Transposing & Scaling' method to determine a flow duration curve (FDC)

Project Site: Dimbath Hydro (Gilfach Orfydd Farm) - Intake 2's unnamed tributary to the Nant Lechyd

Donor Site: Cynon at Abercynon (57004)

Comparison of the project's spot gaugings and NRW's data from the donor site for the same period

Date	Spot gaugings at project [l/s]	Donor site's data for the same days [l/s]	Percentage Exceedance from the donor site's annual FDC [%]
06/09/2021	0.20	611	94.4
08/09/2021	0.18	620	94.1
10/09/2021	0.18	927	83.3
13/09/2021	0.18	817	87.2
14/09/2021	0.05	1,042	79.1
25/10/2021	5.00	5,843	21.3
27/10/2021	3.00	4,938	25.0

Determining the scaling factor between the project and donor sites

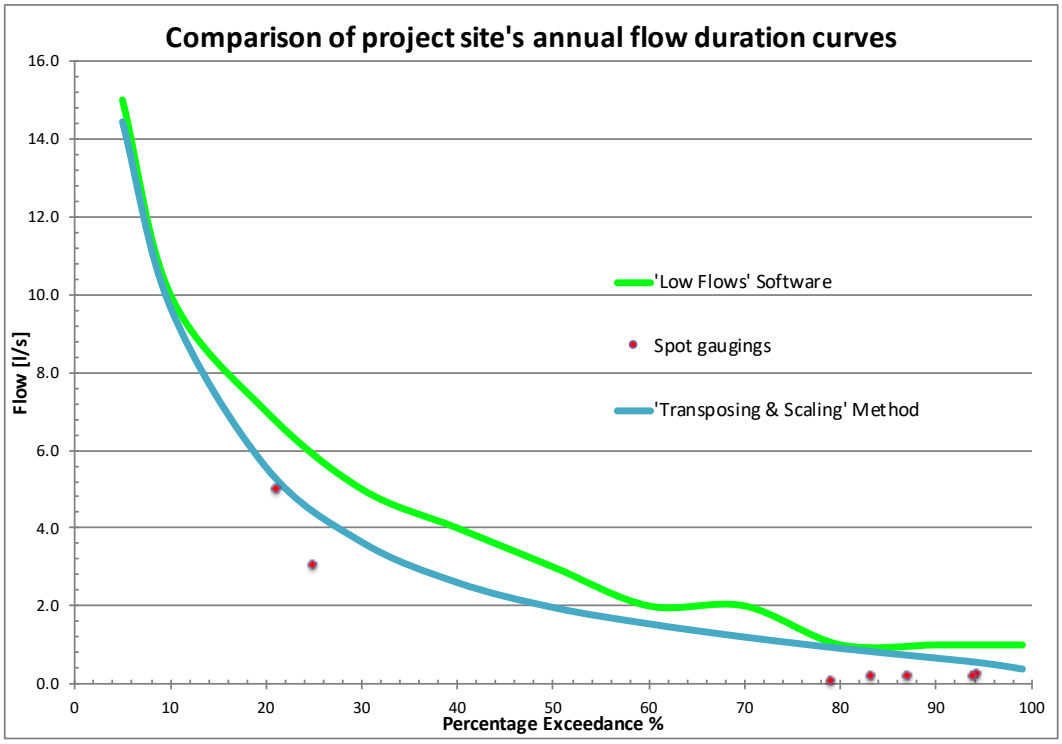
Donor site's catchment area: 106.000 km2

Project site's catchment area: 0.095 km2

Scaling Factor, F (Project/Donor): 0.001

Comparing the flow duration curves

Percentage Exceedance P%	Donor Site's FDC [l/s]	Project site's FDC from 'Transposing & Scaling' method [Donor Site's FDC x F] [l/s]	Project site's FDC from 'Low Flows' Software [l/s]
5	16,110	14.4	15.0
10	10,800	9.7	10.0
20	6,203	5.6	7.0
30	4,060	3.6	5.0
40	2,902	2.6	4.0
50	2,192	2.0	3.0
60	1,716	1.5	2.0
70	1,340	1.2	2.0
80	1,018	0.9	1.0
90	741	0.7	1.0
95	588	0.5	1.0
99	422	0.4	1.0



Conclusions on flow characteristics for the project site

Q95, taken from the 'Transposing & Scaling Method' FDC highlighted in the table above:	0.5 l/s
Runoff, from 'Low Flows' software:	1,571 mm
Catchment area:	0.095 km2
Mean Flow (ADF) calculated from runoff and catchment area:	5 l/s
Project site's Base Flow Index (BFI), from 'Low Flows' software:	0.5
Donor site's Base Flow Index (BFI), from National River Flow Archive:	0.4

Catchment area for the project site