

APPENDIX N: KINGSBERY PIPELINE SOIL SAMPLING

24 March 2017

Eric Stager
Austin Energy
721 Barton Springs Road
Austin, TX 78704

**RE: Pipeline Due Diligence Soil Sampling Project at Kingsbery Substation
Austin, Travis County, Texas (Environmental Services Rotation List Contract, Assignment 2.2)**

Dear Mr. Stager,

This letter report presents the results of pipeline due diligence soil sampling undertaken at the Kingsbery Substation and adjacent property (Kingsbery) in Austin, Texas by INTERA Incorporated (INTERA). The services were performed for Austin Energy under the Environmental Services Rotation List contract (MA PA 150000002). The Kingsbery Substation Pipeline Due Diligence Soil Sampling project (the Site) encompasses soil sampling along an out-of-service pipeline that runs adjacent to and underneath the Kingsbery Substation. The pipeline easement is approximately 30 feet wide and 2,068 feet long including the substation and drainage ditch; however, the substation and drainage ditch, which encompasses approximately 670 feet of the total footage, were not sampled due to safety concerns. **Figure 1** provides a Site Location Map while **Figure 2** shows the extent of the Kingsbery Substation Pipeline Due Diligence Soil Sampling project.

The letter report is organized as follows:

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- Section 2: Surface Soil Sampling Methodology
- Section 3: Analytical Results
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1.0 Introduction

INTERA was contracted under the City of Austin Environmental Rotation List contract to assist the City of Austin and Austin Energy in evaluating the potential for soil impacts stemming from operations at an out-of-service pipeline that runs through the Site. The pipeline travels through land adjacent to the Kingsbery Substation and

underneath the electrical substation (**Figure 2**). The pipeline easement is approximately 30-feet wide and 2,068-feet long; however, neither the substation (approximately 590 feet) or the drainage ditch (approximately 80 feet) were sampled due to safety concerns. For the purposes of this soil sampling event, the area of investigation is divided into two sections: the section west of the drainage ditch, accessed by Alf Avenue, and the section east of the drainage ditch, accessed by Lott Avenue. The pipeline is currently owned by Sunoco, and information regarding the pipeline was obtained from Sunoco representatives.

2.0 Surface Soil Sampling Methodology

Proposed soil boring locations were selected prior to mobilizing to the field for sample collection activities. These locations were initially selected using a combination of preprogrammed GPS coordinates that were obtained from a map provided by Sunoco and from pipeline flagging in the field. Thirty-eight locations were recorded prior to sampling activities using a hand-held GPS unit with sub-meter accuracy (**Figure 2**). Jack Lane, a representative from Sunoco Logistics, was on-site during sampling activities to locate the pipeline in the field and to adjust our locations to a safe distance from the pipeline. In no case were the revised sampling locations moved more than a foot from the previously marked sampling locations, so an updated GPS survey was not necessary.

Soil samples were collected from direct push borings advanced to a depth of one foot below the pipeline and at approximately every 40 linear feet alternating on either side of the pipeline as safety and vegetation would allow. Mr. Lane indicated that the joints of the pipeline are likely approximately 20 or 40 feet apart; however, there was no way to identify joint locations without excavating the pipeline. Mr. Lane also indicated that the pipeline was likely installed in the 1940s and was direct laid on the ground at a depth where the installers hit a hard surface, i.e. a sand bed was not placed in the pipeline trench. The depths of the bottom of the pipeline, as determined by Mr. Lane, are presented in **Table 1**.

Soil cores were described in the field using soil boring log field checklists and were field screened using a photoionization detector (PID). Soil boring log field checklists include basic lithological information and field screening data and are provided in **Attachment 1** of this report. Formal boring logs were not prepared for this project report. State of Texas Well Reports are provided in **Attachment 2**, and the field log book is included in **Attachment 3**.

Twenty-four soil borings were advanced on January 16, 2017 along the eastern section of the pipeline that is accessed off Lott Avenue. Twenty-seven samples were collected plus a duplicate and matrix spike/matrix spike duplicate (MS/MSD) from this area. Two samples were collected in each of three borings due to elevated PID readings. The area sampled accounts for approximately 920 feet of the pipeline. On January 17, 2016, one soil sample was collected from one boring (KPSS-08) on the eastern side of the substation between the substation and drainage ditch. This is a linear distance of 35 feet and is adequately sampled. Photographs are included in **Attachment 4**.

