



# REPORT

# CABONNE SHIRE COUNCIL

# TOWN POOLS UPGRADES



**FACILITY**  
**DESIGN GROUP**  
Architecture & Construction

## Company Details

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## Project Details

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Description: Town Pools Upgrades Report

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Project Lead: Stephen Johansson

Signature:



Facility Design Group is a dynamic firm made up of talented architects, design professionals, and experienced industry professionals whose collective experience is measured in centuries.

The firm specialises in the design of aquatic, sporting, & community facilities of all sizes. We trust the following report serves Council well in furthering its aspirations to improve its aquatic facilities for its residents to enjoy and promote a healthy, inclusive lifestyle.

A handwritten signature in black ink, appearing to read 'S. Johansson', followed by a period.

Stephen Johansson  
Managing Director, Principle Architect  
NSW Nominated Architect Reg No. 7168



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# Executive Summary

Facility Design Group was commissioned by Cabonne Shire Council to undertake site inspections and reporting on seven of their town pools. The purpose of the reporting is to provide guidance for the assembly of a scope of works to be included in the tender documents for upgrade to all seven pools.

The aim of the suggested upgrades is to contain the works to all seven pools within the grant allocation money obtained by Cabonne Shire Council. Previous reporting to council has scope requirements and costs well outside the budget limitations of this grant. A pragmatic approach is required to realise sharing of the grant funding across all seven town pools.

## The Brief

The intent of the upgrades to all seven pools is to provide the following –

1. Emphasis on plant room/pool upgrades to ensure filtration function and a move towards compliance into the future.
2. Ensure a safe work place for pool operators – this will include electrical upgrades to ensure compliance and above all safety as most of the pools operate with old and non compliant electrical boards. Chemical delivery and installations need assessment to determine the most efficient and functional methods and if change is required.
3. Assess and identify cost effective solutions to move towards Ministry of Health requirements as best as possible – noting that all seven pools have low bather loads generally.
4. Where possible duplicate equipment throughout all seven aquatic facilities to provide uniformity/familiarity to council operators. This will also provide efficiencies in maintenance/spare parts by specialist firms as required – e.g. Prominent dosing equipment.

## Strategy for Recommendations

Of the seven town pools – only one at Canowindra has undertaken a modernisation upgrade - some 10 years ago. The remaining six pools are in original format.

All of the seven town pools have small bather loads compared to typical NSW city pools. This deserves sensible consideration when applying Ministry of Health guidelines to water turn over and filtration capacity - given these parameters are written to accommodate high use NSW city pools.

**Disinfection of pools** is another area of consideration for both status quo and change due to WHS issues and consistency. Canowindra, Cudal, Eugowra & Manildra are all currently liquid Sodium Hypochloride - The tanker fill station requirements are non-compliant at Canowindra, Cudal, Eugowra & Manildra. Construction and bunding and proper drainage installation would be costly especially on sloping sites. The economic solution is to replace all four pools with dry granulated chlorine feeders – noting Canowindra was originally Calcium Hypochlorite. The use of Sulphuric Acid should be discontinued & replaced with Sodium Bisulphate or Dry Acid. The dry acid is added to a 250L mixing tank & provides an OH&S advantage.

Molong, Cumnock & Yeoval are all chlorine gas disinfection systems. This gas is considered quite dangerous – however the installations at these three pools is considered to be well installed and maintained.

## Staging

The works are to be staged as follows;

### Stage 1

- Canowindra
- Cumnock
- Molong
- Yeoval

### Stage 2

- Cudal
- Eugowra
- Manildra

# Swimming Pool Inspection Reports

29.01.2024 - 30.01.2024



# Stage 1 - Canowindra Pool

The Canowindra pool underwent redevelopment in 2013/2014. The pool plants were upgraded to UFF filtration & calcium hypochlorite chlorination to both pools. As the plants approach 10 years of operation, critical maintenance is required to ensure continued operation & chemical treatment. The dry chlorine feeders have been removed & a temporary liquid hypochlorite system installed. Plant Operation - there are several plant mechanical issues that require attention at Canowindra.

