

Deputy Steve Luce
Chair
Environment, Housing and Infrastructure Scrutiny Panel
By email

14 June 2023

Dear Deputy Luce,

Thank you for your letter of 31st May regarding the Bridging Island waste Strategy, and please accept my apologies for the delay in responding.

The responses to your questions are attached to this letter.

I note that your advisor might like to meet with relevant officers within the Infrastructure and Environment Department as part of the evidence gathering process for the review, which I would be happy to support.

The Panel's focus on this important matter is very much appreciated.

Yours sincerely,



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Bridging Liquid Waste Strategy (BLWS)

	Q No	Question	Response
Performance	1	What are the outcomes/outputs or performance levels your plan seeks to achieve?	Generate sufficient capacity in the network to address existing issues, allow construction of new housing and be ready for population growth up to 2035 and beyond as identified in the Bridging Island Plan (BIP) and Government Plan.
	2	What measures do you have of current levels of performance?	<p>The Department have an island wide telemetry system which monitors all of the GOJ pumping stations, bringing back data such as, but not limited to:</p> <ol style="list-style-type: none"> 1. Storage sump water levels 2. Pump run times 3. Power usage 4. High level alarms 5. Station spill events 6. Rain gauges <p>This data has three main purposes:</p> <ol style="list-style-type: none"> 1. Providing immediate operational alarms such as pump failures to the maintenance teams. 2. Allowing detailed analysis of the drainage network performance for the maintenance and future design of the drainage network. 3. Supplying asset data for use in GoJ business systems. <p>One of the uses of this data is to inform two of our Departmental KPI's, namely:</p> <ul style="list-style-type: none"> - No spills as a result of a mechanical or electrical failure; and, - Minimise the total number of sewerage asset pollution incidents (Cat. 1-3 incidents) to <10. <p>Protect the Islands bathing water quality (Duration of spills of untreated effluent released to environment (% of total time))</p>

Bridging Liquid Waste Strategy (BLWS)

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2.1	Assets (asset performance/condition/status)	<p>The operational alarms noted above, such as a station spill events, are recorded with very accurate date/time stamps. These enable the department to very clearly determine when a drainage asset has had the design limits exceeded and investigate the cause.</p> <p>At a deeper level, the approximately 28,000 points of data from across the drainage network assets that come back into the system enable the drainage team to analyse the performance of the drainage assets as a whole and identify trends. For example, we can compare how long the pumps run in a station before and after a housing development has been built or how a station copes with 10mm/20mm/30mm of rain on multiple occasions to see if efficiency is changing.</p> <p>This data and information is also passed to the modelling team that maintain the island wide hydraulic model to ensure it is kept up to date.</p> <p>The condition of the pumping station assets has been monitored in the past by standalone surveys of all the stations at 5 – 7 year intervals. The most recent of these surveys took place in 2022. The results are held on spreadsheets and word documents due to the lack of a suitable asset management package within GoJ. JDE does not have the functionality to be able to perform the task. The imminent introduction of the SAP Ariba Asset management package means in the future, the condition of assets will be able to be monitored and recorded as part of the normal maintenance regime.</p> <p>The condition and status of the below ground assets, pipes, access chambers, etc are recorded in the Info Asset software package.</p>
2.2	Service (customer service metrics associated with LWS such as flooding, loss of service, blockages etc)	<p>Complaints are monitored on a customer feedback management system.</p> <p>Service metrics such as flooding etc are recorded in our drainage database Info Asset which is used by all major water companies.</p>

Bridging Liquid Waste Strategy (BLWS)

