

VILLAGE OF HICKORY RIDGE

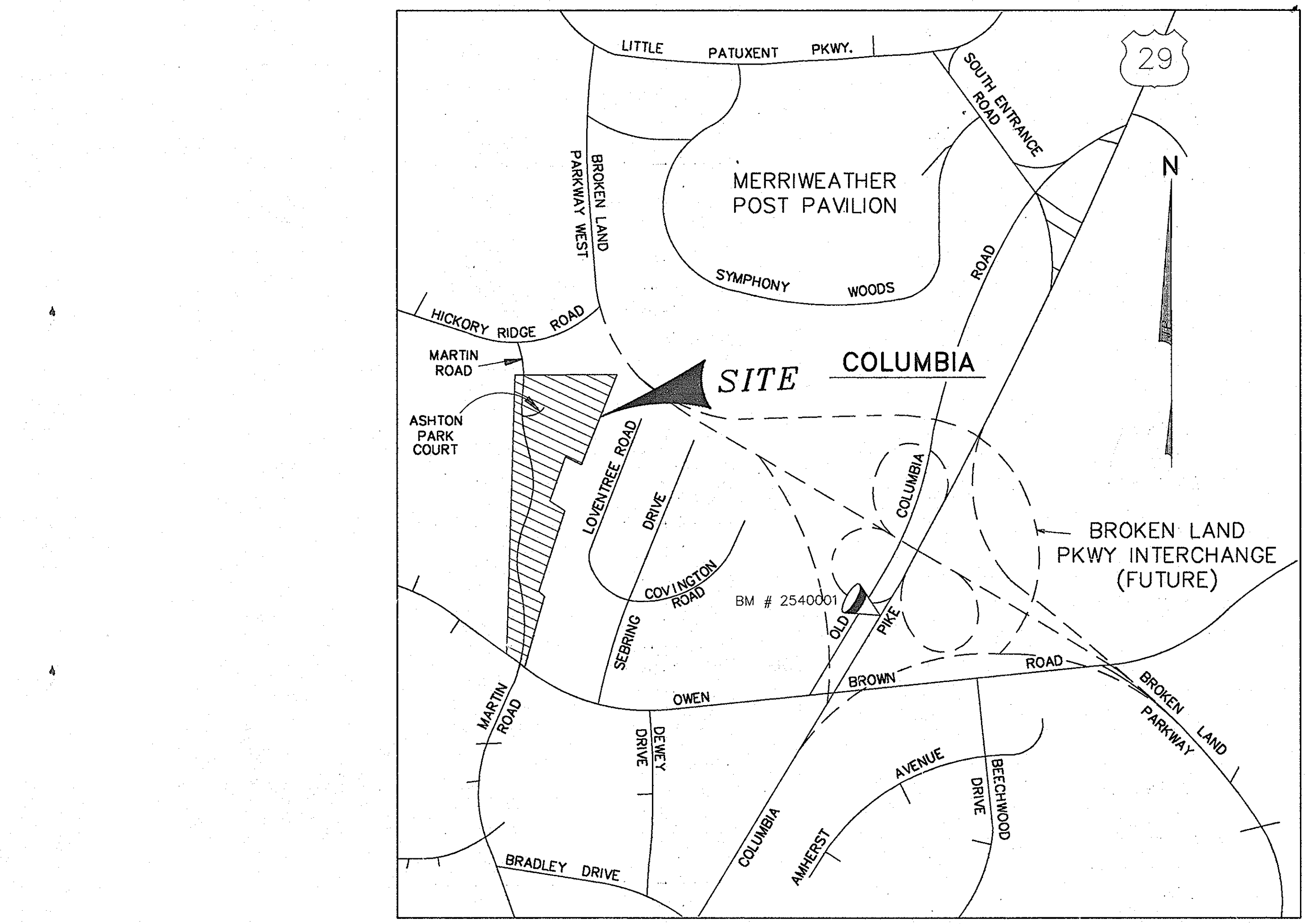
SECTION 2 AREA 2

5th ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, AS AMENDED IN OCTOBER 1990, I.E., "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" UNLESS SHOWN OTHERWISE. THE CONTRACTOR SHALL HAVE A COPY IN HIS POSSESSION AT ALL TIMES.
2. THE LOCATION OF EXISTING UTILITIES SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION, AND DEPTH OF ANY UTILITIES AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING WORK.
3. NECESSARY PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT EXISTING SERVICES AND MAINS. ANY DAMAGE TO THEM DUE TO HIS NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AT HIS OWN EXPENSE.
4. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
5. THE CONTRACTOR SHALL RESTORE ALL EXISTING PAVING, SIDEWALKS, OR LAWNS AFFECTED BY CONSTRUCTION SHOWN HEREON TO A CONDITION COMPARABLE TO THAT EXISTING PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL REMOVE ALL TREES, STUMPS, AND ROOTS ALONG THE LINE OF EXCAVATION. ALL OTHER TREES AND SHRUBS SHALL BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE.
7. ALL STORM DRAIN PIPE BEDDING SHALL BE AS SHOWN IN DETAIL G2.01 (TRENCH IN ROCK OR TRENCH IN EARTH) AS DETERMINED BY THE ENGINEER OR AS SHOWN ON THE DRAWINGS.
8. ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE PLANE GRID COORDINATE SYSTEM. ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM 1929.
9. ALL UTILITIES SHALL HAVE A MINIMUM CLEARANCE OF TWELVE INCHES (12") UNLESS OTHERWISE NOTED. ALL POLES SHALL HAVE A MINIMUM HORIZONTAL CLEARANCE OF TWO FEET (2').
10. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL SEWER MAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALLS.
11. ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI.
12. STABILENKA (FILTER CLOTH T-100) OR EQUAL SHALL BE PLACED UNDER ALL RIP-RAP (FULL WIDTH AND LENGTH OF STONE).
13. STONE FOR RIP-RAP SHALL BE AS SPECIFIED ON THE DRAWINGS. ALL RIP-RAP SHALL BE UNPAVED.
14. LAMP-POST - 250 WATT HIGH PRESSURE SODIUM VAPOR PENDANTS MOUNTED AT 30' HEIGHT ON BRONZE POLES
15. ALL UTILITY COMPANIES SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF CONSTRUCTION.
16. ALL STREET CURB RETURNS SHALL HAVE A 30.0' RADII UNLESS OTHERWISE NOTED.
17. TRAFFIC CONTROL DEVICES AND THEIR INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1988 REVISED EDITION.
18. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES WHERE DIRECTED BY THE ENGINEER A MINIMUM OF TWO WEEKS IN ADVANCE OF ANY CONSTRUCTION.
19. CONTRACTOR TO NOTIFY THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS AT LEAST 3 DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS, TELEPHONE NO. 992-2436.
20. ALL DISTURBED SLOPE AREAS TO BE STABILIZED AS SOON AS GRADING IS COMPLETED.
21. ALL SWALES AND SLOPES SHALL BE PERMANENTLY SEEDED UNLESS OTHERWISE NOTED. SEED SPECIFICATIONS ON SHEET 15.
22. ALL TOPOGRAPHIC DETAILS ARE BASED ON FIELD SURVEYS PERFORMED BY CENTURY ENGINEERING.
23. MINIMUM BUILDING SETBACK RESTRICTIONS FROM PROPERTY LINES AND RIGHTS-OF-WAY OF ANY PUBLIC ROADS WILL BE IN ACCORDANCE WITH THE FINAL DEVELOPMENT PLAN CRITERIA PHASE 173-A-1.
24. THE WETLANDS AS SHOWN ON THE PLANS ARE BASED ON A PLAN PREPARED BY KIDDE CONSULTANTS IN FEBRUARY, 1989.
25. FLOODPLAIN AS SHOWN ON THE PLANS IS FROM A STUDY DONE BY CENTURY ENGINEERING IN 1989.
26. STORMWATER MANAGEMENT FOR QUANTITY CONTROL IS PROVIDED BY THE REGIONAL FACILITY IN THE WINCOPIN BRANCH WEST OF BROKEN LAND PARKWAY APPROVED UNDER F-85-131.
27. HANDBOXES SHALL BE PLACED EVERY 200' (MAX) AS SHOWN ON THE PLANS AND SHALL CONFORM TO HOWARD COUNTY STANDARD TE 4 OR TE 5 AND TE 6 OR APPROVED EQUAL, AND INSTALL 2" PVC ELECTRICAL CONDUIT BETWEEN HANDBOXES.
28. WATER QUALITY CONTROL IS ONLY PROVIDED FOR THE AREAS CONTRIBUTING RUNOFF TO THE EXTENDED DETENTION POND AS INDICATED IN THE SWM REPORT OF JULY, 1991 BY CENTURY ENGINEERING, INC.



MAP 15 BLOCK F8
LOCATION MAP
SCALE: 1"=600'

STREET TREES
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 BUILDERS' 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.

BENCH MARKS

- HOWARD COUNTY BENCH MARK NO. 2440008 ELEV. 406.47
CONCRETE MONUMENT LOCATED ON THE NORTH SIDE OF ROUTE 29 APPROXIMATELY 1000 FEET SOUTH OF BRADLEY DRIVE.
N 495711.331 E 837912.713
- HOWARD COUNTY BENCH MARK NO. 2540001 ELEV. 336.70
CONCRETE MONUMENT LOCATED ON THE NORTH SIDE OF THE NORTHBOUND LANE OF ROUTE 29 APPROXIMATELY 600 FEET NORTH OF OWEN BROWN ROAD.
N 497863.571 E 839375.588

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	TYPICAL SECTIONS
3.	PLAN & PROFILE STA. 0+00 TO STA. 7+00
4.	PLAN & PROFILE STA. 7+00 TO STA. 17+50
5.	PLAN & PROFILE STA. 17+50 TO STA. 27+00
6.	INTERSECTION DETAIL
7.	FILLET AND STREET TREE DETAIL
8.	DRAINAGE AREA MAP
9.	STORM DRAIN PROFILES
10.	STORM DRAIN PROFILES
11.	GRADING & SED. CONTROL STA. 0+00 TO STA. 13+35
12.	GRADING & SED. CONTROL STA. 13+35 TO STA. 27+00
13.	SEDIMENT CONTROL DETAILS
14.	SEDIMENT CONTROL DETAILS
15.	SEDIMENT CONTROL DETAILS
16.	S.W.M. POND & DETAILS
17.	WETLANDS MITIGATION PLAN

DEPARTMENT OF PUBLIC WORKS

John M. Thompson 9/18/91
Chief, Land Development Division Date

Lawrence W. Weiland 8/30/91
Chief, Bureau of Highways Date

Gregory S. P... 9-19-91
Chief, Bureau of Engineering Date

DEPARTMENT OF PLANNING AND ZONING

Suma Kalmath 9/23/91
Chief, Div. of Land Dev. and Com. Planning Date

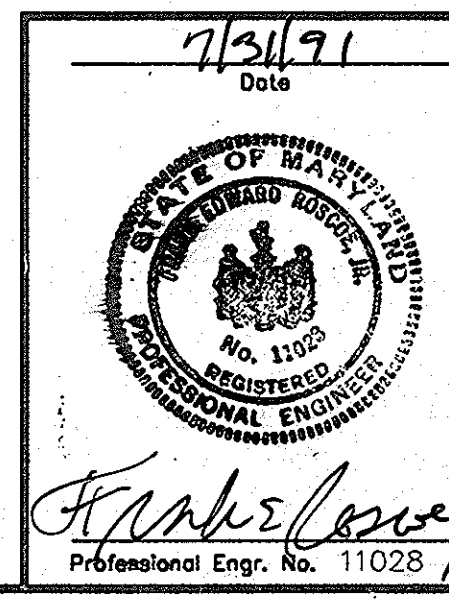
Date	No	Revision Description

OWNER/DEVELOPER

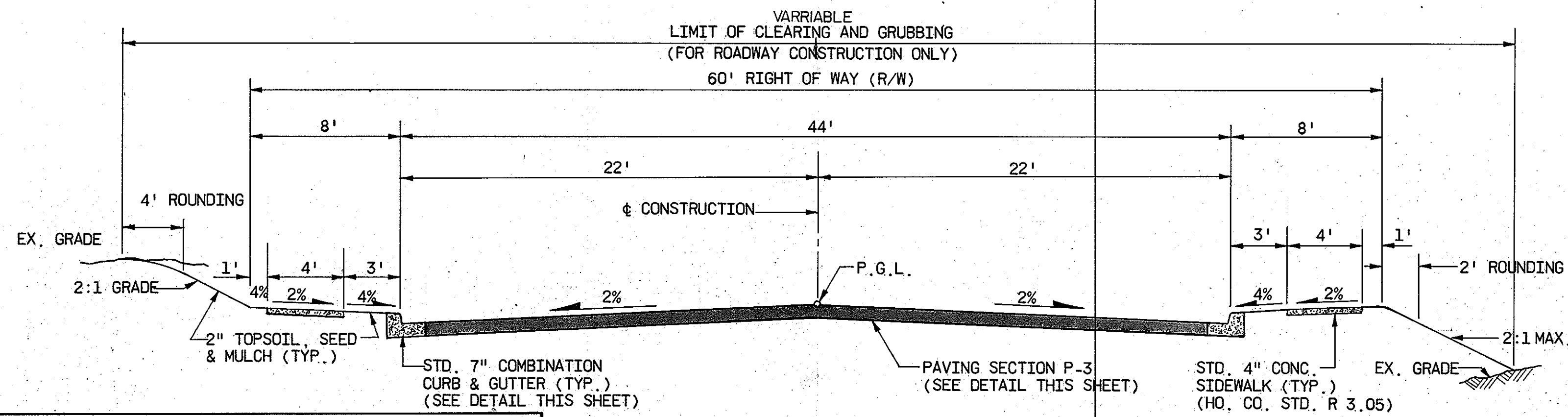
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

CENTURY ENGINEERING, INC.
CONSULTING ENGINEERS, PLANNERS
32 WEST ROAD
TOWSON, MARYLAND 21284

AREA	VILLAGE OF HICKORY RIDGE SECTION 2 - AREA 2 PHASE 173 A		
REFERENCES:	S-90-22, WP-90-67, PB-118, WP-91-106, P-91-04		
TITLE	TITLE SHEET 5 th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND TAX MAP PARCELS 267 & 84		
Des By	M.E.P.	Scale	AS SHOWN
Drn By	N.A.M.	Date	JULY, 1991
Chk By	J.A.R.	Approved	F.E.R.
Proj No	91-005	DRIVING NO	1 OF 17



42

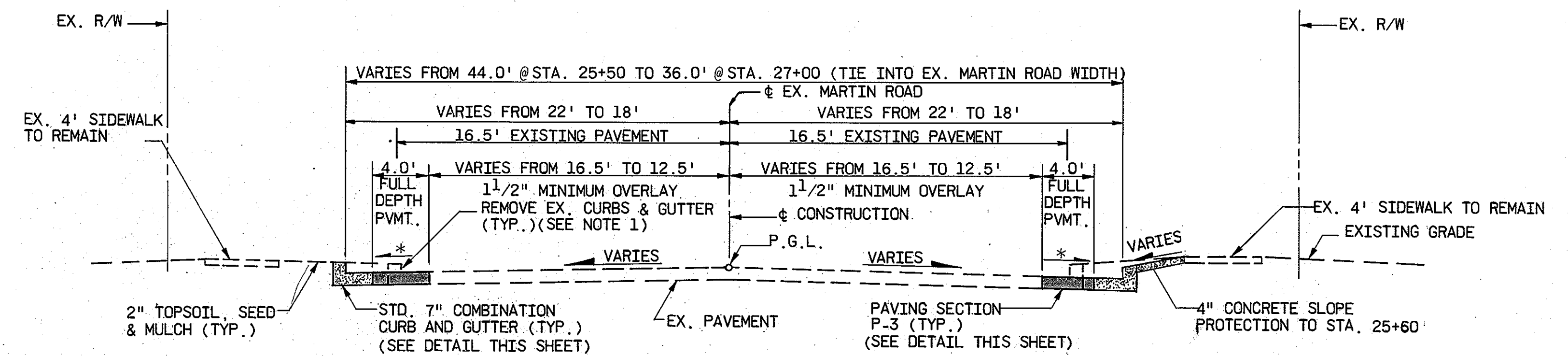


TYPICAL SECTION MARTIN ROAD

MAJOR COLLECTOR
STA. 0+50 TO STA. 23+70±
N.T.S.

APPROVED: HOWARD CO. DEPT. OF PUBLIC WORKS
Oliver M. Danegon 9/14/91
 CHIEF, LAND DEVELOPMENT DIVISION
Dawelle M. Weiland 8/31/91
 CHIEF, BUREAU OF HIGHWAYS
Gregory R. Rouse 9-19-91
 CHIEF, BUREAU OF ENGINEERING

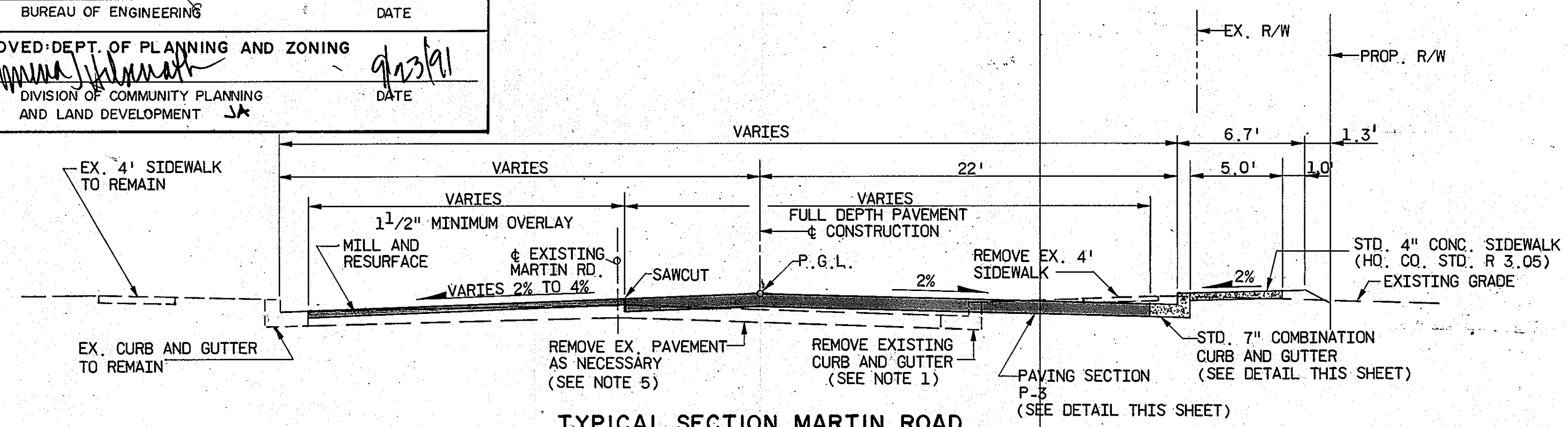
APPROVED: DEPT. OF PLANNING AND ZONING
[Signature] 9/23/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT



TYPICAL SECTION MARTIN ROAD

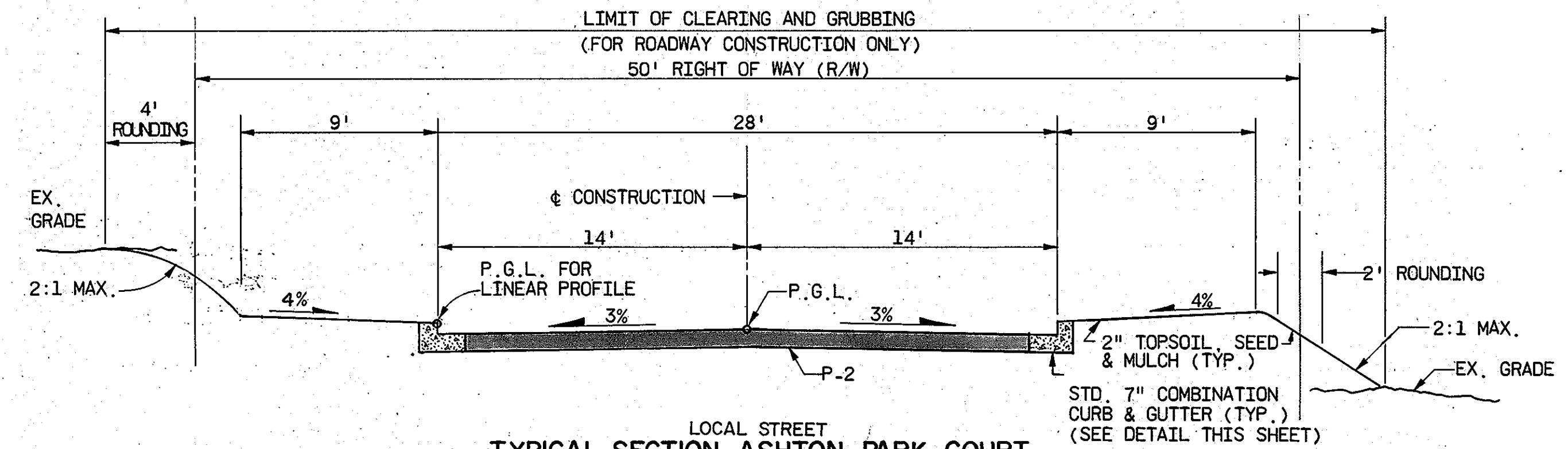
STA. 25+00± TO STA. 27+00
N.T.S.

* CONTINUE EXISTING CROSS SLOPE



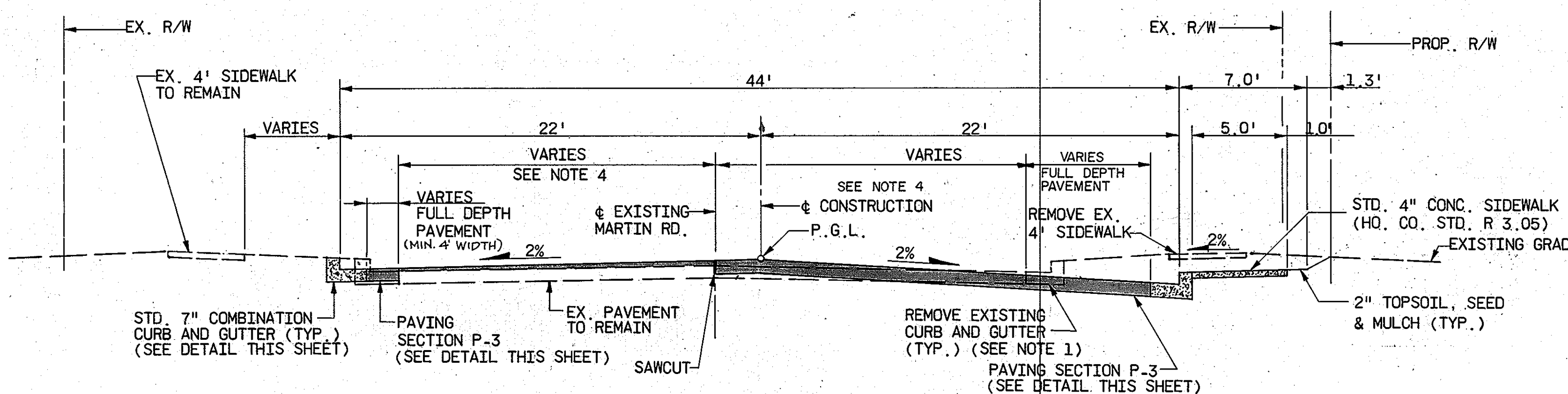
TYPICAL SECTION MARTIN ROAD

STA. 23+70± TO STA. 24+30±
N.T.S.



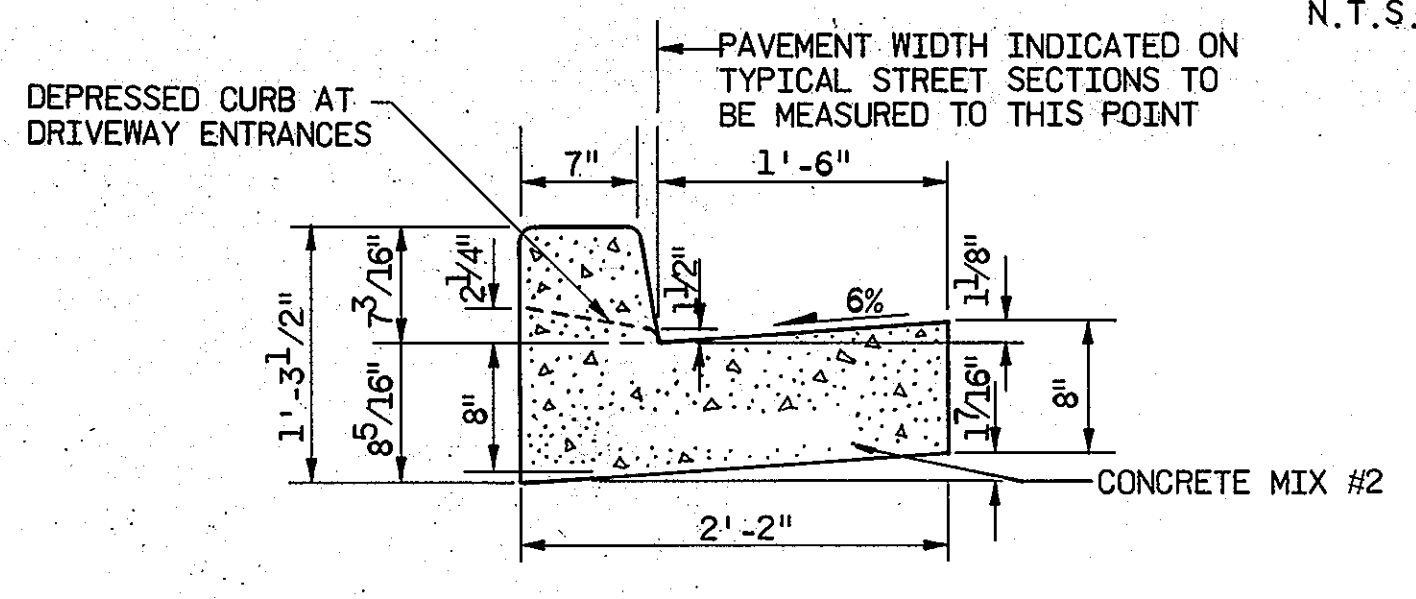
TYPICAL SECTION ASHTON PARK COURT

LOCAL STREET
STA. 0+30 TO STA. 1+77.10
N.T.S.



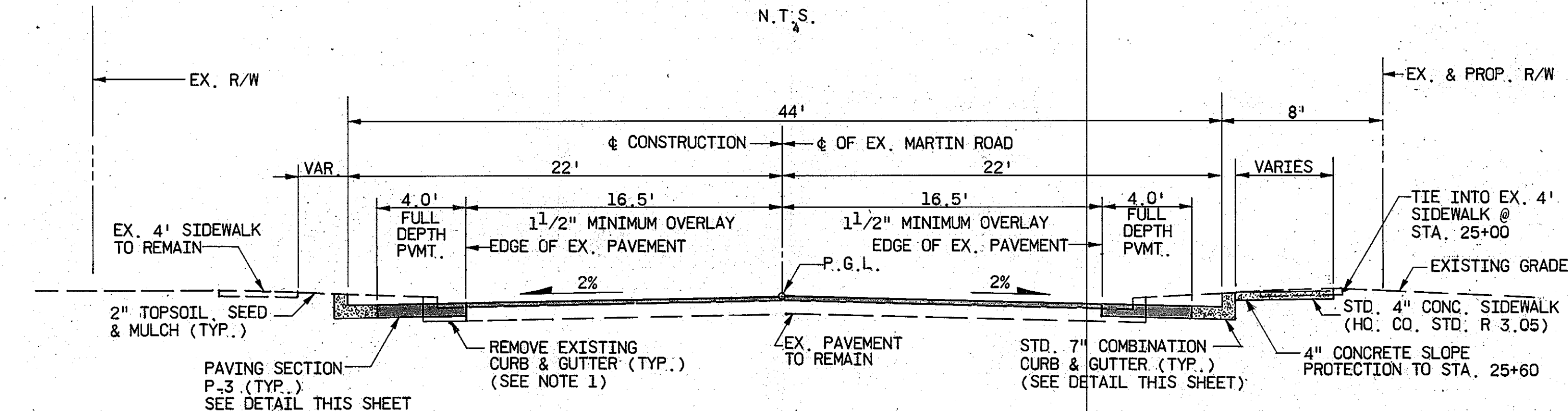
TYPICAL SECTION MARTIN ROAD

STA. 24+30± TO STA. 25+00±
N.T.S.



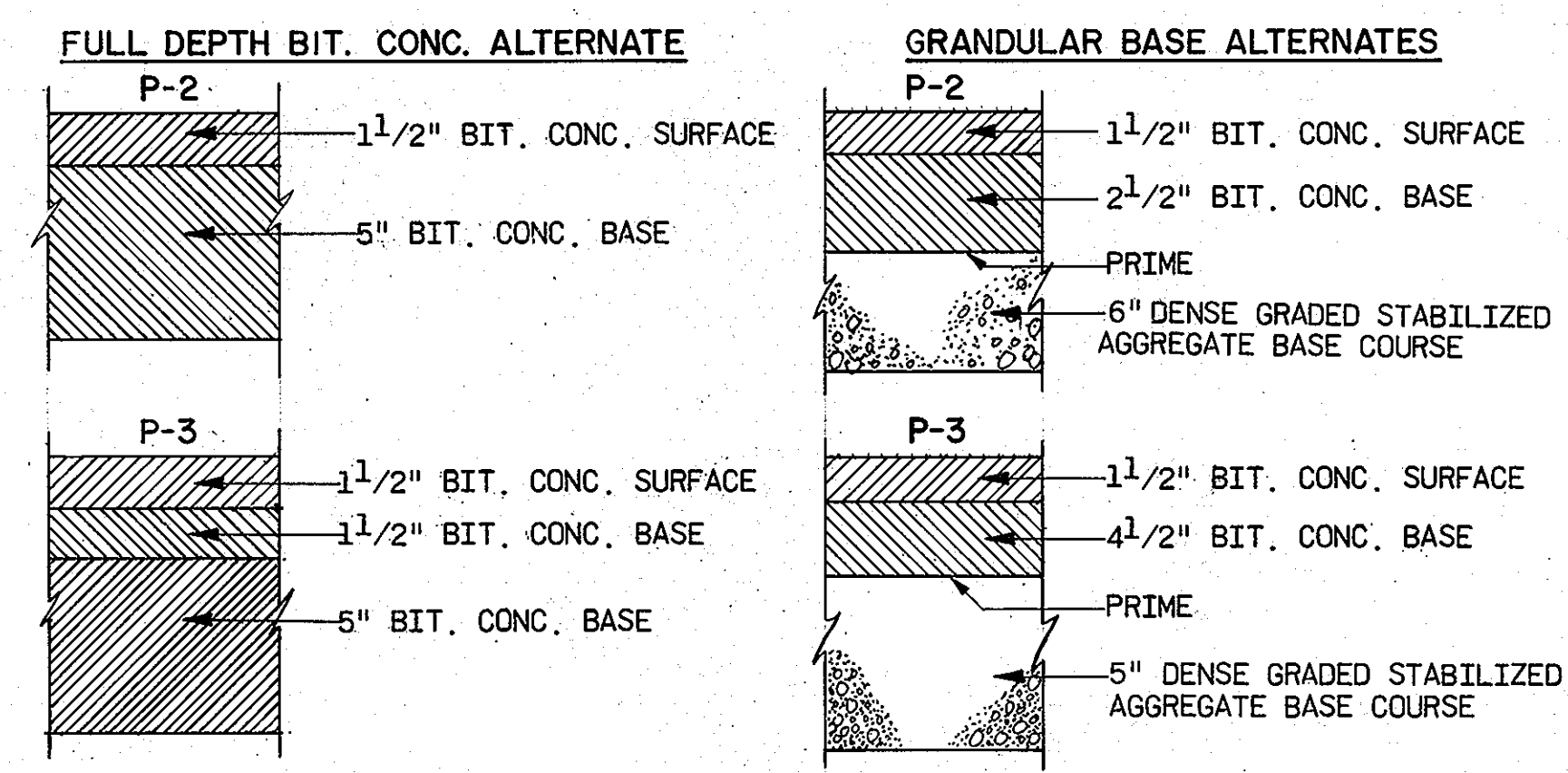
CURB AND GUTTER DETAIL (Ho. Co. STD. R-3.01)
N.T.S.

- NOTES:
- 1) IF GRANULAR PAVEMENT ALTERNATIVE IS USED EXTEND GRANULAR BASE TO BACK OF CURB.
 - 2) IF EXISTING PAVEMENT OR CURB AND GUTTER IS REMOVED BACKFILL SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% IN ACCORDANCE TO A.A.S.H.T.O. DESIGNATION T-191 OR T-238 AND T-239.
 - 3) FOR TYPICAL SECTION OF OWEN BROWN ROAD WIDENING SEE SHEET 6 OF 17.
 - 4) VARIABLE WEDGE/LEVEL COURSE USING BITUMINOUS CONCRETE SURFACE 1 1/2" MINIMUM THICKNESS.
 - 5) CONTRACTOR HAS THE OPTION OF REMOVING EXISTING PAVEMENT, SCARIFYING OR PULVERIZING AS PER HOWARD COUNTY SPECIFICATIONS SECTION 206.03.01.



TYPICAL SECTION MARTIN ROAD

STA. 25+00± TO STA. 25+50±
N.T.S.

