

Ref: 9626

September 6, 2023

Mr. Bart McDonough
Director of Planning and Community Development
Town of Newmarket
186 Main Street
Newmarket, NH 03857

Re: Response to Traffic Peer Review
Proposed Multifamily Residential Development – 242 South Main Street (NH Route 152)
Newmarket, New Hampshire

Dear Bart:

Vanasse & Associates, Inc. (VAI) is providing responses to the comments that were raised in the August 23, 2023 *Traffic Peer Review* letter prepared by Greenman-Pedersen Inc. (GPI) concerning their review of the May 22, 2023 *Traffic Impact Study* (the “May 2023 TIS”) that was prepared by VAI in support of the proposed age-qualified multifamily residential development to be located at 242 South Main Street (NH Route 152) in Newmarket, New Hampshire (hereafter referred to as the “Project”). Listed below are the comments that were identified by GPI in the subject letter followed by our response on behalf of the Project proponent.

Study Area & Scope

1. *The Traffic Impact Study provides capacity and queue analysis for the following intersections:*
 - a. *NH Route 152 at Grant Road*
 - b. *NH Route 152 at the Newmarket Elementary School Driveway*
 - c. *NH Route 152 at the Project Site Driveway*

*Based on the size of the development and volume of traffic generated by the Project, GPI concurs with the appropriateness of this study area. **No response required.***

Response: No response required.

Existing Conditions

2. *The Traffic Impact Study notes that traffic volumes were collected in February 2023 at the study area intersections during an extended weekday period; weekday morning (7:00 to 9:00 AM), weekday afternoon (2:00 to 4:00 PM) and weekday evening (4:00 to 6:00 PM). These time periods were selected due to the type of project (residential) as well as the proximity of the Newmarket Elementary School. GPI concurs with the time periods. The peak hours were 7:15 to 8:15 AM, 2:30 to 3:30 PM, and 4:45 to 5:45 pm. **No response required.***

Response: No response required.

Traffic Volume Adjustments

3. *The Traffic Impact Study notes that the adjustments reviewed to reflect seasonal variation were based on the NHDOT count station located on NH Route 101, east of NH Route 108 (Exits 11 and 12) in Exeter (Station #02153001). GPI concurs with the use of this station. This information revealed that February traffic volumes are 34 percent lower than peak-month conditions. Therefore, the traffic counts were upwardly adjusted to reflect peak-month conditions. The Traffic Impact Study notes that the turning movements entering and exiting the Newmarket Elementary School were not seasonally adjusted, yet it appears that they were upwardly adjusted during the weekday morning and weekday evening peak hours (not the weekday afternoon). GPI concurs with the 34 percent seasonal adjustment and agrees that there should be no seasonal adjustment on the turning movements entering and exiting the Newmarket Elementary School. The adjustment that appears to have been inadvertently applied simply results in a more conservative analysis. **No response required.***

Response: No response required.

4. *The Traffic Impact Study calculated an adjustment to apply to the traffic volumes so they are representative of the conditions prior to the COVID-19 pandemic. The Study utilized data from the NHDOT count station located on NH Route 152, east of Grant Road. Data from October 2018 was upwardly adjusted to reflect peak-month conditions and then grown by 1.0 percent to reflect 2019 conditions. The ATR data from February 2023 was upwardly adjusted to reflect peak-month conditions. The two volumes were compared, and it was determined that the February 2023 traffic volumes were 10 percent below the pre-pandemic volumes. Accordingly, a COVID-19 adjustment of 10 percent was applied to the traffic volumes. The Traffic Impact Study notes that the turning movements entering and exiting the Newmarket Elementary School were not adjusted for COVID-19, yet it appears that they were upwardly adjusted during the weekday morning and weekday evening peak hours (not the weekday afternoon). The adjustment that appears to have been inadvertently applied simply results in a more conservative analysis.*

Although GPI appreciates the comparison of data directly located on NH Route 152 adjacent to the proposed site, due to the difference in months (October versus February) and the adjustments that needed to be applied, GPI investigated a second methodology that has previously been preferred by NHDOT. The methodology utilized data from the same continuous count station as the seasonal adjustment in Exeter. Data from pre-covid (February 2020) was compared to data from the month traffic counts were performed for the project (February 2023). An adjustment was calculated for each peak period individually since daily traffic patterns have shifted as a result of work-from-home. This methodology indicated that the following adjustments should be applied:

