



**Centre for
Ecology & Hydrology**

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WINFAP-FEH DATA FILES VERSION 4

Note on changes from v3.3.4

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TABLE OF CONTENTS

1	INTRODUCTION	1
2	NETWORK CHANGES.....	2
2.1	REMOVAL OF GAUGING STATIONS.....	2
2.2	ADDITION OF GAUGING STATIONS.....	2
2.3	CLOSURE OF GAUGING STATIONS.....	3
2.4	COMBINED PEAK FLOW TIME SERIES FROM MULTIPLE STATIONS	3
2.5	COMPONENT STATIONS	3
3	CHANGES TO TIME SERIES DATA SINCE V3.3.4	4
3.1	EXTENSION TO AMAX AND POT RECORDS.....	4
3.2	CHANGES TO STAGE-DISCHARGE RATINGS	4
3.3	REPROCESSING OF EXISTING AMAX AND POT RECORDS.....	4
3.4	MISSING DATA	4
3.5	REJECTED YEARS	4
3.6	EXCLUDED YEARS	5
3.7	STATIONS WHERE NO POT DATA ARE PRESENTED	6
4	CHANGES TO METADATA SINCE V3.3.4	7
4.1	CHANGES TO FEH INDICATIVE SUITABILITIES	7
4.2	DATUM CHANGES	7
ANNEX 1	STATIONS WITH CHANGES TO RATING HISTORY	8
ANNEX 2	POT EXCLUDED STATIONS.....	13
ANNEX 3	STATIONS WITH CHANGES TO DATUM HISTORY.....	15

1 INTRODUCTION

Version 4 of the WINFAP-FEH Data Files represents the first new version released since stewardship of the national peak flows database was passed to the National River Flow Archive (NRFA). The previous release in August 2014 (v3.3.4) contained minor updates to correct previous errors in the dataset.

Version 4 of the WINFAP-FEH files contain AMAX and POT data for 959 gauging stations, of which 654 are in England, 155 are in Scotland, 105 are in Wales and 45 are in Northern Ireland. A total of 568 stations are recommended in use in pooling groups ('Suitable for Pooling'), 289 stations are 'Suitable for QMED' and 102 stations are 'Suitable for Neither'.

A large number of changes have been made to the peak flow data and associated metadata held on the NRFA since the release of v3.3.4 of the WINFAP-FEH files. Details of the key changes are provided in the following sections.

2 NETWORK CHANGES

A number of changes have been made to the gauging stations for which peak flow data is held on the NRFA since the release of v3.3.4 of the WINFAP-FEH files. Key changes are noted in this section.

2.1 Removal of Gauging Stations

Nine stations have been removed from the dataset due to concerns regarding data quality. Details of these stations are provided in Table 1. Users should note that eight of these stations remain on the NRFA website as they also provide daily flow data.

Table 1: Stations removed from the dataset in version 4

Station Number	Station Name	Measuring Authority	NRFA daily flow station	Comment
28006	Trent at Great Haywood	EA-SWWM	Yes	Poor performance and lack of satisfactory rating
33020	Alconbury Brook at Brampton	EA-CB	Yes	Serious discrepancy between flows generated from the old and new stations. Mid to high flows estimated
34010	Waveney at Billingford Bridge	EA-ENS	Yes	Bypassing and drowning at high flows, sluice influence
39092	Dollis Brook at Hendon Lane Bridge	EA-HNL	Yes	Severe siltation affects the station
41003	Cuckmere at Sherman Bridge	EA-SSD	Yes	Rating unsuitable, no operational justification for resolution
41026	Cockhaise Brook at Holywell	EA-SSD	Yes	High flows truncated just below QMED
54060	Potford Brook at Sandyford Bridge	EA-SHWG	Yes	Weir buried by siltation, flows highly suspect
67014	Dee at Corwen	NRW	No	Significant bypassing and influence of regulating reservoirs
73006	Cunsey Beck at Eel House Bridge	EA-CL	Yes	Many changes and uncertainties in the historical record

2.2 Addition of Gauging Stations

Five stations have been added to the dataset as detailed in Table 2. Four of these were stations already on the NRFA as daily flow stations.

Table 2: Stations added to the dataset in version 4

Station Number	Station Name	Measuring Authority	FEH suitability	NRFA Daily Flow station
28081	Tame at Bescot	EA-SWWM	QMED	Yes
28083	Trent at Darlaston	EA-SWWM	QMED	Yes
44011	Asker at East Bridge Bridport	EA-WX	QMED and Pooling	Yes
69008	Dean at Stanneylands	EA-GMMC	QMED and Pooling	Yes
69028	Mersey at Brinksway	EA-GMMC	QMED and Pooling	No

2.3 Closure of Gauging Stations

Three stations have been closed, listed in Table 3. Previously recorded flow data for these stations are still contained in the WINFAP-FEH files and shown on the NRFA website, but there will be no further updates in future.

