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**EXHIBIT "A"**  
**ENGINEER'S REPORT**  
**HERITAGE SPRINGS WATERWORKS, INC.**

**TOWN OF MILTON, SARATOGA COUNTY, NEW YORK**

**SARATOGA COUNTY AIRPORT**

**WSA**

**OCTOBER 2008**

**INTRODUCTION:**

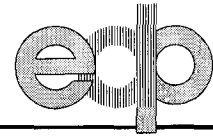
With this application Heritage Springs Waterworks (HSWW) is proposing to extend its water service territory for the purpose of supplying water to the Saratoga County Airport base operations and business complex encompassing 42 acres of property.

The Waterworks Company is also requesting approval to extend its service area to provide service to two existing parcels of property located on Geyser Road encompassing 1.5 acres. Heritage Springs currently provides service to these two parcels and is seeking ratification for same.

The total additional water demand represented by this application will be approximately 1,400 gallons per day.

HSWW was formed in November 1986 (WSA 7840) for the purpose of supplying water to the 209 unit Deer Run Development, located on a 40-acre parcel of land on the north side of Geyser Road. Over the past 20 years, HSWW has expanded its service territory to include the following:

- The Milton Oaks 204 unit residential development comprised of 75 acres and the Coachman Estates development comprised of 66 residential units encompassing 52 acres (WSA 8372).
- Kayaderosseras Estates Subdivision comprised of 122 residential units encompassing 84 acres (WSA 8608).
- Milton Heights Subdivision comprised of 25 residential units encompassing 18 acres and Milton Oaks P.D.D. Extension comprised of 40 residential townhouses encompassing 13 acres (WSA 9265).



- Fawthrop Parcel and Saratoga West Mobile Home Park comprised of 350 equivalent domestic units encompassing 112 additional acres (WSA 10075).
- Kaydeross Well and expansion of service area to include 14 services on 39 acres (WSA 10375)
- Taylor-Hart Subdivision comprised of 13 residential lots on 12 acres and 40 potential lots on 28 acres. (WSA 10459)
- Milton Crest Apartments comprised of 20 apartment units on 5 acres (WSA 10568)
- Knollwood Senior Condominium Project and Oak Hill Subdivision comprises of 91 units and encompassing 27 acres (WSA 10663).
- 335 Stone Church Road (AKA Goldfarb Subdivision) comprised of 14 single family homes on 12.25 acres (WSA 10756)
- Carlton Hollow Senior Development comprised of 68 senior condominiums units on 13 acres (WSA 10947)

The following report discusses the engineering considerations related to the extension of the HSWW service area. No distribution improvements are necessary to implement the project as the Company's water distribution facilities will not be expanded.

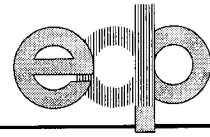
#### **PRESENT SYSTEM:**

HSWW is committed to serve a total of 1324 equivalent residential units under its existing permits (see above schedule) with a total service area of 560 acres. The number of units actually being served as of January 1, 2007 was 960 with an average daily water demand of 166,500 gallons per day or 175 gallons per day per unit.

The existing source capacity consists of three drilled wells at the Deer Run site (approved capacity all three equals 140 gpm WSA 7840 and WSA 92650) rated at 140 gpm, 25 gpm and 15 gpm, each approximately 180 feet deep; two wells, with a combined capacity of 95 gpm approximately 55 feet deep, at the Milton Oaks site (Permitted Capacity equals 95 gpm WSA 8372); one well with a safe yield of at least 200 gpm (permitted at 170 gpm under WSA 10375), approximately 163 feet deep at the Kaydeross site; one backup well 180 feet deep permitted at 200 gpm (redundancy only) at the Kaydeross site WSA 10947 . The total combined safe yield of all five wells is 475 gpm (396,000 gpd); the permitted withdrawal is 405 gpm (583,200 gpd).

