

ALDOT Former Bender Ship Building Site
Mobile, Alabama
ADEM VCP Site #: 461-097-26020

Fact Sheet

A Voluntary Cleanup Program (VCP) Voluntary Cleanup Plan has been found to be technically adequate by the Alabama Department of Environmental Management (ADEM) for the Former Bender Ship Building Site. The applicant is ALDOT. This fact sheet has been prepared to briefly advise the public of the principal legal and policy issues of the VCP.

I. VCP PROCESS

The VCP provides a mechanism for the implementation of a cleanup program that encourages applicants to voluntarily assess, remediate, and reuse rural and urban areas of actual or perceived contamination. The program does not relieve any “responsible person” for the liability for administrative, civil, or criminal fines or penalties which are otherwise authorized by law and imposed as a result of the illegal or unpermitted disposal of solid waste, hazardous waste, hazardous constituents, hazardous substances, petroleum products, and/or pollutants to the land, air, or waters of the State on an identified property. The program is designed to expedite the voluntary cleanup process and has been designed for entry at any stage of the cleanup process as long as all applicable criteria have been met up to the point of entry.

II. PROCEDURES FOR REACHING A FINAL DECISION

The ADEM is proposing to issue the parties listed prior, a final decision for the site remediation.

ADEM Admin Code R. 335-15-6-.02 requires that the public be given a 30-day comment period from the date of the notice. The comment period will begin on July 26, 2026, which is the date of publication of the public notice in major local newspaper(s) of general circulation and will end on August 25, 2026.

All persons wishing to comment on any of the conditions of the VCP Remediation should submit their comments in writing to the Alabama Department of Environmental Management, Permits and Services Division, 1400 Coliseum Blvd. (Zip 36110). P.O. Box 301463 (Zip 36130-1463) Montgomery, Alabama, ATTENTION: Mr. Russell Kelly. Written comments on the VCP activities should be submitted to the Alabama Department of Environmental Management and be received by 5:00 p.m. on November 13, 2026.

ADEM will consider all written comments received during the comment period while making a final decision on this issue. When the Department makes its final decision, notice will be given to the applicant and each person who has submitted written comments or requested notice of the final decision.

III. FACILITY DESIGN

Alabama Department of Transportation has completed a site investigation activity under the VCP program at the proposed Former Bender Ship Building Site. Chemicals found to be above their respective RSLs per EPA standard can be found within the published document from pages two to five.

IV. TECHNICAL CONTACT

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March 9, 2025

Ms. Caroline Santopadre
Kiewit Engineering Group, Inc.
10055 Trainstation Circle
Lone Tree, Colorado 80124

RE: Site Evaluation and Risk Assessment Revised
Former Bender Parcels
Mobile River Bridge and Approaches
Mobile, Alabama
SESI Project No.: M23-359

Ms. Santopadre:

Southern Earth Sciences, Inc. (SESI) has completed this Risk Assessment for the above-referenced project sites. This assessment is not intended to satisfy potential ecological risks for organisms not directly exposed to soil and/or groundwater at the subject sites due to the lack of significant contaminants reported within the groundwater at the facility.

The scope of this investigation was limited. It should be recognized that the results of this investigation are representative only of the locations sampled at the time of the investigation. These results are not necessarily representative of all areas of the subject properties or additional constituents that could be considered to impact the properties.

We appreciate this opportunity to be of service. If you have any questions regarding the enclosed data or if we may be of further assistance, please call 251.344.7711 or email eguarino@soearth.com.

Sincerely,

SOUTHERN EARTH SCIENCES, INC.

Eric A. Guarino, P.G.
Registered, Alabama 1101

Attachments

SITE EVALUATION AND RISK ASSESSMENT

Former Bender Parcels
Mobile River Bridge & Approaches
Mobile, Alabama
SESI Project No.: M23-359

Prepared For:

Kiewit Engineering Group, Inc.
10055 Trainstation Circle
Lone Tree, Colorado 80124

March 9, 2025 Revision



5460 Rangeline Road
Mobile, Alabama 36619
(251) 344-7711

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Former Bender Parcels - Mobile River Bridge and Approaches**

CERTIFICATION PAGE

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to 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."

SOUTHERN EARTH SCIENCES, INC.



Eric A. Guarino, P.G.
Registered, Alabama 1101

**Site Evaluation and Risk Assessment
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I. LIMITED SITE HISTORY AND PROJECT SUMMARY

The Former Bender Parcels are adjacent properties separated by railroad and city streets in downtown Mobile, Alabama (**Figures 1 and 2**). The western parcel most recently served as an office for the former shipbuilding/repair company. The eastern parcel is located along the Mobile River and formerly served as a location for repair and/or construction of marine vessels. Uses prior are not known, but it is likely the parcels had been historically utilized for commercial/industrial purposes. The Alabama Department of Transportation (ALDOT) provided prior environmental assessments for review. The review of these assessments assisted with determination of potential constituents that may have impacted the soil and/or groundwater on the properties. Review of the available documents indicated impacts to soil and groundwater; however, the reports did not indicate a specific “source” of the soil and/or groundwater contamination. The field activities conducted by SESI in 2024, as part of this evaluation, also did not identify a specific “source” for reported constituents. Identification of a specific source or source location would allow for a more detailed evaluation of fate, transport, and attenuation of the reported constituents. Overall, there were not significant groundwater issues identified and the constituents reported in the soil do not readily appear to the leaching or migrating into the groundwater onsite and causing adverse impacts

II. FIELD ACTIVITIES

As directed, SESI completed soil and groundwater sampling at the referenced sites between February 2024 and October 2024. The project was administratively halted in March 2024.

Boring Advancement, Soil Sampling and Well Installation

A total of thirty-one (31) soil borings were advanced by hand auger to a depth of approximately four feet or to groundwater, whichever was encountered first. If groundwater was not encountered, soil borings were advanced using direct-push technology and dual tube sampling equipment. Collected soil was screened at one-foot intervals using a photoionization detector (PID). Soil samples were collected at the surface (0-1' below ground surface) or from deeper intervals at select locations. Deeper soil interval samples were collected based on PID readings, visibly different layer, or immediately above groundwater. Groundwater was encountered as shallow as two (2) feet below land surface. All soil samples were submitted to Eurofins Pensacola for laboratory analyses for volatile organics, semi-volatile organics, polychlorinated biphenyls (PCBs), and target analyte list (TAL) inorganics. Specific analyses varied with boring location. Boring locations are illustrated on the Site Plan (**Figure 3**). Sample and Lithology Logs detailing PID screening and soils are presented in **Appendix A**.

Following the completion of soil sampling, eleven (11) temporary wells (TW) were advanced using direct-push technology. The wells were generally installed to depths of approximately seven (7) to eight (8) feet below land surface. Wells were constructed of 2-inch diameter, Schedule 40 PVC consisting of five feet of 0.010" slotted screen threaded to solid riser. Filter sand was installed to a depth of less than one foot below land surface

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and the top stickup completed with a clay seal. Well Construction and Lithologic Description Logs are presented in **Appendix A**.

Groundwater Elevation

Groundwater elevation was established measuring the depth to groundwater referenced to the top-of-casing elevation. Groundwater elevations were noted as ranging from 0.22 to 3.24 feet above sea level. A general groundwater flow map is presented as **Figure 4**. **Figure 5** is a map illustrating the calculated hydraulic gradient. **Table 5** is presented as a summary of the groundwater elevation data.

As part of the field evaluation, a slug test was performed on TW-2. The hydraulic conductivity was evaluated using Bouwer & Rice. The hydraulic conductivity was determined to be 4.57×10^{-3} centimeters per second (cm/s). A copy of the slug test evaluation results are presented in **Appendix B**.

Decontamination

All field and sampling equipment was cleaned using Liquinox® followed by a deionized water rinse. All decontamination waste was placed within the centralized collection location maintained by Kiewit.

Investigation Derived Waste

All soil cuttings, sampling material waste, development water, well purge water was containerized during sampling activities. At the completion of each day, the waste was placed within the appropriate container at the centralized collection location maintained by Kiewit.

III. OVERALL ARBCA EVALUTION PROCESS

The evaluation of site data generally conforms to the *Alabama Risk-Based Corrective Action (ARBCA) Guidance Manual, Rev. 3.0, February 2017*. The process first involves screening of constituents using the EPA Regional Screening Levels (RSLs). Further evaluation involves the advancement of the evaluation to Risk Management Level One (RM-1) with additional evaluation and exposure determination using site specific data for Risk Management Level Two (RM-2). For the purposes of this assessment and evaluation, site data is compared to the RSLs for soil and groundwater followed by the RM-2 guidance criteria. There is the potential for exposure and excessive risk due to the future public access or green space that will be created following completion of the proposed bridge and approach construction at the subject properties. Detailed discussion of screening criteria exceedances is not conducted due to the tiered approach of the evaluation and the public access and imminent construction worker exposure.

IV. SOIL ANALYTICAL SUMMARY-SURFICIAL SOIL

Inorganics RSL

The inorganic analysis indicated surficial soil concentrations of aluminum, antimony,

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arsenic, barium, cadmium, cobalt, copper, iron, lead, manganese, nickel, silver and zinc above the EPA Regional Screening Level (RSL) for residential (unrestricted) property usage. Concentrations of antimony, arsenic, cadmium, iron, and lead were reported above the Industrial RSL. **Table 1** is a summary of the detected inorganic constituents in the surficial soil.

