NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau E
625 Broadway, 12th Floor, Albany, NY 12233-7017
P: (518) 402-9813 I F: (518) 402-9819
www.dec.ny.gov

December 30, 2016

Ms. Helen M. Hart, General Solicitor
Norfolk Southern Corporation
3 Commercial Place
Norfolk, VA 23510

Mr. Scott Pittenger, Engineer, Environmental Remediation
Norfolk Southern Corporation
1200 Peachtree Street, NE - Box 13
Atlanta, GA 30309

RE: Pennsylvania Lines LLC, Elmira 5th St. Yard
Site ID No. V00446, City of Elmira, Chemung County
Decision Document

Dear Ms. Hart and Mr. Pittenger:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH) have reviewed the Final Remedial Investigation/Remedial Alternatives Report (RI/RAR) for the Pennsylvania Lines LLC, Elmira 5th St. Yard dated December 9, 2013 and prepared by Gannett Fleming on behalf of Norfolk Southern. The RI/RAR is hereby approved. Please ensure that a copy of the approved RI/RAR is placed in the document repository. Any draft documents should be removed.

Enclosed is a copy of the Department's Decision Document for the site. The remedy is to be implemented in accordance with this Decision Document. Please ensure that a copy of the Decision Document is placed in the document repository.

Please contact the Department's Project Manager, Timothy Schneider at 585-226-5480 or timothy.schneider@dec.ny.gov at your earliest convenience to discuss next steps.

Sincerely,

Michael Cruden, P.E.
Director
Remedial Bureau E
Division of Environmental Remediation

Enclosure
ec: R. Schick/M. Ryan, NYSDEC
B. Schilling/T. Schneider/L. Schwartz, Region 8
K. Anders/J. Deming/J. Kenney, NYSDOH
M. Brady, Gannet Fleming mbrady@GFNET.com
T. Fucillo, tfucillo@menterlaw.com

DECISION DOCUMENT

Pennsylvania Lines LLC, Elmira 5th St. Yard
Voluntary Cleanup Program
Elmira, Chemung County
Site No. V00446
December 2016

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

Pennsylvania Lines LLC, Elmira 5th St. Yard
Voluntary Cleanup Program
Elmira, Chemung County
Site No. V00446
December 2016

Statement of Purpose and Basis

This document presents the remedy for the Pennsylvania Lines LLC, Elmira 5th St. Yard site, a voluntary cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and applicable guidance.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Pennsylvania Lines LLC, Elmira 5th St. Yard site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the remedy are as follows:

1). Remedial Design
A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program.

2.) Excavation
Excavation and off-site disposal of contaminant impacted areas. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

3.) Cover System
A site cover will be required over remaining contamination to allow for restricted commercial or industrial use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil over a demarcation layer.

4.) Restricted Site Access
Unauthorized site access is restricted by a locked fence and authorized site access is subject to Norfolk Southern Health and Safety protocols.

5.) Institutional and Engineering Controls
An Environmental Easement and Site Management Plan

6.) Groundwater Monitoring
Monitoring of groundwater to reach TOGs 1.1.1 Ambient Water Quality Standards as part of site management.

7.) Provisions for Evaluating Soil Vapor Intrusion
Appropriate actions, such as the installation of a sub-slab depressurization system, or a similar engineered system, will be evaluated and implemented to mitigate the migration of contaminated vapors into the indoor air of new occupied buildings constructed at the site as part of site management.

The remedy may include continued operation of a remedial system if one was installed during the Remedial Investigation and the implementation of any prescribed institutional controls/engineering controls (ICs/ECs) that have been identified as being part of the selected remedy for the site.

Declaration

The remedy conforms to promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

Michael J Cruden

Digitally signed by Michael J Cruden
DN: cn=Michael J Cruden, o=DER, ou=RBE, email=mjcruden@gw.dec.state.ny.us, c=US
Date: 2016.12.27 16:13:01 -05'00'

Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

Pennsylvania Lines LLC, Elmira 5th St Yard
Elmira, Chemung County
Site No. V00446
December 2016

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy selected in this Decision Document (DD). The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The Voluntary Cleanup Program (VCP) is a voluntary program. The goal of the VCP is to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfields." This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

Steele Memorial Library
101 East Church Street
Elmira, NY 14901
Phone: 607-733-9173

A public comment period occurred from:

August 26, 2016 to October 10, 2016

No public comments were received to cause the modification of the remedy.

Receive Site Citizen Participation Information by Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Pennsylvania Lines LLC, Elmira 5th St. Yard Site is located at 152 East Fifth Street, in an urban portion of Chemung County, New York and occupies Tax Parcels 89.15-4-1.11.

Site Features: The majority of the 13-acre site is vacant and secured with a locked fence. All above ground buildings and structures have been razed and underground storage tanks have been removed. An operating Norfolk Southern rail line runs along the western property line outside the fenced area.