- a. *Weekday morning (7:00 to 9:00 AM) – 21 percent*
- b. *Weekday afternoon (2:00 to 4:00 PM) – 10 percent*
- c. *Weekday evening (4:00 to 6:00 PM) – 17 percent*

*The back-up data and calculations for this methodology are attached to the letter. Although the adjustments are higher than the 10 percent used in the Traffic Impact Study and would result in higher No-Build traffic volumes, the impact of the project will likely remain negligible. **No response required.***

Response: No response required.



Motor Vehicle Crash Data

5. Crash data was requested from the Newmarket Police Department but had not yet been received. A supplement to the Traffic Impact Study will be provided once the data is received. **In the interim, data for the following two intersections should be investigated from available NHDOT crash data to determine if there any identifiable crash patterns:**
 - a. NH Route 152 at Grant Road
 - b. NH Route 152 at the Newmarket Elementary School Driveway

Response: A follow up request for motor vehicle crash data has been sent to the Newmarket Police Department. NHDOT was also contacted regarding motor vehicle crash data at the specified intersection as public crash information appears to have been removed from the NHDOT website.

Development by Others

6. *The 8-unit residential development located at 3 Railroad Street is located approximately 0.5 miles from the proposed site, however, due to minor addition in traffic expected, the additional traffic as a result of this project was assumed to be reflected in the general background traffic growth rate. GPI concurs with this approach. The traffic associated with the mixed-use development located at 50-56 Exeter Road was generated based on ITE and assigned to the roadway network. GPI concurs with this approach. **No response required.***

Response: No response required.

General Background Traffic Growth

7. *The Applicant has applied a 1.0 percent per year annual growth rate to project traffic volumes to 2024 and 2034 conditions based on historical count data from four count stations between 2009 and 2019. VAI's growth rate calculated to of 0.96 percent. GPI does not agree with the historical count data utilized from the NHDOT Transportation Data Management System website. It appears that counts that were grown from previous years were utilized in the calculations, yet only the years with actual count data should be utilized. Based on GPI's historical growth calculations (attached to this letter), the annual growth rate appears to be closer to 1.5 percent. Although this will increase the No-Build traffic volumes, the impact of the project will likely remain negligible. **No response required.***

Response: No response required.

Trip Generation

8. *The Applicant estimated the trips generated by the proposed 32-unit age-qualified multifamily residential development utilizing Institute of Transportation Engineers (ITE) Trip Generation Manual¹ data for Land Use Code (LUC) 252 (Senior Adult Housing – Multifamily). The average rate was utilized as opposed to the fitted curve equation. The two methods result in similar trip estimates ± 1 vehicle trip during the peak hours). **No response required.***

¹Trip Generation, 11th Edition; Institute of Transportation Engineers; Washington, DC; 2021.



Response: No response required.

9. *Based on the Project Description in the Traffic Impact Study, the existing single-family home (242 South Main Street) will be removed to accommodate the project, however, it appears the building is still included on the Parking/Pavement Plan dated January 2023. **The Applicant should clarify whether or not the existing single-family home will be razed or remain.** Regardless, the Applicant has not applied any credit for the trips generated by this use, nor would it make an impact either way due to the low traffic it generates.*

Response: The existing single-family home located at 242 South Main Street will be retained and will be situated on a separate lot that will be created through the subdivision of the subject property to create two (2) lots. Traffic volumes associated with the existing home are reflected in the traffic volume data that forms the basis of the May 2023 TIS.

Trip Distribution

10. *The Applicant has based the distribution of site-generated trips on U.S. Census Journey-to-Work data for residents of the Town of Newmarket and then refined based on review of existing traffic patterns. Below is a table exhibiting the trip distribution calculated by GPI based on Journey-to-Work data and the distribution utilized by VAI. It should be noted that the Trip Distribution section of the Appendix inadvertently provides the growth rate calculations instead of the Journey-to-Work back-up. **GPI requests that the Trip Distribution calculations be provided.***

TABLE 1
Trip Distribution Comparison

Roadway	Direction To/From	GPI Calculations	VAI Study
NH Route 152	East	80%	75%
NH Route 152	West	5%	10%
Grant Road	South	15%	15%
TOTAL	--	100%	100%

Response: The trip distribution worksheet is attached.

