

PUBLIC WORKS MEMORANDUM
#39-2022

DATE: Aug. 22, 2022
TO: Honorable Mayor Meredith Leighty and City Council Members
THROUGH: Heather Geyer, City Manager *Hmg*
FROM: Kent Kisselman, PE - Director of Public Works *KHK*
SUBJECT: CR-127 – Kiwanis Pool Design Services

PURPOSE

To consider CR-127, a resolution approving the Kiwanis Pool Design Services contract.

BACKGROUND

Kiwanis Pool is a recreational facility at 550 Garland Drive. In April 2022, the City contracted with Water Technology Inc. (WTI) to conduct an assessment on the condition of the pool and its equipment. Based on observations conducted on April 26, 2022, a list of recommendations was developed by WTI. The report (included as Attachment 1) states that upgrades are needed throughout the facility, from fencing to infrastructure to water treatment.

Based on available funding and the recommendations presented in the report, staff believes the best approach for rehabilitation is a complete upgrade of the pool and its equipment.

WTI has presented the City with a proposal for design services to renovate the pool and equipment. This proposal provides for schematic design of the pool and piping, construction documents, bidding assistance, and construction administration.

BUDGET/TIME IMPLICATIONS

Funds in the amount of \$2,000,000 have been identified by the Parks, Recreation & Culture Department through various sources.

	Amount
Adams County Open Space Grant	\$1,000,000
Conservation Trust Fund	\$500,000
Capital Projects Fund (Adams County Open Space Disbursement)	\$500,000
WTI design services contract	(\$144,400)
Contingency (20%)	(\$28,880)
Budget Remaining	\$1,826,720

Construction documents ready for bids are expected within five months after notice to proceed.

STAFF RECOMMENDATION

Attached is CR-127, a resolution that, if approved, would authorize the Mayor to execute a contract between the City and Water Technology Inc. for the Kiwanis Pool Design Services in an amount not to exceed \$144,400, and authorizes the City Manager, on behalf of the City, to

CR-127 – Kiwanis Pool Design Services

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approve minor changes in scope of services and execute relevant change orders up to the approved expenditure limit of \$173,280. Staff recommends approval of CR-127.

STAFF REFERENCE

If Council members have any questions, please contact Kent Kisselman, Director of Public Works, at kkisselman@northglenn.org or 303.450.4005.

ATTACHMENT

1. Kiwanis Pool Assessment Report

CR-127 – Kiwanis Pool Design Services
Professional Services Agreement



Matthew W Freeby, AIA, LEED AP
Water Technology, Inc.

KIWANIS POOL - NORTHGLENN, COLORADO

Tuesday, 26 April 2022
550 Garland Drive
Northglenn, CO

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Executive Summary

Aquatic offerings at the Kiwanis Park include two outdoor pools (a lap pool and a wading pool) and a splashpad. This report addresses the outdoor lap pool, its deck, and mechanical systems. Review of the wading pool and splash pad were not requested to be part of this evaluation. The observation took place on April 26th, 2022. The pool was winterized, with it's safety cover in place at the time of visit.

This report is divided into two sections: observations and recommendations.

Significant observations include structural deterioration of chemical closet support, cracked depth markings, dive stand dilapidations, lack of ADA safety barrier at waterslide, fencing repairs, unsecured filtration pump and piping. Correcting deck dilapidations should also be considered. Operational observations include operating the lap pool at non-code conformant turn-over and lack of secondary containment for pool chemicals.

Recommendations are presented as general, restorative, intermediate and long-term recommendations. General recommendations are observations related to building elements beyond the scope of this evaluation which warrant further study.

Restorative recommendations are based upon restoring the aquatics area to a "like new" condition. Restoration recommendations also include safety and code issues observed. The restorative recommendations outlined in this report represents an anticipated investment range of \$99,000-\$202,000

Intermediate recommendations are those which could enhance enjoyment of the facility, and/or improve its operations. Recommendations include items such as complete deck replacement, chemically treating slide water, and providing an auto-fill. The intermediate recommendations outlined in this report represent an anticipated investment range of \$188,000 to \$274,000.

Long term recommendations are presented. These recommendations are intended to accommodate a long-term vision for the facility and include the replacement of the pool's filtration system with water saving regenerative media (RM) filtration. The investment range anticipated is \$180,000-\$225,000.

The pool's finishes, coping, inlets and submerged outlets were not observable at the time of visit, due to the winter cover. Based upon staff reports of the pool's finish condition, replacement should be considered. A budgeted investment range of \$160,000 - \$200,000 is recommended.

The facility has three electrical services. The pool's mechanical building electrical panels are obsolete and should be replaced. The pool's filtration pump lacks required ground fault protection. Elements of the pool's mechanical system lack NEC required bonding.

The Kiwanis Park pool is a well-maintained community asset. Unfortunately, age has taken its toll on some areas, necessitating attention and care. Repairing and restoring the facility to "like new" condition and targeting investment to maximize program opportunities could be both worthwhile and productive for this community asset.

Respectfully Submitted



Matthew W. Freeby, AIA, NCARB, CPO

Project Director

Water Technology, Inc.

1 GENERAL

Type: Kiwanis Park pool is a rectangular "ell" pool used primarily for swimming lessons, recreational swim and fitness programs. Staff reported that the pool does not have lap lane capability, lacking lane line anchors.

Pool Size and dimensions:

Surface area: Approximately 3300 sf.

Perimeter : Approximately 275 lf

Depths: Pool depth range from 3'-6" to 10 feet at the springboard.

Volume: The pool's volume is about 134,500 gallons

There is a small wading pool adjacent to the swimming pool. This pool was uncovered and is about 20' x 20'.

Code requires a swimming pool turnover of 6 hours.



2A ACCESS

Depth markings: Tile depth markings were observed, set flush with the deck. Several tile display significant cracking with sharp edges and should be replaced (Photos 2 & 3).

Stairs: Two stair rail anchor locations observed. Rails were observed in storage(Photo 8).

Ladders : Three ladder anchor locations observed. Ladders were observed in storage (Photos 6 & 7).

Accessible means: A single PAL access Lift was observed. Staff reports that the lift is moved by pool staff each day into position and removed at the end of the day and stored (Photo 10).





3A EQUIPMENT

The pool is covered for the season with a winter safety cover. The cover is stored on a storage reel which is in fair condition. The cover has two pin locations which are not attached, located beneath the waterslide (Photo 3).





3A.1 DECK EQUIPMENT

There is one elevated recycled plastic guard chair, covered for winter. Chair is located adjacent to slide, at deep end of pool. Chair condition not evaluated.



3A.2 RESCUE EQUIPMENT

Backboard: A backboard was not observed..

Reach pole and hook: Not observed.

Rescue tubes: observed, stored for season.

First aid kit: Not observed.

Emergency phone and numbers; Not observed.

3A.3 COMPETITION EQUIPMENT

There is a single one meter stand and springboard. The springboard and rails are stored for winter. The stand is a steel cantilever type, Paragon or similar. The stand is in fair condition, displaying significant surface corrosion at board anchors. The steps to the board lack a side rail. The step's anti-slip finish is worn and should be re-conditioned.





3A.4.1 RECREATION EQUIPMENT- WATERSLIDE

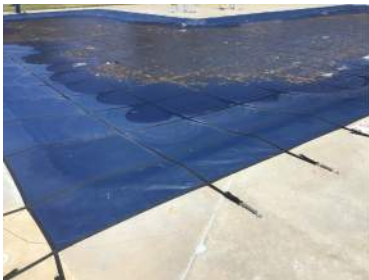
There is a single waterslide. The slide is in S.R. Smith Vortex polypropylene slide with a steel tower. The slide height is approximately 8 feet.

Tower: The steel tower is in good condition displaying limited finish deterioration.

Flume: The polypropylene flume appears to be in good condition, one joint displays evidence of leaking (Photo 1).

Barriers: The slide assembly lacks an ADA barrier at 7 feet and below (Photo 1), and protection for the slides water supply (Photos 4 & 5).





4A POOL SHELL

The pool was covered with its winter cover at the time of the observation. The pool shell was not observable at the time of visit.

4A.1 POOL SHELL- IN POOL LIGHTING

Not observable. Per drawing E-1, dated 12/27/88 by Birkley Design Group, there are 4 in pool lights. Staff reported that fixtures are wet niche lights. Wiring junction boxes observed conformant with drawing E-1. Number, fixture type, wattage and condition of fixtures to be confirmed.





5A FINISHES

The pool was covered at the time of the observation with a winter / safety cover. Pool finishes were not observable. Staff reports that the pool has a special aggregate finish, such as Diamond Brite. Staff reports that the pool finish is in poor condition.

The wading pool finish and coping were observable. The wading pool finish is in fair condition. The pool's perimeter coping is missing grout, several pieces of coping were cracked.



6A PERIMETER SKIMMING - SKIMMER

The swimming pool use perimeter skimmers.

There are eight skimmers located at the perimeter of the pool.

Equalizers - not observable

Freeboard - not observable

Hand hold - not observable



7A INLETS AND OUTLETS

Pool inlets were not observable.

7A.1 INLETS AND OUTLETS- SUBMERGED OUTLETS

Submerged outlets were not observable

8 POOL AREA

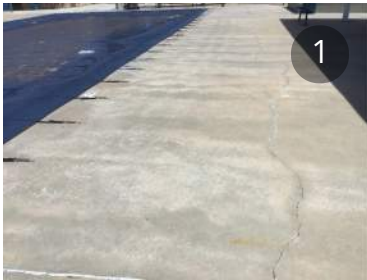
Deck and deck drainage: The pool's perimeter deck is in fair condition. Large areas of the deck lack of proper drainage. Many deck areas are cracked. Multiple areas of deck have been partially replaced (Photos 1 - 8).

