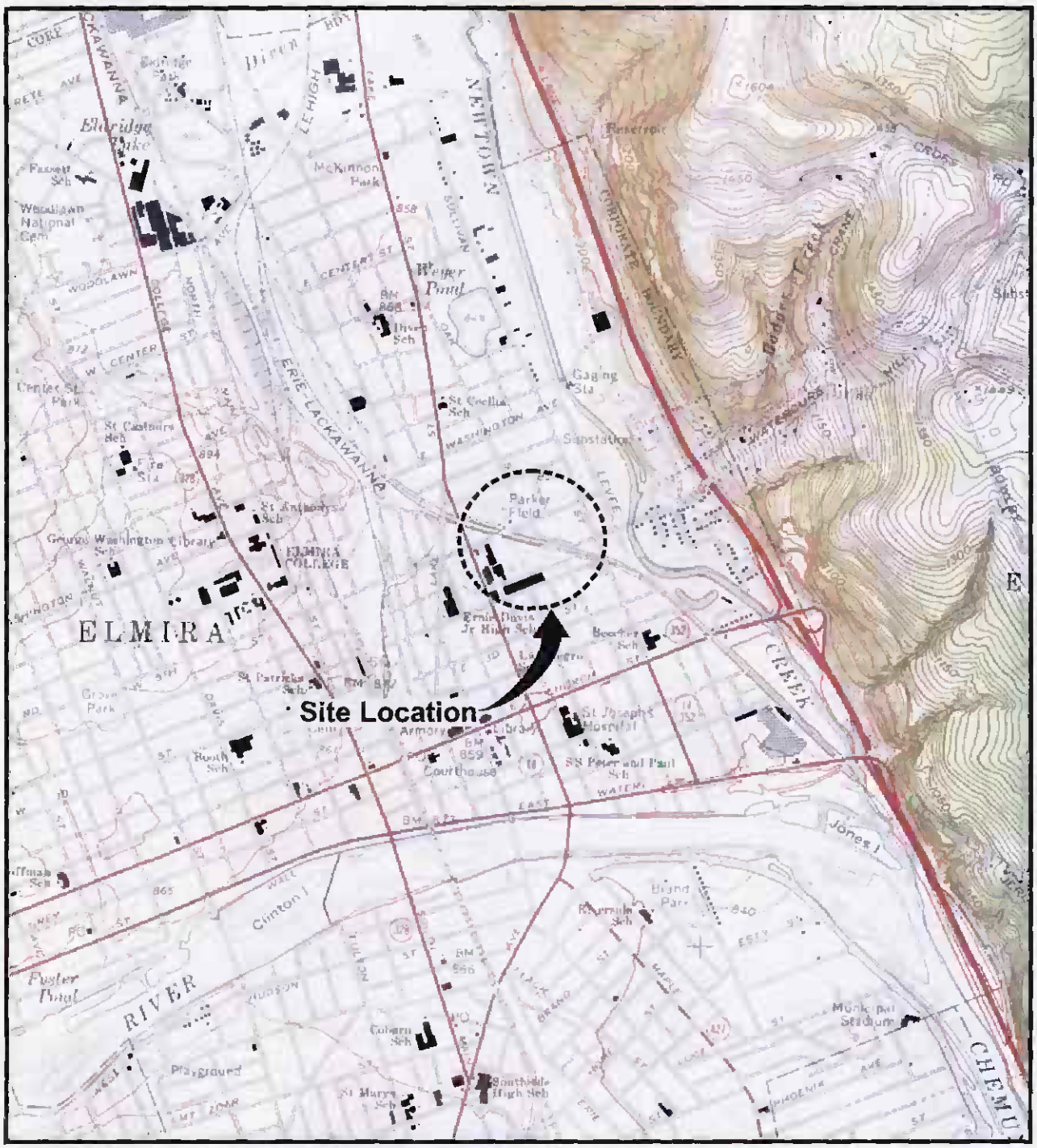


REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., ELMIRA, N.Y.-PA., 1969.

2000' 0 2000'

Approximate Scale: 1" = 2000'

Area Location

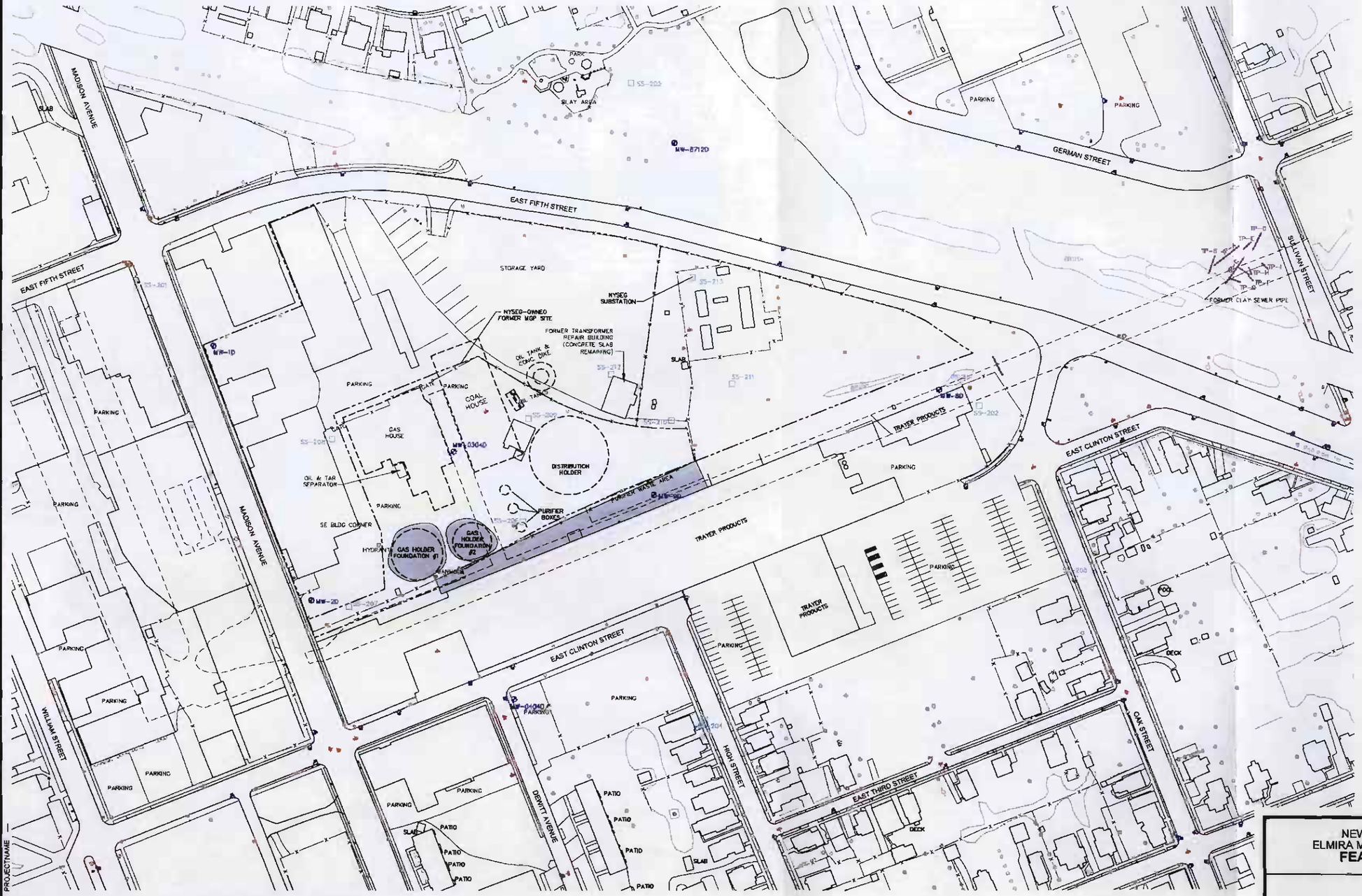
NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT

SITE LOCATION MAP

ARCADIS

FIGURE
1

01/15/07 SYR-D85-KLS, DJH
B0013043/0000/00007/CDR/13043N02.CDR



LEGEND:

- PROPERTY LINE
- CHAIN-LINK FENCE
- BRUSH
- FORMER MGP STRUCTURES – REMOVED
- SURFACE SOIL SAMPLING LOCATION
- POWER POLE
- UTILITY POLE WITH GUY
- LIGHT POLE
- CATCHBASIN
- MANHOLE
- APPROXIMATE MGP IRM REMOVAL AREAS (DEPTHS VARY)

NOTES:

1. BASE MAP SUPPLIED BY NYSEG, LATEST REVISION DATED APRIL 2004, AT A SCALE OF 1" = 60'.
2. ALL LOCATIONS ARE APPROXIMATE.

0 80' 160'
GRAPHIC SCALE

NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT

SITE MAP

ARCADIS

FIGURE
2

CITY: SYRACUSE DIV/GROUP: 65/CAD DB: LJP LAF LD: AM: PD: TM: TR: LYR:ON=*;OFF=*REF*;*CANAL-SHD*;*RAILROAD
G:\CAD\ACT\B0013043\0000\00007\DWG\FSRFINAL\REVISED\13043G01.DWG LAYOUT: 2SAVED 2/1/2008 11:47 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: ---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/8/2008 4:00 PM BY: POSENAUER, LISA
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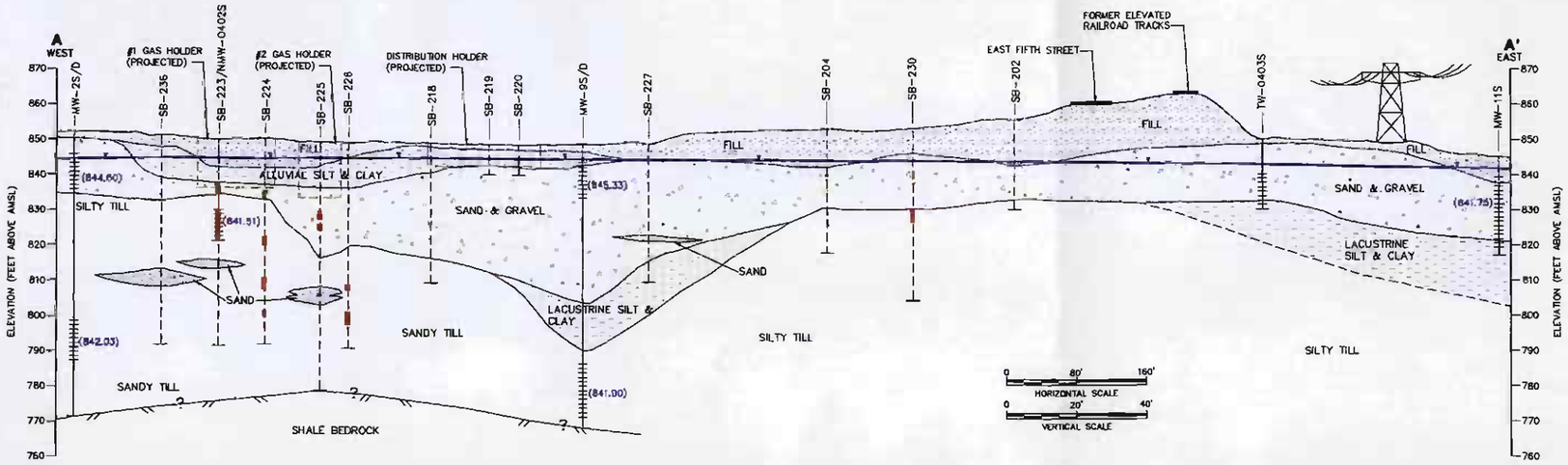
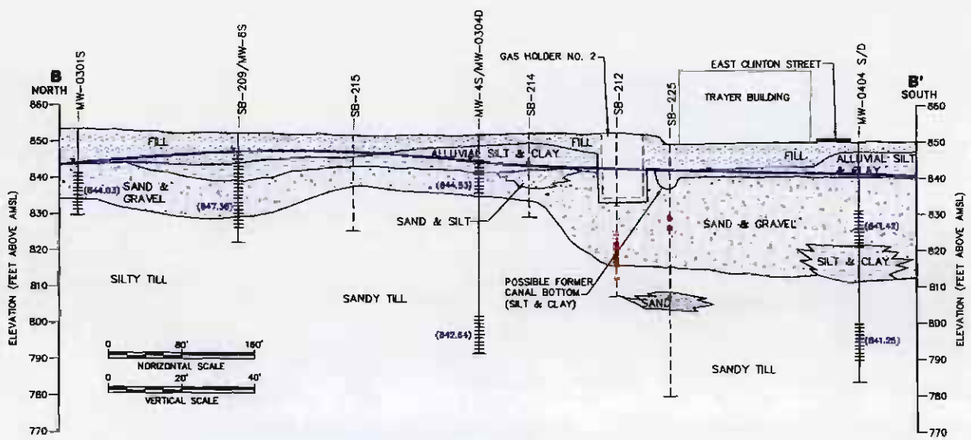
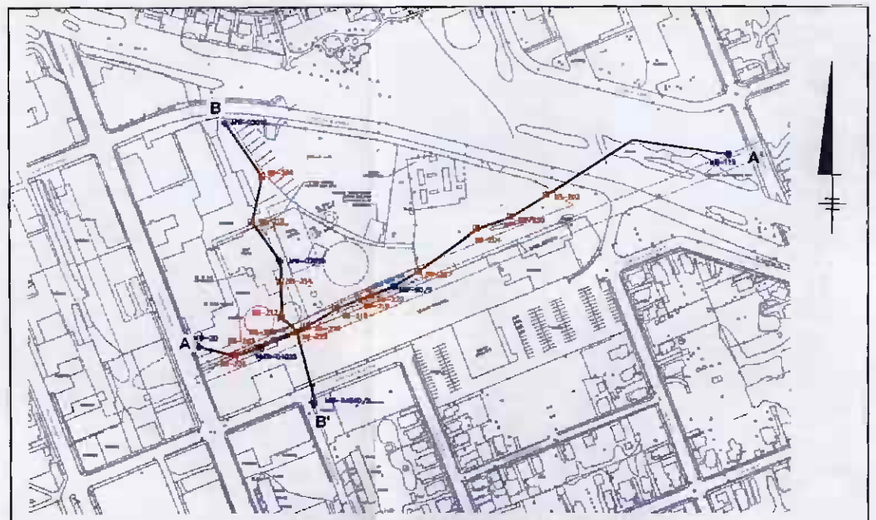


