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## Schematic Design Narrative- Basis of Design

### GENERAL CONDITIONS

**Schedule:** A pool project should be scheduled to have bidding in late winter or early spring. Administrative tasks, submittals, site survey and similar work can begin during the spring. Construction would start and take advantage of the summer months; the contractor can complete the majority of the work before the weather turns. The contract would require the contractor to open the pool in the spring including the first season start-up. The contract would also include the first season shut-down. The second season start up would be within the one-year correction/warranty period of the Construction Contract.

### **Contracting:**

1. The inclusion of the bathhouse, decks, and shade structures requires bidding under M.G.L c149. The project will be bid as a single contract to a General Bidder.
2. The swimming pool work is a specialty item specified in Division 13. The pool structure, finish, piping and filtration equipment is specified to encourage/require a single pool subcontract, giving the City a single source of responsibility for the pool.
3. Fresh water make-up, sanitary drainage, power and data connections for the pool are provided by plumbing and electrical sub-trades.

### EXISTING CONDITIONS

#### **Erosion/Sedimentation Control/Construction Mitigation**

- The project is subject to approval by the Newton Conservation Commission. The existing building is located with the 100 ft. resource setback and the 250 ft. riverway setback from Cheesecake Brook
- An Order of Conditions will be issued and included in the Contract Documents dictating procedures and measures required to protect the wetland resource during construction.

#### **Hazardous Material Survey**

A hazardous material survey will need to be performed in the next phase of the project to determine the presence of asbestos containing materials, lead paint, and electrical equipment containing hazardous materials.

### **Removal/Demolition:**

#### ***Existing swimming pools and site;***

- Site Fencing
- Pool Decks
- Existing Pools (wading and main pool)
- Pool deck equipment, ladders, diving board, and slide
- Shade Structures
- Existing trees surrounding the site
- Front Entry Steps
- "Ramp" along west and south side of building.
- Driveway to pool deck
- Retaining wall surrounding wading pool
- Extent of site demolition related to the existing tennis courts and walkways to be coordinated with the overall Albemarle Park improvements.

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**Building Selective Demolition:**

- Filtration Equipment and Piping in basement
- Sanitary and domestic water piping in basement
- Old and abandoned equipment
- Plumbing fixtures, sanitary and domestic water piping
- Fans, ductwork, grilles, and controls
- Electrical distribution, panels, and outlets
- Data distribution
- Ceilings
- Partitions
- Changing stalls
- Doors and Frames
- Roofing
- Partitions and walls to provide new configuration
- Storefront at office (east elevation)

**Removal and salvage:**

- Turn over to City, existing plaque and other items identified by the City.
- It is assumed that the City will move all loose equipment that will be used elsewhere or reused in the renovated pool.

**BATHHOUSE AND DECK CONSTRUCTION APPROACH**

The finishes and equipment provided in the toilet, shower, and changing areas are selected for the following qualities:

- Function
- Compliance with Codes
- Accessibility
- Ease of maintenance
- Vandal-Resistance
- Durability and service life.
- Sustainability

**Concrete**

*Substructure:* Cast-in-place concrete foundations, footings, retaining walls, site ramps and stairs.

- Assume ordinary spread footings.
- Decorative form facing on walls facing the park.
- Air-entrained concrete, minimum 4,000 psi mix.

*Miscellaneous:* Cast-in place concrete housekeeping pads for pumps and other equipment in basement

*Concrete Repairs in Basement: Walls and Overhead Structure*

- Power wash all surfaces to remove loose concrete, insulated coating on ceiling, and environmental grime
- Prepare locations of concrete repairs
- Provide vertical and overhead concrete repair mortar including bonding agent.
- Provide reinforcing at deep concrete repairs

**Masonry:**

Selective Demolition and construction of new 6 and 8-inch concrete masonry units to construct new partitions. Normal weight CMU with reinforcing.

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Minor amount of clay brick masonry removal and reconstruction for new windows, doors, and louvers in exterior walls.

**Wood Framing:** Repairs to existing roof structure; supplemental framing for new skylights and fans.

Rough Carpentry: Pressure treated wood blocking at new roofing and wall openings.

**Finish Carpentry:**

- Miscellaneous repairs to existing exterior roof edge and trim.
- Plywood panel soffits
- Wood slat ceilings

**Millwork:**

Cabinetry: Plastic Laminate clad base and upper cabinets at staff area built in cabinets.  
Counters: Solid-surface counters at staff service areas and counter tops.  
Utility Shelving- Plastic Laminate clad plywood.

**Waterproofing**

Below grade waterproofing and protection board  
Fluid Applied waterproofing membrane where exterior surface of basement walls are exposed

**Roofing**

**Low Slope Roofing**

- a. Substrate Board
- b. TPO membrane Roof

*Substrate Board*

ASTM C1177/C1177M, glass-mat, water-resistant gypsum board or ASTM C1278/C1278M, fiber-reinforced gypsum board

*Roof Membrane*

ENERGY STAR Listing: Roofing system shall be listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products. TPO Sheet: ASTM D6878/D6878M, internally fabric- or scrim-reinforced.

