The State of New Hampshire
**DEPARTMENT OF ENVIRONMENTAL SERVICES**

**Thomas S. Burack, Commissioner**

**WATER CONSERVATION PLAN APPROVAL**

May 15, 2015

Zac Atwood
Freida Garland
Franklin & Gwen Garland
188 Heather Dr.
Central, SC 29360

**RE:** Pelham – Garland Woods
Water Conservation Plan

Dear Messrs:

On May 4, 2015, the New Hampshire Department of Environmental Services ("DES") Drinking Water and Groundwater Bureau received a Water Conservation Plan (the "WCP"), signed by the owners, for the proposed Garland Woods water system located in Pelham, 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 Pelham and the Nashua 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. No later than the source activation date, service connections shall be outfitted with meters and outside read pads.

4. For residential homes/units constructed after the source activation date, the service connection shall be outfitted with meters and outside read pads no later than system connection to the service.

5. Upon source activation, service meters shall be read on a quarterly basis, but no sooner than 83 days after and not later than 97 days after the previous quarterly reading.

6. Upon source activation, a rate structure shall be implemented. Residents shall be charged based on the amount of water each residence uses and the rate shall be structured so that the cost per gallon(s) is either constant or increasing with the amount of water used.

7. Upon source activation, quarterly billing shall commence.

8. Upon source activation, a night flow analysis using the distribution meter and data logger shall be conducted at least twice a year in accordance with the night flow methodology in the WCP.

9. Upon source activation, a water balance, the difference between the system input volume and the metered authorized consumption, shall be reported annually to DES. The water balance shall be reported by March 1 for the prior year using the online reporting tool.

10. Upon source activation, all meters shall be tested and maintained based on the schedule proposed in the WCP.

11. All meters shall be installed per the manufacturer's instructions or American Water Works Association standards.

12. Upon source activation, a water conservation outreach and education program shall be implemented in accordance with the WCP.

13. Upon source activation, monthly source production volumes shall be reported to the NHDES Water Use Registration and Reporting program on a quarterly basis. Upon source activation, DES will assign the system a WUID number and provide instructions for registering as a data provider and utilizing the DES OneStop reporting tool.

14. Within 5 business days of obtaining final source approval, any consecutive water systems or privately owned redistribution systems to receive water from this system shall be contacted and informed of the proposed source activation and the requirements to comply with Env-Wq 2101 upon source activation.

15. 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 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 and testing and calibration records.

    d. Data from biannual night flow analysis and a brief summary of the analysis.

16. Proposed changes to the WCP shall not be implemented unless approved by DES.

17. 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.

18. 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 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 annual night flow analysis and a brief summary of the analysis.

    e. Leak detection survey reports.

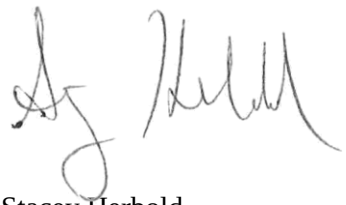
19. Revisions to the Plan shall not be implemented without further approval from DES.

20. The homeowner's association ("HOA") declaration, covenants, bylaws and rules of regulations shall reflect the requirements of the WCP.

The online *Annual Water Balance Reporting Form* and the *Water Conservation Plan Ongoing Compliance Reporting Form* may be located by going to the DES website, www.des.nh.gov, clicking on the "A-Z List" in the top right corner of the page, and scrolling down to Water Conservation

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at stacey.herbold@des.nh.gov .

Sincerely,



Stacey Herbold
Water Conservation Program
Drinking Water and Groundwater Bureau

ec: Charlie Lanza, HAWC
Richard Green, Green and Company
Richard Bibeau, Primary Operator
Town of Pelham
Nashua Regional Planning Commission
Christine Bowman, NHDES
Steve Roy, NHDES

Rec'd 5/4/15

HAWSCO
HAMPSTEAD AREA WATER SERVICES, CO.
Serving the Water Community for over 40 years

# PROPOSED
# WATER CONSERVATION PLAN
# FOR GARLAND WOODS

**Hampstead Area Water Services, Co.**
**Garland Woods**
**Town of Pelham, New Hampshire**

*Prepared for:*
RICHARD GREEN
GREEN AND COMPANY
11 LAFAYETTE RD.
NORTH HAMPTON, NH 03862

*Prepared by:*
CHARLES LANZA, PROJECT MANAGER
HAMPSTEAD AREA WATER SERVICES, CO.
54 SAWYER AVENUE
ATKINSON, NH 03811

Revised 4/29/15

**WATER CONSERVATION PLAN**

GARLAND WOODS

WATER SYSTEM

EPA ID: TBD

Pelham, New Hampshire

**Project Description:** Garland Woods is a proposed 46 unit community. There is no proposed irrigation and also no proposed fire protection off of the water system.

