Arena Riverfront (Lot B) Redevelopment – Request for Letter of Interest

ADDENDUM #1

March 8, 2013

1. *"UMass Lowell Lot B Development Feasibility Study"*, Pyramid Hotel Group
2. *"100, 152, and 174 River Place, Lowell MA",* Watermark Engineering
3. *"Notice of Activity and Use Limitation"*
4. *Sign In Sheets – Meeting on March 6, 2013,* UMass Lowell

1. *“UMass Lowell Lot B Development Feasibility Study”*, Pyramid Hotel Group

UMass Lowell Lot B Development Feasibility Study

July 18, 2012

PYRAMID
Hotel Group
Passionate people. Proven results.

TABLE OF CONTENTS

Client acknowledges that, in submitting and executing this information, PHG is not intending to interfere with, or to induce a breach of any contractual relationship.

Scope of Work Performed

University of Massachusetts Lowell engaged Pyramid Hotel Group, "PHG", to perform an analysis of the Lot B/River Place Development Site. The table of contents generally follows the tasks outlined in the Term Sheet between UMass Lowell and PHG. PHG received the authorization and cooperation of UMass Lowell to conduct the study as outlined in the May 25th executed Term Sheet.

Consulting Term Sheet – Lot B/River Place Development

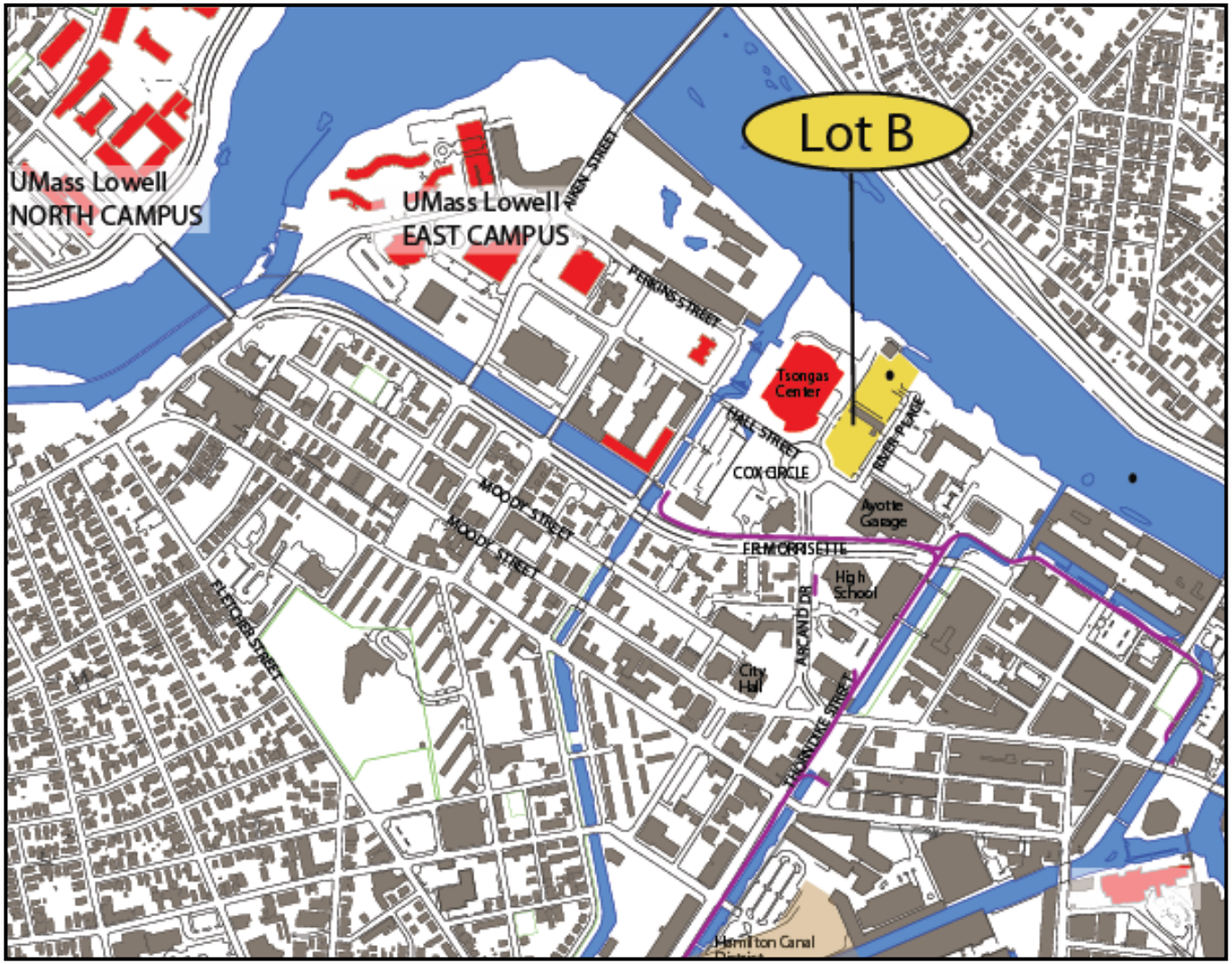
Concept	Notes
Initial Consulting Services	Pyramid will provide Initial Consulting Services (as set forth below) based on information provided by University of Massachusetts Lowell. A list of marketing and other information necessary for an evaluation has been provided. Based on information received, and Pyramid's experience within its and its affiliates' portfolio of hotels, Pyramid will perform the following: 1. Conduct initial feasibility analysis of ground-up hotel development project to include: a. Development Costs and Schedule b. Program Development to include analysis of optimal room count, hotel type (extended stay, select service, full-service) and potential brand affiliation 2. 5 Year Financial Operating Projections

The PHG team consisting of (see bios starting on page 16):

- Keith Oltchick – Vice President Business Development
- Gabe Rodriguez – Business Development Senior Analyst

The PHG consulting team gathered in Boston to compile, draft, edit and review the Executive Summary which was further reviewed by PHG senior Partners Rick Kelleher, Principal, Chairman & CEO; Jim Dina, Principal, COO; Warren Fields, Principal, CIO; and Chris Devine, CFO.

Location – Downtown Lowell/Lot B (300 Martin Luther King Jr Way)



Aerial Photograph – Tsongas Center and Lot B

Executive Summary/Conclusions

1. The City of Lowell "City" has deeded the property to the UMass Building Authority (the authority) in order to develop the site for one or more of the following uses: Hotel, convention and meeting facilities, private recreation facilities (health club), second ice sheet and/or practice ice rink, retail and restaurant uses
2. The University of Massachusetts Lowell (UMass Lowell) has agreed to use "Best Efforts" to maximize private sector activity that can generate commercial "real estate" tax revenue for the City
3. UMass Lowell has asked PHG to provide a feasibility study for the development of a Hotel on Lot B adjacent to the Tsongas Center
4. PHG believes the most financially viable hotel would be a Limited Service Branded hotel product (Hampton Inn & Suites/ Fairfield Inn & Suites) of approximately 100-140 rooms
5. PHG strongly recommends that the hotel be affiliated with the University in order to take full advantage of University demand
6. PHG suggests, if a land lease is to be signed with a developer, the cost of the lease be a nominal amount
7. **Current market demand does not support the development of a hotel in this location at this time**

Key Risks and Issues

1. **Lot B may have environmental contamination** – A developer would require this to be remedied prior to agreement for the lease
2. **Waste Water Treatment Facility** – The Waste Water Treatment Facility may need to be moved to another city parcel for a developer to sign a ground lease
3. **Long Term Lease needed** – In order to receive financing, a developer would most likely require a ground lease of 99 years with favorable terms
4. **Restrictions on Development** – Redevelopment must be consistent with the City Master Plan. The University agreed NOT to construct a Dorm or student housing, unless City agrees in writing

Section 1 – Area Analysis

1. Lowell is the 4th largest city in Massachusetts with 106,519 residents according to the 2010 census
2. The City's strategic location at the intersection of Routes 495, 93 and 3 provides excellent access to all points in Massachusetts as well as New Hampshire and Maine
3. UMass Lowell is the home of 15,000 full and part-time, undergraduate and graduate students
4. The Tsongas Center at UMass Lowell is a full service, multi-purpose venue with over 10,000 sq. ft. of meeting space, 7,000 person arena capacity, and 17,000 sq. ft. of arena floor space. It is located adjacent to the site and was in use for 231 dates in 2011
5. The Lowell Spinners, a Class A affiliate of the Boston Red Sox, have sold out every home game for the past 8 years. They have had 167,222 attendees over 28 games during the 2011 season
6. Lowell is located 30 miles from downtown Boston and 45 miles from Manchester-Boston Regional Airport
7. The 3 largest industries in Lowell are educational services, health care and manufacturing; these industries comprise 40% of the workforce (2010 Census)
8. The median household income was $50,192 in 2010 this is comparable to the US average of $51,914

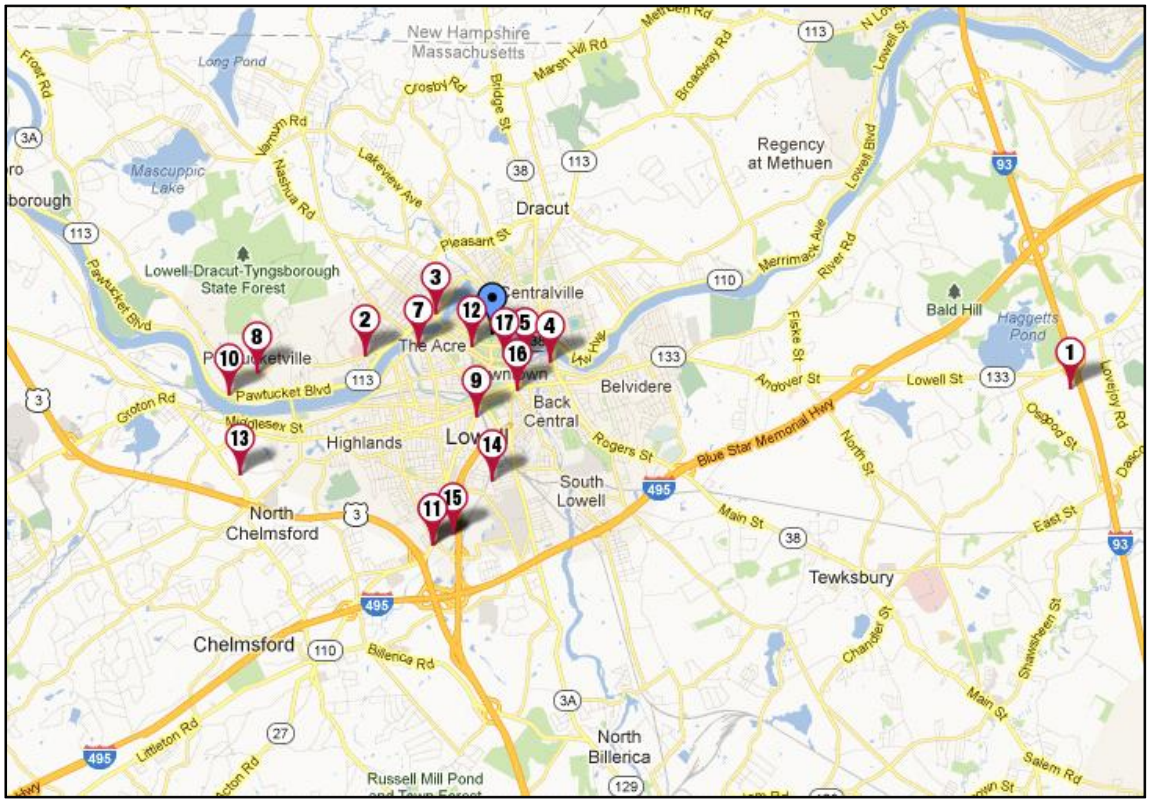
Section 2 – Site Analysis

1. The site is located adjacent to the Tsongas Center and the Merrimack River, between East Campus and the Lowell Central Business District (CBD)
2. Advantages:
    a. Proper utilization of the site would create a link between downtown and the university, and also assist in revitalizing the Tsongas Center
    b. The location is well positioned to attract University related business as well as leisure demand from Downtown Lowell and the room nights generated by the Tsongas Center
    c. There are many restaurants and shops within walking distance of the site, this minimizes the need for a restaurant in the hotel
3. Disadvantages:
    a. The site currently may have environmental issues that would need to be remedied prior to any development and the water treatment facility would need to be moved
    b. Many of the top corporate demand generators are located outside of the City (Raytheon, JP Morgan, etc.)
    c. The location is difficult to find from Routes 495, 93 and 3 compared to the existing competitive set
4. Current market demand does not support the development of a hotel in this location at this time

Section 3 – Evaluation of Potential Demand

1. Lowell's largest private employer is Raytheon with 2,900 employees
2. There are many Leisure demand generators in the area: Tsongas Center, Lowell Spinners, University of Massachusetts Lowell, JFK Civic Center, City Hall, Lowell National Historic Park, New England Quilt Museum
3. Map of Demand Generators:

#	Local Demand Generators	Employees
1	Raytheon	2,900
2	Lowell General Hospital	2,500
3	University of MA Lowell	1,385
4	Saints Medical Center	1,300
5	Middlesex Community College	500
6	Motorola, Inc. (located at 15)	458
7	Community Teamwork (CTI)	440
8	D'Youville Senior Care Center	430
9	M/A COM Technology Solutions	345
10	Cobham Sensor Systems	338
11	JP Morgan (Chase Financial Serv.)	280
12	Lowell Community Health Center	270
13	Siemens Water Technologies Corp.	250
14	Trinity EMS	240
15	Metlife Auto & Home Insurance	237
16	Visiting Nurses Assoc. of Lowell	233
17	Enterprise Bank & Trust	228



Section 4 – Facility Recommendations

1. Key Recommended Features
    a. If a hotel is to be built, PHG believes the most feasible product on the Lot B site is a Branded Select Service Hotel (Hampton Inn & Suites, Fairfield Inn & Suites or Holiday Inn Express) of approximately 100-140 keys
    b. Meeting Space Needs – The University has the necessary meeting and event space at the Tsongas Center as well as the UMass Lowell Inn and Conference Center. No meeting space would be needed in this development as the usage on the existing facilities has not reached maximum utilization
    c. Food and Beverage/Other Amenities – The Select Service orientation would not require a Food and Beverage outlet in the hotel. This orientation provides for the maximum profitability for the developer

2. Brand vs. No Brand
    a. Positives of Brand Affiliation
        i. Increased Familiarity – Guests appreciate familiarity when they stay at a hotel. Any of the suggested brands have significant national name recognition and will increase the clientele as well as the profile of the Tsongas Center and the university
        ii. Rewards Points and Members – The rewards program will increase repeat business in the hotel
        iii. Financing – Lenders who would consider new hotel construction may only consider lending on a brand affiliated hotel. The brand is perceived as a less risky investment due to the resources a national brand provides franchisees
        iv. Less Supply Alternatives – PHG is not aware of any new hotels proposed in the area however
    b. Negatives of Brand Affiliation
        i. High Cost of Affiliation – Franchise and Marketing fees can account for 8%-10% of total rooms revenue
        ii. Flexibility in Development – While the brands may allow some design flexibility, they generally have strict brand standards that must be adhered to

Section 5 – Projected Performance (Base Case)

1. Assumptions:
    a. For the purposes of this report, PHG assumed that the subject will be operated as a Limited Service, chain-affiliated, hotel with a supporting reservations system. PHG further assumed that the subject will be operated by competent and experienced management familiar with the operation of similar hotels in the United States, and more specifically, Lowell, MA. For the purpose of this study, PHG assumed that the subject property could be sold free and clear of a management contract, and that the proposed franchise affiliation would remain

2. Market Share Analysis: **(Base Case)**

LOT B DEVELOPMENT - MARKET SHARE ANALYSIS (BASE CASE)

Competitive Set	Rooms	Opened
Lot B Development	120	Jan 2014
Radisson Hotel & Suites Chelmsford Lowell	214	Jun 1983
Best Western Plus Chelmsford Inn	112	Jun 1984
Holiday Inn Tewksbury Andover	227	Sep 1988
Courtyard Boston Lowell Chelmsford	120	Mar 1990
Hawthorn Suites Chelmsford Lowell	105	Mar 1999
Totals:	898	

