



May 8, 2017
File No. 91830.01

Ms. Alicia Caritano
Senior Associate
Perkins Eastman
50 Franklin Street, Suite 203
Boston, Massachusetts 02110

**Re: Transmittal of Revised Phase I Environmental Site Assessment
Cawley Site Existing Conditions Evaluation/Geoenvironmental
Perkins Eastman Project #67150.00
Lowell, Massachusetts**

Dear Ms. Caritano:

Nobis Engineering, Inc. (Nobis) completed a Phase I Environmental Site Assessment (ESA) of eight parcels of land located in Lowell and one parcel located in Tewksbury, collectively known as the Martin Alumni Athletic Complex or the Cawley Site. The Phase I ESA Report is included as an attachment to this letter. The report has been revised to address comments provided by the project team and to include new information reviewed since submittal of the initial report on April 14, 2017.

OBJECTIVE OF THE PHASE I

This Phase I ESA was conducted to support a Feasibility Study being performed by Perkins Eastman on behalf of the City of Lowell under a grant provided by the Massachusetts School Building Authority (MSBA). The Phase I ESA is intended to fulfill, in part, the requirements of MSBA Module 3, Section 3.1.4 (Evaluation of Existing Conditions), specifically to document the existing subsurface environmental conditions on the Cawley Site, which is being considered as an alternative school site to the existing Lowell High School.

The Phase I ESA identified one Recognized Environmental Condition (REC) associated with historical fill material observed in the northern portion of the Cawley Site and one REC associated with the historical use of an adjacent property. RECs are defined by the American Society for Testing and Materials (ASTM) as:

“The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.”



It is important to note that RECs do not necessarily indicate oil or hazardous materials (OHM) have been released to the environment at the Site, but only that there is a potential that OHM has been released to the environment. Determination of the presence or absence of a release can only be made after the collection of field data, which is beyond the scope of a Phase I ESA.

RECOGNIZED ENVIRONMENTAL CONDITIONS

The RECs identified in the Phase I ESA can be used to evaluate potential subsurface environmental issues that might be encountered should a new school construction project be undertaken at the Cawley Site. The following is a description of the two RECs identified during the ESA, and associated recommendations pertaining to each REC:

REC-1: According to the review of test pit logs prepared by Nitsch Engineering in April 2017 as part of the Feasibility Study, the northern portion of the Cawley Site appears to have been reclaimed through the placement of urban fill material. Nitsch Engineering observed urban fill materials including metal, brick, glass, and concrete in four test pits excavated to the north of the softball stadium. A petroleum odor was noted in one of the test pits. The placement of historical fill material at the Cawley Site may have resulted in the release of contaminants to the environment, and therefore constitutes a REC.

The petroleum odor was observed at an approximate depth interval of 4 to 8 feet below grade in one of the test pits. The depth of historical fill material appears to extend up to 8 feet below grade. Approximately one foot of topsoil is present over the fill material. Presently, the fill material is located below grade to the north of the softball stadium, and is unlikely to pose any human health risk. However, if high school construction activities were to be implemented in this portion of the Site, pre-construction soil sampling (Phase II investigation) would be recommended to characterize any potential soil contamination associated with the placement of historical fill, and to determine soil management and/or remediation requirements for this material.

REC-2: The former USA Petroleum, located adjacent (to the southeast) to the Cawley Site, at 780 Rogers Street, is a release site which remains open from a MassDEP regulatory perspective. This former retail gasoline facility contains both soil and groundwater contamination associated with a historical release from a gasoline underground storage tank (UST). Groundwater is inferred to flow from the USA Petroleum property toward the Cawley Site. Due to the location of the Cawley Site relative to the USA Petroleum release, this condition constitutes a REC, as the groundwater contamination could potentially impact environmental conditions at the Cawley Site.

Groundwater results obtained during 2017 from two nearby monitoring wells (MW-8 and MW-9) indicate low levels of groundwater contamination adjacent to the eastern property boundary of the southernmost parcel of the Site, suggesting there is no immediate threat of groundwater contamination on the Cawley Site, and no risk of exposure to the users of the Cawley Site. However, potential future construction activities (i.e. dewatering) at the Cawley Site could potentially modify subsurface conditions and permit groundwater contamination to migrate onto the Site. If a building were to be proposed for construction on this southern portion of the Cawley Site, pre-construction groundwater sampling would be recommended to confirm the absence of



contamination, or to ensure that the proper engineering controls could be incorporated into the design of the building to prevent contaminant exposure to occupants via vapor intrusion.

Considering the fact that the Cawley Site alternative presented in the Preliminary Design Program dated February 24, 2017 does not contemplate any construction in the southern portion of the Site, no Phase II subsurface investigations are recommended by Nobis at this time to evaluate potential contamination associated with REC-2. If these plans change in the future such that construction activities are considered in the southern portion of the Cawley Site, this conclusion should be revisited to ensure that sufficient information is collected to ensure that construction activities do not create potential exposure to petroleum contamination in groundwater emanating from the former USA Petroleum property.

POTENTIAL COST IMPACTS FROM SUBSURFACE ENVIRONMENTAL CONTAMINATION

Based on the information collected to date from the Cawley Site during the Feasibility Study, it is reasonable to assume that any earthwork required to construct a new high school, or portions of a new high school, to the north of the outfield fence of the Martin Softball Field will involve handling of potentially contaminated soils. Although there have been no soil samples collected for laboratory analysis from this area (sample collection is beyond the scope of a Phase I ESA), subsurface explorations completed by other consultants during the Feasibility Study have noted the presence of urban fill materials (concrete, metal, brick, petroleum odor) that suggest historical filling activities occurred at this location. The volume and extent of historical fill present at the site has not been determined at this time.

For planning purposes, any soils encountered from this area should be presumed contaminated and sampled in order to characterize the nature and extent of contamination, determine off-site reuse/disposal options, and develop appropriate health and safety protocols for construction workers. The approximate cost to characterize the nature and extent of fill materials at the Cawley Site would be \$15,000 to \$25,000. Characterization efforts would include the advancement of soil borings throughout the proposed school construction area to visually observe the horizontal and vertical limits of fill material at several locations, collection of soil samples for laboratory analysis of a wide range of compounds to determine the types and concentrations of contaminants present, and development of a preliminary soil management plan depicting the extent of fill and providing recommendations for the on-site management and off-site disposition of excess fill material generated during construction activities.

Depending upon the type of contaminants present, the levels of contamination present, the extent of fill materials, and the volume of soil expected to be disturbed during construction activities, the cost of soil management and remediation is likely to be on the order of \$50,000 to \$500,000. On the lower end of this cost range, low levels of contamination are present (approaching background), a small volume of soil would need to be handled, and excess soils can be either reused on site or relocated to another location within the City at no cost for disposal. At the higher end of this cost range would be high concentrations of persistent contaminants such as heavy metals or polychlorinated biphenyls (PCBs) and a large volume of soil that would need to be



transported to an out-of-state landfill for disposal. This order-of-magnitude cost estimate can be refined with additional data collection.

If you have any questions on the content of this letter or the attached Phase I ESA report, please do not hesitate to contact me at (978) 703-6029 or by email at svetere@nobiseng.com.

Very truly yours,

Nobis Engineering, Inc.

A handwritten signature in black ink that reads "Stephen Vetere".

Stephen Vetere, PE, LSP
Director of Environmental Services

Attachments: Phase I Environmental Site Assessment, Cawley Site (May 2017 revision)

PHASE I ENVIRONMENTAL SITE ASSESSMENT

MARTIN ALUMNI ATHLETIC COMPLEX/CAWLEY SITE
LOWELL, MASSACHUSETTS

FOR

PERKINS EASTMAN ARCHITECTS
PROJECT NUMBER 67150.00

BY

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Nobis Project No. 91830.01
May 5, 2017

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ES EXECUTIVE SUMMARY

On behalf of the City of Lowell, under contract with Perkins Eastman Architects, Nobis Engineering Inc. has completed a Phase I Environmental Site Assessment (ESA) for the 43-acre Martin Alumni Athletic Complex (also known as the Cawley Site), comprised of nine tax parcels in Lowell and Tewksbury, Massachusetts. This Phase I ESA was conducted to support a Feasibility Study being performed by Perkins Eastman on behalf of the City of Lowell under a grant provided by the Massachusetts School Building Authority (MSBA). The objective of the Phase I ESA is to document the existing environmental conditions within the footprint of the Cawley Site, which is being considered as an alternative to the existing downtown school location.

The Cawley Site is improved with a variety of athletic fields, including a football stadium, a baseball stadium, a softball stadium, two football practice fields, varsity field hockey and soccer fields, and associated field lighting, irrigation systems, concessions, and spectator infrastructure. The Site is generally flat, with a gradual rise in elevation towards the northeastern region of the Site. One surface water body, an unnamed tributary of Trull Brook, was observed running along the northern border of the Site.

Abutters to the Cawley Site include residences (west), an indoor ice skating rink (west), a car dealership (southwest), a supermarket (south), a construction site to be the future location of an automobile repair facility (southeast), a social club (east), and undeveloped land (east, north). Historically, the Site has been either undeveloped or improved with athletic recreational fields. Most of the current Site was historically owned by the Lowell High School Alumni Association, who over time sold portions of the land to the City of Lowell on the condition that the land be used as athletic fields.

The Parks Department uses a small area in the northeastern corner of the Cawley Site for raw materials storage. Several piles within the raw materials storage were labeled as “Miscellaneous Fill” and “Miscellaneous Debris”. These pile areas are reportedly only generated onsite, and are for when the athletic facilities are being renovated or improved.

Nobis reviewed Federal and State databases for evidence of petroleum and/or hazardous materials releases or threats of releases that could potentially impact environmental conditions at the Cawley Site. Most the sites identified in these database listings are not believed to affect

environmental quality at the Cawley Site due to their location, distance, and/or inferred hydrogeological relationship to the Cawley Site. However, one site, former USA Petroleum, is located southeast adjacent to the Cawley Site, and reportedly contains soil and groundwater contamination resulting from a historical release from a gasoline underground storage tank (UST). Given the current regulatory status (a Permanent Solution has not been achieved for this release) and its location relative to the Cawley Site (upgradient), groundwater contamination emanating from the former USA Petroleum facility could potentially impact environmental conditions at the Cawley Site.

Based on the review of the available documentation and observations made during a Site inspection, it is the opinion of the Environmental Professionals who prepared this assessment that the following Recognized Environmental Conditions (RECs) exist on the Site:

- REC-1: According to the review of test pit logs prepared by Nitsch Engineering in April 2017 as part of the Feasibility Study, the northern portion of the Cawley Site appears to have been reclaimed through the placement of urban fill material. Nitsch Engineering observed urban fill materials including metal, brick, glass, and concrete in four test pits excavated to the north of the softball stadium. A petroleum odor was noted in one of the test pits. The placement of historical fill material at the Cawley Site may have resulted in the release of contaminants to the environment. If construction activities were to be implemented in this portion of the Site, pre-construction soil sampling would be recommended to establish the presence or absence of contamination, and to determine soil management and/or remediation requirements.
- REC-2: The State Hazardous Waste Site (SHWS) database identifies USA Petroleum, located adjacent southeast of the Cawley Site, as a Disposal Site which remains open from a MassDEP regulatory perspective. This former retail gasoline facility contains both soil and groundwater contamination associated with a historical release from a gasoline UST. Groundwater flow is inferred to be in the direction of the Cawley Site. The upgradient status of the Former USA Petroleum site constitutes a REC, as the groundwater contamination could potentially impact environmental conditions at the Cawley Site.

Groundwater results obtained during 2017 from two nearby monitoring wells (MW-8 and MW-9) indicate low levels of groundwater contamination adjacent to the eastern property boundary of the southernmost parcel of the Site, suggesting there is no immediate threat of groundwater contamination on the Cawley Site. However, potential future construction activities (i.e. dewatering) at the Cawley Site could potentially modify subsurface conditions and permit groundwater contamination to migrate onto the Site. If a building were to be proposed for construction on this southern portion of the Cawley Site, pre-construction groundwater sampling would be recommended to confirm the absence of contamination, or to ensure that the proper engineering controls could be incorporated into the design of the building to prevent contaminant exposure to occupants via vapor intrusion.

Several observations were made during the Phase I ESA Site reconnaissance that, while not constituting RECs, were noted as potential environmental concerns:

- Nobis observed municipal documentation indicating two USTs had once occupied the Cawley Site, both near Cawley Stadium. Nobis did not observe any appropriate closure documentation on file with the City of Lowell, or documentation indicating their precise former locations. The municipal documents did indicate the tanks were removed in March 1997. Given the extensive redevelopment reports and meeting summaries observed on file at the City of Lowell, Nobis believes that if significant soil or groundwater contamination was encountered, the City would have been notified and corrective actions would have been documented.
- Nobis observed varying amounts of oils, lubricants, and fuel in both the maintenance storage areas beneath Cawley Stadium and in the small outbuilding east of the Cawley Stadium field. Nobis also observed a petroleum odor in the outbuilding and a large bag of Speedy Dry. Small amounts of staining were observed on the concrete floors in the eastern maintenance storage area and in the outbuilding. The floors appeared to be competent, and no subsurface soil was exposed in the areas of the staining. Although Nobis did not observe staining at the magnitude to constitute evidence of a reportable release, these containers would ideally be stored in a centralized location and stored within secondary containment that would prevent a release. Site personnel should remain diligent about overflow prevention, and should inspect heavy equipment for leaks routinely.

1.0 INTRODUCTION

Nobis has completed a Phase I Environmental Site Assessment (ESA) of eight Lowell tax parcels and one Tewksbury tax parcel located in the vicinity of 440 Douglas Road in Lowell, Massachusetts (hereafter referred to as the Site, Cawley Site, or the subject properties). The approximately 43.2-acre Site is the location of the Martin Alumni Athletic Complex, improved with a football stadium, three baseball/softball fields, a varsity soccer field, a varsity field hockey field, two football practice fields, and associated spectator seating and lighting. A Site Locus Map is included as Figure 1. A Site Plan for the Martin Alumni Athletic Complex/Cawley Site and associated tax parcels is attached as Figure 2. A Massachusetts Department of Environmental Protection (MassDEP) 21E Priority Resource Map is provided as Figure 3.

1.1 Purpose

This Phase I ESA was conducted to support a Feasibility Study being performed by Perkins Eastman on behalf of the City of Lowell under a grant provided by the Massachusetts School Building Authority (MSBA). This document is intended to fulfill, in part, the requirements of MSBA Module 3, Section 3.1.4 (Evaluation of Existing Conditions), specifically to document the existing environmental conditions within the footprint of the Cawley Site that is being considered as an alternative to the existing downtown school location.

To accomplish this objective, Nobis performed a Phase I ESA in conformance with the American Society for Testing and Materials (ASTM) E 1527-13, “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process”. The objective of a Phase I ESA is to assess environmental conditions at the Site and in the general vicinity for *Recognized Environmental Conditions* (RECs) associated with the presence of petroleum products (PP) or hazardous material (HM). To meet this objective, Nobis performed the tasks described in Section 1.2. Exceptions and limitations to this report are noted in Section 1.4 below.

