August 7, 2016

Ms. Amanda Lessard, AICP, Assistant Town Planner
Town of Windham
Planning Department
8 School Road
Windham, ME 04062

Preliminary Subdivision & Site Plan Application: Kettle Estates

On behalf of Robie Holdings, LLC, we are pleased to submit the Preliminary Subdivision & Site Plan Applications for the Kettle Estates project – a 42 unit condominium development to be located off the end of Dusty Rhodes Lane. The development parcel is approximately 15.46 acres and is shown as lot #8 on the Town of Windham Tax Map #19. The property is located within the Residential Medium Zone (RM). The standard net residential density for the RM Zone is 1 lot or unit per 15,000 SF. The net residential area calculations shows that the parcel can support approximately 42 units.

The Planning Board reviewed the Sketch Plan application at the June 12, 2017 meeting. The current plan of the internal development is very similar to the sketch plan, but the access to the site has changed. We received many abutter comments during the sketch plan meeting that helped to shape the current layout of the development. We now propose to provide access to the site from Dusty Rhodes Lane. The existing private way is approximately 400' long and connects to Varney Mill Road. It will be paved and brought up to the Major Private Road standards. The Town of Windham subdivision ordinance stipulates that all developments that exceed 30 units must provide two connections to external roads. We are proposing a one lane, 14' wide paved access to the end of Acorn Lane. This access will be limited to emergency vehicles only. We propose to install "emergency vehicles only" signs on either end to control the traffic pattern.

The site will be served by public water, subsurface septic systems and underground power. Watermains are located within both the Varney Mill Road & Acorn Lane right of ways. We propose to connect to the watermain in the Acorn Lane right of way. There is an existing hydrant directly adjacent to our point of connection on Acorn Lane. We propose to construct a new hydrant assembly in the middle of our site, per the request of the Windham Fire Chief. We've sent our plans to the Portland Water District and they are reviewing our water design. Upon completion of their review, they will provide us with an ability to serve letter. Mark Cenci evaluated the site for wastewater potential and has provided a wastewater investigation (see attached). The septic flow from the 21 buildings will flow to one of seven new septic systems. Test pits for each location can be seen in the wastewater investigation.

Detailed stormwater calculations have been provided that show that the Town's water quantity and quality stormwater regulations are being met by the combination of two infiltration basins and a series of roof drain filters. The project is located with the Pleasant River Watershed. We prepared water quality treatment calculations as required by MDEP regulations. The project will

require a MDEP Stormwater Permit. Most of the development area, including all of the internal roadway system, the emergency access road, a portion of the existing Dusty Rhodes Lane, all the driveways and most of the roof areas drain to one of the two infiltration basins. The back half of seven of the building roofs drain to roof drain filter strips.

The attached plan is based upon a boundary and topographic survey that was performed by Wayne T. Wood, PLS of Wayne T. Wood & Co. Wayne has provided us with the updated property deed as well as the easement language that shows that the applicant has a right to use Dusty Rhodes Lane. There was some discussion at the sketch plan meeting as to the applicant's right to use the right of way off the end of Acorn Lane. According to the Town of Windham Public Works Department, this right of way is owned by the Town of Windham.

Mark Cenci of Mark Cenci Geologic, Inc. performed the wastewater evaluation and found that the site did not contain any wetlands (see attached Wastewater Investigation to test pits & statement of wetlands).

The record owner of the property is:

Robie Holdings, LLC
P.O. Box 1508
Windham, ME 04062

We have provided a Traffic Analysis that was prepared by William Bray, P.E. of Traffic Solutions. The entrance of the development will be from Dusty Rhodes Lane. The sight distance exceeds the required amount. A secondary access will connect to Acorn Lane. This access will be a 14' wide paved road that will be limited to emergency vehicles only. Signage will be placed on either end that prohibits non-emergency vehicle traffic. It is important to note that the traffic study references a full connection to Acorn Lane. When Mr. Bray completed his study, he suggested to me that we explore the possibility of discouraging our traffic from connecting to Acorn Lane due to the residential nature of the surrounding neighborhood. We then spoke with Town staff in regard to reducing the Acorn Lane connection to emergency vehicles only. Staff was generally supportive of the idea and our plans were revised accordingly.

We have provided a lighting specification for a full cutoff LED fixture that will be pole mounted. The ornamental lights will be installed approximately every 150' along the sidewalk. The full cut-off nature of the fixtures will ensure that the abutting properties will not be affected by glare from the lights. We have proposed a series of street trees to be placed at intervals of no greater than 50' along the internal access road to meet the Town landscaping standards.

Robie Holdings, LLC is an experienced developer and has been involved in several residential developments in recent years. The applicant has hired the following project consultants:

Engineer:
Jeff Amos, P.E. #10167
Terradyn Consultants, LLC
P.O. Box 339
New Gloucester, ME 04260
(207) 926-5111

Site Evaluator & Wetland Delineation:
Mark Cenci
Mark Cenci Geologic, Inc.
93 Mill Road
North Yarmouth, ME 04097
(207) 329-3524

Surveyor:
Wayne T. Wood & Associates
30 Wood Drive
Gray, ME 04039
(207) 657-3330

Traffic Engineer:
William Bray, P.E.
Traffic Solutions
235 Bancroft Street
Portland, ME 04102
(207) 774-3603

Both Wayne Wood & Jeff Amos have been involved with many similar projects across the State of Maine. Terradyn Consultants, LLC was established in 2005 and has completed hundreds of projects in that time ranging from residential & commercial subdivisions, site plans, watershed studies, and environmental permitting. We have worked & secured permits within the Town of Windham several times and have professional references available from MDEP, CCSWCD, Contractors & Private Developers.

We are requesting a waiver of the High Intensity Soil Survey. This item is a requirement of the Preliminary Subdivision Application. High Intensity Soil Surveys provide information related to the septic suitability of the soils. They can also be used to identify the runoff characteristics of the existing watershed soils, but are usually only required for large developments. The available Medium Intensity Soil Survey will be used for the basis of the existing soil conditions for the stormwater calculations. A licensed site evaluator has provided test pits in the proposed septic disposal areas that will be used to design the systems. The site is an old sand and gravel pit. The test pits & medium intensity soil survey both indicate that the site contains highly infiltrative soils. A High Intensity Soil Survey would not add any valuable information to the design of the project. Therefore, we ask the board to grant a waiver.

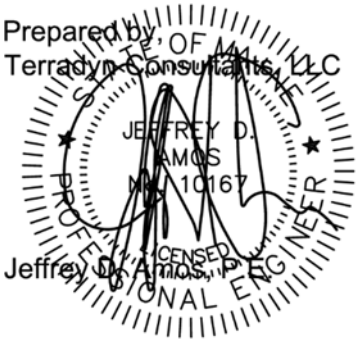
A cost estimate and proof of financial capacity will be submitted under separate cover.

The following items are attached as required by the Preliminary Subdivision & Site Plan Application procedures:

- Preliminary Major Subdivision Application
- Preliminary Subdivision Application Fee ($10,900) – submitted by applicant
- Review Escrow Fee ($5,000) – submitted by applicant
- Attachment 1: Property Deeds (Including Easement Deed)
- Attachment 2: Certificate of Good Standing
- Attachment 3: Traffic Impact Study
- Attachment 4: Stormwater Report
- Attachment 5: Sample Light Fixtures
- Attachment 6: Abutter List
- Attachment 7: Wastewater Investigation
- Attachment 8: Building Elevations

We are hopeful that this application can be placed on the agenda for the August 28, 2017 Planning Board Meeting. Thank you for your consideration, and please call me if you have any questions as you review the enclosed plans and information.

Prepared by,
Terradyn Consultants, LLC



Jeffrey D. Amos, PE

Project Name: Kettle Estates Condominiums

Tax Map: 19 **Lot:** 9

Estimated square footage of building(s): 36,750 SF

If no buildings proposed, estimated square footage of total development/disturbance:

Contact Information

1. Applicant

Name: Robie Holdings, LLC

Mailing Address: P.O. Box 1508, Windham, ME 04062

Telephone: 207-892-0650 Fax: 207-892-0650 E-mail: jarodrobie@hotmail.com

2. Record owner of property

__X__ (Check here if same as applicant)

Name:

Mailing Address:

Telephone: Fax: E-mail:

3. Contact Person/Agent (if completed and signed by applicant's agent, provide written documentation of authority to act on behalf of applicant)

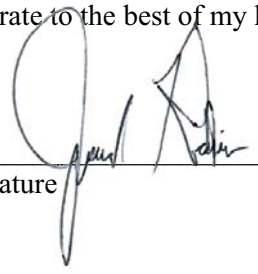
Name: Jeff Amos, P.E.

Company Name: Terradyn Consultants, LLC

Mailing Address: P.O. Box 339, New Gloucester, ME 04260

Telephone: 207-926-5111 Fax: 207-221-1317 E-mail: jeff@terradynconsultants.com

I certify all the information in this application form and accompanying materials is true and accurate to the best of my knowledge.



8/7/2017

Signature Date

Preliminary Plan - Major Subdivision: Submission Requirements			
A.	**Mandatory Written Information**	Applicant	Staff
1	A fully executed and signed application form	x	
2	Evidence of payment of the application and escrow fees	x	
3	Proposed name of the subdivision	x	
4	Verification of right, title, or interest in the property, and any abutting property, by deed, purchase and sales agreement, option to purchase, or some other proof of interest.	x	
5	Copy of the most recently recorded deed for the parcel, along with a copy of all existing deed restrictions, easements, rights-of-way, or some other proof of interest	x	
6	Copy of any existing or proposed covenants or deed restrictions intended to cover all or part of the lots or dwellings in the subdivision	x	
7	Copy of any existing or proposed easements on the property	x	
8	Name, registration number and seal of the Maine Licensed Professional Land Surveyor who conducted the survey	x	
9	Name, registration number and seal of any other licensed professional of the state who prepared the plan (if applicable)	x	
10	An indication of the type of sewage disposal to be used in the subdivision	x	
	i. If connecting to public sewer, provide a letter from Portland Water District stating the District has the capacity to collect and treat the waste water		
	ii. If using subsurface waste water disposal systems (septic), submit test pit analyses prepared by a Maine Licensed Site Evaluator or Certified Soil Scientist. Test pit locations must be shown on a map.	x	
11	Indicate type of water supply system(s) to be used in the subdivision.	x	
12	If connecting to public water, submit a written statement from the Portland Water District indicating there is adequate supply and pressure for the subdivision.	Pending	
13	Names and addresses of the record owner, applicant, and adjoining property owners	x	
14	An acceptable title opinion proving right of access to the proposed subdivision or site for any property proposed for development on or off of a private way or private road.	x	
15	The name and contact information for the road association who's private way or road is used to access the subdivision.	x	

Applicant Staff

16	Financial Capacity.	x	
	i. Estimated costs of development, and itemization of major costs		
	ii. Financing - provide one of the following:		
	a. Letter of commitment to fund from financial institution, governmental agency, or other funding agency		
	b. Annual corporate report with explanatory material showing availability of liquid assets to finance development		
	c. Bank statement showing availability of funds if personally financing development		
	d. Cash equity commitment		
	e. Financial plan for remaining financing		
	f. Letter from financial institution indicating an intention to finance		
	iii. If a corporation, Certificate of Good Standing from the Secretary of State		
17	Technical Capacity	x	
	i. A statement of the applicant's experience and training related to the nature of the development, including developments receiving permits from the Town.	x	
	ii. Resumes or similar documents showing experience and qualifications of full-time, permanent or temporary staff contracted with or employed by the applicant who will design the development.	x	

B.	**Mandatory Plan Information**		
1	Name of subdivision, date and scale	x	
2	Stamp of the Maine License Professional Land Surveyor that conducted the survey, including at least one copy of original stamped seal that is embossed and signed	x	
3	Stamp with date and signature of the Maine Licensed Professional Engineer that prepared the plans.	x	
4	North arrow identifying all of the following: Grid North, Magnetic North, declination between Grid and Magnetic, and whether Magnetic or Grid bearings were used in the plan design	x	
5	Location map showing the subdivision within the municipality	x	
6	Vicinity plan showing the area within 250 feet, to include:	x	
	i. approximate location of all property lines and acreage of parcels	x	
	ii. locations, widths, and names of existing, filed, or proposed streets, easements or building footprints	x	
	iii. location and designations of any public spaces	x	
	iv. outline of proposed subdivision, together with its street system and indication of future probably street system, if the proposed subdivision encompasses only part of the applicants entire property.	x	
7	Standard boundary survey of parcel, including all contiguous land in common ownership within the last 5 years	x	
8	Proposed lot lines with approximate dimensions and area of each lot.	x	
9	Contour lines at 2-foot intervals, or at intervals required by the Board, showing elevations in relation to the required datum.	x	
		Applicant	Staff

10	Typical cross sections of the proposed grading for roadways, sidewalks, etc., including width, type of pavement, elevations, and grades.	x	
11	Wetland areas shall be delineated on the survey. If none, please note.	none	
12	Number of acres within the proposed subdivision, location of property lines, existing buildings, vegetative cover type, specimen trees, if present, and other essential existing physical features.	x	
13	Rivers, streams, and brooks within or adjacent to the proposed subdivision. If any portion of the proposed subdivision is located in the direct watershed of a great pond, note which great pond.	x	
14	Zoning district in which the proposed subdivision is located, and the location of any zoning boundaries affecting the subdivision.	x	
15	Location & size of existing and proposed sewers, water mains, culverts, bridges, and drainage ways on or adjacent to the property to be subdivided. The Board may require this information to be depicted via cross-section, plan or profile views.	x	
16	Location, names, and present width of existing streets, highways, easements, building lines, parks, and other open spaces on or adjacent to the subdivision	x	
17	Location and widths of any streets, public improvements, or open space within the subdivision (if any) shown on the official map and the comprehensive plan	x	
18	All parcels of land proposed to be dedicated to public use and the conditions of such dedication.	x	
19	Location of any open space to be preserved or common areas to be created, and general description of proposed ownership, improvement, and management	x	
20	Approximate location of treeline after development	x	
21	Delineate boundaries of any flood hazard areas and the 100-year flood elevation as depicted on the Town's Flood Insurance Rate Map	n/a	
22	Show any areas within or adjacent to the proposed subdivision which have been identified by the Maine Department of Inland Fisheries and Wildlife "Beginning with Habitat project maps or within the Comprehensive Plan..	n/a	
23	Show areas within or adjacent to the proposed subdivision which are either listed on or eligible for the National Register of Historic Places, or have been identified in the comprehensive plan or by the Maine Historic Preservation Commission as sensitive or likely to contain such sites	n/a	
24	Erosion & Sedimentation control plan, prepared in accordance with MDEP Stormwater Law Chapter 500 Basic Standards, and the MDEP Maine Erosion and Sediment Control Best Management Practices, published March 2003.	x	
25	Stormwater management plan, prepared by a Maine Licensed Professional Engineer in accordance with the most recent edition of Stormwater Management for Maine: BMPS Technical Design Manual, published by the MDEP 2006.	x	

C.	Submission information for which a waiver may be granted.	Applicant	Staff
1	High-intensity soil survey by a Certified Soil Scientist	x	
2	Landscape Plan	x	
3	Hydrogeologic assessment - required if i) subdivision is not served by public sewer and either any part of the subdivision is over a sand and gravel aquifer or has an average density of more than one dwelling unit per 100,000 square feet, or ii) where site considerations or development design indicate greater potential of adverse impacts on groundwater quality	n/a	
	a) map showing basic soil types		
	b) depth to the water table at representative points		
	c) Drainage conditions throughout the subdivision		
	d) data on existing ground water quality		
	e) analysis and evaluation of the effect of the subdivision on groundwater		
	f) map showing location of any subsurface wastewater disposal systems and drinking water wells within the subdivision & within 200 feet of the subdivision boundaries.		
4	Estimate of the amount and type of vehicular traffic to be generated on a daily basis and at peak hours	x	
5	Traffic Impact Analysis for subdivisions involving 28 or more parking spaces or projected to generate more than 140 vehicle trips per day.	x	
6	If any portion of the subdivision is in the direct watershed of a great pond,	n/a	
	i) phosphorous impact analysis and control plan		
	ii) long term maintenance plan for all phosphorous control measures		
	iii) contour lines at an interval of 2 feet		
	iv) delineate areas with sustained slopes greater than 25% covering more than one acre		

Doc#: 37189 Bk:34200 Ps: 92

Warranty Deed
(Maine Statutory Short Form)

KNOW ALL PERSONS BY THESE PRESENTS THAT, I, Dennis F. Brooks, with a mailing address of 164 Varney Mill Road, Windham, ME 04062 for valuable consideration paid, by **Robie Holdings, LLC.,** a Maine Limited Liability Company with a mailing address of P.O. Box 1508, Windham, ME 04062, the receipt and sufficiency whereof is hereby acknowledged, does hereby GIVE, GRANT, BARGAIN, SELL AND CONVEY, unto the said **Robie Holdings, LLC.,** their heirs and assigns, with ***WARRANTY COVENANTS***, a certain lot or parcel of real property situated in the Town of Windham, County of Cumberland, State of Maine, bounded and described as follows:

PROPERTY DESCRIBED IN "EXHIBIT A" ATTACHED HERETO AND MADE A PART HEREOF

Meaning and intending to convey the premises conveyed to Dennis F. Brooks by virtue of a deed from Dorothy E. Brooks dated January 4, 2006 and recorded in Book 23583, Page 91 and a portion of the property conveyed to Dennis F. Brooks by virtue of a deed from Dorothy E. Brooks dated January 4, 2006 and recorded in Book 23583, Page 93 with the Cumberland County Registry of Deeds.

The premises are conveyed together with and subject to any and all easements or appurtenances of record, insofar as the same are in force and applicable.

Witness our hands and seal this 28 day of July 2017.

MAINE REAL ESTATE TAX PAID

WITNESS

Dennis F. Brooks

STATE OF MAINE
COUNTY OF CUMBERLAND

Personally, appeared before me on this 28 day of July 2017 the above-named Dennis F. Brook and acknowledged the foregoing instrument to be his free act and deed.