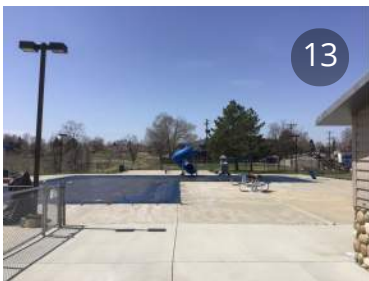
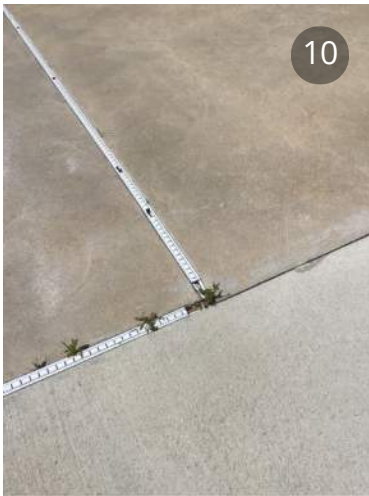
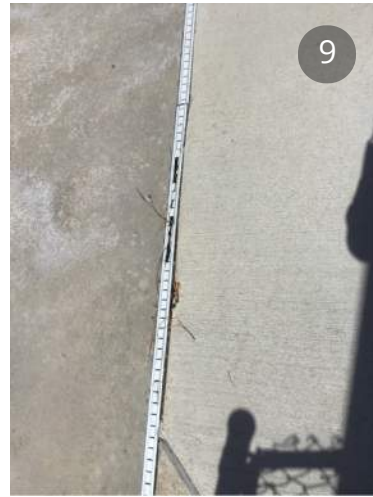
The deck area between the pool and mechanical space has a Deck-o- Drain plastic deck drain system. This system is badly deteriorated, displays multiple locations of broken grating, and has been compromised by cutting and is therefore discontinuous. This drainage area requires correction (Photos 9-12).

Lighting: The pool area has three pole lights approximately 16 feet tall (Photo 13).

Fencing: The perimeter fencing is in fair condition. Multiple locations lack wire ties tying the top of the fence to the top rail. Two fence location have a compromised lower portion with opening which exceeds 4 inches (Photos 14 - 17).

Landscaping: Landscaping in the pool area is limited to turf areas.







9 POOL MECHANICAL ROOM

Height: Room height is approximately 11 feet.

Width : Room width is approximately 20 feet.

Length : Room length is approximately 20 feet.

Access door dimensions: Access door is 3' x 7' nominal. The door opens to a stair and would be difficult to expand.

Stair and rails: Stairs are 48 inches wide. There is a rail on the left side as you come down the stairs. Stair treads are 9 inches, stair risers are 7 inches.

Drainage: There is one drain location, located in the center of the mechanical space.

Ventilation: Ventilation is limited to a single grill located on the access door. No powered ventilation was observed.

Service clearances: Service clearances are limited at the pumps and filters.

Emergency eye wash: Observed in chemical treatment room.

Chemical storage: ORP and pH are stored in the same chemical closet. Pool chemicals lack secondary containment. A CO2 alarm was not observed. This closet is not adequately sealed from the balance of the mechanical space. The chemical closet floor is elevated approximately 4' above the rest of the floor, supported by steel angles and a single steel post. Extensive corrosion is evident.

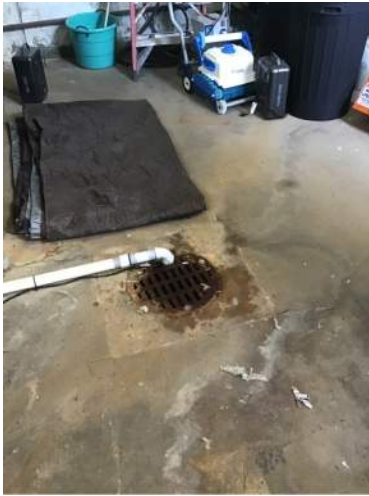
Separation of the closet floor from the the building wall is evident. It is recommended that this condition be reviewed by a structural engineer prior to filling pool chemical containers.



















10A FILTRATION

Type: High Rate Sand

Manufacturer: Swim Quip

Model: HRP 30

Media: Sand

Number of filters: 4

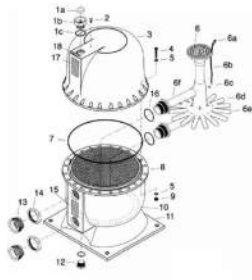
Filter Area each filter: 4.9 FT

Total area: 19.6 FT.

Backwash frequency: To be verified

Note that normal filtration has water is entering the filter through the bottom port and leaving to the top port (correct for this filter). The filters are in fair condition.

At code required 6 hour turnover, a flow rate of 373 GPM is required; the calculated filtration rate is 19.03 GPM/SF, which falls within code and the filter manufactures operational guidelines for these filters.





11A FILTRATION PUMP

The filtration pump has been replaced. The pump lacks a pump tag.

The pool's filtration rate is not properly defined. The pool operations sheet (Item 24, Photo 3) indicates a minimum flow rate of 225 GPM. Drawing M-1 states a flow rate of 350 GPM. Staff reported an operating flow rate of 325 GPM. At the calculated pool volume of 134,300 gallons, the code mandated 6 hour turnover requires a flow rate of 373 GPM. The pool should be operated at a code compliant flow rate.



Motor

Manufacture: Baldor

Model: Super E

Horsepower: 10 Hp

RPM: 1770

Voltage, amps, phase: 230/460; 25/12.5: 3 ph

Strainer

Type: In line

Manufacturer: FPT

Basket material : Stainless Steel

Spare basket: Provided

Pump is unsecured, lacking physical attachment to floor slab. This will allow excessive vibration and cause deterioration of fitting & Pump assemblies.







14A PIPING

Piping is painted schedule 40 PVC. Heater piping is copper.
Note: Slide return piping is prior to filtration and chemical treatment, thus is untreated.

Piping configuration conflicts with access to pumps & filters.





15A VALVES

Valves are labeled, most valves are accessible.



16A SUPPORTS & HANGERS

Piping supports are not laterally braced, and are a combination of steel pipe supports and PVC piping. A single clevis hanger supports piping to the heater. Piping support is generally inadequate and in poor condition.





17A WATER TREATMENT

Water treatment is controlled by an automatic chemical controller.

Manufacturer: Cat

Model: 4000

Sample stream: Yes

The chemical controller is in good condition.



18A SANITIZER

Chemical: Sodium Hypochlorite (Liquid Chlorine)

Containment: Liquid chlorine lacks secondary containment.

Pump type: Peristaltic

Model: Stenner 85M5; 85 gallons per day feed rate

Note single pump for chlorine feed.





19A PH

pH balance is provided by CO₂.

Chemical: CO₂

Alarm: None observed

Feeder: GreenTrol

The CO₂ system appears to be in good condition.

22A POOL HEATING

Type: Pool Heater

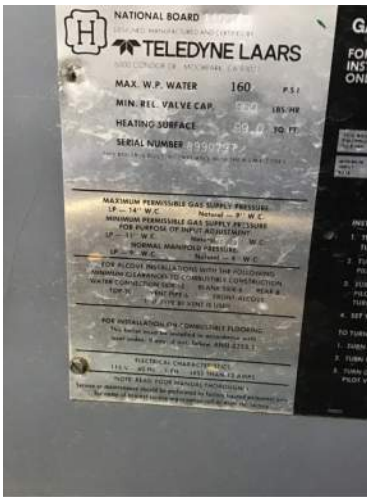
Manufacturer: Teledyne Laars

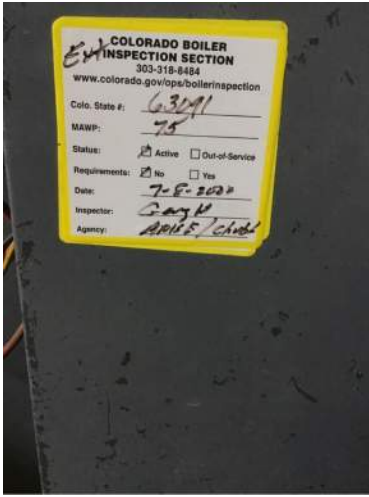
Input BTUH: 1,200,000

Output BTUH: 972,000

Efficiency: 81%

Pool heater appears to be in fair condition.







24 MECHANICAL GENERAL

The Flow meter installation lacks required uninterrupted pipe lengths for proper operation (10 / 5 pipe lengths).

An Auto fill is not available.

A Valve legend is not posted.

Operating instructions are present, limited.

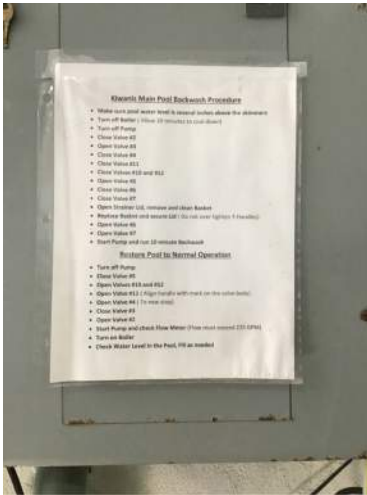
Winterization instructions are not posted.

System flow labels were observed.

Color coding of pipe was observed.



An Air gap was not observed at backwash.



SPS materials were not observed.

Recommendations

Recommendations provided are divided into four categories

General – Recommendations about the facility that are outside the scope of this report (such as building related items) were observed and are recommended for further review and evaluation by an architectural/engineering firm. These recommendations are not provided with an implementation cost range nor a recommended implementation timeframe.

Restorative – recommendations that will restore the facility aquatics to original operative condition or are recommended for safety or code compliance. Restorative recommendations should be considered for immediate implantation.

Intermediate improvements – recommendations enacted in the short term (3 to 5 years) will improve the operations or enhance the appeal of the facility.

Long Term Improvements – Recommendations that are intended to enhance the appeal of the facility or improve operations, but will require greater investment in capital, time, or an extended disruption of services to implement.

Recommendations (except for General Recommendations) are provided with an implementation cost range. The cost range is intended to provide a guide to the budgeting of the recommendations at this time and anticipates standard design and construction fees, cost of the work and clean up. The range does not include local fees or taxes, escalation, hazardous material handling or other risk factors.

General

- Evaluate chemical closet for structural integrity. Correct deficiencies or replace chemical closets with new chemical treatment rooms.
- Re-condition pool mechanical building. Add service access door and hoist, ventilation, lighting.

