

## RECYCLING FACILITY OPTIONS INFORMATION

### Program

The goal is for the Town to have a hybrid program which includes both source-separated and single-stream recycling, including a gift shop, as recommended by the Solid Waste Committee. This hybrid program could be located at either the Recycling Barn or on Pond Road. The Recycling Barn does not equal a source-separated program and Pond Road does not equal a single-stream program.

Either location will need a transfer facility license in order for the Town to operate as it did previously at the Recycling Barn. Without a transfer facility license, the program will be limited to operating as a recycling facility, which does not require a permit for Maine Department of Environmental Protection, (*please refer to Attachment 1*).

### Process

Whether the Town chooses to operate at the recycling barn or at Pond Road, the same process will need to be followed:

- An engineer will need to be hired to complete the design work and provide cost estimates.
- Once a design is chosen, construction documents will need to be created and the project will need to be put out to bid.
- The Town will need to appropriate the necessary funding to complete the project, after bids are received.
- Once money is appropriated, contracts can be signed, and construction can begin.
- After construction and all final inspections are completed, the Town will be able to begin operations.

The Town will continue operating at Public Works until the process is complete.

### Costs

Both avenues will have the expense of an engineer for design and construction services and construction. Currently we have the following proposals for both projects:

- Proposal from Barton & Loguidice on October 6, 2021 for Recycling Barn Rehabilitation Design Services to include preliminary design, engineering and environmental services for \$67,000.
- Proposal from Pine Tree Engineering on November 6, 2020 and March 8, 2021 for Pond Road to include preliminary design, engineering and environmental services for \$38,500.

*Please refer to Attachment 2.* Once a design is chosen, the Town will need funding for final design, permitting and construction documents.

### *Pond Road*

We completed a feasibility study for Pond Road that looked at two options: a new facility adjacent to Public Works and an addition to the Public Works Facility. The public works building was originally designed in 2017 with an additional four bays that were removed to save a little over \$250,000. The Town could also look at increasing the gravel footprint and building a small building for now so that we could increase our recycling program and save a larger addition for the future. *Please refer to Attachment 3.*

### *Recycling Barn*

In 2013, the Town received estimates for the roof truss rehab, floor rehab and exterior sheathing, the least expensive option was \$115,200, *(please refer to Attachment 4)*. The reports from Criterium Engineering also recommended that roof loads, floor loads and building sheathing be addressed, *(please refer to Attachment 5)*. The State Fire Marshal's Statement of Deficiencies need to be addressed. According to the Fire Marshal, 2 of the 29 listed deficiencies has been corrected as of May 27, 2022, *(please refer to Attachment 6)*. Additionally, operational and safety standards have changed since the Town began operating in the Recycling Barn in the 1980's, therefore improvements will be needed to ensure we are meeting current standards.

# ATTACHMENT ONE

## Nicole Briand

---

**From:** Parker, Michael T <Michael.T.Parker@maine.gov>  
**Sent:** Tuesday, June 7, 2022 12:48 PM  
**To:** Nicole Briand  
**Subject:** RE: Bowdoinham Recycling Barn

Hi, Nicole.

In a nutshell, Mr. Berry can collect the following:

- paper, cardboard, glass, plastic, and metal, including white goods;
- wood waste (brush, stump, wood chips, lumber), construction or demolition debris, tires, white goods and household hazardous as part of an annual or semi-annual municipally-authorized collection program, provided the collected materials are removed within 30 calendar days of arriving at the Barn;
- clothing and other goods that are still in operating condition for the Gift Shop; and
- waste oil.

That said, these are exempt activities under the Solid Waste and Waste Oil regulations. As such, no applications were submitted and no permits were issued. The use of the term “permitting” in DOC460 is not accurate, as no permit was issued.

Michael T. Parker  
Environmental Specialist, Division of Materials Management  
Maine Department of Environmental Protection  
(207) 458-0578 (cell)  
(207) 287-7704 (desk)  
[www.maine.gov](http://www.maine.gov)



**From:** Nicole Briand <nbriand@bowdoinham.com>  
**Sent:** Tuesday, June 07, 2022 11:43 AM  
**To:** Parker, Michael T <Michael.T.Parker@maine.gov>  
**Subject:** Bowdoinham Recycling Barn

**EXTERNAL:** This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello Mike,

I hope all is well. I'm reaching out to confirm the latest update on the recycling barn. I received a copy of your January 24, 2022 letter to Mr. Berry which seem in line with the letter you wrote us, except for the allowance of used motor oil. However, the latest information regarding the barn, states that *the recycling barn has been permitted by DEP to*

*receive the same recyclable and solid waste items (except tires) that it received between 1989 and 2020* (please see attached DOC460). Could you please confirm/clarify where the facility stands with permitting and what is allowed?

Thank you,

Nicole Briand  
Town Manager  
Town of Bowdoinham  
13 School St  
Bowdoinham, ME 04008  
207-666-5531  
207-666-5532

the 1990s, the number of people with a mental health problem has increased in the UK (Mental Health Act 1983).

There is a growing awareness of the need to improve the lives of people with mental health problems. The Department of Health (1999) has set out a vision of a new mental health system, which will be based on the following principles:

- People with mental health problems should be treated as individuals, with their own needs and wishes.
- People with mental health problems should be given the opportunity to participate in decisions about their care.
- People with mental health problems should be given the opportunity to live in their own homes and communities.

These principles are reflected in the new Mental Health Act 2003, which came into force in 2005.

The new Act is based on the following principles:

- People with mental health problems should be given the opportunity to live in their own homes and communities.
- People with mental health problems should be given the opportunity to participate in decisions about their care.
- People with mental health problems should be treated as individuals, with their own needs and wishes.

The new Act is a landmark in the history of mental health care in the UK.

It is based on the following principles:

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JANET T. MILLS  
GOVERNOR

STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



MELANIE LOYZIM  
COMMISSIONER

January 24, 2022

David Berry  
Sagadahoc Recycling Company, LLC  
21 Dinsmore Cross Road  
Bowdoinham, ME 04008

RE: Operations at the Bowdoinham Recycling Barn

Dear David,

We have had several discussions regarding operations at the Bowdoinham Recycling Barn since my letter of 3 May, 2021 to the Town of Bowdoinham. Specifically, we have discussed activities and operations that would not require any permitting from the Department. As pointed out in my letter of 3 May, the acceptance of pre-separated, uncontaminated, used paper, cardboard, glass, plastic, and metal (including white goods) when its' handling of these wastes to limited to sorting, compacting or baling, containerizing, and/or transferring, when these materials will be used by a manufacturer, does not require a permit from the Department. Additionally, the Barn would be exempt from permitting for the temporary storage, for a maximum of 30 days, of wood waste (brush, stump, wood chips, lumber), construction or demolition debris, tires, white goods and household hazardous as part of an annual or semi-annual municipally-authorized collection program. The operation of the resale/swap shop for clothing and other goods that are still in operating condition is also exempt, but it would require significant oversight on your part to avoid an overaccumulation of items that cannot be reused and are, therefore, municipal solid waste.

I have discussed your proposal to collect and dispose of household hazardous waste with the Hazardous Waste Unit in DEP and they have stated that as long as you limit your collection and disposal to households only, not businesses, this would be an exempt activity.

Finally, I have discussed your proposal to collect used motor oil in the quantities you proposed with the Petroleum Unit in DEP. Again, this activity would be exempt from permitting. However, you may need a permit from the State Fire Marshall for the above-ground storage tank that you use to store the used motor oil.