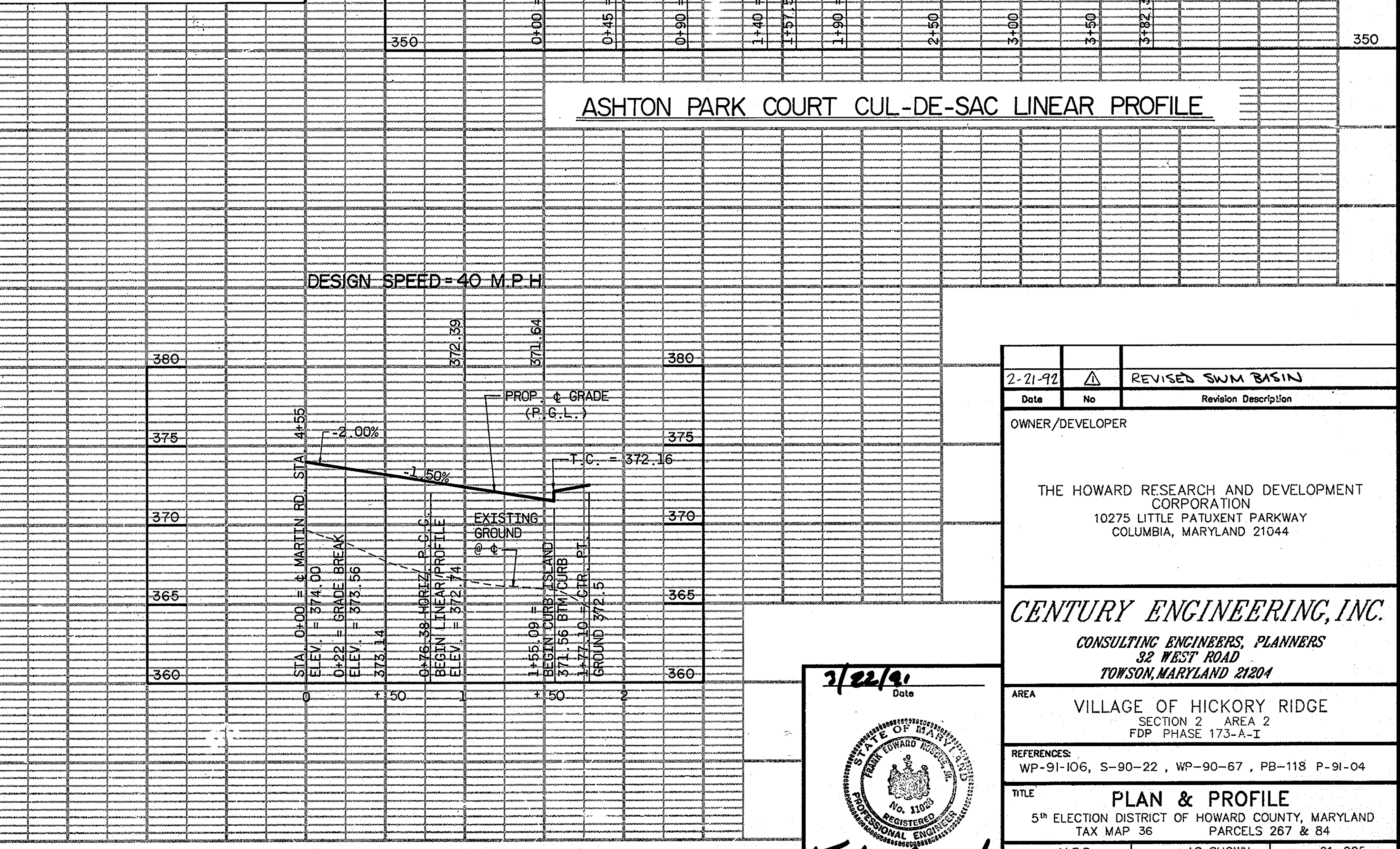
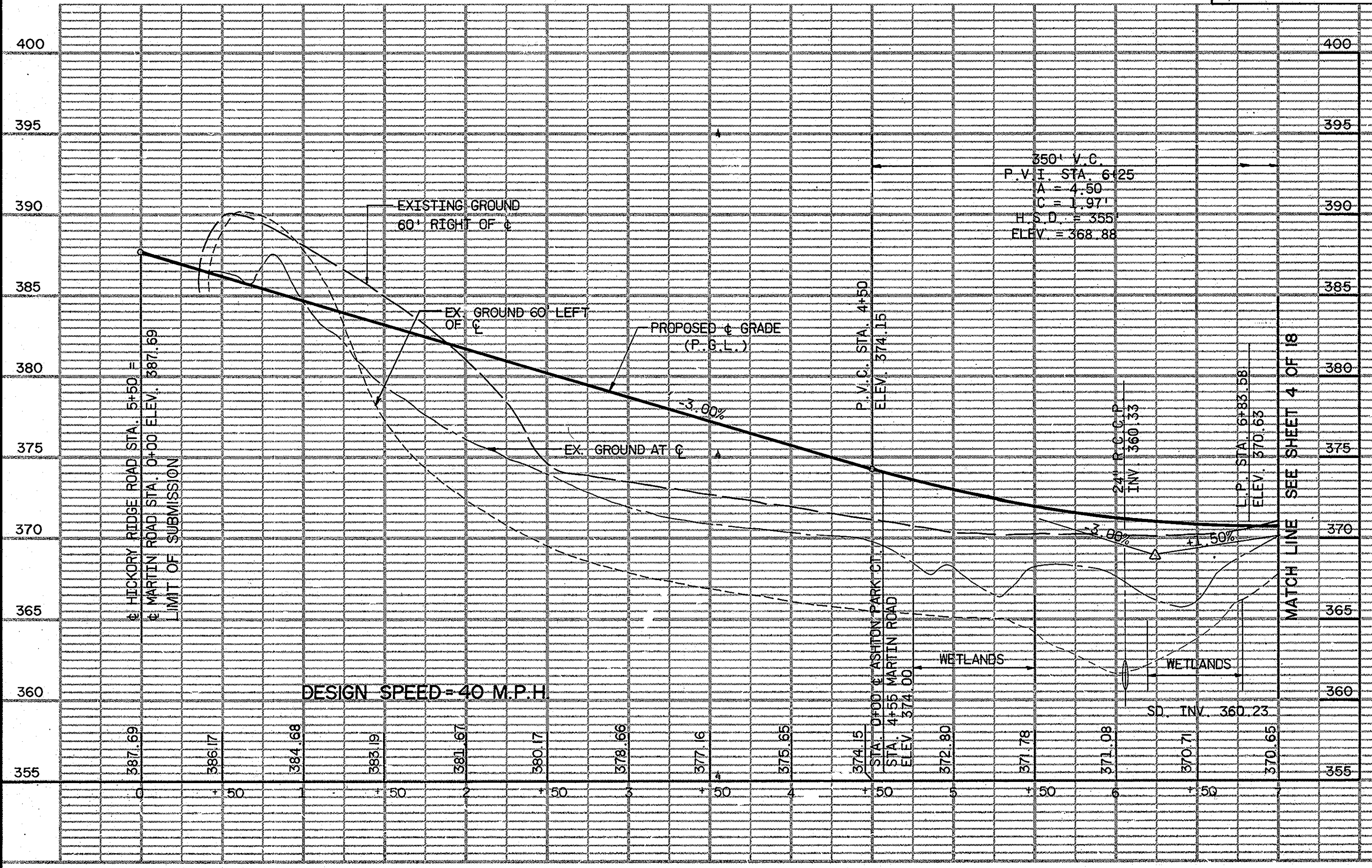
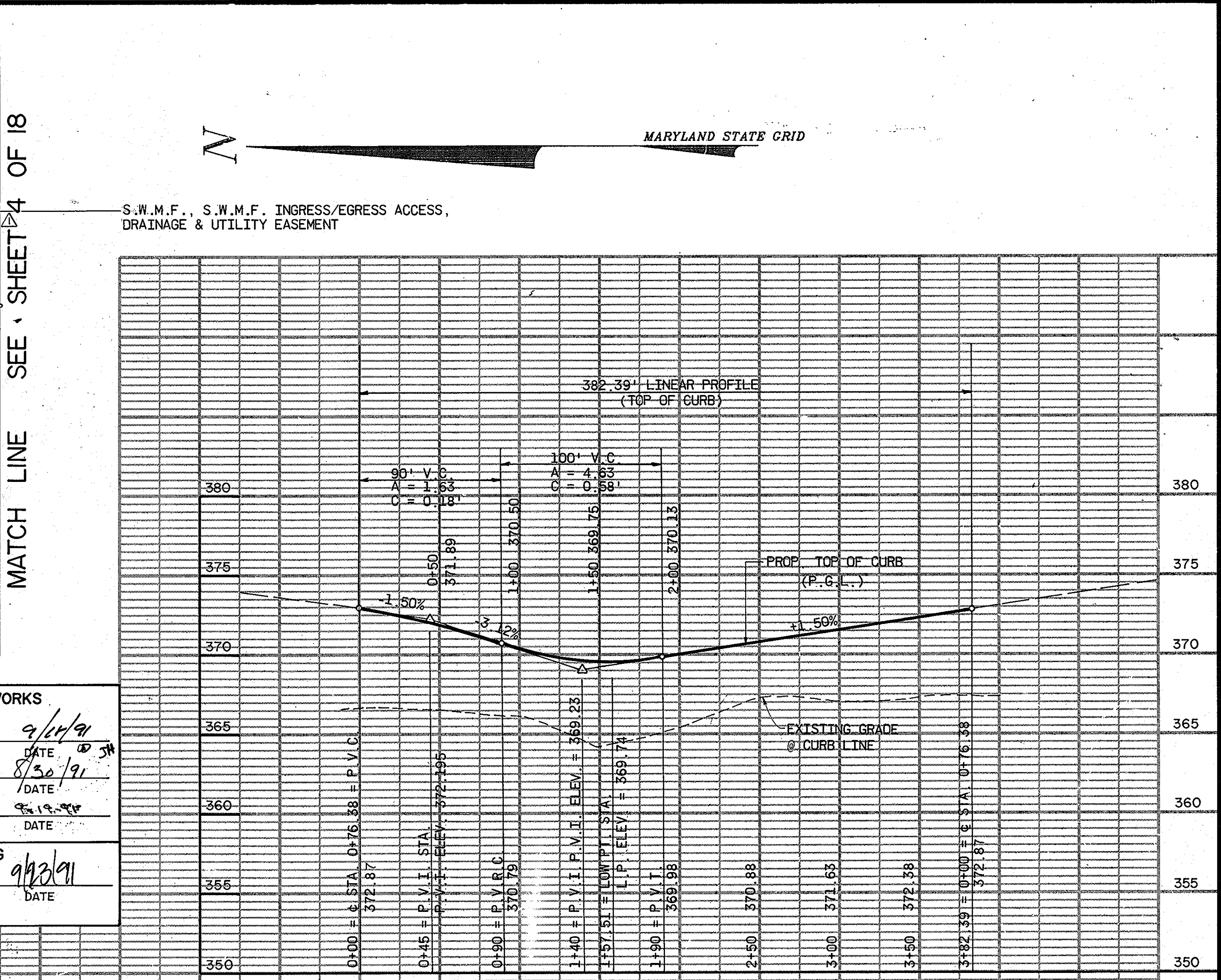
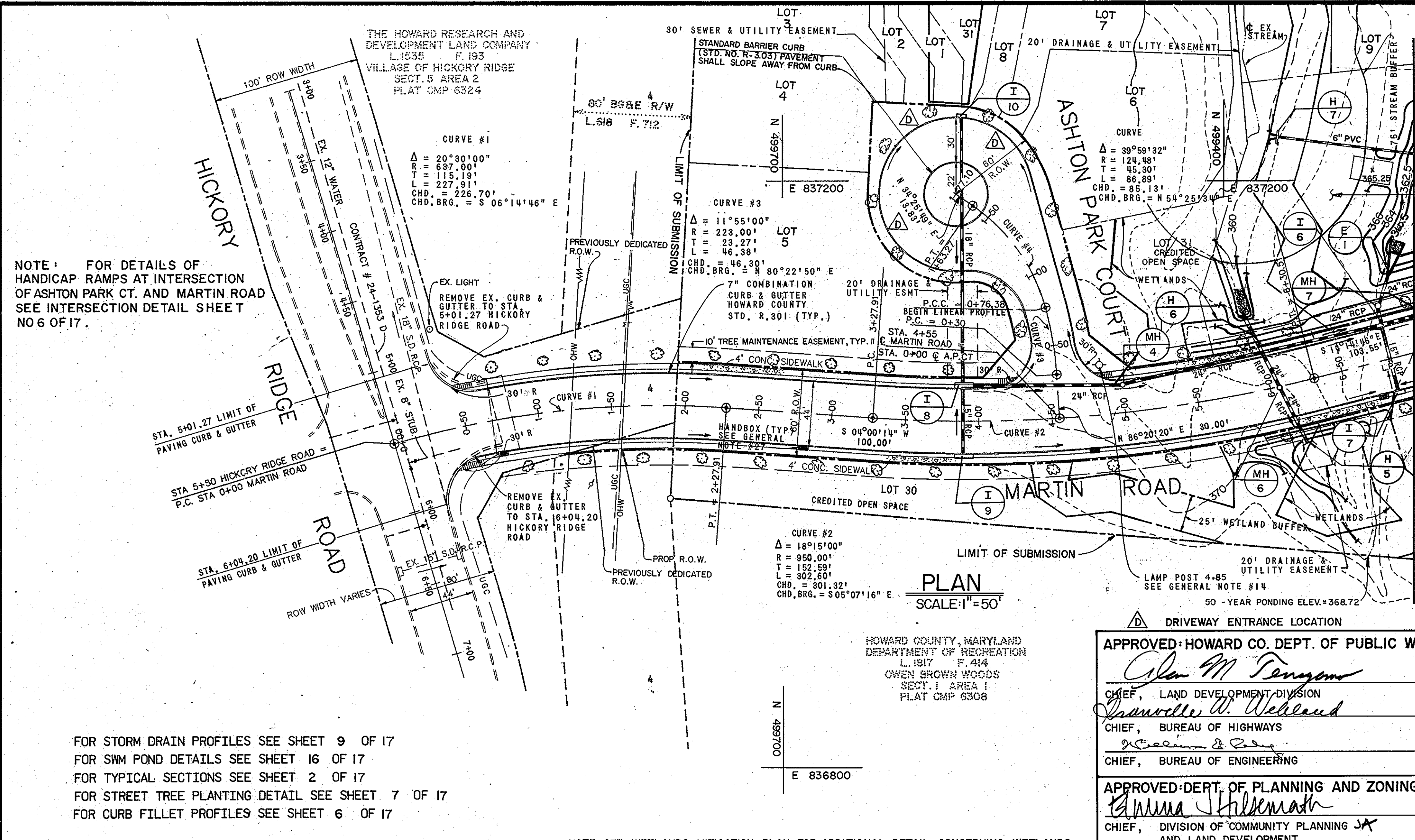


PAVEMENT MATERIALS
N.T.S.

Date	No	Revision Description
OWNER/DEVELOPER		
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		
CENTURY ENGINEERING, INC. CONSULTING ENGINEERS, PLANNERS 32 WEST ROAD TOWSON, MARYLAND 21204		
AREA VILLAGE OF HICKORY RIDGE SECTION 2 AREA 2 FDP PHASE 173-A-1		
REFERENCES: WP-91-106, S-90-22, WP-90-67, PB-118 P-91-04		
TITLE TYPICAL SECTIONS & DETAILS 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND TAX MAP 36 PARCELS 267 & 84		
Des By	M.E.P.	Scale AS SHOWN
Des By	C.R.M.	Date JULY 1991
Des By	J.A.R.	Approved F.E.R.
		Proj No 91-005
		2 OF 17

3/22/91
 Date
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
[Signature]
 Professional Eng. No. 11028

42

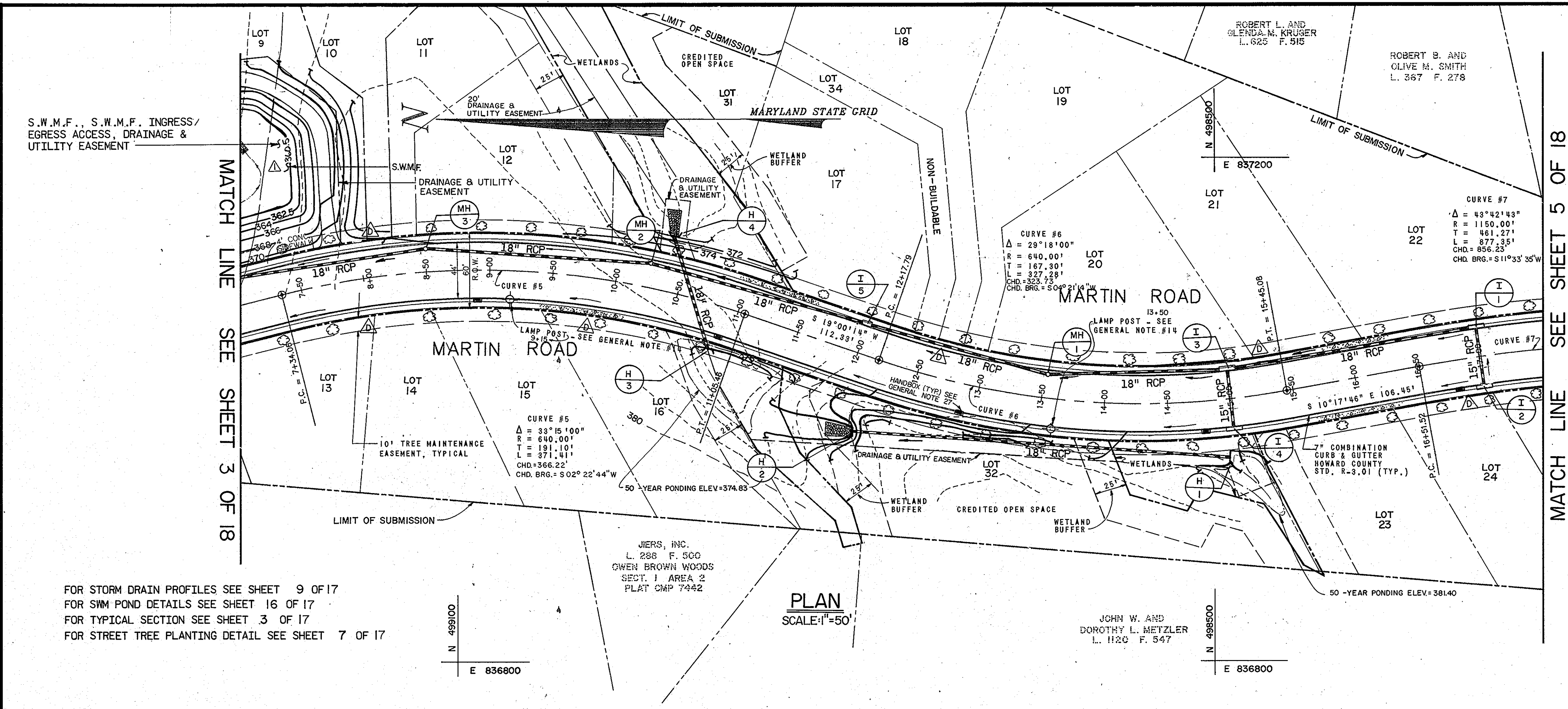


2-21-92	REVISED SWM BASIN
Date	Revision Description
OWNER/DEVELOPER	
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	
CENTURY ENGINEERING, INC. CONSULTING ENGINEERS, PLANNERS 32 WEST ROAD TOWSON, MARYLAND 21284	
AREA	VILLAGE OF HICKORY RIDGE SECTION 2 AREA 2 FDP PHASE 173-A-1
REFERENCES:	WP-91-106, S-90-22, WP-90-67, PB-118 P-91-04
TITLE	PLAN & PROFILE 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND TAX MAP 36 PARCELS 267 & 84
Des By	M.E.P. Scale AS SHOWN Proj No 91-005
Dwn By	M.A.G. Date JULY 1991
Chk By	J.A.R. Approved F.E.R.

7/22/91
 Date
 Professional Engr. No. 1102

42

APPROVED: HOWARD CO. DEPT. OF PUBLIC WORKS
John M. Ferguson 9/24/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE 9/24/91
Shawelle W. Wehland 8/30/91
 CHIEF, BUREAU OF HIGHWAYS DATE 8/30/91
Robert B. Smith 9-19-91
 CHIEF, BUREAU OF ENGINEERING DATE 9-19-91
 APPROVED: DEPT. OF PLANNING AND ZONING
Anna Blum 9/23/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE 9/23/91



S.W.M.F., S.W.M.F. INGRESS/EGRESS ACCESS, DRAINAGE & UTILITY EASEMENT

MATCH LINE SEE SHEET 3 OF 18

SEE SHEET 5 OF 18 MATCH LINE

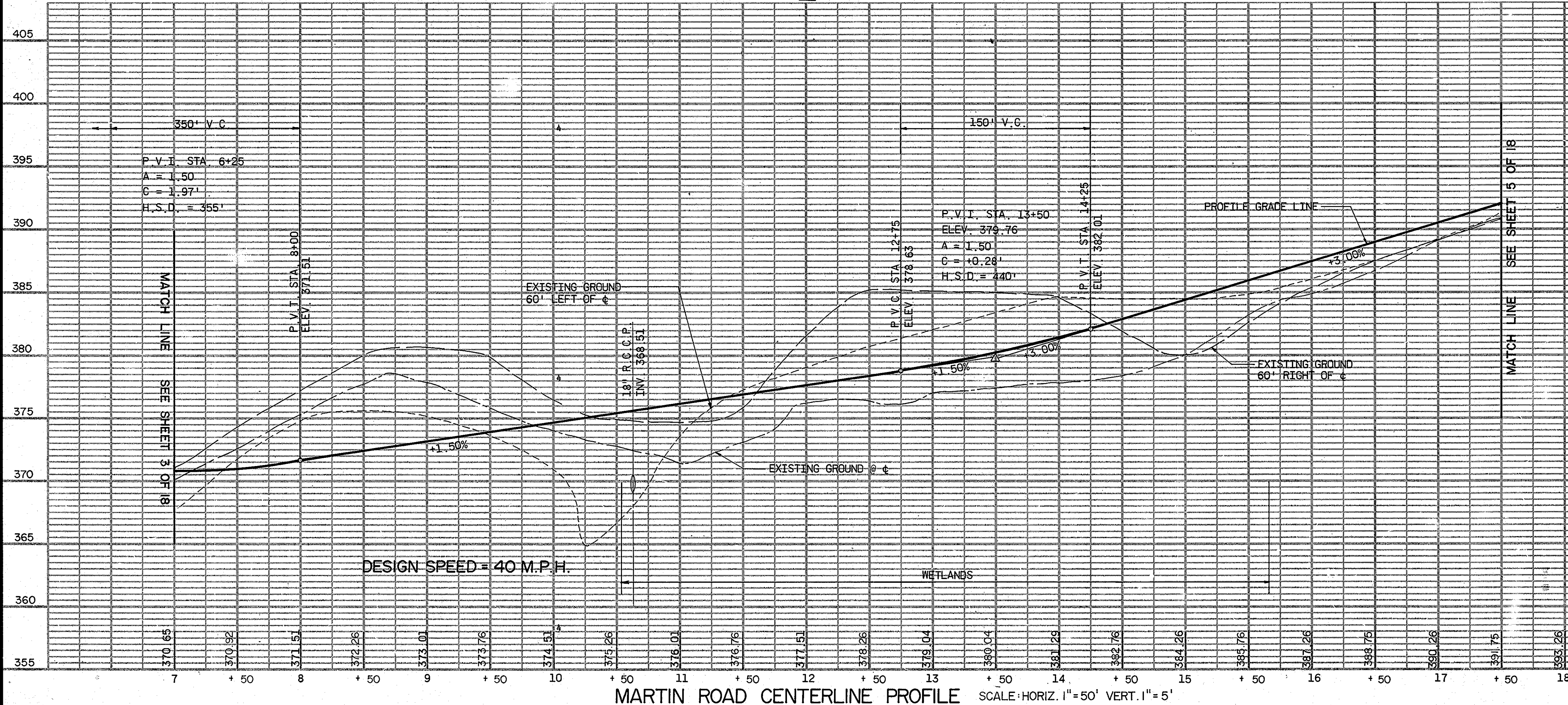
FOR STORM DRAIN PROFILES SEE SHEET 9 OF 17
 FOR SWM POND DETAILS SEE SHEET 16 OF 17
 FOR TYPICAL SECTION SEE SHEET 3 OF 17
 FOR STREET TREE PLANTING DETAIL SEE SHEET 7 OF 17

N 499100
 E 836800

N 498500
 E 836800

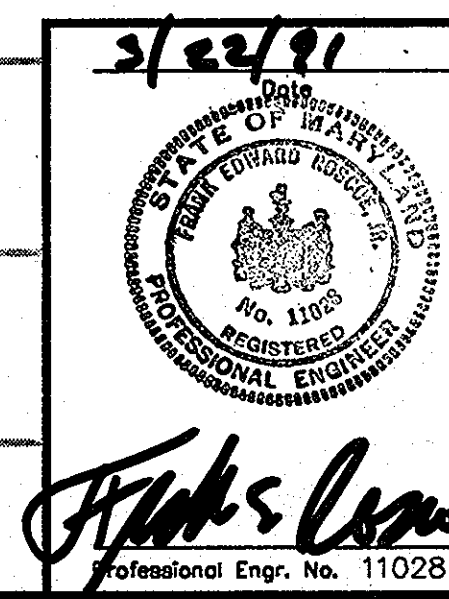
PLAN SCALE: 1"=50'

DRIVEWAY ENTRANCE LOCATION NOTE: SEE WETLANDS MITIGATION PLAN FOR ADDITIONAL DETAIL CONCERNING WETLANDS.



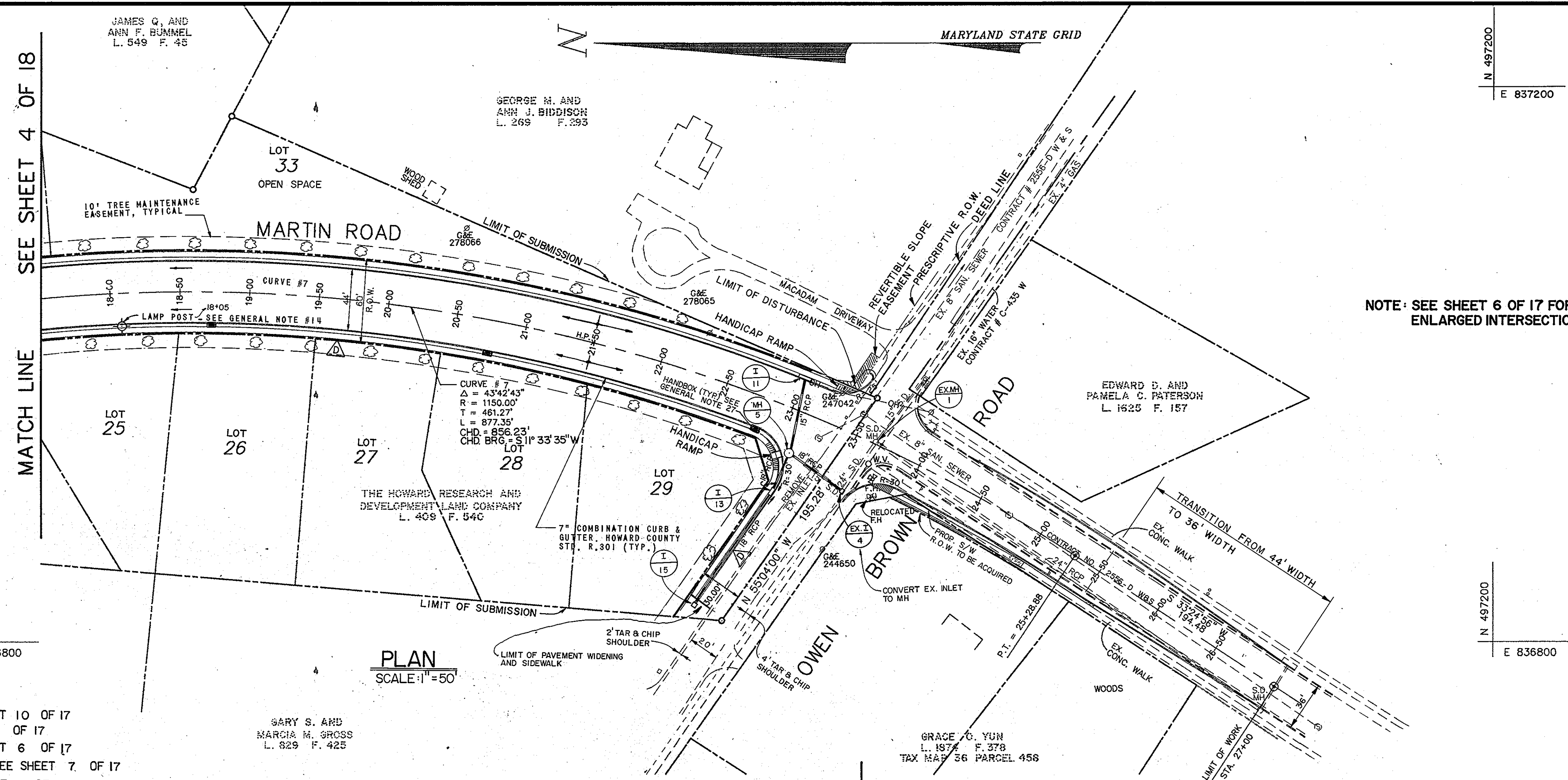
MATCH LINE SEE SHEET 5 OF 18

2-21-92	REVISION	REVISED SWM BASIN
Date	No	Revision Description
OWNER/DEVELOPER		
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		
CENTURY ENGINEERING, INC. CONSULTING ENGINEERS, PLANNERS 32 WEST ROAD TOWSON, MARYLAND 21284		
AREA VILLAGE OF HICKORY RIDGE SECTION 2 AREA 2 FDP PHASE 173-A-I		
REFERENCES WP-91-106, S-90-22, WP-90-67, PB-118 P-91-04		
TITLE PLAN & PROFILE 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND TAX MAP 36 PARCELS 267 & 84		
Des By	M.E.P.	Scale AS SHOWN
Drn By	M.A.G.	Date JULY 1991
Chk By	J.A.R.	Approved F.E.R.
Professional Engr. No. 11028		Proj No 91-005
4 OF 17		



42

F-91-134



APPROVED: HOWARD CO. DEPT. OF PUBLIC WORKS

John M. Tangam 9/16/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE

William W. Weiland 8/30/91
 CHIEF, BUREAU OF HIGHWAYS DATE

William S. Rose 9-19-91
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: DEPT. OF PLANNING AND ZONING

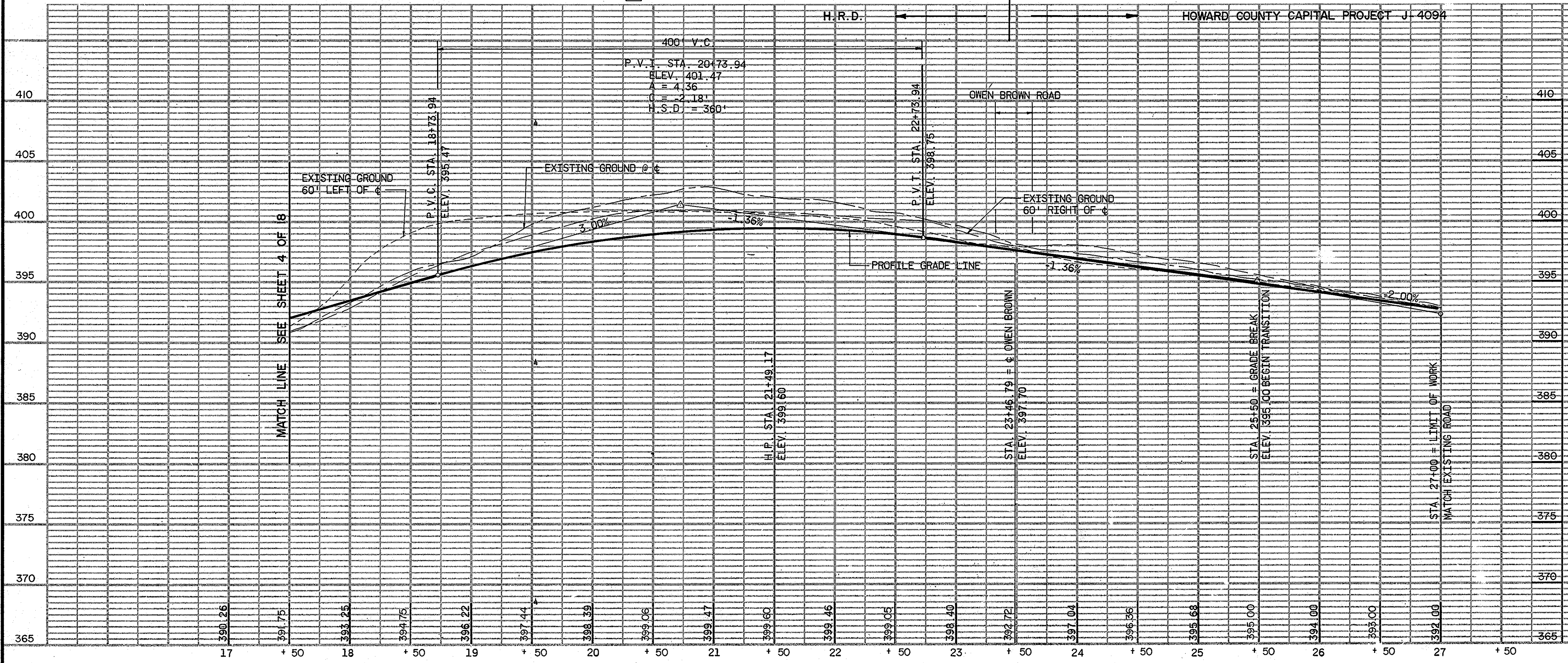
William H. Heston 9/19/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

NOTE: SEE SHEET 6 OF 17 FOR ENLARGED INTERSECTION DETAIL

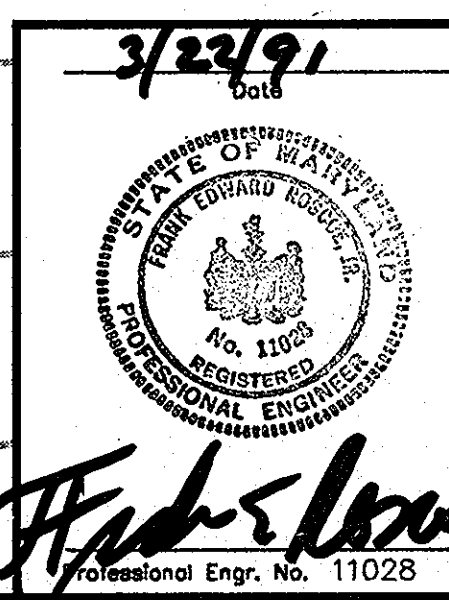
LIMIT OF WORK FOR H.R.D. STA. 23+50
 COUNTY CAPITAL PROJECT J-4094
 STA. 23+50 - 27+00

FOR STORM DRAIN PROFILES SEE SHEET 10 OF 17
 FOR TYPICAL SECTIONS SEE SHEET 2 OF 17
 FOR INTERSECTION DETAILS SEE SHEET 6 OF 17
 FOR STREET TREE PLANTING DETAIL SEE SHEET 7 OF 17
 FOR CURB FILLET PROFILES SEE SHEET 6 OF 17

GARY S. AND
 MARCIA M. GROSS
 L. 829 F. 425



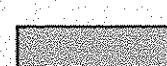


Date	No	Revision Description
OWNER/DEVELOPER		
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		
CENTURY ENGINEERING, INC. CONSULTING ENGINEERS, PLANNERS 32 WEST ROAD TONSON, MARYLAND 21204		
AREA VILLAGE OF HICKORY RIDGE SECTION 2 AREA 2 FDP PHASE 173-A-I		
REFERENCES: WP 91-106, S-90-22, WP-90-67, PB-118 P-91-04		
TITLE PLAN & PROFILE 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND TAX MAP 36 PARCELS 267 & 84		
Des By	M.E.P.	Scale AS SHOWN Proj No 91-005
Des By	M.A.G.	Date JULY 1991 DRAWING NO
Chk By	J.A.R.	Approved F.E.R. 5 OF 17



42

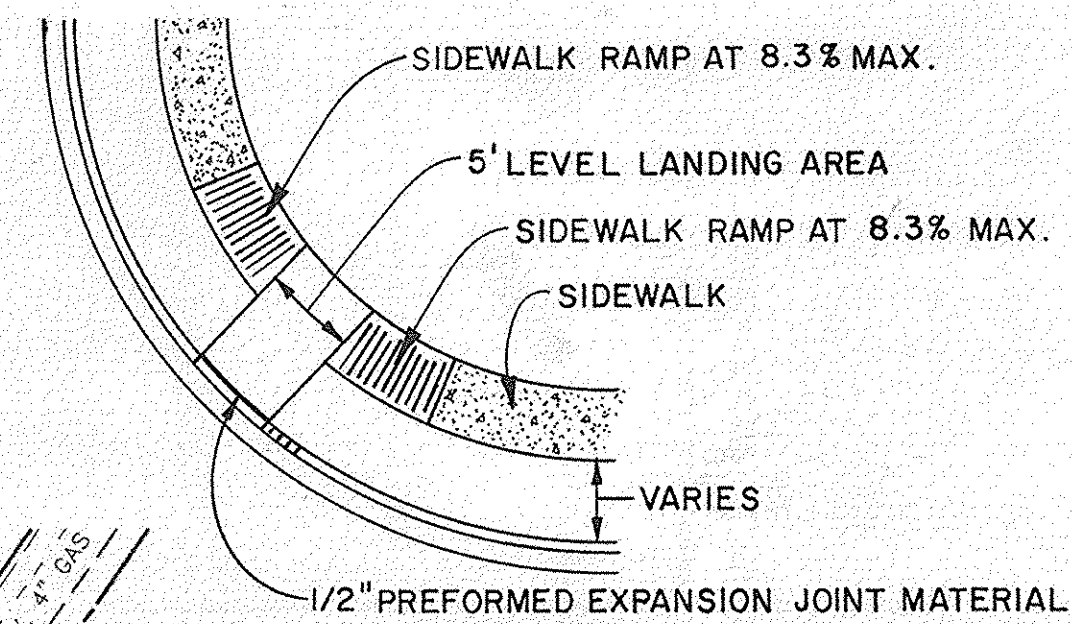
LEGEND

-  MILL & RESURFACE (MIN. 1 1/2" OVERLAY)
-  1 1/2" MINIMUM OVERLAY
-  FULL DEPTH PAVEMENT

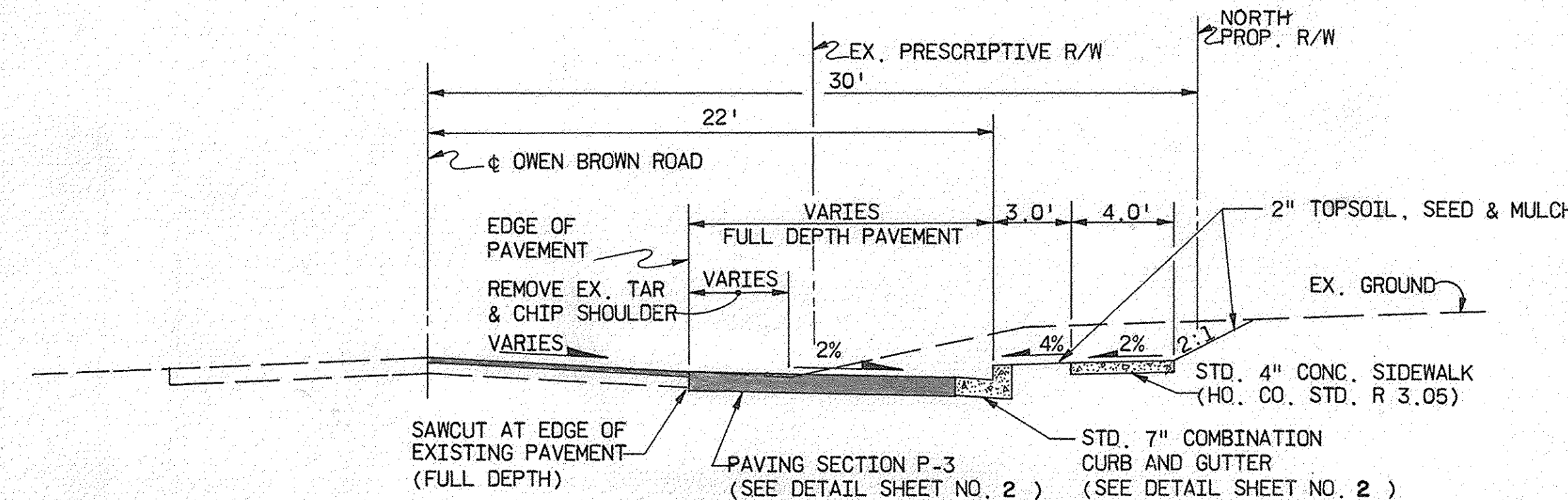
NOTE:
SHOWN LIMITS OF PAVEMENT SECTIONS ARE APPROXIMATE AND WILL BE ESTABLISHED BY THE ENGINEER IN THE FIELD.