		STR Data								Market Projections					
		YE 2006	YE 2007	YE 2008	YE 2009	YE 2010	YE 2011	YTD 5/11	YTD 5/12	YE 2012	YE 2013	YE 2014	YE 2015	YE 2016	YE 2017
Market Data															
	# rooms	778	778	778	778	778	778	778	778	778	778	778	778	778	778
	avail rm nights	283,970	283,970	284,748	283,970	283,970	283,970	117,478	118,256	284,748	283,970	283,970	283,970	284,748	283,970
	occ rm nights	175,209	171,518	172,273	149,084	158,171	170,382	62,028	68,234	178,024	181,266	173,790	177,961	180,643	180,150
	room revenue	14,157	14,670	15,449	12,531	13,334	14,494	5,254	5,833	15,464	16,297	16,125	17,007	17,747	18,229
	Occupancy	61.7%	60.4%	60.5%	52.5%	55.7%	60.0%	52.8%	57.7%	62.5%	63.8%	61.2%	62.7%	63.4%	63.4%
	Rate	$ 80.80	$ 85.53	$ 89.68	$ 84.05	$ 84.30	$ 85.07	$ 84.70	$ 85.48	$ 86.86	$ 89.91	$ 92.78	$ 95.57	$ 98.24	$ 101.19
	RevPar	$ 49.85	$ 51.66	$ 54.26	$ 44.13	$ 46.96	$ 51.04	$ 44.72	$ 49.32	$ 54.31	$ 57.39	$ 56.78	$ 59.89	$ 62.32	$ 64.19
	Occ growth		(2.1%)	0.2%	(13.2%)	6.1%	7.7%	4.4%	9.3%	4.2%	2.1%	(4.1%)	2.4%	1.2%	0.0%
	Rate growth		5.9%	4.9%	(6.3%)	0.3%	0.9%	0.2%	0.9%	2.1%	3.5%	3.2%	3.0%	2.8%	3.0%
	RevPar growth		3.6%	5.0%	(18.7%)	6.4%	8.7%	4.6%	10.3%	6.4%	5.7%	(1.1%)	5.5%	4.1%	3.0%
Penetration Index															
	Occupancy											78.4%	92.8%	100.7%	103.7%
	Rate											101.2%	108.6%	114.3%	116.5%
	RevPar											79.4%	100.8%	115.1%	120.8%

Development Projections					
YE 2012	YE 2013	YE 2014	YE 2015	YE 2016	YE 2017
		120	120	120	120
		43,800	43,800	43,920	43,800
		21,024	25,481	28,060	28,823
		1,974	2,644	3,150	3,398
		48.0%	58.2%	63.9%	65.8%
		$ 93.90	$ 103.75	$ 112.26	$ 117.88
		$ 45.07	$ 60.36	$ 71.72	$ 77.57
			21.2%	9.8%	3.0%
			10.5%	8.2%	5.0%
			33.9%	18.8%	8.2%

3. Competitive Set – The competitive set includes like sized hotels in the Greater Lowell market. The UMass Lowell Inn and Conference Center was not included due to the seasonality of its room count and the low demand captured in the summer months. PHG is not aware of any new supply to the Lowell Market

4. Financial Projections: **(Base Case)**

	Pyramid Proforma [1]			
	YE 2014	YE 2015	YE 2016	YE 2017
Rooms Revenue	1,974,061	2,643,781	3,150,086	3,397,510
Ancilary Revenue (5% of Rooms)	98,703	132,189	157,504	169,875
Total Revenue	2,072,764	2,775,970	3,307,590	3,567,385
GOP (40% of Revenue)	829,106	1,110,388	1,323,036	1,426,954
Taxes	100,000	103,000	106,090	109,273
Insurance	75,000	77,250	79,568	81,955
Lease Payment	30,000	40,000	50,000	50,000
FF&E	82,911	111,039	132,304	142,695
Total Rent, Taxes & Insurance	287,911	331,289	367,961	383,923
NOI	**541,195**	**779,099**	**955,075**	**1,043,032**
Cash on Cash Return	4.5%	6.5%	8.0%	8.7%

[1] Based on Comparable Hotels

5. IRR Analysis: **(Base Case)**

Key Facts		
# of Keys	120	
Development Costs	12,000,000	100 K per Key
Brand	Hampton Inn	
Open Date	January 1st, 2014	
Exit Cap (2017)	9.5%	

IRR Analysis						
	YE 2012	YE 2013	YE 2014	YE 2015	YE 2016	YE 2017
Development Costs	(3,000,000)	(9,000,000)				
Exit Value						10,979,279
NOI			541,195	779,099	955,075	1,043,032
Cashflow	(3,000,000)	(9,000,000)	541,195	779,099	955,075	12,022,311

Unleverred IRR	**4.5%**

Section 6 – Projected Performance (Upside Case)

1. Assumptions:
    a. The Occupancy and Rate is increased by 5% each year as compared to the Base Case

2. Market Share Analysis: **(Upside Case)**

LOT B DEVELOPMENT - MARKET SHARE ANALYSIS (UPSIDE CASE) 5% GROWTH IN OCC AND RATE

Competitive Set	Rooms	Opened
Lot B Development	120	Jan 2014
Radisson Hotel & Suites Chelmsford Lowell	214	Jun 1983
Best Western Plus Chelmsford Inn	112	Jun 1984
Holiday Inn Tewksbury Andover	227	Sep 1988
Courtyard Boston Lowell Chelmsford	120	Mar 1990
Hawthorn Suites Chelmsford Lowell	105	Mar 1999
Totals:	898	

		STR Data								Market Projections					
		YE 2006	YE 2007	YE 2008	YE 2009	YE 2010	YE 2011	YTD 5/11	YTD 5/12	YE 2012	YE 2013	YE 2014	YE 2015	YE 2016	YE 2017
Market Data															
	# rooms	778	778	778	778	778	778	778	778	778	778	778	778	778	778
	avail rm nights	283,970	283,970	284,748	283,970	283,970	283,970	117,478	118,256	284,748	283,970	283,970	283,970	284,748	283,970
	occ rm nights	175,209	171,518	172,273	149,084	158,171	170,382	62,028	68,234	178,024	181,266	173,790	177,961	180,643	180,150
	room revenue	14,157	14,670	15,449	12,531	13,334	14,494	5,254	5,833	15,464	16,297	16,125	17,007	17,747	18,229
	Occupancy	61.7%	60.4%	60.5%	52.5%	55.7%	60.0%	52.8%	57.7%	62.5%	63.8%	61.2%	62.7%	63.4%	63.4%
	Rate	$ 80.80	$ 85.53	$ 89.68	$ 84.05	$ 84.30	$ 85.07	$ 84.70	$ 85.48	$ 86.86	$ 89.91	$ 92.78	$ 95.57	$ 98.24	$ 101.19
	RevPar	$ 49.85	$ 51.66	$ 54.26	$ 44.13	$ 46.96	$ 51.04	$ 44.72	$ 49.32	$ 54.31	$ 57.39	$ 56.78	$ 59.89	$ 62.32	$ 64.19
	Occ growth		(2.1%)	0.2%	(13.2%)	6.1%	7.7%	4.4%	9.3%	4.2%	2.1%	(4.1%)	2.4%	1.2%	0.0%
	Rate growth		5.9%	4.9%	(6.3%)	0.3%	0.9%	0.2%	0.9%	2.1%	3.5%	3.2%	3.0%	2.8%	3.0%
	RevPar growth		3.6%	5.0%	(18.7%)	6.4%	8.7%	4.6%	10.3%	6.4%	5.7%	(1.1%)	5.5%	4.1%	3.0%
Penetration Index															
	Occupancy											82.4%	97.5%	105.7%	108.9%
	Rate											106.3%	114.0%	120.0%	122.3%
	RevPar											87.5%	111.1%	126.9%	133.2%

Development Projections					
YE 2012	YE 2013	YE 2014	YE 2015	YE 2016	YE 2017
		120	120	120	120
		43,800	43,800	43,920	43,800
		22,075	26,755	29,463	30,264
		2,176	2,915	3,473	3,746
		50.4%	61.1%	67.1%	69.1%
		$ 98.59	$ 108.94	$ 117.88	$ 123.77
		$ 49.69	$ 66.55	$ 79.07	$ 85.52
			21.2%	9.8%	3.0%
			10.5%	8.2%	5.0%
			33.9%	18.8%	8.2%

3. Competitive Set – The competitive set is the same as the Base Case

4. Financial Projections: **(Upside Case)**

	Pyramid Proforma [1]			
	YE 2014	YE 2015	YE 2016	YE 2017
Rooms Revenue	2,176,402	2,914,769	3,472,970	3,745,755
Ancilary Revenue (5% of Rooms)	108,820	145,738	173,649	187,288
Total Revenue	2,285,223	3,060,507	3,646,619	3,933,042
GOP (40% of Revenue)	914,089	1,224,203	1,458,647	1,573,217
Taxes	100,000	103,000	106,090	109,273
Insurance	75,000	77,250	79,568	81,955
Lease Payment	30,000	40,000	50,000	50,000
FF&E	91,409	122,420	145,865	157,322
Total Rent, Taxes & Insurance	296,409	342,670	381,522	398,549
NOI	**617,680**	**881,533**	**1,077,125**	**1,174,668**
Cash on Cash Return	5.1%	7.3%	9.0%	9.8%

[1] Based on Comparable Hotels

5. IRR Analysis: **(Upside Case)**

Key Facts			
# of Keys	120		
Development Costs	12,000,000	100	K per Key
Brand	Hampton Inn		
Open Date	January 1st, 2014		
Exit Cap (2017)	8.5%		

IRR Analysis						
	YE 2012	YE 2013	YE 2014	YE 2015	YE 2016	YE 2017
Development Costs	(3,000,000)	(9,000,000)				
Exit Value						13,819,624
NOI			617,680	881,533	1,077,125	1,174,668
Cashflow	(3,000,000)	(9,000,000)	617,680	881,533	1,077,125	14,994,292

Unleverred IRR	**10.1%**

APPENDIX 1 – Land Disposition Agreement

Date: 2/4/10

Parties:

1. City of Lowell (City)
2. U Mass Building Authority (Authority)
3. U Mass Lowell (UML)

Property: Lots A, B, E and F and buildings including the Tsongas Center and maintenance garage. City deeded Property to Authority

Redevelopment Parcels: Lots B and D (NOTE: Lot B may have environmental contamination)

Easements: 20 ft sewer line runs through Property (B and E). 16 ft Easement to Waste Water Treatment Facility(Lot E). 20 ft easement to access Waste Water Treatment Facility from side (Lot E)

Terms – Redevelopment Parcels (B and D):

1. **ARDC –** Established Arena Riverfront Development Committee (ARDC) to advise UML on Redevelopment Parcels
2. **Redevelopment Goal**: UML and Authority required to redevelop Lots B and D
    a. Consistent with historic context
    b. To augment operation of Tsongas Center and
    c. To maximize "private sector activity to generate tax revenue" for City.
3. **Private Section Activity:** UML to use "Best Efforts" to maximize private sector activity that can generates commercial "real estate" tax revenue for City
4. **Redevelopment Uses** : Hotel, convention and meeting facilities, private recreation facilities, second ice sheet and/or practice ice rink, retail and restaurant uses (not limited to these uses)
5. **City Master Plan**: Redevelopment must be consistent with City Master Plan
6. **Zoning**: Redevelopment subject to Zoning with min FAR of 1.0
7. **No Dorm/Student Housing**: UML and Authority agrees NOT to construct a Dorm or student housing, unless City agrees in writing
8. ***NOTE***: **Sewer Easement and Right to Relocate Waste Water Facility**
    a. **20 FT wide sewer main** line easement located on Lots B and E ("Sewer Line Easement Area")
    b. **NO buildings or improvements allowed within Sewer Line Easement Area without City consent, not to be unreasonably withheld, delayed or conditioned**
    c. **Authority has right to relocate Waste Water Treatment Facility at Authority's sole cost and expense.** City is required to act reasonably to Authority request to relocate easements to property owned by City (including public street)

APPENDIX 2: Key PHG Biographies

Richard M. Kelleher – Principal, Chief Executive Officer

Rick Kelleher is one of the hospitality industry's most dynamic and accomplished executives. For over 25 years he has built and led strong, diverse teams in the development and management of leading hotel organizations. In 1983, following an early career in consulting, Mr. Kelleher co-founded Beacon Hotel Corporation, a start up Boston-based hotel development and management firm that grew to 40 hotels in four years.

Mr. Kelleher directed the company's growth from its acquisition of Guest Quarters Suite Hotels and Pickett Suite Hotels and to the acquisition of, and name change to, Doubletree Hotels Corporation, of which he was named president and CEO. Mr. Kelleher was President and COO of Promus Hotel Corporation (Doubletree, Embassy Suites, Red Lion Hotels, Hampton Inn, Hampton Inn and Suites, Club Hotels by Doubletree, Homewood Suites, Harrison Conference Centers and MORGANS Hotels) after the merger.

Under Kelleher's leadership Promus expanded to 1,250 properties, including the acquisition of over $5 billion in hotel companies and real estate. At Promus, Mr. Kelleher and his senior team raised over $7 billion in debt and over $700 million through equity offerings. He returned to Boston in 1999 to form Pyramid Hotel Group, LLC.

In 2007, Mr. Kelleher served as Chairman of the Legacy Hotel REIT, the largest Canadian hotel REIT, where he led the sale of the company for $2.5 billion, at a 20% premium for the shareholders.

James R. Dina – Principal, Chief Operating Officer

Jim Dina brings more than 20 years of hospitality management to his position as Pyramid's Chief Operating Officer. Jim's accomplishments include the leadership of two company mergers and the conversion of more than 100 hotels. From 1988 to 2000, Mr. Dina was affiliated with Hilton/Promus Hotel Corporation and its predecessor companies Doubletree and Guest Quarters Suite Hotels. During his last year with Promus, he spearheaded the repositioning and re-launch of Red Lion Hotels & Inns, of which he was Chief Operating Officer.

Mr. Dina began his hospitality career in Food and Beverage. Shortly after joining Doubletree he transitioned to operations, and quickly rose from hotel-level general manager and regional director to corporate vice president of new business transitions and later to the Red Lion leadership position. In 2001, Mr. Dina joined his colleagues, Rick Kelleher and Warren Fields, to form Pyramid Hotel Group, LLC.

Warren Q. Fields – Principal, Chief Investment Officer

Warren Fields is a senior development executive with close to two decades of experience in all facets of hospitality financing, acquisition, and operations. He is the former Vice President of Development and Operations of Promus Hotel Corporation, where he formulated and implemented a strategy for creating and operating the brand Club Hotels by Doubletree. Mr. Fields built the brand into 29 hotels in two years and created a hotel acquisition fund with Wall Street Firms, fully deploying leveraged capital within 18 months.

Mr. Fields began his career with Beacon Hotel Corporation, a predecessor company to Promus, where he ultimately rose to Vice President of Development for Guest Quarters Suite Hotels, and later Doubletree. He returned to Boston in 1999 to form Pyramid Hotel Group.

Christopher Devine, Chief Financial Officer

Chris Devine joined the Company in 2007 and is responsible for overseeing all Pyramid's finance, accounting, tax, reporting, treasury, risk management, information technology and legal/compliance functions. He has extensive experience in mergers and acquisitions, loan restructurings and working on equity and debt offerings for publicly-traded REIT's. Chris previously spent nine years in public accounting working exclusively with real estate and hospitality companies. He was most recently a Senior Manager in the real estate group at PWC. He is a Certified Public Accountant in Massachusetts.

