Wastewater Developer Services Engineer Feedback Form (S104)

Proposed Section 104 Development at LOCATION & DISTRICT COUNCIL
UU Reference – 42000XXXXX

	1	2	3	4	5	6	7	8	9	10
Date of UU response	Click here to enter a date.	Click here to enter a date.	Click here to enter a date.	Click here to enter a date.	Click here to enter a date.	Click here to enter a date.	Click here to enter a date.	Click here to enter a date.	Click here to enter a date.	Click here to enter a date.

Form contents

Section 1 - Information required for Section 104 submission

Note: any item selected as 'not submitted' will need to be provided to support and progress the application to Technical Acceptance.

This shows how information should be provided for a variety of technical plans and also highlights critical design checks that need to be satisfied.

Section 1 **Information required**	**Submitted**	**Not submitted**	**N/A**	**Designer** Tick to highlight where information noted as 'not submitted' has now been provided
• S104 agreement plan (see section 4a below)	☐	☐	☐	☐
• A3 land registry compliant plan (see section 4b below) A PDF copy of a plan with full extent of land edged green shown, scale as near to 1:1250 or 1:500 as possible at A3 size, North Arrow, Landmarks and road names, Easement strip dimensioned and coloured yellow (if there are any). The green boundary should be closed so that the 'parcel' of land is identifiable and the development needs to fit the whole page.	☐	☐	☐	☐
• Long section drawings (see section 4c below)	☐	☐	☐	☐
• Manhole schedules (see section 4d below)	☐	☐	☐	☐
• Bespoke manhole 1:20 details required for; o Flow control manhole detail In accordance with STND/19/005 Rev A, please ensue this includes the plan view in addition to both sections A-A and B-B detailing TWL's for 1:30yr & 1:100yr + cc events o Manholes with depths to soffit >6m o Shallow SW storage manholes In accordance with STND/19/004	☐	☐	☐	☐
• Flood routing plan to confirm that any exceedance storms will not result in flooding to vulnerable areas. Please note that if there is no flooding on site within the 100 year + climate change critical storm, then this is not required by UU. (Flood routing and overland flow is to be checked by the Local Planning Authority/ Lead Local Flood Authority in their approval).	☐	☐	☐	☐
• **Hydraulic assessment information** o Hydraulic simulations for the surface water system proposed for adoption (MDX file required)	☐	☐	☐	☐
o Copy of the impermeable drained areas plan, clearly showing the contributing area draining to each pipe length, with a summary table for each pipe number (PN)	☐	☐	☐	☐
o Manufacturers details and specifications for any flow control devices	☐	☐	☐	☐
o Copy of the private drainage layout (The drawing(s) must either include cover levels or an external level overlay to allow manual checks of critical storm water level)	☐	☐	☐	☐
o Copy of the foul water design	☐	☐	☐	☐
• Local council planning consent	☐	☐	☐	☐
• Copy of the site investigation report & (remediation strategy – if applicable)	☐	☐	☐	☐
• Copy of written approval / consent to discharge to the watercourse from the Environment Agency or Local Authority	☐	☐	☐	☐
• Abandonment plan (if applicable)	☐	☐	☐	☐
• CCTV survey (if applicable) A copy of the report and CCTV footage is to be provided. The numbering of survey lengths should correspond with the drainage layout.	☐	☐	☐	☐
• Specialist Engineering Drawings (if applicable) Any product specific drawings for attenuation / SuDS component drawings must be in accordance with CIRIA C753	☐	☐	☐	☐
• S38 plan containing roads to be offered for adoption Have sewers proposed for adoption outside of the adoptable highway the necessary easements.	☐	☐	☐	☐

Section 2 – Initial check of the high level strategy

Overall strategy	Yes	No	TBC	N/A	Designer Tick to highlight where information noted as 'not submitted' has now been provided
Is the strategy in accordance with Developer Services 'Pre Development Enquiry' advice?	☐	☐	☐	☐	☐
Is the development a part of a masterplan? If so, is the drainage strategy compliant with the approved layout?	☐	☐	☐	☐	☐
If proposing PS, has a gravity option been ruled out?	☐	☐	☐	☐	☐
Has the surface water drainage strategy been agreed with the Lead Local Flood Authority? It is the responsibility of the Designer to ensure that the design progressed with the application is acceptable to the LLFA.	☐	☐	☐	☐	☐

