



Vincent Vega Park Vicinity
Holyoke, Massachusetts

Phase I Environmental Site Assessment

Prepared For:

Holyoke Housing Authority
Holyoke, Massachusetts

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Section 1

Introduction

On behalf of the Holyoke Housing Authority (HHA), Tighe & Bond has completed this *Phase I Environmental Site Assessment* (ESA) report for eighteen parcels of land located in the vicinity of Vincent Vega Park in the City of Holyoke, Hampden County, Massachusetts. The eighteen parcels include parcel 006 on Hamilton Street (Map 28, Block 3); parcels 001, 005, 006, 007, and 008 on Clemente Street (Map 28, Block 4); parcels 009, 010, 011, 012, 013, 016, 017, 018, and 019 on South East Street (Map 29, Block 8); parcels 006 and 007 on South Bridge Street (Map 29, Block 8); and parcel 001 on Hamilton Street (Map 29, Block 8) (collectively and individually referred to herein as *the subject property*). This report was completed in accordance with our proposal dated May 19, 2017. A Site Locus map, a Massachusetts Geographic Information System (MassGIS) Priority Resource Map, and an Orthophotograph Site Plan are provided in Appendix A as Figures 1, 2 and 3, respectively. The eighteen parcels comprising the subject property are depicted on Figure 3, for reference, and each parcel can be viewed on the Holyoke Assessors Map No. 28, provided in Appendix B.

It is Tighe & Bond's understanding that the City of Holyoke (the City) is seeking to develop these vacant or underutilized parcels into single family homes. As such, the City has commissioned a Phase I ESA of the subject property, as well as the advancement of exploratory test pits and geotechnical borings at the subject property in support of the redevelopment project. The City is using funds granted by the Urban Agenda Housing Program administered by the Department of Housing and Community Development. Information obtained during the geotechnical and test pit explorations at the subject property are discussed within this Phase I ESA, given their pertinence to the environmental site assessment process.

This Phase I investigation was performed in general compliance with the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) and the American Society for Testing Materials (ASTM) Standard E1527-13 for Phase I ESA. The purpose of this Phase I ESA was to identify, to the extent feasible, existing or potential recognized environmental conditions (RECs) associated with current or past activities at the subject property. Non-scope considerations, as the term is defined in the ASTM Standard E1527-13, were not evaluated as part of Phase I ESA, and no significant assumptions or special terms and conditions regarding the Phase I ESA are applicable for this project.

In summary, our Phase I ESA with limited subsurface investigation revealed two potential RECs and one historical REC (HREC) at the subject property, as further described herein. In addition, a 120-day reportable condition was identified in site soils during the exploratory test pit program. However, further evaluation of those findings may indicate that this condition is exempt from reporting requirements, as further described herein.

1.1 Key Definitions and Acronyms

This section summarizes some of the definitions and acronyms used throughout the report. The definitions have been excerpted directly from the ASTM E1527-13 standard.

- Controlled REC — A recognized environmental condition (REC) resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).
- Data Gap - a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information.
- Engineering Controls (EC) – Physical modifications to a site or facility (for example, capping, slurry walls, or point of use water treatment) to reduce or eliminate the potential for exposure to hazardous substances or petroleum products in the soil or groundwater on the property. Engineering controls are a type of activity and use limitation (AUL).
- Environmental Lien – A charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products upon a property.
- Environmental Professional (EP) – A person meeting the education, training, and experience requirements as set forth in 40 CFR 312.10 (b).
- Environmental Site Assessment (ESA) – The process by which a person or entity seeks to determine if a particular parcel of real property (including improvements) is subject to RECs.
- Historical RECs – A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical REC, the EP must determine whether the past release is a REC at the time the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a REC at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a REC which in the past would have been considered a REC, but which may or may not be considered a REC currently.
- Institutional Controls (IC) – A legal or administrative restriction (for example, “deed restrictions,” restrictive covenants, easements, or zoning) on the use of, or access of, or access to, a site or facility to (1) reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil or groundwater on the property, or (2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. An institutional control is a type of AUL.

- Migrate/migration — for the purposes of this practice, “migrate” and “migration” refers to the movement of hazardous substances or petroleum products in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface
- Reasonably Ascertainable - information that is (1) publicly available, (2) obtainable from its source within reasonable time and cost constraints, and (3) practically reviewable.
- Recognized Environmental Conditions (RECs) – The presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to a release to the environment; (2) under conditions indicative of a release to the environment; (3) under conditions that pose a material threat of a future release to the environment. De minimus conditions are not RECs.

In addition, some other key definitions and acronyms used throughout the report include the following:

- Massachusetts Contingency Plan (MCP) – the Massachusetts regulations that govern the release of oil and/or hazardous materials (OHM) to the environment under 310 CMR 40.0000.
- Massachusetts Department of Environmental Protection (MassDEP) - is the state agency responsible for ensuring clean air and water, the safe management of toxics and hazards, the recycling of solid and hazardous wastes, the timely cleanup of hazardous waste sites and spills, and the preservation of wetlands and coastal resources.
- Release Tracking Number (RTN) – is the file number assigned by MassDEP to a release or threat of release of OHM reported in accordance with the MCP.
- Underground Storage Tank (UST)
- Above Ground Storage Tank (AST)

Section 2 General Site Description

2.1 Existing Conditions

Existing conditions at the subject property and in the surrounding area were evaluated through a site reconnaissance of the subject property, interviews, and a review of municipal records. Environmental conditions were also evaluated through a review of other records and published mapping of the area surrounding the subject property.

2.1.1 Subject Property Description and Use

The subject property consists of eighteen parcels located in the vicinity of Vincent Vega Park, along Clemente Street, South East Street, Hamilton Street and South Bridge Street, in the City of Holyoke, Hampden County, Massachusetts. The geographical center location of the subject property is approximately 42.197991° north latitude and 72.607457° west longitude. The Universal Transverse Mercator (UTM) coordinates for the subject property are approximately 697535 meters Easting and 4674530 meters Northing. In general, the subject property parcels are vacant, with the exception of one project parcel being improved by a residential structure that is currently vacant. Further description of the subject property is provided in Section 5.

The following discussion provides a general description of the subject property primarily based on records obtained from the Holyoke Assessors Office. A parcel map (with block numbers shown on the lower, right-hand corner of each city block) is provided in Appendix B, along with Assessors Property Record Cards for each parcel listed below. Note that the southern group of subject property parcels are technically within the bounds of the Holyoke Assessors Map 29, though these subject property parcels are visible on the Holyoke Assessors Map 28. Each parcel is also depicted on the Figure 3 Orthophotograph provided in Appendix A. The current address of each parcel, as reported by the Holyoke Assessors Office (where applicable) is provided in Table 1 in Appendix B, along with historical addresses associated with the subject property parcels as indicated by historical Sanborn Fire Insurance Maps.