1.0 Restorative

- 1.1 Replace damaged depth markings (Observation 2A).
Investment range \$3,000-\$5,000
- 1.2 Re-condition springboard dive stand. Repaint, replace corroded angles, replace non-slip material at step (Observation 3A.3).
Investment range \$5,500-\$9,500
- 1.2A OPTION - Replace springboard dive stand with a ¾ meter stand and 12' fiberglass board (Observation 3A.3).
Investment range \$14,500-\$19,500
- 1.3 Confirm number and operational status of in-pool lighting (Observation 4A.1).
Investment Range \$0 - \$500
- 1.4 Replace damaged pool deck sections (Observation 8). Provide new deck and deck drainage.

Investment Range.....	\$45,000-\$70,000
1.5 Restore perimeter fencing. Replace damaged sections with new material (Observation 8). Replace missing wire ties.	
Investment range	\$20,000-\$55,000
1.6 Provide code compliant pool turnover. Increase flow rate or replace filtration pump with pump capable of meeting flow requirements (Observation 11A).	
Investment range	\$500-\$15,000
1.7 Provide adequate support at filtration pump and motor (Observation 11A).	
Investment range	\$3,500-\$5,000
1.8 Provide adequate pipe support. Laterally brace piping (Observation 16A).	
Investment range	\$4,500 - \$ 9,500
1.9 Provide secondary containment vessel for liquid chlorine (Observation 18A.)	
Investment range	\$500-\$1,500
1.10 Provide second chemical pump for liquid chlorine (Observation 18A).	
Investment range	\$800-\$1,200
1.11 Provide CO2 alarm in pool mechanical space (Observation 19A).	
Investment range	\$1,500-\$2,500
1.12 Revise flow meter installation location to meet manufacturers and code installation requirements (Observation 24).	
Investment range.....	\$500-\$4,500
1.13 Provide piping schematic and valve legend describing pool filtration operations (Observation 24).	
Investment range	\$500-\$3,750

2.0 Intermediate Improvements

2.1 Provide ADA safety barrier at base of slide (Observation 3A4.1)	
Investment range	\$1,500-\$5,000
2.2 Remove and replace lap pool deck area complete (approximately 8400 sf) (Observation 8, Photo 18). Provide for adequate deck drainage, drain to ravine to south.	
Investment range	\$132,000-\$185,000
2.3 Provide for chemical treatment of slide motive flow water (Observation 14A)	
Investment range	\$10,000-\$20,000

2.4 Remove and replace existing pool heater (Observation 22A)
Investment range \$35,000-\$45,000

2.5 Provide for lap pool auto fill (automatic pool water level control) (Observation 24). Work anticipated concurrent with item 2.2 above.
Investment range \$9,500 -\$19,000

3.0 Long Term Recommendations

3.1 Replace Lap pool filtration with Re-generative Media filtration (RM). RM filtration utilizes less space and reduces backwash and water usage requirements. (See Appendix B)
Investment range \$180,000-\$225,000

Appendix A

**OBSERVATION
REPORT**

To	Water Technology, Inc. 100 Park Avenue Beaver Dam, WI 53916 682.708.7007		
Attn	Jennifer Gerber	Project Name	Kiwanis Pool
CC	Matt Freeby	Project #	5810.00
From	Mio Stanley/Stan Hahn	Observation Date	04-26-2022
On Site Contact		Time In	9:00
		Time Out	11:00
Represented Companies	AE Design	Issue Date	05.20.2022
		Site Visit #	1

GENERAL OBSERVATIONS

#	COMMENT
G1	<u>Electrical Service</u> There are three electrical services from XCEL Energy, each serving one building. Each service is 200A, 120/208V, 3PH/4W.
G2	<u>Concessions Building</u> This building does not appear to serve pool lighting or equipment.
G3	The equipotential bonding conductor bonds the equipment associated with pool water circulation to the deck surrounding the pool, the pool structure rebar, slides, and any metal measuring 4" or greater in any dimension. When the concrete deck is redone, it is advised to have the electrical contractor on site to observe and protect the existing #8 AWG bonding conductor to insure it remains intact. The #8 AWG bonding conductor can be traced/tested to determine if it indeed bonds the required metal and pool structure. It should be noted that the original electrical plans indicate the bonding was in the design to be installed. When the deck is repoured, the #8 AWG bonding conductor needs to be installed per NEC 680.26 including surrounding the pool perimeter within 3 feet of the water.
G4	The wading pool and splash pad should also have the #8 AWG equipotential bonding conductor installed per NEC 680.26. The splash pad installation likely is compliant, but the wading pool and shade structure need to be confirmed.
G5	AED advises light level calculations be provided for trespass at the property line, and at underwater and deck areas to insure compliance with state and local codes.

SPECIFIC OBSERVATIONS

#	LOCATION	COMMENT	PHOTO #
1	Original Pool Mechanical Building	The service disconnect located outside the building serves Panel HPA. Panel HPA serves Panel LPA and the 40A 3-phase pump motor branch circuit. Panel LPA serves both lighting, receptacles, and equipment. These panels are obsolete, in poor condition and should be replaced with new, compliant panels. AED suggests stainless steel, NEMA Type 4 panels with the required ground fault protection.	1
2	Original Pool Mechanical Building	Current codes require the 40A 208V/3PH pump motor to have Ground Fault Protection for Personnel, but the existing installation does not have the required protection.	



**OBSERVATION
REPORT**

GENERAL OBSERVATIONS			
3	Original Pool Mechanical Building	The equipotential bonding conductor, a #8 AWG-CU is visible in the mechanical room and bonds the water piping, but does not bond the pump motor, boiler, treatment, or other equipment as required in current NEC.	2
4	Original Pool Mechanical Building	All existing electrical gear, devices, and conduit is recommended to be replaced with new equipment/devices/conduit/etc that is corrosive resistant and rated for use in natatorium environments.	3,4
5	Splash Pad Building	This building is approximately two years old and the electrical system and equipotential bonding appears to be in good condition.	
6	Shade Structure	No visible equipotential bonding conductor was seen at the shade structure, but it is possible it is hidden and it is advised to confirm the bonding.	
7	Shade Structure	There is an existing electrical junction box observed at the existing shallow pool and shade structure that appears to be within the 10-foot limit from water's edge. Electrical contractor shall verify that 120V and high branch circuit distance limitation is being met within this electrical junction box.	5
8	Splash Pad	It is advised to confirm the required equipotential bonding conductor per NEC 680.26 is installed.	
9	Deck Pole Lighting	120V and higher branch circuits cannot be run within 10 feet of the water's edge, to prevent stray voltages. We do not know if any underground conduits are run within 10 feet, but locates are advised to insure none are run within 10 feet of the water. We understand 120V wet niche fixtures are used and appear to be protected by GFCI 5ma branch circuits as required by NEC 680.26.	

With the above recommendations, our opinion of the rough order of magnitude for the electrical scope of work is \$100,000. This estimation is based on available local construction cost data, our surface level observations as noted above, and our previous experience. This opinion of probable cost cannot be used as a construction estimate and a contractor shall be contacted for a construction cost estimate, should the client choose to move forward.

The above estimated cost includes the demolition and replacement of Panels HPA and LPA, the demolition and replacement of the electrical conduit, cabling, and boxes within the pool mechanical building, and some allowance for new electrical grounding and bonding conductors to required equipment around the pool. This also includes cost for a new lighting system around the pool deck. Please note that no exploratory demolition work has been completed to further evaluate the existing conditions that may not have been visible/known at the time of our observation, and thus no costs have been accounted for unknown conditions and scope.



**OBSERVATION
REPORT**



Photo #1: Panel HPA & LPA



Photo #2: Grounding conductor not found to be attached at pump motor



Photo #3: Rust damage on electrical junction box and conduit



Photo #4: Rust damage on electrical disconnect



**OBSERVATION
REPORT**



Photo #5: Electrical junction box found near shallow pool and shade structure.



Photo #6: 120V Light pole base installed near shallow pool. Verify conduits to and from light pole base meet distance requirements from water's edge.

Appendix B



DEFENDER® REGENERATIVE MEDIA FILTER



ABOUT US

Neptune-Benson, an Evoqua brand, has been synonymous with water filtration and disinfection serving the recreational, municipal, and industrial water markets since 1956. Featuring award-winning brands such as the Defender® regenerative media filter, ETS-UV™ disinfection systems, and Vortisand® and Legacy sand filters. Neptune-Benson also offers VAF™ filtration systems, the AEGIS anti-entrapment shield, Dominion™ butterfly valves, ProStrainer® and Guardian strainers, greendrive VFD systems, as well as all Lawson Aquatics® accessory products.

REGENERATIVE MEDIA FILTERS AND THE EVOLUTION OF WATER FILTRATION

Fresh, clean water is a common necessity in every corner of the world. We use it for drinking, bathing, food preparation, manufacturing, recreation and much, much more. With the need for clean water comes the need for water filtration. Water filtration has long been done using sand filtration. It is an easy and relatively inexpensive method for filtering water and has been used for thousands of years.

POOL FILTRATION:

Approximately 60 years ago, swimming pool filters were composed of alternating layers of sand and gravel. In order to provide a significant filter area, these filters were extremely large. The filters would be backwashed every one to two weeks, disposing a significant volume of water to the municipal waste line. While these filters of yesteryear were effective, they became impractical as innovation led to more compact and efficient designs.

HIGH RATE SAND FILTERS:

Today, the sand and gravel filters have been replaced with high-rate sand filters. The modernized version uses a single layer of fine sand and requires about 15% of the space required by the original sand and gravel filters. Although the high-rate sand filters are more compact and cost effective, they waste around 40% more water because of the need to be backwashed more often. In addition, the previous sand and gravel filters were more efficient at trapping smaller particles because the pressure in the high-rate sand filter forces smaller particles through the sand and back into the pool.

DIATOMITE EARTH FILTERS:

Later, Diatomite Earth filters (D.E.) were introduced and offered significantly improved performance relative to traditional sand filtration. The D.E. filters replaced the sand media with diatomaceous earth and it was applied to internal filter elements at the beginning of every cycle and removed with the backwash water at the end of the cycle. The D.E. filters posed operational drawbacks associated with handling and disposal of the media, pushing for a safer and more environmentally friendly product.