Current Zoning and Land Use: The site is located on the southwest quadrant of the Clemens Center Parkway and Fifth Street intersection and is zoned light industrial. Adjoining properties are similarly zoned with one minor section zoned Central Business District. The nearest multi-family residential areas are approximately 400’ to the east and 500’ to the west of the site. The area is serviced by a public water supply.

Past Use of the Site: The site is currently inactive and vacant but up until the early 1970s it was used railroad storage and maintenance. The site once included a roundhouse, repair/machine/paint shops, warehouses, a coal storage area and a passenger depot. Prior to entering the Voluntary Cleanup Program (VCP) in 2002, preliminary investigations in 1996-97 discovered the presence of underground storage tanks (USTs), buried drums, solid wastes including railroad ties, scrap metal, tires, electrical components and switches. A 2001 cleanup effort at the site included excavation and removal for appropriate disposal of: two USTs with 63 gallons of heating oil and 330 tons of petroleum-impacted soil; two intact drums containing liquids exceeding hazardous waste threshold for lead; and a large quantity of scrap metal.

Site Geology and Hydrogeology: The Site is located in the Appalachian Uplands Physiographic Province where local topographic features result from glacial and fluvial processes with a complex erosional history and deposited accumulations of till. Native soil in the area of the Site is the Phelps gravelly loam and Howard gravelly loam, which is well-drained, according to the Chemung County Soil Survey. This glacio-fluvial deposit varies in thickness from 6 to 60 feet. Bedrock was not encountered.

The City of Elmira is built on a valley fill aquifer, which yields 50 to 500 gallons per minute. The aquifer typically consists of 10 feet to 60 feet of saturated sand and gravel of glacio-fluvial origin. Groundwater is generally unconfined and regional groundwater flow in the Elmira area is generally to the southeast. Based on water levels measured in 1997 and 2005, the depth to groundwater on the Site ranges from approximately 16 to 29 feet below ground surface (bgs). Water levels in on-site monitoring wells indicate that shallow groundwater flow direction is generally to the east-southeast with a saturated thickness of approximately 40 feet.

A site location map and site plan are attached as Figures 1 and 2.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, at a minimum, alternatives (or an alternative) that restrict(s) the use of the site to commercial and industrial use as described in DER-10, Technical Guidance for Site Investigation and Remediation are/is being evaluated.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the contemplated land use for the site contaminants is available in the Remedial Investigation (RI) Report.

SECTION 5: ENFORCEMENT STATUS

The voluntary cleanup agreement is with a responsible party. The agreement requires the party to address on-site and off-site contamination. Accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and

sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- sub-slab vapor
- indoor air

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

tetrachloroethene (PCE)	mercury
arsenic	trichloroethene (TCE)
PCB aroclor 1260	benzo(a)pyrene

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination:

Soil: On-site - More than 300 surface and subsurface soil samples were analyzed at this 13 acre site. VOCs were not found at levels above the protection of groundwater SCOs in on-site soils. The primary site related contaminants of concern (COCs) include arsenic, polychlorinated biphenyl's (PCBs) and benzo(a)pyrene in surface soils (0-2") and in shallow soils (4-6") and mercury to 330 ppm in surface and subsurface soils to 6' bgs. Arsenic concentrations ranged from non-detect to 1130 parts per million (ppm). For comparison purposes, the NYCCR Part 375 restricted industrial (RI) soil cleanup objective (SCO) for arsenic is 16 ppm. PCB concentrations ranged from non-detect to 36.8 ppm (RI SCO 25 ppm). Benzo (a) pyrene concentrations ranged from non-detect to 3.3 ppm (RI SCO 1.1 ppm) and mercury concentrations ranged from non-detect to 330 ppm (RI SCO 5.7 ppm). Groundwater is not impacted by these contaminants.

Soil: Off-site - A de minimus area of arsenic and PCB contaminated surface soil (0-2") has been identified offsite at an adjoining commercial property. Arsenic concentrations ranged from 6.0 to 36.9 ppm and PCBs from non-detect to 1.7 ppm. Unrestricted SCOs for arsenic is 13 ppm and PBCs is 0.1 ppm. Subsequent Department administrative review identified the adjoining property (Bouille Electric) as a current RCRA facility and a former TSD (interim status) for PCBs. Because of these findings, PCB contaminated soil at this offsite property are not considered to be related to the VCP Site. The delineated arsenic impacted soils were found in a small unpaved area used for equipment and commercial materials storage identified as RA-3 on Figure 3.

