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APPENDIX 7-4

Sedimentation Pond Calculations

I hereby certify that the design contained herein was prepared by myself and is true and correct to the best of my knowledge.

REGISTERED PROFESSIONAL ENGINEER
NO. 4102
RICHARD B. WHITE
STATE OF UTAH

Richard B. White, P.E.

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REVISED SEDIMENTATION POND DESIGN
CRANDALL CANYON MINE

Design Volume

Pond area (at 10-yr, 24-hr level) → A = 0.2 ac
Disturbed area drainage → A = 2.7 ac
Reclaimed area drainage → A = 2.0 ac
Undisturbed area (within site) → A = 0.2 ac
Undisturbed area (above site) → WS-4: A = 3.3 ac; WS-5: A = 2.0 ac } 5.5 ac total undisturbed

10-yr, 24-hr storm = 2.50 in (Miller et al., 1973)

Curve numbers:
Pond area → CN = 100 (100% runoff)
Disturbed area → CN = 90 (Typical CN for dirt roads w/ hydro. soil group D is 89 — see page 1a of this calc.).
Reclaimed area → CN = 75 (Typical CN for herbaceous community for 80% cover — see page 1a of this calc. For contemporaneous reclamation measures to be used to achieve this cover, see Section 3.5.1 of PAP)
Undisturbed area → CN = 69 (See below)
Six cover types are shown on Plate 9-1 of PAP. Cover data from Tables 3-D, 3-E, and 3-F of Chapter 9 of the PAP. Individual curve numbers from page 1a & 1b of this calc.

Cover Type	Area[a] (ac)	Percent Cover	Curve Number
Aspen	27.9	34.2	65
Mtn. Shrub / Grassland	29.3	23.1	75
Sagebrush	5.8	23.1	75
Spruce, Fir, Aspen	18.4	45.2	60
Rock Outcrop	1.6	0	96
Mixed Mtn. Shrub, Conifer / Aspen	1.0	34.2	65

[a] Areas planimetered by DOGM (personal communication, 9 Oct 1985)

$$\text{Weighted avg. CN} = \frac{(27.9)(65) + (29.3)(75) + (5.8)(75) + (18.4)(60) + (1.6)(96) + (1.0)(65)}{84.0}$$
$$= 69$$

Table 9.1.--Runoff curve numbers for hydrologic soil-cover complexes

(Antecedent moisture condition II, and $I_a = 0.2\ S$)

Land use	Cover: Treatment or practice	Cover: Hydrologic condition	Hydrologic soil group A	B	C	D
Fallow	Straight row	----	77	86	91	94
Row crops	"	Poor	72	81	88	91
	"	Good	67	78	85	89
	Contoured	Poor	70	79	84	88
	"	Good	65	75	82	86
	"and terraced	Poor	66	74	80	82
	" " "	Good	62	71	78	81
Small grain	Straight row	Poor	65	76	84	88
		Good	63	75	83	87
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	"and terraced	Poor	61	72	79	82
		Good	59	70	78	81
Close-seeded legumes 1/ or rotation meadow	Straight row	Poor	66	77	85	89
	" "	Good	58	72	81	85
	Contoured	Poor	64	75	83	85
	"	Good	55	69	78	83
	"and terraced	Poor	63	73	80	83
	"and terraced	Good	51	67	76	80
Pasture or range		Poor	68	79	86	89
		Fair	49	69	79	84
		Good	39	61	74	80
	Contoured	Poor	47	67	81	88
	"	Fair	25	59	75	83
	"	Good	6	35	70	79
Meadow		Good	30	58	71	78
Woods		Poor	45	66	77	83
		Fair	36	60	73	79
		Good	25	55	70	77
Farmsteads		----	59	74	82	86
Roads (dirt) 2/		----	72	82	87	89
(hard surface) 2/		---	74	84	90	92

Pad, roads CN=90

Rock outcrop CN=96

1/ Close-drilled or broadcast.
2/ Including right-of-way.

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Source → U.S. SCS (1972)

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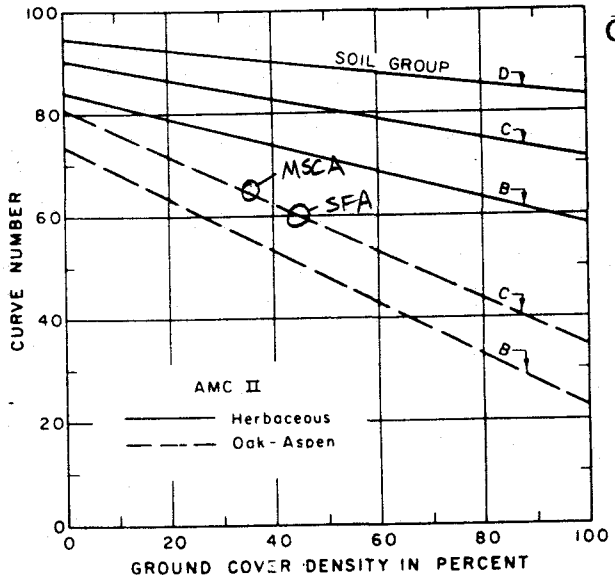

Figure 9.5.--Graph for estimating runoff curve numbers of forest-range complexes in western United States: herbaceous and oak-aspen complexes.

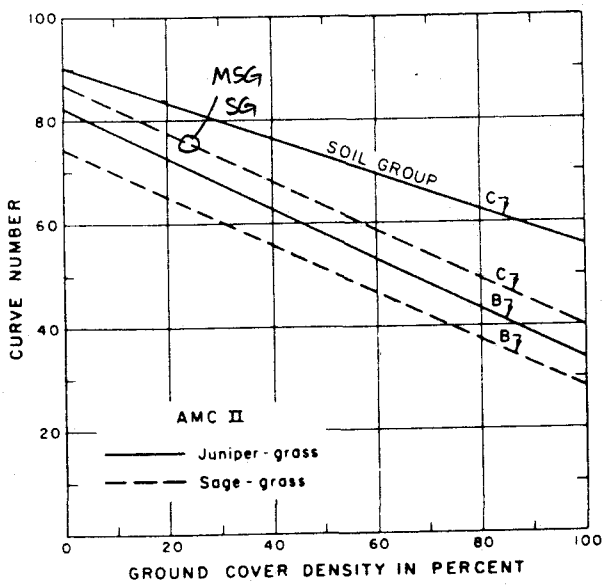

Figure 9.6.--Graph for estimating runoff curve numbers of forest-range complexes in western United States: juniper-grass and sage-grass complexes.

Source → U.S. SCS (1972)

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Runoff storage volume:

Disturbed area → Q = 1.53 in = 0.34 AF
Reclaimed area → Q = 0.65 in = 0.11 AF
Undisturbed area → Q = 0.42 in = 0.19 AF
Pond area → Q = 2.50 in = 0.04 AF

Total required runoff storage = 0.68 AF

Sediment storage volume:

Disturbed area → (2.7 ac)(0.1 AF/ac) = 0.27 AF (per regs.)

Reclaimed → use USLE

$A = R \cdot K \cdot LS \cdot CP$

R = 26 (Clyde et al., 1978)
K = 0.15 (see page 1d of this calc.)

$$LS = \left(\frac{650 + 450s + 65s^2}{10{,}000 + s^2}\right)\left(\frac{l}{72.6}\right)^m$$

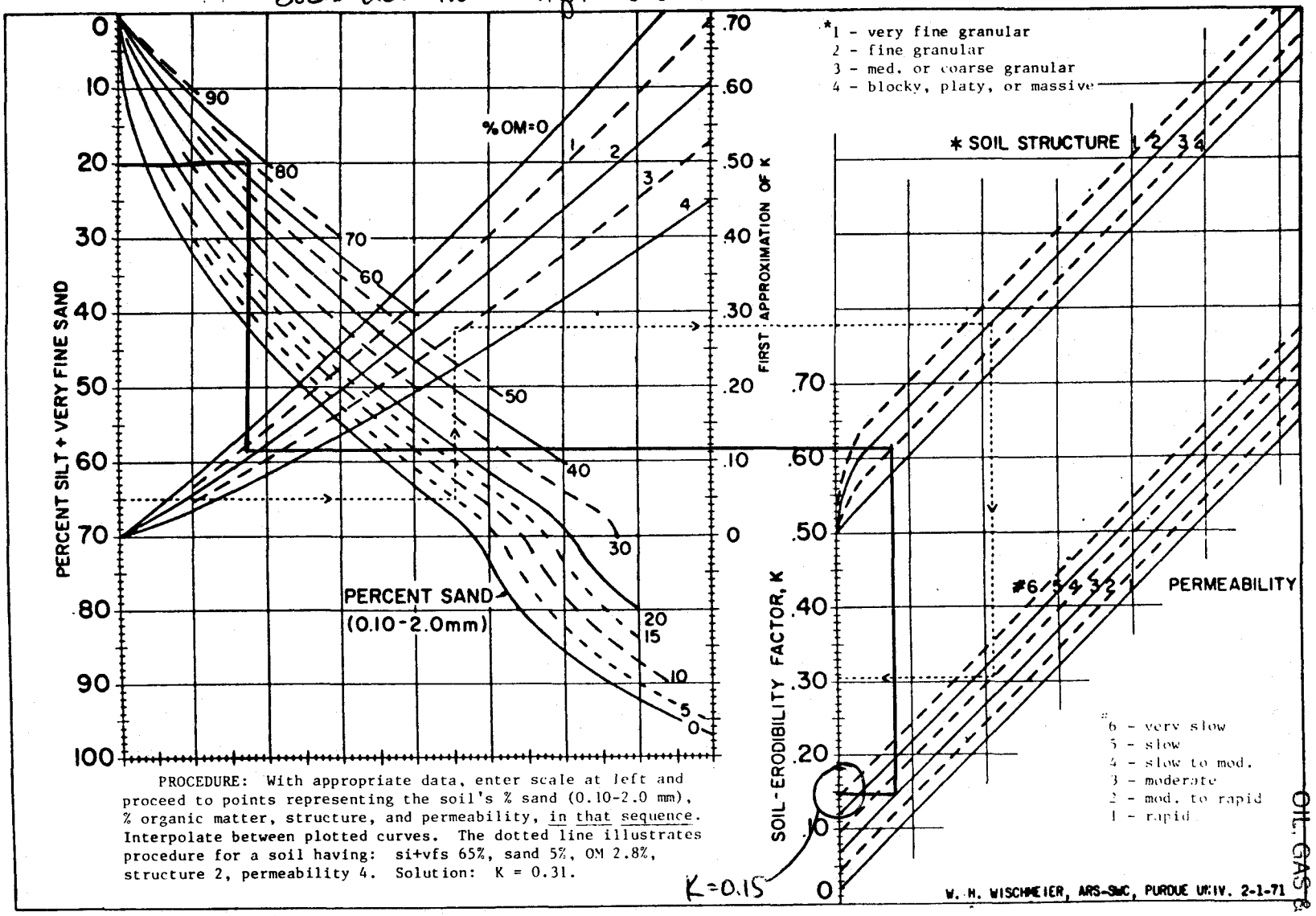
s = 66.7% (1.5 h : 1 v)
l = 70 ft (from site map and field observations)
m = 0.6 (Clyde et al., 1978 – based on slope)

LS = 21.66

CP = 0.01 (from curve on page 1e of this calc. for anchored mulch – 1.5 tons/ac)

A = 0.84 tons/ac/yr
= 1.68 tons/yr (over 2.0 ac)
= 0.001 AF/yr (for a unit weight of 90 lb/ft³)

Soils data from Chapter 8 of PAP



PROCEDURE: With appropriate data, enter scale at left and proceed to points representing the soil's % sand (0.10-2.0 mm), % organic matter, structure, and permeability, in that sequence. Interpolate between plotted curves. The dotted line illustrates procedure for a soil having: si+vfs 65%, sand 5%, OM 2.8%, structure 2, permeability 4. Solution: K = 0.31.

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11 May 1986

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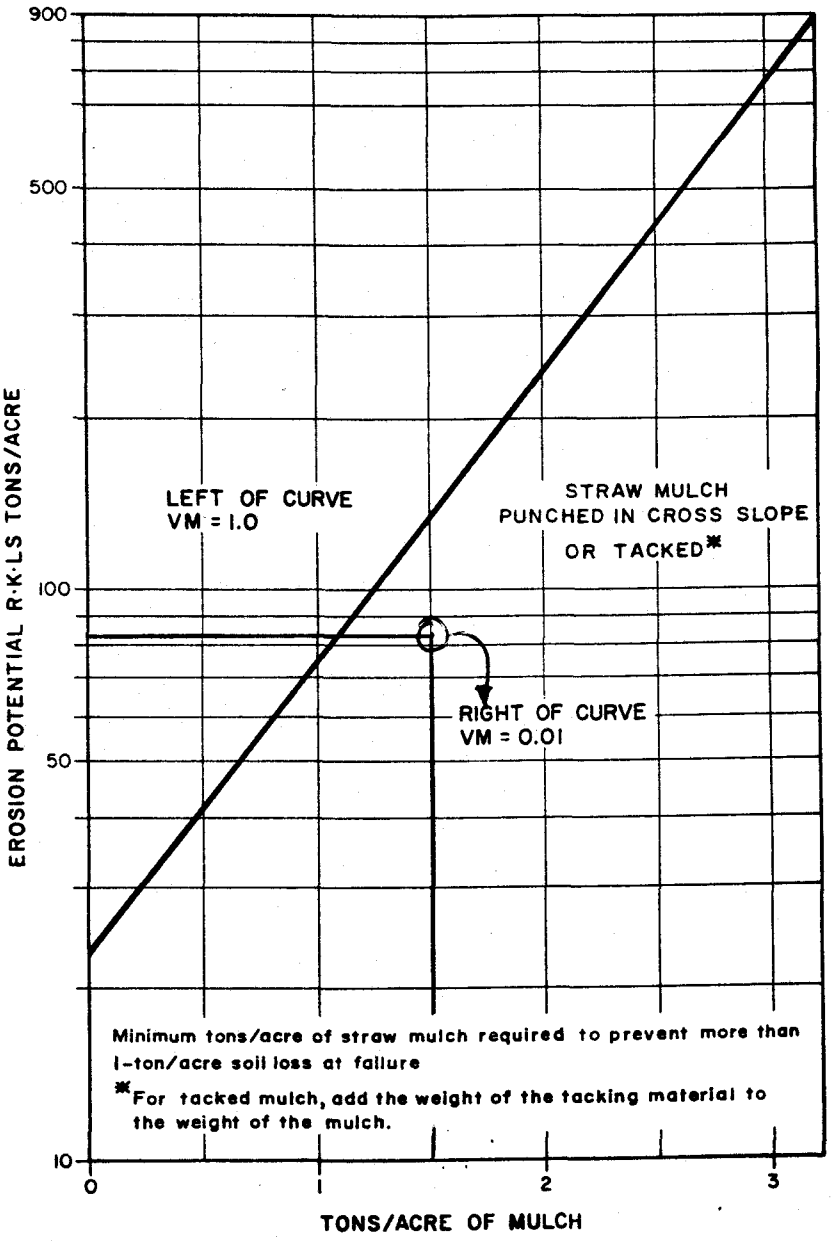

Source: Clyde et al. (1978)

R·K·LS = 84.5
Use 1.5 tons/ac of mulch.
VM (or CP) = 0.01

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Undisturbed area → use USLE

$R = 26$, $K = 0.15$ } same as previous

$s = 69.6\%$ (see diversion calcs.)
$l = 200$ ft (field obs.)
$m = 0.6$
} $LS = 42.92$

$CP = 0.005$ (Barfield et al., 1981 — Woodland)

$A = 0.84$ tons/ac/yr
$= 4.62$ tons/yr
$= 0.003$ AF/yr (for unit weight = 80 lb/ft³ — lighter)

Pond area → no sediment contribution from water

Design for 10-yr of sediment yield from reclaimed and undisturbed areas. Ignore sediment delivery ratio to be conservative.

