



May 15, 2018

Ms. Sabrina Charney Hull, AICP
Director of Planning
Town of New Castle
200 South Greeley Avenue
Chappaqua, NY 10514

Via Electronic Transmission

RE: Sunshine Children's Home ZBA Special Permit
Offsite Well Monitoring Program

Dear Ms. Charney Hull:

LBG Hydrogeologic & Engineering Services, P.C., member of WSP (LBGHES) began solicitation (February 15, 2018) of homeowners having wells within 1,500 feet from existing Wells 1, 2 and 3 at 15 Spring Valley Road to collect information and data regarding their wells, which will be used after all necessary Town approvals have been granted to conduct the offsite well monitoring program described in our letter to the Town dated June 15, 2016, which has been brought to date and is set forth below. At this time, we are only soliciting homeowners for permission to be included in the monitoring program. The most recent forms requested permission by April 25, 2018. Additional solicitation is being conducted to obtain permission from six homes.

WELL MONITORING PROGRAM

Sunshine Children's Home and Rehabilitation Center ("Sunshine") will conduct an offsite well survey to collect information on neighboring wells. The data will be used to implement an offsite well monitoring program of up to six neighboring wells or more if required by the Town's consultant. Typically, the goal is to achieve "good spatial representation of monitor wells within the 1,500-foot radius". The well monitoring program will start six months before construction starts and continue for up to two years after final build-out and maximum occupancy occurs. The duration of the monitoring plan may be extended, at the discretion of the Town, if offsite impacts are observed. Pressure transducer data loggers will be set in select offsite wells and Wells 1, 2 and 3 to document long-term trends in groundwater table fluctuations related to onsite pumping and water use. Monthly hand-measurements will be made on any well that a transducer cannot be set in due to access issues. A semi-annual hydrogeologic report of pumping volumes and onsite and offsite groundwater levels will be provided to the Town for review and to the homeowners monitored. After it is confirmed that onsite pumping is sustainable and is not adversely impacting existing offsite wells, the program and reporting will be terminated.

Wells 1, 2 and 3 are metered individually to determine long-term pumping rates over time.

As shown on figure 1, potential wells located within 1,500 feet of the three onsite wells will be considered for the monitoring program.

LBG HYDROGEOLOGIC & ENGINEERING SERVICES, P.C.
MEMBER OF WSP
4 Research Drive, Suite 204
Shelton, CT 06484

Tel.: +1 (203) 929-8555
wsp.com



LBGHES conducted a windshield tour on February 15, 2018 of the area to identify candidates from the wells shown on figure 1. Property owners with wells that are easily accessible (i.e., located in the front yard, protruding above grade) were solicited first to participate in the monitoring program. Initially a permission letter was hand-delivered and in some instances (if required) sent via United States Postal Service certified mail, to the selected property owners, and any other homeowners who have requested participation in the program. The letter outlines the proposed monitoring program and if the property owner is interested in participating in the program, he or she is requested to return a signed permission form. A representative from LBGHES has also made a personal visit to each solicited homeowner to either explain the program in further detail, or if permission is granted, to evaluate access to the well. The only exception thus far is contact with 100 Glendale Road has been limited to certified mail.

Once permission is obtained from owners of six private wells (or more if required by the Town's consultant) that are not geographically clustered together and that provide representative coverage, LBGHES will notify the Town of the properties proposed to be included in the monitoring program. A figure showing the proposed offsite monitoring locations and copies of the signed permission forms will be submitted to the Town for review and approval. Upon Town approval, LBGHES will initiate the monitoring program, starting six months prior to any construction activities on the site.

The selected wells will be monitored using a dedicated pressure transducer or by monthly hand-measurements. The transducer allows for accurate water measurements to be taken at a greater frequency. This in turn produces a better water-level record, which highlights regional trends, daily water usage and any potential impact or interference from nearby wells.

The pressure transducer ("Troll") will be installed by removing the well cap or opening the access hole in the well cap (depending on the type of well cap) and lowering the dedicated Troll down the well, setting the Troll 30 to 40 feet below the water table. A manual measurement of the depth to water using a clean electric dropline ("M-scope") will be performed during installation to confirm the water level measured by the Troll. The M-scope is a battery-operated instrument with a probe at the end of a depth-calibrated two-wire cable. Contact with the water in the well by the probe completes a simple electrical circuit, so that the exact position of the water level can be determined. Both the Troll and M-scope would be dipped in a chlorine solution for sterilization prior to lowering into the water table.

