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: **CC-007**

DATE VERIFIED: **March 21, 2012**

QUALITY ASSURANCE TECHNICIAN: **Leah Hardenbergh**

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: March 10, 2010

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

FROM: Jo Anna Ripley, Stormwater

PO: 270712

RE: Files Approved for Scanning

General File ID or BMP ID: CC007

PIN: 4140700007

Subdivision, Tract, Business or Owner Name (if known): Suburban Propane

Property Description: Utility

Site Address: 7234 Merrimac Trail

(For internal use only) **Box** 10 **Drawer:** 6

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

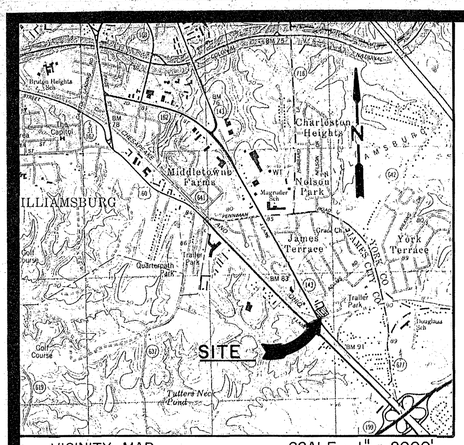
Comments

CC007

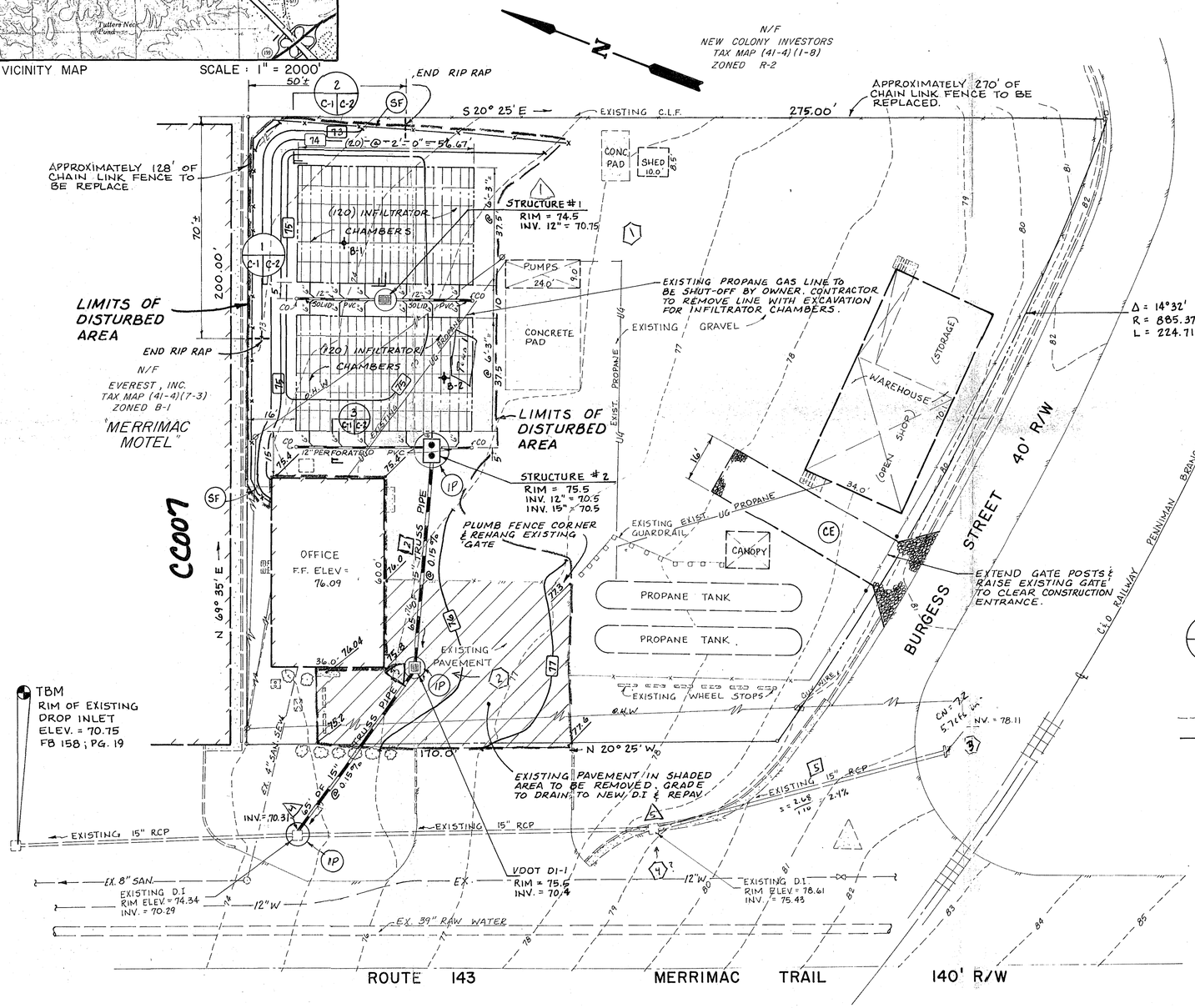
Contents for Stormwater Management Facilities As-built Files

Each file is to contain:

1. As-built plan
2. Completed construction certification
3. Construction Plan
4. Design Calculations
5. Watershed Map
6. Maintenance Agreement
7. Correspondence with owners
8. Inspection Records
9. Enforcement Actions



VICINITY MAP SCALE : 1" = 2000'



SITE PLAN

SCALE : 1" = 20'

OWNER: SUBURBAN PROPANE GAS
7232 MERRIMAC TRAIL
WILLIAMSBURG, VIRGINIA
23185
PHONE: (804) 229-5777
LOCAL MANAGER: RON TURNER

LAND USE SUMMARY

ZONING OF SITE : (B-1) GENERAL BUSINESS
TAX MAP : (41-4) (7-6)
TOTAL SITE AREA : 45,951 S.F. / 1.05 AC.
BUILDING AREA : 4,543 S.F. / 0.10 AC. / 10%
OPEN SPACE : 892 S.F. / 0.02 AC. / 2%
IMPERVIOUS AREA : 98 %

GENERAL NOTES

1. ELEVATIONS REFER TO NATIONAL GEODETIC DATUM (1929) & BASED ON JAMES CITY COUNTY STATION NO. 337 ELEVATION = 81.96
2. THIS PLAN DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY BY DJG, INC BOUNDARY INFORMATION IS BASED ON DEEDS & PLATS OF RECORD.
3. ALL PRIVATE LINES SHOULD BE IDENTIFIED BY THE FACILITY OWNER BEFORE EXCAVATIO. NOTIFY MISS UTILITY 48 HOURS PRIOR TO EXCAVATION. 1-800-257-7777
4. FENCE: ALL FENCE, NEW & EXISTING, IS TO HAVE (3) STRANDS OF BARBED WIRE INSTALLED OR REPLACED. EXISTING SUPPORT ARMS TO BE REUSED. DAMAGED SUPPORT ARMS TO BE REPLACED.
5. CONTRACTOR IS TO BE RESPONSIBLE FOR INSURING THAT TEMPORARY FENCING BE IN PLACE AT THE END OF EACH DAYS WORK IN ORDER TO MAINTAIN SECURITY REQUIREMENTS FOR THE FACILITY.

LEGEND

- ● B-1 — SOIL BORING
- LETTER INDICATES DETAIL NUMBER INDICATES SECTION
- SHEET NUMBER WHERE SECTION OR DETAIL APPEARS
- SHEET NUMBER WHERE SECTION OR DETAIL IS TAKEN.
- 75 — EXISTING CONTOUR
- 75 — PROPOSED CONTOUR

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.
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 VDOT 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 pre-construction 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 (Std. & Spec. 3.10) shall be installed prior to the end of each working day.
6. Sediment control measures may require minor field adjustments at 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 3.35. Seeding will then take place as soon as the season permits.
12. The term 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 3.32, Permanent Seeding. Irrigation shall be required as 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 3.35, Mulching and Manufacturer's Instructions.
14. Inlet protection in accordance with Specification 3.07 shall be provided for all storm drain inlets as soon as practical following 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 or from the project site.
19. All paved and/or piped outfalls will be constructed before road grading and utility installation begins.

DC/bkh
2480c

COUNTY OF JAMES CITY
FINAL SITE PLAN

Received .....

