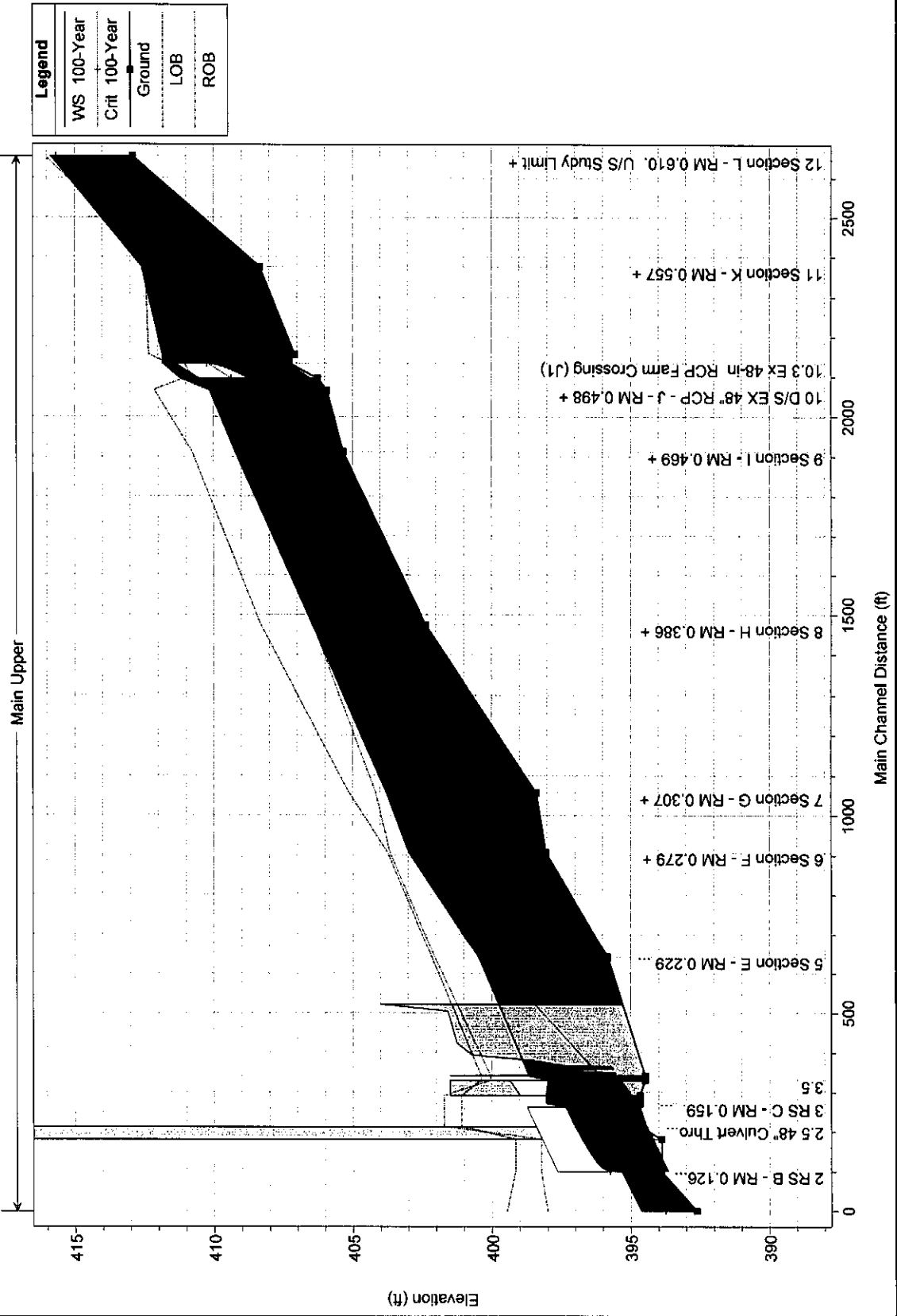
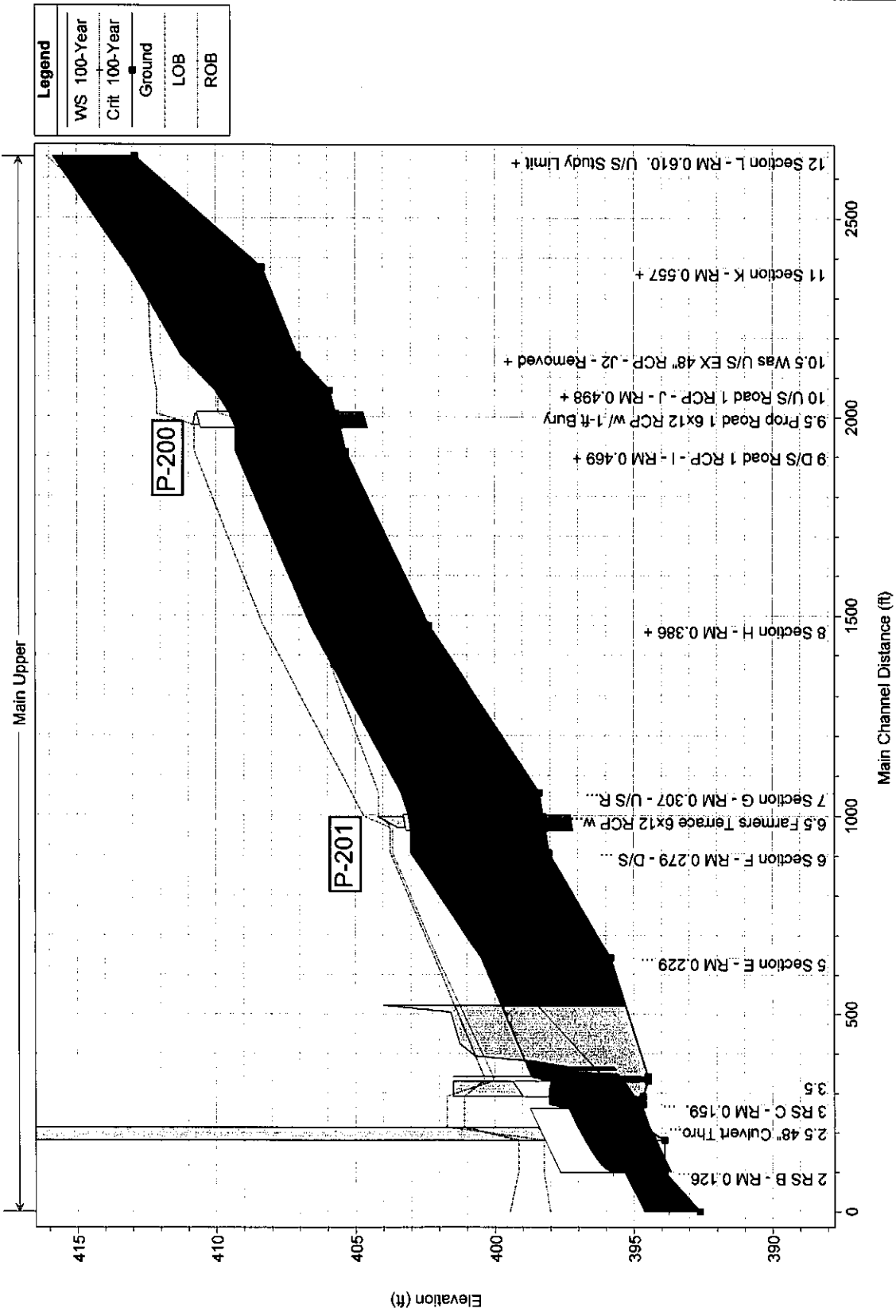


5553 The Hills UNT Locust Cr - FEB 2016 Plan: 2016 FEB Existing Conditions - NAVD 3/8/2016 2:58:36 PM

Geom: 2016 Current Conditions Geo Flow: 100 Year Peak Flows - Developed

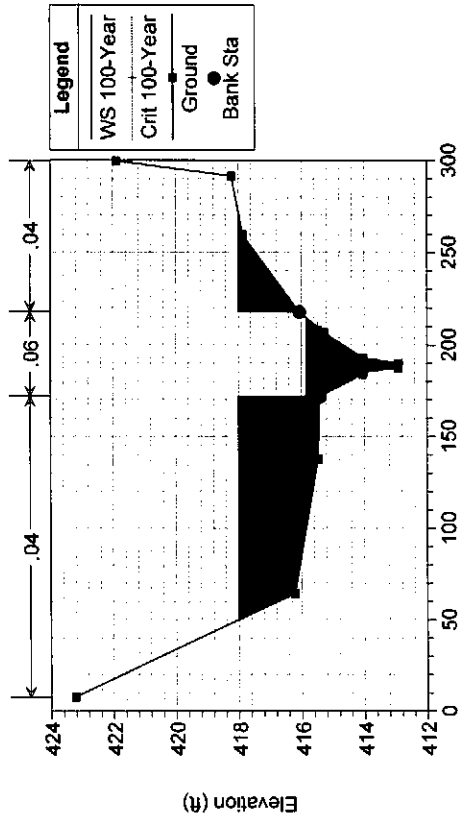


5553 The Hills UNT Locust Cr - FEB 2016 Plan: 2016 MAR Proposed Conditions - NAVD REV 3/8/2016 2:57:30 PM  
 Geom: 2016 Proposed Project Geo REV 03-08-16 Flow: 100 Year Peak Flows - Developed



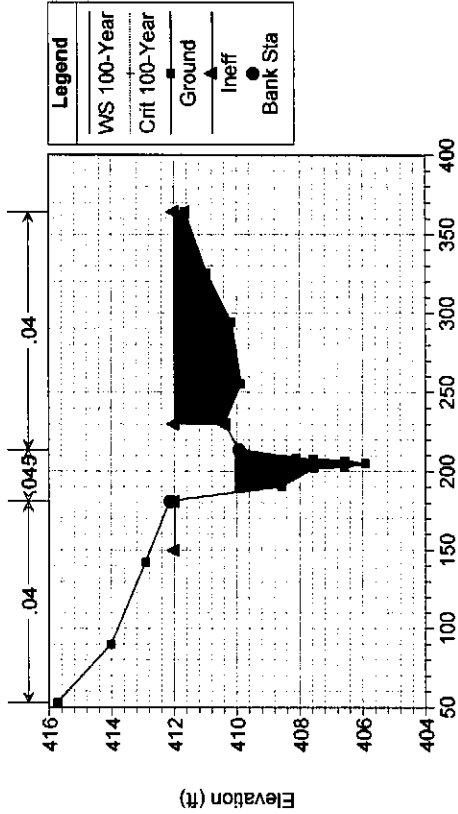
5553 The Hills UNT Locust Cr - FEB 2016 Plan: 2016 MAR Proposed Conditions - NAVD REV 3/8/2016 3:01:08 PM

