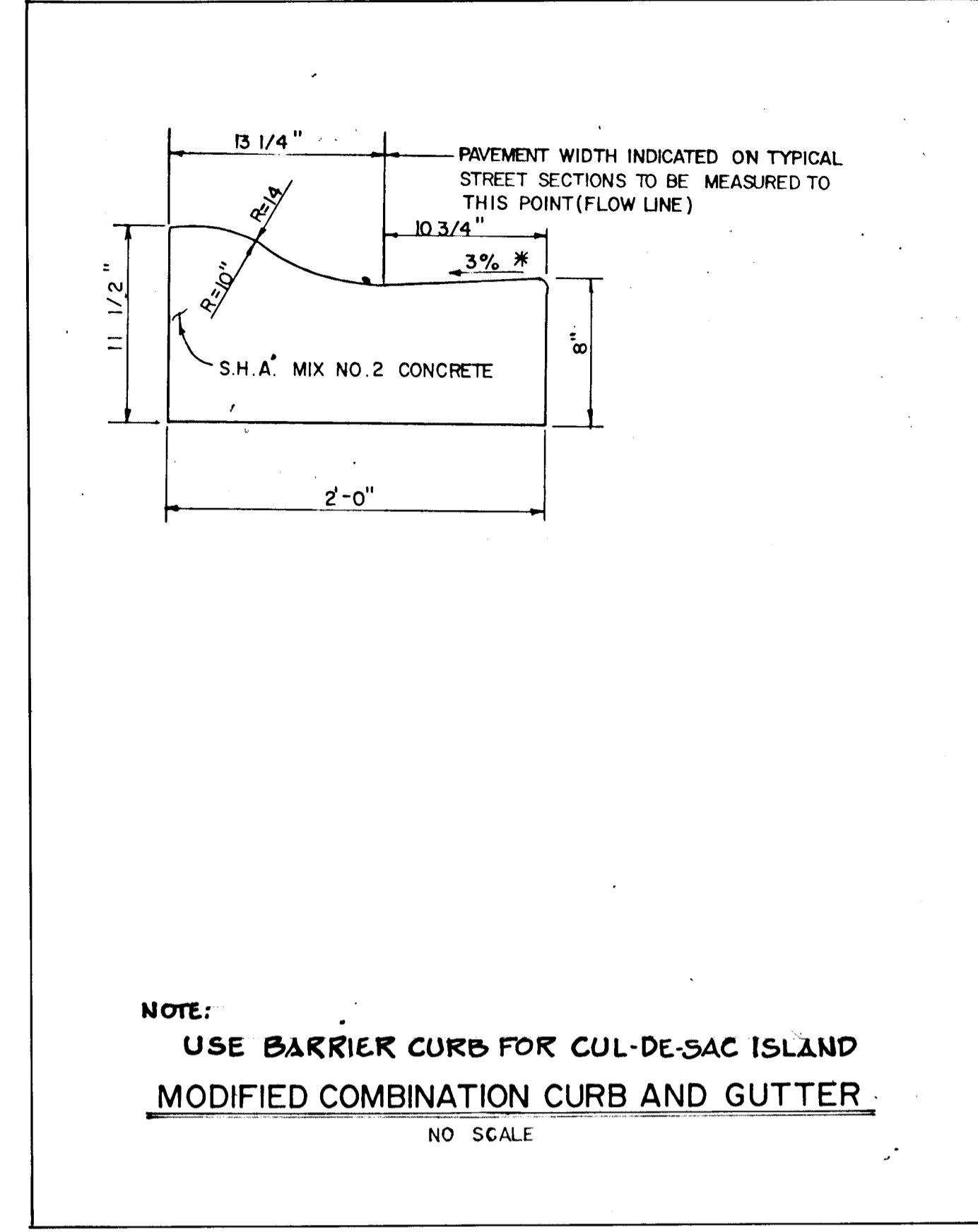
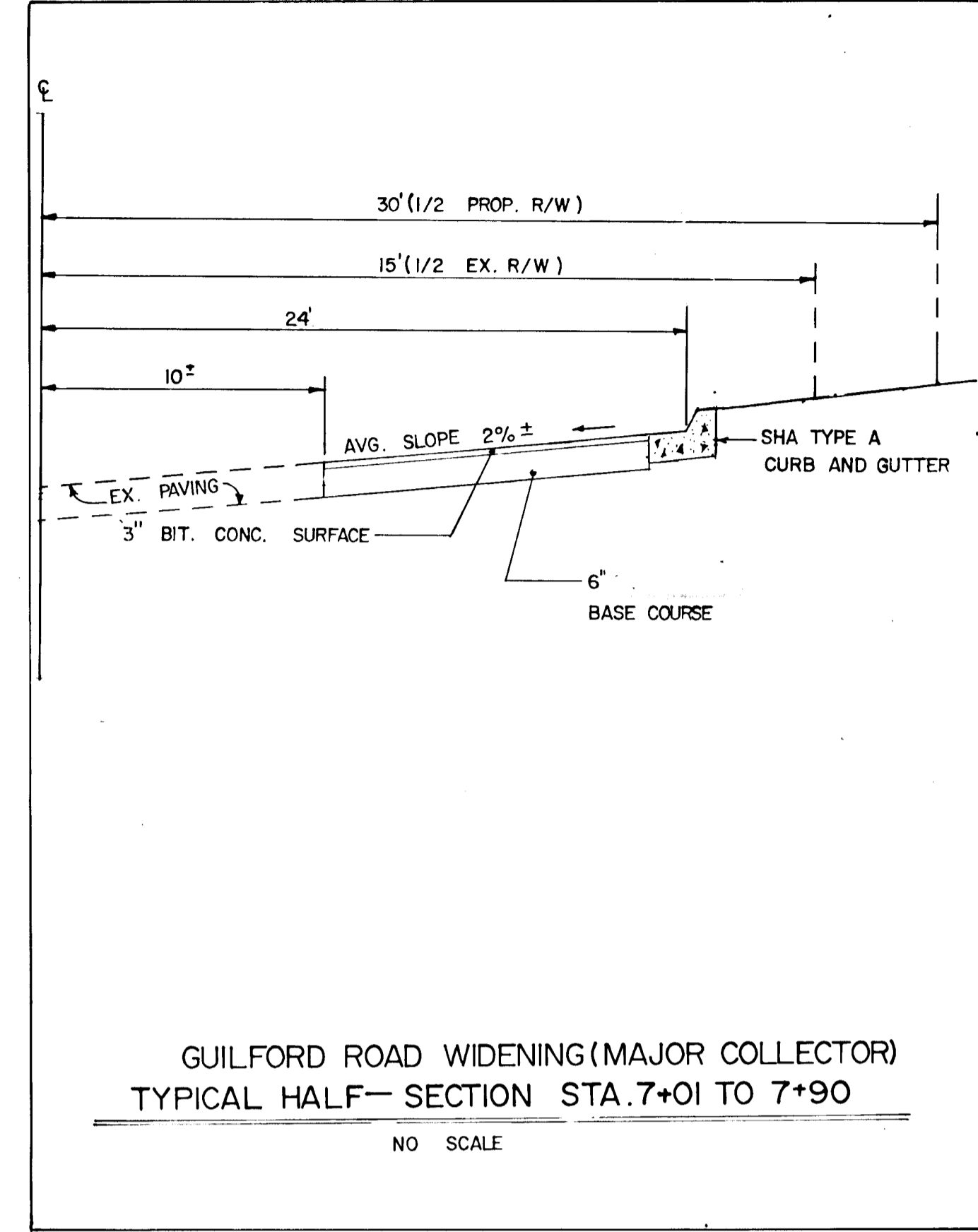
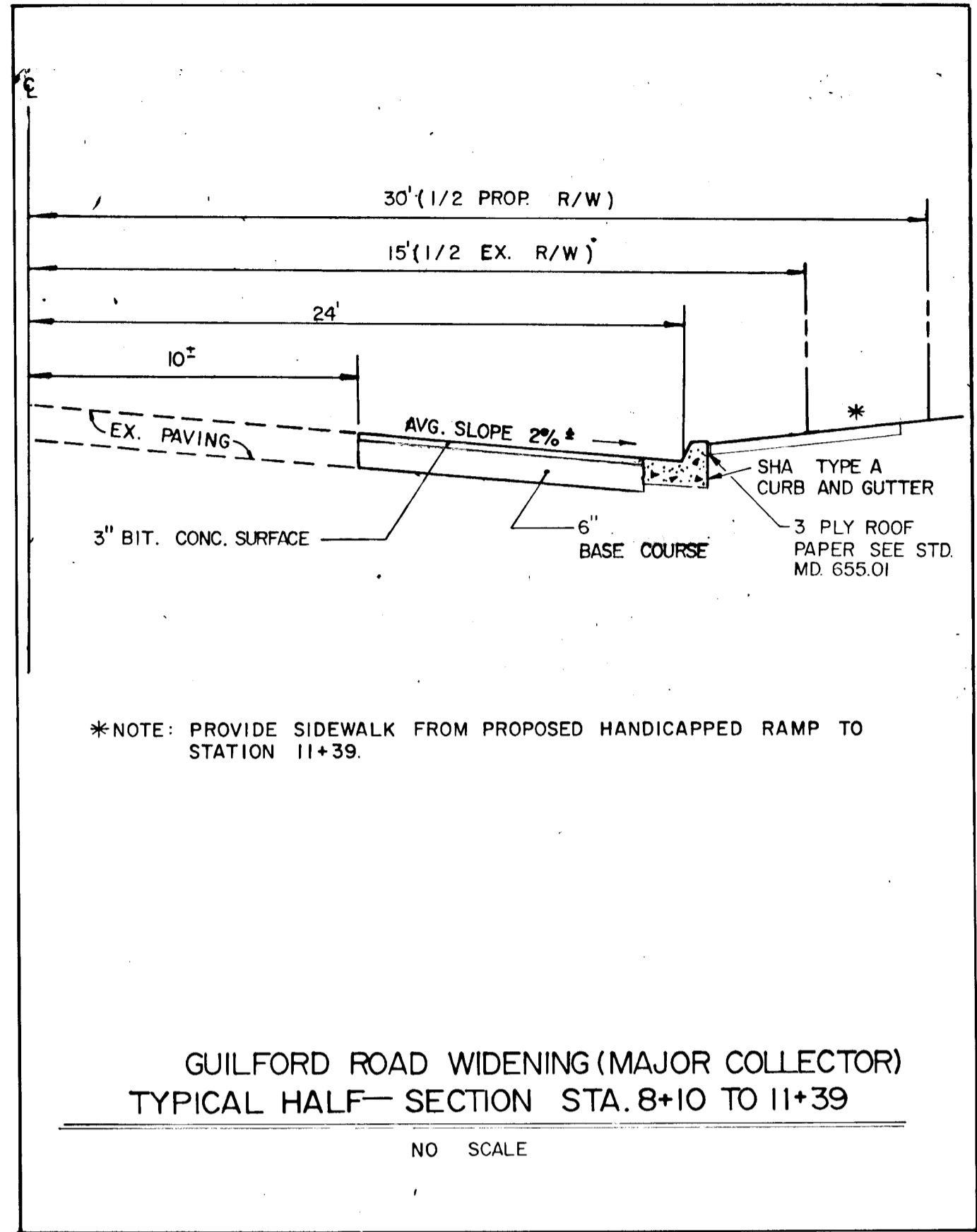
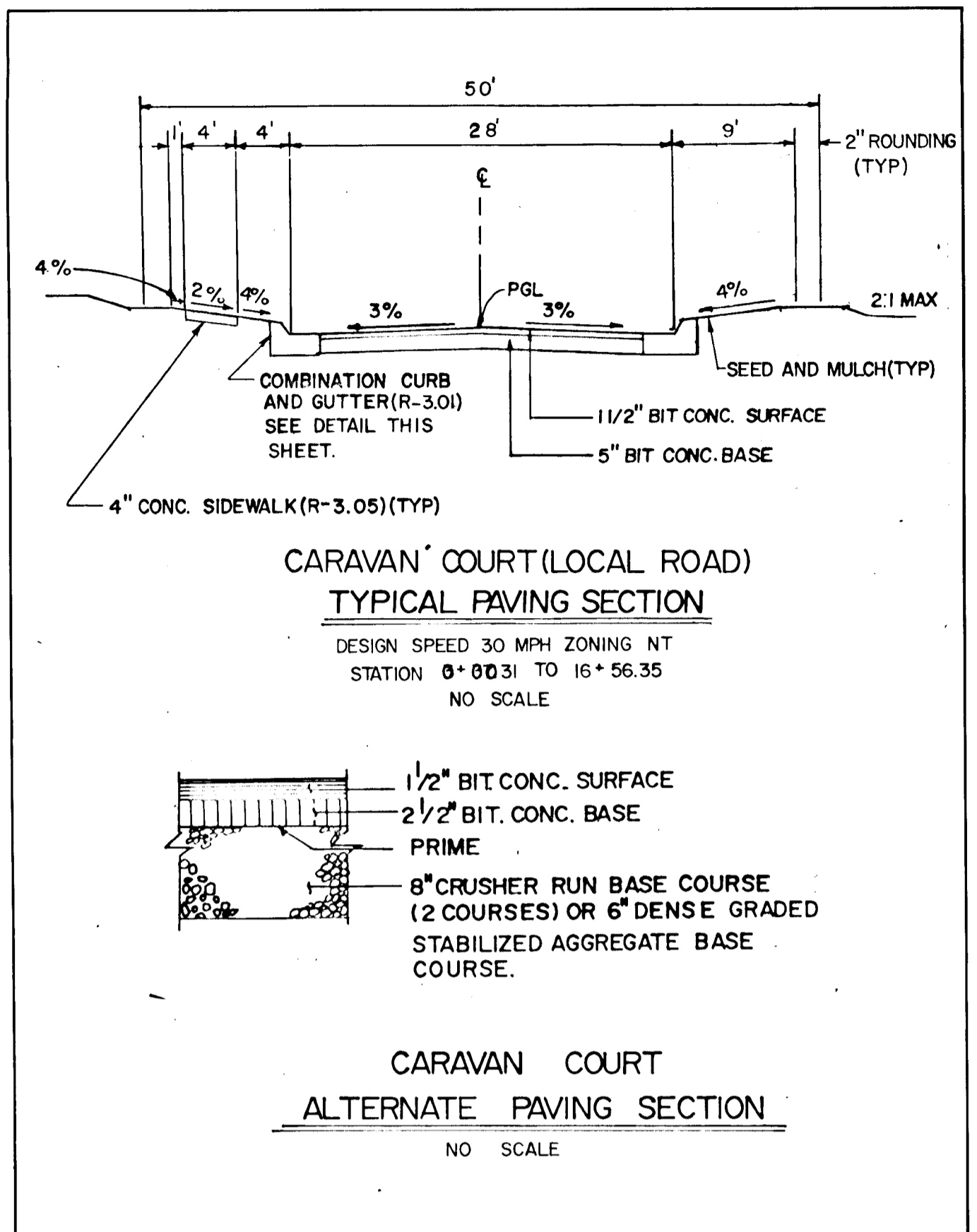
JOHN E. HARMS JR. AND ASSOCIATES INC.

