# SPECIALIST POOL WORKS BRIEF

# FOR THE REFURBISHMENT OF THE

# WARE PRIORY LIDO

## CONTENTS

# SECTION A

## Introduction and Proposals

The brief outlines the total refurbishment of the existing Lido to enable safe operation and compliance with Standards and Guidelines for pools of this type.

The proposed works includes for the removal and disposal of the existing filtration plant and the design, supply and installation of new filtration and pool water treatment plant and equipment for the main pool and children's pool within the existing plant room.

To enable this the water volume for the pools requires to be lessened by shallowing the main pool, particularly at the deeper parts as shown in the associated drawing issue. The existing children's pool structure is severely damaged, so it is to be demolished and a new pool constructed in this area to a new shallower design. The design brief for these works is outlined within this document.

The existing cast iron/mild steel pipework service are to be taken out of service and appropriately terminated/capped. All new pool fittings and uPVC pipework services are to be installed within the scope of the works. To minimise perimeter ground works, the layout of this pipework can be designed to utilise the voids below the new pool slab.

The existing pool filtration and heat exchanger is to be disposed in a suitable manner and the pool plant room is to be modified to suit the installation of the new plant and equipment. There is no scope within the specification to increase the size of the plant room. However, the client has specified a preference for a deeper pool/larger volume so the Pool Contractor is to survey and ascertain if larger vessels can be installed within the current plant room and provide an extra over cost for the upgrading of the plant and services for the increased volume.

The existing pool pump and flow meter is to be removed and set aside for re-use. The existing chemical dosing plant is to be retained. This equipment is to be checked and serviced. Please note that these items will not be suitable to be retained if the larger volume is chosen and should make due allowance to replace the pump and flow meter.

The existing boiler is to remain for reuse and not included in this tender.

## Design Responsibility

The performance brief and drawings provided within this document are the minimum requirements of the design of a Main Lido and Children's Pool, based on the maximum achievable flow rate, based on the filter sizes suitable to be housed in the plant room.

Currently the pool is open for public use from the hours of 6am until 8pm from beginning of April to the end of September, 7 days a week for a maximum bather usage as per PWAG guidelines/instantaneous bathing loads for the pools of these sizes.

The Pool Contractor has a design responsibility for completion of the design to:

Provide a water quality in all areas in accordance with the Pool Water Treatment Advisory Group (PWTAG) publication, Swimming Pool Water Treatment and Quality Standards for Pools and Spas, 2017 or latest.
Code of Practice - The Management and Treatment of Swimming Pool Water Pool Advisory Group 2021.

Provide water that is clear, attractive, free of odour, free of colour and safe to use under the maximum bather load as specified. *(The pool contractor will calculate and provide the figures for maximum bathing load within the tender).*

Provide safe and satisfactory fittings and features that also meet the performance or other requirements of the specification and relevant Standards such as CEN European Standards sections BS EN 13451 parts 1 to11:2020 Swimming Pool Equipment part 1 - General Safety Requirements and Test Methods, Part 3 - Additional specific requirements and test methods for pool fittings for water treatment purposes.



 

Ensure the system hydraulics function satisfactorily in all regards, to include:
Circulation pumps, piping, valves, pool water distribution and surface and bottom water removal.

Allowance is to be made within the design, installation and operation of the systems that surge and water hammer do not present any potential problems.

The system should be designed to ensure that no flooding occurs should any of the water treatment electrical or mechanical plant fail.

Ensure all new plant can be properly accessed and maintained and in compliance with current CDM requirements.

## SECTION B

### Scope of Works

| | |
|---|---|
| Existing Main Pool Length: | 30.45mtrs |
| Width: | 10.55mtrs |
| Water Depths: | 0.985mtr Shallow End |
| | 2.345mtrs Deepest Point |
| | 2.00mtrs Deep End Wall |
| Freeboard: | 315mm from Water Line to Top of Coping |
| Proposed Main Pool Length: | 30.00mtrs approximately |
| Width: | 10.00mtrs approx. |
| Water Depths: | 0.90mtrs Shallow End |
| | 1.35mtrs Deepest Point |
| | 1.10mtrs Deep End Wall |
| Freeboard: | 200mm from Water Line to Top of Coping |
| Existing Child's Pool Length: | 13.70mtrs |
| Width: | 4.50/3.25mtrs |
| Water Depths: | 0.665mtr Shallow End |
| | 0.80mtr Deepest Point |
| Freeboard: | 315mm from Water Line to Top of Coping |
| Proposed Child's Pool Length: | 13.70mtrs |
| Width: | 3.250mtrs |
| Water Depths: | 0.45mtr Shallow End |
| | 0.60mtr Deepest Point |
| Freeboard: | 200mm from Water Line to Top of Coping |

### Main Lido Pool

The Lido pool is a 30.5m x 10.5m wide, with variable water depths from 0.98m to 2.35m. It is a free board type pool with scum channels. Freeboard is 315mm in height.
The scum transfer channel is no longer functional and is to be demolished.
The freeboard is too high and will be reduced within the design.
There are structural defects with this structure and the pool contractor is to take note of these and any action required if they are relevant to the final proposal.
The proposal is that the pool is being rebuilt within the existing structure and insulated between the existing pool and the new structure.