Total sediment storage $= 0.27 + (0.001 + 0.003)(10)$
$= 0.31$ AF

Total required storage $= 0.68$ AF $+ 0.31$ AF
$= \underline{\underline{0.99 \text{ AF}}}$

42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
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Stage - Area - Capacity Data

		Incremental Volume (AF)	Cumulative Volume (AF)
Elev. 7771 ft →	A = 0.021 ac		
		0.061	0.061
Elev. 7773 ft →	A = 0.040 ac		
		0.099	0.160
Elev. 7775 ft →	A = 0.059 ac		
		0.141	0.301
Elev. 7777 ft →	A = 0.082 ac		
		0.190	0.490
Elev. 7779 ft →	A = 0.108 ac		
		0.248	0.739
Elev. 7781 ft →	A = 0.140 ac		
		0.313	1.052
Elev. 7783 ft →	A = 0.173 ac		
		0.380	1.432
Elev. 7785 ft →	A = 0.207 ac		

Stage-area curve → see page 3 of this calc.
Stage-capacity curve → see page 4 of this calc.

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Spillway Sizing

Methodology → SEDIMOT II (Wilson et al., 1980; Warner et al., 1980)
Design storm → 25-yr, 24-hr storm = 2.92 in (Miller et al., 1973)
Storm type → SCS Type II
Time increment of outflow hydrograph = 0.1 hr

No. of junctions = 1
No. of branches = 1

Computation mode → hydro. and sed. (to allow routing through the pond)

Specific gravity of eroded sediment = 2.50 (default value)
Coefficient for distributing sed. load = 1.5 (default value)
Submerged bulk specific gravity = 1.25 (fine to medium)

Particle size distribution → according to Chapter 8 of the PAP, soils in the area are classified as "Rocky Land." Swenson et al. (1970) indicate that this soil is a fine sandy loam but give no gradation. According to Donahue et al. (1971), a fine sandy loam typically has the gradation shown on page 5 of this calc. Using this gradation, the following distribution is assumed to apply to this site:

K+E 10 X 10 TO THE CENTIMETER 18 X 25 CM.
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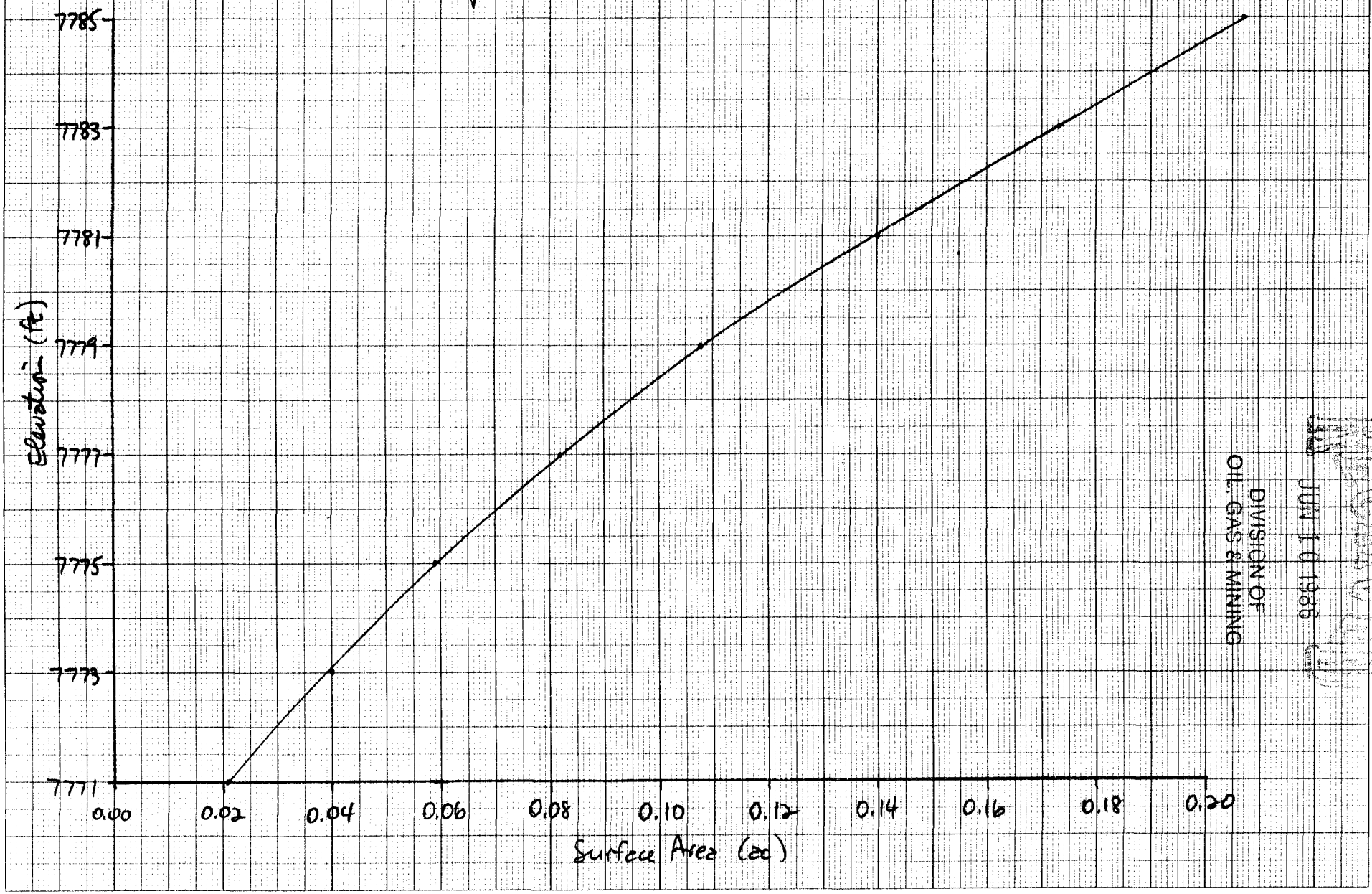
46 1510

Stage-area curve for proposed
Gemwal sedimentation pond



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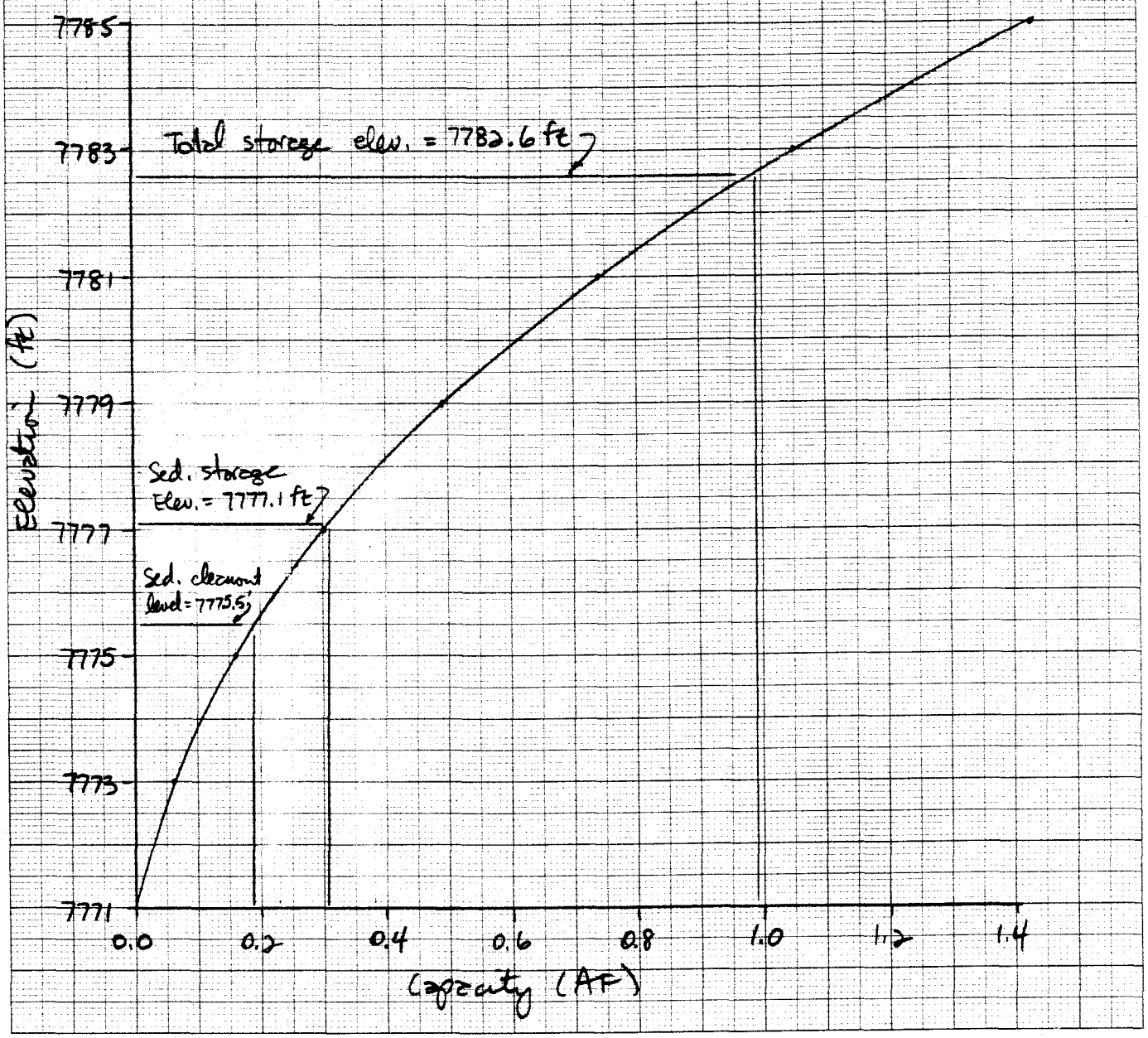
Stage-capacity curve for proposed Grenwal sedimentation pond



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K&E 10 X 10 TO THE CENTIMETER 18 X 25 CM
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1 Feb 1986

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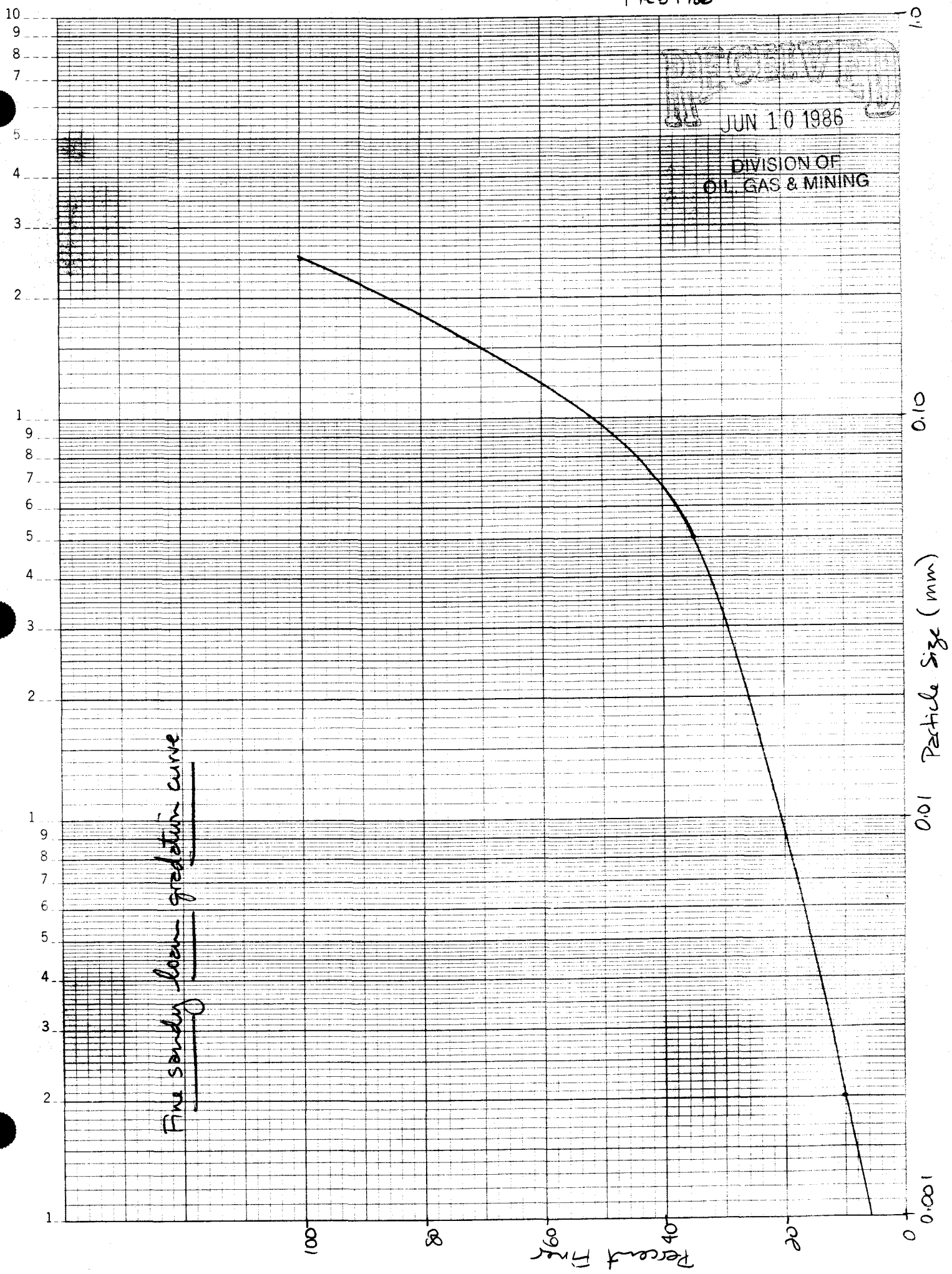