Distribution pumping within the system is provided with three separate pumping locations. The Deer Run Pumping Facility is comprised of 4 sequentially operated booster pumps @ 800 gpm and a 3,000-gallon hydropneumatic tank. The Milton Oaks Pumping Facility is capable of supplying 100 gpm at system pressure and the Kaydeross pumping facility is designed to provide 250 gpm at system pressures with a variable frequency drive.

The pumping capacity of the distribution system exceeds 1150 gallons per minute at 66 psi working pressure. Pressures will range from 75 psi to 55 psi depending on the elevation and demand. The elevation of the Deer Run Pumping station and primary storage facility is approximately 408 feet. Elevations within the water service area range from the highest



elevation of approximately 436 feet to the lowest elevation of approximately 400 ft. Because of the strength of the distribution grid, there are virtually no pressure losses within the system due to friction under peak demand conditions. The distribution system consists of 12" looped transmission mains interconnecting the various service areas with 8" mains within the subdivisions and are capable of delivering the peak flows with negligible friction losses.

Peak instantaneous flows upon full build-out of the water system are projected to be 662 gallons per minute (1325 units @ .5 gpm/unit). Average demands are projected to be 275 gallons per minute assuming total daily consumption will occur over a 14-hour period (1,325 services @ 175+/- GPD/unit). The total distribution pumping capacity exceeds 1150 gpm, therefore, the peak demands can easily be met.

The company's storage facility consists of six individual storage cells each with a capacity of 50,000 gallons. The Company's average daily demand is presently approximately 166,000 gallons per day and approximately 60,000 gallons has been allocated for fire suppression. Upon full build-out of the system the average daily demand is projected to be approximately 253,000 gallons with fire suppression allocation of 60,000 gallons.

**THIS PROJECT:**

HSWW proposes to expand its service area to include three additional parcels of land encompassing 43.5 acres; 42 acres of which is the base operation of the Saratoga County Airport. The total water consumption represented by the 3 parcels is equivalent to 7 residential units (1,400 gpd). The accompanying Water Service Area map depicts the revised boundary. The following parcels are to be added to the Company's Water Service Area:

Saratoga County Airport base operation comprised of 42 acres with three domestic water services.

Jay's Bar and Grill located on Geyser Road at the intersection with Deer Run Drive, encompassing approximately one acre of land representing approximately 3 equivalent domestic water services encompassing .5 acres. Note: this facility is already being served at the urging of the NYSDOH.

McNeary's business complex located on Geyser Road directly south of the Deer Run Drive intersection. This complex is comprised of two business offices on 1.0 acres and is already being served at the urging of the NYSDOH.

No additional withdrawal permit is being requested with this application, as the present system is capable of supplying the demand.

The Company is not proposing to Install any new distribution mains to serve the expanded territory. Saratoga County will install and own the distribution piping within the airport property. The County will also install a metering pit and sampling tap at the point of connection. The other parcels are already receiving service from the existing distribution system.



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**TOPOGRAPHY and SOILS:**

Topography of the 43.5 acre parcel is rolling as is typical within the area of the Milton sand plateau.

Elevations within the proposed service territory range from 420 to 4430± feet above mean sea level. These elevations are consistent with elevations within the existing HSWW service territory, which range in elevation from 386 feet to 430 feet msl.

Soils within the expanded territory consist of sand to depths in excess of 10 feet with water table elevations ranging from 10 feet below the surface to 4 feet below the surface.

**SANITARY SEWER SERVICE:**

All property within the Heritage Springs Water System Territory will be serviced by Heritage Springs Sewer Works (HSSW) and by the Saratoga County Sewer District No.1 except the Saratoga County Airport. The County and HSSW have sufficient capacity within their collection system and treatment plant to adequately collect and treat the sanitary sewage generated from the project.