REGENERATIVE MEDIA FILTERS:

Regenerative Media Filters (RMF's) are a more efficient alternative to sand or D.E. filtration. RMF's such as the Neptune-Benson's Defender® filter use up to 90% less water, take up a quarter of the space, and use less energy than traditional sand filters. Regenerative media filters are also more effective at removing contaminants. The Defender filter is able to remove particles as small as 1 micron from water while traditional sand filters generally only remove particles in the 20 micron range.

Neptune-Benson developed the Defender Regenerative Media Filter to provide a safe, non-hazardous filter which uses perlite media for the clearest, cleanest and safest water. Our automated system offers worry free operation and significant water savings. We invite you to explore all of the benefits of the Defender filter.





SIMPLY BETTER WATER FILTRATION

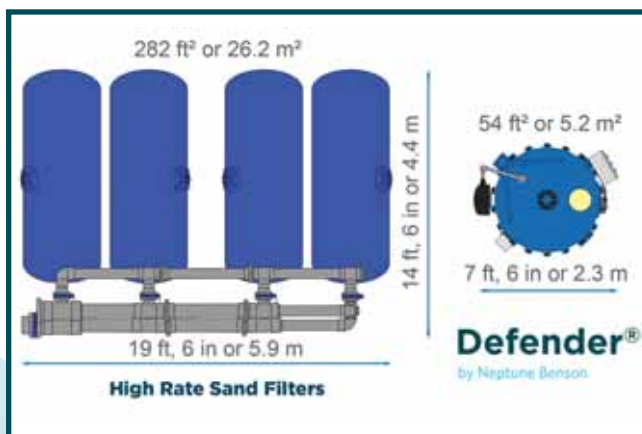
UP TO 90% WATER & WASTE SAVINGS

The Defender Regenerative Media Filter significantly reduces the amount of backwash water associated with sand filter operation. Instead of backwashing, it is programmed to automatically “bump” to regenerate the fine-grade perlite media for a fresh start. Eventually the filter will become saturated with trapped dirt and will require a quick and easy media discharge and replacement. Depending on bather load, the life cycle of the media averages around every four weeks.

75% SPACE & CONSTRUCTION SAVINGS

The Defender system takes up 1/4 to 1/6 of the space required by an equivalently sized sand system. This saves both space and construction costs. See the multiple benefits below.

- No backwash holding tank
- Smaller waste line to sewer
- Local backwash to waste flow rate restrictions
- Operating weight may be as little as 10% of a similar sand filter
- Smaller footprint = smaller access doors



50% ENERGY SAVINGS

Energy savings are derived in several ways. First, Defender filters operate at lower head pressure throughout the filter cycle reducing power demand. Second, the elimination of backwash waste associated with sand filtration provides significant wastewater treatment savings. Consider the cost of chemically treating 1.4 million gallons and the BTU’s required to heat this volume from 50°F (10°C) to 80°F (27°C).

BACKWASH WATER CONSUMPTION

Sand vs. Defender	Filter Area (sq ft/M ²)	Filter Rate (gpm/sq ft)/ (M ³ /HR/M ³)	Backwash Volume gal/M ³	Annual Volume gal/M ³
Sand Filter (4) 4884SHFFG-6	126.8 sq ft 11.78 M ²	11.8 gpm 28.86 M ³	9510 gal 36.0 M ³ 3x / week*	1,483,560 gal 5615.9 M ³
Defender (1) SP-49-48-1548	1211 sq ft 112.5 M ²	1.2 gpm 2.9 M ³	1230 gal 4.7 M ³ 1x / 4 weeks	14,760 gal 55.9 M ³

Annual Water & Waste Savings:

1,468,800 gallons or approximately \$10,282.00**
 *Conservative backwash rate @ 15 gpm ft² for 5 minutes
 **US average water/sewer costs \$7.00 per 1000 gal

30% LESS FUEL & CHEMICALS

The Defender filter reduces the tremendous amount of backwash water associated with sand filter operation. This dramatic reduction of backwash waste directly translates to savings in chemicals and fuels for reheating associated make-up water. Less backwash = less chemicals and heat needed to treat the backwash.

The chart above illustrates the backwash water consumption of a typical indoor waterpark attraction with a 1500 GPM (341 m³/ hr) recirculation rate. The annual water savings in excess of 1.469 million gallons (5560 m³) is complemented by associated costs related to sewer expenses, chemicals, heating, power and labor.

CLEANER WATER, LOWER OPERATING COSTS

REMOVES PARTICLES DOWN TO 1 MICRON

The Defender Regenerative Media Filter achieves the highest quality of water by removing particles down to 1 micron. This is 20 to 30 times finer than sand. Benefits include:

- Extension to the life of the filter
- Unsurpassed water quality
- Improved UV disinfection performance
- Up to 30% chemical consumption savings
- Controls turbidity to levels better than those required for drinking water.



ROI SAVINGS ANALYSIS

The combination of water, fuel, and chemical savings with the Defender filter can translate into significant savings over time. With Neptune Benson's 50+ year track record of delivering exceptional value, you will enjoy the peace of mind that can only come from partnering with an industry leader. Some facilities have realized a return on investment in less than one year.

See chart below for a breakdown of potential savings.

SAMPLE SAVINGS ANALYSIS

Potable Water & Discharge Impact	Sand	Defender
Backwash Volume	1,483,560 gal 5615.9 M ³	88,938* gal 336.7* M ³
Potable Water (Make-up) Fees (USD)	\$5192.00	\$311.00
Discharge Fees	\$5192.00	\$311.00
Energy & Fuel Impact		
Pump Power Consumption (kW)	216,569	170,170
Pump Power Cost (USD)	\$13,307.55	\$10,455.94
Heating Requirements (Therms)	4,449	489
Heating Costs (USD)	\$4,004.00	\$240.00
Water Treatment Chemical Impact		
Chemical Costs (USD)	\$4,451.00	\$267.00

*Includes 5% of the sand filter backwash volume to account for makeup water





DESIGNED WITH PERFORMANCE IN MIND

TANK CONSTRUCTION

All vessels are engineered and manufactured with Flexsol 3000™ interior lining and include a 10 year fully rated warranty. The lining protects all wetted surfaces against corrosion to maximize the life expectancy of the vessel.

VACUUM TRANSFER

At the push of a button, a self-contained, integrated pump quickly introduces dry media into the Defender filter. This feature eliminates the mess and additional equipment required by wet, slurry designs.

INTERNAL HYDRAULICS

Our under-drain manifold is engineered to achieve ideal distribution of influent flow. The generous open area serves to minimize turbulence and ensure superior “Flex Tube” coverage.

LIFTING DAVIT

At some point it may be necessary to access the interior of the vessel. Our unique tank-mounted davit permits easy access without remote lifting devices. The davit reduces the overall height requirement and saves valuable floor space.

FILTER ELEMENTS

Our “Flex Tubes” are constructed of T304L stainless steel frames (optional T316L) with permanent polyester woven coverings. Not one has ever had to be replaced as result of wear. Other systems designed with rigid plastic frames, o-rings and socks require costly replacement frequent maintenance.

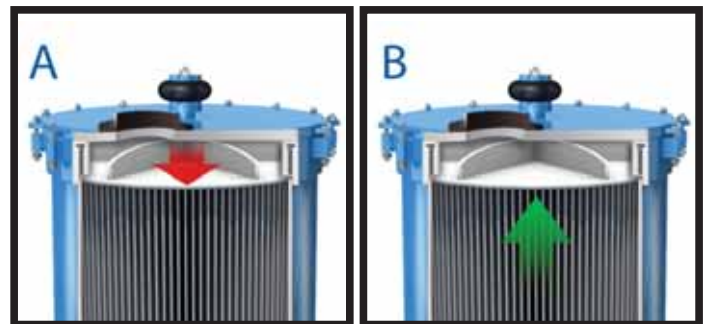
THE “BUMP”

It’s all about the “Bump” - The Defender filter is programmed to automatically “bump” on a daily basis to regenerate the media coating of the “Flex Tubes”. This incredible benefit maximized system performance and reduces water consumption.

HOW IT WORKS

As the bump tire deflates **(A)**, the tube sheet lowers to loosen the media and trapped debris. The re-inflation of the bump tire **(B)** raises the tube sheet and forces water into the “Flex Tubes”, gently expanding them to fully release all material. This bump cycle pulses ten times to ensure the entire cleaning process.

At the completion of the bump cycle, the Defender filter will automatically pre-coat the “Flex Tubes” and re-commence the filter cycle. The “Bump” is a vital function in order to achieve superior filtration and to make the most out of every filter cycle.





GETTING THE MOST OUT OF YOUR DEFENDER®

EASE OF USE

Operations of the Defender Regenerative Media Filter are controlled through the RMF System Controller, a 7" high resolution LCD control panel with simple push button operation and on screen menus to make operation quick and easy. It also provides animated graphics with step-by step instructions on operating procedures.

DATA LOGGING AND EXPORTING

The RMF System Controller continually logs data provide detailed information on water pressure stats, bump schedule, purge and more. Data can be viewed remotely and is exportable to .CSV formats for creating reports and working with the data.

REMOTE MONITORING AND CONTROL

The RMF System Controller also provides remote monitoring, e-mail notifications of condition changes, and remote control of the system operations. It allows users to check performance remotely through a web browser or smart phone.

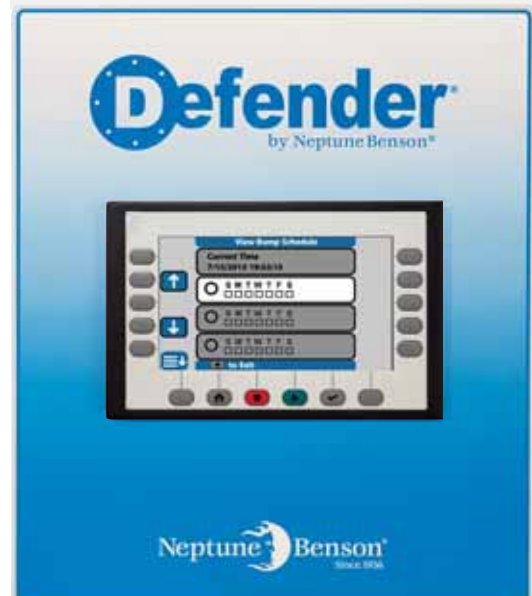
INCREASE EFFICIENCY

The data provided through the RMF System Controller can be used to analyze trends and modify operations to maximize efficiency. Analyze and identify peak usage, then automate or schedule bumping to ensure optimal operation. Data logs can also be used to help troubleshoot issues by identifying operating issues.

