ICOR LTD

May 21, 2016

Mr. William Skrabak
Deputy Director, Infrastructure and Environmental Quality
City of Alexandria
Department of Transportation and Environmental Services
Office of Environmental Quality
P.O. Box 178 – City Hall
Alexandria, Virginia 22313

Re: **Addendum to Site Characterization Study Work Plan**, Former Robinson Terminal North, 500 and 501 N. Union Street, Alexandria, Virginia

ICOR, Ltd. (ICOR) has prepared this Addendum to our Site Characterization Study Work Plan (SCS Work Plan) on behalf of Alexandria North Terminal, LLC (ANT) in response to comments from the City of Alexandria (City) set forth in your letter dated May 9, 2016 (City Comments) for the Former Robinson Terminal North property (Property). The Property is comprised of two parcels, the 500 and 501 North Union Street parcels (herein referred to as the 500 and 501 Parcels, respectively), separated by North Union Street. The City also provided ANT with the following historical documents related to the former R.H. Bogle (Bogle) chemical manufacturing facility. These documents include:

1) Dames & Moore (D&M) Arsenic Report on Bogle from 1976.
2) Summary of Chronology and various supplemental information from the City regarding Arsenic at Bogle from 1976.
3) United States Environmental protection Agency (EPA) Final Report on Arsenic at Bogle from 1983.
4) EPA Dioxin Investigation from 1985.

The SCS will be the first step in characterizing the presence and extent of potential historic impacts to the Property to satisfy Virginia Department of Environmental Quality Petroleum Storage Tank Program and Voluntary Remediation Program requirements. The characterization is also expected to satisfy City requirements. The information obtained during performance of the SCS will be used to delineate the degree and extent of impacts at the Property and develop a risk assessment (RA). The RA will serve as the basis for determining the need and types of remedial work, to establish health and safety protocols for the protection of workers and general public during construction, and to develop a soil and groundwater management plan that assures proper handling, disposal, and potential reuse of disturbed soil and handling (and disposal or treatment) of water generated during dewatering.

We offer the following responses to the City Comments:

City Comment 1: A summary of past environmental issues related to the Bogle chemical plant be added to the SCS Work Plan.

Response 1: In response to the City's comment, ICOR offers the following summary of the environmental issues related to the Bogle chemical plant. A review of the documents provided by the City and other information indicates that Bogle occupied the land to the west of the Property, and potentially a portion of the 500 Parcel, between the 1890s and the early 1960s. Bogle reportedly mixed and stored sulfuric acids, fertilizers, and herbicides as part of its operations. The herbicides were used to control brush along railroad right of ways. Investigations in the 1970s revealed elevated levels of arsenic in soil that were interpreted to extend onto the western portion of the 500 Parcel. The last reported use of herbicides on the Bogle property was in 1968. As D&M noted in their report, the arsenic had very low solubility and they believed it would become less soluble over time. We agree with D&M's statement.

The EPA also investigated the former Bogle property in 1985 for the dioxin 2,3,7,8-TCDD. This type of dioxin was reportedly generated and used at the plant. None of the 38 soil samples collected by EPA (including two soil samples on the 500 Parcel) contained 2,3,7,8-TCDD above detectable levels. The EPA noted that "Ten samples were collected at approximately 50 foot intervals just north of the site (except at the point where the clay cap was encountered). These locations are close to the area where the transfer of herbicides between railroad cars and holding tanks would have occurred. It is also the area where the highest arsenic concentrations were detected in the 1970s." EPA concluded with respect to the soil sampling that: "There is no indication that there is a threat of human exposure to dioxin at those locations at levels above the level of concern for residential areas." Like arsenic, 2,3,7,8-TCDD has low solubility.

Comment 2: Limited sampling for dioxin shall be carried out within the site (i.e., under the warehouse slab; downgradient from where the rail cars were washed out) to confirm that dioxin is not an issue at this site.

Response 2: EPA's sampling in 1985 targeted the area where a release of 2,3,7,8-TCDD was most likely to be found from the former Bogle operations. 2,3,7,8-TCDD was not detected in the 38 soil samples collected during the assessment and the EPA concluded that there was no concern and no follow up was recommended for the site. Based upon the 1985 sampling by EPA and its conclusions, ANT does not agree with the City's opinion or request that dioxin sampling is warranted.