## **Existing Filtration.**

The Neptune Benson filters will be retained and will have improved performance from the new balanced flow pumps.

## **Existing Pumps**

The existing pumps are high energy low performance units, we recommend upgrade to suit filter flow requirements with variable speed drives. The pumps should be manufactured in stainless steel to improve reliability/longevity.

## **Filtration Plumbing & Valves.**

A full service is required on all butterfly & wafer check valves. Replace all faulty butterfly valves with newer type heavy duty valves. Install new butterfly valves on pump inlets to assist priming hair & lint strainers. This can be carried out during pump replacement on both pool plants.

## **Chemical Controllers.**

Retain existing system for both pools. Install dry acid system to replace sulphuric acid system. Install new Procal Dry Chlorine feeders to main & toddler pools. This will allow for the temporary non-compliant liquid chlorine system to be removed.

## **Electrical.**

The current plant when in operation, is overheating the circuits. The cause is likely to be the inefficient filter pumps which are operating at maximum Amps continuously. The switchboard should be tested with an Electrical Thermographer & report provided. This process should be carried out before new pump selection to determine maximum Amps allowed. VSD installation is recommended on all new pumps.

## **General Plant Operation.**

The Canowindra Pool water quality was poor on the day of inspection. The water testing regime should be checked for accuracy. Plant room to be kept tidy. Remove used containers. The existing Neptune Bensen UFF filters are operational & are being operated satisfactorily by pool staff. General performance will improve with the new pumps.



# Stage 1 - Cumnock Pool

## **Filtration.**

The Cumnock pool utilises two cylindrical gravity sand filters. The filter tanks are of concrete pipe construction.

The pipes are at the end of their useful life & display leakage from several cracks. The filter cells require demolition & new fiberglass tanks installed to the slab area – ensure slab condition/repair after demolition of existing cells. The plant cast iron plumbing & valves will be replaced with PVC products. The life of the filtration will be extended for 20-30 years. Improved plant management will be a benefit to operations. It is recommended that a skillion roof structure be provided over new fibreglass filters to protect from UV radiation/weathering.

## **Pumps.**

The existing filter pump & strainer will be replaced with latest technology units. This will ensure reduced energy & ease of cleaning. The VSD will provide flow matched pump operation which can vary with pool loads.

Chlorine Gas Injector Pump - The chlorine gas injector pump should be serviced to ensure continued dosing of chlorine gas.

## **Water Treatment.**

The Cumnock pool has a chlorine gas chlorination system. Chlorine gas produces better sterilization & quality water condition. Whilst the chlorine gas is seen as a dangerous product with various OH&S issues, we are confident that the use at Cumnock is well managed by the pool operator & Cabonne Shire Council town water personnel. There is no point in upgrading this system, as long as pool staff are provided with continuous training management.

## **Wading Pool.**

The brief calls for lowering the water level to 300mm. This can be achieved with the installation of a wet deck weir wall. This will allow water flow over the wet deck & skimming the pool surface. The wet deck gutter will feed to a precast concrete balance tank. The separate new filtration & water treatment system will draw from the new balance tank, automatic water make up is required to be installed to comply with NSW Health Dept advisory.

## **Electrical.**

The electrics require upgrading with modern switching & plant monitoring systems. The new switchboard will provide a single point visual operation of plant operations.

# Stage 1 - Molong Pool

## **Filtration.**

The gravity sand filter is currently sufficient for the Molong Pool. The plant cast iron plumbing & valves are redundant & require full replacement with non-corrosive PVC products. The filter cells should be updated with new lateral underdrains, to accept improved flow from the new plumbing. The filtration operation will improve 20 to 30% increased flow with the filter conversion. Life of the filter will be extended by 20-30 years.

## **Pumps.**

The existing filter pump & strainer will be replaced with latest technology units. This will ensure reduced energy & ease of cleaning. The VSD will provide flow matched pump operation which can vary with pool loads.

## **Air Sparge Blower Unit.**

The old technology air blower unit is rated at over 85dB noise level. This unit will be replaced by a modern technology turbo fan. The new air sparge system will produce 100% positive filter backwashing with minimal backwash water.

