

eliminated) for a net gain of thirty-three (33) new spaces. Two (2) six-foot (6') wide concrete sidewalks (each with a slope less than 1:12 for handicap accessibility) have been proposed to permit employee pedestrians travelling from the existing parking area and new parking areas to access the proposed addition main entrance near the southwest corner of the addition. These features are shown in **Appendix A**, Plan Sheet 4 of 12, as well as other sheets. As the project will utilize existing vehicle entrances from Thompson Drive, a Curb Cut and Utility Permit Application is not required, nor is a VTrans permit required for the project.

Currently, Autumn-Harp, Inc. leases additional storage space at a different property on Thompson Drive in Essex, VT. It is anticipated that a total of five (5) commercial truck trips from the existing facility at 26 Thompson Drive to and from the leased storage space occur daily. The proposed project will undoubtedly have a minimum impact on local truck traffic as it is expected that 1-2 additional daily truck trips will be generated from this project.

An existing trail associated with the Saxon Hill and Forestdale trail network will be re-routed slightly to accommodate the emergency vehicle access road around the Infiltration Basin (IB-1R). Please refer to Plan Sheet 4 of 12 in **Appendix A** for an accurate depiction of proposed modifications to the existing trails.

The project site is on the north side of Thompson Drive and located in the Resource Preservation District – Industrial (RPD-I) zone. Based on site reconnaissance, aerial photography, and site topography, the proposed area of disturbance is located entirely within the Winooski River watershed. More specifically, surface water and ground water appears to flow towards a small un-named tributary of the Winooski River. Therefore, any State waters receiving storm water that originated from the site will be received indirectly as ground water, as all stormwater will be discharged below grade through the subsurface through infiltration trenches, underground infiltration chambers and an infiltration basin.

A Stormwater Management Permit application is being submitted to the State of Vermont to request an amendment of coverage under the State Stormwater General Permit #3-9015. A copy of the stormwater permit application and all supporting documents shall be provided as they become available. The amendment of coverage under General Permit #3-9015 is requested for the new impervious areas associated with the proposed manufacturing facility. Stormwater runoff from new impervious surfaces will be directed to infiltration trenches with sedimentation chambers, underground infiltration chambers and an infiltration basin as shown on Plan Sheet 5, 6, 7 and 11 of 12. Stormwater System Details are shown on Plan Sheets 11 of 12 and 12 of 12, in **Appendix A**.

The highly permeable Adams and Windsor soil series, consisting of loamy sands (hydrologic soil group A), is present beneath the site. As a result, most, if not all, precipitation will infiltrate through the subsurface to reach the groundwater table by utilizing the high infiltrative capacity of the soils. Previous permeability tests on the site and new tests performed show a consistent percolation rate on the site, quicker than 3 min/inch, translating to a permeability of greater than 40 ft/day. For design purposes, we have conservatively used a permeability rate of 20 feet per day (10.0 in/hr.) to calculate the infiltration rate and sizing of the infiltration trenches and underground infiltration chambers, while using 7.0 in/hr for the infiltration basin. A USDA Soil Map showing the soil series present within the confines of the subject property is provided in **Appendix B**.

Sidewalks shall have a concrete surface. There shall be a 24-inch wide crushed stone apron around the building to reduce any splash from the building drip-edge. All disturbed areas that are not sidewalks or parking areas will be re-vegetated or landscaped and mulched. The new landscaping proposed is mainly limited to the road side entrance of 26 Thompson Drive as well as the sloped embankment adjacent to the "Overflow Parking Area". As Table 5.1 of the Essex Zoning Regulations indicates, the "Landscaping Objectives" of the RPD-I zone is to preserve forest cover. Please see the proposed Grading & Landscaping Site Plan along with the Planting Schedule as shown on Sheet 8 of 12 in **Appendix A**.

The existing total site area for Lot C-2 (26 Thompson Drive) is +/- 10.18 acres. The total site area for Lot C-1B (existing warehouse at 16 Thompson Drive) is +/- 4.00 acres, and for Lot C-1C (undeveloped lot at 16 Thompson Drive), +/- 4.18 acres. The building coverage and total impervious coverage calculations for each Lot have been identified on the Site Plans on Sheet 4 of 12. In each case, the Total Impervious Coverage does not exceed 60% of available area, in accordance with the Zoning Regulations for this District. As indicated on the plans, the proposed improvements result in a Total Lot Coverage of impervious surface of 95,567 ft² for **Lot C-1B (52.5%)**, 10,790 ft² for **Lot C-1C (6.2%)** and 211,950 ft² for **Lot C-2 (47.8%)**.

The existing forty-foot (40') easement to Lot C-1C, along the northwest side of the property, will continue to provide a wooded buffer which reduces visibility of the site from neighboring properties to the northwest. The proposed development area is not visible from any public vantage points other than from the existing parking area at 26 Thompson Drive. The relatively "flat" terrain and configuration of the site is conducive to the proposed building and parking layout.

The proposed building height is thirty-feet and eight-inches (30'-8") as shown on Plan Sheet A200 in **Appendix A**. The proposed manufacturing addition will be constructed using a steel frame with vertical insulated panels. The siding will be insulated metal corrugated panels, earth tone in color, from the manufacturer's standard color palette, and shall be complementary to the adjacent BBV facility and existing structures located in the Forestdale Technology Park. The proposed building elevations are provided.

Site lighting will consist of eight (8) pole-mounted, sharp cut-off, shielded, LED Luminaire fixtures, mounted to existing 25-foot light poles, with photocell controls to comply with Vermont Commercial Energy Codes. Nine (9) building-mounted LED sconce fixtures will also be provided at the building entry points and around the rear of the building to illuminate the emergency access road. All proposed lights will be programmed to dim and operate at 50% after midnight as well as having motion-sensor control. A lighting plan and details are included in **Appendix A**, Plan Sheet 9 of 12.

The proposed parking associated with the new warehouse includes an additional thirty-three (33) spaces. This satisfies the number required by the Zoning regulations (two parking spaces for every three employees), based on a total of fifty (50) new employees. The proposed parking areas are shown on Site Plan 4 of 12 in **Appendix A**.

All materials and finished product will be stored inside the buildings. No new signage is required or proposed as the existing Autumn-Harp, Inc. facility sign shall remain unchanged, located at the existing entrance at 26 Thompson Drive.

The sewer service for the proposed addition will be connected internally between the existing facility and the addition, utilizing the existing municipal sanitary sewer system connection for 26 Thompson Drive. Historical data from October 2015 to September 2016 indicates that the average daily flow varies monthly ranging from approximately 7,000 gpd to 10,600 gpd. Based on the anticipated increase in the number of employees (50), the wastewater design flows are proposed to increase 750 gallons per day (gpd) from the current Average Daily Flow rate of 8,578 gpd, totaling an average of 9,328 gpd. After speaking with a representative at Autumn Harp, it is highly probable that the wastewater flows can be significantly reduced with some modifications and/or improvements to some of the process equipment inside the facility. Since the subject lot has an approved sewer allocation of 4,500 gpd, and the metered values are higher than the allocated daily flow rate; a Wastewater Allocation Permit Application shall also be submitted to the Town of Essex **requesting sewer allocation for an average daily flow rate of 7,500 gpd**. The existing State of Vermont Wastewater System and Potable Water Supply Permit will also be amended by submitting a new Application to the Department of Environmental Conservation (DEC), Essex Regional Office under separate cover to address the proposed flow rates.

An eight-inch (8") ductile iron (DI) water service line is proposed to connect to the existing 12-inch diameter municipal water main on the southern boundary of the property to provide fire suppression and domestic service to the new manufacturing addition. The proposed 8" DI service line will connect to the 12-inch PVC water main via a tapping sleeve and valve. Due to this type of connection, the 8-inch gate valve will be located

within the easement limits for the Town of Essex. Inside the building addition, a separate pipe shall provide domestic service to all proposed fixture units. The domestic water service line will include a corporation stop or valve, a backflow preventer and a water meter. Based on the anticipated increase of the maximum daily design flow rate, the Applicant shall submit under separate cover, a Water Service Application to ensure the existing municipal water system has sufficient capacity to serve the proposed addition. As indicated previously, a State of Vermont "Wastewater System and Potable Water Supply Application" shall be submitted to the Department of Environmental Conservation (DEC), Essex Regional Office under separate cover.

Wetlands located on the parcel are greater than 150 LF from the proposed development and are separated by a natural topographic buffer. Additional protection of the wetlands is provided from the 200-foot Preservation Buffer, surrounding the wetland area, where no disturbance is permitted. No rivers, lakes or ponds are located on-site and/or adjacent to the subject parcel. A Town of Essex Adjoining Landowner Form along with the required attachments is included as **Appendix C**.

Jennifer Booker

From: Sharon Kelley
Sent: Thursday, November 10, 2016 8:20 AM
To: Gregory Duggan
Cc: Jennifer Booker; Sharon Kelley
Subject: FW: Autumn Harp Site Coverages

Greg,

I will leave this in your hands. It is tentatively on for Dec. 10th. I guess you need to decide about 15 Upper Main – and the Boundary Adjst, and the Autumn Harp application. The agenda goes out today...

From: Jamie Simpson [<mailto:jsimpson@gmeinc.biz>]
Sent: Wednesday, November 09, 2016 3:40 PM
To: Sharon Kelley
Cc: Alan Huizenga
Subject: Autumn Harp Site Coverages

Hello Sharon-

As you have requested, I am writing to you to provide information regarding the Autumn Harp Site Plan Review Application for the proposed manufacturing building addition located on 26 Thompson Drive. During our telephone conversation you raised some concern about the percentage of lot coverage for the parcel (Lot C-2) at 26 Thompson Drive and if the proposed improvements would meet the maximum 60% coverage regulation, as the project includes the use of some stormwater treatment infrastructure sited on Lot C-1B and C-1C, and whether its use was enabling the project to comply with the site coverage calculations.

