Weston & Sampson

westonandsampson.com

85 Devonshire Street, 3rd Floor
Boston, MA 02109
tel: 617.412.4480

REPORT

February 2017

TOWN OF

Windsor

Windsor Recreation and Leisure Services
Town of Windsor, CT
599 Matianuck Ave
Windsor, Connecticut 06095

ENGINEER'S REPORT

The Town of Windsor is located in Hartford County, Connecticut. It is a community of roughly 30.97 square miles in size, with a population of 29,044 based on the 2010 census. The Town's Recreation and Leisure Services operates nine active parks and three active trails: The Custer Park, Deerfield Park, Fitch Park, Northwest Park, Sharshon Park, Stroh Park, Trent Park, Washington Park, and Welch Park. The parks offer many amenities for the community including walking trails, athletic fields, playgrounds, tennis courts, picnicking, pools, fishing ponds, and off-leash dog areas. There are three community pools found in the Town, Goslee Pool located at Stroh Park, Veterans Pool located at the high school, and Welch Pool located at Welch Park.

Weston & Sampson has been retained to perform professional engineering, compliance evaluations, and planning services in connection with Goslee, Veterans, and Welch pools. Our scope of services includes the following:

- Review of existing pools and structures.
- Perform code analysis for conformance with state and national standards as well as the most recent federal standards for Americans with Disabilities Act (ADA) and Virginia Graeme Baker (VGB) Act.
- Evaluation of the current bath house building and filter room.
- Examine existing piping, circulation, chemical treatment, and filtration systems.
- Research appropriate repairs for the main swimming pools and wading pools.
- Preparation of an Engineer's Report documenting our findings, providing cost estimates and master planning for capital upgrades containing pertinent information on pool replacement cost, recommended repairs and cost, a conclusion and summary of recommendations.

Inspections were performed on October 31, 2016, and December 13, 2016. It should be noted the facilities were not in operation when the inspections occurred.

Codes

The Windsor Community swimming pools were evaluated for conformance with the below code standards:

- Connecticut Public Health Code 19 – 13 – B33b. Public Pools. (January 2010)
- Connecticut Swimming Pool Design Guide (January 2010)
- American National Standard for Public Swimming Pools (ANSI / NSPI – 2003)
- American National Standard for Aquatic Recreation Facilities (ANSI / IAF – 9 2005)
- International Swimming Pool and Spa Code (2012) (ISPS)
- International Building Code (2009) (IBC)
- International Plumbing Code (2009) (IPC)
- United States Access Board - Accessible Swimming Pools & Spas (June 2003) (ADA code)
- National Electrical Code – Article 680 – 2011 Edition (NEC 680)
- Virginia Graham Baker Pool and Spa Safety Act – January 2012 (VGB code)

Outline of Report

The evaluation of the Goslee, Welch, and Veterans Swimming Pool Facilities will be outlined below:

1.00 GENERAL INTRODUCTION TO TOWN FACILITIES

1.10 Description of Current Facilities

The Goslee, Welch, and Veterans Aquatic Facilities are located at 685 Windsor Ave, 45 Niles Road, and 50 Sage Park Road respectively, in Windsor, Connecticut. The facilities include swimming pools / wading pools for water recreation, picnic areas, a playscape, and locker room facilities.

There is substantial community involvement in the pool's programs, including seasonal memberships, swimming lessons, summer camps, adult swim and general recreation. In all, the aquatic facilities attract broad ages across all population groups in town.

Veteran's Pool is the oldest pool facility owned by the town. It is unclear of an exact date of when the facility was constructed, but it's believed to be the late 1950's / early 1960's. This pool facility is mainly used as an amenity for the Town's summer camp.

Welch Pool is the second oldest pool facility. It was constructed in the mid 1970's. The facility has been renovated through its tenure with a fiberglass reinforced PVC liner. The facility is open to open swim, swim classes, and various other recreational actives.

Goslee is the newest facility. The pool was constructed in the early 2000's, but the building dates back to the 1960's. The facility was renovated in the early 2000's which includes a new main pool, new wading pool and splash features, and renovations to the pool and deck. The facility is currently programmed the same as the Welch Pool.

1.20 – Current Patrons Attendance and Programing

The attendance at each facility is as follows:

	2014	2015	2016
Welch	11,500	12,800	13,000
Goslee	10,800	11,200	11,300
Veteran's	4,375	4,375	9,625

Goslee Bath House

Based on the current data, attendance at the pool facilities has increased over the last three years. For a town that has approximately 29,000 residence, there is significant community involvement and use of the pools, cumulatively, seeing approximately 26,000 to 32,000 patrons per season.

Welch and Goslee pools are operated weekdays from 11 am to 8 pm, closed on the weekends. Veteran's pool is not open to the public, only to campers. The facilities are open from the third week in June to Labor Day weekend. The aquatic programs offered consist of child and adult swim lessons, water resistance training, elderly swimming, and life guard training programs. The facilities are also open to the public for rental.

1.30 – Current Challenges

Unique challenges are found at each facility, ranging from minor compliance upgrades to potential replacement. The intent of this report is to provide clarity on the compliance and operational items that need to be addressed, and an associated value to make the said repairs per each facility. This will allow the Town to prioritize the capital improvements to make the necessary repairs.

Veterans Pool Deck

2.00 GOSLEE POOL FACILITY

2.10 Main Swimming Pool

2.11 Current Design

The Goslee swimming pool is Z-shaped, approximately 40 feet wide by 45 feet long, and 36 feet wide by 70 feet long with depths ranging from 3-feet depth on the east side of the swimming pool, sloping to 5 feet in the west end of the pool. The pool is currently not used for competition swimming, but used for swim lessons, lap swim, and general recreation.

The pool has one set of corner entry stairs found in the shallow portion at the north end of the pool and ladders can be found around various points of the pool. The pool was constructed from reinforced shotcrete, with water line ceramic tile, and a plaster finish.

Aerial View of Goslee Complex

Due to high ground water at the facility, constructing a pool deep enough for diving was not feasible. Currently there is no ADA lift installed on the pool, but the units were found onsite.

The pool has a surface area of approximately 4,125 square feet, containing 133,000 gallons of water, with 352 linear feet of pool perimeter. The current turnover of the pool is assumed to be 5.8 hours based on the current filter equipment found in the pump room.

Based on the current Connecticut Public Health Code 19 – 13 – B33b. Public Pools; the bather load of the current main pool design is 165 bathers at one time. The bather load for the wading pool is 151 bathers.

2.12 Compliance Issues/Current Issues with the Pool

A. Skimmer Equalization Line

In accordance with Code, "4.8.1 Skimmer equalizer lines**",** from the American National Standard for Public Swimming Pools states, **"**Skimmer equalizer lines, when used, shall be located on the wall with the center no more than 18 inches (457mm) below the maximum operating level. It shall be protected by a listed suction outlet cover/grate with a flow rating equal to the maximum system flow divided by the number of skimmers when piped through a common suction line, or the maximum flow rating of the skimmer, whichever is greater."

Issue

Skimmer with no VGB Equalization Cover

VGB rated covers are not found on the equalization lines. In accordance with VGB code, these covers must be installed on all skimmer equalization lines.

B. Ladders and Entry Points

In accordance with Connecticut Public Health Code 19 – 13 – B33b –16.1: "Steps or ladders shall be provided at the shallow end of the swimming pool if the vertical distance from the bottom of the pool to the deck or walk is over two feet. Recessed steps or ladders shall be provided at the deep portion of the swimming pool. If the pool is over 30 feet wide, such steps or ladders shall be installed in each side of the deep portion."

Issue

There should be another ladder installed at the northwest corner of the deep end of the pool. The pool at this portion is over 30 feet in width. Code in pool design is to have access points at every 75 feet of pool perimeter. In this case, there is approximately 115 linear feet of pool perimeter

between entry points. Minimal egress points are a hazard to bathers by not providing proper exit from the pool facility.

C. Depth Markers

In accordance with Code 18.3.9, “Specific Safety Features”, from the American National Standard for Public Swimming Pools states, “Pool Depths of 5 FT or less shall display the “No Diving” Symbol. The symbol may be placed on the deck at intervals of no more than 25 FT. “

Typical Deck Depth Marker

Issue

“No Diving” symbols are not present on the pool deck at locations where the depth is indicated. Any depth less than 5 feet should have this symbol installed.

D. Pool Coping

There are approximately 178 pieces of precast coping stone installed around the perimeter of the pool. Approximately 2/3 of the precast coping stone are loose or the bond has failed between the precast coping stone and pool beam.

E. Water Line Tile

Condition of Waterline Tile

The perimeter waterline tile is in poor condition. The tile has failed and cracked in numerous locations. It appears the failure has been caused by water infiltrating behind the tile and creating a freeze thaw cycle. The cracked and failing water line tile is abrasive and a hazard to bathers.

F. Pool / Deck Caulking

The caulking joint behind the pool coping and the pool deck is failing, and allows water infiltration behind the coping stone, resulting in a freeze / thaw cycle, that has dislodging various coping stones.

2.13 – Recommendations on Remediation/Replacement

A. Skimmer Equalization Covers

Anti-entrapment devices shall be installed on the skimmer equalization lines. We recommend purchasing a VGB equalization cover that can be installed onto the wall with concrete anchors. The cover shall be rated for 50 GPM at 1.5 FPS

B. Ladders and Entry Point

A ladder shall be installed on the northwest corner of the pool, and a ladder should be installed if the linear pool perimeter is greater than 75 feet. This can be accomplished by coring the pool deck, and grouting new anchors. The anchors shall be incorporated into the pools equipotential bonding system.

C. Depth Markers

“No Diving” depth markers, with the international sign for no diving shall be either painted on the pool deck, or new deck tiles cut into the pool deck. They should be installed around the perimeter of the pool, at intervals no greater than 25 linear feet of pool perimeter.

As the pool was not in operation during the time of inspection, we recommend the water depth to be checked to ensure the pool water deck is correctly displayed on the deck and wall.

D. Pool Coping

The loose pool coping is a hazard, and could become dislodged during operation. The lose coping shall be removed, and re-grouted. The coping is most likely failing due to water infiltrating behind the coping stone. If the coping stone is damaged, it should be replaced.

E. Water Line Tile

The existing waterline tile shall be removed and replaced with new freeze resistant water line tile. The old mortar shall be removed and chipped to original concrete. The tile shall be set with an

epoxy mortar, and grouted with an epoxy grout. The joint between the top of the water line tile and pool coping stone shall not be grouted. It shall be finished with a Sikaduo Flex NS caulking, primed with Sika 5050. This will provide an expansion joint because the tile will expand and contract at a different rate than the concrete coping stone.

F. Pool / Deck Caulking

The caulking found behind the pool coping stones is failing. The caulking shall be removed, cleaned, and reinstalled with Sikaduo Flex SL with Sika 5050 primer, or any caulking that is chlorine resistant. New backer rod shall also be installed.

2.20 – Men's and Women's Locker Room & Pool Deck

2.21 Current Design

The current bath house and storage building is a single wythe concrete masonry building having walls finished with epoxy paint. The roof is constructed from pre-engineered trusses, finished with asphalt shingles. The buildings are operational for one season and provide natural ventilation and natural light to enter from louvered openings found in the upper portion of the buildings.

The buildings were originally constructed in the 1960's, but have been upgraded in recent years with new fabric awnings, new asphalt shingle roofs, various painting, and partition upgrades.

The entrance to the bath facility can only be accessed by walking-through the main pool gate and across the pool deck to the entrance.

The storage building acts as a life guard muster area, first aid station, manager's office, chemical storage, chemical disinfection equipment, and houses electrical panels. The building provides overhead weather protection for the pool and wading pool filter equipment.

Based on the current pool and wading pool surface area and Connecticut Public Health Code 19 – 13 – B33b. Public Pools, the facilities capacity is 316 bathers at one time.

The pool deck is reinforced cast in place concrete with a broom finish. There are locations where the deck drains to an area drain; however most of the deck drains away from the pool to the surrounding landscaped areas.

2.22 Compliance Issues/ Current Issues

A. Entrance into the Locker Room / Bathrooms

In accordance with 2010 ADA Standard for Accessible Design: Chapter 4: Accessible Routes

404.2.4.1 Swinging Doors and Gates. Swinging doors and gates shall have maneuvering clearances complying with Table 404.2.4.1.

Type of Use		Minimum Maneuvering Clearance	
Approach Direction	**Door or Gate Side**	**Perpendicular to Doorway**	**Parallel to Doorway (beyond latch side unless noted)**
From front	Pull	60 inches (1525 mm)	24 inches (455 mm)
From front	Push	48 inches (1220 mm)	0 inches (0 mm)[1]
From hinge side	Pull	60 inches (1525 mm)	36 inches (915 mm)
From hinge side	Pull	54 inches (1370 mm)	42 inches (1065 mm)
From hinge side	Push	42 inches (1065 mm)[2]	22 inches (560 mm)[3]
From latch side	Pull	48 inches (1220 mm)[4]	24 inches (610 mm)
From latch side	Push	42 inches (1065 mm)[4]	24 inches (610 mm)

Table was updated in accordance with the State of Connecticut regulatory amendments.

Issue

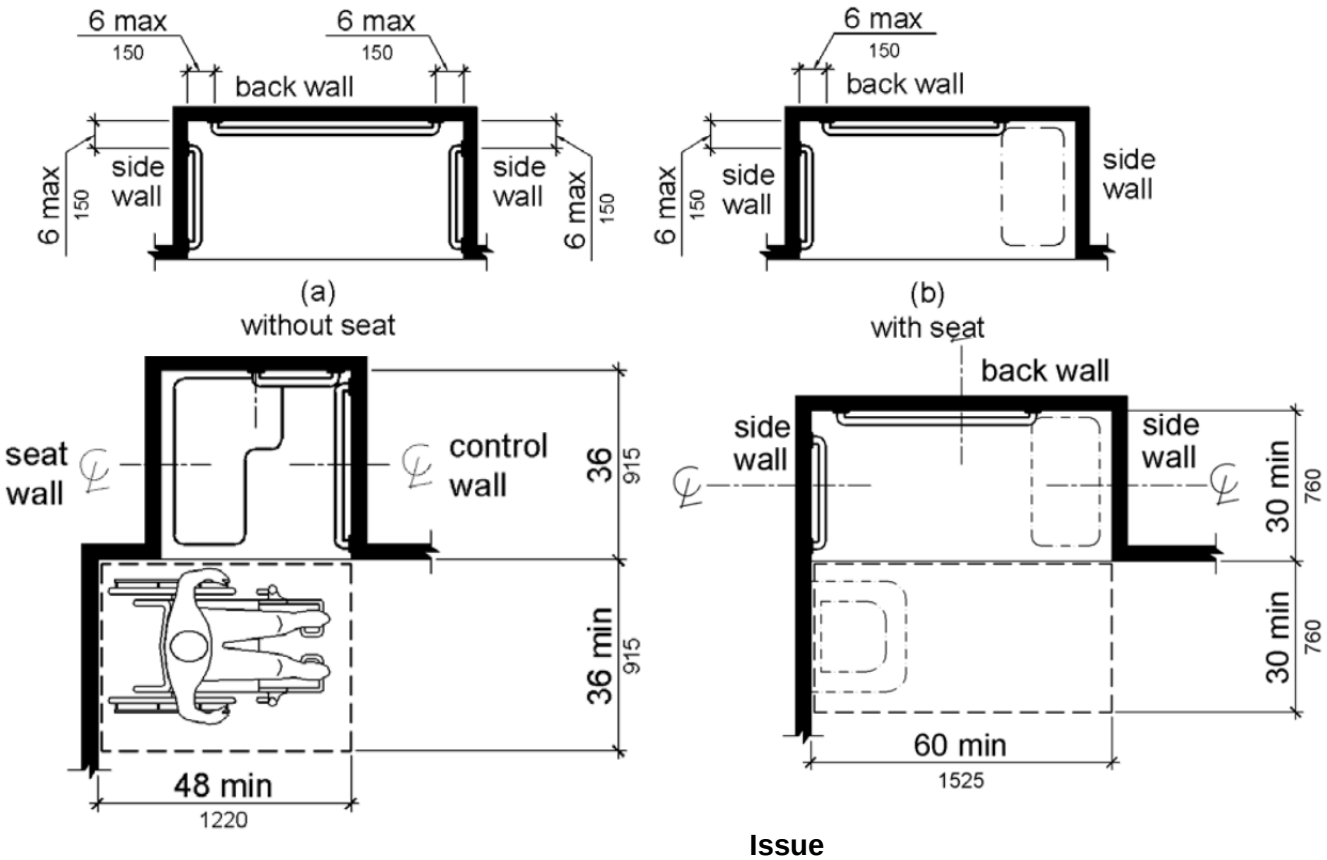
The current bathrooms do not provide the proper clearance on the latch side of the door. In accordance with the above table, 24 inches is required beyond the latch side of the jambs. Currently only 3 inches is provided.

B. Showers

In accordance with 2010 ADA Standard for Accessible Design: Chapter 6: Plumbing Elements and Facilities:

607.6 Shower Spray Unit and Water. A shower spray unit with a minimum hose length of 59 inches (1500 mm) long can be used both as a fixed-position shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Bathtub shower spray units shall deliver water that is 120°F (49°C) maximum.

608.3.2 Standard Roll-In Type Shower Compartments. Where a seat is provided in standard roll-in type shower compartments, grab bars shall be provided on the back wall and the side wall opposite the seat. Grab bars shall not be provided above the seat. Where a seat is not provided in standard roll-in type shower compartments, grab bars shall be provided on three walls. Grab bars shall be installed 6 inches (150 mm) maximum from adjacent walls.



Issue

The current ADA showers do not have a spray unit with a 59 inch long hose, and the current stalls do no provide hot water to the bather. Tempered water is required for an ADA shower.