Once the water-level measurement is confirmed by the M-scope, the Troll will be programed to record water-level measurements every 30 minutes. The data will be stored on the device and retrieved monthly using a laptop computer. During the retrieval, a manual water-level measurement using the M-scope will be performed to confirm the Troll reading.

The Troll and M-scope measurement procedure does not interfere with the normal use of the well water. Because of the frequency of data collection, a sufficient number of measurements will be taken so that effects from normal operating cycles of the pump can be distinguished from any drawdown caused by the pumping of the study wells, if any. At the conclusion of the test, LBGHES will provide the Town and each participating homeowner with a simple graph of the water-level measurements from their well, with a letter of explanation.

If permission is received from the homeowner, water-quality samples will be collected prior to the initiation of the monitoring program and following completion of the program. The wells will be sampled for total coliform, iron, manganese, color and turbidity.

The following responds to comments from Sive, Paget & Riesel P.C. in their April 25, 2018 letter regarding the monitoring program.



Comment 1.

The selection of wells that will participate in the program should be part of a public review process, not a decision made solely by Sunshine or between Sunshine and the Town behind closed doors. More than a dozen of the neighbors within 1,500 feet/2,500 feet of Sunshine’s wells are in active litigation with Sunshine and the Town over Sunshine’s proposed expansion, and the potential impact of Sunshine’s expansion on neighboring groundwater wells is a central concern. This is a deeply contentious issue that should be subject to public discussion and review. We request the opportunity to have the proposed well selection reviewed by our own hydrogeologist so that he can provide comments.

Response:

Nine property owners have been contacted to date to request participation in the offsite well monitoring program. Two of those property owners have declined to participate, two have not responded to date to repeated inquiries, and four have provided authorization to have their wells included in the monitoring program.

The methodology for selecting candidates has been reviewed and approved by the Town’s expert consultant, and is publicly available information. A public discussion regarding the selection of participating properties is not warranted. Whether to participate is a personal decision of each individual property owner, and should not be publicly scrutinized or criticized.

Comment 2.

The WSP solicitation letter states that WSP and “other agents (as needed) of Sunshine Children’s Home” will enter onto a homeowner’s property to assess the condition of the well and if the well is determined to be accessible, the well monitoring equipment would be installed on the same day. In order to determine which wells will participate in the program, Sunshine and the Town will have to know whether the wellhead has suitable access, after which there should be a public discussion of whether that well is proposed to be included in the program. The site access agreement should state more specifically which “other agents” WSP contemplates entering the property and the need therefor; if such persons are allowed, the indemnification provided by Sunshine to the homeowner (see Comment 5 below) should include not only WSP employees but any other Sunshine agents that request to come onto the property.

Response:

The solicitation letter will be revised to state that “LBGHES and its well contractor (as needed) will enter...” Older well caps are sometimes not easily accessible and need to be replaced or modified to allow access of monitoring equipment. Permission will be requested from a homeowner prior to replacing or modifying a well cap. Also, should a complaint be received from a property owner participating in the program, LBGHES may engage a well contractor to assist with assessing the issue and whether it is potentially attributable to the groundwater withdrawal from Wells 1, 2 or 3.

Comment 3.

For wells selected to participate in the program, WSP should make scheduled appointments for the installation of monitoring equipment and the collection of data. The WSP solicitation letter states that WSP employees will “only enter your property during daylight hours.” The open-ended permission should be replaced by a commitment to schedule data collection times. This could be easily accomplished by setting up a consistent date/time (for example, the first Tuesday of the month at 10:30 a.m.) or by scheduling via email. Allowing WSP to arrive at their owner convenience jeopardizes the community’s privacy and sense of security. The name of the technician should always be provided at the time of scheduling so that the resident can verify the technician’s ID matches the name WSP has provided at the time of scheduling.



Response:

Appointments will be made with the property owners for the equipment installation. Each homeowner who has chosen to participate in the monitoring program will be notified of the planned date for the equipment installation, and will be offered the opportunity to change the appointment for another time during normal working hours if they choose.