Polychlorinated Biphenyls RSL

The PCB Arochlor 1260 was reported in the surface sample collected at SB-12, SB-21, and SB-26. The concentration reported at SB-21 and SB-26 were above the residential RSL with the concentration at SB-26 also above the industrial RSL. PCB sample results for the surficial soil are summarized in **Table 1**.

Organic Constituents

Volatiles RSL

Acetone, carbon disulfide, benzene, toluene, xylenes, methyl ethyl ketone (MEK), and 1,2,4-trimethylbenzene were reported within the surface samples. There were no concentrations of volatile organics in the surficial soil samples reported above the residential RSL.

Semi-volatiles RSL

Numerous semi-volatile organic constituents were reported by the analysis. The primary constituents reported consisted of polycyclic aromatic hydrocarbons (PAHs). The constituents benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and dibenzo(a,h)anthracene were reported above the residential RSL.

A summary of the detected volatile and semi-volatile organic constituents for the surficial soils are presented in **Table 2**.

Sample locations are illustrated on **Figure 2**. A complete copy of the laboratory analytical reports are presented in **Appendix B**.

V. SOIL ANALYTICAL SUMMARY-SUBSURFACE SOIL

Inorganics

The inorganic analysis indicated subsurface soil concentrations of aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, vanadium and zinc above the EPA Regional Screening Level (RSL) for residential (unrestricted) property usage. Concentrations of aluminum, antimony, arsenic, cadmium, iron, lead, mercury, nickel, selenium, and zinc were reported above the Industrial RSL. **Table 3** is a summary of the detected inorganic constituents in the subsurface soil.

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Polychlorinated Biphenyls

The PCB Arochlor 1260 was reported in the subsurface samples collected at SB-18 (1'-2'), SB-23 (1'-2'), SB-24 (1'-2'), SB-24 (2'-3'), SB-25 (1'-2') and SB-26 (2'-3'). The concentrations reported at SB-18, SB-23 (1'-2'), SB-24 (2'-3'), SB-25 (1'-2') and SB-26 (2'-3') were above the Industrial RSL. PCB sample results for the subsurface soil samples are summarized in **Table 3**.

Organic Constituents

Volatiles

Acetone, benzene, bromomethane, carbon disulfide, chloromethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, toluene, xylenes, methyl ethyl ketone (MEK), n-propylbenzene, sec-butylbenzene, p-cymene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene were reported within the subsurface soil samples. There were no concentrations of volatile organics in the subsurface soil samples reported above the residential RSL.

Semi-volatiles

Numerous semi-volatile organic constituents were reported by the analysis. The primary constituents reported consisted of PAHs. However, none were reported above residential RSL.

A summary of the detected volatile and semi-volatile organic constituents for the surficial soils are presented in **Table 4**.

As part of the evaluation of site criteria, physical samples were collected to evaluate the physical and chemical properties of the existing soils. Specifically, porosity, dry-bulk density, and water content were determined for soils above and below the groundwater table. Also, as part of the evaluation, the physical samples underwent analyses for fractional organic carbon. This is intended to allow for the determination of natural carbon soil content. Based on the widespread detections of organic constituents in the soil, it is likely that natural concentrations may be skewed as part of the reported impacts.

Sample locations are illustrated on the Site Plan (**Figure 2**). Copies of the physical soil data are presented in **Appendix C**. Fractional organic carbon concentrations are presented in the laboratory analytical reports (**Appendix D**).

VI. GROUNDWATER ANALYTICAL SUMMARY

Groundwater samples were collected in October 2024 following the resumption of site activities following the administrative pause. Groundwater samples were collected for the constituents of concern. Groundwater Sampling Logs are presented in **Appendix E**.

Groundwater analyses are compared to the EPA Maximum Contaminant Level (MCL) or

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the National Primary Drinking Water Standard. The EPA also has Secondary Standards for certain constituents as they impact water quality based on clarity, taste or odor. In the absence of an MCL or a Secondary Standard, the Alabama Department of Environmental Management (ADEM) guidance states the EPA Tapwater criteria should be used for initial screening.

Inorganics

The groundwater analytical reports indicated detectable concentrations of aluminum, arsenic, barium, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc. The reported concentration of lead from TW-1 was at a concentration above the MCL. The concentrations of iron and manganese from all TW were above the Secondary Standard. The concentration of aluminum from TW-1 was also above the Secondary Standard. **Table 6** is presented as a summary of the detected inorganic constituents with comparison to the screening criteria.

Organic Constituents

Volatiles

Benzene was the only volatile organic constituent reported in the groundwater samples. Benzene was reported as an estimated concentration (J flag value) in TW-9. The “J flag value” indicates the constituent concentration is estimated between the method detection limit (MDL) and the practical quantification limit (PQL) aka the reporting limit (RL). The concentration is below the respective criteria (MCL). **Table 7** includes the volatile organic constituent compared to the MCL.

Semi-volatiles

Numerous semi-volatile organic constituents were reported by groundwater analyses. The primary constituents reported consisted of PAHs. The constituents were acenaphthene, anthracene, benzo(a)anthracene, chrysene, fluoranthene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, phenanthrene and pyrene. Of the reported constituents, the estimated concentration (J flag value) of benzo(a)anthracene in TW-8 and naphthalene in TW-5 were above the EPA Tapwater criteria. A summary of the detected semi-volatile organics with comparison to the screening criteria is presented in **Table 7**.

VII. RISK ASSESSMENT

Exposure Model and Exposure Pathways

The Conceptual Site Model (CSM) for the facility regarding risk evaluation accounts for current and future exposure relating to resident, commercial workers, and construction worker scenarios. The current and most immediate future risk will be for commercial workers to access the property with future construction worker exposure.

Public benefit and use as a green space require evaluation as residential due to the potential for child access and exposure.

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Exposure pathways include dermal contact, particulate inhalation, ingestion, and inhalation of vapors in outdoor air. Groundwater ingestion is not a viable or complete pathway. Groundwater is not a source of supply onsite, but is not currently prohibited by covenant or restrictions. Dermal contact with groundwater is considered incidental and is not evaluated.

Regarding the most limiting exposure (resident due to child access), the RM-2 data does not negate the lead soil exposure criteria for children used by the US Department of Housing and Urban Development (HUD).

SESI uses computational software (ARBCA Computational Software Ver. 6.0) produced by Edge Engineering & Science LLC. A summary of the complete exposure pathways is presented in the computed ARBCA software presented in **Appendix F**.

Target Risk

The ARBCA guidance document indicates acceptable risk is less than 1×10^{-5} for the Individual Excessive Lifetime Cancer Risk (IELCR) of carcinogens or a Hazard Index (HI) of 1.0 or greater for non-carcinogens. The ARBCA software indicates the IELCR risk exceeds the acceptable value for resident exposure, commercial exposure and construction worker scenarios. The software also indicates the HI is exceeded for the resident exposure, commercial exposure and construction worker scenarios. These risk determinations are considered slightly skewed due to the limiting of constituents to concentrations above the unrestricted use EPA RSLs. The calculated target risk was exceeded for residential, commercial and construction worker exposure scenarios for the IELCR and the HI. Cumulative Risks ranged from 10^{-4} to 10^{-5} with HI ranging from 1.5 to 60. Target risk determination is presented in the computed ARBCA software presented in **Appendix F**.

Fate and Transport

Due to the elevated constituent concentrations within the surficial soil and subsurface soil within the areas that will be subject to dermal contact during construction and the future public access green space, SESI progressed the evaluation to the RM-2 tier.

The RM-2 tier allows for the use of site-specific data to determine clean up levels for the properties.

SESI evaluated the constituents with concentrations that exceed the EPA RSL in the surficial soil, subsurface soil and/or groundwater using the default exposure factors and site-specific fate and transport parameters, if determined.

Exposure factors and fate and transport parameters are presented in **Appendix F**.

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Representative Concentration and RM-2 Evaluation

Due to the potential for public exposure to site contaminants in the surficial soil and due to the limited amount of data available, the maximum constituent concentrations were used in the RM-2 evaluation. SESI considered evaluation using the 95% of the Upper Confidence Limit, however; review of data concerning the lead concentration and determination of the 95% UCL still indicated a 95% arithmetic mean of several thousand milligrams per kilogram (mg/kg) or parts per million (ppm), equivalent. Therefore, the additional steps to remove maximum constituent concentrations and focus on the 95% arithmetic mean was not considered relevant.

SESI evaluated the risk using the RM-2 criteria based on the maximum constituent concentration respective of surficial soil, subsurface soil and/or groundwater.

The maximum concentrations for constituents with concentrations above the EPA Residential RSLs are summarized in the Representative Concentration Sections of the ARBCA Evaluation (**Appendix F**).

Clean Up Level Determination

The RM-2 process calculations determine a “clean up level” for constituents of concern based on fate and transport and exposure.

Clean up levels should be used as guidance for selection of personal protective equipment and procedures or to avoid certain portions of the properties. Clean up levels should not be used for final evaluation without response from the Alabama Department of Environmental Management.

Table 8 is presented as a summary of the derived Clean Up Levels with regard to the location of the impacted material (surficial soil, subsurface soil, groundwater).

Figures 6 through 27 are presented illustrating the calculated cleanup levels with regards to the exposure scenario (residential, commercial, construction worker). Exposure scenario is depth dependent with the residential and commercial scenarios being surficial soil (0'-1') and construction worker exposure considered to the depth of construction or highest concentration of the surface or the subsurface soil. These figures indicate contours illustrating the areas with excessively impacted material.