 

The Pool Contractor shall be responsible for design, selection and supply for all of the pool fittings within the pool tank i.e., main drain fittings, surface water skimmers, return fittings, water top-up fittings and all associated pipework. All new pipework penetrations that are required through the existing structure are to be puddle flanged or sleeved.

The pool water depths are to be reduced by construction of the new base slab and to accommodate new pool water circulation systems (main drains and floor inlets). The proposed water depths are shown on the enclosed drawing, Hydrospec Drawing No: HYD/WPL/001 Revision B and is subject to a final survey of the pool when it is drained.

The new main drains must comply to standards and regulations that each main drain must be able to support the full flow of the system and at less than 1.5m/sec suction velocity through the pipework and at less than 0.5m/sec over the main drain grille, with the other main drain blocked.

They must be installed within the new infill slab and piped back to the plant room. The infill of the pool is to be designed that the floor is fully insulated with at least 100mm structural foam before the reinforced concrete pool slab is cast and the return pipework and fittings is set out to give even distribution of the filtered heated water over the pool floor.

Installation of all these fittings to take place during the construction phases, to include the carcassing of all the pipework to outside of the pool shell, within the construction and into the plant room. *It is suggested that the infill be all structural grade XPS as indicated on the proposed Drawing No HYD/WPL/001 Revision B.*

The Pool Contractor shall provide detailed working drawings complete with any calculation necessary for approval before the installation and comply with all current Standards and guidelines. *(See outlined Benchmarks within Section D).*

All pipework shall be tested and signed off by the client and then remain on continual test for the duration of the contract. The pool contractor is to set out and specify all trenches and method of backfill requirements to be carried out by local contractors. Costings for these works can be budgeted by the pool contractor and listed as services trenches and builders works.

The Pool Contractor is to cut out and install a minimum of 8No large surface water skimmers, 4No on each side and make connections to the suction pipework and run this back to the plant room. The staircase at the deep end is to be infilled with new walls constructed across the opening of the staircases.

The pool walls are to be inspected and any defects that are liable to affect this proposal and be reported to a structural engineer who is to be nominated and be on standby should they be required at short notice.

The walls are to be insulated with 75-100mm foam type insulation and tied back to old pool walls. Installation and steel reinforcement is to be fixed to the pool walls and puddle flange all penetrating pipework's in preparation for the Shot concreting works. (See Specification)



Pipework and Services

The Pool Contractor is responsible for the detailed design layout of all pipework.
The Pool Contractor shall co-ordinate all pipework routes with mechanical, electrical, structural layouts to ensure that pipework does not clash with or interfere with the operation of, or access to, other services, drainage any other building elements. Obtain all drawings and information as necessary from the site as appropriate and available. Any identified clashes on drawings or on site must be brought to the attention of the client and final layout of pipework shall be subject to approval. Pipework should not be routed over electrical equipment or control panels within the plantroom.

All pipework to be uPVC pressure pipework systems (un-plasticised polyvinyl chloride), to EN 1452 / DIN 8061/2, 10 bar rated and be installed within the infill and service trenches. All pipework is to be supported as per the manufacturer's specification. Buried pipework should be laid on a pea shingle bed, backfilled carefully compacted and not mechanically compacted.

All pipework within the pool structures must be fully encased in concrete and the Pool Contractor must advise the Structural Engineer of these runs and the pipework sizes should the concrete require to be thickened or the reinforcement be modified in these areas. Allowances are to be incorporated for long runs encased in concrete for expansion. Should any pipework require to be buried and backfilled, a method of the requirements must be specified for this separately and agreed as specified above. These details are to be given to the contractor responsible for the service trenches.

The pipework is to be designed within the guidance's maximum suction velocities of 1.5m/sec or less and maximum delivery velocities of 2.5m/sec. These maximum figures are not expected to be achieved especially on long pipe runs for suction pipes as good engineering practices would be expected.

Allowances are to be made for inspections of the pipework installation during the structural stages and for pressure testing, including witnessed and signed certificates for all tests carried out. These tests are to be witnessed by the client and the test sheets are to be labelled as to the pipes tested in the 'As Built Drawings' and inserted within the completed O&M's.

The tests must be continuously maintained for the period of the construction phase and checked on a daily basis during this period either by the Pool Contractor and logged accordingly.

Any reported drops in these tests should be actioned immediately to the Pool Contractor and no further works should be carried out by the Pool Contractor until the fault is found and satisfactorily rectified.

General test pressures on pipes that are visible must be tested to 1bar or 1.25 times normal working pressure, whichever is the greatest and pressure maintained for minimum of 1 hour.
All pressure testing must be logged and witnessed. Pressures should be maintained continuously during construction works stages where pipes are buried or cast in concrete.
All pressure failures must be recorded including the action taken immediately to rectify the fault.

**Children's Pool**

The Children's Pool is severely cracked and is to be completely demolished.
Care should be taken in demolishing the adjacent wall to the Main Lido shallow end wall.

A new structure is to be built in reinforced concrete to incorporate the following.
3No surface water skimmers, 2No main drains used for draining purposes only and piped separately back to the plantroom suction manifold and valved to the return pool water to be used as return inlets under normal operation.
2No Balance lines from the children's pool to the main lido pool. These are to be designed that they can be plugged easily in the event that the children's pool requires draining for cleaning purposes only (i.e. fouling incident or similar occur). A separate pump @10m³/hr is to be supplied and installed for this purpose only, plus 4No return inlets in the side wall.