Capacity Analysis

11. *The Applicant utilized Highway Capacity Manual 6 (HCM 6) analysis methodology to evaluate the operations at the study area intersections. GPI concurs with this methodology, as it is the most recently approved methodology. As a result of the proposed 32-unit age-qualified multifamily residential development, the two existing study area intersections are expected to see negligible impact. Additionally, the proposed site driveway is expected to operate with no queuing on any of the intersection movements. **No response required.***

Response: No response required.

Sight Distance Analysis

12. *VAI states that “with the selective trimming/removal of trees and vegetation located within the sight triangle areas of the Project site driveway, the available lines of sight to and from the Project*



site driveway intersection with NH Route 152 were found to exceed the recommended minimum sight distance to function in a safe manner (SSD).” While GPI agrees with the required minimum distances based on 40 mph, the sight triangle areas should be provided on a sight line diagram based on the proposed plan and profile of the finished grade at the proposed site driveway. The vegetation to be cleared should be indicated on the diagram. Additionally, it is unclear as to where the driveway was assumed to be located, considering the driveway shown on the Concept Site Plan 2 provided in the Appendix of the Traffic Impact Study is in a different location than the driveway shown on the Parking/Pavement Plan dated January 2023.

Response: A Sight Triangle Plan for the Project site driveway is attached and reflects the current driveway location.

Site Access & Parking

13. *It appears that the Concept Site Plan 2 provided in the Traffic Impact Study has progressed since submission of the Study.*
- The Concept Site Plan 2 in the Traffic Impact Study provides spaces for 33 vehicles.*
 - The Parking/Pavement Plan appears to provide spaces for 34 vehicles.*

*GPI concurs that the proposed number of parking spaces (34 spaces) is in excess of the required 32 parking spaces (1 space per unit) for the elderly housing based on Chapter 32, Appendix B, §3.02. – Parking, of the Municipal Code of the Town of Newmarket. **The proposed number of parking spaces should also be compared with the ITE Parking Generation Manual, 5th Edition for Land Use Code (LUC) 252 (Senior Adult Housing - Multifamily).** It should be noted that there does not appear to be any guest parking and the parking provided only exceeds the number of proposed units by 2 spaces.*

Response: A review of parking demand data published by the ITE² for LUC 252, *Senior Adult Housing – Multifamily*, indicates that the observed peak parking demand for a multifamily senior housing community is 0.61 parking spaces per unit and the 85th percentile peak parking demand is 0.67 parking spaces per unit.³ As such, the ITE parking demand data affirms that the proposed parking supply is sufficient to accommodate the anticipated peak parking demand of the Project.

14. *As designated on the Parking/Pavement Plan dated January 2023, the distance between the proposed site driveway and the Grant Road intersection measures ±100 feet from center to center or ±50 feet from edge of right-of-way. Per the Newmarket Site Plan design standards, Section 3.01 – Vehicle Access, Driveways shall not be located closer than 50' from the edge of the right-of-way of an intersecting street. Accordingly, the driveway distance appears to meet the Town standards. It should be noted that the driveways are aligned as such that the left-turn movements out of the minor road approaches do not conflict with one another, and due to the low traffic volumes projected at the proposed site driveway, the proximity of the two intersections is not of concern. **Although the minimum driveway offset requirement appears to be satisfied, the Applicant's engineer should provide a supplemental/supporting sketch or site plan revision that graphically depicts the 50-foot offset reference in relation to the ROW line of Grant Road.***

²*Parking Generation Manual, 5th Edition; Institute of Transportation Engineers; Washington D.C.; January 2019.*

³The 85th percentile peak-parking demand is the parking demand at which 85 percent of the observed values fall below and 15 percent of the values are above.



Response: A sketch plan is attached that illustrates that the Project site driveway location exceeds the 50-foot off-set per Section 3.01 – *Vehicle Access, Driveways*, of the Newmarket Site Plan design standards.

