

**PHASE IV  
REMEDY IMPLEMENTATION PLAN FOR THE  
AREA NORTH OF THE RACEWAY**

**OXFORD PAPER MILL  
21 CANAL STREET  
LAWRENCE, MASSACHUSETTS**

**RTN 3-2691**

*Prepared for:*

Office of Planning & Development  
City of Lawrence  
Lawrence, Massachusetts 01840

*Prepared by:*

Stone & Webster Massachusetts, Inc.  
A Shaw Group Company  
100 Technology Center Drive  
Stoughton, MA 02072

February 2012

**TABLE OF CONTENTS**

1.0 INTRODUCTION ..... 1

2.0 BACKGROUND ..... 2

    2.1 Site Description and General Information ..... 2

    2.2 Previous Response Actions and Assessment Activities..... 3

    2.3 Activities Subsequent to Capping Park Area..... 3

3.0 DESIGN CONCEPT..... 3

    3.1 Remedial Alternatives for the North Side..... 3

    3.2 Park Design..... 4

        3.2.1 North Side and South Portion of North Side ..... 4

        3.2.2 Raceway Design..... 4

4.0 REFERENCES ..... 6

**List of Figures**

- Figure 1 Site Locus Map
- Figure 2 Site Plan
- Figure 3 Site Plan of Park

**Attachments**

Attachment 1 Park Specifications and Drawings (Submitted as a CD under separate cover)

**List of Acronyms**

ACM	Asbestos Containing Material
AUL	Activity and Use Limitation
COL	City of Lawrence
COCs	Contaminants of Concern
CSA	Comprehensive Site Assessment
CY	Cubic Yard
HASP	Health and Safety Plan
LFR	Levine-Fricke
LGI	Lawrence Gateway Initiative
MADEP	Massachusetts Department of Environmental Protection
MassDEP	Massachusetts Department of Environmental Protection
MCP	Massachusetts Contingency Plan
MEK	methyl ethyl ketone
MHD	Massachusetts Highway Department
MassDOT	Massachusetts Department of Transportation
MIBK	methyl isobutyl ketone
msl	mean sea level
NASDI	North American Site Developers
OHM	Oil and/or Hazardous Materials
OPM	Oxford Paper Mill
PCB	polychlorinated biphenyls
RAO	Response Action Outcome
RIP	Remedy Implementation Plan
RTN	Release Tracking Number
S&W	Stone & Webster Massachusetts, Inc.
THF	tetrahydrofuran
TSCA	Toxic Substance Control Act

## 1.0 INTRODUCTION

The Oxford Paper Mill (OPM) in Lawrence, Massachusetts consists of the north side, south side and the raceway. This Remedy Implementation Plan (RIP) encompasses design information pertaining to the area north of the raceway and the northerly portion of the south side of OPM (the Site). The general site location is depicted on **Figure 1** and the entire site is depicted on **Figure 2**. **Figure 3** shows the area that is covered by this RIP (area north and in part on the south of the raceway). This RIP was conducted by Stone & Webster Massachusetts, Inc. (Stone & Webster or S&W), a Shaw Group Company, on behalf of the City of Lawrence (COL), the owner of the OPM property. OPM has been assigned release tracking number (RTN) 3-2691 by the Massachusetts Department of Environmental Protection (MADEP). This RIP is based on the information provided in the Phase II and Phase III reports for the north and south sides (See References Section 4.0).

The site (north and the northerly portion of the south side) will be developed into a park with the southern portion of the area south of the raceway supporting a newly designed bridge constructed by MassDOT. Canal Street will be relocated to accommodate the new bridge construction. Once completed, the bridge and passive park will be key parts of the revitalization of the downtown area of Lawrence once it is completed. The City of Lawrence is seeking to redevelop this property as part of the Lawrence Gateway Initiative (LGI). The LGI is a comprehensive, coordinated redevelopment plan to help revitalize the City of Lawrence.

Asbestos Containing Material (ACM) is the significant contaminant of concern (COC) for soils found on the north side. Information provided in the Phase II and Phase III for the south side provides sampling information that asbestos in soil was not found on the south side of the raceway. Due to the presence of the ACM in soil and the City's plan to use the property as a park, this RIP details plans to provide a 3 foot soil cap over the ACM soils (or 1 foot cap in the paved areas).

The City of Lawrence is conducting the RIP.

