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May 7, 2008

Ernesto Castillo
City of Lincoln
Urban Development Department
808 P Street, Suite 400
Lincoln, NE 68508

Reference: Preliminary Phase II Environmental Site Assessment – JayLynn Property
Brownfields Assessment Grant no. BF-98763401-0

Dear Mr. Castillo:

This correspondence provides a preliminary summary of findings we discussed with Brad Devall last week. A formal Draft Phase II report with Analyses of Brownfields Cleanup Alternatives (ABCA) will be available for your review soon.

Background and Purpose

The City of Lincoln, Nebraska (City) was the recipient of a community wide Brownfields Assessment Grant (Grant no. BF-98763401-0) issued to the City by the Environmental Protection Agency (EPA) in 2005. In March of 2006, the City engaged HWS Consulting Group, Inc. (HWS) to conduct various programmatic tasks in execution of the Grant including development of a Brownfields inventory of sites, public outreach support and conducting Phase I and II Environmental Site Assessments (ESA).

HWS completed a Phase I ESA of the site in August of 2007. The Phase I ESA was conducted in accordance with the American Society for Testing and Materials (ASTM) Standard E 1527-05. Findings of the Phase I ESA revealed "recognized environmental conditions" consisting of evidence of a former gas holding unit at or near the site associated with historic manufactured gas plant operations in the area.

Based on these findings, a Phase II ESA field investigation was initiated. The overall objectives of the field investigation consistent with NDEQ's Brownfields assessment program objectives were to:

- Identify and sample potential source(s) of contamination and thus demonstrate whether a release of hazardous substances has occurred or not – in particular related to historical manufactured gas plant operations; and

- Determine if there will be a need to conduct any restoration activities before the property may be reused for industrial/commercial purposes or redeveloped for some other category of use.

Summary of Field Investigation Methods

Drilling and sampling activities were performed at the site on April 8, 2008. Field investigation activities were performed by HWS Consulting Group, Inc. (HWS) in general accordance with the Site Specific Quality Assurance Project Plan Addendum and Field Sampling Plan (QAPP and FSP) previously submitted to and approved by the EPA Region 7 Project Officer.

Four (4) Geoprobe borings were advanced ranging in depths from 12 to 16 ft. below ground surface (bgs). Soil samples were collected and field screened for the presence of Volatile Organic Compounds (VOCs) using a photo ionization detector (PID). Where field screening indicated an instrument response above background readings, soil samples were collected and submitted for laboratory analysis using EPA Method 8260b (Volatile Organic Compounds) and 8270 (Semi-volatile Organic Compounds). In each boring, the shallowest recoverable sample within the 1 to 3 ft. bgs interval was collected for laboratory analysis of RCRA Metals (Method 6010b).

Findings

Preliminary results of the field investigation are as follows:

- PID instrument responses were detected in Borings SB-1, SB-2 and SB-4.
- Laboratory analysis of soil samples collected from zones of instrument response revealed concentrations of volatile organic and semi-volatile organic compounds in excess of NDEQ and EPA screening levels.
- Laboratory analysis of shallow soil samples for RCRA metals indicated concentrations of arsenic above screening levels.

Preliminary summary data is provided in the attached table – Summary of Analytical Sample Data.

Conclusions and Recommendations

- Soils and potentially groundwater have been impacted at the site. The contaminants detected in methods 8260b and 8270 are likely due to historical manufactured gas plant operations in the area. The source(s) of arsenic are unconfirmed.

- Further site assessment is recommended to define the source and nature of impacted soils and groundwater at the site. The objectives of the assessment will be to determine the extent of impacts and to identify potential receptors to site contaminants in consideration of future use(s) contemplated for the property. A drilling program including from 6 to 10 soil borings with collection of soil and groundwater samples for laboratory analysis is recommended to accomplish this objective.

If you have any questions, please call me at your convenience at 402-333-5792.

HWS CONSULTING GROUP, INC.

Frank E. Uhlarik, CPG, CEA
Senior Project Manager

Attachments

cc: Brad Devall

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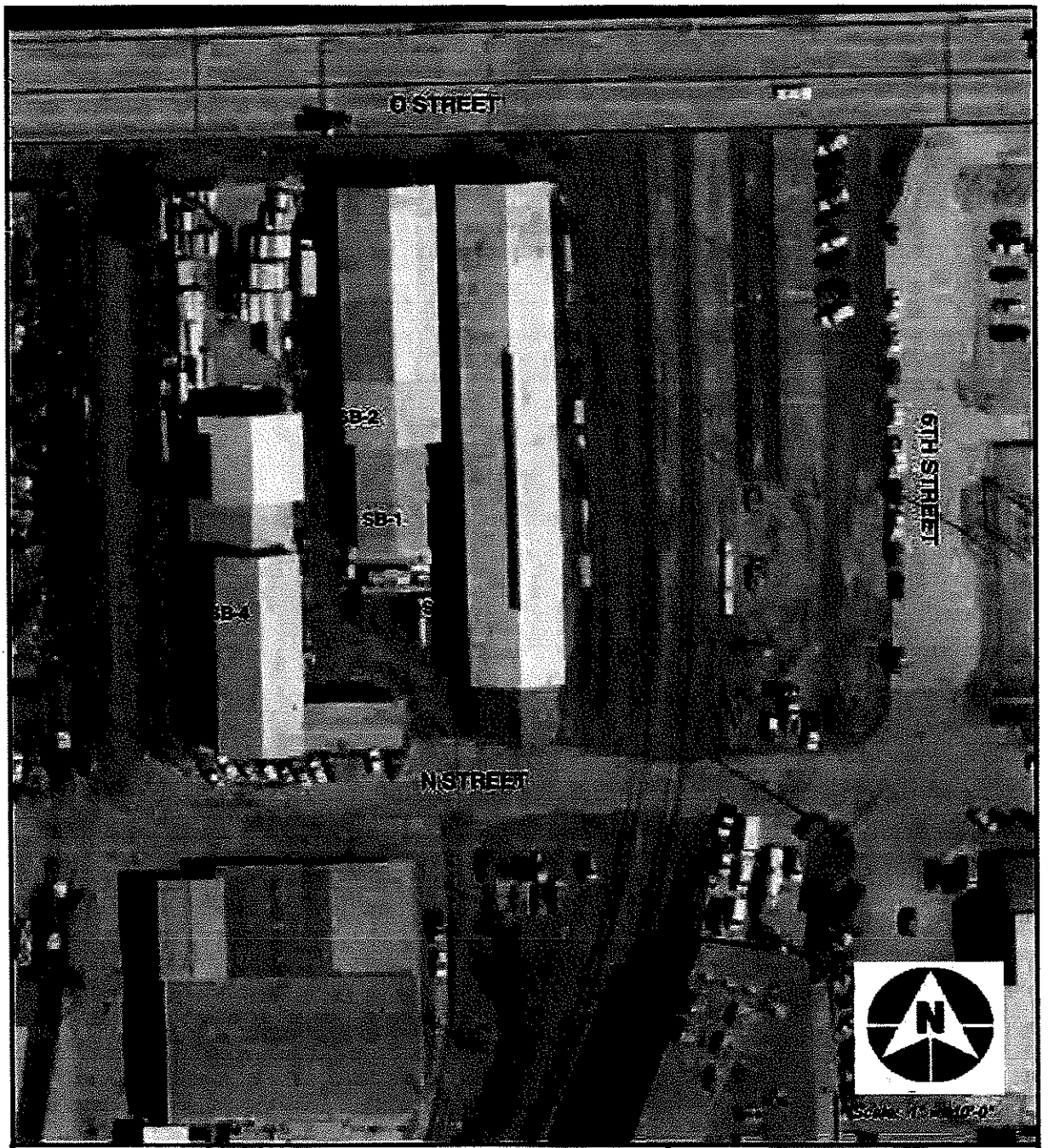

HWS Solutions Through Service	CITY OF LINCOLN BROWNFIELDS ASSESSMENT GRANT BF-98763401-0 JAYLYNN LLC	FIGURE 3 SOIL SAMPLING LOCATIONS

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The following table provides a summary of analytical laboratory data listing constituents that were measured above the respective method reporting limit. The table includes columns comparing the laboratory analytical results of selected soil samples to the NDEQ's Voluntary Cleanup Guidance "Look-up Tables" and USEPA Region 9 Preliminary Remediation Goals Results exceeding published remediation goals are depicted in bold lettering.

Table 1 - Summary of Analytical Sample Data

Boring	Depth	Method/Matrix	Parameter	Results	NDEQ Remediation Goals*	USEPA Remediation Goals**
SB-1	1-2 ft. bgs	Metals 6010B/Soil	Arsenic	**8.7 mg/kg**	5.4 mg/kg	0.39 mg/kg
			Barium	107 mg/kg	1,400 mg/kg	5,400 mg/kg
			Cadmium	1.8 mg/kg	9.3 mg/kg	37 mg/kg
			Chromium	7.1 mg/kg	34 mg/kg	210 mg/kg
			Lead	278 mg/kg	400 mg/kg	400 mg/kg
	12-13 ft. bgs	SVOCs 8270/Soil	Naphthalene	**88.9 mg/kg**	36 mg/kg	56 mg/kg
			Fluorene	26.2 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	128 mg/kg	N/A	N/A
			Anthracene	23.6 mg/kg	5,900 mg/kg	22,000 mg/kg
			Fluoranthene	93.9 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	78.9 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a) anthracene	**27.1 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Chrysene	34.7 mg/kg	62 mg/kg	62 mg/kg
			Benzo(b) Fluoranthene	**29.8 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Benzo(k) Fluoranthene	**29.7 mg/kg**	6.2 mg/kg	6.2 mg/kg
			Benzo(a) Pyrene	**28.0 mg/kg**	0.62 mg/kg	0.62 mg/kg
		VOCs*** 8260B	Benzene	0.158 mg/kg	0.92 mg/kg	0.60 mg/kg
			Toluene	0.458 mg/kg	430 mg/kg	520 mg/kg
			Ethylbenzene	1.29 mg/kg	890 mg/kg	8.9 mg/kg
			Xylenes, total	1.88 mg/kg	180 mg/kg	270 mg/kg
			Naphthalene	18.6 mg/kg	36 mg/kg	56 mg/kg
SB-2	2-3 ft. bgs	Metals 6010B/Soil	Arsenic	**9.1 mg/kg**	5.4 mg/kg	0.39 mg/kg
			Barium	183 mg/kg	1,400 mg/kg	5,400 mg/kg
			Cadmium	3.3 mg/kg	9.3 mg/kg	37 mg/kg
			Chromium	12.4 mg/kg	34 mg/kg	210 mg/kg
			Mercury	0.29 mg/kg	5.9 mg/kg	23 mg/kg
			Lead	175 mg/kg	400 mg/kg	400 mg/kg
	7-8 ft. bgs	VOCs*** 8260B	Naphthalene	0.011 mg/kg	36 mg/kg	56 mg/kg

