May 14, 2009

Mr. Jaspal S. Walia, P.E.
Environmental Engineer II
NY State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Ave.
Buffalo, NY 14203

Re: Work Plan for Buried Brass Cylinder Test Pit Investigation
Former NL Industries Site
3241 Walden Avenue, Depew, New York

Dear Mr. Walia:

We would like to thank you and Mr. Doster for taking the time to meet with us on March 20th. Per our discussions, Benchmark Environmental Engineering and Science, PLLC (Benchmark) is herein submitting a Work Plan for supplemental (test pit) investigation activities to check for the presence of buried, ethyl mercaptan-containing brass cylinders in the truck yard area of the subject property. A description of our proposed approach to the work is presented below.

BACKGROUND

The former NL Industries site, located at 3241 Walden Avenue in the Village of Depew, is an inactive lead processing facility formerly operated by NL Industries. It currently houses Metro Waste Paper Recovery, a subsidiary of Norampac Industries. Metro Waste operates a paper fiber recycling operation at the site. According to state and local records, operations at this location started in 1872, and ceased in 1972. Past on-site activities included brass foundry operations, smelting operations carried out in the early 1900's, and the processing of metal alloys used for ball bearing surfaces. The rectangular 7.5 acre site contains one main building on the east side of the property, and a scale house and small storage building in the truck yard west of the main building. The site is immediately bordered on the south by an active, high speed CSX railroad track serving Buffalo, and commercial parcels to the west and east. Across Walden Avenue to the north and northeast lies a residential area of single and multi-family family homes

Onsite remedial activities involving consolidation and capping of lead and PAH-impacted soil/fill materials as well as off-site disposal of excess impacted soil/fill were completed under the NY State Brownfield Cleanup Program in 2008. The onsite consolidation/containment cell is located in the center of the property, and was capped with an asphalt cover to facilitate truck parking. During prior work activities in the truck yard area of the property (i.e., between the elevated containment cell and the main building),

2558 Hamburg Turnpike, Suite 300 | Lackawanna, NY 14218
phone: (716) 856-0599 | fax: (716) 856-0583

mercaptan-filled brass cylinders were encountered in shallow subsurface fill materials. In particular, an area of cylinders was encountered during construction of storm water drainage improvements east of the containment cell (see Figure 1). The NYSDEC has indicated that prior to issuing a Certificate of Completion for the remedial work it will be necessary for Norampac to determine if concentrated pockets of buried cylinders are present in other areas of the truck yard, and to remove such pockets of cylinders if discovered and if feasible based on proximity to utilities, existing structures, etc.

Based on these findings, Norampac retained Benchmark to assess non-intrusive methods for delineating the cylinders. The results of Benchmark's assessment are contained in our letter to the Department dated February 16, 2009. In general, the assessment indicated that the conventional and unconventional magnetic and electromagnetic non-intrusive methods would not be successful in identifying the cylinders or would be subject to false positive detections. The NYSDEC subsequently determined that an intrusive investigation approach involving excavation of test pits would be necessary. It was agreed that the investigation would be focused on those areas of the site where historic information (e.g., prior boring data and/or historic site mapping) suggested a potential for disposal.

BRASS CYLINDER ORIGIN

The cylinders are believed to be railroad implements historically used to provide olfactory indication of rail wheel bearing failure/overheat. In the book *The American Railroad Passenger Car* (John H. White, Jr, 1978) a similar device is described by the author. The cylinders are characterized as small brass capsules with soft plugs that were placed in the rail wheel bearing box, and melted upon overheating of rail wheel bearings (a problem common to friction bearings, which required frequent manual lubrication to prevent overheating and failure). Upon melting the cartridge would release olfactory evidence of impending bearing failure, alerting railroad personnel to the need for maintenance. As friction bearings were in threat of replacement by a more superior roller bearing design, the devices were viewed as a means to perpetuate the friction bearing wheels. The cylinders were reportedly manufactured by New York Central Railroad beginning in the early 1930s, but were phased out in the late 1950's as trackside heat sensors were installed to provide more reliable bearing failure detection.

HISTORICAL DOCUMENT REVIEW

As discussed above, it was agreed that intrusive investigation to check for the presence of buried cylinders would be focused on areas of the Site where historic site information indicated potential disposal areas and/or where prior investigation results yielded visual or olfactory evidence of mercaptan cylinders. Accordingly, Benchmark reviewed historic aerial photos and Sanborn (fire insurance) maps to check for former depressions/disturbances,

historic foundations, or other indications of filling activity particularly during the 1940s and thereafter based on the history of brass cylinder manufacture and use. A summary of the findings is presented below.

Aerial Photos

Historical aerial photographs were obtained through Environmental First Search, Erie County GIS, and New York State GIS. Changes in land use, evidence of disturbance and general subject property characteristics were noted and are described below. Copies of the aerial photographs are included in Attachment 1.

YEAR	OBSERVATIONS
2006	Building configuration is consistent with present day. Tractor trailers are present at various locations in the yard. No evidence of depressions, disturbance or filling
1983	Building configuration is consistent with present day. Tractor trailers are present at various locations in the yard. No evidence of depressions, disturbance or filling
1974	Building configuration is consistent with present day. No evidence of depressions, disturbance or filling
1951	Main building configuration appears consistent with present day; possible evidence of small building between present-day scale house and main building. Photo does not extend far enough east to view truck yard.
1938	Main building configuration appears consistent with present day. Truck yard appears unpaved; no readily apparent filling or depressions
1920	Main building does not extend as far east as present configuration. Truck yard appears unpaved; evidence of lagoon on south side of property in area currently beneath containment cell. No readily apparent filling or depressions in truck yard.

Sanborn Maps

Available Historical Sanborn Maps were obtained through Environmental First Search. Relevant observations are detailed below. Copies of the Sanborn Maps are included in Attachment 2. Note: Truck yard area is shown on Sanborn Map inset (left hand corner of maps).

YEAR	OBSERVATIONS/PROPERTY USES
1959	Main building configuration and metal-clad storage building near site entrance appear consistent with current configuration. A rail siding extends the full southern length of the main building. Scale and scale house are not shown. A small building labeled "Receiving Department" is present near the southwest corner of the truck yard.

1949	Main building configuration and storage building near site entrance appear consistent with current configuration. A rail siding extends the full southern length of the main building. Walden Avenue is deemed "W. Ellicott Road." A small building labeled "Receiving Department" with a rail siding on the south is present near the southwest corner of the truck yard. In addition, a small building labeled "General Stge" is present near the main building approximately halfway between the north and south sides of the truck yard (see Figure 1).
1923	Main building configuration does not extend as far east as present day; smaller foundry and office buildings are present within current building footprint. A rail siding is present along the full southern length of the main building and extends south of the above-described "Receiving Department" building, which is deemed "Concentrator Building." A "Furnace Building" encompasses the area of the present day metal-clad storage building and extends east toward the main building.
1911	Main building configuration does not extend as far east or north as present day; rail siding is similar to that described above. A smaller office building is present within current building footprint. Above-described "Concentrator Building" with rail siding and "Furnace Building" are present.
1905	Main building configuration does not extend as far east or north as present day; rail siding is present along the southern side of the building. No evidence of activity/improvements in truck yard.
1900	Main building configuration does not extend as far east or north as present day; rail siding is present along the southern side of the building. No evidence of activity/improvements in truck yard.

Soil Borings

Soil borings in the truck yard area of the Site were completed by XCG Consultants, Ltd. in 1998 and 1999. In addition, Benchmark completed two test pits in January 2009 in support of the non-intrusive delineation assessment, as documented in the February 16, 2009 report. The locations of the soil borings and test pits are shown on Figure 1, attached. Soil boring and test pit logs are presented in Attachment 3.

In general, none of the soil borings yielded visual or olfactory evidence of cylinders. No indications of brass metal fragments or whole/partial cylinders were recorded. Similarly, no reports of propane, natural gas or sulfur-type odors were documented on the logs. Notations of mild or moderate hydrocarbon-type odor were recorded in the shallow fill at borings BH-99-15 through BH-99-19, however based on Sanborn mapping these locations correspond to the former rail siding, which is commonly associated with hydrocarbon-like odors. As these boring locations also exhibited visual indicators of slight sheen or staining and no evidence of brass, it is highly likely that the findings are related to the rail siding in lieu of cylinders.

Similarly the test pits excavated by Benchmark, which were proximate to the area of cylinders discovered during recent storm drainage improvements, exhibited no signs of buried cylinders.

INVESTIGATION AND REPORT

Based on the historic mapping and soil boring information provided above, proposed test pit locations are identified on Figure 2. As indicated, the majority of the test pits are focused toward the areas of former foundations within the truck yard, as these areas may have been backfilled with imported materials following demolition. Test pits previously excavated east of the reported area of buried cylinders will be extended west until cylinders are encountered to better establish the limits of the cylinders. Similarly, one test pit each will be excavated on the north and south sides of the reported buried cylinder area to determine the extent to which they are present in these directions.

Areas where underground utilities are known to be present will be avoided unless precise depth and location information is available and the excavation work can proceed safely without damage to the subsurface utility. In addition, underground electrical lines feed the scale house and scale; Benchmark is presently attempting to locate these lines through plant records. Depending on the configuration of the scale and scale house power feed, the test pits may need to be field adjusted.

