

## a step towards climate resilience

Originally constructed in the early 1970s, the old Lower Helena Pump Station (LHPS) operated to provide supplementary water to Mundaring Weir for the GAWS.

In it's day, the pump station was used to transfer primarily rain water that flowed into Lower Helena Pipehead Dam during winter up to Mundaring Weir.

In the late 1990s and early 2000s, transfers from the Integrated Water Supply Scheme (IWSS) into the Pipehead Dam were undertaken to further supplement Mundaring Weir.

Now due to climate change, the well known reductions in streamflow saw Water Corporation significantly increase the extent of these IWSS transfers. In some years IWSS transfers from LHPS equated up to 75% of the GAWS annual demand.

In a step towards climate resilience Water Corporation decided to conduct planning and operational reviews of the Lower Helena system with a series of major upgrades identified. One of these major upgrades included the new pump station we see today.

## versatility with the future in mind

What makes LHPS a strong water security asset for the GAWS is its ability to separate untreated Mundaring Weir and Lower Helena Pipehead Dam water from treated IWSS water.

This allows the IWSS to act as a reliable alternate supply of water in the event of difficulties arising with any of the GAWS' reservoir water supply or treatment process.

LHPS can supply treated water directly to pump stations in Mundaring bypassing Mundaring Weir itself.



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## securing our water future lower helena pump station





## no ordinary pump station

After nine years of planning, design and construction, the new Lower Helena Pump Station (LHPS) is complete at a cost of \$45 million.

Replacing the old pump station, it is one of the largest and most functionally sophisticated of its kind.

Designed to service 100,000 people from Mundaring to Kalgoorlie, it can pump up to 240 million litres of water per day.

That is equivalent to 100 Olympic swimming pools pumped daily into the iconic Mundaring Weir and Golden Pipeline.

Thanks to this asset the Goldfields and Agricultural Water Supply Scheme (GAWS) has the improved capability of accessing water not only from Mundaring Weir, but also from other sources around Perth, such as desalination plants and other dams.

As part of a highly complex system it is the versatility and independence of LHPS that makes it an important asset.

LHPS can now supply 100% of the GAWS water requirements if necessary. It can do this by bypassing or working in conjunction with existing assets, and the future water treatment plant and pump station in Mundaring.

## new endeavour for the GAWS

LHPS is a new endeavour for the Water Corporation in regards to complex water transfer systems.

Behind the intelligent design and independent capabilities are years of careful decision making and efficient engineering.

It is currently the only pump station linking the GAWS with the IWSS (integrated water supply scheme).

Skilful and proactive construction engineering took place to overcome significant on-ground challenges.

In addition, in-depth hydraulic systems engineering was needed to provide the pump station's requirements for design, commissioning and operation.

Our in-house teams from Asset Management, Operational Modelling and Infrastructure Design will continue to develop the LHPS system until the Mundaring water treatment plant is completed in 2013.

## conquering construction challenges

The design and construction challenges that naturally came with this unique undertaking engaged the effective utilisation of internal experience with the Project Management Branch and Engineering Construction Services Branch (ECSB).

Together they collaborated in conjunction with external alliances who provided critical, flexible assistance. The result was the successful completion of a complex pump station with a focus on Zero Harm.

The restrictive and difficult nature of the site made it a challenge for staff to access and maintain the existing pumping operations. ECSB facilitated this access with no LTI (lost time injuries) and offered proactive construction solutions throughout the project.

One such solution meant modifications to the original LHPS design resulting in significant improvements to safety and efficiency, also saving many hundreds of thousands of dollars. Reduced operating and maintenance costs will continue into the future.