APPROVALS	DATE
Fire Dept.	
Health Dept.	
Highway Dept.	
Plan. Comm.	
Pub. Wks. Dept. Dec	1/14/93
Zoning Adm.	
JCSA	
Other	
Other	

4 JAN 1993 RECEIVED PLANNING DEPARTMENT

REVISIONS

No.	Date	Description

ENGINEERS · ARCHITECTS · SURVEYORS
INTERIOR DESIGNERS · PLANNERS
P.O. BOX 3505 WILLIAMSBURG, VIRGINIA 23187 (804) 253-0673 (804) 874-5015

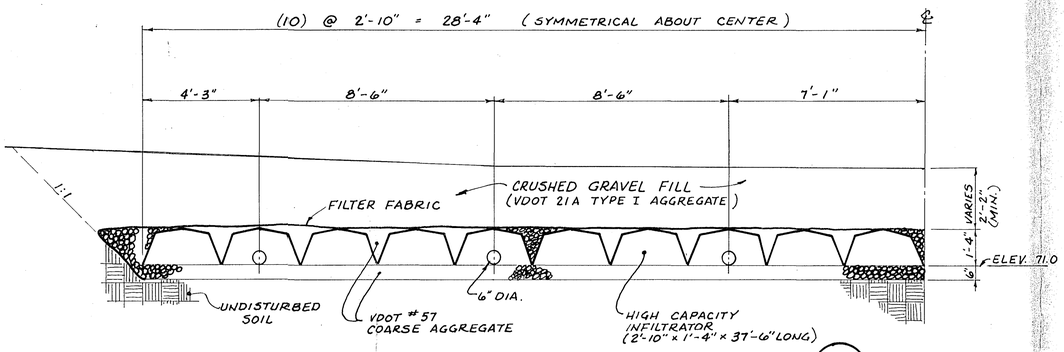
COMMONWEALTH OF VIRGINIA
ROBERT S. PRIDDY
No. 022287
PROFESSIONAL ENGINEER

SITE PLAN
SUBURBAN PROPANE GAS
OF WILLIAMSBURG
JAMES CITY COUNTY VIRGINIA

SCALE	AS SHOWN
DESIGNED	RSP
DRAWN	TCS
CHECKED	RSP
DATE	JAN.04, 1993
COMMISSION NO.	1920770
SHEET	C-1
	1 OF 2

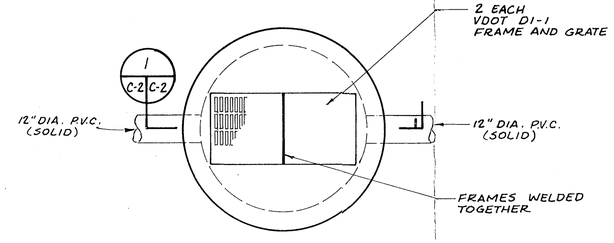
CC007_SUBURBAN_PROPANE - 004

CC-007 SP-01-93



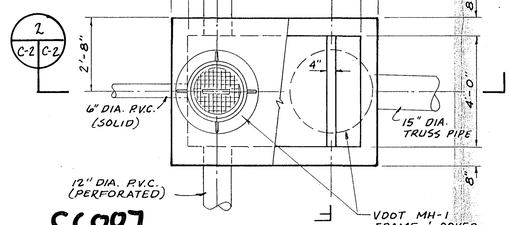
1 / C-2 | C-2 SECTION - INFILTRATOR ARRAY

SCALE : 3/8" = 1'-0"



PLAN - STRUCTURE #1

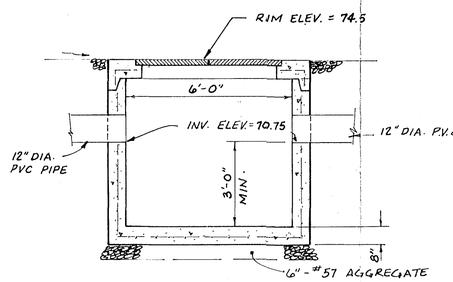
N.T.S.



CC007

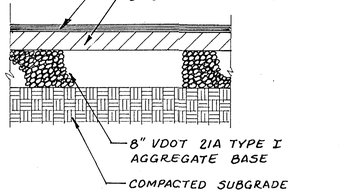
PLAN - STRUCTURE #2

N.T.S.



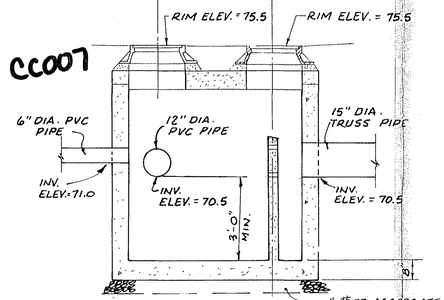
1 / C-2 | C-2 SECTION

N.T.S.



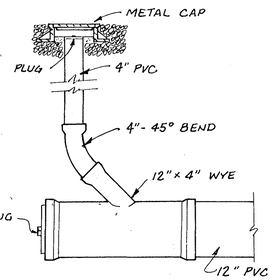
TYPICAL PAVEMENT SECTION

N.T.S.



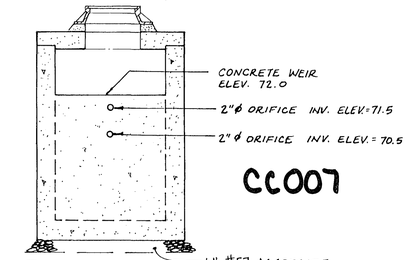
2 / C-2 | C-2 SECTION

N.T.S.



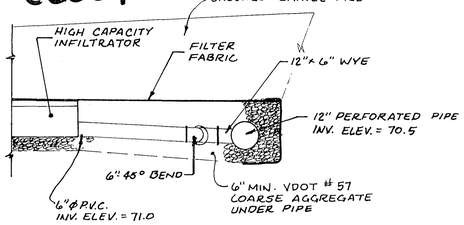
TYPICAL CLEANOUT

N.T.S.



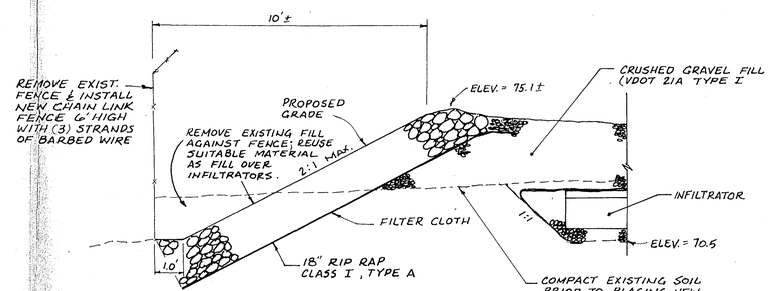
3 / C-2 | C-2 SECTION

N.T.S.



3 / C-1 | C-2 SECTION

SCALE : 3/8" = 1'-0"

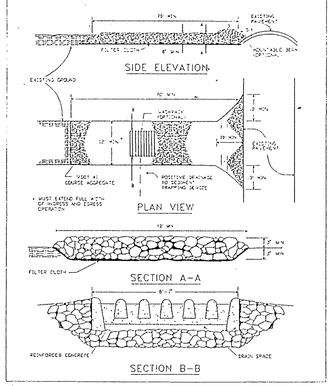


2 / C-1 | C-2 SECTION

N.T.S.

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	3.05	SILT FENCE	SF	3.07	STORM DRAIN INLET PROTECTION	IP

STONE CONSTRUCTION ENTRANCE



Source: Adapted from 1983 Maryland Standards for Soil Erosion and Sediment Control, and Va. DSWC

Plate 3.02-1

Construction Specifications

The area of the entrance must be excavated a minimum of 3 inches and must be cleared of all vegetation, roots, and other objectionable material. The filter fabric underliner will then be placed the full width and length of the entrance

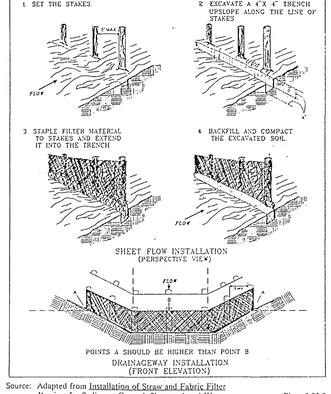
Following the installation of the filter cloth, the stone shall be placed to the specified dimensions. If wash racks are used, they should be installed according to manufacturer's specifications. Any drainage facilities required because of washing should be constructed according to specifications. Conveyance of surface water under entrance, through culverts, shall be provided as required. If such conveyance is impossible, the construction of a "mountable" berm with 5:1 slopes will be permitted.

