NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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December 15, 2016

Mr. William Paladino
9271 Group, LLC
295 Main Street
Suite 210
Buffalo, New York 14203
bpaladino@ellicottdevelopment.com

RE: 1050-1088 Niagara Street Site, #C915277
Buffalo, Erie County
RI/AA Report & Decision Document

Dear Mr. Paladino:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH) have reviewed the Remedial Investigation/Alternatives Analysis (RI/AA) Report for the 1050-1088 Niagara Street site dated August 2016 and prepared by Turnkey Environmental Restoration, LLC on behalf of 9271 Group, LLC. The RI/AA Report is hereby approved. Please ensure that a copy of the approved RI/AA Report is placed in the document repositories. The draft plan 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 repositories.

Please contact the Department's Project Manager, Eugene Melnyk, at 716-851-7220 or eugene.melnyk@dec.ny.gov at your earliest convenience to discuss next steps. Please recall the Department requires seven days' notice prior to the start of field work.

Sincerely,

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

Enclosure
ec: R. Schick/M. Ryan, DER
C. Staniszewski/E. Melnyk/J. Dougherty, Region 9
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NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

DECISION DOCUMENT

1050-1088 Niagara Street Site
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915277
December 2016

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

DECLARATION STATEMENT - DECISION DOCUMENT

1050-1088 Niagara Street Site
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915277
December 2016

Statement of Purpose and Basis

This document presents the remedy for the 1050-1088 Niagara Street Site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the 1050-1088 Niagara Street Site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. REMEDIAL DESIGN
A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remediation 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 gas 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 the top 2 feet of surface soil/fill exceeding Restricted

Residential Soil Cleanup Objectives (RRSCOs), specifically metals/semi-volatile organic compound (SVOC) impacted soil/fill along the western loading dock at the 1050 Niagara St. building. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation (as required) and establish the designed grades at the site. On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 3 to backfill the excavation to the extent that a sufficient volume of on-site soil is available. The site will be re-graded to accommodate installation of a cover system as described in remedy element 3. A site fill management plan will be implemented during remedial and redevelopment activities;

3. COVER SYSTEM

A site cover will be required to allow for restricted residential use of the site, in areas where the upper two feet of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs). The site cover may consist of paved parking areas, sidewalks, or a soil cover. Where the soil cover is required it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d). In areas where building foundations or building slabs, which preclude contact with soil exist, the requirement for a site cover will be deferred until such time that they are removed.

4. SOIL VAPOR EXTRACTION (SVE)

Soil vapor extraction (SVE) will be implemented to remove nuisance petroleum volatile organic compounds (VOCs) from the subsurface soil/fill in the 1088 Niagara St. vacant lot area slated for redevelopment. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells will be treated as necessary prior to being discharged to the atmosphere.

The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

5. GROUNWATER TREATMENT – INSITU CHEMICAL OXIDATION

In-situ chemical oxidation (ISCO) will be implemented to treat petroleum contaminants and petroleum Tentatively Identified Compounds (TICs) in the proximal area containing the groundwater contamination. A chemical oxidant will be injected into the subsurface to destroy the contaminants in an area located along the western portion of the 1088 Niagara Street lot and the north-west portion of the 1050 Niagara Street lot where petroleum related compounds were elevated in the groundwater. The method and depth of injection and oxidizer quantities will be determined during the remedial design.

6. ENGINEERING AND INSTITUTIONAL CONTROLS

Imposition of an institutional control in the form of an environmental easement will be required. The remedy will achieve a Track 4 restricted residential cleanup at a minimum.

Institutional Control
Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential, commercial and industrial uses 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; and
- requires compliance with the Department approved Site Management Plan.

7. SITE MANAGEMENT PLAN
A Site Management Plan, which includes the following:

1. 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 in Paragraph 6 above.
   Engineering Controls: The site cover discussed in Paragraph 3 and SVE system in Paragraph 4 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 groundwater use restrictions;
   - provisions for the management and inspection of the identified engineering controls in Paragraph 3 and 4 above;
   - a provision that should an existing or future building or building foundation be demolished in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable SCOs;
   - maintaining site access controls and Department notification; and
   - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
2. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to: include all that apply, ending the final bullet with a period
   - monitoring of groundwater to assess the performance and effectiveness of the remedy; and
   - a schedule of monitoring and frequency of submittals to the Department.
3. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical

components of the remedy. The plan includes, but is not limited to:

- procedures for operating and maintaining the remedy;
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- providing the Department access to the site and O&M records; and
- The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Declaration

The remedy conforms with 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: 2016.12.12 14:30:17 -05'00'

Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

1050-1088 Niagara Street Site
Buffalo, Erie County
Site No. C915277
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. 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 New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

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:

Buffalo & Erie County Public Library
Attn: Kathy Galvin
Niagara Branch
280 Porter Avenue
Buffalo, NY 14201
Phone: 716-882-1537

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 1050-1088 Niagara Street Site is located in the City of Buffalo, Erie County. A site location map is attached as Figure 1.