 EX. TREES TO BE REMOVED

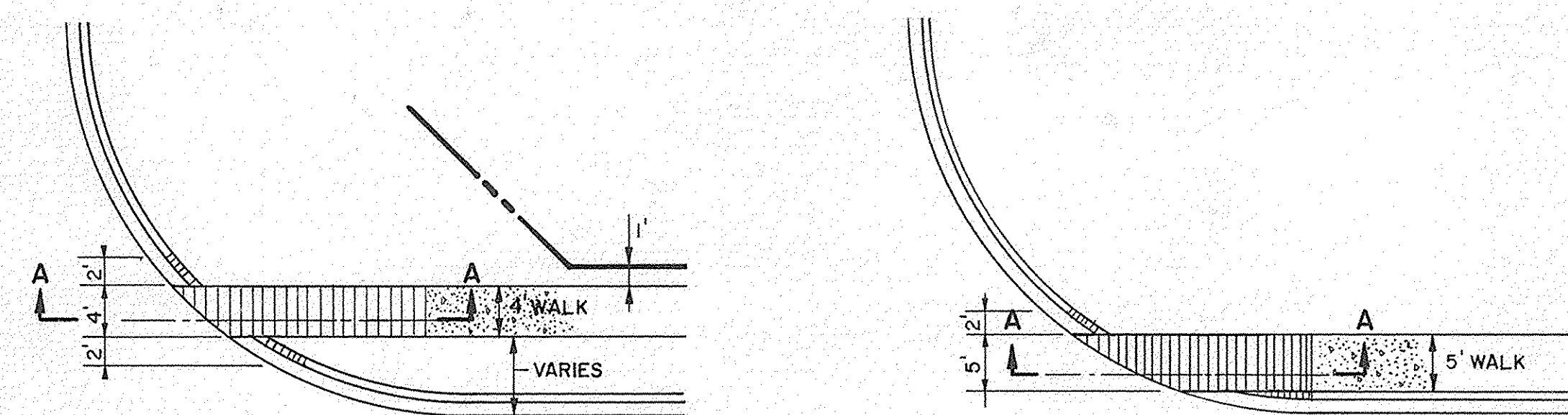
7" COMBINATION CURB AND GUTTER HOWARD COUNTY ST'D. R. 301



CORNER HANDICAP RAMP
NOT TO SCALE



TYPICAL SECTION OWEN BROWN ROAD WIDENING
N.T.S.



SECTION A-A
HANDICAP RAMP DETAILS
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS

John M. Patterson
Chief, Land Development Division Date 8/30/91

Shawille W. Upeland
CHIEF, BUREAU OF HIGHWAYS DATE 8/30/91

K. S. ...
CHIEF, BUREAU OF ENGINEERING DATE 9-19-91

DEPARTMENT OF PLANNING AND ZONING
Shama Halimath
CHIEF, DIV. OF LAND DEL. & COM. PLANNING DATE 9/23/91

Date	No	Revision Description

OWNER/DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

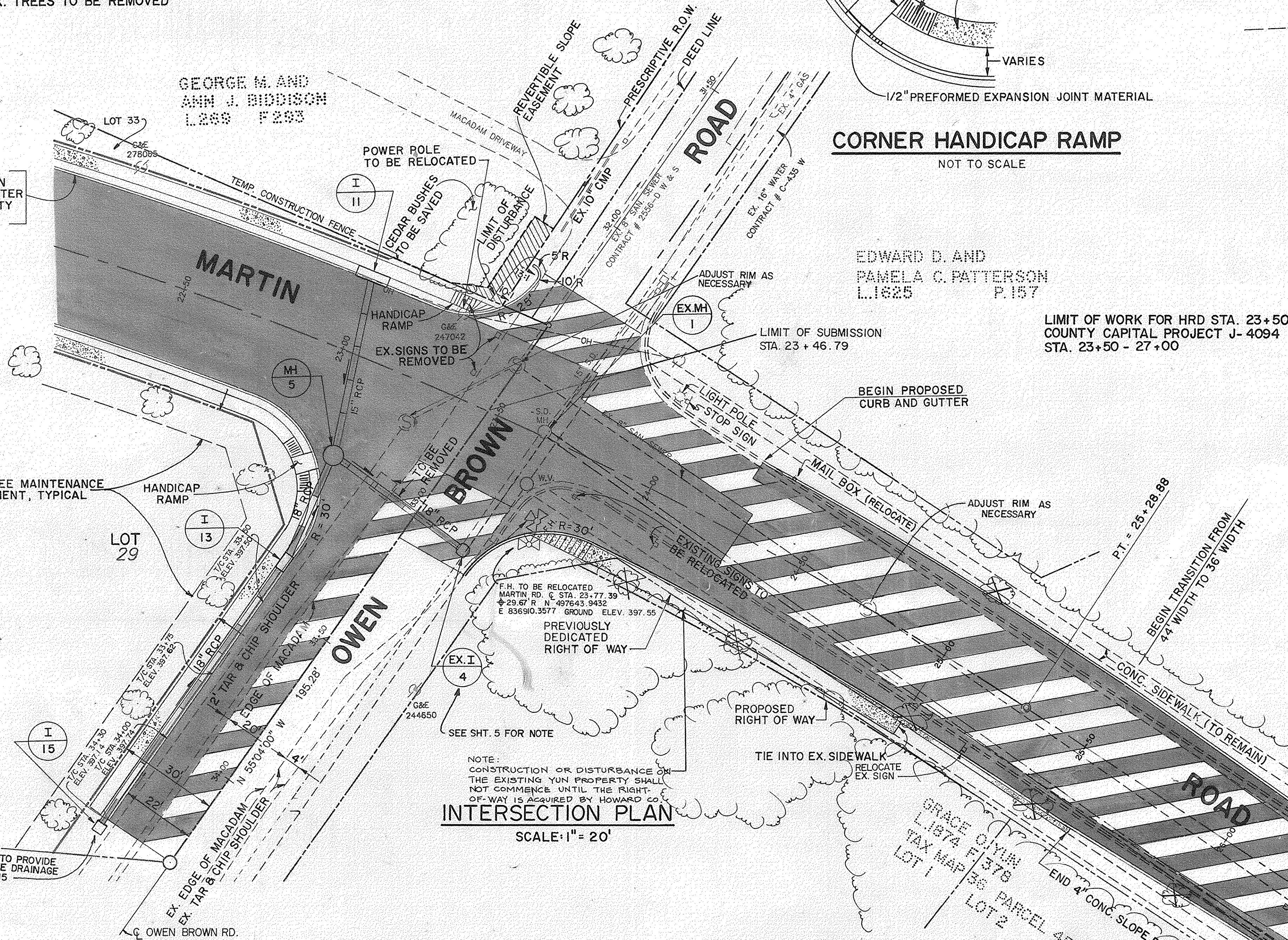
CENTURY ENGINEERING, INC.
CONSULTING ENGINEERS, PLANNERS
32 WEST ROAD
TOWSON, MARYLAND 21284

AREA
VILLAGE OF HICKORY RIDGE
SECTION 2 AREA 2
FDP PHASE 173-A-2

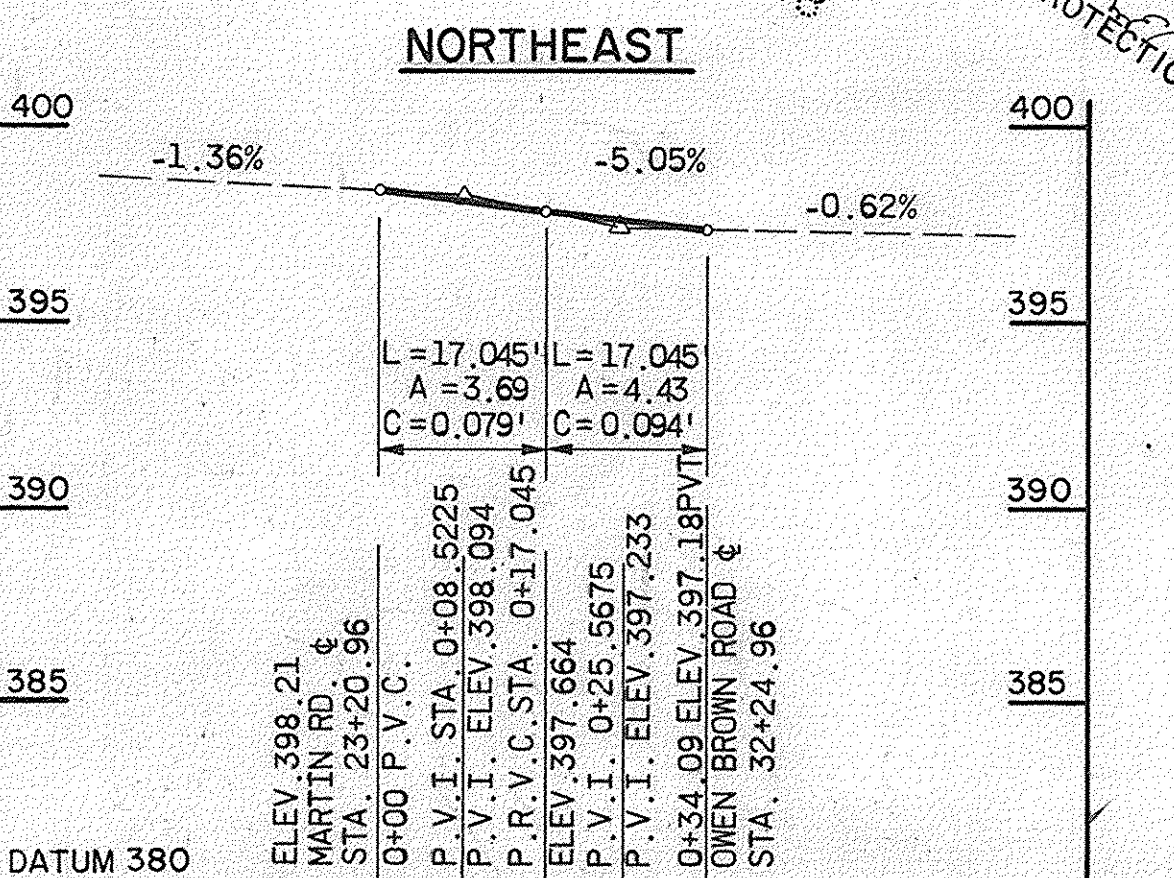
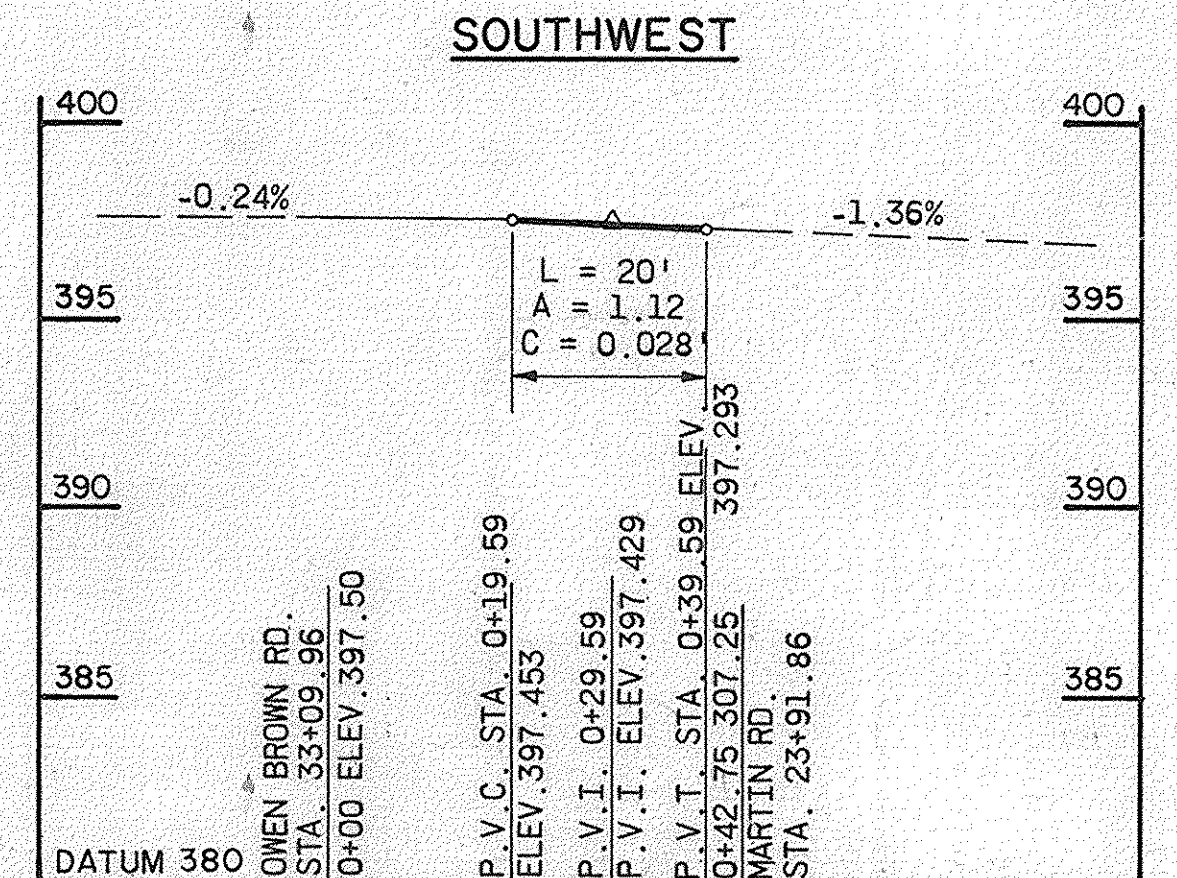
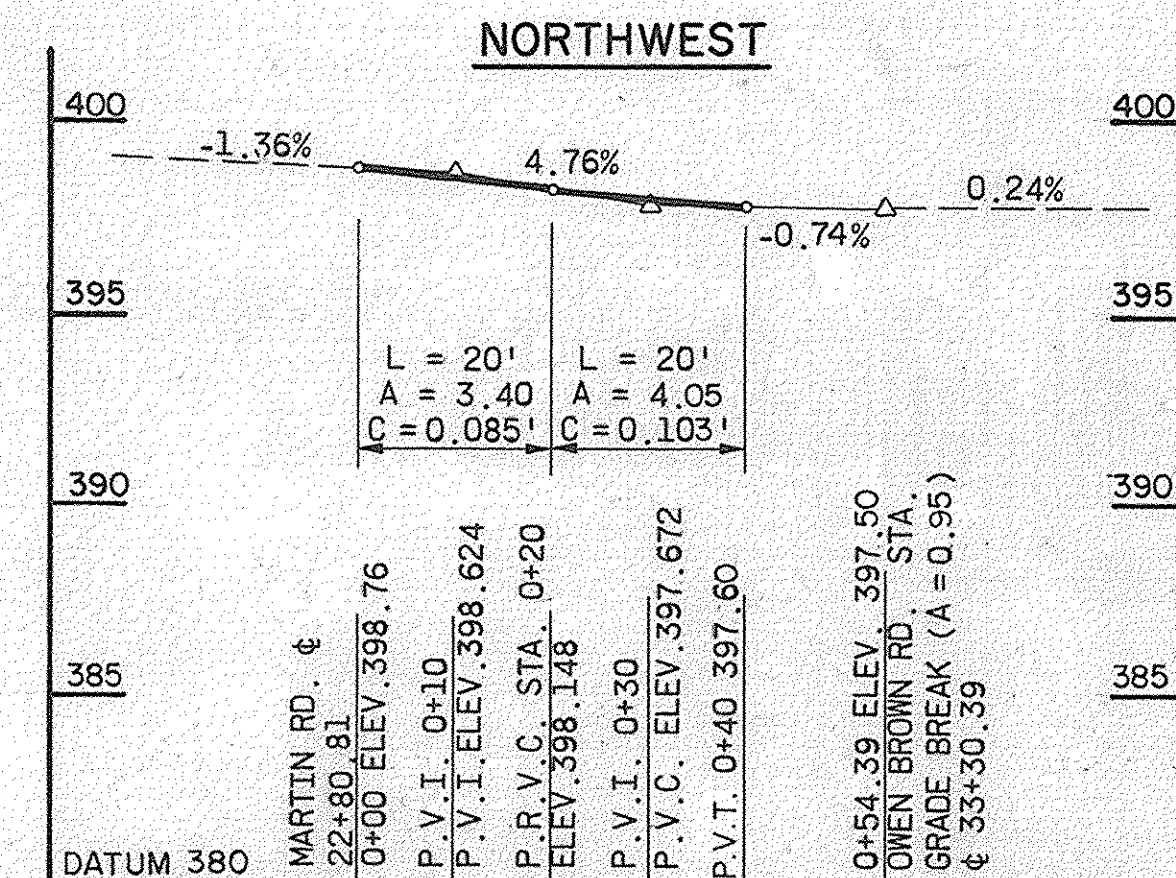
REFERENCES:
WP 91-106, S-90-22, WP-90-67, PB-118 P-91-04

TITLE
INTERSECTION DETAIL
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
TAX MAP 36 PARCELS 267 & 84

Drawn By M.E.P. Scale 1"=20' Proj No 91-005
Date By C.R.M. Date JULY 1991
Checked By J.A.R. Approved F.E.R.



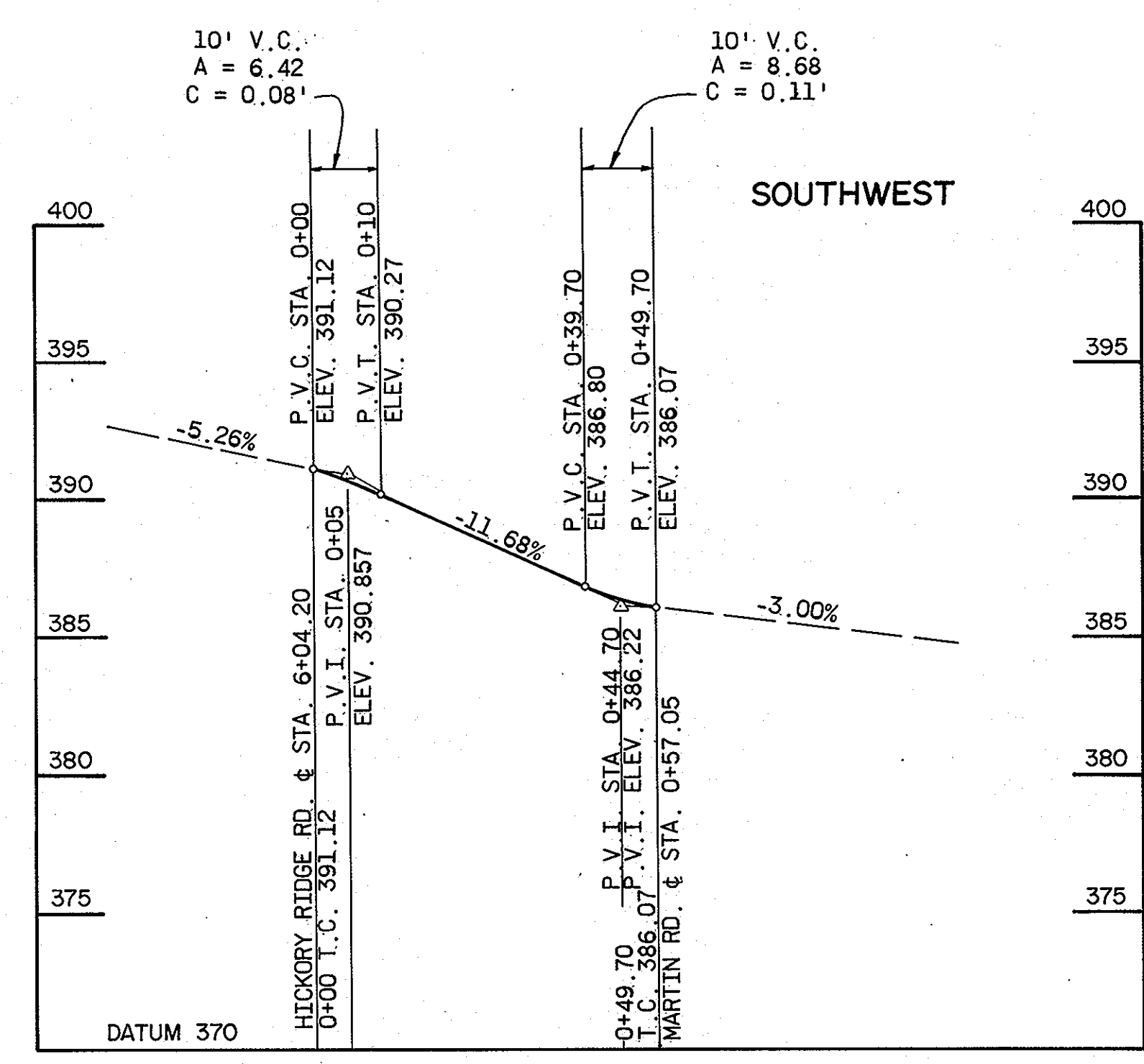
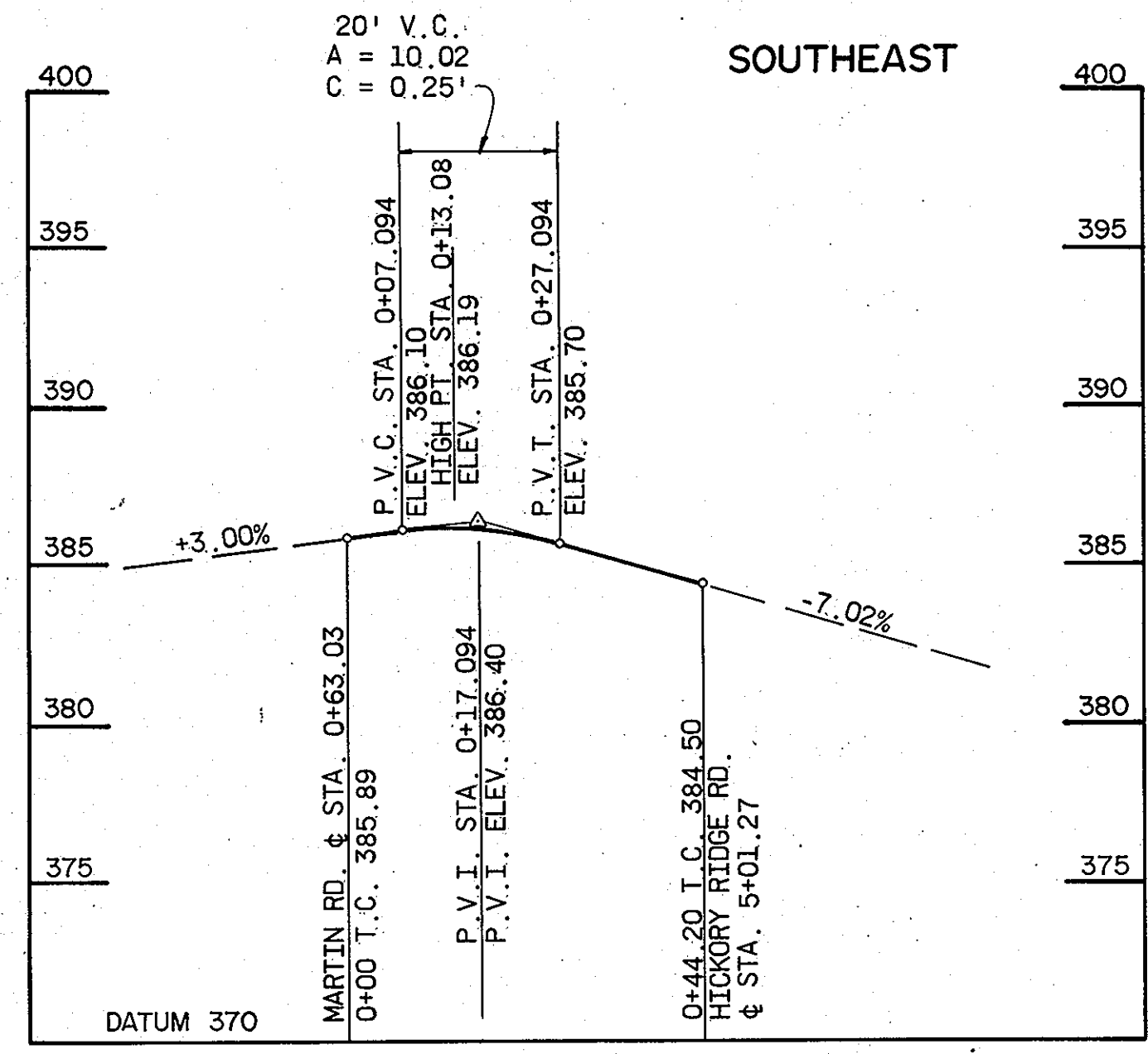
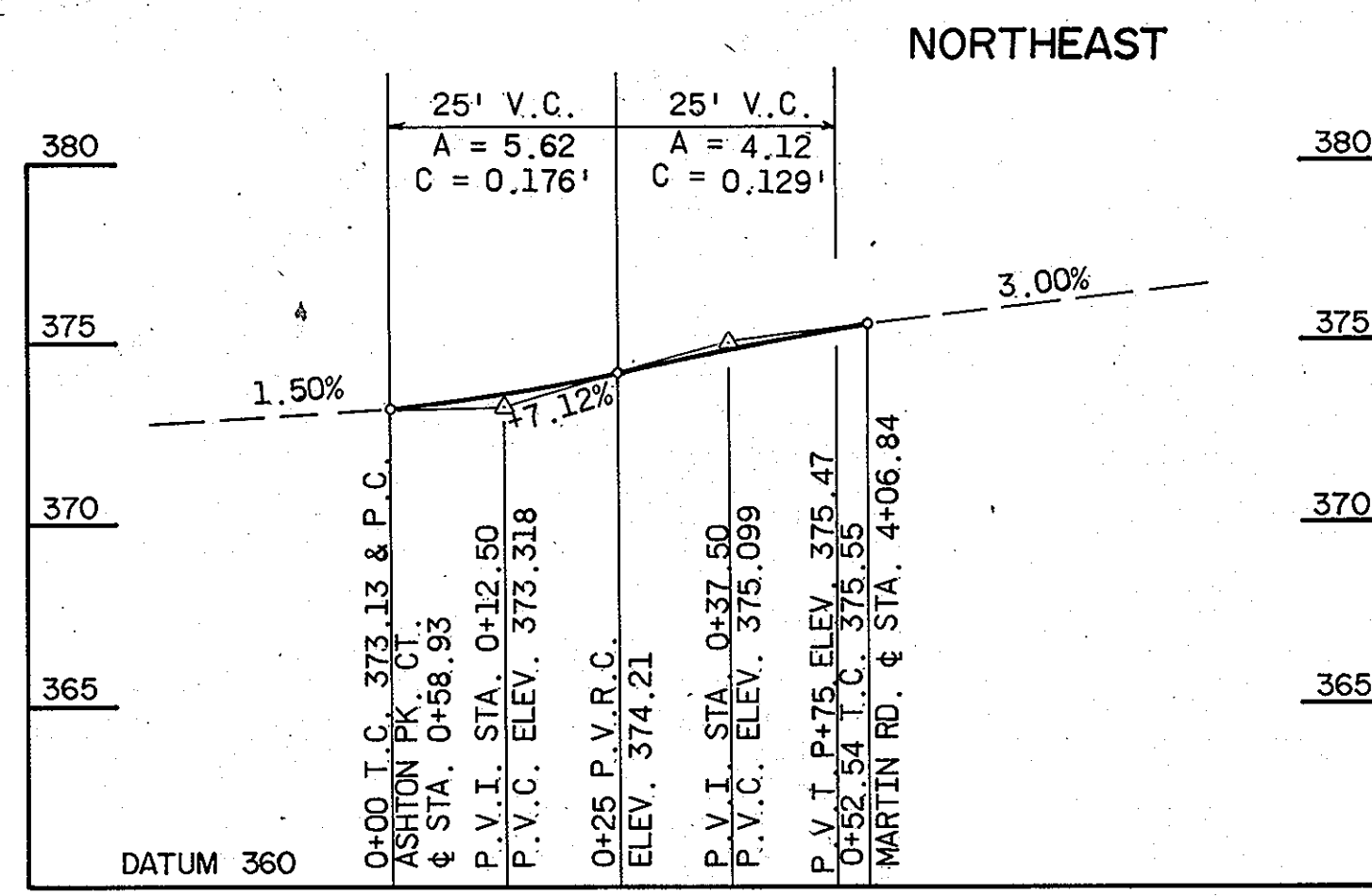
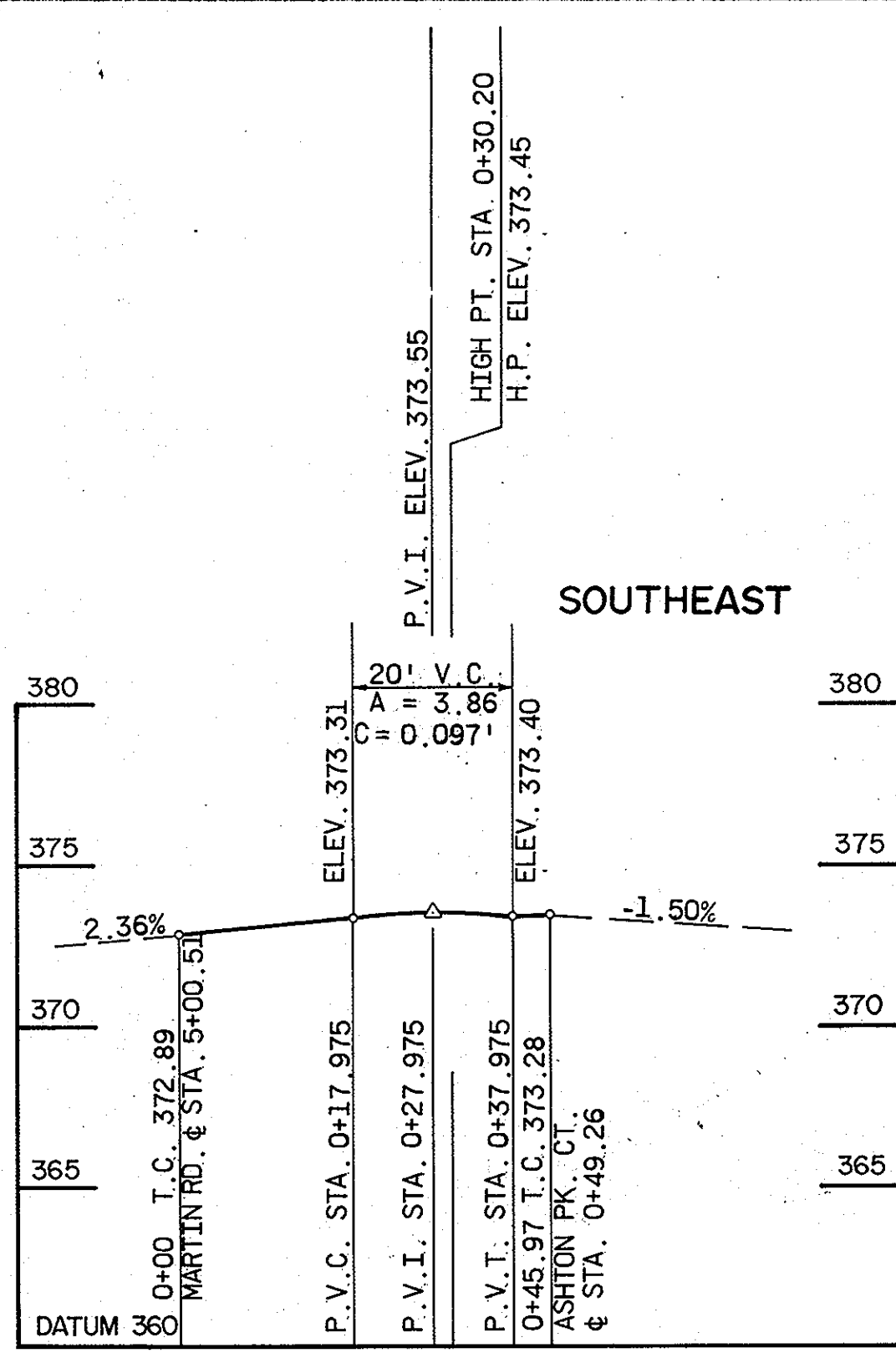
INTERSECTION PLAN
SCALE: 1" = 20'