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106 HOGAN ROAD, SUITE 6  
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PORTLAND  
312 CANCO ROAD  
PORTLAND, MAINE 04103  
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PRESQUE ISLE  
1235 CENTRAL DRIVE, SKYWAY PARK  
PRESQUE ISLE, MAINE 04769  
(207) 764-0477 FAX: (207) 760-3143

If you have any additional questions or would to discuss activities which may be permissible, but require licensing, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael T. Parker". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Michael T. Parker



the 1990s, the number of people with a mental health problem has increased in the UK (Mental Health Act 1983).

There is a growing awareness of the need to improve the lives of people with mental health problems. The Department of Health (1999) has set out a strategy for mental health care in the UK, which includes a commitment to improve the lives of people with mental health problems.

The strategy is based on the following principles:

- To improve the lives of people with mental health problems.
- To ensure that people with mental health problems are treated with respect and dignity.
- To ensure that people with mental health problems are given the opportunity to participate in decisions about their care.
- To ensure that people with mental health problems are given the opportunity to live in the community.

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**JANET T. MILLS**  
GOVERNOR

**STATE OF MAINE**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**



**MELANIE LOYZIM**  
COMMISSIONER

May 3, 2021

**Nicole Briand, Town Manager**  
Town of Bowdoinham  
13 School Street  
Bowdoinham, Maine 04008

**Re: Status of Bowdoinham Recycling Barn**

Dear Nicole,

You have requested that I clarify the regulatory status of the Bowdoinham Recycling Barn, operated by David Berry, located on the Post Road. First, to the Department's knowledge, the Barn has operated as an exempt recycling facility under the Departments' rules. The facility has routinely accepted pre-separated, uncontaminated, used paper, cardboard, glass, plastic, and metal (including white goods) and limited its' handling of these wastes to sorting, compacting or baling, containerizing, and/or transferring, when these materials will be used by a manufacturer. This activity is does not require a permit from the Department. In addition, the Barn would be exempt from permitting for the temporary storage, for a maximum of 30 days, of wood waste (brush, stump, wood chips, lumber), construction or demolition debris, tires, white goods and household hazardous as part of an annual or semi-annual municipally-authorized collection program. Finally, the Barn could accept Universal Waste, which includes architectural paint, cathode ray tubes (including TVs and computer monitors), lamps, mercury devices, mercury thermostats, motor vehicle mercury switches and totally enclosed, non-leaking polychlorinated biphenyl (PCB) ballast. However, the operation of a Universal Waste accumulation site must comply with the requirements for "central accumulation facilities" included in the Department's "Hazardous Waste Management Rules" (06-096 CMR ch. 850, 851, 853, 857 and 858). The operation of the resale/swap shop for clothing and other goods that are still in operating condition is also exempt, but it would require significant oversight to avoid an overaccumulation of items that cannot be reused and are, therefore, municipal solid waste.

Any other activities at the Barn associated with the receiving, storing, accumulating, and/or consolidating of solid waste and waste oil in sufficient volume to be able to containerize, with or without compaction, for efficient transportation to another facility, would require a permit from the Department to operate as a transfer station. My review of the setback requirements affirmatively demonstrates that the Barn cannot meet the setbacks from residences (500 feet), public roads (100 feet) and abutting property boundaries (100 feet for facilities not

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accepting municipal solid waste and 250 feet for facilities accepting municipal solid waste). There are additional permitting requirements, including traffic flow, noise, access control and setbacks to protected natural resources that would make permitting the Barn as a transfer station problematic.

If you have any additional questions, please contact me at 207-287-7704.

Sincerely,



Michael T. Parker

# **ATTACHMENT TWO**

# Fee Proposal and Alternates

Barton & Loguidice proposes the following professional fees to complete the scope of services noted in the RFP. Please note that we included in our scope of services some proposed value-added services, based on our discussion with the Town Manager and our visit to the site.

<b>Project Phase</b>	<b>Proposed Fee</b>
<b>Phase I - Needs Assessment</b>	<b>\$23,000</b>
<b>Phase I - Preliminary Design</b>	<b>\$29,000</b>
<b>Phase I - Cost Estimates</b>	<b>\$7,000</b>
<b>PHASE I SUBTOTAL</b>	<b>\$59,000</b>

**\*Phase 1 Value Added Services, Including Phase 1 Site Assessment and Building Hazardous Materials Assessment\***

It is the opinion of our team that to do proper site diligence, and to provide all of the key information the town will need to make an informed decision that an evaluation of the existing barn structure and site should be undertaken. Although this was not specifically asked as part of the scope of services we would propose to include these key services. Based on our understanding of the project at this time, we offer these services for a budget cost estimate of \$8,000. We would reserve the right to revisit the required scope of services and fees once we have performed our initial site visits and evaluation.

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We offer budgetary fee estimates for Phases 3 and 4 below, and have included our preferred Municipal professional staff rates and reimbursable schedule. We would reserve the right to revisit the proposed scope of services and professional fees, once Phase 1 has been completed.

**Phase II - Permitting** **\$15,500**

*(Fee based upon assumption of approximately 80 hours related to local Bowdoinham Site Plan Application and Maine DEP Stormwater Permit By Rule)*

**Phase III - Contract Documents** **\$15,000**

*(Fee based upon assumption of approximately 125 hours to prepare documents) (Architect fee will be 5% - 10% of total building construction cost)*

**Phase III - Construction Inspection** **\$33,000**

*(Fee assumes up to 20 site visits and 100 hours of site inspection for B&L staff, and approximately 150 hours of Senatore Architects staff time)*



the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.5 billion.

There are a number of reasons why the world's population is growing so rapidly. One of the main reasons is that the number of children born to each woman has increased. This is due to a number of factors, including the fact that women are now having children at a younger age, and that there are more children surviving to adulthood.

Another reason why the world's population is growing so rapidly is that the number of people who are surviving to old age has increased. This is due to a number of factors, including the fact that people are now living longer, and that there are more people surviving to old age.

There are a number of other reasons why the world's population is growing so rapidly. One of the main reasons is that the number of people who are migrating to other parts of the world has increased. This is due to a number of factors, including the fact that there are more people who are looking for better opportunities elsewhere.

Another reason why the world's population is growing so rapidly is that the number of people who are being born in other parts of the world has increased. This is due to a number of factors, including the fact that there are more people who are being born in other parts of the world.

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# Pine Tree Engineering, Inc.

53 Front Street  
Bath, Maine 04530  
(207) 443-1508  
Fax: (207) 442-7029  
E-mail: pte@pte-maine.com

November 6, 2020 (Via Email)

Ms. Nicole Briand, Interim Town Manager  
Town of Bowdoinham  
13 School Street  
Bowdoinham, Maine 04008

**Subject: Recycling Facility #16018.01**  
**Bowdoinham, Maine**

Dear Nicole:

Pine Tree Engineering is pleased to submit this proposal to assist the Town of Bowdoinham with the development of a new Recycling Facility on the Town's property at 121 Pond Road.

We propose to complete the following Scope of Services:

<b>Task</b>	<b>Description</b>	<b>Fee</b>
1	Topographic Survey (7 acres ±)	\$8,000
2	Wetland Delineation (7 acres ±)	2,300
3	Preliminary Site Design	2,500
4	Review with Town	300
5	Final Site Design	3,000
6	DEP Stormwater Design and Permit Application	4,500
7	MaineDOT Entrance Permit Application	500
8	Planning Board Application and attend Meetings (3)	3,500
	<b>TOTAL</b>	<b>\$24,600</b>

This project will be undertaken on a lump sum basis for a fee of **\$24,600**. We will invoice the Town on a monthly basis. This fee may be subject to change due to unforeseen circumstances and due to delays in completing the work outside our control. This fee does not include permit application fees, or advertising fees.