Surficial Lead Exposure and Children

Due to the future use of the site as public access green space, the exposure of small children to surface soil is considered a complete pathway as similar to exposure of a residential area. Lead concentrations in the surficial soil at the properties ranged from 26 mg/kg to 15,000 mg/kg. The toxicity of lead to developing children has been well documented. As previously mentioned, HUD in conjunction with the US EPA and through the Toxic Substances Control Act (TSCA) specifically have guidance relating to childhood

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exposure to lead impacted soils. **Figure 20** is presented illustrating the lead impacted surface soils with regards to the allowable Residential Lead exposure level (200 mg/kg).

The US EPA and TSCA guidance that was reviewed indicate a maximum concentration of soil lead concentration to be 400 mg/kg. However, as of November 2024, the Regional Screening Level for lead was lowered to 200 mg/kg for residential soil. The review and listing of guidance within this document have been modified from the prior levels to represent the current, lower concentration.

For full evaluation and consideration of lead exposure, SESI reviewed US *EPA Lead Safe Yards - Developing & Implementing a Monitoring, Assessment and Outreach Program, for Your Community (January 2001)*. This guidance outlines the EPA and the HUD recommended actions which are to be taken when excessive amounts of lead is present in the soil of a residential area.

The recommended action for different soil levels is summarized below:

- Below 400 ppm (currently 200) requires no action.
- Lead concentrations from 400 ppm (Currently 200) to 2000 ppm instructs to cover bare soil with grass or mulch, install walking paths for high traffic areas, install raised play and picnic areas filled with woodchips, and install raised-bed garden and supplement with clean topsoil.
- Lead concentrations 2000 ppm to 5000 ppm instructs to relocate gardens and children's play area and picnic areas, if possible.
- Lead concentrations above 5000 ppm - If soil removal or permanent barriers are not possible then install a semi-permanent barrier, such as a wood-framed drip box filled with gravel or mulch.

Section 403 (January 2001) of the Toxic Substances Control Act (TSCA) is meant to be complementary to the current regulations provided by the EPA. Section 403 indicates that there is a Bare Soil-Lead Hazard in residential soils exceeding 400 ppm in children's play area and 1,200 ppm in the remainder of the yard.

Per TSCA guidance:

- Lead concentration below 400 ppm (current concentration is 200ppm) requires no action;
- Lead concentrations between 400 (currently 200)-1,200 ppm controls are to cover bare soil, use doormats in entryways, and wash hands, toys, etc., more frequently; and
- It is recommended to remove the contaminated soil where concentrations are above 1,200 ppm.

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Construction Worker Exposure Evaluation

Review of RM-2 data and Clean Up Level delineation maps indicate the potential for construction worker exposure to exist over approximately 90% of the surface area of the property to the localized groundwater table. SESI was not provided with specific details for all activities to be conducted or construction depths.

Polychlorinated Biphenyls and TSCA

For exposure purposes, it may be beneficial to remove PCB impacted soils with concentrations above the residential RSL. It is common for minor PCB concentrations (<10 mg/kg) to be capped in place. Due to the potential for future public access and the dermal contact scenario considered a complete exposure pathway, delineation and removal of excessive PCB impacted soil may be the preferred consideration. One portion of the site indicates a calculated exceedance of the construction worker exposure clean up level. Should construction be planned within this area, removal of excessively impacted soils may be necessary to lower the risk for exposure during construction activities (**Figure 27**).

Groundwater

The groundwater analytical data was provided to ADEM to ascertain the need to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) Individual Permit for the project. Mr. Scott Ramsey (ADEM) provided an electronic transmittal stating the groundwater data did not appear to indicate a water quality concern that would necessitate the requirement of an individual NPDES permit for dewatering activities.

VIII. CONCLUSIONS

Complete exposure pathways exist for the current and future residential, commercial or construction worker scenarios. The reported soil and/or groundwater concentrations at the facility exceed the target risk as specified in the ARBCA guidance. Constituents of concern exceed the calculated RM-2 Clean Up Levels. **Figures 28-30** are presented illustrating the overall extents of the respective areas of impact for the residential, commercial and construction worker RM-2 Clean up levels. Ingestion of groundwater is not considered to be a complete pathway.

IX. RECOMMENDATIONS

Stakeholders (Contractors and ALDOT) should consult with the Alabama Department of Environmental Management to determine if additional institutional or engineering controls for the properties are required.

Construction activities should be evaluated to limit the dermal exposure to workers and at a minimum, the application of wetting agents to control the potential for generation of dust and incidental inhalation of impacted materials.

It would be beneficial for detailed plans to be generated to allow for further evaluation of

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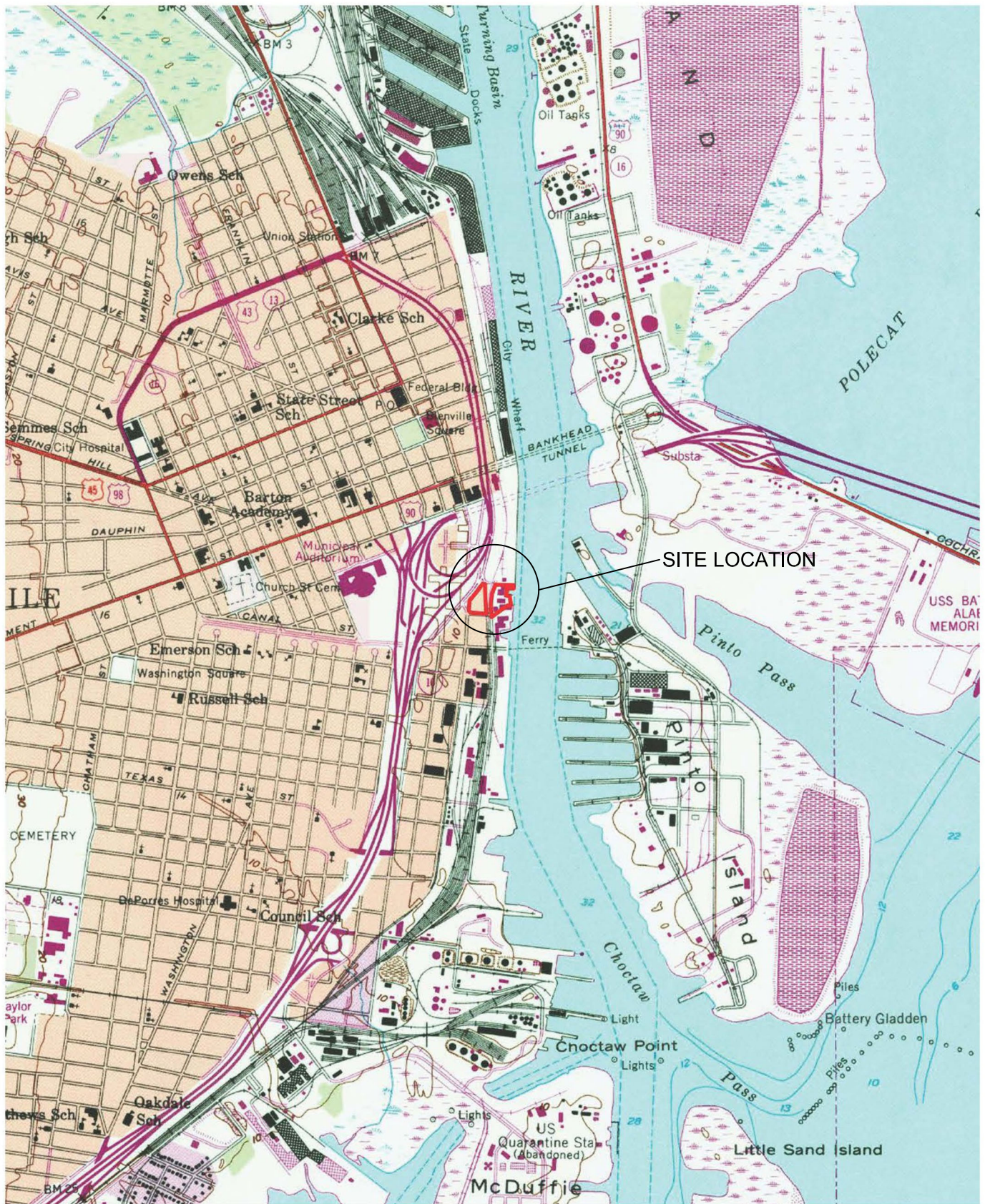
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the public accessibility of the properties. As indicated, the exposure to lead (and other constituents) in the surficial soil may adversely impact children through dermal contact or incidental inhalation. Stakeholders should consider mitigation or engineering controls to limit or eliminate the potential for exposure to the public.

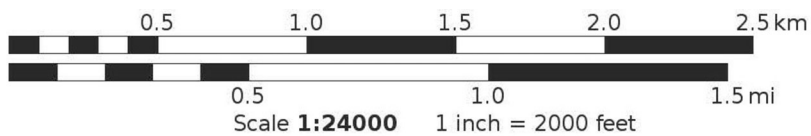
Any excavation that occurs should be performed with the knowledge that disposal of soils shall involve the determination of the status of the waste to comply with the Resource Conservation and Recovery Act (RCRA) regulations or the Toxic Substances Control Act.

