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Holley Consultants, Inc.

Ronald E. Holley

April 25, 2012

VOLUNTARY REMEDIATION PROGRAM APPLICATION

CSXT DEPRIEST SIGNAL SHOP

April 2012

Prepared for

CSX Transportation, Inc.

Jacksonville, Florida

Prepared by

Holley Consultants, Inc.

Roswell, GA

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APPENDICES

1.0 Introduction

The DePriest Signal Shop property (the Site) consists of a 24 acre tract of land owned by CSX Transportation, Inc (CSXT). The Site is located within the limits of the Hazardous Sites Response Act (HSRA) site designated as the DePriest Signal Shop site, Savannah, Chatham County, HSI Site No. 10611. The HSRA site includes property owned by CSXT and others. A location map is included as **Figure 1.1**.

A Compliance Status Report (CSR) was originally submitted for the overall HSRA site in 2002. The investigation revealed that soil in portions of the site previously sold to others contained levels of regulated substances greater than applicable standards. These "off-site areas" include an elementary school and a public park.

Efforts were focused on investigation and remediation of these off-site areas. A Corrective Action Plan (CAP) was prepared in 2003, and remediation was conducted in 2003-2004. A Corrective Action Report (CAR) was submitted to Georgia EPD (EPD) in 2005. The CAR presents information that demonstrates that the off-site areas are in compliance with Type 1 or 2 risk reduction standards except for inaccessible soils beneath the school buildings.

After remediation of the off-site areas, CSXT turned its attention to the remainder of the site, which is industrial property owned by CSXT (the "Site"). A CSR for this area was submitted in September 2005, and revised in 2008. CSXT has not received comments from EPD on the CSR. This tract of land is proposed for enrollment in the Voluntary Remediation Program (VRP). A VRP application form is included in **Appendix A**.

1.1 VRP Eligibility

The Site qualifies for eligibility in the VRP program as noted in the Applicant's certification in **Appendix A**. There is a documented release of regulated substances into the environment. The Site is not listed on the federal National Priorities List and is not undergoing response activities required by an order of the regional administrator of the Environmental Protection Agency (USEPA), and is not required to have a permit under Code Section 12-8-66. Qualifying the property would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or similar authorization from USEPA. There are no outstanding liens filed against the property.

The participant under the VRP is CSX Transportation, Inc., which owns the Site. No corrective action is anticipated on another's property, so permission to enter such properties to perform corrective action is not needed. If additional investigation reveals off-site impacts not already remediated, appropriate permission will be sought.

CSXT is not in violation of any order, judgment, statute, rule, or regulation subject to the enforcement authority of the director of GAEPD.

1.2 Site Description

The former Liberty Street Yard, which includes the Site covered by this application and the adjacent properties owned by others, is located in the northeast portion of Savannah, Georgia (see **Figure 1.1)**. The area is located approximately 2/3 mile (3,500 feet) southwest of the Savannah River. Properties comprising the former Liberty Street Yard include: approximately 24 acres owned by CSXT, part of which is occupied by the DePriest Signal Shop (which is the subject of this application); approximately 12.72 (9.15 + 3.57) acres owned by the Savannah-Chatham County Board of Education (East Broad Elementary School); approximately 7.7 acres owned by Chatham County and leased to the City of Savannah (Mathilda Park); and 2.75 acres owned by the Catholic Bishop of the Diocese of Savannah. A site plan showing the properties is included as **Figure 1.2**.

The Site topography is generally flat, with the highest elevation to the west. The total topographic relief on site varies from about 25 feet mean sea level (msl) in the west portion of the Site to about 15 feet msl along the eastern edge. Surface drainage flows to storm drains on the properties, eventually entering the city storm sewer system east of the Site.

The CSXT DePriest Signal Shop is currently engaged in production and storage of railroad signal equipment. It was previously a railroad terminal and repair facility dating to the mid-1800's. The site includes several buildings and covered storage areas in the north portion of the site, as well as paved parking lots and concrete pads. The southern fenced portion of the site is vacant land with gravel and grass cover and occasional concrete pads. Wooded and overgrown vacant land is located southeast and west of the fenced portion of the site.

1.3 Site History

1.3.1 Site Operations

The Savannah, Albany, and Gulf Railroad Company originally purchased parcels of land including the DePriest property and off-site areas in 1854. Several parcels were added to the property in subsequent years. Over several years, the railroad constructed a terminal facility known as the Liberty Street Yard, which included a depot, warehouses, and car and locomotive repair shops. Ownership of the property and facilities progressed through several companies. The current owner of the property that has remained in railroad ownership is CSXT, which maintains the De Priest Signal Shop for assembling and repairing railroad signals.

Review of historic Sanborn fire insurance maps, city maps, tax maps, and similar documents indicate that the site once included a roundhouse, passenger depot, freight house, locomotive and car repair facilities, storage tracks, and a storage yard for lumber and cotton. The roundhouse and many of the repair facilities were removed prior to 1916. The signal shop buildings were constructed in the early 1950's. Remaining general railroad maintenance and storage facilities were removed prior to 1990. Available excerpts from Sanborn maps are included in **Appendix B**.

Over the years, various portions of the site were leased or otherwise utilized for storage yards for lumber and construction material, a lumber mill, a chemical company, and warehouses. Parcels

were sold to various parties, which constructed warehouses, school facilities, parks, and public buildings.

1.3.2 Previous Environmental Investigations and Action

Initial limited environmental sampling at the site by CSXT indicated the presence of two (2) Hazardous Site Response Act (HSRA) regulated substances at levels in excess of state mandated notification concentrations – lead and benzo(a)pyrene. A Release Notification was filed on May 29, 1998. Georgia EPD (EPD) responded on February 12, 2002, with a letter requiring that a CSR be prepared.

Initial soil and ground water sampling was conducted between May and August 2002 in connection with CSR preparation. The initial CSR was submitted to EPD in August 2002. It noted that off-site sampling in an adjacent park and school was needed to complete delineations, but could not proceed until access was granted by current owners. When sampling was conducted in the off-site areas starting in July 2003, impacts were identified that prompted an expedited investigation and remediation of those properties. The off-site remediation was completed in September 2004.

Upon completion of the off-site activities, CSXT resumed additional sampling of the remainder of the DePriest Signal Shop site. Samples were collected from March-May 2005. The following regulated substances were detected in soil - arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and multiple semi-volatile organic compounds (SVOC's). Those substances with levels greater than HSRA notification concentrations were identified, and an effort was made to delineate the extent to which these regulated substances exceeded background concentrations. All substances except SVOC's were delineated to their background concentrations within the site boundaries.

Ground water sampling was conducted in May 2002 and November 2003. Analysis revealed the presence of low levels of barium, and a delineation to background concentrations was performed. No other regulated substances were detected in ground water.

Type 3 and Type 4 minimum risk reduction standards (RRS) applicable to industrial sites were developed for substances found in soil at greater than background concentrations. All metals except mercury and selenium exceeded Type 3 standards in at least one location. Arsenic, barium, and lead were the only metals to exceed the Type 4 standards. Several SVOC's also exceeded Type 3 standards, but only benzo(a)pyrene exceeded the Type 4 standard. Barium did not exceed Type 3 risk reduction standards in ground water.

A CSR for the on-site areas was submitted in September 2005. An amendment was submitted in March 2008. EPD review is pending.

2.0 Current Site Conditions

2.1 Geology and Hydrogeology

The Savannah area lies within the Coastal Plain physiographic province which is characterized by marine deposits including sand, silt, clay and shell. Limestone and dolomite deposits are found at greater depths. These deeper sediments were deposited during transgressive periods when the area was covered by shallow seas. The more recent, unconsolidated sediments were deposited in near shore environments that included lagoons and estuaries similar to those that now exist in the region.

In descending order, the ground water units of interest to this investigation are 1) the surficial aquifer, 2) confining units that include the Hawthorn Group and 3) confined aquifers that include the Floridan aquifer.

The surficial aquifer thickness is quite variable in the Savannah area and, in some references, has a reported thickness greater than 100 feet. The surficial aquifer consists of alternating deposits of relatively permeable sand and lower permeability materials that are predominantly silt and clay.

The Hawthorn Group lithology is variable and includes two recognized aquifers, the Upper Brunswick aquifer and the Lower Brunswick aquifer. These aquifers are separated by a confining unit of dense clays.

The Floridan aquifer is the main source of water in the Savannah area. It is separated from the surficial aquifer by confining units.

The site hydrogeology was defined based on lithologic data developed during the May 2002 well installation at the site coupled with data developed during the nearby Stevens Oil/Scrap CSR investigation and the DePriest off-site investigation. Review of data from these areas confirms that the lithologies are generally consistent.

The uppermost material at the site consists of various thicknesses of topsoil (typically two feet or less). Depending on location, there may be 0-4 feet of fill that includes bricks, gravel, sand, cinders, and other materials. The fill is underlain by 5-10 feet of tan, fine grained silica sand. This sand contains the uppermost part of the surficial aquifer.

A gray sandy clay, ranging in thickness from 2-7 feet was found below most of the locations at which borings were advanced to that depth. This clay appears to restrict vertical movement of ground water based on comparison of water levels between wells completed in the upper sands and a deep well completed in sands below this clay at the Stevens Oil/Scrap site. Water level data collected from paired wells suggested a downward hydraulic gradient with a head difference of 1-2 feet.

Below the clay, a tan, slightly silty, fine-grained silica sand was penetrated by the Stevens Oil/Scrap site monitor well borings. The total thickness of the sand was not determined based on the limited depth of the monitor wells. Regional data for the Savannah area includes all these sediments in the surficial aquifer system.

Figure 2.1 shows water table contours over the site. The flow contours show ground water movement toward the northeast. This flow direction is consistent with that previously measured in the area. Flow from the DePriest and Stevens Oil/Scrap sites migrates to the east, and is intercepted by a large storm drain known as Bilbo's Box. This drain penetrates at least five feet below the water table, and transports storm water to the Savannah River. It is suspected that ground water from nearby off-site areas also enters this or other similar drains, then flows to the river.

2.2 Current Soil Conditions

Soil sampling was conducted in connection with CSR preparation between 2002 and 2005. Sampling was initially conducted in accordance with a grid overlain on the property (see **Figure 2.2**). Follow-up sampling locations were selected to complete delineations.

Based upon the results of initial sampling, the scope of analysis included selected metals and semi-volatile organic compounds (SVOC's). Sample results for metals are presented in **Table 2.1**. SVOC sample results are presented in **Table 2.2**. Applicable risk reduction standards are shown at the end of the table for each regulated substance. Bold values indicate exceedances of the standards.

Results are also presented graphically on **Figures 2.3 through 2.10**. The occurrence of elevated concentrations is associated with the presence of debris and cinders in soil down to depths of four feet or less. All areas in which exceedances are noted are on-site.

2.3 Current Ground Water Conditions

Nine (9) ground water monitoring wells were used to evaluate potential ground water impacts at the Site. Two (2) wells were installed in connection with the CSR preparation at the Stevens Oil/Scrap site. Four (4) of the wells were installed in May 2002 in connection with the DePriest Signal Shop CSR. The three (3) other wells were installed in 2003 in connection with the DePriest Off-Site CSR. Locations and ground water flow direction are shown on **Figure 2.1**.

The locations of the wells allow evaluation of the potential impacts on ground water of releases from on-site and off-site areas. Well MW-17 indicates water quality upgradient of railroad operations, and serves as the background well. The other wells were installed in downgradient locations to indicate whether regulated substances at the site have affected ground water quality.

All wells were sampled employing a "low flow" purging and sampling technique. This approach minimizes entrainment of solids, thereby yielding a more accurate analysis of regulated substances. The first six wells were sampled in May 2002, and samples were analyzed for RCRA metals and SVOC's. The three additional wells were sampled in November 2003. In addition to RCRA metals and SVOC's, these three wells were sampled for volatile organic compounds (VOC's).

Results for the ground water sampling events are summarized in **Table 2.3.** Of the substances tested, only barium was found at detectable levels. A duplicate sample was collected at MW-12 for quality control and was found to be consistent with the original sample.

The data demonstrate that ground water has not been impacted by a release at the site. The Hazardous Site Inventory does not reference a known release to ground water. Based upon these findings, ground water will not be addressed in the VRP.

3.0 Preliminary Conceptual Site Model

3.1 Elements of the Conceptual Site Model

Figure 3.1 presents a preliminary conceptual site model for the site. A plan view is included with a note referring to the limited vertical extent of regulated substances. Elements of the model are discussed below.

3.1.1 Surface Features

The site is relatively flat. Most of the property is part of the DePriest Signal Shop, and is fenced. Within this area, the surface is either paved with gravel, asphalt, or concrete, or is vegetated.

A track crosses the property along the eastern portion. Beyond the track is a heavily wooded area with a fence beyond to prevent access from Hubert Middle School.

No significant surface water features are present on the property other than drainage swales. A buried storm drain traverses the site just south of the operations buildings.

Metals were detected in site soils during CSR preparation. These are believed to be associated primarily with coal and cinders from historic railroad operations, which occur at depths of less than four feet. All metals were delineated horizontally to respective background concentrations within the limits of the site. Vertical delineation is demonstrated by low levels observed in deeper samples and the absence of metals in ground water samples.

Semi-volatile organic compounds (SVOC's) were detected across the site at low levels. Delineation to background was completed except for a small area to the southwest. Complete delineation of SVOC's is complicated by the urban setting of the site and multiple sources of SVOC's not associated with this site.

Exceedances of surface soil risk reduction standards developed in the CSR are isolated for most regulated substances. More widespread exceedances are present for arsenic and lead. The overall extent of the exceedances is shown on **Figure 3.1**. Exceedances of individual regulated substances are shown on **Figures 2.4** (arsenic), **2.5** (barium), **2.8** (lead), and **2.10** (benzo(a)pyrene).

3.1.2 Subsurface Features

As noted in Section 2.1, the uppermost material at off-site areas consists of various thicknesses of topsoil (typically two feet or less). Depending on location, there may be 0-4 feet of fill that includes bricks, gravel, sand, cinders, and other materials. The fill is underlain by 5-10 feet of tan, fine grained silica sand. This sand contains the uppermost part of the surficial aquifer.

Soil impacts identified in previous sampling events are limited to the fill material noted above. No ground water impacts were observed in the surficial aquifer.

3.1.3 Fate and Transport of Constituents of Concern

Findings from previous soil and ground water sampling demonstrate that regulated substances of concern at the Site have minimal mobility. The constituents of concern are expected to remain at current locations and depths barring disturbance.

3.2 Receptors and Exposure Pathways

The site is located in a non-residential area. Portions of the area are fenced to limit access. The southeast portion across the railroad tracks is heavily wooded. The area south and southwest of the fenced portion is accessible, with some wooded areas and some vegetated areas. A railroad track passes through this area off-site to the south. There are no plans for land use changes in the future.

Given this land use scenario, potential receptors may include commercial workers, construction workers, and trespassers. Potential pathways are ingestion, inhalation, and dermal exposure to surficial and shallow soils.

4.0 Site Status Relative to Delineation and Cleanup Standards

4.1 Standard Development

4.1.1 Delineation Standards

VRP guidance permits several options for setting soil and ground water concentrations to be used in delineating constituents of concern. In the CSR, background concentrations for soil were developed that reflected concentrations not affected by a release from the site. These concentrations are proposed for use in the VRP. Values for metals and SVOC's are presented in **Tables 4.1.a and 4.1.b**, respectively. The background concentrations for soil are depth-specific, as noted in the CSR.

For site ground water, the proposed delineation concentrations are default residential standards. No exceedances of these values were detected in site samples collected for CSR development.

4.1.2 Cleanup Standards

The DePriest Signal site consists of an active industrial area occupied by the CSXT DePriest Signal Shop and vacant industrial land. Most of the site is fenced and protected by 24-hour security. The remainder of the site consists primarily of wooded areas that are not readily accessible to the public. Non-residential cleanup standards are applicable to the site.

Type 3 and 4 risk reduction standards were developed in the CSR for soil at the site. These standards are proposed as cleanup standards. **Tables 4.2 and 4.3** present the values, which are depth-specific.

Ground water samples collected during CSR preparation demonstrate no impacts on ground water. No further consideration of ground water is planned under the VRP program.

4.2 Soil Status Relative to Standards

4.2.1 Soil Status Relative to Delineation Standards

The CSR includes horizontal delineation of regulated substances that exceeded HSRA notification concentrations. Delineation was achieved within site boundaries for antimony, arsenic, barium, cadmium, chromium, lead, and silver. On-site delineation was not achieved for SVOC's due to detectable levels in a limited area in the southwest portion of the site.

For areas where deeper samples were collected, all regulated substances had concentrations less than background with two exceptions. The strong attenuation of metals and SVOC's was expected given ground water data. The data indicate that the depth of impacts is limited to about four feet below ground surface, at which depth there are few signs of coal, cinders, and other fill material. Ground water is encountered at about five feet below ground surface.

4.2.2 Soil Status Relative to Risk Reduction Standards

Type 3 soil risk reduction standards were exceeded in at least one sampling location for the following regulated substances:

antimony	benzo(a)anthracene
arsenic	benzo(a)pyrene
barium	benzo(b)fluoranthene
cadmium	benzo(k)fluoranthene
chromium	chrysene
lead	
silver	

Type 4 soil criteria were developed for metals and SVOC compounds that exceeded T3 criteria. Of those regulated substances, the following do not meet T4 risk reduction standards at all locations:

arsenic
barium
lead
benzo(a)pyrene

Exceedances of the Type 4 soil risk reduction standards are isolated for barium and benzo(a)pyrene. More widespread exceedances are present for arsenic and lead. The extent of the exceedances are shown on **Figures 2.4** (arsenic), **2.5** (barium), **2.8** (lead), and **2.10** (benzo(a)pyrene). The overall area exceeding risk reduction standards is shown on **Figure 3.1**.

The status of soil with respect to risk reduction standards in the discussion above is based upon compliance with the standard at every sampled point. An alternate approach to evaluating potential risk to receptors is to use average concentrations of the regulated substances across exposure domains. This approach is described in "*Supplemental Guidance to RAGS: Calculating the Concentration Term*, USEPA OSWER, May 1992". Under this approach, samples across each domain are identified and their concentrations are subjected to statistical analysis to determine the 95% upper confidence limit of the arithmetic mean (95% UCL). The 95% UCL is compared to the risk reduction standard for each regulated substance to determine compliance with the risk reduction standard.

CSXT intends to perform these calculations for the site and compare results to previously proposed risk reduction standards. If exceedances for the overall site are identified, CSXT will propose remediation of "hot spots" to reduce the respective 95% UCL's to acceptable levels.

4.3 Ground Water Status Relative to Standards

Six (6) groundwater wells at the site were sampled May 8, 2002. All wells were analyzed for RCRA metals and SVOC's. Of these parameters, only barium was detected. Barium concentrations ranged from 0.016 to 0.1 mg/L. Three (3) additional wells were installed in

connection with a CSR for the adjacent off-site areas. They were sampled for the same constituents plus volatile organic compounds on November 12, 2003. Again, the only substance detected was barium at a maximum concentration of 0.031 mg/l.

The Type 3 ground water criterion for barium (which is the same as the Type 1 residential criterion) is 2 mg/L. All site samples were at least one order-of-magnitude below this level, and ground water does not pose an adverse risk.

4.4 Soil Remediation

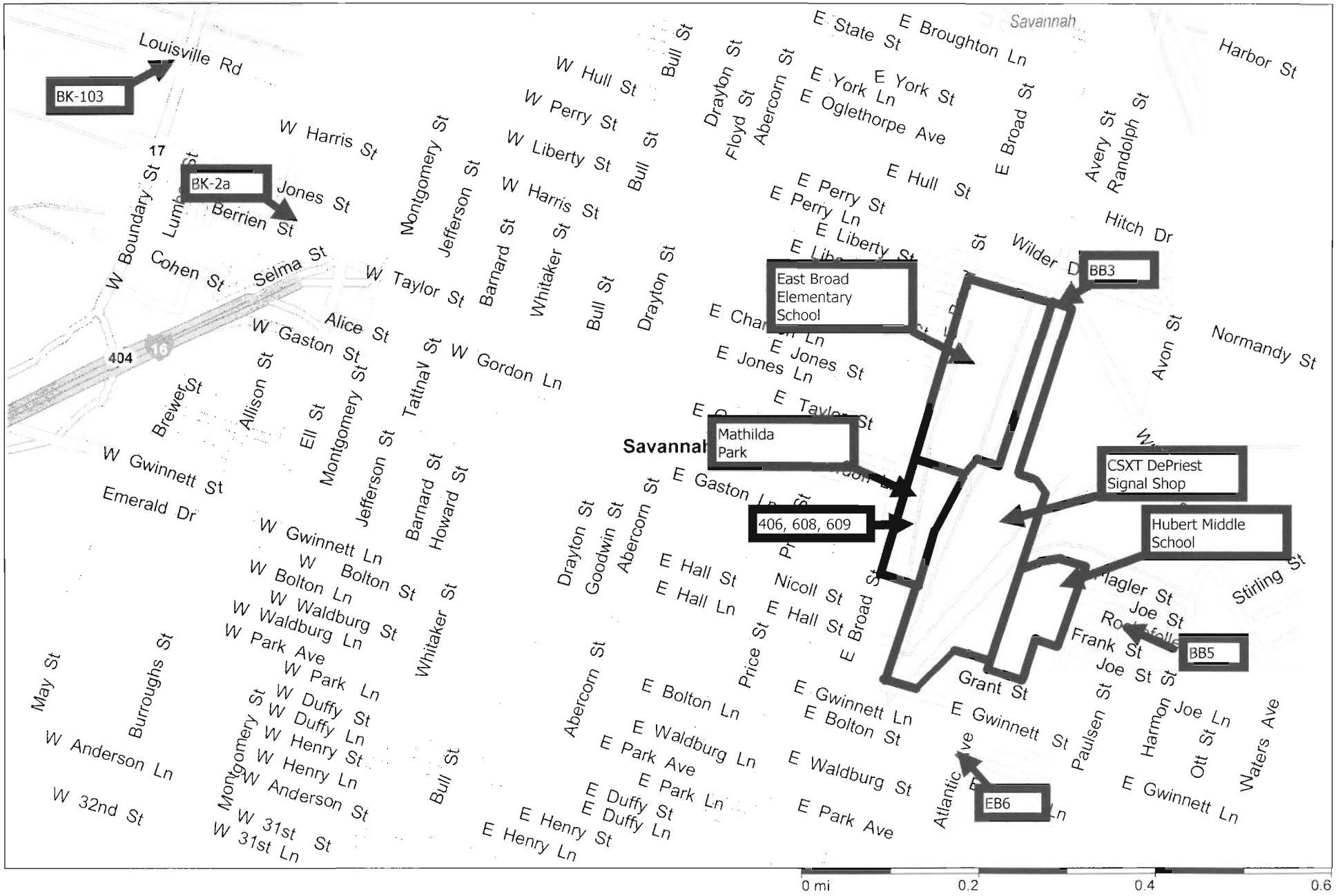
CSXT intends to utilize exposure averaging to evaluate the need for soil remediation. For the four regulated substances that exceed the Type 4 risk reduction standard in any location, the 95% UCL mean concentrations for each will be compared to the Type 4 standard.