Table 3: Gauging stations closed in version 4

Station Number	Station Name	Measuring Authority	NRFA daily flow station	Comment
28011	Derwent at Matlock Bath	EA-DNL	Yes	Processing of flows ceased in 2004 as low flow rating poor due to shifting section control. Station closed in May 2004
42005	Wallop Brook at Broughton	EA-SSD	Yes	Station closed in July 2012
76010	Petteril at Harraby Green	EA-CL	Yes	Station closed in January 2014

2.4 Combined Peak Flow Time Series from Multiple Stations

No changes have been made to these in version 4 of the WINFAP-FEH files. See the release note for v3.3.2 for the most recent changes.

2.5 Component Stations

At a number of gauging stations, flows are derived from measurements taken at more than one location (for example low flows may be measured at a weir and high flows measured at a gauged section a short distance up/downstream). There are a number of such stations around the UK that the NRFA and/or measuring authority treat as a combined station. No changes have been made to the stations that the NRFA treats as combined sites since v3.3.4.

In some cases, the peak flow data may be derived from only one component of the combined dataset and as such the source for the POT and AMAX data may not be the same as that presented for the daily flow record.

3 CHANGES TO TIME SERIES DATA

Key changes to the peak flow data time series held on the NRFA since the release of v3.3.4 of the WINFAP-FEH files are outlined in this section.

3.1 Extension to AMAX and POT Records

The Version 4 files contain AMAX and POT time-series data updated to September 2014 for gauging stations in England, Wales and Northern Ireland. Data for stations in Scotland were not updated and currently end in September 2006 for most sites. A review of the used to calculate the Scottish flow data in previous updates is currently being undertaken by SEPA before revised series are passed to the NRFA. We expect data for around 20% of Scottish stations will be updated in the next year with the remainder of updates made available over the following four years.

3.2 Changes to Stage-Discharge Ratings

For a large number of gauging stations, the flow data contained in this release have been generated using stage-discharge ratings which have been modified since the last version of the files were published. In addition to routine rating improvements, during this update, a large number of discrepancies were found between the ratings held on the NRFA and those held on the hydrometric archives of the Measuring Authorities. As a result of this, ratings have changed at 216 stations, listed in Annex 1.

3.3 Reprocessing of Existing AMAX and POT Records

Due to the large number of rating changes (see section 3.2), existing peak flow data have been re-processed for the period of time covered by the rating change. Therefore, users will notice differences in the AMAX and POT data at these stations.

3.4 Missing Data

A missing data table is provided for each station, listing the dates of known periods of missing data in the underlying 15-minute data. This table has been updated for 85 stations. Users should always consult the missing data table when using the data for flood estimation in WINFAP-FEH.

3.5 Rejected Years

Where periods of missing data are likely to have led to the AMAX being missed, the water year is marked as rejected. These years are shown as a yellow bar on the AMAX graph. Additional rejected water years have been added to 16 stations, listed in Table 4. These rejected periods affect both re-processed and updated water years.

Table 4: Additions to the list of rejected years

NRFA Station	Station Name	Measuring Authority	Rejected water year(s)
23008	Rede at Rede Bridge	EA-NDT	2012-2013
25008	Tees at Barnard Castle	EA-NDT	2011-2012 2013-2014
28011	Derwent at Matlock Bath	EA-DNL	2013-2014
28015	Idle at Mattersey	EA-DNL	1982-1983
28081	Tame at Bescot	EA-SWWM	1983-1984 1991-1992
31021	Welland at Ashley	EA-LN	2012-2013

NRFA Station	Station Name	Measuring Authority	Rejected water year(s)
34018	Stiffkey at Warham	EA-ENS	2012-2013
37007	Wid at Writtle	EA-ENS	2010-2011
40016	Cray at Crayford	EA-KSL	2010-2011
47021	Kensey at Launceston Newport	EA-DC	2011-2012
55012	Irfon at Cilmerly	NRW	1981-1982
64001	Dyfi at Dyfi Bridge	NRW	2009-2010
69044	Irwell at Bury Ground	EA-GMMC	1972-1973
76001	Haweswater Beck at Burnbanks	EA-CL	1978-1979
203011	Main at Dromona	RA	2010-2011

3.6 Excluded Years

Some periods of data are excluded for use in WINFAP-FEH. The periods of data are shown by red bars (for AMAX) and red crosses (for POTs) on the NRFA website. The excluded years occur in two main situations:

1. Where there is a clear change in the catchment during the period of record. The most common example is where a large reservoir has been built and therefore caused a change in the FARL (Flood Attenuation by Reservoirs and Lakes) value.
2. Where data quality has changed significantly during the period of record, the indicative suitability has been based on the better data, providing the length of record is reasonable. In these cases, the years of poorer quality have been rejected.