Site Features: The site is comprised of three adjoining parcels identified as 1050 Niagara Street, 1054 Niagara Street and 1088 Niagara Street. The total site area is approximately 2.7 acres in size. The site is bounded by Albany Street to the north with commercial properties beyond; light industrial manufacturing facility to the south; Niagara Street and residential properties beyond to the east; and railroad tracks, NYS I-190, the Black Rock Canal and the Niagara River to the west. The site is mostly flat, with a slight westerly pitch away from Niagara Street. Steep embankments up to 20 feet in height punctuate the northern and western perimeter of the site.

The 1050 Niagara Street parcel contains an unoccupied two story structure consisting of a floor level and a full basement over the entire footprint of the building, and a partial full depth subbasement at the western end of the building where materials were once shipped and received from an adjoining rail siding. The 1054 Niagara Street parcel contains several features including a concrete covered loading dock, a small utility shed and soil/fill covered areas. The 1088 Niagara Street parcel currently includes a newly constructed commercial building that is partially occupied with a coffee shop, parking lot and associated green space and hardscape. Prior to construction, the parcel was vacant and covered with either vegetated soil areas or granular fill. Steep embankments on the northern and western perimeter of the site currently consist of fill soil found throughout the site and is covered with a mix of dense invasive vegetation with some trees and shrubs.

Current Zoning and Land Use: The site is currently zoned M1 Light Industrial, but has been mainly used for commercial use.

Past Use of the Site: The 1050/1054 Niagara Street parcels have a long history of being utilized for commercial/manufacturing operations dating as far back as 1889. An existing 2 level brick building occupies most of the parcel. The Niagara Lithograph Company operated a commercial printing company from approximately 1930 through 1990 in the current building. The Miken Companies, also a commercial printing company, was located on-site until about 2000. Historic Sanborn records indicate that two 25,000 gallon tanks, likely containing fuel oil and/or printing related solvents were located in the basement of the building. The lithographic printing operations historically utilized VOC-based solvents for routine print cleaning, degreasing and ink-solvents. The back parcel identified as 1054 Niagara St. appears to have been used for rail shipping/receiving of materials including receiving and storing of coal.

The 1088 Niagara Street parcel (northern portion of the site) historically contained a series of buildings and a railroad siding on the west side of the parcel. The International Brewing Company and American Gelatine Corp. operated on-site in the early 1900s. Gulf Oil Corporation and Hygrade Petroleum Co. were identified as on-site operators from approximately the 1920s through 1960. Records from 1925 indicate Hygrade Oil Co. utilized the site as a service station and fuel distribution facility, including multiple petroleum storage and distribution tanks, gasoline pump house(s), and tank wagon loading house, which was historically located abutting the current 1050 Niagara Street building, from at least the 1920s through the 1960s. The buildings were demolished sometime during the 1960s.

Site Geology: The surface soils on the site is characterized as Urban Land, consisting of level to gently sloping land with 80 percent or more of the soil surface covered by asphalt, concrete, buildings, or other impervious structures typical of an urban environment. The vacant 1088 Niagara Street parcel contains extensive fill with depths up to 35 feet below ground surface, and in some instances down to top of bedrock. The subsurface soil/fill characteristics vary. Distinct layers include crushed concrete, stone gravel, sandy lean clay layers, and fill with varying amounts and depths of material (i.e., soil, brick, concrete, foundry sand, metal and other debris). The soil below the existing building at 1050 Niagara Street parcel and adjoining back parcel; (1054 Niagara) consists of mainly native soils down to bedrock. The native soil is characterized as a lean silty clay and varies in thickness from 9 feet to 21 feet. Some nominal fill soil was located beneath the concrete floor slab inside the building basement areas and soil covered areas on the 1054 Niagara St. back parcel.