Block 3, Parcel 006 on Hamilton Street (55 Hamilton Street)

This parcel is owned by the City, and is currently unpaved and vacant. The parcel is listed as occupying 0.08 acres. The parcel is bordered to the northwest by storefronts and apartment buildings fronting Main Street, to the northeast by apartment buildings fronting Clemente Street, to the southeast by residential property owned by the Roman Catholic Bishop of Springfield, to the south by the Carlos Vega Park, to the southwest by Parcel 001 on Clemente Street, and to the west by vacant property owned by the Holyoke Department of Public Works. The parcel is currently used as a parking area by residents of the adjacent apartment buildings.

Block 4, Parcel 001 on Clemente Street (163 Clemente Street)

This parcel is owned by the Greek Orthodox Community and is co-owned by Holy Trinity Church, Inc. The parcel is listed as occupying 0.239 acres, and is currently paved and enclosed with a chain linked fence. The parcel is bordered to the northwest by a church and adjacent Holyoke DPW property, to the northeast by storefronts and apartment buildings fronting Main Street and Clemente Street, to the east by residential property

owned by the Roman Catholic Bishop of Springfield, to the south by the Carlos Vega Park, and to the southwest by an apartment building.

Block 4, Parcels 005, 006 and 007 on Clemente Street

These three abutting parcels are currently unpaved and vacant, and are owned by the City. Parcels 005, 006 and 007 are listed as occupying 0.069 acres, 0.122 acres and 0.127 acres, respectively. Uses of north-adjointing properties (with frontage along Main Street) include, from southeast to northwest, a church, a vacant building (former fire station), an insurance agency (former gasoline filling station) and a second church. These parcels are bordered to the south by the Carlos Vega Park.

Block 4, Parcel 008 on Clemente Street

This parcel is owned by the Holyoke Machine Company, Inc., and is currently vacant. The parcel is listed as occupying 0.176 acres, and it is currently paved and surrounded by a chain linked fence. The Holyoke Machine Company, currently in operation, is located adjacent to this parcel to the southwest, across Sargeant Street. The parcel is also bordered to the north by the properties with frontage along Main Street, as described above.

Block 8, Parcel 001 on Hamilton Street (34 Hamilton Street)

This parcel is owned by the City, and is currently unpaved and vacant. The parcel is listed as occupying 0.082 acres. The parcel is bordered by residential property to the north and northeast, a multifamily apartment buildings to the east, south and west, and by Parcels 016 through 019 on Block 8 (described above) to the north.

Block 8, Parcel 006 on South Bridge Street

This parcel is owned by Debi Ray-Chaudhuri of Brooklyn, New York. The parcel is listed as occupying 0.108 acres, and it is currently developed with an unoccupied, 1,839 square-foot, single-story, "row house style" apartment building built circa 1900. The heating source of this building is listed on the Assessors property card as "wood." This parcel is surrounded by vacant land or residences to the north, east and west. A vacant, industrial-style building is located south of this parcel, across South Bridge Street. Undeveloped parcels and Valley Arena Park are located southeast of this parcel, across South Bridge Street.

Block 8, Parcel 007 on South Bridge Street

This parcel is owned by the City, and is currently unpaved and vacant. The parcel is listed as occupying 0.103 acres. This parcel is bordered by a residence to the west, by 569 South Bridge Street (described above) to the east, Parcels 011 through 013 on South East Street (described below) to the north, and an apartment building to the northeast. Undeveloped parcels and Valley Arena Park are located southeast of this parcel, across South Bridge Street.

Block 8, Parcel 009 on South East Street (45 Sargeant Street)

This parcel is owned by the Olde Holyoke Development Corporation, and is currently unpaved and vacant. The parcel is listed as occupying 0.060 acres. Abutters to the property include the Carlos Vega Park to the north across South East Street, Parcels 010 through 012 (described above) to the east, residences to the south and southwest, and land owned by the Holyoke Machine Co. to the west and northwest.

Block 8, Parcels 010, 011 and 012 on South East Street

These three abutting parcels are owned by the City, and are currently unpaved and vacant. Parcels 010, 011 and 012 are listed as occupying 0.063 acres, 0.060 acres and 0.080 acres, respectively. Surrounding properties include the Carlos Vega Park to the north, Parcel 013 on South East Street (described below) followed by an apartment building to the east, Parcels 006 and 007 on South Bridge Street (described above) to the southeast, residences to the south and southwest, and Parcel 009 on South East Street (described below) followed by vacant land owned by the Holyoke Machine Co to the west.

Block 8, Parcel 013 on South East Street

This parcel is owned by Maurice Spear Jr. V and is currently unpaved and vacant. The parcel is listed as occupying 0.100 acres, and is bordered by the Carlos Vega Park to the north, across South East Street, an apartment building to the west, a residence to the southeast, Parcels 006 and 007 on South Bridge Street (described above) to the south, and Parcels 010 through 012 on South East Street (described above) to the west.

Block 8, Parcels 016 through 019 on South East Street

These four abutting parcels are owned by the City, and are currently unpaved and vacant. Parcels 016, 017, 018 and 019 are listed as occupying 0.060 acres, 0.086 acres, 0.098 acres, and 0.092 acres, respectively. These parcels are bordered by the Carlos Vega Park to the northeast, residential property owned by the Roman Catholic Bishop of Springfield to the north, and residential properties to the east, south and west. Residential properties located to the south and west include multi-family apartment buildings.

2.1.2 Surrounding Property Description

The subject property is situated in the eastern portion of the City between the Second Level Canal and Third Level Canal, in a mixed commercial/residential neighborhood. Industrial style buildings are located northwest of the subject property, and land used primarily for commercial and residential purposes is located north, east and south of the subject property. A more detailed description of land uses immediately adjacent to the subject property parcels is provided in Section 2.1.1 above.

2.2 Physical Setting

Mapping reviewed as part of this investigation included United States Geological Survey (USGS) topographic, surficial geology and bedrock geology maps, Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM) and MassGIS mapping. Physical setting information for the site area was also reviewed through the database search report (see Section 4 for further discussion).

2.2.1 Topography and Drainage

The subject property location is illustrated on the USGS Topographic Map for the Springfield North and Mount Tom Quadrangle (Figure 1, Appendix A). Figure 1 shows that the subject property generally slopes to the southeast towards the Third Level Canal, with elevations ranging between approximately 70 feet and 80 feet above sea level. Stormwater drainage in the subject property area presumably follows site topography, and is controlled by the City's stormwater drainage system.

According to the FEMA Flood Insurance Rate Map, Community-Panel Number 25013C0203E, effective July 16, 2013, the subject property is located in an area determined to be outside of the 0.2% annual chance floodplain or in an area in which flood hazards have not been determined, but are possible. A portion of the FEMA Flood Insurance Rate Map, Community-Panel Number 25013C0203E is provided as Figure 4 in Appendix A.

2.2.2 Geology

According to the U.S. Department of Agriculture, Soil Conservation Service, Hampden County, Massachusetts Soil Survey the subject property is underlain by urban land. This is defined as land so altered and obscured by urban works and structures that identification of soils is not feasible. Subordinate soil types in the subject property area are identified as fine sandy loam and silt loam, with very fine sandy loam at deeper depths.