New periods of excluded data have been added at 10 stations listed in Table 5. Existing periods of excluded data have been updated at four stations, listed in Table 6.

Table 5: Additions to the list of excluded years

NRFA Station	Station Name	Measuring Authority	Start Date	End Date	Comments
22003	Usway Burn at Shillmoor	EA-NDT	01/10/1999	Ongoing	The rating used since the site re-opened and weir plates installed in 1999 has only been checked at relatively low flows. Therefore peak flows from this period are not considered accurate and should not be used for flood estimation
23018	Ouse Burn at Woolsington	EA-NDT	01/10/1974	01/09/1990	Little information is available about the earlier station and data before 1991 are presented for information only, not for use in flood estimation
30006	Slea at Leasingham Mill	EA-LN	13/03/1974	30/09/1993	Early years rejected due to uncertainty in data and ratings
38026	Pincey Brook at Sheering Hall	EA-HNL	01/10/1974	30/09/1981	Downstream data was modelled using a relationship with the upstream level which only extends back to 1982. Data pre-1982 not suitable as no correction has been made for non-modular conditions

NRFA Station	Station Name	Measuring Authority	Start Date	End Date	Comments
54014	Severn at Abermule	NRW	01/10/1960	31/12/1969	Level data pre-1969 is based on digitised charts and appears to have an incorrect datum, so post-1969 rating will over-estimate the flows
58012	Afan at Marcroft Weir	NRW	01/10/2012	30/09/2013	Weir underwent significant rebuild throughout this period
60001	Tywi at Ty Castell	NRW	01/10/1957	30/09/1972	Upstream reservoir built in 1972 leading to change in flow regime
60009	Sawdde at Felin-y-cwm	NRW	01/10/2008	30/09/2010	Weir rebuild from 27/06/08 to 24/06/09, but data not useable until 19/2/10 due to a blockage in the stilling well pipe
69005	Glaze Brook at Little Woolden Hall	EA-GMMC	01/10/2004	30/09/2006	Gaps in data from 2003 to 2007, particularly in water years 2004/05 to 2006/7, due to equipment failure and debris
206004	Bessbrook at Carnbane	RA	01/01/1984	30/09/1999	The bridge widening and new wingwalls constructed in 1999 have served to largely constrain flood flows to the channel

Table 6: Updates to the list of excluded years

NRFA Station	Station Name	Measuring Authority	Start Date	End Date	Comments
23003	North Tyne at Reaverhill	EA-NDT	01/10/1980	Ongoing	Previously excluded period updated to include water years 2009-2010 to 2013-2014
28058	Henmore Brook at Ashbourne	EA-SWWM	01/10/1992	Ongoing	Previously excluded period updated to include water years 2009-2010 to 2013-2014
32002	Willow Brook at Fotheringhay	EA-LN	31/03/2000	Ongoing	Previously excluded period updated to include water years 2009-2010 to 2013-2014
48011	Fowey at Restormel	EA-DC	01/10/1983	Ongoing	Previously excluded period updated to include water years 2009-2010 to 2013-2014

3.7 Stations Where No POT Data are Presented

No POT data are presented on the NRFA website or given in the WINFAP-FEH files for stations listed in Annex 2. Stations are usually listed as 'POT excluded' because the gauged catchment response does not lend itself to POT analysis. Such catchments are usually, but not exclusively, those dominated by baseflow and are therefore concentrated on the large chalk aquifers of southern and eastern England.

24 stations have been added to the list for this update. The majority of these stations are in East Anglia where corrections for non-modular flow have not been applied to all peak flow data types. AMAX data undergo a correction but POT data do not and are therefore often higher than the corresponding AMAX value.

4 CHANGES TO METADATA

The NRFA metadata is under constant review and updated as soon as new information is known. General updates to station descriptions and other metadata as well as work undertaken by the NRFA / HiFlows-UK integration project (<http://nrfa.ceh.ac.uk/nrfa-hiflows-uk-data-integration>) have been completed since the release of v3.3.4, but are not all reported here. Only changes to key peak flow metadata are listed in the following section.

4.1 Changes to FEH Indicative Suitabilities

Indicative suitabilities have changed at four stations in England and two stations in Wales, listed in Table 7.

Table 7: Stations which changed suitability in version 4

NRFA Station	Station Name	Measuring Authority	V3.3.4 Suitability		V4 Suitability	
			QMED	POOLING	QMED	POOLING
27050	Esk at Sleights	EA-Y	No	No	Yes	Yes
40016	Cray at Crayford	EA-KSL	Yes	Yes	Yes	No
56006	Usk at Trallong	NRW	Yes	No	Yes	Yes
64001	Dyfi at Dyfi Bridge	NRW	Yes	Yes	Yes	No
69007	Mersey at Ashton Weir	EA-GMMC	Yes	Yes	Yes	No
73003	Kent at Burneside	EA-CL	Yes	Yes	Yes	No

4.2 Datum Changes

A short table is provided on the NRFA website for each station, which details the datum history over the period of record, with dates of applicability. The datum history has been updated at 131 stations listed in Annex 3.