## **Chlorine Gas Injector Pump.**

The chlorine gas injector pump should be serviced to ensure continued dosing of chlorine gas.

## **Water Treatment.**

The Molong pool utilises chlorine gas chlorination system. Chlorine gas produces better sterilization & quality water conditioning. Whilst the chlorine gas is seen as a dangerous product with various OH&S issues, we are confident that the Molong Pool installation is well managed by the pool operator & Cabonne Shire town water personnel. There is no point in upgrading this system, as long as pool staff are provided with continuous training & management.

## **Electrical.**

The electrics require upgrading with modern switching & plant monitoring systems. The new switchboard will provide a single point visual operation of plant. The new board would also provide a video screen to monitor the filter cells during backwash. Eliminating an OH&S problem with the need to view the cells by a ladder. Flood levels will be instrumental in the installation & wiring of new equipment.

# Stage 1 - Yeoval Pool

## **Filtration.**

The Yeoval pool utilises two cylindrical gravity sand filters. The filter tanks are of concrete pipe construction.

The pipes are at the end of their useful life & display leakage from several cracks. The filter cells require demolition & new fiberglass tanks installed. The plant cast iron plumbing & valves will be replaced with PVC products. The life of the filtration will be extended for 20-30 years. Improved plant management will be a benefit to operations. It is recommended that a skillion roof structure be provided over new fibreglass filters to protect from UV radiation/weathering.

## **Pumps.**

The existing filter pump & strainer will be replaced with latest technology units. This will ensure reduced energy & ease of cleaning. The VSD will provide flow matched pump operation which can vary with pool loads.

## **Chlorine Gas Injector Pump.**

The chlorine gas injector pump should be serviced to ensure continued dosing of chlorine gas.

## **Water Treatment.**

The Yeoval pool has a chlorine gas chlorination system. Chlorine gas produces better sterilization & quality water condition. Whilst the chlorine gas is seen as a dangerous product with various OH&S issues, we are confident that the use at Yeoval is well managed by the pool operator & Cabonne Shire town water personnel. There is no point in upgrading this system, as long as pool staff are provided with continuous training management.

## **Wading Pool.**

The brief calls for lowering the water level to 300mm. This can be achieved with the installation of a wet deck weir wall. This will allow water flow over the wet deck & skimming the pool surface. The wet deck gutter will feed to a precast concrete balance tank. The separate new filtration & water treatment system will draw from the new balance tank, automatic water make up is required to be installed to comply with NSW Health Dept advisory.

## **Electrical.**

The electrics require upgrading with modern switching & plant monitoring systems. The new switchboard will provide a single point visual operation of plant operations.

## Stage 2 - Cudal Pool

Cudal pool is similar design to Eugowra pool. The Cudal pool requires works in the following areas.

### **Filtration.**

The pools are filtered by four P30 (30inch Dia) poly tank sand filters. The designed flow rate is 20L/S 1232L/M 73,800L/H. These flow rates are adequate for the usage rates of this pool in our opinion. Flow rates to the main pool would improve with the separation of the wading pool. The plumbing connections require alteration to improve flow.

Temporary flex hose to be removed. Filter backwash valves require service & removal of restrictive plumbing to allow simplified and more efficient flow.

### **Pumps.**

The four semi commercial plastic pumps are inefficiently plumbed. The restrictive connections prevent positive flow. The existing pumps have variable speed motors that are adjusted by pool staff. These are operating satisfactorily & could perform better with unrestricted plumbing flow.

### **Water Treatment.**

The existing Prominent system is in good operational condition & is serviced annually. The pool staff appear to be operating the system correctly with the quality of the pool water & test results. The replacement of the liquid acid system with a dry acid system will protect the building fabric & improve OH&S exposure.

### **Wading Pool.**

The brief calls for lowering the water level to 300mm. This can be achieved with the installation of a wet deck weir wall. This will allow water flow over the wet deck & skimming the pool surface. The wet deck gutter will feed to a precast balance tank. The new filtration system will draw from the tank, automatic water make up is required to be installed in the balance tank, to comply with NSW Health Dept Advisory.