To assist you with your review, Green Mountain Engineering, Inc. (GME) would like to offer the following information:

1. The Site Coverage calculations provided with the Site Plan Review Application were performed using the area from all three lots (C-1B, C-1C and C-2) to establish the overall site acreage. As an alternative, we would like to provide the site coverage calculations broken down by individual lots.

LOT C-2	<u>Existing</u>	<u>Proposed</u>
Building Coverage (sf)	79,853	129,553
% per Lot Area	18.0	29.2
Total Lot Coverage	137,082	211,950
% per Lot Area	30.9	47.8

LOT C-1C	<u>Existing</u>	<u>Proposed</u>
Building Coverage (sf)	0.0	0.0
% per Lot Area	0.0	0.0
Total Lot Coverage	0.0	10,790
% per Lot Area	0.0	6.2

LOT C-1B	<u>Existing</u>	<u>Proposed</u>
Building Coverage (sf)	58,140	58,140

% per Lot Area	31.9	31.9
Total Lot Coverage	94,554	95,567
% per Lot Area	51.9	52.5

2. As indicated in the Tables above, the Lot Coverage conditions are satisfied when kept as individual parcels, since there is still less than 60% total Lot Coverage maintained for each parcel. The stormwater treatment practice which is proposed to be utilized by the building addition is an infiltration basin, which does not qualify as impervious area; and therefore would not modify the Lot Coverage calculations in any way.
3. The intent for utilizing the existing infiltration basin is to provide a cost efficient method for stormwater treatment, with the benefit of maintaining a generous isolation buffer from surrounding neighbors in addition to significantly reducing overall construction costs, which is largely why this project is able to be considered economically feasible for the applicant.

If you have any questions or would like to discuss this further, please feel free to call me. Thank you, Sharon. Have a great evening.



Jamie L. Simpson, P.E.
Project Engineer

Green Mountain Engineering, Inc.
1438 South Brownell Road
Williston, VT 05495
Ph: 802.862.5590
Email: jsimpson@gmeinc.biz

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Gregory Duggan

From: Jamie Simpson <jsimpson@gmeinc.biz>
Sent: Wednesday, November 23, 2016 3:44 PM
To: Aaron Martin
Cc: Alan Huizenga; Gregory Duggan
Subject: Traffic Evaluation for Autumn Harp
Attachments: Traffic Evaluation-BBV_2016.pdf

Aaron-

Please find attached the Traffic Evaluation for the Autumn Harp Proposed Manufacturing Addition project. It should be noted that the ITE Trip Generation estimates are extremely high given the number of employees at the facilities. For this reason, GME has made alternative recommendations for the number of trip ends generated by the facilities. Refer to the Summary for more information.

If you have any questions, please do not hesitate to call or email. Thank you.



Jamie L. Simpson, P.E.
Project Engineer

Green Mountain Engineering, Inc.
1438 South Brownell Road
Williston, VT 05495
Ph: 802.862.5590
Email: jsimpson@gmeinc.biz

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TRAFFIC EVALUATION

AUTUMN HARP, INC.

#16 & #26 THOMPSON DRIVE

NOVEMBER 2016

Prepared by:

Green Mountain Engineering
1438 South Brownell Road
Williston, VT 05495
Phone: (802) 862-5590

Prepared for:

Essex Public Works Dept.
5 Jericho Road
Essex Jct, VT 05452

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COST-EFFECTIVE AND PERSONAL MANNER"*

Green Mountain Engineering, Inc.
P.O. Box 159
Williston, VT 05495-0159
(802) 862-5590

JOB #16-028.70 AUTUMN HARP
SHEET NO. 1 OF 3
CALCULATED BY JLS DATE 11/23/16
CHECKED BY DATE
SCALE

AUTUMN HARP, INC. - TRAFFIC EVALUATION
PROPOSED MANUFACTURING FACILITY ADDITION
GME PROJECT # 16-028.70

TRIP GENERATION

The following analysis for the projected trip end generation is calculated based on the Institute for Traffic Engineers (ITE), 9th Edition Trip Generation Manual. Land Use Category 710, General Office Space, was used for associated office space. Land Use Category 110, Light Industrial, was used to estimate trip ends for the associated manufacturing space.

Office Space :

$$\text{GROSS FLOOR AREA} = 8,465 \text{ ft}^2$$
$$\text{AVERAGE RATE} = 11.01 \quad \text{Distribution} = \begin{matrix} 50\% \text{ In} \\ 50\% \text{ Out} \end{matrix}$$

Using the average rate to project an estimate of trip ends for the office space area results in the following :

$$X = \# \text{ of } 1000 \text{ sq. ft} ; \quad X = \frac{8,465}{1,000} \quad X = 8.465$$

$$T = 11.03(X) ; \quad T = 11.03(8.465)$$

$$T = 93.9$$
$$T = 94$$

Based on a 50/50 distribution ;

$$TE_{in} = 0.5(94) = 47 \text{ trip ends arriving}$$

$$TE_{out} = 0.5(94) = 47 \text{ trip ends departing}$$

Green Mountain Engineering, Inc.
P.O. Box 159
Williston, VT 05495-0159
(802) 862-5590

JOB #16-028.70 AUTUMN HARP
SHEET NO. 3 OF 3
CALCULATED BY JLS DATE 11/23/16
CHECKED BY _____ DATE _____
SCALE _____

TRIP GENERATION CONT'D

Manufacturing Space: From previous calculations;

* $TE_{in} = 417$ trip ends arriving

* $TE_{out} = 417$ trip ends departing

** The calculated number of trip ends does not reflect an accurate value, as there are only a proposed 50 new employees proposed for the manufacturing facility addition.

As per our previous recommendation, the existing number of trip ends should be adjusted to 100 per shift. The recommended value for the number of proposed trip ends per shift should be 200, an increase of one-hundred (100) trip ends per shift.

Commercial Trucking:

The existing Shipping/Receiving Facility at 16 Thompson Drive currently experiences an average of five (5) truck trips per day. The proposed number of commercial truck trips is anticipated to be increased to eight (8) truck trips per day. The scheduled arrival/departures for these trucks are beyond the control of the facility owner, and can be expected to occur anytime between 8am and 5pm. It should be noted that all five (5) trucks do not arrive during peak hours.

Of the proposed total of eight (8) truck trips, it would be fair to assume that four (4) may arrive during peak hours. The number of trip ends generated changes from an existing ten (10) to a proposed sixteen (16); an increase of six (6) trip ends. Refer to the attached summary.

TRAFFIC SUMMARY
PROPOSED MANUFACTURING FACILITY ADDITION
#16 & #26 THOMPSON DRIVE

Brief Description:

Autumn-Harp, Inc., located at 26 Thompson Drive, currently operates four (4) shifts of manufacturing employees with twelve-hour shifts running from 7:00 to 7:00 around the clock. Currently, a total of one hundred (100) to a MAXIMUM of one hundred-fifty (150) manufacturing employees are split among the four shifts, typically resulting in approximately 40-50 manufacturing employees per shift. An additional forty (40) employees work in the front offices. This project proposes to include an additional fifty (50) new manufacturing employees which are expected to maintain the 7:00 - 7:00 shift timeframe. The existing office employees work from 8:00am to 5:00pm Monday through Friday. A MAXIMUM of twenty (20) employees work in the adjacent existing storage facility located at 16 Thompson Drive whose schedule is 8:00am to 5:00pm Monday through Friday.

Based on this information and assuming all employees drive to work, up to forty (40) office employees (94 Trip Ends) as well as twenty (20) warehouse employees (40 Trip Ends) will be arriving/departing during the AM/PM peak hours as the manufacturing shift does not end/begin until 7:00 am/pm. Currently five (5) commercial truck trips (10 Trip Ends) are associated with the shipping/receiving facility. The three (3) additional commercial truck trips (6 Trip Ends) associated with the proposed project will occur randomly between 8am and 5 pm. The existing commercial truck trips that occur between the existing Autumn-Harp, Inc. storage facility and the leased warehouse space on Thompson Drive shall be eliminated. In short, impact to local traffic will likely remain unchanged.

The calculated trip end generations were estimated using the Institute for Traffic Engineers (ITE) Trip Generation Handbook, 9th Edition (Category 110-Light Industrial and 710-General Office Building) using the average rates; however, as indicated in the preceding evaluation, these values are significantly overestimated based on actual employee numbers.

<u>Department</u>	<u>Location</u>	<u>Shift Hrs</u>	<u>Gross Floor Area (sq ft)</u>	<u>No. of Employees</u>	<u>ITE Calculated Trip Ends</u>	<u>Recommended Existing No. of Trip Ends</u>	<u>Proposed Change</u>	<u>Total No. of Trip Ends</u>
Existing Office	#26	8:00am - 5:00pm	8,465	40	94	94	0	94
Manufacturing Shift #1	#26	7:00am - 7:00pm	70,035	50	488	100	+100	200
Manufacturing Shift #2	#26	7:00pm - 7:00am	70,035	50	488	100	+100	200
Existing Shipping/Receiving	# 16	8:00am - 5:00pm	57,600	20	78	40	0	40
Commercial Trucks	# 16	8:00am - 5:00pm	---	---	---	10	+6	16

Total Trip End Increase = 206

Total Peak Hour Trip End Increase = 6

NOTES:

1. The increase of vehicular traffic on Thompson Drive resulting from the proposed manufacturing addition employees is proportionally equivalent to the number of proposed employees; however, it should be noted that based on the timing of the shift change, these additional vehicles will not affect the Peak Hour traffic volumes.
2. The total increase of commercial truck traffic on Thompson Drive resulting from the proposed manufacturing addition is equivalent to the number of trucks which currently transport materials to leased warehouse space on Thompson Drive. Truck trips to and from the leased warehouse facility will consequently be eliminated, effectively reducing the Proposed Change value of trip ends from Commercial Trucks from 6 to 0.

