



**GOLDER**

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WASTE PERMITS DIVISION  
TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY

October 23, 2019

Project No. 19119232

**Ms. Karen F. Scott**

Industrial & Hazardous Waste Permits Section  
Texas Commission on Environmental Quality  
P.O. Box 13087, MC-130  
Austin, Texas 78711-3087

**RE: RESPONSE TO TCEQ ADDITIONAL COMMENTS LETTER DATED SEPTEMBER 6, 2019  
UNION PACIFIC RAILROAD COMPANY – HOUSTON WOOD PRESERVING WORKS  
HOUSTON, HARRIS COUNTY, TEXAS  
HAZARDOUS WASTE PERMIT/COMPLIANCE PLAN NO: 50343, ISWR NO 31547  
EPA IDENTIFICATION NO TXD000820266; RN100674613/CN600131098**

Dear Ms. Scott:

Golder Associates Inc. (Golder), on behalf of Union Pacific Railroad Company (UPRR), provides this letter in response to the Texas Commission on Environmental Quality (TCEQ) letter dated September 6, 2019 providing additional comments on UPRR's July 10, 2019 Response to 4<sup>th</sup> Technical Notice of Deficiency (TNOD) Letter dated April 11, 2019. Golder prepared these responses after discussions with the TCEQ at a meeting on September 23, 2019 (referred hereafter as the TCEQ meeting).

1. *As part of the proposed TPH Non-aqueous phase liquid (NAPL) assessment, UPRR proposes to collect continuous samples down to the top of the uppermost groundwater bearing unit (A-TZ) at 23 soil boring locations, shown in Attachment 2A-1a, to be logged and screened with an organic vapor meter (OVM). UPRR also proposes to submit up to two soil samples at each boring for lab analysis using TPH Method TX1005. Depending on the field screening results (e.g. OVM reading, observations of visual hydrocarbon screening, etc.) it may be necessary to submit more than two soil samples per boring location for TPH Method TX1005 analysis to adequately delineate affected soils vertically - pursuant to 30 TAC §350.51(d) which requires the vertical extent of affected soils be delineated to the higher of the method quantitation limit (MQL) or background. Secondly, UPRR needs to collect additional samples near the locations of the former two lagoons and three former 55,000 barrel above ground storage tanks (AST) to adequately characterize the potential source areas. Please see these approximate locations on the attached Figure 2A-1a.*

**UPRR Response to Comment No. 1**

As part of the proposed TPH soil evaluation discussed in the July 10, 2019 response, UPRR will collect soil samples from the surface and subsurface soil pathways to evaluate TPH concentrations to the appropriate protective concentration level (PCL). We intend on evaluating the vertical extent within the subsurface soil

Golder Associates Inc.  
2201 Double Creek Dr, Suite 4004, Round Rock, Texas, USA 78664

T: +1 512 671-3434 F: +1 512 671-3446

pathway to the top of the uppermost groundwater-bearing unit (GWBU) (i.e., A-Transmissive Zone (A-TZ)), which is typically encountered about 10 feet below ground surface. However, the vertical delineation objective for this assessment may not be the higher of the MQL or background. UPRR may apply the following TRRP Rule for the vertical delineation: 30 TAC 350.51(d)(4): *If a person has already determined that the groundwater is impacted, then they may satisfy the requirements of this subsection by declaring the entire soil column to the top of the lowest impacted groundwater bearing unit as a soil PCLE zone.* During the sampling of each boring, UPRR will evaluate if more than two samples are needed to adequately characterize the vadose zone. In addition, UPRR will collect and analyze groundwater samples for TPH by Method TX1005 during the next scheduled semi-annual groundwater sampling event from the monitoring wells located within the Englewood Intermodal Yard area as part of this TPH evaluation.

Although initially the TCEQ requested that UPRR install up to seven additional soil borings to assess the former source areas located within the Englewood Intermodal Yard during the TCEQ meeting, the TCEQ agreed that only one additional TPH assessment soil boring location within the area of the former lagoons and former above ground storage (AST) is necessary. Further, as agreed, UPRR proposes to consider the other TCEQ suggested soil boring locations as contingency locations shown on the revised Attachment 2A-1a that may be drilled and sampled depending on the CPT-TarGOST results located near the suggested soil boring locations. If significant TarGOST responses (i.e., in intensity and/or different TarGOST signatures) are observed at the location, UPRR will drill and sample the soils in the vadose zone and TPH soil samples will be collected from the contingency locations. To aid the TCEQ in review of the proposed locations, estimated location of the former lagoons and ASTs are shown on revised Attachment 2A-1a.

2. *In Attachment 2A-1a, UPRR includes proposed locations to conduct cone penetrometer (CPT)/Tar-specific Green Optical Screening Tool (TarGOST) as part of the NAPL Assessment that includes: 20 locations on UPRR property in the Englewood Intermodal Yard; four locations on the western UPRR property boundary; 10 locations at the north UPRR property boundary; four locations along the east UPRR property boundary; and eight locations offsite north of the UPRR property boundary. Additional locations need to be included in the CPT/TarGOST as shown in the attached Figure 2A-1a to delineate extent of NAPL that may have migrated beyond the facility property boundary. Once the CPT/TarGOST assessment begins, the TCEQ understands that some of the locations may need to be adjusted due to field conditions, infrastructure, and additional step out assessment as needed.*

#### Response to Comment No. 2

As discussed during the TCEQ meeting, UPRR will add up to five CPT/TarGOST locations on the northeast side of the Site near the crossing of Liberty Road and the Lockwood Bridge overpass (see Attachment 2A-1a). Locations in this area may need to be revised based on underground and overhead utilities. UPRR proposes to consider the additional CPT/TarGOST locations suggested by the TCEQ in the September 6, 2019 letter off site east and west of the Site as contingency locations. This approach will allow the field data to dictate the need for additional CPT/TarGOST locations. UPRR will conduct the proposed CPT/TarGOST locations within the Site along the east and west perimeter, and depending on the TarGOST results from those locations, UPRR will then conduct CPT/TarGOST borings off-site at the contingency locations as needed (see revised Attachment 2A-1a for the proposed contingency locations).

