See also PC127

CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMWATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

BMP NUMBER: **PC126**

DATE VERIFIED: **July 12, 2012**

QUALITY ASSURANCE TECHNICIAN: **Leah Hardenbergh**

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: February 24, 2010

TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services

FROM: Jo Anna Ripley, Stormwater

PO: 270712

RE: Files Approved for Scanning

BMP ID or General File ID PC126

PIN: 3220100112

Subdivision, Tract, Business or Owner Name (if known): James City County

Property Description: BMP on Clark Lane Mooretown Road Project

Site Address: 148 Clark Lane

(For internal use only) **Box:** JC001 **Drawer:** 2

Agreements: (in file as of scan date) N **Book or Doc#:** **Page:**

Comments:

SHEET INDEX:

1.....COVER SHEET
2.....PLAN AND PROFILE CLARK LANE (STA. 10+00 TO 26+00)
3.....PLAN AND PROFILE CLARK LANE (STA. 26+00 TO 42+12)
4.....PLAN AND PROFILE CURRY DRIVE (STA. 9+79 TO 21+24)
5.....PLAN AND PROFILE SIGHT DISTANCE AT MOORETOWN ENTRANCES
6.....STORM SEWER AND WATERLINE PROFILES AND BMP DETAILS
7.....DETAILS

GENERAL NOTES

1. THESE PLANS HAVE BEEN PREPARED BY DRAPER ADEN ASSOCIATES, 4136 INNSLAKE DRIVE, GLEN ALLEN, VIRGINIA 23060. TELEPHONE (804)270-7675.
2. TAX MAP INFORMATION: PARCELS CAN BE FOUND ON TAX MAP 32-2
3. GENERAL INFORMATION:
   AREA OF RIGHT-OF-WAY: 5.082 ACRES
   BMP "A" AREA: 3.266 ACRES
   BMP "B" AREA: 1.307 ACRES
   DISTURBED AREA: 7.9 ACRES
4. ZONING INFORMATION: THE PROJECT AREA IS ZONED R-3
5. THE ON-SITE TOPOGRAPHY SHOWN ON THE PLANS IS PROVIDED BY DRAPER ADEN ASSOCIATES AND COUNTY WATER AND SEWER PLANS.
6. THE ENTIRE DEVELOPMENT HAS BEEN DELINEATED AS A RESOURCE MANAGEMENT AREA UNDER JAMES CITY COUNTY'S CHESAPEAKE BAY PRESERVATION ORDINANCE. ACCORDING TO NWI MAPS, THIS SITE CONTAINS NO WETLANDS, AND THERE ARE NO SLOPES GREATER THAN 25%.
7. VDOT IS NOT RESPONSIBLE FOR THE MAINTENANCE OF THE STORMWATER MANAGEMENT/BMP FACILITIES.
8. DUE TO FUTURE SIGHT DISTANCE PROBLEMS, NO BUSHES SHALL EXCEED 18" AND ALL TREES MUST BE TRIMMED AND LIMBED TO A MAXIMUM HEIGHT OF 6' WITHIN THE LINE OF SIGHT.

GENERAL CONSTRUCTION NOTES

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS IS BASED ON AVAILABLE RECORDS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCY IN THE INFORMATION SHOWN ON THESE PLANS. THE CONTRACTOR SHALL CONTACT MISS UTILITY AT 1-800-552-7001 PRIOR TO BEGINNING ANY EXCAVATION OR EARTHWORK. TEST PITS SHALL BE DUG BY HAND WHERE SHOWN ON THE PLANS AND AS IS REQUIRED BASED ON FIELD CONDITIONS.
2. CUT AND FILL SLOPES SHALL NOT EXCEED A SLOPE OF 2:1 (50 PERCENT GRADE).
3. ALL DISTURBED RIGHT-OF-WAY MONUMENTS ARE TO BE REPLACED BY A CERTIFIED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
4. BLASTING IS NOT ALLOWED WITHIN 25 FEET OF EXISTING UTILITIES.
5. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED ARE TO HAVE 4" OF TOP SOIL PLACED AND BE PERMANENTLY SEEDED AND MULCHED IN ACCORDANCE WITH THE SPECIFICATIONS.
6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE RELOCATION OF ALL TELEPHONE PEDESTALS WITHIN THE RIGHT OF WAY WITH THE TELEPHONE COMPANY, AT THE OWNERS EXPENSE.

DRAINAGE

1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO CURRENT VDOT STANDARDS AND SPECIFICATIONS.
2. ALL DRAINAGE STRUCTURES CALLED OUT ON THE PLANS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS.
3. WHERE STANDARD VDOT CAST-IN-PLACE DRAINAGE STRUCTURES ARE CALLED FOR ON THE PLANS, THE CONTRACTOR MAY SUBSTITUTE VDOT APPROVED PRECAST CONCRETE DRAINAGE STRUCTURES WHERE APPROPRIATE. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT ALL INVERT ELEVATIONS SHOWN ON THE PLANS CAN BE MET BY ANY PRECAST STRUCTURES USED ON THE PROJECT.
4. ALL STORM SEWER PIPE IS TO BE ASTM-C76 CLASS III REINFORCED CONCRETE PIPE UNLESS OTHERWISE NOTED ON THE PLANS.

ROADWAYS

1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO CURRENT VDOT STANDARDS AND SPECIFICATIONS.
2. EXTEND ALL STORM SEWERS FROM A STRUCTURE TO INTERCEPT AND CONTAIN SPRINGS AND SEASONAL WATER TABLE. ALL SPRINGS SHALL BE CAPPED WITH A VDOT STANDARD SB-1 UNIT.
3. WHERE PLANS CALL FOR MATCHING EXISTING PAVEMENT THE CONTRACTOR SHALL PROVIDE CUT JOINT AND/OR ASPHALT OVERLAY AS DIRECTED BY VDOT.
4. VDOT STANDARD STOP SIGNS ARE TO BE PROVIDED AT ALL STREET INTERSECTIONS AS SHOWN ON THE PLANS.
5. COUNTY STANDARD STREET SIGNS SHALL BE PROVIDED AT ALL STREET INTERSECTIONS AS SHOWN ON THE PLANS. THE SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH VDOT STANDARDS.
6. PAVEMENT STRIPING AND MARKING IS NOT REQUIRED.
7. A PRIME COAT MUST BE APPLIED TO THE ROAD BASE AGGREGATE PRIOR TO THE APPLICATION OF SM-2A (PRIME COAT RC-250, 0.30 GALLONS PER SQUARE YARD).
8. WHEN GRADES ARE GREATER THAN 3% OR LESS THAN 1% AND WATER STANDS IN THE DITCH OR THE DITCHES WILL NOT HOLD VEGETATION, THEN PAVED DITCHES SHALL BE INSTALLED.
9. CONTACT VDOT FOR SOIL AND AGGREGATE BASE INSPECTIONS AT LEAST 24 HOURS BEFORE THE PLACEMENT OF AGGREGATE BASE AND PAVEMENT, RESPECTIVELY.

WATER SYSTEM

1. ALL COMPONENTS OF THE WATER DISTRIBUTION SYSTEM SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE LATEST EDITION OF THE JAMES CITY SERVICE AUTHORITY STANDARDS AND SPECIFICATIONS FOR WATER DISTRIBUTION SYSTEMS AND THE VIRGINIA WATERWORKS REGULATIONS.
2. THE DEVELOPER'S REPRESENTATIVE SHALL SUBMIT A LIST OF MATERIALS FOR APPROVAL TO THE JAMES CITY SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. ANY CHANGES TO THE FINAL PLANS SHALL BE APPROVED BY THE JAMES CITY SERVICE AUTHORITY AND SHALL BE ACCURATELY INDICATED ON THE AS-BUILT DRAWINGS.
4. THE WATER MAIN CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION. HE SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION. HE SHALL ALSO NOTIFY "MISS UTILITY" PRIOR TO PERFORMING ANY UNDERGROUND EXCAVATION.

SANITARY SEWER SYSTEM

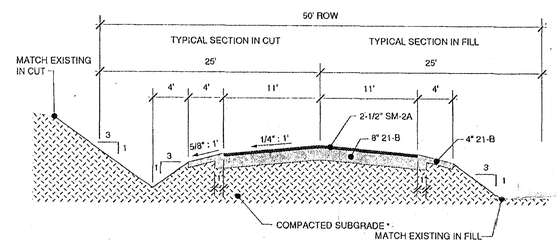
1. ALL MATERIALS AND CONSTRUCTION SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE JAMES CITY SERVICE AUTHORITY STANDARDS AND SPECIFICATIONS FOR WATER DISTRIBUTION SYSTEMS. TESTING SHALL BE IN ACCORDANCE WITH SECTION 1.63 OF THE JAMES CITY SERVICE AUTHORITY STANDARDS AND SPECIFICATIONS FOR SANITARY SEWER SYSTEMS.
2. THE DEVELOPER'S REPRESENTATIVE SHALL SUBMIT A LIST OF MATERIALS FOR APPROVAL TO THE JAMES CITY SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. ANY CHANGES TO THE FINAL PLANS SHALL BE APPROVED BY THE JAMES CITY SERVICE AUTHORITY AND SHALL BE ACCURATELY INDICATED ON THE AS-BUILT DRAWINGS.
4. ALL RESET MANHOLE RIMS ARE TO CONFORM TO JCSA STANDARDS AND SPECIFICATIONS.

STORMWATER MANAGEMENT AND BMP

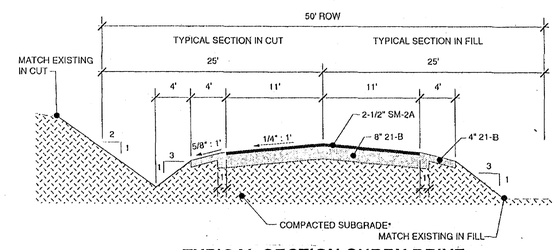
1. STORMWATER MANAGEMENT AND STORMWATER QUALITY (BMP) FOR THE PROJECT IS BEING PROVIDED BY TWO STORMWATER MANAGEMENT/BMP FACILITIES. THESE FACILITIES HAVE BEEN DESIGNED BY JAMES CITY COUNTY.

STREET LIGHTS

1. THE OWNER WILL CONTRACT WITH VIRGINIA POWER DIRECTLY TO INSTALL ALL STREET LIGHTS. THE STREET LIGHTS ARE NOT PART OF THIS CONTRACT.

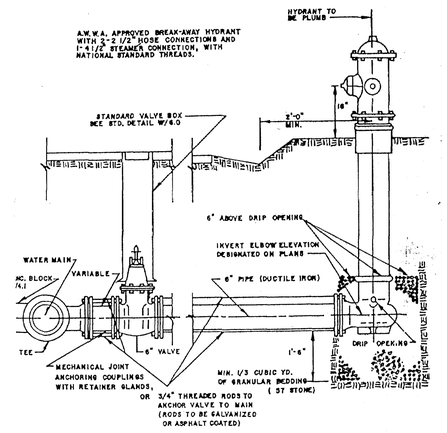


TYPICAL SECTION CLARK LANE
NO SCALE



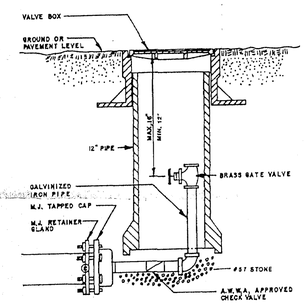
TYPICAL SECTION CURRY DRIVE
NO SCALE

*NOTE IT IS ANTICIPATED THAT ONE (1) TO FIVE (5) FEET OF LOOSE SANDS AND SOFT CLAYS WILL HAVE TO BE REMOVED TO OBTAIN SUITABLE SUBGRADE MATERIAL. THE OWNER RETAINED GEOTECHNICAL ENGINEER WILL MAKE THE FINAL DECISION ON SITE. FILL FOR SUBGRADE IS TO BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698, STANDARD PROCTOR.



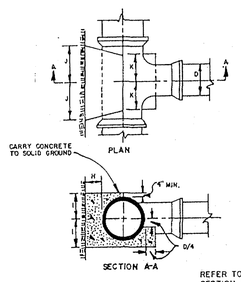
NOTE:
HYDRANTS TO BE LOCATED AS APPROVED BY THE FIRE DEPT.

JAMES CITY SERVICE AUTHORITY	
FIRE HYDRANT SETTING	
DWG. NO. W 11.0	SCALE : NONE
DWN. BY : EMG	DATE : 7-1-89



NOTE :
1. 2" MATERIAL TO BE USED ON ALL MAINS

JAMES CITY SERVICE AUTHORITY	
DEAD-END BLOW-OFF	
DWG. NO. W 9.0	SCALE : NONE
DWN. BY : EMG	DATE : 7-1-89

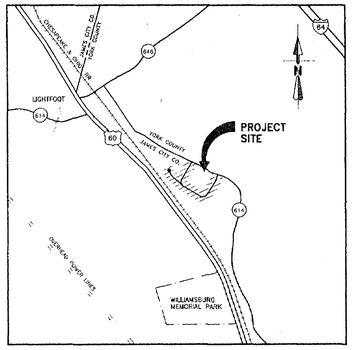


REFER TO JCSA SPECIFICATIONS SECTION 1.41 FOR RETAINER GLAND REQUIREMENTS.

	SIZE OF BRANCH								
D	6"	8"	10"	12"	16"	20"	24"	30"	36"
H	8"	9"	10"	1'-0"	1'-2"	1'-4"	1'-6"	1'-9"	2'-0"
I	8"	10"	1'-0"	1'-3"	1'-8"	2'-1"	2'-6"	3'-1"	3'-9"
J	6"	8"	1'-0"	1'-0"	1'-4"	1'-8"	2'-0"	2'-6"	3'-0"
K	6"	8"	8"	8"	10"	1'-2"	1'-4"	1'-6"	1'-10"

1. ALL CONCRETE TO BE 3000 P.S.I.
2. BUTTRESS DIMENSIONS SHOWN ARE MINIMUM. DIMENSIONS ARE BASED UPON SOIL BEARING PRESSURE OF 3000 P.S.F. AND STATIC WATER PRESSURE OF 150 P.S.I. WHEN PRESSURE EXCEEDS 150 PSI, OR WHERE SOIL BEARING PRESSURE IS LESS THAN 3000 P.S.F. SPECIAL BUTTRESS DESIGN IS REQUIRED.

JAMES CITY SERVICE AUTHORITY	
BUTTRESS FOR TEES	
DWG. NO. 4.1	SCALE : NONE
DWN. BY : EMG	DATE : 7-1-89



VICINITY MAP
NOT TO SCALE

LEGEND:

EXISTING FEATURES:

DROP INLET & STORM SEWER
STORM SEWER MANHOLE
SANITARY SEWER & MANHOLE
CLEANOUT
WATERLINE
WATER VALVE
WATER METER
FIRE HYDRANT
WELL (POTABLE)
GAS LINE
GAS VALVE
TELEPHONE PEDESTAL
POWER POLE
LIGHT POLE / STREET LAMP
CONTOUR LINE
TREE LINE
OVERHEAD POWER

PROPOSED FEATURES:

DROP INLET & STORM SEWER
STORM SEWER MANHOLE
SANITARY SEWER & MANHOLE
CLEANOUT
WATERLINE
WATER VALVE
WATER METER
CHECK VALVE
FIRE HYDRANT
CONTOUR LINE
LIGHT POLE
LIMITS OF CLEARING & GRADING
CHECK DAM
DIVERSION DIKE
CHECK DAM
INLET PROTECTION
SEDIMENT TRAP
SILT FENCE
OUTLET PROTECTION
CULVERT INLET PROTECTION

COMMONWEALTH OF VIRGINIA
STEVEN P. HERZOG
No. 020106
9/16/94
PROFESSIONAL ENGINEER

1086COV.DWG

Draper Aden Associates
CONSULTING ENGINEERS
BLACKSBURG, VIRGINIA – RICHMOND, VIRGINIA – NASHVILLE, TENNESSEE

DESIGNED:	GVS
DRAWN:	GFD
CHECKED:	SPH
DATE:	6-1-94

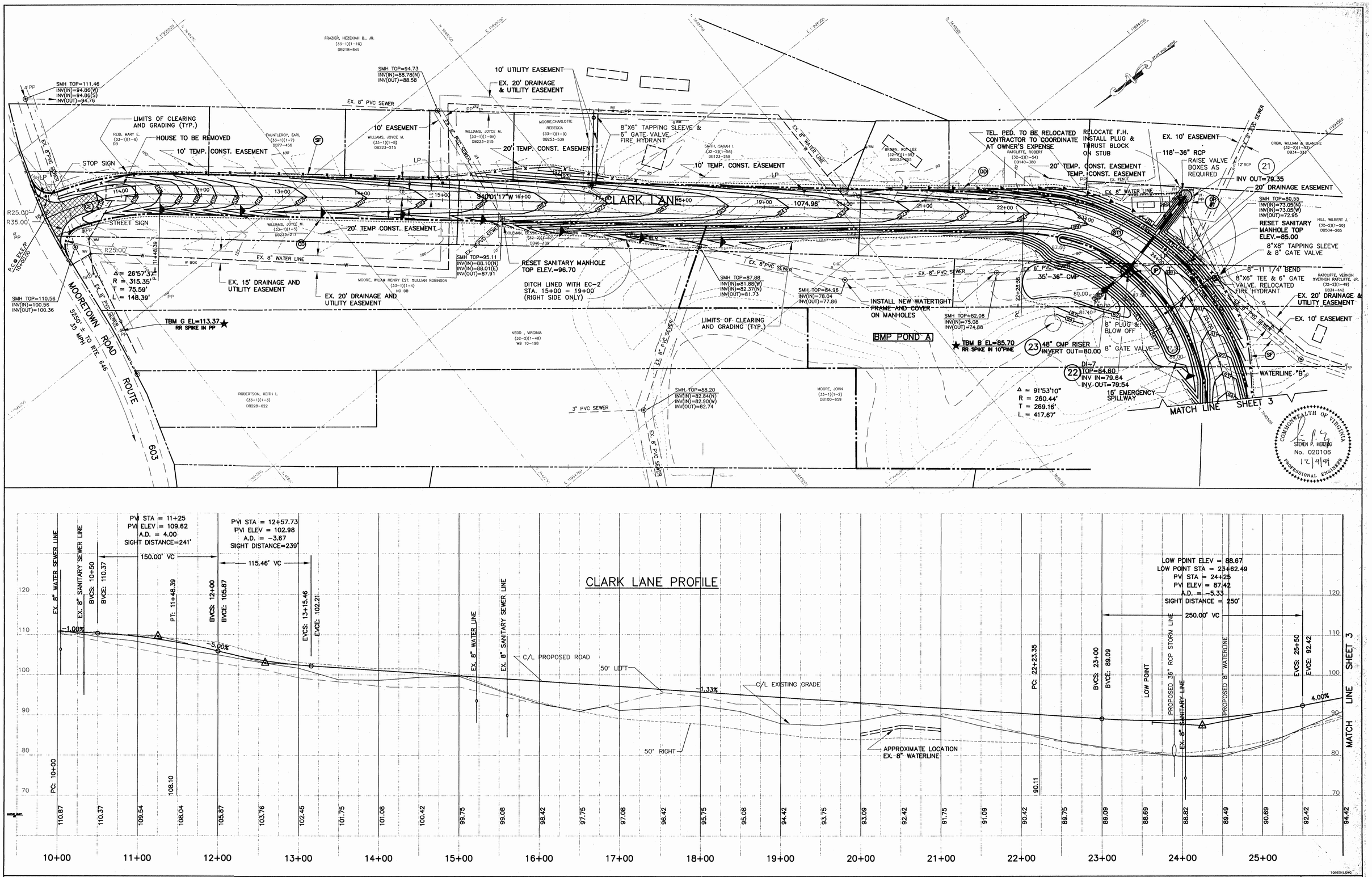
COVER SHEET
MOORETOWN ROAD NEIGHBORHOOD IMPROVEMENTS
JAMES CITY COUNTY, VIRGINIA

REVISIONS:
9-16-94 PER COUNTY COMMENT
11-14-94 PER COUNTY COMMENT
12-9-94 PER COUNTY COMMENTS

SCALE: AS NOTED

PLAN NO. T-21086

SHEET 1 OF 7



Draper Aden Associates
CONSULTING ENGINEERS
BLACKSBURG, VIRGINIA – RICHMOND, VIRGINIA – NASHVILLE, TENNESSEE

DESIGNED:	GVS
DRAWN:	GFD
CHECKED:	SPH
DATE:	6-1-94

PLAN AND PROFILE CLARK LANE (STA. 10+00 TO 26+00)