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FIGURES



Mercator Projection
WGS84
UTM Zone 16R



MOBILE RIVER BRIDGE
BENDER RISK ASSESSMENT
MOBILE, ALABAMA



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FIGURE 1
TOPOGRAPHIC MAP
SESI JOB #: M23-359



Mercator Projection
WGS84
UTM Zone 16R



MOBILE RIVER BRIDGE
BENDER RISK ASSESSMENT
MOBILE, ALABAMA



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FIGURE 2
AERIAL MAP
SESI JOB #: M23-359

INTERSTATE-10

WATER STREET

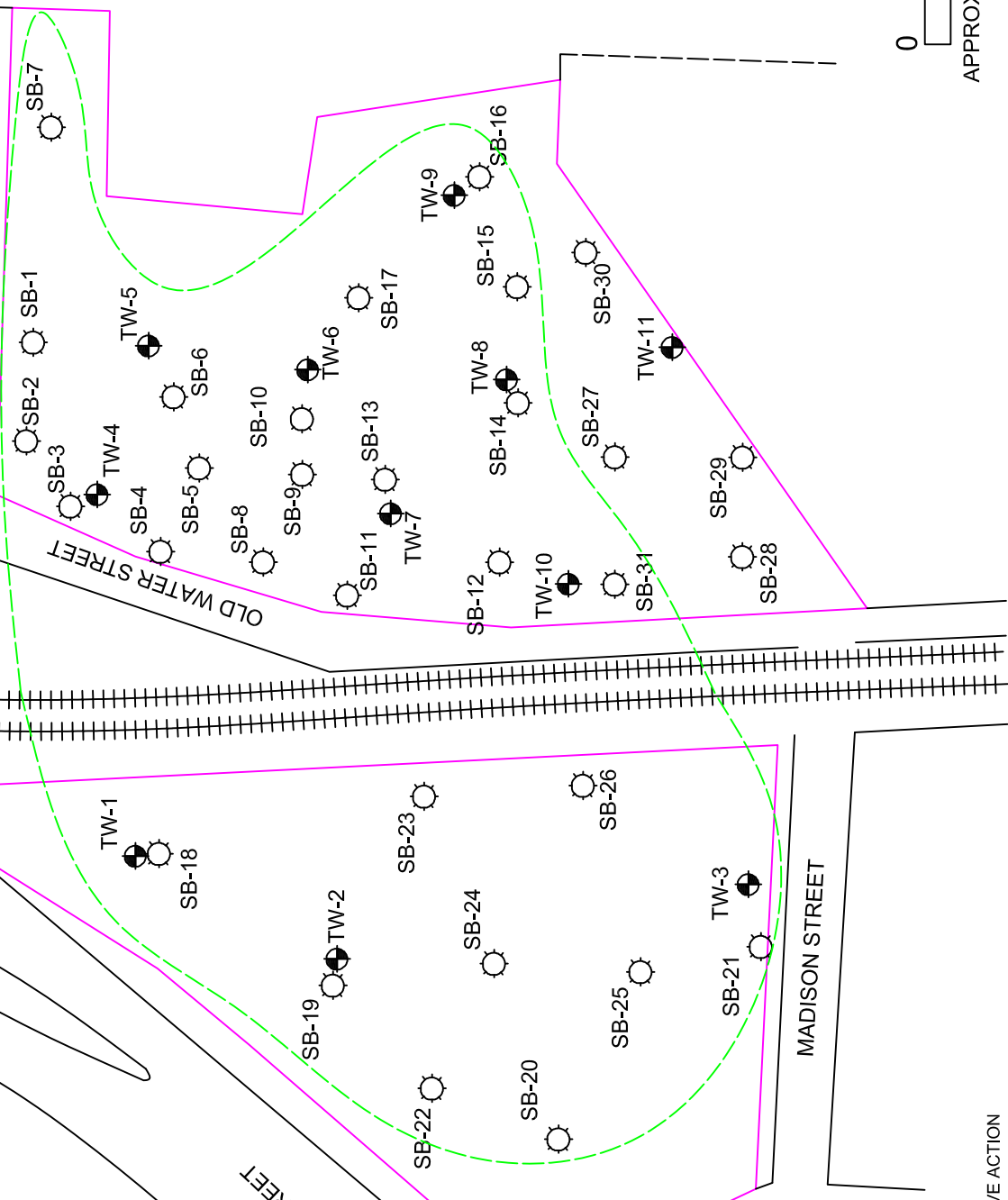
ROYAL STREET

MADISON STREET

ESLAVA STREET

CRUISE TERMINAL

MOBILE RIVER



*ARBCA = ALABAMA RISK-BASED CORRECTIVE ACTION

LEGEND

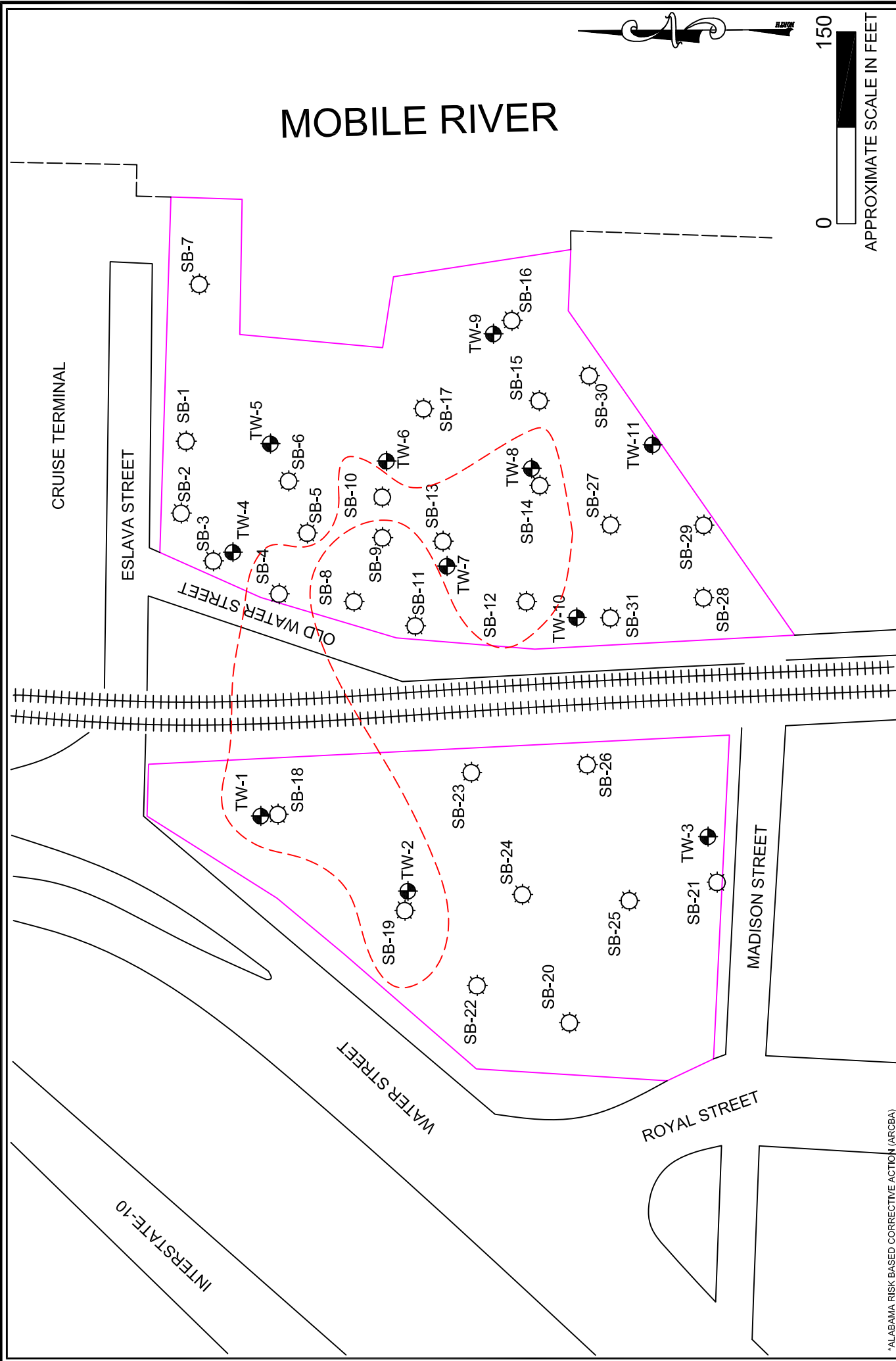
- - MONITORING WELL LOCATION
- - SOIL BORING LOCATION
SB-10 (boring number)
- - - APPROXIMATE SITE BOUNDARY
- - - RESIDENT(CHILD) (0'-1' FEET)

MOBILE RIVER BRIDGE
BENDER RISK ASSESSMENT
MOBILE, ALABAMA



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FIGURE 28
OVERALL RESIDENT SURFICIAL
EXCEEDANCE ISOCONTOUR SOIL
AREA MAP
SESI JOB NO.: M23-359



*ALABAMA RISK BASED CORRECTIVE ACTION (ARCBIA)