3. *For Attachment 2A-1b showing the proposed pentachlorophenol soil sample locations, UPRR needs to collect one additional sample on the western property boundary between sample points PW-S-004P and PW-S-003P. Also, sampling point SSO-DD01 should be moved to the western property boundary as shown in the attached Figure 2A-1b.*

Response to Comment No. 3

UPRR will add the additional sample location along the western perimeter of the Site and will move proposed location near SSO-DD01 to the TCEQ's suggested location.

4. *For Attachment 2A-2, showing proposed locations monitor well installation, UPRR needs to include additional monitoring wells to provide adequate delineation of affected groundwater in the AT-Z and BC/BTZ zones. Please see attached Figure 2A-2 for these approximate locations.*

Response to Comment No. 4

As agreed during the TCEQ meeting to adequately delineate affected groundwater, the revised number of proposed monitoring well locations are shown on the revised Attachment 2A-2 enclosed with this letter. This will result in the addition of the following wells (including the monitoring wells proposed in the July 10, 2019 submittal) completed in their respective GWBUs:

- A-TZ: Eight wells
- B-CZ/B-TZ: Ten wells
- C-TZ: Two wells

5. *The TCEQ acknowledges that UPRR included the July 3, 2019 letter in Appendix 3 of the response to address the 4th NOD comment T59. UPRR concluded the MW-68A groundwater chemicals of concern (COC) concentrations results were below the conservative EPA calculated vapor intrusion screening level (VISL) for estimated indoor air concentration. However, based on review of the January 2019 sampling results, additional assessment is needed in other areas of the A-TZ, both on-site and off-site, where sufficient delineation of all COCs has not been established and to support full evaluation of the VI pathway. UPRR should include assessment of the following areas identified on Figure 5B-9 (attached):*
  - a. *Off-site wells are needed to fully delineate all COCs where elevated naphthalene concentrations were observed in the MW-35A area.*
  - b. *Several more off-site wells are needed between MW-15A and MW-58A at the property boundary, and off-site on the northside of Liberty Road to fully delineate all COCs. Starting at well MW-15A, new wells should be installed approximately 100 feet apart extending to well MW58A. This will include a line of new wells along the on-site property line and a corresponding line of new wells located off-site on the northside of Liberty Road. In addition to the delineation, the COC results will provide information to evaluate if VISL (EPA, 2018) screening levels for the target groundwater concentration and the calculated indoor air concentrations are exceeded. Additionally, the results may allow for establishment of a lateral*

*inclusion zone (OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, EPA, 2015) in some areas.*

#### Response to 5a and 5b

As discussed during TCEQ meeting, the most recent groundwater data (July 2019) from the off-site A-TZ wells (MW-25A, MW-26A, MW-28A, MW-32AR, MW-33A, MW-35A, MW-36A, MW-44A, MW-68A) did not have any COC concentrations greater than the EPA VISLs. Monitoring wells MW-35A, MW-32AR, MW-33A, MW-36A, and MW-44A have not had detections of COCs above groundwater PCLs since 2014. The TCEQ indicated that the primary concern was for the potential of vapor migrating from impacted A-TZ groundwater. However, the proposed additional monitoring wells the TCEQ suggested in this comment (5a and 5b) in the September 6, 2019 letter will not necessarily provide additional data to adequately evaluate the potential for a complete vapor intrusion pathway in this area.

As an alternative evaluation for the VI pathway, UPRR proposes to conduct a soil gas assessment on the north side of Liberty Road. The proposed soil gas locations will be spaced between 100 and 200 feet from each other within the City of Houston right-of-way (ROW) sidewalk, with the proposed locations in general alignment with buildings off-site. In addition, to address the potential for the VI pathway near MW-35A per comment 5a, a soil gas probe will be installed within the City of Houston ROW east of MW-35A. UPRR proposes to install a total of 11 soil gas probes at the offsite locations as shown on Figure 1.

UPRR will advance soil borings to approximately 5 feet below ground surface and will install the probes through the concrete sidewalk using a hand auger to mitigate the risks of potentially damaging unmarked/unknown utilities at approximately 4.5 to 5 ft bgs. During the hand auger activities, two soil samples will be collected (0.5-1 feet below ground surface and from 4-5 feet bgs) and analyzed for Site-specific COCs and soil moisture to evaluate the vertical separation distance as outlined in EPA's 2015 *Technical Guide for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites*. Then we will install traffic-rated probe vaults (i.e., boxes) to protect soil gas probes and allow for future sampling. Proposed construction details of the soil gas probes are provided in Figure 2. Finally, UPRR will collect and submit the soil gas samples to the laboratory to selectively analyze soil gas samples for benzene, ethylbenzene, xylenes, and naphthalene by the appropriate analytical methods.

*c. Vadose zone soil samples should be collected and analyzed for all COCs at 2-foot intervals for all newly installed wells to determine whether the vadose zone soil is impacted by COCs. The primary purpose of analyzing the vadose zone soils is to determine if there is adequate vertical separation distance between the impacted groundwater and the ground surface, as outlined in EPA's 2015 Technical Guide for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites.*

*d. Soil samples should also be collected from the vadose zone in the immediate vicinity of MW-35A.*

#### Response to 5c and 5d

As discussed in the response to 5b, UPRR proposes to collect soil samples from each of the soil gas borings (including just east of MW-35A in the City of Houston ROW) for the 0.5-1-foot interval and 4-5-foot interval. Soil samples will be analyzed for Site-specific COCs and soil moisture to evaluate the vertical separation distance as



outlined in EPA's 2015 *Technical Guide for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites*.

*e. Since DNAPL is detected at the end of the interphase probe in MW-57A with no measurable DNAPL, MW-57A needs to be sampled for all dissolved phase COCs. All monitoring wells in which DNAPL is observed or detected (e.g. as a sheen or in trace amounts) need to be sampled for all dissolved phase COCs for adequate delineation.*

#### Response to 5e

During the next scheduled sampling event in January 2020, UPRR will sample the wells with DNAPL observed.

