URS

February 14, 2013

Mr. James K. Moore, P.E.
Illinois Environmental Protection Agency
Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois 62794

Subject: **SVE System Construction Completion Report Addendum**
Equilon Enterprises LLC d/b/a Shell Oil Products US
Roxana, Illinois
1191150002 -- Madison County
ILD 080 012 305
Log No. B-43R

Dear Mr. Moore:

URS Corporation (URS), on behalf of Shell Oil Products US (SOPUS), is submitting the enclosed SVE System Construction Completion Report Addendum.

If you have any questions concerning this report, please contact Kevin Dyer, SOPUS Principal Program Manager at (618) 288-7237 or kevin.dyer@shell.com, or Bob Mooshegian at (314) 743-4106 or robert.mooshegian@urs.com.

Sincerely,

Dave Palmer
Project Manager

Robert E. Mooshegian, CHMM
Senior Project Manager

Enclosure

Cc: Kevin Dyer, SOPUS
Gina Search, IEPA-Collinsville

1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
Phone: 314.429.0100
Fax: 314.429.0462

REPORT

SVE SYSTEM CONSTRUCTION COMPLETION REPORT ADDENDUM

WRB REFINING LP
WOOD RIVER REFINERY
ROXANA, ILLINOIS

Prepared for
Shell Oil Products US
17 Junction Drive
PMB#39
Glen Carbon, IL 62034

February 2013

URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project # 21562850.12000

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 FACILITY IDENTIFICATION

Name: WRB Refining LP - Wood River Refinery

County: Madison

Street Address: 900 South Central Ave.

Site No. (IEPA): 1191150002

City: Roxana, IL 62084

Site No. (USEPA): ILD 080 012 305

2.0 OWNER INFORMATION

Name: Not Applicable

Mailing Address:

3.0 OPERATOR INFORMATION

Equilon Enterprises LLC d/b/a Shell Oil Products US

17 Junction Drive, PMB #399

Glen Carbon, IL 62034

Contact Name: Kevin Dyer

Contact Title: Principal Program Manager

Phone No.: 618-288-7237

4.0 TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

☐ RFI Phase I Workplan/Report
☐ RFI Phase II Workplan/Report
☐ CMP Report; Phase _____
☒ Other (describe):
SVE System Construction Completion Report Addendum
Date of Submittal

IEPA Permit Log No. B-43R
Date of Last IEPA Letter on Project September 13, 2012
Log No. of Last IEPA Letter on Project B-43R-CA-12 and 14
Does this submittal include groundwater information: ☐ Yes ☒ No

5.0 DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted and its purpose)

Construction Completion Report Addendum for a Soil Vapor Extraction System constructed within the Village of Roxana, IL Public Works Yard.

6.0 DOCUMENTS SUBMITTED (identify all documents in submittal, including cover letter; give dates of all documents)

Cover letter, RCRA Corrective Action Certification and SVE System Construction Completion Report Addendum.

7.0 CERTIFICATION STATEMENT - ***(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below)***. The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7.1 **OWNER/OPERATOR CERTIFICATION** (Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice-president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: _____ _____ (Date)

Title: _____

Operator Signature: Kevin E. Dwyer 2/5/13 (Date)

Title: Principal Program Manager

7.2 **PROFESSIONAL CERTIFICATION** *(if necessary)* - Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Professional's Signature: _____ 2/1/13 Date:

Professional's Name: Leslie B. Voss

Professional's Address: Kiber Corporation
8300 College Blvd.
Suite 200
Overland Park, KS 66210

Professional's Phone No.: (913) 344-1040

Professional's Seal:

LICENSED PROFESSIONAL ENGINEER
LESLIE B. VOSS
062.063455
STATE OF ILLINOIS

7.3 **LABORATORY CERTIFICATION** *(if necessary)* - The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

Name of Laboratory _____

_____
Signature of Laboratory Responsible Officer — Date

Mailing Address of Laboratory

_____
Name and Title of Laboratory Responsible Officer

_____

_____

_____

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SECTION ONE Introduction

At the request of Shell Oil Products US (SOPUS), URS Corporation (URS) designed and constructed a Soil Vapor Extraction (SVE) system (System). The System was constructed along the west boundary (West Fenceline) of the Wood River Refinery (WRR) North Property, in the Village of Roxana, Illinois (Village) and within the Village Public Works (PW) Yard. The West Fenceline portion of the System was installed between March 2011 and January 2012, as presented in the May 2012 *SVE System Construction Completion Report*. At that time, access to Village property, including the PW Yard, had not yet been provided to SOPUS for construction of the PW portion of the System. An access agreement between SOPUS and the Village was subsequently executed on October 5, 2012. The purpose of this Construction Completion Report (CCR) Addendum is to provide information regarding System layout and construction activities for the PW Yard portion of the System. These construction activities were referred to as Phase 6 in the *SVE System Construction Completion Report*.

1.1 SITE BACKGROUND

The WRR is composed of five areas, including the North Property, which contains storage tanks and most of the current and past waste management areas. Located in the Village at 900 South Central Avenue, WRR was operated by Shell Oil Company and subsequent owners until ownership changed to ConocoPhillips (COP) effective June 1, 2000. WRB Refining LLC, formed January 1, 2007, was a 50/50 joint venture between COP and EnCana US Refineries, LLC. On December 31, 2010, WRB Refining LLC was converted into a limited partnership named WRB Refining LP (WRB) with limited partners COP and Cenovus US Refinery Holdings. ConocoPhillips Company announced the separation of their Refining and Marketing business from their Exploration & Production business on July 14, 2011. The separation included an ownership change as well as a name change that became effective May 1, 2012. Phillips 66 (P66) is now the operator of WRR. Equilon Enterprises LLC (d/b/a Shell Oil Products US (SOPUS)) is working with the assistance of P66 on several environmental projects and programs.

Subsurface investigations have been conducted within the area generally bounded by Illinois Route 111 to the west, the West Fenceline to the east, East 1st Street to the north, and Rand Avenue to the south and within the WRR along the West Fenceline (**Figure 1**).