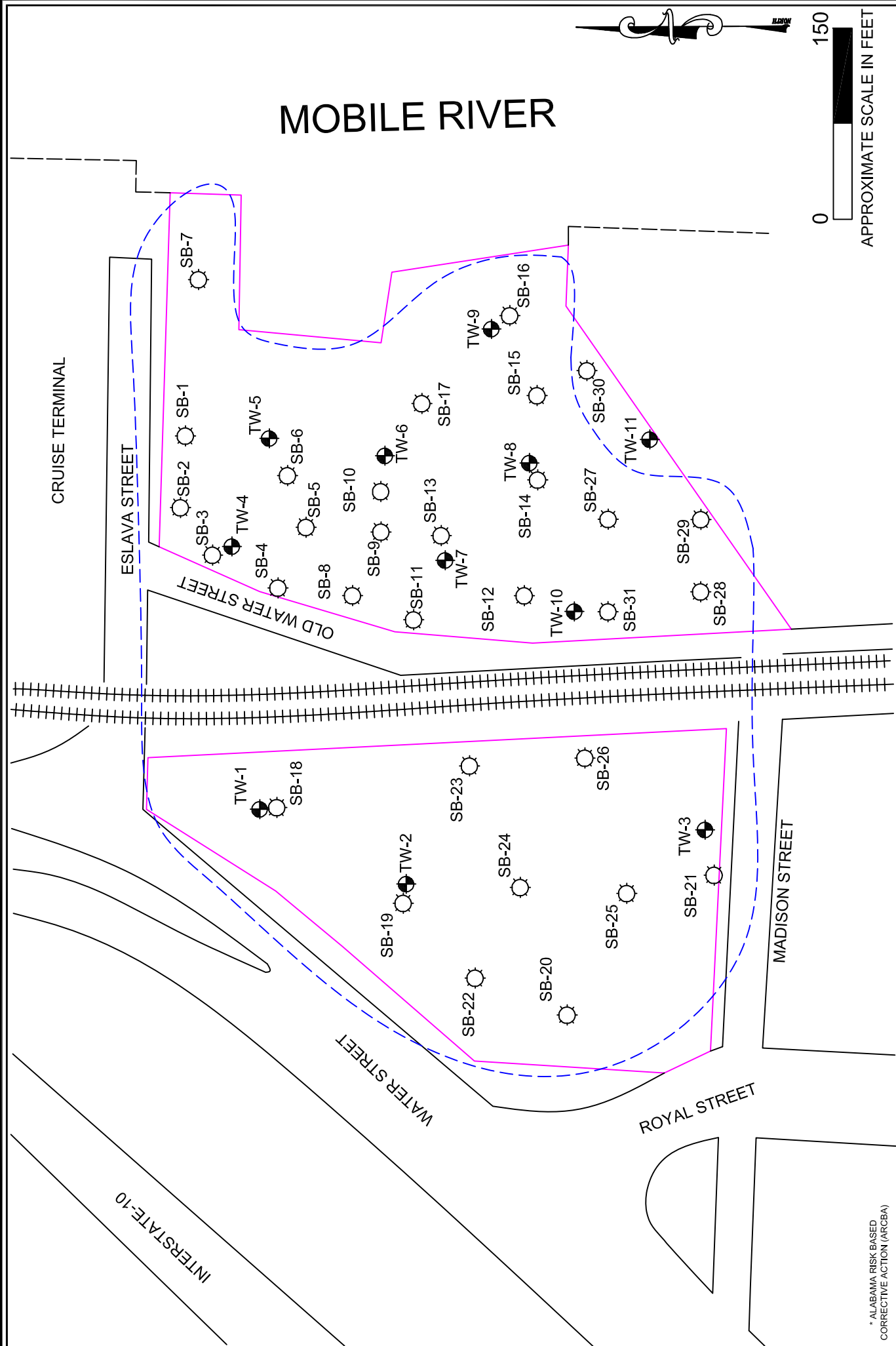
LEGEND

- - MONITORING WELL LOCATION
- - SOIL BORING LOCATION
SB-10 (boring number)
- - APPROXIMATE SITE BOUNDARY
- - COMMERCIAL WORKER (0'-1' FEET)

**MOBILE RIVER BRIDGE
BENDER RISK ASSESSMENT
MOBILE, ALABAMA**



FIGURE 29
OVERALL COMMERCIAL WORKER
SURFICIAL EXCEEDANCE
ISO CONTOUR SOIL AREA MAP
SES1 JOB NO.: M23-359



* ALABAMA RISK BASED
CORRECTIVE ACTION (ARCSA)

LEGEND

- - MONITORING WELL LOCATION
- - SOIL BORING LOCATION
SB-10 (boring number)
- - - APPROXIMATE SITE BOUNDARY
- - - CONSTRUCTION WORKER (0' UP TO DEPTH OF CONSTRUCTION)

**MOBILE RIVER BRIDGE
BENDER RISK ASSESSMENT
MOBILE, ALABAMA**



FIGURE 30

**OVERALL CONSTRUCTION WORKER
EXCEEDANCE SURFACE UP TO
DEPTH OF CONSTRUCTION
ISOCONTOUR SOIL AREA MAP
SESI JOB NO.: M23-359**

**Site Evaluation and Risk Assessment
Former Bender Parcels - Mobile River Bridge and Approaches**

TABLES

TABLE 1
DETECTED INORGANICS & PCBs - SURFICIAL SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID	SB-1		SB-2		SB-3		SB-4		SB-5		SB-6		SB-7		SB-8		Screening Criteria	
	2/19/2024	0-1'	2/19/2024	0-1'	2/19/2024	0-1'	2/19/2024	0-1'	2/19/2024	0-1'	2/19/2024	0-1'	2/19/2024	0-1'	2/20/2024	0-1'	Residential	Industrial
Aluminum	8500		8900		3800		5500		5700		4200		1900		4000		7700	110000
Antimony	31 J		<12		28 J		160		<11		<11		12 J		23 J		3.1	47
Arsenic	11		3.7 J		14		42		6.8		2.0 J		7.2		6.9		0.68	3
Barium	340		79		140		510		150		16		64		160		1500	22000
Beryllium	<0.76		<0.74		<0.80		<0.78		<0.67		<0.66		<0.75		<0.70		16	230
Cadmium	<0.81		<0.79		1.0 J		20		1.8 J		<0.71		<0.80		1.3 J		0.71	10
Calcium	26000		13000		43000		7400		29000		12000		240000		80000			
Chromium	9.7		7.4		8.2		28		15		5.7		4.2		25		850	36000
Cobalt	5.5		2.4 J		3.5		10		2.5 J		<0.80		2.2 J		3.1		2.3	35
Copper	150		22		240		210		260		35		46		240		310	47000
Iron	12000		6200		16000		81000		6900		5200		6700		14000		5500	82000
Lead	280		150		430		650		320		26		110		320		200	800
Magnesium	1300		800		1100		780		1400		2200		1500		2700			
Manganese	140		170		190		540		120		40		130		140		180	2600
Nickel	11		4.7		8.5		23		6.3		1.9 J		4.7		8.9		84	1200
Potassium	960		310		360		430		510		120		260		440			
Thallium	<8.0		<7.9		<8.4		<8.2		<7.1		<7.0		<7.9		<7.4		0.78	1.2
Vanadium	18		12		14		33		11		8.8		7.5		13		39	580
Zinc	110		110		280		5300		560		68		98		430		2300	35000
Mercury	0.25		0.1		0.43		0.099		0.99		0.097		0.1		0.033 J		1.1	4.6
Silver	0.56 J		<0.49		0.52 J		0.64 J		0.44 J		<0.44		<0.49		<0.46		39	580
PCB-1260	NA		NA		NA		NA		NA		<0.031		NA		NA		0.24	0.99

Notes:

1. Refer to the attached analytical data report for a complete report of results.
2. Regulatory Comparison Criteria are included for reference purposes only.
3. Regional Screening Levels (RSLs) are established from the United States Environmental Protection Agency
4. RSL = Regional Screening Level
5. All units listed are in mg/kg or parts per million (ppm) equivalent.
6. NA = Not Analyzed
7. J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
8. BOLD constituents are greater than the Residential RSL, while RED constituents are greater than the Industrial RSL

TABLE 1
DETECTED INORGANICS & PCBs - SURFICIAL SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID	Date	SB-9		SB-10		SB-11		SB-12		SB-13		SB-14		SB-15		SB-16		Screening Criteria	
		2/20/2024	0-1'	2/20/2024	0-1'	2/20/2024	0-1'	2/20/2024	0-1'	2/20/2024	0-1'	2/20/2024	0-1'	2/20/2024	0-1'	2/20/2024	0-1'	Residential	Industrial
Aluminum		1900	4400	6300	3900	3900	3300	9400	5200	4700	7700	110000							
Antimony		<11	140	<12	16 J	16 J	83	60	24 J	12 J	3.1	47							
Arsenic		3.0 J	68	4.8 J	21	21	31	28	9.6	3.3 J	0.68	3							
Barium		200	330	180	160	160	450	140	77	62	1500	22000							
Beryllium		<0.70	<0.73	<0.74	<0.96	<0.96	1.3 J	<0.89	<0.74	<0.74	16	230							
Cadmium		<0.74	3.4	<0.78	1.4 J	1.4 J	2.4 J	3.6	1.8 J	<0.79	0.71	10							
Calcium		240000	26000	51000	270000	270000	81000	5700	12000	15000									
Chromium		6	20	14	17	17	11	20	15	10	850	36000							
Cobalt		1.5 J	7.3	1.6 J	2.7 J	2.7 J	10	5.3	2.7 J	1.6 J	2.3	35							
Copper		35	140	21	330	330	170	2200	140	82	310	47000							
Iron		3500	71000	6800	8700	8700	44000	33000	14000	8000	5500	82000							
Lead		66	2500	49	180	180	1400	1200	150	120	200	800							
Magnesium		410	1100	1000	1800	1800	570	500	1000	430									
Manganese		71	270	140	170	170	270	270	140	54	180	2600							
Nickel		2.3 J	15	5.4	8.4	8.4	22	16	8.5	4.1	84	1200							
Potassium		140	360	390	310	310	370	330	280	310									
Thallium		<7.4	<7.7	<7.8	<10	<10	<9.0	<9.4	<7.8	<7.8	0.78	1.2							
Vanadium		5.8	21	15	11	11	32	34	19	11	39	580							
Zinc		100	490	96	320	320	440	1000	770	210	2300	35000							
Mercury		<0.021	0.39	0.069	0.094	0.094	0.088	0.19	0.091	0.13	1.1	4.6							
Silver		<0.46	0.48 J	<0.48	<0.63	<0.63	<0.56	1.1 J	<0.49	<0.49	39	580							
PCB-1260		NA	<0.035	NA	0.072 J	0.072 J	NA	NA	NA	NA	0.24	0.99							

