

Rising mains telemetry, asset and rainfall data – explanatory information

Telemetry Data

The following files each contain telemetry data for a single parameter for 24 sewage pumping station (SPS) sites.

SPS run-stop data

SPSs transmit telemetry signals when the pumps turn on (i.e. begin to run) or off (i.e. stop). This is known as run-stop data. This file contains the run-stop telemetry data from 24 SPS sites.

Col.	Column Heading	Description
1	Signal ID	The unique ID ('B number') for a telemetry signal (in this case run-stop) from a specific pump at a specific SPS. Note: The file ' Rising main diameter and key to telemetry signals ' can be used to determine which SPS a particular signal ID originates from.
2	Date and time	Date and time associated with the data in column position 3. The time zone in this dataset is fixed to UTC.
3	Value (1=Running – 0=Stopped)	If the pump turned on at the date / time given in column position 2, this will show a value of 1. If the pump turned off at the date / time given in column position 2, this will show a value of 0.

Rising main pressure data

SPSs also transmit telemetry data about the pressure of their associated rising main. This file contains the pressure telemetry data from 24 SPS sites.

Col.	Column Heading	Description
1	Signal ID	The unique signal ID ('E number') for a telemetry signal (in this case pressure) at a specific SPS. Note: The file ' Rising main diameter and key to telemetry signals ' can be used to determine which SPS a particular signal ID originates from.
2	Date and time	Date and time associated with the measurement recorded in column position 3. The time zone in this dataset is fixed to UTC.
3	Value	The pressure value at the date / time given in column position 2. Rounded to 3dp; trailing zeros are not shown.
4	Units	Units associated with the pressure value given in column position 3. Units are bar for all sites in this dataset but sometimes pressure can be recorded in m head.

Rising main flow data

SPSs also transmit telemetry data about the flow of wastewater in their associated rising main. This file contains the flow telemetry data from 24 SPS sites.

Col.	Column Heading	Description
1	Signal ID	The unique signal ID ('E number') for a telemetry signal (in this case flow) at a specific SPS. Note: The file ' Rising main diameter and key to telemetry signals ' can be used to determine which SPS a particular signal ID originates from.
2	Date and time	Date and time associated with the measurement recorded in column position 3. The time zone in this dataset is fixed to UTC.
3	Value	The flow value at the date / time given in column position 2. Rounded to 3dp; trailing zeros are not shown.
4	Units	Units associated with the flow value given in column position 3. The units are always litres per second (l/s).

SPS wet well level data

SPSs also transmit telemetry data about the level of wastewater present in their wet wells. This file contains the wet well level telemetry data from 24 SPS sites.

Col.	Column Heading	Description
1	Signal ID	The unique signal ID ('E number') for a telemetry signal (in this case wet well level) at a specific SPS. Note: The file ' Rising main diameter and key to telemetry signals ' can be used to determine which SPS a particular signal ID originates from.
2	Date and time	Date and time associated with the measurement recorded in column position 3. The time zone in this dataset is fixed to UTC.
3	Value	The level value at the date / time given in column position 2. Rounded to 3dp; trailing zeros are not shown.
4	Units	Units associated with the level value given in column position 3. The units can be m, mm or % (where 0% is empty and 100% is full).

Duration / quantity: Data is provided for 24 SPSs for the calendar years 2022 and 2023. The majority of the SPSs send back their signals every hour.

Collation: Telemetry data is collected from SPSs using our regional telemetry system and then held on our servers. The published files are an Excel extract from this system. Unit information was added prior to publication.

Data quality:

- **All telemetry data:**
 - Values between 0 and -0.5 should be assumed to be a zero value. Values lower than -0.5 indicate an issue with the telemetry signal or instrumentation and should be discounted.
 - There may be some cases of missing data due to probes temporarily being offline.
- **SPS run-stop data:** There are extended time periods without run-stop information for signals **43014_PFFPump1_WASTE_B27594** and **45576_PFFPump2_WASTE_B1392**. This indicates that the associated pump wasn't selected to run during this time frame.

- **Rising main pressure data:** Note that the position at which pressure is measured can vary (either at the same level as the pump or some metres higher as the rising main leaves the site) but has not been recorded historically.
- **SPS wet well level data:** Some sites have readings every minute; some have readings every five minutes; site 44497 has readings every 15 minutes.

Asset Data

The following asset data files complement the telemetry data.

Rising main route and elevation profile

For each of the 24 SPS sites, the file gives the X and Y co-ordinates of particular points at 2 metre intervals along the associated rising main. These co-ordinates can be used to determine the route of a given rising main.

The file also gives the Z-co-ordinates. These are generated using LIDAR technology, so are specifically the Z co-ordinate of the ***ground level*** at these particular points. The actual profile of the main may not follow the ground profile. Therefore the Z co-ordinates give an indication of a rising main's elevation profile but cannot be considered a totally accurate representation.