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K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
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Size (mm)	Percent Finer
0.25	100
0.10	50
0.05	35
0.01	19
0.005	15
0.001	6
0.0001	0

} 7 values

No. of structures → 1 (sed. pond)

Between structures routing parameters → All Ø (no upstream structures or junctions)

No. of subwatersheds = 3 (disturbed, undisturbed, reclaimed)

Data for subwatershed 1 (disturbed):

$A = 2.9$ ac (pad + pond)

$$\overline{CN} = \frac{(2.7)(90) + 0.2(100)}{2.9} = 91$$

T_c → use upland method (U.S. SCS, 1972) — see pg. 7 of this calc.

600 ft @ 3% (portal pad to admin. pad)

$V = 3.5$ ft/s (using "paved area" curve)

$$(T_c)_1 = \frac{600}{3.5} = 170 \text{ s}$$

180 ft @ 1% (admin. pad)

$V = 2.0$ ft/s

$$(T_c)_2 = \frac{180}{2.0} = 90 \text{ s}$$

800 ft @ 8% (along main road to sed. pond)

$V = 5.6$ ft/s

$$(T_c)_3 = \frac{800}{5.6} = 140 \text{ s}$$

$$T_c = (170 + 90 + 140) = 400 \text{ s}$$
$$= 0.11 \text{ hr}$$

Sediment yield calcs. → K = , L = , S = , CP = } All Ø (to suppress sed. output)

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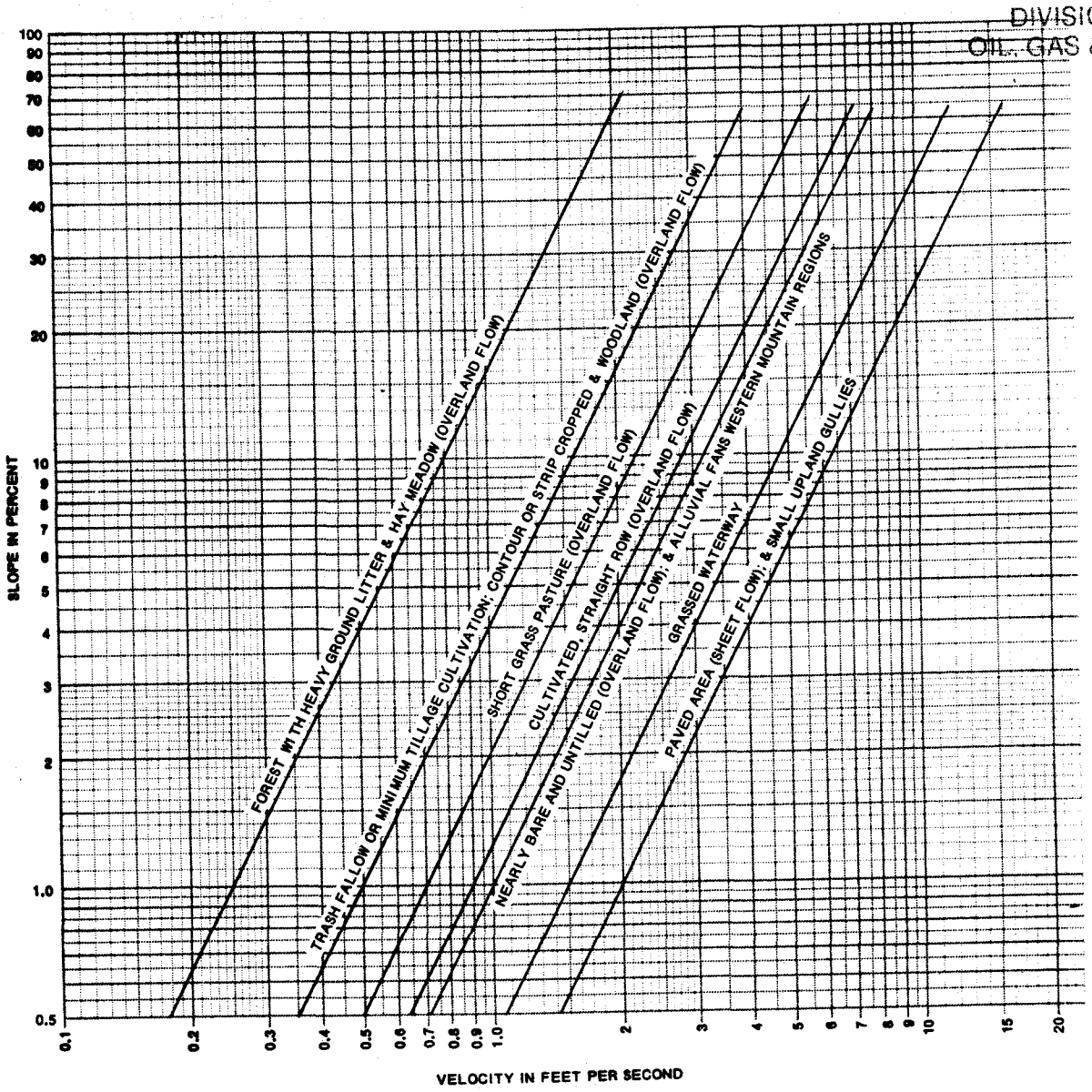

Source: U.S. SCS (1972)

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Data for subwatershed 2 (undisturbed):

$A = 5.5$ ac

$CN = 69$

$T_c \rightarrow$ use upland method

750 ft @ 69.6% — (WS-4) → Forest w/ heavy litter

$V = 2.1$ ft/s

$(T_c)_1 = \frac{750}{2.1} = 360$ s

$(T_c)_2 = 400$ s (pad area to pond)

$T_c = (400 + 360) = 760$ s

$= 0.21$ hr

Sediment yield calcs. → All factors ∅ (as above)

Data for subwatershed 3 (reclaimed):

$A = 2.0$ ac

$CN = 75$

$T_c \rightarrow$ use upland method

100 ft @ 66.7%

$V = 5.6$ ft/s ("short grass pasture" curve)

$(T_c)_1 = \frac{100}{5.6} = 20$ s

$(T_c)_2 = 90 + 140 = 230$ s (across admin. pad to sed. pond)

$T_c = (230 + 20) = 250$ s

$= 0.07$ hr

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Sediment yield calcs.

K =
L =
S =
CP =

All zero (to suppress sediment output - only routing is of concern).

Pond parameters:

Dead space → Effective pond width $= \frac{\text{Area}}{\text{Length}}$

$$= \frac{(0.207\ ac)(43{,}560\ ft^2/ac)}{280\ ft}$$

$$= 32.2\ ft$$

$$\frac{\text{Length}}{\text{Eff. Width}} = \frac{280\ ft}{32.2\ ft} = 8.7$$ } Efficient system (L/W > 2.0)

Assume dead space = 20%

Outflow withdrawal → surface
Inflow → completely mixed.

Stage-area data (for pond full to top of sed. storage level):

Stage (ft)	Elev. (ft)	Area (ac)
0.0	7777.1	0.083
0.5	7777.6	0.090
1.0	7778.1	0.096
1.5	7778.6	0.103
2.5	7779.6	0.117
3.5	7780.6	0.133
4.5	7781.6	0.149
5.5	7782.6	0.166
6.0	7783.1	0.175
6.5	7783.6	0.183
7.0	7784.1	0.192
7.5	7784.6	0.201

Crest of principal spillway → 5.5

12 values

No. of continuous stirred reactors = 2

Stage - discharge curve → to be computed by SEDIMOT II:

Barrel diameter = 18 in
Riser diameter = 24 in
Barrel length = 92 ft

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From Barfield et al. (1981)
- Entrance loss coef. = 1.0
- Bend loss coef. = 0.5
- Wier flow coef. = 3.1
- Orifice flow coef. = 0.6
- Manning's n of pipe = 0.024

Barrel head drop = 16 ft

SEDIMOT II results (Attached) → Peak inflow = 8.44 cfs
Peak outflow = 7.04 cfs
Peak stage = 6.01 ft (above sed. storage level).

Elev. of peak stage = 7777.1 + 6.0 = 7783.1 ft

Emergency spillway not flowing at this elev. (spillway crest = 7784.0 ft).

Design Notes

① Required top width of embankment = $\left(\frac{14+35}{5}\right)$

= 9.8 ft ⇒ Construct at 10.0 ft

② Existing embankment crest elev. = 7783.0 ft (per survey). Final embankment height (design) = 7785.0 ft. Since the embankment has bee increased in height 0.4 ft more than required for outflow and freeboard, no accounting is required for subsequent settlement of the 2.0 ft addition.

③ Overflow on existing riser at elev. 7779.4 ft (per survey). Raise 3.2 ft to 7782.6 ft (top of sed. and runoff storage level). Decant currently at 7776.4 ft (per survey). Raise 1.5 ft to 7777.9 ft (top of sed. storage level).

④ Crest of emergency spillway to be located at elev. 7784.0 ft (one ft above top of principal spillway). Riprap with following:

Size (in)	Percent Finer
3.6	20
6.0	50
12.0	100

} see pg. 11 of this calc.

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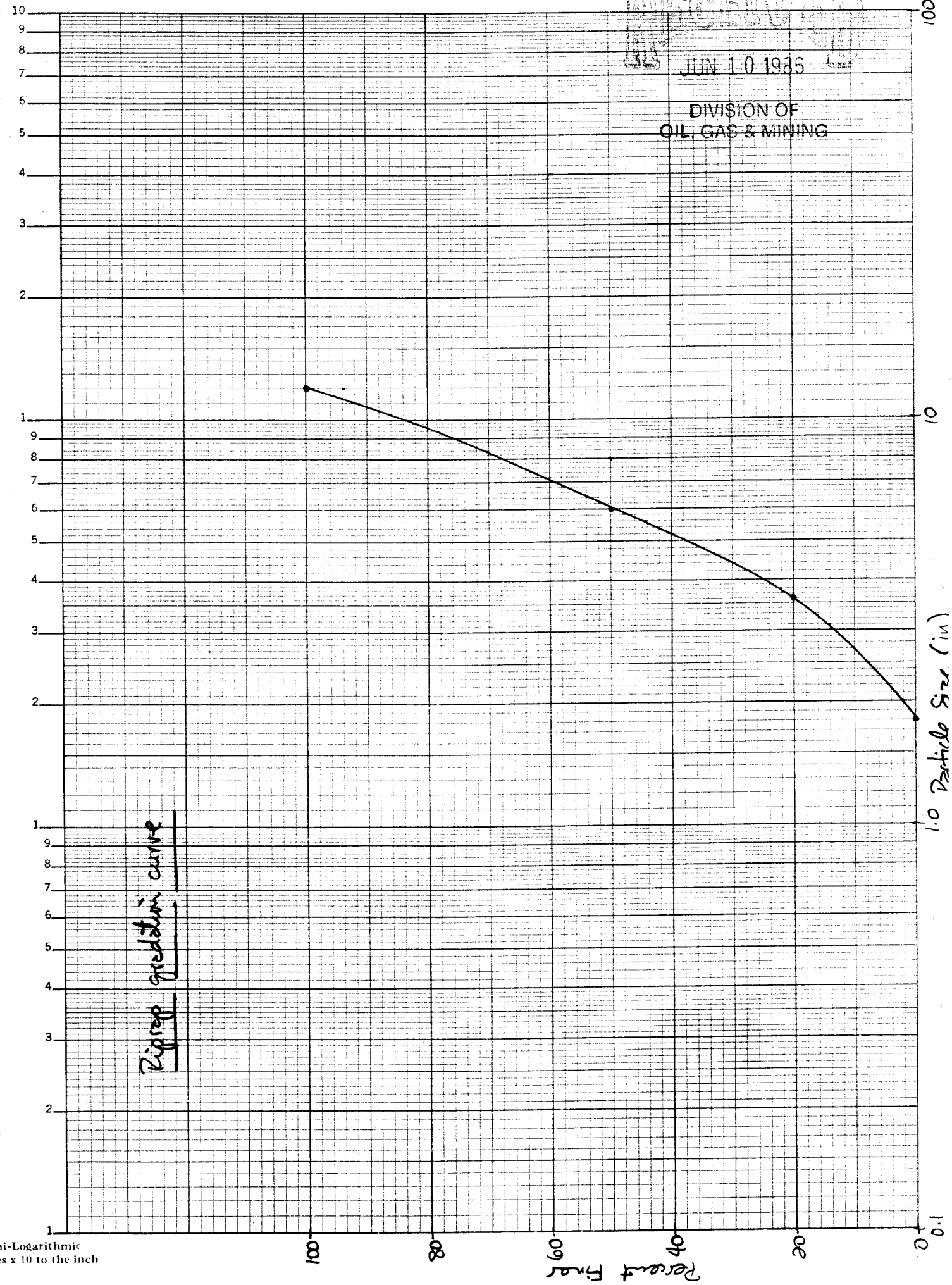