How do you improve the aquatic industry's best water filtration system? With an intuitive graphic control system with advanced data logging, automated capabilities, remote monitoring, and intersystem connectivity!

System Controller Features:

- 7" Hi-Res LCD w/ Tactile Feedback Membrane
 - Step by step animated graphics
- Advanced control of:
 - Bump & precoat cycle
 - Pneumatic valves & recirculation pump
 - Vacuum transfer system
 - Heater cool down delay
 - Data logging & maintenance reminders
- Remote monitoring/operation
- Modbus communication for PLC connectivity
- Nema 4x/IP66 approved
- greendrive VFD & ETS-UV connectivity
- Automated Drain & Purge



DEFENDER® CERTIFICATIONS & CREDITS

NSF: NATIONAL SANITATION FOUNDATION

An independent, accredited organization that tests, audits and certifies products and systems, as well as provides education and risk management.

Location Tested/Certified: USA
Certified for: NSF/ANSI 50: Pool, Spa and Recreational Water Products and NSF/ANSI 61: Drinking Water System Components.
nsf.org

UL: UNDERWRITERS LABORATORIES

UL is global independent safety science company offering expertise across seven key strategic businesses; Product Safety, Environment, Information and Insights, Life & Health, Verification Services, Enterprise Services, and Workplace Health & Safety. Their breadth, established objectivity, and proven history mean they are a symbol of trust and provide peace of mind to all.

Location Tested/Certified: USA
Defender Tested/Certified for: RMF Panel USA
ul.com/global/eng/pages/

SMART WATERMARK APPROVED

Australia's water conservation label, identifying & promoting products & services which help save water. An independent not-for-profit program supported by government & industry, and sister scheme to the WELS water efficiency rating program.

Location Tested/Certified: Australia
Defender Tested/Certified for: Validate Water Savings On An Application
www.smartwatermark.info/home/default.asp

CE APPROVED

The European Commission describes the CE mark as a "passport" that allows manufacturers to circulate industrial products freely within the internal market of the EU. The CE mark certifies that products have met EU health, safety and environmental requirements for workplace safety. All manufacturers in the EU and abroad must affix the CE mark.

Location Tested/Certified: USA
Defender Tested/Certified for: Meets Euro Health, Safety & Environmental requirements
ec.europa.eu/enterprise/policies/single-market-goods/cemarking/index_en.htm

PRODUCT VALIDATION

In addition to our certifications and credits, Neptune-Benson has a history of validating our technology. The value we provide is in the ongoing relationship - through the life of the filters and UV systems, we examine how the systems are being used and study the wear on the various components. Field Service Technician feedback is reviewed, and each product is continuously improved throughout the product life. Neptune Benson's commitment to research and development has been the backbone of the business for over 55 years.



DEFENDER® AND LEED CERTIFICATION

FOLLOW THE LEEDER

Neptune-Benson's commitment to LEED® principles pre-dates the creation of this formalized rating system. Improving the health and safety of aquatic environments has always been at the heart of what we do. The Defender filter has helped numerous projects achieve LEED certification by routinely providing the following category points:

ENERGY & ATMOSPHERE



- Meets Prerequisite 2
- Minimum Energy Performance
- Earns Credit 1
- Optimize Energy Performance

INNOVATION & DESIGN



- Earns Credit 1
- Reduction in Water Usage

WHAT IS THE LEED SYSTEM?

Developed by the US Green Building Council (USGBC) in 2000, the LEED System has become the National Standard certifying design, construction & operations of green buildings. Projects (not products) are evaluated in five (5) areas:

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality

* Extra credit may be earned for Innovation & Design



DEFENDER® ASSERO

NOW EVEN SMALL POOLS CAN ENJOY BIG FILTER BENEFITS

The Defender® Assero Regenerative Media Filter is specifically designed for smaller applications with flow rates between 60-420 gpm. It's compact design saves space and will fit through a standard door frame. It is the perfect solution for achieving the same pristine water quality as our standard Defender.

NOW, FULLY AUTOMATED

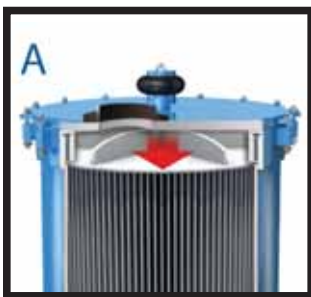
The Defender Assero system incorporates the new RMF System Controller, providing it with all the automated features found in full sized Defender filters. Features include an intuitive graphic control system with advanced data logging, automated drain & purge, remote monitoring, and intersystem connectivity!

It also provides advanced control of:

- Bump & precoat cycle
- Pneumatic valves & recirculation pump
- Vacuum transfer system
- Heater cool down delay
- Data logging & maintenance reminders

IT'S ALL ABOUT THE "BUMP"

Like the full sized Defender filter, the Assero incorporates a simple, easy-to-use bumping mechanism to regenerate the media coating of the "Flex Tubes". The dynamic bumping action of our Defender filters sets the standard for precoat filtration effectiveness.



Perfect for
Spray-grounds
Splash-pads
Therapy pools
Spas

The Defender Assero filter delivers superior water quality at an affordable price.

SYSTEM SIZING OPTIONS

DEFENDER SIZES/CONFIGURATIONS

Model #	Filter Area		Recommended Flow Rate Range		Tank Volume	
	ft ²	m ²	.5 - 1.4 gpm/ft ²	1.22 - 3.42 m ³ /hr/m ²	gal	m ³
SP-27-48-487	381	35.60	191 - 533	42.43 - 121.75	159	.602
SP-33-48-732	572	53.14	286 - 801	64.83 - 181.60	250	.946
SP-41-48-1038	812	75.44	406 - 1137	92.04 - 258.00	441	1.669
SP-49-48-1548	1211	112.50	606 - 1695	137.25 - 384.75	615	2.328
SP-55-48-2076	1625	150.97	813 - 2275	184.18 - 516.32	841	3.184

Note 1: Recommended flow rate range is suggested to optimize performance. This filter is NSF listed for up to 2.0 gpm/sq.ft (4.89 m³/hr/m²) flow rate. Consult Neptune-Benson for applications higher than the recommended flow rate range.

Note 2: Tank connection sizes based on velocity not to exceed 10.0 fps or 3.0 mps.

Note 3: The required perlite media volume is based on a 1/8" (3 mm) thick cake which is recommended for optimal performance.



DEFENDER ASSERO SIZES/CONFIGURATIONS

Model #	Filter Area		Recommended Flow Rate Range		Tank Volume	
	ft ²	m ²	.5 - 1.4 gpm/ft ²	1.2 - 3.9 m ³ /hr/m ²	gal	m ³
SP-29-36-200	117	10.9	59 - 164	13.30 - 37.28	181	.7
SP-29-36-250	146	13.6	73 - 204	16.60 - 46.51	181	.7
SP-29-36-300	175	16.3	88 - 245	19.89 - 55.75	181	.7
SP-29-36-350	204	19.0	102 - 286	23.18 - 64.98	181	.7
SP-29-36-400	234	21.7	117 - 328	26.50 - 74.21	181	.7
SP-29-36-450	263	24.5	132 - 368	29.9 - 83.8	181	.7
SP-29-36-500	294	27.3	147 - 412	33.3 - 93.4	181	.7

Note 1: Recommended flow rate range is suggested to optimize performance. This filter is NSF listed for up to 2.0 gpm/sq.ft (4.89 m³/hr/m²) flow rate. Consult Neptune-Benson for applications higher than the recommended flow rate range.

Note 2: Tank connection sizes based on velocity not to exceed 10.0 fps or 3.0 mps.

Note 3: The required perlite media volume is based on a 1/8" (3 mm) thick cake which is recommended for optimal performance.

Note 4: All Defender Assero models available in Automatic configuration





6 Jefferson Drive, Coventry RI 02816

+1 (800) 832-8002 (toll-free) +1 (401) 821-2200 (toll) www.neptunebenson.com www.evoqua.com

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SPONSORED BY: MAYOR LEIGHTY

COUNCIL MEMBER'S RESOLUTION

RESOLUTION NO.

No. CR-127
Series of 2022

Series of 2022

A RESOLUTION APPROVING A PROFESSIONAL SERVICES AGREEMENT BETWEEN THE CITY OF NORTHGLENN AND WATER TECHNOLOGY, INC. FOR KIWANIS POOL DESIGN SERVICES

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTHGLENN, COLORADO THAT:

Section 1. The Professional Services Agreement between the City of Northglenn and Water Technology, Inc., attached hereto, in the amount of \$144,400.00, with a twenty percent (20%) contingency of \$28,880.00, for a total amount not to exceed \$173,280.00 for Kiwanis Pool Design Services is hereby approved and the Mayor is authorized to execute same on behalf of the City of Northglenn.

DATED, at Northglenn, Colorado, this _____ day of _____, 2022.

MEREDITH LEIGHTY
Mayor

ATTEST:

JOHANNA SMALL, CMC
City Clerk

APPROVED AS TO FORM:

COREY Y. HOFFMANN
City Attorney

AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT is made and entered into this _____ day of _____ 20_____, by and between the City of Northglenn, State of Colorado (hereinafter referred to as the "City") and Water Technology, Inc. (hereinafter referred to as "Consultant").

RECITALS:

A. The City requires professional services.

B. Consultant has held itself out to the City as having the requisite expertise and experience to perform the required work for the Project.

NOW, THEREFORE, it is hereby agreed for the consideration hereinafter set forth, that Consultant shall provide to the City, professional consulting services for the Project.

I. SCOPE OF SERVICES

Consultant shall furnish all labor and materials to perform the work and services required for the complete and prompt execution and performance of all duties, obligations, and responsibilities for the Project which are described or reasonably implied from **Exhibit A** which is attached hereto and incorporated herein by this reference.

