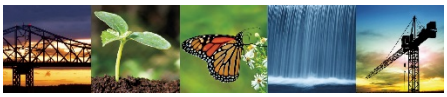
Emery & Garrett
GROUNDWATER INVESTIGATIONS
A Division of GZA

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

PO Box 1578
56 Main Street
Meredith, NH 03253
Tel: 603-279-4425
Fax: 603.279.8717
www.gza.com



VIA EMAIL: rob.nlswp@tds.net

~~September 12, 2025~~ ~~Revised November 12, 2025~~ Revised December 2, 2025
File No.: 33.P000055.26

Robert Thorp, Superintendent
New London-Springfield Water System Precinct
72 Old Dump Road
New London, NH 03257

Re: Continued Groundwater Investigation and Development Program – New Replacement Production Wells at Colby Point, New London, New Hampshire

Dear Robert:

Emery & Garrett Groundwater Investigations (EGGI), a Division of GZA GeoEnvironmental, Inc. (GZA) is pleased to submit to you this preliminary estimate of costs associated with developing and permitting new Replacement Production Wells at Colby Point that will serve to provide supplemental water supplies to the New London-Springfield Water System Precinct (Precinct). It is to be noted that the total amount of water to be developed will not exceed the current permitted volume of 780,480 gallons per day (542 gallons per minute [gpm]) from Colby Point but will provide more capacity than is being withdrawn from the existing wells currently.

The original permitted production volumes (PPV) for each production well located at Colby Point, according to NHDES OneStop are as follows:

Well #1 = 90,720 gpd (63 gpm)
Well #2 = 79,200 gpd (55 gpm)
Well #3 = 172,800 gpd (120 gpm)
Well #4 = 181,440 gpd (126 gpm)
Well #5 = 79,200 gpd (55 gpm)
Well #6 = 177,120 gpd (123 gpm)

However, the combined production of nearly all of the wells as originally permitted (as shown above) has declined significantly to an average daily withdrawal of approximately 225,000 gallons per day (gpd).

BACKGROUND

The Colby Point Well Field consists of six production wells on a relatively small footprint (1.7 acres) in the central area of the peninsula. Three of the Production Wells (#1, #2, and #5) are located on the eastern shore of the peninsula, while the remaining three lie in close proximity to the western shore (**Figure 1**). The fine-grained geologic formation in which the wells are screened limits groundwater withdrawals from the collective well field despite the available recharge via induced infiltration from Little Lake Sunapee.

EGGI completed a town-wide groundwater exploration program in 2022 which included preliminary recommendations for increasing groundwater withdrawals from Colby Point. This investigation will expand upon that work and focus on installing a total of three new Replacement Production Wells. One will be located at a new site identified as LON-4S and two will replace two existing Production Wells whose yields have diminished substantially over the

past 20 years (Production Wells LON-3 and LON-6). Well LON-3 was permitted at 120 gpm and now produces about 62 gpm and LON-6 was permitted at 123 gpm and now produce about 80.3 gpm. The number of wells and which well(s) to be replaced is subject to change based on additional information that could be provided to EGGI regarding each well's current condition. For budget purposes, we have selected these wells for replacement at the present time. EGGI will coordinate its activities with both Underwood Engineers (UE), the engineers for the Precinct, and Barrie Miller's Well & Pump Service, Inc., the firm that has maintained the Production Wells for many years.

OUTLINE OF WORK SCOPE – HYDROGEOLOGIC SERVICES TO INCREASE WATER SUPPLY PRODUCTION AT THE COLBY POINT WELL FIELD

EGGI's proposal for developing groundwater resources at this project site will be divided into several tasks. This tasked approach is designed so that the Precinct can have the opportunity to continually review the progress and results of drilling each replacement well prior to beginning the next. The work tasks proposed are presented in the outline form below:

TASK 1 – PROJECT PLANNING/REFINEMENT OF COSTS

Currently, there are a number of elements about the construction and operation of the Production Wells that are not well understood. The same can be said of the pumping/distribution infrastructure on Colby Point. Task 1 is designed to gather as much information as possible about the hydrogeologic setting and the operation of the Production Wells, so that a strategic plan for optimizing groundwater withdrawals from the Colby Point Well Field can be developed. At the same time, Underwood Engineers (UE) will propose to do the same for the engineering components of the pumping and distribution infrastructure.

EGGI and UE will coordinate with the Precinct and Barrie Miller's Well & Pump Company (responsible for on-going maintenance of the Production Wells) to refine the following proposal tasks. In the absence of the information to be gathered during Task 1, Tasks 2 through 4 (below) provide rough estimates of our best estimation of the tasks that may be required and their approximate costs.

TASK 2 – CONSTRUCT/DEVELOP/TEST AND PERMIT A REPLACEMENT WELL PROXIMAL TO TEST WELL LON-4S (**FIGURES 1** AND **2**)

Estimated cost for constructing an 18-inch-diameter well with 10 feet of an 18-inch stainless steel screen.