General Office Building (710)

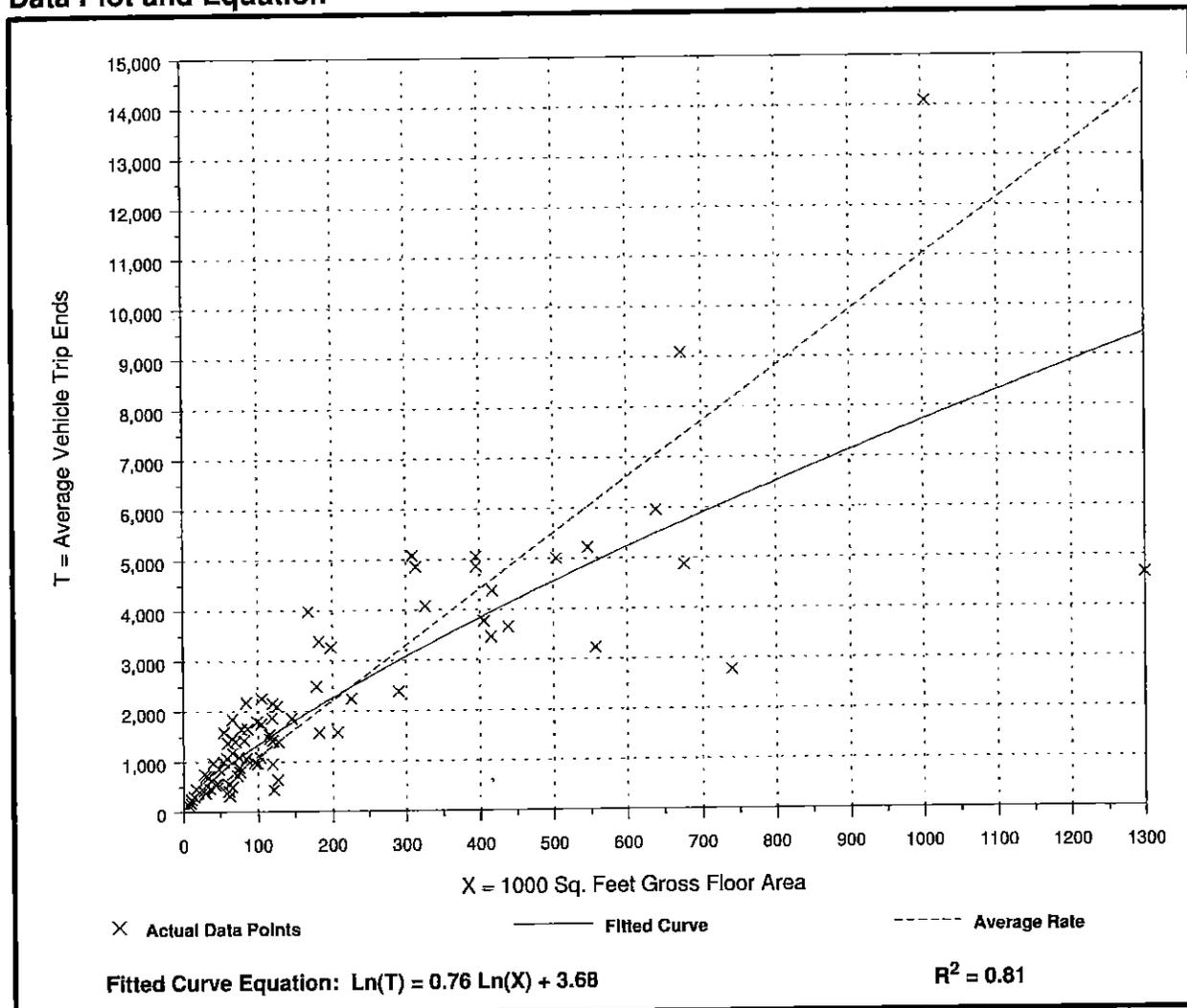
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area
On a: **Weekday**

Number of Studies: 79
Average 1000 Sq. Feet GFA: 197
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
11.03	3.58 - 28.80	6.15

Data Plot and Equation



General Light Industrial (110)

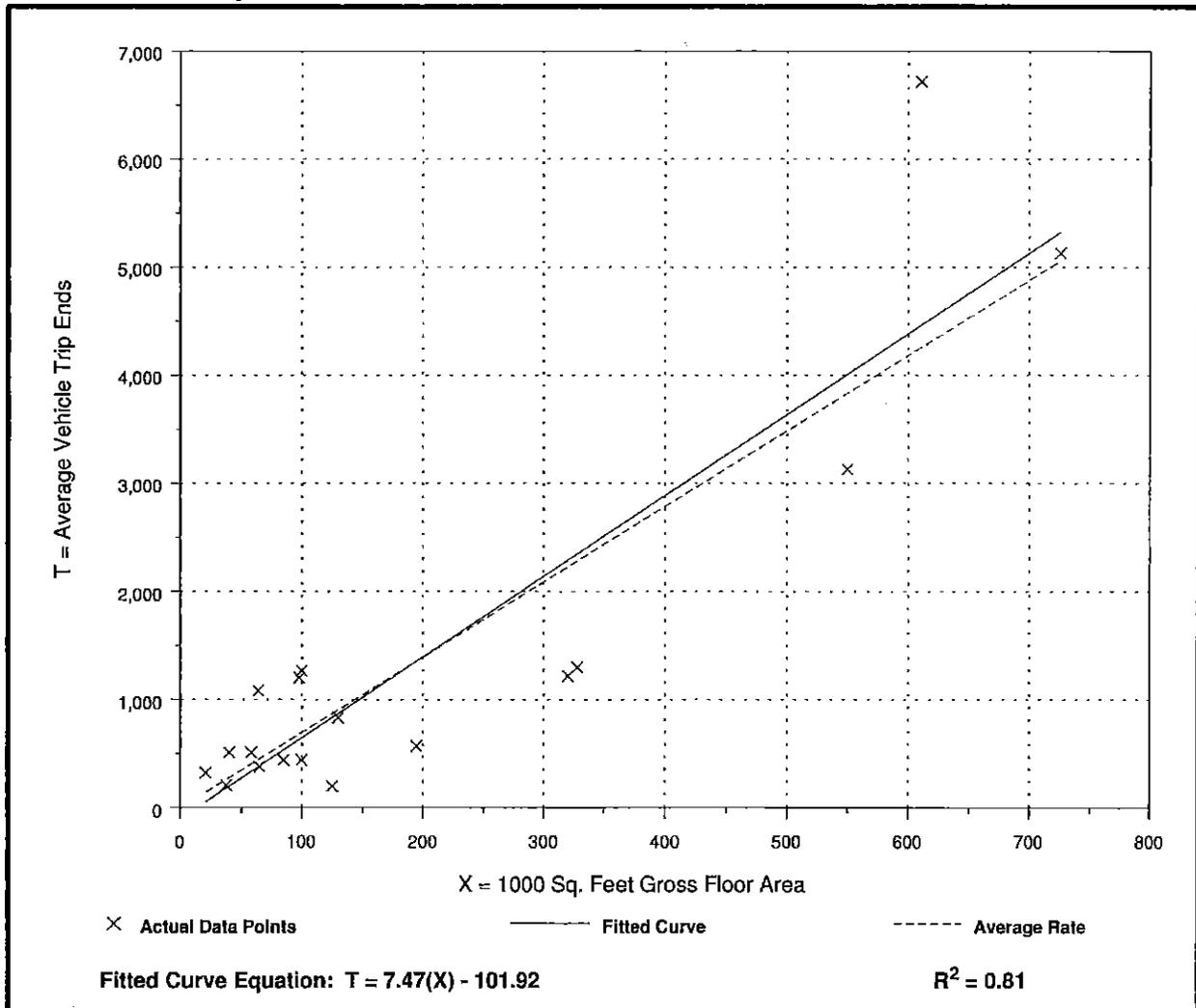
**Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area
On a: Weekday**

Number of Studies: 18
Average 1000 Sq. Feet GFA: 203
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
6.97	1.58 - 16.88	4.24

Data Plot and Equation



Warehousing (150)

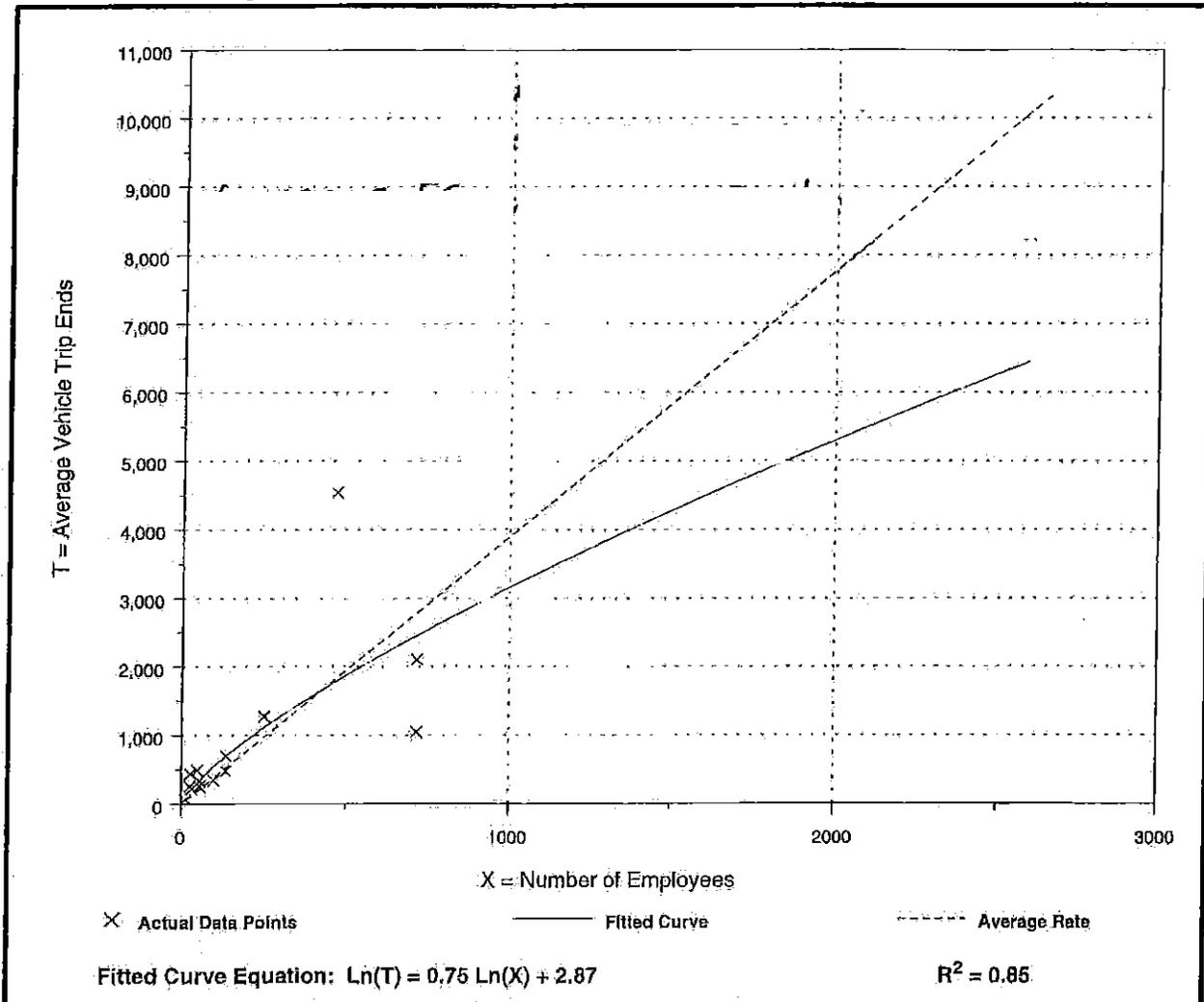
Average Vehicle Trip Ends vs: Employees
On a: **Weekday**