**Sheet Metal Flashing and Trim:**

*Wall Flashing:* Aluminum Sheet: Two-Coat Fluoropolymer: 0.032 inch thick

**Joint Sealants:**

*Low-Modulus Nonacid-Curing Silicone Sealant:* For general exterior joints of louvers, door frames, masonry, wood trim, and siding, and all other joints not included otherwise

*Mildew-Resistant Silicone Sealant:* Joint between all plumbing fixtures and counters and their adjacent substrate.

*Multi-component Urethane Sealant:* Horizontal joints in interior and exterior slabs on grade, concrete sidewalks, and pool decks.

*Specialized sealants for pool walls and slabs:* All sealants used for pool walls or slabs shall be designed for use within submerged water environments and highly chlorinated environments

**Doors:** Fiberglass Doors and Frames: Fiberglass reinforced plastic doors and frames with gel-coat finish. This includes all exterior doors and interior doors in wet areas including the bathhouse, filter room, storage room and doors in pool support building.

1. Tiger Door, LLC
2. Chem-Pruf Doors

**Door Hardware:** Stainless Steel, heavy duty. Cylinder locks on interior, mortise locks on exterior.

1. *Hinges:* Heavy weight, ball bearing, stainless steel 4 1/2" high; 2 pair for 8 ft. high doors.
2. *Locksets:* ANSI A156.13, Grade 1 mortise locksets
3. *Door closers:* Fully hydraulic, full rack and pinion action with a high strength cast iron cylinder.
4. *Push Plates:* Push plates shall be 8" wide x 16" high
5. *Door Pulls & Push Bars:* Pulls shall be 1" diameter solid bar stock, 10" center to center
6. *Protective Plates:* Provide kick, mop, or armor plates with four beveled edges
7. *Door Stops and Holders:* All wall mounted
8. *Thresholds and Gasketing* at doors exposed to exterior; ADA compliant threshold.

**Windows:** *Fiberglass Windows:* Pultruded fiberglass complying with AAMA/WDMA/CSA 101/I.S.2/A440 and with exposed exterior fiberglass surfaces finished with manufacturer's standard enamel coating complying with AAMA 613.

1. Marvin All-Ultrex (basis of design)
2. Fibertec Window and Door Manufacturing.
3. Inline Fiberglass Ltd.
4. Pella Corporation.

**Access Doors and Frames:** Provide access doors and frames at all locations required to access valves, cleanouts, pull boxes, switches, devices that require monitoring, service and adjustment. Metallic-Coated Steel Sheet for Door, Nominal 0.064 inch (1.63 mm), 16 gage, and factory primed

**Security Shutters:** Push-up, manual, aluminum storm/hurricane shutters at east storefront windows in managers office.

**Overhead Coiling Door:** Non- Insulated coiling service door. Door components and operators capable of operating for not less than 20,000. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position. Powder Coat finish in custom color. Provide electronic door operator.

**Louvers:** Fixed rain-resistant horizontal blade units including integral frame and insect screens. Aluminum Extrusions with two-coat fluoropolymer finish.

**Aluminum Framed Entrances and Storefront**

Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads. Available Manufacturers Storefront:

1. Tublite Inc
2. EFCO Corporation, a Pella Company
3. Kaneer North America, an Alcoa Company

**Glass Type Exterior Insulated : Low-E-coated, clear insulating glass.**

- a. Basis-of-Design Product: Solar Ban 60 by Vitro Architectural Glass

**Skylights:** Solar Light Tubes. Curb Mounted dome skylight with rigid reflective tunnel with bottom diffuser plate. 14-inch diameter. Velux Sun Tunnels or equal.

**Ceiling:** Cellular PVC or Cedar wood slat ceiling.



PVC Ceiling

**Floor Finishes:** Hybrid aliphatic-epoxy urethane flooring in bathhouse and rooms within pool support building.

#### Painting and High-Performance Coatings

##### *Painted CMU:*

- a. Water Based Epoxy Semi-Gloss
- b. Sherwin Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss, K46 Series. 2 coats over ProMar 200 Zero VOC Latex Primer

*Interior Painted Wood:* Semi-gloss, waterborne, exterior, acrylic enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils (0.061 mm).

*Interior Painted Walls:* primer and two coats of paint (level 4 GWB finish)

*Ferrous Metal:* Semi-gloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils (0.033 mm).

*Zinc-Coated Metal:* Semi-gloss, exterior, acrylic-latex enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils (0.066 mm).