II. THE CITY'S OBLIGATIONS/CONFIDENTIALITY

The City shall provide Consultant with reports and such other data as may be available to the City and reasonably required by Consultant to perform hereunder. No project information shall be disclosed by Consultant to third parties without prior written consent of the City or pursuant to a lawful court order directing such disclosure. All documents provided by the City to Consultant shall be returned to the City. Consultant is authorized by the City to retain copies of such data and materials at Consultant's expense.

III. OWNERSHIP OF WORK PRODUCT

The City acknowledges that the Consultant's work product is an instrument of professional service. Nevertheless, the products prepared under this Agreement shall become the property of the City upon completion of the work. WTI shall retain all rights, including copyrights, to its standard design elements, typical architectural/engineering detail, and other previously product intellectual property.

IV. COMPENSATION

A. In consideration for the completion of the services specified herein by Consultant, the City shall pay Consultant an amount not to exceed one hundred forty-four thousand four hundred dollars (\$144,400). Payment shall be made in accordance with the schedule of charges in **Exhibit B** which is attached hereto and incorporated herein by this reference. The maximum fee specified herein shall include all fees and expenses incurred by Consultant in performing all services hereunder.

B. Consultant may submit monthly or periodic statements requesting payment. Such request shall be based upon the amount and value of the work and services performed by Consultant under this Agreement except as otherwise supplemented or accompanied by such supporting data as may be required by the City.

1. All invoices, including Consultant's verified payment request, shall be submitted by Consultant to the City no later than the twenty-fourth (24th) day of each month for payment pursuant to the terms of this Agreement. In the event Consultant fails to submit any invoice on or before the

twenty-fourth (24th) day of any given month, Consultant defers its right to payment pursuant to said late invoice until the twenty-fourth (24th) day of the following month.

2. Progress payments may be claimed on a monthly basis for reimbursable costs actually incurred to date as supported by detailed statements, including hourly breakdowns for all personnel and other charges. The amounts of all such monthly payments shall be paid within thirty (30) days after the timely receipt of invoice as provided by this Agreement.

C. The City has the right to ask for clarification on any Consultant invoice after receipt of the invoice by the City.

D. In the event payment for services rendered has not been made within forty-five (45) days from the receipt of the invoice for any uncontested billing, interest will accrue at the legal rate of interest. In the event payment has not been made within ninety (90) days from the receipt of the invoice for any uncontested billing, Consultant may, after giving seven (7) days written notice and without penalty or liability of any nature, suspend all work on all authorized services specified herein. In the event payment in full is not received within thirty (30) days of giving the seven (7) days written notice, Consultant may terminate this Agreement. Upon receipt of payment in full for services rendered, Consultant will continue with all authorized services.

E. Final payment shall be made within sixty (60) calendar days after all data and reports (which are suitable for reproduction and distribution by the City) required by this Agreement have been turned over to and approved by the City and upon receipt by the City of Consultant's certification that services required herein by Consultant have been fully completed in accordance with this Agreement and all data and reports for the Project.

V. COMMENCEMENT AND COMPLETION OF WORK

Within seven (7) days of receipt from the City of a Notice to Proceed, Consultant shall commence work on all its obligations as set forth in the Scope of Services or that portion of such obligations as is specified in said Notice. Except as may be changed in writing by the City, the Project shall be complete, and Consultant shall furnish the City the specified deliverables as provided in **Exhibit A**.

VI. CHANGES IN SCOPE OF SERVICES

A change in the Scope of Services shall constitute any material change or amendment of services or work which is different from or additional to the Scope of Services specified in Section I of this Agreement. No such change, including any additional compensation, shall be effective, or paid unless authorized by written amendment executed by the City. If Consultant proceeds without such written authorization, then Consultant shall be deemed to have waived any claim for additional compensation, including a claim based on the theory of unjust enrichment, quantum meruit or implied contract. Except as expressly provided herein, no agent, employee, or representative of the City shall have the authority to enter into any changes or modifications, either directly or implied by a course of action, relating to the terms and scope of this Agreement.

VII. PROFESSIONAL RESPONSIBILITY

A. Consultant hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and professional licenses in good standing, required by law.

B. The work performed by Consultant shall be in accordance with generally accepted professional practices and the level of competency presently maintained by other practicing professional firms in the same or similar type of work in the applicable community.

C. Consultant shall be responsible for the professional quality, technical accuracy, timely completion, and the coordination of all designs, drawings, specifications, reports, and other services furnished by Consultant under this Agreement. Consultant shall, without additional compensation, correct or resolve any errors or deficiencies in his designs, drawings, specifications, reports, and other services, which fall below the standard of professional practice, and reimburse the City for construction costs caused by errors and omissions which fall below the standard of professional practice.

D. Approval by the City of drawings, designs, specifications, reports, and incidental work or materials furnished hereunder shall not in any way relieve Consultant of responsibility for technical adequacy of the work. Neither the City's review, approval or acceptance of, nor payment for, any of the services shall be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement, and Consultant shall be and remain liable in accordance with applicable performance of any of the services furnished under this Agreement.

E. The rights and remedies of the City provided for under this Agreement are in addition to any other rights and remedies provided by law.

VIII. INDEMNIFICATION

A. **INDEMNIFICATION – GENERAL:** The City cannot and by this Agreement does not agree to indemnify, hold harmless, exonerate or assume the defense of the Consultant or any other person or entity whatsoever, for any purpose whatsoever. Provided that the claims, demands, suits, actions or proceedings of any kind are not the result of professional negligence, the Consultant, to the fullest extent permitted by law, shall defend, indemnify and hold harmless the City, its Council members, officials, officers, directors, agents and employees from any and all claims, demands, suits, actions or proceedings of any kind or nature whatsoever, including worker's compensation claims, in any way resulting from or arising from the services rendered by Consultant, its employees, agents or subconsultants, or others for whom the Consultant is legally liable, under this Agreement; provided, however, that the Consultant need not indemnify or save harmless the City, its Council members, its officers, agents and employees from damages resulting from the negligence of the Council members, officials, officers, directors, agents and employees.

B. **INDEMNIFICATION FOR PROFESSIONAL NEGLIGENCE:** The Consultant shall, to the fullest extent permitted by law, defend, indemnify and hold harmless the City, its Council members, and any of its officials, officers, directors, and employees from and against damages, liability, losses, costs and expenses, including reasonable attorneys fees, but only to the extent caused by or arising out of the negligent acts, errors or omissions of the Consultant, its employees, agents or subconsultants, or others for whom the Consultant is legally liable, in the performance of professional services under this Agreement. The Consultant is not obligated under this subparagraph IX.B. to indemnify the City for the negligent acts of the City, its Council members, or any of its officials, officers, directors, agents and employees.

C. **INDEMNIFICATION – COSTS:** Consultant shall, to the fullest extent permitted by law, defend, investigate, handle, respond to, and provide defense for and defend against, any such liability, claims or demands at the sole expense of Consultant or, at the option of the City, agrees to pay the City or reimburse the City for the defense costs incurred by the City in connection with any such liability, claims or demands. Consultant shall, to the fullest extent permitted by law, defend and bear all other costs and expenses related thereto, including court costs and attorney fees, whether or not any such liability, claims or demands alleged are groundless, false or fraudulent. If it is determined by the final judgment of a court of any competent jurisdiction that such injury, loss or damage was caused in whole or in part by the act, omission or other fault of the City, its Council members, officials, officers, directors, agents and employees, the City shall reimburse Consultant for the portion of the judgment attributable to such act, omission or other fault of the City, its Council members, officials, officers, directors, agents and employees.

D. To the extent this Agreement is subject to C.R.S. § 13-50.5-102(8), Contractor's liability under this provision shall be to the fullest extent of, but shall not exceed, that amount represented by the degree or

percentage of negligence or fault attributable to Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor or of any subcontractor of Contractor. If Contractor is providing architectural, engineering, surveying or other design services under this Agreement, the extent of Contractor's obligation to defend, indemnify and hold harmless the City may be determined only after Contractor's liability or fault has been determined by adjudication, alternative dispute resolution or otherwise resolved by mutual agreement of the Parties, as provided by C.R.S. § 13-50.5-102(8)(c).

IX. INSURANCE

A. Consultant agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by Consultant pursuant to Section IX, above. Such insurance shall be in addition to any other insurance requirements imposed by this Agreement or by law. Consultant shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to Section IX, above, by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types.

B. Consultant shall procure and maintain and shall cause any subcontractor of Consultant to procure and maintain, the minimum insurance coverages listed below. Such coverages shall be procured and maintained with forms and insurers acceptable to the City. All coverages shall be continuously maintained to cover all liability, claims, demands, and other obligations assumed by Consultant pursuant to Section IX, above. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage.

1. Worker's Compensation Insurance to cover obligations imposed by applicable laws for any employee engaged in the performance of work under this Contract, and Employer's Liability Insurance with minimum limits of five hundred thousand dollars (\$500,000) each incident, five hundred thousand dollars (\$500,000) disease - policy limit, and five hundred thousand dollars (\$500,000) disease - each employee.

2. Commercial general liability insurance with minimum combined single limits of one million dollars (\$1,000,000) each occurrence and two million dollars (\$2,000,000) general aggregate. The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including completed operations), personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision.

3. Professional liability insurance with minimum limits of six hundred thousand dollars (\$600,000) each claim and one million dollars (\$1,000,000) general aggregate.

C. The policy required by paragraph 2. above shall be endorsed to include the City and the City's officers, employees, and consultants as additional insureds. Every policy required above shall be primary insurance, and any insurance carried by the City, its officers, its employees, or its consultants shall be excess and not contributory insurance to that provided by Consultant. No additional insured endorsement to the policy required by paragraph 1. above shall contain any exclusion for bodily injury or property damage arising from completed operations. Consultant shall be solely responsible for any deductible losses under any policy required above.

D. The certificate of insurance provided for the City shall be completed by Consultant's insurance agent as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be reviewed and approved by the City prior to commencement of the Agreement. No other form of certificate shall be used. If the City is named as an additional insured on any policy which does not allow for the automatic addition of additional insureds, the Consultant's insurance agent shall also provide a copy of all accompanying endorsements recognizing the City as an additional insured. The certificate shall identify this Agreement and shall provide that the coverages afforded under the policies shall not be cancelled, terminated or materially changed until at least thirty

(30) days prior written notice has been given to the City. The completed certificate of insurance shall be sent to:

City of Northglenn
Attn: Kathy Kvasnicka
11701 Community Center Drive
Northglenn, Colorado 80233-8061

E. Failure on the part of Consultant to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of agreement upon which the City may immediately terminate this Agreement, or at its discretion, the City may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the City shall be repaid by Consultant to the City upon demand, or the City may offset the cost of the premiums against any monies due to Consultant from the City.