*f. Please note that additional assessment may be necessary, depending on the results of the sampling requested above and proposed in UPRR's response.*

#### Response to 5f

UPRR understands that additional assessment may be necessary based on the environmental data collected at the Site. Additional assessments will be dictated based on data needs that are technically defensible.

6. *In Appendix 2 of the January 2019 groundwater monitoring results, UPRR noted the presence of DNAPL in MW-49B, MW57A and MW-57B either as a sheen, or as DNAPL observed at the end of the interface probe. For clarification, in future report submittals, UPRR should note all unmeasurable observations of DNAPL in Table 5D as a "trace", with a foot note at the bottom of the table cross-referencing field notes or other documentation in which the observation was made.*

#### Response to 6

UPRR will use the terminology "trace" in future report submittals.

7. *The TCEQ has the following comments regarding the institutional controls (ICs) for UPRR's proposed new plume management zone (PMZ) boundary submitted in the revised Conceptual RAP:*

*a. Based on the pre-design assessment results, UPRR committed to submitting a final RAP that would include a final PMZ with ICs. The IC for the UPRR-owned property must include the TPH NAPL area and NAPL collection system. The TCEQ recommends that UPRR submit a draft IC for the UPRR-owned property for review and comment before including it in the final RAP.*

#### Response to 7a

UPRR will submit the draft IC to the TCEQ to include the TPH NAPL area and NAPL collection system.

*b. Review of the signed restrictive covenants (RCs) provided in Appendix E of the July 19, 2019 response included exhibits for the affected property, the PMZ and the required maintenance and monitoring for the PMZ that are not the currently proposed/known versions. Please clarify how this will be addressed. In the future, ICs must include a metes and bounds description of the portion(s) of the affected property to which the IC applies and plat map certified by a registered professional land surveyor. Please see 30 TAC § 350.111(a)(1)-(3) for requirements.*

#### Response to 7b

UPRR will amend the exhibits of the existing signed restrictive covenants provided in Appendix E of the July 10, 2019 response with descriptions of the final TCEQ-approved PMZ and maintenance and monitoring requirements once approved by the TCEQ. UPRR will not need to amend the restrictive covenant language placed on the individual parcels because the objective of the institutional control (i.e., groundwater restriction) has not changed since the entirety of each parcel identified is within the overall off-site PMZ.

In regard to satisfying the 30 TAC § 350.111(a)(1)-(3) requirements for institutional controls, discussions between UPRR and TCEQ were had in 2014 requesting the use of legal descriptions for each of the properties to establish the boundary of the individual restrictive covenants since each of these parcels were within the affected property boundary. A draft restrictive covenant was submitted to TCEQ via email to review on November 19, 2014 (a copy of the letter dated November 18, 2014 with the draft language is provided in Attachment A) prior to acquiring signatures on the restrictive covenants to eliminate revisions after the documents were signed. In addition, UPRR has submitted copies of the signed restrictive covenants using the legal description for each parcel with the Response Action Plan (RAP) revisions (provided in Appendix 5) going back to 2015. The boundary of the initial off-site PMZ including the affected property was surveyed by a professional land surveyor and a metes and bounds description was established for this area as provided in the Response Action Plan (RAP). As part of the amended restrictive covenant, the metes and bounds of the final PMZ/affected property boundary will be surveyed. With the overall PMZ boundary surveyed with a metes and bounds description certified by a licensed professional surveyor, it was agreed that plat maps with legal descriptions used for the signed restrictive covenants were acceptable.

*8. UPRR will be required to submit bi-Monthly Status Updates until the assessments are completed and the revised RAP is submitted.*

#### Response to 8

UPRR will submit status updates every other month until the pre-design assessments are completed, and the revised RAP is submitted.

Following TCEQ review and approval of the proposed field activities in this letter, UPRR will establish the schedule to complete the field activities and required responses to the 4<sup>th</sup> TNOD for the RCRA Permit Renewal Application. The TCEQ letter dated September 6, 2019 requested that the response to the 4<sup>th</sup> TNOD be submitted to the TCEQ within 180 days after the date of the letter. However, as discussed during the TCEQ

meeting and pending the final approved additional pre-design investigation scope of work, UPRR will need to request an extension to the due date set in the September 6, 2019 letter. The requested extension will be formally submitted to the TCEQ for review once the pre-design investigation scope of work is approved by the TCEQ and beginning phases of the field investigation are being implemented.

Please feel free to give me or Kevin Peterburs of UPRR at 414-267-4164 a call if you have any questions or comments.