Number of Studies: 15
Avg. Number of Employees: 358
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
3.89	1.47 - 15.71	3.08

Data Plot and Equation



Gregory Duggan

From: Jamie Simpson <jsimpson@gmeinc.biz>
Sent: Monday, November 28, 2016 9:05 AM
To: Gregory Duggan
Cc: Aaron Martin; Alan Huizenga
Subject: RE: Review of Forestdale Industrial Park , new building at 26 Thompson Drive
Attachments: LTR AS DEMAND II.pdf; Water Entrance Detail SKM-1.pdf



Greg-

Attached is a letter from the Building Fire Suppression Designer identifying the anticipated Fire Flow Demand of 1,426 gallons per minute. Also attached is a sketch illustrating the anticipated layout for the proposed building water supply entrance. As you have previously received the Traffic Evaluation, I believe that you have everything of which you have requested to this point. If you have any questions or require additional information, please call or email me as soon as possible.

Thank you and have a great day.

Jamie

From: Gregory Duggan [<mailto:gduggan@ESSEX.ORG>]
Sent: Monday, November 21, 2016 12:31 PM
To: Jamie Simpson <jsimpson@gmeinc.biz>
Subject: RE: Review of Forestdale Industrial Park , new building at 26 Thompson Drive

Thanks, Jamie.

GD

Greg Duggan, Planner
Town of Essex, 81 Main St.
Essex Junction, VT 05452
802-878-1343
gduggan@essex.org

From: Jamie Simpson [<mailto:jsimpson@gmeinc.biz>]
Sent: Monday, November 21, 2016 12:31 PM
To: Gregory Duggan
Subject: RE: Review of Forestdale Industrial Park , new building at 26 Thompson Drive

I'll make it happen. Thanks, Greg.

Jamie

From: Gregory Duggan [<mailto:gduggan@ESSEX.ORG>]
Sent: Monday, November 21, 2016 11:58 AM
To: Jennifer Booker <JBooker@ESSEX.ORG>; Jamie Simpson <jsimpson@gmeinc.biz>
Cc: David Shenk (dshenk@shenkenterprises.com) <dshenk@shenkenterprises.com>; Sharon Kelley

William Bissell, P.E. – 1503 North St. – Montpelier, VT 05602

November 23, 2016

David Slade
Slade Engineering
18 Clarendon Ave.
Montpelier, VT 05602

Re: Autumn Harp

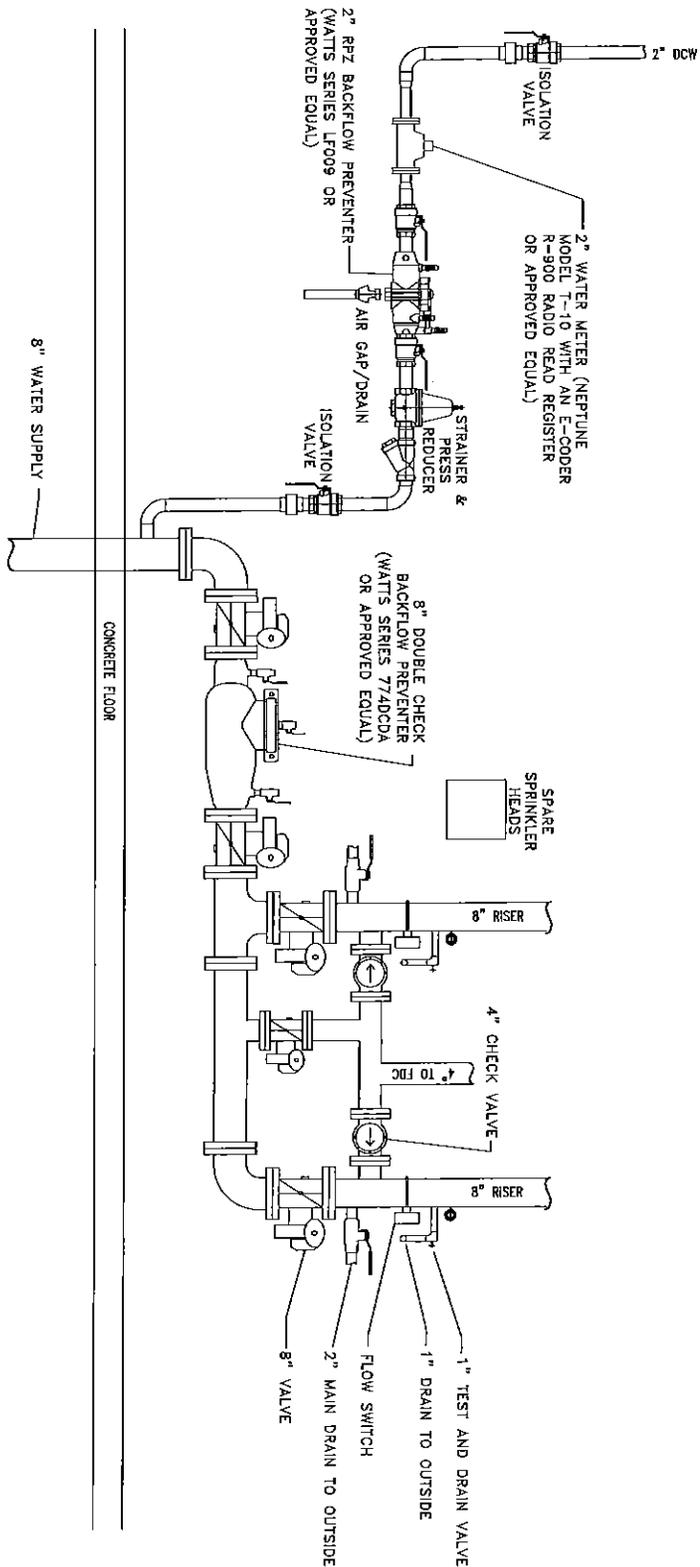
David: You have asked for an estimate of the sprinkler water demand flow for the proposed addition to the subject facility. It will have different uses in each of the numerous rooms/spaces. Two of these will have high hazard fire demand occupancies. Flammable Liquid storage and dispensing present an extremely high fire challenge but the rooms are small so the total sprinkler water demand would not be too high for any of these spaces. The main storage area, with about 25' to the bottom of the steel has potential for a high hazard too. You have reported that the Owner will use this for the storage of the same materials and in the same rack arrangement as existing one.

The sprinkler system for the existing warehouse has a water demand of 1426 GPM and it is reasonable to assume that it will be the same for this new one.

Sincerely,

William Bissell, P.E.

(802) 223-9741

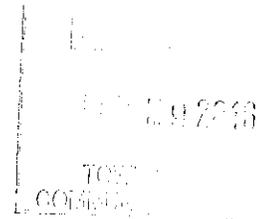


SPRINKLER/WATER ENTRANCE DETAIL
SCALE: NONE

 <p>18 CLARENDON AVE MONTPELIER, VT 05602 (802) 777-3198 WWW.SLADEV.T.COM</p>	<p>AUTUMN HARP PLANT EXPANSION ESSEX JCT, VT</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; font-size: small;">REVISIONS</th> </tr> <tr> <th style="font-size: x-small;">REV #</th> <th style="font-size: x-small;">DATE</th> <th style="font-size: x-small;">DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">11/28/18</td> <td style="text-align: center;">FOR PERMIT</td> </tr> </tbody> </table> <p style="font-size: x-small; margin-top: 5px;"> PROJECT #: 180902 FILE NAME: WATER ENTRANCE DETAIL.DWG ENGINEER: DAVID SLADE </p>	REVISIONS		REV #	DATE	DESCRIPTION	0	11/28/18	FOR PERMIT
REVISIONS										
REV #	DATE	DESCRIPTION								
0	11/28/18	FOR PERMIT								
SKM-1										

Gregory Duggan

From: Jamie Simpson <jsimpson@gmeinc.biz>
Sent: Tuesday, November 29, 2016 11:21 AM
To: Aaron Martin
Cc: Gregory Duggan; Alan Huizenga
Subject: Stormwater Maintenance Plan
Attachments: SW Maintenance Plan.DRAFT.pdf



Aaron-

Please find attached the Stormwater Management Maintenance Plan provided to identify the responsibilities and schedule of maintenance for the Stormwater Treatment Practices proposed for the new manufacturing facility addition at #26 Thompson Drive. If you have any questions, please do not hesitate to call or email. Thank you.