Entity: The City of Lawrence  
Address: 225 Essex Street  
Lawrence, Massachusetts 01840-1517  
Contact: Mr. Arthur McCabe  
Relationship: Manager of Community Development

The Licensed Site Professional (LSP) for this RIP is:

Ronald Richards LSP License #4488  
Shaw/Stone & Webster  
100 Technology Center Drive  
Stoughton, MA 02072  
617-589-5499

## 2.0 BACKGROUND

### 2.1 Site Description and General Information

The former OPM Site, Release Tracking Number 3-2691, is located on approximately three acres of land in Lawrence, Massachusetts, immediately northwest of the intersection of Canal Street and the Spicket River (refer to the Site Locus Map attached as **Figure 1**). A small portion of the OPM is also located north of Canal Street on the eastern bank of the Spicket River (an urban surface water body that abuts the OPM). The OPM is transected by a raceway, which discharges to the Spicket River. The area north of the raceway was previously occupied by densely packed mill buildings. Buildings north of the raceway were demolished in the 1970s. Oxford Paper ceased operations at the Site in the mid-1970s. The COL took ownership of the property in 1983. When site assessment and remediation activities were conducted, it was determined that ACM was present over much of the north side. Testing found that there was no ACM left on the south side. The ACM was found to be present at depth in some areas. It is believed that the presence of ACM on the north side is due to the demolition of the mill buildings without conducting an asbestos abatement removal program, whereas demolition on the south side was conducted using an asbestos abatement removal program.

The area north of the raceway is in an area of commercial and industrial development within downtown Lawrence, Massachusetts. The area north of the raceway at one time contained buildings that were once part of a paper mill. The raceway was constructed and used as a power source for generation for some of the site buildings and it also was used as a means of fire protection. Currently, the property does not contain any buildings due to prior demolition activities. The OPM contains vegetation that includes trees around the perimeter. The area covered by this RIP is bounded to the north and east by the Spicket River and to the south by the area being used by MassDOT to construct the new bridge over the Spicket River and related roadways and to the west by a commercial parking lot. Access to the property is partially restricted by fencing along the south and west boundaries. A Site Plan for the raceway and the area north of the raceway is presented in **Figure 3**.

GenCorp, Inc. (GenCorp), the Everett Mills property, and Union Street are west of the Site. The GenCorp facility, which was formerly occupied by Bolta Products and used for manufacturing rubber and plastic products, is now a parking lot. The GenCorp facility was used most recently for manufacturing plastics and vinyl coated fabrics; polyvinyl chloride, resins, methyl isobutyl ketone (MIBK), methyl ethyl ketone (MEK), and tetrahydrofuran (THF) were used as part of these manufacturing operations. The Everett Mills property is currently used for commercial purposes.

Canal Street and the North Canal are south of the OPM site beyond where there are other historic mill buildings. The Spicket River is north and east of the Site. The Lawrence General Hospital is beyond the Spicket River to the north.

## **2.2 Previous Response Actions and Assessment Activities**

Multiple assessments and response actions have been conducted on the north side of the OPM site. Most recently, the area near the raceway was recontoured and stabilized on a temporary basis. As detailed in the Phase II and Phase III reports, the asbestos containing material (ACM) is the risk driver on the north side. Due to the depth and extent of the ACM, it was determined in the Phase III report that capping the area and subsequently using it as a park was the selected remedial alternative. Note that no ACM was found on the south area of the site. The COC on the south side is the PCB hot spot which will be totally covered by the roadway approaching the bridge.

## **2.3 Activities Subsequent to Capping Park Area**

At the completion of remedial activities, a Class A-4 Response Action Outcome (RAO) and Activity and Use Limitation (AUL) will be implemented for the area north of the raceway in order to maintain a condition of No Significant Risk restricting the use of the Site to a passive park. The AUL will provide details regarding the inspections required and the responsible individual. It is anticipated that the AUL will require annual inspection by the City to make sure that no significant ground erosion has occurred and that the orange barrier (described in Section 3.1) on the top of the ACM soils and below the cap is not exposed. If any significant erosion has occurred or the barrier exposed, at a minimum, that area of the park would be closed and the City will stabilize the area providing 3 feet of clean fill above the orange barrier separating the ACM soil from the cap.

GenCorp will complete the remediation of the raceway in accordance with their RIP. Since the most significant COC on the north side is asbestos, and the COC on the south side is PCBs, the Phase II and Phase III reports have been separated for each side of the site. S&W will prepare a final RAO report for the entire site.