Bedrock: The site is situated over the Onondaga formation limestone. Limestone bedrock was encountered about 35 to 40 feet below the surface.

Hydrogeology: Groundwater depth is approximately 25 feet below ground surface. Based upon area topography and proximity to the Niagara River, the groundwater gradient dips to the west/northwest toward the Black Rock Canal/Niagara River.

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, alternatives (or an alternative) that restrict(s) the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

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

SECTION 5: ENFORCEMENT STATUS

The Applicant(s) under the Brownfield Cleanup Agreement is a Volunteer. The Applicant does/do

not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; 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
- indoor air
- sub-slab vapor

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:

barium
cadmium
chromium
1,3,5-trimethylbenzene
benzene
isopropylbenzene
n-propylbenzene
lead
copper
arsenic
mercury
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo[k]fluoranthene
chrysene
dibenz[a,h]anthracene
fluoranthene
phenanthrene
pyrene
indeno(1,2,3-CD)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.

The following IRM has been completed at this site based on conditions observed during the RI.

IRM – Underground Storage Tank (UST) and Polychlorinated Biphenyl (PCB) Contaminated Soil Removal

An IRM was completed at the site in August-September 2015 to address some of the environmental conditions at the site, and included the following:

- removal of four (4) abandoned in-place USTs and a hydraulic lift;
- excavation of petroleum impacted soil/fill in the UST tank pit area; and
- excavation of PCB contaminated soil/fill around the SB-17 area.

Approximately 635 tons of non-hazardous petroleum contaminated soil was removed as part of the tank removal task and approximately 583.5 tons of PCB contaminated soil was removed from the PCB IRM area down to a depth of 17 feet. An additional 948 tons of non-hazardous contaminated soil was removed to access the PCB contaminated soil. Hazardous and non-

hazardous contaminated soils were disposed of at respective permitted landfills. Post excavation samples were collected from bottom and sidewall areas from each excavation. All post-excavation soil sample results were below restricted residential SCOs, with minor exception for a PCB bottom sample at 17 feet depth (1.072 ppm/1.0 ppm restricted residential soil cleanup objective). The excavated areas were backfilled with run-of-crusher limestone and compacted for future site redevelopment.

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.

A potential petroleum spill was discovered on the portion of the 1088 Niagara Street during the course of conducting a Phase 1 environmental site assessment in 2012. A limited Phase 2 site investigation revealed three abandoned USTs. Field observations and limited sampling data revealed apparent petroleum contamination of soil.

The RI was initiated in August 2014. An additional investigation was implemented in February 2015. An IRM was implemented for the petroleum tank area and PCB impacted area in August-September 2015. Another abandoned UST was discovered during the UST IRM. The results of the RI and IRM consist of the following:

Surface and Near Surface Soil/Fill
Numerous semi-volatile organic compounds (SVOCs), primarily polycyclic aromatic hydrocarbons (PAHs) exceed unrestricted use soil cleanup objectives (USCOs) and restricted residential SCOs (RRSCOs) and in some instances, exceed commercial SCOs (CSCOs). Specific contaminants exceeding RRSCOs are as noted below. PAH exceedances include:

- benzo(a)anthracene up to 240 parts per million (ppm) (1 ppm RRSCO);
- benzo(a)pyrene ranging up to 210 ppm (1 ppm RRSCO);
- benzo(b)flouranthrene up to 120 ppm (1 ppm RRSCO);
- benzo(k)flouranthrene up to 130 ppm (3.9 ppm RRSCO);
- chrysene up to 240 ppm (3.9 ppm RRSCO);
- dibenzo(a,h)anthracene up to 33 ppm (0.33 ppm RRSCO);
- flouranthrene up to 620 ppm (100 ppm RRSCO);
- indeno(1,2,3-cd)pyrene up to 140 ppm (0.5 ppm RRSCO);
- phenanthrene up to 600 ppm (100 ppm RRSCO); and
- pyrene up to 420 ppm (100 ppm RRSCO).

The total PAHs range from 176 ppm to 3,350 ppm (100/500 ppm RRSCO/CSCO) at six (6) locations and total SVOCs at corresponding locations up to 6,862 ppm. The PAH and SVOCs levels grossly exceeding CSCOs are primarily located along the former rail loading dock area of the existing 1050 Niagara St. building (1054 Niagara St. parcel).