Geom: 2016 Proposed Project Geo REV 03-08-16 Flow: 100 Year Peak Flows - Developed  
 River = Main Reach = Upper RS = 12 Section L - RM 0.610. U/S Study Limit +



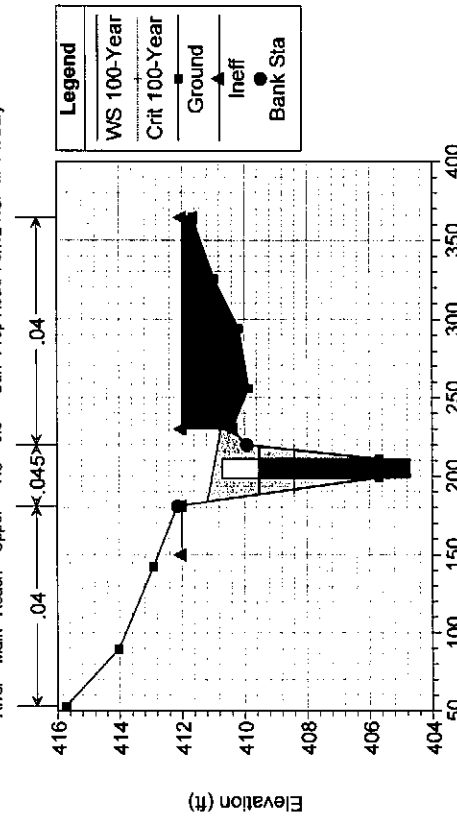
5553 The Hills UNT Locust Cr - FEB 2016 Plan: 2016 MAR Proposed Conditions - NAVD REV 3/8/2016 3:01:08 PM

Geom: 2016 Proposed Project Geo REV 03-08-16 Flow: 100 Year Peak Flows - Developed  
 River = Main Reach = Upper RS = 10 U/S Road 1 RCP - J - RM 0.498 +



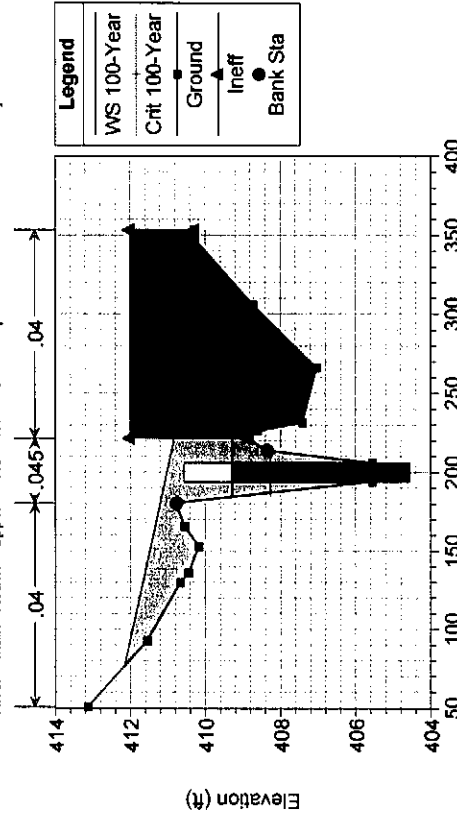
5553 The Hills UNT Locust Cr - FEB 2016 Plan: 2016 MAR Proposed Conditions - NAVD REV 3/8/2016 3:01:08 PM

Geom: 2016 Proposed Project Geo REV 03-08-16 Flow: 100 Year Peak Flows - Developed  
 River = Main Reach = Upper RS = 9.5 Culv Prop Road 1 6x12 RCP w/ 1-ft Bury



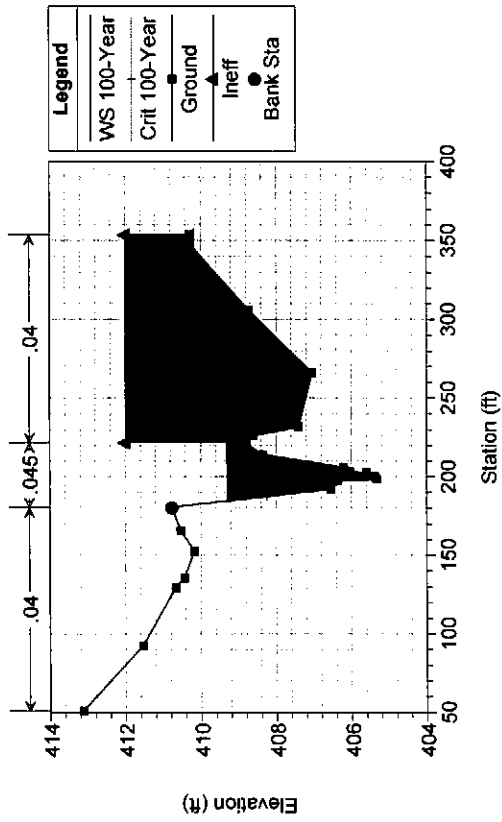
5553 The Hills UNT Locust Cr - FEB 2016 Plan: 2016 MAR Proposed Conditions - NAVD REV 3/8/2016 3:01:08 PM

Geom: 2016 Proposed Project Geo REV 03-08-16 Flow: 100 Year Peak Flows - Developed  
 River = Main Reach = Upper RS = 9.5 Culv Prop Road 1 6x12 RCP w/ 1-ft Bury



5553 The Hills UNIT Locust C - FEB 2018 Plan: 2016 MAR Proposed Conditions - NAVD REV 3/8/2016 3:01:08 PM

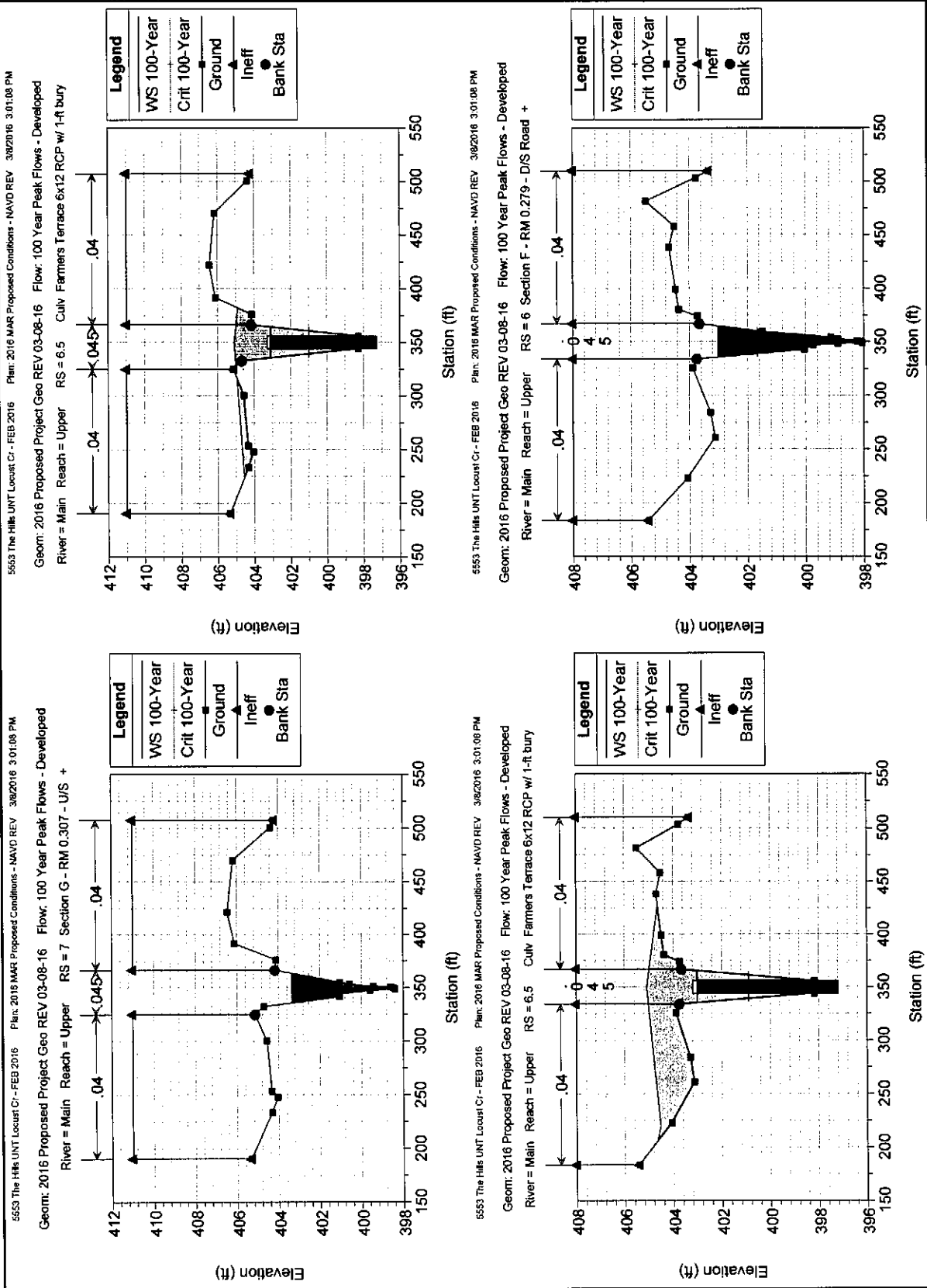
Geom: 2016 Proposed Project Geo REV 03-08-16 Flow: 100 Year Peak Flows - Developed  
River = Main Reach = Upper RS = 9 D/S Road 1 RCP - I - RM 0.469 +



**P-200**

Plan: 2016\_PP\_NAVD\_REV Main Upper RS: 9.5 Culv Group: Culvert #1 Profile: 100-Year