The ADA showers are approximately 48 inches in width. In accordance with ADA code, the units shall be either 36 inches or 60 inches in width, providing the correct equipment in the stall, depending on the size of the shower unit.

B. Bathhouse Fixture Count

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 21.5, "Bathhouse facilities shall be provided on the basis of the following fixture schedule:

	Males	Females
Water Closets	1/75	1/50
Urinals (see below *)	------	
Lavatories	1/100	1/100
Showers	1/50	1/50

* A minimum of one urinal must be provided. Urinals maybe substituted for up to 50% of the water closets for the men's facilities.

Drinking Fountain - minimum of one to be located in swimming pool area for every 1000 persons.

Issue

Based on the current bather load, the facility would need to provide:

	Males	Females
Water Closets	2	4
Urinals	1	-
Lavatories	2	2
Showers	4	4

Current facilities provided:

	Males	Females
Water Closets	2	3
Urinals	2	-
Lavatories	2	2
Showers	3	3

Based on the current bather load, the Women's Bathroom water closets, and Men's and Women's Showers, the facility does not meet the required number of fixtures / units.

A drinking fountain was not found during the inspection. The unit could have been winterized for the season. Owner shall confirm if a drinking fountain is found at the facility. The drinking fountain shall also be ADA accessible**.**

C. Signage

In accordance with Connecticut Public Health Code 19 – 13 – B33b – (17), "Signs. Signs shall be conspicuously posted at the pool and in public dressing rooms stating the following:

(A) All persons shall bathe with warm water and soap before entering the pool.

(B) Any persons known or suspected of having a communicable disease shall not use the pool.

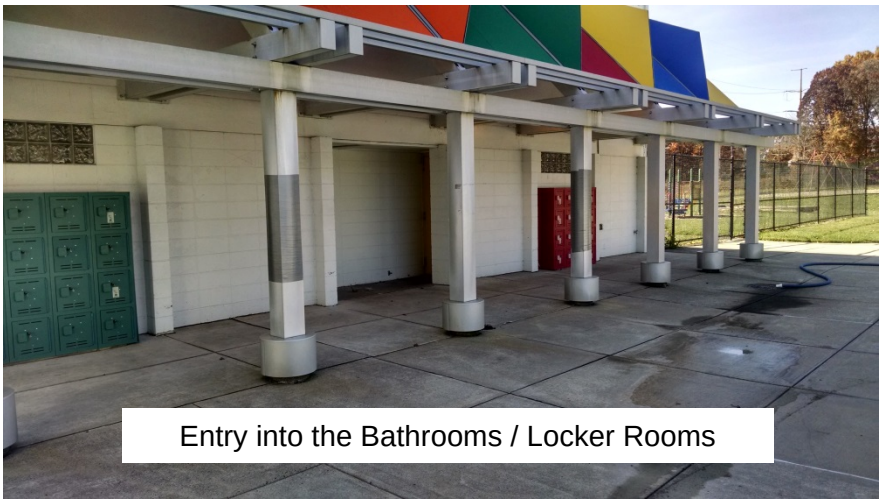
(C) Spitting or blowing the nose in the pool is prohibited.

(D) Running, boisterous or rough play (except supervised water sports) is prohibited."

Issue

The required signage was not posted entering or exiting the restroom facilities.

D. Flow of Traffic



Entry into the Bathrooms / Locker Rooms

In accordance with Connecticut Public Health Code 19 – 13 – B33b, (21.2) "Dressing Rooms, Toilets, and Showers – Bathhouses to be used simultaneously by both sexes shall be divided into two parts separated by a tight partition, each designated for men or women. The entrances and exits shall be screened to break line of sight. The layout of the bathhouse should be such that the bathers on leaving the dressing room pass the toilets and showers en-route to the swimming pool."

Issue

Current patrons enter onto the pool deck before entering the bathrooms and locker rooms. Patrons do not pass by the toilets and shower in route to the swimming pool.

E. Ventilation

In accordance with Table 403.1 Minimum ventilation rates, from the International Mechanical Code states, the minimum ventilation requirements for this facility. This facility is categorized under the following classifications. Ventilation requires for facility classifications are listed below, found under "Education".

- Education - Locker / dressing rooms = 0.25 CFM / FT^2

Issue

No forced ventilation was found at the facility. This should be incorporated in wet areas and especially in areas containing chemicals.

F. Equipment Protection

Current Equipment Room

In accordance with Connecticut Public Health Code 19 – 13 – B33b, (15.1 – 15.4), "Equipment Room –

15.1: All filters, pumps, chemical feeding apparatus and other mechanical equipment shall be secured and protected by an appropriate enclosure or room, separate and apart from the swimming pool.

15.2: The equipment enclosure or room shall be designed so that the pool equipment can be easily and safely maintained and repaired.

Chlorine Storage Tank

15.3: Sufficient area, reasonably separate from the recirculation equipment, shall be provided for the satisfactory storage of pool water chemicals and supplementary pool equipment."

Issue

Currently the filter equipment for both bodies of water is housed outside the facility. The filters and pumps are housed with a

canopy top. This still leaves the equipment open to UV degradation, weathering and corrosion from blowing snow and rain.

G. Storage Building

Currently there is sodium hypochlorite stored in an un-ventilated space, with feed lines routed over electrical panels. The panels are showing signs of corrosion which could lead to an electrical failure or accident. Properly rated panels are required for this room or reconfiguration of the chlorine storage is needed.

H. Building Columns

There is currently duct tape around two structural columns of the building found on the north side of the building (pool deck). The columns appear to have split open. This is an abrasion hazard to patrons and requires future investigation as to why they are compromised and need repair.

2.23 Recommendations on Remediation/Replacement

A. Entrance into the Bathrooms / Locker Rooms & Flow of Traffic

Currently the flow of patron traffic into the facility locker room is non-compliant. The best possible way to adapt the current building to applicable codes is to provide an entrance on the parking lot side of the building. This would allow patron traffic to flow into the bathroom facilities but will result in the loss of some shower units or water closets.

However, seeing that the bathhouse is deficient in the required amount of fixtures, this would be the opportunity to program the bath house to allow for a central entrance, adequate fixtures, and ADA access. A renovation of the bath house could address the ventilation, signage, ADA access, and sanitary requirements.

B. Storage Building

It is recommended to permanently enclose the filter area portion of the site. The equipment has seen the effects of UV degradation and the harsh New England elements. Creating a permanent enclosure will result in extending the life span of the equipment.

The liquid sodium hypochlorite and other chemicals should be isolated in a dedicated room. This would provide insulation between harsh chemicals and other electrical or mechanical elements. It would also, reduce the amount of human exposure to these chemicals and would provide isolation

for only authorized personnel to access the chemical storage making the space more habitable to employees and people in need of first aid assistance.

2.30 Main Pool & Wading Pool Filtration Systems

2.31 Current Main Pool Filter System

Recirculated water is delivered to the main swimming pool through a network of return inlets around the perimeter wall of the pool, which create the movement of the water. The water then recirculates back to the filter system through ten (10), high density resin skimmers found at the surface of the water, and the two main drains. The skimmer and main drain water is suctioned from the inlet source to a flooded suction centrifugal pump in the equipment room. The flooded suction pump forces water through the sand filter, through the network of piping to provide proper disinfection, and is then dispensed back into the pool through the network of return inlets referenced above.

The current equipment found:

- Pump – Marlow – 530 STK – 7.5 HP Motor
- Filter – Paddock – 102” x 36” single sand bed.
- Disinfectant Feeder: Rolo chem – 503SC
- pH Control: Manual
- Chemical Controller: N/A
- UV: N/A
- Flow Meter: GF Signet 515

Main Pool Filter System

The main pool appears to have a new flooded suction pump. The sand filter appears to be original to the pool.

2.32 Current Wading Pool Filter System

The wading pool operates in a similar fashion to the main pool. The wading pool suctions surface water through three high density resin skimmers and one main drain. However, different from the

main pool, this pool provides a zero entry portion of the pool with a strip drain, and aquatic spray features.

The water is filtered using a self-priming pump, sand filter, erosion tablet feeder, and network of piping to deliver the water back to the pool.

The current equipment found:

- Pump – Challenger – PAC – FAB – 3 HP – Self Priming
- Booster Pump – Challenger – PAC – FAB – 3 HP – Self Priming
- Filter – Pentair TR 100 – 4.91 SQFT of filter area
- Disinfectant Feeder: Hayward – C340CF – Trichlor Feeder
- pH Control: Manual
- Chemical Controller: N/A
- UV: N/A
- Flow Meter: Blue White F 300 – Pitot

The pool utilizes a new sand filter, but an automatic chemical feed system is not utilized.

2.33 Compliance Issues / Current Issues with the Main Pool Filtration System

A. Sand Filter

The current sand filter has aged and is starting to deteriorate. Manufacturers recommend a sand change every 6 to 8 years and it has been over 8 years since the last sand change. The filter appears to be original from the 1980's. There is concern over the condition of the steel filter as replacement seals and parts may no longer be available.

B. Chemical Controller

The chemical controllers found on site are not operational. The pool chemistry is maintained manually by the facility staff. This is a time intensive process, and can lead to inconsistencies in water chemistry.

Abandoned Chemical Controllers

C. Chemical Feed System

The pool is fed with sodium hypochlorite through a metering pump. The pump is typically set on a timer to dose chemical into the pool. This is a very inaccurate way of controlling chemicals because the system can be under or overfed.

Also, the pool does not have pH control. pH is controlled by the staff by manually broadcasting chemicals over the surface of the pool. This is not an ideal method of controlling the pool pH. When patrons are using the pool throughout the day staff is unable to provide proper pH balance. Thus when dosing sodium hypochlorite into the pool the pH is being raised rendering the disinfectant inert.

This is dangerous procedure, as the pump is not interlocked with the filter pump. In the current state, the metering pump can continue to feed chlorine into the system when the filter pump is shut off. This would be dangerous as it would deliver a plume of chlorine into the pool when startup occurs.

The staff does check the water every hour but this is a labor intensive activity.

Current NaCl Feeder

D. Piping

As a result from the piping being exposed to UV light, the piping has faded and is brittle. The piping is currently not labeled, the flow is not defined, and the piping is unrestrained. The risk is the brittle, unrestrained piping could fail if water hammer was placed on the piping.

E. Operation Instructions

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 15.4, Equipment Room – Lifesaving Equipment, “Operating instructions and a schematic drawing for all pool equipment are to be provided in the pool equipment enclosure or room.

Issue

There are no operation instructions displayed in the equipment room for the filter system.

2.34 Compliance issues / Current issues with the Wading Pool Filtration System

A. Backflow/Air gap

In accordance with Connecticut Public Health Code 19 – 13 – B33b –2.2, “Water introduced into the pool, either directly; or, to the recirculation system, shall be supplied through an air gap. The air gap shall be twice the size of the pipe diameter with a minimum of 3". The air gap is to be measured between the pipe outlet and the rim of the pool structure. This is required to comply with the requirements of Public Health Code, Section 19-13-B37, Section 19- 13-B38(b), and Section 19-13-B45.”

Water Feed to Wading Pool

In accordance with Code 302.5 Backflow Protection, from the International Swimming Pool and Spa Code states, “Water supplies for *aquatic vessels* shall be protected against backflow in accordance with the *International Plumbing Code* or the *International Residential Code*, as applicable in accordance with Section 102.7.1.”

In accordance with Code 608.13.1 Air Gap, from the International Plumbing Code states, “The minimum required *air gap* shall be measured vertically from the lowest end of a potable water outlet to the *flood level rim* of the fixture or receptacle into which such potable water outlet discharges. Air gaps shall comply with ASME A112.1.2 and *air gap* fittings shall comply with ASME A112.1.3.”

Issue

No air gap was found on the fill line to the pools as the pools are directly connected to a public water source.

B. Pressure Gauges

In accordance with Connecticut Public Health Code 19 – 13 – B33b –11.7, “All pumps shall have a vacuum and effluent pressure gauges.”

Issue

There are no pressure gauges found on the filter pump or booster pump.

C. Chemical Controller

The chemical controllers found on site are not operational. The pool chemistry is maintained manually by the facility staff. This is a time intensive process and can lead to inconsistencies in water chemistry.

D. Chemical Feed System

The pool is fed with a Trichlor erosion tablet feeder. The feeder is fed with a water bypass line and controlled by a dampener to dose chemical into the pool. Trichlor is a stabilized chemical that lowers pH, as sodium hypochlorite is un-stabilized, and raises pH. This is a very inaccurate way of controlling chemicals because the system could easily be under or overfed.

The pool does not have pH control. pH is controlled manually by the staff broadcasting chemicals over the surface of the pool. This is not an ideal method of controlling the pool pH. When patrons are using the pool throughout the day staff is unable to add chemicals to provide proper pH balance. Thus when dosing Trichlor into the pool lowering the pH, the disinfectant is rendered inert.

The staff does check the water every hour, but this is a labor intensive activity. For a pool that will see a high organic load it is strongly recommended to have an automated system.

E. Piping

As a result from the piping being exposed to UV light, the piping has faded and is brittle. The piping is currently not labeled, flow defined, but unrestrained. The risk is the brittle, unrestrained piping could fail if water hammer was placed on the piping.

F. Operation Instructions

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 15.4, Equipment Room – Lifesaving Equipment, “Operating instructions and a schematic drawing for all pool equipment are to be provided in the pool equipment enclosure or room.

Issue

There are no operation instructions displayed in the equipment room for the filter system

2.35 Recommendations on Remediation / Replacement

A. Main Pool

- Filter – At a minimum the sand to be changed. As this filter is approximately 30 years old, it may be in the Towns best interest to change the steel horizontal sand filter to a fiberglass horizontal sand filter.
- Piping – Due to UV deterioration, the pipe solvent welds should be evaluated. At a minimum the piping should be painted, labeled, and restrained.
- Chemical Feed System – It is strongly recommended that a chemical controller be installed on the system which would operate a sodium hypochlorite metering pump and a CO2 injection system to maintain water chemistry.

B. Wading Pool

- Air Gap – An auto fill line would need to be installed under the pool deck from the equipment room to the water's edge. A PVC probe unit can be installed in the deck housing the water sensor with fresh water attached in the equipment area. Another option would be to install a route to a collector tank, located in the grassy area between the wading pool and filter area.
- Pressure Gauges – A vacuum gauge and pressure gauge shall be located on the piping system.
- Piping – Due to UV deterioration, the pipe solvent welds should be evaluated. At a minimum, the piping should be painted, labeled, and restrained.

Wading Pool

- Chemical Feed System – It is strongly recommended a chemical controller to be installed on the system which would operate a sodium hypochlorite metering pump, (removing the Trichlor System), and a CO2 injection system to maintain water chemistry.

2.40 Wading Pool

2.41 Current Design

In addition to the main pool the facility also contains a small wading pool. The wading pool is approximately 44 FT in diameter with water depths from 0-Inches to 6 Inches, and contains approximately 2,800 gallons of water. The pool has a water surface of 1,510 square feet and 140 linear feet of perimeter. Based on the current Connecticut Public Health Code 19 – 13 – B33b. Public Pools; the bather load is 151 bathers at one time.

The current turnover of the pool is assumed to be less than 1 hour based on the current equipment located in the equipment area.

2.42 Compliance Issues / Current Issues with the Wading Pool

A. Depth Markers

In accordance with Code 18.3.9, “Specific Safety Features”, from the American National Standard for Public Swimming Pools states, “Pool Depths of 5 FT or less shall display the “No Diving” Symbol. The symbol may be placed on the deck at intervals of no more than 25 FT. “

In accordance with Code 409.2.1, where required, from the International Swimming Pool and Spa Code states, “Depth markers shall be installed at the maximum and minimum water depths and at all points of slope change. Depth markers shall be installed at water depth increments not to exceed 2 feet (607 mm). Depth markers shall be spaced at intervals not to exceed 25 feet (7620 mm).”

Raise Coping Edge

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 5.3, ""Depth Markers" means numerals of four inches minimum height which are of a contrasting color with the background of the pool and denote water depth in the immediately adjacent portion of the pool.”

Issue

"No Diving" symbols or indicators are not located on the deck accompanying the depth markers. Depth markers shall be located on the zero depth portion of the pool to indicate the sloping depth.

B. Pool Coping

There are approximately 45 pieces of precast coping stone installed around the perimeter of the pool. Approximately 5 of the precast coping stone are loose or in poor condition. The bond has failed between the precast coping stone and pool beam.

The two ends of the coping stones protrude up and is a tripping hazard. The coping stones should be replaced with an alternative coping stone with a proper bullnose that does not provide an abrasive edge.

Cracking Plaster Finish

A repair was performed on the coping stones, and was replaced with a cast in place replica of a coping stone. This should be replaced with a coping stone.

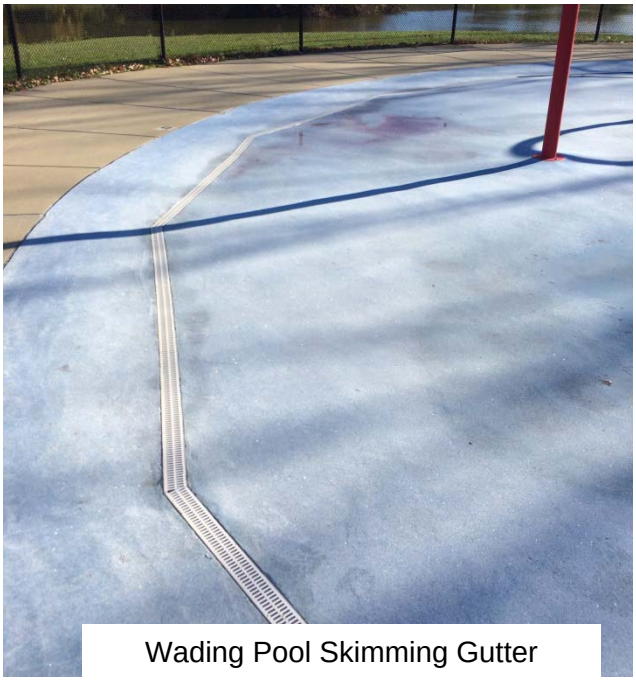
There are also other locations where the coping stones protrude past the edge of the pool. This is an abrasion hazard.