1.2 Detailed Scope-of-Services

To complete the Phase I ESA, Nobis:

- Reviewed Massachusetts Department of Environmental Protection (MassDEP) and United States Environmental Protection Agency (EPA) regulatory database listings

concerning environmental conditions at, and in the vicinity of the Site, as provided in a database search report provided by Environmental Data Resources Inc. (EDR®).

- Contacted and visited with City of Lowell and Town of Tewksbury officials to obtain information pertaining to present and historical environmental conditions at the Site and adjacent environs.
- Reviewed available ownership history and land use records, and interviewed people with knowledge of the Site to obtain information on past use.
- Reviewed available aerial photographs, topographic maps, Sanborn Fire Insurance Maps, and historical city directories to assess local hydrogeology and past and present land use at the Site and vicinity.
- Performed a site visit on March 22 2017, to assess general environmental conditions at the Site and adjacent environs for evidence of RECs associated with past or present PP or HM waste handling or storage activities.
- Prepared this report summarizing the results of the assessment.

1.3 Significant Assumptions

It is assumed that federal, state, and local records are generally complete and current. The preparer assumes that all individuals contacted and/or interviewed during the preparations of this Phase I ESA have responded in good faith. Nobis is entitled to rely on all information gathered during this scope of work.

1.4 Limitations and Exceptions

This Phase I ESA is intended to assess the Site for potential significant environmental issues. It is not intended as a guidance document for potential future remedial action. Additional limitations are noted in Appendix A.

During the site reconnaissance, Nobis personnel was limited in several areas that otherwise would have been inspected. Any potential exterior surficial staining and/or exterior ground

penetrations observations were limited due to snow cover that was present in areas not covered in bituminous pavement. Additionally, three storage containers observed northwest of the central football field were locked at the time of the site inspection. The contents of the storage containers were not inspected. Nobis was able to interview Site personnel to determine the contents of the storage containers, but did not observe their contents.

1.5 Special Terms and Conditions

No special terms or conditions apply to this Phase I ESA.

1.6 User Reliance

User reliance is subject to the requirements of 40 CFR Part 312, ASTM E1527-13, as noted herein.

1.7 User Obligations

As defined in ASTM E1527-13, the user responsibilities, as applicable, are as follows:

- Identify the scope of work.
- Decide whether to use prior assessments.
- Check title records for environmental liens and activity and use restrictions.
- Disclose specialized knowledge and experience.
- Explain why the purchase price is below market value, if it is discounted.
- Answer interview questions in good faith.
- Provide the information summarized in the user questionnaire provided by Nobis.

2.0 SITE DESCRIPTION

Nine properties are included in this Phase I ESA. The nine parcels are all part of the Martin Alumni Athletic Complex, which contains the Edward D. Cawley Memorial football stadium, Stanley J. Stoklosa Alumni baseball field, James S. Martin softball field, Thomas R. Machado Memorial and William J. Desmond practice football fields, Lowell High School (LHS) varsity field hockey field, and Lucas F. Carvalho Sr. varsity soccer field. The facility is also improved with lighting, concessions, and spectator infrastructure associated with each of the fields.

2.1 Location and Legal Description

According to the City of Lowell and Town of Tewksbury Assessors' records, the nine Site parcels are summarized as follows, which includes pertinent parcel information:

Parcel ID (Map/Lot.Sublot)	Legal Address	City/Town	Assessors Parcel Size (Acres)	Owner	Zoning Code
5045-758	758 Rogers Street	Lowell	5.5	City of Lowell	RR
5935-360	360 Village Street	Lowell	2.29	City of Lowell	RR
5935-360.1	360.1 Village Street	Lowell	0.3	City of Lowell	RR
1840-424	424 Douglas Road	Lowell	9.93	City of Lowell	SSF
1840-438	438 Douglas Road	Lowell	2.78	City of Lowell Parks Dept.	SSF
1285-512	512 Clark Road	Lowell	3.82	City of Lowell Parks Dept.	SSF
1285-512.1	512.1 Clark Road	Lowell	13.65*	City of Lowell	SSF
1840-392	392 Douglas Road	Lowell	2.35	City of Lowell Parks Dept.	SSF
12-3	Clark Road	Tewksbury	6.5*	City of Lowell	Res.

**The listed Assessor's Parcel Size for parcels 1285-512.1 and 12-3 are inaccurate according to a recently performed boundary survey. According to a Cawley Site survey sketch completed by Nitsch Engineering in 2017, tax Parcel 1285-512.1 is approximately 10.3 acres and Parcel 12-3 is 5.2 acres.*

Copies of the assessor cards are included in Appendix B.

2.2 Title Records

Nobis attempted to establish an ownership and/or title history for the nine properties dating back through 1950 or before using available information. Nobis reviewed available information from the

North Middlesex County Registry of Deeds, as well as available documentation from the Lowell and Tewksbury Assessors Departments. Copies of the Assessors' property cards are included in Appendix B. Pertinent title information pertaining to each applicable tax parcel is summarized below.

City of Lowell Tax Parcel 5045-758. According to the Middlesex North Registry of Deeds, the Lowell High School Alumni Association sold the parcel to the City of Lowell on October 28, 1953 (Book 1238, Page 522). The Assessors Card also indicates that small portions of the parcel were both bought and sold to and from the Lannan Family Nominee Trust in May 1996, reshaping the property boundary slightly (Book 8034, Pages 286 and 291). According to a 1936 City of Lowell Property Atlas, the parcel was owned by the Lowell High School Alumni Association as early as 1936.

City of Lowell Tax Parcel 5935-360. According to the Middlesex North Registry of Deeds, The Trustees of Stadium Realty Trust sold the parcel to the City of Lowell in February 24, 1988 (Book 7318, Page 247). No ownership information was identified prior to 1988 from the North Middlesex Registry of Deeds. Ownership of the parcel illustrated in a 1936 City of Lowell Property Atlas is not listed. The atlas also indicates the parcel was undeveloped.

City of Lowell Tax Parcel 5935-360.1. According to the Middlesex North Registry of Deeds, The Trustees of Lannan Nominee Family Trust sold the parcel to the City of Lowell in January 19, 1990 (Book 8268, Page 13). Prior to its selling, this parcel was part of the property to the west of the Site, on what is now a car dealership. According to a 1936 City of Lowell Property Atlas, the parcel was owned by William F. Cawley as early as 1936.

City of Lowell Tax Parcel 1840-424. According to the Middlesex North Registry of Deeds Book 8268, Page 9, the parcel has been owned by the Lowell High School Alumni Association since January 31, 1935. A small portion of the parcel was sold off in 1996 to the Lannan Family Nominee Trust. According to the Middlesex North Registry of Deeds, an approximately 60-foot wide drainage easement was established on this parcel in March 1972 by the City of Lowell to the Commonwealth of Massachusetts (Book 2091, Page 58). However, according to the Registry of Deeds Plan map illustrating the easement, the easement is actually located parallel to Douglas Road and currently occupies Parcel 1840-438. According to a 1936 City of Lowell Property Atlas,

portions of the existing parcel were owned by both the Lowell High School Alumni Association and Gertrude L. Greene.

City of Lowell Tax Parcel 1840-438. According to the Middlesex North Registry of Deeds, Katherine Safford sold the 2.78-acre parcel to the City of Lowell in March 1940 (Book 943, Page 425). As noted above, a sewer easement was established on the westernmost 60 feet of this parcel in March 1972 (noted above).

City of Lowell Tax Parcel 1285-512, 1285-512.1, and City of Tewksbury Tax Parcel 12-3. According to the Middlesex North Registry of Deeds, The Lowell High School Alumni Association sold these existing parcels to the City of Lowell on July 28, 1964 (Book 1661, Page 343). According to a 1936 City of Lowell Property Atlas, the two Lowell parcels were owned by the Lowell High School Alumni Association as early as 1936. The Tewksbury parcel is not illustrated.

According to the Tewksbury Assessors Office and the Middlesex North Registry of Deeds, parcel 12-3 was sold by the Lowell High School Alumni Association to the City of Lowell on July 28, 1964. In September 2014, the Lowell High School Alumni Association gifted the parcel to the City of Lowell for one dollar (Book 28537, Page 243). Middlesex North Registry of Deeds indicates Lowell High School Alumni Association purchased the land in Tewksbury from Charles Duncause in 1929 (Book 776, Page 283).

2.3 Site and Vicinity General Characteristics

The subject properties are located within a suburban area of the City of Lowell and the Town of Tewksbury. The surrounding area is comprised of mixed residential, commercial, and light industrial uses. A detailed summary of adjoining parcels is provided in Section 2.7. According to a City of Lowell Zoning Map, the Site is zoned as both RR (Regional Retail District) and SSF (Suburban Single Family).

The Martin Alumni Athletic Complex is accessed via Douglas Road to the west. The facility and associated ballfields can also be accessed by three driveways connected to Village Street to the east of the subject properties. Site topography is generally flat, with the highest elevation points being observed in the northwestern region of the Site, where the field hockey field and the softball field are located.

2.4 Summary of Previous Environmental Investigations

One April 2017 geotechnical report was available for the subject properties. A summary of the report findings is provided in Section 4.3.1. Several environmental reports were available for an upgradient release of gasoline to subsurface soil that could potentially impact the environmental quality of the furthest southern region of the Site. The former USA Petroleum site is located adjacent east of the southernmost tax parcel of the Site. More information regarding the release of gasoline at the USA Petroleum property is provided in Section 4.1.1.

2.5 Current Use of the Properties

The subject properties are all currently utilized as the Martin Alumni Athletic Complex, which includes six athletic fields: The Edward D. Cawley Memorial Football Stadium, the Stanley J. Stoklosa Alumni Field, James S. Martin Softball Field, Thomas R. Machado Memorial and William J. Desmond Jr. Practice Football Fields, LHS Varsity Field Hockey Field, and the Lucas F. Carvalho Sr. Varsity Soccer Field. Edward J. Cawley Stadium also includes the George Mike Haggerty LHS Varsity Track. An unnamed third baseball/softball field is located adjacent east of the softball field on the northern region of the Site. Each of the field facilities includes the playing field itself, spectator bleachers, field lights, and subsurface irrigation systems. Specific field improvements are summarized in Section 2.6 and Section 5.0.

2.6 Descriptions of Structures, Roads, and Other Improvements on the Site

The Site descriptions of roads and other improvements have been separated by each tax parcel to provide specific details pertaining to each area of the Site. The nine tax parcels are illustrated on Figure 2.

2.6.1 City of Lowell Tax Parcel 5045-758

The City of Lowell Tax Parcel 5045-758 is the southernmost parcel, and is almost completely improved with the Stanley J. Stokloska Alumni Baseball Field. The southern portion of the parcel is improved with bituminous concrete pavement, which provides parking for the ballfield and access to the concessions and spectator seating. A small landscaped planter north and east of the parking area contains several memorials. The parcel is accessed from Village Street to the east. The Alumni Field facility includes a single-story concession stand, a single-story bathroom

building, a single-story outbuilding providing locker-room type meeting rooms for teams, two batting cages, a spectator bleacher area, and a press box constructed above the spectator bleachers. The field itself is improved with two dugouts, a chain-link backstop, the landscaped baseball field, and a large electronic scoreboard to the north of the playing field.

Heat is provided to the locker-room type building by an approximately 500-gallon aboveground propane tank (AST) which is positioned east of the locker-room building. The entire parcel is enclosed within a chain-link fence, which runs along Rogers Street to the south, Village Street to the east, and adjacent commercial parcels to the east.

2.6.2 City of Lowell Tax Parcels 5935-360 and 5935-360.1

Tax parcels 5935-360 and 5935-360.1 are located north of the Alumni Baseball Field, and are improved with the Lucas F. Carvalho Sr. Varsity Soccer Field. The soccer field facility includes the field itself, and metal bleachers located south of the field. The southeastern area of the parcel is also improved with a single-story concrete block building which contains the baseball and soccer field lights' electrical panels, transformers, and irrigation system control panels. A conex storage unit is located east of the concrete block building. A lawn grass-seed spreader (heavy landscape equipment) is stored inside the conex. The soccer field is surrounded by chain link fence on all sides.

2.6.3 City of Lowell Tax Parcel 1840-424

Tax parcel 1840-424 is the central-most tax parcel of the entire Martin Alumni Athletic Complex and is improved with Edward D. Cawley Memorial Football Stadium. The parcel is improved on the south and west with bituminous concrete driveways which provide vehicular access and parking for the athletic complex. The stadium facility is improved with a multi-story bleacher complex south of the field, which includes a field office, locker rooms, concession stands, an athletic trainers room, two maintenance equipment storage areas, and restrooms all situated underneath the spectator seating area. A second-story storage area and utilities room is also located behind the spectator seating and below the commentators' booth. The press box is located at the highest point of the bleachers. A second set of spectator bleachers is located north of the playing field. The football field is surrounded by a ¼-mile track. The southeastern corner of the parcel is improved with a single-story wood-framed building which is used as a work-out area for football players and office space for football coaches. Two small outbuildings, located along

the northern and eastern periphery of the parcel boundary, contain field maintenance equipment. A large scoreboard is located to the west of the field. A single-story cinderblock-walled building is also west of the field, and includes the electrical equipment associated with the scoreboard and stadium lights. The entire stadium complex is surrounded by a chain-link fence.

2.6.4 City of Lowell Tax Parcel 1840-438 and 1840-392

Tax parcels 1840-438 and 1840-392 are located west and north of the Edward D. Cawley Stadium facility, respectively. The two tax parcels are both improved with bituminous concrete, and operate as parking areas for the athletic complex. The southern third of tax parcel 1840-438 is undeveloped, and remains vegetated land.

2.6.5 City of Lowell Tax Parcel 1285-512

Tax parcel 1285-512 is located east of the Edward D. Cawley Stadium. The parcel is improved with a practice football field and half of an adjacent field to the east of the practice football field. The parcel is also improved with the main access driveway servicing the ballfields to the north and east of Cawley Stadium. The driveway is located west of the practice football field, and connects to Village Street to the south. A chain-link fence runs along the southern property boundary adjacent to Village Street. The property is improved with a small, single-story concrete block building which contains the electrical panels and transformers for the field lights surrounding the ballfield.

2.6.6 City of Lowell Tax Parcel 1285-512.1

Tax parcel 1285-512.1 is the northernmost parcel of the complex, and contains James S. Martin Softball Field. A second, smaller ballfield is located east of the softball field. The James S. Martin Softball Field facility includes two dugouts, three spectator bleacher sections, and a press box located behind the central bleachers. The softball field is accessible by the bituminous concrete drive, which extends north from the adjacent parcel to the south, and runs along the southern parcel boundary towards the raw materials storage area. Just south of this driveway lies two small storage sheds, one containing softball equipment, and one containing the electrical panels and transformers for the softball field lights. The parcel contains three conex boxes, one located west of the softball field and two located east of the softball field. The eastern edge of the parcel is

improved with the Parks Department raw materials storage area. Piles of raw materials are stored in this area, including bark mulch, crushed stone, sand, etc.

The northernmost third of the parcel is undeveloped and remains vegetated. The vegetated area of the parcel is separated from the softball facility by a chain-link fence. The chain-link fence also runs along the western parcel boundary.

