

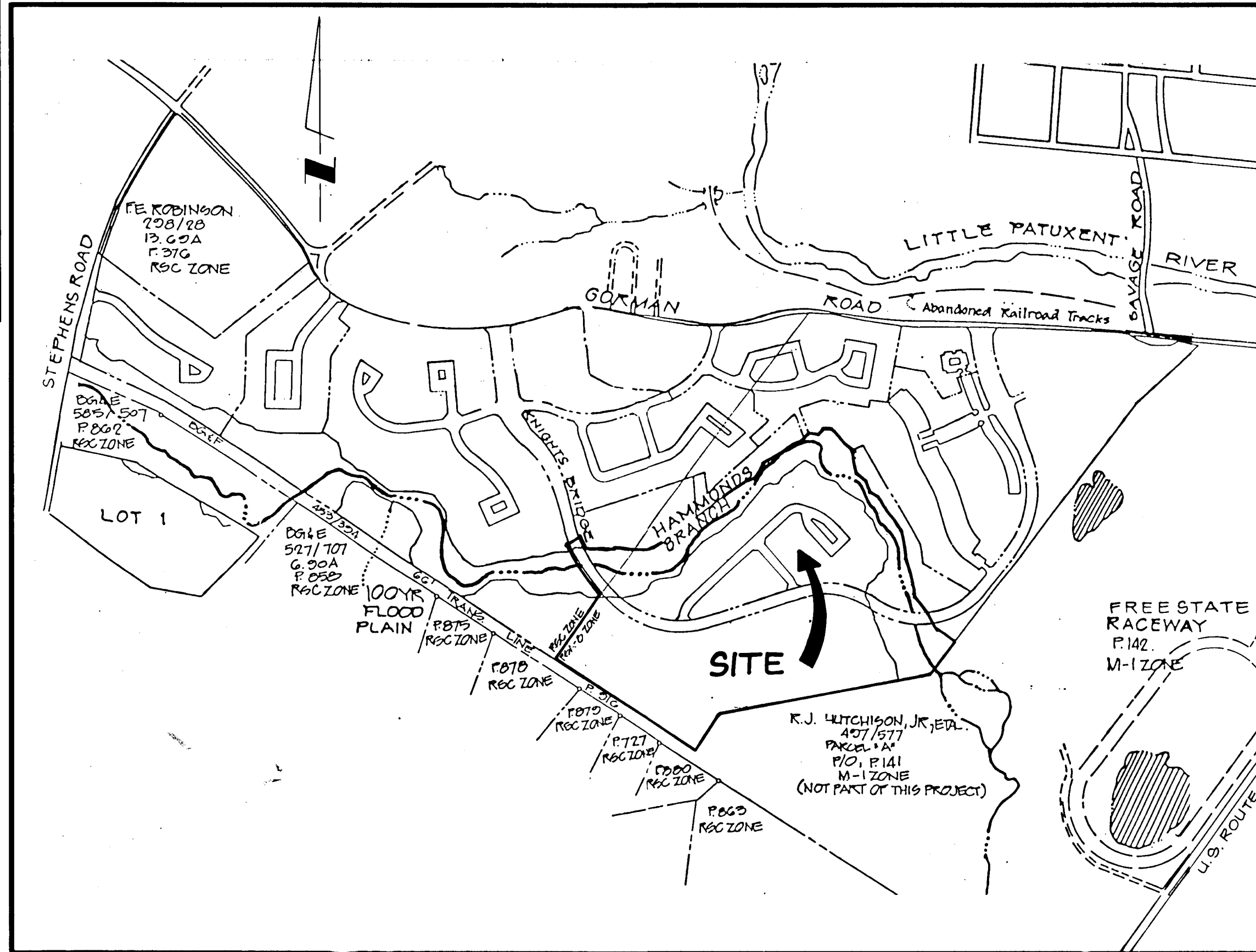
STRUCTURE SCHEDULE

No.	TYPE	INV. IN	INV. OUT	TOP OF CURB		HO. CO. STD.	C/L LOC.
				UPPER END	LOWER END		
WQ-1A	WATER QUALITY	187.43	186.93	193.10	192.97	S.D. - 4.01	12+27.34, 14' LT. STEEPLE CT
WQ-1B	WATER QUALITY	188.80	187.79	193.17	192.97	S.D. - 4.01	12+31.72, 14' RT. " "
M-2	STD. M.H.	190.31	189.50	194.50	RIM ELEV.	6-5.12	11+40 19' RT STEEPLE CT.
I-3	A-5	196.25	196.25	200.16	200.11	S.D. - 4.01	9+64.02 14' LT STEEPLE CT.
M-1	STD. M.H.	198.89	198.89	203.07	203.16	6-5.12	8+84 20' LT " "
I-5	A-5	202.33	202.33	205.97	205.76	S.D. - 4.01	7+97.37 14' LT " "
E-3	METAL END	201.04	201.00	-	-	S.D. - 5.61	SEE PLAN " "
WQ-2	WATER QUALITY	206.93	202.93	212.98	212.45	S.D. - 4.01	5+95.85 14' LT STEEPLE CT.
I-7	A-5 W/DEFL.	207.63	207.23	212.30	212.08	S.D. - 4.01	6+11.29 14' RT " "
I-8	A-5 W/DEFL.	-	208.01	211.44	211.21	S.D. - 4.01	3+31.63 15' LT BURLEY LA.
E-4	METAL END	210.29	210.25	-	-	S.D. - 5.61	SEE PLAN STEEPLE CT
WQ-3	WATER QUALITY	215.98	211.50	220.23	219.29	S.D. - 4.01	3+97.85 14' LT STEEPLE CT.
I-10	A-5	222.50	222.00	227.04	226.79	S.D. - 4.01	2+18.92 14' LT " "
I-11	A-5	-	222.78	227.04	226.79	S.D. - 4.01	2+18.92 14' RT " "
I-12	A-5	-	215.83	219.11	218.85	S.D. - 4.01	4+17.62 14' RT " "
E-5	METAL END	185.37	185.35	-	-	S.D. - 5.61	SEE PLAN " "
I-13	A-5 W/DEFL.	191.51	185.82	194.95	194.59	S.D. - 4.01	24+43.79 19' RT KNIGHTS BR. RD.
I-14	A-5	208.56	208.06	212.73	212.48	S.D. - 4.01	0+52.87 15' LT BURLEY LA.
I-15	A-5 W/DEFL.	-	211.32	215.74	215.24	S.D. - 4.01	27+15.75 19' RT KNIGHTS BR RD.
I-16	A-5	220.39	215.22	225.09	225.09	S.D. - 4.01	38+78.49 19' RT " "
M-3	STD. M.H.	222.94	222.17	226.67	RIM ELEV.	6-5.12	36+90.00 10' LT " "
I-17	A-5 W/DEFL.	-	226.27	230.30	230.15	S.D. - 4.01	35+50.00 19' LT KNIGHTS BR. RD.
I-18	A-5	-	220.77	225.09	225.09	S.D. - 4.01	38+78.72 19' LT " "
E-6	END THRU WALL	-	211.26	-	-	SEE DETAIL	SEE PLAN " "
I-19	A-5 W/DEFL.	-	190.97	194.95	194.55	S.D. - 4.01	24+43.39 19' LT KNIGHTS BR. RD.
M-4	STD. M.H.	185.83	185.33	195.50	RIM ELEV.	6-5.12	SEE PLAN " "
E-1	METAL END	185.03	185.00	-	-	S.D. - 5.61	SEE PLAN " "

BOWLING BROOK FARMS

PARCEL C

LOTS I-I THRU I-117, LOTS 223 & 224



VICINITY MAP

SCALE: 1"=600'

PAVING AND STORM DRAIN CONSTRUCTION PLAN

HOWARD COUNTY, MARYLAND

GENERAL NOTES

- THE APPROXIMATE LOCATION OF ALL UTILITIES IS SHOWN BASED ON INFORMATION OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL LOCATE, PROTECT AND SUPPORT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER/INSPECTOR, AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL LOCATE EXISTING UTILITIES A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS IN THE VICINITY OF PROPOSED UTILITIES AT HIS OWN EXPENSE.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.
 - STATE HIGHWAY ADMINISTRATION- 531-5533
 - BALTIMORE GAS & ELECTRIC COMPANY- 561-2585 (CONTRACTOR SERVICES)
 - BALTIMORE GAS & ELECTRIC COMPANY- 234-6313 (UNDERGROUND DAMAGE CONTROL)
 - BALTIMORE GAS & ELECTRIC COMPANY- 298-9013 (TROUBLE SHOOTING)
 - "MISS UTILITY" 1-800-257-7777
 - CHESAPEAKE & POTOMAC (C&P) TELEPHONE COMPANY- 725-9976
 - BUREAU OF UTILITIES/HOWARD COUNTY- 992-2366
- ALL DETAILS NOT SHOWN ON THE DRAWING SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAILS.
- ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS AND HOWARD COUNTY DESIGN MANUAL, VOLUME IV.
- ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, LATEST EDITION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- TREES SHALL BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT POSSIBLE. TREES SIX INCH (6") DIAMETER OR GREATER (MEASURED FOUR FEET (4') ABOVE EXISTING GRADE) ADJACENT TO THE LIMITS OF CONSTRUCTION SHALL NOT BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE PLANE COORDINATES SYSTEM PROVIDED BY HOWARD COUNTY.
- TOPOGRAPHY TAKEN FROM MAPS PREPARED BY PHOTOGRAMMETRY BY "AERIAL SURVEYS" IN 1984. TOPOGRAPHY FIELD CHECKED 1986.
- ALL PIPE ELEVATIONS ARE INVERT ELEVATIONS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12" CLEAR. CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. ANY COST INCURRED TO THE CONTRACTOR FOR TUNNELING OR BRACING AT POLES SHALL BE INCLUDED IN UNIT PRICES BID FOR EXCAVATION AND SHALL BE INCLUDED IN UNIT PRICES BID FOR EXCAVATION BACKFILL.
- ALL ROADS SHALL BE PAVED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL 2.01, P-2 OR P-3, AS NOTED.
- THIS SUBMISSION IS ZONED RSA-B AND RSC.
- ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
- ALL STORM DRAIN PIPE BEDDING SHALL BE CLASS C.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- ROAD RIGHT-OF-WAY INFORMATION IS SHOWN ON THE RECORD PLATS.
- SPOT ELEVATIONS SHOWN ARE TOP OF CURB UNLESS OTHERWISE NOTED.
- SHADED AREAS INDICATE WATER, SEWER, UTILITY, DRAINAGE AND/OR ACCESS EASEMENT(S).
- THE FOLLOWING PERMITS HAVE BEEN ACQUIRED FOR THIS PROJECT:
 - MARYLAND DEPARTMENT OF ENVIRONMENT 401 PERMIT NO. 87-0281
 - U.S. ARMY CORPS OF ENGINEERS 404 PERMIT NO. CEN48-07-89-1273-G

21. CONCRETE MIX FOR THE BOX CULVERT AND THE WASTE QUALITY INLETS SHALL BE MIXED TO PER HOWARD CO. DESIGN MANUAL IS. STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION SECTION 918.

INDEX TO DRAWINGS

- TITLE SHEET
- KNIGHTS BRIDGE ROAD PLAN & PROFILE-STATION 24+00 TO 31+79.21
- KNIGHTS BRIDGE ROAD PLAN & PROFILE-STATION 31+79.21 TO 41+34.23
- STEEPLE COURT PLAN & PROFILE-STATION 0+00 TO 10+00
- STEEPLE COURT PLAN & PROFILE-STATION 10+00 TO 16+77.89
- BURLEY LANE PLAN & PROFILE - STATION 0+00 TO 3+75.78
- STORM DRAIN PROFILES
- STORM DRAIN PROFILES
- STORM DRAIN PROFILES, SECTIONS AND DETAILS
- HAMMOND BRANCH CROSSING (WEST)-BOX CULVERT PLAN, PROFILES & NOTES
- HAMMOND BRANCH CROSSING (WEST)-BOX CULVERT DETAILS
- HAMMOND BRANCH CROSSING (WEST)-BOX CULVERT DETAILS
- HAMMOND BRANCH CROSSING (WEST)-BOX CULVERT DETAILS
- DRAINAGE AREA MAP
- EROSION & SEDIMENT CONTROL PLAN
- EROSION & SEDIMENT CONTROL PLAN & DETAILS
- EROSION & SEDIMENT CONTROL PLAN DETAILS

PLANTING NOTES:

- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO PLANTING.
- ALL PLANT MATERIAL AND PLANTING SHALL BE IN ACCORDANCE WITH "AMERICAN STANDARD FOR NURSERY STOCK" BY THE A. A. N.
- SUBSTITUTIONS MAY BE PERMITTED WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT, (762-2220)
- PLANT ALL TREES IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATION 100.02.02 "SELECTION, LOCATION AND REPLACEMENT OF STREET TREES" IN THE HOWARD COUNTY DESIGN MANUAL, VOLUME III.

KEY	PLANT NAME	SIZE	QUANTITY	REMARKS
Ar	Acer rubrum Red Maple	2 1/2" cal. 13'-15'	22	B&B
C	Crataegus oxyacantha 'Superba' Crimson Cloud Hawthorn	1 1/2"-1 3/4" cal. 8'-10'	17	B&B
Kp	Koeleruteria paniculata Golden Rain Tree	2"-2 1/2" cal. 8'-10'	16	B&B
Op	Quercus palustris Pin Oak	2 1/2" cal. 13'-15'	0	B&B
Oph	Quercus phellos Willow Oak	2 1/2" cal. 11'-13'	47	B&B
Sj	Sophora japonica 'Regent' Regent Scholar Tree	2 1/2" cal. 11'-13'	53	B&B
Tc	Tilia cordata 'Greenspire' Greenspire Linden	2" cal. 12'-14'	11	B&B

LEGEND

- ⊙ NUMBER OF PARKING SPACES
- GUARD RAIL
- R/W RIGHT OF WAY
- B.R.L. BUILDING RESTRICTION LINE
- ☁ LIMITS TO BE SAVED
- 25.4 100 YEAR FLOODPLAIN ELEVATION

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Mark S. DeAngelis
Chief, Division of Community Planning & Land Development
Date 7/15/91

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENT

James M. Helm
DATE 3/22/91

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

APPROVED
John R. Robinson
HOWARD SCD
DATE 3/22/91

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Don M. Danyan
Chief, Land Development Division
DATE 4/8/91

Shawville W. Wellens
Chief, Bureau of Highways
DATE 4/2/91

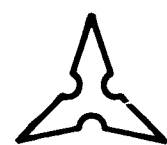
William E. Reilly
Chief Bureau of Engineering
DATE 4.4.91

FOR REFERENCE SEE D.P.Z. FILE NOS. S-86-57, PB-196, S-87-07, VP-85-78, F-88-166, F-89-43, SDP-91-51.



Patton Harris Rust & Associates, Inc.
Engineers, Surveyors, Planners, Landscape Architects
7650 Standish Place
Rockville, Maryland 20855
301 762-2220

Office:
Fairfax, VA
Bridgewater, VA
Leesburg, VA
Rockville, MD
Virginia Beach, VA



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OWNER/DEVELOPER
GORMAN ROAD LIMITED PARTNERSHIP
c/o JAMES F. KNOTT DEVELOPMENT CORP.
110 WEST ROAD, SUITE 203
TOWSON, MARYLAND 21284

JOB
BOWLING BROOK FARMS
PARCEL C
LOTS I-I THRU I-117, LOTS 223 & 224
A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
TAX MAP 47 PARCEL 141
SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
L. 1394 F. 632

TITLE
TITLE SHEET

PROFESSIONAL SEAL
Shelley

NO.	REVISIONS	DATE	BY	SURVEY BY OTHERS	FILE NO.
1	ISSUED FOR REVIEW	3/23/91			2184-1-11
				DESIGN R.S.H	DATE 3-20-89
				DRAWN E.R	SCALE AS SHOWN
				CWD	SHEET 1 OF 16

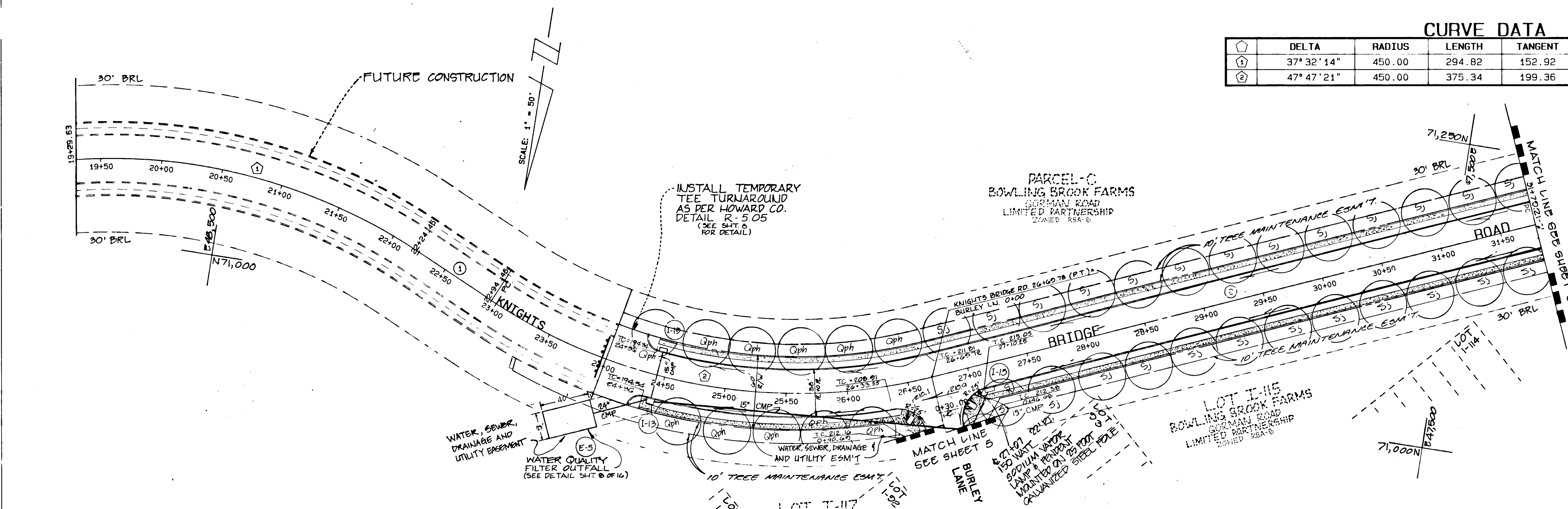
F-89-174

CURVE DATA

NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD BEARING	CHORD DIST.
①	37° 32' 14"	450.00	294.82	152.92	N 64° 02' 58" W	289.57
②	47° 47' 21"	450.00	375.34	199.36	N 89° 10' 32" W	364.55

LINE DATA

NO.	BEARING	DISTANCE
①	N 65° 16' 51" W	70.00
②	S 66° 55' 48" W	509.43



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Alan M. Denigan 4/6/91
Chief, Land Development Division Date

James W. Weiland 4/2/91
Chief, Bureau of Highways Date

Robert R. Ray 4-4-91
Chief Bureau of Engineering Date

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Joseph J. Ziegler 4/5/91
Chief, Division of Community Planning & Land Development Date

LEGEND

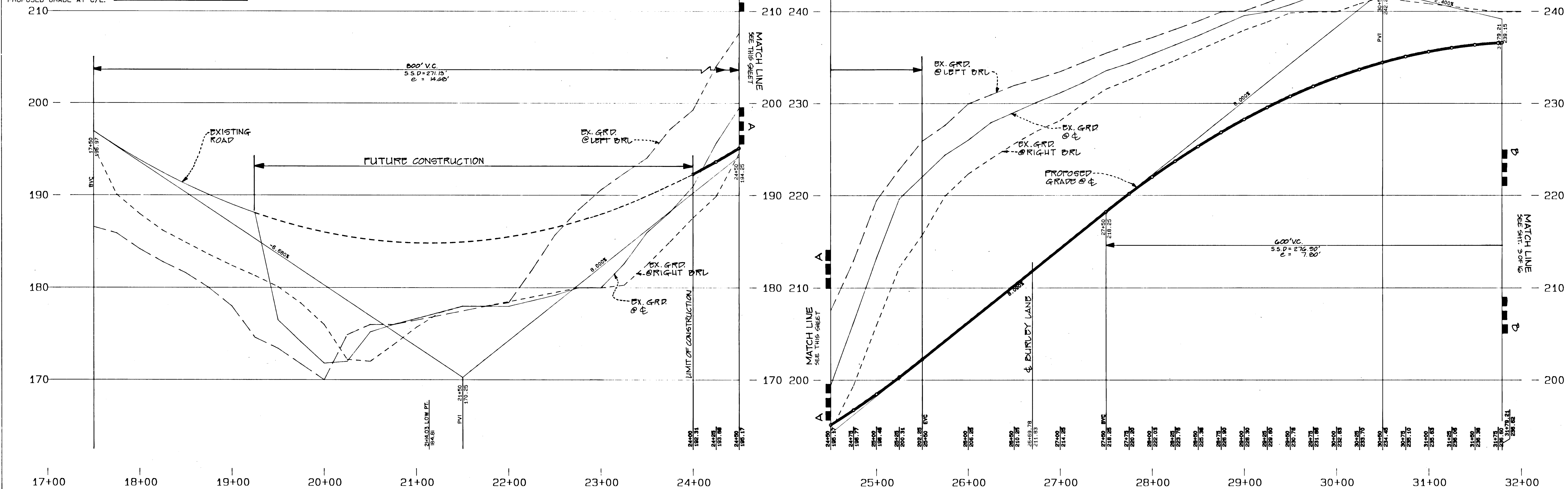
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- EXISTING GROUND AT LEFT B.R.L.: - - - - -
- EXISTING GROUND AT RIGHT B.R.L.: - - - - -
- PROPOSED GRADE AT C/L: _____

SCALE

HORZ. 1"=50'
VERT. 1"=5'

PLAN SCALE

1"=50'



1271



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OWNER/DEVELOPER
GORMAN ROAD LIMITED PARTNERSHIP
c/o JAMES F. KNOTT DEVELOPMENT CORP.
110 WEST ROAD, SUITE 203
TOWSON, MARYLAND 21204

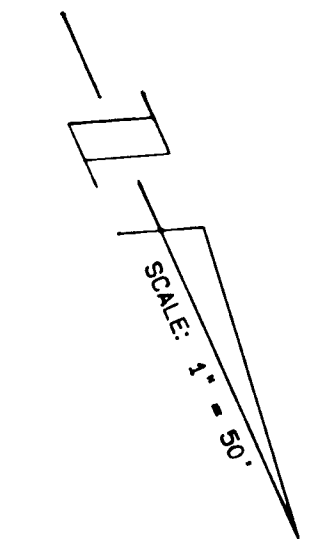
JOB
BOWLING BROOK FARMS
PARCEL C
LOTS I-I THRU. I-117, LOTS 223 & 224
A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
TAX MAP 47 PARCEL 141
SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
L. 1394 F. 632

TITLE
KNIGHTS BRIDGE ROAD
STATION 24+00 TO 31+79.21

PROFESSIONAL SEAL
H. J. ...
12/15/91

NO.	REVISIONS	DATE	BY
3	REVISED PER COMMENTS ON 10/10/90	12-5-90	
2	SUBMITTED FOR SIGNATURE	0-18-90	
1	ISSUED FOR REVIEW	2-23-89	

SURVEY BY	FILE NO.
OTHERS	2184-1-11
DESIGN	DATE
R S H	1-18-89
DRAWN	SCALE
CADD / PC	AS SHOWN
CHKD	SHEET
	2 OF 16



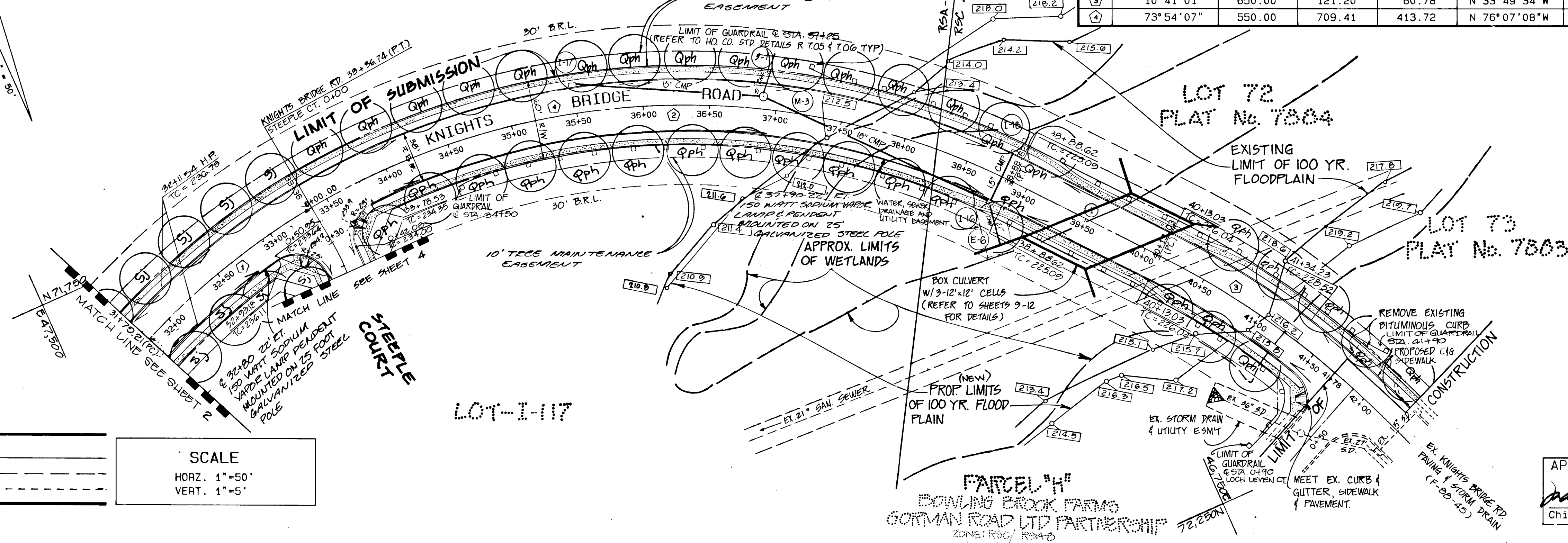
PARCEL C
BOWLING BROOK FARMS
GORMAN ROAD LTD PARTNERSHIP
 ZONE: R5A-B
 L. 1394 F. 632

CURVE DATA

NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD BEARING	CHORD DIST.
1	16°24'40"	550.00	157.54	79.31	S 75°08'08"W	157.00
2	57°29'27"	550.00	551.87	301.68	N 67°54'48"W	529.01
3	10°41'01"	650.00	121.20	60.78	N 33°49'34"W	121.03
4	73°54'07"	550.00	709.41	413.72	N 76°07'08"W	661.25

LINE DATA

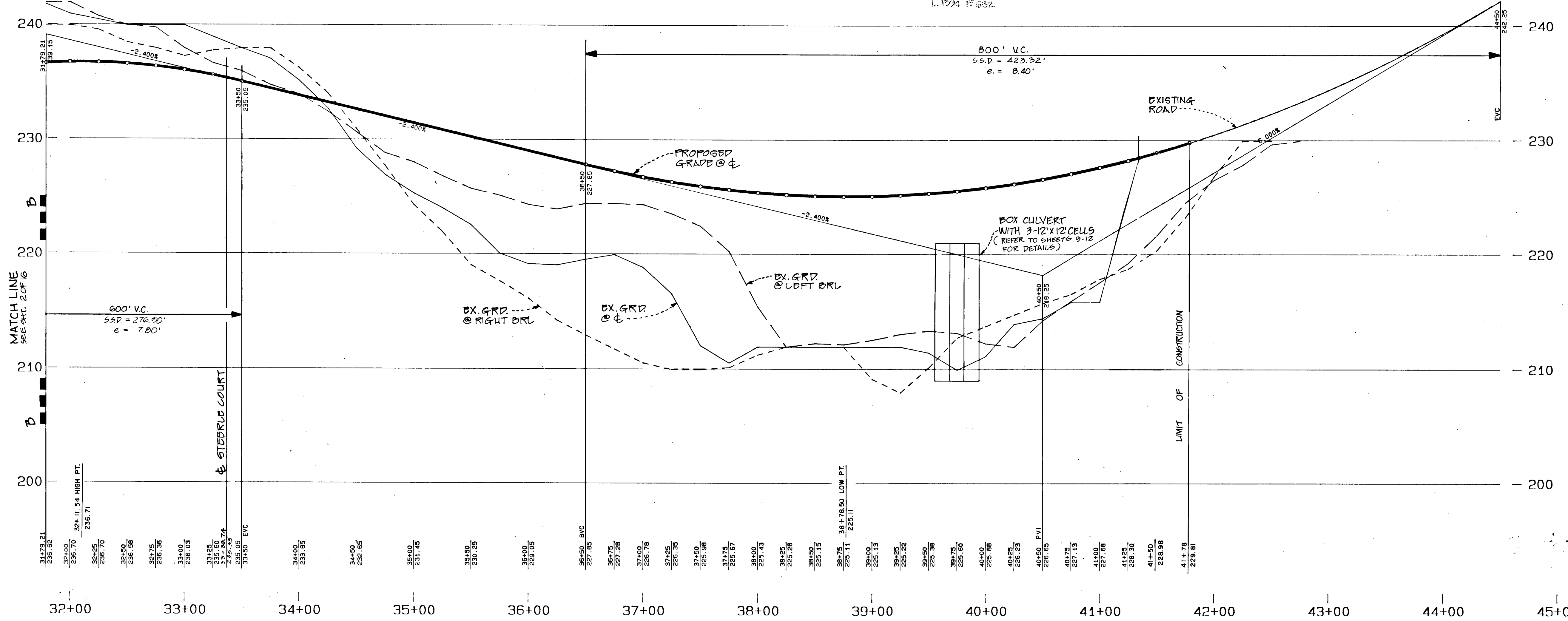
NO.	BEARING	DISTANCE
1	N 39°10'05"W	124.41



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Alan M. Tinson 4/6/91
 Chief, Land Development Division Date
Granville W. Weiland 4/2/91
 Chief, Bureau of Highways Date
William J. Reed 4-4-91
 Chief Bureau of Engineering Date
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Mark V. ... 4/15/91
 Chief, Division of Community Planning & Land Development Date

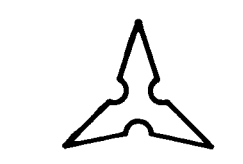
LEGEND
 EXISTING GROUND AT C/L: ———
 EXISTING GROUND AT LEFT B.R.L.: - - - - -
 EXISTING GROUND AT RIGHT B.R.L.: - - - - -
 PROPOSED GRADE AT C/L: ———

SCALE
 HORZ. 1"=50'
 VERT. 1"=5'



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 Virginia Beach, VA



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 A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
 TAX MAP 47 PARCEL 141
 SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 L. 1394 F. 632

TITLE
 KNIGHTS BRIDGE ROAD
 STATION 31+79.21 TO 41+78

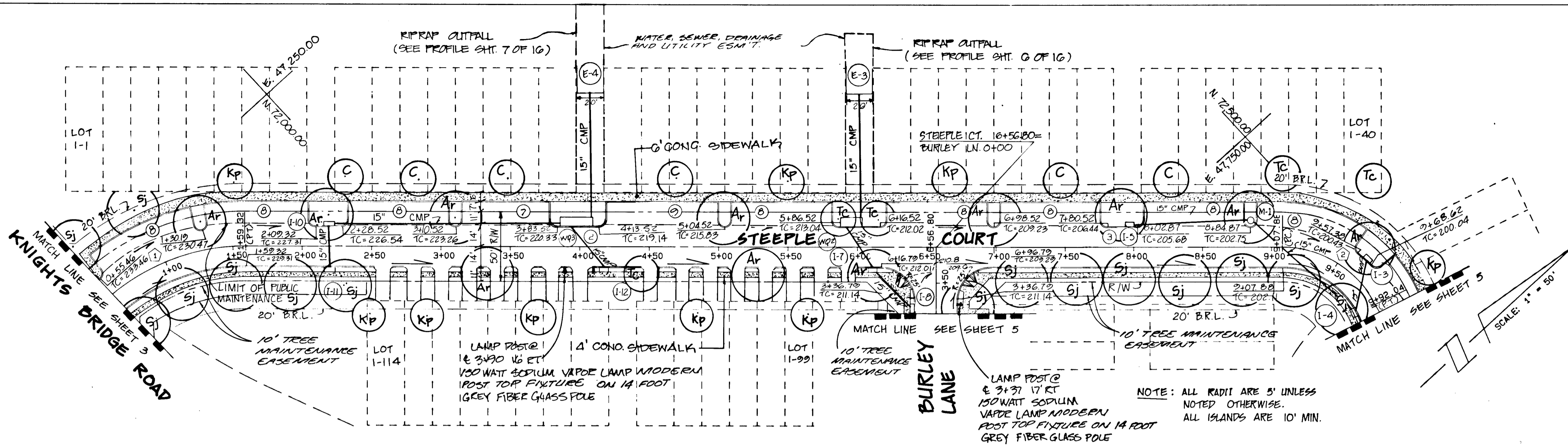
PROFESSIONAL SEAL
Alan M. Tinson

NO.	REVISIONS	DATE	BY
3	REVISED PER COMMENTS ON 10/16/90	12-8-90	
2	SUBMITTED FOR SIGNATURE	0-28-90	
1	ISSUED FOR REVIEW	3-28-89	

SURVEY BY	OTHERS	FILE NO.
DESIGN	R.S.H.	2104-1-11
DATE		1-10-89
SCALE	AS SHOWN	
SHEET	3 OF 16	

F.89-174

11271



CURVE DATA

DELTA	RADIUS	LENGTH	TANGENT	CHORD BEARING	CHORD DIST.
49° 12' 32"	150.00	128.83	68.69	N 17° 56' 44" E	124.91
64° 18' 00"	75.00	84.17	47.14	N 74° 42' 00" E	79.82

LINE DATA

BEARING	DISTANCE
N 06° 39' 32" W	30.49
N 42° 33' 00" E	497.47
N 42° 33' 00" E	251.08

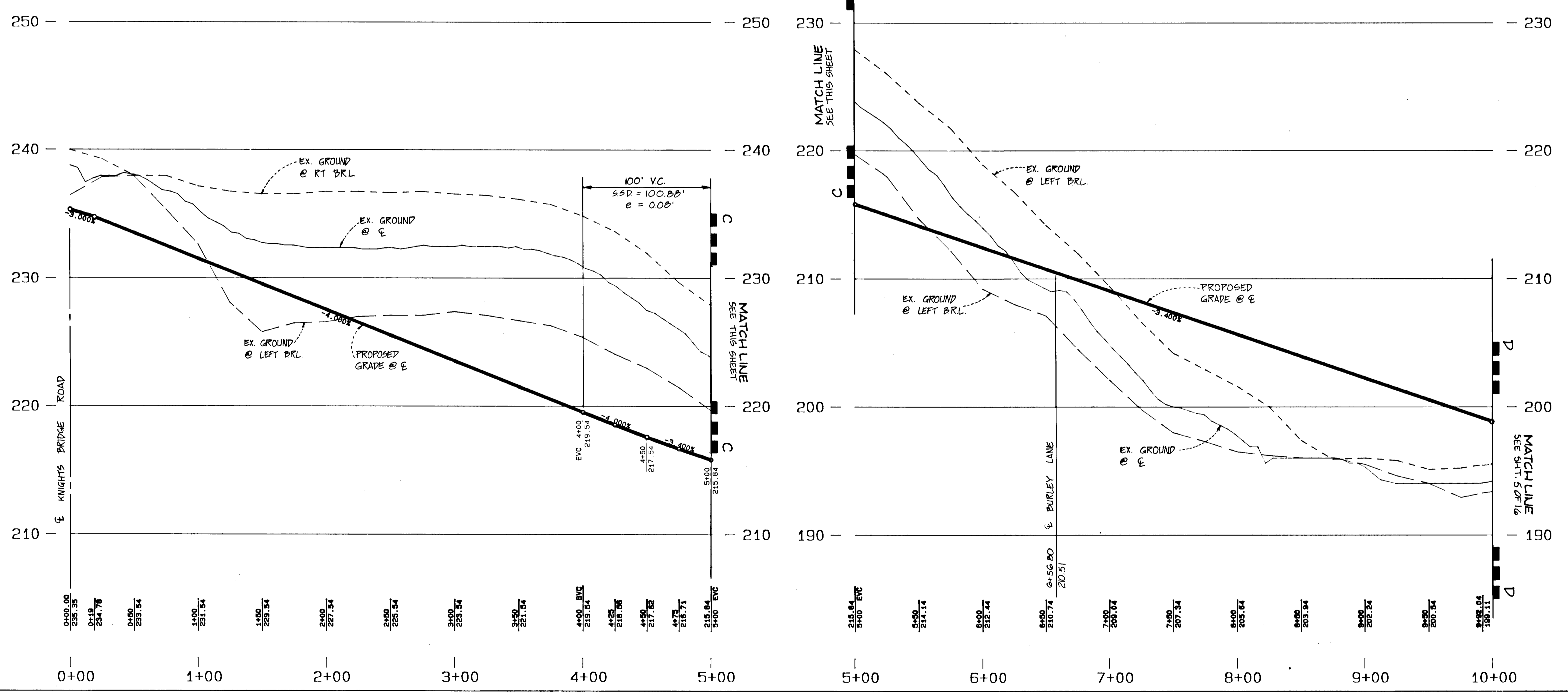
PLAN SCALE
1" = 50'

