Received & posted:
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Town Clerk
LAKEVILLE TOWN CLERK
2020 APR 23 AM 7:37

TOWN OF LAKEVILLE
REMOTE MEETING NOTICE/ AGENDA

Posted in accordance with the provisions of MGL Chapter 30A, §. 18-25

Name of Board, Committee or Commission:	**Zoning Board of Appeals**
Date & Time of Meeting:	**Thursday, May 7, 2020 at 4:00 p.m.**
Location of Meeting:	**REMOTE MEETING**
Clerk/Board Member posting notice	**Cathy Murray**

AGENDA

1. In accordance with the Governor's Order Suspending Certain Provisions of the Open Meeting Law, G.L. c.30A, §20, relating to the 2020 novel Coronavirus outbreak emergency, the May 7, 2020, public meeting of the **Zoning Board of Appeals** shall be physically closed to the public to avoid group congregation. **However, to view this meeting in progress, please go to facebook.com/lakecam (you do not need a Facebook account to view the meeting). This meeting will be recorded and available to be viewed at a later date at http://www.lakecam.tv/**

2. **Meeting minutes (Votes to be taken)**
   Approve the December 19, 2019, meeting minutes.

3. **Petition hearings (Votes to be taken)**
   Turner hearing, continued – 44 & 46 Rhode Island Road – request for a **Comprehensive Permit** to construct sixteen three-bedroom residences in eight duplex buildings.

Please be aware that this agenda is subject to change. If other issues requiring immediate attention of the Zoning Board of Appeals arise after the posting of this agenda, they may be addressed at this meeting.

Town of Lakeville
Board of Health
346 Bedford Street
Lakeville, MA 02347

Board of Health
(508) 946-3473
(508) 946-8805
(508) 946-3971 fax

February 7, 2020

Town of Lakeville
Zoning Board of Appeals
Attn: Donald A. Foster, Chairman
346 Bedford St.
Lakeville, MA 02347

RE: **44-46 Rhode Island Rd.**

Dear Chairman:

The Board of Health reviewed the petition for the above referenced property at their February 5th meeting. At this time the Board of Health has no proposed septic plan. The Board would need to review and approve those plans prior to any construction. As for the project in general, the Board finds no issue.

Sincerely yours,

Derek Maxim

Derek Maxim
Chairman, Board of Health

Town of Lakeville

Town Office Building

346 Bedford Street

Lakeville, Massachusetts 02347

OFFICE OF
SELECTMEN
TELEPHONE 508-946-8803
FAX 508-946-0112

TO: Donald Foster, Chairman
Zoning Board of Appeals

FROM: Maureen Candito, Town Administrator

RE: 44-46 Rhode Island Road

DATE: February 12, 2020

At their meeting on February 12, 2020, the Board of Selectmen reviewed the petition for 44-46 Rhode Island Road for Paul E. Turner Corporation.

In regards to the petition, the Selectmen have no comments at this time.

HML ASSOCIATES

Geotechnical and Civil Engineers

19 Rockwood Road
Hingham, MA 02043
(Phone/Fax) 781-740-9999

February 14, 2020

TO: Lakeville Zoning Board of Appeals
Mr. Don Foster, Chairman

FROM: Nicholas Lanney, P.E.

RE: Review of Old Field Estates 40B Site Plan
44 and 46 Rhode Island Road

We have reviewed the site plans and Stormwater Management report prepared by Zenith Consulting Engineers for development of 44 to 46 Rhode Island Road into 16 - 3-bedroom homes under a comprehensive permit.

Two homes will be accessed directly from Rhode Island Road and the remaining homes from a "Old Field Way", a proposed 20 foot wide, 300 foot long road that terminates in a cul-de-sac. Water will be provided to each house from the water main in Rhode Island Road, sanitary wastewater will be disposed of through individual Title V septic systems and stormwater runoff will be directed toward two on-site infiltration basins. The basins have been designed such that post construction rate and volume of stormwater runoff do not exceed pre-construction values.

We offer the following comments on the site plans and stormwater management report:

1. The plans call for 2:1 slope to the east of the proposed cul-de-sac starting at CB 2 and continuing around the cul-de-sac to the driveway for Unit 13 and then around that driveway. The slope will be stabilized with loam and seed.

    - No shoulder is provided between the back of the Cape Cod berm and the start of the slope nor is any guard rail provided. This is a safety concern.
    - The Planning Board's rules and regulations require that slopes steeper than 3:1 be stabilized with riprap and we recommend that the proposed 2:1 slope be stabilized in this manner.

2. Provide a fence on top of the proposed retaining wall adjacent to Infiltration Basin 1.

3. Because the proposed road is only 20 feet wide, we recommend a 4 foot wide sidewalk on the east side of the road terminating at the beginning of the cul-de-sac.

4. Because the proposed road is only 20 feet wide, we recommend providing a turnoff where the proposed mailbox will be located or relocate the mailbox to a more central location within the project limits.

5. No fire hydrants are shown on the site plans. Meet with fire chief and provide fire hydrants at locations designated by the fire chief.

6. Proposed grading south of Unit 8 appears to be incorrect. The proposed elevation along the property line is el. 100 but the existing grades at the property line vary between 100 and 104 feet.

7. Provide details for the emergency spillway and inlet to the infiltration basins.

8. Will the street lighting shown on Sheet V1, Landscaping Plan, be owned and maintained by the individual homeowners or the condo association?

9. There is an existing fire hydrant on the south side of Rhode Island Road opposite UP 24. The hydrant is not shown on the site plans. The fire hydrant is only a few feet west of the edge of the Old Field Road. The current hydrant location should be reviewed by the Fire Chief to determine if the hydrant should be relocated.

10. Test pit locations in test pit logs for the infiltration basins need to be included on the plans. Final approval of the stormwater management system cannot be made until this information is reviewed.

11. The existing condition plan show the topography at the northeast corner of the lot along Rhode Island Road is flat, but it is in fact elevated 4 to 5 feet above the road and may be a site distance problem for backing out of Lot 16.

Please feel free to contact if you have any questions or require additional information.

cc: Jamie Bissonnette ZCE

Town of Lakeville
PLANNING BOARD
346 Bedford Street
Lakeville, MA 02347
508-946-8803

Brian Hoeg, Chairman
Sylvester Zienkiewicz, Vice Chairman
Peter Conroy
Mark Knox
Barbara Mancovsky

MEMORANDUM

TO: Board of Appeals

FROM: Planning Board

DATE: February 18, 2020

SUBJECT: Petition Review for Turner (Old Field Estates) – 44 & 46 Rhode Island Road

At their Thursday, February 13, 2020, meeting, the Planning Board reviewed the above referenced Petition for Hearing from the Board of Appeals. The Board would like to know if any consideration had been given to submitting the application for this project as a 40R. The Planning Board would also like the Zoning Board to inquire from the developer if they have draft or approved condo documents that can be reviewed.

Zenith Consulting Engineers, LLC

3 Main Street Lakeville, MA 02347
(508) 947-4208 - www.zcellc.com

- Civil Engineering
- Septic Design (Title 5)
- Septic Inspections (Title 5)
- Commercial and Industrial Site Plans
- Chapter 91 Permitting

February 19, 2020

Mr. Donald Foster, Chairman
Lakeville Zoning Board of Appeals
122 Main Street
Lakeville, MA 02347

RE: 44 & 46 Rhode Island Road, Residential Development

Dear Mr. Foster:

This letter is written to respond to comments on the subject project which were included in a letter dated February 14, 2020, issued by the Board's review engineer, HML Associates (HML). The responses below correspond to the numbered comments in each letter.

1. The plans have been revised to provide a guard rail in the area adjacent to the proposed 2:1 slope. Notes have been added to the plans to stabilize this slope with riprap as suggested.

2. A fence has been provided in front of the proposed retaining wall adjacent to Infiltration Basin 1.

3. There is no sidewalk currently located on Rhode Island Road in the vicinity of the proposed project. As such, we respectfully request that the Board not require a sidewalk within the project.

4. The project proponent met with the postmaster and it was decided that the mailboxes should be placed in the island in the cul-de-sac. The plans have been revised and forwarded to the postmaster for approval.

5. The Fire Chief met the project proponent on site and determined that no fire hydrant was necessary for this project due to the length of the road. However, the Taunton Water Department is requiring a hydrant at this time to allow for flushing the water main. As such, a fire hydrant has been provided in front of Unit 5.

6. The proposed grading behind Unit 8 has been revised as suggested.

7. Details for the emergency spillway and infiltration basin inlet have been added to the plans.

8. The street lighting will be owned by the individual home owners. There is one proposed light for each driveway. Notes have been added to the plans to clarify this issue.

9. The location of the existing fire hydrant has been added to the plans. There is no conflict with the site driveway entrance.

10. Test pits were excavated in the infiltration basin locations on February 20, 2020. The location of these test pits and the associated test pit logs have been added to the plans to assist the reviewer.

11. The 4 foot rise in elevation occurs within the Rhode Island Road right of way as shown on the existing conditions plan and then the topography flattens out on the lot. Since the rise in elevation occurs at the corner of the abutting lot with the Rhode Island Road right of way, it is not possible to remove the mound. It should be noted that turn around areas have been provided on each driveway.

Zenith attempted to measure a sight distance from the driveway in an easterly direction, but there are existing trees on the site property that prevent looking in an easterly direction from a point 14.5 feet back from the edge of pavement. These trees will be removed as part of the proposed project, but the sight distance could not be measured at this time. The approximate sight distance was calculated from the plans as 110 feet. As a result, the driveway was relocated approximately 10 feet to the west which improves the sight distance to approximately 146 feet. It should be noted that the sight distance from the driveway in a westerly direction is over 400 feet. This sight distance is greater than that which is required to safely pull out of the driveway into the eastbound travel lane. The reality of the situation is that a vehicle exiting the driveway and turning into the westbound lane would creep out into the eastbound lane resulting in an eye location of much less than 14.5 feet from the edge of the existing pavement. If the sight distance is measured from an eye location 8 feet back from the existing edge of pavement, then the sight distance in the easterly direction is 315 feet (as measured in the field). Rhode Island Road has a posted speed limit of 35 mph. The required stopping sight distance at this speed is 250 feet.

Revised design plans reflecting the items detailed in this letter are attached. Should you have any questions, please do not hesitate to contact our office at 508-947-4208.

Sincerely,
Zenith Consulting Engineers, LLC

Robert M. Forbes, P.E.
Senior Engineer

Town of Lakeville
Conservation Commission
346 Bedford St.
Lakeville, MA 02347
Phone: (508) 946-8823 FAX: (508) 946-0112

To: Zoning Board of Appeals

Date: February 19, 2020

From: Conservation Commission

RE: 44-46 Rhode Island Rd. Old Field Estates

The Commission has received a Request for Determination of Applicability for this site. The request is for a determination of wetlands based on size, both volume and depth in accordance with the Wetlands Protection Act. No work is proposed in this application. If it is determined that the small wetland area is non-jurisdictional, no further action would be required. If the wetland is subject to regulation, a Notice of Intent would be required.

A hearing on this application is scheduled for March 10th, 2020.

Robert J. Bouchard
Conservation Agent

Lakeville Fire Department

346 Bedford Street
Lakeville, Massachusetts 02347

TEL 508-947-4121 FAX 508-946-3436

MICHAEL O'BRIEN
FIRE CHIEF
mobrien@lakevillema.org

WILLIAM PURCELL
DEPUTY CHIEF
wpurcell@lakevillema.org

February 20, 2020

Town of Lakeville
Planning Board
Attn: Brian Hoeg
346 Bedford Street
Lakeville, MA 02347

RE: Old Field Estates (44-46 Rhode Island Road)

Dear Chairman Hoeg,

This letter has been written to provide notification of concerns regarding the Old Field Estates project.

The Fire Department has no objection to the dimensions of the proposed road and / or cul-de-sac, as all specifications are fire code compliant. Although beyond the jurisdiction of the Fire Department, the width of the proposed road does appear to be less than the 24 feet in width; as required by the by-law for minor roads. Again, this item is outside the scope of our jurisdiction and is only mentioned as an observation; a wider road would however improve fire department access.

At the time of the walk through of this property, it was communicated by the Fire Department that a hydrant would be needed at the "beginning of the road"; the exact location determined by practicality and convenience. The condition is based on the need to NOT lay fire hose across Rhode Island Road. Vehicle traffic would surely make such an effort impossible and would result in the interruption of fire suppression water supply. There does not appear to be a compliant hydrant identified on the submitted plans.

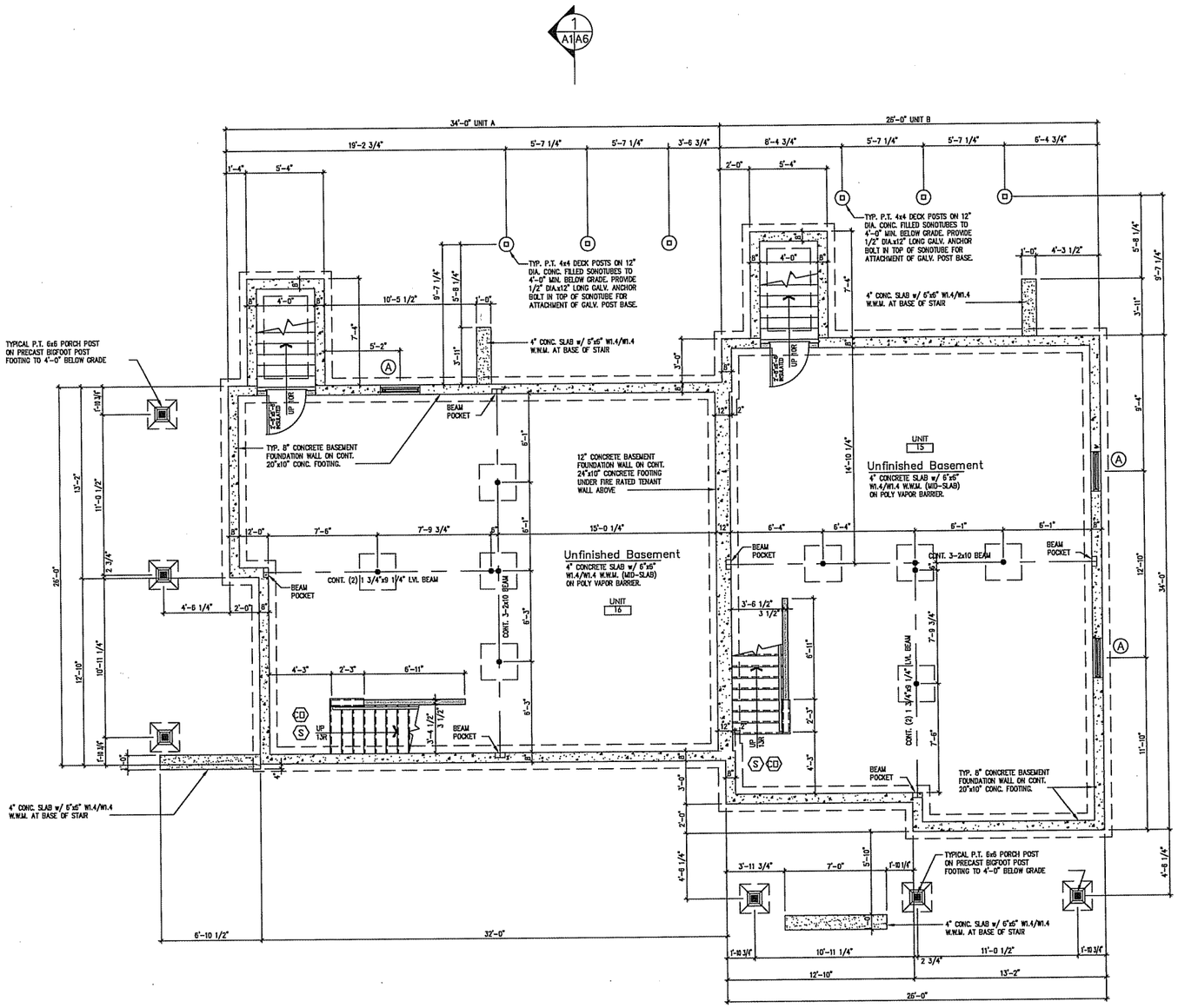
Please contact the Lakeville Fire Department should additional information or clarification be required.

Respectfully submitted,

Michael P. O'Brien

Fire Chief, Lakeville Fire Department

CC: ND / File



2
A1|A7

Gable End Right Configuration
Basement - Foundation Plan SCALE: 1/4" = 1'-0"

Note:

1. ALL CONCRETE (EXCEPT SLABS) TO BE 3000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.
2. ALL CONCRETE FOR SLABS TO BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.
3. ASSUMED MINIMUM BEARING CAPACITY OF EXISTING SOIL IS 1.5 TONS/SQUARE FOOT.
4. COORDINATE ALL FINISH GRADES WITH LATEST ENGINEERED SITE PLAN.
5. ALL DIMENSIONS TAKEN TO FACE OF STUD UNLESS OTHERWISE NOTED.

RECEIVED
FEB 26 2020
BOARD OF APPEALS

PROJECT:
OLD FIELD ESTATES
PAUL TURNER
44-46 RHODE ISLAND RD, UNIT 15 & 16
LAKEVILLE, MA 02347

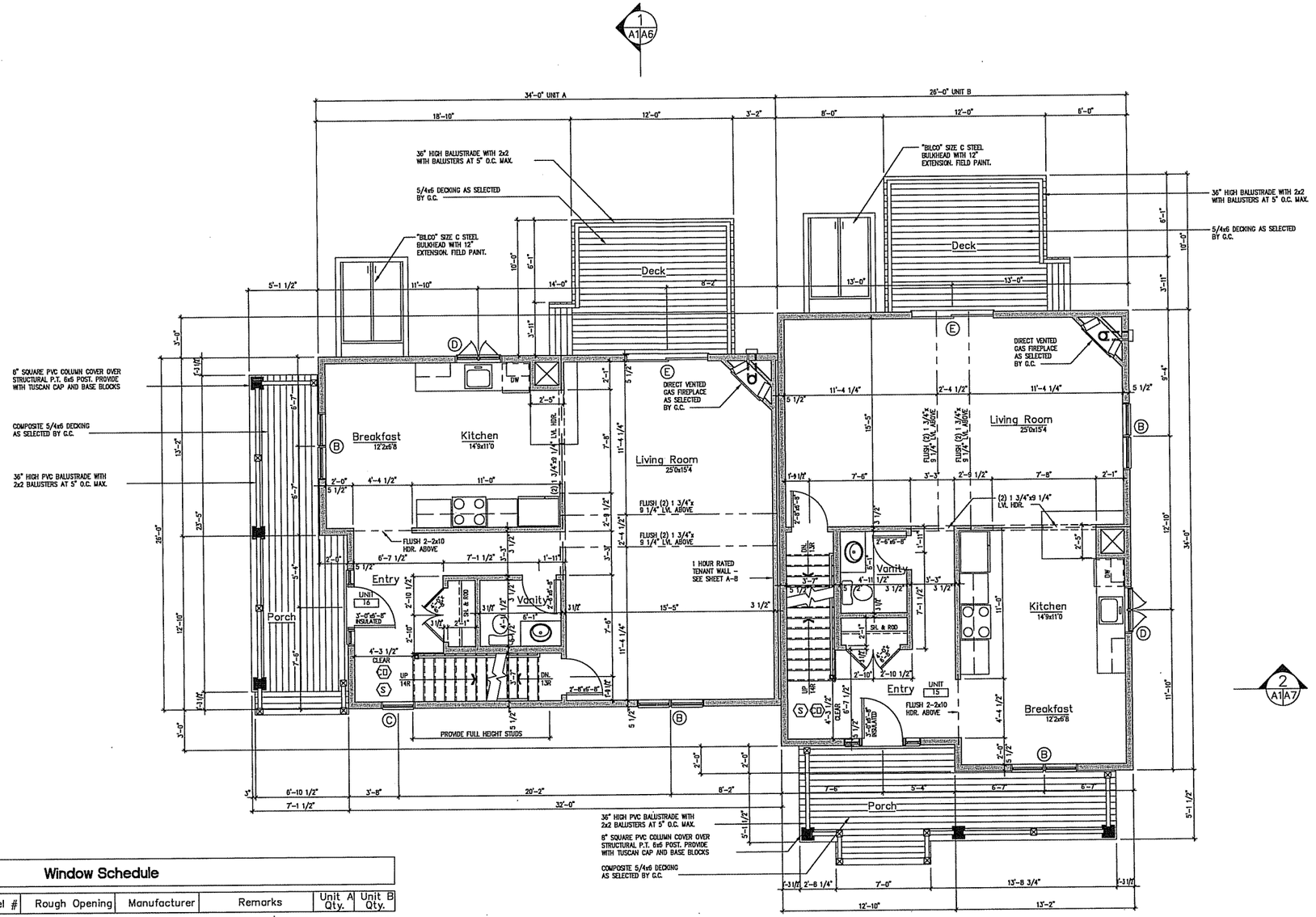
PROJECT NUMBER: 20033

DENNIS COLWELL ARCHITECTS
132 CENTRAL STREET, SUITE 203, FOXBOROUGH, MA 02035
P. 508-241-2122 F. 508-455-4466 WWW.DC-ARCHITECT.COM