Specific metals exceeding respective RRSCOs include:

- arsenic up to 260 ppm (16 ppm RRSCO);
- barium at 7,580 ppm (400 ppm RRSCO);
- cadmium at 15 ppm (4.3 ppm RRSCO);
- copper up to 2,430 ppm (270 RRSCO);
- lead up to 16,300 ppm (400/1,000 ppm RRSCO/CSCO); and
- mercury up to 9 ppm (0.81 ppm RRSCO).

The metal levels significantly exceeding RRSCOs are also primarily located at the former rail loading dock area on the western side of the 1050 Niagara St. building.

Subsurface Soil/Fill

Fill material was identified across the 1088 Niagara St. parcel to varying depths up to 35 feet below ground surface (fbgs). Fill consisted of distinct and mixed layers, lenses and pockets of sandy lean clay fill soil, fine foundry sand, ash, stained soil like fill, and construction and demolition debris (concrete, brick, block, metal and some wood). The fill soil layers were intermixed with gravel, brick, concrete, slag, wood, and debris.

Nuisance characteristics (petroleum odors and elevated field screened vapor readings) were identified in eleven (11) locations primarily associated with the USTs and former tank area, southwestern section of the 1088 Niagara St. vacant lot, and below the western half of the 1050 Niagara St. building. However, no subsurface soil/fill analytical results for VOCs were detected above RRSCOs, but there were numerous VOC Tentatively Identified Compounds (TICs) in several borings along the western side of the site in the 1088 Niagara St. vacant lot and below the western half of the 1050 Niagara St. building. The TICs are characteristic of degraded petroleum compounds. Soil samples with gross visual characteristics noted above contained total VOC TICs that ranged from 59 to 1044 ppm at six (6) sample locations.

Most SVOCs results were below RRSCOs with only benzo(a) anthracene (1.3 ppm) detected at an estimated concentration slightly above its RRSCO (1 ppm) at the northern end of the 1088 Niagara St. vacant lot. Numerous SVOC TICs were identified in several borings with one sample totaling 89 ppm.

Specific metals exceeding respective SCOs include cadmium at 27.8 ppm (4.3 ppm RRSCO); chromium at 282 ppm (180 ppm RRSCO), and lead up to 1,010 ppm (400 ppm RRSCO).

A single PCB result of 120 ppm was detected in a limited area located along the eastern side of the 1088 Niagara St. vacant lot which was above the respective hazardous waste criteria (50 ppm), CSCO (1 ppm) and RRSCO (1 ppm) criteria. The PCB contaminated soil was removed from this area as part of the PCB IRM and remaining PCBs at a depth of 17 feet are at approximately 1 ppm or less.

Groundwater

VOCs and SVOCs were the primary contaminants found in groundwater. Petroleum related VOCs were detected above groundwater quality standards (GWQS). Moderate GWQS exceedances include:

- 1,3,5-trimethylbenzene up to 64 ppb (5 parts per billion [ppb] GWQS);
- benzene up to 370 ppb) (5 ppb GWQS),
- cyclohexane up to 1000 ppb (no GWQS);
- isopropylbenzene up to 200 ppb (5 ppb GWQS); and
- n-propylbenzene up to 200 ppb (5 ppb GWQS);

Total VOCs range from 393 ppb to 2,924 ppb from five (5) wells with VOC parameters above respective GWQSs. Additionally, petroleum VOC TICs from these same wells ranged from 373 ppb to 977 ppb indicating that there is a substantial mass of degraded petroleum VOCs in groundwater. These affected wells are located in the western side of the 1088 Niagara St. vacant lot and the western half of the 1050 Niagara St. building from soil sample locations where high VOC TIC totals were detected.

Most of the SVOC analytes were reported as non-detectable or trace (estimated) concentrations below the laboratory quantitation limit. Certain SVOCs, primarily PAHs, were detected at estimated concentrations moderately above GWQS, at one location below the northwest corner of the existing building at 1050 Niagara St. and include;

- benzo(a)anthracene at 0.46 ppb (0.002 ppb GWQS);
- benzo(a)pyrene at 0.66 ppb (non-detect GWQS);
- benzo(b)flouranthrene at 1.5 ppb (0.002 ppb GWQS);and
- chrysene at 0.49 ppb (0.002 ppb GWQS).