C. Pool Plaster

The exposed surface of the pool plaster that is on the zero entry beyond the water's edge has dried out and is cracking. This will progressively get worse, and become an abrasive edge for bare feet. This section of the pool plaster should be repaired.

D. Gutter

The gutter on the zero entry portion of the pool is not properly designed. The trough has no discharge pipe and fills with scum and algae and is a health hazard. The biological growth will hamper proper water



Wading Pool Skimming Gutter

chemistry in the pool. It is recommended the existing gutter be removed and replaced with a concrete trough or fiberglass gutter trough with PVC fiberglass grating. The grating shall be a minimum of 1 FT wide. The trough would drain to a proposed collector tank found in the grassy area between the wading pool and the filter system.

E. Main Drains

Currently there is one large main drain found in the center of the pool. This is used for filter suction and for booster suction for the main drains. If a new gutter trough was installed, the drains should be diverted to the collector tank. This would provide indirect suction, creating a safer swimming environment.


Failing Coping Caulking

F. Pool / Deck Caulking

The caulk joint between the pool coping and the pool deck is failing, resulting in water infiltrating behind the coping stone and freeze / thaw cycles have dislodged various coping stones.

2.43 Recommendations on Remediation / Replacement

A. Depth Markers

New depth markers and “No Diving” depth markers shall be installed on the deck via a deck tile, or painting the indication on the deck using non-skid paint.

B. Pool Coping

The loose coping stones should be replaced and the coping stones on the edges of the zero entry fixed so not to create a tripping hazard by using a return bull nose stone. The protruding edges of the pool coping should be flushed out with new plaster.

C. Pool Plaster

The pool plaster that is cracking shall be removed and replaced, or painted with an epoxy paint to extend its life. If painted with epoxy paint, an emulsion shall be added to the paint, and fine sand emulsion hand broadcasted over the surface to create a slip resistant surface. If the gutter were to be replaced, this portion could be replaced with a brushed concrete surface.

D. Gutter / Main Drain / Air Gap

Installation of a new gutter and buried piping would be required to fix this issue. The gutter would drain to a buried collector tank. The deck would be repaired around the gutter with replacement plaster and or concrete deck. With the installation of the collector tank, the main drain should feed water into the collector tank where the pumps would suction. This would provide a point at which an autofill could add and monitor make up water.

E. Pool / Deck Caulking

The caulking found behind the pool coping stones is failing. The caulking should be removed, cleaned, and re-caulked using Sikaduo Flex SL with Sika 5050 primer, or any caulk that is chlorine resistant. New backer rod shall be installed.

2.50 Summary

2.51 Brief Conclusion of Our Findings on the Facility

The town has done an excellent job maintaining a 30 year old pool and a 50 year old building. However, changing codes have triggered various upgrades to differing degrees. There are small value items that the maintenance staff can perform to be in compliance but there are larger items that will need to be engineered and publically bid.

2.52 Cost associated with repair / replacement

Please refer to tables found in Appendix A for costs associated with repairs at the facility.

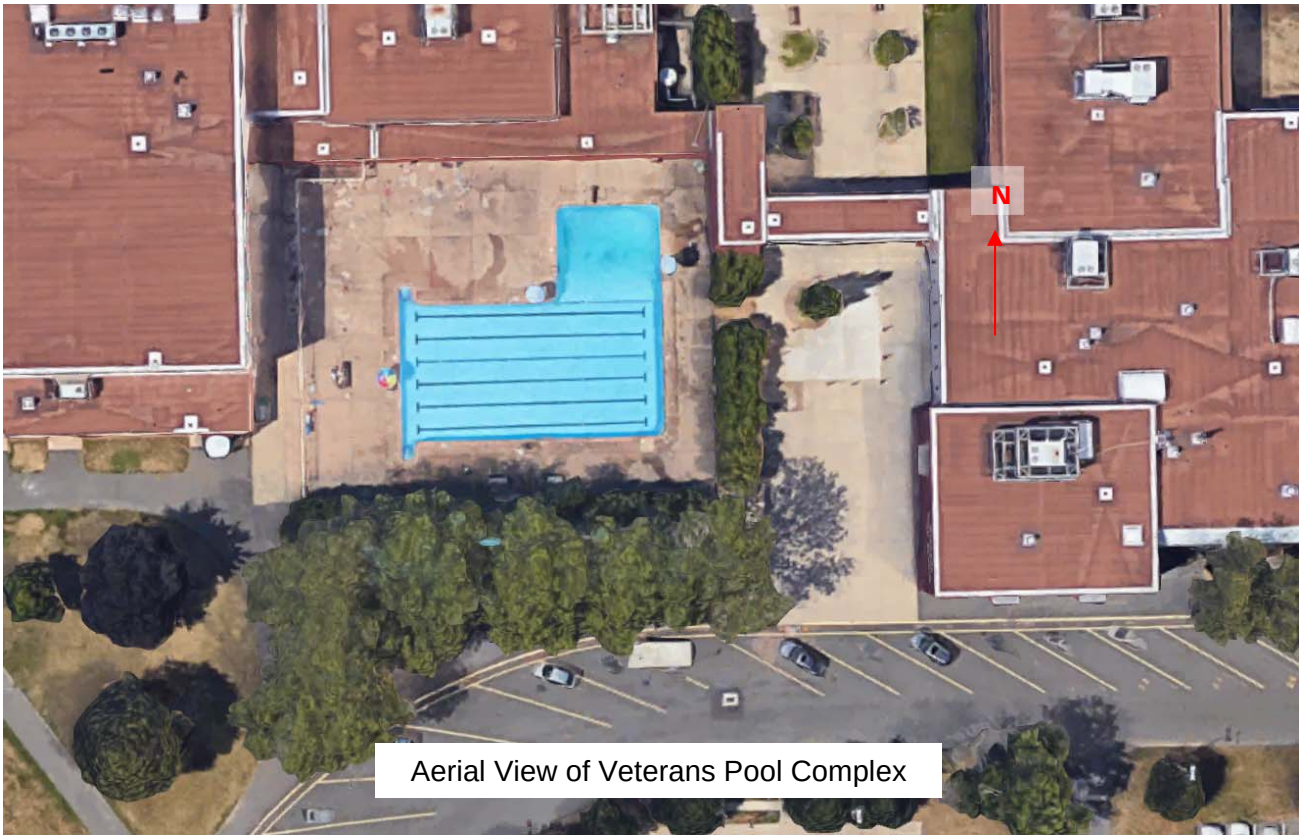
3.00 VETERANS SWIMMING POOL FACILITY

3.10 Main Swimming Pool

3.11 Current Design

The Veterans pool located at Windsor High School is an L-shape, approximately 72 feet wide by 82 feet long with depths from 3-feet depth on the west side of the swimming pool sloping to 9 feet in the north end of the pool. The pool is currently not used for competition swimming but used for summer camps. During operation, this facility can see upwards of approximately 300 daily patrons through the Town's operated camp program.

The pool has a surface area of approximately 4,404 square feet, contains 153,400 gallons of water with 252 linear feet of pool perimeter.



Aerial View of Veterans Pool Complex

Based on the current Connecticut Public Health Code 19 – 13 – B33b. Public Pools; the bather load of the current design is 176 bathers at one time. This is based upon the number of toilets in the bathhouse.

The pool contains eight skimmers and various wall returns. There are stainless steel ladders found around the pool deck and two recessed stair systems.

The pool was constructed from cast in place concrete and is finished with blue epoxy paint.

In the deep end there is an abandoned diving board stand. The board was removed but the rusted stand was left in place.

3.12 Compliance Issues / Current Issues with the Pool

A. Pool Coping

In sound testing, approximately all the coping stones are loose or have separated to the point if someone stepped on them they would fall into the pool. They are a fall / trip hazard.

Failing Coping Stone and Caulking

B. Inadequate Skimmer Placement

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 10.3 (Skimmers), states, "Where skimmers are used, they shall be applied to public swimming pools on the basis of 500 square feet of water surface area per unit or fraction thereof. The required skimmers shall be distributed to insure effective skimming of the entire surface. Their location shall also take into

Cracked and Failing Skimmer

consideration the pool shape, prevailing winds and the circulation patterns within the pool.

Rectangular pools which are twenty (20) feet or less in width and fifty (50) feet, or less in length shall be provided with at least two skimmers. Each skimmer is to be located not greater than ten (10) feet from the end wall."

Issue

Based on the existing pool size, an extra skimmer would need to be added to be within compliance. Also, skimmers need to be within 10 FT of the corner of a pool wall. Currently this is not provided. The skimmers are in poor condition. On a visual inspection there were cracks in the frame of the skimmer.

C. Wall Inlets

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 6.4 through 6.5 (Inlets and Outlets:

"6.4: Where the distance across the shallow portion of a swimming pool is more than 20 feet, multiple inlets shall be provided.

6.5: Each inlet shall be:

(a) Designed as an orifice subject to adjustment, or;

(b) Provided with an individual gate or similar valve to permit adjustment of water volume to obtain the best circulation, or;

(c) Hydraulically balanced so as to deliver proper flow at each inlet.

All return inlets shall be sized so as to provide a minimum inlet velocity of 10 ft./second."

Issue

Current arrangement of inlets exceeds 20 feet, and some are not adjustable. It is unknown if 10 ft./second is being achieved.

D. Leaking Pool

It was mentioned by the maintenance staff that the pool has significant leaks. During operation the makeup water must operate fully open in order to provide enough water to keep the pool at proper operating level. This results in erratic water chemistry and potentially adverse health conditions.

E. Structural Conditions

The pool has numerous cracks and is starting to spall in locations. During non-destructive sound testing large voids were found behind the pool wall surface and pool deck. More than likely the pools plumbing lines are compromised and have been eroding soil below the slab and structure for years. This has likely resulted in freeze / thaw cycles breaking down the wall and deck.

Cracking Pool Wall

Also, over 50 years of chlorinated water have most likely infiltrated through the concrete possibly corroding the rebar compromising the structural shell integrity.

F. ADA Compliance

In accordance with “Types of Facilities and Required Means of Entry into the Water”, from the United States Access Board states, “Large pools must have a minimum of two accessible means of entry. A large pool is defined as any pool with over 300 linear feet of pool wall. Pool walls at diving areas and in areas where swimmers cannot enter because of landscaping or adjacent structures are still counted as part of the pool’s total linear feet.

Issue

No ADA lift, or evidence of an ADA lift was found at the facility during the inspection. This pool has a perimeter of 252 feet, therefore requiring only one (1) ADA lift. Any public facility shall utilize (1) ADA lift, or a sloped entry.

G. Depth Markers

In accordance with Code 18.3.9, “Specific Safety Features”, from the American National Standard for Public Swimming Pools states, “Pool Depths of 5 FT or less shall display the “No Diving” Symbol. The symbol may be placed on the deck at intervals of no more than 25 FT. “

Current Coping Condition and Depth Markers

Issue

“No Diving” symbols are not present on the pool deck at locations where the depth is indicated. Where lettering is located the international symbol should be placed next to the lettering.

3.13 Recommendations on Remediation / Replacement

The pool is in poor condition. With the amount of compliance issues and the eminent failure of the piping and pool structure, we advise this pool be replaced.

3.20 Men’s and Women’s Locker Room & Pool Deck

3.21 Current Design

We were unable to access the bathroom at the high school. According to the town, the patrons in the summer use the locker rooms found inside the high school.

Pool deck is original to the construction of the pool. The deck is a cast in place deck, with expansion and control joints every 5 to 6 feet. The deck has various deck drains found around the surface of the deck, or drains the water off to the site.

3.22 Compliance Issues / Current Issues with the Pool Deck

Below information only pertains to the deck.

A. Pool Deck Slope

In accordance with Connecticut Public Health Code 19 – 13 – B33b –17.1, Decks and Walkways, "A continuous deck at least five feet wide (and preferably eight or more feet) measured so as not to include the coping or any gutter system components shall extend completely around each swimming pool. The deck shall have a uniform slope away from the pool to drain at a grade of 1/4 inch to 3/8 inch per lineal foot except for special purpose deck level pools for medical rehabilitation or competitive sports. The deck shall have an impervious non-slip surface. Deck drains shall not be connected to the recirculation system or gutters. Deck drains shall be provided on all indoor swimming pools."

Current Pool Deck

Issue

The current pool deck has lifted and heaved in many areas. The deck in some locations pitches back towards the pool creating pooling and standing water on the deck.

B. Pool / Deck Caulking

The caulking joint behind the pool coping and the pool deck has failed resulting in water infiltrating behind the coping stone and freeze / thaw cycles have dislodged the coping stone.

C. Diving Board

The existing abandoned dive stand board should be removed. This is a hazard for un-supervised patrons who attempt to use this as a launching block or a starting block. The unit is rusty and poses abrasion hazards. Current pool water depths are not safe for diving or for the board to be reinstalled.

3.23 Recommendations on Remediation / Replacement

Existing Diving Board Stand

We were unable to access the bathroom at the high school as school was in operation.

The pool deck is in poor condition. The various voids found under the deck during non-destructive sound testing and the current uneven surface has rendered it unsafe for patron use. The deck has exceeded its service life and should be replaced in conjunction with the pool.

3.30 Current Main Pool Filter System

3.31 Current Design

The filter system consists of eight high density skimmers and two main drains connected to a 7.5 HP self-priming pump. The pump suctions the water from the main drains and the skimmers and forces it through one large sand filter. After being filtered the water is delivered back to the pool through a network for wall inlets.

The current equipment found:

- Pump – Pentair EQK – 750 – 7.5 HP – Self Priming
- Filter – Miami Tank SFV66 – 23.7 SQFT of filter area
- Disinfectant Feeder: Manual
- pH Control: Manual

- Chemical Controller: N/A
- UV: N/A
- Flow Meter: Not Found

The pool utilizes a new pump which is housed in a small equipment closet adjacent to the exterior sand filter.

Current Sand Filter

3.31 Compliance Issues / Current Issues with the Main Pool Filtration System

A. Equipment Protection

In accordance with Connecticut Public Health Code 19 – 13 – B33b, (15.1 – 15.4), "Equipment Room –

15.1: All filters, pumps, chemical feeding apparatus and other mechanical equipment shall be secured and protected by an appropriate enclosure or room, separate and apart from the swimming pool.

15.2: The equipment enclosure or room shall be designed so that the pool equipment can be easily and safely maintained and repaired.

15.3: Sufficient area, reasonably separate from the recirculation equipment, shall be provided for the satisfactory storage of pool water chemicals and supplementary pool equipment."

Issue

Currently the filter is housed outside the facility. The filter is exposed to the elements as well as the uncoated piping. This leaves the equipment open to UV degradation, weathering and rusting from blowing snow and rain.

B. Pressure Gauges

In accordance with Connecticut Public Health Code 19 – 13 – B33b –11.7, Recirculation system, "All pumps shall have a vacuum and effluent pressure gauges."

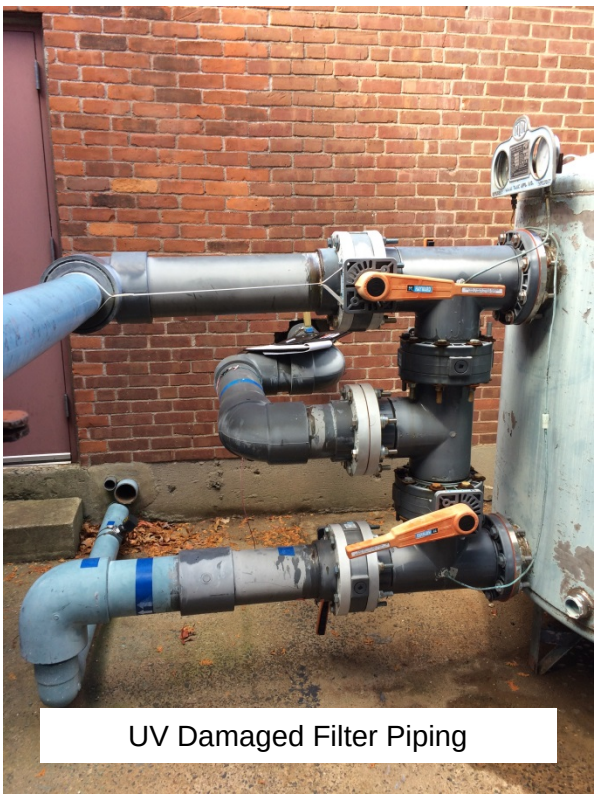
Issue

There are no pressure gauges found on the filter pump.

C. Flow Meter

In accordance with Connecticut Public Health Code 19 – 13 – B33b –11.4, Recirculation System, **"**A rate-of-flow indicator, reading in gallons per minute, shall be installed and located, preferably on the swimming pool return line, so that the recirculation rate is indicated. A minimum straight run of pipe of ten (10) pipe diameters shall precede the location chosen to mount the indicator and a minimum of five (5) pipe diameters of straight run shall follow the indicator on the downstream side. Flowmeters shall be installed so as to be easily read.

The flow indicator shall have an accuracy rating of 5% or better of the maximum bypass flow."



UV Damaged Filter Piping

Issue

No flow meter is found on the piping system. It is unknown what the flow rate through the system is while the system is in operation.

D. Chemical Feed System

Currently there isn't a chemical analyzer or chemical feed system found on this system. This would require maintenance staff to add chemicals throughout the day. Water is constantly being added to the pool and it would be extremely difficult to maintain proper water chemistry.