Q Culv Group (cfs)	306.60	Culv Full Len (ft)	
# Barrels	1	Culv Vel US (ft/s)	6.65
Q Barrel (cfs)	306.60	Culv Vel DS (ft/s)	6.79
E.G. US. (ft)	410.57	Culv Inv El Up (ft)	404.70
W.S. US. (ft)	410.06	Culv Inv El Dn (ft)	404.55
E.G. DS (ft)	409.56	Culv Frctn Ls (ft)	0.20
W.S. DS (ft)	409.31	Culv Exit Loss (ft)	0.47
Delta EG (ft)	1.02	Culv Entr Loss (ft)	0.34
Delta WS (ft)	0.75	Q Weir (cfs)	
E.G. IC (ft)	410.56	Weir Sta Lft (ft)	
E.G. OC (ft)	410.57	Weir Sta Rgt (ft)	
Culvert Control	Outlet	Weir Submerg	
Culv WS Inlet (ft)	409.54	Weir Max Depth (ft)	
Culv WS Outlet (ft)	409.31	Weir Avg Depth (ft)	
Culv Nml Depth (ft)	5.18	Weir Flow Area (sq ft)	
Culv Crt Depth (ft)	3.73	Min El Weir Flow (ft)	410.84



**P-201**

Plan: 2016\_PP\_NAVD\_REV Main Upper RS: 6.5 Culv Group: Culvert #1 Profile: 100-Year

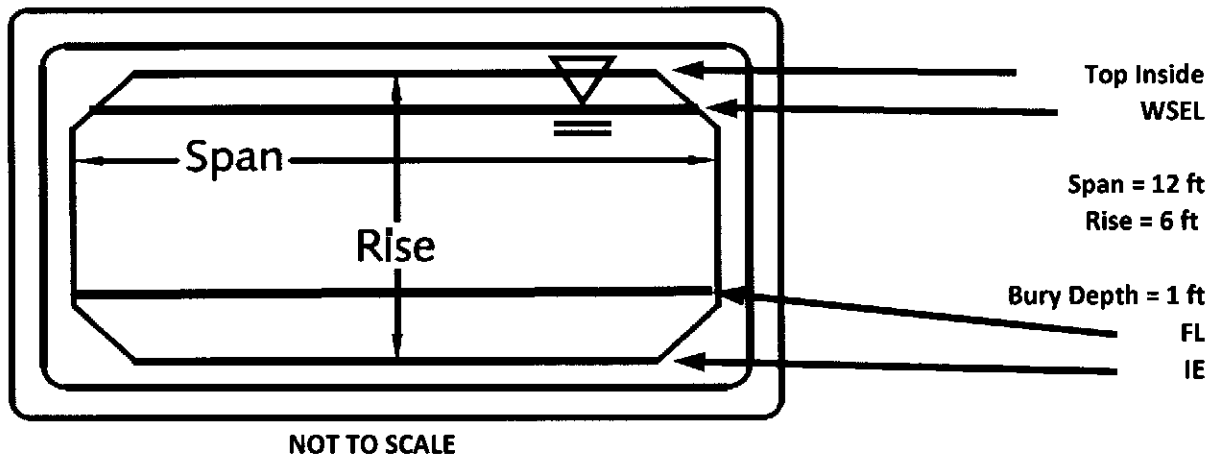
Q Culv Group (cfs)	306.60	Culv Full Len (ft)	
# Barrels	1	Culv Vel US (ft/s)	5.28
Q Barrel (cfs)	306.60	Culv Vel DS (ft/s)	5.28
E.G. US. (ft)	403.76	Culv Inv El Up (ft)	397.27
W.S. US. (ft)	403.36	Culv Inv El Dn (ft)	397.18
E.G. DS (ft)	403.29	Culv Frctn Ls (ft)	0.09
W.S. DS (ft)	403.02	Culv Exit Loss (ft)	0.16
Delta EG (ft)	0.47	Culv Entr Loss (ft)	0.22
Delta WS (ft)	0.35	Q Weir (cfs)	
E.G. IC (ft)	403.13	Weir Sta Lft (ft)	
E.G. OC (ft)	403.76	Weir Sta Rgt (ft)	
Culvert Control	Outlet	Weir Submerg	
Culv WS Inlet (ft)	403.11	Weir Max Depth (ft)	
Culv WS Outlet (ft)	403.02	Weir Avg Depth (ft)	
Culv Nml Depth (ft)	5.92	Weir Flow Area (sq ft)	
Culv Crt Depth (ft)	3.73	Min El Weir Flow (ft)	405.11

**Project 5553 - The Hills - Unnamed Tributary (UNT) to Locust Creek  
Proposed Stream Crossing Capacity Assessment**

**9-Mar-16**

Mjs

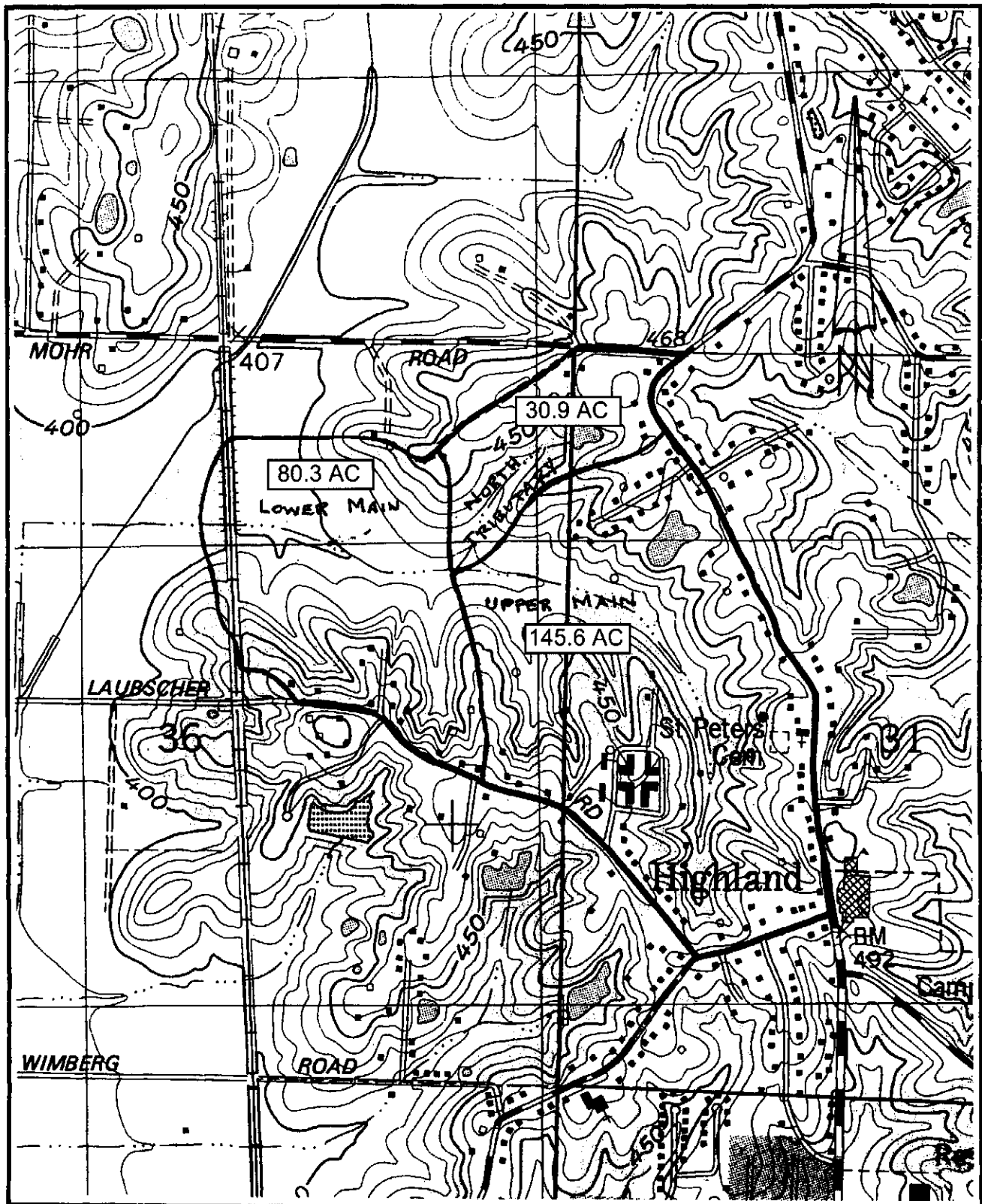
<b>Farmers Terrace (RS 6.5)</b>			<b>Excess Capacity (Top Inside - WSEL)</b>		<b>Road 1 (RS 9.5)</b>			<b>Excess Capacity (Top Inside - WSEL)</b>	
	<b>Elev (ft)</b>		<b>(ft)</b>		<b>Elev (ft)</b>		<b>(ft)</b>		
<b>U/S Top Inside RCP</b>	403.27				410.70				
<b>100-Year U/S WSEL</b>	403.11		<b>0.16</b>		409.54		<b>1.16</b>		
<b>U/S FL</b>	398.27				405.70				
<b>U/S IE</b>	397.27				404.70				
<b>D/S Top Inside RCP</b>	403.18				410.55				
<b>100-Year D/S WSEL</b>	403.02		<b>0.16</b>		409.31		<b>1.24</b>		
<b>D/S FL</b>	398.18				405.55				
<b>D/S IE</b>	397.18				404.55				



**Manning Capacity Analysis for 6 ft x 12 ft RCP Boxes with 1-ft Bury Depth and 40-ft in Length**

	<b><u>Q100 (cfs)</u></b>	<b><u>Area (sft) *</u></b>	<b><u>Slope</u></b>	<b><u>Q<sub>Manning</sub> (cfs)</u></b>	<b><u>Excess Capacity</u></b>
Farmers Terrace	306.6	59.1	0.0022	309	1%
Road 1	306.6	59.1	0.0037	399	30%
L =	40	ft	* 8-inch chamfers removed from area		
n =	0.0195	(Weighted average composite n for RCP with natural bottom)			





**Watershed Boundary Map**  
**Spring Lake Valley Subdivision**  
**100 Year Floodplain Profile Determination**

Source Map: Evansville North, Indiana USGS Quad  
 1" = 1000'