Notary Public/Attorney At Law

Print Name

Christopher J. McLain
Notary Public, Maine
My Commission Expires
November 10, 2019

PROPERTY DESCRIPTION
For
Jarod Robie
(15.46 acres off Varney Mill Road in Windham)

A certain lot or parcel of land situated at the Southwesterly end of Acorn Lane in the Town of Windham, County of Cumberland and State of Maine being more particularly described as follows:

Beginning at an iron pipe found set in the ground at the Westerly corner of land now or formerly of Varney Mill Estates open space at the Southwesterly end of the said Acorn Lane;

Thence S 52°54'54" W across land of the Grantor 279.50 feet to a point on the Northeasterly side line of land now or formerly of Leanne R. & Jeffrey M. Soper (22,126/162);

Thence N 37°39'32" W along land of the said Soper 93.28 feet to a 5/8" capped rebar (#586) found set in the ground at the Northerly corner of land of the said Soper;

Thence S 52°20'28" W continuing along land of the said Soper 170.00 feet to a 5/8" capped rebar (#1328) found set in the ground at the Easterly corner of land now or formerly of Gary H. Brooks (21,061/287);

Thence N 36°06'28" W along land of the said Brooks 1473.46 feet to a 5/8" capped rebar (#1328) found set in the ground on the Southeasterly side line of Lot 33 of Collinwood Park II Subdivision;

Thence N 54°58'16" E along Lots 33 through 37 of the said Collinwood Park II Subdivision 433.41 feet to a 5/8" capped rebar (#1328) found set in the ground at the Easterly corner of the said Lot 37 and the Westerly corner of Lot 36 of the Varney Mill Estates Subdivision;

Thence S 36°47'44" E along Lots 36 through 55 of the said Varney Mill Estates Subdivision 1499.33 feet to an iron pipe found set in the ground at the Southerly corner of the said Lot 55 at the Northwesterly end of the said Acorn Lane;

Thence continuing S 36°47'44" E along the end of the said Acorn Lane 50.00 feet to the point of beginning. Containing 15.46 acres.

All bearings are Magnetic of the year 2001.

This conveyance is made together with a 50-foot-wide right of way or easement running Northwesterly from the Varney Mill Road as described in a deed recorded in Book 8913 Page 219 and the continuation of the said right of way or easement as it continues Northwesterly across land of the Grantor recorded in Book 23583, Page 93 and along the Northeasterly side line of land of the said Soper to the Southeasterly side line of the above described lot. This right of way or easement is intended to be used for any and all purposes for which a Town Road would be used including utilities.

Received
Recorded Register of Deeds
Jul 31,2017 02:49:33P
Cumberland County
Nancy A. Lane

045463 CORRECTIVE DEED BK8913PG0219

THEODORE J. and BETTY J. RHOADES

of Windham, County of Cumberland and State of Maine
(being unmarried) for consideration paid,

grant to GEORGE H. and DOROTHY A. BROOKS

of Windham, County of Cumberland and State of Maine
with warranty covenants, as joint tenants, the land in Windham, Cumberland County

A right-of-way in common with the grantors and others over a 50 foot strip of land for pedestrian and vehicular travel and for the installation of all utilities customarily installed within public ways described as follows:

Beginning at a point on the northwesterly sideline of the Varney Mill Road at the southeasterly corner of land of Theodore J. Rhoades, et al. as described in a deed recorded in the Cumberland County Registry of Deeds in Book 2854, Page 308; thence N 41°54' 34" W a distance of 194.59 feet; thence N 55°59'47" W a distance of 102.31 feet to an iron marking the southeasterly corner of land conveyed to Jeff and Leanne Soper; thence N 47°12'20" E along land of George H. Brooks, et al. 50 feet to an iron; thence S 55°59'47" E a distance of 102.70 feet to a point on the southwesterly sideline of land of Dennis F. Brooks as described in a deed recorded in said Registry in Book 3054, Page 104; thence S 41°54'34" E along said Dennis F. Brooks land 200 feet to the northwesterly sideline of Varney Mill Road; thence S 47°12'20" W along the sideline of said Varney Mill Road 50.01 feet to the point of beginning.

Theodore J. and Betty J. Rhoades hold title in the above-referenced easement pursuant to the following deeds recorded in Book 2854, Page 308; Book 3713, Page 260, Book 6891, Page 325 and by deed of even date from Leanne Soper, et al. to be recorded prior to these presents.

RECEIVED
RECORDED REGISTRY OF DEEDS
1989 SEP 20 AM 8:55
CUMBERLAND COUNTY

[illegible],

[illegible]

Witness our hand s and seals this 13th day of September 1989

Theodore J. Rhoades

Betty J. Rhoades

The State of Maine Cumberland ss. September 13, 1989

Then personally appeared the above named THEODORE J. RHOADES and BETTY J. RHOADES

and acknowledged the foregoing instrument to be their free act and deed. SEAL

Before me,

~~Justice of the Peace~~ - Attorney at Law - *Notary Public*

Brian R. Olson

1220% Warranty Deed – Joint Tenancy – Short Form

045461 CORRECTIVE DEED BK8913PG0216

WE, LEANNE R. SOPER, GEORGE H. BROOKS and DOROTHY A. BROOKS and JEFF M. SOPER

of Windham, County of Cumberland and State of Maine (~~being married~~), for consideration paid, release to THEODORE J. RHOADES and BETTY J. RHOADES

of Windham, County of Cumberland and State of Maine the land in Windham, County of Cumberland and State of Maine

An easement or right-of-way to pass and repass and for all utilities customarily installed upon public ways over the following parcel of land:

Beginning at a point on the northwesterly sideline of the Varney Mill Road in said Windham at the southwesterly corner of land now of Dennis Brooks, et al.; thence northwesterly along said Dennis Brooks land 300 feet to a point marking the southeasterly corner of land conveyed to Leanne Soper by deed of George H. Brooks, et al. dated August 29, 1985 and recorded in Book 6891, Page 326; thence southwesterly along said Soper land 50 feet to a point; thence southeasterly parallel to the first course 300 feet to the sideline of the Varney Mill Road; thence northeasterly along said Varney Mill Road 50 feet to the point of beginning.

Being the same premises conveyed to Leanne R. Soper, George H. Brooks and Dorothy A. Brooks by deed of Theodore J. Rhoades, et ux. by deed dated August 29, 1985 and recorded in Book 6821, Page 327.

The purpose of this deed is to correct the description of the parcel herein conveyed. Reference is also made to a Quitclaim Deed of even date to be recorded with these presents.

RECEIVED
RECORDED REGISTRY OF DEEDS
1989 SEP 20 AM 8:53
CUMBERLAND COUNTY

~~joins as grantor and releases all right by descent and all other rights~~ wife releases said grantee.

~~Witness~~ our hands and seals this 13th day of September 1989

Leanne R. Soper

George H. Brooks

Dorothy A. Brooks

Jeff M. Soper

The State of Maine

CUMBERLAND ss. Sept 13, 1989

Then personally appeared the above named LEANNE R. SOPER, GEORGE H. BROOKS DOROTHY A. BROOKS and JEFF M. SOPER

and acknowledged the foregoing instrument to be their free act and deed, SEAL

Before me, Susan A Olson

~~Justice of the Peace - Attorney at Law~~ - Notary Public

Susan A Olson

1205 S QUITCLAIM DEED WITHOUT COVENANT OR RELEASE DEED

6891327

37444

BOOK 6891 PAGE 327

THAT, Theodore J. Rhoades & Betty J. Rhoades,

of Windham,
(being unmarried), for consideration paid,
grant to Leanne R. Soper, George H. Brooks and Dorothy A. Brooks,

of Windham
with Warranty Covenants
the land in Windham, Cumberland County, State of Maine.

An easement or right-of-way to pass and repass and for all utilities customarily installed upon public ways over the following parcel of land:

Beginning at a point on the Northwesterly sideline of the Varney Mill Road in said Windham at the southwesterly corner of land now of Dennis Brooks et al; thence Northwesterly along said Dennis Brooks land 300 feet to a point marking the Southeasterly corner of land conveyed to Leanne Soper by deed of even date; thence Southwesterly along said Soper land 50 feet to a point; thence Southeasterly parallel to the first course 300 feet to the sideline of the Varney Mill Road; thence Northeasterly along said Varney Mill Road 50 feet to the point of beginning.

Being a portion of the premises conveyed to the grantors herein by George Brooks et al by the warranty deed dated September 23, 1964, August 22, 1968, and even date and recorded in the Cumberland County Registry of Deeds in Book 2854, Page 308, Book 3054, Page 103 and to be recorded herewith.

Witness Our hands and seals this 29th day of August 19 85

Theodore J. Rhoades

Betty J. Rhoades

The State of Maine Cumberland ss. August 29, 1985

Then personally appeared the above named

Theodore J. Rhoades and Betty J. Rhoades

and acknowledged the foregoing instrument to be our free act and deed,

Before me, Brian R. Olson
Justice of the Peace - Attorney at Law - Notary Public

RECEIVED
1985 SEP 10 AM 11:53
RECORDED REGISTRY OF DEEDS
CUMBERLAND COUNTY

James J. Walsh Brian R. Olson

LOIS WARRANTY DEED

MAINE
Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Mon Aug 07 2017 00:02:36. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
ROBIE HOLDINGS LLC	20152384DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
01/01/2015	N/A	MAINE

Other Names **(A=Assumed ; F=Former)**

NONE

Clerk/Registered Agent

JAROD ROBIE
PO BOX 1508
WINDHAM, ME 04062

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Click on a link to obtain additional information.

List of Filings	View list of filings	
Obtain additional information:		
Additional Addresses	Plain Copy	Certified copy
Certificate of Existence (more info)	Short Form without amendments ($30.00)	Long Form with amendments ($30.00)

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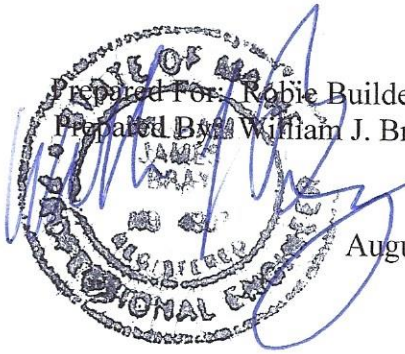
please contact the Bureau's Reporting and Information Section at 207-624-7752 or e-mail or visit our Feedback page.

TRAFFIC IMPACT STUDY

FOR

PROPOSED

Acorn Lane Duplexes



Prepared For: Robie Builders, LLC

Prepared By: William J. Bray, P.E.

August 2017

INTRODUCTION

Robie Builders, LLC is proposing to construct 21 duplex units on a 15.46-acre parcel of property located near the intersection of Acorn and Forbes Lanes in the Town of Windham. The current development plan markets the proposed units as individually owned residential condominiums.

The proposed subdivision layout provides two points of access in conformance with the Town of Windham's subdivision regulations. The primary point of access is provided with the upgrade and extension of Dusty Rhodes Lane, a short gravel private way that intersects Varney Mill Road just southwest of the Forbes Lane/Varney Mill Road intersection. A secondary connection is also proposed that extends Acorn Lane from Forbes Lane to Dusty Rhodes Lane, a distance of approximately 450-feet.

The purpose of this study is to examine existing traffic conditions in the general vicinity of the proposed project, estimate the total number of site trips generated by the project and, make a determination as to whether the existing transportation system can safely accommodate the added traffic demand generated by the project.

EXISTING CONDITIONS

Existing Design Hour Traffic: Manual turning movement counts were conducted at both the Varney Mill Road/Forbes Lane and Forbes Lane/Acorn Lane intersections on July 20/21, 2017. All traffic entering and exiting both intersections were recorded in 15-minute intervals between 7:00 and 9:00 AM and, again, between 3:00 and 6:00 PM (A copy of the traffic data is attached as an appendix to the report). From a summary of the data, it was determined that the "*morning*" peak hour occurs between 7:15 and 8:15 AM at the primary Varney Mill Road/Forbes Lane intersection and the "*evening*" peak hour falls between 4:45 and 5:45 PM.

Traffic data collected during the summer months of July and August typically are considered representative of "*peak*" travel conditions and further adjustments are not required. The 2017 design hour traffic forecasts for the study intersections are illustratively presented on Figure 1.

Roadway Safety Conditions: MaineDOT's Accident Records Section provided the latest three-year (2014 through 2016) crash data for the section of Varney Mill Road between Falmouth Road and William Knight Road, approximately 0.58 miles. MaineDOT's report is presented as follows:

2014 -2016 Traffic Accident Summary

Location	Total Crashes	Critical Rate Factor
1. Falmouth Road @ Varney Mill Road	9	4.62
2. Varney Mill Road btw. Briarwood Lane and William Knight Road	1	0.46

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents***
- ***A Critical Rate Factor greater than 1.00***

Location #1 (highlighted in blue), Falmouth Road @ Varney Mill Road, meets MaineDOT's criteria for a High Crash Location with a total of 9 collisions and a Critical Rate Factor of 4.62. Detailed vehicle collision diagrams were prepared for the noted HCL location and are attached as an appendix to the report. Seven (7) of the 9 reported traffic crashes involved vehicles on either approach entering the intersection and colliding with through vehicles on Falmouth Road. Two of the motorists involved in the vehicle crashes reported to the responding officer that they were unaware that traffic on both approaches of Falmouth did not stop. Additionally, it was

determined that vehicle sightlines (looking west) on the northeast approach of Varney Mill Road are partially restricted due to overgrown tree limbs located in the general vicinity of the fire hydrant.

SITE TRAFFIC

Site Trip Generation: Trip generation was determined for the proposed residential condominiums based upon trip tables presented in the ninth edition of the Institute of Transportation Engineers (ITE) "**TRIP GENERATION**" handbook. The following trip rates were used in that effort:

Land-Use Code 231 – Low-Rise Residential Condominium/Townhouse

Street Peak Hour – AM Peak	*= 0.67 trips/unit*
Street Peak Hour – PM Peak	*= 0.78 trips/unit*

Accordingly, the proposed 42 residential condominium units can be expected to generate a total of **28** trips in the morning peak hour and **33** trips during the afternoon peak hour.

Site Trip Distribution: The Institute of Transportation Engineers handbook provides the following directional distribution rates for a residential condominium for both the AM and PM peak hours:

Land-Use Code 231 – Low-Rise Residential Condominium/Townhouse

Street Peak Hour – AM Peak	*= 25% enter site/75% exit site*
Street Peak Hour – PM Peak	*= 58% enter site/42% exit site*

Based upon the noted directional distribution patterns, 7 trips during the morning peak hour and 19 trips in the evening peak hour will enter the site and the remaining trips (21 AM trips and 14 PM trips) will exit the site.

Vehicle Trip Composition: This report has assumed all vehicle trips generated by the proposed project are "*primary*" or "*new*" vehicle trips to the area street network.

Vehicle Trip Assignment: Peak hour site trips generated by the proposed Acorn Lane Duplexes project were assigned to the adjacent roadway system based upon travel patterns determined with the collection of existing traffic data at both study intersections.

Figure 2 is a "*stick*" diagram that presents the assignment of the site trips to the study intersections.

FUTURE TRAFFIC

Other Development Traffic: Traffic generated by projects that have been approved by the local Planning Board and/or the Maine Department of Transportation, yet are not open, must be included in the estimate of pre-development traffic. The Town's Planning Office has advised that there are no projects whose vehicle trips impact the study intersections.

2018 Pre-Development Traffic: The Traffic Impact Study has been prepared based upon a projected build-out year of 2018. MaineDOT's historical traffic data (2014 AADT of 3,610 and the 2016 AADT of 4,000) for the section of Falmouth Road near the intersection with U.S. Route 202/SR 4 shows traffic growth of approximately 5.5 percent per year occurring between the years 2014 through 2016. Accordingly, the 2017 design hour traffic volumes for the PM peak hour were adjusted by a growth rate of 5.5% to estimate 2018 travel conditions. The 2018 pre-development Traffic forecasts for both Varney Mill Road/Forbes Lane and Forbes Lane/Acorn Lane intersections are illustratively presented on Figure 3.

2018 Post-Development Traffic: Estimated 2018 pre-development traffic forecasts prepared for the study intersections, as depicted on Figure 3, were combined with the site trip assignment illustrated on Figure 2 to create 2018 post-development traffic conditions at both study intersections. Figure 4 graphically presents the estimated 2018 post-development traffic conditions at both the study intersections.

MOBILITY ANALYSIS

Capacity analyses of both 2018 Pre- and Post-Development traffic conditions were performed utilizing the Synchro and SimTraffic computer models. Level of Service rankings are similar to the academic grading system, where an "*A*" is very good with little delay and "*F*" represents very poor conditions. The following table summarizes the relationship between delay and Level of Service for an unsignalized intersection:

Level of Service Criteria for Unsignalized Intersections

Level of Service	Total Control Delay (sec/veh)
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

The results of the capacity analyses are presented in the following table:

Level of Service Summary
2018 Pre- and Post-Development Conditions

	2018 Pre-Development				2019 Post-Development			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection/Approach	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS
Varney Mill Road @ Forbes Lane								
- Varney Mill Road NB	1 sec.	A	1 sec.	A	1 sec.	A	1 sec.	A
- Varney Mill Road SB	1 sec.	A	1 sec.	A	1 sec.	A	1 sec.	A
- Forbes Lane EB	4 sec.	A	4 sec.	A	4 sec.	A	4 sec.	A
- **Overall Intersection**	**1 sec.**	**A**	**1 sec.**	**A**	**1 sec.**	**A**	**1 sec.**	A
Varney Mill Road @ Dusty Rhodes Lane								
- Varney Mill Road NB	n/a	n/a	n/a	n/a	1 sec.	A	1 sec.	A
- Varney Mill Road SB	n/a	n/a	n/a	n/a	1 sec.	A	1 sec.	A
- Dusty Rhodes Lane EB	n/a	n/a	n/a	n/a	3 sec.	A	3 sec.	A
- **Overall Intersection**	**n/a**	**n/a**	**n/a**	**n/a**	**1 sec.**	**A**	**1 sec.**	**A**

Both unsignalized study intersections, highlighted in the preceding table, are expected to operate overall at very high levels of service under the forecast 2018 post-development travel conditions.

VEHICLE SIGHT DISTANCE

The Maine Department of Transportation's Highway Entrance and Driveway Rules, require the following sight distances for a non-mobility roadway:

Sight Distance Standards

Speed Limit	Sight Distance
25 mph	200 feet
30	250
35	**305**
40	360
45	425
50	495
55	570

Varney Mill Road is currently posted at 35mph at Dusty Rhodes Lane, which requires an unobstructed sightline of 305 feet. A clear line of sight in excess of 500-feet was measured "*looking*" in both directions from the centerline of Dusty Rhodes Lane onto Varney Mill Road.

CONCLUSIONS/RECOMMENDATIONS

- The proposed Acorn Lane Duplexes development (42 residential condominium units) can be expected to generate a total of 28 vehicle trips during a typical AM peak hour and a slightly greater volume of 33 vehicle trips in the PM peak hour.

- MaineDOT's Traffic Safety Bureau's latest three-year (2014 through 2016) safety audit for the section of Varney Mill Road between Falmouth Road and William Knight Road (Approximately 1/2-mile in total length) shows the Falmouth Road/Varney Mill Road intersection meets their criteria as a High Crash Location. A total of 9 crashes were reported at the intersection and the measured Critical Rate Factor was 4.62. Detailed vehicle collision diagrams were prepared for the noted HCL location. Seven (7) of the 9 reported traffic crashes involved vehicles on either approach entering the intersection and colliding with through vehicles on Falmouth Road. Two of the motorists involved in the vehicle crashes reported to the responding officer that they were unaware that traffic on both approaches of Falmouth Road did not stop. Additionally, it was determined that vehicle sightlines (looking west) on the northeast approach of Varney Mill Road are partially restricted due to overgrown tree limbs located in the general vicinity of the fire hydrant.