LEGEND

EXISTING GROUND AT C/L:	_____
EXISTING GROUND AT LEFT B.R.L.:	-----
EXISTING GROUND AT RIGHT B.R.L.:	-----
PROPOSED GRADE AT C/L:	_____

SCALE

HORZ. 1"=50'
VERT. 1"=5'



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John M. Tompkins 4/6/91
Chief, Land Development Division Date

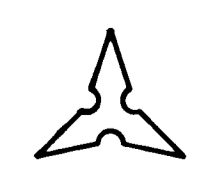
Branville W. Welland 4/2/91
Chief, Bureau of Highways Date

William S. Perry 4-4-91
Chief Bureau of Engineering Date

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Wanda C. Cayle 4/10/91
Chief, Division of Community Planning & Land Development Date

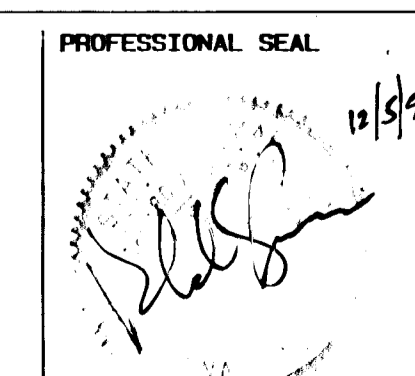
1221



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110 WEST ROAD, SUITE 203
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JOB
BOWLING BROOK FARMS
PARCEL C
LOTS I-1 THRU I-117, LOTS 223 & 224
A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
TAX MAP 47 PARCEL 141
SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
L. 1394 F. 632

TITLE
STEEPLE COURT
STATION 0+00 TO 10+00



NO. REVISIONS

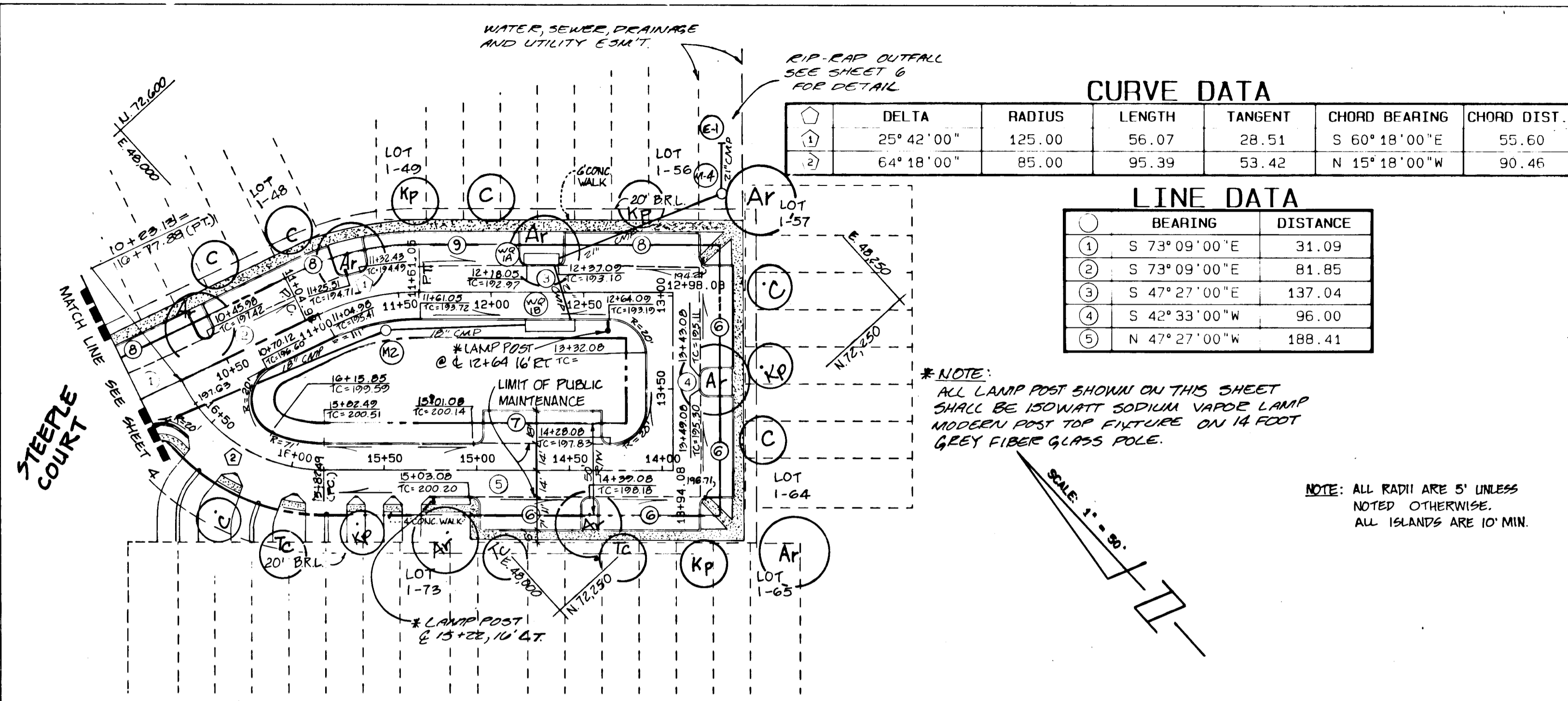
NO.	REVISIONS	DATE	BY
1	ISSUED FOR REVIEW	3-23-89	
2	REVISED PER COMMENTS OF 5-1-89	6-28-89	
3	SUBMITTED FOR SIGNATURE	12-5-89	
4	REVISED PER COMMENTS OF 10/16/90	12-5-90	

SURVEY BY OTHERS
DESIGN R.S.H.
DRAWN CAD/ER
CHKD

FILE NO. 2104-1-11
DATE 1-10-89
SCALE AS SHOWN
SHEET 4 OF 16

Petton Harris Rust & Associates, Inc.
Engineers, Surveyors, Planners, Landscape Architects
7609 Standish Place
Rockville, Maryland 20855
301 762-2220

Offices:
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Leesburg, VA
Rockville, MD
Virginia Beach, VA



CURVE DATA

DELTA	RADIUS	LENGTH	TANGENT	CHORD BEARING	CHORD DIST.
25° 42' 00"	125.00	56.07	28.51	S 60° 18' 00" E	55.60
64° 18' 00"	85.00	95.39	53.42	N 15° 18' 00" W	90.46

LINE DATA

BEARING	DISTANCE
S 73° 09' 00" E	31.09
S 73° 09' 00" E	81.85
S 47° 27' 00" E	137.04
S 42° 33' 00" W	96.00
N 47° 27' 00" W	188.41

*NOTE: ALL LAMP POST SHOWN ON THIS SHEET SHALL BE 150WATT SODIUM VAPOR LAMP MODERN POST TOP FIXTURE ON 14 FOOT GREY FIBER GLASS POLE.

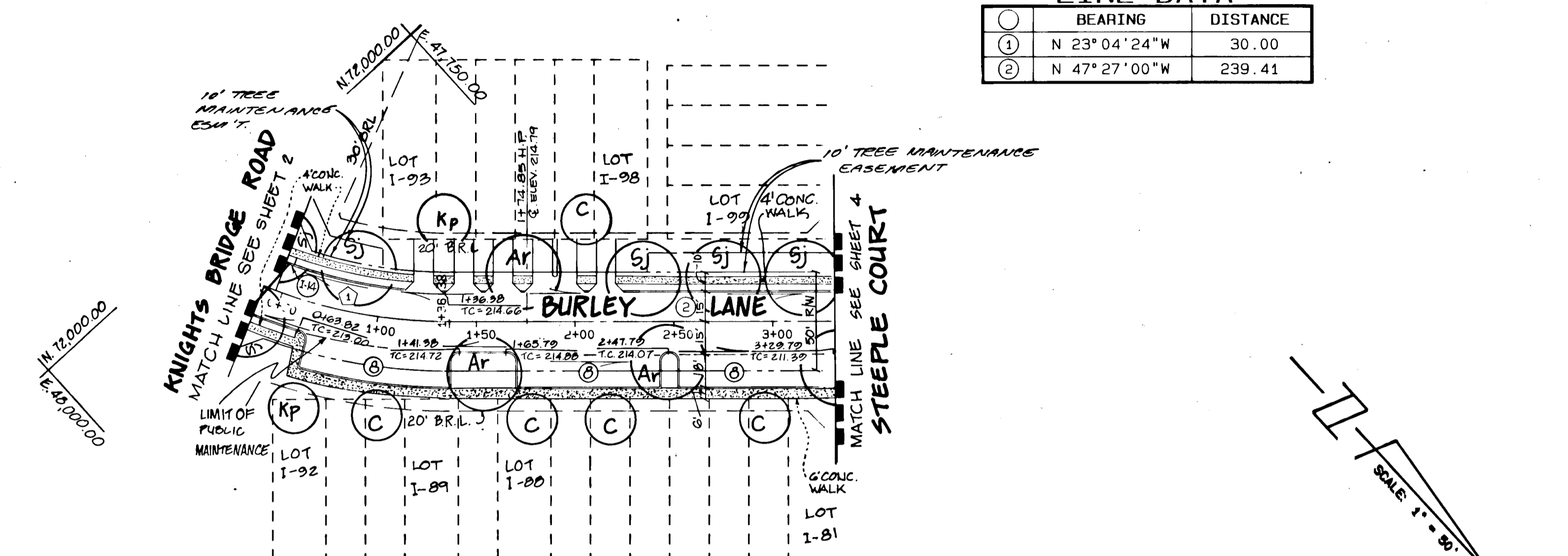
NOTE: ALL RADII ARE 5' UNLESS NOTED OTHERWISE. ALL ISLANDS ARE 10' MIN.

CURVE DATA

DELTA	RADIUS	LENGTH	TANGENT	CHORD BEARING	CHORD DIST.
24° 22' 48"	250.00	106.38	54.01	N 35° 15' 36" W	105.58

LINE DATA

BEARING	DISTANCE
N 23° 04' 24" W	30.00
N 47° 27' 00" W	239.41



LEGEND

EXISTING GROUND AT C/L: ————

EXISTING GROUND AT LEFT B.R.L.: - - - -

EXISTING GROUND AT RIGHT B.R.L.: - - - -

PROPOSED GRADE AT C/L: ————

SCALE

HORZ. 1"=50'

VERT. 1"=5'

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

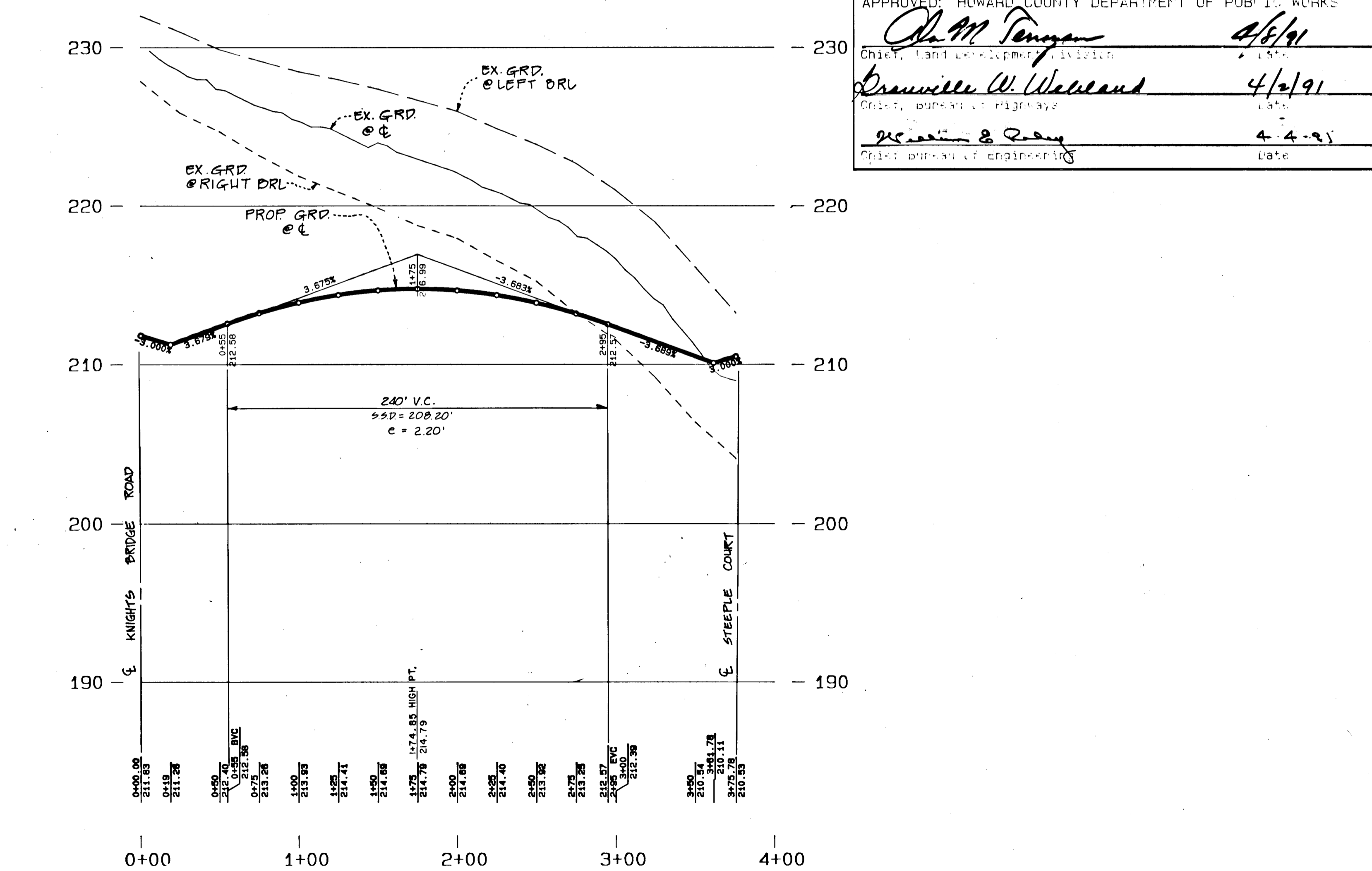
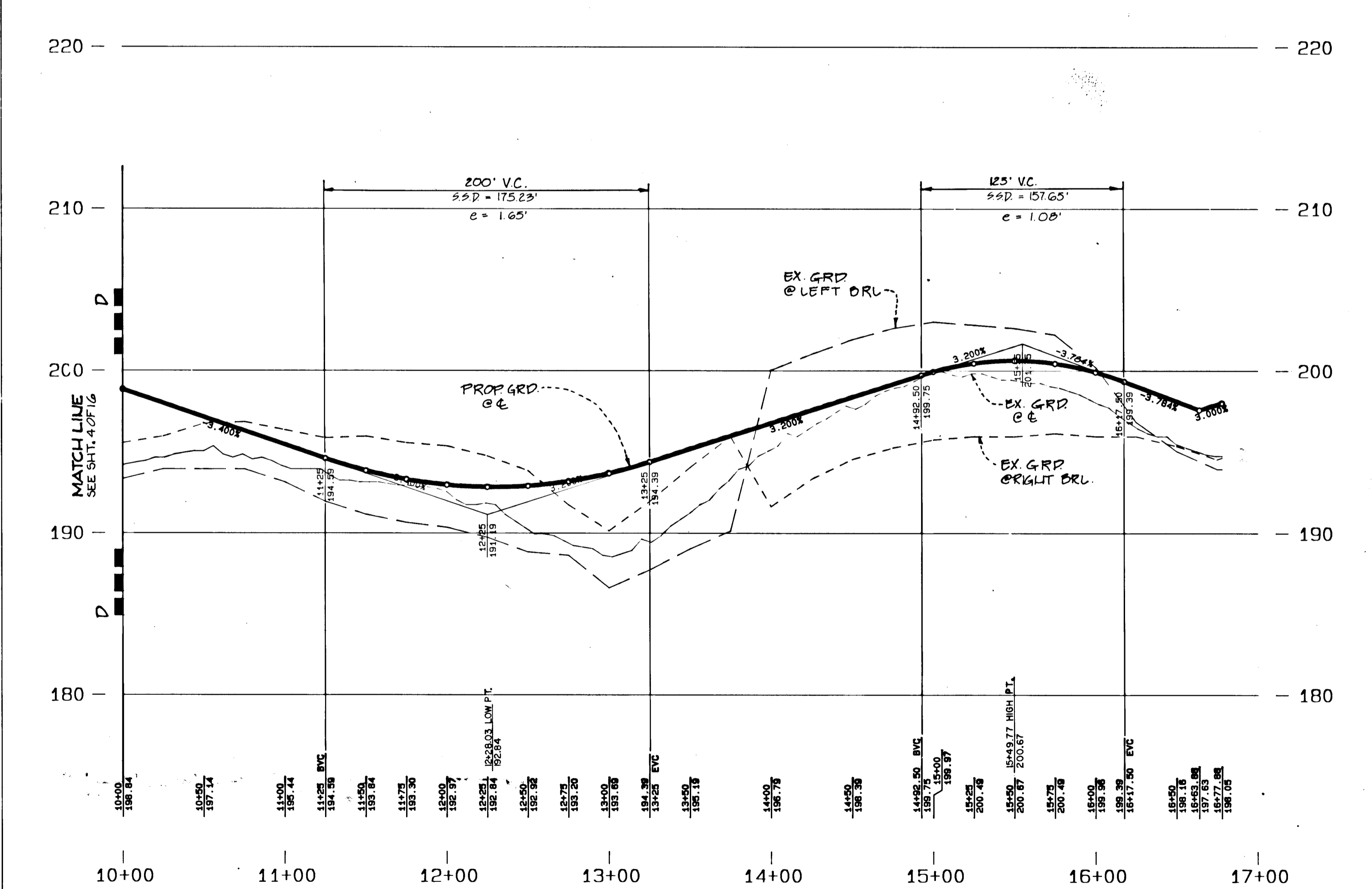
James S. Daugh 4/15/91
Chief, Division of Community Planning & Land Development

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John M. Tennyson 4/6/91
Chief, Land Development Division

Drumville W. Waleland 4/2/91
Chief, Bureau of Highways

William S. Ray 4-4-91
Chief, Bureau of Engineering

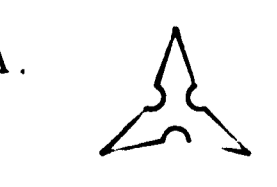


1271



Patton Harris Rust & Associates, PC
Engineers, Surveyors, Planners, Landscape Architects
700 "Andon" Lane
Rockville, Maryland 20855
301 762-2220

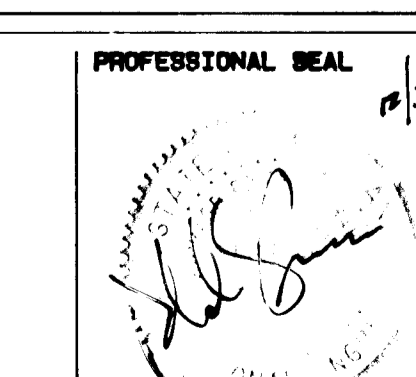
Offices:
Fairfax, VA
Falls Church, VA
Washington, DC
Rockville, MD
Virginia Beach, VA



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OWNER/DEVELOPER
GORMAN ROAD LIMITED PARTNERSHIP
c/o JAMES F. KNOTT DEVELOPMENT CORP.
110 WEST ROAD, SUITE 203
TOWSON, MARYLAND 21284

JOB
BOWLING BROOK FARMS
PARCEL C
LOTS I-I THRU I-117, LOTS 223 & 224
A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
TAX MAP 47 PARCEL 141
SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
L. 1394 F. 632

TITLE
STEEPLE COURT
STATION 10+00 TO 16+77.88
BURLEY LANE
STATION 0+00 TO 3+75.78

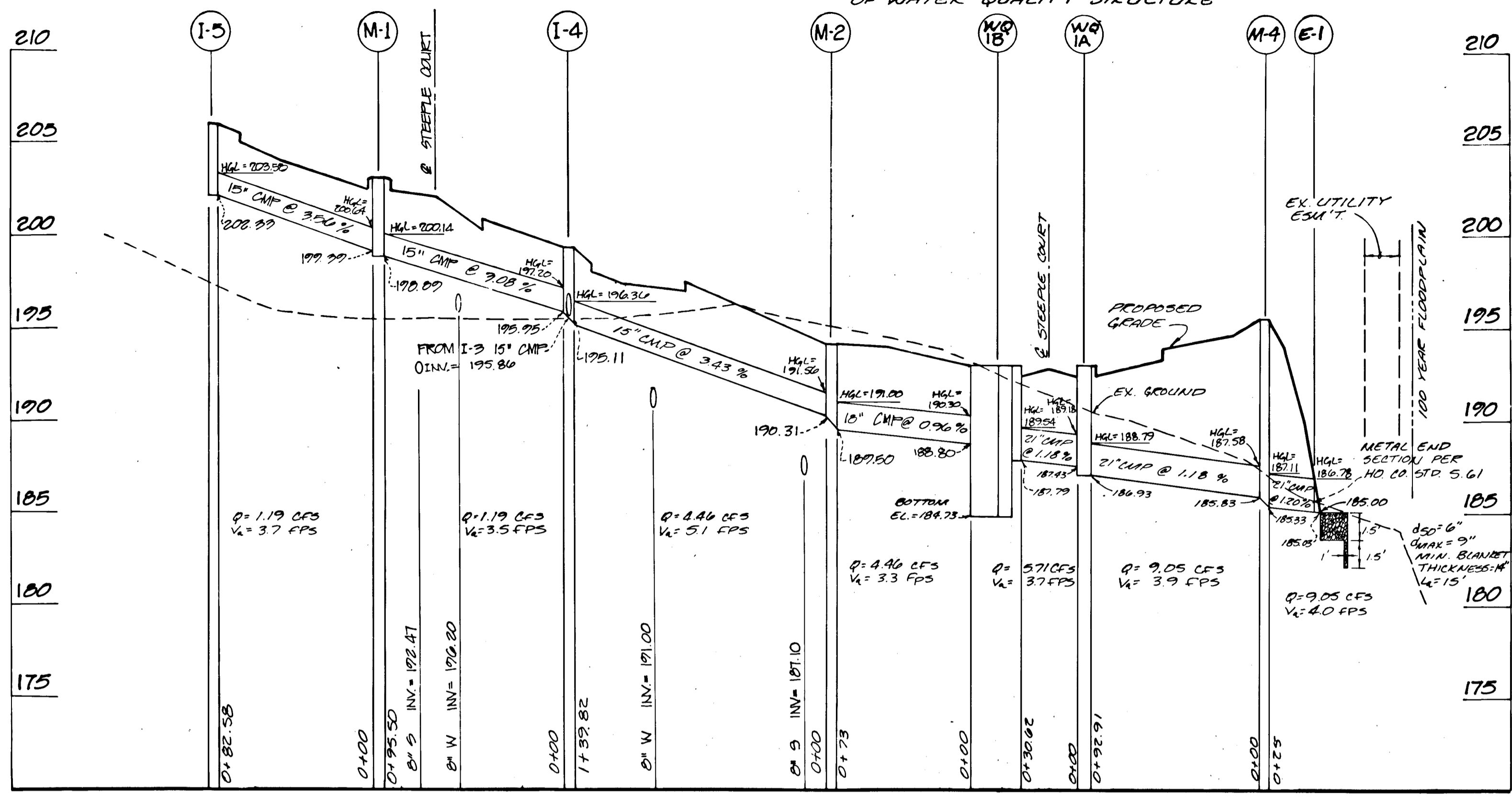


PROFESSIONAL SEAL

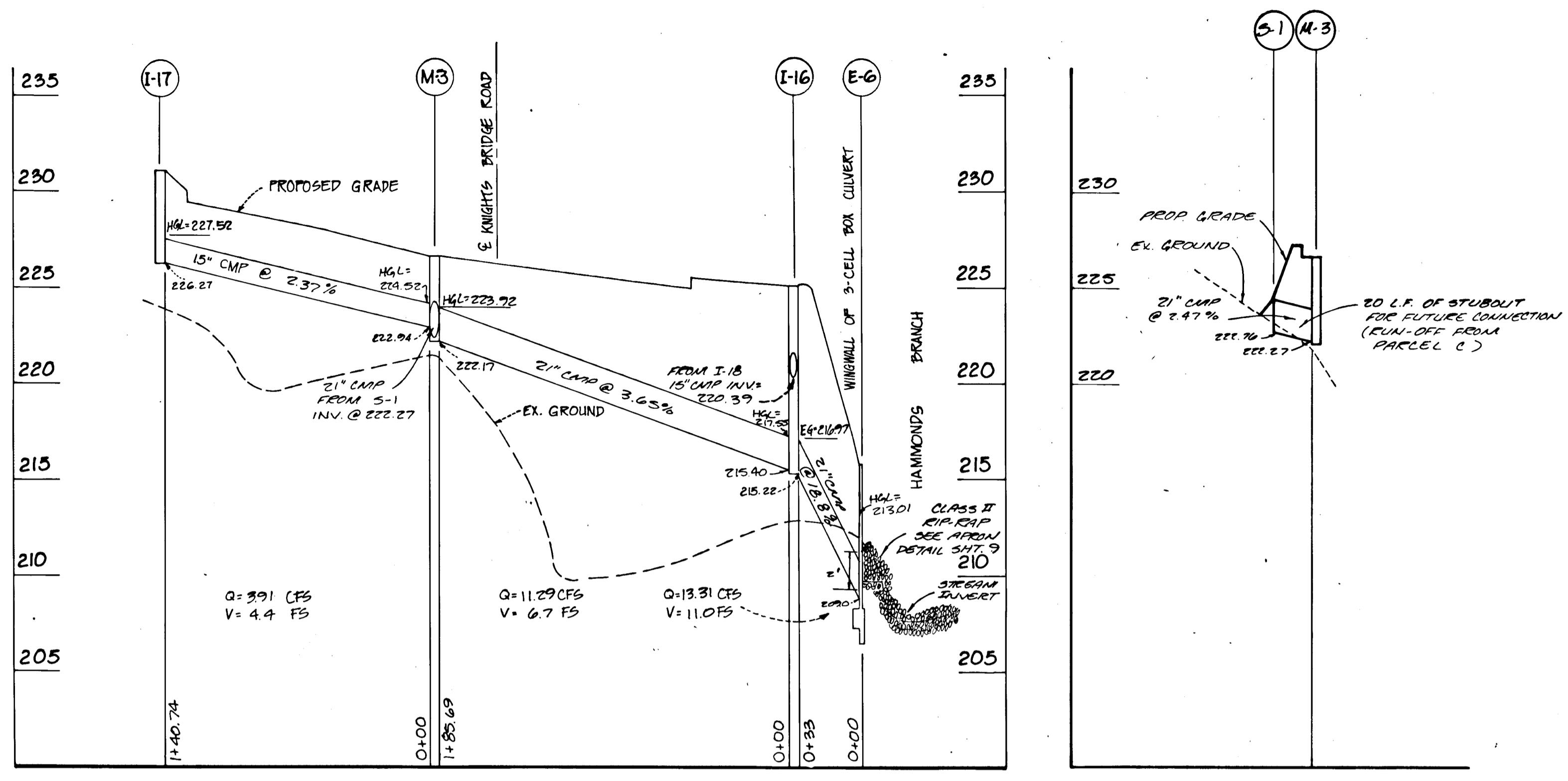
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2	REVISED PER COMMENTS OF EX-60	0-28-90	
1	ISSUED FOR REVIEW	5-28-90	