If a participating homeowner would prefer to have a pre-arranged day and time for the monthly equipment check and download, that can also be discussed with the property owner to arrange a mutually convenient time.

Comment 4.

The Town should clarify its oversight role at each stage of the process, including:

- o Review of formal site access agreement,*
- o Review and selection of participating wells,*
- o Oversight of well monitoring equipment installation,*
- o Oversight of monthly data collection,*
- o Review of monitoring data, and*
- o Response to complaints.*

Response:

The Town's consultant has already reviewed and approved the well monitoring permission form and will approve the wells selected to be included in the monitoring program. The Town's consultant will supervise the installation of the monitoring equipment and also download the data on a quarterly basis. LBGHES will provide a report to the Town on a quarterly basis. Any complaints will be jointly reviewed by LBGHES and the Town.

Comment 5:

The pre-construction offsite well monitoring period should include summer and fall months when Sunshine's neighbors have historically suffered from impacts of seasonally fluctuating groundwater levels. The Town should ensure that the proposed dates for the monitoring program in 2018 include summer and fall months.

Response:

LBGHES has thus far received authorization from four property owners and would like to proceed immediately with installation of water-level monitoring equipment in those wells, so that data is collected during the summer and fall months.

Comment 6:

In 2017, Sunshine actively sought to drill new groundwater wells on its property. The Town should confirm with Sunshine that no new wells are planned prior to or during the pre-construction offsite monitoring program.

Response:

No new onsite supply wells are planned prior to or during the pre-construction offsite monitoring program.



Comment 7:

WSP states in its solicitation letter that it is “adequately insured in the event of any unforeseen difficulty.” The site access permission form included in the solicitation letter cannot substitute for a formal and binding site access agreement that includes provisions for indemnification and insurance. For any well owner who allows WSP on their property, WSP and/or Sunshine should specifically name that well owner as an additional insured on its policy and should indemnify the well owner against claims, liabilities, costs, losses or damages incurred by the well owner that arise from WSP’s (or “other agents”, if allowed) access to the property. WSP should provide each participating well owner with the exact process for reporting on-site damage to property, including name of WSP’s insurance company and the broker who should be contacted to the notified of a potential claim.

Response:

If requested by a homeowner, LBGHES can provide a certificate of insurance naming the property owner as an additional insured. A copy of WSP’s certificate of insurance has been provided to the Town.

Comment 8:

All individual well data that WSP retrieves should be shared with the private well owner, and all data from the monitoring program should be tabulated onto a comprehensive spreadsheet and shared with the community through the Town’s website¹. WSP’s solicitation letter states only that “at the conclusion of the testing, WSP will provide you with a simple graph of the water-level measurements from your well, with a letter of explanation.” It is unclear whether WSP is referring to the conclusion of the entire testing program or the conclusion of monthly sampling, but the raw data should be available in addition to monthly analysis provided by WSP.

¹ *Participating wells could be identified by an assigned number rather than by name to protect privacy.*

Response:

The homeowners will be provided with a report on a quarterly basis during the monitoring program, which will include a hydrograph of the water-level readings. The hydrograph is used to present the water-level data to property owners in a way that is typically easier for a well owner to interpret. The raw data can also be provided if requested by the well owner.

The hydrographs and raw water-level data will be provided to the Town monthly for their ongoing review. In addition, the Town will be provided with a summary report of the participating wells on a quarterly basis. A well owner who is participating in the monitoring program can also request that their data (hydrograph and raw water-level data) be provided to them monthly via email.

Comment 9:

WSP states in its solicitation letter that “such monitoring has taken place without incident in your community.” WSP should provide information on the specific monitoring program referenced in the letter.

Response:

LBGHES has conducted numerous water-level data collection and well monitoring programs for both public and private water supplies in municipalities in Westchester County, Orange County, Putnam County, Dutchess County, Sullivan County and Rockland County.



Town of Monroe, NY

LBGHES has been conducting a long-term monitoring program to determine the potential impact from a municipal well field since 2003. The program is required as a special condition to a NYSDEC Water Taking Permit. The program has included responding to claims of potential impact and implementation of mitigation alternatives to impacted wells. Quarterly reports are submitted to the NYSDEC.