Traffic and Parking Demand Management Plan

15. *The proposed crosswalk on the Parking/Pavement Plan is shown on the east side of the Newmarket Elementary School Driveway. It is our understanding that, based on discussions at the August 8, 2023 TRC Meeting, Newmarket DPW officials prefer the proposed crosswalk on the west side of the school driveway, eliminating the short stretch of sidewalk along Route 152, with a concrete tipdown and truncated down on the south side. This update should be incorporated on a revised Site Plan.*

Response: A revised Parking/Pavement Plan is attached that reflects the relocation of the proposed crosswalk to the west side of the Newmarket Elementary School driveway. In addition, as requested at the TRC meeting, VAI conducted sight distance measurements at the relocated crosswalk location, the results of which are summarized in the table below:

CROSSWALK SIGHT DISTANCE MEASUREMENTS^a

Intersection/Sight Distance Measurement	Feet	
	Required Minimum (SSD)	Measured
<i>NH Route 152 at the Proposed Crosswalk</i>		
<i>Stopping Sight Distance:</i>		
NH Route 152 approaching from the east	305	372
NH Route 152 approaching from the west	305	460
<i>Intersection Sight Distance:</i>		
Looking to the east from the north side of the Crossing	305	321
Looking to the west from the north side of the Crossing	305	372
Looking to the east from the south side of the Crossing	305	460
Looking to the west from the south side of the Crossing	305	460

^aRecommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets*, 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018; and based on an approach speed of 40 mph along NH Route 152.

As can be seen in the table above, the available sight distances to and from the proposed crosswalk exceeds the recommended minimum distances for safety. As discussed at the July 11, 2023 Planning Board hearing, the crosswalk should include the installation of a pedestrian actuated Rectangular Rapid Flashing Beacon (RRFB) and should include School Zone pedestrian crossing warning signs at and in advance of the crosswalk.

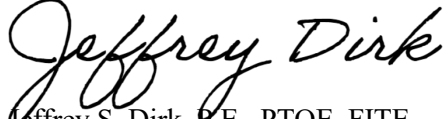


Mr. Bart McDonough
September 5, 2023
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We trust that this information is responsive to the comments that were identified in the August 23, 2023 letter prepared by GPI concerning their review of the Project. If you should have any questions or would like to discuss our responses in more detail, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.



Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

Professional Engineer in CT, MA, ME, NH, RI, and VA

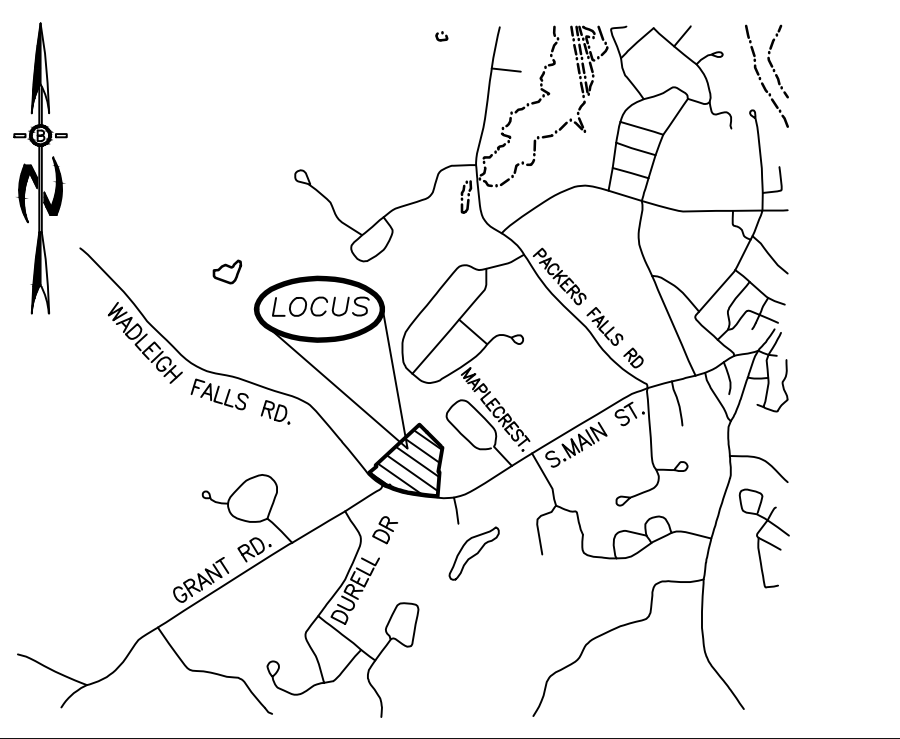
JSD/jsd

Attachments



Proposed Age-Restricted Residential Development
Newmarket, New Hampshire

Residence	Workplace	Number	Route 152 (West)		Route 152 (East)		Grant Road (South)	
Newmarket town	Portsmouth city	854		0	100%	854		0
Newmarket town	Newmarket town	525	20%	105	60%	315	20%	105
Newmarket town	Exeter town	474		0	100%	474		0
Newmarket town	Durham town	259		0	100%	259		0
Newmarket town	Dover city	239	25%	60	75%	179		0
Newmarket town	Newington town	234		0	100%	234		0
Newmarket town	Newfields town	201		0	100%	201		0
Newmarket town	Hampton town	168		0	100%	168		0
Newmarket town	Boston city	137		0	100%	137		0
Newmarket town	Epping town	136	25%	34		0	75%	102
Newmarket town	Stratham town	129		0	100%	129		0
Newmarket town	Brentwood town	120	25%	30		0	75%	90
Newmarket town	Seabrook town	104		0	100%	104		0
Newmarket town	Manchester city	98	25%	25		0	75%	74
Newmarket town	Rochester city	97	100%	97		0		0
Newmarket town	Kittery town	92		0	100%	92		0
Newmarket town	Windham town	75	25%	19		0	75%	56
Newmarket town	Londonderry town	68	25%	17		0	75%	51
Newmarket town	Raymond town	64	25%	16		0	75%	48
Newmarket town	York town	58		0	100%	58		0
Newmarket town	Greenland town	55		0	100%	55		0
Newmarket town	Nashua city	47	25%	12		0	75%	35
		4,234		414		3,259		561
				9.8%		77.0%		13.2%
		<u>SAY</u>		10%		75%		15%



LOCATION MAP

LEGEND

	UTILITY POLE
	TEST PIT W/ NO.
	STONE WALL
	TREE LINE
	EXISTING CONTOUR - 10'
	EXISTING CONTOUR - 2'
	OVERHEAD UTILITIES
	SOILS BOUNDARY LINE
	BUILDING SETBACK LINE
	WETLAND SETBACK LINE
	WETLAND BOUNDARY
	ABUTTING PROPERTY LINE
	EXISTING PROPERTY LINE

ZONING REQUIREMENTS

ZONE: R2
 MIN. LOT SIZE = 1/2 ACRE
 MIN. FRONTAGE = 100'
 MAX. HEIGHT = 35'

BUILDING SETBACKS:
 FRONT 25'
 SIDE & REAR 15'
 WETLANDS 50'