**Signage:** Panel signs- One sign for each room and space. Cast-Acrylic Sheet. Complying with ADA Accessibility Guidelines and ICC/ANSI A117.1. Text shall be accompanied by Grade 2 braille.

#### Plastic Toilet Compartments

Polymer compartments with continuous wall cleat, floor mounted overhead braced Santana/Comtec/Capitol

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### Plastic Shower Compartments

Shower Compartments: Solid-polymer compartments configured as shower and drying stalls including overhead bracing with integral shower curtain rods. Santana/Comtec/Capitol



Shower Stalls Dry and Wet Sections

### Plastic Lockers

Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products of Bradley Corporation, Menomonee Falls, WI 53051, (800)272-3539, fax (262)251-5817; Email [info@BradleyCorp.com](mailto:info@BradleyCorp.com); Website [www.bradleycorp.com](http://www.bradleycorp.com).

- High Density Polyethylene (HDPE): 30 percent pre-consumer recycled content polyethylene thermoplastic formed under high pressure into solid plastic components.
- Stainless-Steel Sheet: ASTM A 666, Type 304.



Public Use Lockers

### Toilet Accessories:

Stainless steel, heavy duty, vandal resistant accessories. High security type accessories are used when they provide the appropriate level of function and finish.

1. *Toilet and Shower Fixed Grab Bars*: Stainless steel, 1 ½ inch diameter, peened grab sections
2. *Toilet Paper Dispenser*: Stainless steel multi-standard roll
3. *Sanitary Napkin Disposal*: Stainless steel, self-closing, removable receptacle.
4. *Robe Hook*: Stainless Steel, 2 prongs.
5. *Soap Dish*: Extra heavy One-Piece Brass Casting with bright polished chrome plated finish.
6. *Paper Towel Dispenser*: Stainless steel multi-fold
7. *Liquid Soap Dispenser*: Vertical tank liquid soap dispensers with hinged filler-top and unbreakable refill window.
8. *Shower Seat*: Stainless steel fold-down unit with padded seat



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9. *Shower Assembly*: Stainless steel curtain rings, 72-inch-high by 70-inch-wide opaque white vinyl shower curtain
  10. *Diaper-Changing Station*: Diaper-changing station with surface-mounted, mildew-resistant, molded polyethylene body that folds horizontally against wall when not in use
  11. *Mop and Broom Holder*: 36-inch-long unit stainless steel with shelf; three hooks for wiping rags; four spring-loaded, rubber hat, cam-type, mop/broom holders and rod suspended beneath shelf for drying rags.

#### **Adult Changing Equipment**

1. Max-Ability Pressalit Care 3000 Adult Changing Station
2. Description: Heavy duty aluminum frame with pneumatic counterbalance. Powder lacquered stainless steel mounting brackets and anchors.
3. Length: 69 inches minimum to 75 ¼ inches (Confirm Size Before Ordering)
4. Width: 30 inches minimum
5. Weight Capacity: 400 lbs.
6. Fixed height fold away design
7. Safety Rail: stores and locks under table; aluminum and foam construction; for fold up models provide safety strap



Adult Changing Station

#### **Fire Protection Specialties:**

UL Rating: 4A-60B: C Fire extinguishers; bracket mounted or semi-recessed non-rated cabinets.

#### **SWIMMING POOL SPECIFICATIONS FOR PROPOSED WORK**

##### **Pool Tank**

1. Dry or wet mix shotcrete pool tank including finish and markings.
2. Reinforced pneumatically applied concrete pool structures:
  - a. Final hand trimming of excavation.
  - b. Formwork to supplement existing pool structure
  - c. Reinforcing steel.
  - d. Design and provide pools structure.
  - e. Pool finish
  - f. Installation of anchorage for deck equipment within the pool tank.

##### **Pool Finish- Plaster**

The pool finish shall consist of two coats of plaster finish. The two coats of pool plaster shall together equal three-eighths (3/8) to one-half (1/2) inch thickness and shall be applied by hand troweling method to a smooth, dense, impervious surface

At ramps, stairs, and zero depth areas and areas indicated, provide a quartz aggregate pool finish equal to Diamond Brite™ manufactured by Southern Grouts & Mortars, Inc. Pompano Beach FL 800-641-9247. Architect to select from full range of options including multi-color aggregate and pigmented plaster.



Aggregate Pool Plaster



White Plaster with Tile Wall Targets and Racing Lines

All racing lines, gutter areas, wall targets, stair nosing, and safety markings shall be ceramic tile.

Tile size and color shall be based on the following American Olean products:

- Gutter tile: Glazed ceramic mosaic tile; 1x1 inch; provide bullnose units at edges.
- Stair treads and other markers: Unglazed porcelain Ceramic Mosaics; 2 x 2 inch with abrasive finish.
- Plaster control joint tile: Unglazed porcelain Ceramic Mosaics; 2 x 2 inch.
- Tile Colors: Colors to be selected by Engineer from "A" price Group (American Olean) or premium price group (3) (Daltile).

