

WWDS-DEV 009Ad Pumping station addendum

Sewerage Sector Guidance - Appendix C

Forward

This addendum is to be used in conjunction with the current approved version of the Design and Construction Guide, when a pumping station forms part of a Section 104 sewer adoption application in the Wessex Water area.

The Design and Construction Guide, refers to design and construction guidance for foul and surface water sewers, offered for adoption under the Code for adoption agreements for water and sewerage companies operating wholly or mainly in England ("the code"), Sewerage Sector Guidance Appendix C.

The relevant clause reference in this addendum highlighted in grey should replace and take precedence over the individual clause in the Sewerage Sector Guidance Appendix C.

The clause references in this Addendum, shown in plain text (unhighlighted), are intended to be read in conjunction with the clause in the Sewerage Sector Guidance Appendix C.

Developer Services is your point of contact for sewer adoption by Wessex Water.

We offer a wide range of technical advice and can help provide additional information. The Sewer adoption - pumping station checklist WWDS-DEV 009G highlights the minimum information required for a S104 application submission.

Guidance notes, application forms, and standard drawings for guidance are on our website [wessexwater.co.uk/services/building-and-developing](https://www.wessexwater.co.uk/services/building-and-developing)

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Please note: Wessex Water standard drawings are currently under review, so not available.

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Document amendment summary

Issue	Date	Reference	Details
1	Jan 2020	Draft	First issue
1	April 2020	Published	First Issue
2	April 2021	Amendments	D7.6, F2.3.14.1, F2.3.14.2, F3.6.1
		Published	Second issue
3	April 2022	Amendments	F3.3.9, F3.4.1.3, F3.6.1, F3.6
		Published	Third issue
4	April 2022	Amendments	D7.5.3.d, F3.6.1
		Published	Fourth issue
5	July 2022	Amendment	F3.6.1
		Published	Fifth issue

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PART D - PUMPING STATIONS

Please note: Wessex Water standard drawings are currently under review, so not available.

D5 PROVISION OF PUMPING STATIONS

D5.3 Site Layout

1	g) Wessex Water has standard drawings with typical acceptable layouts for pumping stations for guidance.
2	Prior to making the planning application, Wessex Water must be consulted to confirm the acceptability of location, site layout and potential boundary treatment. Where a permanent fixed lifting system is being proposed, the developer should be aware that planning permission is likely to be required.
4	For all pumping stations, a fenced compound is required. The use of 1.5m high park style fencing is usually acceptable, depending on the location and level of security required. Optional screen planting outside the boundary may also be considered. Wessex Water should be consulted at the earliest opportunity, if site or planning restrictions specify an unfenced compound.
5	Wessex Water standard fence type is 1.8m high steel palisade style, and required on all terminal, high security sites and sites with chemical dosing. Gates should match the fencing type and provide a similar level of security, with drop pins, a slide bolt and padlock. 1.8m high brick walls for boundaries are acceptable, but not preferred. The use of 1.5m high park style fencing may also be considered, depending on the location, level of security, and no chemical dosing is required on site. Wessex Water has a common security system utilising Abloy padlocks at pumping station sites. These padlocks will be provided and fitted at the time of vesting by Wessex Water. The cost of the locks and their installation are included in the charges.
9	The whole compound surface must be a concrete brush finish, with falls that provide a positive drainage route via trapped gullies to the wet well or inlet chamber. Permeable surfaces are not accepted on any sites
11	For pumping stations in a fenced compound, the whole area should be covered with hardstanding. The hardstanding surface should extend under the fence line, with edging kerbs on the outside perimeter to delineate the site boundary.
12	Wessex Water require a fenced compound for smaller pumping stations, the whole area should be covered with hardstanding. The hardstanding surface should extend under the fence line, with edging kerbs to delineate the site boundary.
16	Typical layouts are shown in figure D2 and figure D3. Wessex Water requires the whole compound to be impermeable concrete finish hardstanding and does not accept any permeable hardstanding. For operational reasons, and to comply with D5.4.1.C the kiosk shall be positioned with the doors opening towards the wet well, rather than at 90° to it. To prevent unauthorised use of the parking layby D2, or entrance splay D3, a heavy duty lockable and removable/collapsible bollard should be positioned to restrict vehicle access. The bollard must accept a Wessex Water Abloy short-shank 10mm shackle padlocks to BS EN 12320 Grade 3.

D5.5 Storage

2	b) Specifically-designed adjacent storage structures that are designed to be self-cleansing. This structure must be connected to the inlet chamber in preference to a direct connection to the wet well.
2	c) Wessex Water prefers a wet well diameter of 1.8m or 2.1m, additional storage can be gained by increasing the diameter of the inlet chamber and/or upstream public manholes.