**Pool Tank Construction**

The pool construction is reinforced concrete C35A waterproof concrete (for aqueous content) for the pool slab and waterproof shot concrete or similar for the pool walls, and is constructed by the Pool Contractor.

The Pool Contractor has the responsibility of fitting out the pool with all required main drains and supporting pipework, all inlets sized as the specification, skimmers, during the pool construction stages to include all required puddle flanges. Pipework within the pool structure should be water pressure tested and remain under test for the duration of the works with a visible pressure gauge.

These should be checked on at least a daily basis and more as required during the construction and especially during the concrete stages. All pipework should be filled with water and weighted down to prevent floatation and any movement during this stage.

The pipework should be plugged so that the Pool Contractor can fill the pool and carry out a drop test to prove the water tightness of the tank prior to render and painting or tiling.



 

After this has been satisfactorily carried out the pool is to be rendered using appropriate waterproof sand and cement renders and allow for curing times prior to commencement of painting or tiling. The existing Main Pool coping stones (relatively new) are to be carefully removed and set aside for re-use. Because the pool is being shortened in length and width, the Pool Contractor is to allow for reinstatement of the existing copings including any modifications or new to match if required.

This will create a gap between the existing paving and the back of the relocated coping stones. The Pool Contractor is to allow for the preparation, supply and laying of additional surround paving to match.

The Children's Pool coping needs to be replaced with a matching coping to the Main Lido Pool.

Note: Depth Markings (painted) on the coping stones will need to be removed to suit new depths.

**Pool Painting**

Upon curing of screeded floors and rendered walls, in accordance with paint manufacturer's requirements, prepare all applicable surfaces.

The pool can be painted with 3 coat epoxy paint system. This would be an item that would require repainting after a few years especially the step entry areas. Areas requiring bare foot slip resistant requirement is achieved by addition of beads in the final coat. Optional for all entry step treads to be tiled rather than painted with a Group C slip resistant tiles including leading edge in contrasting colour.

Alternatively, the pool could be tiled throughout, which would be our recommendation and require an extra over cost to tile and grout new pool floor tiling - (See Costs) for a 25 year plus life expectancy.

**Pool Tiling**

Ceramic Pool Tiles Supplied By Solus Ceramics
Contact: Jo Burley – Area Sales Manager – 07771 850058 or 0121 753 0777

Pool Floors - 0.8m to 1.35m Water Depth

| | |
|---|---|
| Make: | Solus Technical Pool Range |
| Finish: | Satin Glazed - Group A Slip Resistant |
| Size: | Model 1100 – 243 x 118 x 8mm (250x125mm modular with 7mm joint) |
| Colour: | White/Bugle |

Pool Floors – Under 0.8m Water Depth – Children's Pool

| | |
|---|---|
| Make: | Solus Technical Pool Range |
| Finish: | Friction Glazed - Group B Slip Resistant |
| Size: | Model 1100 – 243 x 118 x 8mm (250x125mm modular with 7mm joint) |
| Colour: | White/Bugle – Other Colour Available |

Pool Walls

| | |
|---|---|
| Make: | Solus Technical Pool Range |
| Finish: | Satin Glazed |
| Size: | Model 1100 – 243 x 118 x 8mm (250x125mm modular with 7mm joint) |
| Colour: | White/Bugle |

Pool Entry Steps – Leading Edge

| | |
|---|---|
| Make: | Casalgrande Linea Padana Plus – Series Landscape |
| Finish: | Pinhead Group C Slip Resistant |
| Size: | Model 1106 Step Edge – 243x118x8mm (250x125mm modular with 7mm joint) |
| Colour: | Mid Blue/Searocket |



 

Pool Entry Steps – Infill

| | |
|---|---|
| Make: | Solus Technical Pool Range |
| Finish: | Pinhead Group C Slip Resistant |
| Size: | Model 1100 – 243x118x8mm (250x125mm modular with 7mm joint) |
| Colour: | White/Whitlow |

Lane Markings

| | |
|---|---|
| Make: | Solus Technical Pool Range |
| Finish: | Satin Glazed - Group A Slip Resistant |
| Size: | Model 1100 – 243 x 118 x 8mm (250x125mm modular with 7mm joint) |
| Colour: | Dark Blue/Woodruff |

Grouting and Adhesive

A modified cement base light grey grout suitable for use in swimming pools to be used.

| | |
|---|---|
| Manufacturer: | Ardex |
| Adhesive: | Ardex X7 W (White) with Ardex E90 admix (1:1 ratio with water) |
| Grout: | Ardex Flex FL |
| Grout Colour: | Light Grey |

Note: Pool Contractor is to present tile samples for final selections by client and tiled panels with chosen grout colours for final approval.