Keith Oltchick – Vice President, Business Development

Keith is a Vice President Pyramid's Acquisitions and Business Development group. Prior to working for Pyramid he spent 4 years at Hersha REIT in their Acquisitions and Development Office, focusing on Development opportunities in the Northeast United States. He has also spent 9 years with Marriott International in their development and feasibility office. He has his MBA from the University of Arizona

Gabriel Rodriguez-Garriga – Senior Analyst, Business Development

Gabe is a Senior Analyst in Pyramid's Acquisitions and Business Development group, responsible for financial analysis, pitch book development, market and branding analysis, on-site due diligence and more. He joined Pyramid Hotel Group in 2010 after 2 years interning with the Business Development Department. Gabe has underwritten over 250 hotel assets spanning a broad array of U.S. and foreign markets. He graduated from the University of Michigan with a BS in Financial Mathematics and Economics

APPENDIX 3: STR Report

Date	Occupancy		ADR		RevPar		Supply		Demand		Revenue	
	This Year	% Chg	This Year	% Chg	This Year	% Chg	This Year	% Chg	This Year	% Chg	This Year	% Chg
Jan 08	48.4	9.4	90.95	7.3	44.04	17.4	24,180	0.0	11,707	9.4	1,064,799	17.4
Feb 08	48.8	-1.2	89.39	6.8	43.65	5.6	21,840	0.0	10,664	-1.2	953,236	5.6
Mar 08	54.8	-0.7	89.01	6.5	48.74	5.7	24,180	0.0	13,241	-0.7	1,178,543	5.7
Apr 08	56.9	-2.1	89.49	6.6	50.94	4.4	23,400	0.0	13,319	-2.1	1,191,979	4.4
May 08	60.4	-2.9	87.68	3.5	52.95	0.5	24,180	0.0	14,601	-2.9	1,280,222	0.5
Jun 08	73.2	-0.2	89.43	6.5	65.42	6.3	23,400	0.0	17,118	-0.2	1,530,910	6.3
Jul 08	66.3	-4.6	86.92	5.4	57.67	0.5	24,180	0.0	16,043	-4.6	1,394,437	0.5
Aug 08	68.6	-5.2	87.85	2.2	60.27	-3.1	24,180	0.0	16,588	-5.2	1,457,272	-3.1
Sep 08	70.6	5.7	91.64	4.7	64.70	10.7	23,400	0.0	16,521	5.7	1,513,998	10.7
Oct 08	70.6	-2.3	93.86	4.7	66.29	2.4	24,180	0.0	17,077	-2.3	1,602,803	2.4
Nov 08	52.1	-8.1	89.40	0.7	46.59	-7.4	23,400	0.0	12,194	-8.1	1,090,166	-7.4
Dec 08	54.4	23.1	90.19	4.0	49.04	28.0	24,180	0.0	13,146	23.1	1,185,674	28.0
Total 2008	60.5	0.1	89.68	4.9	54.25	5.0	284,700	0.0	172,219	0.1	15,444,039	5.0
Jan 09	47.0	-3.0	91.00	0.0	42.75	-2.9	24,180	0.0	11,361	-3.0	1,033,809	-2.9
Feb 09	42.6	-12.8	90.99	1.8	38.75	-11.2	21,840	0.0	9,300	-12.8	846,253	-11.2
Mar 09	39.6	-27.7	90.47	1.6	35.80	-26.6	24,180	0.0	9,568	-27.7	865,587	-26.6
Apr 09	44.7	-21.4	86.56	-3.3	38.71	-24.0	23,400	0.0	10,464	-21.4	905,778	-24.0
May 09	50.0	-17.1	83.53	-4.7	41.79	-21.1	24,180	0.0	12,097	-17.1	1,010,512	-21.1
Jun 09	56.6	-22.7	82.32	-8.0	46.56	-28.8	23,400	0.0	13,236	-22.7	1,089,526	-28.8
Jul 09	62.4	-6.0	78.05	-10.2	48.69	-15.6	24,180	0.0	15,084	-6.0	1,177,317	-15.6
Aug 09	62.1	-9.5	80.38	-8.5	49.92	-17.2	24,180	0.0	15,018	-9.5	1,207,165	-17.2
Sep 09	60.8	-13.9	83.08	-9.3	50.49	-22.0	23,400	0.0	14,219	-13.9	1,181,362	-22.0
Oct 09	68.7	-2.7	83.18	-11.4	57.15	-13.8	24,180	0.0	16,614	-2.7	1,381,957	-13.8
Nov 09	51.5	-1.1	83.46	-6.6	43.00	-7.7	23,400	0.0	12,057	-1.1	1,006,310	-7.7
Dec 09	43.1	-20.7	82.01	-9.1	35.38	-27.9	24,180	0.0	10,430	-20.7	855,380	-27.9
Total 2009	52.5	-13.2	84.05	-6.3	44.12	-18.7	284,700	0.0	149,448	-13.2	12,560,956	-18.7
Jan 10	44.9	-4.5	85.54	-6.0	38.38	-10.2	24,180	0.0	10,848	-4.5	927,944	-10.2
Feb 10	48.3	13.5	83.75	-8.0	40.49	4.5	21,840	0.0	10,558	13.5	884,216	4.5
Mar 10	49.4	24.9	84.62	-6.5	41.84	16.9	24,180	0.0	11,955	24.9	1,011,600	16.9
Apr 10	49.8	11.3	83.37	-3.7	41.49	7.2	23,400	0.0	11,647	11.3	970,955	7.2
May 10	60.2	20.4	85.15	1.9	51.29	22.7	24,180	0.0	14,566	20.4	1,240,313	22.7
Jun 10	62.9	11.3	87.01	5.7	54.76	17.6	23,400	0.0	14,726	11.3	1,281,304	17.6
Jul 10	67.3	7.9	79.91	2.4	53.78	10.4	24,180	0.0	16,272	7.9	1,300,336	10.4
Aug 10	63.3	1.9	84.28	4.8	53.36	6.9	24,180	0.0	15,309	1.9	1,290,179	6.9
Sep 10	62.3	2.5	85.23	2.6	53.09	5.2	23,340	-0.3	14,538	2.2	1,239,025	4.9
Oct 10	72.2	5.0	86.18	3.6	62.20	8.8	24,118	-0.3	17,406	4.8	1,500,037	8.5
Nov 10	46.8	-9.1	84.09	0.8	39.38	-8.4	23,340	-0.3	10,930	-9.3	919,100	-8.7
Dec 10	39.7	-8.0	81.73	-0.3	32.44	-8.3	24,118	-0.3	9,573	-8.2	782,375	-8.5
Total 2010	55.7	6.0	84.30	0.3	46.92	6.4	284,456	-0.1	158,328	5.9	13,347,384	6.3
Jan 11	45.6	1.7	84.79	-0.9	38.70	0.8	24,118	-0.3	11,009	1.5	933,417	0.6
Feb 11	47.3	-2.1	84.75	1.2	40.11	-0.9	21,784	-0.3	10,310	-2.3	873,746	-1.2
Mar 11	48.7	-1.5	86.32	2.0	42.02	0.4	24,118	-0.3	11,742	-1.8	1,013,524	0.2
Apr 11	58.2	16.9	82.95	-0.5	48.25	16.3	23,340	-0.3	13,577	16.6	1,126,212	16.0
May 11	63.8	5.9	84.92	-0.3	54.15	5.6	24,118	-0.3	15,379	5.6	1,305,963	5.3
Jun 11	68.5	8.9	85.96	-1.2	58.92	7.6	23,340	-0.3	15,998	8.6	1,375,153	7.3
Jul 11	72.9	8.3	80.65	0.9	58.80	9.3	24,118	-0.3	17,583	8.1	1,418,059	9.1
Aug 11	74.4	17.5	84.23	-0.1	62.64	17.4	24,118	-0.3	17,937	17.2	1,510,868	17.1
Sep 11	67.9	9.0	85.33	0.1	57.91	9.1	23,340	0.0	15,841	9.0	1,351,673	9.1
Oct 11	76.7	6.3	88.20	2.3	67.65	8.8	24,118	0.0	18,499	6.3	1,631,623	8.8
Nov 11	55.3	18.0	90.46	7.6	49.98	26.9	23,340	0.0	12,896	18.0	1,166,572	26.9
Dec 11	39.8	0.2	81.97	0.3	32.59	0.5	24,118	0.0	9,588	0.2	785,951	0.5
May YTD 2011	52.8	4.4	84.70	0.2	44.71	4.6	117,478	-0.3	62,017	4.1	5,252,862	4.3
Total 2011	60.0	7.8	85.07	0.9	51.04	8.8	283,970	-0.2	170,359	7.6	14,492,761	8.6
Jan 12	50.2	9.9	83.05	-2.0	41.68	7.7	24,118	0.0	12,102	9.9	1,005,128	7.7
Feb 12	50.9	7.6	85.92	1.4	43.75	9.1	21,784	0.0	11,091	7.6	952,974	9.1
Mar 12	56.4	15.9	86.84	0.6	48.99	16.6	24,118	0.0	13,605	15.9	1,181,473	16.6
Apr 12	58.0	-0.3	86.41	4.2	50.14	3.9	23,340	0.0	13,543	-0.3	1,170,256	3.9
May 12	72.4	13.6	85.10	0.2	61.63	13.8	24,118	0.0	17,467	13.6	1,486,368	13.8
May YTD 2012	57.7	9.3	85.48	0.9	49.34	10.3	117,478	0.0	67,808	9.3	5,796,199	10.3

Competitive Set:

1. Best Western Plus Chelmsford Inn
2. Radisson Hotel & Suites Chelmsford Lowell
3. Courtyard Boston Lowell Chelmsford
4. Hawthorn Suites by Wyndham Chelmsford Lowell
5. Holiday Inn Tewksbury Andover

2. *“100, 152, and 174 River Place, Lowell MA”,* Watermark Engineering

Watermark
Engineering • Construction • Operations

Environmental
Infrastructure
Buildings & Facilities

September 26, 2008

Mr. Lawrence Bevere
Asset Manager
City of Lowell
50 Arcand Drive
Lowell, MA 01852

Subject: **100, 152, and 174 River Place, Lowell, MA**
Remediation Costs Associated with Redevelopment

Dear Mr. Bevere:

In accordance with the City of Lowell Purchase Order 18290089-00 S, Watermark Environmental, Inc. (Watermark) has developed conceptual remediation costs for the subject properties (hereafter referred to as the Site[1]). As described in our proposal dated August 8, 2008, we have:

- Reviewed relevant environmental reports associated with the site;
- Developed costs associated with redevelopment; and
- Verified the permissible length of stay.

The remainder of this letter addresses these activities.

REVIEW OF RELEVANT ENVIRONMENTAL REPORTS

Watermark has reviewed various reports (see attached list) associated with the Site (see Figure 1 for site location and Figure 2 for site features). Based on this review, we have developed the following summary of the Site history:

- From approximately 1822 to 1961 the Site and the surrounding area was used for manufacturing (printed cotton products). Between 1958 and 1962, this area was leveled, and buildings demolished. Demolition debris was used to fill low areas. Consequently, much of the Site subsurface contains brick, concrete, rebar, coal, slag, ash, and debris from the former manufacturing operations.
- The United States Post Service (USPS) leased the Site from 1968 to the late 1990s, and used it as a vehicle maintenance facility. Currently, the City owns and operates the property;
- In 1979, during utility work on Tilden Street, an Underground Storage Tank (UST) and a release of No. 6 Fuel Oil were discovered. Oil was removed via pumping;

[1] The Site in this document refers to 100, 152, and 174 River Place, Lowell, MA. The Site consists of 130,336 square feet (sf), or approximately 3.0 acres.

- In 1990, the contents of two 200,000 gallon No. 6 Fuel Oil USTs were removed and then filled with cement;

- In 1996, assessment was performed by others on behalf of the City in the area, including the Site. Subsequently, three 200,000 gallon No. 6 Fuel Oil USTs were removed along with additional impacted soil and groundwater. Two of these three USTs were the ones previously filled with cement in 1990. Post-excavation samples were collected. A Method 3 Risk Characterization was performed in 1997 which demonstrated that for commercial use, the area (6.2 acres) represented a condition of No Significant Risk (NSR). An Activity and Use Limitation (AUL) was recorded at the registry of deeds stating that the 6.2 acre area could only be used for commercial purposes. The AUL was needed since soil exceeded residential soil standards. However, since the area was covered by pavement/ buildings and used for commercial purposes only, there was no exposure. A Response Action Outcome (RAO) Statement was filed stating that a condition of NSR had been achieved for this area.

- Between 2002 and 2003, ASTM Phase I and II Environmental Site Assessments (ESAs) were performed at the Site. The Phase II assessment included a geophysical survey to evaluate if any additional USTs still exist beyond the one known existing UST, additional soil and groundwater sampling to evaluate subsurface soil/groundwater quality, and catch basin sediment sampling. Phase II findings did not identify any additional USTs and soil and groundwater quality was similar to previous data. Results were used to evaluate remediation costs as part of a Phase III Evaluation in 2003 to remediate the Site such that an AUL is not needed. Based on the Phase III, costs could range from $1,000,000 to $3,000,000.

In 2008, the City chose to evaluate the Site from a different standpoint: redeveloping the property without removing the AUL. To that end, Watermark has developed the remediation costs below; assuming that an AUL will remain after the property is developed. Redevelopment plans have not been finalized, but may include commercial, hotel, retail, and recreational use (such as an outdoor plaza).

COSTS ASSOCIATED WITH REDEVELOPMENT

In order to develop costs associated with redevelopment, Watermark conducted the following:

1. Estimated the extent of contaminated subsurface soil and groundwater;

2. Identified the remediation goals;

3. Quantified the soil volumes;

4. Estimated the remediation costs;

A discussion of these items follows.

Estimated Extent of Contaminated Subsurface Soil and Groundwater

Subsurface soils have been impacted primarily by pyrogenic polynuclear aromatic hydrocarbons (PAHs) and metals, based on previous investigations and reports. These are relatively immobile compounds that do not migrate readily. Since almost the entire Site is covered by pavement/buildings, direct contact with this soil is unlikely. Note that a new lower Upper Concentration Limit (UCL) for lead has been promulgated since the 1997 RAO. Consequently, lead at one location at the Site is above the current UCL.

Groundwater is impacted by low concentrations of petroleum compounds, one metal, and chlorinated Volatile Organic Compounds (cVOCs), however, at concentrations below cleanup standards. It should be noted that new lower groundwater cleanup standards have been promulgated for cVOCs since the 2003 Phase II ESA (effective April 3, 2006). The 2003 groundwater results were orders of magnitude below the old standards in effect in 2003, but just slightly below the new 2006 standards. The 2003 data is not included in the 1997 RAO and was therefore not addressed in the Method 3 Risk Characterization.

The Phase III remediation cost estimate identified six to seven areas where soil exceeded cleanup standards. The extent of contaminated soil included 2,100 to 10,000 cubic yards of non-hazardous soil and 600 cubic yards of soil hazardous for lead. These seven areas are shown on Figure 2. Soil outside of these areas does not appear to require remediation. However, it may require special handling, management, and offsite disposition if removed since it is likely to contain urban fill materials including coal, coal ash, and wood ash.

The Phase III remediation cost estimate did not address groundwater since it met the cleanup standards at the time the cost estimate was completed (2003).

Identified Remediation Goals

In identifying remediation goals for soil, it is assumed that after redevelopment, there will be no direct contact to subsurface soil since subsurface soil will be covered with impervious surfaces or 3 feet of "clean" soil. This will likely be sufficient to maintain a condition of NSR for soil. Therefore, the remediation goal for soil is consistent with the current concentrations, which currently pass a Method 3 Risk Characterization. No remediation is planned for groundwater, however, a vapor barrier is recommended as a risk reduction measure to reduce the potential for exposure to the cVOCs in groundwater. **Furthermore, it is assumed that any new soil and/or groundwater data obtained is consistent with existing data.**

Quantified Impacted Soil Volumes

The majority of the remediation costs are associated with the volume of soil that requires offsite disposition. A redevelopment project that includes basements and/or underground parking garages requiring the removal and offsite disposition of large volumes of urban soil will likely be more costly than one that is minimally invasive, such as slab on grade construction. A high rise building will also require that urban fill be removed such that foundations and footings are keyed

into geotechnically suitable soils. Alternatively, piles can be driven to suitable load bearing materials and construction completed on floating pads with minimal soil removal. Since the development plans are unknown at this point, Watermark has developed three scenarios which will result in three different soil volumes. These scenarios are based loosely on conceptual development plans provided to Watermark by the City (the City obtained these plans during the initial RFP process). These plans include the following features:

- Building 1: 5-story hotel over a 1-story retail mall (37,889 sf footprint);
- Building 2: 2-story commercial space over a restaurant/café (7,963 sf footprint);
- 2-level parking garage (55,549 sf footprint); and
- Outdoor plaza with bandstand gazebo and other plaza areas (28,935 sf).

Based on these conceptual plans, Watermark's scenarios include:

1A. Full basements in Buildings 1 and 2 and a subterranean parking garage;
1B. Full basements in Buildings 1 and 2 and an elevated parking garage;
2A. No basements in Buildings 1 and 2 with foundations resting on native materials, and a subterranean parking garage;
2B. No basements in Buildings 1 and 2 with foundations resting on native materials, and an elevated parking garage;
3A. No basements in Buildings 1 and 2 with foundations resting on driven piles, and a subterranean parking garage; and
3B. No basements in Buildings 1 and 2 with foundations resting on driven piles, and an elevated parking garage.

The soil volume calculations are provided in Table 1. Furthermore, for the purpose of this remediation cost estimate, soil has been further subdivided into three categories based on available data. Each category requires a different method of offsite disposition with a different associated cost.

a) Soil potentially classified as hazardous for lead;
b) Soil within the seven areas previously identified as requiring remediation; and
c) Soil outside of the first two areas (e.g., not hazardous for lead or requiring remediation).

Note that additional data including waste characterization data will be needed to properly classify the soil as hazardous or non-hazardous.

Estimated Remediation Costs

Based on the impacted soil volumes calculated in Table 1, costs were developed for remediation. Since this work would need to be performed under the Massachusetts Contingency Plan (MCP), Watermark has developed costs for the MCP steps below that may be followed to complete the redevelopment activities. Note that there may be alternative MCP steps that can be followed, if an alternative approach is desired.

- Pre-Release Abatement Measure (RAM) Assessment.
  This assessment would focus on characterizing soil in areas of proposed construction in order to assess offsite disposition options before construction. This task is not required, but highly recommended;

- LSP Opinion with updated Method 3 Risk Characterization;
  An LSP Opinion will need to be prepared and submitted to MassDEP per 310 CMR 40.1080 documenting that the new proposed Site use meets a condition of NSR. This LSP Opinion will rely on an updated Method 3 Risk Characterization. The Method 3 Risk Characterization will use new data and new toxicity data;

- RAM Plan, Status Reports, and Completion Report
  Construction activities in the vicinity of contaminated soil require the submission of a RAM Plan and associated Status Reports and a Completion Report.