MOORETOWN ROAD NEIGHBORHOOD IMPROVEMENTS
JAMES CITY COUNTY, VIRGINIA

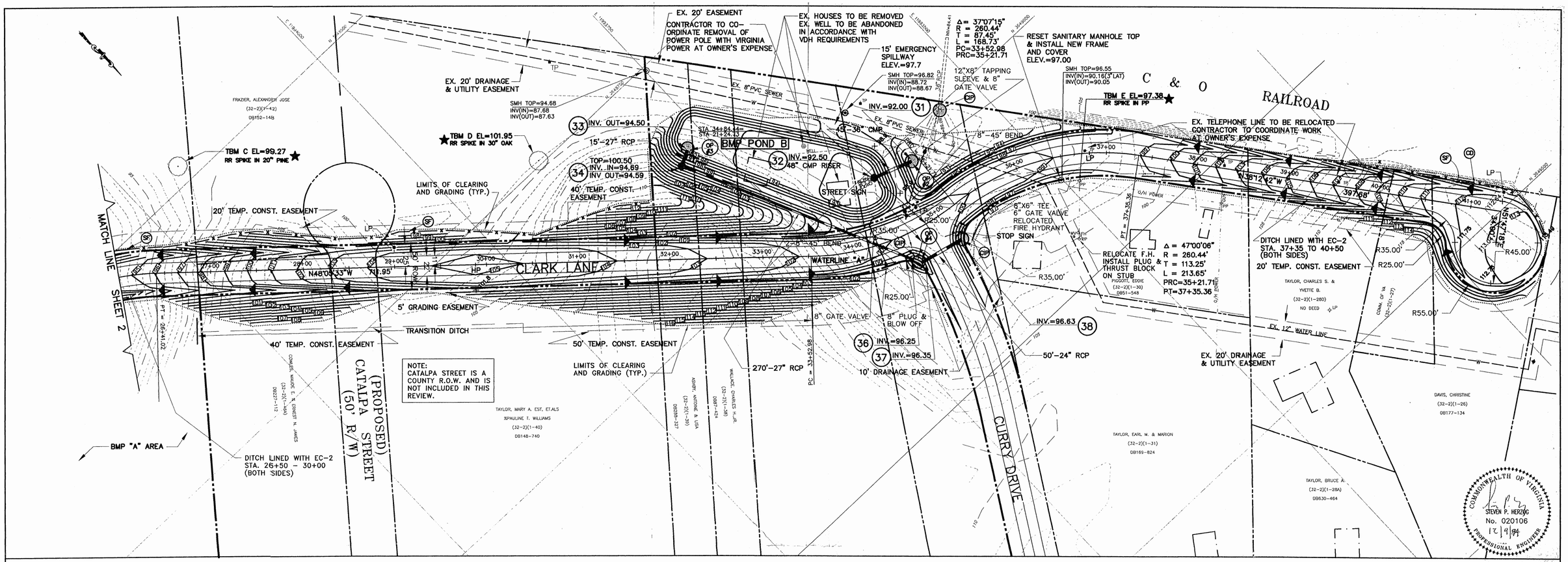
REVISIONS:
9-16-94 PER COUNTY COMMENTS
11-14-94 PER COUNTY COMMENTS
12-8-94 PER COUNTY COMMENTS

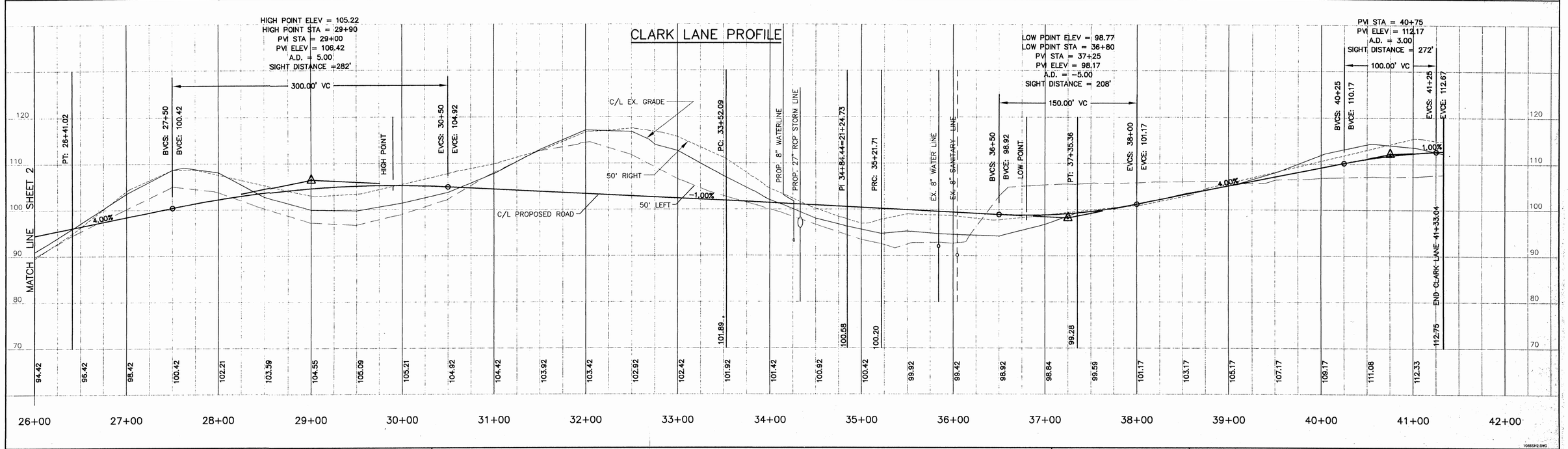
SCALE: HORIZ.: 1"=50'
VERT: 1"=10'

PLAN NO. T-21086

SHEET 2 OF 7

PC126_JCC_148_CLARK_LANE_BMP_A - 004





Draper Aden Associates
CONSULTING ENGINEERS
BLACKSBURG, VIRGINIA – RICHMOND, VIRGINIA – NASHVILLE, TENNESSEE

DESIGNED:	GVS
DRAWN:	GFD
CHECKED:	SPH
DATE:	6-1-94

PLAN AND PROFILE CLARK LANE (STA. 26+00 TO 41+33)

MOORETOWN ROAD NEIGHBORHOOD IMPROVEMENTS

JAMES CITY COUNTY, VIRGINIA

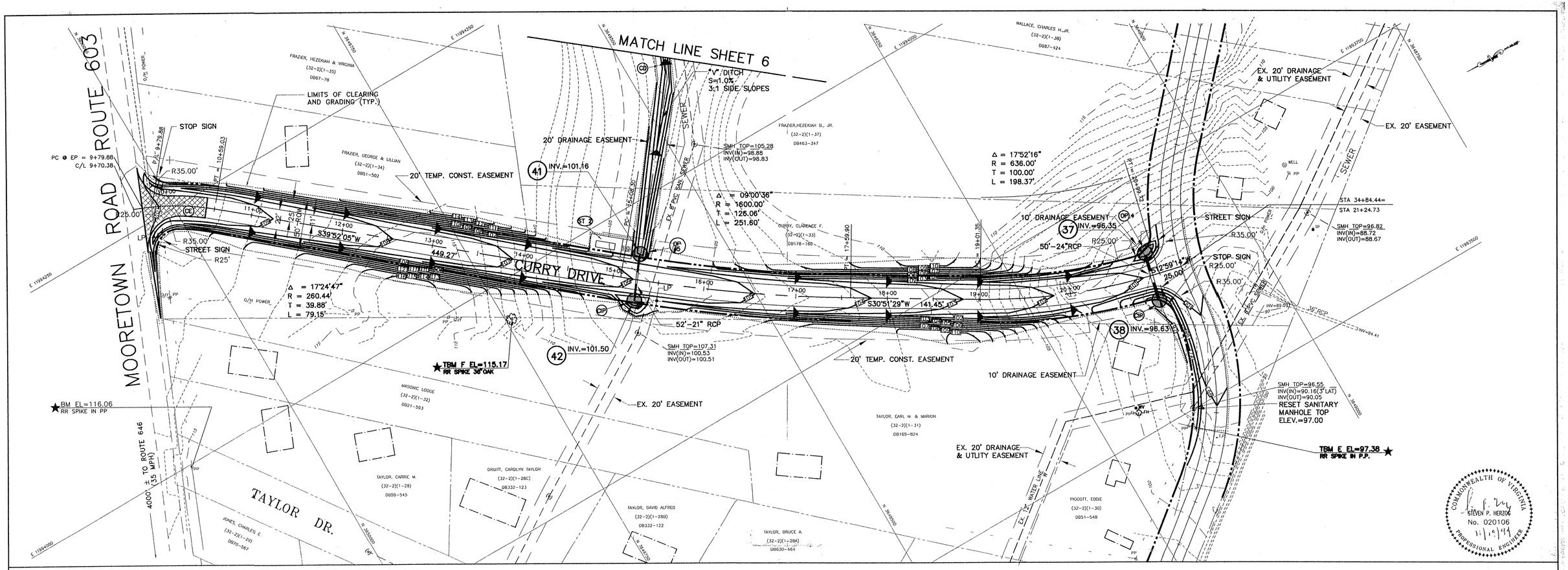
REVISIONS:
9-16-94 PER COUNTY COMMENT
11-14-94 PER COUNTY COMMENT
12-8-94 PER COUNTY COMMENT

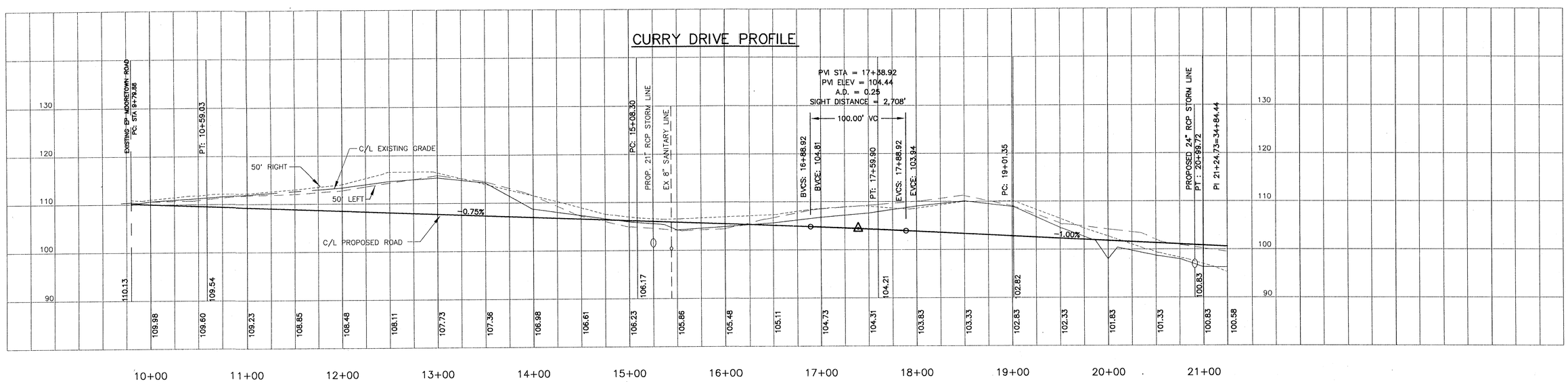
SCALE: HORIZ.: 1"=50'
VERT.: 1"=10'

PLAN NO. T-21086

SHEET 3 OF 7

PC126_JCC_148_CLARK_LANE_BMP_A - 005





Draper Aden Associates
CONSULTING ENGINEERS
BLACKSBURG, VIRGINIA – RICHMOND, VIRGINIA – NASHVILLE, TENNESSEE

DESIGNED:	GVS
DRAWN:	GFD
CHECKED:	SPH
DATE:	6-1-94

PLAN AND PROFILE CURRY DRIVE (STA. 9+79 TO 21+24)

MOORETOWN ROAD NEIHBORHOOD IMPROVEMENTS
JAMES CITY COUNTY, VIRGINIA

REVISIONS:
9-16-94 PER COUNTY COMMENT
11-14-94 PER COUNTY COMMENT
12-8-94 PER COUNTY COMMENTS

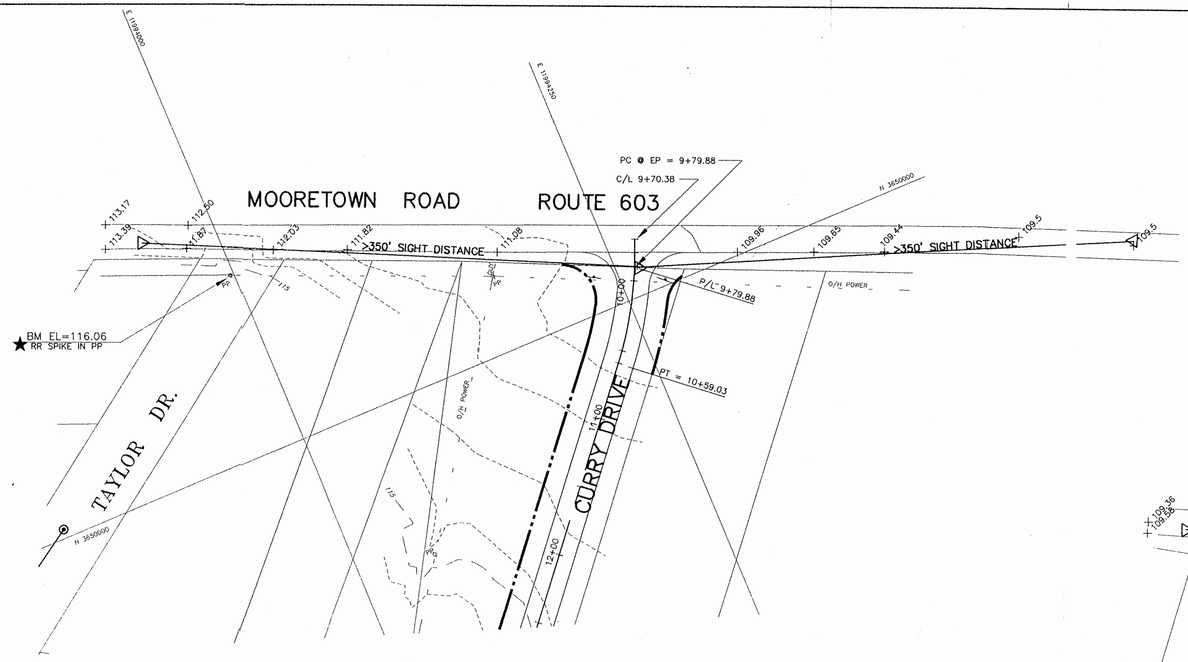
SCALE: HORIZ.: 1"=50'
VERT.: 1"=10'

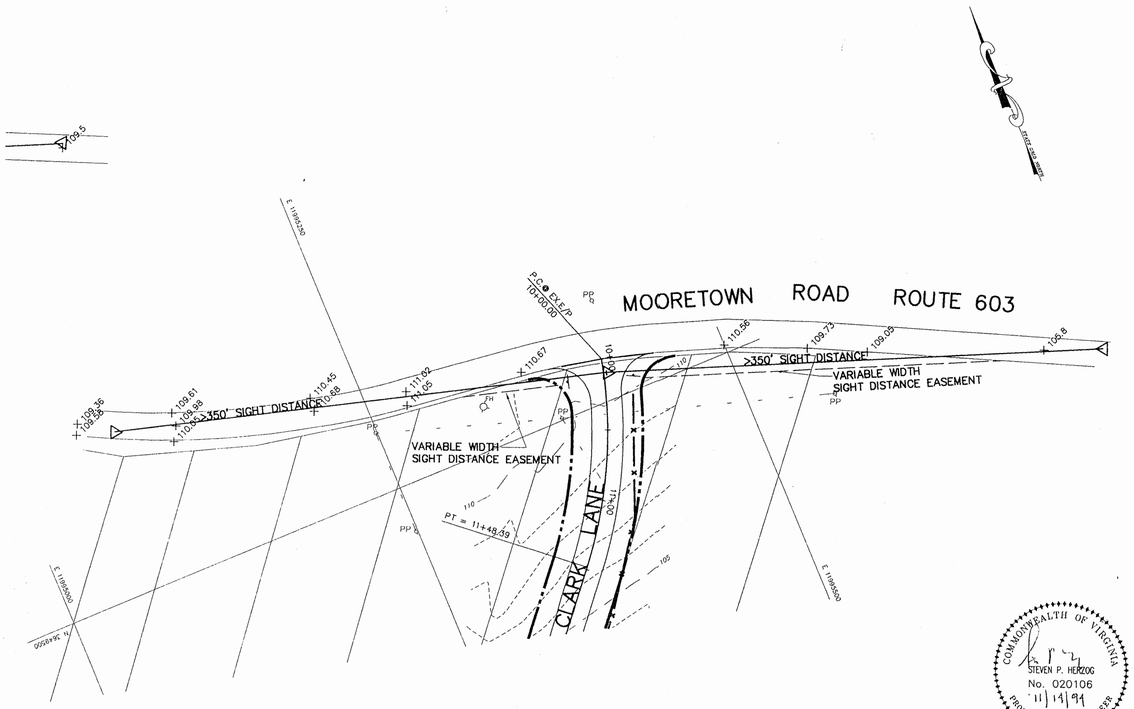
PLAN NO. T-21086

SHEET 4 OF 7

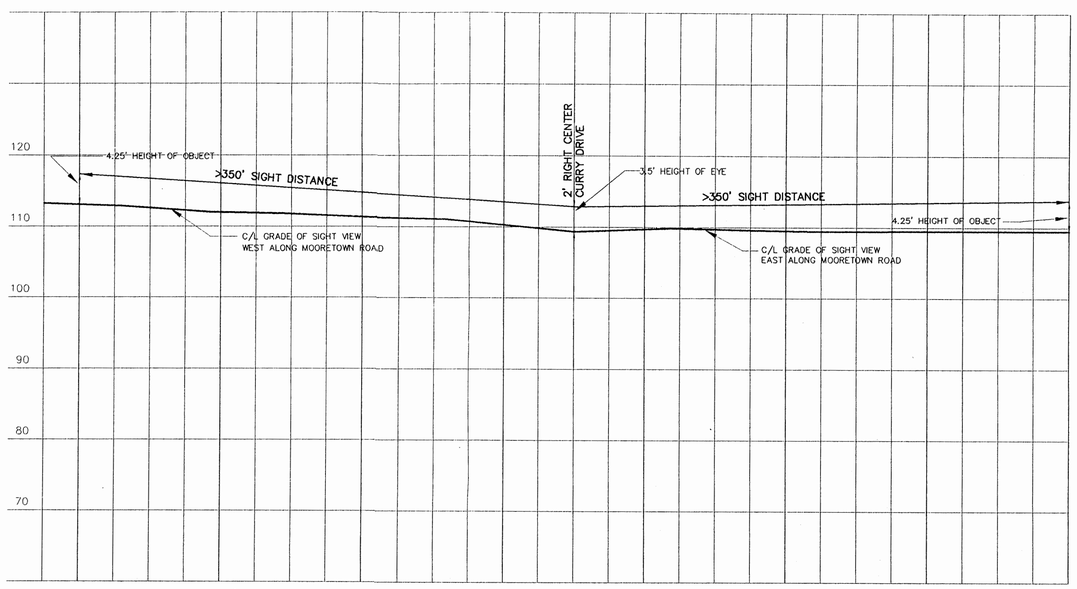
10665H3.DWG

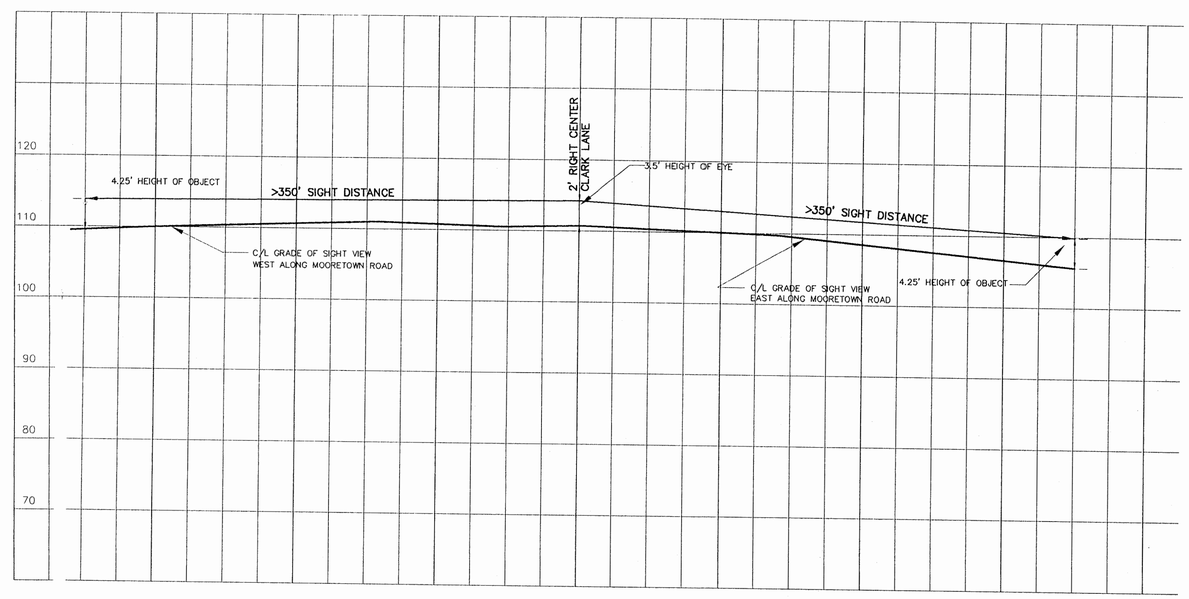
PC126_JCC_148_CLARK_LANE_BMP_A - 006





COMMONWEALTH OF VIRGINIA
STEVEN P. HERZOG
No. 020106
11/14/94
PROFESSIONAL ENGINEER





Draper Aden Associates
CONSULTING ENGINEERS
BLACKSBURG, VIRGINIA – RICHMOND, VIRGINIA – NASHVILLE, TENNESSEE

DESIGNED:	GS
DRAWN:	GFD
CHECKED:	SPH
DATE:	6-1-94

PLAN AND PROFILE SIGHT DISTANCE AT MOORETOWN ENTRANCES

MOORETOWN ROAD NEIGHBORHOOD IMPROVEMENTS
JAMES CITY COUNTY, VIRGINIA

REVISIONS:
9-16-94 PER COUNTY COMMENT
11-14-94 PER COUNTY COMMENT
12-9-94 PER COUNTY COMMENTS

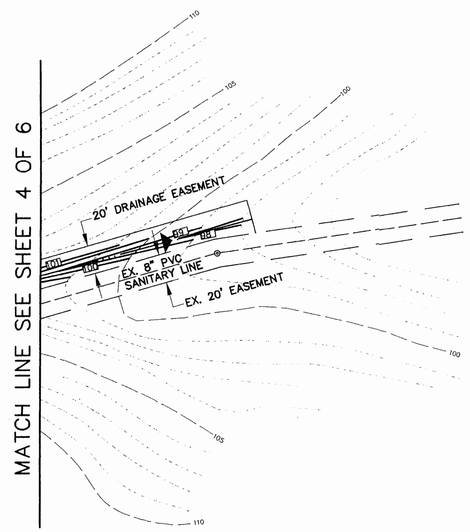
SCALE: HORIZ.: 1"=50'
VERT: 1"=10'