ANNEX 1 STATIONS WITH CHANGES TO RATING HISTORY

NRFA Station	Station Name	Measuring Authority
22003	Usway Burn at Shillmoor	EA-NDT
23001	Tyne at Bywell	EA-NDT
23008	Rede at Rede Bridge	EA-NDT
23011	Kielder Burn at Kielder	EA-NDT
23017	Team at Team Valley	EA-NDT
25001	Tees at Broken Scar	EA-NDT
25008	Tees at Barnard Castle	EA-NDT
26803	Water Forlornes at Driffield	EA-Y
27001	Nidd at Hunsingore Weir	EA-Y
27006	Don at Hadfields Weir	EA-Y
27023	Dearne at Barnsley Weir	EA-Y
27026	Rother at Whittington	EA-Y
27029	Calder at Elland	EA-Y
27053	Nidd at Birstwith	EA-Y
27088	Calder at Mytholmroyd	EA-Y
27090	Swale at Catterick Bridge	EA-Y
27092	Esk at Briggswath	EA-Y
28019	Trent at Drakelow Park	EA-SWWM
28024	Wreake at Syston Mill	EA-DNL
28031	Manifold at Ilam	EA-SWWM
28040	Trent at Stoke-On-Trent	EA-SWWM
28052	Sow at Great Bridgford	EA-SWWM
28067	Derwent at Church Wilne	EA-DNL
28081	Tame at Bescot	EA-SWWM
28083	Trent at Darlaston	EA-SWWM
30006	Slea at Leasingham Mill	EA-LN
30011	Bain at Goulceby Bridge	EA-LN
30015	Cringle Brook at Stoke Rochford	EA-LN
32010	Nene at Wansford	EA-LN
33007	Nar at Marham	EA-CB
33012	Kym at Meagre Farm	EA-CB
33013	Sapiston at Rectory Bridge	EA-CB
33015	Ouzel at Willen	EA-CB
33019	Thet at Melford Bridge	EA-CB
33022	Ivel at Blunham	EA-CB
33027	Rhee at Wimpole	EA-CB
33028	Flit at Shefford	EA-CB
33031	Broughton Brook at Broughton	EA-CB
33033	Hiz at Arlesey	EA-CB
33034	Little Ouse at Abbey Heath	EA-CB
33039	Bedford Ouse at Roxton	EA-CB
34001	Yare at Colney	EA-ENS
34003	Bure at Ingworth	EA-ENS
34007	Dove at Oakley Park	EA-ENS
34011	Wensum at Fakenham	EA-ENS
35003	Alde at Farnham	EA-ENS

35004	Ore at Beversham Bridge	EA-ENS
36002	Glem at Glemsford	EA-ENS
36005	Brett at Hadleigh	EA-ENS
36009	Brett at Cockfield	EA-ENS
36010	Bumpstead Brook at Broad Green	EA-ENS
36011	Stour Brook at Sturmer	EA-ENS
36015	Stour at Lamarsh	EA-ENS
37003	Ter at Crabbs Bridge	EA-ENS
37006	Can at Beach's Mill	EA-ENS
37009	Brain at Guithavon Valley	EA-ENS
37010	Blackwater at Appleford Bridge	EA-ENS
37011	Chelmer at Churchend	EA-ENS
37013	Sandon Brook at Sandon Bridge	EA-ENS
37016	Pant at Copford Hall	EA-ENS
37017	Blackwater at Stisted	EA-ENS
37020	Chelmer at Felsted	EA-ENS
37033	Eastwood Brook at Eastwood	EA-ENS
39007	Blackwater at Swallowfield	EA-WT
39011	Wey at Tilford	EA-WT
39021	Cherwell at Enslow Mill	EA-WT
39029	Tilling Bourne at Shalford	EA-WT
39034	Evenlode at Cassington Mill	EA-WT
39037	Kennet at Marlborough	EA-WT
39052	The Cut at Binfield	EA-WT
39093	Brent at Monks Park	EA-HNL
40009	Teise at Stonebridge	EA-KSL
41006	Uck at Isfield	EA-SSD
41014	Arun at Pallingham	EA-SSD
41022	Lod at Halfway Bridge	EA-SSD
41027	Rother at Princes Marsh	EA-SSD
42001	Wallington at North Fareham	EA-SSD
43004	Bourne at Laverstock	EA-WX
43005	Avon at Amesbury	EA-WX
43006	Nadder at Wilton	EA-WX
43007	Stour at Throop	EA-WX
43008	Wylfe at South Newton	EA-WX
43009	Stour at Hammoon	EA-WX
43010	Allen at Loverley Farm	EA-WX
43012	Wylfe at Norton Bavant	EA-WX
43014	East Avon at Upavon	EA-WX
43017	West Avon at Upavon	EA-WX
43018	Allen at Walford Mill	EA-WX
43019	Shreen Water at Colesbrook	EA-WX
43801	Chitterne Brook at Codford	EA-WX
43806	Wylfe at Brixton Deverill	EA-WX
44002	Piddle at Baggs Mill	EA-WX
44003	Asker at Bridport	EA-WX
44006	Sydling Water at Sydling St Nicholas	EA-WX