As discussed in Section 4.2.2, arsenic and lead are the only regulated substances that exceed applicable standards in multiple locations. It is expected that only those two substances may exceed Type 4 standards using exposure averaging. CSXT anticipates that, by removing soil in limited areas, the 95% UCL of the mean will be reduced to meet the Type 4 standards. The excavated soil will be transported to a landfill for disposal and replaced with clean fill.

4.5 Projected Milestone Schedule

A Gantt chart presenting a proposed schedule for VRP activities is included as **Figure 4.1.** The dates shown on the schedule reflect maximum allowable times to accomplish tasks leading to site remediation. CSXT intends to expedite the process if possible, and may accomplish some tasks prior to the times proposed in the schedule.

Figure 1.1 Location Map



Note: Site continues south to intersection of Gwinnett street

VICINITY MAP

N.T.S.

GEORGIA REGISTERED NO. 1882 LAND SURVEYOR VINCENT HELMLY

COASTAL SURVEYING CO., INC.
2640 QUACCO ROAD
POOLER GA. 31322
(912) 748-2154

SHEET 1 of 2
SCALE: 1"=40'
DATE: MAY 14, 2002
JOB# 02-190

TOPOGRAPHIC SURVEY

CSX RAILROAD LIBERTY STREET YARD, ATLANTIC WARD, SAVANNAH, CHATHAM COUNTY, GEORGIA

FOR: HOLLEY CONSULTANTS, INC.

CSX
TRANSPORTATION

HOLLEY CONSULTANTS

DRAWING NO 9814901-1.2

SHEET NO

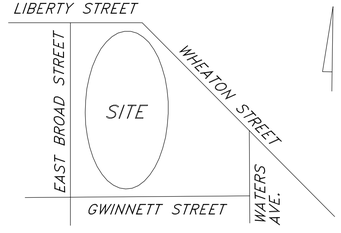
REVISIONS & DATE

FIGURE 1.2
SITE PLAN
SHEET 1 OF 2

DESIGNED BY	CHECKED BY	SCALE	DATE
–	REH	1"=50'	AUG. 2002

LEGEND:

~	CONTOUR
× 22.0	SPOT ELEVATION
• IPF	IRON PIPE FOUND
• IRF	IRON ROD FOUND
* PKF	PK NAIL FOUND
• N/S	NAIL SET



VICINITY MAP
N.T.S.

GRAPHIC SCALE IN FEET
50 0 50 100 150 200

GEORGIA REGISTERED NO. 1882 LAND SURVEYOR VINCENT HELMLY

COASTAL SURVEYING CO., INC.
2640 QUACCO ROAD
POOLER GA. 31322
(912) 748-2154

SHEET 1 of 2
SCALE: 1"=40'
DATE: MAY 14, 2002
JOB# 02-190

TOPOGRAPHIC SURVEY

CSX RAILROAD LIBERTY STREET YARD, ATLANTIC WARD, SAVANNAH, CHATHAM COUNTY, GEORGIA

FOR: HOLLEY CONSULTANTS, INC.

CSX TRANSPORTATION

HOLLEY CONSULTANTS

DRAWING NO 9814901-1.2
SHEET NO

REVISIONS & DATE

FIGURE 1.2
SITE PLAN
SHEET 2 OF 2

DESIGNED BY	CHECKED BY	SCALE	DATE
–	REH	1"=50'	AUG. 2002

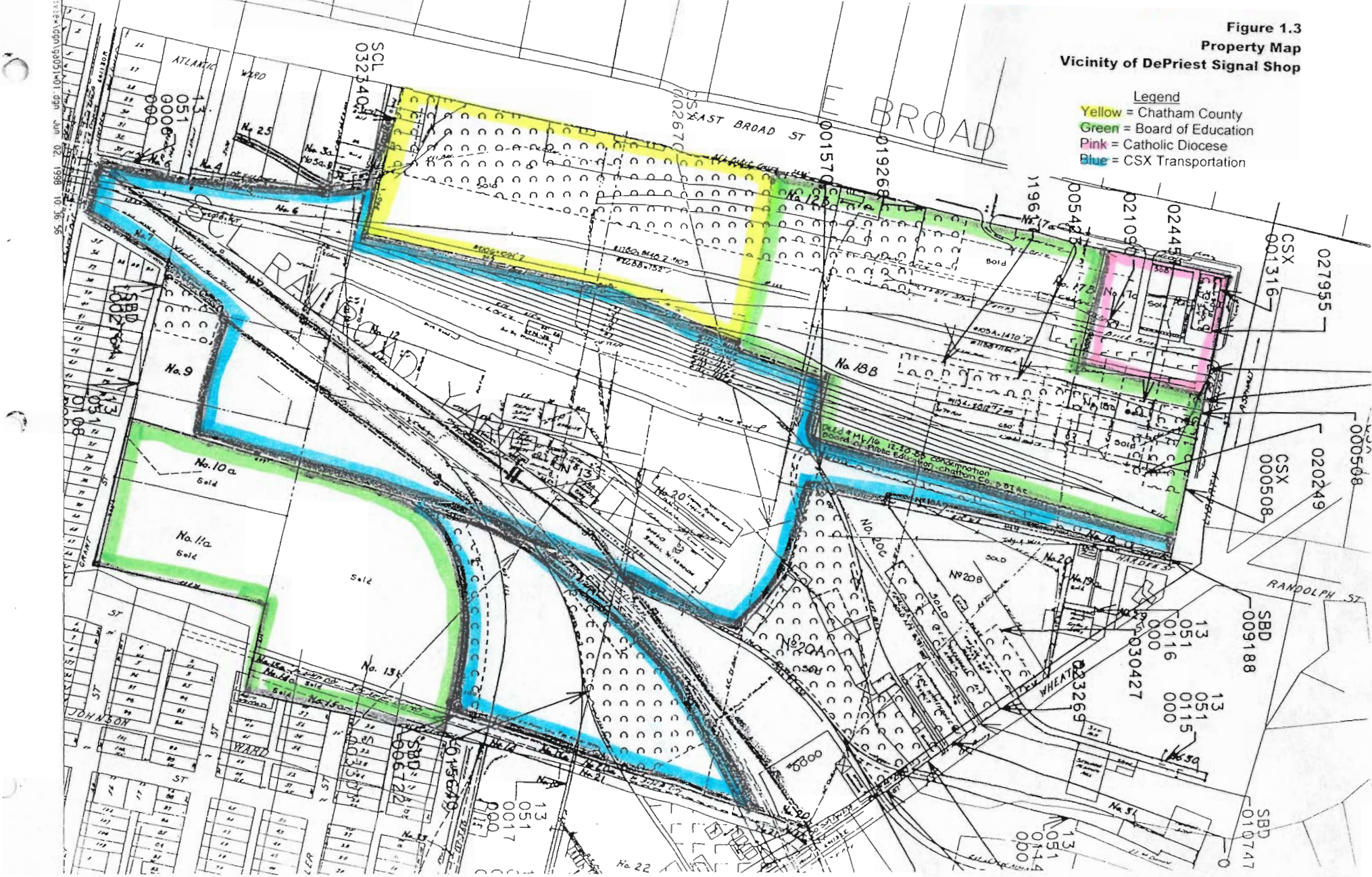


Figure 1.3
Property Map
Vicinity of DePriest Signal Shop
Legend
Yellow = Chatham County
Green = Board of Education
Pink = Catholic Diocese
Blue = CSX Transportation
E BROAD
EAST BROAD ST
SCL RAILROAD
ATLANTIC WARD
No. 9
No. 10a
No. 11a
Sold
No. 13
No. 18B
No. 20
No. 20A
No. 20B
No. 20C
No. 20D
No. 20E
No. 20F
No. 20G
No. 20H
No. 20I
No. 20J
No. 20K
No. 20L
No. 20M
No. 20N
No. 20O
No. 20P
No. 20Q
No. 20R
No. 20S
No. 20T
No. 20U
No. 20V
No. 20W
No. 20X
No. 20Y
No. 20Z
No. 21
No. 22
No. 50
No. 51
JOHNSON ST
WARD ST
RANDOLPH ST
WHEAT ST
CSX 001316
CSX 000508
SBD 009188
SBD 010747
SBD 006722
SCL 032340
13 051 0116 000
13 051 0115 000
13 051 0114 000
13 051 0017 000
030427
023269
027955
020249
000508

MAGNETIC

T/C 19.24
Ba = 0.086 mg/L

T/C 17.88
Ba = 0.031 mg/L

T/C 19.28
Ba = 0.013 mg/L

T/C 19.80
Ba = 0.019 mg/L

Matilda Park

East Broad
Elementary School

SITE LIMITS

SITE LIMITS

CSXT DePriest Signal Shop

MW-17
15.04

CSXT DePriest Signal Shop

SITE LIMITS

MW-21
10.63

MW-22
11.52

MW-23
11.67

MW-18
13.29

CSXT Site

CSXT DePriest Signal Shop

MW-19
9.77

MW-12
8.60

MW-20
5.53

BOARD OF EDUCATION FOR CHATHAM COUNTY

Huber Middle School

MW-15
4.65

T/C 17.53
Ba = 0.033 mg/L

T/C 17.34
Ba = 0.1 mg/L

T/C 15.55
Ba = 0.016 mg/L

T/C 14.55
Ba = 0.023 mg/L

T/C 14.32
Ba = 0.058 mg/L

LEGEND

MW-20 = Monitoring Well

5.53 = Water Elevation (MSL)

= Groundwater Contour

= Surface Contour

= Barium background Delineation (0.086 mg/L)

= Site Limit

= CSX Site

T/C 14.55
Ba = 0.023 mg/L = Top of Casing Elevation (MSL)
= Barium concentration in groundwater

GRAPHIC SCALE IN FEET

150 0 150 300 450 600

LIBERTY STREET
EAST BROAD STREET
SITE
WHEATON STREET
WATERS AVE.
GWINNETT STREET

VICINITY MAP
N.T.S.

CSX TRANSPORTATION

HOLLEY CONSULTANTS

REVISIONS & DATE

FIGURE 2.1
WATER TABLE CONTOUR MAP
AND BARIUM DELINEATION
CSXT 9814901

DESIGNED BY	CHECKED BY	SCALE	DATE
–	REH	INDICATED	FEB 2004

MAGNETIC

ENTLEMAN STREET

ST. JAMES A.M.E. CHURCH

DOW ELECTRONICS, INC.

THE MASONIC BLDG. ASSOC.

MAYOR & ALDERMEN CITY OF SAVANNAH

SHIPWATCH PARTNERS

MATHILDA PARK

SHIPWATCH PARTNERS

BOARD OF EDUCATION FOR SAVANNAH & CHATHAM COUNTY

EAST BROAD STREET ELEMENTARY SCHOOL

BOARD OF EDUCATION FOR SAVANNAH & CHATHAM COUNTY

HUBERT MIDDLE SCHOOL

STEVENS OIL/SCRAP SITE

MATCH LINE SEE BELOW FOR CONTINUATION

MATCH LINE

LIBERTY STREET

LEGEND

- Property Line
- RRS
- Background
- 30A — Sample Point
- 100/0-1 — Depth of Sample / Concentration in mg/Kg

GRAPHIC SCALE IN FEET

60 0 60 120 180 240

VICINITY MAP
N.T.S.

LIBERTY STREET, EAST BROAD STREET, WHEATON STREET, GWINNETT STREET, WATERS AVE., SITE

CSX TRANSPORTATION

HOLLEY CONSULTANTS

REVISIONS & DATE	FIGURE 2.2 SOIL SAMPLE LOCATIONS CSXT DEPRIEST SIGNAL SHOP SAVANNAH, GA			
	DESIGNED BY	CHECKED BY	SCALE	DATE
	–	REH	INDICATED	AUG 2005

MAGNETIC

ST. JAMES A.M.E. CHURCH

DOW ELECTRONICS, INC.

THE MASONIC BLDG. ASSOC.

MAYOR & ALDERMEN CITY OF SAVANNAH

SHIPWATCH PARTNERS

MATHILDA PARK

SHIPWATCH PARTNERS

BOARD OF EDUCATION FOR SAVANNAH & CHATHAM COUNTY

EAST BROAD STREET ELEMENTARY SCHOOL

BOARD OF EDUCA SAVANNAH & CHA

MATCH LINE SEE BELOW FOR CONTINUATION

BOARD OF EDUCATION FOR SAVANNAH & CHATHAM COUNTY

HUBERT MIDDLE SCHOOL

STEVENS OIL/SCRAP SITE

MATCH LINE

LIBERTY STREET

LEGEND

- Property Line
- RRS
- Background
- 30A — Sample Point
- 100/0-1 — Depth of Sample
- Concentration in mg/Kg

BG (0-1) = <2.1 mg/Kg

BG (>1) = 3.2 mg/Kg

RRS (0-1) = 121 mg/Kg

RRS (>1) = 121 mg/Kg

GRAPHIC SCALE IN FEET

60 0 60 120 180 240

VICINITY MAP
N.T.S.

LIBERTY STREET · EAST BROAD STREET · WHEATON STREET · SITE · GWINNETT STREET · WATERS AVE.

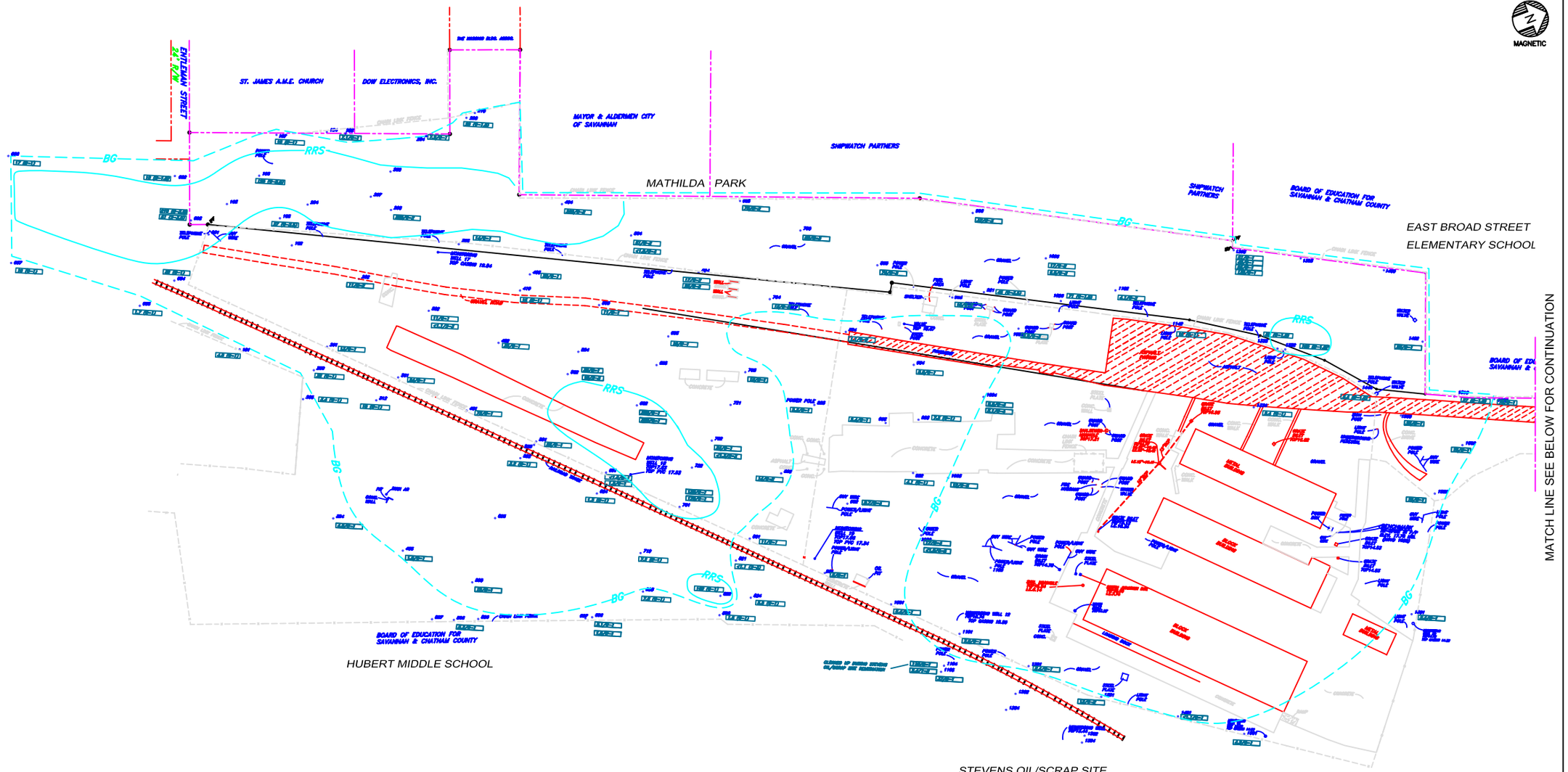
CSX TRANSPORTATION

HOLLEY CONSULTANTS

REVISIONS & DATE

FIGURE 2.3
ANTIMONY SOIL DELINEATION
CSXT DEPRIEST SIGNAL SHOP
SAVANNAH, GA

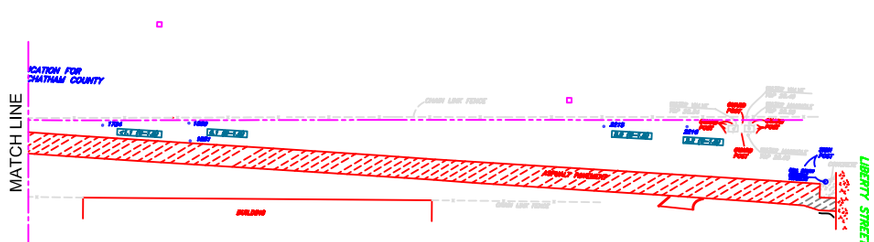
DESIGNED BY	CHECKED BY	SCALE	DATE
–	REH	INDICATED	AUG 2005

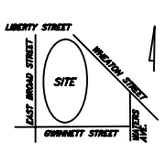


LEGEND

- Property Line
- RRS
- Background
- 30A / 100/0-1 — Sample Point; Depth of Sample; Concentration in mg/Kg

BG (0-1) = 12 mg/Kg
BG (>1) = 44 mg/Kg
RRS (0-1) = 109 mg/Kg
RRS (>1) = 3,972 mg/Kg





VICINITY MAP
N.T.S.

GRAPHIC SCALE IN FEET
60 0 60 120 180 240

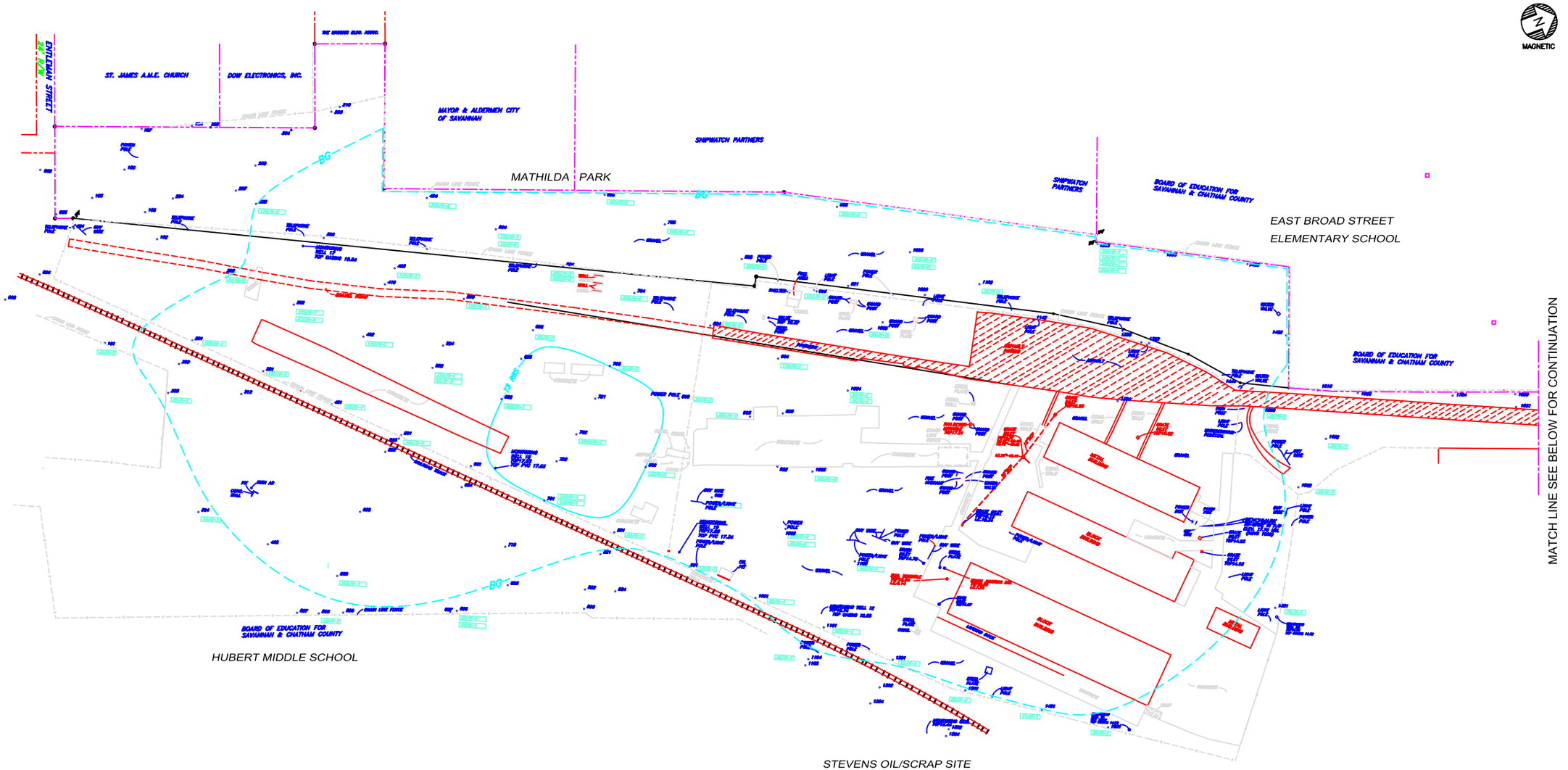
CSX TRANSPORTATION

HC HOLLEY CONSULTANTS

REVISIONS & DATE
1. REVISE RRS AND DELINEATION 03/05/08

FIGURE 2.4
ARSENIC SOIL DELINEATION
CSXT DEPRIEST SIGNAL SHOP
SAVANNAH, GA

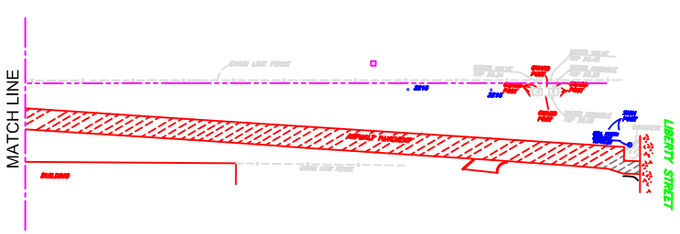
DESIGNED BY	CHECKED BY	SCALE	DATE
–	REH	INDICATED	AUG 2005