CONSULTING ENGINEERS - PLANNERS - SURVEYORS

2 CENTRE PARK COLUMBIA, MARYLAND 21045 818 CENTRE PARK DRIVE SUITE 208 TELEPHONE (301) 740-5200

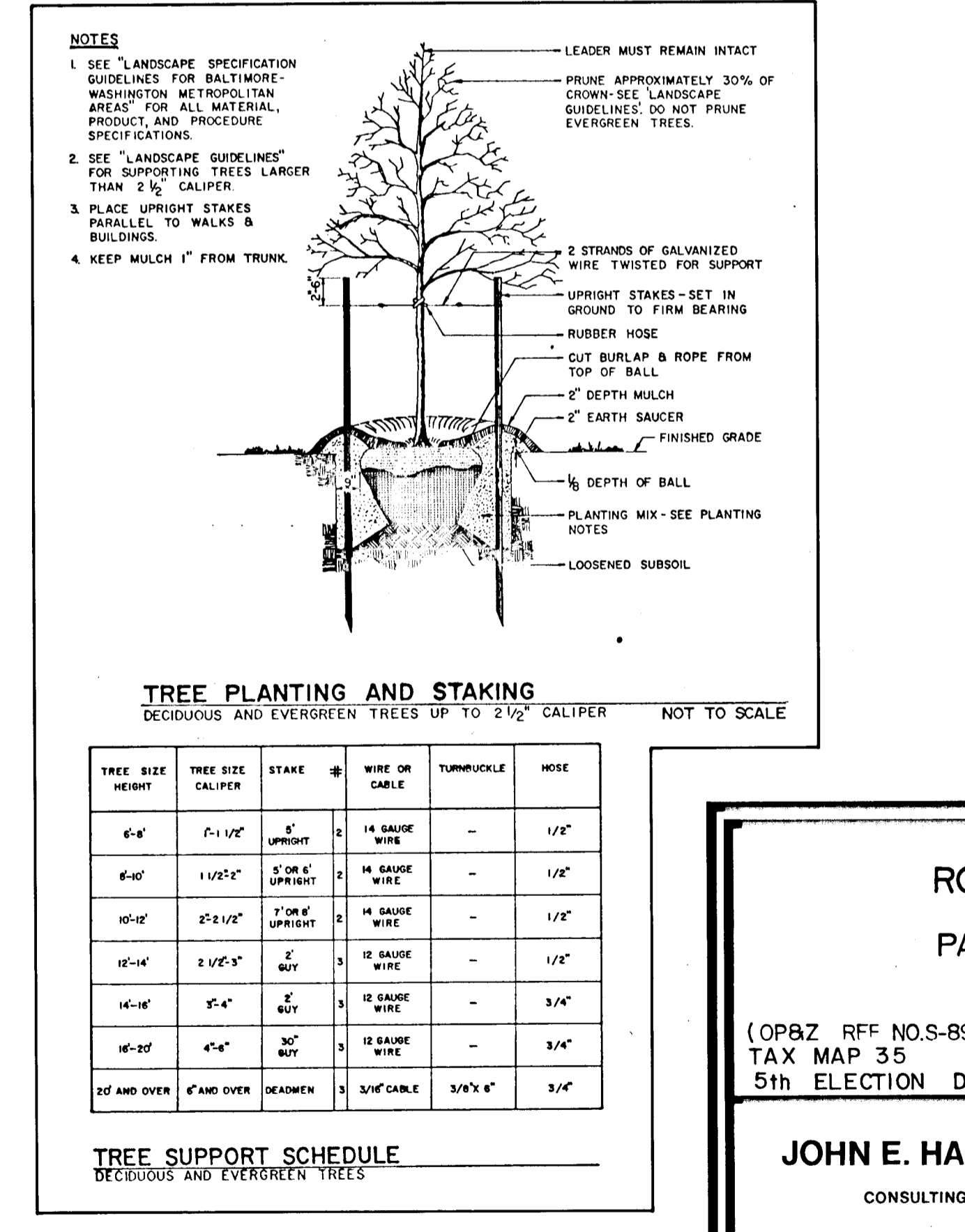