Sincerely,

**Golder Associates Inc.**

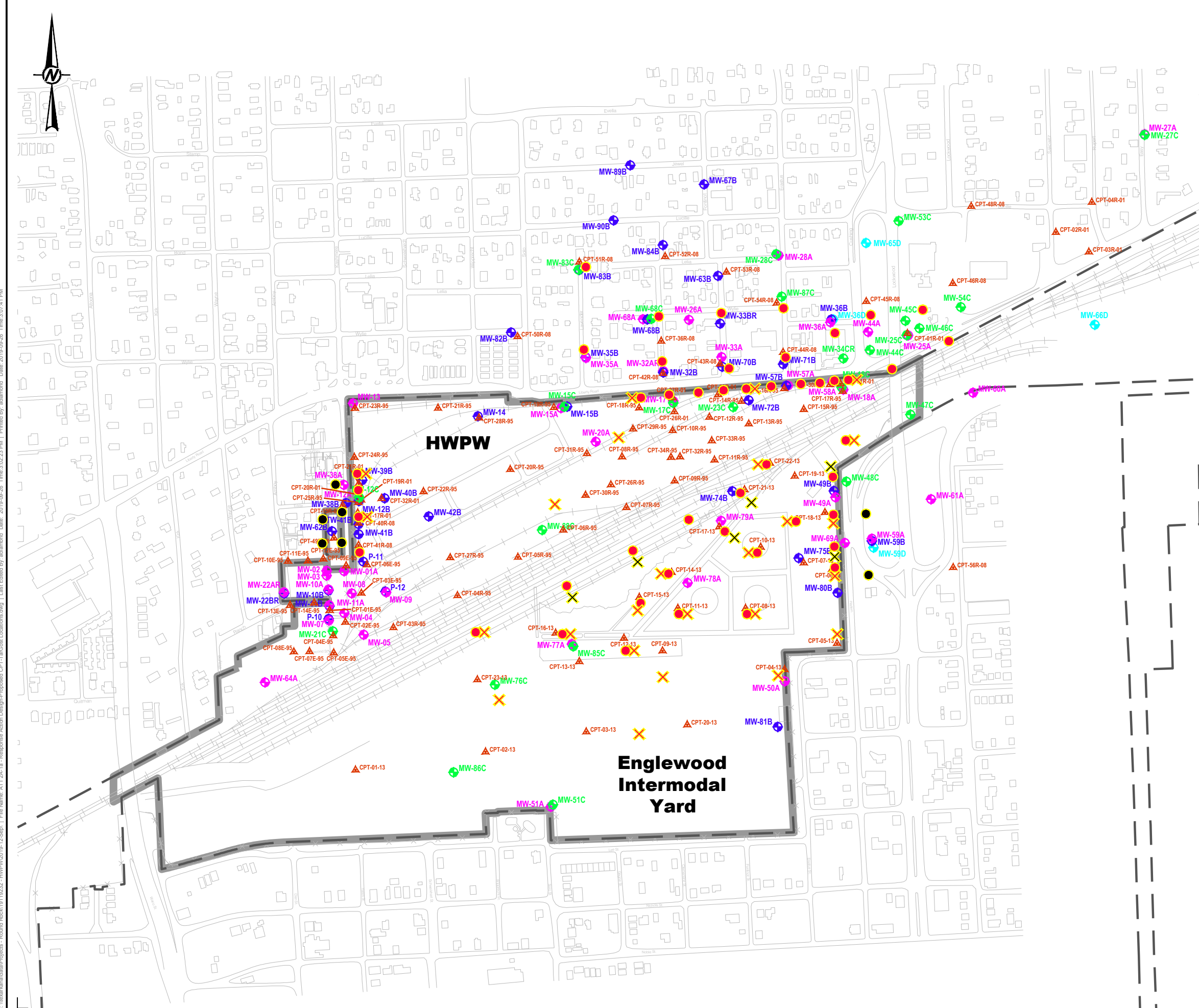


Eric C. Matzner  
*Principal / Practice Leader*

CC: Maureen Hatfield, TCEQ Corrective Action

Attachments: Attachment 2A-1a – Response Action Design – Proposed CPT-TarGOST Locations  
Attachment 2A-2 – Response Action Design – Groundwater  
Figure 1 – Proposed Soil Gas Sampling Locations  
Figure 2 – Soil Gas Probe Diagram  
Attachment A – November 18, 2014 letter to TCEQ














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# HWPW

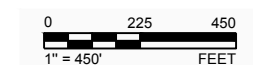
# Englewood Intermodal Yard

### LEGEND

- |   |  |
|---|--|
|  | UPRR PROPERTY BOUNDARY   |
|  | ROAD, PARKING LOT, SIDEWALK  |
|  | FENCE  |
|  | RAILROAD   |
|  | A-TZ MONITORING WELL LOCATION  |
|  | B-CZ/B-TZ MONITORING WELL LOCATION                                     |
|  | C-TZ MONITORING WELL LOCATION  |
|  | D-TZ MONITORING WELL LOCATION  |
|  | CPT/ROST LOCATION  |
|  | PROPOSED CPT/TarGOST LOCATION  |
|  | PROPOSED TPH SOIL SAMPLE LOCATION                                      |
|  | CONTINGENCY CPT/TarGOST LOCATION<br>(DEPENDING ON OTHER RESULTS)       |
|  | CONTINGENCY TPH SOIL SAMPLE LOCATION<br>(DEPENDING ON TarGOST RESULTS) |

**NOTE(S)**

1. PROPOSED LOCATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE, CONTINGENT UPON FIELD CONDITIONS.



CLIENT  
UNION PACIFIC RAILROAD CO.