## **3.0 DESIGN CONCEPT**

### **3.1 Remedial Alternatives for the North Side**

In the Phase III, three remedial alternatives were evaluated for areas north of raceway at the OPM; no further action, soil excavation and disposal, geotextile capping combined with excavation and transportation and disposal off-site and geotextile capping combined with excavation and relocation of soils on-site. No further action with institutional controls was evaluated as a baseline; however this would not be effective for areas north of the raceway at the OPM, due to the future use as being a passive park. If no further action was conducted for areas north of the raceway at the OPM, contamination would remain on site, exposure to the contamination would still be present and a permanent solution would not be reached.

Due to the level and characteristics of contamination of the wedge area soil (the soil on the slope to the raceway), the best remedial alternative was excavation and disposal since it would achieve a permanent solution for this heavily contaminated area. This work was completed. The best remedial alternative for the excavated wedge area and North area for future use as a passive park, based on the screening provided in Phase III, is the geotextile capping alternative combined with excavation of approximately 2675 CY of asbestos contaminated soil and relocation of approximately 2175 CY on site and disposal of the remainder off-site. The capping of the wedge and North areas with the relocation of the excavated soils on site the north side of the site will save the project significant costs. The significant cost savings are due largely to the elimination of the disposal costs and the reduction of backfill needed to bring the North area back up to site grade. Based on cost and risk reduction, this was found to be the best remedial alternative for the entire site.

### **3.2 Park Design**

In an effort to help revitalize the City of Lawrence, the OPM site will be converted into a passive park to enhance the quality of the Canal Street area. Along with the park, a newly designed bridge will be constructed on the south side of the site by MassDOT. This bridge will cross over former Building No.28, over the Spicket River and onto the south side of the OPM where it will meet the relocated Canal Street. This bridge will be erected in order to provide a link between I-495 and Lawrence's downtown industrial and commercial centers. On the south side of the site, the bridge will cover the PCB hotspot (a separate RIP will be submitted for this work) with the park covering areas that have been remediated to below S-1 MCP criteria. The park design covers the north side and raceway as detailed below.

#### **3.2.1 North Side and South Portion of North Side**

At the completion of construction, the entire north side will be turned into a passive park. The wedge area, which is part of the north side, contained contaminated soils that were removed down to elevation 18 above msl as part of the remediation goals for the site. S&W plans to place an orange demarcation fabric covered by an additional three feet of clean fill over the north side as part of the construction of a cap to remediate the site. This will ensure that the asbestos contaminated soil beneath the cap is isolated from the public and the potential exposure pathway is minimized. Please see the design specifications and drawings included in Attachment 1. (Specifically Sheet X-0 for Existing Conditions and Sheet L-5 for the Grading Plan.) Sheet 5A provides cross section details for additional information. The specifications also require the contractor to develop a HASP consistent with the requirements of the MCP.

#### **3.2.2 Raceway Design**

The site is divided into two sections, the south side and the north side. Cutting through these two areas is a raceway that flows west to east and empties into the Spicket River that flows north to south (Figure 2). The raceway is located at an elevation of approximately 18 feet above msl. It was constructed to supply water for power generation and manufacturing purposes for a number of the Site buildings and used secondary as a means of fire protection.

Sediments in the raceway are presently PCB contaminated. GenCorp is responsible for remediating the material that is located in the raceway including but not limited to sediment that may or may not be PCB contaminated.

Once the cleanup of the raceway is completed, it is anticipated that concrete culverts and clean fill will be installed in this area to build up the elevation and to follow the current topography of the north and south sides<sup>3</sup>. The backfilled area is anticipated to span from the top of slope of the wedge area on the north side to the top of slope of the final site grade (elevation 50) on the south side. Details are provided in the RIP for the North Side and Park submitted along with this RIP.