The Ridge Hudson Valley Project - Newburgh, NY

LBGHES conducts long-term monitoring of 12 homeowner wells to determine the impact from blasting for rock removal. Monthly reports are submitted to the Town.

Brynwood Project, North Castle, NY

LBGHES conducted a monitoring program of 15 offsite homeowner wells during a simultaneous 72-hour pumping test. A report was submitted to the Town for use in approval of the project.

Bridleside Development – North Salem, NY

LBGHES conducted long-term monitoring of four homeowner wells during the build-out of a residential subdivision to determine potential impacts from groundwater withdrawals on the project site. Quarterly reports were submitted to the Town.

Comment 10:

WSP should provide the models/brands of equipment that it will be using for monitoring for each well and the details of the depth of installation in each well after the wells have been selected. Selection of equipment and depth of installation varies. For example, Global Water, which manufactures water level sensors, states that the selection of a length/depth of sensor should be based on the lowest expected water level and that the selected sensor range should cover the maximum water level change (not necessarily the total depth of water). "Selecting the smallest water level range possible will ensure the greatest accuracy."²

² <http://www.globalw.com/products/levelsensor.html>

Response:

LBGHES will be using Level Troll 500 pressure transducers from In-Situ for the water-level data collection. These pressure transducers are available in ratings of 5, 15, 30, 100, 300 and 500 pounds per square inch (PSIG). The PSIG rating controls the depth at which a transducer can be set in the water column. For example, a 5 PSIG transducer can be set in a water column up to 11.5 feet deep. If that transducer is set deeper, the pressure from the overlying water column will damage the pressure sensor and the unit no longer functions.

For residential water wells, the water column height changes as a result of normal seasonal variation and precipitation events, and also from the well pump cycling on and off to supply water to the residence. The water-level drawdown caused by the well pump cycling can range from a few feet to tens of feet depending how long the pump is running. In order to capture this varying range of water levels, LBGHES is planning to use either a 30 PSIG or 100 PSIG transducer in the participating well, which can be set in a water column up to 69 and 231 feet deep, respectively, provided there are no obstructions in the well. These transducers will provide the best precision while still capturing the full range of water



level changes that occur in a typical well. The selection of which transducer to be installed will be based on an assessment and measurement of water-level depth made at the time the equipment is installed.

Comment 11:

The well access agreement should clearly state the rights of participating well owners to have their own observers present when WSP/the Town install and monitor equipment at the wellhead. WSP should also clarify whether it would be possible to have a third party take their own measurements from the monitoring equipment.

Response:

There is no objection to observation by others. The owner may also retain at their own expense a qualified third party to install its own monitoring equipment in the well and collect duplicate water-level data for the owner. However, access to LBGHES monitoring equipment from a third party with the exception of the Town consultant will not be permitted. The Town consultant will download the data from the monitoring equipment on a quarterly basis.

Comment 12:

Appendix II of the February 28, 2018 WSP well monitoring program proposal, "Complaint Response and Remediation Plan," states that it applies to well owners within 1,500 feet of Sunshine Wells 1, 2, or 3. The radius should be extended to 2,500 feet, as well owners outside of 1,500 may also be impacted by Sunshine's well pumping. The offsite well monitoring program recognizes that there may well owners up to 2,500 that may be eligible to participate in the well monitoring program if not enough owners within 1,500 feet are selected for participation.

Response:

The radius will be extended only if an insufficient number of property owners within the 1,500-foot radius ultimately agree to participate in the monitoring program, and the *Complaint Response and Remediation Plan* will apply to all participating homeowners, regardless of radius. The potential extension of the radius to 2,500 feet is not an acknowledgement that water-level effects are anticipated beyond the 1,500-foot radius.

Regardless, concerns regarding the "Complaint Response and Remediation Plan" are not relevant to LBGHES initiating the offsite well monitoring data collection program and should not delay the start of its implementation.

Should you have any questions, please do not hesitate to contact me directly at (475) 882-1704.

Kind regards,

LBG Hydrogeologic & Engineering Services, P.C.

Thomas P. Cusack, PG(NY)

Senior Supervising Hydrogeologist

TPC:cmm

cc: William Canavan
Ari Friedman
Mark P. Weingarten
Peter J. Wise

H:\Sunshine Home\2018\Offsite Well Monitoring Program.docx



FIGURE