Although ANT maintains that 2,3,7,8-TCDD sampling is not warranted and does not want to incur the expense for such sampling, it proposes to collect four surficial soil samples for analysis of the dioxin 2,3,7,8-TCDD. The samples will be collected adjacent to the former railroad spur on the Property and downgradient from where the rail cars were reportedly washed out. The proposed dioxin sampling locations are depicted on the attached Figure. The samples will be composite samples prepared from the upper 18 inches of soil underlying each area and will be analyzed for the dioxin 2,3,7,8-TCDD using EPA Method 8280 or 8290.

Comment 3: The City's zoning ordinance requires that the environmental site assessment shall clearly describe, map, or explain the known areas of contamination. Thus, additional samples

shall be taken to better define the extent of contamination in locations in between the arsenic concentration contours of the previous investigations, especially on the northwest side of 500 Union Street where high concentrations of As might exist. The objective for this further characterization is to establish a rough estimate of the volume of contamination at this stage of the development.

Response 3: To date, ICOR and others have collected 22 soil samples for arsenic analysis (most of which focused on the areas downgradient of arsenic-impacted area identified by D&M). As summarized on Tables 2A, 5A, and 5B in the SCS Work Plan, locations where arsenic samples were collected include the following:

- ECS-B-1(1-2.5)
- ECS-B-2(5-6.5)
- ECS-B-5(5-6.5)
- ECS-B-6(23.5-25)
- ICOR-SB2(3-4)
- ICOR-SB5(2-3)
- ICOR-SB6(2-3)
- ICOR-SB7(7.5-8.5)
- ICOR-SB8(2-3)
- ICOR-SB9(4.5-5.5)
- ICOR-SB10(2-3) and (5.5-6.5)
- ICOR-SB11(5.5-6.5)
- ICOR-SB12(6-7)
- ICOR-SB13(5.5-6.5)
- ECS-B7(2.5-10)
- ECS-B8((2.5-4.5)
- ECS-B9(2.5-10)
- ECS-B10(4-10)
- ECS-B11(5-10)
- ECS-B12(5-10)

The sampling depths are identified in the parenthesis.

In the SCS Work Plan, ICOR has also proposed additional sampling in soil for arsenic (which is one of the metals included in the Priority Pollutant List metals). To better clarify our sampling approach, the locations where further arsenic sampling is proposed for the SCS are depicted on the attached Figure. A surficial and subsurface grab soil sample will be collected from each location. The surficial sample will be collected from the upper 6 inches of soil underlying each area and the subsurface soil samples will be collected from a depth of approximately 4 feet below grade. The samples will be analyzed for PPL metals or arsenic using EPA Method 6020A. The arsenic data collected will be used to assess the degree and extent of arsenic-impacted soil downgradient of the area of concern noted by D&M.

Please feel free to contact us if you have any questions or comments on concerning this Addendum.