## PROJECT HOUSTON WOOD PRESERVING WORKS

TITLE  
**RESPONSE ACTION DESIGN:  
PROPOSED CPT/TarGOST LOCATIONS**

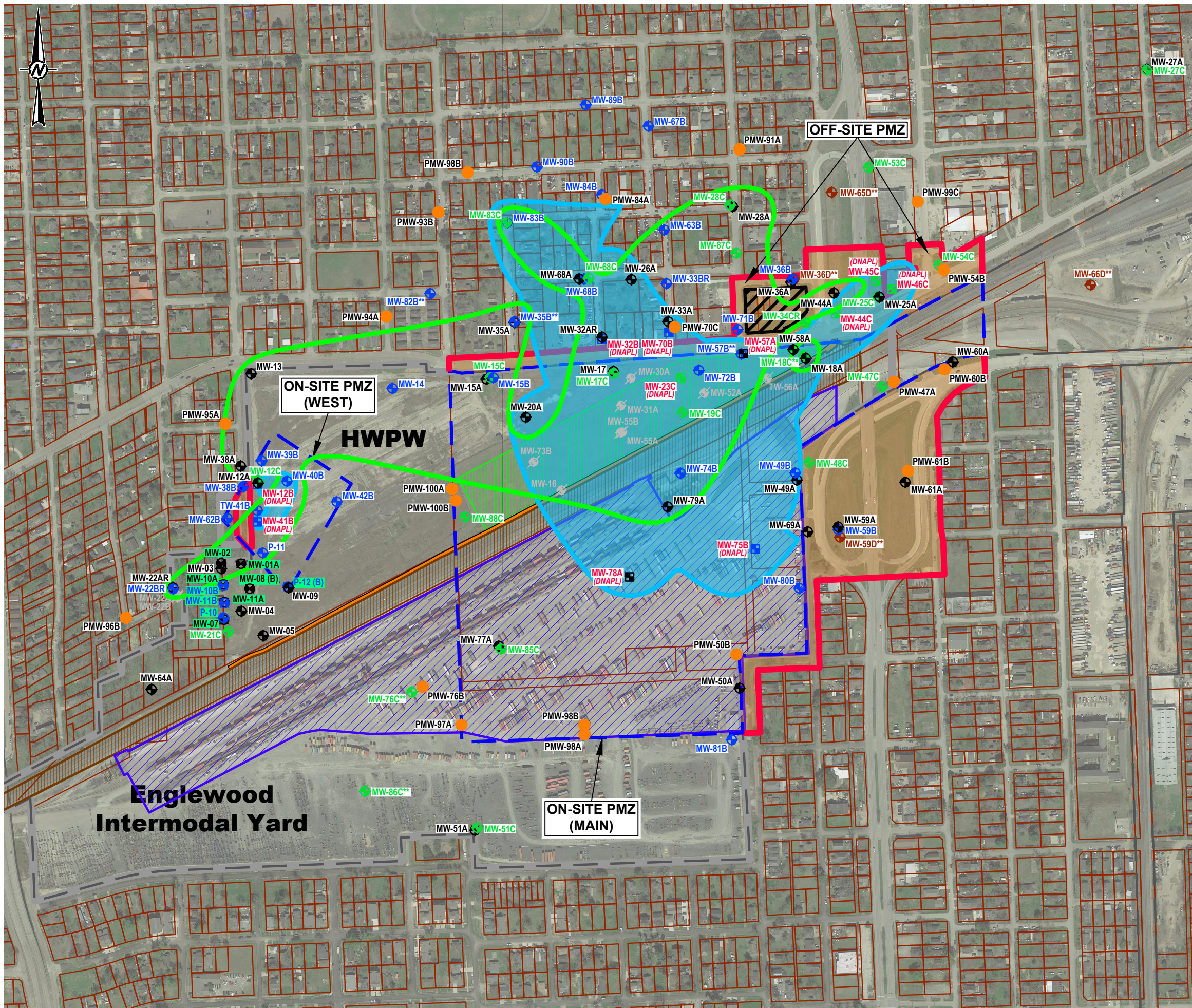
CONSULTANT	YYYY-MM-DD	2019-09-26
 <b>GOLDER</b>	DESIGNED	AJD
	PREPARED	AJD
	REVIEWED	MH
	APPROVED	ECM

PROJECT NO. 19119232	REV. 0	ATTACHMENT 2A-1a
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



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**LEGEND**

- UPRR PROPERTY BOUNDARY
- PROPERTY BOUNDARY (GIMS)
- A-TZ MONITORING WELL LOCATION
- B-CZ/B-TZ MONITORING WELL LOCATION
- C-TZ MONITORING WELL LOCATION
- D-TZ MONITORING WELL LOCATION
- CORRECTIVE ACTION SYSTEM WELL (DNAPL RECOVERY)
- PLUGGED AND ABANDONED
- GROUNDWATER PCLE ZONES (A-TZ, B-CZ/B-TZ AND C-TZ)
- GROUNDWATER PCLE ZONE - ARSENIC (A-TZ, B-CZ/B-TZ AND C-TZ)
- RCRA UNIT NO. 1 POINT OF COMPLIANCE (POC) WELL
- PROPOSED MONITORING WELL
- PROPOSED CUMULATIVE PMZ (A-TZ, B-CZ/B-TZ, AND C-TZ)
- PRELIMINARY ON-SITE PMZ (PENDING ADDITIONAL GROUNDWATER ASSESSMENT)
- PRELIMINARY OFF-SITE PMZ
- PRELIMINARY OFF-SITE PMZ CITY OF HOUSTON ROW
- PRELIMINARY OFF-SITE PMZ - PRIVATE PROPERTY (SIGNED RESTRICTIVE COVENANT/DEED)
- RAILROAD BALLAST CAP AREA
- ASPHALT CAP AREA
- SOIL CAP
- CONCRETE CAP AREA

**NOTE(S)**

- VERTICAL DATUM BASED ON CITY OF HOUSTON VERTICAL DATUM (HVD).
- DNAPL = DENSE NON-AQUEOUS PHASE LIQUIDS DETECTED IN MONITORING WELL (JANUARY 2019).
- \*\* - CORRECTIVE ACTION OBSERVATION WELL.
- (B) - BACKGROUND WELL.

**REFERENCE(S)**

PARCEL BOUNDARIES: CITY OF HOUSTON GEOGRAPHIC INFORMATION & MANAGEMENT SYSTEMS (GIMS).

AERIAL: GOOGLE EARTH, IMAGERY DATED 2/23/19.

**CLIENT**

UNION PACIFIC RAILROAD CO.