### **Electrical.**

The pool filtration is connected to a power box & is controlled by time clock. The pumps are switched individually at power point outlets. The same applies to the water treatment controller. An electrical inspection by an approved **Aquatic Electrician** is required to determine compliance of current codes. A general upgrade is recommended during the wading pool filtration installation. New pump installation to include VS connection to Intelliflo communication unit to synchronize flow.

## Stage 2 - Eugowra Pool

### Filtration.

The pools are filtered by four P30 (30 inch) poly tank sand filters. The designed flow rate of 20L/s 1232L/M 73,800L/H. Performance of the filters is compromised by the plumbing layout & would improve with simplified plumbing upgrade. A filter sand change would also improve performance. Operational pressures would be reduced with plumbing upgrade & filter sand change thus prolonging filter tank life.

### Pumps.

The existing four plastic semi commercial pumps are inefficiently plumbed. Pump suction & outlet pipes have restricted flow due to the complexity of bends etc. Remove inefficient connections & manifold pumps for improved performance. Select pumps with operational energy benefits. Pentair Intelliflo VS pumps are suggested.

### Water Treatment.

Existing Prominent water treatment is maintaining pool water quality & should be retained with pool staff refresher courses at Prominent service times.

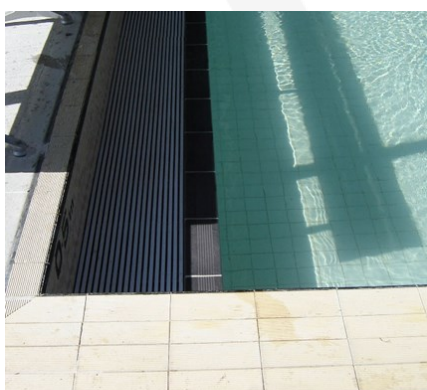
The use of liquid acid is non-compliant, dry acid would be less damaging to the building fabric & would be OH&S compliant.

Sodium hypochlorite (liquid chlorine) is stored in a 3000L tank located in a service delivery area. The tanker station upgrade requirements would be more expensive than converting to calcium hypochlorite feeders & provides an OH&S compliant system.

### Compliance of Wading Pool.

The brief calls for lowering the water level to 300mm. This can be achieved with the installation of a wet deck weir wall. This will allow water flow over the wet deck & skimming the pool surface. The wet deck gutter will feed to a precast balance tank. The new filtration system will draw from the tank, automatic water make up is required to be installed in the balance tank, to comply with NSW Health Dept Advisory.

**This item of additional scope will add pressure on the budget – needs consideration.** The following photograph shows a similar installation at Mudgee.



Wet Deck Trench installed at Mudgee Council Pool.

### Electrical.

The pool filtration is connected to a power box and is controlled by time clock. The pumps are switched individually at power point outlets. The same applies to the water treatment controller. An electrical inspection by an approved Aquatic Electrician is required to determine compliance of current codes. A general upgrade is recommended during the upgrade works. New pump installation to include VS connection to Intelliflo communication unit to synchronize flow.

## Stage 2 - Manildra Pool

### **Filtration.**

Manildra pool has four poly tank sand filters, two units are located in separate plant rooms. The filters have issues associated with age & will require replacement in the near future. All the filter tanks require maintenance.

### **Pumps.**

The existing pool pumps are semi commercial plastic units. The reliability of these pumps & energy efficiency is questionable. Replace all pumps with intelliflo variable speed units. The new pumps will enable flow adjustment to suit filter & pool demand.

Energy efficiency will improve with unrestricted connections to pumps & filters.

### **Water Treatment.**

The existing Prominent system is in good operational condition & is serviced annually. The pool staff appear to be operating the system correctly with the quality of the pool water & test results. The replacement of the liquid acid system with a dry acid system will protect the building fabric & improve OH&S exposure.