**SCS CURVE NUMBER METHOD : PEAK AND TOTAL RUNOFF**

**Project Description :** Spring Lake Valley Subdivision **Project No. :** 5553-4(B)

**Watershed Description:** Total Watershed to 100' D/S of 48" RR Culvert

**Type of Slope:** Moderate (Table 2-1 , SCS Engr. Field Manual April 1975)

Calculation of Runoff Curve Number (Tables 3.3.3 & 3.3.4 , HERPICC Manual July 1994)						
Surface Cover	Treatment /Practice	Hydrologic Condition	Hydrologic Soil Group	Curve No.	Acres	Curve No. x Acres
Cultivated	w/o Conservation	Good	C	88	58.2	5,121.6
Cultivated	w/o Conservation	Good	B	81	9.8	793.8
Woods		Good	C	70	67.8	4,746.0
Woods		Good	B	55	41.1	2,260.5
Residential	Avg. 1/4 ac.		C	83	43.9	3,643.7
Residential	Avg. 1/2 ac.		C	80	15.9	1,272.0
Residential	Avg. 1 ac.		C	79	12.0	948.0
Brush-weeds-grass		Fair	C	70	1.1	77.0
Brush-weeds-grass		Fair	B	56	1.0	56.0
Paved roads				98	2.6	254.8
Rock (RR ballast)			C	89	0.6	53.4
Water				100	2.8	280.0
						0.0
						0.0
						0.0
				<b>Total</b>	<b>256.8</b>	<b>19,506.8</b>
Weighted Curve Number = (Total Curve No. x Acres)/(Total Acres) =				<b>76.0</b>		

Time of Concentration (Tc = [(11.9(L)^3/H]^0.385 , Kirpich Eqn., MESA Engineering and Design Manual)			
Length, L (mi.).....	6,180 ft.	=	1.170 mi
Elevation Difference, H ...	105 ft.		
			Surface Adjustment Factor Rural/urban Rural/urban or flat/steep & flat/steep
			0.8 or 0.6
Time of Concentration, Tc .....	0.519 hours		N/A N/A
Time of Concentration, Tc .....	31.12 minutes		

Design Storm (Exhibit IN 2-1, sht 8 of 8 , SCS Technical Paper No. 40)			
Return Period (Yrs/Hrs) .....	10/6	25/6	100/6
Total Rainfall (Inches) .....	3.45	3.95	4.75

Calculation of Peak Discharge (Figures 6.33, 6.34 & 6.35 , MESA Engineering and Design Manual)			
Actual Curve No. ....	76.0	76.0	76.0
Next Lower CN on Chart .....	70	70	70
Next Higher CN on Chart .....	80	80	80
Peak for Lower CN (cfs).....	100.2	146.4	220.8
Peak for Higher CN (cfs).....	205.4	274.8	364.7
Interpolated Peak Discharge (cfs).....	162.9	222.9	306.6

Calculation of Total Runoff (Fig. 3.3.2 , HERPICC Manual 1994)			
Runoff Depth for CN and Storm (in).....	1.33	1.70	2.33
Runoff (ac-ft) .....	28.39	36.33	49.81
Runoff (cu. ft.).....	1,236,722	1,582,420	2,169,927