44008	South Winterbourne at Winterbourne Steepleton	EA-WX
44009	Wey at Broadwey	EA-WX
44013	Piddle at Little Puddle	EA-WX
44801	Hooke at Hooke	EA-WX
45002	Exe at Stoodleigh	EA-DC
45003	Culm at Wood Mill	EA-DC
45009	Exe at Pixton	EA-DC
45012	Creedy at Cowley	EA-DC
45819	Yeo at Collard Bridge	EA-DC
46008	Avon at Loddiswell	EA-DC
47001	Tamar at Gunnislake	EA-DC
47004	Lynher at Pillaton Mill	EA-DC
47005	Ottery at Werrington Park	EA-DC
47006	Lyd at Lifton Park	EA-DC
47007	Yealm at Puslinch	EA-DC
47008	Thrushel at Tinhay	EA-DC
47009	Tiddy at Tideford	EA-DC
47010	Tamar at Crowford Bridge	EA-DC
47011	Plym at Carn Wood	EA-DC
47013	Withey Brook at Bastreet	EA-DC
47014	Walkham at Horrabridge	EA-DC
47015	Tavy at Ludbrook	EA-DC
47020	Inny at Bealsmill	EA-DC
47021	Kensey at Launceston Newport	EA-DC
47022	Tory Brook at Newnham Park	EA-DC
47023	Tamar at Tamarstone Bridge	EA-DC
47024	Tavy at Tavistock Abbey Bridge	EA-DC
47025	Wolf at Germansweek	EA-DC
48001	Fowey at Trekeivesteps	EA-DC
48003	Fal at Tregony	EA-DC
48004	Warleggan at Trengoffe	EA-DC
48005	Kenwyn at Truro	EA-DC
48006	Cober at Helston County Bridge	EA-DC
48007	Kennal at Ponsanooth	EA-DC
48009	St Neot at Craigshill Wood	EA-DC
48010	Seaton at Trebrownbridge	EA-DC
48011	Fowey at Restormel	EA-DC
48012	Fal at Trenowth	EA-DC
48801	Cober at Trenear	EA-DC
48803	Carnon at Bissoe	EA-DC
49001	Camel at Denby	EA-DC
49002	Hayle at St Erth	EA-DC
49004	Gannel at Gwills	EA-DC
49005	Bollingey Stream at Bolingey Cocks Bridge	EA-DC
49006	Camel at Camelford	EA-DC
50008	Lew at Gribbleford Bridge	EA-DC
51001	Doniford Stream at Swill Bridge	EA-WX
52004	Isle at Ashford Mill	EA-WX

52017	Congresbury Yeo at Iwood	EA-WX
54001	Severn at Bewdley	EA-SHWG
54002	Avon at Evesham	EA-SHWG
54004	Sowe at Stoneleigh	EA-SWWM
54005	Severn at Montford	EA-SHWG
54007	Arrow at Broom	EA-SWWM
54014	Severn at Abermule	NRW
54016	Roden at Rodington	EA-SHWG
54025	Dulas at Rhos-y-pentref	NRW
54028	Vyrnwy at Llanymynech	NRW
54029	Teme at Knightsford Bridge	EA-SHWG
55003	Lugg at Lugwardine	EA-SHWG
55007	Wye at Erwood	NRW
55012	Irfon at Cilmerly	NRW
55016	Ithon at Dissert	NRW
55021	Lugg at Butts Bridge	EA-SHWG
55023	Wye at Redbrook	NRW
55025	Llynfi at Three Cocks	NRW
55026	Wye at Ddol Farm	NRW
55029	Monnow at Grosmont	NRW
55032	Elan at Caban Dam	NRW
56001	Usk at Chainbridge	NRW
56002	Ebbw at Rhiwderin	NRW
56004	Usk at Llandetty	NRW
56007	Senni at Pont-Hen-Hafod	NRW
56012	Grwyne at Millbrook	NRW
56013	Yscir at Pont-Ar-Yscir	NRW
56015	Olway Brook at Olway Inn	NRW
56019	Ebbw at Aberbeeg	NRW
57004	Cynon at Abercynon	NRW
57005	Taff at Pontypridd	NRW
57006	Rhondda at Trehafod	NRW
57007	Taff at Fiddlers Elbow	NRW
57008	Rhymney at Llanedeyrn	NRW
57009	Ely at St Fagans	NRW
57010	Ely at Lanelay	NRW
57014	Rhymney at Bargoed	NRW
57015	Taff at Merthyr Tydfil	NRW
57017	Rhondda Fawr at Tynewydd	NRW
58005	Ogmore at Brynmenyn	NRW
58011	Thaw at Gigman Bridge	NRW
60012	Twrch at Ddol Las	NRW
64002	Dysynni at Pont-y-Garth	NRW
65001	Glaslyn at Beddgelert	NRW
65005	Erch at Pencaenewydd	NRW
67005	Ceiriog at Brynkinalt Weir	NRW
67006	Alwen at Druid	NRW
67008	Alyn at Pont-y-Capel	NRW