These are the two areas to be addressed by the System, and together will be referred to as the "Site" for the purposes of this document. The primary System construction area is located on the North Property, along the West Fenceline, between Second and Eighth Streets in the Village

(**Figure 2**). The construction area for the PW Yard portion of the System is presented on **Figure 2A**.

1.2 SOIL VAPOR EXTRACTION

The current understanding of existing site conditions is the result of extensive investigative efforts beginning with the *West Fenceline P-93 Dissolved Phase Benzene Investigation* conducted in 2006. The investigative efforts included collection of soil, groundwater, LNAPL, and soil vapor samples.

To address potential vapor intrusion in the Village, SOPUS submitted a *Vapor Intrusion Investigation Work Plan* to the Illinois Environmental Protection Agency (IEPA) in September, 2010, in which installation of an SVE system was proposed (SOPUS, 2010). SOPUS then submitted a *Pilot Test Work Plan* to IEPA in December 2010 to gather additional information required for System design. IEPA formally approved the pilot test on March 16, 2011 (IEPA, 2011); however, based on conversations with the IEPA, pilot test activities moved forward ahead of formal approval and were conducted between February 28, 2011 and March 24, 2011, including advancement of soil borings completed as SVE wells (SVE-1 along the West Fenceline and SVE-2 at the PW Yard). The 2011 IEPA letter, in addition to approving the pilot test work plan, also required submittal of a conceptual/final design report. The June 2011 *Conceptual/Final Design Report* was submitted to the IEPA presenting background information, remedial objectives (and conceptual approach to meet those objectives), and provided a final System design. Subsequent to the *Conceptual/Final Design Report* and associated correspondence, IEPA issued a *Joint Construction and Operating Permit* on July 14, 2011 for construction and operation of the System. SOPUS submitted the *SVE System Construction Completion Report* for the West Fenceline portion of the System in May 2012.

As stated above, this CCR Addendum describes the construction activities associated with installation of the PW Yard portion of the System.

SECTION TWO Technical Specifications

Plans, technical specifications, and drawings used for construction/installation of the System were provided in the June 11, 2011 *Conceptual/Final Design Report*, along with revisions included in a subsequent submittal to IEPA on September 23, 2011.

The PW Yard portion of the System consists of six SVE wells located within the PW Yard (**Figure 2**). SVE well construction details and boring logs were previously provided in the May 2012 *SVE System Construction Completion Report*.

The six SVE wells (SVE-21, SVE-22, SVE-23, SVE-24, SVE-26, and SVE-27) located on the PW property are part of the "teal line" (**Figure 2 and Figure 2A**), interconnected by 4-inch diameter High Density Polyethylene (HDPE) piping. The HDPE piping connects to the previously installed 4-inch steel piping terminated at the West Fenceline of the WRR North Property, adjacent to the PW Yard property. Within the WRR, the PW Yard SVE wells are connected via the 4-inch steel piping to a vapor/liquid separator (VLS) and a rotary lobe positive displacement blower housed within a customized intermodal freight container (conex). Piping from the PW Yard SVE wells feeds into the conex, where vapor moves through the VLS, before traveling through the blower and a baffle connected to a Regenerative Thermal Oxidizer (RTO). A second blower, located on the RTO side of the baffle, pushes the vapor into the RTO and adds fresh air to dilute the vapor stream as necessary.

SECTION THREE Deviations From Conceptual Design

Similar to the West Fenceline portion of the System, the piping within WRR was constructed of carbon steel. However, as the piping on PW property was to be constructed below grade, the "teal line" within the PW Yard was constructed of HDPE piping, rather than carbon steel. To facilitate future location of the subsurface, non-metallic piping, a tracer wire was installed along all HDPE piping from each well vault to a carbon steel connection flange.

There were no other deviations from the *Conceptual/Final Design Report* for installation of the PW Yard portion of the System.

SECTION FOUR Description of Construction Activities

Construction of the PW Yard portion of the System consisted of the installation of HDPE piping, galvanized steel vaults with concrete floors, and connection of the six previously installed SVE wells located at the PW Yard property.

Korte and Luitjohan, Inc. (K&L), of Highland, Illinois, was responsible for construction of the PW Yard portion of the System. Construction activities commenced on October 16, 2012, with vacuum excavation of soil in locations of known subsurface utilities on the PW Yard property. At the request of the Village Public Works Department (PWD), sections of 8-inch HDPE piping were installed as a casing for the 4-inch vapor lines at specific utility crossings. The 8-inch piping was sealed at the ends to serve as a protective casing in the event PWD needed to mechanically excavate utilities for repair or replacement (**Appendix A)**.

After the utilities were uncovered, a pipe trench was excavated from the carbon steel piping connection flange at the West Fenceline to each of the six SVE wells. Following excavation, HDPE piping and tracer wire were installed, along with galvanized steel well vaults with concrete floors.

The HDPE piping connecting the six SVE wells to the carbon steel piping was bedded with approximately three inches of sand above and below the pipe. The remaining portion of well vault and piping excavations were backfilled with excavated materials. A 6- to 12-inch layer of CA-6 aggregate was placed as the top layer of backfill in roadway areas.

K&L completed construction activities on November 19, 2012 with the successful hydrostatic testing of the HDPE piping that extends from the PW Yard SVE wells to the West Fenceline. Hydrostatic test results can be found in **Appendix B**. Previous hydrostatic testing results for the carbon steel portion of the "teal line" were provided in Appendix E of the *SVE System Construction Completion Report*. URS began commissioning of the PW Yard portion of the System on December 3, 2012, with all PW Yard SVE wells online by December 6, 2012.

SECTION FIVE Detailed As-Built Drawing

Plan views of the System are included in **Figures 2** and **2A**. K&L's detailed as-built drawing is included in **Appendix A**.

SECTION SIX Quality Assurance/Quality Control

URS personnel provided oversight during the construction and installation of the PW Yard portion of the System to monitor, document, and assure construction activities and performance met the intent of the design specifications. Oversight activities included layout, documentation of installation, and general monitoring of the construction. Additionally, the on-site URS representatives monitored compliance of the contractor with their QA/QC plans.

K&L's QA/QC documentation / SVE piping hydrostatic testing results are presented in **Appendix B**.