E. Egress from Equipment Room

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 23.7, Safety Requirements – Lifesaving Equipment, "Panic bars shall be provided on all maintenance room and chemical room doors."

Issue

Currently there are no panic bars located inside the equipment room.

F. Operation Instructions

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 15.4, Equipment Room – Lifesaving Equipment, "Operating instructions and a schematic drawing for all pool equipment are to be provided in the pool equipment enclosure or room.

Issue

There are no operation instructions displayed in the equipment room for the filter system.

Sand Filter

The sand filter has not had the sand changed in well over 10 years. The seals and parts to the filter are rusted. To gain access to the filter hatch would damage the filter rendering it useless.

3.32 Recommendations on Remediation / Replacement

Based on the current conditions of the pool and pool equipment and the number of compliance issues associated with the facility, renovation of the filter system is not recommended.

3.40 Summary

3.41 Brief review of the findings on the facility

The current pool facility is no longer code compliant or safe to be used by patrons. The facility has exceeded is service life.

3.42 Cost associated with repair / replacement

As the facility now stands there are severe health and safety risks to pool patrons. Please review the costs associated on repair the existing facility and replacing the facility in Appendix A.

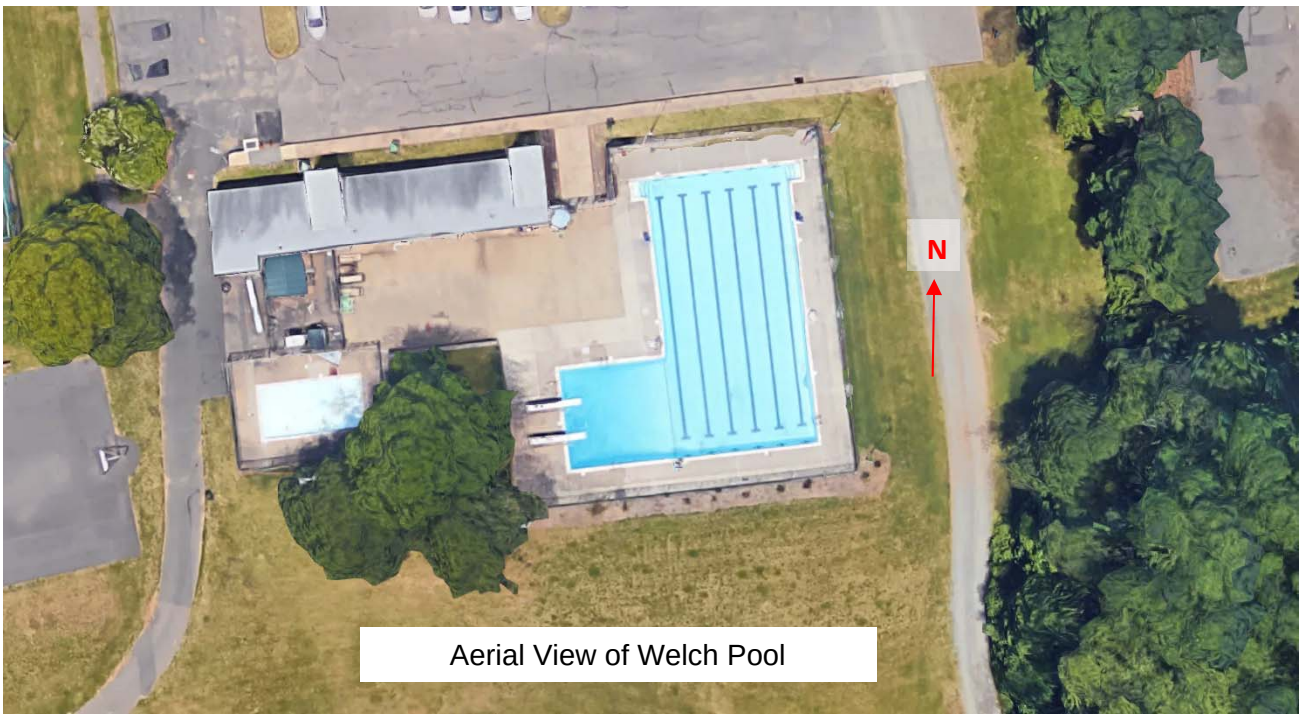
4.00 WELCH POOL FACILITY

4.10 Main Swimming Pool

4.11 Current Design

The Welch swimming pool is L-shaped, approximately 42 feet wide by 82 feet long with depths from 3-feet on the north side of the swimming pool, sloping to 10 feet in the south end of the pool. The pool is currently not used for competition swimming but used for swim lessons, lap swim, and general recreation. The pool is finished with a reinforced PVC vinyl liner with a cast in place concrete structure below.

The pool also has two sets of entry stairs found in the shallow portion at the north end of the pool.



Aerial View of Welch Pool

Two diving boards were installed in the south end of the pool at this pool facility. Currently there is no ADA lift installed on the pool but two units were found stored onsite.

The pool has a surface area of approximately 4404 square feet containing 177,705 gallons of water, with 312 linear feet of pool perimeter.

Based on the current Connecticut Public Health Code 19 – 13 – B33b. Public Pools; the bather load of the main pool is 176 bathers at one time.

This provides a total facility capacity of 221 bathers at one time.

4.12 Compliance Issues / Current Issues with the Main Pool

A. Inadequate Skimmer Placement

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 10.3 (Skimmers), states, "Where skimmers are used, they shall be applied to public swimming pools on the basis of 500 square feet of water surface area per unit or fraction thereof. The required skimmers shall be distributed to insure effective skimming of the entire surface. Their location shall also take into consideration the pool shape, prevailing winds and the circulation patterns within the pool.

Rectangular pools which are twenty (20) feet or less in width and fifty (50) feet, or less, in length, shall be provided with at least two skimmers. Each skimmer is to be located not greater than ten (10) feet from the end wall."

Issue

Currently a skimmer is not provided in the southwest corner of the pool.

Depth Marker in the Pool Wall States 10 FT while the Depth Marker on the Deck States 8 FT

B. Improper Depth Markers

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 10.3, Depth and Depth Markers states, "The minimum depth of water in the swimming pool shall be three feet except for recessed areas where the minimum water depth shall be 2 ½ feet. The recessed area shall be separated from the swimming pool by means of a safety line and buoys and a contrasting color band a minimum three (3) inches in width."

Issue

The depth markers are installed around the pool, but some are inaccurate. There are various locations where the wall depth marker indicates a different depth than what is displayed on the deck. The deck and wall depth markers shall accurately indicate the water depth in the pool at the location identified.

C. Non-Complaint Pool Depth

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 7.1, Slope of Bottom, **"**The slope of the bottom of any portion of the swimming pool having a water depth of less than five feet shall not be more than one foot in 12 feet. This slope shall be uniform. In portions with a depth greater than five feet the slope shall not exceed 1 foot in 3 feet."

Issue

Currently the diving well is steeper than 1:3 slope. This is non-compliant as swimmers may not be able to adjust quick enough to the grade transition and injure themselves by swimming into the floor.

D. Depth Markers

In accordance with Code 18.3.9, "Specific Safety Features", from the American National Standard for Public Swimming Pools states, "Pool Depths of 5 FT or less shall display the "No Diving" Symbol. The symbol may be placed on the deck at intervals of no more than 25 FT. "

Require the International Symbol for No Diving

Issue

"No Diving" symbols are not present on the pool deck at locations where the depth is indicated. Where lettering is found the international symbol should be located next to the lettering.

E. Coping Stones

There are approximately 180 pieces of precast coping stone installed around the perimeter of the pool. Approximately 60 of the precast coping stone are loose, or the bond has failed between the precast coping stone and pool beam.

F. Pool / Deck Caulking

The caulking joint behind the pool coping and the pool deck is failing, resulting in water infiltrating behind the coping stone and freeze / thaw cycles have dislodged the coping stone.

4.13 Recommendations on Remediation / Replacement

A. Inadequate Skimmer Placement

An additional skimmer would need to be installed on the south west corner of the pool. This would require cutting into the deck and the pool wall. The skimmer would need to be connected into the skimmer suction pipe loop which would require removing a portion of the deck.

B. Depth Markers and No Diving

The depth markers and no diving can be corrected by measuring and reinstalling the depth markers and adding the international symbol for “No Diving”. They can be installed using deck tiles or using non-skid paint.

C. Pool Coping

The loose pool coping is a hazard and could become dislodged during operation. The loose coping shall be removed and re-grouted. They are most likely failing due to water infiltrating behind the coping stone. If the coping stone is damaged it should be replaced.

D. Pool / Deck Caulking

The caulking found behind the pool coping stones is failing. The caulking shall be removed, cleaned, and reinstalled using Sikaduo Flex SL with Sika 5050 primer or any caulk that is chlorine resistant. New backer rod shall be installed.

E. Diving Boards

It is recommended that the diving boards be removed. They do comply with the minimum depth required to employ a diving boards, however, there are other issues that raise concern. One issue is the slope transition from the lower bowl to the 5FT depth of pool. The slope is non-compliant and could result in a patron diving and hitting their head on the pool floor. Also, the diving boards do not provide the minimum deck spacing between the stand and the fencing. For these reasons it is recommended the diving boards be removed.

4.20 Men’s and Women’s Locker Room & Pool Deck

4.21 Current Design

The current bath house and storage building is a single wythe spilt face concrete masonry building. The interior walls are unfinished. The roof is constructed from pre-engineered trusses, with an

asphalt shingle roof. The buildings are a one season building with natural ventilation and natural light entering from louvered openings found in the upper portion of the buildings and from the large louver shafts found in each locker room.

Exterior of Welch Bath House

The buildings were originally constructed in the 1975. The newest feature at the facility is the roof on the building.

The entrance to the bath facility is accessed by entering through the main pool gate and walking across the pool deck to the entrance.

The bathhouse building houses the men's and women's locker rooms and restrooms, pumps for the main pool and wading pool, first aid, offices, life guard areas, and storage.

The current pool and wading pool surface area has a capacity of 221 bathers at one time based on Connecticut Public Health Code 19 – 13 – B33b. Public Pools.

The pool deck is reinforced cast in place concrete with a broom finish. There are locations where deck drains carry away surface water but most of the pool deck drains away from the pool to the surrounding landscape area.

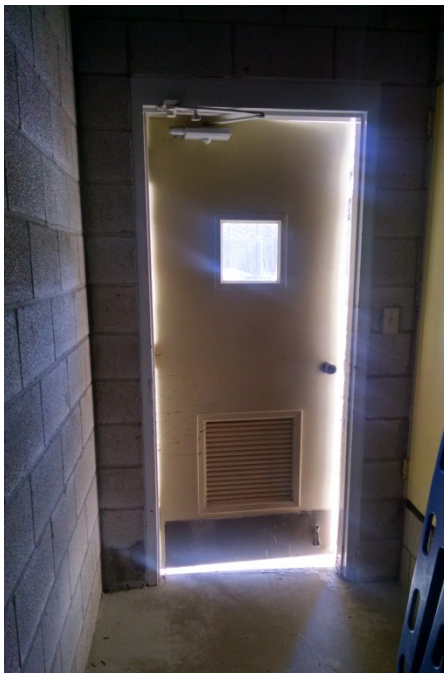
4.22 Compliance Issues/ Current Issues

A. Entrance into the Locker Room / Bathrooms

In accordance with 2010 ADA Standard for Accessible Design: Chapter 4: Accessible Routes

404.2.4.1 Swinging Doors and Gates. Swinging doors and gates shall have maneuvering clearances complying with Table 404.2.4.1.

Type of Use		Minimum Maneuvering Clearance	
Approach Direction	**Door or Gate Side**	**Perpendicular to Doorway**	**Parallel to Doorway (beyond latch side unless noted)**
From front	Pull	60 inches (1525 mm)	24 inches (455 mm)
From front	Push	48 inches (1220 mm)	0 inches (0 mm)
From hinge side	Pull	60 inches (1525 mm)	36 inches (915 mm)
From hinge side	Pull	54 inches (1370 mm)	42 inches (1065 mm)
From hinge side	Push	42 inches (1065 mm)	22 inches (560 mm)
From latch side	Pull	48 inches (1220 mm)	24 inches (610 mm)
From latch side	Push	42 inches (1065 mm)	24 inches (610 mm)



Current Entry / Exit Door to Bathrooms

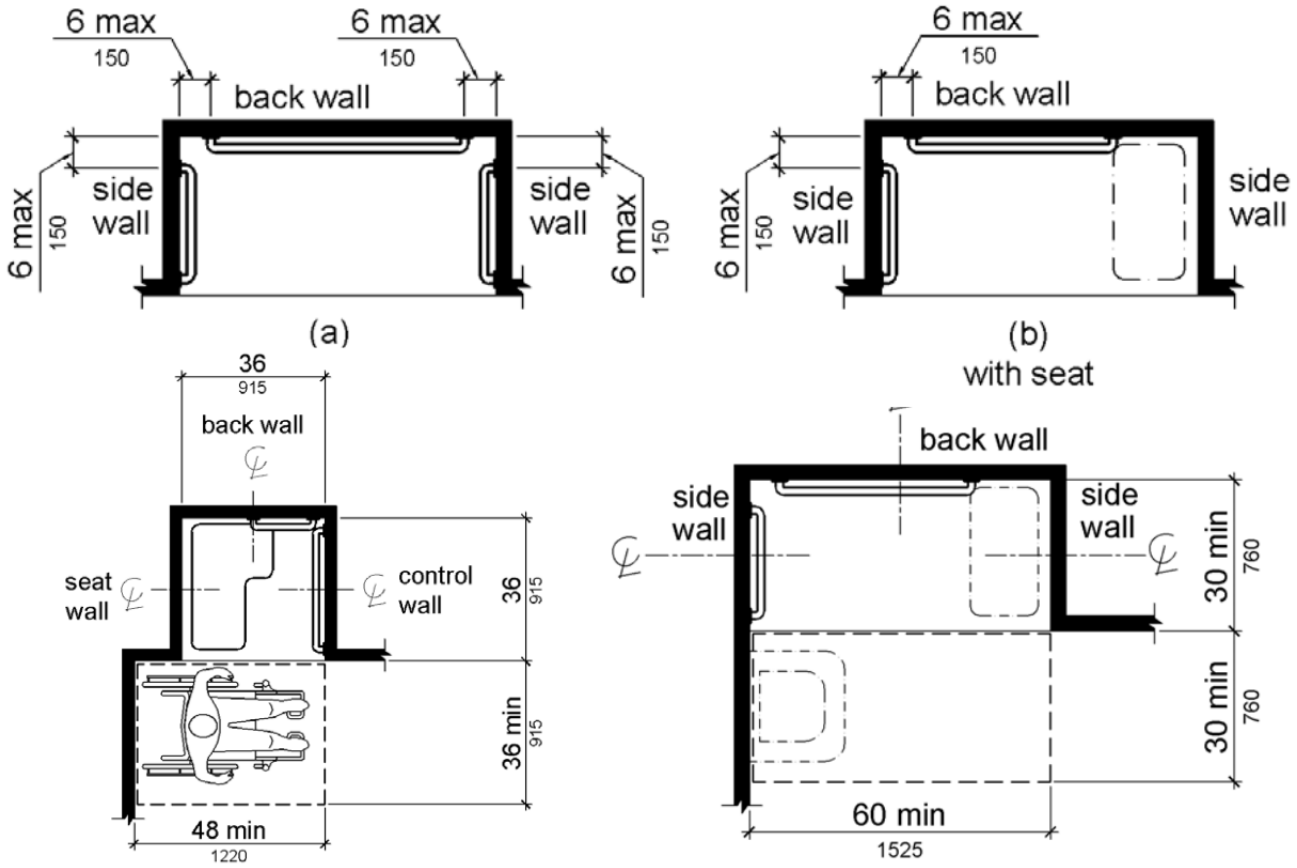
Table was updated in accordance with the State of Connecticut regulatory amendments.

Issue

The current bathrooms do not provide the proper clearance on the latch side of the door. In accordance with the above table, 24 inches is required beyond the latch side of the door jamb. Currently only 12 inches is provided.

B. Showers

In accordance with 2010 ADA Standard for Accessible Design: Chapter 6: Plumbing Elements and Facilities:



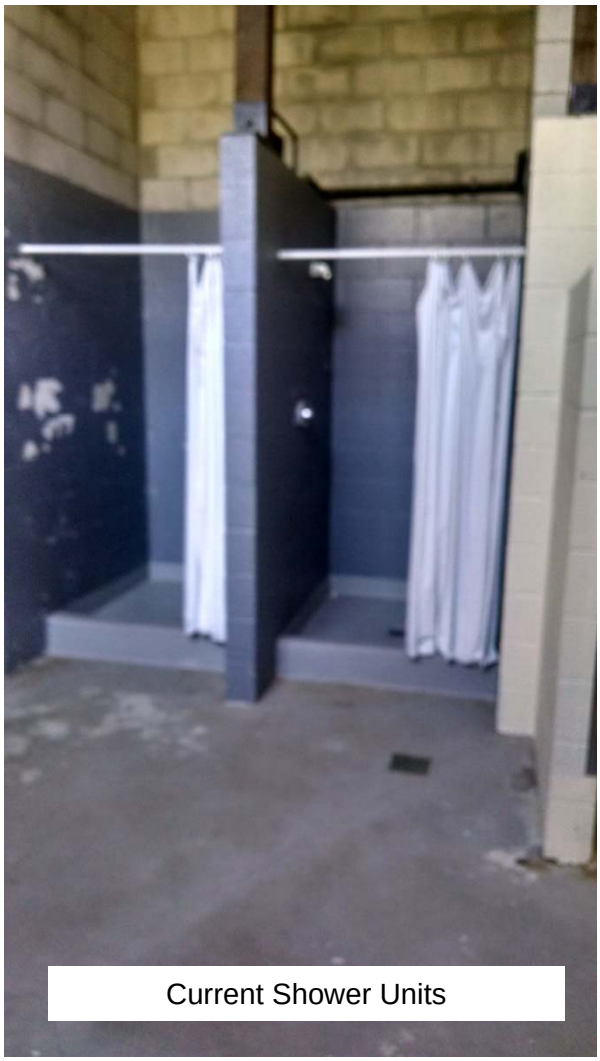
607.6 Shower Spray Unit and Water. A shower spray unit with a hose 59 inches (1500 mm) long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Bathtub shower spray units shall deliver water that is 120°F (49°C) maximum.