Date	Comment number	Engineer General comments		Designers response comments
Click here to enter a date.				
Click here to enter a date.				
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Other general comments	Yes	No	TBC	N/A	See comments
Has the existing sewer you propose to connect to been surveyed, with regards to level and position on site?	☐	☐	☐	☐	☐
Is the existing sewer which is to be connected into mapped correctly and traceable d/stream to a wider network, WWTW or outfall? If not or there is a gap in the records UU developer Engineer contact WW Networks at the earliest opportunity to get confirmation and prevent potential cross connections	☐	☐	☐	☐	☐
Are critical assets (i.e. flow control MH's) located in hard standing, accessible areas for maintenance purposes?	☐	☐	☐	☐	☐
For discharges to watercourse, can the SW outfall headwall and any associated non-return flap valves be accessed easily for inspection and maintenance? A plan will be required to show the access route	☐	☐	☐	☐	☐
If applicable, has ground remediation been considered at the depths and location of the proposed sewers offered for adoption?	☐	☐	☐	☐	☐
Has 0.5m clearance been achieved from kerb line to outer ring wall of manholes and 1.0m clearance to outer wall of sewers offered for adoption?	☐	☐	☐	☐	☐
Has a minimum 300mm clearance been achieved between pipe crossings? Please note that this distance must be between the outer walls of pipes	☐	☐	☐	☐	☐
Are there any walls higher than 1.8m or any retaining walls within the development in proximity to the adoptable network that require consideration (i.e. loading)	☐	☐	☐	☐	☐
Are there any large diameter thermoplastic pipes proposed? Has the additional information been provided (i.e. structural calculations, flotation calculations etc.)	☐	☐	☐	☐	☐

Date	Comment number	Engineer comments	Designers comments	Status (To be completed by UU personnel only)
Click here to enter a date.				Choose an item.
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Sewer abandonment / CCTv surveys

This section is only applicable to S104 sites that involve sewers abandonments outside of a S185 diversion application - delete if required

CCTv surveys ☐ Submitted ☐ Not yet submitted	Yes	No	See comments
The provided camera survey (report and disc) is acceptable and complies with the guidance available on United Utilities website?	☐	☐	☐
A camera survey has been provided for all affected lengths to be diverted to confirm/ disprove connectivity?	☐	☐	☐
Adequate investigation and or justification to confirm any observed connections are 'dead'? *This should not be assumed – all observed connections should be dye tested and traced, with drawings provided to confirm findings.*	☐	☐	☐

Date	Comment number	Engineer comments	Designers comments	Status (To be completed by UU personnel only)
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Abandonment plan ☐ Submitted ☐ Not yet submitted	**Yes** (Acceptable)	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• The sewers and manholes which the developer is applying to abandon are clearly labelled and referenced with details of the pipe diameters, pipe material and also include survey numbers	☐	☐	☐	☐	☐
• The sewers which are being considered for abandonment shall be identified by using black crosses with notes confirming details of the proposed method of abandonment, e.g. grubbing out, or grouting	☐	☐	☐	☐	☐
• Information detailed to confirm it is understood all abandonments must be witnessed for the status of the pipe to be changed on the public sewer records, confirming that the minimum of 72 hours' notice will be provided.	☐	☐	☐	☐	☐
• Detail of how any manholes will be abandoned should also be included on the drawing with separate sections or details to support where required	☐	☐	☐	☐	☐
• Drawing shows the position and levels of proposed sewers and manholes	☐	☐	☐	☐	☐

Drawing number:	**Revision**										
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Rev.	**Comment number.**	**Engineers comments**	**Designer's response comments**	**Status**
		Please ensure anything with the tick box selected with 'no' or 'TBC' is addressed on the revised drawing		Choose an item.
				Choose an item.
				Choose an item.
				Choose an item.