- Drilling and development of well - $215,000
- NHDES compliance testing for yield and quality and assessment of interference with existing wells - $150,000
- NHDES permitting of new well. At the present time we are budgeting this new well as a "Replacement Well" and that it will be permitted as a "Replacement Well" under the "Replacement Well" regulations - $100,000

TASK 3 – INSTALLATION OF REPLACEMENT WELLS FOR WELLS LON-3 and LON-6

Estimated cost for constructing an 18-inch-diameter well with 10 feet of an 18-inch stainless steel screen.

- Drilling and development of 2 wells - $450,000
- NHDES compliance testing of two production wells for yield and quality and assessment of interference with existing wells - $325,000
- NHDES Permitting of Replacement Production Wells - $175,000

TASK 4 – INSTALLATION OF TEST BEDROCK WELL

Based upon the geophysical surveys performed on site, EGGI will select a drilling target site for drilling a bedrock test well. The well site will be assessed with the Town and drilled at that location considered to least likely interfere with existing wells. If the yield of the test well exceeds 50 gpm and the water quality is considered favorable, this well will be considered for converting to a larger-diameter production well. Meetings will be held with the NHDES to assess the overall permitting costs for a new well, should the NHDES require a new Large Groundwater Withdrawal Permit.

Estimated costs for siting, drilling, and performing a preliminary test of the yield and quality of a 6-inch-diameter test well that is 600 feet deep - $100,000.

ESTIMATED BUDGET

TASK DESCRIPTION	**COST**
Task 1 – Project Planning/Development of Strategic Plan/Refinement of Costs	$25,000
Task 2 – Construct/Develop/Test/Reporting and Permit a New Well Proximal to Test Well LON-4S (18-inch screened well)	$465,000
Task 3 – Construct/Develop/Test/Reporting and Permit Two Replacement Wells for Wells LON-3 and LON-6 (18-inch screened wells)	$950,000
Task 4 – Siting/Installation of Test Bedrock Well/Preliminary Report Describing Findings	$100,000
TOTAL ESTIMATED COST:	**$1,540,000**
FOR LONG RANGE BUDGETING PURPOSES:	**$1,750,000**

This estimated budget is based on the anticipated Scope of Services described above, which represents our present judgment as to the level of effort required, including the assumptions listed above and when final bidding prices come in for drilling. Actual charges may vary, either upward or downward, depending upon the execution of the work.

We appreciate the opportunity to work with you on this project. Please contact us if you have any questions regarding this cost estimate.

Very truly yours,

EMERY & GARRETT GROUNDWATER INVESTIGATIONS, A DIVISION OF GZA

James M. Emery, PG
Principal/Senior Hydrogeologist

Daniel J. Tinkham, PG
Consultant Reviewer/Hydrogeologist

JME/DJT:rlk
P:\Props\Proposals M-Z\NewLondon_NewProductionWells_33.P000055.26\NewLondon-SpringfieldWaterSystemPrecinct_NewProductionWells_33.P000055.26_Revised 12-2-25.docx

Attachments:

Figure 1 – Existing Production Wells, Exploratory Test Wells and Geophysical Surveys
Figure 2 – Details of the Site Footprint

FIGURE 1

Existing Production Wells, Exploratory Test Wells and Geophysical Surveys

Colby Point Wellfield
New London-Springfield Water Precinct
New Hampshire

S17 (11')
S18 (34')
S1 (50')
S2 (58')
S3 (75')
S19 (27')
S20 (36')
S14 (48')
S12 (93')
LON-2
S13 (102')
Well #3
Well #6
Well #4
Well #1
Well #2
LON-1
S16 (131')
S11 (92')
S15 (96')
Well #5
LON-4
S10 (58')
S9 (36')
S8 (37')
S7 (36')
S6 (36')
S5 (37')
S4 (37')
R1
R2
Main Street
Little Sunapee Road
Pump Station
Colby Point Wellfield Site Footprint
Little Lake Sunapee
Estimated depth to competent bedrock (feet below ground surface)

Legend

- Existing Production Well
- Exploratory Test Well
- Seismic Survey Points
- 4R1 *Location and Name of Electrical Resistivity Survey Line*
- Colby Point Wellfield Site Footprint

LiDAR-Based Digital Elevation Model (feet above sea level)