**Project Contacts**:

**Project Contact**

Name: Charlie Lanza
Address: 54 Sawyer Avenue Atkinson, NH 03811
Company: Hampstead Area Water Services, Co.
Phone Number: 603-362-1916
License/Certification Type & Number: Licensed Water Operator Grade II 2861

**Land Owner.**

Name: Freida Garland , Zac Atwood, & Franklin & Gwen Garland
Address: 188 Heather Dr Central, SC 29360

**Developer.**

Name: Green and Company
Address: 11 Lafayette Road North Hampton, NH 03862
Phone Number: 603-765-6510

**Certified Operator.**

Name: Richard Bibeau
Address: 54 Sawyer Avenue Atkinson, NH 03811
Company: Hampstead Area Water Services, Co.
Phone Number: 603-362-4299
License/Certification Type & Number: Licensed Water Operator Grade II 2601

1) Introduction

a) System Overview

i) Brief description of the project and water sources, including water sources to be developed for non-potable uses such as irrigation: The Garland Woods water system consists of 46 proposed 4 bedroom homes that will be supplied by six bedrock water supply wells. Water will be treated and delivered to the homes. There is no irrigation proposed.

ii) Name designation of each proposed water source: BRW-1, BRW-4, BRW-5, BRW-6, BRW-7

iii) Number of connections proposed for each of the following classes:

(1) Residential: 46

(2) Industrial/commercial/institutional: 0

(3) Municipal: 0

iv) The water system does not plan to provide water to any consecutive water systems or privately owned redistribution systems.

v) There are no proposed connections that will receive more than 20,000 gpd.

b) Transfer of Ownership

i) The ownership of the water system is proposed to be transferred to a homeowner's type association.

2) Meters

a) Source and Other System Side Meters

i) No later than the source activation date, meters will be installed on each water source.

ii) No later than the source activation date a distribution meter will be installed to measure flow at the point of entry into the water system.

iii) An irrigation well is not proposed.

iv) At this time the make and model of the meter is unknown. This will be supplied to DES in the Design Submittal.

v) No later than the source activation date, source meters and other system side meters will be read every 30 days.

b) Service Meter Installation, Reading, & Maintenance

i) Service meters will be installed on all service connections including public sector service connections and all points of transfer to consecutive water systems or privately owned distribution systems.

ii) Service meters will be installed no later than the source activation date, or if a home/unit is constructed after source activation, no later than connection of the home/unit to the water system.

iii) Service meters will be read at least every 90 days.

iv) Service Meters will be read by: The reading method is not yet known, but the service meters will be equipped with some type of remote read system.

v) Meters will be installed as homes are constructed.

vi) Service meters will be maintained in accordance with the table below.

c) Meter Selection, Installation, and Maintenance

i) All meters will be AWWA certified, with the exception of b), below.

ii) AWWA does not have standards for magnetic flow meters. If a magnetic flow meter is proposed, the meter make, model, size, and manufacturer specifications will be forwarded to the NHDES Water Conservation program for review. The meter will not be installed until receiving approval for its use.

iii) The selected size of the meters will be based on projected flow rates.

iv) 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," (American Water Works Association, 2012).

v) The following meter testing and calibration schedule or meter change-out schedule will be implemented. If the manufacturer's accuracy warranty extends beyond the below schedule, the meter will be tested or changed-out no later than the warranty expiration date.

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

(a) A log of the date meters were installed, tested, calibrated, repaired, and replaced will be maintained and calibration certificates will be kept on file.

3) Water Balance & Water Audit

a) A yearly water balance (system input volume – authorized metered consumption) will be reported to NHDES using the NHDES online water balance reporting tool, and will be submitted no later than March 1. (The electronic reporting form is located on the Water Conservation homepage of the NHDES website.)

b) The water system will prepare and submit a water audit and response plan if more than 15% of system input volume cannot be accounted for by authorized metered consumption. The response plan will identify how the water system intends to reduce losses to below 15% within two years.

c) Water audits will be calculated in accordance with "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (American Water Works Association, 2009).

*4)* Leak Detection

a) A leak detection program will be implemented upon source activation. The leak detection program (ex. acoustic leak detection, zone meters, night flow analysis) will be as follows: Leak detection will be performed by comparing zone meters with residential consumption i.e.: a water audit. If this indicates a discrepancy acoustic leak detection will be utilized to pinpoint the leak location.

b) 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.

c) Leak detection will be conducted in accordance with "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (American Water Works Association, 2009).

d) Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.09.

e) 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 leak (gpm), and the closest street address.

5) Pressure Management

a) The design pressures of the system are from 60 psi to 70 psi.

6) Consumption Side Management

a) Conservation Rate Structure and Billing

i) No later than the source activation date, a conservation rate structure will be implemented. Customers will be charged based on the customer's usage and the cost per unit of water will be uniform (ex. $4.00/1000 gallons of water) or increase with usage (ex. $4.00/0-500 gallons of water, $4.50/ 5001-1000 gallons of water).

ii) The rate structure will be as follows: It is unknown at this time how the rate structure will be determined. This will be established by the developer in conjunction with the proposed water system operator. The rate structure will be submitted to NHDES upon the source activation date.

iii) Irrigation water will be billed at **PICK**: **(1)** the same rate. **(2)** at a different rate. **(3)** Irrigation water will not be billed separately. There is no proposed irrigation.

iv) No later than the source activation date, customers will be billed on a minimum basis of quarterly. The water system may elect to bill monthly.

b) Educational Outreach Initiative

i) PICKS:

(1) No later than the source activation date, the system will distribute water efficiency outreach materials twice a year with the bills and Consumer Confidence Reports. The materials distributed will be either NHDES Water Efficiency Fact Sheets located at http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm#efficiency or EPA WaterSense materials located at http://www.epa.gov/watersense/.