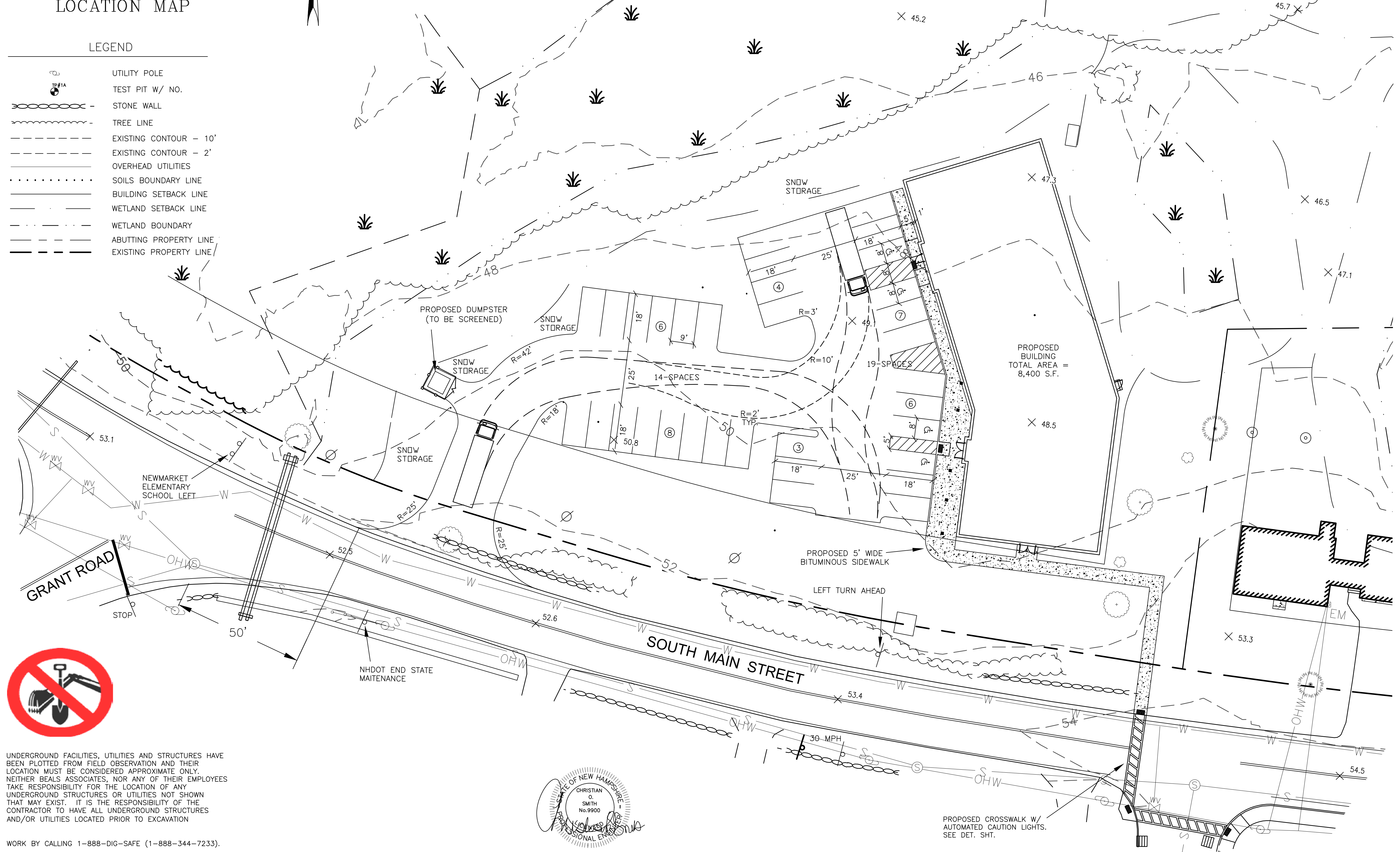
PARKING CALCULATIONS:
 AGE RESTRICTED HOUSING
 1/ UNIT = 32

TOTAL SPACES REQUIRED= 32
 TOTAL SPACES PROVIDED= 33

PREPARED FOR:
DR LEMIEUX BUILDERS, INC.
 76 EXETER ROAD
 NEWMARKET, NH 03857

BA BEALS ASSOCIATES, PLLC
 70 PORTSMOUTH AVE,
 THIRD FLOOR, SUITE 2
 STRATHAM, N.H. 03885
 PHONE: 603-583-4860,
 FAX: 603-583-4863

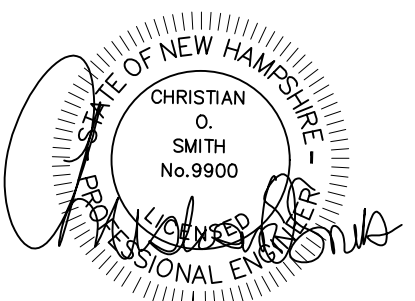
- NOTES
- UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. BEALS ASSOCIATES OR ANY OF THEIR EMPLOYEES TAKE NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN, THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND UTILITIES OR STRUCTURES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE
 - THIS PLAN HAS BEEN PREPARED FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
 - THE INTENT OF THIS PROPOSAL CONSISTS OF A PROPOSED 32 UNIT AGE RESTRICTED BUILDING AND ASSOCIATED PARKING.
 - ALL SNOW SHALL BE STORED IN THE AREA(S) OFF PAVEMENT & PARKING AREAS. IN THE EVENT THAT THE AREA(S) APPROVED FOR SNOW STORAGE BECOME FULL, THE OWNER SHALL REASONABLY REMOVE EXCESS SNOW FROM THE SITE, AND SHALL NOT ALLOW SNOW TO BE STORED WITHIN TRAVEL AISLES.
 - ALL WASTE MATERIALS AND RECYCLABLE SHALL BE CONTAINED WITHIN THE BUILDING(S) OR APPROVED STORAGE FACILITIES.
 - THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
 - SEE DETAIL SHEET FOR STANDARD CONSTRUCTION NOTES AND DETAILS.



