



Milford Zoning Board of Adjustment

Staff Review

Date: September 29, 2023

To: Zoning Board of Adjustment

From: Terrence S. Dolan, Director of Community Development *TS*

Subject: Continuation of Case #2023-02-Variance Request, pursuant to Article VI, Section 6.01.3.B.7 to allow for the Retail Sale of Petroleum Products in the Town of Milford's Groundwater Protection Zone I, located in both the "C" (Commercial) Zoning District & Limited Commercial ("LC") Zoning District, Map 43 Lot 20-2

For the ZBA's information and continued consideration, the following provides a continuation of the Town's Staff and the review of the above referenced Case (#2023-2):

You shall find the following information items as separate online links from the Town's ZBA Web Page:

1. A *September 28, 2023 Memorandum* from our Town Engineer, Nicole Crawford, explaining and summarizing the need for additional site data collection and testing to ensure the accuracy of the existing site conditions, and those conditions in comparison to the adopted Town of Milford Groundwater Resource Protection Maps. Additional Groundwater Maps are also provided to assist the Board.
2. Both the *August 25, 2023 & the September 25, 2023 Milford Conservation Commission Memorandums* summarizing the Commission's position on the present Variance Request. The *Conservation Commission's (initial) June 9th Memorandum* is provided at the end of the materials contained with #3 below.
3. My *July 1, 2023 Staff Memo*, along with the full July 6, 2020 ZBA Mtg Packet of information that was ultimately continued by the ZBA.

Thank You

ZBA Case 2023-02 Variance Request:

Memo Item #2

**(Town of Milford Conservation Commission
8/25/23 and 9/25/23 Memos)**

Town of Milford

CONSERVATION COMMISSION

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September 25, 2023

To: Zoning Board of Adjustment

Re: Case # 2023-01,02,03 Rashid South Street Gas Station project MapLot 043-020-002

Variance for Prohibited Use of a Gas Station (underground storage of liquid petroleum product) located in the Groundwater Protection Area (Z.O. 6.01.3.B.7)

To the Board,

The MCC submitted a memo to the ZBA on August 25, 2023, which was forwarded to the applicant for response. The applicant's response and the MCC memo were compiled into a document identified as ZBA pdf 08252023.

This memo, dated September 25, 2023, reflects the ongoing concerns of the MCC despite the applicant's response.

The MCC does not support this project to install and maintain a gas station at this location. The MCC has continued its research concerning the placement of gas stations and potential risks for leaks of underground petroleum storage tanks, amplified by the applicant's desire to place this gas station on a parcel located over a stratified drift aquifer. Our research was focused on the Hydrogeology of Stratified-Drift Aquifer USGS Report 86-4358, Groundwater Resources in NH, Stratified Drift Aquifers USGS Report 95-4100, consultation with the Milford Town Engineer, and consultation with Dr. Craig Shillaber, Professor Civil and Environmental Engineering for Northeastern University in Boston Mass.

Discussion points:

1. **The Groundwater Protection Area (GWA) Map.** (See attachment).
 - a. This map generated discussion at the June 15, 2023 ZBA hearing concerning its origin and scientific validity. This is the document which was accepted by the Town by way of the Planning Board in 2002. The 1985 Town Meeting approved (987Y/187N) to adopt an Aquifer Protection District ordinance. At the 2003 Town Meeting, residents approved (1991Y/431N) an updated ordinance titled The Groundwater Protection Overlay District which included this map.
 - b. The soils mapped that are shown on this map are taken from the United States Geographical Survey soils mapping, more particularly in this case, the highly transmissive soils found in aquifers. The data used is found as a layer in the GIS mapping for Stratified Drift Aquifers on any State Natural Resource Mapper. These maps are tools used by land use boards to evaluate potential impacts to natural resources. An

- b. The MCC requested the applicant provide a solution to minimize the risk of an accidental UST leak. (See ZBA pdf 08252023 Item 5.c) The tanks will be in the groundwater without any barrier. The applicant's response was to refer to "a magic clay layer down deeper". The MCC would like the Zoning Board members to require a secondary barrier with a monitoring system in place so that any contaminant can be contained until a cleanup can occur. This containment design should be provided prior to approving this request.

- c. The MCC would like the ZBA members to require a design, prior to approval, of how surficial spills at the pump and from standing vehicles, will be contained on site and treated. There are wetlands across the street that will be impacted by surface runoff, in addition to potential infiltration into the aquifer.