### **Wading Pool.**

The brief calls for lowering the water level to 300mm. This can be achieved with the installation of a wet deck weir wall. This will allow water flow over the wet deck & skimming the pool surface. The wet deck gutter will feed to a precast balance tank. The new filtration system will draw from the tank, automatic water make up is required to be installed in the balance tank, to comply with NSW Health Dept Advisory

### **Electrical.**

The pool filtration is connected to a power box & is controlled by time clock. The pumps are switched individually at power point outlets. The same applies to the water treatment controller. An electrical inspection by an approved Aquatic Electrician is required to determine compliance of current codes. A general upgrade is recommended during the upgrade works. New pump installation to include VS connection to Intelliflo communication unit to synchronize flow.

## In Conclusion

This report provides our opinion of the critical items that require attention in each of the seven pools. While not recommending full compliance to NSW Ministry of Health requirements, we are very cognisant of the financial restrictions of this stage of works across all seven town pools.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S. Johansson', followed by a period.

Stephen Johansson

Managing Director, Principle Architect, NSW Nominated Architect Reg No. 7168



# APPENDIX





<b>Stage</b>	<b>Cabonne Council Budgets - Aquatic Works</b>	<b>Price + GST</b>
Stage 1	Canowindra	
	Cumnock	
	Molong	
	Yeoval	
Stage 2	Cudal	
	Eugowra	
	Manildra	
	<b>Budget Grand Total Exc. GST</b>	

<b>Stage</b>	<b>Options</b>	<b>Price + GST</b>
Stage 1	Option - Cumnock	
	Option - Yeoval	
	<b>Budget Grand Total Exc. GST</b>	

## Stage 1 - Canowindra

### Pool Filtration & Water Treatment Budget Item Break Up

DESCRIPTION	No. Off	PRICE AUD\$ (ex GST)
<b>MAIN POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pumps & VSDs - Pentair Intelliflo Pumps - 4 OFF	4	
Foot valves - N/A	1	
Service Existing Filters	4	
Electrical wiring to Equipment	1	
Chemical Controller - Reinstate Existing	1	
Dry Chlorine System	1	
Dry Acid Dosing System	1	
Water Make Up System	1	
Pool Shell Works - Disconnect Wading Pool	1	
	<b>SUB-TOTAL</b>	
<b>WADING POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pump & VSD	1	
Foot valve	1	
New Sand Filter 800mm Dia.	1	
Electrical wiring	1	
Chemical Controller	1	
Dry Chlorine System	1	
Dry Acid Dosing System	1	
Water Make Up System	1	
Balance Tank Works - 4,000L - N/A	0	
Pool Shell Works	1	
	<b>SUB-TOTAL</b>	
<b>COMMON ITEMS</b>		
Preliminaries, establishment etc,	1	
Workshop Schematic drawings	1	
O & M Manuals	1	
Client training	1	
Plant cleaning, painting, labelling etc - N/A	0	
Chemical Supplies at Handover (100kg of Calcium Hypochlorite, 50kg of Sodium Bisulphate)	1	
Switchboard, field wiring, equipment equipotential bonding	1	
Dry Acid System - 250L tank c/w motorised mixer & bund	1	
Safety Shower/Eyewash - N/A	0	
Twelve-month routine maintenance	1	
	<b>SUB-TOTAL</b>	
	<b>TOTAL</b>	
	<b>(EXCL. GST)</b>	