According to the Surficial Geologic Map of the Springfield North Quadrangle by Janet Stone and Mary DiGiacomo-Cohen (USGS, 2010) the subject property is underlain by stream terrace deposits comprised of gravel, sand and silt deposited by meteoric water on terraces cut into glacial meltwater sediments along rivers and streams. Most stream-terrace deposits are less than 10 feet thick and overly thicker glacial deposits. Stream terrace deposits tend to have similar textures to underlying glacial meltwater deposits.

Geotechnical and test pit explorations at the subject property revealed building debris on each subject property parcel. The overburden soils generally consist of fine to medium sands with minor proportions of fine gravel, transitioning to silt and finally to glacial till. Groundwater was encountered between 10 and 17 feet below surface grade (BSG).

According to the Bedrock Geologic Map of Massachusetts (USGS, 1983), bedrock beneath the subject property area is identified as the Portland formation, which is described as reddish-brown to pale red arkose and siltstone, gray sandstone, gray siltstone, and black shale interpreted as lake beds.

2.2.3 Hydrogeology

Based on topographic map interpretation and the location of the nearby canal system, groundwater flow at the subject property is expected to be to the south/southwest toward the southerly flowing Connecticut River, located approximately 1,800 feet south of the subject property.

2.2.4 Surrounding Resource Area Description

According to the Mass GIS map (see Figure 2 in Appendix A), the subject property is not located within a Zone II or an Interim Wellhead Protection Area of a public water supply or a Potentially Productive Aquifer. Also, no areas of Critical Environmental Concern, Sole Source Aquifers or Solid Waste Landfills are identified within 500 feet of the site. The subject property is not located within an estimated habitat of rare wildlife and endangered species. Protected and Recreational Open Space (the Carlos Vega Park) is located among the subject property parcels, as well as to the southeast of the subject property (Valley Arena Park), within 500 feet of the subject property.

Additional Protected and Recreational Open Space, as well as MassDEP identified Open Water and Inland Wetlands, National Heritage Endangered Species Program (NHESP) Priority Habitats for Rare Species and Estimated Habitats for Rare Wildlife are located within 0.5 miles of the subject property.

Section 3

User Provided Information

As part of this Phase I ESA, Mr. John Dyjach, Assistant Director of Economic Development with the Holyoke Office of Planning & Economic Development, completed a User Questionnaire that meets the ASTM E1527-13 standard. No known RECs are identified in the User Questionnaire and it is stated that the user is not aware of environmental cleanup liens recorded for the subject property. The complete User Questionnaire is included in Appendix C.

No other user provided information was used for this report.

Section 4

Records Review

Tighe & Bond commissioned a database search of Federal and State records that would indicate the potential presence of environmental hazards at or in close proximity to the property using Environmental Data Resources (EDR) of Milford, Connecticut. The EDR Radius Map with GeoCheck® report is provided in in Appendix D.

EDR also provided Sanborn Fire Insurance Maps for the years 1884, 1889, 1895, 1915, 1949, 1956, 1966 and 1972, and aerial photographs for the years 1942, 1952, 1957, 1971, 1973, 1980, 1985, 1991, 1995, 2002, 2006, 2008, 2010 and 2012, which were reviewed as part of this Phase I ESA. Historical City Directories for the subject property area dated 1963 through 2013 provided by EDR were also reviewed, as well as historical USGS topographic maps dated 1889, 1893, 1895, 1896, 1897, 1901, 1919, 1920, 1933, 1938, 1946, 1947, 1958, 1972, 1979 and 2012. The historical documents provided by EDR for the subject property are included in Appendix E.

4.1 Site History

According to the Holyoke Assessor's office, the existing building located on Parcel 006, Block 8 on South Bridge Street was constructed circa 1900. Based on historical USGS topographic maps and Sanborn Fire Insurance Maps, each of the 17 other subject property parcels were previously developed as early as 1889, as further reviewed below.

Sanborn Fire Insurance Maps

An evaluation of historical Sanborn Fire Insurance Maps spanning the subject property area is provided below. Note that Clemente Street was formerly Park Street, as shown on each map in the series provided by EDR.

1884, 1889, 1895: Based on the 1884 map, the subject property parcels were exclusively used for residential purposes. In subsequent maps, tenement buildings were located in the area of Block 4 parcels 001, 005, 006 and 008. A livery and a hotel were located north and upgradient of these parcels. In the vicinity of Block 3, Parcel 006, located along Hamilton Street, two dwellings are depicted on the 1889 map, which are shown as tenement housing in the 1895 map.

Within Block 8, tenement buildings were located where parcels 001, 006, 007, 017 and 018 are located. Smaller buildings, labelled as "Dwellings" are depicted where Block 8 Parcels 009 through 013 are currently located, with parcels 012 and 013 converted to tenement housing in the 1895 map. A "livery" was located where Block 8, Parcel 019 is currently located, as depicted on the 1889 and 1895 maps. A large, off-site "gasometer" is located southeast and downgradient of the subject property on each of these maps. [Note: A gasometer was storage tank typically used to store coal gas.] This "gasometer" is the location of Valley Arena Park, as described in Section 4.2.

1915: More non-residential uses are identified on some of the subject property parcels in this Sanborn Map series. Block 4, Parcel 008 is labelled as "metal" with a portion of the building labelled with an "S" indicating a storefront was present along Park/Clemente Street. The "metal" designation may indicate a process that took place within the

building, or it may reference a building material. A "bottling room" is located on Block 4, Parcel 8 (identified as 209 Park Street on the Sanborn map).

Block 8 Parcels 001, 009, 011, 018 and 019 are labelled with an "S" indicating the buildings on these subject property parcels were formerly used at least in part as a store front. Each subject property formerly identified above as a tenement building is labelled with an "F" indicating the buildings were used as flats.

1949: The non-residential uses of the subject property identified on Block 4 Parcel 001 above ("metal" and "bottling room") are not carried through the next available Sanborn map. Residential uses are identified on the subject property parcels in this map, with the following exceptions: the "S" labels designating a commercial use of the property and Block 8, Parcel 001, which is labelled as "PLUM'G;" within Block 8, a building labelled "SIGN MFG" is located on a non-subject property parcel (Parcel 015) between Parcel 013 and Parcel 016. Parcel 15 is north and upgradient of Block 8 Parcel 007 and Parcel 008.

1956: The building on Block 8 Parcel 15 labelled "SIGN MFG" (a non-subject property parcel) is labelled as "STGE" in this map, indicating the building was used for storage. A building labelled "Sign Painting" is located within the northwest corner of Block 4 Parcel 001. No other non-residential or non-commercial uses are identified on the subject property parcels in this map, other than those previously identified. The building labelled "PLUM'G" on Block 8 Parcel 001 is still labelled on this map.