Semi-Logarithmic
3 Cycles x 10 to the inch

Check for necessity of filter blanket beneath riprap:
Gradation of bed material (embankment) provided on pg. 13 of this calc. (similar to page 5 with addition of coarse fraction – see Delta Geotechnical Consultants, 1981). Design procedure from Searcy (1978).

$$\frac{D_{15}\ (\text{riprap})}{D_{85}\ (\text{bed})} = \frac{3.1\ \text{in}}{0.94\ \text{in}} = 3.3 < 5 \qquad \underline{\underline{\text{OK}}}$$

$$\frac{D_{15}\ (\text{riprap})}{D_{15}\ (\text{bed})} = \frac{3.1\ \text{in}}{0.0021\ \text{in}} = 1476 > 40 \qquad \underline{\underline{\text{UNSTABLE}}}$$

Assume the use of the sandy gravel shown on pg. 14 of this calc. for a filter blanket.

$$\frac{D_{15}\ (\text{riprap})}{D_{85}\ (\text{filter})} = \frac{3.1\ \text{in}}{0.62\ \text{in}} = 5.0 \qquad \underline{\underline{\text{OK}}}$$

$$\frac{D_{15}\ (\text{riprap})}{D_{15}\ (\text{filter})} = \frac{3.1}{0.078\ \text{in}} = 39.7 < 40 \qquad \underline{\underline{\text{OK}}}$$

$$\frac{D_{15}\ (\text{filter})}{D_{85}\ (\text{bed})} = \frac{0.078\ \text{in}}{0.94\ \text{in}} = 0.08 < 5 \qquad \underline{\underline{\text{OK}}}$$

$$\frac{D_{15}\ (\text{filter})}{D_{15}\ (\text{bed})} = \frac{0.078\ \text{in}}{0.0021\ \text{in}} = 37.1 < 40 \qquad \underline{\underline{\text{OK}}}$$

Indicated sandy gravel is sufficient for a filter blanket.

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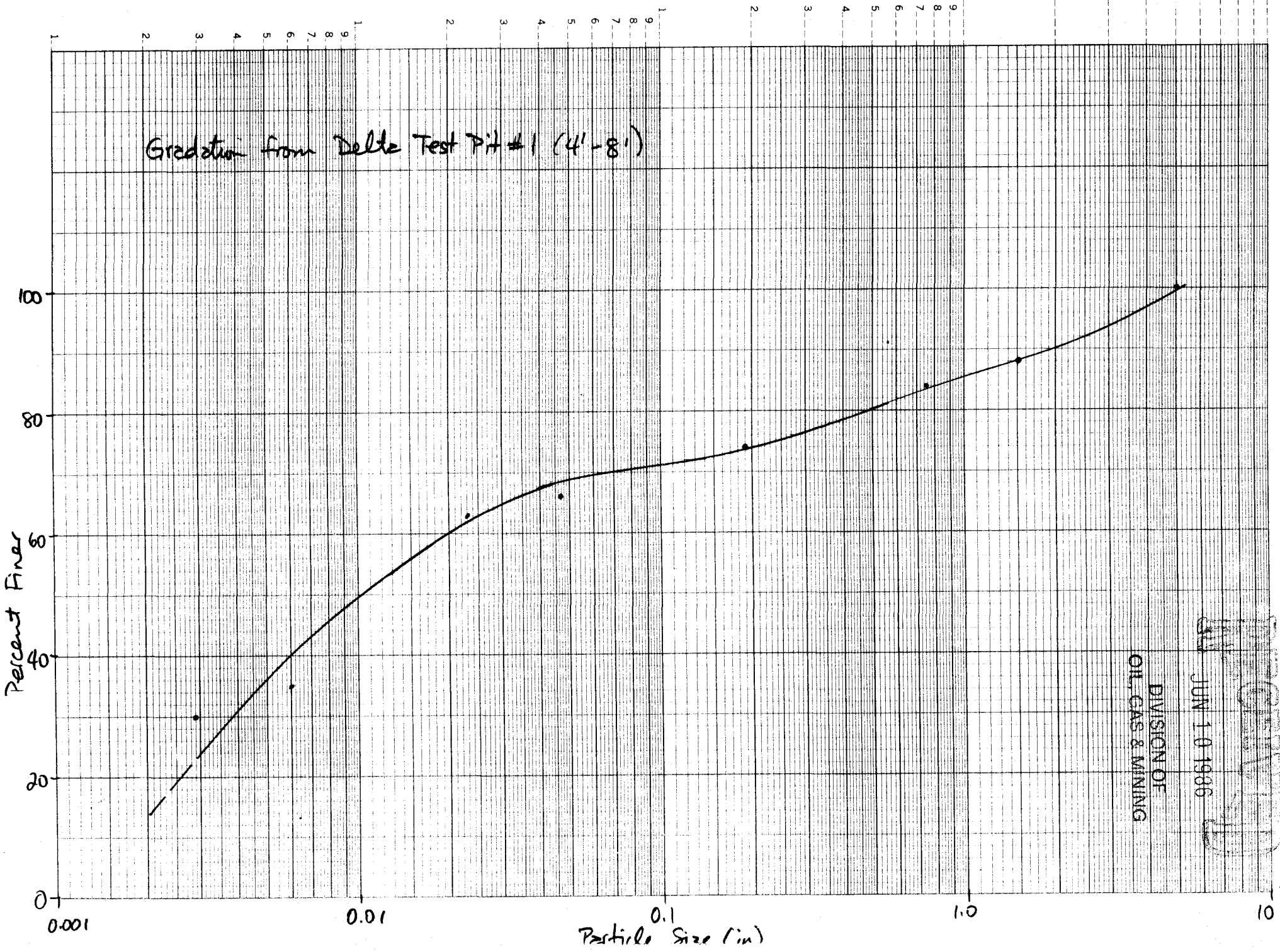

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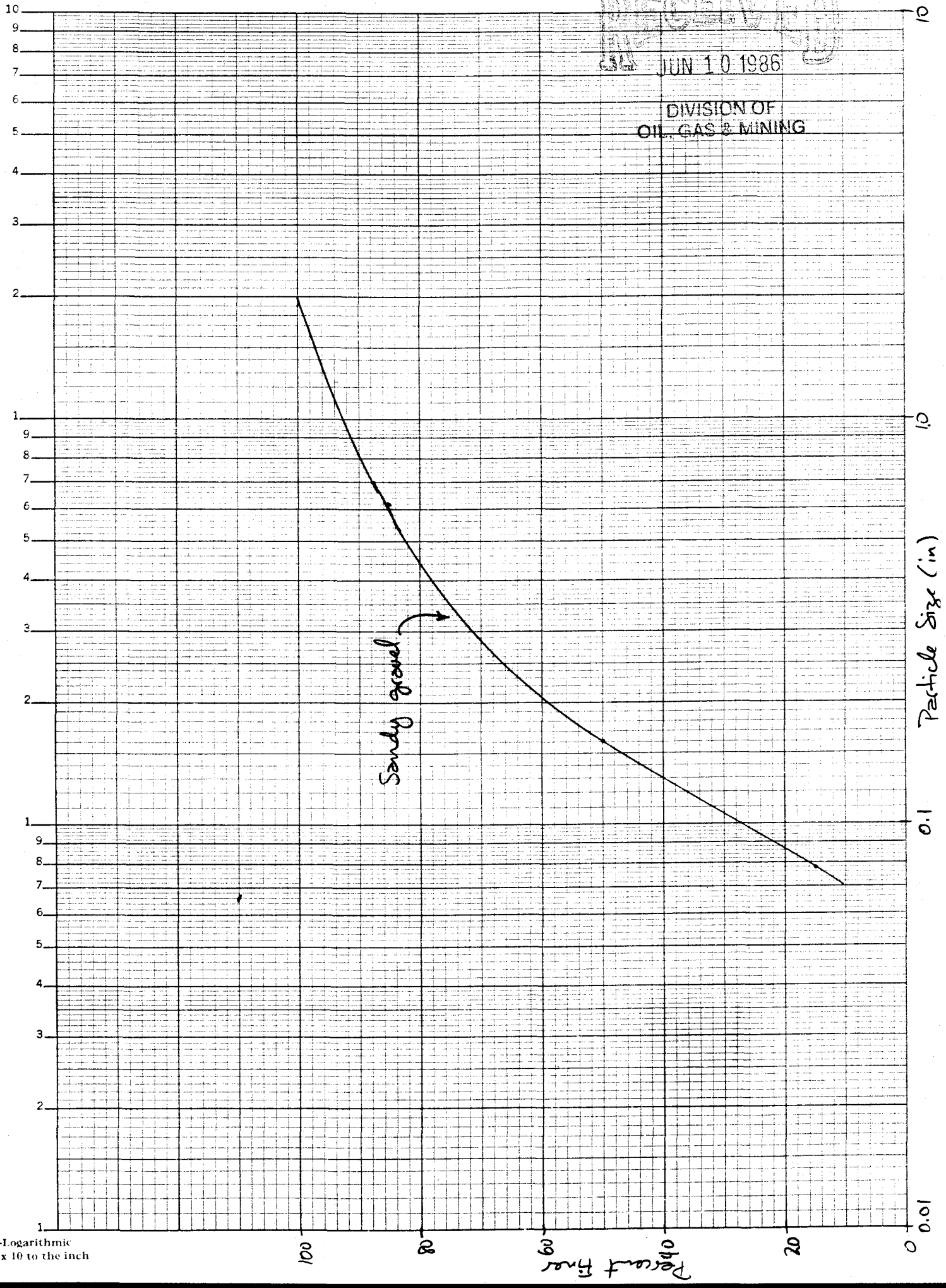

Semi-Logarithmic
3 Cycles x 10 to the inch

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(5) Embankment sideslopes → 2:1 interior, 2:1 exterior. Insufficient room to flatten either slope and result in enough volume. This configuration was modeled by R&M Consultants (1981) and found to have a static factor of safety of 1.4 (w/ pond lined with 12" clay). Add weight to toe of dam to increase factor of safety.

(6) 12" layer of compacted local clay to be used in pond bottom and interior embankment per R&M consultants design to decrease seepage, increase stability.

(7) Revegetate exterior embankment slope following reconstruction.

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10 Oct 1985 C-27-02 16/

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                        -- SEDPC --
              SEDIMOT II MODEL FOR THE IBM PC/XT
              CONVERTED BY TECH ENGINEERING INC.
                 VERSION 1.10 NOVEMBER 17,1983
*****************************************************************

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*****************************************************************
       UNIVERSITY OF KENTUCKY COMPUTER MODEL
       OF SURFACE MINE HYDROLOGY AND SEDIMENTOLOGY
       FOR MORE INFORMATION CONTACT THE AGRICULTURAL
       ENGINEERING DEPARTMENT
       THE UK MODEL IS A DESIGN MODEL DEVELOPED TO PREDICT
       THE HYDRAULIC AND SEDIMENT RESPONSE FROM SURFACE
       MINED LANDS FOR A SPECIFIED RAINFALL EVENT (SINGLE STORM)
       VERSION DATE 9-23-83
       DISCLAIMER: NEITHER THE UNIVERSITY NOR ANY OF ITS EMPLOYEES
       ACCEPT ANY RESPONSIBILITY OR LEGAL LIABILITY FOR THE
       CONCLUSIONS DRAWN FROM THE RESULTS OF THIS MODEL
*****************************************************************
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*****************************************************************
*                                                               *
*     THE FOLLOWING VALUES ARE NOW PREDICTED BY SEDIMOT II.     *
*     THEY CAN BE FOUND IN SUMMARY TABLES.                      *
*      1. PERIOD OF SIGNIFICANT CONCENTRATION                   *
*      2. VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION      *
*         DURING PERIOD OF SIGNIFICANT CONCENTRATION            *
*      3. VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION      *
*         DURING PEAK 24 HOUR PERIOD                            *
*      4. ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION           *
*         DURING PERIOD OF SIGNIFICANT CONCENTRATION            *
*      5. ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION           *
*         DURING PEAK 24 HOUR PERIOD                            *
*                                                               *
*     ALL CONCENTRATIONS ARE IN ML/L.                           *
*                                                               *
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            ******************************************
                 WATERSHED IDENTIFICATION CODE
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 REVISED GENWAL SEDIMENTATION POND - 5/11/1986
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INPUT PARTICLE SIZE-PERCENT FINER DISTRIBUTIONS

IZE,MM	.250	.100	.050	.010	.005	.001
	.000					
PCT FINER NO. 1	100.000	50.000	35.000	19.000	15.000	6.000
	.000					

**********INPUT VALUES**********

STORM DURATION	=	24.00	HOURS
PRECIPATION DEPTH	=	2.92	INCHES
SPECIFIC GRAVITY	=	2.50	
LOAD RATE EXPONENT FACTOR	=	1.50	
SUBMERGED BULK SPECIFIC GRAVITY	=	1.25	

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* *

JUNCTION 1, BRANCH 1, STRUCTURE 1

* *

***** RESULTS FROM SUBWATERSHED 1 *****

*** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	100.0000	50.0000	35.0000	19.0000	15.0000	6.0000
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***

(TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)	******* *	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.013	.000
6.20	.014	.000	*	6.30	.016	.000
6.40	.018	.000	*	6.50	.020	.000
6.60	.021	.000	*	6.70	.023	.000
6.80	.024	.000	*	6.90	.026	.000
7.00	.028	.000	*	7.10	.029	.000
7.20	.031	.000	*	7.30	.032	.000
7.40	.034	.000	*	7.50	.035	.000
7.60	.036	.000	*	7.70	.038	.000
7.80	.039	.000	*	7.90	.041	.000
8.00	.042	.000	*	8.10	.056	.000
8.20	.059	.000	*	8.30	.061	.000
8.40	.063	.000	*	8.50	.065	.000
8.60	.072	.000	*	8.70	.074	.000
8.80	.077	.000	*	8.90	.079	.000
9.00	.081	.000	*	9.10	.095	.000
9.20	.098	.000	*	9.30	.100	.000