# **Pine Tree Engineering, Inc.**

53 Front Street  
Bath, Maine 04530  
(207) 443-1508  
Fax: (207) 442-7029  
E-mail: [pte@pte-maine.com](mailto:pte@pte-maine.com)

March 8, 2021 (Via Email)

Ms. Nicole Briand, Town Manager  
Town of Bowdoinham  
13 School Street  
Bowdoinham, Maine 04008

**Subject: Recycling Facility Building  
Bowdoinham, Maine**

**#16018.01**

Dear Nicole:

Pine Tree Engineering is pleased to submit this proposal to assist the Town of Bowdoinham with the development of a new pre-engineered steel building (60' x 90') at the proposed Recycling Facility on the Town's property at 121 Pond Road.

We propose to complete the following Scope of Services:

<b>Task</b>	<b>Description</b>	<b>Fee</b>
1.	Preliminary Building Design	\$5,000
2.	Foundation Design	4,600
3.	Mechanical Design	11,000
4.	Electrical Design	4,100
5.	Final Building Design	10,000
6.	Subsurface Wastewater Disposal System Design	2,000
7.	Fire Marshal Permit Application	700
8.	Review (3) Meetings with Town	1,500
	<b>TOTAL</b>	<b>\$38,900</b>

This project will be undertaken on an hourly basis, plus reimbursable expenses, for a fee not to exceed **\$38,900**. We will invoice the Town on a monthly basis. This fee may be subject to change due to unforeseen circumstances and due to delays in completing the work outside our control. This fee does not include permit application fees, or advertising fees.



# **ATTACHMENT THREE**

# DRAFT

Project No. 16018  
December 27, 2017

## Preliminary Construction Cost Estimate Summary Public Works Facility (80' x 120' Garage) Bowdoinham, Maine

Item	Description	Quantity	Unit	Unit Price	Cost
1	Site Work	1	lump sum	\$313,200	\$313,200
2	Garage (80' x 120')	1	lump sum	\$1,037,000	\$1,037,000
3	Sand & Salt Shed	1	lump sum	\$500,000	\$500,000
4	Mobilization	1	lump sum	\$100,000	\$100,000

Subtotal:	\$1,950,200
Contingency:	\$200,000
Construction Engineering and Testing:	\$40,000
<b>Total:</b>	<b>\$2,190,200</b>

**PINE TREE  
ENGINEERING**

# DRAFT

Project No. 16018  
November 17, 2017

## Preliminary Construction Cost Estimate Summary Public Works Facility Bowdoinham, Maine

Item	Description	Quantity	Unit	Unit Price	Cost
1	Site Work	1	lump sum	\$394,050	\$394,050
2	Garage (80' x 160' + 80' x 20')	1	lump sum	\$1,222,960	\$1,222,960
3	Sand & Salt Shed	1	lump sum	\$500,000	\$500,000
4	Mobilization	1	lump sum	\$100,000	\$100,000

Subtotal:	\$2,217,010
Contingency:	\$200,000
Construction Engineering and Testing:	\$40,000
<b>Total:</b>	<b>\$2,457,010</b>

**PINE TREE  
ENGINEERING**

# **ATTACHMENT FOUR**

## Bowdoinham Recycling Center ~ Rehabilitation Summary

On August 21st 2013, Calderwood Engineering inspected the Bowdoinham Recycling center. The building is a converted (3) story chicken barn that has been modified several times throughout its service life. At first glance the 36' wide by 290' long building appears to be in relatively serviceable condition but upon further inspection there are many structural members that are visibly overstressed.

Recently the building has had a structural failure of the roof which since has been repaired. In 2011 Calderwood Engineering performed a structural analysis of the roof system and concluded that the existing members were undersized and needed to be reinforced. Two different rehabilitation options were designed and detailed for the rehabilitation of the roof. During the 2013 inspection only a fraction of roof members were found to be reinforced, and those that were reinforced were not strengthened to the level that was shown in Calderwood Engineering's details. These modifications, although better than leaving the roof as it was originally, are not enough to bring the roof structure up to code. The existing repairs should be added to in order to bring the roof up to code to prevent future structural failure.

Calderwood Engineering has calculated an unbalanced snow loading of 60psf (pound per square foot) on the roof using the 2012 International Building Code (IBC) and the Minimum Design Loads for Buildings 2010 (ASCE 7). This snow load is much larger than the capacity of the roof members. Calderwood Engineering has designed various options to strengthen the roof.

The following roof members were found to be undersized:

- 2x6 Rafter @ 3'-0" Upper Section Spanning 7'-0" +/-
- 2x6 Rafter @ 3'-0" Lower Section Spanning 11'-0" +/-
- (2) 2x8 Spanning 12'-0"

The recommended rehabilitation for the Upper section of the 2x6 rafter is to sister an additional 8'-0" +/- long 2x6 to the existing rafter.

There are (2) recommended rehabilitation options for the lower section of the 2x6 rafter. The first option is to add (1) 2x6 web member and (1) 2x4 web member to the lower section, converting this portion into a truss structure. These members would be fastened to the existing members with plywood or OSB gusset plates and nails. This option would also require (1) 2x4 to be sistered to the existing rafter. (Option 1)

The second option for the lower section of the rafters is to sister (2) additional 2x10 to the lower half of the existing 2x6 rafter. (Option 2)

There are also (2) rehab options for the double 2x8 "Roof Girders" that support the rafters and span 12'. The first option is to add (2) 2x4 kickers off of the supporting posts @ a 45° angle to reduce the 12' span to (3) 4' spans. These smaller spans reduce the stress in the existing members to an allowable level. (Option A)

The second option is to add (1) 11 7/8" x 1 3/4" Boise Cascade Versa-Lam Beam to the existing (2) 2x8. The existing posts carrying the 2x8's will need to be notched to allow the additional of the Versa-Lam Beam. (Option B)

Calderwood Engineering also analyzed the rest of the existing structure under dead, live and snow loads. The use of the building was determined to be a light storage warehouse on the account that the majority of the structure is housing various materials. According to ASCE 7 and the IBC for a light storage warehouse the design live load is 125 psf. The existing allowable live loads were calculated for the structural members, below are the results:

- Floor Joists (2x8 12' Span @ 2' Spacing) ~ 27.4psf
- Triple (2x8 Beams Supporting (1) Span (Center Bay Undecked) ~ 20.6psf
- Triple (2x8 Beams Supporting (2) Span (Center Bay decked) ~ 10.3 psf
- 6x6 Built-up Column (2nd Floor Center) ~ 61.1 psf
- 6x6 Built-up Column (1st Floor Center) ~ 56.1psf

From the above results it is evident that the existing structure is not adequate to support a design live load of 125psf. In order to provide the best solution for the strengthening of these members a number of rehabilitation options have been designed.

The option designed for the strengthening of the existing floor joists is to sister each floor joist with a 5 1/2" x 3 1/2" Boise Cascade Versa-Lam Beam. A secondary option was explored but when looking into the cost for this option it was removed because the cost was extremely high.