1966-1972: Consistent with the 1956 map, the building on northwest corner of Block 4 Parcel 001 is labelled as "Sign Painting." Also consistent with the 1956 map, Block 8 Parcel 019 has a building labelled "PLUM'G," , but the "PLUM'G" label is absent from the Block 8 Parcel 001.

Surrounding property uses of note include:

- a large gasometer located southeast (and presumably downgradient) of the site, depicted on maps dated 1884 through 1915;
- a fire station located northwest of the subject property, fronting Main Street depicted on maps dated 1895 through 1972; and
- an auto repair building, located west of the subject property along Hamilton Street, depicted on maps dates 1915 through 1972.

Note that addresses depicted on the Sanborn Fire Insurance Maps are not identical to the subject property parcel addresses currently listed by the Holyoke Assessors Office. The current and historical addresses of each property (where applicable) are summarized in Table 1 in Appendix B.

Historical Aerial Photographs

Due to the resolution of these photographs, features of the subject property cannot be observed in detail.

Historical City Directories

EDR provided historical city directory listings for South East Street dated 1963 through 2013, and for Clemente Street dated 1999 through 2013. Only residences are listed in the city directories provided for only some of the addresses associated with subject property parcels. Stores at the subject property parcels are occasionally referenced as "vacant" in these listings.

4.2 Environmental Records Review

4.2.1 Database File Search

The EDR report provided in Appendix D conforms with ASTM Standard E1527-13 for the standard Federal, state, and tribal environmental records search. The date of the most recent update by the regulatory agency maintaining each database is listed at the end of the EDR[®] report. Those sites with adequate address information (geo-coded) are plotted on maps provided within the EDR[®] report. Sites with minimal address information (orphans) are listed separately in the report. The orphan sites were reviewed to determine whether they were located in close proximity to the site.

A summary of the Federal and state listings retrieved by the database search is provided at the beginning of the EDR[®] report. A general summary is also provided below in Table 4-1. The search distances, which are listed in the table, conform to the minimum requirements of ASTM Standard E1527-13 and AAI site assessment standards.

As shown, none of the subject property parcels are listed in the ASTM-required state (and tribal) listings, though a portion of the subject property is listed in one of the non-ASTM required databases searched by EDR, the SPILLS database. This former MassDEP database served as the release tracking system for emergency spills that occurred in Massachusetts prior to October 1, 1993, as indicated in the EDR Radius Report in the "Records Searched" section. The listing is in regards to a spill of 10 to 50 gallons of No. 2 fuel oil from a UST to soils in June 1989. The release location is listed as *Holyoke Housing Authority South East Street/South Bridge Street*, with no exact location provided. The status of the spill was closed in February 1992. This is considered an HREC, as it is indicative of a release to the subject property that has been addressed to the satisfaction of the local regulatory authority (MassDEP).

A non-ASTM listing for a dry cleaner (Y Cleaners & Tailors, 400 Main Street) was identified by EDR for the years 1969 through 1975. According to the Sanborn Fire Insurance Map dated 1972, 400 Main Street is located adjacent to the Block 3, Parcel 006 subject property parcel. The 400 Main Street location is likely hydrologically cross-gradient with respect to the Block 3, Parcel 006 subject property parcel. No reported release incident involving this former dry cleaner facility was identified in the records search. However, this historical dry cleaning facility is considered to be a potential REC for the adjacent subject property parcel (at a minimum), as further reviewed below in Section 6.

EDR also identified a former gasoline filling station in a non-ASTM required database, which is reported as having operated at 410 Main Street between 1985 and 1987. 410 Main Street is depicted on the 1972 Sanborn Fire Insurance Map as being located north (and presumably upgradient) of several Block 4 subject property parcels, where it is currently occupied by an insurance agency. No reported release incident involving this

former gasoline filling station was identified in the records search. However, this historical gasoline filling station is considered a potential REC for the Block 4 subject property parcels (at a minimum), as further reviewed below in Section 6.

TABLE 4-1

Database File Search Summary
Holyoke Urban Agenda Grant Project
Holyoke, Massachusetts

Database Searched	Search Radius (mile)	Sites Listed
ASTM Standard E1527-13 Requirements		
Federal National Priority List (NPL)	1.0	0
Federal Delisted NPL	0.5	0
Federal CERCLIS List	0.5	1
Federal CERCLIS NFRAP List	0.5	2
RCRA CORRACT Facilities	1.0	1
RCRA non-CORRACTS TSD Facilities	0.5	0
RCRA Generators – Large and Small Quantity	0.25	2
Federal Emergency Response Notification System (ERNS)	Target Property	0
Federal Institutional Controls/Engineering Control Registry	0.5	0
State (and Tribal) Identified Hazardous Waste Sites and Equivalent CERCLIS	1.0	115
State (and Tribal) Listed Landfills and Solid Waste Facilities	0.5	2
State (and Tribal) Leaking USTs/ASTs	0.5	22/6
State (and Tribal) Registered UST/AST	0.25	10/1
State (and Tribal) Institutional Controls/Engineering Control Registries	0.5	10
State (and Tribal) Voluntary Cleanup	0.5	0
State (and Tribal) Brownfields	0.5	12
Non-ASTM Standard E1527-13 Requirements*		
Emergency Release/Spills	Target Property	1
Regulated Drycleaning Facilities	0.25	1
EDR US Historical (Potential) Dry Cleaners	0.25	1
Facility Index System (FINDS)	Target Property	0

*Not all-inclusive; see EDR® report in Appendix D for further details

As mentioned, release sites with minimal address information that may be located in close proximity to the subject property are listed separately in the database report. EDR could not specifically locate these sites due to incomplete or inaccurate addresses. That list of 20 sites was reviewed by Tighe & Bond, and it is our opinion that none of those sites should have an environmental impact on the subject site. Ten of the twenty listed sites were found to be within a one-mile radius of the subject site, and were added to Table 4-1 for reference.

4.2.2 MassDEP File Review

Further review of SHWS listed in the EDR Radius Report near the subject property was conducted through an on-line review of Bureau of Waste Site Cleanup (BWSC) files available on MassDEP's website at <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>. That search was conducted for sites listed in the EDR Radius Report that are located within approximately 0.15 miles of the site, are expected to be hydrologically upgradient or cross-gradient of the subject property (based on USGS mapping), and involve a release to soil or groundwater. The findings of the MassDEP file review are summarized below.

- **Valley Arena Park – 560 South Bridge Street**
RTN 1-14957

This site is located approximately 75 feet southeast of the subject property (from Block 8, Parcel 006). The site is listed in the SHWS database in regards to an initial environmental site investigation at the property, which was required by MassDEP due to its former association with a manufactured gas plant. The facility was used as a "holder" of manufactured gas from the late 19th century to the early 20th century, but no actual manufacturing processes took place, according to research conducted by MassDEP. The initial site investigation discovered polycyclic aromatic hydrocarbons (PAHs) in site soils which exceeded their respective RCS-1 reportable concentrations. The PAHs were subsequently determined to be consistent with background concentrations due to the presence of coal ash and the release was closed (without any remediation) with a Class B-1 Response Action Outcome (RAO) Statement. Based on the regulatory status of the site, this release is not expected to impact the subject site.