SECTION SEVEN Conclusions

Daily on-site construction monitoring was performed by URS field representatives and with K&L's on-site QA/QC representatives. Coupled with this monitoring and review of the project QA/QC documentation and data, URS observed that the construction and installation activities performed by URS' contractors for the PW Yard portion of the System were in general conformance with the design requirements described in the *Conceptual/Final Design Report*.

Photographs of construction activities are included in **Appendix C**.

SECTION EIGHT References

Illinois Environmental Protection Agency (IEPA). November 15, 2010. Letter of work plan approval with conditions.

Illinois Environmental Protection Agency (IEPA). July 14, 2011. *Joint Construction and Operating Permit*

Shell Oil Products US. September 2007. *West Fenceline P-93 Dissolved Phase Benzene Investigation.* Prepared by URS Corporation.

Shell Oil Products US. September 20, 2010. *Vapor Intrusion Investigation Work Plan.* Prepared by URS Corporation.

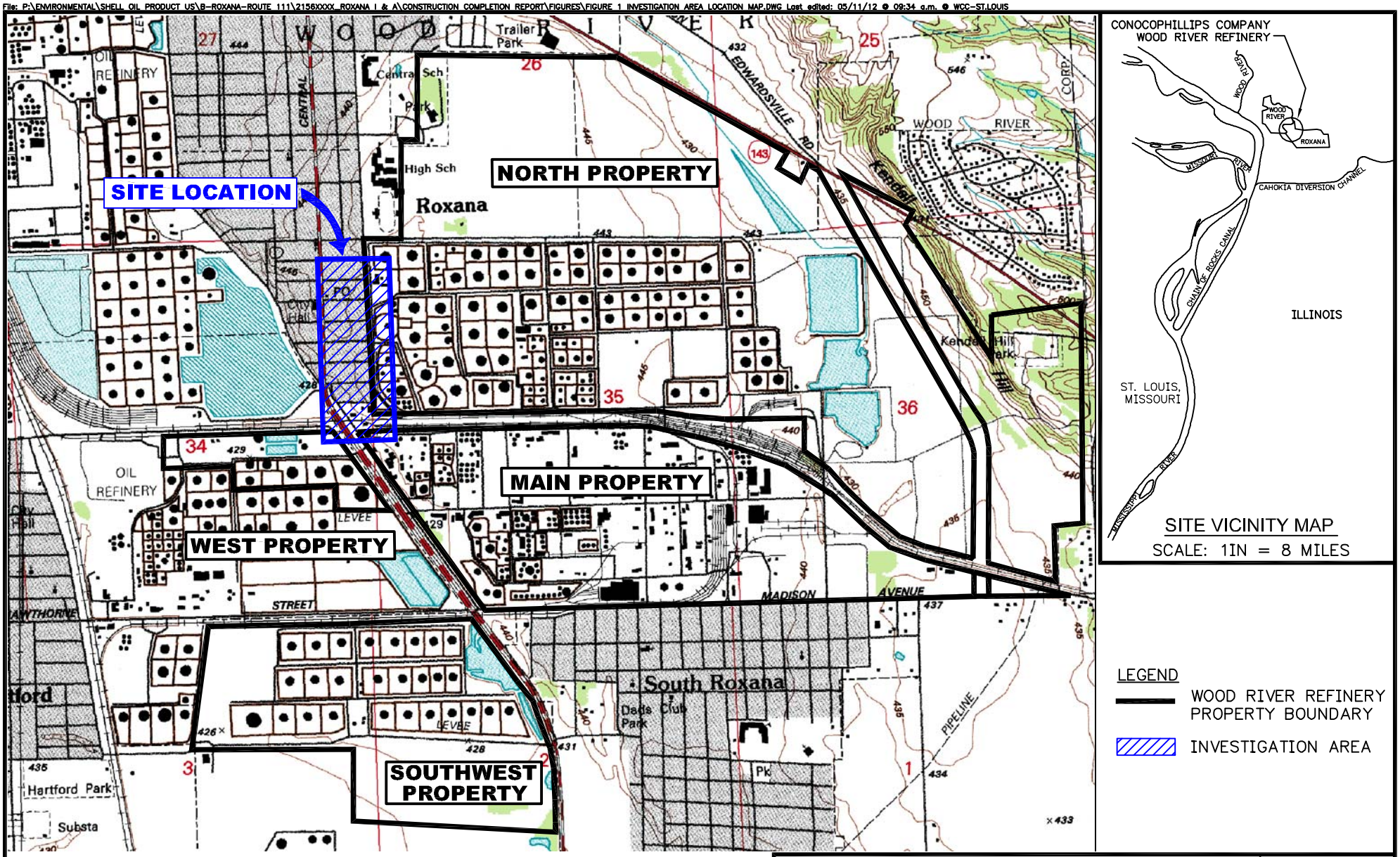
Shell Oil Products US. June 2011. *Conceptual/Final Design Report.* Prepared by URS Corporation.

Shell Oil Products US. May 2012. *SVE System Construction Completion Report.* Prepared by URS Corporation.

URS Corporation. September 23, 2011 electronic mail to IEPA in response to September 1, 2011 request for additional information.

Figures

File: P:\ENVIRONMENTAL\SHELL OIL PRODUCT US\B-ROXANA-ROUTE 111\21562XXXX_ROXANA I & A\CONSTRUCTION COMPLETION REPORT\FIGURES\FIGURE 1 INVESTIGATION AREA LOCATION MAP.DWG Last edited: 05/11/12 @ 09:34 a.m. @ WCC-ST.LOUIS



SOURCE:
MAP TAKEN FROM ELECTRONIC USGS DIGITAL RASTER GRAPHIC 7.5 MINUTE TOPOGRAPHIC MAP OF WOOD RIVER, ILL-MO REVISED 1994.