There are (2) rehab options for the triple 2x8 beams. The first option is to add (2) 5x5 kickers @ 45° angle to each existing posts to reduce the existing 12' span to (3) 4' spans. This would reduce the stresses in the members to an allowable level. This option is relatively low in cost but it would reduce the available area to move and store materials, which is not ideal. (Option 1)

The second option is the addition of (2) C6x8.2 channels (1) on either side of the existing members. The channels would be connected by 1/2" diameter A325 bolts spaced at 2' centers. The bolts would be through bolted in holes drilled through the channels and the existing 2x8's. This option is more expensive but does not reduce the usable area in the building. (Option 2) Triple 2x8 shall be jacked up 1/4" at center span or until visibly level prior to the addition of the 5x5 kickers or C6x8.2 channels.

The existing columns were found to be built up columns made up of (3) 2x6 or to be solid sawn 6x6. The column rehab was designed separately for the 1st and 2nd floors. The columns on the 3rd floor supporting the roof were found to be adequate and no further modifications are required.

There are no modifications required for the 2nd floor columns if the rehab option using the 5x5 kickers is used. If the kicker option is not included, an additional 2x6 is required to be added to the existing post. The first floor columns are undersized with or without the addition of the kickers and need (2) 2x6 added to the existing column to carry the design loads. These 2x6's should be added (1) on each side of the existing column such that the final section would be (5) 2x6 lined up face to face.

The exterior walls were found to be made up of 2x4 @ 2' centers. For the design loads, these were found to be adequate to resist the vertical loads as long as they are braced laterally by sheathing. During inspection one entire wall did not have any sheathing connecting the 2x4's together. There were few lateral bracing members installed but these members do not brace the 2x4's enough to develop the capacity needed. In order for the existing walls to be able to carry the design loads 1/2" plywood/OSB should be added to all exterior walls that are not covered by plywood or planking.

During inspection it was found that in the rear of the building there was a portion where the first floor is extended up to the floor joists of the 3rd floor. This section is approximately 16' high and has (2) large trusses that span 24' each. The trusses have been modified with the addition of 1" diameter bolts to the connection of the tension diagonal web members. Calderwood Engineering performed an analysis of the existing truss and found that not all the existing members were adequate to carry the design loads. The following truss members were found to be undersized:

- Bottom Chord - (3) 2x10
- Top Chord - (3) 2x10
- Tension Diagonal - (2) 2x8
- Compression Diagonal - (2) 2x8

The recommended option for the rehabilitation of the bottom chord is to add (2) 1/4" thick plates to the middle 14' +/- of the bottom chord. It was determined that the tension force in the bottom chord in the middle portion could be carried by adding (3) 2x10 to the existing (3) 2x10, but this did not seem feasible so the addition of a steel plate was inspected. The new steel plate should be connected with the existing 1" diameter through bolts located in the bottom chord. The minimum required width of the plate was found to be 4 5/8", but it is very likely that the location of the existing bolt holes will control the width.

The recommendation for the top chord is to add (2) 2x4 lateral braces at 6' centers. Each brace should be connected to the top chord and extend at a 45° +/- angle to the existing floor joists. There would be (1) brace required on each side of the top chord every 6'. This option is recommended because it requires the least amount of work and material added to the top chord.

The recommendation for the tension diagonals is to replace the (2) 2x8 members with (2) 1/4" thick steel plates. Wood was not an option for the tension diagonal because

it would require (5) additional 2x8 which did not seem feasible. The 1/4" would be connected to the bottom chord with the same bolts as the bottom chord steel plates and would be connected to the top chord with the existing through bolts. Since the capacity of the bolts in the wood in the top chord is not adequate to develop the tension in the diagonal members, the installation of (2) C6x8.2 channels as described in the repair of the triple 2x8's above would be required. These channels should extend (1) span on each side of the truss and would be enough to strengthen those spans. With the addition of the channels the bolt capacity is large enough to develop the tension required for the diagonal members.

The recommended solution for the compression diagonals is to add (2) 2x10 or (1) 6x6 solid sawn post to the diagonals. These members would be cut to be wedged tight between the existing vertical and horizontal members. Also (2) 1" diameter A325 bolts should also be installed through the existing 2x8 compression members and bottom/top chord in order to develop the compression members. Both the bolts and the direct compression of the additional members would be required to develop the compression force required.

For the rehabilitation of the truss, the web diagonal members will be required to be removed during construction. In order to perform this work temporary supports must be installed to ensure the truss remains in place. It is our recommendation to use (2) 6x6 solid sawn timber posts at a 45° angle off of the existing built up columns. The top of the temporary supports would be located below the location where the web diagonals meet approximately 6' off of the columns. These temporary supports would be required to remain in place until all the truss modifications are completed.

The existing columns in the rear section of the building that extend 16' +/- to the floor joists of the 3rd floor are built up 12x12 columns. After analysis it was found that these columns are adequate to carry the design loads, therefore no modifications are required for the 12x12 columns.

Once all of the above solutions were designed, Calderwood Engineering had a 3rd party perform a cost estimate for each of the options. The following are the estimates for each option.

<b>Roof Truss Rehab Option 1-A (Sheet 2)</b> (Roof Truss Members & 2x4 Kickers Added)	\$ 28,000.00
<b>Roof Truss Rehab Option 1-B (Sheet 2)</b> (Roof Truss Members & 11 7/8" x 1/34" Versa-Lam Added)	\$ 39,500.00
<b>Roof Truss Rehab Option 2-A (Sheet 2)</b> (2) 2x10's, (1) 2x6 & 2x4 Kickers Added)	\$ 31,600.00
<b>Roof Truss Rehab Option 2-B (Sheet 2)</b> (2) 2x10's, (1) 2x6 & 11 7/8" x 1/34" Versa-Lam Added)	\$ 43,000.00



<b>Floor Rehab Option 1 (Sheet 3)</b> (Addition of Versa-Lam to each floor Joist & 5x5 Kickers to each Column)	\$ 63,000.00
<b>Floor Rehab Option 1 (Sheet 3)</b> (Addition of Versa-Lam to each floor Joist & (2) C6x8.2 to Carrying Beams)	\$115,000.00
<b>Truss rehab (Sheet 4 &amp; 5)</b>	\$ 7,200.00
<b>Exterior sheathing (no finishes)</b>	\$ 7,000.00

The least expensive of the options is the roof option 1-A and floor option 1. The estimator also advised that an additional \$10,000 be added to the overall estimate for miscellaneous unseen items. This brings the least expensive project total budget to \$115,200.

If head room is a concern in certain spans where the addition of the 5x5 kickers would not be able to be used to maintain room for current needs, floor rehab option 2 may be implemented. For these locations an additional \$650.00 per span should be added to the total.

In conclusion, the existing structure has not been designed or built to carry the anticipated design loads for the use of the structure. Many members are currently overstressed and if nothing is added to strengthen the structure or the building use is changed the structure is in danger of failure. Multiple rehabilitation options were explored and the most cost efficient options have been described above to reinforce the existing structure in order to prevent structural failure. With the cheapest options chosen for the structure the estimated cost of the project is \$115,200.

# **ATTACHMENT FIVE**



April 1, 2021

Mr. David Berry  
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Bowdoinham ME 04008  
207-751-2809  
[Alisonberry374@gmail.com](mailto:Alisonberry374@gmail.com)

RE: **Recycling Barn, 243 Post Road, Bowdoinham, Maine**  
**Structural Barn Evaluation – Dangerous Building**

Dear David,

At your request, I have performed a visual inspection of the Recycling Barn at 243 Post Road in Bowdoinham, Maine, on September 25, 2020 and March 29, 2021, and reviewed the information provided by Calderwood Engineering, Richmond, Maine. The Select Board of Bowdoinham, Maine, is considering treating the barn as a dangerous building, and we are providing a second engineering opinion.