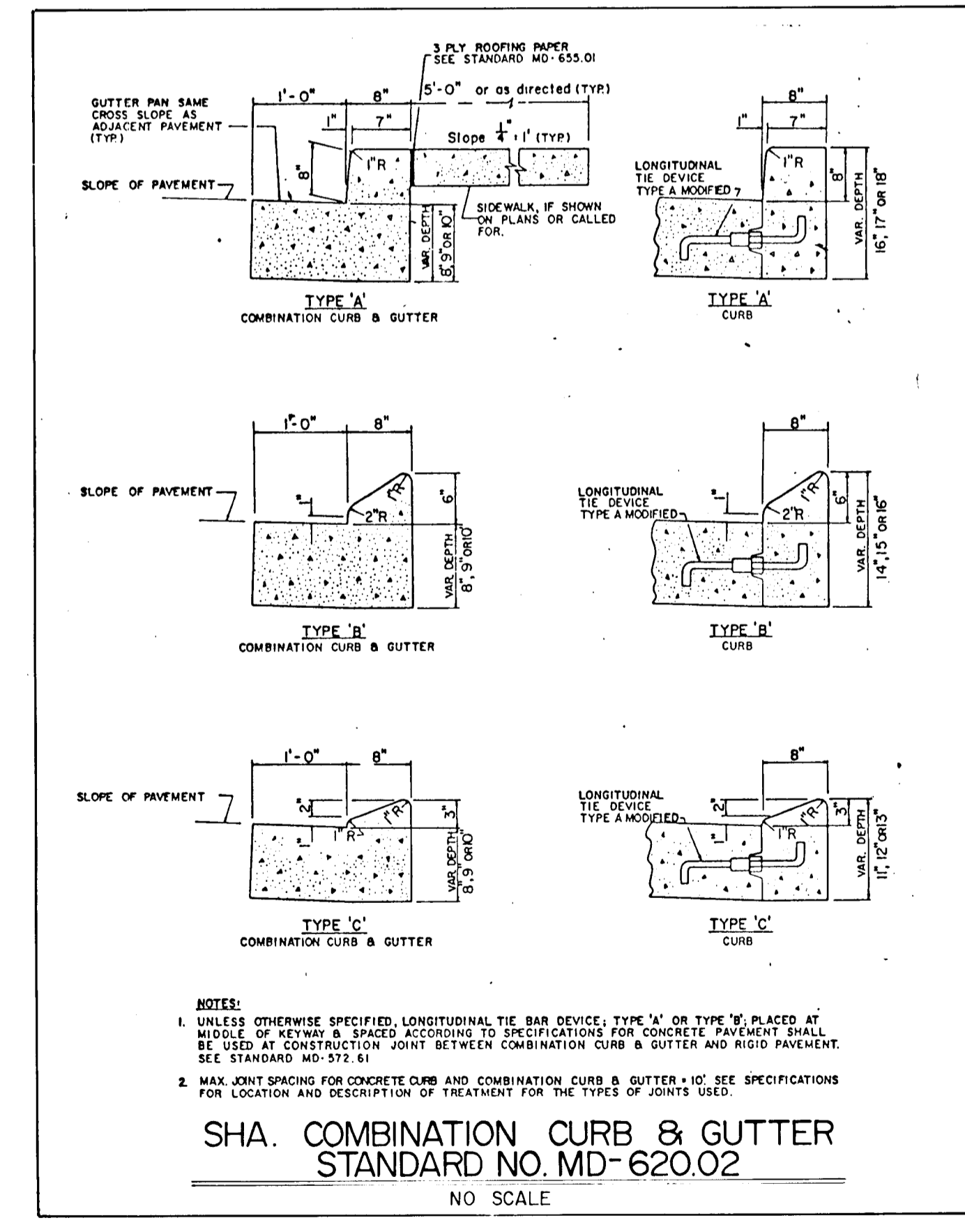
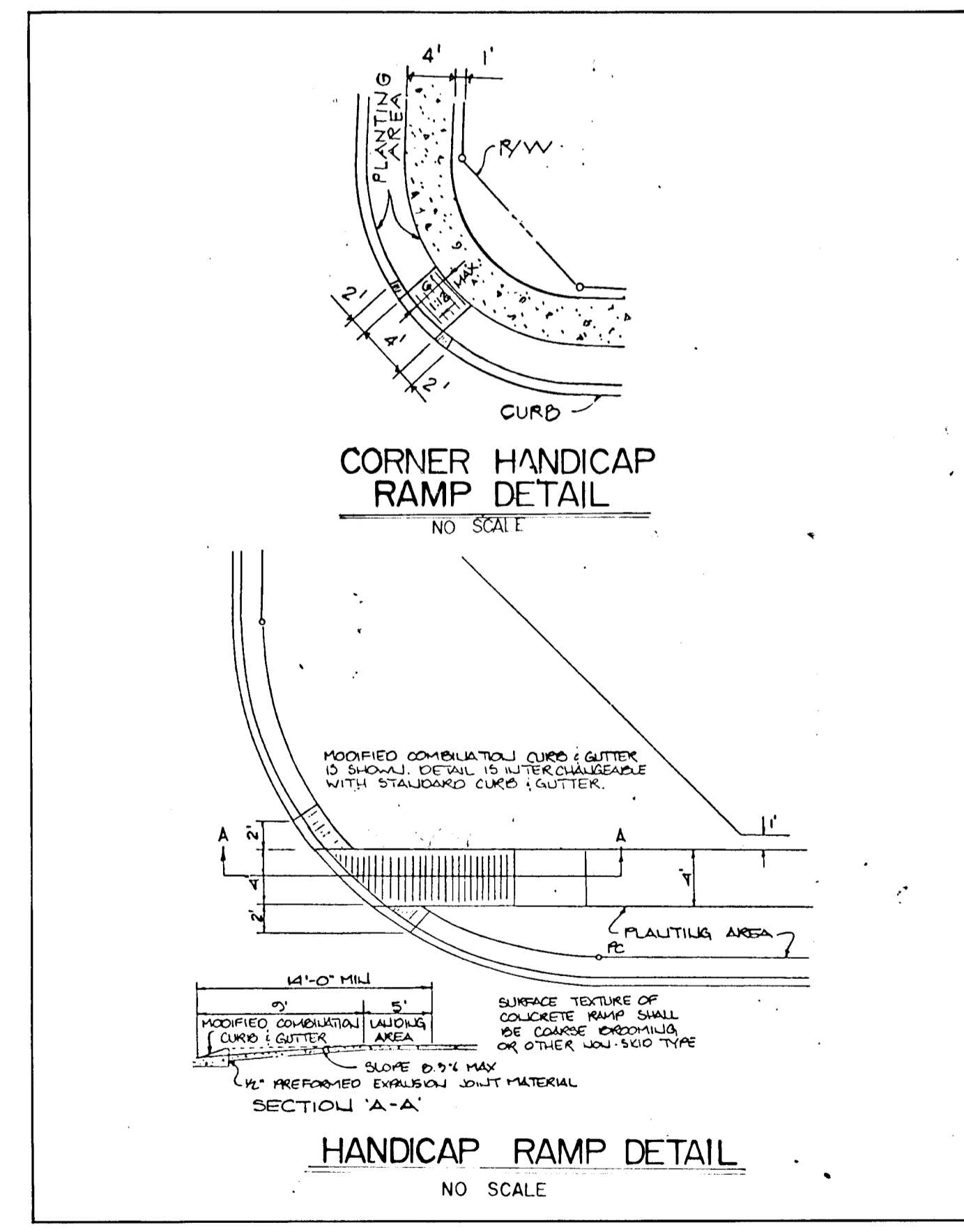
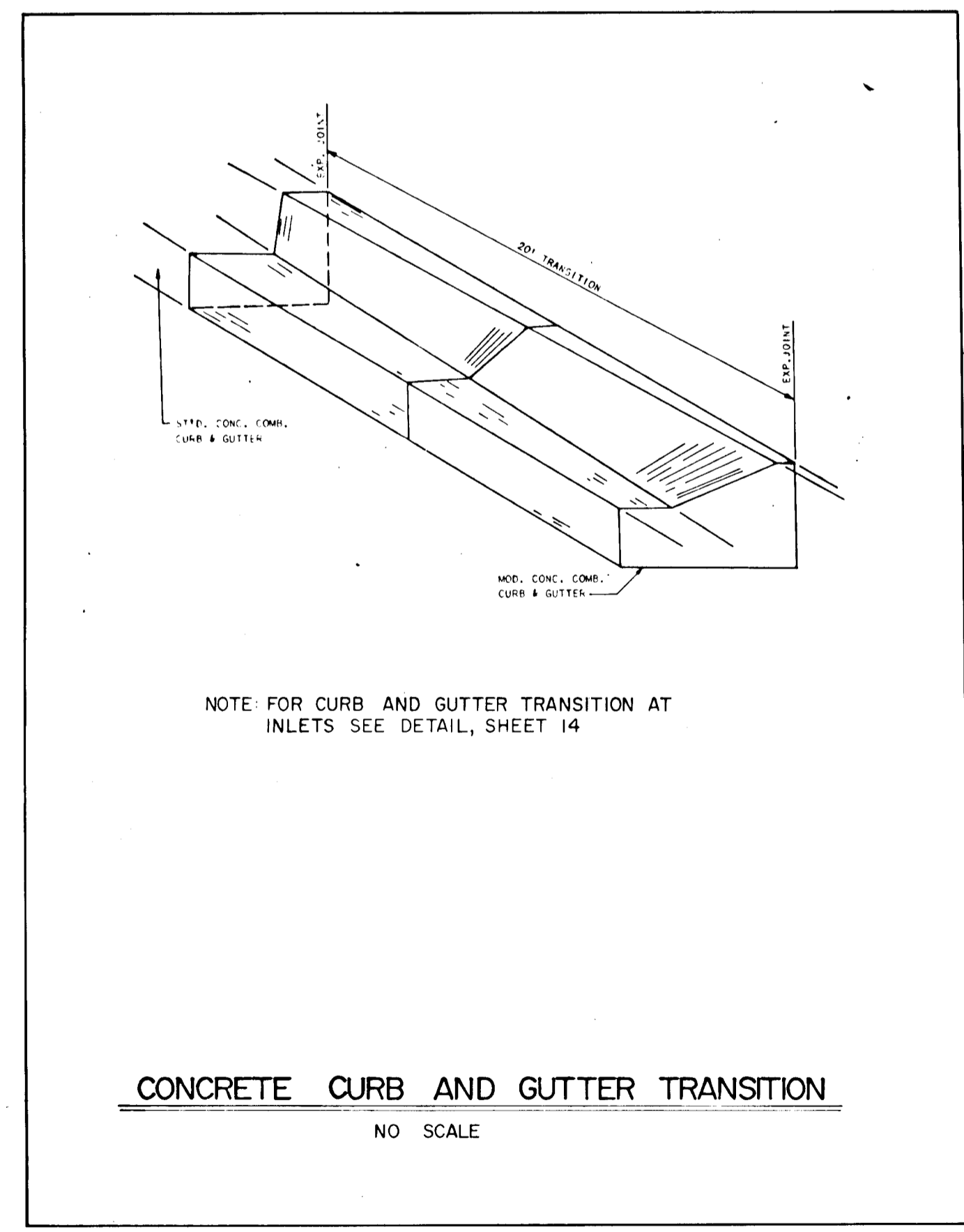
NO.	REVISION	BY	DATE
1	SUB DIVISION RENAMED	JRM	1/24/90