#### 4.0 REFERENCES

- Eckenfelder, Inc. 1998. *Phase II Groundwater Model Report for the GenCorp Inc., Volume I – Text*. Prepared for GenCorp Inc. – Lawrence Location. September 1998.
- ENSR Corporation 2002. *Spicket River Sediment Screening Report GenCorp Inc., Lawrence Location*. March 2002.
- Massachusetts Department of Environmental Protection (DEP), 1997. *Massachusetts Contingency Plan, 310 CMR 40.0000*.
- Stone & Webster Massachusetts, Inc. (S&W), 2004. *Release Abatement Measure Plan for Oxford Paper Mill, Lawrence, MA*. Prepared for the City of Lawrence, April 2001.
- Stone & Webster Massachusetts, Inc. (S&W), 2005. *Release Abatement Measure Status Report for Areas South of the Raceway, Lawrence, MA*. Prepared for the City of Lawrence, August 2005.
- Stone & Webster Massachusetts, Inc. (S&W), 2006. *Phase II Comprehensive Site Assessment for Areas South of the Raceway*.
- Stone & Webster Massachusetts, Inc. (S&W), 2006. *Phase III Remedial Action Plan for Areas South of the Raceway*
- Stone & Webster Massachusetts, Inc. (S&W), 2006. *Phase II Comprehensive Site Assessment for Areas North of the Raceway*.
- Stone & Webster Massachusetts, Inc. (S&W), 2006. *Phase III Remedial Action Plan for Areas North of the Raceway*
- United States Department of Agriculture, Soil Conservation Service, in cooperation with the Massachusetts Agricultural Experiment Station. 1981. *Soil Survey of Essex County, Massachusetts Northern Part*.

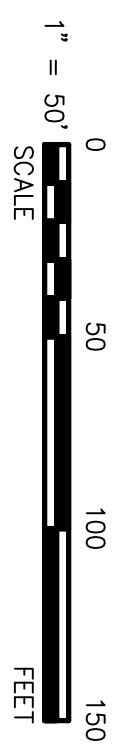
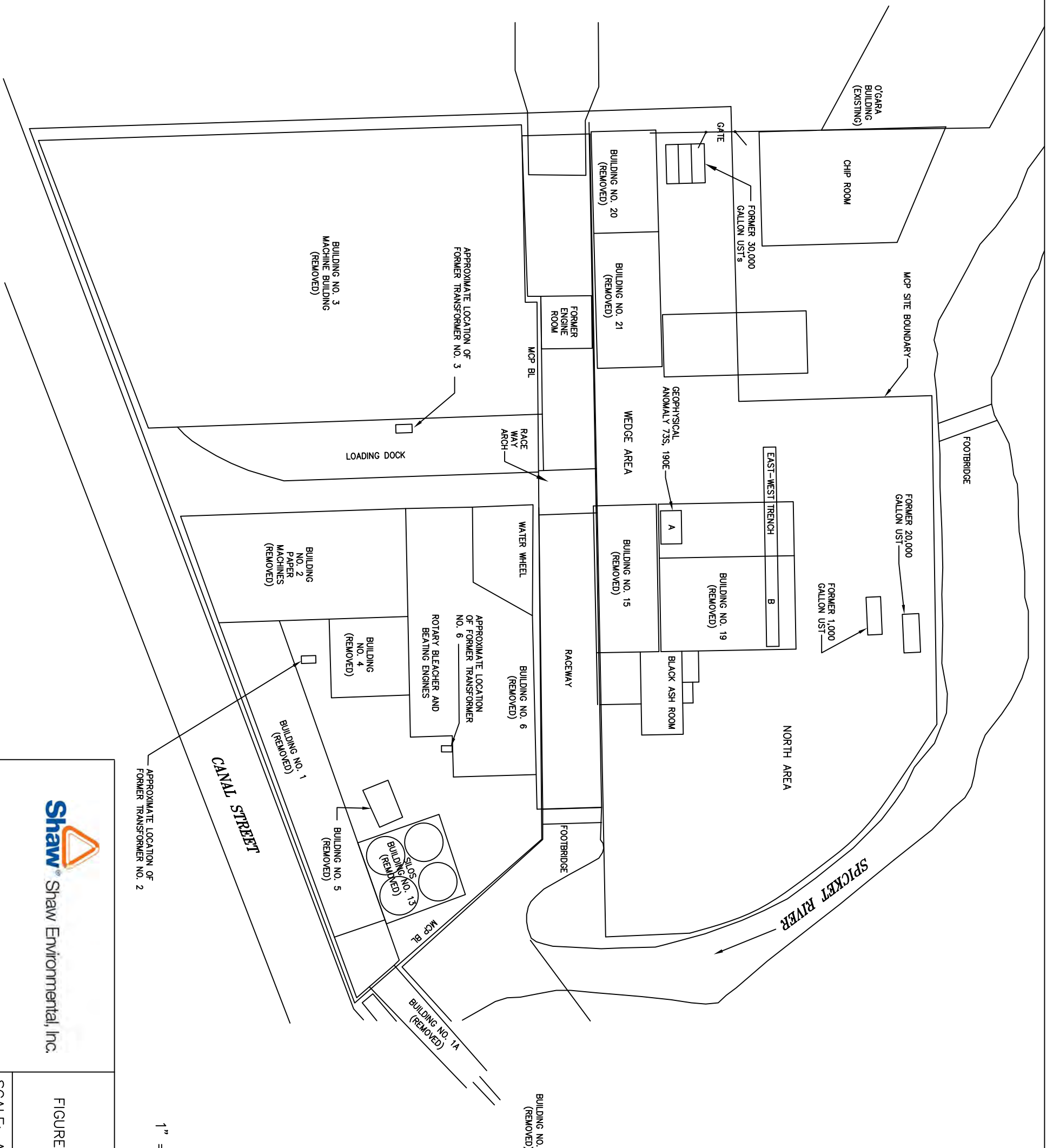
## **FIGURES**