The barn was built in three phases, from the front, near the road, to the back, from 1958 to 1962, with three floors and wood framing, a concrete foundation and slab, and a gable roof. The building is around 285' long and 36' wide, with generally 12' bays in both directions. The wall and roof sheathing is corrugated metal panels, and the building was built as a chicken barn. The building is currently in use as storage, and was in use for many years as the town recycling barn, with sorting and storage done in the barn. The recycling function has been moved elsewhere temporarily. There is one occupied apartment on the third floor near the middle of the building.

The barn had one partial roof collapse, in the winter of 2011, in the south side of the roof in the back end of the building. There have been ongoing repairs, strengthening, and modification of the building, including modifications as requested by the State Fire Marshall for egress for the apartment.

The building falls under the Existing Building Code (2015 IEBC), which is a part of the Maine Uniform Building and Energy Code (MUBEC); this uses parts of the 2015 IBC (the building code), the ASCE 7-10 (for structural loading requirements), and the NDS (the wood design specification).



In my opinion, the following work should be done on this building:

1. Part of the south side of the roof has been strengthened. While historically, the storms have come from the north and deposited most of the snow on the south side, where it slid off the roof due to the metal sheathing, we should plan on the design snow load coming from any direction, and strengthen the rest of the roof framing. The simplest method is to provide an angled support for each rafter at the midpoint, down to the ceiling level beam, and the ceiling level beam would be strengthened. The columns are generally adequate. This strengthening should be completed by November 1, 2021, to be ready for next winter.
2. The floor for the third floor apartment needs to be strengthened to handle a 40 pounds per square foot (psf) live load, or 30 psf in the bedrooms. Most of the strength upgrade is in strengthening the beams.
3. The south side wall has some metal siding, but is enclosed with plastic sheeting. The State Fire Marshall has requested another siding, and Mr. Berry's current plan is to use T1-11 plywood with a stain, except at the doors and windows. Mr. Berry has added some diagonal let-in bracing, but also has wood boards run horizontally on the inside of the 2x6 studs for 4' on the two upper floors, and he has added 2x6 boards run horizontally in two locations where the boards are missing.
4. The east end of the building (approximately 60') was built last and on around 6' of fill. It has experienced some settlement since 1962. The lower part of the back end is open and ready to be lifted and the rotted lower parts replaced.
5. The elevated floors where the building will be used for a loading above the calculated floor live load should be strengthened to meet or exceed the expected maximum load, and the limits of this area should be delineated, with a placard noting the load rating, and a painted stripe around the area, or the area could be fully painted, typically yellow or white to make a high contrast. The floor live load rating and the strengthening should include the floor sheathing, joists, beams, and columns; the foundations are unknown, but should be adequate for most loading conditions. Alternately, the elevated floors could be restricted to the calculated floor live load, and the recycling functions could be kept to the first floor.


While this building has some ongoing maintenance and repair needs, common in any 60-year-old commercial building, in my experience with buildings condemned as hazardous or dangerous, this building is neither hazardous nor dangerous, which implies conditions that could affect life safety.

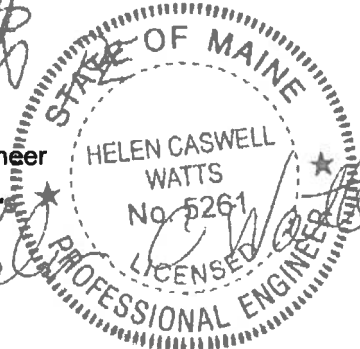
Some modifications are needed if a loaded pallet jack is planned to be used on the upper floors, and the floor for the apartment should also be strengthened. The planned work on the south wall and on the east end of the building should also be done.

Let me know if you would like me to explain this to the Codes Enforcement Officer and the Select Board, either at a Zoom meeting or onsite.

Thank you for giving us the opportunity to be of continued service to you.

Sincerely,

  
Helen C. Watts, PE  
Senior Structural Engineer  
**Criterion Engineers**



*Helen C. Watts PE*

Enclosures: Resume



# **STRUCTURAL BARN EVALUATION**

**243 POST ROAD  
BOWDOINHAM, MAINE 04008**

*Prepared for:*

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*Prepared by:*



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Inspection Date: September 25, 2020

*Submitted: October 5, 2020*

Project No. 20-0377-ME

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## Introduction

Criterion Engineers is pleased to provide a structural evaluation of the building located at 243 Post Road in Bowdoinham, Maine. This building was built as a 3-story chicken barn around 90 years ago, was extended to the back shortly thereafter with a similar construction, and has been in used for storage and as the Town of Bowdoinham's Recycling Barn for 30 years. The building also includes one rental apartment on the third floor. The floor loading capacity, and the structural strength of the roof, has been evaluated by various structural engineers. This evaluation is to provide a second opinion.

Criterion Engineer, Helen C. Watts, P.E. <sup>(ME)</sup>, visited the site on September 25, 2020 to inspect the structural condition of the barn. We met onsite with David Berry, who provided additional engineering reports done in 2008 through 2011. The weather was warm and dry.

## Standards and Limitations

Our inspection report is limited to observations made from visual evidence and a review of the available engineering reports.

Our inspection and report has been conducted consistent with that level of care and skill that is ordinarily exercised by members of the profession providing the same services under similar conditions at the time the services are performed.

Our report is an opinion about the condition of this portion of the building. It is based on evidence available during a diligent inspection of all reasonably accessible areas. No surface materials were removed, no destructive testing undertaken, and no furnishings moved.

## Description

The barn is 36'x288', and approximately 22' from the concrete slab to the eaves. The building is wood-framed, with corrugated metal roofing and siding, and a concrete slab-on-grade with concrete frost walls. There are two lines of columns and beams at 11'-8" from the south and north sides, and the posts are spaced 12' on center, generally with 2x8 construction for the beams and 6x6 or built-up 6x6s for the posts. The posts have some angle bracing. There is no siding on the south face of the building. The building has been modified to remove flooring in some areas, and the siding on the south side was removed and replaced with clear plastic. There is a ground floor addition made of concrete block on a concrete slab and foundation housing the wood boiler heating the building and the apartment.

The barn roof had a partial collapse the winter of 2011 near the back at the south side, at which point the south roof framing was reinforced.

There have been various structural evaluations to determine the floor loading capacity of the building, which contains the municipal recycling program, and which uses parts of all three floors.

For the purposes of this report, the orientation of the building will be discussed as north, south, east, west, , with the 36' end facing Post Road being the west end, and the 288' right side being the south side of the building.

See attached photos for more detail.

## Observations and Discussion

During the inspection, we went around the outside of the building, north, west and east, then through the three levels of the building inside. The back of the building is grown up with vegetation.