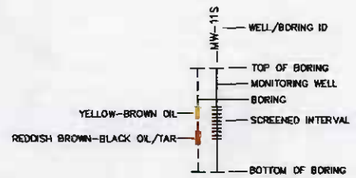




CROSS SECTION LOCATION MAP

LEGEND:

- FILL
- SILT AND CLAY
- SAND AND GRAVEL
- TILL (DENSE UNSORTED SAND AND GRAVEL WITH VARYING AMOUNT OF SAND AND SILT)
- (841.71) GROUNDWATER ELEVATION (4/20/04)



NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT

GEOLOGIC CROSS SECTIONS A-A' AND B-B'

ARCADIS

FIGURE 3

CITY: SYRACUSE DIV/GROUP: 85/CAD DB: LJP LAF LD: AM: PD: TM: TR: LYR:ON=*;OFF=*REF*;*CANAL-SHO*;*RAILROAD
G:\CAD\ACT\B0013043\0000\00007\DWG\FSRFINAL\REVISED\13043V01.DWG LAYOUT: 3SAVED 2/1/2008 11:49 AM ACADVER: 17.0S (LMS TECH) PAGESETUP ---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED 2/8/2009 4:01 PM BY: POSENAUER, LISA
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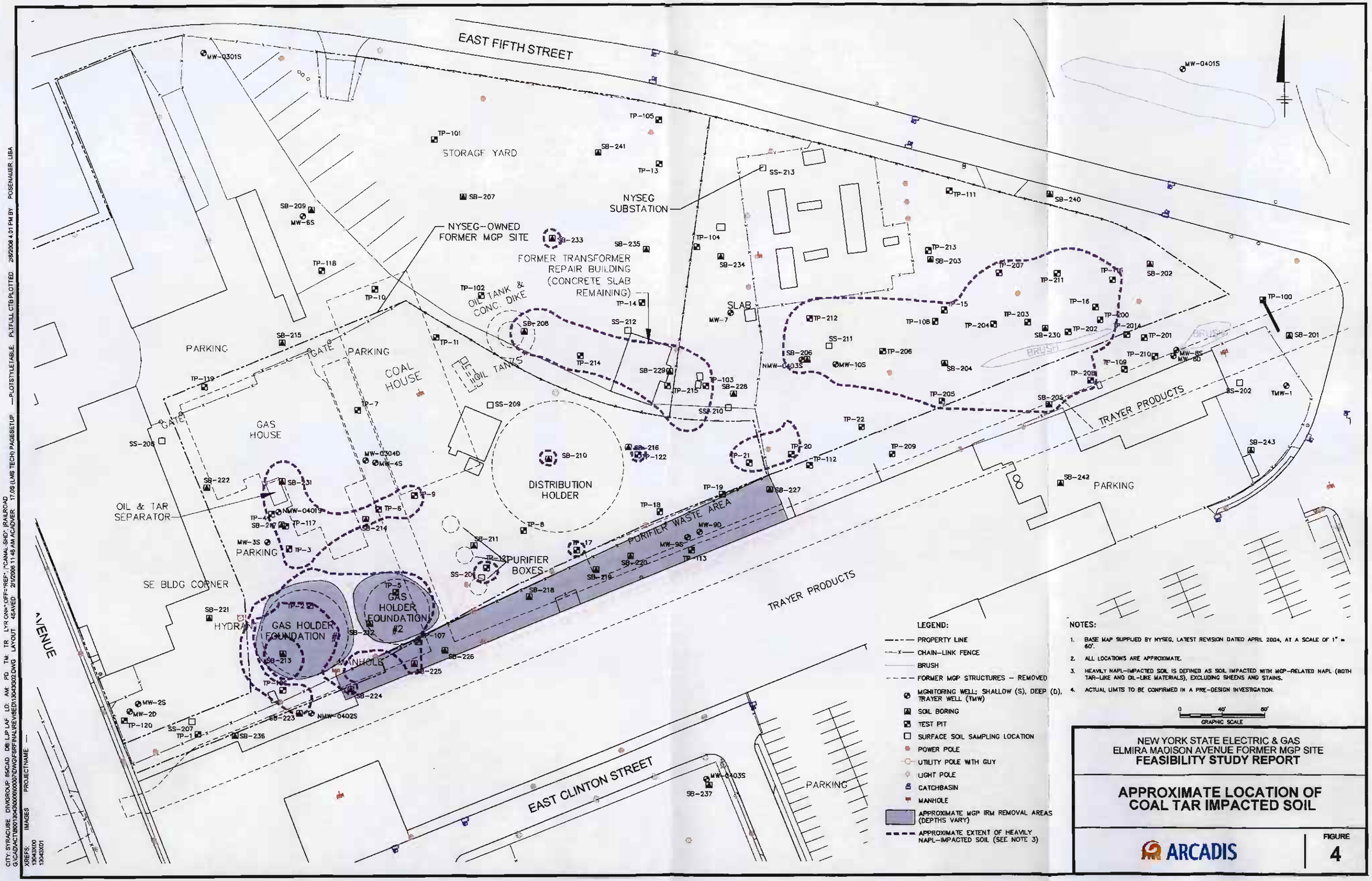
EAST FIFTH STREET
STORAGE YARD
NYSEG SUBSTATION
NYSEG-OWNED FORMER MGP SITE
FORMER TRANSFORMER REPAIR BUILDING (CONCRETE SLAB REMAINING)
OIL TANK & CONC. DIKE
SLAB
PARKING
GATE
COAL HOUSE
OIL TANKS
GAS HOUSE
DISTRIBUTION HOLDER
OIL & TAR SEPARATOR
PURIFIER BOXES
PURIFIER WASTE AREA
SE BLDG CORNER
HYDRANT
GAS HOLDER FOUNDATION #1
GAS HOLDER FOUNDATION #2
MANHOLE
TRAYER PRODUCTS
EAST CLINTON STREET
AVENUE
BRUSH
LEGEND:
PROPERTY LINE
CHAIN-LINK FENCE
BRUSH
FORMER MGP STRUCTURES – REMOVED
MONITORING WELL; SHALLOW (S), DEEP (D), TRAYER WELL (TMW)
SOIL BORING
TEST PIT
SURFACE SOIL SAMPLING LOCATION
POWER POLE
UTILITY POLE WITH GUY
LIGHT POLE
CATCHBASIN
MANHOLE
APPROXIMATE MGP IRM REMOVAL AREAS (DEPTHS VARY)
APPROXIMATE EXTENT OF HEAVILY NAPL-IMPACTED SOIL (SEE NOTE 3)
NOTES:
1. BASE MAP SUPPLIED BY NYSEG, LATEST REVISION DATED APRIL 2004, AT A SCALE OF 1" = 60'.
2. ALL LOCATIONS ARE APPROXIMATE.
3. HEAVILY NAPL-IMPACTED SOIL IS DEFINED AS SOIL IMPACTED WITH MGP-RELATED NAPL (BOTH TAR-LIKE AND OIL-LIKE MATERIALS), EXCLUDING SHEENS AND STAINS.
4. ACTUAL LIMITS TO BE CONFIRMED IN A PRE-DESIGN INVESTIGATION.
0 40' 80'
GRAPHIC SCALE
NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT
APPROXIMATE LOCATION OF COAL TAR IMPACTED SOIL
ARCADIS
FIGURE
4