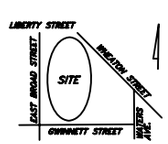


LEGEND

- Property Line
- RRS
- Background
- 30A / 100/0-1 — Sample Point; Depth of Sample; Concentration in mg/Kg

BG (0-1) = 110 mg/Kg
BG (>1) = 30 mg/Kg
RRS (0-1) = 1,000 mg/Kg
RRS (>1) = 1,000 mg/Kg





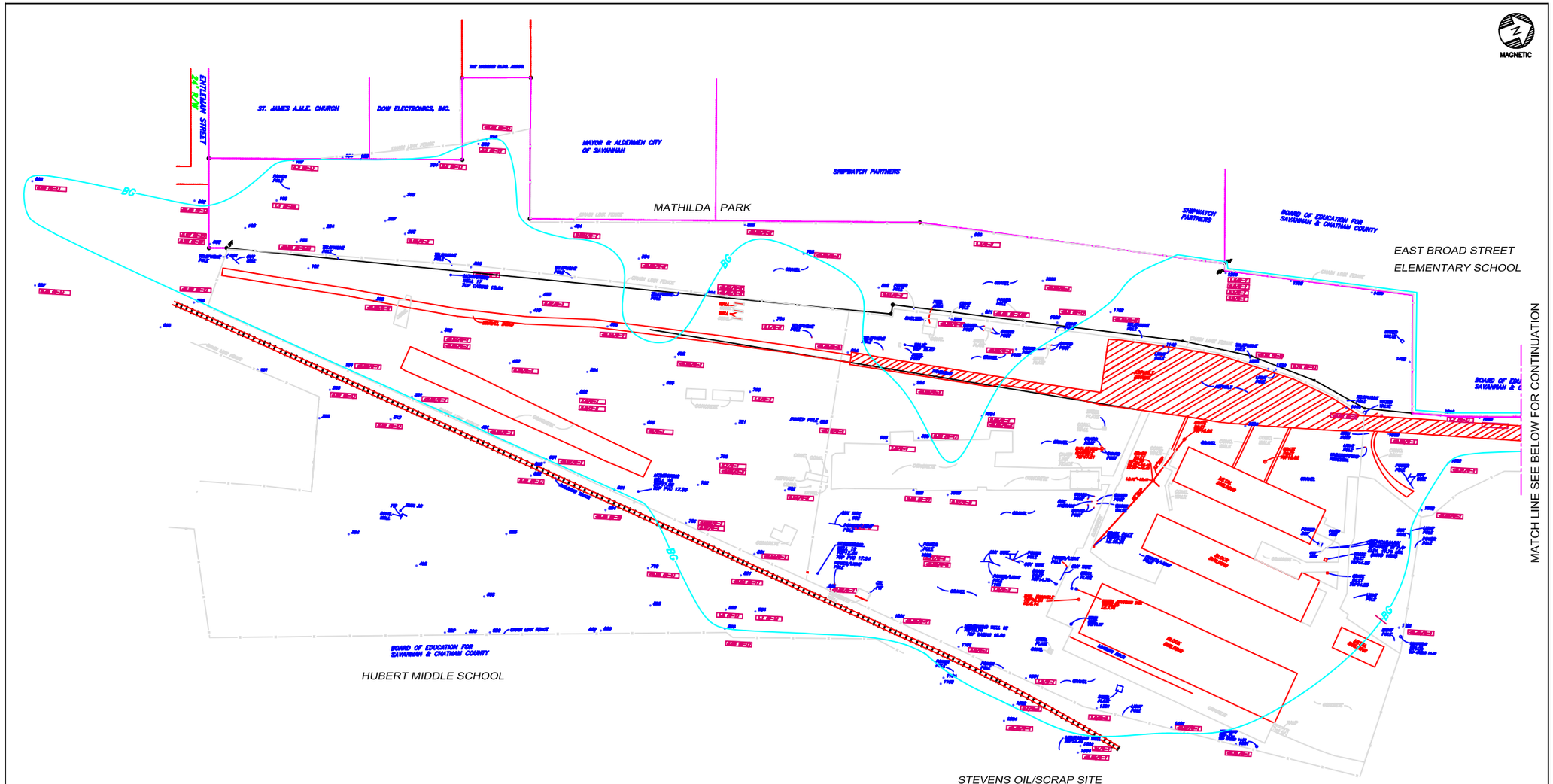
VICINITY MAP
N.T.S.

GRAPHIC SCALE IN FEET
60 0 60 120 180 240

CSX TRANSPORTATION

HC HOLLEY CONSULTANTS

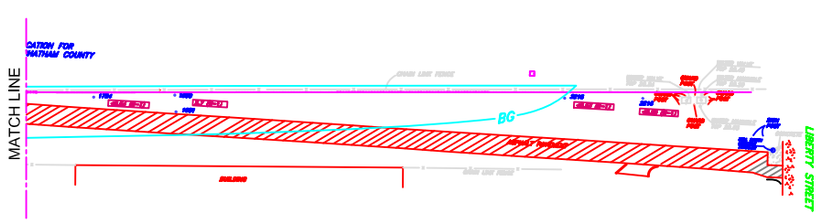
REVISIONS & DATE	FIGURE 2.5 BARIUM SOIL DELINEATION CSXT DEPRIEST SIGNAL SHOP SAVANNAH, GA			
	DESIGNED BY	CHECKED BY	SCALE	DATE
	–	REH	INDICATED	AUG 2005

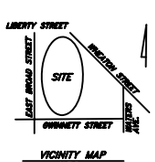


LEGEND

- Property Line
- RRS
- Background
- 30A — Sample Point
- 100/0-1 — Depth of Sample / Concentration in mg/Kg

BG (0-1) = 0.68 mg/Kg
BG (>1) = <0.65 mg/Kg
RRS (0-1) = 114 mg/Kg
RRS (>1) = 114 mg/Kg





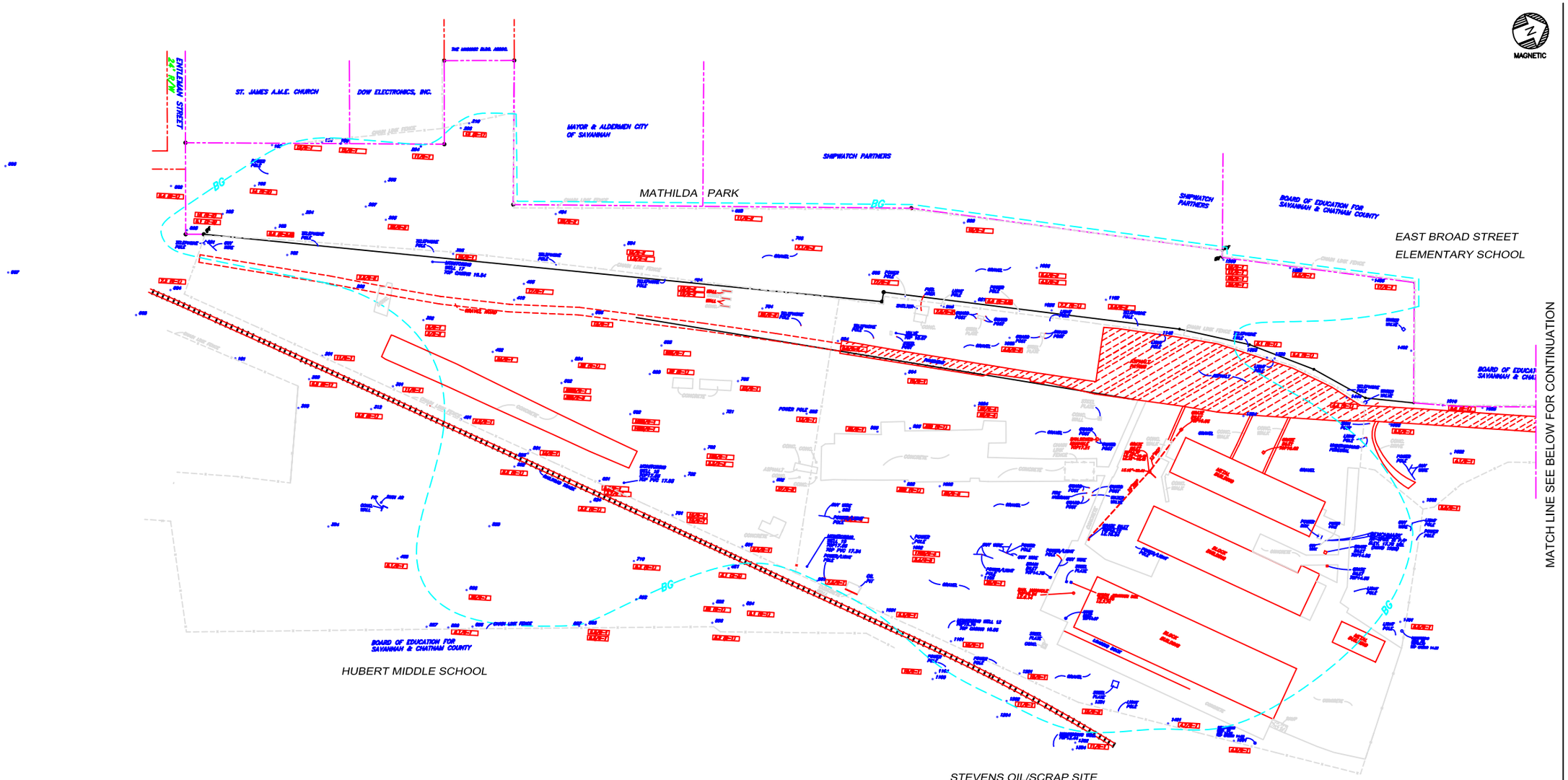
VICINITY MAP
N.T.S.

GRAPHIC SCALE IN FEET
60 0 60 120 180 240

CSX TRANSPORTATION

HC HOLLEY CONSULTANTS

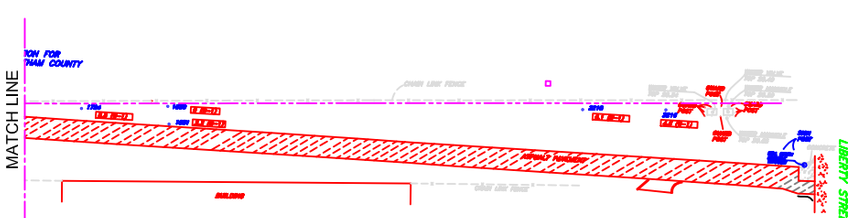
REVISIONS & DATE	FIGURE 2.6 CADMIUM SOIL DELINEATION CSXT DEPRIEST SIGNAL SHOP SAVANNAH, GA			
	DESIGNED BY	CHECKED BY	SCALE	DATE
	–	REH	INDICATED	AUG 2005



LEGEND

- Property Line
- RRS
- Background
- 30A / 100/0-1 — Sample Point; Depth of Sample; Concentration in mg/Kg

BG (0-1) = 11 mg/Kg
BG (>1) = 19 mg/Kg
RRS (0-1) = 10,000 mg/Kg
RRS (>1) = 10,000 mg/Kg



GRAPHIC SCALE IN FEET
60 0 60 120 180 240

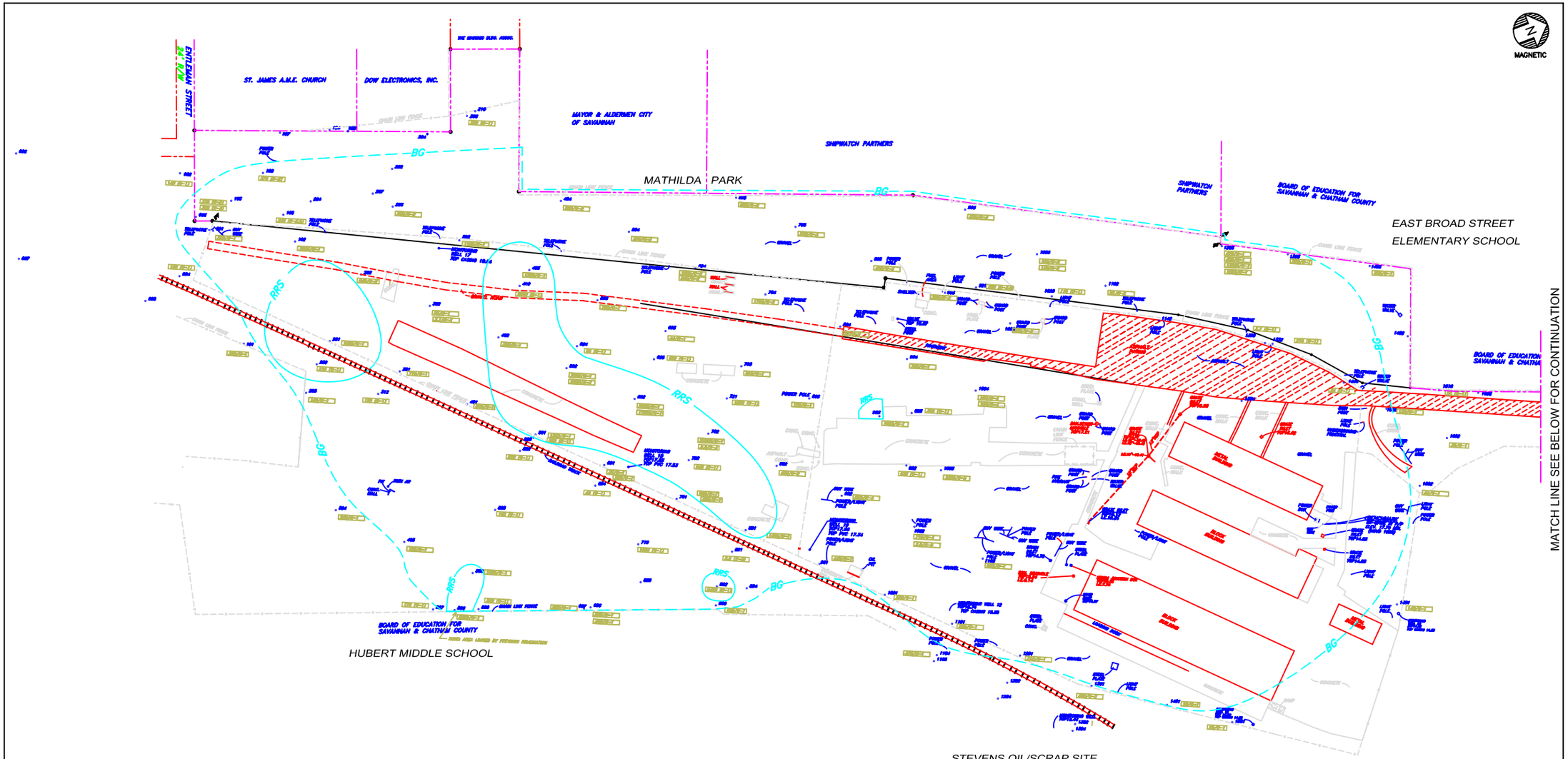
CSX TRANSPORTATION

HC HOLLEY CONSULTANTS

REVISIONS & DATE

FIGURE 2.7
CHROMIUM SOIL DELINEATION
CSXT DEPRIEST SIGNAL SHOP
SAVANNAH, GA

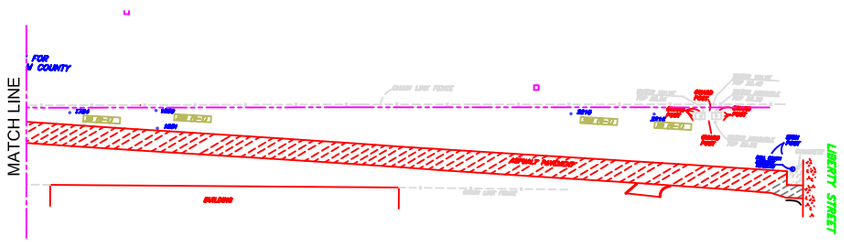
DESIGNED BY	CHECKED BY	SCALE	DATE
-	REH	INDICATED	AUG 2005

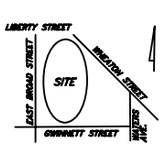


LEGEND

- Property Line
- RRS
- Background
- 30A — Sample Point
- 100/0-1 — Depth of Sample / Concentration in mg/Kg

BG (0-1) = 402 mg/Kg
BG (>1) = 290 mg/Kg
RRS (0-1) = 1,180 mg/Kg
RRS (>1) = 4,942 mg/Kg





VICINITY MAP
N.T.S.

GRAPHIC SCALE IN FEET
60 0 60 120 180 240

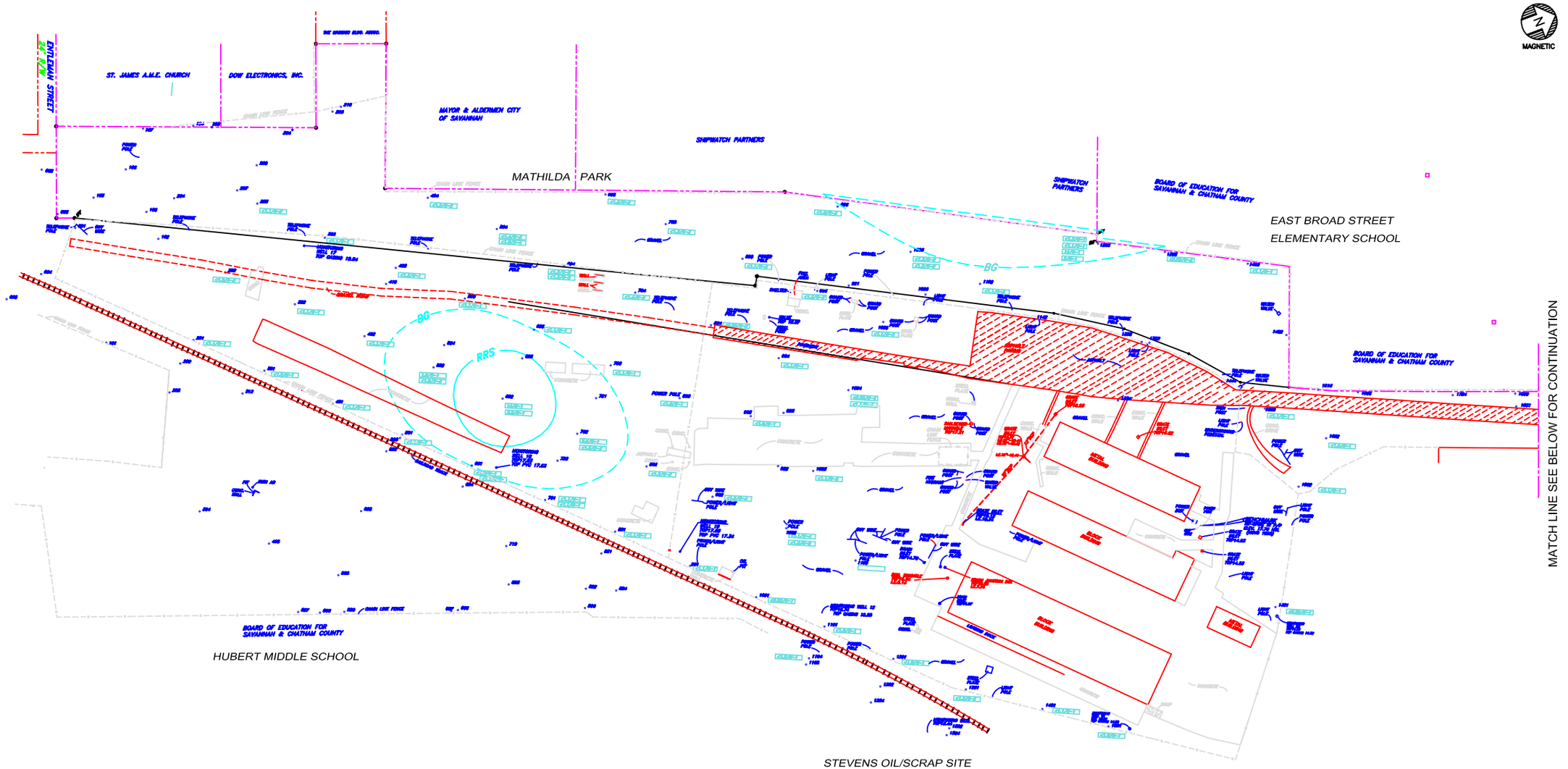
CSX TRANSPORTATION

HC HOLLEY CONSULTANTS

REVISIONS & DATE

FIGURE 2.8
LEAD SOIL DELINEATION
CSXT DEPRIEST SIGNAL SHOP
SAVANNAH, GA

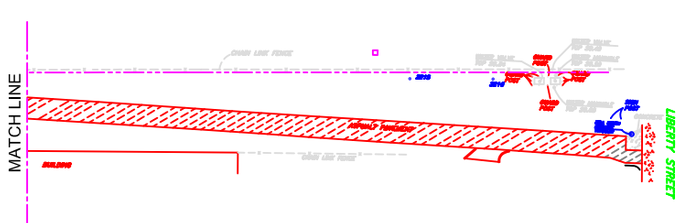
DESIGNED BY	CHECKED BY	SCALE	DATE
-	REH	INDICATED	AUG 2005

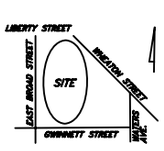


LEGEND

- Property Line
- RRS
- Background
- 30A — Sample Point
- 100/0-1 — Depth of Sample / Concentration in mg/Kg

BG (0-1) = <1.2 mg/Kg
BG (>1) = <1.1 mg/Kg
RRS (0-1) = 10 mg/Kg
RRS (>1) = 10 mg/Kg





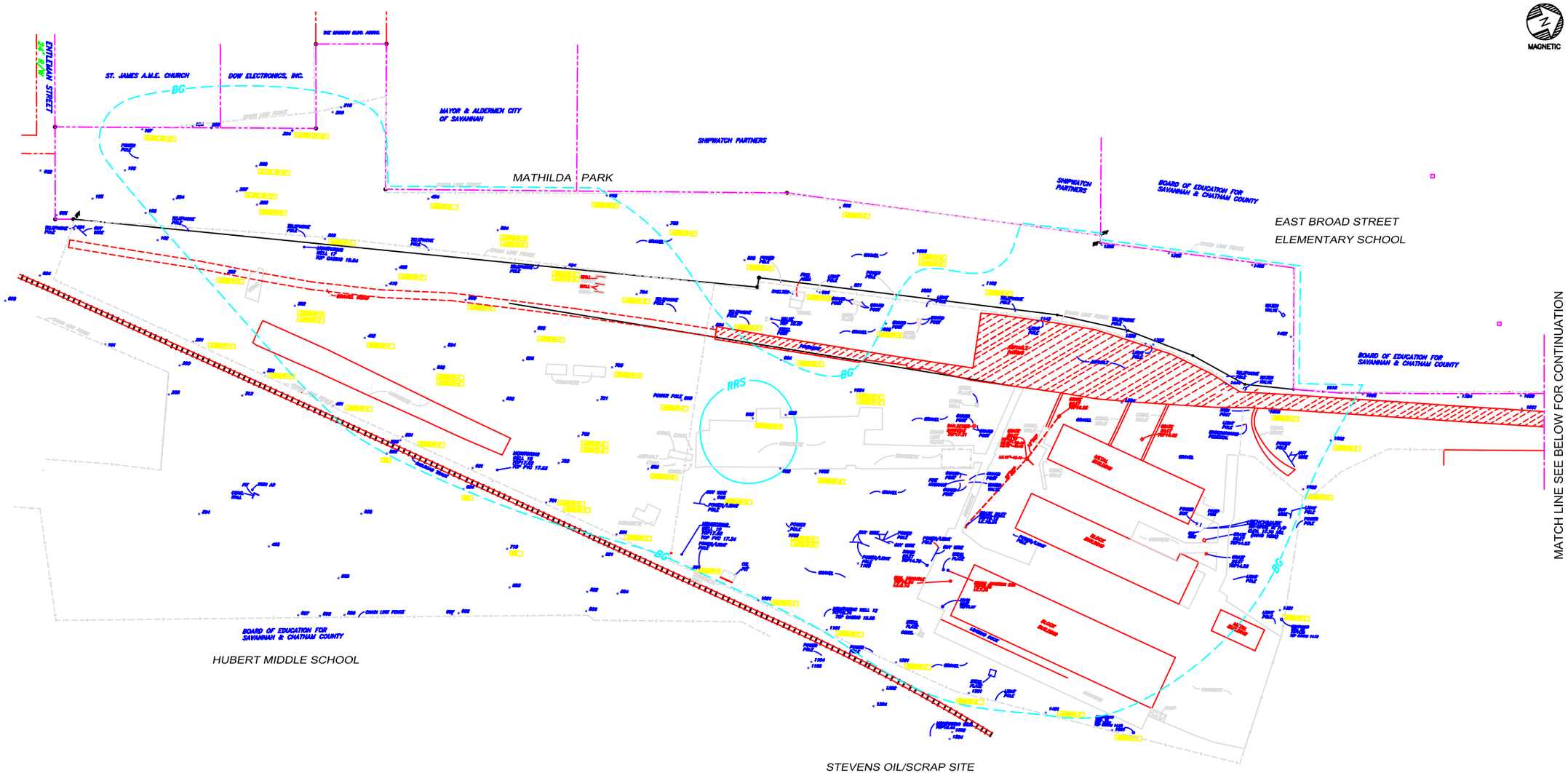
VICINITY MAP
N.T.S.

