



The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner



May 28, 2021

Transmitted via Email

Drew Pond LLC
c/o Robert Baldwin
242 Central Avenue
Dover, NH 03820
robert@centralfallsrealty.com

**Subject: Water Conservation Plan Approval
Barrington – Drew Pond
Water Conservation Plan, NHDES # 005550**

Dear Robert Baldwin:

On May 26, 2021, the New Hampshire Department of Environmental Services (“DES”) Drinking Water and Groundwater Bureau received a Water Conservation Plan (the “WCP”), signed on May 11, 2021, for Drew Pond, located in Barrington, New Hampshire. Pursuant to RSA 485:61 and Env-Wq 2101, community water systems seeking permits from DES for new sources of groundwater shall submit a water conservation plan to DES. Based on review of the WCP, DES has determined the WCP complies with Env-Wq 2101, *Water Conservation* rules.

Pursuant to Env-Wq 2101, the Town of Barrington and the Strafford Regional Planning Commission were provided a copy of the WCP, along with other required materials.

DES approves the WCP based on the following conditions:

1. No later than source activation, all source meters, distribution meters, meters measuring water consuming processes, and any transfer meters and data loggers shall be installed.
2. Upon source activation, source meters and any other meters measuring water consuming processes prior to distribution shall be read monthly, no sooner than 27 days and no later than 33 days from the last meter reading.
3. All meters shall be installed per the manufacturer’s instructions or American Water Works Association standards.
4. Upon source activation, all meters shall be tested and maintained based on the schedule proposed in the WCP.
5. No later than source activation, distribution meter(s) shall be installed and night flow analysis shall commence at a rate of twice a year in accordance with the night flow analysis methodology in the WCP.
6. Leaks shall be repaired within 60 days of discovery.
7. From the date of this approval, all non-metallic pipes installed in the system shall be outfitted with detectable tracer tape or detectable tracer wire, or be GPS located and maintained in a GIS system.

8. Upon source activation, a water conservation outreach and education program shall be implemented in accordance with the WCP.
9. Upon source activation, monthly source production volumes shall be reported to the DES Water Use Registration and Reporting Program on a quarterly basis. DES will assign the system a Water Use Identification Number and provide instructions for registering as a data provider and utilizing the DES OneStop reporting tool.
10. Every three years from the date of this approval, a *Water Conservation Plan Ongoing Compliance Reporting Form* shall be submitted to DES documenting how the system has maintained compliance with the WCP. The *Water Conservation Plan Ongoing Compliance Reporting Form* may be located by going to the *Water Conservation* page on the DES website (www.des.nh.gov). The following records shall be maintained by the water system to include with the report:
 - a. A leak log including the date a leak was discovered, the date a leak was repaired, the type of leak (ex. water main, service line, hydrant, valve), the approximate size of the leak (gpm), and the nearest address to the leak.
 - b. The title of water efficiency materials distributed and the date of distribution.
 - c. Date of installation and replacement of all meters as well as testing and calibration records.
 - d. Data from biannual night flow analyses and a brief summary of the analyses.
11. Proposed changes to the WCP shall not be implemented unless approved by DES.

Please contact me with any questions at (603) 271-0659 or via e-mail at waterconservation@des.nh.gov.

Sincerely,



Kelsey Vaughn
Water Conservation Program
Drinking Water and Groundwater Bureau

ec: Mindi Messmer; TerraNova Environmental
Town of Barrington
Strafford Regional Planning Commission
Andrew Koff, Thomas Willis, Stacey Herbold; DES

WATER CONSERVATION PLAN: **Drew Pond**

A community water system seeking authorization for a new source of water must submit a water conservation plan to the New Hampshire Department of Environmental Services (NHDES) for approval demonstrating how the water system proposes to comply with water conservation standards pursuant to Env-Wq 2101, *Water Conservation* rules. Drew Pond is a new landlord owned community water system.

Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator.