608.3.2 Standard Roll-In Type Shower Compartments. Where a seat is provided in standard roll-in type shower compartments, grab bars shall be provided on the back wall and the side wall opposite the seat. Grab bars shall not be provided above the seat. Where a seat is not provided in standard roll-in type shower compartments, grab bars shall be provided on three walls. Grab bars shall be installed 6 inches (150 mm) maximum from adjacent walls.

Issue

The current ADA showers do not have a spray unit with a 59 inch long hose. Also the current stalls do not appear to provide hot water to the bather.

The showers are currently elevated and do not allow the handicapped patron to roll into or access the stalls. No benches, grab bars, or proper fixtures are found in the stalls to be ADA compliant.



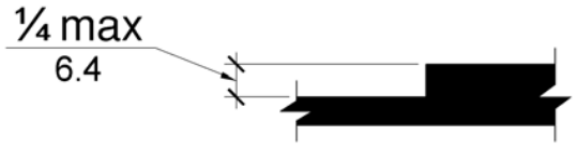
Current Shower Units

C. Elevation Changes

In accordance with 2010 ADA Standard for Accessible Design: Chapter 3: Building Blocks:

303.4 Ramps. Changes in level greater than ½ inch (13 mm) high shall be *ramped*, and shall comply with 405 or 406.

303.2 Vertical. Changes in level of ¼ inch (6.4 mm) high maximum shall be permitted to be vertical.



Issue

The step into the shower is approximately 6-inches, which is greater than ¼" allowed by code.

D. Bathhouse Fixture Count

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 21.5, "Bathhouse facilities shall be provided on the basis of the following fixture schedule:

	Males	Females
Water Closets	1/75	1/50
Urinals (see below *)	------	
Lavatories	1/100	1/100
Showers	1/50	1/50

* A minimum of one urinal must be provided. Urinals maybe substituted for up to 50% of the water closets for the men's facilities.

Drinking Fountain - minimum of one to be located in swimming pool area for every 1000 persons.

Issue

Based on the current bather load of 221, the facility would need to provide:

	Males	Females
Water Closets	2	3
Urinals	1	-
Lavatories	2	2
Showers	3	3

Current facilities provided:

	Males	Females
Water Closets	2	4
Urinals	2	-
Lavatories	2	2
Showers	2	2

Based on the current bather load, the men's and women's showers do not meet the required number of fixtures / units.

A drinking fountain was not found during the inspection. The unit could have been winterized for the season. Owner shall confirm if a drinking fountain is found at the facility. The drinking fountain shall also be ADA accessible**.**

E. Signage

In accordance with Connecticut Public Health Code 19 – 13 – B33b – (17), "Signs. Signs shall be conspicuously posted at the pool and in public dressing rooms stating the following:

(A) All persons shall bathe with warm water and soap before entering the pool.

(B) Any persons known or suspected of having a communicable disease shall not use the pool.

(C) Spitting or blowing the nose in the pool is prohibited.

(D) Running, boisterous or rough play (except supervised water sports) is prohibited."

Issue

The required signage was not posted entering or exiting the restroom facilities.

F. Flow of Traffic

In accordance with In accordance with Connecticut Public Health Code 19 – 13 – B33b, (21.2) "Dressing Rooms, Toilets, and Showers – Bathhouses to be used simultaneously by both sexes shall be divided into two parts separated by a tight partition, each designated for men or women. The entrances and exits shall be screened to break line of sight. The layout of the bathhouse should be such that the bathers on leaving the dressing room pass the toilets and showers en route to the swimming pool."

Issue

Patrons enter onto the pool deck or enter the facility before entering the bathrooms and locker rooms. Patrons do not pass by the toilets and shower en-route to the swimming pool.

G. Ventilation

In accordance with Table 403.1 Minimum ventilation rates, from the International Mechanical Code states, the minimum ventilation requirements for this facility. This facility is categorized under the following classifications. Ventilation requires for facility classifications are listed below, found under "Education".

- Education - Locker / dressing rooms = 0.25 CFM / FT^2

Issue

No forced ventilation was found in the bath house.

H. Equipment Protection

In accordance with In accordance with Connecticut Public Health Code 19 – 13 – B33b, (15.1 – 15.4), "Equipment Room –

15.1: All filters, pumps, chemical feeding apparatus and other mechanical equipment shall be secured and protected by an appropriate enclosure or room, separate and apart from the swimming pool.

15.2: The equipment enclosure or room shall be designed so that the pool equipment can be easily and safely maintained and repaired.

15.3: Sufficient area, reasonably separate from the recirculation equipment, shall be provided for the satisfactory storage of pool water chemicals and supplementary pool equipment."

Main Pool and Wading Pool Filter Systems

Issue

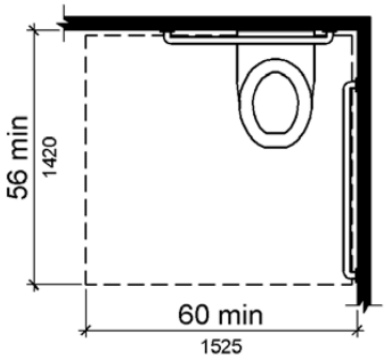
Currently the filter equipment for both bodies of water are housed outside the facility with the filters housed under a canopy structure. This still leaves the equipment open to UV degradation, weathering and rusting from blowing snow and rain.

I. ADA Water Closets

In accordance with 2010 ADA Standard for Accessible Design: Chapter 6: Plumbing Elements and Facilities:

604.3 Clearance. Clearances around water closets and in toilet compartments shall comply with 604.3.

604.3.1 Size. Clearance around a water closet shall be 60 inches (1525 mm) minimum measured perpendicular from the side wall and 56 inches (1420 mm) minimum measured perpendicular from the rear wall.



Issue

Currently on site there are no stalls that are ADA compliant. All stalls are less than 60" x 56" which is the minimum size for an ADA stall.

J. Self-Closing, Self-Latching Gate:

In accordance with Connecticut Public Health Code 19 – 13 – B33b, (17.3) Enclosures, "All outdoor pools shall be protected by a fence, wall, or other barrier, or any combination thereof, which completely encloses the swimming pool area. All of the following conditions for pool enclosures must be complied with:

(d) The horizontal space between vertical members of the enclosure shall not exceed two inches.

(e) The height of any opening under the bottom of the enclosure shall not exceed two inches.

(f) Fences shall have a self-closing gate, with a latch at least 3.5 feet above the ground, which can be locked"

Issue

The self-closing self-latching gate does not properly close and latch. The gate needs to be adjusted to properly close and latch.

K. Diving Boards

In accordance with In accordance with Connecticut Public Health Code 19 – 13 – B33b, (17.4), Decks and Walkways, "Whenever one or more diving boards are installed at a public swimming pool there shall be at least five feet of unobstructed deck behind the diving boards(s)."

Issue

Currently 5 feet of clear space is not provided between the diving stand and the fence system.

4.23 Recommendations on Remediation/Replacement

Entrance into the Bathrooms / Locker Rooms & Flow of Traffic

The flow of traffic into the facility and into the locker room is non-compliant. The best possible way to adapt the current building to applicable codes is to provide an entrance on the parking lot side of the building. This would allow central traffic into the bathroom facilities. The rooms are large enough that they would not take away from the existing programing.

In addition, fixtures must be added to meet code. This would be an opportunity to program the bath house to allow for a central entrance, fixtures, and ADA code compliance.

The physical structure is in sound shape but, unfortunately, the current program and layout is hampering the facility from being compliant.

With a renovation of the bath house the ventilation, signage, ADA access, hot water, and sanitary code requirements can be achieved.

We are recommending the removal of the diving board as well to be compliant with the deck encroachment.

4.30 Filter Room – Main Pool & Wading Pool Filtration Systems

4.31 Current Main Pool Filter System

The main pool skims surface water through 12, high density resin skimmers, and 2 main drains. The water is filtered using a self-priming pump, sand filter, disinfectant pumps, and network of piping to deliver the water back to the pool.

The current equipment found:

- Pump – Pentair EQK – 750 – 7.5 HP – Self Priming Pump
- (5) Filters – Pentair TR 140 – 7.06 SQFT of filter area
- Disinfectant Feeder: Hayward – Rolo chem – 503SC
- pH Control: Manual
- Chemical Controller: N/A
- UV: N/A
- Flow Meter: Not Found

The pool utilizes a new self-priming pump, but filters, and disinfection feeders are old and aged.

4.32 Current Wading Pool Filter System

The wading pool operates in a similar fashion to the main pool. The self-priming pump suctions surface water through 1, high density resin skimmer, and 2 main drains. The water is filtered using a self-priming pump, sand filter, disinfectant pumps, and network of piping to deliver the water back to the pool.

The current equipment found:

- Pump – Hayward – C48K2N143B1 – 1 HP – Self Priming Pump
- Filter – Pac Fab TR 100 – 4.91 SQFT of filter area
- Disinfectant Feeder: Rolo chem – 503SC
- Anti Entrapment Device - Hayward
- pH Control: Manual
- Chemical Controller: N/A
- UV: N/A
- Flow Meter: Not found

The pool utilizes a newer self-priming pump but an automatic chemical feed system is not utilized.

4.33 Compliance Issues / Current issues with the Pool Filtration System

A. Equipment Protection

In accordance with Connecticut Public Health Code 19 – 13 – B33b, (15.1 – 15.4), "Equipment Room –

15.1: All filters, pumps, chemical feeding apparatus and other mechanical equipment shall be secured and protected by an appropriate enclosure or room, separate and apart from the swimming pool.

15.2: The equipment enclosure or room shall be designed so that the pool equipment can be easily and safely maintained and repaired.

15.3: Sufficient area reasonably separate from the recirculation equipment shall be provided for the satisfactory storage of pool water chemicals and supplementary pool equipment."

Issue

Currently the filter is housed outside the facility. The filters are exposed to the elements, as well as the uncoated piping. This leaves the equipment open to UV degradation, weathering and rusting from blowing snow and rain.

B. Flow Meter

In accordance with Connecticut Public Health Code 19 – 13 – B33b –11.4, Recirculation System, **"**A rate-of-flow indicator, reading in gallons per minute, shall be installed and located, preferably on the swimming pool return line, so that the recirculation rate is indicated. A minimum straight run of

pipe of ten (10) pipe diameters shall precede the location chosen to mount the indicator and a minimum of five (5) pipe diameters of straight run shall follow the indicator on the downstream side. Flowmeters shall be installed so as to be easily read.

The flow indicator shall have an accuracy rating of 5% or better of the maximum bypass flow."

Issue

No flow meter is found on the piping system. It is unknown what the flow rate through the system is while the system is in operation.

C. Egress from Equipment Room

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 23.7, Safety Requirements – Lifesaving Equipment, "Panic bars shall be provided on all maintenance room and chemical room doors."

Issue

Currently there are no panic bars located inside the equipment room.

D. Operation Instructions

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 15.4, Equipment Room – Lifesaving Equipment, "Operating instructions and a schematic drawing for all pool equipment are to be provided in the pool equipment enclosure or room.

Issue

There are no operation instructions displayed in the equipment room for the filter system

E. Chemical Controller

No chemical controllers were found on site. The pool chemistry is maintained manually by the facility staff. This is a time intensive process and can lead to inconsistencies in water chemistry.

F. Chemical Feed System

The pool is fed with sodium hypochlorite through a metering pump. The pump is typically set on a timer to dose chemical into the pool. This is a very inaccurate way of controlling chemicals because of the potential to under or over feed the system.

Also, the pool does not have pH control or automatic feed. pH control is controlled by the staff manually broadcasting chemicals over the surface of the pool. This is not an ideal method of controlling the pool pH. When patrons are using the pool throughout the day staff is unable to add chemicals. When dosing sodium hypochlorite into the pool the pH is being raised rendering the disinfectant inert.

Also this is dangerous, as the pump is not interlocked with the filter pump. In the current state, the metering pump can continue to feed chlorine when the filter pump is shut off. This is dangerous because it would deliver a plume of chlorine into the pool when startup occurs.

The staff does check the water every hour, but this is a labor intensive activity.

G. Piping

As a result from the piping being exposed to UV light, the piping has faded and is brittle. The piping is currently not labeled, the flow is not defined, and the piping is unrestrained. The risk is the brittle, unrestrained piping could fail if water hammer was placed on the piping.

Pump Not Mounted

H. Pump Mounting

The pump base is not anchored to the floor. The pump is supported by a concrete block that is unrestrained. This could result in a failure if the pump vibrates the blocks out and pulls on the piping.

I. Filters

The current filters are in poor condition. The tanks have deteriorated from UV light and exposure to the New England elements. The tanks could rupture during the 2017 operation season.

The sand has not been changed in over 8 years. To change the sand opening the current filter heads

would be required and the vessels could crack which would render it out of service.

Operators have noted the multiport valves are stripped and the laterals are broken because they are flushing sand out of the filter every time they backwash. There is a question as to how much sand is actually left in the filters.

Sand in Backwash Pit from Filters

4.034 Compliance Issues / Current Issues with the Wading Filtration System

A. Equipment Protection

In accordance with In accordance with Connecticut Public Health Code 19 – 13 – B33b, (15.1 – 15.4), "Equipment Room –

15.1: All filters, pumps, chemical feeding apparatus and other mechanical equipment shall be secured and protected by an appropriate enclosure or room, separate and apart from the swimming pool.

15.2: The equipment enclosure or room shall be designed so that the pool equipment can be easily and safely maintained and repaired.

15.3: Sufficient area, reasonably separate from the recirculation equipment, shall be provided for the satisfactory storage of pool water chemicals and supplementary pool equipment."

Issue

Currently the filter is housed outside the facility. The filters are open to the elements as well as the uncoated piping. This still leaves the equipment open to UV degradation, weathering and rusting from blowing snow and rain.

B. Flow Meter

In accordance with Connecticut Public Health Code 19 – 13 – B33b –11.4, Recirculation System, **"**A rate-of-flow indicator, reading in gallons per minute, shall be installed and located, preferably on the swimming pool return line, so that the recirculation rate is indicated. A minimum straight run of pipe of ten (10) pipe diameters shall precede the location chosen to mount the indicator and a minimum of five (5) pipe diameters of straight run shall follow the indicator on the downstream side. Flowmeters shall be installed so as to be easily read.

The flow indicator shall have an accuracy rating of 5% or better of the maximum bypass flow."

Issue

No flow meter is found on the piping system. It is unknown what the flow rate through the system is while the system is in operations.

C. Egress from Equipment Room

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 23.7, Safety Requirements – Lifesaving Equipment, "Panic bars shall be provided on all maintenance room and chemical room doors."

Issue

Currently there are no panic bars located inside the equipment room.

D. Operation Instructions

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 15.4, Equipment Room – Lifesaving Equipment, "Operating instructions and a schematic drawing for all pool equipment are to be provided in the pool equipment enclosure or room.

Issue

There are no operation instructions displayed in the equipment room for the filter system

E. Chemical Controller

Chemical controllers are not installed on this system. The pool chemistry is maintained manually by the facility staff. This is a time intensive process, and can lead to inconsistencies in water chemistry.

F. Chemical Feed System

The wading pool is fed with sodium hypochlorite through a metering pump. The pump is typically set on a timer to dose chemical into the pool. This is a very inaccurate way of controlling chemicals because you could be under feeding or over feeding the system.

Also, the pool does not have pH control or automatic feed. pH control is controlled by the staff manually broadcasting chemicals over the surface of the pool. This is not an ideal method of controlling the pool pH. When patrons are using the pool throughout the day, you are unable to provide proper pH balance, thus when dosing sodium hypochlorite into the pool you are raising the pH, rendering the disinfectant inert.

Also this is dangerous, as the pump is not interlocked with the filter pump. In the current state, the metering pump can continue to feed chlorine when the filter is shut down. This would be dangerous because it would deliver a plume of chlorine into the pool when startup occurs.

The staff does check the water every hour, but this is a labor intensive activity.

G. Piping

As a result from the piping being exposed to UV light, the piping has faded and is brittle. The piping is currently not labeled or the flow defined. Also, the piping is unrestrained. The risk is the brittle, unrestrained piping could fail if water hammer was placed on the piping.

H. Pressure Gauges

In accordance with Connecticut Public Health Code 19 – 13 – B33b –11.7, “All pumps shall have a vacuum and effluent pressure gauges.”

Issue

There are no pressure gauges found on the filter pump.

I. Pump Mounting

The pump base is not anchored to the floor. The pump is supported by a concrete block that is unrestrained. This could result in a failure if the pump vibrates the blocks out and pulls on the piping.

J. Filters

The current filters are in poor condition. The tanks have deteriorated from UV light and exposure to the New England elements. The tanks could rupture during the 2017 operation season.

The sand has not been changed in over 8 years. To change the sand opening the current filter head would be required and the vessel could crack and be rendered out of service.

Operators have noted the multiport valves are stripped and the laterals are broken because they are flushing sand out of the filter every time they backwash, so there is a question of how much sand is actually left in the filters.

4.35 Recommendations on Remediation / Replacement

Both filter systems have multiple issues that are triggering the need to replace the system. The pumps found on each system can be reused in a new filter system, but the piping, valves, and filters have deteriorated to a point where they are at the risk of failing at any moment. It is advised to remove the existing filter units, and replacing them with a new filter system, that can be housed in the equipment room.