D6 RISING MAINS

D6.3 Hydraulic Design

6	Wessex Water requires a pumping station septicity control application to be completed for all S104 applications including an adoptable or non-adoptable pumping station. The only exceptions are when the pumping station serves a single domestic property, or if the pumped rising main is less than 50m in length. Guidance notes DEV023G and application form DEV0023A are on our website.
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D7 DESIGN OF PUMPING STATIONS

D7.3 Wet Well - General

3	The minimum internal dimension on a 'Type 1' and 'Type 2' pumping station wet well shall be 1,500mm. This dimension should ensure that the pumps and the pipework can be accommodated without causing interference with the ultrasonic footprint. The preferred internal dimension on 'Type 3' pumping stations is 1800mm or 2100mm.																
4	All concrete benching finishes shall have an epoxy or polyurethane coating applied to the whole floor and benching area up to a level of 150mm above the high-level alarm level/base storage level. The coating is only required within the working zone of the pumps, not all the way up the chamber. The purpose of the epoxy or polyurethane coating is to protect against erosion, chemical attack and provide a smooth finish to reduce floating debris build up. Suitable products are listed in the table below, other manufacturers may provide products that match the specification, requirements and performance.																
	<table border="1"> <thead> <tr> <th>Supplier</th> <th>Manufacturer spec.</th> <th>Primer</th> <th>Top coat</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Currocoat</td> <td>3 coat 500µm</td> <td>Polyglass PPA</td> </tr> <tr> <td>2</td> <td>Sika</td> <td>3 coat 500µm</td> <td>Sikaguard 720EPOCEM</td> </tr> <tr> <td>3</td> <td>Copon</td> <td>3 coat 500µm</td> <td>HYCOTE 63</td> </tr> </tbody> </table>	Supplier	Manufacturer spec.	Primer	Top coat	1	Currocoat	3 coat 500µm	Polyglass PPA	2	Sika	3 coat 500µm	Sikaguard 720EPOCEM	3	Copon	3 coat 500µm	HYCOTE 63
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7	Provision for isolating the incoming flow by means of a hand-operated soft face wedge gate valve, should be in a chamber immediately upstream of the wet well and not in the wet well itself. Cover and protect the valve flange, nuts, and bolts with Denso tape or similar. Benching to be formed around the shoulders of the valve, the non-rising spindle should have suitable support brackets and be operated from the surface.																

D7.5 Valve Chamber

3	d) for Type 2 and Type 3 pumping stations, a 100 mm diameter male Bauer coupling with Bauer cap, mounted vertically on pipework, 90 degree duck foot bend, connecting to pipework in wet well to allow emptying of the wet well. This should be suitable for connecting to a flexible hose to allow either a tanker to remove flows or mobile pump to over pump into the rising main during plant maintenance or failure.
7	The valve chamber should have a maximum depth of 1.5m from cover to floor of the valve chamber. Depth can be increased by 200mm to maintain minimum 300mm floor to pipe clearance (F4.3.1b) and provide the rising main 1.2m cover from the crown (D6.1.3e) without protection.
8	If an air valve is provided in the valve chamber, an additional separate vent is required, ventilation should be in accordance with standard drawing STD269 - Below Ground Vent detail. The vent must be positioned at least 3m from the kiosk, a minimum of 15m from any habitable building and more than 1m from the wet well vent to stop cross venting.

D7.6 Flow Metering

1	For Type 3 pumping stations a flowmeter should be provided in the valve chamber or in a separate chamber to monitor discharge performance.
3	For Type 1 & 2 pumping Stations where the rising main connects directly to an existing public rising main (rising main to rising main connection) or where the rising route will cross a designated site or critical crossing such as Railway, Main rivers or Motorways, a pressure transducer should be provided in the valve chamber or in a separate chamber to monitor discharge performance.

D7.7 Access into Wet Well, Valve Chamber and Flowmeter Chambers

2	b) Wessex Water use Abloy short or long shank 10mm shackle padlocks to BS EN 12320 Grade 3. Each lid should have assistance to ensure a lifting effort not exceeding 25kgF.
2	e) Applies to all sites; the safety grid should be provided with a 225mm diameter slot to allow a suction hose to pass through.
2	h) Handrail systems are not required for Wessex Water sites.
2	i) Handrails are not required for Wessex Water sites.
3	Where the wet well cannot be vented through the upstream sewer system, ventilation should be provided in accordance with standard drawing STD269 - Below Ground Vent detail. The vent must be positioned at least 3m from the kiosk and a minimum of 15m from any habitable building.
5	In addition, two secure eye-bolt anchorages shall be provided adjacent to the wet well, for attachment of personnel safety harness lines giving fall restraint. The location shall be at distances of 1.5m from the davit socket each, at an angle of 45° to the wet well opening, type of anchorage should be selected to avoid being a trip hazard.