2.6.7 Town of Tewksbury Tax Parcel 12-3

The Town of Tewksbury tax parcel 12-3 is the easternmost parcel of the Martin Alumni Athletic Complex. The parcel is improved with the eastern portions of the City of Lowell's Parks Department raw materials storage area, and the LHS Varsity Field Hockey Field to the south. The field hockey field is improved with two small sections of bleachers and a small storage shed in which field hockey equipment is stored. A chain-link fence runs along the southern and eastern parcel boundaries between the parcel and Village Street to the south and Clark Road to the east. The northern third of the parcel remains undeveloped and wooded.

2.7 Current Use of Adjoining Properties

The Site is bordered to the west by a car dealership (southwest), residential properties (west), and Janas Memorial Skating Rink (northwest). The Site is bordered to the north by undeveloped land and residential properties. The Site is bordered to the east by Clark Road (northeast) and Village Street (southeast). East across Village Street lies the Holy Ghost Society facility (social club), residential properties, and the former USA Petroleum gas station, currently under construction. A Market Basket shopping plaza is located approximately 350 feet east and southeast of the Site. The Site is bordered to the south by Rogers Street, followed by a McDonalds (south-southeast), Hannaford's Supermarket (south), and another car dealership (southwest). The region south of the Site across Rogers Street is generally improved with commercial and light industrial properties.

3.0 USER AND OCCUPANT PROVIDED INFORMATION

Mr. Kevin J. Murphy, Lowell City Manager, provided responses to the user inquiries outlined in ASTM E1527-13. The completed User Questionnaire is included as Appendix C and referenced where applicable within the body of this report. Mr. Thomas Bellegarde, City of Lowell Department of Public Works (DPW) Commissioner, provided responses to the owner questionnaire as outlined in ASTM E1527-13. The Owner/Occupant Questionnaire is included as Appendix D and referenced where applicable within the body of this report.

3.1 Specialized Knowledge

According to the User questionnaire, the City of Lowell Parks Department and the School Department manage and utilize the property for sports and recreational activities. The Parks Department is responsible for maintenance of the fields and associated storage of any equipment, chemicals, or fuels related to the landscaping and maintenance of the facilities.

3.2 Commonly Known or Reasonably Ascertainable Information

The User was aware that the complex has historically been owned by the City of Lowell and has solely been developed for recreational use. The User was aware of maintenance closets beneath the Cawley Stadium southern bleachers in which small quantities of gasoline (5 gallon containers) are stored. The User is unaware of any spills or chemical releases, or any environmental cleanups.

3.3 Valuation Reduction for Environmental Issues

The User does not know of any reason for valuation reduction for environmental issues.

3.4 Owner, Property Manager, and Occupant Information

Mr. Ricky LaRochelle Jr., Cawley Memorial Stadium Manager, was the occupant point of contact with regards to specific questions pertaining to chemical or fuel storage onsite. Mr. LaRochelle has been referenced where applicable in the Phase I ESA.

Mr. Thomas Bellegarde, City of Lowell DPW Commissioner, completed the Owner Questionnaire. The questionnaire indicates an adjoining property is currently and historically has been used for

an industrial purpose. Mr. Bellegarde confirmed the adjoining property in question was the former gas station adjacent southeast of the Site at the corner of Rogers Street and Village Street. He also confirmed that a car dealership adjoined the Site to the southwest. Mr. Bellegarde is not aware of any other environmental issues with the property, including current/historical OHM storage, releases, tanks, environmental violations or liens, or wastewater discharges.

The completed Owner Questionnaire is included in Appendix D, and referenced where applicable within the body of this report.

3.5 Reason for Performing Phase I

The User indicated that the Phase I ESA is being conducted to support due diligence activities performed by the City of Lowell as a potential location for the new Lowell High School facility.

4.0 RECORDS REVIEW

The following sections document the information gathered during review of available environmental records, physical setting sources, and historical site use information.

4.1 Standard Environmental Record Sources

As part of this ESA, state and federal environmental records were reviewed in the form of an environmental database report provided by EDR® (Appendix E). When available, information was also obtained from additional federal, state, and local municipal records.

Several surrounding properties were identified in databases accessed by EDR®. The following sections identify and summarize the databases evaluated in the EDR® Database Report, as well as identify pertinent properties within the vicinity of the Site listed in the accessed databases that may affect environmental quality at the subject properties.

For the purpose of this database review, the entire Martin Alumni Athletic Complex (Cawley Site) is identified as the “Target Property”. All distances and directions referenced in the EDR® report and sections below are in reference to the Cawley Memorial Stadium Facility at the center of the Martin Alumni Athletic Complex, with an associated latitude 42.633241 N and longitude 71.276825 W. Nobis did not order a stand-alone database report for each of the individual tax parcels. Where applicable, Nobis identifies any database findings and their relationship to the closest subject property available. Any potential state and federal environmental records that could potentially impact environmental conditions at subject properties are identified and detailed where applicable.

According to the EDR® database report, the Site and associated subject properties were not identified in any of the reviewed databases. Pertinent database records which potentially impact Site environmental conditions are summarized below.

4.1.1 Federal and State Regulatory Agency Reviews

EPA National Priority List (NPL). The EPA’s NPL is a list of confirmed or proposed Superfund facilities. The Site is not identified as an NPL facility or Delisted NPL facility. No NPL facilities or Delisted NPL facilities are identified within a 1-mile radius of the Site.

Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS). The CERCLIS database is the EPA's database of current and potential Superfund sites currently or previously under investigation. The Site is not identified as a CERCLIS facility. One CERCLIS facility was identified within a 1/2-mile of radius of the Site and identified in the Superfund Enterprise Management System (SEMS) database. The facility is identified as "Roche Bros Barrel & Drum" located at 161 Phoenix Avenue, 0.287 miles south-southwest of the subject properties. The database report indicates a Preliminary Assessment and Site Inspection (PA/SI) was performed at the facility in 1980 and 1986, respectively. The database indicates the priority level was deemed "low priority for further assessment" following the SI report submission. This facility is not currently listed on the NPL. Based on the inferred cross-gradient hydrogeologic relationship to the subject properties, Roche Bros Barrel & Drum facility is not believed to affect environmental conditions at the Cawley Site.

Nobis reviewed an online version of the PA/SI report referenced above. The PA/SI reports that the Roche Brothers Barrel & Drum facility rests on top of the former Lowell sanitary landfill, roughly 6 acres in size. Additionally, groundwater flow direction was reported as flowing in a south and westerly direction.

Comprehensive Environmental Response, Compensation and Liability Information System Archived Sites (CERCLIS-NFRAP). The CERCLIS-NFRAP database is a database of archived CERCLIS facilities that, to the best of the EPA's knowledge, assessment has been completed and the EPA has determined no further steps will be taken to list this site on the NPL. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not deemed to be a potential NPL site.

The Site is not identified as a CERCLIS NFRAP facility. One CERCLIS NFRAP facility is identified within a ¼-mile of radius of the Site. The facility is identified as "Auto Circuit Inc", located at 150 Phoenix Avenue, 0.251 miles south of the subject properties. The database indicates an EPA SI was completed at the facility in 1987, and the priority level was deemed "NFRAP-Site does not qualify for the NPL based on existing information". No additional information pertaining to the CERCLIS NFRAP listing was observed within the database. Based on the distance and inferred hydrogeologic relationship to the subject properties, the Auto Circuit Inc CERCLIS NFRAP listing is not believed to impact environmental quality of the Cawley Site.

Resource Conservation and Recovery Act (RCRA) Handlers. The RCRA database is the EPA's database of registered hazardous waste generators and Treatment, Storage, or Disposal (TSD) facilities. The Site is not identified as a TSD facility or a corrective action (CORRACTS) facility. No TSD or CORRACTS facilities are identified within ¼-mile of the Site.

Federal RCRA Generators List. The RCRAInfo database is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA.

One large quantity generator (**RCRA-LQG**) is listed within ¼-mile of the Site. RCRA-LQG facilities generate over 1,000 kilograms (kg) of hazardous waste, or greater than 1 kg of acutely hazardous waste per month. The RCRA-LQG listing identifies "Coating Systems Inc", located at 90 Phoenix Avenue and located 0.144 miles south of the subject properties. Coating Systems Inc. was first listed on the RCRA-LQG database in 1992, and continues to be listed as of December 2016. The facility reportedly has historically been a handler of ignitable waste, corrosive waste, reactive waste, chromium, spent halogenated solvents, spent nonhalogenated solvents, and wastewater sludges associated with electroplating operations. It should be noted that facilities listed as a RCRA-LQG does not necessarily mean a spill or release of oil and/or hazardous material (OHM) has occurred.

Small quantity generators (**RCRA-SQGs**) generate between 100 kg and 1,000 kg of hazardous waste per month. Two RCRA-SQG facilities are listed within ¼-mile of the Cawley Site, and three are located within 1/8-mile of the Site. The RCRA-SQG generators are summarized as follows:

RCRA-SQG Facility	Address	Distance / Direction from Subject Properties	Wastes Generated	Violations Identified
Hannaford Supermarket	777 Rogers Street	0.019 mi. south	Ignitable, Corrosive, Tetrachloroethylene, P-listed wastes, U-listed wastes, waste oil, universal waste	None Reported
CVS Pharmacy 2055	10 Main Street	0.109 mi. south-southeast	Ignitable, Corrosive, Silver, P-listed wastes	None Reported
Staples Inc 1039	10 Main Street	0.109 mi. south-southeast	Ignitable, Corrosive, Heavy Metals, P-listed wastes	None Reported

RCRA-SQG Facility	Address	Distance / Direction from Subject Properties	Wastes Generated	Violations Identified
Millenium Plating Co.	75 Phoenix Avenue	0.137 mi. south-southwest	Ignitable, Corrosive, Chromium, Lead, Electroplating Operations sludge	Two (May 2012), Violations reportedly rectified
Home Depot 2668	85 Main Street	0.187 mi. south-southeast	Ignitable, Corrosive, Cadmium, Mercury, Benzene, nonhalogenated solvents, waste oil, universal waste	None Reported

It should be noted that facilities listed as a RCRA-SQG does not necessarily mean a spill or release of oil and/or hazardous material (OHM) has occurred.

Conditionally exempt small quantity generators (**RCRA-CESQGs**) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Four RCRA-CESQGs are listed within ¼-mile of the Site, and four are located within 1/8-mile of the Site. The RCRA-CESQG generators are summarized as follows:

RCRA-CESQG Facility	Address	Distance/Direction from Subject Properties	Notable Wastes Generated	Violations Identified
495 Chrysler Jeep Do	730-732 Rogers Street	0.028 mi. south-southwest	Ignitable, Benzene, Tetrachloroethylene, Trichloroethylene, used fuel oil, non-hazardous waste	None
Lannon Motors Ltd	720 Rogers Street	0.042 mi. southwest	Reactive, waste oil	None
Bobs Custom Sunoco	711 Rogers Street	0.083 mi. southwest	Ignitable, Lead	None
Sunoco Service Station	711 Rogers Street	0.083 mi. southwest	Ignitable, Benzene	Three (Sept. 1993), all violations reportedly rectified Jan. 1994
Chevrolet of Lowell	831 Rogers Street	0.133 mi. south	Ignitable, used fuel oil	None
Hogan Tire Center Inc.	661 Rogers Street	0.164 mi. southwest	Ignitable, waste oil, used fuel oil	None
Mobil 2401	2 Main Street	0.170 mi. south-southeast	Ignitable, benzene, waste oil, used fuel oil, non-hazardous waste, universal waste	None
Jiffy Lube	645 Rogers Street	0.183 mi. southwest	Ignitable	Two (Mar. 1991), all violations reportedly rectified June 1991

It should be noted that facilities listed as a RCRA-CESQG does not necessarily mean a spill or release of OHM has occurred.

Based on the available information pertaining to the RCRA databases, it is unlikely that the listed facilities RCRA generators' status impacts environmental quality at the Cawley Site.

Federal Emergency Response Notification System (ERNS) Releases. The ERNS database is the EPA's database of emergency response actions. The Site is not identified as an ERNS facility.

Federal Institutional Controls and/or Engineering Controls Registries. The US Engineering Controls Sites List identifies sites at which engineering controls have been implemented, including various forms of caps, building foundations, liners, and treatment methods which create environmental pathway elimination for regulated substances to enter the environment. Institutional controls include administrative measures (groundwater use restrictions, construction restrictions, property use restrictions, etc.) to prevent exposure to contaminants remaining at sites. Federal engineering or institutional controls are not identified for the Site or within 0.5 miles of the Site.

State and Tribal Hazardous Waste Site Inventory (SHWS) Sites and State RELEASE Database. The RELEASE and SHWS databases contain records of release reports submitted to MassDEP. Properties identified in these databases are usually found in other federal and state databases researched by EDR®.

Thirty-eight SHWS sites are listed within 1 mile of the Cawley Site. Twenty nine of the 38 SHWS are located within ½-mile of the Cawley Site. Of the 38 SHWS sites, 31 of the SHWS Sites have been closed with Response Action Outcome (RAO) Statements, indicating Permanent Solution status has been achieved, and a Condition of No Significant Risk has been attained, or at the minimum all substantial hazards have been eliminated. Notable SHWS sites near the Site are summarized below.

- **777 Rogers Street** is listed in the SHWS for two release tracking numbers, release tracking number (RTN) 3-18243 and 3-23961. This property is reportedly 0.019 miles south of the Cawley Site, and is located across Rogers Street to the south of the subject properties. RTN 3-18243 was issued in 1999 for the detection of chlorinated solvents in groundwater samples collected from monitoring wells on the western corner of the Site, as well as petroleum hydrocarbons and metals identified in soil samples. This RTN was

addressed with an Class A-2 Release Action Outcome (RAO), which means a Permanent Solution was achieved through the implementation of a remedial action, but contamination was not reduced to natural background conditions. It was later determined that the source of the chlorinated solvent contamination was an upgradient source, Former Auto Circuits at 150 Phoenix Avenue. The second RTN was issued for a Downgradient Property Status (DPS) submittal. See Former Auto Circuits below for additional information. Based on the location of the groundwater plume on the 777 Rogers Street parcel and reported direction of groundwater flow, conditions at 777 Rogers Street associated with RTN 3-18243 and 3-23961 are not believed to impact environmental conditions at the Cawley Site.

- **USA Petroleum**, listed 0.022 miles south of the Cawley Site and adjacent across Village Street to the subject properties, was first issued RTN 3-14974 by MassDEP in April 1997 during a routine UST removal. The UST removal encountered contaminated soils, which were excavated and returned to the ground for an *in situ* remediation treatment using air-sparging. Air sparging remedial activities continued through July 2004, until a Class A-2 RAO was submitted to MassDEP in 2006. The RAO was retracted in 2007 during a MassDEP audit, and the RTN was reopened. Subsequently, several closure submissions have been filed including a March 2011 Class C-1 RAO Statement, a March 2013 Class A-2 RAO Statement, and a June 2014 Permanent Solution. It was determined in early 2016 that the aforementioned closure reports were inconsistent with encountered Site conditions.

As of January 20, 2017, operation, maintenance, and monitoring activities continue at the Site, including light NAPL recovery. The property is currently being redeveloped as an automotive repair facility, under a Construction Release Abatement Measure (RAM) Plan. The most recent submittal to MassDEP, a March 2017 Post-Temporary Solution Status and Remedial Monitoring Report, was reviewed by Nobis and is attached to this report as Appendix F. Figure 4 of the report illustrates the mapped groundwater flow in a westerly direction toward the extreme southern portion of the Cawley Site. Based on the regulatory status and inferred hydrogeologic relationship with the Cawley Site, the former USA Petroleum Site presents a potential threat to environmental conditions on the Cawley Site.