GRAPHIC SCALE IN FEET
60 0 60 120 180 240

CSX TRANSPORTATION

HC HOLLEY CONSULTANTS

REVISIONS & DATE	FIGURE 2.9 SILVER SOIL DELINEATION CSXT DEPRIEST SIGNAL SHOP SAVANNAH, GA			
	DESIGNED BY	CHECKED BY	SCALE	DATE
	–	REH	INDICATED	AUG 2005



LEGEND

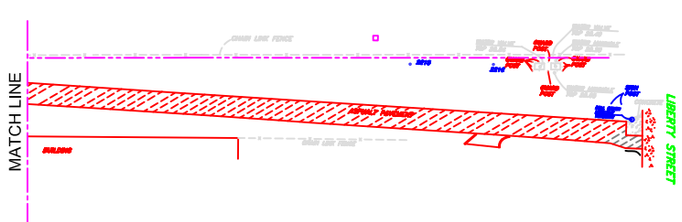
- Property Line
- RRS
- Background
- 30A — Sample Point
- 100/0-1 — Depth of Sample / Concentration in mg/Kg

BG (0-1) = Detection Limits

BG (>1) = Detection Limits

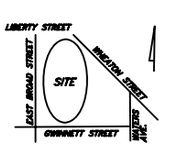
RRS for BAP (0-1) = 7,700 Ug/Kg

RRS for BAP (>1) = 8,000 Ug/Kg



GRAPHIC SCALE IN FEET

60 0 60 120 180 240



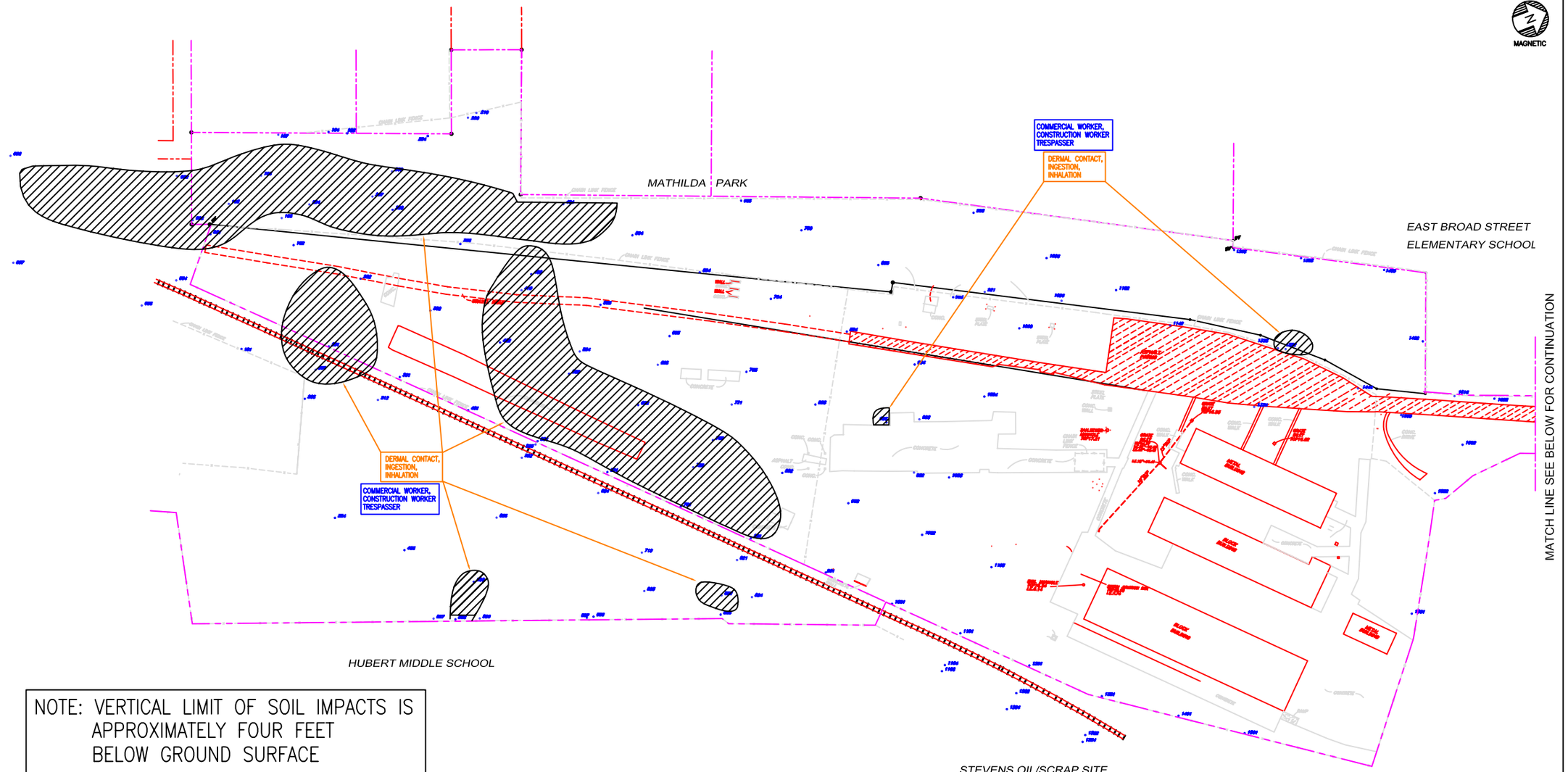
VICINITY MAP
N.T.S.

CSX TRANSPORTATION

HC HOLLEY CONSULTANTS

REVISIONS & DATE	FIGURE 2.10 SVOC SOIL DELINEATION CSXT DEPRIEST SIGNAL SHOP SAVANNAH, GA

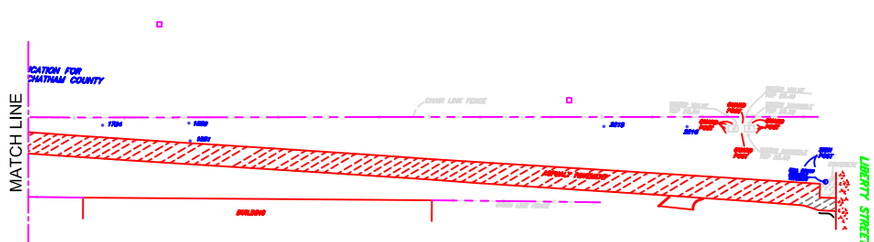
DESIGNED BY	CHECKED BY	SCALE	DATE
-	REH	INDICATED	AUG 2005

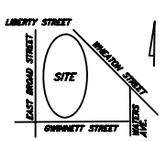


NOTE: VERTICAL LIMIT OF SOIL IMPACTS IS APPROXIMATELY FOUR FEET BELOW GROUND SURFACE

LEGEND

- Property Line
- RRS exceedance
- Potential Exposure Pathway
- Potential Exposure Receptors
- 30A — Sample Point





VICINITY MAP
N.T.S.

GRAPHIC SCALE IN FEET
60 0 60 120 180 240

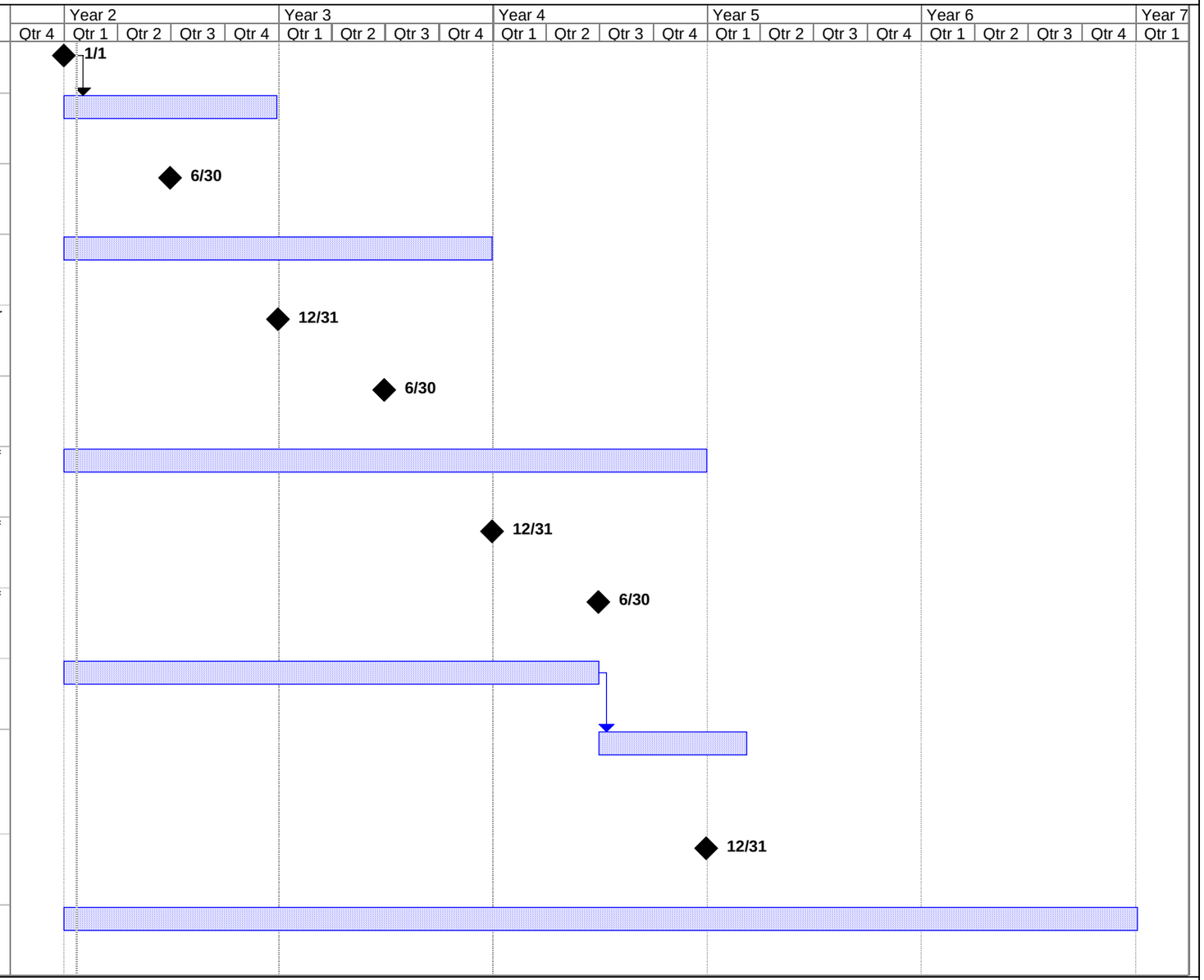
CSX TRANSPORTATION

HC HOLLEY CONSULTANTS

REVISIONS & DATE	FIGURE 3.1 CONCEPTUAL SITE MODEL CSXT DEPRIEST SIGNAL SHOP SAVANNAH, GA			
	DESIGNED BY	CHECKED BY	SCALE	DATE
	–	REH	INDICATED	JAN 2012

Figure 4,1
Projected Schedule*
DePriest Signal Shop

ID	Task Name	Duration	Projected Completion Date
1	VRP Enrollment	0 mons	
2	Horizontal Delineation of COC's On-site	13.1 mons	Within one year of enrollment
3	Semi-Annual Report and Updated CSM	0 mons	Six months after enrollment
4	Horizontal Delineation of COC's Off-Site	26.2 mons	Within two years of enrollment
5	Semi-Annual Report and Updated CSM	0 mons	Twelve months after enrollment
6	Semi-Annual Report and Updated CSM	0 mons	Eighteen months after enrollment
7	Complete Vertical Delineation	39.3 mons	Within 30 months of enrollment
8	Semi-Annual Report and Updated CSM	0 mons	Within 24 months of enrollment
9	Semi-Annual Report and Updated CSM	0 mons	Within 30 months of enrollment
10	Submit Remediation Plan and Preliminary Cost Estimate	32.7 mons	Within 30 months after enrollment
11	Active Remediation if Needed	9 mons	Within 9 months of remediation plan completion
12	Semi-Annual Report and Updated CSM	0 mons	Within 36 months after enrollment
13	Submit CSR	65.5 mons	Within 60 months after enrollment



* Assumes start date of January 1, 2012 (Year 2). Actual dates will be adjusted after acceptance into program.

Table 2.1
RCRA Metals
Soil Data Summary

Sample Point	Antimony	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
001/0-1						230			
002(0-1.0)	<2.0	18		<0.49	8.4	140	0.18		
003(0-2.0)	14	**210**		0.97	15	310	0.2		
003(2-3.0)	12	51		0.88	9.1	350	0.18		
004(0-1)	<2.1	32		<0.52	7.2	160	0.13		
005(0-1)		1.7							
006(0-1)		17		0.68					
007(0-1)		10		0.45					
101(0-1)		4.8							
101/0-1			46			330			
102/0-1						1000			
103/0-1		7.1			19			<2.1	
104/0-1					12				
105(0-2.5)	6.5	27		<0.55	8.6	340	1.1		
106(0-2.0)	8.6	**120**		1.1	14	370	0.33		
107(0-1)		15		6.2					
201/0-1		13	150	<0.55	11	**1800**	0.65	<1.1	<1.1
202/0-2		11	84	<0.60	7.3	640	0.61	<1.2	<1.2
203/0-2		**380**	110	0.66	23	300	0.23	1.6	<1.1
204(0-1)				3.5					
204/0-1		7.2			11		0.43	<1.1	
205(0-1)		3.4							
205/0-1			38			140			
206(0-1.0)	<2.5	20		3.3	13	280	0.37		
207(0-1)									
208(0-1)									
209(0-1)	4.4	36		<0.52	5.6	210	0.37		
210(0-1)				<0.46					
301/0-1		24	130	<0.61	11	710	0.37	<1.2	<1.2
302/0-1		11	160	<0.54	5	25	0.077	<1.1	<1.1
302/2-3		<1.1	3.7	<0.54	2	3.1	<0.022	<1.1	<1.1
303/0-1		14	110	<0.55	10	1100	1.4	<1.1	<1.1
304/0-1		4.5	76			240			
312(0-1)	<2.1	15		<0.52	3.6	130	0.11		
401/0-1		**73**	86	<0.53	8.8	880	0.4	<1.1	<1.1
402/0-1		35	110	0.95	24	380	0.37	<1.1	<1.1
403/0-1		30	170	0.87	17	**1300**	0.68	<1.3	<1.3
404/0-2		**260**	290	0.084	23	500	0.74	2.6	<1.2
405/0-1		1.6			5.1	150	0.42		
419(0-1)		15				**2500**			
501/0-1		**56**	120	<0.57	13	**1200**	0.92	<1.1	<1.1
502/0-2		35	170	7.6	2300	**2000**	0.38	<2.0	1.9
502/2-3		15	81	2	250	2600		<1.0	<1.0
503/0-1		11	110	<0.54	13	700	0.073	<1.1	<1.1
504/0-2		**61**	170	<0.68	15	370	0.24	1.4	<1.4
504/3-4		<1.0	19	<0.52	1.9	12	0.025	<1.0	<1.0
505/0-1		19	250		38	**1200**	2.1		
506/0-1		5.3	66		8.1	**2900**	0.78		
522(0-1)	<2.0	3.2		<0.51	8.6	820	5.9		
523(0-1)						520			
524(0-1)					28	90			
525(0-1)						160			
526(0-1)						350			
527(0-1)						170			
601/0-1		<1.0	10	<0.52	3.3	32	0.041	<0.1	<1.0

Table 2.1
RCRA Metals
Soil Data Summary

Sample Point	Antimony	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
601D/0-1		1.5	16	<0.57	3.7	360	0.087	<1.1	<1.1
602/0-1		**300**	820	70	1500	**5100**	1.8	<26	14
602R/0-1		**220**	560	46	1600	**11000**	4.9	<25	6.8
603/0-1		10	28	<0.53	9.5	44	0.02	<1.1	<1.1
604/0-2		17	230	<0.61	13	1000	0.28	<1.2	<1.2
604D/0-2		23	200	<0.65	12	640	0.23	<1.3	<1.3
605/0-2		**79**	130	<0.66	11	590	0.35	<1.3	<1.3
606/0-1		3.1	52		9.8	560			
606R/0-1		1.9	49		9.3	480			
607/0-1						900	1.7		
624(0-1)	<1.9	1.3		<0.48	3.2	46	0.29		
625(0-1)					29	680			
701/0-1		**130**	110	0.088	16	600	0.61	<1.1	<1.1
701D/0-1		**170**	140	0.67	19	630	0.64	<1.1	<1.1
702/0-1		34	**2900**	6.7	180	**27000**	0.27	<1.3	3.5
702/2-3		<1.3	16	<0.65	3.3	3.3	0.026	<1.3	<1.3
703/0-1		13	49	1.1	53	510	0.14	<1.1	<1.1
704/0-2		13	240	1.1	22	**1700**	0.59	<1.4	<1.4
705/0-3		**60**	150	<0.63	7.1	270	0.18	<1.3	<1.3
719(0-1)	5	7.2		<0.53	9.3	1000	1.7		
720(0-1)									
721(0-1)						**1800**			
722(0-1)						940			
801/0-1		11	48	<0.54	8.5	**1400**	0.62	<1.1	<1.1
802/0-2		14	57	0.94	27	400	0.2	<1.2	<1.2
803/0-1		5.3	33	<0.52	13	120	0.067	<1.0	<1.0
804/0-2		1.1	35	<0.49	6.8	97	0.17	<0.99	<0.99
805/0-3		**74**	160	0.61	17	470	1.3	1.7	<1.1
806(0-1)		1.5		0.53	5.2				
806/0-1						180			
821(2-3)	<2.2	<1.1		<0.54	3.1	3.5	<0.021		
822(0-1)	6.5	**160**		1.8	29	**5400**	8.6		
823(0-1)		7.8							
824(0-1)		5.9		1.1	9.1				
901/0-1		5	57	<0.53	7.6	440	0.29	<1.1	<1.1
902/0-4		9.7	220	4.8	100	850	0.32	<5.8	<1.2
903/0-1		9.4	480	1	25	**1600**	0.45	<1.0	<1.0
904/0-1		5.6	110	<0.55	19	720	0.5	<1.1	<1.1
905/0-2		15	160	<0.60	7.5	280	0.2	<1.2	<1.2
906/0-2		37	150	1.5	18	310	0.19	1.2	<1.0
921(0-3.5)	2.9	**45**		<0.59	6.6	250	0.14		
922(0-1)	11	4.1		0.66	360	630	0.16		
923(0-1)	<2.1	7.3		0.56	330	360	1.5		
1001/0-1		6.4	58	<0.46	6.2	280	0.23	<0.93	<0.93
1002/0-4		17	150	0.71	1700	710	0.76	<1.1	<1.1
1002/4-5		<1.0	45	<0.52	2.4	2.8	0.03	<1.0	<1.0
1003/0-5		12	190	0.67	30	1000	1.5	<1.1	<1.1
1004/0-4		9.5	53	0.65	22	160	0.71	<0.99	<0.99
1004D/0-4		6.1	41	<0.55	18	100	0.21	<1.1	<1.1
1005/0-3		9.9	66	<0.53	4.6	300	0.12	<1.1	<1.1
1006/0-2		17	120	<0.64	5.4	190	0.2	<1.3	<1.3
1006D/0-2		9.9	84	<0.61	4.2	130	0.2	<1.2	<1.2
1026(0-1.0)	<2.0	**71**		<0.5	7.7	110	0.075		
1101/0-1		7.6	150	2	15	560	2.9	<1.0	<1.0
1102/0-2		4.1	35	<0.53	2.8	61	0.24	<1.1	<1.1

Table 2.1
RCRA Metals
Soil Data Summary

Sample Point	Antimony	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
1103/0-1			180	1	20	860	1.6		
1104/0-1		**110**	48	<0.59	10	470	0.71	<1.2	<1.2
1104/1-2		2.4							
1105/0-1		37							
1142(0-1)		15							
1201/0-1		8.4	52	1.8	15	310	0.58	<1.0	<1.0
1202/0-1				0.7	11				
1203/0-1		**51**	160	1.6	18	410	0.78	<1.2	<1.2
1203D/0-1		**95**	230	2.7	58	**13000**	1.4	3.1	14
1203DR/0-1		**130**	200	2	26	**1900**	1.6	1.3	2
1203R/0-1		**40**	140	0.9	12	400	0.64	<1.1	<1.1
1204/0-1				<0.49					
1301/0-2		13	93	1.8	15	360	0.42	<1.2	<1.2
1302/0-1				24	11				
1303/0-1		24	53	<0.49	5.5	250	0.081	<0.98	<0.98
1304/0-1				<0.53					
1332(0-1)	3.6	**160**		0.75	9.4	210	0.18		
1333(0-1)	<2.2	**56**		<0.54	3.1	3.7	0.056		
1334(0-1)		2.4							
1401/0-1		<1.1	11	<0.57	4.7	18	0.13	<1.1	<1.1
1402/0-1		23							
1403/0-1		**41**	190	1.2	17	350	0.18	<1.1	<1.1
1444(0-1)	<2.1	3.4		<0.52	4.4	24	0.057		
1501/0-1		4.2	23	<0.51	4.2	26	0.043	<1.0	<1.0
1502/0-1		10	30	<0.55	5	44	0.063	<1.1	<1.1
1503/0-1		26	40	<0.53	6.2	130	0.22	<1.1	<1.1
1516(0-1)	<2.0	27		1.7	5.6	98	0.11		
1601/0-1		2.4	70	<0.49	5.8	140	0.26	<0.99	<0.99
1602/0-1		19	30	<0.51	4.1	35	0.061	<1.0	<1.0
1603/0-1		10							
1724(0-1)	<2.2	<1.1		<0.54	5.8	26	0.31		
1830(0.1)	<1.9	6.1		5.7	9	230	0.63		
1831(0-1)				2.3					
2215(0-1)	<2.1	8.9		<0.53	6.1	290	0.63		
2216(0-1)	<2.0	2.2		<0.50	4.6	90	0.31		

Background 0-1	<2.1	12	110	0.68	11	402	0.28	<1.1	<1.2
Background 2-3	3.2	44	30	<0.65	19	290	0.051	<1.3	<1.1
Type 3 RRS 0-2	10	38	1,000	39	1,200	402	17	36	10
Type 3 RRS >2	10	41	1,000	39	1,200	400	17	36	10
Type 4 RRS 0-1	121	109		114	10,000	1,180	192	285	240
Type 4 RRS >1	121	3,972		114	10,000	4,942	192	285	240

All concentrations in mg/kg
Bold values exceed applicable risk reduction standards.