Jamie L. Simpson, P.E.
Project Engineer

Green Mountain Engineering, Inc.
1438 South Brownell Road
Williston, VT 05495
Ph: 802.862.5590
Email: jsimpson@gmeinc.biz

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STORMWATER MANAGEMENT
MAINTENANCE PLAN
NOVEMBER 2016

#16 & #26 THOMPSON DRIVE
ESSEX JCT., VT

Prepared by:
Green Mountain Engineering
P.O. Box 159
1438 South Brownell Road
Williston, VT 05495

Prepared for:
Autumn Harp, Inc.
26 Thompson Drive
Essex Jct., VT 05452

*"INNOVATIVE ENGINEERING SOLUTIONS WITH A COMMON SENSE APPROACH,
DELIVERED TO OUR CLIENTS IN A PROFESSIONAL,
COST-EFFECTIVE AND PERSONAL MANNER"*

Stormwater System Operation and Maintenance Plan

16 & 26 Thompson Drive, Essex Jct, Vermont 05452

Prepared by Green Mountain Engineering, Inc.

P.O. Box 159, 1438 South Brownell Road, Williston Vermont 05495

November 2016

Overview

The stormwater management system located on-site at #16 and #26 Thompson Drive consists of several Stormwater Treatment Practices (STP's) to provide adequate pollutant and sediment removal from stormwater runoff from various impervious surfaces such as rooftops, parking areas and walkways. The designed system includes the following strategies to perform this task:

- Rooftop Collection System
- Pre-treatment Catch Basin
- Infiltration Trenches
- Infiltration Basin (enlarged, #16 Thompson Dr.)
- Underground Infiltration Chambers

A rooftop collection system collects stormwater from the proposed addition rooftop impervious area through a series of drains, underground structures and pipes linked together, before ultimately discharging into the enlarged infiltration basin located at #16 Thompson Drive. Sheet flow runoff from 750 linear feet of the proposed gravel access road is directed into an infiltration trench providing sediment removal via pea gravel and sand filter layers before infiltrating through the trench bottom to groundwater. The remaining access road runoff is directed to a grass-lined channel which flows into the enlarged forebay of the infiltration basin. Surface runoff from the "upper" parking area at the site sheet flows along paved surfaces before entering into a drop inlet catch basin providing sediment removal pre-treatment prior to discharging to underground infiltration chambers located beneath the "lower" parking area. Sheet flow from the "lower" parking area is directed to flow to the southwestern end of the "lower" parking area at which point water is diverted via precast parking curb to a sedimentation chamber for sediment removal prior to weir flow into the adjacent infiltration trenches. Sheet flow from the "overflow" parking flows southwest and is diverted to a sedimentation chamber prior to weir flow into the adjacent infiltration trench. Large storms for the infiltration trench practices overflow into a vertical riser which discharges to underground infiltration chambers beneath the paved parking lot areas.

The infiltration basin and the other integrated components of this stormwater management system, require scheduled monitoring and maintenance. This includes seasonal landscaping maintenance, along with potential monthly trash and grit removal. In addition, the system must be inspected within 5 days of any 10 year storm event or greater (3.2 inches in 24 hours) and corrective actions initiated upon discovery. This system has been designed to ensure that the infiltration basin, infiltration trenches and pre-treatment practices are easily accessible for all maintenance operations. Written maintenance reports will be kept onsite as required by the Town of Essex. The table on the following page shall provide a basis for scheduled maintenance of the system:

Activity	Frequency
Water plantings	As necessary during first growing season
Water trees as necessary during dry periods	As needed for first five growing seasons
Re-mulch void areas	As Needed
Replace mulch	Every third year
Replace diseased trees and shrubs	As Needed
Inspect soils and repair eroded areas	Monthly for first year, after all 3.2 inch storms
Remove litter and debris	Monthly
Prune trees	As needed to maintain good form and site lines
Shrub cutting to ground	Once every two to three years
Sediment recovery at bottom of infiltration basin	As needed or every two to three years
Sediment recovery at bottom of pre-treatment sedimentation chambers	As needed or every two to three years
Energy dissipation: repair of stone-lined inlets	Restore as needed
Energy dissipation: repair of Rip-rap at rooftop discharges in infiltration basin	Restore as needed or after all 3.2 inch storms
Trash removal from trash racks in STP's	Monthly, or as needed
Inspect for sediment removal from Infiltration Trench STP's	Monthly, or after all 3.2 inch storms
Infiltration Basin aeration	Once annually
Weed control	As needed
Monitoring Report	Annual

Inspection and General Maintenance

A maintenance and inspection program that addresses routine tasks is necessary to ensure that the system continues to function as designed. Adhering to a maintenance schedule is necessary and will be critical to the systems success. Principal inspection elements will include debris accumulation, erosion damage, vegetative health and infiltration characteristics. Increased attention will be needed for litter and trash pick-up, since it cannot be allowed to wash away into the stormwater system. All areas that require periodic maintenance are accessible by equipment so that accumulated debris can be easily removed with minimal field labor.

Infiltration Trenches

Over time it is expected that sediment particles will accumulate in the voids between the designed pea gravel and sand layer filters of the infiltration trenches resulting in a reduced infiltration rate. The top two inches (2") of pea gravel should be replaced every 5-7 years or as needed. Under ideal conditions, this material would be removed with a small "mini" excavator capable of reaching into the trench without driving on any infiltration area. The overflow risers and stormwater drain should be visually inspected bi-annually in the spring and fall of each year and sediment and/or debris removed as needed.

Underground Infiltration Chambers

The underground infiltration chambers utilize inspection ports which should be opened and visually inspected bi-annually in the spring and fall of each year and sediment and/or debris removed as needed. Jet vac maintenance is recommended if sediment has been collected to an average depth of 2" in the initial chambers.

Grass-Lined Channel

Sandy deposits from deicing operations should be hand or mechanically broom lifted from the sodded edge near the channel prior to melting temperatures each spring. The Grass-Lined Channel should be inspected annually for rill or other damage that contributes to soil detachment. These areas need stabilization (soil filling, seeding and mulching) as detected. If sandy deposits end up in the swale, they should be removed by a vacuum truck. This area will likely require regular mowing and lawn care maintenance. It is expected that this area will be aerated when the Infiltration Basin is aerated.

Storm Water Infiltration Basin

The Infiltration Basin has been enlarged to a capacity designed to infiltrate the 100-year storm event from the rooftop areas of the existing warehouse at #16 Thompson Drive and the proposed Manufacturing Addition at #26 Thompson Drive; however, in most cases the basin will rarely fill up to one-half the designed capacity. The basin inlets (outlet of the grass channel, surface diversion swale and rooftop collection system outfalls) may form sediment deltas that should be removed by a vacuum truck, a small excavator, or by hand labor excavation. The outlet structures from the rooftop collection systems will require annual examination, and after every 10 year (3.2-inch) storm event to ensure the structures are working properly and the energy dissipating rocks are still in place. A complete cleanout (removal of top 6-12 inches of bottom area) may not be warranted dependent upon infiltration rate observations by a qualified individual acquainted with similar stormwater treatment practices. All trapped debris must be removed within 24 hours of discovery. All damaged turf will be replaced with seed mixes native to the area or with rolled erosion control matting.

Snow Removal and Storage

Care must be taken to not use the Grass-Lined Channel and Dry Swale as a first line of snow storage. Areas designated to the south of the infiltration basin area and northeast of the truck loading area at #16 Thompson Drive should be utilized first. Depending on parking demand, snow can be temporarily piled into vacant stalls since parking space exceeds the number of employees. It is not advisable to store snow residues adjacent to the pavement and the basins due to high chloride residuals from snow melt. If possible, sodium chloride substitutes such as potassium chloride or magnesium acetate should be used.

Jennifer Booker

From: Gregory Duggan
Sent: Thursday, December 01, 2016 12:46 PM
To: Jennifer Booker
Subject: FW: corrected review copy of Forstdale project
Attachments: Response to DPW Comments_12-01-16.pdf

Greg Duggan, Planner
Town of Essex, 81 Main St.
Essex Junction, VT 05452
802-878-1343
gduggan@essex.org

From: Jamie Simpson [<mailto:jsimpson@gmeinc.biz>]
Sent: Thursday, December 01, 2016 12:39 PM
To: Gregory Duggan
Cc: Aaron Martin; Alan Huizenga
Subject: RE: corrected review copy of Forstdale project

Good Afternoon Greg-

Please find attached responses from GME regarding the review comments from the Public Works Department. If you have any questions, please feel free to give us a call. Thank you.

Jamie

From: Jennifer Booker [<mailto:JBooker@ESSEX.ORG>]
Sent: Monday, November 21, 2016 4:05 PM
To: Jamie Simpson <jsimpson@gmeinc.biz>
Cc: Gregory Duggan <gduggan@ESSEX.ORG>
Subject: FW: corrected review copy of Forstdale project

Corrected review from Public Works
Thanks,

Jenn Booker
Community Development Secretary
81 Main Street. Essex Junction VT 05452
802-878-1343
Jbooker@essex.org

From: Dennis Lutz
Sent: Monday, November 21, 2016 3:34 PM

To: Dana Hanley; Gregory Duggan; Sharon Kelley
Subject: corrected review copy of Forstdale project

((

**TOWN OF ESSEX PLANNING AND ZONING
SITE PLAN APPLICATION
BLACK BAY VENTURES V, LLC**



26 Thompson Drive, Essex Jct., VT 05452

RESPONSE TO PUBLIC WORKS REVIEW COMMENTS

The following information is provided on behalf of Black Bay Ventures V, LLC (Applicant) by Green Mountain Engineering, Inc. (Engineering Consultant) in efforts to clarify and supplement additional details to assist the Town of Essex Planning Commission with the Site Plan Review of the proposed Manufacturing Addition project located at #26 Thompson Drive in Essex Jct., Vermont.

The responses have been addressed in a memorandum-style format to coincide with the original document received, and are numbered accordingly.