The MCC does not support this application. The underground storage of liquid petroleum tanks is prohibited in this Groundwater Protection Area which was established to protect our groundwater. The parcel soils, although not delineated as part of the aquifer mapped, are of the same characteristic as stratified-drift aquifer soils. This is a specific prohibited use for the reason that accidents happen and the mitigation cannot be 100% effective. The applicant cannot prove with absolute certainty that there will be no contamination to the existing and potential groundwater supply areas, which the existence of the protection area ordinance implicitly acknowledges, nor has provided any design measures to minimize the risk for a petroleum leak into the town aquifers.

Respectfully
Milford Conservation Commission

DRAFT

Town of Milford

CONSERVATION COMMISSION

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August 25, 2023

To: Zoning Board of Adjustment

Re: Case # 2023-01,02,03 Rashid South Street Gas Station project MapLot 043-020-002

Variance for Prohibited Use of a Gas Station (underground storage of liquid petroleum product) located in the Groundwater Protection Area (Z.O. 6.01.3.B.7)

To the Board,

The Conservation Commission (MCC) met with the applicant at their March 9 2023 meeting and at the March 30 scheduled site visit, which was also attended by members of the Planning and Zoning Boards. The applicant met the MCC again on June 8, 2023 to address MCC concerns. In addition, there was a public hearing before the Zoning Board of Adjustment on June 15 and July 6 2023. The MCC provided a memo to the Zoning Board of Adjustment which addressed the criteria which are considered when granting a special exception or variance to the Wetland Overlay and Groundwater Protection Overlay Districts of the Zoning Ordinance.

The MCC does not support this project to install and maintain a gas station at this location. This memo will reflect the MCC concerns regarding the assertions from the applicant made at the public hearings. In addition, the MCC has continued its research concerning the installation of gas stations and potential risks for leaks of underground petroleum storage tanks.

1. The Groundwater Protection Map. (See attachment).

- a. This map has generated discussion concerning its origin and scientific validity. This is the document which was accepted by the Town by way of the Planning Board in 2002. The 1985 Town Meeting approved (987Y/187N) to adopt an Aquifer Protection District ordinance. At the 2003 Town Meeting, residents approved (1991Y/431N) an updated ordinance titled The Groundwater Protection Overlay District which included this map.
- b. The soils mapped that are shown on this map are taken from the United States Geographical Survey soils mapping, more particularly in this case, the highly transmissive soils found in aquifers. The data used is found as a layer in the GIS mapping for Stratified Drift Aquifers on any State Natural Resource Mapper. These maps are tools used by land use boards to evaluate potential impacts to natural resources. An aquifer is a body of permeable rock which can contain or transmit water. The soil type shown on the gas station site plan is CaB (Canton B) soil. This soil is described, "Well drained. Runoff is

negligible to medium. Internal drainage is medium. Saturated hydraulic conductivity is moderately high to high in the solum and high or very high in the substratum." *USDA - OSD*

- c. The applicant refers to two private wells , one of which is now off-line, located in the Level I Protection Area identified on this map where the development would be sited. However, what has not been addressed is that the pumps and underground storage units would also be located less than 300 feet from a Level II Protection Area also identified on the map. A pollutant will move 2000 to 4000 square feet per day through this stratified drift soil type. Both the Level 1 and 2 areas are defined, by NH DES and USGS standards, in the Groundwater Protection Area Map legend.

2. The fuel storage system is the latest technology.

- a. The MCC doesn't doubt that this proposed gas station will be using the latest technology for containment and monitoring of underground fuel tanks. The concern is that there is human fallibility in monitoring the monitors. There is no guarantee for no leaking. The MCC notes that every gas station proposal has said that the applicant is using the latest technology. In 2007, NH banned the additive MtBE from gasoline when this contaminant was found in wells.
- b. The applicant does not mention the study of the amount of surficial toxic pollutants released at the pump. A study done by Johns Hopkins researchers found, at the average gas station, that roughly 400 gallons of gasoline is spilled over a decade. The remediation of such spills can amplify the initial spill with either flushing or improperly handling the absorbents used. Stormwater runoff is another key factor in moving these toxins off-site or into the stormwater management system which often drains into an adjacent wetland. Gasoline penetrates the concrete pad over time and enters the groundwater system.

3. Other Milford gas stations are in close proximity to the Souhegan River and over broad swaths of Stratified Drift soils.

