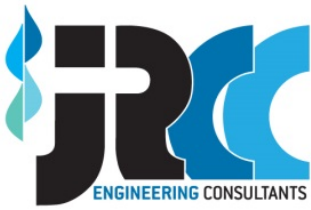


APPENDIX E



November 12, 2015

534\534.06\02\Machray Park Civil - FINAL [V2].docx

Robyn Gibson
HTFC Planning & Design
500-115 Bannatyne Avenue East
Winnipeg MB
R3B 0R3

via email only

H-534.06

Dear Ms. Gibson,

**Re: Machray Park Development
Existing System Assessment and Design Concept**

The following letter is based upon conditions noted during the site inspection and onsite meeting of July 8, 2014, and the site layout as provided by HTFC. This letter is intended to form part of an overall site review, which includes architectural, structural, mechanical, and electrical reviews. All works are to be completed in accordance with Manitoba Public Health Guidelines and City of Winnipeg construction standards.

Existing Equipment

The existing wading pool equipment is located in a small mechanical room on the north side of the existing building. Equipment consists of a 1 HP Sta-Rite pump, and a sodium hypochlorite (liquid chlorine) pump and feed system.

The wading pool is filled via a connection to the City water supply. The connection to the City water is in a valve chamber in the southeast corner of the park. A backflow preventer is located in the mechanical room. The pump return is via lines around the exterior of the pool, and “eye-ball” fittings.

The pool drains via the main drain in the centre of the pool. The pool is filled and drained on a daily basis.

The existing equipment appears to be in reasonable condition, although the City has expressed the desire to switch to a “puck” chlorination system, thus the sodium hypochlorite feed pump is not to be re-used in the park redevelopment. The 1 HP pump could be re-used with the new system, but should be properly serviced and bench-tested to confirm the pump curve.

Given that the existing wading pool will be demolished and a new pool and spray pad constructed, existing piping from the building to the pool is to be replaced.

Design Concept - Wading Pool

The site redevelopment includes the design and construction of a new wading pool. The pool is to be completely new, with new piping from the building, fill line, drains and return water fittings. The pool is to be designed to operate as a “drain and draw” system, meaning it is to be filled every morning with City water, and

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fully drained completely to sewer at the end of each day. Treatment equipment is to consist of a recirculation system, allowing a minimum chlorine residual to be maintained at all times.

The new wading pool will require a new fill line. This shall be through a dedicated hard-piped fill fitting, connected to the City water supply with appropriate backflow prevention, inside the building. An air gap must be created between the City water supply and the fill piping. From the building, a 75 mm (3") line is to be installed below grade to the wading pool, and terminate near the deep end of the wading pool. The pipe into the pool is to be covered with a floor drain, or similar cover.

This same line will be used for top-up water as required to permit additional water to be added to the pool throughout the day.

A flow meter is to be installed on the fill line prior to the air gap, installed in accordance with manufacturers requirements for pre- and post-connection pipe lengths, allowing the flow to the wading pool to be recorded and monitored.

A minimum of two interconnected drains are to be installed, complete with covers meeting the requirements of Manitoba Public Health regulations.

Following servicing, the existing 1 HP pump could be reused for the recirculation feed. A new Accu-Tab "puck" chlorination system (or equivalent suitable to City staff) is to be installed, complete with a new inline booster pump to ensure pressure differential for the chlorine feed.

A safety eyewash connected to building hot and cold water systems, including a thermostatic mixing valve is to be added to the mechanical room.

All below-grade piping is to be graded with a minimum slope of 1% to allow pipes to drain.

Piping must be tested at 150% of the design operating pressure, or a minimum of 105 kPa (15 psi).

Design Concept - Spray Pad

The new spray pad shall consist of a "spray-to-drain" system to operate as a fully functional spray park. Operation of the spray park is to be fully automatic, and shall include all equipment for proper operation and control, including all necessary valves, piping, meters, internal power and control wiring.

The system shall consist of:

- new underground water piping and electrical
 - all below-grade piping is to be graded with a minimum slope of 1% to allow pipes to drain.
 - drain line(s) shall be sized to permit draining of basin and to prevent any standing water

- new spray pad and related spray features and appurtenances, divided into youth and toddler zones as identified
 - the number of spray features is to be maximized
- new wastewater sewer line to the City sewer mains, sized to accommodate both the spray pad and wading pool systems
- piping must be tested at 150% of the design operating pressure, or a minimum of 105 kPa (15 psi)
- electrical control panel (to be located inside building) and all related wiring
- two external activation switches with programmable timer (one for youth area, one for toddler area)
- provision of operating and maintenance manuals
- commissioning and winterizing of works.

Yours truly,

JR Cousin Consultants Ltd.



Jeff Dyck, P.Eng.
Senior Municipal Engineer, Principal