All in pool and deck level markings shall be equal to specialty tiles provided by Tiles with Marking at Graphics: Provide tiles manufactured by Tile Specialties, Spring Hill, Florida 904-686-8670 or approved equal. [www.tilespecialties.com](http://www.tilespecialties.com)

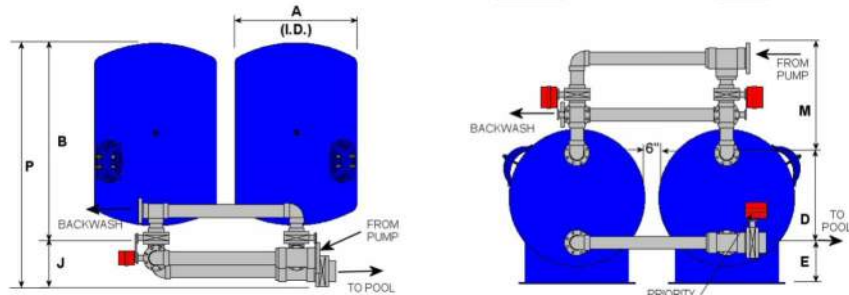


#### Filtration Option1

1. Complete high rate sand filtration and recirculation systems including, stainless steel perimeter gutter, zero depth trench drain, balance pit, all piping and automatic chemical controls. Complete chemical treatment system that includes, but is not limited to, the following:
  - Automated backwashing control.
  - Strainer baskets
  - Recirculation pumps for pools
  - Flow meters
  - Gages
  - Filters



- Valves
  - Sight glasses
  - All interconnecting piping for equipment within the filtration room
  - Backwash holding tanks
  - Control Panels
  - Sensors and Probes
2. Automatic water level controls and water fill devices.
  3. Operation/Maintenance Manuals of all equipment and systems. Manuals shall include proper shutdown procedures.
  4. Framed and mounted diagram of filter system operation and backwash procedures. Furnish and install numbered, equipment plates, valve tags and pipe labels to correspond to instructions.
  5. Startup Service and instruction to the Owner's operating personnel shall be given upon completion of the Project.
  6. Shelving and mounting boards required for pool equipment and accessories.
  7. Final plumbing connection of fresh water line to pool make-up equipment.



Typical configuration of dual tanks

Acceptable Filtration Equipment Manufacturers are:

1. Evoqua, Neptune Benson, Inc. West Warwick, RI
2. EPD Filter Equipment
3. Paddock Pool Equipment
4. Aquatic Development Group- Whitten Pool Equipment, ADG

## Filtration Option 2

Over the past 15 years, regenerative media filters have seen resurgence in use. Multiple manufacturers now make new regenerative filters making them more competitive and easily bid as part of a public construction contract.

Regenerative filters are capable of filtering out materials as small as the 1 to 5-micron size range. Filtering water to this level results in extremely clean and clear water. The more material a filter removes from swimming pool water, the less material there is in the water that must be disinfected or oxidized by chemicals in the water, such as chlorine. The end result is cleaner water with lower amounts of chlorine needed to maintain proper free available chlorine levels of 1 to 3 ppm. This should result in lower chemical costs. Another benefit of filtering such small particles is the removal of parasites such as cryptosporidium (crypto). In a swimming pool, fecal accidents may introduce this highly contagious parasite into the pool.

Water consumption is another significant benefit of regenerative media filtration over traditional sand filters. The only water loss associated with the regenerative media filter is the volume of the filter tank

itself. When it is time to replace the perlite material in the tank, after several regenerative cycles, the volume of an entire tank is wasted twice to ensure removal of all dirty perlite.



Acceptable Filtration Equipment Manufacturers are:

1. Evoqua, Neptune Benson, Inc. West Warwick, RI
2. Paddock Pool Equipment

#### **Filter VFD**

Variable Frequency Drive (VFD) shall be provided with each filter and feature pumps (one per filter pump and feature) for control of the filter and feature pump motor. The VFD shall include a dial potentiometer to set ramp up/down speed of the pump motor. The VFD shall be wired into the RMF controller for on/off and run confirm functions.

The VFD shall be equipped with a bypass. SED2 bypass options shall send the motor to bypass mode based on an easily accessible door-mounted selector or based on the drive's programmable relay. A bypass pilot light shall provide indication of the bypass mode. The bypass mode shall provide overload protection. Contactors shall be electrically and mechanically interlocked. An essential services mode shall send the motor to bypass regardless of the selected mode.