Table 2.2
Semi-Volatile Organics
Soil Data Summary

Sample Point	Total SVOC*	Naphthalene	Acenaphthlene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Chrysene	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-cd) pyrene	Dibenzo (a,h) anthracene	Benzo (g,h,i)perylene	2-Methylnaphthalene
001/0-1																		
002(0-1.0)																		
003(0-2.0)																		
003(2-3.0)																		
004(0-1)																		
005(0-1)																		
006(0-1)																		
007(0-1)																		
101(0-1)																		
101/0-1																		
102/0-1																		
103/0-1																		
104/0-1																		
105(0-2.5)																		
106(0-2.0)																		
107(0-1)	5500	<5400	<5400	<5400	<5400	<5400	<5400	<5400	5500	<5400	<5400	<5400	<5400	<5400	<5400	<5400	<5400	<5400
201/0-1	<400																	
202/0-2	<400																	
203/0-2	6320	<380	<380	<380	<380	<380	<380	560	950	760	<380	1600	1100	770	<380	<380	490	<380
204(0-1)	14300	<4300	<4300	<4300	<4300	<4300	<4300	<4300	9900	<4300	<4300	<4300	<4300	4400	<4300	<4300	<4300	<4300
204/0-1																		
205(0-1)																		
205/0-1																		
206(0-1.0)																		
207(0-1)	5100	<4100	<4100	<4100	<4100	<4100	<4100	<4100	<4100	<4100	<4100	5100	<4100	<4100	<4100	<4100	<4100	<4100
208(0-1)	2110	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	690	450	<430	440	<430	530	<430
209(0-1)																		
210(0-1)																		
301/0-1	<400																	
302/0-1	10780	<390	<390	<390	<390	<390	<390	1400	1800	1700	1100	1500	1300	1000	510	<390	470	<390
302/2-3	<390																	
303/0-1	<400																	
304/0-1																		
312(0-1)																		
401/0-1	<380																	
402/0-1	5050	<380	<380	<380	<380	<380	<380	440	700	670	<380	1100	700	580	440	<380	420	<380
403/0-1	<420																	
404/0-2	440	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	440	<430	<430	<430	<430	<430	<430
405/0-1																		
419(0-1)																		
501/0-1	3720	<410	<410	<410	<410	<410	<410	1100	830	610	<410	740	440	<410	<410	<410	<410	<410
502/0-2	4280	<390	<390	<390	<390	<390	<390	730	830	750	<390	1500	<390	470	<390	<390	<390	<390
502/2-3	<410																	
503/0-1	<350																	
504/0-2	12280	<440	<440	<440	<440	<440	<440	880	1400	1300	650	2400	2300	1700	770	<440	880	<440
504/3-4	<380																	
505/0-1																		
506/0-1																		
522(0-1)	<380																	
523(0-1)																		
524(0-1)																		
525(0-1)																		
526(0-1)																		
527(0-1)																		
601/0-1																		
601D/0-1																		
602/0-1																		
602R/0-1																		
603/0-1	<350																	
604/0-2	3940	<440	<440	<440	<440	<440	<440	580	520	610	<440	950	760	520	<440	<440	<440	<440
604D/0-2	<470																	
605/0-2	<430																	
606/0-1																		
606R/0-1																		
607/0-1																		
624(0-1)	<380																	
625(0-1)																		
701/0-1	4120	<420	<420	<420	<420	<420	<420	470	600	580	<420	1100	780	590	<420	<420	<420	<420
701D/0-1	4870	<410	<410	<410	<410	<410	<410	560	790	590	<410	860	630	580	420	<410	440	<410
702/0-1	<460																	
702/2-3	<430																	
703/0-1	22410	<380	<380	<380	<380	<380	440	2800	2700	3000	1200	4400	3800	1500	1100	490	980	<380
704/0-2	<440																	
705/0-3	<460																	
719(0-1)																		
720(0-1)	<9300																	
721(0-1)																		
722(0-1)																		
801/0-1	<390																	
802/0-2	2190	<400	<400	<400	<400	560	<400	510	700	420	<400	<400	<400	<400	<400	<400	<400	<400
803/0-1	<380																	
804/0-2	<360																	
805/0-3	1520	<400	<400	<400	<400	<400	<400	<400	560	<400	<400	550	410	<400	<400	<400	<400	<400
806(0-1)																		

Table 2.2
Semi-Volatile Organics
Soil Data Summary

Sample Point	Total SVOC*	Naphthalene	Acenaphthlene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Chrysene	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-cd) pyrene	Dibenzo (a,h) anthracene	Benzo (g,h,i)perylene	2-Methylnaphthalene
806/0-1																		
821(2-3)																		
822(0-1)																		
823(0-1)																		
824(0-1)																		
901/0-1	<390																	
902/0-4	5860	<420	<420	<420	<420	550	<420	800	1200	710	600	680	700	620	<420	<420	<420	<420
903/0-1	183200	<3800	<3800	<3800	<3800	<3800	<3800	44000	49000	20000	18000	20000	18000	**10000**	4200	<3800	<3800	<3800
904/0-1	<400																	
905/0-2	<390																	
906/0-2	<380																	
921(0-3.5)																		
922(0-1)																		
923(0-1)																		
1001/0-1	<370																	
1002/0-4	1060	<380	<380	<380	<380	<380	<380	440	620	<380	<380	<380	<380	<380	<380	<380	<380	<380
1002/4-5	<410																	
1003/0-5	2360	<390	<390	<390	<390	<390	<390	<390	690	420	<390	460	400	390	<390	<390	<390	<390
1004/0-4	<360																	
1004D/0-4	<360																	
1005/0-3	<380																	
1006/0-2	<460																	
1006D/0-2	<440																	
1026(0-1.0)																		
1101/0-1	<370																	
1102/0-2	<390																	
1103/0-1																		
1104/0-1																		
1104/1-2																		
1105/0-1																		
1142(0-1)																		
1201/0-1	1040	<380	<380	<380	<380	<380	<380	<380	400	<380	<380	640	<380	<380	<380	<380	<380	<380
1202/0-1																		
1203/0-1																		
1203D/0-1																		
1203DR/0-1																		
1203R/0-1																		
1204/0-1																		
1301/0-2	560	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	560	<390	<390	<390	<390	<390	<390
1302/0-1																		
1303/0-1																		
1304/0-1																		
1332(0-1)																		
1333(0-1)																		
1334(0-1)																		
1401/0-1	<380																	
1402/0-1																		
1403/0-1																		
1444(0-1)																		
1501/0-1	<370																	
1502/0-1	<360																	
1503/0-1	5650	<350	<350	<350	<350	<350	<350	880	870	640	580	640	640	600	410	<350	390	<350
1516(0-1)																		
1601/0-1	<360																	
1602/0-1	<370																	
1603/0-1																		
1724(0-1)																		
1830(0.1)																		
1831(0-1)																		
2215(0-1)																		
2216(0-1)																		

Background 0-1		<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390
Background 2-3		<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430	<430
Type 3 RRS 0-2			130000			110000	500000	500000	500000	5000	5000	5000	5000	1640	5000	5000	500000	
Type 3 RRS >2			130000			110000	500000	500000	500000	5000	5000	5000	5000	1640	5000	5000	500000	
Type 4 RRS 0-1										6,600,000	63,000	70,000	780,000	7,700				
Type 4 RRS >1																		

All concentrations in ug/kg
Bold values exceed applicable risk reduction standards.
Type 4 values developed only for substances with Type 3 exceedances.

TABLE 2.3
GROUND WATER DATA SUMMARY
May 8, 2002 and
November 12, 2003

	METALS								SEMIVOLATILE ORGANIC	VOLATILE ORGANIC
WELL NO.	ARSENIC	BARIUM	CADMIUM	CHROMIUM	LEAD	SELENIUM	SILVER	MERCURY	COMPOUNDS	COMPOUNDS
SAMPLE DATE MAY 8, 2002										
MW-12	<0.010	0.016	<0.0050	<0.010	<0.0050	<0.010	<0.010	<0.0002	ND	
MW-12D	<0.010	0.016	<0.0050	<0.010	<0.0050	<0.010	<0.010	<0.0002	ND	
MW-15	<0.010	0.023	<0.0050	<0.010	<0.0050	<0.010	<0.010	<0.0002	ND	
MW-17	<0.010	0.086	<0.0050	<0.010	<0.0050	<0.010	<0.010	<0.0002	ND	
MW-18	<0.010	0.033	<0.0050	<0.010	<0.0050	<0.010	<0.010	<0.0002	ND	
MW-19	<0.010	0.1	<0.0050	<0.010	<0.0050	<0.010	<0.010	<0.0002	ND	
MW-20	<0.010	0.058	<0.0050	<0.010	<0.0050	<0.010	<0.010	<0.0002	ND	
SAMPLE DATE NOV 12, 2003										
MW-21	<0.01	0.031	<0.0050	<0.01	<0.0050	<0.01	<0.01	<0.0002	ND	ND
MW-22	<0.01	0.013	<0.0050	<0.01	<0.0050	<0.01	<0.01	<0.0002	ND	ND
MW-23	<0.01	0.019	<0.0050	<0.01	<0.0050	<0.01	<0.01	<0.0002	ND	ND

Table 4.1.a
Summary of Background Data
Metals
DePriest Signal Shop

Sample Number	Location	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
Shallow Samples															
406/(0-1.5)	MP										**6.4**		**<1.2**	**<1.2**	**190**
608(/0-3)	MP	**<2.1**			**<0.43**			**110**			<4.3		<1.1	<1.1	63
609/(0-2)	MP	<2.0			<0.41			5.6			<4.1		<1.0	<1.0	21
BB3/0-1	DP		3.6	45		<0.55	9.4		210	**0.28**		**<1.1**			
BB5/0-1	East of Hubert		**12**	**110**		**0.68**	**11**		260	0.24		<1.1			
EB6/0-1	South of Hubert		<1.1	27		<0.57	7.6		130	0.029		<1.1			
BK-2a	Central of Georgia		7.8						**402**						
Deep Samples															
406/(1.5-3.5)	MP										<2.2		**<1.1**	**<1.1**	3.4
608/(3-3.5)	MP	**3.2**			**<0.45**			**180**			**<4.5**		<1.1	<1.1	**220**
609/(2-4)	MP	<2.3			<0.45			92			<4.5		<1.1	<1.1	60
BB3-2-3	DP		<1.1	17		<0.53	3.4		22	0.038		<1.1			
BB5/2-3	East of Hubert		1.4	**30**		**<0.65**	**19**		12	0.023		**<1.3**			
EB6/2-3	South of Hubert		<1.1	22		<0.54	7.2		29	**0.051**		<1.1			
BK-103	Central of Georgia		**44**						290						

All concentrations are in milligrams per liter
Bold values are proposed background values.

Table 4.1.b
Summary of Background Data
Semi-Volatile Organic Compounds
DePriest Signal Shop

Sample Number	Location	Naphthalene	Acenaphthalene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene
Shallow Samples									
406/(0-1.5)	MP	<420	<420	<420	<420	440	460	1500	3000
608(/0-3)	MP	<370	<380	<370	<370	<370	<370	<370	<370
609/(0-2)	MP	<360	<360	<360	<360	<360	<360	<360	<360
BB3/0-1	DP	na							
BB5/0-1	East of Hubert	<390	<390	<390	<390	<390	<390	<390	<390
EB6/0-1	South of Hubert	<23	<23	<57	<11	18	<4.5	42	44
BK-2a	Central of Georgia	NA							
Deep Samples									
406/(1.5-3.5)	MP	<380	<380	<380	<380	<380	<380	<380	<380
608/(3-3.5)	MP	<390	<390	<390	<390	<390	<390	400	500
609/(2-4)	MP	<380	<380	<380	<380	<380	<380	<380	<380
BB3-2-3	DP	NA							
BB5/2-3	East of Hubert	<430	<430	<430	<430	<430	<430	<430	<430
EB6/2-3	South of Hubert	<86	<86	<220	<43	56	<17	180	190
BK-103	Central of Georgia	NA							

Sample Number	Location	Benzo(a)anthracene	Benzo(b) fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(123-cd)pyrene	Dibenzo(ah)anthracene	Benzo(ghi)perylene	2-Methyl-naphthalene
Shallow Samples									
406/(0-1.5)	MP	1600	4600	2800	2400	1700	740	1700	<420
608(/0-3)	MP	<370	<370	<370	<370	<370	<370	<370	<370
609/(0-2)	MP	<360	<360	<360	<360	<360	<360	<360	<360
BB3/0-1	DP								
BB5/0-1	East of Hubert	<390	<390	<390	<390	<390	<390	<390	<390
EB6/0-1	South of Hubert	20	29	11	23	18	<11	33	<23
BK-2a	Central of Georgia								
Deep Samples									
406/(1.5-3.5)	MP	<380	<380	<380	<380	<380	<380	<380	<380
608/(3-3.5)	MP	<390	<390	<390	<390	<390	<390	<390	<390
609/(2-4)	MP	<380	<380	<380	<380	<380	<380	<380	<380
BB3-2-3	DP								
BB5/2-3	East of Hubert	<430	<430	<430	<430	<430	<430	<430	<430
EB6/2-3	South of Hubert	100	140	58	130	100	<43	160	<86
BK-103	Central of Georgia								

All concentrations are in micrograms per liter
NA - not analyzed for PAH

Table 4.2
Type 3 Soil Risk Reduction Standards (mg/kg)

Substance	Max Conc.	Item A NC	Item B 100 X	Item D App. III Table 2	Item E Max (A-D)	Min (F,G)	Type 3 RRS 0-2' Min (E,F,G)	Type 3 RRS >2 ft Item E
Metals								
Antimony	14	10	0.6	4	10	818	10	10
Arsenic	380	41	5	20	41	38	38	41
Barium	2900	500	200	1,000	1,000	137,000	1,000	1,000
Cadmium	46	39	0.5	2	39	1,000	39	39
Chromium	2300	1200	10	100	1,200	10,000	1,200	1,200
Lead	27,000	400 [b]	1.5	75	400 [b]	-	402 [a]	400 [b]
Mercury	8.6	17	0.2	0.5	17	613	17	17
Selenium	3.1	36	5	2	36	10,000	36	36
Silver	14	10	10	2	10	10,200	10	10
Semi-Volatile Organics								
Fluoranthene	44	500	100	-	500	82,000	500	500
Pyrene	49	500	100	-	500	61,000	500	500
Benzo(a)anthracene	18	5	0.01	-	5	63	5	5
Chrysene	20	5	0.02	-	5	6,600	5	5
Benzo(b)fluoranthene	20	5	0.02	-	5	70	5	5
Benzo(a)pyrene	10	1.64	0.02	-	1.64	7.7	1.64	1.64
Indeno(1,2,3)pyrene	4.2	5	0.04	-	5	78	5	5
Benzo(g,h,I)perylene	0.98	500	-	-	500	-	500	500
Dibenzo(a,h)anthracene	0.49	5	0.03	-	5	7.8	5	5
Phenanthrene	0.56	110	-	-	110	-	110	110
Anthracene	0.44	500	-	-	500	-	500	500
Benzo(k)fluoranthene	18	5	-	-	5	780	5	5

[a] The T3 (0 – 2') criterion listed is the background concentration since the number derived based on items A through G is below site background.

[b] This value derived from amended Section 391-3-19-.07 of HSRA regulations adopted November 1999

Table 4.3
Type 4 Soil Risk Reduction Standards

Substance	Maximum Concentration mg/kg	Type 4 Standard 0-1 Foot mg/kg	Type 4 Standard >1 foot mg/kg
Antimony	14	121 [a]	121
Arsenic	380	109	3,972
Barium	2,900	448 [a]	448
Cadmium	46	114 [a]	114
Chromium	2,300	10,000	38,655
Lead	27,000	1,180 [b]	4,942
Mercury	8.6	192 [a]	192
Selenium	3.1	285 [a]	285
Silver	14	240 [a]	240
Benzo(a) anthracene	18	63	332
Benzo(a) pyrene	10	7.7	1,004
Benzo(b) fluoranthene	20	70	1,348
Benzo(k) fluoranthene	18	780	6,072
Chrysene	20	6,600	1,256

[a] Ground water protection value governs
[b] Georgia Adult Lead Model governs

Note: Standards for 0-1 foot interval based upon RAGS calculations unless otherwise noted. All standards for >1 foot interval based upon ground water protection per EPA Soil Screening Guidance.

APPENDIX A

VRP APPLICATION

Voluntary Investigation and Remediation Plan Application Form and Checklist

VRP APPLICANT INFORMATION					
COMPANY NAME	CSX Transportation, Inc.				
CONTACT PERSON/TITLE	Matthew Adkins, CHMM, Manager Environmental Remediation				
ADDRESS	351 Thornton Road, Ste 125, Lithia Springs, GA 30122				
PHONE	770-819-2849	**FAX**	904-245-2273	**E-MAIL**	matt_adkins@csx.com

GEORGIA CERTIFIED PROFESSIONAL GEOLOGIST OR PROFESSIONAL ENGINEER OVERSEEING CLEANUP					
NAME	Ronald E. Holley, P.E.			**GA PE/PG NUMBER**	16507
COMPANY	Holley Consultants, Inc.				
ADDRESS	1550 Sandpoint Drive, Roswell, GA 30075				
PHONE	770-993-0809	**FAX**	404-521-4682	**E-MAIL**	ron@holleyconsultants.com

APPLICANT'S CERTIFICATION

In order to be considered a qualifying property for the VRP:

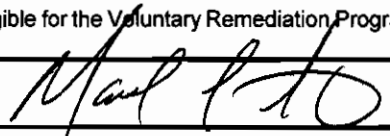
(1) The property must have a release of regulated substances into the environment;
(2) The property shall not be:
- (A) Listed on the federal National Priorities List pursuant to the federal Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. Section 9601.
- (B) Currently undergoing response activities required by an order of the regional administrator of the federal Environmental Protection Agency; or
- (C) A facility required to have a permit under Code Section 12-8-66.

(3) Qualifying the property under this part would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or similar authorization from the United States Environmental Protection Agency.
(4) Any lien filed under subsection (e) of Code Section 12-8-96 or subsection (b) of Code Section 12-13-12 against the property shall be satisfied or settled and released by the director pursuant to Code Section 12-8-94 or Code Section 12-13-6.

In order to be considered a participant under the VRP:
- (1) The participant must be the property owner of the voluntary remediation property or have express permission to enter another's property to perform corrective action.
- (2) The participant must not be in violation of any order, judgment, statute, rule, or regulation subject to the enforcement authority of the director.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also certify that this property is eligible for the Voluntary Remediation Program (VRP) as defined in Code Section 12-8-105 and I am eligible as a participant as defined in Code Section 12-8-106.