4.40 Wading Pool

4.41 Current Design

The wading pool is approximately 15 FT by 30 FT with water depths from 6-Inches to 1 FT, containing approximately 2,500 gallons of water. The pool contains 450 square feet of water surface and 90 linear feet of perimeter. Based on the current Connecticut Public Health Code 19 – 13 – B33b. Public Pools; the bather load is 45 bathers at one time.

The pool is finished with a vinyl liner with a concrete structure behind the vinyl liner

Current Wading Pool

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4.42 Compliance Issues / Current Issues with the Pool

A. Skimmers

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 10.3, Skimmers, “Rectangular pools which are twenty (20) feet or less in width and fifty (50) feet, or less, in length, shall be provided with at least two skimmers. Each skimmer is to be located not greater than ten (10) feet from the end wall”

Issue

Only one skimmer is found on the pool, two would need to be provided to be compliant.

B. ADA Access

In accordance with United States Access Board - Accessible Swimming Pools & Spas – “A wading pool is a pool designed for shallow depth and is used for wading. Each wading pool must provide at

least one sloped entry into the deepest part. Other forms of entry may be provided as long as a sloped entry is provided. The sloped entries for wading pools are not required to have handrails."

Issue

The pool is currently ADA inaccessible. A sloped entry would need to be installed in order to be complaint. There are no points around the perimeter of the pool where a zero entry would allow someone in a wheel chair into the pool.

C. Main Drains

In accordance with Code, "5.3.2, Dual Outlet Separation**",** from the American National Standard for Public Swimming Pools states, **"**Dual outlets shall be separated by a minimum of 3 feet (914 mm) measured from center to center of the suction pipes (see figures 4, 5, and 6) or located on two (2) different planes, i.e., one (1) on the bottom and one (1) on the vertical wall, or one (1) each on two (2) separate vertical walls. (See figures 7 and 14.)

Wading Pool Main Drains

Issue

The current main drains are less than 3 feet in clear spacing. This is a violation of the Virginia Graeme Baker Act. (VGB)

D. Return Inlets

In accordance with Connecticut Public Health Code 19 – 13 – B33b – 6.4, Inlets and Outlets, "Where the distance across the shallow portion of a swimming pool is more than 20 feet, multiple inlets shall be provided."

Issue

Only two inlets are found in the pool. The spacing between inlets exceeds the 20 Feet maximum pool perimeter which is permissible.

Deck Tripping Hazards

E. Pool Coping

There are approximately 5 loose coping stones. The coping stones shall be evaluated and repaired so they do not fall into the pool and create a hazard.

F. Deck Hazards

There are a series of capped pipes found on penetrating the deck surface. It is unclear what these PVC pipes were used for but they are creating a hazard on the deck.

Also, the fill spout is approximately 1 FT above the pool deck, which is un protected and can be a trip hazard to patrons.

4.053 Recommendations on Remediation / Replacement

The current wading pool is not compliant by ADA compliance, and the filter system is on the verge of failure. It is recommend closing the wading pool, and reprogramming by either installing a new

wading pool, or retrofitting the facility to a spray deck. The spray deck can employ an filter system or be a spray to drain facility.

4.50 Summary

4.51 Brief Conclusion of Our Findings on the Facility

The town has done an excellent job maintaining a 30 year old pool. However, changing codes have triggered various required upgrades. There are small value items that the maintenance staff can perform to be in compliance but there are larger items that will need to be engineered, and publically bid.

The items that need immediate attention are the filter systems, and the bath house. The Wading pool should be evaluated to decide how the Town would like to proceed with future planning.

4.52 Cost associated with repair / replacement

Please refer to tables found in Appendix A for costs associated with repairs at the facility.

5.00 Conclusion

The Town of Windsor has performed an exceptional job over the years in maintaining and operating these pool facilities. Due to the evolving code and the wear and tear on the aging facilities, items at the facilities need to be repaired / renovated in order to bring the facilities into compliance with present codes.

The above evaluation did not test for any contaminates such as lead, polychlorinated biephenyls (PCB's), and asbestos. The bathhouses were constructed during a time period where these contaminants were used in the construction industry. The buildings should be evaluated prior to the preparation of contract documents for facility upgrades.

This concludes our analysis of the Aquatic Facilities in Windsor, CT. Please see appendix A for narrative on the improvements and pricing based on differing renovation scenarios.

Appendix A – Cost Estimate

85 Devonshire Street, 3rd Floor, Boston, MA 02109
Tel: 617.412.4480

Cost Estimates and Narratives

Please find the attached cost estimates for the Aquatic Facilities found in Windsor CT. The cost estimates are broken down into ten (10) different estimates. This narrative will provide a breakdown for each cost estimate:

Goslee 2017 Compliance Upgrades:

The upgrades identified will improve the safety and health of the patrons using the facility in 2017. The repairs include:

- Replacement of loose coping stones.
- Deck Depth Markers and No Diving Markers.
- Health and Safety Signage.
- Installation of a new ladder.
- Installation of Skimmer Equalization Covers.
- Repair of water line tile.

Welch 2017 Compliance Upgrades:

The upgrades identified will improve the safety and health of the patrons using the facility in 2017. The repairs include:

- Replacement of loose coping stones.
- Deck Depth Markers and No Diving Markers.
- Health and Safety Signage.
- Removal of the Diving Boards.
- Misc. Equipment Upgrades.

Veterans Repairs:

The upgrades identified will improve the safety and health of the patrons, and rehabilitate the facility. This would provide an extended 10-15 year service life for the facility. It would also bring the facility into code compliance. The repairs include:

- Selective demolition of the pool shell, pool deck, and filter system.
- Selective demolition for site improvements.
- Construction of a filter building.
- Reconstruction of the pool wall, skimmers, and main drain.
- Refinish the pool.
- Install a new pool deck.
- Install a new filtration system, including all equipment, piping, and instrumentation in the filter room and all buried piping.
- New fencing and site improvements.
- Similar program as to what is found at the facility today.

Goslee Building Renovation:

The upgrades identified would modify the existing building and storage building to be reprogramed and adapt to compliance codes. This would extend the service life of the building another 20-30 years. The renovation includes:

- Demolition of the inside of the existing bathhouse.
- Demolition of portions of the front and rear building walls.
- Demolition of the fencing provided around the filter system.
- Proposed new entry and redirecting the flow of traffic into the facility.
- Enclosing the filter room area.
- Reprograming the interior of the men's and women's locker rooms, allowing them to be ADA complaint.
- A proposed 15' x 20' community recreation room.
- Proposed stand alone chemical storage and control room.
- Provide new MEP upgrades to be compliant with today's codes and standards.
- Provide an allowance for a shade structure.

Welch Building Renovation:

The upgrades identified would be modifying the existing building to be reprogramed and adapt to compliance codes. This would extend the service life of the building from another 20-30 years. The renovation includes:

- Demolition of the inside of the existing bathhouse.
- Demolition of portions of the front and rear building walls.
- Removal of the existing shade structures providing shelter for the pool equipment.
- Proposed new entry and redirecting the flow of traffic into the facility.
- A filter building extension.
- Reprograming the interior of the men's and women's locker rooms, allowing them to be ADA complaint.
- A proposed 15' x 20' community recreation room.
- Proposed chemical storage room inside the existing building.
- Provide new MEP upgrades to be compliant with today's codes and standards.
- Provide an allowance for a shade structure.

Goslee Filter Renovation:

The upgrades identified would be replacing the existing filter systems. This would extend the service life of the filter system for another 15-20 years. The renovation includes:

- Demolition of the existing filter system.
- Demolition of the existing wading pool.
- Install new main pool filter system, using the existing pump and strainer. This includes piping, hangers, filter, sand, and instrumentation.
- Install new wading filter system, using the existing sand filter. This includes piping, hangers, pumps, and instrumentation.
- Install new automatic chemical feed system.
- Electrical connections and control wiring.

Welch Filter Renovation:

The upgrades identified would be replacing the existing filter systems. This would extend the service life of the filter system for another 15-20 years. The renovation includes:

- Demolition of the existing filter system.
- Demolition of the existing wading pool.
- Install new complete main pool filter system, using the existing pump and strainer. This includes piping, hangers, filter, sand, and instrumentation.
- Install new wading filter system, using the existing pump and strainer. This includes piping, hangers, filter, sand pumps, and instrumentation.
- Install new automatic chemical feed system.
- Electrical connections and control wiring.

Goslee Wading Pool Renovation:

The upgrades identified would be modifying the existing wading pool. The renovation includes:

- Removal of the existing deck drain and replace with a larger gutter skimmer.
- Demolition of select deck sections.
- Demolition of select sections of the zero entry for the installation of the gutter
- Replacement of the existing coping stone.
- Repair of the plaster finish.
- Installation of a new collector tank.
- Installation of new buried filtration piping.
- Installation of new main drains.
- Installation of a new auto fill system.

Welch Wading Pool Renovation:

The upgrades identified would be the replacement of the existing wading pool. The renovation includes:

- Removal of the existing fencing, pool deck, and pool structure found at the facility today.
- Demolition of select deck sections for piping to the equipment room.
- Installation of a new concrete shell, with a zero entry, pool deck, and new fencing.
- Repair of the deck sections removed in order to get the filtration piping to the filter room.
- Installation of a new collector tank.
- Installation of spray features.

We hope this estimate and narrative will help the town strategically plan for capital upgrades to their facilities for the next five years.

Cost Summary Sheet

Town of Windsor CT Capital Improvement Probable Cost - Aquatics Facilities

	Value in 2017	Value in 2018	Value in 2019	Value in 2020	Value in 2021
Goslee 2017 Compliance Upgrades	$19,821	$20,416	$21,028	$21,659	$22,309
Welch 2017 Compliance Upgrades	$46,784	$48,187	$49,633	$51,122	$52,655
Veterans Repairs	$1,847,599	$1,903,027	$1,960,117	$2,018,921	$2,079,489
Goslee Building Renovation	$1,231,383	$1,268,325	$1,306,374	$1,345,566	$1,385,932
Welch Building Renovation	$1,203,111	$1,239,204	$1,276,380	$1,314,671	$1,354,112
Goslee Filter Renovation	$141,627	$145,876	$150,252	$154,760	$159,402
Welch Filter Renovation	$175,567	$180,834	$186,259	$191,847	$197,603
Goslee Wading Pool Renovation	$163,987	$168,907	$173,974	$179,193	$184,569
Welch Wading Pool Renovations	$222,887	$229,574	$236,461	$243,555	$250,862
Veterans Replacement	$2,409,450	$2,481,733	$2,556,185	$2,632,871	$2,711,857

Notes: Value are increase 3% per each previous year

Goslee 2017
Compliance Upgrades

Goslee 2017 Compliance Upgrades

Division 1 - General Conditions

Dumpsters	$0	1 Dumpsters
Porta John	$0	Porta John for 3 months
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$300	Permit to Renovate
Supervision	$4,800	Part Time Supervision 10 hr. / week for 1 months @ $120 / hr.
Project Management	$0	Part Time Management 18 hr. / week for 1 Months @ $160 / hr.
Equipment Transportation & Deliveries	$0	Mobilize Equipment in and Out
Rental Equipment	$0	Misc. Equipment in the Small Area
Total	**$5,100**	

Division 2 - Demolition

Selective Demo of Coping Stone	$1,360	(2) Worker @ $85 hr. for 1 Days plus protection
Concrete core for New ladder	$400	(1) Worker @ $100 hr. for 4 Hours
Total	**$1,760**	

Division 9 - Finishes

Repair Various Waterline Tiles to Make Safe	$2,000	Allowance Value
New Deck Depth Markers	$960	Main New Depth Makers on the Deck - (1) Workers (1) Days @ $120 / hr.
Installation of a New Ladder	$1,380	Grout and Install Ladder - Furnish and install (1) worker (1) Day @ $85 / hr.
New Health and Safety Signage	$2,000	Allowance Value
Repalcement of Coping Stones	$13,000	$110 / LF installed, allowance 118 LF
	$19,340	

Division 22 - Mechanical		
VGB Equalization Cover Replacement	$1,000	$100 / unit, 10 units required
Total	**$1,000**	

Division 26 - Electrical		
Bonding	$400	Bonding the proposed ladder
Total	**$400**	

Project Summary		
Total	$27,600	
10 % OH & Profit	$2,760	
Bond / Insurance @ 2%	$607	
Engineering	$3,097	
10 % Contingency	$3,406	
Total	**$37,470**	

Welch 2017
Compliance Upgrades

Welch 2017 Compliance Upgrades

Division 1 - General Conditions

Dumpsters	$600	1 Dumpsters
Porta John	$0	Porta John for 4 months
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$300	Permit to Renovate
Supervision	$4,800	Part Time Supervision 10 hr. / week for 1 months @ $120 / hr.
Project Management	$0	Part Time Management 16 hr. / week for 1 Months @ $160 / hr.
Equipment Transportation & Deliveries	$0	Mobilize Equipment in and Out
Rental Equipment	$1,000	Misc. Equipment Rental
Total	**$6,700**	

Division 2 - Demolition

Selective Demo of Coping Stone	$2,720	(2) Worker @ $85 hr. for 2 Days plus protection
Demolition of Diving Boards	$4,080	(2) Workers @ $85 hr. for 3 Days
Total	**$6,800**	

Division 3 - Concrete

New Slab in place of Diving Boards	$3,800	Use $19 / SQFT, Carry Allowance of 200 SQFT
Total	**$3,800**	

Division 4 - Masonry		
Install Coping Stones	$5,500	$110 / LF installed, allowance 50 LF
Total	**$5,500**	

Division 9 - Finishes		
New Deck Depth Markers	$960	Paint New Depth Markers - (1) Workers (1) Days @ $120 / hr.
Signage	$2,000	Allowance for new Safety Signage
	$2,960	

Division 22 - Mechanical		
Flow Meter and Anchoring Equipment	$1,200	Allowance
Total	**$1,200**	

Project Summary		
Total	$26,960	
10 % OH & Profit	$2,696	
Bond / Insurance @ 2%	$593	
Engineering	$3,025	
10 % Contingency	$3,327	
Total	**$36,601**	

Veterans Repairs

Veterans Pool Repair Probable Cost Estimate

Division 1 - General Conditions

Dumpsters	$2,400	4 Dumpsters
Porta John	$1,200	Porta John for 6 months
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$3,000	Permit to Renovate
Supervision	$92,160	Part Time Supervision 32 hr. / week for 6 months @ $120 / hr.
Project Management	$61,440	Part Time Management 16 hr. / week for 6 Months @ $160 / hr.
Equipment Transportation & Deliveries	$2,000	Mobilize Equipment in and Out
Environmental Cleanup	$50,000	Allowance if PCBs, Asbestos, Lead are encountered
Rental Equipment	$1,000	Misc. Equipment in the Small Area
Total	**$213,200**	

Division 2 - Demolition

Selective Demo of Pool Shell	$54,400	4 Workers @ $85 / hr. for 4 weeks, includes water jetting the pool
Selective Demolition of Pool Deck	$35,250	$7.50 / SQFT of Deck, Allowance of 4,700 SQFT of Deck
Demolition of Existing Filter Room	$8,120	(3) Workers a@ $85 / hr. for 3 Days plus $2,000 Disposal Fee
Total	**$97,770**	

Division 3 - Concrete		
New Pool Deck		
Formwork	$23,500	$5.00 / SF
Install New Pool Deck (4700 SF), 4" Thick	$24,500	70 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Pump Trucks	$6,000	$2,000 ea., include (3)
Walkways & Pads		
Install Walkways (Allowance 500 SQFT)	$7,500	$15 / SQFT, Prep, form, place, finish
Pool Filter Building		
New Cast in Place Wall & Footing (20' x 20')	$6,400	16 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$6,000	$15.00 / SF
Install New Filter Room Slab	$3,150	9 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Total	**$77,050**	

Division 4 - Masonry		
Building Entry Filter Building		
Split Face Block 8" x 16" Single Wythe Wall	$32,000	800 SQFT @ $40 / SQFT
Reinforcement	$4,000	800 SQFT @ $5 / SQFT
Total	**$36,000**	

Division 5 - Metals		
Lintels for Masonry	$2,500	Allowance
Anchor Bolts	$1,500	Galvanized Anchor Bolts Allowance
Total	**$4,000**	

Division 6 - Wood, Plastics, and Composites		
Pre-Manufactured Wood Trusses	$12,000	Estimate for Purchase and install trusses for Entry, Community Room, Filter Room
5/8" CDX Roof Underlayment	$2,400	$6 / SQFT - Installed on Entry and Community Room
Total	**$14,400**	

Division 7 - Thermal and Moisture Protection		
Asphalt Shingles	$6,800	Allowance of 400 SF @ $17/ SF
Gutters	$2,800	80 LF @ $35 / LF
Soffit and Facia	$4,800	80 LF @ $60 / LF
Deck Caulking	$12,000	Allowance
Total	**$26,400**	

Division 8 - Openings		
Hollow Metal Doors and Frames (Exterior 6'-0")	$3,300	Allowance (1) exterior Doors @3,300 Ea.
New Hardware	$650	Allowance (1) set @ $650 /Piece
Louvers	$1,440	18 SQFT @ $80 /SQFT
Total	**$5,390**	

Division 9 - Finishes		
Paint New Masonry Building Walls & Doors	$2,400	Approx. 800 SQFT @ $3.00 / SQFT
Total	**$2,400**	

Division 13 -Special Construction		
Repair of the Pool	$666,000	4400 SQFT @ $150 / SQFT Price of $150 / SQFT of water surface includes, shell repairs, rehab, finish, tile work, deck accessories, life guard and safety equipment, piping system, filtration system, and testing / startup
Total	**$666,000**	