STAMP:
REGISTERED ARCHITECT
No. 30215
DENNIS J. COLWELL
FOXBOROUGH
MASSACHUSETTS
COMMONWEALTH OF MASSACHUSETTS

ISSUE:	DATE:
ISSUE FOR PERMIT	02.17.2020

DRAWING SCALE: 1/4" = 1'-0"
DRAWN BY: PJD CHECKED BY: DMC
DRAWING TITLE: FOUNDATION PLAN
DRAWING NUMBER: A1.0



Window Schedule

Mark	Type	Model #	Rough Opening	Manufacturer	Remarks	Unit A Qty.	Unit B Qty.
A	BASEMENT	BW2813	2'-8 1/2" x 1'-3 1/2"	HARVEY		1	2
B	TILT-SASH DH COMBINATION	2446-2	4'-10 1/4" x 4'-9 1/2"	HARVEY	GRILLES BETWEEN THE GLASS	2	2
C	TILT-SASH DOUBLE HUNG	2446	2'-6" x 4'-9 1/2"	HARVEY	GRILLES BETWEEN THE GLASS	1	0
D	VENTING CASEMENT	3636-2	3'-5 3/4" x 3'-6"	HARVEY	GRILLES BETWEEN THE GLASS	1	1
E	SLIDING PATIO DOOR	PD6068	6'-0 1/4" x 6'-8 1/4"	HARVEY	GRILLES BETWEEN THE GLASS	1	1
F	TILT-SASH DH COMBINATION	2442-2	4'-10 1/4" x 4'-5 1/2"	HARVEY	GRILLES BETWEEN THE GLASS	2	1
G	TILT-SASH DH COMBINATION	24310-2	4'-10 1/4" x 4'-1 1/2"	HARVEY	GRILLES BETWEEN THE GLASS	1	1
H	TILT-SASH DOUBLE HUNG	2442	2'-6" x 4'-5 1/2"	HARVEY	GRILLES BETWEEN THE GLASS	3	4

Window Schedule Notes

1. HARVEY VINYL WINDOWS TO BE WHITE AND FURNISHED WITH GRILLES WHERE NOTED.
2. PROVIDE ALL OPERABLE WINDOW UNITS WITH INSECT SCREENS.
3. TYPICAL HARVEY WINDOWS TO BE FURNISHED WITH LOW "E" ARGON FILLED GLASS. WINDOW FRAMES AND SASH TO BE FULLY WELDED. FURNISH WITH FACTORY APPLIED SILL NOSING AND 3" FLAT CASING.
4. ALL WINDOWS TO CONFORM WITH ALL MASSACHUSETTS STATE BUILDING CODE REQUIREMENTS REGARDING EGRESS, SILL HEIGHTS, GLAZING IN HAZARDOUS LOCATIONS (WHERE APPLICABLE), AND IMPACT RESISTANCE TO WINDBORNE DEBRIS (WHERE APPLICABLE).
5. PROVIDE EXTENSION JAMBS FOR ALL WINDOWS INSTALLED IN 2x6 WALLS.

Gable End Right Configuration
First Floor Plan

SCALE: 1/4" = 1'-0"

FIRST FLOOR UNIT LIVING AREA — 858 GSF
FIRST FLOOR BUILDING FOOTPRINT — 1716 GSF

NOTE:

1. G.C. SHALL FIELD VERIFY ALL EXISTING GRADES.
2. ALL DIMENSIONS TAKEN TO FACE OF STUD UNLESS OTHERWISE NOTED.

PROJECT:
OLD FIELD ESTATES
PAUL TURNER
44-46 RHODE ISLAND RD, UNIT 15 & 16
LAKEVILLE, MA 02347

PROJECT NUMBER: 20033

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132 CENTRAL STREET, SUITE 203, FOXBOROUGH, MA 02035
P. 508-241-2122 F. 508-455-4466 WWW.DC-ARCHITECT.COM

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REGISTERED ARCHITECT DENNIS M. COLWELL No. 30815 FOXBOROUGH MASSACHUSETTS COMMONWEALTH OF MASSACHUSETTS

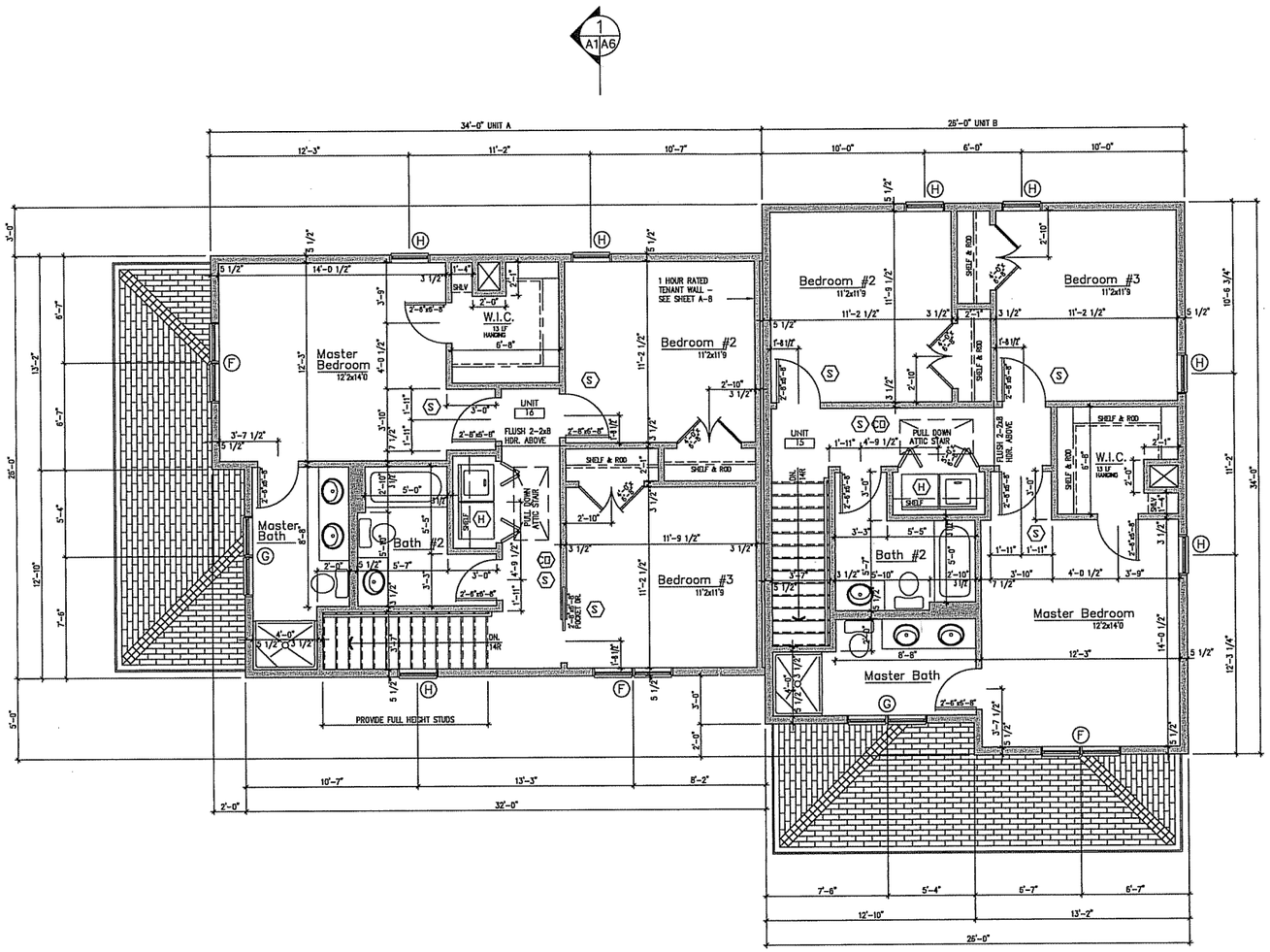
ISSUE:	DATE:
ISSUE FOR PERMIT	02.17.2020

DRAWING SCALE: 1/4" = 1'-0"

DRAWN BY: PJD | CHECKED BY: DMC

DRAWING TITLE:
FIRST FLOOR PLAN

DRAWING NUMBER:
A1.1



1 A1 A6

2 A1 A7

Gable End Right Configuration
Second Floor Plan SCALE: 1/4" = 1'-0"

SECOND FLOOR LIVING AREA ——— 858 GSF
SECOND FLOOR BUILDING FOOTPRINT ——— 1716 GSF

NOTE:

1. ALL DIMENSIONS TAKEN TO FACE OF STUD UNLESS OTHERWISE NOTED.

PROJECT:
OLD FIELD ESTATES
PAUL TURNER
44-46 RHODE ISLAND RD, UNIT 15 & 16
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No. 30218
FOXBOROUGH
MASSACHUSETTS
COMMONWEALTH OF MASSACHUSETTS

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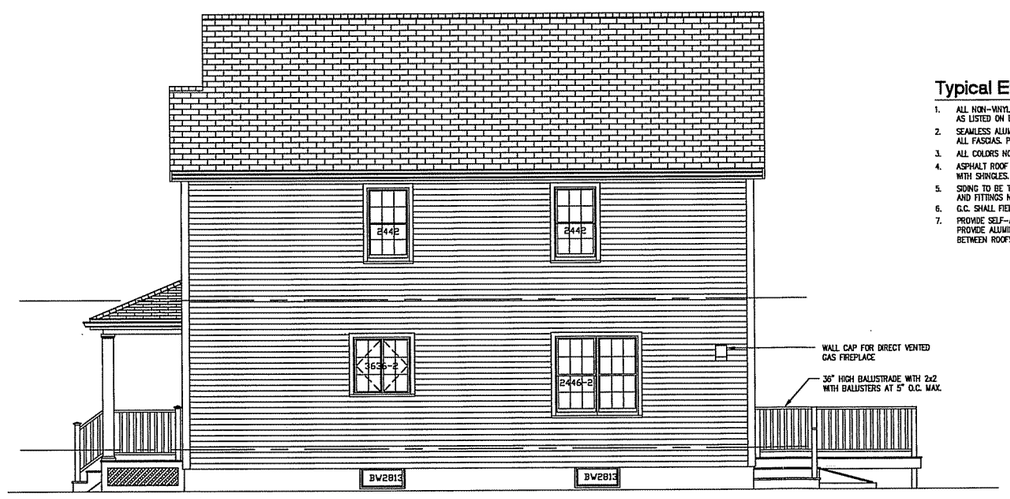
DRAWING SCALE: 1/4" = 1'-0"
DRAWN BY: PJD CHECKED BY: DMC

DRAWING TITLE:
SECOND FLOOR PLAN

DRAWING NUMBER:
A1.2

Gable End Right Configuration
Front Elevation SCALE: 1/4" = 1'-0"



Gable End Right Configuration
Right Side Elevation SCALE: 1/4" = 1'-0"

Typical Elevation Notes

1. ALL NON-VINYL TRIM (FASCIAS, RAKES, FRIEZE BOARDS, ETC.) TO BE UTILITY GRADE PINE OF SIZES AS LISTED ON DRAWINGS AND WRAPPED WITH PREFINISHED ALUMINUM COIL STOCK.
2. SEAMLESS ALUMINUM CUTTERS & DOWNSPOUTS (NOT SHOWN FOR CLARITY) TO BE PROVIDED AT ALL FASCIAS. PROFILE & COLOR TO BE AS SELECTED BY G.C.
3. ALL COLORS NOT OTHERWISE SPECIFIED SHALL BE AS SELECTED BY G.C.
4. ASPHALT ROOF SHINGLES TO HAVE MINIMUM 30 YEAR WARRANTY. RIDGE VENTS TO BE CAPPED WITH SHINGLES. SHINGLE COLOR TO BE AS SELECTED BY G.C..
5. SIDING TO BE TRIPLE 4" VINYL SIDING PANELS. FURNISH WITH ALL CHANNELS, FLASHINGS AND FITTINGS NECESSARY FOR A COMPLETE INSTALLATION.
6. G.C. SHALL FIELD VERIFY ALL GRADES AND EXISTING SITE CONDITIONS.
7. PROVIDE SELF-ADHESIVE MEMBRANE FLASHING AT ALL ROOF VALLEYS (W.R. GRACE OR EQUAL). PROVIDE ALUMINUM STEP FLASHING OVER SELF-ADHESIVE MEMBRANE FLASHING AT INTERSECTIONS BETWEEN ROOFS AND WALLS.

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OLD FIELD ESTATES
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44-46 RHODE ISLAND RD, UNIT 15 & 16
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ISSUE:	DATE:
ISSUE FOR PERMIT	02.17.2020

DRAWING SCALE: 1/4" = 1'-0"
DRAWN BY: PJD CHECKED BY: DMC

DRAWING TITLE:
ELEVATIONS

DRAWING NUMBER:
A2.0

Gable End Right Configuration
Rear Elevation SCALE: 1/4" = 1'-0"

SEE SHEET A-4 FOR TYPICAL ELEVATION NOTES AND REPETITIVE INFORMATION

Gable End Right Configuration
Left Side Elevation SCALE: 1/4" = 1'-0"

SEE SHEET A-4 FOR TYPICAL ELEVATION NOTES AND REPETITIVE INFORMATION

PROJECT:
OLD FIELD ESTATES
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MASSACHUSETTS
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DRAWING SCALE: 1/4" = 1'-0"

DRAWN BY: PJD CHECKED BY: DMC

DRAWING TITLE:
ELEVATIONS

DRAWING NUMBER:
A2.1

Structural Lumber Notes

1. ALL JOIST LOCATIONS SHOWN ARE DIAGRAMMATIC ONLY. EXACT LOCATIONS TO BE DETERMINED IN FIELD.
2. PROVIDE DOUBLE FLOOR JOISTS UNDER ALL BEARING PARTITIONS EXCEEDING 6' IN LENGTH THAT RUN PARALLEL TO JOISTS (EXCEPT PLUMBING WALLS).
3. PROVIDE GALV. STEEL JOIST HANGERS AT ALL FLUSH FRAMING CONDITIONS.
4. ALL STRUCTURAL LUMBER EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED.
5. FLOOR JOISTS, RAFTERS, HEADERS, & CEILING JOISTS TO BE #2 OR BETTER SPUCE-PINE-FIR
6. PRESSURE TREATED LUMBER TO BE ACQ SOUTHERN YELLOW PINE. CONNECTORS & FASTENERS TO BE APPROVED FOR ACQ CONTACT.
7. DIMENSIONAL LUMBER BUILT-UP BEAMS TO BE #1 HEM-FIR
8. L.V.L. BUILT-UP BEAMS TO BE LAMINATED VENEER LUMBER, Fb = 3100, E = 2,000,000
9. PROVIDE "SIMPSON" LCC SERIES LALLY COLUMN CAPS FOR ALL LALLY COLUMNS SUPPORTING BUILT-UP LVL OR SOLID SAWN BEAMS.
10. NAILING SCHEDULES, HANGERS, AND BEARING REQUIREMENTS FOR ENGINEERED LUMBER SHALL BE AS PER MANUFACTURER'S DETAILS AND REQUIREMENTS.
11. DOUBLE ALL VALLEY RAFTERS AND COMMON RAFTERS FLANKING DORMERS.
12. ALL FRAMING METHODS AND NAILING SCHEDULES SHALL COMPLY WITH THE LATEST EDITION OF THE WOOD FRAME CONSTRUCTION MANUAL GUIDE TO WOOD CONSTRUCTION IN HIGH WIND AREAS FOR ONE AND TWO FAMILY DWELLINGS, 110 MPH, EXPOSURE B.

King and Jack Studs at Openings

PATIO DOOR AND MULLED WINDOW OPENINGS — 3 KING STUDS, 2 JACK STUDS
SINGLE WINDOW AND DOOR OPENINGS — 2 KING STUDS, 1 JACK STUD

Ceiling Insulation Note:

AT ALL INSULATED CEILING CONDITIONS THE INSULATION SHALL BE IN DIRECT CONTACT WITH THE BACK SIDE OF THE CEILING FINISH. TO ESTABLISH CONTACT, INSULATE WITH LOOSE FILL CELLULOSE OR SPRAY FOAM (WHERE REQ'D.) IF FIBERGLASS BATTS ARE USED THE CEILING FINISH SHALL BE APPLIED DIRECTLY TO THE CEILING JOISTS (DELETE STRAPPING).

Floor Framing Blocking Note:

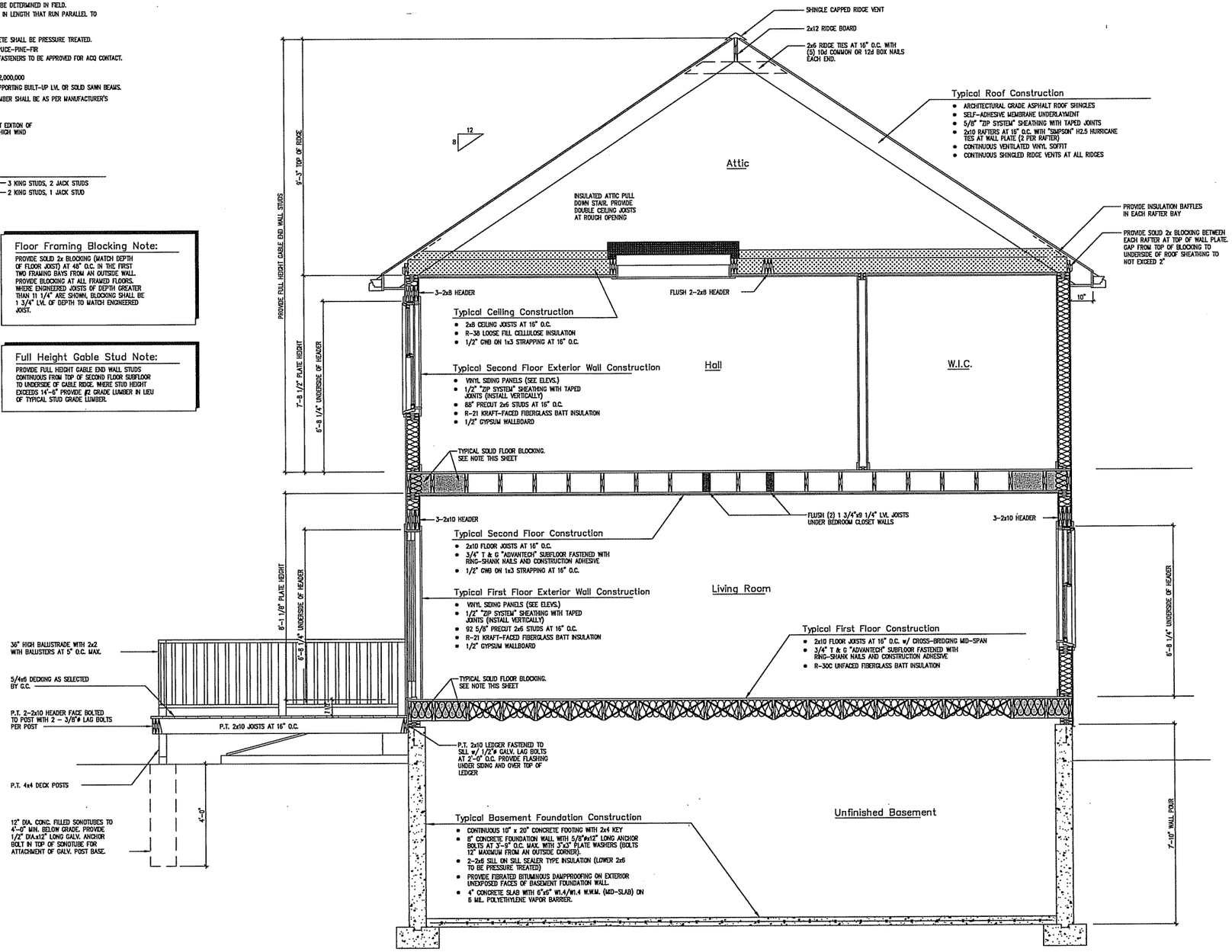
PROVIDE SOLID 2x BLOCKING (MATCH DEPTH OF FLOOR JOIST) AT 48" O.C. IN THE FIRST TWO FRAMING BAYS FROM AN OUTSIDE WALL. PROVIDE BLOCKING AT ALL FRAMED FLOORS. WHERE ENGINEERED JOISTS OF DEPTH GREATER THAN 11 1/4" ARE SHOWN, BLOCKING SHALL BE 1 3/4" LVL OF DEPTH TO MATCH ENGINEERED JOIST.