9.60	.122	.000	*	9.70	.125	.000
9.80	.128	.000	*	9.90	.131	.000
10.00	.133	.000	*	10.10	.174	.000
10.20	.179	.000	*	10.30	.183	.000
10.40	.187	.000	*	10.50	.191	.000
10.60	.264	.000	*	10.70	.270	.000
[illegible].00	.277	.000	*	10.90	.283	.000
[illegible].00	.289	.000	*	11.10	.459	.000
11.20	.472	.000	*	11.30	.485	.000
11.40	.497	.000	*	11.50	.509	.000
11.60	4.356	.000	*	11.70	4.815	.000
11.80	5.141	.000	*	11.90	5.380	.000
12.00	5.559	.000	*	12.10	1.070	.000
12.20	1.075	.000	*	12.30	1.080	.000
12.40	1.084	.000	*	12.50	1.088	.000
12.60	.561	.000	*	12.70	.562	.000
12.80	.563	.000	*	12.90	.564	.000
13.00	.565	.000	*	13.10	.413	.000
13.20	.413	.000	*	13.30	.414	.000
13.40	.414	.000	*	13.50	.415	.000
13.60	.323	.000	*	13.70	.323	.000
13.80	.323	.000	*	13.90	.324	.000
14.00	.324	.000	*	14.10	.232	.000
14.20	.232	.000	*	14.30	.232	.000
14.40	.232	.000	*	14.50	.232	.000
14.60	.232	.000	*	14.70	.232	.000
14.80	.232	.000	*	14.90	.233	.000
15.00	.233	.000	*	15.10	.233	.000
15.20	.233	.000	*	15.30	.233	.000
15.40	.233	.000	*	15.50	.233	.000
15.60	.233	.000	*	15.70	.234	.000
[illegible].80	.234	.000	*	15.90	.234	.000
[illegible].00	.234	.000	*	16.10	.140	.000
16.20	.140	.000	*	16.30	.140	.000
16.40	.141	.000	*	16.50	.141	.000
16.60	.141	.000	*	16.70	.141	.000
16.80	.141	.000	*	16.90	.141	.000
17.00	.141	.000	*	17.10	.141	.000
17.20	.141	.000	*	17.30	.141	.000
17.40	.141	.000	*	17.50	.141	.000
17.60	.141	.000	*	17.70	.141	.000
17.80	.141	.000	*	17.90	.141	.000
18.00	.141	.000	*	18.10	.141	.000
18.20	.141	.000	*	18.30	.141	.000
18.40	.141	.000	*	18.50	.141	.000
18.60	.141	.000	*	18.70	.141	.000
18.80	.141	.000	*	18.90	.141	.000
19.00	.142	.000	*	19.10	.142	.000
19.20	.142	.000	*	19.30	.142	.000
19.40	.142	.000	*	19.50	.142	.000
19.60	.142	.000	*	19.70	.142	.000
19.80	.142	.000	*	19.90	.142	.000
20.00	.142	.000	*	20.10	.095	.000
20.20	.095	.000	*	20.30	.095	.000
20.40	.095	.000	*	20.50	.095	.000
20.60	.095	.000	*	20.70	.095	.000
20.80	.095	.000	*	20.90	.095	.000
[illegible]1.00	.095	.000	*	21.10	.095	.000
[illegible]1.20	.095	.000	*	21.30	.095	.000
21.40	.095	.000	*	21.50	.095	.000
21.60	.095	.000	*	21.70	.095	.000
21.80	.095	.000	*	21.90	.095	.000
22.00	.095	.000	*	22.10	.095	.000
22.20	.095	.000	*	22.30	.095	.000
22.40	.095	.000	*	22.50	.095	.000
22.60	.095	.000	*	22.70	.095	.000

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22.80	.095	.000	*	22.90	.095	.000
23.00	.095	.000	*	23.10	.095	.000
23.20	.095	.000	*	23.30	.095	.000
23.40	.095	.000	*	23.50	.095	.000
23.60	.095	.000	*	23.70	.095	.000

***** RESULTS FROM SUBWATERSHED 2 *****

*** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	100.0000	86.1898	60.3329	32.7521	25.8569	10.3428
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***

(TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)	******* *	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.000	.000
6.20	.000	.000	*	6.30	.000	.000
6.40	.000	.000	*	6.50	.000	.000
6.60	.000	.000	*	6.70	.000	.000
6.80	.000	.000	*	6.90	.000	.000
7.00	.000	.000	*	7.10	.000	.000
7.20	.000	.000	*	7.30	.000	.000
7.40	.000	.000	*	7.50	.000	.000
7.60	.000	.000	*	7.70	.000	.000
7.80	.000	.000	*	7.90	.000	.000
8.00	.000	.000	*	8.10	.000	.000
8.20	.000	.000	*	8.30	.000	.000
8.40	.000	.000	*	8.50	.000	.000
8.60	.000	.000	*	8.70	.000	.000
8.80	.000	.000	*	8.90	.000	.000
9.00	.000	.000	*	9.10	.000	.000
9.20	.000	.000	*	9.30	.000	.000
9.40	.000	.000	*	9.50	.000	.000
9.60	.000	.000	*	9.70	.000	.000
9.80	.000	.000	*	9.90	.000	.000

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10.00	.000	.000	*	10.10	.000	.000
10.20	.000	.000	*	10.30	.000	.000
10.40	.000	.000	*	10.50	.000	.000
10.60	.000	.000	*	10.70	.000	.000
10.80	.000	.000	*	10.90	.000	.000
11.00	.000	.000	*	11.10	.000	.000
11.20	.000	.000	*	11.30	.000	.000
11.40	.000	.000	*	11.50	.000	.000
11.60	.000	.000	*	11.70	.018	.000
11.80	.156	.000	*	11.90	.457	.000
12.00	.869	.000	*	12.10	1.343	.000
12.20	1.519	.000	*	12.30	1.335	.000
12.40	1.155	.000	*	12.50	1.006	.000
12.60	.913	.000	*	12.70	.858	.000
12.80	.805	.000	*	12.90	.761	.000
13.00	.728	.000	*	13.10	.706	.000
13.20	.684	.000	*	13.30	.655	.000
13.40	.629	.000	*	13.50	.607	.000
13.60	.588	.000	*	13.70	.564	.000
13.80	.535	.000	*	13.90	.507	.000
14.00	.482	.000	*	14.10	.458	.000
14.20	.429	.000	*	14.30	.393	.000
14.40	.359	.000	*	14.50	.329	.000
14.60	.303	.000	*	14.70	.285	.000
14.80	.273	.000	*	14.90	.264	.000
15.00	.257	.000	*	15.10	.251	.000
15.20	.245	.000	*	15.30	.241	.000
15.40	.238	.000	*	15.50	.235	.000
15.60	.233	.000	*	15.70	.231	.000
15.80	.229	.000	*	15.90	.228	.000
16.00	.227	.000	*	16.10	.227	.000
16.20	.218	.000	*	16.30	.203	.000
16.40	.190	.000	*	16.50	.180	.000
16.60	.173	.000	*	16.70	.169	.000
16.80	.166	.000	*	16.90	.164	.000
17.00	.161	.000	*	17.10	.159	.000
17.20	.157	.000	*	17.30	.155	.000
17.40	.153	.000	*	17.50	.151	.000
17.60	.150	.000	*	17.70	.148	.000
17.80	.147	.000	*	17.90	.146	.000
18.00	.145	.000	*	18.10	.144	.000
18.20	.143	.000	*	18.30	.143	.000
18.40	.142	.000	*	18.50	.142	.000
18.60	.142	.000	*	18.70	.142	.000
18.80	.142	.000	*	18.90	.142	.000
19.00	.142	.000	*	19.10	.143	.000
19.20	.143	.000	*	19.30	.143	.000
19.40	.143	.000	*	19.50	.144	.000
19.60	.144	.000	*	19.70	.144	.000
19.80	.144	.000	*	19.90	.145	.000
20.00	.145	.000	*	20.10	.145	.000
20.20	.141	.000	*	20.30	.133	.000
20.40	.126	.000	*	20.50	.121	.000
20.60	.118	.000	*	20.70	.115	.000
20.80	.114	.000	*	20.90	.112	.000
21.00	.111	.000	*	21.10	.110	.000
21.20	.109	.000	*	21.30	.107	.000
21.40	.106	.000	*	21.50	.105	.000
21.60	.105	.000	*	21.70	.104	.000
21.80	.103	.000	*	21.90	.102	.000
22.00	.102	.000	*	22.10	.101	.000
22.20	.101	.000	*	22.30	.100	.000
22.40	.100	.000	*	22.50	.100	.000
22.60	.100	.000	*	22.70	.100	.000
22.80	.100	.000	*	22.90	.100	.000
23.00	.100	.000	*	23.10	.100	.000

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23.20	.100	.000	*	23.30	.100	.000
23.40	.101	.000	*	23.50	.101	.000
23.60	.101	.000	*	23.70	.101	.000
23.80	.101	.000	*	23.90	.101	.000
24.00	.101	.000	*	24.10	.101	.000
24.20	.092	.000	*	24.30	.075	.000
24.40	.061	.000	*	24.50	.050	.000
24.60	.042	.000	*	24.70	.037	.000
24.80	.034	.000	*	24.90	.031	.000
25.00	.027	.000	*	25.10	.024	.000
25.20	.022	.000	*	25.30	.019	.000
25.40	.017	.000	*	25.50	.014	.000
25.60	.012	.000	*	25.70	.010	.000
25.80	.008	.000	*	25.90	.007	.000
26.00	.005	.000	*	26.10	.004	.000
26.20	.003	.000	*	26.30	.002	.000
26.40	.001	.000	*	26.50	.001	.000

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***** RESULTS FROM SUBWATERSHED 3 *****

*** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	100.0000	50.0000	35.0000	19.0000	15.0000	6.0000
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***

(TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)	******* *	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.000	.000
6.20	.000	.000	*	6.30	.000	.000
6.40	.000	.000	*	6.50	.000	.000
6.60	.000	.000	*	6.70	.000	.000
6.80	.000	.000	*	6.90	.000	.000
7.00	.000	.000	*	7.10	.000	.000
7.20	.000	.000	*	7.30	.000	.000

7.60	.000	.000	*	7.70	.000	.000
7.80	.000	.000	*	7.90	.000	.000
8.00	.000	.000	*	8.10	.000	.000
8.20	.000	.000	*	8.30	.000	.000
8.40	.000	.000	*	8.50	.000	.000
8.60	.000	.000	*	8.70	.000	.000
8.80	.000	.000	*	8.90	.000	.000
9.00	.000	.000	*	9.10	.000	.000
9.20	.000	.000	*	9.30	.000	.000
9.40	.000	.000	*	9.50	.000	.000
9.60	.000	.000	*	9.70	.000	.000
9.80	.000	.000	*	9.90	.000	.000
10.00	.000	.000	*	10.10	.000	.000
10.20	.000	.000	*	10.30	.000	.000
10.40	.000	.000	*	10.50	.000	.000
10.60	.000	.000	*	10.70	.000	.000
10.80	.000	.000	*	10.90	.000	.000
11.00	.000	.000	*	11.10	.011	.000
11.20	.020	.000	*	11.30	.029	.000
11.40	.038	.000	*	11.50	.046	.000
11.60	.643	.000	*	11.70	1.075	.000
11.80	1.438	.000	*	11.90	1.746	.000
12.00	2.009	.000	*	12.10	.407	.000
12.20	.415	.000	*	12.30	.423	.000
12.40	.430	.000	*	12.50	.438	.000
12.60	.228	.000	*	12.70	.230	.000
12.80	.231	.000	*	12.90	.233	.000
13.00	.235	.000	*	13.10	.173	.000
13.20	.173	.000	*	13.30	.174	.000
13.40	.175	.000	*	13.50	.176	.000
13.60	.138	.000	*	13.70	.138	.000
13.80	.139	.000	*	13.90	.139	.000
14.00	.140	.000	*	14.10	.100	.000
14.20	.100	.000	*	14.30	.101	.000
14.40	.101	.000	*	14.50	.101	.000
14.60	.101	.000	*	14.70	.102	.000
14.80	.102	.000	*	14.90	.102	.000
15.00	.102	.000	*	15.10	.103	.000
15.20	.103	.000	*	15.30	.103	.000
15.40	.103	.000	*	15.50	.104	.000
15.60	.104	.000	*	15.70	.104	.000
15.80	.104	.000	*	15.90	.105	.000
16.00	.105	.000	*	16.10	.063	.000
16.20	.063	.000	*	16.30	.063	.000
16.40	.063	.000	*	16.50	.063	.000
16.60	.064	.000	*	16.70	.064	.000
16.80	.064	.000	*	16.90	.064	.000
17.00	.064	.000	*	17.10	.064	.000
17.20	.064	.000	*	17.30	.064	.000
17.40	.064	.000	*	17.50	.064	.000
17.60	.064	.000	*	17.70	.064	.000
17.80	.065	.000	*	17.90	.065	.000
18.00	.065	.000	*	18.10	.065	.000
18.20	.065	.000	*	18.30	.065	.000
18.40	.065	.000	*	18.50	.065	.000
18.60	.065	.000	*	18.70	.065	.000
18.80	.065	.000	*	18.90	.065	.000
19.00	.065	.000	*	19.10	.066	.000
19.20	.066	.000	*	19.30	.066	.000
19.40	.066	.000	*	19.50	.066	.000
19.60	.066	.000	*	19.70	.066	.000
19.80	.066	.000	*	19.90	.066	.000
20.00	.066	.000	*	20.10	.044	.000
20.20	.044	.000	*	20.30	.044	.000
20.40	.044	.000	*	20.50	.044	.000