Portions of the pipeline were not sampled as described below:

- Four of the western most boring locations (BH-01 through BH-04) were inaccessible to the Geoprobe® unit due to thick vegetation.
- On the western portion of the Site, which is accessed off Alf Avenue and is where the substation is located, the flooding also made three of the four available boring locations inaccessible (BH-05 through

BH-07). Mr. Lane was also unable to determine the depth of the pipeline on the western side of the substation (BH-05 and BH-06) due to the flooding and related access issues.

- A 30" wastewater pipeline was reported by the City of Austin Water/Wastewater Department to run parallel to the drainage ditch; however, this utility had not been located during the OneCall process due to the Water/Wastewater Department being unable to locate the area where the borings were to be advanced although this area was white flagged. Several calls were made to the Water/Wastewater Department; however, there was no information available indicating the distance of the wastewater pipeline from the drainage ditch. On January 17th, the Water/Wastewater Utility Locator, John Alvarez, met the field crew at the site to locate the wastewater line; however, the locating system used by Mr. Alvarez is dependent on the truck driving to the location of the pipe and truck access was not available. Unfortunately, the wastewater pipeline could not be located. Also, flooding made the eastern portion of the site inaccessible to the Geoprobe® and additional work could not be performed on the eastern portion of the Site on January 17th. As such, soil boring locations BH-09 through BH-15 were not sampled, which represents approximately 221 feet of the pipeline. Photos are included in **Attachment 4**.

Soil samples were analyzed for Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) as indicators of possible impacts associated with the pipeline. The soil samples were collected following Method 5035 sampling protocol. The soil samples were collected, containerized, managed, and delivered to DHL Analytical in accordance with INTERA's Standard Operating Procedures (SOPs) (INTERA, 2016). Quality assurance samples including a field duplicate (duplicate pair KPSS-27/KPSS-39), MS/MSD, and trip blanks were collected.

3.0 Analytical Results

The soil samples were analyzed for:

- BTEX by EPA Method 8021B, and
- Total Petroleum Hydrocarbons (TPH) by TX1005.

Soil samples were collected following Method 5035 protocol.

None of the chemicals of concern were detected in the soil samples; therefore, a table of detections is not provided. Laboratory reports are included in **Attachment 5**, and sample results are provided on **Figure 2**.

4.0 IDW Results and Management

Investigation derived waste (IDW) was containerized in a 55-gallon drum and staged at the gate of the substation. IDW sampling was performed on the soil collected during boring activities by collecting a composite sample from the soil disposal drum. The composite sample was analyzed for:

- Metals Analysis by EPA Method SW6020A
- Mercury Analysis by EPA Method SW7471B
- Volatile Organics Analysis by EPA Method SW8260C
- Semivolatile Organics Analysis by EPA Method SW8270D
- PCB Analysis by EPA Method SW8270D
- Total Petroleum Hydrocarbons Analysis by TCEQ Method TX1005.

Chemical concentrations in the samples were less than the Texas Commission on Environmental Quality Texas Risk Reduction Program $^{Tot}Soil_{Comb}$ Protective Concentration Levels. Since chemical concentrations in the soil were less than regulated levels, the IDW soil was land applied at the Kingsbery substation property.

5.0 Data Quality

Associated QA samples were collected for soil samples. One field duplicate and one MS/MSD were collected for 28 samples. This does not follow the 1 per 20 guidelines in the project SAP (INTERA, 2017); however, samples are non-detect and the sample quality is not compromised. The data are acceptable for use for project objectives.

6.0 Summary

Approximately 920 feet of pipeline on the eastern portion and approximately 35 feet of pipeline on the western portion of the Site were investigated by advancing Geoprobe® borings to a depth at least one foot below the pipeline as determined in the field by a representative from Sunoco Logistics. Soil samples were taken from one foot below the pipeline and analyzed for BTEX and TPH. A total of twenty-eight samples were collected including 27 from the eastern portion of the property off Lott Avenue and one sample from the western portion of the property off Alf Avenue. These samples were collected from twenty-four soil borings on the eastern side of the property and one soil boring on the western side of the property. Neither BTEX nor TPH were reported in the analytical results from the samples collected at the Site. QA/QC samples including one duplicate and one matrix spike/matrix spike duplicate were also collected.

7.0 Conclusions

Samples were not collected on the western side of the substation, representing approximately 222 feet of pipeline, due to thick vegetation and an inability to determine the depth of the pipeline due to flooding; therefore, no conclusions can be made regarding the impacts of the pipeline in this area. On the eastern side of the substation between the substation and drainage ditch, one soil sample was collected from one boring representing approximately 35 linear feet along the pipeline. The results of this sample were non-detect providing reasonable indication that there are no impacts in this area as a result of the pipeline.