Division 23 - Plumbing		
New Water Service	$1,500	3" Water Meter w/ 3" RPBF
Mop Sink	$3,300	(1) @ $3,000 Utility Closet
Waste Piping Below & Above Grade	$3,000	Approximately 100 LF @ $30 / LF
Water Piping Above Grade	$3,400	Approximately 100 LF @ $34/LF
Various hose bibs	$1,200	Allowance
Total	**$12,400**	

Division 23 - HVAC		
Misc. Galvanized Ducting	$5,000	Allowance
Ventilation in Equipment Room	$2,800	450 CFM Exhaust Fan - $2800
Total	**$7,800**	

Division 26 - Electrical		
Electrical	$30,000	Based on Similar Project
Total	**$30,000**	

Division 32 - Earthwork / Landscaping		
Bulk Excavation for Foundation	$4,500	300 yds. at $15 / CY
Footing Prep & Pool Prep	$5,600	200 yds. for Select fill sub base @ $28 / CY
Backfill and Slab Prep	$18,000	600 yds. back fill with select materials @ $30 / CY
Final Grade	$6,500	Days work
Under Deck Grading	$6,500	Allowance
Loam and Seed	$6,000	Allowance
Fencing	$66,000	1100 LF, Estimate @ $60.00 / LF
Landscaping	$15,000	Allowance
Deck Drains	$25,000	Allowance
Degree of Difficulty	$15,000	
Total	**$168,100**	

Project Summary		
Total	$1,360,910	
10 % OH & Profit	$136,091	
Bond / Insurance @ 2%	$29,940	
Engineering	$152,694	
10 % Contingency	$167,964	
Total	**$1,847,599**	

Goslee Building Renovation

Goslee Building Renovation Probable Cost Estimate

Division 1 - General Conditions

Dumpsters	$2,400	4 Dumpsters
Porta John	$1,200	Porta John for 6 months
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$1,000	Permit to Renovate
Supervision	$92,160	Part Time Supervision 32 hr. / week for 6 months @ $120 / hr.
Project Management	$61,440	Part Time Management 16 hr. / week for 6 Months @ $160 / hr.
Equipment Transportation & Deliveries	$2,000	Mobilize Equipment in and Out
Environmental Cleanup	$50,000	Allowance if PCBs, Asbestos, Lead are encountered
Rental Equipment	$1,000	Misc. Equipment in the Small Area
Total	**$211,200**	

Division 2 - Demolition

Removal of Pool Tile	$4,080	(2) Worker @ $85 hr. for 3 Days plus protection
Demo of Bath House Entrance	$13,500	450 SQFT @ $30.00 / SQFT
Demolition of Bath House Interior	$17,600	Building Size - Approximately 2200 SQFT @ $8.00 / SQFT
Shoring of Building	$7,500	Engineering and Shoring Equipment
Electrical Demo	$11,000	Removal of corroded panels & existing
Utility Make Safe	$2,500	Allowance
Remove Damaged Columns in Rear of Building	$1,360	(2) Workers @ $85 hr. for 1 Day
Misc. Demo in Storage Bldg. for Reprograming	$5,000	Allowance
Removal of Perimeter Coping Deck Caulking	$3,000	Allowance 500 LF - $6 / LF
Total	**$65,540**	

Division 3 - Concrete		
Building Entry		
Building Entry Addition Foundation (15' x 15')	$6,000	15 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$3,375	$15.00 / SF
Building Entry Slab (15' x 15') 4" thick	$2,100	6 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Community Room		
Community Room Foundation (15' x 20')	$8,000	20 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$22,000	$10.00 / SF
Community Room Floor (15'x20'), 4" Thick	$2,800	8 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Chemical Room Bldg.		
Chemical Building Foundation 10' x 10'	$400	10 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$1,500	$15.00 / SF
Chemical Building Slab (10' x 10')	$1,400	4 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Interior of the Building		
Existing Building Slab	$8,750	Assumed Building Size (50' x 25') = 25 yds. @ $350 / CY - Concrete, Finish, and Rebar
Walkways & Pads		
Walkways (Allowance 500 SQFT)	$7,500	$15 / SQFT, Prep, form, place, finish
Total	**$63,825**	

Division 4 - Masonry		
Building Entry		
Split Face Block 8" x 16" Single Wythe Wall	$18,000	450 SQFT @ $40 / SQFT
Reinforcement	$2,250	450 SQFT @ $5 / SQFT
Community Room		
Split Face Block 8" x 16" Single Wythe Wall	$22,000	550 SQFT @ $40 / SQFT
Reinforcement	$2,750	550 SQFT @ $5 / SQFT
Interior Partitions		
Interior Partitions walls - 8" CMU walls	$11,250	450 SQFT @ $25 / SQFT (Allowance)
Filter Area Enclosure		
Split Face Block 8" x 16" Single Wythe Wall	$20,000	500 SQFT @ $40 / SQFT
Total	**$76,250**	

Division 5 - Metals		
Lintels for Masonry	$5,500	Allowance
Anchor Bolts	$1,500	Galvanized Anchor Bolts Allowance
Repair Rear Columns	$5,500	Allowance to Repair the Freeze Damaged Columns
Total	**$12,500**	

Division 6 - Wood, Plastics, and Composites		
Pre-Manufactured Wood Trusses	$20,000	Estimate for Purchase and install trusses for Entry and Community Room
5/8" CDX Roof Underlayment	$3,150	$6 / SQFT - Installed on Entry and Community Room
Entry Cabinetry and Millwork	$4,500	Allowance
Casework and Millwork in Community Room	$12,000	Allowance
Total	**$39,650**	

Division 7 - Thermal and Moisture Protection		
Asphalt Shingles	$7,650	Allowance of 450 SF @ $17/ SF
Gutters	$3,325	95 LF @ $35 / LF
Soffit and Facia	$5,700	95 LF @ $60 / LF
	$1,700	Allowance of 100 LF @ $17/ LF
Total	**$18,375**	

Division 8 - Openings		
Hollow Metal Doors and Frames (Exterior 6'-0")	$6,600	Allowance (2) exterior Doors @3,300 Ea.
Hollow Metal Doors and Frames (Exterior 3'-0")	$6,000	Allowance (3) Exterior Doors @2,000 EA
Interior Doors	$3,000	Allowance (4) Interior Doors @ $750 EA
New Hardware	$5,850	Allowance (9) Sets @ $650 /Piece
Louvers	$1,440	18 SQFT @ $80 /SQFT
Aluminum Window Frames	$4,800	(4) Windows, Each window 40" X 48" = 13.32 SQFT Total @ $90 / SQFT
Total	**$27,690**	

Division 9 - Finishes		
Paint New Masonry Building Walls & Doors	$12,000	Approx. 4000 SQFT @ $3.00 / SQFT
VCT Tile in Community Room	$3,000	Approx. 300 SF @ $10 / SF
	$15,000	

Division 10 - Specialties		
Phenolic-Core Toilet Compartments	$10,200	(6) Units Required, including ADA @ $1,700 / Unit
Phenolic-Core Urinal Screen	$850	(1) Unit Required, @ $850 / Unit
Signage	$3,000	Allowance
Washroom Accessories	$1,500	Toilet Paper, Paper Towel Dispensers, Handwash, and Shower Wash Allowance
ADA Grab Bars	$3,000	Allowance
Shower Curtain Rods & Curtains	$1,600	(8) Required - $200 ea.
Diaper Changing Station	$3,000	(3) Required @ 1000 ea.
Fire Extinguisher	$1,200	Allowance (4) @ $300 EA
Personal Lockers	$20,000	Allowance of $20,000
Total	**$44,350**	

Division 11 - Equipment		
Refrigerator	$2,800	(2) Unit Allowance @ $1400 ea. - Community Room and Life Guard Muster Area
Microwave	$500	(2) Unit Allowed @ 500 ea. - Community Room and Life Guard Muster Area
Precast Pre Engineered Chemical Building	$35,000	Allowance
Total	**$38,300**	

Division 13 - Special Construction		
Shade Structure	$30,000	Allowance for large Shade Structure(s)
	$30,000	

Division 23 - Plumbing

New Water Service	$4,000	3" Water Meter w/ 3" RPBF
Gas Fire Hot Water Heater w/ Storage Tank	$20,000	Allowance
Expansion Tank	$950	One required @ $950
Gas Meter & Manifold	$3,000	Allowance for Exterior Gas Service and Manifold
Circulation Pump for HW	$1,200	Allowance
Mixing Valves for Shower	$3,200	(8) required @$400.00 / ea.
Drinking Fountain	$3,000	Allowance for ADA Drinking Fountain
Water Closets	$18,000	(6) required @ $3,000 ea.
Lavatories	$10,800	(4) required @ $2,700 ea.
Urinal	$2,700	(1) required @ $2,700 ea.
Shower	$24,000	(8) Required @ $3,000 ea.
Community Room Sink	$3,000	(1) @ $3,000
Mop Sink	$3,300	(1) @ $3,000 Utility Closet
Waste Piping Below & Above Grade	$9,000	Approximately 300 LF @ $30 / LF
Water Piping Above Grade	$34,000	Approximately 1000 LF @ $34/LF
Water Piping Insulation	$4,500	Approximately 500 LF @ 9 / LF
Various hose bibs	$2,500	Allowance
Total	**$147,150**	

Division 23 - HVAC

Ventilation in Locker Rooms	$5,600	(2) Exhaust Fans at 450 CFM - $2800
Misc. Galvanized Ducting	$5,000	Allowance
Ventilation in Equipment Room	$2,800	450 CFM Exhaust Fan - $2800
Ventilation in Chemical Bldg.	$2,500	350 CFM Exhaust Fan - $2500
Misc. Ventilation	$5,500	Allowance
Total	**$21,400**	

Division 26 - Electrical

Panel Replacement	$16,000	(4) Panels @ $4000 ea.
Allowance for Electrical	$80,000	Based on Similar Projects
Total	**$96,000**	

Division 32 - Earthwork / Landscaping

Bulk Excavation for Foundation	$1,000	100 yds. at $10 / CY
Footing Prep	$336	12 yds. for Select fill sub base @ $28 / CY
Backfill and Slab Prep	$1,950	65 yds. back fill with select materials @ $30 / CY
Final Grade	$1,500	Days work
Loam and Seed	$2,000	Allowance
Total	**$6,786**	

Project Summary

Total	$884,016	
10 % OH & Profit	$88,402	
Bond / Insurance @ 2%	$19,448	
Engineering	$99,187	
10 % Contingency	$109,105	
Total	**$1,200,158**	

Welch Building Renovation

Welch Building Renovation Probable Cost Estimate

Division 1 - General Conditions

Dumpsters	$2,400	4 Dumpsters
Porta John	$1,200	Porta John for 6 months
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$1,000	Permit to Renovate
Supervision	$92,160	Part Time Supervision 32 hr. / week for 6 months @ $120 / hr.
Project Management	$61,440	Part Time Management 16 hr. / week for 6 Months @ $160 / hr.
Equipment Transportation & Deliveries	$2,000	Mobilize Equipment in and Out
Environmental Cleanup	$50,000	Allowance if PCBs, Asbestos, and Lead Fount
Rental Equipment	$1,000	Misc. Equipment in the Small Area
Total	**$211,200**	

Division 2 - Demolition

Removal of Pool Tile	$4,080	(2) Worker @ $85 hr. for 3 Days plus protection
Demo of Bath House Entrance	$16,500	550 SQFT @ $30.00 / SQFT
Demolition of Bath House Interior	$17,600	Building Size - Approximately 2200 SQFT @ $8.00 / SQFT
Shoring of Building	$7,500	Engineering and Shoring Equipment
Electrical Demo	$7,500	Removal of Lights and Existing Electrical
Utility Make Safe	$2,500	Allowance
Remove Damaged Columns in Rear of Building	$1,360	(2) Workers @ $85 hr. for 1 Day
Misc. Demo in Storage Bldg. for Reprograming	$5,000	Allowance
Removal of Perimeter Coping Deck Caulking	$3,000	Allowance 500 LF - $6 / LF
Total	**$65,040**	

Division 3 - Concrete

Building Entry		
Building Entry Addition Foundation (15' x 15')	$6,000	15 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$3,375	$15.00 / SF
Building Entry Slab (15' x 15') 4" thick	$2,100	6 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Community Room		
Community Room Foundation (15' x 20')	$8,000	20 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$22,000	$10.00 / SF
Community Room Floor (15'x20'), 4" Thick	$2,800	8 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Filter Room Extension		
Filter room Foundation 15' x 10'	$3,600	9 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$2,250	$15.00 / SF
Filter room slab (15' x 10')	$1,400	4 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Interior of the Building		
Existing Building Slab	$8,750	Assumed Building Size (50' x 25') = 25 yds. @ $350 / CY - IConcrete, Finish, and Rebar
Walkways & Pads		
Walkways (Allowance 500 SQFT)	$7,500	$15 / SQFT, Prep, form, place, finish
Total	**$67,775**	

Division 4 - Masonry

Building Entry		
Split Face Block 8" x 16" Single Wythe Wall	$18,000	450 SQFT @ $40 / SQFT
Reinforcement	$2,250	450 SQFT @ $5 / SQFT
Community Room		
Split Face Block 8" x 16" Single Wythe Wall	$22,000	550 SQFT @ $40 / SQFT
Reinforcement	$2,750	550 SQFT @ $5 / SQFT
Interior Partitions		
Interior Partitions walls - 8" CMU walls	$11,250	450 SQFT @ $25 / SQFT (Allowance)
Filter Room Extension		
Split Face Block 8" x 16" Single Wythe Wall	$16,000	400 SQFT @ $40 / SQFT
Total	**$72,250**	

Division 5 - Metals		
Lintels for Masonry	$5,500	Allowance
Anchor Bolts	$1,500	Galvanized Anchor Bolts Allowance
Total	**$7,000**	

Division 6 - Wood, Plastics, and Composites		
Pre-Manufactured Wood Trusses	$25,000	Estimate for Purchase and install trusses for Entry, Community Room, Filter Room
5/8" CDX Roof Underlayment	$4,050	$6 / SQFT - Installed on Entry and Community Room
Entry Cabinetry and Millwork	$4,500	Allowance
Casework and Millwork in Community Room	$12,000	Allowance
Total	**$45,550**	

Division 7 - Thermal and Moisture Protection		
Asphalt Shingles	$11,475	Allowance of 675 SF @ $17/ SF
Gutters	$4,725	135 LF @ $35 / LF
Soffit and Facia	$8,100	135 LF @ $60 / LF
Total	**$24,300**	

Division 8 - Openings		
Hollow Metal Doors and Frames (Exterior 6'-0")	$6,600	Allowance (2) exterior Doors @3,300 Ea.
Hollow Metal Doors and Frames (Exterior 3'-0")	$6,000	Allowance (3) Exterior Doors @2,000 EA
Interior Doors	$3,000	Allowance (4) Interior Doors @ $750 EA
New Hardware	$5,850	Allowance (9) Sets @ $650 /Piece
Louvers	$1,440	18 SQFT @ $80 /SQFT
Aluminum Window Frames	$4,800	(4) Windows, Each window 40" X 48" = 13.32 SQFT Total @ $90 / SQFT
Total	**$27,690**	

Division 9 - Finishes		
Paint New Masonry Building Walls & Doors	$12,000	Approx. 4000 SQFT @ $3.00 / SQFT
VCT Tile in Community Room	$3,000	Approx. 300 SF @ $10 / SF
	$15,000	

Division 10 - Specialties		
Phenolic-Core Toilet Compartments	$8,500	(5) Units Required, including ADA @ $1,700 / Unit
Phenolic-Core Urinal Screen	$850	(1) Unit Required, @ $850 / Unit
Signage	$3,000	Allowance
Washroom Accessories	$1,500	Toilet Paper, Paper Towel Dispensers, Handwash, and Shower Wash Allowance
ADA Grab Bars	$3,000	Allowance
Shower Curtain Rods & Curtains	$1,200	(6) Required - $200 ea.
Diaper Changing Station	$3,000	(3) Required @ 1000 ea.
Fire Extinguisher	$1,200	Allowance (4) @ $300 EA
Personal Lockers	$20,000	Allowance of $20,000
Total	**$42,250**	

Division 13 - Special Construction		
Shade Structure	$30,000	Allowance for large Shade Structure(s)
	$30,000	

Division 11 - Equipment		
Refrigerator	$2,800	(2) Unit Allowance @ $1400 ea. - Community Room and Life Guard Muster Area
Microwave	$500	(2) Unit Allowed @ 500 ea. - Community Room and Life Guard Muster Area
Total	**$3,300**	

Division 23 - Plumbing

New Water Service	$4,000	3" Water Meter w/ 3" RPBF
Gas Fire Hot Water Heater w/ Storage Tank	$20,000	Allowance
Expansion Tank	$950	One required @ $950
Gas Meter & Manifold	$3,000	Allowance for Exterior Gas Service and Manifold
Circulation Pump for HW	$1,200	Allowance
Mixing Valves for Shower	$3,200	(8) required @$400.00 / ea.
Drinking Fountain	$3,000	Allowance for ADA Drinking Fountain
Water Closets	$15,000	(5) required @ $3,000 ea.
Lavatories	$10,800	(4) required @ $2,700 ea.
Urinal	$2,700	(1) required @ $2,700 ea.
Shower	$18,000	(6) Required @ $3,000 ea.
Community Room Sink	$3,000	(1) @ $3,000
Mop Sink	$3,300	(1) @ $3,000 Utility Closet
Waste Piping Below & Above Grade	$9,000	Approximately 300 LF @ $30 / LF
Water Piping Above Grade	$34,000	Approximately 1000 LF @ $34/LF
Water Piping Insulation	$4,500	Approximately 500 LF @ 9 / LF
Various hose bibs	$2,500	Allowance
Total	**$138,150**	

Division 23 - HVAC

Ventilation in Locker Rooms	$5,600	(2) Exhaust Fans at 450 CFM - $2800
Misc. Galvanized Ducting	$5,000	Allowance
Ventilation in Equipment Room	$2,800	450 CFM Exhaust Fan - $2800
Misc. Ventilation	$5,500	Allowance
Total	**$18,900**	