I. Introduction

A. Contact Information

1. Name and location of system:

Drew Pond
38 Parker Mountain Road
Barrington, NH 03825

2. Owner of system and mailing address:

Drew Pond LLC
242 Central Avenue
Dover, NH 03820

3. Name and mailing address of preparer of water conservation plan:

TerraNova Environmental
291 Washington Road
Rye, NH 03870

B. System Overview

1. Description of the community being served (ex. number of units, apartments, partially attached condos, individual homes, shared common facilities, population, etc.):

The proposed Drew Pond development will include 40 units located on an approximate 18-acre property identified as Lot 16 on Barrington Tax Map 238. The units will be 2-bedroom attached condominiums. The current plan is for seven buildings (1 2-unit, 1 3-unit, 1 4-unit, 1 7-unit, and 3 8-unit buildings). All of the units will be rented, and water will be included in the rent; therefore, this meets the definition of Env-Wq 2101.14(a)(2). The units will not be available to purchase, and there will be no homeowner's association. There will be no common areas, laundry will be done inside individual units, and there is no irrigation proposed.

2. Description of water sources, including water sources to be developed for non-potable uses such as irrigation:

Water for this residential development will be supplied by a new small community water system with water obtained from one bedrock well located on the property. The source capacity for the water system is calculated as approximately 24,000 gallons per day.

3. Name designation of each proposed water source: Bedrock Well 1 (BW-01)

4. Number of connections proposed for each of the following classes:
 - a) Residential: 40 units in 7 buildings
 - b) Industrial/Commercial/Institutional: 0
 - c) Municipal: 0
5. The water system does not plan to provide water to any consecutive water systems or privately owned redistribution systems.
6. There are no proposed connections that will receive more than 20,000 gpd.

C. Transfer of Ownership

1. The system ownership is not proposed to be transferred.

II. System Side Management

A. Water Meters

1. Source Meters

- a) No later than the source activation date, a meter will be installed on each water source.
- b) An irrigation well is not proposed.
- c) Meter make, model, size, and flow range of proposed meters for each new water source:
1" Badger M2000
The meter has a flow range of 0.21 to 84 gallons per minute (gpm). See Appendix B for meter installation recommendations and requirements from the manufacturer.
- d) No later than the source activation date, source meters will be read at least monthly.

2. Meter Selection, Installation, and Maintenance

- a) All meters will be American Water Works Association (AWWA) certified.
- b) The selected size of the meters will be based on projected flow rates.
- c) Meters will be installed as specified by the manufacturer, including requirements for horizontal or vertical placement, distance of straight run of pipe upstream and downstream of the meter, and strainer installation. If the manufacturer does not supply installation specifics, meters will be installed in accordance with the "Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance" (AWWA, 2012).
- d) The following meter testing and calibration schedule or meter change-out schedule will be implemented. If the manufacturer's accuracy warranty extends beyond the schedule below, the meter will be tested or changed-out no later than the warranty expiration date.

Meter Size (inches)	Testing Rate (years)
<1"	10 yrs
1" - 2"	4 yrs
3"	2 yrs
>3"	1 yr

e) A log of the date meters are installed, tested, calibrated, repaired, and replaced will be maintained. Calibration certificates will be kept on file.

B. Pressure Management

1. The design pressures of the system are from 40 psi to 60 psi.

C. Leak Detection and Repair

1. All non-metal pipes will either be GPS located and stored in a GIS system or equipped with detectable tracer tape or detectable tracer wire.
2. A GS300 cellular monitoring system will be used to continuously monitor flow rates, potential leaks, and other system status changes (see Appendix D for spec sheet).
3. Leak detection will be conducted in accordance with the "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (AWWA, 2016).
4. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.23.
5. A log of all leaks will be maintained, including the date the leak was discovered, the date the leak was repaired, the type of leak (ex. service, main, hydrant, valve), the size of the leak in GPM, and the nearest street address to the leak.

D. Water Loss Minimization- Night Flow Analysis

1. Night flow analysis will be implemented no later than the source activation date.
2. The system will conduct a night flow analysis at least twice a year.
3. A distribution meter capable of reading low flows will be installed on the distribution line. The make, model, and size of the proposed distribution meter is a 2" Badger M2000.
4. See Appendix B for the night flow analysis methodology.