Value

High : 395.1

Low : 371.1

N

Scale is 1:3,600

1 inch = 300 feet

0 30 60 120 Meters

0 150 300 600 Feet

Emery & Garrett
Groundwater Investigations, A Division of GZA

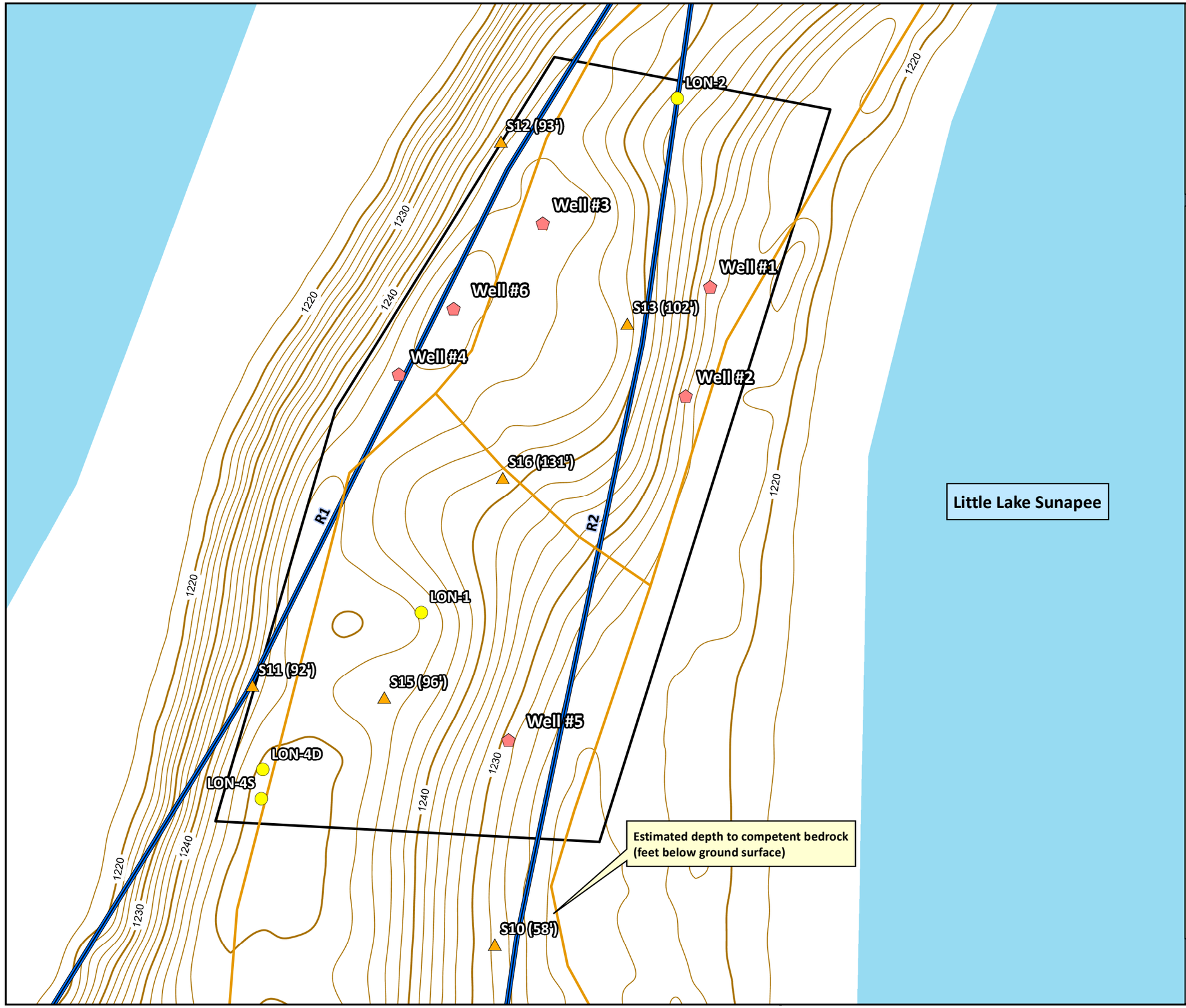
FIGURE 1

J:\33.0083100 to 33.0083199\33.0083192.00 LON\33.0083192.01-Colby Point\Report\GIS\LON_Figure1_Peninsula_Geophysics.mxd Last saved: 7/29/2025 8:40:45 AM by Isabel.Peress

FIGURE 2

Details of the Site Footprint

Colby Point Wellfield
New London-Springfield Water Precinct
New Hampshire



Legend

- Existing Production Well
- Exploratory Test Well
- Seismic Survey Points
- Roads
- 4R1 *Location and Name of Electrical Resistivity Survey Line*
- Colby Point Wellfield Site Footprint
- Little Lake Sunapee

N

Scale is 1:600

1 inch = 50 feet

0 5 10 20 Meters

0 25 50 100 Feet

Emery & Garrett
Groundwater Investigations, A Division of GZA

FIGURE 2

J:\33.0083100 to 33.0083199\33.0083192.00 LON\33.0083192.01- Colby Point\Report\GIS\LON_Figure2_Peninsula_Footprint.mxd Last saved: 7/29/2025 9:37:31 AM by Isabel.Peress