The filter cloth utilized shall be a woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals and hydrocarbons, be mildew and rot resistant, and conform to the physical properties noted in Table 3.02-A.

Maintenance

The entrance shall be maintained in a condition which will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with additional stone or the washing and reworking of existing stone as conditions demand and repair and/or cleanout of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. The use of water trucks to remove materials dropped, washed, or tracked onto roadways will not be permitted under any circumstances.

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)



Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Plate 3.05-2

Construction Specifications

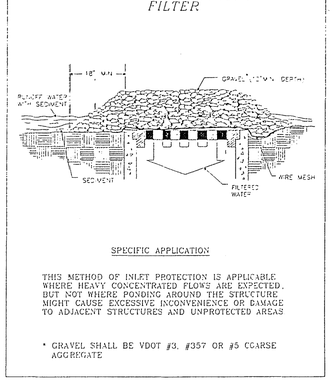
Materials

1. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the requirements noted in Table 3.05-B.
2. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0° F to 120° F.
3. If wooden stakes are utilized for silt fence construction, they must have a diameter of 2 inches when oak is used and 4 inches when pine is used. Wooden stakes must have a minimum length of 5 feet.
4. If steel posts (standard "U" or "T" section) are utilized for silt fence construction, they must have a minimum weight of 1.33 pounds per linear foot and shall have a minimum length of 5 feet.
5. Wire fence reinforcement for silt fences using standard-strength filter cloth shall be a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.

Maintenance

1. Silt fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
2. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting.
3. Should the fabric on a silt fence decompose or become ineffective prior to the end of the expected usable life and the barrier still be necessary, the fabric shall be replaced promptly.
4. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.
5. Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS

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

Gravel and Wire Mesh Drop Inlet Sediment Filter

a. Wire mesh shall be laid over the drop inlet so that the wire extends a minimum of 1 foot beyond each side of the inlet structure. Wire mesh with 1/2-inch openings shall be used. If more than one strip of mesh is necessary, the strips shall be overlapped.
b. Coarse aggregate shall be placed over the wire mesh as indicated on Plate 3.07-2. The depth of stone shall be at least 12 inches over the entire inlet opening. The stone shall extend beyond the inlet opening at least 18 inches on all sides.
c. If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stones must be pulled away from the inlet, cleaned and/or replaced.

Maintenance

1. The structure shall be inspected after each rain and repairs made as needed.
2. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half 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.
3. Structures shall be removed and the area stabilized when the remaining drainage area has been properly stabilized.

REVISIONS

No.	Date	Description

ENGINEERS · ARCHITECTS · SURVEYORS
INTERIOR DESIGNERS · PLANNERS
P.O. BOX 3505 WILLIAMSBURG, VIRGINIA 23187 (804) 253-0673 (804) 874-5015

COMMONWEALTH OF VIRGINIA — ROBERT S. PHILLIPS — LICENSED PROFESSIONAL ENGINEER — NO. 022322

SECTIONS, DETAILS, EROSION CONTROL

SUBURBAN PROPANE GAS
OF WILLIAMSBURG

VIRGINIA
JAMES CITY COUNTY

SCALE	AS SHOWN
DESIGNED	RSP
DRAWN	TCS
CHECKED	RSP
DATE	JAN.04,1993
COMMISSION NO.	1920770
SHEET	C-2
	2 OF 2

Proposed Stormwater Management Improvements

Suburban Propane Gas Corporation

Merrimac Trail

Williamsburg, Virginia

THE DEYOUNG-JOHNSON GROUP, INC.

Proposed Stormwater Management Improvements
Suburban Propane Gas Corporation

PURPOSE:

In September 1992, DJG, Inc. was retained by Suburban Propane Gas Corporation to assess the impact of stormwater runoff on their property on Route 143 in James City County and to determine the feasibility of constructing a stormwater management system to reduce the risk of property damage from stormwater entering and leaving the site.

SITE DESCRIPTION:

The site is located in James City County on Route 143 at the intersection of Colony Circle about 1 1/2 miles west of the intersection of Route 199 . It consist of approximately 1.1 acres bounded on the south by Colony Circle, on the west by Route 143, on the north by the Merrimac Motel and on the east by a parcel containing several mobile home sites. The site is fully occupied with buildings, parking lot, gravel storage yard and 600 to 800 square feet of grass lawn. It slopes uniformly from south to north at about 2 %.

EXISTING STORMWATER SYSTEMS:

There are no collection or control structures on the property. Stormwater falling on the property runs off at its northern extremity onto the mobile home and motel properties. Gravel fill along these boundaries is subject to erosion and the existing security fencing is being undermined. This condition was aggravated by a significant amount of runoff entering the property due to deficiencies in the Virginia Department of Transportation drainage system. Improvements made by VDOT during the month of October 1992 have essentially eliminated the offsite contribution.

14 hour detention time

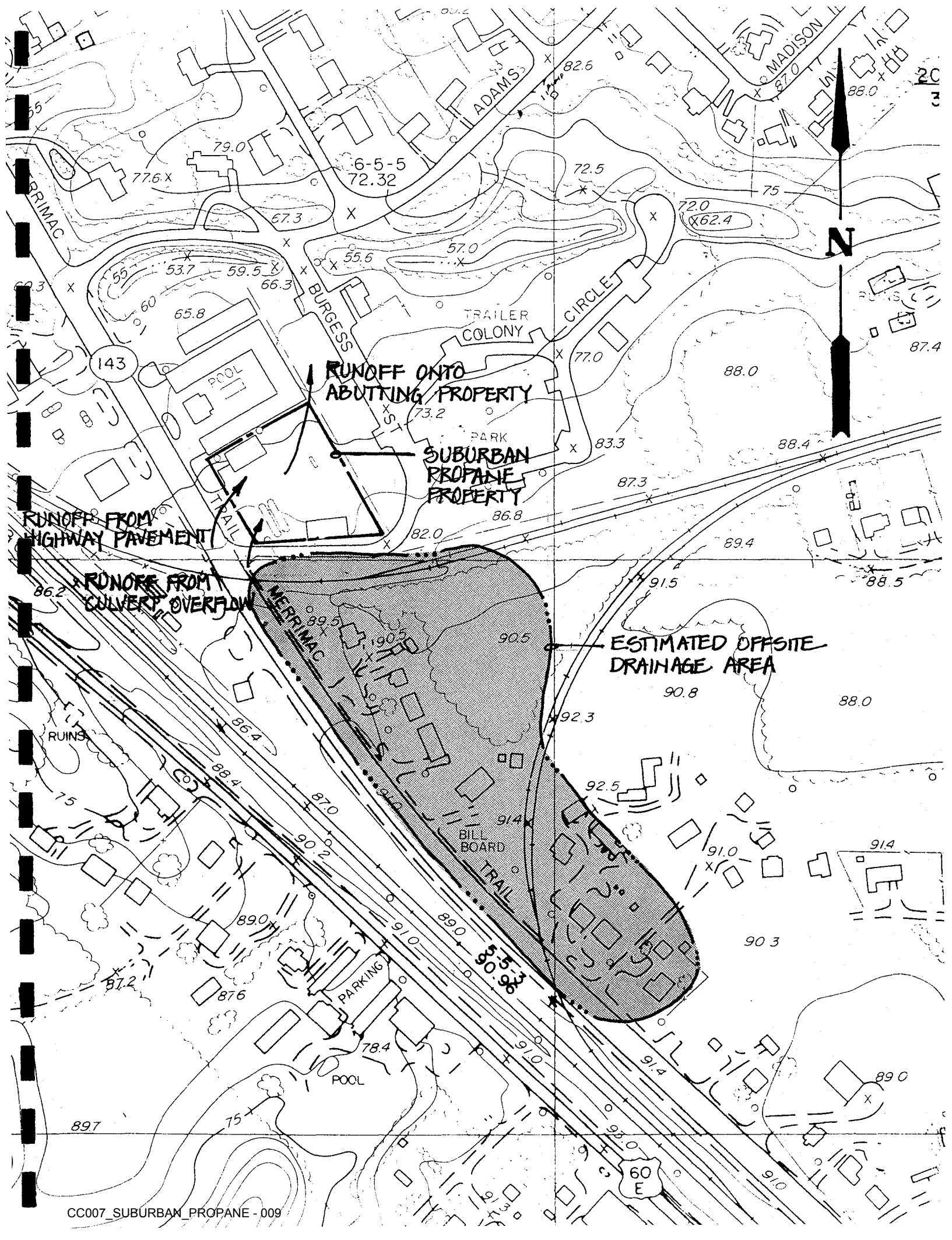
6.1 → 3.8 cfs

DRAINAGE ANALYSIS:

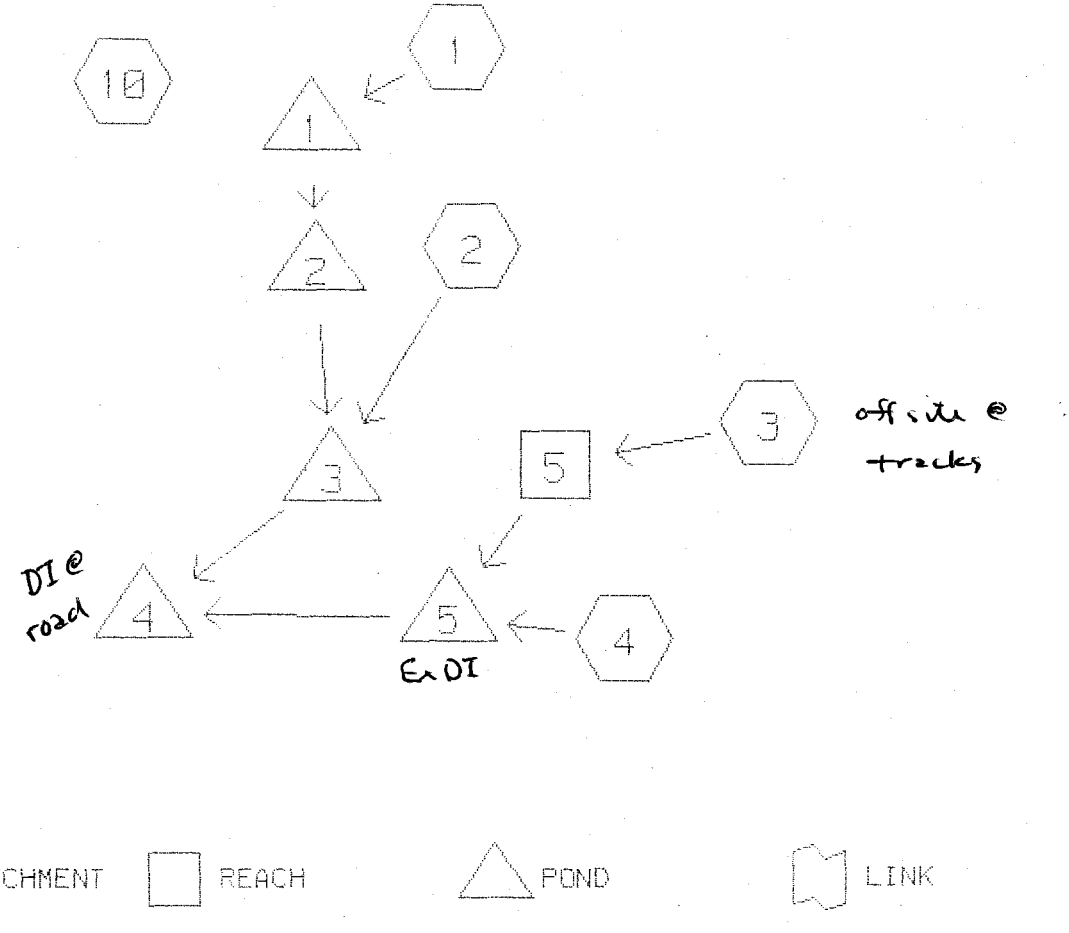
The numerical analysis contained in the following pages was accomplished with the aide of a computer program using the Soil Conservation Service (SCS) method for stormwater hydrology as outlined in Technical Release No.20 (TR-20). A Type II storm distribution for a 10 year rainfall event was selected as the appropriate basis for analysis. Drainage areas and runoff patterns were estimated using field observation and measurements and plans obtained from the Virginia Department of Transportation and the James City County Planning Department.

SUMMARY:

The DJG analysis indicates that the correction of the functional deficiencies in the VDOT drainage system will reduce the amount of runoff leaving the property at its northern boundaries by as much as 44%. The proposed subsurface detention system will essentially eliminate the remaining 56% by diverting into the existing VDOT drainage system. The rate of runoff will be structurally controlled to prevent overloading of the system.


RUNOFF ONTO ABUTTING PROPERTY
SUBURBAN PROPANE PROPERTY
RUNOFF FROM HIGHWAY PAVEMENT
RUNOFF FROM CULVERT OVERFLOW
ESTIMATED OFFSITE DRAINAGE AREA
MERRIMAC
BURGESS
ADAMS
MADISON
TRAILER COLONY
CIRCLE
PARK
TRAIL
BILL BOARD
PARKING
POOL
RUINS
143
6-5-5
72.32
N

WATERSHED ROUTING ==========



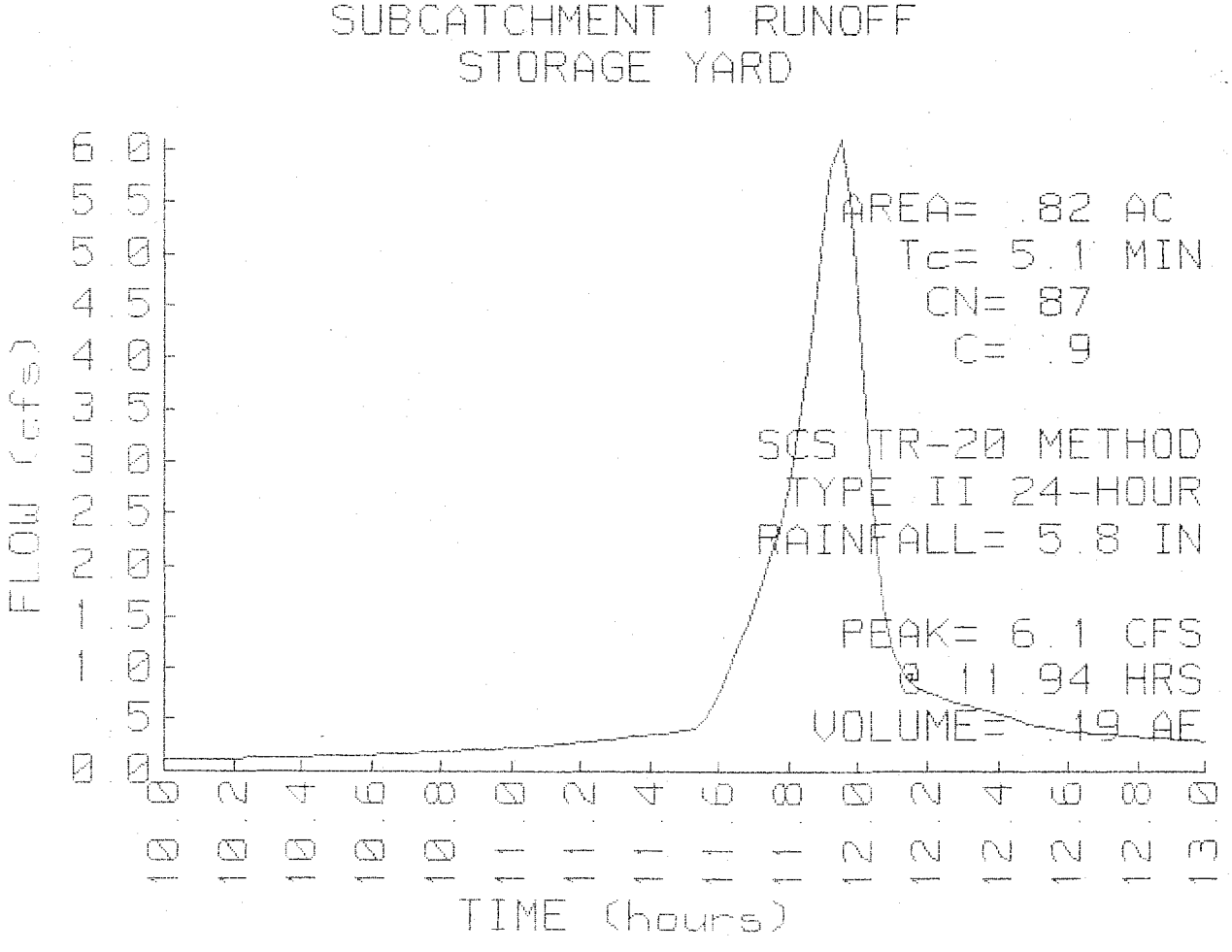
SUBCATCHMENT 1 STORAGE YARD

ACRES	CN	C= .90
.82	87	GRAVEL STORAGE YARD

SCS TR-20 METHOD
TYPE II 24-HOUR
RAINFALL= 5.8 IN
PEAK= 6.1 CFS @ 11.94 HRS
VOLUME= .19 AF

Method	Comment	Tc (min
CURVE NUMBER (LAG) METHOD	REAR STORAGE YARD	5.1

L=210' s=.02 '/'



