

CASE STUDY

CLIENT: Wessex Water

Site: Portbury STW

Date: February 2016

Background

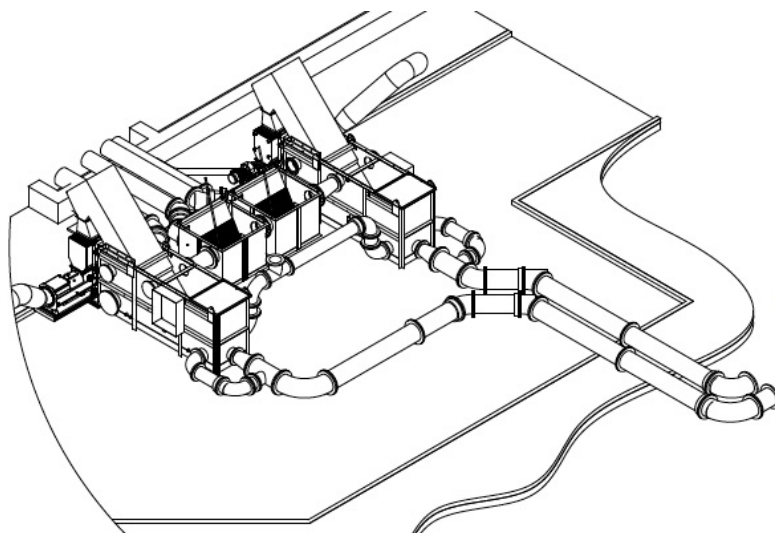
As part of a planned refurbishment programme at their Portbury STW, Wessex Water appointed Nomenca to undertake the removal & replacement of old screening and screenings handling equipment at the Inlet Works. To enable the Inlet Works to maintain operational capacity over the duration of the planned works Nomenca partnered with M&N Electrical & Mechanical Services Ltd's Hire division to provide a packaged plant solution, enabling the work to be carried out on site with no disruption to operational stability during the installation of the new screens.

Challenges

- Minimise impact of hire equipment installation & operation on refurbishment programme
- Equipment to comfortably handle potential flow rates of 550 litres/sec
- NO unscreened sewage discharge was allowable
- Operating costs & environmental responsibilities had to be considered

Implementation

To manage the flow rates imposed by the STW, address the zero unscreened discharge specifications and minimise the impact of temporary equipment on Nomenca's site activities, M&N put a series of options through their SolidWorks modelling platform prior to making their selection. Following rigorous simulation tests & the inclusion of additional bolt-ons to meet the screening criteria, M&N put forward their flexible **Screenings Removal Plant** unit with additional modifications for consideration.



M&N's dedicated SRP 'Packaged Plant' units were designed and manufactured in-house to provide a flexible wastewater screening solution that can be rapidly deployed to site, providing operational stability, with minimal disruption to site infrastructure.

The SRP unit selected for the task comprised a main inlet tank housing an FSM Frankenberger 6mm perforated band screen (*the market leading Screenings Capture Ratio Escalator Screen*), spray bar and self adjusting brush head alongside a Kuhn KWP 400/1200 HD wash press. To ensure Wessex Water's zero discharge specifications against maximum wastewater flows of 550 litres/sec, M&N's hire team designated two SRP 450 units to work in conjunction with each other.

To remove the need for pumps to feed the screening equipment two 450mm exit channels were core drilled at the main inlet chamber. Using gravity to feed the equipment saved Wessex Water money both in terms of additional equipment hire and the need for 'stand alone' power supplies on site.

Each exit channel fed the individual SRP units via dedicated pipework. Manual valves were incorporated at this early stage of the installation infrastructure to enable the on-site team to quickly isolate the flows in the unlikely event of either SRP unit failing.



With both exit channels open throughout the period of the installation the subsequent individual screenings handling created less of a burden on each SRP, significantly reducing energy consumption whilst maximising the quality of handled materials and subsequent liquid passed to the outlet point.

To ensure that Wessex Water's discharge policy was met M&N designed the installation to incorporate the following bespoke additions:

1. The SRP 450's standard bypass flows were capped off.



2. The SRP 450 units were connected via a direct piping link to allow each unit to take up additional flow capacity from the other if required.



3. Each control panel was designed by M&N with telemetry links to immediately alert M&N, Nomenca & Wessex Water personnel by mobile phone in the event of any equipment failures.



4. Pipes connected each SRP 450 to a dedicated handrake tank, acting as a manual backup resource further ensuring no wastewater was bypassed.



To remove the need for generators to be brought to site a power supply was from the existing Motor Control Centre. This was deemed a more environmentally conscious option over the course of the refurbishment programme.

All elements of the functionality of the SRP units were monitored round-the-clock via telemetry by M&N's expert engineers at the company's Portland headquarters. Each control panel was created specifically for the Portbury assignment, constantly monitoring flow & level rates alongside intricate functionality mechanics.

The set up was designed to offer easy access to all elements of the hire equipment, including specially created platforms for the handrake tanks. Nomenca core drilled a 300mm entry channel to

the outlet point so that the SRP 450 outlet pipes could be conveniently sited, ensuring minimal space was taken up by the installation from the main inlet chamber to the outlet point.

From approval of hire equipment specifications by both Wessex Water and Nomenca, M&N engineers were able to have the site installation completed in just 5 days. All equipment was delivered to Portbury using M&N's own transport and lifting equipment and working in collaboration with Nomenca, both parties were able to deliver Wessex Water's requirements without negatively impacting on the operational effectiveness of the Portbury STW.

Results

- Minimal disruption to site refurbishment programme by collaborative approach between M&N and Nomenca
- Zero discharge throughout hire period
- No diesel consumption required to power M&N's hire equipment
- Portbury STW wastewater screening effectiveness unaffected by refurbishment programme

Testimonials

"Two SRP450 Elevator screens have been installed at Portbury STW to enable the existing screens to be replaced as part of a Capital Works Scheme for Wessex Water. M&N Electrical and Mechanical Services Ltd carried out the Supply, Installation and Commissioning of these temporary screens on behalf of Nomenca.

The professionalism and excellent Health & Safety culture of M&N's installation team could not be faulted. The reliability of the units also could not be faulted and callouts over the recent 2-month period have been zero.

I would certainly recommend the use of M&N's Screening Removal Plant units without hesitation on any future schemes"

Dave Shuttleworth, **Project Engineer at Nomenca.**

Ends ...