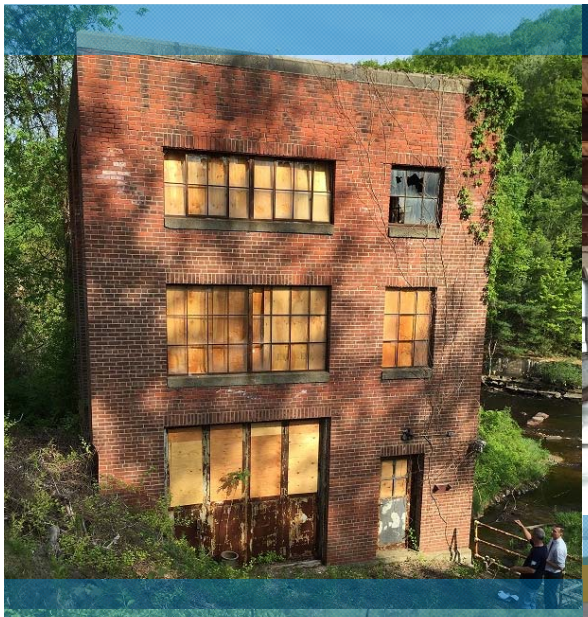


Tighe&Bond

Erving, Massachusetts

Former International Paper Mill Feasibility Study

Submitted to

Town of Erving &
Franklin Regional Council of Governments

December 2015

Tighe&Bond

CONTENTS

Table of Contents

Tighe&Bond

Executive Summary

Section 1 Introduction

Section 2 Market Feasibility Analysis

Section 3 Architectural Evaluation

Section 4 Structural Evaluation

Section 5 Infrastructure Evaluation

Section 6 Traffic Access Circulation and Parking

J:\E\E0735 Erving\REPORT\IP Mill Feasibility Study rlsDRAFT rev 3.docx

Executive Summary

Tighe & Bond and the consultant team comprised of Cecil Group architects and FXM market analysts were retained by the Town of Erving, Massachusetts with the assistance of Franklin Regional Council of Government (FRCOG) to complete a Feasibility Study of the former Erving International Paper Mill complex. With the complex being abandoned since 2000, the Town is interested in examining potential redevelopment opportunities for the facility.

The mill was constructed in the early 1900s and was in operation up until the year 2000. The mill was originally constructed as one building and over time other building segments were added to the mill as production increased, resulting in the complex today. Paper mill operations began to see a reduction in production in the 1990s and the mill shut down in 2000. A real estate developer bought the facility and attempted redevelopment, but was unsuccessful and the facility has been abandoned since. The Town in recent years obtained the facility and would like to consider reuse of the mill.

The Town, in the Economic Development Chapter of its Master Plan completed in January 2013, noted that there are vacant and under-utilized mill properties within the Town that could have redevelopment potential. The intent of the study is to evaluate the redevelopment potential of this facility from a market, building and infrastructure perspective.

The mill was an economic engine in the community for many years and portions of the complex have historic significance. The 211,000 square foot complex is located on the banks of the Millers River and offers the potential for increased recreational access to the river and future connection with a planned bike/multi-use trail. The complex is within the Riverfront Area and 100-foot buffer zone to wetland resource areas under the Wetlands and Rivers Protection Acts and is therefore subject to permitting under the Erving Conservation Commission and MA Department of Environmental Protection (MADEP). If access to the river is proposed, this activity is also subject to the Wetlands Protection Act.

The study is comprised of a market analysis that was performed by FXM, an architectural building reuse evaluation by the Cecil Group and structural, demolition, hazardous building material, infrastructure, traffic and parking evaluation by Tighe & Bond. Throughout the economic and market assessment process, which occurred simultaneous with the building and site evaluation, FXM shared their findings and was informed by the work of other project disciplines. The market analysis identified several potential uses including commercial and housing rental space which was used in developing the alternative scenarios. Any planned redevelopment of the building complex will need to be brought into compliance with current Codes.

Environmental site assessments (ESAs) and a hazardous building material assessment (HBMA) were completed under separate contracts. The results of the ESA indicates that the soil contamination identified was mainly surficial and the concentrations identified in the samples taken on the southern portion of the site were below MCP standards and the RTN could be closed with a Class B-1 RAO. In addition, the HBMA indicates that materials were not encountered to the extent expected as it appears that some abatement may have occurred while the mill was under the ownership of the real estate developer.

The Town has also taken measures to secure the building by boarding up windows. Vandalism throughout the complex has occurred with the removal of materials and equipment that had salvage value, including much of the copper associated with the electrical system. Water service has been turned off within the facility and electrical service has been discontinued. In addition, with the vandalism of building infrastructure, there is no heat within the mill, although the boilers for the complex are still in place as are portions of the electrical, fire protection, plumbing and other building systems. The majority of the equipment that supported the production of paper has been removed from the complex.

Existing record information on the mill is very limited and the team has relied on observations during site visits and communications with those familiar with the mill. The feasibility study is conceptual in nature and in depth evaluations were not performed.

Five alternative redevelopment scenarios were generated based on the evaluations completed. This study represents the culmination of input from team members, various Town officials, those who have a working knowledge of the mill, available record information and site observations. We would like to thank the participants for their assistance and cooperation with this study. Special thanks to the Erving Mill Redevelpoment Committee, Franklin Regional Council of Governments, Glenn McCrory, Foreman of the Highway Department, and Lenny Clark International Paper former facilities person.

Tighe&Bond

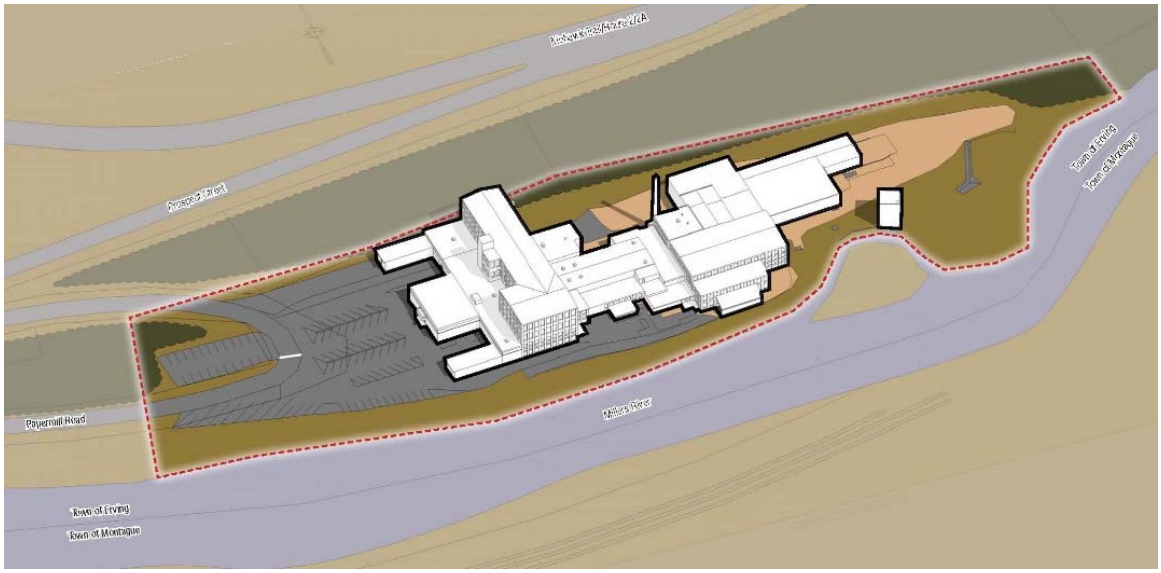
SECTION 1

Section 1
Introduction

1.1 Location

The former International Paper Mill (IP Mill) is located at 8 Papermill Road in Erving, Massachusetts. The mill is bordered by the Millers River to the south, Papermill Road to the west, Prospect Street and Mohawk Trail (Route 2) to the north, and a wooded hillside to the east. The river represents the town line between the Town of Erving and the Town of Montague.

The mill complex is located on a parcel of land that is about 49.3 acres in area and includes a series of buildings. Most of the buildings are interconnected and all are part of the paper mill complex built to support the processes of manufacturing paper. A pump house near the river also exists on site and is separate from the paper mill complex. The site includes a number of improvements for its use, including a perimeter fence, access drives, asphalt parking lots, and dirt and gravel paths. The north side of the property is a steep wooded embankment leading uphill to Route 2. The south side of the property is a steep riverbank leading downhill to the Millers River.



A number of aspects of the facility were evaluated and these are listed below. To perform the evaluations, site visits were completed by the team to assess the existing conditions and become familiar with the site. Communication with stakeholders and those familiar with the facility were completed and existing record information from the Town was reviewed. The existing conditions were developed from these investigations and used to evaluate redevelopment alternatives.

A market analysis was performed of current market area conditions and trends in population by type, employment by industry, income, housing, retail sales and potential leakage, as well as planned and proposed development within the local market area to

estimate the short, intermediate, and long-term potential for achieving housing redevelopment of the mill property.

Architectural reuse was evaluated and five alternative concepts were prepared. The evaluation of the mill complex included a general review of building systems and the potential for reuse in the various development concepts. The alternatives show concepts for building modifications, considering the redevelopment of various building components. The condition and configuration of key components of the mill complex lend themselves more readily to redevelopment than others and this was a factor in the development of the various scenarios.

Based on the current conditions, there are areas of the building complex that are potentially inadequate to support the reuse identified. A structural evaluation was performed in the building segments proposed for redevelopment. Portions of the complex that have deteriorated, mainly from water intrusion, were evaluated. Areas where there are serious concerns about the building integrity have been identified. Detailed structural calculations on the load capacities of the existing building members were beyond the scope of this phase of study.

Site access, traffic circulation, parking layout and pedestrian access configurations were evaluated based on existing site configurations and future building layout modifications. The potential site reconfiguration is based on future needs of the users on the site. The parking lot layout and number of spaces developed for the different scenarios is based on available Town of Erving parking requirements and by parking generation rates published by the Institute of Transportation Engineers (ITE).

1.2 General Description

The core portion of the mill complex was built in 1902 and within one year of construction the mill was in operation for paper production. This core portion of the mill included paper machines, sizing rooms, rag rooms, beater rooms, pumps and other areas dedicated to paper production. A power house building was built separate from the core portion of the mill complex on the riverbank; this building was later converted to the pump house serving the mill complex.

The main offices and front receiving docks were added to the original mill complex in 1966. The simple modernist style of this portion of the building clearly indicates the era in which it was built. The rear stock house and loading docks were built in the 1990s and represent the most recent investment in the property. Small sheds, overhead roofs and other building appurtenances have been added to the complex over the course of its use, and the additive evolution of the complex is evident.

The mill was in operation for 97 years, closing its doors abruptly in the year 2000. A real estate investment company bought the property in 2005, but failed to find a suitable reuse or buyer for the property. Since its closure as a mill and prior to the mill complex being secured by the Town, the property had been vandalized and looted for anything valuable including being stripped of all copper pipe and wiring. The property is now under the control of the Town of Erving, which has recently spent town funds to board up the building, responding to safety and liability concerns. The Town has received no expressions of interest in the property for its reuse or redevelopment.

The 211,000 square foot complex of building space is spread across eight distinct building footprints which range in height from one to four stories. The combined total building

footprint of the complex is approximately 85,000 square feet. Portions of the existing buildings have deteriorated due to major water damage and in one particular section to the point of roof and wall failure. However, a substantial portion of the building complex may be suitable for reuse. The following evaluation explores the potential of several reuse scenarios and the relative advantages and disadvantages of the varied building components of the complex.

1.3 Reuse Alternatives

The evaluations completed of the mill complex by the team members within their respective specialties helped to frame the evolution of the various scenarios for redevelopment. The primary drivers were the interrelationship of the market analysis with reconfiguration of the existing space based on the indicated reuse. Four conceptual reuse alternative scenarios were generated and are described further below. The concepts range from preserving the maximum square footage with minimal demolition, to preserving only the most historic and core building resulting in the maximum demolition. The scenarios are discussed in further detail in Section 3.

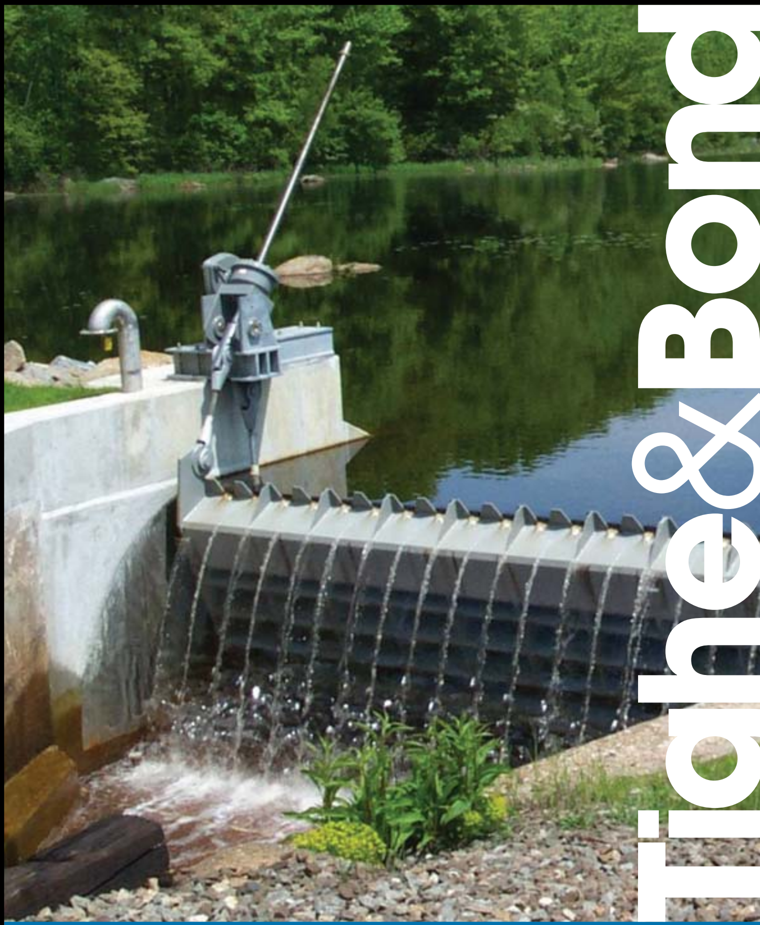
- Feasibility Scenario 1 - Maximize Reuse of Building Components - The first scenario evaluated maximizes the reuse, renovated and repurposed space, removes only small elements of the complex that have little reuse value leaving approximately 186,000 square feet of the existing space.

- Feasibility Scenario 2 - Balance Reuse/Removal of Building Components - The second redevelopment scenario reduces the footprint of the mill complex, balancing the removal and reuse of existing building components. The most historic and feasible core of the mill complex is repurposed and the more modern components attached to the exterior of the core have been removed. This leaves approximately 140,000 square feet of space for reuse.

- Feasibility Scenario 3 - Optimize Most Reusable Building Components - The third scenario resulted in an effort that focused on the most historic, flexible and reusable portions of the mill complex, focusing on buildings 2 and 5. This leaves approximately 89,000 square feet of space for reuse, with portions of the structure that are removed totaling approximately 122,000 square feet.

- Feasibility Scenario 4 - Keep Only the Most Reusable and Historic Building - The fourth scenario evaluated the potential reuse by focusing solely on the reuse of Building 2. This scenario does not let any of the other building components burden the preservation and reuse of this prominent and visible core historic mill structure. It is the most conservative approach, because it results in the least amount of area that would need to be leased and maintained, approximately 40,000 square feet of space.

- Feasibility Scenario 5 – Code Compliant No Internal Fit Out - The fifth scenario retains the same building segments as proposed for Scenario 3, which includes Buildings 2, 5 and 8. The other portions of the building complex are removed. In this scenario, in order to minimize other initial investments, the interior of buildings would be brought into code compliance with building envelopes made weather-tight, but interior fit-out or finishes would not be improved beyond those two requirements. The interior fit-out and other improvements would be the responsibility of the developer/occupant.



SECTION 2

Section 2
Market Feasibility Analysis

2.1 Introduction

2.1.1 Purpose

The purpose of FXM Associates' work on the Erving International Paper Mill Re-use study is to perform the market analyses needed to inform the architectural and engineering assessment of potential reuse. The market study has two main components: an analysis of employment and commercial real estate trends as well as retail spending to determine what potential demand exists for commercial space that might be met by mill re-use; and an analysis of the residential market to estimate the potential demand for rental housing which might be another re-use of the paper mill space.

2.1.2 Sources and Methods

FXM relies on several generally accepted data sources, supplemented by interviews with persons knowledgeable of the local markets. Data sources are:

- For demographic data on the Town of Erving, and surrounding market area and on Franklin County, The Nielsen Company, Claritas *Site Reports,* which are based on US Census data;
- For employment trends for Erving and Franklin County, the U.S. Bureau of Labor Statistics' *Quarterly Census of Employment and Wages* (ES202) and the U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Information System* (REIS);
- For employment projections for Erving and Franklin County, FXM Associates extrapolations of ES202 and REIS data.
- For commercial space absorption, both historically and projected, CoStar Inc. Property Information System.

FXM Associates then organized the data into tables and graphics, presented and discussed in the below sections.

2.2 Summary Findings

- The principle advantages of the former International Paper Mill in Erving for potential redevelopment are its attractive riverfront location, easy access to Route 2, and proximity to Erving center and Montague. The potential for historic and/or new market tax credits and local property tax relief to offset some of the redevelopment costs is also favorable. It should also be noted that unlike some manufacturing processes carried out in other types of mills, paper production does not involve hazardous chemicals so that the abandoned paper mill properties are typically less contaminated.

- Commercial market conditions now and in the foreseeable future (5 year time frame) are not advantageous, with very little employment growth forecast to generate demand for new office, industrial/warehouse, or flex space in Franklin County overall. Current lease prices in Franklin County for each of these space

types are too low to support new construction or significant rehabilitation costs and have been that way for at least the past ten years. There is currently a sufficient inventory of vacant traditional office, industrial/warehouse, and flex space in Franklin County to absorb projected demand for at least the next two to fiveyears.

- Notwithstanding the overall commercial market outlook, economic development professionals and others in Franklin County note an apparent mismatch between the available supply of industrial/warehouse space and the needs of growing industries. Incubator and initial post-incubator expansion space is called for, according to economic development officials. Whether and to what extent that type of space might be accommodated at the IP Mill in Erving will likely depend on finding ways to reduce or subsidize costs necessary to achieve code compliance with minimal amenities (prospective tenants pay for outfitting their own space to meet their needs, as had been done in other mill rehabs) as well as demolition and site preparation costs for portions of the mill not likely to be reused for commercial or residential uses.

- Demand exists for rental housing, with potential absorption of 30 to 40 units over the next three to five years, at rents ranging from $1,200 to $1,500 per month. Target households could be young professionals (householders under age 35) and empty nesters (householders aged 55 to 74) without school aged children. Some of FXM's interviewees, knowledgeable of local residential real estate market conditions, question whether the site can compete for the target household types (or for elderly housing) with current and prospective competing developments in Greenfield and Montague as well as Erving, since both of the target demographic groups tend to prefer to live within walking distance of retail shops, jobs, and public transportation. To be successful in this regard, a residential development at the IP Mill site in Erving would need to emphasize and reinforce its riverfront location, views, and natural amenities, and offer superior recreational facilities on site (possible riverwalk, canoe access, interior workout space, common room, and so forth).

- A general assessment of employment trends by sector and real estate market conditions by type of space, as well as the assessment of demand for rental housing conducted for this study, is not meant to rule in or out all prospective reuses of the IP mill in Erving. There are specialty cases such as a single corporate entity or agricultural or hospitality or elderly or assisted housing use that have not and cannot be addressed within the limitations of this study. To the best of our knowledge, there have been no efforts to market the property to prospective developers or other interests to date. Inquiries for reuse cannot be expected until some outreach effort is extended. Unfortunately, in the course of this research FXM found no entity willing or capable to assume responsibility for marketing this property.

- The steadily increasing growth of the agricultural sector in Franklin County has generated demand for facilities and support services to accommodate seasonal as well as year-round production and sales. While there is general consensus that agricultural production continues to be a critical part of a sustainable regional economy, there is a lack of data quantifying the amount, type, site criteria and probable uses for support facilities. The Franklin County CDC is expanding its cold/refrigerated storage facility, primarily to serve on-site businesses engaged in food processing and distribution, but is unlikely to meet off-site regional demand. Currently cold/dry storage facilities are available in Westfield and Chicopee, but

not within Franklin County, other than in Greenfield at the CDC location, and in nearby Hampshire County in Amherst at UMass on a limited basis. Anecdotal information from interviews conducted for this study indicate the IP Mill Erving site may be suitable for cold storage, dry storage, poultry processing, USDA meat slaughtering, limited food processing operations as well as warehouse/distribution operations.

- Notwithstanding the lack of marketing to date and the possibility that some interest could come forward to purchase and reuse the property, it is unlikely that any prospective developer of commercial or residential space would find the mill a viable purchase in its current condition and configuration. If no inquiries are forthcoming that could justify an extensive partial demolition and site cleanup, then the Town may need to consider selling the buildings for salvage or demolishing them at public expense and reusing a clean site for public or private use.

2.3 Commercial Market

2.3.1 Business Characteristics

The following Table 1 presents a profile of the businesses in Erving and in Franklin County. Erving currently has 315 jobs and generates $74 million in annual sales. The final column makes clear that those figures represent a very small percentage of the commercial activity in Franklin County. The shaded industries are those Erving sectors whose employment or annual sales exceed the average 1% of Erving's share of overall county business activity. The comparative profile does not suggest an obvious competitive advantage for businesses currently based Erving.

Table 1
Business Profiles

		Town of Erving			Franklin County			% Erving		
		Number of Establishments	Employees	Annual Sales (in $millions)	Number of Establishments	Employees	Annual Sales (in $millions)	Number of Establishments	Employees	Annual Sales (in $millions)
NAICS	**Business Type**									
11	Agrculture, Forestry, Fishing, and Hunting	-	-	-	64	396	59	0%	0%	0%
21	Mining, Quarrying, and Oil and Gas Extraction	-	-	-	2	12	1	0%	0%	0%
22	Utilities	-	-	-	16	263	248	0%	0%	0%
23	Construction	5	16	5	349	1,576	509	1%	1%	1%
31-33	Manufacturing	3	102	55	132	3,129	800	2%	3%	7%
42	Wholesale Trade	-	-	-	136	1,281	2,415	0%	0%	0%
44-45	Retail Trade	9	32	9	552	6,013	1,273	2%	1%	1%
441	Motor Vehicle and Parts Dealers	1	1	1	58	531	250	2%	0%	0%
442	Furniture and Home Furnishing Stores	-	-	-	30	69	14	0%	0%	0%
443	Electronics and Appliance Stores	-	-	-	33	126	30	0%	0%	0%
444	Building Material and Garden Equipment and Supplies	1	14	4	60	534	171	2%	3%	3%
445	Food and Beverage Stores	4	14	3	95	1,184	294	4%	1%	1%
446	Health and Personal Care Stores	-	-	-	27	206	49	0%	0%	0%
447	Gasoline Stations	-	-	-	32	158	98	0%	0%	0%
448	Clothing and Accessories Stores	-	-	-	31	77	13	0%	0%	0%
451	Sporting Goods, Hobby, Musical Instrument, Book Stores	-	-	-	51	141	21	0%	0%	0%
452	General Merchandise Stores	-	-	-	13	466	99	0%	0%	0%
453	Miscellaneous Store Retailers	3	3	0	110	2,457	208	3%	0%	0%
454	Nonstore Retailers	-	-	-	12	64	26	0%	0%	0%
48-49	Transportation and Warehousing	3	12	1	83	1,221	91	4%	1%	1%
51	Information**	1	2	-	94	917	163	1%	0%	0%
52	Finance and Insurance**	2	-	-	188	581	106	1%	0%	0%
53	Real Estate and Rental and Leasing**	2	5	2	131	427	94	2%	1%	2%
54	Professional, Scientific, and Technical Services**	1	3	1	350	1,185	232	0%	0%	0%
55	Management of Companies and Enterprises**	-	-	-	3	33	3	0%	0%	0%
56	Admin and Support and Waste Mgmt and Remed. Services*	-	-	-	124	741	107	0%	0%	0%
61	Educational Services	6	87	-	138	3,984	5	4%	2%	0%
62	Healthcare and Social Assistance	1	3	-	631	4,087	385	0%	0%	0%
71	Arts, Entertainment, and Recreation	1	1	-	84	643	23	1%	0%	0%
72	Accommodation and Food Services	4	34	2	217	2,204	157	2%	2%	1%
81	Other Services (except Public Administration)	2	3	0	509	1,868	90	0%	0%	0%
92	Public Administration	3	15	-	335	2,322	-	1%	1%	-
	Total	**43**	**315**	**74**	**4,138**	**32,883**	**6,760**	**1%**	**1%**	**1%**

** Office-using sectors

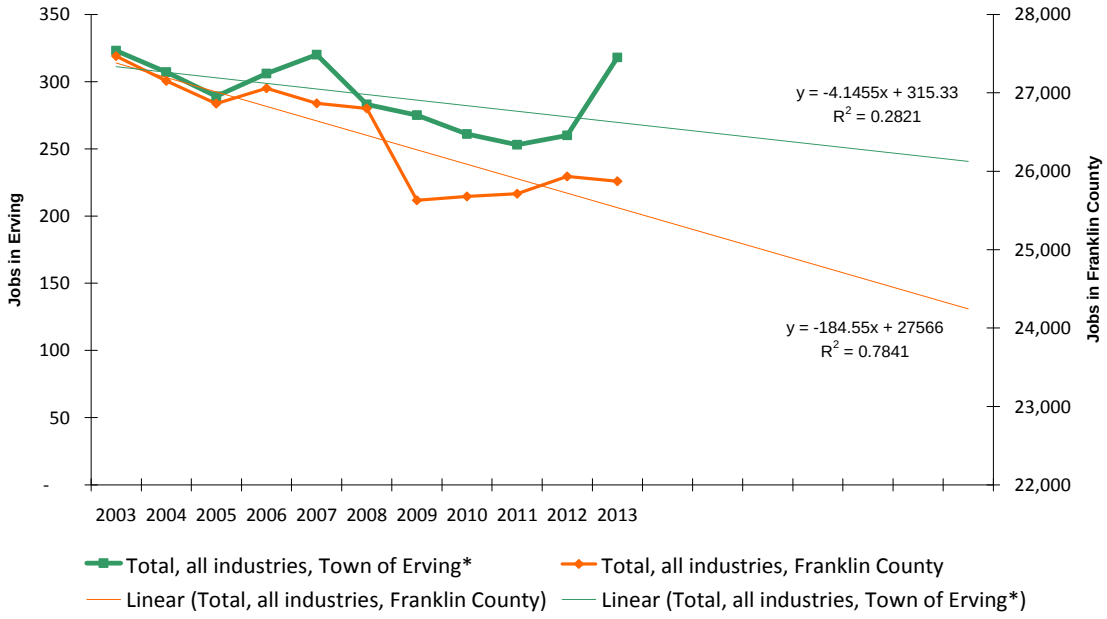
Source: The Nielsen Company, Claritas Site Reports 2014 and FXM Associates

2.3.2 Industry Employment Trends and Projections

The following sections look and trends in employment for Erving and Franklin County for the period 2003 to 2013. FXM then uses a linear projection to estimate employment in 2020. The following chart shows trends in employment in all industries for both Erving and Franklin County.

Figure 1

Employment Trends in Erving and Franklin County 2003-2020



Source: ES202 Reports, Department of Labor and Workforce Development, 2003-2013, and FXM Associates

What the above ES202 trend lines show is that total employment in both Erving and Franklin County is declining and projected to continue its decline, although in the case of Erving, the level of confidence in the accuracy of the projection is quite low. The R-squared value for Franklin County, on the other hand, is quite high, .78, indicating a relatively high level of confidence in the projection. Within the county, however, different industries are performing in better or worse ways than the county as a whole.

For individual industries, data are suppressed for confidentiality, so the subsequent charts showing trends in specific industries are for Franklin County only and are drawn from the Regional Economic Information System (REIS) of the Bureau of Labor Statistics, which is a more complete data base of employment at the county level as it includes self employment which the ES202 reports do not.

The following industries in Franklin County have experienced growth over the last decade and are projected to continue to grow at least 10% between now and 2020:

Table 2

Projected Employment, Growth Industries in Franklin County, 2013-2020

	Projected Growth 2013-2020	Number of New Jobs 2013-2020	Average Annual Wage in 2013
Agriculture	15%	160	$28,444
Finance & Insurance	21%	237	$56,420
Real Estate and Rental &Leasing	19%	191	$36,660
Professional, Scientific, & Technical Services	10%	200	$44,720
Arts, Entertainment, & Recreation	12%	211	$16,224

Source: US Bureau of Labor Statistics; ES202 Reports, Department of Labor and Workforce Development, 2003-2013; and FXM Associates

Growth in the Finance & Insurance, Real Estate and Rental and Leasing, and Professional, Scientific, and Technical Services suggests possible increasing demand for office space.

Based on past performance, almost all other industry categories are projected to decline between 2013 and 2020, with the biggest losses in:

- Manufacturing -25%
- Information -46%
- Educational services -20%
- Management of companies and enterprises -16%

Although there are variations, some due to the use of different data sources and methods of analysis, this broad assessment of growing and declining industries is in general agreement with the assessments in the *2014 CEDS Annual Report*. An exception is in the health sector, where there is somewhat more optimism in the CEDS regarding future employment opportunities than the data suggest, but the data projection is not at a high level of confidence.

2.3.3 Co Star Forecasts of Net Absorption and Comparison to Employment-driven Projections

Co Star *Property Information Systems* is a proprietary data base and analytic tool widely used by real estate professionals because it represents the most comprehensive source of information on commercial properties. Based on broker reports, published and unpublished property transactions (sales and leases), and other sources Co Star tracks activity in the commercial real estate market and provides quarterly forecasts of net absorption and vacancies by major space type. Co Star does not produce long range forecasts but rather takes average annual net absorption over the prior 5 years and extrapolates that number for the next twelve quarters.

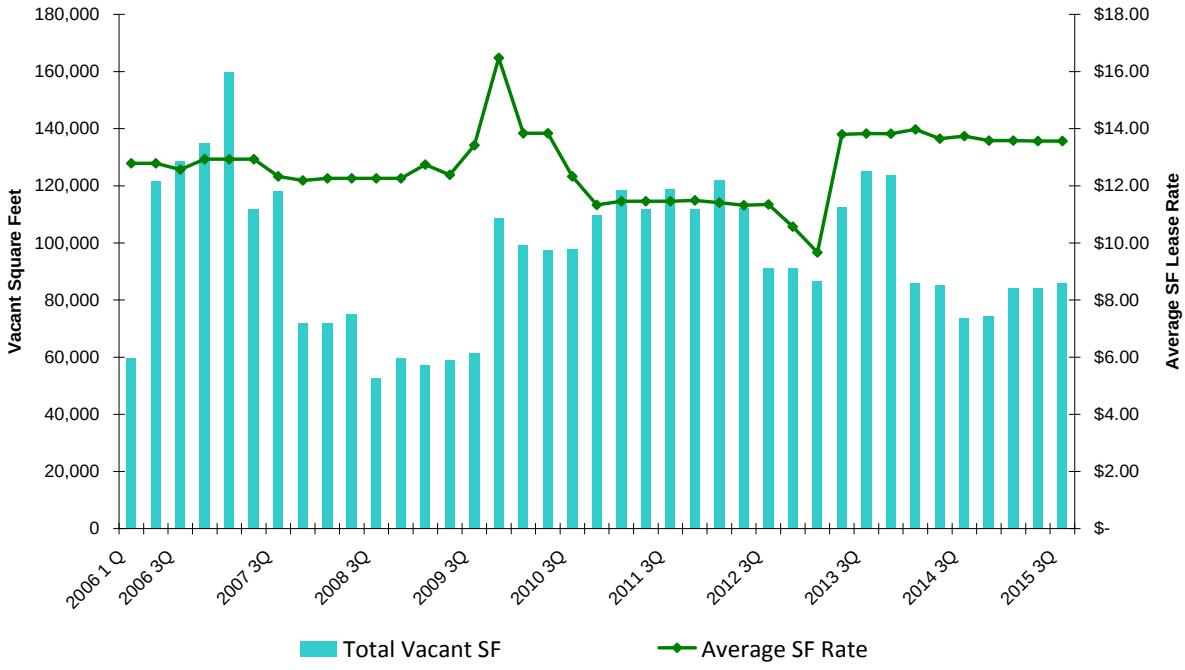
The following section summarizes the Co Star data for the Erving market area, defined to include all of Franklin County, pertaining to the major types of commercial space that might be appropriate for development at the mill site.

2.3.4 Office Space

The total inventory of rentable office space in Franklin County had remained at 1,257,000 square feet since 2006, with no net changes in the supply, according to Co Star. Data in Figure 2 show historical vacancies and average lease rates for office space in Franklin County since 2006. As the graph shows, average lease rates have varied little with occupancy indicating a very stable market from both demand and supply perspectives. The amount of occupied office space in Franklin County is currently (3rdQ 2015) 1,171,000 square feet, down by -33,000 square feet (2.8%) since peak occupancy in the 3rdQ of 2008.

Figure 2

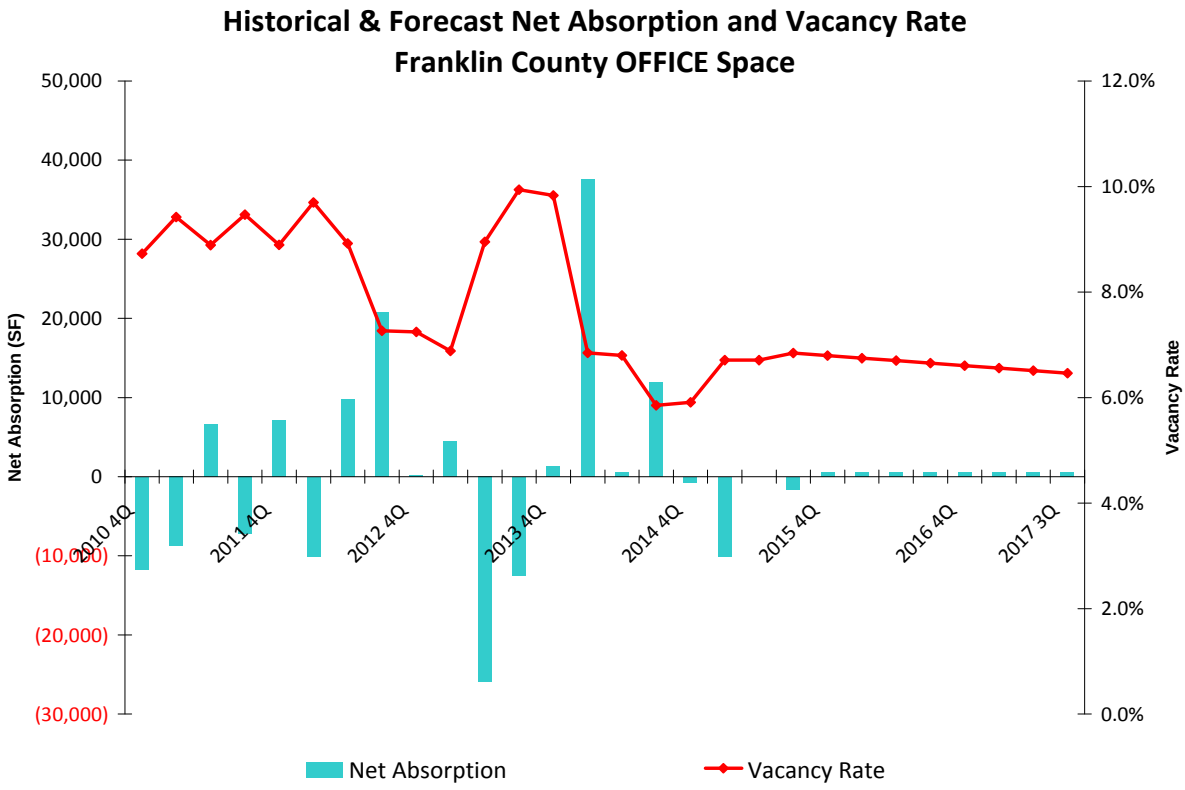
Historical Vacant SF and Average Lease Rates
Franklin County OFFICE Space



Source: Co Star *Property information Systems*, June 2015, and FXM Associates

Figure 3 shows historical and forecast net absorption of office space in Franklin County as well as historical and forecast vacancy rates. Co Star forecasts a very modest net absorption of 2,300 square feet per year of office space and declining vacancy rate (6.8-6.5%) over the next 8 quarters. Co Star's projection is consistent with the modest forecast of job increases in the Finance & Insurance, Real Estate and Rental and Leasing, and Professional, Scientific, and Technical Services sectors shown in Table 2, all of which are considered office using industries.

Figure 3

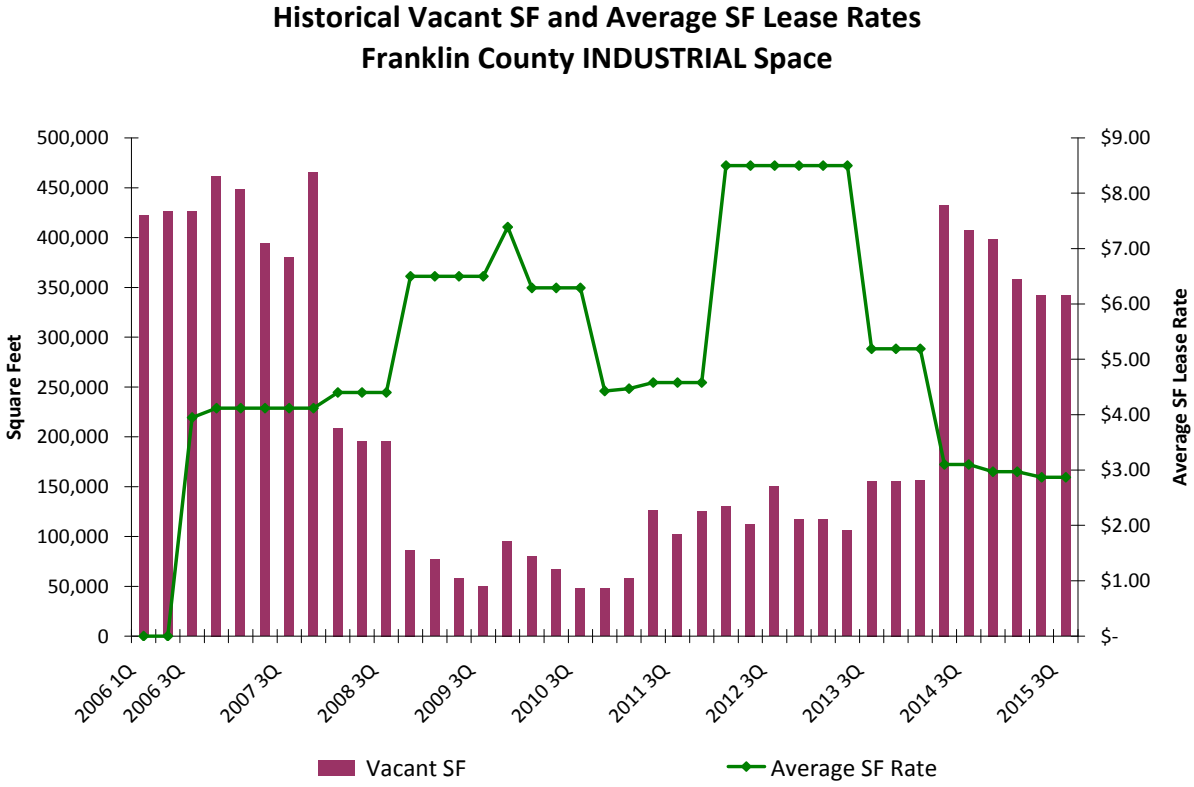


Source: Co Star *Property information Systems*, June 2015, and FXM Associates

2.3.5 Industrial/Warehouse Space

The current inventory of rentable industrial/warehouse space in Franklin County totals 6,546,000 square feet as of June, 2015, according to Co Star. About 350,000 square feet are currently vacant and the average lease rate is under $3.00 per square foot per year. As shown in Figure 4, average lease rates have declined precipitously since the third quarter of 2013 and vacancies have more than doubled over that time.

Figure 4



Source: Co Star *Property information Systems*, June 2015, and FXM Associates

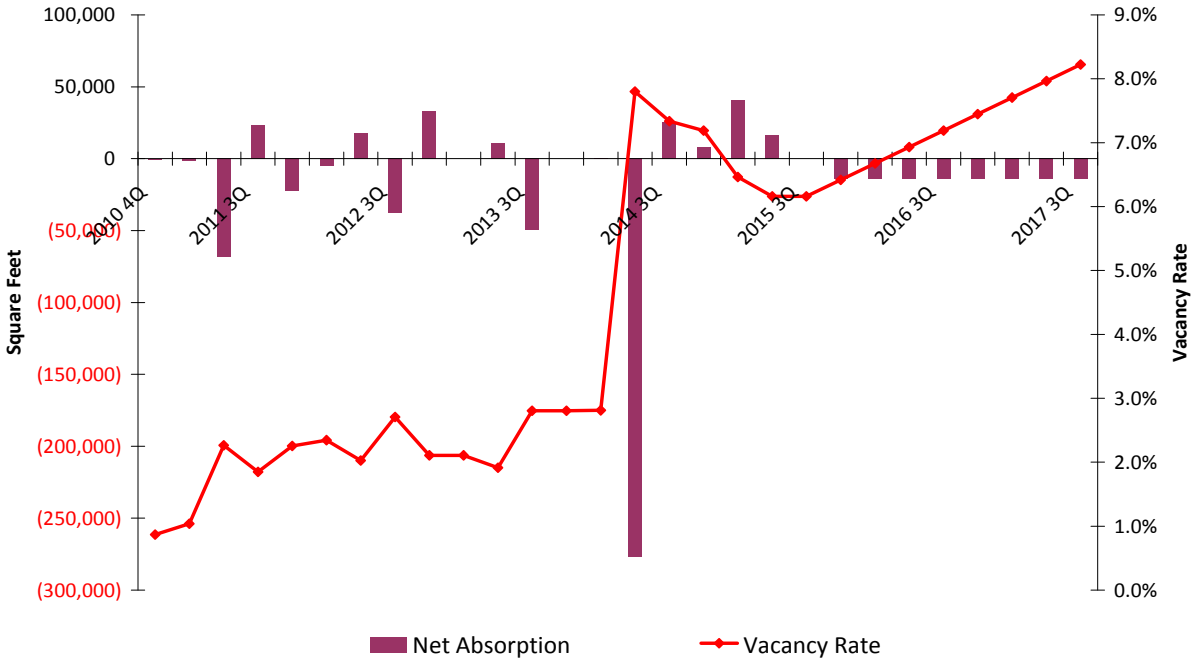
Data in Figure 5 show that Co Star is forecasting negative net absorption of industrial/warehouse space over the next two years of about -14,000 square feet per quarter (-57,000 square feet per year). Flex space, separate from that shown in the office or industrial space graphs, totals approximately 250,000 square feet in Co Star's inventory. It also has over 100,000 vacant square feet (43%) and is forecast to have negative net absorption in the coming two years.

While the data suggest that there is ample supply of vacant industrial/warehouse and flex space currently on the market at very low prices, a number of persons contacted during the course of this study have indicated a lack of commercial space that could serve existing and potentially growing manufacturing and distributive industries. There is a mismatch between the available supply and the needs of growing businesses in Franklin County

according to economic development officials. Part of the problem, according to some interviewees, is that some property owners are unwilling to offer tenants the amount of space they are seeking and are holding out for sale or lease to buyers or tenants who could absorb more of the available supply.