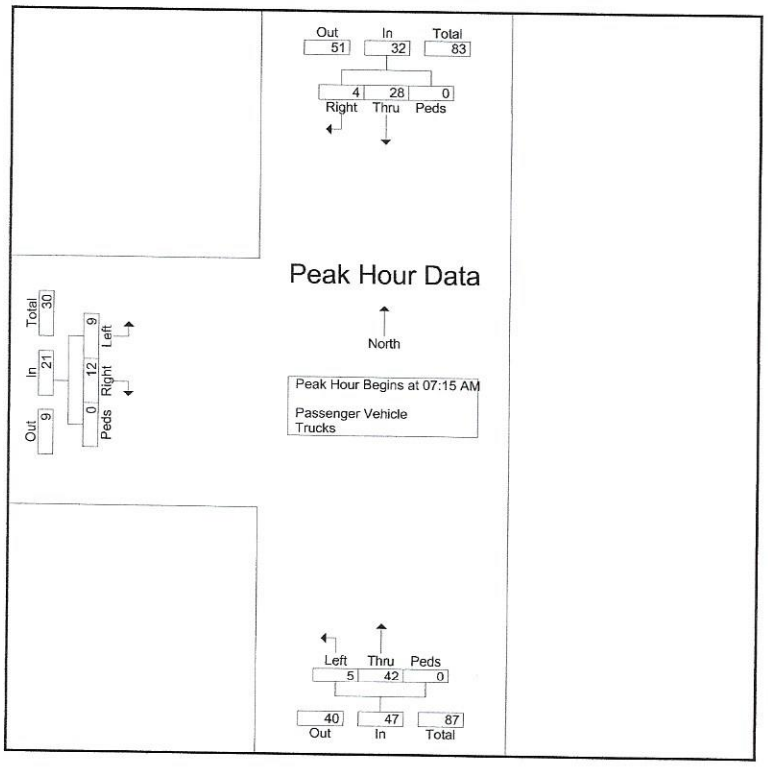
- The Town of Windham is encouraged to trim the low hanging tree limbs located in the northeast quadrant of the intersection to improve sight distance looking west on the northeast approach of Varney Mill Road. Additionally, it is recommended that the existing STOP signs be replaced with 48" signs to further emphasize to approaching motorists of the stop condition. Lastly, it may be helpful to add the yellow warning sign message to both stop approaches, similar to conditions found on Falmouth Road at U.S. Route 202, that state: "*motorists do not stop on cross street*".

- Peak hour traffic generated by the proposed residential subdivision has minimal impact on traffic operations at both study intersections; Varney Mill Road/Forbes Lane and Varney Mill Road/Forbes Lane. Both intersections are expected to operate with minimal vehicle delay (less than 5 seconds) under both forecast 2018 Pre- and Post-development conditions.

- Sightline measurements recorded at the centerline of Dusty Rhodes Lane at Varney Mill Road exceed the MaineDOT's sight distance standard (305 feet) for a posted speed limit of 35mph. Measurements of 500 feet right and left were field recorded at the centerline of the street intersection far in excess of the required standard.

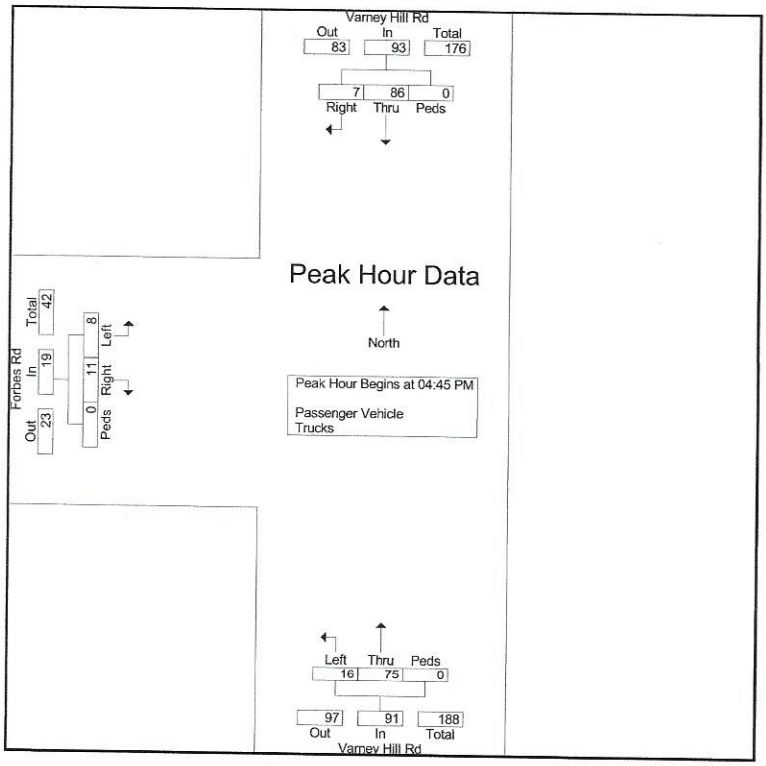
Windham: Varney Hill Rd & Forbes Rd
Friday July 21, 2017
Sunny
Count By: Patrick Frie

File Name : Windham Varney & Forbes AM 072117
Site Code : 00072117
Start Date : 7/21/2017
Page No : 5



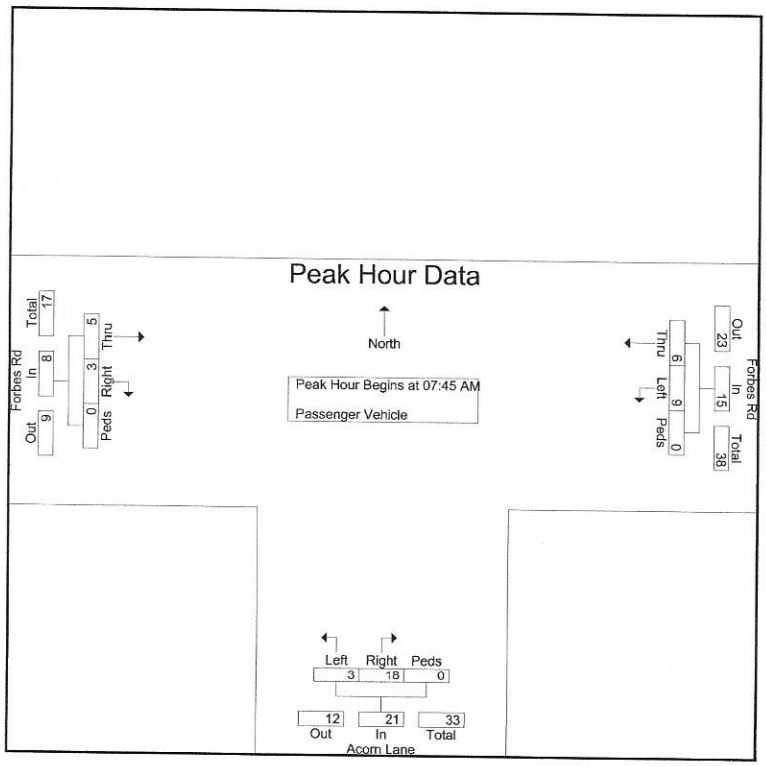
Windham: Varney Hill Rd & Forbes Rd
Thursday July 20, 2017
Sunny
Count By: Dawn-Marie Fahey

File Name : Windham Varney & Forbes PM 072017
Site Code : 02072017
Start Date : 7/20/2017
Page No : 5



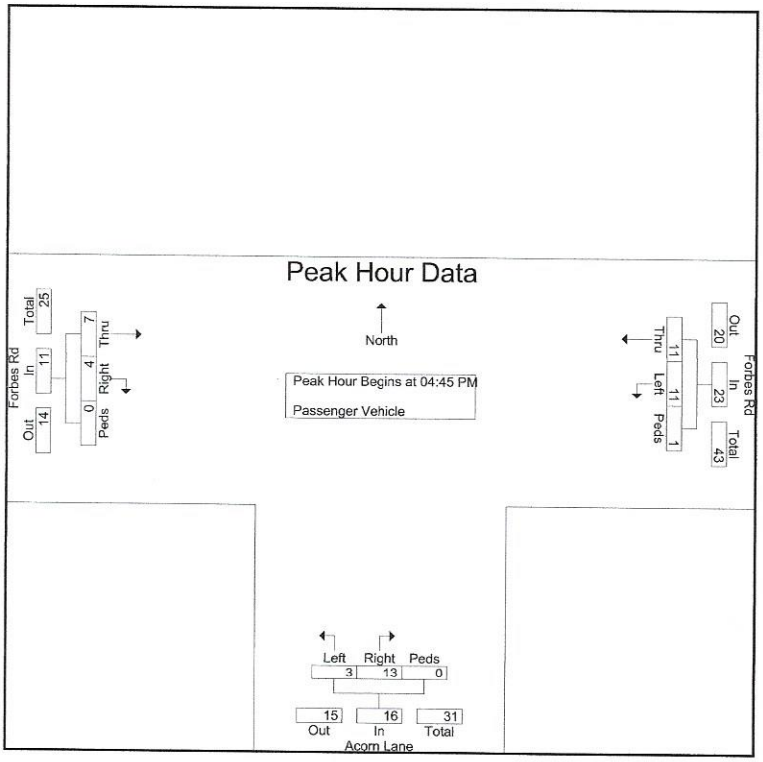
Windham:Acorn Lane & Forbes
Friday July 22, 2017
Sunny
Count By: Dawn-Marie Fahey

File Name : Windham Acorn Lane & Forbes AM 072117
Site Code : 00072117
Start Date : 7/21/2017
Page No : 5



Windham:Acorn Land & Forbes Rd
Thursday July 20, 2017
Sunny
Count By: Kayla Fahey

File Name : Windham Acorn Lane & Forbes PM 072017
Site Code : 00720171
Start Date : 7/20/2017
Page No : 5



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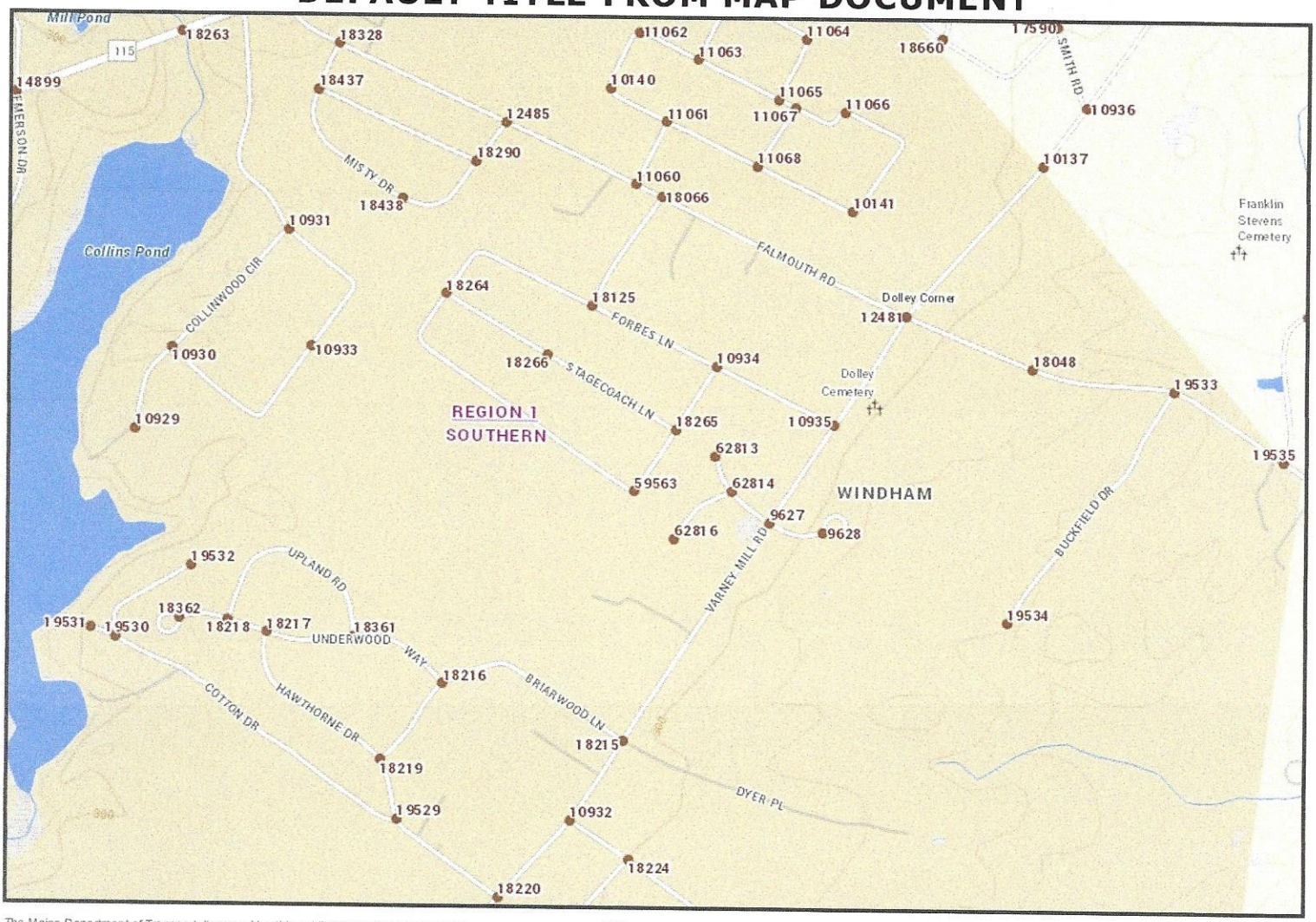

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0.2 Miles

1 inch = 0.17 miles

Date: 7/17/2017
Time: 7:26:47 AM

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Varney Mills Rd in Windham

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: **05W0889** Start Node: **12481** Start Offset: **0** ☐ Exclude First Node

End Node: **10932** End Offset: **0** ☐ Exclude Last Node

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
12481	05W0889 - 0.87	Int of FALMOUTH RD, VARNEY MILL RD	2	9	0	0	0	3	6	33.3	1.298	2.31	0.50	4.62
												Statewide Crash Rate:	0.14	
10935	05W0889 - 0.99	Int of FORBES LN, VARNEY MILL RD	2	0	0	0	0	0	0	0.0	0.698	0.00	0.53	0.00
												Statewide Crash Rate:	0.13	
9627	05W0889 - 1.10	Int of GARDEN LN, GOLDFINCH DR, VARNEY MILL RD	2	0	0	0	0	0	0	0.0	0.625	0.00	0.54	0.00
												Statewide Crash Rate:	0.13	
18215	05W0889 - 1.36	0508634 WIN,VARNEY MILL,BRIARWOOD LA	2	0	0	0	0	0	0	0.0	0.621	0.00	0.54	0.00
												Statewide Crash Rate:	0.13	
10932	05W0889 - 1.45	Int of VARNEY MILL RD, WILLIAM KNIGHT RD	2	0	0	0	0	0	0	0.0	0.636	0.00	0.54	0.00
												Statewide Crash Rate:	0.13	
Study Years:	3.00	**NODE TOTALS:**		9	0	0	0	3	6	33.3	3.878	0.77	0.37	2.11

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
10935	12481	184684	0 - 0.12	05W0889 - 0.87	0.12	2	0	0	0	0	0	0	0.0	0.00081	0.00	1245.25	0.00
Int of FORBES LN, VARNEY MILL RD				RD INV 05 W0889											Statewide Crash Rate: 401.70		
9627	10935	182800	0 - 0.11	05W0889 - 0.99	0.11	2	0	0	0	0	0	0	0.0	0.00068	0.00	1300.98	0.00
Int of GARDEN LN, GOLDFINCH DR, VARNEY MILL RD				RD INV 05 W0889											Statewide Crash Rate: 401.70		
9627	18215	182801	0 - 0.26	05W0889 - 1.10	0.26	2	0	0	0	0	0	0	0.0	0.00156	0.00	1050.36	0.00
Int of GARDEN LN, GOLDFINCH DR, VARNEY MILL RD				RD INV 05 W0889											Statewide Crash Rate: 401.70		
10932	18215	184680	0 - 0.09	05W0889 - 1.36	0.09	2	1	0	0	0	0	1	0.0	0.00052	634.99	1385.21	0.00
Int of VARNEY MILL RD, WILLIAM KNIGHT RD				RD INV 05 W0889											Statewide Crash Rate: 401.70		
Study Years: 3.00				**Section Totals:**	0.58		1	0	0	0	0	1	0.0	0.00356	93.56	854.32	0.11
				Grand Totals:	0.58		10	0	0	0	3	7	30.0	0.00356	935.61	1006.98	0.93

COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION FALMOUTH ROAD @ VARNEY MILL ROAD

TOWN WINDHAM NODE NO(S) 12481

YEARS REVIEWED 2014 - 2016 DATE PREPARED 7-29-2017

CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
OR FACTOR 51. UNKNOWN

SYMBOLS
ANGLE, BACKING, FIXED OBJECT, HEAD ON, OVERTURN, PARKED VEHICLE, PEDESTRIAN (P), REAR END, SIDE SWIPE, TURNING MOVE, CHANGE LANE, OUT OF CONTROL, FATAL ACCIDENT, VEHICLE (MOVING), BICYCLE (B), ANIMAL (A), SLED (S)

WEATHER
C = CLEAR
SL = SLEET
F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

S:/SHEETS/COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION FALMOUTH ROAD @ VARNEY MILL ROAD

TOWN WINDHAM NODE NO(S) 12481

YEARS REVIEWED 2014 - 2016 DATE PREPARED 7-29-2017

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
14-W10885	8/7/14	17:59				2	2	2	2	unaware of traffic control
15-W00743	1/19/15	7:20					1	Ice/Frost	Road Conditions	
16-W16454	11/22/16	9:50					2	1	2	
16-W16853	12/2/16	13:20				1	2	1	2	
14-W08870	7/2/14	17:30					2	2	Hit & Run	
15-W15277	10/22/15	13:05					2	2	2	unaware of traffic control
15-W15199	10/21/15	5:01					1	1	2	
16-W04301	3/31/16	12:00				2	2	1	2	
16-W06686	5/17/16	13:15					2	1	2	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:25	7:25	7:25	7:25	7:25	7:25
End Time	8:30	8:30	8:30	8:30	8:30	8:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	102	132	116	111	111	115
Vehs Exited	101	130	118	110	110	114
Starting Vehs	1	0	2	0	2	0
Ending Vehs	2	2	0	1	3	1
Travel Distance (mi)	46	58	52	49	50	51
Travel Time (hr)	1.5	1.9	1.7	1.6	1.6	1.7
Total Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.0
Total Stops	24	28	30	23	28	26
Fuel Used (gal)	1.3	1.7	1.5	1.4	1.4	1.5