The scope of services will include completion of a test pit investigation program under the direction of a project scientist experienced in environmental site investigations. The investigation will involve excavation of shallow test pits using a small excavator fitted with an approximate 1-foot wide bucket. Initially, the asphalt layer will be removed from the test pit surface and staged onsite for disposal by Norampac as construction & demolition debris (any loose soils will be scraped off the asphalt and directed back into the test pit prior to staging). Test pits will then be advanced to the sooner of native soil, the top of groundwater, or 4 feet below grade (i.e., typical foundation depth). Excavated spoils will be temporarily placed on poly sheeting adjacent to the test pit location. Test pit surface dimensions are anticipated to be approximately 1.5 feet wide x 3 feet long. Test pit locations will be field-measured relative to site monuments.

If test pits exhibit significant evidence of buried cylinders, which would include layered cylinders or pockets of several cylinders grouped together, the test pit will be slated for further investigation to determine the extent of the cylinders. If cylinders are ruptured and pungent gases are released, the field crew will immediately cover the excavation with plastic sheeting to mitigate offsite odors. The test pit will then be backfilled and compacted with the excavated soils and plans for extending the test pit will be coordinated with Metro Waste Paper. Because the truck yard is an active operation, it may be necessary to perform the delineation on a second day or weekend. In this event, the NYSDEC will be contacted concerning the schedule and scope of the supplemental work.

Where appropriate and feasible, any miscellaneous cylinders or pieces of cylinder that are excavated will be manually segregated from the removed soil/fill and will be placed in a 5-gallon, closed-top pail with a lid and transferred to a secure location onsite for proper

shipping preparation and disposal by Norampac/Metro Waste Paper. The test pit will then be backfilled with the excavated soil/fill and repaired with cold patch. In all cases generation of excess spoils will be minimized through tamping and compaction of backfill. If excess spoils remain, they will be drummed for disposal by Norampac. Following completion and backfilling, the test pits will be repaired with asphalt cold patch.

All test pits will be photo-documented and logged, and the results summarized in a brief letter report including a figure identifying the test pit locations.

SCHEDULE

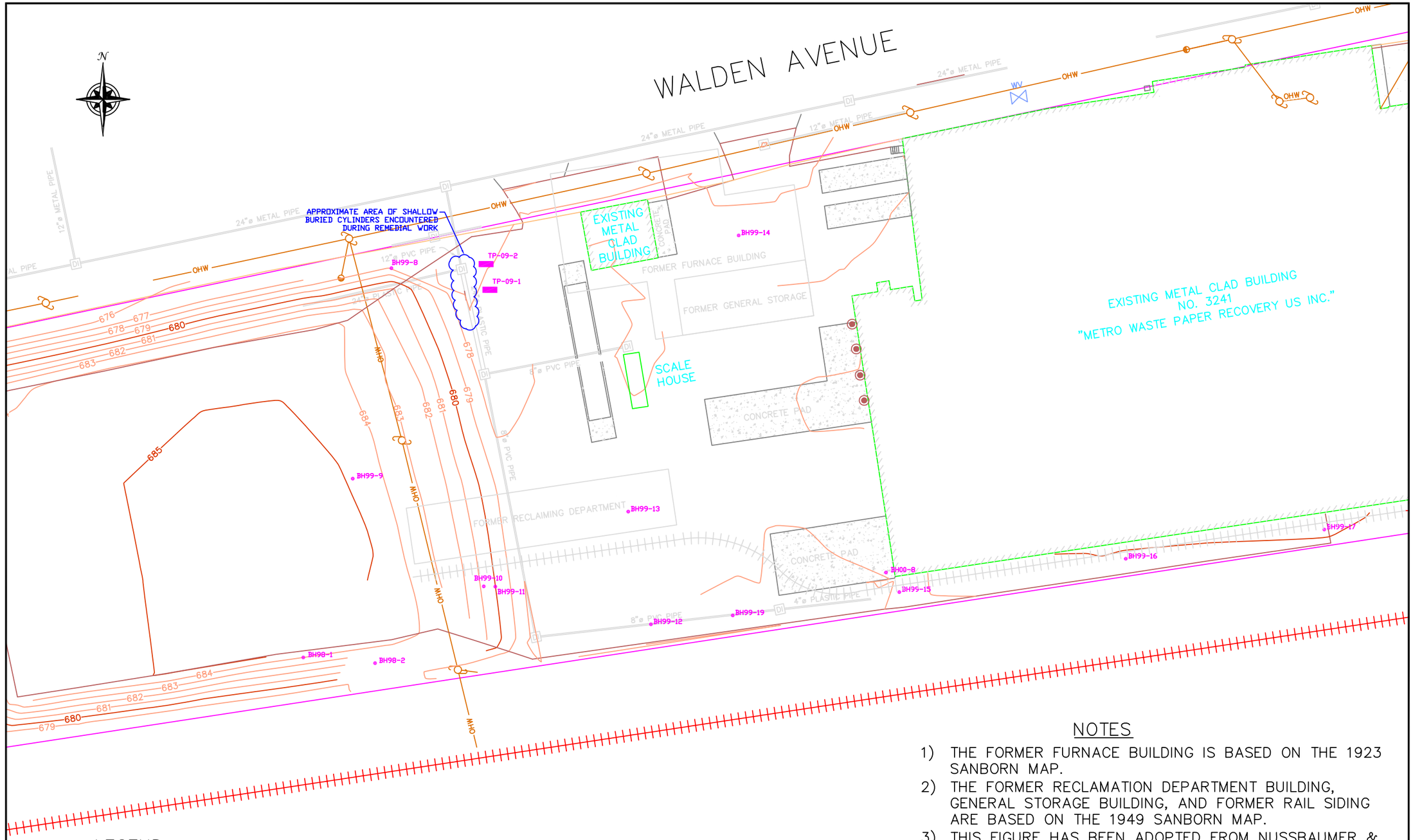
Benchmark will schedule the test pit work to begin as soon as possible following NYSDEC approval of this Work Plan, and will notify the Department and the regional underground utility locating service of the date for the field work a minimum of one week in advance of the work. Accordingly, we anticipate completion of the investigation and report within approximately 2-3 weeks following Work Plan approval.

Please do not hesitate to contact us if you have any questions.

Sincerely,
Benchmark Environmental Engineering & Science, PLLC

Thomas H. Forbes, P.E.
Project Manager

C: L. Marineau (Norampac)
C. Slater (Harter Secrest)
M. Forcucci (NYSDOH)
M. Doster (NYSDEC)
J. Charles (NYSDEC)



LEGEND

BH98-2 — BORING LOCATION FROM PREVIOUS STUDY.

TP-09-1 — TEST PIT LOCATION FROM PREVIOUS STUDY.

NOTES

1) THE FORMER FURNACE BUILDING IS BASED ON THE 1923 SANBORN MAP.
2) THE FORMER RECLAMATION DEPARTMENT BUILDING, GENERAL STORAGE BUILDING, AND FORMER RAIL SIDING ARE BASED ON THE 1949 SANBORN MAP.
3) THIS FIGURE HAS BEEN ADOPTED FROM NUSSBAUMER & CLARKE, INC. NOVEMBER 2008 DRAWING.

DATE: APRIL 2009
DRAFTED BY: JCT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
726 EXCHANGE STREET
SUITE 824
BUFFALO, NEW YORK 14210
(716) 856-0599