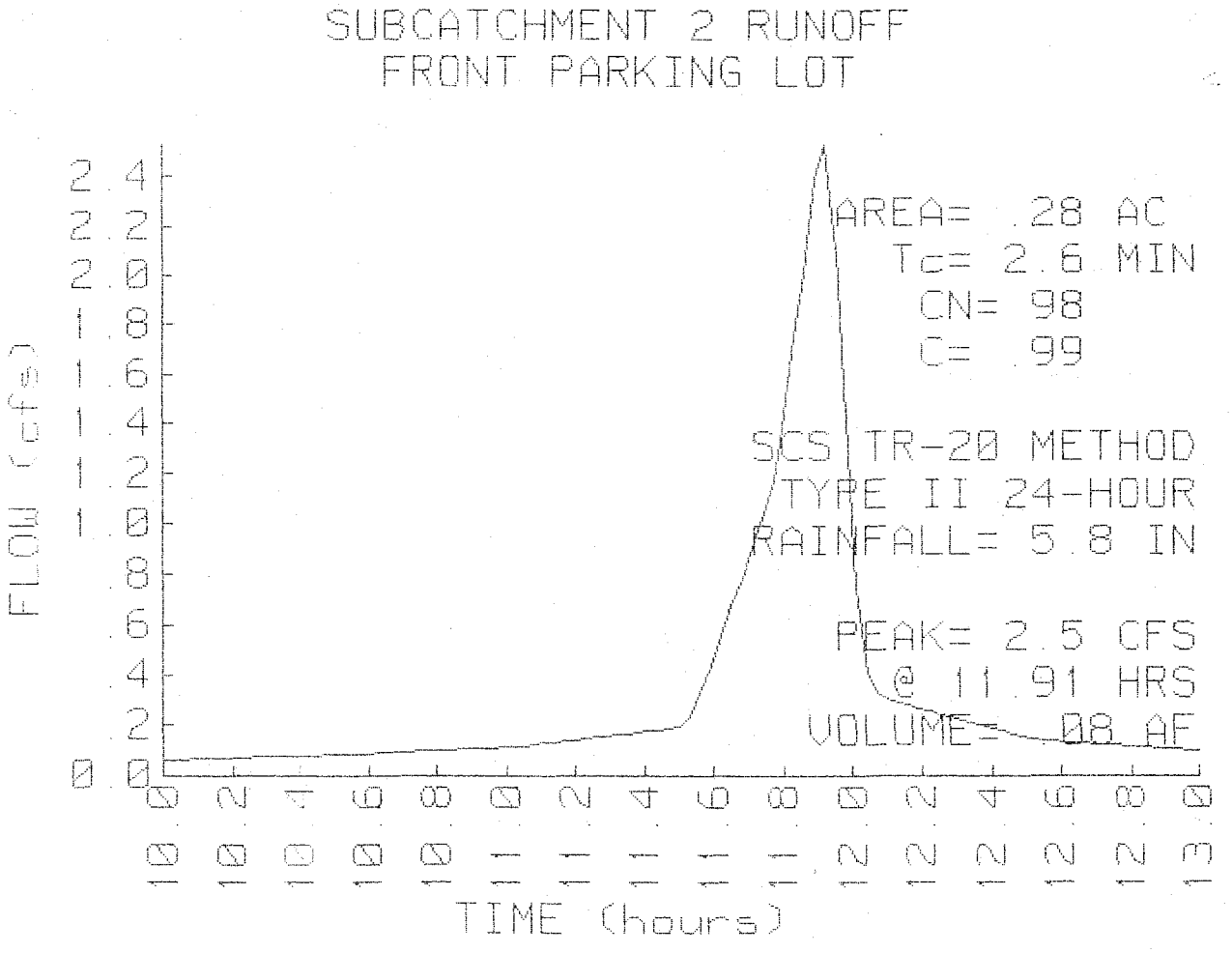
SUBCATCHMENT 2 FRONT PARKING LOT

ACRES	CN	
.28	98	C= .99 ROOF & PAVEMENT

SCS TR-20 METHOD
TYPE II 24-HOUR
RAINFALL= 5.8 IN
PEAK= 2.5 CFS @ 11.91 HRS
VOLUME= .08 AF

Method	Comment	Tc (min)
CURVE NUMBER (LAG) METHOD	PARKING LOT	2.6

L=170' s=.02 '/'



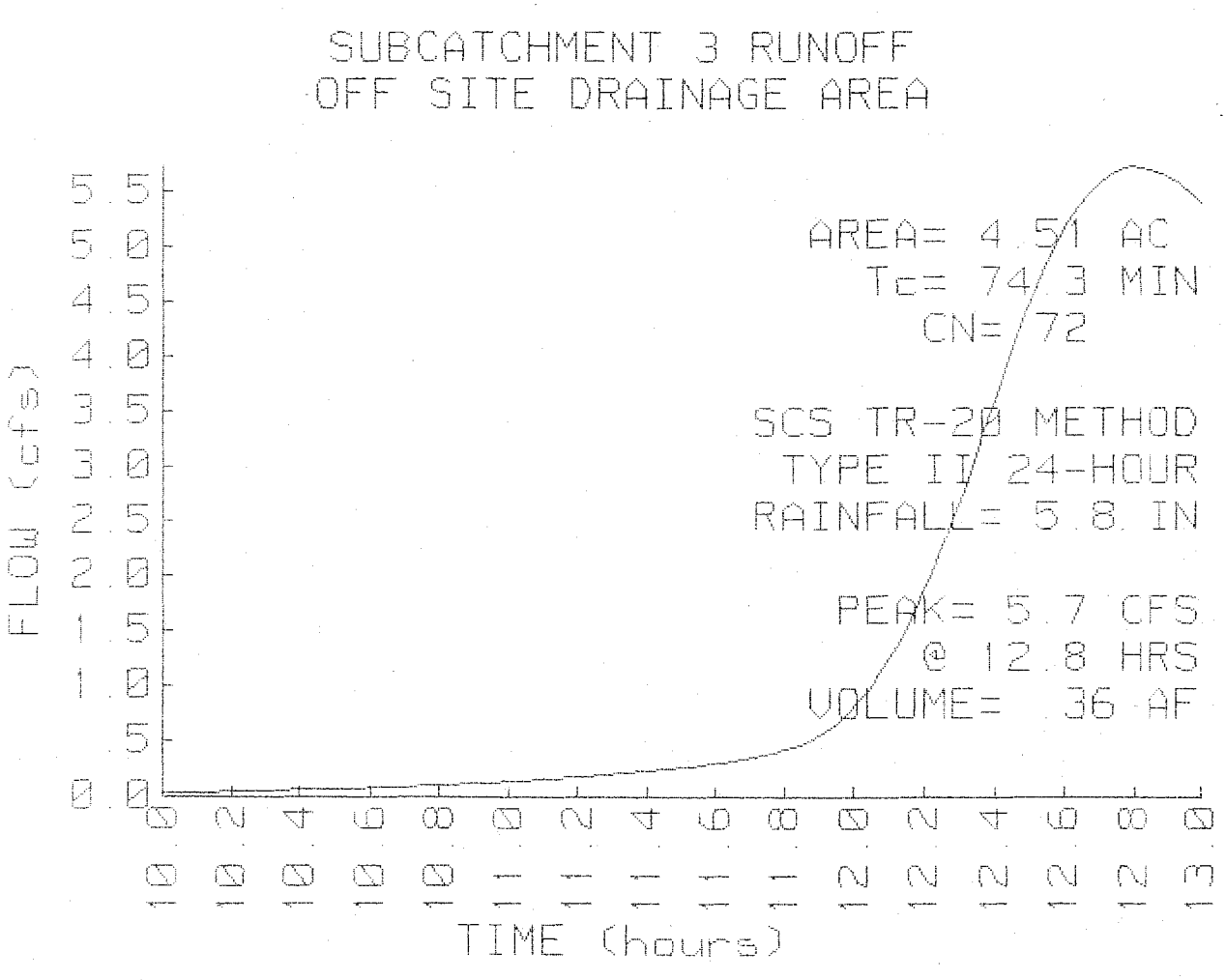
SUBCATCHMENT 3 OFF SITE DRAINAGE AREA

ACRES	CN	
2.97	60	WOODS
.83	98	PAVEMENT
.25	98	ROOFS
.46	87	GRAVEL DRIVEWAYS
4.51	72	

SCS TR-20 METHOD
TYPE II 24-HOUR
RAINFALL= 5.8 IN
PEAK= 5.7 CFS @ 12.80 HRS
VOLUME= .36 AF

Method	Comment	Tc (min
CURVE NUMBER (LAG) METHOD	MERRIMAC TRAIL WYE	74.3

L=1100' s=.0034 '/'