#### **Automatic Chemical Controller**

The controller shall automatically activate the appropriate chemical feeders in order to maintain the sanitizer level within  $\pm 0.1$  parts per million (PPM) or  $\pm 10$  mV (millivolts) of Oxidation Reduction Potential (ORP) and the pH within  $\pm 0.1$  pH unit of the set points selected by the operator. All set point and calibration levels shall be adjustable with a numeric keypad mounted on the front panel of the unit. The unit can be tied to a building management software. In the event of a trouble single from the pool, notifications can be sent via email or text to City staff. Provide one for the swimming pool and one for the spray deck reservoir. Available manufacturers include

1. Blu-Sentinel Controller, Evoqua Water Technologies
2. DCM 500- ProMINENT FLUID CONTROLS Pittsburgh PA 412-788-7900
3. CAT Controller by Hayward



**Chlorinator**

Erosion Tablet Feeder: The system shall be designed to feed low concentrations of calcium hypochlorite in solution intermittently or continuously as required. The system shall be a single pre-assembled, package unit with a welded aluminum frame consisting of chlorinator, electrical box, centrifugal pump, and balance tank for ease of installation and operation. The basis of the specification for this product is the Accu-tab PowerBase 3140 AT. Unit shall be NSF certified for up to 22 lbs./hour of chlorine. Unit shall have 140 lbs. of on-board storage. Chlorine is delivered in 5 gallon plastic pails.



pH Correction: Since the 1990's, pools have been using CO2 to balance the pH levels in swimming pools. The CO2 systems eliminated handling of liquid muriatic acid.

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pH controllers are attached to CO<sub>2</sub>'s cylinders and the Automatic Chemical Controller. When pH readings require adjustment, the valve on the CO<sub>2</sub> unit opens and delivers CO<sub>2</sub> until the pH reading is corrected. CO<sub>2</sub> in the building requires additional ventilation. The cylinders are heavy and awkward to move and into position for pool operators.

Recently, dry muriatic acid feeders have come into the market. The units operate in the same manner as the chlorinator unit. Acid tablets are delivered and stored in 5 gallon pails. The tablets are red to distinguish them from white chlorine tablets.



### Ultraviolet System

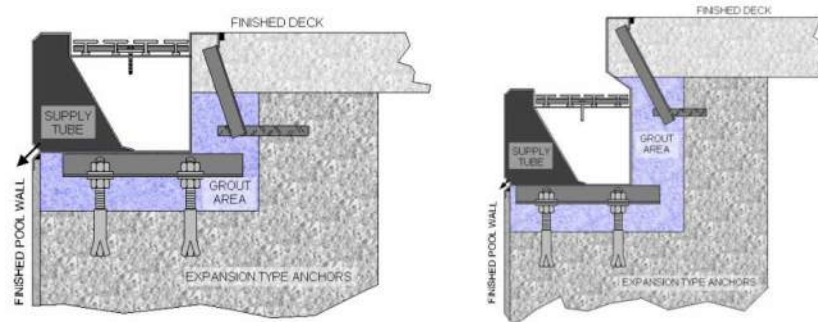
The spray deck reservoir will require ultraviolet disinfection, in addition to filtration and chlorination, to meet current and proposed Massachusetts Department of Public Health requirements.

UV should be considered for the main pool. If not included in the final documents for construction, the pool piping should be arranged to allow installation in the future.

UV systems consist of a UV chamber located after the filter before chemical treatment. Water is exposed to a medium pressure UV lamp that will disinfect and remove organic and inorganic contaminants. Equipment must be commercial grade, tested and validated.