BURVEY BY	OTHERS	FILE NO.
DESIGN	R.S.H.	21-84-1-11
DRAWN	CAD/E.R.	DATE 1-18-89
CHKD		SCALE CI AS SHOWN
		SHEET 5 OF 16

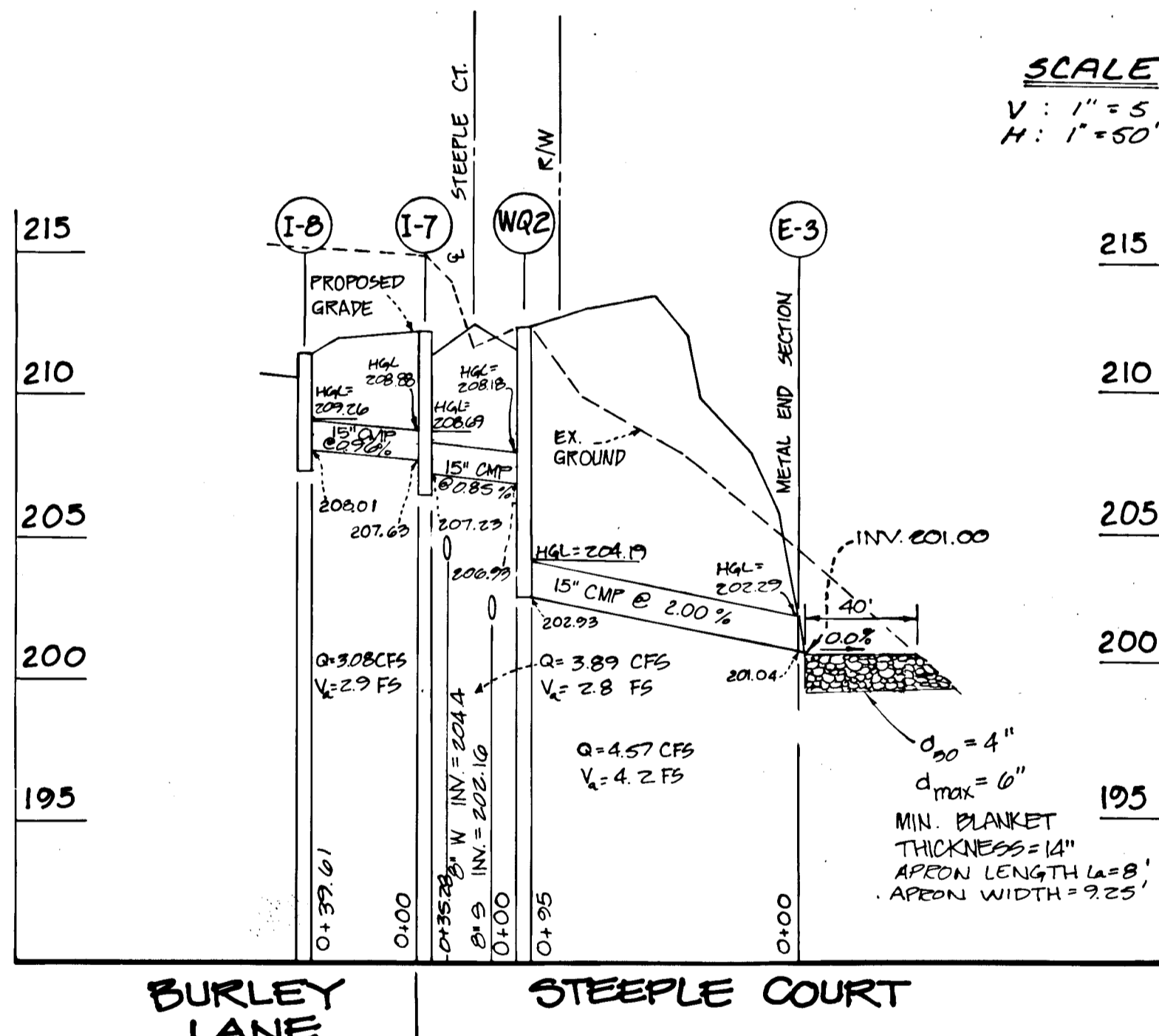
NOTE:
SEE SHEETS 6, 7, 10 FOR DETAIL
OF WATER QUALITY STRUCTURE



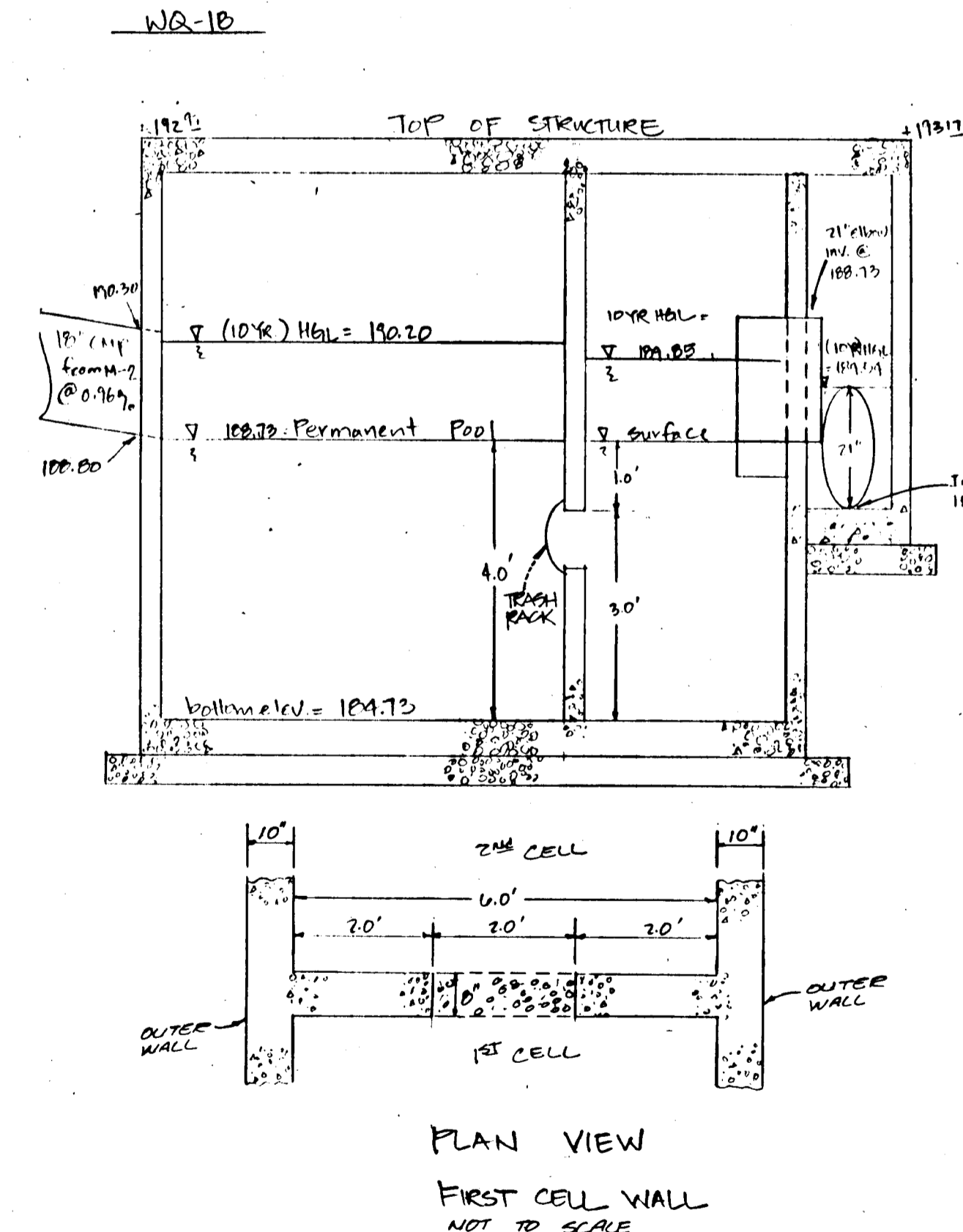
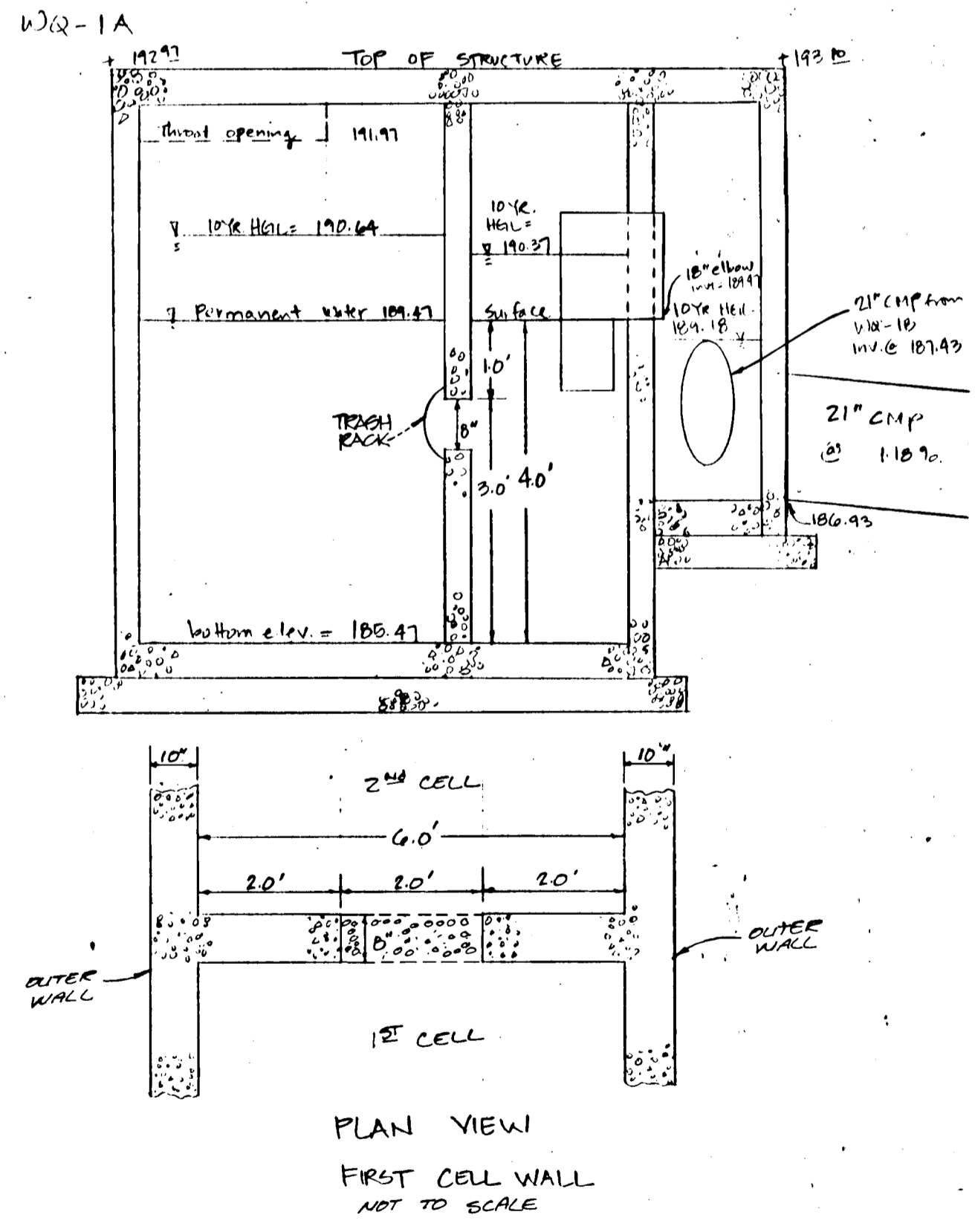
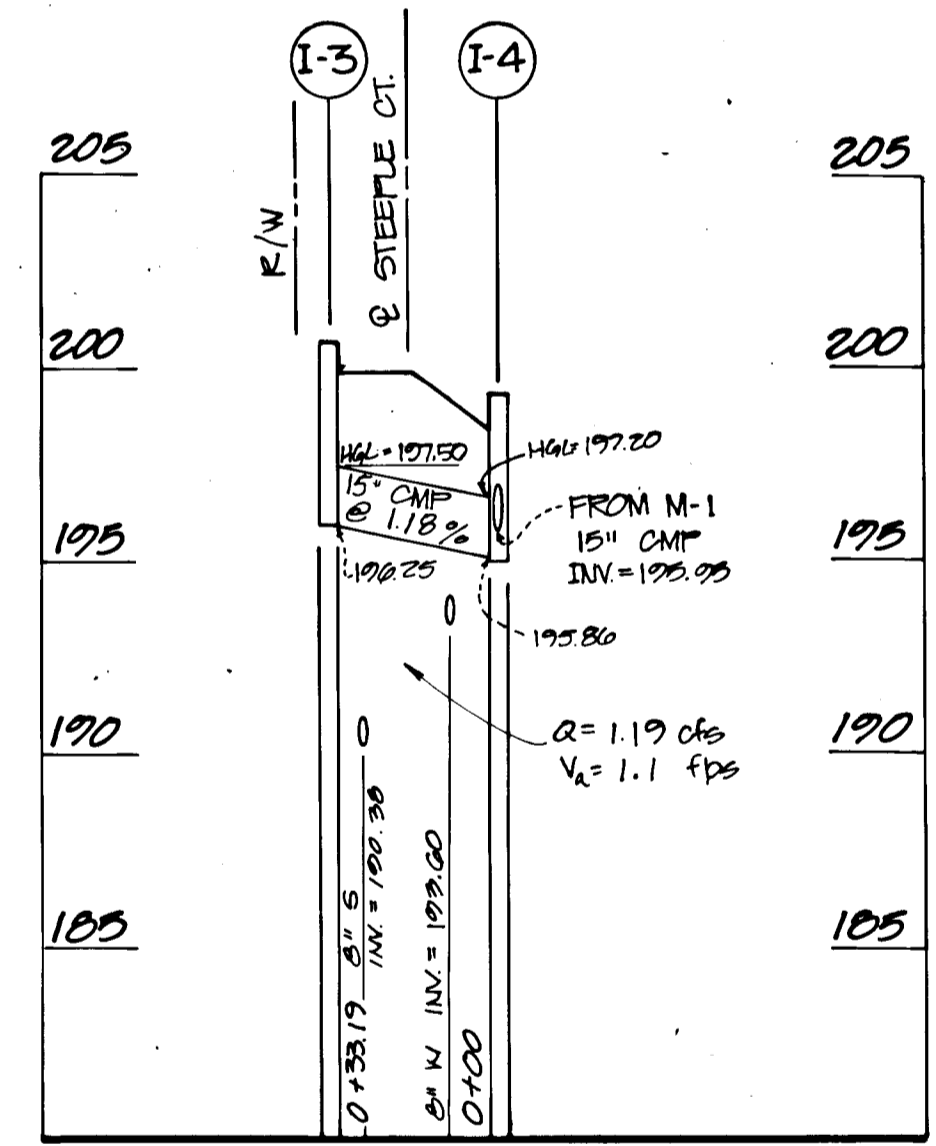
STEEPLE COURT



KNIGHTS BRIDGE ROAD

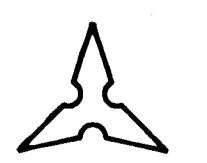


SCALE
V: 1"=5'
H: 1"=50'



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John M. Torgerson 4/1/91
 Chief, Land Development Division
Francine W. Weiland 4/2/91
 Chief, Bureau of Highways
James R. Kelly 4-4-91
 Chief Bureau of Engineering

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Mark C. Layton 4/15/91
 Chief, Division of Community Planning & Land Development



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 c/o JAMES F. KNOTT DEVELOPMENT CORP.
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JOB
 BOWLING BROOK FARMS
 PARCEL C
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 A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
 TAX MAP 47 PARCEL 141
 SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 L. 1394 F. 632

TITLE
 STORM DRAIN PROFILES

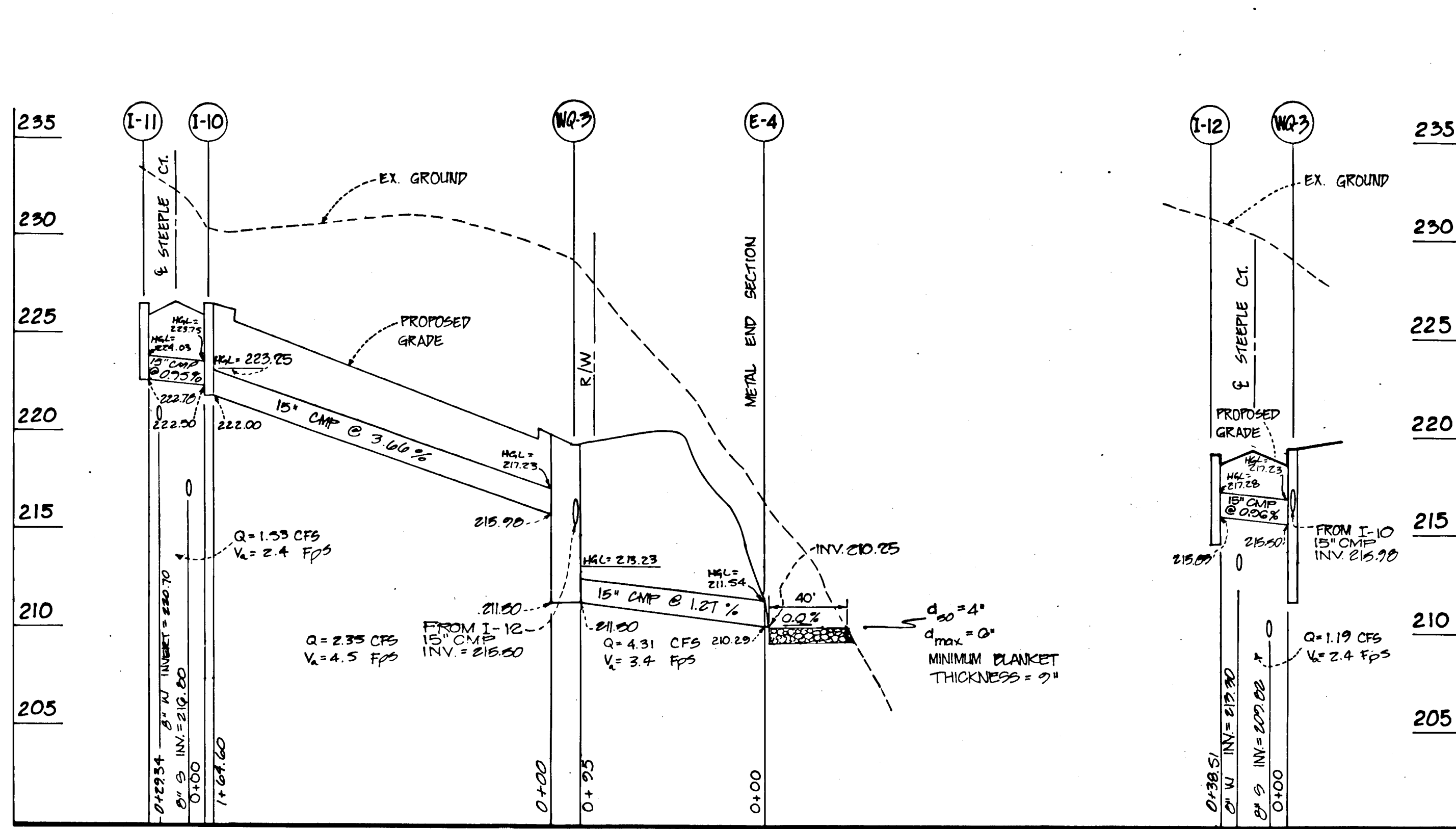
PROFESSIONAL SEAL
John M. Torgerson

NO.	REVISIONS	DATE	BY	SURVEY BY	FILE NO.
4	REVISE PER DESIGN CHANGE	8-20-91			2104-1-11
3	REVISED PER COMMENTS OF 10/16/90	12-5-90			DATE 3-20-92
2	SUBMITTED FOR SIGNATURE	4-20-90			SCALE CT AS SHOWN
1	ISSUED FOR REVIEW	3-23-89			DRAWN E.R. SHEET 6 OF 16

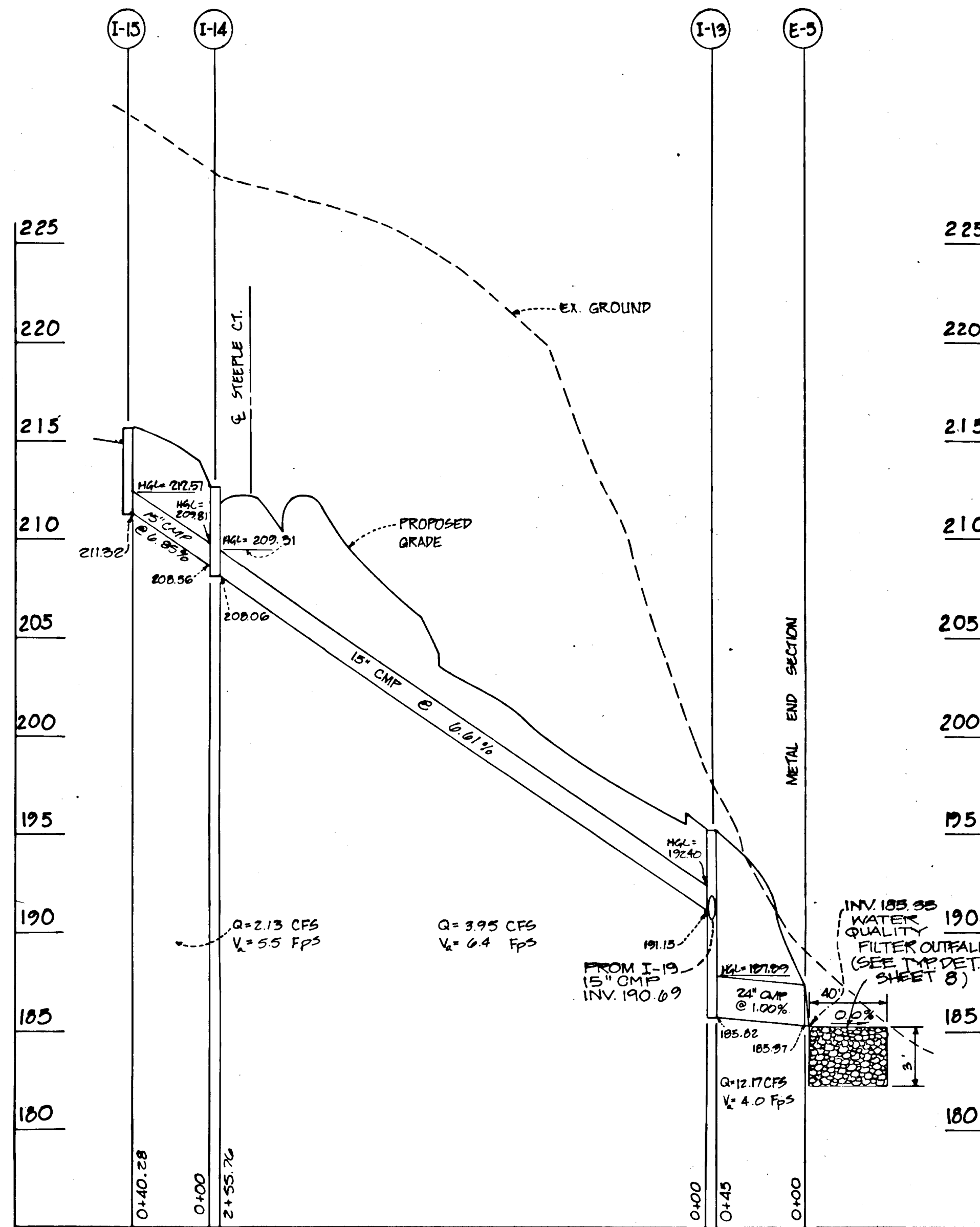
F-89-174

1271

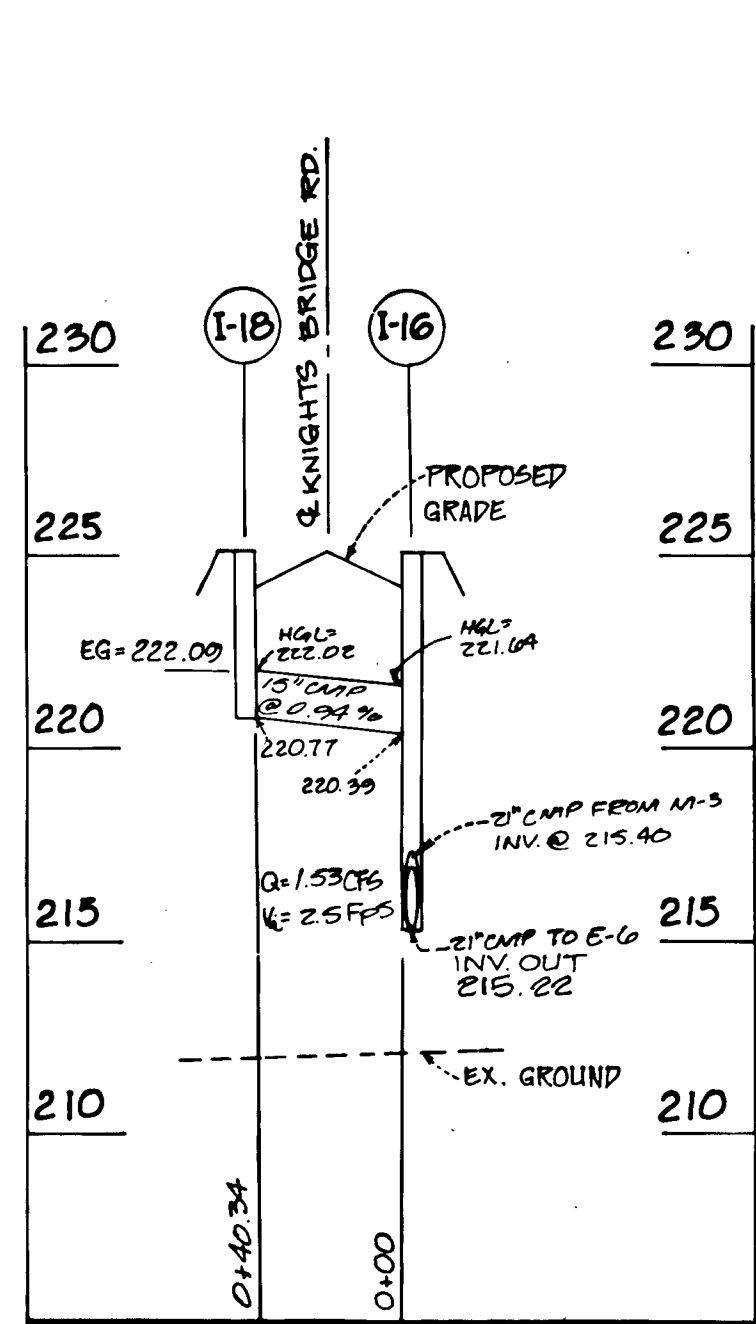
NOTE: SEE SHEETS 6, 7, 10 FOR DETAIL OF WATER QUALITY STRUCTURE.



STEEPLE COURT

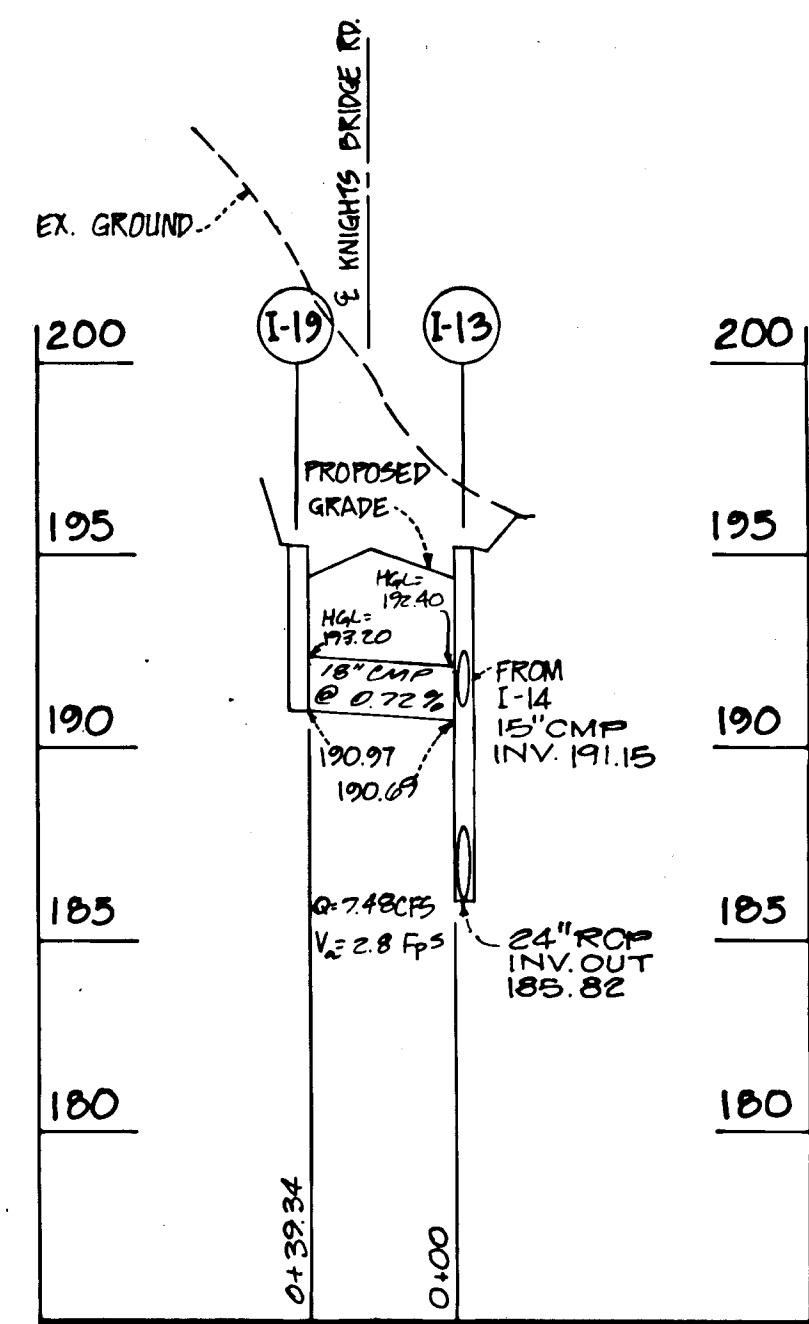


KNIGHTS BRIDGE ROAD

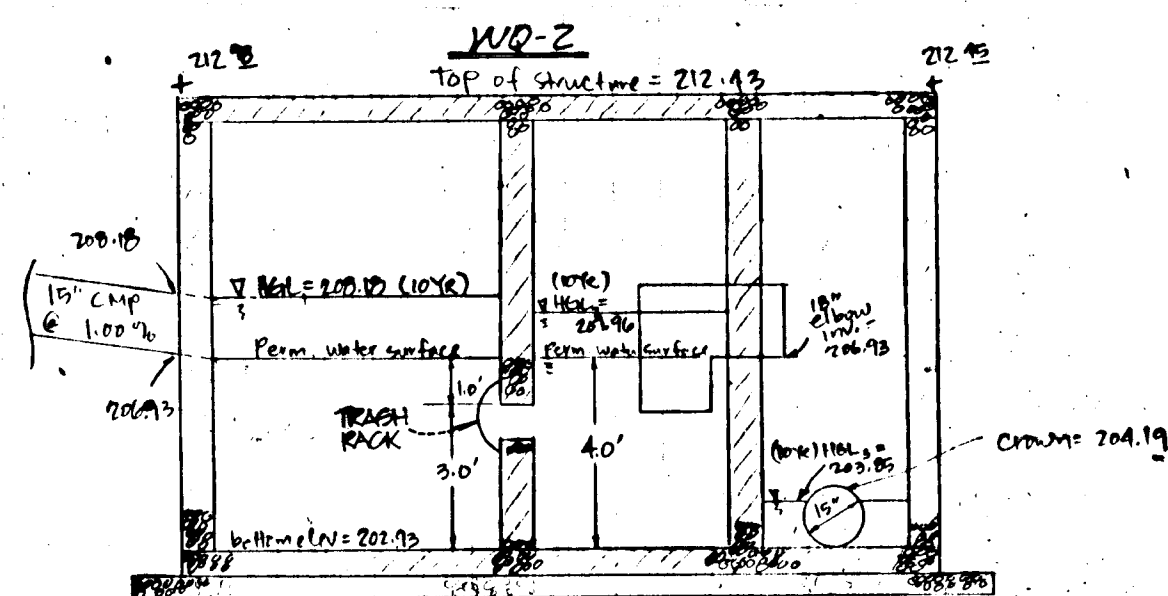


KNIGHTS BRIDGE ROAD

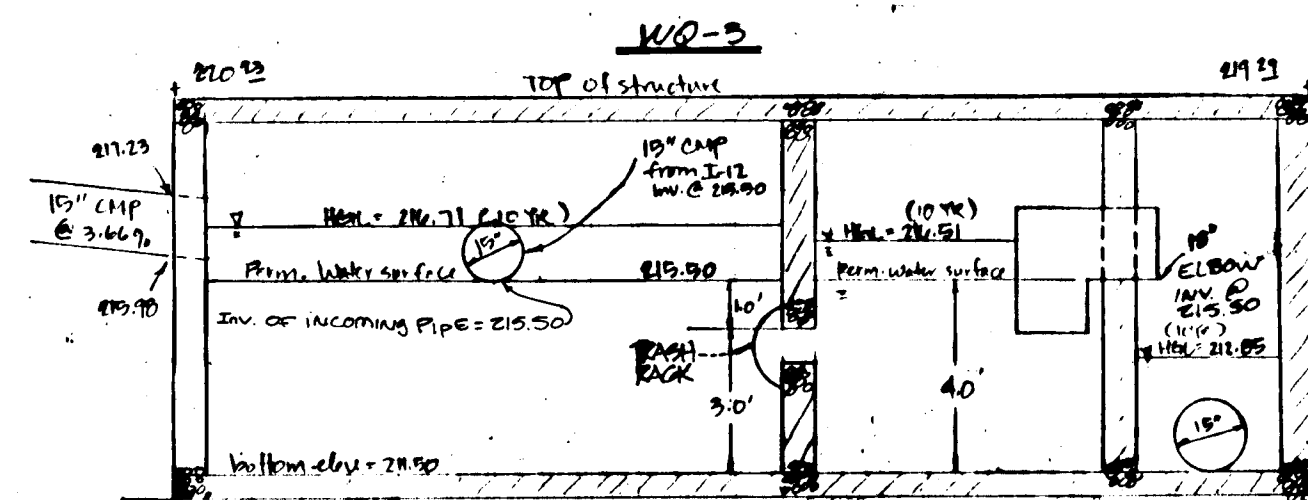
SCALE
V: 1" = 5'
H: 1" = 50'



KNIGHTS BRIDGE ROAD



PLAN VIEW FIRST CELL WALL NOT TO SCALE



PLAN VIEW FIRST CELL WALL NOT TO SCALE

- DESIGN AND GENERAL NOTES:**
- Use poured-in place concrete for the entire structure.
 - Refer to Maryland State Highway Administration for materials and methods of construction.
 - Wall thickness shall be as specified on the water quality structure. Details on sheet 10.
 - f'c = 3,588 psi at 28 days.
 - All reinforcing steel to be ASTM A615, GR. 60, and epoxy coated.
 - For details concerning throat openings, refer to MCDOT Standard No. 55.
- | Throat Length | No. of Pipe Supports |
|---------------|----------------------|
| 5' | 0 |
| 10' | 1 |
| 15' | 2 |
| 20' | 3 |
- pipe supports to be spaced at 5'-0" O.C.
- For details not noted in this standard, refer to MCDOT Standard No. 55.
 - The top 4 inches of walls may be brick masonry for leveling, if required. Brick masonry shall comply with the latest SNA Specification.
 - When grate opening is used, refer to the appropriate SNA Standard for details. Details shall be shown on the plans.
 - When inside width of structure is greater than 4'-0", reinforcing shall be revised as needed.
 - When structure is subject to traffic loading, reinforcing shall be designed for the appropriate traffic loads. Design loads shall be indicated on the plan.
 - All inlets and incoming pipes shall be checked for possible backwater or tailwater problems.

- MAINTENANCE NOTES (WATER QUALITY STRUCTURE WASTE)**
- Water Quality Structures will require periodical cleaning. Owners of these facilities will have to clean them as needed or on a frequency that the County determines is appropriate. Owners of water quality structures will be notified by the County of the frequency of maintenance.
 - Maintenance of these facilities will consist of cleaning out the separator and disposal of the waste and the repair of the facility as needed. Periodic inspections of these facilities will be made by the County Stormwater Management group.
 - The disposal of the liquid and solid matter should be as follows:
 - All liquid material in the separator inlet shall be pumped into a suitable tank truck and disposed of at an approved sanitary district discharge manhole or be taken to an approved sewage treatment plant for discharge.
 - The solid material shall be landfilled in an approved sanitary landfill.
 - The inlet pipes, trash racks, grates, and structural parts shall be repaired as needed.

- CONSTRUCTION NOTES:**
- Silt and debris shall not be allowed to enter the structures until contributing drainage areas have been permanently stabilized.
 - All openings to structures shall be protected with the appropriate sediment control measures during construction.

- INSPECTION NOTES:**
- Prior to start of construction on water quality structures, the MCDOT inspector must be called 48 hours in advance at 251-2624.
 - The MCDOT inspector must be notified (251-2624) at each of the following stages:
 - Approval of subgrade for footings.
 - Footings formed and steel set prior to pouring.
 - Structure sides formed and steel set prior to pouring.
 - Prior to top slab and manholes being set, MCDOT inspector must check structure and all debris and silt in structure removed.
 - When site is permanently stabilized and sediment control measures to protect inlet are to be removed.

WATER QUALITY CONTROL STRUCTURES
SEE SHEET 10 FOR STRUCTURE DATA.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division: *John M. Taylor* 4/8/91
 Chief, Bureau of Highways: *Granville W. Wellwood* 4/2/91
 Chief Bureau of Engineering: *William E. Pinsky* 4-4-91

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Chief, Division of Community Planning & Land Development: *Mark S. DeAngelis* 4/15/91



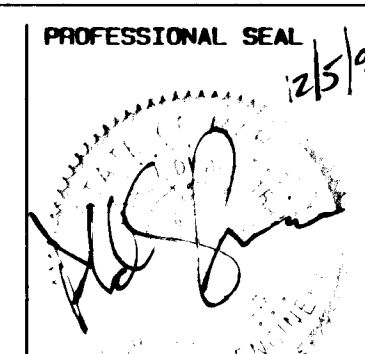
Patton Harris Rust & Associates, PC
 Engineers, Surveyors, Planners, Landscape Architects
 7609 Standish Place
 Rockville, Maryland 20855
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Offices:
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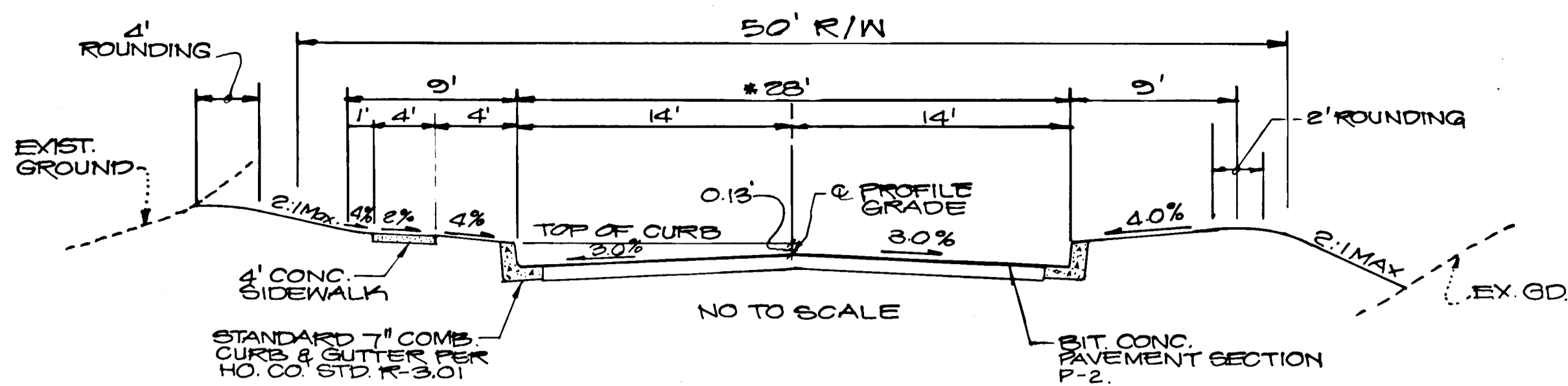
JOB
 BOWLING BROOK FARMS
 PARCEL C
 LOTS I-1 THRU I-117, LOTS 223 & 224
 A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
 TAX MAP 47 PARCEL 141
 SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 L. 1394 F. 632

TITLE
 STORM DRAIN PROFILES



NO.	REVISIONS	DATE	BY	SURVEY BY	FILE NO.
1	ISSUED FOR REVIEW	3/20/91			2184-1-11
2	REVISED PER COMMENTS OF 10/16/90 - SUBMITTED FOR SIGNATURE	12-5-90			5-20-89
3	REVISED PER COMMENTS OF 5-1-89	6-29-90			

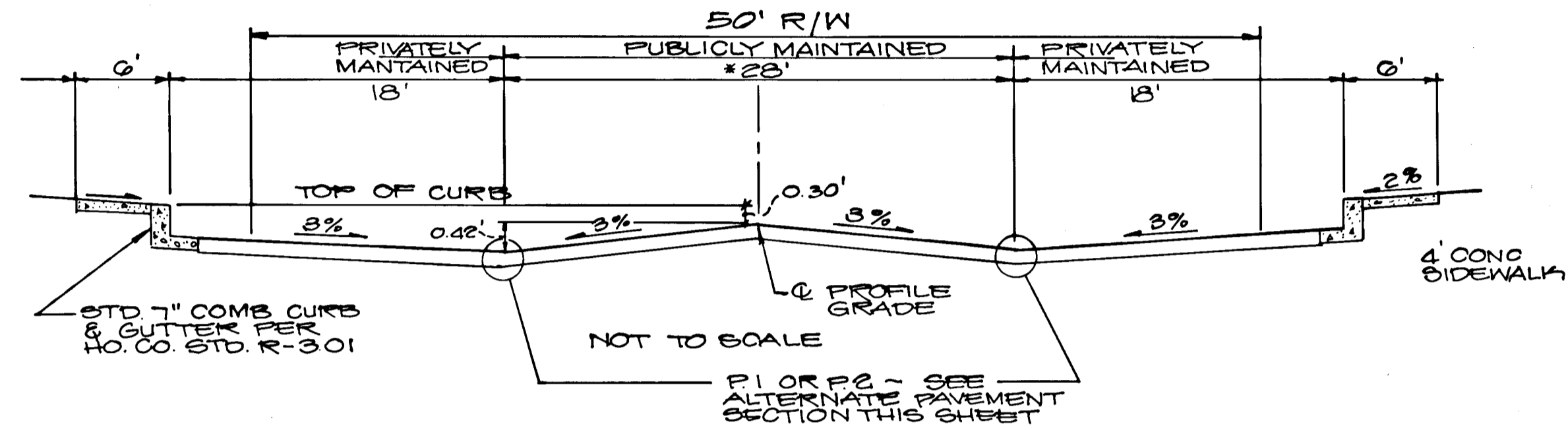
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R.S.H.	5-20-89	AS SHOWN
DRAWN	DATE	SCALE
E.R.	12-5-90	AS SHOWN
CHECKED	DATE	SCALE
	3/20/91	AS SHOWN



TYPICAL ROAD SECTION

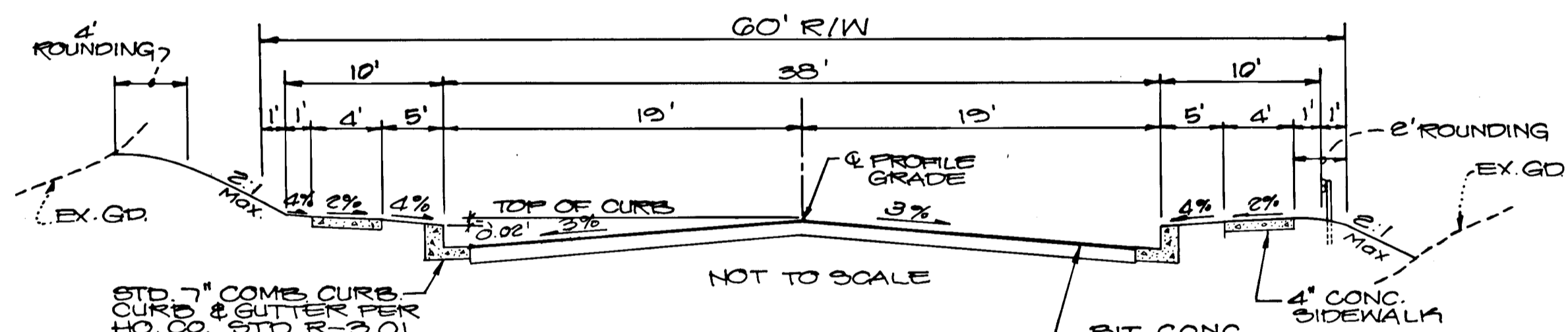
28' STEEPLE COURT (CUL-DE-SAC STREET MINIMUM DESIGN SPEED 30 MPH)
***30' BURLEY LANE** (LOCAL STREET MINIMUM DESIGN SPEED 30 MPH)

NOTE: DIFF IN ELEVATIONS SHOWN ARE FOR A TYPICAL SECTION OF 28' ONLY.