Figure 5

Historical & Forecast Net Absorption and Vacancy Rate
Franklin County INDUSTRIAL Space



Source: Co Star *Property information Systems*, June 2015, and FXM Associates

2.3.6 Retail Space

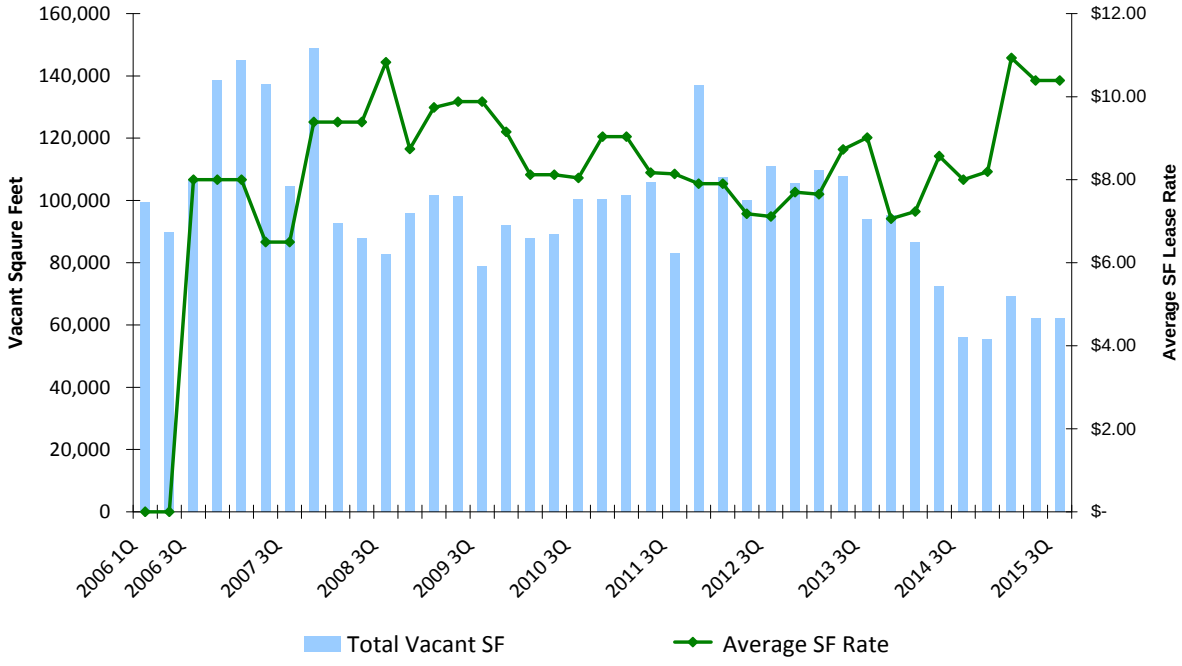
Co Star currently lists 3,223,000 square feet of rentable retail space in Franklin County, an increase of 52,000 square feet (2%) since 2006. About 62,000 square feet of retail space is currently vacant (1.6%) and the average lease rate is $10.39 per square foot per year. Data in Figure 6 show historical vacancies and lease rates for retail space in Franklin County.

Figure 7 shows historical and projected net absorption and vacancy rates of retail space in Franklin County. Since 2006 there has been an increase of over 90,000 square feet of occupied retail space and Co Star is projecting net absorption of about 4,200 square feet per quarter (17,000 square feet per year) with a vacancy rate declining to under 1% by the third quarter of 2017.

While the scarcity of available retail space and projected net absorption county-wide may seem like a potential opportunity for the International Paper Mill in Erving, the site is not well-suited for general retailing and the current lease process will not support new construction.

Figure 6

Historical Vacant SF and Average SF Lease Rates
Franklin County RETAIL Space



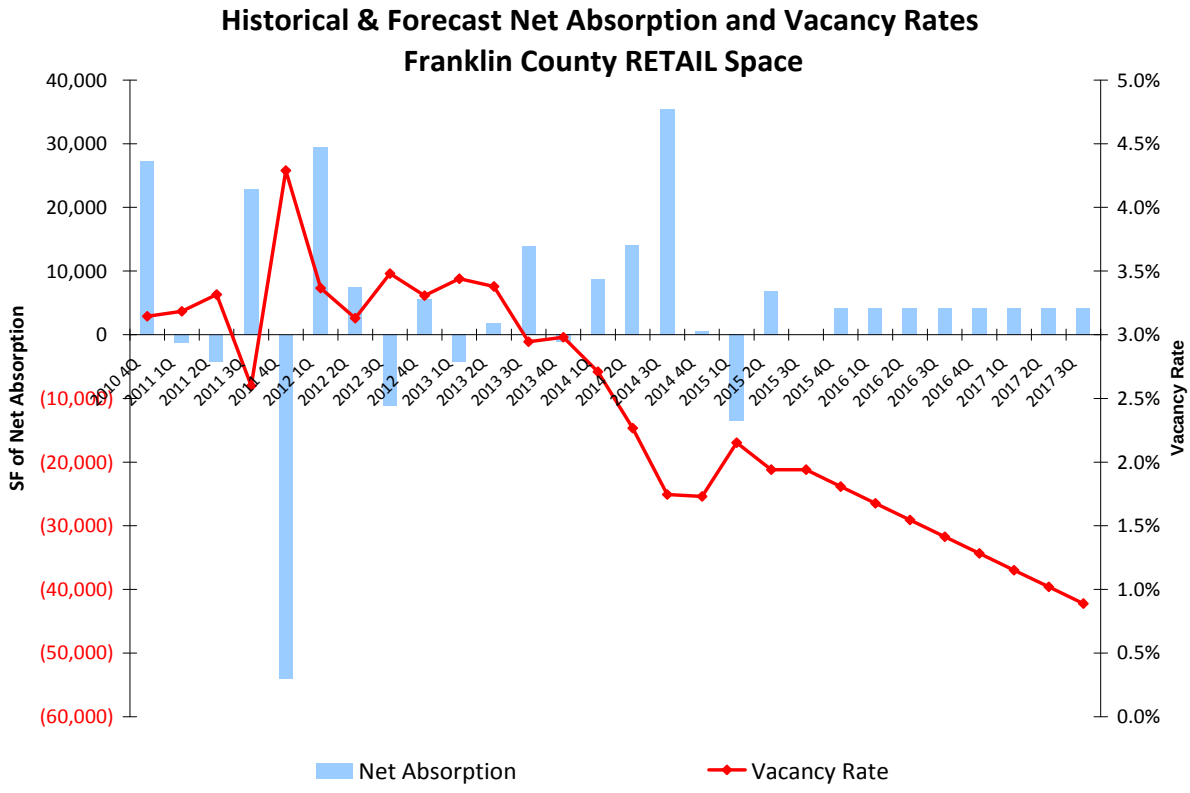
Source: Co Star *Property information Systems*, June 2015, and FXM Associates

2.3.7 Retail Gap Analysis

A Retail Opportunity/Gap analysis is a tool used by virtually all major retailers and chain restaurants to gauge market demand and competition within a specified geographic area. It represents a snapshot of the current expenditures of consumers within a geographic area and actual retail store sales matching those expenditures within the same geographic area. The results of a retail gap analysis are used by shopping center developers and economic development professionals to attract tenants and business investors, often with great success, in FXM's experience.

The retail opportunity, or gap, analysis shows the potential demand for various types of retail development within a defined market area by comparing estimated household expenditures in a range of retail store categories with actual sales by stores in those categories. Where expenditures by households in the market area exceed sales, a gap or opportunity exists for stores within the market area to "capture" more of those household expenditures. This loss of potential sales is also called "leakage". Conversely, where market area household expenditures are less than actual sales in particular retail categories, stores in the market area already attract consumer dollars from outside the market area and opportunities for additional retail development may be more limited.

Figure 7



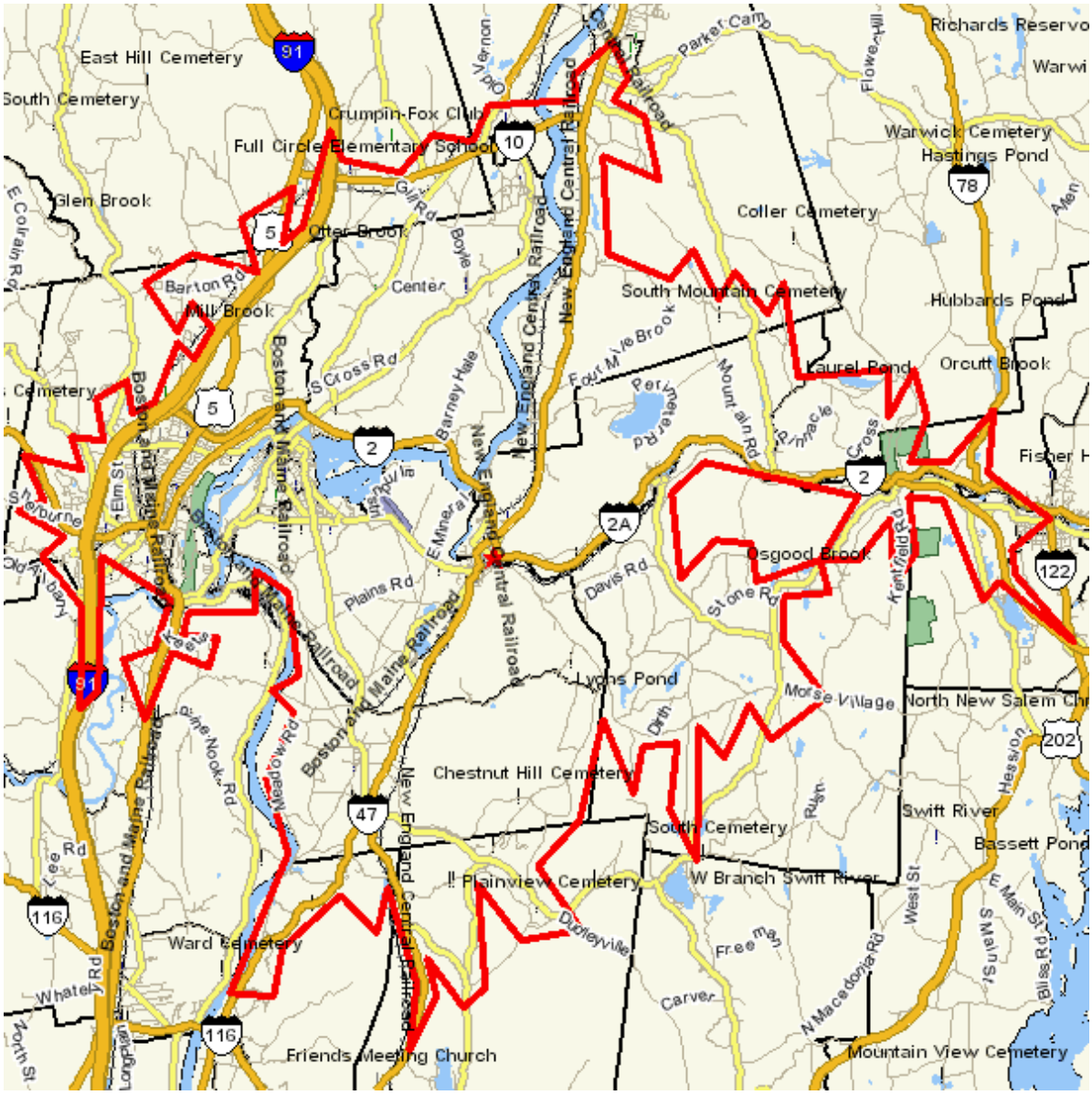
Source: Co Star *Property information Systems*, June 2015, and FXM Associates

The retail gap analysis is a snapshot of current opportunities for retailers to newly locate or expand facilities based on a well-established empirical fact that people will purchase goods within the shortest available walking or drive time from where they live.

Retailers typically define market areas in terms of drive times, with a 15-minute drive time considered the maximum outside market area definition for all but the largest stores and store types and well-established restaurants. Because of the relatively small population and employment in the Erving market area, this maximum drive time was selected as the way to identify the most potential new business activity. FXM applied the 15-minute drive time to a data base of consumer expenditures and retail activity and then analyzed the results to compile a table of likely retail opportunities which could be addressed in Erving, either by new businesses or expansion of existing ones in the promising categories. Figure 8 shows the market area defined by the 15-minute drive time.

Figure 8

15-minute Drive Time



Source: A.C. Nielsen, *SiteReports*, June 2015

The opportunities shown in the following table are hypothetical in that they represent FXM's judgment of how much of the gap by store type shown in the *Site Reports* data within each of the drive time- and distance-defined market areas might be capturable within Erving. As noted above, the retail gap is a snapshot of current (2014) market conditions, and the types of stores and magnitude of these opportunities can and will change over time. The retail gap analysis is most useful as a recruiting tool for prospective developers or particular store types. In FXM's analysis, the identified dollar sales volume opportunity, supportable square footage (based on median sales per square foot for the selected store types), and number of stores (based on median store sizes for the selected store types) are in all instances conservative. Table 3 below summarizes these results.

Table 3

Retail Opportunities in the Erving Market Area

Retail Stores	15-minute Gap	Supportable SF	Potentially Supportable Stores
Home Furnishing Stores-4422	$3,391,476	10,185	2
Appliances, TVs, Electronics Stores-44311	$6,009,853	21,657	4
Computer and Software Stores-44312	$1,702,619	4,446	2
Women's Clothing Stores-44812	$2,581,865	8,650	2
Family Clothing Stores-44814	$4,236,423	10,805	2
Jewelry Stores-44831	$5,859,773	9,650	6
Other Miscellaneous Store Retailers-4539	$6,125,315	19,632	8
Limited-Service Eating Places-7222	$1,206,436	14,835	3
Special Foodservices-7223	$4,856,810	13,681	7

Source: Claritas *Site Reports* and FXM Associates

As noted above, because of the relatively limited total of consumer spending in the Erving area, FXM used the 15-minute drive time to define the largest likely retail market area. The calculations done to produce the table were therefore based on the most positive assumptions regarding the area from which the proposed project might attract new spending and the final column, showing numbers of stores, is also a maximum in that it assumes that *all* the additional spending on the retail categories shown could be captured by the Erving development. Even so, the number of potential new stores is very limited, suggesting that attracting new retail activity to the site would be difficult and as previously noted, the site is not well suited for general retail development.

2.4 Residential Market

2.4.1 Demographic Characteristics

As shown in Table 4 below, Erving is a small town, representing only 3% of Franklin County's currently estimated population. Its growth over the decade 2000-2010, 21.43%, however, far outstrips that of Franklin County, which lost population over that period. Population projections suggest continued growth exceeding that of the county, albeit at a much lower rate. Otherwise, the statistics for both are quite similar.

Table 4

Demographic Data: Population & Households

	Erving	Franklin County	% Erving
Population			
2019 Projection	1,849	72,040	3%
2014 Estimate	1,797	71,472	3%
2010 Census	1,762	71,372	2%
2000 Census	1,451	71,535	2%
Projected Growth 2014 - 2019	2.89%	0.79%	
Estimated Growth 2010 - 2014	1.99%	0.14%	
Growth 2000 - 2010	21.43%	-0.23%	
2014 Estimated Median Age	42.6	45.3	94%
Households			
2019 Projection	756	31,126	2%
2014 Estimate	742	30,716	2%
2010 Census	736	30,462	2%
2000 Census	595	29,466	2%
Projected Growth 2014 - 2019	1.89%	1.33%	
Estimated Growth 2010 - 2014	0.82%	0.83%	
Growth 2000 - 2010	23.70%	3.38%	
Average Household Size	2.4	2.3	104%
2014 Estimated Household Income			
Income Less than $15,000	58	3,625	2%
Income $15,000 - $24,999	89	3,103	3%
Income $25,000 - $34,999	73	3,322	2%
Income $35,000 - $49,999	121	5,195	2%
Income $50,000 - $74,999	196	6,317	3%
Income $75,000 - $99,999	107	4,368	2%
Income $100,000 - $124,999	54	2,111	3%
Income $125,000 - $149,000	24	1,198	2%
Income $150,000 - $199,999	14	833	2%
Income $200,000 - $249,999	4	272	1%
Income $250,000 - $499,999	2	311	1%
Income $500,000 and over	0	61	0%
Household Income Less than $25,000	147	6,728	2%
Household income more than $150,000	20	1,477	1%
2014 Estimated Average Household Income	$59,683	$62,803	95%
2014 Estimated Median Household Income	$53,827	$50,447	107%
2014 Estimated Per Capita Income	$24,644	$26,990	91%

Source: Nielson *Claritas SiteReports* 2014 and FXM Associates

The next table summarizes the characteristics of the workforces in Erving and in Franklin County. The profiles are quite similar.

Table 5

Workforce Characteristics

	Erving	%	Franklin County	%
Education				
Less than 9th grade	15	1.2	1,194	2.3
Some High School, no diploma	117	9.0	3,244	6.2
High School Graduate (or GED)	504	38.7	14,953	28.5
Some College, no degree	293	22.5	10,832	20.7
Associate Degree	140	10.7	5,356	10.2
Bachelor's Degree	181	13.9	9,359	17.9
Master's Degree	32	2.5	5,746	11.0
Professional School Degree	13	1.0	733	1.4
Doctorate Degree	9	0.7	990	1.9
Occupation Classfication				
Blue Collar	255	26.8	7,873	20.8
White Collar	526	55.3	22,515	59.6
Service and Farm	170	17.9	7,381	19.5
Type of Worker				
For-Profit Private Workers	610	64.1	20,272	53.7
Non-Profit Private Workers	116	12.2	6,428	17.0
Local Government Workers	93	9.8	3,499	9.3
State Government Workers	67	7.0	2,566	6.8
Federal Government Workers	10	1.1	434	1.1
Self-Emp Workers	55	5.8	4,533	12.0
Unpaid Family Workers	0	0.0	37	0.1
Travel Time to Work				
Less than 15 Minutes	186		11,459	
15 - 29 Minutes	399		11,979	
30 - 44 Minutes	168		6,812	
45 - 59 Minutes	49		2,654	
60 or more Minutes	32		1,940	
Average Travel Time to Work (minutes)	25.3		25.8	

Source: Nielson *Claritas SiteReports* 2014 and FXM Associates

The following table presents the housing characteristics of Erving as compared to Franklin County. Most of these data pertain to owner-occupied units. Erving has a higher rate of owner-occupancy, 81%, than the county's 69%, and slightly longer length of residence for both owners and renters. Home values are somewhat lower in Erving.

Table 6

Housing Characteristics

	Erving	%	Franklin County	%
Tenure				
Owner Occupied	600	80.9	21,151	68.9
Renter Occupied	142	19.1	9,565	31.1
Avg. Length of Residence (yrs)				
Owner Occupied	23.5		22.6	
Renter Occupied	10.3		8.2	
Owner-Occupied Housing Values				
Value Less than $20,000	1	0.2	291	1.4
Value $20,000 - $39,999	7	1.2	234	1.1
Value $40,000 - $59,999	1	0.2	283	1.3
Value $60,000 - $79,999	2	0.3	202	1.0
Value $80,000 - $99,999	17	2.8	295	1.4
Value $100,000 - $149,999	80	13.3	2,055	9.7
Value $150,000 - $199,999	217	36.2	5,320	25.2
Value $200,000 - $299,999	222	37.0	7,203	34.1
Value $300,000 - $399,999	41	6.8	3,120	14.8
Value $400,000 - $499,999	5	0.8	1,090	5.2
Value $500,000 - $749,999	2	0.3	709	3.4
Value $750,000 - $999,999	5	0.8	198	0.9
Value $1,000,000 or more	0	0.0	151	0.7
Median Value	$194,240		$226,315	
Units in Structure				
1 Unit Attached	44	5.5	949	2.8
1 Unit Detached	611	76.7	22,597	66.4
2 Units	51	6.4	3,385	9.9
3 or 4 Units	43	5.4	2,466	7.2
5 to 19 Units	29	3.6	2,340	6.9
20 to 49 Units	6	0.8	613	1.8
50 or More Units	5	0.6	564	1.7
Mobile Home or Trailer	8	1.0	1,128	3.3
Boat, RV, Van, etc.	0	0.0	14	0.0

Source: Nielson *Claritas SiteReports* 2014 and FXM Associates

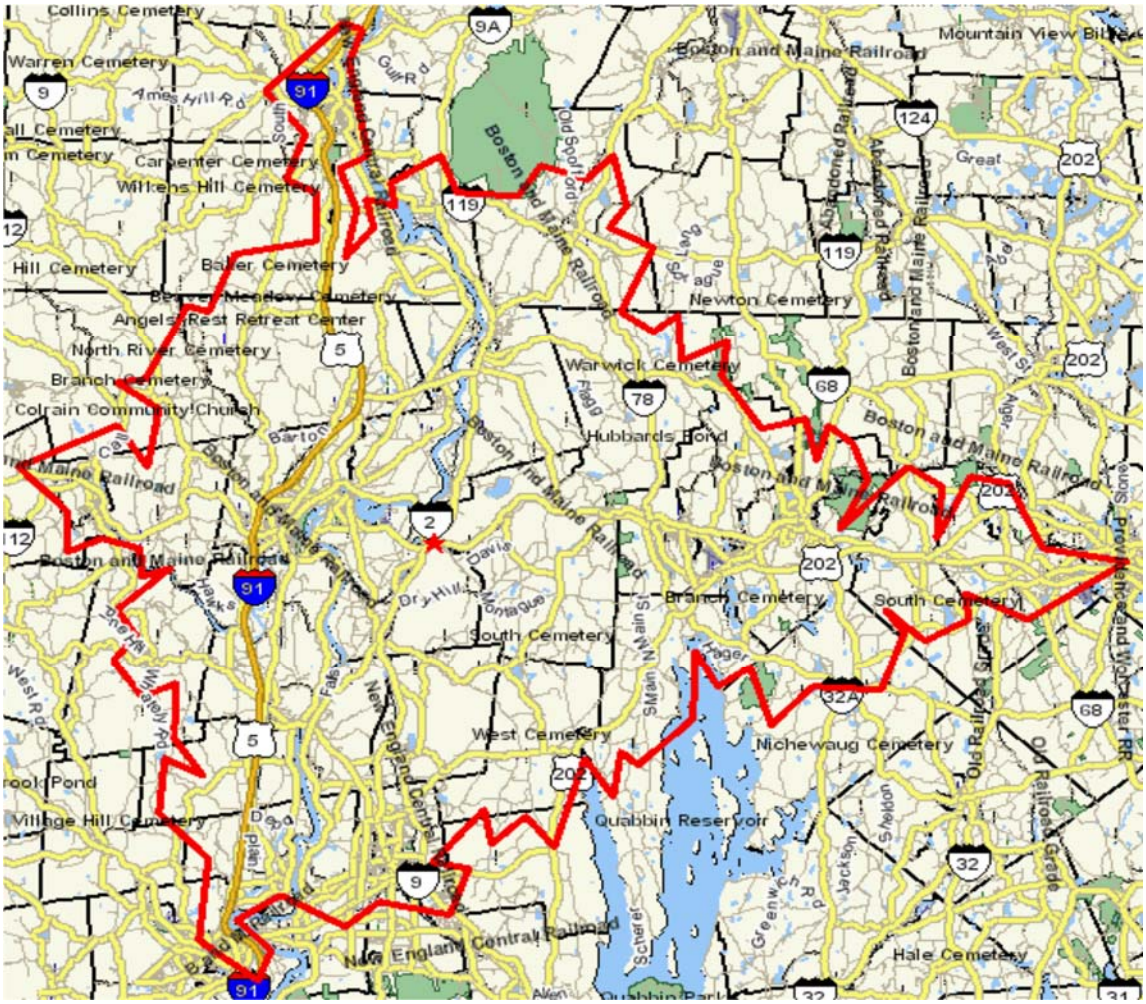
2.4.2 Rental Housing Market Demand Trends

The market for rental housing in the Erving market area (defined as the area within a 30-minute drive time of Erving) presents another potential sector for consideration in studying the feasibility of re-uses for the paper mill property. FXM's *Housing Demand Model* projects over the next five years the average annual demand for rental housing by age, income group, and affordable rental rates. The Housing Demand Model enables planners and developers to target types of rental units, in terms of cost and size and amenities, to various age groups of potential renters. For example, younger age groups tend to be more likely to rent than older householders, but they also tend to have lower incomes, increasing demand for lower priced units.

The map below shows the area defined by the 30-minute drive time.

Figure 9

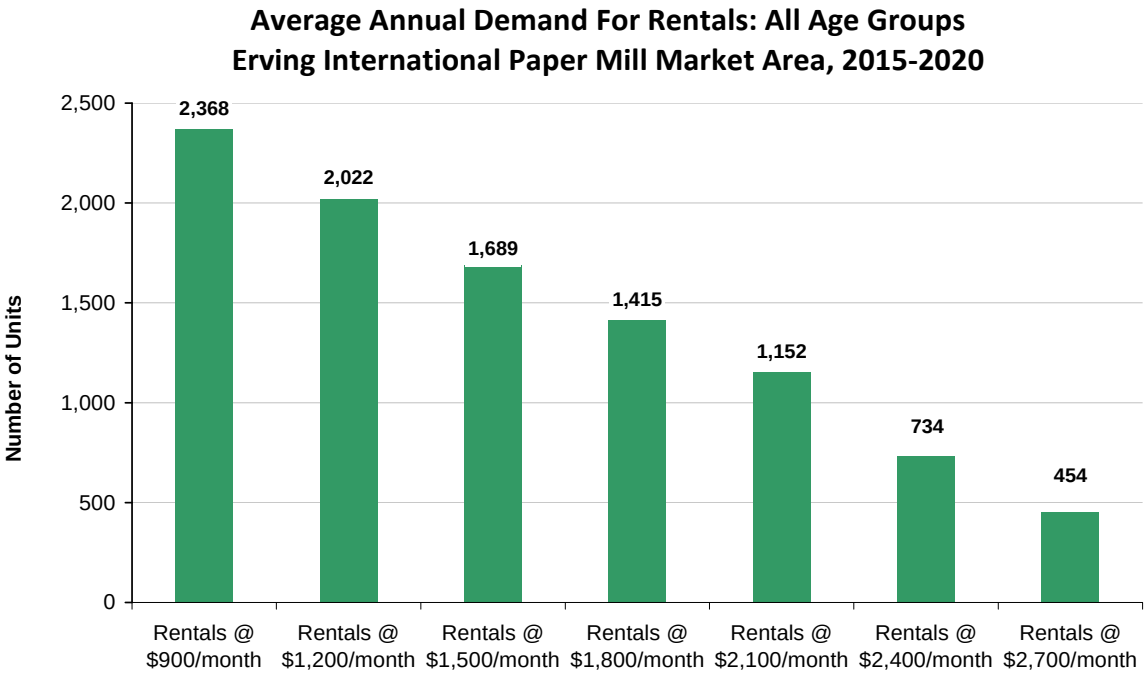
30-minute Drive Time



Source: The Nielsen Company, Claritas *Site Reports*, 2015

Figure 10 shows the average annual demand for all rentals by all age groups in the Erving Market Area, taking into consideration affordability, propensity to move in any given year, and propensity to rent.

Figure 10



Source: FXM Associates, *Housing Demand Model,* June 2015

For example, according to the above figure, of the total number of households expected to move to rental housing each year within the 30-minute market area, 2,368 households, approximately 1,415 would be able to afford monthly rents up to $1,800. Based on Erving's current share of rental housing in the market area, an estimated 9 households able to afford up to $1,800 a month rent might be absorbed by additional rental development in Erving each year. Table 7 presents these estimates for each of the rental points shown in Figure 10. (Note that the figures in the demand columns are not additive. They are cumulative, with the "Rentals @ $900" figure representing total estimated average annual demand in both Figure 10 and Table 7.)

Table 7

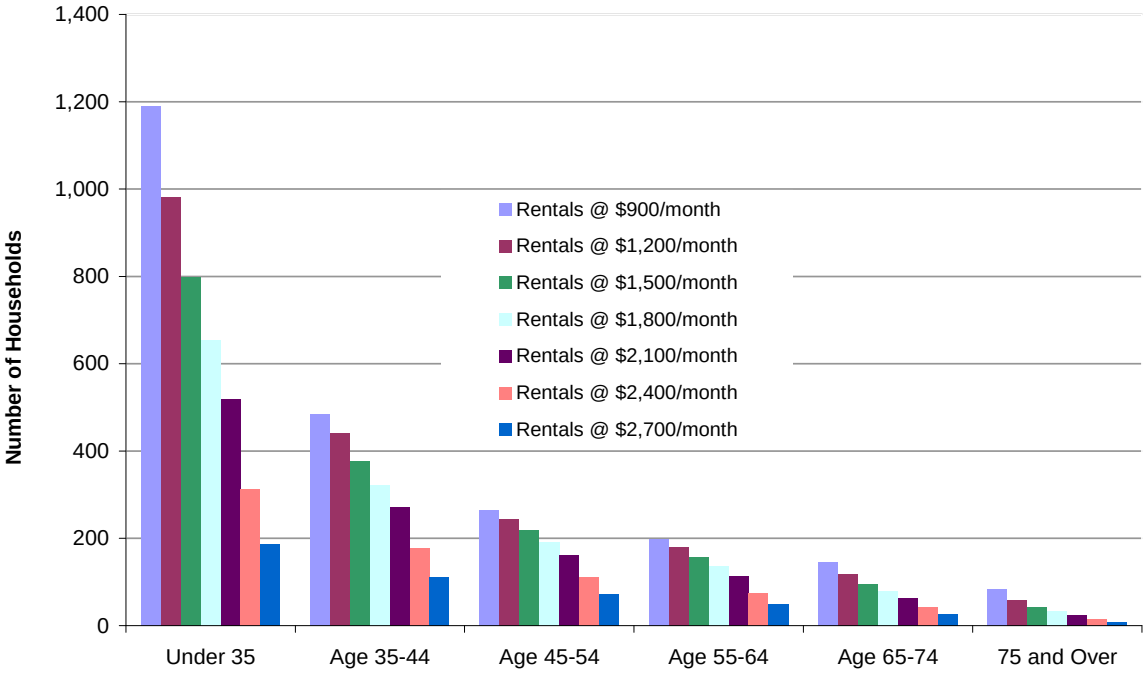
Monthly Rent	Total Average Annual Demand in Market Area	Total Average Annual Demand in Erving
$900	2,368	16
$1,200	2,022	14
$1,500	1,689	11
$1,800	1,415	9
$2,100	1,152	8
$2,400	734	5
$2,700	454	3

Source: FXM Associates, *Housing Demand Model,* June 2015

The information in Figure 10 can be further broken down into age groups, since rental housing developments often seek to attract households such as retirees and young singles, both of whom are less likely to have school age children. Figure 6 presents these data.

Figure 11

Average Annual Demand for Rentals by Affordable Rent and Age Group, Erving International Paper Mill Market Area 2015-2020



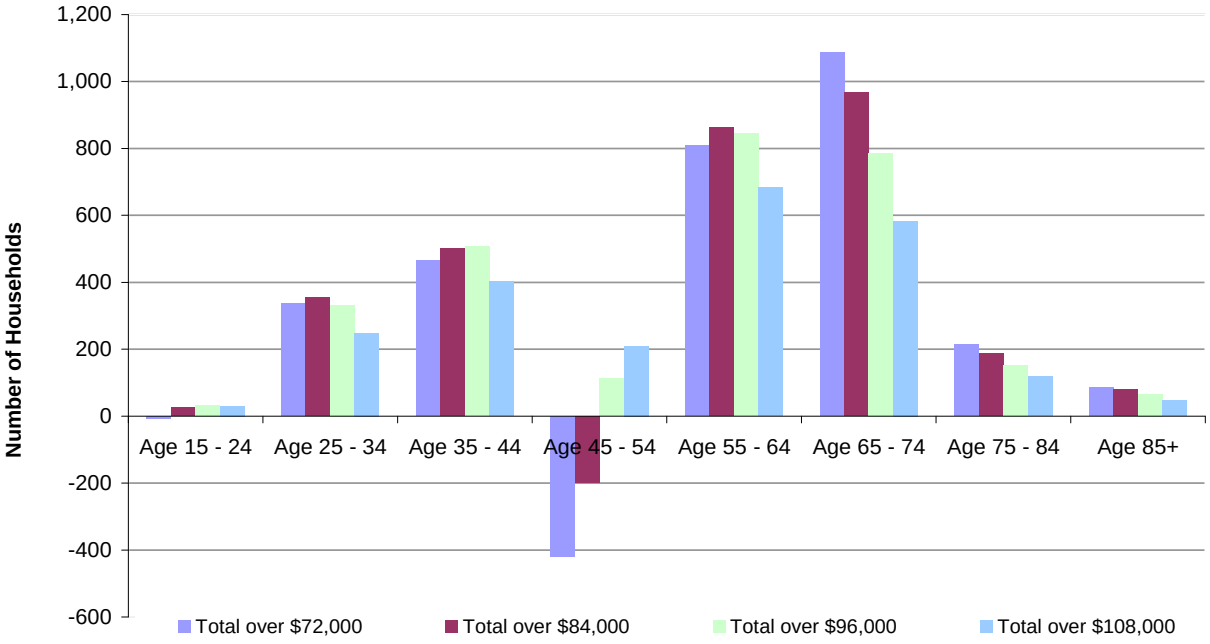
Source: FXM Associates, *Housing Demand Model,* June 2015

The graph reflects the greater propensity of younger households to rent compared to older households, as well as the sensitivity of levels of demand to varying rental prices.

Figure 12 shows another dimension to the estimation of future rental demand: the changes projected over the next five years in numbers of households by age and income.

Figure 12

Change in Number of Households by Age and Income
Erving International Paper Mill Market Area
2015-2020



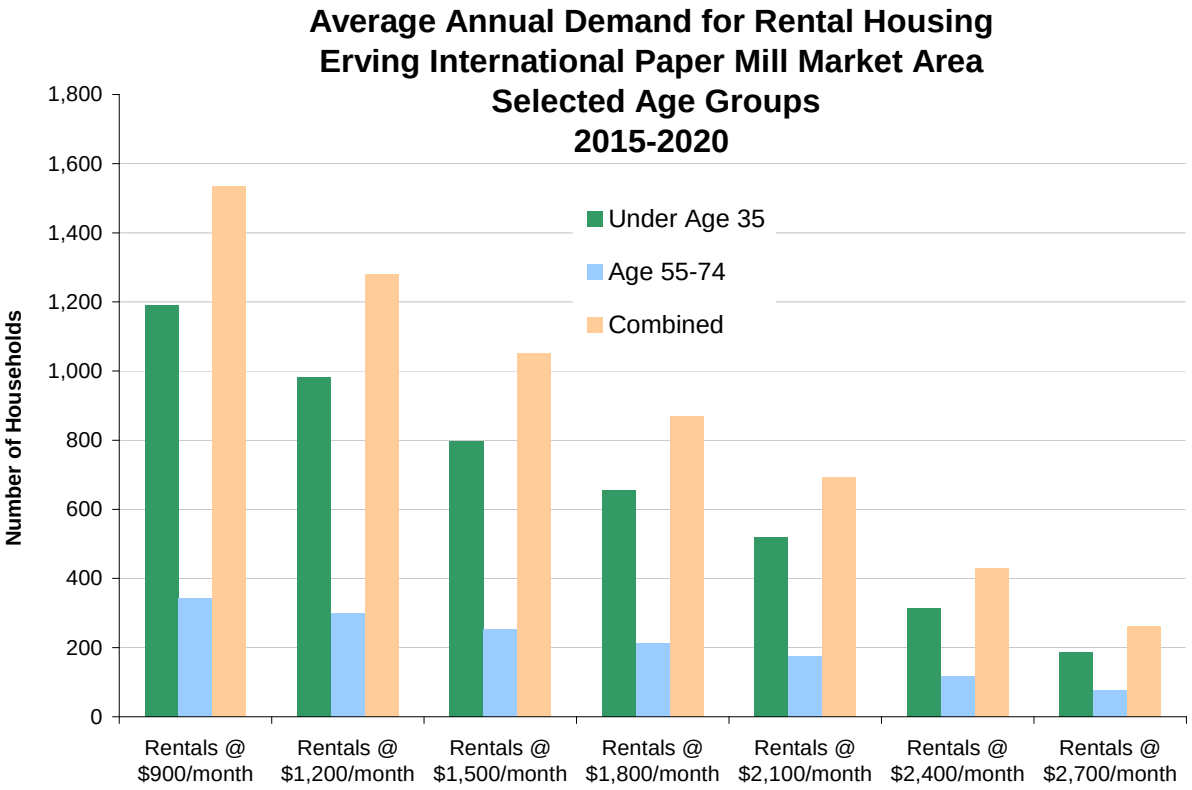
Source: FXM Associates, *Housing Demand Model,* June 2015

Particularly striking is the projection of changes in age cohorts in the market area over the next five years: the greatest gains across all four income categories is estimated to be in the age 55 to 74 cohorts, while the age category 45 to 54, typically a population segment at peak earning capacity, would actually lose households in the lower categories of income selected above and make only small gains in the higher income categories. Age cohorts 24-34 and 35-44, which in some market areas in Massachusetts are projected to lose population or make only small gains, in the Erving market area are projected to make rather healthy increases. Also noteworthy is the indication that households in the income categories over $96,000 and over $108,000 never lose their relative share of the population, although their numbers are fairly small in the under 55 and over 85 age ranges.

A number of developers in recent years have targeted rental units, especially within urbanized areas, to households under age 35 and age 55 to 74, who actually mix well within the same developments. There are fewer school age children within both age categories than in those aged 36 to 54, and therefore less resistance to downtown locations. Both groups show a higher propensity to live within walking distance of retail stores, restaurants, and transit if possible. The households under age 35 are more mobile on average and more likely to rent so they comprise a relatively large share of potential demand.

As shown by the data in Figure 12 above, the baby boom generation households are growing in number within the 55 and older age categories, and these households have shown an increasing propensity to rent in recent years as they become empty nesters and sell their single family homes for smaller, more manageable units. Others want to cash in on the equity of their former dwellings because they need liquid income in the absence of the pensions enjoyed by prior generations of retirees. Many also continue to work part time. Data in Figure 13 show the average annual demand by selected rental rates for the under 35 and 55 to 74 year old householders, and their combined demand.

Figure 13



Source: FXM Associates, *Housing Demand Model,* June 2015

2.5 Prices of Currently Available Rentals

Prices for rental units in the Erving market area available in late May - June are summarized. The market area used includes Sunderland, Marlborough and Keene, NH, Greenfield, Ware, and Amherst. Most of these were in apartment or condo complexes; houses for rent and units in identifiable smaller homes were not included in this sample. For listings undifferentiated by size, rents ranged from $950 a month to $2,600. More useful is the following breakdown of average rents by number of units and average square footage, the great majority of which are 1- and 2-bedroom units.

Studio:	$780	440 sq. ft.
1-bedroom:	$1,043	740 sq. ft.
2-bedroom:	$1,325	1,070 sq.ft.
3-bedroom:	$1,341	1,300 sq.ft.

Source: Zillow.com; trulia.com; rent.com; and FXM Associates

Note: exercise caution in using the studio and 3-bedroom data, as the sample sizes are very small, particularly for square footage, which is not provided by all data sources.

When we compare the above averages to the affordability data shown in Figure 10, can see that, broadly, over half the potential demand for rental units in the Erving market area is for units priced somewhat above those currently available in the market area, suggesting the capacity to pay higher rents than those prevailing in the area. Such a conclusion, however, should be treated with caution for studio and 3-bedroom units, because of the small sample size, as well as the fact that the sample does not include single family home rentals.

A note on property taxes:

The 2014 CEDS data on local property taxes for all towns in the CEDS area show that Erving has the third lowest average single family property tax bill, $1,563, of the 29 towns. Its residential tax rate, $8.45, is the second lowest. Its commercial tax rate, $14.04, is the fifth lowest, well below the median rate. These favorable tax rates compared to its neighbors make Erving at least competitive in attracting new residential and commercial development.

2.6 Interview Input

Over the course of this study, interviews were conducted with local officials, businesspeople, and others knowledgeable of the local market. The interviews covered a wide range of subjects related to the mill, including ideas for re-use, feasibility of various re-use options, and general market conditions. There were few, if any, views expressed that conflicted with the picture drawn by the data analyses presented above. The following section highlights the important points emerging from the interviews:

- Business incubators might use the space, depending on how it is laid out, according to several interviewees (another cited the need for business incubators but thought the linear layout of the paper mill would not accommodate their needs). Such incubators need small office spaces and shared spaces. Graduates of incubators and start-ups and small firms needing to expand are looking for space, both office

and light manufacturing. Industrial park space is limited in the area. A recent survey indicated a need for moderate-sized space.

- Agriculture and agribusiness have facility needs that might be met by a redeveloped mill: growth in year-round markets has increased the need for cold storage, particularly dry storage, in order for local farms to serve Boston metropolitan area customers. Farmers have particular needs for winter storage, and some are seeking off-site but close-by facilities.

- Some types of food processing might be users: for example, milk or poultry processing, both of which need lots of water and highway access, have been looking for space that the paper mill might offer.

- Some mentioned that distribution or warehousing businesses could use the space. Another noted that the area has a lot of vacant and available mill space for warehouse/distribution use.

- The site has difficult access for large vehicles, limiting somewhat the above possibilities at the paper mill.

- The paper mill's riverside location would make it attractive for more open space and access to the river.

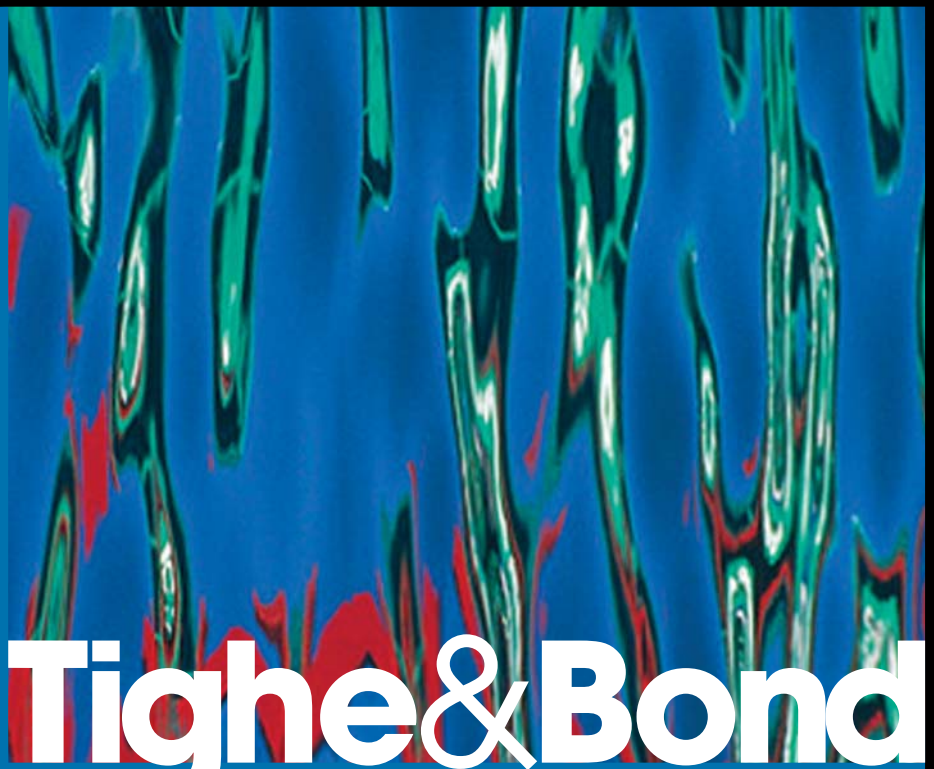
- While the nearby river is an important positive feature for residential and some types of specialized commercial development such as restaurants and breweries, the newer structures on the property do not have the historic character that would be attractive to such types of development.

- Residential rental development is a potential re-use, particularly for the older historic buildings on the site. The amount of market rate housing (mentioned as more desirable than subsidized or low income units by some of those interviewed) that could be absorbed in a year would be limited by affordability limits in the local market. One knowledgeable person doubted the site could be developed for residential use without using subsidies, in part because of the small number of units that the site can accommodate.