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2.3	Compliance (compliance with permits such as storm overflows, STW consents, Pass forward flow, pollutions etc)	<p>The telemetry system records pumping station failures and pollution spill events, with this data being used to populate the spreadsheets that are sent to the Regulator to demonstrate compliance with permits.</p> <p>The Department Operations hold two discharge permits (reference DP(B)2000/07/02 and DP(B)2007/04/02 issued under the Water Pollution (Jersey) Law 2000 for all 130 sewerage pumping stations including the Cavern and First Tower. Pumping station issues and spills are reported to the Regulator by Operations and appropriate action is taken. Recent wet winters 2021/22 and flooding events in January 2023 caused multiple spill events at pumping stations, not all of which can be classified as 'storm/emergency effluent' as some are due to ground/surface water ingress or infiltration of the network, made worse by prolonged periods of wet weather resulting in saturated ground. A review of the pumping station discharge permit is proposed.</p> <p>The STW is being rebuilt and commissioned in 2022/2023.</p> <p>Compliance at the STW is measured via both Operator and Regulator monitoring of discharges and recording operational parameters. A new discharge permit application was made and a new permit is being drafted.</p> <p>There has been a history of non-compliance with the STW discharges to St Aubin's Bay, notably for Total Nitrogen and this was one of the key drivers for investing in the new STW.</p>
3	Strategy refers to known issues of lack of capacity - how is this measured/assessed?	<p>Existing lack of capacity can be seen 'in real life' in parts of the network that suffer from flooding and/or require manual interventions to prevent flooding, particularly during heavy rainfall events. (2.2 refers)</p> <p>The root cause of these issues is confirmed using telemetry data and the existing network model. The Department have an ongoing process to manage and update the island-wide network model and this has been used to identify ongoing and future areas of concern since it was first created in 2013.</p> <p>The Island model is also used to quantify the scale of the problem under various scenarios and work through possible solutions before progressing to design. The network model will be used as the basis of all BLWS design development.</p>

Bridging Liquid Waste Strategy (BLWS)

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	4	How is risk reviewed/assessed/reported?	<p>All of the data described in 2 and 3 above is collected with a view to maintaining a list of our Assets ranked based on condition, performance and age. In combination, these criteria are a measure of risk in the network and sets the priorities for the rolling maintenance programme.</p> <p>As noted elsewhere this is held in a number of manually maintained documents and it is hoped that the introduction of SAP will help to centralise and automate the record keeping.</p> <p>Furthermore, the Department are developing a number of Asset Management Plans (similar to those used in the UK) to assist in longer term planning see 5 below.</p>
	4.1	are mitigations recorded and actioned?	Typically the highest priority schemes form the programme for the next 12 months and records are then updated to suit.
Planning	5	What is your prioritisation process?	<p>Prioritisation of projects is based on a number of factors which are often inter-related. Setting aside emergency works associated with the unexpected failure of an asset, key factors affecting prioritisation are:</p> <ul style="list-style-type: none"> - age and condition of an existing asset; - recurring failures or lack of performance; - risk to public (eg flooding); - provision for climate change; - provision for growth; and, - other strategic drivers (Island Plan, Government Plan etc). <p>As noted in the BLWS, the Department have identified and are developing the following Asset Management Plans to inform future programmes of work:</p> <ul style="list-style-type: none"> • Drainage (Network) Asset Management Plan • Pumping Stations Asset Management Plan • Rising Main Criticality Assessment • Telemetry Asset Management Plan
	6	What processes do you use to assess asset serviceability/performance?	Please refer to 2, 3, 4 and 5 above for existing and proposed processes.

Bridging Liquid Waste Strategy (BLWS)

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Design	7	What is your design horizon (time/flow etc) for new assets/capacity?	<p>The original Bellozanne STW design horizon was for 118,000 PE* (population equivalent) in 2035 with provision for further growth of 20% (max 141,000 PE) to occur after 2035. The 2013 models suggested this would be reached between 2035 and 2065 depending on population trends.</p> <p>For modelling purposes, and until Statistics Jersey release their new population models in 2023, the Department are assuming that all of the BIP's proposed housing (7,900 properties by 2030 = approx 18,000 people**) is population growth. In reality this will be a mixture of growth and redistribution of existing population in the short term. This is broadly consistent with the STW design model.</p> <p>The distribution of new properties in the model has been agreed with Planning, sequence/priority of construction discussions are ongoing as noted in 10 and 11 below.</p> <p>* Population Equivalent includes connected resident population; tourists; seasonal workers and visiting friends and relatives; new connections to existing properties; and population growth including new development.</p> <p>** 2021 Census average occupancy of 2.27 per dwelling.</p>