D7.9 Davit Sockets

2	If the pump weight is greater than 250kg, then Wessex Water is to be consulted over the lifting equipment to be provided.
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D7.11 Kiosk Construction

14	Wessex Water use Abloy short-shank 10mm shackle padlocks to BS EN 12320 Grade 3.
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PART F - MECHANICAL AND ELECTRICAL SPECIFICATION FOR SMALL PUMPING STATIONS

F1 GENERAL

F1.2 Operation and Maintenance Documentation

- 1 Provide original test certificates, specifically original paper format, not a scanned copy. The Operating and Maintenance (O&M) manuals, as-built drawings and documentation are to be provided to Wessex Water prior to commencement of the maintenance period in electronic format.

F2 PUMP UNIT SPECIFICATION

F2.1 Introduction

1	Wessex Water has a framework agreement for the supply of submersible sewage pumps. These are the preferred pump types.
4	An automatic de-sludging/flushing valve is required for all classifications of pumping station, subject to compatibility with the pump supplied.

F2.3.14 Pump unit lifting arrangements

F2.3.14.1 General

4	a) a proprietary lifting chain shall be provided for all wet wells regardless of depth
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F2.3.14.2 Lifting chain location system

1	Not to be provided for any site
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F2.4.2 Testing on Site

5	<p>Wessex Water's own term contractors or operational staff responsible for the future maintenance of the pumping station may be involved with any inspection and testing of the pumping station.</p> <p>Developers should note that any inspections by Wessex Water should not in any way be regarded as a substitution for the supervision or maintenance to be undertaken by the developer or his contractor.</p>
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F3 ELECTRICAL SPECIFICATION

F3.3.7 Connection for a Mobile Generator

3	<p>For populations of 2,500 and above, or for certain industrial/commercial developments, Wessex Water may require a dual power supply to the pumping station from a separate power supply source. The need for such a system must be confirmed with Wessex Water at an early stage of the design.</p> <p>The separate power source can include a permanently wired in standby generator. Appropriate soundproofing, fuel system, bunding and site security will be needed in such cases. Wessex Water has specific requirements for fixed generation which are available on request.</p> <p>A dual supply will be a standard requirement in all cases where the use of a portable generator is not suitable or possible.</p>
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F3.3.9 Telemetry Signals

1	<p>The developer will be charged for the supply, installation of a cellular router. To include testing and commissioning work to connect the integrated controller specified in F3.6.1 with Wessex Water telemetry system. Current charges are shown on the Wessex Water web site and will be invoiced with the additional fees during the S104 application.</p> <p>The developer is required to provide mobile phone signal strength information as part of the S104 application for the proposed location of the kiosk.</p> <p>Wessex Water will undertake the linking of the integrated controller to the Wessex Water system once the S104 Agreement has been signed, the site has been commissioned by the developers M&E contractor and the pumping station is receiving >25% total flows.</p>
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F3.4.1.3 Luminaires

3	<p>Site compound lighting to be provided with suitably rated IP65 sodium or LED luminaires to illuminate at a minimum of 200 lux at cover level of the wet well and valve chamber. This shall be securely mounted on a 4m high light column, with a ladder rest. Light column to be positioned next to the boundary fence between the wet well and valve chamber, ensuring it does not obstruct normal maintenance operations.</p>
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F3.4.5.4 Connection of Pump Unit Cable

2	<p>If the wet well is designated as a hazardous area, ducts direct from wet well shall be labelled with adjacent signs at the Electrical Assembly end, as follows:</p> <p>'HAZARDOUS AREA DUCT - DUCT SEALING SYSTEM TO BE RETAINED AT ALL TIMES'.</p>
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F3.6 Telemetry Outstation

1	Provision for transmission of telemetry signals shall be made by provision of a Pulsar Ultimate controller (10DI) fascia mount with DNP3: Product code = 1U0410D001XD0X0P with DIN rail mounted battery backup module: Product code = 1U0A0006S and two DIN rail mounted IO expansion modules (8x IO): Product code = 1U0A0001S are required. The expansion modules do not need battery backup. Minimum space (H x D x W) 180mm x 115mm x 65mm must be provided within the common control compartment for a DIN rail mounted cellular router.
-	The developers M&E contractor should contact the Wessex Water Automation team on the email below for copies of the Wessex Water Pulsar configuration files and standard wiring diagrams. Note development. telemetry@wessexwater.co.uk is for contact for the provision of configuration files and drawings only, correspondence should be directed via regional offices shown in the forward.
-	Once the telemetry has been commissioned by Wessex Water, the developer or their contractor, need to contact the Wessex Water control room before carrying out any works to the pumping station, to prevent unnecessary callouts and/or documentation of alarms. Failure to do so may result in the maintenance period being extended. A temporary sign will be fitted in the kiosk as a reminder to contact the Wessex Water control room

F4.4 Miscellaneous

3	Suitable hook to be installed in the valve chamber to hang the inlet penstock key, to be located just below the cover near to the access steps.
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