### Pool Gutter Options



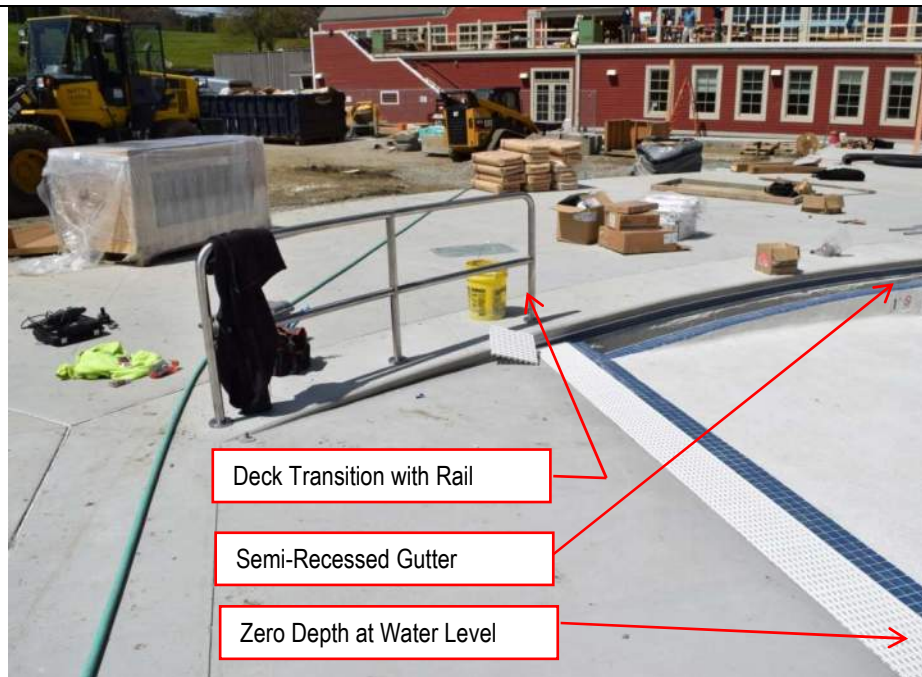
### Deck Level Semi- Recessed Gutter

The semi-recessed gutter would be typical around the pool. This gutter provides a visible vertical edge to the pool which is important to lap swimmers and is the location for in pool depth markers. The gutter would transition at the zero-depth area to deck level gutter. Transitions would be protected by a guard rail as shown below.



*Zero Depth Entry Examples*





*Zero Depth Entry with Deck Transition from Semi-Recessed to Deck Level Gutter*

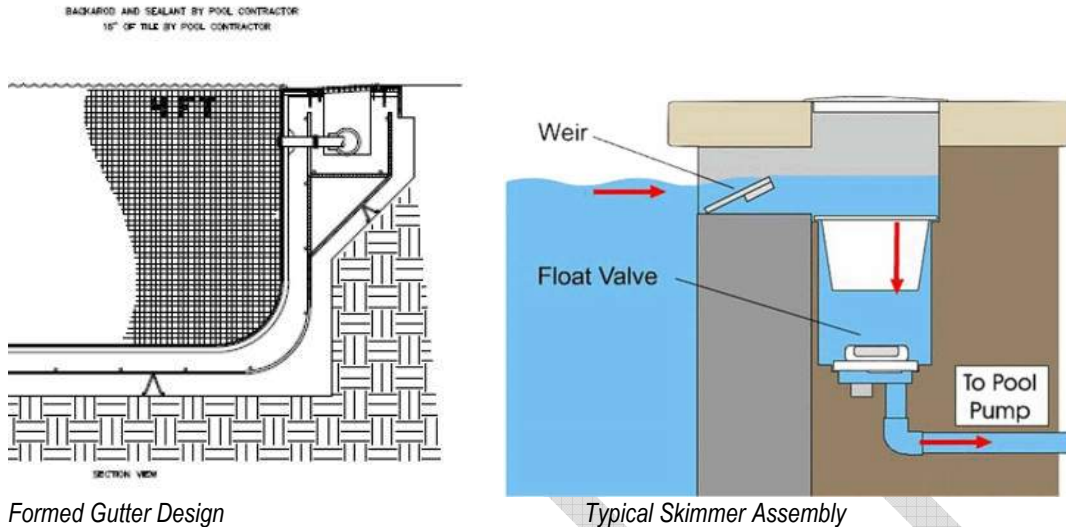
### Gutter Options

Options for formed in place gutters as well as traditional skimmer options should be considered during preparation of construction documents in the future. Pool subcontractors may be able to field construct perimeter gutters in combination with standard skimming units to provide a code compliant, more cost-effective approach to surface skimming. Skimmers would be only acceptable in a separate wading pool.



*Formed Pool Gutter at the Quechee Club Outdoor Pool*





### Pool Deck Equipment

Acceptable Manufacturers of Deck and Safety Equipment:

1. Paragon Aquatics, 341 Route 55, LaGrangeville, NY 12540-5105; ASD. Tel: (914) 452-5500, Fax: (914) 452-5426, Website: <http://www.paragonaquatics.com>
2. S.R. Smith Inc., 105 Challenger Dr. Portland, Tennessee 37148, Tel: (615) 325-0770, Fax (615) 325-0775, Website: <http://www.srsmith.com>.
3. Spectrum Pool Products, 7100 Spectrum Lane, Missoula, MT 59808, Tel: (406) 543-5309, Fax (406) 728-7143, Website: <http://www.spectrumproducts.com>.

### Pool Deck Equipment Includes:

1. **Custom Fabricated Ramp Handrails and Guard:** Provide Custom fabrication, including anchorage, for the HCP Access Ramp Handrails as indicated. Provide Type 304 polished to Assist Rails: Provide custom fabrication. KDI Paragon 1.5 inch by 0.120-inch wall thickness rails. Anchorage shall be cast bronze No. 28102 with escutcheon plate No.28302.
2. **Ladders** shall be heavy duty and cross-braced. Provide number of steps as indicated and to accommodate depth at locations shown. Stainless steel pipe shall have a 0.109-inch wall thickness. Ladder Width shall be 24 inches.
3. **High Platform Lifeguard Chairs:** 6-foot-high Paraflyte Lookout Chair by KDI Paragon, Chairs shall include devices for holding a life ring and umbrella. Refer to drawings for quantity and location. Contractor must confirm final location and quantity with the Owner prior to fabrication and installation.