PLAN NO. T-21086

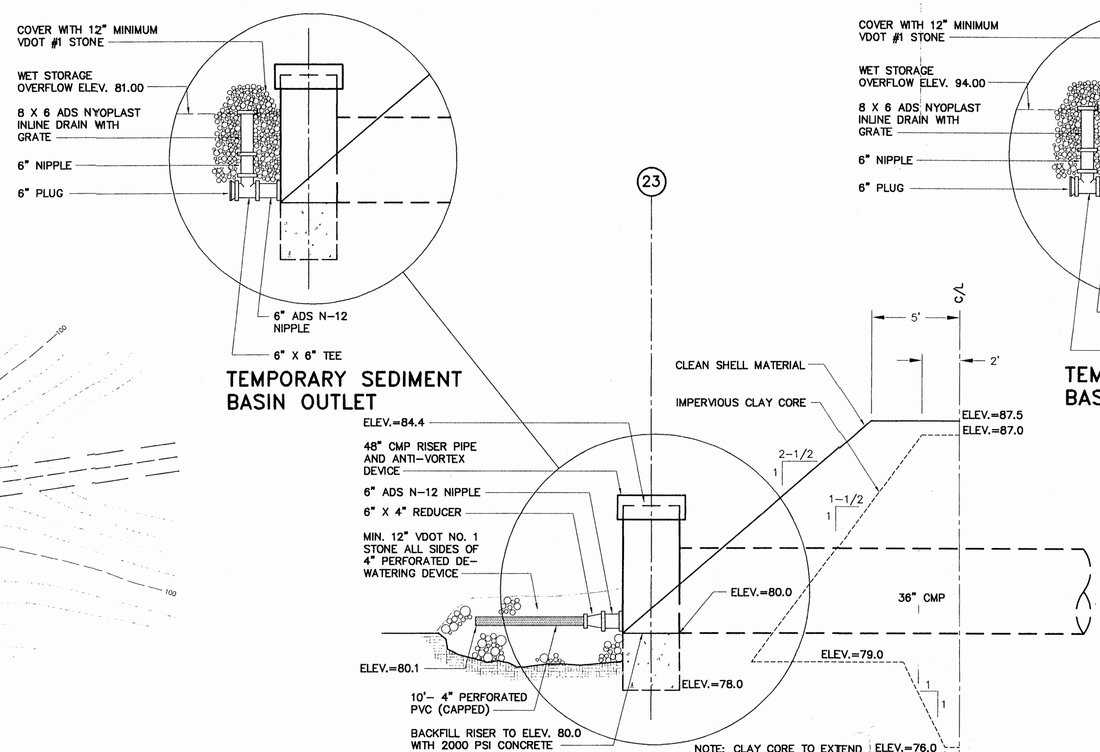
1086502.DWG

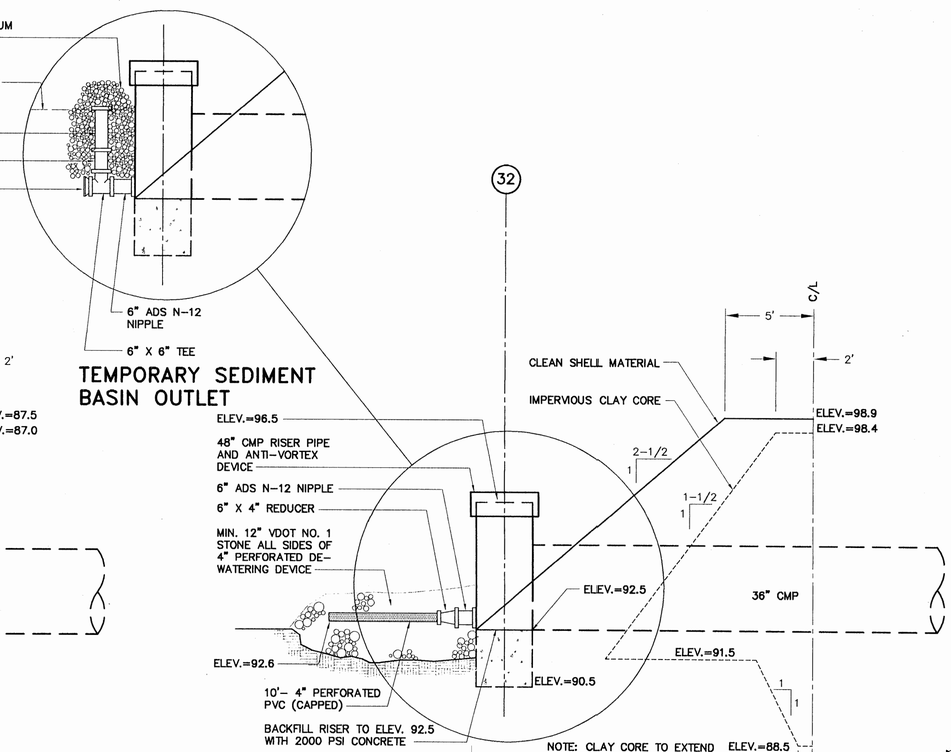
SHEET 5 OF 7

PC126_JCC_148_CLARK_LANE_BMP_A - 007

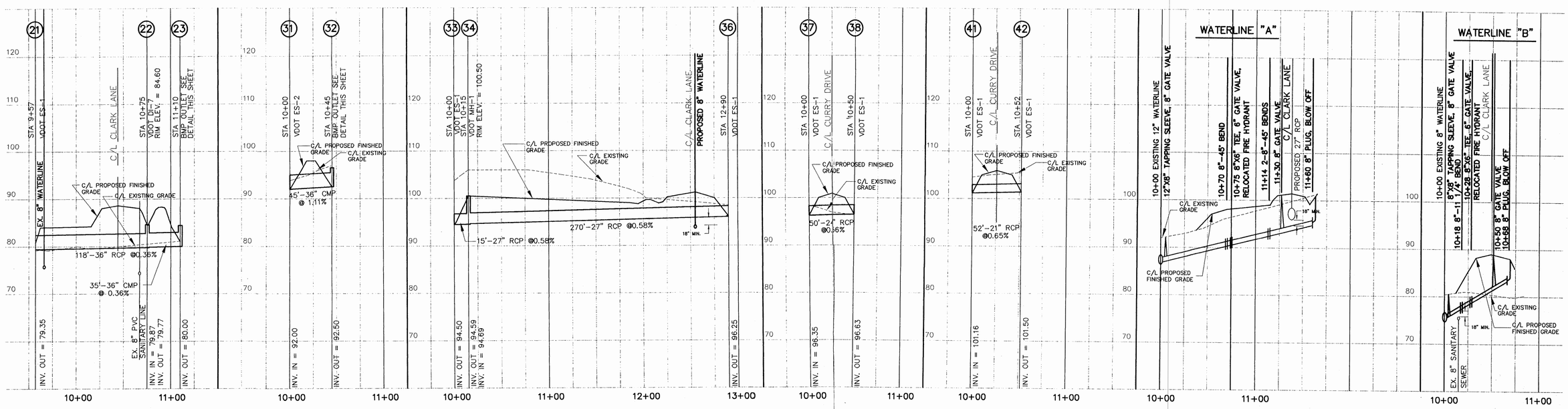


OFFSITE DRAINAGE CHANNEL





COMMONWEALTH OF VIRGINIA
STEVEN P. HERZOG
No. 020106
12/9/99
PROFESSIONAL ENGINEER



Draper Aden Associates
CONSULTING ENGINEERS
BLACKSBURG, VIRGINIA – RICHMOND, VIRGINIA – NASHVILLE, TENNESSEE

DESIGNED:	GVS
DRAWN:	GFD
CHECKED:	SPH
DATE:	6-1-94

STORM SEWER AND WATERLINE PROFILES AND BMP DETAILS

MOORETOWN ROAD NEIGHBORHOOD IMPROVEMENTS
JAMES CITY COUNTY, VIRGINIA

REVISIONS:
9-16-94 PER COUNTY COMMENT
11-14-94 PER COUNTY COMMENT
12-8-94 PER COUNTY COMMENT

SCALE: HORIZ.:1"=50' VERT.:1"=10'

PLAN NO. T-21086

SHEET 6 OF 7

1065FRD

PC126_JCC_148_CLARK_LANE_BMP_A - 008

EROSION AND SEDIMENT CONTROL NOTES

The purpose of the erosion control measures shown on these plans shall be to preclude the transport of all waterborne sediments resulting from construction activities from entering onto adjacent properties or State waters. If field inspection reveals the inadequacy of the plan to confine sediment to the project site, appropriate modifications will be made to correct any plan deficiencies. In addition to these notes, all provisions of the Virginia Erosion and Sediment Control Regulations shall apply to this project.

1. All erosion and sediment control measures shall be installed and maintained in accordance with the "Virginia Erosion and Sediment Control Handbook." The Contractor shall be thoroughly familiar with all applicable measures contained therein which may be pertinent to this project. All standards and specifications refered to in these notes are from the "Virginia Erosion and Sediment Control Handbook".

2. All points of construction ingress and egress shall be protected by a temporary construction entrance to prevent tracking of mud onto public right-of-ways. An entrance permit from the Virginia Department of Transportation is required prior to any construction activities within State right-of-ways.

3. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment on-site must be constructed as a first step in grading and be made functional before upslope land disturbance takes place. Earthen structures such as dams, dikes, and diversions must be seeded and mulched immediately after installation. An on-site preconstruction meeting will be held between the Office of Code Compliance and the Contractor to identify those measures to be initially installed.

4. Maintenance of erosion and sediment control measures shall include the repair of measures damaged by any subcontractor including those of the public utility companies. At the preconstruction meeting, the Contractor will supply Code Compliance with the name of the individual who will be responsible for ensuring maintenance of installed measures on a daily basis.

5. Surface flows over cut and fill slopes shall be controlled by either redirecting flows from transversing the slopes or by installing mechanical devices to safely lower water downslope without causing erosion. A temporary fill diversion (Standard and Specification 1.16) shall be installed prior to the end of each working day.

6. Sediment control measures may require minor field adjustments at the time of construction to insure their intended purpose is accomplished. Office of Code Compliance approval will be required for other deviations from the approved plans.

7. The Contractor shall place soil stockpiles at the locations shown on this plan or as directed by the Engineer. Soil stockpiles shall be stabilized or protected with sediment trapping measures.

8. The Contractor shall complete drainage facilities within 30 days following completion of rough grading at any point within the project. The installation of drainage facilities shall take precedence over all underground utilities. Outfall ditches from drainage structures shall be stabilized immediately after construction of same. This includes installation of erosion control stone where required. Any drainage outfalls required for a street must be completed before street grading begins.

9. Permanent or temporary soil stabilization must be applied to all denuded areas within 7 days after final grade is reached on any portion of the site. Soil stabilization must also be applied to denuded areas which may not be at final grade but will remain dormant (undisturbed) for longer than 30 days. Soil stabilization measures include vegetative establishment, mulching and the early application of gravel base material on areas to be paved.

10. No more than 300 feet of sanitary sewer, storm sewer, waterlines, or underground utility lines are to be open at one time. Following installation of any portion of these items, all disturbed areas are to be immediately stabilized (i.e. the same day).

11. If disturbed area stabilization is to be accomplished during the months of December, January, or February, stabilization shall consist of mulching in accordance with Specification 1.75. Seeding will then take place as soon as the season permits.

12. The terms Seeding, Final Vegetative Cover, or Stabilization, on this plan shall mean the successful germination and establishment of a stable grass cover from a properly prepared seedbed containing the specified amounts of seed, lime, and fertilizer in accordance with Specification 1.66, Permanent Seeding. Irrigation shall be required as is necessary to ensure establishment of grass cover.

13. All slopes steeper than 3:1 shall require the use of erosion control blankets such as Excelsior Blankets to aid in the establishment of a vegetative cover. Installation shall be in accordance with Specification 1.75, Mulching and Manufacturer's instructions.

14. Inlet protection in accordance with Specification 1.08 shall be provided for all storm drain inlets as soon as practical following the construction of same.

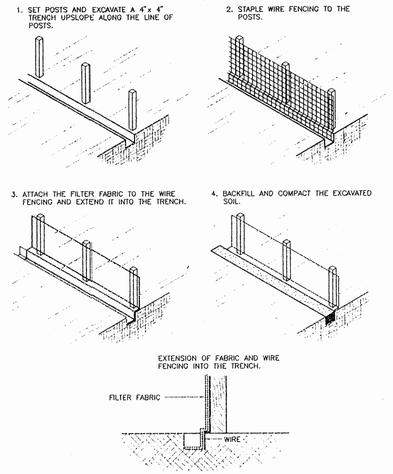
15. Temporary liners, such as polyethylene sheets, shall be provided for all paved ditches until the permanent concrete liner is installed.

16 Paved ditches shall be required wherever erosion is evident. Particular attention shall be paid to those areas where grades exceed 3 percent.

17. Temporary erosion control measures are not to be removed until all disturbed areas are stabilized. After stabilization is complete, all measures shall be removed within 30 days. Trapped sediment shall be spread and seeded.

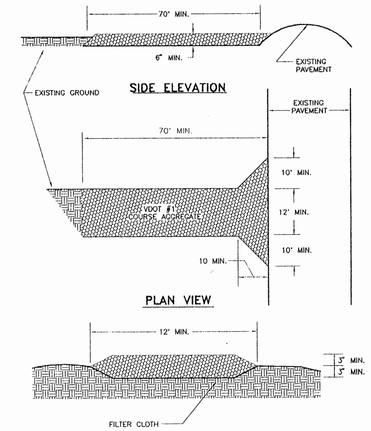
18. Off-site waste or borrow areas shall be approved by the Office of Code Compliance prior to the import of any borrow or export of any waste to to from the project site.

19. All paved and/or piped outfalls will be constructed before road grading and utility installation begins.



CONSTRUCTION OF A SILT FENCE

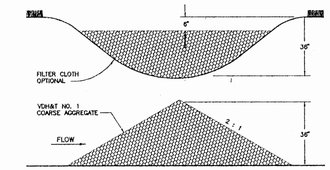
NOT TO SCALE



NOTE: THE CONTRACTOR SHALL KEEP THE EXISTING ROADS FREE OF SOIL AND DEBRIS.

GRAVEL CONSTRUCTION ENTRANCE

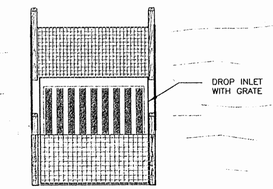
NOT TO SCALE

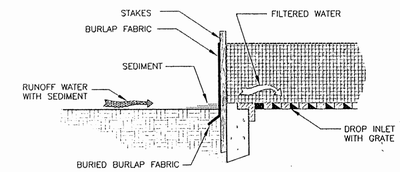


2 ACRES OR LESS OF DRAINAGE AREA

ROCK CHECK DAM

NOT TO SCALE



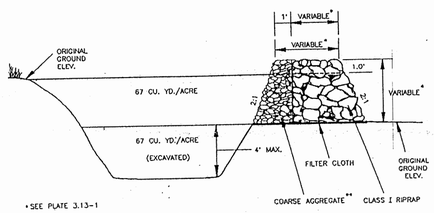


SPECIFIC APPLICATION

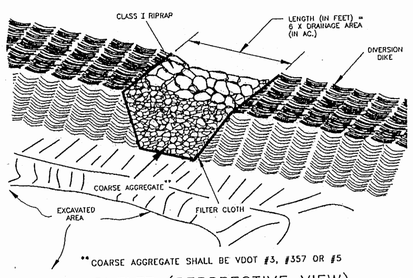
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5%) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING 0.5 CFS) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

INLET PROTECTION

NOT TO SCALE



CROSS SECTION OF OUTLET

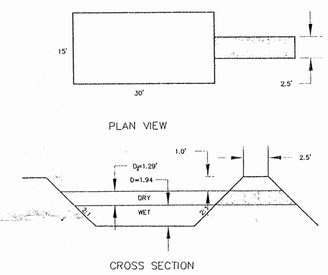


**COARSE AGGREGATE SHALL BE VDOT #3, #357 OR #5

OUTLET (PERSPECTIVE VIEW)

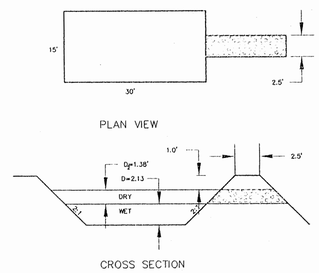
TEMPORARY SEDIMENT TRAP

NOT TO SCALE



SEDIMENT TRAP NO. 1

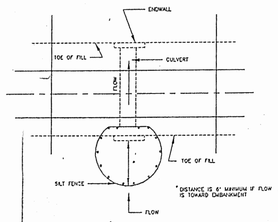
NOT TO SCALE



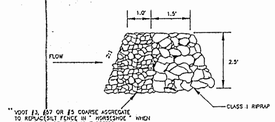
SEDIMENT TRAP NO. 2

NOT TO SCALE

SILT FENCE CULVERT INLET PROTECTION



*OPTIONAL STONE COMBINATION***

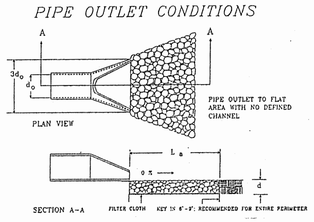


** VDOT #1, #57 OR #3 COARSE AGGREGATE TO REPLACE SILT FENCE IN "OPTIONAL" USE WHEN HIGH VELOCITY FLOW IS EXPECTED

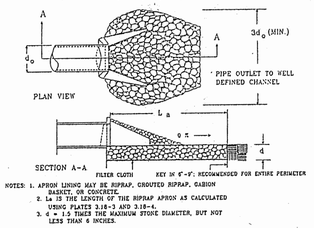
CULVERT INLET PROTECTION

NOT TO SCALE

PIPE OUTLET CONDITIONS



DETAIL TYPE #1



NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18-3 AND 3.18-4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

DETAIL TYPE #2

OUTLET PROTECTION

NOT TO SCALE

OUTLET PROTECTION	LENGTH La	WIDTH W	d(50)	DETAIL #
1	20'	23'	0.7'	1
2	20'	23'	0.7'	1
3	12'	14.25'	0.5'	1
4	10'		0.5'	2
5	9'		0.5'	2

COMMONWEALTH OF VIRGINIA
STEVEN P. HERZOG
No. 020106
9/16/94
PROFESSIONAL ENGINEER

10860GET.DWG

Draper Aden Associates
CONSULTING ENGINEERS
BLACKSBURG, VIRGINIA – RICHMOND, VIRGINIA – NASHVILLE, TENNESSEE

DESIGNED: GVS
DRAWN: GFD
CHECKED: SPH
DATE: 6-1-94

DETAILS
MOORETOWN ROAD NEIGHBORHOOD IMPROVEMENTS
JAMES CITY COUNTY, VIRGINIA

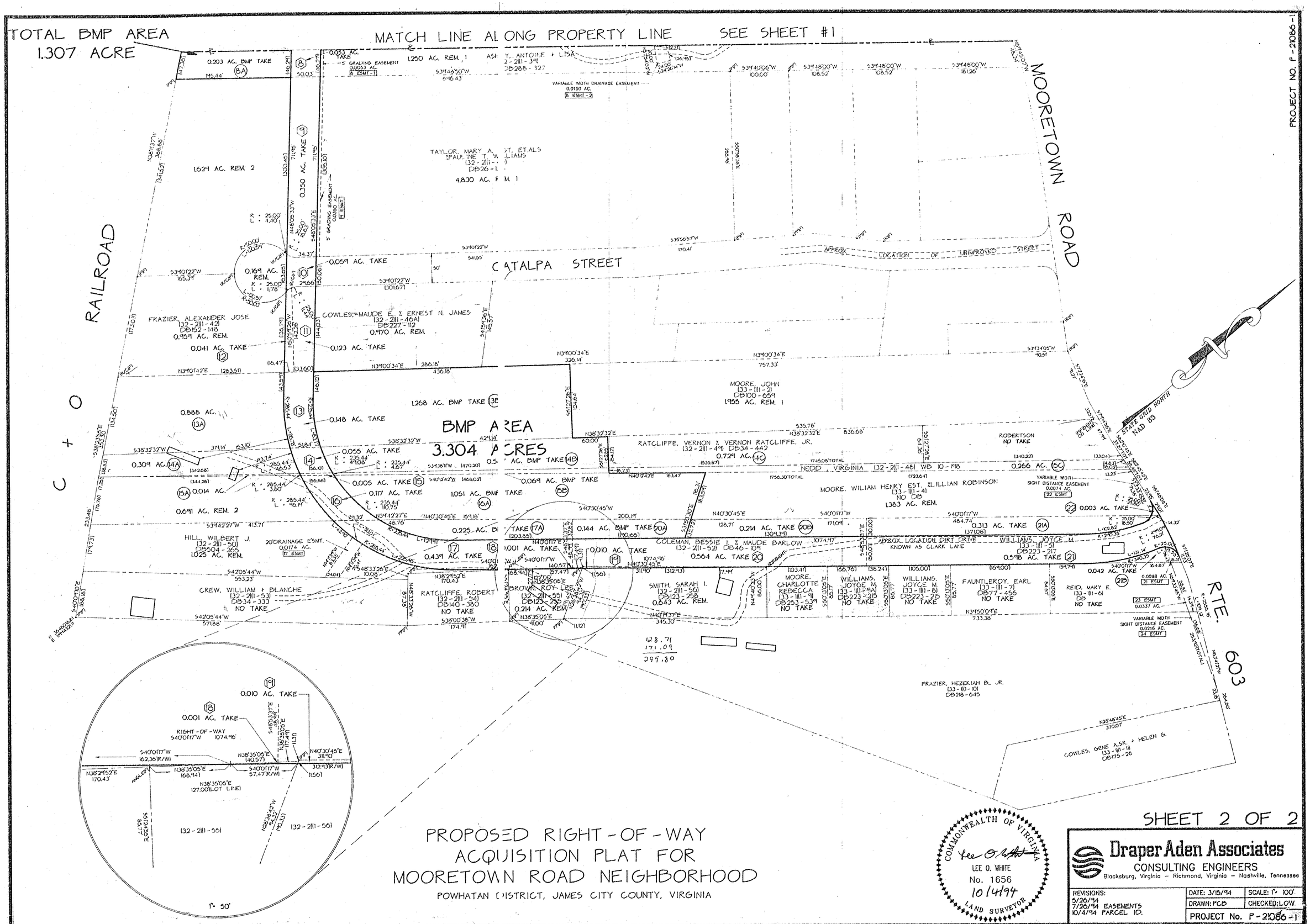
REVISIONS:
9-16-94 PER COUNTY COMMENT
11-14-94 PER COUNTY COMMENT
12-8-94 PER COUNTY COMMENTS