III. Consumption Side Management

A. Educational Outreach Initiative

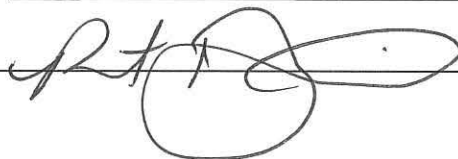
1. No later than the source activation date, the system will distribute water efficiency outreach materials to tenants twice a year via emailing, mailing, or posting on a public space. The materials distributed will be either EPA WaterSense materials located at <http://www.epa.gov/watersense/> or NHDES Water Efficiency Fact Sheets located at <https://www.des.nh.gov/resource-center/publications?keys=efficiency&purpose=&subcategory=Water+Conservation>.
2. The system will maintain a log indicating how the system has complied with III. A.1., above. The log will include dates the outreach and education actions were taken and what was done.

IV. Reporting and Implementation

- A. The water system will submit a form supplied by NHDES once every three years from the date of the water conservation plan approval documenting how compliance with the requirements of Env-Wq 2101, *Water Conservation* rules, is being achieved.
- B. The data collected with each night flow analysis from the previous three years, as well as a statement as to whether a leak was suspected or not, will be submitted with the report form in IV.A., above.
- C. The water system will report monthly production volumes quarterly to the NHDES Water Use Registration and Reporting Program upon receiving a Water Use Identification Number from NHDES. Monthly means once every calendar month, but no sooner than 27 days after and no later than 33 days after the previous reading.

I certify that I have read this Water Conservation Plan, understand the responsibilities of the water system as referenced in the plan, and that all information provided is complete, accurate, and not misleading.

Owner Name (print): Robert A. Baldwin

Owner Signature:  Date: 5/11/2021

Appendix A Definitions

Authorized metered consumption: billed metered water plus unbilled metered water.

Community water system (CWS): a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Consecutive water system: a public water system that buys or otherwise receives some or all of its finished water from one or more wholesale systems for at least 60 days per year.

Final source approval: the date of final well siting approval or the date of issuance of the large groundwater withdrawal permit.

Large community water system: a community water system that serves more than 1,000 persons.

Privately owned redistribution system (PORS): A system for the provision of piped water for human consumption which does not meet the definition of a public water system and meets all of the following criteria:

(1) Obtains all of its water from, but is not owned or operated by, a public water system; (2) serves a population of at least 25 people, 10 household units or 15 service connections, whichever is fewest, for at least 60 days per year; and (3) has exterior pumping facilities, not including facilities used to reduce pressure, or exterior storage facilities which are not part of building plumbing.

Public water system (PWS): a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Small community water system: a community water system that serves 1,000 people or less.

Source activation date: the date the source is placed into use.

System input volume: the volume of water input to the water supply system after treatment, analysis, and storage.

Water balance: the difference between the system input volume and authorized metered consumption.

Water conservation: any beneficial reduction in water losses, waste or use.

Wholesale system: a public water system or an industrial, commercial or institutional (ICI) water user that treats source water and then sells or otherwise delivers finished water to a consecutive water system or privately owned distribution system.

Appendix B
Night Flow Analysis Methodology

1. Distribution Meter

a. A meter capable of measuring flows less than 2 gallons per minute (gpm) will be installed on the distribution line and located after treatment, any other water consuming processes, and storage.

1. A 2" Badger M2000 is being proposed. The meter has a flow range of 0.94 to 378 gpm.

a) The manufacturer notes that this meter performs best when installed vertically with water flowing upward. See figure below.

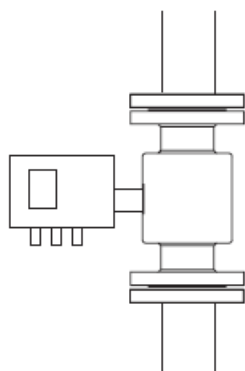


Figure 6: Vertical placement

b) The manufacturer notes that a minimum of 3 or 7 diameters of straight pipe are required on the inlet (upstream) side of the meter, and two diameters of straight pipe are required on the outlet (downstream) side of the meter. See figure below.