- The residential property located at **24 Groton Street** is listed in the database, located 0.024 miles south of the Cawley Site. The property is listed for petroleum contaminated

soil beneath the building, which was excavated following the demolition of the residential dwelling. A Class A-2 RAO was submitted in July 2011, indicating a Permanent Solution had been achieved through implementation of a remedial action, but contamination was not reduced to natural background conditions. The release at 24 Groton Street is not believed to impact environmental conditions at the Cawley Site based on the regulatory status and location of the release site.

- **Lowell Chrysler Jeep** at 730 Rogers Street is located 0.028 south-southwest of the Cawley Site, and abuts the southernmost parcel of the Site. Lowell Chrysler Jeep was listed in the database for detections of methyl tert-butyl ether (MtBE) in groundwater. Given the history of the property, the source of contamination was attributed to an upgradient release, either an upgradient Sunoco (0.083 miles southwest of the subject properties) or USA Petroleum (see above). A DPS was submitted in January 2008, relieving this property from the responsibility to assess and remediate this release since it originated from an off-site location. Groundwater was mapped to flow west across the property. Contamination at Lowell Chrysler Jeep is not believed to impact environmental conditions at the Cawley Site based on the regulatory status and inferred downgradient hydrogeologic relationship. However, the extreme southern portion of the Cawley Site is situated between this facility and the upgradient source cited for causing the contamination at Lowell Chrysler Jeep. Therefore, it is reasonable to assume this same groundwater plume could impact environmental conditions at the Cawley Site. See USA Petroleum summary above.
- **Trull Brook Realty**, located at 450 Clark Road approximately 0.018 miles east northeast of the Cawley Site, is the property at which the former Lowell Regional Transit Authority facility was located. Contaminated soil was reportedly first encountered in October 1987 during the removal of a 1,000-gallon UST. Additionally, contamination associated with hydraulic lifts within the facility was also encountered during remedial activities. The RAO Completion Statement for this release indicates groundwater flows toward the east. The RAO Completion Statement also indicates that over 5,600 cubic yards of soil has been excavated from the property to remediate the releases. The Class A-2 RAO Completion Statement was submitted to MassDEP in October 2008, indicating a Permanent Solution had been achieved through implementation of a remedial action, but contamination was not reduced to natural background levels. Based on the regulatory status, inferred

downgradient location and distance, it is unlikely the former Lowell Regional Transit Authority facility impacts environmental quality at the Cawley Site.

- **John J. Janas Arena** (misspelled as “Janice” in the EDR[®] Report), the abutting skating rink located northwest of the Site, is listed in the SHWS database for a leaking pad-mounted transformer, discovered in April 2010 (RTN 3-29234). After analytical testing, it was determined that the leaking mineral oil dielectric fluid contained polychlorinated biphenyls (PCBs). The pad-mounted transformer was cleaned up, and contaminated soil beneath the transformer pad was excavated to background conditions. A Class A-1 RAO Report was submitted to MassDEP in June 2010, indicating that a Permanent Solution was achieved through implementation of a remedial action and contamination was reduced to natural background conditions. Based on the regulatory status of the Janas Arena release, the former pad-mounted transformer spill is not believed to impact environmental quality at the Cawley Site.
- **Texaco Service Station**, located at 1 Main Street and situated 0.171 miles south-southeast of the Cawley Site, was listed in the database for a detection of petroleum hydrocarbons associated with a previous tier classified site. The database indicates an RAO was not required for the petroleum hydrocarbon detections. The release to which the petroleum contamination was associated was issued RTN 3-2516 in September 1988 for vapors discovered in underground utilities. Release RTN 3-2516 was closed in December 2004 when a Class A-2 RAO was submitted following the removal of four USTs and associated piping at the Texaco Service Station. Based on its currently regulatory status and distance, it is unlikely the Texaco Service Station database listed impacts environmental quality at the Cawley Site.
- **Former Auto Circuits**, located at 150 Phoenix Avenue approximately 0.251 miles south of the Cawley Site, is listed in the SHWS database for two releases, RTN 3-24307 and RTN 3-1052. RTN 3-24307 was closed with an October 2005 Class A-2 RAO Statement after metals and polynuclear aromatic hydrocarbons (PAHs) were detected and excavated from Site soils. RTN 3-1052 was issued at 150 Phoenix Ave in October 1993 after chlorinated solvents were detected in monitoring wells at the property. Over the next 10 to 13 years, the contamination was delineated, and the selected remedial action (pumping and treating the groundwater) was implemented in November 2006. As of December

2016, the pump-and-treat remedial action is still occurring to treat contaminated groundwater. Available documents reviewed on MassDEP's website reportedly indicate groundwater flows west in the immediate vicinity of the site, with a shift in a northerly direction further north of the facility. The closest reported chlorinated solvent groundwater contamination exceeding applicable MassDEP Groundwater Standards appears in a monitoring well located on Phoenix Avenue, roughly 200-225 feet south-southwest of the Alumni Baseball Field parking area at the Cawley Site. The facility and associated groundwater plume is believed to be cross gradient, and is not believe to impact environmental quality at the Cawley Site.

- **100 Phoenix Ave**, located approximately 0.178 miles south-southwest of the Site, is listed in the SHWS database for reportable concentrations of chlorinated solvents identified in property groundwater as part of Phase II Site Investigations. A DPS report was filed in October 1999, citing the Former Auto Circuits facility to the south as the source of the chlorinated solvent groundwater plume. The Former Auto Circuits facility is summarized above. Based on the location, distance, and inferred hydrogeologic relationship, it is unlikely environmental conditions at 100 Phoenix Ave are impacting the Cawley Site.
- **Roche Bros Barrel and Drum**, located at 161 Phoenix Ave and approximately 0.287 miles south-southwest of the Cawley Site, contains three separate reportable releases. Two of the releases, RTN 3-23335 and 3-23825, were both reportable conditions encountered when investigation the initial release RTN 3-0351, and have been linked to RTN 3-0351. RTN 3-0351 was issued for the detection of oil and hazardous materials at the property, which was closed with a December 2007 Class A-3 RAO-P, or Partial RAO. A Class A-3 Partial RAO is issued when a partial Permanent Solution has been achieved after implementation of a remedial action, contamination was not reduced to background, and a Condition of No Significant Risk is contingent upon implementation of an Activity and Use Limitation (AUL). Given the location and inferred hydrogeologic relationship of these RTNs, Roche Bros Barrel and Drum is unlikely to affect environmental quality of the Cawley Site.
- Three of the SHWS database listings are Utility Release Abatement Measures (URAMs), where contaminated soil was encountered during routine roadwork and/or utility work. Given the location of the two URAM sites (both more than 0.25 miles away from the Site),

conditions encountered during the utility work do not appear to impact environmental quality of the Cawley Site.

State and Tribal Leaking Underground Storage Tank (LUST) List, State and Tribal Leaking Aboveground Storage Tank (LAST). The LUST and leaking above ground storage tank (LAST) database contains records of leaking underground and above ground storage tanks. Properties identified in these databases are usually found throughout the other federal and state databases researched by EDR®.

One LAST site is listed within a ½-mile radius of the Site. The LAST facility is referred to as the residential property located at **24 Groton Street**, and is summarized above in the SHWS database summary.

Five LUST sites are listed within a ½-mile radius of the Cawley Site. Three of the five LUST sites are reported closed with RAO Completion Statements and are unlikely to adversely impact environmental conditions at the Cawley Site. The two other LUST sites are summarized below.

- **USA Petroleum**, located east across Village Street from the southwestern corner of the Cawley Site, is listed on the LUST database for a leaking underground gasoline tank. A detailed description of the release (RTN 3-14974) is provided above in the SHWS database summary.
- **Bournival Chevrolet**, located at 831 Rogers Street approximately 0.133 miles south of the Cawley Site, is listed on the LUST database for encountered soil contamination associated with a 500-gallon waste oil tank. Approximately 300 cubic yards of contaminated soil were excavated from the waste oil tank grave during the UST removal in June 1994.

State and Tribal Active Solid Waste Disposal Sites (SWL). None of the subject properties are identified in any of the municipal, state, or federal SWL environmental databases reviewed for this Phase I ESA.

State and Tribal Underground Storage Tank (UST) List. The UST database is a list of USTs registered with the Commonwealth of Massachusetts. Eleven registered UST facilities are identified

within ¼-mile of the Cawley Site. Seven of the 11 UST facilities have had their registered USTs removed. The remaining four are summarized below.

- **USA Petroleum Corp** (780 Rogers St), located 0.022 miles south of the Cawley Site, reportedly contains three USTs, one 20,000-gallon gasoline UST, one 10,000-gallon gasoline UST, and one 6,000-gallon diesel UST, all installed in April 1997. The facility formerly had five other USTs, all reportedly removed in April 1997. Additional information pertaining to the USA Petroleum facility is summarized above in the SHWS database review.
- **Sunoco #0005-2894** (711 Rogers St), located 0.083 miles southwest of the Cawley Site, reportedly contains three active 6,000-gallon gasoline USTs, all installed July 1986. A fourth, 1,000-gallon waste oil UST, was reportedly removed in May 1996.
- **Global Montello Group** (2 Main St), located 0.170 miles south-southeast of the Cawley Site, reportedly contains three active 10,000-gallon gasoline USTs. The database indicates seven other USTs were removed, and one former UST was closed in-place.
- **Citgo** (626 Rogers Street), located 0.188 miles west-southwest of the Cawley Site, reportedly contains three active USTs: two 8,000-gallon gasoline USTs and one 10,000-gallon UST. Three USTs were reportedly removed in October 1992.

Properties listed on the UST database do not necessarily mean a release or threat of release has occurred at any of the listed properties.

State and Tribal AST List. The AST database is a list of ASTs registered with the Commonwealth of Massachusetts. Three AST facilities were identified within ¼-mile of the Cawley Site.

- **Sunoco #0005-2894** (711 Rogers Street), located 0.083 miles southwest of the Cawley Site, reportedly contains two ASTs, one 240-gallon waste oil AST, and one 280-gallon fuel oil AST.
- **Bournival Chevy-Geo-Mazda** (831 Rogers St), located 0.133 miles south of the Cawley Site, reportedly contained a 6,000-gallon AST, which was removed. The AST removal date was not listed.

- **Citgo** (626 Rogers Street), located 0.188 miles west-southwest of the Cawley Site, reportedly contains two ASTs, one 300-gallon waste oil AST and 300-gallon AST with unknown contents.

Properties listed on the AST database do not necessarily mean a release or threat of release has occurred at any of the listed properties.

State and Tribal Institutional Control / Engineering Control Registries (INST CONTROL)

List. The INST CONTROL list contains properties where AULs have been established to prevent “unrestricted use” in areas where contamination has not been removed. An AUL is deed restriction that specifies the allowable and prohibited uses of the property. Four properties were identified within ½-mile are included on the INST CONTROL list.

- **Rods Auto Care** (626 Rogers Street), located 0.188 miles west-southwest of the Cawley Site, was issued RTN 3-2076 in 1992 after soil contamination was discovered during the removal of three USTs. More than 1,500 tons of contaminated soil were excavated and removed from the facility during the UST replacement activities. Subsequent investigations identified contaminated soil, groundwater, and soil vapor on the 626 Rogers Street parcel and the adjacent parcel to the west. Groundwater flow direction is reportedly in a westerly direction. Based on the inferred downgradient location and distance away from the subject properties, it is unlikely Rods Auto Care will affect environmental quality of the Cawley Site.
- **US Postal Service** (137 Phoenix Avenue), located 0.260 miles south-southwest of the Cawley Site, was historically used as a burning dump by the City of Lowell, and covered with a clay cap at some point in the 1950s. The property was issued RTN 3-14451 for the presence of elevated concentrations of lead, arsenic, and PAHs. By the 1990s, all areas of the property that were not developed with buildings or pavements were covered with a geotextile cap. The RTN was closed in August 2001 with a Class B-2 RAO, and maintained with an AUL. The property is inferred to be cross-gradient to the subject properties, and is not likely to affect environmental quality at the Cawley Site.
- **Roche Brothers Barrel and Drum Company** (161 Phoenix Avenue), located 0.287 miles south-southwest of the Cawley Site, has an AUL associated with RTN 3-351. Details pertaining to the RTN and property are detailed above in the SHWS database summary.

- **AT&T** (637 Clark Road), located 0.475 miles southeast of the Cawley Site, was issued RTN 3-3852 for the release of diesel fuel to soil from a former 1,000-gallon UST prior to 1991. Between 1992 and 1997, a soil and groundwater delineation investigation was performed at the property. An AUL was implemented on the property for residual soil and groundwater contamination identified near the former UST grave, adjacent to an existing 6,000-gallon UST. The AUL was implemented to minimize future human health exposure risks. Given the distance away from the Cawley Site, it is unlikely the property will impact environmental quality at the subject properties.

4.1.2 City of Lowell Municipal Record Review

On March 23 and April 11 2017, Nobis visited the City of Lowell municipal offices to review available records pertaining to the Cawley Site. The municipal offices visited included the City of Lowell's Assessor's Office, Planning Department, Engineering Department, City Clerk, Board of Health, Conservation Commission, the Fire Prevention Department, and the Law Office. Nobis contacted Town of Tewksbury municipal offices by phone to evaluate whether the Town had any files pertaining to the one Tewksbury tax parcel associated with the Martin Alumni Athletic Complex. Pertinent municipal documents are provided in Appendix B. The municipal file review details are summarized below.

4.1.2.1 Assessor's Department

Nobis obtained property record cards for the nine subject properties from the City of Lowell and the Town of Tewksbury. All Assessors Cards are attached in Appendix B. A summary of pertinent information included in Assessor's records is presented in the table in Section 2.1. No additional information was available from the City of Lowell or Town of Tewksbury Assessor's Departments.

4.1.2.2 Engineering Department

Nobis spoke with John Gleason of the City of Lowell Engineering Department to request any available building and/or electrical permit applications and associated permits issued by the City. John Gleason indicated he was unaware of any files associated with the Martin Athletic Complex/Cawley Site.

- The Engineering Department contained a Property Atlas from 1936 illustrating the subject properties. According to the atlas, Alumni Field was in its current position, however it is unclear whether the field was used for baseball or football. The remaining Site parcels appear undeveloped, and owned by the City of Lowell Alumni Association.

4.1.2.3 Board of Health

Nobis reviewed available records at the City of Lowell and Town of Tewksbury Boards of Health (BOH). An available BOH representative indicated all BOH files pertaining to the subject properties were located at the Lowell City Hall. Nobis did not observe any specific files pertaining to the Martin Athletic Complex/Cawley Site associated with the Board of Health when returning to the Lowell City Hall to review applicable files.

4.1.2.4 City Clerk

Nobis reviewed available records at the City of Lowell and Town of Tewksbury City Clerk's office. There were no files available at either City Clerk's office pertaining to the subject properties.