SCALE: AS NOTED

PLAN NO. T-21086

SHEET 7 OF 7

PC126_JCC_148_CLARK_LANE_BMP_A - 009



PROPOSED RIGHT-OF-WAY ACQUISITION PLAT FOR MOORETOWN ROAD NEIGHBORHOOD

POWHATAN DISTRICT, JAMES CITY COUNTY, VIRGINIA

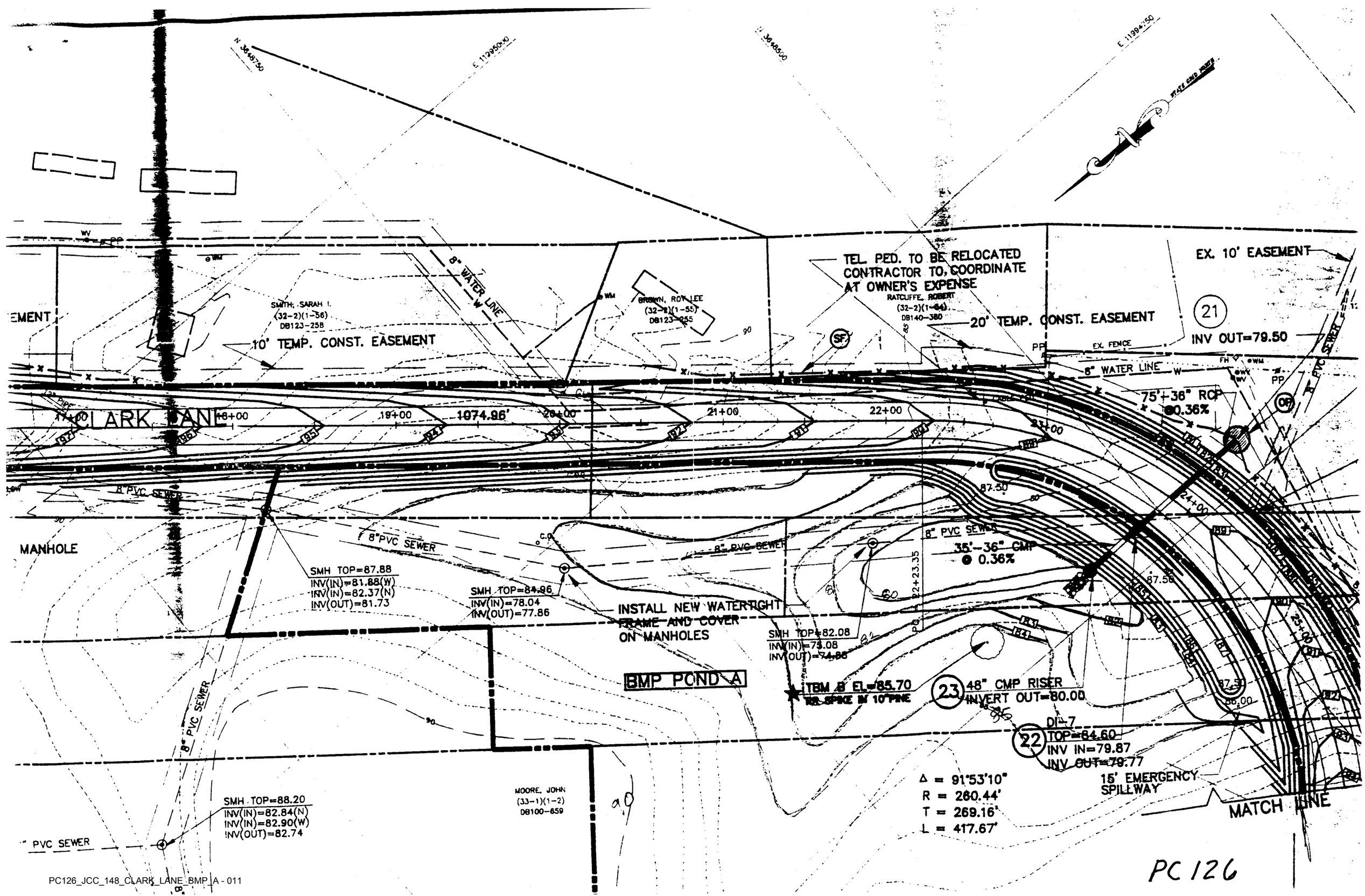
SHEET 2 OF 2

Draper Aden Associates
CONSULTING ENGINEERS
Blacksburg, Virginia – Richmond, Virginia – Nashville, Tennessee

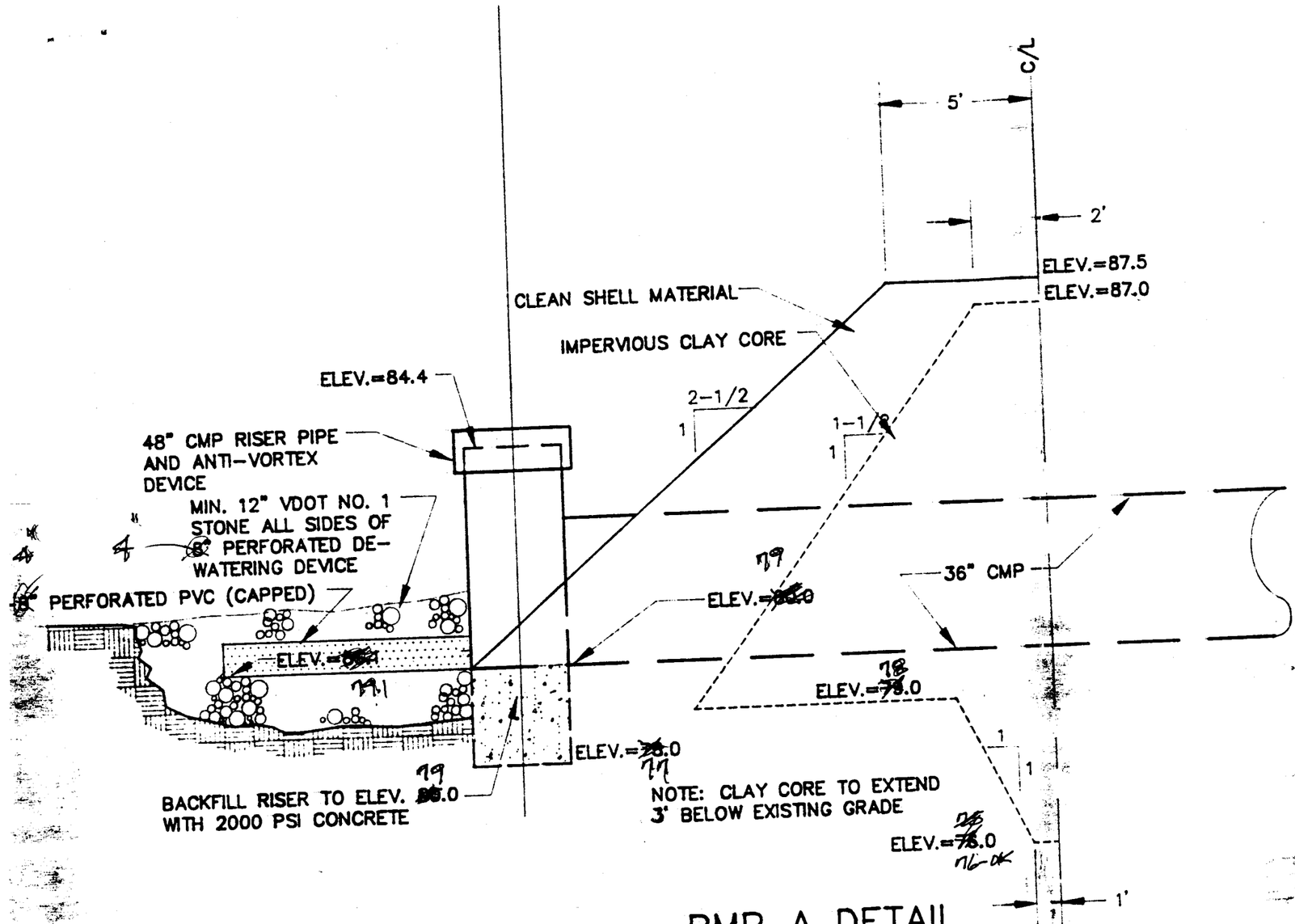
REVISIONS: 5/26/94 7/26/94 EASEMENTS 10/4/94 PARCEL ID.	DATE: 3/15/94	SCALE: 1" = 100'
	DRAWN: PCB	CHECKED: LOW
	PROJECT No. P-2086-1	

PC 126

PC126_JCC_148_CLARK_LANE_BMP_A - 010

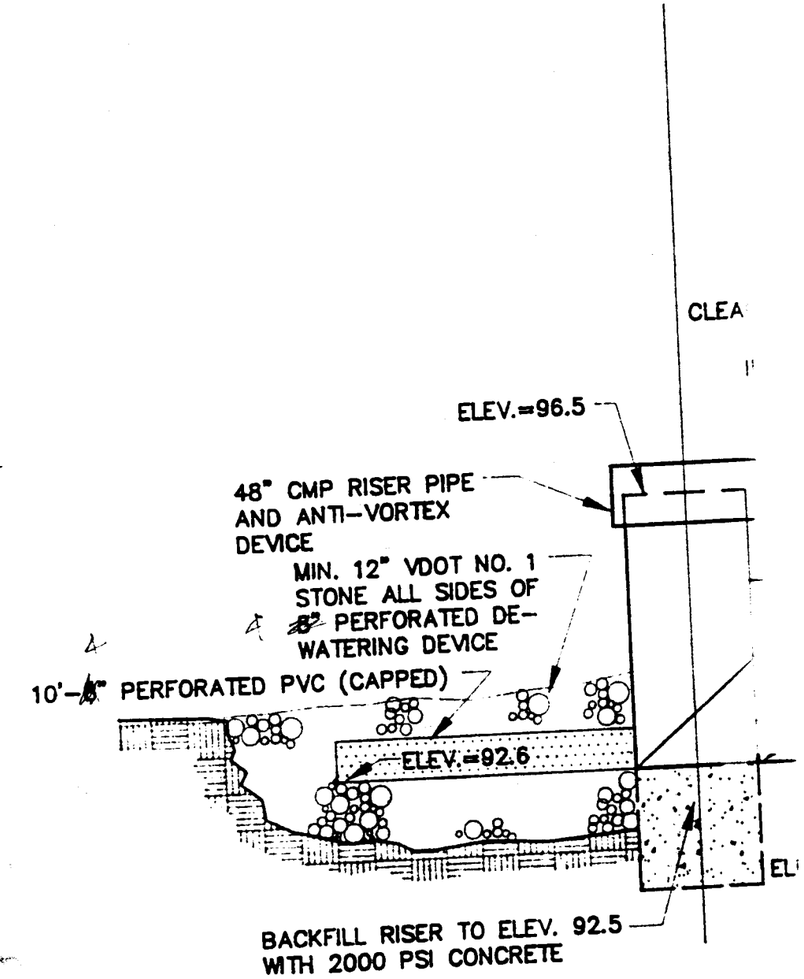


PC126_JCC_148_CLARK_LANE_BMP_A - 011



BMP A DETAIL

NOT TO SCALE



BMF

NOT T

PC 126

File -
JCC Mooretown Rd

MOORETOWN CBDG AREA BMP A;

TEMPORARY MODIFICATION TO TRAP SEDIMENT DURING ROAD CONSTRUCTION;

DRAINAGE AREA ABOUT 3 ACRES.

WET STORAGE REQ'D; 3 X 67 CU YD = ABOUT 200 CU YD
X 27 = ABOUT 5400 CU FT
SAY 5000 CU FT

FROM DRAPER ADEN TOPO;

ELEV	AREA/SQ FT	DELT V/CU FT	SUM V/CU FT
80	3579	N/A	N/A
81	6278	5000	5000
82	11000	8600	

SET TEMPORARY WET STORAGE OVERFLOW @ ELEV 81 FT PER ATTACHED SKETCH.

DRY STORAGE ABOVE ELEV 81.

MOORETOWN CBDG BMP B;

DRAINAGE AREA ABOUT 3 ACRES.

WET STORAGE SAME AS BMP A.

FROM D/A PLANS

ELEV	AREA/SQ FT	DELT V/CU FT	SUM V/CU FT.
93	2900	N/A	N/A
94	8500	5700	5700

SET TEMP WET STORAGE OVERFLOW @ ELEV 94 PER ATTACHED SKETCH.

DRY STORAGE ABOVE ELEV 94.

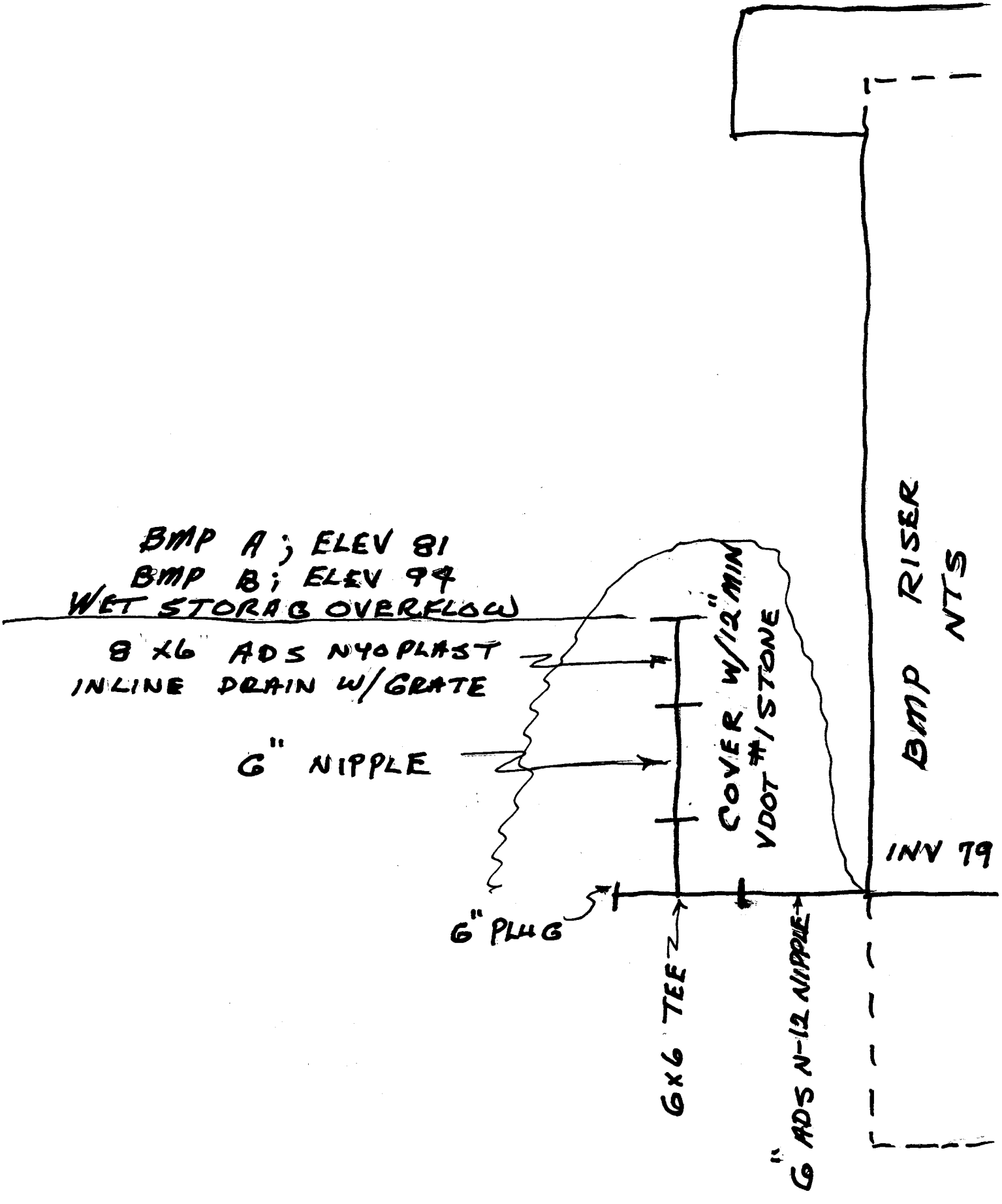
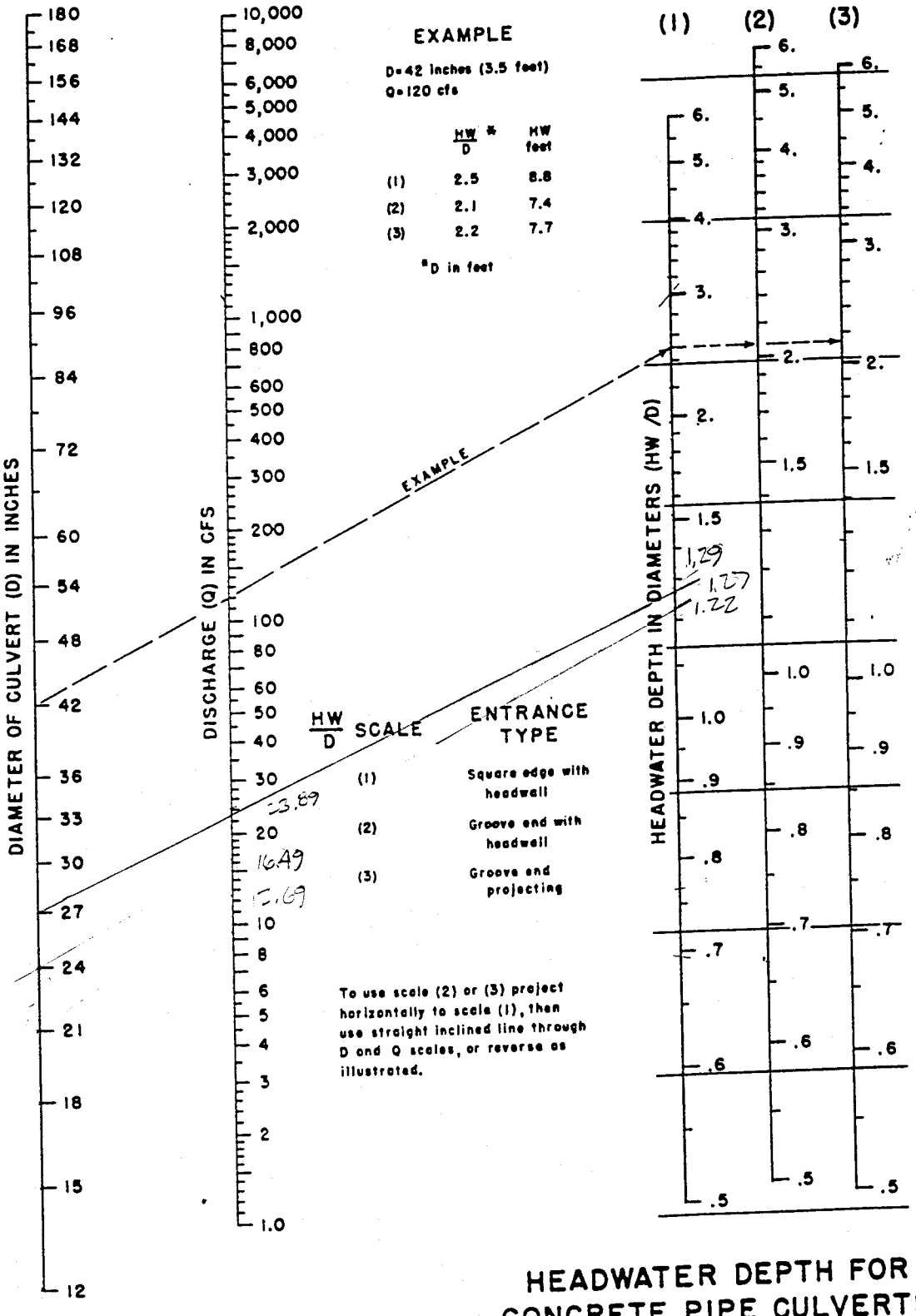

BMP A ; ELEV 81
BMP B ; ELEV 94
WET STORAG OVERFLOW
8 X6 ADS N40 PLAST
INLINE DRAIN W/GRATE
6" NIPPLE
COVER W/12" MIN
VDOT #1 STONE
BMP RISER
NTS
INV 79
6" PLUG
6X6 TEE
6" ADS N-12 NIPPLE

CHART 1

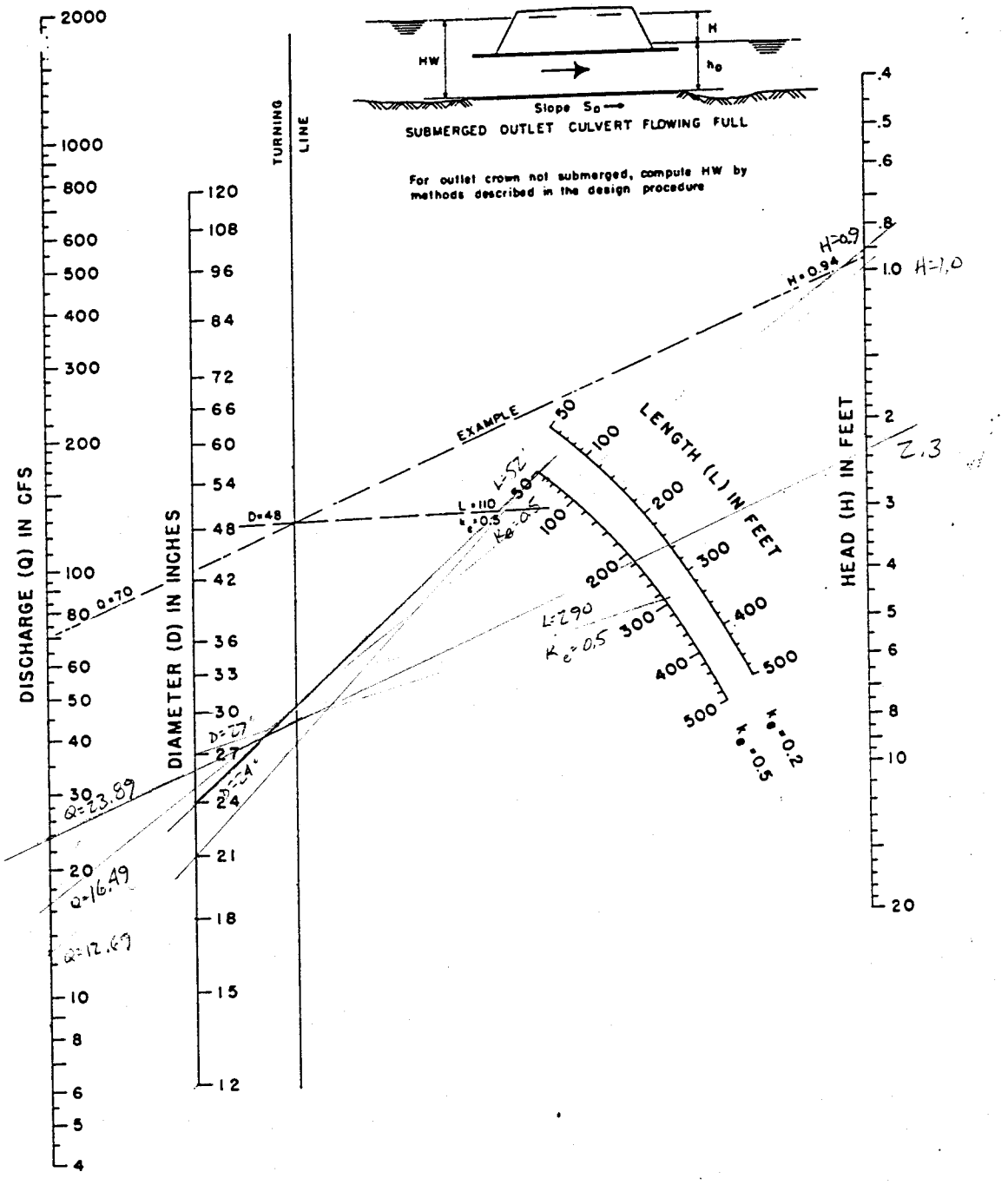


HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

CHART 5



HEAD FOR
CONCRETE PIPE CULVERTS
FLOWING FULL
n = 0.012

BUREAU OF PUBLIC ROADS JAN. 1963

Rev 3-03

Project: MOORETOWN RD
21086

CULVERT UNDER RD "B" @ INT.