67018	Dee at New Inn	NRW
69008	Dean at Stanneylands	EA-GMMC
69020	Medlock at London Road	EA-GMMC
69023	Roch at Blackford Bridge	EA-GMMC
69028	Mersey at Brinksway	EA-GMMC
69048	Tame at Uppermill	EA-GMMC
71001	Ribble at Samlesbury	EA-CL
71004	Calder at Whalley Weir	EA-CL
71009	Ribble at New Jumbles Rock	EA-CL
71010	Pendle Water at Barden Lane	EA-CL
71011	Ribble at Arnford	EA-CL
71014	Darwen at Blue Bridge	EA-CL
72011	Rawthey at Brigflatts	EA-CL
73009	Sprint at Sprint Mill	EA-CL
73014	Brathay at Jeffy Knotts	EA-CL
73017	Kent at Bowston	EA-CL
76001	Haweswater Beck at Burnbanks	EA-CL
76005	Eden at Temple Sowerby	EA-CL
76017	Eden at Great Corby	EA-CL
202001	Roe at Ardnargle	RA
203012	Ballinderry at Ballinderry Bridge	RA
203018	Six-Mile Water at Antrim	RA
203019	Claudy at Glenone Bridge	RA
203039	Clogh at Tullynewey	RA
203093	Main at Shane's Viaduct	RA
236005	Colebrooke at Ballindarragh Bridge	RA

ANNEX 2 POT EXCLUDED STATIONS

NRFA Station	Station Name	Measuring Authority	Added in version 4
26003	Foston Beck at Foston Mill	EA-Y	
26009	West Beck at Snakeholme Lock	EA-Y	
26010	Driffield Canal at Snakeholme Lock	EA-Y	
26802	Gypsy Race at Kirby Grindalythe	EA-Y	
26803	Water Forlornes at Driffield	EA-Y	
27038	Costa Beck at Gatehouses	EA-Y	
27073	Brompton Beck at Snainton Ings	EA-Y	
29005	Rase at Bishopbridge	EA-LN	
30005	Witham at Saltersford Total	EA-LN	
30006	Slea at Leasingham Mill	EA-LN	
30013	Heighington Beck at Heighington	EA-LN	
30015	Cringle Brook at Stoke Rochford	EA-LN	
31004	Welland at Tallington Total	EA-LN	
33005	Bedford Ouse at Thornborough Mill	EA-CB	
33007	Nar at Marham	EA-CB	
33012	Kym at Meagre Farm	EA-CB	
33032	Heacham at Heacham	EA-CB	
33049	Stanford Water at Buckenham Tofts	EA-CB	
33052	Swaffham Lode at Swaffham Bulbeck	EA-CB	
33054	Babingley at Castle Rising	EA-CB	
34007	Dove at Oakley Park	EA-ENS	Yes
34018	Stiffkey at Warham	EA-ENS	Yes
35003	Alde at Farnham	EA-ENS	Yes
35004	Ore at Beversham Bridge	EA-ENS	Yes
36002	Glem at Glemsford	EA-ENS	Yes
36003	Box at Polstead	EA-ENS	Yes
36005	Brett at Hadleigh	EA-ENS	Yes
36006	Stour at Langham	EA-ENS	Yes
36007	Belchamp Brook at Bardfield Bridge	EA-ENS	Yes
36008	Stour at Westmill	EA-ENS	Yes
36009	Brett at Cockfield	EA-ENS	Yes
36010	Bumpstead Brook at Broad Green	EA-ENS	Yes
36011	Stour Brook at Sturmer	EA-ENS	Yes
36015	Stour at Lamarsh	EA-ENS	Yes
37003	Ter at Crabbs Bridge	EA-ENS	Yes
37005	Colne at Lexden	EA-ENS	Yes
37009	Brain at Guithavon Valley	EA-ENS	Yes
37010	Blackwater at Appleford Bridge	EA-ENS	Yes
37012	Colne at Poolstreet	EA-ENS	Yes
37013	Sandon Brook at Sandon Bridge	EA-ENS	Yes
37016	Pant at Copford Hall	EA-ENS	Yes
37017	Blackwater at Stisted	EA-ENS	Yes
38011	Mimram at Fulling Mill	EA-HNL	
39010	Colne at Denham	EA-HNL	
39021	Cherwell at Enslow Mill	EA-WT	