We noted the following items during our inspection:

1. The life safety issues have been evaluated by the State Fire Marshal's office and are not included in this report.
2. The original barn is at the west end of the barn, then the barn was extended to the east. The barn was built as a chicken barn, and includes a large central ventilator on the roof, and a boiler room added near the middle of the barn at the first floor.
3. The framing is in three bays of 2x8 joists at 24" on center, with 12' spans. The joists land on two interior wood beams running front-to-back, originally built with 3 – 2x8s, spanning 12' from post-to-post. The posts are 6x6 solid or built-up posts. There are 45 degree angle braces from the post to the beams, and in some locations there are angle braces north-to-south as well. The material appears to be hemlock or pine. The floor sheathing is wood boards. The joists are generally in good condition, though in some areas they are stained and have debris left over from the chicken barn use. The beams supporting the joists are generally deflected in the center.
4. The barn is somewhat taller than most chicken barns I've inspected, though the floor-to framing heights are still limited.
5. The roof framing is at 36" on center, and consists of 2x6 or 2x8 rafter framing with eaves ties for each pair of rafters. This supports nailers supporting the corrugated metal roof. The framing is insulated at the front half of the building with a mix of fiberglass batts and blown cellulose insulation; some areas towards the east end are uninsulated.
6. The original interior wood beams have some deflection at the center of the spans for most of the beam spans. Some beams have been reinforced by sistering a 2x10 on each side of the beam.
7. Some floor areas have been removed, including the second floor framing at the front of the building in the center aisle, the second floor framing near the center of the building in the north aisle, and the second floor framing at the back end of the building. The removed post-and-beam framing has been replaced with wood trusses to replace the removed supports for the third floor.

8. There is an apartment on the third floor covering the center and south bays of the building, with an exterior stair and an interior stair. The third floor framing in this area is covered with drywall.
9. The roof to the barn was rebuilt in 2011 in the area where the collapse occurred, comprising 30' at the south end of the barn.
10. The south side of the building has had the corrugated metal siding removed and a layer of clear plastic sheeting installed. This was done to allow some daylighting in the building, with some solar gain. The shear capacity of the siding was supplanted by letting in some diagonal bracing from the eaves to the sill plates at the top of the foundation walls.

## **Review of the Engineering Reports**

It is our opinion that the Associated Design Partners (ADP) report dated May 27, 2011 is an inaccurate report; the dimensions of the building and the framing listed were incorrect.

The ADP report dated September 30, 2011 lists the building as having 2 stories and being 35' wide; we measured 36' out-to-out. The snow loading calculation assumes very good insulation in the roof and doesn't include the slippery roofing surface, resulting in a higher snow load than should be used in calculations. Note that the ASCE 7 snow loading requirements haven't changed since ASCE 7-05, when the unbalanced snow loading requirements were added, so the current requirements are the same.

The unbalanced loading requirements place the full, unfactored ground snow load on one side of a gable roof; these are the typical snow conditions that have been observed with this building, with no snow on the north side, and blown snow collecting on the south side of the building, and also the conditions under which the partial roof collapse occurred.

The Calderwood Engineering (CE) reports are dated July 3, 2008 and February 20, 2009, and cover roof loading and floor loading. The report uses slightly different factors than those that I feel are correct, and I have different dead load (building material weight numbers in some areas) so I gain some additional strength for the calculated floor and roof systems. However, the values I calculated are for a typical floor and roof system, and there have been modifications to the framing in various locations throughout the building, some of which add an adequate amount of strength, and some of which remain undersized. The need for framing modifications, and the size of the modifications, are similar.

None of the ADP or CE calculations included the use of the 1/8" steel plates, which add over 5 pounds per square foot (psf) of dead load to the floor system on the third floor, and which help spread the weight of the loaded pallet jack to multiple rafters. The plates provide a durable and smooth surface for the pallet jack.

CE inspected the barn and created a repair plan in 2013. They re-inspected the building in August of 2020, and found that the needed modifications hadn't been done. They also found other conditions of concern. These two reports include drawings for the repairs.

## Discussion

Every wood-framed chicken barn in Maine has an ongoing list of maintenance needed. Most of these barns have a relatively low floor-to-framing height, and therefore don't support other uses well. This barn has been used for the last 30 years as a recycling barn. The areas of the barn that were especially lightly framed are typical for chicken barns but inadequate for the current building code requirements. The applicable building codes from the Maine Uniform Building and Energy Code are the 2015 IBC, the 2015 IEBC (the Existing Building Code), and the ASCE 7-10, which provides the loading requirements. The wood framing design is based on the 2012 NDS (National Design Specification), which uses wood graded to modern specifications by organizations such as NELMA (New England Lumber Manufacturer's Association).

For new buildings, the building framing design is based on the code-specified loading and deflection requirements, with modern building materials.

In this case, we have an existing building that has been built without engineering for an agricultural purpose, matching many other chicken barns built in the 1930s. The building was built without concern for deflection of individual members, and framed using light and repetitive framing. The building would have been warmed by the chickens as well as the boiler, minimizing snow loads on the roof.

When the building was repurposed into a new use as a recycling center, the barn was modified in some locations to make openings in the floors. Some of these modifications weren't engineered, and resulted in an inadequate structure.

### Roof System

The roof system needs to be able to handle the expected snow loads adequately. These are best characterized by using the latest ASCE 7 requirements, which include the balanced snow loads, where a uniform load is on both sides of the rafter-framed gable roof. However, the barn roof failure in 2011 demonstrated the unbalanced loading condition, which was a new design requirement placed in the ASCE 7-05 and later versions, including the current ASCE 7-10. The unbalanced snow load needs to be applied to both the north and south sides of the roof, even though the prevailing wind usually has the north side clear and the south side snow-covered. A storm can come from any direction.

The rafters on the south side have been strengthened, but all the rafters should be upgraded to be made adequate for the unbalanced condition. This is reasonably correctly calculated by CE. Every engineer uses slightly different methods, but the framing needed for the repair will be similar when the drawings are stamped. CE has provided two repair methods, to allow the owner to select the least expensive option. Note that most contractors are now using engineered wood screws rather than bolts or lag screws; they are fast to install and make a robust connection, with less section loss in the wood part of the connection. There may be some economies available in revising the connection details.

The rafter beams are undersized, on both sides of the building. This is a typical problem with chicken barns. These can be sistered with LVLs (engineered lumber); and the beams should be

made adequate for the unbalanced snow load. My rough calculations showed that two LVLs were needed, rather than one, for each beam.

The rafter tails should be fastened to the top plate of the wall with an uplift fastener such as the Simpson H2.5.

The CE design shows adding one 1.75"x11.25" Versalam to the beam supporting the rafters. I calculated the need for two Versalam beams; I assumed that the stronger and deeper material would take all the load from the 2x8s because the lower edge of the engineered lumber is taking the tension below the bottom of the 2x8s. This calculation should be checked.

The work should be inspected at the start of the work to assure that the design has been properly interpreted by the contractor, then at the end of the project.

### Floor System

The analysis of existing building floor systems for a new use is per the 2015 IEBC as well as the 2015 IBC. The allowable loading can be determined by inspecting the building, evaluating the materials and their condition, then performing a structural analysis, or it can be determined by load testing.

While a new building will be analyzed based on a live load from Table 4.1 in the ASCE 7-10, and a new building built for storage of materials like these would have a live load rating of 125 psf for "Light Storage". In this case, an existing building is generally inspected and given a load rating based on the available structure, or, if additional loading is expected, that load is determined and the framing is upgraded to the required loading. All of the different areas to be used should be placarded for their available live load strength.

We also recommend that the areas used for loads over 30 psf be marked out and a design be made to take those loads down to the ground. The design should include the actual expected loads of the loaded pallet jack.