Division 26 - Electrical		
Panel Replacement	$8,000	(2) Panels @ $4000 ea.
Allowance for Electrical	$80,000	Based on Similar Projects
Total	**$88,000**	

Division 32 - Earthwork / Landscaping		
Bulk Excavation for Foundation	$1,000	100 yds. at $10 / CY
Footing Prep	$336	12 yds. for Select fill sub base @ $28 / CY
Backfill and Slab Prep	$1,950	65 yds. back fill with select materials @ $30 / CY
Final Grade	$1,500	Days work
Loam and Seed	$2,000	Allowance
Total	**$6,786**	

Project Summary		
Total	$863,191	
10 % OH & Profit	$86,319	
Bond / Insurance @ 2%	$18,990	
Engineering	$96,850	
10 % Contingency	$106,535	
Total	**$1,171,885**	

Goslee Filter Renovation

Goslee Filter Rehabilitation Probable Cost Estimate

Division 1 - General Conditions		
Dumpsters	$600	1 Dumpsters
Porta John	$0	Porta John
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$1,000	Permit to Renovate
Supervision	$9,600	Part Time Supervision 20 hr. / week for 1 months @ $120 / hr.
Project Management	$6,400	Part Time Management 10 hr. / week for 1 Months @ $160 / hr.
Equipment Transportation & Deliveries	$2,000	Mobilize Equipment in and Out
Rental Equipment	$1,000	Misc. Equipment in the Small Area
Total	**$20,600**	

Division 2 - Demolition		
Demo Existing Piping	$2,720	(2) Worker @ $85 hr. for 2 Days plus protection
Remove and Protect Reused Equipment	$680	(1) Worker @ $85 hr. for 1 Day
Demo Existing Filters and Removal	$2,760	(2) Workers@ $85 hr. for 2 Days
Vac Truck to Remove Sand	$1,500	Allowance
Total	**$7,660**	

Division 13 - Special Construction		
Filter for Main Pool	$20,000	Allowance
Install Sand in Filters	$5,000	Allowance
Misc. Accessories	$4,500	Auto Fill, Flow Meter, Instrumentation
VFDs	$10,000	Allowance
Total	**$39,500**	

Division 22 - Mechanical

Install New Filter Piping Pool	$8,760	(2) Workers (3) Days @$120 / hr. plus $3,000 in material
Install New Filter Piping wading	$5,840	(2) Workers (2) Days @$120 / hr. plus $3,000 in material
Chemical Controllers	$4,000	(2) Worker (1) day @ $120 / hr., plus $3,000 in materials including controller
Chemical Feed Equipment	$2,960	(2) Workers (1) day @ $120 / hr., plus $2000 in Material & Equipment
Chemical Storage Equipment & Safety	$2,000	Allowance
Start up	$1,000	Allowance
Balancing	$1,000	Allowance
Training	$1,000	Allowance
Total	**$26,560**	

Division 26 - Electrical

Wiring VFDs, control wiring, and wiring pumps	$10,000	Allowance and Materials
Total	**$10,000**	

Project Summary

Total	$104,320	
10 % OH & Profit	$10,432	
Bond / Insurance @ 2%	$2,295	
Engineering	$11,705	
10 % Contingency	$12,875	
Total	**$141,627**	

Welch Filter Renovation

Welch Filter Renovation Probable Cost Estimate

Division 1 - General Conditions

Dumpsters	$600	1 Dumpsters
Porta John	$0	Porta John
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$1,000	Permit to Renovate
Supervision	$19,200	Part Time Supervision 20 hr. / week for 2 months @ $120 / hr.
Project Management	$19,200	Part Time Management 10 hr. / week for 3 Months @ $160 / hr.
Equipment Transportation & Deliveries	$2,000	Mobilize Equipment in and Out
Rental Equipment	$1,000	Misc. Equipment in the Small Area
Total	**$43,000**	

Division 2 - Demolition

Demo Existing Piping	$2,720	(2) Worker @ $85 hr. for 2 Days plus protection
Remove and Protect Reused Equipment	$680	(1) Worker @ $85 hr. for 1 Day
Demo Existing Filters and Removal	$1,360	(2) Workers@ $85 hr. for 1 Days
Total	**$4,760**	

Division 13 - Special Construction

Filter for Main Pool	$20,000	Allowance
Filter for Wading Pool	$5,500	Allowance
Install Sand in Filters	$5,000	Allowance
Misc. Accessories	$4,500	Auto Fill, Flow Meter, Instrumentation
VFDs	$10,000	Allowance
Total	**$45,000**	

Division 22 - Mechanical

Install New Filter Piping Pool	$8,760	(2) Workers (3) Days @$120 / hr. plus $3,000 in material
Install New Filter Piping wading	$5,840	(2) Workers (2) Days @$120 / hr. plus $3,000 in material
Chemical Controllers	$4,000	(2) Worker (1) day @ $120 / hr., plus $3,000 in materials including controller
Chemical Feed Equipment	$2,960	(2) Workers (1) day @ $120 / hr., plus $2000 in Material & Equipment
Chemical Storage Equipment & Safety	$2,000	Allowance
Start up	$1,000	Allowance
Balancing	$1,000	Allowance
Training	$1,000	Allowance
Total	**$26,560**	

Division 26 - Electrical

Wiring VFDs, control wiring, and wiring pumps	$10,000	Allowance and Materials
Total	**$10,000**	

Project Summary

Total	$129,320	
10 % OH & Profit	$12,932	
Bond / Insurance @ 2%	$2,845	
Engineering	$14,510	
10 % Contingency	$15,961	
Total	**$175,567**	

Goslee Wading Pool Renovation

Goslee Wading Pool Probable Cost Estimate

Division 1 - General Conditions

Dumpsters	$1,200	2 Dumpsters
Porta John	$600	Porta John for 3 months
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$1,000	Permit to Renovate
Supervision	$28,800	Part Time Supervision 20 hr. / week for 3 months @ $120 / hr.
Project Management	$14,400	Part Time Management 10 hr. / week for 3 Months @ $160 / hr.
Equipment Transportation & Deliveries	$2,000	Mobilize Equipment in and Out
Rental Equipment	$1,000	Misc. Equipment in the Small Area
Total	**$49,000**	

Division 2 - Demolition

Demo Pool Zero entry Area	$4,840	(2) Worker @ $120 hr. for 2 Days plus Equip plus disposal
Demo of Select Deck Sections	$2,360	(2) Workers @ $85 hr. for 1 Days plus disposal
Remove Pool Main Drains	$2,360	(2) Workers @ $85 hr. for 1 Days
Remove Coping Stones	$1,360	(2) Workers @ $85/hr. for 1 day
Total	**$10,920**	

Division 3 - Concrete		
Sloped Entry Slab		
Repair Drainage Area & Deck	$4,800	12 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$5,000	$20.00 / SF
Main Drain		
Place and Finish	$1,800	3 yds. @ $600 / CY - Include Concrete, Placement, Rebar, small pour
Total	**$11,600**	

Division 7 - Thermal and Moisture Protection		
Deck Joint Sealant	$ 3,400.00	Allowance of 200 LF @ $17/ LF
Total	**$ 3,400.00**	

Division 9 - Finishes		
New Paint or Plaster finish	$2,000	Approx. 200 SQFT @ $10.00 / SQFT
Precast Coping Stone	$11,250	150 LF @ $150 / LF
	$13,250	

Division 13 - Special Construction		
Collector Tank	$10,000	Allowance for Collector Tank
Total	**$10,000**	

Division 22 - Mechanical

** Does Not Include Filter System **		
Main Drains	$3,820	(2) Workers (1) Days @$120 / hr. plus $2,000 in materials
Buried Piping	$5,840	(2) Workers (2) Days @ $120 / hr., plus $2000 in materials
Autofill System	$2,500	Allowance
Total	**$9,660**	

Division 26 - Electrical

Misc. Wiring for Bonding and Controls	$5,000	Allowance and Materials
Total	**$5,000**	

Division 32 - Earthwork / Landscaping

Excavation for a New Collector Tank	$2,500.00	Allowance - Excavate, bedding, and burry.
Loam New Collector Tank Area	$1,600.00	20 yds. @ $80 / yd. - Labor and Material
Seeding New Disturbed Areas	$660.00	2000 SQFT Allowance @ .33 SQFT
Buried Piping Installation	$3,200.00	Allowance - Excavate, bedding, and burry.
Total	**$7,960.00**	

Project Summary

Total	$120,790	
10 % OH & Profit	$12,079	
Bond / Insurance @ 2%	$2,657	
Engineering	$13,553	
10 % Contingency	$14,908	
Total	**$163,987**	

Welch Wading Pool Renovation

Welch Wading Pool Renovation Probable Cost Estimate

Division 1 - General Conditions

Dumpsters	$1,200	2 Dumpsters
Porta John	$600	Porta John for 3 months
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$1,000	Permit to Renovate
Supervision	$28,800	Part Time Supervision 20 hr. / week for 3 months @ $120 / hr.
Project Management	$14,400	Part Time Management 10 hr. / week for 3 Months @ $160 / hr.
Equipment Transportation & Deliveries	$2,000	Mobilize Equipment in and Out
Rental Equipment	$1,000	Misc. Equipment in the Small Area
Total	**$49,000**	

Division 2 - Demolition

Demo Pool Deck and deck to equipment room	$8,760	(2) Worker @ $120 hr. for 3 Days plus Equip plus disposal
Remove Existing Pool Liner	$2,360	(2) Workers@ $85 hr. for 1 Days plus disposal
Remove Portions of the Pool wall	$1,360	(2) Worker @ $85 hr. for 1 Days plus protection
Remove Pool Main Drains	$2,360	(2) Workers@ $85 hr. for 1 Days
Demo Existing Fencing	$1,360	(2) Workers@ $85 hr. for 1 Days
Total	**$16,200**	

Division 3 - Concrete		
Sloped Entry Slab		
Place Slab	$4,800	12 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$4,080	$7.50 / SF
Pool Deck		
Place Slab Deck	$8,000	20 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$7,500	$5.00 / SF
Pool Walls		
Place Walls	$1,800	3 yds. @ $600 / CY - Include Concrete, Placement, Rebar, small pour
Formwork	$675	$15.00 / SF
Total	**$26,855**	

Division 7 - Thermal and Moisture Protection		
Deck Joint Sealant	$3,400	Allowance of 250 LF @ $17/ LF
Total	**$3,400**	

Division 9 - Finishes		
New Paint or Plaster finish	$4,500	Approx. 600 SQFT @ $10.00 / SQFT
New Water Line Tile	$900	Approx. 340 LF @ $20 LF
	$5,400	

Division 13 - Special Construction		
Spray Features	$10,000	Allowance for features in the pool
Collector Tank	$10,000	Allowance for Collector Tank
Total	**$20,000**	

Division 22 - Mechanical

** Does Not Include Filter System **		
Main Drains	$3,820	(2) Workers (1) Days @$120 / hr. plus $2,000 in materials
Skimmers	$3,820	(2) Worker (1) day @ $120 / hr., plus $2,000 in materials
Buried Piping	$5,840	(2) Workers (2) Days @ $120 / hr., plus $2000 in materials
Inlets	$1,460	(1) Worker (1) Day @ $120 / hr., plus $500 in materials
Manifold	$5,000	Allowance for Manifold and Installation
Total	**$19,940**	

Division 26 - Electrical

Misc. Wiring for Bonding and Controls	$5,000	Allowance and Materials
Total	**$5,000**	

Division 32 - Earthwork / Landscaping

Under slab Prep for Wading Pool Slab	$2,420	(2) Workers (1) Day @ $120 / hr. plus $500 in materials
Excavation for a New Collector Tank	$2,500	Allowance - Excavate, bedding, and burry.
Loam New Collector Tank Area	$1,600	20 yds. @ $80 / yd. - Labor and Material
Seeding New Disturbed Areas	$660	2000 SQFT Allowance @ .33 SQFT
Buried Piping Installation	$3,200	Allowance - Excavate, bedding, and burry.
New Fencing	$8,000	200 LF @ $40 / LF
Total	**$18,380**	

Project Summary		
Total	$164,175	
10 % OH & Profit	$16,418	
Bond / Insurance @ 2%	$3,612	
Engineering	$18,420	
10 % Contingency	$20,262	
Total	**$222,887**	

Veterans Replacement

Veterans Pool Replacement Probable Cost Estimate

Division 1 - General Conditions

Dumpsters	$2,400	4 Dumpsters
Porta John	$1,200	Porta John for 6 months
Temporary Water	$0	Temporary Water in the Park
Temporary Power	$0	Temporary Power in the Park
Parking	$0	Various Permits and expense to park on street
Permits	$3,000	Permit to Renovate
Supervision	$92,160	Part Time Supervision 32 hr. / week for 6 months @ $120 / hr.
Project Management	$61,440	Part Time Management 16 hr. / week for 6 Months @ $160 / hr.
Equipment Transportation & Deliveries	$2,000	Mobilize Equipment in and Out
Environmental Cleanup	$50,000	Allowance if PCBs, Asbestos, Lead are encountered
Rental Equipment	$1,000	Misc. Equipment in the Small Area
Total	**$213,200**	

Division 2 - Demolition

Demolition of Pool Structure	$44,000	$10 / SQFT - Pool is 4,400 SQFT
Demolition of Pool Deck	$8,000	$1.00 / SQFT of Deck, Allowance of 8,000 SQFT of Deck
Demolition of Existing Filter Room	$8,120	(3) Workers a@ $85 / hr. for 3 Days plus $2,000 Disposal Fee
Total	**$60,120**	

Division 3 - Concrete		
New Pool Deck		
Formwork	$40,000	$5.00 / SF
Install New Pool Deck (8000 SF), 4" Thick	$42,000	120 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Walkways & Pads		
Install Walkways (Allowance 500 SQFT)	$7,500	$15 / SQFT, Prep, form, place, finish
Pool Filter Building		
New Cast in Place Wall & Footing (20' x 20')	$6,400	16 yds. @ $400 / CY - Include Concrete, Placement, Rebar. Walls and Footing
Formwork	$6,000	$15.00 / SF
Install New Filter Room Slab	$3,150	9 yds. @ $350 / CY - Includes Concrete, Finish, Rebar
Total	**$105,050**	

Division 4 - Masonry		
Filter Building		
Split Face Block 8" x 16" Single Wythe Wall	$32,000	800 SQFT @ $40 / SQFT
Reinforcement	$4,000	800 SQFT @ $5 / SQFT
Total	**$36,000**	

Division 5 - Metals		
Lintels for Masonry	$2,500	Allowance
Anchor Bolts	$1,500	Galvanized Anchor Bolts Allowance
Total	**$4,000**	

Division 6 - Wood, Plastics, and Composites		
Pre-Manufactured Wood Trusses	$ 12,000.00	Estimate for Purchase and install trusses for Entry, Community Room, Filter Room
5/8" CDX Roof Underlayment	$2,400	$6 / SQFT - Installed on Entry and Community Room
Total	**$ 14,400.00**	

Division 7 - Thermal and Moisture Protection		
Asphalt Shingles	$ 6,800.00	Allowance of 400 SF @ $17/ SF
Gutters	$2,800	80 LF @ $35 / LF
Soffit and Fascia	$4,800	80 LF @ $60 / LF
Deck Caulking	$12,000	Allowance
Total	**$ 26,400.00**	

Division 8 - Openings		
Hollow Metal Doors and Frames (Exterior 6'-0")	$3,300.00	Allowance (1) exterior Doors @3,300 Ea.
New Hardware	$650.00	Allowance (1) set @ $650 /Piece
Louvers	$1,440.00	18 SQFT @ $80 /SQFT
Total	**$5,390**	

Division 9 - Finishes		
Paint New Masonry Building Walls & Doors	$2,400	Approx. 800 SQFT @ $3.00 / SQFT
Total	**$2,400**	

Division 13 -Special Construction		
New Gunite or Cast in Place Pool	$1,100,000	4400 SQFT @ $250 / SQFT Price of $250 / SQFT of water surface includes, concrete shell, finish, tile work, stainless gutter, deck accessories, life guard and safety equipment, piping system, filtration system, and testing / startup
Total	**$1,100,000**	

Division 23 - Plumbing		
New Water Service	$1,500	3" Water Meter w/ 3" RPBF
Mop Sink	$3,300	(1) @ $3,000 Utility Closet
Waste Piping Below & Above Grade	$3,000	Approximately 100 LF @ $30 / LF
Water Piping Above Grade	$3,400	Approximately 100 LF @ $34/LF
Various hose bibs	$1,200	Allowance
Total	**$12,400**	

Division 23 - HVAC		
Misc. Galvanized Ducting	$5,000	Allowance
Ventilation in Equipment Room	$2,800	450 CFM Exhaust Fan - $2800
Total	**$7,800.00**	

Division 26 - Electrical		
Electrical	$30,000.00	Based on Similar Project
Total	**$30,000**	

Division 32 - Earthwork / Landscaping		
Bulk Excavation for Foundation	9,000	600 yds. at $15 / CY
Footing Prep & Pool Prep	5,600	200 yds. for Select fill sub base @ $28 / CY
Backfill and Slab Prep	18,000	600 yds. back fill with select materials @ $30 / CY
Final Grade	6,500	Days work
Under Deck Grading	6,500	Allowance
Loam and Seed	6,000	Allowance
Fencing	66,000	1100 LF, Estimate @ $60.00 / LF
Landscaping	15,000	Allowance
Deck Drains	25,000	Allowance
Total	**157,600**	

Project Summary		
Total	$1,774,760	
10 % OH & Profit	$177,476	
Bond / Insurance @ 2%	$39,045	
Engineering	$199,128	
10 % Contingency	$219,041	
Total	**$2,409,450**	