TRAFFIC:

1. A Traffic Evaluation has been submitted to the Essex Public Works Department (PW) as well as the Community Development Department (CD) for review.
2. The Consultant has been notified that there is a study under review which alters the current Impact Fee calculation structure for new projects in the area near the Allen Martin Drive & VT 15 intersection. It has been suggested that efforts be made to obtain a draft copy, if possible.
3. Updated information related to heavy truck traffic has been submitted to PW and CD as the Traffic Evaluation.
4. The Applicant shall reduce the number of proposed employees to forty-nine (49).

WATER / SEWER:

1. Based on metered inflow of water, presumed water consumption in the manufactured product and efficiency improvements, the Applicant anticipates the need for purchase of an additional 2,278 gallons per day (GPD) of sewer allocation.

Based on the proposed wastewater design flows per factory employee, referenced from the Vermont Wastewater & Potable Water Supply Rules, the purchase of an additional 735 GPD of sewer allocation will be required.

$$(49 \text{ employees} \times 15 \text{ GPD/emp.} = 735 \text{ GPD})$$

2. Based on the available parking, the Applicant proposes to increase the number of employees by 49. The above calculations indicate a total of 3,013 GPD of sewer allocation to be purchased.

3. Based on #3 the sewer and water allocation fees are calculated as:

Sewer: $(3,013 \text{ GPD} \times \$10.30/\text{GPD} + \$0 \text{ conn. fee} = \$31,033.90)$

Water: $(4,828 \text{ GPD} \times \$5.73/\text{GPD} + \$0 \text{ conn. fee} = \$27,664.44)$

Total Combined Fee: \$58,698.34

4. No comment.
5. Fire flow demand calculations have been submitted to PW and CD and are anticipated to be 1,426 gallons per minute (gpm).
6. No comment

STORMWATER:

1. An application for a Vermont State Stormwater Permit is currently in-process. The application will amend the existing Stormwater General Permit in place for the warehouse at #16 Thompson Drive.
2. A Stormwater Management Maintenance Plan has been submitted to the PW and CD for review.
3. No comment.

DESIGN DRAWINGS:

- Sheet #1:**
1. The cover sheet indicates the project parcel proposed for development. On the right side of the sheet there is a List of Abutters, of which the highlighted parcel is asterisked.
 2. The cover sheet has an Index of Drawings located on the left side of the sheet. The titles shall be revised to match the plan sheets exactly.
- Sheet #2:**
1. Permanent easements are to be determined after infrastructure has been installed. Temporary construction easements are limited to the property boundaries of Lots C-1B, C-1C and C-2, with exception of the protected 200' buffer limits.
 2. Many of the notes provided on the cover sheet are generic in nature in efforts to encompass several different types of projects. The notes can be revised to eliminate references to State Highways and include language regarding proper traffic control if Town Highways are to be reduced to one-lane, alternating traffic.

3. The Dig-Safe note shall be relocated to the Buried Utilities section. An additional note regarding exploratory excavations being the sole responsibility of the Contractor shall also be included.
4. The note referencing the timeframe for soil stabilization shall be revised to reference Note #10.
5. An additional note shall be included under Note #10 that addresses the requirements to follow the guidelines and procedures found in the "Vermont Low Risk Site Handbook for Erosion Prevention & Sediment Control" and in accordance with the General Permit conditions.
6. The Erosion Control Plan is currently under development and shall be provided as soon as possible for review. Measures to reduce erosion and sediment transport shall include but not be limited to: silt fence, diversion berms, Rolled Erosion Control Products (RECP), temporary seeding & mulching, stone construction entrances and temporary sediment traps, if necessary.

Additionally, language shall be included in the notes on Sheet #2 as well as on the plan that states: **"The Contractor shall remove all sediment and/or material tracked into the Town's Right of Way before rain or within 24 hours, whichever comes first."**

Sheet #3: No comment.

- Sheet #4:**
1. It is understood that the 8-inch Gate Valve proposed for the water service connection shall be considered the curb stop and therefore the service pipe and all other appurtenances between the proposed gate valve and the building are the responsibility of the Owner and shall be maintained at the expense of the Owner.
 2. It is our understanding that the sewer connections for the proposed manufacturing addition shall be performed internally, therefore no external buried connections are proposed.

- Sheet #5:**
1. Notes shall be included on the revised plans to indicate that special precautions are to be taken during construction to avoid vehicular and heavy equipment travel over infiltration areas.
 2. The use of plantings adjacent to the infiltration areas will be at the discretion of the Applicant. These features are not required, but could offer some aesthetic benefits in addition to the natural nutrient and contaminant uptake.

Sheet #6: No comment.

Sheet #7: No comment.

Sheet #8: No comment.

Sheet #9: No comment.

- Sheet #10:**
1. Revised plans shall include detectable warning plate locations as well as notes indicating maximum slopes and other comments regarding ADA accessibility.
 2. A revised sidewalk detail indicating requirements for ADA compliance and subbase construction shall be included on the revised drawings.
 3. A water entrance detail has been provided to the PW and CD for review. Fire suppression water demand calculations have also been provided.
 4. Typical cross-section details shall be added to the revised drawing details for construction of the access road, parking area and trail.

- Sheet #11:**
1. The typical details for the infiltration basin have been revised to correspond with the basin as shown on the site plans.
 2. It was noted here that slopes were shown much steeper than 3:2 (H:V) on the plans near the infiltration trench northeast of the access road. This is false, as the 1-foot vertical contours are spaced no more than 1.5 horizontal feet from one another. This results in a ratio of 1:1.5 (V:H) or 1.5:1 (H:V) or 3:2 (H:V).

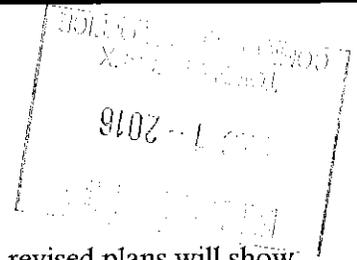
Additional notes shall be included on the plans indicating that the use of rolled erosion control products (RECP) are to be utilized on slopes in excess of 3:1 (H:V).

Sheet #12: No comment.

Sheets #A100 through #Ex-01: No comment.

Gregory Duggan

From: Jamie Simpson <jsimpson@gmeinc.biz>
Sent: Thursday, December 01, 2016 4:18 PM
To: Gregory Duggan
Subject: RE: Questions re: 26 Thompson Drive



There are supposed to be (4) little leaf lindens, one was inadvertently not shown. The revised plans will show another located on the grass island just west of the proposed "Overflow" parking area.

There are (9) wall sconces that are proposed to be mounted at approximately 20' from ground height that are 53-Watts, there is (1) that is proposed to be mounted near the 12-foot overhead door that is at 9-feet from ground and is 35-Watts.

Pole lighting shall re-use existing poles, but exchange older metal-halide style fixtures with newer LED fixtures.

Jamie

From: Gregory Duggan [<mailto:gduggan@ESSEX.ORG>]
Sent: Thursday, December 01, 2016 3:44 PM
To: Jamie Simpson <jsimpson@gmeinc.biz>
Subject: Questions re: 26 Thompson Drive

Jamie,

A few more questions related to the Autumn Harp expansion:

- Are there 4 littleleaf lindens on the landscaping plan, or 3? The table is saying 4, but I'm only seeing 3 on the plan.
- Similar question with lighting. 10 building-mounted lights (as shown on the plan), or 9 (as mentioned in the narrative)?
- Please clarify the pole-lighting. I think the plan is to use existing poles, but to replace the existing fixtures with LEDs, but please confirm or correct me.

Thanks,
Greg

Greg Duggan, Planner
Town of Essex, 81 Main St.
Essex Junction, VT 05452
802-878-1343
gduggan@essex.org

Jennifer Booker

From: Jamie Simpson <jsimpson@gmeinc.biz>
Sent: Thursday, December 01, 2016 4:30 PM
To: Gregory Duggan; David Shenk (dshenk@shenkenterprises.com)
Cc: Jennifer Booker; Alan Huizenga
Subject: RE: 26 Thompson
Attachments: Ltr to GDuggan_Parking_12-01-16.pdf

Greg-

The applicant wishes to maintain the proposed number of employees at fifty (50) if the attached justification is accepted. Otherwise, please reduce the number to 49. Thank you.

Jamie

From: Gregory Duggan [<mailto:gduggan@ESSEX.ORG>]
Sent: Thursday, December 01, 2016 1:56 PM
To: Jamie Simpson <jsimpson@gmeinc.biz>; David Shenk (dshenk@shenkenterprises.com)
<dshenk@shenkenterprises.com>
Cc: Jennifer Booker <JBooker@ESSEX.ORG>
Subject: FW: 26 Thompson

Jamie,

Comments back from Public Works.

If you're reducing the number of employees because we need to round up the parking, I'd suggest you request the 33 spaces proposed and explain why you think the parking will be sufficient.

Greg

Greg Duggan, Planner
Town of Essex, 81 Main St.
Essex Junction, VT 05452
802-878-1343
gduggan@essex.org

From: Aaron Martin
Sent: Thursday, December 01, 2016 1:49 PM
To: Gregory Duggan
Cc: Dennis Lutz
Subject: 26 Thompson

Greg

Attached is our second review based on the review of the addition information sent to Public Works. I just received the response memo. It will change the memo we just crafted somewhat. Namely decreasing the number of proposed employees from 50 to 49. Please note, this memo is based on the original 50 employees.

What is the deadline for these folks to submit material for review and/or to deem an application complete?

Aaron Martin, P.E.
Utilities Director / Town Engineer
Town of Essex
P: 802.878.1344
F: 802.878.1355
C: 802.363.5607
www.essex.org

11/11/13

GREEN MOUNTAIN ENGINEERING, INC.

1438 South Brownell Road

P.O. Box 159

Williston, VT 05495

(802) 862-5590

December 01, 2016

Mr. Greg Duggan, Planner
Town of Essex Community Development Department
81 Main Street
Essex Jct., VT 05452

RE: Black Bay Ventures V, LLC
Manufacturing Addition at #26 Thompson Drive
GME Project No. 16-028.70

Mr. Duggan;

On behalf of the Applicant identified above, Green Mountain Engineering, Inc. (GME) is requesting your consideration to reduce the number of required off-street parking requirements for the above-referenced project.