LEGEND:

- PRORERTY LINE
- CHAIN-LINK FENCE
- BRUSH
- FORMER MGP STRUCTURES - REMOVED
- MONITORING WELL: SHALLOW (S), DEEP (D), TRAYER WELL (TMW)
- POWER POLE
- UTILITY POLE WITH GUY
- LIGHT POLE
- CATCHBASIN
- MANHOLE
- 841.75 GROUNDWATER ELEVATION
- 842 INFERRED GROUNDWATER ELEVATION CONTOUR (APRIL 2004)
- GROUNDWATER FLOW DIRECTION
- INFERRED EXTENT OF SHALLOW GROUNDWATER CONCENTRATIONS ABOVE NYSDEC CLASS GA GROUNDWATER STANDARDS
- B,T,E,X,C APRIL 2004 GROUNDWATER SAMPLE CONTAINED ONE OR MORE CONSTITUENTS OF CONCERN (BTEX AND PAHs) AT A CONCENTRATION GREATER THAN THE NYSDEC CLASS GA GROUNDWATER STANDARD (TOGS 1.1.1, JUNE 1995). THE LETTER GIVEN REPRESENTS THE COMPOUNDS THAT EXCEED THEIR RESPECTIVE STANDARD, AS FOLLOWS:

A = 1,1,1,-TRICHLOROETHANE
D = 1,1-DICHLOROETHANE
I = 1,1-DICHLOROETHENE
C = CHLOROETHANE
X = XYLENES
B = BENZENE
E = ETHYLBENZENE
T = TOLUENE
P = BENZO(A)PYRENE

NOTES:

1. BASE MAP SUPPLIED BY NYSEG, LATEST REVISION DATED APRIL 2004, AT A SCALE OF 1" = 60'.
2. ALL LOCATIONS ARE APPROXIMATE.

0 80' 160'
GRAPHIC SCALE

NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT

ESTIMATED EXTENT OF COCs EXCEEDING CLASS GA GROUNDWATER STANDARDS

ARCADIS

FIGURE
5

CITY: SYRACUSE DIV/GROUP: 85/CAD DB: LJP LD: AM: PD TM: TR LYR:ON=*;OFF=*REF*
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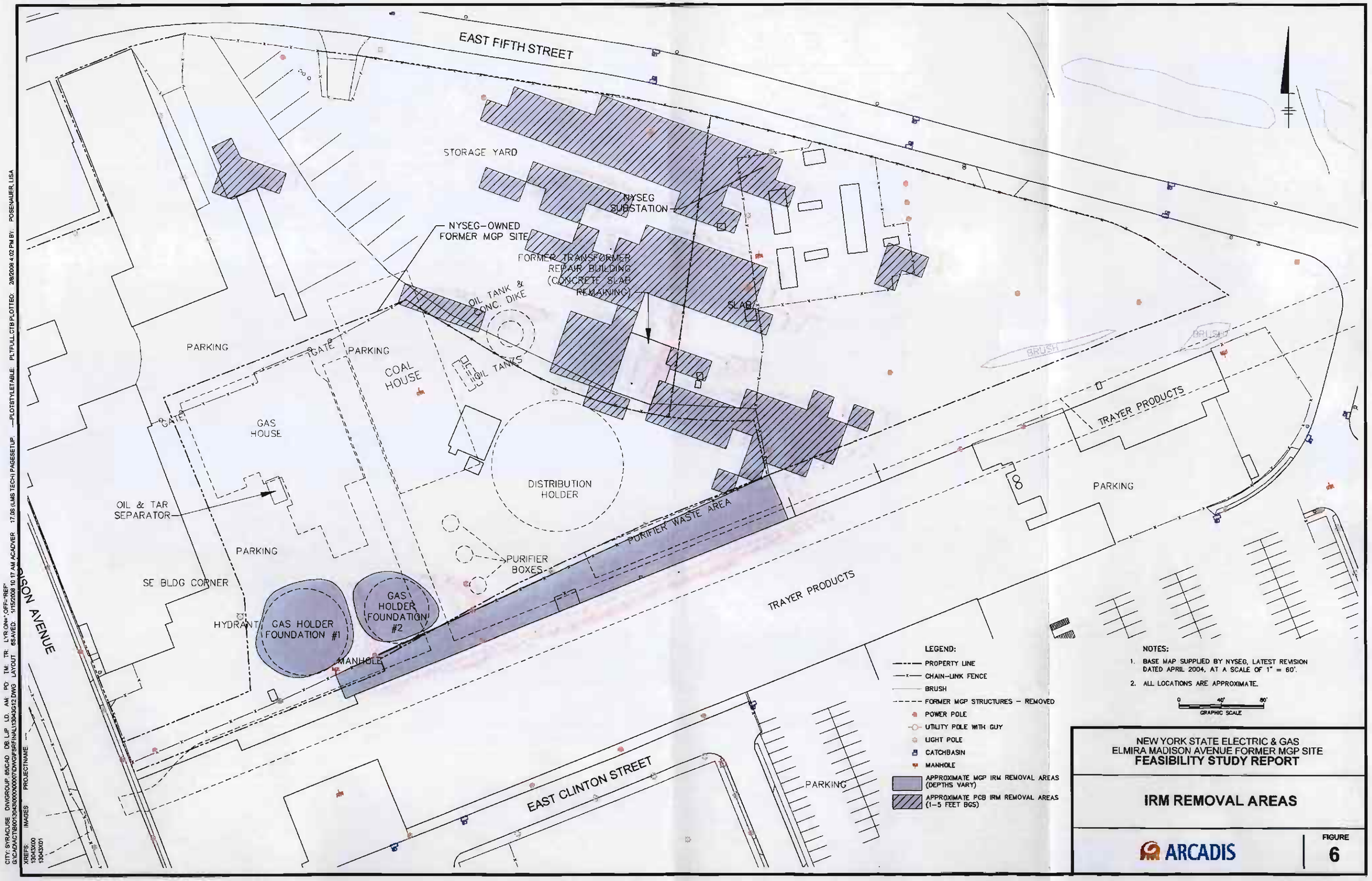

NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT

IRM REMOVAL AREAS

ARCADIS

FIGURE
6

CITY: SYRACUSE DIVGROUP: 85CAD DB: LJP LD: AM PD: TM: TR: LYR:ON=*;OFF=*REF*
G:\CADACT\B0013043\00000\00\DWG\FSR\IRA\13043G12.DWG LAYOUT: 6SAVED: 1/15/2008 10:17 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: ---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/8/2008 4:02 PM BY: POSENAUER, LISA
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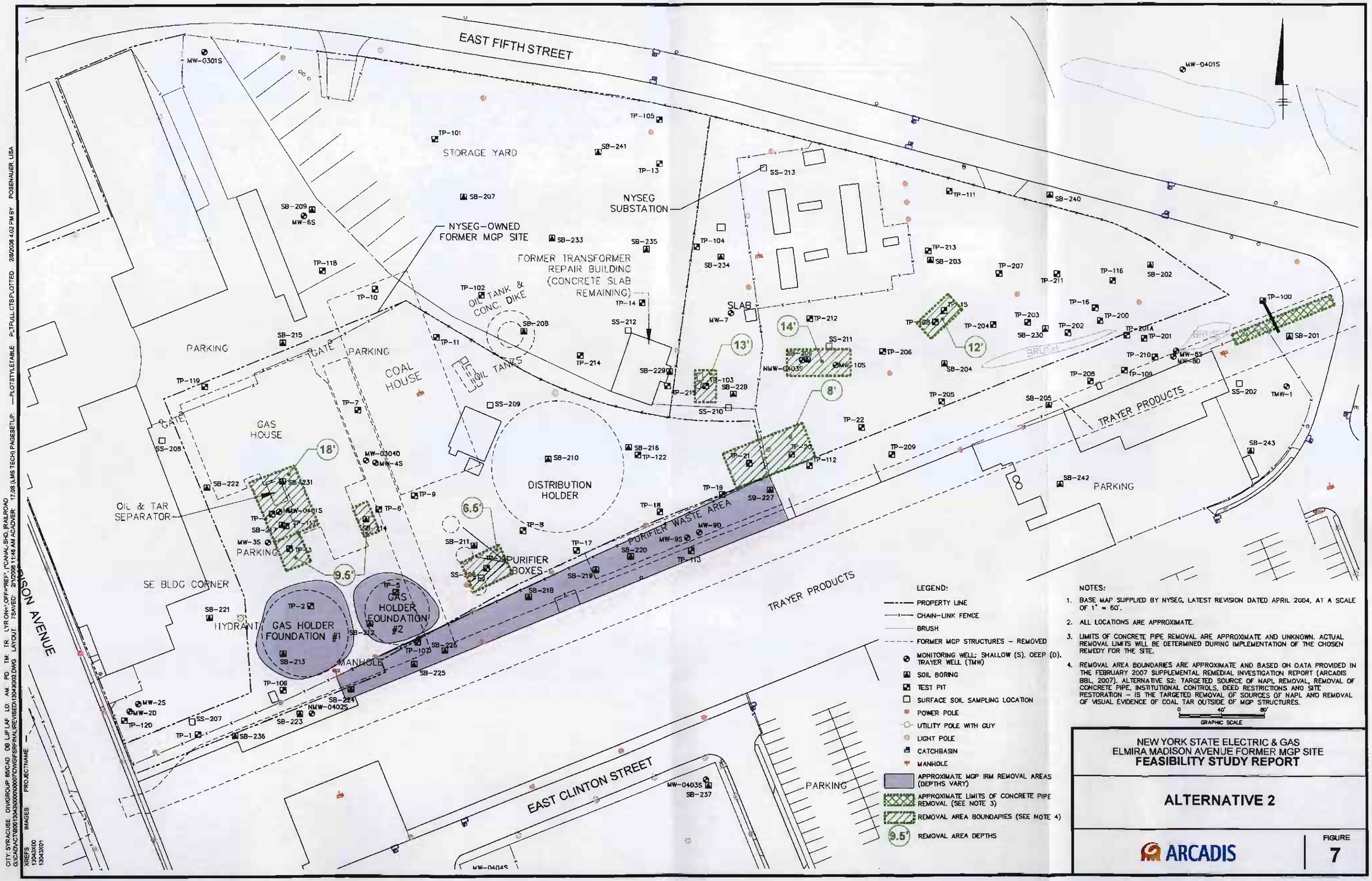
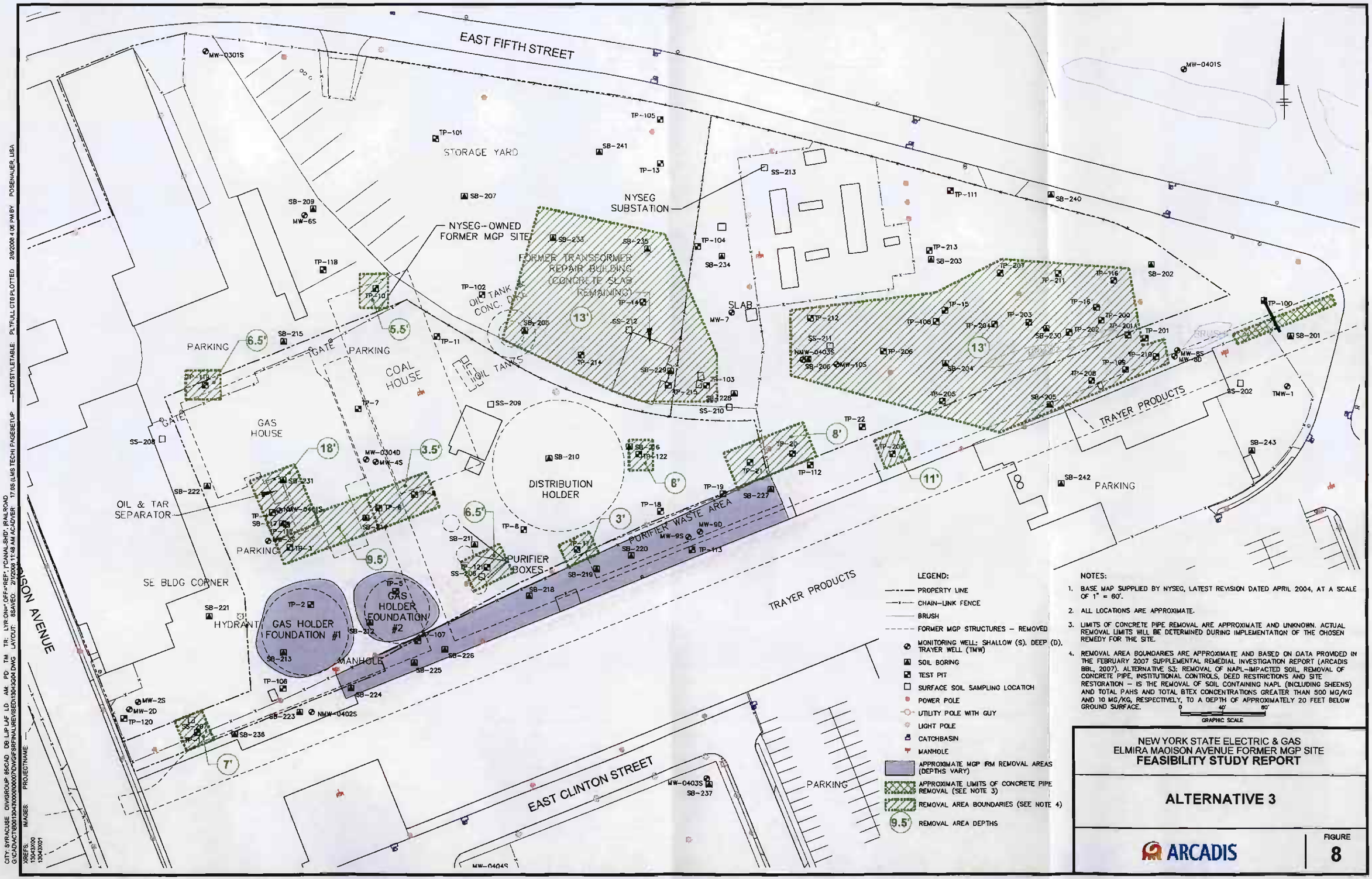
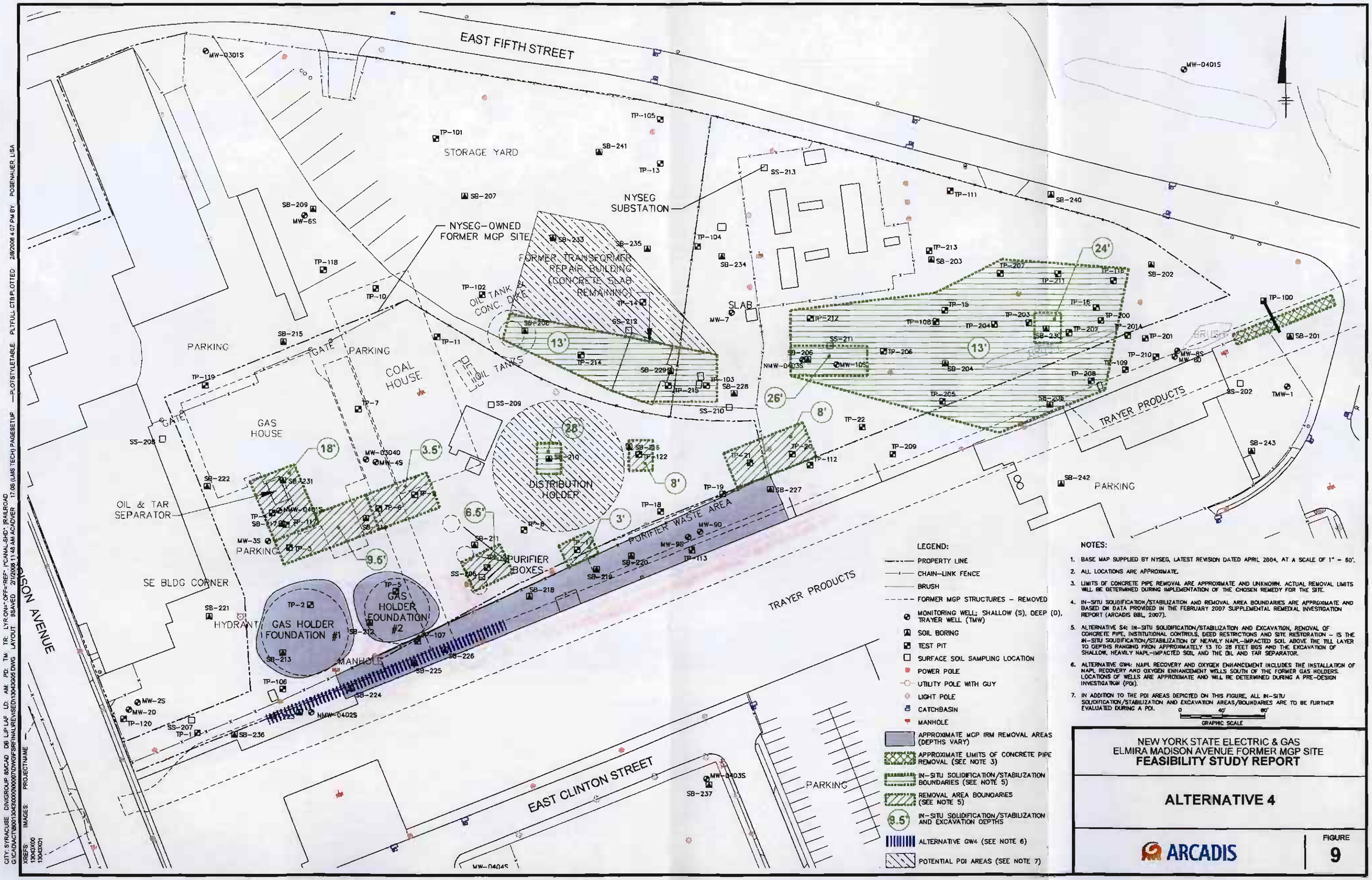
13043X01