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Table 1 Continued - Summary of Analytical Sample Data

Boring	Depth	Method/Matrix	Parameter	Results	NDEQ Remediation Goals*	USEPA Remediation Goals**
SB-3	1-2 ft. bgs	Metals 6010B/Soil	Arsenic	**6.8 mg/kg**	5.4 mg/kg	0.39 mg/kg
			Barium	149 mg/kg	1,400 mg/kg	5,400 mg/kg
			Chromium	15.5 mg/kg	34 mg/kg	210 mg/kg
			Lead	12.5 mg/kg	400 mg/kg	400 mg/kg
SB-4	1-2 ft. bgs	Metals 6010B/Soil	Arsenic	**18.0 mg/kg**	5.4 mg/kg	0.39 mg/kg
			Barium	115 mg/kg	1,400 mg/kg	5,400 mg/kg
			Cadmium	0.9 mg/kg	9.3 mg/kg	37 mg/kg
			Chromium	7.9 mg/kg	34 mg/kg	210 mg/kg
			Mercury	0.25 mg/kg	5.9 mg/kg	23 mg/kg
			Lead	201 mg/kg	400 mg/kg	400 mg/kg
	9-10 ft. bgs	SVOCs 8270/Soil	Phenanthrene	56.5 mg/kg	N/A	N/A
			Fluoranthene	15.7 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	25.3 mg/kg	590 mg/kg	2,300 mg/kg
		VOCs*** 8260B	Ethylbenzene	0.721 mg/kg	890 mg/kg	8.9 mg/kg
			Naphthalene	13.0 mg/kg	36 mg/kg	56 mg/kg
	11-12 ft. bgs	SVOCs 8270/Soil	2-Methyl naphthalene	22.6 mg/kg	N/A	N/A
			Fluorene	6.04 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	45.9 mg/kg	N/A	N/A
			Anthracene	8.36 mg/kg	5,900 mg/kg	22,000 mg/kg
			Fluoranthene	16.4 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	25.1 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a) anthracene	**7.20 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Chrysene	7.02 mg/kg	62 mg/kg	62 mg/kg
			Benzo(b) Fluoranthene	**4.65 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Benzo(k) Fluoranthene	4.85 mg/kg	6.2 mg/kg	6.2 mg/kg
			Benzo(a) Pyrene	**7.78 mg/kg**	0.62 mg/kg	0.62 mg/kg
		VOCs*** 8260B	Ethylbenzene	3.88 mg/kg	890 mg/kg	8.9 mg/kg
			Xylenes, total	1.26 mg/kg	180 mg/kg	270 mg/kg
			Naphthalene	**76.4 mg/kg**	36 mg/kg	56 mg/kg

*Constituent concentrations represent NDEQ Voluntary Cleanup Program (VCP) Remediation Goals (RGs) for residential soil - direct contact exposure pathway.
**Constituent concentrations represent USEPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil - direct contact exposure pathway.
***Samples for Volatile Organic Compounds (VOCs) exceeded laboratory hold times.
N/A = The NDEQ and the USEPA have not established RGs for the respective analyte.
Analytical values depicted in **bold lettering** indicate values above RGs.

Summary of Analytical Sample Data
West Haymarket
JayLynn LLC

Boring	Depth	Method/Matrix	Parameter	Results	NDEQ Remediation Goals*	USEPA Remediation Goals*
SB-1	1-2 ft. bgs	Metals 6010B/Soil	Arsenic	**8.7 mg/kg**	5.4 mg/kg	0.39 mg/kg
			Barium	107 mg/kg	1,400 mg/kg	5,400 mg/kg
			Cadmium	1.8 mg/kg	9.3 mg/kg	37 mg/kg
			Chromium	7.1 mg/kg	34 mg/kg	210 mg/kg
			Lead	278 mg/kg	400 mg/kg	400 mg/kg
	12-13 ft. bgs	VOCs 8260B/Soil	Benzene	0.158 mg/kg	0.92 mg/kg	0.64 mg/kg
			Toluene	0.458 mg/kg	430 mg/kg	520 mg/kg
			Ethylbenzene	1.29 mg/kg	890 mg/kg	400 mg/kg
			Xylenes	1.88 mg/kg	180 mg/kg	270 mg/kg
			Naphthalene	18.6 mg/kg	36 mg/kg	56 mg/kg
		SVOCs 8270C/Soil	Naphthalene	**88.9 mg/kg**	36 mg/kg	56 mg/kg
			Fluorene	26.2 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	128 mg/kg	N/A	N/A
			Anthracene	23.6 mg/kg	5,900 mg/kg	22,000 mg/kg
			Fluoranthene	93.3 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	78.9 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a)anthracene	**27.1 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Chrysene	34.7 mg/kg	62 mg/kg	62 mg/kg
			Benzo(b)fluoranthene	**29.8 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Benzo(k)fluoranthene	**29.7 mg/kg**	6.2 mg/kg	6.2 mg/kg
			Benzo(a)pyrene	**28.0 mg/kg**	0.062 mg/kg	0.062 mg/kg
SB-2	2-3 ft. bgs	Metals 6010B/Soil	Arsenic	**9.1 mg/kg**	5.4 mg/kg	0.39 mg/kg
			Barium	183 mg/kg	1,400 mg/kg	5,400 mg/kg
			Cadmium	3.3 mg/kg	9.3 mg/kg	37 mg/kg
			Chromium	12.4 mg/kg	34 mg/kg	210 mg/kg
			Mercury	0.29 mg/kg	5.9 mg/kg	23 mg/kg
			Lead	175 mg/kg	400 mg/kg	400 mg/kg
	7-8 ft. bgs	VOCs 8260B/Soil	Naphthalene	0.011 mg/kg	36 mg/kg	56 mg/kg
SB-3	1-2 ft. bgs	Metals 6010B/Soil	Arsenic	**6.8 mg/kg**	5.4 mg/kg	0.39 mg/kg
			Barium	149 mg/kg	1,400 mg/kg	5,400 mg/kg
			Chromium	15.5 mg/kg	34 mg/kg	210 mg/kg
			Lead	12.5 mg/kg	400 mg/kg	400 mg/kg
SB-4	1-2 ft. bgs	Metals 6010B/Soil	Arsenic	**18.0 mg/kg**	5.4 mg/kg	0.39 mg/kg
			Barium	115 mg/kg	1,400 mg/kg	5,400 mg/kg
			Cadmium	0.9 mg/kg	9.3 mg/kg	37 mg/kg
			Chromium	7.9 mg/kg	34 mg/kg	210 mg/kg
			Mercury	0.25 mg/kg	5.9 mg/kg	23 mg/kg
			Lead	201 mg/kg	400 mg/kg	400 mg/kg
	9-10 ft.	VOCs 8260B/Soil	Ethylbenzene	0.721 mg/kg	890 mg/kg	400 mg/kg
			Xylenes	0.063 mg/kg	180 mg/kg	270 mg/kg
			Naphthalene	13.0 mg/kg	36 mg/kg	56 mg/kg
		SVOCs 8270C/Soil	Phenanthrene	56.5 mg/kg	N/A	N/A
			Fluoranthene	15.7 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	25.3 mg/kg	590 mg/kg	2,300 mg/kg

Summary of Analytical Sample Data
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JayLynn LLC

Boring	Depth	Method/Matrix	Parameter	Results	NDEQ Remediation Goals*	USEPA Remediation Goals+
SB-4	11-12 ft. bgs	VOCs 8260B/Soil	Toluene	0.014 mg/kg	430 mg/kg	520 mg/kg
			Ethylbenzene	3.88 mg/kg	890 mg/kg	400 mg/kg
			Xylenes	1.26 mg/kg	180 mg/kg	270 mg/kg
			Naphthalene	76.4 mg/kg	36 mg/kg	56 mg/kg
		SVOCs 8270C/Soil	2-Methylnaphthalene	22.6 mg/kg	N/A	N/A
			Flourene	6.04 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	45.9 mg/kg	N/A	N/A
			Anthracene	8.36 mg/kg	5,900 mg/kg	22,000 mg/kg
			Fluoranthene	16.4 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	25.1 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a)anthracene	**7.20 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Chrysene	7.02 mg/kg	62 mg/kg	62 mg/kg
			Benzo(b)fluoranthene	**4.65 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Benzo(k)fluoranthene	4.85 mg/kg	6.2 mg/kg	6.2 mg/kg
			Benzo(a)pyrene	**7.78 mg/kg**	0.062 mg/kg	0.062 mg/kg
SB-5		VOCs 8260B/Groundwater	Benzene	**95.6 µg/L**	5 µg/L	0.35 µg/L
			Carbon Disulfide	2.0 µg/L	250 µg/L	1,000 µg/L
			Toluene	2.6 µg/L	1,000 µg/L	720 µg/L
			Ethylbenzene	6.8 µg/L	700 µg/L	1,300 µg/L
			Xylenes	8.3 µg/L	10,000 µg/L	210 µg/L
			Naphthalene	20.9 µg/L	µg/L	6.2 µg/L
		SVOCs 8270C/Groundwater	Fluorene	19 µg/L	370 µg/L	240 µg/L
			Naphthalene	13 µg/L	1.5 µg/L	6.2 µg/L
	10-12 ft. bgs	VOCs 8260B/Soil	Benzene	0.005 mg/kg	0.92 mg/kg	0.64 mg/kg
			Naphthalene	0.014 mg/kg	36 mg/kg	56 mg/kg
		SVOCs 8270C/Soil	Naphthalene	2.28 mg/kg	36 mg/kg	56 mg/kg
			Acenaphthylene	2.93 mg/kg	N/A	N/A
			Fluorene	1.75 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	2.72 mg/kg	N/A	N/A
			Fluoranthene	16.3 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	21.6 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a)anthracene	**15.0 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Chrysene	16.6 mg/kg	62 mg/kg	62 mg/kg
			Indeno(1,2,3-cd)Pyrene	**9.34 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Benzo(b)fluoranthene	**24.0 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Benzo(k)fluoranthene	**25.9 mg/kg**	6.2 mg/kg	6.2 mg/kg
			Benzo(a)pyrene	**27.5 mg/kg**	0.062 mg/kg	0.062 mg/kg
			Dibenso(a,h)anthracene	**4.34. mg/kg**	0.062 mg/kg	0.062 mg/kg
			Benzo(g,h,i)perylene	10.3 mg/kg	N/A	N/A
SB-6		VOCs 8260B/Groundwater	Benzene	**16 µg/L**	5 µg/L	0.35 µg/L
		SVOCs 8270C/Groundwater	Acenaphthylene	10 mg/kg	N/A	N/A