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20.80	.044	.000	*	20.90	.044	.000
21.00	.045	.000	*	21.10	.045	.000
21.20	.045	.000	*	21.30	.045	.000
21.40	.045	.000	*	21.50	.045	.000
21.60	.045	.000	*	21.70	.045	.000
21.80	.045	.000	*	21.90	.045	.000
22.00	.045	.000	*	22.10	.045	.000
22.20	.045	.000	*	22.30	.045	.000
22.40	.045	.000	*	22.50	.045	.000
22.60	.045	.000	*	22.70	.045	.000
22.80	.045	.000	*	22.90	.045	.000
23.00	.045	.000	*	23.10	.045	.000
23.20	.045	.000	*	23.30	.045	.000
23.40	.045	.000	*	23.50	.045	.000
23.60	.045	.000	*	23.70	.045	.000

*** HYDRAULIC INPUT VALUES FOR SUBWATERSHEDS ***

WATER SHED	AREA ACRES	CURVE NUMBER	TC HR	TT HR	ROUTING COEFFICIENTS K-HRS	X	UNIT HYDRO
1	2.90	91.00	.110	.000	.000	.00	.0
2	5.50	69.00	.210	.000	.000	.00	3.0
3	2.00	75.00	.070	.000	.000	.00	.0

*** SEDIMENT INPUT VALUES FOR SUBWATERSHEDS ***

WATER SHED	SEG NUM	SOIL K	LENGTH FEET	SLOPE PCT	CP VALUE	PART OPT	SURF COND
1	1	.00	.0	.00	.000	1.0	.0
2	1	.00	.0	.00	.000	1.0	.0
3	1	.00	.0	.00	.000	1.0	.0

* * * COMPUTED VALUES FOR INDIVIDUAL WATERSHEDS * * *

WATERSHED	PEAK FLOW (CFS)	RUNOFF (INCHES)	SEDIMENT TONS	DIAM (MM)	DELIVERY RATIO 1	DELIVERY RATIO 2
1	5.56	2.00	.00	.100	1.000	1.000
2	1.52	.63	.00	.027	.580	1.000
3	2.01	.91	.00	.100	1.000	1.000

NOTE: SEDIMENT DOES NOT INCLUDE POSSIBLE DEPOSITION BY DELIVERY RATIO 2

***** SUMMARY TABLE FOR TOTAL WATERSHED *****

RUNOFF VOLUME	=	.9215	ACRE-FT
PEAK DISCHARGE	=	8.4369	CFS
AREA	=	10.4000	ACRES
TIME OF PEAK DISCHARGE	=	12.00	HRS
BETA	=	1.0000	
RAINFALL EROSITIVITY FACTOR	=	49.63	EI UNIT
PEAK CONCENTRATION	=	.00	MG/L
PEAK SETTLEABLE CONCENTRATION	=	.00	ML/L
PEAK SETTLEABLE CONCENTRATION	=	.00	MG/L
TOTAL SEDIMENT YIELD	=	.0000	TONS
REPRESENTATIVE PARTICLE SIZE	=	.0001	MM
TIME OF PEAK CONCENTRATION	=	.00	HRS
PERIOD OF SIGNIFICANT CONCENTRATION	=	-26.80	HRS
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF SIGNIFICANT CONCENTRATION	=	.00	ML/L
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PEAK 24 HOUR PERIOD	=	.00	ML/L
ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF SIGNIFICANT CONCENTRATION	=	.00	ML/L
ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION DURING PEAK 24 HOUR PERIOD	=	.00	ML/L

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***** GENERATED DATA FOR INPUT INTO STRUCTURE 1 *****

*** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	.0000	.0000	.0000	.0000	.0000	.0000
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***
(TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)	******* *	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.013	.000
6.20	.014	.000	*	6.30	.016	.000
6.40	.018	.000	*	6.50	.020	.000
6.60	.021	.000	*	6.70	.023	.000
6.80	.024	.000	*	6.90	.026	.000
7.00	.028	.000	*	7.10	.029	.000
7.20	.031	.000	*	7.30	.032	.000
7.40	.034	.000	*	7.50	.035	.000
7.60	.036	.000	*	7.70	.038	.000
7.80	.039	.000	*	7.90	.041	.000
8.00	.042	.000	*	8.10	.056	.000
8.20	.059	.000	*	8.30	.061	.000
8.40	.063	.000	*	8.50	.065	.000
8.60	.072	.000	*	8.70	.074	.000
8.80	.077	.000	*	8.90	.079	.000
9.00	.081	.000	*	9.10	.095	.000
9.20	.098	.000	*	9.30	.100	.000
9.40	.103	.000	*	9.50	.106	.000
9.60	.122	.000	*	9.70	.125	.000
9.80	.128	.000	*	9.90	.131	.000
10.00	.133	.000	*	10.10	.174	.000
10.20	.179	.000	*	10.30	.183	.000
10.40	.187	.000	*	10.50	.191	.000
10.60	.264	.000	*	10.70	.270	.000
10.80	.277	.000	*	10.90	.283	.000
11.00	.289	.000	*	11.10	.470	.000

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11.40	.535	.000	*	11.50	.555	.000
11.60	5.000	.000	*	11.70	5.909	.000
11.80	6.736	.000	*	11.90	7.583	.000
12.00	8.437	.000	*	12.10	2.821	.000
12.20	3.009	.000	*	12.30	2.838	.000
12.40	2.669	.000	*	12.50	2.532	.000
12.60	1.701	.000	*	12.70	1.649	.000
12.80	1.599	.000	*	12.90	1.558	.000
13.00	1.528	.000	*	13.10	1.291	.000
13.20	1.270	.000	*	13.30	1.243	.000
13.40	1.219	.000	*	13.50	1.198	.000
13.60	1.048	.000	*	13.70	1.025	.000
13.80	.997	.000	*	13.90	.970	.000
14.00	.946	.000	*	14.10	.790	.000
14.20	.761	.000	*	14.30	.726	.000
14.40	.692	.000	*	14.50	.662	.000
14.60	.637	.000	*	14.70	.619	.000
14.80	.607	.000	*	14.90	.599	.000
15.00	.592	.000	*	15.10	.586	.000
15.20	.581	.000	*	15.30	.578	.000
15.40	.575	.000	*	15.50	.572	.000
15.60	.570	.000	*	15.70	.568	.000
15.80	.567	.000	*	15.90	.567	.000
16.00	.566	.000	*	16.10	.430	.000
16.20	.422	.000	*	16.30	.406	.000
16.40	.394	.000	*	16.50	.384	.000
16.60	.377	.000	*	16.70	.373	.000
16.80	.371	.000	*	16.90	.368	.000
17.00	.366	.000	*	17.10	.364	.000
17.20	.362	.000	*	17.30	.360	.000
17.40	.358	.000	*	17.50	.356	.000
17.60	.355	.000	*	17.70	.354	.000
17.80	.352	.000	*	17.90	.351	.000
18.00	.351	.000	*	18.10	.350	.000
18.20	.349	.000	*	18.30	.349	.000
18.40	.348	.000	*	18.50	.348	.000
18.60	.348	.000	*	18.70	.348	.000
18.80	.349	.000	*	18.90	.349	.000
19.00	.349	.000	*	19.10	.350	.000
19.20	.350	.000	*	19.30	.351	.000
19.40	.351	.000	*	19.50	.351	.000
19.60	.352	.000	*	19.70	.352	.000
19.80	.352	.000	*	19.90	.353	.000
20.00	.353	.000	*	20.10	.284	.000
20.20	.280	.000	*	20.30	.272	.000
20.40	.265	.000	*	20.50	.260	.000
20.60	.257	.000	*	20.70	.255	.000
20.80	.253	.000	*	20.90	.252	.000
21.00	.250	.000	*	21.10	.249	.000
21.20	.248	.000	*	21.30	.247	.000
21.40	.246	.000	*	21.50	.245	.000
21.60	.244	.000	*	21.70	.243	.000
21.80	.243	.000	*	21.90	.242	.000
22.00	.241	.000	*	22.10	.241	.000
22.20	.241	.000	*	22.30	.240	.000
22.40	.240	.000	*	22.50	.240	.000
22.60	.240	.000	*	22.70	.240	.000
22.80	.240	.000	*	22.90	.240	.000
23.00	.240	.000	*	23.10	.240	.000
23.20	.241	.000	*	23.30	.241	.000
23.40	.241	.000	*	23.50	.241	.000
23.60	.241	.000	*	23.70	.241	.000
23.80	.242	.000	*	23.90	.101	.000
24.00	.101	.000	*	24.10	.101	.000
24.20	.092	.000	*	24.30	.075	.000
24.40	.061	.000	*	24.50	.050	.000

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24.60	.042	.000	*	24.70	.037	.000
24.80	.034	.000	*	24.90	.031	.000
25.00	.027	.000	*	25.10	.024	.000
25.20	.022	.000	*	25.30	.019	.000
25.40	.017	.000	*	25.50	.014	.000
25.60	.012	.000	*	25.70	.010	.000
[illegible].80	.008	.000	*	25.90	.007	.000
[illegible].00	.005	.000	*	26.10	.004	.000
26.20	.003	.000	*	26.30	.002	.000
26.40	.001	.000	*	26.50	.001	.000

* *

POND RESULTS

* *

***** CONTROL VARIABLES OPTIONS *****

FLOW	FRACTN	ISDO	NRHP	NSP	NCSTR
3	0	2	300	12	2

***** DROP SPILLWAY INPUTS *****

ENTRANCE LOSS COEFFICIENT	=	1.0000	
BEND LOSS COEFFICIENT	=	.5000	
WEIR COEFFICIENT	=	3.1000	
ORIFICE COEFFICIENT	=	.6000	
MANNING COEFFICIENT	=	.0240	
BARREL DIAMATER	=	18.00	INCHES
RISER DIAMETER	=	24.00	INCHES
LENGTH OF PIPE	=	92.00	FEET
VERTICAL HEAD DROP	=	16.00	FEET

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***** BASIN GEOMETRY *****

STAGE (FT)	AREA (ACRES)	AVERAGE DEPTH (FT)	DISCHARGE (CFS)	CAPACITY (ACRES-FT)
.00	.083	.00	.00	.00
.50	.090	.49	.00	.04
1.00	.096	.97	.00	.09
1.50	.103	1.44	.00	.14
2.50	.117	2.35	.00	.25
3.50	.133	3.22	.00	.37
4.50	.149	4.06	.00	.52
5.50	.166	4.87	.00	.67
6.00	.175	5.27	6.89	.76
6.50	.183	5.66	15.13	.85
7.00	.192	6.04	18.53	.94
7.50	.201	6.42	20.99	1.04

***** STORM EVENT SUMMARY *****

TURBULENCE FACTOR	=	1.00	
PERMANENT POOL CAPACITY	=	.673	ACRE-FT
DEAD STORAGE	=	20.00	PERCENT
TIME INCREMENT OUTFLOW	=	.10	HRS
VISCOSITY	=	.009	CM**2/SEC
INFLOW RUNOFF VOLUME	=	.922	ACRE-FT
OUTFLOW ROUTED VOLUME	=	.922	ACRE-FT
STORM VOLUME DISCHARGED (PLUG FLOW)	=	.922	ACRE-FT
POND VOLUME AT PEAK STAGE	=	.760	ACRE-FT
PEAK STAGE	=	6.009	FT
PEAK INFLOW RATE	=	8.437	CFS
PEAK DISCHARGE RATE	=	7.042	CFS
PEAK INFLOW SEDIMENT CONCENTRATION	=	.00	MG/L
PEAK EFFLUENT SEDIMENT CONCENTRATION	=	.00	MG/L
PEAK EFFLUENT SETTLEABLE CONCENTRATION	=	.0000	ML/L
PEAK EFFLUENT SETTLEABLE CONCENTRATION	=	.00	MG/L
STORM AVERAGE EFFLUENT CONCENTRATION	=	.00	MG/L
AVERAGE EFFLUENT SEDIMENT CONCENTRATION	=	.00	MG/L
BASIN TRAP EFFICIENCY	=**********		PERCENT
DETENTION TIME OF FLOW WITH SEDIMENT	=	15	HRS

DETENTION TIME FROM HYDROGRAPH CENTERS	=	.15	HRS
DETENTION TIME INCLUDING STORED FLOW	=	.15	HRS
SEDIMENT LOAD DISCHARGED	=	.00	TONS
PERIOD OF SIGNIFICANT CONCENTRATION	=	-26.90	HRS
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF SIGNIFICANT CONCENTRATION	=	.00	ML/L
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PEAK 24 HOUR PERIOD	=	.00	ML/L
ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF SIGNIFICANT CONCENTRATION	=	.00	ML/L
ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION DURING PEAK 24 HOUR PERIOD	=	.00	ML/L

*** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	.0000	.0000	.0000	.0000	.0000	.0000
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***
(TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)	******* *	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.003	.000
6.20	.008	.000	*	6.30	.012	.000
6.40	.014	.000	*	6.50	.017	.000
6.60	.018	.000	*	6.70	.020	.000
6.80	.022	.000	*	6.90	.024	.000
7.00	.025	.000	*	7.10	.027	.000
7.20	.028	.000	*	7.30	.030	.000
7.40	.031	.000	*	7.50	.033	.000
7.60	.034	.000	*	7.70	.036	.000
7.80	.037	.000	*	7.90	.039	.000