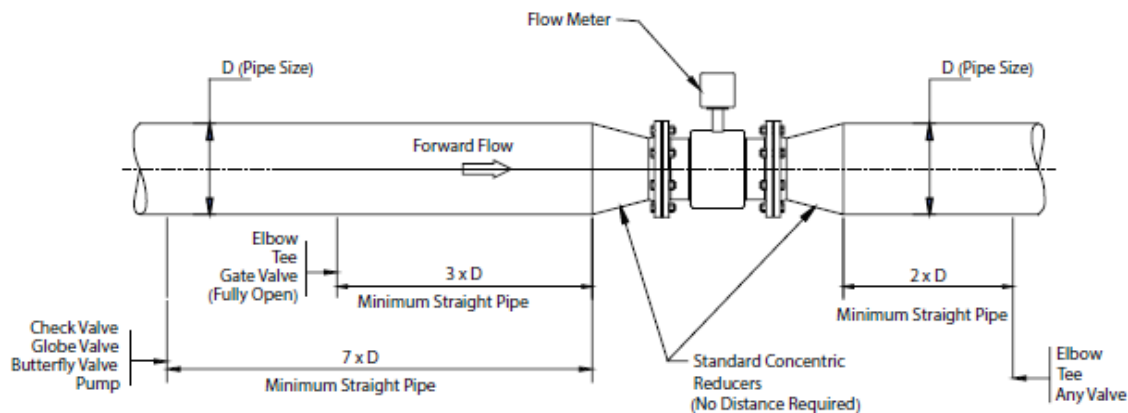


Figure 8: Minimum straight pipe requirements

2. Determining Baseline Flow

a. When the system is approved for operation and pressure tested to ensure for no leaks, the night flow analysis will be conducted as described in Section 3, below. The baseline flow will be the lowest flow recorded.

- b. The results of the initial night flow analysis and the proposed baseline flow will be submitted to NHDES for review.

3. Night Flow Analysis

- a. Night flow analysis will be conducted at least twice a year and no sooner or later than 6 months apart.
- b. Water usage will be recorded every minute for one hour during a period of anticipated low water demand using a distribution meter (between 1 am and 3 am is recommended). Prior to the night flow analysis, users of the system will be requested to refrain from using water during the date and time of the scheduled night flow analysis. (Night flow analysis will be conducted prior to sprinkler season.)
- c. If the lowest flow is above the baseline flow, then water usage will continue to be recorded every minute for an additional hour.
- d. If the lowest flow is more than 2 gpm above the baseline, a leak will be suspected.
 - 1. All residents will be asked to check their homes for leaks, including running toilets and outdoor spigots. The previous steps will then be repeated in 3 days. If the lowest flow is still above the baseline flow, the actions in Steps 2 and 3 below will be taken.
 - 2. Select portions of the system will be isolated and evaluated by closing valves while monitoring the change in flow as measured by the distribution meter. For example, when one valve is closed, the person in the field operating the valve will then communicate with a second person observing the distribution meter to monitor for a change in the background flow.
 - 3. No later than two weeks after isolating the leak to a branch of the system, the leak will be pinpointed. If the leakage has been narrowed down to a specific building, an inspection of units for leaks in the building will be conducted to find the leak. If the leakage has been narrowed down to the water lines, a sub-contractor skilled in acoustic leak detection will be retained and will assist with pinpointing the leak(s).
- e. Records will be maintained of each night flow analysis, including recorded flows and leak repair results.

Appendix C Notification Process

Public Notification Instructions

Once a final draft of the water conservation plan is agreed upon by the applicant and NHDES, NHDES will send a signature line to the applicant for addition to the plan along with a summary of the requirements of Env-Wq 2101, which may be found at http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm.

Within 10 working days of receiving the summary from NHDES, the applicant is required to provide a copy of the water conservation plan and rules summary via certified mail with return receipt requested to:

- the governing board of the municipality in which a proposed source is located,
- the governing board of all municipalities that receive water from the water system (if any),
- the governing board of all wholesale customers of the water system (if any), and
- the regional planning commission serving the location of the proposed source.

The applicant must also request that the governing board amend local site planning requirements to reflect the requirements of Env-Wq 2101 and to promote water conservation landscaping for new projects.

All signed copies of the certified mail return receipts (the green cards) must be forwarded to NHDES along with the final, signed water conservation plan before approval of the water conservation plan will be issued.