**PROJECT**

HOUSTON WOOD PRESERVING WORKS

**TITLE**

RESPONSE ACTION DESIGN - GROUNDWATER

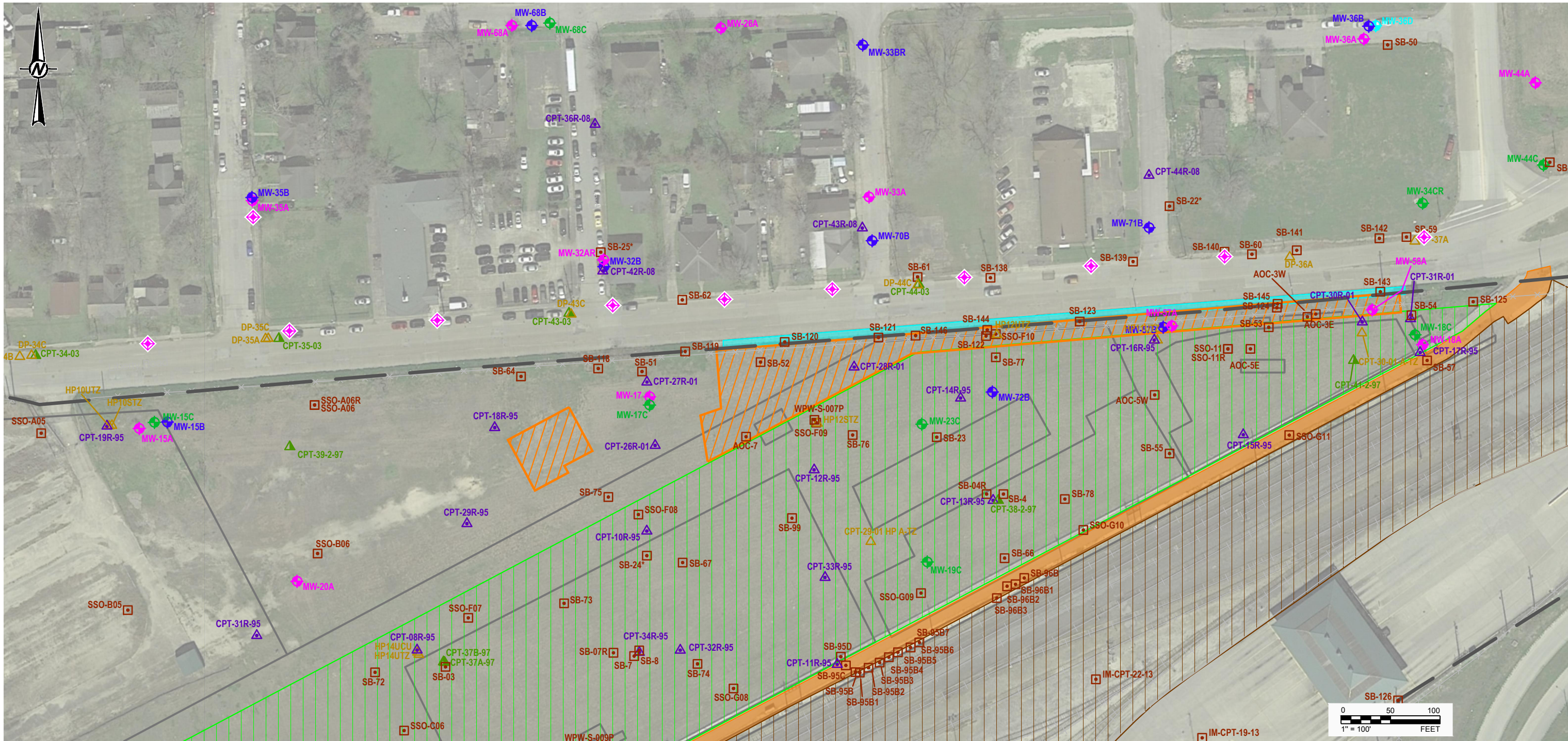
CONSULTANT	YYYY-MM-DD	2019-10-11
DESIGNED	AJD	
PREPARED	AJD	
REVIEWED	MH	
APPROVED	ECM	

PROJECT NO.	REV.	FIGURE
19119232	0	2A-2

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Path: \\usarh\arh\data\Projects - Round Rock\1919232 - WPMW\2019-10-11 - Proposed Soil Gas Sampling Locations.dwg | File Name: FIG 1 - Proposed Soil Gas Sampling Locations.dwg | Last Edited By: adiamond | Date: 2019-10-11 | Time: 1:54:54 PM



LEGEND

UPRR PROPERTY BOUNDARY

FENCE

RAILROAD

A-TZ MONITORING WELL LOCATION

B-CZ/B-TZ MONITORING WELL LOCATION

C-TZ MONITORING WELL LOCATION

D-TZ MONITORING WELL LOCATION

CPT WITH ROST LOCATION

CPT LOCATION

HYDROPUNCH SAMPLE LOCATION

SOIL BORING LOCATION

SOIL CAP AREA (20016)

ASPHALT CAP AREA

CONCRETE SIDEWALK CAP AREA

RAILROAD CAP AREA

SURFACE SOIL EXCAVATION AREA (2016)

PROPOSED SOIL GAS AND  
SURFACE SOIL SAMPLE LOCATION

NOTE(S)

1. \* SOIL ANALYTICAL DATA REJECTED BY VALIDATOR.

REFERENCE(S)

BASE MAP TAKEN FROM ERM-SOUTHWEST, INC APAR ADDENDUM, FIG 3-1, DATED JUNE 2004.  
AERIAL: GOOGLE EARTH, IMAGERY DATED 2/23/19.