In any case, storage of loads over 30 psf (or 28 psf if using the CE calculations factors instead of mine) should be prioritized on the ground floor slab, and the upper floors should be used for lighter material storage. Pallets sent to the upper floors should be weighed before leaving the first floor, and can be marked or tagged. Heavier loads on the upper floor will be restricted to specifically enhanced floor framing areas. Loads placed on the upper floors should be weighed so the loads don't exceed the allowable storage load.

### The Pallet Jack and Bale Transport in the West End

The calculated load on the third floor at the west end should include 5 psf of added dead load for the 1/8" steel plate. The live load for this area should be planned for the expected weight of the bales handled, and the weight of the pallet jack. Assuming a pallet jack weighing 200#, and a bale of materials handled at not-to-exceed 1000#, and multiplying by a factor of safety of 1.2 (20%), with a pallet being 4'x4', gives a floor live load rating requirement of 90 psf for the west end in the center and north bays. The floor joists, floor sheathing, beams and posts should be upgraded to handle this amount, down to the floor slab, but only in the area where this load occurs.

the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 13.5 million (13.5% of the population).

There are a number of reasons why the number of people aged 65 and over has increased. One of the main reasons is that people are living longer. The life expectancy at birth in the UK is now 78 years for men and 82 years for women. This is a significant increase from the 1950s, when life expectancy at birth was 71 years for men and 76 years for women.

Another reason why the number of people aged 65 and over has increased is that people are staying in the workforce longer. In the 1950s, most people retired at the age of 65. Now, many people continue to work until they are 70 or even 75 years old.

There are a number of reasons why people are staying in the workforce longer. One of the main reasons is that people are healthier. In the 1950s, many people were in poor health and were unable to work. Now, people are living longer and healthier lives, so they are able to continue to work for longer.

Another reason why people are staying in the workforce longer is that they need the money. In the 1950s, most people had a pension. Now, many people do not have a pension and need to continue to work in order to support themselves.

There are a number of reasons why people need the money. One of the main reasons is that the cost of living has increased. In the 1950s, the cost of living was much lower than it is now. Now, people need more money to live on.

Another reason why people need the money is that they have a large family. In the 1950s, most people had a small family. Now, many people have a large family and need more money to support them.

There are a number of reasons why people have a large family. One of the main reasons is that people are having children later in life. In the 1950s, most people had their first child at the age of 20. Now, many people have their first child at the age of 30 or even 40.

Another reason why people have a large family is that they are having more children. In the 1950s, most people had two or three children. Now, many people have four or more children.

There are a number of reasons why people are having more children. One of the main reasons is that people are having children for longer. In the 1950s, most people had their last child at the age of 35. Now, many people have their last child at the age of 40 or even 45.

Another reason why people are having more children is that they are having children who are more likely to survive. In the 1950s, many children died in infancy. Now, most children survive to the age of 5.

There are a number of reasons why children are more likely to survive. One of the main reasons is that people are having children who are healthier. In the 1950s, many children were born with health problems. Now, most children are born healthy.

Another reason why children are more likely to survive is that people are having children who are better cared for. In the 1950s, many children were in poor care. Now, most children are in good care.



Mr. David Berry  
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RE: **Recycling Barn, 243 Post Road, Bowdoinham, Maine**  
**Structural Barn Evaluation – Floor loading**

Dear David,

At your request, I have performed a visual inspection of the Recycling Barn at 243 Post Road in Bowdoinham, Maine, on May 5, 2021. The Town of Bowdoinham, Maine, is considering reopening the barn for recycling, and we are providing an opinion on the present floor loading and the ongoing repairs at the back of the barn.

The barn was built in three phases, from the front, near the road, to the back, from 1958 to 1962, with three floors and wood framing, a concrete foundation and slab, and a gable roof. The building is around 285' long and 36' wide, with generally 12' bays in both directions. The exterior walls are generally 2x6s at 24" on center, except for the third floors which have 2x4 framing.

The wall and roof sheathing is corrugated metal panels, and the building was built as a chicken barn. The building is currently in use as storage, and was in use for many years as the town recycling barn, with sorting and storage done in the barn. The recycling function has been moved elsewhere temporarily. There is one occupied apartment on the third floor near the middle of the building.

The building falls under the Existing Building Code (2015 IEBC), which is a part of the Maine Uniform Building and Energy Code (MUBEC); this uses parts of the 2015 IBC (the building code), the ASCE 7-10 (for structural loading requirements), and the NDS (the wood design specification).

The first floor of the barn has no loading restrictions, since it has a concrete slab-on-grade.

The slab at the back of the barn is approximately 4" deep where it has been cut out, and the soils below the slab there appear to be a clean sandy gravel. The slab will be rebuilt when the framing repairs have been made. Because of the sloping grade beyond the back (east) end of the building, the 12' bay nearest the end should be limited to 100 pounds per square foot (psf) live load maximum (14,400# per bay)



The second and third floor framing was calculated to be able to accommodate just over 11 psf as originally built, by Calderwood Engineering. If needed, I can perform a more detailed calculation which is likely to gain some live load capacity. The storage is mainly in the front and back bays, with the center bay generally clear for movement. The bays are 12'x12', or 144 square feet (SF), and  $144 \times 11 = 1584\#$  per bay of live load storage capacity. The bays that were strengthened were calculated to accommodate just over 16 psf of live load storage capacity, or 2304#.

Mr. Berry has a 1000 kg (or 2200#) crane scale, and weighed the various containers used for storage, including initially zeroing out the scale, with the following results:

Pallet box	128# (around 40" tall, wood sides)
Tall wood box	200# (around 5' tall)
Pallet with Gaylord box	60# (a 48"x40"x40" cardboard/watermelon box)
Radiator pipes	60# for a 10' length

He also weighed various loaded boxes.

There was one bay that I estimated the weight of stored material at 1400#, and Mr. Berry relocated a pair of stoves to an empty center bay to bring the estimated weight down to 1000#. The rest of the bays ranged from empty to an estimated 1200# in a bay with some boxes of books. Many of the stored boxes held light materials such as Remay, chicken feeder pails, or polystyrene packing pellets in Gaylord pallets. The short cantilevered area over the composter was fully unloaded, as requested. The storage was generally orderly and the materials well contained.

There are limited areas with old wood board flooring; these should be covered with plywood if they are used for more active storage. The rest of the flooring already has a plywood surface, including all of the center bays.

The second and third floors over the west end of the building, where the Recycling Center is set up on the first floor, were substantially vacant, except for one tank of 1000# in an otherwise empty bay.

The third floor apartment is being vacated at the end of May. In my opinion, this apartment continues to be safe to occupy, and could be occupied while any desired strengthening was done to the floors, but since it will be vacated, the loading on this floor wasn't evaluated.

I recommend installing placards showing the allowable live load weights, with 1" lettering, near the stairwells.

The repairs at the back end of the building are progressing. The concrete floor slab has been removed, and the framing has been supported using cribbing and steel framing. The deteriorated framing has been removed. The work done to date is acceptable.



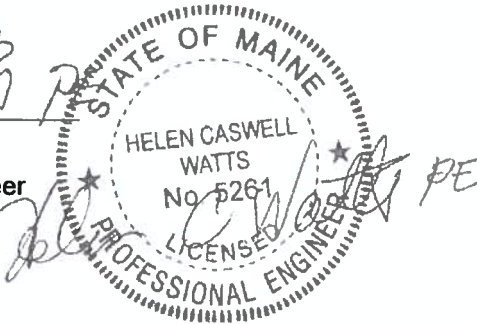
In conclusion, the first floor is safe for any loading, and the second and third floors are loaded well below the conservative load capacity estimate. The building is safe for public access, and for the workers in the Recycling Center and the Recycling Gift Shop.