39033	Winterbourne Stream at Bagnor	EA-WT	
39034	Evenlode at Cassington Mill	EA-WT	
39037	Kennet at Marlborough	EA-WT	
39089	Gade at Bury Mill	EA-HNL	
39095	Quaggy at Manor House Gardens	EA-KSL	
41015	Ems at Westbourne	EA-SSD	
41023	Lavant at Graylingwell	EA-SSD	Yes
42005	Wallop Brook at Broughton	EA-SSD	
42006	Meon at Misliford	EA-SSD	
42007	Alre at Drove Lane Alresford	EA-SSD	
42008	Cheriton Stream at Swards Bridge	EA-SSD	
42009	Candover Stream at Borough Bridge	EA-SSD	
42010	Itchen at Highbridge & Allbrook Total	EA-SSD	
42012	Anton at Fullerton	EA-SSD	
42017	Hermitage Stream at Havant	EA-SSD	
43003	Avon at East Mills Total	EA-WX	
43004	Bourne at Laverstock	EA-WX	
43005	Avon at Amesbury	EA-WX	
43008	Wylfe at South Newton	EA-WX	
43010	Allen at Loverley Farm	EA-WX	
43012	Wylfe at Norton Bavant	EA-WX	
43018	Allen at Walford Mill	EA-WX	
44002	Piddle at Baggs Mill	EA-WX	
44004	Frome at Dorchester Total	EA-WX	
44006	Sydling Water at Sydling St Nicholas	EA-WX	
44008	South Winterbourne at Winterbourne Steepleton	EA-WX	
44009	Wey at Broadway	EA-WX	
44013	Piddle at Little Puddle	EA-WX	
44014	Piddle at Briantspuddle	EA-WX	
54027	Frome at Ebley Mill	EA-SHWG	
55035	Iago at Iago flume	CEHW	
67020	Dee at Chester Weir	NRW	
68007	Wincham Brook at Lostock Gram	EA-GMMC	Yes
69002	Irwell at Adelphi Weir	EA-GMMC	
71003	Croasdale Beck at Croasdale Flume	EA-CL	
85001	Leven at Linnbrane	SEPA-SW	
205034	Woodburn at Control	RA	
206006	Annalong at Recorder	BCDWC	

ANNEX 3 STATIONS WITH CHANGES TO DATUM HISTORY

NRFA Station	Station Name	Measuring Authority
21032	Glen at Kirknewton	EA-NDT
21806	Till at Heaton Mill	EA-NDT
22001	Coquet at Morwick	EA-NDT
22003	Usway Burn at Shillmoor	EA-NDT
22006	Blyth at Hartford Bridge	EA-NDT
22007	Wansbeck at Mitford	EA-NDT
22009	Coquet at Rothbury	EA-NDT
23001	Tyne at Bywell	EA-NDT
23003	North Tyne at Reaverhill	EA-NDT
23004	South Tyne at Haydon Bridge	EA-NDT
23006	South Tyne at Featherstone	EA-NDT
23007	Derwent at Rowlands Gill	EA-NDT
23033	Rede at Otterburn	EA-NDT
24004	Bedburn Beck at Bedburn	EA-NDT
25009	Tees at Low Moor	EA-NDT
25011	Langdon Beck at Langdon	EA-NDT
25019	Leven at Easby	EA-NDT
27003	Aire at Beal Weir	EA-Y
27006	Don at Hadfields Weir	EA-Y
27056	Pickering Beck at Ings Bridge	EA-Y
27062	Nidd at Skip Bridge	EA-Y
27073	Brompton Beck at Snainton Ings	EA-Y
27092	Esk at Briggswath	EA-Y
27858	Derwent at Malton A64 Road Bridge	EA-Y
28009	Trent at Colwick	EA-DNL
28015	Idle at Mattersey	EA-DNL
28019	Trent at Drakelow Park	EA-SWWM
28023	Wye at Ashford	EA-DNL
28031	Manifold at Ilam	EA-SWWM
28032	Meden at Church Warsop	EA-DNL
28033	Dove at Hollinsclough	EA-SWWM
28039	Rea at Calthorpe Park	EA-SWWM
28046	Dove at Izaak Walton	EA-SWWM
28047	Oldcotes Dyke at Blyth	EA-DNL
28049	Ryton at Worksop	EA-DNL
28055	Ecclesbourne at Duffield	EA-DNL
28056	Rothley Brook at Rothley	EA-DNL
28058	Henmore Brook at Ashbourne	EA-SWWM
28066	Cole at Coleshill	EA-SWWM
28067	Derwent at Church Wilne	EA-DNL
28091	Ryton at Blyth	EA-DNL
28115	Maun at Mansfield the Dykes	EA-DNL
45816	Haddeo at Upton	EA-DC
45817	Unnamed Stream at Upton	EA-DC
45818	Withiel Florey Stream at Bessom Bridge	EA-DC
45819	Yeo at Collard Bridge	EA-DC