Total SVOCs in groundwater from this sample location amount to 136 ppb. Three of the wells located along the western side of the 1088 Niagara St. vacant lot area where petroleum impacts to soil were identified and SVOC impacts to groundwater also contained SVOC TIC totals ranging from 512 to 3,220 ppb. These are the same wells that are also impacted with VOCs and VOC TICs.

The above summary of VOC and SVOC contamination in groundwater suggests that a substantial mass of degraded petroleum remains in soil and groundwater along the western section of the 1088 Niagara St. parcel and below the northwestern section of the existing building on the 1050 Niagara St. parcel. The proximity of the contaminants with respect to the western property boundary and westerly groundwater gradient suggest offsite migration of petroleum contaminants is likely occurring.

Dissolved metals detected at concentrations above GWQS were limited to naturally-occurring minerals, including magnesium, manganese, and sodium.

Several pesticides, including 4,4'-DD, alpha-BHC, delta BHC and gamma-BHC, were detected nominally above their respective GWQS at the western side of the vacant 1088 Niagara St. parcel.

Sub-Slab Vapor and Indoor Air
Four (4) basement floor sub-slab vapor samples and two (2) indoor air samples were collected at various locations at the existing 1050 Niagara St. structure. One (1) outdoor air sample was collected for comparison. Trichloroethene (TCE) was detected at 3.4 micro-grams/cubic meter (ug/m^3) at one sub-slab sample. TCE was not detected in indoor air. Carbon tetrachloride was detected in all the sub-slab samples from 0.091 to 0.45 ug/m^3 and in indoor air from 0.5 to 0.54 ug/m^3. Tetrachloroethene (PCE) was found in three of the sub-slab samples at 0.43 to 1.5 ug/m^3. PCE was not detected in the indoor air. 1,1,1-trichloroethane was detected in three sub-slab samples up to 29 ug/m^3. 1,1,1-trichloroethane was not detected in indoor air.

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.*

Access is not restricted and people who enter the site could contact contaminants in the soil by walking on it, digging or otherwise disturbing the soil. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. 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.

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

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.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the Track 4 Restricted Residential Cleanup remedy.

The elements of the selected remedy, as shown in Figure 2a and 2b, are as follows:

1. REMEDIAL DESIGN

A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remediation 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 gas 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 the top 2 feet of surface soil/fill exceeding RRSCOs, specifically metals/SVOC impacted soil/fill along the western loading dock at the 1050 Niagara St. building (see Figure 2a). Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation (as required) and establish the designed grades at the site. On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 3 to backfill the excavation to the extent that a sufficient volume of on-site soil is available. The site will be re-graded to accommodate installation of a cover system as described in remedy element 3. A site fill management plan will be implemented during remedial and redevelopment activities.

3. COVER SYSTEM

A site cover will be required to allow for restricted residential use of the site, in areas where the upper two feet of exposed surface soil exceeds the applicable SCOs. The site cover may consist of paved parking areas, sidewalks, or a soil cover. Where the soil cover is required, it will be a

minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d). In areas where building foundations or building slabs, which preclude contact with soil exist, the requirement for a site cover will be deferred until such time that they are removed.

4. SOIL VAPOR EXTRACTION

Soil vapor extraction (SVE) will be implemented to remove nuisance petroleum VOCs from the subsurface soil/fill in the 1088 Niagara St. vacant lot area slated for redevelopment. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells will be treated as necessary prior to being discharged to the atmosphere.

The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

5. GROUNDWATER TREATMENT – IN-SITU CHEMICAL OXIDATION

In-situ chemical oxidation (ISCO) will be implemented to treat petroleum contaminants and petroleum TICs in the proximal area containing the groundwater contamination. A chemical oxidant will be injected into the subsurface to destroy the contaminants an area located along the western portion of the 1088 Niagara Street parcel and the north-west portion of the 1050 Niagara Street parcel where petroleum related compounds were elevated in the groundwater. The method and depth of injection and oxidizer quantities will be determined during the remedial design.

6. ENGINEERING AND INSTITUTIONAL CONTROLS

Imposition of an institutional control in the form of an environmental easement will be required. The remedy will achieve a Track 4 restricted residential cleanup at a minimum and will include imposition of a site cover, an environmental easement, and site management plan as described below.

Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential, commercial and industrial uses 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; and
- requires compliance with the Department approved Site Management Plan.

7. SITE MANAGEMENT PLAN

A Site Management Plan, which includes the following:

1. 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 in Paragraph 6 above.