CURB FILLET PROFILES--OWEN BROWN ROAD AND MARTIN ROAD

PROFILES SCALE: HORZ. 1" = 20' VERT. 1" = 5'

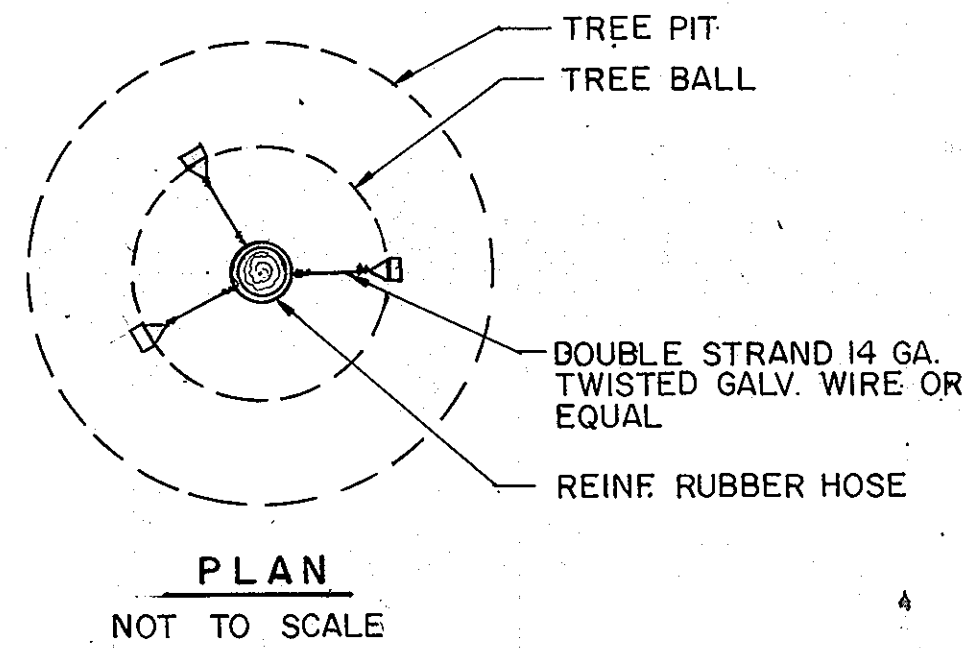
42



MARTIN ROAD/ASHTON PARK COURT

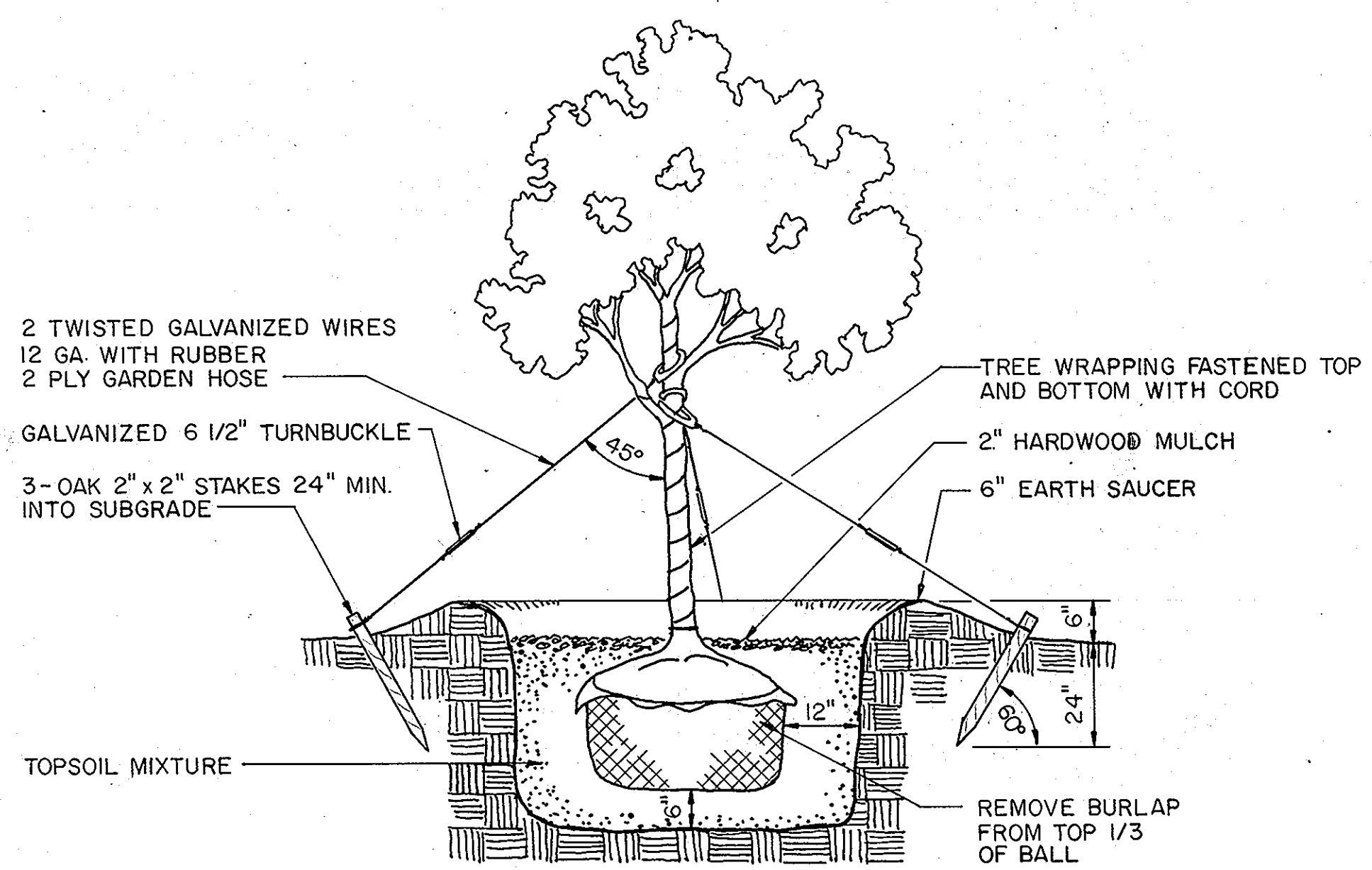
HICKORY RIDGE ROAD/MARTIN ROAD

CURB FILLET PROFILES
SCALE: HORIZ. 1"=20' VERT. 1"=5'

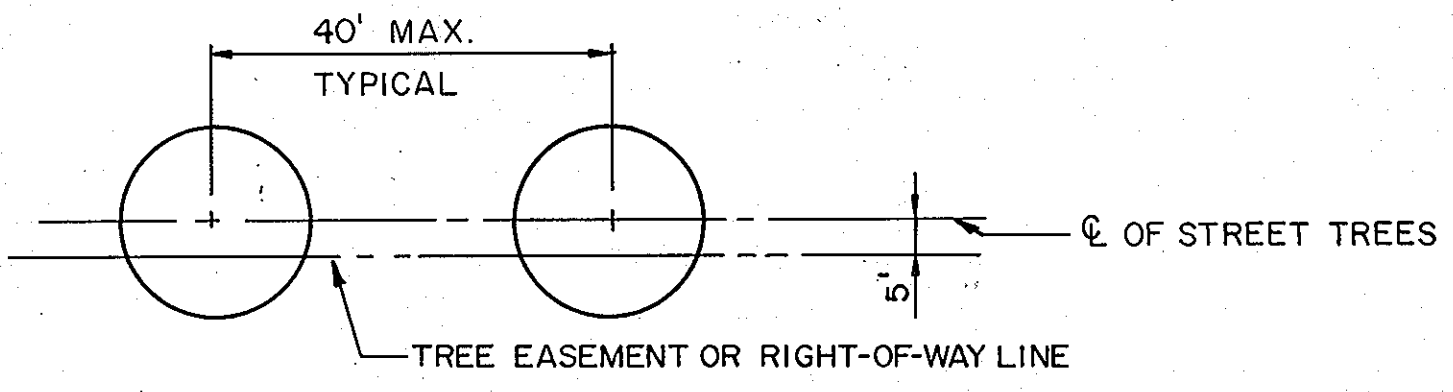


PLAN
NOT TO SCALE

SYMBOL	QUANTITY OF TREES	COMMON NAME	BOTANICAL
	119	RED MAPLE	ACER RUBRUM



ELEVATION
NOT TO SCALE



NOTE: STREET TREE TYPICAL PLAN PER SECTION 16.131 OF THE HOWARD COUNTY CODE SEE NOTE ON SHT. I.

STREET TREE PLANTING DETAIL
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS	
<i>Denise W. Weiland</i>	8/20/91
CHIEF, BUREAU OF HIGHWAY	DATE
<i>John M. Torgerson</i>	9/1/91
CHIEF, LAND DEVELOPMENT DIVISION	DATE
<i>R. S. ...</i>	9-19-91 JH
CHIEF, BUREAU OF ENGINEERING	DATE
DEPARTMENT OF PLANNING AND ZONING	
<i>Anna ...</i>	9/23/91
CHIEF, DIV. OF LAND DEVEL. & COM. PLANNING	DATE

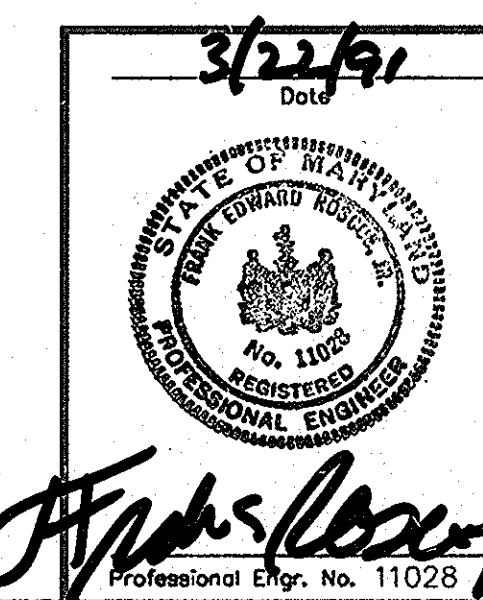
Date	No	Revision Description
OWNER/DEVELOPER		
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		

CENTURY ENGINEERING, INC.
CONSULTING ENGINEERS, PLANNERS
32 WEST ROAD
TOWSON, MARYLAND 21204

AREA: VILLAGE OF HICKORY RIDGE
SECTION 2 AREA 2
FDP PHASE 173-A-I

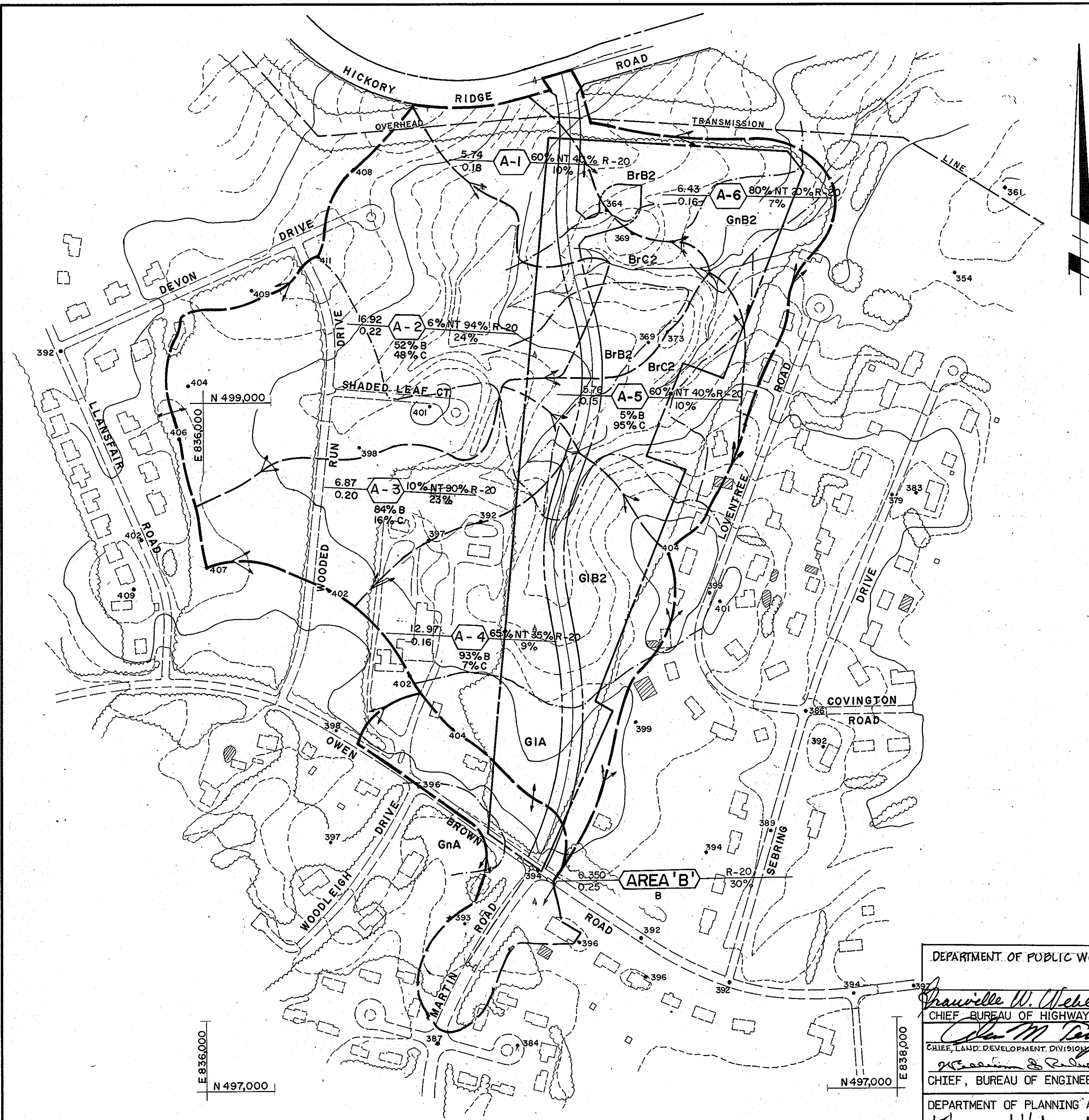
REFERENCES:
WP 91-106, S-90-22, WP-90-67, PB-118 P-91-04

TITLE: ROAD DETAILS
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
TAX MAP 36 PARCELS 267 & 84

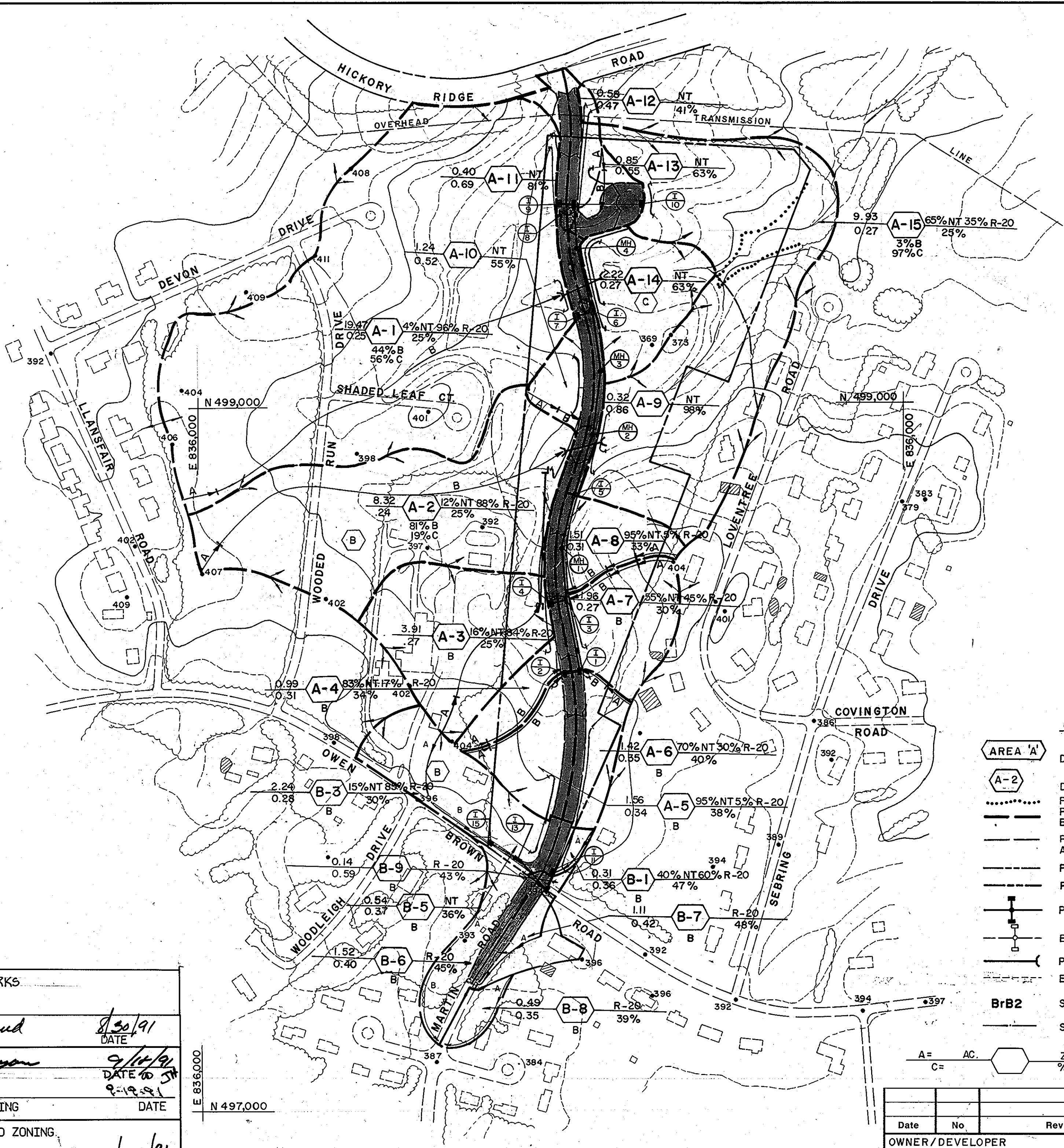


Des By	M.E.P.	Scale	AS SHOWN	Proj. No	91-005
Drn By	M.A.G.	Date	JULY 1991		
Chk By	J.A.R.	Approved	F.E.R.		

42



EXISTING DRAINAGE AREA MAP



PROPOSED DRAINAGE AREA MAP

DEPARTMENT OF PUBLIC WORKS
Chauville W. Wehland 8/30/91
 CHIEF, BUREAU OF HIGHWAY DATE
Alan M. Benson 9/16/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE
William S. R. King 9-19-91
 CHIEF, BUREAU OF ENGINEERING DATE
 DEPARTMENT OF PLANNING AND ZONING
Samuel Klemm 9/23/91
 CHIEF, DIV. OF LAND DEVEL. & COM. PLANNING DATE

- LEGEND**
- AREA 'A'
 - AREA 'B'
 - DRAINAGE AREA
 - DRAINAGE SUB-AREA
 - FLOODPLAIN BOUNDARY
 - PROPOSED DRAINAGE AREA BOUNDARY
 - PROPOSED DRAINAGE SUB-AREA
 - PROPOSED RIGHT OF WAY
 - PROPERTY LINE
 - PROPOSED STORM DRAIN
 - EXISTING STORM DRAIN
 - PROPOSED HEADWALL
 - EXISTING CONTOUR
 - BrB2 SOIL TYPE
 - SOIL BOUNDARY
 - A = AC ZONING
 - C = % IMPERVIOUS

SOILS CHART

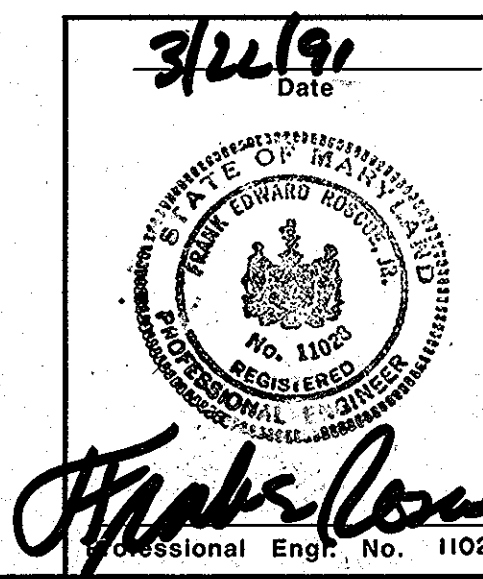
SOIL TYPE	DESCRIPTION
BrB2	BRANDYWINE LOAM 3% - 8% SLOPES MODERATELY ERODED
BrC2	BRANDYWINE LOAM 8% - 15% SLOPES MODERATELY ERODED
GIA	GLENELG LOAM 0% - 3% SLOPES
GIB2	GLENELG LOAM 3% - 8% SLOPES MODERATELY ERODED
GnA	GLENVILLE SILT LOAM 0% - 3% SLOPES
GnB2	GLENVILLE SILT LOAM 3% - 8% SLOPES MODERATELY ERODED

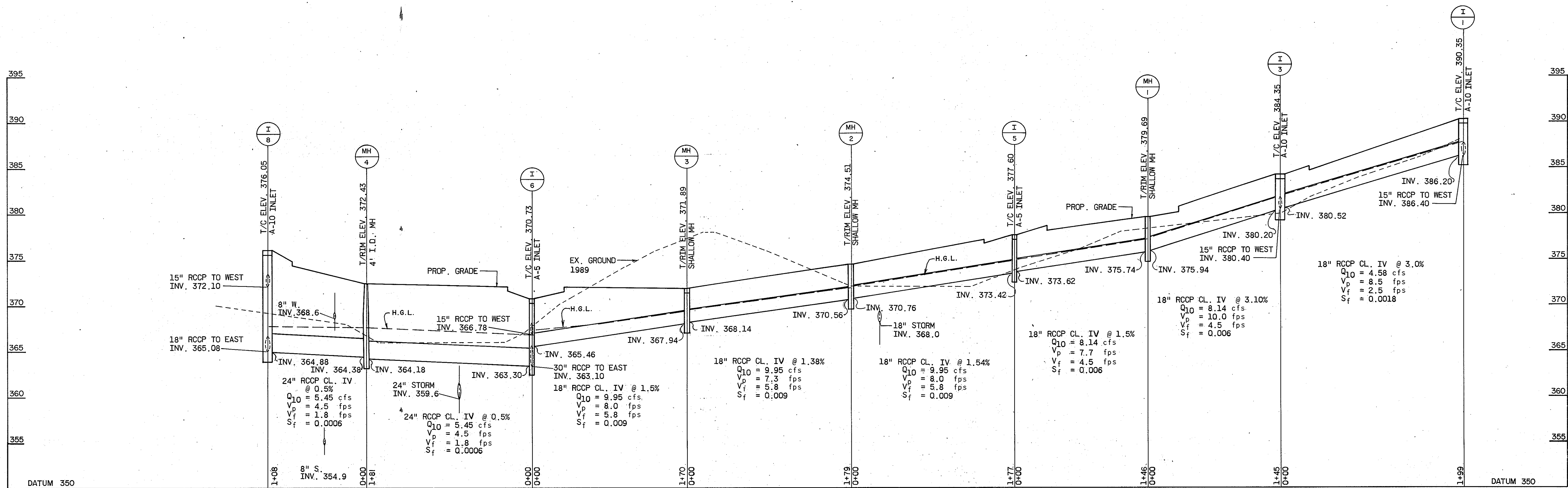
AREA	SIZE (Ac)	'C' VALUE	TIME OF CONCENTRATION		
			SEGMENT LENGTH		
			SHEET FLOW 'A'	SWALE FLOW 'B'	GUTTER FLOW 'C'
B-1	0.31	0.36	100' @ 1.0%	80' @ 2.0%	-
B-3	2.24	0.28	100' @ 2.7%	315' @ 1.5%	-
B-5	0.54	0.37	100' @ 1.0%	100' @ 2.0%	-
B-6	1.52	0.40	100' @ 3.0%	400' @ 2.0%	-
B-7	1.11	0.42	100' @ 3.0%	230' @ 2.0%	-
B-8	0.49	0.35	100' @ 1.7%	200' @ 2.0%	-

AREA	SIZE (Ac)	'C' VALUE	TIME OF CONCENTRATION		
			SEGMENT LENGTH		
			SHEET FLOW 'A'	SWALE FLOW 'B'	GUTTER FLOW 'C'
A-1	19.47	0.25	100' @ 3.5%	1150' @ 3.3%	-
A-2	8.32	0.24	100' @ 2%	1050' @ 3.4%	-
A-3	3.91	0.27	100' @ 2%	400' @ 5.5%	-
A-4	0.99	0.31	100' @ 2%	300' @ 4.0%	-
A-5	1.56	0.34	100' @ 2.0%	300' @ 4.0%	-
A-6	1.42	0.35	100' @ 5.0%	120' @ 4.0%	-
A-7	1.96	0.27	100' @ 3.5%	225' @ 9.0%	-
A-8	1.51	0.31	100' @ 3.5%	225' @ 9.0%	300' @ 2.25%
A-9	0.32	0.86	-	-	1350' @ 1.5%
A-10	1.24	0.52	100' @ 12%	70' @ 2%	350' @ 1.3%
A-11	0.40	0.69	100' @ 10.0%	-	260' @ 3.0%
A-12	0.58	0.47	40' @ 18%	-	340' @ 3.0%
A-13	0.85	0.55	100' @ 15%	150' @ 4.0%	80' @ 1.0%

Date	No.	Revision	Description
OWNER/DEVELOPER			
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044			
REFERENCES: S-90-22, WP-90-67, PB-118, P-91-04 WP 91-106			
CENTURY ENGINEERING, INC. CONSULTING ENGINEERS • PLANNERS 32 WEST ROAD TOWSON, MARYLAND 21204			
AREA VILLAGE OF HICKORY RIDGE SECTION 2 AREA 2 FDP PHASE 173-A-1			
TITLE DRAINAGE AREA MAPS 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND TAX MAP 36 PARCEL 267 & 84			
Des By	MEP	Scale	1" = 200'
Drn By	MAG	Date	JULY 1991
Chk By	RFM	Approved	
Professional Engr. No. 11028			Proj No 91-005
			8 OF 17

42

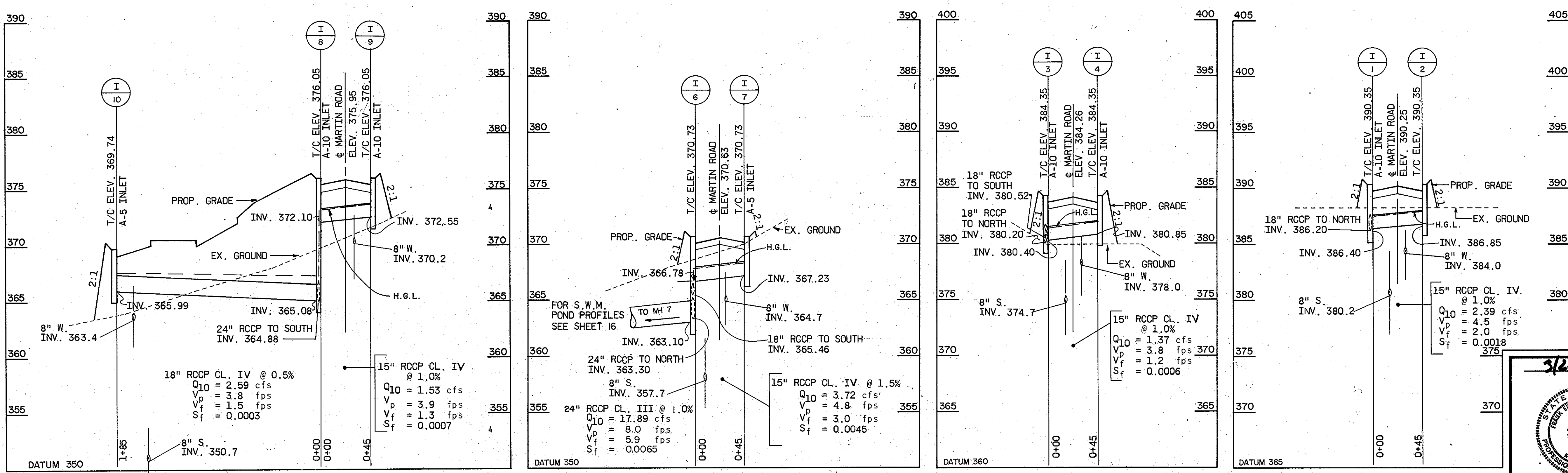




STORM DRAIN PROFILES

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

NOTE: FOR STORM DRAIN NOTES SEE SHEET 10 OF 17.