- RAM Activities:
  RAM activities will focus primarily on the screening, segregating, managing, and proper offsite disposition of contaminated and potentially contaminated soil. For the purpose of this remediation cost estimate, the soil within the seven areas previously identified as requiring remediation will be recycled at ESMI in New Hampshire, soil that is deemed hazardous will be disposed of at Clean Earth of New Jersey, and the soil outside of these areas will be reused at a Massachusetts landfill as daily cover. In addition, we have included the removal and disposal of an existing 6,000 gallon UST. We recommend that vapor barriers be installed underneath buildings during construction. These costs have not been included since they are negligible when compared to construction costs;

- Amendment to the AUL:
  After RAM activities are complete, the AUL would be amended to account for the new uses at the Site and acknowledge the updated Method 3 Risk Characterization.

Costs for the six options are included in Tables 1A – 3B.

Summary of Costs

The costs for remediating the site under Scenarios 1A to 3B are summarized in Table 4. The estimated costs range from $309,291 (Option 3B) to $3,680,877 (Option 1A). Note that these costs were developed under the following assumptions:

1. Pre-characterization activities may narrow or increase the areas requiring remediation. Note that these activities may be combined with geotechnical and/or environmental due diligence activities for cost-savings and efficiency. Pre-characterization activities would involve 3 days of geoprobe soil sampling;

2. No new reportable conditions will be discovered during the pre-RAM assessment or RAM excavation activities. It is assumed that the new data will be compared to the existing /historic data and evaluated to determine that no new reporting obligations have arisen;

3. Various construction-related costs were not included in the remediation cost estimate since they would be needed independent of the presence of contaminated soil. These costs included:

    a. Installation of temporary fencing around construction site;
    b. Mobilization of excavation equipment;
    c. Excavation equipment and operators;
    d. Site restoration and backfilling;
    e. Shoring;
    f. Offsite disposition of uncontaminated C&D debris

4. It was assumed that the maximum duration of subsurface excavation activities would be one year which would require one RAM Plan, two RAM Status Reports, and one RAM Completion Report;

5. Conversion factor of 1.7 tons per cubic yard;

6. A 15% contingency has been built into the costs;

7. The removal and disposal of sediments in the storm sewer system have not been included in the estimate;

8. Asbestos is not present above MCP standards in subsurface soil;

9. The extent of impacted soil in the seven remediation areas is as shown on Figure 2. Pre-RAM assessment activities will help to define the actual extent of impacted and hazardous soil;

10. No additional volume has been added to account for side-sloping excavations since many of these areas overlap. Furthermore, it is possible that physical shoring may be erected. Finally, any extra soil excavated to account for side-sloping would be placed back in the subsurface as backfill.

PERMISSIBLE LENGTH OF STAY

As requested in the July 24, 2008 request for proposals, we have verified with MassDEP the extent that the Site can be used as a hotel and extended stay suites under the existing AUL. Based on a discussion with MassDEP and subsequent email (attached), if the redevelopment results in *"impervious areas, buildings, and landscaped areas with 3 feet of clean fill, then there should be no direct contact exposure to [subsurface] soil for hotel guests and staff. Thus, with no direct*

contact exposure, the ... length of allowable stay [issue] become[s] moot". Hotel use and extended stay suites would be allowed under the existing AUL, provided the barriers (e.g., impervious areas, buildings, and landscaped areas with three feet of "clean" fill) are maintained to prevent direct exposure via contact.

If you have any questions or require additional information regarding this letter, please call either of the undersigned at (978) 452-9696. It has been a pleasure working with you on this project.

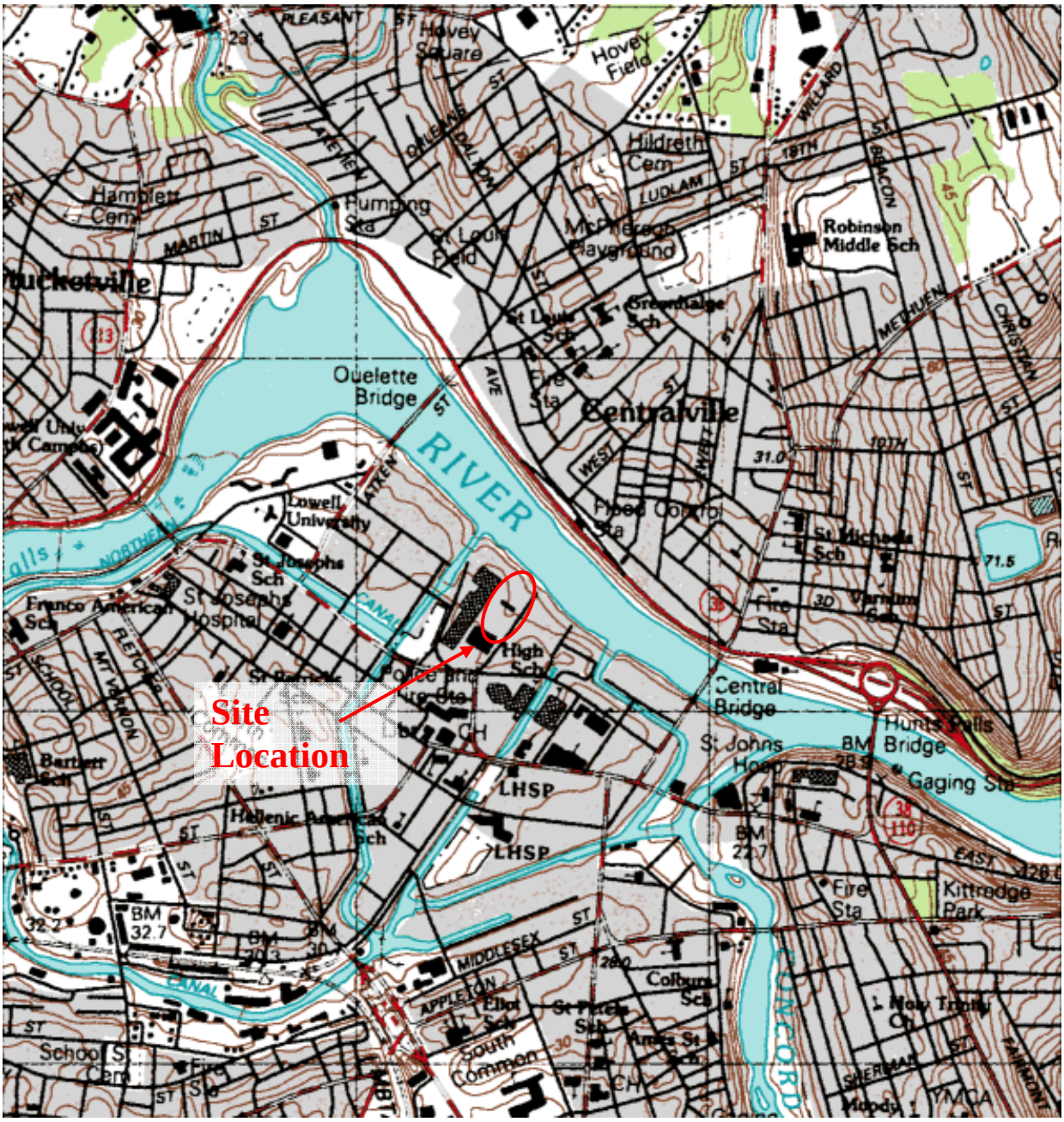
Sincerely,

Watermark Environmental, Inc.

Olaf Westphalen, LSP, PG
Project Manager

John J. Haley, EIT
Quality Control Manager
President

Attached:
Figure 1: Site Location Map
Figure 2: Site Features Map
Table 1: Soil Volume Calculations
Table 1A: Remediation Costs – Scenario 1A
Table 1B: Remediation Costs – Scenario 1B
Table 2A: Remediation Costs – Scenario 2A
Table 2B: Remediation Costs – Scenario 2B
Table 3A: Remediation Costs – Scenario 3A
Table 3B: Remediation Costs – Scenario 3B
Table 4: Summary of Remediation Costs
Attachment 1: email from MassDEP
Attachment 2: Documents Reviewed



SITE LOCATION MAP			
WATERMARK ENVIRONMENTAL, INC 175 Cabot Street, Lowell, MA 01854, (978)452-9696			**FIGURE** **1**
M=-15.61 G=-1.57	100, 152, and 174 River Place Lowell, MA	SCALE: 1" ~ 0.3 miles Source: USGS Lowell, MA	
	Remediation Cost Estimate	DATE: September 26, 2008	

08022-00 - FIGURE 2 - RIVER PLACE - REV 0 - 09.18.2008.DWG

LEGEND

DENOTES LOCATION OF CONCEPTUAL BUILDING

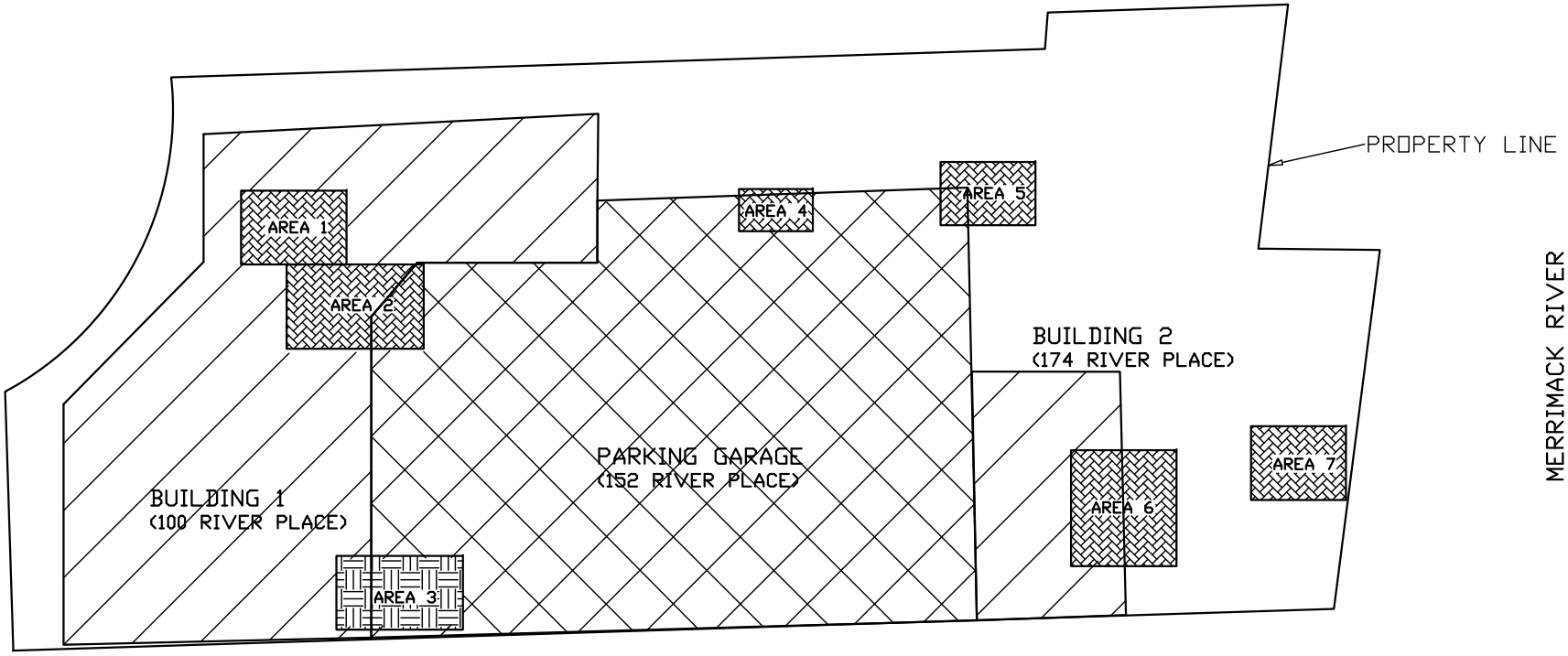
DENOTES LOCATION OF CONCEPTUAL PARKING GARAGE

DENOTES APPROXIMATE LOCATION OF HAZARDOUS SOIL FROM PREVIOUS REPORTS (8-13 FEET BELOW GRADE) AND CONTAMINATED SOIL FROM PREVIOUS REPORTS (0-8 AND 13-15 FEET BELOW GRADE)

DENOTES APPROXIMATE LOCATION OF CONTAMINATED SOIL FROM PREVIOUS REPORTS (0-15 FEET BELOW GRADE)

TSONGAS ARENA

MARTIN LUTHER KING, JR. WAY



RIVER PLACE

60 30 0 30 60

SCALE (FEET)

REVISION	DATE

Watermark
Engineering • Construction • Operations
175 CABOT STREET LOWELL, MA 01854

SITE FEATURES MAP
100, 152 AND 174 RIVER PLACE
LOWELL, MA

DRAWN: JRG
DESIGN: DW
CHECK: JH

DATE: 09/15/2008
SCALE: 1"= 60'

FIGURE 2

TABLE 1
Soil Volume Calculations
100, 152, and 174 River Place, Lowell, MA

		Impacted Soil			Hazardous Soil			Urban Fill Soil		
	Total Area (sq ft)	Thickness of Impacted Soil (ft)	Area of Impacted Soil (sq ft)	Volume of Impacted Soil (cy)	Thickness of Hazardous Soil (ft)	Area of Hazardous Soil (sq ft)	Volume of Hazardous Soil (cy)	Thickness of Urban Fill Soil (ft)	Area of Urban Fill Soil (sq ft)	Volume of Urban Fill Soil (cy)
OPTION 1A: Full Basements - Subterranean Garage										
Building #1	37,889	15	4,196	* 2,224	5	579	* 107	15	33,693	18,718
Building #2	7,963	15	1,390	772	-	-	-	15	6,573	3,651
Parking Garage	55,549	15	3,093	* 1,437	5	1,521	* 282	15	52,456	29,142
Other Areas	28,935	1	4,146	154	-	-	-	1	24,789	918
Total cubic yards				4,586			389			52,430
Total tons				**7,797**			**661**			**89,131**
OPTION 1B: Full Basements - Elevated Garage										
Building #1	37,889	15	4,196	* 2,224	5	579	* 107	15	33,693	18,718
Building #2	7,963	15	1,390	772	-	-	-	15	6,573	3,651
Parking Garage	55,549	15	619	* 287	5	304	* 56	15	10,986	6,103
Other Areas	28,935	1	4,146	154	-	-	-	1	24,789	918
Total cubic yards				3,437			164			29,391
Total tons				**5,843**			**278**			**49,965**
OPTION 2A: No Basements - Footings in Native Materials - Subterranean Garage										
Building #1	37,889	15	** 839	* 359	5	** 579	* 107	15	** 6,739	3,744
Building #2	7,963	15	** 278	154	-	-	-	15	** 1,315	730
Parking Garage	55,549	15	3,093	* 1,437	5	1,521	* 282	15	52,456	29,142
Other Areas	28,935	1	4,146	154	-	-	-	1	24,789	918
Total cubic yards				2,104			389			34,534
Total tons				**3,576**			**661**			**58,709**
OPTION 2B: No Basements - Footings in Native Materials - Elevated Garage										
Building #1	37,889	15	** 839	* 359	5	579	* 107	15	** 6,739	3,744
Building #2	7,963	15	** 278	154	-	-	-	15	** 1,315	730
Parking Garage	55,549	15	** 619	* 287	5	304	* 56	15	** 10,986	6,103
Other Areas	28,935	1	4,146	154	-	-	-	1	24,789	918
Total cubic yards				954			164			11,495
Total tons				**1,622**			**278**			**19,542**
OPTION 3A: No Basements - Piles Driven into Native Materials - Subterranean Garage										
Building #1	37,889	3	*** 629	70	-	-	-	3	*** 5,054	562
Building #2	7,963	3	*** 209	23	-	-	-	3	*** 986	110
Parking Garage	55,549	15	3,093	1,437	5	1,521	282	15	52,456	29,142
Other Areas	28,935	1	4,146	154	-	-	-	1	24,789	918
Total cubic yards				1,683			282			30,732
Total tons				**2,862**			**479**			**52,244**
OPTION 3B: No Basements - Piles Driven into Native Materials - Elevated Garage										
Building #1	37,889	3	*** 629	70	-	-	-	3	*** 5,054	562
Building #2	7,963	3	*** 209	23	-	-	-	3	*** 986	110
Parking Garage	55,549	3	*** 464	52	-	-	-	3	*** 7,868	874
Other Areas	28,935	1	4,146	154	-	-	-	1	24,789	918
Total cubic yards				298			-			2,463
Total tons				**507**			**-**			**4,188**