Plan Sheet No. ____ Designer ____
Rev. Date ____ Date ____

Sheet ____ of ____

HYDROLOGICAL DATA:
D.A. = 10.47 AC.

C = 0.35
T_c = 20 min
i_{10} = 4.5

$$Q = \frac{1.49}{.03}\left(3^{1/2}\right)\left(\frac{3d^2}{2\sqrt{1+(3)^2}}\right)^{2/3}(0.01)^{1/2}$$

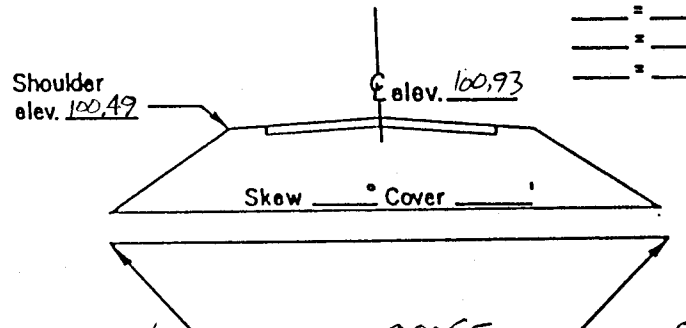
$$16.49 = \frac{1.49}{0.03}\left(3d^2\right)\left(\frac{3d}{2\sqrt{3^2+1}}\right)^{2/3}(0.01)^{1/2}$$

$d = 1.25 > \frac{1}{2}(2') = 1'$ ∴ 1' MIN. TO 12" WATER

AHW Controls
100 yr. Flood plain ____ elev. ____
Design AHW depth ____ elev. ____
Structures ____ elev. ____

STATION: ____

freq. TW elev.
____ = ____
____ = ____
____ = ____
____ = ____
____ = ____



DISCHARGES USED
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS

RISK ASSESSMENT
ADT ____
Detours Available ____, Length ____
Overtopping Stage ____
Flood Plain Management ____
Criteria and Significant Impact ____

240 A

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS: INLET CONT. HW/D	INLET CONT. HW	OUTLET CONTROL Ke	dc	$\frac{dc+D}{2}$	ho	H	LSo	HW	CONT. HW. ELEV.	OUTLET VELOCITY C.M.	OUTLET VELOCITY Smooth	End Treat.	COMMENTS
24" RCP	16.49		1.22	2.44	0.5	1.5	1.75	1.75	0.90	0.28	2.37	2.44				USE L=10 W=6 d_{50}=6" FOR OP

Design Flood Exceed. Prob. ____ Elev. ____
Overtop Flood Exceed. Prob. ____ Elev. ____
Base Flood 1% Exceed. Prob. ____ Elev. ____

SUMMARY & RECOMMENDATIONS:

Rev 3-03

Project MOORETOWN RD
21086

CULVERT INTO BMP 2

Plan Sheet No. ____ Designer ____
Rev. Date ____ Date ____

Sheet ____ of ____

HYDROLOGICAL DATA:
D.A. = 15.17 AC.

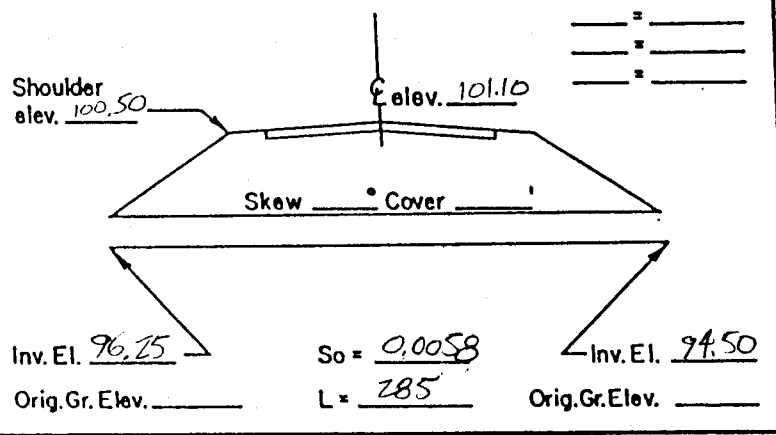
MIN TAILWATER CONDITION

C = 0.35
T_c = 20 MIN
i_{10} = 4.5

AHW Controls
100 yr. Flood plain ____ elev. ____
Design AHW depth ____ elev. ____
Structures ____ elev. ____

STATION: ____

freq. TW elev.
____ = ____
____ = ____
____ = ____
____ = ____
____ = ____



DISCHARGES USED
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS

RISK ASSESSMENT
ADT ____
Detours Available ____, Length ____
Overtopping Stage ____
Flood Plain Management ____
Criteria and Significant Impact ____

240 A

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS									CONT. HW. ELEV.	OUTLET VELOCITY		End Treat.	COMMENTS
			INLET CONT.		OUTLET CONTROL											
			HW/D	HW	Ke	dc	$\frac{dc+D}{2}$	ho	H	LSo	HW		C.M.	Smooth		
27" RCP	23.89		1.27	2.85	0.5	1.55	1.90	1.90	2.30	1.66	2.49	2.85				USE L=12 W=14.25
																d_{50} = 6" FOR OP

Design Flood Exceed. Prob. ____ Elev. ____
Overtop Flood Exceed. Prob. ____ Elev. ____
Base Flood 1% Exceed. Prob. ____ Elev. ____

SUMMARY & RECOMMENDATIONS:

Rev 3-83

Project MOORE TOWN RD
21086 CULVERT UNDER RD "B"

Plan Sheet No. ____ Designer ____
Rev. Date ____ Date ____

Sheet ____ of ____

HYDROLOGICAL DATA:
D.A. = 9.30 AC.

C = 0.35
T_c = 20 min
i_{50} = 3.9
i_{25} = 5.9

$12.69 = \frac{1.49}{0.03}(3d^2)\left(\frac{3d}{2\sqrt{2}+1}\right)^{2/3}(0.01)^{1/2}$

$d = 1.13 > \frac{1}{2}(1.75) = 0.88$

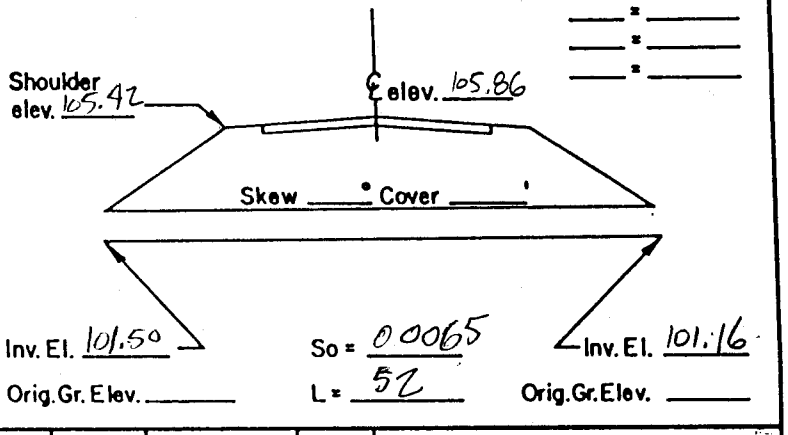
∴ MAX TAILWATER CONDITION

L = 9' W = 5.35 d_{50} = 6"

AHW Controls
100 yr. Flood plain ____ elev. ____
Design AHW depth ____ elev. ____
Structures ____ elev. ____

STATION: 15+50

freq. TWelev.
____ = ____
____ = ____
____ = ____
____ = ____
____ = ____



DISCHARGES USED
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS

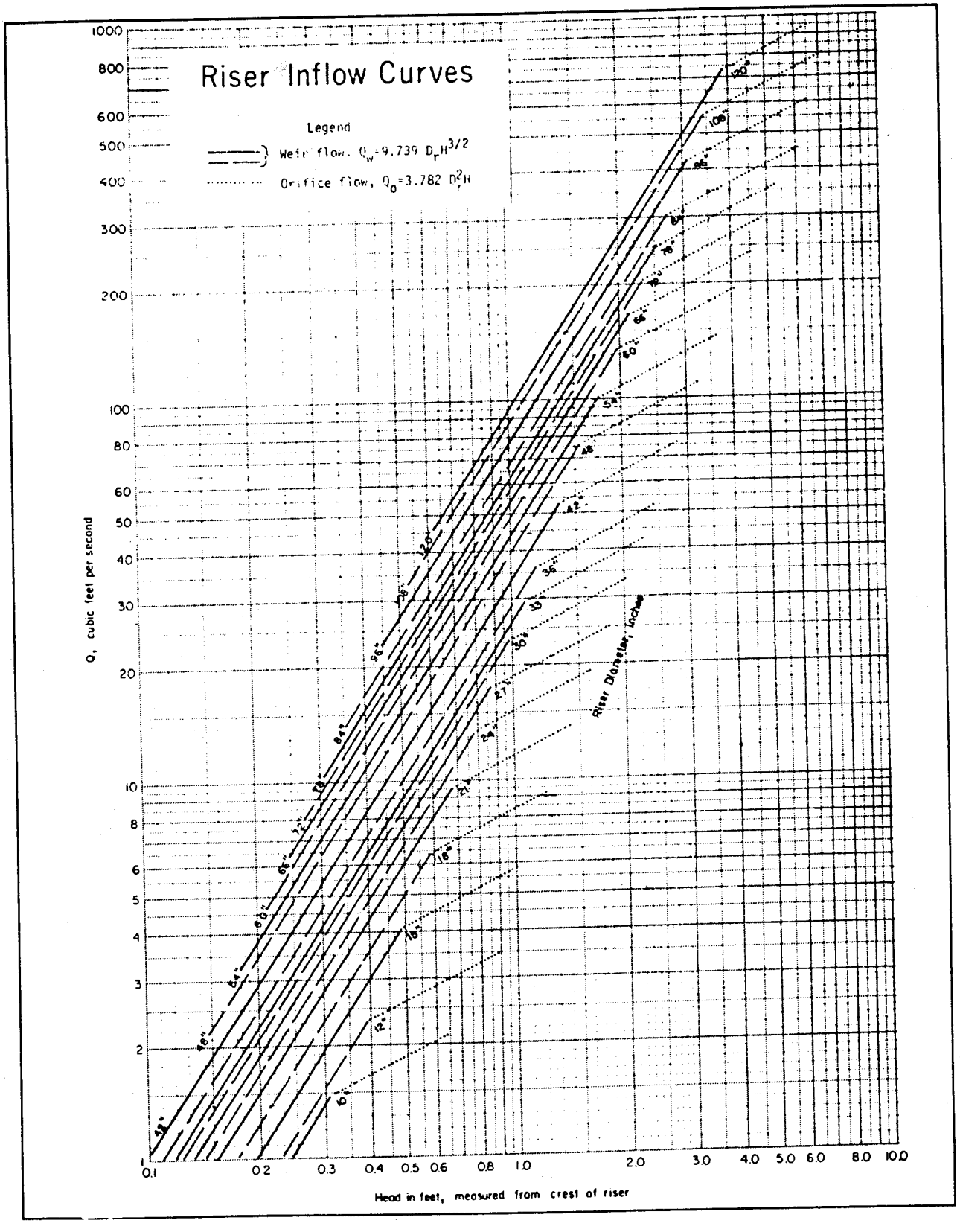
RISK ASSESSMENT
ADT ____
Detours Available ____, Length ____
Overtopping Stage ____
Flood Plain Management ____
Criteria and Significant Impact ____

240 A

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS: INLET CONT. HW/D	INLET CONT. HW	OUTLET CONTROL Ke	dc	$\frac{dc+D}{2}$	ho	H	LSo	HW	CONT. HW. ELEV.	OUTLET VELOCITY C.M.	OUTLET VELOCITY Smooth	End Treat.	COMMENTS
24" RCP	12.69		1.0	2.0	0.5	1.2	1.6	1.6	0.5	0.34	1.76	2.0				
21" RCP	12.69		1.29	2.26	0.5	1.2	1.48	1.48	1.0	0.34	2.14	2.26				USE 21" RCP WITH END SECT. CONFORMING TO FILL SLOPE
18" RCP	12.69		2.0	3.0	0.5	1.3	1.40	1.40	1.8	0.34	2.86	3.0		5.9		

Design Flood Exceed. Prob. ____ Elev. ____
Overtop Flood Exceed. Prob. ____ Elev. ____
Base Flood 1% Exceed. Prob. ____ Elev. ____

SUMMARY & RECOMMENDATIONS:



Source: USDA-SCS

Plate 3.14-8

TABLE 3.14-A
PIPE FLOW CHART, n = 0.025

FOR CORRUGATED METAL PIPE INLET $K_m = K_e + K_b = 1.0$ AND 70 FEET OF CORRUGATED METAL PIPE CONDUIT (full flow assumed)
Note correction factors for pipe lengths other than 70 feet
diameter of pipe in inches

H, in feet	6"	8"	10"	12"	15"	18"	21"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"
1	0.33	0.70	1.25	1.98	3.48	5.47	7.99	11.0	18.8	28.8	41.1	55.7	72.6	91.8	113	137	163	191	222	255	290
2	0.47	0.99	1.76	2.80	4.92	7.74	11.3	15.6	26.6	40.8	58.2	78.8	103	130	160	194	231	271	314	360	410
3	0.58	1.22	2.16	3.43	6.02	9.48	13.8	19.1	32.6	49.9	71.2	96.5	126	159	196	237	282	331	384	441	502
4	0.67	1.40	2.49	3.97	6.96	10.9	16.0	22.1	37.6	57.7	82.3	111	145	184	226	274	326	383	444	510	580
5	0.74	1.57	2.79	4.43	7.78	12.2	17.9	24.7	42.1	64.5	92.0	125	162	205	253	306	365	428	496	570	648
6	0.82	1.72	3.05	4.86	8.52	13.4	19.6	27.0	46.1	70.6	101	136	178	225	277	336	399	469	544	624	710
7	0.88	1.86	3.30	5.25	9.20	14.5	21.1	29.2	49.8	76.3	109	147	192	243	300	362	431	506	587	674	767
8	0.94	1.99	3.53	5.61	9.84	15.5	22.6	31.2	53.2	81.5	116	158	205	260	320	388	461	541	628	721	820
9	1.00	2.11	3.74	5.95	10.4	16.4	24.0	33.1	56.4	86.5	123	167	218	275	340	411	489	574	666	764	870
10	1.05	2.22	3.94	6.27	11.0	17.3	25.3	34.9	59.5	91.2	130	176	230	290	358	433	516	605	702	806	917
11	1.10	2.33	4.13	6.58	11.5	18.2	26.5	36.6	62.4	95.6	136	185	241	304	376	454	541	635	736	845	962
12	1.15	2.43	4.32	6.87	12.1	19.0	27.7	38.2	65.2	99.9	142	193	252	318	392	475	565	663	769	883	1004
13	1.20	2.53	4.49	7.15	12.6	19.7	28.8	39.8	67.8	104	148	201	262	331	408	494	588	690	800	919	1045
14	1.25	2.63	4.66	7.42	13.0	20.5	29.9	41.3	70.4	108	154	208	272	343	424	513	610	716	830	953	1085
15	1.29	2.72	4.83	7.68	13.5	21.2	30.9	42.8	72.8	112	159	216	281	355	439	531	631	741	860	987	1123
16	1.33	2.81	4.99	7.93	13.9	21.9	32.0	44.2	75.2	115	165	223	290	367	453	548	652	765	888	1019	1160
17	1.37	2.90	5.14	8.18	14.3	22.6	32.9	45.5	77.5	119	170	230	229	378	467	565	672	789	915	1051	1195
18	1.41	2.98	5.29	8.41	14.8	23.2	33.9	46.8	79.8	120	174	236	308	389	480	581	692	812	942	1081	1230
19	1.45	3.06	5.43	8.64	15.2	23.9	34.8	48.1	82.0	126	179	243	316	400	494	597	711	834	967	1111	1264
20	1.49	3.14	5.57	8.87	15.6	24.5	35.7	49.4	84.1	129	184	249	325	410	506	613	729	856	993	1139	1297
21	1.53	3.22	5.71	9.09	15.9	25.1	36.6	50.6	86.2	132	188	255	333	421	519	628	747	877	1017	1168	1329
22	1.56	3.29	5.85	9.30	16.3	25.7	37.5	51.8	88.2	135	193	261	341	430	531	643	765	898	1041	1195	1360
23	1.60	3.37	5.98	9.51	16.7	26.2	38.3	53.0	90.2	138	197	267	348	440	543	657	782	918	1064	1222	1390
24	1.63	3.44	6.11	9.72	17.0	26.8	39.1	54.1	92.1	141	201	273	356	450	555	671	799	937	1087	1248	1420
25	1.66	3.51	6.23	9.92	17.4	27.4	39.9	55.2	94.0	144	206	279	363	459	566	685	815	957	1110	1274	1450
26	1.70	3.58	6.36	10.1	17.7	27.9	40.7	56.3	95.9	147	210	284	370	468	577	699	831	976	1132	1299	1478
27	1.73	3.65	6.48	10.3	18.1	28.4	41.5	57.4	97.7	150	214	290	377	477	588	712	847	994	1153	1324	1507
28	1.76	3.72	6.60	10.5	18.4	29.0	42.3	58.4	99.5	153	218	295	384	486	599	725	863	1013	1174	1348	1534
29	1.79	3.78	6.71	10.7	18.7	29.5	43.0	59.5	101	155	221	300	391	494	610	738	878	1030	1195	1372	1561
30	1.82	3.85	6.83	10.9	19.1	30.0	43.7	60.5	103	158	225	305	398	503	620	750	893	1048	1216	1396	1588

Correction Factors For Other Pipe Lengths

L, in feet																					
20	1.69	1.63	1.58	1.53	1.47	1.42	1.37	1.34	1.28	1.24	1.20	1.18	1.16	1.14	1.13	1.11	1.10	1.10	1.09	1.08	1.08
30	1.44	1.41	1.39	1.36	1.32	1.29	1.27	1.24	1.21	1.18	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
40	1.28	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.14	1.12	1.11	1.10	1.09	1.08	1.07	1.06	1.06	1.05	1.05	1.05	1.04
50	1.16	1.16	1.15	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.06	1.06	1.05	1.05	1.04	1.04	1.04	1.03	1.03	1.03
60	1.07	1.07	1.07	1.06	1.06	1.05	1.05	1.05	1.04	1.04	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.01
70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	.94	.94	.95	.95	.95	.95	.96	.96	.96	.97	.97	.97	.98	.98	.98	.98	.98	.98	.99	.99	.99
90	.89	.89	.90	.90	.91	.91	.92	.92	.93	.94	.94	.95	.95	.96	.96	.96	.97	.97	.97	.97	.94
100	.85	.85	.86	.86	.87	.88	.89	.89	.90	.91	.92	.93	.93	.94	.94	.95	.95	.95	.96	.96	.94
120	.78	.79	.79	.90	.81	.82	.83	.83	.85	.86	.87	.89	.89	.90	.91	.89	.92	.93	.93	.94	.92
140	.72	.73	.74	.75	.76	.77	.78	.79	.81	.82	.84	.85	.86	.87	.88	.86	.89	.90	.91	.91	.90
160	.68	.69	.69	.70	.71	.73	.74	.75	.77	.79	.80	.82	.83	.84	.85	.92	.87	.88	.89	.89	

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NASHVILLE, TENNESSEE

Subject MOORETOWN RD.