- a. Each project before any land use board is unique and, often clearly stated at the time of discussion, does NOT set precedence for future projects. Gas stations that were built decades ago along the Rt 101 corridor were built without the understanding of soil transmissivity and the increasing occurrences of spills. The residents in Milford are aware of ongoing toxic incursions into our drinking water supply, as well as in neighboring communities. To protect us from future contaminations of our groundwater, the residents have supported municipal actions to protect our drinking water. We have lost the use of municipal wells due to pollutant contamination that cannot be completely removed.

4. Stormwater treatment of improperly permitted activity on an adjacent property.

- a. The construction of Nathaniel Drive was not properly permitted nor designed to manage stormwater. The applicant is planning to use this parcel, Map 43-20-2, to mitigate the stormwater impacts from Nathaniel Drive. This could be an appropriate impact on the natural resources of this parcel, but not with the included ecosystem impacts of a gas station located over highly transmissible soils.

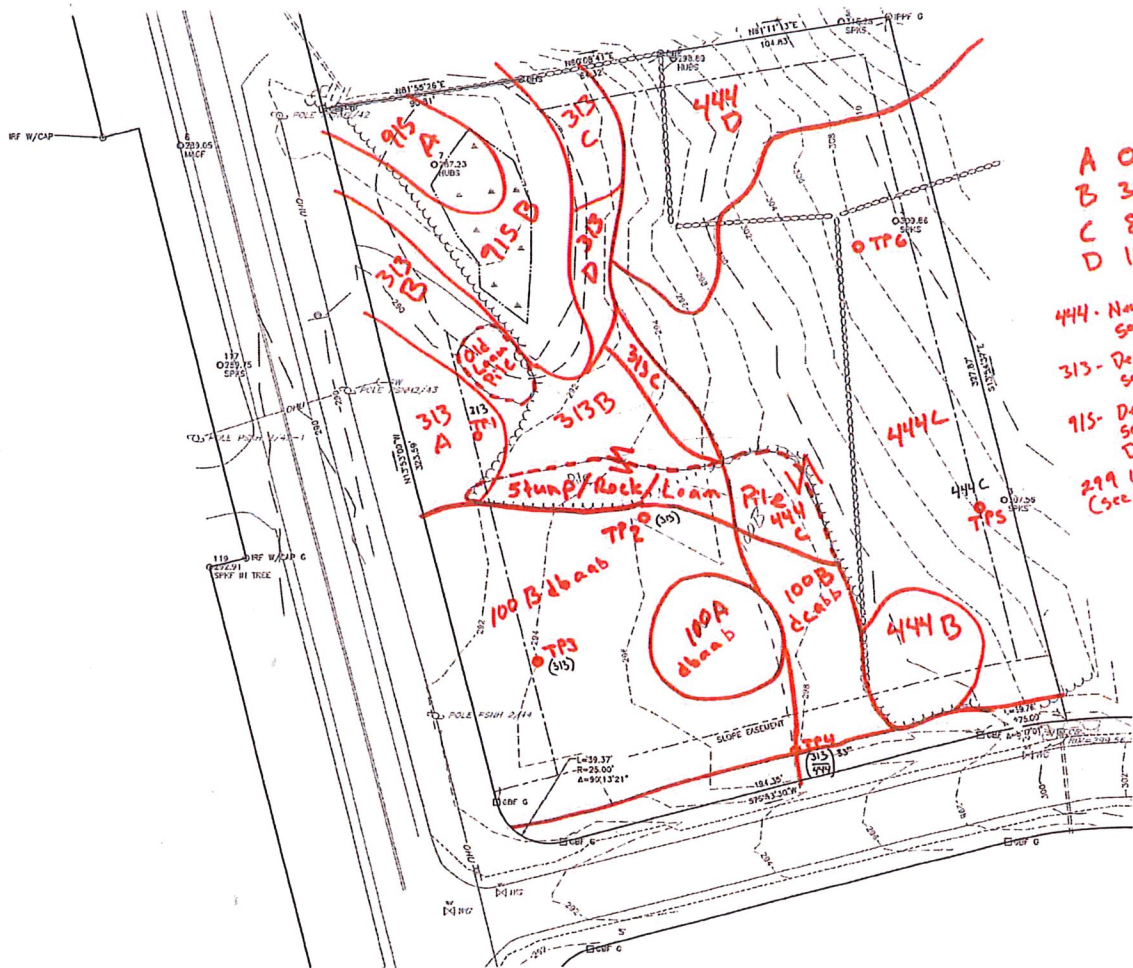
5. Mitigation.