Wall Framing Blocking Note:

PROVIDE SOLID 2x BLOCKING (ON THE FLAT) AT ALL HORIZONTAL WALL SHEATHING JOINTS THAT DO NOT END AT SOLID FRAMING. PROVIDE THIS BLOCKING AT ALL JOINTS WITHIN 4'-0" OF AN OUTSIDE CORNER.

Full Height Gable Stud Note:

PROVIDE FULL HEIGHT GABLE END WALL STUDS CONTINUOUS FROM TOP OF SECOND FLOOR SUBFLOOR TO UNDERSIDE OF GABLE RIDGE. WHERE STUD HEIGHT EXCEEDS 14'-6" PROVIDE #2 GRADE LUMBER IN LIEU OF TYPICAL STUD GRADE LUMBER.



1 / A1A6 **Building Section** SCALE: 1/2" = 1'-0"

NOTE: ORIENTATION VARIES WITH BUILDING CONFIGURATION. SEE FLOOR PLANS.

PROJECT:
OLD FIELD ESTATES
PAUL TURNER
44-46 RHODE ISLAND RD, UNIT 15 & 16
LAKEVILLE, MA 02347

PROJECT NUMBER: 20033

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132 CENTRAL STREET, SUITE 203, FOXBOROUGH, MA 02035
P. 508-241-2122 F. 508-455-4466 WWW.DC-ARCHITECT.COM

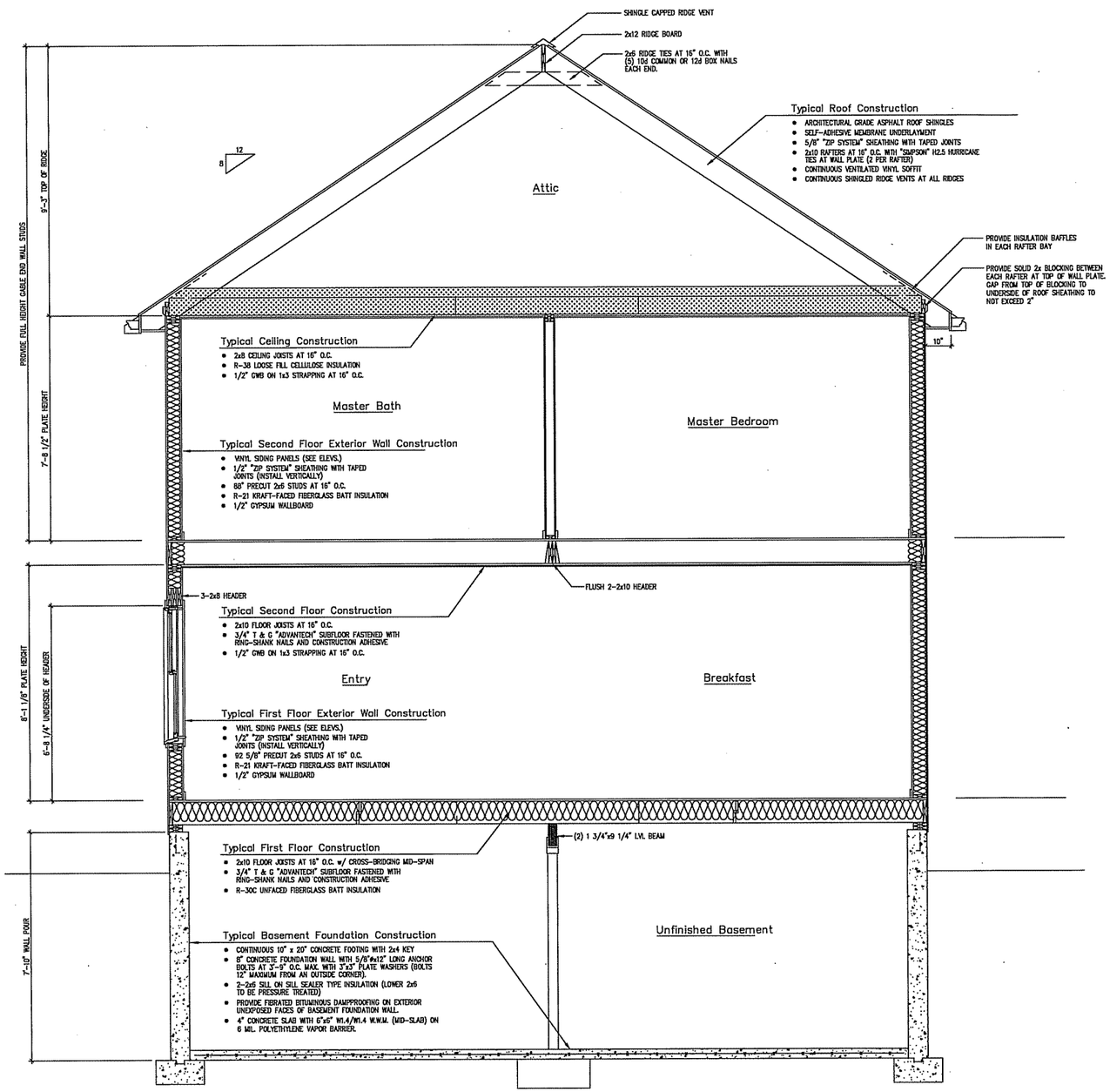
STAMP:
REGISTERED ARCHITECT DENNIS M. COLWELL No. 50218 FOXBOROUGH MASSACHUSETTS COMMONWEALTH OF MASSACHUSETTS

ISSUE:	DATE:
ISSUE FOR PERMIT	02.17.2020

DRAWING SCALE: 1/4" = 1'-0"
DRAWN BY: PJD CHECKED BY: DMC

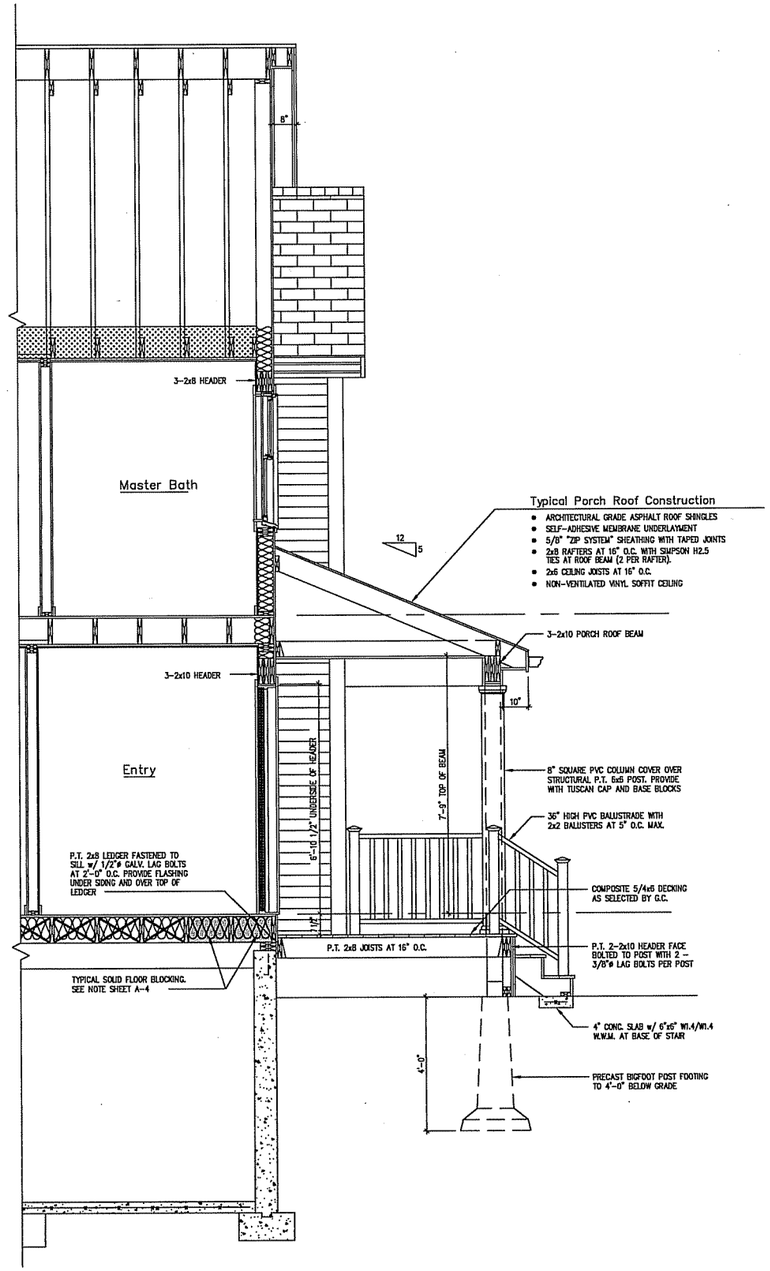
DRAWING TITLE:
BUILDING SECTIONS

DRAWING NUMBER:
A3.0



2 / A1|A7 **Building Section** SCALE: 1/2" = 1'-0"

NOTE: ORIENTATION VARIES WITH BUILDING CONFIGURATION. SEE FLOOR PLANS.
SEE SECTION 1/A1/A6 FOR STRUCTURAL LUMBER NOTES AND REPETITIVE INFORMATION



Porch Section SCALE: 1/2" = 1'-0"

PROJECT:
OLD FIELD ESTATES
PAUL TURNER
44-46 RHODE ISLAND RD, UNIT 15 & 16
LAKEVILLE, MA 02347

PROJECT NUMBER: 20033

DENNIS COLWELL ARCHITECTS
132 CENTRAL STREET, SUITE 203, FOXBOROUGH, MA 02035
P. 508-241-2122 F. 508-455-4466 WWW.DC-ARCHITECT.COM

STAMP:

REGISTERED ARCHITECT DENNIS M. COLWELL No 30218 FOXBOROUGH MASSACHUSETTS COMMONWEALTH OF MASSACHUSETTS

ISSUE:	DATE:
ISSUE FOR PERMIT	02.17.2020

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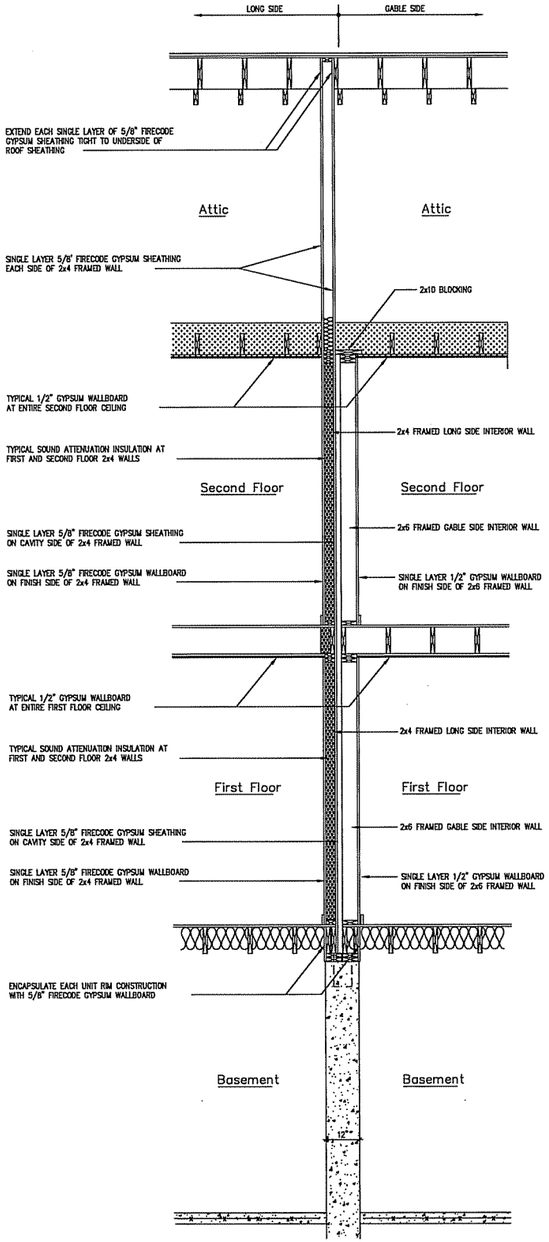
DRAWN BY: PJD CHECKED BY: DMC

DRAWING TITLE:
BUILDING SECTIONS

DRAWING NUMBER:
A3.1



Section thru 1 Hour Fire-Rated Tenant Separation Wall

SCALE: 1/2" = 1'-0"

ALL FIRE-RATED GYPSUM PANELS TO RUN CONTINUOUS FROM FOUNDATION TO TIGHT TO UNDERSIDE OF ROOF SHEATHING. SPACE ALL ADJACENT FRAMING MEMBERS 3/4" TO ALLOW INSERTION OF 5/8" THICK PANELS. ALL FIRE-RATED GYPSUM PANELS SHALL ALSO CONTINUE INTO PERPENDICULAR EXTERIOR WALL INTERSECTIONS AND EXTEND TIGHT TO INTERIOR FACE OF EXTERIOR WALL SHEATHING.

Connector Schedule

Application – Location	Model Number	Manufacturer	Fasteners	Remarks
PORCH POST BASE	ABA66	SIMPSON	8 – 10d 1/2" DIA. BOLT	
PORCH POST CAP	BC6	SIMPSON	6 – 16d BEAM 6 – 16d POST	
DECK POST BASE	AB44	SIMPSON	8 – 10d 1/2" DIA. BOLT	
PORCH & DECK FLOOR JOIST HANGERS	LUS28	SIMPSON	6 – 10d HEADER 4 – 10d JOIST	
TYPICAL RAFTER HURRICANE TIES	H2.5	SIMPSON	5 – 8d PLATE 5 – 8d RAFTER	2 PER RAFTER AT PLATE (1 EACH SIDE)
KING & JACK STUD HURRICANE TIES	H4	SIMPSON	4 – 8d PLATE 4 – 8d STUD	INTERIOR SIDE TOP & BOTTOM SLIDER & O.H. DOOR OPENINGS
TYP. OVERFRAME RAFTER HURRICANE TIES	H3	SIMPSON	4 – 8d CLEAT 4 – 8d RAFTER	1 PER RAFTER AT CLEAT

General Nailing Schedule – 110 MPH Exposure B Wind Zone

Joint Description	Number of Common Nails	Number of Box Nails	Nail Spacing
Roof Framing			
BLOCKING TO RAFTER (TOE-NAILED)	(2) – 8d	(2) – 10d	EACH END
RIM BOARD TO RAFTER (END NAILED)	(2) – 16d	(3) – 16d	EACH END
Wall Framing			
TOP PLATES AT INTERSECTIONS (FACE-NAILED)	(4) – 16d	(5) – 16d	AT JOINTS
STUD TO STUD (FACE-NAILED)	(2) – 16d	(2) – 16d	24" O.C.
HEADER TO HEADER (FACE-NAILED)	16d	16d	16" O.C. ALONG EDGES
Floor Framing			
JOIST TO SILL, TOP PLATE OR GIRDER (TOE-NAILED)	(4) – 8d	(4) – 10d	PER JOIST
BLOCKING TO JOIST (TOE-NAILED)	(2) – 8d	(2) – 10d	EACH END
BLOCKING TO SILL OR TOP PLATE (TOE-NAILED)	(3) – 16d	(4) – 16d	EACH BLOCK
LEDGER TO BEAM OR GIRDER (FACE-NAILED)	(3) – 16d	(4) – 16d	EACH JOIST
JOIST ON LEDGER TO BEAM (TOE-NAILED)	(3) – 8d	(3) – 10d	PER JOIST
BAND JOIST TO JOIST (END-NAILED)	(3) – 16d	(4) – 16d	PER JOIST
BAND JOIST TO SILL OR TOP PLATE (TOE-NAILED)	(2) – 16d	(2) – 16d	PER FOOT
Roof Sheathing – Wood Structural Panels			
RAFTERS OF TRUSSES SPACED UP TO 16" O.C.	8d	10d	6" EDGE / 6" FIELD
RAFTERS OF TRUSSES SPACED OVER 16" O.C.	8d	10d	4" EDGE / 4" FIELD
GABLE ENDWALL RAKE OR RAKE TRUSS WITHOUT GABLE OVERHANG	8d	10d	6" EDGE / 6" FIELD
GABLE ENDWALL RAKE OR RAKE TRUSS WITH STRUCTURAL OUTLOOKERS	8d	10d	6" EDGE / 6" FIELD
GABLE ENDWALL RAKE OR RAKE TRUSS WITH LOOKOUT BLOCKS	8d	10d	4" EDGE / 4" FIELD
Ceiling Sheathing			
GYPSUM WALLBOARD	5d COOLERS	————	7" EDGE / 10" FIELD
Wall Sheathing			
WOOD STRUCTURAL PANELS – STUDS SPACED UP TO 24" O.C.	8d	10d	6" EDGE / 12" FIELD
1/2" AND 25/32" FIBERBOARD PANELS	8d	————	3" EDGE / 6" FIELD
1/2" GYPSUM WALLBOARD	5d COOLERS	————	7" EDGE / 10" FIELD
Floor Sheathing – Wood Structural Panels			
1" OR LESS	8d	10d	6" EDGE / 12" FIELD
GREATER THAN 1"	10d	16d	6" EDGE / 6" FIELD

PROJECT:
OLD FIELD ESTATES
PAUL TURNER
44-46 RHODE ISLAND RD, UNIT 15 & 16
LAKEVILLE, MA 02347

PROJECT NUMBER: 20033

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STAMP:
REGISTERED ARCHITECT
DENNIS COLWELL
No. 50015
FOXBOROUGH MASSACHUSETTS
COMMONWEALTH OF MASSACHUSETTS

ISSUE:	DATE:
ISSUE FOR PERMIT	02.17.2020

DRAWING SCALE: 1/4" = 1'-0"

DRAWN BY: PJD CHECKED BY: DMC

DRAWING TITLE:
SCHEDULES AND DETAILS

DRAWING NUMBER:
A3.2

HML ASSOCIATES

Geotechnical and Civil Engineers

19 Rockwood Road
Hingham, MA 02043
(Phone/Fax) 781-740-9999

February 27, 2020

TO: Lakeville Zoning Board of Appeals
Mr. Don Foster, Chairman

FROM: Nicholas Lanney, P.E.

RE: Review of Old Field Estates 40B Site Plan
44 and 46 Rhode Island Road

We have reviewed the site plans dated February 20, 2020 by Zenith Consulting Engineers for development of 44 to 46 Rhode Island Road into 16 - 3-bedroom homes under a comprehensive permit. The revisions were made in response to our comments of February 14, 2020.

We have noted in bold/black the plan revisions which addressed our comments and for which we have no further comment and in red where we feel the comment was not addressed.

1. The plans call for 2:1 slope to the east of the proposed cul-de-sac starting at CB 2 and continuing around the cul-de-sac to the driveway for Unit 13 and then around that driveway. The slope will be stabilized with loam and seed.