CONTOUR INTERVAL = 5 FT

Ø 2ØØØ

SCALE FEET

N

SHELL OIL PRODUCTS US ROXANA, ILLINOIS	PROJECT NO. 21562735
URS	
DRN. BY: djd May 2012 DSGN. BY: djd CHKD. BY: mpm	Site Location Map FIG. NO. 1

(S. CENTRAL AVE) HIGHWAY 111

1986 APPROXIMATE BENZENE RELEASE SITE

EIGHTH ST

SEVENTH ST

SIXTH ST

FIFTH ST

FOURTH ST

THIRD ST

SECOND ST

VILLAGE OF ROXANA

PUBLIC WORKS PROPERTY

CHAFFER ST

CONEX

RTO

ABOVE GROUND STORAGE TANKS

ASPHALT PARKING

OMC BUILDING

BUILDING

METER SHELTER

MAIN PROPERTY

WOOD RIVER REFINERY

NORTH PROPERTY

F-76

F-78

F-77

F-73

F-74

A-22

A-27

A-28

LEG NO.	SVE WELLS	COLOR	WELL SYMBOL
1	SVE-5 THROUGH SVE-9	RED	
2	SVE-3, SVE-4, SVE-25 & SVE-10 THROUGH SVE-12	BLUE	
3	SVE-13 THROUGH SVE-19 & SVE-36	GREEN	
4	SVE-20 THROUGH SVE-27	TEAL	
5	SVE-28 THROUGH SVE-33	PURPLE	
6	SVE-34 THROUGH SVE-35	BROWN	

LEGEND:

- SVE EXTRACTION WELL (SEE TABLE FOR COLOR LEGEND)
- VAPOR MONITORING POINT (VMP)
- PROPERTY BOUNDARY

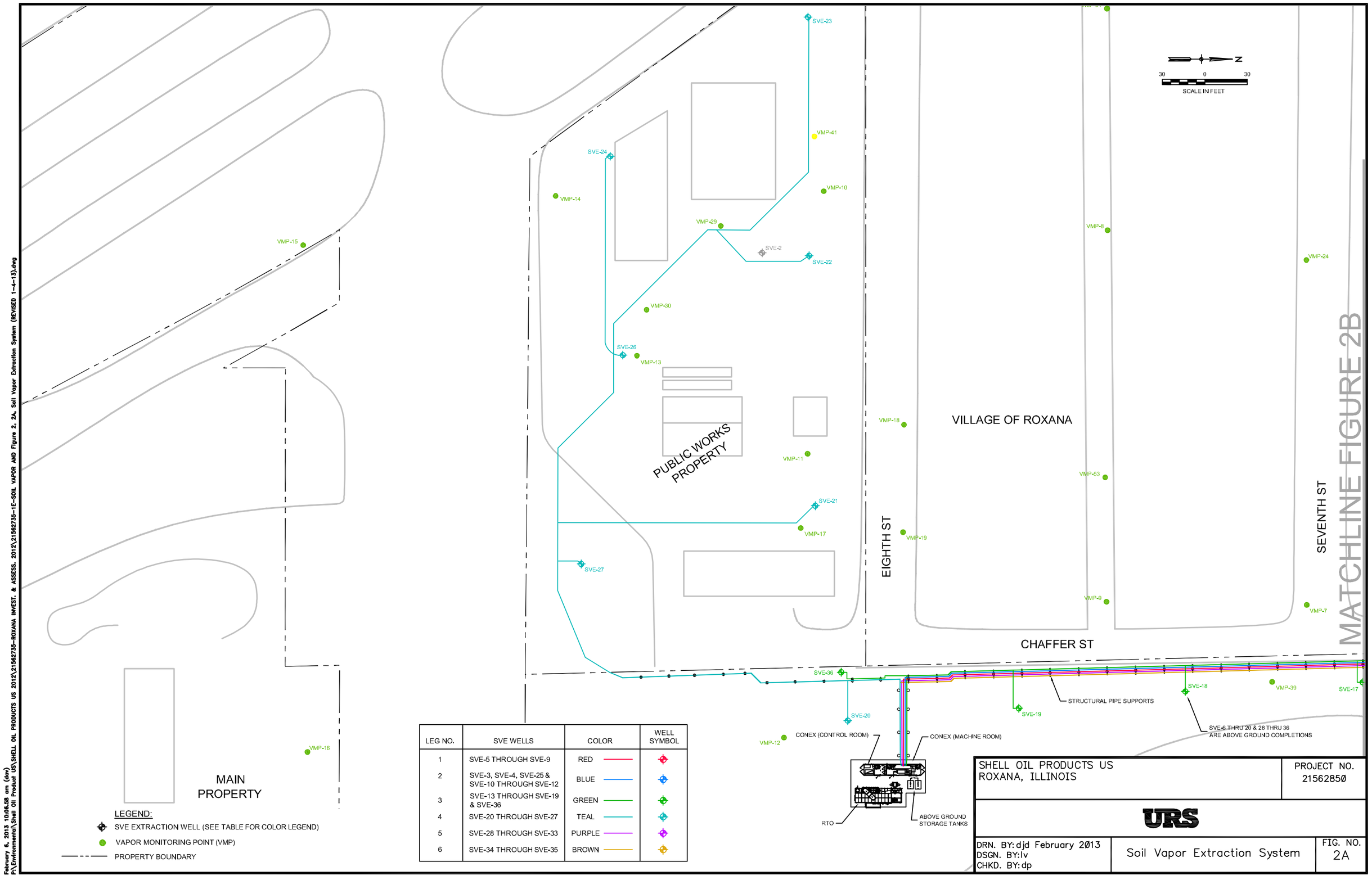
N

80 0 80

SCALE IN FEET

SHELL OIL PRODUCTS US ROXANA, ILLINOIS	PROJECT NO. 21562850
URS	
DRN. BY: djd February 2013 DSGN. BY: lv CHKD. BY: dp	Soil Vapor Extraction System Overall Plan
	FIG. NO. 2

February 6, 2013 9:55:32 am (dev)
P:\Environmental\Shell Oil Product US\SHELL OIL PRODUCTS US 2012\21562735-ROXANA INVEST. & ASSESS. 2012\21562735-1E-SOIL VAPOR AND Figure 2, 2A, Soil Vapor Extraction System (REVISED 1-4-13).dwg



LEGEND:

- SVE EXTRACTION WELL (SEE TABLE FOR COLOR LEGEND)
- VAPOR MONITORING POINT (VMP)
- PROPERTY BOUNDARY

LEG NO.	SVE WELLS	COLOR	WELL SYMBOL
1	SVE-5 THROUGH SVE-9	RED	
2	SVE-3, SVE-4, SVE-25 & SVE-10 THROUGH SVE-12	BLUE	
3	SVE-13 THROUGH SVE-19 & SVE-36	GREEN	
4	SVE-20 THROUGH SVE-27	TEAL	
5	SVE-28 THROUGH SVE-33	PURPLE	
6	SVE-34 THROUGH SVE-35	BROWN	

SHELL OIL PRODUCTS US
ROXANA, ILLINOIS

PROJECT NO. 21562850

URS

DRN. BY: djd February 2013
DSGN. BY: lv
CHKD. BY: dp

Soil Vapor Extraction System

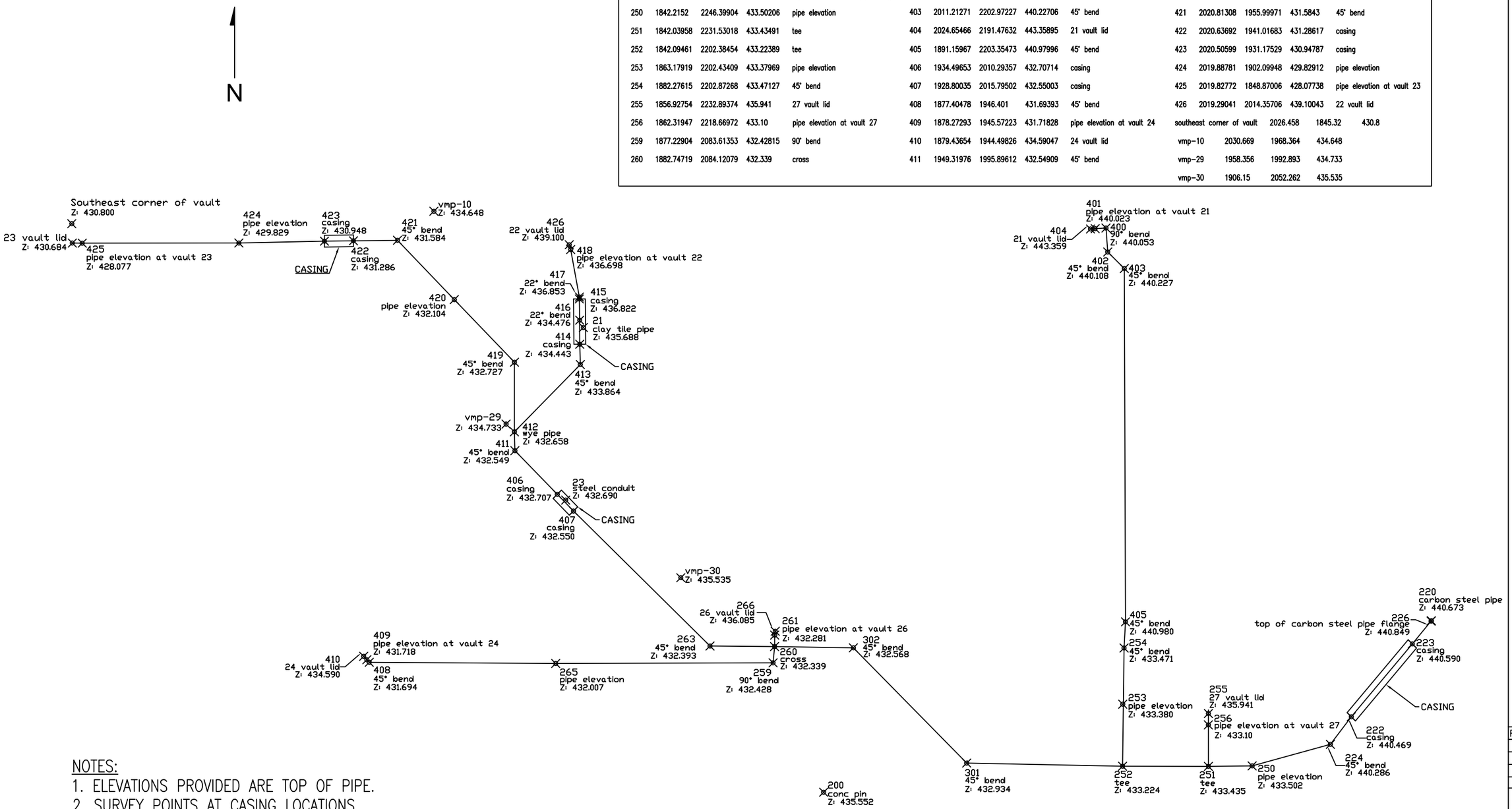
FIG. NO. 2A

February 6, 2013 10:06:58 am (dev)
P:\Environmental\Shell Oil Product US\SHELL OIL PRODUCTS US 2012\21562735-ROXANA INVEST. & ASSESS. 2012\21562735-1E-SOIL VAPOR AND Figure 2, 2A, Soil V