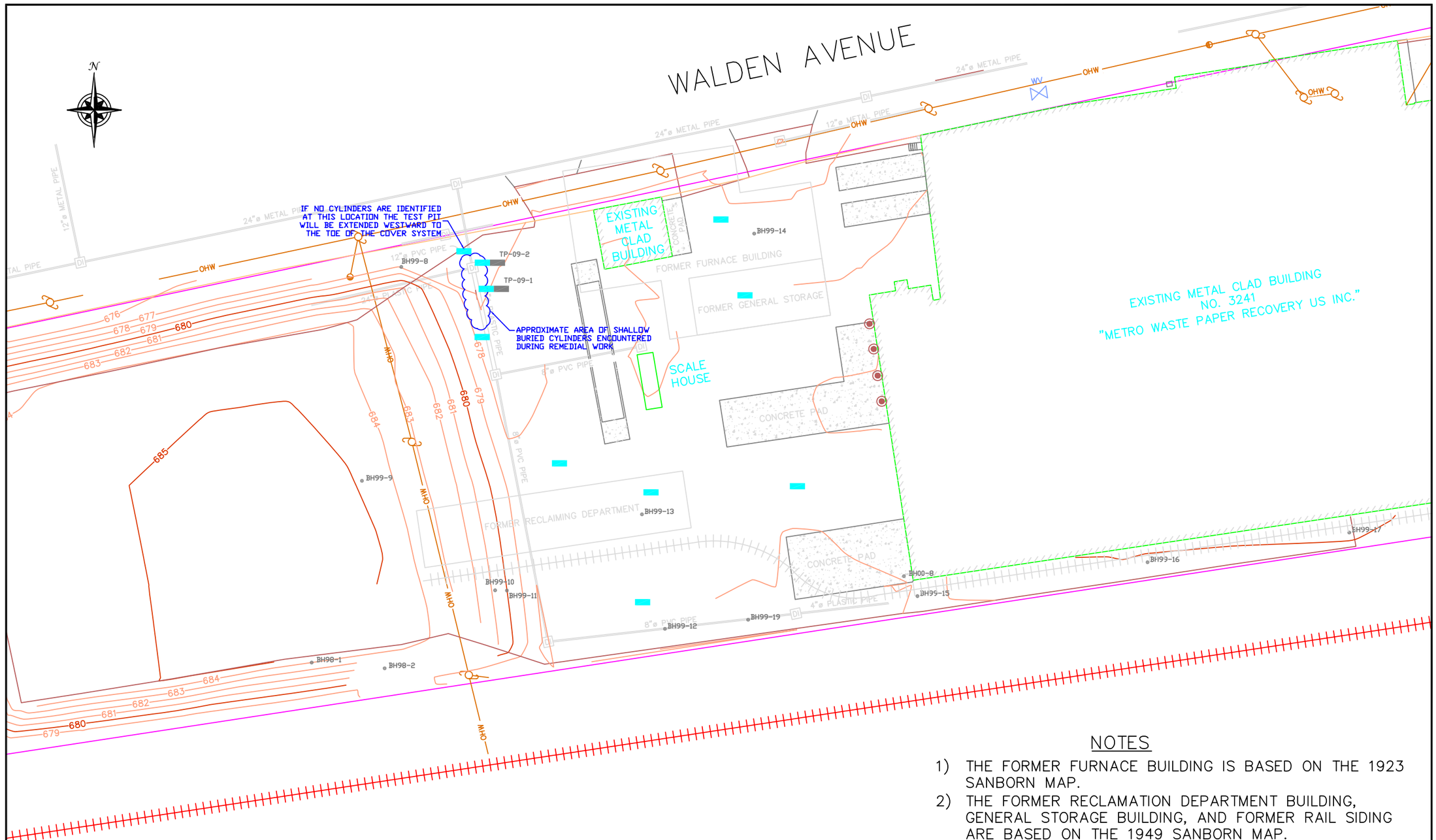
JOB NO.: 0120-005-100

HISTORIC SITE INVESTIGATION LOCATIONS

PROPOSED CYLINDER INVESTIGATION

FORMER NL INDUSTRIES SITE
DEPEW, NEW YORK
PREPARED FOR
HARTER SECREST & EMERY, LLP

FIGURE 1



LEGEND

BH98-2 — BORING LOCATION FROM PREVIOUS STUDY.

TP-09-1 — TEST PIT LOCATION FROM PREVIOUS STUDY.

PROPOSED TEST PIT LOCATION.

NOTES

1) THE FORMER FURNACE BUILDING IS BASED ON THE 1923 SANBORN MAP.
2) THE FORMER RECLAMATION DEPARTMENT BUILDING, GENERAL STORAGE BUILDING, AND FORMER RAIL SIDING ARE BASED ON THE 1949 SANBORN MAP.
3) THIS FIGURE HAS BEEN ADOPTED FROM NUSSBAUMER & CLARKE, INC. NOVEMBER 2008 DRAWING.

DATE: APRIL 2009 (REV: MAY 14, 2009)
DRAFTED BY: JCT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
726 EXCHANGE STREET
SUITE 824
BUFFALO, NEW YORK 14210
(716) 856-0599

JOB NO.: 0120-005-100

PROPOSED TEST PIT LOCATIONS

PROPOSED CYLINDER INVESTIGATION

FORMER NL INDUSTRIES SITE
DEPEW, NEW YORK

PREPARED FOR
HARTER SECREST & EMERY, LLP

FIGURE 2

ATTACHMENT 1
HISTORIC AERIAL PHOTOS

Environmental FirstSearch

Historical Aerial

2006

3241 WALDEN AVE, DEPEW NY 14043

Source:
Target Site (Latitude: 42.911077 Longitude: -78.700893)
Quad Name: Lancaster
Date: 2006

Approximate Scale: 1 inch equals 1,125 feet

Environmental FirstSearch

Historical Aerial

1983

3241 WALDEN AVE, DEPEW NY 14043

Source:
Target Site (Latitude: 42.911077 Longitude: -78.700893)
Quad Name: Lancaster
Date: 1983

Approximate Scale: 1 inch equals 1,125 feet

Environmental FirstSearch

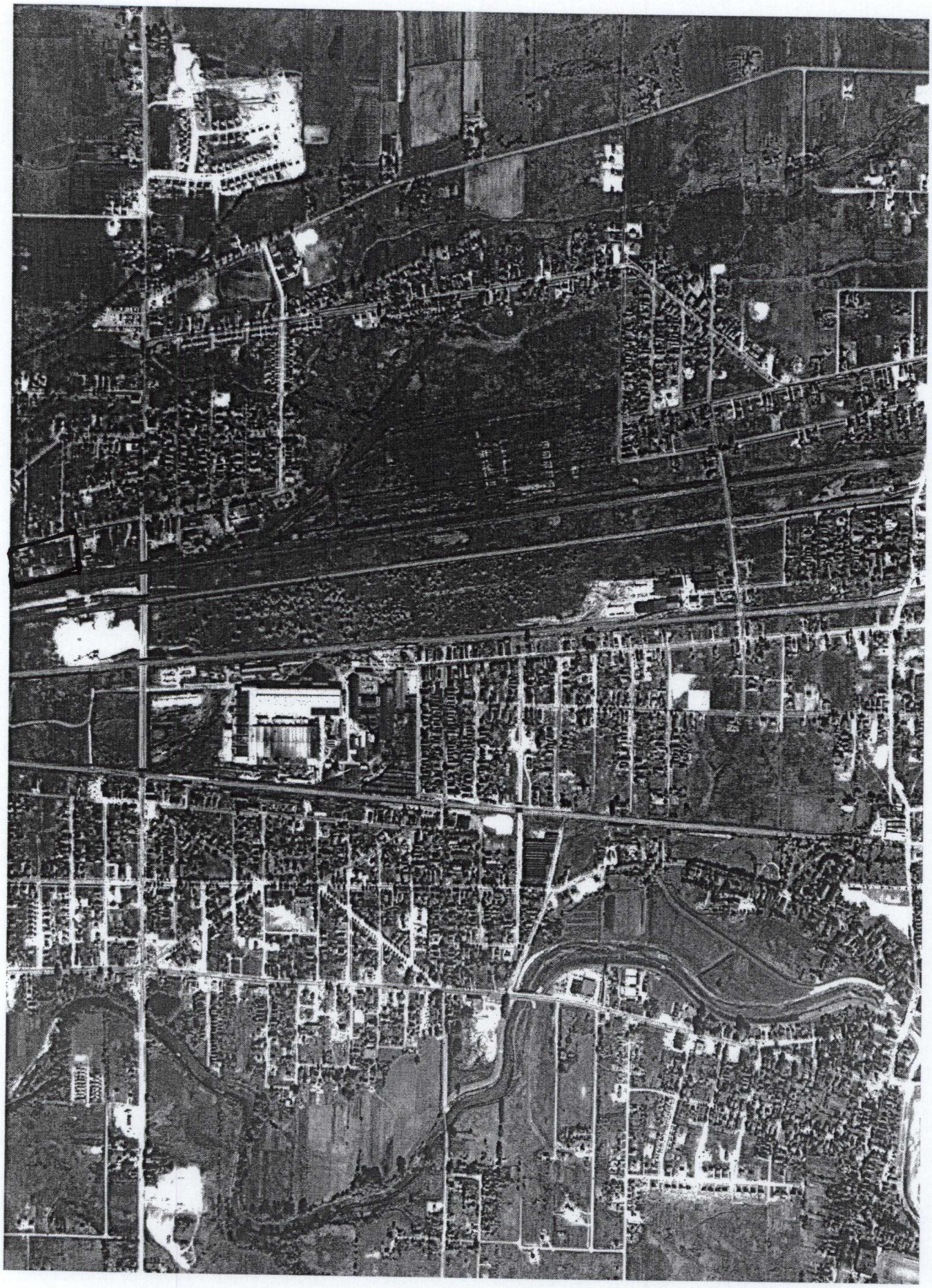
Historical Aerial

1974

3241 WALDEN AVE, DEPEW NY 14043

Source:
Target Site (Latitude: 42.911077 Longitude: -78.700893)
Quad Name: Lancaster
Date: 1974