On the eastern side of the Site that is accessible from Lott Avenue, approximately 920 linear feet along the pipeline were sampled, and the results were non-detect providing a reasonable indication that there are no impacts to this area as a result of the pipeline. Due to a combination of an unmarked wastewater pipeline and flooding, approximately 221 linear feet along the pipeline was not sampled on the eastern side of the pipeline; therefore, no conclusions can be made as to possible impacts from the pipeline in this area.

Overall the sampling results do not indicate soil impacts from the pipeline. There is some uncertainty due to the fact that some portions of the pipeline could not be sampled. This uncertainty could be reduced by returning to the site to sample the additional planned locations under dry weather conditions and after the subsurface wastewater pipeline location is established.

8.0 References

INTERA, 2016. Standard Operating Procedure. SOP 13-Soil Sampling, Austin, Texas. November 2016.

INTERA, 2017. Sampling and Analysis Plan for Kingsbery Pipeline Soil Sampling, Austin, Texas. January 2017.

9.0 Closing

INTERA appreciates the opportunity to assist the City of Austin and Austin Energy with this environmental investigation. If you have any questions or comments regarding the information presented in the letter report, please contact the undersigned at (512) 425-2007 or rscadden@intera.com

Sincerely,

INTERA Incorporated



Richard A. Scadden, P.E.
Project Manager

Enclosures:

Tables: Table 1: Depth of Bottom of Pipeline

Figures: Figure 1: Site Location Map
Figure 2: Sample Location Map

Attachments: Attachment 1: Soil Boring Log Field Checklists
Attachment 2: State of Texas Well Reports
Attachment 3: Field Log Book
Attachment 4: Field Photographs
Attachment 5: Laboratory Data Reports

10.0 Professional Seals

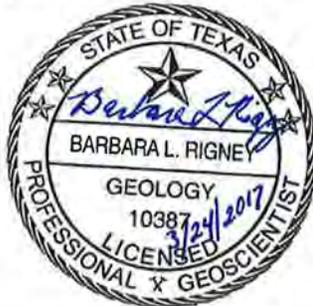
The information in this report was prepared under my supervision. The information is accurate and correct to the best of my knowledge. The information, data, and figures should not be used for purposes other than as elements of this overall report.



Richard A Scadden

Richard A. Scadden, P.E.
Project Manager

This report is sealed in accordance with the provisions of the Texas Geoscience Practice Act. The validity and integrity of this report, including all maps, figures, diagrams or boring logs, will remain intact as long as the report is reproduced in full and accompanied by this certification page and associated geoscientist seal.