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8.00	.040	.000	*	8.10	.045	.000
8.20	.051	.000	*	8.30	.055	.000
8.40	.059	.000	*	8.50	.061	.000
8.60	.065	.000	*	8.70	.069	.000
8.80	.072	.000	*	8.90	.075	.000
9.00	.077	.000	*	9.10	.083	.000
9.20	.090	.000	*	9.30	.094	.000
9.40	.098	.000	*	9.50	.101	.000
9.60	.107	.000	*	9.70	.115	.000
9.80	.121	.000	*	9.90	.125	.000
10.00	.128	.000	*	10.10	.141	.000
10.20	.159	.000	*	10.30	.170	.000
10.40	.177	.000	*	10.50	.183	.000
10.60	.205	.000	*	10.70	.236	.000
10.80	.255	.000	*	10.90	.267	.000
11.00	.277	.000	*	11.10	.328	.000
11.20	.405	.000	*	11.30	.454	.000
11.40	.489	.000	*	11.50	.517	.000
11.60	1.648	.000	*	11.70	3.551	.000
11.80	4.937	.000	*	11.90	6.047	.000
12.00	7.042	.000	*	12.10	6.319	.000
12.20	4.614	.000	*	12.30	3.767	.000
12.40	3.259	.000	*	12.50	2.929	.000
12.60	2.522	.000	*	12.70	2.098	.000
12.80	1.860	.000	*	12.90	1.719	.000
13.00	1.630	.000	*	13.10	1.519	.000
13.20	1.400	.000	*	13.30	1.328	.000
13.40	1.279	.000	*	13.50	1.243	.000
13.60	1.183	.000	*	13.70	1.109	.000
13.80	1.060	.000	*	13.90	1.022	.000
14.00	.989	.000	*	14.10	.928	.000
14.20	.852	.000	*	14.30	.797	.000
14.40	.753	.000	*	14.50	.715	.000
14.60	.682	.000	*	14.70	.655	.000
14.80	.634	.000	*	14.90	.618	.000
15.00	.607	.000	*	15.10	.598	.000
15.20	.591	.000	*	15.30	.585	.000
15.40	.580	.000	*	15.50	.577	.000
15.60	.574	.000	*	15.70	.571	.000
15.80	.569	.000	*	15.90	.568	.000
16.00	.567	.000	*	16.10	.532	.000
16.20	.479	.000	*	16.30	.446	.000
16.40	.423	.000	*	16.50	.406	.000
16.60	.393	.000	*	16.70	.384	.000
16.80	.378	.000	*	16.90	.373	.000
17.00	.370	.000	*	17.10	.367	.000
17.20	.365	.000	*	17.30	.363	.000
17.40	.361	.000	*	17.50	.359	.000
17.60	.357	.000	*	17.70	.356	.000
17.80	.354	.000	*	17.90	.353	.000
18.00	.352	.000	*	18.10	.351	.000
18.20	.350	.000	*	18.30	.349	.000
18.40	.349	.000	*	18.50	.349	.000
18.60	.348	.000	*	18.70	.348	.000
18.80	.348	.000	*	18.90	.349	.000
19.00	.349	.000	*	19.10	.349	.000
19.20	.349	.000	*	19.30	.350	.000
19.40	.350	.000	*	19.50	.351	.000
19.60	.351	.000	*	19.70	.351	.000
19.80	.352	.000	*	19.90	.352	.000
20.00	.352	.000	*	20.10	.335	.000
20.20	.309	.000	*	20.30	.292	.000
20.40	.280	.000	*	20.50	.272	.000
20.60	.265	.000	*	20.70	.260	.000
20.80	.257	.000	*	20.90	.255	.000
21.00	.253	.000	*	21.10	.251	.000

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21.20	.250	.000	*	21.30	[illegible]	[illegible]
21.40	.247	.000	*	21.50	.246	.000
21.60	.245	.000	*	21.70	.244	.000
21.80	.244	.000	*	21.90	.243	.000
22.00	.242	.000	*	22.10	.242	.000
22.20	.241	.000	*	22.30	.241	.000
22.40	.240	.000	*	22.50	.240	.000
22.60	.240	.000	*	22.70	.240	.000
22.80	.240	.000	*	22.90	.240	.000
23.00	.240	.000	*	23.10	.240	.000
23.20	.240	.000	*	23.30	.240	.000
23.40	.241	.000	*	23.50	.241	.000
23.60	.241	.000	*	23.70	.241	.000
23.80	.241	.000	*	23.90	.206	.000
24.00	.154	.000	*	24.10	.127	.000
24.20	.112	.000	*	24.30	.098	.000
24.40	.083	.000	*	24.50	.069	.000
24.60	.058	.000	*	24.70	.049	.000
24.80	.042	.000	*	24.90	.037	.000
25.00	.033	.000	*	25.10	.030	.000
25.20	.026	.000	*	25.30	.023	.000
25.40	.021	.000	*	25.50	.018	.000
25.60	.016	.000	*	25.70	.013	.000
25.80	.011	.000	*	25.90	.010	.000
26.00	.008	.000	*	26.10	.006	.000
26.20	.005	.000	*	26.30	.004	.000
26.40	.003	.000	*	26.50	.002	.000
26.60	.001	.000	*	26.70	.001	.000

*** RUN COMPLETED ****

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The following pages are to
be inserted at the end of
Appendix 7-4

Check on the adequacy of the sedimentation pond during reclamation:

Design volume:

Pond area (at design 10-yr, 24-hr level) ⟶ A = 0.2 ac
Undisturbed area ⟶ 0.9 + 3.3 + 2.0 + 0.2 = 6.2 ac
(WS-2) (WS-4) (WS-5) (site
↳ See Plate 7-3
Reclaimed area = 4.7 ac (total of disturbed and reclaimed areas included on pg. 1 of this calc.).

Runoff storage volume:

Pond area ⟶ CN = 100; Q = 2.50 in = 0.04 AF
Undisturbed area ⟶ CN = 69; Q = 0.42 in = 0.22 AF
Reclaimed area ⟶ CN = 75; Q = 0.65 in = 0.25 AF
} Total = 0.51 AF

Sediment storage volume:

Reclaimed: A = 0.84 tons/ac/yr (see pg. 1c of this calc.)
= 0.002 AF/yr (assuming 90 lb/ft³)

Undisturbed: A = 0.84 tons/ac/yr (see pg. 1f of this calc.)
= 0.007 AF/yr

Design for 10-yr of sediment storage:
Total sed. storage = (0.002 + 0.007)(10) = 0.09 AF

Total required storage = 0.51 AF + 0.09 AF
= 0.60 AF

This value is less than the design storage (0.99 AF). Hence, the pond volume is acceptable as designed.

Check the pond hydraulics using SEDIMOT II.

Changes in SEDIMOT II entries:

No. of subwatersheds = 2 (undisturbed & reclaimed)

Data for subwatershed 1 (undisturbed):

A = 6.2 ac

CN = 69

T_c → use value for original subwatershed 2 (pg. 8 of this calc.)

T_c = 0.21 hr

Data for subwatershed 2 (reclaimed):

A = 4.7 ac

CN = 75

T_c → use upland method

1150 ft @ 7% ⟹ V = 5.3 ft/s (chanel – see pg. 7 of this calc)

$$T_c = \frac{1150\text{ ft}}{5.3\text{ ft/s}} = 220\text{s}$$
$$= 0.06\text{ hr}$$

All other values remain the same.

SEDIMOT II results → attached.

Peak inflow = 5.70 cfs
Peak outflow = 4.14 cfs
Peak stage = 5.80 ft

} Values all lower than design condition. OK

```
*****************************************************************
                    -- SEDPC --
          SEDIMOT II MODEL FOR THE IBM PC/XT
          CONVERTED BY TECH ENGINEERING INC.
             VERSION 1.10 NOVEMBER 17,1983
*****************************************************************

*****************************************************************
*****************************************************************
       UNIVERSITY OF KENTUCKY COMPUTER MODEL
       OF SURFACE MINE HYDROLOGY AND SEDIMENTOLOGY
       FOR MORE INFORMATION CONTACT THE AGRICULTURAL
       ENGINEERING DEPARTMENT
       THE UK MODEL IS A DESIGN MODEL DEVELOPED TO PREDICT
       THE HYDRAULIC AND SEDIMENT RESPONSE FROM SURFACE
       MINED LANDS FOR A SPECIFIED RAINFALL EVENT (SINGLE STORM)
       VERSION DATE 9-23-83
       DISCLAIMER: NEITHER THE UNIVERSITY NOR ANY OF ITS EMPLOYEES
       ACCEPT ANY RESPONSIBILITY OR LEGAL LIABILITY FOR THE
       CONCLUSIONS DRAWN FROM THE RESULTS OF THIS MODEL
*****************************************************************
*****************************************************************
*****************************************************************
*                                                               *
*     THE FOLLOWING VALUES ARE NOW PREDICTED BY SEDIMOT II.     *
*     THEY CAN BE FOUND IN SUMMARY TABLES.                      *
*      1. PERIOD OF SIGNIFICANT CONCENTRATION                   *
*      2. VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION      *
*         DURING PERIOD OF SIGNIFICANT CONCENTRATION            *
*      3. VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION      *
*         DURING PEAK 24 HOUR PERIOD                            *
*      4. ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION           *
*         DURING PERIOD OF SIGNIFICANT CONCENTRATION            *
*      5. ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION           *
*         DURING PEAK 24 HOUR PERIOD                            *
*                                                               *
*     ALL CONCENTRATIONS ARE IN ML/L.                           *
*                                                               *
*****************************************************************
             ********************************************
                   WATERSHED IDENTIFICATION CODE
                   -----------------------------
 GENWAL SEDIMENTATIION POND - PHASE I RECLAMATION
             ********************************************
```

INPUT PARTICLE SIZE-PERCENT FINER DISTRIBUTIONS

IZE,MM	.250	.100	.050	.010	.005	.001	.000
PCT FINER NO. 1	100.000	50.000	35.000	19.000	15.000	6.000	.000

**********INPUT VALUES**********

STORM DURATION	=	24.00	HOURS
PRECIPATION DEPTH	=	2.92	INCHES
SPECIFIC GRAVITY	=	2.50	
LOAD RATE EXPONENT FACTOR	=	1.50	
SUBMERGED BULK SPECIFIC GRAVITY	=	1.25	

```
* * * * * * * * * * * * * * * * * * * * * * * *
        JUNCTION  1, BRANCH  1, STRUCTURE  1
* * * * * * * * * * * * * * * * * * * * * * * *
*** HYDRAULIC INPUT VALUES FOR SUBWATERSHEDS ***
WATER    AREA     CURVE      TC      TT   ROUTING COEFFICIENTS   UNIT
SHED     ACRES    NUMBER     HR      HR       K-HRS       X      HYDRO
-----------------------------------------------------------------------
 1       6.20     69.00    .210    .000       .000       .00     3.0
 2       4.70     75.00    .060    .000       .000       .00      .0
*** SEDIMENT INPUT VALUES FOR SUBWATERSHEDS ***
WATER    SEG      SOIL      LENGTH     SLOPE     CP       PART     SURF
SHED     NUM       K         FEET       PCT     VALUE     OPT     COND
-----------------------------------------------------------------------
 1        1      .00          .0        .00     .000      1.0       .0
 2        1      .00          .0        .00     .000      1.0       .0
* * * COMPUTED VALUES FOR INDIVIDUAL WATERSHEDS * * *
WATERSHED   PEAK FLOW    RUNOFF    SEDIMENT   DIAM   DELIVERY   DELIVERY
              (CFS)     (INCHES)    TONS      (MM)   RATIO 1    RATIO 2
-----------------------------------------------------------------------
    1        1.71        .63        .00       .027    .580      1.000
    2        4.72        .91        .00       .100   1.000      1.000
NOTE:  SEDIMENT DOES NOT INCLUDE POSSIBLE DEPOSITION BY DELIVERY RATIO 2
        ***** SUMMARY TABLE FOR TOTAL WATERSHED *****
-----------------------------------------------------------------------
RUNOFF VOLUME                          =      .6801   ACRE-FT
PEAK DISCHARGE                         =     5.7002   CFS
AREA                                   =    10.9000   ACRES
TIME OF PEAK DISCHARGE                 =      12.00   HRS
BETA                                   =     1.0000
RAINFALL EROSITIVITY FACTOR            =      49.63   EI UNIT
PEAK CONCENTRATION                     =        .00   MG/L
PEAK SETTLEABLE CONCENTRATION          =        .00   ML/L
PEAK SETTLEABLE CONCENTRATION          =        .00   MG/L
TOTAL SEDIMENT YIELD                   =      .0000   TONS
REPRESENTATIVE PARTICLE SIZE           =      .0001   MM
TIME OF PEAK CONCENTRATION             =        .00   HRS
PERIOD OF SIGNIFICANT CONCENTRATION=          -26.80   HRS
VOLUME WEIGHTED AVERAGE SETTLEABLE
  CONCENTRATION DURING PERIOD OF
  SIGNIFICANT CONCENTRATION            =        .00   ML/L
VOLUME WEIGHTED AVERAGE SETTLEABLE
  CONCENTRATION DURING PEAK 24 HOUR
  PERIOD                               =        .00   ML/L
ARITHMETIC AVERAGE SETTLEABLE
  CONCENTRATION DURING PERIOD OF
  SIGNIFICANT CONCENTRATION            =        .00   ML/L
ARITHMETIC AVERAGE SETTLEABLE
  CONCENTRATION DURING PEAK 24 HOUR
  PERIOD                               =        .00   ML/L
      ***** GENERATED DATA FOR INPUT INTO STRUCTURE 1  *****
          *** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***
SIZE,MM              .2500    .1000    .0500    .0100    .0050    .0010
PERCENT FINER        .0000    .0000    .0000    .0000    .0000    .0000
SIZE,MM              .0001
PERCENT FINER        .0000
            *** HYDROGRAPH AND SEDIMENT GRAPH ***
            (TWO CONSECUTIVE VALUES PER LINE)
TIME     DISCHARGE    SED DISC *******  TIME    DISCHARGE    SED DISC
(HR)       (CFS)       (MG/L)      *    (HR)      (CFS)       (MG/L)
-----------------------------------*-----------------------------------
 .00        .000        .000      *     .10       .000        .000
```