   - No shoulder is provided between the back of the Cape Cod berm and the start of the slope nor is any guard rail provided. This is a safety concern. ***Guard rail added to plan.***
   - The Planning Board's rules and regulations require that slopes steeper than 3:1 be stabilized with riprap and we recommend that the proposed 2:1 slope be stabilized in this manner. ***Plan now calls for stabilizing slope with rip-rap***

2. Provide a fence on top of the proposed retaining wall adjacent to Infiltration Basin 1. ***Fence added to plan.***

3. Because the proposed road is only 20 feet wide, we recommend a 4 foot wide sidewalk on the east side of the road starting at the bus stop and terminating at the beginning of the cul-de-sac. *Given the narrowness of the road and the 14 homes using the road a sidewalk for children and parents to access the bus stop is appropriate.*

4. Because the proposed road is only 20 feet wide, we recommend providing a turnoff where the proposed mailbox will be located or relocate the mailbox to a more central location within the project limits. ***Mailboxes were relocated to cul-de-sac at the request of the postmaster.***

5. No fire hydrants are shown on the site plans. Meet with fire chief and provide fire hydrants at locations designated by the fire chief. ***Hydrant added at end of cul-de-sac at the request of Taunton Water Department for flushing.***

6. Proposed grading south of Unit 8 appears to be incorrect. The proposed elevation along the property line is el. 100 but the existing grades at the property line vary between 100 and 104 feet. ***Retaining wall added and grading revised.***

7. Provide details for the emergency spillway and inlet to the infiltration basins. ***Details added to Detail Sheet 3.***

8. Will the street lighting shown on Sheet V1, Landscaping Plan, be owned and maintained by the individual homeowners or the condo association? ***Lighting will be owned and maintained by individual homeowners.***

9. There is an existing fire hydrant on the south side of Rhode Island Road opposite UP 24. The hydrant is not shown on the site plans. The fire hydrant is only a few feet west of the edge of the Old Field Road. The current hydrant location should be reviewed by the Fire Chief to determine if the hydrant should be relocated. ***Hydrant now shown on plans and there is no conflict with site entrance.***

10. Test pit locations in test pit logs for the infiltration basins need to be included on the plans. Final approval of the stormwater management system cannot be made until this information is reviewed. ***Test pits were performed and test pit logs added to Detail Sheet 1. Soils encountered in the test pits were consistent with soil types and groundwater elevations used in drainage analysis.***

11. The existing condition plan show the topography at the northeast corner of the lot along Rhode Island Road is flat, but it is in fact elevated 4 to 5 feet above the road and may be a site distance problem for backing out of Lot 16. ***Driveway relocated 10 feet west to increase site distance. It will also be necessary to remove existing trees and regrade along westerly property line.***

Please feel free to contact if you have any questions or require additional information.

cc: Robert Forbes ZCE

MEMORANDUM

TO: c/o Mr. Paul E. Turner
Paul E. Turner Corporation
P.O. Box 833
Lakeville, MA 02347

FROM: Mr. Jeffrey S. Dirk, P.E., PTOE, FITE JSD
Partner
Vanasse & Associates, Inc.
35 New England Business Center Drive
Suite 140
Andover, MA 01810
(978) 269-6830
jdirk@rdva.com
Professional Engineer in CT, MA, ME, NH, RI and VA

DATE: March 23, 2020

RE: 8568

SUBJECT: Transportation Impact Assessment
Old Field Estates – 44 and 46 Rhode Island Road (Route 79)
Lakeville, Massachusetts

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a 16-unit multifamily residential community to be known as Old Field Estates and located at 44 and 46 Rhode Island Road (Route 79) in Lakeville, Massachusetts (hereafter referred to as the "Project"). This assessment evaluates the following specific areas as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; and identifies and analyzes existing traffic conditions and future traffic conditions, both with and without the Project along Road Island Road.

This assessment was performed in consultation with the Town of Lakeville and the Massachusetts Department of Transportation (MassDOT), and was conducted in general accordance with the MassDOT *Transportation Impact Assessment (TIA) Guidelines*. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the Institute of Transportation Engineers (ITE),[1] the Project is expected to generate approximately 80 vehicle trips on an average weekday (two-way, 24-hour volume), with 8 vehicle trips expected during the weekday morning peak-hour and 12 vehicle trips expected during the weekday evening peak-hour;

2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), with traffic volume increases outside of the immediate proximity of the Project site predicted to be less than one (1) added vehicle every 10 minutes during the peak hours;

---

[1] *Trip Generation*, 10th Edition; Institute of Transportation Engineers; Washington, DC; 2017.

3. All movements at the Project site roadway intersection with Rhode Island Road were shown to operate at a level-of-service (LOS) B or better during the peak hours with negligible vehicle queuing, where an LOS of "D" or better is defined as acceptable traffic operations;

4. No apparent safety deficiencies were noted with respect to the motor vehicle crash history along Rhode Island Road in the vicinity of the Project site; and

5. Lines of sight at the Project site roadway intersection with Rhode Island Road were found to exceed or could be made to meet or exceed the recommended minimum distance for safe operation based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

PROJECT DESCRIPTION

The Project will entail the construction of a 16-unit multifamily residential community to be known as Old Field Estates and located at 44 and 46 Rhode Island Road (Route 79) in Lakeville, Massachusetts. The Project site encompasses approximately 3.2± acres of land that is generally bounded by Rhode Island Road to the north and residential properties and areas of open and wooded space to the south, east and west. Figure 1 depicts the Project site location in relation to the existing roadway network. At present, the Project site contains areas of open and wooded space.

Access to the Project site will be provided as follows: two (2) units will be served by individual driveways that will intersect the south side of the Rhode Island Road approximately 350 feet west of Haskell Circle, with the remaining 14-units access by way of a new roadway that will intersect the south side of Rhode Island Road approximately 525 feet west of Haskell Circle. Off-street parking will be provided for a minimum of two (2) vehicles per unit in individual driveways, which complies with parking requirements for a residential use as specified in Section 6.5, *Access, Parking and Loading*, of the Lakeville Zoning By-Law.

EXISTING CONDITIONS CONTEXT

In order to establish the existing conditions context of the Project with respect to the transportation infrastructure, a comprehensive field inventory of existing conditions was conducted in March 2020. The field investigation consisted of an inventory of existing roadway geometrics; pedestrian and bicycle facilities; traffic volumes; and operating characteristics; as well as posted speed limits and land use information within the study area. The study area that was assessed for the Project consisted of Rhode Island Road in the vicinity of the Project site. The following summarizes existing conditions within the study area.

Roadway

Rhode Island Road (Route 79)

Rhode Island Road (Route 79) is a two-lane urban minor arterial roadway under Town jurisdiction that traverses the study area in a general east-west direction. In the vicinity of the Project site,

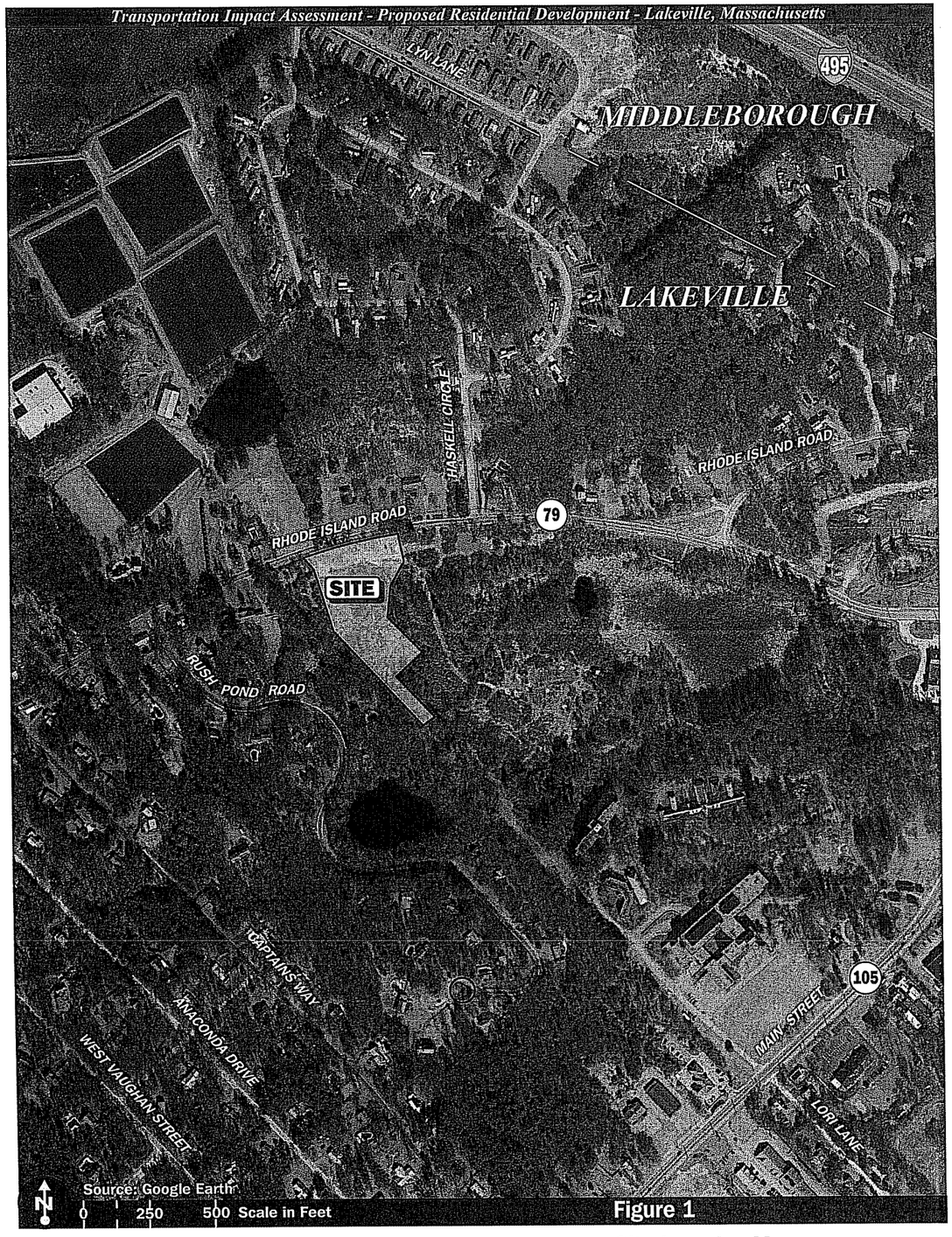

Figure 1

Site Location Map

Vanasse & Associates inc

Rhode Island Road provides two 11 to 12-foot wide travel lanes separated by a double-yellow centerline with no marked shoulders, sidewalks or illumination provided along the roadway. The posted speed limit along Rhode Island Road is 35 miles per hour (mph). Land use along Rhode Island Road consists of the Project site, residential properties, and areas of open and wooden space.

Traffic Volumes

In order to determine existing traffic-volume demands and flow patterns within the study area, automatic traffic recorder (ATR) counts were completed in March 2020. The ATR counts were conducted on Rhode Island Road in the vicinity of the Project site over a continuous 48-hour period from Tuesday, March 10th through Wednesday, March 11th, inclusive, in order to record weekday traffic conditions over an extended period.

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, traffic volume data from MassDOT Continuous Count Station No. 7111 located on Interstate-495 (I-495) south of Route 44 in Middleborough were reviewed.[2] Based on a review of this data, it was determined that traffic volumes for the month of March are approximately 22 percent below average-month conditions. As such, the raw traffic count data was adjusted upward accordingly in order to be representative of average-month conditions.

Based on a review of the traffic count data, Rhode Island Road in the vicinity of the Project site accommodates approximately 6,080 vehicles per day on an average weekday under average-month conditions, with approximately 458 vehicles per hour (vph) during the weekday morning peak-hour (6:00 to 7:00 AM), 641 vph during the weekday evening peak-hour (2:00 to 3:00 PM). The 2020 Existing weekday morning, weekday evening peak-hour traffic volumes are graphically depicted on Figure 2.

Pedestrian and Bicycle Accommodations

Sidewalks and formal bicycle facilities were not identified within the immediate study area and Rhode Island Road does not provide sufficient width (combined travel lane and shoulder) to support bicycle travel in a shared travel-way configuration (i.e., motor vehicles and bicyclists sharing the roadway).[3]

Public Transportation

Public transportation services are provided within the Town of Lakeville by the Massachusetts Bay Transportation Authority (MBTA) (Commuter Rail service on the Middleborough/Lakeville Line) and the Greater Attleboro Taunton Regional Transit Authority (GATRA) (fixed-route bus service), but are not available to the Project site or along Rhode Island Road. The Middleborough/Lakeville Commuter Rail Station is located at 125 Commercial Drive in Lakeville (an approximate 3 minute driving distance of the Project site), from which commuter rail service is provided to South Station in Boston. In addition, connections can be made to the GATRA Train Connector bus route which provides service from the Middleborough/Lakeville Commuter Rail Station to Middleboro, Wareham and Onset along Route 28.

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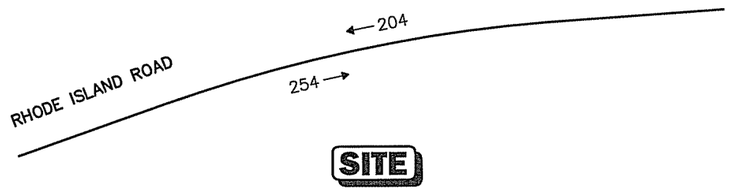
[2]MassDOT Traffic Volumes for the Commonwealth of Massachusetts; 2020.
[3]A minimum combined travel lane and paved shoulder width of 14-feet is required to support bicycle travel in a shared traveled-way condition.

WEEKDAY MORNING PEAK HOUR (6:00 - 7:00 AM)



WEEKDAY EVENING PEAK HOUR (2:00- 3:00 PM)

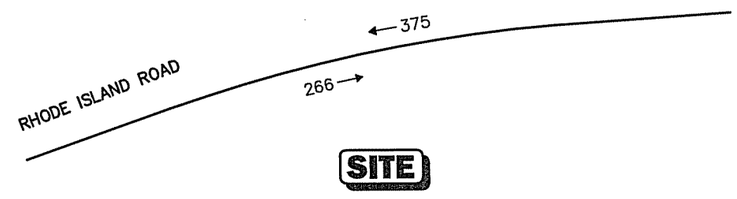


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Figure 2

2020 Existing
Peak Hour Traffic Volumes

Vanasse & Associates inc

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Spot Speed Measurements

Vehicle travel speed measurements were performed on Rhode Island Road in the vicinity of the Project site in conjunction with the ATR counts. Table 1 summarizes the vehicle travel speed measurements.

Table 1
VEHICLE TRAVEL SPEED MEASUREMENTS

	Eastbound	Westbound
Mean Travel Speed (mph)	39	37
85th Percentile Speed (mph)	44	42
Posted Speed (mph)	35	35

mph = miles per hour.

As can be seen in Table 1, the mean vehicle travel speed along Rhode Island Road in the vicinity of the Project site was found to be 39 mph in the eastbound direction and 37 mph westbound. The measured 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be 44 mph in the eastbound direction and 42 mph westbound, which is 7 to 9 mph above the posted speed (35 mph). The 85th percentile speed is used as the basis of engineering design and in the evaluation of sight distances, and is often used in establishing posted speed limits.

Motor Vehicle Crash Data

Motor vehicle crash information for Rhode Island Road in the vicinity of the Project site was provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the most recent five-year period available (2013 through 2017, inclusive) in order to examine motor vehicle crash trends occurring within the study area. Based on a review of this data, four (4) motor vehicle crashes were reported to have occurred along the Rhode Island Road in the vicinity of the Project site (within 500-feet of the Project site roadway) over the five-year review period. The calculated motor vehicle crash rate for the roadway segment was found to be below the MassDOT average crash rate for an urban minor arterial, the MassDOT functional classification for Rhode Island Road. A review of the MassDOT statewide High Crash Location List indicated that there are no locations within the study area that are included on MassDOT's Highway Safety Improvement Program (HSIP) listing as high crash locations.

The detailed MassDOT Crash Rate Worksheet is provided in the Appendix.

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2027, which reflects a seven-year planning horizon consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. Independent of the Project, traffic volumes on the roadway network in the year 2027 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2027 No-Build traffic volumes reflect 2027 Build traffic volume conditions with the Project.

Future Traffic Growth

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Town of Lakeville Planning Board was contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes along Rhode Island Road. Based on this consultation, no developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate (discussion follows).

General Background Traffic Growth

Traffic-volume data compiled by MassDOT from permanent count stations located on I-495 south of Route 44 in Middleborough were reviewed[4] in order to ascertain historic traffic growth trends within the study area. This data indicates that traffic volumes have fluctuated over the past several years, with the average growth rate found to be approximately 1.43 percent per year. In order to provide a prudent planning condition for the Project, a slightly higher 1.5 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

[4]Ibid 2.

Roadway Improvement Projects

The Town of Lakeville and MassDOT were contacted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2027 within the study area. Based on these discussions, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

No-Build Traffic Volumes

The 2027 No-Build condition peak-hour traffic-volumes were developed by applying the 1.5 percent per year compounded annual background traffic growth rate to the 2020 Existing peak-hour traffic volumes. The resulting 2027 No-Build weekday morning and evening peak-hour traffic volumes are shown on Figure 3.

PROJECT-GENERATED TRAFFIC

Design year (2027 Build) traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As proposed, the Project will entail the construction of a of 16-unit multifamily residential community. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the ITE[5] for a similar land use as that proposed were used. ITE Land Use Code (LUC) 220, *Multifamily Housing (Low-Rise)*, was used to develop the traffic characteristics of the Project. Table 2 summarizes the trip-generation calculations for the Project using the above methodology.

Table 2
TRIP GENERATION SUMMARY

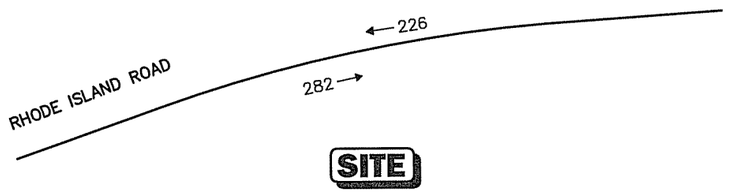
Time Period	Vehicle Trips		
	Entering	Exiting	Total
Average Weekday:	40	40	80
Weekday Morning Peak-Hour:	2	6	8
Weekday Evening Peak-Hour:	8	4	12

[a]Based on ITE LUC 220, *Multifamily Housing (Low-Rise)*

As can be seen in Table 2, the Project is expected to generate approximately 80 vehicle trips on an average weekday (two-way, 24-hour volume, or 40 vehicles entering and 40 exiting), with 8 vehicle trips (2 vehicles entering and 6 exiting) expected during the weekday morning peak-hour, and 12 vehicle trips (8 vehicles entering and 4 exiting) expected during the weekday evening peak-hour.

[5]Ibid 1.

WEEKDAY MORNING PEAK HOUR (6:00 - 7:00 AM)



WEEKDAY EVENING PEAK HOUR (2:00- 3:00 PM)

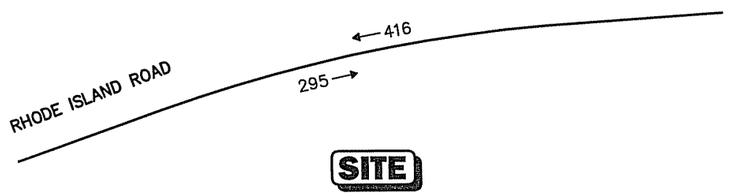


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Figure 3

2027 No-Build
Peak Hour Traffic Volumes

Vanasse & Associates inc

Trip Distribution and Assignment

The directional distribution of generated trips to and from the Project site is expected to be consistent with the existing traffic patterns within the study area during the peak periods given the nature of the abutting land use along Rhode Island Road (residential). The general trip distribution for the Project is graphically depicted on Figure 4, with the additional traffic that is expected to be generated by the Project assigned on the study area roadway network as shown on Figure 5. For the purpose of this analysis, all traffic associated with the Project was assigned to the Project site roadway, acknowledging that the Site Plans indicated that two (2) of the 16-units will be accessed from individual driveways that will intersect the south side of Rhode Island Road.

Build Traffic Volumes

The 2027 Build condition traffic volumes were developed by adding the traffic expected to be generated by the Project to the 2027 No-Build condition traffic volumes. The 2027 Build weekday morning and evening peak-hour traffic-volumes are graphically depicted on Figure 6.

