

## CASE STUDY



## PROJECT SUMMARY

A stormwater upgrade in Queensland required improved management of wet weather overflows and better water quality prior to discharge into downstream wetlands. By replacing traditional screening infrastructure, including a Gross Pollutant Trap, with AWMA's self-cleaning debris exclusion screens, the project team achieved significant capital savings, reduced operational costs, and enhanced environmental outcomes.

Traditional coarse screens are highly susceptible to clogging because of their high intake velocities (typically 1–3 m/s). In contrast, AWMA screens operate at very low approach velocities (<0.1 m/s), which eliminates or significantly reduces the risk of debris blockage. These low velocities also prevent native fish entrainment and impingement, further protecting aquatic habitats.

Early technical collaboration for modern debris exclusion screens enabled the adoption of this streamlined, low-maintenance screening solution that provides continuous debris exclusion, reduces manual cleaning, and improves the quality of flows entering the wetland treatment system.

The installation delivered capital savings as well as annual operational savings. Beyond the financial benefits, the solution reduced the risk of blockages, minimised manual cleaning requirements, and improved the quality of water entering the downstream wetlands, helping protect native fish species and aquatic habitats.

## CLIENT TESTIMONIAL

"The self-cleaning intake screens provided a low-maintenance, cost-effective alternative that exceeded our environmental performance expectations. Their integration allowed us to achieve better water quality outcomes while reducing capital and operational expenditure."

- Project Engineer, Local Water Utility



## PROJECT OBJECTIVES

AWMA were engaged to supply Intake Screens for a Stormwater Sedimentation Basin, providing for an innovative urban water screening solution.

The project aimed to mitigate wet weather flooding and sewer overflows, protect local communities, and enhance the environmental health of the receiving waterway. The broader upgrade combined traditional civil works with nature-based solutions, including a new wet weather pump station, extensive underground pipeline installation, and the creation of a new wetland ecosystem.

The intent of this approach was to reduce uncontrolled overflows, lower public health risks associated with contaminated waterways and provide improved environmental outcomes while delivering measurable cost efficiencies, compared to traditional infrastructure models.

## BACKGROUND & CHALLENGES

The project site was located within a catchment that experienced frequent wet weather flooding and high debris loads during intense rainfall events. The stormwater and sewer networks were under pressure during these conditions, resulting in overflows that posed risks to residential areas, public health, and local ecosystems.

Environmental assessments identified native aquatic species within the receiving waters, requiring a design solution that balanced hydraulic efficiency with ecological protection. The challenge was to deliver reliable stormwater screening without compromising environmental integrity or incurring excessive lifecycle costs.

## SOLUTION DEVELOPMENT & IMPLEMENTATION

Initial design concepts included a Gross Pollutant Trap (GPT) and coarse screens. **Through early collaboration with AWMA, the project team identified a more efficient and sustainable alternative: replacing the coarse screens with self-cleaning intake screens that eliminated the need for a GPT entirely.**

AWMA supplied two electric-driven, self-cleaning intake screens, each with a flow capacity of 46 ML/day. Constructed from 2mm aperture, 316 stainless steel wedge wire, the screens provide fine filtration to prevent debris and aquatic life entrainment. Integrated lifting points allow for easy inspection, while isolation plates enable safe maintenance procedures.

AWMA's design methodology considers the waterway's natural sweeping velocity to minimise debris accumulation at the intake.

The system operates reliably under variable flow conditions, reducing blockages and ensuring continuous operation with minimal operator intervention.

The fine filtration provided by the screens also improved water quality before discharge to the downstream wetlands.

## RETURN ON INVESTMENT

Adoption of AWMA's self-cleaning screening technology eliminated the need for a costly GPT and its associated maintenance, resulting in significant financial and operational savings.

The project achieved approximately **\$150,000 in capital cost reduction and \$7,500 in annual operational savings**. Over time, these efficiencies

will continue to compound, providing lasting value to the community while supporting cleaner waterways and a more resilient stormwater network.

Beyond the financial benefits, the self-cleaning screening system improved overall site performance by reducing blockages and enhancing reliability, particularly during peak storm events. It also improved water quality entering downstream wetlands, supported fish protection outcomes, and helped ensure ongoing environmental compliance. Collectively, these outcomes contributed to an estimated 3–5 year return on investment, with long-term savings continuing to accrue through reduced maintenance demands, fewer site visits, and improved system performance.

## CONCLUSION

This upgrade demonstrates the effectiveness of **AWMA's self-cleaning intake screen technology** in delivering reliable and environmentally responsible stormwater management. The solution provides measurable financial and operational benefits, enhances water quality, and protects sensitive aquatic environments.

Through innovation and collaboration, AWMA delivered a **future-focused, sustainable, low-maintenance system** that reduces flood risk, safeguards the environment, and provides enduring value to both asset owners and the community.

## SUMMARY OF KEY DETAILS

<b>CLIENT:</b>	Local Water Utility	<b>DESIGN FLOW RATE:</b>	46 ML/day
<b>LOCATION:</b>	QLD	<b>SCREEN APERTURE:</b>	2mm aperture
<b>WATER SOURCE:</b>	Creek utilised for Stormwater Management	<b>SCREEN TYPE:</b>	2 off electric-driven, self-cleaning cylinder screens
<b>ENVIRONMENTAL COMPLIANCE:</b>	Fish Screen Guidelines	<b>MATERIAL:</b>	316 stainless steel wedge wire
<b>OPERATIONAL BENEFIT:</b>	\$7,500 in annual savings	<b>MOUNTING ARRANGEMENT:</b>	Wall Mounted with isolation plates
<b>RETURN ON INVESTMENT:</b>	< 3-5 years	<b>RETRIEVAL SYSTEM:</b>	Integrated lifting points for manual retrieval