APPLICANT'S SIGNATURE			
APPLICANT'S NAME/TITLE (PRINT)	**Matthew Adkins, Manager Environmental Remediation**	**DATE**	4/25/2012

QUALIFYING PROPERTY INFORMATION (For additional qualifying properties, please refer to the last page of application form)			
HAZARDOUS SITE INVENTORY INFORMATION (if applicable)			
HSI Number	10611	Date HSI Site listed	2/10/2000
HSI Facility Name	CSXT DePriest Signal Shop	NAICS CODE	482111
PROPERTY INFORMATION			
TAX PARCEL ID	2-0033-12-001	PROPERTY SIZE (ACRES)	24
PROPERTY ADDRESS	641 East Liberty		
CITY	Savannah	COUNTY	Chatham
STATE	Georgia	ZIPCODE	31401
LATITUDE (decimal format)	32.068333	LONGITUDE (decimal format)	81.085
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)	CSX Transportation, Inc.	PHONE #	904-366-4303
MAILING ADDRESS	500 Water Street		
CITY	Jacksonville	STATE/ZIPCODE	FL 32202

ITEM #	DESCRIPTION OF REQUIREMENT	Location in VRP (i.e. pg., Table #, Figure #, etc.)	For EPD Comment Only (Leave Blank)
1.	**$5,000 APPLICATION FEE** IN THE FORM OF A CHECK PAYABLE TO THE GEORGIA DEPARTMENT OF NATURAL RESOURCES. (PLEASE LIST CHECK DATE AND CHECK NUMBER IN COLUMN TITLED "LOCATION IN VRP." PLEASE DO NOT INCLUDE A SCANNED COPY OF CHECK IN ELECTRONIC COPY OF APPLICATION.)	**Ck. No. 7492 04/25/12**	
2.	**WARRANTY DEED(S)** FOR QUALIFYING PROPERTY.	**Not available**	
3.	**TAX PLAT** OR OTHER FIGURE INCLUDING QUALIFYING PROPERTY BOUNDARIES, ABUTTING PROPERTIES, AND TAX PARCEL IDENTIFICATION NUMBER(S).	**Fig 1.3**	
4.	**ONE (1) PAPER COPY AND TWO (2) COMPACT DISC (CD) COPIES** OF THE VOLUNTARY REMEDIATION PLAN IN A SEARCHABLE PORTABLE DOCUMENT FORMAT (PDF).	**Included**	
5.	The VRP participant's initial plan and application must include, using all reasonably available current information to the extent known at the time of application, a graphic three-dimensional preliminary conceptual site model (CSM) including a preliminary remediation plan with a table of delineation standards, brief supporting text, charts, and figures (no more than 10 pages, total) that illustrates the site's surface and subsurface setting, the known or suspected source(s) of contamination, how contamination might move within the environment, the potential human health and ecological receptors, and the complete or incomplete exposure pathways that may exist at the site; the preliminary CSM must be updated as the investigation and remediation progresses and an up-to-date CSM must be included in each semi-annual status report submitted to the director by the participant; a **PROJECTED MILESTONE SCHEDULE** for investigation and remediation of the site, and after enrollment as a participant, must update the schedule in each semi-annual status report to the director describing implementation of the plan	**CSM – Section 3, Fig. 3.1** **Delineation standards - Tables 4.1.a and 4.1.b** **Surface and subsurface setting - Section 3.1** **Sources of contamination – Section 1.2, 1.3** **How contaminants might move – Section 3.1.3**	

	during the preceding period. A Gantt chart format is preferred for the milestone schedule. The following four (4) generic milestones are required in all initial plans with the results reported in the participant's next applicable semi-annual reports to the director. The director may extend the time for or waive these or other milestones in the participant's plan where the director determines, based on a showing by the participant, that a longer time period is reasonably necessary:	**Potential receptors – Section 3.2** **Complete or Incomplete pathways – Section 3.2** **Milestone schedule – Figure 4.1**	
5.a.	Within the first 12 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern on property where access is available at the time of enrollment;	**Figure 4.1**	
5.b.	Within the first 24 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern extending onto property for which access was not available at the time of enrollment;	**Figure 4.1**	
5.c.	Within 30 months after enrollment, the participant must update the site CSM to include vertical delineation, finalize the remediation plan and provide a preliminary cost estimate for implementation of remediation and associated continuing actions; and	**Figure 4.1**	
5.d.	Within 60 months after enrollment, the participant must submit the compliance status report required under the VRP, including the requisite certifications.	**Figure 4.1**	
6.	**SIGNED AND SEALED PE/PG CERTIFICATION** AND SUPPORTING DOCUMENTATION: "I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/Georgia State Board of Registration for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances. Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." RONALD E. HOLLEY 16507 Printed Name and GA PE/PG Number Signature and Stamp GEORGIA REGISTERED 12/5/12 No. 16507 PROFESSIONAL ENGINEER RONALD E. HOLLEY		

ADDITIONAL QUALIFYING PROPERTIES (COPY THIS PAGE AS NEEDED)

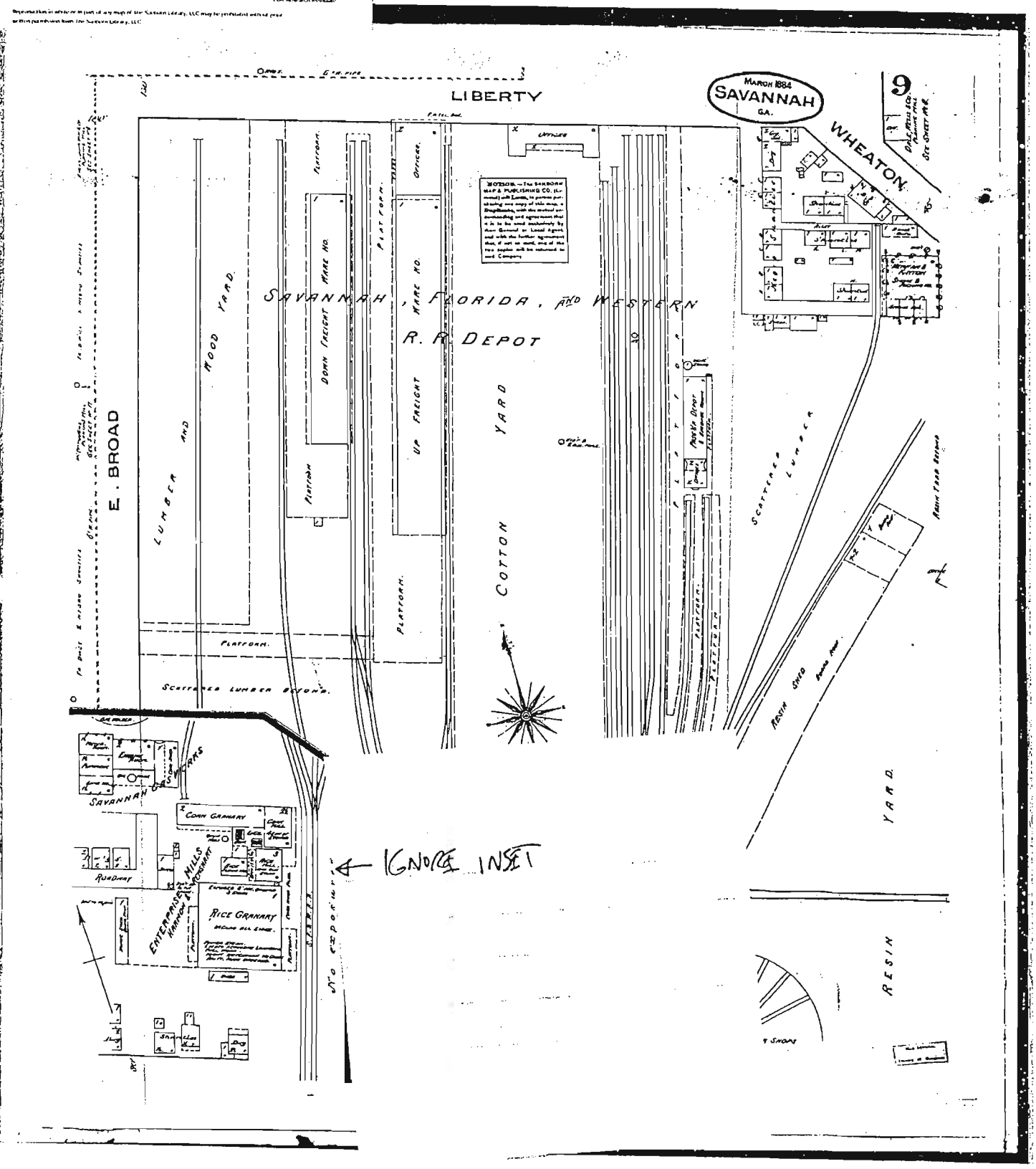
PROPERTY INFORMATION			
TAX PARCEL ID		PROPERTY SIZE (ACRES)	
PROPERTY ADDRESS			
CITY		COUNTY	
STATE		ZIPCODE	
LATITUDE (decimal format)		LONGITUDE (decimal format)	
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)		PHONE #	
MAILING ADDRESS			
CITY		STATE/ZIPCODE	

PROPERTY INFORMATION			
TAX PARCEL ID		PROPERTY SIZE (ACRES)	
PROPERTY ADDRESS			
CITY		COUNTY	
STATE		ZIPCODE	
LATITUDE (decimal format)		LONGITUDE (decimal format)	
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)		PHONE #	
MAILING ADDRESS			
CITY		STATE/ZIPCODE	

PROPERTY INFORMATION			
TAX PARCEL ID		PROPERTY SIZE (ACRES)	
PROPERTY ADDRESS			
CITY		COUNTY	
STATE		ZIPCODE	
LATITUDE (decimal format)		LONGITUDE (decimal format)	
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)		PHONE #	
MAILING ADDRESS			
CITY		STATE/ZIPCODE	

APPENDIX B

SANBORN MAPS



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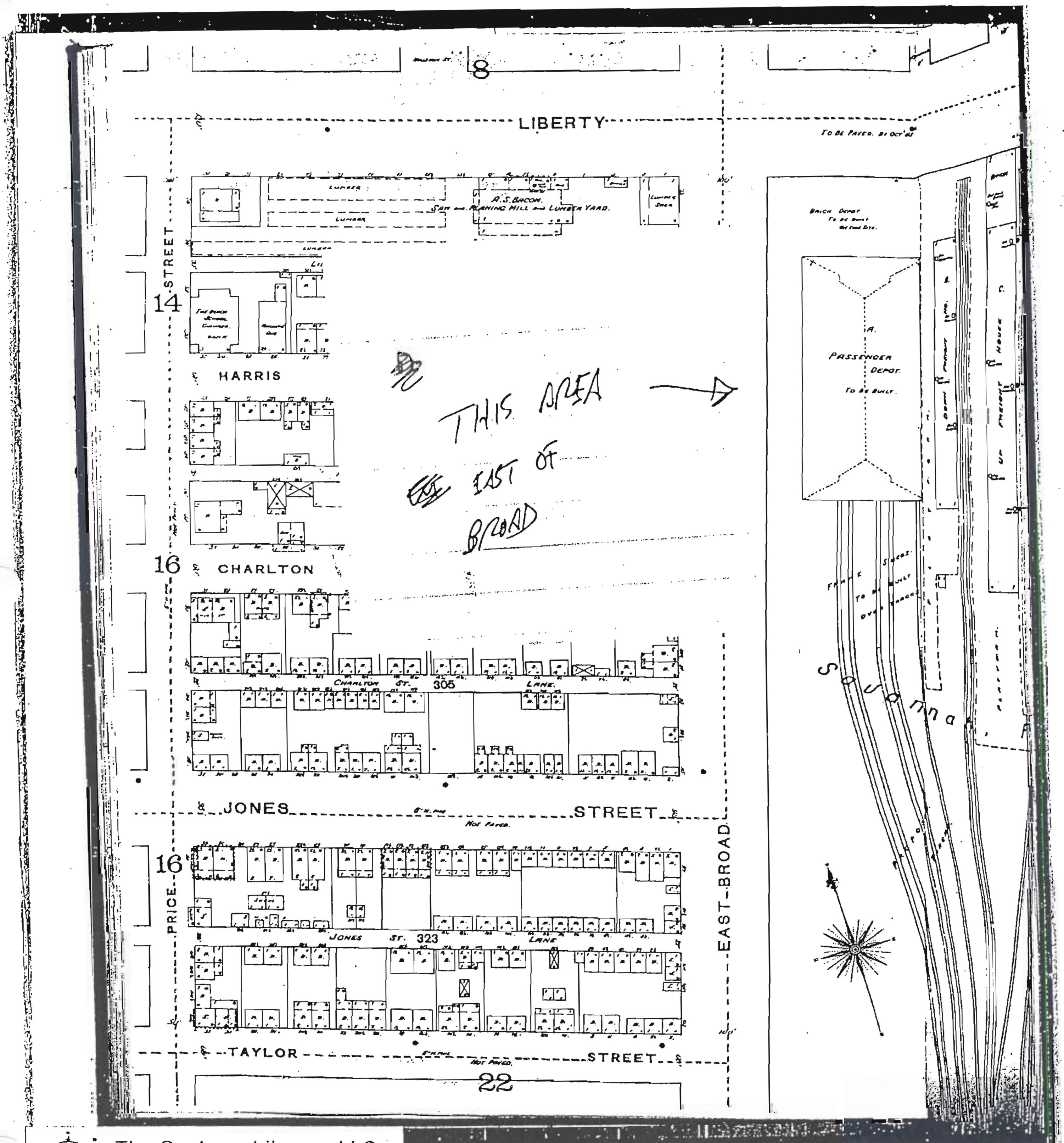

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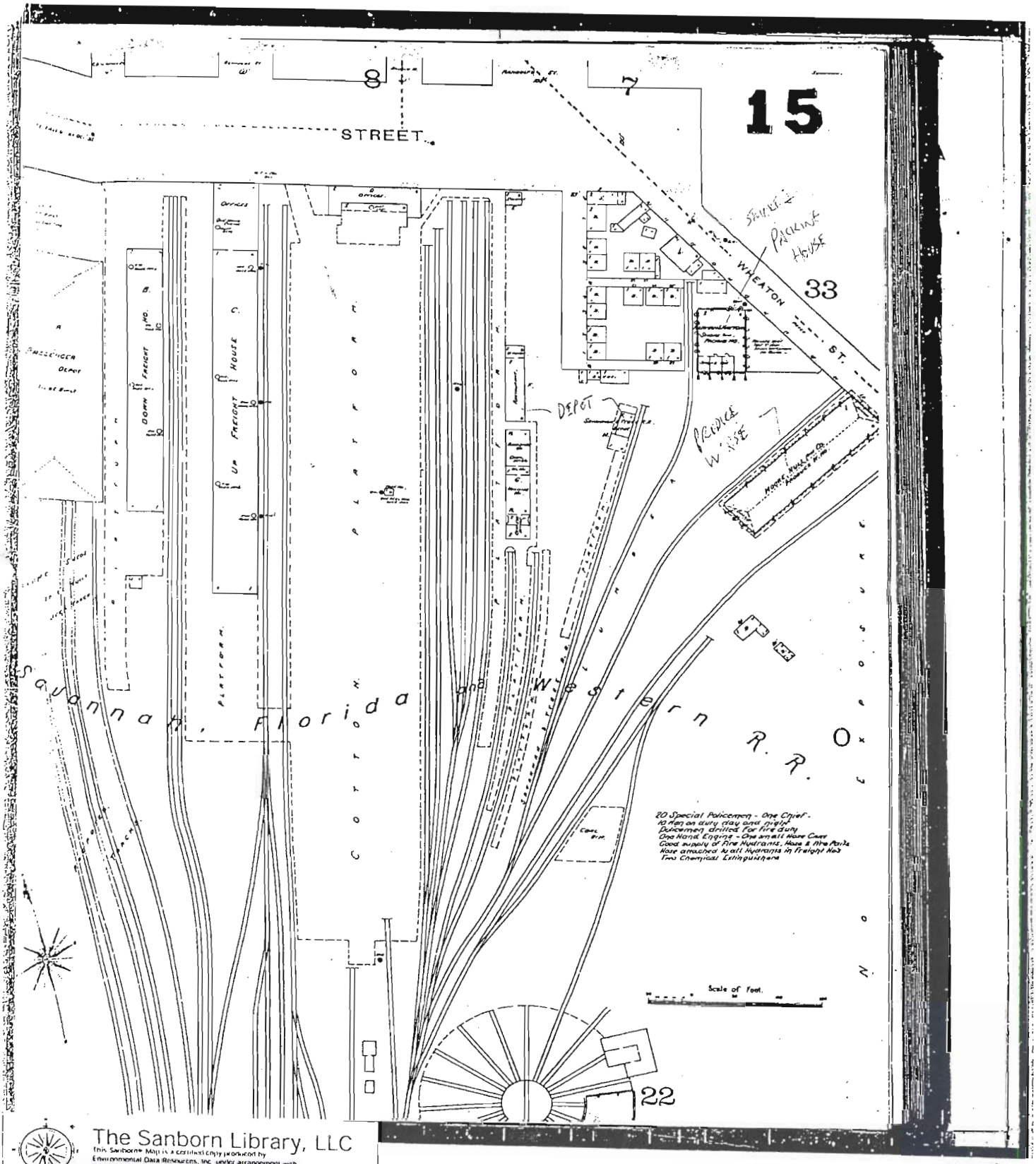

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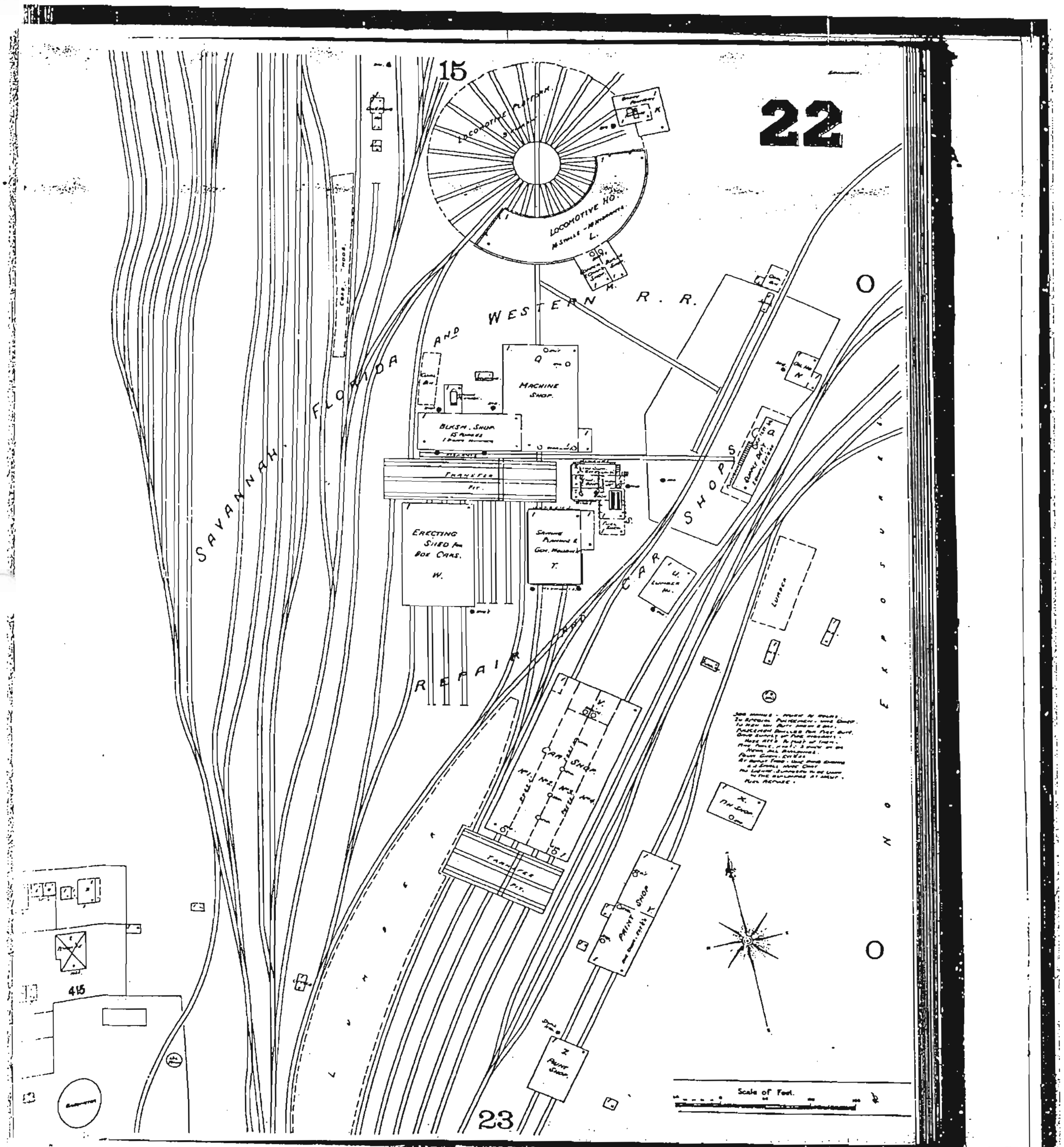

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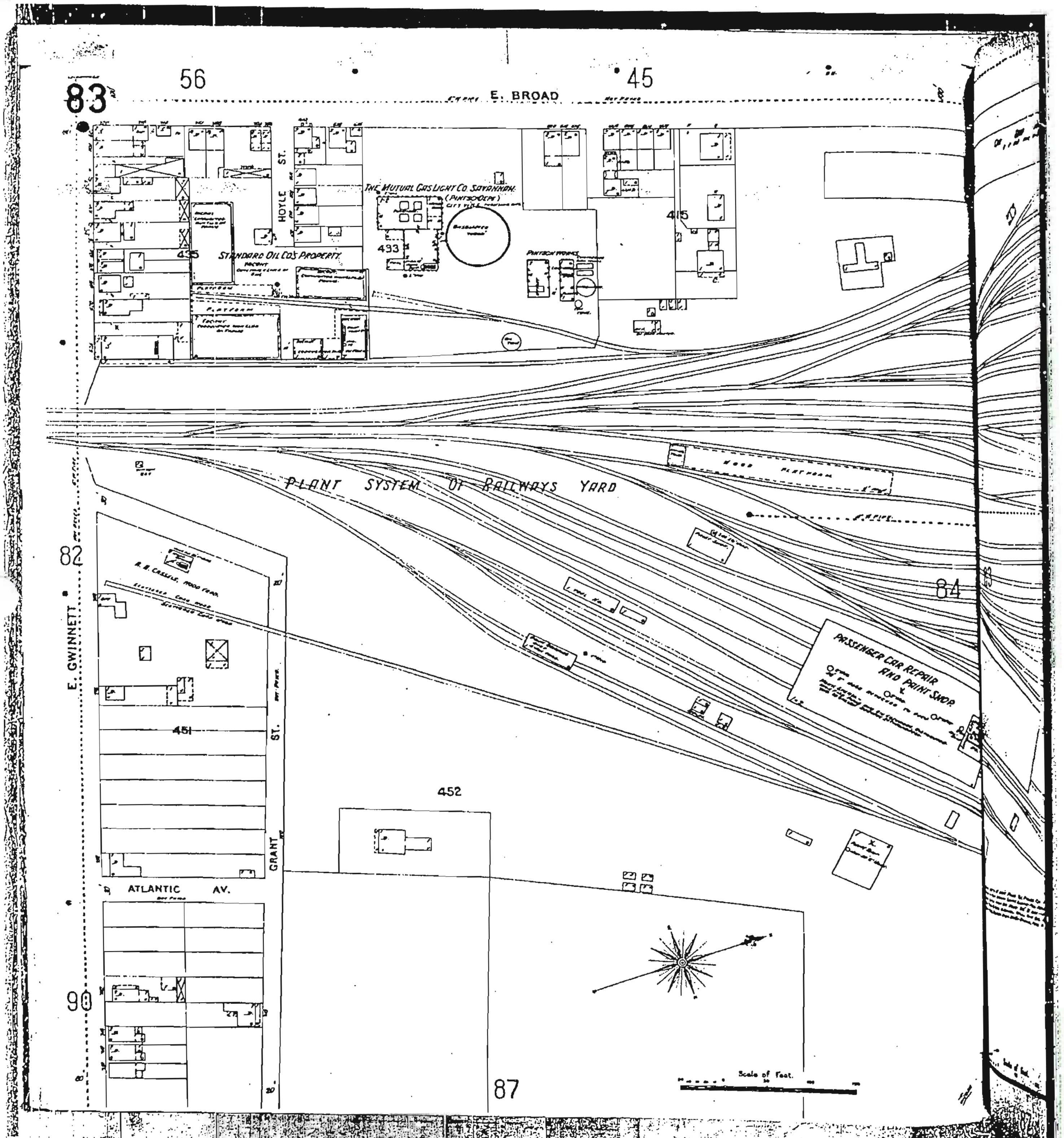