(2) No later than the source activation date, the system will become a WaterSense partner (http://www.epa.gov/watersense/) and include the "Look for WaterSense" logo on all bills, other mailings, and the system website. The logo will be accompanied by the EPA WaterSense web address and WaterSense messaging.

(3) No later than the source activation date, the system will hold a yearly water efficiency event. Some examples are as follows: offer rebates on water efficient fixtures, holding a water efficient showerhead sale, hold a water efficiency related workshop, promote water efficiency at a system open house.

(4) No later than the source activation date, the following informative billing practices will be used:

1. Usage will be represented in gallons on water bills; and
2. At least 13 months of historical usage will be included in a table or in a graph with the bill for comparison; and
3. A link to the WaterSense website or other water efficiency website will be included on the bill with a tip for saving water.

ii) The system will maintain a log indicating how the system has complied with III. B.1., above. The log will include dates the outreach and education actions were taken and what was done.

7) Recording and implementation

a) Upon source activation, and by no later than March 1 of each year, a water balance for the previous year will be submitted to NHDES using the electronic reporting form located on the Water Conservation homepage at the NHDES website (www.des.gov).

b) The water system will report monthly production volumes, quarterly to the NHDES Water Use Registration and Reporting Program upon receiving a Water Use ID number. Monthly means once every calendar month, but not sooner than 27 days after and no later than 33 days after the previous reading.

c) The water system will submit a form supplied by NHDES once every three years documenting how compliance with the requirements of Env-Wq 7101 Water Conservation is being achieved. The system will use the meter, leak, and outreach and education log to complete the form.

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 to the best of our knowledge.

Current Land Owner Name (print): Frank Garland

Current Owner Signature: _____ Date: 4/29/15

Current Land Owner Name (print): Grace Garland

Current Owner Signature: Grace Garland Date: 4/29/15

Current Land Owner Name (print): Freida Atwood

Current Owner Signature: _____ Date: 4/29/15

Current Land Owner Name (print): ZAC ATWOOD

Current Owner Signature: _____ Date: 4/29/15

Proposed Land Owner Name (print): Green & Co. Building & Development Corp.

Proposed Owner Signature: _____ Date: 4/30/15

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 a 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

Leak Detection: Night Flow Methodology

1. Distribution Meter

    a. An **INSERT METER MAKE MODEL AND SIZE** capable of measuring low flows will be installed on the distribution line and located after treatment, any other water consuming processes, and storage. The meter make, model, and size will be forwarded to NHDES prior to purchase/installation for review and approval.

2. Determining Baseline Flow

    a. PICK: **(1) FOR NEW SYSTEMS** 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 3.b., below. The baseline flow will be the lowest flow recorded.

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

3. Night Flow Analysis

    a. Night flow analysis will 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 between 1 am and 3 am using a distribution meter. Prior to the night flow analysis, users of the system will be requested to refrain from using water between 1 am and 3 am on this date. (Nighttime flow analysis will be conducted prior to sprinkler season.)

    c. If flows are above the baseline, then flows will continue to be recorded for an additional hour.

    d. If flows are more than **INSERT NUMBER** gpm above the baseline, a leak will be suspected.

    e. If flows are still above the baseline, but no more than **INSERT NUMBER** gpm above baseline, all residents will be asked to check their homes for leaks including running toilets. The previous step will then be repeated again in 3 days.

    f. If again flows are above the baseline, a leak on the distribution side of the system will be assumed.

    g. If a leak is suspected, the leak will be isolated by closing valves to isolate select portions of the system, while evaluating the change in flow as measured by the distribution meter. For example, when one valve is closed, one person in the field (operating the

valves) will then communicate with a second person observing the distribution meter to monitor for a change in the background flow.

h. No later than two weeks from isolating the leak to a certain branch of a system, a sub-contractor skilled in acoustic leak detection will be retained and assist with pinpointing the leak.

i. Records will be maintained of each night flow analysis, including recorded flows and leak detection results.

Appendix C
Notification Process

**Public Notification Instructions**
Within 10 days of submitting the conservation plan to NHDES, the applicant is required to provide a copy of the plan via certified mail with return receipt requested to the governing board of the municipality in which a proposed source is located, all municipalities that will receive water from the water system (if any), all wholesale customers (if any), and the regional planning commission serving the location of the proposed source. In most cases, only the municipality and the regional planning commission will require notification. All signed copies of the certified mail return receipt (the green card) must be forwarded to NHDES.

**Additional Attachments**
The applicant must provide the governing boards 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, and request that the governing board amend local site planning requirements to reflect the requirements of Env-Wq 2101 or to promote water efficiency.

**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, that pursuant to Env-Wq 2101.13, the systems must implement a water conservation plan and should contact the NHDES Water Conservation Program using the contact information below.