Bridging Liquid Waste Strategy (BLWS)

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8	How is climate change affecting your horizons?	<p>The ongoing (almost complete) Inland Pluvial Climate Change (IPCC) Study will identify how the above- and below-ground drainage facilities will manage the predicted effects of climate change on rainfall and thereby highlight current and future areas of concern.</p> <p>The IPCC Study also incorporates the effects of population increase, particularly as development results in the creation of more hard landscaping.</p> <p>It is anticipated that the Study will highlight the need for:</p> <ul style="list-style-type: none"> - flow attenuation in storage tanks; - a more effective and extended road drainage system; - a heavier reliance on existing coastal surface water pump stations; - potentially the need for additional coastal surface water pump stations; and, - a requirement for extending surface water separation, especially in the Town area to reduce the risk of coastal pollution during rainfall events. <p>The overall consequence of climate change is a requirement for more investment in surface water infrastructure.</p> <p>The IPCC uses design horizons at 2040, 2070 and 2120, with associated uplifts for climate change effects on rainfall. 2120 figures are generally used for design of private systems connected to public sewerage infrastructure.</p>
9	How is demand efficiency affecting your horizons?	<p>We understand that Jersey Water have identified a trend for water demand per head to be reducing although it is not entirely clear if this is partly caused by repairs to leaking pipes.</p> <p>In terms of the flow/volume seen at the Bellozanne STW, a reduction in water use is somewhat offset by population growth. Furthermore, because large parts of the network are combined (ie a mix of foul and surface water), climate change and increasing rainfall mean that falling water usage is difficult to identify with any certainty.</p>

Bridging Liquid Waste Strategy (BLWS)

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Growth	10	Is housing prioritised where capacity exists or is capacity reactive to housing placements?	<p>Housing is currently being prioritised where sites are available, ie the rezoned fields in the BIP. Other housing development is driven by developers with each planning application being assessed under a Drainage Impact Assessment (DIA) as and when received.</p> <p>The rezoned fields themselves are also being prioritised by interest from developers. Temporary solutions are being explored where a developer has expressed interest but the network has insufficient capacity. Temporary solutions tend to be inefficient.</p>
	11	Is there further clarity on housing locations since BLWS written?	<p>The Department's discussions with the Planning Team are ongoing but still fluid as their discussions with third parties develop.</p> <p>The BIP and BLWS expected the early phases of development to be in the north and west of the Island as well as around St Helier. Later development would then follow around Five Oaks and the South and East in general.</p> <p>Currently the interest from developers is focussed on the rezoned fields at St Ouen, St Peter and Maufant. Development around St Helier remains as expected in the BLWS and BIP.</p>
Financials	12	What is the average annual cost for delivering the LWS, broken down by opex and capex	<p>CAPEX averages: £11.1m/year 2024-2030 for Key Infrastructure and Emerging Projects £8.0m/year for 'Business as Usual' investment projects (IRV funded)</p> <p>OPEX £14.45m/year</p>
	13	What is the average annual charge per household for delivering the LWS, broken down by opex and capex	<p>There are no charges direct to residents for liquid waste services. However, based on the 2021 Census : 44,583 occupied dwellings (excl communal establishments), the cost per dwelling can be calculated as:</p> <p>CAPEX £250/dwelling/year for Key Infrastructure and Emerging Projects £180/dwelling/year for 'Business as Usual' investment projects</p> <p>OPEX £229/dwelling/year</p>

Bridging Liquid Waste Strategy (BLWS)