- None of those interviewed expressed optimism about finding investors for any of the possible uses; none had knowledge of any investors who might be looking to acquire or develop mill property. Most emphasized the need for the re-use project to have an active promoter who would reach out to potential investors and market the site aggressively, connecting with specific sectors, whether commercial or residential.

- Some responders mentioned competition for residential demand from a mixed-use development in Erving. Of more concern is that mill complexes in Athol and Orange are in the redevelopment phase, after a 20-year planning process. Three more mill complexes in the area are in redevelopment.

- Another concern about potential residential development is that the ostensible target households (young professionals and empty nesters) prefer locations within walking distance of retail shops and other amenities. Potentially competitive projects are now being developed in Montague and Greenfield and these areas are judged more attractive for the target household types than the mill site in Erving.



Tighe&Bond

SECTION 3

Section 3
Architectural Evaluation

3.1 Introduction

The following evaluation explores the architectural implications of several reuse scenarios and the relative advantages and disadvantages of the varied building components of the complex. It summarizes the characteristics of each individual buildings in detail. The study explores the potential of each component for reuse, including an assessment of general improvements that would be required for reuse of the building. Lastly, the study examines the collection of building and site improvements that would be required to facilitate several reuse scenarios, the potential costs associated with the scenarios and the redevelopment capacity of each scenario. This capacity is linked to the market feasibility analysis and the resulting reuse recommendations for the property.

3.2 Building Description

The mill complex is generally divided into eight distinct building footprints. Each of the eight footprints may have subparts or components that warrant further separation. The building condition observations have been separated by building and include an overall description and photographs from the building site visit, which was performed by The Cecil Group, Tighe & Bond and FXM Associates on May 18, 2015. The mill complex is generally constructed of brick masonry exterior bearing walls and interior heavy wood timbers of southern yellow pine.

Depending on the original use of the building which was designed to support a specific purpose in the paper manufacturing process, some buildings are more reusable than others. Overall the complex creates a relatively complicated and interconnected series of interior spaces that frequently have floor elevations that do not align vertically from building to building. Accordingly, the mill complex will present challenges for reuse related to vertical circulation and concerns for accessibility and building egress. Although the complex includes many stair locations and several freight elevators, the suitability of these features to meet current building code to ensure health, safety and welfare of new occupants is questionable. Vertical circulation components can be brought into code compliance with building renovations and have been considered in the conceptual cost scenarios.

In addition, it was found that existing building systems that include heating, ventilation air conditioning (HVAC) and electrical were not in a condition or configuration to be utilized in any reuse scenarios. The systems in place were to serve the facility as a whole and much of the equipment is beyond its useful life. There has also been significant vandalism of the facility with removal of valuable infrastructure. Therefore, it is assumed that all new systems will need to be installed in order to meet the building redevelopment requirements, Code, comfort, health and safety for the future occupants.

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)
1a	4,520	2	9,040
1b	7,040	2	14,080
1c	2,750	1	2,750
1d	1,640	1	1,640
1e	1,640	1	1,640
2	13,210	4	52,840
3	3,220	1	3,220
4a	6,580	3	19,740
4b	3,040	3	9,120
4c	2,700	2	5,400

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)
4d	970	1	970
4e	1,400	1	1,400
4f	960	2	1,920
5a	8,640	4	34,560
5b	2,530	3	7,590
5c	1,010	1	1,010
5d	2,110	2	4,220
5e	700	2	1,400
6a	3,010	3	9,030
6b	3,830	3	11,490
6c	1,970	3	5,910
7a	6,030	1	6,030
7b	5,010	1	5,010
8	690	2	1,380
TOTAL	85,200	-	211,390

3.2.1 Historic Structure

The historic portions of the mill that were built in 1902 would certainly meet the criteria to be listed in the National or State Register of Historic Places or designated as historic under appropriate state or local laws. Consultation with the Massachusetts Historical Commission (MHC) may be appropriate to discuss processes and procedures for listing the historic structures. Regardless of the status of historic listing, the MHC may review the renovation project during permitting for impacts to historic or archaeological properties. Completing the application process to list the historic structures would both recognize the significance of the mill complex and would open the opportunity to use Federal or State tax credits for renovation, such as the Massachusetts Rehabilitation Tax Credit.

3.2.2 Building Accessibility

As it currently exists, relatively little of the mill complex would be considered compliant with accessibility regulations. The scope, cost and change of use that would likely accompany a renovation and reuse effort would trigger the need to bring the facilities into compliance with current access requirements. If the historic portions of the mill are eligible to be designated as a historic place, a variance for accessibility requirements could be sought. However, given the intention to pursue market-based tenants, the best course of action would be to bring those portions to be reused into compliance.

The major components of compliance for the portions of the building to be reused would include providing onsite accessible parking and an accessible route to the main building entry. Access to the main building entry may require an entry ramp depending on the relationship between the first floor elevation and exterior finished grade. The interior spaces must provide adequate circulation, doorway widths and clearance for accessible use. Code compliant and accessible elevators must be provided to serve each level of building to be reused. The stairs must be improved to comply with requirements. Public toilet rooms will be required to provide accessible toilet stalls. A minimum of 5% of residential units will be required to be accessible. Interior ramp connections may be required where two adjoining buildings floor elevations do not align.

Other accessibility considerations may be warranted for the renovation and reuse of the mill complex. Refer to the Massachusetts Architectural Access Board Rules and Regulations (512 CMR) for accessibility requirements.

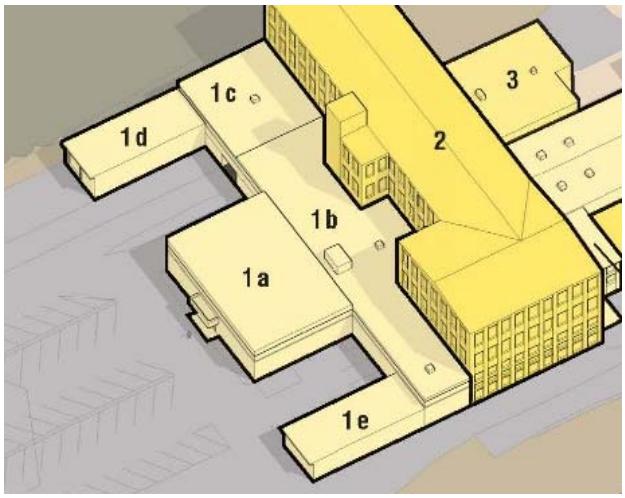
3.2.3 Building Egress

As the mill complex is adapted for reuse, the provision of compliant means of egress from each building is a critical consideration. Several important considerations will inform the design of building egress systems. The means of egress shall not have a ceiling height of less than seven feet, some of the lower levels of several of the buildings may not comply with this requirement. Many of the existing stairs do not comply with the minimum width required of 48" between handrails for an accessible egress stair, nor do they provide an accessible area of refuge. The design of the egress system will need to closely consider the regulations that allow egress into an adjoining structure as may be necessary in the interconnected buildings that may remain. The travel distance to an exit door shall not be greater than 250 feet in a sprinklered building and no dead end corridor can exist longer than 20 feet.

Review of the Massachusetts State Building Code (780 CMR) provides more detailed information to bring the reuse of the mill complex into compliance with health and safety requirements for the varying types of occupancy under consideration. In general, new vertical circulation and fire-rated egress routes will be required to be provided with at

least two egress stairs and exits per building. In some circumstances existing vertical penetrations could be reused for new stairs or elevators. However, new stair penetrations or vertical circulation additions to the exterior of the buildings are anticipated to be necessary.

3.3 Building Condition



Each of the distinct buildings of the mill complex is discussed individually in more detail. The sequence of building numbering begins at the front orientation of the site as viewed from Papermill Road and moves east sequentially from one connected building to the next for a total of eight buildings.

3.3.1 Individual Building Characteristics

Building 1 (1a, 1b, 1c, 1d and 1e)

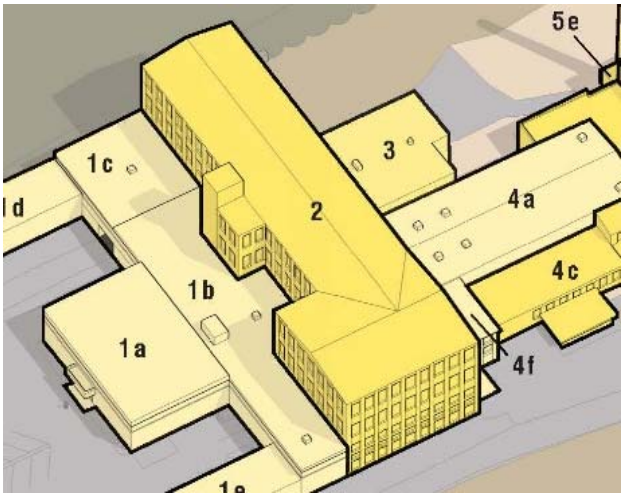
Building 1 and its sub-buildings include the front office and receiving areas that were built after 64 years of mill operation in 1966. The building is a reflection of the time it was built and includes a spare modernist building vocabulary of brick and horizontal ribbon windows. The building core is two-stories and includes five distinct subareas, some of which are one-story. The building totals about 29,000 square feet. Subarea 1a is the main office area. Section 1b and 1c appear to be handling areas and section 1d and 1e were receiving docks for shipment of materials. An access tunnel underneath 1c provides vehicular access to the interior and rear of the site and truck access to the rear loading area.

The building design is clearly utilitarian and leaves a relatively non-descript and unremarkable architectural character. Although the building spaces are reasonably proportioned, they include average ceiling heights and the interior spaces suffer from the lack of natural light and views with the ribbon window occurring as a clerestory above eye level. Although built more recently than the historic portions of the mill, the building has also suffered from a lack of maintenance and vandalism. Architecturally, the building offers little redeeming value for the potential cost of renovation and reuse. The other difficulty with this building is its location relative to other more historic structures. It is the front door of the site and its design and aesthetic may be a disadvantage when repositioning the property for reuse.

In summary Building 1 has the following characteristics:

- A difficult architectural style to repurpose for an attractive reuse
- Interior spaces are reasonably proportioned, but may limit flexibility for reuse and include only average floor-to-floor heights
- Prominent gateway location to the mill complex does not present welcoming front door for potential repositioning of the property
- Prominent front facing loading docks and garage doors

Building 2



Building 2 is one of the most historic, well-proportioned and reusable portions of the entire mill complex. The building was a part of the original 1902 mill construction and housed drying and stacking operations in the paper manufacturing process. The building is five stories in height and forms a slight "L" shape in floor plan. The exterior windows are frequent and well-proportioned. The floor-to-floor ceiling heights are ample on the third, fourth and fifth floors. The height on the second floor is inadequate and likely to be combined with the first floor. The potential reuse of this building has accounted for this floor-to-floor height discrepancy and assumes the likely conversion of this building to a four-story structure. The building totals about 52,000 square feet accounting for this change. The access tunnel that begins at the front of Building 1 continues under Building 2 and provides access to the rear of the site for vehicles.

The building design is an excellent example of industrial mill construction of the 19th century. It includes exterior brick bearing walls with a regular rhythm of punched opening with generous arch-top window openings. The interior supporting structure consists of heavy wood timbers of southern yellow pine for both support columns and beams. All of these simple architectural features have left a distinctive building character that provides an attractive exterior façade and interior spaces. The interior spaces are well-proportioned and could be flexibly repurposed for a variety of uses. The height of the building and its position on the site offer a variety of pleasant views of the surrounding hillside, tree lines and river.

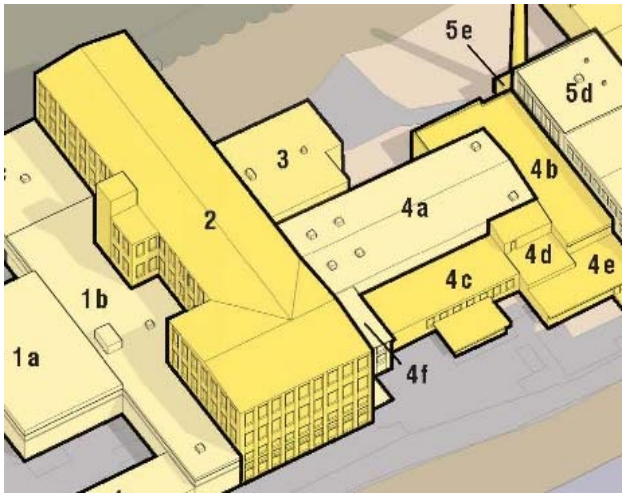
This building should be the focus of redevelopment efforts. A feasible approach to reuse of this building should be the first step in reuse as the other buildings present less advantages and more challenges.

In summary Building 2 has the following characteristics:

- The most historic, well-proportioned and re-usable portion of the mill complex
- Interior spaces that are open and viable for reuse with ample ceiling height and natural light
- Removal of low-ceiling height mezzanine floor required
- Improvements to vertical circulation required


PAPER
COMPAN

Building 3

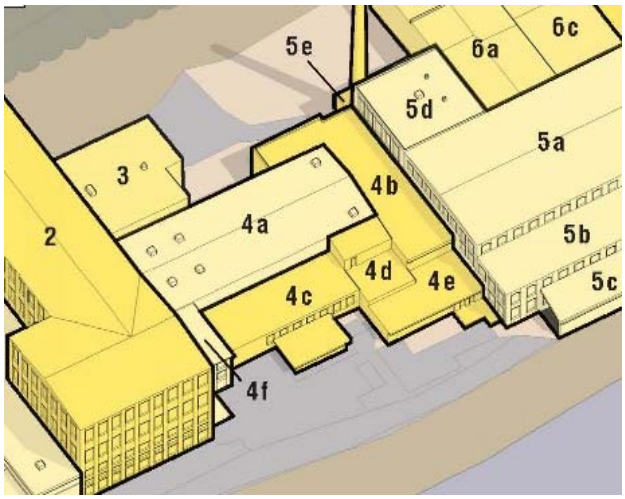


Building 3 is a small utilitarian structure that is not directly connected to the other portions of the mill complex. The project team did not visit the interior of this building on the site visit, it is labeled as "Fuel Storage" on a building plan. It is not a large structure at just over 3,000 square feet and is not likely to be reused for a significant purpose. It may be useful as a mechanical or utility structure, or it may be more appropriate to remove the structure to open access to the rear of the site and reduce crowding around Building 2.

In summary Building 3 has the following characteristics:

- Simple and small structure with a utilitarian purpose
- Not likely to be reused, except if reused for similar utility function

Building 4 (4a, 4b, 4c, 4d and 4e)



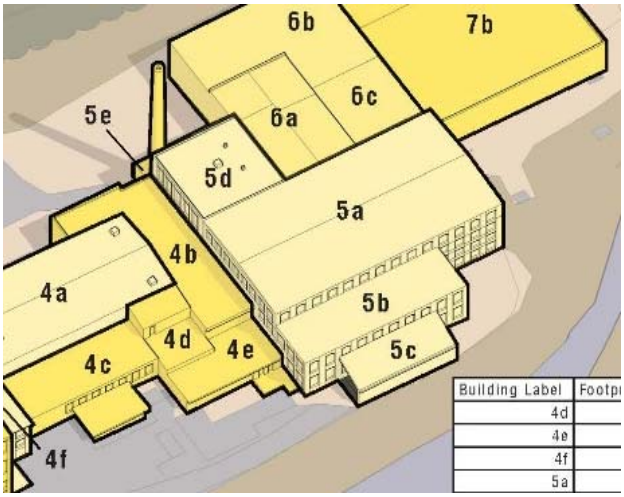
Building 4 was also a part of the most historic and original portion of the mill dating from 1902. However, Building 4 was functionally-oriented and is one of the most idiosyncratic and utilitarian portions of the entire mill complex. The upper floor housed the two paper machines that were at the core of the manufacturing operations. Underneath the paper machines were two floors that included the Sizing Rooms and the pumps. The buildings were designed and constructed around the dimensions and needs to support the function of this equipment. Accordingly, the spaces include substantial concrete structures, small alcoves, short ceiling heights and generally very interesting spaces that are difficult to reuse.

The main portion of Building 4 is labeled as Building 4a where the paper machines were located. The other buildings 4b, 4c, 4d, 4e and 4f offered small support spaces for equipment or other uses and add onto the primary building massing of 4a. The buildings vary in height between 1-story and 3-stories and total about 38,000 square feet. The buildings do not likely provide adequate windows or natural lighting for interior spaces and the flexibility for potential reuse is limited.

In summary Building 4 has the following characteristics:

- Structured to support paper machines and manufacturing processes
- Spaces that are difficult to repurpose and reuse

Building 5 (5a, 5b, 5c and 5d)



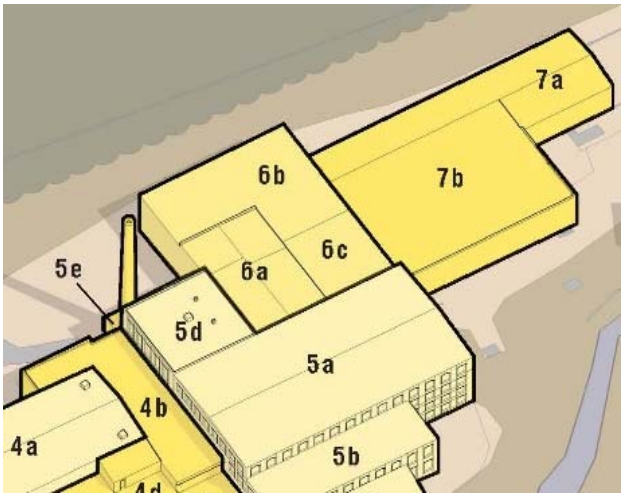
Building 5 included the Beater Room and the Rag Room that were part of the paper production processes. The lower levels included the boiler room and water tanks. The spaces left in the upper floors of the building are generally well-proportioned and have ample ceiling heights to support reuse. On the lower floors, the infrastructure that is left from pumps and water tanks remains and offers challenges for adaptation and reuse. The area around the chimney stack has a portion of roof that has collapsed.

The main portion of Building 5 is labeled as Building 5a. The other portions of the building are sub-structures to it, including 5b, 5c, 5d and 5e. The buildings vary in height between 1-story and 4-stories and total about 48,000 square feet.

In summary Building 5 has the following characteristics:

- Upper floors that may provide flexible opportunities for reuse
- Traditional mill building characteristics that provide a positive building character
- Lower levels that include equipment, limited windows and may present difficulties for reuse

Building 6 (6a, 6b and 6c)



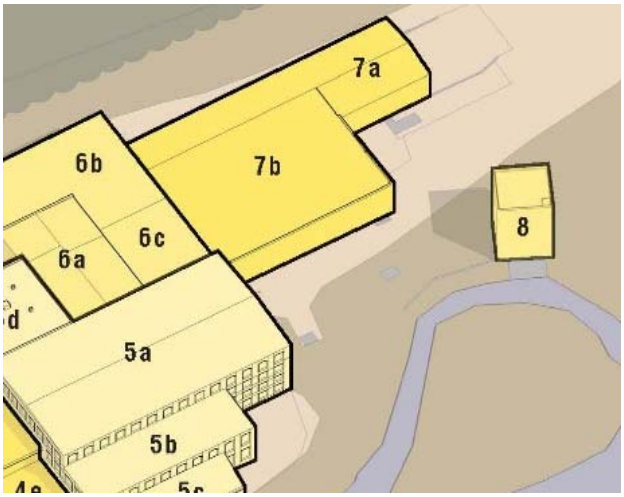
Building 6 includes rear support spaces. The building has a traditional mill character, but many of the windows have been removed with openings boarded or blocked up. The proportion of the building may present some difficulties for reuse and flexibility.

Building 6 includes building areas 6a, 6b and 6c. Each portion of the building is 3-stories in height and totals about 26,000 square feet. The buildings do not likely provide adequate windows or natural lighting for interior spaces and the flexibility for potential reuse may be limited.

In summary Building 6 has the following characteristics:

- May find use as part of repurposing of Building 7
- Building character exhibits many positive attributes of traditional mill architecture, but is less intact and would require more effort to revitalize

Building 7 (7a and 7b)

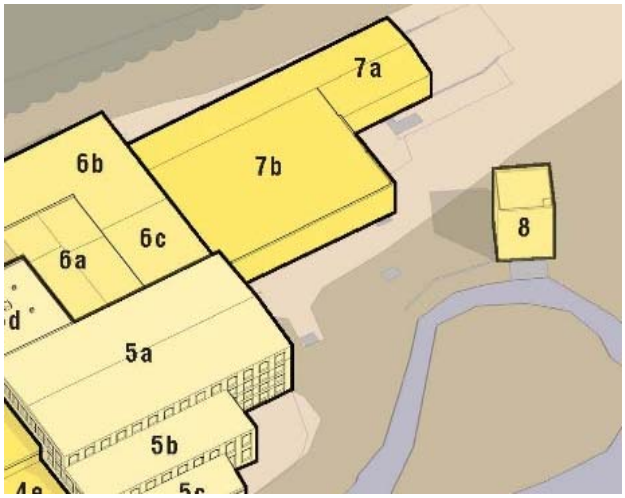


Building 7 is the most recent improvement to the mill complex. The stock house and shipping area with loading docks was built in the 1990s. It is a simple steel structured building with metal siding and roof. The structure and buildings are relatively new and reasonably maintained. However, the loading dock area is accessed by an unimproved site route which includes dirt and gravel paths and an open lawn that is accessed by the tunnel provided through and under Buildings 1 and 2. The building itself could be reused for some purpose as it is in good condition. However, the site provisions for truck circulation and access create very practical difficulties in making reuse feasible.

In summary Building 7 has the following characteristics:

- Simple steel warehouse building with modern loading docks
- Building in good condition
- Site access and circulation to the loading docks are challenging and difficult to improve

Building 8



The pump house is a separate brick bearing wall building that is positioned on the downslope toward Millers River. It includes punched openings for windows on all sides. The project team did not visit the interior of this building on the site visit. It appears to be in reasonable condition and may provide a unique opportunity for reuse on the site. The building is completely separate from the other portions of the mill complex and can be considered somewhat more independently from the others. If a reuse could be identified to complement the overall repositioning approach to the property, Building 8 could contribute to an interesting site. If not, it would not be a major loss to the project.

In summary Building 8 has the following characteristics:

- A stand-alone brick structure that is set apart from the mill complex and located near the riverbank
- May have interesting reuse potential, considerations may be independent of mill complex reuse potential

3.4 Reuse Alternatives

3.4.1 Summary Development Program

The context of the real estate market provides most of the framework needed to determine the appropriate development program for this type of mill building reuse. However, the building components of the mill district may be also prohibit certain types of reuse or be better suited for others. Across the variations of building characteristics described in the eight distinct building areas of the mill complex, several buildings include spaces that would appear to be more flexible for reuse than others and that could accommodate a number of contemporary, market-based uses.

Across the entire mill, the building characteristics are not a clear limiting factor for the type of reuse that could occur. It is plausible that reuse could occur across a number of the major market segments (residential, commercial, industrial, agricultural or recreational) as part of the building complex and site. The following development program components are the most likely market supported uses that would be part of a future reuse scenario. The following program components are not necessarily mutually exclusive and can be mixed to a certain extent to fill the available space allocated within each of the feasibility scenarios outlined.

- Housing – Several of the buildings would be well-suited for conversion to multi-family residential reuse. Buildings 2 and 5 show particular promise for this type of conversion. The multi-family housing could be physically configured to support rental, condominium, or senior housing units. Conversion to housing would require a larger investment in renovation to the building envelope, vertical circulation and utilities, but would also be supported by higher revenues generally.
- Commercial – Most of the building complex would be well-suited for conversion to commercial space, offering well-proportioned spaces with high ceilings and natural light. The configuration would likely be for multi-tenant spaces that offer variable sized offices or storage. The spaces for commercial reuse could be left unrefined, but common entry areas and vertical circulation would be required.
- Industrial – Most of the building complex would be well-suited for reuse as industrial space or industrial storage space with minimal improvement for utilities, accessibility and egress.
- Other Uses – Other less conventional uses such as agricultural use, greenhouses, or recreational use for kayaks, canoes or other outdoor equipment storage may be viable reuses that could be accommodated by several of the buildings in the mill complex.

3.4.2 Feasibility Scenario 1 - Maximize Reuse of Building Components

The first scenario explored is the most optimistic about the amount of space that can be reused, renovated and repurposed. The portions of the structure that are highly unlikely to be reused or that are detracting from the overall building complex have been removed, this leaves approximately 186,000 square feet of space for reuse. Illustrated in the diagram below, the areas shown in red are suggested to be removed in this scenario, approximately 25,000 square feet. The areas shown in yellow would be suitable for conversion either to residential, commercial, or industrial reuse.

Conclusions:

- Given the market for reuse and the cost of renovation, this scenario likely results in an overabundance of space. The retention of too much space places a burden on those spaces that are highly marketable and reusable. This scenario is likely to expensive to renovate and would be difficult to fill with tenants when completed.

- One advantage of this approach is that it leaves the overall building complex relatively intact. Existing exterior walls form the majority of the building envelope.

- This scenario has a reuse area of about 186,100 square feet with an esitmated 124 units.

- Based on an anticipated monthly rental fee of $1,500 per unit, monthly income for this scenario could be in the range of $186,000.

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)	Demo (SF)	Reuse (SF)	Comm/Res(units)
1a	4,520	2	9,040		9,040	Comm
1b	7,040	2	14,080		14,080	Comm
1c	2,750	1	2,750		2,750	Comm
1d	1,640	1	1,640	1,640		
1e	1,640	1	1,640	1,640		
2	13,210	4	52,840	13,210	39,630	Res (34)
3	3,220	1	3,220		3,220	Res (3)
4a	6,580	3	19,740		19,740	Res (17)
4b	3,040	3	9,120		9,120	Res (8)
4c	2,700	2	5,400	5,400		
4d	970	1	970	970		

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)	Demo (SF)	Reuse (SF)	Comm/Res (units)
4e	1,400	1	1,400	1,400		
4f	960	2	1,920		1,920	Res (2)
5a	8,640	4	34,560		34,560	Res (29)
5b	2,530	3	7,590		7,590	Res (6)
5c	1,010	1	1,010	1,010		
5d	2,110	2	4,220		4,220	Res (4)
5e	700	2	1,400		1,400	Res (0)
6a	3,010	3	9,030		9,030	Res (8)
6b	3,830	3	11,490		11,490	Res (10)
6c	1,970	3	5,910		5,910	Res (5)
7a	6,030	1	6,030		6,030	Comm
7b	5,010	1	5,010		5,010	Comm
8	690	2	1,380		1,380	Comm
TOTAL	85,200	-	211,390	25,270	186,120	(124)

3.4.3 Feasibility Scenario 2 Balance Reuse/Removal of Building Components

The second scenario explored is a relatively balanced approach between removal and reuse of existing building components. The most historic and reusable core of the mill complex is renovated for reuse. The more modern portions of the complex which have been attached to the exterior of the core have been removed. This leaves approximately 140,000 square feet of space for reuse. Illustrated in the diagram below, the areas shown in red are suggested to be removed in this scenario, approximately 71,000 square feet. The areas shown in yellow would be suitable for conversion either to residential, commercial, or industrial reuse.

Conclusions:

- This scenario represents a desirable collection of buildings that are left to remain that create a critical mass of reusable space and offer attractive historic mill structures.
- This scenario has a reuse area of 140,400 square feet with an estimated 119 units.
- Based on an estimated monthly rental fee of $1,500 per unit, monthly income for this scenario could be in the range of $178,500.

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)	Demo (SF)	Reuse (SF)	Comm/Res (units)
1a	4,520	2	9,040	9,040		
1b	7,040	2	14,080	14,080		
1c	2,750	1	2,750	2,750		
1d	1,640	1	1,640	1,640		
1e	1,640	1	1,640	1,640		
2	13,210	4	52,840	13,210	39,630	Res (34)
3	3,220	1	3,220	3,220		
4a	6,580	3	19,740		19,740	Res (17)
4b	3,040	3	9,120		9,120	Res (8)
4c	2,700	2	5,400	5,400		
4d	970	1	970	970		

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)	Demo (SF)	Reuse (SF)	Comm/Res (units)
4e	1,400	1	1,400	1,400		
4f	960	2	1,920		1,920	Res (2)
5a	8,640	4	34,560		34,560	Res (29)
5b	2,530	3	7,590		7,590	Res (6)
5c	1,010	1	1,010	1,010		
5d	2,110	2	4,220	4,220		
5e	700	2	1,400	1,400		
6a	3,010	3	9,030		9,030	Res (8)
6b	3,830	3	11,490		11,490	Res (10)
6c	1,970	3	5,910		5,910	Res (5)
7a	6,030	1	6,030	6,030		
7b	5,010	1	5,010	5,010		
8	690	2	1,380		1,380	Res (1)
TOTAL	85,200	-	211,390	71,020	140,370	(119)

3.4.4 Feasibility Scenario 3 – Optimize Most Reusable Building Components

The third scenario explored a renovation effort that focused on the most historic, flexible and reusable portions of the mill complex. This is primarily focused on buildings 2 and 5, both of which are historic, have open floor plans, good daylighting and window patterns. The space has good floor-to-floor heights and provides flexible space that could be marketed to a number of contemporary uses. The portions of the structure that are removed in this scenario add up to 122,000 square feet. This leaves approximately 88,780 square feet of space for reuse, which may be more than adequate to fill the market need. Illustrated in the diagram below, the areas shown in red are suggested to be removed in this scenario. The areas shown in yellow would be suitable for conversion either to residential, commercial, or industrial reuse.

Conclusions:

- While the amount of building removal is substantial, it does include some potential benefits of opening the site for new uses or other site improvements and providing value for salvageable building materials.
- Buildings 2 and 5 are the most attractive and flexible portion of the mill complex.
- This scenario has a reuse area of 88,800 square feet with an estimated 75 units.
- Based on an estimated monthly rental fee of $1,500 per unit, monthly income for this scenario could be in the range of $112,500.

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)	Demo (SF)	Reuse (SF)	Comm/Res (units)
1a	4,520	2	9,040	9,040		
1b	7,040	2	14,080	14,080		
1c	2,750	1	2,750	2,750		
1d	1,640	1	1,640	1,640		
1e	1,640	1	1,640	1,640		
2	13,210	4	52,840	13,210	39,630	Res (34)
3	3,220	1	3,220	3,220		
4a	6,580	3	19,740	19,740		
4b	3,040	3	9,120	9,120		
4c	2,700	2	5,400	5,400		
4d	970	1	970	970		

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)	Demo (SF)	Reuse (SF)	Comm/Res (units)
4e	1,400	1	1,400	1,400		
4f	960	2	1,920	1,920		
5a	8,640	4	34,560		34,560	Res (29)
5b	2,530	3	7,590		7,590	Res (6)
5c	1,010	1	1,010	1,010		
5d	2,110	2	4,220		4,220	Res (4)
5e	700	2	1,400		1,400	Res (1)
6a	3,010	3	9,030	9,030		
6b	3,830	3	11,490	11,490		
6c	1,970	3	5,910	5,910		
7a	6,030	1	6,030	6,030		
7b	5,010	1	5,010	5,010		
8	690	2	1,380		1,380	Res (1)
TOTAL	85,200	-	211,390	122,610	88,780	(75)

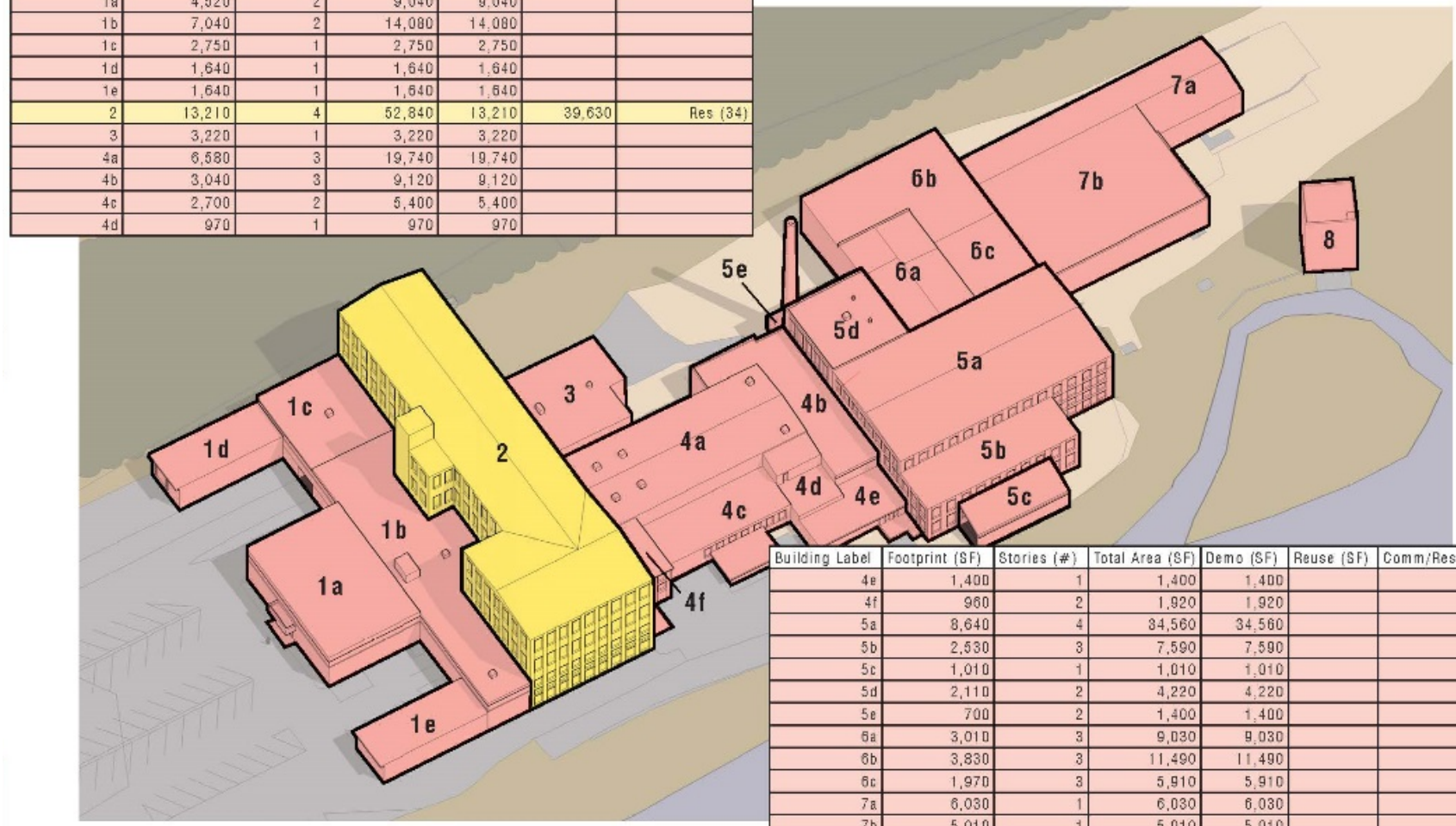
3.4.5 Feasibility Scenario 4 – Keep Only Most Reusable and Historic Building

The fourth scenario explored the other end of the range of potential reuse by focusing the renovation on the building with the most potential – Building 2. This scenario does not let any of the other building components burden the preservation and reuse of this prominent and visible historic mill structure. It is the most conservative approach, relative to the market, because it results in the least amount of area that would need to be leased and maintained, approximately 40,000 square feet of space. Illustrated in the diagram below, the areas shown in red are suggested to be removed in this scenario, approximately 171,000 square feet. Building 2 has five floors in its existing condition, but one of the floors is an extremely low floor to floor height. For practical purposes, it has been assumed that the number of floors would be reduced to four floors for reuse. The areas shown in yellow would be suitable for conversion either to residential, commercial, or industrial reuse.

Conclusions:

- While the amount of building removal is substantial, it does include some potential benefits of opening the site for new uses or other site improvements and providing value for salvageable building materials.
- Building 2 is the most attractive and flexible portion of the mill complex.
- This scenario has a reuse area of 39,600 square feet with an estimated 34 units.
- Based on an estimated monthly rental fee of $1,500 per unit, monthly income for this scenario could be in the range of $51,000.

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)	Demo (SF)	Reuse (SF)	Comm/Res (units)
1a	4,520	2	9,040	9,040		
1b	7,040	2	14,080	14,080		
1c	2,750	1	2,750	2,750		
1d	1,640	1	1,640	1,640		
1e	1,640	1	1,640	1,640		
2	13,210	4	52,840	13,210	39,630	Res (34)
3	3,220	1	3,220	3,220		
4a	6,580	3	19,740	19,740		
4b	3,040	3	9,120	9,120		
4c	2,700	2	5,400	5,400		
4d	970	1	970	970		



Building Label	Footprint (SF)	Stories (#)	Total Area (SF)	Demo (SF)	Reuse (SF)	Comm/Res (units)
4e	1,400	1	1,400	1,400		
4f	960	2	1,920	1,920		
5a	8,640	4	34,560	34,560		
5b	2,530	3	7,590	7,590		
5c	1,010	1	1,010	1,010		
5d	2,110	2	4,220	4,220		
5e	700	2	1,400	1,400		
6a	3,010	3	9,030	9,030		
6b	3,830	3	11,490	11,490		
6c	1,970	3	5,910	5,910		
7a	6,030	1	6,030	6,030		
7b	5,010	1	5,010	5,010		
8	690	2	1,380	1,380		
TOTAL	85,200	-	211,390	171,760	39,630	(34)

3.4.6 Feasibility Scenario 5 - Code Compliant No Internal Fit Out

In Feasibility Scenario 3, the most valuable and reusable portions of the building complex are retained, including Buildings 2, 5 and 8. The other portions of the building complex are removed. This approach reduces the overall maintenance costs and liabilities associated with the property, while preserving the portions with the highest potential to provide future value.

In Scenario 5, the same redevelopment that is proposed in Scenario 3 is proposed in this scenario. However, in order to minimize other initial investments, the interior of buildings would be brought into code compliance with building envelopes made weather-tight, but interior fit-out or finishes would not be improved beyond those two requirements. As the property is marketed for reuse, it should be communicated that fit-out and interior improvements to suit the space to the needs of the occupant would be the responsibility of the occupant.

The costs associated with building removal and site preparation to leave Buildings 2, 5 and 8 with an improved site would require an initial investment that would leave the property in a position to be more marketable and adaptable for reuse.

This scenario retains approximately 89,000 square feet of space for reuse, same as Scenario 3, which may be more than adequate to fill any market demand for many years. The reuse and fit-out of spaces could be phased based upon occupant needs and commitments for space. Illustrated in the diagram below, the areas shown in red are suggested to be removed in this scenario. The areas shown in yellow would be suitable for conversion based on the market, as interest is expressed in residential, commercial, or industrial reuse.

Conclusions:

- The amount of building removal is substantial, and impacts the same building segments as Scenario 3.
- This scenario has a reuse area of 88,800 square feet assuming commercial use.
- Because no internal fit-out is proposed in this scenario, the developer would incur the cost to complete this work before the buildings would be ready for occupancy.
- Although this scenario puts more of the financial burden on the developer, it also provides the most flexibility in redeveloping the space.

Tighe&Bond

SECTION 4

Section 4
Structural Evaluation

4.1 Introduction

Tighe & Bond has completed a visual review of the former Erving International Paper Mill complex located at 8 Papermill Road. The purpose of the evaluation was to identify structural deficiencies and to attempt to determine the feasibility for reuse of the buildings. In order to accomplish this, our objective during the review was to evaluate the current conditions of the existing structural and building envelope systems.

Our review of the complex was performed on June 23, 2015, and July 9, 2015. An initial overall review of the exterior of the buildings was completed in order to identify areas of concern. The exterior bricks and mortar at ground level were spot-checked for deficiencies or deterioration. Each building in the complex was inspected from the interior and observed deterioration and existing conditions were photographed and documented. When safe access was available, the roofs of the buildings were also reviewed.

4.2 General Building Description

The International Paper Mill is a complex currently consisting of approximately eight main interconnected buildings with sub segments constructed over the course of the mill's operation. The complex has a footprint of 85,000 square feet, and a total floor space of 211,000 square feet. The buildings were used for a variety of purposes, including factory floor space, office space, equipment and materials storage, machine and electrical rooms, loading docks and other storage areas. Each building has between one and four stories above grade and up to one to two stories below grade.

The building structures also vary in construction materials, but are predominantly constructed of multi-wythe unreinforced brick masonry load bearing exterior walls with reinforced concrete or wooden floors. Others buildings are pre-engineered with light-gauge sheet metal wall and roof panels. The older buildings have wood framed roofs protected with a single ply membrane. Other buildings have either standing seam metal roofs, or ballasted roofs consisting of interlocking precast units.

For the purposes of this report the mill complex has been separated into eight (8) sections. Several of the sections of the mill have also been further divided into sub-sections, attempting to identify construction separations, listed by letters. A 3D rendering of the mill complex with building designations is provided in Section 3.2.

Existing conditions of the buildings are generally categorized into three condition groups as follows:

- **Good:** Represents elements that are performing well, are sound, adequate or show minimal deterioration. Repairs are generally not required at this time and these items can be expected to remain useful and functioning with regular maintenance.

- **Fair:** Represents items that have minor deficiencies, but are currently performing adequately. Elements are generally sound but some areas exhibit deterioration. These items generally can be repaired and / or restored to good condition with varying degrees of required modifications. If not repaired or restored, these

elements should remain useful with regular maintenance; however, they should be observed for further deterioration.

- **Poor:** Represents items that have significant deficiencies, are not performing well or are failing. Elements show advanced deterioration or appear to be inadequate. Generally these items will require substantial repairs or replacement of the element in question to remain in service.

4.3 Building Observations

4.3.1 Building 1

Building 1 of the complex is constructed of five buildings. Each building is two-stories high formally used for what appears to be either office use or enclosed loading docks. The buildings are located on the west edge of the complex, closest to Paper Mill Road.

a) **Building 1a** appeared to have been the main entrance to the mill complex. It is two stories high with no apparent basement, and was likely constructed sometime in the 1960s. The building was used as office space and what appeared to be a reception area. The main vertical and lateral support systems appear to be the exterior masonry walls. The exterior masonry of the building appeared to be in good condition, with no noticeable structural deficiencies.

The building has a stone ballast roof supported by interlocking precast elements and long span metal joists. The roof envelope appeared to be in poor condition, as there was significant ponding water noted both days of our inspection and heavy water infiltration into the second floor. Several roof support members showed areas of heavy rust, but did not appear to be in imminent danger of collapse. Heavy moisture and mold growth was apparent throughout the building, indicating likely widespread water infiltration.

b) **Building 1b** is also a two-story building and is connected to Building 1a at both floors. It connects to Building 1e on the first floor only and Building 1c on the second floor only. The building appeared to be used as a temporary storage or staging area for deliveries received from the two western loading docks (Buildings 1d & 1e), prior to being moved into the main mill complex. All of the buildings in Section 1 appear to have been constructed around the same

time as they each feature similar exterior brick veneer and have a similar ballasted type roof.

The condition of the exterior masonry walls of 1b appear to be similar to Building 1a, as no significant structural deficiencies were noted in the walls. The roof is also a stone ballasted system with concrete panels, however, there was not as much ponding water noted on the 1b roof. The roof of 1b is supported by structural steel beams that clear span the width of the building, supported by an exterior wall to the west and the wall of Building 2 to the east.

The second floor framing consists of what appears to be steel beams and girders encased in concrete. There are intermediate steel columns at approximately mid span of the floor between Buildings 1a and 2. Overall the second floor framing appeared to be in good condition. No significant cracks were noted in the beams during our observations.

Water staining was apparent on the southern wall at the interface between the masonry wall above and the concrete foundation wall. In addition, the masonry wall of Building 2 was damp below the level of the concrete foundation wall. We noted one of the pipes which drains water from the roof was broken; this could be allowing water to enter the building at the first floor level and exit the building at this point.

c) **Building 1c** appears to be an extension of Building 1b. It is connected to 1b at the second floor only and Building 1d at the first floor. There is an underpass leading below the building to allow access to the back of the complex. The opening occupies a large section of the first level of the building, and is the reason there is no connection between Building 1b at the first floor level (Photo 5).