Summary of Analytical Sample Data
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Boring	Depth	Method/Matrix	Parameter	Results	NDEQ Remediation Goals*	USEPA Remediation Goals*
SB-6	11-12 ft. bgs	VOCs 8260B/Soil	Ethylbenzene	0.009 mg/kg	890 mg/kg	400 mg/kg
			Naphthalene	1.24 mg/kg	36 mg/kg	56 mg/kg
		SVOCs 8270C/Soil	Naphthalene	1.68 mg/kg	36 mg/kg	56 mg/kg
			Acenaphthylene	0.77 mg/kg	N/A	N/A
			Fluorene	1.65 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	6.52 mg/kg	N/A	N/A
			Anthracene	1.71 mg/kg	5,900 mg/kg	22,000 mg/kg
			Fluoranthene	2.70 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	4.32 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a)anthracene	**1.37 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Chrysene	1.38 mg/kg	62 mg/kg	62 mg/kg
			Benzo(b)fluoranthene	**0.95 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Benzo(k)fluoranthene	**0.68 mg/kg**	6.2 mg/kg	6.2 mg/kg
			Benzo(a)pyrene	**1.67 mg/kg**	0.062 mg/kg	0.062 mg/kg
			Benzo(g,h,i)perylene	0.41 mg/kg	N/A	N/A
	13-14 ft. bgs	VOCs 8260B/Soil	Ethylbenzene	0.016 mg/kg	890 mg/kg	400 mg/kg
			Naphthalene	0.113 mg/kg	36 mg/kg	56 mg/kg
		SVOCs 8270C/Soil	Acenaphthylene	0.60 mg/kg	N/A	N/A
			Fluorene	1.08 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	5.83 mg/kg	N/A	N/A
			Anthracene	0.87 mg/kg	5,900 mg/kg	22,000 mg/kg
			Fluoranthene	1.91 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	3.47 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a)anthracene	**0.97 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Chrysene	0.95 mg/kg	62 mg/kg	62 mg/kg
			Benzo(b)fluoranthene	0.44 mg/kg	0.62 mg/kg	0.62 mg/kg
			Benzo(k)fluoranthene	0.54 mg/kg	6.2 mg/kg	6.2 mg/kg
			Benzo(a)pyrene	**1.14 mg/kg**	0.062 mg/kg	0.062 mg/kg
			Benzo(g,h,i)perylene	0.37 mg/kg	N/A	N/A
SB-8		VOCs 8260B/Groundwater	Benzene	**5.9 µg/L**	5 µg/L	0.35 µg/L
			Toluene	3.4 µg/L	1,000 µg/L	720 µg/L
			Ethylbenzene	71.4 µg/L	700 µg/L	1,300 µg/L
			Xylenes	30.7 µg/L	10,000 µg/L	210 µg/L
			Naphthalene	39.6 µg/L	1.5 µg/L	6.2 µg/L
		SVOCs 8270C/Groundwater	Naphthalene	39 µg/L	1.5 µg/L	6.2 µg/L
			Acenaphthylene	41 µg/L	N/A	N/A
			Acenapthene	52 µg/L	550 µg/L	370 µg/L
			Fluorene	62 µg/L	370 µg/L	240 µg/L
			Phenanthrene	80 µg/L	N/A	N/A
SB-9		VOCs 8260B/Groundwater	Benzene	**27.3 µg/L**	5 µg/L	0.35 µg/L
			Toluene	2.8 µg/L	1,000 µg/L	720 µg/L
			Ethylbenzene	5.5 µg/L	700 µg/L	1,300 µg/L
			Xylenes	10.0 µg/L	10,000 µg/L	210 µg/L
			Naphthalene	11.4 µg/L	1.5 µg/L	6.2 µg/L

Summary of Analytical Sample Data
West Haymarket
JayLynn LLC

Boring	Depth	Method/Matrix	Parameter	Results	NDEQ Remediation Goals*	USEPA Remediation Goals*
SB-9		SVOCs	Acenapthene	38 µg/L	550 µg/L	370 µg/L
		8270C/Groundwater	Fluorene	18 µg/L	370 µg/L	240 µg/L
	6-7 ft. bgs	VOCs 8260B/Soil	Naphthalene	0.053 mg/kg	36 mg/kg	56 mg/kg
		SVOCs	Acenapthene	1.13 mg/kg	50 µg/L	3,700 mg/kg
		8270B/Soil	Fluorene	0.88 mg/kg	2,000 µg/L	2,700 mg/kg
			Azobenzene	0.69 mg/kg	N/A	N/A
			Fluoreanthene	1.39 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	1.01 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a)anthracene	0.44 mg/kg	0.62 mg/kg	0.62 mg/kg
			Chrysene	0.36 mg/kg	62 mg/kg	62 mg/kg
SB-10		VOCs	Ethylbenzene	**702 µg/L**	700 µg/L	1,300 µg/L
		8260B/Groundwater	Xylenes	**268 µg/L**	10,000 µg/L	210 µg/L
			Naphthalene	**3,110 µg/L**	1.5 µg/L	6.2 µg/L
		SVOCs	Naphthalene	**4,270 µg/L**	1.5 µg/L	6.2 µg/L
		8270C/Groundwater	4-Chloroaniline	20 µg/L	150 µg/L	150 µg/L
			2-Methylnaphthalene	198 µg/L	N/A	N/A
			Acenaphthylene	42 µg/L	N/A	N/A
			Acenapthene	173 µg/L	550 µg/L	370 µg/L
			Fluorene	103 µg/L	370 µg/L	240 µg/L
			Phenanthrene	150 µg/L	N/A	N/A
			Anthracene	34 µg/L	43 µg/L	1,800 µg/L
			Fluoranthene	47 µg/L	60 µg/L	1,500 µg/L
			Pyrene	80 µg/L	140 µg/L	180 µg/L
			Benzo(a)anthracene	**17 µg/L**	0.025 µg/L	0.092 µg/L
			Chrysene	**18 µg/L**	1.6 µg/L	9.2 µg/L
			Benzo(b)fluoranthene	**10 µg/L**	0.016 µg/L	0.092 µg/L
			Benzo(k)fluoranthene	**11 µg/L**	0.92 µg/L	0.92 µg/L
			Benzo(a)pyrene	**18 µg/L**	0.2 µg/L	0.0092 µg/L
	11-12 ft. bgs	VOCs 8260B/Soil	Ethylbenzene	1.58 mg/kg	890 mg/kg	400 mg/kg
			Xylenes	0.354 mg/kg	180 mg/kg	270 mg/kg
			Naphthalene	12.4 mg/kg	36 mg/kg	56 mg/kg
		SVOCs	Naphthalene	21.8 mg/kg	36 mg/kg	56 mg/kg
		8270C/Soil	2-Methylnaphthalene	16.0 mg/kg	N/A	N/A
			Acenapthene	5.01 mg/kg	1,200 mg/kg	3,700 mg/kg
			Fluorene	11.0 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	34.4 mg/kg	N/A	N/A
			Fluoreanthene	21.9 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	28.7 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a)anthracene	**11.7 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Chrysene	11.0 mg/kg	62 mg/kg	62 mg/kg
			Indeno(1,2,3-cd)pyrene	**1.87 mg/kg**	0.62 mg/kg	0.62 mg/kg

Summary of Analytical Sample Data
West Haymarket
JayLynn LLC

Boring	Depth	Method/Matrix	Parameter	Results	NDEQ Remediation Goals*	USEPA Remediation Goals+
SB-10	11-12 ft. bgs	SVOCs 8270C/Soil	Benzo(b)fluoranthene	**7.34 mg/kg**	0.62 mg/kg	0.62 mg/kg
			Benzo(k)fluoranthene	5.66 mg/kg	6.2 mg/kg	6.2 mg/kg
			Benzo(a)pyrene	**13.4 mg/kg**	0.062 mg/kg	0.062 mg/kg
			Benzo(g,h,i)perylene	3.14 mg/kg	N/A	N/A
	14-15 ft. bgs	VOCs 8260B/Soil	Ethylbenzene	0.716 mg/kg	890 mg/kg	400 mg/kg
			Xylenes	0.360 mg/kg	180 mg/kg	270 mg/kg
			Naphthalene	13.4 mg/kg	36 mg/kg	56 mg/kg
		SVOCs 8270C/Soil	Naphthalene	16.7 mg/kg	36 mg/kg	56 mg/kg
			2-Methylnaphthalene	9.30 mg/kg	N/A	N/A
			Acenapthene	1.87 mg/kg	1,200 mg/kg	3,700 mg/kg
			Fluorene	4.24 mg/kg	780 mg/kg	2,700 mg/kg
			Phenanthrene	25.7 mg/kg	N/A	N/A
			Anthracene	5.23 mg/kg	5,900 mg/kg	22,000 mg/kg
			Fluoreanthene	9.63 mg/kg	570 mg/kg	2,300 mg/kg
			Pyrene	16.2 mg/kg	590 mg/kg	2,300 mg/kg
			Benzo(a)anthracene	4.84 mg/kg	0.62 mg/kg	0.62 mg/kg
			Chrysene	4.73 mg/kg	62 mg/kg	62 mg/kg
			Benzo(b)fluoranthene	4.39 mg/kg	0.62 mg/kg	0.62 mg/kg
			Benzo(a)pyrene	5.30 mg/kg	0.062 mg/kg	0.062 mg/kg
			Benzo(g,h,i)perylene	1.78 mg/kg	N/A	N/A

Analytical values depicted in bold lettering indicate values exceeded RGs.