APPENDIX A

Korte & Luitjohan As-Built Drawing

NAME	N(y)	E(x)	z	DESC											
21	1991.16642	2019.15512	435.68824	clay tile pipe	261	1886.64466	2084.1749	432.28115	pipe elevation at vault 26	412	1955.73143	1995.72331	432.65838	wye pipe	
23	1932.52233	2013.14597	432.68985	steel conduit	263	1882.93827	2062.1854	432.39275	45° bend	413	1978.58398	2018.11651	433.864	45° bend	
200	1833.25438	2100.79763	435.5524	conc pin	265	1877.008	2009.75725	432.00739	pipe elevation	414	1985.48111	2017.93817	434.44315	casing	
220	1891.52535	2307.32101	440.67336	carbon steel pipe	266	1887.94673	2084.34745	436.08489	26 vault lid	415	2000.88373	2017.79724	436.82238	casing	
222	1858.88939	2280.10547	440.46885	casing	301	1843.1532	2149.40467	432.93386	45° bend	416	1993.66202	2017.91305	434.4761	22° bend	
223	1883.65511	2300.81848	440.58986	casing	302	1882.33024	2110.90481	432.56839	45° bend	417	2001.54352	2017.802	436.85277	22° bend	
224	1849.53459	2272.98442	440.28606	45° bend	400	2024.98059	2196.73949	440.0533	90° bend	418	2017.66615	2014.85323	436.69822	pipe elevation at vault 22	
226	1891.40325	2307.20176	440.84911	top of carbon steel pipe flange	401	2024.7603	2193.05777	440.02337	pipe elevation at vault 21	419	1979.36534	1995.74085	432.727	45° bend	
250	1842.2152	2246.39904	433.50206	pipe elevation	402	2016.83602	2197.32497	440.10809	45° bend	420	2000.64068	1975.29109	432.10391	pipe elevation	
251	1842.03958	2231.53018	433.43491	tee	403	2011.21271	2202.97227	440.22706	45° bend	421	2020.81308	1955.99971	431.5843	45° bend	
252	1842.09461	2202.38454	433.22389	tee	404	2024.65466	2191.47632	443.35895	21 vault lid	422	2020.63692	1941.01683	431.28617	casing	
253	1863.17919	2202.43409	433.37969	pipe elevation	405	1891.15967	2203.35473	440.97996	45° bend	423	2020.50599	1931.17529	430.94787	casing	
254	1882.27615	2202.87268	433.47127	45° bend	406	1934.49653	2010.29357	432.70714	casing	424	2019.88781	1902.09948	429.82912	pipe elevation	
255	1856.92754	2232.89374	435.941	27 vault lid	407	1928.80035	2015.79502	432.55003	casing	425	2019.82772	1848.87006	428.07738	pipe elevation at vault 23	
256	1862.31947	2218.66972	433.10	pipe elevation at vault 27	408	1877.40478	1946.401	431.69393	45° bend	426	2019.29041	2014.35706	439.10043	22 vault lid	
259	1877.22904	2083.61353	432.42815	90° bend	409	1878.27293	1945.57223	431.71828	pipe elevation at vault 24	southeast corner of vault		2026.458	1845.32	430.8	
260	1882.74719	2084.12079	432.339	cross	410	1879.43654	1944.49826	434.59047	24 vault lid	vmp-10	2030.669	1968.364	434.648		
					411	1949.31976	1995.89612	432.54909	45° bend	vmp-29	1958.356	1992.893	434.733		
										vmp-30	1906.15	2052.262	435.535		



NOTES:
1. ELEVATIONS PROVIDED ARE TOP OF PIPE.
2. SURVEY POINTS AT CASING LOCATIONS ARE ON TOP OF SVE PIPE JUST BEFORE AND AFTER PROTECTIVE CASING PIPE.

PIPE LOCATIONS

SCALE: 1/16" = 1' - 0"

A
P-1.0

KORTE & LUITJOHAN Contractors, Inc.
12052 HIGHLAND RD
HIGHLAND, ILLINOIS 62249
TELEPHONE: 618-654-9877

URS - SOIL VAPOR CONVEYANCE
E. 8TH ST. & S. CHAFFER AVE.
ROXANA, IL 62084

REVISION:	DATE:

SHEET TITLE: PIPE LOCATIONS
PROJECT NO.: –
DATE: 01/09/13
SHEET NO.: PIPE-1

APPENDIX B Contractor QA/QC Documentation and Test Results

Pressure Test Record Form

KORTE & LUITJOHAN Contractors, Inc.

Pressure test plan number: SVE System Piping	Project number: 1208	Pressure system ID: Roxana Public Works
Test Parameters: 75 psi for 60 min with 5% allowable variation in preassure		
Type of test:	Hydrostatic X	pneumatic
Test Date: 11/19/12	Test Start Time: 0800	Test End Time:1154
Test Duration: 3 Hours 54 Min.		Actual Holding Time: 71 min
Preasure Test Results:	Meets Requirements X	Doesn't Meet Requirements
Visual Inspection Results:	Meets Requirements X	Doesn't Meet Requirements

Action	Time Conducted	Personnel Involved
Filled Line With Potable Water	800	Keith Albers
Preasureized Line reading	815	Keith Albers
Adjustd to 75 PSI	820	Keith Albers
Preasureized Line to 80 PSI from 65	825	Keith Albers
Preasureized Line to 80 PSI from60	834	Keith Albers
Preasureized Line to 80 PSI from 50	903	Keith Albers
Preasureized Line to 80 PSI from70	908	Keith Albers
Preasureized Line to 80 PSI from 75	917	Keith Albers
Adjusted Line to 75 PSI	1039	Keith Albers
Line pressure stabilized at 75 PSI	1045	Keith Albers
Test ended at 75 PSI	1154	Keith Albers

Remarks: During pressure testing Keith Walked the lines and checked the welds for leaks,
No leaks were detected. Ending Pressure was with in Spec'd Tolerances.

Testing Technicians: KEITH ALBERS Signature: Keith Albers Date: 12/11/12

Witnessing Inspector: RAY SCHERRETZ Signature: Ray W Scherretz Date: 12/11/12

APPENDIX C Construction Photographs

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
1	10/19/12

Description:
Standing at WRR fence line looking southwest at the SVE pipe trench excavation.

Photo No.	Date
2	10/24/12

Description:
Looking southwest at installation of the 4" diameter HDPE SVE pipe placed within a 8" diameter HDPE protective casing pipe in the location of underground utilities.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
3	10/25/12

Description:
Looking southwest at installation of the 4" diameter HDPE SVE pipe placed within a 8" diameter HDPE protective casing pipe in the location of underground utilities. Protective pipe casings were painted orange and tracer wire was installed the full length of the SVE piping.

Photo No.	Date
4	10/25/12

Description:
At the WRR fence line looking northeast at the connection location of the 4" diameter HDPE SVE pipe from the Public Works Property to the 4" diameter carbon steel SVE pipe entering the WRR.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
5	10/26/12

Description:
Facing east, looking at the excavation and installation of the SVE piping to the east of the vault for SVE-27.

Photo No.	Date
6	10/26/12

Description:
Facing northeast, looking at the excavation and installation of the SVE piping to the vault for SVE-27.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
7	10/31/12

Description:
Facing east, looking at the excavation and installation of the SVE piping to the south of the vault for SVE-27.