Approximate Scale: 1 inch equals 1,125 feet

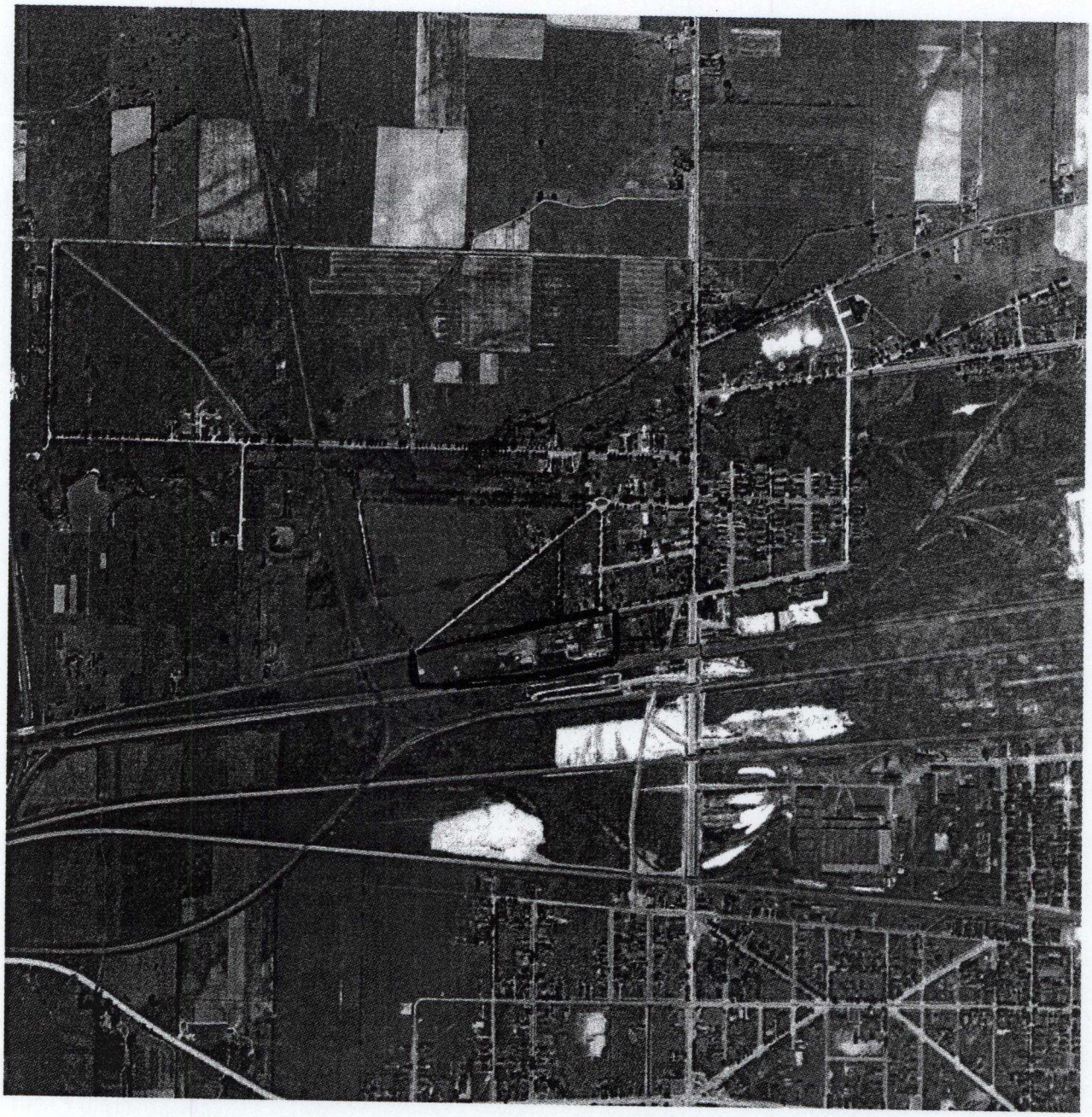


Environmental FirstSearch

Historical Aerial

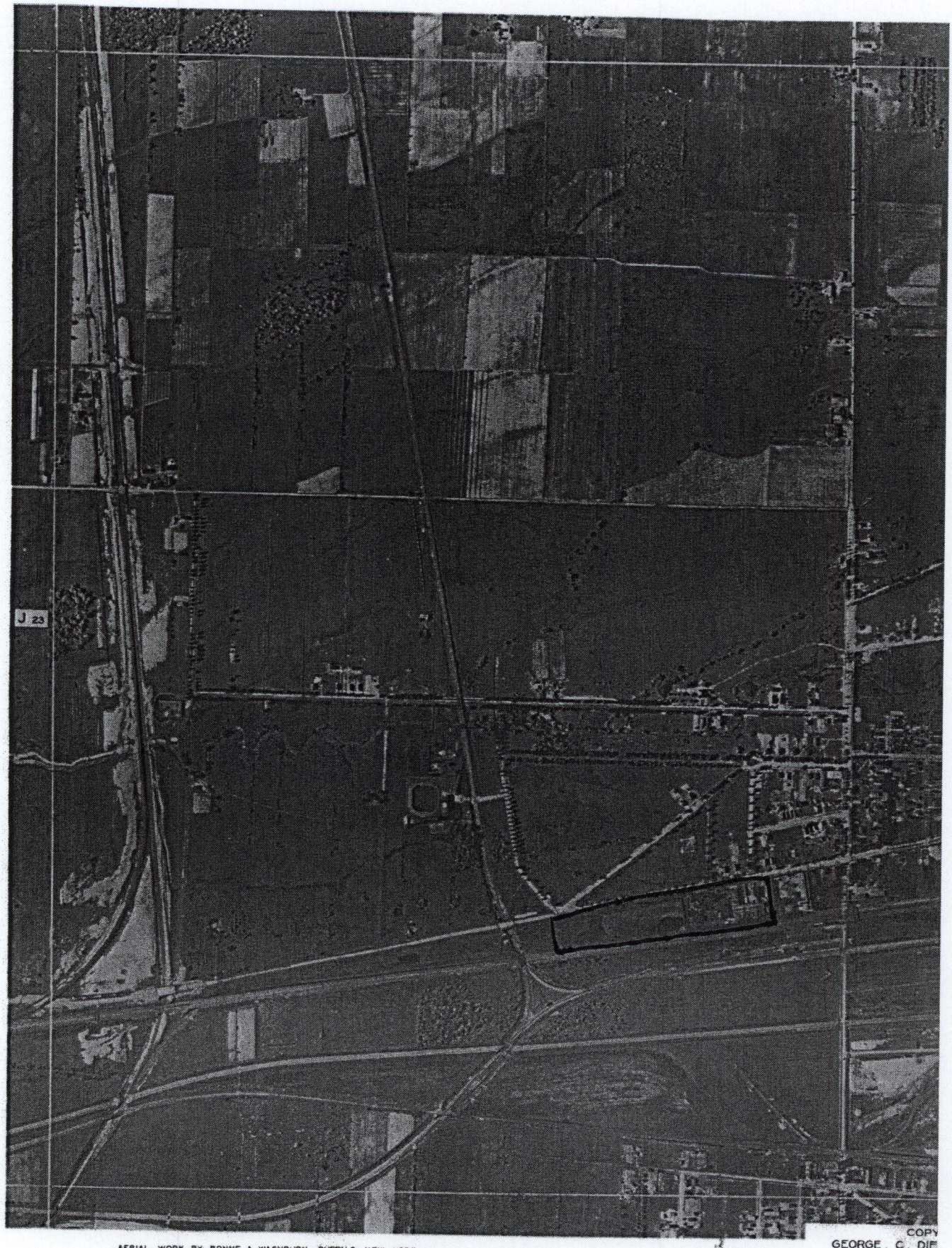
1938

3241 WALDEN AVE, DEPEW NY 14043



Source:
Target Site (Latitude: 42.911077 Longitude: -78.700893)
Quad Name: Lancaster
Date: 1938

Approximate Scale: 1 inch equals 1,125 feet



AERIAL WORK BY RONNE & WASHBURN BUFFALO NEW YORK
ENGINEERING & MAP BY FAIRCHILD AERIAL SURVEYS INC. NEW YORK

COPY
GEORGE . C. DIE

ATTACHMENT 2
SANBORN MAPS

FIRE INSURANCE MAP ABSTRACT RESEARCH RESULTS

3/24/2009

0120-005-100

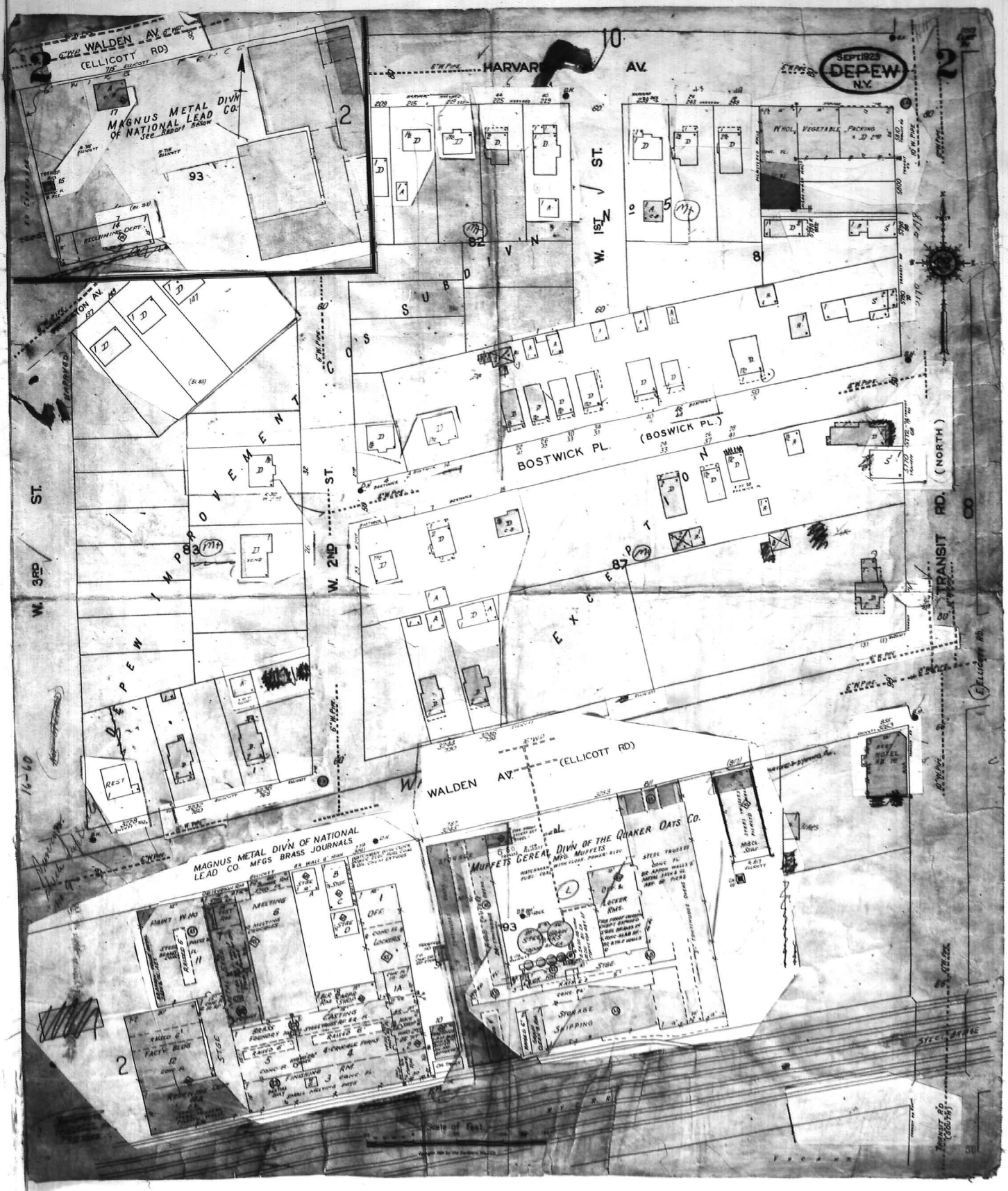
3241 WALDEN AVE
DEPEW, NY 14043

Listed below, please find the results of our search for historic fire insurance maps, performed in conjunction with your Environmental FirstSearch® report.