## Stage 1 - Cumnock

### Pool Filtration & Water Treatment Budget Item Break Up

DESCRIPTION	No. Off	PRICE AUD\$ (ex GST)
<b>MAIN POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	0	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pump & VSD - Stainless Steel Construction Pentair 100x65-200 5.5kW - 1 OFF	1	
Foot valve only	1	
Demolish Existing Gravity Filter and remove from site - New 1,800mm dia sand filters with sand, header pipe work	1	
Electrical wiring to Equipment	1	
Chemical Controller - Reinstate Existing	1	
Dry Chlorine System - N/A	0	
Reinstate Dry Acid Dosing System - N/A	0	
Water Make Up System	1	
Pool Shell Works - N/A	0	
	<b>SUB-TOTAL</b>	
<b>WADING POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	0	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header - N/A	0	
Filtration pump & VSD - N/A	0	
Foot valve - N/A	0	
New Sand Filter 800mm Dia. - N/A	0	
Electrical wiring - N/A	0	
Chemical Controller - N/A	0	
Dry Chlorine System - N/A	0	
Dry Acid Dosing System - N/A	0	
Water Make Up System - N/A	0	
Balance Tank Works - 4,000L - N/A	0	
Pool Shell Works - N/A	0	
	<b>SUB-TOTAL</b>	
<b>COMMON ITEMS</b>		
Preliminaries, establishment etc,	1	
Workshop Schematic drawings	1	
O & M Manuals	1	
Client training	1	
Plant cleaning, painting, labelling etc	1	
Chemical Supplies at Handover (50kg of Sodium Bicarbonate)	1	
Switchboard, field wiring, equipment equipotential bonding	1	
Dry Acid System - 250L tank c/w motorised mixer & bund - N/A	0	
Safety Shower/Eyewash - N/A	0	
Twelve-month routine maintenance	1	
	<b>SUB-TOTAL</b>	
	<b>TOTAL (EXCL. GST)</b>	

<b>Option</b>	<b>No. Off</b>	<b>PRICE AUD\$ (ex GST)</b>
<b>Wetdeck Grating</b>		
Provide Waterzone wetdeck grating to the main pool	50	
Cut existing scum gutter to suit both sides	100	
Provide Waterzone wetdeck grating to the wading pool	28	
Cut existing scum gutter to suit both sides	56	
	<b>SUB-TOTAL</b>	
<b>Option</b>	<b>No. Off</b>	<b>PRICE AUD\$ (ex GST)</b>
<b>Separate Pool Plant for Wading Pool</b>		
New pool filtration plant to meet NSW Health for Wading Pool with sand filter and dry chlorine feeder and acid for pH control	1	
New Plant Room with Cliplock walls and roof including Floor Slab	1	
Alter pool shell pipe work	1	
New Balance Tank	1	
	<b>SUB-TOTAL</b>	

## Stage 1 - Molong

### Pool Filtration & Water Treatment Budget Item Break Up

DESCRIPTION	No. Off	PRICE AUD\$ (ex GST)
<b>MAIN POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pump & VSD - Stainless Steel Construction Pentair 125x100-200 7.5kW - 1 OFF	1	
Foot valve & Pump strainer	1	
Existing Gravity Filter - New concrete floor, epoxy coating, laterals, sand, core holes, 5.5kW air scourer and pvc pipe reticulation	1	
Electrical wiring to Equipment	1	
Chemical Controller - Reinstate Existing	1	
Dry Chlorine System - N/A	0	
Reinstate Dry Acid Dosing System - N/A	0	
Water Make Up System	1	
Pool Shell Works - N/A	0	
	<b>SUB-TOTAL</b>	
<b>WADING POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	0	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header - N/A	0	
Filtration pump & VSD - N/A	0	
Foot valve - N/A	0	
New Sand Filter 800mm Dia. - N/A	0	
Electrical wiring - N/A	0	
Chemical Controller - N/A	0	
Dry Chlorine System - N/A	0	
Dry Acid Dosing System - N/A	0	
Water Make Up System - N/A	0	
Balance Tank Works - 4,000L - N/A	0	
Pool Shell Works - N/A	0	
	<b>SUB-TOTAL</b>	
<b>COMMON ITEMS</b>		
Preliminaries, establishment etc,	1	
Workshop Schematic drawings	1	
O & M Manuals	1	
Client training	1	
Plant cleaning, painting, labelling etc	1	
Chemical Supplies at Handover (50kg of Sodium Bicarbonate)	1	
Switchboard, field wiring, equipment equipotential bonding	1	
Dry Acid System - 250L tank c/w motorised mixer & bund - N/A	0	
Safety Shower/Eyewash - N/A	0	
Twelve-month routine maintenance	1	
	<b>SUB-TOTAL</b>	
	<b>TOTAL (EXCL. GST)</b>	