Photo No.	Date
8	10/31/12

Description:
Facing northeast, looking at the excavation and installation of the SVE piping to the south of the vault for SVE-27.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
9	10/31/12

Description:
Installation of the concrete vault pad and galvanized vault. Facing southeast looking at the vault for SVE-27.

Photo No.	Date
10	11/1/12

Description:
Facing east, looking at the excavation and installation of the SVE piping to the southwest of the vault for SVE- 27

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
11	11/1/12

Description:
Looking inside the vault for SVE-27.

Photo No.	Date
12	11/5/12

Description:
Facing west, looking at the excavation and installation of the SVE piping to SVE-26 and SVE-24.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
13	11/9/12

Description:
Looking north at the installation of the 4" diameter HDPE SVE pipe and an 8" diameter HDPE protective pipe casing placed below an electrical conduit servicing the Public Works equipment fuel tank.

Photo No.	Date
14	11/9/12

Description:
Installation of the precast concrete pad for the vault for SVE 22. Facing north.

URS

PHOTOGRAPHIC LOG

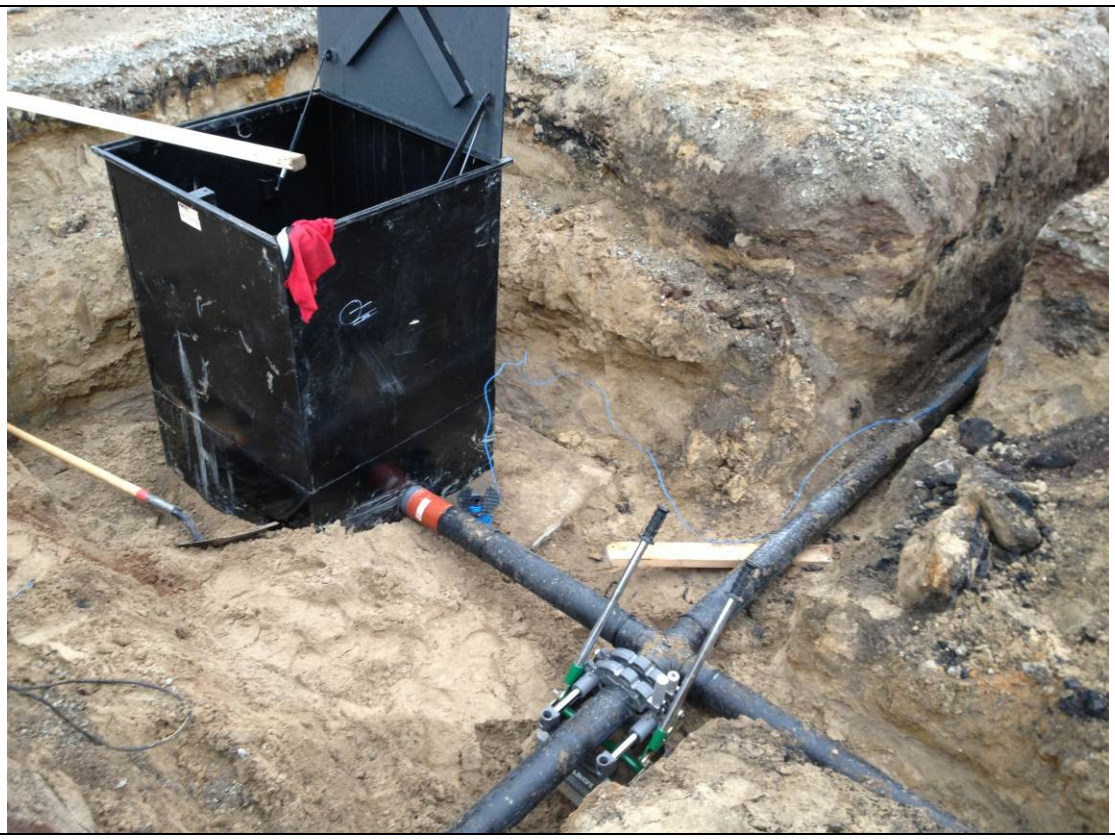
Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
15	11/9/12

Description:
Installation of vault for SVE-21. Facing north.

Photo No.	Date
16	11/6/12

Description:
Installation of vault for SVE-26. Facing northeast.



URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
17	11/9/12

Description:
Excavation for the SVE piping from the vault for SVE-21. Facing south.

Photo No.	Date
18	11/9/12

Description:
Trench backfill from vault at SVE-24 west to vault at SVE-26.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
19	11/13/12

Description:
Pipe trench excavation from vault at SVE-22 to vault at SVE-23. Facing east.

Photo No.	Date
20	11/14/12

Description:
Grading and resurfacing the Public Works roadway from the southwest entrance gate eastward to the back gate. Facing east.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
21	11/14/12

Description:
Looking north at the 8" dia HDPE protective pipe casing installed just below a clay tile sewer pipe.

Photo No.	Date
22	11/14/12

Description:
Pipe trench excavation from vault at SVE-22 to vault at SVE-23. Facing west.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
23	11/14/12

Description:
Preparation of 4" diameter HDPE pipe to be fusion welded.

Photo No.	Date
24	11/14/12

Description:
Fabrication and installation of the 4" diameter HDPE SVE pipeline from vault at SVE-22 to vault at SVE-23. Facing southeast.