The underpass is cast-in-place concrete and is generally in good to fair condition. It appears to have been previously repaired in several locations, and the repairs are in fair condition. Water appears to be migrating from the inside of the building through the joints between the walls and ceiling of the underpass, carrying efflorescence with it (Photo 6).

The roof of the building is of similar construction as 1b, with precast concrete panels, supported by steel beams. The roof of 1c does not appear to be covered in gravel, however the entire roof was filled with water at the time of our visit. Significant water infiltration appears to be entering the building through the roof. Active leaks were noted and there was heavy ponding on the floor. In addition, several roof beams have significant rust on the top flange.

d) **Building 1d** is an enclosed loading dock which connects to Building 1c. There are bays for two delivery trucks; the loading dock elevation aligns with the first level of building 1c. A section of masonry has failed and collapsed in the corner of the building above the right (as viewed from the exterior) corner of the right loading dock. Overall the masonry walls appear to be in fair condition otherwise, and do not appear to be allowing water to enter the building. The roof has no gravel coating, has some ponding, but water does not appear to be penetrating into the building.

e) **Building 1e** is a second enclosed loading dock which is connected to the first floor of Building 1b. It is configured in the same way as Building 1d, with two bays sunken relative to the floor of 1b. The roof of this building is a stone ballast system with precast panels and steel support beams, similar to the other adjacent buildings. No significant ponding water was noted, and no water infiltration was apparent from the inside of the building.

4.3.2 Building 2

Building 2 is made up of one four story building, it is the main building of the complex and possibly the original building on the site. It has four stories above grade and a basement that is walk out at the southeast corner.

a) **Building Exterior –** The mill site has a large elevation change from North to South. Building 2 highlights this as it is five stories above grade at the southern end, but only three at its northern end.

The underpass through Building 1c continues through Building 2 at what would be the first floor. The underpass is the northern edge of the basement and first floor of Building 2. The ceiling of the underpass, which is a section of the second floor, appears to have been previously renovated and looks to be in good condition. It is comprised of a floor slab

supported by stay-in-place metal deck and steel beams. The metal deck appears to have been recently replaced as there was very little rusting apparent. However, the steel support beams are coated in surface rust. The beams are supported by the Building 2 masonry wall on the south side and a grouted stone masonry wall to the north. There is a definite transition between the Building 2 underpass wall and the Building 1c wall. Both masonry walls appear to be in fair condition.

Building 3 is directly adjacent to the east wall of Building 2 and blocks sunlight from reaching the northern portion of Building 2's east wall. Because of this, precipitation cannot easily evaporate from the masonry, resulting in the mortar becoming soft and having a pasty consistency. The mortar can be easily scraped away, and no longer provides good adhesion between bricks. Brick units have fallen away in some locations. The wall is wet and covered in organic growth, including moss on the surface of the wall and small bushes growing out of it.

The upper portion of the eastern-facing wall was inspected from the roof of Building 4a, which was accessed by a door leading out of building 5a. The mortar was spot checked in three locations on this wall and at all three locations the mortar was found to be soft. In addition, it appeared previous re-pointing had been completed on the wall as cement based mortar was identified.

The roof covering of Building 2 appeared to be a single ply membrane and was in good condition, no significant ponding water was apparent and no penetrations were noted. The framing for the roof is a wood deck, supported on heavy timber beams and wood columns. Overall the roof framing appeared to be in good condition, no significant sags or splits in the wood were noted.

b) **Interior Floor Framing and Supports –** Overall the brick masonry on the fourth floor is in good to fair condition. Generally the masonry is sound and without significant deterioration noted at locations where the windows are intact. There were a few isolated locations where water appeared to be entering into the building and some minor deterioration of the masonry was apparent. The fourth floor framing is similar to the roof, with wood deck spanning between heavy timber beams. Overall the wood framing appeared to be in good condition, with the exception of several columns that have notches cut out of them and several additional ones have impact damage around their bases.

The third floor masonry walls had several areas where water infiltration was apparent. Peeled paint and deteriorated mortar joints were noted at these locations. At the northeast corner of the building, there is a door which exits to a wood footbridge crossing a gap between the building and an adjacent hill. The masonry to the left and right of the threshold appears to have been reconstructed to accommodate the footbridge, as the bricks and mortar do not match the surrounding area. The wood bridge is in poor condition, and there is a significant diagonal crack visible above the door.

The third floor framing is typical of the building with wood deck and wood beams, supported on columns. A section of the floor beams have post tensioned steel bars installed to increase the floor loading capacity.

The second floor of Building 2 is the highest level that connects to adjacent buildings. There are connections to the second floor of Building 1b to the west and to the upper floors of Buildings 4a and 4f to the east.

The floor framing is again comprised of a wood deck with heavy timber beams and wood columns. There are isolated areas of the second floor that have a combination of wood beams and steel wide flange beams. Generally the columns are in good condition, however, several columns in the northern portion of the floor appear to have collision damage around their bases. There is a concrete floor over the northern portion of the building; this is also the ceiling slab of the underpass and it appeared to be in good condition.

The first floor or ground floor level is connected to the corresponding floors of Buildings 1b, 4a, 4f and also 1c. The floor framing for the second floor is visible from this floor and is constructed of wood deck and heavy timber beams and columns. The spacing of the beams and columns is reduced at this floor, giving the second floor a higher loading capacity. At the northern portion of the building, numerous wood columns have been replaced with steel pipe columns. In addition, there have been supplemental steel members installed to reduce the span of the wood deck, as well as steel plates installed on the beams at the column locations. Generally all framing members are in fair to good condition, the only exceptions being several columns that exhibit section loss due to either impact or intentional modification.

The basement level of Building 2 connects to Buildings 4a and 4f and has two walk out doors at the southern end. At the south end of the building the first floor is framed by the typical wood deck and beams supported on wood columns. The floor supports for the northern end of the building is generally wood deck supported on heavy timber beams, which are typically in good condition. However, the column supports at this end of the building varies significantly. There are large solid wood columns, small solid wood columns, built up wood columns, steel pipe columns and rectangular steel tube columns, as well as brick masonry pilasters.

The building's foundation along the south side is cast-in-place concrete and appears to be in fair to good condition with minimal water migration. Along the north side, the foundation is brick masonry, and water infiltration is apparent as the wall is noticeably wet and there is significant rust staining.

4.3.3 Building 3

The structure is a single two story light-gauge sheet metal building with a sloped metal roof. This building is not connected to any surrounding buildings and we could not access the interior during our review. The exterior appears to be in good to fair condition with no critical deficiencies noted. The siding on the northeast corner of the building is damaged, likely impacted by a vehicle. There are two large overhead metal garage doors on the eastern side of the building.

4.3.4 Building 4

Building 4 of the complex is made up of six building portions. The buildings vary significantly in construction materials, size and height and depth of structure. These buildings make up the central portion of the complex.

a) **Building 4a** appears to be the main throughway between the front or western portion of the complex and the back eastern sections. It is a two story high brick masonry building with two below grade levels.

The exterior of the building is only significantly exposed on the north side. The east and west ends of the building are connected into Building's 2 and 4b, and Building 4c covers the lower 2.5 stories of the south side. The northern wall has widespread deterioration of the brick and mortar, likely due to Building 3's proximity to the wall and shielding it from significant sunlight, therefore not allowing moisture to evaporate in a timely manner.

The roof of 4a is constructed of a wood plank deck with metal trusses that clear span the building from north to south. The deck and trusses both appear to be in good overall condition. The roof covering was a single ply membrane that appeared to be in good condition. The roof was pitched to drain to the north and south and no significant ponding water was observed.

The upper level floor of 4a, which aligns with the second floor of Building 2, is reinforced concrete and has a center corridor with depressed containment areas on each side. The concrete is in fair condition, with several areas of abrasion, spalls and cracks, likely due to impacts, rather than overstress or deterioration. The level is wide open between exterior walls with no interior partitions. The brick masonry at this level appeared to be in fair condition. Water damage and deterioration was apparent but did not seem to be widespread. The deterioration did appear to be more prevalent along the northern wall, which would concur with the lack of drying from the exterior.

At the east and west ends of the upper floors there are large openings leading to the adjacent Buildings 2 and 4b. The openings are supported by a deep steel beam and brick masonry pilasters on each end. The masonry above the openings appeared to be in good condition with no significant cracks or movement apparent. The pilasters on each end of the beams appeared in at least fair condition, no substantial cracks or movement in the bricks was noted.

The first lower level of Building 4a would be considered the ground floor, however the floor is substantially below grade. It connects to the first floors of Buildings 2 and 4b, as well as the upper levels of Buildings 4c and 4d. This level is constructed of brick masonry exterior walls as well as brick masonry arches and pilasters; the floor above is reinforced concrete supported by steel beams. The masonry arches vary in conditions from fair to poor. Deficiencies related to deterioration appear to be less prevalent than destructive penetrations made to the arches. At numerous locations brick has been removed for what appears to be mechanical ductwork or piping. The steel support beams also vary in conditions from fair to poor. Significant rust is apparent on nearly all members and numerous members have also been cut or damaged.

The conditions at the basement floor level are generally poor for most all structural elements. The steel beams have substantial rust with significant section loss in numerous places. Several members have lost up to 100% of the web and substantial portions of the flanges. There are several locations where the concrete floor above has cracked and spalled, or has been replaced. The supporting brick arches are also in generally poor condition, as significant moisture is apparent and the mortar has been compromised leaving numerous brick units unsupported and beginning to fail.

b) Building 4b is a narrow infill building connecting 4a to Buildings 5a and 5b. It has two above grade stories and two below grade levels. It is a brick masonry structure with a wood framed roof and concrete floor levels. There was a small metal building addition added to the structure at the north side of Building 4a, which we have categorized as part of Building 4b, however access into that portion of the building was limited.

The exterior of the building is not exposed very much as it is surrounded by other buildings on three sides. The north edge of the building is exposed to view and is in poor condition. Water damage is apparent and vegetation growth has started. The mortar is extremely soft and has failed in several locations where brick units have fallen out of the wall.

The roof of the building is overall in fair condition, it has a single ply membrane covering, but does appear to have a couple locations where the membrane has been damaged or cut and water is being allowed to penetrate into the building. From the underside, wet or water stained members are apparent at the location of the membrane breech. The penetration through the roof membrane is likely fairly recent, as only the wood deck is currently showing signs of significant water damage. The supporting beams have water stains, but do not appear to be significantly affected yet.

The upper level brick masonry is in fair to poor condition. Similar to conditions in 4a, destructive damage to the brick appears to be more prevalent than deterioration. At several locations, portions of brick have been removed likely to pass mechanical systems through the wall.

The lower levels of Building 4b house four cylindrical vats that extend two stories down. The steel framing in this area is in poor condition with extensive rust and section loss.

c) Building 4c is a long two story building which runs along the south side of Building 4a. It is brick masonry with a wood framed roof structure. The roof is a modified bitumen type roof that appears to be in fair condition, no significant ponding was visible on the roof and there was no apparent water damage to the roof framing.

The exterior of the building is only visible from the south side, where a steel canopy covers what appears to have been a small delivery area. The steel canopy is in fair condition, however the exterior foundation wall of the building is in extremely poor condition with significant deterioration.

The upper floor of the building, corresponding to the first floor or ground floor level, connects to Buildings 4b and 4f at each end, although the opening to 4b had been partially boarded off and there was a pipe railing across the opening. The lower floor, or basement level, connects to Building 4a and 4f. The wood roof framing and upper level masonry appeared to be in fair condition. Normal wear on the roof members was observed, but no significant deficiencies were noted. Overall the brick masonry was in fair condition, with some isolated deterioration below the windows.

The lower level of Building 4c is generally in fair to poor condition. Moisture is apparent throughout the level. The wood floor framing for the upper level appeared in fair condition, with some deterioration but no significant deficiencies noted. The brick masonry was in fair to poor condition with several areas of soft mortar. It appears that concrete coverings had been cast around some of the brick in areas, possibly as an attempt to repair previous deterioration.

d) Building 4d is small two story structure that connects the surrounding Buildings 4a, 4b and 4c. The building is in very poor condition with spalled concrete, deteriorated brick masonry and rusted steel members. It is possible that this building may have housed another circular vat at one point as there is a large hole in the floor that has been covered with plywood.

e) Building 4e is a single story brick masonry structure used as an electrical room. It is accessible only from the exterior and through the basement of Building 5a. The roof is a modified bitumen type and appeared to be in fair condition. The roof framing is a wood deck with heavy timber beams, several of which have been reinforced with steel channels.

f) Building 4f is a small three story building which connects at the basement and first floor to Buildings 2, 4a and 4c and connects to Building 2 at the second floor. The building is a brick masonry structure with a modified bitumen roof. The roof is in fair to poor condition. Although no ponding water was noted, moisture migration was apparent as there was widespread paint peeling off the wood roof framing.

The roof framing appeared in fair condition with no significant deficiencies noted. The floor framing was generally wood beams supported on steel pipe columns or brick masonry pilasters. All structural members appeared to be in fair condition, with some isolated areas of masonry deterioration in poor condition.

4.3.5 Building 5

This portion of the mill is comprised of five buildings, however, Building 5c is only an open ended roof structure and 5e is a small room surrounding the chimney stack on site. Buildings 5a, 5b and 5c appear to have been the chemical delivery and storage portions of the complex, while 5d and 5e housed the boiler and chimney stack.

a) Building 5a has three stories above grade and extends below grade two additional levels. The building is constructed of brick masonry exterior walls, with the upper floors framed with heavy timber beams and either wood or concrete floors. The lower levels have steel beams and columns with mainly concrete floors and brick masonry bearing walls or arches.

The exterior brick walls are generally in poor condition. There are several locations throughout the building's perimeter where loose or soft mortar was found and numerous areas where brick units are loose or have been lost.

The roof system of Building 5a could not be reviewed directly, but appeared to be in at least fair condition when viewed from adjacent buildings. No significant signs of water infiltration were noted on the roof framing. However, there were some isolated areas where water appears to be beginning to penetrate into the building.

The third floor is also wood framed with a wood deck. In addition, there are steel beams and pipe columns throughout the floor, reinforcing the third floor above. There is an indication of water penetration at this level as there is peeling paint and surface rust in several locations.

The ground floor of Building 5a connects to the ground floors of all surrounding buildings. The second floor above is a concrete deck supported by a combination of concrete beams and steel double channels cast integrally with the slab. The floor is supported by masonry columns, steel tube columns and steel wide flange columns. Adjacent to Building 5b, there are large sections of the ground floor open to the basement level with brick masonry arches.

There are several locations in Building 5a where the brick masonry is showing signs of deficiencies or overstress. Cracks and separations in the wall are apparent and the walls show signs of movement in some locations.

The below grade portions of the building appear to have been the primary chemical storage portions of the mill, as there are numerous sections of large partitioned rooms. The first basement level is a large area which has been partitioned off with high brick walls and arches. The boundary of this building is a long corridor which runs the length of the building adjacent to 5b and provides access to the deep chambers which comprise the lower two stories of the building. The brick masonry at this level is in fair to poor condition. Moisture is apparent and there are numerous brick walls and arches with damaged or deteriorated masonry.

The lower basement level appeared to be a pumping or distribution area of the complex. There are two additional levels below the main basement level in one small section of the building. A metal grating floor comprises the first level with brick masonry walls. The lowest level is currently flooded with several feet of water. The walls are reinforced concrete and have steel beams spanning between concrete columns, supporting the metal grating above.

b) Building 5b is three stories above grade and has one below grade level, it is attached to Building 5a and has several open connections between the buildings. To the south is Building 5C.

The exterior brick masonry of 5b is in fair to poor condition, there are several locations where the brick is soft and has deteriorated or fallen out of the wall. One of the brick window arches on the west side has significantly deteriorated and is beginning to fail.

The south side of 5b appears to be the main delivery port for the chemicals to the complex. There are several exposed pipes along the wall and Building 5c provides an enclosed delivery area; the brick along this wall is also in fair to poor condition.

The interior of 5b is a number of storage chambers two stories tall connected by a series of metal walkways on the ground floor. In addition, the chambers can be accessed on steel ship ladders from Building 5a.

c) Building 5c is an open ended structure comprised of a metal roof and single wall running parallel to Building 5b. It provides protection from rain or snow to the chemical delivery process to the complex. The concrete slab which runs against the wall of Building 5b is deteriorating and its coarse aggregate is exposed in large patches. There is a containment area adjacent to the delivery ports with a metal grate and steel structural frame. The grating system appears to have a protective coating and is in fair to good condition.

d) Building 5d is a large boiler room accessible only from the outside or through the ground floor of Building 5a. There is very little of the building exposed to the exterior as the building is surrounded by structures on all sides. The building is approximately 2½ to three stories high, with no apparent basement level. The perimeter brick masonry walls clear span to the roof as there are no intermediate floors, however there are several catwalks within the space.

Overall the brick masonry of the building is in fair condition. There are some isolated areas of deterioration, but no locations appeared to be failing. The roof of 5d is a metal deck supported on steel beams. The deck of the building had been replaced at some point of the building's life as the metal deck was clearly newer construction than the surrounding structural members. It's possible the building suffered a fire at some point and the roof had to be replaced. The metal deck was in good condition, however the steel support beams were in fair to poor condition. We could not access the beams hands on, but there was widespread rusting on the members and apparent section loss on numerous members.

e) Building 5e is a small connector building used to access the base of the chimney stack. The building is a two story brick masonry structure with a brick masonry chimney stack at the west end. Adjacent to the chimney is a small wood framed shed type roof structure.

The wood shed roof is in poor condition and has several portions that have failed and collapsed. In addition, a portion of the roof of the brick masonry building has failed and is allowing water penetration into the building.

The brick masonry building is currently in fair condition, however with the water ingress into it from the roof collapse, deterioration will likely accelerate. The brick chimney appeared to be in fair to poor condition. Approximately one third to one half of the chimney has been previously reinforced and there are signs of deterioration throughout its height.

4.3.6 Building 6

This section of the mill is comprised of three buildings:

a) Building 6a is connected to buildings 5a, 6c and 6b. There are three main floors and a basement. The exterior masonry is in typical condition for this building, showing signs of mortar erosion and brick displacement. The basement

connects only to the basement level of Building 5a. At this doorway, there is a wide flange section which has been cut away. Past this room is another room with two small pools of liquid. The masonry columns are in varying conditions ranging from good to poor. The concrete masonry unit (CMU) walls show some signs of wetness and appear to be in fair condition. The ground floor is a concrete slab supported by integrally-cast steel beams, which appear to be in good condition. From the ground floor, a large crack is visible in the floor above. The second floor contains a reinforced pathway for forklifts in good condition. The steel columns which support the third floor are in good condition. The roof appears to be in good condition from the inside, and is supported by wood columns in fair condition.

b) Building 6b is a three story building which connects to Buildings 6a, 6c and 7a. The ground floor contains several vats of liquid. Above these vats, one beam has a large horizontal crack in it. The second floor is a large open area which connects up to 7b. Wet patches on the walls and ceiling indicate that water has been entering the building. The roof appears to be in good condition from the third floor, but the mortar is deteriorating and the masonry around the windows has cracks in it.

c) Building 6c is a two story building which is connected to Buildings 6b, 6a, and 7b. Its ground floor is a cast-in-place concrete slab supported by stay-in-place corrugated steel formwork and steel wide flange sections. This slab is fireproofed and looks to be in good condition. There is a circular opening in the floor where a vat presumably passed through which has since been covered with a wood platform. Its second floor is a similar cast-in-place concrete slab, which appears to be in good condition as well. Some bricks are missing from the base of the wall on the third floor. The roof is in good condition.

4.3.7 Building 7

Building 7a is a long storage area constructed of light gauge sheet metal. It has two loading docks on the east side. The roof is supported by triangular steel plate girders and appears to be in good condition. When viewed from the exterior, the northern wall is pushed outward in several places. The inside wall bows inward at the location of the opening between 7a and 7b.

a) Building 7b is a large storage area with single-wythe CMU walls. The CMUs on the southern wall near the connection with Building 5a area appear to be coving. The roof is sheet metal supported by light trusses. It frames into Building 7a indicating that Building 7b was constructed afterwards.

4.3.8 Building 8

Building 8 is a freestanding pump station located slightly southeast of the main complex. Some of the exterior mortar appears to be lightly eroded around the upper third of the building. The concrete roof slab is in fair condition. Exposed rebar and flexural cracks are visible from inside the building. A roof hatch in the southeast corner of the roof has been left open, and water has entered the building through it. There is organic growth on the walls in that corner.

4.4 Recommendations

4.4.1 Building 1

Building 1 is in fair to good condition overall, based on our visual survey. It does not appear that there are areas of imminent collapse. Further investigation would likely determine that this building can be reused with a small to moderate amount of structural repairs.

a) Building 1a is in fair condition. The ballast roof is in poor condition and has not protected the interior from water infiltration. The ponding water on the roof indicates problems with the original drainage system. The floor slabs, where visible, are in good condition. The exterior masonry walls are in good condition. Water has infiltrated the building and has damaged many of the nonstructural elements.

b) Building 1b is in fair to good condition. Both floor slabs and the system supporting the second floor slab appear to be in good condition. The roof appears to be in good condition and isn't ponding, but the damaged pipes of the drainage system

are allowing excessive amounts of water into the building and should be looked at in greater detail.

c) Building 1c is in fair condition. The roof is in fair condition, but it is allowing water into the building. This water is moving through the floor seams and carrying efflorescence through to the underpass. This building could be reused, following repair of the roof and an investigation of the capacity of the floor system.

d) Building 1d is in fair condition. The masonry is in fair to good condition, with the exception of the isolated area in poor condition consisting of the collapsed bricks above the door. The roof is also in good condition, and the two systems have allowed very little water into the building.

e) Building 1e appeared to be in good condition. The masonry and the roof were in good condition and had not allowed water to enter the building. There was no water ponding on the roof, so it appears to be draining well.

4.4.2 Building 2

Building 2 is in fair to good condition overall. The roof was in good condition, and the windows did not appear to let much water into the building. The framing supporting the upper levels of the building also appeared to be in good condition, with no major sagging or splits noted. The columns which exhibit section loss should be examined more closely in order to determine the extent of the section loss and its effects on the capacity of the floor system. An excessive amount of water is entering the building though the walls in the basement. Considering the soft mortar noted in several locations around the building and the condition of the repairs already performed on the building, the masonry is in fair to poor condition overall. We recommend a further investigation of this building.

4.4.3 Building 3

Building 3 was inaccessible during our visual survey of the complex. The exterior appeared to be in good condition. Further investigation is required to determine the condition of the structural system, which would likely be visible from inside the building. Although this building might be in good condition, its presence is likely accelerating the deterioration of Building 2 by preventing water from evaporating off the masonry. The extent of this effect could also be determined through further investigation.

4.4.4 Building 4

Building 4 is in poor to fair condition overall. The masonry exterior is in poor condition. The mortar has been weakened by moisture and is missing from between the bricks in numerous locations. This building was affected more heavily by water than most of the others.

a) Building 4a is in fair to poor condition. Although the upper level appears to be in good condition, with a well-sealed roof and masonry in fair condition, the two lower levels were in generally poor condition, having been damaged heavily by water. Largely as a result of the water, the floor slabs were in poor condition, with large areas of spalled concrete and exposed rebar. The beams supporting the floor slab are in poor condition, with heavy rust and section loss due to the moisture present in the below-grade levels. A further investigation would likely reveal that the capacity of the floor slabs has been greatly diminished and that the damaged masonry would require extensive repointing in order to comply with building code requirements. Repairs would likely be expensive, although the cost might be justified depending on the importance of this building to the intended use of the

complex. This cost would be further increased by the number of attached buildings which were not selected for renovation in any feasibility scenario. Demolishing these buildings without damaging the face of the remaining building tends to be a time-consuming and expensive process. A further investigation could be completed if the building is intended to be a major component of the completed project.

b) Building 4b is in fair to poor condition. The hole in the roof has accelerated the building's deterioration, and large areas of masonry would require repair or replacement inside and outside of the building. A further investigation could be justified if the other buildings selected for renovation make Building 4b desirable in order to connect Buildings 4a and 5a. This building is not in danger of imminent collapse, and could be repaired, but the investigation would likely reveal that the required repairs would be fairly expensive. As with Building 4a, demolishing around Building 4b without damaging it increases the time required to perform the demolitions as well as the cost.

c) Building 4c is in fair condition overall. Because the roof is in good condition, the upper floor is also in good condition. However, large amounts of water are present in the lower level and it is in fair to poor condition overall. The masonry appears to be weak and deteriorating in many locations. A further investigation would likely reveal that this building can be reused, but not without significant restoration efforts. Especially considering the fact that this building will not be saved in any of the feasibility scenarios, we would not recommend a further investigation of this building.

d) Building 4d is in fair to poor condition. The floor slab has spalled severely and the layer of tension reinforcing bar is completely exposed in some locations. The mortar has deteriorated due to the moist environment. A further investigation would likely reveal that the floor slab would require replacement and that the mortar would require significant repointing in order to meet minimums set by the state building code. We do not recommend a further investigation of this building.

e) Building 4e is in fair to good condition overall. The roof is in good condition and the beams supporting it appear to be sound. Some water appears to be passing through the mortar, which is likely weak and would require repointing. A further investigation would likely indicate that this building could be restored with a moderate amount of masonry repointing. A further investigation could be performed if this building factors into a reuse scenario.

f) Building 4f is in fair condition overall. The roof is in fair to poor condition, and will continue to allow water migration into the building without restoration. The framing is in good condition and should not require significant restoration. The masonry is in fair condition overall, but has isolated areas in poor condition. A further investigation would likely reveal that this building could be reused after a replacement or restoration of the roof and repointing of the masonry. We recommend a further investigation, based on whether this building is considered part of Building 2 or part of Building 4, and the intended course of action for those buildings.

4.4.5 Building 5

a) Building 5a is in fair to good condition overall. The roof does not appear to be letting any water in, as very little paint peel is present. The masonry is in fair condition with isolated locations in poor condition where bricks are missing. Some water is migrating through the mortar, as evidenced by moderate paint peel found

throughout the building. The framework supporting the roof and floors is in good condition, and the floors are showing minimal cracking and spalling, suggesting that the floor slabs are sound. The large circular openings in the floor need to be filled. The two large cracks might be indicative of a foundation instability, differential settlement, or the presence of loads which the structure wasn't designed to resist. A further investigation will reveal if this is the case, and the extent of the necessary repairs. As part of the next steps, we recommend a further investigation of this structure based on its high potential for reuse.

b) Building 5b is in fair to good condition overall. The roof appears sound and has not let any water in. The masonry is in fair condition and will require repointing in isolated locations. The brick archways above the windows will need to be shored and repointed in order to prevent collapse. We recommend a further investigation of this building.

c) Building 5c is in fair to good condition overall. The steel wall and roof look sound and have only rusted in isolated areas. The concrete slab is in poor condition. A further investigation would likely reveal that the slab would require significant restoration or replacement, and that the structural steel would require minimal restoration. If a possible use is found for this structure, we recommend a further investigation.

d) Building 5d is in fair condition overall. The roof over the main portion of the building appeared to be in good condition. The stay-in-place corrugated steel formwork is in good condition, and water does not appear to be entering through it. The roof over the portion immediately next to the smoke stack is in poor condition, and has collapsed. Water is entering through this hole. The masonry appears to be in fair to poor condition, especially on the smoke stack. A further investigation of this structure would likely reveal that all of the masonry, including the smoke stack, would need to be repointed, and the collapsed roof would need to be replaced. The cost of restoring the building and the smokestack might be prohibitively high, although this cost could be reduced by restoring only the building and demolishing the smoke stack. Depending on the potential reuse of this building, we recommend a further investigation.

4.4.6 Building 6

a) Building 6a is in fair condition overall. The upper levels have been protected from the weather by the roof, and are in fair to good condition. The roof is in fair to good condition, although it might be letting in some water, as evidenced by the light paint peel over the ceiling. The framework supporting it is in good condition. The floor slabs vary in construction, although most are in fair condition. The masonry throughout the ground floor and basement have deteriorated due to the presence of excessive moisture. A further investigation would likely reveal that this building could be reused after the mortar is repointed and the floor slabs are repaired in certain locations. Depending on the potential reuse of this building, a further investigation of the capacity of the floor slabs and the extent of the water damage could be warranted.

b) Building 6b is in fair condition overall. The roof is in good condition and does not appear to have allowed water infiltration. The masonry, especially on the top level above and below the windows, has deteriorated and cracks have formed between the bricks. The beams supporting the ground floor slab are separating from it. A further investigation would likely reveal that the floors require some restoration in

order to meet capacity requirements, and that the walls require a moderate amount of repointing to repair the cracks in the mortar. We recommend a further review of this building.

c) Building 6c is in good condition overall. The floor slabs are in good condition, as is the roof. There is some water present inside the building, which is possibly coming from the interfaces between this building and the ones it was constructed in between. Because this building appears to be supported mainly by the three buildings surrounding it, removing the other buildings without removing this one would be difficult. We only recommend a further investigation of this building if Buildings 5a, 6a, and 6b are also going to be kept.

4.4.7 Building 7

a) Building 7a is in good condition overall. The roof appeared to be in good condition and was not letting any water in. Aside from some light damage, which appears to be only cosmetic, the building envelope is also in good condition. This building could potentially be reused, and should be the subject of further investigation.

b) Building 7b is in fair to good condition overall. The masonry is in fair condition overall, as CMU wall units nearest to the building's interface with Building 5a appear to be coving. The roof appears to be in good condition and is sealing out water. Although the damage to this building is more extensive than the damage to Building 7a, this building is not in danger of collapse and its potential for reuse could be more accurately determined in a further investigation.

4.4.8 Building 8

Building 8 is in fair condition overall. The masonry is in fair condition and would likely require repointing in some locations to account for lost mortar depth. Repointing may be required on the inside and outside of the walls due to the open roof hatch. The roof slab is also in fair condition, showing flexural cracks and small patches of exposed rebar. The slab will most likely have to be replaced or receive local repairs. A further investigation of this building will determine the slab's capacity and the extent of the mortar repairs potentially required.

4.5 Conclusion

The building complex as a whole is in generally in fair condition. There are numerous areas throughout all the buildings where the masonry has deteriorated due to water migration, and the water has weakened the mortar or deteriorated it to a point of near collapse.

The magnitude of the required repairs of the buildings would require compliance with the Massachusetts State Building Code (780 CMR) Seventh Edition. Chapter 34 of the code addresses repairs and alterations to existing buildings. The structural requirements for existing buildings requires that the structural work for alterations, repairs and additions to existing buildings be designed and constructed in accordance with the code requirements for new construction.

At a minimum, 780 CMR will require that the structural systems of the buildings be strengthened to support the gravity and lateral loads as specified in chapter 34. Special requirements for unreinforced masonry will include connecting all bearing walls to the roof and floor diaphragms in the building.

Based on our initial visual inspection of the buildings there were sixteen (16) buildings that could be targeted for further investigations.

All of the buildings in Section 1 were in fair to good condition. The masonry in Section 1 was the best in the entire compound. Buildings 1d and 1e were not marked as useable in the maximal reuse feasibility scenario, so we do not recommend any further investigations. 1a, 1b and 1c did not appear to require significant structural repairs, although their roofs do not appear to be draining properly and are ponding. A further investigation of Buildings 1a, 1b and 1c will determine if reuse of these buildings is likely to be economically feasible.

Building 2 was in fair condition overall. The masonry around this building has deteriorated and provides little lateral support on its own. Given the building's height, an independent lateral resisting system will likely be required to provide code-compliant seismic and wind resistance. The building factors heavily into every presented feasibility scenario, so in spite of the potential costs associated with retrofitting this building, a further investigation is justified.

Building 3 appeared, from the outside, to be in good condition. A further investigation could reveal if the condition on the inside is comparable, and if reuse of this building is therefore economically feasible.

Section 4 had significant areas of weakened masonry due to water infiltration. Several sections of floor had been weakened to the point of near-collapse. We recommend a further investigation of buildings 4a and 4b, but believe that the extent of the repairs might make these buildings too expensive to justify reusing.

Section 5 was in generally fair condition with minor structural deficiencies. Buildings 5a, 5b and 5d all had masonry that was in fair condition, showing signs of mortar deterioration due to water migration. Repairing the masonry will require extensive work. With the exception of the collapsed section in Building 5d, the roofs of these buildings appeared to be in good condition from the inside, and the floors still appear to be structurally sound. Building 5c, while structurally sound, was not selected by the architect for potential reuse, so we do not recommend further investigation. A further investigation should be undertaken to determine the extent of the required masonry repairs to buildings 5a, 5b and 5d. Depending on the extent of these repairs, Section 5 may or may not be economically feasible to restore.

Section 6 is in fair condition overall, and shows signs of weakened masonry typical of this complex. A further investigation will determine the extent of the required masonry repairs, especially in the lower levels where large amounts of water have infiltrated the framing.

Section 7 was in fair to good condition overall. Some isolated locations, such as the section of CMU wall and the bent wall panels, were in fair condition. The required structural repairs to this section should be minimal, so these buildings would most likely be economically feasible to reuse.

Building 8 is in fair condition overall. The masonry will most likely need to be repointed over roughly half of the building's surface, and the roof slab will have to be repaired or replaced. An additional lateral force resisting system may have to be installed in order to meet building code requirements. Depending on whether or not such a system needs to be installed, the building might be economically feasible for reuse.

The remaining seven (7) buildings were not selected by the architect for the maximum reuse scenario. A further investigation of these structures is not justified if they have no potential for reuse.

4.6 Demolition & Mothballing

The mill complex is a series of building segments generally divided into 8 distinct sections. As part of the redevelopment evaluation, different alternatives were developed. These alternatives propose to demolish some portions of the existing building sections, while leaving remaining sections for redevelopment. As part of this work, any hazardous building materials within the structure would be removed in advance of this effort and is discussed in more detail in Section 7. Also related to this effort, for each alternative redevelopment scenario, is the necessity to make structural repairs including where one building to be demolished is adjacent to a building proposed for redevelopment. A building section to remain must be repaired to the extent that it is structurally sound and can be redeveloped. As the structural evaluation indicates, some building areas are in better condition than other. Some of the differences in condition can be attributed to water intrusion, which has caused deterioration of ceiling and wall areas.

Moving forward, if redevelopment is delayed, the Town should pursue additional measures to secure the building from further water intrusion. In addition, building segments that are in a deteriorated condition, should be assessed more comprehensively and repairs made to secure those spaces.

Tighe&Bond

SECTION 5

Section 5
Infrastructure Evaluation

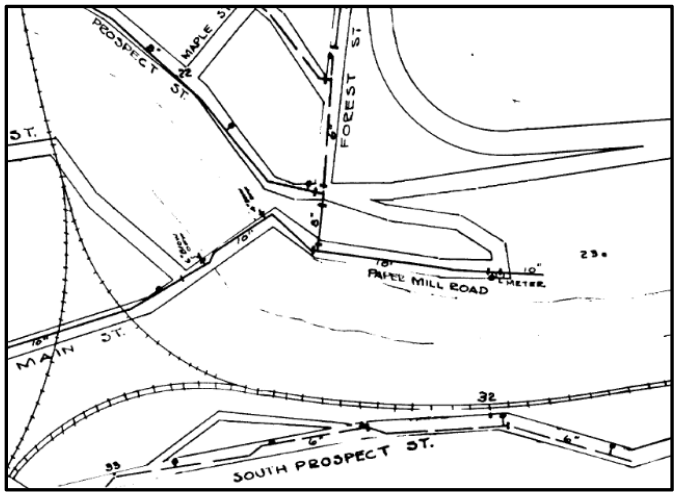
5.1 Introduction

As part of the Former International Paper Mill Feasibility Study, Tighe & Bond performed an evaluation of the water and sewer infrastructure available at the site. Tighe & Bond has assisting the Town with their municipal water and wastewater systems since the early 1970s. The evaluation performed is based on our historical knowledge of the existing water and sewer utilities available at the road, and existing record drawings of the water and sewer system. Tighe & Bond also participated in a conference call with a former International Paper Mill facilities maintenance staff to further understand existing utilities on the site.

5.2 Existing Infrastructure

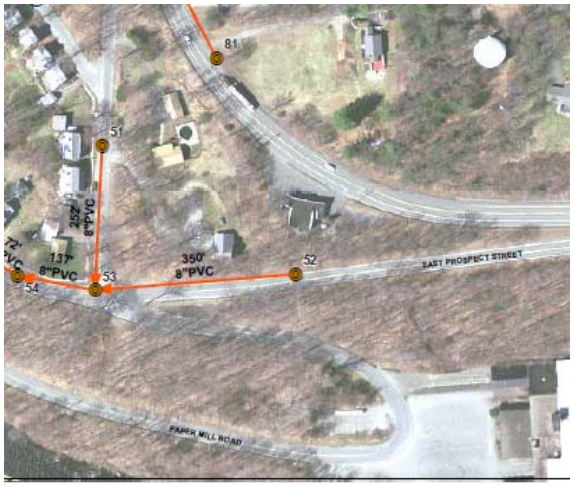
5.2.1 Water System

Municipal water in Erving, MA is provided by a groundwater well located off of Public Works Boulevard. The well has a safe yield capacity of 260 gallons per minute (gpm), storage is provided by a singe 600,000 gallon welded steel water storage tank located off of Route 2 near the Former International Paper Mill. Erving also has an interconnection with the Montague distribution system. The water distribution map to the right was taken from a plan titled, "Millers Falls Fire & Water District, Feb. 1961."



There is an existing ten-inch main in Papermill Road that is currently capped, this pipeline used to provide domestic water to the Former International Paper Mill buildings and was installed prior to the 1960s. Assuming this pipeline has a C-factor of 80 and a starting pressure of 50 psi, this pipeline could provide approximately 2,200 gpm of water before the pressure would be reduced below 20 psi, which is the minimum pressure required to be maintained during fire flow conditions. This flow rate is above the safe yield of the Town's well, and if this flow rate was needed the additional water would be provided by the water storage tank. A flow test at a nearby hydrant should be performed to confirm the available fire flow through the pipeline. No record information was available, so the exact location, size, and condition of the water service to each of the mill buildings is unknown.

5.2.2 Wastewater System



There is an eight-inch PVC sewer main in East Prospect Street; however, there is no municipal sewer in Papermill Road at the Former International Paper Mill. A pumping station was utilized to pump wastewater flows from the mill to East Prospect Street. The 8-inch gravity sewer main on East Prospect Street has a capacity of approximately 300,000 gallons per day (gpd), which would be able to accommodate wastewater flows from the former mill under any of the development scenarios. The wastewater collection system map was taken from the town's GIS system.

The sewer pump station that served the former paper mill was not inspected, however it is anticipated that the pump station is not appropriate for use as part of the redevelopment. The pump station has not been used in the last fifteen years, has not been maintained and is likely beyond its useful life. Therefore, a new pump station with a wet well that is appropriately sized for the anticipated wastewater flow rates should be installed in the northeast corner of the former mill site. Similarly, the existing sewer force main that is presumed to exist from the pump station to a sewer manhole in East Prospect Street, will likely need to be replaced.

5.3 Infrastructure Improvements

5.3.1 Water System

The existing water system in Papermill Road appears to be sufficient to provide water for each of the redevelopment scenarios. The pipeline is a dead end and water quality may be a concern if water usage at the former mill is low due to long residence time in the pipe. This could be fixed by looping the pipeline along Papermill Road to Forest Street, which would require some offsite work.

5.3.2 Wastewater System

The existing wastewater system on East Prospect Street appears to be sufficient to convey the wastewater flows generated under each scenario. A pump station would need to be installed to pump wastewater from the mill complex to East Prospect Street. Wastewater flow rates were estimated based on the different property types included in the four redevelopment scenarios. These estimates are based on the Massachusetts Department of Environmental Protection's regulations in accordance with 310 CMR 15.0, Section 15.203. It is assumed that the water demands would be equal to the estimated wastewater flow rate.

Table 5-1
Redevelopment
Scenario 1

Building Label	Type of Use	Total Area (sf) or Number of Units	Flow in Gallons Per Day (gpd)
Building 1A	Commercial	9,040 sf	678
Building 1B	Commercial	14,080 sf	1,056
Building 1C	Commercial	2,750 sf	206
Building 2	Residential	34 units	7,480
Building 3	Residential	3 units	660
Building 4A	Residential	17 units	3,740
Building 4B	Residential	8 units	1,760
Building 4F	Residential	2 units	440
Building 5A	Residential	29 units	6,380
Building 5B	Residential	6 units	1,320
Building 5D	Residential	4 units	880
Building 5E	Residential	1 units	230
Building 6A	Residential	8 units	1,760
Building 6B	Residential	10 units	2,200
Building 6C	Residential	5 units	1,100
Building 7A	Commercial	6,030 sf	452
Building 7B	Commercial	5,010 sf	376
Building 8	Commercial	1,380 sf	104
Total Flow			30,939

Ref: 310 CMR 15.0, Section 15.203

Typical Two Bedroom Residential Unit Flow Rate is 220 gpd

Typical Office Building Flow Rate is 75 gpd per 1000 sq ft

Table 5-2
Redevelopment
Scenario 2

Building Label	Type of Use	Total Area (s.f.) or Number of Units	Flow (gpd)
Building 2	Residential	34 units	7,480
Building 4A	Residential	17 units	3,740
Building 4B	Residential	8 units	1,760
Building 4F	Residential	2 units	440
Building 5A	Residential	29 units	6,380
Building 5B	Residential	6 units	1,320
Building 6A	Residential	8 units	1,760
Building 6B	Residential	10 units	2,200
Building 6C	Residential	5 units	1,100
Building 8	Commercial	1,380 s.f.	104
Total Flow			26,284

Ref: 310 CMR 15.0, Section 15.203

Typical Two Bedroom Residential Unit Flow Rate is 220 gpd

Typical Office Building Flow Rate is 75 gpd per 1000 sq ft

Table 5-3
Redevelopment
Scenario 3

Building Label	Type of Use	Total Area (s.f.) or Number of Units	Flow (gpd)
Building 2	Residential	34 units	7,480
Building 5A	Residential	29 units	6,380
Building 5B	Residential	6 units	1,320
Building 5D	Residential	4 units	880
Building 5E	Residential	1 units	330
Building 8	Commercial	1,380 s.f.	104
Total Flow			16,384

Ref: 310 CMR 15.0, Section 15.203

Typical Two Bedroom Residential Unit Flow Rate is 220 gpd

Typical Office Building Flow Rate is 75 gpd per 1000 sq ft

Table 5-4
Redevelopment
Scenario 4

Building Label	Type of Use	Total Area (s.f.) or Number of Units	Flow (gpd)
Building 2	Residential	34 units	7,480
Total Flow			7,480

Ref: 310 CMR 15.0, Section 15.203

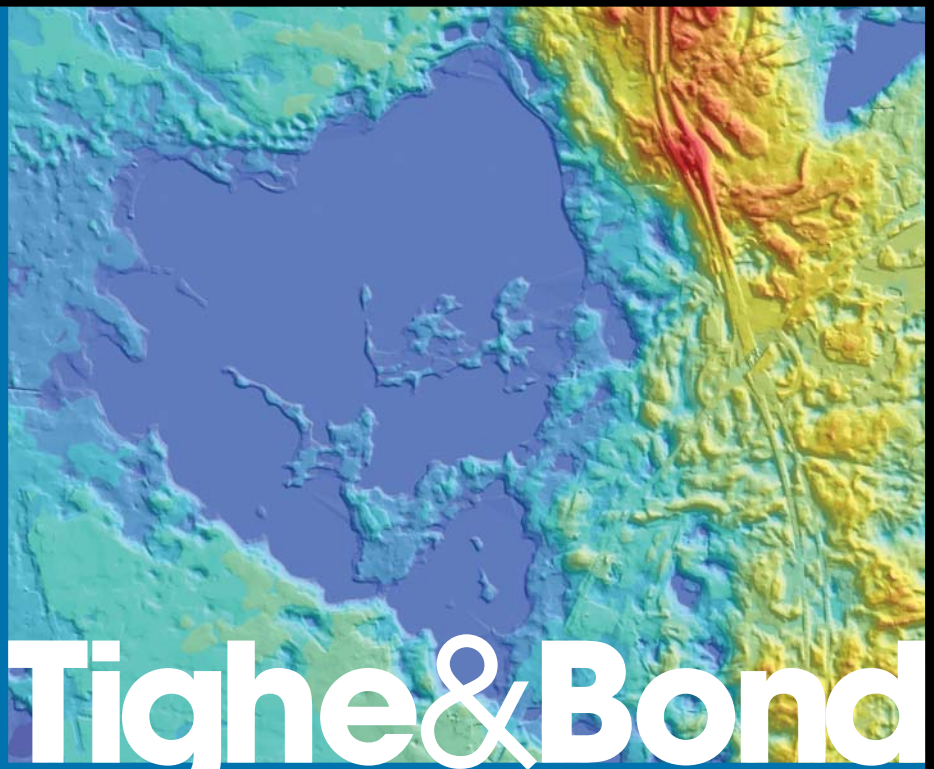
Typical Two Bedroom Residential Unit Flow Rate is 220 gpd

Typical Office Building Flow Rate is 75 gpd per 1000 sq ft

5.4 Other Utilities

Drainage on site is very limited and would require improvements to meet current regulatory requirements and provide proper drainage from the site for the various redevelopment scenarios. This is discussed in more detail within the traffic and parking section as it is directly related to the site improvements proposed.