Groundwater Shallow: On-site – A total of 17 permanent monitoring wells have been installed on-site and 1 monitoring well off-site. A minimum of 2 rounds of sampling has been completed on all wells with most wells recording 4 or more rounds of analytical data since 2003. The primary contaminants of concern are tetrachloroethene (PCE) and trichloroethene (TCE). PCE concentrations ranged from non-detect to 77 parts per billion [ppb] in 2003 and non-detect to 36 ppb in 2009; TCE concentrations ranged from non-detect to 8 ppb in 2003 and 2009 concentrations were below 5 ppb TOGS 1.1.1 Ambient Water Quality Standards. Based on the analytical data to date, a low level groundwater contamination plume originates on-site and extends to the eastern property line as shown on Figure 5b. PCE and TCE contamination

concentrations are below 5 ppb TOGS 1.1.1 Ambient Water Quality Standards in an off-site well located on the east side of Clemens Center Parkway (arterial highway).

Source Material: On-site – Supplemental investigation of six (6) areas of the site with elevated levels of arsenic in soil were analyzed for both total arsenic and Toxicity Characteristic Leaching Procedure (TCLP) are shown on Figure 6. Supplemental remedial investigation data results indicate that elevated levels of arsenic contaminated soils 0-6" bgs (61-460 ppm) at this site did not exceed TCLP reporting limits. As a result of this data, elevated levels of arsenic contaminated soil at this site do not demonstrate the potential to migrate to another media or would be considered characteristic hazardous waste and therefore are not considered a source. Groundwater contaminants PCE and TCE were not detected in site soils above 1.3 and 0.47 ppm respectively (Part 375 protection of groundwater soil cleanup objectives) therefore no source to groundwater contamination was identified during the remedial investigation.

Soil Vapor, Sub-slab Vapor and Indoor Air: On-site and Off-site – No on-site buildings remain to complete sub-slab vapor or indoor air sampling however, PCE contaminated soil vapors were detected at a concentration of 19 ug/m3 at the northeast property boundary. In response to this data, an off-site soil vapor intrusion investigation, which included the collection of sub-slab, outdoor and indoor air samples at one adjoining commercial property was conducted. The results of this investigation identified elevated indoor air concentrations of PCE above background levels, but below air guidelines values and one location with TCE concentrations above air guideline values (attributable to indoor sources as noted on the product inventory). Sub-slab vapor concentrations for PCE were 5.4-12 ug/m3 and <0.25-1.5 ug/m3 for TCE. The data does not indicate the need to take actions to address soil vapor intrusion in the one off-site structure at this time.

No significant threat determination has been made.

Remaining contamination below cover systems at the site will consist of arsenic to 300 ppm, mercury to 5.7 ppm, PCBs to 25 ppm and Benzo(a)pyrene to 1.1 ppm.

Restricted Access: With the exception of the rail bed area, the site is secured with a well maintained locked fence. While not in current operation, the site is locally maintained by Norfolk Southern Railway Company whom operates other nearby rail yards. Norfolk Southern is known for robust health and safety protocols which are enforced above and beyond that required for participation in remedial activities.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

People are not drinking the contaminated groundwater because the area is served by a public water supply that is not contaminated by the site. Direct contact with contaminants in the soil is unlikely because site access is restricted by a locked fence. People may contact contaminated soil

if they trespass. Volatile organic compounds in soil or groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. An evaluation of the potential for soil vapor intrusion to occur will be completed should the site be developed. Environmental sampling indicates that soil vapor intrusion is not a concern for off-site buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the Voluntary Cleanup Agreement #B8-0591-01-03 and are consistent with the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to result in the Site being protective of public health and the environment for the Contemplated Use. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and evaluation of the remedial criteria are presented in the alternative analysis included in the Remedial Investigation Report. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation.

The selected remedy is referred to as the Excavation, Disposal and Site Cover remedy.

The elements of the selected remedy, as shown in Figure 3-5, are as follows:

1). Remedial Design
A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2.) Excavation
Excavation and off-site disposal of contaminant impacted areas (Fig. 3), including:

- On-site – Approximately 490 c.y. of arsenic contaminated soil above the site specific excavation objective of 300 ppm. Arsenic contaminated soils up to 460 ppm have been quantitatively analyzed and do not demonstrate the potential to migrate from soil to groundwater. A comparative analysis of remedial excavation costs has resulted in the selected 300 ppm excavation objective for remaining contaminated site soils **below** an approved cover system (Figure 7).
- On-site – Approximately 3910 c.y. of PCB and mercury contaminated soil above the site specific cleanup objective of 25 ppm and 5.7 ppm which is consistent with 6 NYCRR Part 375-6.8(b) restricted industrial use soil cleanup objectives;
- Off-site – Approximately 100 c.y. of arsenic contaminated soil above the 6 NYCRR Part 375-6.8(a) unrestricted use SCO of 13 ppm.