Barbara L. Rigney, P.G.
Hydrogeologist

Table

Table 1. Depth of Bottom of Pipeline

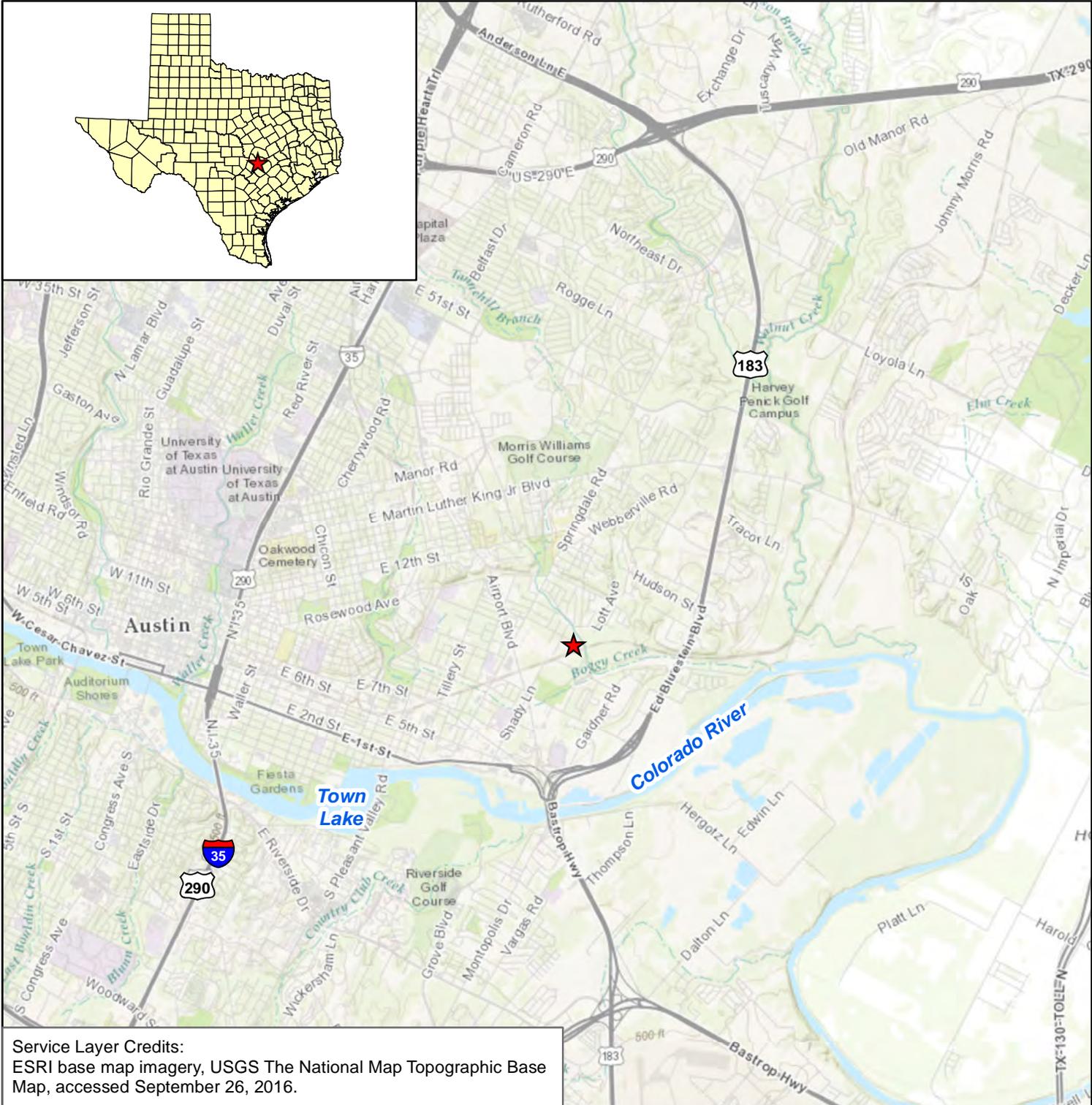
Table 1
 Kingsbery Pipeline Soil Sampling
 Depth of Bottom of Pipeline

Soil Boring Number	Depth of Bottom of Pipe
KPSS-1	inaccessible
KPSS-2	inaccessible
KPSS-3	inaccessible
KPSS-4	inaccessible
KPSS-5	no measurement available
KPSS-6	no measurement available
KPSS-7	inaccessible
KPSS-8	8'8"
KPSS-9	8'8"
KPSS-10	8'8"
KPSS-11	6'2"
KPSS-12	3'7"
KPSS-13	2'10"
KPSS-14	3'4"
KPSS-15	3'0"
KPSS-16	3'4"
KPSS-17	2'11"
KPSS-18	2'11"
KPSS-19	3'0"
KPSS-20	3'9"
KPSS-21	2'9"
KPSS-22	2'8"
KPSS-23	2'5"
KPSS-24	2'10"
KPSS-25	2'10"
KPSS-26	2'2"
KPSS-27	2'2"
KPSS-28	2'2"
KPSS-29	2'2"
KPSS-30	2'2"
KPSS-31	2'2"
KPSS-32	2'4"
KPSS-33	2'8"
KPSS-34	2'4"
KPSS-35	2'6"
KPSS-36	2'2"
KPSS-37	2'8"
KPSS-38	3'0"

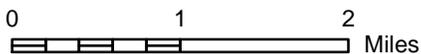
Figures

Figure 1. Site Location Map

Figure 2. Sample Location Map



Service Layer Credits:
 ESRI base map imagery, USGS The National Map Topographic Base Map, accessed September 26, 2016.