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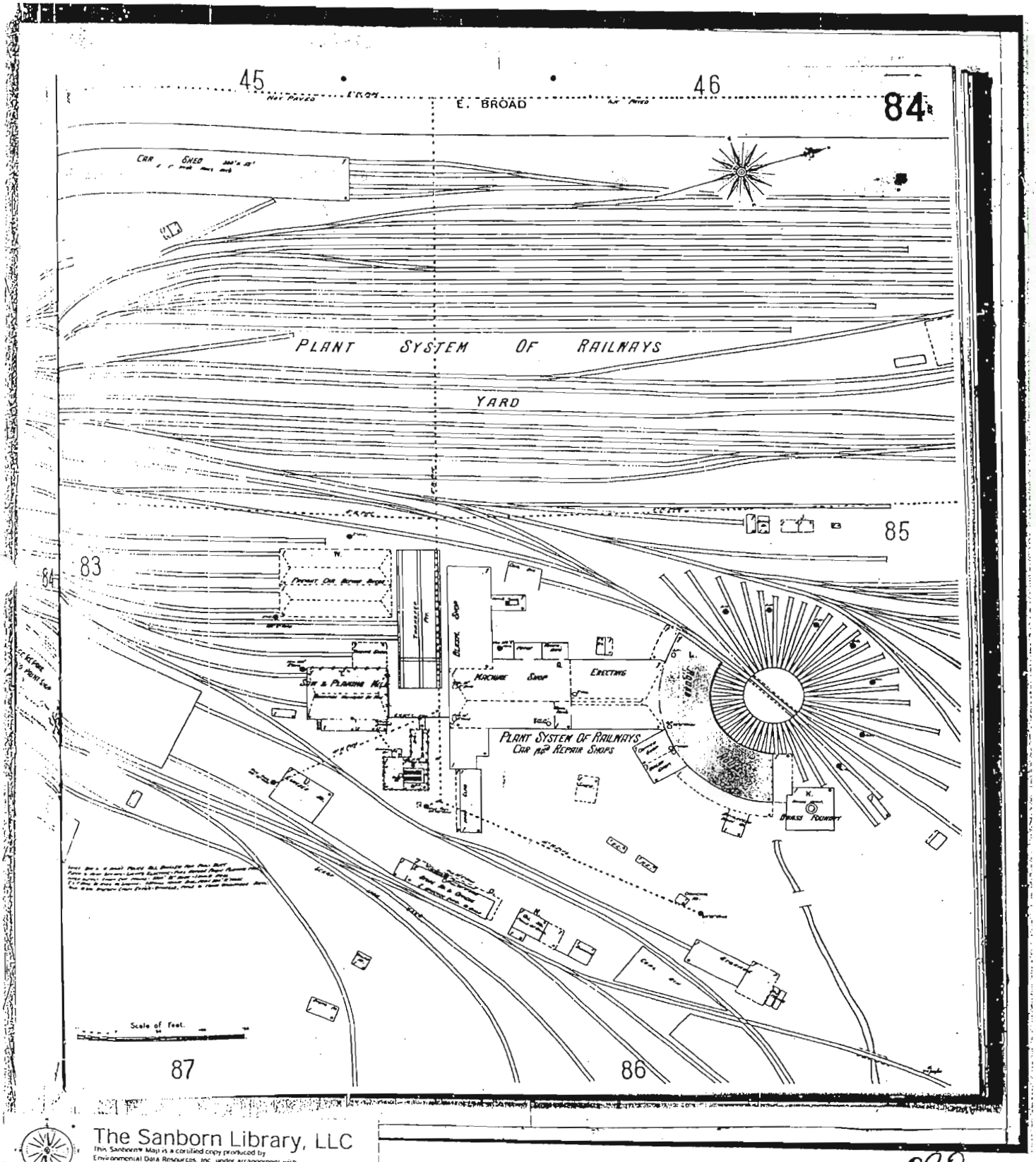

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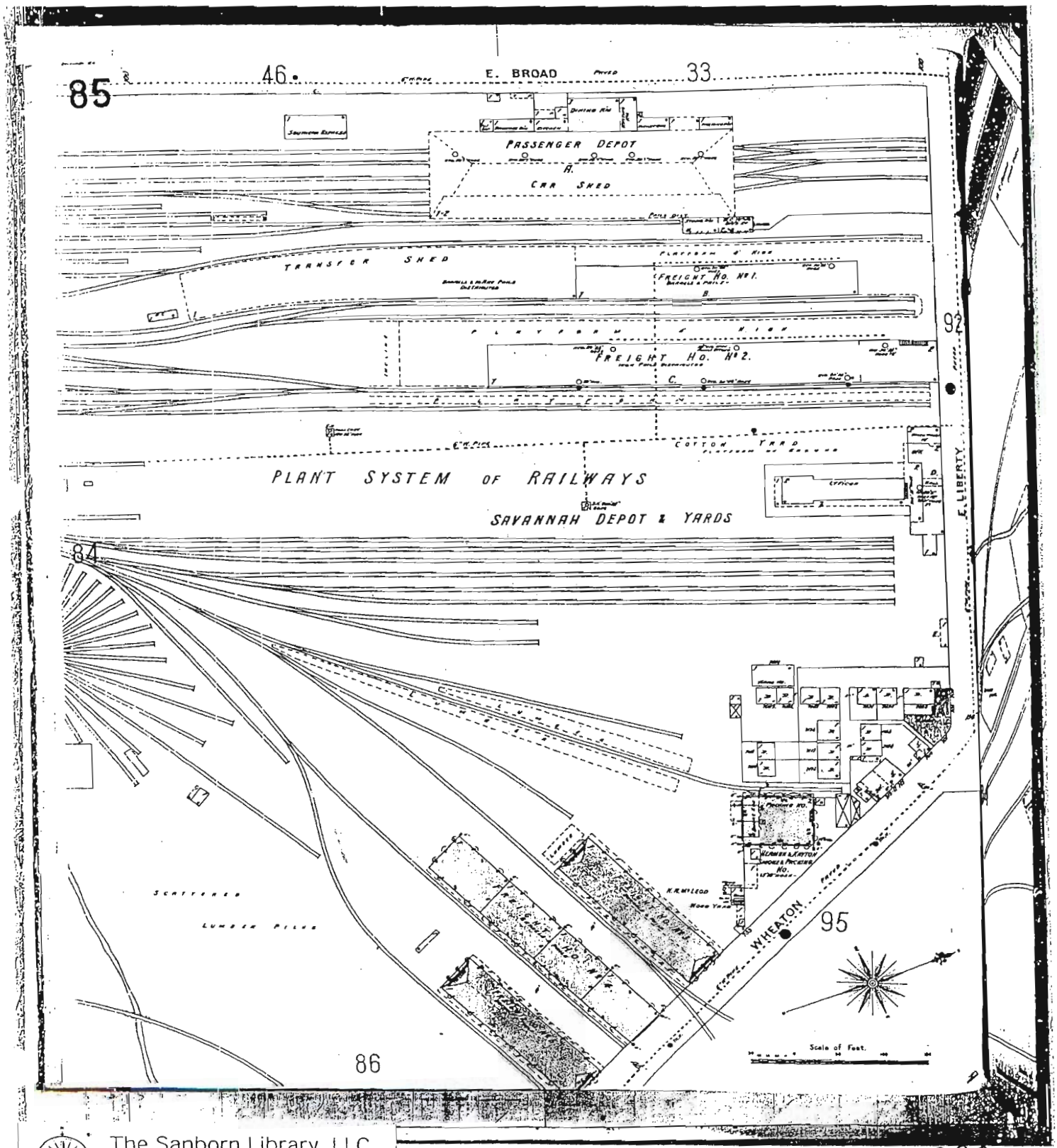

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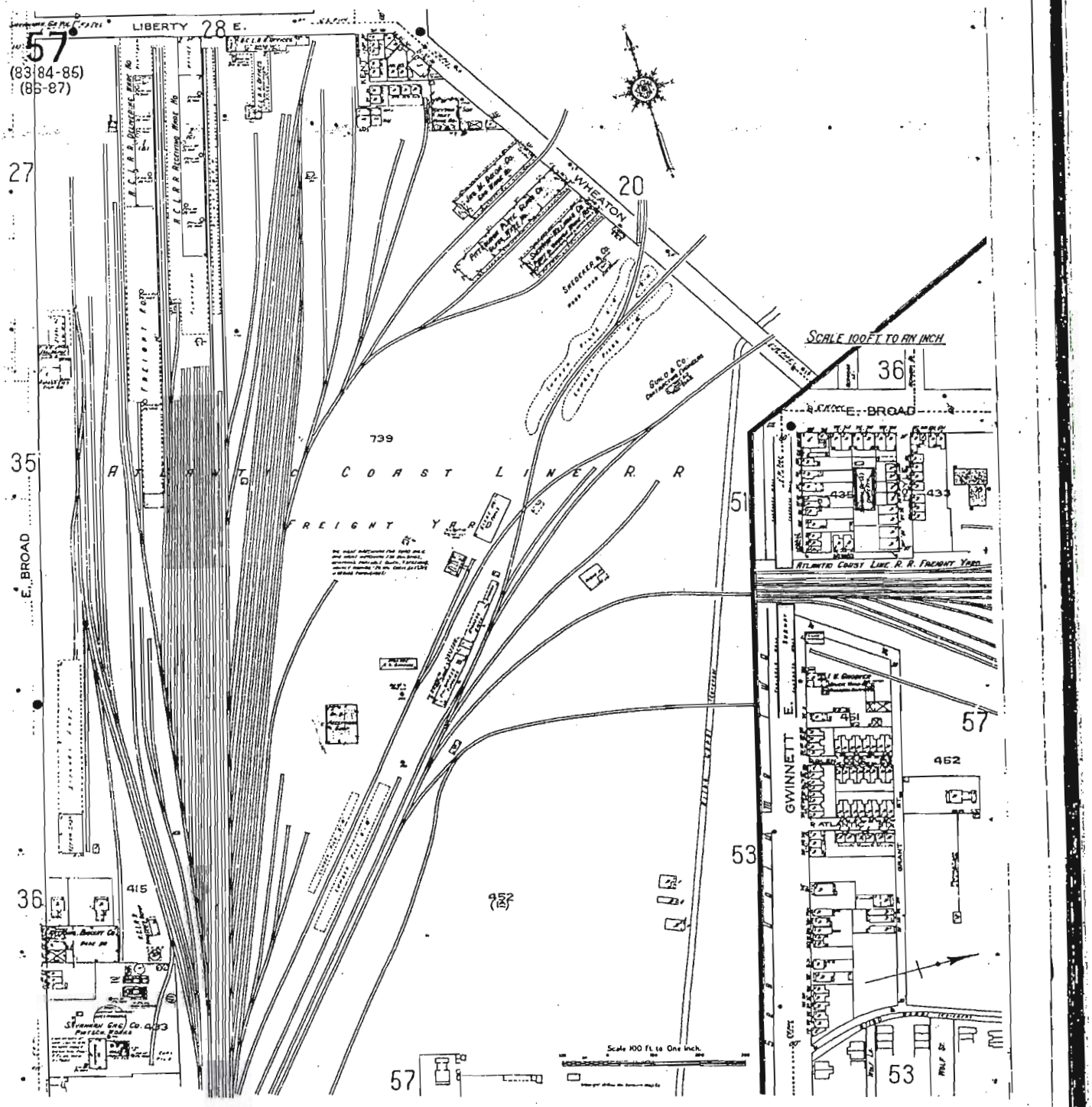

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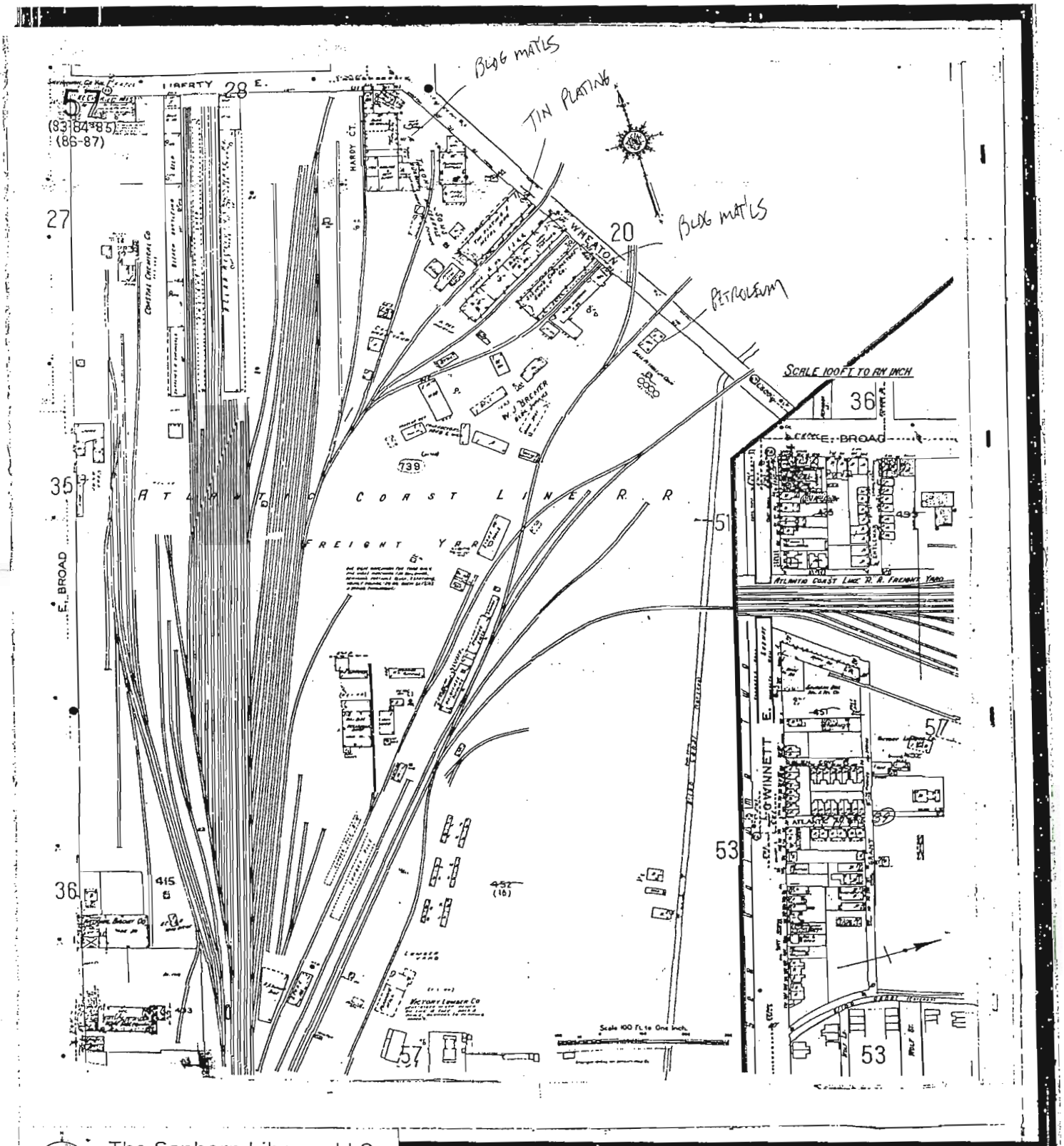

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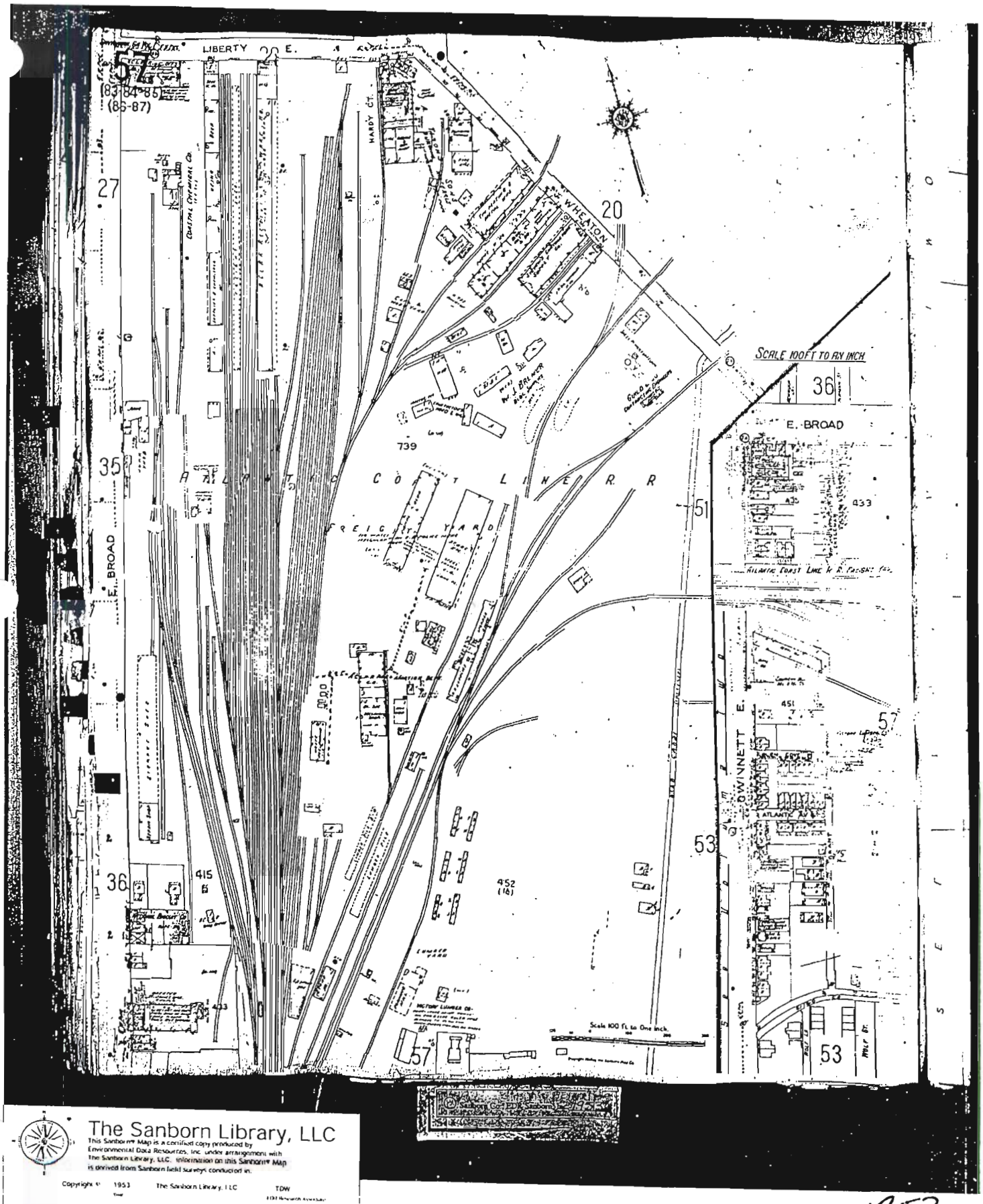

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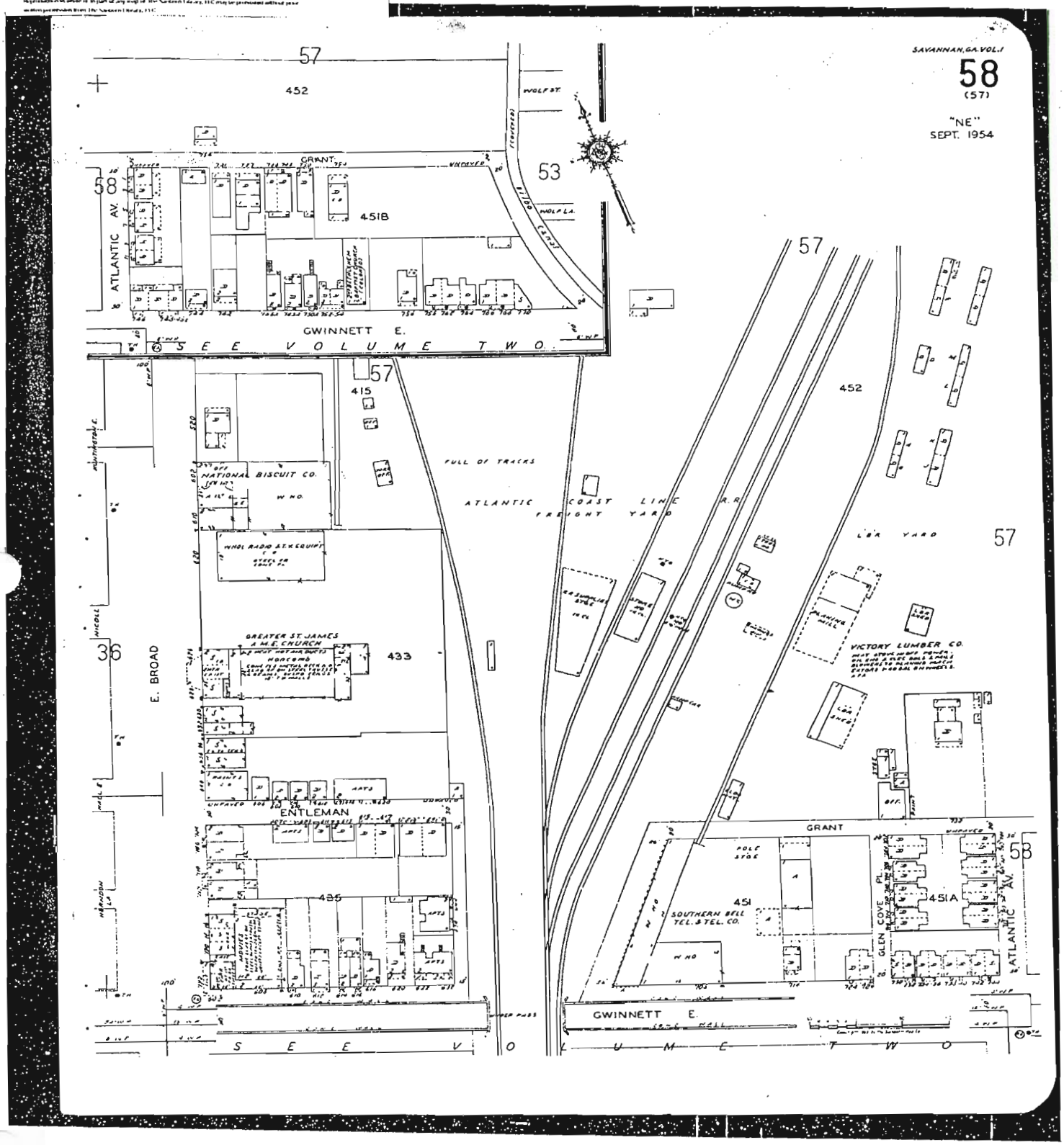