STORM DRAIN PROFILES

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

DEPARTMENT OF PUBLIC WORKS
Arville W. Weiland 8/30/91
 CHIEF, BUREAU OF HIGHWAY DATE
John M. Penson 9/1/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE
William S. Penson 9-18-91
 CHIEF, BUREAU OF ENGINEERING DATE

DEPARTMENT OF PLANNING AND ZONING
Anna Halonath 9/23/91
 CHIEF, DIV. OF LAND DEVL. & COM. PLANNING DATE

Date	No	Revision Description

OWNER/DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

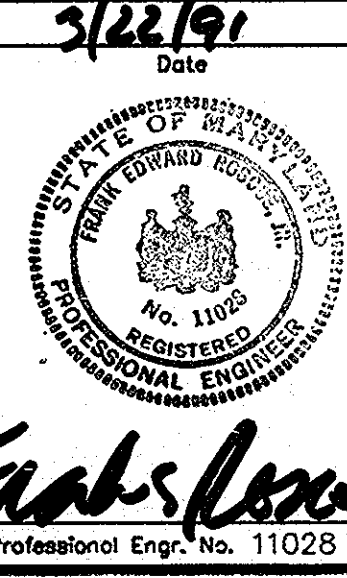
CENTURY ENGINEERING, INC.
 CONSULTING ENGINEERS, PLANNERS
 32 WEST ROAD
 TOWSON, MARYLAND 21284

AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 2 AREA 2
 FDP PHASE 173-A-1

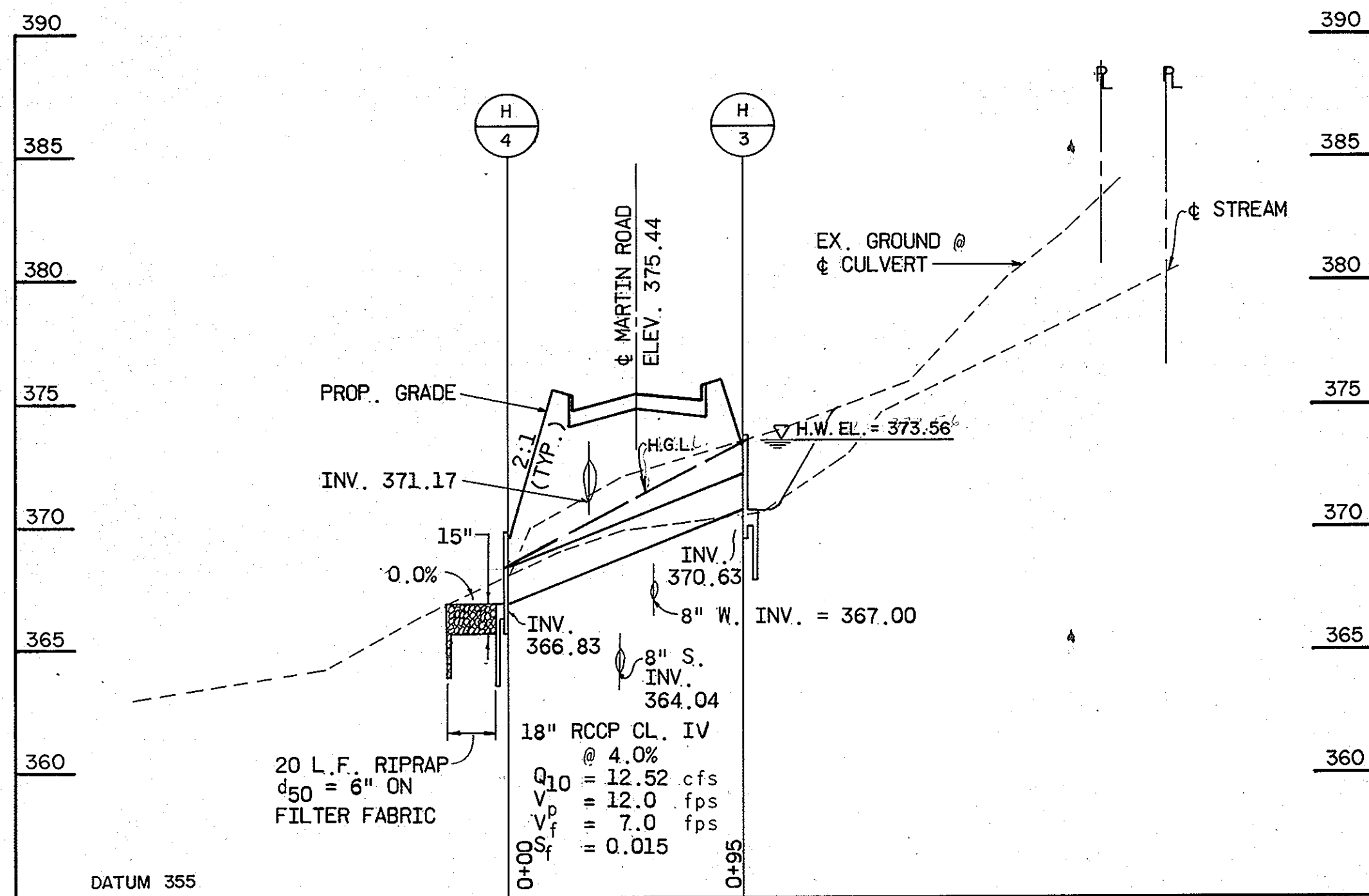
REFERENCES:
 WP 91-106, S-90-22, WP-90-67, PB-118, P-91-04

TITLE
STORM DRAIN PROFILES
 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
 TAX MAP 36 PARCELS 267 & 84

Des By M.E.P. Scale AS SHOWN Proj No 91-005
 Dwn By M.A.G. Date JULY 1991
 Cks By J.A.R. Approved F.E.R. **9 OF 17**

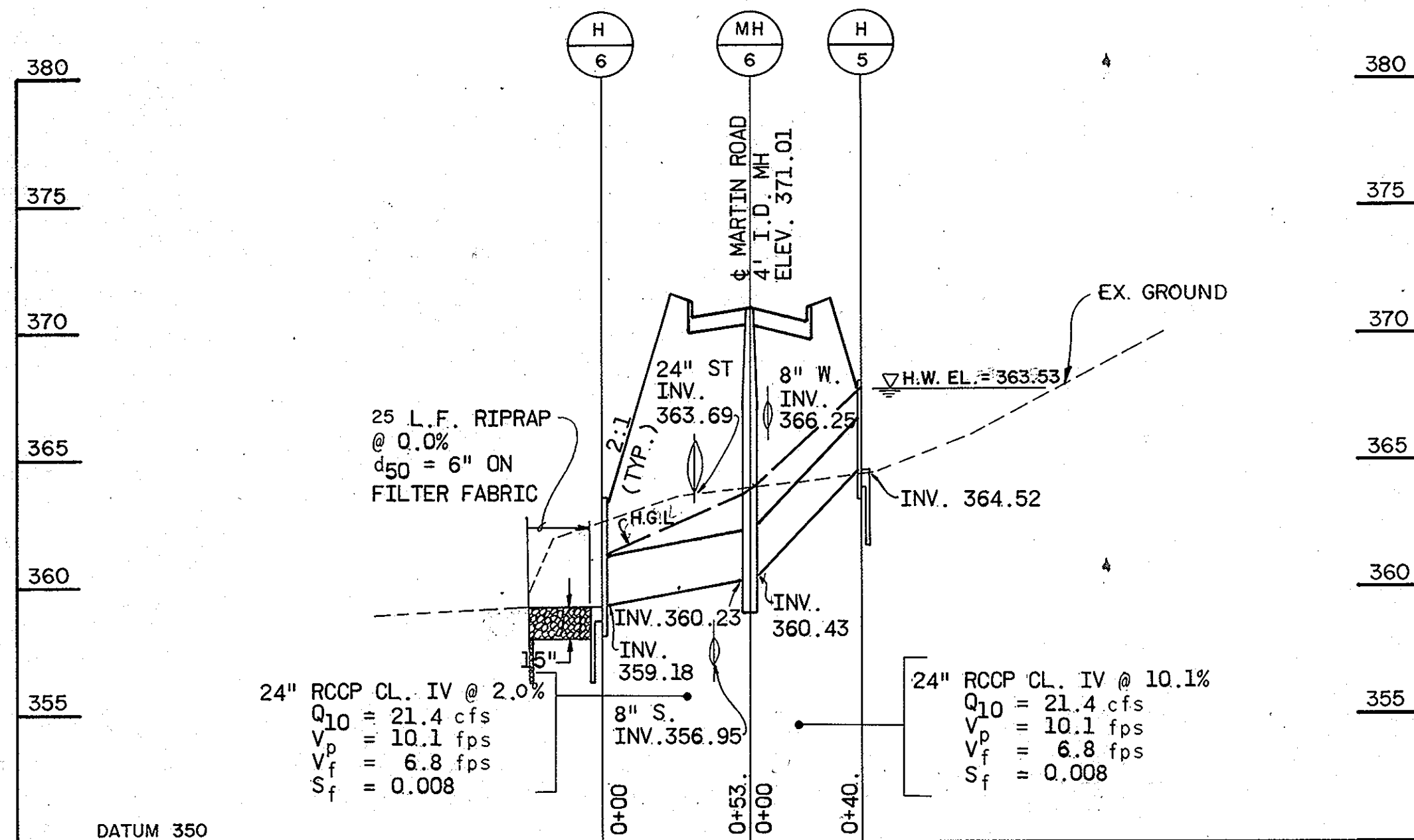


Arville W. Weiland
 Professional Eng. No. 11028



STORM DRAIN PROFILES

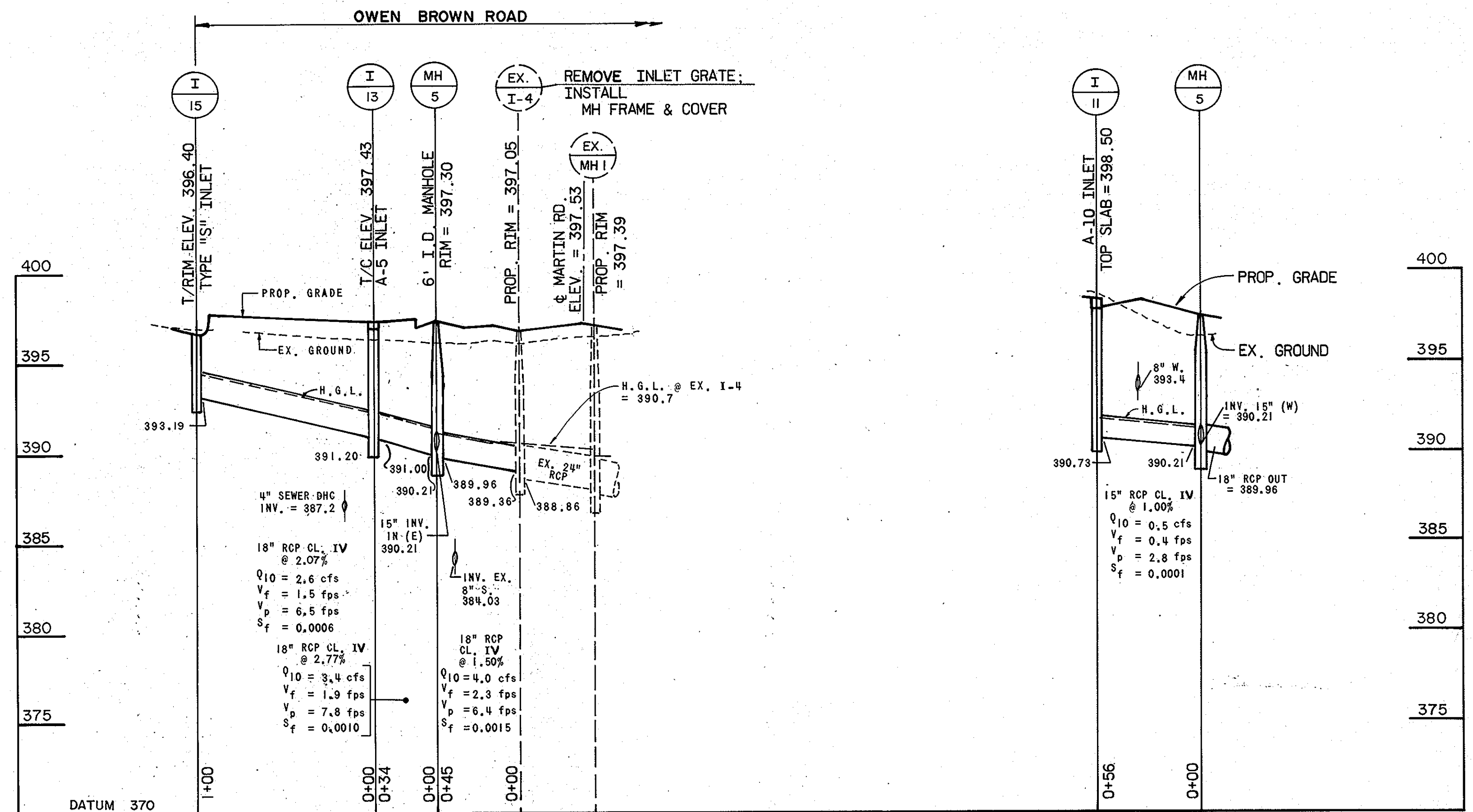
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



STORM DRAIN PROFILES

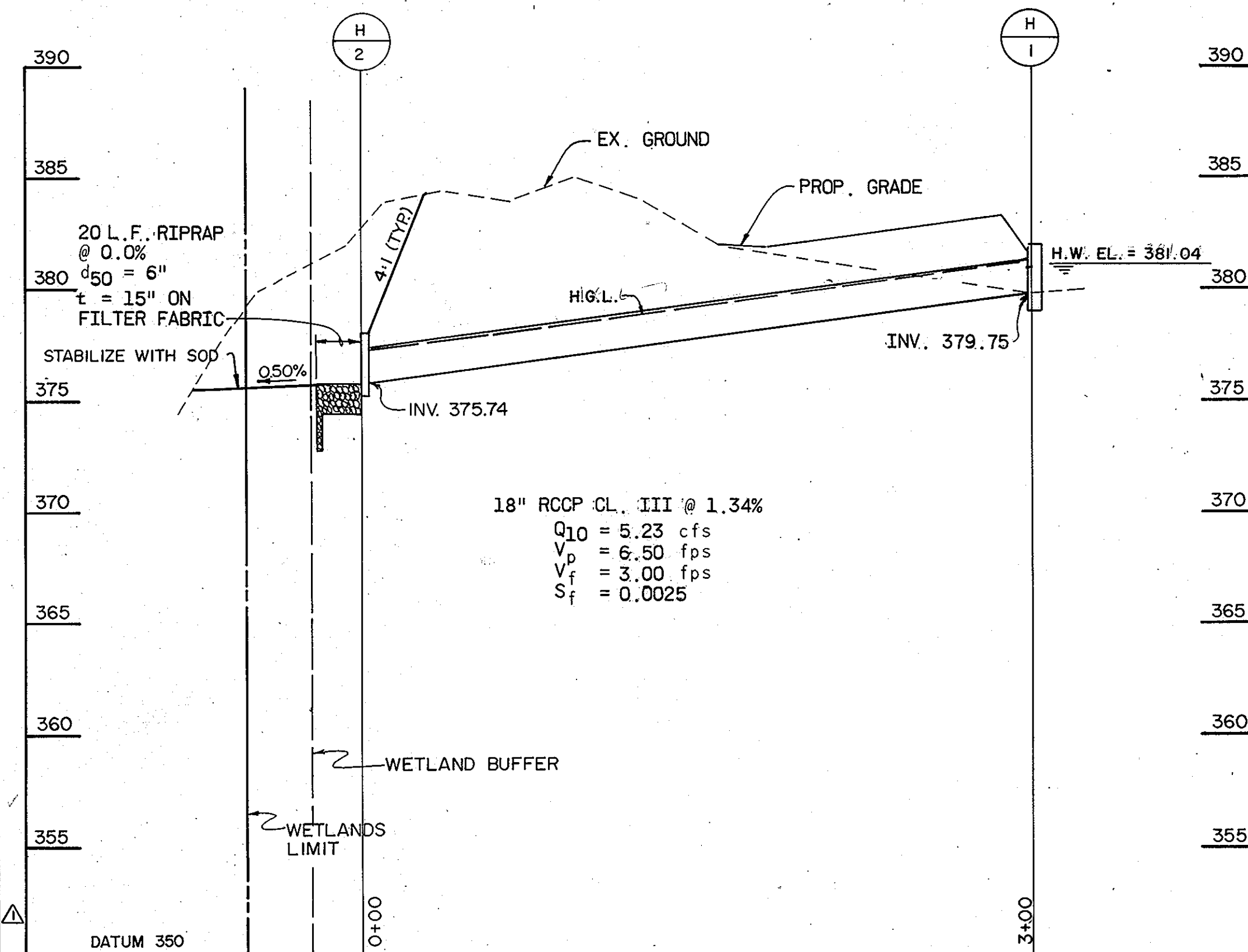
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

STORM DRAIN STRUCTURE SCHEDULE							
NO.	TYPE	WIDTH	T/CURB ELEV. *	INV. ELEV. (IN)	INV. ELEV. (OUT)	STATION	LOCATION * OFFSET
I-1	A-10 (SD. 4.02)	2.5'	390.35	386.40	386.20	17+00	22.0 LT.
I-2	A-10 (SD. 4.02)	2.5'	390.35	N/A	386.85	17+00	22.0 RT.
I-3	A-10 (SD. 4.02)	2.5'	384.35	380.52	380.20	15+00	22.0 LT.
I-4	A-10 (SD. 4.02)	2.5'	384.35	N/A	380.85	15+00	22.0 RT.
I-5	A-5 (SD. 4.01)	2.5'	377.60	373.62	373.42	12+00	22.0 LT.
I-6	A-5 (SD. 4.01)	2.5'	370.73	366.78	363.10	6+83.58	22.0 LT.
I-7	A-5 (SD. 4.01)	2.5'	370.73	N/A	367.23	6+83.58	22.0 RT.
I-8	A-10 INLET (SD. 4.02)	2.5'	376.05	372.10	364.88	3+90	22.0 LT.
I-9	A-10 INLET (SD. 4.02)	2.5'	376.05	N/A	372.55	3+90	22.0 RT.
I-10	A-5 INLET (SD. 4.01)	2.5'	369.74	N/A	365.99	1+57.91	0.00 **
I-11	A-10 (SD. 4.02)	2.5'	398.50	N/A	390.73	23+00	22.0 LT.
I-13	A-5 (SD. 4.01)	2.5'	397.43	391.20	391.00	23+09.78	66.2 RT.
I-15	TYPE "S" INLET (SD. 4.22)	2'-8"	RIM 396.40	N/A	393.19	22+82.77	160.2 RT.
E-1	CONC. END SECT. (SD. 5.51)	24" DIA.	N/A	361.50	361.50	6+98.5	63.0 LT.
MH-1	MANHOLE (G 5.05)	4.0'	379.69	375.94	375.74	13+50	18.5 LT.
MH-2	MANHOLE (G 5.05)	4.0'	374.51	370.76	370.56	10+25	18.5 LT.
MH-3	MANHOLE (G 5.05)	4.0'	371.89	368.14	367.94	8+50	18.5 LT.
MH-4	MANHOLE (G 5.01)	4.0' ID	372.43	364.38	364.18	5+00	18.5 LT.
MH-5	STD. PRECAST M.H. (G 5.11)	6.0' ID	RIM 397.30	392.50	389.96	23+10	30.0 RT.
MH-6	MANHOLE (G 5.01)	4.0' ID	371.01	360.43	360.23	6+06	0.00
MH-7	MANHOLE (G 5.01)	4.0' ID	369.00	363.00	362.80	6+83.58	37.0 LT.
H-1	'E' HEADWALL (SD. 5.31)	-	382.00	379.75	N/A	14+98	48.0 RT.
H-2	'C' ENDWALL (SD. 5.21)	-	378.00	N/A	375.74	12+16	61.0 RT.
H-3	'A' HEADWALL (SD. 5.11)	-	373.63	370.63	N/A	10+88	37.0 RT.
H-4	'A' HEADWALL (SD. 5.11)	-	369.83	N/A	366.83	10+38	43.0 LT.
H-5	'A' HEADWALL (SD. 5.11)	-	368.02	364.52	N/A	6+16	39.0 RT.
H-6	'A' HEADWALL (SD. 5.11)	-	362.60	N/A	359.18	5+94	51.0 LT.
H-7	'C' HEADWALL (SD. 5.21)	-	362.00	N/A	360.00	6+47	161.5 LT.



STORM DRAIN PROFILES

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



STORM DRAIN PROFILES

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

- NOTES:
- 1) THE SLOPES FOR ALL STORM DRAINS ARE BASED ON A LENGTH OF PIPE FROM INSIDE FACE OF STRUCTURE TO THE INSIDE FACE OF STRUCTURE.

DEPARTMENT OF PUBLIC WORKS	
<i>William W. Welton</i>	8/30/91
CHIEF, BUREAU OF HIGHWAY	DATE
<i>William W. Welton</i>	9/18/91
CHIEF, LAND DEVELOPMENT DIVISION	DATE
<i>William W. Welton</i>	9/18/91
CHIEF, BUREAU OF ENGINEERING	DATE
DEPARTMENT OF PLANNING AND ZONING	
<i>Anna M. Helmer</i>	9/23/91
CHIEF, DIV. OF LAND DEVEL. & COM. PLANNING	DATE

2-21-92	Δ	REVISED S.D. SCHEDULE
Date	No	Revision Description

OWNER/DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

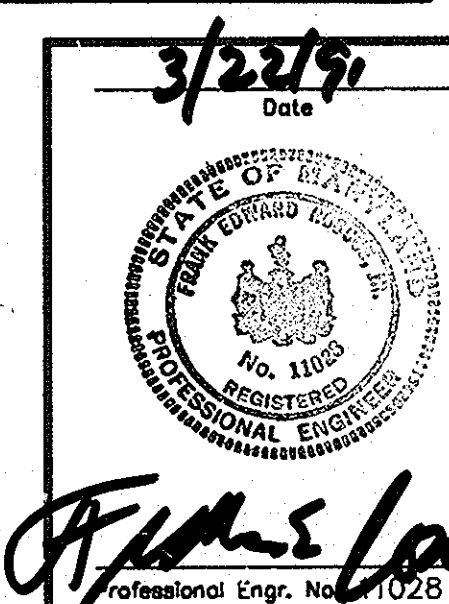
CENTURY ENGINEERING, INC.
CONSULTING ENGINEERS, PLANNERS
32 WEST ROAD
TOWSON, MARYLAND 21284

AREA VILLAGE OF HICKORY RIDGE
SECTION 2 AREA 2
FDP PHASE 173-A-1

REFERENCES:
WP 91-106, S-90-22, WP-90-67, PB-118, P-91-04

TITLE **STORM DRAIN PROFILES**
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
TAX MAP 36 PARCELS 267 & 84

Des By	M.E.P.	Scale	AS SHOWN	Proj No	91-005
Drn By	M.A.C.	Date	JULY 1991	Dr	10 OF 17
Chk By	J.A.R.	Approved	F.E.R.		



* TOP OF CURB CENTER OF STRUCTURE FOR INLETS AND TOP OF COVER CENTER OF STRUCTURE FOR MANHOLES AND CENTERLINE OF PIPE TOP OF WALL FOR HEADWALLS.
** P.G.L. ASHTON PARK COURT

BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

Albert F. Edwards
 SIGNATURE OF THE DEVELOPER
 ALBERT F. EDWARDS
 8-6-91
 DATE

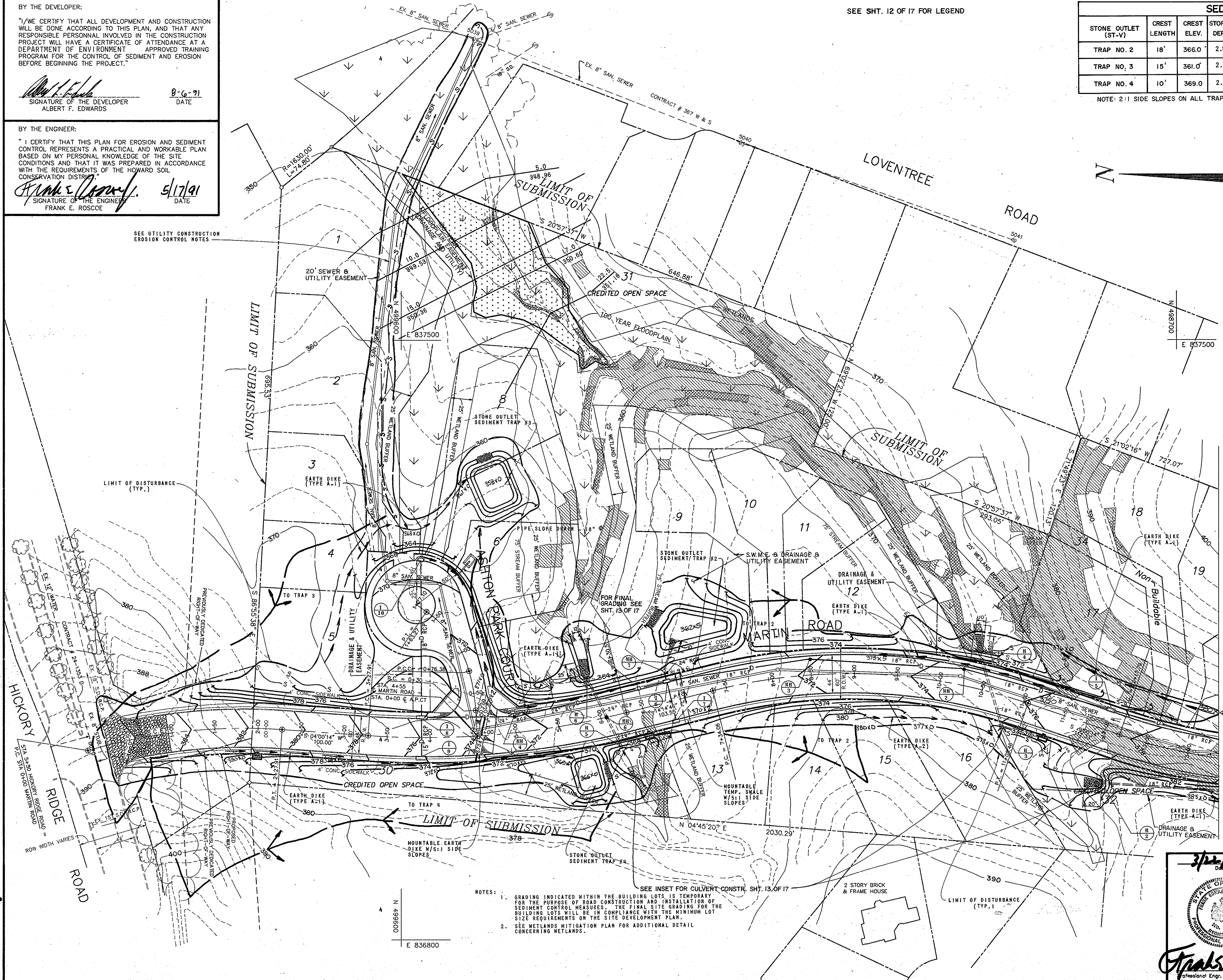
BY THE ENGINEER:
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Frank E. Roscoe
 SIGNATURE OF THE ENGINEER
 FRANK E. ROSCOE
 5/17/91
 DATE

SEE SHT. 12 OF 17 FOR LEGEND

SEDIMENT TRAP SCHEDULE											
STONE OUTLET (ST-V)	CREST LENGTH	CREST ELEV.	STORAGE DEPTH	DRAINAGE AREA	BOTTOM DIMENSION	VOLUME		BOTTOM ELEVATION	CLEANOUT ELEVATION	TOP EMBANK. ELEVATION	
						REQ'D	PROV.				
TRAP NO. 2	18'	366.0'	2.5'	EX. DEV. 2.7AC, 2.7AC	25' x 75'	4860 C.F.	5575 C.F.	362.5	363.8	367.25	
TRAP NO. 3	15'	361.0'	2.0'	2.2AC, 2.2AC	36' x 46'	3960 C.F.	4000 C.F.	358.0	359.1	362.0	
TRAP NO. 4	10'	369.0'	2.0'	1.3AC, 1.3AC	26' x 36'	2340 C.F.	2400 C.F.	366.0	367.2	370.0	

NOTE: 2:1 SIDE SLOPES ON ALL TRAPS, OR FLATTER



DEPARTMENT OF PUBLIC WORKS
Doreen W. McLeod 8/30/91
 CHIEF, BUREAU OF HIGHWAY DATE

John M. Dargatzis 9/10/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE

William S. Scahill 9-19-91
 CHIEF, BUREAU OF ENGINEERING DATE

DEPARTMENT OF PLANNING AND ZONING
Emma H. Hildner 9/23/91
 CHIEF, DIV. OF LAND DEVEL. AND COM. PLANNING DATE

REVIEWED FOR Howard S.C.D. NAME
 AND MEETS TECHNICAL REQUIREMENTS.
John M. Helms 8/26/91 DATE
 CHIEF, SOIL CONSERVATION DISTRICT

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

John R. Johnson 8/26/91 DATE
 HOWARD S.C.D.

Date	No	Revision Description

OWNER/DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

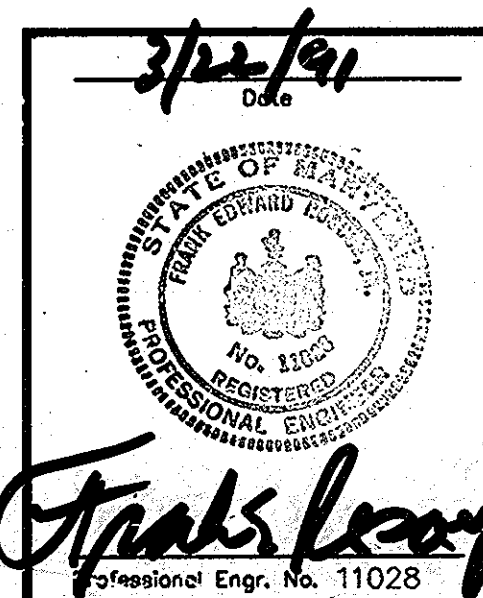
CENTURY ENGINEERING, INC.
 CONSULTING ENGINEERS, PLANNERS
 32 WEST ROAD
 TOWSON, MARYLAND 21284

AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 2 AREA 2
 FDP PHASE 173-A-1

REFERENCES:
 WP-91-106, S-90-22, WP-90-67, PB-118, P-91-04

TITLE
GRADING & SEDIMENT CONTROL
 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
 TAX MAP 36 PARCELS 267 & 84

Des By M.E.P. Scale 1"=50' Proj No 91-005
 Dwn By J.L.B. Date JULY 1991 DRAWING NO
 Ck'd By J.A.R. Approved F.E.R. 11 OF 17



- NOTES:
- GRADING INDICATED WITHIN THE BUILDING LOTS IS TEMPORARY FOR THE PURPOSE OF ROAD CONSTRUCTION AND INSTALLATION OF SEDIMENT CONTROL MEASURES. THE FINAL SITE GRADING FOR THE BUILDING LOTS WILL BE IN COMPLIANCE WITH THE MINIMUM LOT SIZE REQUIREMENTS OF THE SITE DEVELOPMENT PLAN.
 - SEE WETLANDS MITIGATION PLAN FOR ADDITIONAL DETAIL CONCERNING WETLANDS.

SEE INSET FOR CULVERT CONSTR. SHT. 13 OF 17

MATCH LINE SEE SHEET 12 OF 18

42

F-91-134

BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

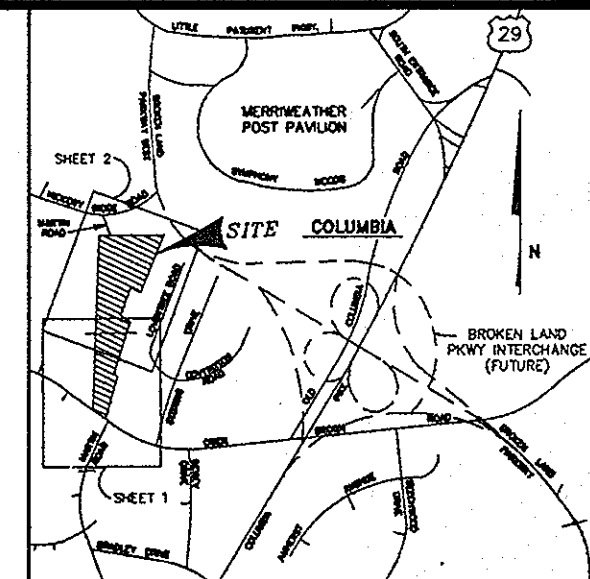
Albert F. Edwards
 SIGNATURE OF THE DEVELOPER
 ALBERT F. EDWARDS
 8-6-91
 DATE

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

Frank E. Roscoe
 SIGNATURE OF THE ENGINEER
 FRANK E. ROSCOE
 8/17/91
 DATE

LEGEND

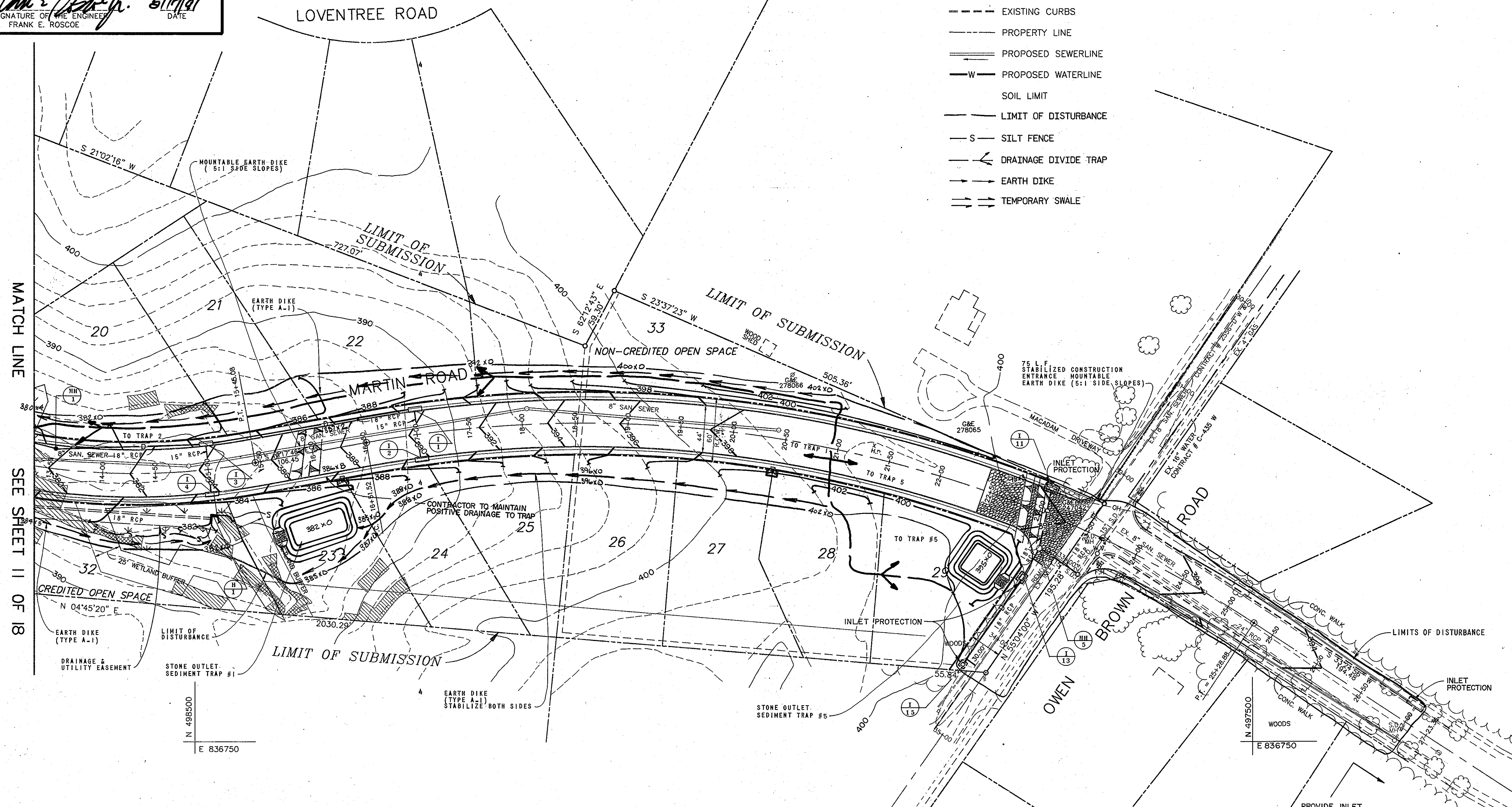
- WETLANDS
- PROPOSED ROAD
- 100 YEAR FLOODPLAIN
- 15% - 25% STEEP SLOPES
- >25% STEEP SLOPES
- SOIL GROUP
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED CURBS
- EXISTING CURBS
- PROPERTY LINE
- PROPOSED SEWERLINE
- PROPOSED WATERLINE
- SOIL LIMIT
- LIMIT OF DISTURBANCE
- SILT FENCE
- DRAINAGE DIVIDE TRAP
- EARTH DIKE
- TEMPORARY SWALE



VICINITY MAP
 1"=2000'

N
 MARYLAND STATE GRID

N 497500
 E 836750



DEPARTMENT OF PUBLIC WORKS
James W. Weiland 8/30/91
 CHIEF, BUREAU OF HIGHWAY DATE

John M. Penson 9/10/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE

Robert E. Penson 9-19-91
 CHIEF, BUREAU OF ENGINEERING DATE

DEPARTMENT OF PLANNING AND ZONING
Anna H. Henshaw 9/23/91
 CHIEF, DIV. OF LAND DEVL. AND COM. PLANNING DATE

REVIEWED FOR HOWARD S.C.D.
 AND MEETS TECHNICAL REQUIREMENTS.
James W. Weiland 8/26/91
 U.S. SOIL CONSERVATION DISTRICT DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John R. Redman 8/26/91
 HOWARD S.C.D. DATE

Date	No	Revision Description

OWNER/DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

CENTURY ENGINEERING, INC.
 CONSULTING ENGINEERS, PLANNERS
 32 WEST ROAD
 TOWSON, MARYLAND 21284

AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 2 AREA 2
 FDP PHASE 173-A-1

REFERENCES:
 WP-91-106, S-90-22, WP-90-67, PB-118, P-91-04

TITLE
GRADING & SEDIMENT CONTROL
 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
 TAX MAP 36 PARCELS 267 & 84

Des By M.E.P. Scale AS SHOWN Proj No 91-005
 Dwn By J.L.B. Date JULY 1991
 Ck'd By J.A.R. Approved F.E.R. **12 OF 17**