46003	Dart at Austins Bridge	EA-DC
46005	East Dart at Bellever	EA-DC
46008	Avon at Loddiswell	EA-DC
50002	Torrige at Torrington	EA-DC
50009	Lew at Norley Bridge	EA-DC
54002	Avon at Evesham	EA-SHWG
54004	Sowe at Stoneleigh	EA-SWWM
54012	Tern at Walcot	EA-SHWG
54017	Leadon at Wedderburn Bridge	EA-SHWG
54018	Rea Brook at Hookagate	EA-SHWG
54023	Badsey Brook at Offenham	EA-SHWG
54024	Worfe at Burcote	EA-SHWG
54036	Isbourne at Hinton on the Green	EA-SHWG
54040	Meese at Tibberton	EA-SHWG
54041	Tern at Eaton upon Tern	EA-SHWG
54044	Tern at Ternhill	EA-SHWG
55014	Lugg at Byton	EA-SHWG
55018	Frome at Yarkhill	EA-SHWG
55032	Elan at Caban Dam	NRW
57007	Taff at Fiddlers Elbow	NRW
58001	Ogmore at Bridgend	NRW
58002	Neath at Resolven	NRW
58005	Ogmore at Brynmenyn	NRW
58006	Mellte at Pontneddfechan	NRW
58007	Llynfi at Coytrahen	NRW
58008	Dulais at Cilfrew	NRW
58012	Afan at Marcroft Weir	NRW
59001	Tawe at Ynystanglws	NRW
59002	Loughor at Tir-y-dail	NRW
60003	Taf at Clog-y-Fran	NRW
60004	Dewi Fawr at Glasfryn Ford	NRW
60005	Bran at Llandovery	NRW
60006	Gwili at Glangwili	NRW
60007	Tywi at Dolau Hirion	NRW
60009	Sawdde at Felin-y-cwm	NRW
60012	Twrch at Ddol Las	NRW
61001	Western Cleddau at Prendergast Mill	NRW
61003	Gwaun at Cilrhedyn Bridge	NRW
62001	Teifi at Glanteifi	NRW
63001	Ystwyth at Pont Llolwyn	NRW
63003	Wyre at Llanrhystud	NRW
64001	Dyfi at Dyfi Bridge	NRW
64006	Leri at Dolybont	NRW
65001	Glaslyn at Beddgelert	NRW
65006	Seiont at Peblig Mill	NRW
65007	Dwyfor at Garndolbenmaen	NRW
66001	Clwyd at Pont-y-Cambwll	NRW
66004	Wheeler at Bodfari	NRW

66006	Elwy at Pont-y-Gwyddel	NRW
66011	Conwy at Cwmlanerch	NRW
67005	Ceiriog at Brynkinalt Weir	NRW
67006	Alwen at Druid	NRW
67008	Alyn at Pont-y-Capel	NRW
67009	Alyn at Rhydymwyn	NRW
67015	Dee at Manley Hall	NRW
67018	Dee at New Inn	NRW
67025	Clywedog at Bowling Bank	NRW
68005	Weaver at Audlem	EA-GMMC
68007	Wincham Brook at Lostock Gralam	EA-GMMC
68018	Dane at Congleton Park	EA-GMMC
69023	Roch at Blackford Bridge	EA-GMMC
69025	Irwell at Manchester Racecourse	EA-GMMC
69043	Irk at Collyhurst Weir	EA-GMMC
69046	Bradshaw Brook at Bradshaw Tennis Club	EA-GMMC
70005	Lostock at Littlewood Bridge	EA-CL
71008	Hodder at Hodder Place	EA-CL
72002	Wyre at St Michaels	EA-CL
72011	Rawthey at Brigflatts	EA-CL
72015	Lune at Lunes Bridge	EA-CL
72807	Wenning at Hornby	EA-CL
73008	Bela at Beetham	EA-CL
74001	Duddon at Duddon Hall	EA-CL
74003	Ehen at Bleach Green	EA-CL
74008	Duddon at Ulpha	EA-CL
75003	Derwent at Ouse Bridge	EA-CL
75007	Glenderamackin at Threlkeld	EA-CL
75009	Greta at Low Briery	EA-CL
75017	Ellen at Bullgill	EA-CL
76001	Haweswater Beck at Burnbanks	EA-CL
76003	Eamont at Udford	EA-CL
76015	Eamont at Pooley Bridge	EA-CL
76017	Eden at Great Corby	EA-CL
76019	Roe Beck at Stockdalewath	EA-CL
76806	Eden at Great Musgrave Bridge	EA-CL