DESIGNED BY: T.A.B.
DRAWN BY: C.A.G.
CHECKED BY: R.H.V.
DATE: 9-29-89
SCALE: AS SHOWN
W.O. NO. 44-38-010C
12 SHEET OF 14



STREET LIGHT SCHEDULE

- 200-WATT HIGH PRESSURE SODIUM VAPOR LAMP PENDANT MOUNTED FIXTURES ON A 25' GALVANIZED POLE LOCATED NO LESS THAN 6' FROM THE EDGE OF PAVEMENT.
 - LOCATED AT EAST CORNER OF CARAVAN COURT AND GUILFORD ROAD INTERSECTION.
- 175-WATT HIGH PRESSURE SODIUM VAPOR LAMP POST TOP FIXTURES ON A 14' GRAY FIBERGLASS POLE LOCATED 2'-10" FROM BACK OF CURBS.
 - LOCATED ON NORTH SIDE OF CARAVAN COURT AT APPROXIMATE CENTERLINE STATION 4+50.
 - LOCATED ON NORTHEAST SIDE OF CARAVAN COURT AT APPROXIMATE CENTERLINE STATION 9+60.
 - LOCATED ON SOUTH SIDE OF CARAVAN COURT AT APPROXIMATE CENTERLINE STATION 13+00.
 - LOCATED ON NORTHWEST SIDE OF CUL-DE-SAC ON CARAVAN COURT.



ROADWAY DETAILS
PATUXENT RUN (VHR 6/4)
(OP&Z REF. NOS. 89-07, P-89-64, WP-89-07 & WP-89-155)
TAX MAP 35 PARCEL 112, 25 & 110
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

JOHN E. HARMS JR. AND ASSOCIATES INC.
CONSULTING ENGINEERS - PLANNERS - SURVEYORS
2 CENTRE PARK COLUMBIA, MARYLAND 21045 8818 CENTRE PARK DRIVE SUITE 208 TELEPHONE (301) 740-5200

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 4/15/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 3/23/90
CHIEF, LAND DEVELOPMENT DIVISION
[Signature] 3/21/90
CHIEF, BUREAU OF HIGHWAYS
[Signature] 3-26-90
CHIEF, BUREAU OF ENGINEERING