F. The City reserves the right to request and receive a certified copy of any policy and any endorsement thereto.

G. The parties hereto understand and agree that the City, its officers, and its employees, are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations (presently three hundred fifty thousand dollars (\$350,000) per person and nine hundred ninety thousand dollars (\$990,000) per occurrence) or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, Colo. Rev. Stat., §§ 24-10-101, et seq., as from time to time amended, or otherwise available to the City, its officers, or its employees.

X. NON-ASSIGNABILITY

Neither this Agreement, nor any of the rights or obligations of the parties hereto, shall be assigned by either party without the written consent of the other.

XI. TERMINATION

This Agreement shall terminate at such time as the work in Section I is completed and the requirements of this Agreement are satisfied, or upon the City's providing Consultant with seven (7) days advance written notice, whichever occurs first. In the event the Agreement is terminated by the City's issuance of said written notice of intent to terminate, the City shall pay Consultant for all work previously authorized and completed prior to the date of termination. If, however, Consultant has substantially or materially breached the standards and terms of this Agreement, the City shall have any remedy or right of set-off available at law and equity. If the Agreement is terminated for any reason other than cause prior to completion of the Project, any use of documents by the City thereafter shall be at the City's sole risk, unless otherwise consented to by Consultant.

XII. CONFLICT OF INTEREST

The Consultant shall disclose any personal or private interest related to property or business within the City. Upon disclosure of any such personal or private interest, the City shall determine if the interest constitutes a conflict of interest. If the City determines that a conflict of interest exists, the City may treat such conflict of interest as a default and terminate this Agreement.

XIII. VENUE

This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in the County of Adams, State of Colorado.

XIV. INDEPENDENT CONTRACTOR

Consultant is an independent contractor. Notwithstanding any provision appearing in this Agreement, all personnel assigned by Consultant to perform work under the terms of this Agreement shall be, and remain at all times, employees or agents of Consultant for all purposes. Consultant shall make no representation that it is the employee of the City for any purposes.

XV. NO WAIVER

Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the City shall not constitute a waiver of any of the other terms or obligation of this Agreement.

XVI. ENTIRE AGREEMENT

This Agreement and the attached **Exhibits A and B** is the entire Agreement between Consultant and the City, superseding all prior oral or written communications. None of the provisions of this Agreement may be amended, modified, or changed, except as specified herein.

XVII. SUBJECT TO ANNUAL APPROPRIATION

Consistent with Article X, Section 20 of the Colorado Constitution, any financial obligations of the City not to be performed during the current fiscal year are subject to annual appropriation, and thus any obligations of the City hereunder shall extend only to monies currently appropriated.

XVIII. NOTICE

Any notice or communication between Consultant and the City which may be required, or which may be given, under the terms of this Agreement shall be in writing, and shall be deemed to have been sufficiently given when directly presented or sent pre-paid, first class United States Mail, addressed as follows:

The City: City of Northglenn
11701 Community Center Drive
Northglenn, Colorado 80233-8061

Consultant: Water Technology, Inc. (WTI)
6636 N. Riverside Drive, Ste 500B
Fort Worth, Texas 76137

IN WITNESS WHEREOF, the parties hereto each herewith subscribe the same in duplicate.

CITY OF NORTHGLENN, COLORADO

By: _____

Meredith Leighty
Print Name

Mayor
Title Date

ATTEST:

Johanna Small, CMC Date
City Clerk

APPROVED AS TO FORM:

Corey Y. Hoffmann Date
City Attorney

CONSULTANT:

By: _____

Cari Reynen
Print Name

Managing Director *8/11/22*
Title Date

ATTEST:

By: *Tracey A. Posthuma*
Tracey A Posthuma
Print Name

Office Coordinator *8/11/2023*
Title Date





Professional Services Proposal

Kiwanis Swimming Pool and Mechanical Renovation

Northglenn, Colorado

WTI Project Number: 22232.01

August 2, 2022

Client

City of Northglenn
12301 Claude Court
Northglenn, CO 80241

Andrea Weaver
Civil Engineer
T. 303.450.4078
M. 720.483.6240
Aweaver@northglenn.org

Consultant

Water Technology, Inc. (WTI)
6636 N Riverside Drive Ste 500B
Fort Worth, Texas 76137
www.wtiworld.com

Robbie Hazelbaker
Project Director
M. 972.978.1104
rhazelbaker@wtiworld.com

Jennifer Gerber
Business Development Leader
M. 763.360.0594
jgerber@wtiworld.com



Project Understanding

Scope

WTI services involve the design of the aquatic components for the renovation of the main pool and toddler pool to include replacement of all associated piping, coping and tile, deck and deck drain replacement, renovation of electrical system, and resurfacing of the two pools. WTI will provide design and engineering for the replacement of the aquatic mechanical, heating, and water treatment systems and develop a general layout of deck and include concept level (only) design of landscape, turf, fencing, shade areas and barriers.

Description

An aquatic masterplan or program has not yet been finalized for this facility. The following proposal is based on these preliminary design criteria;

- An existing 3,000 SF, L-shaped outdoor skimmer pool with a perimeter of 275 linear feet with attached diving area and small spiral waterslide.
- An existing 400 SF, 20' X 20' Tot pool

Budget

The project budget is undetermined or unknown to WTI.

Scope of Services

Schematic Design

WTI will consult with the Client to confirm project goals and requirements. For the Schematic Design (SD) phase, WTI will perform the following tasks:

- Confirm Aquatic Mechanical Program
- Confirm Pool Zones and Turnover Rates
- Select Preliminary Mechanical Equipment
 - Identify pool filtration and heating methodologies
- Develop Preliminary Mechanical Equipment Layout
- Develop Aquatic Drawings
 - SD Level Plans, Sections, and Details
- Develop Preliminary Utility Requirements
- Develop Preliminary layouts of Fences, Perimeter Barriers, Pedestrian Walks, Shade Structures & Pavilions
- Develop Rough Order of Magnitude (ROM) Aquatic Construction Cost Opinion

Design Development

Based on the Client approved SD Deliverables, WTI will develop designs of the aquatic areas and systems. For the Design Development (DD) phase, WTI will perform the following tasks:

- Define Pool Specialty and Mechanical Equipment
- Develop Pool Mechanical Equipment Layout
- Develop Aquatic Drawings
 - Pool Plans, Sections, and Details
 - Preliminary Pool Piping Plans, and Piping Details to include VGBA Main Drains and skimmers.
 - Pool Mechanical Plans, Schedules, and Details
- Develop Preliminary Demo Drawings
- Refine deck layout and provide general scoring and initial drainage layout
- Aquatic Electrical Design

- Design of power distribution from the transformers to main building electrical panels shall be provided by the Building Electrical Engineer. WTI electrical scope includes coordination with Building Electrical Engineer to determine electrical panel sizes, locations, and breaker design, preliminary design of electrical power connections from the building electrical panels to all aquatic equipment, all required electrical interconnections between the aquatic equipment.
- Preliminary bonding and grounding for pool reinforcing, and pool and water attraction metal components and equipment as required.
- Update Utility Requirements
- Develop preliminary HVAC mechanical room design
- Develop preliminary Pool mechanical, chemical and equipment storage rooms designs
- Develop Draft Specifications
- Conduct Inter-Disciplinary Review and Coordinate with other Consultants of the Client
- Verify Aquatic Design for Code Compliance
- Develop Preliminary Aquatic Construction Cost Opinion

Construction Documents

Based on the Client approved DD Deliverables, WTI will finalize the designs of the aquatic areas and systems. Final CD Deliverables will contain information suitable for contractors to provide construction pricing or bidding. Final CD Drawings provided by WTI will contain the Professional Seal of an Architect or Engineer licensed in the State/Province of the project site and will be suitable for review by permitting agencies with jurisdiction over the project. For the Construction Document (CD) phase, WTI will perform the following tasks:

- Finalize Pool Equipment and Mechanical Equipment Schedules
- Finalize and Assemble Pool and Pool Mechanical Aquatic Drawings
 - Pool Plans, Sections, and Details
 - Pool Mechanical Plans, Schedules, and Details
 - Pool Piping Plans, Schedules and Details
 - Pool Mechanical Schematics
- Provide final definition of deck design and finalize scoring
- Pool underwater lighting plan
- Aquatic Electrical Design
 - WTI to provide pool related electrical loads and breaker size requirements to the Building Electrical Engineer. Building Electrical Engineer shall specify and locate building electrical panels and sub-panels with breakers for power supply to all pool equipment. WTI to complete a final coordination review of Building Electrical Engineer drawings.
 - Complete layout and specification of pool electrical equipment including electrical disconnects, VFDs, and/or motor starters for pool pumps.
 - Provide power supply distribution schedules using the Building Electrical Engineer sub-panel breakers for electrical pool equipment; includes coordination of distribution panel locations, design of conduit and wiring requirements, and detailing of pool equipment power.
 - Complete final bonding and grounding plans and details for pools, adjacent decks, deck equipment, and pool electrical equipment.
- Pool heater venting and exhaust
- Pool chemical storage room venting and exhaust
- Pool mechanical equipment room HVAC
- Complete Demo Drawings
- Finalize Specifications
- Finalize Utility Requirements
- Finalize Coordination with other Consultants of the Client
- Perform Internal Quality Assurance Procedure

- Address Questions and Comments from Permitting Agencies
- Assist with Swimming Pool permit applications for local jurisdiction.