- a. To date, the applicant has not offered any mitigation measures other than to "use the latest technology". They cannot provide a 100% guarantee that the tanks will not leak.

- b. The MCC would like the ZBA to require a subsurface exploration of this parcel before rendering a decision concerning this request for a variance. The applicant needs to explore the site to understand the surface and subsurface hydrology of this parcel.
 - i. The applicant should know the seasonal high groundwater level on the site and determine if there is a gradient, which will show how and where water or a pollutant will move across the parcel from the storage tanks and the pump area.
 - ii. Initially, the applicant should drill a 4" hole at the minimum down to the water table, and then go deeper at least to below the depth of the tank placement. Holes should be dug, at the minimum, where the tanks are going to be placed and at what is suspected to be down gradient from that location. More holes will tell a better hydraulic story.
 - iii. The applicant should supply the Town Engineer with the data logs.
- c. Mitigation measures could be: (there is no guarantee of no leakage, but these measures can slow the movement of the contaminant until a cleanup can occur)
 - i. Clay bed and box around the tanks and blocking the path, if there is one, for subsurface movement of contaminant off site.
 - ii. "Grout it up". Pour some sort of fixative, like concrete, that bonds the subsurface material into a barrier.

The MCC does not support this application. The underground storage of liquid petroleum tanks is prohibited in this Groundwater Protection Area Level 1, which was established to protect our groundwater. The parcel soils, although not delineated as part of the aquifer mapped, are of similar soil type and characteristic. This is a specific prohibited use for the reason that accidents happen and the mitigation cannot be 100% effective. The applicant cannot prove with absolute certainty that there will be no contamination to the existing and potential groundwater supply areas, which the existence of the protection area ordinance implicitly acknowledges.

Respectfully
Milford Conservation Commission



- A 0.3%
 - B 3-8%
 - C 8-15%
 - D 15-25%
- 444 - New fields fine
Sandy Loam
- 313 - Deer field fine
sandy Loam
- 915 - Deer field hard - t
somewhat rocky
Drained
- 299 Underhanks, Smoothed
(See Reference Document)

1" = 20'

Test Pit #1:

(A)0-8": 10YR 3/3, Dark Brown, Sandy Loam, Sub Angular Blocky, Friable

(Bw1) 8-14": 10 YR 5/6 Yellowish Brown, Gravely Sand, Single Grain, Loose, 20% Fine Gravel

(C) 14-70": 2.5Y 5/4 Light Olive Brown, Gravely Sand, Single Grain, Loose, 25% Fine Gravel

- Moist soil @ bottom of hole

E.S.H.W.T. @ 36"

Roots @ 18"

Seeps none @ 70"

Refusal none @ 70"

Test Pit #2

0-18": Mixed Sandy Fill

(Ab) 18-21": 10YR 3/3 Dark Brown, Fine Sandy Loam, Massive, Friable

(Bw1) 21-26": 10YR 5/6 Yellowish Brown, Fine Sandy Loam, Massive, Friable

(Bw2) 26-23": 2.5Y 5/4 Light Olive Brown, Fine Sandy Loam, Massive, Friable

(C1) 34-44": 2.5Y 6/4 Light Yellowish Brown, Gravely Coarse Sand, Single Grain, Loose, 20% Fine Gravel

(C2) 44-60": 2.5Y 6/3 Light Yellowish Brown, Fine to Medium Sand, Single Grain, Loose, 5% Fine Gravel

- 100 Udorthents Smooth

E.S.H.W.T. @ 51" (33" from original grade)

Roots none @ 60"

Seeps none @ 60"

Refusal none @ 60"

Test Pit #3:

(A) 0-6": 10YR 3/3 Dark Brown, Gravely Fine Sandy Loam, Granular, Friable

(Bw1) 6-13": 2.5Y 5/6 Light Olive Brown, Loamy Fine Sand, Sub Angular Blocky, Friable

(Bw2) 13-22": 2.5Y 6/3 Light Olive Brown, Loamy Very Fine Sand, Angular Blocky, Very Friable

(C1) 22-27": 2.5y 6/3 Light Yellowish Brown, Very Gravely Coarse Sand, 40% Fine Gravel, Single Grain, Loose

(C2) 27-62": 2.5Y 6/3 Light Yellowish Brown, Fine Sand W/ Alternating lenses of 5Y 5/2 light Grey Silt

- 100 Udorthents Smooth

E.S.H.W.T. @ 19"

Roots none @ 62"

Seeps none @ 62"