TRAFFIC OPERATIONS ANALYSIS

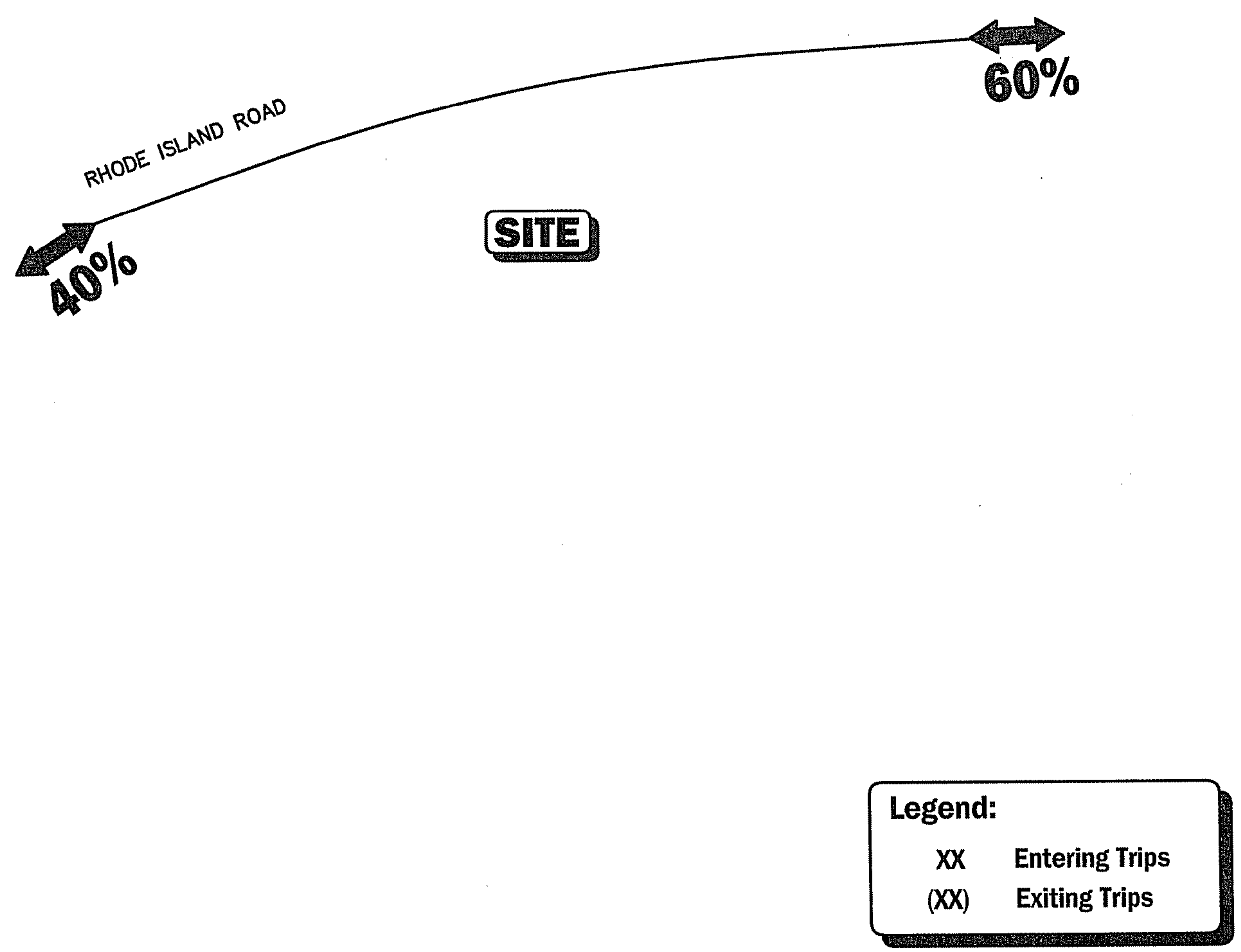
In order to assess the potential impact of the Project on the roadway network, a detailed traffic operations analysis (i.e., motorist delays, vehicle queuing and level-of-service) was performed at the Project site roadway intersection with Rhode Island Road. Capacity analyses provide an indication of how well transportation facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

In brief, six levels of service are defined for each type of facility. They are given letter designations ranging from A to F, with level-of-service (LOS) "A" representing the best operating conditions and LOS "F" representing congested or constrained operations. An LOS of "E" is representative of a transportation facility that is operating at its design capacity with an LOS of "D" generally defined as the limit of "acceptable" traffic operations. Since the level-of-service of a traffic facility is a function of the flows placed upon it, such a facility may operate at a wide range of levels of service depending on the time of day, day of week, or period of the year. The Synchro® intersection capacity analysis software, which is based on the analysis methodologies and procedures presented in the 2010 *Highway Capacity Manual* (HCM)[6] for unsignalized intersections, was used to complete the level-of-service and vehicle queue analyses.

Analysis Results

The results of the intersection capacity analysis for the study intersection is summarized in Table 3, with the detailed analysis results presented in the Appendix. As can be seen in Table 3, all movements at the Project site roadway intersection with Rhode Island Road were shown to operate at LOS B or better during the peak periods with negligible vehicle queueing predicted.

[6] *Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2010.



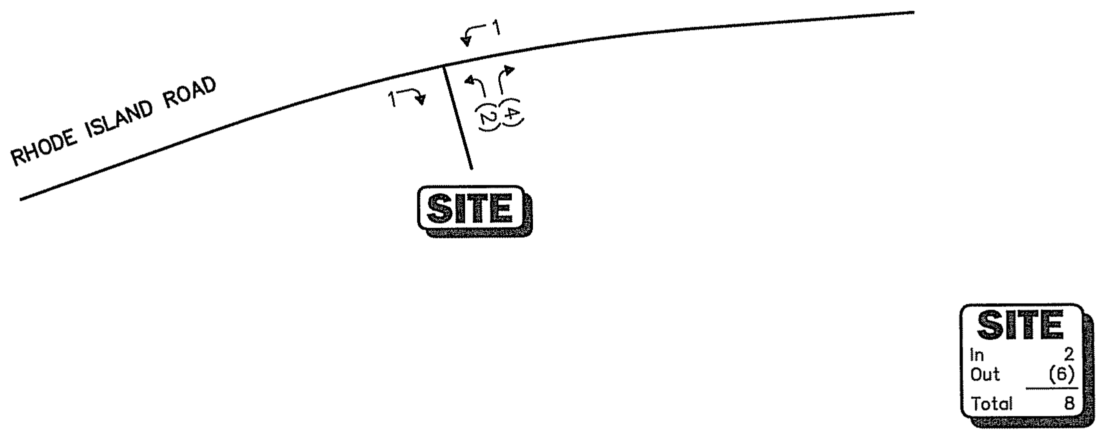
Not To Scale

Figure 4

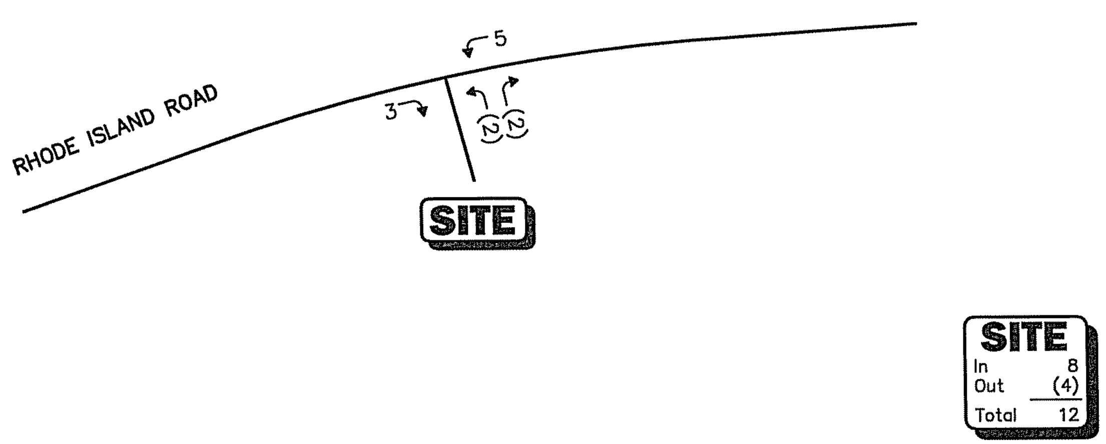
Trip Distribution Map

Vanasse & Associates inc

WEEKDAY MORNING PEAK HOUR (6:00 - 7:00 AM)



WEEKDAY EVENING PEAK HOUR (2:00- 3:00 PM)



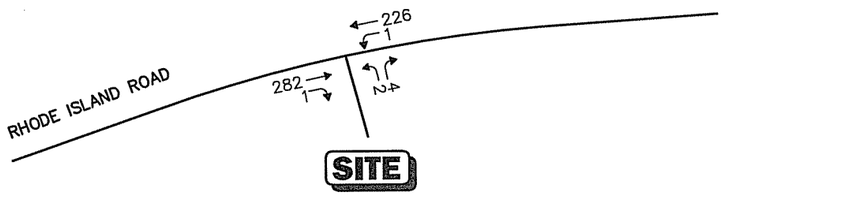
N Not To Scale

Figure 5

Project Generated Peak Hour Traffic Volumes

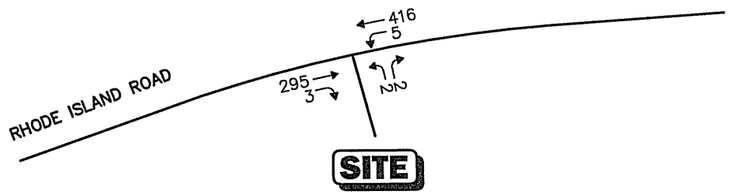
Vanasse & Associates inc

WEEKDAY MORNING PEAK HOUR (6:00 - 7:00 AM)



SITE	
In	2
Out	6
Total	8

WEEKDAY EVENING PEAK HOUR (2:00- 3:00 PM)



SITE	
In	8
Out	4
Total	12

Not To Scale

Figure 6

2027 Build
Peak Hour Traffic Volumes

Vanasse & Associates inc

Table 3
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2020 Existing				2027 No-Build				2027 Build			
Unsignalized Intersection/Peak-hour/Movement	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Rhode Island Road at the Project Site Driveway												
									6	10.8	B	0
Weekday Morning:									283	0.0	A	0
Project Site Roadway NB LT/RT	--	--	--	--	--	--	--	--	227	0.0	A	0
Rhode Island Road EB TH/RT	--	--	--	--	--	--	--	--				
Rhode Island Road WB /LTTH	--	--	--	--	--	--	--	--	4	12.6	B	0
Weekday Evening:									298	0.0	A	0
Project Site Roadway SB LT/RT	--	--	--	--	--	--	--	--	421	0.1	A	0
Rhode Island Road EB TH/RT	--	--	--	--	--	--	--	--				
Rhode Island Road WB /LTTH	--	--	--	--	--	--	--	--				

[a]Demand in vehicles per hour.
[b]Average control delay per vehicle (in seconds).
[c]Level-of-Service.
[d]Queue length in vehicle.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

SIGHT DISTANCE ASSESSMENT

Sight distance measurements were performed at the Project site roadway intersection with Rhode Island Road in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)[7] requirements. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 4 presents the measured sight lines to and from the Project site roadway along Road Island Road.

Table 4
SIGHT DISTANCE MEASUREMENTS[a]

Intersection/Sight Distance Measurement	Feet		
	Recommended Minimum (SSD)	Desirable (ISD)[b]	Measured
Rhode Island Road at the Project Site Roadway			
Stopping Sight Distance:			
Rhode Island Road approaching from the east	325	--	603
Rhode Island Road approaching from the west	350	--	500+
Intersection Sight Distance:			
Looking to the east from the Project Site Roadway	325	465	109/325+[c]
Looking to the west from the Project Site Roadway	350	485	224/400[c]

[a]Recommended 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 44 mph eastbound and 42 mph westbound along Rhode Island Road.

[b]Value shown are the intersection sight distance for a vehicle turning right or left exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

[c]Available sight distance with the selective trimming/removal of trees and vegetation situated adjacent to the roadway and the regrading of the embankment along the south side of Rhode Island Road along the front of and to the east of Units 15 and 16.

As can be seen in Table 4, lines of sight to and from the Project site driveway along Rhode Island Road exceed or could be made to meet or exceed the recommended minimum sight distance (SSD) to function in a safe manner based on the measured 85th percentile travel speeds along Rhode Island Road (42/44 mph), which are 7 to 9 mph above the posted speed limit (35 mph). Note that this conclusion is predicated upon: i) the selective trimming/removal of trees and vegetation along the south side of Rhode Island Road east and west of the Project site roadway; and ii) the regrading of the embankment along the front of and to the east of Units 15 and 16. Based on a review of the Site Plans, it appears that the aforementioned work can be completed within the Project site and/or the public right-of-way along the Project site frontage.

[7]*A Policy on Geometric Design of Highway and Streets,* 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.

SUMMARY

VAI has conducted a TIA in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a 16-unit multifamily residential community to be known as Old Field Estates and located at 44 and 46 Rhode Island Road (Route 79) in Lakeville, Massachusetts. The following specific areas have been evaluated as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; under existing and future conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the ITE,[8] the Project is expected to generate approximately 80 vehicle trips on an average weekday (two-way, 24-hour volume), with 8 vehicle trips expected during the weekday morning peak-hour and 12 vehicle trips expected during the weekday evening peak-hour;

2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), with traffic volume increases outside of the immediate proximity of the Project site predicted to be less than one (1) added vehicle every 10 minutes during the peak hours;

3. All movements at the Project site roadway intersection with Rhode Island Road were shown to operate at LOS B or better during the peak hours with negligible vehicle queuing, where an LOS of "D" or better is defined as acceptable traffic operations;

4. No apparent safety deficiencies were noted with respect to the motor vehicle crash history along Rhode Island Road in the vicinity of the Project site; and

5. Lines of sight at the Project site roadway intersection with Rhode Island Road were found to exceed or could be made to meet or exceed the recommended minimum distance for safe operation based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project site will be provided as follows: two (2) units will be served by individual driveways that will intersect the south side of the Rhode Island Road approximately 350 feet west of Haskell Circle, with the remaining 14-units access by way of a new roadway that will intersect the south side of

[8] Ibid 1.

Rhode Island Road approximately 525 feet west of Haskell Circle. The following recommendations are offered with respect to the design and operation of the Project site access and internal circulation, many of which are reflected on the Site Plans:

- The Project site roadway should be a minimum of 20-feet in width and designed to accommodate two-way travel and the turning and maneuvering requirements of the largest anticipated responding emergency vehicle.

- In order to provide the recommended minimum lines of sight to and from the Project site roadway along Rhode Island Road, existing trees and vegetation located along the south side of Rhode Island Road within the intersection triangle area of the Project site roadway should be selectively trimmed or removed and maintained, and the embankment along the front of and to the east of Units 15 and 16 should be regraded. Based on a review of the Site Plans, it appears that the recommended work can be completed within the Project site and/or the public right-of-way along the Project site frontage.

- Vehicles exiting the Project site should be placed under STOP-sign control with a marked STOP-line provided.

- All signs and pavement markings to be installed within the Project site should conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).[9]

- Signs and landscaping to be installed as a part of the Project within the intersection sight triangle areas of the Project site roadway should be designed and maintained so as not to restrict lines of sight.

- Snow windrows within sight triangle areas of the Project site roadway should be promptly removed where such accumulations would impede sight lines.

- A school bus waiting area should be provided at an appropriate location defined in consultation with Lakeville Public Schools.

With implementation of the aforementioned recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

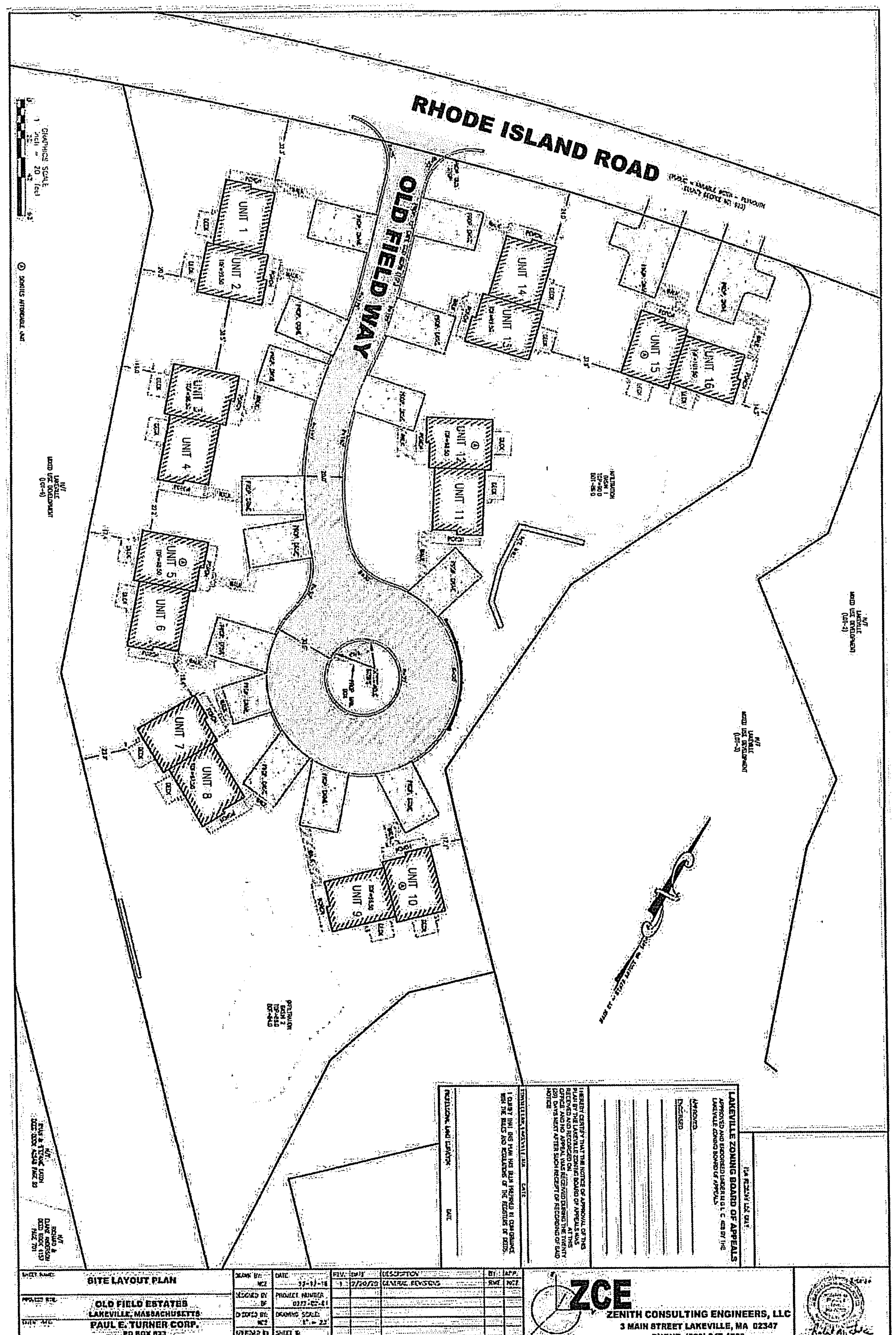
cc: File

[9] *Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

APPENDIX

PROJECT SITE PLAN
AUTOMATIC TRAFFIC RECORDER COUNT DATA
SEASONAL ADJUSTMENT DATA
VEHICLE TRAVEL SPEED DATA
MOTOR VEHICLE CRASH DATA
GENERAL BACKGROUND TRAFFIC GROWTH
TRIP GENERATION CALCULATION
CAPACITY ANALYSIS WORKSHEETS

PROJECT SITE PLAN


RHODE ISLAND ROAD
OLD FIELD WAY
UNIT 1
UNIT 2
UNIT 3
UNIT 4
UNIT 5
UNIT 6
UNIT 7
UNIT 8
UNIT 9
UNIT 10
UNIT 11
UNIT 14
UNIT 15
UNIT 16
LAKEVILLE ZONING BOARD OF APPEALS
SITE LAYOUT PLAN
OLD FIELD ESTATES
LAKEVILLE, MASSACHUSETTS
PAUL E. TURNER CORP.
PO BOX 833
LAKEVILLE, MA 02347
DRAWING SCALE: 1" = 20'
REV. 1 2/20/20 GENERAL REVISIONS
ZCE
ZENITH CONSULTING ENGINEERS, LLC
3 MAIN STREET LAKEVILLE, MA 02347
PHONE: (508) 947-4208
P.E. STAMP