7/31/91
 Date

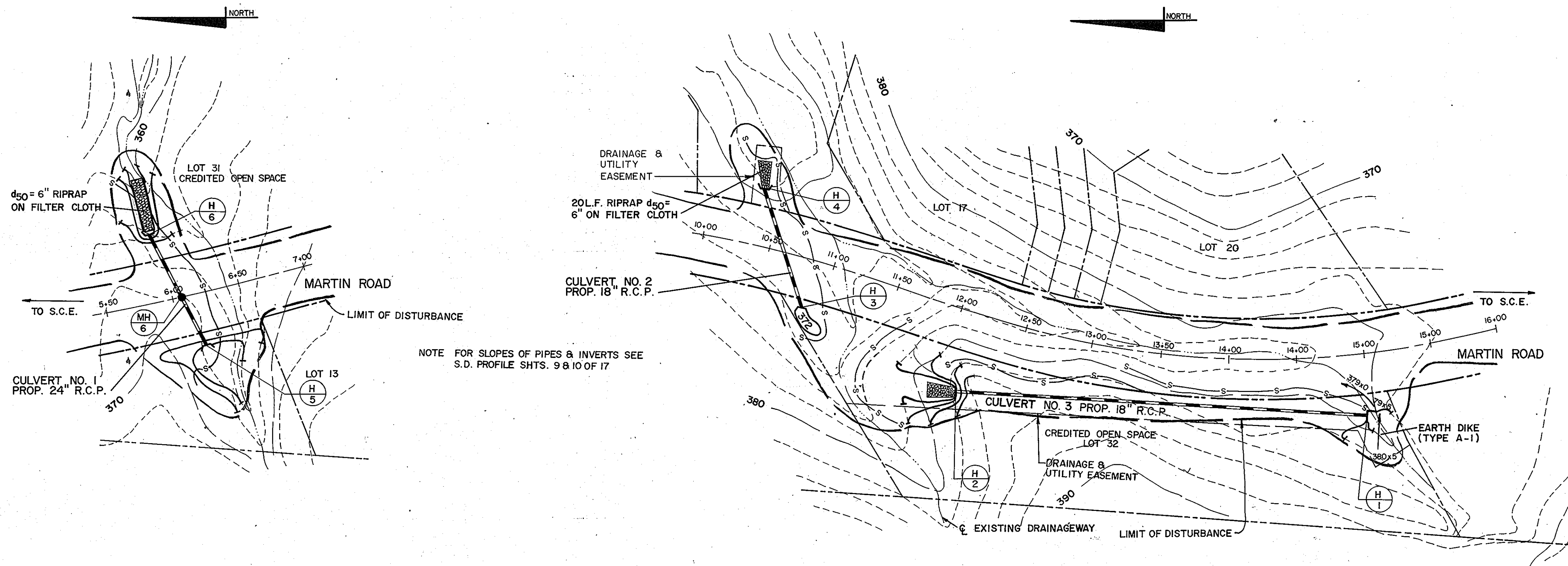
Frank E. Roscoe
 Professional Eng. No. 11023

42

STONE OUTLET (ST-V)	CREST LENGTH	CREST ELEV.	STORAGE DEPTH	DRAINAGE AREA	BOTTOM DIMENSION	VOLUME		BOTTOM ELEVATION	CLEANOUT ELEVATION	TOP EMBANK. ELEVATION
						REQ'D	PROV.			
TRAP NO. 1	12'	385.0	2.0'	EX. DEV. 1.5 AC. 1.6 AC.	23' x 50'	2880 C.F.	2950 C.F.	382.0	383.1	386.0
TRAP NO. 5	10'	398.0	2.0'	1.2 AC. 1.1 AC.	30' x 28'	2160 C.F.	2176 C.F.	395.0	396.1	399.0

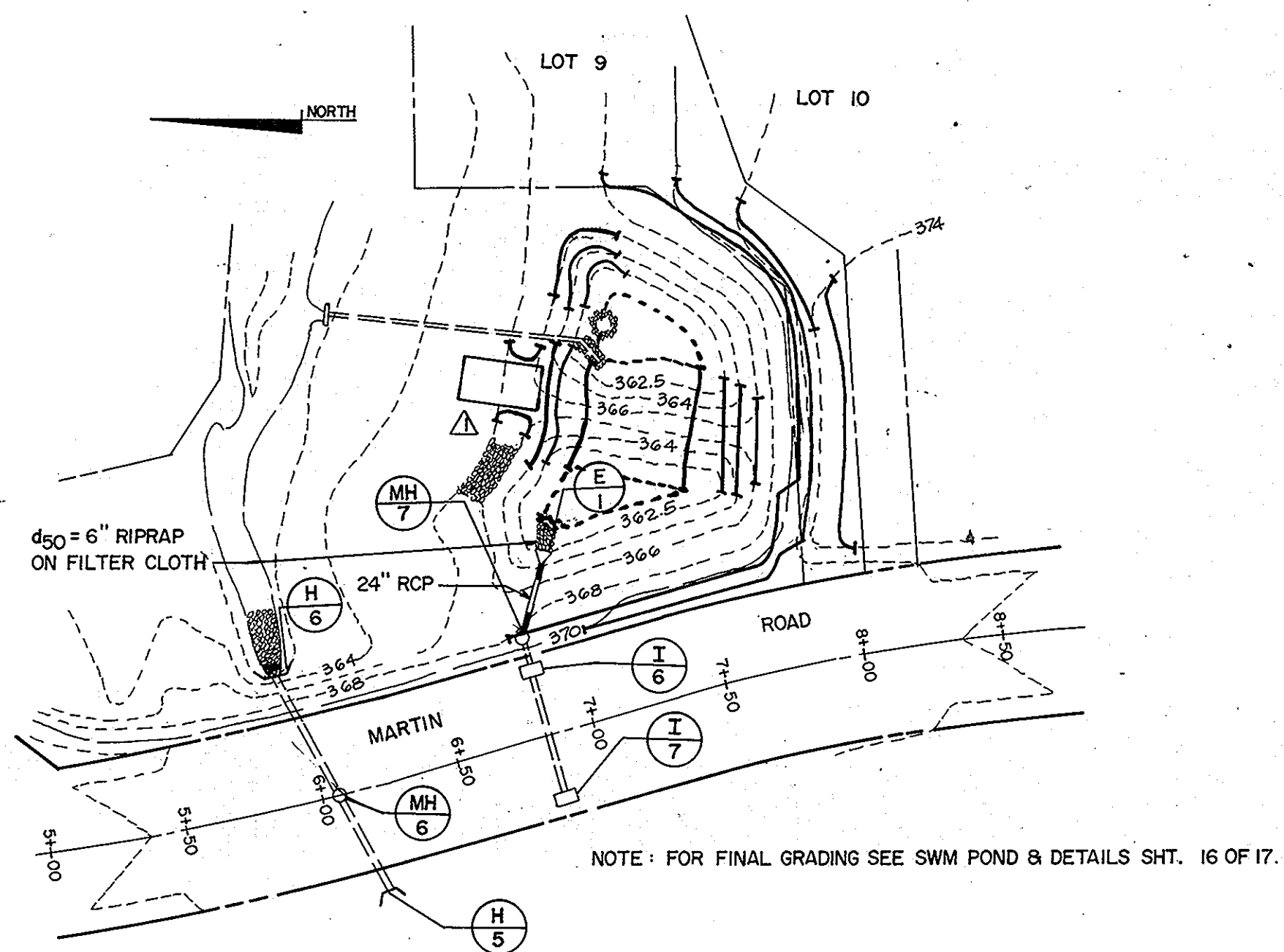
NOTE: 2:1 SIDE SLOPES ON ALL TRAPS OR FLATTER

NOTE: SEE WETLANDS MITIGATION PLAN FOR ADDITIONAL DETAIL CONCERNING WETLANDS

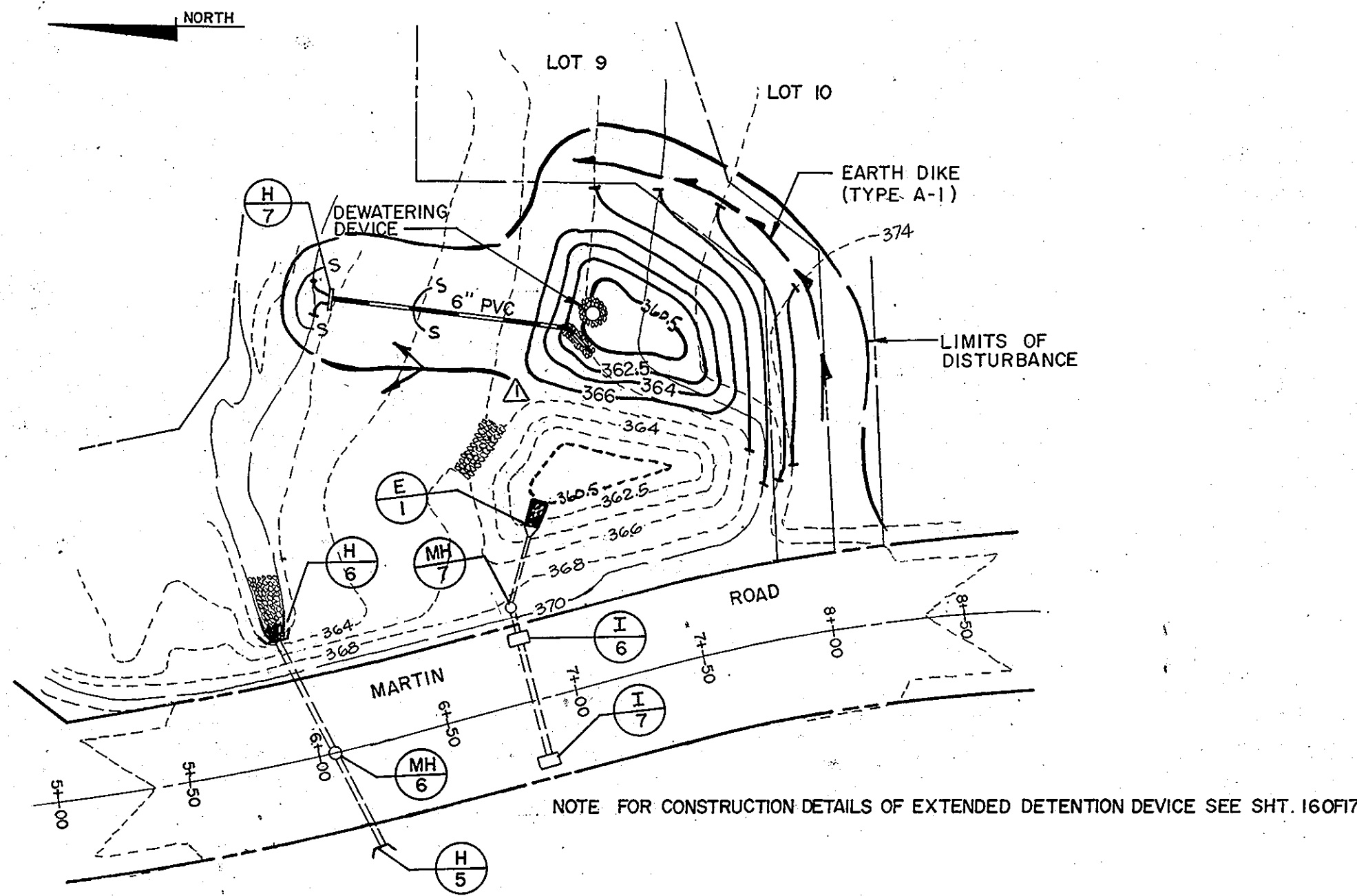


INSETS-PHASE I, CULVERT CONSTRUCTION

SCALE: 1" = 50'



INSET FOR PHASE II CONSTRUCTION OF STORMWATER MANAGEMENT BASIN



INSET FOR PHASE I CONSTRUCTION OF EXTENDED DETENTION DEVICE

INSETS FOR TRAP NO. 2 REMOVAL AND STORMWATER MANAGEMENT BASIN CONSTRUCTION

SCALE: 1" = 50'

BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."
 SIGNATURE OF THE DEVELOPER: *Albert F. Edwards* DATE: 8-6-91

BY THE ENGINEER:
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
 SIGNATURE OF THE ENGINEER: *Frank E. Roscoe* DATE: 7/31/91

APPROVED: HOWARD CO. DEPT. OF PUBLIC WORKS
Praville W. Wickens 8/30/91
 CHIEF, BUREAU OF HIGHWAY DATE

Alan M. Denson 9/10/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE

James M. Denson 9-18-91
 CHIEF, BUREAU OF ENGINEERING DATE

DEPARTMENT OF PLANNING AND ZONING
Anna M. Denson 9/23/91
 CHIEF, DIV. OF LAND DEVEL. & COM. PLANNING DATE

REVIEWED FOR: HOWARD NAME: _____ S.C.D.
 AND MEETS TECHNICAL REQUIREMENTS.
John M. Helm 8/24/91
 U.S. SOIL CONSERVATION DISTRICT DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John L. Roberton 8/26/91
 HOWARD S.C.D. DATE

Date	No.	Revision Description
7-21-92	1	REVISED SWM BASIN

OWNER/DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

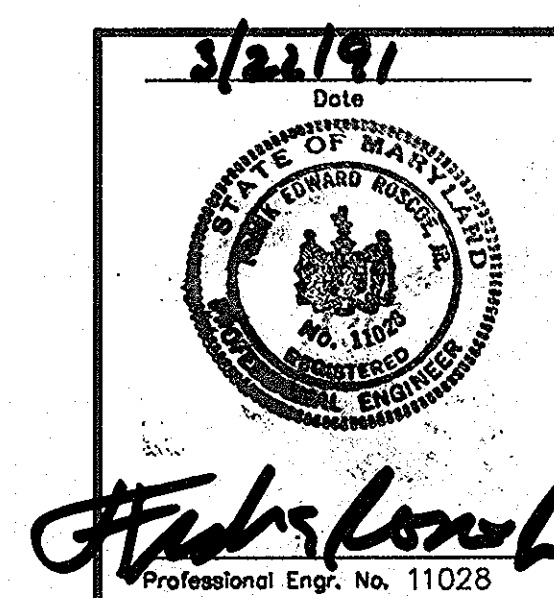
CENTURY ENGINEERING, INC.
 CONSULTING ENGINEERS, PLANNERS
 32 WEST ROAD
 TOWSON, MARYLAND 21284

AREA: VILLAGE OF HICKORY RIDGE
 SECTION 2 AREA 2
 FDP PHASE 173-A-1

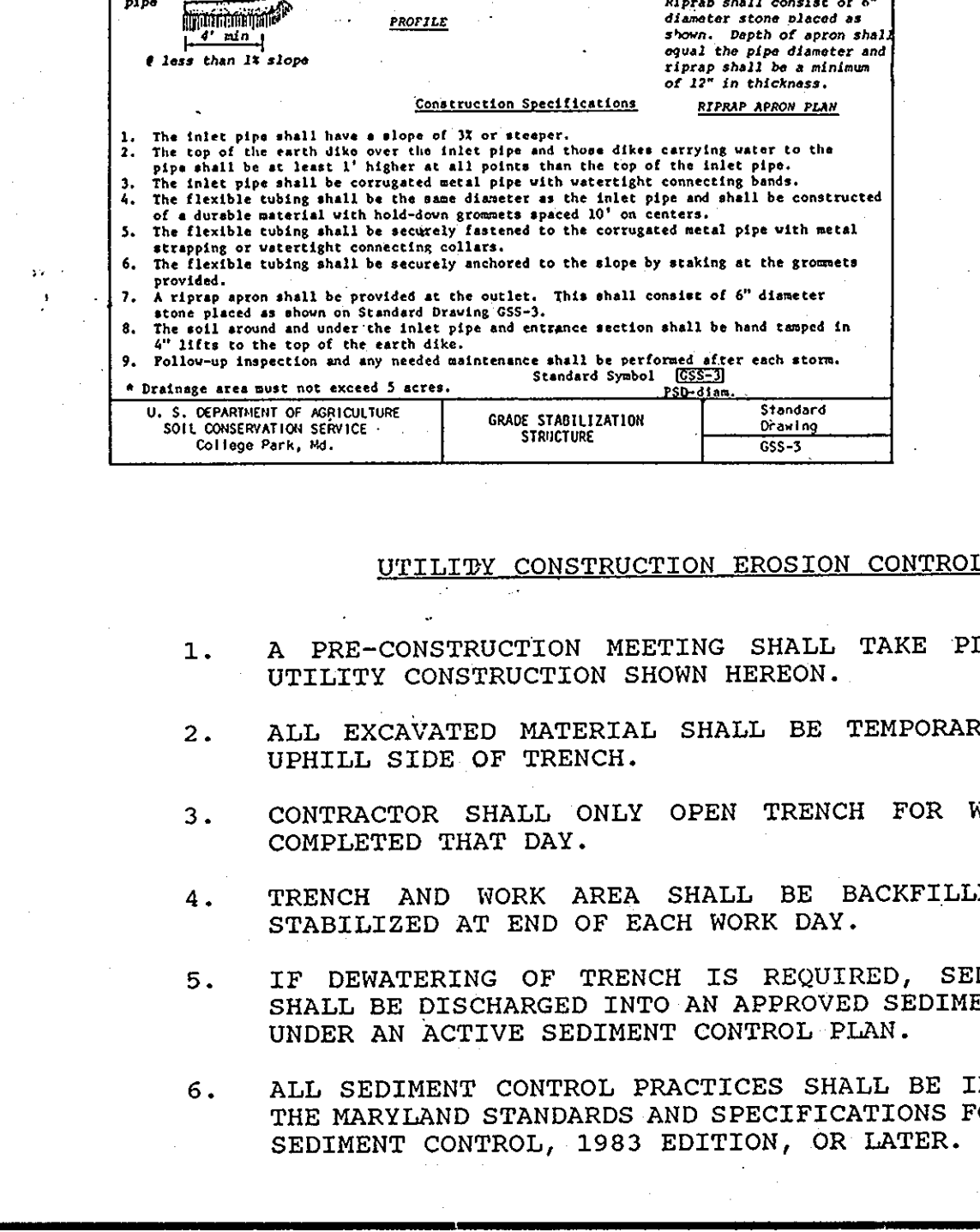
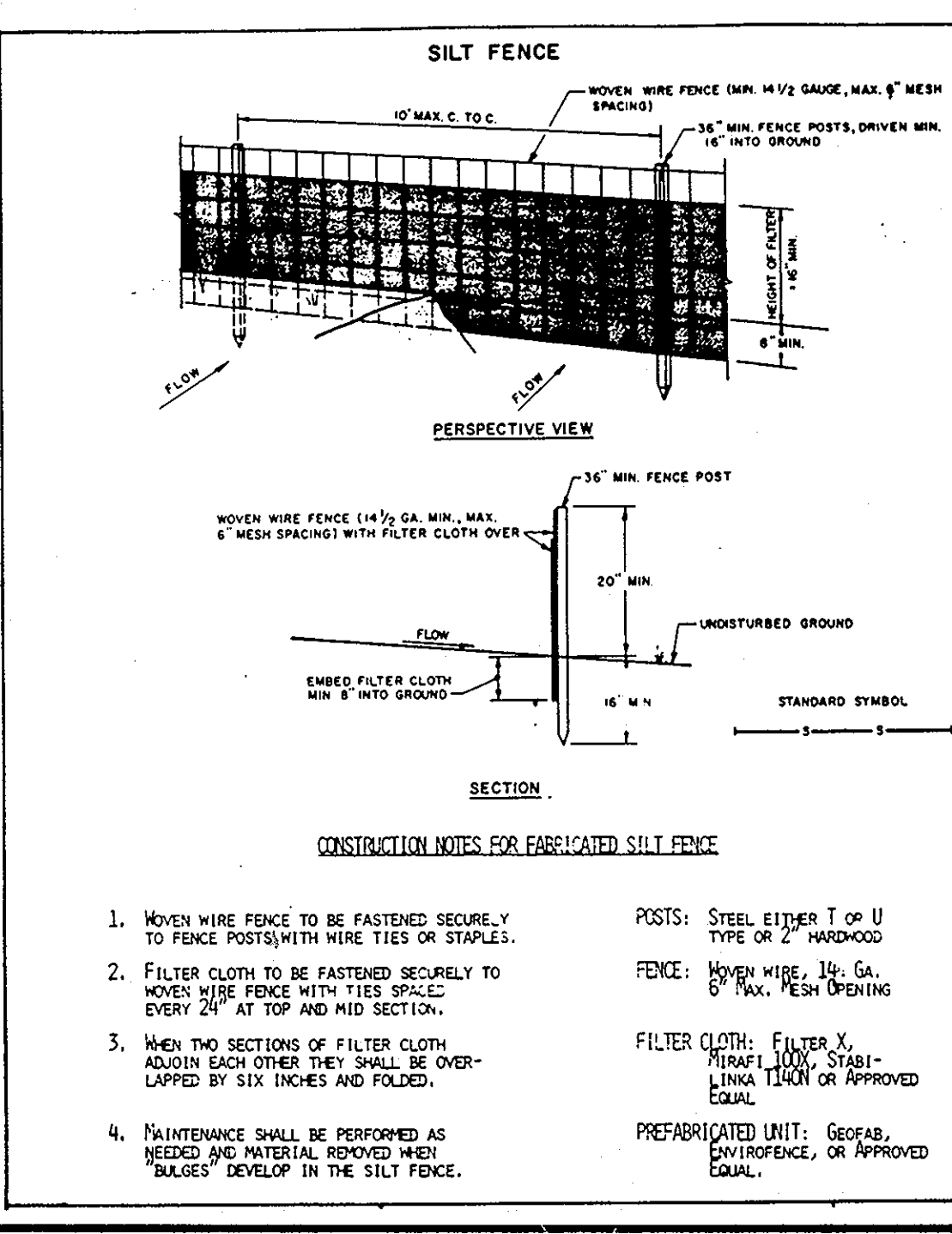
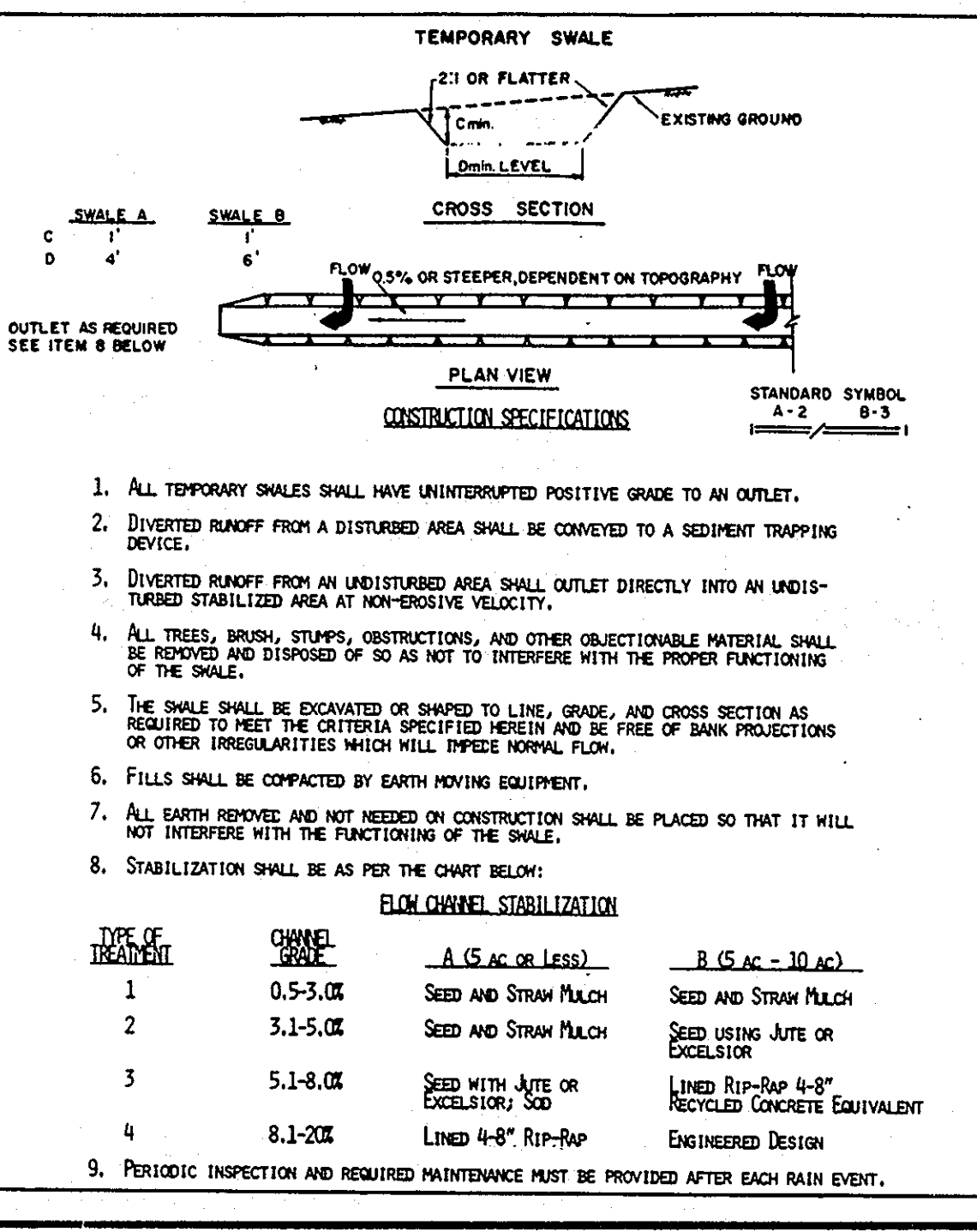
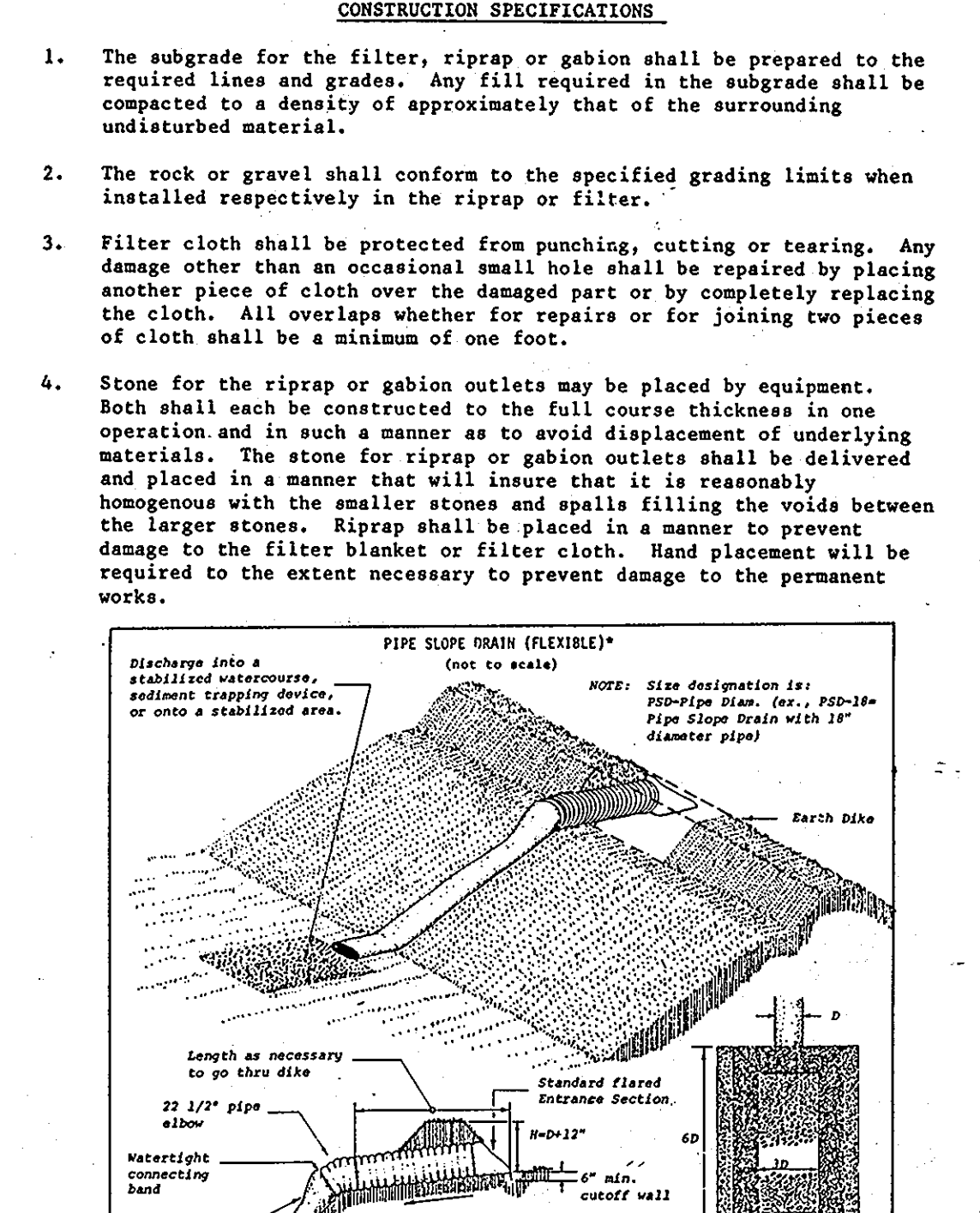
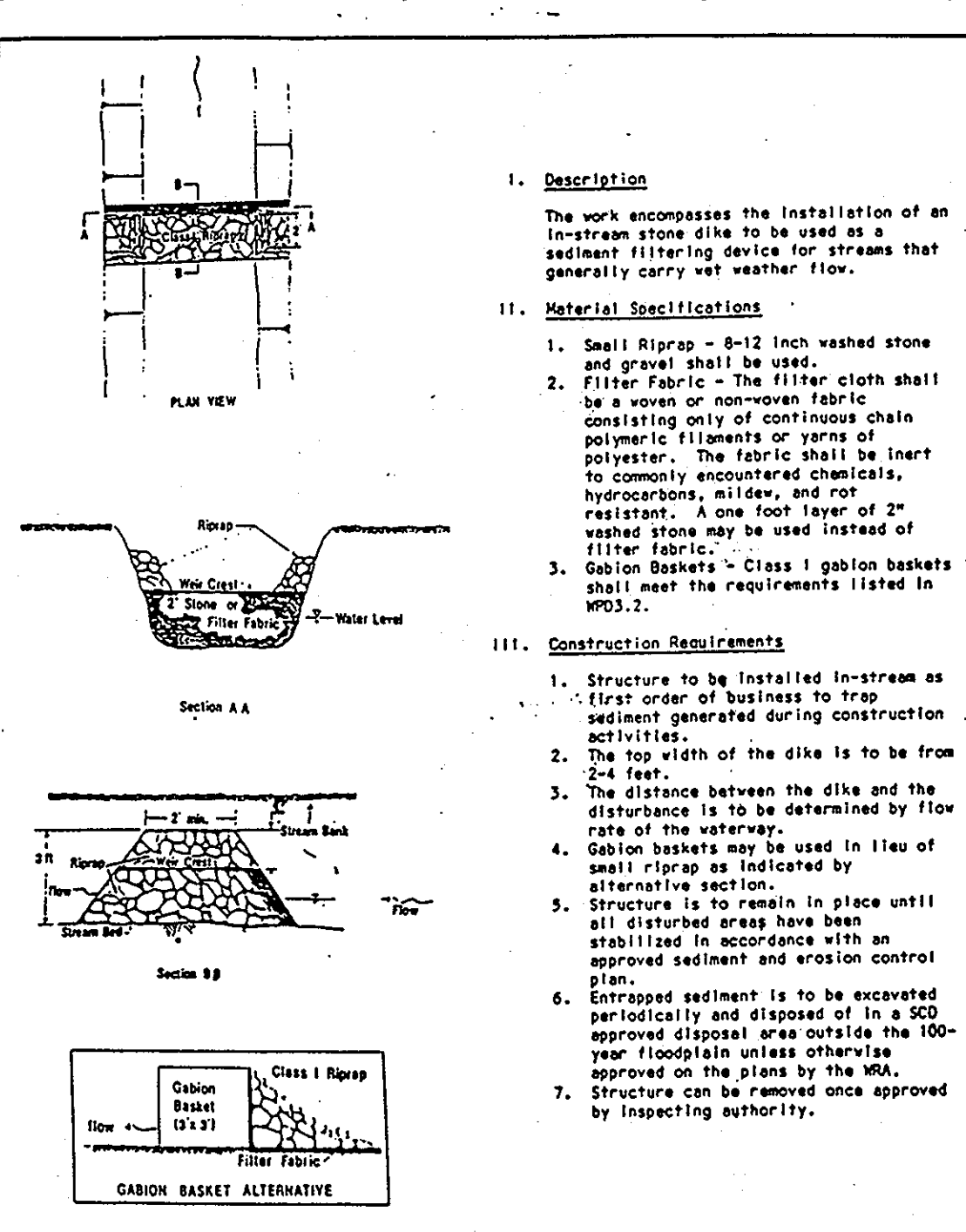
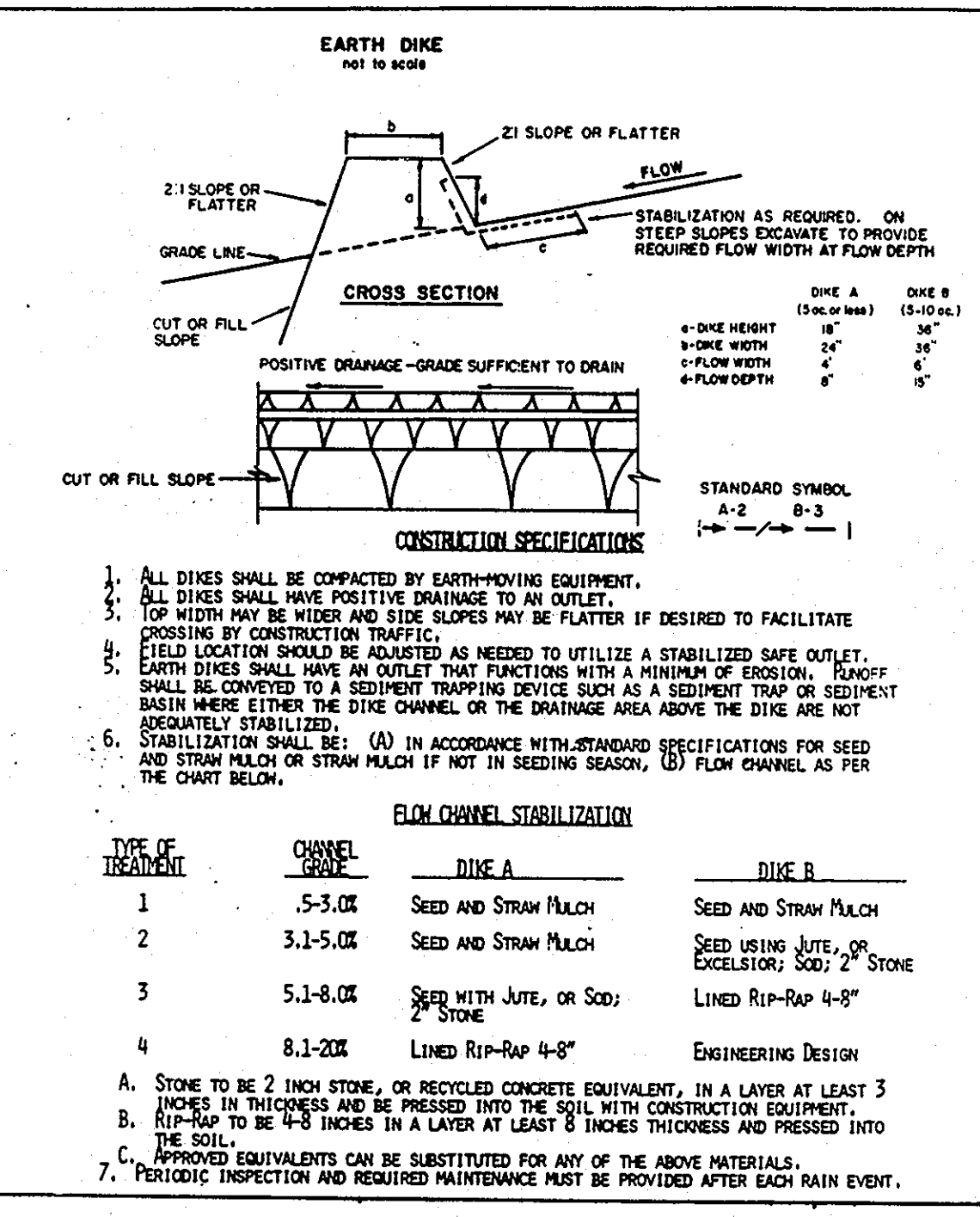
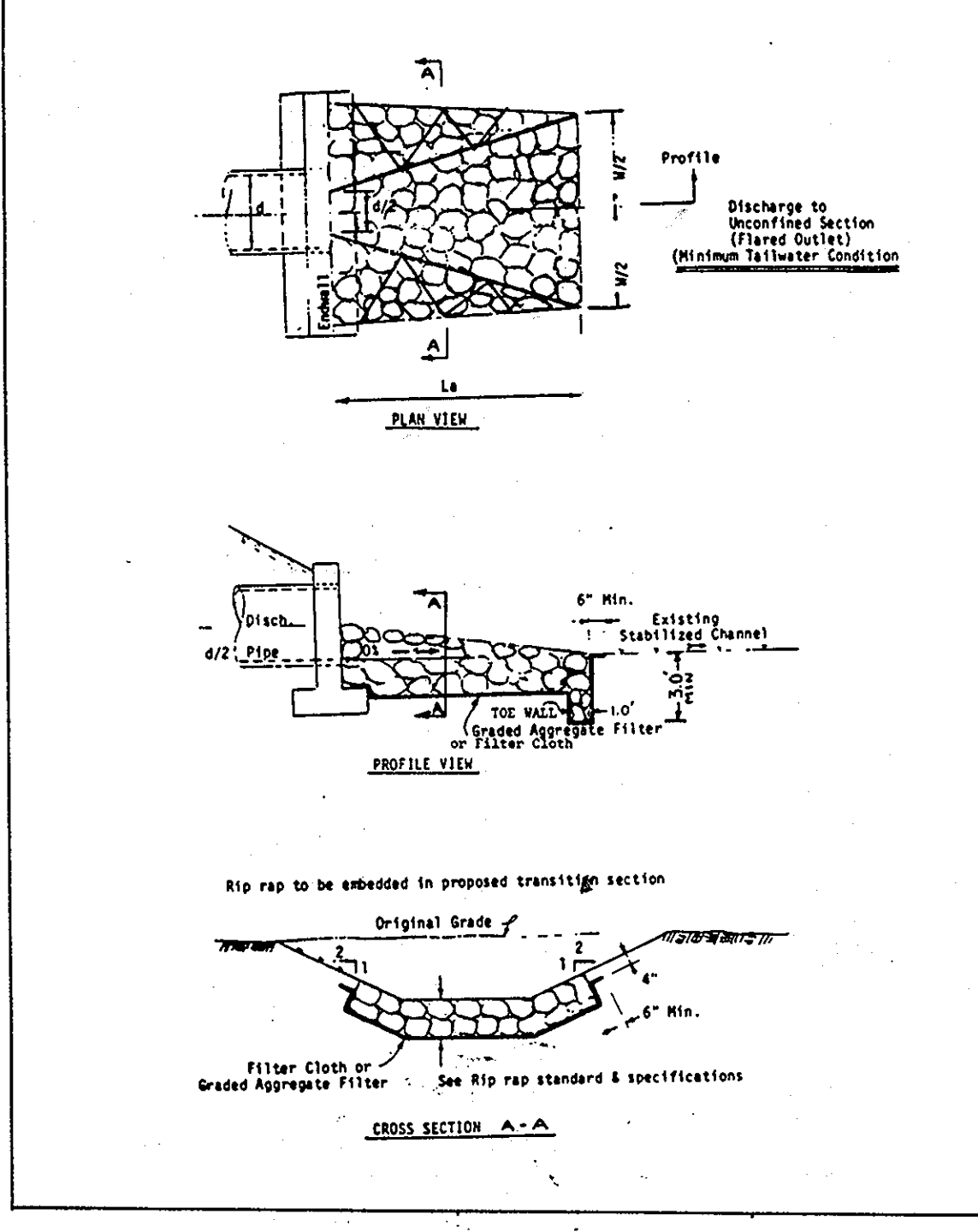
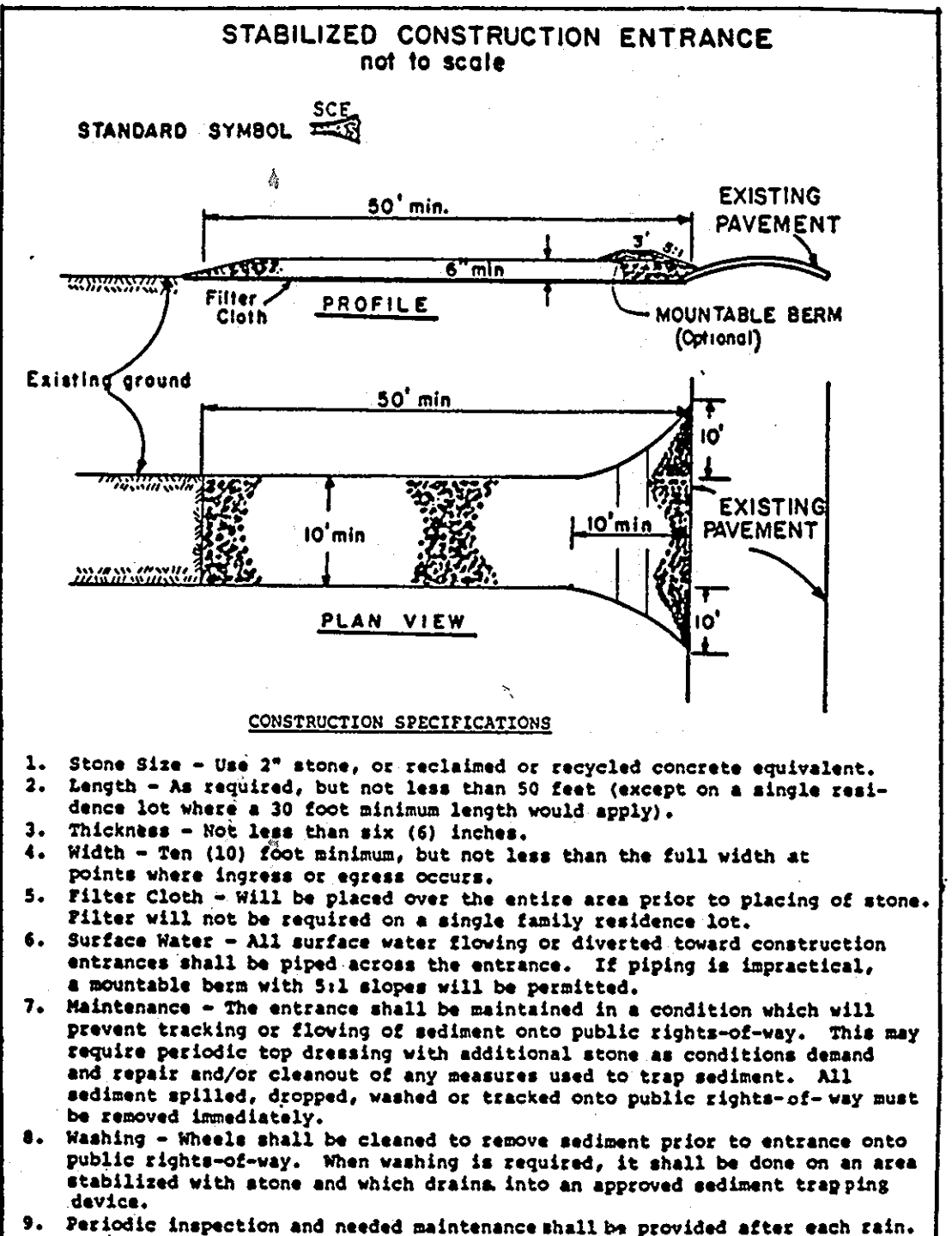
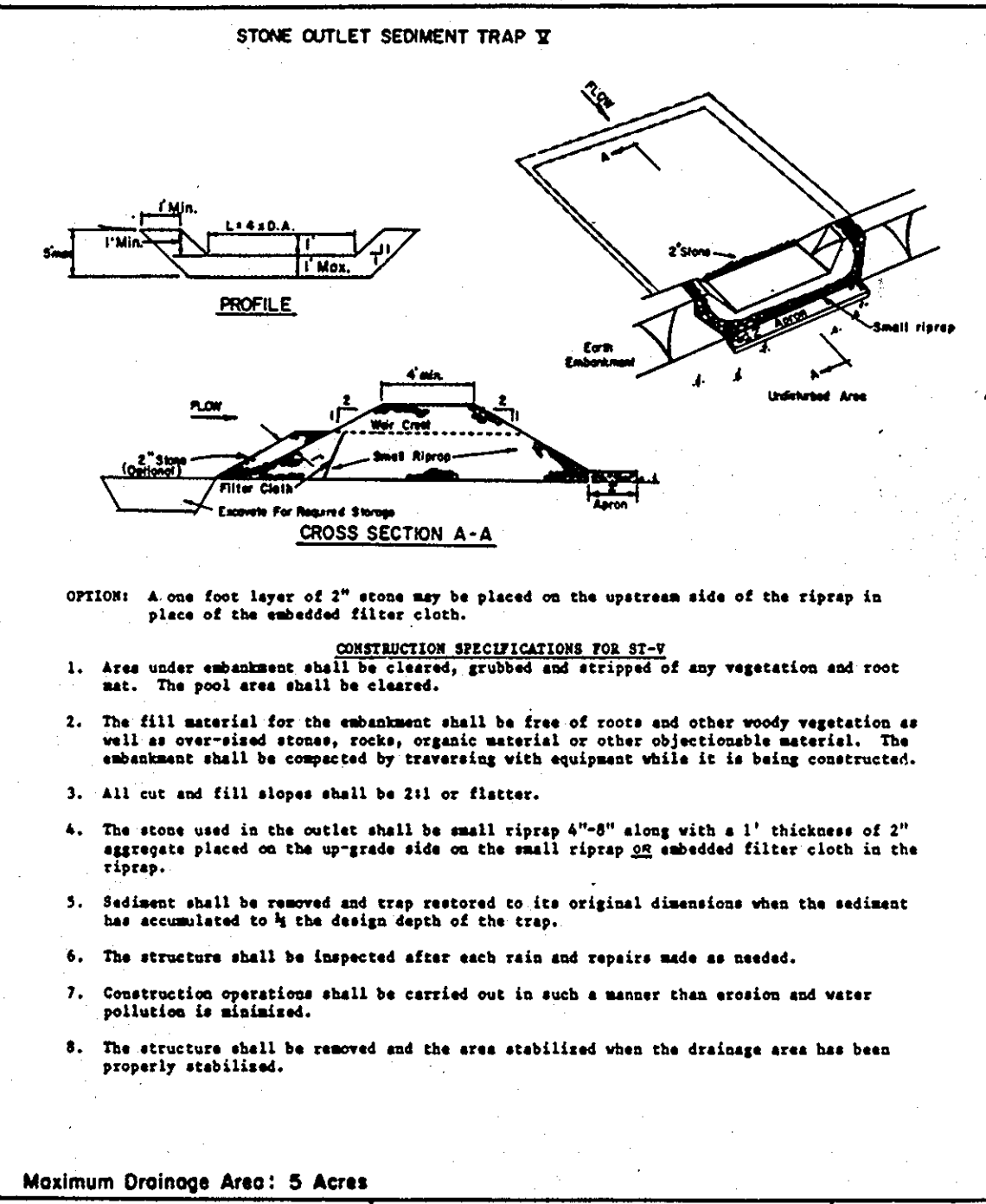
REFERENCES:
 WP-91-106 S-90-22, WP-90-67, PB-118, P-91-04