Clean fill or reusable on-site soils meeting the requirements of 6 NYCRR Part 375-6.7(d) will be used to complete the backfilling of the excavation and establish the designed grades at the site. The site may be re-graded to accommodate installation of a cover system as described in remedy element 3.

Additional testing may be necessary where existing soil cover systems are anticipated to be part of the final site cover.

3.) Cover System
A site cover will be required to allow for commercial or industrial use of the site (Fig. 4). The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will not exceed the applicable SCOs. Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material consistent with 6 NYCRR Part 375-6.7(d) for restricted commercial or industrial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

4.) Restricted Site Access
Unauthorized site access is restricted by a locked fence and authorized site access is subject to Norfolk Southern Health and Safety protocols. As a result, no completed exposure pathways are expected without appropriate precautionary training and personal protective equipment. Site access restrictions are intended to remain in place as a remedy element until the configuration of the final site cover systems (redevelopment) are determined (Fig. 3).

5.) Institutional Control
Imposition of an institutional control in the form of an Environmental Easement for the controlled property that:

- the remedy will achieve the equivalent of a Track 4 restricted commercial or industrial cleanup at a minimum;
- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls consistent with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for restricted commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- requires compliance with the Department approved Site Management Plan.

6.) Site Management Plan
A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements

necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls:

- The Environmental Easement discussed above.

Engineering Controls:

- The soil cover, groundwater monitoring, and locked fence above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the Environmental Easement including any land use, and/or groundwater and/or surface water use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

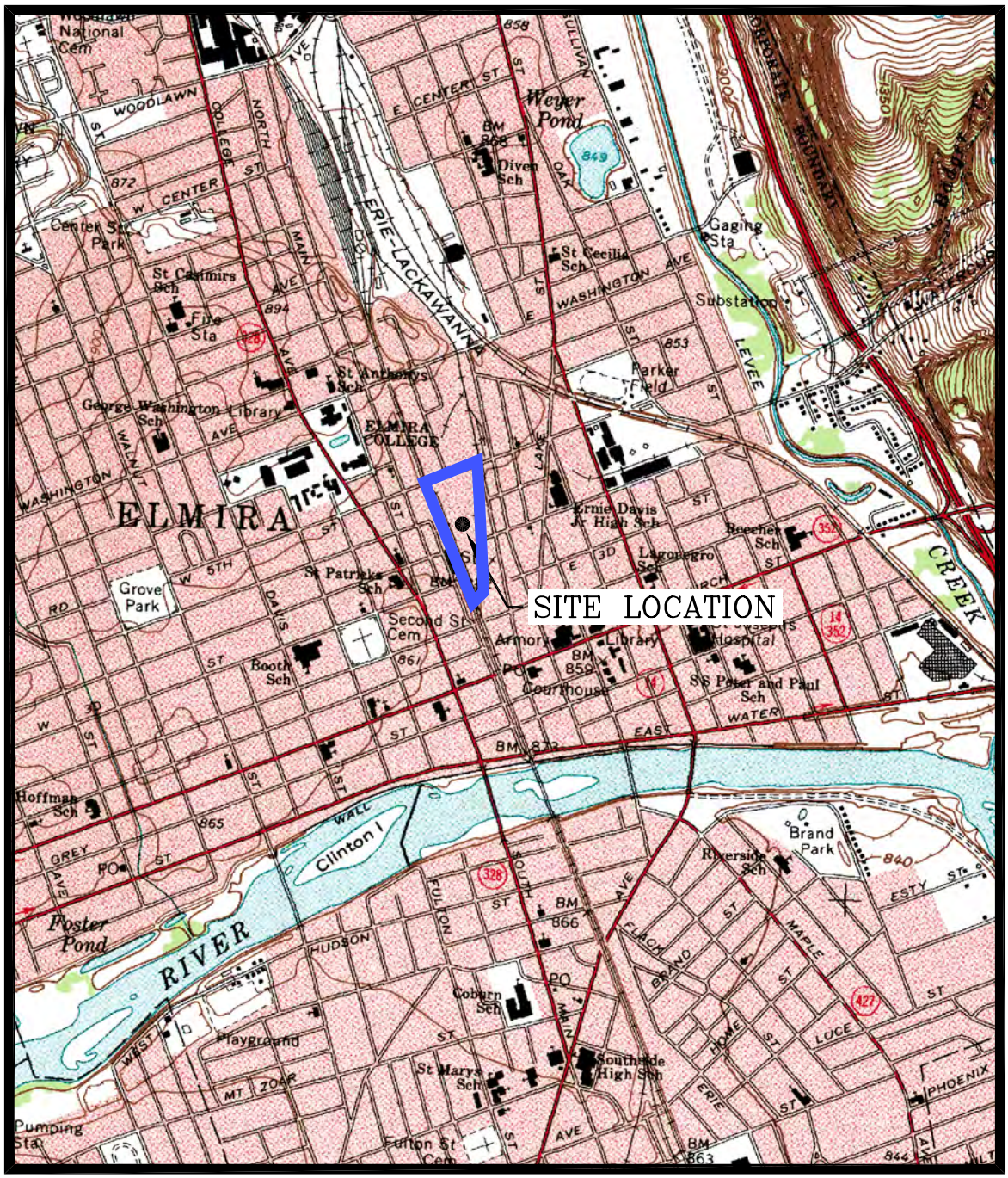
b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy to achieve TOGs 1.1.1 Ambient Water Quality Standards;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