Notes:

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3. Regional Screening Levels (RSLs) are established from the United States Environmental Protection Agency
4. RSL = Regional Screening Level
5. All units listed are in mg/kg or parts per million (ppm) equivalent.
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TABLE 1
DETECTED INORGANICS & PCBs - SURFICIAL SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID	SB-17	SB-18	SB-19	SB-20	SB-21	SB-22	SB-26	SB-31	Screening Criteria	
Date	2/20/2024	2/21/2024	2/21/2024	2/21/2024	2/21/2024	3/18/2024	3/19/2024	3/20/2024		
Sample Depth	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	Residential	Industrial
Aluminum	2800	51000	12000	9200	2500	7200	7700	3800	7700	110000
Antimony	<11	260	270	33 J	68	47 J	40 J	15 J	3.1	47
Arsenic	3.6 J	46	34	8.2	11	8.6	5.1 J	6.0	0.68	3
Barium	42	570	520	4000	210	150	60	210	1500	22000
Beryllium	<0.68	1.3	<0.72	<0.72	<0.67	<0.95	<0.71	<0.68	16	230
Cadmium	<0.72	87	33	3.7	5.2	5	4.9	<0.73	0.71	10
Calcium	15000	24000	24000	20000	9000	3900	3100	33000		
Chromium	7.1	230	92	11	23	16	30	9.2	850	36000
Cobalt	1.1 J	16	11	2.2 J	3.5	3.3 J	1.7 J	2.6 J	2.3	35
Copper	51	5700	1300	110	720	370	120	47	310	47000
Iron	3900	140000	130000	13000	31000	23000	23000	8300	5500	82000
Lead	95	5200	2900	15000	500	470	150	190	200	800
Magnesium	320	1900	3900	680	790	780	360	2300		
Manganese	54	1200	740	170	180	170	150	270	180	2600
Nickel	5	410	140	7.7	21	17	13	9.3	84	1200
Potassium	200	310	300	1100	180	310	280	570		
Thallium	<7.2	<7.7	<7.6	<7.6	<7.1	<10	<7.5	<7.2	0.78	1.2
Vanadium	10	31	41	16	8.9	15	22	9.3	39	580
Zinc	140	17000	8600	1700	1200	1300	550	110	2300	35000
Mercury	0.28	6.9	1.8	0.16	1.8	0.29	0.13	0.039 J	1.1	4.6
Silver	<0.45	5.1	2.5 J	1.4 J	<0.44	<0.62	<0.47	<0.45	39	580
PCB-1260	NA	NA	NA	NA	0.43	<0.045	1.5	NA	0.24	0.99

Notes:

1. Refer to the attached analytical data report for a complete report of results.
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4. RSL = Regional Screening Level
5. All units listed are in mg/kg or parts per million (ppm) equivalent.
6. NA = Not Analyzed
7. J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
8. BOLD constituents are greater than the Residential RSL, while RED constituents are greater than the Industrial RSL

TABLE 2
DETECTED VOLATILE & SEMI-VOLATILE ORGANICS - SURFICIAL SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID	SB-6	SB-10	SB-12	SB-21	SB-22	SB-26	Screening Criteria	
Date	2/19/2024	2/20/2024	2/21/2024	2/21/2024	3/18/2024	3/19/2024	Residential	Industrial
Sample Depth	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'		
Acenaphthene	<0.069	0.080 J	<0.099	0.099 J	<0.052	<0.038	360	4500
Acenaphthylene	<0.069	0.24 J	<0.099	0.10 J	<0.052	<0.038		
Anthracene	<0.069	0.35 J	<0.099	0.33 J	<0.052	<0.038	1800	23000
Benzo(a)anthracene	0.10 J	1.9	0.30 J	1.3	0.19 J	0.19 J	1.1	21
Benzo(a)pyrene	0.11 J	2.2	0.44 J	1.0	0.20 J	0.22 J	0.57	7.3
Benzo(b)fluoranthene	<0.21	3.4	0.50 J	1.6	0.28 J	0.32 J	1.1	21
Benzo(g,h,i)perylene	<0.23	1.3	<0.33	0.68 J	0.19 J	<0.13		
Benzo(k)fluoranthene	<0.16	1.3	<0.23	0.56 J	0.12 J	0.16 J	11	210
Bis(2-ethylhexyl) phthalate	<0.15	0.19 J	<0.38	0.29 J	<0.13	<0.094	39	160
Butyl benzyl phthalate	<0.15	<0.16	0.29 J	<0.15	<0.11	<0.082	290	1200
Carbazole	<0.069	0.41 J	<0.099	0.26 J	<0.052	<0.038		
Chrysene	0.11 J	2.5	0.37 J	1.6	0.23 J	0.19 J	110	2100
Dibenz(a,h)anthracene	<0.12	0.42 J	0.19 J	0.20 J	<0.090	<0.066	0.11	2.1
Dibenzofuran	<0.069	0.14	<0.099	0.088 J	<0.052	<0.038	7.8	120
Di-n-butyl phthalate	<0.069	0.088 J	<0.099	<0.072	<0.052	<0.038	630	8200
Fluoranthene	0.14 J	5.0	0.93 J	3.2	0.34 J	0.35 J	240	3000
Fluorene	<0.069	0.12 J	<0.099	0.13 J	<0.052	<0.038	240	3000
Indeno(1,2,3-cd)pyrene	<0.14	1.0	0.29 J	0.52 J	0.11 J	0.095 J	1.1	21
1-Methylnaphthalene	<0.069	0.18 J	<0.099	0.095 J	0.13 J	<0.038	18	73
2-Methylnaphthalene	<0.069	0.16 J	<0.099	0.10 J	0.11 J	<0.038	24	300
Naphthalene	<0.069	0.17 J	<0.0039	<0.072	<0.052	<0.038	2	8.6
Phenanthrene	<0.069	2.6	0.48 J	1.8	0.22 J	0.15 J		
Pyrene	<0.16	4.0	0.66 J	3	0.29 J	0.30 J	180	2300
Acetone	0.022 J	0.049	0.040	0.091	0.063	0.030	7000	110000
Benzene	<0.00079	<0.00082	<0.00087	0.00097 J	0.0013 J	<0.00066	1.2	5.1
Carbon Disulfide	0.00087 J	0.0013 J	<0.00085	<0.00075	0.0065 J	0.0024 J	77	350
Methyl Ethyl Ketone	<0.0071	<0.076	<0.0078	0.012 J	<0.011	<0.0059	2700	19000
Toluene	<0.0012	<0.0012	<0.0013	<0.0011	0.0029 J	<0.00098	490	4700
Xylenes	<0.0022	<0.0023	<0.0025	0.0023 J	<0.0034	<0.0019	58	250

Notes:

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4. RSL = Regional Screening Level
5. All units listed are in mg/kg or parts per million (ppm) equivalent.
6. NA = Not Analyzed
7. J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
8. BOLD constituents are greater than the Residential RSL, while RED constituents are greater than the Industrial RSL.

TABLE 3
DETECTED INORGANICS & PCBs - SUBSURFACE SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9	SB-10	SB-11	SB-12	Screening Criteria	
Date	2/19/2024	2/19/2024	2/19/2024	2/19/2024	2/19/2024	2/19/2024	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/20/2024	Residential	Industrial
Sample Depth	3'-4'	1'-2'	1'-2'	2'-3'	1'-2'	1'-2'	1'-2'	2'-3'	1'-2'	2'-3'	1'-2'	7700	110000
Aluminum	3100	6200	5400	3900	9000	2700	3700	4200	4400	5000	1900		
Antimony	<15	57 J	130	11 J	41 J	23 J	46 J	180	110	20 J	19 J	3.1	47
Arsenic	4.9 J	23	34	4.2 J	14	8.6	18	36	21	9.9	3.4 J	0.68	3
Barium	190	240	610	84	300	48	110	640	580	140	40	1500	22000
Beryllium	<0.95	<0.95	<0.77	<0.71	0.92	<0.77	<0.76	<0.80	<0.72	<0.74	<0.68	16	230
Cadmium	<1.0	1.8 J	4.1	<0.76	2.1 J	<0.82	1.4 J	4.3	3.3	<0.78	<0.72	0.71	10
Calcium	12000	24000	4600	15000	11000	52000	15000	14000	15000	19000	13000		
Chromium	6.8	12	21	8.5	9.8	9.7	14	18	16	11 F1	6.0	850	36000
Cobalt	2.6 J	6.5	13	2.0 J	6.3	3.8	6.4	15	6.9	3.9	2.1 J	2.3	35
Copper	100	360	840	71	130	7.9	140	220	160	79	35	310	47000
Iron	8300	28000	65000	6900	24000	13000	23000	90000	54000	12000	10000	5500	82000
Lead	310	600	920	110	89	36	230	1800	1300	230	75	200	800
Magnesium	430	1200	910	540	1200	3700	740	700	1100	1400	210		
Manganese	100	360	450	89	180	290	180	530	270	110	69	180	2600
Nickel	7	13	25	4.7	14	7.7	15	37	15	9.7	6.1	84	1200
Potassium	260	430	430	280	680	590	400	470	450	380	170		
Selenium	<3.9	<3.9	<3.2	<2.9	<2.9	<3.1	<3.1	<3.3	<2.9	<3.0 F1	<2.8	39	580
Thallium	<10	<10	<8.2	<7.5	<7.4	<8.1	<8.0	<8.4	<7.6	<7.8	<7.1	0.78	1.2
Vanadium	7.4	20	30	8.4	24	15	16	18	18	13	6.8	39	580
Zinc	150	460	1100	130	630	43	250	580	740	190 F2	93	2300	35000
Mercury	0.58	0.48	0.11	<0.025	0.25	0.037 J	0.11	0.24	0.42	0.45	0.030 J	1.1	4.6
Silver	NA	0.63 J	0.70 J	NA	NA	NA	NA	0.66 J	NA	0.60 J	NA	39	580
PCB-1260	NA	<0.043 F2	NA	NA	<0.035	NA	<0.036	NA	<0.034	NA	<0.031	0.24	0.99