CLIENT  
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PROJECT  
HOUSTON WOOD PRESERVING WORKS

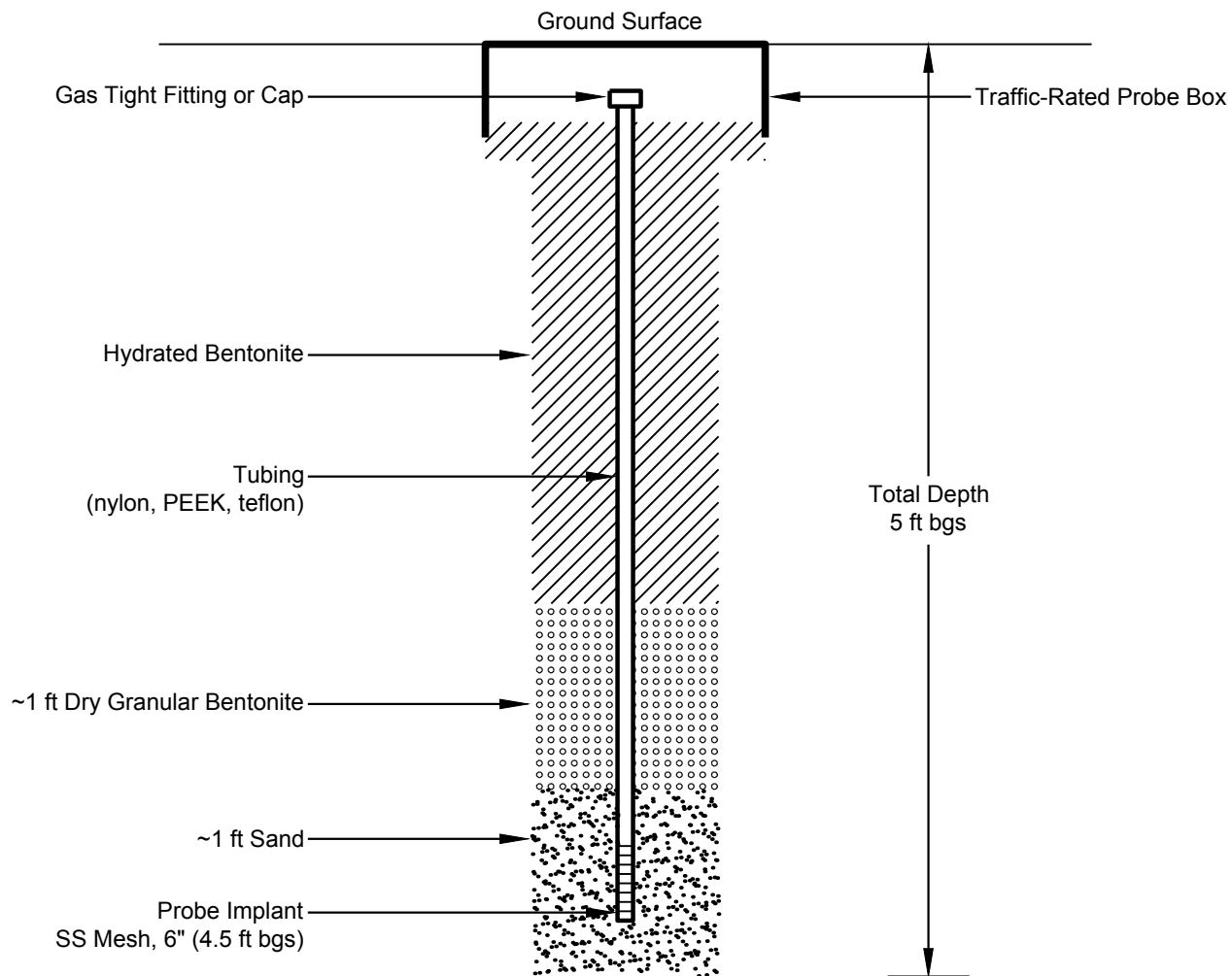
TITLE  
PROPOSED SOIL GAS & SURFACE SOIL SAMPLING LOCATIONS

CONSULTANT	YYYY-MM-DD	2019-10-11
DESIGNED	AJD	
PREPARED	AJD	
REVIEWED	MH	
APPROVED	ECM	

PROJECT NO. 19119232  
REV. 0  
FIGURE 1

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B





CLIENT  
UNION PACIFIC RAILROAD CO.

PROJECT  
HOUSTON WOOD PRESERVING WORKS

TITLE  
**SOIL GAS PROBE CONSTRUCTION DIAGRAM**

CONSULTANT



**GOLDER**

YYYY-MM-DD 2019-10-11

DESIGNED AJD

PREPARED AJD

REVIEWED ECM

APPROVED ECM

PROJECT NO.  
19119232

REV.  
0

FIGURE  
**2**

**ATTACHMENT A**

**November 18, 2014 letter to TCEQ**



*Consulting Engineers  
and Scientists*

**PASTOR, BEHLING & WHEELER, LLC**  
2201 Double Creek Drive, Suite 4004  
Round Rock, TX 78664  
Tel (512) 671-3434  
Fax (512) 671-3446

November 18, 2014  
PBW Project No. 1358

Ms. Maureen Hatfield  
**MC-127**  
VCP-CA Section, Team 1, Remediation Division  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, Texas 78711-3087

Re: Request for Preliminary Review of Restrictive Covenant Language for Off-Site Properties  
Houston Wood Preserving Works Facility  
4910 Liberty Road Facility, Houston, Texas  
Post-Closure Care Permit No. HW-50343; Industrial SWR No. 31547

Dear Ms. Hatfield:

Pastor, Behling & Wheeler, LLC (PBW), on behalf of Union Pacific Railroad Company (UPRR) regarding the site referenced above, prepared the attached draft version of the proposed Restrictive Covenant for Texas Commission on Environmental Quality (TCEQ) review. The attached Restrictive Covenant is an example of the institutional control for the off-site properties within the proposed off-site Plume Management Zone (PMZ). Details of the proposed PMZ will be provided in the Response Action Plan (RAP) that will be submitted to the TCEQ in December 2014. Once the RAP has been approved by the TCEQ, UPRR will then have the proposed PMZ surveyed by a licensed, professional surveyor with legal description and metes and bounds of that area. The land survey will be included in Exhibit 3 of the proposed Restrictive Covenant.

If you have any questions or need additional information, please feel free to call me at (512) 671-3434 or Mr. Geoffrey Reeder of UPRR at (281) 350-7197.

Sincerely,

PASTOR, BEHLING & WHEELER, LLC

Eric C. Matzner, P.G.  
Associate Hydrogeologist

cc: Waste Program Manager, TCEQ Region 12, Houston  
Mr. Geoffrey Reeder, P.G., UPRR – Spring, TX

**EXAMPLE OF OFF-SITE PROPERTY RESTRICTIVE COVENANT  
UPRR HOUSTON WOOD PRESERVING WORKS**



# RESTRICTIVE COVENANT

STATE OF TEXAS           §  
  §       KNOW ALL MEN BY THESE PRESENTS THAT:  
COUNTY OF HARRIS       §

This Restrictive Covenant is filed to provide information concerning certain environmental conditions and use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described in Exhibit 1 attached hereto and incorporated herein by reference.