The 24 SPSs for which we are sharing data all follow the 'simple' arrangement whereby a single SPS is located at the start of the rising main, with a single discharge point at the other end (into a gravity outlet). Therefore, it can be assumed that:

- 0m along the rising main represents the co-ordinates of the SPS.
- The furthest point along the rising main represents the discharge point into a gravity outlet.

Note: For security purposes the co-ordinates have been anonymised by translating them to a different location. Therefore this data represents the relative locations of SPSs and rising mains, NOT their true locations.

Col.	Column Heading	Description
1	Marketplace Site ID	The numerical Wessex Water code for a specific SPS.
2	Distance along rising main	Distance along rising main at 2m intervals.
3	X co-ordinate	X co-ordinate from our GIS system. Rounded to 0dp.
4	Y co-ordinate	Y co-ordinate from our GIS system. Rounded to 0dp.
5	Z co-ordinate	Z co-ordinate from our GIS system. Rounded to 2dp; trailing zeros are not shown.

Rising main diameter and key to telemetry signals

This file lists the 24 SPSs for which we are sharing data. It gives the signal IDs for the flow, pressure, wet well level and pump run-stop telemetry signals transmitted from each of these SPSs. As such, the file can be used as a 'key' for the signal IDs ('E and B numbers') given in the telemetry data files, i.e. to determine which SPS they are from and which parameter they represent. This dataset also gives the average diameter for the rising main associated with that SPS.

Col.	Column Heading	Description
1	Marketplace Site ID	The numerical Wessex Water code for a specific SPS.
2	Flow Signal ID (analogue)	The signal ID ('E number') for the flow telemetry signal from the SPS in column position 1.
3	Pressure Signal ID (analogue)	The signal ID ('E number') for the pressure telemetry signal from the SPS in column position 1.
4	Wet well level Signal ID (analogue)	The signal ID ('E number') for the wet well level telemetry signal from the SPS in column position 1.
5	Wet well level 2 Signal ID (analogue)	The signal ID ('E number') for a second wet well level telemetry signal from the SPS in column position 1. This is only present for one site in the dataset.
6	Pump 1 Signal ID (digital)r	The signal ID ('B number') for the run-stop telemetry signal from pump 1 at the SPS in column position 1.
7	Pump 2 Signal ID (digital)	The signal ID ('B number') for the run-stop telemetry signal from pump 2 at the SPS in column position 1.
8	Pump 3 Signal ID (digital)	The signal ID ('B number') for the run-stop telemetry signal from pump 3 at the SPS in column position 1.
9	Pump 4 Signal ID (digital)	The signal ID ('B number') for the run-stop telemetry signal from pump 4 at the SPS in column position 1. This is only present for one site in the dataset.
10	Average pipe internal diameter (mm)	The internal diameter of the rising main pipe (as held within our geographical information system). For simplicity this is given as an average diameter of the whole rising main. Recorded to 0dp.

Duration / quantity: 24 sites

Collation: Asset data is held on our core asset management system for below ground assets information. The information was originally generated from paper records held by local drainage boards and has been manually amended / updated over the past 25 years. The published 'Rising main diameter and key to telemetry signals' file is an Excel compilation of data extracted from this core asset management system.

Data quality: The XYZ co-ordinate information (rising main routes) is of varying accuracy.

Rainfall Data

Local rainfall data is also provided to complement the telemetry data.

SPS local rainfall data

This file details the hourly rainfall at the SPS location.

Col.	Column Heading	Description
1	Marketplace Site ID	The numerical Wessex Water code for a specific SPS.
2	Date	Date associated with the measurement recorded in column position 4.
3	Hour	Time associated with the measurement recorded in column position 4. Values should be used as a 24-hour clock format e.g. a value of 2 indicates a time of 0200 while a value of 14 indicates a value of 1400.
4	Rainfall (mm)	Total rainfall, measured in mm, during the hour specified by column positions 2 and 3. Rounded to 2dp; trailing zeros are not shown.

Duration / quantity: 24 sites, 2022 and 2023, granularity as above.

Collation: Raw data for historical local rainfall at SPSs is sourced from the Met Office on the CEDA Archive under an [Open Government Licence](#) and held on our server. Met Office (2003): 1 km Resolution UK Composite Rainfall Data from the Met Office Nimrod System. NCAS British Atmospheric Data Centre, *date of citation 3 July 2025*.

<https://catalogue.ceda.ac.uk/uuid/27dd6ffba67f667a18c62de5c3456350/> The raw data shows rainfall at 5-minute intervals – we aggregate this to give hourly data to allow easier analysis within our corporate systems. To produce the published rainfall data, extracts for each of the 24 SPSs were concatenated into a single file, with the removal of identifying rainfall station information and addition of a Site ID column. Unit information was also added prior to publication.