4.1.2.5 Planning Department

Nobis reviewed available records at the City of Lowell and Town of Tewksbury Planning Department. There were no files available at either Planning Department pertaining to the subject properties. A representative of the Planning Department indicated that all potential files pertaining to the Martin Alumni Complex/Cawley Site had been compiled at the City of Lowell's Law Office.

4.1.2.6 Conservation Commission

The Conservation Commission was unable to provide any files pertaining to the subject properties. Judith Tymom, Senior Planner at the Conservation Commission office, indicated that all sensitive ecological receptors would be illustrated on available MassGIS priority resource maps. Mrs. Tymom indicated that specific Cawley Stadium files had been compiled at the City of Lowell's Law Office.

4.1.2.7 Fire Prevention Department

Nobis reviewed City of Lowell Fire Prevention Office files for the subject properties.

The lieutenant responsible for reviewing the City of Lowell files indicated that the access road separating Cawley Memorial Stadium and the soccer field used to be called “Dead Horse Lane”.

The Fire Prevention office contained a single index card file for the Martin Athletic Complex. The file, entitled Permit #9707, indicates two tanks were removed from 424 Douglas Road on March 17, 1997. The two tanks were reportedly a 1,000-gallon oil tank, and a 200-gallon tank with unlisted storage contents. No other information was available regarding the tank removals.

4.1.2.8 Law Office

Nobis reviewed all compiled Martin Alumni Athletic Complex/Cawley Site files at the City of Lowell’s Law Office on April 11, 2017. The Law Office had compiled all associated documentation in preparation for evaluating the Lowell High School Relocation Feasibility Study.

The files included extensive documentation pertaining to the 1997 Cawley Stadium renovation project, 1995 renovation projects on the soccer field, and application documentation for state and federal grant funding. Notable documents or observations made during the file review pertaining to current or historic environmental conditions are summarized below.

- Many Periodic Construction Reports from the 1997 demolition and construction of the new Cawley Stadium were encountered. The reports, prepared predominantly by Consigli Construction, Inc., documented construction issues, timelines, and scope modifications.
- Multiple geotechnical soil testing reports which reportedly occurred to evaluate soil density and compaction at the Cawley Stadium Site were encountered. Compaction testing appeared to occur in spring and summer 1997. Nobis also observed multiple geotechnical concrete testing and results summaries, all of which were associated with the Cawley Stadium renovation project.
- Several documents pertaining to asbestos abatement performed at Cawley Stadium in 1997 were encountered. The documentation indicates the asbestos was identified as pipe wrap, which was abated during the stadium renovation project. Asbestos was encountered in both locker rooms and the boiler room located above each locker room. The only reported issue encountered during the abatement was that more asbestos pipe wrap was

encountered than anticipated, which required additional abatement. Abatement activities were performed by Save Environment of America.

- A November 2004 letter to the Lowell Division of Planning and Development from Massachusetts Division of Fisheries and Wildlife indicating that the State was unaware of any rare plants, animals, or exemplary natural communities near the Site. The evaluation was based on the most recent information within the Natural Heritage and Endangered Species Program (NHESP) database.
- A large Site plan indicating existing stormwater and proposed drainage from Cawley Stadium. It appears that drainage from the football field flows sub-surface west towards the stormwater system existing beneath Douglas Road to the west.
- A March 4, 1997 Job Meeting Notes summary indicates that soil “adjacent to the building and the lt. gray paint” was tested for lead. Results documentation indicates that no soil contamination was identified, and paint lead content was below 0.5%. Additional documentation indicated that red paint on hand rails and support poles contained lead, however this paint was to be painted over.
- A March 18, 1997 Periodic Field Report prepared by Archetype Architecture, Inc. regarding Cawley Stadium renovations. The first note of the report indicates “The 2nd oil tank discovered is right next to the large one. It is approximately 250 gallons. It is 50% excavated at this time”. A construction schedule document reviewed indicated that the oil tank removal was schedule for March 19, 1997. No other documentation or information regarding the two tanks was observed in the available files. By this time, all asbestos abatement had already occurred.
- Documentation pertaining to the renovations of the soccer field in 1996. Documentation included proposed work scopes, bid proposals, construction issues, and completion statements.

4.1.3 Town of Tewksbury Municipal Record Review

On March 23 2017, Nobis personnel contacted the Town of Tewksbury municipal offices to confirm if the Town had any documentation pertaining to the one Tewksbury tax parcel associated with the Martin Athletic Complex. Pertinent information is summarized below.

- Nobis contacted Capt. John Viscione of the Tewksbury Fire Prevention Office, who indicated the Fire Prevention office did not have any files pertaining to the Site.
- Nobis contacted Nancy O’Keefe with the Tewksbury Building Department, who indicated the department contained no applicable files pertaining to the Site.
- Nobis contacted the Tewksbury City Clerk, the Health Department, both of which indicated they did not have any files pertaining to the Site.
- Nobis contacted the Tewksbury Engineering Division, who provided Nobis with comprehensive electronic files of historic plans for Village and Clark Road in Tewksbury. None of the plans illustrated portions of the Site. They have been attached in Appendix B.

4.2 Online Resources

Nobis reviewed the MassGIS Oliver Online mapping tool to determine if the subject properties are identified within any delineated state resource areas. The 21E Priority Resource Map is provided as Figure 3. The entire Site falls within the “Protected Open Space” hatching on the 21E Priority Resource Map, presumably because the Site is used as recreational fields. Wetlands are illustrated in the extreme northwestern region of the Site.

Additionally, the map indicates several potential vernal pool locations and one or two small Estimated Rare Wetland Wildlife Habitats located on undeveloped portions of the northern parcels of the Site. As part of the Feasibility Study, the Massachusetts Division of Fisheries and Wildlife reviewed the proposed Cawley Site school options to determine the potential impact on state-listed species. In a letter dated April 19, 2017, the Division stated that the school project, as currently proposed, would not result in a prohibited Take of state-listed rare species.

4.3 Additional Environmental Sources

Nobis reviewed documents available on the MassDEP on-line Searchable Sites List. This database contains a list of properties where reportable releases or threats of release of contamination have occurred and MassDEP has assigned a Release Tracking Number (this is a database of contaminated or formerly contaminated sites throughout Massachusetts, as reported to MassDEP).

Nobis presents these review findings throughout relevant sections of this report. Reviewed information pertaining to the former USA Petroleum site is included in Appendix F.

4.3.1 Nitsch Engineering Test Pit Report

Nobis reviewed an April 2017 memorandum entitled “Cawley Site Test Pits” documenting test pitting activities and field observations made on April 5, 2017 by Nitsch Engineering as part of the Lowell High School Feasibility Study. The objective of Nitsch’s work was to observe subsurface materials to determine the soil types present and evaluate the drainage characteristics of the study area. Nitsch performed ten test pits, all of which were excavated in the northern portions of the Cawley Site. Test pits 1 through 5 encountered predominantly sandy soils. Test pits 6 through 9 encountered predominantly fill material including metal, brick, glass, and concrete. A petroleum odor was detected in test pit 8 in a sample collected from approximately 4 to 8 feet below grade. There were no samples collected for laboratory analysis during this test pitting investigation.

Subsurface petroleum odors associated with historical fill material placed at the Cawley Site represent a REC. This REC is discussed in more detail in Section 9.0.

4.3.2 Geotechnical Partnership Geotechnical Data Summary Report

Nobis reviewed a March 2017 report documenting geotechnical explorations completed by Geotechnical Partnership at the Cawley Site to evaluate subsurface conditions and recommend foundation design parameters for a potential new school. The study included eight explorations throughout the site, including two within the area identified by Nitsch as containing urban fill materials. The depth of geotechnical explorations was approximately 30 to 40 feet bgs. The findings of this study corroborated the observations made by Nitsch, as only two soil borings (both advanced in the northern portion of the Cawley Site) contained evidence of urban fill. One notable

observation from the geotechnical report was that the depth of urban fill materials in one of the soil borings extended to approximately 15 feet bgs.

4.4 Physical Setting Sources

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) reviewed for the assessment, the western region of parcel 1840-392 and almost the entire parcel 1840-438 are located within a 500-year flood zone (Zone X). The FIRM indicates the flood zone identified on both parcels is associated with the Trull Brook tributary. Parcels 1285-512.1 and 12-3, located on the northeastern region of the Site, both contain regions of both 100-year flood plain (Zone AE) and 100-year flood plain (Zone X), also associated with the Trull Brook tributary. The FIRM map is attached in Appendix G.

A meandering brook and associated marshy area was observed on the northern boundary of the Town of Tewksbury parcel 12-3, in the northwestern corner of the Site. Historic topographical maps indicate that this brook flows near the western and northern region of the Cawley Site. However, the brook was only observed along the extreme northeastern parcel boundaries associated with the Martin Alumni Athletic Complex. The brook is potentially culverted in several areas southwest and west of the Site. The topographical maps also indicate that the origin of this brook appears to be near the former Lowell sanitary landfill, which is now Roche Brothers Drum and Barrel Company. See Section 4.1 for more information regarding this facility. The meandering, unnamed brook flows in a north and east direction, which discharges into Trull Brook. Trull Brook runs north-south approximately 1,500 feet east of the Site, and ultimately discharges into the Merrimack River. No other surface water bodies were observed during the Site investigation.

Nobis did not observe any bedrock outcrops during the Site inspection. However, at the time of the inspection, snow was blanketing most of the unpaved portions of the Site.

According to a March 2017 Post-Temporary Solution Status and Remedial Monitoring Report for the adjacent former USA Petroleum site, groundwater in the area was encountered at approximately 12 to 15 feet below ground surface. Groundwater is expected to be at a similar depth below the Cawley Site.

4.5 Historical Use Information on the Properties and Surrounding Area

According to Nobis' review of historical records, the historical use of Site properties is as follows:

The Site has been used as an athletic complex in various capacities throughout its history. Dating back to as early as 1938, a track and field stadium was present on the southern portion of the property. According to an online Lowell High School Hall of Fame website and municipal documents, Cawley Stadium first opened in its existing location in 1941 as a Works Progress Administration (WPA) initiative, originally being called Merrill Field. By 1952, the track and field stadium had been converted to a baseball stadium. The land between the two stadiums was converted to a soccer field. Between 1963 and 1977, additional practice fields were added east of the stadium. Between 1985 and 1995, a field hockey field was cleared east of the two practice fields, and a softball field was constructed north of the practice fields. The main football stadium was reportedly restored in 1997 due to dilapidation. Soon after the 1997 football stadium renovation, the Mike Haggerty Memorial Track was installed. Seating and other structures associated with the baseball field were also added during this time.

By 2006, seating and other structures associated with the softball field were constructed. Additionally, a portion of the eastern region of the Site was being used for raw materials storage. A smaller softball field, located adjacent east of the original softball field, was added in 2010. Since 2010, the Site has remained largely unchanged.

The following sections provide specific details regarding the review of Sanborn Fire Insurance maps, aerial photographs, topographic maps, and city directories reviewed for the Site.

4.5.1 Sanborn Fire Insurance Maps

According to the EDR[®] database, Sanborn Fire Insurance Maps for the Site and surrounding environs have not been drafted and are not available. An EDR[®] Certificate of No Coverage is attached in Appendix E.

4.5.2 Historical Aerial Photographs

Historical aerial photographs were provided by EDR® for the years 1938, 1952, 1963, 1965, 1977, 1980, 1985, 1995, 2006, 2008, 2010, and 2012. The EDR® Aerial Photo Decade Package is included in Appendix E. The following information was obtained from each aerial photograph:

- **1938:** A track and field stadium with an associated building to its south is present on the southern portion of the property. Land is cleared north of the stadium in the central portion of the property. The eastern, northern, and far western portion of the Site is undeveloped and vegetated.

Surrounding properties to the east are farms. Properties to the north and east are undeveloped. Properties to the southeast and southwest are residential.

- **1952:** The track and field stadium has been converted to a baseball field, with a structure south of the field. Cawley Stadium has been constructed in the central portion of the Site. Land to the west, north, and northeast of the stadium has been cleared. The area between the baseball field and Cawley Stadium has been converted to the soccer field.
- **1963 and 1965:** The Site remains largely unchanged. The structure south of the baseball field is no longer present. The land in the immediate vicinity of the stadium has been landscaped and an apparent access road has been built connecting the central portion of the site to Clark Road.

The land east across Clark Road has been cleared. Properties northwest of the Site across Douglas Road and southwest along Douglas Road now contain residences. The abutting property west of the baseball field appears to have commercial use.

- **1977, 1980, 1985:** The football practice fields are now present east of Cawley Stadium. Land is cleared north of the football practice fields. Land to the west of the stadium appears to be used as a parking lot.

The Janas Memorial Skating Rink has been constructed north of the Site. All properties west across Douglas Road are now residential. A bus depot is now present east across

Clark Road and Village Street. The strip mall at the current location of Market Basket has been constructed southeast of the Site.

- **1995:** Land east of the football practice fields is now a field hockey field. A softball field is now present north of the football fields.

An addition to the strip mall southeast of the Site has been constructed.

- **2006, 2008, 2010, 2012:** Buildings are now present south of the softball and baseball fields. A smaller softball field is now present east of the original softball field. The raw materials storage on the east side of the Site is now present.

4.5.3 Historical Topographic Maps

Historical topographic maps were provided by EDR® for the years 1893, 1918, 1921, 1935, 1941, 1943, 1944, 1946, 1950, 1965, 1979, 1985, 1987, and 2012. The EDR® Historical Topographic Map Report is included in Appendix E. Relevant information from each map is described below.

- **1893-1935:** A headwater stream of the adjacent Trull Brook appears to run through the center of the Site. The Site does not appear to be improved with any structures.
- **1941:** The track and field stadium is shown in the southern portion of the Site. The Trull Brook tributary which runs north and west of the Site has been diverted around the western side of the Site. The stream runs along the northern and western portions of the Site.
- **1943:** This map is similar to the 1893-1935 maps, however the map appears slightly incorrect given the location of the stream's flow path, and because the stadium is not illustrated.
- **1944:** This map is similar to the 1941 map, but shows the football stadium in the central portion of the Site.
- **1946:** This map has the same features as the 1941 map, however no football stadium is depicted.

- **1950:** This map shows the same features as the 1944 map.
- **1965:** The track and field stadium is now labeled as “Alumni Field”. The Trull Brook tributary appears to have been redirected or culverted beneath a new parking lot west of the football stadium.
- **1979:** The Janas Memorial Skating Rink is now shown north of the Site.
- **1985:** The Trull Brook tributary is no longer illustrated intersecting any portion of the Site.
- **1987 and 2012:** No significant changes to the Site.

4.5.4 City Directories

City Directory archives provide a list of addresses and their associated residents or occupants. The EDR® City Directory Abstract is included in Appendix E. Nobis reviewed directories dated 1942, 1948, 1954, 1960, 1966, 1971, 1976, 1981, 1986, 1992, 1995, 1999, 2003, 2008, 2013.

The Site is listed in the 1960 directory as “Lowell Memorial Stadium” and is not listed in any other city directory.

4.6 Vapor Encroachment Screening

As specified in the ASTM 1527-13 standard, Nobis completed a vapor encroachment screening (VES) for the Site. The screening was conducted in general accordance with ASTM E 2600-10, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*.