Gannett Fleming

NORFOLK SOUTHERN FIFTH STREET YARD

ELMIRA, NEW YORK



SCALE 1"=2000'

U.S.G.S. 7.5 MINUTE QUADRANGLE
ELMIRA, NEW YORK

LOCATION MAP

Figure 1
Location Map

DRAWING IS NOT TO SCALE

LEGEND

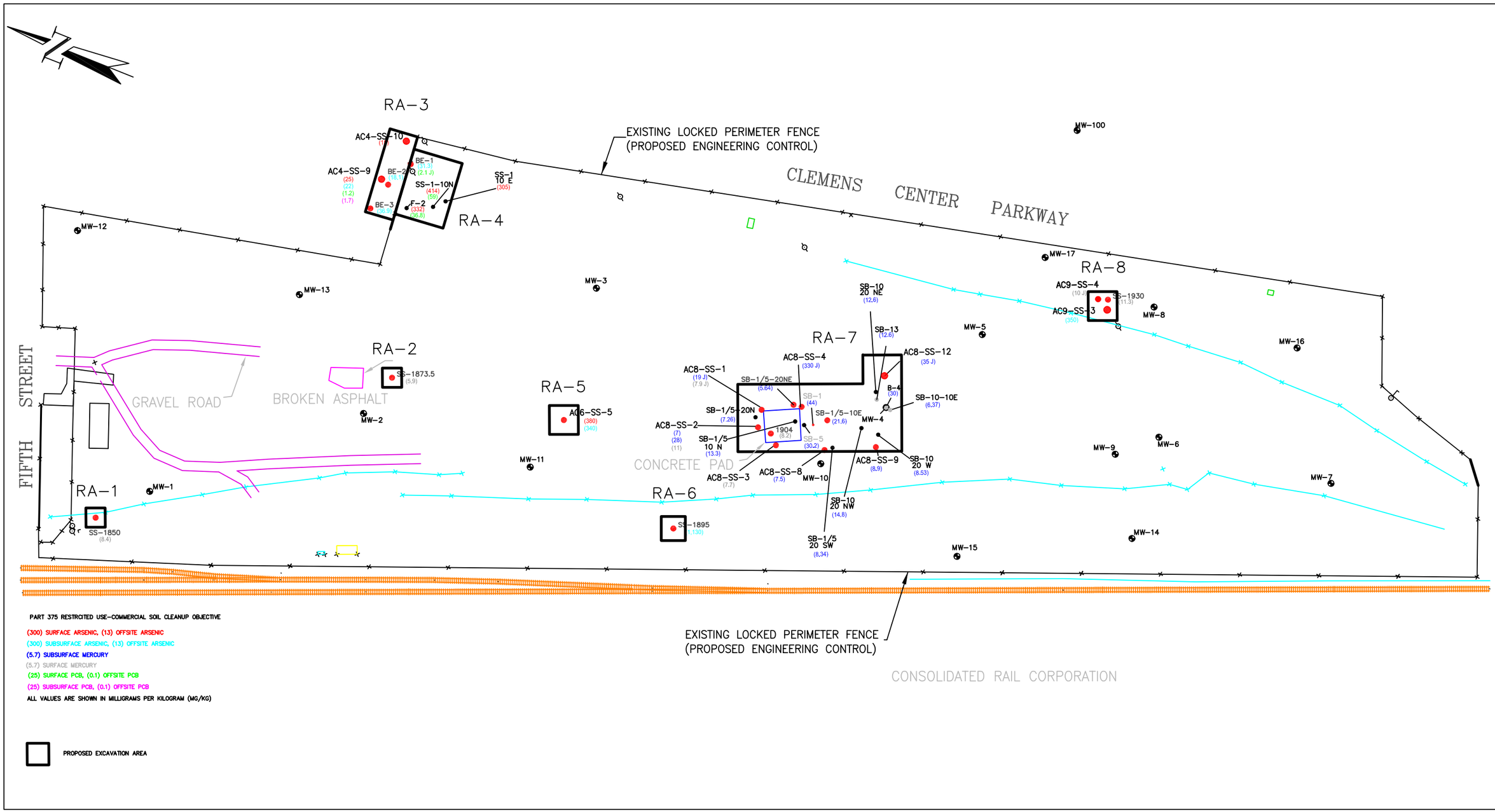
SITE

SITE LOCATION MAP

FIFTH STREET YARD
FINAL REMEDIAL INVESTIGATION/REMEDIAL
ALTERNATIVE REPORT
ELMIRA, NEW YORK

Figure 2
Site Plan

Gannett Fleming



PART 375 RESTRCITED USE-COMMERCIAL SOIL CLEANUP OBJECTIVE

(300) SURFACE ARSENIC, (13) OFFSITE ARSENIC

(300) SUBSURFACE ARSENIC, (13) OFFSITE ARSENIC

(5.7) SUBSURFACE MERCURY

(5.7) SURFACE MERCURY

(25) SURFACE PCB, (0.1) OFFSITE PCB

(25) SUBSURFACE PCB, (0.1) OFFSITE PCB

ALL VALUES ARE SHOWN IN MILLIGRAMS PER KILOGRAM (MG/KG)

PROPOSED EXCAVATION AREA

0 50 200

SCALE: 1" = 100'

Figure 3
Remedy - Soil
Excavation & Off-site Disposal

REMEDIAL AREAS FOR ON-SITE AND OFF-SITE SOILS

FIFTH STREET YARD
FINAL REMEDIAL INVESTIGATION/REMEDIAL
ALTERNATIVE REPORT
ELMIRA, NEW YORK

S:\PROJECTS\50952 - Norfolk Southern\PROJECT WORKING\August 2010 SS RIRA Report\Figure 11-1.dwg, 5/7/2013 4:16:34 PM

Gannett Fleming

RA-3
RA-4
EXISTING LOCKED PERIMETER FENCE
(PROPOSED ENGINEERING CONTROL)
CLEMENS CENTER PARKWAY
GRAVEL ROAD
BROKEN ASPHALT
FIFTH STREET
RA-1
RA-2
RA-5
RA-6
RA-7
RA-8
CONCRETE PAD
AC4-SS-3
AC4-SS-4
AC4-SS-6
AC6-SS-1
AC6-SS-6
FS-SC-2/AC6-SS-2
AC7-SS-1