Section 3 – Hydraulic assessment for piped sewerage systems

Note: For any SuDS components please refer to the CIRIA SuDS Manual C753 for hydraulic design considerations

Surface water ☐ Submitted ☐ Not yet submitted	**Yes**	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• Has the minimum 30yr storm volume been retained within the adoptable network	☐	☐	☐	☐	☐
• Have high velocities >4m/s been justified in the design					
• Does the surface water network achieve a minimum self-cleansing velocity of 1m/s at pipe full flow	☐	☐	☐	☐	☐
• Scaled contributing impermeable areas plan reflects the areas used in the hydraulic simulations	☐	☐	☐	☐	☐
• Online control information within the MDX file corresponds with the manufacturers details and specifications	☐	☐	☐	☐	☐
• Simulations confirm that the 1m surcharge has been applied to the soffit level of the receiving sewer (or culverted watercourse) for the 1 in 30 year storm	☐	☐	☐	☐	☐
• Simulations show no surcharge within the adoptable system in a 1 in 2 year storm (accept surcharge downstream of a flow control which can be accepted)	☐	☐	☐	☐	☐
• Simulations show no flooding from the surface water sewers in a 1 in 30 year storm	☐	☐	☐	☐	☐
• Critical storm water levels are not higher than any private drainage cover levels or FFLs	☐	☐	☐	☐	☐

Foul ☐ Submitted ☐ Not yet submitted	**Yes**	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• Does the network achieve a self-cleansing velocity of 0.75m/s at 1/3 design flow For further guidance see section B6.9 (a) & (b)	☐	☐	☐	☐	☐
• Have high velocities >4m/s been justified in the design	☐	☐	☐	☐	☐
To protect properties against flooding, please confirm that flood routing / flow paths have been considered in the event of any blockages, pumping station failure or surcharging in downstream combined sewers. This can be done by checking the ground levels around the likely points that flow would flood from the system to identify flood routes **Please note that Building Regulations Part H Section 2.8 states that "for low-lying sites where the ground levels of the site are lower than the ground level at the point where the drainage connects to the public sewer, care should be taken to ensure properties are not at an increased risk of flooding"**	☐	☐	☐	☐	☐
• Ensure that the adoptable foul network is designed to run at **no more than** 75% of pipe full conditions	☐	☐	☐	☐	☐

Date	**Comment number**	**Engineer comments**	**Designers comments**	**Status**
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Section 4 – Drawings checklists / Technical Appraisal comments

Note: any points marked as 'No' or 'TBC' will require amendments to the drawings.

The Engineer will make comments in the column named 'Engineers comments'. Should these comments ask questions please ensure that you provide response comments (with clarification and or justification) in the adjacent column.

Note: Designer's response comments **must** be given to any Engineer comments for the application to progress to Technical Acceptance.

Section 4a **S104 Agreement Plan** ☐ Submitted ☐ Not yet submitted	**Yes** (Acceptable)	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• Boundary shown in green (and clearly visible). The green boundary must surround all of the works including any 3rd party land owners. Landmarks and road names will also be required. If this cannot be shown on one drawing then a separate location plan must be provided to show the full extent of the development boundary again, including landmarks and road names so the site can be easily identified	☐	☐	☐	☐	☐
• Scaled to fit A1 or A0	☐	☐	☐	☐	☐
• Sewers offered for adoption coloured as follows; (foul – brown, combined – red, surface water – blue and **adoptable** SuDS features - purple)	☐	☐	☐	☐	☐
• Existing sewers, highway drains, culverted watercourses shown in black (not coloured)	☐	☐	☐	☐	☐
• **Easements** o Coloured yellow and dimensioned? – see UU easement local practice	☐	☐	☐	☐	☐
o Provided where sewer runs through third party land?	☐	☐	☐	☐	☐
o Provided for a surface water outfall pipe to watercourse?	☐	☐	☐	☐	☐
• Pipe lengths labelled with the diameter, gradient and pipe material. Note these should also be labelled with the pipe number that corresponds with the hydraulic simulations	☐	☐	☐	☐	☐
• Manholes labelled with cover and invert levels	☐	☐	☐	☐	☐
• Finished floor levels shown for the plots	☐	☐	☐	☐	☐
• Road numbering system clearly visible	☐	☐	☐	☐	☐
• Flow control manholes labelled (flow rate, design head, orifice size, manufacturers information)	☐	☐	☐	☐	☐
• Flow control orifice size in excess of 100mm where the adoptable network is draining impermeable ground/highway(s) via open gullies For further guidance see section C7.12.3	☐	☐	☐	☐	☐

Drawing number:	**Revision**											
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Rev.	**Comment number.**	**Engineers comments**	**Designer's response comments**	**Status**
	1	Please ensure anything with the tick box selected with 'no' or 'TBC' is addressed on the revised drawing(s).		Choose an item.
				Choose an item.
				Choose an item.
				Choose an item.
				Choose an item.
				Choose an item.