**SOURCE:**

**Existing Demand**

HSWW presently draws its water from six wells, three are located in close proximity to the Deer Run storage facility/pump station and are rated at 140 GPM, 25 gpm and 15 gpm; two are located in the Milton Oaks Subdivision and they have a combined yield of 95 gpm; and the sixth well, known as the Kaydeross well (WSA 10375), with a capacity of 200 gpm was recently permitted (permitted at 170 gpm) and placed on line. The total source capacity under the company's present permits is 405 gpm (583,000 gpd).

The Company's projected maximum day upon full build-out of the system is estimated at 322 gpm.

As of January 1, 2008 the Company had 776 metered service connections serving approximately 960 units (Saratoga West Mobile Home Park has 92 units with one meter and the Milton Senior Apartments have 96 units with three meters).



Total water production during 2007 was 60,800,000 gallons. Average daily water production for 2007 was 166,500 gallons per day. The average per unit water production during 2007 was 175 gallons per day.

The above water consumption figures are based on existing customers and do not take into account undeveloped lots. As of January 1, 2008 there were a total of 396 undeveloped lots within the present service area; 28 in the Oak Hill and Knollwood Subdivisions, 8 in the Goldfarb Subdivision, 10 (equivalent) in the Milton Crest Apartment project 350 in the Fawthrop project and 68 in Carlton Hollow. The average daily demand at full build-out of the existing service area will be approximately 252,700 gpd (175 gpm). The maximum day demand is 200% of the average day demand. If 200% is applied to the average daily demand at full build-out (1,325 units at 350 gpd each) 463,000 gallons (per day) will be required (322 gpm). The present permitted source capacity of 405 gpm can easily meet this demand.

### **Additional Demand**

Average daily demand associated with the 7 services represented by this application is expected to be approximately 1,400 gallons per day and will not change average daily demand on the system.

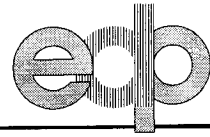
### **Total Demand**

The total average daily demand on the system upon full build-out of the existing and proposed service territory is estimated to be 253,000 gpd (175 gpm). The maximum day demand is equal to 200% of the of the average demand. If 200% is applied to the average daily demand at full build-out, 506,000 gallons (per day) will be required (350 gpm). The Company's wells are capable of producing in excess of 405 gpm with the highest producing well out of service, can easily meet this maximum requirement.

### **PRESSURE AND FLOW:**

Peak instantaneous flows upon full build-out of the water system are projected to be 662 gallons per minute (1,324 units @ .5 GPM/unit). Average demands are projected to be 275 gallons per minute assuming total daily consumption will occur over a 14-hour period (1,324 services @ 175+/- GPD/unit). The HSWW pump station was designed to provide 800 gallons per minute at 66 psi. The Kaydeross vertical turbine pump can produce in excess of 200 gpm at 66psi. and the Milton Oaks wells can deliver 100 gpm at system pressure. The total distribution pumping capacity exceeds 1,100 gpm, therefore, the peak demands can easily be met.

Pressures will range from 75 psi to 55 psi depending on the elevation and demand. The elevation of the pump station is approximately 408 feet and the highest elevation in the service area is about 436 feet. The Deer Run pumping station in combination with the Kaydeross well pump can supply 66 psi at 950 gpm, but under normal demand the pump station will operate at 75 psi. Therefore, pressures ranging from 75 to 55 psi can be expected. There will be no pressure losses due to friction under peak demand conditions. The looped 8" mains within the subdivisions and



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the 12" transmission mains interconnecting the subdivisions will distribute the peak flows with negligible friction losses. Fire flow is provided by the system and losses during those extreme demands would amount to approximately 5 psi.

**PLANS AND SPECIFICATIONS:**

The work will be completed in full compliance with all rules and regulations required by the NYSDOH and the NYSDEC. The standard specifications for the Town of Milton municipal water supply will be used for this project.

**FINANCING:**

The improvements proposed by this application will be owned by Saratoga County and all associated costs will be borne by the County.

Submitted by:

The Environmental Design Partnership, LLP

James E. Mitchell, P.E.  
Partner