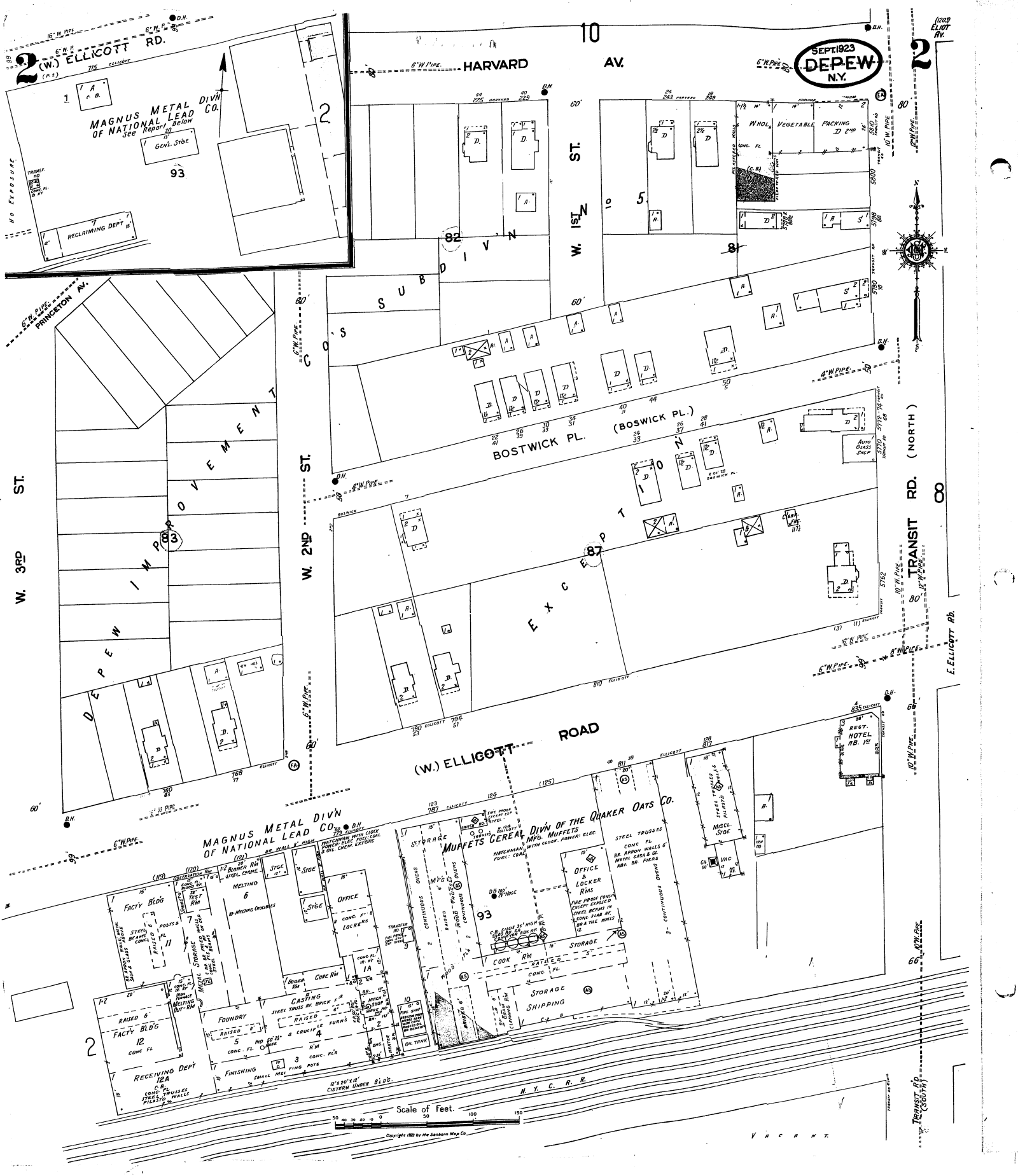
State	City	Date	Volume	Sheet Number(s)
New York	Depew	1959	none	2
New York	Depew	1949	none	2
New York	Depew	1923	none	2
New York	Depew	1911	none	7
New York	Depew	1905	none	2
New York	Depew	1900	none	2

This abstract is the result of a visual inspection of various Sanborn® Map collections. Supporting documentation follows in the Appendix. Use of this material is meant for research purposes only.

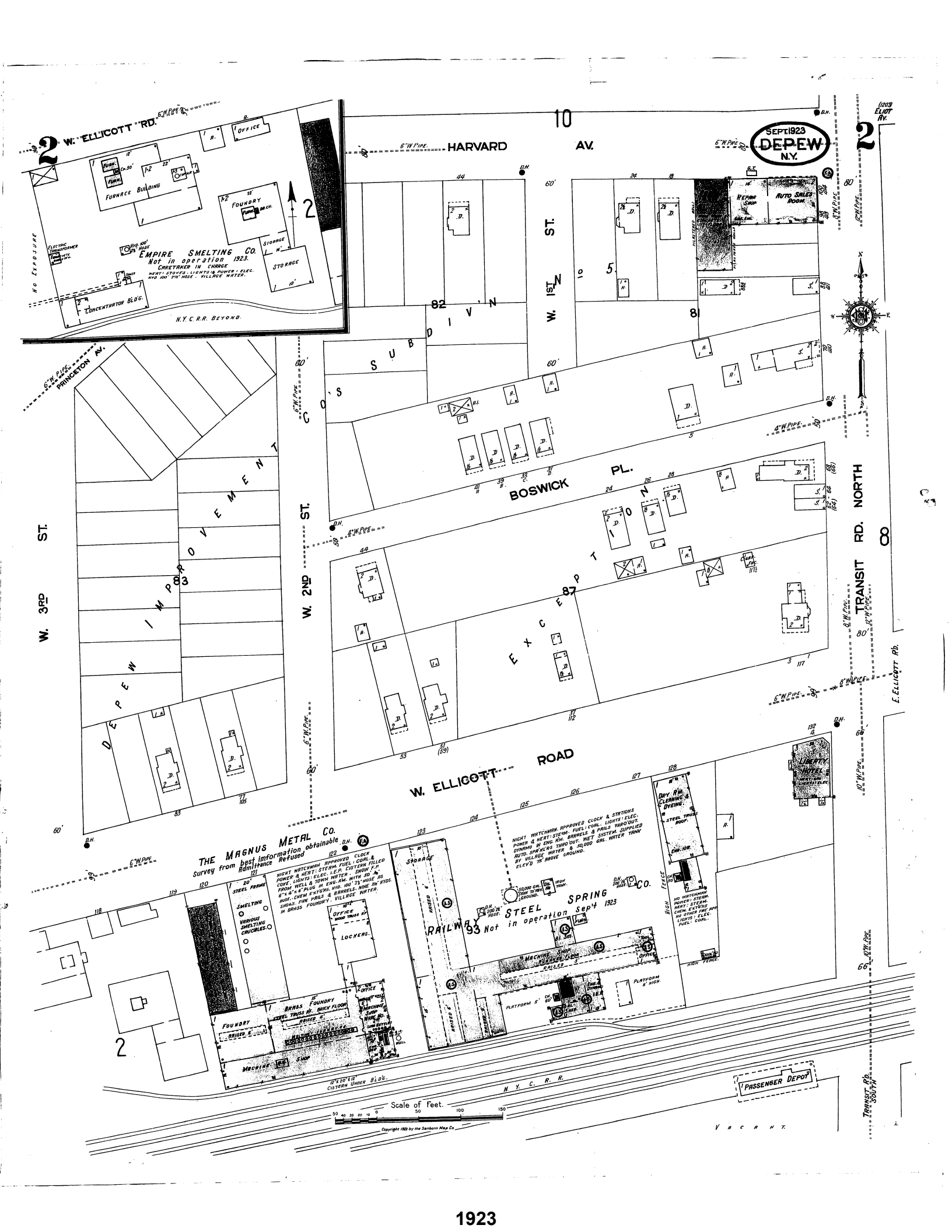
FirstSearch Technology Corporation *10 Cottage Street, Norwood, MA 02062*
Tel: 781-551-0470 Fax: 781-551-0471