EAST FIFTH STREET
STORAGE YARD
NYSEG SUBSTATION
NYSEG-OWNED FORMER MGP SITE
FORMER TRANSFORMER REPAIR BUILDING (CONCRETE SLAB REMAINING)
OIL TANK & CONC. DIKE
SLAB
PARKING
GATE
COAL HOUSE
OIL TANKS
GAS HOUSE
DISTRIBUTION HOLDER
OIL & TAR SEPARATOR
SE BLDG CORNER
HYDRANT
GAS HOLDER FOUNDATION #1
GAS HOLDER FOUNDATION #2
MANHOLE
PURIFIER BOXES
PURIFIER WASTE AREA
TRAYER PRODUCTS
BRUSH
EAST CLINTON STREET
MADISON AVENUE
18'
14'
13'
12'
8'
6.5'
9.5'
LEGEND:
PROPERTY LINE
CHAIN-LINK FENCE
BRUSH
FORMER MGP STRUCTURES – REMOVED
MONITORING WELL; SHALLOW (S), DEEP (D), TRAYER WELL (TMW)
SOIL BORING
TEST PIT
SURFACE SOIL SAMPLING LOCATION
POWER POLE
UTILITY POLE WITH GUY
LIGHT POLE
CATCHBASIN
MANHOLE
APPROXIMATE MGP IRM REMOVAL AREAS (DEPTHS VARY)
APPROXIMATE LIMITS OF CONCRETE PIPE REMOVAL (SEE NOTE 3)
REMOVAL AREA BOUNDARIES (SEE NOTE 4)
REMOVAL AREA DEPTHS
NOTES:
1. BASE MAP SUPPLIED BY NYSEG, LATEST REVISION DATED APRIL 2004, AT A SCALE OF 1" = 60'.
2. ALL LOCATIONS ARE APPROXIMATE.
3. LIMITS OF CONCRETE PIPE REMOVAL ARE APPROXIMATE AND UNKNOWN. ACTUAL REMOVAL LIMITS WILL BE DETERMINED DURING IMPLEMENTATION OF THE CHOSEN REMEDY FOR THE SITE.
4. REMOVAL AREA BOUNDARIES ARE APPROXIMATE AND BASED ON DATA PROVIDED IN THE FEBRUARY 2007 SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT (ARCADIS BBL, 2007). ALTERNATIVE S2: TARGETED SOURCE OF NAPL REMOVAL, REMOVAL OF CONCRETE PIPE, INSTITUTIONAL CONTROLS, DEED RESTRICTIONS AND SITE RESTORATION – IS THE TARGETED REMOVAL OF SOURCES OF NAPL AND REMOVAL OF VISUAL EVIDENCE OF COAL TAR OUTSIDE OF MGP STRUCTURES.
0 40' 80'
GRAPHIC SCALE
NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT
ALTERNATIVE 2
ARCADIS
FIGURE
7


