

UK Design Flood Estimation

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Printed from the ReFH Flood Modelling software package, version 2.2.6029.28099

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH)

Site details

Checksum: C7D7-70F5

Site name: FEH_Catchment_Descriptors_377900_144050

Easting: 377900

Northing: 144050

Country: England, Wales or Northern Ireland

Catchment Area (km²): 11.49

Using plot scale calculations: No

Site description: None

Model run: 20 year

Summary of results

| | | | |
|---------------------------|-------|--------------------------------|--------|
| Rainfall - FEH 2013 (mm): | 50.64 | Total runoff (ML): | 132.12 |
| Total Rainfall (mm): | 37.38 | Total flow (ML): | 301.11 |
| Peak Rainfall (mm): | 6.38 | Peak flow (m ³ /s): | 5.81 |

Parameters

Where the user has overridden a system-generated value, this original value is shown in square brackets after the value used.

** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH 2013 model)

| Name | Value | User-defined? |
|----------------------------------|----------|---------------|
| Duration (hh:mm:ss) | 07:30:00 | No |
| Timestep (hh:mm:ss) | 00:30:00 | No |
| SCF (Seasonal correction factor) | 0.77 | No |
| ARF (Areal reduction factor) | 0.96 | No |
| Seasonality | Winter | n/a |

Loss model parameters

| Name | Value | User-defined? |
|-----------------------------|--------|---------------|
| Cini (mm) | 107.84 | No |
| Cmax (mm) | 412.05 | No |
| Use alpha correction factor | No | No |
| Alpha correction factor | n/a | No |

Routing model parameters

| Name | Value | User-defined? |
|---------|-------|---------------|
| Tp (hr) | 3.66 | No |
| Up | 0.65 | No |
| Uk | 0.8 | No |

Baseflow model parameters

| Name | Value | User-defined? |
|-------------------------|-------|---------------|
| BFO (m ³ /s) | 0.5 | No |
| BL (hr) | 46.22 | No |
| BR | 1.28 | No |

Urbanisation parameters

| Name | Value | User-defined? |
|------------------------------------|-------|---------------|
| Urban area (km ²) | 0.05 | No |
| Urbext 2000 | 0 | No |
| Impervious runoff factor | 0.7 | No |
| Imperviousness factor | 0.3 | No |
| Tp scaling factor | 0.5 | No |
| Sewered area (km ²) | 0.00 | Yes |
| Sewer capacity (m ³ /s) | 0.00 | Yes |