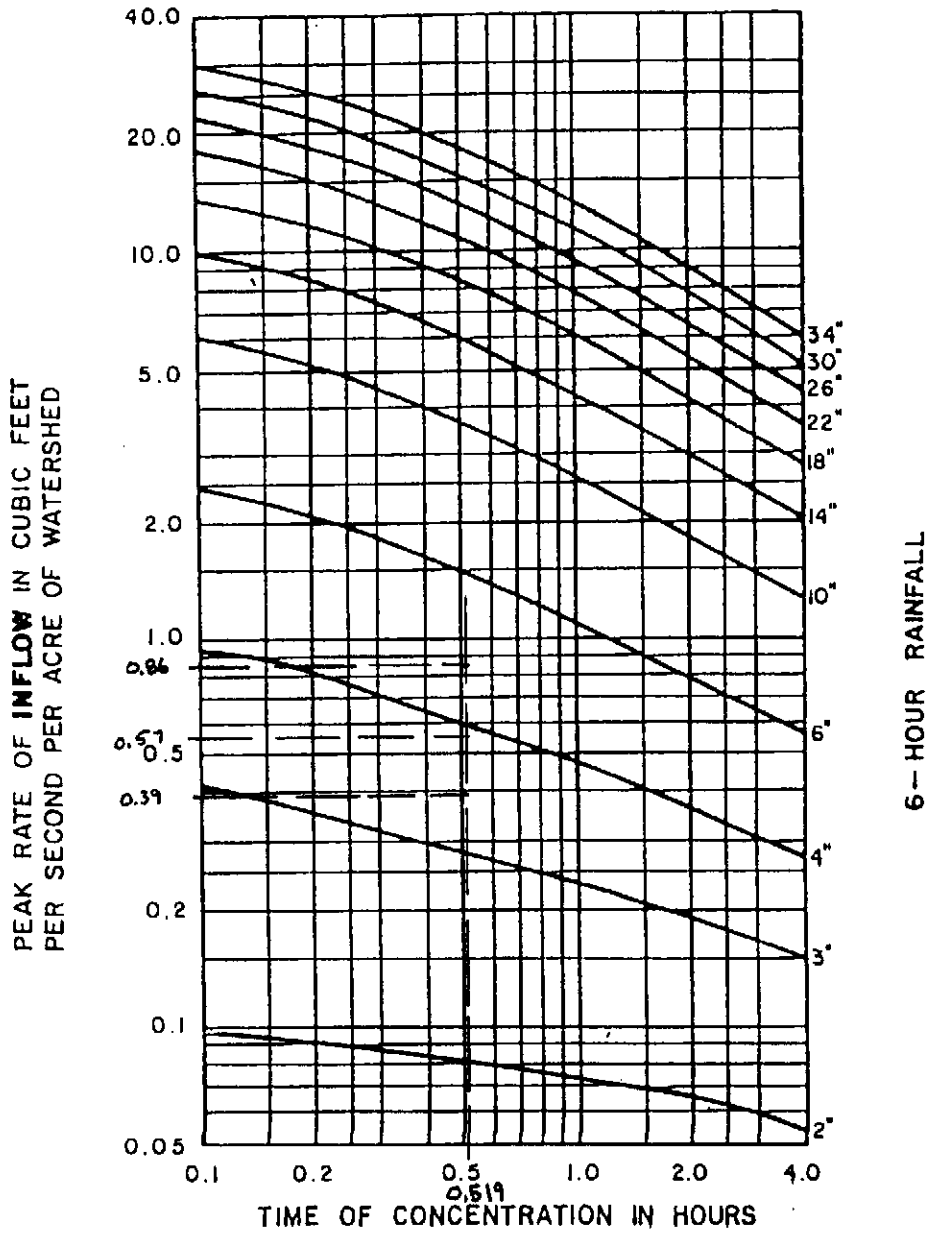


FIG. 6.33 ESTIMATES FOR PEAK INFLOW RATE FOR 6-HOUR DESIGN STORM AND CN=70

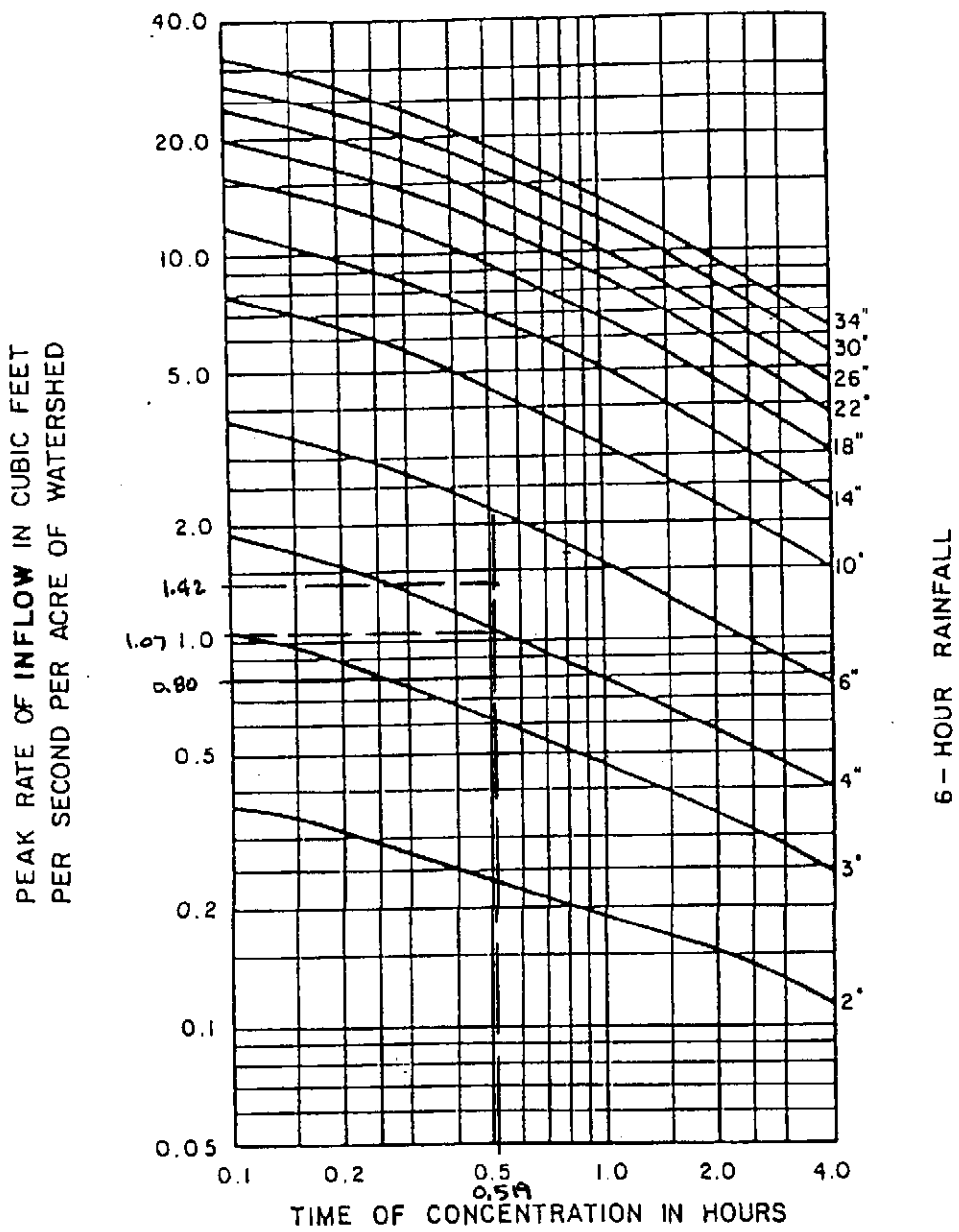


FIG. 6.34 ESTIMATES FOR PEAK INFLOW RATE FOR 6-HOUR DESIGN STORM AND CN=80



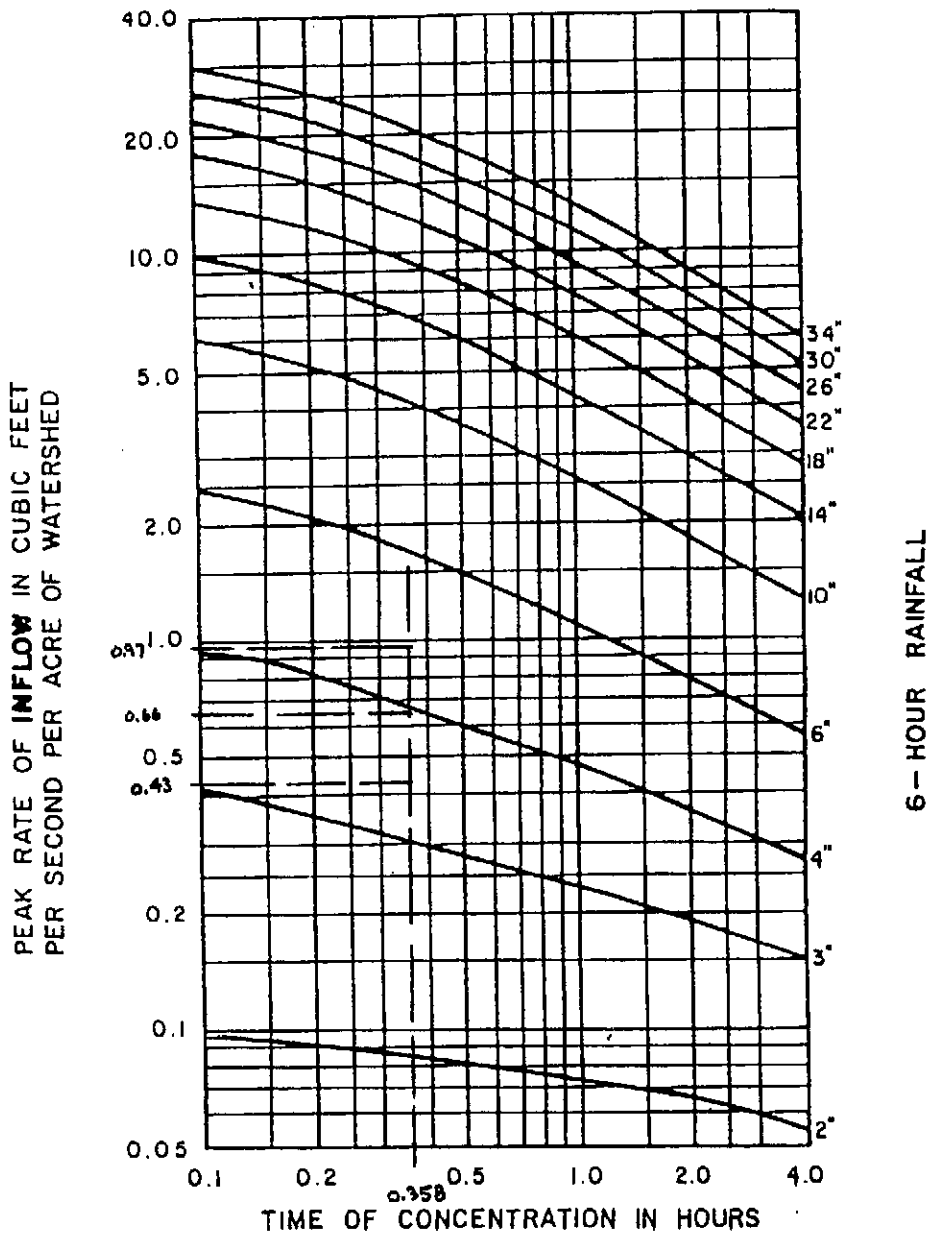


FIG. 6.33 ESTIMATES FOR PEAK INFLOW RATE FOR 6-HOUR DESIGN STORM AND CN=70

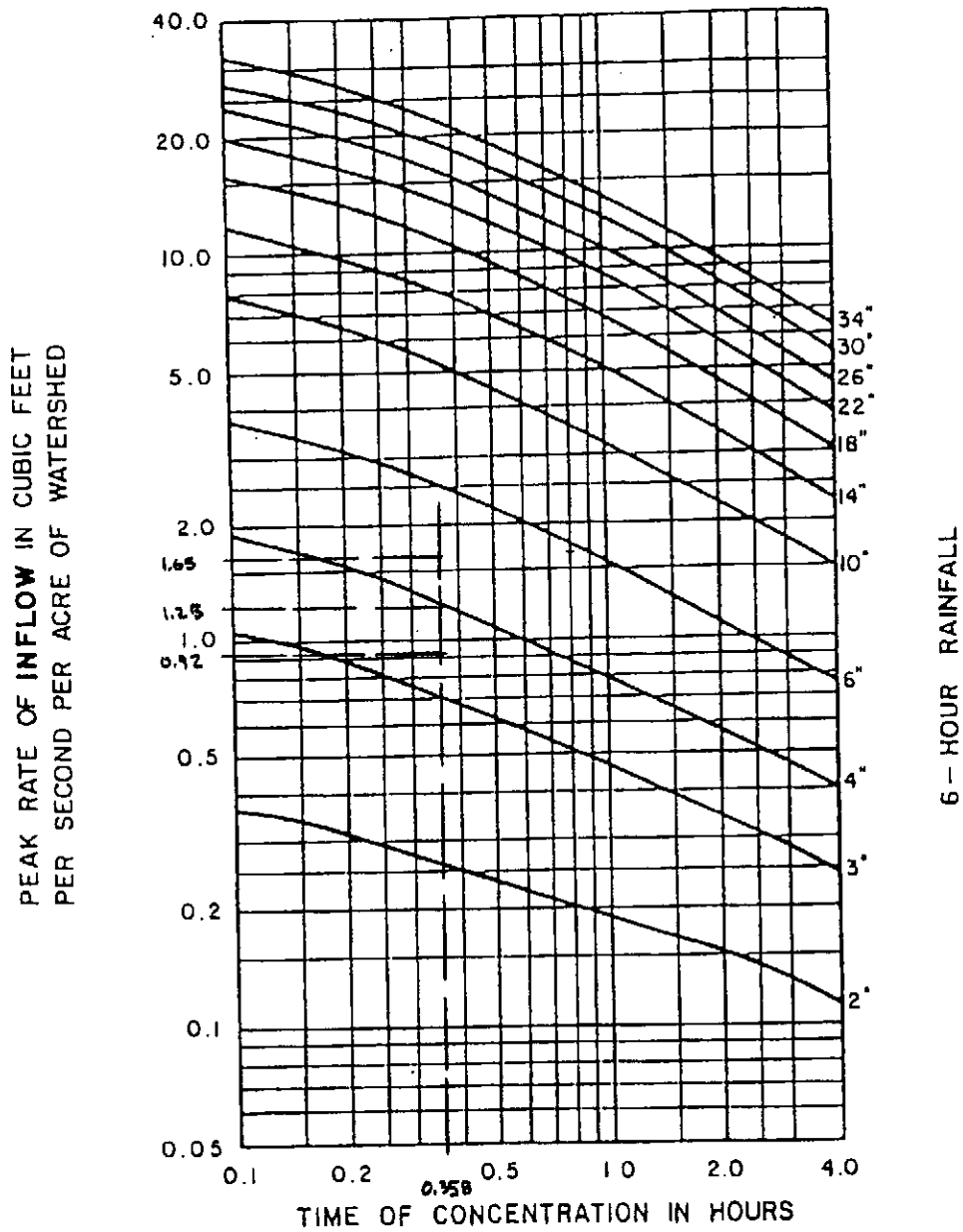
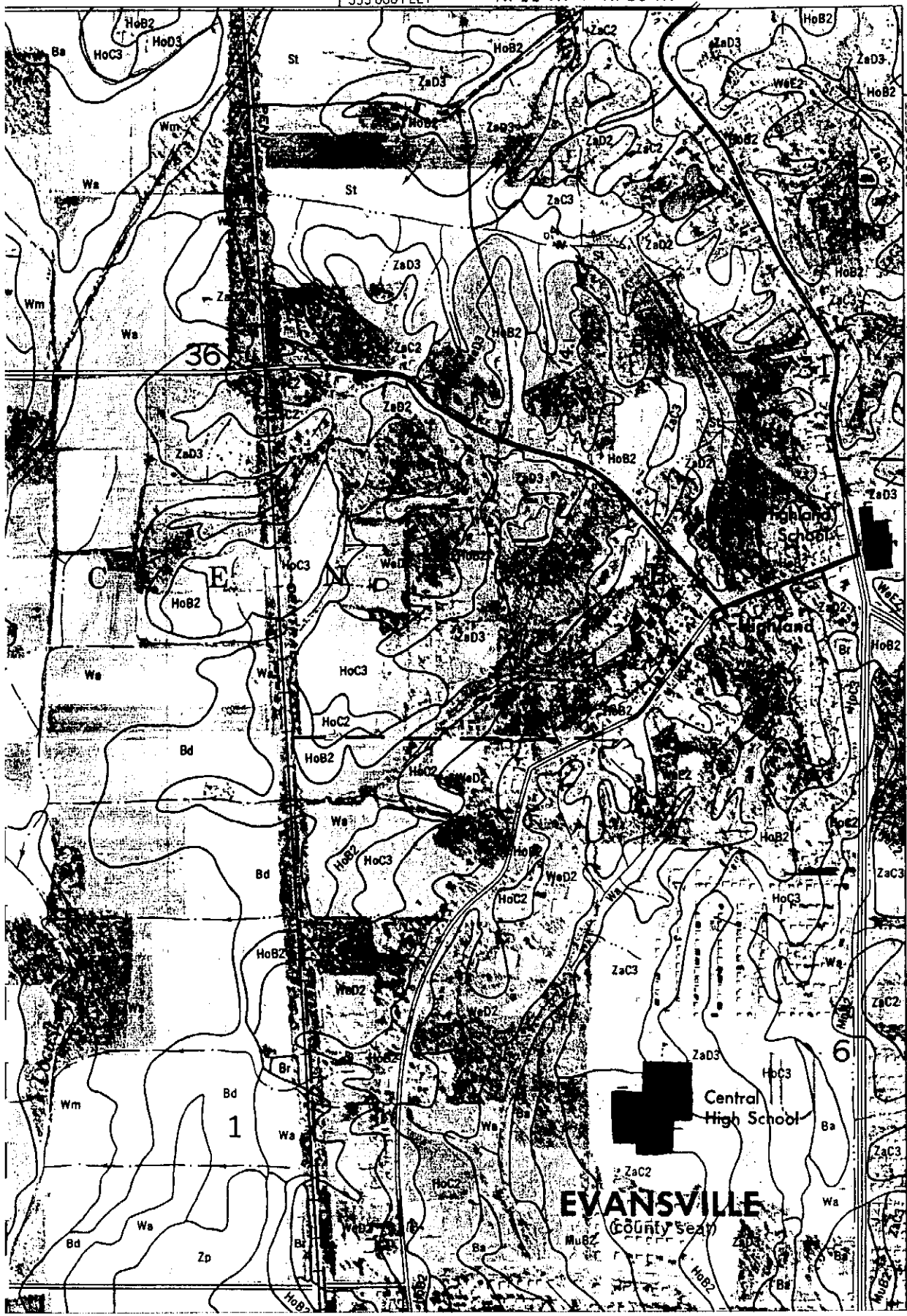