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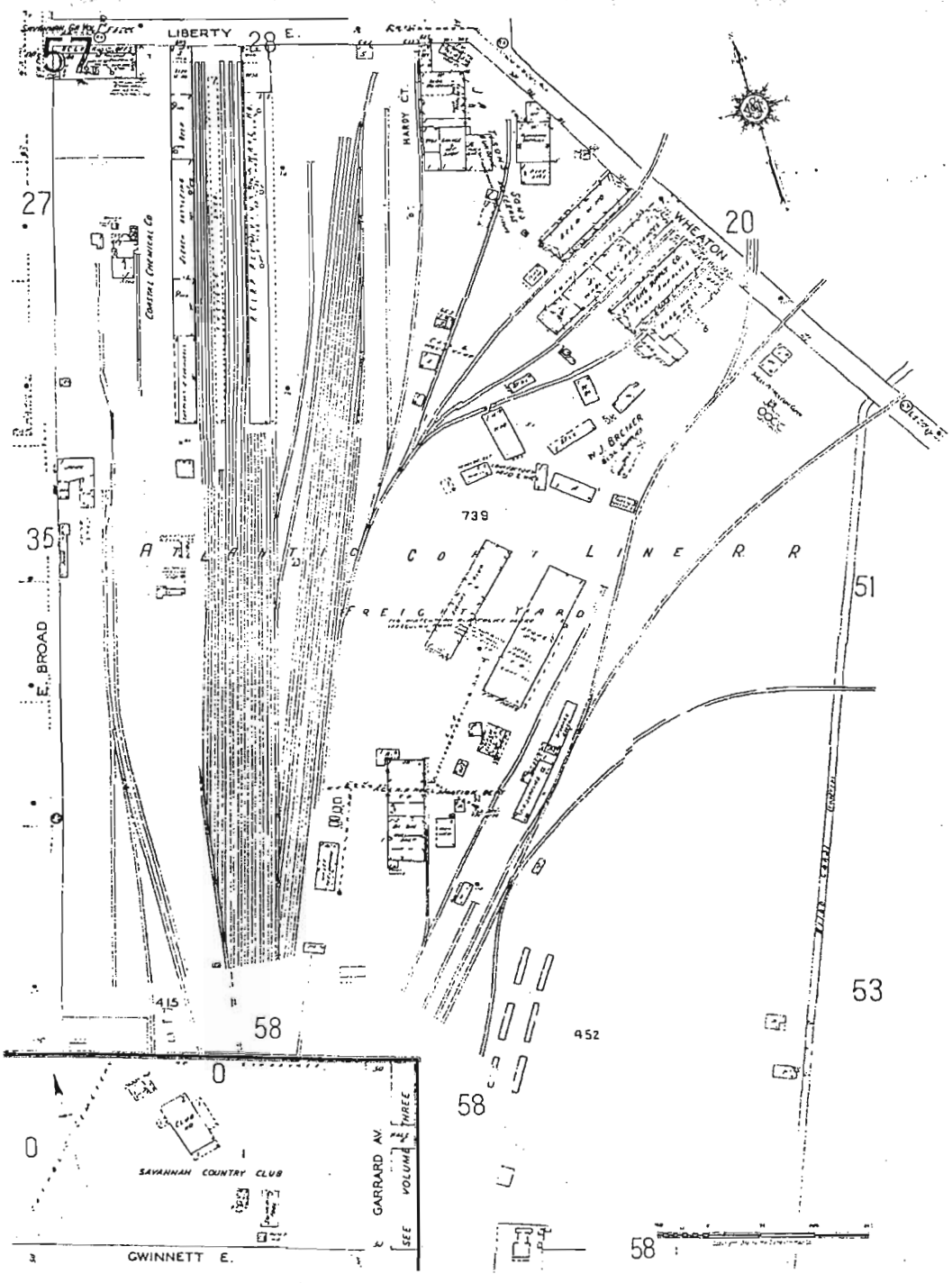

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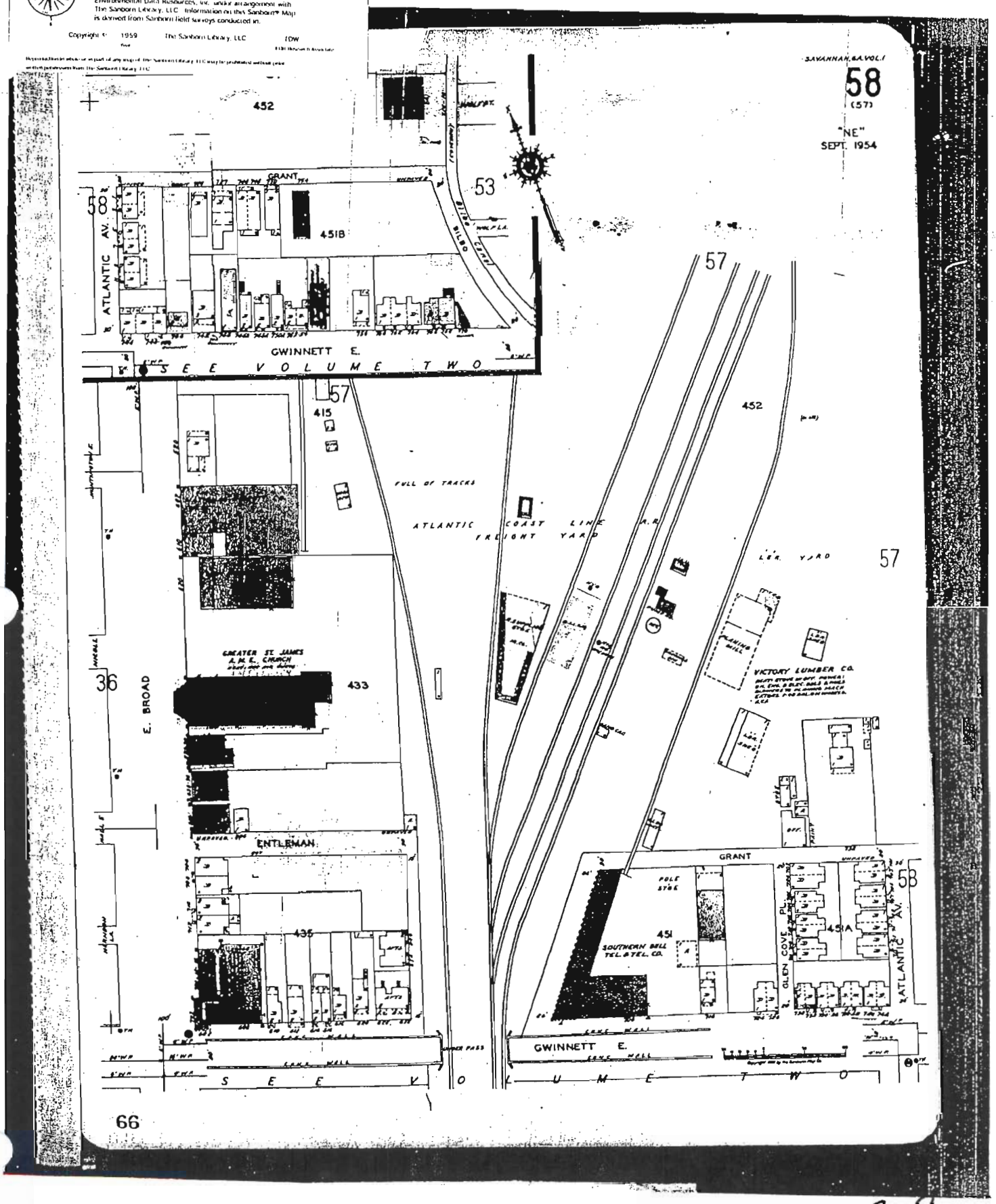

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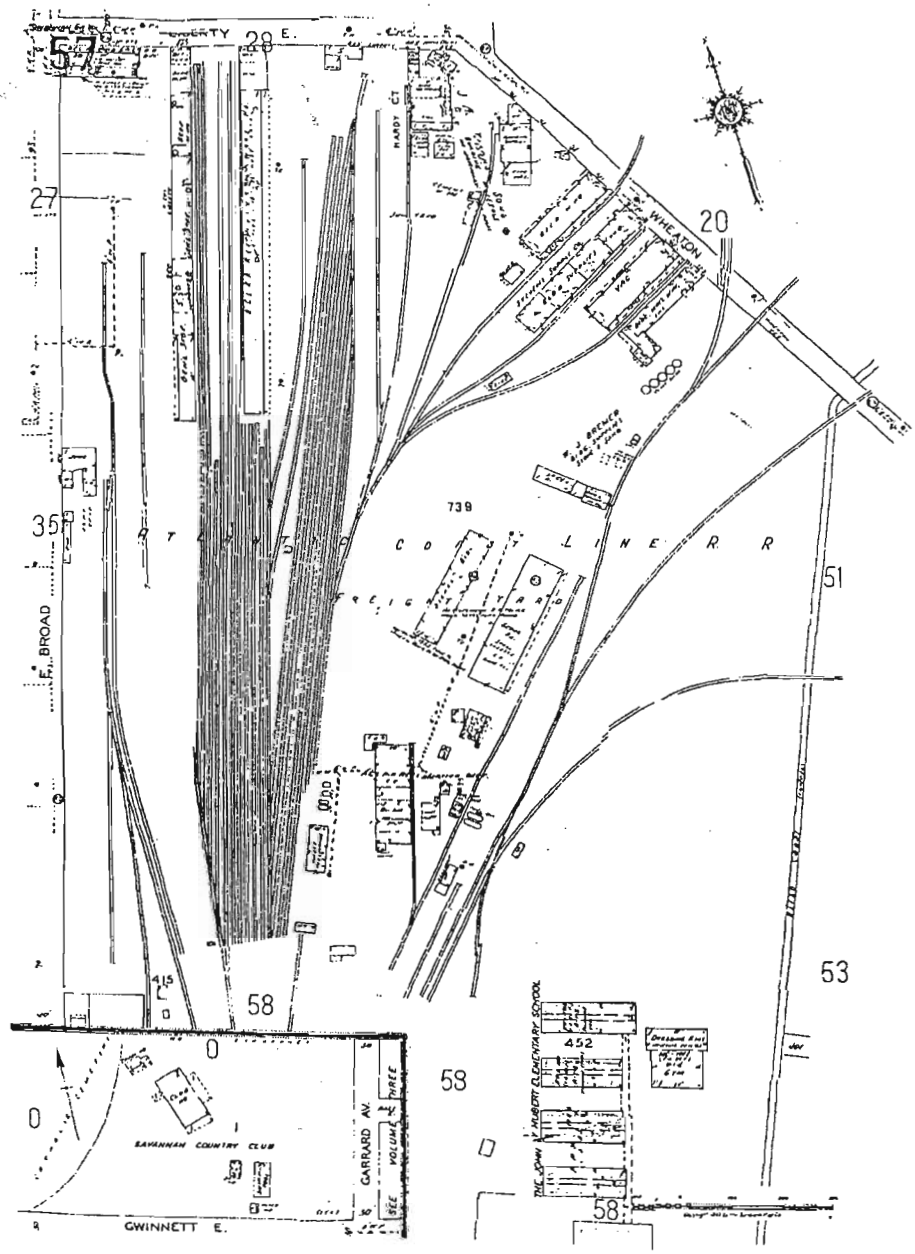

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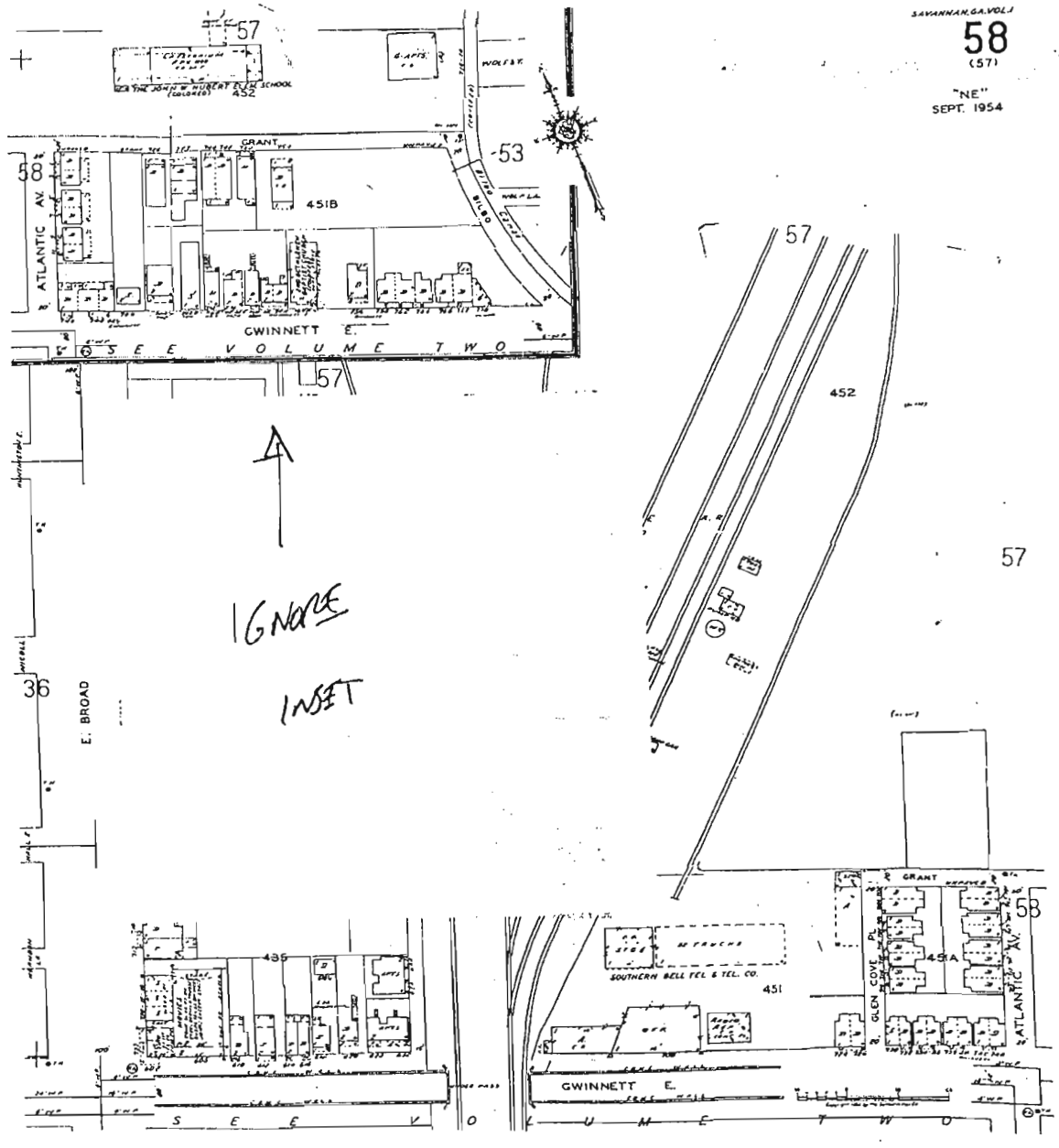

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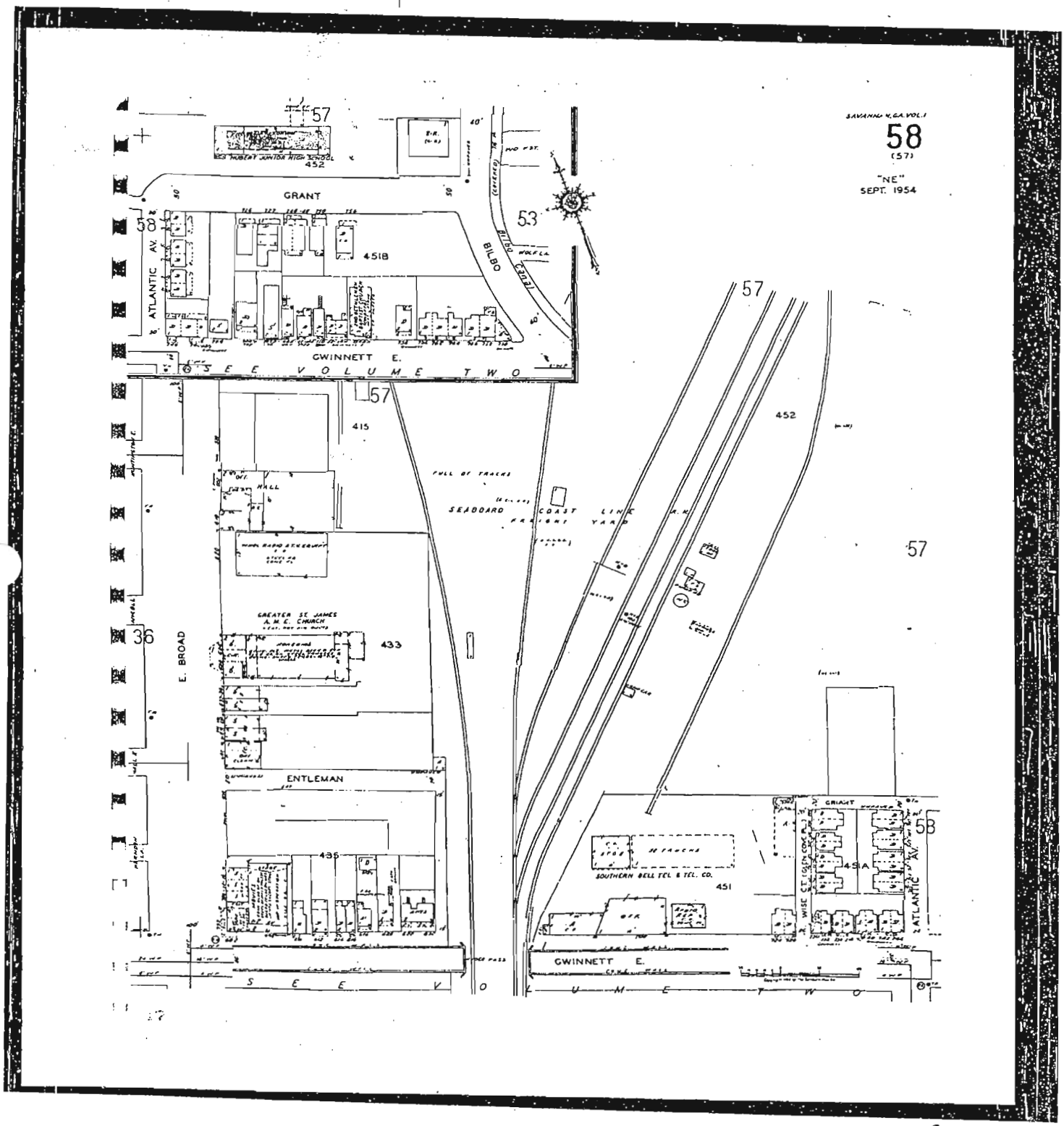

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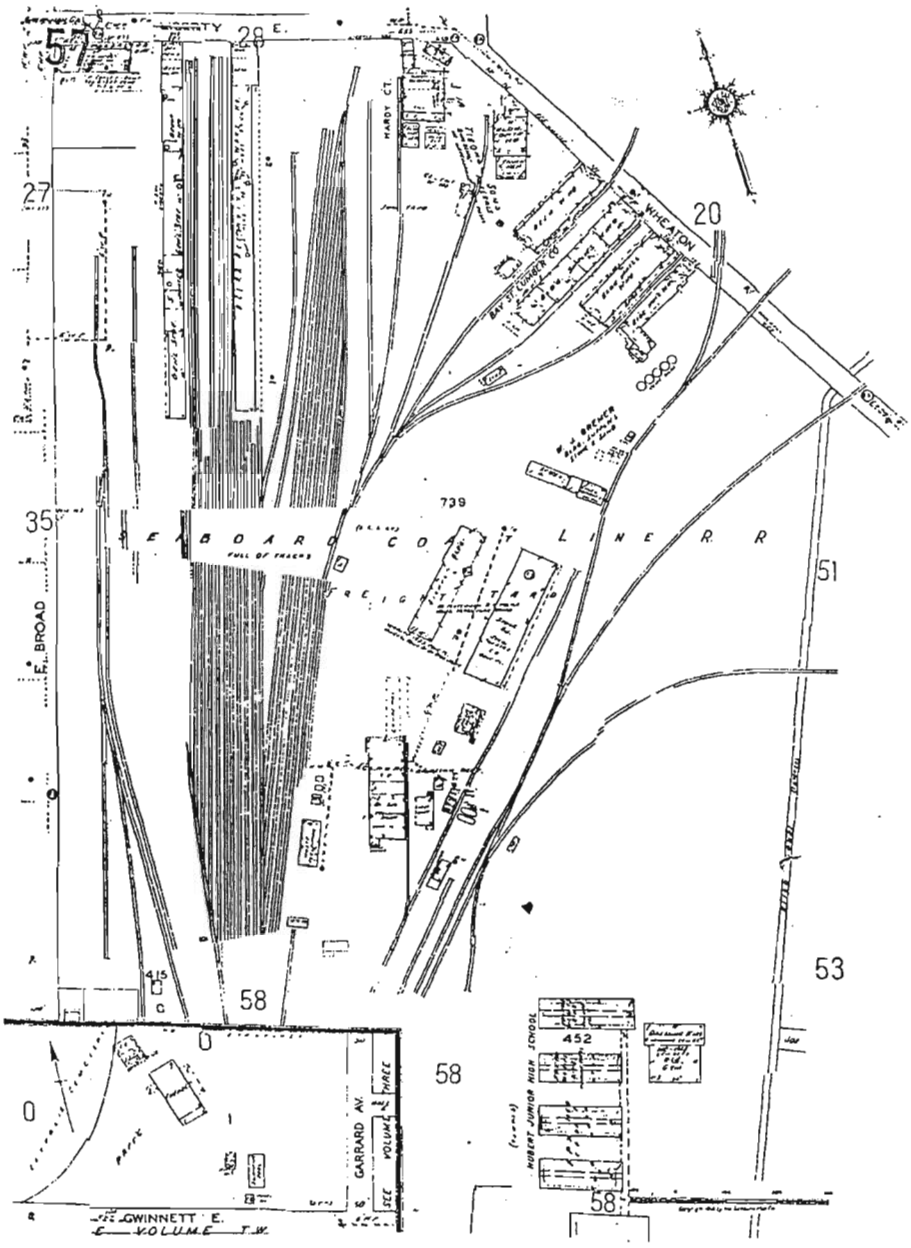

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