Notes:

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4. RSL = Regional Screening Level
5. All units listed are in mg/kg or parts per million (ppm) equivalent.
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TABLE 3
DETECTED INORGANICS & PCBs - SUBSURFACE SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID	SB-13	SB-14	SB-15	SB-16	SB-17	SB-18	SB-19	SB-21	SB-23			Screening Criteria	
	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/21/2024	2/21/2024	2/21/2024	3/19/2024	3/19/2024	3/19/2024	Residential	Industrial
Sample Depth	1'-2'	2'-3'	2'-3'	1'-2'	2'-3'	1'-2'	3'-4'	3'-4'	1'-2'	2'-3'	2'-3'	7700	110000
Aluminum	6400	7700	5300	4700	8000	120000	5900	1000	22000	4900	4900	3.1	47
Antimony	78	71	34 J	16 J	110	150	520	<12	390	72	72	3.1	47
Arsenic	20	20	22	4.8 J	30	17	71	<2.0	45	23	23	0.68	3
Barium	520	260	130	78	310	290	600	7.3	860	220	220	1500	22000
Beryllium	1.1 J	<1.1	<1.2	<0.69	<0.76	1.4	0.84	<0.76	<1.1	<1.0	<1.0	16	230
Cadmium	2.4 J	5	4.8	0.73 J	4.3	130	19	<0.81	82	8.2	8.2	0.71	10
Calcium	110000	8900	14000	16000	88000	26000	13000	320	34000	5100	5100		
Chromium	16	20	23	9.9	20	210	76	<2.1	270	150	150	850	36000
Cobalt	12	5.6	5.0	1.9 J	16	19	26	<0.92	19	5.1	5.1	2.3	35
Copper	290	2300	280	210	220	7200	710	3.3	11000	230	230	310	47000
Iron	39000	22000	17000	9500	60000	72000	260000	2300	180000	35000	35000	5500	82000
Lead	890	1500	430	270	830	7800	2100	13	5300	1200	1200	200	800
Magnesium	1000	720	550	540	1000	2200	1900	<44	2300	710	710		
Manganese	280	190	170	83	250	940	1800	8.4 J	1500	180	180	180	2600
Nickel	27	24	15	4.6	39	1200	100	1.1 J	360	20	20	84	1200
Potassium	750	600	430	250	590	150	390	<110	<160	300	300		
Selenium	<4.6	<4.3	<5.0	<2.8	<3.1	<3.3	<3.0	<3.1	14 J	<4.2	<4.2	39	580
Thallium	<12	<11	<13	<7.3	<8.0	<8.4	<7.7	<8.0	<12	<11	<11	0.78	1.2
Vanadium	22	25	27	11	19	44	41	2.0 J	38	18	18	39	580
Zinc	650	1500	1400	240	1200	120000	2900	17	7400	790	790	2300	35000
Mercury	<0.036	0.050 J	0.24	0.17	2.2	2.4	0.46	<0.026	6.4	0.88	0.88	1.1	4.6
Silver	0.93 J	1.0 J	NA	NA	NA	16	2.6 J	NA	12	<0.67	<0.67	39	580
PCB-1260	<0.051	<0.050	NA	<0.031	<0.036	3.4	NA	<0.071	6.6	0.14	0.14	0.24	0.99

- Notes:
1. Refer to the attached analytical data report for a complete report of results.
 2. Regulatory Comparison Criteria are included for reference purposes only.
 3. Regional Screening Levels (RSLs) are established from the United States Environmental Protection Agency
 4. RSL = Regional Screening Level
 5. All units listed are in mg/kg or parts per million (ppm) equivalent.
 6. NA = Not Analyzed
 7. J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
 8. BOLD constituents are greater than the Residential RSL, while RED constituents are greater than the Industrial RSL.

TABLE 3
DETECTED INORGANICS & PCBs - SUBSURFACE SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID	SB-24		SB-25		SB-25		SB-26		SB-27		SB-28		SB-29		SB-30		SB-31		Screening Criteria	
	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024		
Sample Depth	1'-2'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	1'-2'	1'-2'	Residential	Industrial
Aluminum	12000	20000	4900	1400	3100	2500	40 J	19 J	19 J	26 J	4800	5200	11 J	17 J	3700	11000	3.1	47	7700	11000
Arsenic	7.1	39	32	40	11	13	7.1	54	54	12	140	160	11 J	6.0 J	3700	11000	0.68	3	7700	11000
Barium	66	750	710	420	180	96	96	54	54	140	140	160	11 J	6.0 J	3700	11000	0.68	3	7700	11000
Beryllium	<0.78	0.96 J	<0.89	<0.81	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	16	230
Cadmium	4.2	69	28	8.9	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0.71	10
Calcium	8700	15000	11000	4800	5300	11000	11000	50000	50000	91000	91000	69000	69000	69000	69000	69000	69000	69000	850	36000
Chromium	30	230	120	83	220	84	84	10	10	13	13	12	12	12	12	12	12	12	7.5	35
Cobalt	2.2 J	32	14	15	3.8	4.1 J	4.1 J	28	28	27 J	27 J	21 J	21 J	21 J	21 J	21 J	21 J	21 J	2.3	35
Copper	120	6500	1200	960	1100	1100	1100	10000	10000	14000	14000	7500	7500	7500	7500	7500	7500	7500	310	47000
Iron	20000	180000	96000	110000	38000	38000	38000	21000	21000	190	190	42	42	42	42	42	42	42	5500	82000
Lead	180	4300	1600	2100	850	850	850	130	130	64	64	150	150	150	150	150	150	150	200	800
Magnesium	1000	1900	1300	760	540	540	540	730	730	1300	1300	1900	1900	1900	1900	1900	1900	1900	180	2600
Manganese	130	1200	630	630	180	180	180	100	100	130	130	87	87	87	87	87	87	87	180	2600
Nickel	16	1300	74	66	32	32	32	11	11	14	14	8.3	8.3	8.3	8.3	8.3	8.3	8.3	84	1200
Potassium	330	160	180	<120	330	330	330	290	290	290	290	480	480	480	480	480	480	480	39	580
Selenium	<3.2	9.00	6.9	5.2	<3.5	<3.5	<3.5	<3.0	<3.0	<3.0	<3.0	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	0.78	1.2
Thallium	<8.2	<7.8	<9.4	<8.5	<9.1	<9.1	<9.1	16	16	8.3	8.3	26	26	26	26	26	26	26	39	580
Vanadium	32	19	19	26	18	18	18	180	180	64	64	100	100	100	100	100	100	100	2300	35000
Zinc	840	23000	2700	2600	890	890	890	0.1	0.1	<0.039	<0.039	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022	1.1	4.6
Mercury	0.24	3.8	5.6	0.98	0.1	0.1	0.1	0.84 J	0.84 J	<0.49	<0.49	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	39	580
Silver	<0.51	5.2	2.3 J	0.66 J	0.64 J	0.64 J	0.64 J	<0.79	<0.79	<0.49	<0.49	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	0.24	0.99
PCB-1260	0.060 J	60	1.5	<0.036	5.6	5.6	5.6	<0.056	<0.056	<0.034	<0.034	NA	NA	NA	NA	NA	NA	NA	0.24	0.99

Notes:

1. Refer to the attached analytical data report for a complete report of results.
2. Regulatory Comparison Criteria are included for reference purposes only.
3. Regional Screening Levels (RSLs) are established from the United States Environmental Protection Agency
4. RSL = Regional Screening Level
5. All units listed are in mg/kg or parts per million (ppm) equivalent.
6. NA = Not Analyzed
7. J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
8. BOLD constituents are greater than the Residential RSL, while RED constituents are greater than the Industrial RSL