TITLE: **SEDIMENT CONTROL DETAILS**
 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
 TAX MAP 36 PARCELS 267 & 84

Des By	M.E.P.	Scale	AS SHOWN	Proj No	91-005
Des By	M.A.G.	Date	JULY, 1991		
Chk By	J.A.R.	Approved	F.E.R.		



42



SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT. 1 DAY
- INSTALL STABILIZED CONSTRUCTION ENTRANCES AS SHOWN AND SPECIFIED. 1 DAY
- CLEAR AND GRUB FOR INSTALLATION OF SEDIMENT CONTROL MEASURES FOR CULVERT #1 CONSTRUCTION. 1 DAY
- INSTALL SEDIMENT CONTROL MEASURES AS SHOWN FOR CULVERT #1 (SEE INSET FOR PHASE I - CULVERT CONSTRUCTION) ENSURE THAT UPSTREAM RUNOFF IS DIVERTED AROUND WORK AREA SHOWN. 1 DAY
- CLEAR AND GRUB, AND CONSTRUCT CULVERT #1, AND RIP RAP OUTFALL PROTECTION AS SHOWN. WHEN CULVERT CONSTRUCTION IS COMPLETED, GRADE TO DIVERT UPSTREAM DRAINAGE THROUGH CULVERT. STABILIZE WITH SOD. REMOVE SEDIMENT CONTROL MEASURES ASSOCIATED WITH CULVERT #1 INSTALLATION WITH INSPECTOR'S APPROVAL, AND STABILIZE SAME. 1 WEEK
- REPEAT STEPS #2 THROUGH #4 ABOVE FOR CULVERT #2. STABILIZE WITH SOD. 1-2 WEEKS
- REPEAT STEPS #2 THROUGH #4 ABOVE FOR CULVERT #3. STABILIZE WITH SOD. 1-2 WEEKS
- CLEAR FOR AND INSTALL ALL REMAINING SEDIMENT CONTROL MEASURES AS SHOWN AND SPECIFIED. 1 WEEK
- CLEAR AND GRUB REMAINING WORK AREAS. ROUGH GRADE ROADWAYS AND BEGIN WATER AND SEWER INSTALLATION. EARTH DIKES ALONG EDGE OF ROAD FILL AREAS MUST BE MAINTAINED AS ROAD FILL PROGRESSES UPWARDS TO SUBGRADE ELEVATIONS. STABILIZE FILL SLOPES WITHIN 7 DAYS OF COMPLETION OF GRADING. 4 WEEKS
- INSTALL REMAINING STORM DRAINS EXCEPT FOR 24" RCP OUT OF MH 7. ALL INLETS SHALL BE BLOCKED TO PREVENT ENTRANCE OF SEDIMENT-LADEN RUNOFF. INSTALL CURB & GUTTER, LEAVING TEMPORARY CURB OPENINGS AT CROSS-ROAD DIVERSIONS (APPROXIMATE STATIONS 23+99, 16+00 AND 7+00 - SEE PLAN). 4 WEEKS
- INSTALL SEDIMENT CONTROL DEVICES FOR CONSTRUCTION OF SWM BASIN (SEE PHASE I INSET). INSTALL 6" DIAMETER PVC EXTENDED DETENTION DEVICE AND DEWATERING DEVICE (SEE PHASE I INSET) AND STABILIZE. 2 WEEKS
- PINE GRADE ROAD AND STABILIZE WITH INSTALLATION OF STONE SUBBASE. COMPLETE CURB AND GUTTER CONSTRUCTION AT TEMPORARY CURB OPENINGS (EXCEPT AT STATION 7+00, SEE PLAN). 2 WEEKS
- WHEN ALL AREAS ARE STABILIZED, REMOVE ALL SEDIMENT CONTROL MEASURES WITH INSPECTOR'S APPROVAL AND STABILIZE SAME, EXCEPT FOR TRAP #2 AND EASTERN PORTION OF SWM BASIN. 2 DAYS
- CONSTRUCT SWM BASIN AS SHOWN IN PHASE II OF INSET, CONSTRUCT EMERGENCY SPILLWAY, AND 24" RCP FROM MH 7 AND SOD REMAINING DISTURBED AREAS. 1-2 WEEKS
- WHEN BASIN IS COMPLETELY STABILIZED, COMPLETE CURB AND GUTTER CONSTRUCTION AT STATION 7+00, UNBLOCK INLETS AND REMOVE ALL SEDIMENT CONTROL MEASURES WITH INSPECTOR'S APPROVAL AND STABILIZE SAME. 2 DAYS

Dr. W. Wehner 8/30/91
CHIEF, BUREAU OF HIGHWAY DATE

BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."
Albert F. Edwards 8-6-91
SIGNATURE OF THE DEVELOPER DATE
ALBERT F. EDWARDS P.E.

BY THE ENGINEER:
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
Frank E. Roscoe 7/31/91
SIGNATURE OF THE ENGINEER DATE
FRANK E. ROSCOE

DEPARTMENT OF PUBLIC WORKS
John P. Ryan 8/16/91
CHIEF, LAND DEVELOPMENT DIVISION DATE
William S. Ryan 8-19-91
CHIEF, BUREAU OF ENGINEERING DATE

DEPARTMENT OF PLANNING AND ZONING
Anna H. Hester 9/28/91
CHIEF, DIV. OF LAND DEVEL. & COMM. PLANNING DATE

REVIEWED FOR HOWARD S.C.D. NAME
John M. Hester 8/26/91
S.O. SOIL CONSERVATION DISTRICT DATE
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John L. Robinson 8/26/91
HOWARD S.C.D. DATE

Date	No	Revision Description

OWNER/DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

CENTURY ENGINEERING, INC.
CONSULTING ENGINEERS, PLANNERS
32 WEST ROAD
TOWSON, MARYLAND 21284

AREA
VILLAGE OF HICKORY RIDGE
SECTION 2 AREA 2
PHASE 173 A

REFERENCES:
WP-91-106, S-90-22, WP-90-67, PB-118 P-91-04

TITLE
SEDIMENT CONTROL DETAILS
5TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
TAX MAP PARCELS 267 & 84

DATE BY M.E.P. SCALE AS SHOWN PROJ NO 91-005
DATE BY M.A.G. DATE JULY 1991 DRAWING NO
DATE BY J.A.R. APPROVED F.E.R. 14 OF 17

Professional Engr. No. 11028

42

STANDARD AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION TEMPORARY SEEDING

TABLE 50-1 Temporary Seedings by Rates, Depths and Dates

Species	Seeding Rate	Planting Depth	Seeding Dates											
			COASTAL PLAIN				PIEDMONT				MOUNTAINS			
	Per Acre	Lbs/1000 Sq. Ft.	(Inches)	7/15	8/15	9/15	10/15	11/15	12/15	1/15	2/15	3/15	4/15	
Choose one:														
Kentucky 31	25 lbs.	2.8	1-2	x	-	-	By 10/15	x	-	-	-	-	By 10/1	
Orca	3 lbs.	2.2	2-2	x	-	-	-	x	-	-	-	-	-	
Rye	25 lbs.	3.2	1-2	x	-	-	-	x	-	-	-	-	-	
Italian or perennial ryegrass	40 lbs.	.92	1/2	x	-	-	By 11/1	x	-	-	-	-	By 8/15	
Millet	40 lbs.	.92	1/2	x	-	-	-	-	x	-	-	-	-	
Wheating, Sorghum, or Lehmann's lovegrass	3 lbs.	.07	1/2	-	-	-	-	-	-	x	-	-	-	
Sudangrass	40 lbs.	.92	1-2	-	-	-	-	-	-	-	x	-	-	

Planting short-term vegetation on critical areas.

To temporarily stabilize the soil; to reduce damages from sediment and runoff to downstream areas; improve wildlife habitat; enhance natural beauty.

Graded or cleared areas which are subject to erosion for a period of 14 days or more.

SPECIFICATIONS

I. Site Preparation

- Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
- Final grading and shaping has usually not been completed for temporary seedings.

II. Soil Amendments

For temporary seedings, fertilizer shall be applied at the rate of 600 lbs/ac. or 15 lbs/1,000 sq. ft., using 10-10-10 or equivalent. Soils which are highly acid should be limed.

III. Seedbed Preparation

When the area to be seeded has been recently loosened to the extent that an adequate seedbed exists, no additional treatment is required. However, when the area to be seeded is packed, crusted, and hard, the top layer of soil shall be loosened by raking, tilling, or other acceptable means before seeding.

IV. Seeding

- Select a mixture from Table 50-1.
- Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydrosower (slurry includes seed and fertilizer).

V. Mulching

When seedings are made on critical sites or adverse soil conditions, mulch material will be applied immediately after seeding. Seedings made during optimum seeding dates and with favorable soils on very flat areas may not need to be mulched. Mulch materials are listed in order of their effectiveness.

A. Materials and Amounts

- Mulch matting - such as jute or excelsior blanket shall be applied to the surface in waterways and on steep slopes. Lighter materials of paper, plastic and cotton mulch matting may be used where erosion hazard is not severe. If the area is to be mowed, do not use metal staples.
- Straw - Material shall be unrotted small grain straw applied at the rate of 1/2 to 2 tons per acre, or 70 to 90 (two bales) pounds per 1,000 sq. ft. Mulch materials shall be relatively free of all kinds of weeds and shall be free of prohibited noxious weeds such as: thistles, Johnsongrass and quackgrass.

Spread uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 sq. ft. sections and place 70-90 lbs. of mulch in each section.

- Wood chips - at the rate of approximately 6 tons per acre or 275 lbs. per 1,000 sq. ft. may be used when available and when feasible to use.
- Wood cellulose fiber - mulch at the rate of 1,500 pounds per acre or 35 pounds per 1,000 sq. ft. may be applied by hydrosowing.

- Mulch anchoring shall be accomplished immediately after mulch placement to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area, erosion hazard, and cost. On sloping land, practice No. 1 below, should be done on the contour wherever possible, except "tracking" should be done up and down the slope with 1/4 inch cleat marks running across the slope.

- Mulch Anchoring Tool and Tracking. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the surface 2 inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. Tracking is primarily used on steeper than 3:1 cut and fill slopes to cut the mulch into the soil with cleated bulldozer tracks.
- Mulch Nettings - Staple lightweight biodegradable paper, plastic or cotton nettings over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4-feet wide and up to 300-feet long.

- Liquid Mulch Binders - Applications of liquid binders should be heavier at edges where wind catches mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance. Caution should be used with asphalt in residential and similar areas.

- Outback asphalt - rapid curing (RC-70, RC-250, and RC-800) or medium curing (MC-250 or MC-800). Apply 5 gallons per 1,000 square feet or 218 gallons per acre on flat areas, and on slopes less than 8-feet high. On slopes 8-feet or more high, use 8 gallons per 1,000 square feet or 348 gallons per acre.
- Emulsified asphalt - (ES-1, CSS-1, CSS-2, MS-1, MS-2, CS-1, and CS-2). Apply 5 gallons per 1,000 square feet or 218 gallons per acre on flat areas and on slopes less than 8-feet high. On slopes 8-feet or more high, use 8 gallons per 1,000 square feet or 348 gallons per acre.

All asphalt designations are from the Asphalt Institute Specifications.

- Synthetic binders - Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset or Terra Tac may be used at rates recommended by the manufacturer to anchor mulch material.

- Wood cellulose fiber - Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood fiber per 100 gallons.
- Peg and Twine - Drive 8-to 10-inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a cross-hatch within a square pattern. Secure twine around each peg with two or more round turns.

Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

STANDARD AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION PERMANENT SEEDINGS

Planting vegetation such as grasses and legumes on critical areas.

To stabilize the soil; to reduce damages from sediment and runoff to downstream areas; improve wildlife habitat; enhance natural beauty.

Graded or cleared areas subject to erosion and where a permanent, long-lived vegetative cover is needed.

SPECIFICATIONS

Vegetation cannot be expected to provide an erosion control cover and prevent soil slippage on a soil that is not stable due to its texture, structure, water movement or excessively steep slope.

Minimum soil conditions needed for the establishment and maintenance of a long-lived vegetative cover:

- Enough fine-grained materials (over 30 percent silt plus clay) to provide the capacity to hold at least a moderate amount of available moisture. Notable exception would be planting lovegrass and sericea lespedeza which can be planted on a sandy soil.
- Sufficient pore space to permit adequate water penetration.
- The soil shall be free from any material harmful to plant growth. If these conditions cannot be met, see specification, Topsoiling (57.01).

I. Site Preparation

- Install needed erosion and sediment control practices such as dikes, contour ripping, erosion stops, channel liners, sediment basins, or other practices.
- Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, anchoring and maintenance.

II. Soil Preparation

Flat areas and slopes up to 3 to 1 grade shall be loose and friable to a depth of at least 3 inches. The top layer of soil shall be loosened by raking, discing or other acceptable means before seeding.

Slopes steeper than 3 to 1 shall have the top 1-1/2 inches of soil loose and friable before seeding.

III. Soil Amendments

Line and fertilizer according to soil tests. Line and fertilizer needs can be determined by a soil testing laboratory, such as the University of Maryland's Soil Testing Laboratory.

- In lieu of soil test results, apply two tons dolomitic limestone per acre and one of the following rates of fertilizer: 1,000 pounds 10-10-10 or equivalent per acre. For a longer lasting fertilizer treatment apply 600 pounds 10-10-10 or equivalent per acre and disk in and at time of seeding apply an additional 400 pounds of ureaform fertilizer of a grade of at least 30-0-0 per acre. Apply the line and fertilizer before seeding and harrow or disk uniformly into the soil to a minimum depth of 3 inches on slopes flatter than 3:1. On slopes steeper than 3:1 grade, the line and fertilizer shall be worked the best way possible. On sloping land, the final harrowing or discing operation should be on the contour wherever feasible. No attempt should be made to drag any disked area to make the soil surface smooth after disking.

Note: The slow release ureaform fertilizer will supply nitrogen over a long period of time.

IV. Seeding

- Select a mixture from table 51-1.
- Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydrosower (slurry includes seed and fertilizer) on a firm, moist seedbed. Maximum seeding depth should be 1/4 inch on clayey soils and 1/2 inch on sandy soils; when using other than hydrosower method of application. Note: if hydrosowing is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be immediate without interruption.

V. Mulching

Mulch materials are listed in order of their effectiveness. Mulch matting is normally only used on critical areas such as waterways or steep slopes.

A. Materials and Amounts

- Mulch matting - such as jute or excelsior blanket shall be applied to the surface in waterways and on steep slopes. Lighter materials of paper, plastic and cotton mulch matting may be used where erosion hazard is not severe. If the area is to be mowed, do not use metal staples.
- Straw - Straw shall be unrotted small grain applied at the rate of 1/2 to 2 tons per acre, or 70 to 90 (two bales) pounds per 1,000 square feet. Mulch materials shall be relatively free of all kinds of weeds and shall be free of prohibited noxious weeds such as: thistles, Johnsongrass and quackgrass.

Spread uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 square foot sections and place 70-90 pounds of mulch in each section.

- Wood chips - at the rate of approximately 6 tons per acre or 275 pounds per 1,000 square feet may be used when available and when feasible. These are particularly well-suited for utility and road right-of-way. If wood chips are used, increase the application rate of nitrogen fertilizer by 20 pounds (200 pounds 10-10-10 or 66 pounds 30-0-0).
- Wood cellulose fiber - mulch at the rate of 1,500 pounds per acre or 35 pounds per 1,000 square foot may be applied by hydrosowing.

- Mulch anchoring shall be accomplished immediately after mulch placement to minimize loss by wind or water. This may be done by one of the following methods, (listed by preference) depending upon size of area, erosion hazard, and cost. On sloping land, practice No. 1 below, should be done on the contour wherever possible. Contouring of all operations applies to all straw and wood chip practices on more critical sites, except "tracking" should be done up and down the slope with 1/4 inch cleat marks running across the slope.

Note: (1) Scientific names of these plants are in Appendix B-1.02.

TABLE 51-1 Permanent Seeding and Seeding Dates

Mix No.	SEEDING MIXTURES (Use Certified Seed if available)	SEEDING RATE Lbs/1000 Sq. Ft.	OPTIMUM SEEDING DATES (4)											
			COASTAL PLAIN				PIEDMONT				MOUNTAINS			
			7/15-7/30	8/15-8/30	9/15-9/30	10/15-10/31	11/15-11/30	12/15-12/31	1/15-1/31	2/15-2/28	3/15-3/31	4/15-4/30		
1	Kentucky 31 Tall Fescue*	60	1.38	x	-	-	-	-	-	-	-	-		
2	Kentucky 31 Tall Fescue* "Rory" Lehmann (s)	60	1.38	x	-	-	-	-	-	-	-	-		
3	Kentucky 31 Tall Fescue* "Korean" Lespedeza (b) inoculated (h) "Intercrate" Sericea lespedeza (b) (h) inoculated (h)	50	1.15	x	-	-	-	-	-	-	-	-		
4	Kentucky 31 Tall Fescue* "Intercrate" Sericea lespedeza (b) (h) inoculated (h)	40	.92	x	-	-	-	-	-	-	-	-		
5	Kentucky 31 Tall Fescue* Birdfoot trefoil, inoculated (h)	40	.92	x	-	-	-	-	-	-	-	-		
6	Cheung Crownwheat, inoculated (h)	15	.46	x	-	-	-	-	-	-	-	-		
7	Cheung Crownwheat, inoculated (h) Redtop	3	.07	x	-	-	-	-	-	-	-	-		
8	Kentucky 31 Tall Fescue* (3:1) Redtop Canada Bluegrass (10:1) Kentucky Bluegrass (10:1) (s)	90	2	x	-	-	-	-	-	-	-	-		
9	Kentucky Bluegrass (10:1) (s) "Pennisla" Creeping Red Fescue (40:2) Redtop (10:1) (s)	90	2	x	-	-	-	-	-	-	-	-		
10	Kentucky 31 Tall Fescue* Redtop	30	.69	x	-	-	-	-	-	-	-	-		
11	Wheating lovegrass Sericea lespedeza (b) inoculated (h)	20	.46	x	-	-	-	-	-	-	-	-		
12	Kentucky 31 Tall Fescue* Redtop	30	.69	x	-	-	-	-	-	-	-	-		
13	Red canarygrass (c) Shaded Areas	10	.23	-	-	-	-	-	-	-	-	-		
14	Kentucky 31 Tall Fescue* Redtop	60	1.38	x	-	-	-	-	-	-	-	-		
15	Red Fescue "Jamestown" or "Pennisla"	40	.92	x	-	-	-	-	-	-	-	-		
16	"Plush", "Birka", "Parade", "Vantage", "Columbia", "Merion", "Adelphi", "South", "Baker", "Mush", "Kentucky Bluegrass", "Red Fescue", "Pennisla" or "Jamestown"	90	2	x	-	-	-	-	-	-	-	-		
17	Kentucky 31 Tall Fescue (s)	220-260	5-6	x	-	-	-	-	-	-	-	-		

*Use Certified Seed Only
*Any three(3) varieties at 30 lbs. each to make the 90 lb mix.

TABLE 51-2 Maintenance Fertilization for Permanent Seedings Use Soil Test Recommendations or Rates Shown Below

Mixture No.	Seeding Mixture	Formulation	Lbs. Per Acre	Lbs. Per 1,000 Sq. Ft.	Time	Mowing
1,2,3,7,8,10	Tall fescue makes up 70% or more of cover.	10-10-10	500	11.5	Yearly, or as needed	*Not closer than 3' if occasional mowing is desired.
4,5,6,7	Crownwheat Sericea lespedeza Birdfoot trefoil	10-10-10	600	13.8	Yearly, or as needed	
4,5	Fairly uniform stand of tall fescue and sericea lespedeza or birdfoot trefoil.	5-10-10	500	11.5	Spring the year following establishment and every 4-5 years thereafter.	Do not mow crownwheat.
11	Wheating lovegrass & sericea lespedeza	5-10-10	500	11.5	Fall the year following establishment and every 4-5 years thereafter.	Not required. Not closer than 4' if occasional mowing is desired, and fall after sericea has matured.
9,12,13,14	Red fescue:	20-10-10	250	5.8	September, 30 days later.	Not required. Not closer than 2' for fescue and 3' for bluegrass; and closer than 3' for fescue.
15,17	Kentucky bluegrass-red fescue mixture:	20-10-10	250	5.8	December, May 20-time 30, if needed.	
	Ky-31 tall fescue	20-10-10	100	2.3		

Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

VI. Irrigation

If soil moisture is deficient, supply new seedings with adequate water for soil plant growth until they are firmly established, if feasible. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

VII. Maintenance

Maintenance is a vital factor in maintaining an adequate vegetative erosion control cover.

- Irrigation - If soil moisture becomes deficient, irrigate to prevent loss of stand of protective vegetation, if feasible.
- Repairs - Install all needed areas for failures and make necessary repairs, replacements, and reseeding within the planting season, if possible.

- If stand is inadequate for erosion control, overseed and fertilize using half of the rates originally applied.
- If stand is over 60% damaged, reestablish following original line, fertilizer, seedbed preparation and seeding recommendations.

References

- Lawn Care in Maryland, Bulletin 171; Cooperative Extension Service, University of Maryland, College Park, Maryland.
- Maryland Agronomy Memo #72.
- Maryland Highway Administration Specifications for Materials.
- USDA-Soil Conservation Service Field Office Technical Guides.

Note: Maryland Department of Water Resources has developed an audiovisual training program, "Plant Materials and Vegetative Soil Stabilization," which relates to this practice.