EAST FIFTH STREET
EAST CLINTON STREET
MADISON AVENUE
STORAGE YARD
NYSEG SUBSTATION
NYSEG-OWNED FORMER MGP SITE
FORMER TRANSFORMER REPAIR BUILDING (CONCRETE SLAB REMAINING)
OIL TANK CONC. PADS
SLAB
PARKING
GATE
COAL HOUSE
OIL TANKS
GAS HOUSE
DISTRIBUTION HOLDER
OIL & TAR SEPARATOR
SE BLDG CORNER
HYDRANT
GAS HOLDER FOUNDATION #1
GAS HOLDER FOUNDATION #2
MANHOLE
PURIFIER BOXES
PURIFIER WASTE AREA
TRAYER PRODUCTS
BRUSH
6.5'
5.5'
13'
18'
3.5'
9.5'
6'
3'
8'
11'
7'
LEGEND:
PROPERTY LINE
CHAIN-LINK FENCE
BRUSH
FORMER MGP STRUCTURES – REMOVED
MONITORING WELL: SHALLOW (S), DEEP (D), TRAYER WELL (TMW)
SOIL BORING
TEST PIT
SURFACE SOIL SAMPLING LOCATION
POWER POLE
UTILITY POLE WITH GUY
LIGHT POLE
CATCHBASIN
MANHOLE
APPROXIMATE MGP IRM REMOVAL AREAS (DEPTHS VARY)
APPROXIMATE LIMITS OF CONCRETE PIPE REMOVAL (SEE NOTE 3)
REMOVAL AREA BOUNDARIES (SEE NOTE 4)
REMOVAL AREA DEPTHS
NOTES:
1. BASE MAP SUPPLIED BY NYSEG, LATEST REVISION DATED APRIL 2004, AT A SCALE OF 1" = 60'.
2. ALL LOCATIONS ARE APPROXIMATE.
3. LIMITS OF CONCRETE PIPE REMOVAL ARE APPROXIMATE AND UNKNOWN. ACTUAL REMOVAL LIMITS WILL BE DETERMINED DURING IMPLEMENTATION OF THE CHOSEN REMEDY FOR THE SITE.
4. REMOVAL AREA BOUNDARIES ARE APPROXIMATE AND BASED ON DATA PROVIDED IN THE FEBRUARY 2007 SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT (ARCADIS BBL, 2007). ALTERNATIVE S3: REMOVAL OF NAPL-IMPACTED SOIL, REMOVAL OF CONCRETE PIPE, INSTITUTIONAL CONTROLS, DEED RESTRICTIONS AND SITE RESTORATION – IS THE REMOVAL OF SOIL CONTAINING NAPL (INCLUDING SHEENS) AND TOTAL PAHS AND TOTAL BTEX CONCENTRATIONS GREATER THAN 500 MG/KG AND 10 MG/KG, RESPECTIVELY, TO A DEPTH OF APPROXIMATELY 20 FEET BELOW GROUND SURFACE.
0 40' 80'
GRAPHIC SCALE
NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT
ALTERNATIVE 3
ARCADIS
FIGURE
8



NOTES:

1. BASE MAP SUPPLIED BY NYSEG, LATEST REVISION DATED APRIL 2004, AT A SCALE OF 1" = 80'.
2. ALL LOCATIONS ARE APPROXIMATE.
3. LIMITS OF CONCRETE PIPE REMOVAL ARE APPROXIMATE AND UNKNOWN. ACTUAL REMOVAL LIMITS WILL BE DETERMINED DURING IMPLEMENTATION OF THE CHOSEN REMEDY FOR THE SITE.
4. IN-SITU SOLIDIFICATION/STABILIZATION AND REMOVAL AREA BOUNDARIES ARE APPROXIMATE AND BASED ON DATA PROVIDED IN THE FEBRUARY 2007 SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT (ARCADIS BBL, 2007).
5. ALTERNATIVE S4: IN-SITU SOLIDIFICATION/STABILIZATION AND EXCAVATION, REMOVAL OF CONCRETE PIPE, INSTITUTIONAL CONTROLS, DEED RESTRICTIONS AND SITE RESTORATION – IS THE IN-SITU SOLIDIFICATION/STABILIZATION OF HEAVILY NAPL-IMPACTED SOIL ABOVE THE TILL LAYER TO DEPTHS RANGING FROM APPROXIMATELY 13 TO 28 FEET BGS AND THE EXCAVATION OF SHALLOW, HEAVILY NAPL-IMPACTED SOIL AND THE OIL AND TAR SEPARATOR.
6. ALTERNATIVE GW4: NAPL RECOVERY AND OXYGEN ENHANCEMENT INCLUDES THE INSTALLATION OF NAPL RECOVERY AND OXYGEN ENHANCEMENT WELLS SOUTH OF THE FORMER GAS HOLDERS. LOCATIONS OF WELLS ARE APPROXIMATE AND WILL BE DETERMINED DURING A PRE-DESIGN INVESTIGATION (PDI).
7. IN ADDITION TO THE PDI AREAS DEPICTED ON THIS FIGURE, ALL IN-SITU SOLIDIFICATION/STABILIZATION AND EXCAVATION AREAS/BOUNDARIES ARE TO BE FURTHER EVALUATED DURING A PDI.