Other utilities that serve the building including electric, telephone/communication/data and gas were not evaluated as part of this study. Based on the demands during operation of the paper mill, it is assumed that electric capacity is more than adequate to support the proposed redevelopment scenarios. Infrastructure within the building is discussed as part of the architectural evaluation in Section 3. Telephone/communication/data is reportedly available to feed the site as part of the redevelopment scenarios. The Town of Erving does not have natural gas utility.



Tighe&Bond

SECTION 6

Section 6
Traffic Access Circulation and Parking

6.1 Introduction

The mill complex is situated on a terrace of land between the embankment to the north that rises up to Route 2 and to the embankment that drops down to the Millers River to the south. The complex is generally oriented in an east west configuration, with the original office area at the front, west side of the building adjacent to Papermill Road. Much of the immediate area surrounding the facility has been paved. Site facilities are very limited and strictly geared to running a mill complex and would therefore require improvements as part of the proposed redevelopment.

6.2 Existing Conditions

All of the existing asphalt paved parking areas are at the front end of the building either adjacent to the front of the building or across Papermill Road to the west. When the mill was in operation the parking was for employee parking during the various shifts.

Access for deliveries to the mid and rear sections of the complex are through a tunnel that runs under Buildings 1C, 1B and 2 on the north side of the site and immediately on the north side of the building. Deliveries to the rear of the complex has space for semi-tractor trailers to turn around to gain access to the loading docks. There is very limited access on the south side of the building adjacent to the top of the bank that leads down to the Mill River. Access on this side does not continue beyond building segment 5B and 5C. There are no existing sidewalks on the site, nor adjacent to the site on Powdermill Road.

There is also very limited site lighting or storm drain systems on site. Several catch basins and drain manholes were observed on site, but how the existing systems are configured or where they discharge is unknown. It is assumed that the storm drain system discharges to the Millers Rivers. Whether there are any drainage discharges coming from the building, such as roof drains or from other sources is also unknown and would be determined as part of the redevelopment effort.

6.3 Proposed Vehicular Access and Circulation

As part of the development of various redevelopment scenarios, conceptual parking lot and site access and circulation improvements were developed. The concepts for each scenario are intended to generally depict available locations for parking spaces, and the requisite circulation to the various spaces. The number of parking spaces was derived based on the proposed redevelopment space using the Towns zoning regulations. Sidewalks and landscaping were also developed for each of the four scenarios developed. Further refinement of the layout and circulation for the selected scenario is necessary to

meet the specific needs of the development and Town. Figures showing the parking and circulation improvements are provided in Appendix B.

The parking and circulation improvements were generally limited to existing paved or gravel surfaces based upon the constraints associated with the steep embankment with rock outcropping to the north seen in the photo below and the embankment and river to the south.

All of the concepts include a defined 24-foot wide entrance to the site located at the midpoint of the curve in Paper Mill Road to maximize the site distance to the north and south from the new entrance. Although there are no sidewalks on Papermill Road, sidewalks are proposed extending north and south from the entrance to provide pedestrian access along the sharpest portions of the curve in the road. The photo below provides a view to the west at the approximate location of the new entrance.

Each scenario provides two way vehicle access to the parking lots located on the west side of the existing building. Circulation around each individual parking lot is provided with 22-foot wide aisles allowing for travel in either direction. Below is a picture of the existing site entering from Paper Mill Road.

Vehicle access along the north end of the site is greatly restricted by both an existing tunnel through the building and narrow existing pathways between ledge at cropping shown in a photo above and the existing building. At these locations, two way vehicle access cannot be provided unless widening is completed which would require significant rock excavation. For the cost comparison of scenarios we did not include widening of this route. The existing tunnel is retained in all scenarios and may require improvements for future use that were not included in the conceptual cost estimates. Below are pictures of the tunnel and existing pathway along the north side of the site.

The east end of the site was identified on the survey as gravel access. For scenarios 1 and 2 this gravel access is reconstructed as a new hot mix asphalt parking lot to provide additional parking adjacent to the east side of the remaining buildings. Below is a photo showing the existing condition of the gravel area to be reclaimed as parking.

Due to the steep embankment down to the river at the southeast corner of the building, a paved access loop around the entire building cannot be provided in scenarios 1 through 3. Scenario 3 does provide a full paved loop around building number 2 and scenario 4 only retains building 2 and provides the same loop around the building. For these scenarios it is suggested that access through the tunnel be restricted to one way to eliminate conflicts.

Existing access along the south end of the building is also limited but appears that there may be adequate space to widen the existing access to provide 2 way vehicle access. Widening of this access is recommended for scenarios 1 and 2 but is not required for scenarios 3 and 4 as this route could be restricted to one way vehicle access in conjunction with the one way access through the tunnel. The photos below show the existing access along the south side of the building.

6.4 Pedestrian Access

The sidewalks along Papermill Road extend into the site adjacent to the new access drive and extend to the main building in all scenarios. In general, sidewalks are also provided along the building where parking spaces are located. Sidewalks are not provided through the tunnel, and narrow vehicle access paths on the north and south sides of the buildings due to limited available footprint. For those locations a corridor within the building is recommended to provide better connectivity between the parking areas and access points around the perimeter of the building.

6.5 Parking

The Town of Erving Zoning Bylaws adopted June 27, 2005 and last amended November 4, 2013 were reviewed to determine the required parking under each scenario. For comparison of the alternatives we assumed the number of units for each scenario as dwelling units requiring 2 parking spaces per dwelling unit. By maximizing the available footprint the required number of parking spaces was provided with the exception of scenario 1 for which the provided parking spaces was significantly below the requirement.

Each scenario generally provides a buffer between the roadway and the parking lot landscape areas. The survey for the site shows the right of way for Papermill Road extending significantly into the west end of the site. Redevelopment scenarios 1 through 3 show parking spaces within the right of way and would require further review with the Town. The parking concepts depict standard 9-foot by 18-foot parking stalls and does not address handicap accessible parking spots that could be addressed with the selected

scenario. Each scenario provides parking spaces adjacent to sidewalks near building that could be converted to handicap accessible parking spaces. Scenarios 1 and 2 do not provide adequate number of parking spaces to meet the zoning requirements, primarily because of the area of building complex proposed for redevelopment and the associated site constraints. If either of these scenarios were chosen it would require additional input from the Town.

Tighe&Bond

SECTION 7

Section 7
Environmental Site Assessment & Building Hazardous Materials

7.1 Environmental Site Assessment (ESA)

7.1.1 State and Federal Records Review

A Federal and State database search for the site and surrounding area was conducted. The site was identified in the State Spills Sites databases. Two different Release Tracking Numbers (RTNs) were associated with the site: RTN 1-16322 with a notification date of September 1, 2006 and RTN 1-14612 with a notification date of October 15, 2002.

Files were reviewed at MassDEP's Western Regional Office in Springfield to obtain additional information regarding the releases. A summary of the information is presented below.

RTN 1-16322: RTN 1-16322 resulted from a spill of 20 gallons of mineral oil dilectric fluid (MODF) from an electric transformer. The release was located on the south side of the site building. The MODF contained polychlorinated biphenyls (PCBs) at concentrations of less than 50 parts per million (ppm) and as such was not regulated by the Toxic Substance Control Act (TSCA). Immediate Response Actions (IRA) were performed at the site to remediate the release. Absorbents were applied and approximately 10 tons of contaminated soil were excavated from the impacted area. Soil was removed to the approximate depth of 2.5 feet below grade. The exposure point concentrations (EPCs) following soil removal were below applicable standards. Consequently, a Class A-2 Response Action Outcome (RAO) was submitted to MassDEP for this release. A Class A-2 RAO is considered a permanent solution under the MCP and the RAO concluded that there was no significant risk from this release.

RTN 1-14612: This RTN resulted from the discovery of lead, extractable petroleum hydrocarbons (EPH) and polynuclear aromatic hydrocarbons (PAHs) in stained surficial soils located at the site. The data were collected during due diligence investigations at the site building. During the investigations exceedances of the applicable Massachusetts Contingency Plan (MCP) RCS-2 soil concentrations were identified. The historical investigations included the area in the open yard east of the tunnel which was reportedly used historically for fuel storage. Additionally, the RTN area included a rectangular area south of the site building. Following additional investigations that included sampling of soil, groundwater, as well as outfall areas, the site was closed using a Method 3 Risk Characterization. The Class B-1 RAO was filed on January 17, 2003 which is considered a permanent solution under the MCP.

The major findings of the Phase I ESA were as follows:

- There have been a number of historic releases at the site. Two RTNs exist for the site including RTN 1-16322 due to a release of transformer oil and RTN 1-14612 due to surficial impacts of petroleum. Both RTNs have been closed.

- The eastern edge of the site is immediately downgradient of the Erving Landfill. While groundwater from the landfill has some contaminants at low concentrations,

the landfill is under an ongoing monitoring program and the data is reported to MassDEP on a regular basis.

- A number of potential Recognized Environmental Concerns exist including the presence of some dumping on a parcel located south of the river, historic site use, and the potential for additional impacts in the area of historic fuel storage, transformers and an area of artificial fill located east of the site building.

- Asbestos containing materials were observed within the building.

Based on the findings of the Phase I, a Phase II ESA was recommended.

7.1.2 Previous Investigations

A Phase II ESA was completed in June 2011 to evaluate the areas of concern identified during the Phase I ESA. The initial scope of work included the excavation of nine test pits, the advancement of twelve soil borings, completion of four of the borings as groundwater monitoring wells, the collection and laboratory analysis of samples from soil, seep water, and groundwater. The field program focused on four areas of the site: the former coal/fuel oil storage area, an area of artificial fill, seep area, and area of transformer pads where a previous release had been identified.

Following completion of the initial scope, exceedances of PAHs and arsenic were identified in the former coal/fuel oil storage area. Consequently, additional investigation was conducted in this area of the site to evaluate the extent of impacts. While the PAHs were related to background due to the presence of coal in the samples, the arsenic concentrations exceeded the applicable MCP Method 1 standards and required reporting to MassDEP. MassDEP was notified and RTN 1-18133 was issued for the release.

In December 2010, 14 additional soil samples were advanced at the site. Groundwater samples were also collected from select wells. The additional sampling locations are shown on Figure 5 in Appendix A.

The Phase II report concluded that:

- Soil contamination identified during the investigation was surficial and primarily associated with historic fill and the presence of coal on the southern portion of the property.
- No groundwater or seep impacts were identified.
- Based on the data collected during the additional investigation, the exposure point concentrations calculated for the southern portion of the site were below the applicable Method 1 standards and RTN 1-18133 could be closed with a Class B-1 RAO.

7.2 Hazardous Building Materials Assessment

Tighe & Bond, under a separate effort, conducted a site wide hazardous building materials assessment (HBMA) at the referenced property. The assessment was conducted on several dates throughout late June and July, 2015. The purpose of the evaluation was to assist the Franklin Regional Council of Governments (FRCOG) and the Town of Erving in identifying asbestos-containing building materials (ACBM) and hazardous materials / components

requiring abatement or mitigation in the event an extensive renovation or demolition is planned in the future. In addition, the HBMA included the following:

- Assess, sample and quantify presumed asbestos-containing materials (PACM) that would require abatement in the event a renovation or demolition is planned
- Perform polarized light microscopy (PLM) laboratory analysis of PACM bulk samples
- Assess and inventory possible hazardous materials / components including building materials presumed to contain polychlorinated biphenyls (PCBs) that would require abatement in the event a renovation or demolition is planned

The results of the investigation are contained in a report of findings together with recommendations for compliance with applicable asbestos and hazardous material regulations and an opinion of probable abatement and mitigation costs and is located in Appendix C.

Tighe&Bond

SECTION 8

Section 8
Project Costs and Economic Opportunities

8.1 Introduction

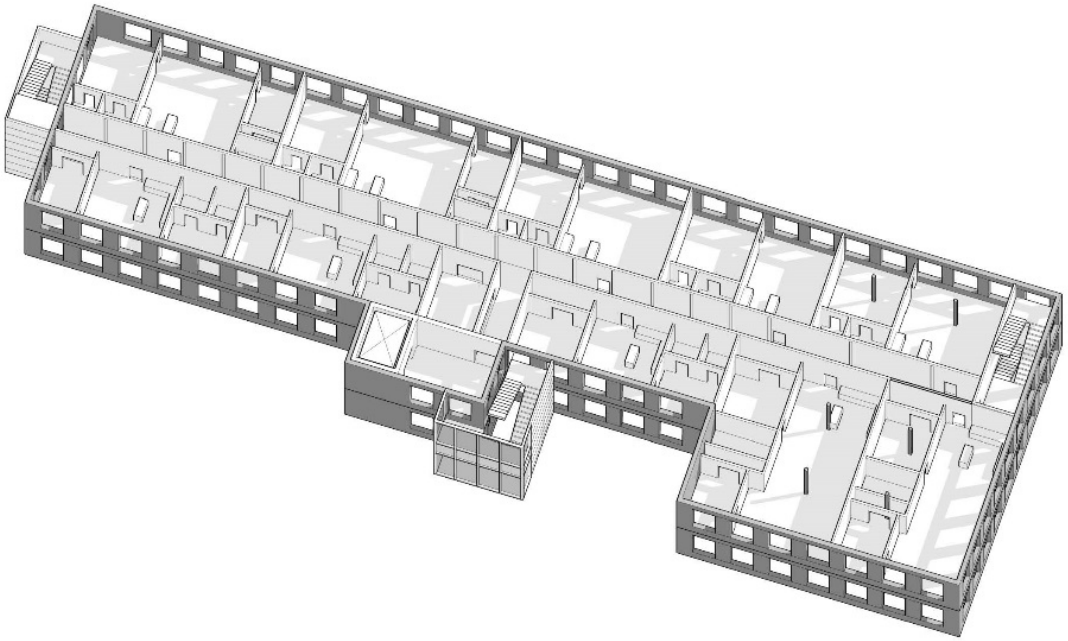
A critical aspect of completing an evaluation of the repurposing of the mill complex is to assign conceptual estimated opinion of probable construction costs (OPCC) to the various scenarios. Costs for each discipline were developed and these are discussed further below. The estimates include, for each redevelopment scenario, building reuse costs, structural improvement costs, demolition costs, infrastructure improvement costs, hazardous building material abatement costs and traffic, circulation, access and parking costs. The breakdown of these costs can be found in Appendix D.

8.2 Building Reuse Costs

The construction costs needed to support the reuse of the mill complex has been calculated for both a residential reuse and a commercial reuse. The diagrams below show the main differences between the two types of reuse. The residential reuse is more expensive on a cost per square foot basis due to the more extensive interior partitioning and fit-out of the residential units. The conceptual cost per square foot figures that have been generated are based on the diagrams below and consider the costs of renovating one floor of Building 2. This cost per square foot can then be generalized across the entire mill complex and can be compared to relative revenue assumptions based on the market analysis.

8.2.1 Residential Fit-Out

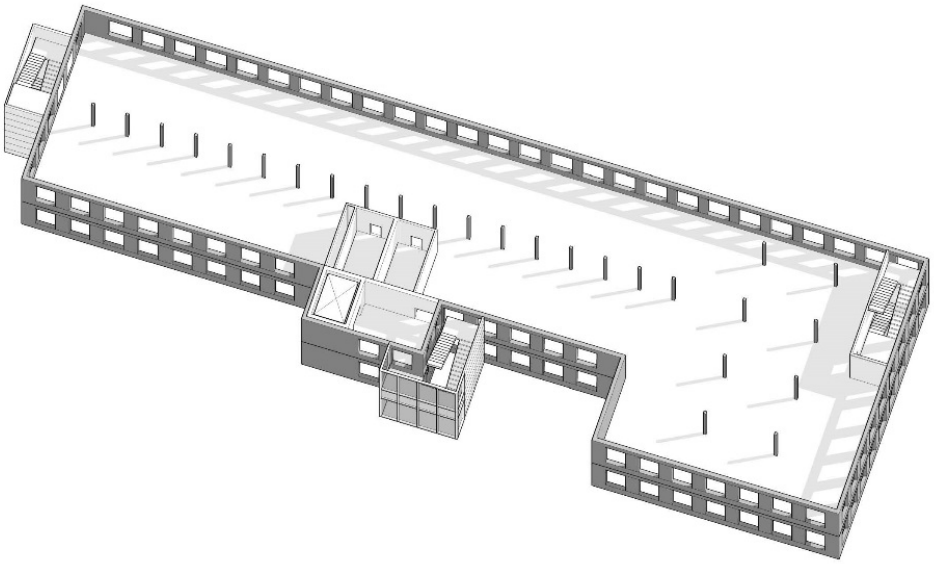
The following is a diagram showing the potential residential fit-out for a floor of Building 2, the basis for the conceptual cost estimate:



The conceptual construction cost estimate includes exterior/interior renovation work, new vertical circulation (stairs and elevator), fire protection, plumbing, HVAC and electrical allowances. The conceptual cost for residential fit-out is about $150 per square foot.

8.2.2 Commercial Fit-Out

Diagram showing the potential commercial fit-out for a floor of Building 2, the basis for the conceptual cost estimate:



The conceptual construction cost estimate includes exterior/interior renovation work, new vertical circulation (stairs and elevator), fire protection, plumbing, HVAC and electrical allowances. The conceptual cost for commercial fit-out is about $128 per square foot. Commercial space, which is modified to provide individual office space, will increase the square foot cost, comparable to residential construction.

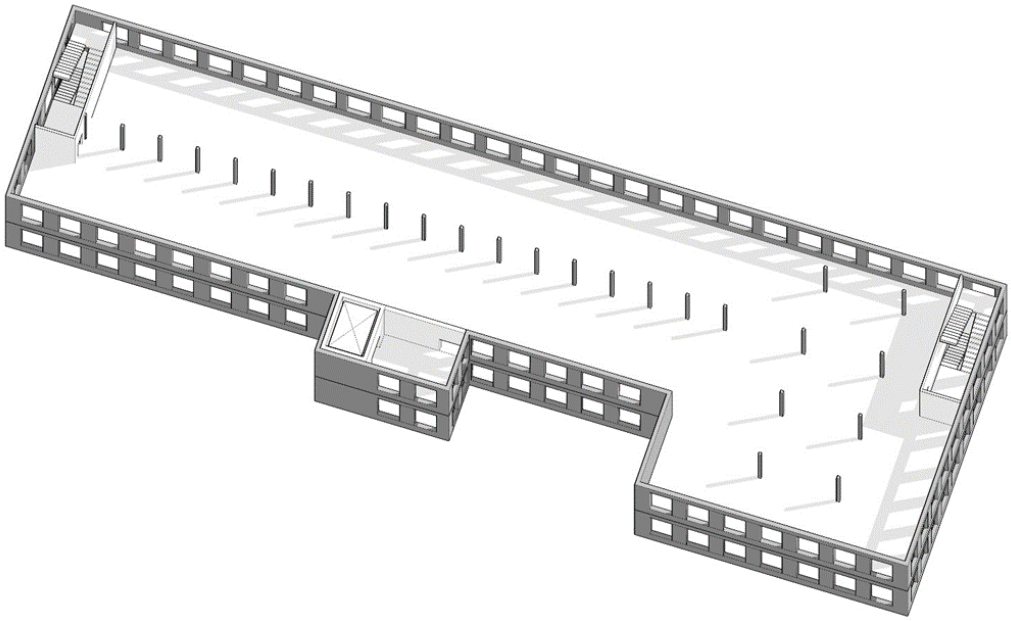
Given the conceptual square foot costs that have been calculated, it emphasizes the likelihood that the most feasible outcome will be one in which renovation is focused and limited on the best and most reusable buildings. The reconstruction of portions of the exterior envelope of buildings to remain, the addition of new code-compliant vertical circulation and effectively all new fire protection, plumbing, HVAC and electrical work inflate the conceptual cost estimates to necessitate a strategic renovation and reuse strategy.

8.2.3 Code Compliant No Interior Fit-Out

Relative to the feasibility scenarios, which included cost estimates for conversion of the mills to a particular use, this alternative approach to Scenario 3 is more cost effective and flexible. Scenario 5 is focused on bringing the remaining buildings into code compliance for reuse. While this approach is more minimal than the other feasibility scenarios, a more detailed analysis of code compliance may result in additional cost savings. For example, this scenario inlcudes new vertical circulation (new code compliant interior fire stairs and new code compliant elevator). It may be possible to reuse one or more of the existing vertical circulation components or to find cost savings measures to improve them.

The conceptual construction cost estimate for this approach does not include exterior/interior renovation work and includes a reduced fire protection, plumbing, HVAC and electrical allowance to complete the minimum required for code compliance. The conceptual cost for the alternative is about $50 per square foot including allowances and contingencies.

Diagram showing this approach with a minimal code compliant update for a floor of Building 2, the basis for the conceptual cost estimate:



8.3 Structural Improvements

Because of the current overall fair condition of the buildings, repairs will be required as part of the redevelopment scenarios. During the evaluation of the buildings, areas of structural concern were generally identified and these observations were used to quantify the extent of repairs and estimated costs. A range of unit costs from $5 to $50 per square foot (sf) for structural repairs was used to develop the conceptual opinion of probable cost estimates.

8.4 Building Demolition & Mothballing

8.4.1 Building Demolition

There are portions of the mill facility that are proposed for demolition within each redevelopment scenario. Minimal demolition is proposed as part of the maximum redevelopment Scenario 1, while maximum demolition is required as part of redevelopment Scenario 4, which retains only the original core building within the complex. A unit price of $3-$10 per square foot was used to estimate the demolition cost depending on the type and condition of the building.

Assuming demolition of the entire complex, site activities would include hazardous building material abatement, building demolition and restoration of the site assuming fill, loam and

seed within the building footprint. This scenario assumes existing pavement would remain.

8.4.2 Building Mothballing

This alternative assumes that the buildings within the mill complex will be "mothballed" for a three-year period in the event that no redevelopment opportunity is identified.

It is difficult to identify the repairs that are necessary to protect the buildings from further deterioration over the next three years, as compared to shorter or longer periods. The most important element when "mothballing" a building is to maintain a weather tight building envelope, which will reduce further deterioration of the building structural systems. Repairs should be made to damaged masonry wall areas including deteriorated masonry joints. In addition, building roofs should be inspected. Repairs should be made to damaged sections of roofing, including any flashing. Doors and windows should also be evaluated to assure that they are watertight and are not an avenue for water intrusion. In general, any paths or sources for water infiltration into the building should be eliminated.

It is unknown what buildings the Town may want to retain as part of the redevelopment process. It is assumed that some of the buildings will not be considered for redevelopment and therefore will not be retained. We recommend that the Town carry an allowance of $2,000,000 to cover the cost of repairs to protect segments of the complex from further deterioration that are expected to be retained.

This approach includes an on-going obligation by the Town to monitor and repair the roof, masonry, window and door systems over the three-year mothball period.

8.5 Infrastructure

Estimates for the installation of potable water and hydrants on site as well as required wastewater infrastructure including gravity sewer pipe, sewer manholes and pump station were developed based on the degree of development proposed for the four scenarios. The cost analysis assumed that the water would enter the project site at a single location and consist of a single 8-inch diameter pipe. Individual services for each building would be tapped off of this single header. It has been assumed wastewater will be collected within each building and discharged to a gravity sewer main that runs from east to west along the north of the existing buildings at the toe of the existing slope, with manholes installed every 300 linear feet at a maximum.

The force main would be installed in Papermill Road with a continuous slope up the hill to an existing sewer manhole in East Prospect Street. Estimated opinions of probable cost for drainage and stormwater management systems are within the sitework under Section 8.6 below. Other utilities including electrical, telephone/communications/data and gas were not evaluated as part of this study. Electric is available within the site and it is reported that telephone/communications/date is readily available. There is no natural gas utility within Erving.

8.6 Traffic Access Circulation and Parking

Each of the proposed redevelopment alternative scenarios resulted in different site improvements. Costs developed for the scenarios included the reconstruction of pavement, cement concrete walks and curbing, lawn/landscape improvements, trees, drain piping and manholes, stormwater treatment/detention and parking lot lighting.

Conceptual OPCC were developed for each scenario. For comparison of costs a full depth construction of all new pavement including 3-inches of new hot mix asphalt over 8-inches of new gravel base was assumed. The OPCC also assumes minimal changes in grade and all demolished building would be restored to surrounding grades as part of demolition costs. The OPCC also assumes existing pavement or buildings where new pavement is not proposed will be restored to lawn. Costs for utility work including drainage and lighting are included in the infrastructure evaluation.

8.7 Hazardous Building Material Abatement

The abatement of asbestos and other hazardous materials within the building have been identified in a report completed under a separate contract and a copy of the report can be found in Appendix B. Conceptual opinions of probable costs were extracted from this report and are included within the various redevelopment scenarios.

8.8 Summary of Project Costs

Table 8.1 below has been developed based on the costs, including the hazardous building material abatement, structural improvements, demolition required and architectural improvements. The table also includes the costs developed associated with the site and infrastructure improvements. The table includes a contingency, general conditions, insurance, bonds, permits and architectural and engineering allowances.

Table 8-1

Total Conceptual Project Opinion of Probable Construction Cost Estimate

	Demolition Alternative	Redevelopment Alternatives				
		Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Building Complex Information						
Square Foot Residential Redevelopment Area (sf)	NA	146,430	140,370	88,780	39,630	0
Square Foot Commercial Redevelopment Area (sf)	NA	39,690	0	0	0	88,780
Square Foot Demolition Area (sf)	211,390	25,270	71,020	122,610	171,760	122,610
Existing Building Units Redevelop	None	1a-c; 2, 3, 4a & b, 5a, b, d & e, 6a-c, 7a & b and 8	2, 4 a & b, 5 a & b, 6 a, b & c, and 8	2, 5a, b and d and 8	2	2, 5a, b and d and 8
Conceptual Opinion of Probable Construction Costs						
Residential Building Improvement Costs	NA	$21,918,671	$21,011,567	$13,289,214	$5,932,097	$0
Commerciall Building Improvements Costs	NA	$5,086,292	$0	$0	$0	$3,512,395
Structural Repair Costs	NA	$6,225,475	$5,177,875	$3,102,500	$1,320,000	$3,102,500
Demolition Costs	$1,088,960	$52,680	$262,690	$532,260	$824,960	$532,260
Infrastructure Costs	NA	$395,750	$349,250	$302,500	$209,250	$302,500
Site Access Circulation, Parking and Site Work Costs	$1,019,200	$1,121,700	$1,245,800	$1,004,300	$784,700	$1,004,300
Hazardous Building Material Abatement	$198,500	$183,742	$110,742	$137,723	$58,000	$137,723
Subtotal OPCC	**$2,306,660**	**$34,984,310**	**$28,157,924**	**$18,368,497**	**$9,129,007**	**$8,591,678**
Allowances						
Contingency (20%)	$461,332	$6,996,862	$5,631,585	$3,673,699	$1,825,801	$1,718,336
General Conditions (10%)	$230,666	$3,498,431	$2,815,792	$1,836,850	$912,901	$859,168
Insurance (1.10%)	$25,373	$384,827	$309,737	$202,053	$100,419	$94,508
Bonds (0.8%)	$18,453	$279,874	$225,263	$146,948	$73,032	$68,733
Environmental Permit (1.5%)	$34,600	$524,765	$422,369	$275,527	$136,935	$128,875
Architect and Engineering Fees (7%)	$161,466	$2,448,902	$1,971,055	$1,285,795	$639,030	$601,417
Subtotal Allowances	**$931,891**	**$14,133,661**	**$11,375,801**	**$7,420,873**	**$3,688,119**	**$3,471,038**
Total OPCC & Allowances	**$3,238,551**	**$49,117,971**	**$39,533,726**	**$25,789,369**	**$12,817,125**	**$12,062,715**
Say	**$3,300,000**	**$49,200,000**	**$39,600,000**	**$25,800,000**	**$12,900,000**	**$12,100,000**

8.9 Pro Forma Evaluation

Table 8-2 below shows the conceptual redevelopment pro forma for Scenarios 3, 4 and 5. Scenarios 3 and 5 retain buildings 2, 5 and 8, with the remaining building segments demolished. The difference between these two scenarios is that Scenario 3 assumes a complete fit-out of residential rental space while Scenario 5 assumes a minimal fit-out for commercial use. Scenario 4 retains the historic core of the complex, Building 2, assuming residential rental, and all other building segments are demolished.

Table 8-2
Conceptual Development Pro Forma

	Redevelopment Alternatives		
	Scenario 3	**Scenario 4**	**Scenario 5**
Square Footage of Development	140,370	39,630	88,780
Total Construction Costs	$25,800,000	$12,900,000	$12,100,000
Annual Amortization 1*	($3,505,393.32)	($1,752,696.66)	($1,644,002.29)
*assumed at 6% and 10 years			
Annual Amortization 2**	($2,656,439.31)	($1,328,219.66)	($1,245,849.44)
**assumed at 6% and 15 years			
Development Program			
Residential Units:2-3BR; 1150 SF/unit	75	34	NA
Rentable Commercial Space (SF)	none	none	89,000
Annual Rental Income			
$1,500 per residential unit @90% utilization	$1,215,000	$550,800	
$7 per SF shell commercial/live-work @ 90% utilization			$560,700
Annual Operating Costs			
Operating Costs at $6,000/residential unit	($450,000)	($204,000)	NA
Residential Property Taxes @ $8.75/$1,000	($225,750)	($112,875)	
Commercial Property Taxes @ $14.04/$1,000			($169,884)
NET Operating Income Before Debt Amortization	$539,250	$233,925	$390,816
NET Operating Income After Debt Amortization 1	($2,966,143)	($1,518,772)	($1,253,186)
NET Operating Income After Debt Amortization 2	($2,117,189)	($1,094,295)	($855,033)
Supportable Debt @ 6% cap rate	$8,987,500	$3,898,750	$6,513,600
Gap Financing Required	($16,812,500)	($9,001,250)	($5,586,400)

8.10 Economic Development Resources

The Commonwealth of Massachusetts has an array of state agencies, quasi-public entities and affiliated organizations performing economic development functions to assist municipalities, including administration of related federal funds. State economic development resources fall into three categories: financing, technical assistance, and support programs, and are available to Municipal officials, businesses and residents. The Town of Erving can consider a variety of state and regional sources that provide technical assistance and funding to municipalities as well as financing incentives to developers. As owner of the International Paper Mill property, the Town can receive technical and financial assistance from state economic development entities. Some programs have eligibility requirements (e.g. New Market tax credits, transformative development initiative).

FRCOG is the primary regional entity to facilitate the steps needed to develop the International Paper Mill in concert with the Town. It is a primary source for technical assistance and predevelopment and marketing services in the region especially for towns with limited capacity.

8.10.1 Mass Development

Mass Development offers municipalities a range of real estate services and technical assistance to re-develop, re-position property, stimulate private investment, and promote economic growth. There are fees for services provided to municipalities but costs can be paid at close of project. According to Sean Calnan, Vice President of Community Development, Mass Development will review the final International Paper Mill Reuse assessment and confer with FRCOG to determine what role and resources are needed to proceed. For follow up information Mr. Calnan can be contacted at (413) 731-8848 x1331.

Additional Information: http://www.massdevelopment.com

8.10.2 Massachusetts Historical Commission

The Massachusetts Historic Rehabilitation Tax Credit Program administered by the Massachusetts Historical Commission (MHC) is a pilot program with a $50 million dollar annual appropriation through 2017. Under the program, a certified rehabilitation project on an income-producing property is eligible to receive up to 20% of the cost of certified rehabilitation expenditures in state income tax credits.

The building must be listed in, or eligible for listing in the National Register of Historic Places. To be listed in the National Register, the Town's local historical commission must forward their recommendation to the MHC, which will determine if the building meets the criteria. MHC evaluates requests from local historical commissions using a criteria that include association with events that have made a significant contribution to the broad patterns of history or embody a distinctive characteristics of a type, period or method of construction.

Additional Information: http://www.sec.state.ma.us/mhc/mhcabout.htm

8.10.3 Mass Housing

Mass Housing is a self-supporting not-for-profit public agency that provides financing for homebuyers and homeowners, and for developers and owners of affordable rental housing. The Mixed-Income Financing Program provides tax-exempt and/or taxable financing for the acquisition, rehabilitation and/or construction of multi-familiy rental

housing. Bridge loans enable developers to access the majority of tax credit equity during construction, when it's needed to pay for construction and soft development costs. The Elder Mixed-Income program serves elders who wish to live in independent rental apartments with on-site access to support services. The Affordable Housing Trust Fund provides resources to create or preserve affordable housing throughout the state for households whose incomes are not more than 110% of median income.

Additional Information:
https://www.masshousing.com/portal/server.pt/community/home/217/home

Other state resources that could address predevelopment planning or future development could include:

Massachusetts Growth Capital Corporation http://www.massgcc.com/about

Mass ECON/SiteFinder http://www.massecon.com/about/about-overview/

8.10.4 MassWorks

The MassWorks Infrastructure Program combines the following six public infrastructure funding programs supporting economic development, job creation and affordable housing:

- Public Works Economic Development (PWED)
- Community Development Action Grant (CDAG)
- Growth Districts Initiative (GDI) Grant Program
- Massachusetts Opportunity Relocation and Expansion Program (MORE)
- Small Town Rural Assistance Program (STRAP)
- Transit Oriented Development (TOD) Program

Municipalities are eligible for this grant program for projects that support economic development, job creation, affordable housing and rural roadway improvements. Only projects that are shovel-ready, meaning they are ready to move forward with construction in the next construction season, are eligible. The 2015 grant round priorities were:

- Support the production of multi-family housing in mixed-use districts that are well-connected to significant employment opportunities
- Support economic development in weak or distressed areas
- Support communities that have engaged in, or are in the process of engaging in a Community Compact with the Commonwealth

Successful projects typically include a public/private partnership. Project awards for rural roadway improvements are under $1M. Other project awards have ranged up to $6 to $10M; however, average awards are approximately $2M.

The MassWorks Infrastructure Program is administered by the Executive Office of Housing and Economic Development, in cooperation with the Massachusetts Department of Transportation, the Executive Office of Energy & Environmental Affairs, and the Executive Office for Administration & Finance. This is a very competitive grant program.

Information on the MassWorks Infrastructure Program is available here: http://www.mass.gov/hed/economic/eohed/pro/infrastructure/massworks/.

Summaries of projects that have received MassWorks funding can be found here: http://www.mass.gov/hed/economic/eohed/pro/infrastructure/massworks/round-results/.

Tighe&Bond

SECTION 9

Section 9
Conclusion

9.1 Summary

There are a number of elements to consider that contribute to the ability of the Town to successfully redevelop the former International Paper Company mill complex on Papermill Road. The below list summarizes the items that arose as part of the completion of the feasibility study for consideration as the Town moves forward with their redevelopment efforts.

- The principle advantages of the mill for potential redevelopment are the attractive riverfront location, easy access to Route 2, and proximity to Erving and Montague centers.

- The hazardous building material and site assessments indicate that the abandoned mill building and property are less contaminated than anticipated.

- Commercial market conditions now and in the foreseeable future are not advantageous, with little employment growth forecast to generate demand for new office, industrial/warehouse, or flex space in Franklin County overall.

- Demand exists for rental housing, with potential absorption of 30 to 40 units over the next three to five years, at rental rates ranging from $1,200 to $1,500 per month, targeting young professionals under the age of 35 and empty nesters aged 55 to 74.

- The potential for historic and/or new market tax credits and local property tax relief to offset a portion of the redevelopment costs is favorable.

- Because of the configuration of the different building segments and the condition overall of the complex, redevelopment will be a challenge. This is particularly true given the estimated redevelopment costs.

- Significant efforts to market the property to prospective developers or other interests does not appear to have occurred to date. Redevelopment inquiries will likely not occur to any extent until meaningful and significant outreach is performed.

- Any successful redevelopment effort is likely to require public/private partnership to address the building and infrastructure improvements.

- Critical items identified in the study for successful redevelopment are the right building configuration to attract redevelopment, adequate access and parking and closing the gap to finance redevelopment.

- The steadily increasing growth of the agricultural sector in Franklin County has generated demand for facilities and support services to accommodate seasonal as well as year-round production and sales.

- Notwithstanding the lack of marketing to date and the possibility that some interest could come forward to purchase and reuse the property, there is minimal likelihood that a prospective developer of commercial or residential space would find the mill a viable purchase in its current condition and configuration. If no inquiries are forthcoming that could justify an extensive partial demolition and site cleanup, then the Town may need to consider full demolition and reuse of a clean site for public or private use.

- The Town should consider taking measures to better secure the building to minimize additional deterioration to the structure. Additional measures should also be taken to prevent exterior access to the building to limit further vandalism.

Upon review of this study the team would be glad to meet with the committee to discuss in greater detail the contents of this report and the possible next steps to consider.

J:\E\E0735 Erving\REPORT\IP Mill Feasibility Study rlsDRAFT rev 3.docx

Tighe&Bond

APPENDIX A

N

ROUTE 2

PROSPECT STREET

RETAIN TUNNEL

1a 1b 1c 1d 2 3 4a 4b 4c 4d 4e 5a 5b 5c 5d 6a 6b 6c 7a 7b 8

PAPER MILL ROAD

PAVEMENT MARKINGS (TYP)

MILLERS RIVER

TOWN OF ERVING
TOWN OF MONTAGUE

POTENTIAL UNITS	REQUIRED PARKING SPACES*	PARKING SPACES PROVIDED
126	252	163

*BASED ON TOWN OF ERVING ZONING BYLAWS, SECTION 4.5.2 REQUIREMENTS – 2 PARKING SPACES PER DWELLING UNIT.

LEGEND – PROPOSED WORK

- PAVEMENT/PARKING/ACCESS
- LAWN/LANDSCAPE
- SIDEWALKS
- BUILDING PROPOSED FOR RE–USE
- TREE

FEASIBILITY SCENARIO 1

ERVING INTERNATIONAL PAPER MILL REDEVELOPMENT FEASIBILTY STUDY
ERVING, MASSACHUSETTS

Tighe&Bond
www.tighebond.com

SCALE: 1"=80'

DATE: SEPTEMBER 2015

J:\E\E0735 Erving\Drawings\FeasibiltyScenario1.dwg Sep 18, 2015– 3:03pm Plotted By: LPT

N

ROUTE 2

PROSPECT STREET

RETAIN TUNNEL

PAPER MILL ROAD

PAVEMENT MARKINGS (TYP)

MILLERS RIVER

TOWN OF ERVING
TOWN OF MONTAGUE

1a 1b 1c 1d 1e 2 3 4a 4b 4c 4d 4e 5a 5b 5c 5d 6a 6b 6c 7a 7b 8

POTENTIAL UNITS	REQUIRED PARKING SPACES*	PARKING SPACES PROVIDED
120	240	244

*BASED ON TOWN OF ERVING ZONING BYLAWS, SECTION 4.5.2 REQUIREMENTS – 2 PARKING SPACES PER DWELLING UNIT.

LEGEND – PROPOSED WORK

- PAVEMENT/PARKING/ACCESS
- LAWN/LANDSCAPE
- SIDEWALKS
- BUILDING PROPOSED FOR RE–USE
- TREE

FEASIBILITY SCENARIO 2

ERVING INTERNATIONAL PAPER MILL REDEVELOPMENT FEASIBILTY STUDY
ERVING, MASSACHUSETTS

Tighe&Bond
www.tighebond.com

SCALE: 1"=80'

DATE: SEPTEMBER 2015

J:\E\E0735 Erving\Drawings\FeasibiltyScenario2.dwg Sep 18, 2015 - 3:04pm Plotted By: LPT

N

ROUTE 2

PROSPECT STREET

RETAIN TUNNEL

PAPER MILL ROAD

PAVEMENT MARKING (TYP)

MILLERS RIVER

TOWN OF ERVING
TOWN OF MONTAGUE

1a 1b 1c 1d 2 3 4a 4b 4c 4d 4e 5a 5b 5c 5d 6a 6b 6c 7a 7b 8

POTENTIAL UNITS	REQUIRED PARKING SPACES*	PARKING SPACES PROVIDED
75	150	154

*BASED ON TOWN OF ERVING ZONING BYLAWS, SECTION 4.5.2 REQUIREMENTS – 2 PARKING SPACES PER DWELLING UNIT.

LEGEND – PROPOSED WORK

- PAVEMENT/PARKING/ACCESS
- LAWN/LANDSCAPE
- SIDEWALKS
- BUILDING PROPOSED FOR RE-USE
- TREE

FEASIBILITY SCENARIO 3

ERVING INTERNATIONAL PAPER MILL REDEVELOPMENT FEASIBILTY STUDY
ERVING, MASSACHUSETTS

Tighe&Bond
www.tighebond.com

SCALE: 1"=80'

DATE: SEPTEMBER 2015

J:\E\E0735 Erving\Drawings\FeasibiltyScenario3.dwg Sep 18, 2015 - 3:05pm Plotted By: LPT

N

ROUTE 2

PROSPECT STREET

RETAIN TUNNEL

1d
1c
1b
1a
1e
2
3
4a
4b
4c
4d
4e
5a
5b
5c
5d
6a
6b
6c
7a
7b
8

PAPER MILL ROAD

PAVEMENT MARKING
(TYP)

MILLERS RIVER

TOWN OF ERVING
TOWN OF MONTAGUE

POTENTIAL UNITS	REQUIRED PARKING SPACES*	PARKING SPACES PROVIDED
34	68	85

*BASED ON TOWN OF ERVING ZONING BYLAWS, SECTION 4.5.2 REQUIREMENTS – 2 PARKING SPACES PER DWELLING UNIT.

LEGEND – PROPOSED WORK

- PAVEMENT/PARKING/ACCESS
- LAWN/LANDSCAPE
- SIDEWALKS
- BUILDING PROPOSED FOR RE-USE
- TREE

FEASIBILITY SCENARIO 4

ERVING INTERNATIONAL PAPER MILL
REDEVELOPMENT FEASIBILTY STUDY
ERVING, MASSACHUSETTS

Tighe&Bond
www.tighebond.com

SCALE: 1"=80'

DATE: SEPTEMBER 2015

J:\E\E0735 Erving\Drawings\FeasibiltyScenario4.dwg Sep 18, 2015 - 3:06pm Plotted By: LPT

Tighe&Bond

APPENDIX B

F01372-06
August 24, 2015
Revised October 12, 2015

Ms. Peggy Sloan
Director of Planning and Development
Franklin Regional Council of Governments
12 Olive Street, Suite 2
Greenfield, MA 01301

Re: **Pre-Demolition Hazardous Building Materials Assessment**
Former International Paper Mill
Erving, MA

Dear Ms. Sloan,

Tighe & Bond conducted a site wide hazardous building materials assessment (HBMA) at the referenced property. The evaluation was performed by Tighe & Bond's asbestos inspectors Brian F. Day (AI061695) and Dan J. Dragon (AI72274) who visited the site on several occasions in June and July, 2015. We also revisited the site in September 2015 to conduct an evaluation of Building 17, which is a separate structure located in the southeast wooded area adjacent the river. At the time of initial survey it was unknown whether the Town maintained responsibility of this building.