Bidding and Negotiation

WTI will assist the Client during bid document preparation and negotiation of the Contract Documents. For the Bidding and Negotiation (BN) phase, WTI will perform the following tasks:

- Respond to aquatic related Request For Information (RFI)
- Provide information and clarifications for Client's Addenda
- Assist in the interview of the Pool Contractors, if requested by Client

Construction Administration

WTI will assist the Client during construction of the project. WTI will periodically visit the project site and will endeavor to observe the construction for conformance to the CD Deliverables. For the Construction Administration (CA) phase, WTI will perform the following tasks:

- Review requested Submittals including Shop Drawings and other information
- Review Pool Contractor Change Order requests
- Correspond with Permitting Agencies regarding aquatic questions
- Review Pool Contractor prepared Aquatic Operation and Maintenance Manual (O&M Manual)
- Conduct Site Observations
- Provide Field Reports on Site Observations
- Review Punch List prepared by Pool Contractor

Requirements

The following information, materials, and approvals are required for WTI to effectively and efficiently perform the services described in this proposal. The Client shall provide WTI, at no cost, with the following:

- Project site surveys
- Project record drawings, if applicable
- Project site geotechnical analysis and reports
 - WTI's fee is typically based on design with standard soil conditions using an assumed bearing capacity of 2,500 pounds per square foot. However, this project is in a suspected seismic zone or area known to have poor soil conditions. Although, we have included an allowance for additional structural design services, if the report reveals expansive, environmental, high groundwater, organics or other deleterious conditions, additional fees may be required.
- Project site water analysis and testing
- Preferred title block, sheet sizes, or other drawing format details
- Background drawings and models, including site and building(s), for incorporation of WTI designs
- Written approval of WTI produced Deliverables at the completion of each Phase of work
- Construction contract bid documents and addenda
- Construction contract bid responses and results

Deliverables

Schematic Design

- SD Drawing Set
- Preliminary Utility Requirements
- Preliminary Aquatic Construction Cost Opinion

Design Development

- DD Drawing Set
- Draft Specifications including Swimming pool finish details
- Updated Utility Requirements
- Preliminary Aquatic Construction Cost Opinion

Construction Documents

- CD Progress and Coordination Drawing Sets
 - WTI shall provide a 90% review set in advance of final deliverable. Client to provide comments and feedback no later than 30 days prior to final deliverable due date.
- CD Drawing Set
- Specifications – Division 13 11 Swimming Pools

Bidding and Negotiation

- RFI Response(s)
- Addenda Drawings and Documentation, as required.

Construction Administration

- Review Comments of Submittals
- Review Comments of Change Orders
- Review Comments of Aquatic O&M Manual
- Field Reports
- Final Aquatics Punch List

Schedule

Our fee is based on the following projected phase schedule:

Schematic Design: 4 - 6 weeks

Design Development: 6 - 8 weeks

Construction Document Preparation and Quality Control Review: 10 - 12 weeks

We understand that abbreviated schedules may sometimes be required, however in our experience, this puts the Owner, Client and WTI at risk. To expedite a project, please be aware that a discussion of those risks is required, in addition to a corresponding fee adjustment.

Services Provided by Others (Coordinated with WTI)

WTI will assist with coordinating all WTI provided services with other disciplines of the project team. A non-comprehensive outline of scope for coordination and exclusion from the proposed WTI Scope of Services is below. The following services and project scope shall be the responsibility of the Client, or other Consultants of the Client.

Architecture / Landscape Architecture

- Change facilities, locker rooms, food areas, retail areas, offices and/or other support spaces
- Deck furniture layouts and capacity counts
- Method to lift pumps from pool mechanical rooms, if required
- Stair access to springboards
- Landscaping and irrigation
- Pool safety, directional or other signage
- Update Fences, Perimeter Barriers, Pedestrian Walks, Shade Structures & Pavilions

Civil Engineering

- Parking and vehicular access
- Storm and Sanitary sewers
- Site grading and drainage
- Cut and fill calculations
- Pool filter backwash disposal piping
- Utility distribution, including gas, electric and water
- Pool underdrain or dewatering systems, if required
- Earthwork/soil improvement required for pool construction.

Structural Engineering

- Building foundations, footings, bearing and spanning systems, including building support of pool vessels, pool area, pool mechanical equipment, and pool piping
- Pump pit(s) concrete and reinforcement, grating, railings, and stairs if required
- Waterproofing Specification. (Waterproofing scope recommended by structural.)
- Filtration and other mechanical equipment pads and slabs
- Any special inspections required by permitting officials
- Slide tower supports, footings, stairs, railings, and platforms

Mechanical Engineering

- Boilers, pool water heat exchangers, and controls

Electrical Engineering

- Pool mechanical equipment room lighting and outlet power
- Controls and low voltage wiring

Plumbing

- Pool mechanical equipment room floor drains and drain piping to waste
- Pool filter backwash/drain plumbing, sump, and duplex sump pump system
- Pool mechanical equipment room potable water supply including piping to pool auto-fill
- Pool mechanical equipment room emergency eyewash station
- Fire protection system

Testing and Analysis

- Geotechnical testing and analysis
- Local water testing and analysis

Administrative

- Permits and regulatory fees.
 - WTI will provide pool system information to the Client to complete construction permit applications but is not responsible for submission nor payment of fees.
- Front-end specifications
- LEED® Registration and Application
- Document reproduction and distribution
- Preparation of addenda
- Maintenance of the plan holder list
- Record Drawings (unless accepted as an Additional Service)

Terms and Conditions

Scope of Services

Services offered are limited to those services described in the proposal. No other services are offered or implied unless specifically addressed in the proposal.

Expiration

The attached proposal is considered valid for a period of ninety (90) days from the date of the proposal or its last revision date, if any. Proposals older than ninety (90) days are expired, unless reissued by WTI with a reissue date.

Hourly Charges/Additional Services

WTI personnel will be charged at the following rates:

Principal/Director	\$200.00
Project Manager/Engineer	\$150.00
Creative Studio	\$130.00
Project Design	\$115.00
Mechanical Design	\$135.00
Technical Design	\$85.00
Administrative	\$60.00

These rates are valid for a period of twelve (12) months from date of an accepted proposal. These rates are not valid for work involving claims settlement, expert witness or litigation work. Additional services, if requested by Client, will be performed on a stipulated sum or hourly basis, as agreed to in writing by both parties prior to initiating the additional services.

Reimbursable Expenses

Expenses and services not directly provided by WTI will be invoiced at one and 10/100 (1.10) times cost. International travel is business class air. Domestic airfare will be premium economy (changeable and refundable). These costs are not included in WTI's fee unless specifically noted as included in our proposal. Air fares are based on seven (7) days advanced purchase. Costs associated with customer requested modifications to travel arrangements after purchase by WTI will be an addition to the contract sum.

Additional Project Related Costs

The following costs are not included in our proposal and should be anticipated in the owner's budgeting: geotechnical services and reports, topographic and boundary surveys (site surveys), testing, project related insurance, legal and safety consultant services, permits and fees, and marketing and operations development.

Standard of Care

Services provided by WTI under this Agreement will be performed in a manner consistent with that degree of skill and care ordinarily exercised by members of the same profession currently practicing under similar circumstances and in accordance with the governing codes and regulations adopted at the time of the execution of this Agreement. No other warranty or representation, either expressed or implied, is included or intended in our proposals, contracts, plans and specifications or reports.

Photography

The project architect agrees that any published photos, descriptions or award submittals of the project that include reference to the aquatic work shall include WTI as the aquatic consultant.

Client Services

As part of WTI's quality assurance program, WTI will contact the Owner regarding services provided by WTI.

Hazardous Materials

Client represents to WTI that to the best of Client's knowledge no hazardous or toxic substances within the meaning of any applicable statute or regulation are presently stored, or otherwise located, on the project site or adjacent thereto. Further, within the definition of such statutes or regulations, no part of the project site or adjacent real estate, including the ground water located thereon, is presently contaminated.

Existing Conditions

Inasmuch as the remodeling and/or rehabilitation of an existing site/structure requires that certain assumptions be made regarding existing conditions, and because some of these assumptions may not be verifiable without expending additional sums of money or destroying otherwise adequate or serviceable portions of the building, Client agrees, to fullest extent permitted by law, to indemnify and hold the design professional harmless from any claim, liability or cost (including reasonable attorney's fees and costs of defense) for injury or economic loss arising or allegedly arising out of the professional services provided under this agreement, excepting only those damages, liabilities or costs attributable to the sole negligence or willful misconduct of the design professional.

Fee for Professional Services

Fee

WTI professional services are offered for a stipulated lump sum and are contingent upon WTI Terms and Conditions.

Fee for Professional Services \$ 144,400.00 USD

Fee Breakdown per Phase

Schematic Design.....	20%
Design Development	25%
Construction Documents.....	37%
Bidding & Negotiation	3%
Construction Administration	15%

Trips

WTI has included a total of up to the following number of trips to facilitate meetings and/or conduct site visits.

Verification Visit WTI.....	1
Verification Visit Electrical.....	1
Verification Visit Architect.....	1
CA Visit Architect	1
CA Visit Electrical	1
Construction Administration Site Visits WTI	3

Reimbursable Expenses

Project related expenses are reimbursable and are not included in the proposed fee. Reimbursable expenses include travel, swimming pool permit fees, express shipping, and printing. Reimbursable expenses are estimated to be \$1,500 – 2,000.00 per trip, per person.

Acknowledgement

This proposal will remain valid for a period of 90 days. Please provide the signature of an authorized representative on the line below indicating acceptance of the proposed scope and fee for professional services.

Water Technology, Inc.

City of Northglenn, Colorado

Signature

Signature

Name / Title

Name / Title

Date

Date

Additional Services

As an additional service for our Clients, WTI proposes the following supplementary scope of work for consideration. Please indicate acceptance by initialing box next to selected alternate.

Alternate 1: Additional Site Visits \$ 1,750.00 USD
If additional site visits are requested, WTI will charge an additional fee per trip plus travel expenses, assuming one WTI professional for one overnight stay.

Alternate 2a: Record Drawings – Base Alternate\$ 1,500.00 per pool
WTI will issue, at the completion of the project, a set of WTI drawings which will include pre-bid addenda.

Alternate 2b: Record Drawings – As Designed 5% of CD Phase Fee
WTI will issue, at the completion of the project, a conformed set of WTI drawings which will include pre-bid addenda, permit and RFI generated drawing modifications.

Alternate 3: Eleven (11) Month Site Visit \$ 3,000.00 USD
WTI will provide an additional site visit and field report to facilitate any contractor or equipment warranties. Not including travel expenses which shall be billed at WTI cost.