AUTOMATIC TRAFFIC RECORDER COUNT DATA

AUTOMATIC TRAFFIC RECORDER COUNT DATA

Accurate Counts
978-664-2565

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568VOL1

Start Time	3/10/2020 Tue	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		1	32			0	41				
12:15		0	39			1	39				
12:30		0	34			1	40				
12:45		0	28	1	133	0	34	2	154	3	287
01:00		1	35			1	39				
01:15		2	38			0	43				
01:30		0	39			2	40				
01:45		1	51	4	163	4	46	7	168	11	331
02:00		0	52			0	60				
02:15		1	44			0	77				
02:30		0	77			0	58				
02:45		1	56	2	229	1	48	1	243	3	472
03:00		0	48			0	56				
03:15		4	56			3	82				
03:30		7	49			3	86				
03:45		8	54	19	207	4	97	10	321	29	528
04:00		19	69			7	80				
04:15		9	42			3	66				
04:30		19	53			12	50				
04:45		23	45	70	209	13	62	35	258	105	467
05:00		16	36			19	41				
05:15		24	26			16	45				
05:30		41	42			29	41				
05:45		57	30	138	134	67	42	131	169	269	303
06:00		43	25			50	43				
06:15		52	34			39	30				
06:30		48	12			36	15				
06:45		76	8	219	79	34	26	159	114	378	193
07:00		49	11			41	17				
07:15		54	7			24	14				
07:30		41	12			37	8				
07:45		42	7	186	37	46	16	148	55	334	92
08:00		34	12			30	9				
08:15		53	14			33	14				
08:30		37	9			29	6				
08:45		28	9	152	44	27	11	119	40	271	84
09:00		32	12			30	7				
09:15		24	3			38	8				
09:30		15	3			26	3				
09:45		30	4	101	22	38	3	132	21	233	43
10:00		35	1			24	3				
10:15		27	3			25	2				
10:30		37	2			22	0				
10:45		31	2	130	8	44	2	115	7	245	15
11:00		43	0			47	4				
11:15		32	3			47	1				
11:30		38	1			35	1				
11:45		32	0	145	4	34	1	163	7	308	11
Total		1167	1269			1022	1557			2189	2826
Percent		47.9%	52.1%			39.6%	60.4%			43.6%	56.4%

Accurate Counts
978-664-2565

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568VOL1

Start Time	3/11/2020 Wed	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	38			0	36				
12:15		1	34			0	32				
12:30		0	35			0	45				
12:45		0	34	1	141	1	36	1	149	2	290
01:00		0	43			1	33				
01:15		0	34			1	48				
01:30		1	48			1	45				
01:45		0	48	1	173	2	57	5	183	6	356
02:00		0	44			2	60				
02:15		1	42			0	49				
02:30		0	72			3	45				
02:45		3	49	4	207	0	62	5	216	9	423
03:00		1	43			2	59				
03:15		1	62			0	65				
03:30		3	66			3	80				
03:45		9	57	14	228	7	89	12	293	26	521
04:00		17	59			6	80				
04:15		9	48			5	61				
04:30		16	54			8	63				
04:45		26	54	68	215	6	73	25	277	93	492
05:00		19	28			18	46				
05:15		26	20			23	45				
05:30		49	26			32	41				
05:45		53	25	147	99	67	31	140	163	287	262
06:00		54	21			48	36				
06:15		48	21			32	26				
06:30		43	17			41	17				
06:45		53	20	198	79	42	24	163	103	361	182
07:00		45	10			47	29				
07:15		42	13			29	34				
07:30		36	13			40	13				
07:45		42	13	165	49	43	10	159	86	324	135
08:00		38	13			30	17				
08:15		31	8			32	15				
08:30		26	6			29	8				
08:45		38	5	133	32	22	8	113	48	246	80
09:00		36	4			23	7				
09:15		25	6			34	3				
09:30		15	2			28	8				
09:45		24	4	100	16	29	3	114	21	214	37
10:00		25	0			40	5				
10:15		26	0			29	2				
10:30		37	1			22	1				
10:45		35	1	123	2	27	2	118	10	241	12
11:00		61	2			48	0				
11:15		45	2			40	0				
11:30		38	0			42	3				
11:45		30	0	174	4	41	2	171	5	345	9
Total		1128	1245			1026	1554			2154	2799
Percent		47.5%	52.5%			39.8%	60.2%			43.5%	56.5%
Grand Total		2295	2514			2048	3111			4343	5625
Percent		47.7%	52.3%			39.7%	60.3%			43.6%	56.4%
ADT		ADT 4,984		AADT 4,984							

Accurate Counts
978-664-2565

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568VOL1

Start	3/9/2020		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	1	2	1	1	*	*	*	*	*	*	*	*	1	2
01:00	*	*	4	7	1	5	*	*	*	*	*	*	*	*	2	6
02:00	*	*	2	1	4	5	*	*	*	*	*	*	*	*	3	3
03:00	*	*	19	10	14	12	*	*	*	*	*	*	*	*	16	11
04:00	*	*	70	35	68	25	*	*	*	*	*	*	*	*	69	30
05:00	*	*	138	131	147	140	*	*	*	*	*	*	*	*	142	136
06:00	*	*	219	159	198	163	*	*	*	*	*	*	*	*	208	161
07:00	*	*	186	148	165	159	*	*	*	*	*	*	*	*	176	154
08:00	*	*	152	119	133	113	*	*	*	*	*	*	*	*	142	116
09:00	*	*	101	132	100	114	*	*	*	*	*	*	*	*	100	123
10:00	*	*	130	115	123	118	*	*	*	*	*	*	*	*	126	116
11:00	*	*	145	163	174	171	*	*	*	*	*	*	*	*	160	167
12:00 PM	*	*	133	154	141	149	*	*	*	*	*	*	*	*	137	152
01:00	*	*	163	168	173	183	*	*	*	*	*	*	*	*	168	176
02:00	*	*	229	243	207	216	*	*	*	*	*	*	*	*	218	230
03:00	*	*	207	321	228	293	*	*	*	*	*	*	*	*	218	307
04:00	*	*	209	258	215	277	*	*	*	*	*	*	*	*	212	268
05:00	*	*	134	169	99	163	*	*	*	*	*	*	*	*	116	166
06:00	*	*	79	114	79	103	*	*	*	*	*	*	*	*	79	108
07:00	*	*	37	55	49	86	*	*	*	*	*	*	*	*	43	70
08:00	*	*	44	40	32	48	*	*	*	*	*	*	*	*	38	44
09:00	*	*	22	21	16	21	*	*	*	*	*	*	*	*	19	21
10:00	*	*	8	7	2	10	*	*	*	*	*	*	*	*	5	8
11:00	*	*	4	7	4	5	*	*	*	*	*	*	*	*	4	6
Lane	0	0	2436	2579	2373	2580	0	0	0	0	0	0	0	0	2402	2581
Day	0		5015		4953		0		0		0		0		4983	
AM Peak	-	-	06:00	11:00	06:00	11:00	-	-	-	-	-	-	-	-	06:00	11:00
Vol.	-	-	219	163	198	171	-	-	-	-	-	-	-	-	208	167
PM Peak	-	-	14:00	15:00	15:00	15:00	-	-	-	-	-	-	-	-	14:00	15:00
Vol.	-	-	229	321	228	293	-	-	-	-	-	-	-	-	218	307

Comb. Total	0	5015	4953	0	0	0	0	4983

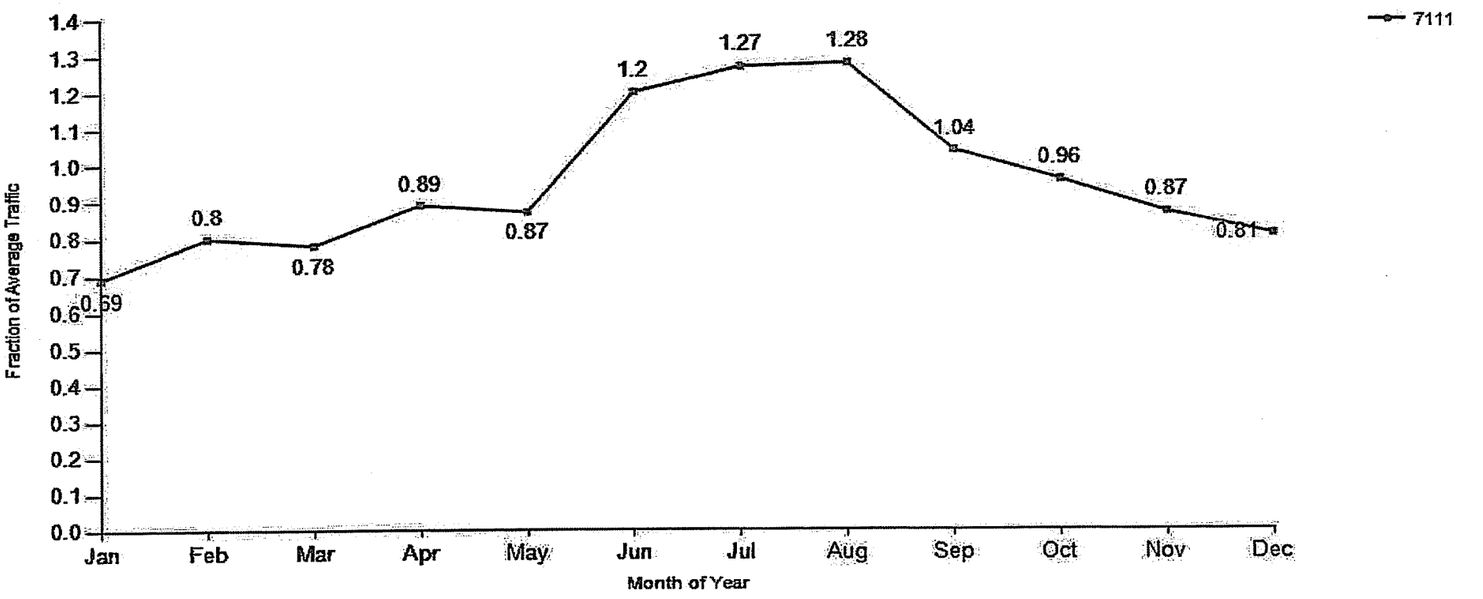
ADT ADT 4,984 AADT 4,984

SEASONAL ADJUSTMENT DATA

Massachusetts Highway Department

Location ID: 7111 on Interstate 495 Middleborough, Massachusetts

Traffic Pattern by Month for 1/1/2017 - 12/31/2017



VEHICLE TRAVEL SPEED DATA

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568SPD1

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/10/20	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
01:00	0	0	0	1	0	3	0	0	0	0	0	0	0	0	4
02:00	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	3	4	7	5	0	0	0	0	0	0	19
04:00	1	0	0	0	8	28	30	2	1	0	0	0	0	0	70
05:00	3	0	0	2	15	53	53	11	1	0	0	0	0	0	138
06:00	4	0	0	0	15	82	93	23	1	1	0	0	0	0	219
07:00	4	0	2	6	15	80	69	9	0	1	0	0	0	0	186
08:00	2	0	2	6	24	73	33	11	1	0	0	0	0	0	152
09:00	1	1	0	5	33	36	16	8	1	0	0	0	0	0	101
10:00	3	0	0	1	8	70	39	7	1	1	0	0	0	0	130
11:00	3	0	0	5	8	71	41	14	3	0	0	0	0	0	145
12 PM	3	1	1	1	19	44	50	13	1	0	0	0	0	0	133
13:00	4	0	1	9	18	64	38	28	0	1	0	0	0	0	163
14:00	3	1	1	3	16	82	99	23	1	0	0	0	0	0	229
15:00	9	2	1	1	18	76	85	15	0	0	0	0	0	0	207
16:00	11	0	0	2	12	77	74	30	3	0	0	0	0	0	209
17:00	4	0	0	1	9	64	46	10	0	0	0	0	0	0	134
18:00	0	0	0	1	6	32	31	8	0	1	0	0	0	0	79
19:00	0	0	0	0	5	23	7	2	0	0	0	0	0	0	37
20:00	1	0	0	0	6	18	13	4	2	0	0	0	0	0	44
21:00	0	0	0	2	0	12	7	1	0	0	0	0	0	0	22
22:00	0	0	0	0	1	3	2	1	0	1	0	0	0	0	8
23:00	0	0	0	0	0	2	1	0	1	0	0	0	0	0	4
Total	56	5	9	46	239	998	835	225	17	6	0	0	0	0	2436

Daily

15th Percentile:	35 MPH
50th Percentile:	39 MPH
85th Percentile:	44 MPH
95th Percentile:	47 MPH
Mean Speed(Average):	39 MPH
10 MPH Pace Speed:	36-45 MPH
Number in Pace:	1833
Percent in Pace:	75.2%
Number of Vehicles > 40 MPH:	1093
Percent of Vehicles > 40 MPH:	44.5%

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568SPD1

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/11/20	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	1	0	3	0	0	0	0	0	0	0	4
03:00	0	0	0	0	0	4	8	2	0	0	0	0	0	0	14
04:00	1	0	0	0	6	29	24	7	1	0	0	0	0	0	68
05:00	2	0	0	4	18	62	47	13	0	0	1	0	0	0	147
06:00	6	0	0	3	26	71	70	20	1	1	0	0	0	0	198
07:00	2	0	0	2	11	67	67	15	1	0	0	0	0	0	165
08:00	1	0	0	2	20	50	47	11	2	0	0	0	0	0	133
09:00	1	0	0	4	5	44	32	12	2	0	0	0	0	0	100
10:00	2	0	0	1	11	42	51	12	3	1	0	0	0	0	123
11:00	5	0	0	3	15	81	58	9	3	0	0	0	0	0	174
12 PM	5	0	0	6	16	56	47	10	1	0	0	0	0	0	141
13:00	5	0	0	1	22	75	58	10	2	0	0	0	0	0	173
14:00	7	2	2	3	22	82	67	19	2	0	0	1	0	0	207
15:00	6	0	1	0	13	98	88	21	1	0	0	0	0	0	228
16:00	4	0	0	0	15	86	86	22	2	0	0	0	0	0	215
17:00	1	0	0	0	1	55	33	8	1	0	0	0	0	0	99
18:00	2	0	0	1	5	38	24	7	2	0	0	0	0	0	79
19:00	0	0	0	0	4	25	16	3	0	0	1	0	0	0	49
20:00	0	0	0	0	2	11	12	5	2	0	0	0	0	0	32
21:00	0	0	0	0	1	6	5	3	0	1	0	0	0	0	16
22:00	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
23:00	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4
Total	50	2	4	30	215	985	846	209	26	3	2	1	0	0	2373

Daily

15th Percentile :	35 MPH
50th Percentile :	39 MPH
85th Percentile :	44 MPH
95th Percentile :	47 MPH
Mean Speed(Average) :	40 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	1831
Percent in Pace :	77.2%
Number of Vehicles > 40 MPH :	1087
Percent of Vehicles > 40 MPH :	45.8%

Grand Total	106	7	13	76	454	1983	1681	434	43	9	2	1	0	0	4809

Overall

15th Percentile :	35 MPH
50th Percentile :	39 MPH
85th Percentile :	44 MPH
95th Percentile :	47 MPH
Mean Speed(Average) :	39 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	3664
Percent in Pace :	76.2%
Number of Vehicles > 40 MPH :	2170
Percent of Vehicles > 40 MPH :	45.1%

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568SPD1

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/10/20	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
01:00	0	0	0	0	4	3	0	0	0	0	0	0	0	0	7
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	2	1	1	4	1	1	0	0	0	0	0	10
04:00	0	0	0	1	7	19	4	4	0	0	0	0	0	0	35
05:00	5	0	1	3	29	65	23	4	1	0	0	0	0	0	131
06:00	4	0	0	1	29	70	43	10	2	0	0	0	0	0	159
07:00	0	4	2	4	32	75	28	3	0	0	0	0	0	0	148
08:00	3	1	2	13	39	44	14	3	0	0	0	0	0	0	119
09:00	3	0	1	9	59	45	13	2	0	0	0	0	0	0	132
10:00	3	0	3	5	29	50	24	1	0	0	0	0	0	0	115
11:00	3	0	0	4	38	83	32	3	0	0	0	0	0	0	163
12 PM	4	0	1	8	37	66	34	4	0	0	0	0	0	0	154
13:00	6	0	0	1	32	97	29	3	0	0	0	0	0	0	168
14:00	4	0	1	1	58	125	49	5	0	0	0	0	0	0	243
15:00	7	0	2	8	57	182	64	1	0	0	0	0	0	0	321
16:00	6	0	0	2	44	124	71	10	1	0	0	0	0	0	258
17:00	5	0	0	3	35	86	33	6	1	0	0	0	0	0	169
18:00	1	0	1	5	27	56	20	3	1	0	0	0	0	0	114
19:00	0	0	0	6	10	23	12	4	0	0	0	0	0	0	55
20:00	1	0	0	0	8	14	11	6	0	0	0	0	0	0	40
21:00	1	0	0	1	6	8	4	1	0	0	0	0	0	0	21
22:00	0	0	0	0	1	3	3	0	0	0	0	0	0	0	7
23:00	0	0	0	0	1	3	2	1	0	0	0	0	0	0	7
Total	56	5	14	77	584	1242	519	75	7	0	0	0	0	0	2579

Daily

15th Percentile :	32 MPH
50th Percentile :	37 MPH
85th Percentile :	42 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	37 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	1826
Percent in Pace :	70.8%
Number of Vehicles > 40 MPH :	601
Percent of Vehicles > 40 MPH :	23.3%

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568SPD1

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/11/20	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
01:00	0	0	0	1	2	1	0	1	0	0	0	0	0	0	5
02:00	0	0	0	0	3	1	1	0	0	0	0	0	0	0	5
03:00	0	0	0	1	0	4	6	0	1	0	0	0	0	0	12
04:00	0	0	0	0	6	13	3	3	0	0	0	0	0	0	25
05:00	2	1	1	7	35	68	22	3	1	0	0	0	0	0	140
06:00	6	0	0	0	33	70	41	9	3	0	0	0	0	1	163
07:00	4	0	2	3	31	69	44	5	1	0	0	0	0	0	159
08:00	3	0	0	3	20	56	28	2	1	0	0	0	0	0	113
09:00	2	0	2	5	23	55	23	4	0	0	0	0	0	0	114
10:00	1	0	0	0	18	72	26	0	1	0	0	0	0	0	118
11:00	7	0	0	5	26	97	33	3	0	0	0	0	0	0	171
12 PM	3	0	0	11	36	70	24	5	0	0	0	0	0	0	149
13:00	7	0	1	12	30	93	33	6	1	0	0	0	0	0	183
14:00	6	0	2	3	32	109	59	5	0	0	0	0	0	0	216
15:00	9	0	1	3	45	160	65	8	2	0	0	0	0	0	293
16:00	1	0	0	3	49	145	68	10	1	0	0	0	0	0	277
17:00	1	0	2	2	29	81	38	9	1	0	0	0	0	0	163
18:00	1	0	0	2	16	54	28	1	0	1	0	0	0	0	103
19:00	1	0	0	5	20	38	20	2	0	0	0	0	0	0	86
20:00	0	0	0	2	9	21	14	2	0	0	0	0	0	0	48
21:00	0	0	0	0	6	6	7	2	0	0	0	0	0	0	21
22:00	0	0	0	0	3	4	3	0	0	0	0	0	0	0	10
23:00	0	1	0	0	3	1	0	0	0	0	0	0	0	0	5
Total	54	2	11	68	475	1288	587	80	13	1	0	0	0	1	2580

Daily

15th Percentile :	32 MPH
50th Percentile :	37 MPH
85th Percentile :	42 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	38 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	1875
Percent in Pace :	72.7%
Number of Vehicles > 40 MPH :	682
Percent of Vehicles > 40 MPH :	26.4%

Grand Total	110	7	25	145	1059	2530	1106	155	20	1	0	0	0	1	5159

Overall

15th Percentile :	32 MPH
50th Percentile :	37 MPH
85th Percentile :	42 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	37 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	3636
Percent in Pace :	70.5%
Number of Vehicles > 40 MPH :	1283
Percent of Vehicles > 40 MPH :	24.9%