The purpose of the evaluation was to assist the Franklin Regional Council of Governments (FRCOG) and the Town of Erving in identifying asbestos-containing building materials (ACBM) and hazardous materials / components requiring abatement or mitigation in the event an extensive renovation or demolition is planned in the future.

The HBMA included the following tasks:

- Assess, sample and quantify presumed asbestos-containing materials (PACM) that would require abatement in the event a renovation or demolition is planned
- Perform polarized light microscopy (PLM) laboratory analysis of PACM bulk samples
- Assess and inventory possible hazardous materials / components including building materials presumed to contain polychlorinated biphenyls (PCBs) that would require abatement in the event a renovation or demolition is planned
- Provide a report of findings together with recommendations for compliance with applicable asbestos and hazardous material regulations and provide an opinion of probable abatement /mitigation costs

Asbestos Survey

Prior to any type of building demolition or renovation, a survey is required to identify and quantify ACBM. This survey is required by Massachusetts asbestos regulations 310 CMR 7.15 (Department of Environmental Protection); 453 CMR 6.00 (Department of Labor Standards); the National Emission Standards for Hazardous Air Pollutants (NESHAP) Standard for Demolition and Renovation 40 CFR Part 61.145, as well as applicable portions of the Occupational Safety and Health Administration (OSHA) CFR 1926.1101 asbestos in construction regulations. These regulations must be implemented during all facets of asbestos abatement, renovation and demolition as required by law.

The asbestos survey consisted of a thorough assessment throughout accessible interior and exterior locations of the former International Paper (IP) Mill in Erving, Massachusetts. The purpose of the assessment was to determine the presence or absence of presumed asbestos-containing materials (PACM). Bulk samples of PACM were collected from each homogenous group of materials in general accordance with standards described in the Environmental Protection Agency (EPA) Asbestos Hazard and Emergency Response Act (AHERA) Regulations for schools. A minimum of three samples of each suspect homogeneous group of materials are typically collected (contingent upon quantity) to confirm or deny the presence of asbestos content in the homogenous materials. The PACM is considered negative for asbestos only when the results of all samples indicate no asbestos detected above the Massachusetts Department of Environmental Protection (MassDEP) threshold of 1% or greater asbestos.

Following collection, bulk samples were submitted to ProScience Analytical Services (PAS) of Woburn, Massachusetts for analysis via polarized light microscopy (PLM) with dispersion staining in accordance with the EPA/600/R-93/116 method.

The following materials were either assumed or reported as asbestos containing and shall be abated prior to building demolition:

Building 1

- Window frame caulking
- Expansion joint caulking
- Fire doors
- Sink undercoat

Building 2 ADD and 2A

- Window frame caulking
- Transite components

Building 2B – No ACM

Building 2

- Glazing compound
- Window frame caulking
- Wall panel adhesive
- Vinyl sheet flooring
- Sink undercoat

Building 3

- Window frame caulking

Building 4, 5, 6 and 7

- Glazing compound
- Window frame caulking
- Pipe insulation

Building 8

- Glazing compound
- Window frame caulking

- Boiler insulation and rope

Buildings 8A, 9, 9A, 9B and 10

- Glazing compound
- Window frame caulking
- Transite components

Pulp Receiving and Stockhouse Sections

- No ACM

Building 12

- Window frame caulking

Building 17

- Thermal system insulation and debris
- Glazing compound
- Window and door frame caulking
- Transite components
- Mastic on parapet / roof

The assessment information for each ACM is summarized in the *Asbestos-Containing Materials Inventory* provided in Appendix A. The inventory lists PACM sampled, sample numbers, material locations and specific comments relative to materials observed. Additionally, the *PAS laboratory analytical report* is included in Appendix B.

Building nomenclature was derived from a complete set of building layout drawings which were discovered inside the building during the audit. A copy of these drawings is located in Appendix F.

Although this initial HBMA was quite thorough, it was limited to accessible areas of the structures and did not include a roof assessment. If plans for demolition or renovation in any part of the site come to fruition, supplemental asbestos assessment for renovation or demolition will be necessary.

A visual inspection of accessible roof sections was conducted, however, for safety reasons, access to the roofs was not considered part of this assessment. The results of our visual investigation confirmed the presence of rubber membranes, some of which are covered in stone ballast, throughout virtually all roof levels. It is currently unknown whether removal of original roofing layers was performed prior to installation of newer rubber membranes.

The asbestos containing materials discovered throughout the structure shall be removed by a licensed asbestos abatement contractor prior to any activity that has the potential to cause disturbance. We also recommend the following general requirements:

- A standardized Scope of Work/Specification should be established for the removal of asbestos containing materials at the structures. We recommend that the specification be developed by a licensed asbestos designer and it should address such important issues as regulatory requirements, notification procedures, air sampling requirements and other pertinent information.

- An ANF-001 asbestos project notification must be prepared by a licensed asbestos contractor and submitted to MassDEP and Massachusetts Department of Safety (MassDOS) at least ten days prior to the onset of asbestos abatement activity.

- Any Town employees who may work in this structure should be notified that asbestos containing materials are present and to not disturb them without proper training.

Hazardous Materials Survey

Tighe & Bond performed a visual inspection of building equipment and materials that could contain hazardous components and have the potential for disturbance during a demolition. The results of our survey confirmed the presence of the following materials/equipment within the subject property:

Building 1

- Fluorescent light tubes
- Light ballasts
- Fire extinguishers
- Emergency light batteries
- Air conditioning units
- Dock leveler oils
- Microwave

Shipping Dock Building

- Dock leveler oils

Building 2 ADD and 2A

- Fluorescent light tubes
- Light ballasts
- Fire extinguishers
- Emergency light batteries
- Air conditioning units
- Cathode ray tube units
- Fork truck batteries

Building 2B

- Fluorescent light tubes
- Light ballasts
- Dock levelers
- Waste water container

Building 2

- Fluorescent light tubes
- Light ballasts
- Fire extinguishers
- Emergency light batteries
- High intensity discharge lights
- Box of poison

Building 3

- Fluorescent light tubes
- Light ballasts
- Fire extinguishers
- HID lights

Building 4, 5, 6 and 7

- Fluorescent light tubes
- Light ballasts
- Fire extinguishers
- Emergency light batteries

Building 8

- Fluorescent light tubes
- Light ballasts
- Fire extinguishers
- Mercury ampules
- Above ground oil tank and filled oil lines

Buildings 8A, 9, 9A, 9B and 10

- Fluorescent light tubes
- Light ballasts
- Fire extinguishers
- Emergency light batteries
- Above ground oil tank and filled oil lines
- Elevator equipment oils

Pulp Receiving and Stockhouse Sections

- Fluorescent light tubes
- Light ballasts
- Fire extinguishers
- Emergency light batteries
- Industrial equipment oils
- Dock levelers

Building 12

- Fluorescent light tubes
- Light ballasts
- Exterior PCB transformer units

Building 17

- Fluorescent light tubes
- Light ballasts
- Mercury switches

The assessment information for each hazardous material is summarized in the *Hazardous Materials Inventory* provided in Appendix C. These components should be removed / recycled or disposed of by trained personnel prior to any renovation or demolition activity that could cause disturbance. Sampling and analyses of suspect hazardous materials were not performed as part of this scope of work.

The exterior area of Building 12 currently houses six - 7' x 3.5' standing transformers presumed to contain oils. Given the age of these units, it is likely the oils also contain PCBs. One of the transformers has been vandalized and was tipped over. This HBMA did not include underground assessments, soil sampling plans, remediation plans and reporting, however it is likely that surrounding soils have become impacted and contaminated with oils due to the vandalism.

PCBs in Building Materials

Discussion

PCBs in building materials have received extensive attention over recent years by environmental regulators, consultants, and contractors, and PCBs are increasingly being identified in buildings that may undergo demolition or renovation. Buildings/structures that were constructed (or renovated) between the 1950s and the late 1970s have a greater potential to contain PCBs in certain building materials.

It is important to note that EPA regulations which govern the Toxic Substance Control Act (TSCA) requirements including PCBs and PCB Bulk Product Wastes, do not require the sampling for PCBs prior to building demolition or renovation. Therefore there is no current regulatory requirement to sample for PCBs (local, state or federal).

Regardless of the regulatory sampling requirements many waste/recycling receiving facilities may request PCB sampling to be performed. If it is suspected that PCBs could be present, it is important to also mitigate potential human health and safety risk to abatement/demolition contractors and owners' potential liability associated with the proper recycling/disposal of certain generated demolition waste materials.

Sampling Summary

Tighe & Bond performed an initial visual assessment of building materials throughout the complex that have the potential to contain PCBs and would therefore be subject to wipe screening. The results of our assessment concluded that most window systems contain glazing compounds and frame caulkings which, due to their approximate age, were considered suspect for PCB content.

Sampling of the glazing compounds and frame caulkings were performed using saturated hexane wipes. Each sampling area was initially scarified using a metal wood rasp (decontaminated between samples) and the hexane wipe was applied to the scored area until a sufficient amount of material was obtained on the wipe over an approximate 100 square centimeter (cm^2) area. The wipe samples were prepared for transport and submitted to ESS Laboratories of Cranston, Rhode Island under chain of custody, to determine PCB concentrations in each sample. The *ESS laboratory analytical report* is included in Appendix D. PCB sampling details and results are inventoried in the *PCB Wipe Sampling Analytical Results Inventory* located in Appendix E.

In summary, a total of six samples of caulking and glazing compounds were collected and analyzed and the analytical results reported no detectable PCB concentrations in any of the samples analyzed.

It should be noted that PCB wipe sampling is only a screening tool to sample for PCBs. PCB wipe sample results report the amount of PCBs contained on the wipe (micrograms of PCBs per wipe area or µg/wipe). Wipe sample results do not trigger potential TSCA jurisdiction as a PCB Bulk Product Waste as it is defined by the amount of PCBs present per unit weight of the material sampled (milligrams of PCBs per kilogram of material, which is equivalent to mg/kg or parts per million (ppm)).

Although these materials have no PCB disposal restriction, all do contain asbestos and are regulated for handling and disposal as an asbestos waste.

Lead Based Paint (LBP) Evaluation

Tighe & Bond's environmental compliance specialists performed a visual evaluation of accessible painted interior systems throughout the complex. Most interior building areas contain painted interior perimeter wood or brick walls, wood beams, wood ceiling decks and structural elements that are coated with vintage paint layers that are highly likely to contain lead. Other areas of the structure contain little or no lead sources such as the Shipping Dock Building, #2B Shipping Dock Building, Fuel Stores Building, Stockhouse Building and Pulp Receiving Building as they were primarily constructed with steel and sheet metal, are of newer construction and contain little or no painted systems.

LBP management during general renovation and demolition are often associated with worker protection and some disposal testing requirements if requested by certain landfills accepting the demolition debris. When managed appropriately, costs associated with the proper handling and disposal of construction materials containing lead are incidental. Most reputable general contracting and demolition firms handle LBP components regularly therefore protecting their workers at all times from potential lead exposure and prepare waste streams so that lead containing painted components are not concentrated but are dispersed throughout the waste stream.

The purpose of this evaluation was to confirm or deny the presence of LBP sources within the complex. Conducting testing for compliance with the Massachusetts Childhood Lead Poisoning Prevention Program (CLPPP) was not considered part of this effort. CLPPP testing and reporting is only necessary in the event buildings will be used for housing where children under the age of six could reside.

It is presumed that if any portion of this property is planned for future residency, the buildings will first undergo an extensive selective demolition and cleaning process including removal/refurbishing of components that are covered in peeling paint. CLPPP testing is often performed after extensive cleanup is conducted and the lead paint sources have been mitigated.

Opinion of Probable Abatement Costs

To assist the Town with budgeting for asbestos abatement and hazardous material (OHM) management in the event renovation or demolition is planned, Tighe & Bond prepared an opinion of probable abatement costs on a per building area basis. Some smaller contiguous building sections were combined due to the absence of interior building walls separating the floor spaces. These costs include mobilization and effort to access, abate and dispose of the specified ACMs and OHMs. The Cost Opinion is as follows:

Building 1

- ACM Abatement - $8,000
- OHM Mitigation - $4,500

Building 2 ADD and 2A

- ACM Abatement - $5,000
- OHM Mitigation - $7,500

Building 2B

- ACM Abatement - $0
- OHM Mitigation - $500

Building 2

- ACM Abatement - $54,000
- OHM Mitigation - $4,000

Building 3

- ACM Abatement - $500
- OHM Mitigation - $2,500

Building 4, 5, 6 and 7

- ACM Abatement - $14,000
- OHM Mitigation - $3,000

Building 8

- ACM Abatement - $43,000
- OHM Mitigation - $3,000

Buildings 8A, 9, 9A, 9B and 10

- ACM Abatement - $5,800
- OHM Mitigation - $6,500

Pulp Receiving and Stockhouse Sections

- ACM Abatement - $0
- OHM Mitigation - $2,000

Building 12 and Exterior of 12

- ACM Abatement - $200
- OHM Mitigation - $14,000

Building 17

- ACM Abatement - $20,000
- OHM Mitigation - $500

Total Site Wide ACM Abatement Cost: $150,500

Total Site Wide Hazardous Materials Abatement Cost: $48,000

Asbestos Consultation and Management During Abatement

Certain asbestos abatement work will require the need for full containment construction coupled by post abatement inspection and clearance air sampling by a third party industrial hygiene firm. Given the complexity of the potential abatement efforts, it is recommended that a scope of work also be prepared which will require review / comment of the contractor's pre and post abatement paperwork submissions and onsite management during various project milestones. Preparation of a scope of work for site wide abatement, onsite

consultation, air sampling and analyses and closeout reporting by an engineering firm is estimated at **$50,000.**

These budgets are only an opinion of probable cost for the proposed work that was observed during our assessment. Costs may vary due to project phasing, actual quantities abated, competition, seasonal variations, the presence of asbestos roofing materials under rubber membranes, etc.

Please do not hesitate to call the undersigned at (508) 471-9603 if you have any questions concerning this information or if you wish to implement any of our recommendations.

Very truly yours,

TIGHE & BOND, INC.

Brian F. Day
Senior Environmental Scientist

Enclosures
Appendix A: Asbestos Containing Materials Inventory
Appendix B: Asbestos Laboratory Report
Appendix C: Hazardous Materials Inventory
Appendix D: PCB Inventory Table
Appendix E: PCB Laboratory Report
Appendix F: Building Layout / Nomenclature Drawings

Tighe&Bond

APPENDIX A

APPENDIX A
Asbestos-Containing Materials Inventory
Former IP Mill
Erving, Massachusetts

Sample #	Material	Location	Approximate Quantity	Result	Comment
BUILDING 1					
A-01/01A, A-02/02A, A-03/03A	12" Gray floor tile and mastic	Building 1- Second floor, hallway	-	Negative	
A-04/04A, A-05/05A, A-06/06A	12" Green floor tile and mastic	Building 1- Second floor, eastern room	-	Negative	
A-07, A-08, A-09	Ceramic tile adhesive	Building 1- Second floor, bathrooms	-	Negative	
A-10, A-11, A-12	Carpet adhesive	Building 1- First and second floor, various rooms and stairwell	-	Negative	
A-13/13A/13B, A-14/14A/14B, A-15/15A/15B	Sheetrock / seam tape / joint compound	Building 1- First and second floor, various rooms	-	Negative	
A-16, A-17, A-18	Wall panel adhesive	Building 1- Second floor, various rooms	-	Negative	Associated with white wall paneling.
A-19, A-20, A-21	Wall panel adhesive	Building 1- Second floor, various rooms	-	Negative	Associated with brown wall paneling.
A-22/22A, A-23/23A, A-24/24A	5" Cove base and adhesive	Building 1- First and second floor, various rooms	-	Negative	
A-25	**Sink undercoat**	**Building 1- Second floor, kitchenette**	**(1) 2' x 2' sink**	**Positive**	
A-26, A-27, A-28	2' x 4' Suspended ceiling panel	Building 1- Second floor, various rooms	-	Negative	

APPENDIX A
Asbestos-Containing Materials Inventory
Former IP Mill
Erving, Massachusetts

Sample #	Material	Location	Approximate Quantity	Result	Comment
A-29, A-30, A-31, A-117, A-118	**Window frame and expansion joint caulking**	**Building 1- Throughout, metal framed window units**	**(27) - 4' x 6' and (5) - 7' x 5' window openings and 380 LF**	**Positive**	**Interior and exterior beads present. Interior beads are around all sides of the individual window units. There are (27) - 4' x 6' and (5) - 7' x 5' window units. Exterior beads of caulking are only around window openings (360 LF) and one (20 LF) vertical expansion joint bead.**
AP	**Fire doors**	**Building 1- Second floor, doors to Building 2ADD / 2A**	**(3) CT**	**Positive**	
BUILDING 2ADD / 2A					
A-35, A-36, A-37	**Window frame caulking**	**Building 2ADD / 2A- Ground floor, throughout**	**260 LF**	**Positive**	**Associated with 5' x 5' or smaller interior glass block window systems.**
A-38, A-39, A-40	**Window frame caulking**	**Building 2ADD / 2A- Ground floor and second floor, throughout**	**390 LF**	**Positive**	**Associated with exterior glass block window system with metal channel along top of window opening. Interior and exterior beads present.**
AP	**Miscellaneous transite components**	**Building 2ADD / 2A- Second floor, throughout**	**1/2 CYD**	**Positive**	**Associated with electrical room equipment. Various transite components and boards of various size.**
BUILDING 2B					
NO suspect ACM observed throughout Building 2B, loading dock					
SHIPPING DOCK BUILDING					
NO suspect ACM observed throughout Shipping Dock					
BUILDING 2					
A-115/115A, A-116/116A	12" Off white floor tile and mastic	Building 2- Basement office area	-	Negative	On rotted wood flooring.

APPENDIX A
Asbestos-Containing Materials Inventory
Former IP Mill
Erving, Massachusetts

Sample #	Material	Location	Approximate Quantity	Result	Comment
A-41, A-42, A-43	Canvas material	Building 2- Throughout second and third floors	-	Negative	Tacked in place to wood ceiling beams.
A-103, A-104, A-105, A-106, A-107, A-108 and A-85, A-86, A-87	**Glazing compound**	**Building 2- Throughout second floor**	**(95) CT full windows; (35) CT partial windows**	**Positive**	**Associated with the 4' x 10' wooden arched windows throughout the building. Many windows boarded up, others have been partially replaced with vinyl windows but upper section of original wood arched window section remains.**
A-80, A-81, A-82	**Window frame caulking**	**Building 2- Throughout entire building (sampled from second floor, south section near shower rooms)**	**1,800 LF**	**Positive**	**Associated with original wood window openings with arched tops. Caulking beads are sporadic, some of which are concealed behind vinyl replacement windows. Exterior investigation confirmed the absence of most caulking applications with only small amounts of remnant remaining. Contractor should investigate all openings (approximately 180 openings) and confirm the presence or absence of window frame caulking.**
A-44	Gray sink undercoat	Building 2- Second floor, bathroom	-	Negative	
A-45, A-46, A-47	Wall panel adhesive	Building 2- Second floor, bathroom / rooms	-	Negative	Associated with white wall paneling.
A-48, A-49	Vinyl sheet flooring, self stick type	Building 2- Second floor, western rooms, laboratory area	-	Negative	Self adhered type flooring.
A-50, A-51, A-52	Vinyl sheet flooring, pebble pattern	Building 2- Second floor, middle of floor	-	Negative	Associated with a floor area that used to be an enclosed room.
A-53/53A, A-54/54A	12" Off white floor tile and mastic	Building 2- Second floor, southern laboratory space, hallways	-	Negative	Top layer.

APPENDIX A
Asbestos-Containing Materials Inventory
Former IP Mill
Erving, Massachusetts

Sample #	Material	Location	Approximate Quantity	Result	Comment
A-55, A-56, A-57	**Brown wall panel adhesive**	**Building 2- Second floor, south section, middle laboratory space and middle room**	**1,100 SF**	**Positive**	**Wood wall panel adhered to non-mudded sheetrock wall system.**
A-58/58A, A-59/59A	Brown vinyl cove base and adhesive	Building 2- Second floor, south section, middle laboratory space and middle room	-	Negative	
A-60/60A, A-61/61A	12" Salmon colored floor tile and mastic	Building 2- Second floor, south section, south laboratory space, cafeteria (top layer)	-	Negative	Middle layer.
A-62, A-63	Brown jute back flooring	Building 2- Second floor, middle of floor, cafeteria, training room and shower rooms, southwest corner	-	Negative	Bottom layer.
A-83, A-84	**Large stone pattern vinyl sheet flooring**	**Building 2- Second floor, middle of floor, cafeteria, training room and shower rooms, southwest corner**	**1,900 SF**	**Positive**	**This layer of floor covering is throughout the entire finished space under two or three layers of non-ACM floor coverings, and wood underlayment layers. Floor covering presumed under interior wall partitions also.**
A-64	**Black sink undercoat**	**Building 2- Second floor, south section, south laboratory space**	**(1) double sink**	**Positive**	**Sample A-64 was incorrectly identified as "jute back" flooring on the chain of custody. Treat sink undercoat as ACM.**
A-65/65A, A-66/66A, A-67/67A	12" Gray floor tile and mastic	Building 2- Second floor, south section, training room space	-	Negative	Top layer.
A-68/68A, A-69/69A	12" Blue and white checker pattern floor tile and mastic	Building 2- Second floor, south section, south room near labs	-	Negative	Top layer.

APPENDIX A
Asbestos-Containing Materials Inventory
Former IP Mill
Erving, Massachusetts

Sample #	Material	Location	Approximate Quantity	Result	Comment
A-70/70B, A-71/71B, A-72/72B	Sheetrock / joint compound	Building 2- Second floor, south section, laboratory areas, cafeteria, and shower rooms	-	Negative	Seam tape not observed or it was plastic mesh. Associated with walls.
A-73/73A, A-74/74A	4" Black cove base and adhesive	Building 2- Second floor, south section, laboratory areas, cafeteria, and shower rooms	-	Negative	
A-75, A-76	2' x 2' Suspended ceiling panels	Building 2- Second floor, south section, laboratory areas, cafeteria, and shower rooms	-	Negative	
A-77	White sink undercoat	Building 2- Second floor, south section, cafeteria	-	Negative	
A-78/78A, A-79/79A	Sheetrock / joint compound	Building 2- Second floor, south section, laboratory areas, cafeteria, and shower rooms	-	Negative	Boxed-in systems located above ceiling panels. Seam tape not observed.
A-88/88A/88B, A-89/89A/89B, A-90/90A/90B	Sheetrock / seamtape / joint compound	Building 2- Third floor, north offices area	-	Negative	Comprises wall construction.
A-91/91A, A-92/92A	4" Green cove base and adhesive	Building 2- Third floor, north offices area	-	Negative	
A-93	Blue pebble style vinyl sheet flooring	Building 2- Third floor, bathroom	-	Negative	
BUILDING 3					
A-94, A-95	Glazing compound	Building 3- Ground floor, throughout	-	Negative	Associated with the (3) 5' x 5' wood arched windows.

APPENDIX A
Asbestos-Containing Materials Inventory
Former IP Mill
Erving, Massachusetts

Sample #	Material	Location	Approximate Quantity	Result	Comment
Same as A-80, A-81, A-82	**Window frame caulking**	**Building 3- Ground floor, throughout**	**60 LF**	**Positive**	**Associated with (3) 5' x 5' wooden arched window openings. No access to confirm presence or absence of frame caulking or to sample.**
BUILDINGS 4, 5, 6 and 7					
A-96, A-97, A-106, A-107, A-108 (wood frame), A-98, A-99 (metal frame)	**Glazing compound**	**Buildings 4, 5, 6 and 7- Throughout**	**(41) CT 5' x 5' wood windows; (2) CT 1' x 2' metal windows**	**Positive**	**Associated with the 5' x 5' wooden arched windows and 1' x 2' metal windows throughout the building sections. Many windows boarded up.**
Same as A-80, A-81, A-82	**Window frame caulking**	**Buildings 4, 5, 6 and 7- Throughout**	**800 LF**	**Positive**	**Associated with all windows noted above. No access to confirm presence or absence of frame caulking or to sample.**
AP	**TSI- Pipe insulation**	**Building 7- Second floor, near No. 8 PM Pulper area, ceiling level**	**30 LF**	**Positive**	**TSI pipe insulation approx. 4" diameter insulating pipe system located horizontally along a ceiling beam.**
Same as A-50, A-51, A-52	Vinyl sheet flooring, pebble pattern	Building 7- Third floor	-	Negative	
BUILDING 8 Boiler Room					
A-109, A-110	**TSI- Mud Drum insulation**	**Building 8- (2) Boiler systems**	**220 SF**	**Positive**	**The boiler room houses two 18' x 12' x 15' or larger boiler units which contain both upper and lower mud drums which are insulated with magnesium type TSI reinforced with wire. Selective demolition to portions of the boiler will be necessary to access all ACM.**
A-111, A-112	**Rope insulation**	**Building 8- (2) Boiler systems**	**300 LF**	**Positive**	**The boiler room houses two 18' x 12' x 15' or larger boiler units which contain interior rope insulation between gaps of metal mating surfaces and concealed within the boiler segments. Selective demolition of each boiler will be necessary to access all ACM.**
A-113, A-114	Interior boiler brick	Building 8- (2) Boiler systems	-	Negative	

APPENDIX A
Asbestos-Containing Materials Inventory
Former IP Mill
Erving, Massachusetts

Sample #	Material	Location	Approximate Quantity	Result	Comment
AP	**Glazing compound**	**Building 8- Throughout**	**(8) 6' x 6' metal windows**	**Positive**	**No access to sample. Presume as ACM until sampling can prove otherwise.**
A-119, A-120	Asphalt based roofing	Building 8- Exterior, around stack	-	Negative	
AP	**Window frame caulking**	**Building 8- Throughout**	**200 LF**	**Positive**	**Associated with the (8) 6' x 6' windows noted above. No access to sample. Presume as ACM until sampling can prove otherwise.**
BUILDINGs 8A, 9, 9B, 10					
Same as A-96, A-97, A-106, A-107, A-108	**Glazing compound**	**Buildings 8A, 9, 9B and 10- Throughout, primarily located throughout Building 10 only**	**(20) CT 5' x 5' wood windows**	**Positive**	**Associated with the 5' x 5' wooden arched windows throughout the building sections. Many windows boarded up.**
Same as A-80, A-81, A-82	**Window frame caulking**	**Buildings 8A, 9, 9B and 10- Throughout, primarily located throughout Building 10 only**	**220 LF**	**Positive**	**Associated with all windows noted above. Limited access to confirm presence or absence of frame caulking or to sample. Only caulking remnant observed from ground level.**
A-100, A-101, A-102	Fireproofing	Buildings 9B and 10- Throughout first and second floors	-	Negative	Applied to beams and ceiling decks throughout the buildings noted herein.
Same as A-80, A-81, A-82	**Transite components**	**Building 10- Northwest corner**	**1/4 CYD**	**Positive**	**Associated with elevator electrical components. Type varies from small individual components to (3) 2' x 2' panels screwed in place.**
Pulp Receiving and Stockhouse Buildings					
NO suspect ACM observed throughout Pulp Receiving and Stockhouse Buildings					
BUILDING 12					
Same as A-80, A-81, A-82	**Window frame caulking**	**Building 12- Throughout ground floor, south wall**	**30 LF**	**Positive**	**Associated with wood window system which has been removed and boarded up.**

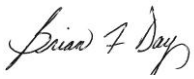
APPENDIX A
Asbestos-Containing Materials Inventory
Former IP Mill
Erving, Massachusetts

Sample #	Material	Location	Approximate Quantity	Result	Comment
		BUILDING 17			
A-121	**TSI-Compressed paper on heating systems**	**Building 17-Throughout**	**400 SF; 2 CYDs debris**	**Positive**	**Associated with interior wall mounted heating units and piping. Some material has become dislodged and has become co-mingled with other building debris.**
AP	**Transite components**	**Building 17-Throughout**	**1/2 CYD**	**Positive**	**Associated with various interior electrical components / boxes of various size and shape.**
AP	**Mastic on parapet**	**Building 17-Throughout roof level**	**1,200 SF**	**Positive**	**Applied to exterior roof level parapet walls and roof portions. Assume roof layers and mastics as ACM until sampling proves otherwise.**
A-122, A-123, A-124, A-125, A-126, A-127	**Window and door glazing compounds**	**Building 17-Throughout**	**(34) windows and doors of varying size**	**Positive**	**ACM glazing compouind associated with all windows and doors. Windows are typically wood, single sash, multi paned systems ranging in size as follows: (2)-3' x 5'; (2)-3' x 3'; (12)-3' x 4'; (4)-5' x 5'; (4)-5' x 10'; (4) 10' x 20'; (4)-2' x 6'. Doors are average size and have small windows within the doors.**

LEGEND:

ACM = Asbestos-Containing Material
AP = Assumed Positive
SF = Square Feet
LF = Linear Feet
TSI = Thermal system Insulation
CT = Count

Survey Completed By:



Brian F. Day
MADLS # AI061695
Tighe & Bond - 446 Main Street, Worcester, MA - 508.754.2201

SPECIFIC LOCATIONS AND BUILDING NOMENCLATURE WERE DERIVED FROM A SET OF FLOOR PLANS WHICH ARE PROVIDED IN THE REPORT AS AN APPENDIX. THIS SURVEY WAS PERFORMED FOR INFORMATIONAL PURPOSES AND SHALL NOT BE SOLELY USED FOR RENOVATION OR DEMOLITION EFFORT.

Tighe&Bond

APPENDIX B

ProScience Analytical Services, Inc

Brian Day
Tighe & Bond, Worcester
446 Main St.
Worcester, MA 01608

July 31, 2015

Dear Brian Day,

The enclosed analytical results have been obtained by using the EPA/600/R-93/116 method. The "Visual Estimate" quantitative method is generally used for determining the percentage of asbestos and other components of the sample. "The Point Counting" method may also be used upon client request or at the analyst discretion. The Point Count method is usually recommended when the sample contains less than 10% asbestos by Visual estimate. Asbestos content less than 1% is recorded on the report as TR (trace).

The Quality Control data related to the samples analyzed is available upon client's written request. ProScience Analytical Services Inc., assumes no responsibility for potential sample contamination that may have occurred during the sample collection process or erroneous data provided by the client.

The enclosed results may not be used under any circumstances as product endorsement by any US government agency including NIST/NVLAP.

All Laboratory records are retained for at least three years unless otherwise directed in writing by the client. The actual samples are retained for a period of two months and written request is necessary in order to be retained for a longer period of time. All analytical results and records are considered strictly confidential and will not be released under any circumstances to anyone except the actual client. The analytical results included in this report apply only to the items tested.

If you have any questions please contact the Laboratory Manager or the Laboratory Director.

Sincerely,

Patricia Weakley, Optical Asbestos Manager

Aimee Cormier, Laboratory Director

Enclosure: Version 2
LAB BATCH ID: B 97543 CLIENT PROJECT ID: F01372
Client Ref: Erving Mill
AIHA ID# 102754; CT ID# PH-0209; MA ID# AA000156; ME ID# LB-055; ME ID# LA-056; NVLAP Lab Code 200090-0; RI ID # AAL-093; VT ID# AL016876

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: **B97543**
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-01	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Gray Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-02	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Gray Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-03	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Gray Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-01A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Mastic Associated with App.1
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-02A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Mastic Associated with App.1
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-03A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Mastic Associated with App.1
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-04	Green	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Green Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-05	Green	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Green Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-06	Green	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Green Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-04A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Mastic Associated with App.3
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-05A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Mastic Associated with App.3
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-06A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Mastic Associated with App.3
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-07	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-08	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-09	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-10	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-11	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-12	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: **B97543**
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-13	White	0	0	0	0	0	0	0	0	5	0	0	0	95

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-14	White	0	0	0	0	0	0	0	0	5	0	0	0	95

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-15	White	0	0	0	0	0	0	0	0	5	0	0	0	95

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-13A	Tan	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Seam Tape Associated with App. 7
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-14A	Tan	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Seam Tape Associated with App. 7
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-15A	Tan	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Seam Tape Associated with App. 7
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: **B97543**
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-13B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App.8
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-14B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App.8
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-15B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App.8
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-16	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-17	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-18	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-19	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-20	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-21	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-22	Multi	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-23	Multi	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-24	Multi	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-22A	Brown	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive Associated with App. 12
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-23A	Brown	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive Associated with App. 12
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-24A	Brown	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive Associated with App. 12
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-25	Gray	5	0	0	0	0	0	0	0	0	0	0	0	95

Description: Sink Undercoat
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-26	Multi	0	0	0	0	0	0	10	0	45	0	0	0	45

Description: Ceiling Panel
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-27	Multi	0	0	0	0	0	0	10	0	45	0	0	0	45

Description: Ceiling Panel
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: **B97543**
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-28	Multi	0	0	0	0	0	0	10	0	45	0	0	0	45

Description: Ceiling Panel
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-29	Gray	0	0	0	0	0	3	0	0	0	0	0	0	97

Description: Caulking
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-30		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-31		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-32	Multi	0	0	0	0	0	0	10	0	45	0	0	0	45

Description: Ceiling Panel
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-33	Multi	0	0	0	0	0	0	10	0	45	0	0	0	45

Description: Ceiling Panel
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-34	Multi	0	0	0	0	0	0	10	0	45	0	0	0	45

Description: Ceiling Panel
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-35	Gray	7	0	0	0	0	0	0	0	0	0	0	0	93

Description: Caulking
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-36		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-37		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-38	Gray	0	0	0	0	0	2	0	0	0	0	0	0	98

Description: Caulking
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-39		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: **B97543**
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-40		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-41	Multi	0	0	0	0	0	0	0	0	70	0	0	0	30

Description: Canvas
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-42	Multi	0	0	0	0	0	0	0	0	70	0	0	0	30

Description: Canvas
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-43	Multi	0	0	0	0	0	0	0	0	70	0	0	0	30

Description: Canvas
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-44	Gray	0	0	0	0	0	0	0	0	20	0	0	0	80

Description: Sink Undercoat
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-45	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-46	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-47	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-48	Multi	0	0	0	0	0	0	3	0	30	0	0	0	67

Description: Sheet Flooring
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-49	Multi	0	0	0	0	0	0	3	0	30	0	0	0	67

Description: Sheet Flooring
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-50	Brown	0	0	0	0	0	0	TR	0	10	0	0	0	90

Description: Sheet Flooring
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-51	Brown	0	0	0	0	0	0	TR	0	10	0	0	0	90

Description: Sheet Flooring
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-52	Brown	0	0	0	0	0	0	TR	0	10	0	0	0	90

Description: Sheet Flooring
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-53	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Floor Tile, Off-White
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-54	White	0	0	0	0	0	0	0	0	TR	0	0	0	100

Description: 12" Floor Tile, Off-White
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-53A	Yellow	0	0	0	0	0	0	0	0	3	0	0	0	97

Description: Mastic Associated with App. 25
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-54A	Yellow	0	0	0	0	0	0	0	0	TR	0	0	0	100

Description: Mastic Associated with App. 25
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-55	Brown	2	0	0	0	0	0	0	0	TR	0	0	0	98

Description: Adhesive
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-56		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Adhesive
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-57		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Adhesive
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-58	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-59	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-58A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive associated with App. 28
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-59A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive associated with App. 28
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-60	Pink	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Salmon Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-61	Pink	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Salmon Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-60A	Tan	0	0	0	0	0	0	0	0	2	0	0	0	98

Description: Mastic Associated with App. 30
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-61A	Tan	0	0	0	0	0	0	0	0	2	0	0	0	98

Description: Mastic Associated with App. 30
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-62	Brown	0	0	0	0	0	0	0	0	20	0	3	0	77

Description: Jute Back
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-63	Brown	0	0	0	0	0	0	0	0	20	0	3	0	77

Description: Jute Back
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-64	Black	30	0	0	0	0	0	0	0	0	0	0	0	70

Description: Jute Back
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-65	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Gray Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-66	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Gray Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-67	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Gray Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-65A	Lt. Brown	0	0	0	0	0	0	0	0	0	2	0	0	98

Description: Mastic Associated with App. 34
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-66A	Lt. Brown	0	0	0	0	0	0	0	0	0	2	0	0	98

Description: Mastic Associated with App. 34
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-67A	Lt. Brown	0	0	0	0	0	0	0	0	2	0	0	0	98

Description: Mastic Associated with App. 34
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-68	Lt. Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Blue Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-69	Lt. Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Blue Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-68A	Yellow	0	0	0	0	0	0	0	0	TR	0	0	0	100

Description: Mastic Associated with App. 36
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-69A	Yellow	0	0	0	0	0	0	TR	0	TR	0	0	0	100

Description: Mastic Associated with App. 36
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-70	White	0	0	0	0	0	0	2	0	5	0	0	0	93

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-71	White	0	0	0	0	0	0	2	0	5	0	0	0	93

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-72	White	0	0	0	0	0	0	2	0	5	0	0	0	93

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-70A		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Seam Tape Associated with App.39
Location: N/A
Comments: Sample not Present. Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-71A		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Seam Tape Associated with App.39
Location: N/A
Comments: Sample not Present. Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-72A		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Seam Tape Associated with App.39
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-70B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App. 40
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-71B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App. 40
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-72B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App. 40
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-73	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-74	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-73A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive Associated with App. 42
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-74A	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive Associated with App. 42
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-75	Gray	0	0	0	0	0	0	0	60	30	0	0	0	10

Description: Ceiling Panel
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-76	Gray	0	0	0	0	0	0	0	50	40	0	0	0	10

Description: Ceiling Panel
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-77	White	0	0	0	0	0	0	0	0	25	0	0	0	75

Description: Sink Undercoat
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-78	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-79	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-78A		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Sheetrock
Location: N/A
Comments: Sample not Present. Analyzed: No

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-79A		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Sheetrock
Location: N/A
Comments: Sample not Present. Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-78B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App. 47
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-79B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App. 47
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-80	Gray	12	0	0	0	0	0	0	0	0	0	0	0	88

Description: Caulking
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-81		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-82		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-83	White	20	0	0	0	0	0	0	0	0	0	0	0	80

Description: Vinyl Sheet Flooring
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-84		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Vinyl Sheet Flooring
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-85	White	2	0	0	0	0	0	0	0	0	0	0	0	98

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-86		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing Compound
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-87		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing Compound
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-88	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-89	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-90	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Sheetrock
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-88A	Yellow	0	0	0	0	0	0	0	0	100	0	0	0	0

Description: Seam Tape Associated with App. 52
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-89A	Yellow	0	0	0	0	0	0	0	0	90	0	0	0	10

Description: Seam Tape Associated with App. 52
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-90A	Yellow	0	0	0	0	0	0	0	0	90	0	0	0	10

Description: Seam Tape Associated with App. 52
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-88B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App. 53
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-89B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App. 53
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-90B	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Joint Compound Associated with App. 53
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-91	Green	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-92	Green	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Cove Base
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-91A	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive Associated with App. 55
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-92A	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Adhesive Associated with App. 55
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-93	Gray	0	0	0	0	0	0	0	0	10	0	0	0	90

Description: Sheet Flooring
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-94	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-95	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-96	Gray	2	0	0	0	0	0	0	0	0	0	0	0	98

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-97		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing Compound
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-98		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing Compound
Location: N/A
Comments: Analyzed: No

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97543
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-99	Black	2	0	0	0	0	0	0	0	0	0	0	0	98

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-100	Gray	0	0	0	0	0	0	0	80	0	0	0	0	20

Description: Fireproofing
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-101	Gray	0	0	0	0	0	0	0	70	0	0	0	0	30

Description: Fireproofing
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-102	Gray	0	0	0	0	0	0	0	0	80	0	0	0	20

Description: Fireproofing
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-103	Gray	3	0	0	0	0	0	0	0	0	0	0	0	97

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-104		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing Compound
Location: N/A
Comments: Analyzed: No

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: **B97543**
Date Sampled: N/A
Date Received: 7/27/2015
Date Analyzed: 7/31/2015
Date of Report: 7/31/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-105		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing Compound
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-106	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-107	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-108	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Glazing Compound
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Asbestos Codes: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite
Non-Asbestos Codes: FBG = Fiberglass MNW = Mineral Wool CEL = Cellulose HAR = Hair SYN = Synthetic OTH = Other NON = Non-Fibrous Minerals

Note: To create a unique lab sample ID, use the Batch # and the Sample ID (example) [Batch #] - [Sample ID]).

* All results are in percentage.

Analyst: Patricia Weakley

ProScience Analytical Services, Inc

Brian Day
Tighe & Bond, Worcester
446 Main St.
Worcester, MA 01608

August 07, 2015

Dear Brian Day,

The enclosed analytical results have been obtained by using the EPA/600/R-93/116 method. The "Visual Estimate" quantitative method is generally used for determining the percentage of asbestos and other components of the sample. "The Point Counting" method may also be used upon client request or at the analyst discretion. The Point Count method is usually recommended when the sample contains less than 10% asbestos by Visual estimate. Asbestos content less than 1% is recorded on the report as TR (trace).

The Quality Control data related to the samples analyzed is available upon client's written request. ProScience Analytical Services Inc., assumes no responsibility for potential sample contamination that may have occurred during the sample collection process or erroneous data provided by the client.

The enclosed results may not be used under any circumstances as product endorsement by any US government agency including NIST/NVLAP.

All Laboratory records are retained for at least three years unless otherwise directed in writing by the client. The actual samples are retained for a period of two months and written request is necessary in order to be retained for a longer period of time. All analytical results and records are considered strictly confidential and will not be released under any circumstances to anyone except the actual client. The analytical results included in this report apply only to the items tested.

If you have any questions please contact the Laboratory Manager or the Laboratory Director.

Sincerely,

Patricia Weakley, Optical Asbestos Manager

Aimee Cormier, Laboratory Director

Enclosure: Version 2
LAB BATCH ID: B 97606 CLIENT PROJECT ID: F01372
Client Ref: Erving Mill
AIHA ID# 102754; CT ID# PH-0209; MA ID# AA000156; ME ID# LB-055; ME ID# LA-056; NVLAP Lab Code 200090-0; RI ID # AAL-093; VT ID# AL016876

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97606
Date Sampled: 7/31/2015
Date Received: 8/5/2015
Date Analyzed: 8/7/2015
Date of Report: 8/7/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-109	Gray	80	0	0	0	0	0	0	0	0	0	0	0	20

Description: Boiler Insulation
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-110		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Boiler Insulation
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-111	Gray	90	0	0	0	0	0	0	0	0	0	0	0	10

Description: Rope Insulation
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-112		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Rope Insulation
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-113	Tan	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Boiler Brick
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-114	Tan	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Boiler Brick
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: B97606
Date Sampled: 7/31/2015
Date Received: 8/5/2015
Date Analyzed: 8/7/2015
Date of Report: 8/7/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-115	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Off-White Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-116	White	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: 12" Off-White Floor Tile
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-115A	Tan	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Mastic assoc. w/App. 4
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-116A	Tan	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Mastic assoc. w/App. 4
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-117	Gray	7	0	0	0	0	0	0	0	0	0	0	0	93

Description: Caulking
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-118		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Caulking
Location: N/A
Comments: Analyzed: No

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: N/A
Client Project #: F01372
Client Reference: Erving Mill
Method: EPA/600/R-93/116

Batch: **B97606**
Date Sampled: 7/31/2015
Date Received: 8/5/2015
Date Analyzed: 8/7/2015
Date of Report: 8/7/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-119	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Roofing
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-120	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Roofing
Location: N/A
Comments: Is asbestos present? No. Analyzed: Yes

Asbestos Codes: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite
Non-Asbestos Codes: FBG = Fiberglass MNW = Mineral Wool CEL = Cellulose HAR = Hair SYN = Synthetic OTH = Other NON = Non-Fibrous Minerals

Note: To create a unique lab sample ID, use the Batch # and the Sample ID (example: [Batch #] - [Sample ID]).