Currently, in accordance with the Essex Zoning Regulations, Article 3, §3.9(B), Table 3.3, the required number of off-street parking spaces for new projects is listed as "2 spaces for every 3 employees" for light manufacturing use. Based on this regulation, the calculated number of parking spaces required is:

50 proposed employees x 2 spaces / 3 employees = 33.3 spaces required (34 spaces)

The Autumn Harp, Inc. facility currently has 90 existing employees onsite during the highest capacity work shift. The Applicant proposes to increase the total number of employees to 140 during the peak work shift. Based on those numbers, the required number of parking spaces is calculated to be:

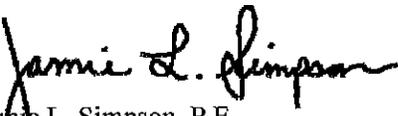
140 total employees x 2 spaces / 3 employees = 93.3 total spaces required (94 spaces)

Since there are 179 total spaces proposed at the facility, the Zoning Regulation requirement has been satisfied. Additionally, if the worst-case scenario is experienced where every employee drives themselves to work in their own vehicle, the following calculations identify the remaining available parking:

179 total proposed bays - 140 occupied bays - 6 req'd accessible bays = 33 avail. bays remaining

This information should be adequate to justify the reduction of the required number of parking spaces for the proposed project from 34 to 33. If you have any questions or need clarification on the information provided, please do not hesitate to call me at my office at (802) 862-5590.

Respectfully,
GREEN MOUNTAIN ENGINEERING, INC.


Jamie L. Simpson, P.E.
Project Engineer
enc.

cc: Dave Logan, Authorized Representative, Black Bay Ventures V, LLC

Gregory Duggan

From: Jamie Simpson <jsimpson@gmeinc.biz>
Sent: Friday, December 02, 2016 3:51 PM
To: Gregory Duggan
Subject: Re: Employees at 26 Thompson

Correct. 50 new employees.

Jamie

On Dec 2, 2016, at 3:32 PM, Gregory Duggan <gduggan@ESSEX.ORG> wrote:

Jamie,

I'm wrapping up my staff report, and looking to confirm that the plan is for 50 new employees.

Thanks,
Greg

Greg Duggan, Planner
Town of Essex, 81 Main St.
Essex Junction, VT 05452
802-878-1343
gduggan@essex.org

Jennifer Booker

Sent to Isington
11/4/16

From: Essex Fire Chief <ccole183@comcast.net>
Sent: Thursday, November 03, 2016 1:42 PM
To: Allyson Vile; Dana Hanley; Dennis Lutz; Aaron Martin; Robin; jim Jutras; Sharon Kelley; Daniel Gregoire; Gregory Duggan; Brad Larose; Jennifer Booker
Subject: Re: Thompson Drive 26 Site Plan Amendment

The fire department requests that the proposed gravel roadway be installed to a standard that would allow our heaviest truck to operate on this road in all four seasons (currently 72,500lbs) and that the road be kept clear in winter.

The actual building should be clearly identified in the fire alarm panel and clearly labeled so that any device activation can be quickly assessed and located.

Thank you.

Sent from XFINITY Connect Mobile App

----- Original Message -----

From: Jennifer Booker
To: Aaron Martin, Allyson Vile, Brad Larose, Charlie Cole, Dana Hanley, Daniel Gregoire, Dennis Lutz, Gregory Duggan, jim Jutras, Robin, Sharon Kelley
Sent: November 3, 2016 at 10:35 AM
Subject: Thompson Drive 26 Site Plan Amendment

Good morning,
Thompson Drive 26 has come in for a Site Plan Amendment; please have comments back by November 11, 2016.
Thanks,
(2 emails)
Jenn Booker
Community Development Secretary
81 Main Street. Essex Junction VT 05452
802-878-1343
jbooker@essex.org

Jennifer Booker

Sent J Simons 11/8/16

From: Brad Larose
Sent: Tuesday, November 08, 2016 12:43 PM
To: Jennifer Booker
Subject: RE: Thompson Drive 26

Jenn –

The police department has no concern regarding this amendment.

Thanks

Chief Bradley J. LaRose
Essex Police Department
145 Maple Street
Essex Junction, Vermont 05452
blarose@essex.org
(802) 857-0093 direct

From: Jennifer Booker
Sent: Thursday, November 03, 2016 11:36 AM
To: Aaron Martin; Allyson Vile; Brad Larose; Charlie Cole; Dana Hanley; Daniel Gregoire; Dennis Lutz; Gregory Duggan; jim Jutras; Robin ; Sharon Kelley
Subject: Thompson Drive 26

Email 2

Thompson Drive 26 has come in for a Site Plan Amendment; please have comments back by November 11, 2016.

Memorandum

To: Dana Hanley, Community Development Director
Cc: Greg Duggan, Town Planner
Sharon Kelley, Town Zoning Administrator
From: Dennis E. Lutz, P.E., Public Works Director and Town Engineer
Aaron Martin, P.E., Town Engineer and Utility Director
Subject: Forestdale Industrial Park, 26 Thompson Drive
Black Bay Ventures (Site Plan Amendment)
Date: November 17, 2016

Sent JS 11/21/16

The proposed site plan and other documentation for the proposed storage facility addition in the Forestdale Industrial Park, has been reviewed by the Public Works office, and comments have been provided below. Public Works staff recommends that all comments below should be addressed by the applicant's engineer prior to any approval.

Traffic:

1. The applicant did not submit a traffic evaluation study for the proposed warehouse facility. A study will be required for this proposed project. The applicant needs to document the existing level of approved site traffic and the increase as a result of the expansion. Public Works will review the impacts of the traffic study with respect to peak hour impacts. The applicant will also be required to pay a highway impact fee based partially on increased trip ends and partially on heavy traffic loads due to any increase of existing truck traffic. The assessed trip- end impact fee will be used to offset future upgrade costs to the Allen Martin Drive / VT RT 15 intersection.
2. It should be noted that the Town has contracted with the CCRPC and RSG to provide a scoping study for the VT15/Allen Martin Drive Intersection. The scoping study is virtually complete and a public presentation of the findings will occur during December. As a part of the scoping study, RSG has looked at the traffic impacts and will be providing the Town with an updated traffic impact fee for this intersection tied to the development of lots and background growth within the area impacting the intersection. It is strongly recommended that the applicant obtain a draft copy of the study. The Town will be utilizing the data contained therein for estimating the appropriate impact fees.
3. In addition to the traffic impacts on existing intersections due to the proposed traffic to be generated from this project, Public Works has concerns with the impact of additional heavy truck traffic on existing roadways within the Town. Allen Martin Drive was resurfaced during the summer of 2015. Thompson Drive has been rated high in the 2008 Town Road Management Study for repair or added pavement overlay. The Town is currently working on a new pavement inventory and will update the current

pavement priority list this year. Public Works is of the opinion that Thompson Drive will remain very high on the new priority list. The applicant should provide information regarding any increases due to heavy truck traffic.

4. Public Works will use the applicant's assumption of 50 employees to calculate and verify there will be sufficient parking available. Based on the LDC requirements, the applicant is required to have 33.3 spaces, (34 spaces). The applicant proposes 33 spaces. One additional parking space must be added to meet the parking requirements in the LDC.

Water/Sewer:

1. The current facility at 26 Thompson drive was previously approved with 4,500 GPD of both water and sewer capacity. The historical metered water usage over the past year has been 8,578 GPD. Autumn Harp is currently using 4,078 GPD over the approved allocation. It is understood that this metered usage reflects the actual water used by Autumn Harp; this does not however reflect the sewer flows into the Town's sewer system. Furthermore, the applicant has noted that 1,800 GPD of metered water usage at this facility goes into manufactured product leaving only 2,278 GPD of unpurchased sewer allocation currently being utilized. The applicant is aware of this use in excess of their current purchased capacity, and must request further sewer allocation from the Selectboard to address this deficit.

The applicant's current site plan amendment also increases the current number of employees by 50. Table 10.12.380 of the Towns Water Use Ordinance, lists offices and occupied warehouses having domestic water demand of 15 GPD per employee. The Public Works Department calculates the water and sewage usage for the proposed warehouse addition as follows: (50 employees X 15GPD = **750 GPD**) The applicant will require an additional 4,828 GPD of water allocation and 3,028 GPD of sewer allocation for this project as proposed.

2. As stated previously, the applicant must submit a Sewer Allocation Application to Public Works in the amount of 3,028 GPD of additional sewer allocation. This request will be brought in front of the Selectboard for approval. Approval of the additional sewer allocation must be made a condition of approval for this site plan amendment.
3. The sewer and water connection fees are estimated at the following, under the assumption that the building will only employ an additional 50 employees. In addition, if the fee schedule changes, then the fee charged shall be the fee in effect at the time of submittal for a building permit.

- a. Water: $4,828 \text{ GPD} \times \$5.73/\text{gal} + \$0 = \$27,664.44$
- b. Sewer: $3,028 \text{ GPD} \times \$10.30/\text{gal} + \$0 = \$31,188.40$
- c. Total = **\$58,852.84**

The applicant will not be required to pay the \$1,000 base connection fees for both water and sewer due to this being an existing connection to both systems.

4. Recent hydrant flow testing confirms that there is adequate domestic water pressure for the proposed building.
5. Public Works recommends that fire demand calculations be submitted before final approval of the project. It appears that the fire demand will be satisfied but approval will not be given without the fire flow documentation. All fire flow testing must be coordinated with Public Works due to the potential system impact of sudden high flows.
6. Further issues and concerns with the applicant's design have been provided below in the Plan Review section.