Footnotes - Table 51-1

- Permanent Seedings and Seeding Dates (Cont'd)
- Use Weeping lovegrass to provide a stand of grass for erosion control during summer.
- Use hullless seed.
- Preferable to seed in fall with seed from current year's crop.
- Mixtures 1,3,4,5,6,7,8,10,11,12,13 and 14 may be seeded during winter months in Maryland if 2 tons per acre of a well-anchored mulch is used.
- Approved State Highway Administration Mixtures.
- Can be seeded during this period if irrigation water is used. Use 2 tons per acre of well-anchored straw mulch.
- Can use 10 percent Kentucky bluegrass. (MD AGRON MEMO #72).
- Leguminous Seeds. All leguminous seeds shall be inoculated or treated with unexpired approved culture for the specific legume in the proper proportions as specified on the package label. The inoculant shall be stored at room temperatures, out of direct sunlight and away from heating units. When seeding dry with mechanical seeders, the following method of mixing the inoculant with the seed shall be followed: The culture in powder form is preferred and shall be thoroughly mixed with the seed by using a very small quantity of water; just enough to dampen the seeds before the culture is powdered on. The leguminous seed is then mixed with the other seeds of the formula. Seeds inoculated with the powder shall be sown within 48 hours after treatment. Seeds inoculated with the liquid culture shall be sown within 24 hours after treatment. Inoculated seed not used within these time periods shall be re-inoculated. Inoculant and seed treated with inoculant shall not be exposed to sunlight for more than one hour prior to seeding. When seed is applied by hydraulic seeders, 10 times the quantity of inoculant recommended for dry leguminous seed application shall be used. Inoculated seed shall not be held in a slurry with fertilizer for more than one hour, otherwise re-inoculation will be required before applying the seed.

Note: (1) Scientific names of these plants are in Appendix B-1.02.

REVIEWED FOR HOWARD NAME S.C.D. DEPARTMENT OF PUBLIC WORKS
AND MEETS TECHNICAL REQUIREMENTS. CHIEF, BUREAU OF ENGINEERING
8/26/91 DATE
U.S. SOIL CONSERVATION DISTRICT DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
9/24/91 DATE
HOWARD S.C.D. DATE

BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT-APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."
8-6-91 DATE
SIGNATURE OF THE DEVELOPER ALBERT F. EDWARDS P.E. DATE

BY THE ENGINEER:
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
7/31/91 DATE
SIGNATURE OF THE ENGINEER FRANK E. ROSCOE DATE

DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF ENGINEERING
DATE

DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIV. OF LAND DEVEL. & COM. PLANNING
DATE

DEPARTMENT OF HIGHWAY
CHIEF, BUREAU OF HIGHWAY
DATE

DEPARTMENT OF HIGHWAY
CHIEF, BUREAU OF HIGHWAY
DATE

DEPARTMENT OF HIGHWAY
CHIEF, BUREAU OF HIGHWAY
DATE

DEPARTMENT OF HIGHWAY
CHIEF, BUREAU OF HIGHWAY
DATE

DEPARTMENT OF HIGHWAY
CHIEF, BUREAU OF HIGHWAY
DATE

OWNER/DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

CENTURY ENGINEERING, INC.
CONSULTING ENGINEERS, PLANNERS
32 WEST ROAD
TOWSON, MARYLAND 21204

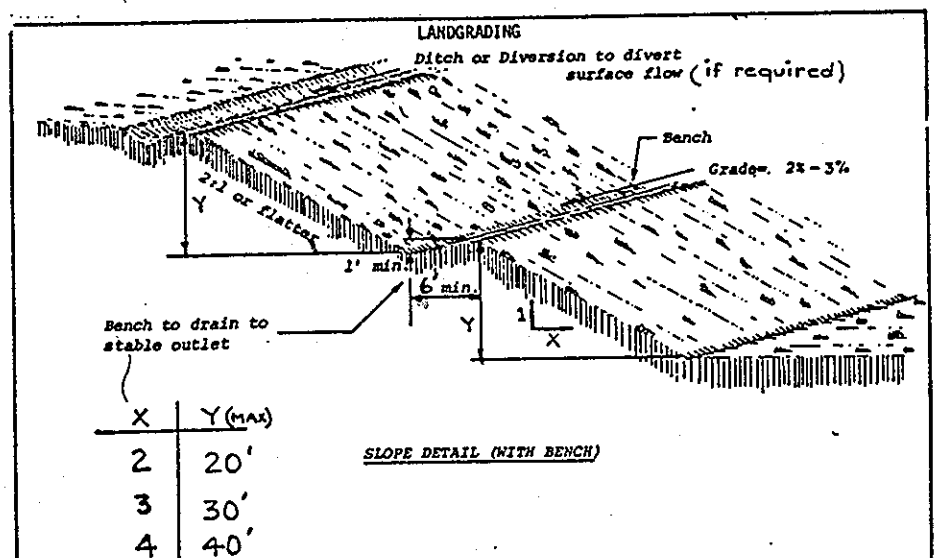
AREA
VILLAGE OF HICKORY RIDGE
SECTION 2 AREA 2
FDP PHASE 173-A-I

REFERENCES:
WP-91-106, S-90-22, WP-90-67, PB-118 P-91-04

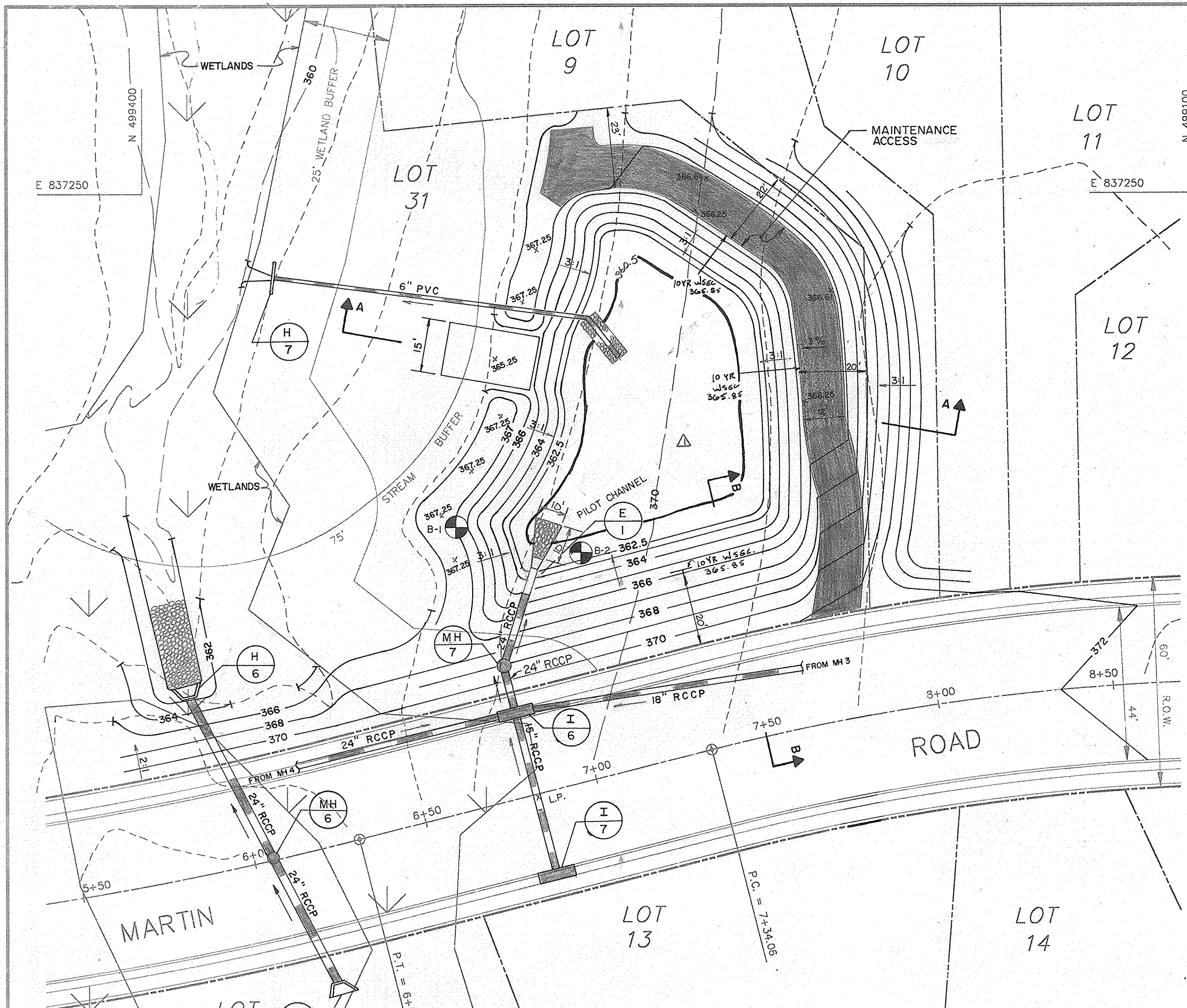
TITLE
SEDIMENT CONTROL DETAILS
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
TAX MAP 36 PARCELS 267 & 84

Scale 1"=50'
Date JULY 1991
Approved F.E.R.
M.E.P. M.A.G. J.A.R.

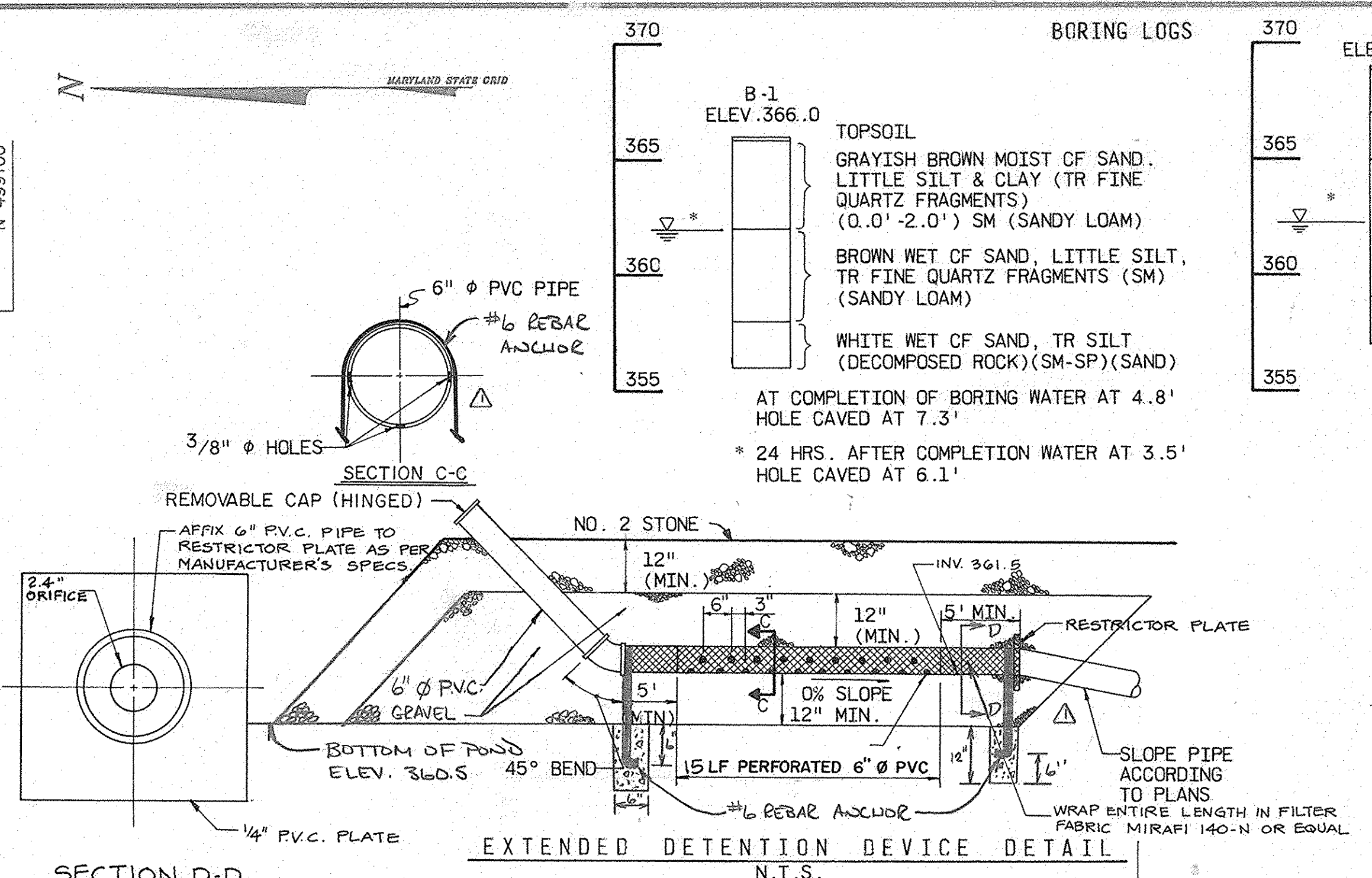
Professional Eng. No. 11028
15 OF 17
F-91-134



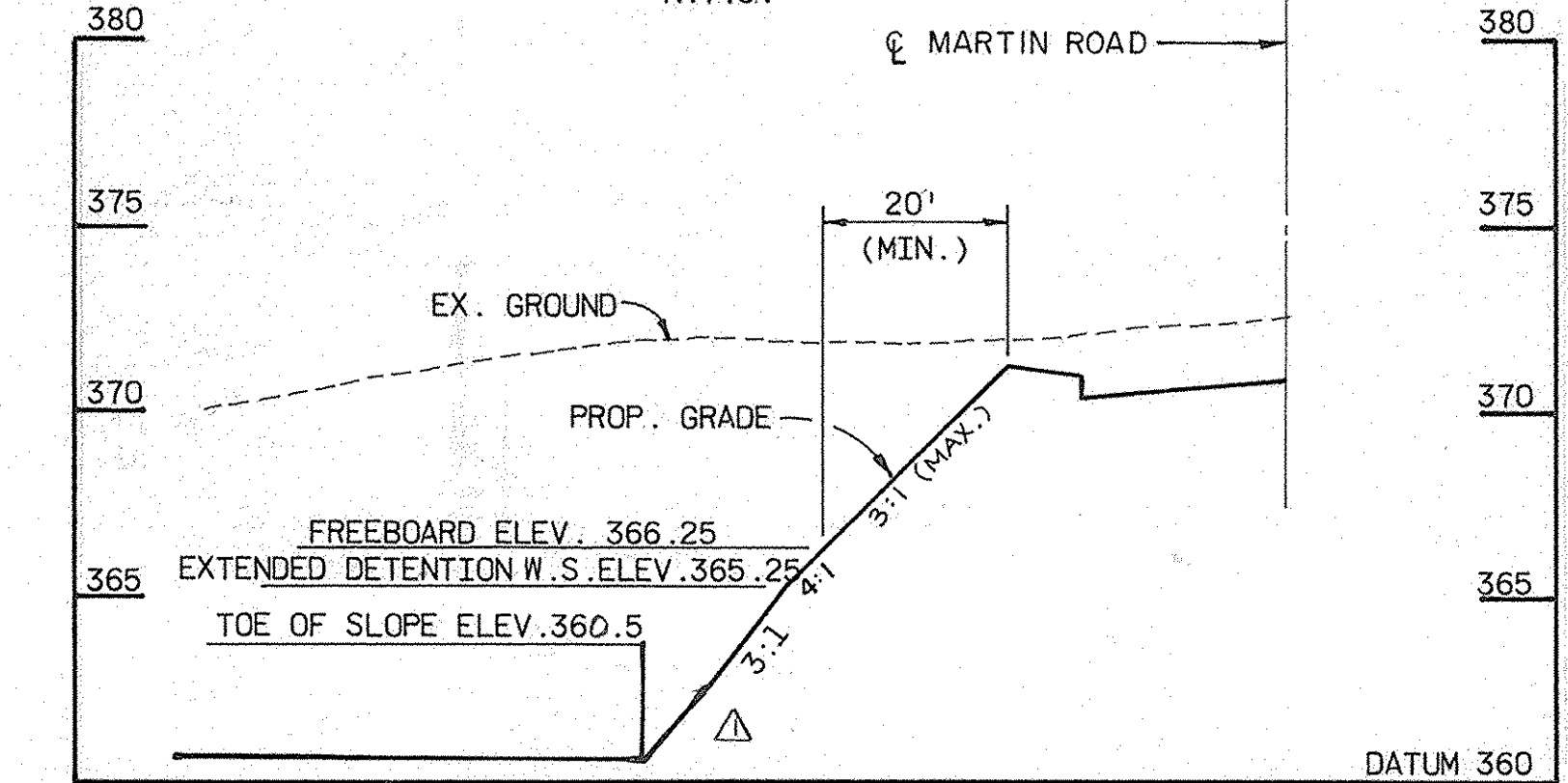
- All graded or disturbed areas including slopes shall be protected during clearing and construction in accordance with the approved sediment control plan until they are permanently stabilized.
- All sediment control practices and measures shall be constructed, applied and maintained in accordance with the approved sediment control plan and the "Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas".
- Topsoil required for the establishment of vegetation shall be stockpiled in amount necessary to complete finished grading of all exposed areas.
- Areas to be filled shall be cleared, grubbed and stripped of topsoil to remove trees, vegetation, roots or other objection



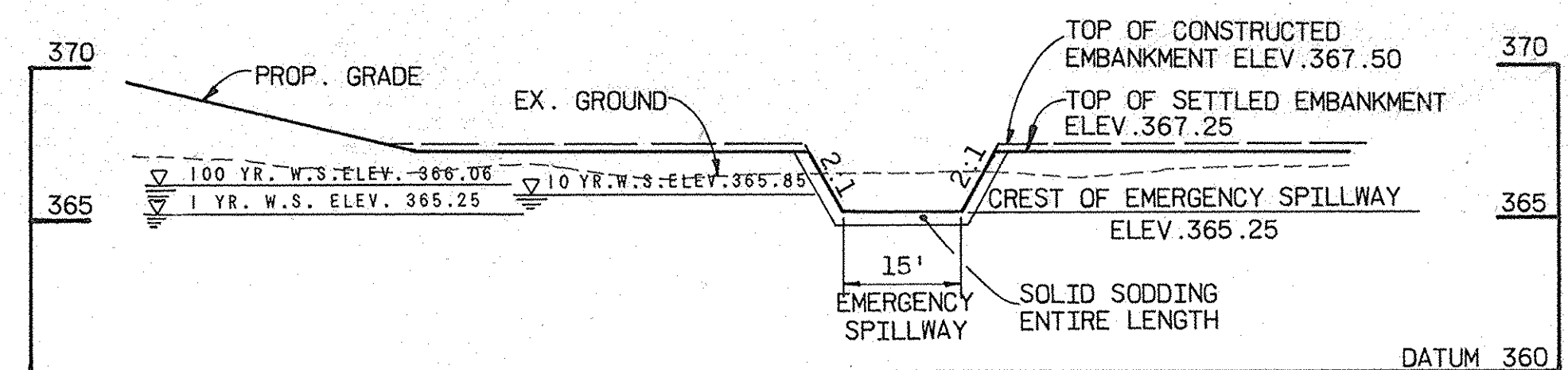
PLAN
SCALE: 1" = 20'



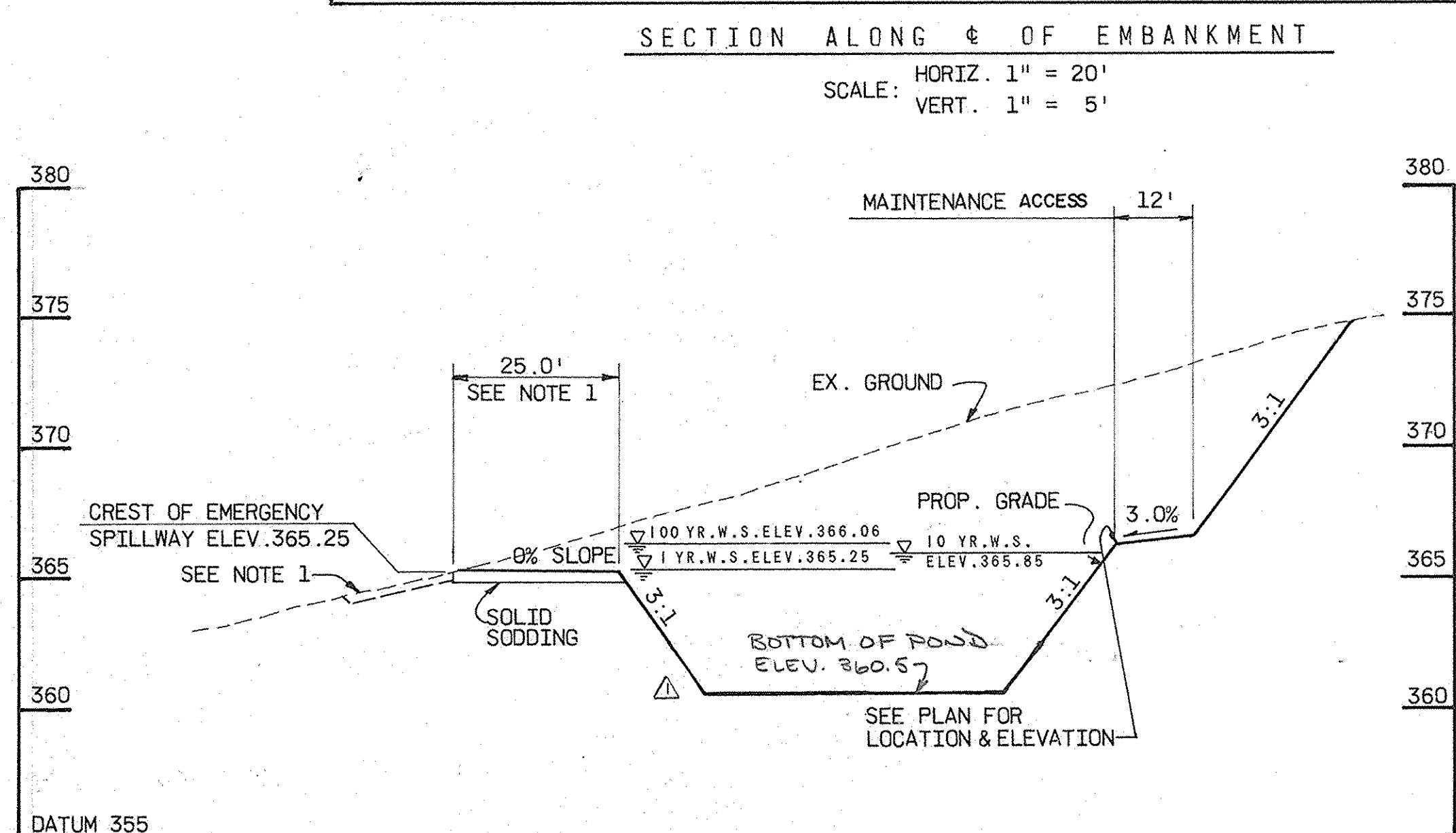
EXTENDED DETENTION DEVICE DETAIL
N.T.S.



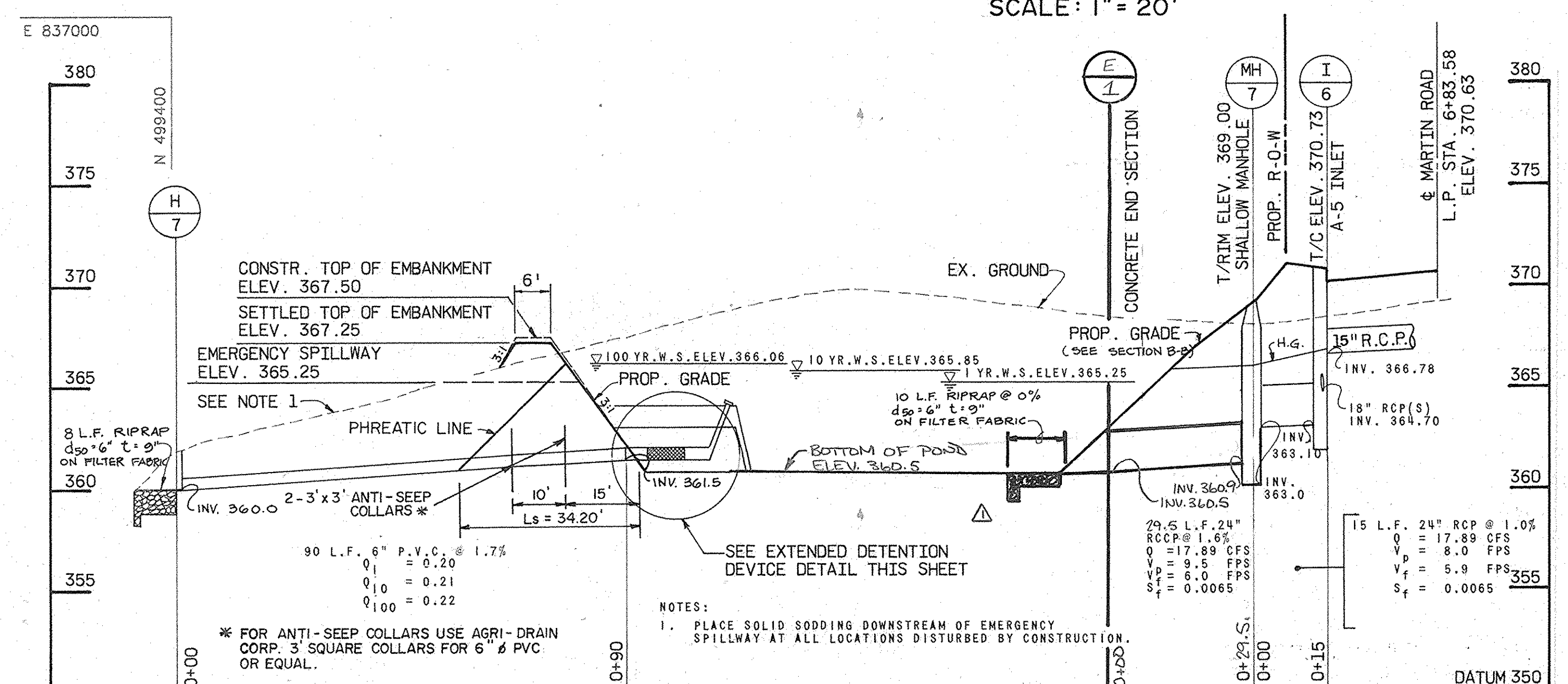
SECTION B-B
SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



SECTION ALONG C-C OF EMBANKMENT
SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



SECTION THROUGH C-C OF EMERGENCY SPILLWAY (A-A)
SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



LONGITUDINAL SECTION THROUGH INFLOW PIPE AND EXTENDED DETENTION DEVICE
SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

BORING LOGS

370	B-1	ELEV. 366.0	TOPSOIL
365			GRAYISH BROWN MOIST CF SAND, LITTLE SILT & CLAY (TR FINE QUARTZ FRAGMENTS) (0.0'-2.0') SM (SANDY LOAM)
360			BROWN WET CF SAND, LITTLE SILT, TR FINE QUARTZ FRAGMENTS (SM) (SANDY LOAM)
355			WHITE WET CF SAND, TR SILT (DECOMPOSED ROCK) (SM-SP) (SAND)

AT COMPLETION OF BORING WATER AT 4.8' HOLE CAVED AT 7.3'
* 24 HRS. AFTER COMPLETION WATER AT 3.5' HOLE CAVED AT 6.1'

370	B-2	ELEV. 369.0	TOPSOIL
365			BROWN, VERY MOIST CF SAND, SOME CLAY & SILT TR FINE QUARTZ FRAGMENTS (SC) (LOAM-SANDY LOAM) ORANGISH BROWN MOIST CF SAND, LITTLE SILT & CLAY (SM) (SANDY LOAM)
360			ORANGISH BROWN TO TAN MOIST TO WET CF SAND TR CLAYEY SILT (DECOMPOSED ROCK) (SM-SP) (SAND)
355			TAN AND BLACK WET MICACEOUS MF SAND, LITTLE SILT (DECOMPOSED ROCK) (SM) (SANDY LOAM)

AT COMPLETION OF BORING WATER AT 7.7' HOLE CAVED AT 7.8'
* 24 HRS. AFTER COMPLETION WATER AT 6.7' HOLE CAVED AT 7.2'

DEPARTMENT OF PUBLIC WORKS	
<i>[Signature]</i>	9/19/91
CHIEF, BUREAU OF ENGINEERING	
DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	9/23/91
CHIEF, DIV. OF LAND DEVEL. AND COM. PLANNING	
DEPARTMENT OF TRANSPORTATION	
<i>[Signature]</i>	8/31/91
CHIEF, BUREAU OF HIGHWAY	
<i>[Signature]</i>	9/10/91
CHIEF, LAND DEVELOPMENT DIVISION	

REVIEWED FOR	NAME	S.C.D.
AND MEETS TECHNICAL REQUIREMENTS		
U.S. SOIL CONSERVATION DISTRICT		DATE

2-21-92	REVISED SWM BASIN	
Date	No	Revision Description
OWNER/DEVELOPER		
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		
CENTURY ENGINEERING, INC. CONSULTING ENGINEERS, PLANNERS 32 WEST ROAD TOWSON, MARYLAND 21284		
AREA VILLAGE OF HICKORY RIDGE SECTION 2 AREA 2 PHASE 173 A		
REFERENCES: WP-91-106, S-90-22, WP-90-67, PB-118 P-91-04		
TITLE S.W.M. POND & DETAILS 5 th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND TAX MAP		
Drawn By	M.E.P.	Scale AS SHOWN
Check By	M.A.G.	Date JULY 1991
Disc By	J.L.B.	Approved F.E.R.
Professional Engr. No. 11028		Proj No 91-005
		DRAWING NO. 16 OF 17

42

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

SIGNATURE OF THE DEVELOPER
ALBERT F. EDWARDS

BY THE ENGINEER:

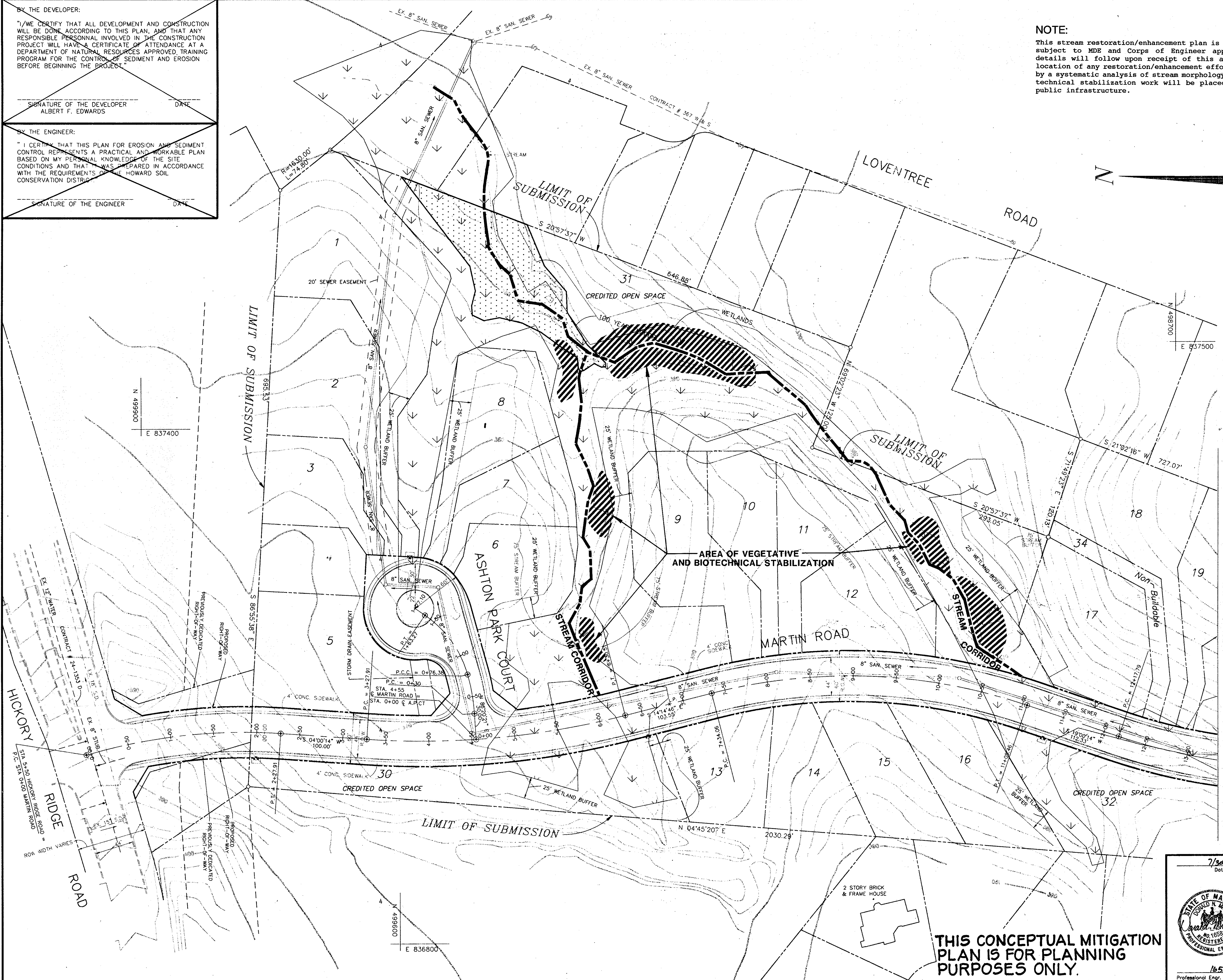
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF THE ENGINEER

NOTE:

This stream restoration/enhancement plan is conceptual only and is subject to MDE and Corps of Engineer approval. Construction details will follow upon receipt of this approval. The precise location of any restoration/enhancement efforts will be determined by a systematic analysis of stream morphology. Vegetative and biotechnical stabilization work will be placed so as not to impact public infrastructure.

David N. Miller
Professional Engineer



DEPARTMENT OF PUBLIC WORKS	
<i>David W. Weiland</i> CHIEF, BUREAU OF HIGHWAY	8/30/91 DATE
<i>David M. Dwyer</i> CHIEF, LAND DEVELOPMENT DIVISION	9/11/91 DATE
<i>William S. Row</i> CHIEF, BUREAU OF ENGINEERING	9-19-91 DATE
DEPARTMENT OF PLANNING AND ZONING	
<i>Amna H. Hamed</i> CHIEF, DIV. OF LAND DEVL. AND COMM. PLAN.	9/28/91 DATE

REVIEWED FOR _____ NAME _____ S.C.D.
AND MEETS TECHNICAL REQUIREMENTS.
U.S. SOIL CONSERVATION DISTRICT _____ DATE _____
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD S.C.D. _____ DATE _____

Date	No	Revision Description

OWNER/DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

CENTURY ENGINEERING, INC.
CONSULTING ENGINEERS, PLANNERS
32 WEST ROAD
TOWSON, MARYLAND 21204

AREA
VILLAGE OF HICKORY RIDGE
SECTION 2, AREA 2
PHASE '73 A

REFERENCES
S-90-22, WP-90-67, PB-118

TITLE
WETLANDS MITIGATION PLAN
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
TAX MAP
PARCELS 267 & 84

Des By _____ Scale 1"=50'
Dwn By _____ Date MARCH 1991
Ck'd By _____ Approved _____

7/30/91
Date

16581
Professional Engr. No.

THIS CONCEPTUAL MITIGATION PLAN IS FOR PLANNING PURPOSES ONLY.

MATCH LINE SEE SHEET OF

42

F-91-134