FIG. 6.34 ESTIMATES FOR PEAK INFLOW RATE FOR 6-HOUR DESIGN STORM AND CN=80

5/14/04

**HYDROLOGIC SOIL GROUPS FOR  
NRCS CURVE NUMBER METHOD**

1 355 000 FEET R. 11 W. | R. 10 W.



200 000 FEET

T. 6 S. | T. 5 S.

(Joins sheet 19)

B soil  
Type  
51.9 Ac.

1" = 1000'

**EVANSVILLE**  
(County Seat)

Central High School

Highland School

36

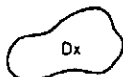
1

6



SURVEY DATA

SOIL LEGEND



The first capital letter is the initial one of the soil name. The lowercase letter that follows separates mapping units having names that begin with the same letter except that it does not separate sloping or eroded phases. The second capital letter indicates the class of slope. Symbols without a slope letter are for soils with a slope range of 0 to 2 percent or they are for land types with a considerable range of slope. A final number, 2 or 3, in the symbol indicates that the soil is eroded or severely eroded.

SYMBOL	NAME
AIB2	Alford silt loam, 2 to 6 percent slopes, eroded
AIC2	Alford silt loam, 6 to 12 percent slopes, eroded
AIC3	Alford silt loam, 6 to 12 percent slopes, severely eroded
AID3	Alford silt loam, 12 to 18 percent slopes, severely eroded
Ba	Bartle silt loam
Bd	Birds silt loam
Bo	Bonnie silt loam
Br	Borrow pits
Ev	Evansville silt loam
Gn	Ginat silt loam
Gu	Gullied land
He	Henshaw silt loam
HoA	Hosmer silt loam, 0 to 2 percent slopes
C HoB2	Hosmer silt loam, 2 to 6 percent slopes, eroded
HoB3	Hosmer silt loam, 2 to 6 percent slopes, severely eroded
HoC2	Hosmer silt loam, 6 to 12 percent slopes, eroded
HoC3	Hosmer silt loam, 6 to 12 percent slopes, severely eroded
HoD3	Hosmer silt loam, 12 to 18 percent slopes, severely eroded
Ht	Huntington silty clay loam
Hv	Huntington fine sandy loam, sandy variant
IoA	Iona silt loam, 0 to 2 percent slopes
IoB2	Iona silt loam, 2 to 6 percent slopes, eroded
Iv	Iva silt loam
Ln	Lindside silty clay loam
Ma	Made land
MkB2	Markland silt loam, 2 to 6 percent slopes, eroded
MkC2	Markland silt loam, 6 to 18 percent slopes, eroded
MIC3	Markland silty clay loam, 6 to 18 percent slopes, severely eroded
Mr	McGary silt loam
MuA	Muren silt loam, 0 to 2 percent slopes
MuB2	Muren silt loam, 2 to 6 percent slopes, eroded
Nw	Newark silty clay loam
Pa	Patton silty clay loam
PrB	Princeton fine sandy loam, 2 to 6 percent slopes
Ra	Ragsdale silt loam
Rh	Rahm silty clay loam
Rs	Reesville silt loam
ScA	Sciotoville silt loam, 0 to 2 percent slopes
ScB2	Sciotoville silt loam, 2 to 6 percent slopes, eroded
C St	Stendal silt loam
UnB2	Uniontown silt loam, 2 to 6 percent slopes, eroded
Wa	Wakeland silt loam
Wb	Weinbach silt loam
WeD2	Wellston silt loam, 12 to 18 percent slopes, eroded
B WeD3	Wellston silt loam, 12 to 18 percent slopes, severely eroded
B WeE2	Wellston silt loam, 18 to 25 percent slopes, eroded
WeF	Wellston silt loam, 25 to 50 percent slopes
WhA	Wheeling loam, 0 to 2 percent slopes
WhB2	Wheeling loam, 2 to 6 percent slopes, eroded
Wm	Wilbur silt loam
Wo	Woodmere silty clay loam
C ZaC2	Zanesville silt loam, 6 to 12 percent slopes, eroded
C ZaC3	Zanesville silt loam, 6 to 12 percent slopes, severely eroded
C ZaD2	Zanesville silt loam, 12 to 18 percent slopes, eroded
C ZaD3	Zanesville silt loam, 12 to 18 percent slopes, severely eroded
Zp	Zipp silty clay

**9. Pre-Developed  
Drainage Information  
(original calculations)**

Undeveloped ConditionsDrainage Basin #1

<u>Subbasin</u>	<u>A<sub>c</sub></u>	<u>C</u>	<u>n</u>
US-1	48.427	0.377	0.232
US-2	20.112	0.287	0.198
	68.539 ac	Wt C = 0.351	Wt n = 0.222

Ditch Flow

$$L = 2351'$$

$$H = 413.25 - 395.68 = 17.57'$$

$$S = 0.00747 \text{ ft/ft}$$

$$n = 0.08 \text{ (Channel not maintained, weeds \& brush)}$$

$$W = 4.3'$$

$$d = 5.0'$$

$$R = 2.52'$$

$$t_r = \frac{L}{\frac{1.49}{n} R^{2/3} S^{1/2}} = \frac{2351'}{0.08 (2.52)^{2/3} (0.00747)^{1/2}}$$

$$t_r = 786.24 \text{ sec (13.10 min.)}$$

$$t_c = 12.58 + 13.10 = 25.68 \text{ min.}$$

$$I_{(t_c)} = 3.597 \text{ in/hr}$$

Allowable Discharge Rate:

$$Q_{(t_c)} = (0.351)(3.597)(68.539) = \underline{\underline{86.53 \text{ cfs}}}$$

Offsite Time of Concentration:OS-8

Shallow Concentrated flow

$$L = 2687'$$

$$H = 476' - 402' = 74'$$

$$S = 0.0275 \text{ ft/ft}$$

$$V = 2.6 \text{ ft/s}$$

$$t_t = \frac{L}{\frac{60 \text{ sec}}{1 \text{ min}} V} = \frac{2687}{60(2.6)} = 17.22 \text{ min.}$$

OS-C

Shallow Concentrated flow

$$L = 2936'$$

$$H = 462' - 413' = 49'$$

$$S = 0.0166 \text{ ft/ft}$$

$$V = 2.10 \text{ ft/s}$$

$$t_t = \frac{2936'}{60(2.10)} = 23.30 \text{ min.}$$

OS-D

Shallow Concentrated flow

$$L = 700'$$

$$H = 440' - 398' = 42'$$

$$S = 0.06 \text{ ft/ft}$$

$$V = 4.0 \text{ ft/s}$$

$$t_t = \frac{700}{60(4.0)} = 2.92 \text{ min.}$$

OS-Ea - Shallow Concentrated flow

$$L = 929'$$

$$H = 478' - 413' = 65'$$

$$S = 0.0699 \text{ ft/ft}$$

$$V = 4.2 \text{ ft/s}$$

$$t_t = \frac{929}{60(4.2)} = 3.69 \text{ min.}$$

Offsite Time of Concentration: ContOS-G

Shallow Concentrated flow

$$L = 1420'$$

$$H = 487' - 415' = 71'$$

$$S = 0.0499 \text{ ft/ft}$$

$$V = 3.6 \text{ ft/s}$$

$$t_c = \frac{1420'}{60(3.6)} = 6.58 \text{ min.}$$

OS-H

Shallow Concentrated flow

$$L = 768'$$

$$H = 462' - 424' = 38'$$

$$S = 0.0494 \text{ ft/ft}$$

$$V = 3.6 \text{ ft/s}$$

$$t_c = \frac{768}{60(3.6)} = 3.55 \text{ min.}$$

OS-J - Shallow Concentrated flow

$$L = 785'$$

$$H = 398' - 392' = 6'$$

$$S = 0.0076 \text{ ft/ft}$$

$$V = 1.4 \text{ ft/s}$$

$$t_c = \frac{785}{60(1.4)} = 9.35 \text{ min.}$$

OS-K - Shallow Concentrated flow

$$L = 460'$$

$$H = 426' - 405' = 21'$$

$$S = 0.0456 \text{ ft/ft}$$

$$V = 3.4 \text{ ft/s}$$

$$t_c = \frac{460}{60(3.4)} = 2.25 \text{ min.}$$

Offsite Time of Concentration: ContOS-Fb - Shallow Concentrated flow

$$L = 2525'$$

$$H = 479' - 424' = 55'$$

$$S = 0.0218 \text{ ft/ft}$$

$$V = 2.3 \text{ ft/s}$$

$$t_t = \frac{2525}{60(2.3)} = 18.30 \text{ min.}$$

5553-4B

Undeveloped Drainage Basin									
Basin: US-1		Total Area = 2,109,470 S.F. = 48.427 Ac.							
Surface									
								C	N
Structures	0	Total	2,000	S.F. =	0	S.F. =	0.00	Ac.	0.92 0.02
Drives	0	Total	0	S.F. =	0	S.F. =	0.00	Ac.	0.70 0.10
Pavement	0	L.F.	12.0	Width =	0	S.F. =	0.00	Ac.	0.92 0.02
Patios	0	Total	120	S.F. =	0	S.F. =	0.00	Ac.	0.92 0.02
Sidewalks	0	L.F.	4	Width =	0	S.F. =	0.00	Ac.	0.92 0.02
Pasture (2-5%)			57,842	S.F. =			1.33	Ac.	0.24 0.40
Pasture (5-10%)			17,708	S.F. =			0.41	Ac.	0.36 0.40
Cultivated (0-2%)			669,653	S.F. =			15.37	Ac.	0.20 0.20
Cultivated (2-5%)			550,862	S.F. =			14.94	Ac.	0.35 0.20
Cultivated (5-10%)			241,490	S.F. =			5.54	Ac.	0.50 0.20
Cultivated (>10%)			383,813	S.F. =			8.81	Ac.	0.65 0.20
Woods (>10%)			88,102	S.F. =			2.02	Ac.	0.48 0.80
Water			0	S.F. =			0.00	Ac.	1.00 0.00
				S.F. =			0.00	Ac.	