Stormwater:

1. A State Stormwater Permit is required for this project. A copy of the stormwater permit and all supporting documents must be submitted to Public Works for review. Public Works recommends that this be submitted before a building permit is issued.
2. The applicant did not submit a written maintenance plan for vegetation control around the basins, for periodic cleaning of the basins of any silt, sediment or debris and proper disposal of any excavated material. We anticipate that the basins should be checked annually and the sediment removed on a schedule not to exceed 2 years unless there is a need to clean the basin more often. Records shall be maintained of this activity and failure to comply will be considered a violation of both the project approval and the Town's stormwater regulations.
3. Further issues and concerns with the applicant's design have been provided below in the Plan Review section.

Design Drawings:

Sheet 1: (Title Page)

1. Proposed work area is not indicated on the Aerial Photo map. This would be helpful.
2. Title sheet is missing Index of Sheets.

Sheet 2: (Legend and General Constructions Notes)

1. Easements:

- The only easements found on the plans were the Town of Essex 200' Easement, where no work is being performed and the 40' Lot C1-C

easement, where little work is to be done. This note needs to be clarified. A "Limits of Disturbance" would be useful for actually showing what these limits are and for referencing in the note.

2. Traffic Control:

- There is no adjacent State Highway. This looks like a "cut and paste" oversight.
- One way traffic on a Town Highway for construction would not be permissible without proper traffic control.

3. Buried Utilities:

- The "Contractor shall coordinate with Dig-Safe...." Note should be included here and not in No. 11 Property Information.
- It should be made clear that exploratory excavations for utility location confirmation are to be made at the contractor's expense.

4. Construction:

- The time limit on stabilizing disturbed areas is covered in No. 10. (The notes also conflict with each other)

5. Cold Weather Construction Procedures:

- The Contractor needs to be mindful of the General Permit's requirement on winter erosion control measures.

6. Erosion Control Plan and Construction Sequence (and Sheet C4)

- Where is the Erosion Control Plan?
- The EPSC measures found included silt fence on the north side of Lot C1-B and around the stockpile area which, by the way, does not allow access to the area and once access is figured out, will need a Vehicle Tracking Pad. Also included is silt fence on the West side of the proposed access road.
- The abutting area north of the proposed parking area should be protected. Intermediate EPSC measures should be used to protect the existing and new portions of the infiltration basin. Although the slopes proposed for the infiltration basin are borderline of requiring temporary erosion matting, this should be considered. Temporary Erosion matting

will be required for all slopes greater than 3 on 1, i.e., some of the sloped areas between the infiltration trench and Lots C1-C and C2.

- All pertinent, missing, EPSC Details should be included and referenced. The following note shall be added to the VTP detail referenced. “The Contractor shall remove all sediment and/or material tracked into the Town’s Right of Way before rain or within 24 hours, whichever comes first.”
- Is the General Permit in place for this project? Reference “The Low Risk Handbook for Erosion and Sediment Control”.

Sheet 3: (Existing Conditions Site Plan)

[No Exception Taken]

Sheet 4: (Proposed Conditions Site Plan)

1. Water

- The 8-Inch tapping valve on the existing Town waterline will be considered a “Curb Stop”, or an additional 8-Inch gate valve shall be placed in-line at the limit of the proposed ROW. Either way, the Town will only take on maintenance of the service line on the section of service between the tapping sleeve and the first inline gate valve.
- All waterlines after the curb stop shall be considered private service lines regardless of the size. Therefore, with the new 8-Inch service, the hydrant service, and hydrant shall be private, and must be maintained by the applicant.

2. Sewer

- The Town will allow a Fernco style saddle with stainless steel straps for connection of the new service to the existing sewer.
- Additional comments regarding construction details in Sheet 8 comments.

3. Storm water

See comments above and the comments on Sheet 5.

Sheet 5: (Proposed Storm water Infrastructure Plan)

1. Revised the notes relative to a revised design and control of equipment onsite.
2. Suggest the use of plantings adjacent to the infiltration areas as a potential for inclusion of rain garden features.

Sheet 6: (Inset #1, Proposed Parking Areas)

[No Exception Taken]

Sheet 7: (Inset #2 Proposed Infiltration Basin)

[No Exception Taken]

Sheet 8: (Proposed Grading and Landscaping)

[No Exception Taken]

Sheet 9: (Proposed Lighting Plan)

[No Exception Taken]

Sheet 10: (Proposed Water and Misc. Details)

1. Public Works staff recommends handicap accessible sidewalk ramps on the proposed warehouse site be constructed to VAOT standards, C-3A and C-3B. The current sidewalk ramp detail does not reference ADA requirements or depict ramps with detectable warning plates. All paved walkways should be constructed in compliance with current ADA standards.
2. Subbase for sidewalks should extend 6" beyond the edge of the concrete sidewalk. (See VTrans Standards)
3. A Water / Sprinkler Connection detail should be provided. The detail should provide a gate valve or ball valve before and after the water meter on the domestic side of the service. A backflow prevention device shall be installed downstream from the meter and valves. Also, backflow prevention shall be provided on the fire suppression service.
4. Typical cross section details should be included for the proposed access road, parking area, and trail.

Sheet 11: (Proposed Storm water Details)

1. The standard details for the infiltration basin on sheet #11 do not coincide with the storm water plan sheet #5. The storm water plans do not show an overflow, riser or outfall. This is consistent with the storm water analysis. However, the standard detail shows these features. Please revise the standard detail so the plans are consistent.
2. The Infiltration Trench Detail shows a max cut slope of 3 on 2. Proposed contours along the cut slope side of the trench are shown much steeper for the most part.

Sheet 12: (Proposed Underground Storm water Chamber Details)

[No Exception Taken]

Sheets A100 – E x01

[No Exception Taken]

Memorandum



To: Dana Farley, Community Development Director
Cc: Greg Duggan, Town Planner
Sharon Kelley, Town Zoning Administrator
From: Dennis E. Lutz, P.E., Public Works Director and Town Engineer
Aaron Martin, P.E., Town Engineer and Utility Director
Subject: Forestdale Industrial Park, 26 Thompson Drive
Black Bay Ventures (Site Plan Amendment) <<< **Second Review**>>>
Date: November 30, 2016

Sent Simpson
12/1/16

Public Works has reviewed the additional information requested on our November 17, 2016 review memo of the proposed storage facility addition at the above referenced location. Comments on the additional information have been provided below. Public Works staff recommends that all outstanding issues and / or concerns raised in the November 17, 2016 review memo and this memo be addressed by the applicant prior to issuance of a building permit.

Traffic:

1. As requested, the applicants engineer has submitted a traffic analysis for the above referenced project. Public Works has reviewed the study submitted, and agrees with summary. The applicant is proposing an additional 6 peak hour vehicle trip ends generated at the Allen Martin Drive / VT RT 15 intersection. This traffic is based entirely on the additional heavy truck traffic that will be generated at the site. There will be no additional peak hour traffic generated by the addition of the 50 additional employees. This is due to the shift change being 7:00 pm, outside the peak hour.

The assessed trip- end impact fee and the heavy truck impact fee will be calculated in the same manner as done in the February 2013 warehouse upgrade at 16 Thompson Drive, and will be adjusted using ENR Construction Cost Index. Both Calculations have been provided below. Using the 2013 Reinhardt facility Traffic Impact Study, a calculation has been made for an appropriate traffic impact fee.

- The intersection impact fee is based partially on 6 added vehicles arriving and departing in the peak hour (6 trucks). This is $(6/1426) \times \$331,500 = \$1,394.81$ for the PM peak.
- The second component relates to the heavier truck traffic. The fee will be based on a Mill and Fill of Thompson Drive from the intersection of Allen Martin Drive, to the beginning of the new section of Thompson Drive completed in 2014. Using the same analysis from the original

2013 Reinhardt study, the calculation yields for Thompson Drive
(6/118) x \$58,131.60 = \$2,955.84.

- The total traffic impact fee to be collected from the applicant shall be \$4,350.65. This is the fee that should be conditioned by the Planning Commission as a traffic impact fee.
2. Public Works would like to make it clear that the applicant's traffic study is based on 7:00 AM and 7:00 PM shift changes. Both times of day are outside the peak hour. If the hours of operation at the Autumn Harp facility should change, the applicant will be required to notify the Town and may be required to pay an additional traffic impact fee if the shift change occurs at the Peak PM hour. This must be made a condition of approval.
 3. As stated in the previous review memo from Public Works, the applicant's assumption of 50 employees to calculate and verify that sufficient parking is available. Based on the LDC requirements, the applicant is required to have 33.3 spaces, (34 spaces). The applicant proposes 33 spaces. One additional parking space must be added to meet the parking requirements in the LDC.

Water/Sewer:

1. The applicant has submitted to Public Works a request for additional sewer allocation in the amount of 3,028 GPD. This additional allocation is not only provide additional capacity for the proposed 50 additional employees, it is to compensate for the additional sewer that is currently being used by the applicant above the approved maximum for the site. The applicant will be on the agenda for the December 19, 2016 Selectboard meeting. This project approval must be conditioned on the Selectboards decision to approve this sewer allocation request.
2. As stated in the previous review memo from Public Works, the sewer and water connection fees are estimated at the following, under the assumption that the building will only employ an additional 50 employees. In addition, if the fee schedule changes, then the fee charged shall be the fee in effect at the time of submittal for a building permit.
 - a. Water: 4,828 GPD x \$5.73/gal + \$0 = \$27,664.44
 - b. Sewer: 3,028 GPD x \$10.30/gal + \$0 = \$31,188.40
 - c. Total = \$58,852.84

The applicant will not be required to pay the \$1,000 base connection fees for both water and sewer due to this being an existing connection to both systems.

3. The applicants engineer has provided fire flow demand calculations and a fire system connection detail of the internal plumbing for review. Public Works takes no exception

to the additional information submitted. All future fire flow testing must be coordinated with Public Works due to the potential system wide impacts of sudden high flows.

Stormwater:

1. A copy of the State Storm water Permit and a copy of the Storm water management plan for the entire site must be submitted to Public Works for review prior to issuance of a building permit.

Design Drawings:

1. All outstanding comments regarding the project plans from the November 17, 2016 must be addressed prior to issuance of a building permit. Public Works will review the revised plans to ensure all comments have been addressed.