Refusal none @ 62

Test Pit #4:

(A) 0-3": 10YR 3/3 Dark Brown, Sandy Loam, Granular, Friable

(Bw1) 3-9": 10YR 5/6 Yellowish Brown, Loamy Sand, Weak Fine, Granular, Very Friable

(Bw2) 9-14": 2.5Y 6/4 Light Yellowish Brown, Coarse Sand, Single Grain, Loose, 10% fine Gravel

(C1) 14-24": 2.5Y 7/2 Light Gray, Very Fine Sand, Angular Blocky, Friable

(C2) 24-33": 2.5Y 6/3 Light Yellowish Brown, Gravely Medium to Fine Sand, Massive Friable

(C3) 33-63": 2.5Y 5/2 Grayish Brown, Stoney Loamy Sand, Massive, Friable

- 100 Udorthents but till parent material under outwash

E.S.H.W.T. @ 28"

Roots @ 42"

Seeps none @ 63"

Refusal none @ 63"

Test Pit #5:

(A) 0-8": 10YR 3/3 Fine Sandy Loam, Granular, Friable

(Bw1) 8-15": 10YR 5/6 Yellowish Brown, Gravely Sandy Loam, Sub Angular Blocky, Friable

(Bw2) 15-24": 10YR 5/8 Yellowish Brown, Gravely Loamy sand, Sub Angular Blocky, Friable

(C) 24-60": 2.5Y 6/4 Light Yellowish Brown, Stoney Loamy Sand, Massive, Friable

- Newfields Sandy Loam

E.S.H.W.T. @ 37"

Roots @ 38"

Refusal none @ 60"

Seeps none @ 60"

Test Pit #6:

(Ap) 0-12": 10YR 3/3 Dark Brown, Fine Sandy Loam, Granular, Friable

(Bw1) 12-20": 10YR 4/6 Dark Yellowish Brown, Gravely Fine Sandy Loam, Sub Angular Blocky, Friable

(Bw2) 20-26": 2.5Y 5/6 Light Olive Brown, Stoney Loamy Sand, Massive, Friable

(C) 26-60": 2.5Y 5/3 Light Olive Brown, Stoney Loamy Sand, Massive, Friable

- Newfields Sandy Loam

E.S.H.W.T. @ 32"

Roots @ 33"

Seeps none @ 60"

Refusal none @ 60"



Chris Costantino <chris.c.nhmcc@gmail.com>

Gas Station

2 messages

Matthew Peterson <mpeterson@keachnordstrom.com>

Tue, Sep 19, 2023 at 4:24 PM

To: Terrence Dolan <tdolan@milford.nh.gov>

Cc: Chris Costantino <chris.c.nhmcc@gmail.com>, Steven Desmarais <nhcustombuilder@gmail.com>, "rashidamin246@gmail.com" <rashidamin246@gmail.com>

So after talking with Steve and really running out of options on this possible project I found the following for your consideration.

I am not sure what more I could get out of doing borings that I don't already have now, except a magic clay layer down deeper.

1. We found seasonal water table from 19" to 51" (see test pit logs)
2. We dug down between 5' and 6' and found mainly sand. (see test pit sketch)
3. Proposed gas tanks would have a bottom depth of about 8 to 12 feet underground, so I guess there could be a clay layer below our test pits but with the seasonal high water marks I am still not sure what I could obtain from Borings at this point.
 - a. As we have said they would be double lined with alarms and all the modern bells and whistles.

As I outlined to Steve and Terry, I am out of bullets on this one and don't see a path forward at this time that could address conservation commission concerns.

Thanks for any input and see you all at the ZBA hearing in October for a final decision.

Enjoy the day.

Matthew J. Peterson

Senior Project Manager

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Office Hours Monday–Thursday 7:30AM–5:00PM Friday 8:00AM–12:00PM

2 attachments

9/21/23, 1:52 PM

Gmail - Gas Station

 **Typed Test Pit Logs.pdf**
52K

 **KNA 2021-00526-1A SSM.pdf**
2284K

Chris Costantino <chris.c.nhmcc@gmail.com>

Wed, Sep 20, 2023 at 10:18 AM

To: Matthew Peterson <mpeterson@keachnordstrom.com>

Cc: Terrence Dolan <tdolan@milford.nh.gov>, Steven Desmarais <nhcustombuilder@gmail.com>, "rashidamin246@gmail.com" <rashidamin246@gmail.com>

Thank you, Matt.

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PS 9