BMP "A"

Sheet No. ___ of ___

Job No. ___

By ___ Date ___

$A = 39.86$

$T_c = 37$ MIN

$i_{25} = 3.75$

$C = 0.35$

$i_{10} = 3.2$

$Q_{10} = 44.64$

} PIPE SLOPE MUST BE 0.45% TO PASS 10 YEAR STORM

$Q_{25} = 52.32$ cfs

$h = 86 - 84.4 = 1.6$

FROM CHART ON PLATE 3.14-8 MIN RISER SIZE = 42"
A 48" RISER WAS CHOSEN

$H = 86 - 79.2 + 1.5 = 5.3$

$L = 110'$

FROM TABLE 3.14A FOR 36" PIPE $Q = 64.5(0.89) = 57.4$ cfs
S.K.
∴ PIPE IS MORE THAN ADEQUATE

NOTE: BMP DESIGNED BY OTHERS

SIZING (OP) MIN. TAILWATER CONDITIONS
$d_{50} = 0.7'$ $L = 20'$ $W = 23'$

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NASHVILLE, TENNESSEE

Subject MOORETOWN RD

BMP "B"

Sheet No. ___ of ___

Job No. ___

By ___ Date ___

A = 15.17
C = 0.35
T_c = 21 MIN
i_{10} = 4.4 i_{25} = 5.13
Q_{10} = 23.36 Q_{25} = 27.24

h = 1.20

FROM CHART ON PLATE 3.14-8 MIN RISER SIZE = 33"
A 48" RISER WAS CHOSEN

H = 97.7 - 92 + 1.5 = 7.2
L = 45'

FROM TABLE 3.14-A FOR 36" PIPE Q = 76.3(1.1) = 83.93 CFS
∴ PIPE IS MORE THAN ADEQUATE

NOTE: BMP DESIGNED BY OTHERS

SIZING (OP) MIN. TAILWATER CONDITION
d_{50} = 0.7' L = 20' W = 23'

Subject MOORETOWN RD

Sheet No. ___ of ___

Job No. ___

By ___ Date ___

CHECK HEAD REQUIRE TO PASS 100 YR STORM THROUGH 36" CMP

$C = 0.35$

$T_c = 37$ MIN

$i_{100} = 4.5$

$A = 39.86$

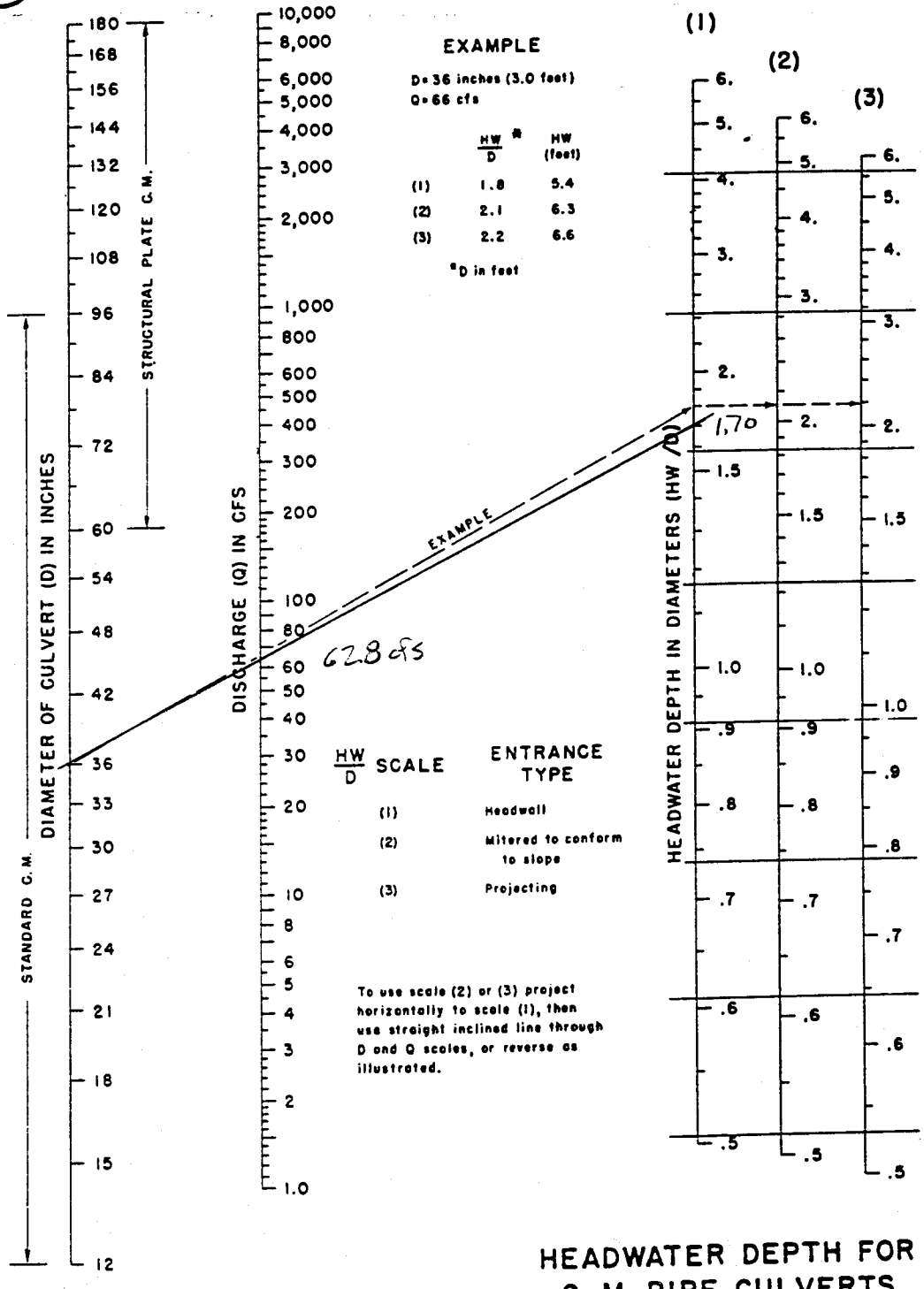
$Q = 62.8$ CFS

FOR 36 CMP $HW/D = 1.70$

$HW = 5.1$ ft. ∴ WATER IS AT ELEV = 85.1

FOR 48" RISER HEAD REQUIRED TO PASS 100 YR STORM IS 1.45', RISER IS AT ELEV. 84.4 THEREFORE CONTROLLING ELEV. = 84.4 + 1.45 = 85.9'

CHART 2



HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

1992

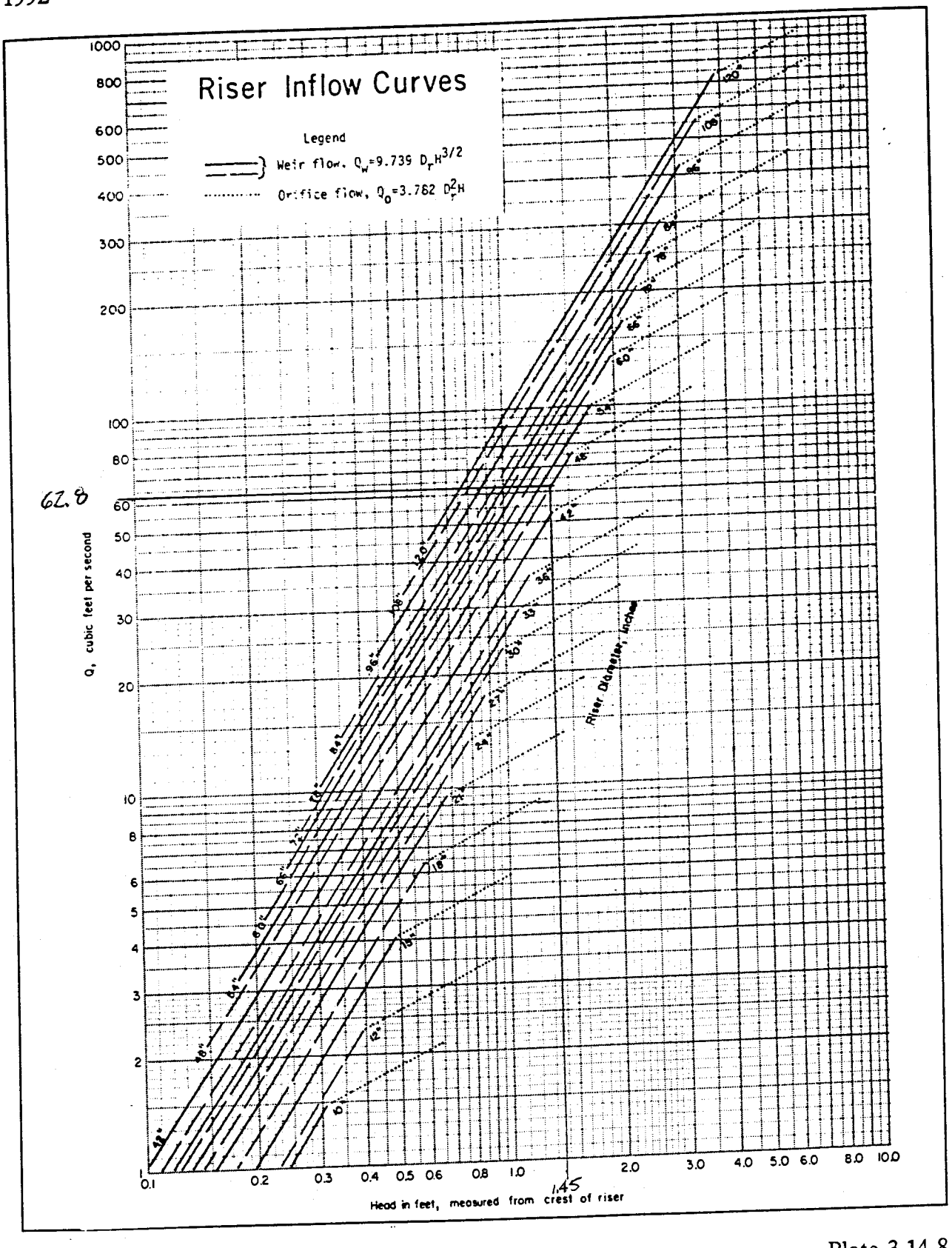


Plate 3.14-8

Source: USDA-SCS

LANE

R SIDE

CUT — MED. — FILL

PROJECT 21086 MOORETOWN RD

BY GVS DATE 4-11-94

STA.	TO STA.	FLOW	Q / WS/CA (A)	Q / WS/CA (C)	Q / WS/CA	C A INCR.	C A ACC.	Tc	I_2	Q_2	C or F	Slope Ft/Ft	ALLOW VEL	Earth n=.03 VEL.	Protective Lining n=.05 Qn	VEL.	DEP.	n=.015 Qn	DEP.	I_{10}	Q_{10}	DEP.	REMARKS
	12+90		2.07	0.35		0.72	0.72	21	3.25	2.35	C	0.075	4	2.3						4.4	3.19	9"	
12+90	16+90		7.23	0.35		2.53	3.25	29	2.7	8.78	C	0.075	4	3.3						3.65	11.86	13"	
16+90	21+00		1.86	0.35		0.65	3.90	31	2.6	10.14	F	0.01	4	3.8						3.5	13.65	13"	USE 8' WIDE @ 3:1 INSIDE SLOPE DEPTH = 1.33' = 16"
35+00	42+00		8.61	0.35		3.01		20	3.4	10.25		0.04	7			4.4				4.50	13.56	12"	LINE W/ EC-2 TYPE "A"
2-27 30+00	35+00		1.80	0.35		0.63		15	3.85	2.43		0.05	4	2.0						5.15	3.24	9"	
26+50	30+00		1.26	0.35		0.44		15	3.85	1.70		0.04	4	3.9		2.7				5.15	2.27	5"	LINE W/ EC-2

CLARK LANE

CLARK LANE
RT SIDE

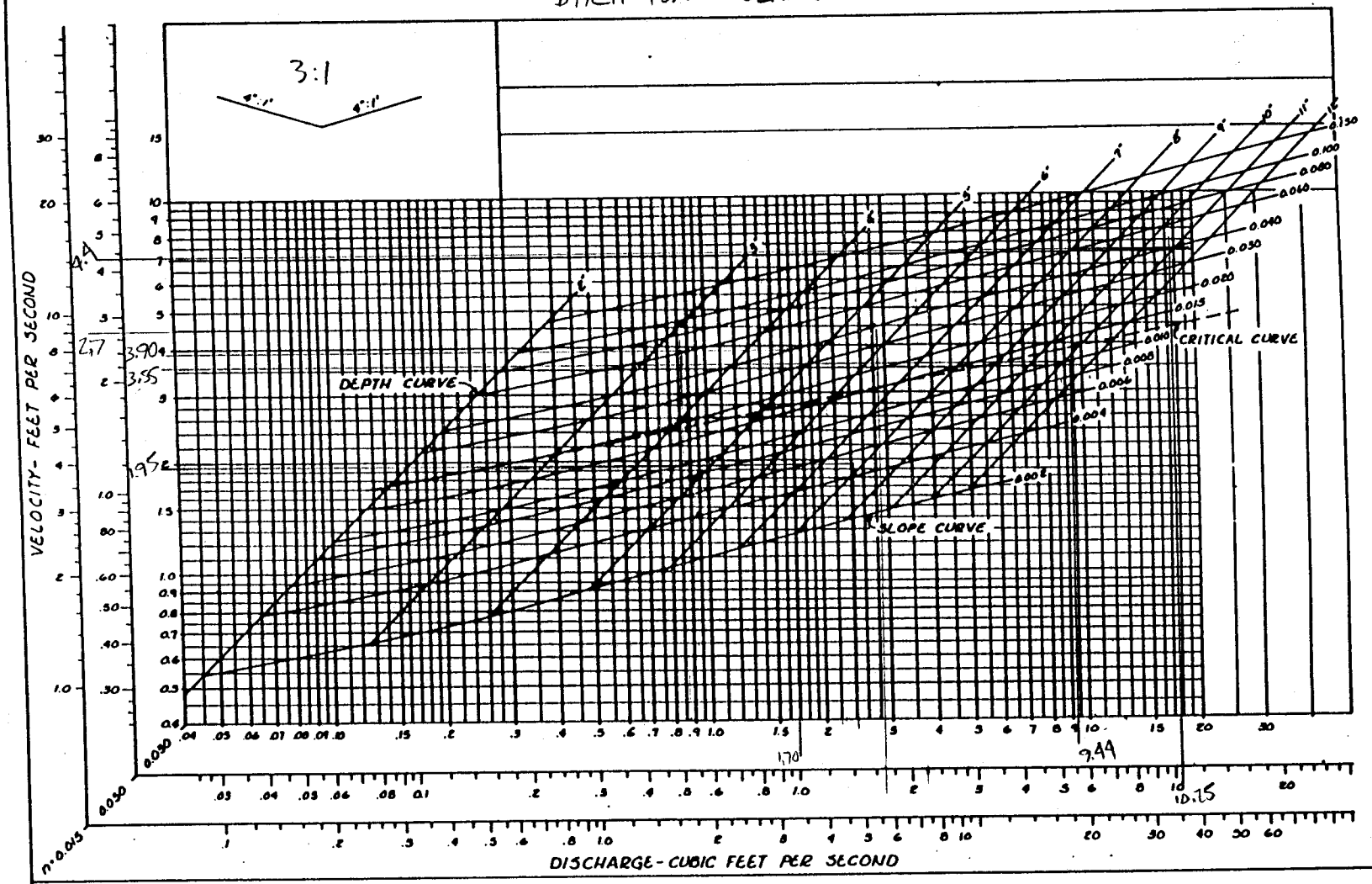
CUT | MED. | FILL

PROJECT MOORETOWN RD
BY GVS DATE 8-1-94

STA. TO STA.		FLOW	Q WS/CA (A)	Q WS/CA (C)	Q WS/CA	C A INCR.	C A ACC.	Tc	I_2	Q_2	C or F	Slope Ft/Ft	ALLOW VEL	Earth n=.03 VEL.	Protective Lining n=.05 Qn	VEL.	DEP.	n=.015 Qn	DEP.	I_{10}	Q_{10}	DEP.	REMARKS
→	12+50		0.31	0.50		0.155		5	5.64	0.87	C	0.05	4	3.55						7.20	1.116	4"	O.K.
→	15+00		0.58	0.50		0.29		5	5.64	1.64	C	0.0133	4	2.60						7.20	2.09	6"	O.K.
→	17+00		0.78	0.50		0.39		5	5.64	2.2	C	0.049	4	4.5		3.2				7.20	2.80	7"	O.K. USE EC-2
→	19+00		1.00	0.50		0.50		5	5.64	2.82	C	0.09	4	3.5									@19+00 BMP STARTS