* Constituent concentrations represent NDEQ Voluntary Cleanup Program (VCP) Remediation Goals (RGs) for residential soil - direct contact exposure pathway.

\+ Constituent concentrations represent USEPA Region 9 Preliminary Remediation Goasl (PRGs) for residential soil - direct contact exposure pathway.

N/A The NDEQ and/or USEPA have not established RGs for the respective analyte.

Sampling and Analysis Plan/Quality Assurance Project Plan
Transportation, Environment and Utilities Plan

West Haymarket
JayLynn Property
660 N Street
Lincoln, Nebraska

July 2008

Prepared for:

Lincoln Lancaster County Planning Department

Karen O'Connor

Frank Uhlarik, CPG, CEA
HWS Project Manager

Karen Griffin O'Connor, P.G
Olsson Project QA Manager

Date

Date

HWS Solutions Through Service

OLSSON ASSOCIATES

Prepared by
HWS Consulting Group, Inc.
and Olsson Associates

A.2 Table of Contents

List of Tables

List of Figures

A. Project Management

This document has been prepared to meet the requirements of "EPA Requirements for Quality Assurance Project Plans" (EPA QA/R-5).

A1. Title and Approval Sheet

A2. Table of Contents

A3. Distribution List

Lincoln/Lancaster Planning Dept.	Kent Morgan
EPA Region VII	Susan Klein
NDEQ	Steve Kemp
HWS Consulting Group Inc.	Jim Linderholm, CPG
HWS Consulting Group Inc.	Frank Uhlarik, CPG, CEA
Olsson Associates	Karen Griffin O'Connor, P.G.

A4. Project/Task Organization

The individuals involved with the JayLynn Property Site Investigation phase of the Transportation, Environmental and Utilities Project for the West Haymarket area and their specific responsibilities are outlined below. An organization chart is presented as Figure 1.

Lincoln Lancaster County Planning Department: Decision-maker for Lincoln/Lancaster County responsible for overall coordination of the project and decision making. Responsible for ensuring that the investigation meets the requirements of the contract documents and provides valid scientific data for project planning purposes. Authorizes work to be performed by Olsson Associates and HWS, Inc. within the West Haymarket Area.

EPA Region VII Project Contact: The Lincoln Lancaster County Planning Department has undertaken this investigation of the JayLynn Property Site for redevelopment planning purposes. This document is written in accordance with

EPA quality assurance project and sampling and analysis plan guidance and for this reason the document is submitted to the EPA for information and future reference. This document is not provided for approval by the EPA since it is not an EPA investigation.

NDEQ Project Contact: The Lincoln Lancaster County Planning Department has undertaken this investigation of the JayLynn Property Site for redevelopment planning purposes. This document is written in accordance with EPA quality assurance project and sampling and analysis plan guidance. This document is submitted to the NDEQ for information and future reference. This document is not provided for review and approval of the NDEQ since it is not currently under investigation by the NDEQ. Further investigation and/or cleanup may occur under the Nebraska Voluntary Cleanup Program (VCP) and for this reason the NDEQ maintains a record of correspondence for public review.

Keystone Laboratories, Inc. QA Managers: Coordinate analysis of the samples and laboratory validation of the data. Coordinate the receipt of the samples at the laboratory, select the analytical team, assure internal laboratory procedures are conducted per the Keystone Labs and EPA methodology for each analytical method. Report laboratory problems affecting the project data to the HWS Project Manager and Olsson Associates QA Manager.

HWS Consulting Group, Inc. Project Manager: Overall coordination of fieldwork. Oversee preparation of SAP/QAPP. Implement final, approved version of SAP/QAPP. Distributes SAP/QAPP to sampling personnel.

Olsson Associates Project QA Manager: Review and approval of QAPP. Conduct audits of field operations.

HWS Consulting Group, Inc. Field Team Leader: Coordinate and supervise field sampling technicians. Responsible for field implementation of the SAP/QAPP.

A5. Problem Definition/Background

A5.a. Problem Statement and Background

The Lincoln Lancaster County Planning Department is interested in developing an arena and convention center facilities in the West Haymarket area of Lincoln, Nebraska (See Figure 2, Project Location Map). Part of the footprint of a planned parking structure and elevator shaft is located on the current JayLynn Property Site. The site is portrayed in Figure 3.

An Environmental Site Assessment (ESA) – Transaction Screen performed by HWS Consulting Group Inc. (HWS) in July 2007 and subsequent Phase I Environmental Site Assessment in August of 2007 identified JayLynn LLC as the owner of the site. Reviewing the historical fire insurance maps dating back to 1891 showed that the site was part of a manufactured gas plant in 1891. Specifically, a gas holding unit was present at the site where manufactured gas was stored. 1928 fire insurance map showed the site was converted to a lumber yard which existed to the present. Historical aerial photographs from 1942 to 2002 confirmed the continuous presence of a lumber yard at the site.

A limited Phase II ESA investigation was performed at this site on April 8, 2008 in accordance with the Site Specific Quality Assurance Project Plan Addendum and Field Sampling Plan (QAPP and FSP) submitted to the Nebraska Department of Environmental Quality (NDEQ) in September 2007.

Four (4) soil borings ranging in depths from 12 feet to 16 feet below ground surface were advanced with a truck mounted Geo-Probe unit at the following locations at the JayLynn Property Site: the first soil boring (SB-1) was located

within the footprint of the former gas holding unit; the second boring (SB-2) was located to the northwest (down-gradient) of the former gas holding unit; the third boring (SB-3) was located to the southeast (up-gradient) of the former gas holding unit; and the fourth boring (SB-4) was located near the southwest corner of the former manufactured gas plant where gas conversion took place. The locations of these previous soil borings are shown in Figure 4.

Soil samples were collected from all four borings, divided into 1-foot increments, and field screened for the presence of organic vapors potentially indicative of Polynuclear Aromatic Hydrocarbons (PAHs), Semi Volatile Organic Compounds (SVOCs), and benzene, toluene, ethylbenzene, and xylene (BTEX) using a photo ionization detector (PID). PID instrument responses were detected in soil samples from boring SB-1, SB-2 and SB-4 at varying depths. Samples were collected from depths corresponding to instrument responses and submitted for laboratory analysis using EPA Test Methods 8270 (PAHs and SVOCs) and 8260B (VOCs).

Soil samples were also collected from each of the soil borings at a depth of 1-3 ft. and submitted to the analytical laboratory for Total RCRA Metals analysis using EPA Test Method 6010B.

Total concentrations above EPA and/or NDEQ remediation goals were measured for Arsenic (SB-1 through SB-4), Naphthalene, Benzo(a) anthracene, Benzo(b) Fluoranthene, Benzo(k) Fluoranthene, and Benzo(a) Pyrene in SB-1, and Naphthalene, Benzo(a) anthracene, Benzo(b) Fluoranthene, and Benzo(a) Pyrene in SB-4.

A5.b. Purpose

The primary goals of the JayLynn Property Site investigation are to assess the vertical and lateral extent of soil impacts and to determine whether or not groundwater has been impacted at the site. Once the extent of the soil and

groundwater contamination at the site is delineated, the information will be used in the following way:

- To assist in developing a site conceptual model that will identify exposure scenarios to human and/or environmental receptors.
- To form the basis for a remedial plan to guide redevelopment activities at the site.
- To help estimate the potential risks to construction workers during the site redevelopment work. The potential risks will be the basis for preparing a Health and Safety Plan (HSP) for the site. This HSP will be implemented to protect workers involved with the redevelopment.

The findings of this portion of the field investigation will be presented in a field summary report and conclusions regarding redevelopment and construction precautions included in the Final Report for the TEUP project entitled the Environmental Conservation Plan.

A6. Project/Task Description and Schedule

Site sampling will include:

- Field documentation of subsurface soil and debris
- Direct Push sampling of soil to approximately 20 ft. below ground surface (bgs)
- Field screening of soils with a photo ionization detector (PID)
- Sampling of soils indicating PID responses
- Direct Push sampling of groundwater
- Personal air monitoring in accordance with OSHA 1910.120 requirements for monitoring worker safety

The number, location, and frequency of samples are identified in the following sections and summarized in Tables 3, 4, and 5. Figure 4 shows the proposed sampling locations for soil and groundwater. Sample collection locations may vary depending on field conditions. Table 5 details sample collection and preservation criteria. The schedule to complete this investigation is summarized in Table 6.

A7. Quality Objectives and Criteria for Measurement Data

The project data quality objective is to provide valid data of known and documented quality to complete the site conceptual model, identify appropriate redevelopment and construction hazard abatement and to ensure the protection of on-site workers and the off-site population from airborne contaminants during redevelopment. The data quality indicators to be measured are identified below.

The Data Quality Objectives (DQO) process was used to develop this SAP/QAPP. Application of the DQO process helped plan collection of the right type, quality, and quantity of data. Collection of appropriate and relevant data is intended to support defensible site design decisions. DQO elements, including problem definition, identification of the decision(s) to be made, identification of the inputs to the decision, definition of the study, development of the acceptable level of error in the data to be collected in support of the decision, and the process for optimizing the data collection effort, where necessary are incorporated into the framework of this SAP/QAPP.

The DQO process was adapted to the specific problem: an expedited field investigation intended to build on previous studies and supply data for site redevelopment considerations. The goal is to have site redevelopment plans available for incorporation into a City-wide vote on the project in the Spring of 2009.

The selected soil samples collected as part of this investigation will be analyzed and the data will be compared to the EPA Region 9 Preliminary Remediation Goals and Nebraska Voluntary Cleanup Program Site Remediation Goals. Laboratory reporting limits are less than the corresponding action levels. Groundwater samples collected as part of this investigation will be analyzed and compared to the Nebraska Voluntary Cleanup Program Site Remediation Goals.

QA/QC procedures to be followed during sampling include the collection of duplicates, blanks, and equipment rinsate samples, and the implementation of procedures to prevent cross-contamination. Sampling will be performed by personnel trained in proper groundwater sample collection techniques under the supervision of a Nebraska Water Well Monitoring Supervisor.