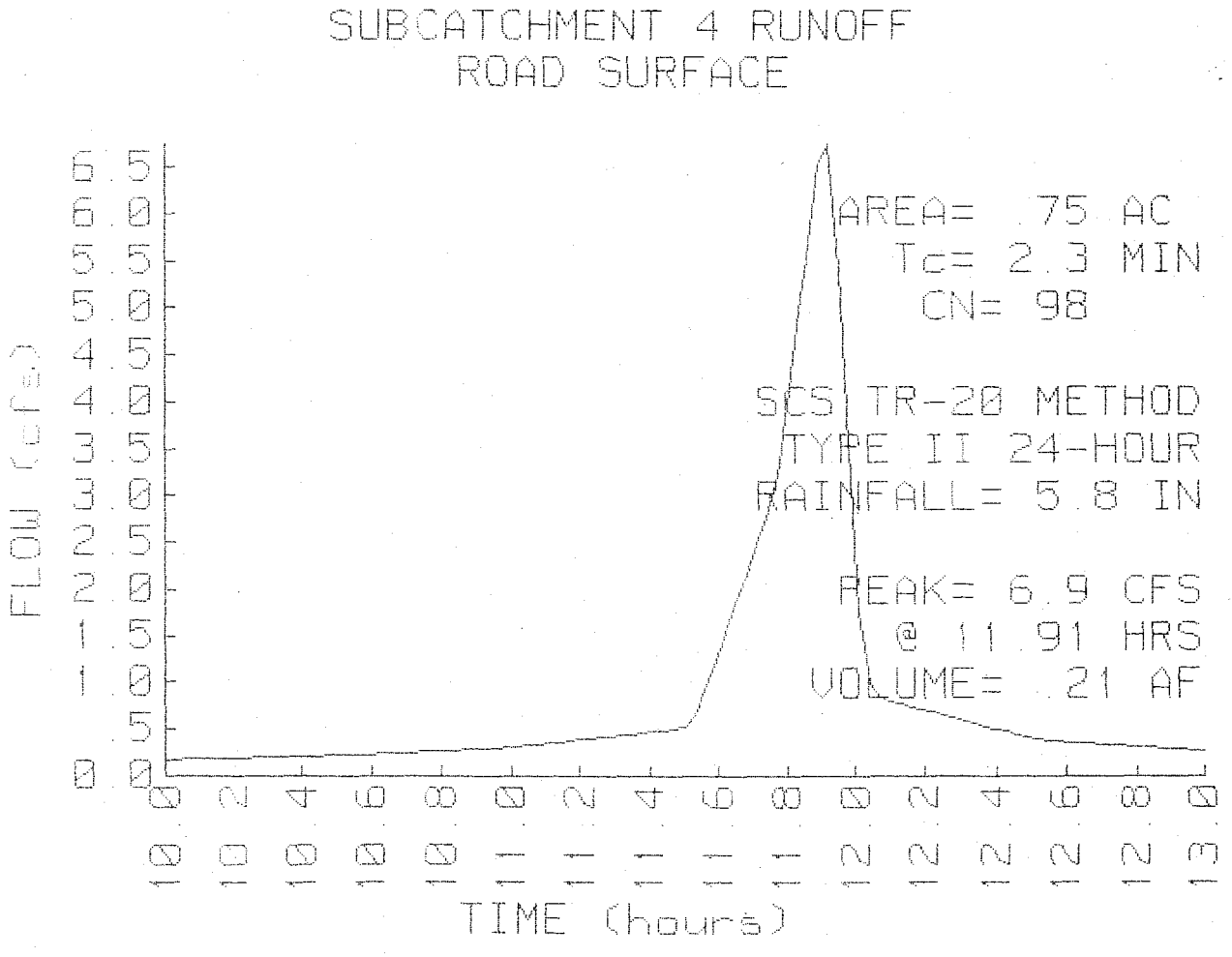
SUBCATCHMENT 4 ROAD SURFACE

ACRES	CN	
.75	98	PAVEMENT

SCS TR-20 METHOD
TYPE II 24-HOUR
RAINFALL= 5.8 IN
PEAK= 6.9 CFS @ 11.91 HRS
VOLUME= .21 AF

Method	Comment	Tc (min)
CURVE NUMBER (LAG) METHOD	ROAD SURFACE	2.3

L=190' s=.03 '/'



REACH 5 VDOT EXISTING STORM SEWER FROM DITCH

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.0
.1	.1	.1
.3	.2	.3
.4	.3	.7
.9	.9	2.9
1.0	1.1	3.4
1.1	1.2	3.7
1.2	1.2	3.7
1.2	1.2	3.7
1.3	1.2	3.5

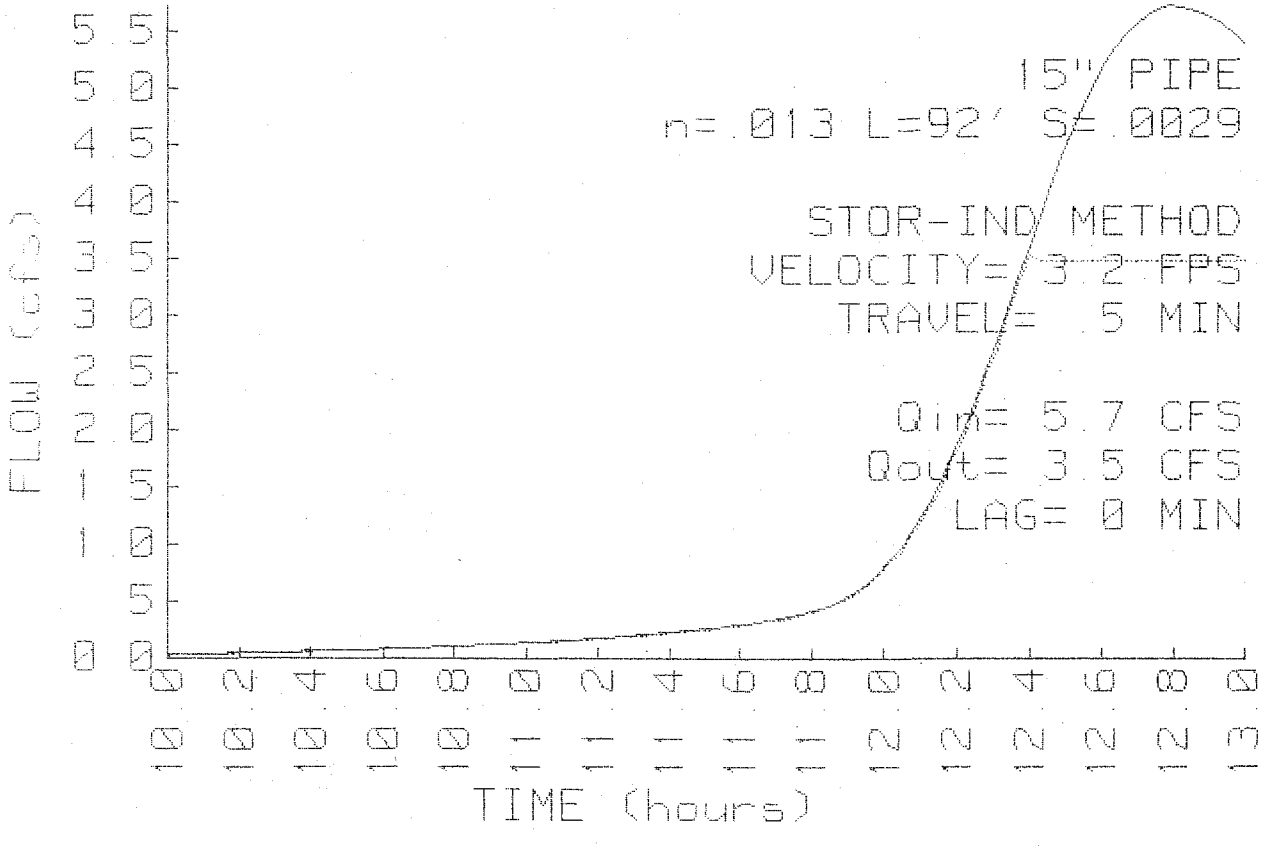
15" PIPE

n= .013
LENGTH= 92 FT
SLOPE= .0029 FT/FT

2.4%
- engineer redid calcs w/ proper slope - no impact to ϕ design.