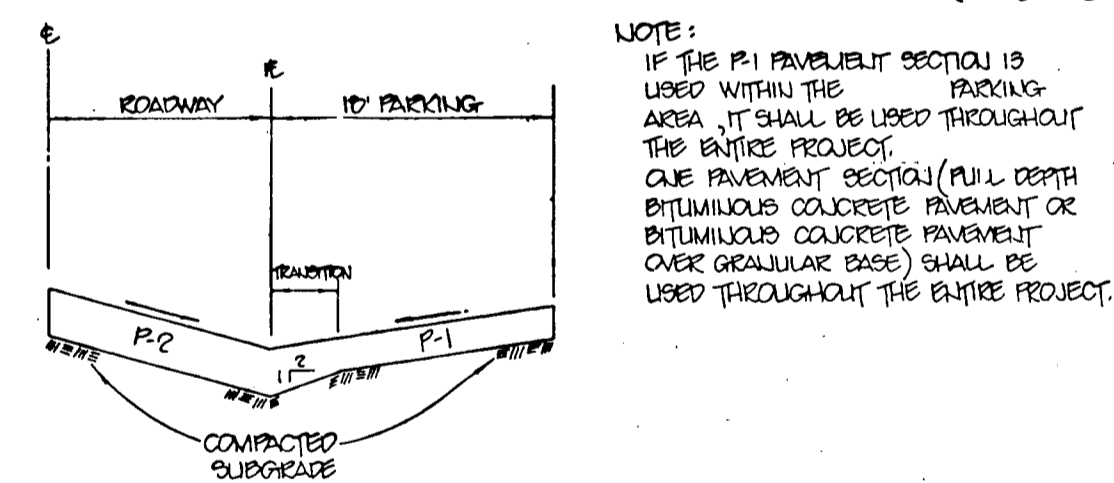


TYPICAL ROAD SECTION WITH PARKING

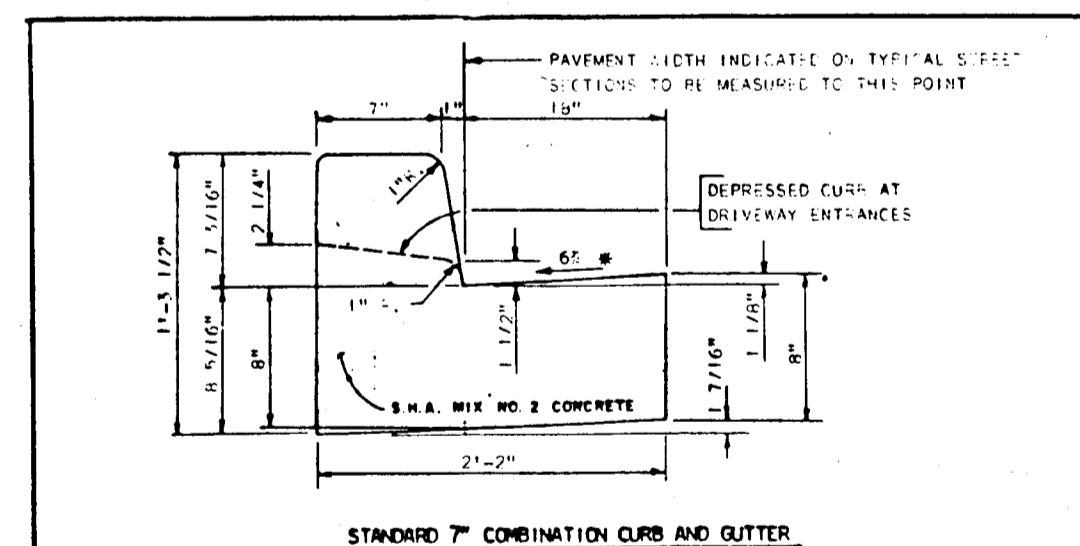
28' STEEPLE COURT (CUL-DE-SAC STREET MINIMUM DESIGN SPEED 30 MPH)
***30' BURLEY LANE** (LOCAL STREET MINIMUM DESIGN SPEED 30 MPH)



KNIGHTS BRIDGE RD.
 STA. 24+00 TO STA. 39+00
 STA. 40+22 TO STA. 41+78
 (MINOR COLLECTOR STREET MINIMUM DESIGN SPEED 35 MPH)



ALTERNATE PAVING SECTION
NOT TO SCALE

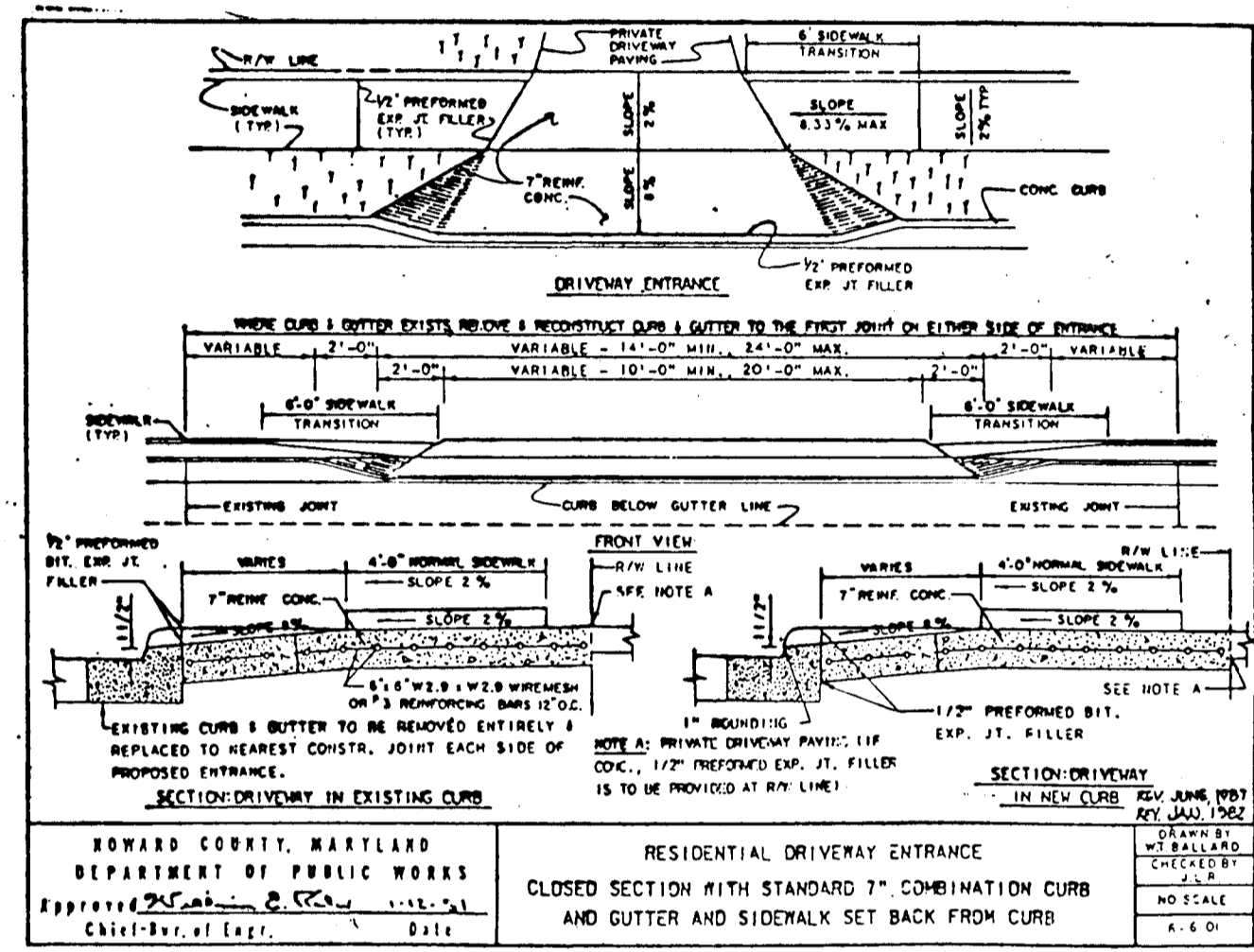


* GUTTER PIN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER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

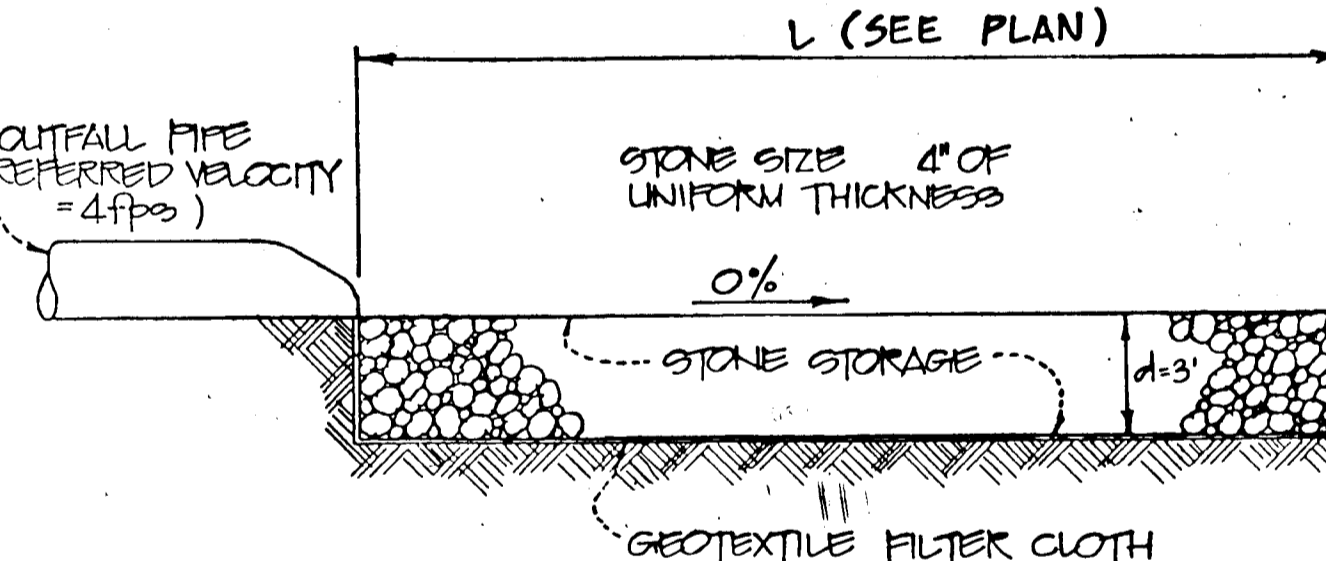
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved: <i>[Signature]</i> Chief-Bureau of Engineering	COMBINATION CURB AND GUTTER	DESIGNED BY CHECKED BY NO SCALE R-3.01
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SECTION NUMBER	ROAD AND STREET CLASSIFICATION	PAVEMENT MATERIALS	
		FULL DEPTH BIT. CONC. ALTERNATE	GRANULAR BASE ALTERNATES
P-1	PARKING AREAS AND TRUNKWAYS, APARTMENTS AND COMMERCIAL-INDUSTRIAL ZONES WITH NO HEAVY TRUCKS	1" BIT. CONC. SURFACE 4" BIT. CONC. BASE	1" BIT. CONC. SURFACE 2" BIT. CONC. BASE 6" CROWDER RUN BASE COURSE OR 4" DENSE GRADED STABILIZED AGGREGATE BASE COURSE
P-2	RESIDENTIAL ZONES, LOCAL, CUL-DE-SAC STS, ALLEYS AND PRIVATE ROADS SERVING INDIVIDUAL LOTS	1 1/2" BIT. CONC. SURFACE 5" BIT. CONC. BASE	1 1/2" BIT. CONC. SURFACE 1 1/2" BIT. CONC. BASE 6" CROWDER RUN BASE COURSE OR 4" DENSE GRADED STABILIZED AGGREGATE BASE COURSE
P-3	RESIDENTIAL ZONES, MINOR AND MAJOR COLLECTORS, COMMERCIAL-INDUSTRIAL ZONES, LOCAL AND CUL-DE-SAC STREETS, ALLEYS, PARKING AREAS, APARTMENTS AND COMMERCIAL-INDUSTRIAL ZONES WITH MORE THAN 10 HEAVY TRUCKS PER DAY	1 1/2" BIT. CONC. SURFACE 5" BIT. CONC. BASE	1 1/2" BIT. CONC. SURFACE 4" BIT. CONC. BASE PRIME 6" CROWDER RUN BASE COURSE OR 4" DENSE GRADED STABILIZED AGGREGATE BASE COURSE
P-4	COMMERCIAL-INDUSTRIAL ZONES, MINOR COLLECTOR	1 1/2" BIT. CONC. SURFACE 5" BIT. CONC. BASE	1 1/2" BIT. CONC. SURFACE 1 1/2" BIT. CONC. BASE PRIME 6" CROWDER RUN BASE COURSE OR 4" DENSE GRADED STABILIZED AGGREGATE BASE COURSE

HEAVY TRUCKS DEFINED AS THOSE WITH 6 WHEELS OR MORE.

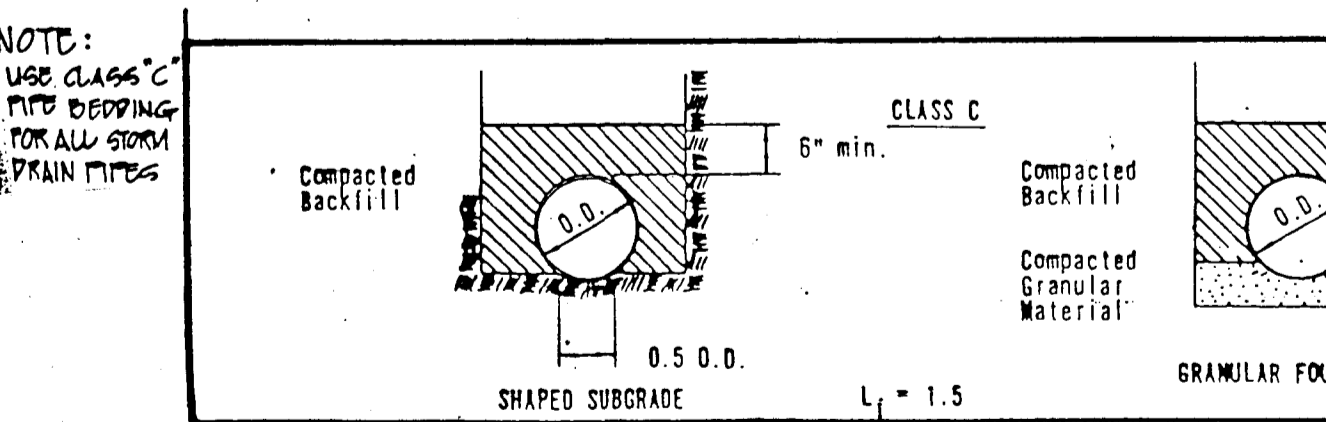


RESIDENTIAL DRIVEWAY ENTRANCE
CLOSED SECTION WITH STANDARD 7" COMBINATION CURB AND GUTTER AND SIDEWALK SET BACK FROM CURB

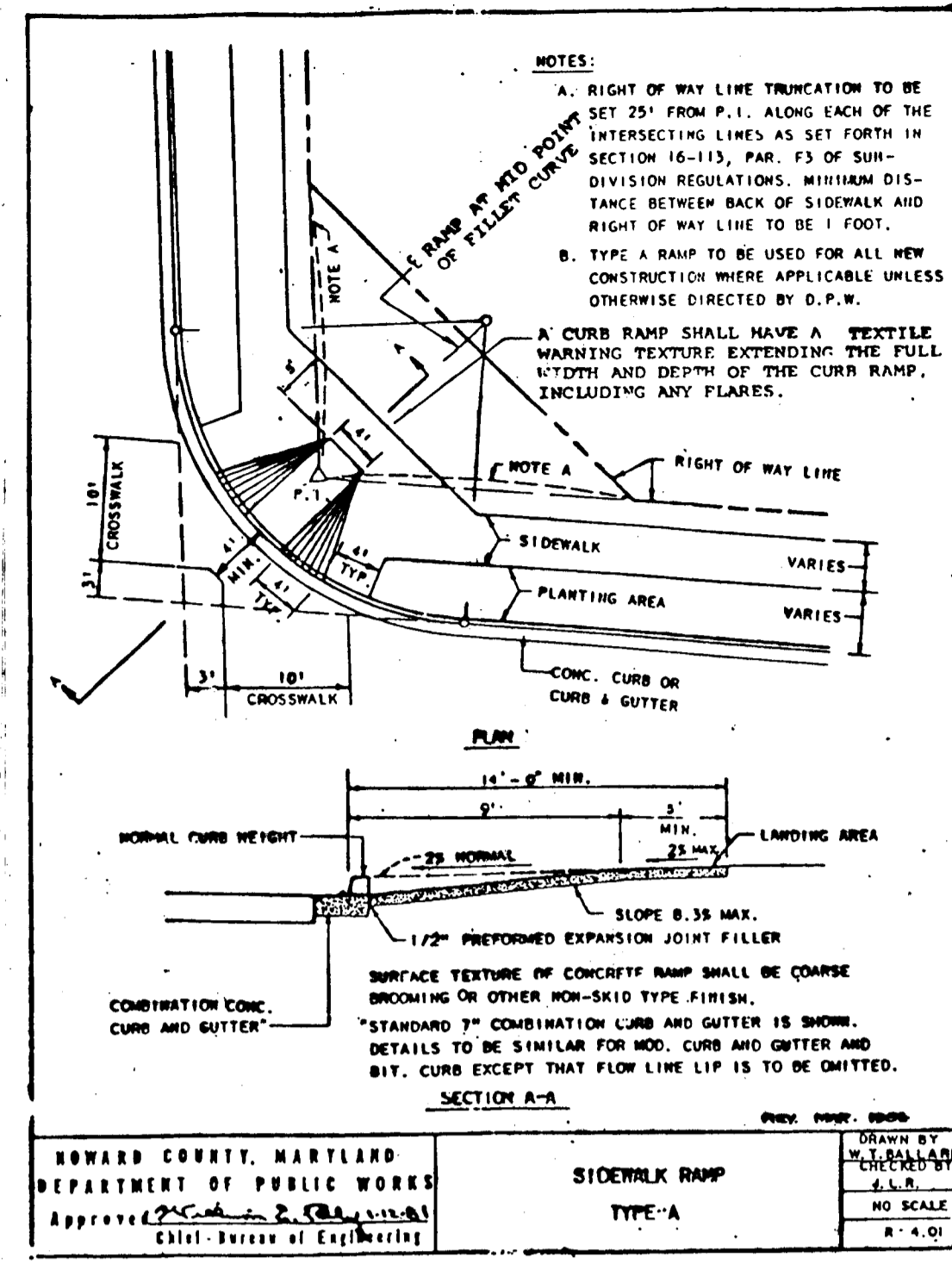


STORAGE REQUIREMENTS BASED ON 1" FLUSH OFF PAVED AREAS
 INF. F. LOSS AREA (AC) STORAGE REQ'D (CF) AREA x DEPTH
 0.6 max. 2,722.50 307.5 sf
 (SEE PLAN FOR DIMENSIONS)

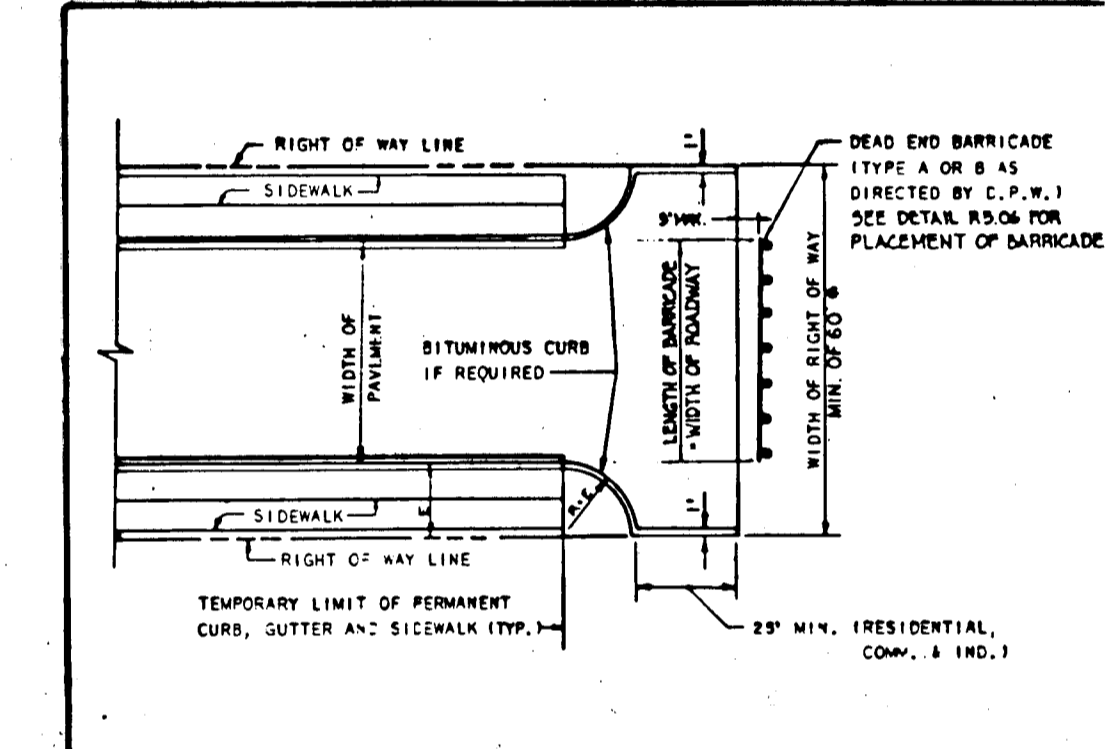
WATER QUALITY FILTER OUTFALL
NOT TO SCALE



PIPE BEDDING DETAIL
NOT TO SCALE

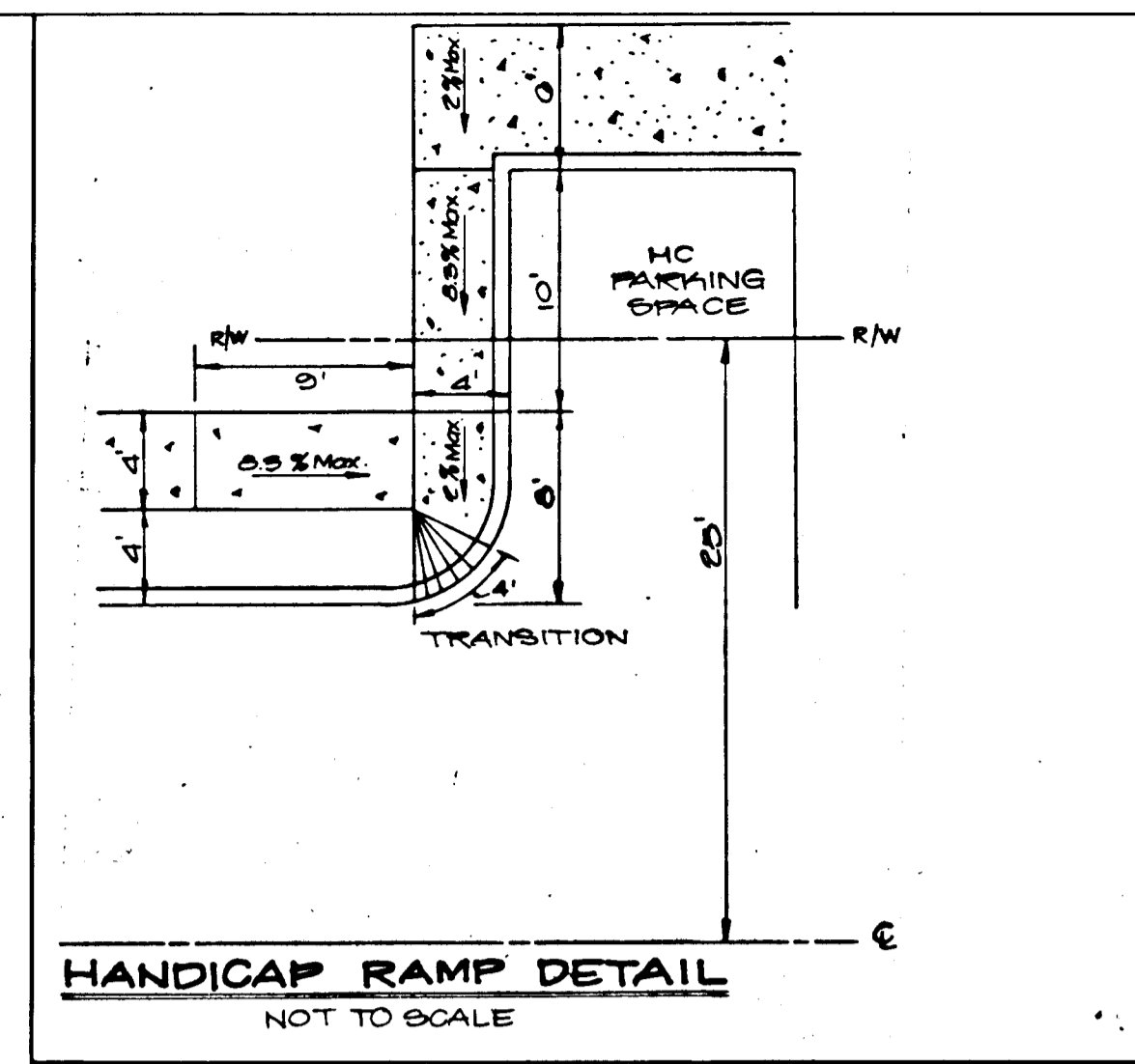


SIDEWALK RAMP TYPE-A



NOTES:
 1. A TEE TURN-AROUND SHALL BE USED IN LIEU OF A CUL-DE-SAC ONLY IF THE STREET IS TO BE EXTENDED IN THE FUTURE.
 2. BITUMINOUS CURB SHALL EXTEND AROUND THE TEE TURN-AROUND IF AND AS REQUIRED TO CONTROL CURB DRAINAGE FROM THE ROADWAY SECTION.
 3. REFER TO STANDARD R-3040" TYPICAL ROADWAY PROFILE OF TEMPORARY LIMIT OF PAVING.
 4. FOR LOCAL ROADS, PROVIDE 5' REVERSIBLE EASEMENT EACH END OF THE TEE.
 5. PROVIDE EASEMENTS AS REQUIRED FOR PLACEMENT OF BARRICADE AND ANY NECESSARY GRADING (SEE DETAIL R5.06.)

TEMPORARY TEE TURN-AROUND



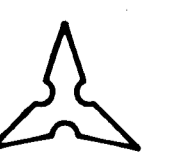
HANDICAP RAMP DETAIL
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 4/6/91
 Chief, Land Development Division
[Signature] 4/2/91
 Chief, Bureau of Highways
[Signature] 4-4-91
 Chief Bureau of Engineering

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
[Signature] 4/15/91
 Chief, Division of Community Planning & Land Development



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 TAX MAP 47 PARCEL 141
 SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
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TITLE
 PAVING and
 STORM DRAINAGE
 SECTIONS and DETAILS

PROFESSIONAL SEAL
[Signature]

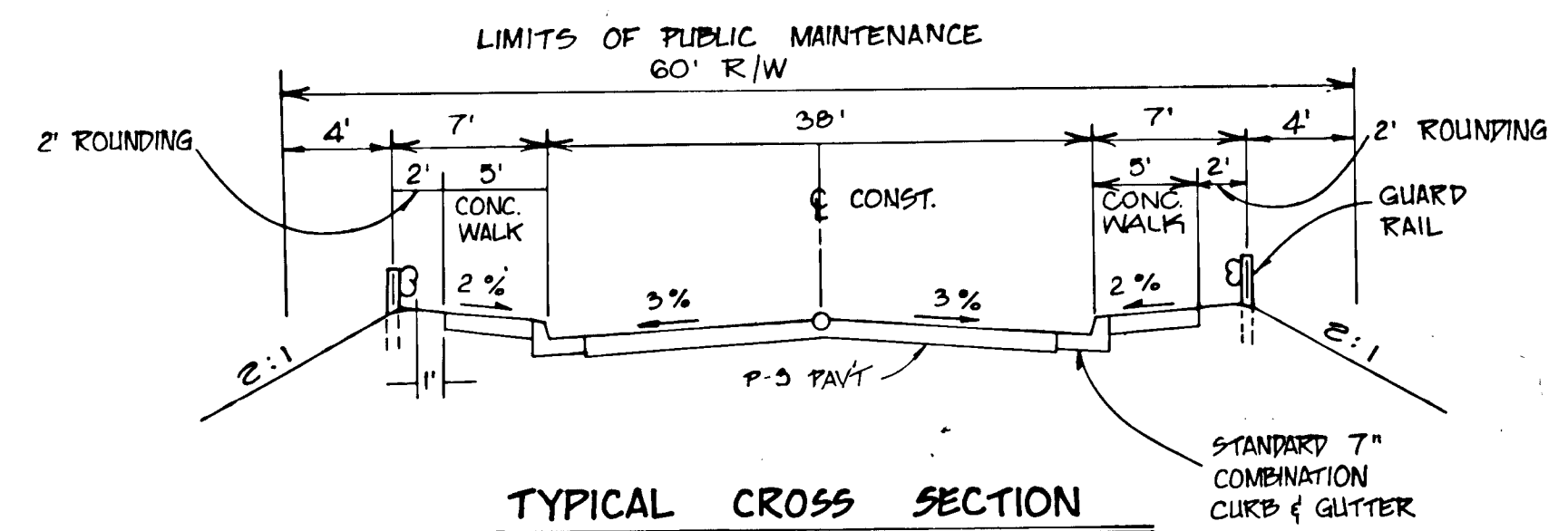
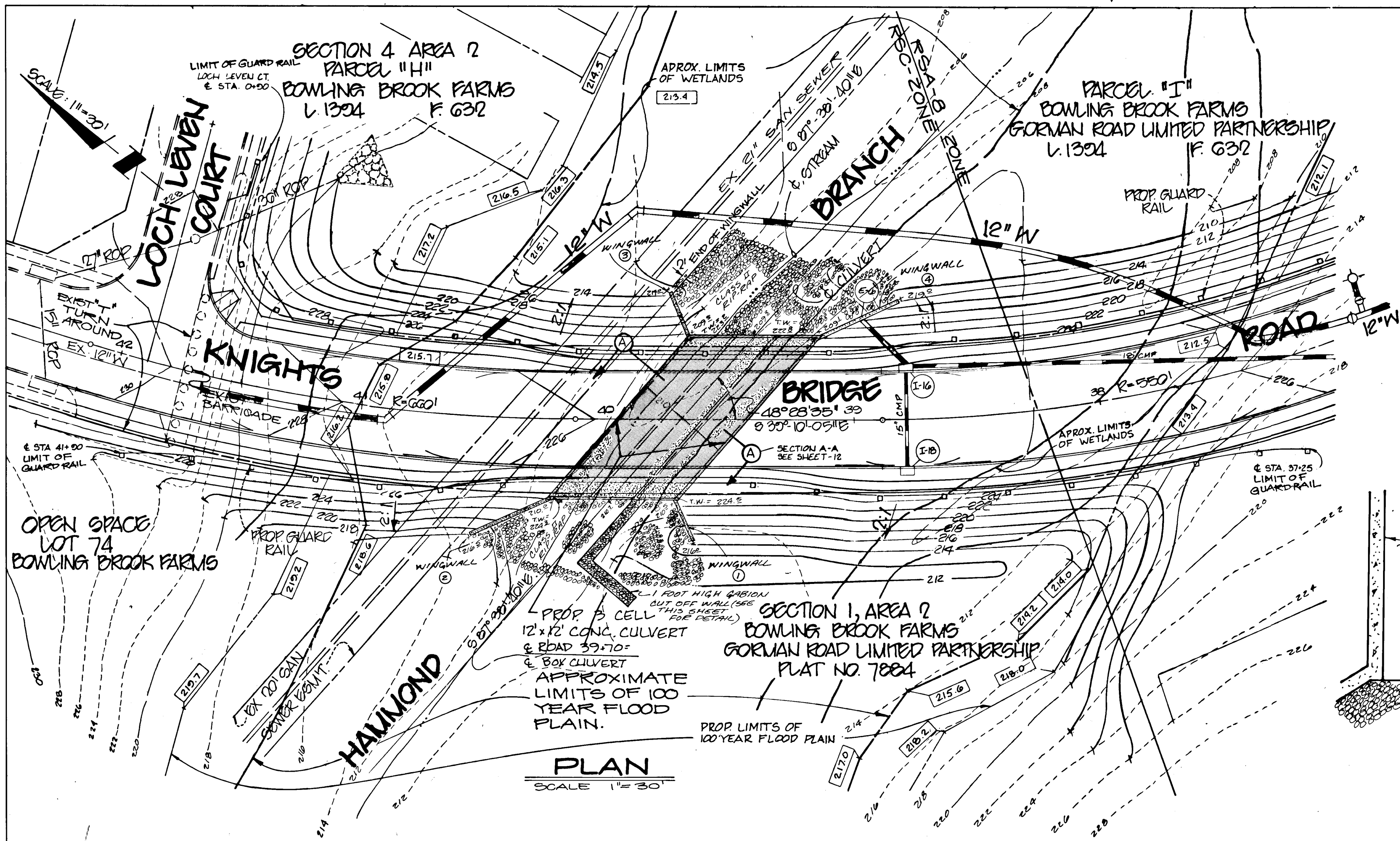
NO.	REVISIONS	DATE	BY
3	REVISED PER COMMENTS ON 10/16/90 - SUBMITTED FOR SIGNATURE	12-9-90	
2	REVISED PER COMMENTS OF 5-1-89	6-28-90	
1	ISSUED FOR REVIEW	3-28-89	