Data Sources:  
 MassGIS, Commonwealth of Massachusetts,  
 Executive Office of Environmental Affairs  
 Latitude: 42 42' 27" N  
 Longitude: 71 08' 59" W

**Figure 1: Site Locus Map**  
**Former Oxford Paper Mill**  
**Lawrence, MA**

project:massachusetts/oxfordpapermill - locustmap.mxd



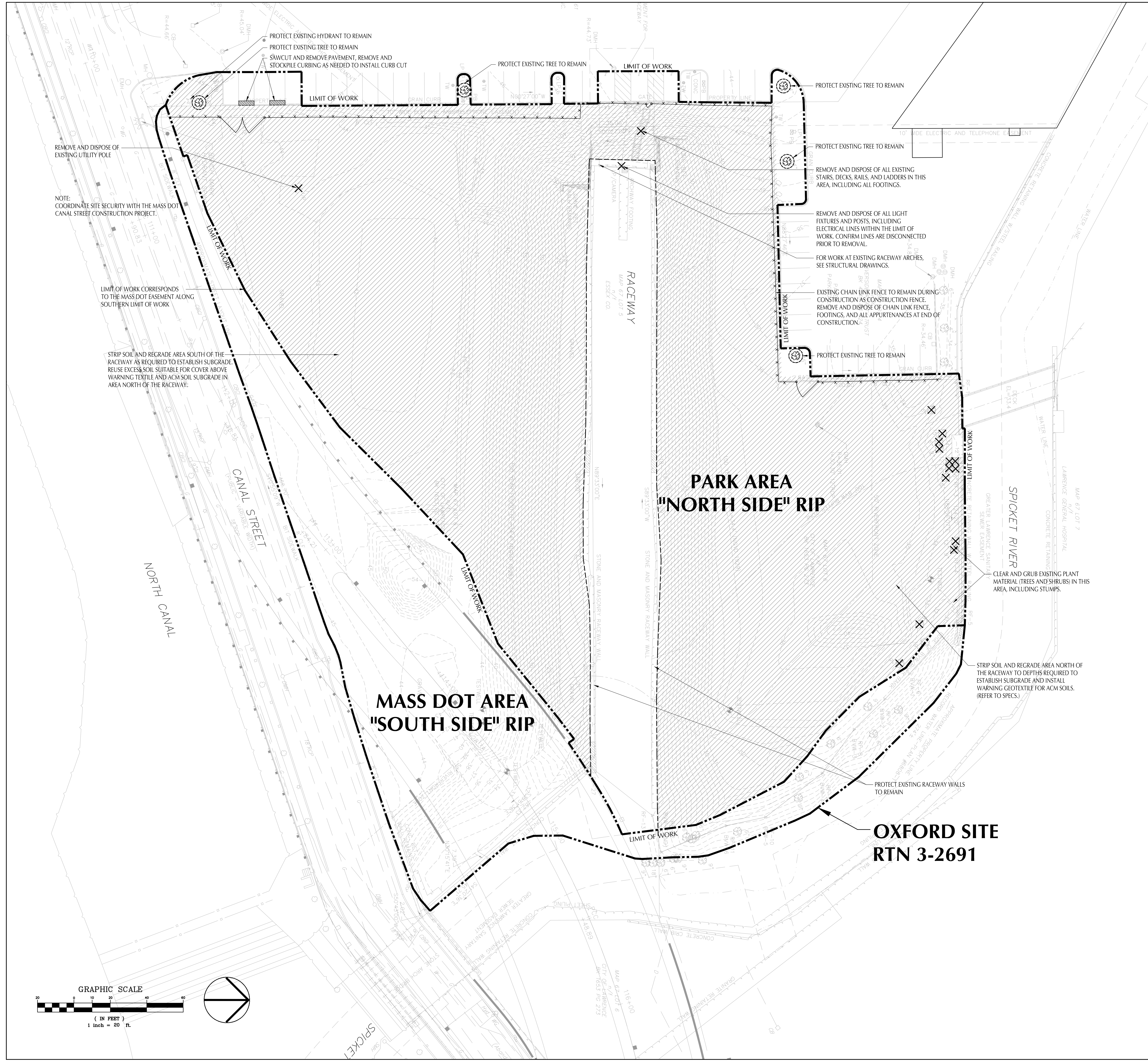
OXFORD PAPER MILL SITE  
 LAWRENCE, MASSACHUSETTS  
 FIGURE 2 -- SITE PLAN DEPICTING AREAS NORTH AND SOUTH OF RACEWAY