Section 4b **A3 Land registry plan** ☐ Submitted ☐ Not yet submitted	**Yes** (Acceptable)	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• A PDF copy of a plan scale as near to 1:1250 as possible at A3 size (or a suitable scale for UU legal)	☐	☐	☐	☐	☐
• North Arrow, Landmarks, coordinates and a minimum of two road names clearly visible	☐	☐	☐	☐	☐
• Outline of the plots visible	☐	☐	☐	☐	☐
• Site boundary shows the full extent of the land edged green. (This green boundary should be closed so that the 'parcel' of land is identifiable)	☐	☐	☐	☐	☐
• Easement strip coloured yellow and dimensioned? – see UU easement local practice	☐	☐	☐	☐	☐
• Sewers coloured as per Sewers for Adoption (foul – brown, combined – red, surface water – blue and **adoptable** SuDS features - purple)	☐	☐	☐	☐	☐
• Ensure the words 'DO NOT SCALE' are **not** contained within the drawing	☐	☐	☐	☐	☐

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				Choose an item.
				Choose an item.
				Choose an item.

For comments made within Section 4c, long sections and 4d – Manhole Schedules/1:20 details, changes are to be made as requested, the designer response comments section should only be used if the requested changes are not feasible. In such instances, sufficient justification should be provided.

Please ensure that anything ticked as 'no' or 'TBC' within the check list has been addressed on all drawings provided with your resubmission.

Section 4c **Long sections** ☐ Submitted ☐ Not yet submitted	**Yes** (Acceptable)	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• Connections made to the adoptable and existing public sewers are shown to be made at soffit to soffit level	☐	☐	☐	☐	☐
• Outfalls to SUDs feature or watercourse clearly shows an acceptable outfall level and free board	☐	☐	☐	☐	☐
• Manholes labelled with the cover and invert levels	☐	☐	☐	☐	☐
• Pipe lengths are labelled with pipe diameters, numbers, materials and gradients	☐	☐	☐	☐	☐
• Pipe bedding detail confirmed for each pipe length	☐	☐	☐	☐	☐
• Adequate cover is provided to the pipes and that concrete protection is indicated where necessary	☐	☐	☐	☐	☐
• The existing and proposed ground levels are shown, with the chainage (linear distance)	☐	☐	☐	☐	☐
• Line of the top water level for the 30 year critical storm indicated for SW sewers & tank sewers	☐	☐	☐	☐	☐
• Pipe crossings are shown to confirm acceptable vertical clearance • Additionally the relative location of other known service crossings shown	☐	☐	☐	☐	☐

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Section 4d **Manhole schedules** ☐ Submitted ☐ Not yet submitted	**Yes** (Acceptable)	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• Manholes referenced and correspond with the drainage layout	☐	☐	☐	☐	☐
• Contributing properties noted for each manhole	☐	☐	☐	☐	☐
• Direction of flow shown	☐	☐	☐	☐	☐
• Depth to soffit displayed	☐	☐	☐	☐	☐
• Manhole diameter noted	☐	☐	☐	☐	☐
• Manhole type noted (as per Design & Construction Guidance – see figure B3)	☐	☐	☐	☐	☐