PLANNING BOARD APPROVAL BLOCK

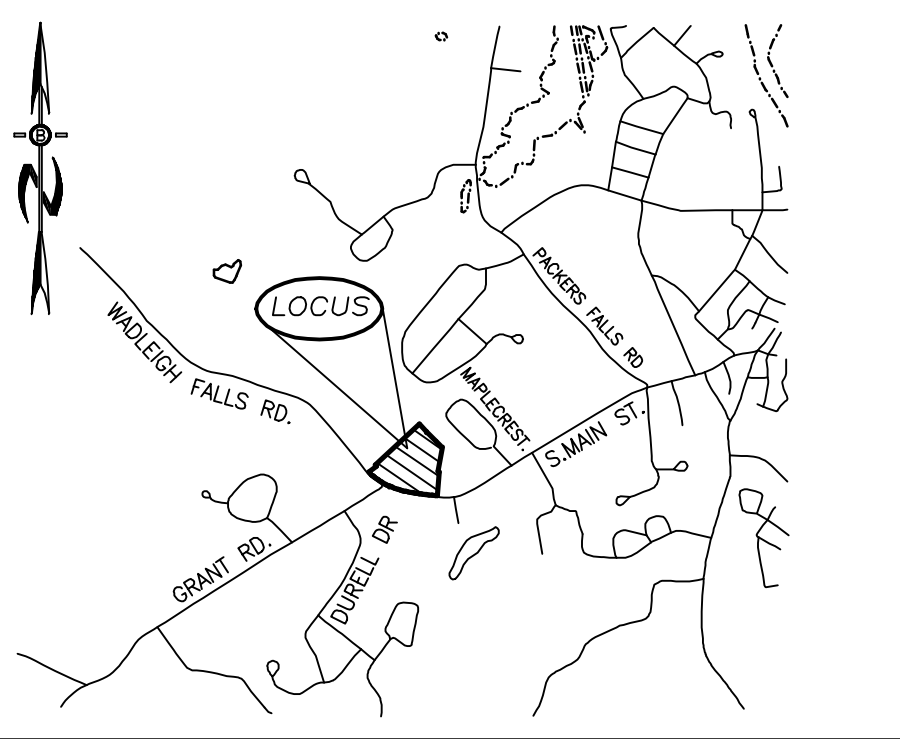


UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER BEALS ASSOCIATES, NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION



WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233).

REVISIONS PER REVIEW COMMENTS	8-16-23
REVISIONS:	DATE:
PARKING/PAVEMENT PLAN	
RESIDENTIAL DEVELOPMENT TAX MAP U4, LOT 69 242 SOUTH MAIN STREET NEWMARKET, NEW HAMPSHIRE	
DATE: JAN 2023	SCALE: 1"=20'
PROJ. NO: NH-1449	SHEET NO. 4



LOCATION MAP

LEGEND

- UTILITY POLE
- TEST PIT W/ NO.
- STONE WALL
- TREE LINE
- EXISTING CONTOUR - 10'
- EXISTING CONTOUR - 2'
- OVERHEAD UTILITIES
- SOILS BOUNDARY LINE
- BUILDING SETBACK LINE
- WETLAND SETBACK LINE
- WETLAND BOUNDARY
- ABUTTING PROPERTY LINE
- EXISTING PROPERTY LINE



PREPARED FOR:
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 ASSOCIATES, PLLC

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 THIRD FLOOR, SUITE 2
 STRATHAM, N.H. 03885
 PHONE: 603-583-4860,
 FAX: 603-583-4863

REVISIONS:		DATE:
SIGHT DISTANCE PLAN		
RESIDENTIAL DEVELOPMENT TAX MAP U4, LOT 69 242 SOUTH MAIN STREET NEWMARKET, NEW HAMPSHIRE		
DATE:	SEPT., 2023	SCALE: 1"=40'
PROJ. NO:	NH-1449	SHEET NO. 1 OF 1