Notes: Conversion Factor: 1.7 tons/cubic yard (cy)
* For Options 1A, 1B, 2A, and 2B: for Building #1 and Parking Garage, the volume of hazardous soil was deducted from the total volume of Impacted Soil
** For Options with footings, the area of Impacted Soil, Hazardous soil, and Urban Fill Soil was estimated as 20% of the area to a depth of 15 feet
*** For Options with driven piles, the area of Impacted Soil, Hazardous soil, and Urban Fill Soil was estimated as 15% of the area to a depth of 3 feet
Hazardous soil is at a depth of 8 to 13 feet below grade
Soil in Other Areas was assume to be removed to a depth of one foot to allow for appropriate cover materials
Elevated Garage for Options 1B and 2B on footings, and on driven piles for Option 3B
See Figure 2 for Site features, seven Impacted Soil Areas, and the Hazardous Soil Area as identified and calculated in the 2003 Phase III Report
Values have been rounded

TABLE 1A
Remediation Costs - Scenario 1A
100, 152, and 174 River Place, Lowell, MA

OPTION 1A: Full Basements - Subterranean Garage

TASK DESCRIPTIONS	Rate	Qty.	Units	Cost	Subtask Totals
Pre-RAM Assessment Activities					
Planning and coordinating sampling and analysis program					
Staff Scientist	$65	26	hours	$1,690	
CADD Support	$50	4	hours	$200	
LSP	$120	8	hours	$960	
Admin Support	$50	2	hours	$100	
Field Activities (1-week field effort)					
Staff Scientist	$65	30	hours	$1,950	
LSP	$120	6	hours	$720	
Drilling Firm	$1,500	3	days	$4,500	
Analytical	$50	12	hours	$600	
SVOC Analyses (soil)	$199	50	analysis	$9,950	
VOC Analyses (soil)	$83	50	analysis	$4,150	
Heavy Metal Analyses (soil)	$106	50	analysis	$5,300	
PAH Analyses (soil)	$145	50	analysis	$7,250	
PCB Analyses (soil)	$69	50	analysis	$3,450	
Field Supplies/ Equipment	$2,000	1	week	$2,000	
Subtotal				$42,820	
15% Contingency				$6,423	
					$49,243
LSP-Opinion with Updated Method 3 Risk Characterization					
LSP Opinion					
Staff Scientist	$65	8	hours	$520	
CADD Support	$50	2	hours	$100	
LSP	$120	16	hours	$1,920	
Admin Support	$50	4	hours	$200	
Method 3 Risk Characterization					
Risk Assessor	$120	50	hours	$6,000	
LSP	$120	4	hours	$480	
Admin Support	$50	8	hours	$400	
Subtotal				$9,620	
15% Contingency				$1,443	
					$11,063
RAM Plan, 2 Status Reports, and Completion Report					
RAM Plan	$6,500	1	lot	$6,500	
RAM Status Report #1	$4,500	1	lot	$4,500	
RAM Status Report #2	$4,500	1	lot	$4,500	
RAM Completion Report	$15,000	1	lot	$15,000	
Health and Safety Plan					
Staff Scientist	$65	12	hours	$780	
CADD Support	$50	2	hours	$100	
LSP	$120	2	hours	$240	
Admin Support	$50	4	hours	$200	
Bill of Lading Preparation					
Staff Scientist	$65	16	hours	$1,040	
LSP	$120	8	hours	$960	
Admin Support	$50	4	hours	$200	
Subtotal				$34,020	
15% Contingency				$5,103	
					$39,123
Excavation and Offsite Disposition of Contaminated Soil (RAM Activities)					
Mobilize Excavator	$0	0	each	$0	
Remove contaminated soil with 2 Excavators	$0.00	97589	ton	$0	
Mobilize equipment and install temporary fencing	$0	0	each	$0	
Excavate and remove existing UST	$35,000	1	each	$35,000	
Sort/sift/segregate oversized materials into 3 waste streams	$0	244	day	$0	
Transportation offsite & Disposal of excavated debris (pavement, concrete, wood, etc)	$0	0	ton	$0	
Transportation offsite of impacted soil to ESMI	$35	7797	ton	$272,895	
Disposal of impacted soil - via thermal treatment at ESMI	$30	7797	ton	$233,910	
Transportation offsite of hazardous soil to Clean Venture, NJ	$100	661	ton	$66,100	
Disposal of hazardous soil at Clean Venture, NJ	$225	661	ton	$148,725	
Transportation offsite of urban fill soil to unlined Mass Landfill	$10	71305	ton	$713,050	
Reuse of urban fill soil at an unlined Mass Landfill	$12	71305	ton	$855,660	
Transportation offsite of C&D waste (assume 20% of urban fill soil)	$0	17826	ton	$0	
Offsite disposal of C&D waste (assume 20% of urban fill soil)	$0	17826	ton	$0	
Shoring					
Equipment (first two weeks)	$0	0	each	$0	
Equipment (after two weeks)	$0	0	week	$0	
Fugitive Dust Monitoring					
Dust monitoring equipment	$75	244	day	$18,300	
Misting Truck	$250	244	day	$61,000	
Dewatering					
Fractionation tanks (mob, demob, pump & hoses)	$250	29	weeks	$7,250	
Cleanout Fractionation Tanks	$2,500	2	each	$5,000	
Water treatment system oversight (Staff Scientist)	$65	244	hour	$15,860	
LSP oversight	$120	244	hours	$29,280	
Pump and Temporary Carbon Treatment System	$625	29	week	$18,125	
Liquid-phase carbon	$1.20	20000	pound	$24,000	
NPDES Sampling (Staff Scientist)	$65	29	hours	$1,885	
NPDES Sample Analyses (VOCs, SVOCs, and Metals)	$385	29	analysis	$11,165	
NPDES Reporting (Staff Scientist)	$65	28	hours	$1,820	
NPDES Reporting (LSP)	$120	7	hours	$840	
Oversight and confirmatory soil sampling					
Excavation Oversight and Confirmatory Soil Sampling (Staff Scientist)	$65	2440	hours	$158,600	
Field Equipment including XRF Instrument	$300	244	day	$73,200	
LSP (office support)	$120	244	hours	$29,280	
Admin Support	$50	16	hours	$800	
SVOC Analyses (soil)	$199	294	analysis	$58,506	
VOC Analyses (soil)	$83	294	analysis	$24,402	
Heavy Metal Analyses (soil)	$106	294	analysis	$31,164	
PAH Analyses (soil)	$145	294	analysis	$42,630	
PCB Analyses (soil)	$69	294	analysis	$20,286	
Waste Disposal Characterization (soil - one sample per 500 tons)	$750	195	analysis	$146,250	
Subtotal				$3,104,983	
15% Contingency				$465,747	
					$3,570,730
Amendment to AUL					
Amend AUL					
Staff Scientist	$65	40	hours	$2,600	
CADD Support	$50	12	hours	$600	
LSP	$120	16	hours	$1,920	
Admin Support	$50	0	hours	$0	
Metes and Bounds Survey	$3,500	1	ea	$3,500	
Registry Recording fees	$75	2	ea	$150	
Legal Notice	$150	1	ea	$150	
Admin Support	$50	8	hours	$400	
Subtotal				$9,320	
15% Contingency				$1,398	
					$10,718
TOTAL					**$3,680,877**

Notes:
a) Two excavators will remove approx. 400 tons soil/day
b) It is assumed that 20% of urban fill soil is debris classified as common C&D waste
c) Dewatering costs have been included since some of the excavations will be below the water table
d) Number of post-excavation samples based on six samples per every 2000 tons removed
e) It is assumed that three waste streams will be generated: impacted soil, hazardous soil, and urban fill soil. See Table 1 for volumes

TABLE 1B
Remediation Costs - Scenario 1B
100, 152, and 174 River Place, Lowell, MA

OPTION 1B: Full Basements - Elevated Garage

TASK DESCRIPTIONS	Rate	Qty.	Units	Cost	Subtask Totals
Pre-RAM Assessment Activities					
Planning and coordinating sampling and analysis program					
Staff Scientist	$65	26	hours	$1,690	
CADD Support	$50	4	hours	$200	
LSP	$120	8	hours	$960	
Admin Support	$50	2	hours	$100	
Field Activities (1-week field effort)					
Staff Scientist	$65	30	hours	$1,950	
LSP	$120	6	hours	$720	
Drilling Firm	$1,500	3	days	$4,500	
Analytical	$50	12	hours	$600	
SVOC Analyses (soil)	$199	50	analysis	$9,950	
VOC Analyses (soil)	$83	50	analysis	$4,150	
Heavy Metal Analyses (soil)	$106	50	analysis	$5,300	
PAH Analyses (soil)	$145	50	analysis	$7,250	
PCB Analyses (soil)	$69	50	analysis	$3,450	
Field Supplies/ Equipment	$2,000	1	week	$2,000	
Subtotal				$42,820	
15% Contingency				$6,423	
					$49,243
LSP-Opinion with Updated Method 3 Risk Characterization					
LSP Opinion					
Staff Scientist	$65	8	hours	$520	
CADD Support	$50	2	hours	$100	
LSP	$120	16	hours	$1,920	
Admin Support	$50	4	hours	$200	
Method 3 Risk Characterization					
Risk Assessor	$120	50	hours	$6,000	
LSP	$120	4	hours	$480	
Admin Support	$50	8	hours	$400	
Subtotal				$9,620	
15% Contingency				$1,443	
					$11,063
RAM Plan, 2 Status Reports, and Completion Report					
RAM Plan	$6,500	1	lot	$6,500	
RAM Status Report #1	$4,500	1	lot	$4,500	
RAM Status Report #2	$4,500	1	lot	$4,500	
RAM Completion Report	$15,000	1	lot	$15,000	
Health and Safety Plan					
Staff Scientist	$65	12	hours	$780	
CADD Support	$50	2	hours	$100	
LSP	$120	2	hours	$240	
Admin Support	$50	4	hours	$200	
Bill of Lading Preparation					
Staff Scientist	$65	16	hours	$1,040	
LSP	$120	8	hours	$960	
Admin Support	$50	4	hours	$200	
Subtotal				$34,020	
15% Contingency				$5,103	
					$39,123
Excavation and Offsite Disposition of Contaminated Soil (RAM Activities)					
Mobilize Excavator	$0	0	each	$0	
Remove contaminated soil with 2 Excavators	$0.00	56086	ton	$0	
Mobilize equipment and install temporary fencing	$0	0	each	$0	
Excavate and remove existing UST	$35,000	1	each	$35,000	
Sort/sift/segregate oversized materials into 3 waste streams	$0	140	day	$0	
Transportation offsite & Disposal of excavated debris (pavement, concrete, wood, etc)	$0	0	ton	$0	
Transportation offsite of impacted soil to ESMI	$35	5843	ton	$204,505	
Disposal of impacted soil - via thermal treatment at ESMI	$30	5843	ton	$175,290	
Transportation offsite of hazardous soil to Clean Venture, NJ	$100	278	ton	$27,800	
Disposal of hazardous soil at Clean Venture, NJ	$225	278	ton	$62,550	
Transportation offsite of urban fill soil to unlined Mass Landfill	$10	39972	ton	$399,720	
Reuse of urban fill soil at an unlined Mass Landfill	$12	39972	ton	$479,664	
Transportation offsite of C&D waste (assume 20% of urban fill soil)	$0	9993	ton	$0	
Offsite disposal of C&D waste (assume 20% of urban fill soil)	$0	9993	ton	$0	
Shoring					
Equipment (first two weeks)	$0	0	each	$0	
Equipment (after two weeks)	$0	0	week	$0	
Fugitive Dust Monitoring					
Dust monitoring equipment	$75	140	day	$10,500	
Misting Truck	$250	140	day	$35,000	
Dewatering					
Fractionation tanks (mob, demob, pump & hoses)	$250	17	weeks	$4,250	
Cleanout Fractionation Tanks	$2,500	2	each	$5,000	
Water treatment system oversight (Staff Scientist)	$65	140	hour	$9,100	
LSP oversight	$120	140	hours	$16,800	
Pump and Temporary Carbon Treatment System	$625	17	week	$10,625	
Liquid-phase carbon	$1.20	20000	pound	$24,000	
NPDES Sampling (Staff Scientist)	$65	17	hours	$1,105	
NPDES Sample Analyses (VOCs, SVOCs, and Metals)	$385	17	analysis	$6,545	
NPDES Reporting (Staff Scientist)	$65	28	hours	$1,820	
NPDES Reporting (LSP)	$120	7	hours	$840	
Oversight and confirmatory soil sampling					
Excavation Oversight and Confirmatory Soil Sampling (Staff Scientist)	$65	1400	hours	$91,000	
Field Equipment including XRF Instrument	$300	140	day	$42,000	
LSP (office support)	$120	140	hours	$16,800	
Admin Support	$50	16	hours	$800	
SVOC Analyses (soil)	$199	168	analysis	$33,432	
VOC Analyses (soil)	$83	168	analysis	$13,944	
Heavy Metal Analyses (soil)	$106	168	analysis	$17,808	
PAH Analyses (soil)	$145	168	analysis	$24,360	
PCB Analyses (soil)	$69	168	analysis	$11,592	
Waste Disposal Characterization (soil - one sample per 500 tons)	$750	112	analysis	$84,000	
Subtotal				$1,845,850	
15% Contingency				$276,878	
					$2,122,728
Amendment to AUL					
Amend AUL					
Staff Scientist	$65	40	hours	$2,600	
CADD Support	$50	12	hours	$600	
LSP	$120	16	hours	$1,920	
Admin Support	$50	0	hours	$0	
Metes and Bounds Survey	$3,500	1	ea	$3,500	
Registry Recording fees	$75	2	ea	$150	
Legal Notice	$150	1	ea	$150	
Admin Support	$50	8	hours	$400	
Subtotal				$9,320	
15% Contingency				$1,398	
					$10,718
TOTAL					**$2,232,875**

Notes:
a) Two excavators will remove approx. 400 tons soil/day
b) It is assumed that 20% of urban fill soil is debris classified as common C&D waste
c) Dewatering costs have been included since some of the excavations will be below the water table
d) Number of post-excavation samples based on six samples per every 2000 tons removed
e) It is assumed that three waste streams will be generated: impacted soil, hazardous soil, and urban fill soil. See Table 1 for volumes

TABLE 2A
Remediation Costs - Scenario 2A
100, 152, and 174 River Place, Lowell, MA