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568SPD1

EB, WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/10/20	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
01:00	0	0	0	1	4	6	0	0	0	0	0	0	0	0	11
02:00	0	0	1	0	1	1	0	0	0	0	0	0	0	0	3
03:00	0	0	0	2	4	5	11	6	1	0	0	0	0	0	29
04:00	1	0	0	1	15	47	34	6	1	0	0	0	0	0	105
05:00	8	0	1	5	44	118	76	15	2	0	0	0	0	0	269
06:00	8	0	0	1	44	152	136	33	3	1	0	0	0	0	378
07:00	4	4	4	10	47	155	97	12	0	1	0	0	0	0	334
08:00	5	1	4	19	63	117	47	14	1	0	0	0	0	0	271
09:00	4	1	1	14	92	81	29	10	1	0	0	0	0	0	233
10:00	6	0	3	6	37	120	63	8	1	1	0	0	0	0	245
11:00	6	0	0	9	46	154	73	17	3	0	0	0	0	0	308
12 PM	7	1	2	9	56	110	84	17	1	0	0	0	0	0	287
13:00	10	0	1	10	50	161	67	31	0	1	0	0	0	0	331
14:00	7	1	2	4	74	207	148	28	1	0	0	0	0	0	472
15:00	16	2	3	9	75	258	149	16	0	0	0	0	0	0	528
16:00	17	0	0	4	56	201	145	40	4	0	0	0	0	0	467
17:00	9	0	0	4	44	150	79	16	1	0	0	0	0	0	303
18:00	1	0	1	6	33	88	51	11	1	1	0	0	0	0	193
19:00	0	0	0	6	15	46	19	6	0	0	0	0	0	0	92
20:00	2	0	0	0	14	32	24	10	2	0	0	0	0	0	84
21:00	1	0	0	3	6	20	11	2	0	0	0	0	0	0	43
22:00	0	0	0	0	2	6	5	1	0	1	0	0	0	0	15
23:00	0	0	0	0	1	5	3	1	1	0	0	0	0	0	11
Total	112	10	23	123	823	2240	1354	300	24	6	0	0	0	0	5015

Daily

15th Percentile :	32 MPH
50th Percentile :	38 MPH
85th Percentile :	43 MPH
95th Percentile :	46 MPH
Mean Speed(Average) :	38 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	3594
Percent in Pace :	71.7%
Number of Vehicles > 40 MPH :	1684
Percent of Vehicles > 40 MPH :	33.6%

Location : Rhode Island Road
Location : at # 46
City/State: Lakeville, MA

8568SPD1

EB, WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/11/20	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
01:00	0	0	1	1	2	1	0	1	0	0	0	0	0	0	6
02:00	0	0	0	0	4	1	4	0	0	0	0	0	0	0	9
03:00	0	0	0	1	0	8	14	2	1	0	0	0	0	0	26
04:00	1	0	0	0	12	42	27	10	1	0	0	0	0	0	93
05:00	4	1	1	11	53	130	69	16	1	0	1	0	0	0	287
06:00	12	0	0	3	59	141	111	29	4	1	0	0	0	1	361
07:00	6	0	2	5	42	136	111	20	2	0	0	0	0	0	324
08:00	4	0	0	5	40	106	75	13	3	0	0	0	0	0	246
09:00	3	0	2	9	28	99	55	16	2	0	0	0	0	0	214
10:00	3	0	0	1	29	114	77	12	4	1	0	0	0	0	241
11:00	12	0	0	8	41	178	91	12	3	0	0	0	0	0	345
12 PM	8	0	0	17	52	126	71	15	1	0	0	0	0	0	290
13:00	12	0	1	13	52	168	91	16	3	0	0	0	0	0	356
14:00	13	2	4	6	54	191	126	24	2	0	0	1	0	0	423
15:00	15	0	2	3	58	258	153	29	3	0	0	0	0	0	521
16:00	5	0	0	3	64	231	154	32	3	0	0	0	0	0	492
17:00	2	0	2	2	30	136	71	17	2	0	0	0	0	0	262
18:00	3	0	0	3	21	92	52	8	2	1	0	0	0	0	182
19:00	1	0	0	5	24	63	36	5	0	0	1	0	0	0	135
20:00	0	0	0	2	11	32	26	7	2	0	0	0	0	0	80
21:00	0	0	0	0	7	12	12	5	0	1	0	0	0	0	37
22:00	0	0	0	0	4	4	4	0	0	0	0	0	0	0	12
23:00	0	1	0	0	3	3	2	0	0	0	0	0	0	0	9
Total	104	4	15	98	690	2273	1433	289	39	4	2	1	0	1	4953

Daily

15th Percentile :	33 MPH
50th Percentile :	38 MPH
85th Percentile :	43 MPH
95th Percentile :	46 MPH
Mean Speed(Average) :	39 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	3706
Percent in Pace :	74.8%
Number of Vehicles > 40 MPH :	1769
Percent of Vehicles > 40 MPH :	35.7%

Grand Total	216	14	38	221	1513	4513	2787	589	63	10	2	1	0	1	9968

Overall

15th Percentile :	33 MPH
50th Percentile :	38 MPH
85th Percentile :	43 MPH
95th Percentile :	46 MPH
Mean Speed(Average) :	38 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	7300
Percent in Pace :	73.2%
Number of Vehicles > 40 MPH :	3453
Percent of Vehicles > 40 MPH :	34.6%

MOTOR VEHICLE CRASH DATA

MOTOR VEHICLE CRASH DATA

SEGMENT CRASH RATE WORKSHEET

CITY/TOWN : Lakeville, MA COUNT DATE : Mar-20

DISTRICT : 5

~ SEGMENT DATA ~

ROADWAY NAME: Rhode Island Road

START POINT: 500 feet west of site roadway

END POINT: 500 feet east of site roadway

FUNCTIONAL CLASSIFICATION OF ROADWAY:

ROADWAY DIAGRAM (LABEL ROADWAY AND CROSS STREETS)

North

AVERAGE DAILY TRAFFIC

SEGMENT LENGTH IN MILES (**L**):	**0.23**
AVERAGE DAILY TRAFFIC VOLUME (**V**):	6,081

TOTAL # OF CRASHES:	# OF YEARS :	AVERAGE # OF CRASHES PER YEAR (**A**) :
4	5	**0.80**

CRASH RATE CALCULATION : **1.57**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(L * V * 365)}$$

Comments : The crash rate is below state average (2.27) and a urban minor arterial roadway (3.80)

Project Title & Date:

Crash Number	City Town Name	Crash Date	Crash Severity	Crash Year	Max Injury Severity Reported	Number of Vehicles	Age of Driver - Youngest Known	Driver Contributing Circumstances (All Drivers)	First Harmful Event	Is Geocoded	Light Conditions	Manner of Collision	MassDOT District	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Hit and Run	Latitude	Longitude	Roadway	Urban Type (linked RD)	Street Name (linked RD)	From Street Name (linked RD)
3808631	LAKEVILLE	05/23/2014	Non-fatal injury	2014	Non-fatal injury - Possible	1	65-74	D1: (Inattention),(Failed to yield right of way)	Collision with pedalcycle (bicycle, tricycle, unicycle, pedal car)	Yes	Daylight	Angle	5	Stop signs	V1: Turning right	No hit and run	41.8797706	-70.93101724	RHODE ISLAND RD Rte 79 / HASKELL CIRCLE	Urbanized Area	RHODE ISLAND ROAD	MIDDLEBOROUGH TOWN LINE
3900810	LAKEVILLE	08/04/2014	Non-fatal injury	2014	Non-fatal injury - Possible	2	35-44	D1: (Failed to yield right of way) / D2: (No improper driving),(No improper driving)	Collision with motor vehicle in traffic	Yes	Daylight	Sideswipe, opposite direction	5	No controls	V1: Turning left / V2: Travelling straight ahead	No hit and run	41.8797706	-70.93101724	RHODE ISLAND RD / RHODE ISLAND ROAD Rte 79 / HASKELL CIRCLE	Urbanized Area	RHODE ISLAND ROAD	MIDDLEBOROUGH TOWN LINE
3968751	LAKEVILLE	11/03/2014	Property damage only (none injured)	2014	No injury	1	35-44	D1: (No improper driving)	Collision with animal - deer	Yes	Daylight	Single vehicle crash	5	No controls	V1: Travelling straight ahead	No hit and run	41.8797706	-70.93101724	RHODE ISLAND ROAD Rte SR79 E / HASKELL CIRCLE	Large Urbanized Area	RHODE ISLAND ROAD	MIDDLEBOROUGH TOWN LINE
3984597	LAKEVILLE	12/14/2014	Property damage only (none injured)	2014	No injury	2	25-34	D1: (),(No improper driving) / D2: (),(Followed too closely)	Collision with motor vehicle in traffic	Yes	Daylight	Rear-end	5	No controls	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	No hit and run	41.8797706	-70.93101724	RHODE ISLAND ROAD Rte SR79 E / HASKELL CIRCLE	Large Urbanized Area	HASKELL CIRCLE	RHODE ISLAND ROAD

GENERAL BACKGROUND TRAFFIC GROWTH

GENERAL BACKGROUND TRAFFIC GROWTH

General Background Traffic Growth - Daily Traffic Volumes

Station Number	ROUTE/STREET	LOCATION	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average Annual Growth Rate
7111	INTERSTATE 495	BTWN. RTES.28 & 105 REPLACES STA 713	47,300		42,857	44,997	43,491	43,321	43,766	44,864	47,945	47,428	46,800	0.71%
7023	INTERSTATE 495	RTE.105	41,872		47,100	51,883	43,753	45,769	47,071	49,269	51,513	52,284	55,491	2.16%
														1.43%

Adjusted Rate: 1.5

S:\Jobs\8568\4-Growth\GrowthLakeville

3/12/2020

TRIP-GENERATION CALCULATIONS

Multifamily Housing (Low-Rise)
(220)

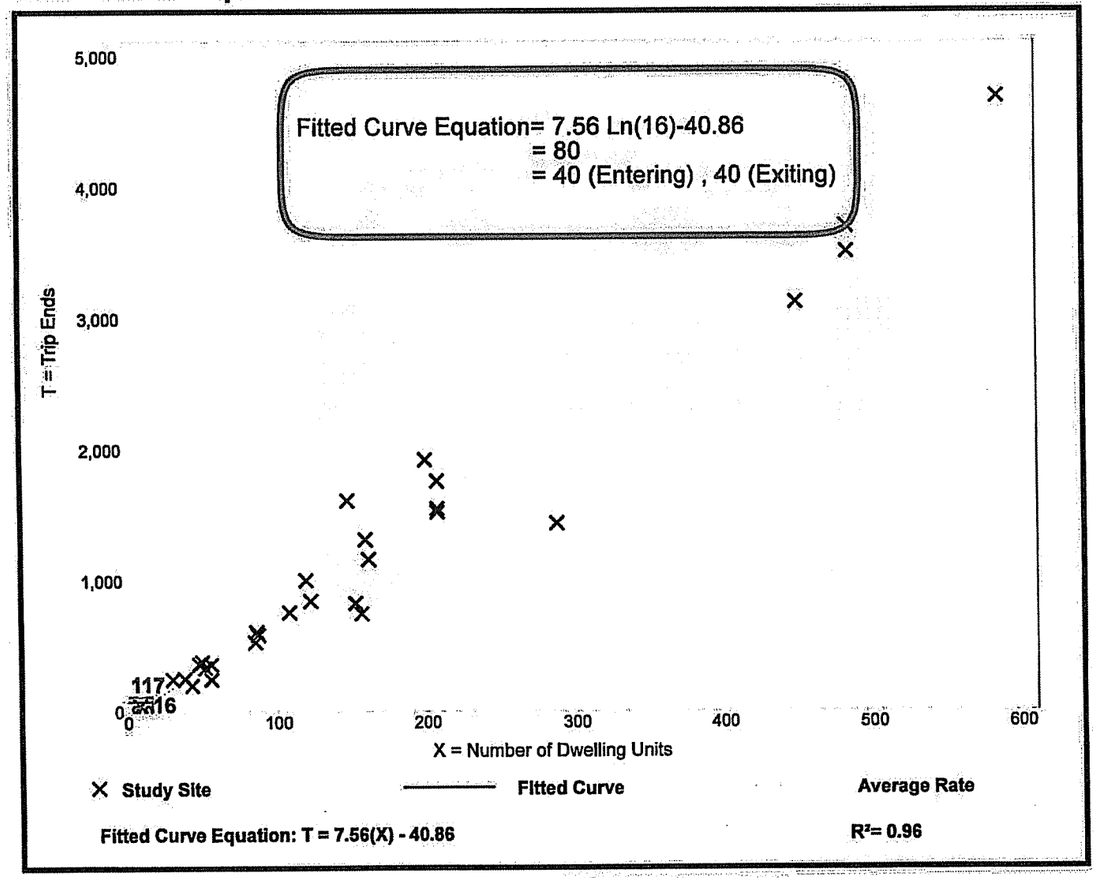
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



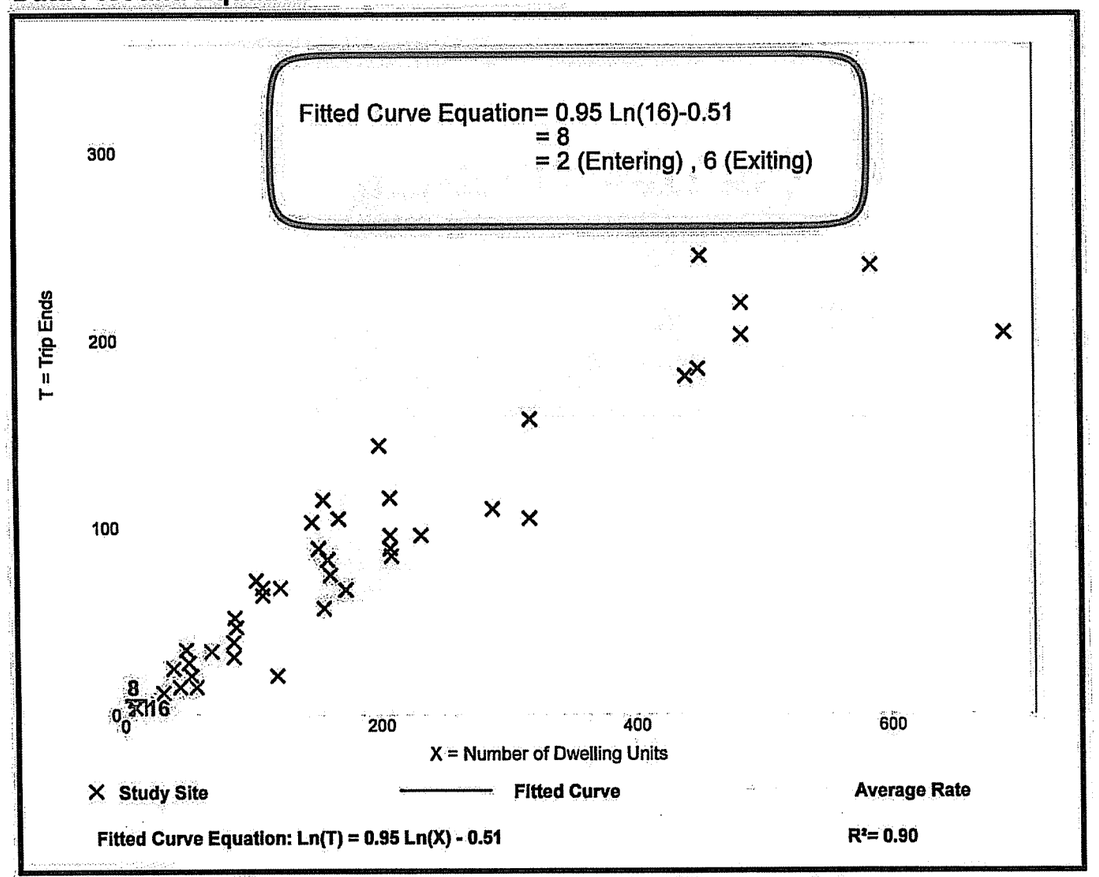
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 42
Avg. Num. of Dwelling Units: 199
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



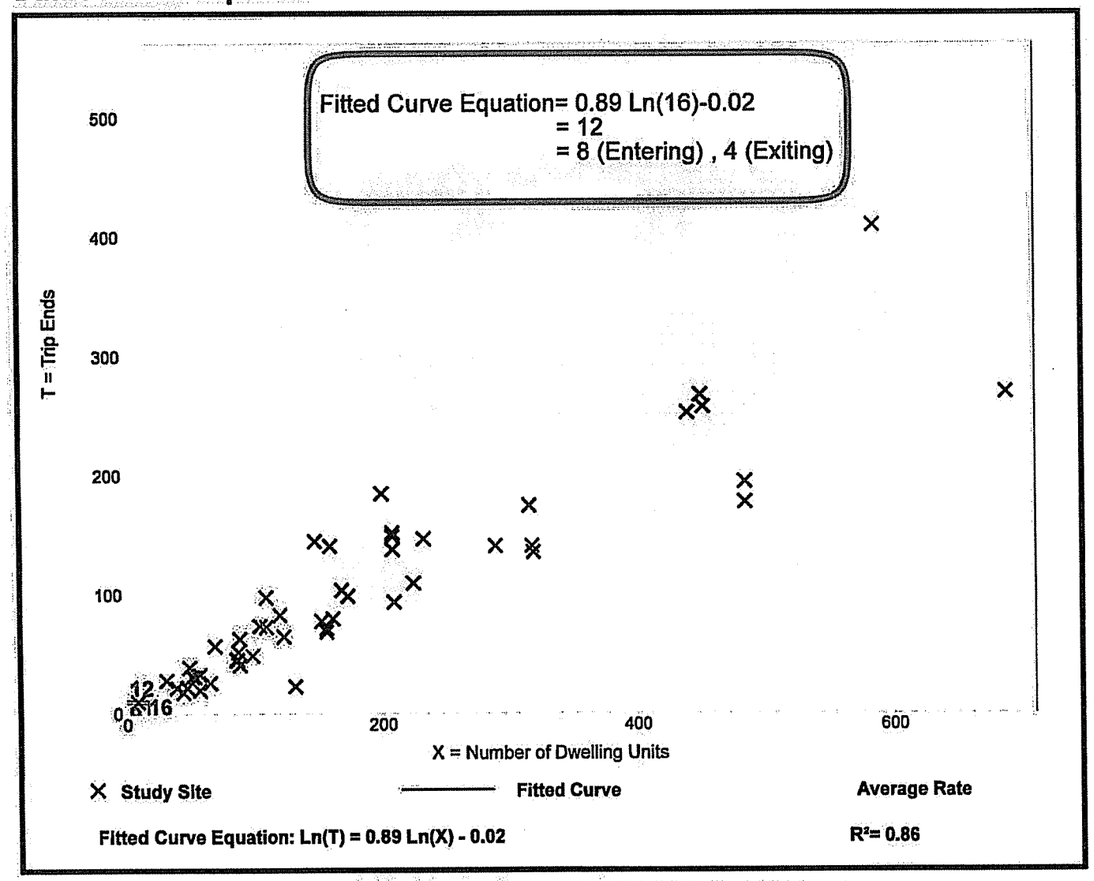
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 50
Avg. Num. of Dwelling Units: 187
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.89 Ln(X) - 0.02 **R^2= 0.86**

CAPACITY ANALYSIS WORKSHEETS

Rhode Island Road/Site Roadway

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	282	1	1	226	2	4
Future Vol, veh/h	282	1	1	226	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	307	1	1	246	2	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	308	0	556	308
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	248	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1253	-	492	732
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	793	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1253	-	492	732
Mov Cap-2 Maneuver	-	-	-	-	492	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	630	-	-	1253	-
HCM Lane V/C Ratio	0.01	-	-	0.001	-
HCM Control Delay (s)	10.8	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑↑	
Traffic Vol, veh/h	295	3	5	416	2	2
Future Vol, veh/h	295	3	5	416	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	321	3	5	452	2	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	324	0	785	323
Stage 1	-	-	-	-	323	-
Stage 2	-	-	-	-	462	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1236	-	361	718
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	634	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1236	-	359	718
Mov Cap-2 Maneuver	-	-	-	-	359	-
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	631	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	479	-	-	1236	-
HCM Lane V/C Ratio	0.009	-	-	0.004	-
HCM Control Delay (s)	12.6	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

HML ASSOCIATES

Geotechnical and Civil Engineers

19 Rockwood Road
Hingham, MA 02043
(Phone/Fax) 781-740-9999

April 13, 2020

TO: Lakeville Zoning Board of Appeals
Mr. Don Foster, Chairman

FROM: Nicholas Lanney, P.E.

RE: Review of Vanasse Associates Transportation Impact Assessment
44 and 46 Rhode Island Road

We have reviewed the impact assessment report and agree with its conclusion that the project will not have a significant impact on motorists delays or vehicle queuing under existing and future (2027) conditions. All movements at the project site roadway intersection with Rhode Island Road will operate at a level-of-service of B or better during peak hours with negligible vehicle queuing.

The impact assessment also included a site distance assessment. That assessment concluded that the stopping site distance for vehicles approaching the site from both the East and the West on Rhode Island Road exceeded the recommended minimum stopping site distance. (Stopping site distance is the distance required by a vehicle traveling at the design speed of the roadway, on wet pavement, to stop prior to striking an object in its travel path.)