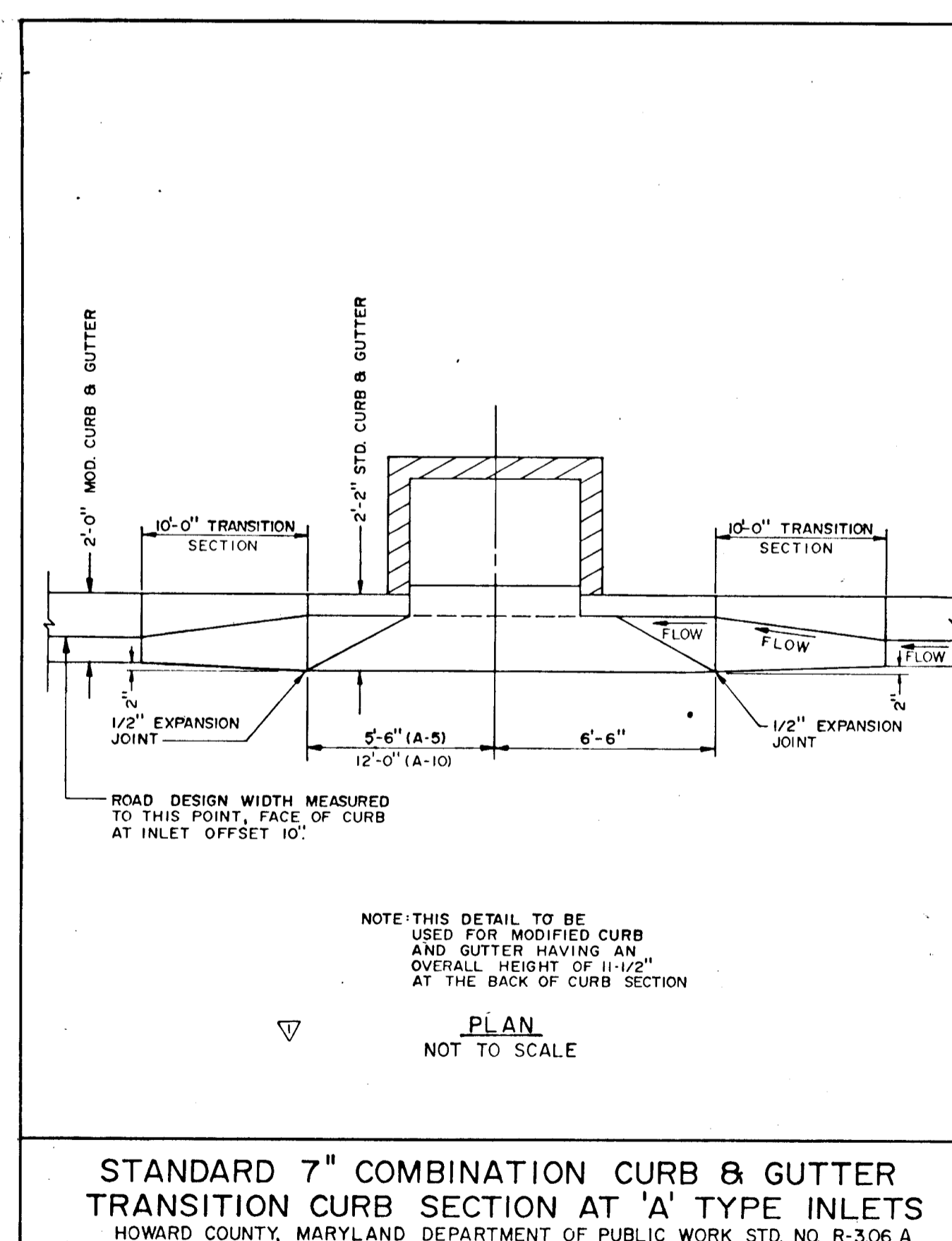
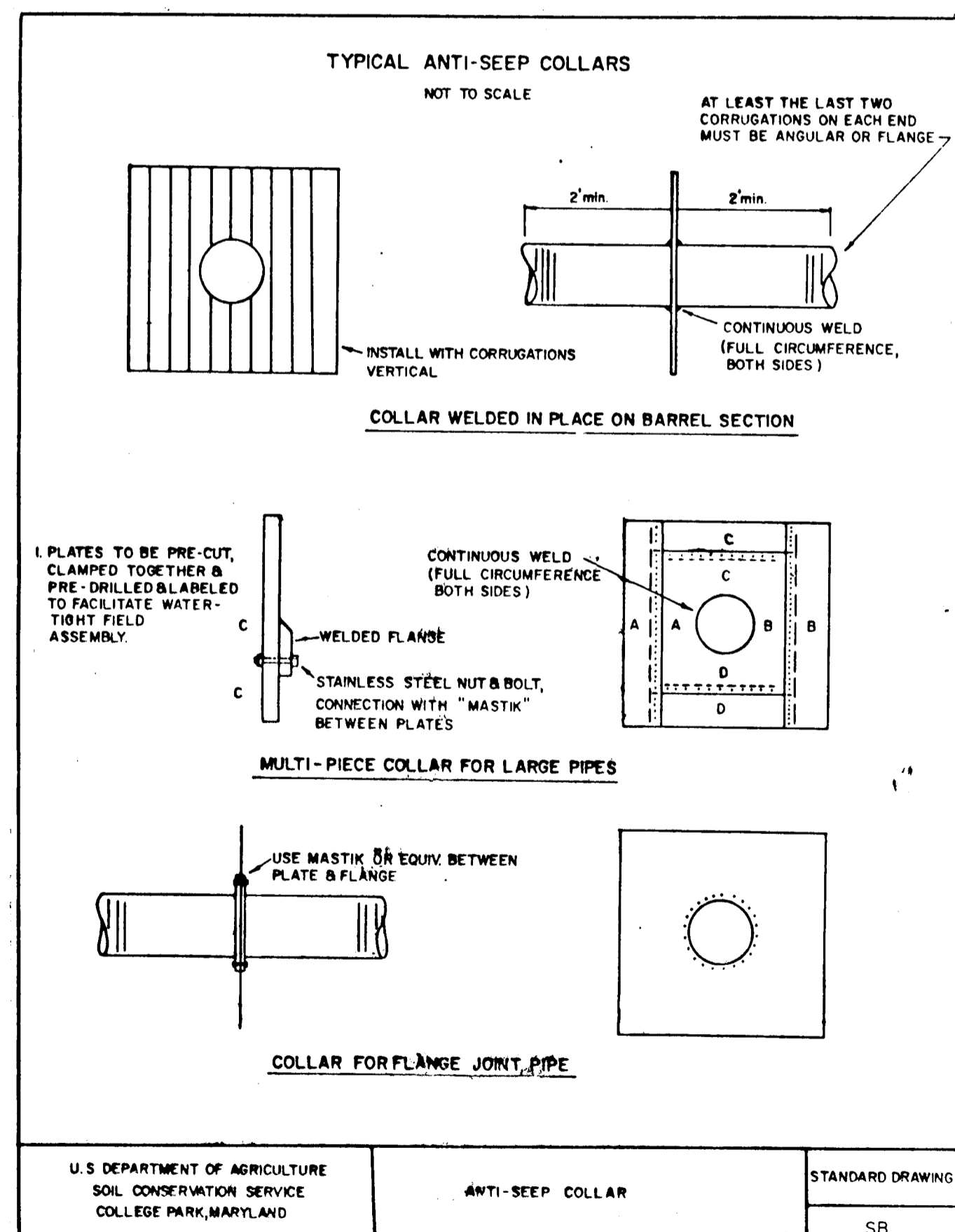
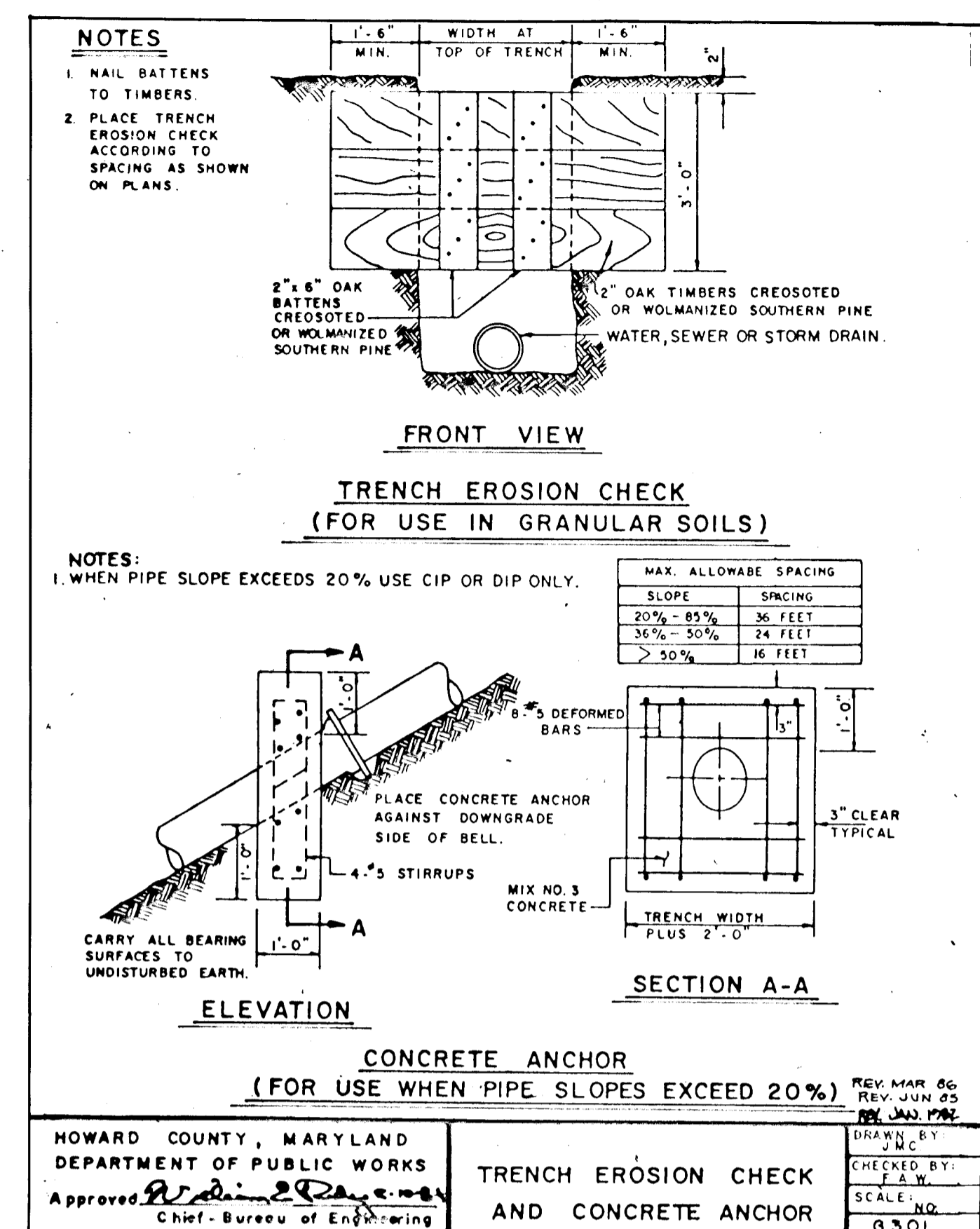