AC7-SS-2
AC7-SS-3
AC7-SS-4
AC2-SS-1
AC2-SS-2
AC2-SS-3
AC2-SS-4
FS-SC-5/AC9-SS-1
AC9-SS-4
AC10-SS-5
AC10-SS-1
AC10-SS-2
AC10-SS-3
AC10-SS-4
FS-SC-6/AC10-SS-3
AC11-SS-1
AC11-SS-2
AC11-SS-3
AC11-SS-4
AC11-SS-5
AC11-SS-6
FS-SC-4/AC11-SS-7
AC12-SS-1
AC12-SS-2
AC12-SS-3
AC12-SS-4
AC12-SS-5
SB-10-10N
SB-10-20N
SB-10-20NW
SB-10-20W
SB-10-10E
SB-10 20 SE
SB-10 20 S
SB-1/5 20 W
SB-9 20 W
SB-9 20 SW
SB-9 10 S
SS-7-10E
SS-7-10N
SS-7-10S
SS-7-10W
SS-10-20E
SS-8 10 S
SS-8 10 N
SS-8 10 W
MW-13 20 NW
MW-13 20 SE
MW-13 10 S
MW-13 20 W
SS-1 10 S
SS-3 10 E
SS-3 10 N
SS-3 10 S
SS-3 10 W
SS-4 10 E
SS-4 10 N
SS-4 10 S
SS-4 10 W
SS-5 10 E
SS-5 20 E
SS-5 10 N
SS-5 20 N
SS-5 10 S
SS-5 10 W
SS-5 20 S
SS-5 20 W
SS-6 10 E
SS-6 10 N
SS-6 10 S
SS-6 10 W
SS-10 10 E
SS-10 20 N
SS-10 10 S
SS-10 20 S
SS-10 10 N
SS-10 20 W
SS-10 10 W
B-9
B-10
B-11
SS-1851
SS-1855
SS-1857
SS-1863
SS-1864.5
SS-1865
SS-1866
SS-1867
SS-1869
SS-1871.5
SS-1872
SS-1874
SS-1876
SS-1878
SS-1880
SS-1881
SS-1882
SS-1886
SS-1887
SS-1888
SS-1890
SS-1892
SS-1893
SS-1894
SS-1896
SS-1897
SS-1898
SS-1899
SS-1900
SS-1901
SS-1902
SS-1903
SS-1904
SS-1905
SS-1907
SS-1908
SS-1909
SS-1910
SS-1911
SS-1913
SS-1914
SS-1915
SS-1917
SS-1918
SS-1920
SS-1923
SS-1925
SS-1926
SS-1927
SS-1928
SS-1930
SS-1931
SS-1932
SS-1933
SS-1938
SS-1939
SS-1940
SS-1941
SS-1942
SS-1943
SS-1944
SS-1945
SS-1946
SS-1947
SS-1948
SS-1950
SS-1951
SS-9