.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.000	.000
6.20	.000	.000	*	6.30	.000	.000
6.40	.000	.000	*	6.50	.000	.000
6.60	.000	.000	*	6.70	.000	.000
6.80	.000	.000	*	6.90	.000	.000
7.00	.000	.000	*	7.10	.000	.000
7.20	.000	.000	*	7.30	.000	.000
7.40	.000	.000	*	7.50	.000	.000
7.60	.000	.000	*	7.70	.000	.000
7.80	.000	.000	*	7.90	.000	.000
8.00	.000	.000	*	8.10	.000	.000
8.20	.000	.000	*	8.30	.000	.000
8.40	.000	.000	*	8.50	.000	.000
8.60	.000	.000	*	8.70	.000	.000
8.80	.000	.000	*	8.90	.000	.000
9.00	.000	.000	*	9.10	.000	.000
9.20	.000	.000	*	9.30	.000	.000
9.40	.000	.000	*	9.50	.000	.000
9.60	.000	.000	*	9.70	.000	.000
9.80	.000	.000	*	9.90	.000	.000
10.00	.000	.000	*	10.10	.000	.000
10.20	.000	.000	*	10.30	.000	.000
10.40	.000	.000	*	10.50	.000	.000
10.60	.000	.000	*	10.70	.000	.000
10.80	.000	.000	*	10.90	.000	.000
11.00	.000	.000	*	11.10	.026	.000
11.20	.048	.000	*	11.30	.069	.000
11.40	.089	.000	*	11.50	.109	.000
11.60	1.512	.000	*	11.70	2.547	.000
11.80	3.556	.000	*	11.90	4.618	.000
12.00	5.700	.000	*	12.10	2.471	.000
12.20	2.688	.000	*	12.30	2.499	.000
12.40	2.313	.000	*	12.50	2.162	.000
12.60	1.564	.000	*	12.70	1.507	.000
12.80	1.451	.000	*	12.90	1.406	.000
13.00	1.373	.000	*	13.10	1.201	.000
13.20	1.178	.000	*	13.30	1.148	.000
13.40	[illegible]	[illegible]	*	[illegible]	[illegible]	[illegible]

13.60	.986	.000	*	13.70	.961	.000
13.80	.929	.000	*	13.90	.899	.000
14.00	.872	.000	*	14.10	.752	.000
14.20	.719	.000	*	14.30	.680	.000
14.40	.642	.000	*	14.50	.609	.000
14.60	.580	.000	*	14.70	.560	.000
[illegible].80	.547	.000	*	14.90	.538	.000
[illegible].00	.531	.000	*	15.10	.524	.000
15.20	.519	.000	*	15.30	.515	.000
15.40	.511	.000	*	15.50	.509	.000
15.60	.507	.000	*	15.70	.505	.000
15.80	.504	.000	*	15.90	.503	.000
16.00	.503	.000	*	16.10	.404	.000
16.20	.394	.000	*	16.30	.377	.000
16.40	.363	.000	*	16.50	.352	.000
16.60	.344	.000	*	16.70	.340	.000
16.80	.337	.000	*	16.90	.334	.000
17.00	.332	.000	*	17.10	.329	.000
17.20	.327	.000	*	17.30	.325	.000
17.40	.323	.000	*	17.50	.321	.000
17.60	.320	.000	*	17.70	.318	.000
17.80	.317	.000	*	17.90	.316	.000
18.00	.315	.000	*	18.10	.314	.000
18.20	.314	.000	*	18.30	.313	.000
18.40	.313	.000	*	18.50	.313	.000
18.60	.313	.000	*	18.70	.313	.000
18.80	.313	.000	*	18.90	.314	.000
19.00	.314	.000	*	19.10	.315	.000
19.20	.315	.000	*	19.30	.316	.000
19.40	.316	.000	*	19.50	.317	.000
19.60	.317	.000	*	19.70	.318	.000
19.80	.318	.000	*	19.90	.319	.000
[illegible].00	.319	.000	*	20.10	.267	.000
20.20	.263	.000	*	20.30	.254	.000
20.40	.247	.000	*	20.50	.241	.000
20.60	.237	.000	*	20.70	.234	.000
20.80	.233	.000	*	20.90	.231	.000
21.00	.230	.000	*	21.10	.228	.000
21.20	.227	.000	*	21.30	.226	.000
21.40	.225	.000	*	21.50	.224	.000
21.60	.223	.000	*	21.70	.222	.000
21.80	.221	.000	*	21.90	.221	.000
22.00	.220	.000	*	22.10	.220	.000
22.20	.219	.000	*	22.30	.219	.000
22.40	.219	.000	*	22.50	.218	.000
22.60	.218	.000	*	22.70	.218	.000
22.80	.219	.000	*	22.90	.219	.000
23.00	.219	.000	*	23.10	.219	.000
23.20	.219	.000	*	23.30	.220	.000
23.40	.220	.000	*	23.50	.220	.000
23.60	.220	.000	*	23.70	.220	.000
23.80	.221	.000	*	23.90	.114	.000
24.00	.114	.000	*	24.10	.114	.000
24.20	.104	.000	*	24.30	.085	.000
24.40	.069	.000	*	24.50	.057	.000
24.60	.048	.000	*	24.70	.042	.000
24.80	.038	.000	*	24.90	.034	.000
[illegible].00	.031	.000	*	25.10	.028	.000
[illegible].20	.024	.000	*	25.30	.022	.000
25.40	.019	.000	*	25.50	.016	.000
25.60	.014	.000	*	25.70	.012	.000
25.80	.010	.000	*	25.90	.008	.000
26.00	.006	.000	*	26.10	.005	.000
26.20	.003	.000	*	26.30	.002	.000
26.40	.002	.000	*	26.50	.001	.000

POND RESULTS

* *

***** CONTROL VARIABLES OPTIONS *****

FLOW	FRACTN	ISDO	NRHP	NSP	NCSTR
3	0	2	300	12	2

***** DROP SPILLWAY INPUTS *****

ENTRANCE LOSS COEFFICIENT	=	1.0000	
BEND LOSS COEFFICIENT	=	.5000	
WEIR COEFFICIENT	=	3.1000	
ORIFICE COEFFICIENT	=	.6000	
MANNING COEFFICIENT	=	.0240	
BARREL DIAMATER	=	18.00	INCHES
RISER DIAMETER	=	24.00	INCHES
LENGTH OF PIPE	=	92.00	FEET
VERTICAL HEAD DROP	=	16.00	FEET

***** BASIN GEOMETRY *****

STAGE (FT)	AREA (ACRES)	AVERAGE DEPTH (FT)	DISCHARGE (CFS)	CAPACITY (ACRES-FT)
.00	.083	.00	.00	.00
.50	.090	.49	.00	.04
1.00	.096	.97	.00	.09
1.50	.103	1.44	.00	.14
2.50	.117	2.35	.00	.25
3.50	.133	3.22	.00	.37
4.50	.149	4.06	.00	.52
5.50	.166	4.87	.00	.67
6.00	.175	5.27	6.89	.76
6.50	.183	5.66	15.13	.85
7.00	.192	6.04	18.53	.94
7.50	.201	6.42	20.99	1.04

***** STORM EVENT SUMMARY *****

TURBULENCE FACTOR	=	1.00	
PERMANENT POOL CAPACITY	=	.673	ACRE-FT
DEAD STORAGE	=	20.00	PERCENT
TIME INCREMENT OUTFLOW	=	.10	HRS
VISCOSITY	=	.009	CM**2/SEC
INFLOW RUNOFF VOLUME	=	.680	ACRE-FT
OUTFLOW ROUTED VOLUME	=	.680	ACRE-FT
STORM VOLUME DISCHARGED (PLUG FLOW)	=	.680	ACRE-FT
POND VOLUME AT PEAK STAGE	=	.724	ACRE-FT
PEAK STAGE	=	5.800	FT
PEAK INFLOW RATE	=	5.700	CFS
PEAK DISCHARGE RATE	=	4.137	CFS
PEAK INFLOW SEDIMENT CONCENTRATION	=	.00	MG/L
PEAK EFFLUENT SEDIMENT CONCENTRATION	=	.00	MG/L
PEAK EFFLUENT SETTLEABLE CONCENTRATION	=	.0000	ML/L
PEAK EFFLUENT SETTLEABLE CONCENTRATION	=	.00	MG/L
STORM AVERAGE EFFLUENT CONCENTRATION	=	.00	MG/L
AVERAGE EFFLUENT SEDIMENT CONCENTRATION	=	.00	MG/L
BASIN TRAP EFFICIENCY	=**********		PERCENT
DETENTION TIME OF FLOW WITH SEDIMENT	=	.15	HRS
DETENTION TIME FROM HYDROGRAPH CENTERS	=	.15	HRS
DETENTION TIME INCLUDING STORED FLOW	=	.15	HRS
SEDIMENT LOAD DISCHARGED	=	.00	TONS
PERIOD OF SIGNIFICANT CONCENTRATION	=	-26.90	HRS
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF SIGNIFICANT CONCENTRATION	=	.00	ML/L
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PEAK 24 HOUR PERIOD	=	.00	ML/L

CONCENTRATION DURING PERIOD OF
SIGNIFICANT CONCENTRATION = .00 ML/L
ARITHMETIC AVERAGE SETTLEABLE
CONCENTRATION DURING PEAK 24 HOUR
PERIOD = .00 ML/L

*** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	.0000	.0000	.0000	.0000	.0000	.0000
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***
(TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)	******* *	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.000	.000
6.20	.000	.000	*	6.30	.000	.000
6.40	.000	.000	*	6.50	.000	.000
6.60	.000	.000	*	6.70	.000	.000
6.80	.000	.000	*	6.90	.000	.000
7.00	.000	.000	*	7.10	.000	.000
7.20	.000	.000	*	7.30	.000	.000
7.40	.000	.000	*	7.50	.000	.000
7.60	.000	.000	*	7.70	.000	.000
7.80	.000	.000	*	7.90	.000	.000
8.00	.000	.000	*	8.10	.000	.000
8.20	.000	.000	*	8.30	.000	.000
8.40	.000	.000	*	8.50	.000	.000
8.60	.000	.000	*	8.70	.000	.000
8.80	.000	.000	*	8.90	.000	.000
9.00	.000	.000	*	9.10	.000	.000
9.20	.000	.000	*	9.30	.000	.000
9.40	.000	.000	*	9.50	.000	.000
9.60	.000	.000	*	9.70	.000	.000
9.80	.000	.000	*	9.90	.000	.000

10.20	.000	.000	*	10.30	.000	.000
10.40	.000	.000	*	10.50	.000	.000
10.60	.000	.000	*	10.70	.000	.000
10.80	.000	.000	*	10.90	.000	.000
11.00	.000	.000	*	11.10	.007	.000
11.20	.022	.000	*	11.30	.040	.000
11.40	.059	.000	*	11.50	.079	.000
11.60	.445	.000	*	11.70	1.238	.000
11.80	2.145	.000	*	11.90	3.116	.000
12.00	4.137	.000	*	12.10	4.110	.000
12.20	3.344	.000	*	12.30	2.967	.000
12.40	2.686	.000	*	12.50	2.461	.000
12.60	2.161	.000	*	12.70	1.848	.000
12.80	1.663	.000	*	12.90	1.545	.000
13.00	1.467	.000	*	13.10	1.376	.000
13.20	1.283	.000	*	13.30	1.223	.000
13.40	1.178	.000	*	13.50	1.144	.000
13.60	1.093	.000	*	13.70	1.033	.000
13.80	.988	.000	*	13.90	.951	.000
14.00	.918	.000	*	14.10	.865	.000
14.20	.800	.000	*	14.30	.749	.000
14.40	.705	.000	*	14.50	.665	.000
14.60	.630	.000	*	14.70	.600	.000
14.80	.576	.000	*	14.90	.560	.000
15.00	.547	.000	*	15.10	.537	.000
15.20	.529	.000	*	15.30	.523	.000
15.40	.518	.000	*	15.50	.514	.000
15.60	.511	.000	*	15.70	.508	.000
15.80	.506	.000	*	15.90	.505	.000
16.00	.504	.000	*	16.10	.478	.000
16.20	.438	.000	*	16.30	.412	.000
16.40	.391	.000	*	16.50	.374	.000
16.60	.361	.000	*	16.70	.351	.000
16.80	.345	.000	*	16.90	.340	.000
17.00	.337	.000	*	17.10	.333	.000
17.20	.331	.000	*	17.30	.328	.000
17.40	.326	.000	*	17.50	.324	.000
17.60	.322	.000	*	17.70	.321	.000
17.80	.319	.000	*	17.90	.318	.000
18.00	.317	.000	*	18.10	.316	.000
18.20	.315	.000	*	18.30	.314	.000
18.40	.313	.000	*	18.50	.313	.000
18.60	.313	.000	*	18.70	.313	.000
18.80	.313	.000	*	18.90	.313	.000
19.00	.314	.000	*	19.10	.314	.000
19.20	.315	.000	*	19.30	.315	.000
19.40	.315	.000	*	19.50	.316	.000
19.60	.316	.000	*	19.70	.317	.000
19.80	.317	.000	*	19.90	.318	.000
20.00	.318	.000	*	20.10	.306	.000
20.20	.285	.000	*	20.30	.272	.000
20.40	.261	.000	*	20.50	.252	.000
20.60	.246	.000	*	20.70	.241	.000
20.80	.237	.000	*	20.90	.235	.000
21.00	.232	.000	*	21.10	.231	.000
21.20	.229	.000	*	21.30	.228	.000
21.40	.227	.000	*	21.50	.225	.000
21.60	.224	.000	*	21.70	.223	.000
21.80	.222	.000	*	21.90	.222	.000
22.00	.221	.000	*	22.10	.220	.000
22.20	.220	.000	*	22.30	.219	.000
22.40	.219	.000	*	22.50	.219	.000
22.60	.219	.000	*	22.70	.218	.000
22.80	.218	.000	*	22.90	.219	.000
23.00	.219	.000	*	23.10	.219	.000

23.40	.219	.000	*	23.50	.220	.000
23.60	.220	.000	*	23.70	.220	.000
23.80	.220	.000	*	23.90	.194	.000
24.00	.154	.000	*	24.10	.134	.000
24.20	.121	.000	*	24.30	.108	.000
24.40	.092	.000	*	24.50	.077	.000
[illegible].60	.065	.000	*	24.70	.055	.000
24.80	.047	.000	*	24.90	.042	.000
25.00	.037	.000	*	25.10	.033	.000
25.20	.030	.000	*	25.30	.026	.000
25.40	.023	.000	*	25.50	.020	.000
25.60	.018	.000	*	25.70	.015	.000
25.80	.013	.000	*	25.90	.011	.000
26.00	.009	.000	*	26.10	.007	.000
26.20	.006	.000	*	26.30	.004	.000
26.40	.003	.000	*	26.50	.002	.000
26.60	.001	.000	*	26.70	.001	.000

*** RUN COMPLETED ****