Time series data

| Time (hh:mm:ss) | Rain (mm) | Sewer Loss (mm) | Net Rain (mm) | Runoff (m ³ /s) | Baseflow (m ³ /s) | Total Flow (m ³ /s) |
|--------------------|--------------|--------------------|------------------|-------------------------------|---------------------------------|-----------------------------------|
| 00:00:00 | 0.559 | 0.000 | 0.147 | 0.000 | 0.504 | 0.504 |
| 00:30:00 | 0.817 | 0.000 | 0.216 | 0.006 | 0.498 | 0.504 |
| 01:00:00 | 1.190 | 0.000 | 0.318 | 0.026 | 0.493 | 0.519 |
| 01:30:00 | 1.730 | 0.000 | 0.468 | 0.067 | 0.488 | 0.555 |
| 02:00:00 | 2.504 | 0.000 | 0.690 | 0.139 | 0.484 | 0.624 |
| 02:30:00 | 3.599 | 0.000 | 1.019 | 0.257 | 0.482 | 0.739 |
| 03:00:00 | 5.103 | 0.000 | 1.498 | 0.441 | 0.481 | 0.923 |
| 03:30:00 | 6.378 | 0.000 | 1.961 | 0.724 | 0.484 | 1.208 |
| 04:00:00 | 5.103 | 0.000 | 1.640 | 1.137 | 0.492 | 1.629 |
| 04:30:00 | 3.599 | 0.000 | 1.195 | 1.672 | 0.505 | 2.177 |
| 05:00:00 | 2.504 | 0.000 | 0.850 | 2.287 | 0.527 | 2.814 |
| 05:30:00 | 1.730 | 0.000 | 0.596 | 2.936 | 0.557 | 3.493 |
| 06:00:00 | 1.190 | 0.000 | 0.414 | 3.575 | 0.595 | 4.170 |
| 06:30:00 | 0.817 | 0.000 | 0.286 | 4.157 | 0.642 | 4.798 |
| 07:00:00 | 0.559 | 0.000 | 0.197 | 4.628 | 0.695 | 5.323 |
| 07:30:00 | 0.000 | 0.000 | 0.000 | 4.923 | 0.753 | 5.676 |
| 08:00:00 | 0.000 | 0.000 | 0.000 | 5.001 | 0.813 | 5.814 |
| 08:30:00 | 0.000 | 0.000 | 0.000 | 4.894 | 0.872 | 5.766 |
| 09:00:00 | 0.000 | 0.000 | 0.000 | 4.656 | 0.928 | 5.584 |
| 09:30:00 | 0.000 | 0.000 | 0.000 | 4.331 | 0.980 | 5.311 |
| 10:00:00 | 0.000 | 0.000 | 0.000 | 3.954 | 1.027 | 4.981 |
| 10:30:00 | 0.000 | 0.000 | 0.000 | 3.555 | 1.067 | 4.622 |
| 11:00:00 | 0.000 | 0.000 | 0.000 | 3.159 | 1.102 | 4.261 |
| 11:30:00 | 0.000 | 0.000 | 0.000 | 2.792 | 1.131 | 3.923 |
| 12:00:00 | 0.000 | 0.000 | 0.000 | 2.466 | 1.155 | 3.621 |
| 12:30:00 | 0.000 | 0.000 | 0.000 | 2.171 | 1.175 | 3.346 |
| 13:00:00 | 0.000 | 0.000 | 0.000 | 1.900 | 1.190 | 3.090 |
| 13:30:00 | 0.000 | 0.000 | 0.000 | 1.645 | 1.202 | 2.847 |
| 14:00:00 | 0.000 | 0.000 | 0.000 | 1.405 | 1.210 | 2.615 |
| 14:30:00 | 0.000 | 0.000 | 0.000 | 1.177 | 1.215 | 2.392 |
| 15:00:00 | 0.000 | 0.000 | 0.000 | 0.961 | 1.217 | 2.178 |
| 15:30:00 | 0.000 | 0.000 | 0.000 | 0.757 | 1.215 | 1.972 |
| 16:00:00 | 0.000 | 0.000 | 0.000 | 0.567 | 1.211 | 1.779 |
| 16:30:00 | 0.000 | 0.000 | 0.000 | 0.400 | 1.205 | 1.605 |
| 17:00:00 | 0.000 | 0.000 | 0.000 | 0.265 | 1.197 | 1.462 |

| Time (hh:mm:ss) | Rain (mm) | Sewer Loss (mm) | Net Rain (mm) | Runoff (m ³ /s) | Baseflow (m ³ /s) | Total Flow (m ³ /s) |
|--------------------|--------------|--------------------|------------------|-------------------------------|---------------------------------|-----------------------------------|
| 17:30:00 | 0.000 | 0.000 | 0.000 | 0.167 | 1.187 | 1.354 |
| 18:00:00 | 0.000 | 0.000 | 0.000 | 0.101 | 1.176 | 1.277 |
| 18:30:00 | 0.000 | 0.000 | 0.000 | 0.057 | 1.164 | 1.221 |
| 19:00:00 | 0.000 | 0.000 | 0.000 | 0.029 | 1.152 | 1.181 |
| 19:30:00 | 0.000 | 0.000 | 0.000 | 0.012 | 1.140 | 1.152 |
| 20:00:00 | 0.000 | 0.000 | 0.000 | 0.003 | 1.128 | 1.132 |
| 20:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.116 | 1.116 |
| 21:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.104 | 1.104 |
| 21:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.092 | 1.092 |
| 22:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.080 | 1.080 |
| 22:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.069 | 1.069 |
| 23:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.057 | 1.057 |
| 23:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.046 | 1.046 |
| 24:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.035 | 1.035 |
| 24:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.024 | 1.024 |
| 25:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.012 | 1.012 |
| 25:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 1.002 | 1.002 |
| 26:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.991 | 0.991 |
| 26:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.980 | 0.980 |
| 27:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.970 | 0.970 |
| 27:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.959 | 0.959 |
| 28:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.949 | 0.949 |
| 28:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.939 | 0.939 |
| 29:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.929 | 0.929 |
| 29:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.919 | 0.919 |
| 30:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.909 | 0.909 |
| 30:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.899 | 0.899 |
| 31:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.889 | 0.889 |
| 31:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.880 | 0.880 |
| 32:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.870 | 0.870 |
| 32:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.861 | 0.861 |
| 33:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.852 | 0.852 |
| 33:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.842 | 0.842 |
| 34:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.833 | 0.833 |
| 34:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.824 | 0.824 |
| 35:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.816 | 0.816 |