LEGEND

- ARSENIC SOIL SAMPLE EXCEEDING 16 MG/KG
- BENZO(A)PYRENE SOIL SAMPLE EXCEEDING 1.1 MG/KG
- RA-REMEDIAL AREAS
- COVER SYSTEM FOR ARSENIC CONCENTRATIONS EXCEEDING 16 MG/KG
- COVER SYSTEM FOR BENZO(A)PYRENE CONCENTRATIONS EXCEEDING 1.1 MG/KG

NOTE: SAMPLES SS-1876 AND SS-1881 EXCEED THE STANDARD FOR ARSENIC AND BENZO(A)PYRENE

EXISTING LOCKED PERIMETER FENCE
(PROPOSED ENGINEERING CONTROL)

CONSOLIDATED RAIL CORPORATION

0 50 200
SCALE: 1" = 100'

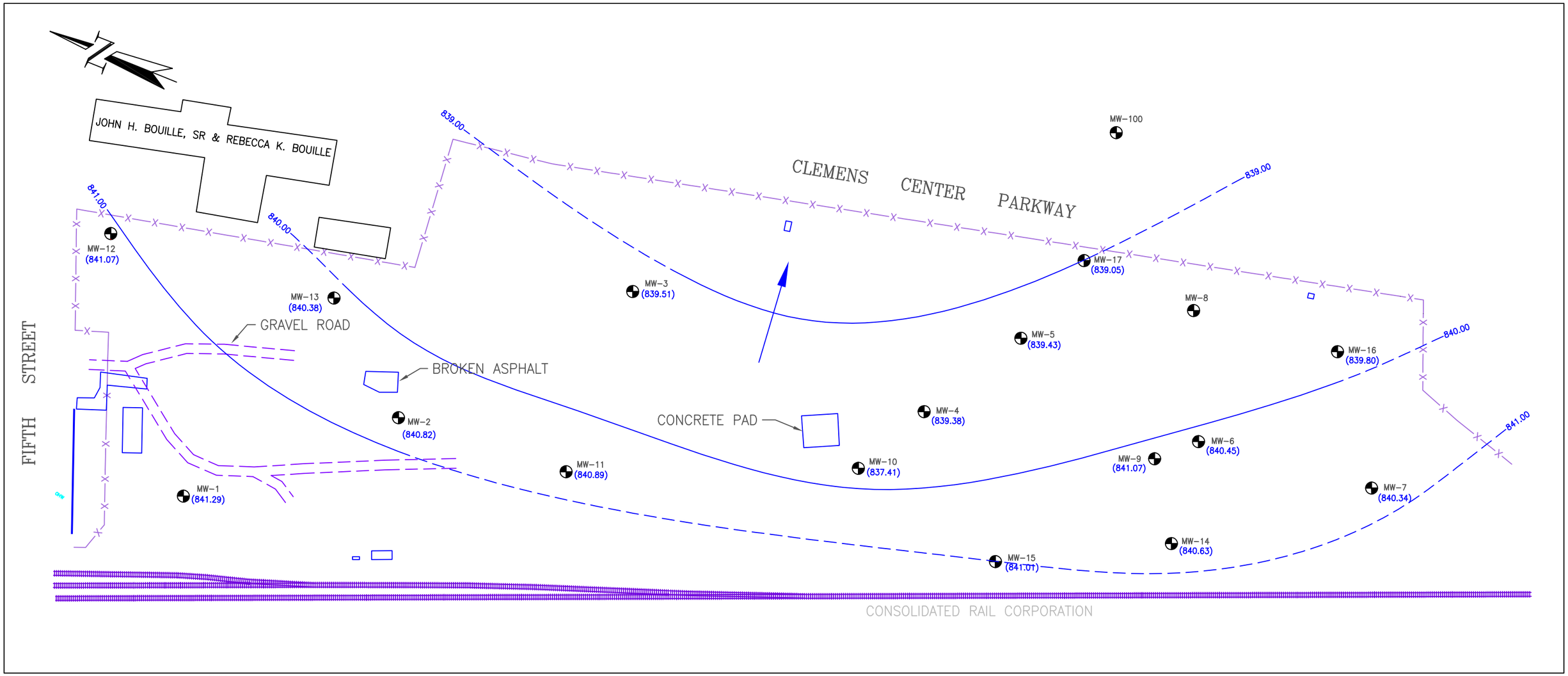
Figure 4
Remedy - Soil Cover System

AREAS REQUIRING COVER SYSTEM

FIFTH STREET YARD
FINAL REMEDIAL INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
ELMIRA, NEW YORK

S:\PROJECTS\50952 - Norfolk Southern\PROJECT WORKING\Drawings\October 2012\Figure 9-2..dwg, 5/7/2013 4:14:24 PM