## SECTION C

**Design Criteria and Performance Specifications for Pool Water Filtration and Circulation**

The principle criteria and performance specification upon which the pool filtration, chemical water treatment and heating requirements are based as follows:

**Main Lido Pool & Children's Pool - Combined**

| | |
|---|---|
| Pool Sizes: | 30 metres long x 10 metres wide freeboard Main Pool with continuous surface water skimmers to the perimeter long walls.<br><br>13.7 metres long x 3.2 metres wide freeboard Children's Pool with continuous surface water skimmers to the perimeter long walls. |
| Pool Capacity: | 352m³ (77,440gallons) approximately |
| Pool Filters: | 2 No 1635mmØ = 2.01m² filter area each = 4.02 m² total filter area |
| Filter Pumps: | 1 No 100% duty pumps @ 93m³/hr flow rate each |
| Filtration Rate: | Maximum 25m³/hr/m² |
| Circulation Rate: | Maximum 93m³/hr (TBC) |
| Turnover: | 3.5 - 4 hours approximately |
| Backwash Rate: | 30m³/hr/m² |
| Rinse Rate: | At Filtration Rate |
| Bathing Load: | Approximately 55 persons per hour approximately.<br>(Instantaneous bathing load a 1.7m³/hr = 93.5m³/hr) |



 

| | |
|---|---|
| Heating Requirements: | 220kW (TBC) |
| Normal Running Temperature: | 27°C - 28°C |
| Pool Outlet Velocities: | Less than 0.5m/sec in the case of one main drain being blocked. |

*Notes: Main drains must be tested for hair entrapment operating at full flow to each main drain Separately. A video of this operation is to be carried out and kept for the health and safety file.*

| | |
|---|---|
| Suction Pipe Velocities: | Maximum 1.5m/sec |
| Suction fitting | Less than 0.5m/sec |
| Delivery Pipe Velocities: | Maximum 2.5m/sec |
| Pool Inlet Velocities: | Less than 1.5m/sec deep end less than 1m/sec shallow end |

**Filtration and Circulation Plant**

Filter Shells

The existing filter is a horizontal steel vessel this is to be demolished and disposed appropriately and replaced with new filters.

The new filters are to be quality GRP filters as Waterco Europe Ltd. Either LCX lateral based filters Laminated GRP or SMDD Micron lateral based fibreglass wound.

Please also provide an extra-over cost to install nozzle plate versions of these filters for consideration.

**NOTE:** Head height in filter plant room.

All filters are to have as follows:

Top and side access manways to be mirrored that the access is between the filters.
Inspection sight glass centred at the top of media level.
Inlet and outlet manometers (pressure gauges).
Manual and automatic air release vents (AAV) manual vents are to be installed in an easily accessible position and not on top of the filter vessel. All AAVs should be fitted with strainers.
Media Type: Single grade, Leighton Buzzard sand, to BS EN 12904:2005.
Grade: 16/30, depth 1200mm of sand bed.
Support layer: 6mm gravel covering the nozzles, to a minimum depth of 200mm.

Glass media will be considered and preferred but must be specified with a separate extra-over cost.

The filters must be supplied with a five valve battery and with facilities to isolate each filter for maintenance purposes. The face pipework and valve installation are to be configured to provide even distribution to each vessel. These are to provide facilities for filter, backwash and rinse (filter to drain/waste). Consideration will be given to auto backwash and is to be costed and specified separately.

The pipework to drain/waste must have a clear sight glass and discharge direct to the existing foul drain. It is considered that discharge consent for the existing plant is already in place with the Operator, but the Pool Contractor must get this confirmed and make sure that the new plant has all this in place before commissioning.



 

Circulation Pump and Manifolds

The existing pool circulation pump is new and should be set aside for reuse.

A new identical pump is to be purchased as installed as the duty/service pump and currently installed existing pump is to be serviced, set aside and stored as a spare. The existing pumps and new pump are to be wired with a plug-in with cables attached to change over as almost plug and run.

The Pool Contractor is responsible for this design to achieve the stated circulation rates and backwash rates. Therefore the pool contractor should check that his pipework calculations and head losses match the selection of the existing pump and any differences should be reported.

Electrical insulation shall be to BS 2757, Class “F” minimum. Motors to be mounted on plinths complete with hold down bolts.

Pipework from the pools is to be connected to a suction manifold with lever operated butterfly valves for the Lido pool skimmers and the main drain, Children’s pool skimmers are all linked and main drain is separated as a return and main drains for draining purposes only.

All pipework to be connected to the manifold then to the strainer and pump.
The pump is to have isolation valves on suction and delivery plus a check valve to the delivery.

Manufacturers: To be specified in tender submission.

**Heat Exchanger**

The existing calorifier is to be removed and disposed of, the primary pipework is to be modified and repositioned to make all the plant accessible and serviceable compliant with CDM regulations and new bypass type heat exchanger is to be sized supplied and installed.
*(Note: plate exchangers will not be accepted)*

Note the sizing of the heat exchanger is subject to acceptance of the use of Air Source Heat pumps as indicated in the costings. If these are accepted then the heat exchanger is only used in the early parts and later parts of the year and therefore the heating loads to the heat exchangers can be reduced accordingly and the reduction should be included within the heat pump costs.

**Pool Plant Pipework and Valves**

The Pool Contractor shall install all the necessary valves and pipework within the plant room. All pipework and fittings are to comply with the proposals outlined above and within the Benchmarks in Section D of this document.

All the valves shall be accessible and labelled accordingly and in conjunction with “As Installed” drawings/schematics.

Valves should be ball valves up to 75mm or 2½” and lever operated butterfly wafer type up to 160mm or 6” and geared wheel head operated butterfly wafer type above this size.

Check valves are to be installed on the delivery manifold to the circulation pump and installed in accordance with manufacturers’ instructions.

Valves can be cast iron bodied with stainless steel discs and shaft. Alternatively uPVC valves can be used but with the seals fitted to the disc not the body. If automatic backwash is chosen then the aforementioned valves are to be used. All valves disk material and seals will be in accordance with manufacturer’s recommendations suitably selected for resistance to the fluid being transferred.