SURVEY BY	OTHERS	FILE NO.
DESIGN	R.S.H.	2104-1-11
DRAWN	E.I.C.	DATE 3/30/89
CHKD		SCALE AS SHOWN
		SHEET 8 OF 16

F-02-174

1271

Sheet 1

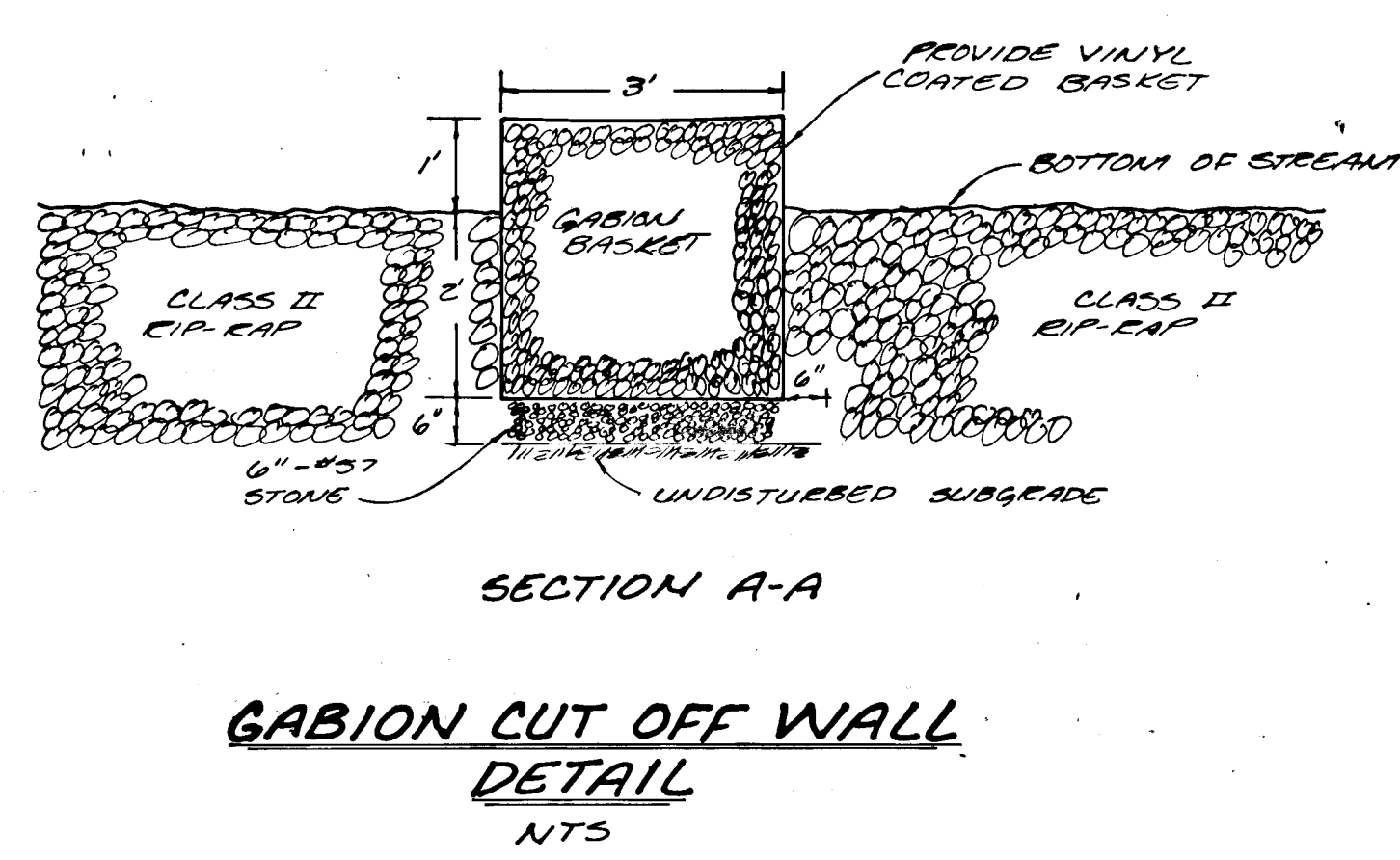
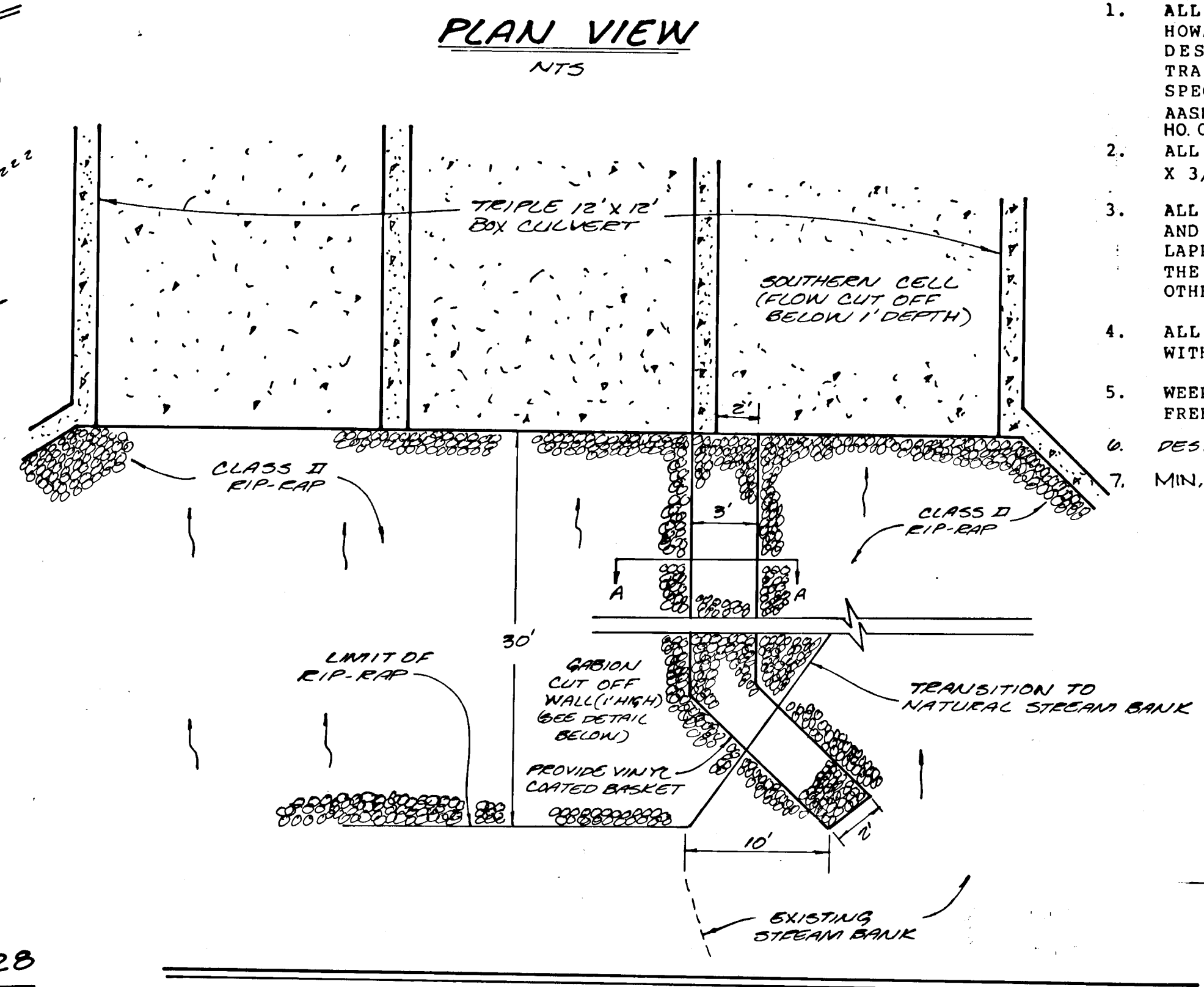


NOTE: SIDEWALK SHALL TRANSITION TO THE NORMAL ROAD SECTION LOCATION (5' OFF CURB) IN 60'

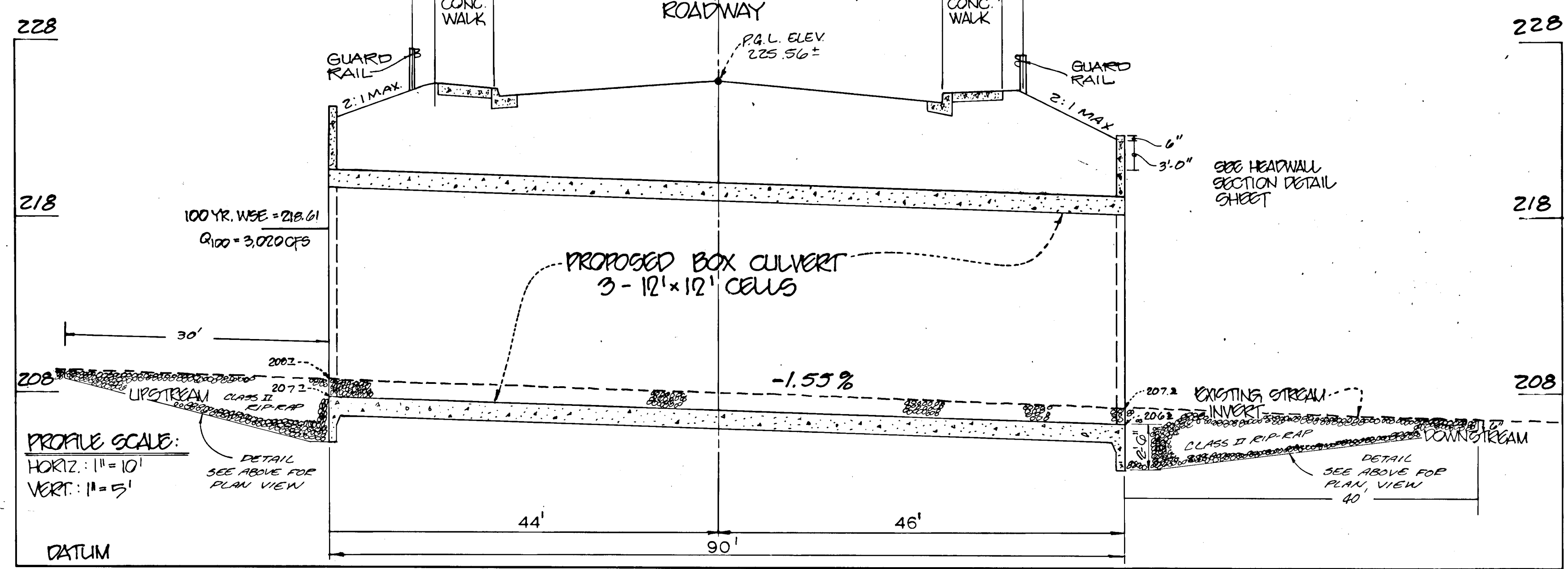
TYPICAL CROSS SECTION
AT CULVERT
NOT TO SCALE

STATION 39+00 THRU 40+00 (RIGHT)
STATION 39+97 THRU 40+22 (LEFT)

- BOX CULVERT GENERAL NOTES**
1. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF 1) THE HOWARD COUNTY DESIGN MANUAL, VOL. III, ROAD AND BRIDGE DESIGN, 2) THE STATE OF MARYLAND, DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, 3) THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AND 4) THE HO. CO. DESIGN MAN., VOL. IV, STD. SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
 2. ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4 X 3/4 MILLED CHAMFERED STRIPS, EXCEPT ON UNEXPOSED FOOTINGS.
 3. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60 AND SHALL BE EPOXY COATED. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP DIAMETER. HOOKS SHALL BE ROTATED IN THE FIELD AS NECESSARY TO PROVIDE MINIMUM 2" COVER UNLESS OTHERWISE NOTED.
 4. ALL JOINTS SHALL BE CONSTRUCTED AND BONDED IN ACCORDANCE WITH THE REFERENCED SPECIFICATIONS.
 5. WEEP HOLES SHALL BE PLACED AT THE LOWEST POINT FEASIBLE FOR FREE DRAINAGE AWAY FROM WING WALLS.
 6. DESIGN LOAD FOR BOX CULVERT - HS 20-44.
 7. MIN. BEARING CAPACITY - 4,000 PSF



NOTE:
DIMENSIONS SHOWN ARE ALONG & OF CULVERT, AND WERE COMPUTED USING AN ANGLE OF 46° 28' 35" BETWEEN & OF ROAD AND & OF CULVERT.



PROFILE ALONG & OF CULVERT
KNIGHTS BRIDGE & STA. 39+70 SKEW & 41° 31' 25"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Ch. M. Longan 4/8/91
Chief, Land Development Division Date

Branville W. Wellstead 4/12/91
Chief, Bureau of Highways Date

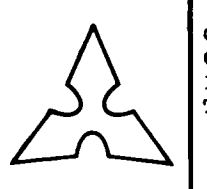
William E. Riley 4-4-91
Chief, Bureau of Engineering Date

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Mark S. Langley 4/15/91
Chief, Division of Community Planning & Land Development Date

1271

PHR&A



CLIENT
OWNER/DEVELOPER
GORMAN ROAD LIMITED PARTNERSHIP
C/O JAMES F. KNOTT DEVELOPMENT CORPORATION
110 WEST ROAD, SUITE 203
TOWSON, MARYLAND 21284
(301) 321-6436

JOB
BOWLING BROOK FARMS
PARCEL C
LOTS I-1 THRU I-117, LOTS 223 & 224
A RESUBDIVISION OF LOT 220 BOWLING BROOK FARMS
TAX MAP 47 PARCEL 141
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
L. 1394 F. 632

TITLE
BOX CULVERT
PLAN AND PROFILE
(HAMMOND BRANCH CROSSING WEST)

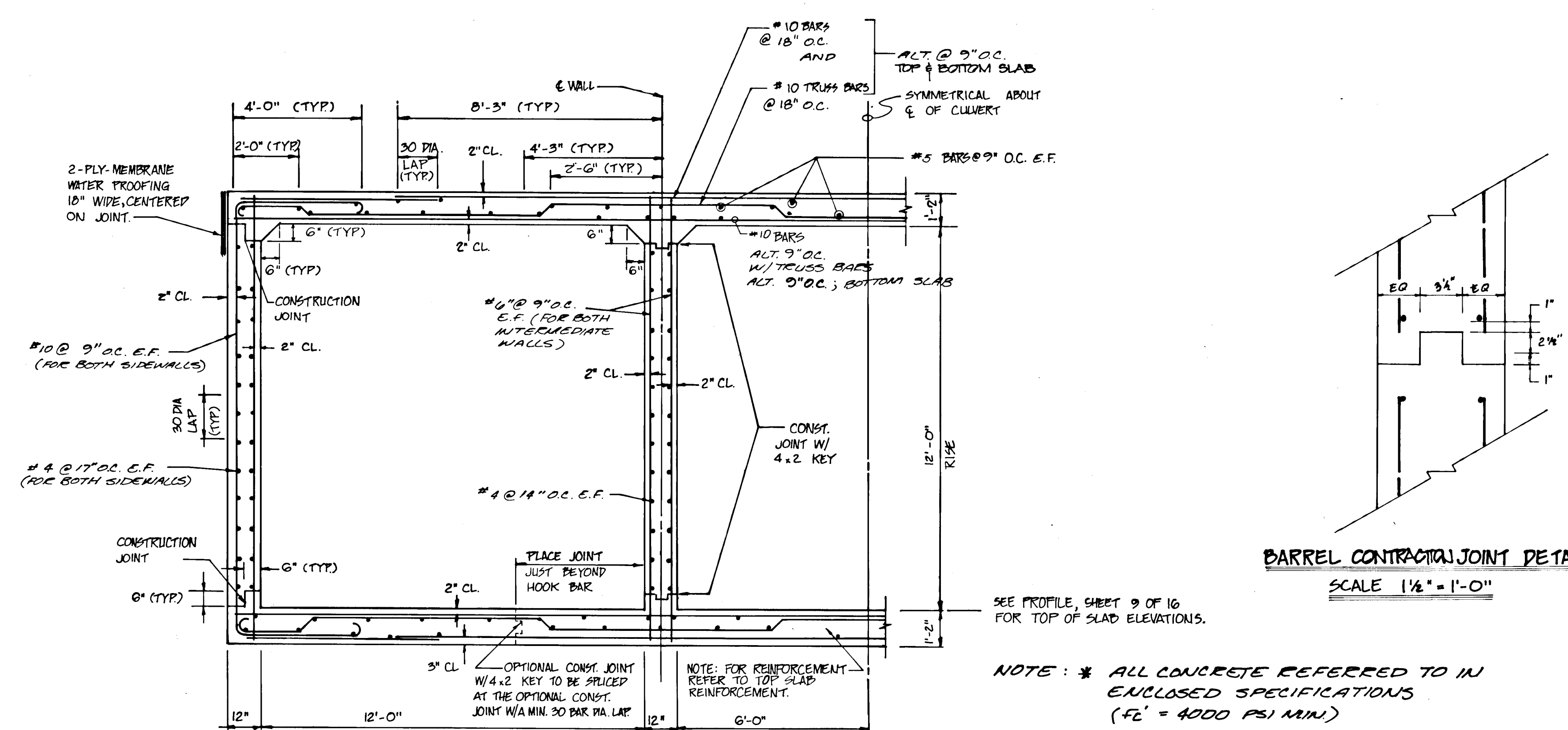
PROFESSIONAL SEAL
[Signature] 4/15/91

NO.	REVISIONS	DATE	BY
4	REVISED PER DESIGN CHANGE	8-23-91	
3	SUBMITTED FOR SIGNATURES	12-5-90	
2	REVISED PER COMMENTS OF 6-1-89	6-25-90	
1	ISSUED FOR REVIEW	3-23-89	

DESIGN	DATE	FILE NO.
E.C., R.E.T.	2-89	2184-1-11
DRAWN	SCALE	CI
P.W.	A5	NOTED
CHECK	SHEET	9 OF 16

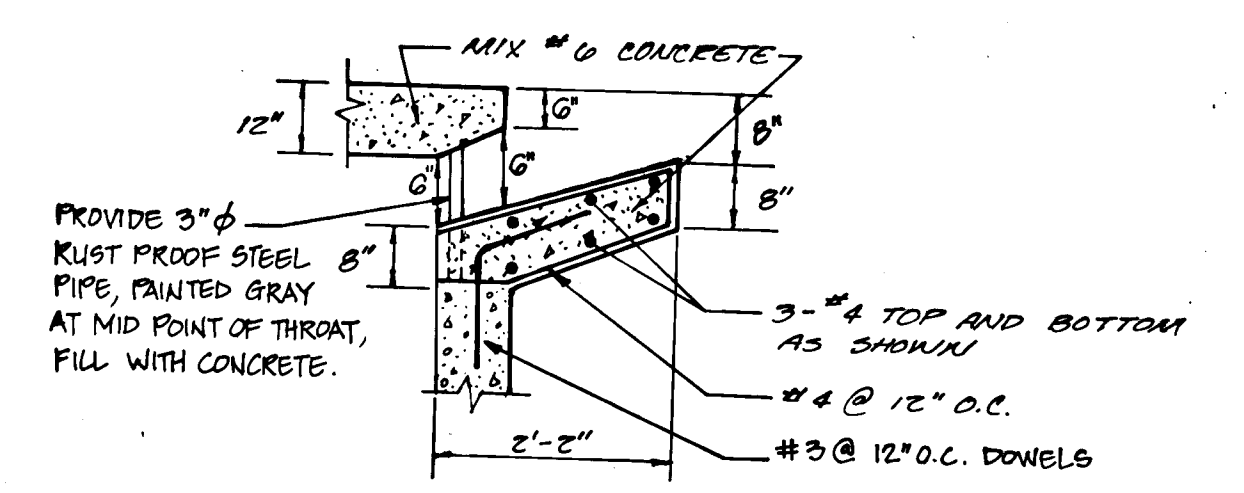
F-89-174

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division Date 4/2/91
 Approved: *James W. Welstead* Chief, Bureau of Highways Date 4/2/91
 Approved: *James W. Welstead* Chief, Bureau of Engineering Date 4-4-91
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 Chief, Division of Community Planning & Land-Development Date 4/2/91



BARREL CONTRACT JOINT DETAIL
 SCALE 1/2" = 1'-0"

NOTE: REINFORCEMENT SHALL NOT EXTEND THROUGH JOINT. (SEE PLAN SHEET 11 OF 16 FOR LOCATION).



THROAT OPENING DETAIL FOR WATER QUALITY STRUCTURES
 NOT TO SCALE

* NOTE: PROVIDE EPOXY COATED REINFORCING IN ALL WATER QUALITY STRUCTURES.

TYPICAL SECTION A-A
 3-CELL 12'x12' BOX CULVERT
 SCALE 3/8" = 1'-0"

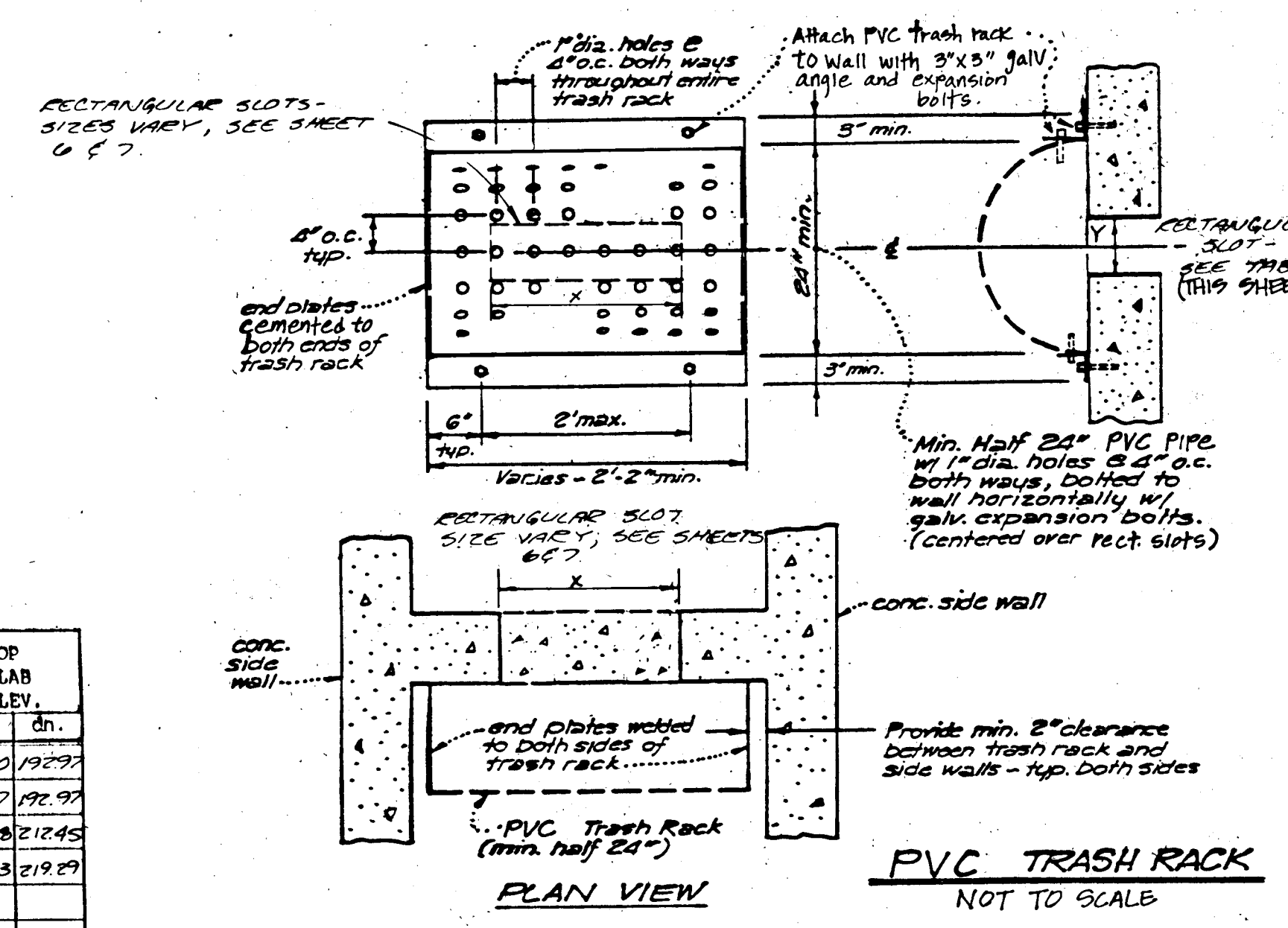
NOTE: * ALL CONCRETE REFERRED TO IN ENCLOSED SPECIFICATIONS (F_c = 4000 PSI MIN.)

FIRST CELL WALL RECTANGULAR SLOT DIMENSIONS:

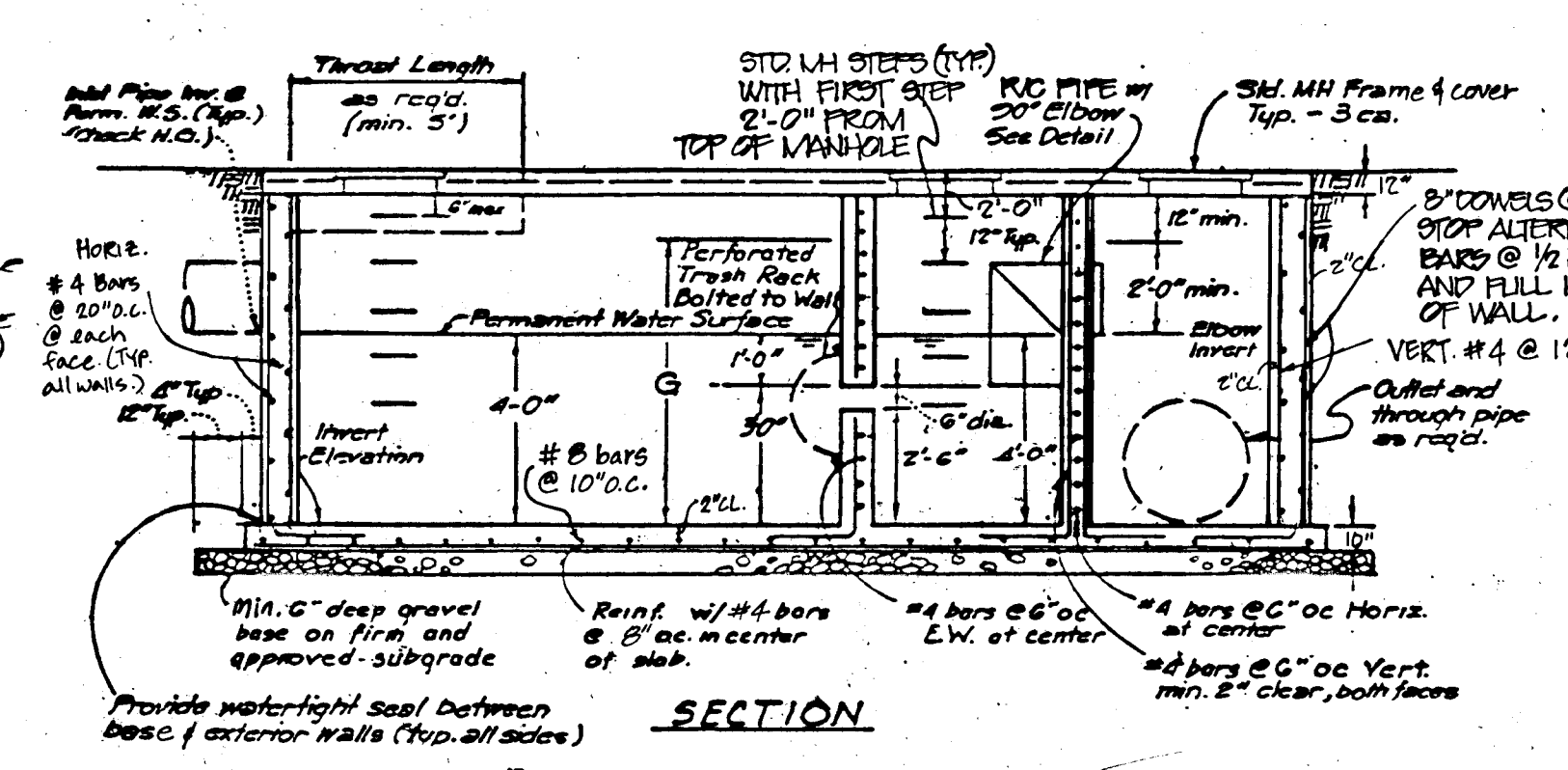
STRUCTURE NUMBER	DIMENSIONS	
	X (ft.)	Y (ft.)
WQ-1A	2.0'	0.67'
WQ-1B	2.0'	1.0'
WQ-2	2.0'	1.0'
WQ-3	2.0'	1.0'

STRUCT. NUMBER	DRAIN. AREA	VOL. REQ'D	VOL. PROV.	DIMENSIONS							FLOOR SLAB ELEV.	90° PVC PIPE ELBOW INV.	THROAT LENGTH IF REQ'D	TOP SLAB ELEV.	
				A	B	C*	D*	E	F	G					
WQ-1A	1.10	404	404	10.00'	7.07'	8.60'	4.30'	4.0'	9.27'	0'	185.47	189.47	5'	193.10	192.97
WQ-1B	1.92	768	774	28.00'	7.07'	18.33'	7.17'	4.0'	15.00'	0'	184.73	218.83	5'	193.17	192.97
WQ-2	0.09	270	280	17.00'	5.07'	6.0'	4.0'	4.0'	6.67'	7'	220.93	226.93	5'	212.98	212.48
WQ-3	1.25	300	304	25.00'	5.07'	12.0'	6.0'	4.0'	12.67'	7'	211.50	215.50	5'	220.23	219.27

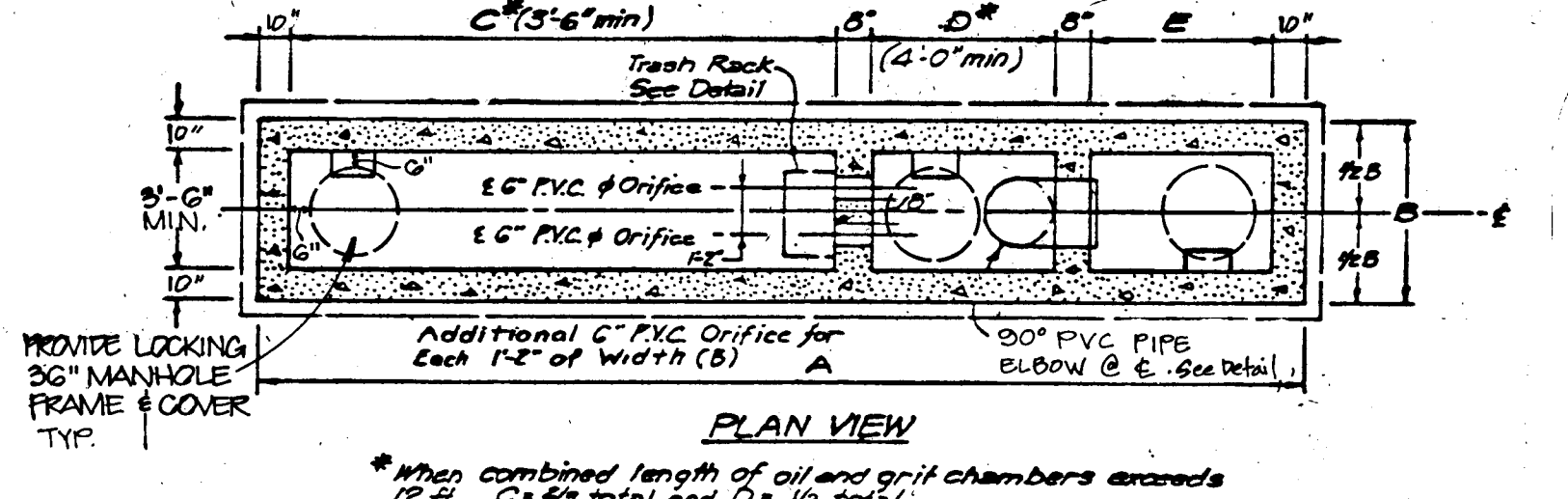
NOTES:
 For storm drain inverts, see storm drain profiles.
 Storage required = 40 c.f. per 0.1 Ac. of drainage area. (total storage computed to depth (F))
 *When combined length of oil and grit chambers exceeds 12 feet, "d" = 1/2 X "c" ("c" = 2/3 total and "d" = 1/3 total).



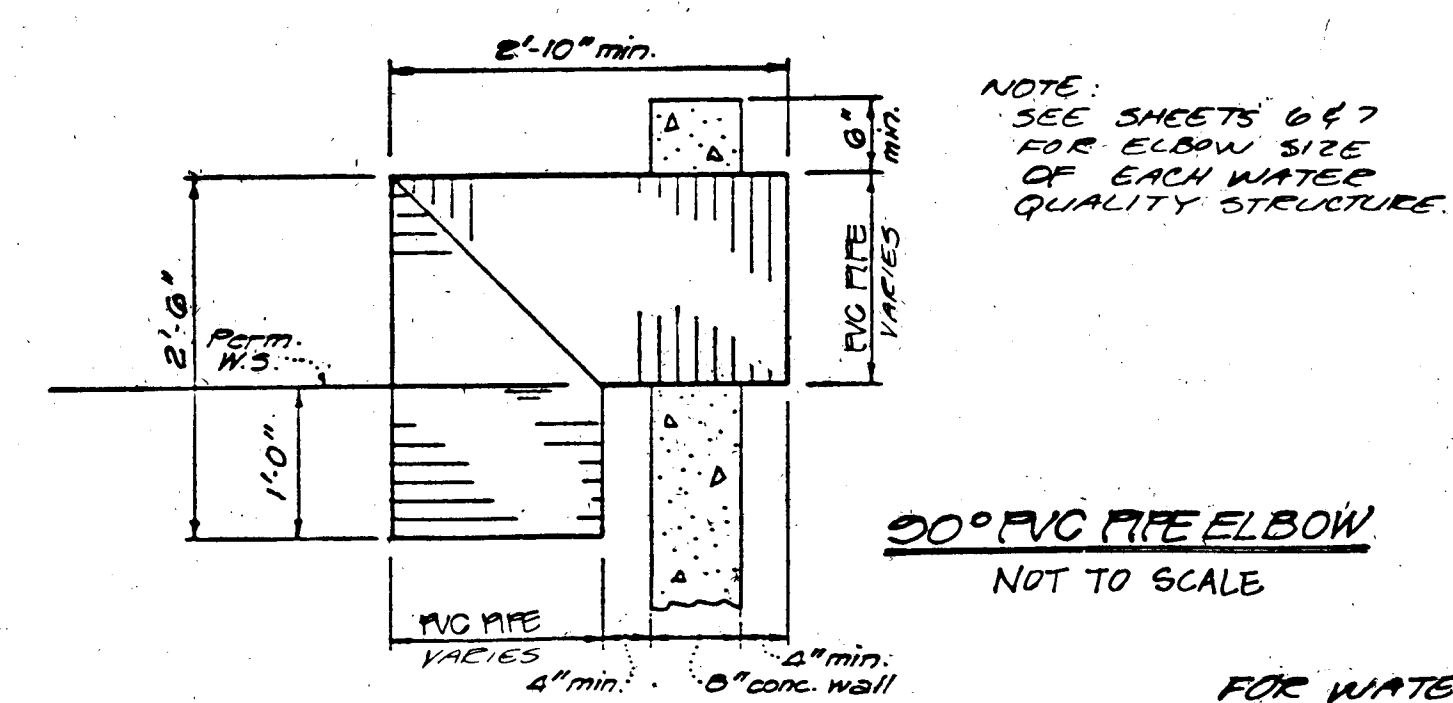
PVC TRASH RACK
 NOT TO SCALE



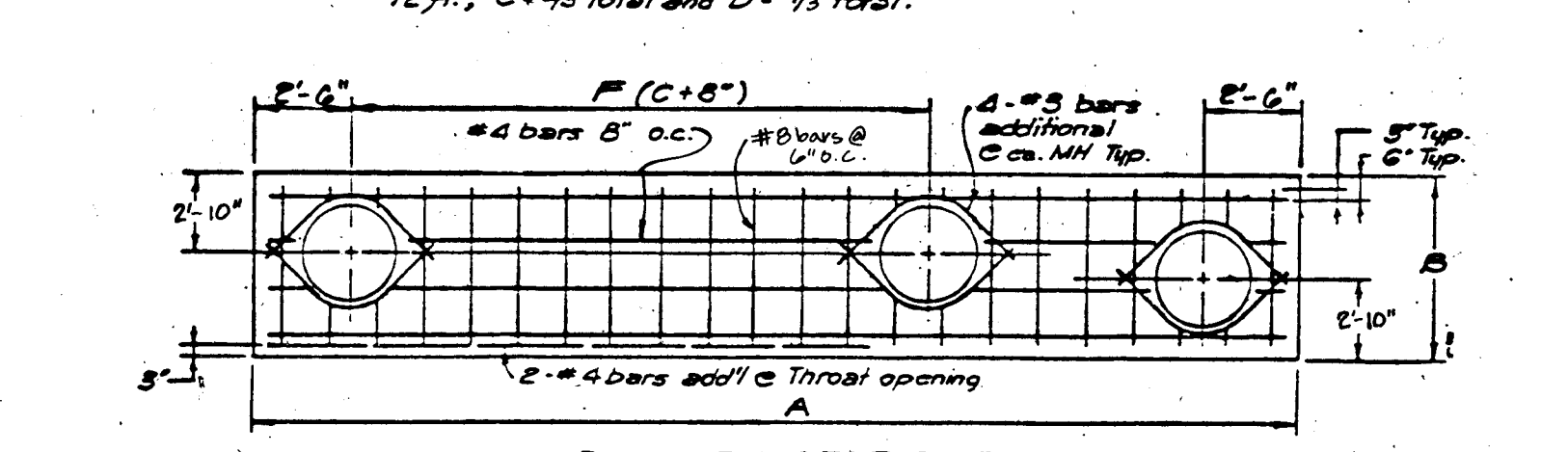
SECTION



PLAN VIEW



90° PVC PIPE ELBOW
 NOT TO SCALE

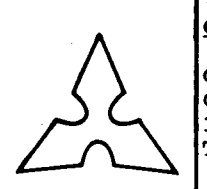


PLAN VIEW OF TOP SLAB
 WATER QUALITY CONTROL STRUCTURE
 NOT TO SCALE

FOR WATER QUALITY CONTROL STRUCTURE SPECIFICATIONS AND NOTES, SEE SHEET 7 OF 10.