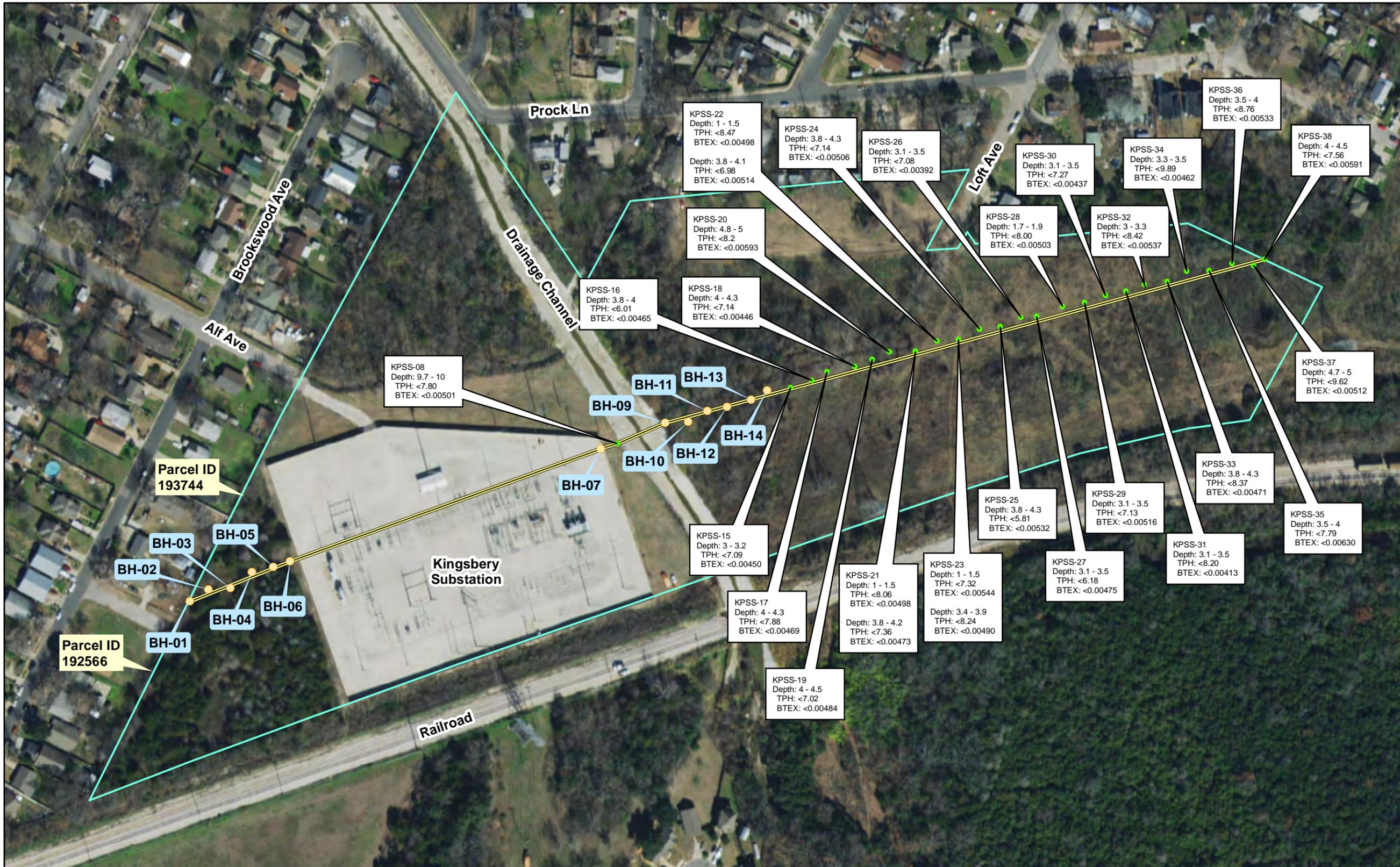


★ Site Location

Date: 9/28/2016
Ref: COAUS.M005.ESRL-2.2
File: Fig1_Location.mxd
INTERA GEOSCIENCE & ENGINEERING SOLUTIONS Firm PE Registration No. F-4722 Firm PG License No. 50189

Site Location Map
Kingsbery Pipeline Soil Due Diligence
Kingsbery Substation
Austin, Texas 78721

Figure 1



NORTH

0 125 250
Feet

- Borehole Sampled
- Borehole Not Sampled
- Pipeline
- Site Boundary

Date: 9/28/2016
 Ref: COAUS.M005.ESRL-2.2
 File: Fig2_Site Plan_10.3v2.mxd



Sample Location Map Kingsbery Pipeline Soil Sampling

**Kingsbery Substation
Austin, Texas 78721**

Figure 2

Notes: (1) Parcel/Site boundaries were obtained from the ArcGIS online Travis County Parcels (2015), accessed 9/26/2016. (2) Pipeline location was digitized from figure provided by Austin Energy.

Service Layer Credits: ESRI base map imagery, World Imagery, accessed 9/26/2016.