4. Pool Lift: Basis of Design SR Smith "Splash" Accessible Lift. Deck mounted, 344 degree rotation, 400 lift capacity, full compliant with MAAB and ADAAG 2010.



5. Diving Tower: Basis of Design is Duraflex One-meter diving stand with 16 ft. board.



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**Water Features for Pool**

General: The water features are based on products by the Rain Drop Fountain manufactured by Sonar International, 2001 S Street N.W., Suite 250, Washington DC 20009, telephone 800/343-6063.

At the zero depth entry, we recommend low impact, surface sprays that are popular with younger bathers, limit spray, and keep the zero depth area active. Water feature work in the proposed design includes the following Options: **Pop jets, Basket weave and Slant Fins:**



Pop Jets



Basket weave



Slant Fins

Located away from the ramp, in a depth of approximately 12 inches of water, we recommend more active larger volume features such as the traditional mushroom, tumble buckets, and water bars.



Tumble Buckets in use



Rain Drop



Spray Tubes



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### Slides

Slides are available for the project; space availability and budget are the design parameters for selection. The current design is utilizing a slide manufactured by Natural Structures. Photo below is a similar slide at the Underwood Pool in Belmont, MA.



### Maintenance and Safety Equipment

Loose Deck, maintenance, and safety equipment will be required to license and operate the pool. These items are typically not carried in the base construction contract. Equipment is typically obtained under goods and services procurement methods.

### Operation/Maintenance Manuals

O&M of all equipment and systems will be required. Documents in electronic and paper format. Manuals shall include proper start-up and shutdown procedures.

### Operating Diagram

**Operations of the pool will be in clear diagram form included in the closeout documents and mounted permanently in the filer room. Diagram is cross references to equipment, valve numbers, and piping.** Furnish and equipment plates, valve tags and pipe labels to correspond to instructions.

### Maintenance and Service:

Startup and Shut down Service and instruction to the Owner's operating personnel shall be given upon completion of the Project. All training will be videotaped

Assuming a spring pool opening, the first season pool opening, and first season shut-down are included as part of the base contract. Opening the pool for a second season will occur within the one-year correction period.

We recommend that the City include two additional years of preventive maintenance, service calls, pool opening and pool closing in the base contract to ensure the pool subcontractor maintains the pool for a period of three years. After three years, the service contract would be bid and opened to other qualified pool subcontractors/service companies.

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## PLUMBING

**Lavatories:** Wall mounted units in single use rooms, undermount units with solid surface counters in multiple lavatory arrangements. Time metered or sensor faucet. Fixtures. Code compliant, low gallons per flush toilets and urinals.

### Toilet/Urinal Flush-o-meters

Recessed sensor operated units. Hardwired installation. Exposed sensor flush-o-meters would be required for battery operation.

**Shower Fittings** Symmons Hyd-a-pipe System. Thru-ceiling supply, non-adjustable institutional head; push button control.



### Exterior Shower (Rinse Station) Drain to storm:

location to be determined, assume two at either end of the pool complex  
"Most Dependable Fountain" unit, Model TW 500SM or 565 SM with cold water only



## HVAC

**General:** The work under this section shall include all labor, materials, accessories, services, and equipment necessary to furnish and install:

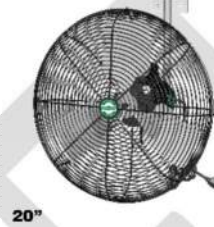
1. All fans.
2. All ductwork.
3. All duct fittings.
4. All ductwork accessories.



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5. All air inlet and outlet equipment.
  6. Testing, Adjusting and Balancing

**Ductwork:** All ductwork shall be fabricated of G-60 coated galvanized steel of lock forming grade and conforming to ASTM standards A-525 and A-527, unless otherwise noted, and shall be constructed in accordance with the latest SMACNA standards.

**Ceiling fans:** We strongly suggest ceiling fans in the staff spaces and locker rooms. The additional air movement significantly improves the conditions of the rooms during the summer. Fans can be ceiling or wall mounted. We use industrial/agricultural grade, caged fans.



#### Sequence of Operations for Exhaust fans

1. Control Building Exhaust Fans shall be energized when the lights in the spaces they serve are switched on or by timer. Fans should run for an hour after the pool closers to ensure air is moving and spaces are drying out.
2. Filter Area Exhaust Fan shall be energized when:
  - a. When the carbon dioxide detector senses CO<sub>2</sub> levels in excess of 1000 parts per million (If CO<sub>2</sub> is provided for pool pH.
  - b. When the manual switch is put in the "ON" position.
  - c. Ceiling fans will be set by remote switch and timer controlled by Staff.