1271

PHR&A



CLIENT
 OWNER/DEVELOPER
 GOSHAN ROAD LIMITED PARTNERSHIP
 C/O JAMES F. KNOTT DEVELOPMENT CORPORATION
 110 WEST ROAD, SUITE 203
 TOWSON, MARYLAND 21284
 (301) 321-6436

JOB
BOWLING BROOK FARMS
PARCEL C
 LOTS 1-1 THRU 1-117, LOTS 223 & 224
 A RESUBDIVISION OF LOT 220 BOWLING BROOK FARMS
 TAX MAP 47 PARCEL 141
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 L. 1394 F. 632

TITLE
BOX CULVERT DETAILS
(HAMMOND BRANCH CROSSING WEST)

PROFESSIONAL SEAL
[Signature]
 10/15/91

NO.	REVISIONS	DATE	BY
4	REVISE PER DESIGN CHANGES	8-30-91	
3	REVISED PER COMMENTS ON 10/16/90	12-5-90	
2	SUBMITTED FOR SIGNATURE	6-20-90	
1	ISSUED FOR REVIEW	3-23-89	

DESIGN	DATE	FILE NO.
P.H.R. (A)		2164-1-11
E.C., R.E.T.		2-89
DRAWN	SCALE	CI
E.R.	AS NOTED	
CHKD	SHEET	OF
	10	16

Patton Harris Rod & Associates, Inc.
 Engineers, Surveyors, Planners, Landscape Architects
 7609 Stanish Place
 Rockville, Maryland 20855
 301 760-2220

Office:
 Fairfax, VA
 Bridgewater, VA
 Leesburg, VA
 Rockville, MD
 Virginia Beach, VA

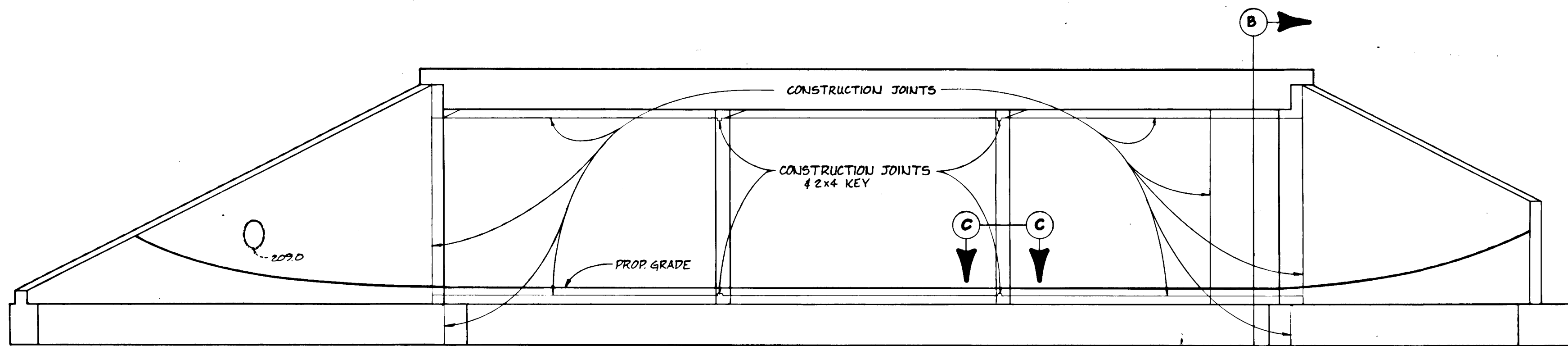
F-89-174

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

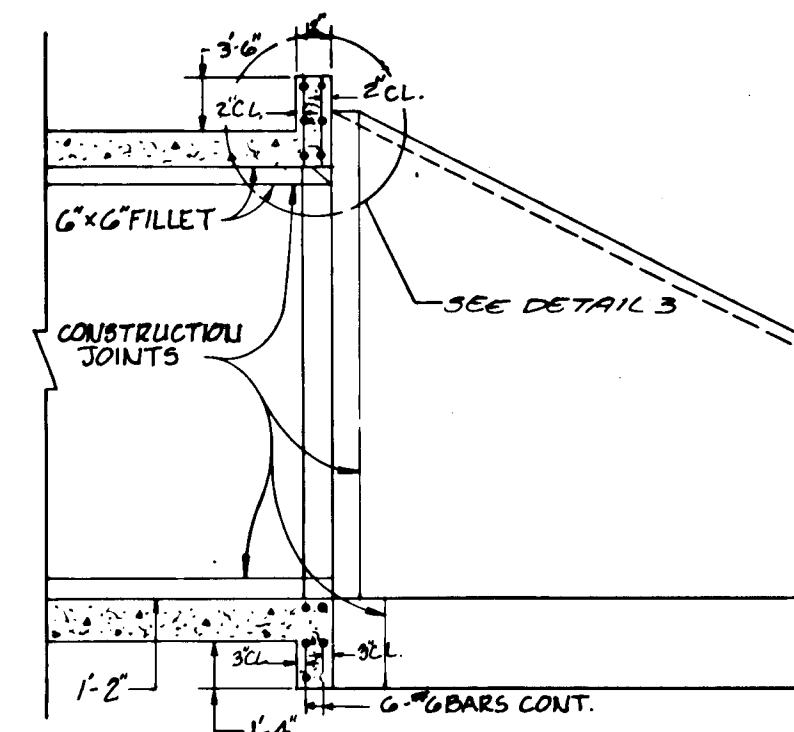
Al M. Tanga 4/1/91
 Chief, Land Development Division Date
Granville W. Welland 4/2/91
 Chief, Bureau of Highways Date
Michael S. Ryan 4-4-91
 Chief, Bureau of Engineering Date

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

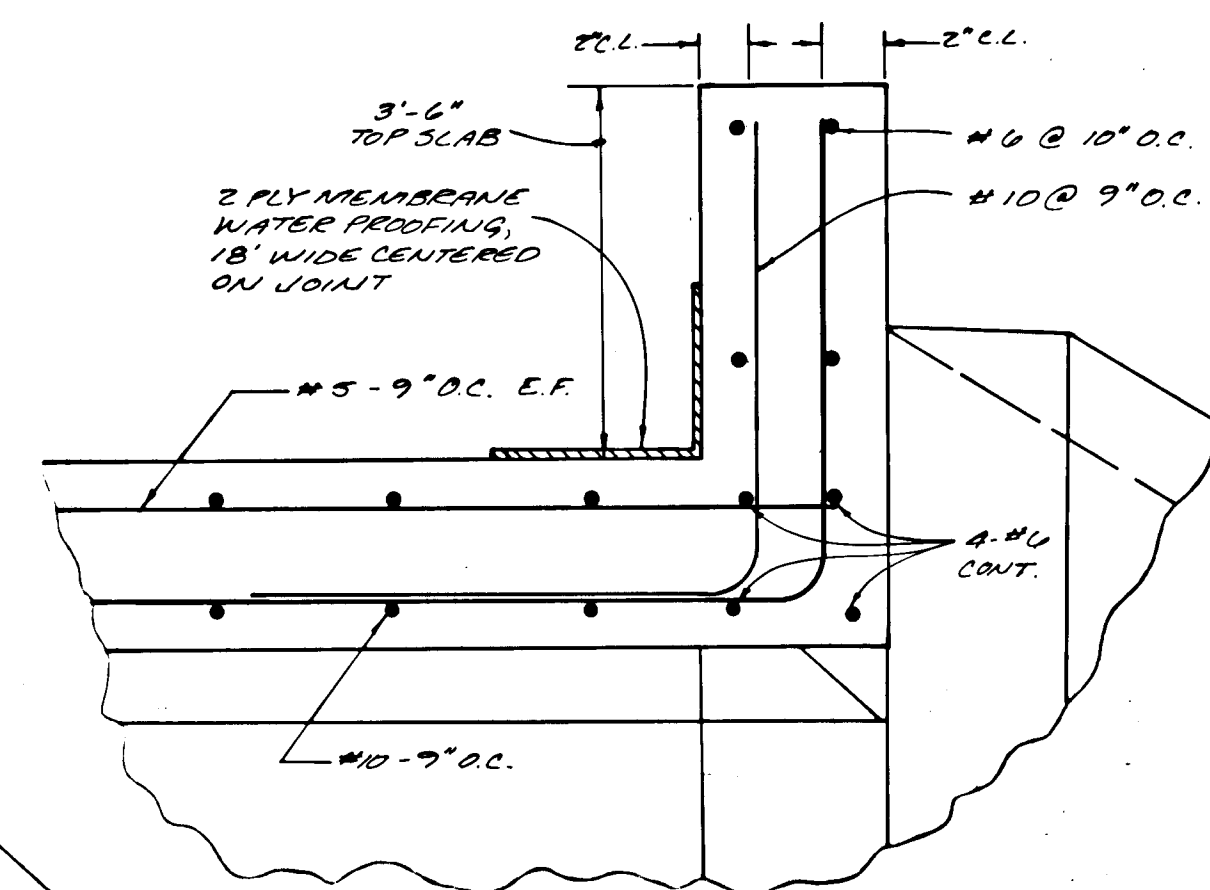
Mark S. Weyer 4/15/91
 Chief, Division of Community Planning & Land Development Date



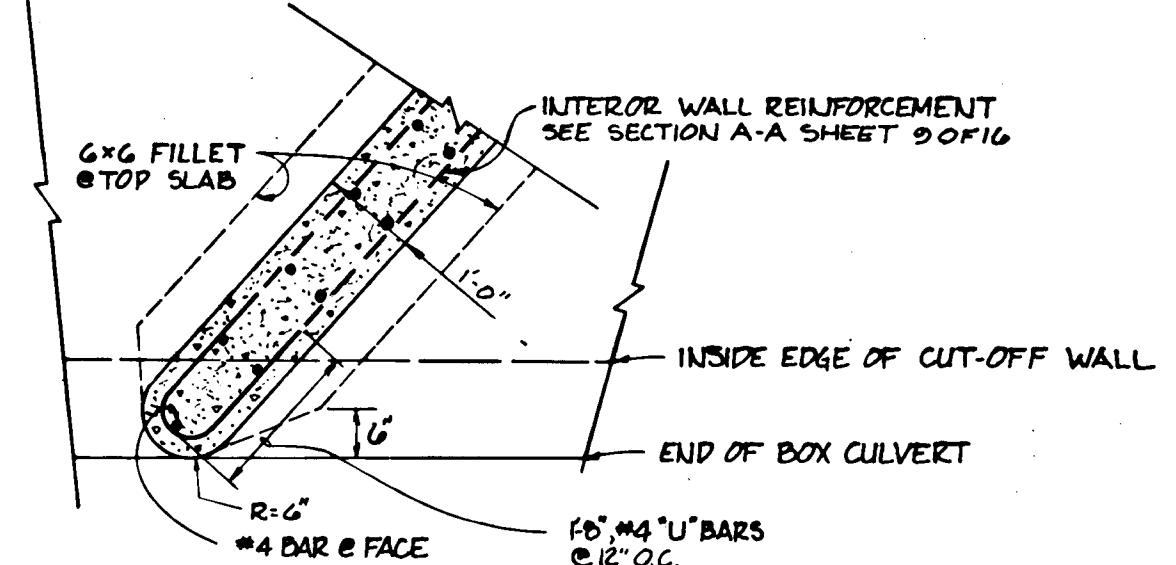
END ELEVATION
 SCALE 3/16" = 1'-0"



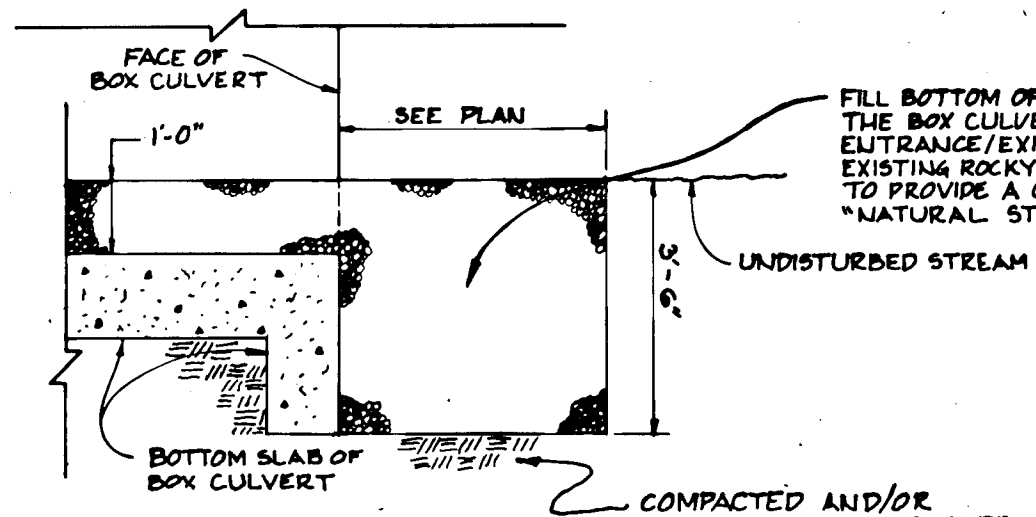
SECTION B-B
 SCALE 3/16" = 1'-0"



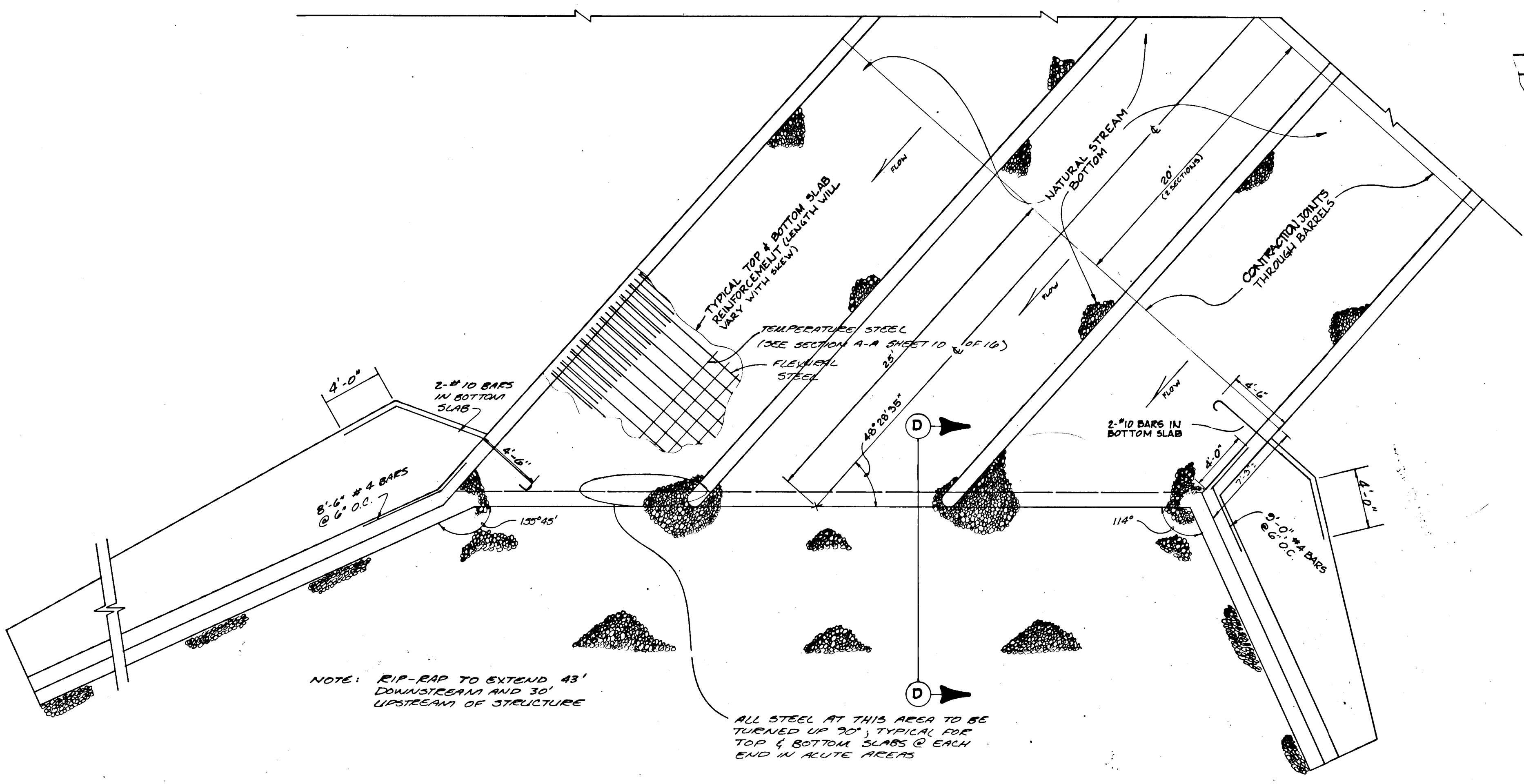
DETAIL 3
 NO SCALE



SECTION C-C
 SCALE 1/2" = 1'-0"



SECTION D-D
 SCALE 3/8" = 1'-0"

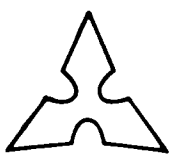


NOTE: RIP-RAP TO EXTEND 43' DOWNSTREAM AND 30' UPSTREAM OF STRUCTURE

ALL STEEL AT THIS AREA TO BE TURNED UP 20° TYPICAL FOR TOP & BOTTOM SLABS @ EACH END IN ACUTE AREAS

PLAN
 SCALE 3/16" = 1'-0"

PHR&A



Patrick Harris Rust & Associates, PC
 Engineers, Surveyors, Planners, Landscape Architects
 6090 Standish Place
 Rockville, Maryland 20855
 301 762-2220

Office:
 Fairfax, VA
 Bridgewater, VA
 Leesburg, VA
 Rockville, MD
 Virginia Beach, VA

CLIENT
 OWNER/DEVELOPER
 GORMAN ROAD LIMITED PARTNERSHIP
 C/O JAMES F. KNOTT DEVELOPMENT CORPORATION
 110 WEST ROAD, SUITE 203
 TOWSON, MARYLAND 21284
 (301) 321-6436

JOB
**BOWLING BROOK FARMS
 PARCEL C**
 LOTS I-1 THRU I-117, LOTS 223 & 224
 A RESUBDIVISION OF LOT 220 BOWLING BROOK FARMS
 TAX MAP 47 PARCEL 141
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 L. 1394 F. 632

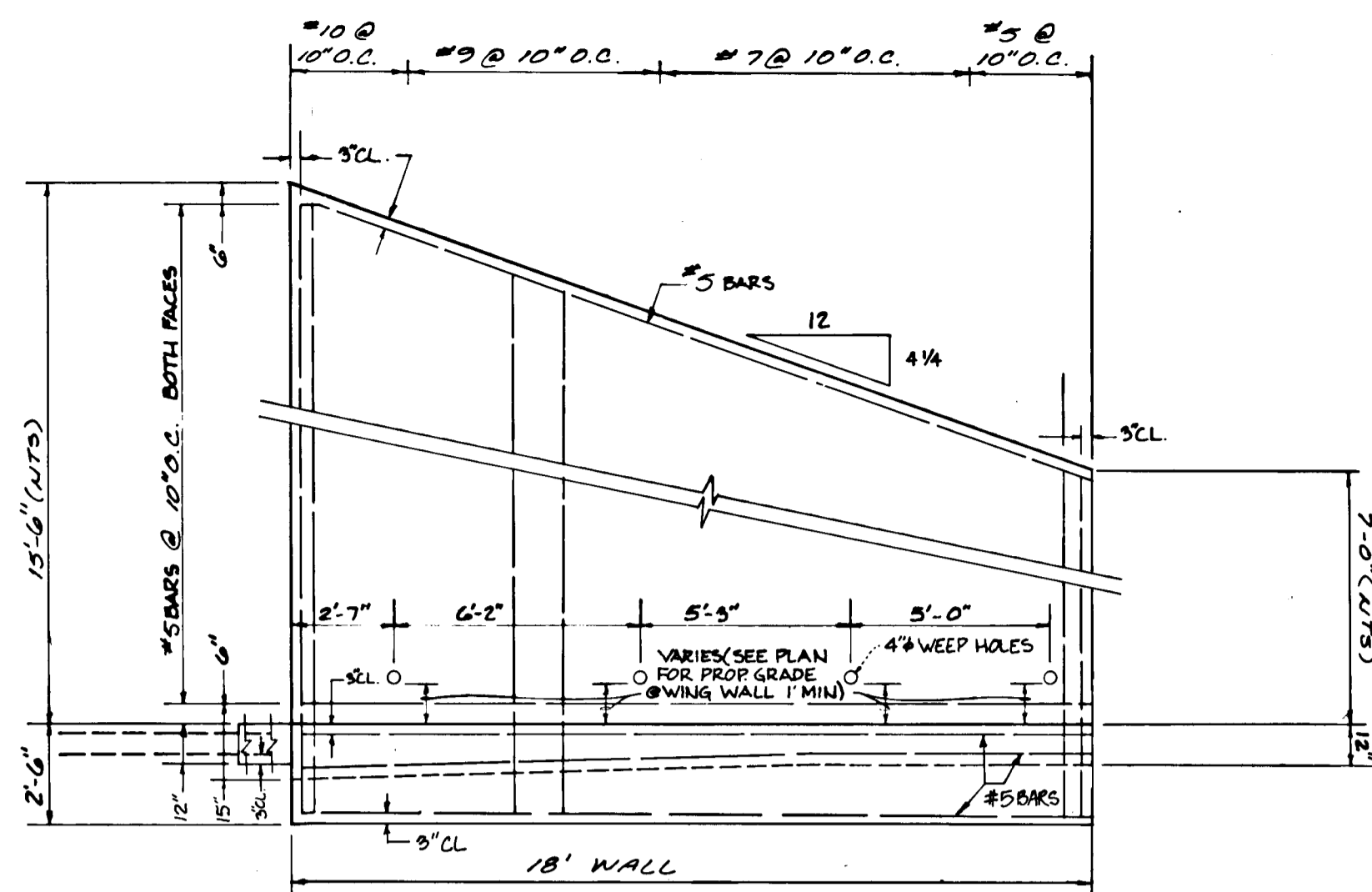
TITLE
**BOX CULVERT DETAILS
 (HAMMOND BRANCH CROSSING WEST)**

PROFESSIONAL SEAL
 10/15/91
Mark S. Weyer

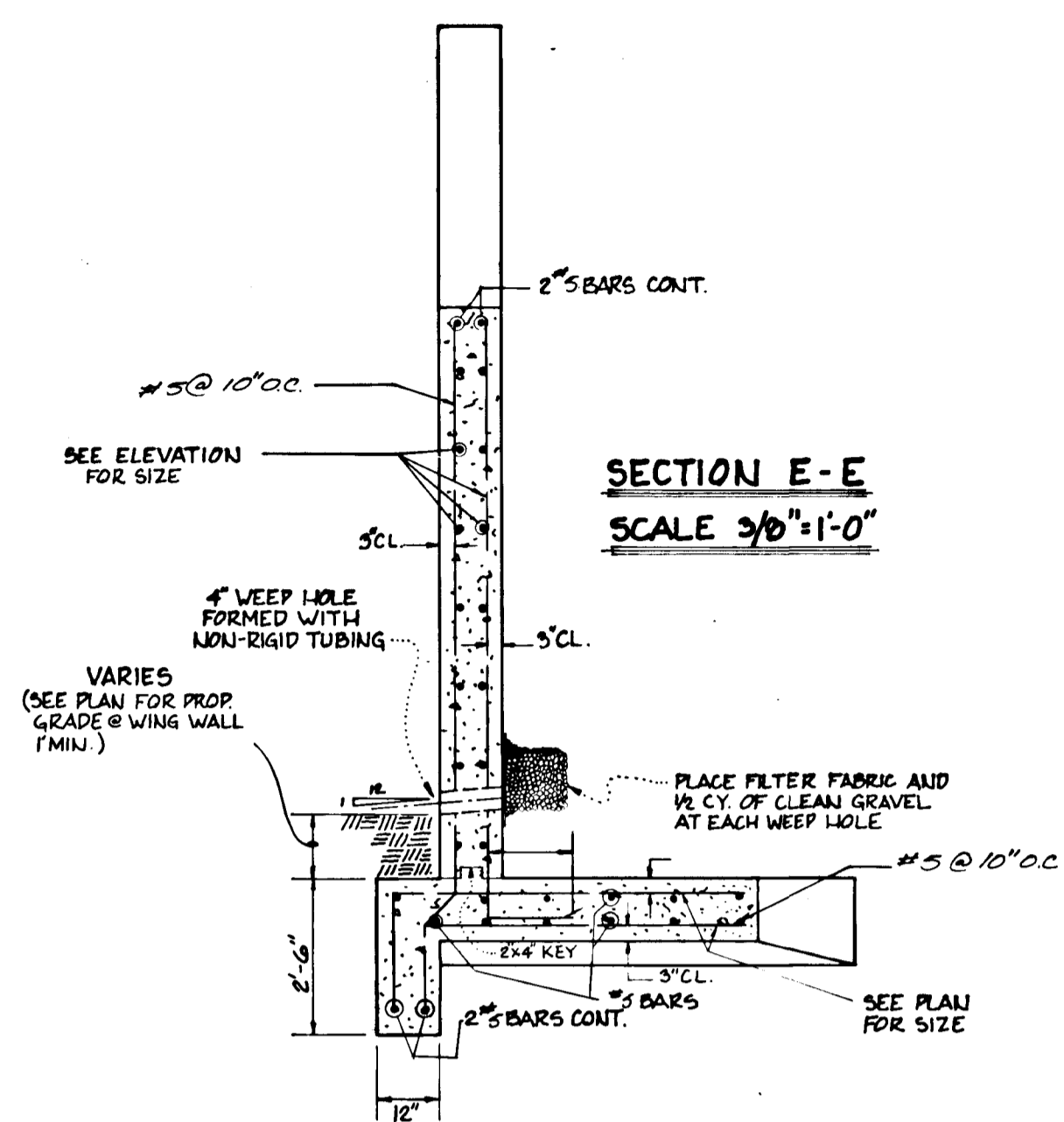
NO.	REVISIONS	DATE	BY
4	REVISE PER DESIGN CHANGES	8-30-91	
3	REVISED PER COMMENTS ON RITIG TO	12-5-90	
2	SUBMITTED FOR SIGNATURE	6-28-90	
1	REVISED PER COMMENTS OF D-1-89	3-23-89	
1	ISSUED FOR REVIEW		

SURVEY BY	FILE NO.
M.R.A.R.T.	2104-1-11
M.R.	2-09
CHKD	SCALE AS NOTED
	SHEET 11 OF 16

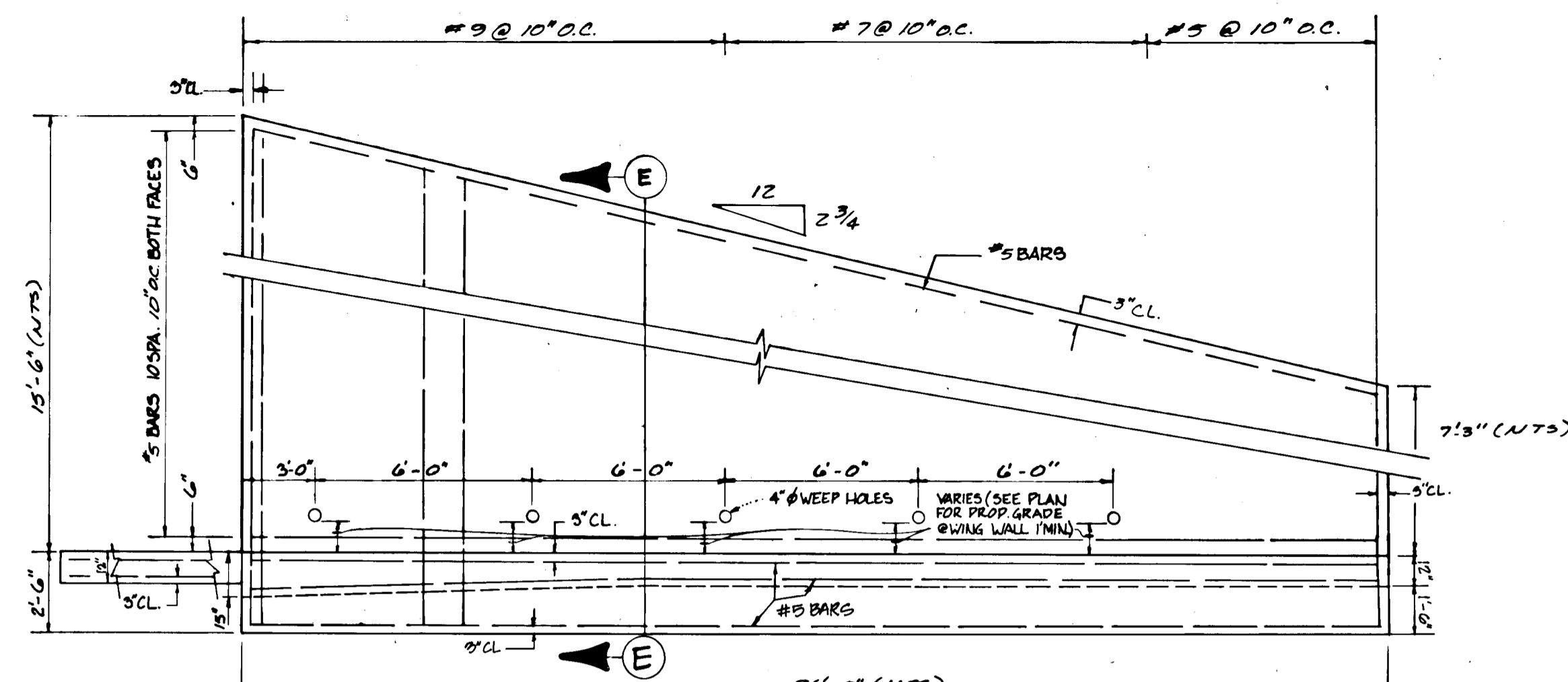
F-89-174



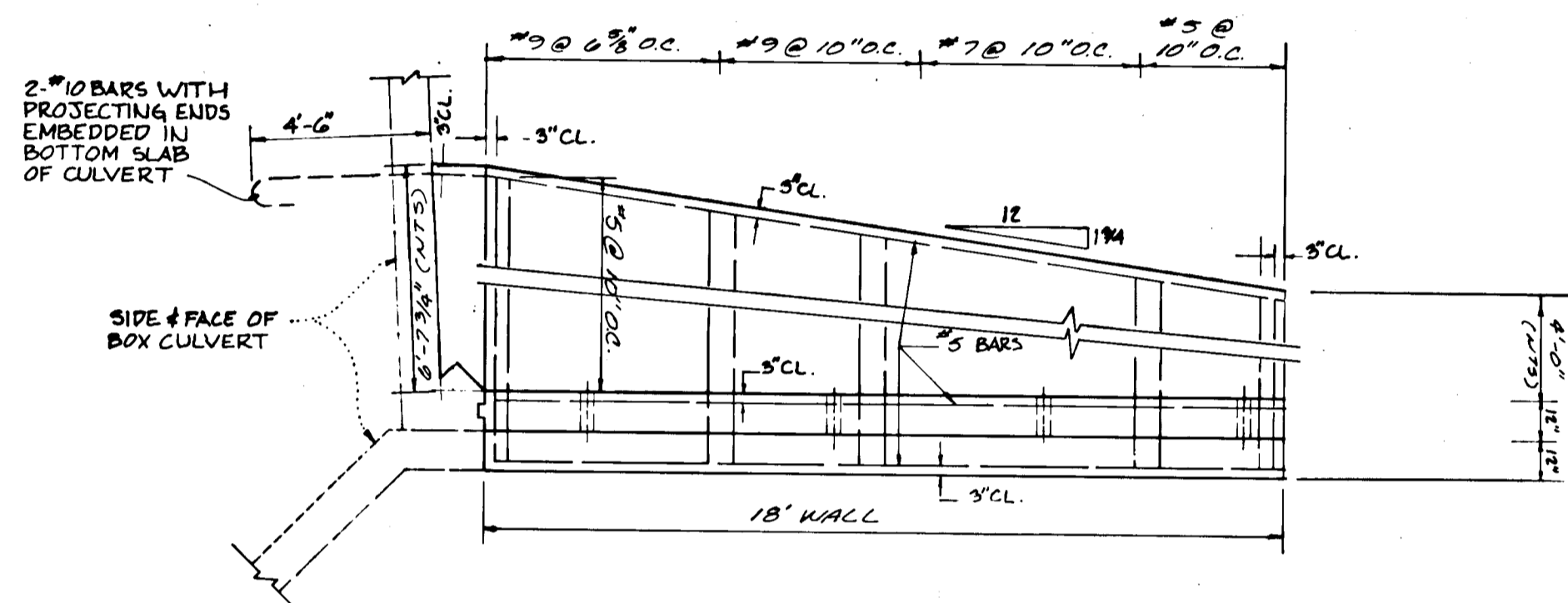
ELEVATION



SECTION E-E
SCALE 3/8"=1'-0"