Interval #0 Information Seeding

Start Time	7:25
End Time	7:30
Total Time (min)	5

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:30
End Time	8:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	102	132	116	111	111	115
Vehs Exited	101	130	118	110	110	114
Starting Vehs	1	0	2	0	2	0
Ending Vehs	2	2	0	1	3	1
Travel Distance (mi)	46	58	52	49	50	51
Travel Time (hr)	1.5	1.9	1.7	1.6	1.6	1.7
Total Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.0
Total Stops	24	28	30	23	28	26
Fuel Used (gal)	1.3	1.7	1.5	1.4	1.4	1.5

3: Dusty Rhodes & Varney Mill Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1
Total Del/Veh (s)	0.1	0.2	0.1

5: Varney Mill & Forbes Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	3.5	0.5	0.1	1.1

Total Network Performance

Denied Del/Veh (s)	0.1
Total Del/Veh (s)	1.3

Intersection: 3: Dusty Rhodes & Varney Mill

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Varney Mill & Forbes

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	39	6
Average Queue (ft)	18	0
95th Queue (ft)	42	4
Link Distance (ft)	1264	1212
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:25	7:25	7:25	7:25	7:25	7:25
End Time	8:30	8:30	8:30	8:30	8:30	8:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	134	142	153	122	112	131
Vehs Exited	133	144	154	124	115	135
Starting Vehs	1	2	4	3	5	1
Ending Vehs	2	0	3	1	2	1
Travel Distance (mi)	56	63	65	55	49	58
Travel Time (hr)	1.9	2.1	2.3	1.8	1.7	2.0
Total Delay (hr)	0.1	0.1	0.1	0.1	0.0	0.1
Total Stops	50	47	58	45	36	46
Fuel Used (gal)	1.7	1.9	1.9	1.6	1.4	1.7

Interval #0 Information Seeding

Start Time	7:25
End Time	7:30
Total Time (min)	5

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:30
End Time	8:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	134	142	153	122	112	131
Vehs Exited	133	144	154	124	115	135
Starting Vehs	1	2	4	3	5	1
Ending Vehs	2	0	3	1	2	1
Travel Distance (mi)	56	63	65	55	49	58
Travel Time (hr)	1.9	2.1	2.3	1.8	1.7	2.0
Total Delay (hr)	0.1	0.1	0.1	0.1	0.0	0.1
Total Stops	50	47	58	45	36	46
Fuel Used (gal)	1.7	1.9	1.9	1.6	1.4	1.7

3: Dusty Rhodes & Varney Mill Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1
Total Del/Veh (s)	2.7	0.1	0.2	0.4

5: Varney Mill & Forbes Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	3.6	0.4	0.1	1.2

Total Network Performance

Denied Del/Veh (s)	0.1
Total Del/Veh (s)	1.6

Intersection: 3: Dusty Rhodes & Varney Mill

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	9
95th Queue (ft)	32
Link Distance (ft)	1062
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Varney Mill & Forbes

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	39	12
Average Queue (ft)	21	0
95th Queue (ft)	44	6
Link Distance (ft)	1264	1212
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	213	236	219	217	188	215
Vehs Exited	211	235	217	216	188	213
Starting Vehs	1	2	1	1	3	1
Ending Vehs	3	3	3	2	3	2
Travel Distance (mi)	95	106	96	97	83	95
Travel Time (hr)	3.0	3.3	3.0	3.0	2.6	3.0
Total Delay (hr)	0.1	0.1	0.1	0.1	0.1	0.1
Total Stops	12	30	26	17	25	22
Fuel Used (gal)	2.7	3.0	2.7	2.7	2.3	2.7

Interval #0 Information Seeding

Start Time	4:25
End Time	4:30
Total Time (min)	5

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	213	236	219	217	188	215
Vehs Exited	211	235	217	216	188	213
Starting Vehs	1	2	1	1	3	1
Ending Vehs	3	3	3	2	3	2
Travel Distance (mi)	95	106	96	97	83	95
Travel Time (hr)	3.0	3.3	3.0	3.0	2.6	3.0
Total Delay (hr)	0.1	0.1	0.1	0.1	0.1	0.1
Total Stops	12	30	26	17	25	22
Fuel Used (gal)	2.7	3.0	2.7	2.7	2.3	2.7

3: Dusty Rhodes & Varney Mill Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1
Total Del/Veh (s)	0.0	0.2	0.1

5: Varney Mill & Forbes Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	3.6	0.6	0.2	0.7

Total Network Performance

Denied Del/Veh (s)	0.1
Total Del/Veh (s)	0.9

Intersection: 3: Dusty Rhodes & Varney Mill

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Varney Mill & Forbes

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	11
Average Queue (ft)	14	1
95th Queue (ft)	38	12
Link Distance (ft)	1264	1212
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	247	273	246	224	235	245
Vehs Exited	251	273	243	224	235	245
Starting Vehs	5	3	3	4	6	3
Ending Vehs	1	3	6	4	6	3
Travel Distance (mi)	107	115	106	95	101	105
Travel Time (hr)	3.5	3.7	3.5	3.1	3.3	3.4
Total Delay (hr)	0.1	0.1	0.1	0.1	0.1	0.1
Total Stops	41	32	41	40	37	37
Fuel Used (gal)	3.0	3.3	3.1	2.8	2.8	3.0

Interval #0 Information Seeding

Start Time	4:25
End Time	4:30
Total Time (min)	5

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	247	273	246	224	235	245
Vehs Exited	251	273	243	224	235	245
Starting Vehs	5	3	3	4	6	3
Ending Vehs	1	3	6	4	6	3
Travel Distance (mi)	107	115	106	95	101	105
Travel Time (hr)	3.5	3.7	3.5	3.1	3.3	3.4
Total Delay (hr)	0.1	0.1	0.1	0.1	0.1	0.1
Total Stops	41	32	41	40	37	37
Fuel Used (gal)	3.0	3.3	3.1	2.8	2.8	3.0

3: Dusty Rhodes & Varney Mill Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1
Total Del/Veh (s)	2.6	0.3	0.3	0.4

5: Varney Mill & Forbes Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	3.9	0.5	0.3	0.8

Total Network Performance

Denied Del/Veh (s)	0.1
Total Del/Veh (s)	1.2

Intersection: 3: Dusty Rhodes & Varney Mill

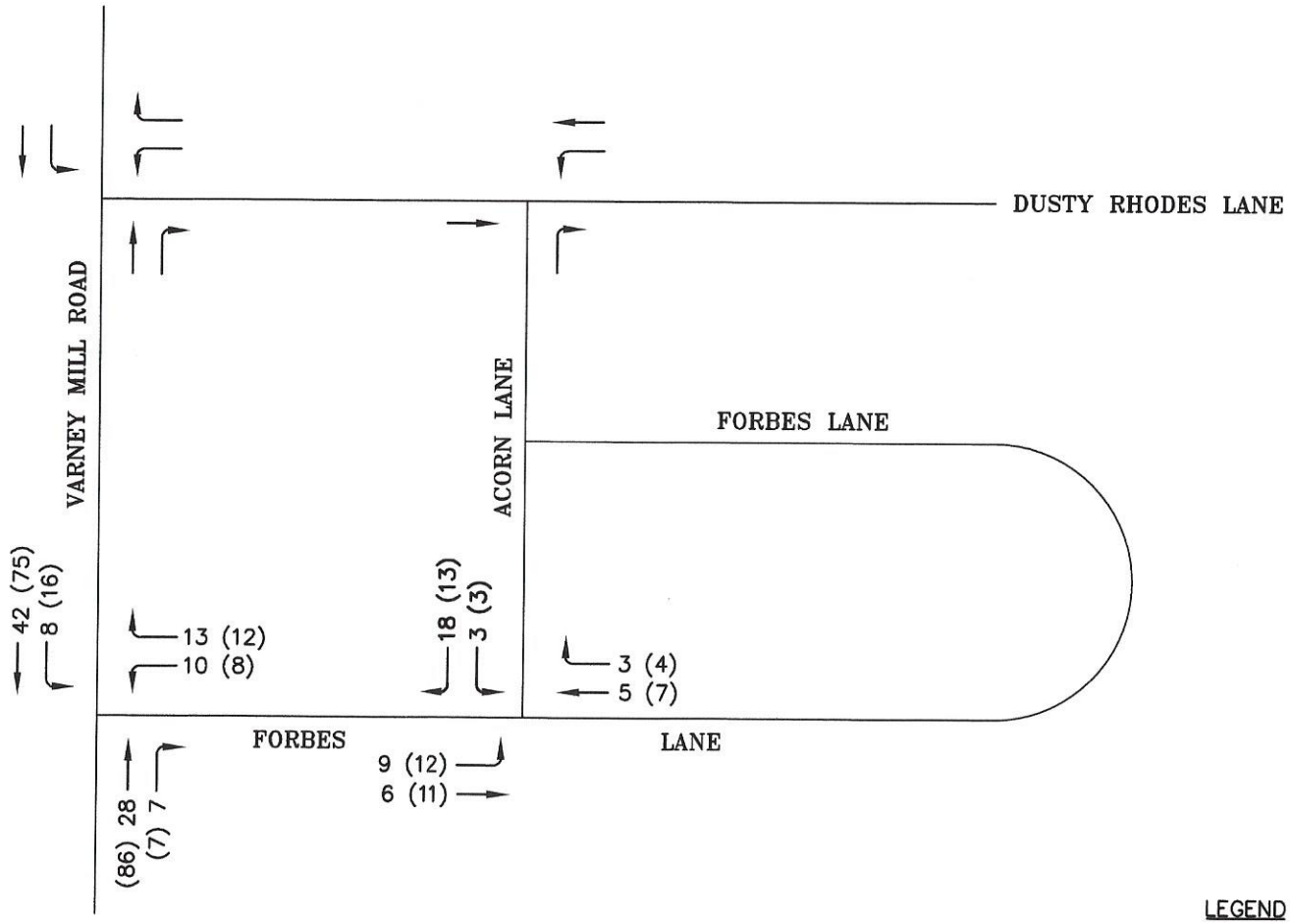
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	23
Average Queue (ft)	7	1
95th Queue (ft)	27	10
Link Distance (ft)	1062	520
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Varney Mill & Forbes

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	34	30
Average Queue (ft)	18	1
95th Queue (ft)	42	12
Link Distance (ft)	1264	1212
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0



LEGEND

XX = AM PEAK HOUR

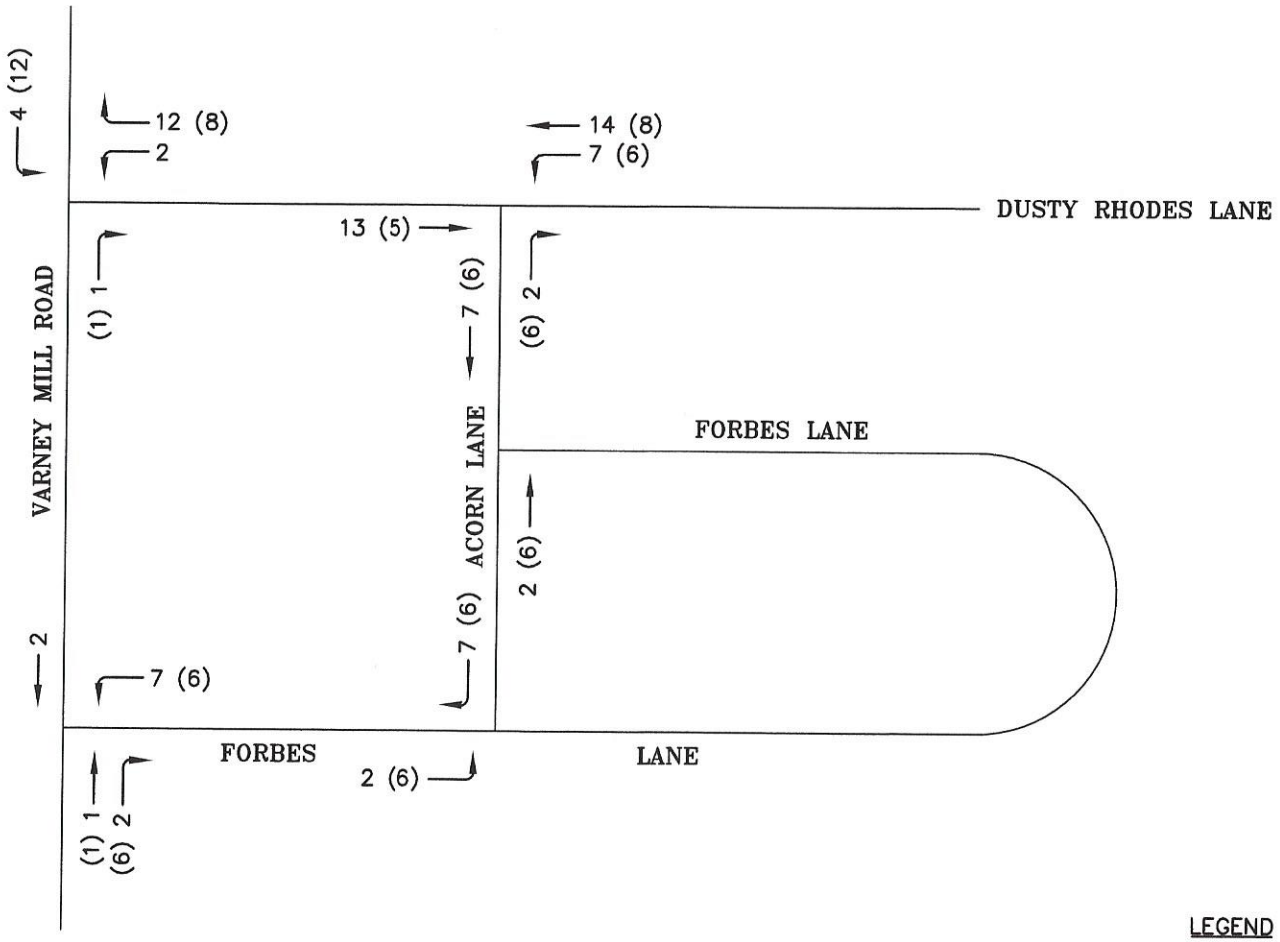
(XX) = PM PEAK HOUR

2017 DESIGN HOUR TRAFFIC

FIGURE 1

E:\LAND PROJECTS\34000\344399 TRAFFIC SOLUTIONS\ACORN LANE\PLANSET\ACORN LANE.DWG

Project Name and Location: ACORN LANE DUPLEXES, WINDHAM, MAINE	TRAFFIC SOLUTIONS
DATE: JULY, 2017 — FIGURE: 1	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730



LEGEND

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

SITE TRAFFIC ASSIGNMENT
PEAK HOUR
FIGURE 2

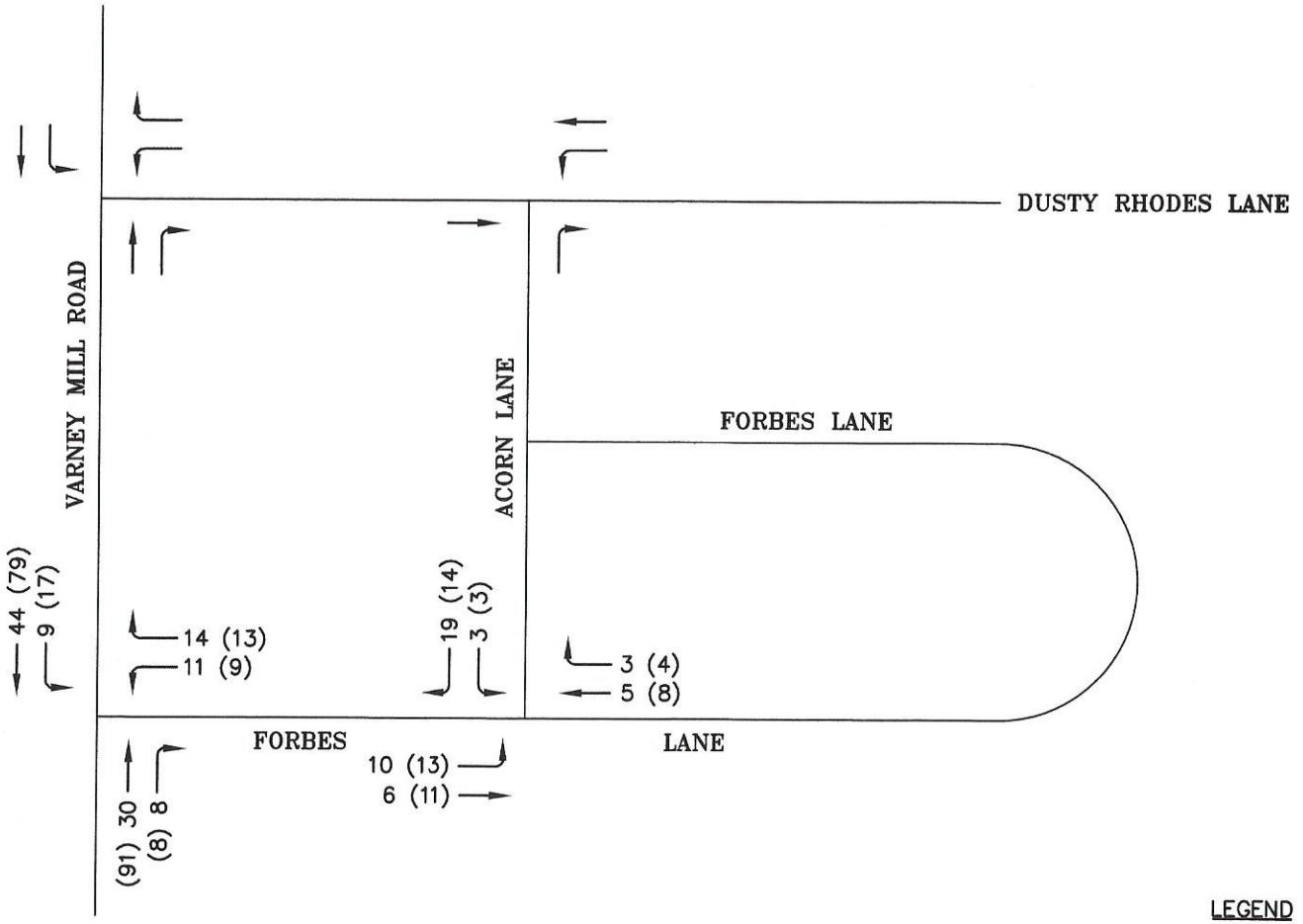
E:\LAND PROJECTS\34000\344399 TRAFFIC SOLUTIONS\ACORN LANE\PLANSET\ACORN LANE.DWG