STOR-IND METHOD
MAX. DEPTH= 1.25 FT
PEAK VELOCITY= 3.2 FPS
TRAVEL TIME = .5 MIN
Qin = 5.7 CFS @ 12.80 HRS
Qout= 3.5 CFS @ 12.41 HRS
ATTEN= 38 % LAG= 0.0 MIN
IN/OUT= .36 / .27 AF

REACH 5 INFLOW & OUTFLOW
VDOT EXISTING STORM SEWER FROM DITCH



POND 1 SUBSURFACE DETENTION POND 4250 s.f.

STARTING ELEV= 70.5 FT
FLOOD ELEV= 74.0 FT

ELEVATION (FT)	CUM.STOR (CF)
70.5	0
71.0	744
72.3	5270
74.0	5350

STOR-IND METHOD
PEAK ELEVATION= 72.6 FT
PEAK STORAGE = 5283 CF
Qin = 6.1 CFS @ 11.94 HRS
Qout= 3.8 CFS @ 12.03 HRS
ATTEN= 38 % LAG= 5.4 MIN
IN/OUT= .19 / .09 AF

INVERT (FT)	OUTLET DEVICES
70.5	2" ORIFICE Q=.82 PI r^2 SQR(2g) SQR(H-r)
72.0	3´ BROAD-CRESTED RECTANGULAR WEIR Q=C L H^1.5 C=2.61, 2.67, 2.66, 2.72, 0, 0, 0, 0
71.5	2" ORIFICE Q=.82 PI r^2 SQR(2g) SQR(H-r)

TOTAL DISCHARGE vs ELEVATION

FEET	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
70.5	0.0	0.0	0.0	.1	.1	.1	.1	.1	.1	.1
71.5	.1	.2	.2	.2	.2	.3	.5	1.0	1.6	2.3
72.5	3.1	4.0	5.0	6.1	7.2	8.4	9.6	10.9	12.3	13.7
73.5	15.1	16.7	18.3	20.0	21.8	23.6				

POND 2 REACH 2 SIMULATION

STARTING ELEV= 70.5 FT
FLOOD ELEV= 74.0 FT

ELEVATION (FT)	CUM.STOR (CF)
70.5	0
72.0	6
73.0	30
74.0	54

STOR-IND METHOD
PEAK ELEVATION= 71.8 FT
PEAK STORAGE = 5 CF
Qin = 3.8 CFS @ 12.03 HRS
Qout= 3.8 CFS @ 12.03 HRS
ATTEN= 0 % LAG= 0.0 MIN
IN/OUT= .09 / .09 AF

INVERT (FT)	OUTLET DEVICES
70.5	15" CULVERT ✓ n=.01 L=65´ S=.0015´/´ Ke=.5 Cc=.9 Cd=.6 TW=1.3´

TOTAL DISCHARGE vs ELEVATION

FEET	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
70.5	0.0	0.0	.1	.2	.4	.7	1.0	1.3	1.6	2.0
71.5	2.4	2.8	3.2	3.6	4.0	4.3	4.6	4.7	5.1	5.5
72.5	5.9	6.2	6.5	6.8	7.1	7.4	7.7	7.9	8.2	8.4
73.5	8.7	8.9	9.1	9.3	9.5	9.8				

POND 3 PROPOSED 4 FT. DIAM. D.I.

STARTING ELEV= 70.4 FT
FLOOD ELEV= 74.5 FT

ELEVATION (FT)	CUM.STOR (CF)
70.4	0
71.4	13
72.4	25
73.4	38
74.4	50

STOR-IND METHOD
PEAK ELEVATION= 71.8 FT
PEAK STORAGE = 18 CF
Qin = 4.2 CFS @ 12.03 HRS
Qout= 4.2 CFS @ 12.03 HRS
ATTEN= 0 % LAG= 0.0 MIN
IN/OUT= .17 / .17 AF

INVERT (FT)	OUTLET DEVICES
70.4	15" CULVERT
	n=.01 L=65´ S=.0015´/´ Ke=.5 Cc=.9 Cd=.6 TW=3.6´

TOTAL DISCHARGE vs ELEVATION

FEET	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
70.4	0.0	0.0	.1	.2	.4	.7	1.0	1.3	1.6	2.0
71.4	2.4	2.8	3.2	3.6	4.0	4.3	4.6	4.7	5.1	5.5
72.4	5.9	6.2	6.5	6.8	7.1	7.4	7.7	7.9	8.2	8.4
73.4	8.7	8.9	9.1	9.3	9.5	9.8	10.0	10.2	10.4	10.6
74.4	10.7									

POND 4 EXISTING 4 FT. DIAM. D.I. @ STA. 1269+50

STARTING ELEV= 70.3 FT
FLOOD ELEV= 74.3 FT

ELEVATION (FT)	CUM.STOR (CF)
70.3	0
71.3	13
72.3	25
73.3	38
74.3	50

STOR-IND METHOD
PEAK ELEVATION= 73.9 FT
PEAK STORAGE = 44 CF
Qin = 10.2 CFS @ 11.91 HRS
Qout= 10.1 CFS @ 11.91 HRS
ATTEN= 0 % LAG= .1 MIN
IN/OUT= .66 / .66 AF

INVERT (FT)	OUTLET DEVICES
70.3	15" CULVERT
	n=.013 L=92´ S=.05´/´ Ke=.5 Cc=.9 Cd=.6 TW=4´

TOTAL DISCHARGE vs ELEVATION

FEET	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
70.3	0.0	0.0	.2	.4	.7	1.1	1.5	2.0	2.5	3.1
71.3	3.6	4.1	4.5	4.9	5.2	5.5	5.8	6.1	6.4	6.7
72.3	6.9	7.2	7.4	7.6	7.9	8.1	8.3	8.5	8.7	8.9
73.3	9.1	9.3	9.5	9.7	9.8	10.0	10.2	10.4	10.5	10.7
74.3	10.9									