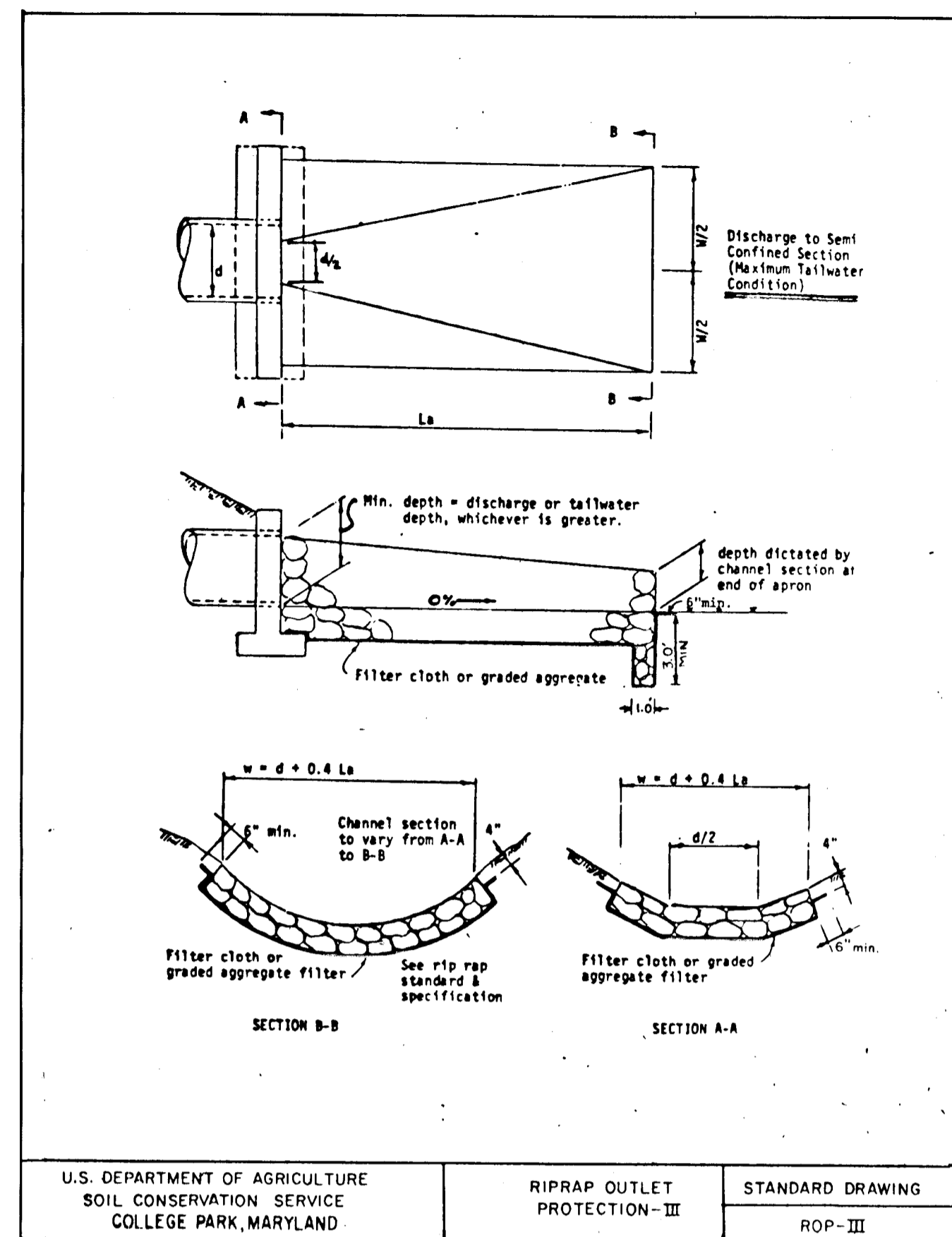
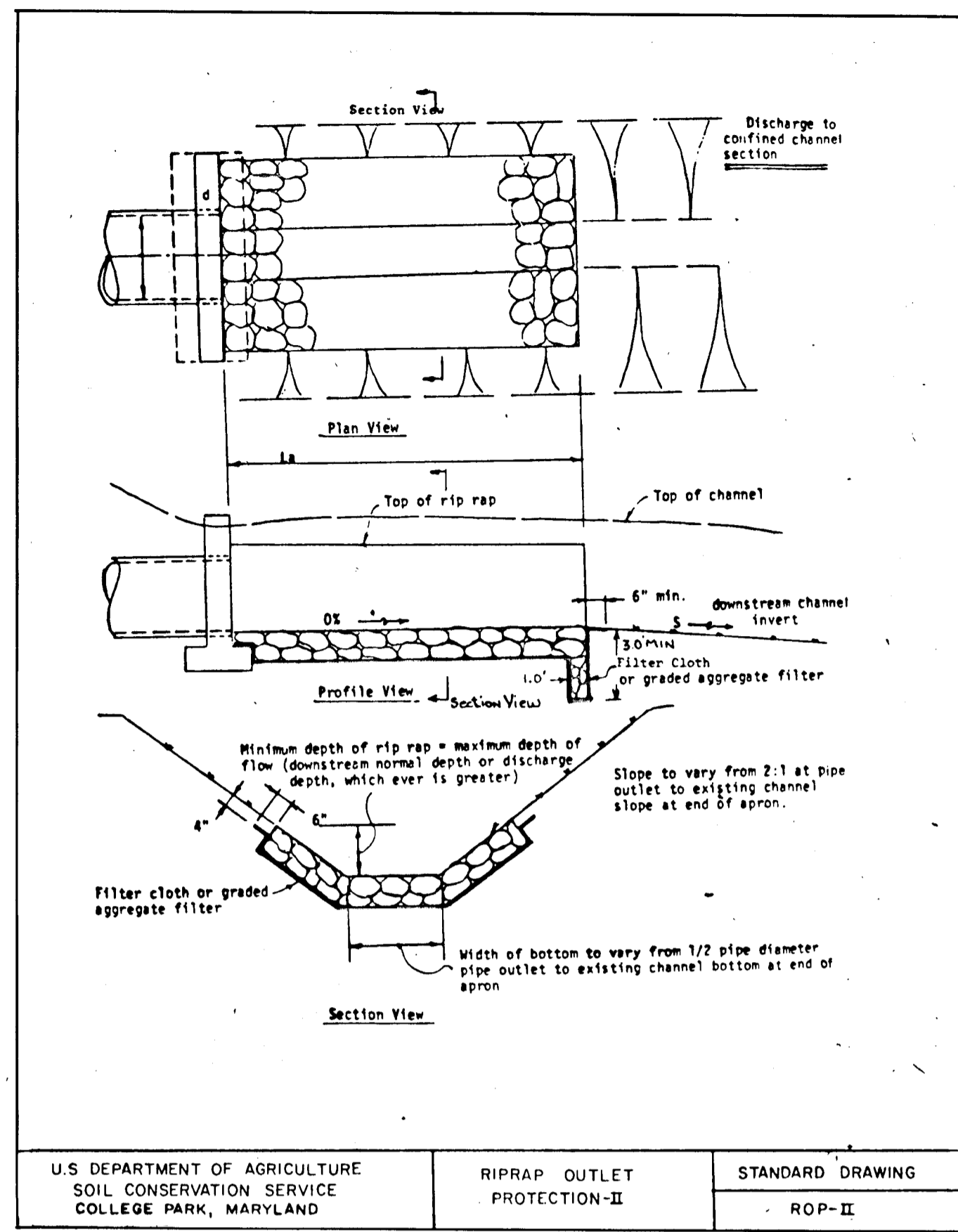
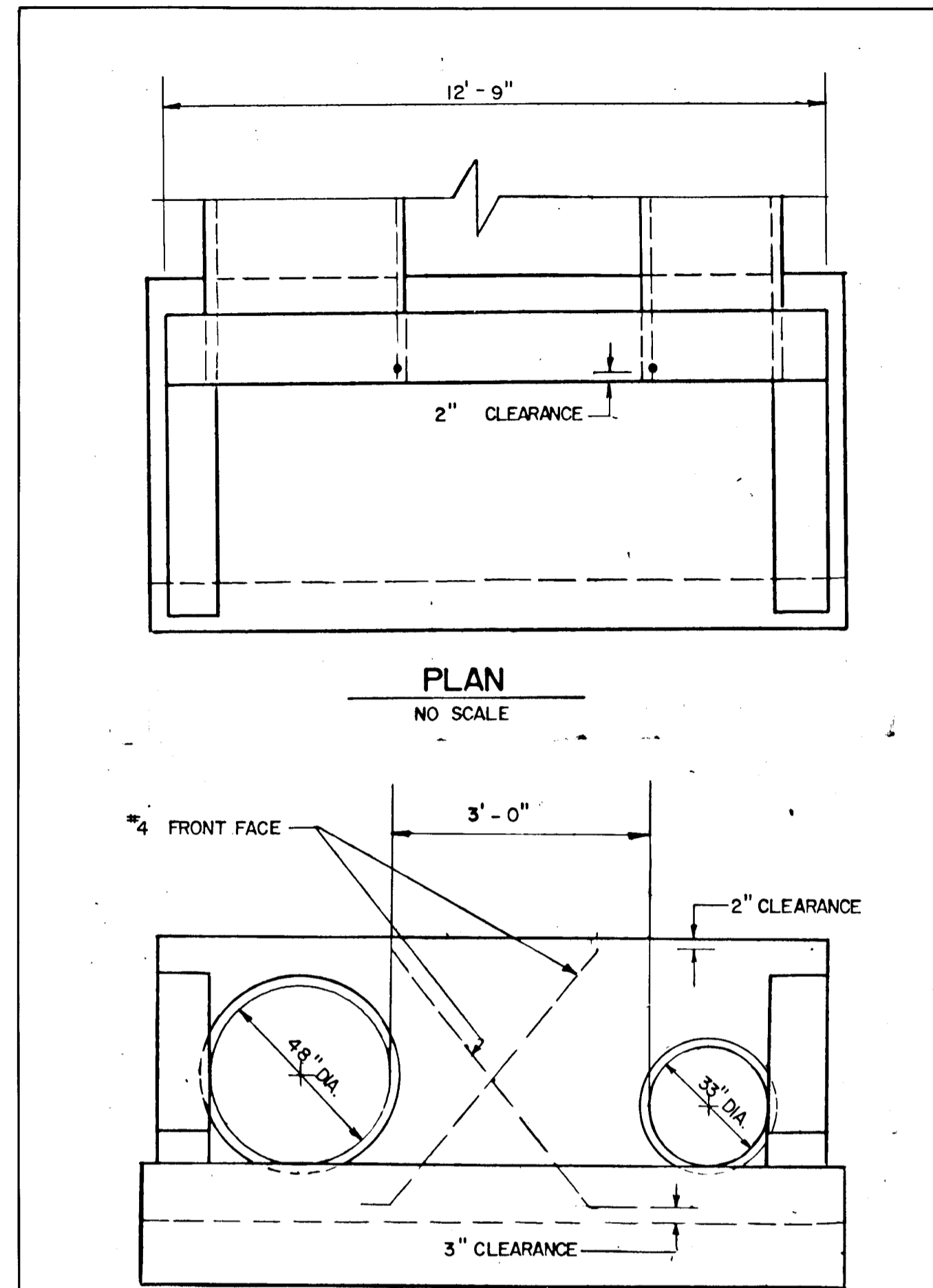
OWNER / DEVELOPER
HOWARD RESEARCH & DEVELOPMENT LAND COMPANY
10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044 (301) 992-6000

