

# RETENTION/DETENTION SUMMARY

Keefe Property - The Preserve at Wetherington, Future Wetherington Commons

West Chester Township, Butler County Ohio

Method of Hydrograph Development: TR-55

Software: Hydraflow 2004

Design Criteria: Reduce 50 year peak postdeveloped flow rate to less than the 10 year peak predeveloped flow rate.

| Drainage Area Descriptions             | Drainage Area<br>Acres | CN   | Tc<br>Hours | Tt<br>Hours |                 |
|--|------------------------|------|-------------|-------------|-----------------|
| Onsite, Predeveloped                   | 71.2                   | 71.0 | 0.23        | 0.00        | See Sheet 76    |
| Offsite, Tributary to Basin            | 41.6                   | 77.0 | 0.37        | 0.00        | See Sheets 4,74 |
| Onsite, Postdeveloped To Basin 1       | 14.9                   | 90.0 | 0.20        | 0.00        | See Sheet 6     |
| Onsite Comm., Postdeveloped To Basin 2 | 20.3                   | 90.0 | 0.20        | 0.00        | See Sheet 7     |
| Onsite Res., Postdeveloped To Basin 2  | 14.7                   | 74.0 | 0.27        | 0.00        | See Sheet 8     |
| Onsite, Postdeveloped To Basin 3       | 9.3                    | 90.0 | 0.20        | 0.00        | See Sheet 9     |
| Onsite, Residential Bypassing          | 7.4                    | 74.0 | 0.23        | 0.00        | See Sheet 32    |
| Onsite, Commercial Bypassing           | 3.4                    | 90.0 | 0.20        | 0.00        | See Sheet 33    |

| Allowable Release Rate | Q<br>cfs |                  |
|------------------------|----------|------------------|
| 50 Year                | 209      | See Sheets 72-79 |

| Retention Basin #1<br>50 Yr. Release Rate |        |         |         |           |
|---|--------|---------|---------|-----------|
| Frequency                                 | Inflow | Outflow | Storage | Elevation |
| yr  | cfs    | cfs     | ac-ft   | ft        |
| 50  | 67     | 38      | 0.98    | 866.82    |
| See Sheets 10-14                          |        |         |         |           |

| Check Basin #1 100 Year Elevation<br>100 Yr. Release Rate |        |         |         |           |
|---|--------|---------|---------|-----------|
| Frequency   | Inflow | Outflow | Storage | Elevation |
| yr  | cfs    | cfs     | ac-ft   | ft        |
| 100   | 78     | 41      | 1.19    | 867.19    |
| See Sheets 44-48  |        |         |         |           |

| Detention Basin #2<br>50 Yr. Release Rate |        |         |         |           |
|---|--------|---------|---------|-----------|
| Frequency                                 | Inflow | Outflow | Storage | Elevation |
| yr  | cfs    | cfs     | ac-ft   | ft        |
| 50  | 266    | 154     | 5.3     | 860.46    |
| See Sheets 15-22                          |        |         |         |           |

| Check Basin #2 100 Year Elevation<br>100 Yr. Release Rate |        |         |         |           |
|---|--------|---------|---------|-----------|
| Frequency   | Inflow | Outflow | Storage | Elevation |
| yr  | cfs    | cfs     | ac-ft   | ft        |
| 100   | 314    | 177     | 6.33    | 861.11    |
| See Sheets 49-56  |        |         |         |           |

| Detention Basin #3 (Future)<br>50 Yr. Release Rate |        |         |         |           |
|--|--------|---------|---------|-----------|
| Frequency  | Inflow | Outflow | Storage | Elevation |
| yr   | cfs    | cfs     | ac-ft   | ft        |
| 50   | 168    | 61      | 1.76    | 857.26    |
| See Sheets 23-31                                   |        |         |         |           |

| Check Basin #3 (Future) 100 Year Elevation<br>100 Yr. Release Rate |        |         |         |           |
|--|--------|---------|---------|-----------|
| Frequency  | Inflow | Outflow | Storage | Elevation |
| yr   | cfs    | cfs     | ac-ft   | ft        |
| 100  | 195    | 185     | 2.04    | 857.82    |
| See Sheets 57-65   |        |         |         |           |

| Residential Bypassing<br>50 Yr. Release Rate |  |         |
|--|--|---------|
| Frequency                                    |  | Outflow |
| yr   |  | cfs     |
| 50   |  | 21      |
| See Sheet 32                                 |  |         |

| Residential Bypassing<br>100 Yr. Release Rate |  |         |
|---|--|---------|
| Frequency                                     |  | Outflow |
| yr  |  | cfs     |
| 50  |  | 26      |
| See Sheet 66                                  |  |         |

| Commercial Bypassing<br>50 Yr. Release Rate |  |         |
|---|--|---------|
| Frequency                                   |  | Outflow |
| yr  |  | cfs     |
| 50  |  | 15      |
| See Sheet 33                                |  |         |

| Commercial Bypassing<br>100 Yr. Release Rate |  |         |
|--|--|---------|
| Frequency                                    |  | Outflow |
| yr   |  | cfs     |
| 50   |  | 18      |
| See Sheet 67                                 |  |         |

| Total Postdeveloped Flowrate<br>50 Yr. Release Rate |  |         |
|---|--|---------|
| Frequency   |  | Outflow |
| yr  |  | cfs     |
| 50  |  | 171     |
| See Sheets 34-37                                    |  |         |

| Total Postdeveloped Flowrate<br>100 Yr. Release Rate |  |         |
|--|--|---------|
| Frequency  |  | Outflow |
| yr   |  | cfs     |
| 50   |  | 197     |
| See Sheets 68-71                                     |  |         |