2-27

DITCH FOR CLARK LANE



TRIANGULAR MEDIAN DITCH

FIG. 2.8.22

MD-3

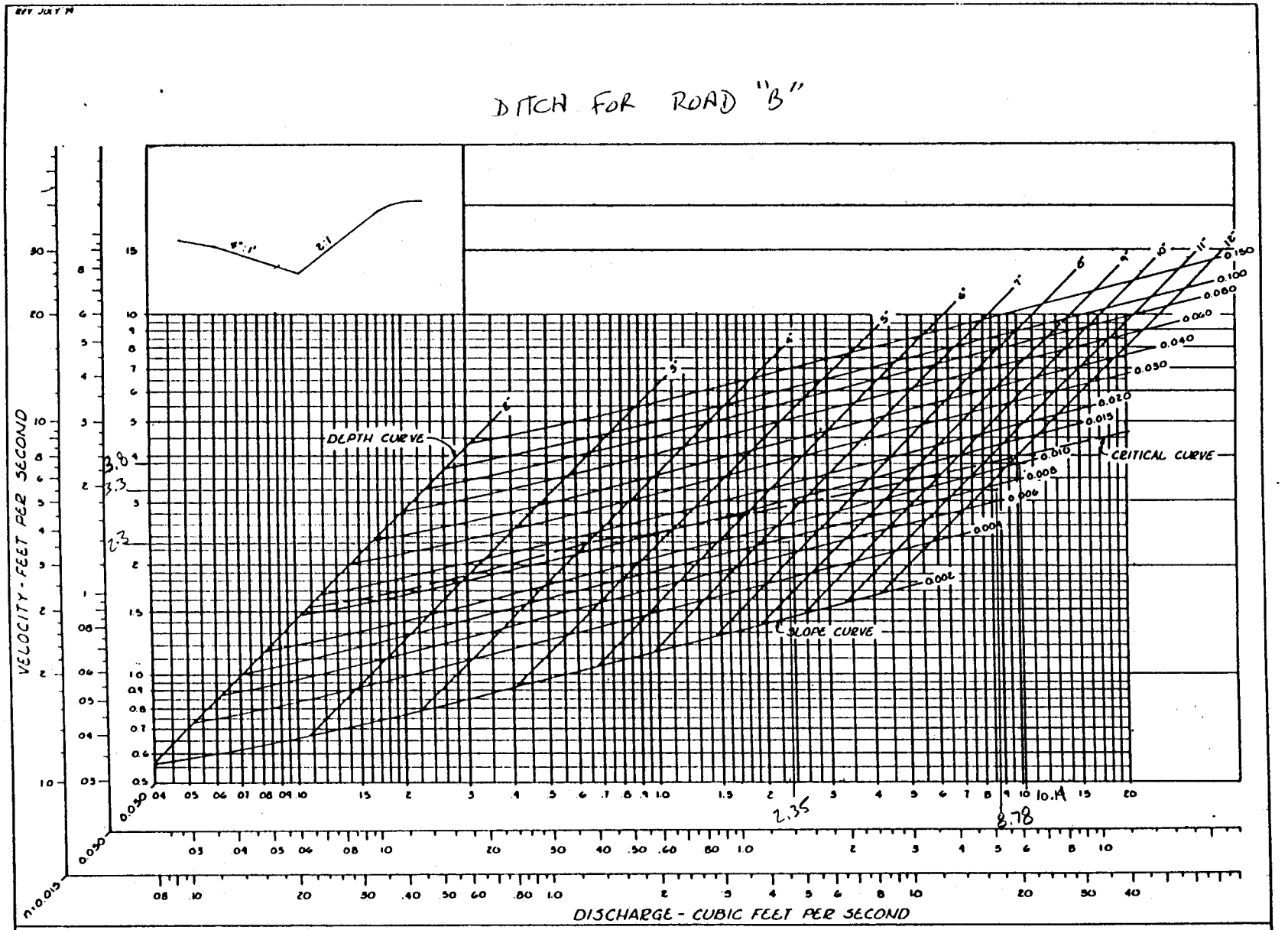
2.53

LANE _____ SIDE _____

CUT (3:1) MED. FILL

PROJECT _____ BY _____ DATE _____

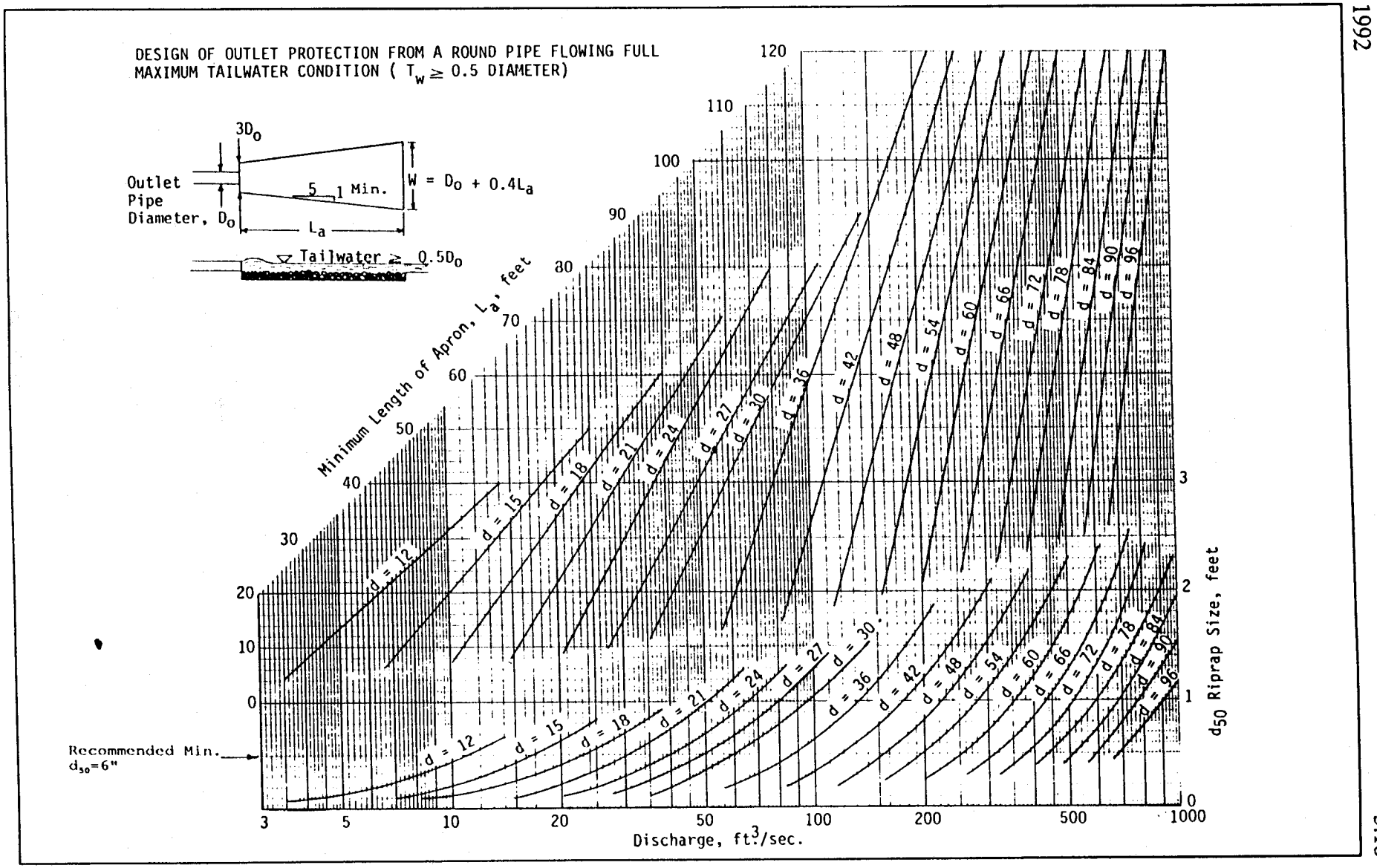
STA. TO STA.	FLOW	Q/WS/CA (A)	Q/WS/CA (C)	Q/WS/CA	C A INCR.	C A ACC.	Tc	I_2	Q_2	C or F	Slope Fl-Fl	ALLOW VEL	Earth n=.03 VEL.	Protective Lining n=.05 Qn	VEL.	DEP.	n=.015 Qn	DEP.	I_{10}	Q_{10}	DEP.	REMARKS
DITCH FROM CULVERT TO DAYLIGHT		9.30	0.35		3.255		26	2.9	9.44	C	.001	4	3.55						3.9	12.69	13.6"	USE 3:1 SIDE SLOPES 1.75' DEEP
CHECK EX. CULVERT									9.44		0.02	4	2.71						3.9	12.69	6.5"	SIDES SLOPES @ 15:1



SIDE DITCH FLOW CHART

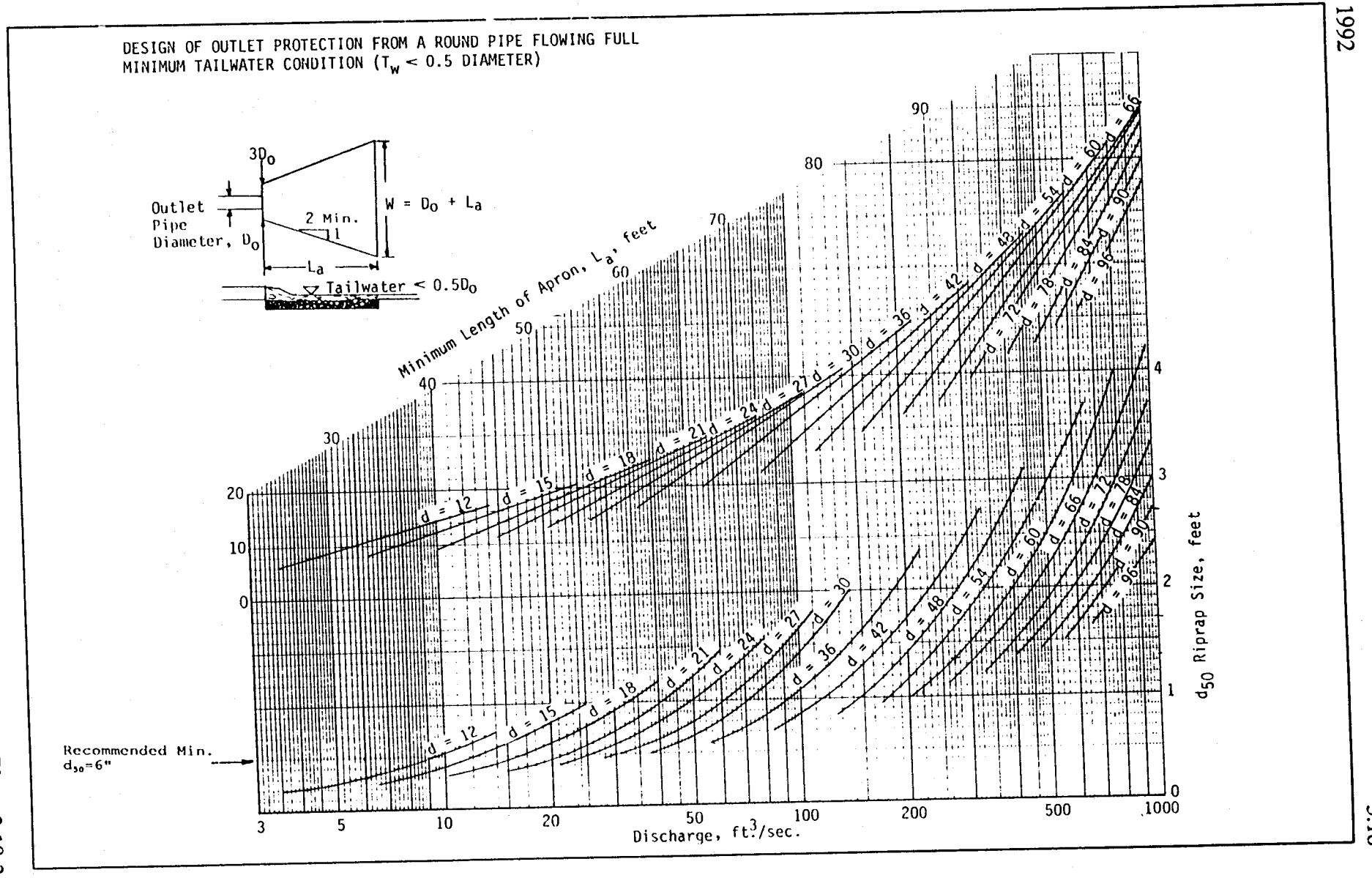
FIG. 2.8.13

SD-10



Source: USDA-SCS

Plate 3.18-4



Source: USDA-SCS

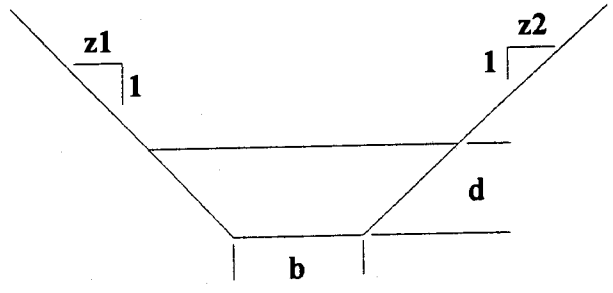
Plate 3.18-3

TRAPAZODIAL DITCH CALCULATION

PROJECT:	**MOORETOWN RD (20+50 TO 23+50, CLARK LANE)**
NUMBER:	**21086**
PREPARED BY:	**GVS**
DATE:	**08/01/94**

Solve for flow in trapazoidal channels using the Manning Equation.

d (ft)=	0.6
b (ft)=	0
z1=	2
z2=	2
s (ft/ft)=	0.025
n=	0.03
Area (sq. feet)=	0.72
Wetted Perimeter=	2.68
Hydraulic Radius (ft)=	0.27
V (fps)=	3.26
Q (cfs)=	2.35



Velocity for Q10 post

DEPTH = 0.6' + 0.3' FB = 0.9'

USE DEPTH = 1.0 '

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NASHVILLE, TENNESSEE

Subject: MOORETOWN ROAD
SEDIMENT TRAP @ 15+00
LEFT SIDE ROAD "B"

Sheet No. ___ of ___
Job No. ___
By ___ Date ___

$$V_T = 134(0.45\,A_L) = 60.30\ CY = 1628.1\ CF$$

$$V_{WET} = V_{DRY} = \tfrac{1}{2} V_T = 814.05$$

WET

$$814.05 = 0.85(A_1)(D_1)$$

$$814.05 = 0.85(15 \times 30)(D_1)$$

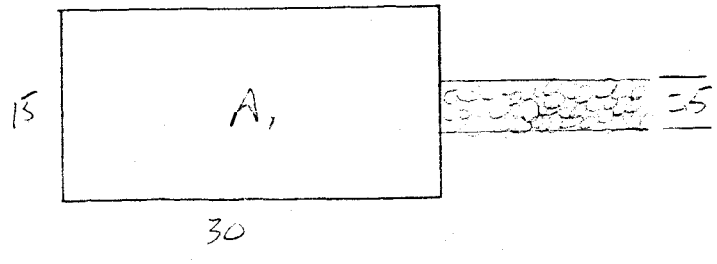
$$D_1 = 2.13'$$

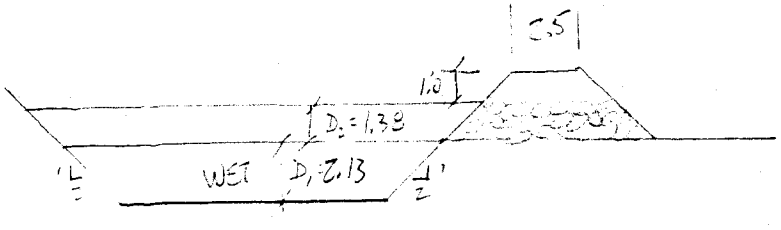
DRY

$$814.05 = \frac{15 \times 30 + (A_L)}{2}(D_2)$$

$$814.05 = \frac{15 \times 30 + [(15 + 2(2D_2))(30 + 2(2D_2))]}{2} D_2$$

$$D_2 = 1.38'$$





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NASHVILLE, TENNESSEE

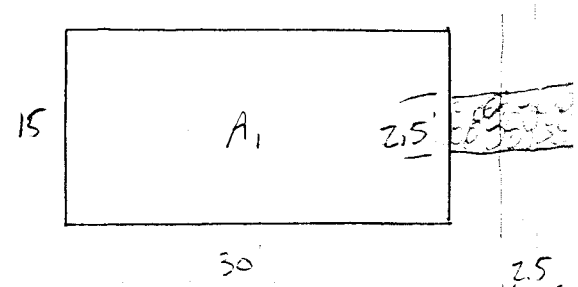
Subject: MOORETOWN ROAD — Sheet No. ___ of ___

Job No. ___

SEDIMENT TRAP @ 23+50 ± LEFT SIDE CLARK LANE — By ___ Date ___

$$V_T = 134(A) = 134(0.41) = 54.94 \text{ CY} = 1438.38 \text{ CF}$$

$$V_{WET} = V_{DRY} = \tfrac{1}{2} V_T = 741.69 \text{ CF}$$

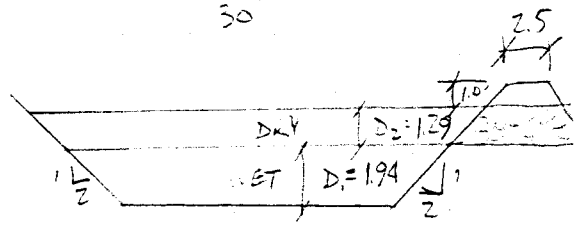


WET

$$741.69 = 0.85(A_1)(D_1)$$

$$741.69 = 0.85(15 \times 30)(D_1)$$

$$D_1 = 1.94'$$



DRY

$$741.69 = \frac{(15 \times 30) + (A_2)}{2} D_2$$

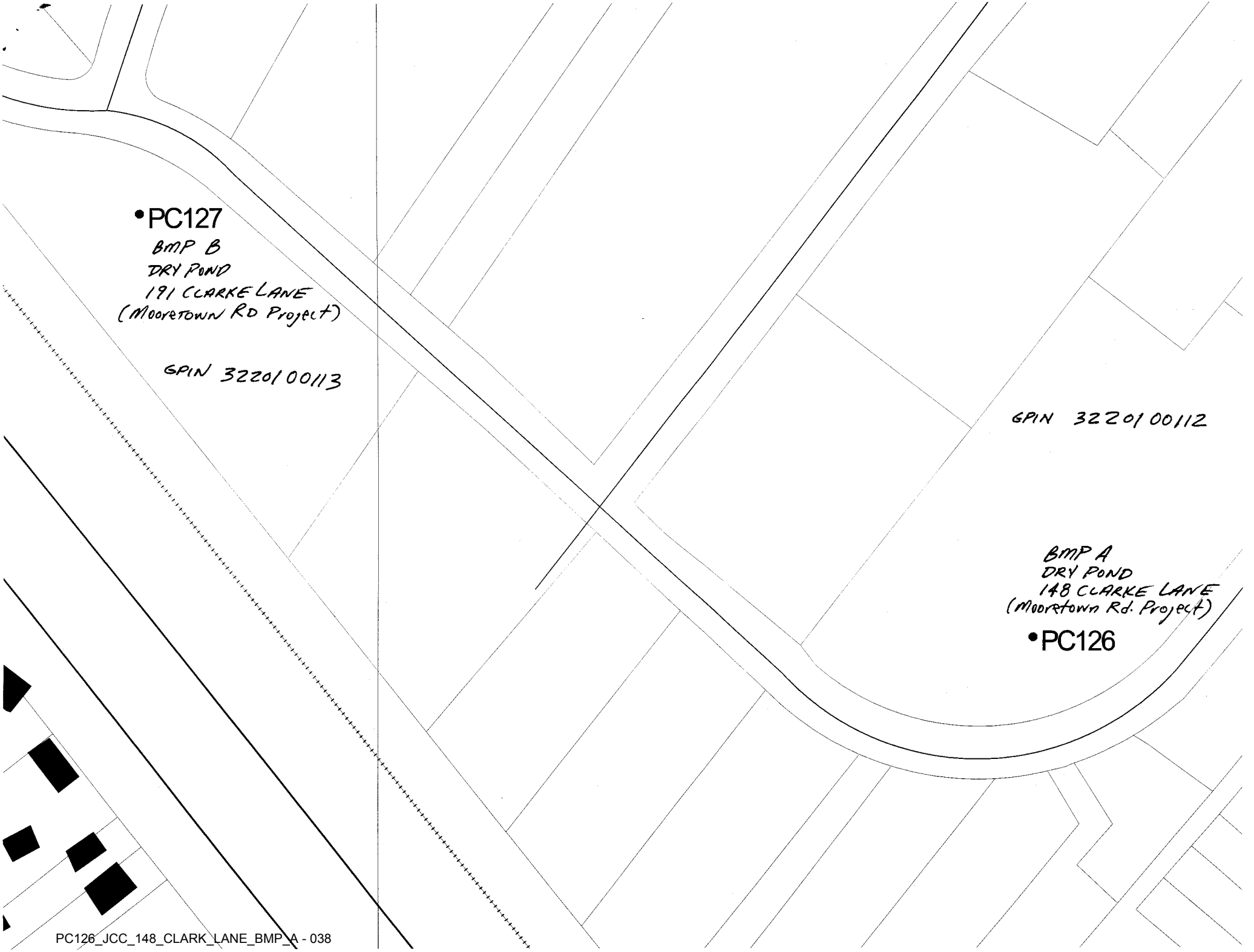
$$741.69 = \frac{(15 \times 30) + [(15 + 2(2D_2))(30 + 2(2D_2))]}{2} D_2$$

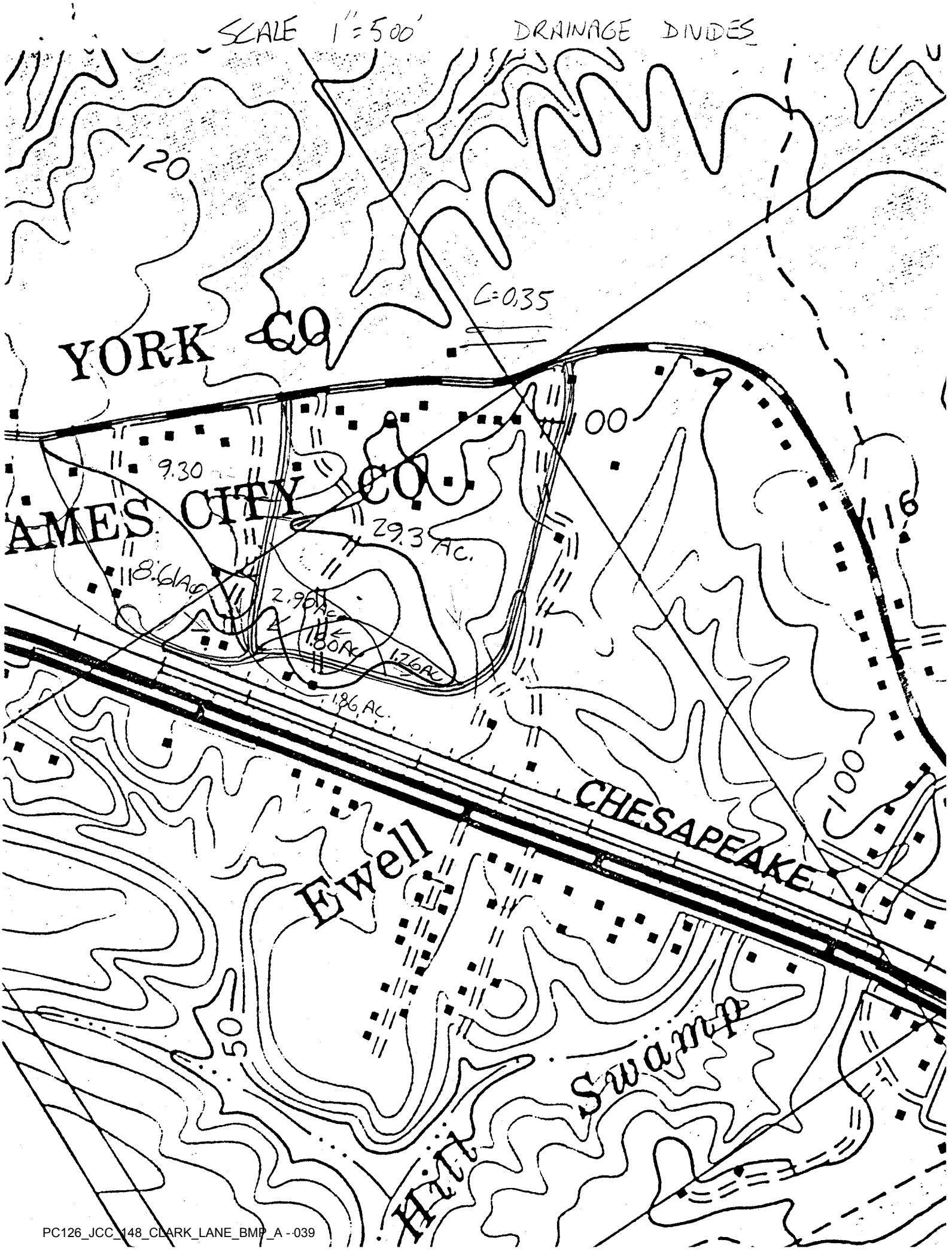
$$D_2 = 1.29$$

WATERSHED	PC	MAINTENANCE PLAN	No	CTRL STRUC DESC	CMP Riser
BMP ID NO	126	SITE AREA acre	3.304	CTRL STRUC SIZE inches	48
PLAN NO	Unk	LAND USE	SF Residential	OTLT BARRL DESC	CMP
TAX PARCEL	(32-02)(01-112)	old BMP TYP	Dry Pond	OTLT BARRL SIZE inch	36
PIN NO	3220100112	JCC BMP CODE			
CONSTRUCTION DATE	1/1/1995	POINT VALUE		EMERG SPILLWAY	No
PROJECT NAME	JCC-Clark Lane BMP A			DESIGN HW ELEV	85.9
FACILITY LOCATION	148 Clarke Lane (Sta. 24+00)			PERM POOL ELEV	na
CITY-STATE	Williamsburg, Va. 23188	SVC DRAIN AREA acres	39.86	2-YR OUTFLOW cfs	0.00
CURRENT OWNER	James City County, Virginia			10-YR OUTFLOW cfs	0.00
OWNER ADDRESS	101 Mounts Bay Road			REC DRAWING	No
OWNER ADDRESS 2	P.O. Box 8784	SERVICE AREA DESCRI	SF Residential & Roadway		
CITY-STATE-ZIP CODE	Williamsburg, Va. 23187	IMPERV AREA acres	0	CONSTR CERTI	No
OWNER PHONE		RECV STREAM	UT of Powhatan Creek		
MAINT AGREEMENT	No	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft		INTERNAL RATING	
		CHAN PROT CTRL	No	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0	At curve Clarke Lane. Design Draper Aden T-21086. Also see PC127.	
		SW/FLOOD CONTROL	Yes		
		GEOTECH REPORT	No		

