

File.... \\S10svr01\m\p\0403734\STORM\
Title... Project Date: 12/7/2006
Project Engineer: Schoor DePalma
Project Title: Basher Kill Subdivision
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File, ID = ORANGE County

Storm Tag Name = 50

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 50 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Type.... Design Storms
Name.... ORANGE County
File.... \\S10svr01\m\p\0403734\STORM\
Storm... TypeIII 24hr Tag: 1

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Event: 1 yr

DESIGN STORMS SUMMARY

Design Storm File, ID = ORANGE County

Storm Tag Name = 1

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 1 yr
Total Rainfall Depth= 2.9000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 5

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= 4.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 25

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 6.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Type.... Design Storms
Name.... ORANGE County
File.... \\S10svr01\m\p\0403734\STORM\
Storm... TypeIII 24hr Tag: 1

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Event: 1 yr

DESIGN STORMS SUMMARY

Design Storm File, ID = ORANGE County

Storm Tag Name = 50

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 50 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... \\S10svr01\m\p\0403734\STORM\BASHER_KILL_EXISTING.PPW

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TIME OF CONCENTRATION CALCULATOR
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Segment #1: Tc: TR-55 Sheet

Mannings n .1500
Hydraulic Length 150.00 ft
2yr, 24hr P 3.5000 in
Slope .026000 ft/ft

Avg.Velocity .21 ft/sec

Segment #1 Time: .1945 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length 4322.00 ft
Slope .097500 ft/ft
Unpaved

Avg.Velocity 5.04 ft/sec

Segment #2 Time: .2383 hrs

Segment #3: Tc: TR-55 Channel

Flow Area 3.1400 sq.ft
Wetted Perimeter 6.28 ft
Hydraulic Radius .50 ft
Slope .020000 ft/ft
Mannings n .0110
Hydraulic Length 60.00 ft

Avg.Velocity 12.07 ft/sec

Segment #3 Time: .0014 hrs

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Segment #4: Tc: TR-55 Channel

Flow Area 30.0000 sq.ft
Wetted Perimeter 50.50 ft
Hydraulic Radius .59 ft
Slope .040000 ft/ft
Mannings n .0350
Hydraulic Length 1113.00 ft

Avg.Velocity 6.02 ft/sec

Segment #4 Time: .0514 hrs

Segment #5: Tc: TR-55 Shallow

Hydraulic Length 3855.00 ft
Slope .040000 ft/ft
Unpaved

Avg.Velocity 3.23 ft/sec

Segment #5 Time: .3318 hrs

Segment #6: Tc: TR-55 Channel

Flow Area 30.0000 sq.ft
Wetted Perimeter 50.50 ft
Hydraulic Radius .59 ft
Slope .066000 ft/ft
Mannings n .0350
Hydraulic Length 1236.00 ft

Avg.Velocity 7.73 ft/sec

Segment #6 Time: .0444 hrs

Segment #7: Tc: TR-55 Shallow

Hydraulic Length 839.00 ft
Slope .024000 ft/ft
Unpaved

Avg.Velocity 2.50 ft/sec

Segment #7 Time: .0932 hrs

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Segment #8: Tc: TR-55 Channel

Flow Area 164.6000 sq.ft
Wetted Perimeter 115.30 ft
Hydraulic Radius 1.43 ft
Slope .065000 ft/ft
Mannings n .0350
Hydraulic Length 3232.00 ft

Avg.Velocity 13.76 ft/sec

Segment #8 Time: .0652 hrs

Segment #9: Tc: TR-55 Channel

Flow Area 164.6000 sq.ft
Wetted Perimeter 115.30 ft
Hydraulic Radius 1.43 ft
Slope .006500 ft/ft
Mannings n .0350
Hydraulic Length 5070.00 ft

Avg.Velocity 4.35 ft/sec

Segment #9 Time: .3236 hrs

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Total Tc: 1.3439 hrs
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Tc Equations used...

==== SCS TR-55 Sheet Flow =====

$$Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))$$

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow =====

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

$$Tc = (Lf / V) / (3600sec/hr)$$

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

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==== SCS Channel Flow =====

$$R = Aq / Wp$$

$$V = (1.49 * (R^{2/3}) * (Sf^{*-0.5})) / n$$

$$Tc = (Lf / V) / (3600\text{sec/hr})$$

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

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RUNOFF CURVE NUMBER DATA

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| Soil/Surface Description | CN | Area acres | Impervious Adjustment | | Adjusted CN |
|-------------------------------------|----|---------------|--------------------------|-----|----------------|
| | | | %C | %UC | |
| Woods - fair | 73 | 767.100 | | | 73.00 |
| Woods - good | 30 | 68.349 | | | 30.00 |
| Woods - fair | 40 | 103.897 | | | 40.00 |
| Woods - fair | 60 | 20.485 | | | 60.00 |
| Woods - good | 70 | 108.077 | | | 70.00 |
| Woods - fair | 73 | 131.839 | | | 73.00 |
| Woods - good | 77 | 22.069 | | | 77.00 |
| Woods - fair | 79 | 161.993 | | | 79.00 |
| Impervious Areas - Paved parking lo | 98 | 1.317 | | | 98.00 |

COMPOSITE AREA & WEIGHTED CN ---> 1385.126 68.77 (69)

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----- O -----
ORANGE County... 3.01, 3.03

----- S -----
SUBAREA-1... 4.01, 5.01

----- W -----
Watershed... 1.01, 2.01