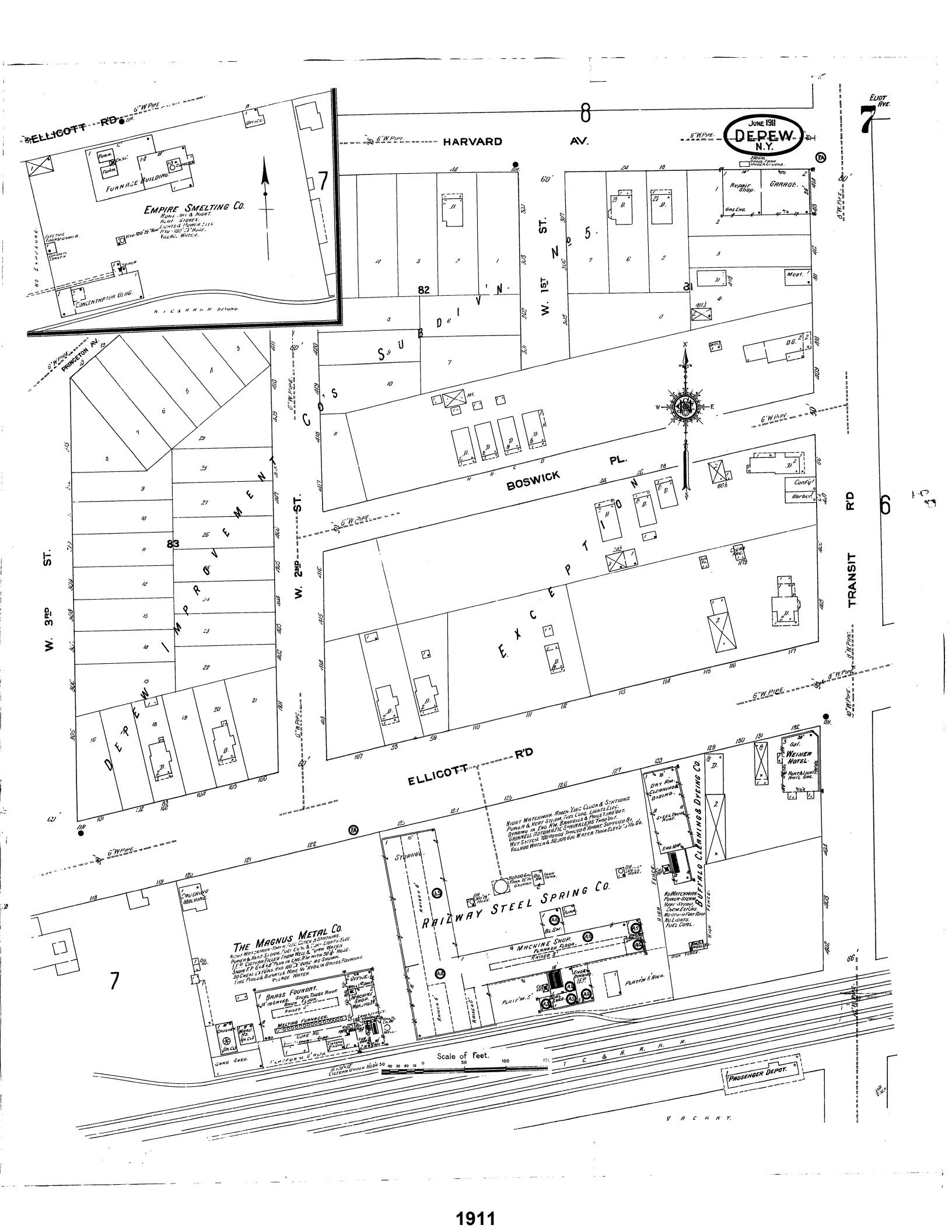

WALDEN AV. (ELLICOTT RD)
MAGNUS METAL DIVN OF NATIONAL LEAD CO
See Reverse Side
93
RECLAIMING DEPT.
HARVARD AV.
Sept 1923
DEPEW
N.Y.
W. 1ST ST.
W. 2ND ST.
W. 3RD ST.
BOSTWICK PL. (BOSWICK PL.)
TRANSIT RD. (NORTH)
IMPROVEMENT
EXCEPTION
WALDEN AV. (ELLICOTT RD)
MAGNUS METAL DIVN OF NATIONAL LEAD CO MFGS BRASS JOURNALS
MUFFETS CEREAL DIVN OF THE QUAKER OATS CO.
MFG MUFFETS
FACT'L BLDG
CASTING
FINISHING
STORAGE
SHIPPING
LOCKER RMS.
OFF.
MEETING
REST
Scale of Feet