Manufacturer: To be specified in tender submission.



 

*An automatic backwash system may be considered.*
*The Pool Contractor is to provide a separate costing for this facility and must include all necessary modifications to the valves and electrical controls to implement this. The Pool Contractor is to specify the design and products which must be failsafe to normal filtration operation and complete with a PLC override facility in the case of a program failure.*
*A mimic panel illustrating the valve positions by means of coloured LED lamps on a schematic drawing shall be provided.*

**Chemical Water Treatment Plant**

A full water test analysis is to be provided of the source water by the Pool Contractor.

The current dosing systems uses Sodium Hypochlorite as the Chlorine Donor and Sulphuric Acid as the pH correction. This is dosed using peristaltic metering pumps direct from the manufacturer's drums.

Whilst this is adequate to maintain the free chlorine residual, there is an issue with the space allocated for storage of in/out of use chemicals.

The existing Ezetrol Plus is to be retained for measuring and control.

It would be preferred to use Calcium Hypochlorite as the chlorine donor and Sulphuric Acid as the pH correction. A method would be preferred to dosing all chemicals direct from the manufacturer's containers.
A stabilizer would be required and hand dosed.

Continuously monitoring of the pool water conditions for free chlorine and pH and dose the appropriate chemicals to suit is required.
The chlorine donor shall be Calcium Hypochlorite dosed via an automatic dosing machine direct from the 25kG manufacturer's containers.
The means of dosing shall be via a Granudos 45/100 Touch but the acid pump is to be removed and sited in a separate area away from the machine and the acid pumped via the supply tube within containment and clearly labelled as to its contents.

The pH correction would be Sulphuric Acid.

The chemical donors, which are specified would contribute to maintaining a good water balance.

The system must be designed to maintain the pool water conditions as follows:

Free Chlorine Residual: 1.0 - 1.4 mg/l
pH: 7.1-7.2 (7.4 maximum)
Calcium Hardness should be advised to be maintained above 250mg/l.
Alkalinity should be advised to be maintained above 80mg/l and no higher than 120mg/l.
Total Dissolved Solids (TDS) should be advised at no more than 1000mg/l above source water.

Water balance must be advised to be maintained within the ideal conditions of the Langelier Index.

The Pool Contractor must, once the pool is commissioned, be certain to leave pool water conditions within the above parameters.

Once the pool water treatment chemicals are chosen and agreed, the method of dosing is required and specified, together with the storage requirements, separation requirements and the bund requirements including any detailed builder's work requirements.

All bunds are preferred to be welded Polypropylene or uPVC.

The Pool Contractor shall supply all the required signage and labels, Hazchem signs and all PPE equipment plus an extra over sum for additional PPE equipment.
See Water Test Kits & PPE section.



 

## Pool Water Measurement and Control

The existing Ezetrol Plus is to be set aside for reuse, an allowance is to be made to service and supply new chlorine probe and pH probe. Extra over sum should be allowed for a new controller to continuously monitor the pool water conditions for free chlorine and pH and dose the appropriate chemicals to suit.

The controller is to be located within the main plant room in a suitable location and allowing sufficient space for ease of operation and maintenance.

The controllers should be wired from the Pool Electrical Control Panel and remain with the display active when switched off on the control panel but to have a separate insolating point near the controllers.

The controllers are to include flow and return sample lines contained within uPVC containment from tapping to the controller flow cells. The containment shall be installed to comprise of slow bends and is to be adequately supported and labelled with the appropriate signage signifying the solution being transferred.

## Chlorine and pH Correction Dosing Plant

The Pool Contractor is to provide a Granudos 45 Touch for use of 25Kg drums.
Please supply details of their selected plant complete with an inventory of items being installed.

The following is to be implemented:

Chlorine and acid injection is within the bypass flow system incorporated in the Granudos 45.
The supply line to the Granudos would be post filter sized according to the distance and a flow velocity of less 1.5m/sec.
The return supply line to the pools is to be positioned post filter, heat exchanger and UV system if installed with a velocity not exceeding 2.5m.sec. An isolation valve shall be installed on both connections in a location where they are in an accessible and maintainable position.
The pipework shall be rigid uPVC with slow bends (flexible pipe will not be accepted).

Any containment shall be installed to comprise of slow bends and should allow for free draining of any leaks within flow back to the bunded areas. All containment is to be adequately supported and labelled with the appropriate signage signifying the chemical being transferred.

The Pool Contractor is to provide sufficient chemicals to encompass the commissioning stages and the initial 4 weeks of operation. Any delays from the commissioning process to opening, outside of the Pool Contractors control, may result in additional chemicals being provided and the associated costs may be applicable.

Manufacturers: To be specified in tender submission.

## Flocculant Dosing Plant

The Pool Contractor is to supply and install a continuous flocculation dosing system (PAC - Polyaluminium Chloride) consisting of a peristaltic pump for each pool and a bunded area for the installation of the manufacturers chemical container. The flocculant is to be dosed directly from the manufacturer's container, preferably one container for both pools. A separated bunded area is to be supplied for the storage of two containers.
Diaphragm metering pumps and day tanks are not to be used.

The systems shall be installed complete with suitably sized Polyethylene dosing tube contained within uPVC containment from the bunded areas to the injection points. The containment shall be installed to comprise of slow bends and should allow for free draining of any leaks within flow back to the bunded areas. All containment is to be adequately supported and labelled with the appropriate signage signifying the chemical being transferred.