## Stage 1 - Yeoval

### Pool Filtration & Water Treatment Budget Item Break Up

DESCRIPTION	No. Off	PRICE AUD\$ (ex GST)
<b>MAIN POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	0	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pump & VSD - Stainless Steel Construction Pentair 125x100-200 7.5kW - 1 OFF	1	
Foot valve only	1	
Demolish Existing Gravity Filter and remove from site - New 1,800mm dia sand filters with sand, header pipe work	1	
Electrical wiring to Equipment	1	
Chemical Controller - Reinstate Existing	1	
Dry Chlorine System - N/A	0	
Reinstate Dry Acid Dosing System - N/A	0	
Water Make Up System	1	
Pool Shell Works - N/A	0	
	<b>SUB-TOTAL</b>	
<b>WADING POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	0	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header - N/A	0	
Filtration pump & VSD - N/A	0	
Foot valve - N/A	0	
New Sand Filter 800mm Dia. - N/A	0	
Electrical wiring - N/A	0	
Chemical Controller - N/A	0	
Dry Chlorine System - N/A	0	
Dry Acid Dosing System - N/A	0	
Water Make Up System - N/A	0	
Balance Tank Works - 4,000L - N/A	0	
Pool Shell Works - N/A	0	
	<b>SUB-TOTAL</b>	
<b>COMMON ITEMS</b>		
Preliminaries, establishment etc,	1	
Workshop Schematic drawings	1	
O & M Manuals	1	
Client training	1	
Plant cleaning, painting, labelling etc	1	
Chemical Supplies at Handover (50kg of Sodium Bicarbonate)	1	
Switchboard, field wiring, equipment equipotential bonding	1	
Dry Acid System - 250L tank c/w motorised mixer & bund - N/A	0	
Safety Shower/Eyewash - N/A	0	
Twelve-month routine maintenance	1	
	<b>SUB-TOTAL</b>	
	<b>TOTAL</b>	
	<b>(EXCL. GST)</b>	

<b>Option</b>	<b>No. Off</b>	<b>PRICE AUD\$ (ex GST)</b>
<b>Wetdeck Grating</b>		
Provide Waterzone wetdeck grating to the main pool	50	
Cut existing scum gutter to suit both sides	100	
Provide Waterzone wetdeck grating to the wading pool	28	
Cut existing scum gutter to suit both sides	56	
	<b>SUB-TOTAL</b>	
<b>Option</b>	<b>No. Off</b>	<b>PRICE AUD\$ (ex GST)</b>
<b>Separate Pool Plant for Wading Pool</b>		
New pool filtration plant to meet NSW Health for Wading Pool with sand filter and dry chlorine feeder and acid for pH control	1	
New Plant Room with Cliplock walls and roof including Floor Slab	1	
Alter pool shell pipe work	1	
New Balance Tank	1	
	<b>SUB-TOTAL</b>	

## **Stage 2 - Cudal**

### **Pool Filtration & Water Treatment Budget Price Break Up**

<b>DESCRIPTION</b>	<b>No. Off</b>	<b>PRICE AUD\$ (ex GST)</b>
<b>MAIN POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pumps & VSDs - Pentair Intelliflo Pumps - 4 OFF	4	
Foot valves - N/A	1	
Service Existing Filters	4	
Electrical wiring to Equipment	1	
Chemical Controller - Reinstate Existing	1	
Dry Chlorine System	1	
Dry Acid Dosing System	1	
Water Make Up System	1	
Pool Shell Works - Disconnect Wading Pool	1	
	<b>SUB-TOTAL</b>	
<b>WADING POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pump & VSD	1	
Foot valve	1	
New Sand Filter 800mm Dia.	1	
Electrical wiring	1	
Chemical Controller	1	
Dry Chlorine System	1	
Dry Acid Dosing System	1	
Water Make Up System	1	
Balance Tank Works - 4,000L	1	
Pool Shell Works	1	
	<b>SUB-TOTAL</b>	
<b>COMMON ITEMS</b>		
Preliminaries, establishment etc,	1	
Workshop Schematic drawings	1	
O & M Manuals	1	
Client training	1	
Plant cleaning, painting, labelling etc - N/A	0	
Chemical Supplies at Handover (100kg of Calcium Hypochlorite, 50kg of Sodium Bisulphate)	1	
Switchboard, field wiring, equipment equipotential bonding	1	
Dry Acid System - 250L tank c/w motorised mixer & bund	1	
Safety Shower/Eyewash - N/A	0	
Twelve-month routine maintenance	1	
	<b>SUB-TOTAL</b>	
	<b>TOTAL</b>	
	<b>(EXCL. GST)</b>	