Section 4d **Bespoke manhole 1:20 details** ☐ Submitted ☐ Not yet submitted	**Yes** (Acceptable)	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• Manholes referenced and correspond with the drainage layout	☐	☐	☐	☐	☐
• Manholes labelled with the cover and invert levels	☐	☐	☐	☐	☐
• Depth to soffit displayed (depth to cut out landing for shallow manholes and depth to invert for flow control manholes)	☐	☐	☐	☐	☐
• Manhole diameter noted	☐	☐	☐	☐	☐
• Manhole type noted (as per UU Standard Construction Details)	☐	☐	☐	☐	☐
• Minimum benching widths dimensioned and achieved	☐	☐	☐	☐	☐
• Direction of flow shown	☐	☐	☐	☐	☐
• Hole size in cover slab noted for each manhole (only applicable when using UU Standard Construction Details)	☐	☐	☐	☐	☐
• Drawings confirm that all lateral connections will be made at soffit level to the main channel	☐	☐	☐	☐	☐
• Use of appropriate rocker pipe lengths confirmed/ reference to variable features on STND/19/010 (if applicable)	☐	☐	☐	☐	☐
• Flow control manholes labelled with manufacturers information, flow rate, design head and orifice size For flow control manholes, please utilise our standard construction detail STND/19/005 as this is **not** included within the Design & Construction Guidance - a plan view and section view should be supplied	☐	☐	☐	☐	☐
• Detail provided for any connections proposed to an existing manhole A detail must be provided to confirm feasibility and ensure there is adequate space to facilitate the additional connection. Where a connection will cause detriment, for example passing through the landing space, a detail should show how this will be upgraded to suit the new connection.	☐	☐	☐	☐	☐

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Rev.	Comment number.	Engineers comments	Designer's response comments	Status
		Please ensure anything with the tick box selected with 'no' or 'TBC' is addressed on the revised drawing		Choose an item.
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Section 4e **Other Drawings** ☐ Submitted ☐ Not yet submitted	**Yes** (Acceptable)	**No**	**TBC**	**N/A**	**(Designer)** Tick to confirm addressed with resubmission
• SW headwalls details For further guidance see figures C1, C2 & C3	☐	☐	☐	☐	☐
• SW headwall access route plan	☐	☐	☐	☐	☐
• Sectional SuDS component drawings	☐	☐	☐	☐	☐
• Construction drawings for attenuation components (in accordance with CIRIA C753)	☐	☐	☐	☐	☐
• Specialist engineering drawing(s) (i.e. zone of influence etc.)	☐	☐	☐	☐	☐
• Specific protection details (if applicable) – i.e. retaining wall / concrete slab details	☐	☐	☐	☐	☐
• Specific manufacturers specification documents (i.e. non-return valves)	☐	☐	☐	☐	☐

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Section 5 – Information required for pumping station submission

Section 5 **Information required**	Yes	No	TBC	N/A	**Designer** Date of submission where information has been provided
• Site location plan - for information only (see S104 review sheet for technical review guidance)	☐	☐	☐	☐	☐
• Drainage layout plan - for information only (see S104 review sheet for technical review guidance)	☐	☐	☐	☐	☐
• Land transfer plan	☐	☐	☐	☐	☐
• Pumping station dimensioned compound layout	☐	☐	☐	☐	☐
• Pumping station wet well sectioned drawing	☐	☐	☐	☐	☐
• Rising main general arrangement and long section	☐	☐	☐	☐	☐
• Tanker vehicle turning circles drawing (if applicable – based on the use of an 8 wheeler tanker as a minimum)	☐	☐	☐	☐	☐
• Risk Assessment / DSEAR zoning diagram (see UU Addendum section D7.2 for guidance)	☐	☐	☐	☐	☐
• Mechanical and electrical design package - typically received from pump supplier	☐	☐	☐	☐	☐
• 1:20 manhole detail for pumping station isolation manhole	☐	☐	☐	☐	☐
• Pumping station flotation calculations	☐	☐	☐	☐	☐
• Any 'Packaged pumping stations' must be in accordance with WIS 4-04-01 or WIS 4-04-02 and fully conform to all requirements of Design & Construction Guidance Appendix C and the UU Addendum	☐	☐	☐	☐	☐

Section 6 – Drawing Checklist and comments

Section 6a **Land transfer plan** ☐ Submitted ☐ Not yet submitted	Yes	No	TBC	N/A	**(Designer)** Addressed with resubmission
• A PDF copy of a plan at a scale of 1:500 at A3 or A4 size (or a suitable scale for UU legal and land registry).	☐	☐	☐	☐	☐
• North Arrow, Landmarks and a minimum of two road names clearly visible.	☐	☐	☐	☐	☐
• Boundary of the compound area to be transferred edged in red.	☐	☐	☐	☐	☐
• Access rights to the compound to be coloured brown.	☐	☐	☐	☐	☐
• Ensure the words 'DO NOT SCALE' are **not** contained within the drawing	☐	☐	☐	☐	☐

Comments

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Rev.	**Engineers comments**	**Designers comments**	**Status**
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			Choose an item.
			Choose an item.
			Choose an item.