 

The injection points are to be positioned pre-filter but post sample line and flow meter orifice, in a location to ensure even distribution to the two system filters and in an accessible and maintainable position. The injector shall be of a removable type with retractable lance and isolation valve.

Manufacturer: To be specified in tender submission.

**Ultra Violet Secondary Disinfection**

An additional separated sum should be included for:

Supply and install medium pressure UV secondary disinfection system to each pool, this must be designed for the full flow of the system. The chamber shall be manufactured from stainless steel with flanged inlet and outlet connections. Unit is to include dedicated control panel with UV monitoring, fault indication, automatic wiper system and in-line strainer basket for insertion within return pipework.

Manufacturer: To be specified in tender submission.

**Mains Water Top-Up Systems**

The Pool Contractor is to allow for a mains water top-up system to the Pools. This is to include external level sensing device in the pool plant room and a water fill line back to the main pool. Level sensing device is to control a suitable solenoid valve fitted to the mains water supply complete with manual isolation and bypass valves.

This is to be connected to the existing mains water supply and comply with Water Authority Regulations.

The Pool Contractor is to confirm the existing supply and deem if it is suitable for filling requirements.

**Electrical Control Panel and Wiring for Pool Plant**

The Pool Contractor is responsible for the detailed specification of all loadings and supply requirements design of the electrical installation for the operation and control of the water treatment systems, where applicable. He is also responsible to check whether Supplementary Equipotential Bonding is required, If so then all the pool structural reinforcement is required to be tacked. This item must be checked by a qualified electrical engineer familiar with swimming pool installations.

The pool contract should design and supply electrical control panel that shall provide for full control of the pool water treatment systems, incorporating all necessary fail safe requirements and interlocks with the chemical dosing control, pool heating, water level sensing and make up controls. It shall display water temperature only via a digital temperature thermostat.

The control panels and electrics including all wiring, equipment and earthing to be in accordance with the latest edition of the Institute of Electrical Engineers (IEE) regulations 18th Edition & BS 7671. Special attention is to be given to Section 702 on swimming pools.
All bonding requirements are to be discussed with the Electrical Contractor on these issues including mains electrical supplies characteristics and bonding requirements.

The Pool Contractor shall insure that the dedicated electrical control panel shall provide for full control of the water treatment systems as follows and allow for necessary switching and LED indication lamps.

| | | |
|---|---|---|
| Circulation Pump | - | ON/OFF/Trip – with a facility so that both pumps cannot be run together. |
| Pool Water Heating | - | ON/OFF with indication of calling. |
| Chemical Dosing | - | ON/OFF to isolate the dosing only, leaving the controllers display active. |



 

Water Make-Up - OFF/ON with green lamp and filling indication with flashing green lamp and trip lamp.

To further include phase indicator lamps, door locked main isolation switch and emergency stop button.

All control items for the pools must be within the control panel and not external to the panels. Control panels are to be constructed to suit the environment for such an installation. All switches are to be suitably labeled with white traffolyte plates with black numerals/lettering.

The Pool Contractor is to ensure that a complete set of wiring diagrams are left within the Electrical Control Panel on completion. This is in addition to those for inclusion within the O&M manuals.

The Pool Contractor shall provide additional costings for modification of controls for an automated backwash system.

**Water Testing Kit and PPE**

An additional cost should be supplied as an itemised extra for the following:

All the required signage and labels, Hazchem signs, 2 No sets of routine daily PPE equipment comprising of apron, gauntlets, half face mask & respirator, chemical resistant wellington boots (size to be advised) and hand wipes.

2 No eyewash stations (portable type) to be installed in the chemical dosing station.

1 No Lovibond AF129 comparator complete with light box sufficient testing reagents to last for a week period following commissioning.

Provide an additional cost for a Photometer.
Provide a TDS meter.
Testing equipment must be capable of the following tests:
Free Chlorine/Total Chlorine
pH
Total Alkalinity/Calcium Hardness

**Pool Heat Retention Cover**

The Pool Contractor is to supply install 1 No motorised pool cover system for the Main Lido Pool in an agreed location. To include stanchions, floatation boom, tow ropes and spool tapes fitted to a remote-controlled wall mounted motorised system. Heat retention covers are to be closed cell polyethylene foam and a minimum thickness of 5mm.

Children's Pool is to be a movable piggy-back type system at this stage, complete with gear box wheel operation.

Manufacturer: Forge Leisure (UK) Ltd or equal approved

Lido Pool
Size: 30mtrs x 10mtrs

Children's Pool
Size: 13.7mtrs x 3.25mtrs

Roller manufactured in 355mmØ stainless steel supported by 50mm stainless steel shafts on self-aligning pillow block bearings, mounted on 150mmØ posts.
The brackets are manufactured in 10mm hot dipped galvanised steel with GRP covers, fixed using 16mm stainless steel bolts or studs.

*Note: Pool entry stairs will not be covered with the covers. But loose section can be supplied.*



 

The Pool Contractor shall ensure that all above structural loadings are reviewed in relation to the structural wall/floor specification at the location of the cover.

**Pool Access Step Handrails, Perimeter Handrail and Access Ladders**

The Pool Contractor is to allow for the supply and installation of stainless steel access furniture as outlined below. These are to be installed as not to impede the operation of the pool cover system.