   Engineering Controls: The site cover discussed in Paragraph 3 and SVE system in Paragraph 4 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 groundwater use restrictions;
   - provisions for the management and inspection of the identified engineering controls in Paragraph 3 and 4 above;
   - a provision that should an existing or future building or building foundation be demolished in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable SCOs;
   - maintaining site access controls and Department notification; and
   - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to: include all that apply, ending the final bullet with a period

   - monitoring of groundwater to assess the performance and effectiveness of the remedy; and
   - a schedule of monitoring and frequency of submittals to the Department.

3. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

   - procedures for operating and maintaining the remedy; and
   - compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - providing the Department access to the site and O&M records; and
   - The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

DATE: MARCH 2015
DRAFTED BY: BLR

FIGURE 1

SITE PLAN (AERIAL)

RI-AA REPORT

1050-1088 NIAGARA STREET SITE

BUFFALO, NEW YORK

PREPARED FOR

9271 GROUP, LLC

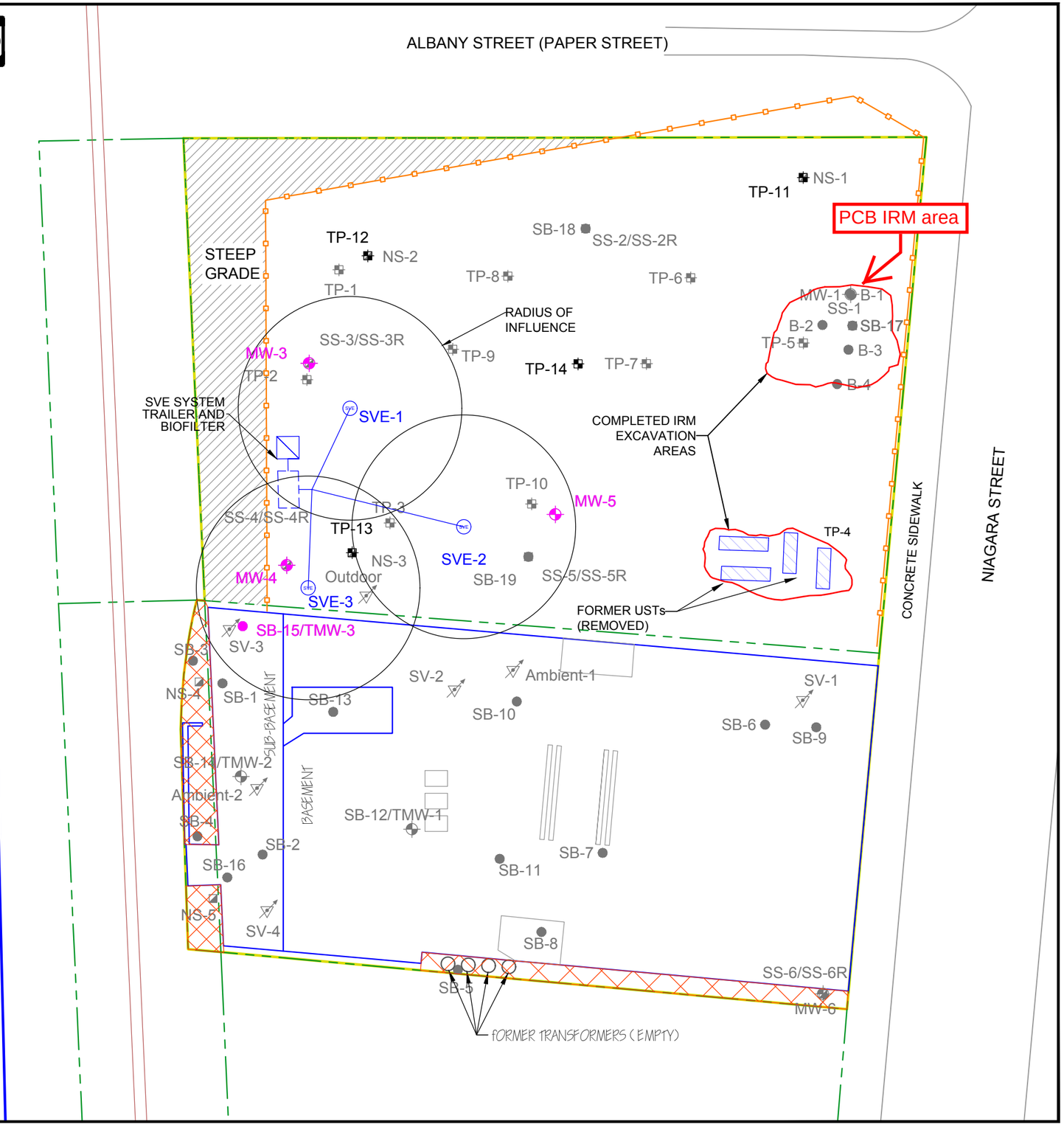
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0136-013-005