| Time (hh:mm:ss) | Rain (mm) | Sewer Loss (mm) | Net Rain (mm) | Runoff (m ³ /s) | Baseflow (m ³ /s) | Total Flow (m ³ /s) |
|--------------------|--------------|--------------------|------------------|-------------------------------|---------------------------------|-----------------------------------|
| 35:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.807 | 0.807 |
| 36:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.798 | 0.798 |
| 36:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.789 | 0.789 |
| 37:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.781 | 0.781 |
| 37:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.773 | 0.773 |
| 38:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.764 | 0.764 |
| 38:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.756 | 0.756 |
| 39:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.748 | 0.748 |
| 39:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.740 | 0.740 |
| 40:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.732 | 0.732 |
| 40:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.724 | 0.724 |
| 41:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.716 | 0.716 |
| 41:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.709 | 0.709 |
| 42:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.701 | 0.701 |
| 42:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.693 | 0.693 |
| 43:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.686 | 0.686 |
| 43:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.679 | 0.679 |
| 44:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.671 | 0.671 |
| 44:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.664 | 0.664 |
| 45:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.657 | 0.657 |
| 45:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.650 | 0.650 |
| 46:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.643 | 0.643 |
| 46:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.636 | 0.636 |
| 47:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.629 | 0.629 |
| 47:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.622 | 0.622 |
| 48:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.616 | 0.616 |
| 48:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.609 | 0.609 |
| 49:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.602 | 0.602 |
| 49:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.596 | 0.596 |
| 50:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.590 | 0.590 |
| 50:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.583 | 0.583 |
| 51:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.577 | 0.577 |
| 51:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.571 | 0.571 |
| 52:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.565 | 0.565 |
| 52:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.558 | 0.558 |
| 53:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.552 | 0.552 |

| Time (hh:mm:ss) | Rain (mm) | Sewer Loss (mm) | Net Rain (mm) | Runoff (m ³ /s) | Baseflow (m ³ /s) | Total Flow (m ³ /s) |
|--------------------|--------------|--------------------|------------------|-------------------------------|---------------------------------|-----------------------------------|
| 53:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.547 | 0.547 |
| 54:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.541 | 0.541 |
| 54:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.535 | 0.535 |
| 55:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.529 | 0.529 |
| 55:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.523 | 0.523 |
| 56:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.518 | 0.518 |
| 56:30:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.512 | 0.512 |
| 57:00:00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.507 | 0.507 |

Appendix

Catchment descriptors

| Name | Value | User-defined value used? |
|-----------------------------------|-------|--------------------------|
| Area (km ²) | 11.49 | No |
| ALTBAR | 160 | No |
| ASPBAR | 338 | No |
| ASPVAR | 0.27 | No |
| BFIHOST | 0.51 | No |
| DPLBAR (km) | 4.81 | No |
| DPSBAR (mkm ⁻¹) | 86.7 | No |
| FARL | 0.96 | No |
| LDP | 8.38 | No |
| PROPWET (mm) | 0.36 | No |
| RMED1H | 11 | No |
| RMED1D | 34.9 | No |
| RMED2D | 45 | No |
| SAAR (mm) | 940 | No |
| SAAR4170 (mm) | 933 | No |
| SPRHOST | 36.85 | No |
| Urbext2000 | 0 | No |
| Urbext1990 | 0 | No |
| URBCONC | 0 | No |
| URBLOC | 0 | No |
| Urban Area (km ²) | 0.05 | No |
| DDF parameter C | -0.03 | No |
| DDF parameter D1 | 0.37 | No |
| DDF parameter D2 | 0.35 | No |
| DDF parameter D3 | 0.34 | No |
| DDF parameter E | 0.3 | No |
| DDF parameter F | 2.48 | No |
| DDF parameter C (1km grid value) | -0.03 | No |
| DDF parameter D1 (1km grid value) | 0.38 | No |
| DDF parameter D2 (1km grid value) | 0.33 | No |
| DDF parameter D3 (1km grid value) | 0.34 | No |
| DDF parameter E (1km grid value) | 0.29 | No |
| DDF parameter F (1km grid value) | 2.49 | No |