Checklists listed in EPA's Guidance for Quality Assurance Project Plans, EPA QA/R-5, will be utilized for quality assurance in sample handling, sample presentation and analysis, and chemical standards.

The goals of analytical precision and accuracy are described in SW 846 and Methods 6010B, 8260B, and 8270 will be applicable to this project. The acceptance limit for field precision will be assessed using field duplicate samples. The relative percent difference between field duplicates will be used to measure precision. A precision of ≤ 20% is required for the data to be considered precise without qualification. Data that do not meet this precision goal will be qualified for use based on its degree of bias, or considered usable if the relative percent difference is greater than 50%.

Bias will be assessed in the field by the use of aqueous trip blank samples prepared and preserved using distilled, deionized water and HCl, handled and transported with the groundwater samples to be analyzed for volatile organic constituents (VOCs). Wherever possible, unused, pre-cleaned, disposable

sampling equipment will be used to collect the environmental samples. When non-dedicated equipment is used, equipment rinsate samples will also be collected and analyzed to assess the potential for cross-contamination of samples from inadequately cleaned sampling equipment. Data will be qualified for use on the basis of the presence of VOCs in the trip blank and contaminants detected in equipment rinsate samples.

Representativeness will be addressed by using specific sampling techniques and an overall sampling plan that increase the likelihood of collection of soil, groundwater, and material samples that are representative of natural existing conditions.

Comparability will be ensured by utilizing established sample collection and analytical techniques which have been used to collect existing site data.

A completeness goal of 90% is proposed for the project. Multiple sampling points and repeated measurements are included in the sampling plans.

A8. Special Training Requirements/Certification

All personnel performing groundwater sampling will either be a Nebraska - certified water well monitoring technician or work under the supervision of a Nebraska - certified pump installer or well supervisor. This work will be performed under the Nebraska well driller's licensing program in accordance with the Nebraska Department of Health regulations. Sampling personnel will also have 40 hours of hazardous waste site worker training, with 8-hour annual refresher training, as required by OSHA regulations (29 CFR 1910.120). A two (2) person sampling crew will perform each sampling event.

The soil and groundwater analytical laboratory (Keystone Laboratories, Inc.) used will maintain appropriate certification and accreditation.

A9. Documentation and Records

This SAP/QAPP will be distributed as shown in A3, for review and approval (as appropriate to the office or function) prior to initiation of fieldwork.

Field data will be collected in bound field books and maintained in the HWS Lincoln office. Laboratory Analytical data when received from Keystone Laboratories, Inc. in Newton, Iowa will be maintained in dedicated files in the HWS Lincoln office. Any reproduction of laboratory reports must include the complete report, including QC data.

Reporting packages will be submitted to EPA and NDEQ following completion of the sampling program. The report will include:

- Summary of methods, field observations, specific field and laboratory methodologies, analytical results and statistical analysis;
- Field Operation Records – consisting of copies of sample collection records and chain-of-custody records;
- Laboratory Records – consisting of laboratory analytical reports, sample data, test methods, QA/QC reports;
- Data Validation Records – consisting of documentation of protocols used in data reduction, verification and validation; and
- Field and Analytical Results.

Project reports will be retained and submitted to the Lincoln Lancaster County Planning Department in accordance with the project scope of work.

B. Measurement/Data Acquisition

B1. Sampling Process Design

A soil and groundwater sampling program was designed to address contaminants of potential concern (COPCs) established by the previous site investigation. These COPCs are listed in Table 1. Sampling for these COPCs will meet applicable EPA and NDEQ requirements. Soil sampling, direct push samples for subsurface soil and groundwater will be done as part of this study. The SAP lists the parameters that will be analyzed and the required analytical detection limits. Water levels will be measured in direct push probes when groundwater is encountered.

The following documents were used as guides in the development of the SAP/QAPP for this project:

- EPA QA/R-5 "EPA Requirements for Quality Assurance Project Plans".
- EPA G-5 "Guidance for Quality Assurance Project Plans".
- EPA QA/G-4 "Guidance on Systematic Planning using the Data Quality Objectives Process".
- EPA QA/G-4HW "Data Quality Objectives Process for Hazardous Waste Site Investigations".
- EPA 600/4-79-20, *Methods for Chemical Analysis of Water and Wastes*
- EPA SW-846, *Test Methods for Evaluating Solid Waste*
- OSWER-9950.1, *RCRA Groundwater Monitoring Technical Enforcement Guidance Document*

B2. Sampling Methods

B2.a. Sample Collection Methods

At each direct push boring location, soil and groundwater samples will be collected according to procedures outlined in this section. Prior to departure by the field samplers, field equipment will be checked to be certain it is in good operating condition. A cooler with ice will be used for transporting the samples collected at the site. Sample collection information will be recorded in the field notebook.

Soil Sampling

The study area to be sampled is shown on Figure 4 with the types and numbers of samples to be collected summarized in Table 3. Up to eight (8) borings are planned on and around the former manufactured gas plant site to further delineate the extent of soil and/or groundwater impacts as the result of the former manufactured gas plant operations at the site. The boring locations and numbers are show in Figure 4.

Soil boring SB-5 and SB-6 will be located within the vicinity of the former gas holding unit where manufactured gas was stored. Soil boring SB-7 will be placed to the northwest (down-gradient) of the gas holding unit. If PID response was detected in SB-7, two additional soil borings (SB-11 and SB-12) will be included as part of the investigation. Soil borings SB-9 and SB-10 will be placed to the southwest corner of the former manufactured gas plant where gas conversion took place.

The purpose of these soil borings is to delineate the extent of PAHs, SVOCs, VOCs, and heavy metals contamination in the soil and groundwater resulting from the former manufactured gas plant operations.

All soil borings will be advanced to approximately twenty (20) feet below ground surface with a truck mounted Geo-Probe unit. Soil samples will be collected in a clear plastic tube. Upon recovery of the soil sample, the clear plastic tube will be sliced open and the soil sample will be removed. The soil sample will be divided into 1-foot increments.

A portion of each 1-foot sample will be put in a clean glass jar and sealed with aluminum foil and jar lid. The sample will be allowed to equilibrate for 10 to 20 minutes at a temperature of at least 65 °F. A PID equipped with 10.2 eV lamp will be inserted into the container through the aluminum foil to measure possible organic vapors in the soil. The remaining portion of each 1-foot sample will be filled into a 4-oz soil sample jar. This jar will be sealed, labeled, and put immediately on ice in a cooler.

The PID readings will be reviewed for each boring. One soil sample from the depth corresponding to the highest PID reading (if any) within each boring will be forwarded to Keystone Laboratories, Inc. in Newton, Iowa for analysis using EPA Test Methods 8270 (PAHs and SVOCs) and 8260B (VOCs). If there is no PID response evident on any of the soil samples from a particular boring, no soil sample from that location will be retained for laboratory analysis.

A soil sample from each of the soil borings will also be collected for Total Metals (RCRA Eight) analysis by EPA Method 6010B. These soil samples will be collected from between 1' to 3' below ground surface. The purpose of these samples is to determine the presence or absence of heavy metals impact in the JayLynn Property Site..

Groundwater sampling will be completed with direct push boring probes changed out or cleaned between borings in accordance with

decontamination procedures described in Section B.5.c. and d. (below). Groundwater samples will be placed directly into labeled sample bottles provided by the laboratory, and the bottles placed immediately into an ice chest and cooled to 4°C.

Field reconnaissance of each proposed Geo-Probe location will be completed prior to drilling. The reconnaissance will be scheduled with the current site owner and local utility companies to review, where appropriate, the information on underground structures or utilities and above ground obstacles (e.g., containers, overhead lines). The borings will be relocated, as necessary, and tentatively marked. The final boring location will then be clearly marked on site maps. The boring location will be labeled with a unique identifier, the location marked in the field. Tentative locations of the proposed Geo-probe locations are shown in Figure 4.

Boring logs will be compiled for all the Geo-Probe holes at the site. The description of soils will conform to the Unified Soils Classification System (ASTM D2487-69 and D2488-69). The logs will be compiled at a scale of one inch of log equal to 2 foot of each boring depth. The stratigraphic and lithologic changes will be marked on the log by a solid horizontal line at the appropriate scale depth.

1. The following additional procedures will be followed for handling samples removed from the borings:

    - Sample bottles will be kept at or below 4 degrees Celsius (°C) in an iced cooler/chest so they remain cool prior to sampling. Filled sample bottles will be packaged and placed directly into an iced cooler/chest.

- Appropriate bottles, with preservatives if required, will be filled as specified for the analysis method. Laboratory instructions will be followed.
- Precautions will be taken to limit the contamination of samples from outside sources. Hands will be washed prior to sampling, and clean, surgical gloves will be worn.
- Well number or sample location, date, time of sampling, analysis to be performed, sampler's initials, and preservative will be noted directly on the sample label with indelible ink.

Survey of Boring Locations

1. Upon completion of the field activities, the sample points will be surveyed for location and elevation to a common benchmark.

Disposal of Soil Cuttings, Purged Ground Water and Associated Sampling Wastes

1. Direct push methods should generate little to no solid waste. Any drill cuttings generated will be thin spread on the ground surface.
2. Any ground water produced by sampling activities will be discharged to the ground surface.

B2.b. Sampling Frequency

As stated above, continuous soil sampling will be completed at each of the eight (8) borehole locations. The types and numbers of samples including quality assurance/quality control samples are included in Table 2.

B2.c. Corrective Action

The HWS Project Manager is responsible for corrective action in the field. The Project Manager shall distribute the SAP/QAPP to the HWS Field

Team Leader. The Field Team Leader is responsible for distributing the SAP/QAPP to the Field Technicians.

The Field Team Leader will make field decisions, with the approval of the Project Manager. The Project Manager shall notify the Lincoln Lancaster Planning Department via telephone and/or in writing of any anomalies in the field. The HWS Project Manager will seek prior approval from the Lincoln Lancaster Planning Department for significant deviations from the approved SAP/QAPP.

B3. Sample Handling and Custody

Chain of custody control will be maintained for the samples from collection to analysis. Each sample will be labeled with a unique sample ID number, time and date of collection, required analyses and the initials of the sample collector. This information will be recorded on the chain-of-custody form. The sample collector is responsible for the samples until they are transferred under chain-of-custody from his possession. When transferring samples, the individual relinquishing and receiving will sign, date and note the time on the record. This record will be used to document custody transfer from the sampler to another sample team member, or to the analytical laboratory.