A vapor encroachment condition (VEC) is “*the presence or likely presence of chemical(s) of concern (COC) vapors in the soil or groundwater of the Site caused by the release of vapors from contaminated soil or groundwater either on or near the Site. A VEC is a potential exposure pathway, specifically to building occupants, whereby volatile organic contamination present in soil and groundwater may partition into the vapor phase and migrate into soil gas and indoor air.*”

Based on records reviewed for the Phase I ESA, Nobis has concluded that a VEC cannot be ruled out at the Cawley Site. The potential for a VEC is supported by the following findings:

- Petroleum odors observed during an April 2017 test pit performed by Nitsch Engineering could potentially encroach into potential future buildings constructed in the northern portion of the Cawley Site.
- Gasoline-contaminated soil was identified during UST removal activities at the former USA Petroleum facility, located adjacent southeast of the Cawley Site.
- Groundwater contamination associated with contaminated soil at the former USA Petroleum facility, located adjacent southeast of the Site, could potentially migrate beneath the southern portion of the Cawley Site.

Environmental data collection (i.e. soil and groundwater sampling) would be required in order to definitively rule out a VEC at the Site.

5.0 SITE RECONNAISSANCE

Mr. Erik Johnson of Nobis Engineering visited the Site on March 22, 2017 to observe property conditions. Mr. Johnson visited the City of Lowell municipal offices on March 23, 2017. Relevant photographs taken during the site reconnaissance are included as Appendix H. Details are provided in the following sections.

5.1 General Site Setting

The Site is located within an area of mixed suburban residential and commercial use. Abutters include residences (west), an indoor ice skating rink (west), a car dealership (southwest), a supermarket (south), a construction site to be used as an automobile repair facility (southeast), a social club (east), and undeveloped wooded land (east, north).

The detailed Site description of roads, improvements, and any other pertinent environmental observations have been separated by each tax parcel to provide specific details pertaining to each area of the Site. The nine tax parcels are illustrated in Figure 2.

5.2 Observations - City of Lowell Tax Parcel 5045-758

The City of Lowell Tax Parcel 5045-758 is the southernmost parcel, and is almost completely improved with the Stanley J. Stokloska Alumni Baseball Field. The southern portion of the parcel is improved with bituminous concrete pavement, which provides parking for the ballfield and access to the concessions and spectator seating. A small landscaped planter north and east of the parking area contains several memorials. The parcel is accessed from Village Street to the east. The Alumni Field facility includes a single-story concession stand, a single-story bathroom building, a single-story outbuilding providing locker-room type meeting rooms for teams, two batting cages, two dugouts, a spectator bleacher area, and a press box constructed above the spectator bleachers. The field itself is improved with two dugouts, a chain-link backstop, the landscaped baseball field, and a large electronic scoreboard to the north of the playing field.

Heat is provided to the locker-room type building by an approximately 500-gallon aboveground propane tank which is positioned east of the locker-room building (see photograph, Appendix H). The entire parcel is enclosed within a chain-link fence, which runs along Rogers Street to the south, Village Street to the east, and adjacent commercial parcels to the east.

Electricity to the concession stands, the bleacher's press box, the bathroom building, and the several field lights appear to be underground. Overhead electrical wires provide electricity to the locker-room facility east of the concession stands.

Nobis observed one 3-gallon propane tank underneath the bleachers, adjacent to a storage shed. It is unclear whether the tank is empty or full. Mr. LaRochelle believes a majority, if not all, of the small propane tanks observed on the Site are empty.

Nobis observed one electric stove and a hot-dog roller within the concession stand. A small, approximately 5-gallon capacity electric water heater was observed beneath a sink in the concession stand. Adjacent to the electric water heater appears to be a grease trap. Mr. LaRochelle indicated that the grease trap, as well as the entire concession stand, was no longer active or used.

One conex box adjacent to the concession stand beneath the bleachers appears to store baseball field and batting cage equipment. Nobis observed approximately 14 one-gallon containers of latex exterior paint.

Nobis observed two stormwater catchbasins on the southern parking lot south of the baseball field. Mr. LaRochelle indicated he believed the stormwater catchbasins were connected to the municipal stormwater system.

Nobis observed one paved-over manhole in the southern parking area. Mr. LaRochelle was not aware of the manhole, and did not know to what it was potentially historically connected.

Nobis observed a flush-mount monitoring well adjacent east of parcel on Village Road. The monitoring well is believed to be associated with the former USA Petroleum facility to the east (see photograph, Appendix H).

5.3 Observations - City of Lowell Tax Parcel 5935-360 and 5935-360.1

Tax parcels 5935-360 and 5935-360.1 are located north of the Alumni Baseball Field, and are improved with the Lucas F. Carvalho Sr. Varsity Soccer Field. The soccer field facility includes

the field itself, and metal bleachers located just south of the field. The soccer field is surrounded by chain link fence and associated field lights on all sides.

The electrical lines run underground to each of the field lights from an electrical shed located southeast of the soccer field and northeast of the Alumni Baseball Field.

The electrical shed is a single-story concrete block building which contains the baseball and soccer field lights' electrical panels and transformers. One small transformer was observed in an electrical shed north of the ballfield. The transformer appears to be a dry-type, and is not anticipated to contain PCBs.

Nobis observed one conex box southeast of the soccer field, and contains a single piece of heavy equipment associated with field maintenance. Mr. LaRochelle indicated the equipment was used to spread grass seed on ballfields.

Nobis observed several pole-mounted transformers on utility poles running down the west side of Village Street. Nobis did not observe any staining on the ground indicative of leaks from the transformers.

Nobis observed one small pile of lawn clippings between the electrical storage shed and the conex box south of the soccer field. No other piles of fill or materials were observed on the parcel.

5.4 Observations - City of Lowell Tax Parcel 1840-424

Tax parcel 1840-424 is the central-most tax parcel of the entire Martin Alumni Athletic Complex and is improved with Edward D. Cawley Memorial Stadium. The parcel is improved on the south and west with bituminous concrete driveways which provide vehicular access and parking for the athletic complex. The stadium facility is improved with a multi-story bleacher complex south of the field, which includes a field office, locker rooms, concession stands, an athletic trainers' room, two maintenance equipment storage areas, and restrooms, all situated underneath the spectator seating. A second-story storage area and utilities room is also located behind the spectator seating and below the press box. The press box is located at the highest point of the bleachers. A second set of spectator bleachers is located north of the playing field. The football field is surrounded by a ¼-mile track. The southeastern corner of the parcel is improved with a single-

story wood-framed building which is used as a work-out area for football players and office space for football coaches.

Two small outbuildings, located along the northern and eastern periphery of the parcel boundary, contain field maintenance equipment. Nobis observed ten gasoline storage containers, with storage volumes ranging from 2-5 gallons, in the eastern outbuilding. Small areas of staining were observed on the floor of the building. A large bag of Speedy-Dry was also observed (see photograph, Appendix H).

A large scoreboard is located to the west of the football field. A single-story cinderblock walled building is also west of the field, and includes the electrical equipment associated with the scoreboard and stadium lights. Six small dry-type transformers are located within this electrical building. A larger, pad-mounted transformer is located just west of the electrical building (see photograph, Appendix H). No staining or stressed vegetation was observed on the concrete pad. South of the electrical building, the parcel is improved with concrete walkways and landscaped areas providing access to the stadium from the adjacent parking lot to the west. The entire stadium complex is surrounded by a chain link fence.

Facility maintenance equipment was observed underneath the western and eastern sides of the south bleachers. Both maintenance storage areas were within locked chain-linked fence. Maintenance and motorized equipment include a John Deere skid steer, a John Deere tractor, three field golf carts, and five lawnmowers. Additional gas-powered equipment, including weedwhackers, chain saws, and a field marker, were also staged in the maintenance storage areas. Small spots of localized concrete staining were observed on the ground near the lawn mowers in the eastern storage area (see photograph, Appendix H). The maintenance storage areas contained other hand equipment and *de-minimis* storage of equipment lubricants and oils. The chemicals and lubricants all appeared labeled accordingly, and did not appear to be leaking.

Nobis observed a steel pipe protruding from the ground beneath the northern spectators bleachers of the stadium. Mr. LaRochelle indicated this pipe was a former water connection for a concession stand that had been removed. The pipe is not connected to any system currently. Nobis also observed a large tractor stored beneath the northern bleachers.

Nobis observed four 5-gallon propane tanks in a western storage area beneath the southern bleachers. The locked storage area is used for concession stand storage, which includes multiple grills, bottled water, coolers, and extension cords. According to Mr. LaRochelle, the propane tanks are believed to be empty.

The concession booth is located beneath the southern bleachers, across from the administrative office of the stadium. The concession booth contains *de-minimis* quantities of cleaning supplies, a sink, and several refrigerators. Nobis observed two additional tractors staged near this concession stand area.

The utility room for the southern stadium bleachers is located on the second floor above the locker rooms and athletic trainers room. The heat is provided by natural gas fired forced hot air heaters. Nobis observed an approximately 850-gallon water tank inside the utility room, which is used to store hot water for the locker rooms. The label on the tank indicates it was installed in 1997. Nobis observed approximately 20-25 1-gallon containers of paint and paint thinner in the corner of the utility room. Nobis did not observe any indications that there had been any release associated with the paint cans.

Several floor drains were observed both in the second story utility room as well as in the floors of the locker rooms on the first floor. Mr. LaRochelle indicated all floor drains discharged to the municipal sewer system. Nobis observed several catch basins beneath the southern stadium bleachers, believed to discharge to the municipal stormwater system.

Nobis observed four old steel caps south of the stadium itself, and just north of the access driveway which runs parallel to the southern tax parcel boundary. Mr. LaRochelle was uncertain what the caps were covering, but believed they may cover relic electrical wiring or equipment. Mr. LaRochelle did not believe the electrical equipment was currently in use, and didn't think the caps/wiring served any purpose. A photograph of the caps is provided in Appendix H.

5.5 Observations - City of Lowell Tax Parcel 1840-438 and 1840-392

Tax parcels 1840-438 and 1840-392 are located west and north of the Edward D. Cawley Stadium facility, respectively. The two tax parcels are both improved with bituminous concrete, and operate

as parking areas for the athletic complex. The southern third of tax parcel 1840-438 is undeveloped, and remains vegetated land.

Nobis observed two sewer manholes on the western parking lot. The sewer manholes are believed to be associated with the municipal sewer system. Additionally, Nobis observed several catch basins on the western parking lot. The catch basins are connected to the municipal stormwater system.

5.6 Observations - City of Lowell Tax Parcel 1285-512

Tax parcel 1285-512 is located east of the Edward D. Cawley Stadium, and is identified as William J. Desmond Jr. Athletic Field. According to Mr. LaRochelle, the two fields occupying this tax parcel are used as football practice fields. The parcel is also improved with the main access driveway servicing the ballfields to the north and east of the Cawley Stadium. The driveway is located west of the practice football fields, and connects to Village Street to the south. A chain-link fence runs along the southern property boundary adjacent to Village Street.

The property is improved with two small single-story concrete block buildings which contain the electrical panels and transformers for the practice football field lights and the softball stadium lights, located on the parcel to the north. One of the electrical sheds is located along the southern parcel boundary inside the chain link fence. The other is located south of the access driveway just south of the softball field. All transformers observed in the concrete electrical buildings were labeled as “dry-type” transformers, and are not believed to contain PCBs. Nobis observed a small storage shed containing softball equipment adjacent east to the softball field’s electrical shed.

Nobis observed two pole-mounted transformers along the southern parcel boundary adjacent to Village Street. Nobis did not observe any surface staining indicative of transformer leakage.

Nobis identified four conex boxes in the far northwestern corner of the tax parcel, northeast of Cawley Stadium. Two of the conex boxes were locked. One of the two inspected conex boxes contained one pallet of white field marking chalk. The other conex box contained 12 tires. Mr. LaRochelle indicated the conex boxes stored football and track equipment.

Nobis observed one paved over manhole in front of the two storage sheds north of the football practice fields. Mr. LaRochelle was unaware of the former manhole, and was uncertain if any former utility ran beneath the pavement.

Nobis observed a newly installed monitoring well on the southern portion of the parcel. The monitoring well is believed to be associated with a geotechnical investigation being performed as part of the Lowell High School relocation project due diligence.

5.7 Observations - City of Lowell Tax Parcel 1285-512.1

Tax parcel 1285-512.1 is the northernmost parcel, and contains James S. Martin Softball Field. A second, smaller ballfield is located east of the softball field. James S. Martin Softball Field facility includes two dugouts, three spectator bleacher sections, and a commentator's box located behind the central bleachers. The softball field is accessible by the bituminous concrete drive, which extends north from the adjacent parcel to the south, and runs along the southern parcel boundary towards the raw materials storage area.

The parcel contains three conex boxes, one located west of the softball field and two located east of the softball field. Two of the conex boxes are located east of the softball stadium. One of them contains softball practice equipment, and the other contains 18 empty plastic barrels labeled as bottle and can recycling receptacles. The third conex box, located west of the softball stadium, was locked and was not inspected. Mr. LaRochelle indicated the contents of this conex box includes two spare scoreboards and track and field equipment. Roughly thirty 55-gallon drums were observed surrounding the westernmost conex box. All of the 55-gallon drums appear empty, open, and upside down. Mr. LaRochelle indicated that all green drums onsite are used for solid waste barrel drums around the complex.

One pile of fill material was located along the western property boundary, adjacent to the chain link fence and south of the westernmost conex box. The fill pile appears to contain some old asphalt material. Ricky LaRochelle Jr. explained the fill pile was comprised of reclaimed asphalt from the athletic complex that was used to block a hole in the chain-link fence. A photograph of the pile is attached in Appendix H.

The eastern edge of the parcel is improved with the Parks Department raw materials storage area. Mr. LaRochelle explained that this was one of several areas used by the City Parks Department to stage raw materials, granite curbs, and other materials used around the City. Piles of raw materials are stored in this area which include: crushed stone, reclaim material, bank gravel, washed sand, white marble stone, beam clay, bark mulch, crushed stone, sand, etc. Nobis observed an area of lawn clippings dumped north of the raw materials storage. Mr. LaRochelle explained that all lawn clippings observed at the athletic complex originated at the complex, and were not brought in from other parks around Lowell.

Nobis observed a newly installed monitoring well just west of the softball field. The monitoring well is believed to be associated with a recent geotechnical investigation being performed as part of the Lowell High School relocation project due diligence.

The northernmost third of the parcel is undeveloped and remains vegetated. The vegetated area of the parcel is separated from the softball facility by a chain-link fence. The chain-link fence also runs along the western parcel boundary. Nobis did not observe any locations within the vegetated area where illegal dumping had occurred.

5.8 Observations - Town of Tewksbury Tax Parcel 12-3

The Town of Tewksbury tax parcel 12-3 is the easternmost parcel of the Martin Alumni Athletic Complex. The parcel is improved with the eastern portions of the City of Lowell's Parks Department raw materials storage area, and the LHS Varsity Field Hockey Field to the south. A chain-link fence runs along the southern and eastern parcel boundaries between the parcel and Village Street to the south and Clark Road to the east. The northern third of the parcel remains undeveloped and wooded.

The field hockey field is improved with two small sections of bleachers and a small storage shed in which field hockey equipment is stored. Nobis observed two 55-gallon barrels upside down beneath the bleachers, believed to be used as trash cans.