- **461 Main Street**
RTN 1-14665

This site is located approximately 175 feet northwest of the subject property (from Block 4, Parcel 008). The contaminant of concern (COC), lead, was discovered during construction at the site, where a layer of lead-containing plaster was discovered approximately 3 to 4 feet BSG. After assessment of the lead contamination, the RTN was closed with a Class A-2 RAO Statement, indicating that residual contaminants remain at the site at concentrations which do not pose a significant risk. Based on the regulatory status of this release, this release is not expect to impact the subject property.

- **Alleyway - Hamilton Street**
RTN 1-15867

This site is located approximately 300 feet northwest of the subject property (from Block 4, Parcel 001). The release is listed as "Alleyway Hamilton Street" in

the Orphan Summary within the EDR Radius Report. This release of waste oil was closed with a Class A-1 RAO Statement in 2011, indicating that the release was remediated to background conditions. Based on the regulatory status of this release site, this release is not expected to impact the subject property.

- **73 Sargeant Street**

- **RTN 1-16396**

- This site is located approximately 300 feet northeast of the subject property (from Block 4, Parcel 8). The RTN is in regards to PAHs associated with coal and coal ash fill material located beneath the footprint of the 73 Sargeant Street building. Based on a Method 3 risk assessment, concentrations of PAHs in the fill did not pose a significant risk to receptors associated with commercial/industrial use of the site, but did pose a potential risk to potential future residential receptors. Therefore, an Activity and Use Limitation (AUL) was instituted at the site in conjunction with a Class B-2 RAO Statement, indicating that remedial measures were not necessary to maintain a condition of No Significant Risk, but the finding of No Significant Risk is contingent upon an AUL. Based on the regulatory history of the release, this release is not expected to impact the subject site.

- **338 Main Street**

- **RTN 1-14652**

- This release site is located approximately 350 feet northeast of the subject property (from Block 3, Parcel 006). A release of fuel oil was discovered in the basement of the site building (currently with an apparent address of 74-76 Cabot Street) which originated from three ASTs. After excavation of contaminated soil, the site was closed with a Class A-2 RAO Statement. Based on the regulatory status of this release, this release is not expected to impact the subject property.

- **49-51 Cabot Street**

- **RTN 1-13291**

- This site is located approximately 550 feet northeast of the subject property (from Block 8, Parcel 019). This release was closed with a Class A-3 RAO Statement in 2001, indicating that an AUL was necessary to maintain a condition of No Significant Risk at this release site. Relatively high concentrations of petroleum compounds may remain at the site and the surrounding vicinity, based on the need for an AUL to close the release. Groundwater at the site was found to be flowing in a southwesterly direction, towards the subject property area. During geotechnical work performed by Tighe & Bond for the City of Holyoke in 2016, elevated photoionization detector (PID) readings were encountered at the depth of the groundwater table in boring B-45, located within the 42-46 Cabot Street apartment complex. The elevated PID readings were assumed to have originated from that earlier release. Boring B-45 is located approximately 400 feet east-northeast of the subject property (Block 8, Parcel 019). Based on the hydrologic gradient reported in the Class A-3 RAO Statement, this release is not expected to significantly impact the subject property.

- **Republic Oil – 330 Main Street
RTN 1-00100**

This site is located approximately 550 feet northeast of the subject property (from Block 4, Parcel 001), and is bound by Cabot Street and Clemente Street to the south, and by Main Street to the north. 330 Main Street is currently improved with a Pride Gas Station and convenience store. After remediation, the site release was closed in 2007 with a Class A-2 RAO Statement, indicating that residual petroleum contamination exists in the site subsurface, but at levels which constitute No Significant Risk. The RAO was audited by the MassDEP, and an RAO addendum was submitted for the site in 2010 to address a potential data gap at the northwest portion of the site. Additional soil borings were advanced within the northwestern portion of the site to provide additional data for site closure, which did not significantly affect the closure outcome. The heaviest impacts are located on the northern portion of the site, with groundwater impacts absent within Cabot Street. Based on the location and regulatory status of this release, it is not expected to impact the subject property.

Based on the relative distance from the subject property, inferred direction of groundwater flow, and/or current regulatory status, the other listed sites in the EDR report and in MassDEP's on-line database are not expected to impact the subject property.

Through MassDEP website, Tighe & Bond also reviewed UST database files available through the UST Query tool at <http://public.dep.state.ma.us/UST/ustQueryPage.asp>. That search was conducted for Sargeant, Hamilton, South East, South Bridge, Clemente and Park Streets. None of the subject property parcels were identified in MassDEP's UST database.

4.3 Recorded Environmental Cleanup Liens & Activity and Use Limitations

Based on the ASTM User Questionnaire (see Appendix C), the user is not aware of environmental cleanup liens recorded on property title records associated with the subject property. Based on a review of MassDEP files (described in Section 4.4 below), no AULs are currently associated with the subject property parcels.

4.4 Local File Review

On June 8, 2017, Tighe & Bond visited the Holyoke City Hall offices to review environmental records pertinent to the subject property. Information obtained from the files reviewed is summarized below.

Assessor's property field cards were obtained from the Assessor's office, as reviewed previously in Section 2. The property field cards for the subject property parcels are provided in Appendix B, along with an Assessor's Map No. 28.

A Public Records Request was submitted to the Holyoke Health Department on June 8, 2017. Health Department files concerning illegal dumping, offensive odors, MassDEP correspondence, etc. were reviewed for Hamilton, Clemente, Park, Sargeant, South East, and South Bridge Streets by Tighe & Bond. No records regarding MassDEP involvement

with the subject property parcels, or records indicative of an REC at the subject property parcels, were discovered during review of the Holyoke Board of Health records. Among the records reviewed was a Board of Health Witness of Extermination for 34-42 Hamilton Street (subject property Block 8 Parcel 019), dated November 2008. The reason for extermination is listed as "rodent abatement" (for demolition). A Project Notification Form (PNF) submitted to the Massachusetts Historical Commission for the demolition of the Block 8 Parcel 001 (34/42 Hamilton Street) structure was also reviewed. The PNF was dated June 2008, indicating that demolition on this property occurred relatively recently. Also reviewed was a Board of Health Witness of Extermination (of pests) for 44-46 Hamilton Street (subject property Block 8 Parcel 019), dated April 1993. The reason for extermination is listed as "demolition." The above-mentioned records are provided in Appendix B.