Sample containers, preservation, and holding times are listed in Table 5. Following collection, samples will be placed in a cooler with ice for preservation. Bagged ice cubes will be used for chilling. A large plastic trash bag will be used to line the coolers and cooler drain (if any) will be taped shut to ensure that if a sample container breaks, the contents will not be released from the cooler. If needed, additional inert packing material will be placed around the containers to prevent breakage.

Chain-of-custody records will be packed with the shipment. The cooler will be sealed with chain-of-custody tape. When transferring samples, the individuals relinquishing and receiving will sign, date, and note the time on the chain-of-custody record. This record will be used to document custody transfer from the sampler to a shipper or the analytical laboratory. Samples will be transported from the sampling site to the HWS Lincoln office for shipping to Keystone Laboratories by UPS or equivalent overnight delivery. The sample collection team will retain one copy of the chain-of-custody form. The rest of the form will be transported with the sample container.

All sampling effort information will be recorded in a bound logbook with consecutively numbered pages or on drilling data sheets. All entries will be made in permanent ink and initialed and dated at the end by the author. If a page is not completely filled, a diagonal line will be drawn from the bottom of the text to the bottom of the page. All corrections will consist of line-out deletions that are initialed.

Log book entries will include: date and time of starting work, names of all personnel present, description of work area, descriptions of weather conditions, details of the work effort including any deviations from the sampling plan, sample collection and preservation, shipping data, field observations, and decontamination procedures.

B4. Analytical Methods

Soil and groundwater samples will be analyzed according to the methods listed in Table 5. Table 5 also lists the appropriate containers, preservation techniques, and holding times for each of the parameters that are to be analyzed. All analyses will be performed according to the EPA's "Test Methods for Evaluating Solid Waste", SW-846 or equivalent method.

- The laboratory for the COPCs soil and water quality analyses is Keystone Laboratories, Inc. in Newton, Iowa.

Method Reporting Limits (MRLs) for COPCs are less than the applicable action level (i.e., risk-based standards or waste disposal criteria).

The Laboratory Analysis Manager shall contact the Project Manager if the laboratory method criteria cannot be met. The Laboratory Analysis Manager or the Laboratory QA Manager shall contact the Project Manager by phone and in writing if deviations occur.

B5. Quality Control

QA/QC procedures to be followed during sampling include the collection of duplicates and blanks and the implementation of procedures to prevent cross-contamination. Sampling will be conducted by personnel trained in proper collection techniques.

- Laboratory QC will be in accordance with SW846, 6010B, 8260B, and 8270 requirements (including matrix spikes and matrix spike duplicates). Keystone will produce laboratory QC results reports with data reports. If laboratory data do not meet QC requirements, the lab will be contacted to see if the cause can be determined. If a problem is identified, the laboratory manager and lab quality manager will recommend corrective steps.

B5.a. Duplicates & Blanks

Duplicates.

Duplicates and blanks will be collected for QA/QC purposes. One field duplicate will be collected for each 10 samples per matrix. The duplicate

sample will be collected from a soil or other unit that is most likely to have detectable concentrations of COPCs, and will be obtained by collecting a split sample from the materials retrieved by boring. In the case of groundwater duplicate samples for VOCs, the sample container will be filled first, followed by its duplicate, before the remaining sample containers will be filled.

Field precision will be assessed by relative percent difference of duplicate samples. If field precision requirements are not met, the field notes will be reviewed to determine if the cause can be found. Sampling protocols will be reviewed with field personnel before the next sampling event. Corrective measures will be taken if it may be determined that sampling error is the source of imprecision. If the source of imprecision is matrix variability, then the usability of the data will be evaluated in the validation process discussed below.

Blanks.

Sampling equipment rinsate blanks also will be collected. If contamination is detected in an equipment rinsate sample, the data will be reviewed to evaluate the cause. If the contaminant that is found in the rinsate blank is not present in other project samples, then the data will be accepted. If the contaminant in the blank is found in samples at concentrations greater than 10% of the concentration in the sample, then the data will not be accepted.

B5.b. Prevention of Cross-Contamination

All downhole and other equipment that is to be reused will be cleaned prior to use at each sample location. The potential for cross-contamination will be reduced by sampling the soil areas, boreholes, or locations in order from the one with lowest concentration of the parameters of interest to the site with the highest concentration of the parameters of interest, and the

implementation of decontamination measures when possible. For groundwater sampling, new dedicated polyethylene tubing will be used at each probe for purging/sampling. The groundwater pump will be fitted with a check valve to prevent backflow.

B.5.c. Decontamination Procedures

Decontamination procedures include:

1. Steel probes and hydraulically pushed sampler units will be decontaminated prior to and between drilling at each borehole site with a triple rinse procedure.
2. The drilling rig may be decontaminated at any time during the sampling program, if the field geologist or engineer believes the integrity of soil borings or wells may be affected by contaminated conditions on the rig. Decontamination will consist of steam cleaning or high-pressure washing of truck wheels, chassis, or any other rig components affected.
3. Non-disposable sampling equipment will be decontaminated at a central location where it was used. Decontamination fluids will be discharged to the ground surface.
4. The following is the general decontamination procedure for field equipment used in the subsurface investigation.
    - Removal of soil and placement in bucket.
    - Washing and scrubbing with nonphosphate detergent.
    - Tap water rinse.
    - Deionized/distilled water rinse.
    - Air dry.

B.6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements

All instruments will be tested, inspected and maintained and stored in accordance with the manufacturer's requirements. The HWS Field Team Leader will be responsible for testing and calibration of the photo ionization detector. Test methods documentation is available in the Field Team staging area. Documentation of spare parts vendors/sources also is available at that location. Deficiencies will be corrected and re-tested in accordance with manufacturer's guidance. Test documentation will be maintained in the project logbook. The Keystone Lab Manager and QA Manager are responsible for laboratory equipment.

B.7. Instrument Calibration and Frequency

Instruments will be calibrated in a manner and at a frequency that is in accordance with the manufacturer's recommendations. Procedures and responsibilities are as described in Section B6.

B.8. Inspection/Acceptance Requirements for Supplies and Consumables

The HWS Field Team Leader is responsible for inspecting field supplies. Sample containers should be inspected by Keystone prior to shipment. Sample containers will be inspected by HWS sampling staff prior to use.

B.9. Non-Direct Measurements

Any additional historical information that becomes available may be used to guide or adjust sample locations. This information will be maintained in project files and incorporated in the project report.

B.10. Data Management

Data includes bound field log books, laboratory data received electronically and paper files from Keystone. The field log book will be maintained at the HWS Lincoln, Nebraska, office in project files. Analytical data will be maintained at the HWS Lincoln office, in the project file. Lab results copies will be submitted to the Lincoln Lancaster Planning Department with the scheduled project reports. The HWS Project Manager is responsible for maintaining data files which will be maintained for three years beyond the period of performance.

C. Assessment/Oversight

C1. Assessments and Response Actions

The Olsson Associates Project QA Manager will make periodic inspections of field activities at any time during field implementation. The NDEQ or EPA Project Contact may conduct an audit of the field or laboratory activities for this project at any time during field implementation. The Olsson Associates Project QA Manager will review data files. Discrepancies will be brought to the attention of the HWS Project manager for his immediate attention and direction of response action. Noted discrepancies and corrections will be documented by the HWS Project Manager, and incorporated into the final project report as appropriate.

C2. Reports to Management

During the project, the HWS Project Manager and Olsson Associates Project QA Manager will consult and coordinate on any observed issues. No formal QA status reports will be produced prior to the final project report. The laboratory analytical report will contain appendix material with all QA/QC documentation and quantification.

Once sampling is complete and the resulting data obtained, the HWS project manager will prepare an interim data report for submission to the Lincoln Lancaster Planning Department within 30 days of field implementation. The final project report will be prepared and submitted to the Lincoln Lancaster Planning Department in accordance with the schedule to be determined for the Environmental Conservation Plan. The report will include a summary of the activities performed during the reporting period and the resulting data and analysis of quality indicators, and a discussion about any problems concerning data quality. The HWS Project Manager will also identify where the soil and/or groundwater COPC concentration exceeds the action levels. The final report will be forwarded to the EPA and NDEQ project contacts. .

D. Data Validation and Usability

D1. Data Review, Verification, and Validation Requirements

The HWS Project Manager will review and approve all field data. The laboratory analytical data will be reviewed by the Keystone QA Manager. The HWS Project Manager will review the lab validation procedures and accept the data in accordance with project purpose and use of the data.

D2. Verification and Validation Methods

The HWS Project Manager will perform the final review and approval of the data prior to it being accepted as valid. The HWS Project Manager will also look at field duplicates, lab blanks, trip blanks (for VOC groundwater samples only), equipment rinsate samples, and lab duplicates to ensure they are acceptable. The HWS Project Manager will also compare the sample descriptions with the log book data and chain-of-custody forms for consistency and will ensure that any anomalies in the data are appropriately documented. The chain-of custody

forms will also be reviewed to ensure that samples were received intact, properly preserved, and cooled to 4 degrees C. Following the review of all QA/QC information (including laboratory review of matrix spike and matrix spike duplicates), the HWS Project Manager shall be responsible for qualifying any data that are determined to have a bias based on the review of laboratory and field QC results, and for invalidating data that do not meet the QA/QC requirements set forth in the SAP/QAPP.

D3. Reconciliation with User Requirements

Once the data results are compiled, the HWS Project Manager will review the field duplicates to determine if they fall within the acceptance limits as defined in this QAPP. Completeness will also be evaluated to determine if the completeness goal for this project has been met. The HWS Project Manager will also determine if detection limits are adequate for the statistical procedures specified. If data quality indicators do not meet the project's requirements as outlined in the QAPP, the data may be discarded and re-sampling may occur. The cause of the failure will be determined (if possible) and the HWS Project Manager will make the decision to discard the data and re-sample. If the failure is tied to the analysis, calibration and maintenance techniques will be reassessed as identified by the appropriate lab personnel. If the failure is associated with the sample collection and re-sampling is needed, the HWS Project Manager will review sampling techniques with field personnel and may recommend additional sampling.