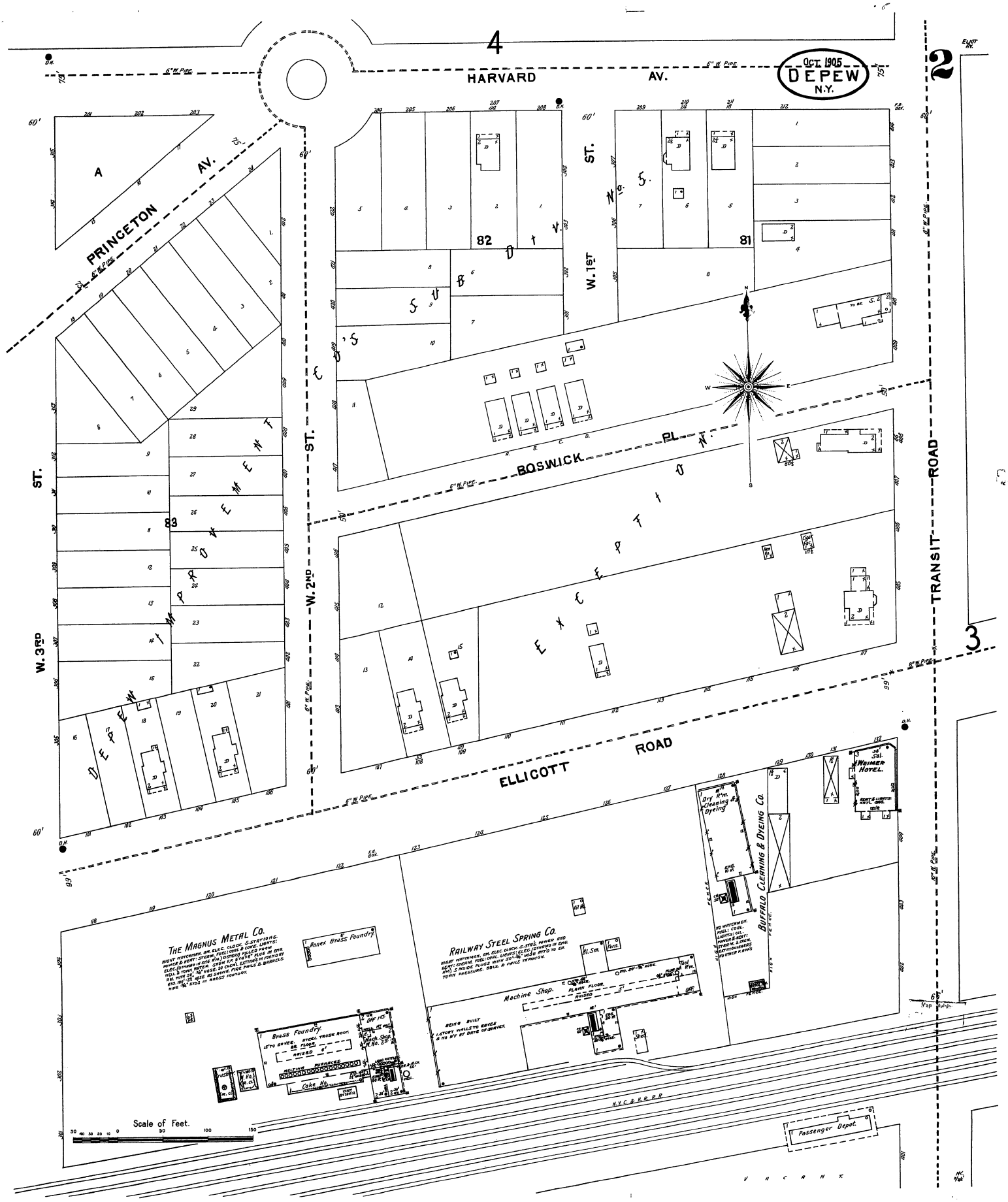
1959

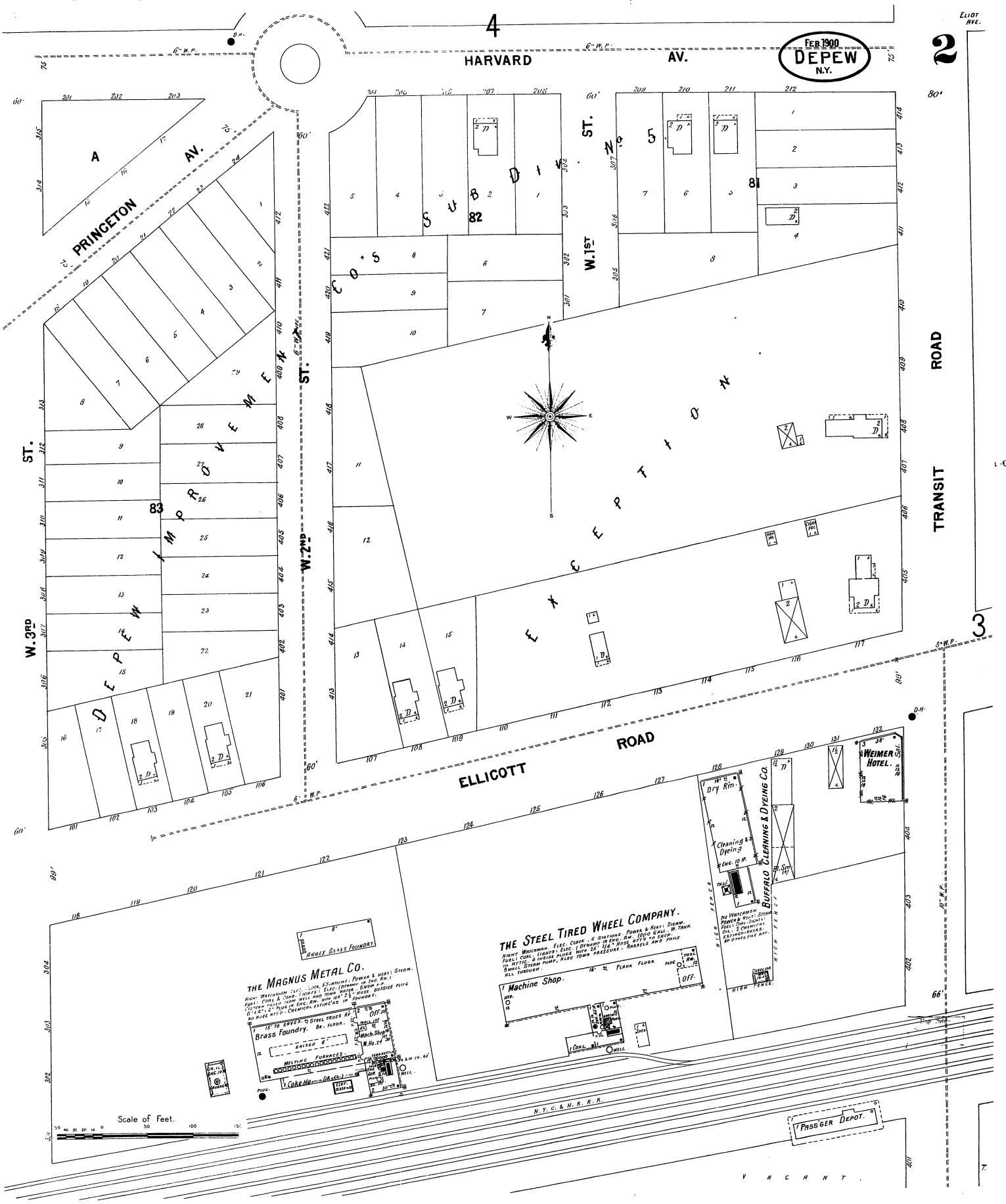

SEPT. 1923
DEPEW
N.Y.
(W.) ELLICOTT RD.
HARVARD AV.
W. 1ST ST.
W. 2ND ST.
W. 3RD ST.
PRINCETON AV.
BOSTWICK PL. (BOSWICK PL.)
(W.) ELLICOTT ROAD
E. ELLICOTT RD.
TRANSIT RD. (NORTH)
TRANSIT RD. (SOUTH)
(1203) ELIOT AV.
SUBDIVN
DEPEW IMPROVEMENT CO'S
EXCEPT
MAGNUS METAL DIV'N OF NATIONAL LEAD CO.
See Report Below
GEN'L STGE
RECLAIMING DEPT
MUFFETS CEREAL DIV'N OF THE QUAKER OATS CO.
MFG. MUFFETS
FACTY BLDG
RECEIVING DEPT
FOUNDRY
CASTING
MELTING
OFFICE
LOCKERS
STORAGE
SHIPPING
COOK RM
CORE RM
FINISHING
OFFICE & LOCKER RMS
MISCL. STGE
REGT. HOTEL
AUTO GLASS SHOP
WHOL. VEGETABLE PACKING
CISTERN UNDER BLDG.
N.Y.C.R.R.
VACANT
Scale of Feet.
Copyright 1923 by the Sanborn Map Co.

1949


SEPT. 1923
DEPEW
N.Y.
W. ELLICOTT RD.
HARVARD AV.
ELLIOT AV.
PRINCETON AV.
W. 3RD ST.
W. 2ND ST.
W. 1ST ST.
BOSWICK PL.
W. ELLICOTT ROAD
TRANSIT RD. NORTH
E. ELLICOTT Rd.
TRANSIT RD. SOUTH
DEPEW IMPROVEMENT
SUB DIVN
EXCEPTION
EMPIRE SMELTING CO.
Not in operation 1923.
CARETAKER IN CHARGE
FURNACE BUILDING
FOUNDRY
STORAGE
CONCENTRATOR BLDG.
N.Y.C.R.R. BEYOND.
THE MAGNUS METAL CO.
Survey from best information obtainable
Admittance Refused
RAILWAY STEEL SPRING Co.
Not in operation Sept 1923
MACHINE SHOP
OFFICE
LOCKERS
SMELTING
PASSENGER DEPOT
N.Y.C.R.R.
Scale of Feet.
Copyright 1923 by the Sanborn Map Co.


JUNE 1911
DEPEW
N.Y.
ELLICOTT RD
HARVARD AV.
ELIOT AVE.
TRANSIT RD
PRINCETON AV.
W. 1ST ST.
W. 2ND ST.
W. 3RD ST.
BOSWICK PL.
DEPEW IMPROVEMENT
EXCEPTION
SUBDIV'N
EMPIRE SMELTING CO.
FURNACE BUILDING
CONCENTRATION BLDG.
THE MAGNUS METAL CO.
BRASS FOUNDRY.
MELTING FURNACES.
RAILWAY STEEL SPRING CO.
MACHINE SHOP
BUFFALO CLEANING & DYEING CO.
WEIMER HOTEL
REPAIR SHOP.
GARAGE.
PASSENGER DEPOT.
VACANT.
Scale of Feet.
T. C. & H. R. R. R.


Oct. 1905
DEPEW
N.Y.
HARVARD AV.
PRINCETON AV.
W. 1ST ST.
W. 2ND ST.
W. 3RD ST.
BOSWICK PL.
ELLICOTT ROAD
TRANSIT ROAD
THE MAGNUS METAL CO.
Annex Brass Foundry
RAILWAY STEEL SPRING CO.
Machine Shop.
Brass Foundry.
Dry Rm.
Cleaning Dyeing
BUFFALO CLEANING & DYEING CO.
WEIMER HOTEL.
Passenger Depot.
N.Y.C. & H.R.R.R.
Scale of Feet.


FEB 1900
DEPEW
N.Y.
HARVARD AV.
PRINCETON AV.
ELLICOTT ROAD
TRANSIT ROAD
ELIOT AVE.
W. 1ST ST.
W. 2ND ST.
W. 3RD ST.
SUBDIVISION
EXCEPTION
THE MAGNUS METAL CO.
Brass Foundry.
Annex Brass Foundry
THE STEEL TIRED WHEEL COMPANY.
Machine Shop.
Dry Rm.
Cleaning & Dyeing
BUFFALO CLEANING & DYEING CO.
WEIMER HOTEL.
PASSGER DEPOT.
N.Y.C. & H.R.R.R.
VACANT
Scale of Feet.

ATTACHMENT 3
PRIOR INVESTIGATION TEST PIT & BORING LOGS

XCG Consultants Ltd.

Project No: 5-997-01-01
Project: Limited Phase 2 ESA
Client: Norampac Inc.
Location: Depew, New York

Log of Borehole BH98-1

Driller: Maxim Technologies Inc.
Drill Method: Truck-Mounted CME 75 Hollow Stem Auger
Sample Method: Standard Split Spoon

Borehole Diameter: 19 cm
Start Date: October 29, 1998
Completed: October 29, 1998

Checked By: TW
Logged By: BW

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Reading	Graphic Log	Geology Description	Depth/Elev (m)
0 / 0						Ground Surface	0
						FILL silty sand, dark grey to black, very moist	
1	1	5	67	0			
2						becoming saturated, slight sheen	
3 / 1	2	10	67	0		on water	
4						mild hydrocarbon odour and	
5	3	5	62	1		slight sheen	
6						mild hydrocarbon odour and	
7 / 2	4	4	100	2		slight sheen becoming silt, dark grey, mild	
8						hydrocarbon odour and slight	
9	5	11	83	0.5		sheen occ. pebbles, slight sheen on	
10 / 3						water, v. mild hydrocarbon odour	-3
						SILTY CLAY mottled grey/brown, very stiff, damp, no odour, no staining, occasional pebbles	
11	6	26	50	0			
12							-3.7
						End of Borehole	
13 / 4							
14							

Ground Surface Elevation: n/a

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-01
Project: Limited Phase 2 ESA
Client: Norampac Inc.
Location: Depew, New York

Log of Borehole BH98-2

Driller: Maxim Technologies Inc.
Drill Method: Truck-Mounted CME 75 Hollow Stem Auger
Sample Method: Standard Split Spoon

Borehole Diameter: 19 cm
Start Date: October 30, 1998
Completed: October 30, 1998

Checked By: TW
Logged By: BW

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Reading	Graphic Log	Geology Description	Depth/Elev (m)
0 / 0						Ground Surface	0
1	1	53	25	0.5		***FILL*** sand and gravel, brown, damp, no odour, no stainin	
2							
3 / 1	2	18	25	0		becoming saturated	-1.2
4						***FILL***	
5	3	2	100	0		sandy silt, dark grey, saturated, slight sheen, very mild hydrocarbon odour	
6							
7 / 2	4	8	100	0		becoming silt, dark grey, saturated, slight sheen, very mild hydrocarbon odour, minor sand	
8							
9	5	7	25	0		occassional gravel and sand, trace rootlets	
10 / 3							
11	6	13	100	0			
12							-3.7
13 / 4	7	44	100	0		***SILTY CLAY*** mottled grey/brown, hard, damp, no odour, no staining, occasional pebbles, trace silt inclusions	-4.3
14						End of Borehole	
15							
16							

Ground Surface Elevation: n/a

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04
Project: Additional Phase 2 ESA
Client: Norampac Inc.
Location: Depew, New York

Log of Borehole BH99-8

Driller: Maxim Technologies Inc.
Drill Method: Truck Mounted Geoprobe
Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm
Start Date: April 9, 1999
Completed: April 9, 1999

Checked By: RJR
Logged By: BW

Depth (ft)	Depth (m)	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL sand, gravel, and silty clay, moist, no odour, no staining	
2		1	-	100	1			
3	1							
4		2	-	100	1		becoming sand, saturated	
5								-1.5
							SILTY CLAY reddish brown, some grey patches, damp, no odour, no staining	
6								
7	2	2	-	100	1			
8								-2.4
							End of Borehole	
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04

Project: Additional Phase 2 ESA

Client: Norampac Inc.

