



April 4, 2024

Mr. Tim Barber
The BCA Group
15 Public Square
Watertown, NY 13601

re: Test Well Drilling Status Report
North Star Test Well Site and the Carey Test Well Sites
LeRay, NY

Dear Mr. Barber:

Northeast Geoscience, Inc. (NGI) is writing to provide a report on test well drilling and testing at the North Star Site and Carey Well Site in LeRay, NY in 2023.

Carey Well Site test Well Drilling

On September 12, 2023, Keller's Well Drilling mobilized a drilling rig to the Carey Well Site to install 6-inch diameter test wells at the site. The locations of the test wells and the Carey Well are shown on Figure 1. TW-1-22 was installed south of the Carey Well near the edge of the wetlands associated with West Creek. Materials encountered consisted of loose, wet medium brown sand to a depth of 19 feet, underlain by 20 feet of dense grey glacial till. Bedrock was encountered at a depth of 39 feet. No well screen was set and the boring was abandoned with bentonite pellets and native backfill.

TW-2-22 is a 6-inch diameter steel test well installed approximately 250 feet north of the Carey Well. Materials encountered consisted of dense brown clay from ground surface to a depth of 11 feet, underlain by wet, loose medium sand and gravel from 11 to 29 feet, where bedrock was encountered. wells 30-slot well screen was set from 24-29 feet and developed using air lift methods. The results were a bit promising in terms of well yield, and NGI instructed Keller's Well Drilling to install an observation well at this location (TW-2-22). A 4-inch diameter observation (TW-2A-22) well was installed four feet east fo TW-2-22.

On November 1, 2022, NGI used a centrifugal pump and drop pipe to pump and develop TW-2-22. The well pumped turbid water at first, then cleared as the well was pumped and surged. The maximum flow rate produced by the well was 5.1 gpm, and the observation well showed over 10 feet of water-level drawdown. NGI concluded that TW-2-22 is not a productive test well and that the site does not merit further testing.

North Star Test Well Site

On October 5, 2022 Keller's Well Drilling installed a 6-inch diameter steel test well (North star TW-3-22) to a depth of 82 feet. Materials encountered consisted of dark grey fine sand and silt to a depth of 74 feet, underlain by wet, loose medium brown sand from 74 feet to 82 feet. Bedrock was encountered at a depth of 82 feet. A 1-inch diameter observation well (North Star TW-3A-23) was installed to a depth of 82 feet to facilitate water level drawdown measurements. Logs of both wells are attached.

On June 19, 2023 Keller's Well Drilling installed an air lift development tool in North Star TW-3-22 and developed the well using air lift methods. The well produced 35 gpm with 2.8 feet of water level drawdown measured in the observation well after two hours of development. In October 2023 NGI worked with Keller's Well Drilling on the North Star Site to evaluate yield characteristics. The observation well had filled with fine sand that came through the well screen to a depth of 48 feet. The pumping well produced five gallons per minute with 9.7 feet of drawdown for a specific capacity of 0.5 gpm/ft.

Based on these preliminary measurements, NGI does not recommend further testing of this site. The aquifer saturated thickness is promising but the sand is too fine to produce much water. Also, the gravel unit encountered above bedrock is less than two to three feet thick and would be difficult to develop at this location.

Conclusions and Recommendations:

Two test wells installed at the Carey Well Site did not identify additional locations for viable production wells. The depth to bedrock is shallow in this area, and wetlands resource areas bound the site on the east side. NGI does not rule out the possibility of further testing of the Carey Site, in areas between TW-2-22 and the Carey Well, to possibly identify a second production well location at this site. It is close to existing power and water main infrastructure and is already owned by the Town.

Based on the results of this test well drilling program, NGI does not recommend further testing of the North Star Site. While the aquifer saturated thickness is promising, the materials encountered are lake deposits and very fine grained. Also, the parcel is limited in size and other potential sites do not meet setback requirements. Therefore, NGI recommends properly abandoning TW-3-22 and TW-3A-22 and conducting no further work on this site for water supply development.

Please do not hesitate to contact me with any further questions regarding this matter.

Sincerely:

NORTHEAST GEOSCIENCE, INC.