Gannett Fleming



0 50 200

SCALE: 1" = 100'

LEGEND

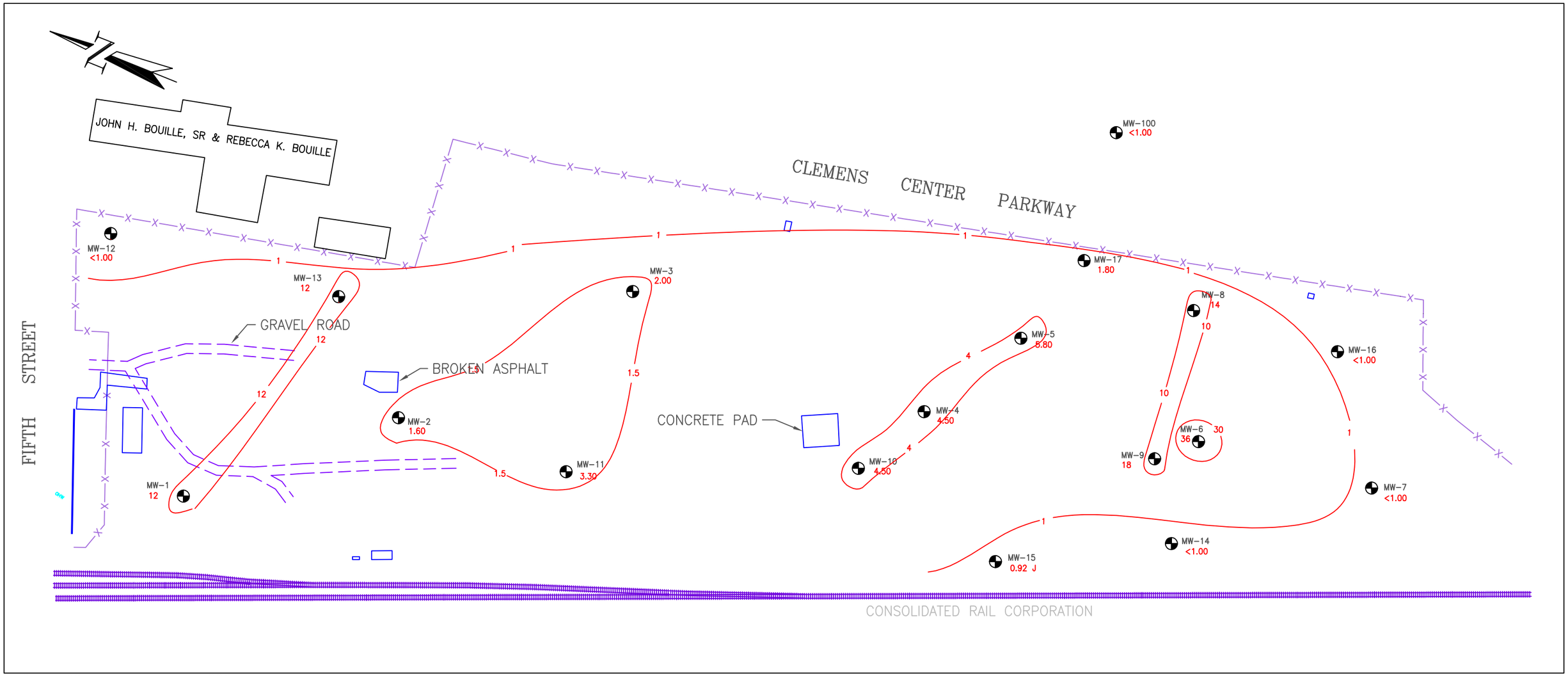
- MONITORING WELL LOCATION
- (840.82) WATER LEVEL ELEVATION
- 840 ISOELEVATION CONTOUR (DASHED WHERE INFERRED)

GROUNDWATER ELEVATIONS AND GROUNDWATER FLOW DIRECTION MAP – 2009

FIFTH STREET YARD
FINAL REMEDIAL INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
ELMIRA, NEW YORK

Figure 5a
Remedy - Groundwater

Gannett Fleming



0 50 200

SCALE: 1" = 100'

LEGEND

- MONITORING WELL LOCATION
- 25 PCE CONCENTRATION (PPB)
- 25 ISOCONTOUR LINE

Figure 5b
Remedy - SMP Groundwater Monitoring

PCE GROUNDWATER PLUME MAP

FIFTH STREET YARD
FINAL REMEDIAL INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
ELMIRA, NEW YORK