OPTION 2A: No Basements - Footings in Native Materials - Subterranean Garage

TASK DESCRIPTIONS	Rate	Qty.	Units	Cost	Subtask Totals
Pre-RAM Assessment Activities					
Planning and coordinating sampling and analysis program					
Staff Scientist	$65	26	hours	$1,690	
CADD Support	$50	4	hours	$200	
LSP	$120	8	hours	$960	
Admin Support	$50	2	hours	$100	
Field Activities (1-week field effort)					
Staff Scientist	$65	30	hours	$1,950	
LSP	$120	6	hours	$720	
Drilling Firm	$1,500	3	days	$4,500	
Analytical	$50	12	hours	$600	
SVOC Analyses (soil)	$199	50	analysis	$9,950	
VOC Analyses (soil)	$83	50	analysis	$4,150	
Heavy Metal Analyses (soil)	$106	50	analysis	$5,300	
PAH Analyses (soil)	$145	50	analysis	$7,250	
PCB Analyses (soil)	$69	50	analysis	$3,450	
Field Supplies/ Equipment	$2,000	1	week	$2,000	
Subtotal				$42,820	
15% Contingency				$6,423	
					$49,243
LSP-Opinion with Updated Method 3 Risk Characterization					
LSP Opinion					
Staff Scientist	$65	8	hours	$520	
CADD Support	$50	2	hours	$100	
LSP	$120	16	hours	$1,920	
Admin Support	$50	4	hours	$200	
Method 3 Risk Characterization					
Risk Assessor	$120	50	hours	$6,000	
LSP	$120	4	hours	$480	
Admin Support	$50	8	hours	$400	
Subtotal				$9,620	
15% Contingency				$1,443	
					$11,063
RAM Plan, 2 Status Reports, and Completion Report					
RAM Plan	$6,500	1	lot	$6,500	
RAM Status Report #1	$4,500	1	lot	$4,500	
RAM Status Report #2	$4,500	1	lot	$4,500	
RAM Completion Report	$15,000	1	lot	$15,000	
Health and Safety Plan					
Staff Scientist	$65	12	hours	$780	
CADD Support	$50	2	hours	$100	
LSP	$120	2	hours	$240	
Admin Support	$50	4	hours	$200	
Bill of Lading Preparation					
Staff Scientist	$65	16	hours	$1,040	
LSP	$120	8	hours	$960	
Admin Support	$50	4	hours	$200	
Subtotal				$34,020	
15% Contingency				$5,103	
					$39,123
Excavation and Offsite Disposition of Contaminated Soil (RAM Activities)					
Mobilize Excavator	$0	0	each	$0	
Remove contaminated soil with 2 Excavators	$0.00	62946	ton	$0	
Mobilize equipment and install temporary fencing	$0	0	each	$0	
Excavate and remove existing UST	$35,000	1	each	$35,000	
Sort/sift/segregate oversized materials into 3 waste streams	$0	157	day	$0	
Transportation offsite & Disposal of excavated debris (pavement, concrete, wood, etc)	$0	0	ton	$0	
Transportation offsite of impacted soil to ESMI	$35	3576	ton	$125,160	
Disposal of impacted soil - via thermal treatment at ESMI	$30	3576	ton	$107,280	
Transportation offsite of hazardous soil to Clean Venture, NJ	$100	661	ton	$66,100	
Disposal of hazardous soil at Clean Venture, NJ	$225	661	ton	$148,725	
Transportation offsite of urban fill soil to unlined Mass Landfill	$10	46967	ton	$469,670	
Reuse of urban fill soil at an unlined Mass Landfill	$12	46967	ton	$563,604	
Transportation offsite of C&D waste (assume 20% of urban fill soil)	$0	11742	ton	$0	
Offsite disposal of C&D waste (assume 20% of urban fill soil)	$0	11742	ton	$0	
Shoring					
Equipment (first two weeks)	$0	0	each	$0	
Equipment (after two weeks)	$0	0	week	$0	
Fugitive Dust Monitoring					
Dust monitoring equipment	$75	157	day	$11,775	
Misting Truck	$250	157	day	$39,250	
Dewatering					
Fractionation tanks (mob, demob, pump & hoses)	$250	19	weeks	$4,750	
Cleanout Fractionation Tanks	$2,500	2	each	$5,000	
Water treatment system oversight (Staff Scientist)	$65	157	hour	$10,205	
LSP oversight	$120	157	hours	$18,840	
Pump and Temporary Carbon Treatment System	$625	19	week	$11,875	
Liquid-phase carbon	$1.20	20000	pound	$24,000	
NPDES Sampling (Staff Scientist)	$65	19	hours	$1,235	
NPDES Sample Analyses (VOCs, SVOCs, and Metals)	$385	19	analysis	$7,315	
NPDES Reporting (Staff Scientist)	$65	28	hours	$1,820	
NPDES Reporting (LSP)	$120	7	hours	$840	
Oversight and confirmatory soil sampling					
Excavation Oversight and Confirmatory Soil Sampling (Staff Scientist)	$65	1570	hours	$102,050	
Field Equipment including XRF Instrument	$300	157	day	$47,100	
LSP (office support)	$120	157	hours	$18,840	
Admin Support	$50	16	hours	$800	
SVOC Analyses (soil)	$199	186	analysis	$37,014	
VOC Analyses (soil)	$83	186	analysis	$15,438	
Heavy Metal Analyses (soil)	$106	186	analysis	$19,716	
PAH Analyses (soil)	$145	186	analysis	$26,970	
PCB Analyses (soil)	$69	186	analysis	$12,834	
Waste Disposal Characterization (soil - one sample per 500 tons)	$750	126	analysis	$94,500	
Subtotal				$2,027,706	
15% Contingency				$304,156	
					$2,331,862
Amendment to AUL					
Amend AUL					
Staff Scientist	$65	40	hours	$2,600	
CADD Support	$50	12	hours	$600	
LSP	$120	16	hours	$1,920	
Admin Support	$50	0	hours	$0	
Metes and Bounds Survey	$3,500	1	ea	$3,500	
Registry Recording fees	$75	2	ea	$150	
Legal Notice	$150	1	ea	$150	
Admin Support	$50	8	hours	$400	
Subtotal				$9,320	
15% Contingency				$1,398	
					$10,718
TOTAL					**$2,442,009**

Notes:
a) Two excavators will remove approx. 400 tons soil/day
b) It is assumed that 20% of urban fill soil is debris classified as common C&D waste
c) Dewatering costs have been included since some of the excavations will be below the water table
d) Number of post-excavation samples based on six samples per every 2000 tons removed
e) It is assumed that three waste streams will be generated: impacted soil, hazardous soil, and urban fill soil. See Table 1 for volumes

TABLE 2B
Remediation Costs - Scenario 2B
100, 152, and 174 River Place, Lowell, MA

OPTION 2B: No Basements - Footings in Native Materials - Elevated Garage

TASK DESCRIPTIONS	Rate	Qty.	Units	Cost	Subtask Totals
Pre-RAM Assessment Activities					
Planning and coordinating sampling and analysis program					
Staff Scientist	$65	26	hours	$1,690	
CADD Support	$50	4	hours	$200	
LSP	$120	8	hours	$960	
Admin Support	$50	2	hours	$100	
Field Activities (1-week field effort)					
Staff Scientist	$65	30	hours	$1,950	
LSP	$120	6	hours	$720	
Drilling Firm	$1,500	3	days	$4,500	
Analytical	$50	12	hours	$600	
SVOC Analyses (soil)	$199	50	analysis	$9,950	
VOC Analyses (soil)	$83	50	analysis	$4,150	
Heavy Metal Analyses (soil)	$106	50	analysis	$5,300	
PAH Analyses (soil)	$145	50	analysis	$7,250	
PCB Analyses (soil)	$69	50	analysis	$3,450	
Field Supplies/ Equipment	$2,000	1	week	$2,000	
Subtotal				$42,820	
15% Contingency				$6,423	
					$49,243
LSP-Opinion with Updated Method 3 Risk Characterization					
LSP Opinion					
Staff Scientist	$65	8	hours	$520	
CADD Support	$50	2	hours	$100	
LSP	$120	16	hours	$1,920	
Admin Support	$50	4	hours	$200	
Method 3 Risk Characterization					
Risk Assessor	$120	50	hours	$6,000	
LSP	$120	4	hours	$480	
Admin Support	$50	8	hours	$400	
Subtotal				$9,620	
15% Contingency				$1,443	
					$11,063
RAM Plan, 2 Status Reports, and Completion Report					
RAM Plan	$6,500	1	lot	$6,500	
RAM Status Report #1	$4,500	1	lot	$4,500	
RAM Status Report #2	$4,500	1	lot	$4,500	
RAM Completion Report	$15,000	1	lot	$15,000	
Health and Safety Plan					
Staff Scientist	$65	12	hours	$780	
CADD Support	$50	2	hours	$100	
LSP	$120	2	hours	$240	
Admin Support	$50	4	hours	$200	
Bill of Lading Preparation					
Staff Scientist	$65	16	hours	$1,040	
LSP	$120	8	hours	$960	
Admin Support	$50	4	hours	$200	
Subtotal				$34,020	
15% Contingency				$5,103	
					$39,123
Excavation and Offsite Disposition of Contaminated Soil (RAM Activities)					
Mobilize Excavator	$0	0	each	$0	
Remove contaminated soil with 2 Excavators	$0.00	21442	ton	$0	
Mobilize equipment and install temporary fencing	$0	0	each	$0	
Excavate and remove existing UST	$35,000	1	each	$35,000	
Sort/sift/segregate oversized materials into 3 waste streams	$0	54	day	$0	
Transportation offsite & Disposal of excavated debris (pavement, concrete, wood, etc)	$0	0	ton	$0	
Transportation offsite of impacted soil to ESMI	$35	1622	ton	$56,770	
Disposal of impacted soil - via thermal treatment at ESMI	$30	1622	ton	$48,660	
Transportation offsite of hazardous soil to Clean Venture, NJ	$100	278	ton	$27,800	
Disposal of hazardous soil at Clean Venture, NJ	$225	278	ton	$62,550	
Transportation offsite of urban fill soil to unlined Mass Landfill	$10	15634	ton	$156,340	
Reuse of urban fill soil at an unlined Mass Landfill	$12	15634	ton	$187,608	
Transportation offsite of C&D waste (assume 20% of urban fill soil)	$0	3908	ton	$0	
Offsite disposal of C&D waste (assume 20% of urban fill soil)	$0	3908	ton	$0	
Shoring					
Equipment (first two weeks)	$0	0	each	$0	
Equipment (after two weeks)	$0	0	week	$0	
Fugitive Dust Monitoring					
Dust monitoring equipment	$75	54	day	$4,050	
Misting Truck	$250	54	day	$13,500	
Dewatering					
Fractionation tanks (mob, demob, pump & hoses)	$250	6	weeks	$1,500	
Cleanout Fractionation Tanks	$2,500	2	each	$5,000	
Water treatment system oversight (Staff Scientist)	$65	54	hour	$3,510	
LSP oversight	$120	54	hours	$6,480	
Pump and Temporary Carbon Treatment System	$625	6	week	$3,750	
Liquid-phase carbon	$1.20	20000	pound	$24,000	
NPDES Sampling (Staff Scientist)	$65	6	hours	$390	
NPDES Sample Analyses (VOCs, SVOCs, and Metals)	$385	6	analysis	$2,310	
NPDES Reporting (Staff Scientist)	$65	28	hours	$1,820	
NPDES Reporting (LSP)	$120	7	hours	$840	
Oversight and confirmatory soil sampling					
Excavation Oversight and Confirmatory Soil Sampling (Staff Scientist)	$65	540	hours	$35,100	
Field Equipment including XRF Instrument	$300	54	day	$16,200	
LSP (office support)	$120	54	hours	$6,480	
Admin Support	$50	16	hours	$800	
SVOC Analyses (soil)	$199	66	analysis	$13,134	
VOC Analyses (soil)	$83	66	analysis	$5,478	
Heavy Metal Analyses (soil)	$106	66	analysis	$6,996	
PAH Analyses (soil)	$145	66	analysis	$9,570	
PCB Analyses (soil)	$69	66	analysis	$4,554	
Waste Disposal Characterization (soil - one sample per 500 tons)	$750	43	analysis	$32,250	
Subtotal				$772,440	
15% Contingency				$115,866	
					$888,306
Amendment to AUL					
Amend AUL					
Staff Scientist	$65	40	hours	$2,600	
CADD Support	$50	12	hours	$600	
LSP	$120	16	hours	$1,920	
Admin Support	$50	0	hours	$0	
Metes and Bounds Survey	$3,500	1	ea	$3,500	
Registry Recording fees	$75	2	ea	$150	
Legal Notice	$150	1	ea	$150	
Admin Support	$50	8	hours	$400	
Subtotal				$9,320	
15% Contingency				$1,398	
					$10,718
TOTAL					**$998,453**

Notes:
a) Two excavators will remove approx. 400 tons soil/day
b) It is assumed that 20% of urban fill soil is debris classified as common C&D waste
c) Dewatering costs have been included since some of the excavations will be below the water table
d) Number of post-excavation samples based on six samples per every 2000 tons removed
e) It is assumed that three waste streams will be generated: impacted soil, hazardous soil, and urban fill soil. See Table 1 for volumes

TABLE 3A
Remediation Costs - Scenario 3A
100, 152, 174 River Place, Lowell, MA

OPTION 3A: No Basements - Piles Driven into Native Materials - Subterranean Garage

TASK DESCRIPTIONS	Rate	Qty.	Units	Cost	Subtask Totals
Pre-RAM Assessment Activities					
Planning and coordinating sampling and analysis program					
Staff Scientist	$65	26	hours	$1,690	
CADD Support	$50	4	hours	$200	
LSP	$120	8	hours	$960	
Admin Support	$50	2	hours	$100	
Field Activities (1-week field effort)					
Staff Scientist	$65	30	hours	$1,950	
LSP	$120	6	hours	$720	
Drilling Firm	$1,500	3	days	$4,500	
Analytical	$50	12	hours	$600	
SVOC Analyses (soil)	$199	50	analysis	$9,950	
VOC Analyses (soil)	$83	50	analysis	$4,150	
Heavy Metal Analyses (soil)	$106	50	analysis	$5,300	
PAH Analyses (soil)	$145	50	analysis	$7,250	
PCB Analyses (soil)	$69	50	analysis	$3,450	
Field Supplies/ Equipment	$2,000	1	week	$2,000	
Subtotal				$42,820	
15% Contingency				$6,423	
					$49,243
LSP-Opinion with Updated Method 3 Risk Characterization					
LSP Opinion					
Staff Scientist	$65	8	hours	$520	
CADD Support	$50	2	hours	$100	
LSP	$120	16	hours	$1,920	
Admin Support	$50	4	hours	$200	
Method 3 Risk Characterization					
Risk Assessor	$120	50	hours	$6,000	
LSP	$120	4	hours	$480	
Admin Support	$50	8	hours	$400	
Subtotal				$9,620	
15% Contingency				$1,443	
					$11,063
RAM Plan, 2 Status Reports, and Completion Report					
RAM Plan	$6,500	1	lot	$6,500	
RAM Status Report #1	$4,500	1	lot	$4,500	
RAM Status Report #2	$4,500	1	lot	$4,500	
RAM Completion Report	$15,000	1	lot	$15,000	
Health and Safety Plan					
Staff Scientist	$65	12	hours	$780	
CADD Support	$50	2	hours	$100	
LSP	$120	2	hours	$240	
Admin Support	$50	4	hours	$200	
Bill of Lading Preparation					
Staff Scientist	$65	16	hours	$1,040	
LSP	$120	8	hours	$960	
Admin Support	$50	4	hours	$200	
Subtotal				$34,020	
15% Contingency				$5,103	
					$39,123
Excavation and Offsite Disposition of Contaminated Soil (RAM Activities)					
Mobilize Excavator	$0	0	each	$0	
Remove contaminated soil with 2 Excavators	$0.00	55585	ton	$0	
Mobilize equipment and install temporary fencing	$0	0	each	$0	
Excavate and remove existing UST	$35,000	1	each	$35,000	
Sort/sift/segregate oversized materials into 3 waste streams	$0	139	day	$0	
Transportation offsite & Disposal of excavated debris (pavement, concrete, wood, etc)	$0	0	ton	$0	
Transportation offsite of impacted soil to ESMI	$35	2862	ton	$100,170	
Disposal of impacted soil - via thermal treatment at ESMI	$30	2862	ton	$85,860	
Transportation offsite of hazardous soil to Clean Venture, NJ	$100	479	ton	$47,900	
Disposal of hazardous soil at Clean Venture, NJ	$225	479	ton	$107,775	
Transportation offsite of urban fill soil to unlined Mass Landfill	$10	41795	ton	$417,950	
Reuse of urban fill soil at an unlined Mass Landfill	$12	41795	ton	$501,540	
Transportation offsite of C&D waste (assume 20% of urban fill soil)	$0	10449	ton	$0	
Offsite disposal of C&D waste (assume 20% of urban fill soil)	$0	10449	ton	$0	
Shoring					
Equipment (first two weeks)	$0	0	each	$0	
Equipment (after two weeks)	$0	0	week	$0	
Fugitive Dust Monitoring					
Dust monitoring equipment	$75	139	day	$10,425	
Misting Truck	$250	139	day	$34,750	
Dewatering					
Fractionation tanks (mob, demob, pump & hoses)	$250	17	weeks	$4,250	
Cleanout Fractionation Tanks	$2,500	2	each	$5,000	
Water treatment system oversight (Staff Scientist)	$65	139	hour	$9,035	
LSP oversight	$120	139	hours	$16,680	
Pump and Temporary Carbon Treatment System	$625	17	week	$10,625	
Liquid-phase carbon	$1.20	20000	pound	$24,000	
NPDES Sampling (Staff Scientist)	$65	17	hours	$1,105	
NPDES Sample Analyses (VOCs, SVOCs, and Metals)	$385	17	analysis	$6,545	
NPDES Reporting (Staff Scientist)	$65	28	hours	$1,820	
NPDES Reporting (LSP)	$120	7	hours	$840	
Oversight and confirmatory soil sampling					
Excavation Oversight and Confirmatory Soil Sampling (Staff Scientist)	$65	1390	hours	$90,350	
Field Equipment including XRF Instrument	$300	139	day	$41,700	
LSP (office support)	$120	139	hours	$16,680	
Admin Support	$50	16	hours	$800	
SVOC Analyses (soil)	$199	168	analysis	$33,432	
VOC Analyses (soil)	$83	168	analysis	$13,944	
Heavy Metal Analyses (soil)	$106	168	analysis	$17,808	
PAH Analyses (soil)	$145	168	analysis	$24,360	
PCB Analyses (soil)	$69	168	analysis	$11,592	
Waste Disposal Characterization (soil - one sample per 500 tons)	$750	111	analysis	$83,250	
Subtotal				$1,755,186	
15% Contingency				$263,278	
					$2,018,464
Amendment to AUL					
Amend AUL					
Staff Scientist	$65	40	hours	$2,600	
CADD Support	$50	12	hours	$600	
LSP	$120	16	hours	$1,920	
Admin Support	$50	0	hours	$0	
Metes and Bounds Survey	$3,500	1	ea	$3,500	
Registry Recording fees	$75	2	ea	$150	
Legal Notice	$150	1	ea	$150	
Admin Support	$50	8	hours	$400	
Subtotal				$9,320	
15% Contingency				$1,398	
					$10,718
TOTAL					**$2,128,611**