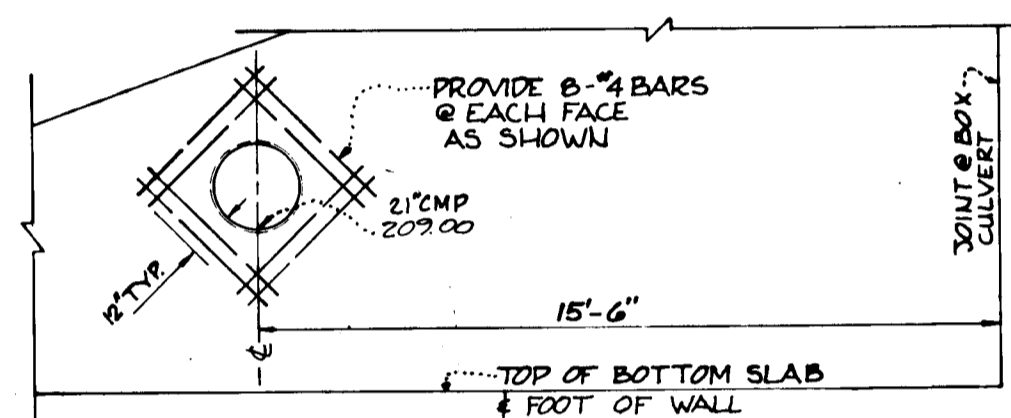
ELEVATION



PLAN

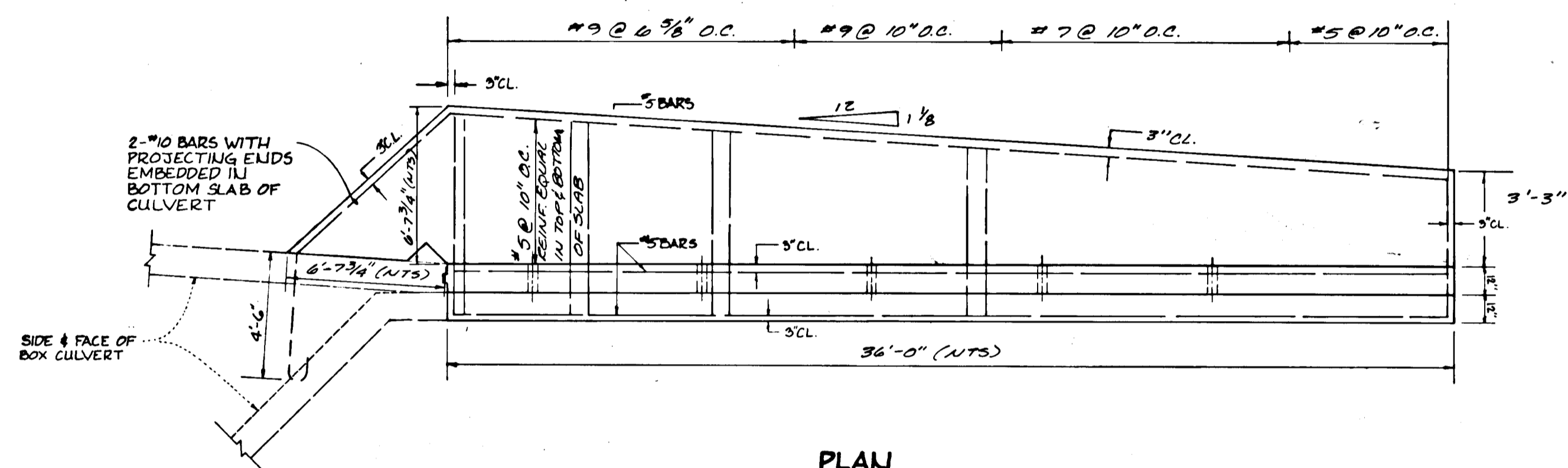
WING WALL REINFORCEMENT FOR WING WALLS ① AND ③
SEE PLAN SHEET 9 FOR HORIZONTAL LOCATION

SCALE 1/4"=1'-0"



STORM DRAIN PIPE AT WALL

SCALE 1/4"=1'-0"



PLAN

WING WALL REINFORCEMENT FOR WING WALLS ② AND ④
SEE PLAN SHEET 9 FOR HORIZONTAL LOCATION

SCALE 1/4"=1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chad M. Tamm 4/6/91
Chief, Land Development Division
Francine W. Welland 4/2/91
Chief, Bureau of Highways
Michael S. Ray 4-4-91
Chief Bureau of Engineering

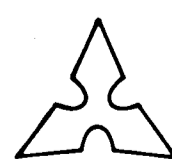
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Mark J. Taylor 4/10/91
Chief, Division of Community Planning & Land Development

PHR&A

Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Landscape Architects
7609 Standish Place
Rockville, Maryland 20855
301 762-2220

Office:
Fairfax, VA
Bridgewater, VA
Leesburg, VA
Rockville, MD
Virginia Beach, VA



CLIENT
OWNER/DEVELOPER
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C/O JAMES F. KNOTT DEVELOPMENT CORPORATION
110 WEST ROAD, SUITE 203
TOWSON, MARYLAND 21284
(301) 321-6436

JOB
**BOWLING BROOK FARMS
PARCEL C**
LOTS I-I THRU I-117, LOTS 223 & 224
A RESUBDIVISION OF LOT 220 BOWLING BROOK FARMS
TAX MAP 47 PARCEL 141
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
L. 1394 F. 632

TITLE
**BOX CULVERT DETAILS
(HAMMOND BRANCH CROSSING WEST)**

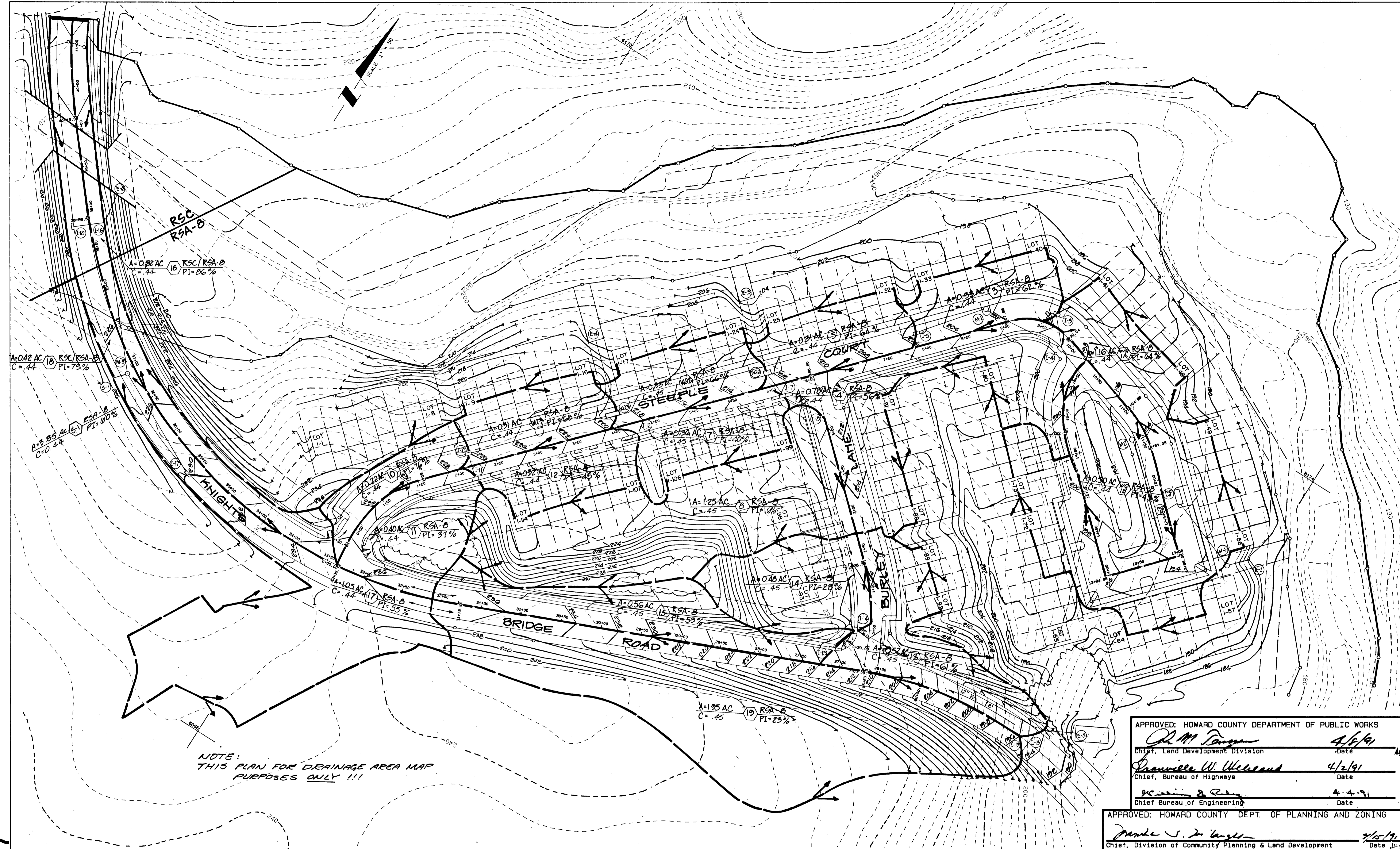
PROFESSIONAL SEAL
Michael S. Ray
12/5/92

NO.	REVISIONS	DATE	BY
4	REVISE PER DESIGN CHANGE	8-30-91	
3	REVISED PER COMMENTS ON 10/16/90	12-5-90	
2	SUBMITTED FOR SIGNATURE	6-28-90	
1	ISSUED FOR REVIEW	3-23-89	

SURVEY BY
DESIGN
M.R., E.C. & R.T.
DRAWN
M.R.
CHECKED

FILE NO. 2104-1-11
DATE 3-20-89
SCALE AS NOTED
SHEET 12 OF 16

F-89-174



1221

PHIR&A

Patton Harris Rust & Associates, PC
 Engineers, Surveyors, Planners, Landscape Architects
 7650 Standish Place
 Rockville, Maryland 20855
 301 762-2220

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 110 WEST ROAD, SUITE 203
 TOWSON, MARYLAND 21284

JOB

BOWLING BROOK FARMS
 PARCEL C
 LOTS I-1 THRU. I-117, LOTS 223 & 224
 A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
 TAX MAP 47 PARCEL 141
 SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 L. 1394 F. 632

TITLE

DRAINAGE AREA MAP

PROFESSIONAL SEAL

12/5/93

NO.	REVISIONS	DATE	BY
3	REVISED PER COMMENTS ON 10/10/93 - SUBMITTED FOR SIGNATURE	12-5-93	
2	REVISED PER COMMENTS OF 5-1-93	5-20-93	
1	ISSUED FOR REVIEW	2-23-93	

SURVEY BY	OTHERS	FILE NO.
DESIGN	R.E.H.	2184-1-11
DATE		3-20-89
SCALE	1" = 50'	CI
SHEET	13	OF 16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John M. Dargatzis 4/6/91
 Chief, Land Development Division Date

Lawrence W. Welwood 4/2/91
 Chief, Bureau of Highways Date

William S. Ray 4-4-91
 Chief Bureau of Engineering Date

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Frank S. Dargatzis 3/15/91
 Chief, Division of Community Planning & Land Development Date

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

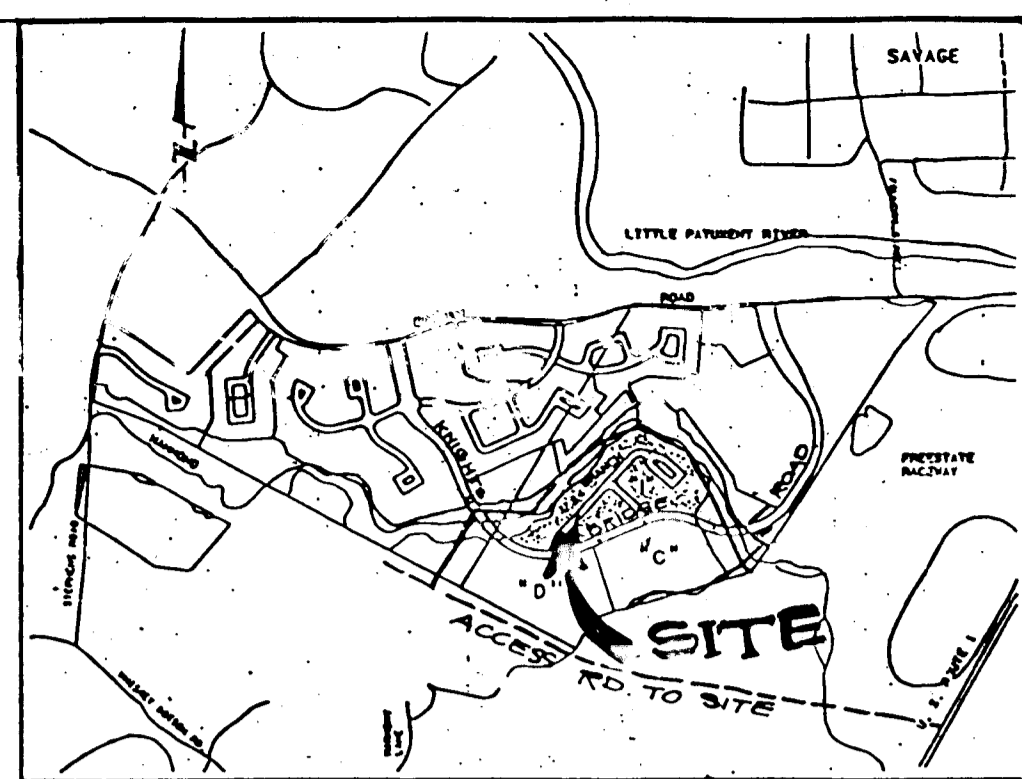
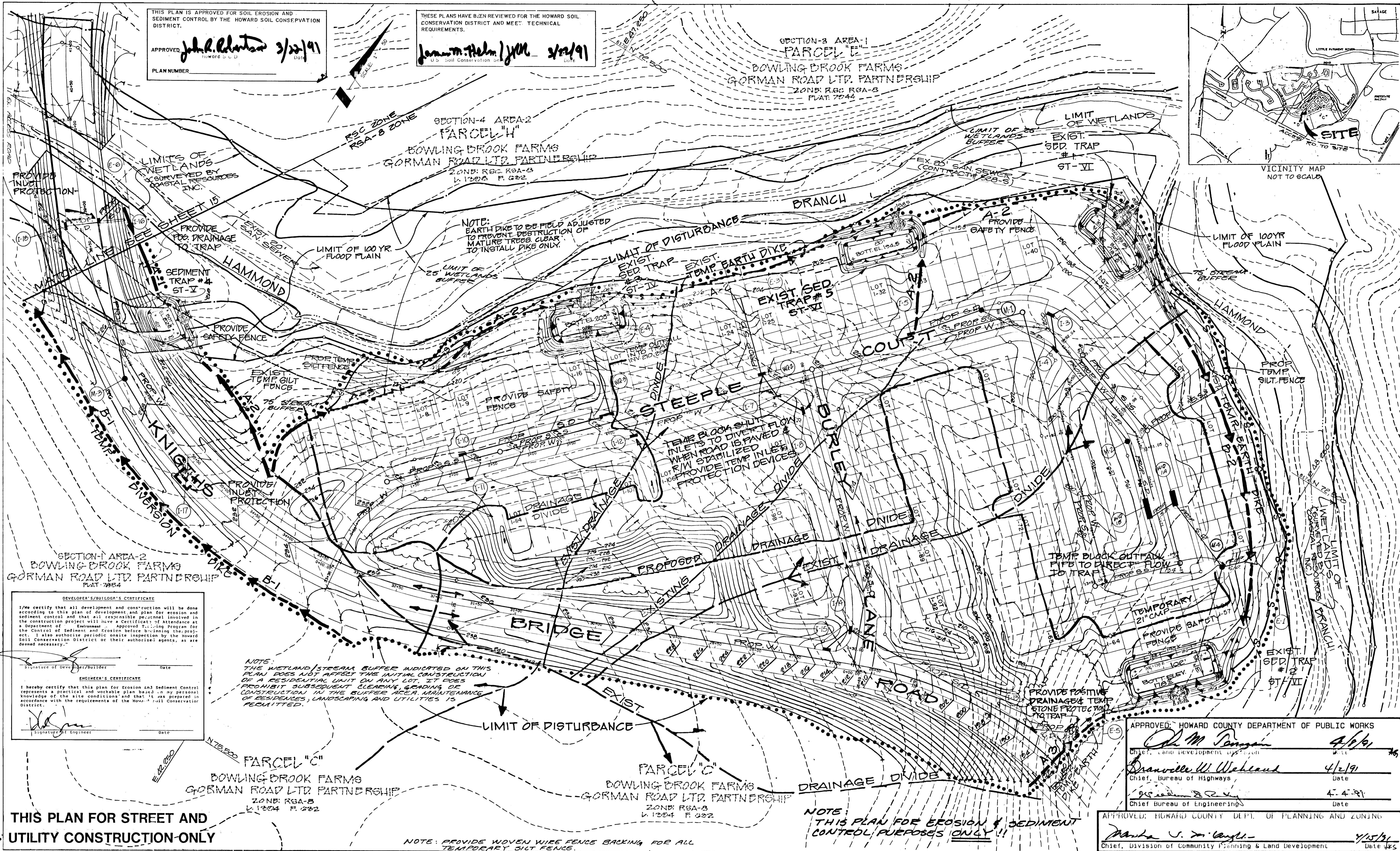
APPROVED *John R. Clinton* 3/22/91
 HOWARD S.C.D.
 PLAN NUMBER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET TECHNICAL REQUIREMENTS.

APPROVED *James M. Helm* / JMH 3/22/91
 U.S. SOIL CONSERVATION DISTRICT

SECTION-3 AREA-1
 PARCEL "E"
 BOWLING BROOK FARMS
 GORMAN ROAD LTD. PARTNERSHIP
 ZONE: RGA-B
 PLAT 7044

SECTION-4 AREA-2
 PARCEL "H"
 BOWLING BROOK FARMS
 GORMAN ROAD LTD. PARTNERSHIP
 ZONE: RGA-B
 L. 1306 P. 022



SECTION-1 AREA-2
 BOWLING BROOK FARMS
 GORMAN ROAD LTD. PARTNERSHIP
 PLAT 7084

DEVELOPER'S/BUILDER'S CERTIFICATE
 I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all 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. I also authorize periodic onsite inspection by the Howard Soil Conservation District or their authorized agents, as deemed necessary.

Signature of Developer/Builder _____ Date _____

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

Signature of Engineer _____ Date _____

NOTE: THE WETLAND/STREAM BUFFER INDICATED ON THIS PLAN DOES NOT AFFECT THE INITIAL CONSTRUCTION OF A RESIDENTIAL UNIT ON ANY LOT. IT DOES PROHIBIT SUBSEQUENT CLEARING AND CONSTRUCTION IN THE BUFFER AREA. MAINTENANCE OF RESIDENCES, LANDSCAPING AND UTILITIES IS PERMITTED.

THIS PLAN FOR STREET AND UTILITY CONSTRUCTION ONLY

PARCEL "C"
 BOWLING BROOK FARMS
 GORMAN ROAD LTD. PARTNERSHIP
 ZONE: RGA-B
 L. 1304 P. 022

PARCEL "C"
 BOWLING BROOK FARMS
 GORMAN ROAD LTD. PARTNERSHIP
 ZONE: RGA-B
 L. 1394 P. 022

NOTE: PROVIDE WOVEN WIRE FENCE BACKING FOR ALL TEMPORARY SILT FENCE.

NOTE: THIS PLAN FOR EROSION & SEDIMENT CONTROL PURPOSES ONLY!!

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John M. Pansini 4/10/91
 Chief, Land Development Division

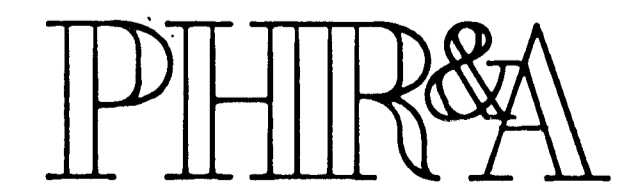
Darville W. Wehland 4/1/91
 Chief, Bureau of Highways

James R. ... 4-4-91
 Chief Bureau of Engineering

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Mark A. ... 4/15/91
 Chief, Division of Community Planning & Land Development

1221



Delton Harris Rust & Associates, Inc.
 Engineers, Surveyors, Planners, Landscape Architects
 7800 Standish Place
 Rockville, Maryland 20855
 301-762-2990

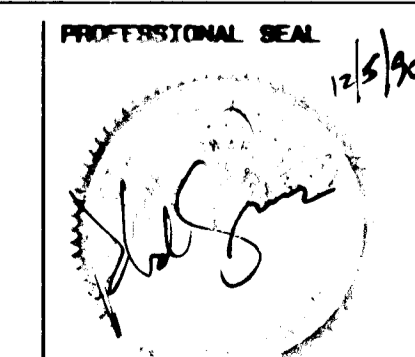
Office:
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 Rockville, MD
 Virginia Beach, VA



CLIENT
 OWNER/DEVELOPER
 GORMAN ROAD LIMITED PARTNERSHIP
 c/o JAMES F. IONOTT DEVELOPMENT CORP.
 110 WEST ROAD, SUITE 203
 TOMPKIN, MARYLAND 21204

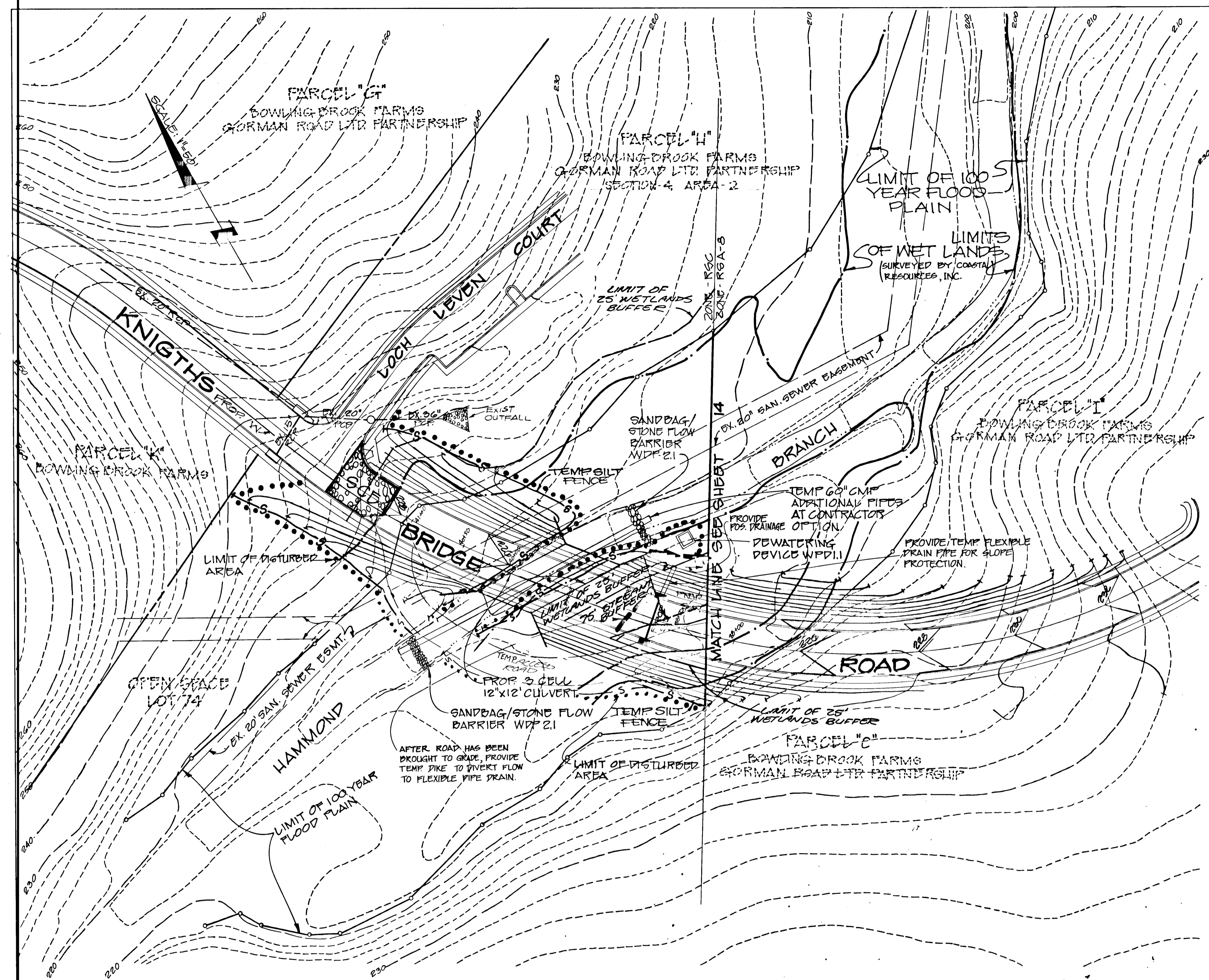
JOB
 BOWLING BROOK FARMS
 PARCEL C
 LOTS I-I THRU I-117, LOTS 223 & 224
 A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
 TAX MAP 47 PARCEL 141
 SIXTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 L. 1394 F. 022

TITLE
 EROSION & SEDIMENT CONTROL PLAN



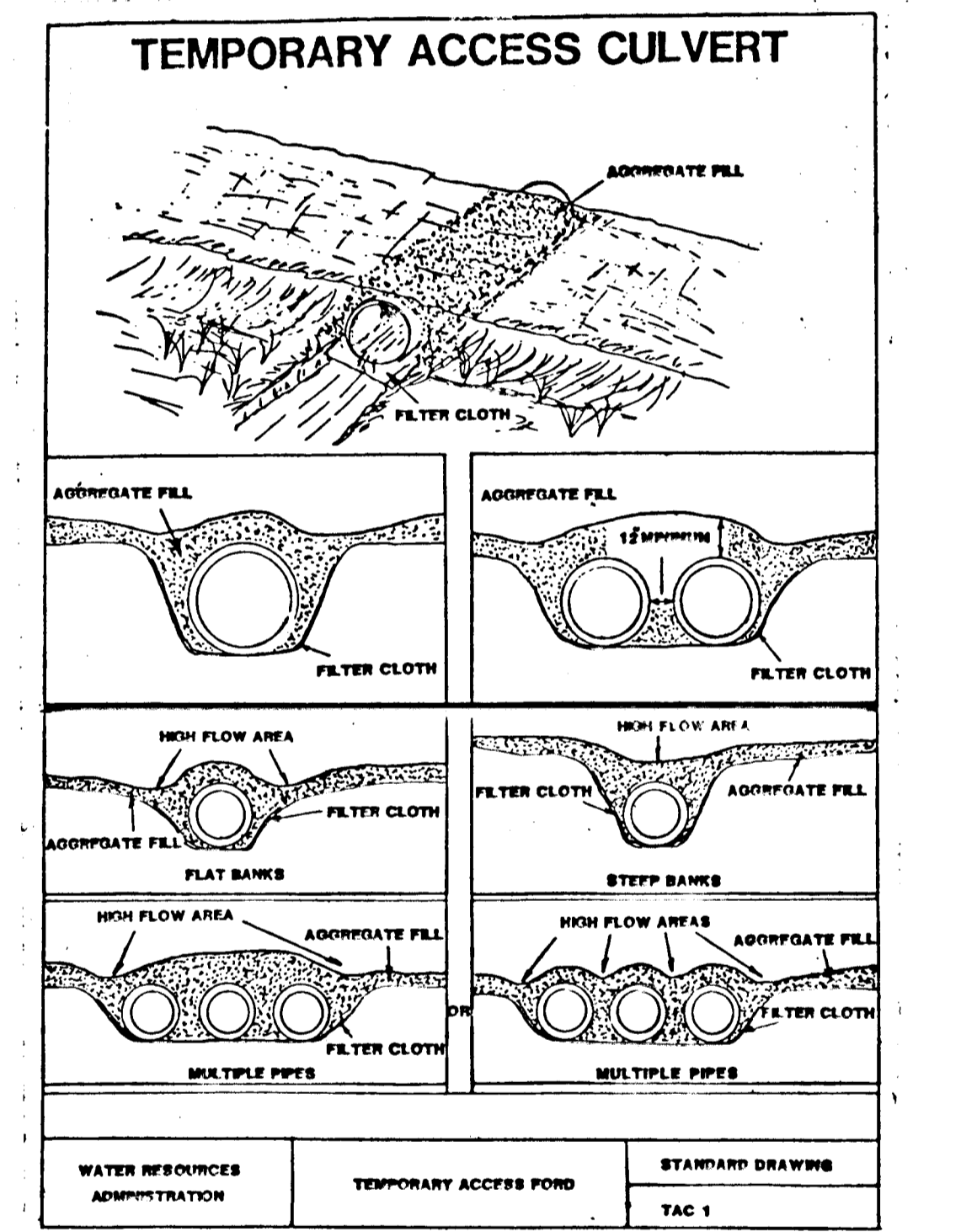
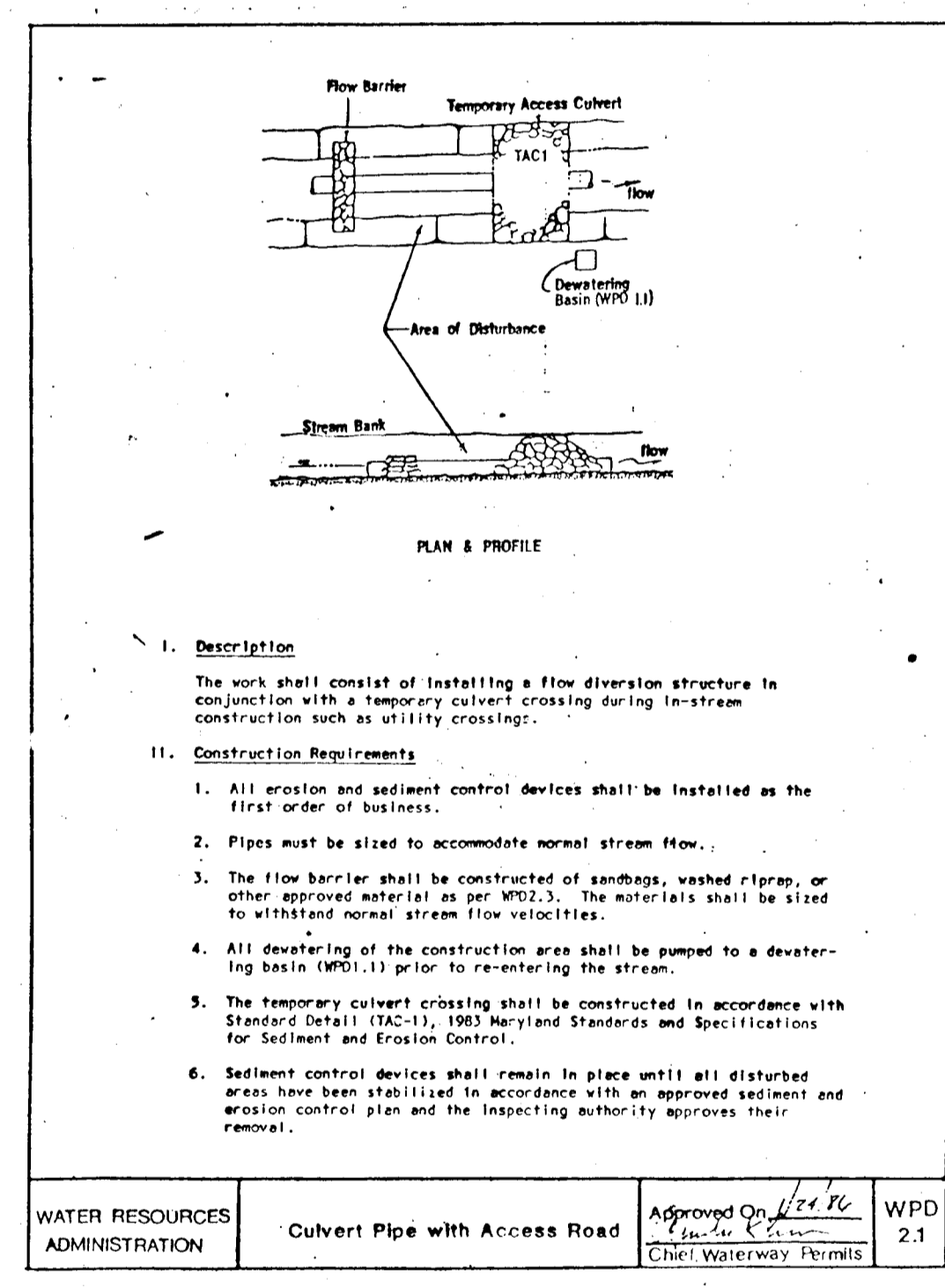
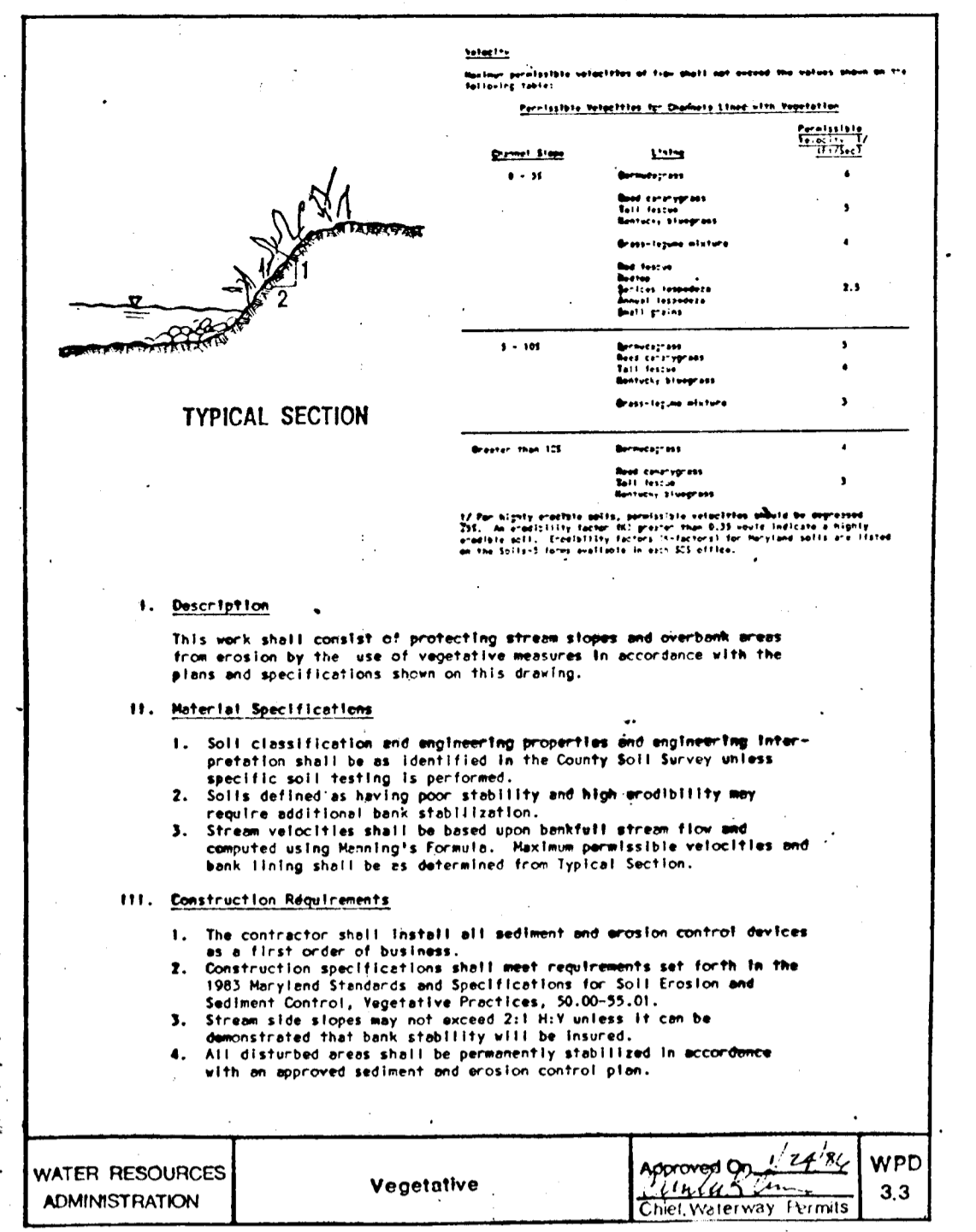
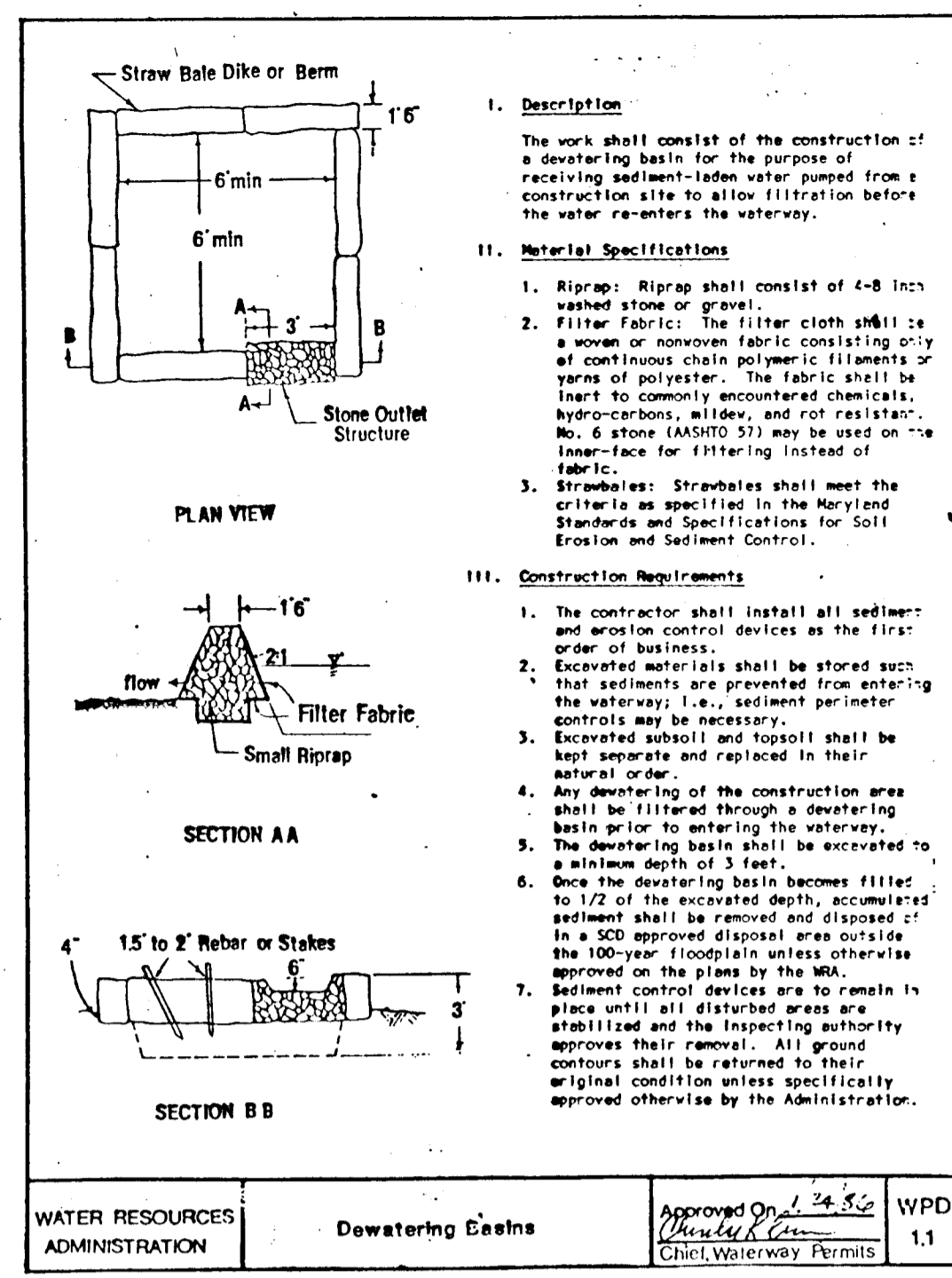
NO.	REVISIONS	DATE	BY
3	REVISED PER COMMENTS ON 10/16/90	12-5-90	
2	SUBMITTED FOR SIGNATURE	0-28-90	
1	ISSUED FOR REVIEW	0-23-89	

DESIGN	DATE	FILE NO.
PHR&A	2/8/89	2184-1-11
BIC	3-5-89	
FC	1-50'	2'
CHKD	14	14 OF 16



NOTE: THE WETLAND/STREAM BUFFER INDICATED ON THIS PLAN DOES NOT AFFECT THE INITIAL CONSTRUCTION OF A RESIDENTIAL UNIT ON ANY LOT. IT DOES PROHIBIT SUBSEQUENT CLEARING, GRADING OR CONSTRUCTION IN THE BUFFER AREA. MAINTENANCE OF RESIDENCES, LANDSCAPING AND UTILITIES IS PERMITTED.