#### ELECTRICAL:

**Service:** With the addition of pumps, program, and the spray deck, we assume a new electrical service will be required. Existing service size may be adequate, service equipment needs to be replaced

**Complete grounding system** as required by Article 250 of the National Electrical Code.

**Distribution:** All new conduit, panels, conductors and devices required for new bath house configuration and equipment. Use non-metallic elements were allowed by code. Panels are NEMA 4 or 4X rated.

#### Light Fixtures:

Vapor-tight, vandal-resistant LED light fixtures. Wall or ceiling mounted to suit location and application.

LED Downlighting at entry and managers offices.

Lighting at doors will be cut-off, night-sky rated LED wall sconces.

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Housekeeping and low level, security lighting to monitor the pool during the season will be reviewed during the next phase of design.

### **Pool Bonding**

Furnish all labor, materials, and equipment necessary to complete all work as shown on drawings and specified. This work is to include but not limited to the following: furnish and install common pool bonding grid, wire and bonding to swimming pool and all pool equipment.

### **SITE WORK**

#### **Order of Conditions**

Work requirements for erosion control, tree protection, and notifications stipulated by the Conservation Commission.

**Site Preparation:** Strip and stockpile loam from sloped area around existing pool deck.

#### **Construction Dewatering:**

The Contractor shall be responsible for providing all site dewatering and groundwater control without limitation necessary for constructing the project. The Contractor shall employ methods such as, but not limited to pumping from sumps, well points and gravel packed wells. Dewatering must comply with potential site and land use restrictions established by the Conservation Commission.

**Backfill:** Backfill site to achieve new rough grade elevation using free-draining gravel; and Ordinary borrow shall not be used in area of existing pool or as backfill

Under lawn areas, ordinary borrow may be used meeting the following requirements:

**Pool Sub-base:** Dense graded crushed stone shall consist of angular material derived from a stone quarry that is hard, durable and free of deleterious materials. Material shall be free from clay, loam or other plastic material. Extend pool sub-base beyond the pool footprint to create drainable subgrade.

Reclaimed crushed and prepared concrete from existing pool and decks may be used as part of the sub-base.

**Geotextile:** Below the pool sub-base, place Mirafi FW700 woven geo-textile or approved equal.

#### **Sub-Base for Decking:**

Provide minimum 8 inches of processed gravel consisting of inert natural non-recycled material that is hard, durable stone, gravel and coarse sand, free from loam and clay, surface coatings, and deleterious materials

**Insulation:** High density rigid insulation (60PSI) beneath portions of the deck and zero depth areas of pool to prevent frost penetration beneath structure and decking.

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## EXTERIOR IMPROVEMENTS

### Portland Cement Concrete Paving at Sidewalks and Pool Deck:

4,000 PSI, air entrained concrete; with lamp black added at 2 lbs. per cubic yard. Plain steel welded wire fabric reinforcing; sleeved expansion dowels at deck expansion joints. 12-inch thick downturns all perimeters.

- Dowelled construction joints every 25 to 30 feet way
- Sawcut contraction joints every 4 to 5 feet each way

### Fencing

**6 feet high**, 9-gage, vinyl coated chain link fence fabric with 1 – ½ -inch weave. Top rail, intermediate rail, and bottom rail. Corner and line posts, vertical bracing at corners.

Emergency egress gates will be located around the perimeter of the pool deck. Gates will be secure with exit devices, tamper resistant panels, and alarmed to prevent unauthorized access.



### Plantings:

Maintenance of Trees: Selective removal and pruning of existing trees

Planting; We recommend trees and planting on the west (street) side of the building

Planting and green space will be coordinated with the overall Albemarle site design. .

### Shade Structures

The design proposes cantilevered fabric roof structures along the north and east edge of the pool deck. The cantilevered design provides maximum shade without added vertical posts. Size, angle, and fabric will be determined as the project advances



Square and rectangular fabric structures are proposed to mark entries and circulation points at the spray deck and provide shade over the storage area at the southwest corner of the pool deck adjacent to the bathhouse.



## SITE UTILITIES

**Deck Drainage** Decks will be drained to linear trench drains and area drains spaced around the pool deck. Decks shall slope less than 2% to drains. Drainage shall discharge into recharge system or storm water. The majority of water entering the deck drains is rain water.

**Sanitary Sewer:** Existing sewer connections will be reviewed and updated as needed

**Domestic Water.** The existing water service size will be confirmed and updated as required.

**Electrical** New electrical service may require new primary service to the building.

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**Construction of the spray deck will require coordination with existing underground conduit servicing the ball field lights from the existing field house**

**Tel/Data:** Data and telephone service will be maintained or upgraded to meet new design requirements. Data drops are required in managers office, staff area, control desk, and filter room to monitor chemical controllers. Staff and public Wi-Fi will be determined.

**Technology:** City may want to consider intrusion and surveillance systems at the pool.

A public address system for staff to broadcast announcements, lightning storm warnings, and similar “all facility” announcements should be considered.

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