Project Name and Location:
ACORN LANE DUPLEXES
WINDHAM, MAINE

DATE: JULY, 2017

FIGURE: 2

TRAFFIC SOLUTIONS
235 BANCROFT STREET, PORTLAND, MAINE 04102-1730



LEGEND

XX = AM PEAK HOUR

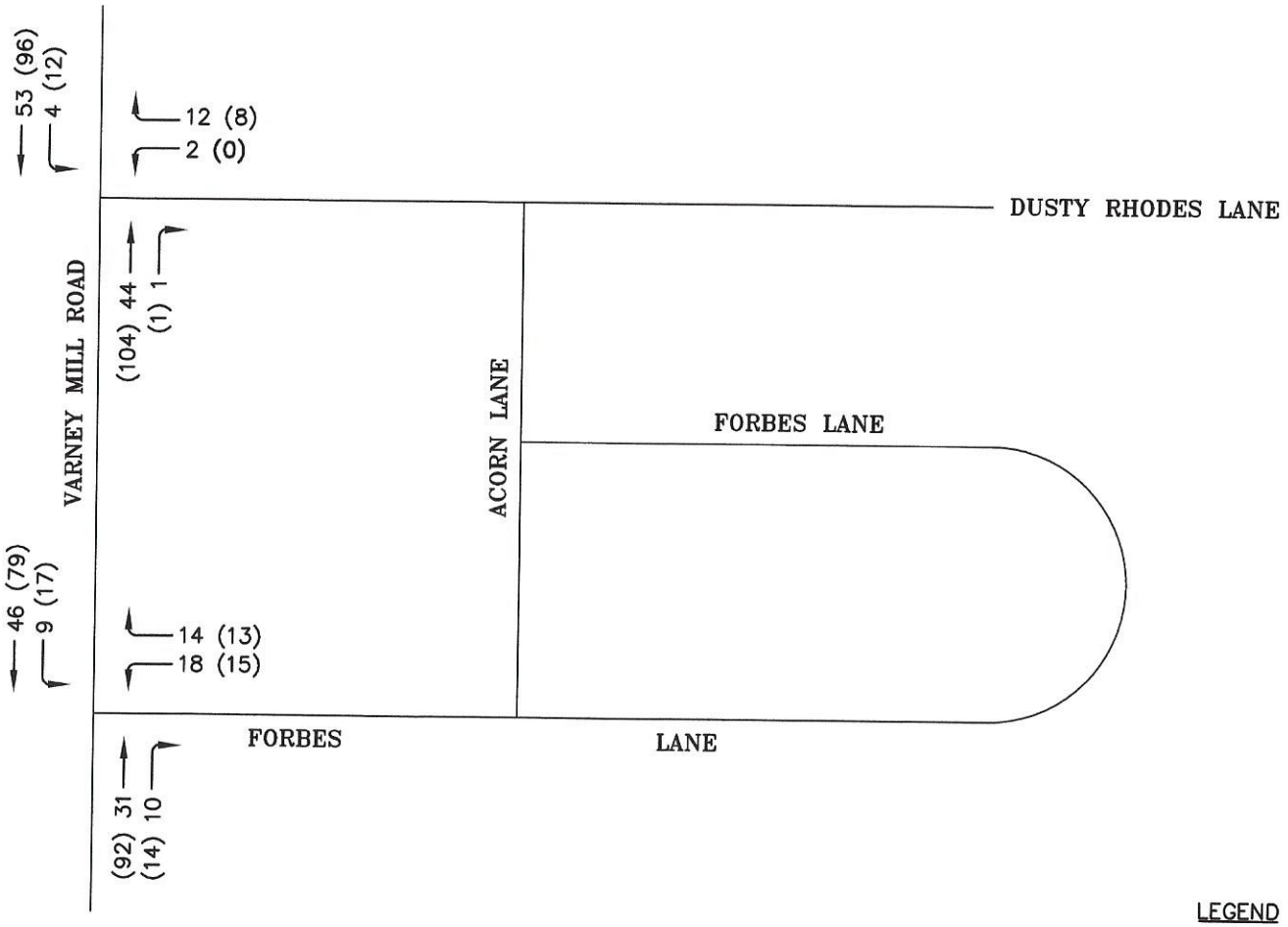
(XX) = PM PEAK HOUR

2018 PRE-DEVELOPMENT TRAFFIC

FIGURE 3

E:\LAND PROJECTS\34000\344399 TRAFFIC SOLUTIONS\ACORN LANE\PLANSET\ACORN LANE.DWG

Project Name and Location: ACORN LANE DUPLEXES, WINDHAM, MAINE	TRAFFIC SOLUTIONS
DATE: JULY, 2017 — FIGURE: 3	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730



LEGEND

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

2018 POST-DEVELOPMENT TRAFFIC

FIGURE 4

E:\LAND PROJECTS\34000\344399 TRAFFIC SOLUTIONS\ACORN LANE\PLANSET\ACORN LANE.DWG

Project Name and Location:
ACORN LANE DUPLEXES
WINDHAM, MAINE

DATE: JULY, 2017

FIGURE: 4

TRAFFIC SOLUTIONS

235 BANCROFT STREET, PORTLAND, MAINE 04102-1730

STORMWATER MANAGEMENT PLAN

Kettle Estates
Windham, Maine

The following Stormwater Management Plan has been prepared for Robie Holdings, LLC. to evaluate stormwater runoff and erosion control for the proposed Kettle Estates Condominium Development to be located off the end of Dusty Rhodes Lane in Windham, Maine.

Site Calculations

Total Property Area	15.46 Ac (+/-)
Total Proposed Impervious Area	125,797 SF (2.88 Ac)
Total Developed Area	478,170 SF (10.98 Ac)

Existing Conditions

The Kettle Esates development parcel is located off the end of Dusty Rhodes Lane in Windham, Maine. Dusty Rhodes Lane is a 400' long private way that connects to Varney Mill Road approximately 650' northeast of the Varney Mill/Briarwood Road intersection. The property is shown as lot 8 on the Town of Windham Tax Map #19. The lot is approximately 15.46 acres and contains part of a reclaimed gravel pit. The area above the gravel pit is heavily forested. The pit walls & bottom are growing in with small bushes & shrubs. The portion of the site that does not drain internally is located within the Pleasant River watershed. A copy of the U.S.G.S. Quadrangle Map is attached.

The pit is internally drained. Much of the development area drains to the pit. The rest of the site drains to the east, toward Forbes Lane. It is likely that almost no runoff leaves the site due to the slight grades combined with the high infiltrative capacity of the underlying soils.

Mark Cenci of Mark Cenci Geologic walked the site in July of 2017 and found no wetlands.

Proposed Development

The applicant intends to construct 21 duplex buildings that will contain a total of 42 duplex units along with the associated roadway, parking areas & site amenities. The development will be accessed from an extension of Dusty Rhodes Lane. The existing portion of Dusty Rhodes Lane will be paved as part of the project. A secondary emergency access will be added that connects to the end of Acorn Lane. This access will be limited to emergency vehicles only.

The applicant will offer three different building types to prospective buyers. For the purposes of these calculations, we assumed that all units will be the largest of the three options.

Drainage Pattern

The site contains highly infiltrative soils. Very little runoff leaves the site. Most of the site drains to the internally drained reclaimed gravel pit. The easternmost portion of the site slopes gently to the east, toward Forbes Lane, but it's unlikely that any runoff actually leaves the site due to the highly infiltrative soils and slight slopes. The existing drainage pattern is being preserved in the post development condition.

We are proposing to construct a berm around two sections of the bottom of the pit and tie them into the existing slopes to form two infiltration basins. 18" of loam will be placed on the bottom of the basins to meet MDEP specifications. All of the internal road system, the emergency access road, a portion of the existing Dusty Rhodes Lane, all the driveways and most of the roof areas drains to one of the two infiltration basins.

Flooding

The development area is not located within an area of flood hazard according to the Federal Insurance Rate Map 230189 0015 B. See attached map.

Modeling Assumptions

The onsite stormwater facilities were sized utilizing the USDA Soil Conservation Service (SCS) TR-20 Runoff Simulation Model, as contained in the HydroCAD computer software program (Version 9.0). Runoff curve numbers were determined for each direct watershed by measuring the area of each hydrologic soil group within each type of land cover. Weighted curve numbers were then calculated using curve numbers for various cover types and hydrologic soil groups, assuming "good" conditions as defined in U.S Soil Conservation Service (SCS) publications. Times of concentration and travel times were determined from site topographic maps in accordance with SCS procedures. A maximum length of 150 feet was used for sheet flow.

All of the watersheds' peak runoff rates were analyzed for the 2, 10 and 25-year frequency, 24-hour duration storm events. A Type III rainfall distribution was applied to these storms. The rainfall amounts for Cumberland County are as follows:

Storm Frequency Precipitation (in./24 hr)	
2-year	3.1
10-year	4.9
25-year	5.8

Onsite & Offsite Soils

The soils were delineated from the Cumberland County Medium Intensity Soil Survey as shown on the Soil Data Viewer on the NRCS website (See attached map). The soil survey results are summarized below:

Soil Type Summary Table		
Soil Symbol	Soil Name	HSG
HlB	Hinkley	A
WmB	Windsor	A

The entire site contains highly infiltrative sand. Test pits were evaluated in the pond areas and no groundwater was found within 4' of the surface.

Water Quantity

Site contains highly infiltrative soils. The infiltration pond was sized to contain the 25 year storm event plus additional excess storage. The post development flow rate for the 2, 10 & 25 year storm events is assumed to be zero.

Water Quality (BMP Standard)

The water quality requirements will primarily be met by the construction of two infiltration basins and roof drain filter strips that will be located on the rear of Units 1-4 & 31-42. The infiltration basin will receive runoff from the entire roadway system, the development associated with Units 5-30 and the driveway & half the roof area of Units 1-4 & 31-42.

The impervious and developed treatment percentages are detailed below:

New Impervious Area: The project will result in the creation of approximately 125,797 SF of impervious area in the form of roadway, sidewalks, driveways & roof. The infiltration basins will treat 115,123 SF of proposed impervious area plus approximately 2,000 SF of the end of Dusty Rhodes Lane. Roof drain filter strips will be used to capture the runoff from the back half of 8 of the buildings, totaling 7,000 SF. Together, approximately 124,123 SF of impervious area will be treated resulting in a treatment percentage of (124,123/125,797) x 100%= 98.6%. Only a portion of the onsite amenities will be left formally untreated.

Percentage of Treatment of the Impervious Area =98.6% (95% req'd)

Project Developed Area: The project will result in the creation of approximately 478,170 SF of developed area. The infiltration basins & roof drain filter strips will treat all but approximately 90,000 SF of the developed area. The infiltration basin and filter strips will treat approximately 387,475 SF of developed area resulting in a treatment percentage of (388,170/478,170) x 100%= 81.2%

Percentage of Treatment of the Developed Area = 81.2% (80% required)

BMP Sizing Calculations:

Infiltration Basin #1

STAGE (FT)	AREA (SF)	STORAGE (CF)
284	20800	0
285	23400	22100
286	26000	46800
287	28600	74100

WATERSHED IMPERVIOUS AREA=	69,659	SF
WATERSHED LANDSCAPED AREA=	164,000	SF
REQUIRED WATER QUALITY VOLUME=	11,272	CF
PROVIDED WATER QUALITY VOLUME=	46,800	CF

The required water quality volume was calculated by multiplying the impervious area by 1.0" and the landscaped area by 0.4".

Infiltration Basin #2

STAGE (FT)	AREA (SF)	STORAGE (CF)
283	6650	0
284	7767	7208
285	8883	15533
286	10000	24975

WATERSHED IMPERVIOUS AREA=	47,464	SF
WATERSHED LANDSCAPED AREA=	100,000	SF
REQUIRED WATER QUALITY VOLUME=	7,289	CF
PROVIDED WATER QUALITY VOLUME (40% Voids)=	15,533	CF

The required water quality volume was calculated by multiplying the impervious area by 1.0" and the landscaped area by 0.4".

Roof Dripline Filter Bed

We propose to provide treatment for the rear half of the roof for Units 1-4 & 31-42. The bed is required to provide volume for 1" of runoff from the contributing area and store it within a reservoir bed. The bed sizing is as follows:

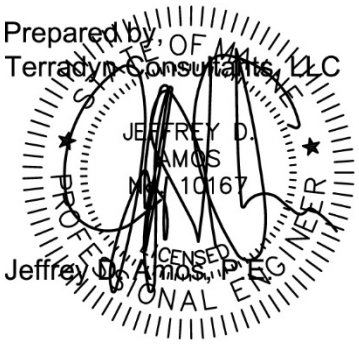
Area of Watershed: = 875 SF
Treatment Volume Required: Area x runoff depth: 875 SF x 1/12 FT = 72.9 CF
Bed Sizing:
Porosity = 40% Bed Length = 47' Bed Width = 3' Bed Depth = 1.5
Available Volume= 47' x 3' x 1.5' x 0.40 = 84.6 CF.

The design is adequate since the available volume exceeds the required volume. The filter strips meet the standard sizing criteria and will have a corresponding treatment factor of 0.4.

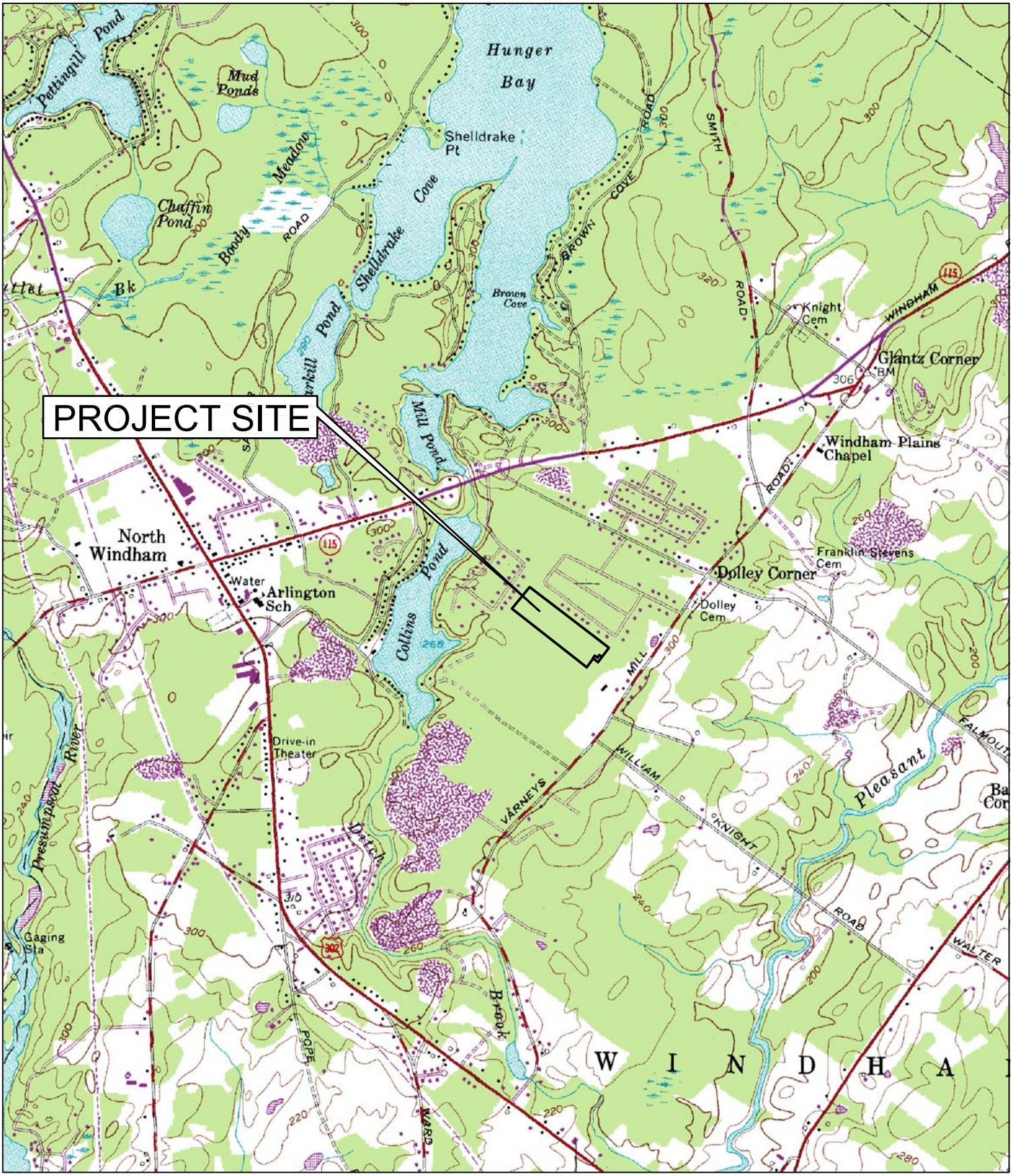
Summary

Based on the results of this evaluation, the proposed stormwater design is not expected to cause flooding, erosion or other significant adverse effects downstream of the site.

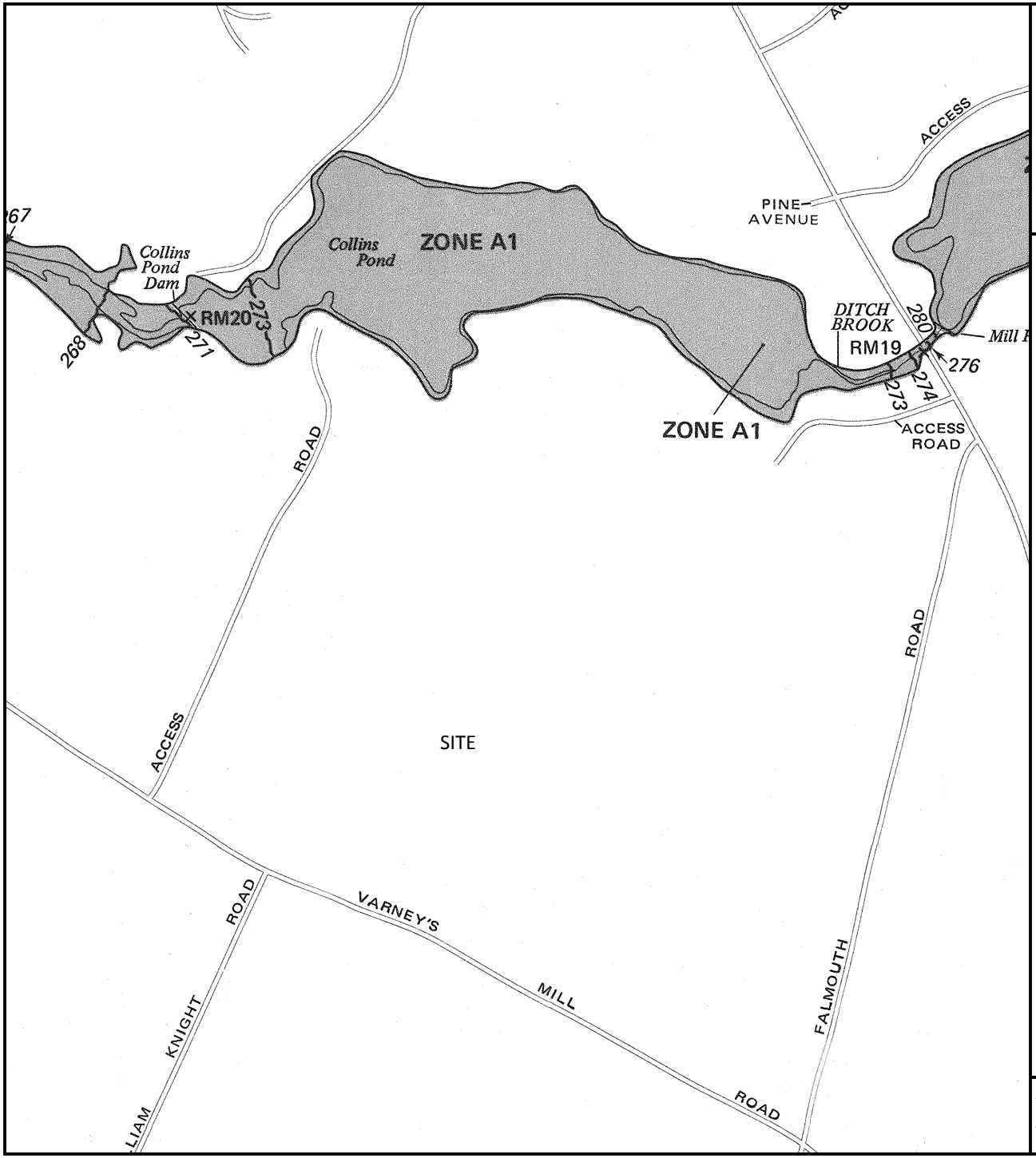
Prepared by,
Terradyn Consultants, LLC



Jeffrey D. Amos, P.E.