Section 6b **Pumping station compound layout** ☐ Submitted ☐ Not yet submitted	Yes	No	TBC	N/A	**(Designer)** Addressed with resubmission
• Compound finished level displayed (set above the 1 in 200 year critical storm water level where required)	☐	☐	☐	☐	☐
• Positions of chambers, kiosk, cable ducts/cables, cable draw pits and bollards clearly shown. Should include DNO and BT cable ducts	☐	☐	☐	☐	☐
• Hardstanding details and fencing specifications clearly shown.	☐	☐	☐	☐	☐
• Access means indicated on plan Access gate shown to open outwards and the width of the gates dimensioned to show that they are in excess of the minimum acceptable gate width of 3.8m	☐	☐	☐	☐	☐
• Check compound layout against guidance set out within 'Design & Construction Guidance' and UU addendum.	☐	☐	☐	☐	☐
• Has adequate access has been provided for tanker/vactor units to enable safe off road parking and turning manoeuvres Based on an 8 wheeler as a minimum	☐	☐	☐	☐	☐
• Minimum distance of wet wells from habitable buildings provided in accordance with 'Design & Construction Guidance' D5.1 (page 75)	☐	☐	☐	☐	☐
• Has sufficient clearance been provided between the pumping station compound and any adjacent structures i.e. retaining walls etc.	☐	☐	☐	☐	☐
• Can the kiosk doors be opened safely with adequate working space provided for maintenance?	☐	☐	☐	☐	☐
• Tanker Hardstanding construction should be 200mm thick reinforced concrete on 500mm type 1 granular sub-base, surrounded by a 125mm kerb upstand	☐	☐	☐	☐	☐
• The tanker hardstanding area drained into the foul system	☐	☐	☐	☐	☐
• For Pumping Stations in a fenced compound, the whole area should be covered with hardstanding. Specification confirmed on the drawing (Blacktop finish to footpath construction specification is considered acceptable)	☐	☐	☐	☐	☐
• Palisade or Paladin fencing 1.8m in height specified	☐	☐	☐	☐	☐
• Inlet manhole c/w isolation penstock shown upstream of the wet well within compound.	☐	☐	☐	☐	☐

Comments

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Section 6c **Pumping station wet well sectioned drawing** ☐ Submitted ☐ Not yet submitted	**Yes**	**No**	**TBC**	**N/A**	**(Designer)** Addressed with resubmission
• Plan and section through wet well and valve chambers indicating cover and invert levels to ordnance datum.	☐	☐	☐	☐	☐
• Alarm levels and top water levels shown on sections.	☐	☐	☐	☐	☐
• Pumps, pipework, pipe fittings and valve arrangements shown on plans and sections.	☐	☐	☐	☐	☐
• Access opening details for wet well and valve chamber.	☐	☐	☐	☐	☐
• Cross check key pumping station information against information within Technical Design Submission document provided by pump supplier i.e. cover level, invert levels, pump start and alarm levels, pumping station diameter etc.	☐	☐	☐	☐	☐
• Is there sufficient space between the assets to undertake maintenance operations?	☐	☐	☐	☐	☐
• Check the pumping station and valve chamber construction materials for compliance i.e. concrete shaft rings, in-situ reinforced concrete, preformed units etc.	☐	☐	☐	☐	☐
• Please provide the contact details for the M&E pump supplier including, name, an email address and telephone number	☐	☐	☐	☐	☐
Wet well • The wet well should be surrounded with no less than 150mm thickness of GEN3 concrete	☐	☐	☐	☐	☐
• Any counter floatation measures detailed on the drawing	☐	☐	☐	☐	☐
• Access - No permanent ladder or steps rungs should be located in the wet well Permanent ladder provided **only** for wet wells **in excess of 6m in depth** – see UU guidance document 'Designing for Safety (60034) section 2.2.3.1	☐	☐	☐	☐	☐
Valve chamber • Manhole cover is required to extend over the entire chamber (full access)	☐	☐	☐	☐	☐
• Encapsulated step irons required, positioned appropriately (how covers and frames open)	☐	☐	☐	☐	☐
• Sump drain required (connected to wet well). The inlet end of the drain pipe in the valve chamber, shall be fitted with a non-return valve.	☐	☐	☐	☐	☐
Inlet manhole • Foul penstock positioned in manhole upstream to the wet well	☐	☐	☐	☐	☐
• Plan and section view required for future maintenance inspections	☐	☐	☐	☐	☐