NOTE: PROVIDE WIRE WOVEN FENCE BACKING FOR ALL TEMPORARY SILT FENCE



THIS PLAN FOR STREET AND UTILITY CONSTRUCTION ONLY

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET TECHNICAL REQUIREMENTS.

John M. Helms 3/22/99
U.S. Soil Conservation Service

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

John P. Rhutson 3/22/99
Howard S.C.D.

ENGINEER'S CERTIFICATE

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

[Signature]
Signature of Engineer Date

DEVELOPER'S/BUILDER'S CERTIFICATE

I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all 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. I also authorize periodic onsite inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

[Signature]
Signature of Developer/Builder Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature] 4/6/99
Chief, Land Development Division Date

[Signature] 4/2/99
Chief, Bureau of Highways Date

[Signature] 4-4-99
Chief, Bureau of Engineering Date

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

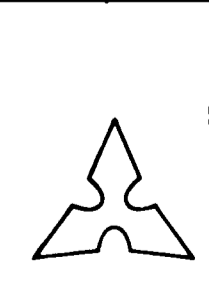
[Signature] 4/6/99
Chief, Division of Community Planning & Land Development Date

1277



Patton Harris Rust & Associates, Inc.
Engineers, Surveyors, Planners, Landscape Architects
1009 Standish Place
Rockville, Maryland 20855
301 762-2220

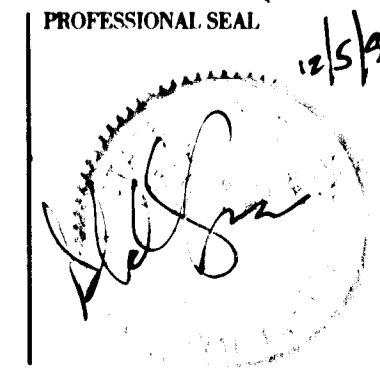
Office:
Fairfax, VA
Bridgewater, VA
Leesburg, VA
Rockville, MD
Virginia Beach, VA



CLIENT
OWNER/DEVELOPER
GORMAN ROAD LIMITED PARTNERSHIP
C/O JAMES F. KNOTT DEVELOPMENT CORP.
110 WEST ROAD, SUITE 203
TOWSON, MARYLAND 21204
(301)321-6436

JOB
BOWLING BROOK FARMS
PARCEL C
LOTS F-1 THRU F-117, LOTS 223 & 224
A RESUBDIVISION OF LOT 220, BOWLING BROOK FARMS
TAX MAP 47 PARCEL 141
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
L. 1394 F. 632

TITLE
EROSION and SEDIMENT
CONTROL PLAN & DETAILS



NO.	REVISIONS	DATE	BY
3	REVISED PER COMMENTS ON 10/16/99	12-5-99	
2	SUBMITTED FOR SIGNATURE	6-28-99	
1	ISSUED FOR REVIEW	3-23-99	

DESIGN	DATE
PHR&A	2184-1-11
EIC	3-20-99
FC	1"=50' 2'
CHKD	SHEET 15 OF 16

SEDIMENT CONTROL NOTES

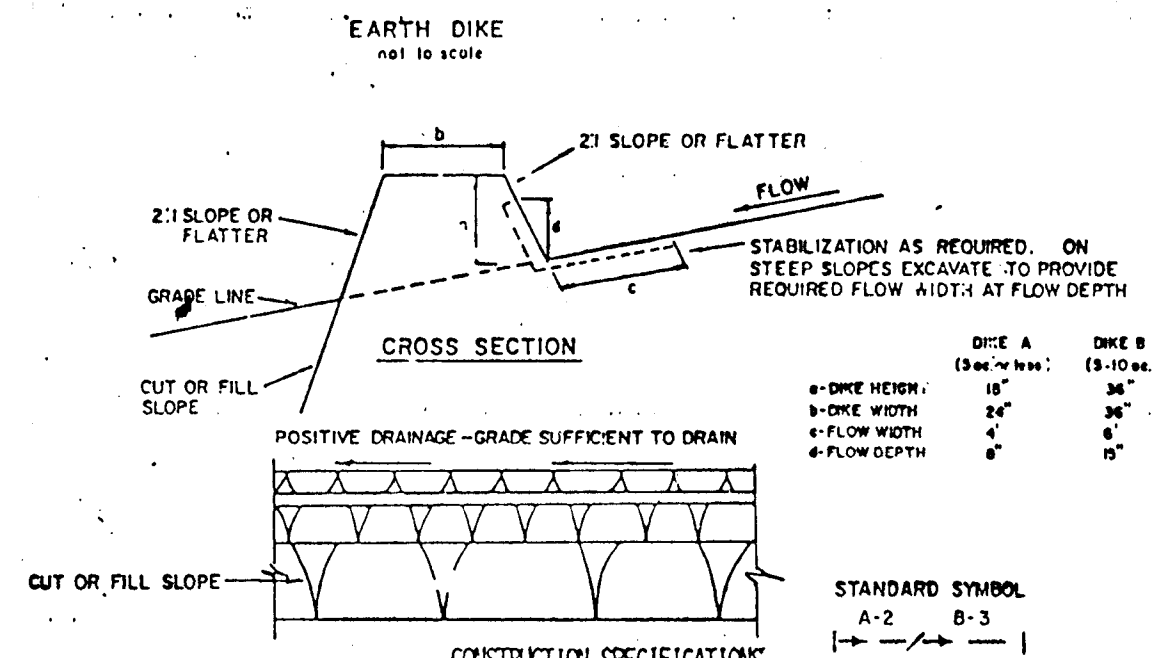
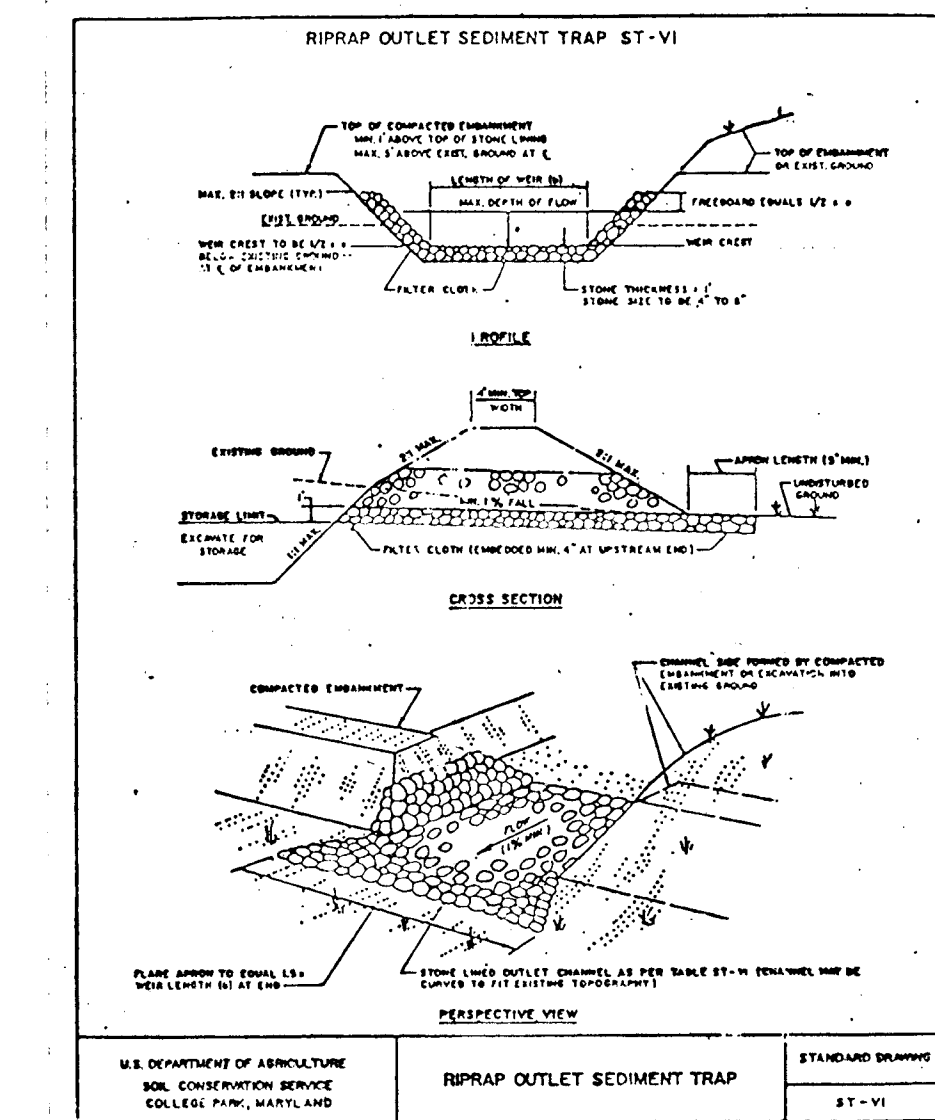
- 1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (892-2437)
- 2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 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 as to 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 seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- 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	150 Acres
Area Disturbed	14.4 Acres
Area to be roofed or paved	7.3 Acres
Area to be vegetatively stabilized	7.3 Acres
Total Cut	89,900 Cu. yds
Total Fill	27,000 Cu. yds
Offsite waste/borrow area location	F-91-70
- 8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 9) Additional sediment controls must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
- 10) On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

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 60 lbs per acre 10-0-0 fertilizer (14 lbs/1000 sq ft) before seeding. Narrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
 - 2) Acceptable — Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Narrow 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 (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs 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 anchoring.
- Maintenance:** Inspect all seeded areas and make needed repairs, replacements and reseeds.
- Apply to graded or cleared areas likely to be redistributed 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 bushel per acre of annual ryegrass (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.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 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 ft 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.

TEMPORARY SEEDING NOTES



1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
 2. DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
 3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
 4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
 5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
 6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.
- | TYPE OF TREATMENT | CHANNEL GRADE | DIKE A | DIKE B |
|-------------------|---------------|--|--|
| 1 | 5-3.0% | SEED AND STRAW MULCH | SEED AND STRAW MULCH |
| 2 | 3.1-5.0% | SEED USING JUTE, OR EXCELISAR; SOD; 2" STONE | SEED USING JUTE, OR EXCELISAR; SOD; 2" STONE |
| 3 | 5.1-8.0% | SEED WITH JUTE, OR SOD; 2" STONE | LINED RIP-RAP 4-8" |
| 4 | 8.1-20% | LINED RIP-RAP 4-8" | ENGINEERING DESIGN |
- A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 7 INCHES THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

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

PHR&A

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Engineers, Surveyors, Planners, Landscape Architects
7609 Standish Place
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301-762-2220

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Bridgewater, VA
Leesburg, VA
Rockville, MD
Virginia Beach, VA

CLIENT
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CORMAN ROAD LIMITED PARTNERSHIP
C/O JAMES F. KNOTT DEVELOPMENT CORP.
110 WEST ROAD, SUITE 203
TOWSON, MARYLAND 21204
(301)321-6436

JOB
BOWLING BROOK FARMS PARCEL C
LOTS F-1 THRU F-117, LOTS F-223 & 224
A RE-SUBDIVISION OF LOT 220, BOWLING BROOK FARMS
TAX MAP 47 PARCEL 141
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
L 1394 F. 632

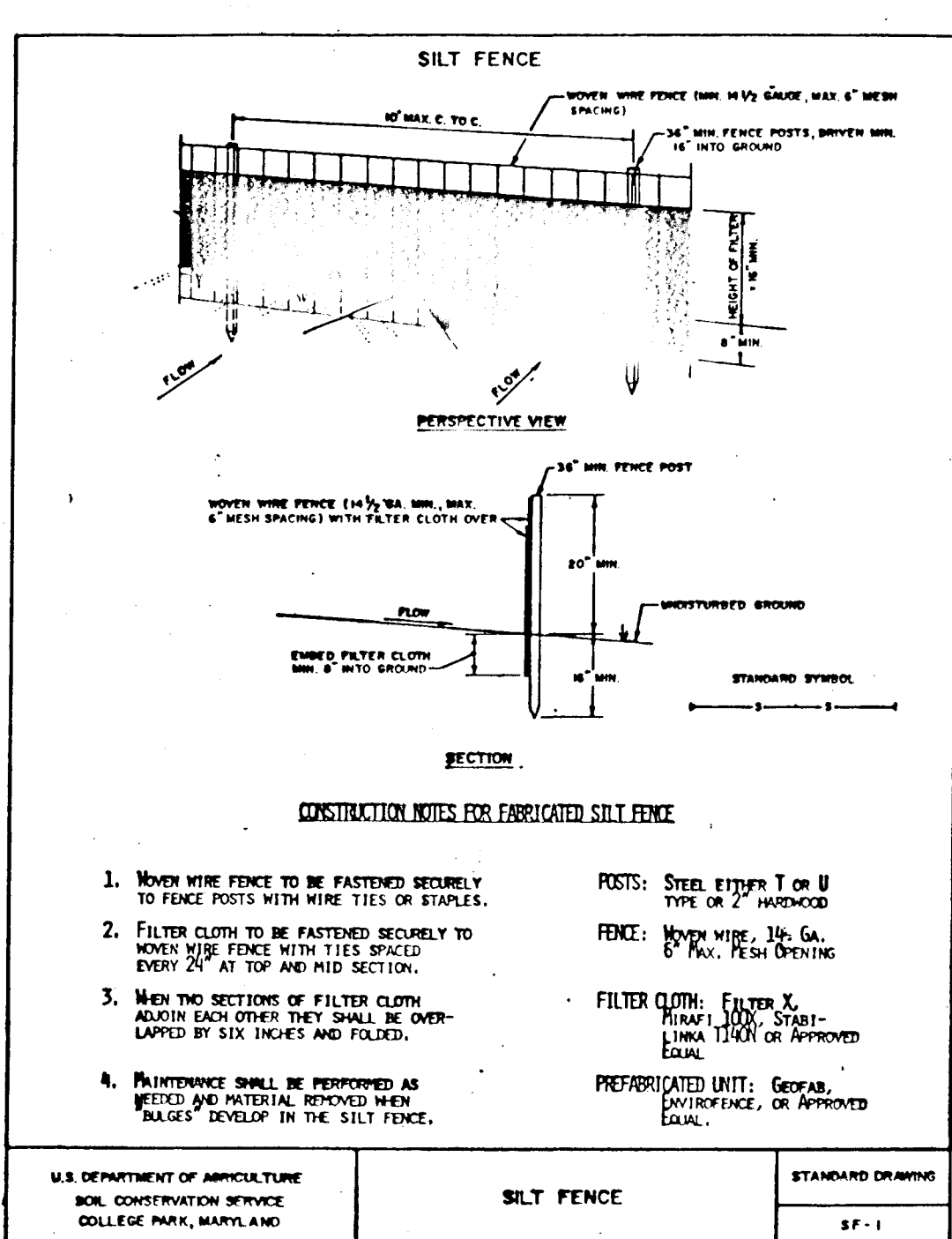
TITLE
EROSION SEDIMENT CONTROL DETAILS

PROFESSIONAL SEAL
NO. 1215130
DATE: 12/5/90

REVISIONS

NO.	REVISIONS	DATE	BY	SURVEY BY	FILE NO.
3	REVISED PER COMMENT ON 10/17/90 - SUBMITTED FOR SIGNATURE	12-5-90		FHR&A	2184-1-11
2	REVISED PER COMMENTS OF 8-1-89	6-28-90		FC	2-5-89
1	ISSUED FOR REVIEW	3-28-89		FC	NO SCALE

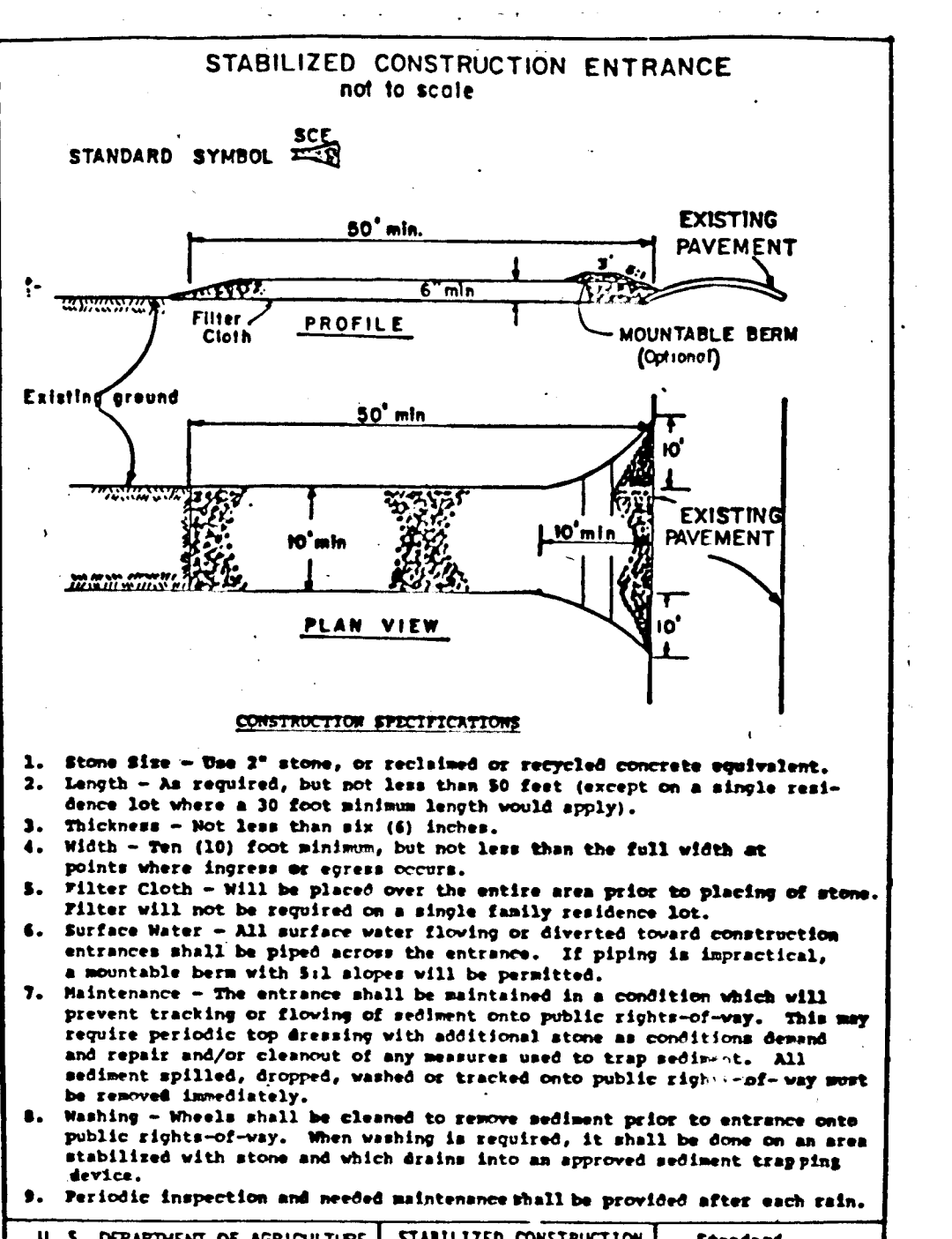
DATE: 4/15/91
BY: [Signature]
SHEET: 16 OF 16
PROJECT: F-89-174 E.S.C. 3 of 3



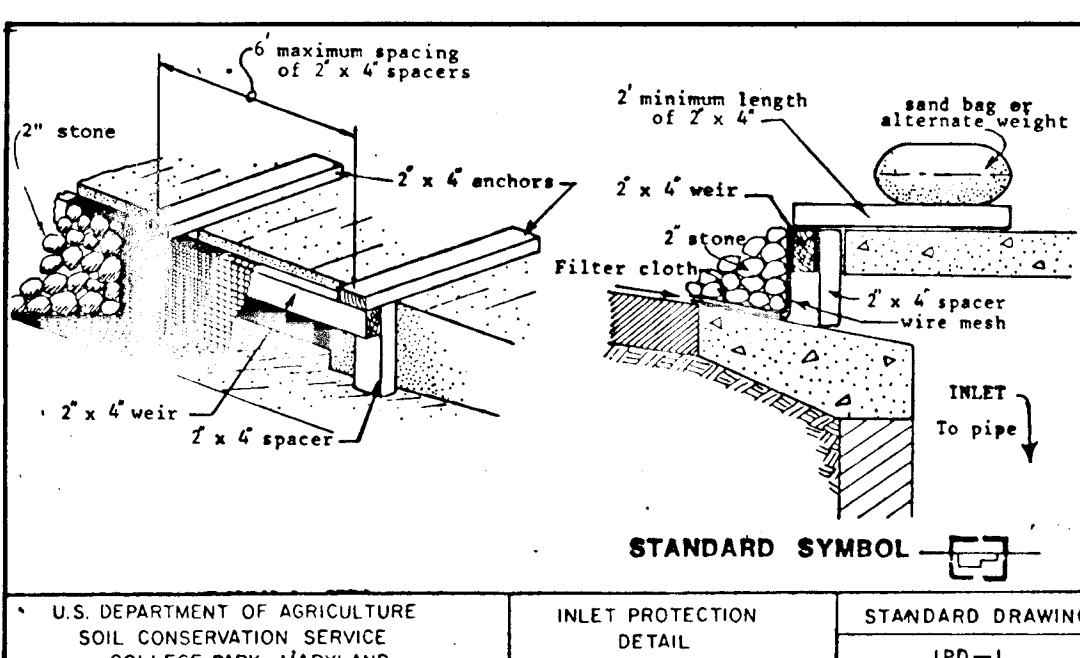
- CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**
1. MONITOR FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
 2. FILTER CLOTH TO BE FASTENED SECURELY TO MONITOR FENCE WITH TIES SPACED EVERY 2' AT TOP AND MID SECTION.
 3. WHEN THE SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
 4. MAINTENANCE SHALL BE PROVIDED AS NEEDED AND MATERIAL REMOVED WHEN RAINFALL EXCEEDS THAT SHOWN IN THE SILT FENCE.
- POSTS: STEEL EITHER T OR U TYPE OR 2" WOODEN
FENCE: MONY WIRE 1/4" GA. 6' MAX. P.E.S. OPENING
FILTER CLOTH: EITHER X FEMAL LOCK, SPIRAL LINED 12X12 OR APPROVED EQUAL
PREFABRICATED UNIT: GEOTEX, SURFACTING, OR APPROVED EQUAL
- U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND
- SILT FENCE**
STANDARD DRAWING 5F-1

SEQUENCE OF CONSTRUCTION

1. MAINTAIN EXISTING SEDIMENT CONTROL STRUCTURES 1, 2, 3 & 5 AND MAINTAIN MEASURES IN PLACE PER MASS GRADING PLANS (GP-89-25) MOVE SEDIMENT TRAP #4 TO PROPOSED LOCATION SHOWN, BOWLING BROOK FARMS - PARCEL I.
2. OBTAIN REVISED GRADING PERMIT FOR PARCEL I.
3. INSTALL OR MAINTAIN EXISTING FLOW BARRIERS (WPD 21) TEMPORARY PIPE DEWATERING DEVICE AND RELATED DEVICES IN ORDER TO FACILITATE THE CONSTRUCTION OF THE CONCRETE BOX CULVERT AND ROAD.
4. PERMANENTLY STABILIZED DISTURBED AREAS IN AND AROUND BED WITH METHODS ACCEPTED BY THE WATER RESOURCES ADMINISTRATION.
5. INSTALL PROPOSED SILT FENCE AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.
6. GRADE SITE.
7. PROCEED WITH UTILITY AND STREET CONSTRUCTION.
8. PROVIDE TEMPORARY STORM DRAIN DIVERSION PIPE TO THE SEDIMENT TRAPS AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.
9. APPLY TEMPORARY AND/OR PERMANENT VEGETATIVE STABILIZATION TO DISTURBED AREAS NOT SUBJECT TO IMMEDIATE CONSTRUCTION AS REQUIRED BY THE SEEDING NOTES ON THIS SHEET.
10. WHEN ALL DISTURBED AREAS ARE PAVED OR STABILIZED, INSTALL CURB INLET PROTECTION DEVICES UNDER THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
11. RECONSTRUCT STORM DRAIN OUTFALL PER THE PAVING AND STORM DRAIN PLAN. REMOVE THE EXISTING SEDIMENT TRAPS AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.
12. REMOVE REMAINING SEDIMENT CONTROL MEASURES AS ITS CONTRIBUTING DRAINAGE AREA ARE STABILIZED UNDER THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.



- CONSTRUCTION SPECIFICATIONS**
1. Stone Size - Two (2) stone, or recycled or recycled concrete equivalent.
 2. Length - As required, but not less than 50 feet (except on a simple entrance lot where a 30 foot minimum length would apply).
 3. Thickness - Not less than six (6) inches.
 4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
 5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a simple family residence lot.
 6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 3:1 slopes will be permitted.
 7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanup of any measures used to trap sediment. All sediment applied, dropped, washed or tracked onto public right-of-way must be removed immediately.
 8. Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
 9. Periodic inspection and needed maintenance shall be provided after each rain.
- U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MD.
- STABILIZED CONSTRUCTION ENTRANCE**
STANDARD DRAWING SCE-1

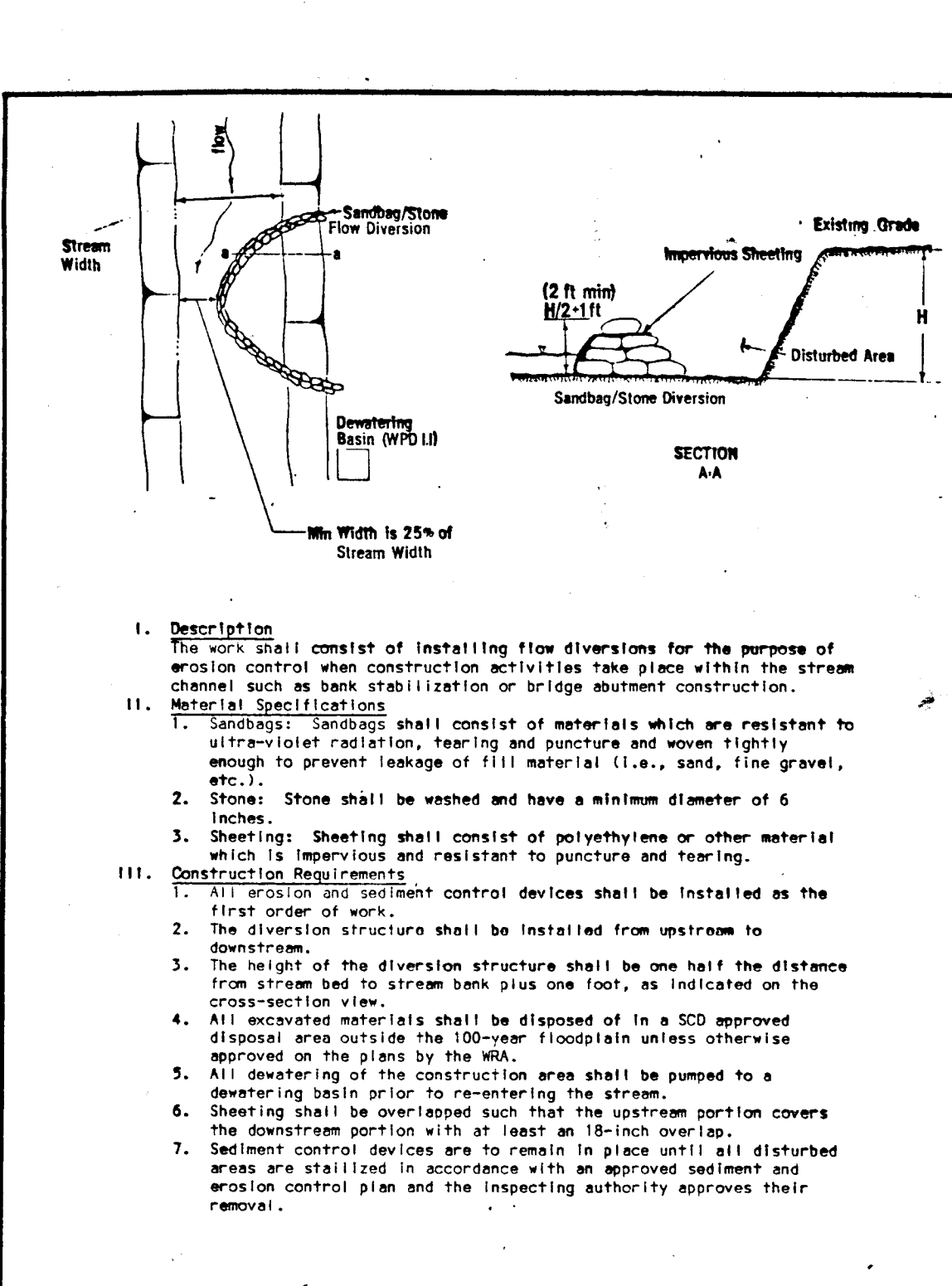


1. Attach a continuous piece of wire mesh (30" min. width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.
2. Place a piece of approved filter cloth (40-85 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach to the 2" x 4" weir.
3. Securely pull the 2" x 4" weir to 9" long vertical spacers to be located between the weir and inlet face (max. 6" apart).
4. Place the assembly against the inlet throat and nail (minimum 2" lengths of 2" x 4" to the top of the weir at spacer locations. These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

THIS PLAN FOR STREET AND UTILITY CONSTRUCTION ONLY

SEDIMENT TRAP SCHEDULE

SEDIMENT TRAP #	1	2	3	4	5
TYPE OF TRAP-STD & SPEC#	ST-VI	ST-VI	ST-VI	ST-VI	ST-VI
DRAINAGE AREA (ACRES)	3.7	7.2	3.0	2.3	2.5
STORAGE REQUIRED (FT ³)	6,660	12,960	6,480	4,140	4,500
STORAGE PROVIDED (FT ³)	6,808	12,964	6,570	4,200	4,560
BASE DIMENSIONS & ELEV.	23'x74' @ 187.5	31'x102' @ 178.2	74'x24' @ 205.2	40'x25' @ 202.2	80'x15' @ 194.5
WEIR LENGTH & ELEV.	10' @ 193.2	10' @ 184.2	10' @ 201.2	6' @ 211.2	6' @ 198.2
STORAGE DEPTH	4.0'	4.1'	3.7'	4.2'	3.0'
EMBANKMENT @ TOP ELEV.	190.2	187.8	213.2	211.2	201.2
MAX. DEPTH OF FLOW OVER WEIR	1.5'	1.5'	1.5'	1.5'	1.5'
SIDE SLOPE	1:1	1:1	1:1	1:1	1:1



WATER RESOURCES ADMINISTRATION
Sandbag/Stone Diversion
Approved On: 12/4/90
[Signature]
Chief, Waterway Permits
WPD 2.3

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET TECHNICAL REQUIREMENTS.

[Signature]
U.S. Soil Conservation District
Date: 3/22/91

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

APPROVED: [Signature]
Howard S.C.D.
Date: 3/22/91

PLAN NUMBER

DEVELOPER'S/BUILDER'S CERTIFICATE

I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a District Approved Erosion Control Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic onsite inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

[Signature]
Date: _____

ENGINEER'S CERTIFICATE

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

[Signature]
Date: _____

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature]
Chief, Land Development Division
Date: 4/4/91

[Signature]
Chief, Bureau of Highways
Date: 4/2/91

[Signature]
Chief, Bureau of Engineering
Date: 4-4-91

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[Signature]
Chief, Division of Community Planning & Land Development
Date: 4/15/91

1221