* All results are in percentage.

Analyst: Kyle Green

ProScience *Analytical Services, Inc.* www.proscience.net

22 Cummings Park, Woburn, MA 01801 T: 781-935-3212 F: 781-932-4857 general@proscience.net

TAT (circle one): 3 Hours 6 Hours Same Day Next Day (2 Days) 3 Days 4-5 Days Other _____
TAT in bus. days - lab approval required for rush analysis

PASI Batch # 897406

Client: Tighe & Bond
Address: 446Main Street, Worcester, Ma
Project #: F01372 PO:
Project Site: Erving Mill
Contact: Brian Day
Tel. / Fax #:
Email: BFDay@tighebond.com

PLM
Chain of Custody
ver 4.2 Updated 8/10/11

Relinquished By: 7 Day Date: 8/4/15
Received By: Kathy Antone Date: 8-5-15 @ 10AM
# of Samples Received: 14 Analyzed:
Results: email fax verbal By: Date:
Stop on first positive: (Yes) / No
Special Instructions:

Analyst / Date: Kyle Burn 8-7-15 QC by / Date: Matthew Cleveland 8/7/15

Sample ID	Date Sampled	Description / Location	Stereo Scope: SSAPE	Color	Homogeneity	Texture	Friable	Optical Properties: Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: II	⊥	Asbestos Percentage (%): Chrysotile	Circle Type: Amosite	Crocidolite	Tremolite	Anthophyllite	Actinolite	Non Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
A-109	7/31/15	BOILER INSULATION APP. 1	15	B	Y	F	Y	W	U	+	M	U	1.559	1.545	80												20
A-110	"	" DNA																									
A-111		ROPE INSULATION APP. 2	70	G	Y	F	Y	W	U	+	M	N	1.559	1.548	90												10
A-112	"	" DNA																									
A-113		BOILER BRICK APP. 3	0	T	Y	C	N																				100
A-114	↓	"	0	T	Y	C	N																				100

Comments: Birefringence L= less than .010, M= .011-.029, H= greater than .03: Microscope Olympus BH-2, Serial # circle 1- 242277, 229027, 235000, 230663 Lab uses the EPA or ELAP point count method as appropriate. SSAPE = Stereo Scope Asb. % Est.

Lab Sample IDs: To form a lab sample id use Batch # - Sample ID.

ProScience *Analytical Services, Inc.* www.proscience.net

22 Cummings Park, Woburn, MA 01801 T: 781-935-3212 F: 781-932-4857 general@proscience.net

TAT (circle one): 3 Hours 6 Hours Same Day Next Day (2 Days) 3 Days 4-5 Days Other _____
TAT in bus. days - lab approval required for rush analysis

PASI Batch # B97606

Client: Tighe & Bond
Address: 446Main Street, Worcester, Ma
Project #: F01372 PO:
Project Site: Erving Mill
Contact: Brian Day
Tel. / Fax #:
Email: BFDay@tighebond.com

PLM
Chain of Custody
ver 4.2 Updated 8/10/11

Relinquished By: [signature] 7 Day Date: 8/4/15
Received By: Date:
# of Samples Received: Analyzed:
Results: email fax verbal By: Date:
Stop on first positive: (Yes) / No
Special Instructions:

Analyst / Date: Kyle Gruen 8-7-15 QC by / Date:

Sample ID	Date Sampled	Description / Location	Stereo Scope: SSAPE	Color	Homogeneity	Texture	Friable	Optical Properties: Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: II	⊥	Asbestos Percentage (%): Chrysotile	Amosite	Crocidolite	Tremolite	Anthophyllite	Actinolite	Non Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
A-115	7/31/15	12" OFF WHITE FLOOR TILE APP. 4	0	W	VH	VF	N																				100
A-116	"	" APP. 4	0	W	VH	VF	N																				100
A-115A	"	MASTIC ASSOC. WITH APP. 4 APP. 5	0	T	VF	S	N																				100
A-116A	"	" "	0	T	VF	S	N																				100
A-117	"	CAULKING APP-6	0	G Y	VF	I	N	W	N	+	L	N	1.559	1.550	7												93
A-118	↓	" " DNA																									

Comments: Birefringence L= less than .010, M= .011-.029, H= greater than .03: Microscope Olympus BH-2, Serial # circle 1- 242277, 229027, 235000, 230663 Lab uses the EPA or ELAP point count method as appropriate. SSAPE = Stereo Scope Asb. % Est.

Lab Sample IDs: To form a lab sample id use Batch # - Sample ID.

ProScience *Analytical Services, Inc.* www.proscience.net

22 Cummings Park, Woburn, MA 01801 T: 781-935-3212 F: 781-932-4857 general@proscience.net

TAT (circle one): 3 Hours 6 Hours Same Day Next Day (2 Days) 3 Days 4-5 Days Other _____

TAT in bus. days - lab approval required for rush analysis!

PASI Batch # B97606

Client: Tighe & Bond

Address: 446Main Street, Worcester, Ma

Project #: F01372 PO:

Project Site: Erving Mill

Contact: Brian Day

Tel. / Fax #:

Email: BFDay@tighebond.com

PLM
Chain of Custody
ver 4.2 Updated 8/10/11

Relinquished By: 7 Day Date: 8/4/15

Received By: Date:

# of Samples Received: Analyzed:

Results: email fax verbal By: Date:

Stop on first positive: (Yes) / No

Special Instructions:

Analyst / Date: Kyle Quinn 8-7-15 QC by / Date:

Sample ID	Date Sampled	Description / Location	Stereo Scope: SSAPE	Color	Homogeneity	Texture	Friable	Optical Properties: Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: II	⊥	Asbestos Percentage (%): Chrysotile	Amosite	Crocidolite	Tremolite	Anthophyllite	Actinolite	Non Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
A-119	7/31/15	ROOFING APP. 17	0	BG	KY	FI	N																				100
A-120	↓	" "	0	BG	KY	FI	N																				100
	X																										

Comments: Birefringence L= less than .010, M= .011-.029, H= greater than .03: Microscope Olympus BH-2, Serial # circle 1- 242277, 229027, 235000, 230663 Lab uses the EPA or ELAP point count method as appropriate. SSAPE = Stereo Scope Asb. % Est.

Lab Sample IDs: To form a lab sample id use Batch # - Sample ID.

ProScience Analytical Services, Inc

Dan Dragon
Tighe & Bond, Worcester
446 Main St.
Worcester, MA 01608

September 22, 2015

Dear Dan Dragon,

The enclosed analytical results have been obtained by using the EPA/600/R-93/116 method. The "Visual Estimate" quantitative method is generally used for determining the percentage of asbestos and other components of the sample. "The Point Counting" method may also be used upon client request or at the analyst discretion. The Point Count method is usually recommended when the sample contains less than 10% asbestos by Visual estimate. Asbestos content less than 1% is recorded on the report as TR (trace).

The Quality Control data related to the samples analyzed is available upon client's written request. ProScience Analytical Services Inc., assumes no responsibility for potential sample contamination that may have occurred during the sample collection process or erroneous data provided by the client.

The enclosed results may not be used under any circumstances as product endorsement by any US government agency including NIST/NVLAP.

All Laboratory records are retained for at least three years unless otherwise directed in writing by the client. The actual samples are retained for a period of two months and written request is necessary in order to be retained for a longer period of time. All analytical results and records are considered strictly confidential and will not be released under any circumstances to anyone except the actual client. The analytical results included in this report apply only to the items tested.

If you have any questions please contact the Laboratory Manager or the Laboratory Director.

Sincerely,

Patricia Weakley, Optical Asbestos Manager

Aimee Cormier, Laboratory Director

Enclosure: Version 2
LAB BATCH ID: B 98162 CLIENT PROJECT ID: 15-137-2-06
Client Ref: Erving - IP Mill
AIHA ID# 102754; CT ID# PH-0209; MA ID# AA000156; ME ID# LB-055; ME ID# LA-056; NVLAP Lab Code 200090-0; RI ID # AAL-093; VT ID# AL016876

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: 15-137
Client Project #: 15-137-2-06
Client Reference: Erving - IP Mill
Method: EPA/600/R-93/116

Batch: B98162
Date Sampled: N/A
Date Received: 9/22/2015
Date Analyzed: 9/22/2015
Date of Report: 9/22/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-121	Lt. Gray	80	0	0	0	0	0	0	0	TR	0	0	0	20

Description: Insulation
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-122	Black	2	0	0	0	0	0	0	0	TR	0	0	0	98

Description: Glazing
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-123		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-124		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing
Location: N/A
Comments: Analyzed: No

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-125	Dk. Gray	3	0	0	0	0	0	0	0	TR	0	0	0	97

Description: Glazing
Location: N/A
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-126		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing
Location: N/A
Comments: Analyzed: No

ProScience Analytical Services, Inc.

Client Name: Tighe & Bond, Worcester
PO #: 15-137
Client Project #: 15-137-2-06
Client Reference: Erving - IP Mill
Method: EPA/600/R-93/116

Batch: B98162
Date Sampled: N/A
Date Received: 9/22/2015
Date Analyzed: 9/22/2015
Date of Report: 9/22/2015

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
A-127		0	0	0	0	0	0	0	0	0	0	0	0	0

Description: Glazing
Location: N/A
Comments: Analyzed: No

Asbestos Codes: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite
Non-Asbestos Codes: FBG = Fiberglass MNW = Mineral Wool CEL = Cellulose HAR = Hair SYN = Synthetic OTH = Other NON = Non-Fibrous Minerals

Note: To create a unique lab sample ID, use the Batch # and the Sample ID (example: [Batch #] - [Sample ID]).

* All results are in percentage.

Analyst: Matthew Cleveland

ProScience *Analytical Services, Inc.* www.proscience.net

22 Cummings Park, Woburn, MA 01801 T: 781-935-3212 F: 781-932-4857 general@proscience.net

TAT (circle one): 3 Hours 6 Hours Same Day Next Day / 2 Days 3 Days 4-5 Days Other _____ — TAT in bus. days - lab approval required for rush analysis

PASI Batch # B98162

Client: Tighe & Bond Inc.

Address: 446 Main Street, Worcester, MA

Project #: 15-137-2-06 PO: 15-137

Project Site: ERVING - IP MILL

Contact: Dan Dragon

Tel. / Fax #: 413-626-3833

Email: djdragon@tighebond.com

PLM
Chain of Custody
ver 4.2 Updated 8/10/11

Relinquished By: _____ Date: 9/15/15

Received By: [illegible] Date: 9/22/15

# of Samples Received: 7 Analyzed: 1020 am

Results: email fax verbal By: _____ Date: _____

Stop on first positive: (Yes) / No

Special Instructions: _____

Analyst / Date: [illegible] 9/22/15 QC by / Date: _____

Sample ID	Date Sampled	Description / Location	Stereo Scope: SSAPE	Color	Homogeneity	Texture	Friable	Optical Properties: Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Asbestos Percentage (%): Chrysotile	Circle Type: Amosite	Crocidolite	Tremolite	Anthophyllite	Actinolite	Non Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
A-121		INSULATION Application # 1	80	LT GY	Y	F	Y	W	II	+	L	N	1.555	1.549	80								HB				
																							TR				20
A-122		GLAZING Application # 2	0	BK	Y	B	N/A Y	W	II	+	M	N	1.565	1.553	2								HB				
																							TR				98
A-123		" DNA Application # 2																									
A-124		" DNA Application # 2																									
A-125		GLAZING Application # 3	0	BK GY	Y	B	Y	W	II	+	M	N	1.565	1.553	3								HB				
																							TR				97
A-126		" DNA Application # 3																									

Comments: Birefringence L= less than .010, M= .011-.029, H= greater than .03: Microscope Olympus BH-2, Serial # circle 1- 242277, 229027, 235000, 230663 Lab uses the EPA or ELAP point count method as appropriate. SSAPE = Stereo Scope Asb. % Est.

Lab Sample IDs: To form a lab sample id use Batch # - Sample ID.

ProScience *Analytical Services, Inc.* www.proscience.net
22 Cummings Park, Woburn, MA 01801 T: 781-935-3212 F: 781-932-4857 general@proscience.net

TAT (circle one)

3 Hours 6 Hours Same Day Next Day
2 Days 3 Days 4-5 Days Other _____
TAT in bus. days - lab approval required for rush analysis

PASI Batch # B98162

Client: Tighe & Bond Inc.
Address: 446 Main Street, Worcester, MA
Project #: 15-137-2-06 PO: 15-137
Project Site: ERVING - IP MILL
Contact: Dan Dragon
Tel. / Fax #: 413-626-3833
Email: djdragon@tighebond.com

PLM
Chain of Custody
ver 4.2 Updated 8/10/11

Relinquished By: _____ Date: 9/15/15
Received By: _____ Date:
# of Samples Received: _____ Analyzed:
Results: email fax verbal By: _____ Date:
Stop on first positive: (Yes) / No
Special Instructions:

Analyst / Date: 9/22/15 QC by / Date:

Sample ID	Date Sampled	Description / Location	Stereo Scope: SSAPE	Color	Homogeneity	Texture	Friable	Optical Properties: Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Asbestos Percentage (%): Chrysotile	Circle Type: Amosite	Crocidolite	Tremolite	Anthophyllite	Actinolite	Non Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
A-127		GLAZING DNA Application # 3																									
		Application #																									
		Application #																									
		Application #																									
		Application #																									
		Application #																									

Comments: Birefringence L= less than .010, M= .011-.029, H= greater than .03: Microscope Olympus BH-2, Serial # circle 1- 242277, 229027, 235000, 230663 Lab uses the EPA or ELAP point count method as appropriate. SSAPE = Stereo Scope Asb. % Est.

Lab Sample IDs: To form a lab sample id use Batch # - Sample ID.

Tighe&Bond

APPENDIX C

Appendix C Hazardous Materials Schedule

Tighe & Bond

Project: **Former International Paper Mill**
Location: **Erving, MA**

Location	Waste Type	Container Type	Volume of Contents	Quantity	Comments
Building 1	Mercury	Fluorescent light tubes	-	465	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Building 1	PCB	Ballast	-	240	Some ballasts stored in various areas.
Building 1	Lead source	Batteries	-	3	Batteries associated with the emergency light units.
Building 1	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	10	
Building 1	Refrigerant	Air conditioning unit	1 Gal	1	Refrigerant associated with window air conditioning units.
Building 1	Refrigerant	Air conditioning unit	1 Gal	1	Refrigerant associated with water cooler.
Building 1	Beryllium oxide	Microwave	-	2	
Shipping Dock	Oils	Dock levelers	10 Gal	2	
Building 2ADD/2A	Mercury	Fluorescent light tubes	-	510	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Building 2ADD/2A	PCB	Ballast	-	260	Some ballasts stored in various areas.
Building 2ADD/2A	Lead source	Batteries	-	10	Batteries associated with the emergency light units.
Building 2ADD/2A	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	8	
Building 2ADD/2A	Lead source	Fork truck batteries	-	4	
Building 2ADD/2A	Lead / mercury	CRT's	-	80	CRT's associated with monitors and televisions.
Building 2B	Mercury	Fluorescent light tubes	-	4	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Building 2B	PCB	Ballast	-	2	Some ballasts stored in various areas.

Appendix C Hazardous Materials Schedule

Tighe & Bond

Project: **Former International Paper Mill**
Location: **Erving, MA**

Location	Waste Type	Container Type	Volume of Contents	Quantity	Comments
Building 2B	Waste water	Plastic tank	-	1	(1) - 5'x5'x'5 plastic tank associated with bathroom toilet.
Building 2B	Oils	Dock levelers	10 Gal	2	
Building 2	Mercury	Fluorescent light tubes	-	460	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Building 2	PCB	Ballast	-	320	Some ballasts stored in various areas.
Building 2	Lead source	Batteries	-	11	Batteries associated with the emergency light units.
Building 2	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	20	
Building 2	Oils	Dock levelers	10 Gal	10	
Building 2	Mercury	High intensity discharge lights / capacitors	-	1	HID light stored adjacent to stairwell.
Building 2	Poison	5 lb. Box	-	1	Stored adjacent to stairwell.
Building 3	Mercury	Fluorescent light tubes	-	120	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Building 3	PCB	Ballast	-	60	Some ballasts stored in various areas.
Building 3	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	5	
Building 3	Mercury	High intensity discharge lights / capacitors	-	10	
Building 4, 5, 6 & 7	Mercury	Fluorescent light tubes	-	270	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Building 4, 5, 6 & 7	PCB	Ballast	-	150	Some ballasts stored in various areas.
Building 4, 5, 6 & 7	Lead source	Batteries	-	16	Batteries associated with the emergency light units.

Appendix C Hazardous Materials Schedule

Tighe & Bond

Project: **Former International Paper Mill**
Location: **Erving, MA**

Location	Waste Type	Container Type	Volume of Contents	Quantity	Comments
Building 4, 5, 6 & 7	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	15	
Buildings 8A, 9, 9A, 9B & 10	Mercury	Fluorescent light tubes	-	410	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Buildings 8A, 9, 9A, 9B & 10	PCB	Ballast	-	230	Some ballasts stored in various areas.
Buildings 8A, 9, 9A, 9B & 10	Lead source	Batteries	-	15	Batteries associated with the emergency light units.
Buildings 8A, 9, 9A, 9B & 10	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	38	
Buildings 8A, 9, 9A, 9B & 10	Oils	Elevator equipment	50 Gals	1	
Buildings 8A, 9, 9A, 9B & 10	Diesel fuel	Above Ground Storage Tank / Fuel Lines	350 Gal	1	
Stockhouse	Mercury	Fluorescent light tubes	-	65	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Stockhouse	PCB	Ballast	-	35	Some ballasts stored in various areas.
Stockhouse	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	2	
Stockhouse	Oils	Industrial equipment	5 Gals	1	
Stockhouse	Oils	Dock levelers	10 Gal	2	
Pulp Receiving	Mercury	Fluorescent light tubes	-	24	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Pulp Receiving	PCB	Ballast	-	12	Some ballasts stored in various areas.
Pulp Receiving	Lead source	Batteries	-	3	Batteries associated with the emergency light units.
Pulp Receiving	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	2	

Appendix C Hazardous Materials Schedule

Tighe & Bond

Project: **Former International Paper Mill**
Location: **Erving, MA**

Location	Waste Type	Container Type	Volume of Contents	Quantity	Comments
Pulp Receiving	Oils	Dock levers	10 Gal	2	
Building 12	Mercury	Fluorescent light tubes	-	85	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Building 12	PCB	Ballast	-	42	Some ballasts stored in various areas.
Building 12 Exterior	PCB	Transformer	770 Gal	6	Exterior transformers assumed to contain PCB oils. Five transformers intact, one damaged and toppled over.
Building 8-Boiler Room	Mercury	Fluorescent light tubes	-	20	Fluorescent light tubes range in length from 2' to 8' and include 'U' shape tubes.
Building 8-Boiler Room	PCB	Ballast	-	10	Some ballasts stored in various areas.
Building 8-Boiler Room	CO2 / monoammonium phosphate / ammonium sulfate	Fire extinguisher	Full	2	
Building 8-Boiler Room	Mercury	Ampule	-	4	Mercoid switches and thermostats.
Building 8-Boiler Room	Oils	Above Ground Storage Tank / Boiler Fuel Lines	350 Gal	1	
Building 17	PCB	Ballast	-	2	
Building 17	Mercury	Ampule	-	3	Mercoid switches and thermostats.

APPENDIX D

Appendix D PCB Building Material Wipe Sampling Results
Former International Paper Mill
Erving, MA

Client Sample	PCB-01	PCB-02	PCB-03	PCB-04	PCB-05
Material	Caulking	Caulking	Caulking	Caulking	Glazing
Sample Date	7/31/2015	7/31/2015	7/31/2015	7/31/2015	7/31/2015
Sample Location	Building 1 - Caulking between window frame and building façade	Building 1 - Caulking between window frame and building façade	Building 2 - Caulking between window frame and building façade	Building 2ADD/2A - Caulking between window frame and building façade	Building 2 - Window glazing compounds
Polychlorinated Biphenyls (PCB)					
Aroclor 1016	ND	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND	ND
Aroclor 1262	ND	ND	ND	ND	ND
Aroclor 1268	ND	ND	ND	ND	ND

Results reported in micrograms per wipe (ug/wipe)

PCB-06
Glazing
7/31/2015
Building 4, 5, 6 & 7 - Window glazing compounds
ND
ND
ND
ND
ND
ND
ND
ND
ND

Tighe&Bond

APPENDIX E

CERTIFICATE OF ANALYSIS

Dan Dragon
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: IP Mill Erving (15-137)
ESS Laboratory Work Order Number: 1508088

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 4:24 pm, Aug 13, 2015

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving

ESS Laboratory Work Order: 1508088

SAMPLE RECEIPT

The following samples were received on August 05, 2015 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1508088-01	PCB-01	Wipe	8082A
1508088-02	PCB-02	Wipe	8082A
1508088-03	PCB-03	Wipe	8082A
1508088-04	PCB-04	Wipe	8082A
1508088-05	PCB-05	Wipe	8082A
1508088-06	PCB-06	Wipe	8082A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving

ESS Laboratory Work Order: 1508088

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving

ESS Laboratory Work Order: 1508088

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving
Client Sample ID: PCB-01
Date Sampled: 07/31/15 10:00
Percent Solids: N/A
Initial Volume: 1
Final Volume: 10
Extraction Method: 3540

ESS Laboratory Work Order: 1508088
ESS Laboratory Sample ID: 1508088-01
Sample Matrix: Wipe
Units: ug/Wipe
Analyst: IBM
Prepared: 8/6/15 18:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.0)		8082A		1	08/07/15 18:52		CH50624
Aroclor 1221	ND (1.0)		8082A		1	08/07/15 18:52		CH50624
Aroclor 1232	ND (1.0)		8082A		1	08/07/15 18:52		CH50624
Aroclor 1242	ND (1.0)		8082A		1	08/07/15 18:52		CH50624
Aroclor 1248	ND (1.0)		8082A		1	08/07/15 18:52		CH50624
Aroclor 1254	ND (1.0)		8082A		1	08/07/15 18:52		CH50624
Aroclor 1260	ND (1.0)		8082A		1	08/07/15 18:52		CH50624
Aroclor 1262	ND (1.0)		8082A		1	08/07/15 18:52		CH50624
Aroclor 1268	ND (1.0)		8082A		1	08/07/15 18:52		CH50624

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*96 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving
Client Sample ID: PCB-02
Date Sampled: 07/31/15 10:30
Percent Solids: N/A
Initial Volume: 1
Final Volume: 10
Extraction Method: 3540

ESS Laboratory Work Order: 1508088
ESS Laboratory Sample ID: 1508088-02
Sample Matrix: Wipe
Units: ug/Wipe
Analyst: IBM
Prepared: 8/6/15 18:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.0)		8082A		1	08/07/15 19:11		CH50624
Aroclor 1221	ND (1.0)		8082A		1	08/07/15 19:11		CH50624
Aroclor 1232	ND (1.0)		8082A		1	08/07/15 19:11		CH50624
Aroclor 1242	ND (1.0)		8082A		1	08/07/15 19:11		CH50624
Aroclor 1248	ND (1.0)		8082A		1	08/07/15 19:11		CH50624
Aroclor 1254	ND (1.0)		8082A		1	08/07/15 19:11		CH50624
Aroclor 1260	ND (1.0)		8082A		1	08/07/15 19:11		CH50624
Aroclor 1262	ND (1.0)		8082A		1	08/07/15 19:11		CH50624
Aroclor 1268	ND (1.0)		8082A		1	08/07/15 19:11		CH50624

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*99 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*97 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving
Client Sample ID: PCB-03
Date Sampled: 07/31/15 11:00
Percent Solids: N/A
Initial Volume: 1
Final Volume: 10
Extraction Method: 3540

ESS Laboratory Work Order: 1508088
ESS Laboratory Sample ID: 1508088-03
Sample Matrix: Wipe
Units: ug/Wipe
Analyst: IBM
Prepared: 8/6/15 18:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.0)		8082A		1	08/07/15 19:30		CH50624
Aroclor 1221	ND (1.0)		8082A		1	08/07/15 19:30		CH50624
Aroclor 1232	ND (1.0)		8082A		1	08/07/15 19:30		CH50624
Aroclor 1242	ND (1.0)		8082A		1	08/07/15 19:30		CH50624
Aroclor 1248	ND (1.0)		8082A		1	08/07/15 19:30		CH50624
Aroclor 1254	ND (1.0)		8082A		1	08/07/15 19:30		CH50624
Aroclor 1260	ND (1.0)		8082A		1	08/07/15 19:30		CH50624
Aroclor 1262	ND (1.0)		8082A		1	08/07/15 19:30		CH50624
Aroclor 1268	ND (1.0)		8082A		1	08/07/15 19:30		CH50624

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*83 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*91 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving
Client Sample ID: PCB-04
Date Sampled: 07/31/15 11:15
Percent Solids: N/A
Initial Volume: 1
Final Volume: 10
Extraction Method: 3540

ESS Laboratory Work Order: 1508088
ESS Laboratory Sample ID: 1508088-04
Sample Matrix: Wipe
Units: ug/Wipe
Analyst: IBM
Prepared: 8/6/15 18:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.0)		8082A		1	08/07/15 19:49		CH50624
Aroclor 1221	ND (1.0)		8082A		1	08/07/15 19:49		CH50624
Aroclor 1232	ND (1.0)		8082A		1	08/07/15 19:49		CH50624
Aroclor 1242	ND (1.0)		8082A		1	08/07/15 19:49		CH50624
Aroclor 1248	ND (1.0)		8082A		1	08/07/15 19:49		CH50624
Aroclor 1254	ND (1.0)		8082A		1	08/07/15 19:49		CH50624
Aroclor 1260	ND (1.0)		8082A		1	08/07/15 19:49		CH50624
Aroclor 1262	ND (1.0)		8082A		1	08/07/15 19:49		CH50624
Aroclor 1268	ND (1.0)		8082A		1	08/07/15 19:49		CH50624

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*88 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*84 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving
Client Sample ID: PCB-05
Date Sampled: 07/31/15 11:30
Percent Solids: N/A
Initial Volume: 1
Final Volume: 10
Extraction Method: 3540

ESS Laboratory Work Order: 1508088
ESS Laboratory Sample ID: 1508088-05
Sample Matrix: Wipe
Units: ug/Wipe
Analyst: IBM
Prepared: 8/6/15 18:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.0)		8082A		1	08/07/15 20:08		CH50624
Aroclor 1221	ND (1.0)		8082A		1	08/07/15 20:08		CH50624
Aroclor 1232	ND (1.0)		8082A		1	08/07/15 20:08		CH50624
Aroclor 1242	ND (1.0)		8082A		1	08/07/15 20:08		CH50624
Aroclor 1248	ND (1.0)		8082A		1	08/07/15 20:08		CH50624
Aroclor 1254	ND (1.0)		8082A		1	08/07/15 20:08		CH50624
Aroclor 1260	ND (1.0)		8082A		1	08/07/15 20:08		CH50624
Aroclor 1262	ND (1.0)		8082A		1	08/07/15 20:08		CH50624
Aroclor 1268	ND (1.0)		8082A		1	08/07/15 20:08		CH50624

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*94 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*96 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving
Client Sample ID: PCB-06
Date Sampled: 07/31/15 12:00
Percent Solids: N/A
Initial Volume: 1
Final Volume: 10
Extraction Method: 3540

ESS Laboratory Work Order: 1508088
ESS Laboratory Sample ID: 1508088-06
Sample Matrix: Wipe
Units: ug/Wipe
Analyst: IBM
Prepared: 8/6/15 18:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.0)		8082A		1	08/07/15 20:28		CH50624
Aroclor 1221	ND (1.0)		8082A		1	08/07/15 20:28		CH50624
Aroclor 1232	ND (1.0)		8082A		1	08/07/15 20:28		CH50624
Aroclor 1242	ND (1.0)		8082A		1	08/07/15 20:28		CH50624
Aroclor 1248	ND (1.0)		8082A		1	08/07/15 20:28		CH50624
Aroclor 1254	ND (1.0)		8082A		1	08/07/15 20:28		CH50624
Aroclor 1260	ND (1.0)		8082A		1	08/07/15 20:28		CH50624
Aroclor 1262	ND (1.0)		8082A		1	08/07/15 20:28		CH50624
Aroclor 1268	ND (1.0)		8082A		1	08/07/15 20:28		CH50624

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*102 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*104 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving

ESS Laboratory Work Order: 1508088

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH50624 - 3540										
Blank										
Aroclor 1016	ND	1.0	ug/Wipe							
Aroclor 1221	ND	1.0	ug/Wipe							
Aroclor 1232	ND	1.0	ug/Wipe							
Aroclor 1242	ND	1.0	ug/Wipe							
Aroclor 1248	ND	1.0	ug/Wipe							
Aroclor 1254	ND	1.0	ug/Wipe							
Aroclor 1260	ND	1.0	ug/Wipe							
Aroclor 1262	ND	1.0	ug/Wipe							
Aroclor 1268	ND	1.0	ug/Wipe							
Surrogate: Decachlorobiphenyl	*0.470*		ug/Wipe	*0.5000*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.456*		ug/Wipe	*0.5000*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.482*		ug/Wipe	*0.5000*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.428*		ug/Wipe	*0.5000*		*86*	*30-150*			
LCS										
Aroclor 1016	9.2	1.0	ug/Wipe	10.00		92	40-140			
Aroclor 1260	8.7	1.0	ug/Wipe	10.00		87	40-140			
Surrogate: Decachlorobiphenyl	*0.447*		ug/Wipe	*0.5000*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.438*		ug/Wipe	*0.5000*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.495*		ug/Wipe	*0.5000*		*99*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.468*		ug/Wipe	*0.5000*		*94*	*30-150*			
LCS Dup										
Aroclor 1016	8.5	1.0	ug/Wipe	10.00		85	40-140	8	20	
Aroclor 1260	8.2	1.0	ug/Wipe	10.00		82	40-140	6	20	
Surrogate: Decachlorobiphenyl	*0.418*		ug/Wipe	*0.5000*		*84*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.409*		ug/Wipe	*0.5000*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.446*		ug/Wipe	*0.5000*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.420*		ug/Wipe	*0.5000*		*84*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving

ESS Laboratory Work Order: 1508088

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: IP Mill Erving

ESS Laboratory Work Order: 1508088

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

Sample and Cooler Receipt Checklist

Client: Tighe & Bond
Client Project ID: _____
Shipped/Delivered Via: ESS Courier

ESS Project ID: 15080088
Date Project Due: ~~8/12/2015~~ 8/13/15
Days For Project: 5 Day

Items to be checked upon receipt:

1. Air Bill Manifest Present?	* No	10. Are the samples properly preserved?	Yes
Air No.:		11. Proper sample containers used?	Yes
2. Were Custody Seals Present?	No	12. Any air bubbles in the VOA vials?	N/A
3. Were Custody Seals Intact?	N/A	13. Holding times exceeded?	No
4. Is Radiation count < 100 CPM?	Yes	14. Sufficient sample volumes?	Yes
5. Is a cooler present?	Yes	15. Any Subcontracting needed?	No
Cooler Temp: **2.4**		16. Are ESS labels on correct containers?	**Yes** | **No**
Iced With: **Ice**		17. Were samples received intact?	**Yes** | **No**
6. Was COC included with samples?	Yes	ESS Sample IDs:	
7. Was COC signed and dated by client?	Yes	Sub Lab:	
8. Does the COC match the sample	Yes	Analysis:	
9. Is COC complete and correct?	Yes	TAT:	

18. Was there need to call project manager to discuss status? If yes, please explain.

_____

_____

_____

Who was called?:_____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	4 oz Soil Jar	1	Hexane
2	Yes	4 oz Soil Jar	1	Hexane
3	Yes	4 oz Soil Jar	1	Hexane
4	Yes	4 oz Soil Jar	1	Hexane
5	Yes	4 oz Soil Jar	1	Hexane
6	Yes	4 oz Soil Jar	1	Hexane

Completed By: MJM Date/Time: 8/5/15 1933
Reviewed By: N. Rocco Date/Time: 8/6/15 0730

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time: X Standard Other ____
If faster than 5 days, prior approval by laboratory is required # ____
State where samples were collected from: (MA) RI CT NH NJ NY ME Other ____
Is this project for any of the following: MA-MCP* Navy USACE Other TSCA

Reporting Limits: < 1ppm
ESS LAB PROJECT ID: 1508088
Electronic Deliverable: X Yes ___ No Format PDF

Co. Name	Project #	Project Name (20 Char. or less)
TIGHE & BOND	15-137	IP MILL, ERVING

Contact Person	Address
DAN DRAGON	446 MAW St.

City	State	Zip	PO#
WORCESTER	MA	01608	15-137

Telephone #	Fax #	Email Address
413 626 3833	___	DJDRAGON@TIGHEBOND.COM

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260 624 524.2	8021 MTBE/BTEX 8015 GRO VPH	8100 TPH 8015 DRO EPH No Targets	8081 Pesticides 8082 PCB 608 Pesticides 608 PCB	8270 625 PAH only	RCRA5 RCRA8 PP13 TAL23	TCLP8 MCP MCPw/Hg NBC7
	7.31.15	1000		✓	W	PCB-01	1	G				X			
	7.31.15	1030		✓	W	PCB-02	1	G				X			
	7.31.15	1100		✓	W	PCB-03	1	G				X			
	7.31.15	1115		✓	W	PCB-04	1	G				X			
	7.31.15	1130		✓	W	PCB-05	1	G				X			
	7.31.15	1200		✓	W	PCB-06	1	G				X			

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present: ✓ Yes ___ No
Seals Intact: ___ Yes ___ No NA: ___
Cooler Temp: 2.4 8-5-15 17:17

Internal Use Only
[ ] Pickup
[ ] Technicians ___

Comments: SOXHLET EXTRACTION DL < 1ppm

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	8-5-15 13:40	[signature]	8-5-15 13:40	[signature]	8-5-15 17:17	[signature]	8/5/15 1932
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

Page 15 of 15

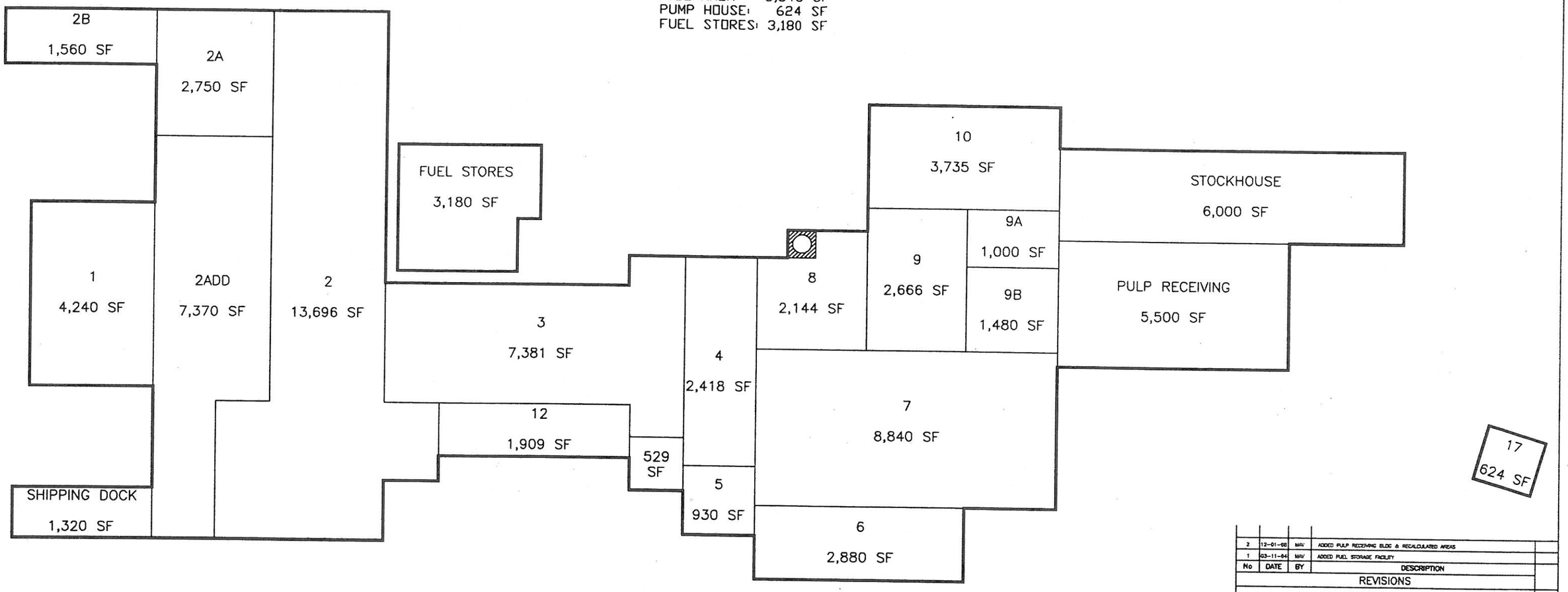
Tighe&Bond

APPENDIX F

MILLERS FALLS

AREA = 82,152 S.F.

MILL AREA: 8,348 SF
PUMP HOUSE: 624 SF
FUEL STORES: 3,180 SF



NOTE: LAYOUT WAS BASED ON FACTORY MUTUAL DRAWING

No	DATE	BY	DESCRIPTION
2	12-01-98	MAV	ADDED PULP RECEIVING BLDG & RECALCULATED AREAS
1	03-11-94	MAV	ADDED FUEL STORAGE FACILITY

REVISIONS

OTHER | ENVIR. | ARCH. | CIVIL | P.C. | INSTR. | ELECT. | PROC.

INTERNATIONAL PAPER

STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

ROOF LINE
AREA CALCULATION OF BUILDINGS

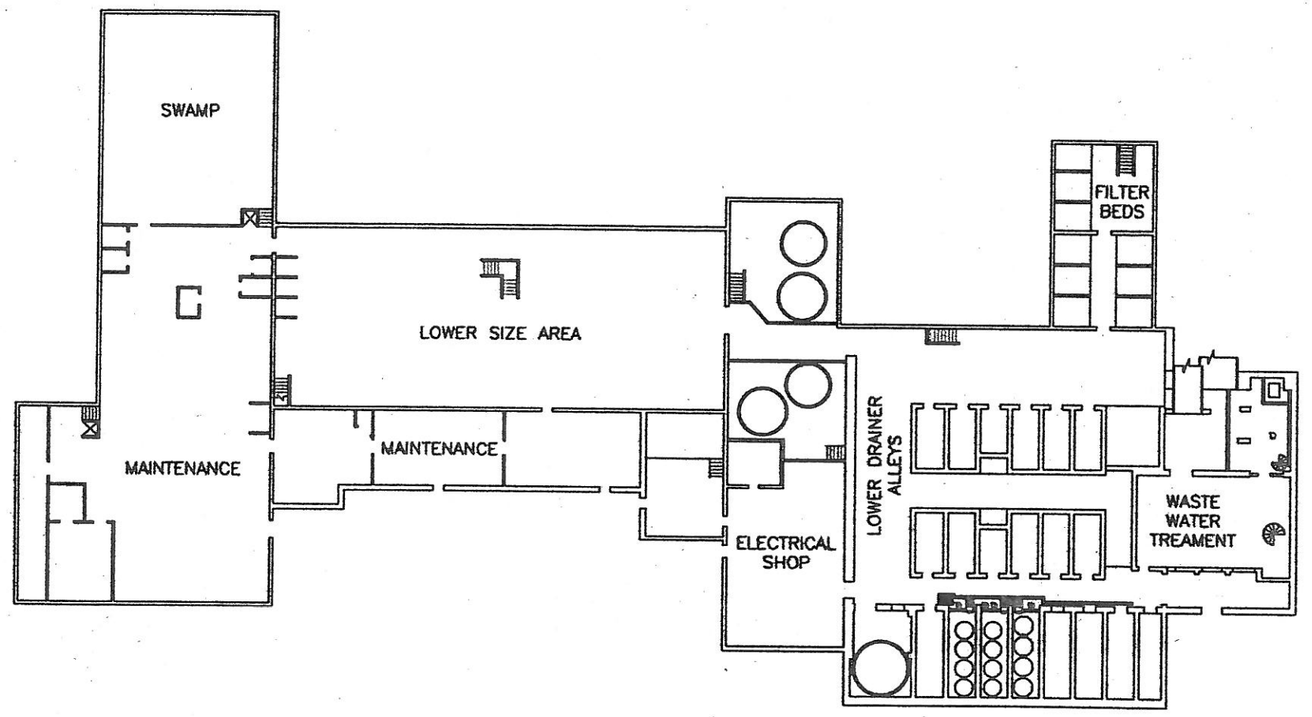
BLDG(S) ALL FLOORS(S) ROOF MILLERS FALLS

SCALE	1"=20'-0"	ENGR			DRAWING No.
DRN	MAV	06-04-93	DES ENGR		REV. 2
DSGN			MGR		

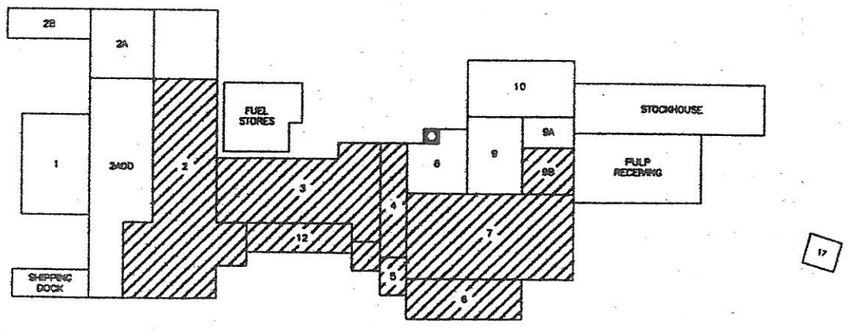
STRATHMORE ENGINEERING DRAWING NO. MF-395-1

TOLERANCES
DIMENSIONS
X ± .1
XX ± .01
XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
CAD 1:1

DO NOT REMOVE ORIGINAL FROM PLANFILE



PAPER STORAGE TALLY
NONE



KEY MAP
SCALE: NTS

DO NOT REMOVE ORIGINAL FROM PLANFILE

No	DATE	BY	DESCRIPTION
			REVISIONS

CONFIDENTIAL

INTERNATIONAL PAPER
STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

PAPER STORAGE AREAS
BASEMENT

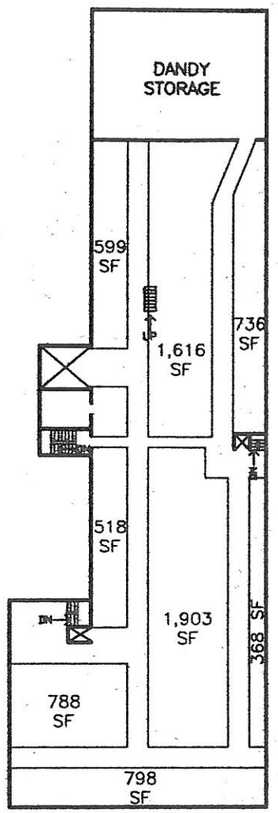
BLDG(S) 2,3,4,5,7,8,9 FLOOR(S) 0 MILLERS FALLS

SCALE	1"=20'-0"		ENGR			DRAWING No.
DRN	MAV	03-24-95	MGR			REV.
DSGN			MGR			

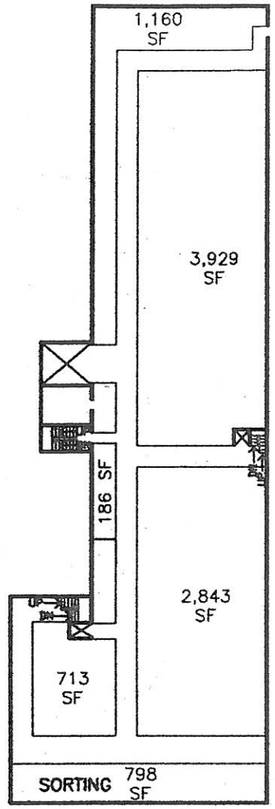
STRATHMORE ENGINEERING DRAWING NO.
MF-531-7

OTHER
ENVIR.
ARCH.
CIVIL
P.C.
INSTR.
ELECT.
PROC.