Location: Depew, New York

Log of Borehole BH99-9

Driller: Maxim Technologies Inc.

Drill Method: Truck Mounted Geoprobe

Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm

Start Date: April 9, 1999

Completed: April 9, 1999

Checked By: RJR

Logged By: BW

Depth ft	Depth m	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL sand with gravel, brown and grey bands in the sand, saturated, no odour, no staining	
2		1	-	50	1.5			
3	1							
4							becoming dark brown, no staining	
		2	-	50	1			
5								-1.5
6							***SILTY CLAY*** grey, becoming mottled grey/brown, moist, no odour, no staining	
	2	2	-	50	1			
7								
8								-2.4
							End of Borehole	
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04

Project: Additional Phase 2 ESA

Client: Norampac Inc.

Location: Depew, New York

Log of Borehole BH99-10

Driller: Maxim Technologies Inc.

Drill Method: Truck Mounted Geoprobe

Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm

Start Date: April 9, 1999

Completed: April 9, 1999

Checked By: RJR

Logged By: BW

Depth ft	Depth m	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL sand and gravel, dark brown, some silty clay, saturated, no odour, no staining	
1		1	-	67	4			
2							becoming mild hydrocarbon odour, slight hydrocarbon sheen, refusal	-0.91
3	1						End of Borehole	
4								
5								
6								
7	2							
8								
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04

Project: Additional Phase 2 ESA

Client: Norampac Inc.

Location: Depew, New York

Log of Borehole BH99-11

Driller: Maxim Technologies Inc.

Drill Method: Truck Mounted Geoprobe

Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm

Start Date: April 9, 1999

Completed: April 9, 1999

Checked By: RJR

Logged By: BW

Depth (ft)	Depth (m)	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL coarse sand, gravel, dark grey, some silty clay, moist, no odour, no staining	
2		1	-	75	1			
3	1							
4								-1.2
							SILTY CLAY grey, damp, no odour, no staining	
5							becoming mottled grey/brown	
6		2	-	88	1			
7	2							
8								-2.4
							End of Borehole	
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04

Project: Additional Phase 2 ESA

Client: Norampac Inc.

Location: Depew, New York

Log of Borehole BH99-12

Driller: Maxim Technologies Inc.

Drill Method: Truck Mounted Geoprobe

Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm

Start Date: April 9, 1999

Completed: April 9, 1999

Checked By: RJR

Logged By: BW

Depth (ft)	Depth (m)	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL sand and gravel, no odour, no staining	
2		1	-	100	2		20 cm layer of coal fragments	
3	1						becoming dark brown, silty clay with sand, saturated	
4								-1.2
							SILTY CLAY grey, moist, no odour, no staining	
5		2	-	100	1		becoming mottled grey/brown damp	
6	2							
7								-2.1
							End of Borehole	
8								
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04

Project: Additional Phase 2 ESA

Client: Norampac Inc.

Location: Depew, New York

Log of Borehole BH99-13

Driller: Maxim Technologies Inc.

Drill Method: Truck Mounted Geoprobe

Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm

Start Date: April 9, 1999

Completed: April 9, 1999

Checked By: RJR

Logged By: BW

Depth ft.	Depth m	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
1		1	-	100	1		***FILL*** fine sand and gravel, dark brown, some silty clay, moist, no odour, no staining	
2							refusal	-0.61
							End of Borehole	
3	1							
4								
5								
6								
7	2							
8								
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04
Project: Additional Phase 2 ESA
Client: Norampac Inc.
Location: Depew, New York

Log of Borehole BH99-14

Driller: Maxim Technologies Inc.
Drill Method: Truck Mounted Geoprobe
Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm
Start Date: April 9, 1999
Completed: April 9, 1999

Checked By: RJR
Logged By: BW

Depth (ft)	Depth (m)	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL	
1		1	-	100	1		sand and gravel, dark grey, some silty clay, moist, no odour, no staining	
							brick fragments	
2							refusal	-0.61
							End of Borehole	
3	1							
4								
5								
6								
7	2							
8								
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04
Project: Additional Phase 2 ESA
Client: Norampac Inc.
Location: Depew, New York

Log of Borehole BH99-15

Driller: Maxim Technologies Inc.
Drill Method: Truck Mounted Geoprobe
Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm
Start Date: April 9, 1999
Completed: April 9, 1999

Checked By: RJR
Logged By: BW

Depth (ft)	Depth (m)	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL sand and gravel, dark brown to black, some silty clay, saturated, hydrocarbon odour, slight sheen	
2		1	-	75	10			
3	1							
								-1.2
							SILTY CLAY reddish brown, damp, no odour, no staining	
5		2	-	100	2			
6	2							
7								-2.1
							End of Borehole	
8								
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04

Project: Additional Phase 2 ESA

Client: Norampac Inc.

Location: Depew, New York

Log of Borehole BH99-16

Driller: Maxim Technologies Inc.

Drill Method: Truck Mounted Geoprobe

Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm

Start Date: April 9, 1999

Completed: April 9, 1999

Checked By: RJR

Logged By: BW

Depth ft	Depth m	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
1		1	-	75	10.5		***FILL*** silty clay, sand, gravel, dark brown to black, saturated, mild hydrocarbon odour, slight sheen	
2								
3	1							-0.91
		1	-	75	1.5		***SILTY CLAY*** grey, moist, no odour, no staining	
4							becoming reddish/brown, damp	
5		2	-	100	2			
6	2							-1.8
							End of Borehole	
7								
8								
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04
Project: Additional Phase 2 ESA
Client: Norampac Inc.
Location: Depew, New York

Log of Borehole BH99-17

Driller: Maxim Technologies Inc.
Drill Method: Truck Mounted Geoprobe
Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm
Start Date: April 9, 1999
Completed: April 9, 1999

Checked By: RJR
Logged By: BW

Depth (ft)	Depth (m)	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL sand and gravel, silty clay, saturated, mild hydrocarbon odour, slight sheen	
2		1	-	50	4			
3	1							
4								-1.2
							SILTY CLAY reddish brown, damp, no odour, no staining	
5		2	-	75	3			
6								-1.8
	2						End of Borehole	
7								
8								
9								
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log

XCG Consultants Ltd.

Project No: 5-997-01-04

Project: Additional Phase 2 ESA

Client: Norampac Inc.

Location: Depew, New York

Log of Borehole BH99-19

Driller: Maxim Technologies Inc.

Drill Method: Truck Mounted Geoprobe

Sample Method: 4' Sampler with Plastic Liner

Borehole Diameter: 5cm

Start Date: April 9, 1999

Completed: April 9, 1999

Checked By: RJR

Logged By: BW

Depth (ft)	Depth (m)	Sample No.	N-Value	Recovery (%)	Soil Vapour (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
							FILL sand and gravel, some silty clay, moist, no odour, no staining	
2		1	-	75	3			
3	1						becoming black, mild hydrocarbon odour, oily staining	
4								-1.2
							SILTY CLAY reddish brown, damp, no odour, no staining	
6		2	-	100	1.5			
7	2							
8								-2.4
							End of Borehole	
10	3							
13	4							
16								

Ground Surface Elevation: N / A

Borehole Log

Sheet: 1 of 1

XCG Consultants Ltd.

Project No: 5-997-02-05
Project: Additional Phase 2 ESA
Client: Norampac Inc.
Location: Depew, New York

Log of Borehole BH00-08

Driller: Maxim Technologies Inc.
Drill Method: Truck Mounted Geoprobe
Sample Method: 4' Sampler with Plastic Liner

Screening Tool:
Borehole Diameter: 5cm
Start Date: May 10, 2000
Completed: May 10, 2000

Checked By: RJR
Logged By: BW

Depth ft	Depth m	Sample No.	N-Value	Recovery (%)	Vapour Reading	Graphic Log	Geology Description	Depth/Elev (m)
0	0						Ground Surface	0
1							***FILL*** coarse sand and gravel, black, very moist, no odour	
2							coarse sand, light brown	
3	1	1	-	42	-		sandy silt, grey to brown, very moist, no odour	
4								
5							silty clay, some sand and gravel, saturated, no odour	
6								
7	2	2	-	50	-			-2.13
8							***SILTY CLAY*** brown, damp, no odour	
9								-2.74
							End of Borehole	
10	3							
11								
12								
13	4							
14								
15								
16								

Ground Surface Elevation: N / A

Borehole Log For Environmental Purposes Only