Weighted c =	0.377
Weighted N =	0.232
L =	230 Ft.
H =	16.0 Ft.
S =	0.0696 Ft./Ft.
tc =	9.88 Minutes
I(10) =	4.120 In./Hr.
Q(10) =	75.15 CFS

+9.72 Min. Ditch Flow

Undeveloped Drainage Basin									
Basin: US-2		Total Area = 876,081 S.F. = 20.112 Ac.							
Surface									
								C	N
Structures	0	Total	2,000	S.F. =	0	S.F. =	0.00	Ac.	0.92 0.02
Drives	0	Total	0	S.F. =	0	S.F. =	0.00	Ac.	0.70 0.10
Pavement	735	L.F.	12.0	Width =	8,820	S.F. =	0.20	Ac.	0.92 0.02
Patios	0	Total	120	S.F. =	0	S.F. =	0.00	Ac.	0.92 0.02
Sidewalks	0	L.F.	4	Width =	0	S.F. =	0.00	Ac.	0.92 0.02
Pasture (0-2%)			0	S.F. =			0.00	Ac.	0.12 0.40
Cultivated (0-2%)			581,866	S.F. =			13.36	Ac.	0.20 0.20
Cultivated (2-5%)			179,429	S.F. =			4.12	Ac.	0.35 0.20
Cultivated (5-10%)			28,729	S.F. =			0.66	Ac.	0.50 0.20
Cultivated (>10%)			77,237	S.F. =			1.77	Ac.	0.65 0.20
Woods (>10%)			0	S.F. =			0.00	Ac.	0.48 0.80
Water			0	S.F. =			0.00	Ac.	1.00 0.00
				S.F. =			0.00	Ac.	

Weighted c =	0.287
Weighted N =	0.198
L =	385 Ft.
H =	24.0 Ft.
S =	0.0623 Ft./Ft.
tc =	11.97 Minutes
I(10) =	3.529 In./Hr.
Q(10) =	20.40 CFS

+14.50 Min. Ditch Flow

\* Use 20.37 cfs

Offsite Drainage Basin										
Basin: OS-B		Total Area = 642,568 S.F. = 14.751 Ac.								
Surface						C		N		
Structures	19	Total	34,577	S.F. =	34,577	S.F. =	0.79	Ac.	0.92	0.02
Pavement	3542	L.F.	-	Width =	40,297	S.F. =	0.93	Ac.	0.92	0.02
Drives	14	Total	-	S.F. =	46,968	S.F. =	1.08	Ac.	0.70	0.10
Lawn (2-5%)			34,232	S.F. =			0.79	Ac.	0.15	0.40
Lawn (5-10%)			198,842	S.F. =			4.56	Ac.	0.25	0.40
Lawn (>10%)			203,105	S.F. =			4.66	Ac.	0.40	0.40
Woods (2-5%)			0	S.F. =			0.00	Ac.	0.24	0.80
Woods (>10%)			84,547	S.F. =			1.94	Ac.	0.48	0.80
Water			0	S.F. =			0.00	Ac.	1.00	0.00
				S.F. =			0.00	Ac.		

Weighted c =	0.433
Weighted N =	0.386
L =	300 Ft.
H =	4.0 Ft.
S =	0.0133 Ft./Ft.
tc =	20.86 Minutes
I(25) =	3.224 In./Hr.
Q(25) =	20.61 CFS
I(100) =	3.560 In./Hr.
Q(100) =	22.76 CFS

+17.22 Min. Ditch Flow

Offsite Drainage Basin										
Basin: OS-C		Total Area = 5,003,979 S.F. = 114.876 Ac.								
Surface						C		N		
Structures	7	Total	57,358	S.F. =	57,358	S.F. =	1.32	Ac.	0.92	0.02
Parking Lot	6	Total	62,845	S.F. =	62,845	S.F. =	1.44	Ac.	0.92	0.02
Pavement	12136	L.F.	12.0	Width =	145,632	S.F. =	3.34	Ac.	0.92	0.02
Driveway	1400	L.F.	12.0	Width =	16,800	S.F. =	0.39	Ac.	0.70	0.10
1/2 acre Resid.	19	Total	20,000	S.F. =	380,000	S.F. =	8.72	Ac.	0.42	0.30
3/4 acre Resid.	37	Total	32,670	S.F. =	1,208,790	S.F. =	27.75	Ac.	0.40	0.30
Lawn (2-5%)			157,724	S.F. =			3.62	Ac.	0.15	0.40
Lawn (5-10%)			161,851	S.F. =			3.72	Ac.	0.25	0.40
Lawn (>10%)			415,480	S.F. =			9.54	Ac.	0.40	0.40
Woods (2-5%)			453,750	S.F. =			10.42	Ac.	0.24	0.80
Woods (>10%)			1,815,000	S.F. =			41.67	Ac.	0.48	0.80
Water			128,749	S.F. =			2.96	Ac.	1.00	0.00
				S.F. =			0.00	Ac.		

Weighted c =	0.447
Weighted N =	0.518
L =	300 Ft.
H =	32.0 Ft.
S =	0.1067 Ft./Ft.
tc =	14.72 Minutes
I(25) =	3.226 In./Hr.
Q(25) =	165.79 CFS
I(100) =	4.088 In./Hr.
Q(100) =	210.09 CFS

+23.30 Min. Ditch Flow



Offsite Drainage Basin							
Basin: OS-D	Total Area = 182,792 S.F. = 4.196 Ac.						
Surface							C N
Structures	0 Total	0 S.F.	=	0 S.F.	=	0.00 Ac.	0.92 0.02
Drives	1 Total	24,478 S.F.	=	24,478 S.F.	=	0.56 Ac.	0.70 0.10
Pavement	0 L.F.	0.0 Width	=	0 S.F.	=	0.00 Ac.	0.92 0.02
Cultivated (2-5%)		0 S.F.	=		=	0.00 Ac.	0.35 0.20
Cultivated (5-10%)		0 S.F.	=		=	0.00 Ac.	0.50 0.20
Woods (2-5%)		0 S.F.	=		=	0.00 Ac.	0.24 0.80
Woods (5-10%)		0 S.F.	=		=	0.00 Ac.	0.36 0.80
Woods (>10%)	158,314	S.F.	=		=	3.63 Ac.	0.48 0.80
		S.F.	=		=	0.00 Ac.	

Weighted c =	0.509
Weighted N =	0.706
L =	109 Ft.
H =	28.0 Ft.
S =	0.2569 Ft./Ft.
tc =	8.64 Minutes
I(25) =	5.647 In./Hr.
Q(25) =	12.07 CFS
I(100) =	6.835 In./Hr.
Q(100) =	14.61 CFS

+2.92 Min. Ditch Flow

Offsite Drainage Basin							
Basin: OS-E	Total Area = 542,639 S.F. = 12.457 Ac.						
Surface							C N
Structures	12 Total	11,728 S.F.	=	11,728 S.F.	=	0.27 Ac.	0.92 0.02
Drives	4 Total	- S.F.	=	7,550 S.F.	=	0.17 Ac.	0.70 0.10
Pavement	1385 L.F.	- Width	=	21,208 S.F.	=	0.49 Ac.	0.92 0.02
Lawn (2-5%)		71,446 S.F.	=		=	1.64 Ac.	0.15 0.40
Lawn (5-10%)		102,760 S.F.	=		=	2.36 Ac.	0.25 0.40
Lawn (>10%)		56,790 S.F.	=		=	1.30 Ac.	0.40 0.40
Woods (5-10%)		32,186 S.F.	=		=	0.74 Ac.	0.36 0.80
Woods (>10%)		238,971 S.F.	=		=	5.49 Ac.	0.48 0.80
		S.F.	=		=	0.00 Ac.	

Weighted c =	0.407
Weighted N =	0.573
L =	1,071 Ft.
H =	57.0 Ft.
S =	0.0532 Ft./Ft.
tc =	32.87 Minutes
I(25) =	3.496 In./Hr.
Q(25) =	17.74 CFS
I(100) =	4.422 In./Hr.
Q(100) =	22.44 CFS

(Min. 5 minutes)

Offsite Drainage Basin									
Basin: OS-Fa		Total Area = 672,132 S.F. = 15.430 Ac.							
Surface									
								C	N
Structures	10	Total	15,856	S.F. =	15,856	S.F. =	0.36	Ac.	0.92 0.02
Drives	6	Total	-	S.F. =	20,302	S.F. =	0.47	Ac.	0.70 0.10
Pavement	794	L.F.	-	Width =	17,851	S.F. =	0.41	Ac.	0.92 0.02
Lawn (2-5%)			0	S.F. =			0.00	Ac.	0.15 0.40
Lawn (5-10%)			15,204	S.F. =			0.37	Ac.	0.25 0.40
Pasture (>10%)			523,266	S.F. =			12.01	Ac.	0.48 0.40
Woods (5-10%)			0	S.F. =			0.00	Ac.	0.36 0.80
Woods (>10%)			78,653	S.F. =			1.81	Ac.	0.48 0.80
				S.F. =			0.00	Ac.	