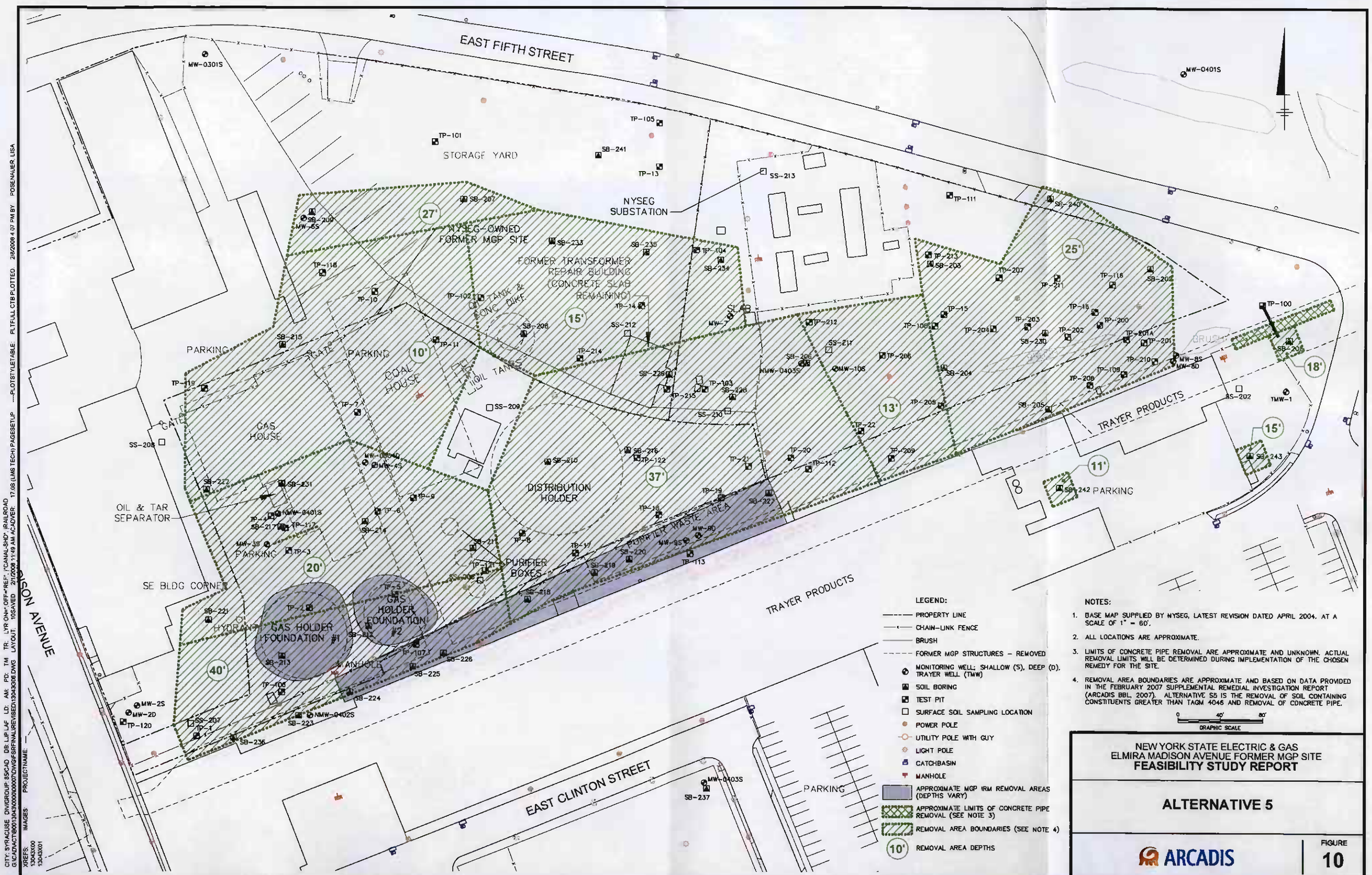
NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT

ALTERNATIVE 4

ARCADIS

FIGURE
9

CITY: SYRACUSE DIV/GROUP: 85CAD DB: LJP LAF LD: AM: PD: TM TR: LYR:ON=*;OFF=*REF*, I*CANAL-SHD*, I*RAILROAD
G:\CAD\ACT\B0013043\0000\0001\DWG\FSR\FINAL\REVISED\13043G05.DWG LAYOUT: 8SAVED: 2/12/2008 11:48 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: ---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/8/2008 4:07 PM BY: POSENAUER, LISA
XREFS: 13043X00 13043X01 IMAGES: PROJECTNAME: —


EAST FIFTH STREET
EAST CLINTON STREET
STORAGE YARD
NYSEG SUBSTATION
NYSEG-OWNED FORMER MGP SITE
FORMER TRANSFORMER REPAIR BUILDING (CONCRETE SLAB REMAINING)
OIL TANK & CONC. DIKE
SLAB
PARKING
GATE
COAL HOUSE
OIL TANK
GAS HOUSE
DISTRIBUTION HOLDER
PURIFIER WASTE AREA
PURIFIER BOXES
OIL & TAR SEPARATOR
SE BLDG CORNER
HYDRANT
GAS HOLDER FOUNDATION #1
GAS HOLDER FOUNDATION #2
MANHOLE
TRAYER PRODUCTS
BRUSH
MADISON AVENUE
27'
10'
15'
37'
13'
25'
18'
11'
20'
40'
LEGEND:
PROPERTY LINE
CHAIN-LINK FENCE
BRUSH
FORMER MGP STRUCTURES - REMOVED
MONITORING WELL; SHALLOW (S), DEEP (D), TRAYER WELL (TMW)
SOIL BORING
TEST PIT
SURFACE SOIL SAMPLING LOCATION
POWER POLE
UTILITY POLE WITH GUY
LIGHT POLE
CATCHBASIN
MANHOLE
APPROXIMATE MGP IRM REMOVAL AREAS (DEPTHS VARY)
APPROXIMATE LIMITS OF CONCRETE PIPE REMOVAL (SEE NOTE 3)
REMOVAL AREA BOUNDARIES (SEE NOTE 4)
REMOVAL AREA DEPTHS
NOTES:
1. BASE MAP SUPPLIED BY NYSEG, LATEST REVISION DATED APRIL 2004, AT A SCALE OF 1" = 60'.
2. ALL LOCATIONS ARE APPROXIMATE.
3. LIMITS OF CONCRETE PIPE REMOVAL ARE APPROXIMATE AND UNKNOWN. ACTUAL REMOVAL LIMITS WILL BE DETERMINED DURING IMPLEMENTATION OF THE CHOSEN REMEDY FOR THE SITE.
4. REMOVAL AREA BOUNDARIES ARE APPROXIMATE AND BASED ON DATA PROVIDED IN THE FEBRUARY 2007 SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT (ARCADIS BBL, 2007). ALTERNATIVE S5 IS THE REMOVAL OF SOIL CONTAINING CONSTITUENTS GREATER THAN TAGM 4046 AND REMOVAL OF CONCRETE PIPE.
0 40' 80'
GRAPHIC SCALE
NEW YORK STATE ELECTRIC & GAS
ELMIRA MADISON AVENUE FORMER MGP SITE
FEASIBILITY STUDY REPORT
ALTERNATIVE 5
ARCADIS
FIGURE
10