A Public Records Request was submitted to the Holyoke Building Department for historical and current subject property addresses on June 8, 2017. No pertinent environmental records were identified among the building department violation records. Building permits/applications were also reviewed at the Holyoke Building Department on June 20, 2017. The following information was obtained based on the permits reviewed:

- 55 and 57 Hamilton Street (Block 3 Parcel 006) – A building permit application for demolition of a four-story, 16-family, brick building, filed on April 15, 1981.
- 34 to 42 Hamilton Street (Block 8 Parcel 001) – A request for the Massachusetts Housing Court (Western Division) to require demolition of the building formerly located on this subject property parcel was made by the Holyoke Building Commissioner in July 2007.
- 45 Sargeant Street (Block 8 Parcel 009) – A building permit application for demolition of a two-and-a-half-story, 2-family, wood building, filed on February 20, 1980.
- 207 and 209 Park Street (Block 4 Parcel 008) – A building permit application for demolition of a five-story, 19-family building, filed on February 13, 1984.

The building records discussed above are provided in Appendix B for reference.

Tighe & Bond submitted a Public Records Request to the Holyoke Fire Department on June 8, 2017 for current and historical records pertaining to USTs/ASTs and fuel storage at the subject property (a list of addresses associated with the subject property was provided with the request). Permits for current and historical addresses associated with the subject property were searched by Holyoke Fire Department personnel. No records associated with the subject property parcel addresses were identified by the Holyoke Fire Department. A copy of the Public Records Request is provided in Appendix B. It should be noted that although the Holyoke Fire Department records for the subject property parcels do not indicate that former (or potentially abandoned) USTs were present, it has been our experience that their records for residential properties (i.e., residential fuel oil USTs) can be incomplete.

Section 5

Subject Property Reconnaissance and Interviews

5.1 Subject Property Reconnaissance

On June 2, 2017, Nicholas Guidi of Tighe & Bond conducted a site reconnaissance of the subject property. The key site manager, as the term is defined in the ASTM Standard E1527-13, was not present at the time of the subject property reconnaissance. A Site Photographic Log from the reconnaissance visit is provided in Appendix F for reference. [Note: Subsequent "site visits" were also conducted by Tighe & Bond staff between June 12 and 15, 2017 during subsurface investigation activities conducted at the site, which consisted of geotechnical borings, exploratory test pits and pre-marking the boring and test pit locations.]

During our reconnaissance, Tighe & Bond personnel observed the exterior areas of each subject property parcel. With the exception of Block 8 Parcel 006, each subject property parcel consists of undeveloped, vacant land. A dilapidated building is located on Block 8 Parcel 006, and was not entered during the reconnaissance visit. The building is not safe for entry and permission to access the building was not granted by the current property owner. Non-entry into this building is considered to be a data gap for this Phase I ESA.

In summary the findings from our reconnaissance visit are as follows.

- No evidence of a release of OHM to the environment was observed on the subject property.
- No areas of significant staining or stressed vegetation were observed on the exterior portions of the subject property.
- No evidence of dumping or a significant volume of accumulated debris was observed on the exterior portions of the subject property.
- No irrigation wells, monitoring wells, or septic tank systems were observed on the subject property.
- No evidence of waste pits, ponds, or lagoons was observed on the subject property.
- No pools of liquid were observed on the subject property.
- No strong, pungent, or noxious odors were noted on the subject property.

Block 4 Parcels 001 and 008, and Block 8 Parcels 006, 009 and 013 are not owned by the City, and permission to access these parcels was not granted by the property owners. Therefore, during the subject property reconnaissance these vacant parcels were viewed from public rights-of-way, or from adjacent, City-owned parcels. Further description of our observations during the subject property reconnaissance is provided below.

- Block 4 Parcel 001 is paved and is surrounded by an approximately 4-foot high chain-linked fence and is visible from public rights-of-way. No structures were present on this vacant parcel, and no storage or other items were observed on the property, with the exception of a small dumpster near the adjoining residence located along Clemente Street.
- Block 4 Parcel 008 is surrounded by an approximately 6-foot high chain-linked fence, and is only partially visible from public rights-of-way, due to vegetation growing within the chain-linked fence. This parcel is also paved, and no storage or other items were observed on the property.
- Block 8 Parcels 009 and 013 are unpaved, and no storage or other items were observed on this vacant property. These parcels are also evidently mowed regularly, and parcel 013 is apparently used for parking by residents in the adjacent apartment building to the northeast.
- Block 8 Parcel 006 is not owned by the City and is developed with an approximately 1,800 square foot dilapidated residential structure. As discussed, this structure was not accessed during our reconnaissance visit. No fill or vent pipes were observed on visible portions of the building exterior. Limited household refuse was observed strewn across the rear portion of this parcel, but no containers of OHM were observed.
- Block 4 Parcels 005, 006 and 007, which are owned by the City, are vegetated and mowed regularly by the City. No storage or other items were observed on this vacant property. A building reminiscent of a filling station is located north and upgradient of these parcels (see Photo No. 2 in Appendix F), which is likely the former gasoline filling station referenced in Section 4.2.1. During our subsurface investigations in this area, a petroleum sheen and odor were observed near the depth of the groundwater table, as further described below in Section 6.
- Block 3 Parcel 006 is paved, although the asphalt pavement on this parcel is significantly degraded. This parcel is currently used as a parking area for adjacent apartment buildings. No storage or other items were observed on this vacant property. During our subsurface investigations on this parcel, evidence of volatile organic compounds were identified in soils below the groundwater table, as further described below in Section 6.
- Block 8 Parcels 010 through 012 and Block 8 Parcel 007 are unpaved, and are apparently mowed regularly by the City. No storage or other items were observed on this vacant property.
- Block 8 Parcels 016 through 019 are unpaved, and are apparently mowed by the City. Building remnants, primarily consisting of brick and concrete or mortar fragments, are visible on the ground surface of these parcels.
- Block 8 Parcel 001 is paved, although the asphalt pavement on this parcel is highly degraded. This parcel, which is owned by the City, is currently used as a parking area by tenants of the adjacent store and apartment building. No storage or other items were observed on this vacant property.

Section 6 Exploratory Test Pit and Geotechnical Borings

As part of the City's redevelopment agenda, geotechnical borings were advanced on portions of the subject property on June 12 and 13, 2017, and exploratory test pits were advanced on portions of the subject property on June 14 and 15, 2017. The geotechnical borings were advanced to collect subsurface data relating to the load-bearing capacity of subject property soils, and the exploratory test pits were advanced to collect data related to percolation tests and to assess the presence of historical fill. Further description of soil boring and exploratory test pit activities is provided below.

6.1 Exploratory Test Pits

Exploratory test pits were advanced at each City-owned subject property parcel (Block 3, Parcel 006, Block 4 Parcels 005 through 007, Block 8 Parcels 001, 006, 007, 010 through 012 and Block 8 Parcels 016 through 019) to a maximum depth of 10 feet BSG. The test pit locations are depicted on Figure 3 in Appendix A, with the City-owned parcels outlined in red. Form 11 Soil Suitability Assessment for On-Site Sewage Disposal completed for the exploratory test pits are provided in Appendix G for reference.