Notes:
a) Two excavators will remove approx. 400 tons soil/day
b) It is assumed that 20% of urban fill soil is debris classified as common C&D waste
c) Dewatering costs have been included since some of the excavations will be below the water table
d) Number of post-excavation samples based on six samples per every 2000 tons removed
e) It is assumed that three waste streams will be generated: impacted soil, hazardous soil, and urban fill soil. See Table 1 for volumes

TABLE 3B
Remediation Costs - Scenario 3B
100, 152, 174 River Place, Lowell, MA

OPTION 3B: No Basements - Piles Driven into Native Materials - Elevated Garage

TASK DESCRIPTIONS	Rate	Qty.	Units	Cost	Subtask Totals
Pre-RAM Assessment Activities					
Planning and coordinating sampling and analysis program					
Staff Scientist	$65	26	hours	$1,690	
CADD Support	$50	4	hours	$200	
LSP	$120	8	hours	$960	
Admin Support	$50	2	hours	$100	
Field Activities (1-week field effort)					
Staff Scientist	$65	30	hours	$1,950	
LSP	$120	6	hours	$720	
Drilling Firm	$1,500	3	days	$4,500	
Analytical	$50	12	hours	$600	
SVOC Analyses (soil)	$199	50	analysis	$9,950	
VOC Analyses (soil)	$83	50	analysis	$4,150	
Heavy Metal Analyses (soil)	$106	50	analysis	$5,300	
PAH Analyses (soil)	$145	50	analysis	$7,250	
PCB Analyses (soil)	$69	50	analysis	$3,450	
Field Supplies/ Equipment	$2,000	1	week	$2,000	
Subtotal				$42,820	
15% Contingency				$6,423	
					$49,243
LSP-Opinion with Updated Method 3 Risk Characterization					
LSP Opinion					
Staff Scientist	$65	8	hours	$520	
CADD Support	$50	2	hours	$100	
LSP	$120	16	hours	$1,920	
Admin Support	$50	4	hours	$200	
Method 3 Risk Characterization					
Risk Assessor	$120	50	hours	$6,000	
LSP	$120	4	hours	$480	
Admin Support	$50	8	hours	$400	
Subtotal				$9,620	
15% Contingency				$1,443	
					$11,063
RAM Plan, 2 Status Reports, and Completion Report					
RAM Plan	$6,500	1	lot	$6,500	
RAM Status Report #1	$4,500	1	lot	$4,500	
RAM Status Report #2	$4,500	1	lot	$4,500	
RAM Completion Report	$15,000	1	lot	$15,000	
Health and Safety Plan					
Staff Scientist	$65	12	hours	$780	
CADD Support	$50	2	hours	$100	
LSP	$120	2	hours	$240	
Admin Support	$50	4	hours	$200	
Bill of Lading Preparation					
Staff Scientist	$65	16	hours	$1,040	
LSP	$120	8	hours	$960	
Admin Support	$50	4	hours	$200	
Subtotal				$34,020	
15% Contingency				$5,103	
					$39,123
Excavation and Offsite Disposition of Contaminated Soil (RAM Activities)					
Mobilize Excavator	$0	0	each	$0	
Remove contaminated soil with 2 Excavators	$0.00	4695	ton	$0	
Mobilize equipment and install temporary fencing	$0	0	each	$0	
Excavate and remove existing UST	$35,000	1	each	$35,000	
Sort/sift/segregate oversized materials into 3 waste streams	$0	12	day	$0	
Transportation offsite & Disposal of excavated debris (pavement, concrete, wood, etc)	$0	0	ton	$0	
Transportation offsite of impacted soil to ESMI	$35	507	ton	$17,745	
Disposal of impacted soil - via thermal treatment at ESMI	$30	507	ton	$15,210	
Transportation offsite of hazardous soil to Clean Venture, NJ	$100	0	ton	$0	
Disposal of hazardous soil at Clean Venture, NJ	$225	0	ton	$0	
Transportation offsite of urban fill soil to unlined Mass Landfill	$10	3350	ton	$33,500	
Reuse of urban fill soil at an unlined Mass Landfill	$12	3350	ton	$40,200	
Transportation offsite of C&D waste (assume 20% of urban fill soil)	$0	838	ton	$0	
Offsite disposal of C&D waste (assume 20% of urban fill soil)	$0	838	ton	$0	
Shoring					
Equipment (first two weeks)	$0	0	each	$0	
Equipment (after two weeks)	$0	0	week	$0	
Fugitive Dust Monitoring					
Dust monitoring equipment	$75	12	day	$900	
Misting Truck	$250	12	day	$3,000	
Dewatering					
Fractionation tanks (mob, demob, pump & hoses)	$250	0	weeks	$0	
Cleanout Fractionation Tanks	$2,500	0	each	$0	
Water treatment system oversight (Staff Scientist)	$65	0	hour	$0	
LSP oversight	$120	0	hours	$0	
Pump and Temporary Carbon Treatment System	$625	0	week	$0	
Liquid-phase carbon	$1.20	0	pound	$0	
NPDES Sampling (Staff Scientist)	$65	0	hours	$0	
NPDES Sample Analyses (VOCs, SVOCs, and Metals)	$385	0	analysis	$0	
NPDES Reporting (Staff Scientist)	$65	0	hours	$0	
NPDES Reporting (LSP)	$120	0	hours	$0	
Oversight and confirmatory soil sampling					
Excavation Oversight and Confirmatory Soil Sampling (Staff Scientist)	$65	120	hours	$7,800	
Field Equipment including XRF Instrument	$300	12	day	$3,600	
LSP (office support)	$120	12	hours	$1,440	
Admin Support	$50	16	hours	$800	
SVOC Analyses (soil)	$199	12	analysis	$2,388	
VOC Analyses (soil)	$83	12	analysis	$996	
Heavy Metal Analyses (soil)	$106	12	analysis	$1,272	
PAH Analyses (soil)	$145	12	analysis	$1,740	
PCB Analyses (soil)	$69	12	analysis	$828	
Waste Disposal Characterization (soil - one sample per 500 tons)	$750	9	analysis	$6,750	
Subtotal				$173,169	
15% Contingency				$25,975	
					$199,144
Amendment to AUL					
Amend AUL					
Staff Scientist	$65	40	hours	$2,600	
CADD Support	$50	12	hours	$600	
LSP	$120	16	hours	$1,920	
Admin Support	$50	0	hours	$0	
Metes and Bounds Survey	$3,500	1	ea	$3,500	
Registry Recording fees	$75	2	ea	$150	
Legal Notice	$150	1	ea	$150	
Admin Support	$50	8	hours	$400	
Subtotal				$9,320	
15% Contingency				$1,398	
					$10,718
TOTAL					**$309,291**

Notes:
a) Two excavators will remove approx. 400 tons soil/day
b) It is assumed that 20% of urban fill soil is debris classified as common C&D waste
c) Dewatering costs have been included since some of the excavations will be below the water table
d) Number of post-excavation samples based on six samples per every 2000 tons removed
e) It is assumed that three waste streams will be generated: impacted soil, hazardous soil, and urban fill soil. See Table 1 for volumes
f) no dewatering included in Scenario since excavations above the water table

TABLE 4
Summary of Remediation Costs
100, 152, 174 River Place, Lowell, MA

Scenario	Cost
OPTION 1A: Full Basements - Subterranean Garage	$3,680,877
OPTION 1B: Full Basements - Elevated Garage	$2,232,875
OPTION 2A: No Basements - Footings in Native Materials - Subterranean Garage	$2,442,009
OPTION 2B: No Basements - Footings in Native Materials - Elevated Garage	$998,453
OPTION 3A: No Basements - Piles Driven into Native Materials - Subterranean Garage	$2,128,611
OPTION 3B: No Basements - Piles Driven into Native Materials - Elevated Garage	$309,291

Attachment 1: email from MassDEP

olafw@watermarkenv.com

From: Thompson, Lydia (DEP) [Lydia.Thompson@state.ma.us]
Sent: Wednesday, September 10, 2008 10:38 AM
To: olafw@watermarkenv.com
Cc: Bettinger, Nancy (DEP); Callahan, Elizabeth.J (DEP)
Subject: RE: AUL and hotel question

Olaf:

Thanks for your follow-up call. In thinking about your described scenario and discussing it with staff here, it seems that if, indeed, the site will consist of impervious areas, buildings, and landscaped areas with 3 feet of clean fill, then there should be no direct contact exposure to soil for hotel guests and staff. Thus, with no direct soil contact exposure, the questions of whether the exposure would qualify as residential and the length of allowable stay become moot. The AUL would, of course, need to address those barriers to direct contact exposure.

Lastly, as a reminder, the Method 3 risk characterization will need to look at other exposure scenarios such as construction workers and utility workers.

Hope this helps, and feel free to contact me with follow-up questions.

Best,
Lydia

=-=-=-=
Lydia D. Thompson
MA DEP Office of Research and Standards
1 Winter Street, Boston, MA 02108
617-556-1165

From: olafw@watermarkenv.com [mailto:olafw@watermarkenv.com]
Sent: Thursday, September 04, 2008 3:15 PM
To: 'Thompson, Lydia (DEP)'
Subject: AUL and hotel question

Lydia:

I don't know if you are the right person to ask (and if not, please forward this email to the correct person), but here goes: I have a few questions concerning a disposal site currently with an AUL and whether or not the site can be used for a hotel in the future. Furthermore, if it is used as a hotel, are extended stays allowed? And if so, is there a limitation as to how long?

The site has a Method 3 Risk Characterization which accounted for only three exposure scenarios: commercial worker, future pedestrian, and future construction worker (e.g., residential use was not considered). Site contaminants are metals and PAHs (not VOCs) in urban soil with primarily a direct contact hazard.

My sense is that an updated Method 3 Risk Characterization can be performed which demonstrates that hotel use is acceptable (especially since the hotel would not be in the basement or first floor). This M3 Risk Characterization would be part of an LSP Opinion filed simultaneously with a RAM Plan and Tier II re-classification submittal such that construction could start. After construction, the AUL could be amended to allow the hotel use. Please let me know if this seems logical, or if there are any fatal flaws in this strategy.

Also, is hotel use equivalent to residential use? If so, I assume that the urban soil in all of the open, grassy areas would need to be replaced with "clean" soil between 0-3 feet below grade.

Thank you in advance,

Olaf Westphalen
Watermark Environmental, Inc.
175 Cabot Street
Lowell, MA 01854
978-452-9696

Attachment 2
Documents Reviewed

Susan A. Sundstrom, Ph.D., D.A.B.T., April 22, 1998, *Method 3 Risk Characterization, 44 and 174 Post Office Square, Lowell, MA.*

Marin Environmental, December 9, 2002, *Phase I Environmental Site Assessment, 152 River Place, Lowell, MA.*

Marin Environmental, August 27, 2003, *Phase I Environmental Site Assessment, 100 River Place, Lowell MA.*

Marin Environmental, August 28, 2003, *Phase I Environmental Site Assessment, 174 River Place, Lowell, MA.*

ECS Marin, November 5, 2003, *Phase II Environmental Site Assessment, 100, 152, 174 River Place, Lowell, MA, Volume 1 of 2.*

ECS Marin, November 5, 2003, *Phase II Environmental Site Assessment, 100, 152, 174 River Place, Lowell, MA, Volume 2 of 2.*

ECS Marin, November 21, 2003, *Phase III Environmental Site Assessment, 100, 152, 174 River Place, Lowell, MA.*

3. *“Notice of Activity and Use Limitation”*

Form 1075

NOTICE OF ACTIVITY AND USE LIMITATION
M.G.L. c. 21E, §6 and 310 CMR 40.0000

Disposal Site Name: Post Office Square
DEP Release Tracking No.(s): 3-0354

This Notice of Activity and Use Limitation ("Notice") is made as of this 17th day of December, 1998, by the City of Lowell having its principal office at 375 Merrimack Street, Lowell, Massachusetts 01852, together with its successors and assigns (collectively "Owner").

WITNESSETH:

WHEREAS, the City of Lowell, of Lowell, Middlesex County, Massachusetts is the owner in fee simple of those certain parcel(s) of land located in Lowell, Middlesex County, Massachusetts, with the buildings and improvements thereon ("Property");

WHEREAS, said parcel(s) of land, which is more particularly bounded and described in Exhibit A, attached hereto and made a part hereof ("Property") is subject to this Notice of Activity and Use Limitation. The Property is shown on a plan recorded and/or registered in Middlesex County North District Registry of Deeds/Land Registration Office in Plan Book 193, Plan 130;

WHEREAS, the Property comprises all of a disposal site as the result of a release of oil and/or hazardous material. Exhibit B is a sketch plan showing the relationship of the Property subject to this Notice of Activity and Use Limitation to the boundaries of said disposal site (to the extent such boundaries have been established). Exhibit B is attached hereto and made a part hereof; and

WHEREAS, one or more response actions have been selected for the Disposal Site in accordance with M.G.L. c.21E ("Chapter 21E") and the Massachusetts Contingency Plan, 310 CMR 40.0000 ("MCP"). Said response actions are based upon (a) the restriction of human access to and contact with oil and/or hazardous material in soil and/or groundwater and/or (b) the restriction of certain activities occurring in, on, through, over or under the Property. The basis for such restrictions is set forth in an Activity and Use Limitation Opinion ("AUL Opinion"), dated December 17, 1998 (which is attached hereto as Exhibit C and made a part hereof);

NOW, THEREFORE, notice is hereby given that the activity and use limitations set forth in said AUL Opinion are as follows:

12/18/98 01:45:32 99043 39.00 9

1. Permitted Activities and Uses Set Forth in the AUL Opinion. The AUL Opinion provides that a condition of No Significant Risk to health, safety, public welfare or the environment exists for any foreseeable period of time (pursuant to 310 CMR 40.0000) so long as any of the following activities and uses occur on the Property:

(i) Commercial and industrial activities;

(ii) Construction and utility activities, including without implied limitation, subsurface excavation; and

(iii) Such other activities or uses which, in the Opinion of an LSP, shall present no greater risk of harm to health, safety, public welfare or the environment than the activities and uses set forth in this Paragraph.

2. Activities and Uses Inconsistent with the AUL Opinion. Activities and uses which are inconsistent with the objectives of this Notice of Activity and Use Limitation, and which, if implemented at the Property, may result in a significant risk of harm to health, safety, public welfare or the environment or in a substantial hazard, are as follows:

(i) Use for residential, child care, agricultural, institutional (with a residential or child care component), educational (for children under 18 years age), and recreational or as a playground or similar use where a child is likely to be present.

3. Obligations and Conditions Set Forth in the AUL Opinion. If applicable, obligations and/or conditions to be undertaken and/or maintained at the Property to maintain a condition of No Significant Risk as set forth in the AUL Opinion shall include the following:

(i) Any excavated soil to be removed from the Property must be managed in a manner consistent with the MCP provision "Management Procedures for Remediation of Waste" under 310 CMR 40.0030.

4. Proposed Changes in Activities and Uses. Any proposed changes in activities and uses at the Property which may result in higher levels of exposure to oil and/or hazardous material than currently exist shall be evaluated by an LSP who shall render an Opinion, in accordance with 310 CMR 40.1080 *et seq.*, as to whether the proposed changes will present a significant risk of harm to health, safety, public welfare or the environment. Any and all requirements set forth in the Opinion to meet the objective of this Notice shall be satisfied before any such activity or use is commenced.

5. Violation of a Response Action Outcome. The activities, uses and/or exposures upon which this Notice is based shall not change at any time to cause a significant

risk of harm to health, safety, public welfare, or the environment or to create substantial hazards due to exposure to oil and/or hazardous material without the prior evaluation by an LSP in accordance with 310 CMR 40.1080 *et seq.*, and without additional response actions, if necessary, to achieve or maintain a condition of No Significant Risk or to eliminate substantial hazards.

If the activities, uses, and/or exposures upon which this Notice is based change without the prior evaluation and additional response actions determined to be necessary by an LSP in accordance with 310 CMR 40.1080 *et seq.*, the owner or operator of the Property subject to this Notice at the time that the activities, uses and/or exposures change, shall comply with the requirements set forth in 310 CMR 40.0020.

6. Incorporation Into Deeds, Mortgages, Leases, and Instruments of Transfer. This Notice shall be incorporated either in full or by reference into all deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer, whereby an interest in and/or a right to use the Property or a portion thereof is conveyed.

Owner hereby authorizes and consents to the filing and recordation and/or registration of this Notice, said Notice to become effective when executed under seal by the undersigned LSP, and recorded and/or registered with the appropriate Registry(ies) of Deeds and/or Land Registration Office(s).

WITNESS the execution hereof under seal this 17th day of December, 1998.