NO.	REVISION	BY	DATE
1	SUB DIVISION RENAMED	JRM	1/24/88
2	REVISED SHA PAVEMENT DETAIL	HJM	5/21/90

DESIGNED BY: T.A.B.
DRAWN BY: J.R.M.
CHECKED BY: R.H.V.
DATE: 9-29-89
SCALE: NO SCALE
W.O. NO. 44-88-010C

13 SHEET OF 14

1540



STORM DRAIN DETAILS
PATUXENT RUN
(VHR 6/4)

(OP&Z REF NOS-89-07, P-89-64 WP-89-07 & WP-89-155)
TAX MAP 35 PARCEL 112, 25 & 110
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

JOHN E. HARMS JR. AND ASSOCIATES INC.
CONSULTING ENGINEERS - PLANNERS - SURVEYORS

2 CENTRE PARK COLUMBIA, MARYLAND 21045 8818 CENTRE PARK DRIVE SUITE 208 COLUMBIA, MARYLAND 21045 TELEPHONE (301) 740-5200

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
CHIEF, LAND DEVELOPMENT DIVISION
DATE: 3/23/90

[Signature]
CHIEF, BUREAU OF HIGHWAYS
DATE: 3/21/90

[Signature]
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
DATE: 4/21/90

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature]
CHIEF, LAND DEVELOPMENT DIVISION
DATE: 3/23/90

[Signature]
CHIEF, BUREAU OF HIGHWAYS
DATE: 3/21/90

[Signature]
CHIEF, BUREAU OF ENGINEERING
DATE: 3-24-90

OWNER / DEVELOPER
HOWARD RESEARCH & DEVELOPMENT
LAND COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

NO.	REVISION	BY	DATE
1	INLET TRANSITION DETAIL	DGH	1/23/90
2	SUBDIVISION RENAMED	DGH	1/24/90

DESIGNED BY: J.A.B.
DRAWN BY: J.R.M.
CHECKED BY: R.H.V.
DATE: 9-29-89
SCALE: NO SCALE
W.O. NO. 44-88-010C

14 SHEET OF 14