F:\CAD\TurnKey\Ellicott Development\1050-1088 Niagara St\RI-IRM-AA\Figure 7- Planned Track 4 Restricted Res.dwg

LEGEND:

- BCP SITE BOUNDARY
- PARCEL BOUNDARY
- FENCE
- RAILROAD
- BUILDINGS ONSITE
- TP-1 — TEST PIT (MAY 2012)
- SB-1 — SOIL BORING (JULY 2013)
- SS-1 — RI SURFACE SOIL SAMPLE LOCATION
- NS-1 — RI NEAR SURFACE SOIL SAMPLE LOCATION
- SB-9 — RI SOIL BORING LOCATION (AUGUST 2014)
- TP-11 — RI TEST PIT LOCATION
- MW-1 — RI MONITORING WELL LOCATION
- SV-1 — RI SUBSLAB VAPOR LOCATION
- B-4 — DELINEATION BORING LOCATION (JANUARY 2015)
- PLANNED REMEDIAL EXCAVATION AREA
- COMPLETED IRM EXCAVATION AREA
- SVE-1 — PLANNED SVE WELL LOCATION
- MW-1 — PLANNED IN-SITU GROUNDWATER TREATMENT VIA ORC



N

50' 0' 50' 100'

SCALE: 1 INCH = 50 FEET
SCALE IN FEET
(approximate)

DATE: REV AUGUST 2016
DRAFTED BY: KRR

TURNKEY ENVIRONMENTAL RESTORATION, LLC

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0136-013-005

PLANNED TRACK 4 REST. RESIDENTIAL CLEANUP ALTERNATIVE

RI-IRM-AA REPORT

1050-1088 NIAGARA STREET SITE

BUFFALO, NEW YORK

PREPARED FOR

9271 GROUP, LLC

FIGURE 2a

F:\CAD\TurnKey\Ellicott Development\1050-1088 Niagara St\RI-IRM-AA\Figure 8- Soil Cover System and Detail.dwg

ALBANY STREET (PAPER STREET)