SCALE: AS NOTED 02\_16\_06 JWR



SITE PREPARATION & DEMOLITION LEGEND		
SYMBOL	DESCRIPTION	REF.
---	LIMIT OF WORK	
X	ITEM TO BE REMOVED	
[Diagonal Hatching]	ALL DEBRIS TO BE REMOVED. ACM SOIL TO BE REMOVED AS NEEDED FOR CAP & COVER.	SEE SPECS.
[Cross-hatching]	PAVEMENT AND CURB TO BE SAWCUT AND REMOVED	

NOTE:  
FOR SITE PREPARATION AND DEMOLITION NOTES  
SEE SHEET X-1 NOTES.

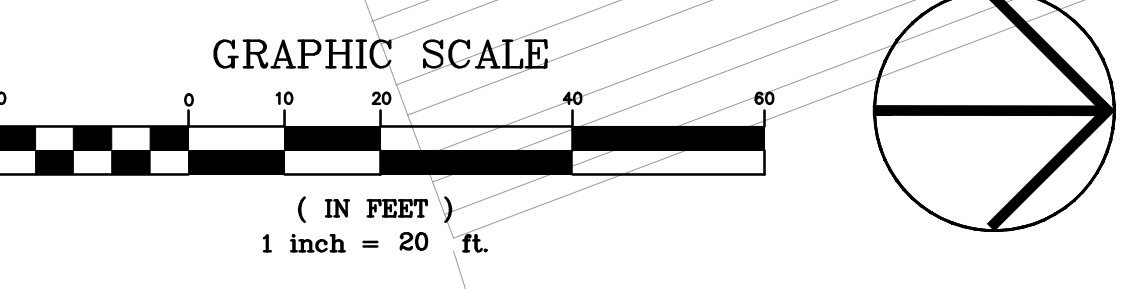


REMOVE AND DISPOSE OF EXISTING UTILITY POLE

NOTE:  
COORDINATE SITE SECURITY WITH THE MASS DOT CANAL STREET CONSTRUCTION PROJECT.

LIMIT OF WORK CORRESPONDS TO THE MASS DOT EASEMENT ALONG SOUTHERN LIMIT OF WORK

STRIP SOIL AND REGRADE AREA SOUTH OF THE RACEWAY AS REQUIRED TO ESTABLISH SUBGRADE. REUSE EXCESS SOIL SUITABLE FOR COVER ABOVE WARNING TEXTILE AND ACM SOIL SUBGRADE IN AREA NORTH OF THE RACEWAY.



NO.	DESCRIPTION	DATE

STAMP:

LAWRENCE  
GATEWAY -  
OXFORD PARK

SA PROJECT NUMBER:  
11021.0.00

SCALE: 1"=20'-0"  
DRAWN BY: SC, PT  
REVIEWED BY: PS

DATE:  
JANUARY 19, 2012

SHEET TITLE:  
SITE PREPARATION  
& DEMOLITION  
PLAN

SHEET NUMBER:

L-1

**ATTACHMENT 1**

Park Specifications and Drawings