SHEET DESCRIPTION U.S.G.S. QUADRANGLE MAP KETTLE ESTATES, WINDHAM	TERRADYN CONSULTANTS, LLC P.O. Box 339 111 Elderberry Lane New Gloucester, ME 04260 Office: (207) 926-5111 Fax: (207) 221-1317 www.terradynconsultants.com Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting	JOB NO. 1715	FIGURE 1
PREPARED FOR ROBIE HOLDINGS, LLC P.O. BOX 1508 WINDHAM, ME 04062		DATE 8/7/2017	OF 1
		SCALE 1"=2000'	



APPROXIMATE SCALE

800 0 800 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF
WINDHAM, MAINE
CUMBERLAND COUNTY

PANEL 15 OF 35
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230189 0015 B

EFFECTIVE DATE:
SEPTEMBER 2, 1981

federal emergency management agency
federal insurance administration

Map Scale: 1:4,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 12, Sep 15, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 20, 2010—Jul 18, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Cumberland County and Part of Oxford County, Maine (ME005)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	B	0.0	0.0%
HlB	Hinckley loamy sand, 3 to 8 percent slopes	A	4.3	19.2%
HlC	Hinckley loamy sand, 8 to 15 percent slopes	A	1.8	8.2%
WmB	Windsor loamy sand, 0 to 8 percent slopes	A	16.0	72.5%
Totals for Area of Interest			**22.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ALN440 – Towne Commons® LED | TYPE

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- Type 2, 3, 4, 5 distributions
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- Surge protection included
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- Powder coat finish in 13 standard colors with polymer sealer

ALN440

1. LUMINAIRE	2. DISTRIBUTION	3. COLOR TEMP	4. DRIVER	5. COLOR	6. OPTIONS	7. CONTROL	8. MOUNTING
ALN 440	Y5	3k	700	BL			Post Top Std.

1. LUMINAIRE

ARM OR POST TOP MOUNT
ALN 440

TOP MOUNTED ARM OR PENDANT MOUNT
ALN 440D

2. DISTRIBUTION

Y2 (Type 2)
Y3 (Type 3)
Y4 (Type 4)
Y5 (Type 5)

3. COLOR TEMPERATURE

32LED-3K *(Warm White, 3000K output)*
32LED-4K *(Neutral White, 4000K output)*
32LED-5K *(Bright White, 5000K output)*

4. DRIVER *(120 thru 277 volt)*

700 *(700mA drive current, 75 watts)*

5. COLOR

WH	*Arctic White*	VBU	*Verde Blue*
BL	*Black*	CRT	*Corten*
BLT	*Matte Black*	MAL	*Matte Aluminum*
DB	*Dark Bronze*	MG	*Medium Grey*
DGN	*Dark Green*	AGN	*Antique Green*
TT	*Titanium*	LG	*Light Grey*
WDB	*Weathered Bronze*	RAL	*Premium Color*
MDB	*Bronze Metallic*	CUSTOM	* * *Contact Factory*

6. OPTIONS

CHM *(Glass chimney with polished brass holder)*
CND *(3-lamp candelabra with polished brass holder, lamps included. **For decorative use only.**)*
LDL *(Lightly diffused lens)*
SBL *(Sandblast diffused lens)*
HSS-L *(House side shield, consists of three field installed panels attached to the inside of the lens. Installing three panels blocks 180° of the lens)*
MAT *(Mast arm adapter slips over a 2 3/8" / 60mm O.D. pipe and is secured with 4 stainless steel set screws. **For ALN440D only.**)*
PMS *(Pendant mount with 48" / 1220mm stem and canopy with swivel. **For ALN440D only.**)*
PMC *(Pendant kit includes canopy and 48" / 1220mm of brass chain painted the fixture color. **For ALN440D only.**)*
PT5 *(Post top adaptor for a 5"/127mm O.D. pole)*

7. CONTROL

PCA-C *(Contemporary photocell adapter, not for Wall Mount)*
PCA-T *(Traditional photocell adapter, not for Wall Mount)*

SCP (Sensor Control Programmable) pole accessory is available to provide occupancy detection for outdoor applications meeting California Title 24. For complete spec sheet and ordering information, visit *www.aal.net/products/sensor_control_programmable/*

8. MOUNTING

WALL MOUNT
ALN440

WMA1M	WMA1L	WMA3	WMA35U
WMA36U	WMA55	WMA56	WMA57
WMA7	WMA9U	WMA22U	

ALN440D

WMA2M	WMA2L	WMA37	WMA38
WMA39	WMA4	WMA6	WMA8
WMA9D	WMA10	WMA11	WMA12
WMA16	WMA17	WMA18	WMA22D

POLE MOUNT

Post Top Mount: (*Standard)*

The fixture shall slip over a 4"/100mm O.D. pole or tenon and be secured to the pole with three (or six) stainless steel set screws.

Pole Side Mount *(4" O.D. or 5" O.D. side mount)*

ALN440

TRA1M	TRA3	TRA5U	TRA55
TRA56 (4" only)	TRA57	TRA59U	SLA8U
SLA22U			

ALN440D

TRA2M	TRA2L	SLA3 (4" only)	SLA8D
SLA22D			

Pole *Top Mount Arm*

ALN440

SLA1	SLA1-2

ALN440D

TRA4	TRA7	TRA7-2	TRA8
TRA9	TRA9-2	SLA4	SLA4-2
SLA7	SLA7-2	SLA9	SLA9-2
SLA10	SLA10-2	SLA16	SLA16-2
SLA17	SLA17-2	SLA18	SLA18-2

PIER MOUNT

PM1	PM2	PM3

Visit www.aal.net for Arms, Poles & Accessories Specification Guide

SPECIFICATIONS

HOUSING

Luminaire shall be cast A356 alloy aluminum, free of any porosity or cosmetic fillers. Castings shall be of uniform wall thickness, minimum .188 inch with no warping or mold shifting.

The top cap shall hinge open by loosening two captive fasteners. The top shall seal the lamp compartment with a continuous silicone gasket. The lens shall be one-piece clear optical grade acrylic with a one-piece memory retentive silicone gasket on top and bottom. The LED and driver assembly shall be serviceable by backing out three thumb screws to allow for the light engine to be lifted out. Quick disconnects shall be used for all electrical connections.

All internal and external hardware shall be stainless steel.

OPTICAL MODULE

The optical assembly shall be completely sealed with a one piece injection molded silicone gasket to prevent dust, insect or moisture contamination. The optical array shall consist of high brightness light emitting diodes mounted to a printed metal circuit board with precision injection molded optically clear lenses discretely coupled to each individual diode. The printed circuit board assembly shall have a uniform conformal coating with the exception of the optical output lens at each diode and be mechanically fastened to an anodized die-cast aluminum heat sink. Standard color temperatures shall be 3000K, 4000K and 5000K.

ELECTRICAL

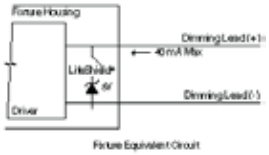
All Luminaires shall accept 120 thru 277 volt input and have integral surge protection. Drivers shall be U.L recognized and have a 0-10v dimming interface with a dimming range of 10-100%. Approved dimmers include Lutron Diva AVTV, Lutron Nova NFTV and NTFTV. (Note: not compatible with current sourcing dimmers). Consult factory for current list of known compatible dimming systems. LifeShield™ shall be provided with all configurations for added protection in extreme temperature environments (-30°C to 60°C). The electrical assembly shall be mounted to a serviceable tray. The surge protector shall be U.L. recognized and have a sur ge current rating of 10,000 Amps using the industry standard

See next page

JOB _____
TYPE _____
NOTES _____

architectural area lighting
ARCHITECTURAL AREA LIGHTING
16555 East Gale Ave. | City of Industry | CA 91745
P 626.968.5666 | F 626.369.2695 | www.aal.net

8/20uSec wave with a clamping voltage of 320V and surge rating of 372J. The surge protector case shall be a high-temperature, flame resistant plastic enclosure. The electrical assembly shall be installed and prewired in the fixture.



Fixture Equivalent Circuit

CONTROLS

SCP shall have an integral surge protection device with a currentt rating of 10,000 Amps using the industry standard 8/20uSec wave and sure rating of 372J

Sensor not intended for use with additional photo-control, wireless control or dimming systems.

SERVICING

The top of the fixture shall hinge open for relamping by loosening two stainless steel fasteners.

MOUNTING

Post top mounting: The fixture shall slip over a 4"/100mm O.D. pole or tenon and be secured to the pole with three (or six) stainless steel set screws.

Arm or wall mounting: The fixture shall be attached to the cast arm with three stainless steel bolts and a silicone gasket.

FINISH

Fixture finish shall consist of a five stage pretreatment regimen with a polymer primer sealer, oven dry off and top coated with a thermoset super TGIC polyester powder coat finish. The finish shall meet the AAMA 2604-02 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance.

CERTIFICATION

Fixtures shall be listed with ETL for outdoor, wet location use, conforming to the UL 1598 and Canadian CSA 22.2 no. 250 standard. IP54.

WARRANTY / TERMS AND CONDITIONS OF SALE

Download:
http://www.hubbelllighting.com/resources/warranty/

AAL reserves the right to change product specifications without notice.

PROJECTED LUMEN MAINTENANCE

AMBIENT TEMP.	0	25,000	50,000	*TM-21-11 60,000	100,000	PROJECTED L70 (HRS)
25°C/ 77°F	100%	95%	93%	92%	89%	>60,000
40°C/ 104°F	100%	94%	91%	90%	85%	>60,000

DIMENSIONS

ALN440

ALN440
HEIGHT: 31"/790mm
LENGTH: 18"/460mm
WIDTH: 18"/460mm
WEIGHT: 40 lbs.
EPA: 2.80

ALN440D

ALN440D
HEIGHT: 26"/660mm
LENGTH: 18"/460mm
WIDTH: 18"/460mm
WEIGHT: 35 lbs.
EPA: 2.59

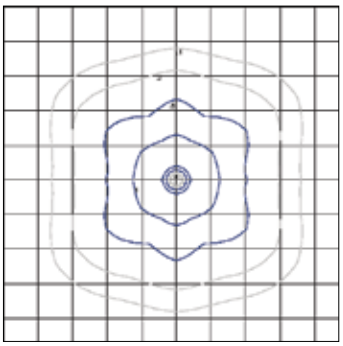
PERFORMANCE DATA (32 LEDS, 700 MA DRIVE CURRENT, 75 WATTS)

TYPE	LENS	5K					4K					3K				
		LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G
Y2	CLEAR	5427	72	2	3	3	5156	69	2	2	3	4016	54	1	3	2
Y3		5237	70	2	3	2	4975	66	2	3	2	3875	52	1	3	2
Y4		5736	76	1	3	3	5449	73	1	3	3	4245	57	1	3	2
Y5		5183	69	3	3	3	4945	66	3	3	2	3809	51	2	3	2
Y2	LDL	5160	69	2	4	3	4902	65	2	4	3	3818	51	1	3	3
Y3		4964	66	1	4	3	4716	63	1	4	3	3674	49	1	3	3
Y4		5449	73	1	4	3	5176	69	1	4	3	4032	54	1	4	3
Y5		4901	65	2	4	3	4685	62	2	4	3	3610	48	2	3	3
Y2	SBL	4729	63	2	4	3	4492	60	1	4	3	3499	47	1	4	3
Y3		4554	61	1	4	3	4327	58	1	4	3	3370	45	1	4	2
Y4		5004	67	1	4	3	4754	63	1	4	3	3703	49	1	4	3
Y5		4499	60	2	4	3	4292	57	2	4	3	3310	44	1	4	2

ALN440-Y3-32LED-5K-700 WATTAGE: 75 LUMEN OUTPUT: 5237 EFFICACY: 70 Lm/W

B2 U3 G2

FORWARD LIGHT			LUMEN
FL	30°	2.4%	124.3
FM	60°	34.5%	1804.4
FH	80°	29.1%	1523.6
FVH	90°	3.1%	163.2
BACK LIGHT			
BL	30°	1.7%	90.7
BM	60°	12.1%	631.5
BH	80°	11.1%	582.8
BVH	90°	2.5%	133.1
UPLIGHT			
UL	100°	1.0%	54.3
UH	180°	2.5%	129.2



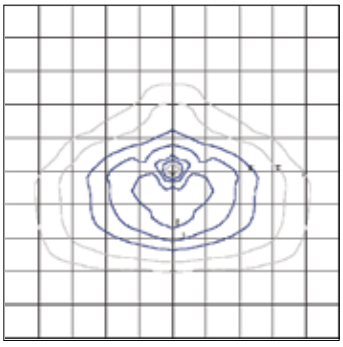
UPLIGHT 0%
DOWNLIGHT 100%

14' MOUNTING HEIGHT

ALN440-Y5-32LED-5K-700 WATTAGE: 74.9 LUMEN OUTPUT: 5183 EFFICACY: 69 Lm/W

B3 U3 G3

FORWARD LIGHT			LUMEN
FL	30°	1.9%	96.7
FM	60°	16.2%	839.4
FH	80°	25.8%	1336.3
FVH	90°	4.4%	228.3
BACK LIGHT			
BL	30°	1.9%	96.7
BM	60°	16.2%	839.4
BH	80°	25.8%	1336.3
BVH	90°	4.4%	228.3
UPLIGHT			
UL	100°	1.6%	82.2
UH	180°	1.9%	99.0



UPLIGHT 0%
DOWNLIGHT 100%

14' MOUNTING HEIGHT

IES files can be found at www.aal.net

Map	Lot #	Owner	Co-Owner	Mailing Address	City	State
19	8A	MICHAEL P. MARTIN	WILLOW D. MARTIN	160 VARNEY MILL RAOD	WINDHAM	ME
19	8-2-1	DENNIS F. BROOKS		164 VARNEY MILL ROAD	WINDHAM	ME
19	8-2	DENNIS F. BROOKS		164 VARNEY MILL ROAD	WINDHAM	ME
19	8D	JEFFREY M. SOPER	LEANNE R. SOPER	8 DUSTY RHOADES LANE	WINDHAM	ME
19	8B	DENNIS F. BROOKS, SR.		164 VARNEY MILL ROAD	WINDHAM	ME
19A	33	DENNIS F. BROOKS, SR.		164 VARNEY MILL ROAD	WINDHAM	ME
19A	34	KRISTEN R. MCINNIS		96 RUNNING BROOK ROAD	WINDHAM	ME
19A	35	BARBARA A. TRACY		92 RUNNING BROOK ROAD	WINDHAM	ME
19A	36	JAMES D. TURNER	SUSAN E. TURNER	86 RUNNING BROOK ROAD	WINDHAM	ME
19A	37	JAMES D. TURNER	SUSAN E. TURNER	86 RUNNING BROOK ROAD	WINDHAM	ME
19A	38	WILLIAM K. WILCOX	ELIZABETH M. WILCOX	78 RUNNING BROOK ROAD	WINDHAM	ME
19B	1	DAVID W. & LESLIE I. BROOKS		3 FORBES LANE	WINDHAM	ME
19B	2	BRIAN L. YORK		4 FORBES LANE	WINDHAM	ME
19B	3	BEVERLY ROSS		7 FORBES LANE	WINDHAM	ME
19B	4	DAVID R. & ROSEMARIE C. DITROLIO		40 FESSENDEN STREET	PORTLAND	ME
19B	5	SCOTT E. LESHANE	KRISTI A. ALLING	11 FORBES LANE	WINDHAM	ME
19B	6	STEPHEN A. KARANTZA		12 FORBES LANE	WINDHAM	ME
19B	7	LAWRENCE D. & PAULETTE H. CEKUTIS		15 FORBES LANE	WINDHAM	ME
19B	8	MARGARET E. ERSKINE		16 FORBES LANE	WINDHAM	ME
19B	9	MICHAEL J. & MARY L. SCHWARTZ		P.O. BOX 660	WINDHAM	ME
19B	10	RAYMOND M. MONAHAN, JR.	GAIL E. MONAHAN	4 ACORN LANE	WINDHAM	ME
19B	11	CARL D. & CAROL L. REAGAN		21 FORBES LANE	WINDHAM	ME
19B	12	JAMES L. MANDEL		3 ACORN LANE	WINDHAM	ME
19B	13	VICTOR ASPRER MORTERO, JR.	KELLIE S. MORTERO	25 FORBES LANE	WINDHAM	ME
19B	14	JOHN R. MCGINTEE		30 FORBES LANE	WINDHAM	ME
19B	15	DENNIS & VICTORIA L. PATENAUDE		31 FORBES LANE	WINDHAM	ME
19B	16	DAVID J. & KATHLEEN J. ENNIS		P.O. BOX 1535	WINDHAM	ME
19B	17	JASON M. & CRYSTAL G. WARD		35 FORBES LANE	WINDHAM	ME
19B	18	RYAN M. CLAPP		40 FORBES LANE	WINDHAM	ME
19B	19	KEVIN & KRISTEN DAY		41 FORBES LANE	WINDHAM	ME
19B	20	SUMMER L. MCLEESE		42 FORBES LANE	WINDHAM	ME
19B	21	MATTHEW P. BELL		43 FORBES LANE	WINDHAM	ME
19B	22	STEPHEN S. & SUSAN CLAUSON		50 FORBES LANE	WINDHAM	ME
19B	23	THEODORE W. & MARY HAND		49 FORBES LANE	WINDHAM	ME
19B	24	MICHAEL T. & KATHLEEN DUFFY		54 FORBES LANE	WINDHAM	ME