Nobis observed the following raw materials staged within the raw material area: hemlock mulch, indian clay, stone dust, bank stone, granite blocks, 24-inch diameter black corrugated stormwater piping, miscellaneous junk metal, miscellaneous debris, miscellaneous fill/debris, tree mulch, and

miscellaneous junk metal. The miscellaneous junk metal pile included old green drums (believed to be dented or damaged trash cans used at the athletic complex), several bikes, old sign posts, etc. The entire pile could not be inspected due to snow cover. A small pile of tires was also staged in this area.

Two 10-yard Waste Management dumpsters were observed in the raw materials storage area. Mr. LaRochelle indicated one was used for trash consolidation, and the other was used for cardboard consolidation. One 30-yard roll-off dumpster was observed in the raw materials storage area, which appeared to contain random waste, include a bike, tarps, and some soil. Mr. LaRochelle indicated the larger roll-off was used when any buildings or field facilities are updated onsite. Waste Management is called to empty the dumpsters on an as needed basis.

6.0 INTERVIEWS

Interviewed Site owners, owner's representatives, and City officials regarding environmental conditions and Site history are summarized below.

6.1 Interview with Owner and Owner's Representative

Mr. Thomas Bellegarde, the City of Lowell DPW Commissioner, completed the Occupant Questionnaire (as outlined in ASTM E1528-14) for the Martin Alumni Athletic Complex. Mr. Bellegarde has been referenced where applicable within the Phase I ESA.

Nobis interviewed Mr. Ricky LaRochelle Jr. during site reconnaissance of the athletic complex. Mr. LaRochelle has been referenced where applicable throughout the Phase I ESA.

The Owner/Occupant Questionnaire is included in Appendix D, and responses presented to Nobis are referenced throughout this report.

6.2 Interviews with Others

Nobis did not interview any other representatives associated with the Martin Alumni Athletic Complex/Cawley Site.

7.0 FINDINGS

Nobis presents the following findings of the ASTM E 1527-13 Phase I ESA for the nine properties located at the Martin Alumni Athletic Complex, referred to as the Cawley Site by the Feasibility Study team, located in Lowell and Tewksbury, Massachusetts:

- The approximately 43.2-acre Site is located in a mixed residential, commercial, and light industrial area of east Lowell and west Tewksbury. The Site is comprised of nine tax parcels, eight of which are located in the City of Lowell, and one is located in the Town of Tewksbury.
- This Phase I ESA was conducted to support a Feasibility Study being performed by Perkins Eastman on behalf of the City of Lowell under a grant provided by the MSBA. This document is intended to fulfill, in part, the requirements of MSBA Module 3, Section 3.1.4 (Evaluation of Existing Conditions), specifically to document the existing environmental conditions within the footprint of the Cawley Site that is being considered as an alternative to the existing downtown school location.
- The Site is home to a variety of athletic fields, including Edward D. Cawley Memorial football stadium, Stanley J. Stoklosa Alumni baseball field, James S. Martin softball field, Thomas R. Machado Memorial and William J. Desmond practice football fields, LHS varsity field hockey field, and Lucas F. Carvalho Sr. varsity soccer field. The athletic complex is also improved with field lighting, irrigation systems, concessions, and spectator infrastructure associated with each of the fields. The Parks Department also has a small area in the northeastern corner of the Site used for raw materials storage.
- The complex is accessed via Douglas Road to the west. The facility and associated ballfields can also be accessed by three driveways connected to Village Street to the east of the subject properties. Site topography is generally flat, with the highest elevation points being observed in the northwestern region of the Site, where the field hockey field and the softball field are located. Abutters include residences (west), an indoor ice skating rink (west), a car dealership (southwest), a supermarket (south), a construction site to be used as an automobile repair facility (southeast), a social club (east), and undeveloped wooded land (east, north).

- Historically, the Cawley Site has been either undeveloped or improved with athletic recreational fields. Most of the current Site was historically owned by the Lowell High School Alumni Association, who over time sold portions of the land to the City of Lowell on the condition that the land be used as athletic fields.
- The raw materials storage area is an area which the City of Lowell Parks Department stores large piles of raw materials, including bark mulch, gravel, sand, clay, granite block, etc. The raw materials area also has several areas labeled as “Miscellaneous Fill” and “Miscellaneous Debris”. These pile areas are reportedly only generated onsite, and are for when the athletic facilities are being renovated or improved.
- A 60-foot wide utility easement established in 1972 is located on the western edge of the Site on tax parcel 1840-438.
- Nobis reviewed Federal and State databases for documentation and/or listings of petroleum and/or hazardous materials releases or threats of releases. Due to the locations, distances, and/or inferred hydrogeologic relationships of a majority of the Federal and State database listings, many of the sites are not believed to affect environmental quality at the Cawley Site. One site, former USA Petroleum, is located southeast adjacent to the Cawley Site, and reportedly contains soil and groundwater contamination from a leaking gasoline UST. Given the current regulatory status and inferred upgradient relationship, the former USA Petroleum facility could potentially impact groundwater in the extreme southern portion of the Cawley Site.
- The Cawley Site is connected to the municipal water system, and sanitary facilities are connected to the municipal sewer system. Nobis observed several catch basins across the Site, including in the parking area south of Alumni Baseball Stadium and in the parking lot west of Cawley Stadium. The catch basins are believed to discharge to the municipal stormwater system. Nobis observed floor drains in the Cawley Stadium locker rooms which reportedly discharge to the municipal sewer system. Nobis did not observe any indications of current or former septic systems at the Site. No other floor, ground, or subsurface penetrations were observed at the Site.
- The entire Cawley Site falls within the “Protected Open Space” hatching on a MassDEP 21E Priority Resource Map. Wetlands are illustrated in the northwestern most region of the Site. The map indicates several potential vernal pool locations and one or two small

Estimated Rare Wetland Wildlife Habitats located on undeveloped portions of the northern parcels of the Site.

- Nobis observed one 500-gallon AST adjacent east of the locker rooms for the Alumni Baseball Stadium. The tank is used to store propane, which heats the locker room building. Nobis also observed an 850-gallon AST in the second story utility room beneath the southern bleachers of Cawley Stadium. The water tank is believed to store hot water associated with the locker room facilities. Approximately 5 or 6 small propane tanks used for cooking concession stand food were observed in several areas of the Site. The small propane tanks are reportedly empty. Nobis did not observe any other storage tanks at the Cawley Site.
- The City of Lowell Fire Prevention office contained one record documenting the March 1997 removal of two tanks, one 1,000-gallon oil tank, and one 200-gallon tank. Municipal documentation indicates these two tanks were removed as part of the Cawley Stadium redevelopment effort in 1997. The municipal information indicated the smaller tank was located below grade and was approximately 250 gallons. Nobis did not observe any applicable closure documentation for the tank removals. The precise location of the two tank graves is unknown, but they are presumed to have been near, or beneath, the southern Cawley Stadium bleachers.
- One surface water body, an unnamed tributary of Trull Brook, was observed running along the north and northwestern parcel boundaries of the Cawley Site. Based on topographical maps, the stream flows east and discharges into Trull Brook, located 1500 feet east of the Site. No other surface water bodies, lagoons, or pools of liquid were observed at the Site.
- Nobis observed a multitude of green, empty 55-gallon drums at the Site. All the drums at the Site are reportedly exclusively used for the temporary storage of municipal trash at each stadium.
- Nobis observed four single-story cinderblock electrical buildings across the Site, all of which contained the electrical panels and associated transformers for the field lights. All of the small transformers appeared to be labeled as dry-type transformers, and are not believed to contain PCBs. One pad-mounted transformer was observed west of the Cawley Stadium football field. The transformer did not say whether it contained PCBs. Staining could not be observed on the concrete pad due to the snow blanketing the Site.

- Heat is provided to the Alumni Field locker using propane space heaters fueled by the propane AST. The Cawley Stadium interior facilities are heated using natural gas fueled forced hot air systems. Many of the buildings are affixed with permanent air-conditioning wall units.
- Nobis observed several small stains in the eastern maintenance storage area beneath the Cawley Stadium bleachers. The stains appear isolated and are associated with the storage of landscaping heavy equipment. Nobis also observed several stains on the floor of a gasoline storage shed east of the Cawley Stadium field. The shed contained nine gasoline fuel containers and one large bag of Speedy Dry. Nobis detected a gasoline odor within the small storage shed in which the gasoline was stored. Two small gasoline canisters were also observed in the eastern maintenance storage area.
- Nobis observed two 10-yard solid waste dumpsters and one 30-yard waste roll-off dumpster in the raw materials storage area. One of the dumpsters is used for consolidating solid waste, one of the dumpsters is for cardboard, and the roll off is used for large field or facility renovation projects.
- Nobis observed two new monitoring wells at the Site, one adjacent west of the Martin Softball Field, and one on the southern edge of the football practice fields on the eastern side of the Site. Both monitoring wells are believed to have been installed during the recent geotechnical investigation performed as part of the potential Lowell High School relocation study. Nobis observed one existing flush-mount monitoring well just southeast of the Site on Village Street. This monitoring well is believed to be associated with groundwater monitoring at the former USA Petroleum facility adjacent to the Site to the east.
- Nobis observed four old round steel caps south of the stadium itself, and just north of the access driveway which runs parallel to the southern tax parcel boundary. The caps reportedly cover relic electrical wiring or equipment which is no longer active. One pipe was beneath north bleachers. Nobis did not observe any other ground penetrations, fill pipes, or vent pipes at the Site.
- Municipal files indicate that asbestos abatement occurred at Cawley Stadium in 1997, which had been identified in the women's and men's locker rooms, as well as in the boiler room. Lead-based paint was also found on red railings and support posts at the stadium. Nobis reviewed documentation indicating the railings were anticipated to be repainted.

- Nobis reviewed documentation pertaining to ten test pits excavated in April 2017 on the northern half of the Cawley Site. The test pits were excavated as part of the Feasibility Study to evaluate soil types and drainage characteristics on the Cawley Site. Five of the test pits encountered predominantly sandy soils. The other five test pits (Test pits 6 through 10) encountered predominantly fill material including metal, brick, glass, and concrete. Additionally, a petroleum odor was detected in Test Pit 8 in soils approximately 4 to 8 feet below grade. The presence of historical fill material constitutes a REC, indicating contamination may have been released to the environment from the placement of fill.

8.0 CONCLUSIONS

In accordance with ASTM Practice E 1527-13 requirements, the Environmental Professionals that prepared this Phase I ESA provide the following Statement of Conclusion:

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527 of the Site known as the Martin Alumni Athletic Complex (referred to by the Feasibility Study team as the Cawley Site) and located at approximately 440 Douglas Road, Lowell, Massachusetts. Any exceptions to, or deletions from, this practice are described in Section 1.4 and Section 11.0 of this report. This assessment has revealed evidence of current recognized environmental conditions at the Site.

9.0 OPINION

Based on the review of the documentation available for this Phase I ESA and observations made during a Site inspection, it is the opinion of the Environmental Professionals who prepared this assessment that the following RECs exist on the Site:

- REC-1: According to the review of test pit logs prepared by Nitsch Engineering in April 2017 as part of the Feasibility Study, the northern portion of the Cawley Site appears to have been reclaimed through the placement of urban fill material. Nitsch Engineering observed urban fill materials including metal, brick, glass, and concrete in four test pits excavated to the north of the softball stadium. A petroleum odor was noted in one of the test pits. The placement of historical fill material at the Cawley Site may have resulted in the release of contaminants to the environment. If construction activities were to be implemented in this portion of the Site, pre-construction soil sampling would be recommended to establish the presence or absence of contamination, and to determine soil management and/or remediation requirements.
- REC-2: The EDR[®] SHWS database identifies USA Petroleum, located adjacent southeast of the Cawley Site, as a Disposal Site which remains open from a MassDEP regulatory perspective. This former retail gasoline facility contains both soil and groundwater contamination associated with a historical release from a gasoline UST. Groundwater flow is inferred to be in the direction of the Cawley Site. The upgradient status of the Former USA Petroleum site constitutes a REC, as the groundwater contamination could potentially impact environmental conditions at the Cawley Site.

Groundwater results obtained during 2017 from two nearby monitoring wells (MW-8 and MW-9) indicate low levels of groundwater contamination adjacent to the eastern property boundary of the southernmost parcel of the Site, suggesting there is no immediate threat of groundwater contamination on the Cawley Site. However, potential future construction activities (i.e. dewatering) at the Cawley Site could potentially modify subsurface conditions and permit groundwater contamination to migrate onto the Site. If a building were to be proposed for construction on this southern portion of the Cawley Site, pre-construction groundwater sampling would be recommended to confirm the absence of contamination, or to ensure that the proper

engineering controls could be incorporated into the design of the building to prevent contaminant exposure to occupants via vapor intrusion.

Several observations were made during the Phase I ESA Site reconnaissance that, while not constituting RECs, were noted as potential environmental concerns:

- Nobis observed municipal documentation indicating two USTs had once occupied the Cawley Site, both near Cawley Stadium. Nobis did not observe any appropriate closure documentation on file with the City of Lowell, or documentation indicating their precise former locations. The municipal documents did indicate the tanks were removed in March 1997. Given the extensive redevelopment reports and meeting summaries observed on file at the City of Lowell, Nobis believes that if significant soil or groundwater contamination was encountered, the City would have been notified and corrective actions would have been documented.
- Nobis observed varying amounts of oils, lubricants, and fuel in both the maintenance storage areas beneath Cawley Stadium and in the small outbuilding east of the Cawley Stadium field. Nobis also observed a petroleum odor in the outbuilding and a large bag of Speedy Dry. Small amounts of staining were observed on the concrete floors in the eastern maintenance storage area and in the outbuilding. The floors appeared to be competent, and no subsurface soil was exposed in the areas of the staining. Although Nobis did not observe staining at the magnitude to constitute evidence of a reportable release, these containers would ideally be stored in a centralized location and stored within secondary containment that would prevent a release. Site personnel should remain diligent about overfill prevention, and should inspect heavy equipment for leaks routinely.

10.0 ADDITIONAL SERVICES

No additional services were performed for this Phase I ESA.

11.0 DEVIATIONS

Substantive deviations from ASTM E1527-13 “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” are detailed in Section 1.4. Unless noted, no other deviations were made from ASTM E1527-13.

12.0 REFERENCES

ASTM Standards on Environmental Site Assessments for Commercial Real Estate (E 1527-13), Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, 2013.

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EDR® Aerial Photo Decade Package, Environmental Data Resources Inc., Inquiry Number: 4882973.9, March 17, 2017

EDR® Historical Topographic Map Report, Environmental Data Resources Inc., Inquiry Number: 4882973.4, March 17, 2017

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13.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

This section presents the qualifications of the Environmental Professionals that performed the assessment of the Site. The following attestations are presented to satisfy the requirements of the All Appropriate Inquiries (AAI) Rule (40 CFR Part 312):

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of this part. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Erik Johnson

Project Scientist

- Over 9 years of experience as an environmental professional performing ASTM Phase I and Phase II property investigations and hazardous material surveys.
- Conducting site investigations and remediation activities at sites contaminated with petroleum or hazardous materials throughout the Northeast United States.
- Performing field investigations, providing contractor management, coordinating environmental projects, preparing reports and interfacing with Federal, State and local regulatory agencies.