To provide insight into potential future management of subject property soils, three grab soil samples (TP_7, TP_9 and TP_10) and three composite soil samples (TP_1-4, TP_5-6-8, TP_11-13) were also collected from the subject property during test pit program. The sample nomenclature corresponds with the test pit locations presented on Figure 3 in Appendix A. Grab samples were collected from test pits TP-7, TP-9 and TP-10 from between 0 and 10 feet BSG. Composite sample aliquots were collected in the following manner:

- composite sample TP_1-4 aliquots were collected from Test Pits TP-1 through TP-4, from between 0 and 10 feet BSG;
- composite sample TP_5-6-8 aliquots were collected from Test Pits TP-5, TP-6 and TP-8, from between 0 and 10 feet BSG; and
- composite sample TP_11-13 aliquots were collected from Test Pits TP-1 through TP-4, from between 0 and 10 feet BSG.

The test pit samples were submitted to ConTest Analytical Laboratory of East Longmeadow for Resource Conservation and Recovery Act (RCRA) 8 metals, target polycyclic aromatic hydrocarbons (PAHs, by EPA Analytical Method 8270), and polychlorinated biphenyls (PCBs, by EPA Analytical Method 8082) analyses. The laboratory analytical report is provided in Appendix H.

Test Pit Analytical Results

The laboratory analytical results from the exploratory test pit samples are summarized in Table 2, which was prepared by Tighe & Bond and is provided at the beginning of Appendix H. Within the table, soil results are compared to RCS-1 Reportable Concentrations, which are applicable to the subject property in accordance with the MCP

because it is located within 500 feet of residential properties. In addition to RCS-1 values, the test pit data are also compared to Comm-97 Massachusetts landfill acceptance criteria (from MassDEP Policy # COMM-97-001) for disposal at unlined Massachusetts landfills, and to MassDEP background concentrations of RCRA 8 Metals and PAHs (from the MassDEP Technical Update *Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil*, May 2002). As shown in Table 2, moderate to low concentrations of various PAHs and RCRA 8 Metals were detected in the samples submitted for analysis, as described further below.

RCS-1 values were exceeded in samples TP_1-4 and TP_9. The PAH benzo[a]pyrene was detected in sample TP_1-4 at 3.1 milligrams per kilogram (mg/kg), which is greater than the RCS-1 value of 2 mg/kg. The PAHs benzo[a]pyrene (8.1 mg/kg), benzo[b]fluoranthene (11 mg/kg) and phenanthrene (20 mg/kg) were detected in sample TP_9 at concentrations above the RCS-1 values of 2 mg/kg, 7 mg/kg and 20 mg/kg, respectively. Lead was also detected above the RCS-1 value of 200 mg/kg in sample TP_9 (210 mg/kg). Exceedances of the RCS-1 values are boxed in Table 2. The exceedances of RCS-1 values triggers a 120-day reporting requirement in accordance with the MCP regulations.

Although the concentrations of select PAHs and lead were identified in samples TP_1-4 and TP_9 above RCS-1 values, these concentrations are similar to MassDEP background concentrations for anthropogenic fill containing coal, coal ash and/or wood ash (see Table 2). Evidence of anthropogenic fill was noted during exploratory test pit program and during soil boring advancement, as further described below. Under the MCP, releases of oil and/or hazardous material related to coal, coal ash, or wood ash, are exempt from reporting requirements. In our opinion, microscopic analysis (to determine if coal, coal ash, or wood ash is presented in the soils) is warranted to determine if this MCP reporting exemption is applicable to the subject property.

In Table 2, the test pit sample results are also compared to Comm-97 landfill acceptance criteria. As indicated in Table 2, the test pit sample TP_9 results exceeded the total semi-volatile organic compounds (target PAHs only) acceptance criterion for lined and unlined Massachusetts landfills. Therefore, these soils, once/if generated may not be acceptable at a Massachusetts landfill. [Note: Although this preliminary soil characterization data collected across these subject property parcels is useful, characterization of the actual soils generated for off-site disposal during future site redevelopment efforts (i.e., excess soils that cannot be managed on site) will be warranted.]

6.2 Geotechnical Soil Borings

To provide information for future redevelopment of the subject property, geotechnical soil borings were advanced at the following subject property parcels: Block 4 Parcels 005 and 007, Block 3 Parcel 006 and Block 8 Parcels 011, 017 and 019. The locations of the geotechnical borings are depicted in Figure 3 in Appendix A. During boring advancement, historical fill was observed on Block 5 Parcels 005 and 007, and on Block 8 Parcel 017, which appeared to be co-mingled with building foundation remnants based on difficult drilling conditions. For reference, geotechnical boring logs are provided in Appendix G.

During soil boring advancement, select soil samples were screened in the field for volatile organic compounds using a photoionization detector (PID) instrument. A maximum PID reading of 127.2 parts per million (ppm) was observed in the soil sample collected from near the groundwater table (between 10 and 12 feet BSG) at boring B-1, advanced at the center of Block 4 Parcel 007. This sample also exhibited a mild, weathered petroleum odor similar to No. 2 fuel oil or diesel fuel. The potential source of those impacts is the former historical filling station situated upgradient of this parcel, as discussed earlier, or a potentially undocumented UST on the subject property.

As also discussed earlier, a former drycleaner operated adjacent to and upgradient of subject property parcel Block 3 Parcel 006 based on historical records. Therefore, the samples collected from below the groundwater table in boring B-4, from 15 to 17 feet BSG and 20 to 22 feet BSG, were also field-screened using the PID instrument. PID readings were inconclusive for the soil sample collected from 15 to 17 feet BSG, as the PID readings slowly crept upwards in small intervals and did not reach a peak within 10 seconds, indicating instrument interference (potentially due to high humidity). The PID reading for the sample collected at the 20-22 foot depth interval was 2.5 ppm. Although this PID reading is relatively low, these findings indicate that the chlorinated VOCs (used in dry cleaning operations) may be present site groundwater. [Note: Chlorinated VOCs are a potential vapor source into indoor air within a building.]

Geotechnical samples were not submitted for laboratory analysis of potential OHM.

Section 7 Conclusions

7.1 Phase I ESA and Limited Subsurface Investigation Findings

In general conformance with the scope and limitations of ASTM Standard E1527-13, Tighe & Bond performed a Phase I ESA for the subject property defined collectively as parcel 006 on Hamilton Street (Map 28, Block 3, Parcel 006, Map 28, Block 4 Parcels 001, 005, 006, 007, and 008; Map 29, Block 8 Parcels 009, 010, 011, 012, 013, 016, 017, 018, and 019; Map 29, Block 8 Parcels 006 and 007; and Map 29, Block 8, Parcel 001) in Holyoke, Massachusetts. No exceptions to or deletions from the ASTM Standard E1527-13 were noted.

In summary, our Phase I ESA revealed an HREC associated with the release of 10-50 gallons of No. 2 fuel oil in 1989 on a portion of the subject property. Historical records indicate that this "spill" incident was closed in February 1992 by MassDEP.