Intersection site distance which is defined as the site distance required by a driver entering or crossing an intersecting roadway to perceive an oncoming vehicle and safely complete a turning or crossing maneuver with oncoming traffic could not be met for drivers looking to the east from the project driveway without trimming and removing trees and vegetation adjacent to the roadway and regrading the embankment on the south side of the Rhode Island Road in the front, and to the east of Units 15 and 16.

Finally, the report included a series of recommendations with respect to the design and operation of project site access and internal circulations. While the Vanasse report acknowledged that many of its recommendations were already included on the plan, the following were not and we recommend that the site plans be revised to reflect these recommendations:

- Vehicles exiting the project should be placed on STOP-sign control with a marked STOP-line provided.
- Signs and landscaping to be installed as part of the project within the intersection site triangle areas of the project site roadway should be designed and maintained so as not to restrict lines of site.
- A school bus waiting area should be provided at an appropriate location defined in consultation with the Lakeville Public Schools.
- To meet required site distance, existing trees and vegetation located on the south side of Rhode Island Road within the intersection triangle of the project Site roadway should be selectively trimmed or removed and maintained, in the embankment along the front slope

into the east of Units 15 and 16 should be regraded. We recommend that the final regarding and vegetation removal be reviewed by Vanasse Associates.

Please feel free to contact us if you have any questions.

HML ASSOCIATES

Geotechnical and Civil Engineers

19 Rockwood Road
Hingham, MA 02043
(Phone/Fax) 781-740-9999

April 13, 2020

TO: Lakeville Zoning Board of Appeals
Mr. Don Foster, Chairman

FROM: Nicholas Lanney, P.E.

RE: April 2, 2020 email to Attorney O'Shaughnessy
44 and 46 Rhode Island Road

The ZBA raised several issues as possible concerns in its April 2, 2020 to Attorney O'Shaughnessy. To assist the ZBA in its deliberations, we have provided additional information that may address several issues based on the information provided by the applicant and our own research.

Ability of fire and emergency vehicles to navigate the site

At the public hearing, Robert Forbes for Zenith stated that he met with the Fire Chief and the Chief was satisfied that he could navigate the site with fire and emergency vehicles. I do not recall if the Fire Chief had submitted a report to the ZBA. If not, we recommend that the ZBA request a report for the record.

Groundwater Level…too high?

Test pits were excavated for the septic systems and witnessed by the Board of Health. Groundwater was not encountered in the pits for Units 1 thru 10 which were excavated to a depth of 10.5 to 11 feet below grade. Groundwater was encountered in the test pits for Units 11 and 12 at 6.5 to 9 feet below the ground surface. The grade will be raised over 5 feet in that area. Thus, it is opinion the groundwater would not be considered "high" in the area of the proposed homes.

Test pits were also conducted within the footprint of the two infiltration basins in order to determine the seasonal high water table. The basins have been designed such that the bottom of the basin is at least 2 feet above the seasonal high water table as required by the DEP Stormwater Management guidelines.

Lakeville Hospital Landfill

With respect to the location and limits of the landfill to 44-46 Rhode Island Road, the deeds supplied to the ZBA by the applicant refer to Registry of Deeds Plan 970 of Plan Book 61a copy of which is attached to this memo. That plan shows the estimated limits of the "former solid waste disposal area." approaching within 20 to 25 feet the southeast corner of Lot 5 and extending westward toward the south end of Lot 6. Because this is public information, we recommend that the site plans be updated to show the limits of the disposal area.

It is our understanding that the applicant reconfigured Lots 5 and 6 into a single parcel and in the process created Parcel C as an unbuildable lot in order to create a buffer between the landfill and the proposed development.

With respect to the landfill closest to the proposed development, we inspected that area on February 25 and observed on the ground surface scattered debris including rusted pails and drums, cans, glass bottles and jars some of which were broken scattered over the ground surface. There was no indication that this material had been capped. There were no physical barriers to prevent access to the area. Two abandon groundwater monitoring wells were also observed. None of the test pits performed by Zenith for the project encountered landfill material

Lakeville Fire Department

346 Bedford Street
Lakeville, Massachusetts 02347

TEL 508-947-4121 FAX 508-946-3436

MICHAEL O'BRIEN
FIRE CHIEF
mobrien@lakevillema.org

WILLIAM PURCELL
DEPUTY CHIEF
wpurcell@lakevillema.org

April 23, 2020

Town of Lakeville
Planning Board
Attn: Brian Hoeg
346 Bedford Street
Lakeville, MA 02347

RE: Old Field Estates (44-46 Rhode Island Road)

Dear Chairman Hoeg,

This letter has been written in response to an April 22, 2020 email from Robert M. Forbes, P.E. of Zenith Consulting. Mr. Forbs is requesting that the Fire Chief, in his capacity as the authority having jurisdiction, communicate any concerns regarding the latest plan for Old Field Estates.

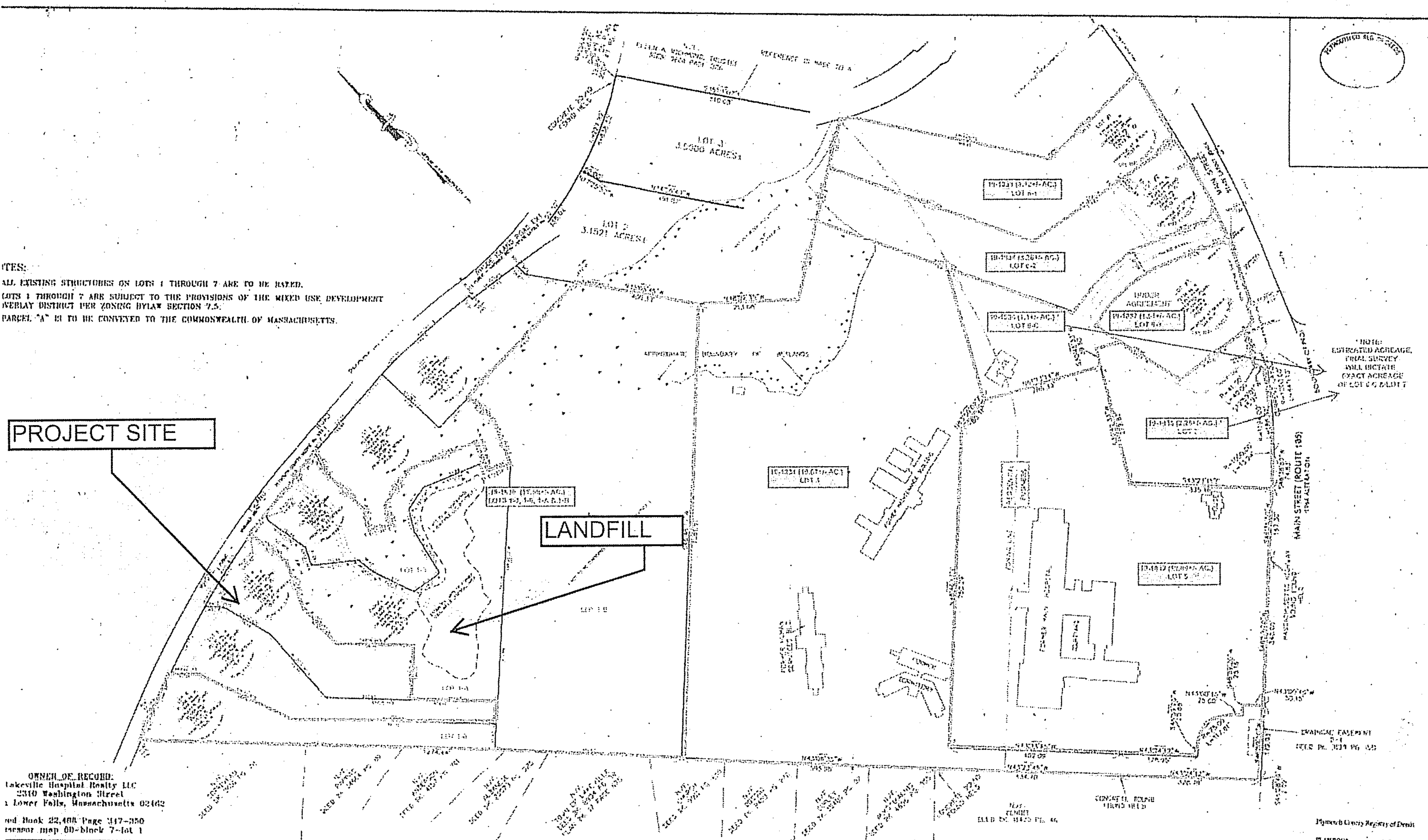
The Lakeville Fire Department has no issue with the Site plan, as presented to this this office, for emergency vehicle access.

Respectfully submitted,

Michael P. O'Brien

Fire Chief, Lakeville Fire Department

CC: ND / File



PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS IN THE COMMONWEALTH OF MASSACHUSETTS AND IN COMPLIANCE WITH THE RULES AND REGULATIONS FOR THE PRACTICE OF SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS RULES AND REGULATIONS; 250 CMR 6.00. CERTIFICATION IS INTENDED TO MEET THE REQUIREMENTS OF THE REGISTRY OF DEEDS AND IS NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF THE LAND SHOWN HEREON.

HOLLAND E. SHAW, PLS NO. 30314

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

HERITAGE DESIGN GROUP

PLANNERS • SURVEYORS • ENGINEERS

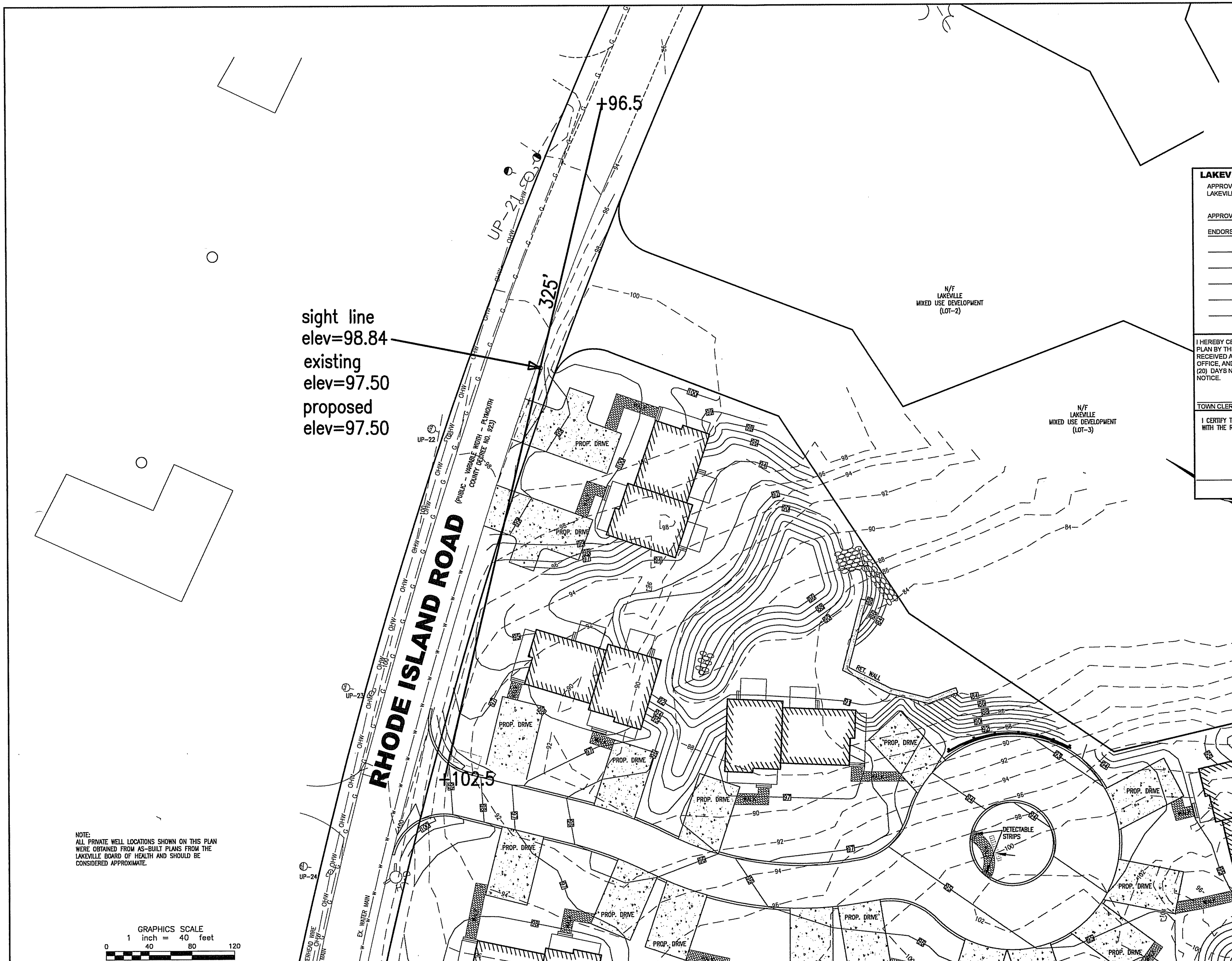
ONE MAIN STREET
WHINSVILLE, MASSACHUSETTS 01588
TEL 508-266-2068 • FAX 508-266-2037

APPROVAL UNDER SUBDIVISION CONTROL LAW NOT REQUIRED TOWN OF LAKEVILLE

BEING A MAJORITY
DATE: 3-19-07

PLAN OF PROPERTY
MAIN STREET (RT. 105) &
RHODE ISLAND ROAD (RT. 79)
LAKEVILLE, MASSACHUSETTS
OWNED BY
LAKEVILLE HOSPITAL REALTY LLC
SCALE: 1"= 100' FEBRUARY 20, 2007

2002-310



NOTE:
ALL PRIVATE WELL LOCATIONS SHOWN ON THIS PLAN WERE OBTAINED FROM AS-BUILT PLANS FROM THE LAKEVILLE BOARD OF HEALTH AND SHOULD BE CONSIDERED APPROXIMATE.

GRAPHICS SCALE
1 inch = 40 feet
0 40 80 120

FOR REGISTRY USE ONLY

LAKEVILLE ZONING BOARD OF APPEALS

APPROVED AND ENDORSED UNDER M.G.L. C. 40B BY THE LAKEVILLE ZONING BOARD OF APPEALS

APPROVED: ____________________

ENDORSED: ____________________

I HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE LAKEVILLE ZONING BOARD OF APPEALS WAS RECEIVED AND RECORDED ON ____________ AT THIS OFFICE, AND NO APPEAL WAS RECEIVED DURING THE TWENTY (20) DAYS NEXT AFTER SUCH RECEIPT OF RECORDING OF SAID NOTICE.

TOWN CLERK, LAKEVILLE, MA DATE

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

DATE

P.E. STAMP

ZCE
ZENITH CONSULTING ENGINEERS, LLC
3 MAIN STREET LAKEVILLE, MA 02347
PHONE: (508) 947-4208

REV.	DATE	DESCRIPTION	BY	APP.

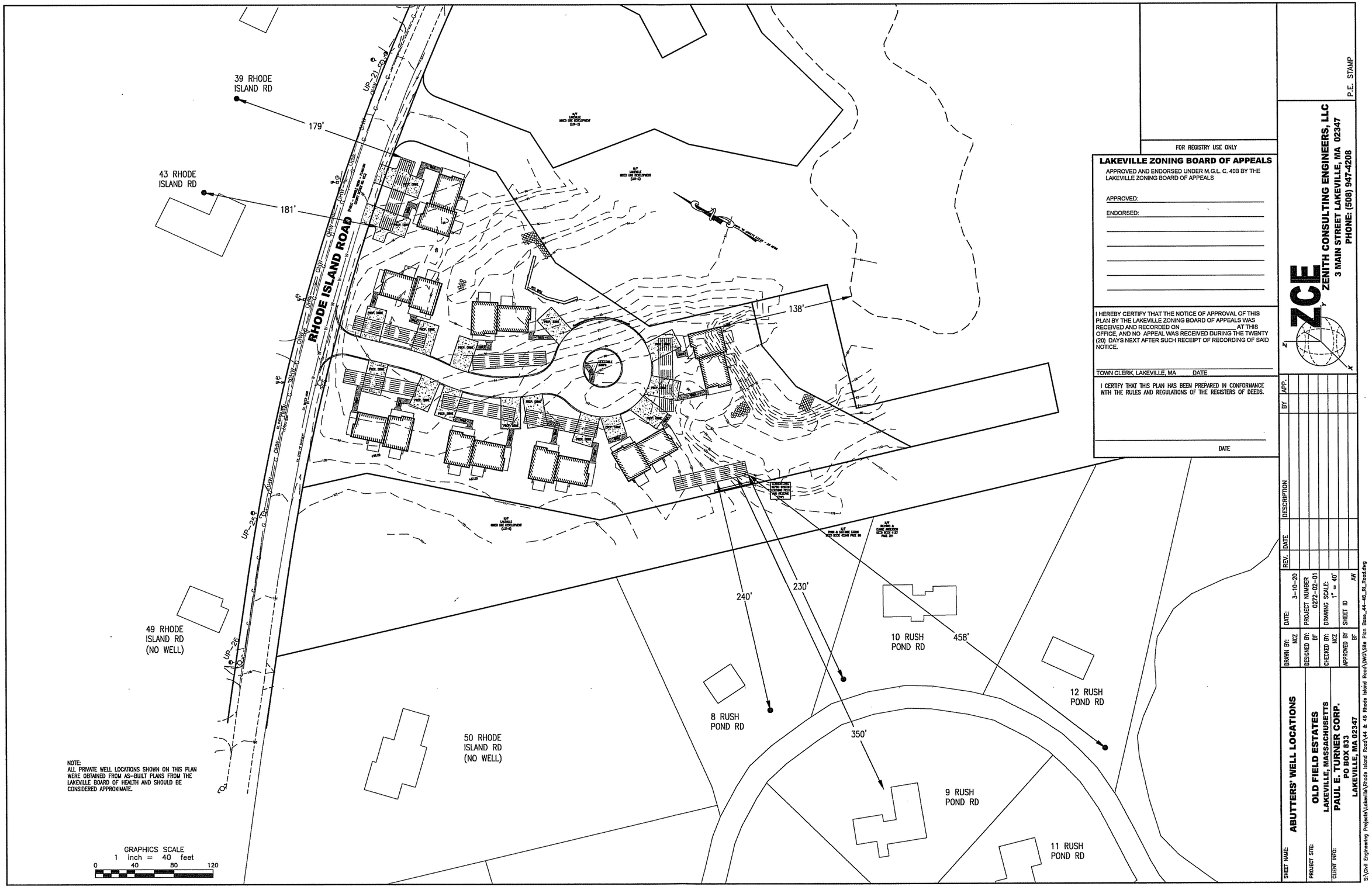
DRAWN BY: NCZ	DATE: 3-13-20
DESIGNED BY: BF	PROJECT NUMBER 0272-02-01
CHECKED BY: NCZ	DRAWING SCALE: 1" = 40'
APPROVED BY BF	SHEET ID AW

SHEET NAME: **SIGHT DISTANCE**

PROJECT SITE: **OLD FIELD ESTATES LAKEVILLE, MASSACHUSETTS**

CLIENT INFO: **PAUL E. TURNER CORP. PO BOX 833 LAKEVILLE, MA 02347**

S:\Civil Engineering Projects\Lakeville\Rhode Island Road\44 & 46 Rhode Island Road\DWG\Site Plan Base_44-46_RI_Road_test.dwg



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TOWN CLERK, LAKEVILLE, MA DATE

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DATE

ZCE
ZENITH CONSULTING ENGINEERS, LLC
3 MAIN STREET LAKEVILLE, MA 02347
PHONE: (508) 947-4208

P.E. STAMP

REV.	DATE	DESCRIPTION	BY	APP.

SHEET NAME: **ABUTTERS' WELL LOCATIONS**

PROJECT SITE: **OLD FIELD ESTATES**
LAKEVILLE, MASSACHUSETTS

CLIENT INFO: **PAUL E. TURNER CORP.**
PO BOX 833
LAKEVILLE, MA 02347

DRAWN BY: NCZ
DESIGNED BY: BF
CHECKED BY: NCZ
APPROVED BY: BF

DATE: 3-10-20
PROJECT NUMBER: 0272-02-01
DRAWING SCALE: 1" = 40'
SHEET ID: AW

S:\Civil Engineering Projects\Lakeville\Rhode Island Road\44 & 46 Rhode Island Road\DWG\Site Plan Base_44-46_RI_Road.dwg