POND 5 EXISTING 4 FT. DIAM. D.I.@ STA.1268+35

STARTING ELEV= 75.4 FT
FLOOD ELEV= 78.5 FT

ELEVATION (FT)	CUM.STOR (CF)
75.4	0
76.4	13
77.4	25
78.4	38

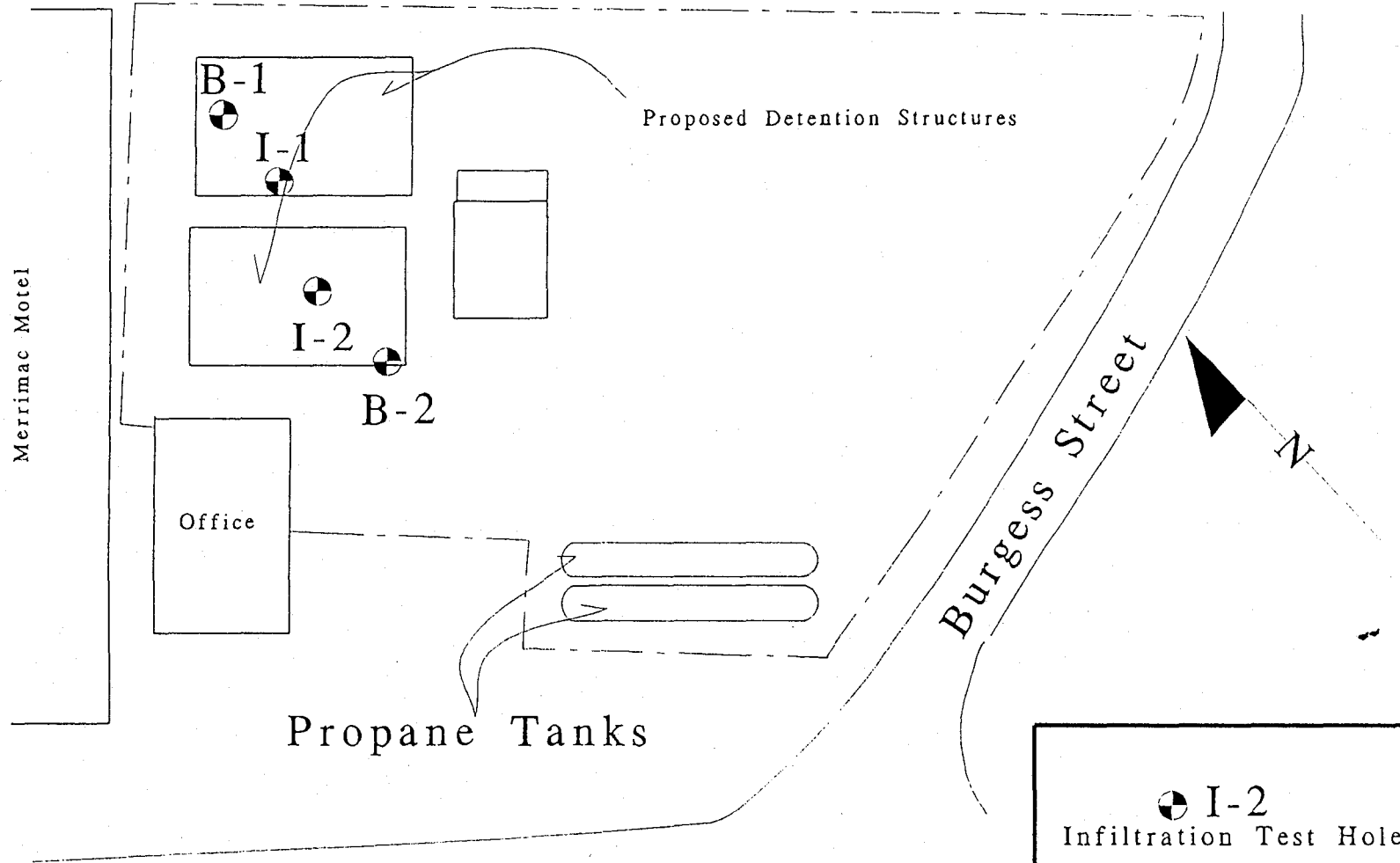
STOR-IND METHOD
PEAK ELEVATION= 77.6 F
PEAK STORAGE = 27 C
Qin = 7.4 CFS @ 11.91 H
Qout= 7.4 CFS @ 11.91 H
ATTEN= 0 % LAG= .1 M
IN/OUT= .48 / .48 A

INVERT (FT) OUTLET DEVICES

75.4 15" CULVERT
n=.013 L=110' S=.05'/' Ke=.5 Cc=.9 Cd=.6 TW=3.6'

TOTAL DISCHARGE vs ELEVATION

FEET	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.
75.4	0.0	0.0	.2	.4	.7	1.1	1.5	2.0	2.5	3.
76.4	3.6	4.1	4.5	4.9	5.2	5.5	5.8	6.1	6.4	6.
77.4	6.9	7.2	7.4	7.6	7.9	8.1	8.3	8.5	8.7	8.
78.4	9.1									



COMBINED TECHNOLOGIES, INC.
510 Eastpark Court, Suite 120
Sandston, Virginia 23150
(804) 737-0076

Suburban Propane Williamsburg, Virginia	File: R-3246-92	Date: 12/22/92
	Drawn By: BLK	App. by: JHB
Boring Location Plan	Des. By: BLK	Figure: 2

CC007_SUBURBAN_PROPANE - 019

BORING LOG

Project Name		Water Level Data	Date Started	Boring
Suburban Propane		Dry Upon Completion	December 7, 1992	B-1
Size & Bit	Job Number		Date Completed	Page
6" Cutter Head	R-3516-92		December 7, 1992	1 of 1
Drilling Method	Driller	Total Depth		Elevation
Hollow Stem Augers	Ayers & Ayers	12.5 feet		N/A

Depth in Feet	Classification	Sample No.	From To	Blows/ Foot*	Laboratory Results	Remarks
	Stiff orangish brown clayey Silt with granite and quartz gravel (Probable Fill)	1	0.5′ 1.5′	9		
2.5	Loose moist yellowish brown sandy Clay with some quartz (Probable Fill)	2	1.5′ 2.5′	7		
	Stiff moist yellowish brown sandy Silt with gray mottling					
5.0		3	4.5′ 5.5′	10		
7.5		4	7.5′ 8.5′	15		
	Stiff to very stiff moist orangish brown sandy Clay		9.5′			
10.0		5	10.5′	16		
			11.5			
12.5		6	12.5′	21		
	Boring Terminated at 12.5 feet					
15.0						
17.5						
20.0						

ASTM 1556

* Datum Site Survey

BORING LOG

Project Name		Water Level Data	Date Started	Boring
Suburban Propane		Dry Upon Completion	December 7, 1992	B-2
Size & Bit	Job Number		Date Completed	Page
6" Cutter Head	R-3516-92		December 7, 1992	1 of 1

Drilling Method	Driller	Total Depth	Elevation
Hollow Stem Augers	Ayers & Ayers	12.5 feet	N/A

Depth in Feet	Classification	Sample No.	From To	Blows/ Foot*	Laboratory Results	Remarks
	Very firm rounded gravel with quartz fragments	1	0.5′ 1.5′	22		
	Very firm brownish orange silty fine Sand		2.5′			
2.5		2	3.5′	25		
5.0			4.5′			
		3	5.5′	26		
7.5	Very stiff light brown silty Clay		7.5′			
		4	8.5′	18		
10.0	Very stiff brownish orange clayey Silt		9.5′			
		5	10.5′	17		
	Firm brownish orange silty Sand		11.5			
12.5		6	12.5′	14		
	Boring Terminated at 12.5 feet					
15.0						
17.5						
20.0						

* ASTM 1586

Date Record Created: [redacted]

Created By: [redacted]

WS_BMPNO: CC007

Print Record

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Wednesday, March 10, 201
2:30:18 PM

WATERSHED	CC
BMP ID NO	007
PLAN NO	SP-01-93
TAX PARCEL	(41-4)(7-6)
PIN NO	4140700006
CONSTRUCTION DATE	7/1/1993
PROJECT NAME	Suburban Propane
FACILITY LOCATION	7232 Merrimac Trail
CITY-STATE	Williamsburg, VA
CURRENT OWNER	Suburban Propane LP
OWNER ADDRESS	One Suburban Plaza
OWNER ADDRESS 2	240 Rt 10 West
CITY-STATE-ZIP CODE	Whippany, NJ 07981
OWNER PHONE	
MAINT AGREEMENT	Yes
EMERG ACTION PLAN	No

Get Last BMP No | Return to Menu

MAINTENANCE PLAN	No
SITE AREA acre	1.1
LAND USE	COMM
old BMP TYP	Infiltrators
JCC BMP CODE	C1 Infiltration Trench .5
POINT VALUE	9
SVC DRAIN AREA acres	6.3
SERVICE AREA DESCRI	SFRES&WOODS TO SOUTHEAST-5 ACR
IMPERV AREA acres	
RECV STREAM	TUTTERSNECK PND
EXT DET-WQ-CTRL	No
WTR QUAL VOL acre-ft	0.1
CHAN PROT CTRL	No
CHAN PROT VOL acre-ft	0
SW/FLOOD CONTROL	No
GEOTECH REPORT	No

CTRL STRUC DESC	
CTRL STRUC SIZE inches	
OTLT BARRL DESC	TRUSS P.
OTLT BARRL SIZE inch	15
EMERG SPILLWAY	No
DESIGN HW ELEV	
PERM POOL ELEV	
2-YR OUTFLOW cfs	
10-YR OUTFLOW cfs	
REC DRAWING	No
CONSTR CERTIF	No
LAST INSP DATE	3/20/2001
Inspected by:	[redacted]
INTERNAL RATING	3
MISC/COMMENTS	

Additional Comments: [redacted]