CITY OF LOWELL

Brian Martin
City Manager

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss Dec 17, 1998

Then personally appeared the above named Brian Martin and acknowledged the foregoing to be his/her free act and deed before me,

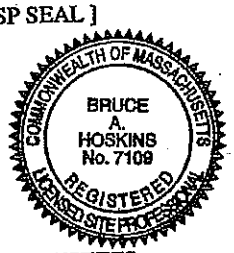
Notary Public:
My Commission Expires: 10-14-99

The undersigned LSP hereby certifies that he/she executed the aforesaid Activity and Use Limitation Opinion attached hereto as Exhibit C and made a part hereof and that in his/her Opinion this Notice of Activity and Use Limitation is consistent with the terms set forth in said Activity and Use Limitation Opinion.

Date: 12/17/98

Bruce A. Hoskins, LSP

[LSP SEAL]



COMMONWEALTH OF MASSACHUSETTS

Middlesex ss

12/17, 1998

Then personally appeared the above named Bruce A. Hoskins and acknowledged the foregoing to be his/her free act and deed before me,

Notary Public: Kathleen Murphy
My Commission Expires: 2/11/2005

Upon recording, return to:

City Manager
City of Lowell
375 Merrimack Street
Lowell, MA 01852

166

EXHIBIT A

The land, with the buildings thereon, in parcels located in the City of Lowell, Middlesex County, Massachusetts, and more particularly described as follows:

Lots 3 and 2A

The land in said Lowell, Middlesex County, Massachusetts, situated on the northeasterly side of Father Morrissette Boulevard and being shown as Lot 3 and Lot 2A on a plan of land entitled, "Plan of Land, Lowell, Massachusetts, prepared for the City of Lowell, January 1997," which plan is recorded in Plan Book 193; Plan 130 at the Middlesex North District Registry of Deeds, and being bounded and described as follows:

Southerly	by the northeasterly line of Father Morrissette Boulevard, Seventy-four and 77/100 (74.77) feet;
Southwesterly	by land, now or formerly, of the U.S. Postal Service, on a curve to the right having a radius of One Hundred Seventy-seven and 78/100 (177.78) feet and a length of Eighty-nine and 69/100 (89.69) feet;
Southwesterly	by land, now or formerly, of the U.S. Postal Service, One Hundred Twenty-one and 02/100 (121.02) feet;
Northwesterly	by the southeasterly line of Tilden Street, Eight Hundred Eighty-three and 95/100 (883.95) feet;
Northeasterly	by land, now or formerly, of Merrimack Properties, Inc., Two Hundred Seventy and 00/100 (270.00) feet;
Southeasterly	by the northwesterly line of River Place, Eight Hundred Twenty and 00/100 (820.00) feet.

Said Lot 3 and Lot 2A contain 234,430 square feet, according to said plan. Said land is subject to a trolley and railroad easement as shown in Plan Book 157, Plan 148, and a 20 foot sewer easement as shown in Plan Book 106, Plan 63.

Lot 2B

The land in said Lowell, Middlesex County, Massachusetts, situated on the northwesterly side of River Place and being shown as Lot 2B on a plan of land entitled, "Plan of Land, Lowell, Massachusetts, prepared for the City of Lowell, January 1997," which plan is recorded in Plan Book 193; Plan 130 at the Middlesex North District Registry of Deeds, and being bounded and described as follows:

Southeasterly	by the northwesterly line of River Place, One Hundred Thirty-two and 44/100 (132.44) feet;
Northeasterly	by the Merrimack River, One Hundred Thirty-nine and 20/100 (139.20) feet;
Northwesterly	by land, now or formerly, of City of Lowell, Sixty and 00/100 (60.00) feet;
Northeasterly	by land, now or formerly, of City of Lowell, One Hundred Forty-one and 01/100 (141.01) feet;
Northwesterly	by land, now or formerly, of City of Lowell, One Hundred Twelve and 09/100 (112.09) feet;
Southwesterly	thru a Right of Way (formerly known as Tilden Street), Sixteen and 00/100 (16.00) feet;
Northwesterly	thru a Right of Way (formerly known as Tilden Street), Two and 54/100 (2.54) feet;
Southwesterly	by land, now or formerly, of City of Lowell, Two Hundred Seventy and 00/100 (270.00) feet.

Said land contains 35,227 square feet according to said plan and is subject to an existing City of Lowell sewer easement as shown on said plan.

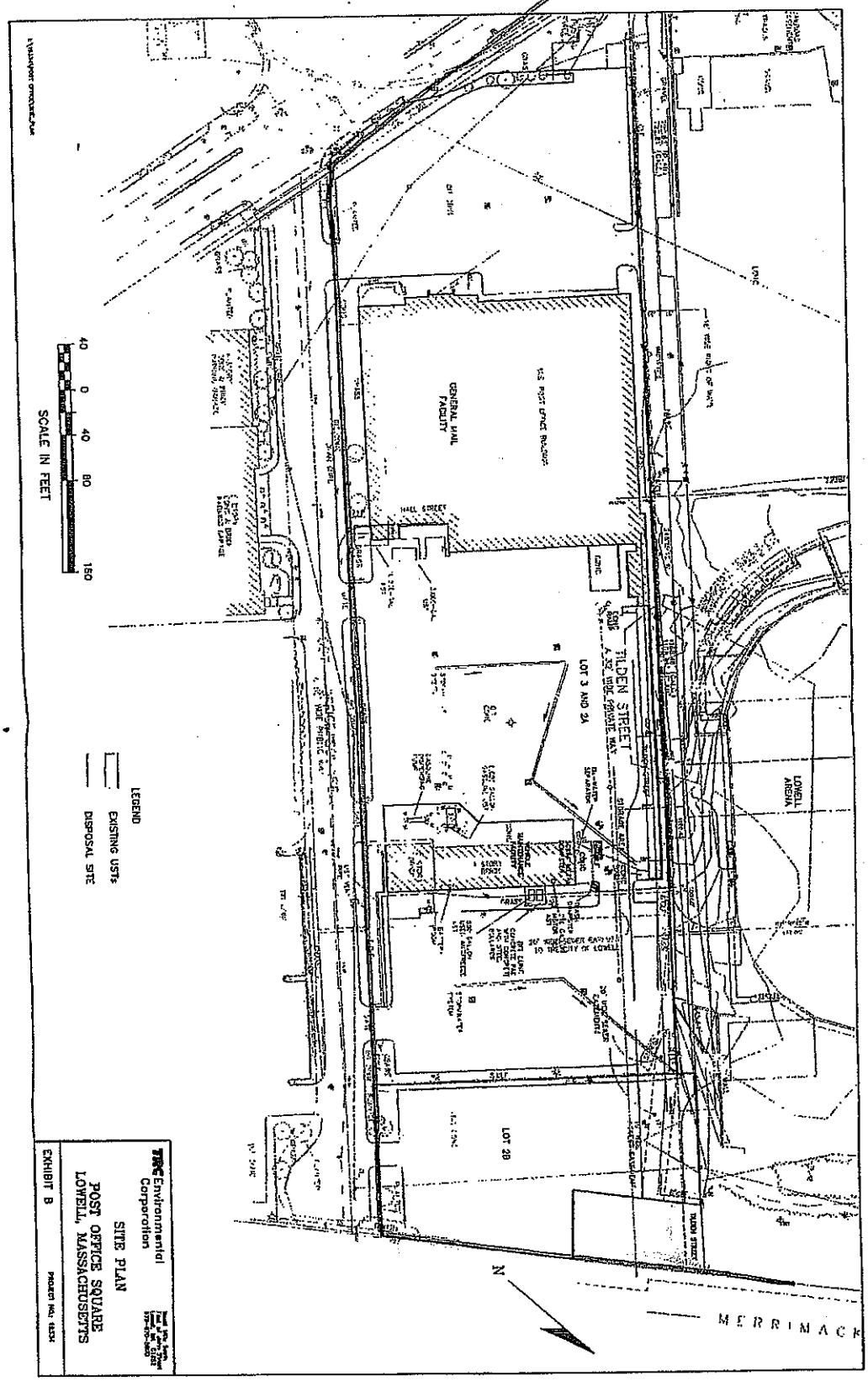

SCALE IN FEET
40 0 40 80 160
LEGEND
EXISTING USTs
DISPOSAL SITE
GENERAL MAIL FACILITY
U.S. POST OFFICE BUILDING
TILDEN STREET
LOT 3 AND 2A
LOT 2B
LOWELL ARENA
MERRIMACK
N
TRC Environmental Corporation
SITE PLAN
POST OFFICE SQUARE
LOWELL, MASSACHUSETTS
EXHIBIT B

EXHIBIT C

ACTIVITY AND USE LIMITATION OPINION
Property at 44 and 174 Post Office Square
Lowell, MA

310 CMR 40.1074(1)b

1. A Notice of Activity and Use Limitation is appropriate to achieve and/or maintain a level of No Significant Risk:

- Petroleum hydrocarbons, polyaromatic hydrocarbons, and metals have been detected in samples of surface and subsurface soils at 44 and 174 Post Office Square in Lowell, Massachusetts. The property owned by the City of Lowell, Massachusetts represents the boundaries of a Massachusetts Contingency Plan Disposal Site which is particularly bounded and described in Exhibit A of this Notice of Activity and Use Limitation. Petroleum hydrocarbons, polyaromatic hydrocarbons, and metals have been detected at the Disposal Site in concentrations which could pose a Significant Risk, as determined by a Method 3 Risk Characterization unless an Activity and Use Limitation is employed. The presence of these contaminants is most likely due to the historical use of this property by the Merrimack Manufacturing Company from 1822 to 1961. Although the levels of contaminants reported at the Disposal Site currently pose no significant risk to workers or visitors at the property and existing buildings, to utility workers, or to others who might come in contact with the soils during site construction activities, the Disposal Site soils may pose a risk to potential future residents or future children present at recreational, educational, or day care facilities who could come in direct contact with soils on a regular basis for an extended period of time. Therefore, a Notice of Activity and Use Limitation based on this Opinion is appropriate for achieving a level of No Significant Risk because it will limit Disposal Site use to prevent possible future residential, educational, recreational, and child day care use of the Disposal Site area.

2. Disposal Site Activities and Uses to be prohibited:

   a) Residential or agricultural use.

   b) Any use related to child day care, educational (for children under 18 years age), or institutional (with a residential or child care component).

   c) Recreational or playground or other similar uses or activities where a child is likely to be present.

17

3. Disposal Site Activities and Uses to be permitted:

   a) Any commercial or industrial usage except as limited in Item 2 above.

   b) Any activities involving utility and construction work provided the activities conform to the conditions outlined in Item 4 below.

4. Obligations and conditions necessary to maintain a level of No Significant Risk:

   a) Any excavated soil removed from the Disposal Site must be managed in a manner consistent with the Massachusetts Contingency Plan provision "Management Procedures for Remediation Waste," 310 CMR 40.0030.

Bruce A. Hoskins, LSP
Licensed Site Professional #7109
Senior Program Manager
TRC Environmental Corporation

12/17/98
Date

COMMONWEALTH OF MASSACHUSETTS
BRUCE A. HOSKINS No. 7109
REGISTERED LICENSED SITE PROFESSIONAL

B 0 9 8 0 2 P 0 4 3

Massachusetts Department of Environmental Protection BWSC-114

Bureau of Waste Site Cleanup

ACTIVITY & USE LIMITATION (AUL) OPINION FORM

Pursuant to 310 CMR 40.1070 - 40.1084 (Subpart J)

Release Tracking Number: 3 - 0354

COMPLETE THIS FORM AND ATTACH AS AN EXHIBIT TO THE AUL DOCUMENT TO BE RECORDED AND/OR REGISTERED WITH THE REGISTRY OF DEEDS AND/OR LAND REGISTRATION OFFICE.

A. LOCATION OF DISPOSAL SITE AND PROPERTY SUBJECT TO AUL:

Disposal Site Name: Post Office Square

Street: 44 and 174 Post Office Square Location Aid:

City/Town: Lowell ZIP Code: 01852-9721

Address of property subject to AUL, if different than above. Street:

City/Town: Zip Code:

B. THIS FORM IS BEING USED TO: (check one)

[X] Provide the LSP Opinion for a **Notice of Activity and Use Limitation**, pursuant to 310 CMR 40.1074 (complete all sections of this form).

[ ] Provide the LSP Opinion for an **Amended Notice of Activity and Use Limitation**, pursuant to 310 CMR 40.1081(4) (complete all sections of this form).

[ ] Provide the LSP Opinion for a **Termination of a Notice of Activity and Use Limitation**, pursuant to 310 CMR 40.1083(3) (complete all sections of this form).

[ ] Provide the LSP Opinion for a **Grant of Environmental Restriction**, pursuant to 310 CMR 40.1071 (complete all sections of this form).

[ ] Provide the LSP Opinion for an **Amendment of Environmental Restriction**, pursuant to 310 CMR 40.1081(3) (complete all sections of this form).

[ ] Provide the LSP Opinion for a **Release of Environmental Restriction**, pursuant to 310 CMR 40.1083(2) (complete all sections of this form).

C. LSP OPINION:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal, including any and all documents accompanying this submittal. In my professional opinion and judgement based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and (iii) the provisions of 309 CMR 4.03(5), to the best of my knowledge, information and belief,

> *If Section B indicates that a* ***Notice of Activity and Use Limitation*** *is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (ii) complies with 310 CMR 40.1074(1)(b);

> *If Section B indicates that an* ***Amended Notice of Activity and Use Limitation*** *is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1080(1) and 40.1081(1);

> *If Section B indicates that a* ***Termination of a Notice of Activity and Use Limitation*** *is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1083(3)(a);

> *If Section B indicates that a* ***Grant of Environmental Restriction*** *is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.107(1)(b);

> *If Section B indicates that an* ***Amendment to a Grant of Environmental Restriction*** *is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1080(1) and 40.1081(1);

> *If Section B indicates that a* ***Release of Grant of Environmental Restriction*** *is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1083(3)(a).

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

[ ] Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

SECTION C IS CONTINUED ON THE NEXT PAGE.

17

B 0 9 8 0 2 P 0 4 4

Massachusetts Department of Environmental Protection BWSC-114

Bureau of Waste Site Cleanup

Release Tracking Number

3 - 0354

ACTIVITY & USE LIMITATION (AUL) OPINION FORM

Pursuant to 310 CMR 40.1070 - 40.1084 (Subpart J)

C. LSP OPINION: (continued)

LSP Name: Bruce Hoskins LSP #: 7109 Stamp:

Telephone: (978) 656-3527 Ext.:

FAX: (978) 453-1995

LSP Signature: Bruce A Hoskins

Date: 12/17/98

COMMONWEALTH OF MASSACHUSETTS
BRUCE A. HOSKINS No. 7109
REGISTERED LICENSED SITE PROFESSIONAL

YOU MUST COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY FIND THE DOCUMENT TO BE INCOMPLETE.

4. *Sign In Sheets – Meeting on March 6, 2013,* UMass Lowell

University of Massachusetts Lowell
UMASS
Learning with Purpose

DEPARTMENT OF FACILITIES MANAGEMENT AND PLANNING
Office of Campus Planning

SIGN IN

Arena Riverfront Development: Site Visit

Date: March 6, 2013; 10 a.m.

Location: Talon Club, Tsongas Center, University of Massachusetts Lowell

Name	Firm	Email Address
PATRICK CUNNINGHAM	PERKINS + WILL	
ADAM BAACKE	CITY OF LOWELL DPD	
Steve Davis	RSC	SDAVIS@RACKEMANN.COM
BOB DELHOME	MIRA DEVELOPMENT & CHARTER ENVIRONMENTAL	RDELHOME@CHARTERENVIRONMENTAL.COM
BRUCE IGNACIO	CUBE 3 STUDIO	BIGNACIO@CUBE3STUDIO.COM
Stephen Marsters	UMBA	SMARSTERS@UMASSP.EDU
David Muller	UMBA outside counsel	dave@mcgrillaw.com

SIGN IN

Arena Riverfront Development: Site Visit

Name	Firm	Email Address
Rob Collins	PMA Consultants	RCollins@pmaconsultants.com
Nancy Cicco	UR	
Chloe Bouscaren	CBT Architects	bouscaren@cbtarchitects.com
Matt Webber	Nobis Engineering	mwebber@nobiseng.com
Gerry Foley	Watermark	gerald.foley@watermarkenv.com
Olaf Westphalen	Watermark	olaf.westphalen@ "
Michael Lamphier	Jones Lang LaSalle	michael.lamphier@am.jll.com
Teresa C. Vangeli	Parsons Brinckerhoff	vangeli@pbworld.com
Vance Freymann	Consigli	VFreymann@consigli.com
Maureen Cavanagh	Epsilon Assoc.	mcavanagh@epsilonassociates.com

SIGN IN

Arena Riverfront Development: Site Visit

Name	Firm	Email Address
PETER AUCELLA	NATIONAL PARK SERVICE	peter_aucella@nps.gov
VJ Tocci Maria Peraggi	TOCCI	mperaggi@tocci.com
BRIAN HEALY	PERKINS EASTMAN	BRIAN@BHEALY.com