2No sets of pool access ladders, split type, complete with one set of asymmetric grab rails.
All fabricated from Grade 316 Stainless Steel.
To be positioned at the deep end on either side of the Main Pool.

Manufacturers: To be specified in tender submission.

Perimeter Handrails to Main Lido Pool and Children's Pool – All to be fabricated from Grade 316 Stainless Steel complete with wall brackets or anchor pins, stop ends. Not to be positioned above water line and to start and stop at each skimmer opening.

Step Entry Handrails to Main Lido Pool and Children's Pool - All to be fabricated from Grade 316 Stainless Steel complete with wall brackets or anchor pins, stop ends.

Manufacturers: To be specified in tender submission.

**Note: All above to be installed in accordance with BS-EN 13451**

**Pool Lane Rope Anchor**

Supply and install 12 No stainless steel cup anchors within pool walls at each end at water level.

Manufacturers: To be specified in tender submission.

**Pool Fittings**

Pool Contractor to provide details of all circulatory pool fittings within their tender specification complete with their design characteristics and compliance to BS/EN Standards.

**Air Source Heat Pumps.**

The contractor shall size and include within his tender an extra-over cost to supply and install 2 No Air Source Heat Pumps. To heat/maintain the heat the pool during the opening periods. This is to include the saving of the backup Heat Exchanger sizing requirements, if this is a chosen option it is recommended that 2 No smaller condensing boilers are used and the large existing boiler removed. This work should be allowed to be carried out by the local boiler installer.

Manufacturers: To be specified in tender submission.

**Commissioning, Training and Handover**

Commissioning

Following sign off by the Client of all testing, pipework pressure testing, fitment of all pool fittings and furniture, snagging and clean down, the pools filling can commence to enable the commissioning of the plant. Adequate notice must be given to all parties for such a procedure to be included within the agreed programme of works and interfacing trades are also ready for the pools to be filled and commissioned.

The pools should be filled and heated in accordance with guidelines to eliminate the risk of any structural damage.



 

Once filled, a distribution test of each pool is to be undertaken by the Pool Contractor by means acceptable by the Contract Team. All results are to be witnessed, recorded and certificated.

A minimum of 6 weeks prior to handover, the Pool Contractor shall provide an electronic “Draft” copy of their O&M Manual complete with all relevant project drawings, “As Installed” drawings and completed product and works certification to this stage for review and comment of the Contract Team. Any comments/alterations required are to be given to the Pool Contractor in sufficient time to make the necessary revisions for inclusion within the final copy.

The manual shall be laid out as per the final copy with cover sheet and indexed sections including all necessary information for design, operational procedures, products & spares lists, fault finding, precautions and safety information, certification, “As Installed” drawings and wiring diagrams, plant schematics and valve legends, COSHH data, etc.

All plant testing and commissioning is to be undertaken by a trained and experienced Pool Engineer/s. The Pool Contractor is to ensure that the Commissioning Engineers have a minimum of five years experience of such commissioning works.
The commissioning works is to be overseen by the Client and other agreed persons otherwise tests may be null and void. The Contract Team should be given two weeks’ notice of such testing.

The systems will be tested and commissioned to ensure they are in accordance with:

The requirements of this brief and all relevant guidelines and Standards stated to the satisfaction of the Client.

The commissioning procedures used are the responsibility of the Pool Contractor.

All equipment should be commissioned to be safe in operation.

The Pool Contractor is to allow for all such testing and commissioning as detailed below and required for the complete commissioning of the system. All tests are to be undertaken in the presence of the Clients representative, any defects to be rectified, materials and equipment replaced, such that the system meets the requirements of the specification and satisfaction of the Contract Team.

Further tests are then to be undertaken. The testing and any rectification works are to be coordinated to suit the overall commissioning programme and not to delay the completion date.

All items of equipment and controls installed by the Pool Contractor are to be commissioned as follows including various procedures:

Circulation pumps, flow meters, valves, heating controls, water make-up systems.
Chemical water treatment plant controllers and associated equipment.
Tank testing of all fabricated bunded areas, UV systems.

Backwashing including adequate fluidisation of the filter beds is being achieved.
Safety interlocks on chemical dosing and heating, pool water make-up, pool cover system operations, balanced water testing, full water analysis.

Upon successful and signed off commissioning results; the Pool Contractor is to maintain operation of the pools for a minimum period of 5 working days.

<u>Operating Manuals</u>

3 No hard copy sets and 3 No electronic copies (USB) of the complete O&M manuals are to be provided by the Pool Contractor to include items stated above and updated testing and commissioning certificates.

Within the plant room, the Pool Contractor is to provide framed A1 size schematics of the pool plant including framed A1 size valve operational procedures for backwashing.



 

Training

Plant training for the site Operators is to be provided. These Operators shall be certified pool plant Operators. 2 No one day training sessions are to be provided by the Pool Contractor. Training is to encompass all aspects of the pool operation, procedure and Health and Safety.

Handover

Handover and practical completion will only be granted on the provision of all satisfactory commissioning, training and documentation being received and handed to the Contract Team.

Post Commissioning

Defects and liability period shall be for twelve calendar months after practical completion and handover of the total project.

The Pool Contractor will attend site near the end of the defects liability to undertake:

Open up all filters for internal inspection
Remove a selection of valves for inspection
Remove pump motors for impeller inspection
Remedy any found and liable defects
All remedial defects works are to be signed off by a representative of the Contract Team.