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14	Are infrastructure charges applied for new development?	<p>The Department have an option to charge developers for works required within the network to accommodate their development either in part or full depending on the specific circumstances. The Department can calculate the charge to a developer for connecting surface water to a combined sewer based on the estimated runoff from the site and the cost of processing a cubic metre of liquid waste at Bellozanne STW.</p> <p>Foul connection charges apply to both developers and individual homeowners whether they are connecting a new build or an existing property. This is normally the full cost of any connection works but may be reduced to a fixed fee when it is a first connection to a newly extended sewer and they had previously used a septic tank or similar. The fixed fee will only apply if the connection is made at the time the sewer is installed, connection at a later date will attract the full cost.</p> <p>The Department are reviewing the implications of introducing a more structured 'developer pays' model similar to that used in the UK. Under this model, the charges to the developer are calculated using fixed rates and sums whatever the works required to connect the development.</p>	
15	How is the value of different schemes/strategies assessed? Do you consider other values other than cost, such as social and environmental?	<p>The priority projects will be subject to a review such as Optioneering and/or a Feasibility Study to identify solutions to take forward. As is standard for the SOC/Business Case process, this will include a 'Do nothing/minimum' option.</p> <p>The very nature of a liquid waste project will mean it has aspects of public health, environmental impact, public disruption and sustainability to be considered as a minimum.</p> <p>Example 1, even a simple replacement of pumps in a pumping station is likely to consider a 'spend to save' option whereby a more expensive item may be more efficient.</p> <p>Example 2, a surface water separation project may reduce spills into St Aubins Bay but cause major disruption in the centre of St Helier.</p>	
Other	16	Are there surplus nutrient issues on the island?	<p>The last study of nutrients in St Aubin's Bay and its inlets was for the Bellozanne EIA in 2016 which was based on data collected from 2012 to 2015. At that time it was classified as 'Good' for chemical status and 'Moderate' for ecological status.</p> <p>However, over the course of three years the bay was found to be occasionally 'hyper-nutriented', notably in winter, but this did not translate to a eutrophic condition or classify the bay as a sensitive water.</p>

Bridging Liquid Waste Strategy (BLWS)

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16.1	in receiving water courses?	<p>The 2016 EIA noted that all seven freshwater inlets to the bay (six streams and Bellozanne STW outfall) contained nutrients but these were relatively insignificant compared with nutrient inputs from the wider marine environment outside the bay.</p> <p>Nutrient monitoring has been ongoing by the Department and Environment since 2019/2020.</p> <p>Upon commissioning of the STW in late 2023, the Department and Environment will expand monitoring of the effluent and the bay to assess the long term performance of the works and whether there is any detriment to St Aubins Bay as a whole.</p>
16.2	In the sea	See 16.1
16.3	In water sources?	<p>The Department do not have direct access to Jersey Water's testing data but anticipate that if streams discharging to the bay contain nutrients then it is likely that water sources do.</p> <p>Grands Vaux has had recent issues with pesticides but are now abstracting again. Presumably the source of the pesticides was run off from fields so fertiliser run-off must also be possible.</p>
17	<p>Are landowners (including homeowners/farmers/businesses) incentivised to offer</p> <p>- flood water storage?</p> <p>- nutrient balancing?</p>	<p>No, but they are required when developing sites to deal with their surface water by Sustainable Drainage Systems (SuDS) wherever possible.</p> <p>Existing impounding areas on the Island are within the GoJ land portfolio.</p> <p>Any future land required for impounding areas will be subject to negotiation with the respective landowner. There are provisions within the Drainage Law for compensation for loss of crop or diminution in the value of land should this be required.</p> <p>No.</p>

Bridging Liquid Waste Strategy (BLWS)

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18	What payments are included in the Rural Support Scheme?	Subject to a successful Government Plan 2024-27 bid, it is proposed to introduce a new Rural Support Scheme (RSS) component in the RSS 2024 to provide reward credits for delivery of best practice on liquid waste management by our rural businesses. As an example, this will assist Jersey Dairy in the operation of their treatment facilities to remove fats from their waste to protect the sewer network and sewage treatment facilities.