19B	25	LAURENCE P. WELCH	MICHELINE L. MAYBERRY	53 FORBES LANE	WINDHAM	ME
19B	26	RICK M. & PATRICIA A. DUNTON		60 FORBES LANE	WINDHAM	ME
19B	27	KELLY RAE BRAGDON		59 FORBES LANE	WINDHAM	ME
19B	28	RONALD J. & BARBARA BOES		P.O. BOX 1594	WINDHAM	ME
19B	29	JONATHAN & BRENDA RICHTER		61 FORBES LANE	WINDHAM	ME
19B	31	MARY T. COTE		65 FORBES LANE	WINDHAM	ME
19B	33	STEPHAN A. & MELINDA A. WINTER		71 FORBES LANE	WINDHAM	ME
19B	34	STEPHEN W. AMERO II	JESSICA AMERO	77 FORBES LANE	WINDHAM	ME
19B	35	ROGER P. & PAMELA J. LAVALLIERE		81 FORBES LANE	WINDHAM	ME
19B	36	BARBARA K. SCHWARTZ		85 FORBES LANE	WINDHAM	ME
19B	37	JOSEPH S. STEIN	ANNA STEIN	89 FORBES LANE	WINDHAM	ME
19B	38	GEORGE F. & LINDA WEBBER		90 FORBES LANE	WINDHAM	ME
19B	39	STEPHEN W. AMERO	CAROL A. AMERO	93 FORBES LANE	WINDHAM	ME
19B	40	ALTON R. & CAROLYN J. MILLER		96 FORBES LANE	WINDHAM	ME
19B	41	LAWRENCE V. BRUNI		97 FORBES LANE	WINDHAM	ME
19B	42	JASON S. & NINA MARIE BARRON		100 FORBES LANE	WINDHAM	ME
19B	43	JOHN T. CUNNIF		101 FORBES LANE	WINDHAM	ME
19B	44	IRENE DOUGHTY DISCATIO		108 FORBES LANE	WINDHAM	ME
19B	45	WILLIAM C. LUCE		107 FORBES LANE	WINDHAM	ME
19B	46	TINA M. VOISINE		112 FORBES LANE	WINDHAM	ME
19B	47	PORT RESOURCES		280B GANNETT DRIVE	SOUTH PORTLAND	ME
19B	48	KERI L. FITZGERALD		116 FORBES LANE	WINDHAM	ME
19B	49	CAROL W. TAYLOR		113 FORBES LANE	WINDHAM	ME
19B	50	LAWRENCE S. & A. BETH TURNER		122 FORBES LANE	WINDHAM	ME
19B	51	ROBERT A. BURKE	CYNTHIA BURKE	119 FORBES LANE	WINDHAM	ME
19B	52	ALLEN J. GREENACRE	JOYCE GREENACRE	123 FORBES LANE	WINDHAM	ME
19B	53	WARREN SWETZ	SUZANNE SWETZ	127 FORBES LANE	WINDHAM	ME
19B	54	DAVID J & TRISTA E. COLLINS		126 FORBES LANE	WINDHAM	ME
19B	55	CONSTANCE R. PARLIN		129 FORBES LANE	WINDHAM	ME
19B	56	CLYDE L. & EMILY A. KETCH		25 ACORN LANE	WINDHAM	ME
19B	58	JAMES & THERESE BERNIER BURNS		30 ACORN LANE	WINDHAM	ME
19B	59	RUSSELL C. & JENNIFER A. POOLER		26 ACORN LANE	WINDHAM	ME
19B	60	MARK D. CARPER		22 ACORN LANE	WINDHAM	ME
19B	61	MARK G. & CANDACE J. MORRISON		12 ACORN LANE	WINDHAM	ME
19B	62	NICOLE LYNN BOWKER		6 ACORN LANE	WINDHAM	ME

19B	63	MATTHEW L. & MARY-JAYNE TRAINOR		34 STAGECOACH LANE	WINDHAM	ME
19B	64	HEATH & LEELA POLLARD		19 ACORN LANE	WINDHAM	ME
19B	65	PETER & APRIL L. MAY PAJER		30 STAGECOACH LANE	WINDHAM	ME
19B	66	ANTHONY & TAMMY LAPLANTE		29 STAGECOACH LANE	WINDHAM	ME
19B	67	BENJAMIN P. HIGGINS	SARAH A. NIBLING	26 STAGECOACH LANE	WINDHAM	ME
19B	68	DONALD C. & ELIZABETH PRIDE		25 STAGECOACH LANE	WINDHAM	ME
19B	69	THOMAS J. VANIER	MARIA T. FUSCO	22 STAGECOACH LANE	WINDHAM	ME
19B	70	DAVID A. FISETTE		21 STAGECOAH LANE	WINDHAM	ME
19B	71	WILLIAM H. & SHARON C. GRAY		18 STAGECOACH LANE	WINDHAM	ME
19B	72	KRISTEEN M. RUSSO		17 STAGECOACH LANE	WINDHAM	ME
19B	73	HEATHER A. TAYLOR		16 STAGECOACH LANE	WINDHAM	ME
19B	74	JOSHUA D. & SHERRY L. WEEKS		15 STAGECOACH LANE	WINDHAM	ME
19B	75	TODD & BELINDA BOULANGER		10 STAGECOACH LANE	WINDHAM	ME
19B	76	STEVEN P. & CONSTANCE KENNEDY		9 STAGECOACH LANE	WINDHAM	ME
19B	77	ADRIENNE PURBHOO HAYTER		295 CEDARVALE AVENUE	TORONTO, ONTARIO	CA
19B	78	DAVID A. & KIMBERLY M. MURRAY		5 STAGECOACH LANE	WINDHAM	ME
19B	79	HAROLD J. & BEVERLY P. CHADBURN		4 STAGECOACH LANE	WINDHAM	ME
19B	80	BENJAMIN A. NOYES		3 STAGECOACH LANE	WINDHAM	ME

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Mark Cenci
Geologic, Inc.

CERTIFIED GEOLOGIST/LICENSED SITE EVALUATOR

93 Mill Road • North Yarmouth, Maine 04097
Cell: 207.329.3524 • mark@markcenci.com
www.markcenci.com

Preliminary Wastewater Disposal Investigation
Acorn Lane Duplexes
Varney Mill Road & Acorn Lane, Windham

Date: August 5, 2017

To: Jeff Amos, PE
Terradyn Consultants, LLC
PO Box 339
New Gloucester, ME 04260

Date of Investigation: August 5, 2017

Summary: Suitable soils and site conditions were found for the proposed disposal of wastewater to serve a multi-unit residential development. There are no wetlands, stream drainages or potential vernal pools on the property.

Location of Investigation: The property investigated is a 15.46 acre parcel with frontage on both Varney Mill Road and Acorn Lane, Windham A portion of the property was used as a borrow pit in the past.

Purposes of the Investigation: The purposes of the investigation were to evaluate the soils and site conditions for a proposed residential development and evaluate the property for wetlands, stream drainages and potential vernal pools.

Methods of the Investigation: The soils were investigated by a soil auger and probe. The *Acorn Duplexes Sketch Plan, C-1.0* by Terradyn Consultants, LLC, dated 5/20/2017 was used in the field during the investigation. A Trimble Geo-XH gps device was used in the field for location purposes. In addition, a library search of published surficial geology and soils was made to augment the findings in the field.

Results of the Investigation:

The property is located on a broad, nearly level plain, which is a terrace feature, east of Collins Pond (see Figure 1). Drainage appears to be southeasterly by ground water flow to an unnamed tributary of Pleasant River.

The terrace is mapped as a glacio-marine delta deposit of sands and gravels on the Surficial Geology of the North Windham Quadrangle, Maine by Thompson, Meglioli (see Figure 2).

The site is mapped as an extensive deposit of Windsor loamy sand on the National Cooperative Soil Survey (see attached photomap and descriptions). These soils formed on glacial outwash features.

On-site soil testing agrees with this mapping. The soils were found to be consistent across the property. Soil logs are enclosed. Soil textures are sandy throughout the horizons, varying from sandy loams to loamy sands to sands, with some pebbles and gravel. No restrictive horizons, silt layers or water tables were found in any of the soil borings.

The soils are categorized as 5B according to the Maine Subsurface Wastewater Disposal Rules (the *Rules*). The size category of all sites is Medium for wastewater disposal. Suitable disposal options include stone and pipe beds or space saving devices if needed or desired. All systems will be installed flush with existing grades. There are other areas suitable for wastewater disposal on the property, not located.

Test pit and other location data was post processed for accuracy and sent to Terradyn Consultants for inclusion on a site plan.

There were no wetlands, stream drainages or potential vernal pools found on the property.

Conclusions:

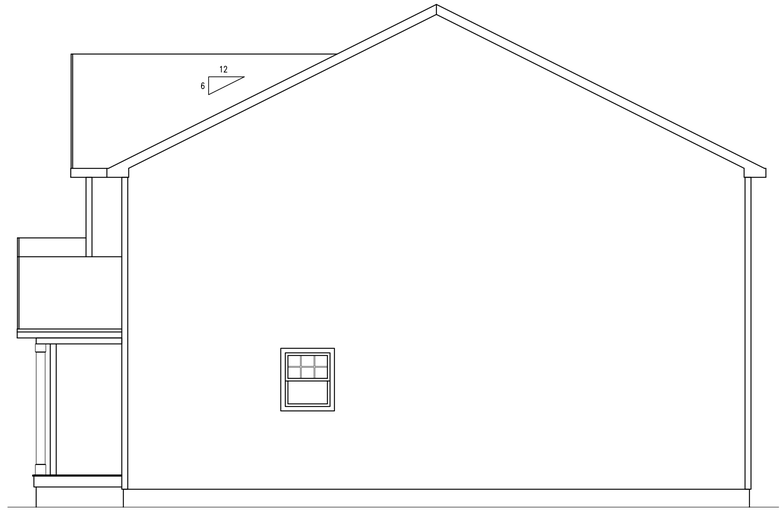
The array of wastewater disposal sites on the *Sketch Plan* of Terradyn Consultants is suitable and meets the requirements of the *Rules* with regard to soils and setbacks. There are no wetlands, stream drainages or potential vernal pools on the property.

Mark Cenci
CG # 467
LSE # 262

FRONT ELEVATION
1/4" = 1'-0"

CONSTRUCTION NOTE:

CONTRACTOR IS TO VERIFY GRADE AND ALL DIMENSIONS IN FIELD BEFORE CONSTRUCTION. DESIGN SHOWN MAY DIFFER FROM ACTUAL FINISHED CONSTRUCTION. FINAL MATERIALS, WINDOW/DOOR LOCATIONS AND SIZES, TO BE DETERMINED PER OWNER/CONT. SITE CONDITIONS; AND OR LOCAL CODES.



RIGHT ELEVATION
1/4" = 1'-0"

CONSTRUCTION NOTE:

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REAR ELEVATION
1/4" = 1'-0"

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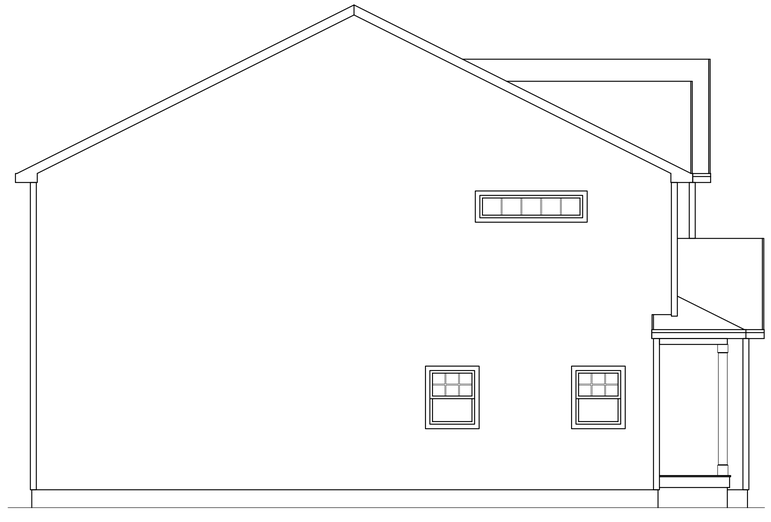

LEFT ELEVATION
1/4" = 1'-0"

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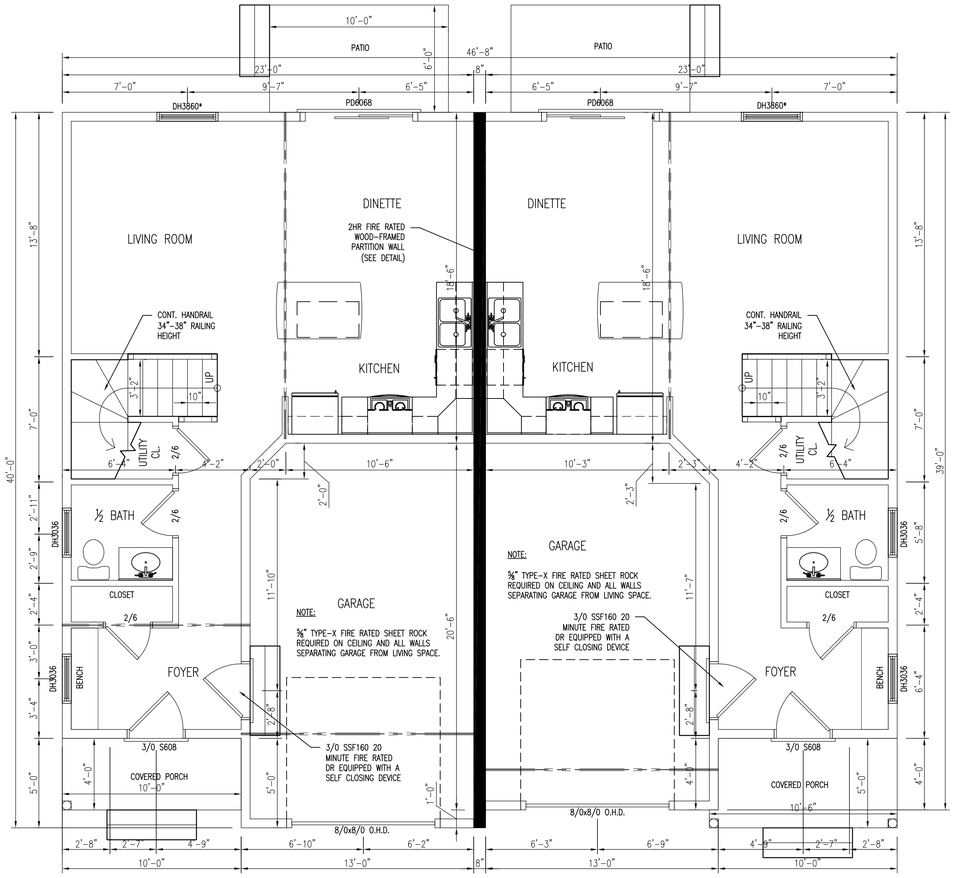
Windham ME 04062
(207)-420-7444

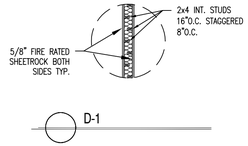
Elevations
Smith Rd. Condos
Windham, ME

Revisions:	
00/00/00	*

Date : 03/04/16
Scale : 1/4"=1'-0"
Drawn By: JTM
Project: M081915
Sheet Number:
1 of 4



FIRST FLOOR PLAN
1/4" = 1'-0"



D-1

2HR FIRE RATED WALL:

TWO LAYERS ⅝" TYPE X GYPSUM WALLBOARD OR VENEER BASE APPLIED TO EACH SIDE OF 2x4 IN. WOOD STUDS 16 IN. O.C. STAGGERED 8 IN. O.C. ON 2x6 IN. WOOD PLATES. USE 6d COATED NAILS 24 IN. O.C. FOR BASE LAYER AND 8d COATED NAILS 8 IN. O.C. FOR FACE LAYER. STAGGER VERTICAL JOINTS 16 IN. O.C. EACH LAYER AND SIDE

SMOKE ALARMS

SHALL BE INTERCONNECTED & INSTALLED IN THE FOLLOWING LOCATIONS

1. EACH SLEEPING AREA
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS
3. ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENTS
4. FIRE SEPARATION PER TOWN AND LOCAL CODE WHEN REQUIRED

* DENOTES EGRESS WINDOW

CARBON MONOXIDE ALARMS:

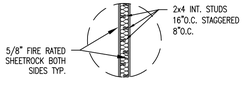
SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS

1. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS
2. IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLING UNITS WITHIN WHICH FUEL-FIRED APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES

CONSTRUCTION NOTE:

CONTRACTOR TO VERIFY GRADE IN FIELD, AND ALL DIMENSIONS ON PLANS BEFORE STARTING NEW CONSTRUCTION. DESIGN SHOWN MAY DIFFER FROM ACTUAL FINISHED CONSTRUCTION. FINAL MATERIALS, WINDOW/DOOR LOCATIONS AND SIZES, TO BE DETERMINED PER OWNER/CONT. OR LOCAL CODES.

SECOND FLOOR PLAN
1/4" = 1'-0"



D-1

2HR FIRE RATED WALL:

TWO LAYERS ⅝" TYPE X GYPSUM WALLBOARD OR VENEER BASE APPLIED TO EACH SIDE OF 2x4 IN. WOOD STUDS 16 IN. O.C. STAGGERED 8 IN. O.C. ON 2x6 IN. WOOD PLATES. USE 6d COATED NAILS 24 IN. O.C. FOR BASE LAYER AND 8d COATED NAILS 8 IN. O.C. FOR FACE LAYER. STAGGER VERTICAL JOINTS 16 IN. O.C. EACH LAYER AND SIDE

SMOKE ALARMS

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1. EACH SLEEPING AREA
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1st & 2nd Floor Plans
Smith Rd. Condos
Windham, ME

Revisions:	
00/00/00	*
Date : 03/04/16	
Scale : 1/4"=1'-0"	
Drawn By: JTM	
Project: M081915	
Sheet Number: 4 of 4	

FRONT ELEVATION
1/4" = 1'-0"

CONSTRUCTION NOTE:

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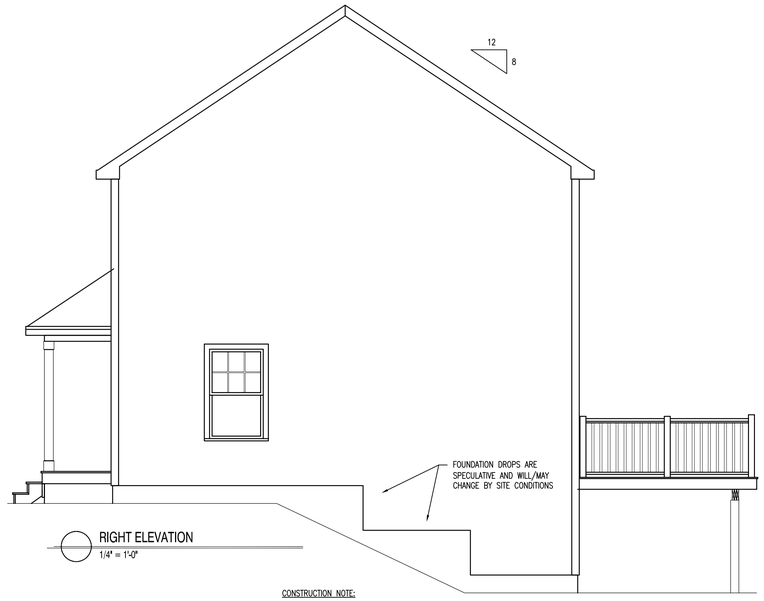

RIGHT ELEVATION
1/4" = 1'-0"

CONSTRUCTION NOTE:

CONTRACTOR IS TO VERIFY GRADE AND ALL DIMENSIONS IN FIELD BEFORE CONSTRUCTION. SECTION SHOWN MAY DIFFER FROM ACTUAL FINISHED CONSTRUCTION. FINAL MATERIALS, WINDOW/DOOR LOCATIONS AND SIZES, TO BE DETERMINED PER OWNER/CONT. SITE CONDITIONS; AND OR LOCAL CODES.