# SECTION D

## Benchmarking and Standards

| | |
|---|---|
| Safety in Swimming Pools published by HSC and Sports Council published in 1988 | ISBN 0 906577 83 7 |
| Managing Health and Safety in Swimming Pools by HSC and Sport England published by HSE Books 2003 | ISBN 0 7176 2686 5 |
| Swimming Pool Water Treatment and Quality Standards published by Pool Water Treatment Advisory Group 2017 latest edition. | ISBN 0 951 7007 6 6 |

PWTAG Codes of Practice,
The Management and Treatment of Swimming Pool Water
Pool Advisory Group 2022

| | |
|---|---|
| All pool outlets and inlets to comply with | BS/EN 13451-3:2020 |
| All pipework to 10 bar rated and comply with | EN 1452 - DIN 8061/2 |
| All pipework fittings to comply with | BS 4346(Part 1) or DIN 8063 |
| All of the electrical installation to comply to | BS7671 and IEE Regulations |

All tiling works undertaken is to be installed in compliance with the following Standards and guidance. All tiles will comply with current Standards in relation to their suitability for the application.

BS5385:4 2009 - Wall and floor tiling
Part 4: Design and installation of ceramic and mosaic tiling in special conditions – Code of practice

BSEN15288:1 2008 - Swimming pools
Part 1: Safety requirement for design

BSEN13451:1-13 - Swimming pool equipment
General and specific safety requirements and test methods.

# SECTION E

## Guarantees

| | |
|---|---|
| Pool Structures | 12 years |
| Pool Finishes – Renders | 3 years |
| Tiling | 3 years |
| Paint | Life expectancy 6-8 years (no guarantee) |

*Conditions apply and subject to maintaining the pool water within the recommended guidelines.*

| | |
|---|---|
| GRP or Wound Filters | 10 years (5 years full, 5 years pro-rata) |
| UV lamps | 6-8 months |
| All other manufactured equipment | 1 year |
| Faulty workmanship | 1 year |



 

All guarantees are subject to the pool being maintained as per specification during the period and closed down in a manner to be specified by the pool contractor.

These guarantee periods are minimum and any adjustments must be substantiated, advised and agreed with the Client Team.

A defects period of twelve months shall be implicated. Any defects within this period shall be recorded and any work carried out must be accompanied by a worksheet signed off by the Client Team.

Operator errors and faults due to this factor must also be recorded.

Defects that cause a pool closure may be charged back to the Pool Contractor if it is deemed to a failure of guaranteed items.

Contact details must be provided for normal hours and out of normal hours for any emergency calls or assistance during the defect's liability period.

All guarantees are subject to installation being operated and maintained in correct manner as detailed in the O&M manual and to manufacturer's recommendations and within the operating regimes given in the handover training.
Operators must have valid Pool Plant Operators certificates before this training is given.
Trained operators' names must be recorded and inserted in the O&M document.

We would estimate the specified works to be carried out and completed with a period of 28-31 weeks, weather permitting.

Care should be taken of ground water conditions during the contract works when the pool is empty. A Dewatering facility may be required and should be investigated and if required allowed within the tender.

Tender Drawings Enclosed

| | |
|---|---|
| HYD-WPL-000 - | Existing Pool Plan |
| HYD-WPL-001 - Revision B - | Lido Pool Proposal - 1.35m Deep |
| HYD-WPL-002 - | Lido Pool Option - Deeper Pool |
| HYD-WPL-003 - | Lido Pool Proposal - Schematic |

The above specification and drawings have been produced by

John W Cheek FISPE Dip . MRSPH
Hydrospec Ltd
Swimming Pool Engineers
Unit 1, 41 Tallon Road
Hutton industrial Estate
Brentwood, Essex
CM13 1TG

jcheek@hydrospec.co.uk



 

# SECTION F

## Pricing

| | |
|---|---|
| Preliminaries/Site Set Up | £ |
| Removal, disposal and installation of new pool filtration plant including automated water top-up and basic electrical pool control panel. | £ |
| Pool filter media – Sand based aggregates | £ |
| *Extra-over for recycled crushed glass media* | *£* |
| Removal, disposal and installation of new pool water heat Exchanger including modification of existing primaries. Provide panel mounted thermostat in electrical controls for control of existing heating valve. | £ |
| Main and Children's Pool refurbishment as per above outline works/design brief drawing including epoxy painted pool finishes | £ |
| Chemical dosing controller new chlorine probe and pH probe. | £ |
| *Extra-over cost for new controller with remote internet (4G) access and For monitoring and control* | *£* |
| Flocculant dosing system | £ |
| Builders works in connection with all the above including dewatering/ground water control | £ |
| Pool Ladders and Handrails | £ |
| Lane Rope Anchors | £ |
| Water Test Kit & PPE | £ |
| Testing & Commissioning, O&M's, Training/Handover and post commissioning | £ |

## *Additional Extra-Over Items*

| | |
|---|---|
| *Increased volume pool 410m³ – Refer Drawing No HYD/WPL/002* | *£* |
| *Granudos 45 Touch dosing unit including removal of existing System.* | *£* |
| *Pool Heat Retention Cover Systems* | *£* |
| *Medium Pressure UV System* | *£* |
| *Tile finishes to both pools* | *£* |
| *Air Source Heat-Pumps* | *£* |