*(The legal description of the entire recorded tract of land held by the owner executing this restrictive covenant, will be inserted here, with Exhibit 1 showing a map of the property. An example would be:*

***Lot Ten (10), in Block Five (5), of Finn Subdivision out of the Gagne Homestead, a subdivision in Harris County, Texas according to the map or plat thereof, recorded in Volume 1, Page 55 of the Map Records of Harris County, Texas. Map ID 12, Tax ID# 014-143-000-0010)***

Portions of the groundwater underlying the Property contain certain identified chemicals of concern (COCs) causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described on Exhibit 2, which is part of the plume management zone shown in Exhibit 3 attached hereto and incorporated herein by reference.

This Restrictive Covenant is required for the following reasons:

The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC §350.33(f)(4). A plume management zone was established so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached Exhibit 3 provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements.

As of the date of this Restrictive Covenant, the record owner of fee title to the Property is \_\_\_\_\_ (Owner) with an address of \_\_\_\_\_.  
In consideration of the Response Actions by Union Pacific (Responder), approval of the

Response Action Completion Report, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Owner has agreed to place the following restrictions on the Property in favor of the TCEQ and the State of Texas, to-wit:

1. Exposure to groundwater underlying the Affected Property for any purpose is prohibited until such time when all of the chemicals of concern no longer exceed their respective protective concentration levels. The maintenance and monitoring described in Exhibit 3 is required. Any modification of this restrictive covenant is prohibited without prior approval of TCEQ.
2. These restrictions shall be a covenant running with the land.

For additional information, contact:

TCEQ  
Central Records  
12100 Park 35 Circle,  
Building E  
Austin, Texas 78753

Mail: TCEQ - MC 199  
P O Box 13087  
Austin, Texas 78711-3087

TCEQ Program and Identifier No.: TCEQ SWR No. 31547

This Restrictive Covenant may be rendered of no further force or effect only by a release executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Restrictive Covenant is filed.

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

[OWNER]

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

STATE OF TEXAS

HARRIS COUNTY

BEFORE ME, on this the \_\_\_\_ day of \_\_\_\_\_, 2014, personally appeared \_\_\_\_\_[name]\_\_\_\_\_, \_\_\_\_\_[title]\_\_\_\_\_, of [owner], known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the \_\_\_\_ day of \_\_\_\_\_, 2014.

Notary Public in and for the State of Texas,  
County of Harris

My Commission Expires: \_\_\_\_\_

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

Union Pacific Railroad Company

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

STATE OF TEXAS

HARRIS COUNTY

BEFORE ME, on this the \_\_\_\_ day of \_\_\_\_\_, 2014, personally appeared \_\_\_\_\_[name]\_\_\_\_\_, \_\_\_\_\_[title]\_\_\_\_\_, of Union Pacific Railroad Company, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the \_\_\_\_ day of \_\_\_\_\_, 2014.

Notary Public in and for the State of Texas,  
County of Harris

My Commission Expires: \_\_\_\_\_

Accepted as Third Party Beneficiary this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

Texas Commission on Environmental Quality

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

STATE OF TEXAS

HARRIS COUNTY

BEFORE ME, on this the \_\_\_\_\_ day of \_\_\_\_\_, 2014, personally appeared \_\_\_\_\_[name]\_\_\_\_\_, \_\_\_\_\_[title]\_\_\_\_\_, of the Texas Commission on Environmental Quality, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and in the capacity herein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the \_\_\_\_\_ day of \_\_\_\_\_, 2014.

Notary Public in and for the State of Texas,  
County of Harris

My Commission Expires: \_\_\_\_\_

**EXHIBIT 1**  
**PROPERTY MAP**

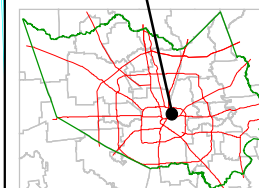


## 5559C10



Geospatial or map data maintained by the Harris County Appraisal District is for informational purposes and may **not** have been prepared for or be suitable for legal, engineering, or surveying purposes. It does **not** represent an on-the-ground survey and only represents the approximate location of property boundaries.

## MAP LOCATION



# FACET 5558A

1	2	3	4
5	6	7	8
9	10	11	12

DRAFT

**EXHIBIT 2**

**AFFECTED PROPERTY MAP**



## EXPLANATION

- UPRR Property Boundary
- Property Boundary (GIMS)
- A-TZ Monitoring Well Location
- B-CZ/B-TZ Monitoring Well Location
- C-TZ Monitoring Well Location
- Groundwater Affected Property (A-TZ, B-CZ/B-TZ and C-TZ)
- Alternate Groundwater Point of Exposure (POE)
- Attenuation Monitoring Point (AMP)
- Proposed Cumulative PMZ (A-TZ, B-CZ/B-TZ and C-TZ)
- Proposed Well for PMZ

### Notes:

1. Vertical datum based on City of Houston Vertical Datum (HVD).
2. DNAPL = Dense non-aqueous phase liquids detected in monitoring well (July 2014).
3. \* - On-Site PMZ includes UPRR-owned property and City of Houston Right of Way (ROW).



Approx. Scale in Feet  
0 200 400

Source:  
Parcel Boundaries: City of Houston Geographic Information & Management Systems (GIMS).  
Aerial: Houston-Galveston Area Council (HGAC) 2012 Aerial.

HWPW

Englewood  
Intermodal Yard

OFF-SITE PMZ

\*ON-SITE PMZ



UNION PACIFIC RAILROAD CO.

HOUSTON WOOD PRESERVING WORKS

Exhibit 2

## GROUNDWATER AFFECTED PROPERTY AND PLUME MANAGEMENT ZONE

PROJECT: 1358

BY: ZGK

REVISIONS

DATE: NOV., 2014

CHECKED: ECM

PASTOR, BEHLING & WHEELER, LLC  
CONSULTING ENGINEERS AND SCIENTISTS



**EXHIBIT 3**

**PLUME MANAGEMENT ZONE MAP AND MAINTENANCE/MONITORING  
REQUIREMENTS**