URS

PHOTOGRAPHIC LOG

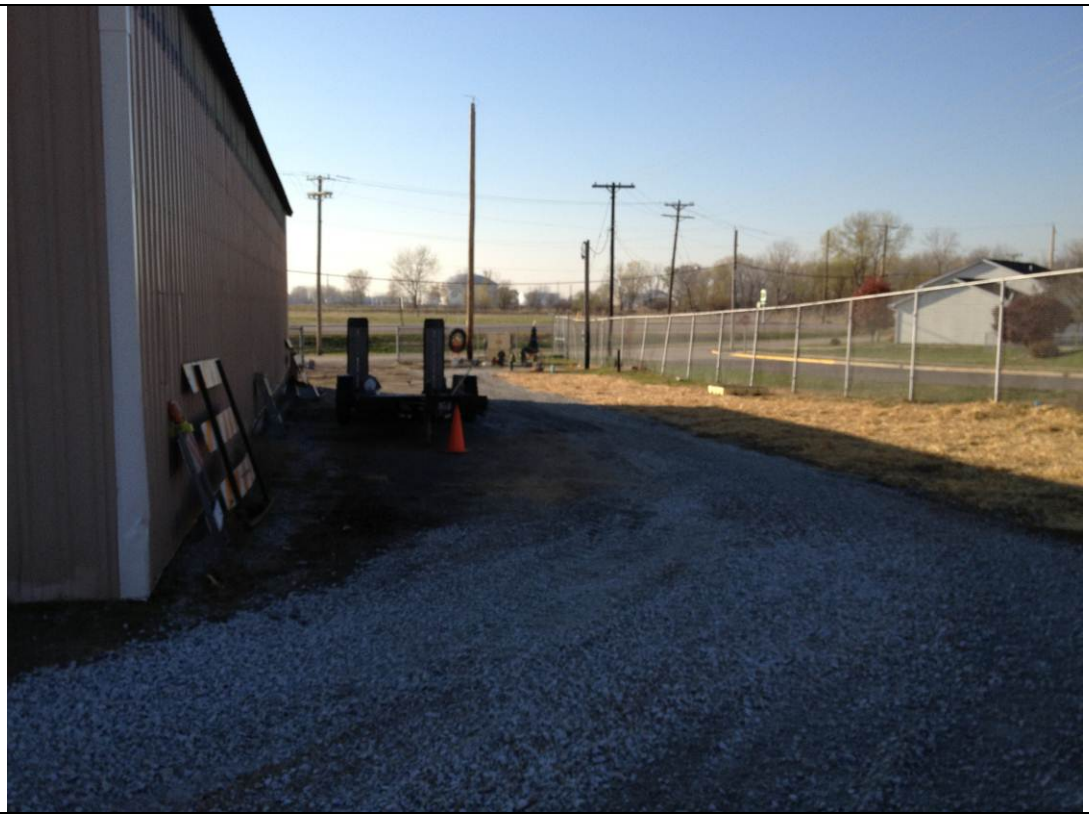
Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
25	11/14/12

Description: Fabrication and installation of the 4" diameter HDPE SVE pipeline from vault at SVE-22 to vault at SVE-23. Facing west.

Photo No.	Date
26	11/16/12

Description: Grading and resurfacing the Public Works roadway from the northwest entrance gate eastward along the north side of the Public Works buildings. Facing west.



URS

PHOTOGRAPHIC LOG

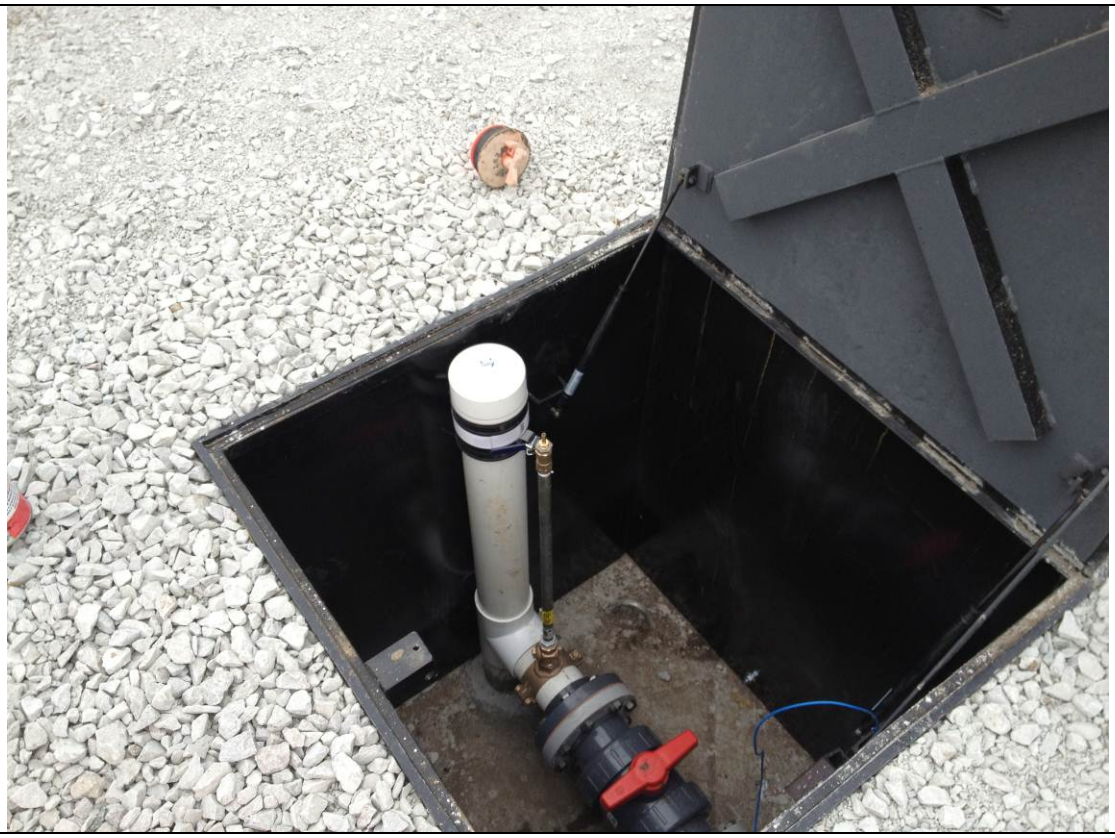
Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
27	11/16/12

Description:
Grading and resurfacing the Public Works roadway from SVE-22 south to SVE-26 along the east sides of the Public Works buildings. Facing south.

Photo No.	Date
28	11/16/12

Description:
Installation of vault at SVE-23. Facing north.



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Shell	Shell SVE System- Public Works Property	21562850.12000

Photo No.	Date
29	11/19/12

Description:
Finished grade with seed/straw along SVE pipe trench excavation running south from SVE-21. Facing south.

Photo No.	Date
30	11/19/12

Description:
Finished grade with seed/straw slope near SVE-27. Facing northeast.