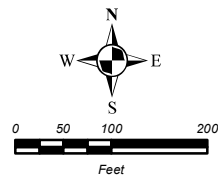
Jay Billings, NYPG #001212
Hydrogeologist



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



-  ASSESSORS PARCEL (ID# 65.17-1-20.1)
-  EXISTING WATER SUPPLY WELL
-  EXISTING TEST WELL






SITE MAP CAREY WELL SITE 25908 US ROUTE 11 TOWN OF LERAY JEFFERSON COUNTY, NEW YORK	
NGI REF: SiteMap.mxd	
Drafted By: JAF	Date: 04/03/2024
Source: ArcGIS.com, NOAA, Town of LeRay	

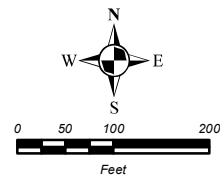
FIGURE 1



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



-  ASSESSORS PARCEL (ID# 65.09-1-15.31)
-  EXISTING TEST WELL
-  200 FT SETBACK



SITE MAP NORTH STAR SITE US ROUTE 11 TOWN OF LERAY JEFFERSON COUNTY, NEW YORK	
NGI REF: SiteMap.mxd	
Drafted By: JAF	Date: 04/03/2024
Source: ArcGIS.com, NOAA, Town of LeRay	

FIGURE 2

APPENDIX A



WELL LOG - Carey Well Site TW-1-22

Project Name:	Town of LeRay Test Wells	Start Date:	9/12/2022	End Date:	9/14/22
Project No.:	060403B	Screen Type:	SS Wirewrap	Screen Length:	5 feet
Location:	Town of LeRay, NY	Screen Diameter:	6-inch	Slot Size:	20 slot
Client:	The BCA Group	Casing Type:	Steel	Casing Diameter:	6-inch
NGI Inspector:	Jay Billings	Boring Diameter:	6-inch	Water Level:	
Driller:	Rick Keller	Well Yield:		Max Drawdown:	
Drilling Method:	Air Rotary	Pump Type:	Air Lift Tool	Specific Capacity:	



Depth	Well Construction	ID	Depth (feet)	Zone Q	Total Q	
0	Schedule 40 6-inch Diameter Steel Well Casing 0-40 ft					Ground Surface
10		S-1	0-19			0-19 ft Loose damp medium brown sand
20		S-2	19-39			19-39 dense Grey Till
30						
40						Bedrock encountered at 39 ft - Bottom of Boring
50						
60						
70						
80						

Bottom of Boring at 82 feet

WELL LOG - Carey Well Site TW-2-22

Project Name:	Town of LeRay Test Wells	Start Date:	10/22/2022	End Date:	10/24/22
Project No.:	060403B	Screen Type:	SS Wirewrap	Screen Length:	5 feet
Location:	Town of LeRay, NY	Screen Diameter:	6-inch	Slot Size:	20 slot
Client:	The BCA Group	Casing Type:	Steel	Casing Diameter:	6-inch
NGI Inspector:	Jay Billings	Boring Diameter:	6-inch	Water Level:	
Driller:	Rick Keller	Well Yield:		Max Drawdown:	
Drilling Method:	Air Rotary	Pump Type:	Air Lift Tool	Specific Capacity:	



Depth	Well Construction	ID	Depth (feet)	Zone Q	Total Q	
0						Ground Surface
0-11	Schedule 40 6-inch Diameter Steel Well Casing 0-24 ft	S-1	0-11			0-11 ft Dense dark brown clay
11-24		S-2	11-24			11-24 ft Wet, loose brown medium sand
22-24	6-inch Telescope Size Tight Wound Well Screen 22-24 ft					
24-29		S-3	24-29			24-29 ft Wet, loose brown medium to coarse sand and gravel Heaving sand condition required multiple screen sets
29-82	6-inch Telescope Size 0.020-inch slot SS Wire Wrap Well Screen					Bedrock Encountered at 29 ft - Bottom of Boring
82						

Bottom of Boring at 82 feet

WELL LOG - Carey Well Site TW-2A-23

Project Name:	Town of LeRay Test Wells	Start Date:	10/12/2022	End Date:	10/14/22
Project No.:	060403B	Screen Type:	SS Wirewrap	Screen Length:	5 feet
Location:	Town of LeRay, NY	Screen Diameter:	4-inch	Slot Size:	10 slot
Client:	The BCA Group	Casing Type:	Schedule 40 PVC	Casing Diameter:	4-inch
NGI Inspector:	Jay Billings	Boring Diameter:	6-inch	Water Level:	
Driller:	Rick Keller	Well Yield:		Max Drawdown:	
Drilling Method:	Air Rotary	Pump Type:	Air Lift Tool	Specific Capacity:	



Depth	Well Construction		ID	Depth (feet)	Zone Q	Total Q	
0							Ground Surface
0-11	Schedule 40 4-inch PVC Diameter 0-24 ft 4-inch Diameter 0.010-inch slot schedule 40 Slotted PVC Screen		S-1	0-11			0-11 ft Dense dark brown clay
11-24			S-2	11-24			11-24 ft Wet, loose brown medium sand
24-29			S-3	24-29			24-29 ft Wet, loose brown medium to coarse sand and gravel Heaving sand condition required multiple screen sets
29-82							Bedrock Encountered at 29 ft - Bottom of Boring
82							

Bottom of Boring at 82 feet