REAR ELEVATION
1/4" = 1'-0"

CONSTRUCTION NOTE:

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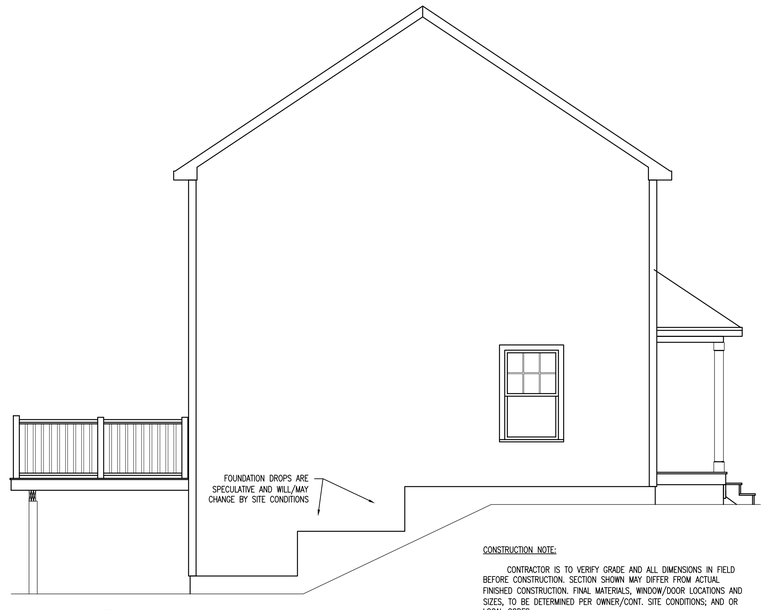

LEFT ELEVATION
1/4" = 1'-0"

CONSTRUCTION NOTE:

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Rivers Edge, Lot B
Elevations
Gray, ME

Revisions:	
00/00/00	*

Date : 12/22/16

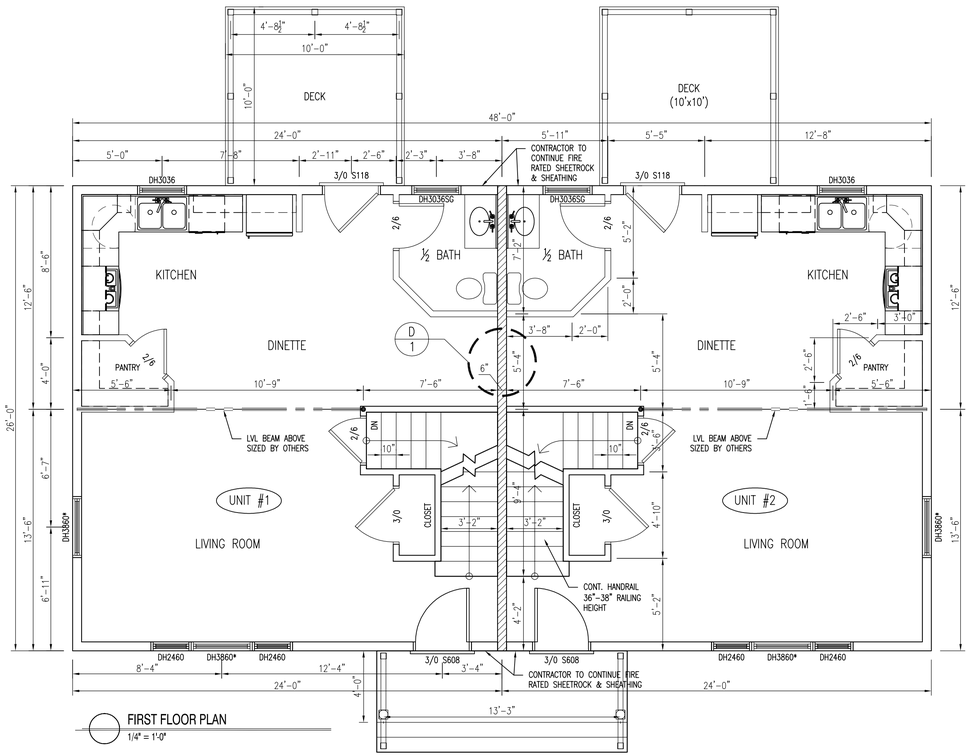
Scale : 1/4"=1'-0"

Drawn By: JTM

Project: D112316

Sheet Number:

1 of 4



FIRST FLOOR PLAN
1/4" = 1'-0"

SMOKE ALARMS

SHALL BE INTERCONNECTED & INSTALLED IN THE FOLLOWING LOCATIONS

1. EACH SLEEPING AREA
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS
3. ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENTS
4. FIRE BLOCKING, FIRE RATED FIXTURES & CAULKING BETWEEN FLOORS WHEN/WHERE REQUIRED. ⅝ TYPE-X FIRE RATED SHEETROCK ON ALL WALLS & CEILINGS SEPARATING FLOORS WHEN/WHERE REQUIRED. PER TOWN AND LOCAL CODE

* DENOTES EGRESS WINDOW

CARBON MONOXIDE ALARMS:

SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS

1. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS
2. IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLING UNITS WITHIN WHICH FUEL-FIRED APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES

CONSTRUCTION NOTE:

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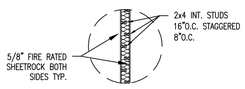


D-1

1HR FIRE RATED WALL:

ONE LAYER OF ⅝" TYPE X GYPSUM WALLBOARD OR VENEER BASE APPLIED TO EACH SIDE OF 2x4 IN. WOOD STUDS 16 IN. O.C. STAGGERED 8 IN. O.C. ON 2x6 IN. WOOD PLATES. USE 6d COATED NAILS 24 IN. O.C. FOR BASE LAYER AND 8d COATED NAILS 8 IN. O.C. FOR FACE LAYER. STAGGER VERTICAL JOINTS 16 IN. O.C. EACH LAYER AND SIDE

FASTENER SPACING FOR SOUTHERN PINE OR HIM-FIR DECK LEDGER AND 2-INCH NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST (DECK LIVE LOAD=40PSF, DECKDEAD LOAD=10PSF)

JOIST SPAN	6'-0" AND LESS	6'-1" AND 8'-0"	8'-1" AND 10'-0"	10'-1" AND 12'-0"	12'-1" AND 14'-0"	14'-1" AND 16'-0"	16'-1" AND 18'-0"
CONNECTION DETAILS	ON-CENTER SPACING OF FASTENERS						
½" DIAMETER LAG SCREW WITH 1½" MAXIMUM SHEATHING	30	23	18	15	13	11	10
½" DIAMETER LAG SCREW WITH 1⅝" MAXIMUM SHEATHING	36	36	34	29	24	21	19
½" DIAMETER LAG SCREW WITH 1⅝" MAXIMUM SHEATHING & ½" STACKED WASHERS	36	36	29	24	21	18	16

[REF., TABLE R507.2]

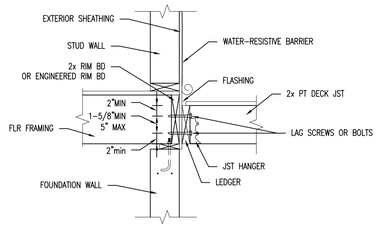


FIGURE R507.2.1(2)
PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS

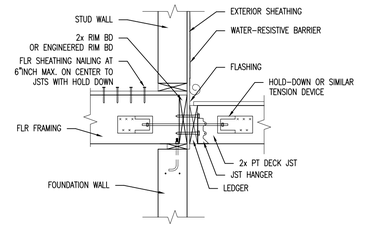
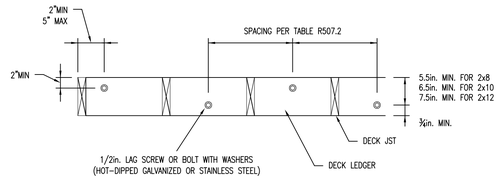
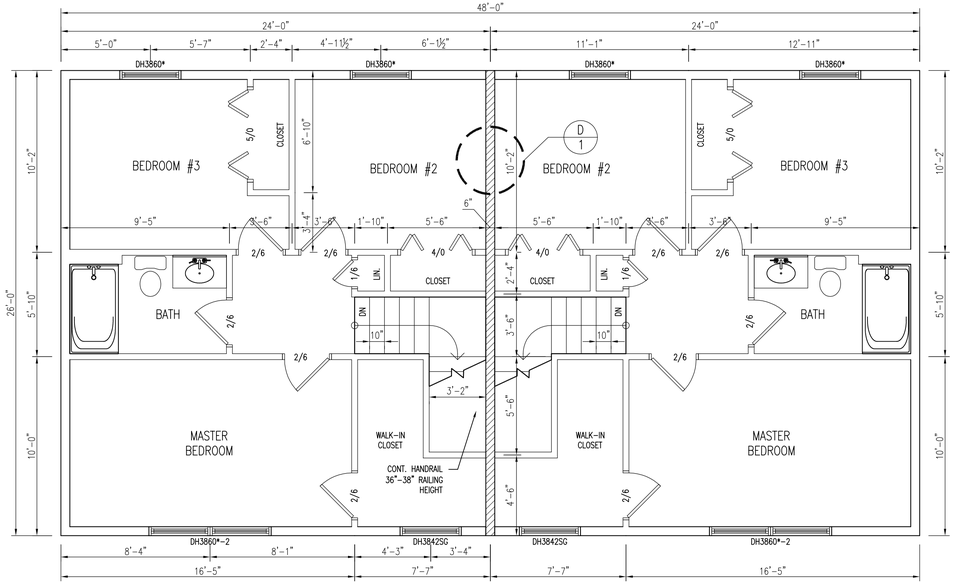


FIGURE R507.2.3
DECK ATTACHMENT FOR LATERAL LOADS





SECOND FLOOR PLAN
1/4" = 1'-0"

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Rivers Edge, Lot B
1st & 2nd Floor Plans
Gray, ME

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Date : 12/22/16
Scale : 1/4"=1'-0"
Drawn By: JTM
Project: D112316
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FRONT ELEVATION
1/4" = 1'-0"

CONSTRUCTION NOTE:

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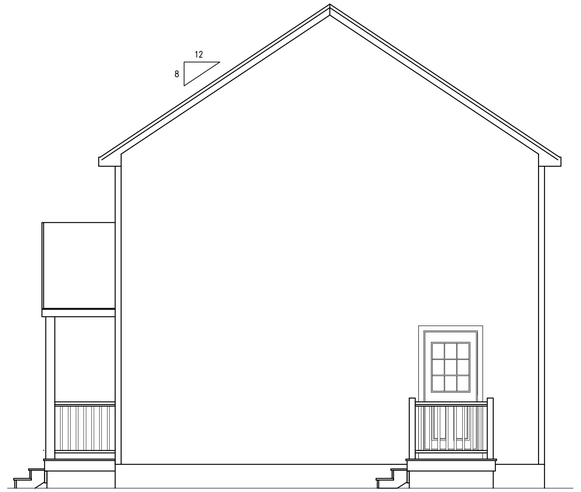

RIGHT ELEVATION
1/4" = 1'-0"

CONSTRUCTION NOTE:

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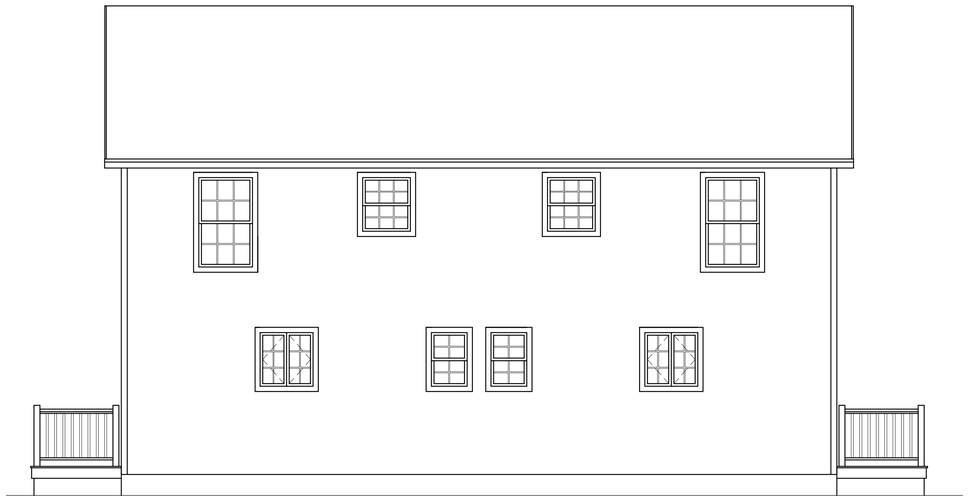

REAR ELEVATION
1/4" = 1'-0"

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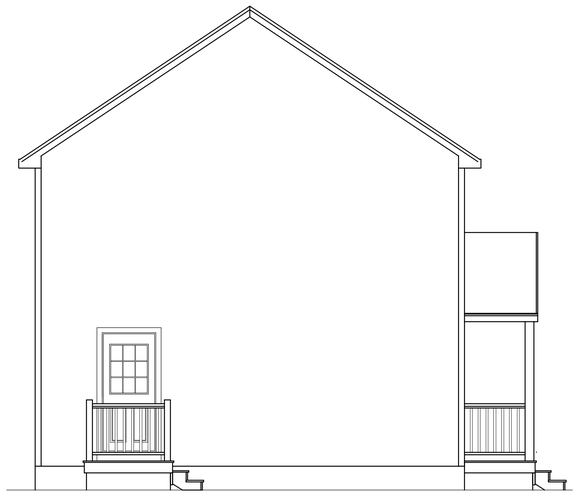

LEFT ELEVATION
1/4" = 1'-0"

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HANCOCK LUMBER Est.1848

PROPOSED ELEVATIONS
GRAY DUPLEX
GRAY, ME

Revisions:

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Date : 03/14/11

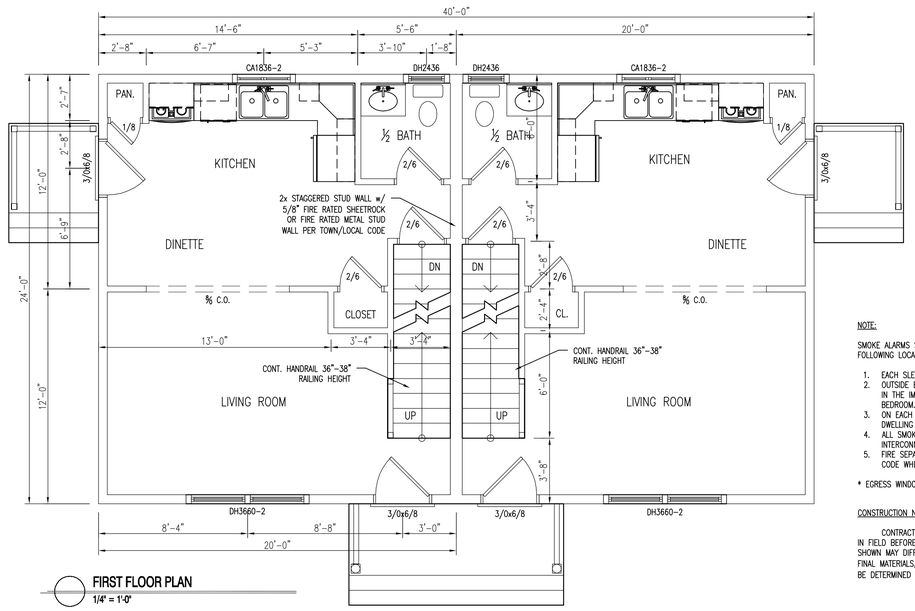
Scale : 1/4"=1'-0"

Drawn By: JTM

Project: DW030311

Sheet Number:

1 of 3



FIRST FLOOR PLAN
1/4" = 1'-0"

NOTE:

SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS;

1. EACH SLEEPING AREA
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM.
3. ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENT.
4. ALL SMOKE ALARMS SHALL BE INTERCONNECTED.
5. FIRE SEPARATION PER TOWN OR LOCAL CODE WHEN REQUIRED.

* EGRESS WINDOW

CONSTRUCTION NOTE:

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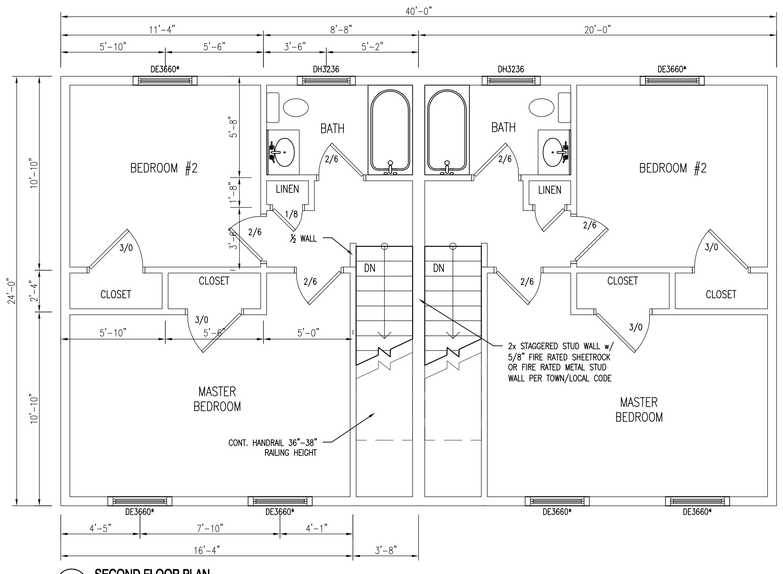

SECOND FLOOR PLAN
1/4" = 1'-0"

NOTE:

SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS;

1. EACH SLEEPING AREA
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM.
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HANCOCK LUMBER
Est.1848

PROPOSED FLOOR PLANS
GRAY DUPLEX
GRAY, ME

Revisions:	
00/00/00	-

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