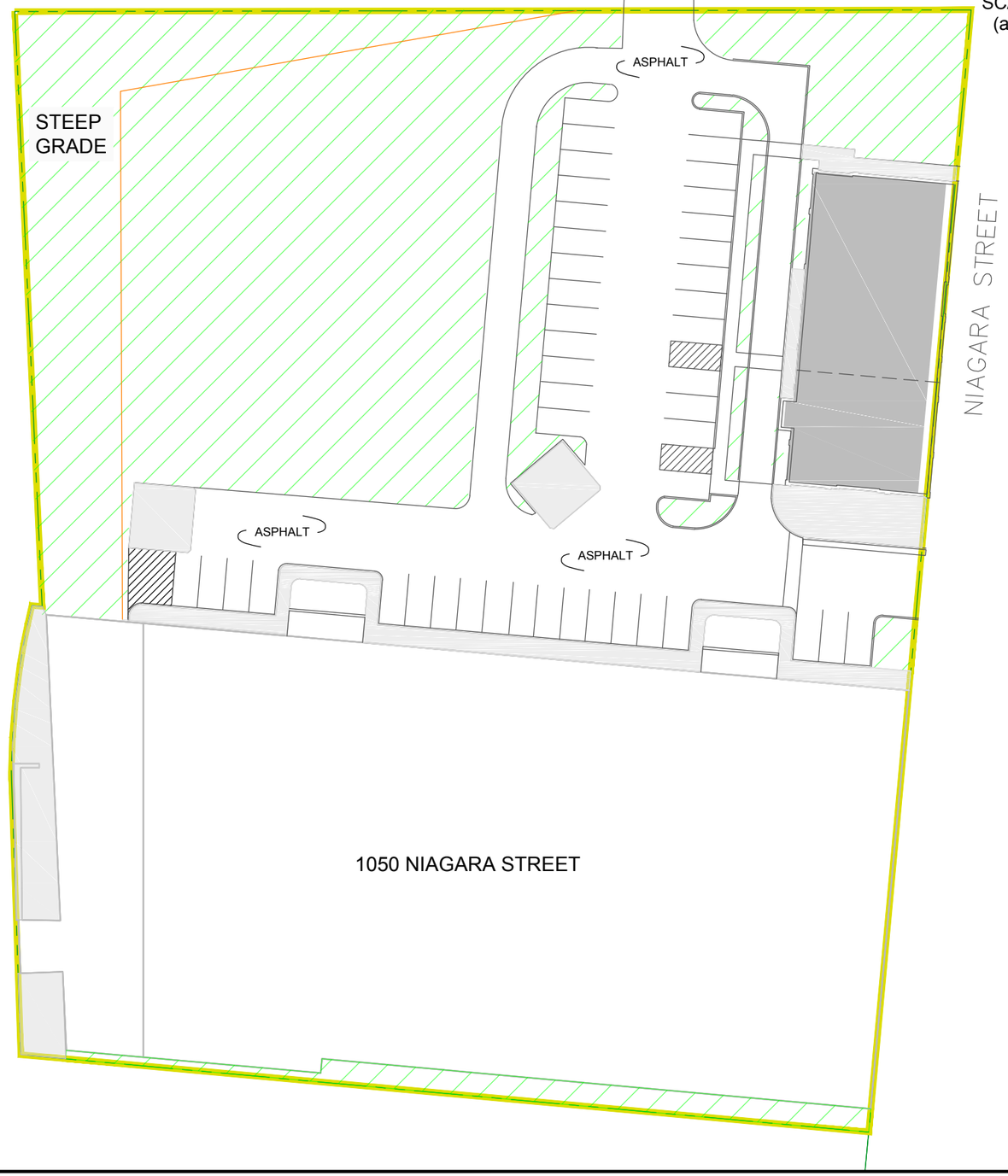
45' 0' 45' 90'

SCALE: 1 INCH = 45 FEET
SCALE IN FEET
(approximate)

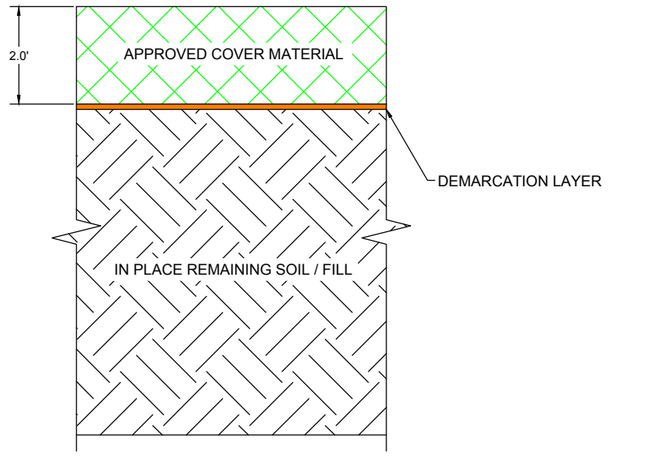
N

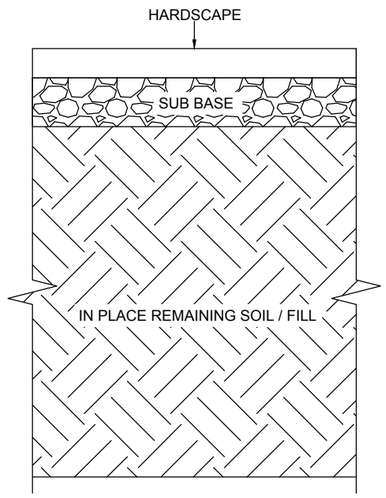
LEGEND:

- BCP BOUNDARY
- PARCEL BOUNDARY
- STEEP BANK
- EXISTING BUILDING
- PROPOSED BUILDING
- SOIL COVER
- HARDSCAPE



COVER SYSTEM DETAILS





DATE: APRIL 2016
DRAFTED BY: KRR/CCB

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JOB NO.: 0136-013-005

PLANNED COVER SYSTEM LAYOUT AND DETAIL

RI-IRM-AA REPORT
1050-1088 NIAGARA STREET
BUFFALO, NEW YORK
PREPARED FOR
9271 GROUP, LLC

FIGURE 2b