References

- EPA QA/R-5 "EPA Requirements for Quality Assurance Project Plans".
- EPA G-5 "Guidance for Quality Assurance Project Plans".
- EPA QA/G-4 "Guidance on Systematic Planning using the Data Quality Objectives Process".
- EPA QA/G-4HW "Data Quality Objectives Process for Hazardous Waste Site Investigations".
- EPA 600/4-79-20, *Methods for Chemical Analysis of Water and Wastes.*
- EPA SW-846, *Test Methods for Evaluating Solid Waste.*
- OSWER-9950.1. *RCRA Groundwater Monitoring Technical Enforcement Guidance Document*
- HWS, 2007 Phase I ESA BNSF Railway Company Properties
- HWS, 2008 Limited Phase II ESA BNSF Railway Co. Former Roundhouse

Tables

Table 1
Contaminants of Potential Concern (COPC)

Total RCRA Metals

Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver

Volatile Organic Compounds

Acetone
Benzene
Bromodichloromethane
Bromoform
Bromomethane
Carbon disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Dibromochloromethane
Ethylbenzene
Hexane
Methyl-t-butyl ether (MTBE)
Methylene chloride
Naphthalene
Tetrachloroethylene
Trichloroethylene
Toluene
Vinyl chloride
Xylenes
cis-1,2-Dichloroethylene
cis-1,3-Dichloropropene
trans-1,2-Dichloroethylene
trans-1,3-Dichloropropene
2-Butanone (MEK)
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
1,2-Dichloropropane
2-Hexanone (MBK)
4-Methyl-2-pentanone (MIBK)
1,1,1-Trichloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane

Semivolatile Organic Compounds

N-Nitrosodimethylamine
Phenol
Aniline
Bis(2-Chloroethyl) Ether
2-Chlorophenol
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Benzyl Alcohol
1,2-Dichlorobenzene
2-Methylphenol
Bis (2-Chloroisopropyl) Ether
n-Nitroso-di-n-propylamine
(3 & 4)-Methylphenol
Hexachloroethane
Nitrobenzene
Isophorone
2-Nitrophenol
2,4-Dimethylphenol
Bis (2-Chloroethoxy) Methane
2,4-Dichlorophenol
1,2,4-Trichlorobenzene
Naphthalene
4-Chloroaniline
Hexachlorobutadiene
4-Chloro-3-methylphenol
2-Methylnaphthalene
Hexachlorocyclopentadiene
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
2-Chloronaphthalene
2-Nitroaniline
Dimethylphthalate
Acenaphthylene
2,6-Dinitrotoluene
3-Nitroaniline
Acenaphthene
2,4-Dinitrophenol
Dibenzofuran
2,4-Dinitrotoluene
4-Nitrophenol
Diethyl Phthalate
Fluorene
4-Chlorophenyl Phenyl Ether
4-Nitroaniline
4,6-Dinitro-2-methylphenol
N-Nitrosodiphenylamine
Azobenzene
4-Bromophenyl Phenyl Ether
Hexachlorobenzene
Pentachlorophenol
Phenanthrene
Anthracene
Di-n-butyl Phthalate
Fluoranthene 3
Benzidine
Pyrene
Butyl Benzyl Phthalate
Benzo(a)anthracene
Chrysene
Bis(2-Ethylhexyl) Phthalate
Di-n-octyl Phthalate
Indeno(1,2,3-cd)Pyrene
3,3´-Dichlorobenzidine
Benzo(b)Fluoranthene
Benzo(k)Fluoranthene
Benzo(a)Pyrene

Table 2
Nebraska Voluntary Cleanup Program Remediation Goals

Table 3
Summary of Soil Sampling

Location	Maximum Number of Samples		Purpose	Depth	Analyses	EPA Analytical Method
	Soil	QA/QC				
SB-5	1		PAHs Screening	xxx	PAHs*	8270
			SVOCs Screening		SVOCs*	8270
			VOCs Screening		VOCs*	8260B
	1		Metals Screening	1' – 3'	RCRA Metals	6010B
SB-6	1	1	PAHs Screening	xxx	PAHs*	8270
			SVOCs Screening		SVOCs*	8270
			VOCs Screening		VOCs*	8260B
	1		Metals Screening	1' – 3'	RCRA Metals	6010B
SB-7	1		PAHs Screening	xxx	PAHs*	8270
			SVOCs Screening		SVOCs*	8270
			VOCs Screening		VOCs*	8260B
	1		Metals Screening	1' – 3'	RCRA Metals	6010B
SB-8	1		PAHs Screening	xxx	PAHs*	8270
			SVOCs Screening		SVOCs*	8270
			VOCs Screening		VOCs*	8260B
	1		Metals Screening	1' – 3'	RCRA Metals	6010B
SB-9	1		PAHs Screening	xxx	PAHs*	8270
			SVOCs Screening		SVOCs*	8270
			VOCs Screening		VOCs*	8260B
	1	1	Metals Screening	1' – 3'	RCRA Metals	6010B

xxx One soil sample from the depth corresponding to the highest PID readings will be collected for laboratory analysis.

* Soil sample will only be submitted for PAHs, SVOCs, and VOCs analysis if a PID response was observed for the interval collected.

Table 3
Summary of Soil Sampling (continued)

Location	Maximum Number of Samples		Purpose	Depth	Analyses	EPA Analytical Method
	Soil	QA/QC				
SB-10	1		PAHs Screening	xxx	PAHs*	8270
			SVOCs Screening		SVOCs*	8270
			VOCs Screening		VOCs*	8260B
	1		Metals Screening	1' – 3'	RCRA Metals	6010B
SB-11	1		PAHs Screening	xxx	PAHs*	8270
			SVOCs Screening		SVOCs*	8270
			VOCs Screening		VOCs*	8260B
	1		Metals Screening	1' – 3'	RCRA Metals	6010B
SB-12	1		PAHs Screening	xxx	PAHs*	8270
			SVOCs Screening		SVOCs*	8270
			VOCs Screening		VOCs*	8260B
	1		Metals Screening	1' – 3'	RCRA Metals	6010B

xxx One soil sample from the depth corresponding to the highest PID readings will be collected for laboratory analysis.

* Soil sample will only be submitted for PAHs, SVOCs, and VOCs analysis if a PID response was observed for the interval collected.

Table 4
Summary of Groundwater Sampling

Location	Number of Samples		Analyses	EPA Test Method
	Groundwater	QA/AC		
SB-5 through SB-12	1	1	PAHs	8270
			VOCs	8260B
			SVOCs	8270
			RCRA Metals	6010B
Equipment Rinse	1		PAHs+	8270
			VOCs+	8260B
			SVOCs+	8270
			RCRA Metals+	6010B
Trip Blank	1		PAHs+	8270
			VOCs+	8260B
			SVOCs+	8270
			RCRA Metals+	6010B
Field Blank	1		PAHs+	8270
			VOCs+	8260B
			SVOCs+	8270
			RCRA Metals+	6010B

\+ Equipment blank, trip blank, and field blank samples will only be submitted for PAHs VOCs, SVOCs, and RCRA Metals analysis if at least one groundwater sample is collected for laboratory analysis.

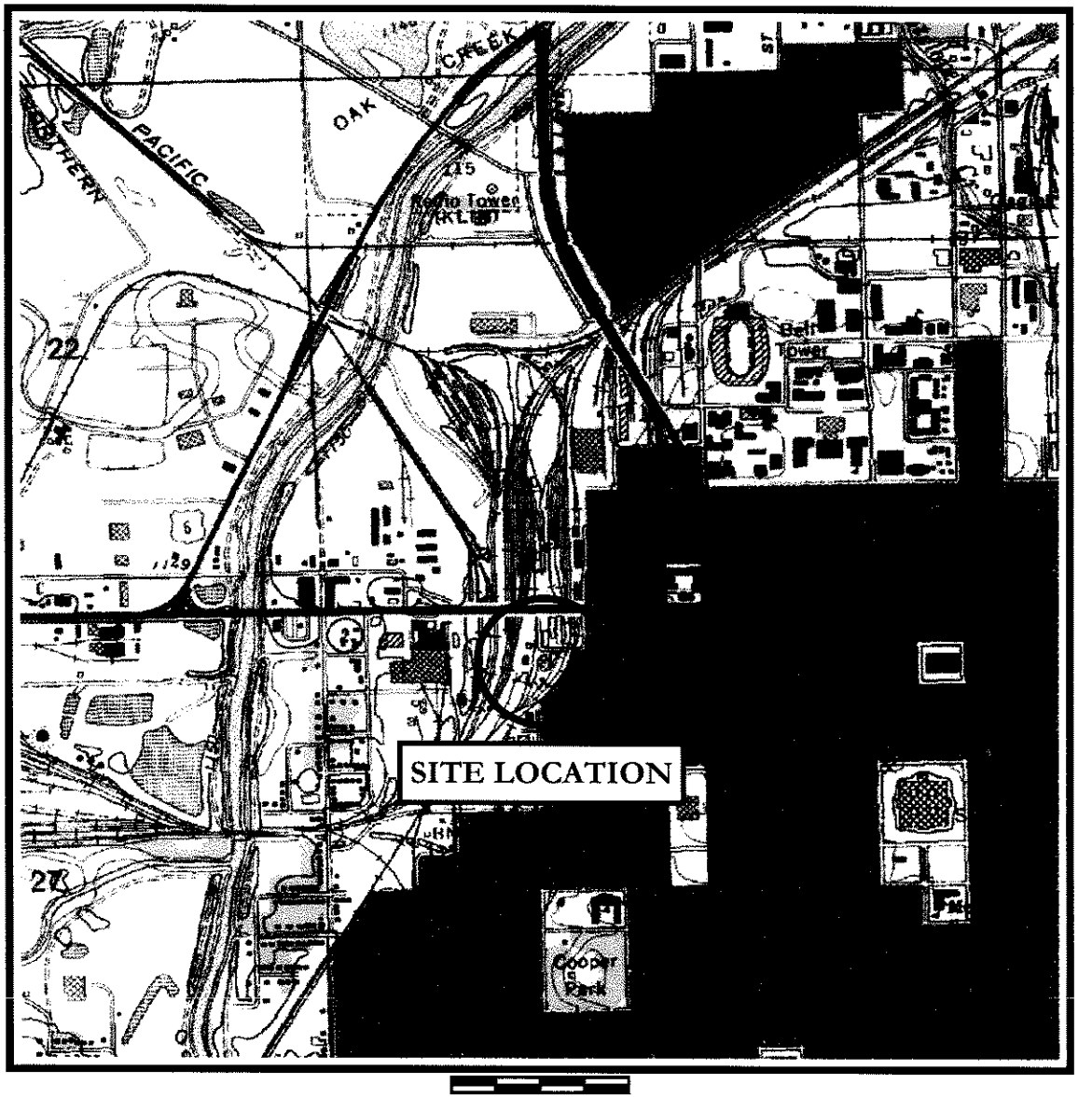
Table 5
Sample Collection/Preservation Criteria