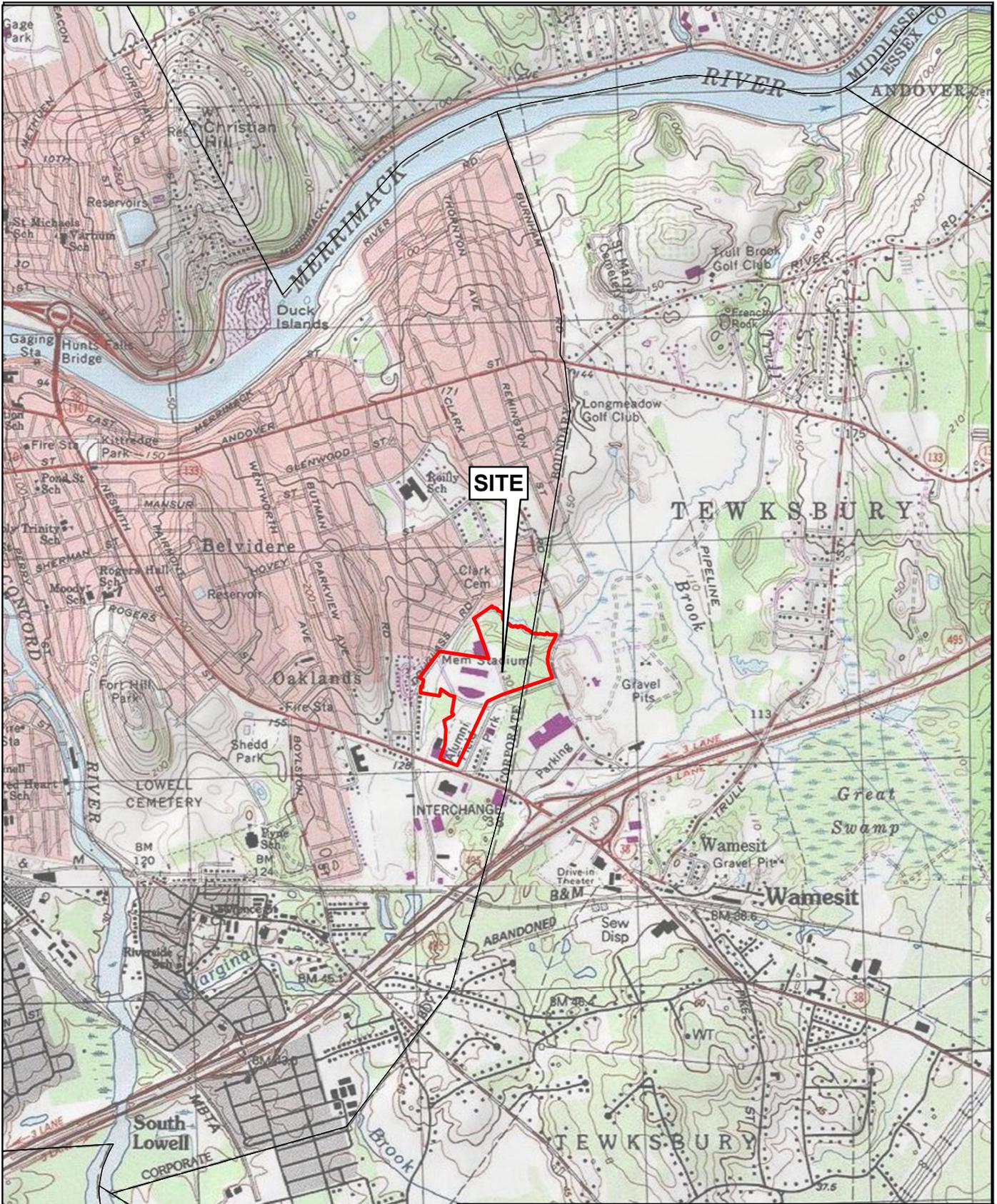
Stephen Vetere, PE, LSP, LEP

Senior Project Manager

- Over 18 years of experience as an environmental professional performing ASTM Phase I and Phase II property investigations and hazardous material surveys.
- Licensed Site Professional (LSP) certified to practice environmental consulting in the Commonwealth of Massachusetts.
- Conducting site investigations and remediation activities at sites contaminated with petroleum or hazardous materials throughout the Northeast United States.
- Experience with hazardous waste remediation design, groundwater flow modeling, contaminant fate and transport, air and water quality, wastewater treatment, and solid waste.

FIGURES

Path: O:\Active\91830.00 - Lowell High School, Lowell MA - Perkins E\91830.00 Phase I\Lowell HSGIS\Figures\Figure 1 Lowell High Locus.mxd Date Printed: 5/5/2017



USGS Topographic Map
 Lowell, Mass.
 Revised 1987

0 500 1,000 2,000

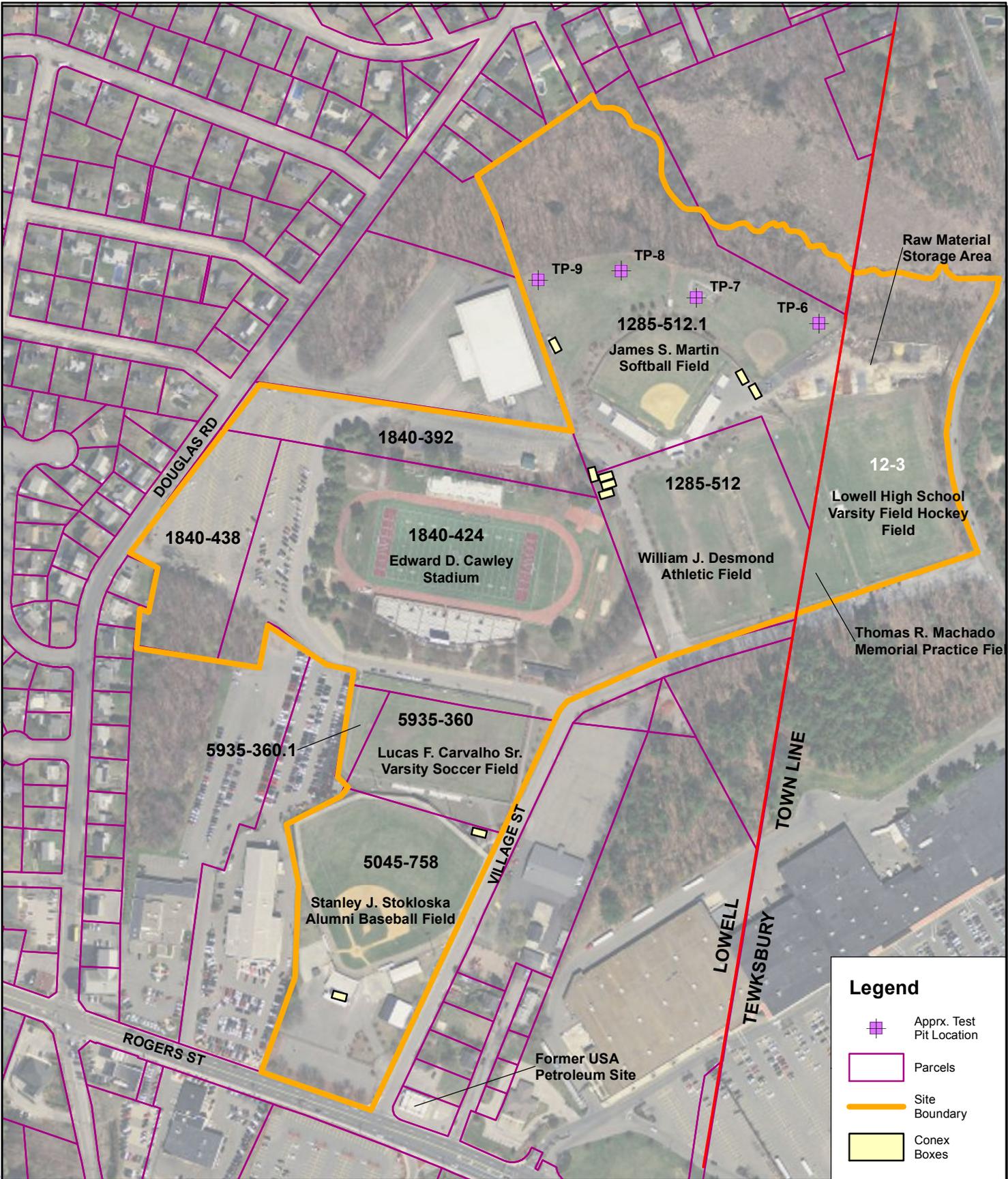
Feet 1 inch = 2,000 feet



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FIGURE 1	
LOCUS MAP CAWLEY SITE-PHASE I LOWELL HIGH SCHOOL LOWELL, MASSACHUSETTS	
PREPARED BY: AG	CHECKED BY: EJ
PROJECT NO. 91830.01	DATE: APRIL 2017

C:\Active\91830.00 - Lowell High School, Lowell MA - Perkins E191830.01 Phase II Lowell HS-Phase I Cawley\GIS\Figures\Figure 2_Site Plan-wert.mxd 5/5/2017 dmcgrath



Legend

- Apprx. Test Pit Location
- Parcels
- Site Boundary
- Conex Boxes

Notes:

1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.



Feet 1 inch = 300 feet



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FIGURE 2

PHASE I ESA - CAWLEY SITE
 LOWELL HIGH SCHOOL
 LOWELL, MASSACHUSETTS

PREPARED BY: AG

CHECKED BY: EJ

PROJECT NO. 91830.01

DATE: APRIL 2017

MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

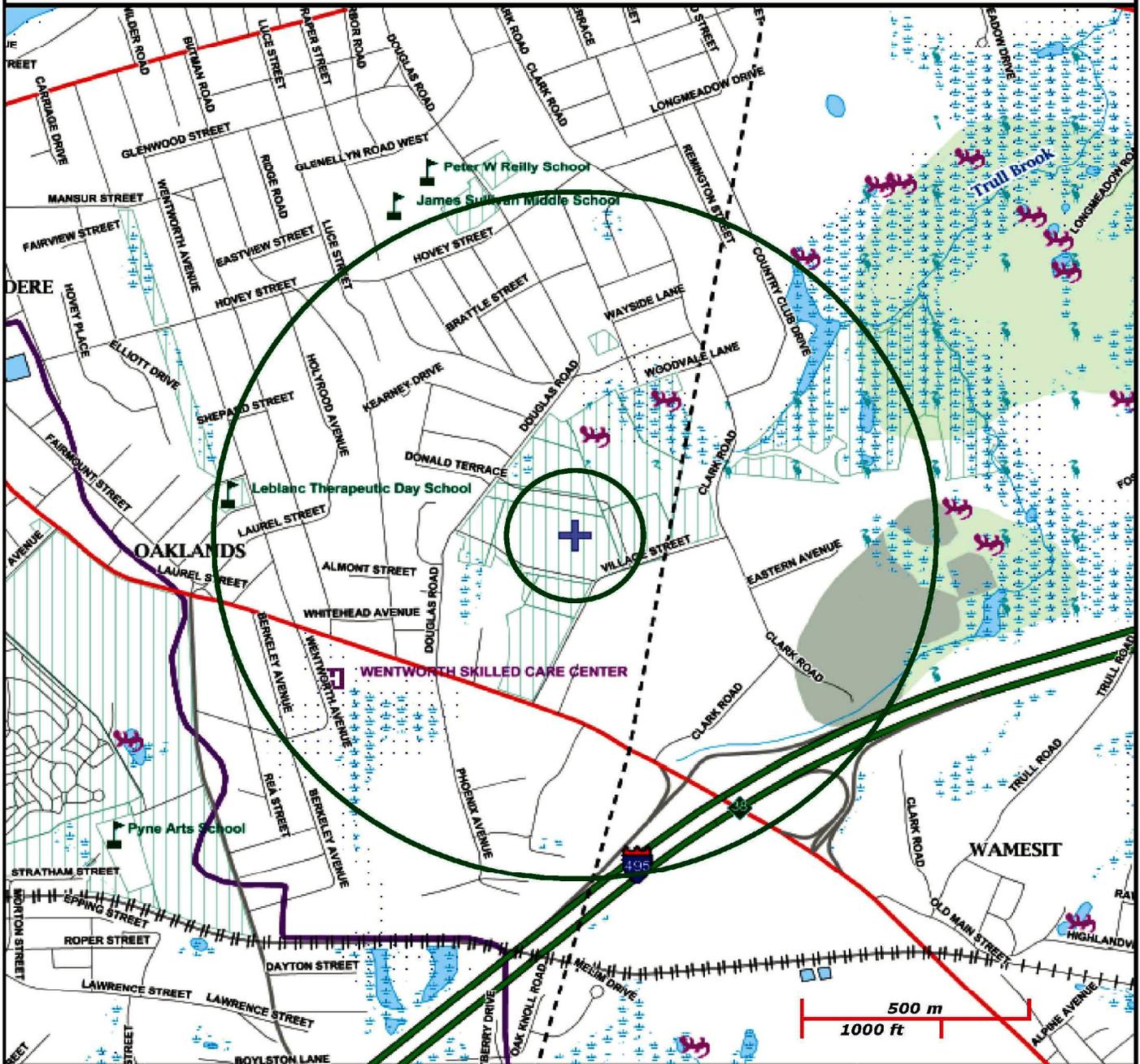
Site Information:
 CAWLEY MEMORIAL STADIUM
 440 DOUGLAS ROAD LOWELL, MA

NAD83 UTM Meters:
 4722617mN , 313363mE (Zone: 19)
 April 3, 2017

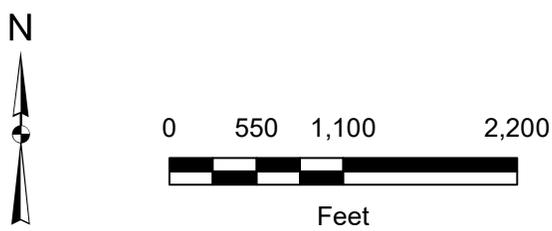
The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at:
<http://www.mass.gov/mgis/>



MassDEP
 Commonwealth of Massachusetts
 Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail	PWS Protection Areas: Zone II, IWPA, Zone A
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct	Hydrography: Open Water, PWS Reservoir, Tidal Flat
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam	Wetlands: Freshwater, Saltwater, Cranberry Bog
Aquifers: Medium Yield, High Yield, EPA Sole Source	FEMA 100yr Floodplain; Protected Open Space; ACEC
Non Potential Drinking Water Source Area: Medium, High (Yield)	Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert, Potential
	Solid Waste Landfill; PWS: Com, GW, SW, Emerg., Non-Com



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FIGURE 3
 PHASE I- CAWLEY SITE
 MASSGIS MAP
 LOWELL HIGH SCHOOL
 LOWELL, MASSACHUSETTS

PREPARED BY: AG	CHECKED BY: EJ
PROJECT NO. 91830.01	DATE: APRIL 2017

C:\Active\91830.00 - Lowell High School, Lowell, MA - Perkins_E\91830.01 Phase II Lowell HS-Phase I Cawley\GIS\Figures\Figure 3 - Mass DEP Assessment.mxd 4/3/2017 agoldberg