Our Phase I ESA also revealed that a historical automotive filling station was situated adjacent to (and upgradient) of at least a portion of the subject property, and that a historical dry cleaner was also situated adjacent to (and upgradient) of at least a portion of the subject property. No reported release incidents involving either of these off-site properties were identified during our records review. However, the findings during our geotechnical boring program indicated the subsurface environment may be impacted by these former off-site operations, and therefore these two separate findings are considered to be potential RECs for the subject property.

Lastly, target PAHs and lead were detected above applicable RCS-1 values in soils collected during the exploratory test pit program, which triggers a 120-day reporting condition under the MCP. However, evidence of anthropogenic fill was noted during this program and these exceedances could be related to the presence of coal, coal ash, or wood ash which are exempt from reporting requirements.

7.2 Opinion

It is our opinion that sufficient information was obtained from the records reviewed and our site reconnaissance of the subject property to evaluate the existence of RECs, historical RECs, controlled RECs, and/or *de minimis* conditions at the subject property in accordance with Phase I ASTM standards.

Based on the limited subsurface investigation findings, it is our opinion that further investigations are warranted to determine if the subsurface environment (i.e., groundwater) is significantly impacted by the two off-site/upgradient sources identified as potential RECs, as discussed above. Also, in our opinion, microscopic analysis is warranted to determine if coal, coal ash, or wood ash is presented in the soils with RCS-1 exceedances, and if the MCP reporting exemption is applicable to the subject property

Lastly, as a conservative measure, a ground-penetrating radar (GPR) survey may be advisable before redevelopment occurs and/or before the City obtains ownership of

subject property parcels not currently owned by the City. The GPR survey would be used to confirm the absence of USTs on the subject property parcels.

7.3 Data Gaps

Due to the availability of historical resources it was not possible to determine the subject property history at five year intervals. However, based on information obtained from historical maps and municipal records, this is not considered to be a data failure.

During the site reconnaissance visit, the building located on the subject property parcel located at Block 8, Parcel 006 (569 South Bridge Street) was not entered. Because this is a residential structure, which would not typically be associated with the use of OHM, this does not constitute a significant data gap. However, there could be fuel oil AST(s) located in the basement of this building, and if present the condition of that AST area should be evaluated (i.e., observed for evidence of historical release of oil to the floor or subsurface environment) prior to the City obtaining ownership of that property, in our opinion.

7.4 Non-Scope Services

Non-scope considerations or services as defined in the ASTM Standard E1527-13 were not evaluated as part of the Phase I ESA.

Section 8 Phase I ESA EP Statement

I declare that, to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional, as provided in 40 CFR 312.10.

I have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject property. I have developed and performed the all appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312.

The resume for the undersigned EP that conducted the assessment is included in Appendix I.



Todd D. Kirton, LSP
Senior Hydrogeologist
Tighe & Bond

Section 9

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Section 10

Limitations

Each report and any and all work product provided in connection with the performance of each environmental site assessment is subject to the following conditions:

1. Each report is prepared on behalf of and for the exclusive use of the Holyoke Housing Authority (Client) and is subject to and issued in accordance with the Agreement and the provisions thereof. Each report and any findings contained therein shall not, in whole or in part, be provided to or used by any other person, firm, entity or governmental agency in whole or in part, without the prior written consent of Client and Tighe & Bond. However, Tighe & Bond acknowledges and agrees that, subject to the Limitations set forth herein and prior written approval by Tighe & Bond, a report may be provided to specific financial institutions, attorneys, title insurers, lessees and/or governmental agencies identified by Client at or about the time of issuance of a report in connection with the conveyance, mortgaging, leasing, or similar transaction involving the real property which is the subject matter of a report and any work product. Use of a report for any purpose by any persons, firm, entity, or governmental agency shall be deemed acceptance of the restrictions and conditions contained therein, these Limitations and the provisions of Tighe & Bond's Agreement with Client. No warranty, express or implied, is made by way of Tighe & Bond's performance of services or providing an environmental site assessment, including but not limited to any warranty with the contents of a report or with any and all work product.
2. In preparing a report, Tighe & Bond, Inc. may rely on certain information provided by governmental agencies or personnel as well as information and/or representations provided by other persons, firms, or entities, and on information in the files of governmental agencies made available to Tighe & Bond at the time of the site assessment. To the extent that such information, representations, or files may be inaccurate, missing, incomplete or not provided to Tighe & Bond, Tighe & Bond is not responsible. Although there may be some degree of overlap in the information provided by these various sources, Tighe & Bond does not assume responsibility for independently verifying the accuracy, authenticity, or completeness of any and all information reviewed by or received from others during the course of the site assessment.
3. Unless otherwise noted, a survey (which includes observations, sampling and analysis) for the presence of asbestos-containing materials, mold and/or lead-based paint is not conducted as part of an assessment.
4. No attempt is made to assess the compliance status of any past or present Owner or Operator of a site with any Federal, state, or local laws or regulations, unless specifically indicated otherwise in writing.
5. Findings, observations, and conclusions presented in each report, including but not limited to the extent of any subsurface explorations or other tests performed by Tighe & Bond, are limited by the scope of services outlined in the Agreement, which may establish schedule and/or budgetary constraints for an environmental assessment or phase thereof. Furthermore, while it is anticipated that each assessment will be performed in accordance with generally accepted professional

practices and applicable standards (such as ASTM, AAI, etc.) and then applicable state and Federal regulations, as may be further described in the report and/or the Agreement, Tighe & Bond does not assume responsibility for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of its services.

6. The assessment presented in each report is based solely upon information obtained or received prior to issuance of the report, including a limited number of subsurface explorations (if performed) made on the dates indicated. If additional environmental or other relevant information is developed at a later date, Client agrees to bring such information to the attention of Tighe & Bond promptly. Upon evaluation of such information, Tighe & Bond reserves the right to recommend modification of this report and its conclusions.
7. If groundwater samples are collected for analysis or water level measurements are made in monitoring wells, such results/observations are provided as representative of conditions at the times stated in this report. Fluctuations in groundwater elevation may occur due to variations in precipitation cycle and multiple other factors, which may influence the concentrations of constituents present in the groundwater. Should additional data become available in the future, such data should be provided to Tighe & Bond for review and Tighe & Bond reserves the right to recommend modification of this report and its conclusions.
8. Except as may be noted specifically within the text of a report, no laboratory testing is performed as part of a site assessment. If such analyses have been conducted by an outside laboratory, Tighe & Bond may rely upon the analyses or data provided, and makes no representation that an independent evaluation of the reliability of such testing has been conducted, with the exception of reviewing standard quality assurance/quality control data that may have been provided with the test results.
9. Although chemical analyses may be performed for specific parameters at specific locations during the course of a site assessment, as described in a report, the results are not definitive regarding the presence of the parameters at other concentrations or the absence of the parameters at other locations on the site. Additional chemical constituents not included in the list of analyzed parameters for a study may be present in soil and/or ground water at a site, and Tighe & Bond assumes no responsibility for chemical constituents or parameters not analyzed.

If included, any database search is conducted under the Notice of Disclaimer/Waiver of Liability included in the database search report.

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