Parameter	Method	Sample Container	Preservative	Holding Time
VOCs - Soil	8260B	4 oz. glass jar with Teflon lid	Cool to 4 °C	14 days
VOCs - Water	8260B	40 mL glass vials with Teflon lid	Cool to 4 °C HCL to pH < 2	14 days
SVOCs – Soil	8270	4 oz. glass jar with Teflon lid	Cool to 4 °C	14 days
SVOCs – Water	8270	One liter amber glass jar	Cool to 4 °C	7 days
Metals – Soil	6010B	4 oz glass jar	Cool to 4 °C	6 months
Metals – Water	6010B	250 mL plastic bottle	HNO3 Cool to 4 °C	6 months

Table 6
Project Schedule

Task	Schedule	Comments
Review	July 28, 2008 – August 4, 2008	
Field Work	August 11, 2008 – August 15, 2008	Pending approval of QAPP/SAP and Access to BNSF Property
Data Analysis	August 15, 2008 – September 15, 2008	
Draft Report Preparation	September 15, 2008 – October 15, 2008	
Final Report Preparation	TBD	Based on schedule for Environmental Conservation Plan

Figures



1" ~ 1,650'

HWS
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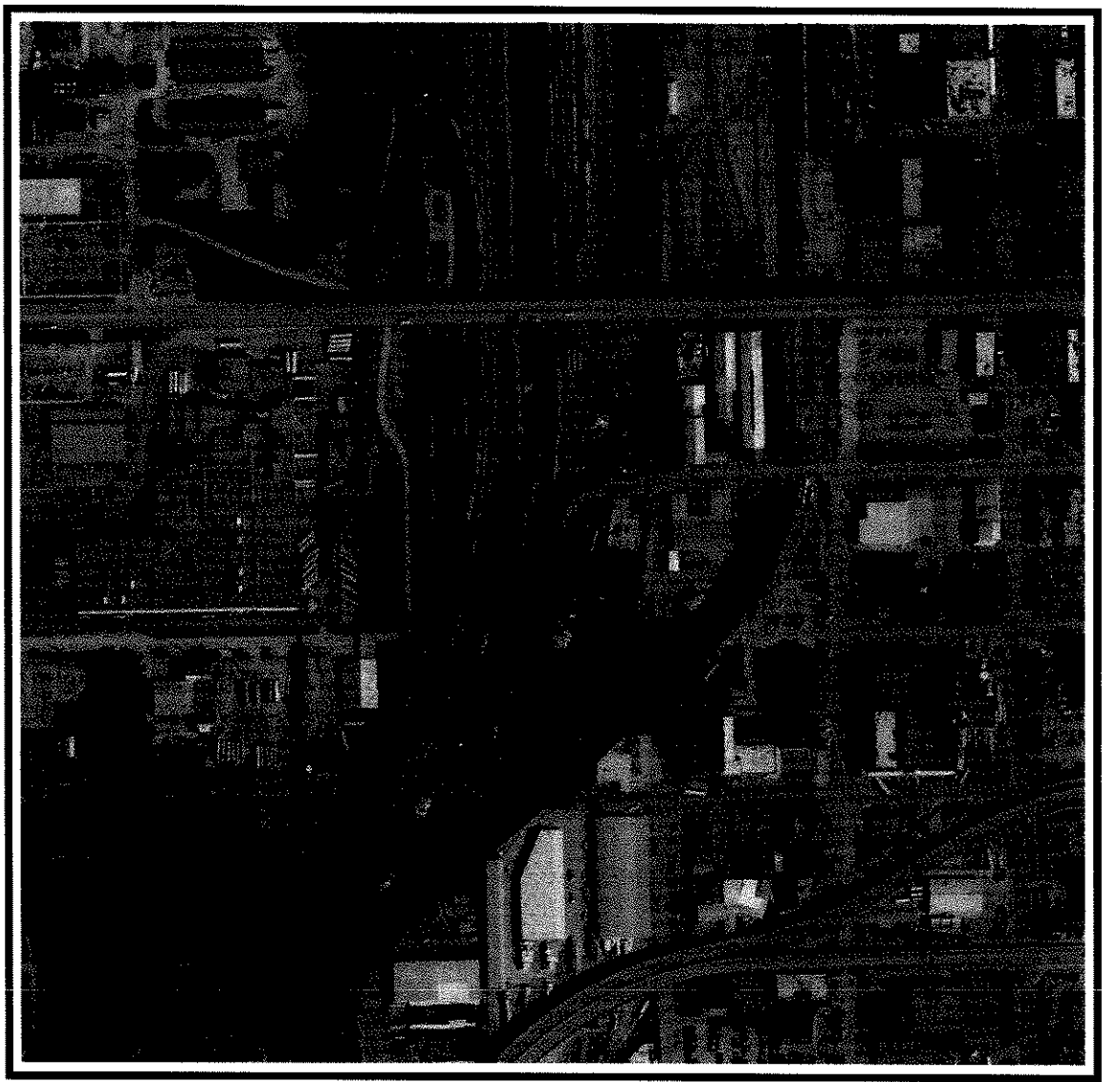
N

USGS QUAD MAP
LINCOLN, NEBRASKA

FIGURE 2
SITE LOCATION MAP

CITY OF LINCOLN SAP/QAPP JAYLYNN PROPERTY	JAYLYNN LLC 660 N STREET LINCOLN, NEBRASKA



1" ~ 550'

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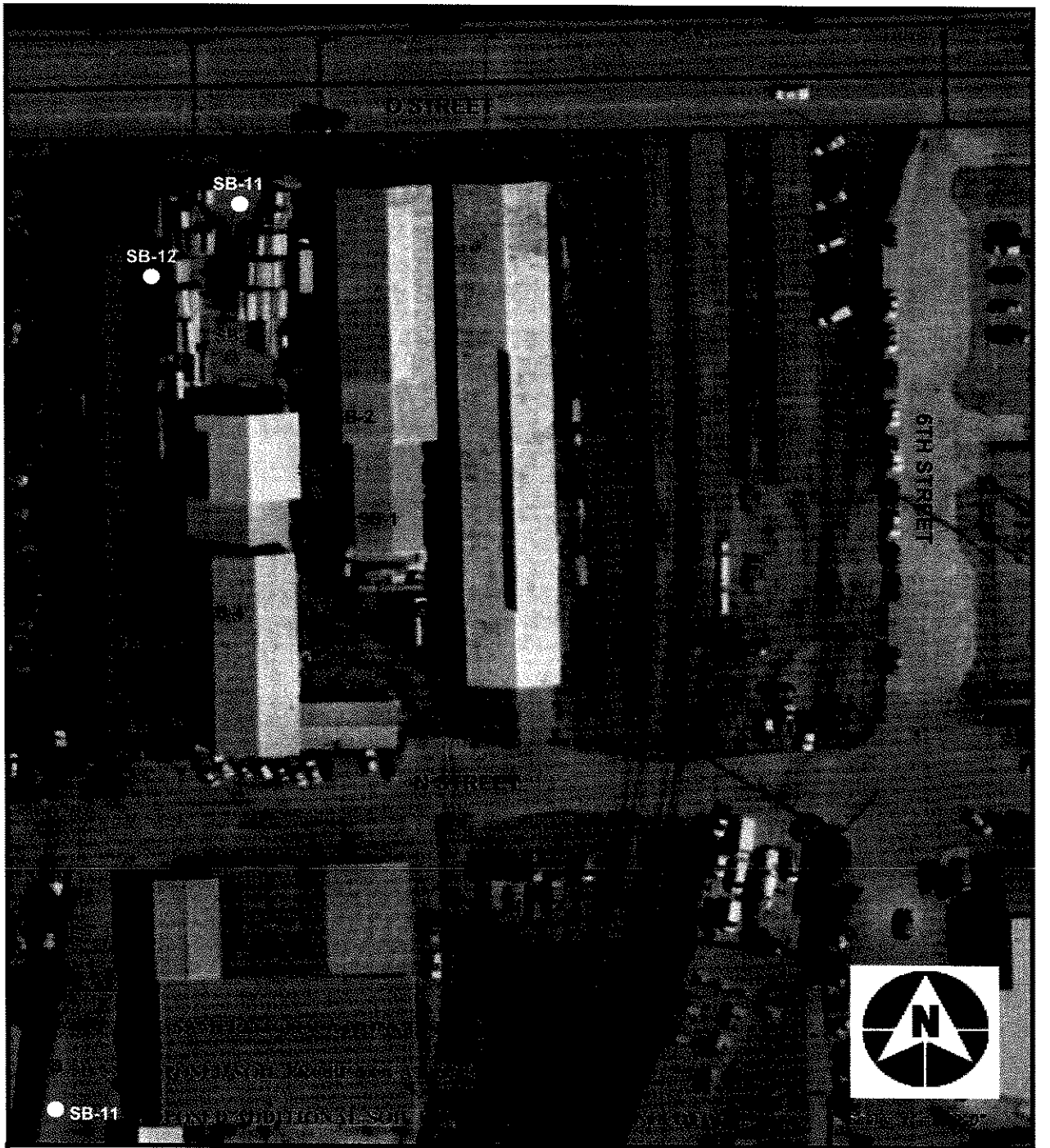
AERIAL PHOTOGRAPH
LINCOLN, NEBRASKA

FIGURE 3

SITE MAP

CITY OF LINCOLN SAP/QAPP JAYLYNN PROPERTY	JAYLYNN LLC 660 N STREET LINCOLN, NEBRASKA



HWS Solutions Through Service	CITY OF LINCOLN SAP/QAPP JAYLYNN LLC	FIGURE 4 SOIL SAMPLING LOCATIONS

Figure 1
Organization Chart