Notification of Consecutive Water Systems and Privately Owned Redistribution Systems

Within 5 working days of obtaining final approval of the source from NHDES, the system is required to notify any consecutive water system or privately owned redistribution system receiving water from the system of the following:

- The projected source activation date; and
- The system will be subject to Env-Wq 2101 as of the source activation date, pursuant to Env-Wq 2101.13 and should contact the NHDES Water Conservation Program using the contact information below.

New Hampshire Department of Environmental Services
Drinking Water and Groundwater Bureau
Water Conservation Program
PO Box 95
Concord, NH 03302-0095
waterconservation@des.nh.gov
Phone: (603) 271-0659
Fax: (603) 271-0656

Appendix D
GS300 Spec Sheet



GS300

Cellular Monitoring System

Overview:

The GS300 is a compact cellular transceiver for monitoring industrial equipment that sends live data to the monitoring web site, providing real-time status and alarms. It features 14 digital inputs, 4 digital outputs and 2 analog inputs. In addition to alarming on status changes, the system keeps track of on-time and cycles for the digital inputs; useful for monitoring pump, fan, or compressor run times and duty cycles. Analog inputs can alarm on high or low conditions and are useful for monitoring temperatures, pressures, tank levels or flow rates. The unit monitors input power voltage and provides an optional battery backup which enables the system to alarm on main power voltage level or failure and continue operating without main power.

The easy to use web site updates continuously, displaying location and operating status for all of your monitored equipment. Alarms are immediately displayed on the web site and trigger messages sent to interested personnel in your organization via SMS text messages and emails. Every event is permanently logged in the web site allowing powerful historical analysis using the built in reporting features to give equipment owners detailed insight into the operation and readiness of their equipment fleets.

Proactive service reminders are automatically generated and sent as equipment reaches service intervals based on run-time. Service logs and manuals available over the secure web site reduce paperwork and automate record keeping while providing up to the minute service records for all of your monitored equipment.

Technical Specifications:

Size	4.0" x 4.3" x 2.3" in.	Power	9 - 32 Volts
Radio	Quad Band CDMA; Quad Band GPRS GSM	Battery Backup	Internal
Transmit Power		Current Consumption	
850 / 900 MHz	Class 4, 2 Watts	Idle	65 mA
1800 / 1900 MHz	Class 2, 1 Watt	Transmit, Average	250 mA
Digital Inputs	14	Peak	2.1 A
Digital Outputs	4	Temperature	
Analog Inputs	2, 0-5 Volt or 0 to 20 mA	Operating	-30°C to +70°C
Connectors	5mm Terminal Blocks	Storage	-40°C to +85°C
GSM Connector	SMA	Max. Humidity	95% Non-Condensing

Features:

Easy to install cellular monitoring system. A variety of optional enclosures and mounting options provide for a clean and professional installation. Unit includes a quad magnet bracket for quick mounting and templates for mounting with included standoffs.

Advanced power management employing low power idle modes enable the unit to operate in solar powered applications with minimal power draw.

No software to buy, install or maintain; all mapping and data features are accessible over the secure web site from any computer with Internet access.

Radio Agency Approvals:

FCC	Part 15 Part 22 Part 24
GCF	Version 3.21.1
PTCRB	Version 3.7.1
Industry Canada	Yes
CE Mark	Yes
RoHS Compliant	Yes
Emark	Yes

Each Complete Monitoring System Includes:



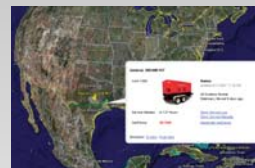
Digital Cellular Monitoring Unit:

- 14 Digital Inputs
- 4 Digital Outputs
- 2 Analog Inputs
- Connected 24x7x365



Low Profile or High Gain Cellular Antenna:

- 4" (Low Profile)
- 12.4" (High Gain)
- 12' Cable Length
- Magnet Mount



Mapping & Reporting:

- Web Accessible
- Graphical Map Overview
- Simple User Interface
- Run Service Reports
- Monitor Equipment Use



Alarming & Notifications:

- Equipment Status Change
- Equipment Service Needed
- SMS Text Message
- BlackBerry, PDA Message
- Email