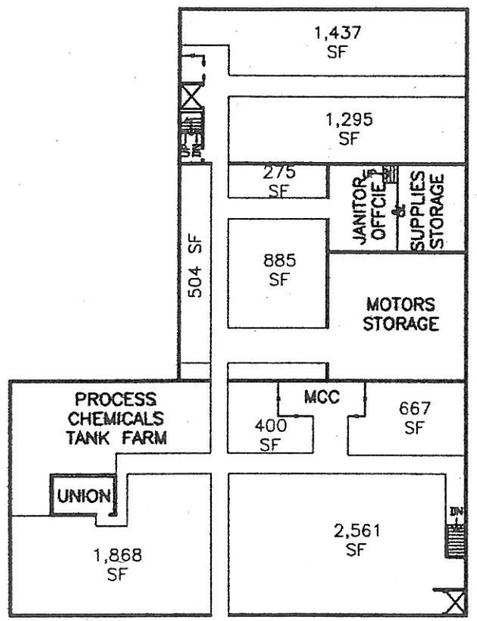
TOLERANCES
DIMENSIONS
.X ± .1
.XX ± .01
.XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
CAD 1=1



4th FLOOR

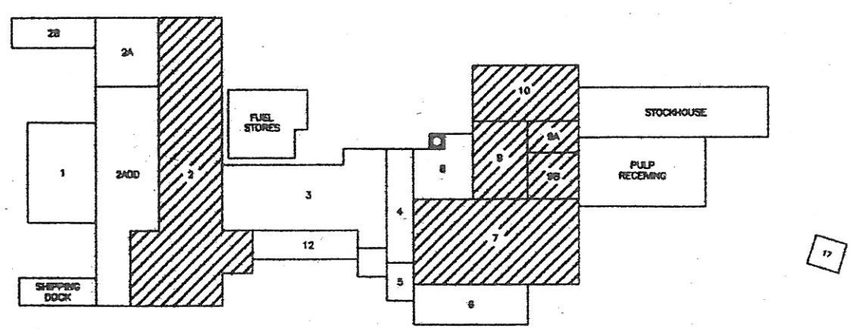


3rd FLOOR



3rd FLOOR

PAPER STORAGE TALLY
3RD FLOOR 19,521 SF
4TH FLOOR 7,326 SF



KEY MAP
SCALE: NTS

DO NOT REMOVE ORIGINAL FROM PLANFILE

No	DATE	BY	DESCRIPTION
			REVISIONS

CONFIDENTIAL

INTERNATIONAL PAPER
STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

PAPER STORAGE AREAS
3RD & 4TH FLOORS

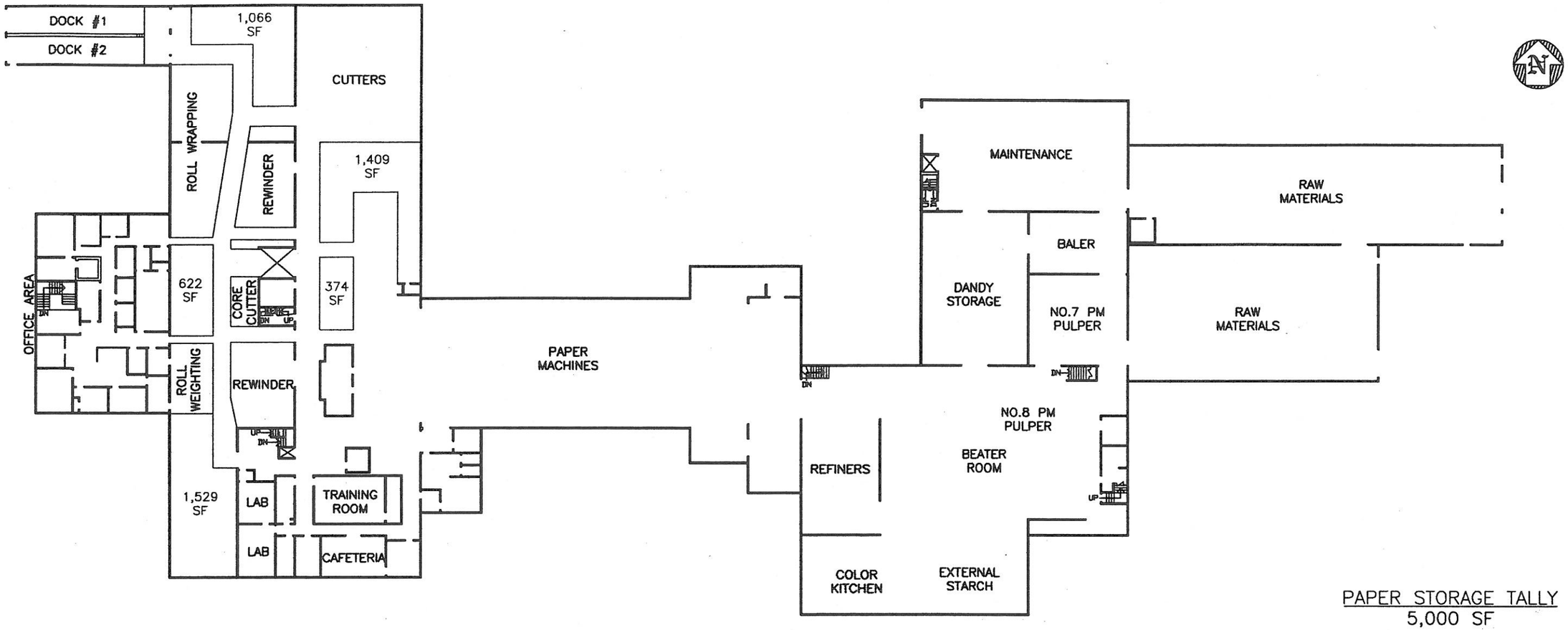
BLDG(S) 2,7,8,9A,9B,10 FLOOR(S) 3,4

SCALE 1"=20'-0" ENGR
DRN MW 03-24-05 HEAD PROJ.
DSGN MGR
DRAWING No. REV.

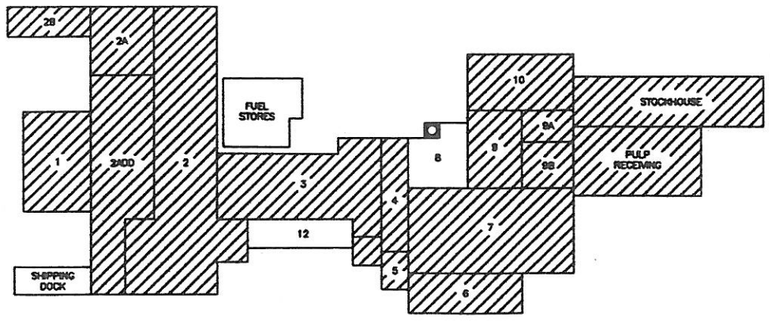
STRATHMORE ENGINEERING DRAWING NO.
MF-531-10

OTHER | ENVIR. | ARCH. | CIVIL | P.C. | INSTR. | ELECT. | PROC. | REVIEW

TOLERANCES
DIMENSIONS
.X ± .1
.XX ± .01
.XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
CAD 1=1



PAPER STORAGE TALLY
5,000 SF



KEY MAP
SCALE: NTS

DO NOT REMOVE ORIGINAL FROM PLANFILE

No	DATE	BY	DESCRIPTION

REVISIONS

CONFIDENTIAL

INTERNATIONAL PAPER

STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

PAPER STORAGE AREAS
2ND FLOOR

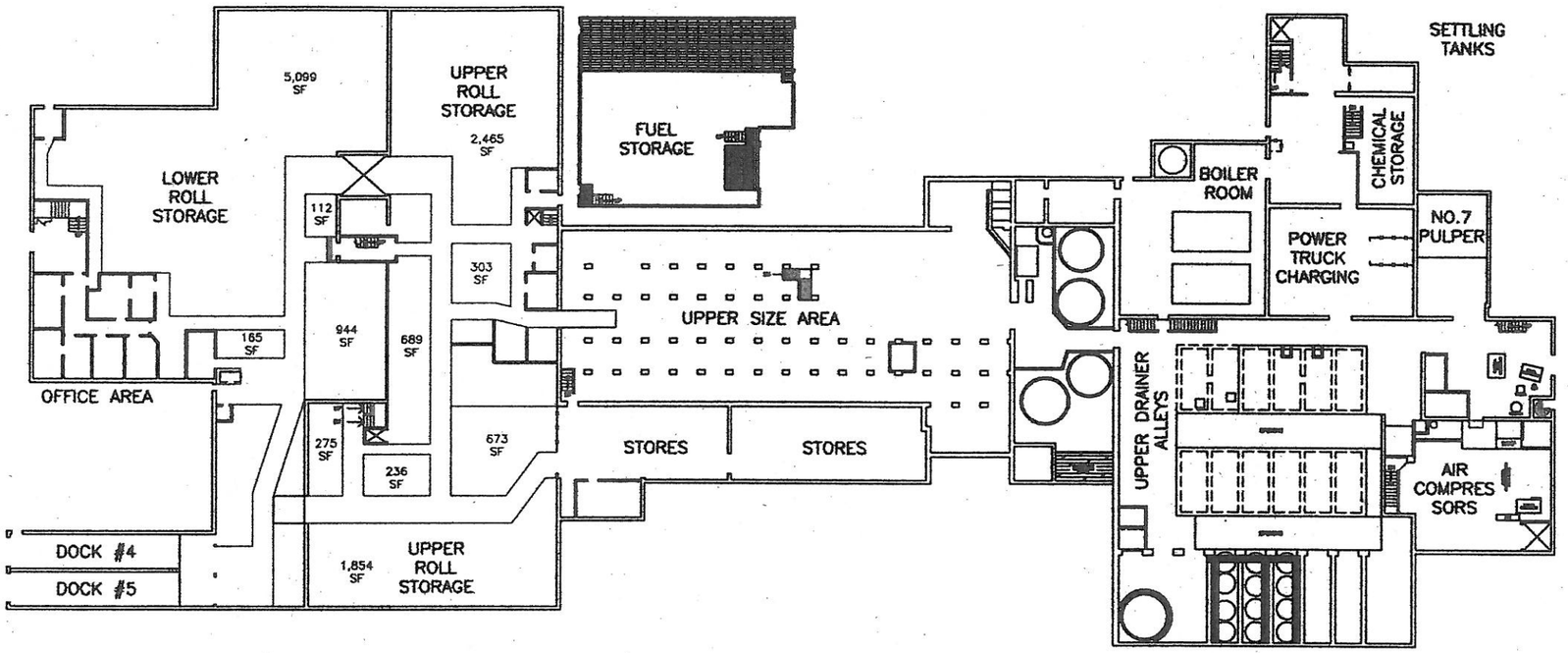
BLDG(S) ALL,BUT 5,8,12,17 FLOOR(S) 2

SCALE	1"=20'-0"		ENGR			DRAWING No.
DRN	MAV	03-24-96	LEAD ENGR			REV.
DSGN			MGR			

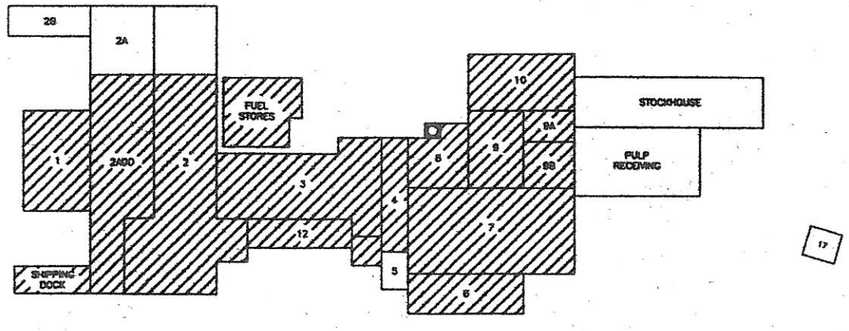
STRATHMORE ENGINEERING DRAWING NO.
MF-531-9

OTHER | ENVIR. | ARCH. | CIVIL | P.C. | INSTR. | ELECT. | PROC.

TOLERANCES
DIMENSIONS
X ± .1
XX ± .01
XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
CAD 1=1



PAPER STORAGE TALLY
12,815 SF



KEY MAP
SCALE: NTS

No	DATE	BY	DESCRIPTION

REVISIONS

CONFIDENTIAL

OTHER | ENVIR. | ARCH. | CIVIL | P.C. | INSTR. | ELECT. | PROC. | TRANSP.

INTERNATIONAL PAPER
STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

PAPER STORAGE AREAS
1ST FLOOR

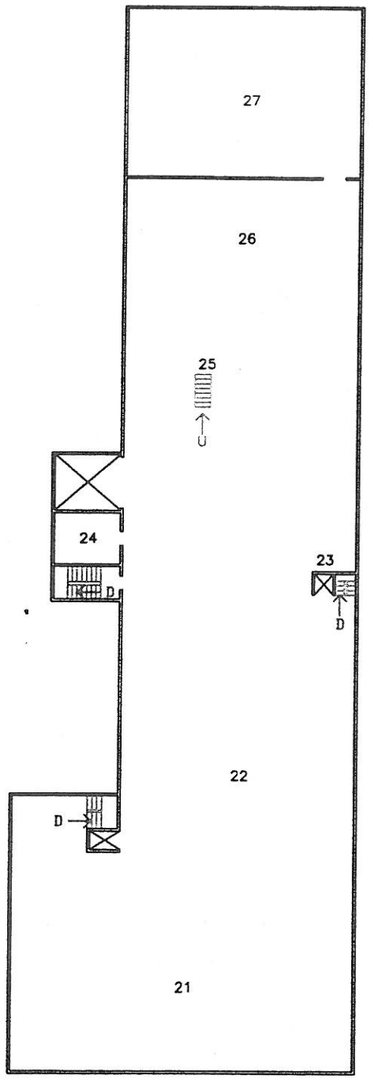
BLDG(S) 1,2ADD,2,3,4,7,8,9,10,12 FLOOR(S) 1 MILLERS FALLS

SCALE	1"=20'-0"	ENGR			DRAWING No.	REV.
DRN	MW	03-24-98	LEAD ENGR			
DSGN			MGR			

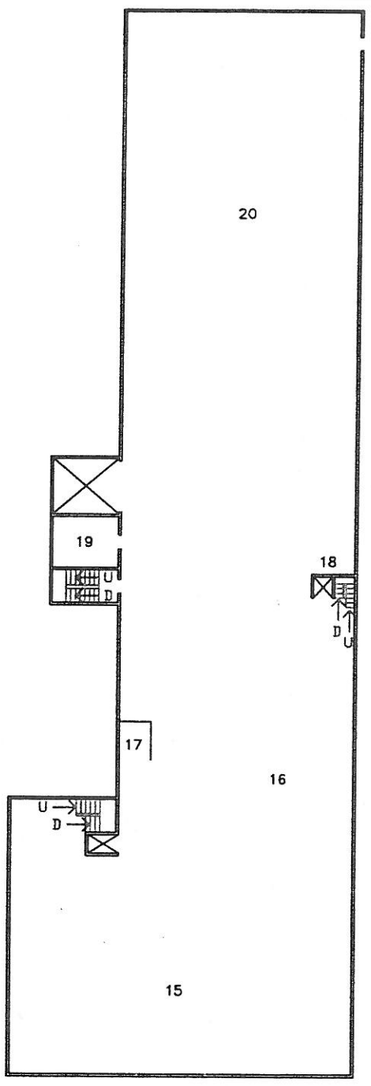
STRATHMORE ENGINEERING DRAWING NO. MF-531-8

TOLERANCES
DIMENSIONS
.X ± .1
.XX ± .01
.XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
CAD 1=1

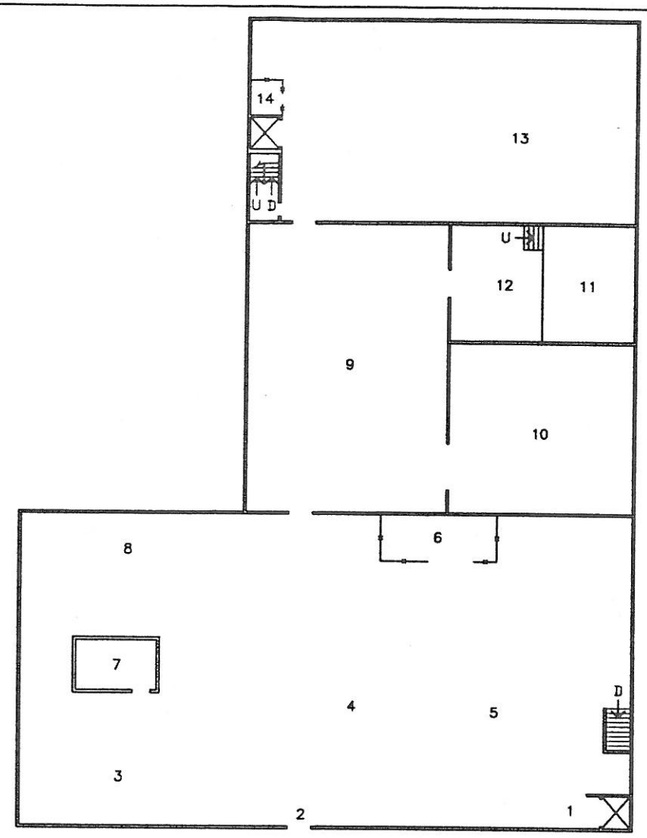
DO NOT REMOVE ORIGINAL FROM PLANFILE



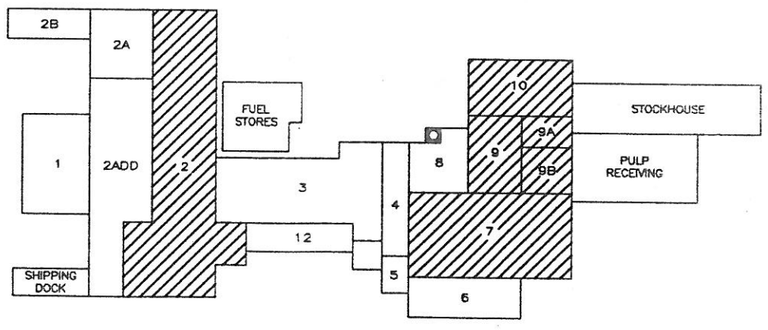
4th FLOOR



3rd FLOOR



3rd FLOOR



KEY MAP
SCALE: NTS

1-ELEVATOR OUT OF SERVICE
2-ROOF ACCESS
3-WIPITS AREA
4-MISC STORAGE
5-WIPITS AREA
6-BREAKERS
7-UNION OFFICE
8-CHEMICAL AREA-BERMED
9-CARDBOARD RECYCLING STORAGE
10-MOTORS STORAGE
11-MEZZANINE STORAGE-JANITORAL SUPPLIES
12-JANITOR OFFICE
13-BROKE STORAGE
14-ELEVATOR CABLE MOTOR
15-SORT DEPARTMENT
16-WIPITS AREA
17-OPEN OFFICE AREA
18-ELEVATOR OUT OT SERVICE.
STAIRWAY DOWN TO MACHINE ROOM OUT OF SERVICE
19-LADIES ROOM
20-WIPITS AREA
21-CORE STORAGE
22-PALLETS, SKIDS & TOPS STORAGE
23-ELEVATOR OUT OF SERVICE
24-FORMS & OFFICE PAPER STORAGE
25-STAIRWAY SUSPENDED FROM CEILING.
ACCESS TO ROOF & ELEVATOR PENTHOUSE
26-MISC STORAGE
27-DANDY ROLL & FELTS STORAGE

NOTE: LAYOUT WAS BASED ON FACTORY MUTUAL DRAWING

17

No	DATE	BY	DESCRIPTION
1	12-20-00	MAV	GENERAL UPDATE

REVISIONS

INTERNATIONAL PAPER
STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

MILL LAYOUT
3RD & 4TH FLOORS

BLDG(S) 2,7,8,8A,8B,10 FLOORS(S) 3,4 MILLERS FALLS

SCALE	1"=15'-0"		ENGR			
DRN	MAV	02-04-84	LEAD ENGR			
DSGN			MGR			

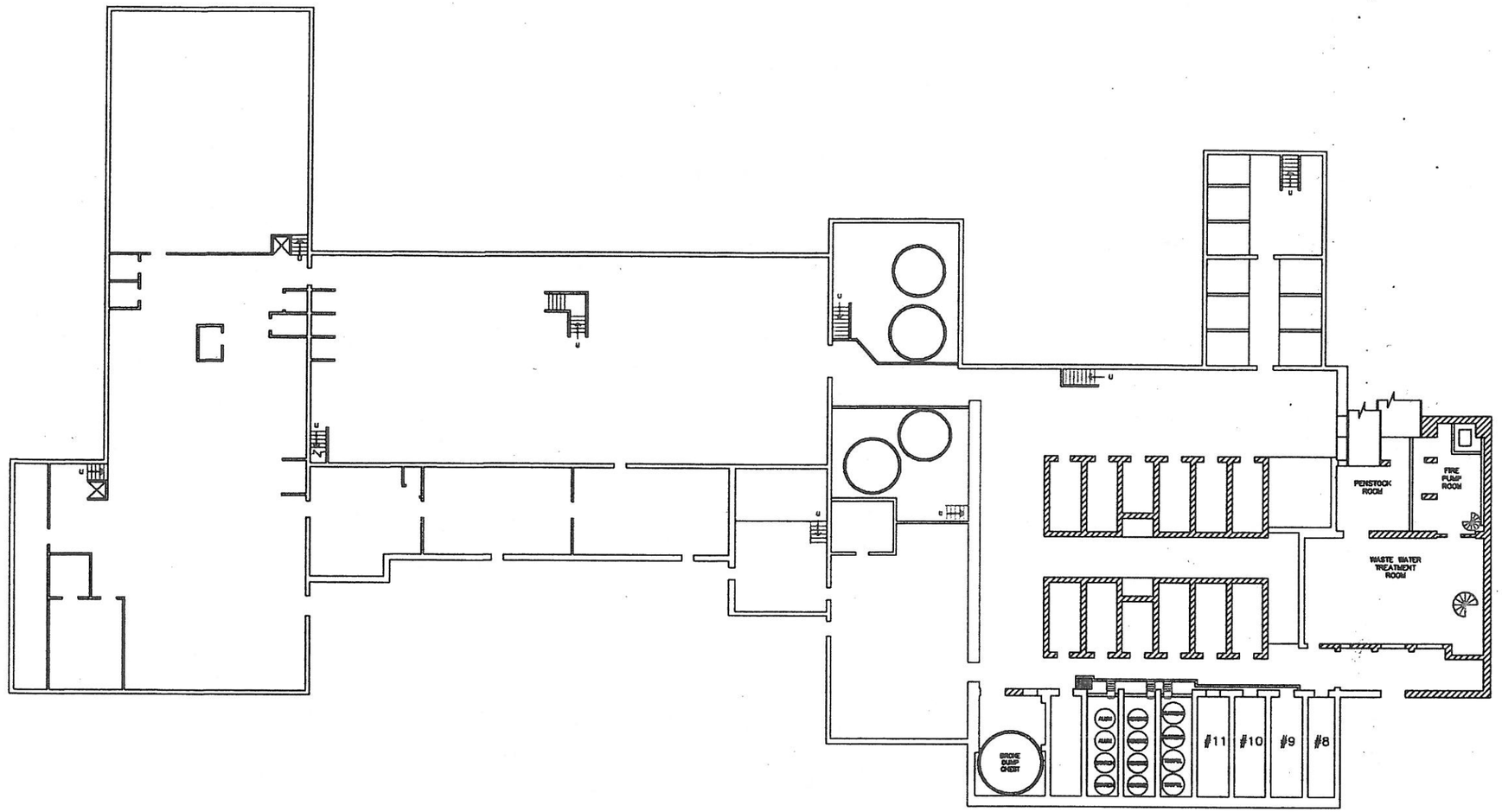
DRAWING No. REV. 1

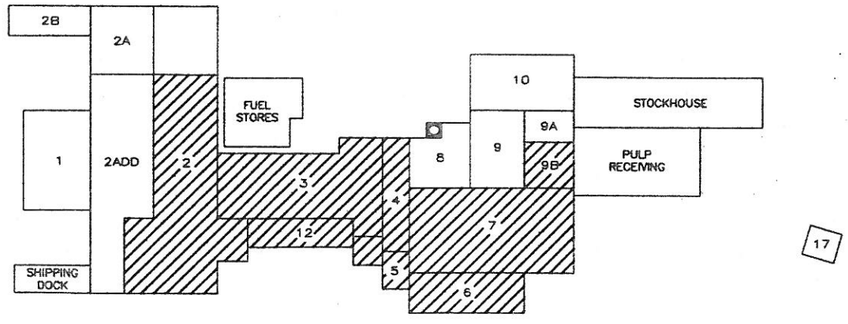
STRATHMORE ENGINEERING DRAWING NO.
MF-531-4

OTHER
ENVIR.
ARCH.
CIVIL
P.C.
INSTR.
ELECT
PROC.

TOLERNACES
DIMENSIONS
X ± .1
XX ± .01
XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
CAD 1=1

DO NOT REMOVE ORIGINAL FROM PLANFILE





KEY MAP
SCALE: NTS

NOTE: LAYOUT WAS BASED ON FACTORY MUTUAL DRAWING

DO NOT REMOVE ORIGINAL FROM PLANFILE

No	DATE	BY	DESCRIPTION
			REVISIONS

CONFIDENTIAL

INTERNATIONAL PAPER

STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

MILL LAYOUT
BASEMENT

BLDG(S) 2,3,4,5,7,8,9 FLOOR(S) 0 MILLERS FALLS

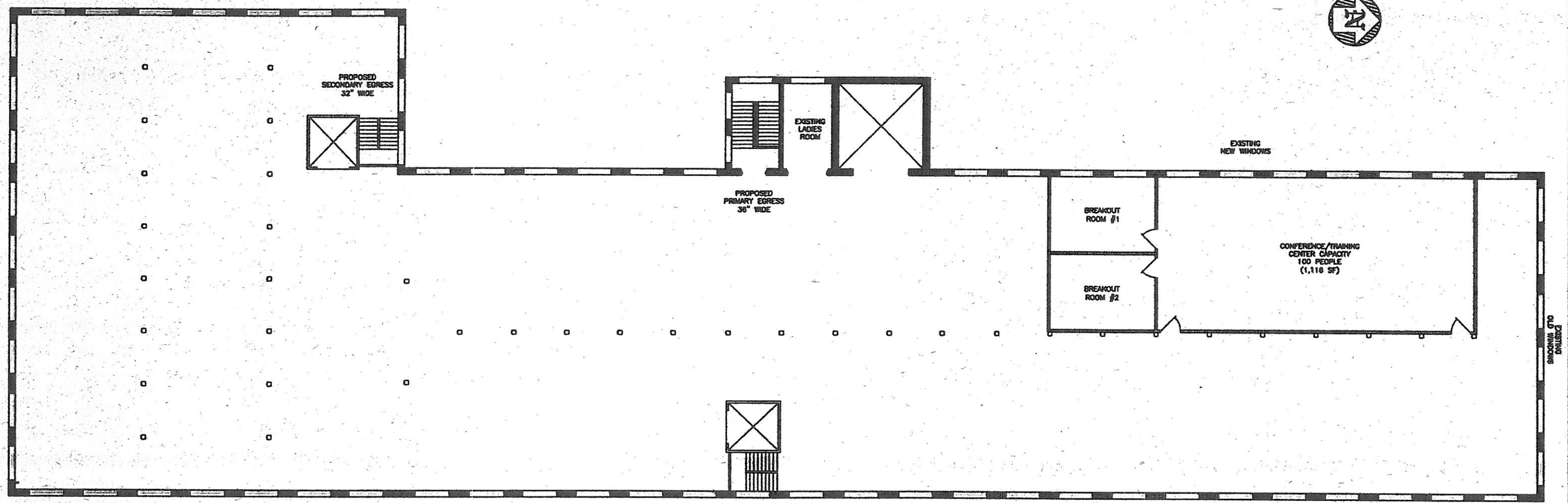
SCALE	1"=15'-0"	ENGR			DRAWING No.	REV.
DRN	MAV	2-4-94	LEAD ENGR			
DSGN			MGR			

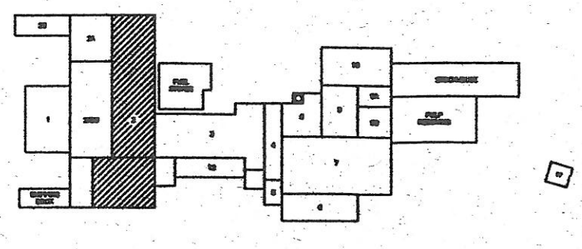
STRATHMORE ENGINEERING DRAWING NO.

MF-531-1

OTHER
ENVIR.
ARCH.
CIVIL
P.C.
INSTR.
ELECT.
PROC.
REVIEW

TOLERANCES
DIMENSIONS
X ± .1
XX ± .01
XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
CAD 1:1





KEY MAP

DO NOT REMOVE ORIGINAL FROM PLANFILE

TOLERANCES
DIMENSIONS
X ± .1
XX ± .01
XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
C90 1=1

No	DATE	BY	DESCRIPTION
			REVISIONS

CONFIDENTIAL

INTERNATIONAL PAPER

ENGINEERING, MILLERS FALLS, MA.

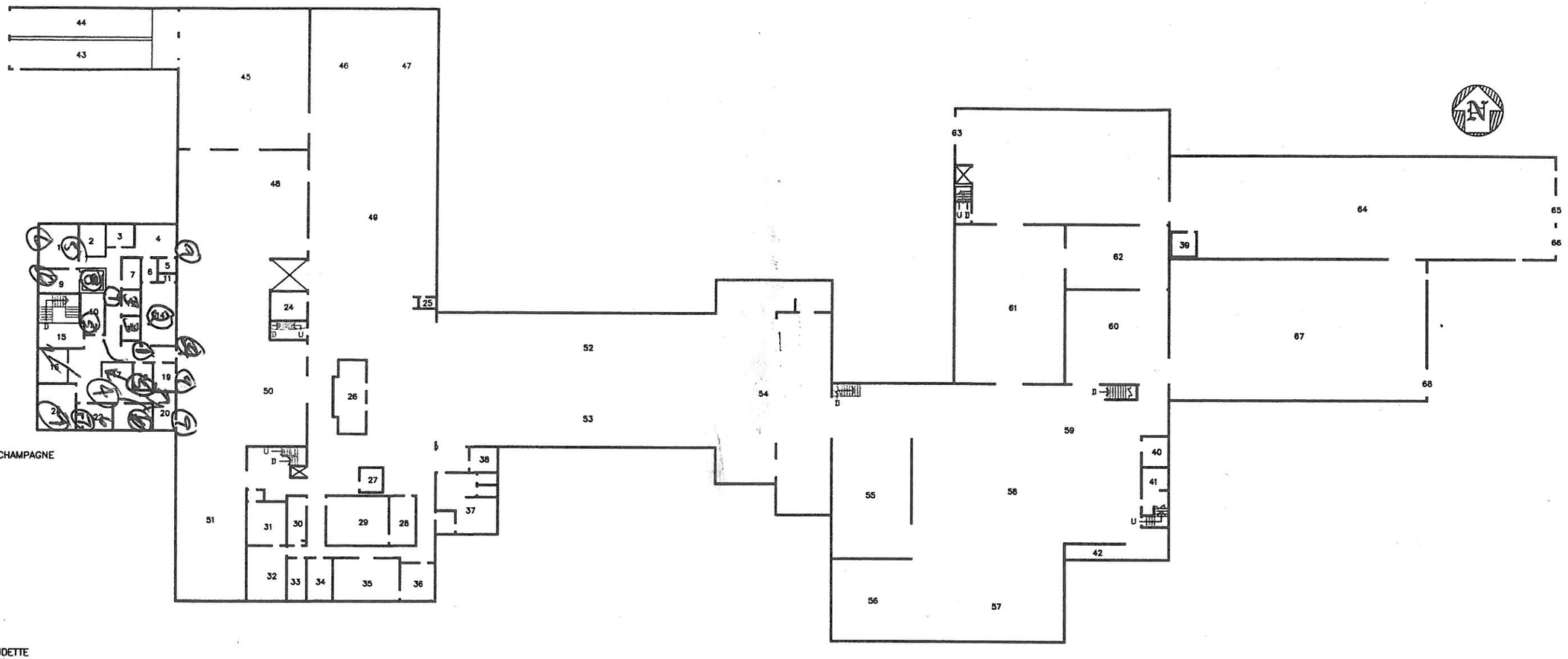
ENGR. PROJ. No. [illegible] C & R JOB No.

CONFERENCE ROOM LAYOUT
PROPOSAL

BLDG(S) 2 FLOOR(S) 3

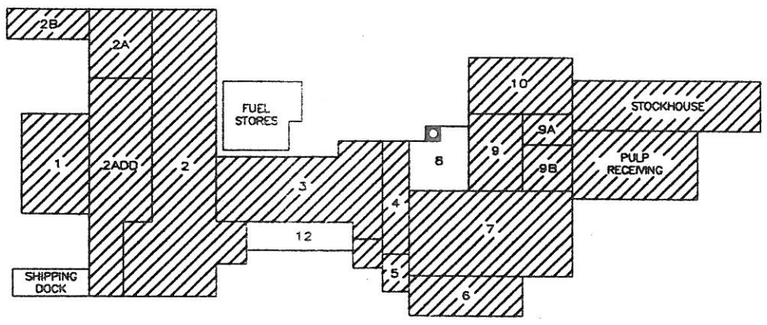
SCALE	3/16"=1'-0"		ENGR	EPC		DRAWING No.	REV.
DRN	[illegible]	04-13-06	MGR			MF-531-11	
DSGN			MGR				

OTHER
ENVIR.
ARCH.
CIVIL
P.C.
INSTR.
ELECT.
PROD.



1–ENGINEER–TOM PIKE
CAPITAL PROJECTS MANAGER–ED CHAMPAGNE
DRAFTING–MICHAEL VAILLANCOURT
2–ENGINEER–ALEX LAK
3–ENGINEER–LISA KOSANOVIC
4–SHIPPING CLERK–LUCIA DYMERSKI
5–MDF(NETWORK SERVER)
6–WALK–IN KITCHEN
7–HES TEAM
8–VAULT
9–EHS MGR–CORY ST THOMAS
10–ENGINEER–MIKE PUNTIN
11–CONFERENCE ROOM CLOSET
12–LADIES RESTROOM
13–MEN'S RESTROOM
14–CONFERENCE ROOM
15–LOBBY
16–RECEPTIONIST
17–SECRETARY–LESLIE SHARR
18–#7 PM PROCESS MGR–PAUL GAUDETTE
19–PROCESS MANAGER–DAN SULLIVAN
20–#8 PM PROCESS MGR–JIM STEVENS
21–TECHNICAL MGR–MARSHA MARTIN
22–HUMAN RESOURCE MGR–STEVE MCNULTY
23–MILL MGR–TED LEWELLYN
24–CONVERTING AREA–MEN'S ROOM
25–CONVERTING AREA OFFICE
26–PROCESS CONTROL OFFICE (DOG HOUSE)
27–SAMPLES STORAGE
28–PROCESS MANAGERS (TOUR SUPERVISOR)
29–TRAINING ROOM
30–ENGINEER–CARL LOUGH
31–QUALITY LAB
32–QUALITY LAB
33–TBD
34–PRODUCTION PERFORMANCE MGR–BRENDA MCBRIDE
35–VEDNING MACHINE ROOM
36–LADIES LOCKER ROOM
37–MEN'S LOCKER ROOM
38–ACCURAY MCC ROOM
39–RECEIVING LEADMAN DOCKS 6,7,8
40–BEATER ROOM OFFICE
41–BEATER ROOM BREAK ROOM
42–BEATER ROOM LOCKER AREA
43–DOCK #2
44–DOCK #1
45–ROLL WRAP DEPARTMENT
46–CUTTER #1
47–CUTTER #2
48–CAMERON REWINDER #3
49–ROLL STAGING
50–JAGENBERG REWINDER
51–ROLL STORAGE
52–PAPER MACHINE #7
53–PAPER MACHINE #8
54–WETEND
55–REFINERS
56–COLOR KITCHEN
57–ROLL SPLITTER
58–BEATER ROOM
59–PULPER #8 PM
60–PULPER #7 PM
61–DANDY ROLL STORAGE (ACTIVE)
62–VERTICAL BALER
63–DOCK #3
64–STOCKHOUSE (PULP STORAGE)
65–DOCK #6
66–DOCK #7
67–PULP RECEIVING & STORAGE
68–DOCK #8

NOTE: LAYOUT WAS BASED ON FACTORY MUTUAL DRAWING



KEY MAP
SCALE: NTS

DO NOT REMOVE ORIGINAL FROM PLANFILE

No	DATE	BY	DESCRIPTION
1	12-14-05	MW	GENERAL UPDATE

REVISIONS

INTERNATIONAL PAPER
STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

OTHER | ENVR. | ARCH. | CIVIL | P.C. | INSTR. | ELECT. | PROC.

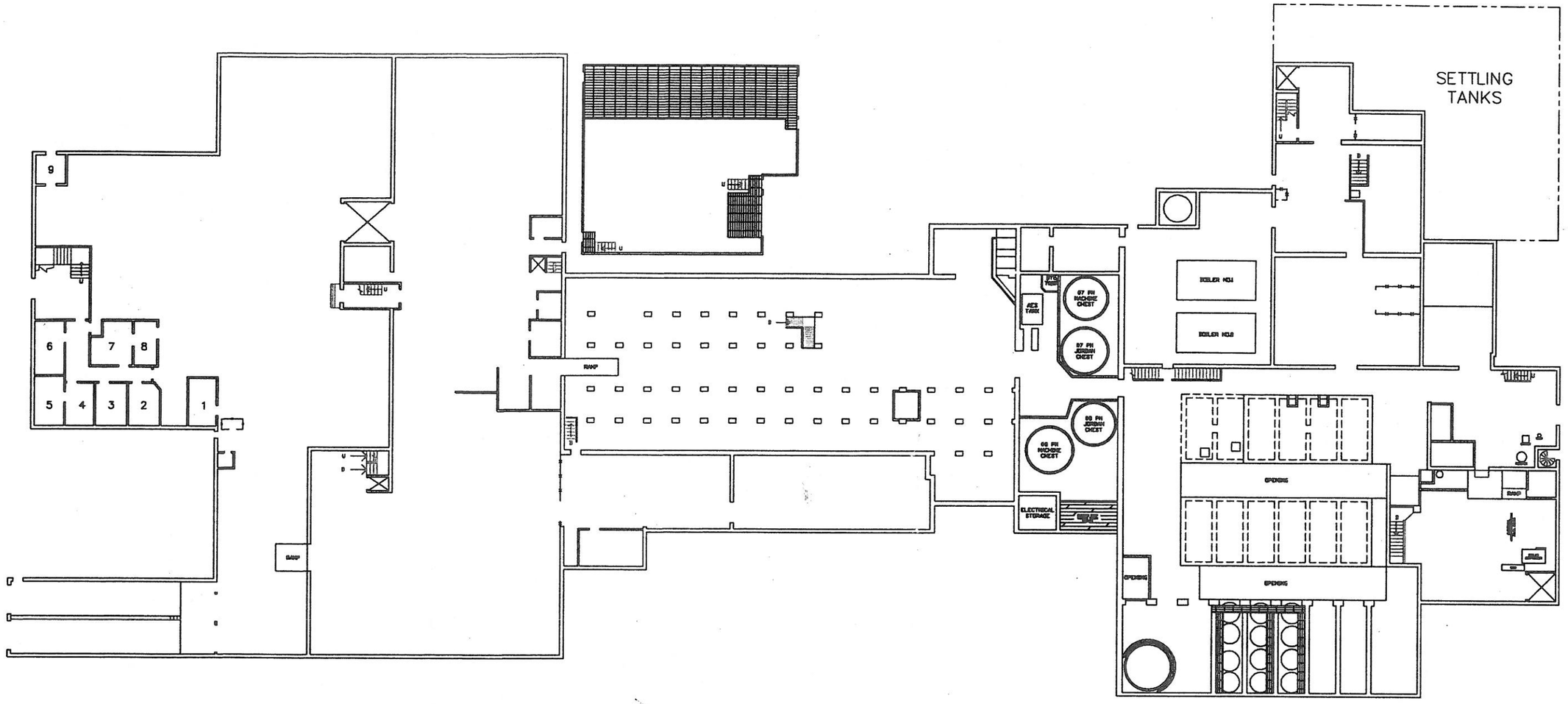
MILL LAYOUT
2ND FLOOR

BLDG(S) ALL BUT 5,8,12,17 FLOOR(S) 2 MILLERS FALLS

SCALE	1"=20'-0"	ENGR			DRAWING No.	REV.
DRN	MW 2-4-04	MGR				1
DSGN		MGR				

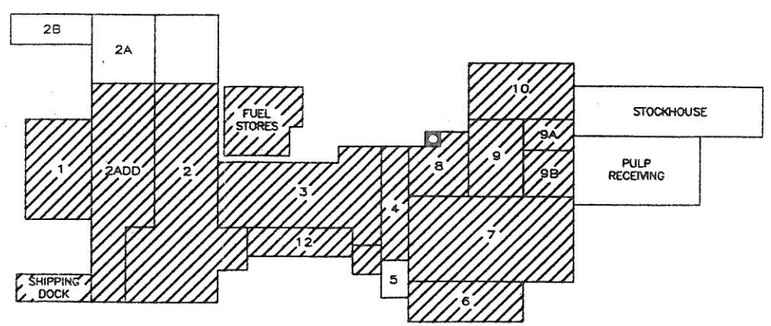
STRATHMORE ENGINEERING DRAWING NO. MF-531-3

TOLERANCES
DIMENSIONS
.X ± .1
.XX ± .01
.XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
CAD 1=1



1-HEALTH SERVICES
2-PRODUCTION ACCOUNTING-JACKIE TREAT
COST ACCOUNTING CLERK-JOHN PELOSO
3-CONTROLLER-STEVE TREAT
4-BUSINESS ANALYST-PAT O' SHEA
BUSINESS ANALYST-DAVID WELLS
5-STORAGE CLOSET
6-DON PERKINS
HEATHER ROMAN
7-PURCHASING CLERK-NANCY ORTH
8-PURCHASING MANAGER-DEBORAH LEARY
9-AT&T SWITCH ROOM

NOTE: LAYOUT WAS BASED ON FACTORY MUTUAL DRAWING



KEY MAP
SCALE: NTS

17

No	DATE	BY	DESCRIPTION

REVISIONS

CONFIDENTIAL

OTHER | ENVIR. | ARCH. | CIVIL | P.C. | INSTR. | ELECT. | PROC.

INTERNATIONAL PAPER
STRATHMORE ENGINEERING, WESTFIELD, MA.

ENGR. PROJ. No. NONE C & R JOB No.

MILL LAYOUT
1ST FLOOR

BLDG(S) 1,2ADD,2,3,4,7,8,8,10,12 FLOOR(S) 1 MILLERS FALLS

SCALE	1"=15'-0"	ENGR			DRAWING No.	REV.
DRN	MAV	2-6-94	MGR			
DSGN			MGR			

STRATHMORE ENGINEERING DRAWING NO. MF-531-2

TOLERANCES
DIMENSIONS
X ± .1
XX ± .01
XXX ± .005
FRACTIONS ± 1/64
ANGLES
REMOVE SHARP EDGES AND BURRS
25.4 MM = 1 INCH
GAD 1=1

DO NOT REMOVE ORIGINAL FROM PLANFILE