Get Last BMP No

Return to Menu


•PC127
BMP B
DRY POND
191 CLARKE LANE
(Moorretown RD Project)
GPIN 3220100113
GPIN 3220100112
BMP A
DRY POND
148 CLARKE LANE
(Moorretown Rd. Project)
•PC126


SCALE 1" = 500'
DRAINAGE DIVIDES
120
C=0.35
YORK CO
00
9.30
AMES CITY CO
29.3 Ac.
8.61 Ac
2.96 Ac
1.80 Ac
1.76 Ac
1.86 Ac
16
100
CHESAPEAKE
Ewell
50
Swamp
Hill

PC126

COMMONWEALTH OF VIRGINIA
DEAN E. RAYNES
CERTIFICATION No.
1633
CERTIFIED LAND SURVEYOR

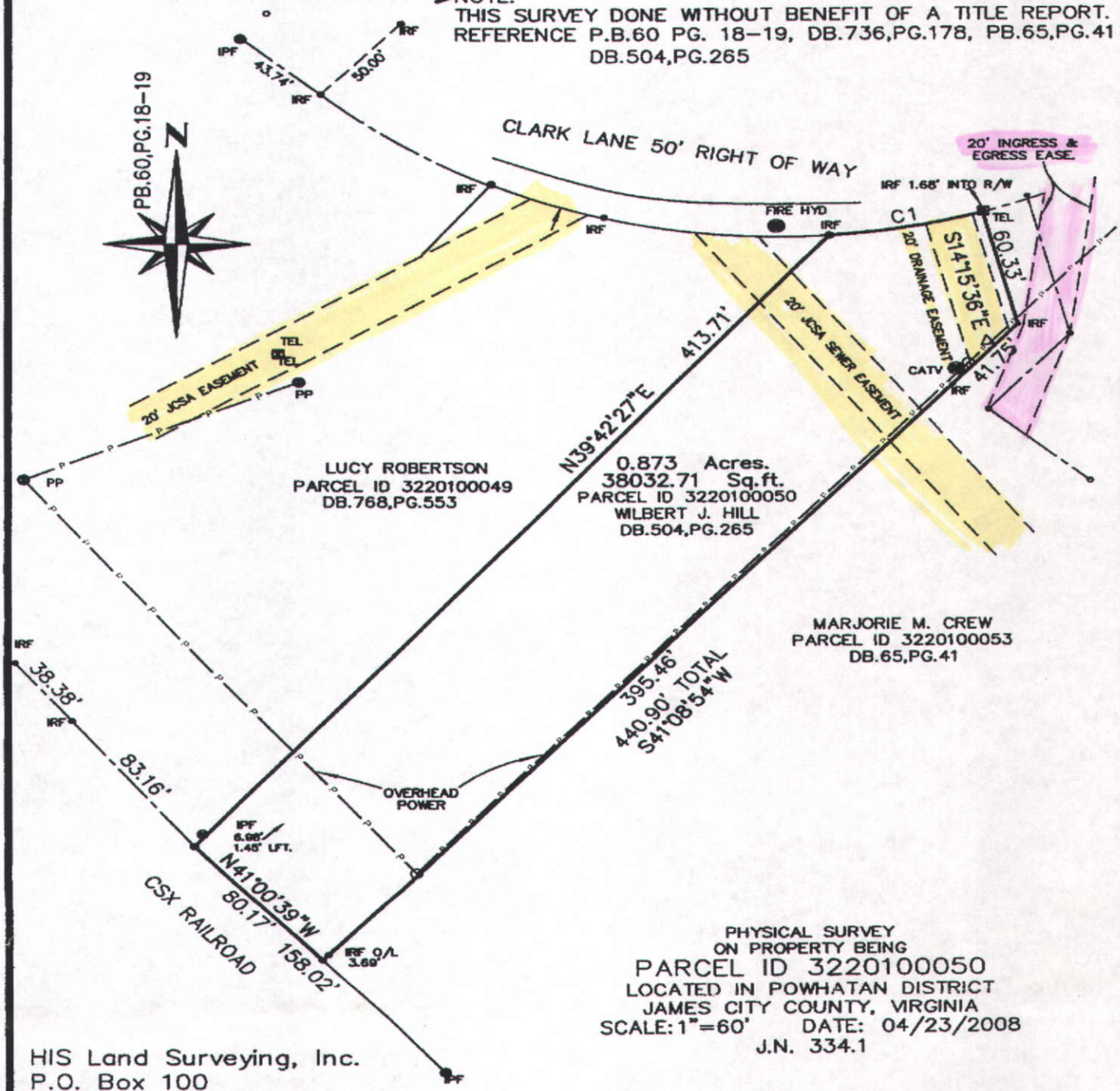
SURVEYOR'S CERTIFICATION:

THIS IS TO CERTIFY THAT ON 04/23/2008 I MADE AN ACCURATE FIELD SURVEY OF THE PREMISES SHOWN HEREON; THAT ALL IMPROVEMENTS KNOWN OR VISIBLE ARE SHOWN HEREON, THAT THERE ARE NO ENCROACHMENTS BY IMPROVEMENTS EITHER FROM ADJOINING PREMISES, OR FROM THE SUBJECT PREMISES UPON ADJOINING PREMISES, OTHER THAN SHOWN HEREON. ACCORDING TO THE CURRENT RESPECTIVE NATIONAL FLOOD INSURANCE PROGRAM RATE MAP THIS PROPERTY IS LOCATED WITHIN ZONE X.

POWER IS ( ) UNDERGROUND, (X) OVERHEAD, TELEPHONE IS (X) UNDERGROUND, ( ) OVERHEAD.

DWELLING IS NEW ( ) % COMPLETE_____, OLD (X) BY:

NOTE:
THIS SURVEY DONE WITHOUT BENEFIT OF A TITLE REPORT.
REFERENCE P.B.60 PG. 18–19, DB.736,PG.178, PB.65,PG.41
DB.504,PG.265



PHYSICAL SURVEY
ON PROPERTY BEING
PARCEL ID 3220100050
LOCATED IN POWHATAN DISTRICT
JAMES CITY COUNTY, VIRGINIA
SCALE: 1"=60' DATE: 04/23/2008
J.N. 334.1

HIS Land Surveying, Inc.
P.O. Box 100
Providence Forge, Virginia 23140
Phone: 804–966–7017

NUM	DELTA	ARC	RADIUS	BEARING	DISTANCE
C1	12°59'59"	64.76'	285.44'	N79°33'43"E	64.62'

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523

THIS DEED OF GIFT, made this 17th day of December, 1993, by and between BLANCH CREW a/k/a BLANCHE E. CREW, widow, hereinafter referred to as GRANTOR, and MARJORIE M. CREW, single, as her sole and separate equitable estate, hereinafter referred to as GRANTEE, whose mailing address is Post Office Box 159, Lightfoot, Virginia 23090.

WITNESSETH: That for and in consideration of the love and affection the GRANTOR has and bears for the GRANTEE, the GRANTOR does hereby GRANT and CONVEY, with GENERAL WARRANTY and ENGLISH COVENANTS OF TITLE, unto the said GRANTEE, all of her right, title and interest in the following described property, to-wit:

All that certain lot or parcel of land situated in Jamestown District, James City County, Virginia, containing one (1) acre, more or less, but sold and conveyed in gross and not by the acre, and being bounded and described as follows: Beginning at a corner post on the line between the land now or formerly of F. L. Pemberton and the right of way of the Chesapeake & Ohio Railway Company; and thence extending in an easterly direction along the line of a wire fence separating the land now or formerly of F. L. Pemberton from the land hereby conveyed the distance of five hundred sixty (560) feet to an iron stob driven in the ground; thence in a northerly direction along the line separating the land hereby conveyed from the remaining lands now or formerly of Alfred T. Smith the distance of seventy-eight (78) feet to an iron stob on the line between the land hereby conveyed and the land now or formerly of E. B. Moore; thence in an easterly direction along the line of the land now or formerly of E. B. Moore the distance of 560 feet to the easterly line of the Chesapeake & Ohio Railway Company to an iron stob; thence along the said right of way of Chesapeake & Ohio Railway Company in a southerly direction the distance of seventy-eight (78) feet, to the point of beginning. The land hereby conveyed is bounded on the north by the land now or formerly of E. B. Moore, on the east by the remaining lands now or formerly of Alfred T. Smith, on the south by the land now or formerly of F. L. Pemberton, and on the west by the Chesapeake & Ohio Railway Company right of way.

PHILLIPS, BARTLETT & BLAND, P.C.
ATTORNEYS AT LAW
WILLIAMSBURG, VIRGINIA

RETURNED TO PHILLIPS BARTLETT & BLAND ATTORNEYS WILLIAMSBURG 1/28/94

1-2

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Subject, however, to all the restrictive covenants, conditions, easements and limitations of record or apparent on the ground.

EXPRESSLY RESERVING UNTO THE GRANTOR HEREIN FOR AND DURING THE REMAINDER OF HER NATURAL LIFE AN ESTATE IN THE SUBJECT PROPERTY, AND UPON HER DEATH THE REMAINDER TO VEST IN FEE SIMPLE ABSOLUTE IN THE GRANTEE.

Being the same property as that conveyed to Blanch Crew by Deed dated July 3, 1942 from Alfred T. Smith, widower, of record in James City County Deed Book 34, page 333.

WITNESS the following signature and seal:

Blanche Crew (SEAL)
BLANCH CREW
a/k/a BLANCHE E. CREW

COMMONWEALTH OF VIRGINIA

CITY/COUNTY OF James City, to-wit:

I, Ella Mae Wright, a Notary Public in and for the jurisdiction aforesaid, do hereby certify that BLANCH CREW a/k/a BLANCHE E. CREW, widow, whose name is signed to the foregoing writing bearing date on the 17th day of December, 1993, has acknowledged the same before me in the jurisdiction aforesaid.

GIVEN under my hand this 6th day of January, 1994.

Ella Mae Wright
NOTARY PUBLIC

My commission expires: ONV December 31, 1997.

In the C[illegible] Circuit Court of the City of [illegible] County of James City the [illegible] 10 Jan, 1994 This Deed [illegible] and [illegible] certificate annexed and admitted [illegible] recorded at 1:43 o'clock
Teste: Helena [illegible] Ward, Clerk
by [illegible]
Deputy Clerk

PHILLIPS, BARTLETT & BLAND, P.C.
ATTORNEYS AT LAW
WILLIAMSBURG, VIRGINIA

2-2

Canaday, Daniel 090003727,
080028681,
db 504 pg 265 legal=Taplers

JCC PIN 3220100112
legal = BMP on Clark Lane

Crew, Marjorie death certificate
db 664 pg 137 PIN 3220100053

LOT 112

PC126

LOT 50

LOT 53

Clark Ln

Raintree Way

Richmond Rd

129

148

149

151

167

133

143

131

135

137

139

141

145

147

138

140

142

144

146

150

152

112

1/30/09
080028681
plat + deed ref
DB 664 PG 137
09 0003727

10/1994
DB 813 PG 41
PC 126 Parcel
PB 65 PG 39-40

TOTAL BMP AREA
1.307 ACRE

MATCH LINE ALONG PROPERTY LINE SEE SHEET #1

PROJECT NO. P-2106-1

MOORETOWN ROAD

RAILROAD

CATALPA STREET

RTE. 603

BMP AREA
3.304 ACRES

322010112

PC 126
BLT 1993

TAYLOR, MARY A. ET ALS
PAULINE T. WILLIAMS
(32-281-1)
DB26-1
4.830 AC. REM. 1

FRAZIER, ALEXANDER JOSE
(32-281-42)
DB152-146
0.759 AC. REM.

COWLES, MAUDE E. & ERNEST N. JAMES
(32-281-46A)
DB227-112
0.470 AC. REM.

MOORE, JOHN
(33-181-2)
DB100-659
1.955 AC. REM. 1

RATCLIFFE, VERNON & VERNON RATCLIFFE, JR.
(32-281-49)
DB34-442
0.724 AC.

NEDO, VIRGINIA (32-281-48) WB 10-116
NO DIP
1.383 AC. REM.

MOORE, WILIAM HENRY EST. & LILLIAN ROBINSON
(33-181-4)
NO DIP
1.383 AC. REM.

HILL, WILBERT J.
(32-281-50)
DB504-160
1.025 AC. REM.

CREW, WILLIAM & BLANCHE
(32-281-33)
DB34-333
NO TAKE

RATCLIFFE, ROBERT
(32-281-51)
DB140-380
NO TAKE

BROWN, ROY L. & A.
(32-281-52)
DB232-127
0.214 AC. REM.

COLEMAN, BESSIE L. & MAUDE BARLOW
(32-281-52)
DB46-104
0.564 AC. TAKE 20

SMITH, SARAH I.
(32-281-56)
DB213-298
0.643 AC. REM.

MOORE, CHARLOTTE REBECCA
(33-181-9)
DB253-539
NO TAKE

WILLIAMS, JOYCE M.
(33-181-4A)
DB223-210
NO TAKE

WILLIAMS, JOYCE M.
(33-181-8)
DB223-210
NO TAKE

FAUNTLEROY, EARL
(33-181-7)
DB77-450
NO TAKE

REID, MARY E.
(33-181-6)
DB
NO TAKE

APPROX. LOCATION OF UNIMPROVED STREET

APPROX. LOCATION DIRT DRIVE KNOWN AS CLARK LANE

FRAZIER, HEZEKIAH D. JR.
(33-181-10)
DB218-645

COWLES, GENE A. SR. & HELEN G.
(33-181-19)
DB173-26

STATE GRID NORTH NAD 83

Is this recorded?

PROPOSED RIGHT-OF-WAY
ACQUISITION PLAT FOR
MOORETOWN ROAD NEIGHBORHOOD
POWHATAN DISTRICT, JAMES CITY COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
LEE O. WHITE
No. 1656
10/4/94
LAND SURVEYOR

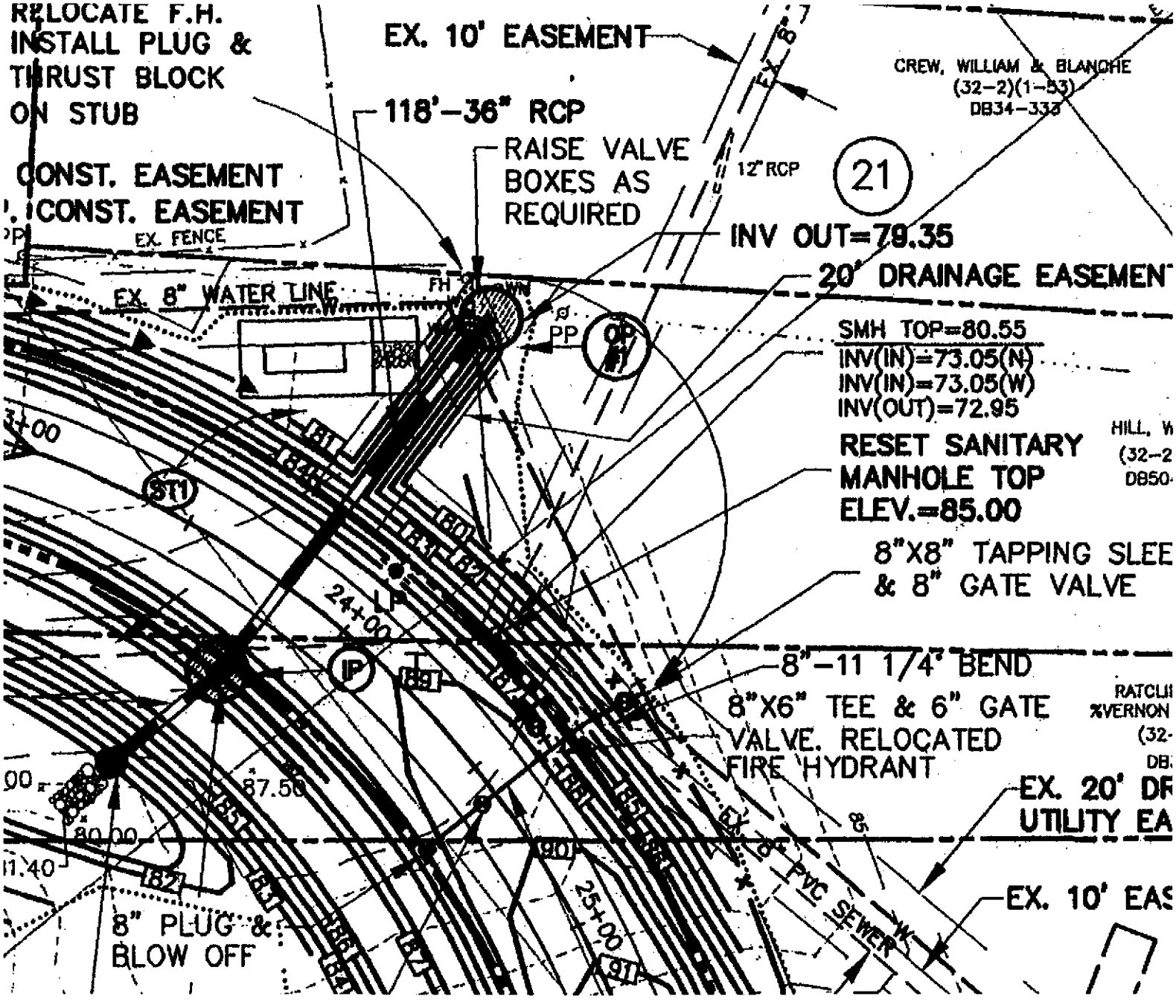
SHEET 2 OF 2

Draper Aden Associates
CONSULTING ENGINEERS
Blacksburg, Virginia – Richmond, Virginia – Nashville, Tennessee

REVISIONS:	DATE: 3/15/94	SCALE: 1" = 100'
5/26/94	DRAWN: PCB	CHECKED: LOW
7/26/94 EASEMENTS	PROJECT No. P-2106-1	
10/4/94 PARCEL ID.		

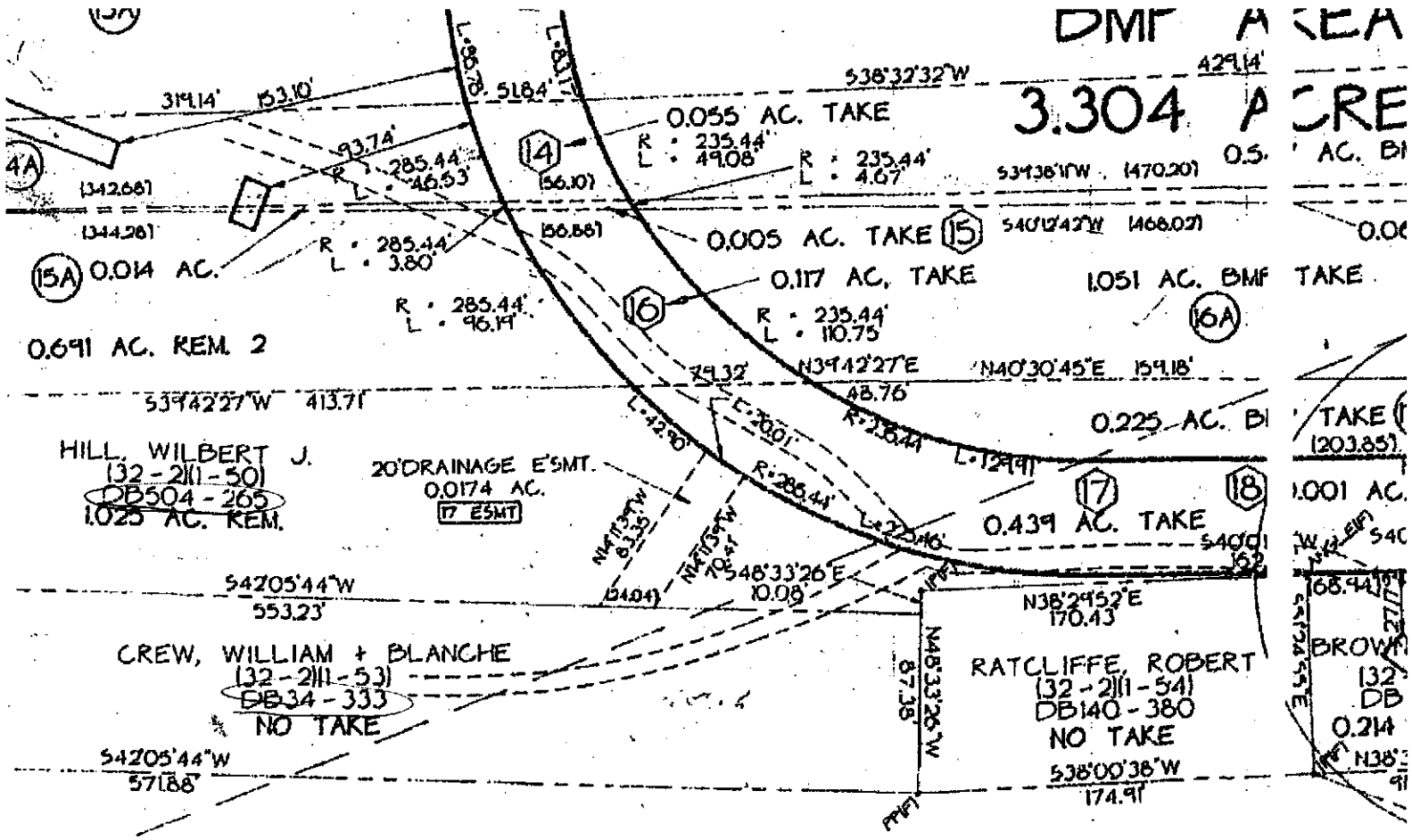
PC 126

PC126_JCC_148_CLARK_LANE_BMP_A - 010



drainage easement

courthouse



(32-2)(1-50)

(32-2)(1-53)

Was this ever recorded References

Curry Dr
Catalpa Dr
PC127
PC126
Clark Ln
Richmond Rd
Richmond Rd
Raintree Way
Forest Heights Rd