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Section 6d **Route of proposed rising main** ☐ Submitted ☐ Not yet submitted ***(typically shown on S104 Drainage Layout)***	**Yes**	**No**	**TBC**	**N/A**	**(Designer)** Addressed with resubmission
• Pumping station and new discharge manhole shown on plan	☐	☐	☐	☐	☐
• Route of proposed rising main and S104 sewers shown coloured as per Design & Construction Guidance with any associated easements coloured yellow. (rising main bends to be marked with a marker post 'if practicable')	☐	☐	☐	☐	☐
• Pipe diameter and specification (material, SDR rating and jointing method) shown.	☐	☐	☐	☐	☐
• Thrust block locations indicated on plan.	☐	☐	☐	☐	☐
• Site boundary shown coloured green.	☐	☐	☐	☐	☐
• Cross check the proposed pipe material and specification shown on the plan against the specification within the pump suppliers Technical Design Submission (TDS).	☐	☐	☐	☐	☐
• Check the proposed pipe material and specification for compliance	☐	☐	☐	☐	☐
• Ensure root protection on rising main is considered 'if applicable'	☐	☐	☐	☐	☐

Comments

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Section 6e **Rising main long section** ☐ Submitted ☐ Not yet submitted	**Yes**	**No**	**TBC**	**N/A**	**(Designer)** Addressed with resubmission
• Drawing must show the full section from valve chamber to inlet manhole	☐	☐	☐	☐	☐
• Pumping station and new discharge manhole shown.	☐	☐	☐	☐	☐
• Pipe diameter, gradient and pipe specification (material and SDR rating) shown.	☐	☐	☐	☐	☐
• Locations of air valves, washouts and thrust blocks shown.	☐	☐	☐	☐	☐
• Cover levels, invert levels and chainage shown at regular intervals and at any high/low spots (air valve & washout locations).	☐	☐	☐	☐	☐
• Cross check the proposed pipe material and specification shown on the plan against the specification within the pump suppliers Technical Design Submission (TDS).	☐	☐	☐	☐	☐
• Check that thrust blocks are shown at any changes in direction (if applicable dependant on pipe material).	☐	☐	☐	☐	☐

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Section 6f **1:20 manhole detail for pumping station isolation manhole** ☐ Submitted ☐ Not yet submitted	**Yes**	**No**	**TBC**	**N/A**	**(Designer)** Addressed with resubmission
• Manhole detail provided	☐	☐	☐	☐	☐
• Penstock shown on outlet pipe (non-rising spindle).	☐	☐	☐	☐	☐

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Section 6g **PS Design Package (Inc. Flotation and Storage calculations)** ☐ Submitted ☐ Not yet submitted	**Yes**	**No**	**TBC**	**N/A**	**(Designer)** Addressed with resubmission
Where foul pumping stations are used, check that the design flow rate of the pump satisfies Design & Construction Guidance Part D "The design flow rate of the pump units are at least the maximum of: • Half the peak design flowrate(B5.1.1), and • the flowrate required to achieve the minimum flow velocity in the rising main (D5.3.1)".	☐	☐	☐	☐	☐
• Check that the pumping station data and dimensions shown within pumping station storage and flotation calculations match with the design drawings.	☐	☐	☐	☐	☐
• Check that the pumping station inflow shown within calculations is correct using the guidance set out within 'Design & Construction Guidance' (4000 litres/unit dwelling per 24 hours x number of houses).	☐	☐	☐	☐	☐
• Some pumping station storage calculations utilise upstream sewer pipes for additional storage. In this scenario check that water level does not surpass the invert of the upstream end of the lowest public lateral drain (storage should not be provided in private drainage). See Design & Construction Guidance Part D Section D5.5 for further guidance.	☐	☐	☐	☐	☐
• Review flotation calculations in line with United Utilities guidance note ENG 801 – Anti-flotation Measures	☐	☐	☐	☐	☐

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