Michael A. Bruzzesi, CPG
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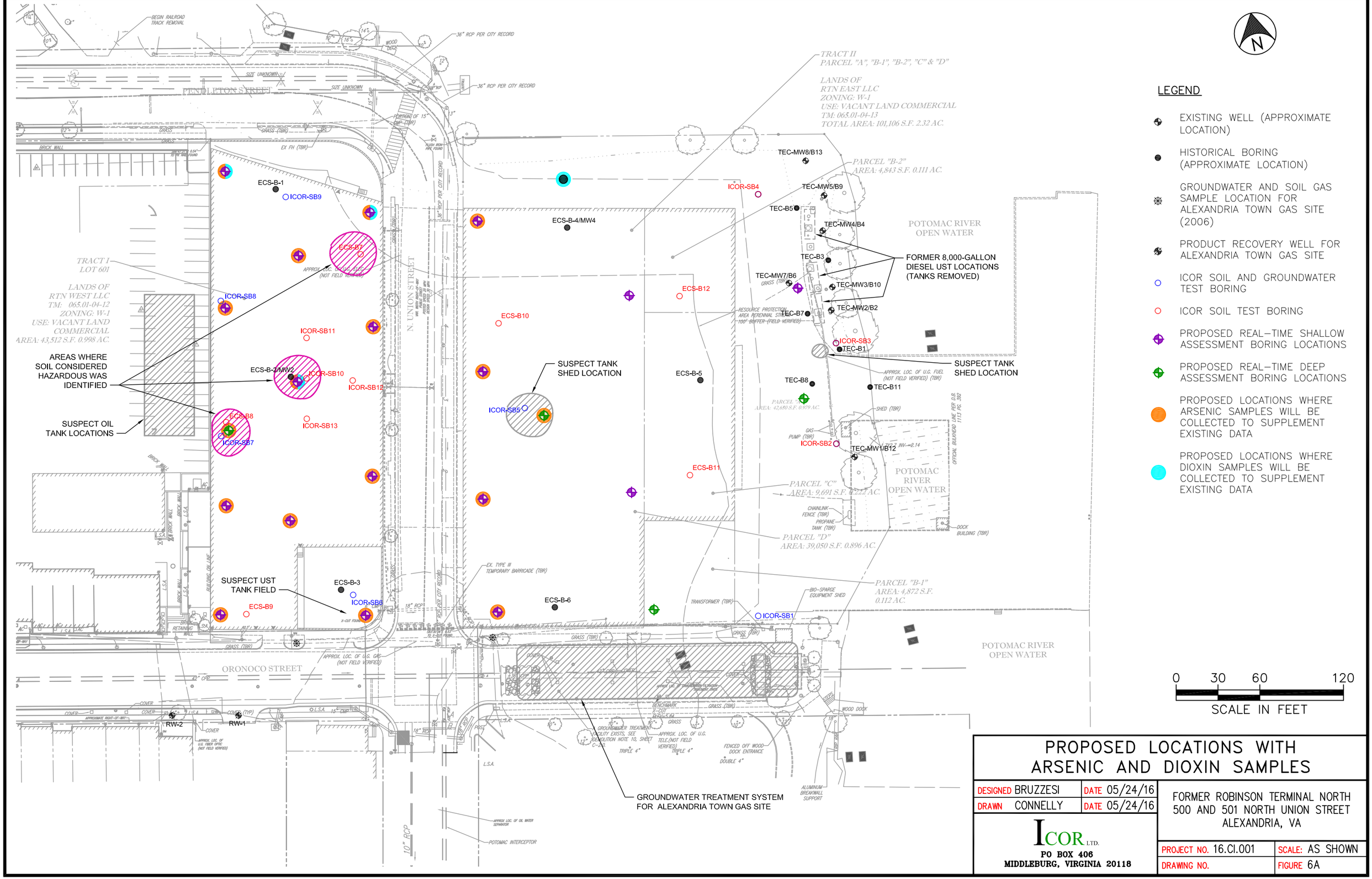
VA CPG No. 2801 001428

FIGURE



LEGEND

- EXISTING WELL (APPROXIMATE LOCATION)
- HISTORICAL BORING (APPROXIMATE LOCATION)
- GROUNDWATER AND SOIL GAS SAMPLE LOCATION FOR ALEXANDRIA TOWN GAS SITE (2006)
- PRODUCT RECOVERY WELL FOR ALEXANDRIA TOWN GAS SITE
- ICOR SOIL AND GROUNDWATER TEST BORING
- ICOR SOIL TEST BORING
- PROPOSED REAL–TIME SHALLOW ASSESSMENT BORING LOCATIONS
- PROPOSED REAL–TIME DEEP ASSESSMENT BORING LOCATIONS
- PROPOSED LOCATIONS WHERE ARSENIC SAMPLES WILL BE COLLECTED TO SUPPLEMENT EXISTING DATA
- PROPOSED LOCATIONS WHERE DIOXIN SAMPLES WILL BE COLLECTED TO SUPPLEMENT EXISTING DATA

0 30 60 120

SCALE IN FEET

PROPOSED LOCATIONS WITH ARSENIC AND DIOXIN SAMPLES

DESIGNED BRUZZESI	DATE 05/24/16
DRAWN CONNELLY	DATE 05/24/16

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FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

PROJECT NO. 16.CI.001	SCALE: AS SHOWN
DRAWING NO.	FIGURE 6A