## Stage 2 - Eugowra

### Pool Filtration & Water Treatment Budget Item Break Up

DESCRIPTION	No. Off	PRICE AUD\$ (ex GST)
<b>MAIN POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pumps & VSDs - Pentair Intelliflo Pumps - 4 OFF	4	
Foot valves - N/A	1	
Service Existing Filters	4	
Electrical wiring to Equipment	1	
Chemical Controller - Reinstate Existing	1	
Dry Chlorine System	1	
Dry Acid Dosing System	1	
Water Make Up System	1	
Pool Shell Works - Disconnect Wading Pool	1	
	<b>SUB-TOTAL</b>	
<b>WADING POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pump & VSD	1	
Foot valve	1	
New Sand Filter 800mm Dia.	1	
Electrical wiring	1	
Chemical Controller	1	
Dry Chlorine System	1	
Dry Acid Dosing System	1	
Water Make Up System	1	
Balance Tank Works - 4,000L	1	
Pool Shell Works	1	
	<b>SUB-TOTAL</b>	
<b>COMMON ITEMS</b>		
Preliminaries, establishment etc,	1	
Workshop Schematic drawings	1	
O & M Manuals	1	
Client training	1	
Plant cleaning, painting, labelling etc - N/A	0	
Chemical Supplies at Handover (100kg of Calcium Hypochlorite, 50kg of Sodium Bisulphate)	1	
Switchboard, field wiring, equipment equipotential bonding	1	
Dry Acid System - 250L tank c/w motorised mixer & bund	1	
Safety Shower/Eyewash - N/A	0	
Twelve-month routine maintenance	1	
	<b>SUB-TOTAL</b>	
	<b>TOTAL</b>	
	<b>(EXCL. GST)</b>	

## **Stage 2 - Manildra**

### **Pool Filtration & Water Treatment Budget Item Break Up**

<b>DESCRIPTION</b>	<b>No. Off</b>	<b>PRICE AUD\$ (ex GST)</b>
<b>MAIN POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings - N/A	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pumps & VSDs - Pentair Intelliflo Pumps - 4 OFF	4	
Foot valves - N/A	1	
Service Existing Filters	4	
Electrical wiring to Equipment	1	
Chemical Controller - Reinstate Existing	1	
Dry Chlorine System	1	
Dry Acid Dosing System	1	
Water Make Up System	1	
Pool Shell Works - Disconnect Wading Pool	1	
	<b>SUB-TOTAL</b>	
<b>WADING POOL</b>		
Pool plumbing including cast-in pipework, in ground pipework and pool fittings	1	
Pool plumbing inside equipment room, valves & pipe supports - Common FW Header	1	
Filtration pump & VSD	1	
Foot valve	1	
New Sand Filter 800mm Dia.	1	
Electrical wiring	1	
Chemical Controller	1	
Dry Chlorine System	1	
Dry Acid Dosing System	1	
Water Make Up System	1	
Balance Tank Works - 4,000L	1	
Pool Shell Works	1	
	<b>SUB-TOTAL</b>	
<b>COMMON ITEMS</b>		
Preliminaries, establishment etc,	1	
Workshop Schematic drawings	1	
O & M Manuals	1	
Client training	1	
Plant cleaning, painting, labelling etc - N/A	0	
Chemical Supplies at Handover (100kg of Calcium Hypochlorite, 50kg of Sodium Bisulphate)	1	
Switchboard, field wiring, equipment equipotential bonding	1	
Dry Acid System - 250L tank c/w motorised mixer & bund	1	
Safety Shower/Eyewash - N/A	0	
Twelve-month routine maintenance	1	
	<b>SUB-TOTAL</b>	
	<b>TOTAL</b>	
	<b>(EXCL. GST)</b>	