Let me know if you would like me to explain this to the Codes Enforcement Officer and the Select Board, either at a Zoom meeting or onsite.

Thank you for giving us the opportunity to be of continued service to you.



Helen C. Watts, PE  
Senior Structural Engineer  
**Criterion Engineers**



cc: Town of Bowdoinham  
Darren Carey, CEO [dcarey@bowdoinham.com](mailto:dcarey@bowdoinham.com)  
Town Manager [townmanager@bowdoinham.com](mailto:townmanager@bowdoinham.com)  
Cathy Curtis [curtisc@link75.org](mailto:curtisc@link75.org)

Attachments: Photographs  
Resume

# **ATTACHMENT SIX**

## Nicole Briand

---

**From:** Peaslee, Ronald J <Ronald.J.Peaslee@maine.gov>  
**Sent:** Monday, June 6, 2022 10:00 AM  
**To:** Nicole Briand  
**Subject:** FW: Please add this to the file for Bowdoinham Recycling Barn  
**Attachments:** Bowdoinham Recycling Barn.doc

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Updated Barn report

Ronald J. Peaslee  
Inspections Supervisor  
State of Maine Fire Marshal's Office  
207-441-1293

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**From:** White, Brittany <Brittany.M.White@maine.gov>  
**Sent:** Tuesday, May 31, 2022 2:52 PM  
**To:** Jordan, Frederick N <Frederick.N.Jordan@maine.gov>; Peaslee, Ronald J <Ronald.J.Peaslee@maine.gov>  
**Subject:** Please add this to the file for Bowdoinham Recycling Barn

May 27<sup>th</sup> at 11am

Ron and I did a full walk-through of the Bowdoinham Recycling Barn at the request of David Barry, current owner. He has yet to respond to the SOFD from our visit on 6/2/20.

The following Violations are still deficient:

#1 – Tripping hazards on 1<sup>st</sup> floor not being used as exits but are still labeled as exits.

#2 – Compliant

#3 – Exit stairwell dimensions do not meet yet

#4 – Handrails – some handrails installed from the 1<sup>st</sup> to 2<sup>nd</sup> floors

- #5 – Balusters – not installed yet
- #6 – Exit stairwells are not enclosed yet
- #7 – 2 exits required from each level unless the maximum capacity is set to 50 persons – non-compliant exit stairwells
- #8 – Interior finish – plastic is still in place. More plastic has been put into place
- #9 – Headroom – none of these issues have been corrected and Main Entrance (5' 9 ½"), South exit door (6' 6") and Apartment (6' 6") were measured and do not meet
- #10 – Suspended heaters – still accessible by the public
- #11 – Emergency lighting – not compliant throughout the 3 floors
- #12 – 3<sup>rd</sup> floor apartment not permitted through Plans Review Division
- #13 – 3<sup>rd</sup> floor 2-hour fire separation – not constructed yet. New sheetrock, but not compliant 2-hour wall assembly
- #14 – 3<sup>rd</sup> floor 1-hour stairwell – needs exit door
- #15 – emergency lighting – not yet. New Gift Shop and New Gift Shop Annex are not equipped with these units either.
- #16 – 2<sup>nd</sup> floor exit door to 3<sup>rd</sup> floor needs to be 1-hour rated – not completed yet. Unapproved bolts have been installed throughout fire-rated frame to rear exit.
- #17 – 3<sup>rd</sup> floor stairwell headroom – not completed yet
- #18 – 3<sup>rd</sup> floor apartment to have interconnected smoke detection – not completed yet
- #19 – 2<sup>nd</sup> floor storage exit – completed
- #20 – Additional exit signage from 2<sup>nd</sup> floor – not completed yet
- #21 – 2<sup>nd</sup> floor still being used for combustible storage
- #22 – 3<sup>rd</sup> floor engineering judgment for storage – not completed yet
- #23 – 3<sup>rd</sup> floor storage needs 1-hour separation – not completed yet
- #24 – 3<sup>rd</sup> floor storage exit door repaired – Exit door from apartment exterior stair is too narrow and not compliant, new exit sign, fire rated hardware, fire taped
- #25 – 1<sup>st</sup> floor compacting side exits through industrial waste – not completed yet
- #26 – corridor door to boiler 1-hour – new 90 minute door is missing hardware, unapproved bolts put through the bottom, bottom of the door damaged from being trimmed down to fit the frame
- #27 – exposed wiring – done
- #28 – fire alarm system is currently inoperable

#29 – fall protection – interior finish plastic is still in place – not completed yet

New Gift Shop is approx. 1000 sq ft. The public has been granted access to the building prior to our approval.  
New Gift Shop Annex is accessible via sliding door, which doesn't meet Chapter 7, as it does not have an ADA ramp or meet width requirements

Thank you,

Brittany

Brittany M. White, CFI-I, CFI-II  
Public Safety Inspector II  
Maine State Fire Marshal's Office  
52 State House Station  
Augusta, ME 04333-0052  
Office: 207-626-3880  
Fax: 207-287-6251  
Cellular: 207-441-6708



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the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.4 billion.

There are a number of reasons why the world's population is growing so rapidly. One of the main reasons is that the number of children born to each woman has increased. This is due to a number of factors, including the fact that women are now having children at a younger age, and that there are more children surviving to adulthood.

Another reason why the world's population is growing so rapidly is that the number of people who are surviving to old age has increased. This is due to a number of factors, including the fact that people are now living longer, and that there are more people surviving to old age.

There are a number of other reasons why the world's population is growing so rapidly. One of the main reasons is that the number of people who are migrating to other parts of the world has increased. This is due to a number of factors, including the fact that there are more people who are seeking better opportunities elsewhere.

Another reason why the world's population is growing so rapidly is that the number of people who are being born in other parts of the world has increased. This is due to a number of factors, including the fact that there are more people who are being born in other parts of the world.

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## Nicole Briand

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**From:** David and Alison Berry <alisonberry374@gmail.com>  
**Sent:** Tuesday, May 31, 2022 3:21 PM  
**To:** ronald.j.peaslee@maine.gov  
**Cc:** Nicole Briand  
**Subject:** May 27 visit to 243 Post Rd Bowdoinham

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Ron,

I'm writing to thank you and Brittany for the time you spent at the Recycling Barn last Friday walking me through the additional corrections that will need to be done to satisfy some of the violations from your last inspection and instructing me on ways to avoid violations in the future.

As I understand it, your office will not give either the landlord or the Town of Bowdoinham a green light to begin operations in the building until you have concluded a complete inspection of the entire structure, including the Town's leasehold area on the ground floor and the upper floors at the west end, and the remaining space on the 2<sup>nd</sup> and 3<sup>rd</sup> floors of the building, which will be managed by the landlord as storage space. Access to the landlord's area will be through two fire-rated stairwells, one on the north side of the building, the other 50' from the east end on the south side.

If the Town decides to lease the building, the landlord will pay all expenses for these new fire-rated stairwells and any other fire safety concerns within his area, as well as half the cost of repairing and reinstalling the fire alarm system throughout the building.

Clearly, the Town and the landlord will need to work together to create a final result which will satisfy the fire codes for your office. I hope to be able to come back to you in the not too distant future with a finished project for your approval. Thank you again for your attention to this matter.

David Berry

751-2809