Weighted c =	0.503
Weighted N =	0.419
L =	246 Ft.
H =	15.0 Ft.
S =	0.0610 Ft./Ft.
tc =	13.84 Minutes
I(25) =	4.799 In./Hr.
Q(25) =	37.26 CFS
I(100) =	5.926 In./Hr.
Q(100) =	46.01 CFS

+3.69 Min. Ditch Flow

Offsite Drainage Basin									
Basin: OS-G		Total Area = 992,670 S.F. = 22.789 Ac.							
Surface									
								C	N
Structures	14	Total	23,571	S.F. =	23,571	S.F. =	0.54	Ac.	0.92 0.02
Drives	8	Total	-	S.F. =	27,205	S.F. =	0.62	Ac.	0.70 0.10
Pavement	1173	L.F.	-	Width =	11,315	S.F. =	0.26	Ac.	0.92 0.02
Lawn (2-5%)			160,561	S.F. =			3.69	Ac.	0.15 0.40
Lawn (5-10%)			0	S.F. =			0.00	Ac.	0.25 0.40
Pasture (>10%)			318,455	S.F. =			7.31	Ac.	0.48 0.40
Woods (5-10%)			31,592	S.F. =			0.73	Ac.	0.36 0.80
Woods (>10%)			419,971	S.F. =			9.64	Ac.	0.48 0.80
				S.F. =			0.00	Ac.	

Weighted c =	0.444
Weighted N =	0.560
L =	312 Ft.
H =	57.0 Ft.
S =	0.1827 Ft./Ft.
tc =	13.72 Minutes
I(25) =	4.543 In./Hr.
Q(25) =	46.00 CFS
I(100) =	5.634 In./Hr.
Q(100) =	57.04 CFS

+6.58 Min. Ditch Flow

Offsite Drainage Basin									
Basin: OS-H		Total Area = 736,163 S.F. = 16.900 Ac.							
Surface						C		N	
Structures	15 Total	16,951 S.F.	=	16,951 S.F.	=	0.39 Ac.	0.92	0.02	
Drives	8 Total	- S.F.	=	31,952 S.F.	=	0.73 Ac.	0.70	0.10	
Pavement	303 L.F.	- width	=	10,139 S.F.	=	0.23 Ac.	0.92	0.02	
Patios	2 Total	4,133 S.F.	=	4,133 S.F.	=	0.09 Ac.	0.92	0.02	
Lawn (2-5%)		20,733 S.F.	=		=	0.48 Ac.	0.15	0.40	
Lawn (5-10%)		55,196 S.F.	=		=	1.27 Ac.	0.25	0.40	
Lawn (>10%)		82,384 S.F.	=		=	1.89 Ac.	0.40	0.40	
Woods (5-10%)		68,760 S.F.	=		=	1.58 Ac.	0.36	0.80	
Woods (>10%)		414,832 S.F.	=		=	9.52 Ac.	0.48	0.80	
Water		31,083 S.F.	=		=	0.71 Ac.	1.00	0.00	
		S.F. =				0.00 Ac.			

Weighted c =	0.483
Weighted N =	0.617
L =	300 Ft.
H =	18.0 Ft.
S =	0.0600 Ft./Ft.
tc =	18.26 Minutes
I(25) =	4.403 In./Hr.
Q(25) =	35.98 CFS
I(100) =	5.474 In./Hr.
Q(100) =	44.73 CFS

+3.55 Min. Ditch Flow

Offsite Drainage Basin									
Basin: OS-I		Total Area = 144,852 S.F. = 3.325 Ac.							
Surface						C		N	
Structures	2 Total	5,785 S.F.	=	5,785 S.F.	=	0.13 Ac.	0.92	0.02	
Drives	2 Total	- S.F.	=	871 S.F.	=	0.02 Ac.	0.70	0.10	
Pavement	0 L.F.	- width	=	0 S.F.	=	0.00 Ac.	0.92	0.02	
Patios	0 Total	0 S.F.	=	0 S.F.	=	0.00 Ac.	0.92	0.02	
Lawn (2-5%)		0 S.F.	=		=	0.00 Ac.	0.15	0.40	
Lawn (5-10%)		0 S.F.	=		=	0.00 Ac.	0.25	0.40	
Lawn (>10%)		0 S.F.	=		=	0.00 Ac.	0.40	0.40	
Woods (5-10%)		0 S.F.	=		=	0.00 Ac.	0.36	0.80	
Woods (>10%)		138,196 S.F.	=		=	3.17 Ac.	0.48	0.80	
Water		0 S.F.	=		=	0.00 Ac.	1.00	0.00	
		S.F. =				0.00 Ac.			

Weighted c =	0.499
Weighted N =	0.765
L =	369 Ft.
H =	36.0 Ft.
S =	0.0976 Ft./Ft.
tc =	19.86 Minutes
I(25) =	4.584 In./Hr.
Q(25) =	7.60 CFS
I(100) =	5.680 In./Hr.
Q(100) =	9.42 CFS

(Min. 5 minutes)

Offsite Drainage Basin							
Basin: OS-J		Total Area = 101,546 S.F. = 2.331 Ac.					
Surface						C	N
Structures	0 Total	0 S.F. =	0 S.F. =	0.00 Ac.	0.92	0.02	
Drives	1 Total	- S.F. =	17,558 S.F. =	0.40 Ac.	0.70	0.10	
Pavement	17 L.F.	- Width =	1,260 S.F. =	0.03 Ac.	0.92	0.02	
Patios	0 Total	0 S.F. =	0 S.F. =	0.00 Ac.	0.92	0.02	
Lawn (2-5%)		0 S.F. =		0.00 Ac.	0.15	0.40	
Lawn (5-10%)		0 S.F. =		0.00 Ac.	0.25	0.40	
Lawn (>10%)		0 S.F. =		0.00 Ac.	0.40	0.40	
Woods (5-10%)		0 S.F. =		0.00 Ac.	0.35	0.80	
Woods (>10%)		82,728 S.F. =		1.90 Ac.	0.48	0.80	
Water		0 S.F. =		0.00 Ac.	1.00	0.00	
		S.F. =		0.00 Ac.			

Weighted c =	0.523
Weighted N =	0.669
L =	109 Ft.
H =	28.0 Ft.
S =	0.2569 Ft./Ft.
tc =	8.42 Minutes
I(25) =	4.778 In./Hr.
Q(25) =	5.83 CFS
I(100) =	5.901 In./Hr.
Q(100) =	7.20 CFS

+9.35 Min. Ditch Flow

Offsite Drainage Basin							
Basin: OS-K		Total Area = 408,960 S.F. = 9.388 Ac.					
Surface						C	N
Structures	5 Total	11,962 S.F. =	11,962 S.F. =	0.27 Ac.	0.92	0.02	
Pavement	0 L.F.	- Width =	0 S.F. =	0.00 Ac.	0.92	0.02	
Drives	3 Total	- S.F. =	15,394 S.F. =	0.35 Ac.	0.70	0.10	
Lawn (2-5%)		0 S.F. =		0.00 Ac.	0.15	0.40	
Lawn (5-10%)		50,223 S.F. =		1.15 Ac.	0.25	0.40	
Lawn (>10%)		93,670 S.F. =		2.15 Ac.	0.40	0.40	
Woods (2-5%)		0 S.F. =		0.00 Ac.	0.24	0.80	
Woods (>10%)		211,853 S.F. =		4.86 Ac.	0.48	0.80	
Water		25,858 S.F. =		0.59 Ac.	1.00	0.00	
		S.F. =		0.00 Ac.			

Weighted c =	0.487
Weighted N =	0.560
L =	388 Ft.
H =	34.0 Ft.
S =	0.0876 Ft./Ft.
tc =	18.01 Minutes
I(25) =	4.547 In./Hr.
Q(25) =	20.81 CFS
I(100) =	5.638 In./Hr.
Q(100) =	25.80 CFS

+2.25 Min. Ditch Flow

Offsite Drainage Basin										
Basin: OS-Fb		Total Area = 86,533 S.F. = 1.987 Ac.								
Surface								C	N	
Structures	2 Total	807 S.F.	=	807 S.F.	=	0.02 Ac.	0.92	0.02		
Drives	2 Total	- S.F.	=	2,528 S.F.	=	0.06 Ac.	0.70	0.10		
Pavement	851 L.F.	- Width	=	3,787 S.F.	=	0.09 Ac.	0.92	0.02		
Lawn (2-5%)		0 S.F.	=		=	0.00 Ac.	0.15	0.40		
Lawn (5-10%)		10,910 S.F.	=		=	0.25 Ac.	0.25	0.40		
Pasture (>10%)		67,460 S.F.	=		=	1.55 Ac.	0.48	0.40		
Woods (5-10%)		0 S.F.	=		=	0.00 Ac.	0.36	0.80		
Woods (>10%)		1,041 S.F.	=		=	0.02 Ac.	0.48	0.80		
		S.F.	=		=	0.00 Ac.				

Weighted c =	0.481	
Weighted N =	0.376	
L =	52 Ft.	
H =	6.0 Ft.	
S =	0.1154 Ft./Ft.	
tc =	5.49 Minutes	+18.30 Min. Ditch Flow
I(25) =	4.220 In./Hr.	
Q(25) =	4.03 CFS	
I(100) =	5.264 In./Hr.	
Q(100) =	5.03 CFS	

Offsite Drainage Basin										
Basin: OS-Fc		Total Area = 68,772 S.F. = 1.579 Ac.								
Surface								C	N	
Structures	5 Total	2,590 S.F.	=	2,590 S.F.	=	0.06 Ac.	0.92	0.02		
Drives	2 Total	- S.F.	=	3,060 S.F.	=	0.07 Ac.	0.70	0.10		
Pavement	0 L.F.	- Width	=	0 S.F.	=	0.00 Ac.	0.92	0.02		
Lawn (2-5%)		0 S.F.	=		=	0.00 Ac.	0.15	0.40		
Lawn (5-10%)		14,197 S.F.	=		=	0.33 Ac.	0.25	0.40		
Pasture (>10%)		25,261 S.F.	=		=	0.58 Ac.	0.48	0.40		
Woods (5-10%)		0 S.F.	=		=	0.00 Ac.	0.36	0.80		
Woods (>10%)		23,664 S.F.	=		=	0.54 Ac.	0.48	0.80		
		S.F.	=		=	0.00 Ac.				

Weighted c =	0.459	
Weighted N =	0.510	
L =	302 Ft.	
H =	60.0 Ft.	
S =	0.1987 Ft./Ft.	
tc =	12.68 Minutes	+3.69 Min. Ditch Flow
I(25) =	4.906 In./Hr.	
Q(25) =	3.55 CFS	
I(100) =	6.049 In./Hr.	
Q(100) =	4.38 CFS	