TABLE 4
DETECTED VOLATILE & SEMI-VOLATILE ORGANICS - SUBSURFACE SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID Date	SB-3 2/19/2024	SB-6 2/19/2024	SB-9 2/20/2024	SB-10 2/20/2024	SB-12 2/20/2024	SB-13 2/20/2024	SB-14 2/20/2024	SB-16 2/20/2024	SB-17 2/20/2024	SB-18 2/21/2024	SB-21 2/21/2024	Screening Criteria	
												Residential	Industrial
Sample Depth	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	2'-3"	1'-2"	2'-3"	1'-2"	3'-4"		
Acetophenone	<0.069	0.047 J	<0.081	<0.077	<0.18	<0.12	0.21 J	<0.073	<0.083	<0.082	<0.040		
Acenaphthene	<0.069	<0.069	<0.081	0.16 J	<0.18	0.37 J	0.24 J	<0.073	0.25 J	<0.082	0.17 J	760	12000
Acenaphthylene	<0.069	<0.069	<0.081	0.56 J	<0.18	0.23 J	0.20 J	<0.073	0.60 J	<0.082	<0.040	360.0	4500
Anthracene	<0.069	0.048 J	<0.081	0.65 J	<0.18	0.81 J	1.3	0.078 J	0.93	0.29 J	0.29 J	1800	23000
Benzaldehyde	<0.069	0.079 J	<0.081	0.85 J	<0.18	0.21 J	0.32 J	<0.073	0.12 J	<0.082	<0.040	170	520
Benzo(a)anthracene	0.61 J	0.16 J	0.36 J	3.6	0.19 J	2.5	3.1	0.30 J	4.0	0.71 J	0.80	1.1	21
Benzo(a)pyrene	0.70 J	0.14 J	0.41 J	4.2	<0.26	2.3	3.0	0.40 J	5.1	0.88	0.78	0.57	7.3
Benzo(b)fluoranthene	0.83 J	0.13 J	0.55 J	6.8	<0.53	3.4	3.7	0.51 J	8.5	1.4	1.1	1.1	21
Benzo(g,h,i)perylene	0.45 J	<0.13	<0.27	2.7	<0.59	1.1 J	1.4	<0.24	2.2	0.48 J	0.36 J		
Benzo(k)fluoranthene	0.44 J	<0.091	0.21 J	2.6	<0.42	1.5	1.3	0.19 J	3.0	0.49 J	0.40	11.0	210
Bis(2-ethylhexyl) phthalate	<0.24	<0.17	0.22 J	<0.19	<0.44	<0.29	<0.27	<0.18	<0.20	0.50 J	<0.098	39	160
Butyl benzyl phthalate	<0.21	<0.15	<0.17	<0.17	<0.38	<0.25	<0.24	<0.16	<0.18	<0.18	<0.086	290	1200
Carbazole	<0.099	<0.069	<0.081	1.1	<0.18	0.66 J	0.64 J	0.095 J	0.88	0.21 J	0.10 J		
Chrysene	0.74 J	0.25 J	0.61 J	4.8	0.27	2.8	3.3	0.40 J	5.5	0.88	0.86	110	2100
Dibenz(a,h)anthracene	0.23 J	0.070 J	0.19 J	0.75 J	<0.31	0.48 J	0.51 J	0.15 J	0.72 J	0.23 J	0.15 J	0.1	2.1
Dibenzofuran	<0.099	0.13	<0.081	0.29 J	<0.18	0.60 J	0.26 J	<0.073	0.48 J	<0.082	0.046 J	7.8	120
Diethyl phthalate	<0.099	<0.038	<0.081	<0.099	<0.18	<0.12	<0.11	<0.073	<0.083	<0.082	<0.040	5100	66000
Dimethyl phthalate	<0.099	<0.038	<0.081	<0.099	<0.18	<0.12	<0.11	<0.073	<0.083	<0.082	<0.040		
Di-n-butyl phthalate	0.11 J	0.046 J	0.093 J	0.094 J	<0.18	0.14 J	0.14 J	0.085 J	0.096 J	0.15 J	0.046 J	630	8200
Fluoranthene	1.3	0.20 J	0.72 J	9.5	<0.18	6.3	8.1	0.66 J	11	1.8	2.1	240	3000
Fluorene	<0.099	<0.038	<0.081	0.21 J	<0.18	0.51 J	0.49 J	<0.073	0.55 J	<0.082	0.13 J	240.0	3000
Indene(1,2,3-cd)pyrene	0.43 J	<0.077	0.24 J	1.9	<0.35	0.95 J	1.0 J	0.23 J	1.8	0.44 J	0.31 J	1.1	21
1-Methylnaphthalene	0.17 J	0.37 J	0.19 J	0.31 J	<0.18	1.6	0.31 J	0.093 J	0.64 J	<0.082	<0.040	18	73
2-Methylnaphthalene	0.15 J	0.27 J	0.17 J	0.30 J	<0.18	1.3	0.25 J	0.089 J	0.47 J	0.096 J	<0.040	24	300
3,8,4-Methylphenol	<0.23	<0.080	<0.18	<0.23	<0.41	<0.12	<0.26	<0.17	<0.19	<0.19	<0.093	130**	1600**
Naphthalene	<0.099	0.010 J	0.14 J	0.29 J	<0.18	0.68 J	0.39 J	0.086 J	0.30 J	<0.082	<0.040	2	8.6
Phenanthrene	0.76 J	0.48	0.52 J	5.4	<0.18	4.9	6.9	0.48 J	6.1	1.0	1.5	180	2300
Pyrene	1.1	0.22 J	0.56 J	7.5	<0.42	4.9	7.7	0.53 J	8.5	1.5	1.8	180	2300
1,2-Dichlorobenzene	<0.099	<0.069	<0.081	<0.077	<0.18	<0.091	1.6	<0.0070	<0.0097	<0.011	<0.0093	180	930
1,2,4-Trichlorobenzene	<0.099	<0.038	<0.081	<0.077	<0.18	<0.27	<0.11	<0.073	<0.083	<0.082	<0.040	5.8	26
2,4-Dimethylphenol	<0.099	<0.11	<0.22	<0.28	<0.51	<0.33	<0.32	<0.21	<0.24	<0.23	<0.11	130	1600
1,1'-Biphenyl	<0.099	<0.038	<0.081	<0.077	<0.18	<0.12	<0.11	<0.073	<0.083	<0.082	<0.040	4.7	20
Acetone	0.066 J	0.020 J	0.036 J	0.019 J	0.076	0.045 J	0.12	0.029	0.055	0.044	0.030 J	7000	110000
Benzene	<0.020	<0.0079	<0.012	<0.0078	<0.0078	<0.0013	<0.0015	<0.0066	<0.0092	<0.011	<0.0087	1.2	5.1
Bromomethane	<0.073	<0.0031	<0.0043	<0.0029	<0.0029	<0.0047	<0.0057	<0.0025	<0.0034	<0.0039	<0.0033	0.68	3
Carbon Disulfide	0.0024 J	0.0014 J	<0.0011	<0.00076	<0.0077	<0.0012	<0.0015	<0.0065	<0.0090	<0.010	<0.0086	77	350
Chlorobenzene	<0.0015	<0.0064	<0.0090	<0.00060	<0.0060	<0.0015	<0.0012	<0.0051	<0.0071	<0.0082	<0.0068	28	130
Chloromethane	<0.0029	<0.0012	<0.0017	<0.0012	<0.012	<0.0019	<0.0023	<0.0098	<0.0014	<0.0016	<0.0013	11	46
Cymene	<0.0029	<0.0012	<0.0017	<0.0012	0.0037 J	<0.0019	<0.0023	<0.0098	<0.0014	<0.0016	<0.0013	17	110
Methyl Ethyl Ketone	<0.018	<0.0071	<0.010	<0.0070	0.012 J	<0.011	<0.014	<0.0059	<0.0082	<0.0084	<0.0078	2700	19000
Toluene	<0.0029	<0.0012	<0.0017	<0.0012	0.0012 J	<0.0019	<0.0023	<0.0098	<0.0014	<0.0016	<0.0013	490	4700
Xylenes	0.0064 J	<0.0023	<0.0033	<0.0022	0.0027 J	0.0048 J	<0.0044	<0.0019	<0.0026	<0.0030	0.0035 J	58	250
1,2,4-Trimethylbenzene	<0.0029	<0.0012	<0.0017	<0.0012	0.0045 J	0.0035	<0.0023	<0.0098	<0.0014	<0.0016	0.0013 J	30	180
1,3,5-Trimethylbenzene	<0.0024	<0.0098	<0.0014	<0.0096	0.0018 J	<0.0016	<0.0019	<0.0082	<0.0011	<0.0013	<0.0011	27	150
1,2-Dichlorobenzene	<0.0021	<0.0088	<0.0012 ⁹	<0.0082	<0.0083 ⁹	<0.0013 ⁹	0.0076 J	<0.0070	<0.0097	<0.0011	<0.0093	180	930
1,3-Dichlorobenzene	<0.099	<0.069	<0.081	<0.077	<0.18	<0.12	0.50 J	<0.073	<0.083	<0.082	<0.040		
1,4-Dichlorobenzene	<0.39	<0.27	<0.32	<0.30	<0.70	<0.46	0.49 J	<0.29	<0.33	<0.32	<0.16	2.6	11
n-Propylbenzene	<0.0026	<0.0011	<0.0016	<0.0010	0.0016 J	<0.0017	<0.0021	<0.0088	<0.0012	<0.0014	<0.0012	380	2400
sec-Butylbenzene	<0.0028	<0.0011	<0.0016	<0.0011	0.0048 J	<0.0018	<0.0022	<0.0098	<0.0013	<0.0015	<0.0012	780	1200

Notes:
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5. All units listed are in mg/kg or parts per million (ppm) equivalent.
6. NA = Not Analyzed
7. J = Result is less than the RL and the concentration is an approximate value.
8. BOLD constituents are greater than the Residential RSL, while RED constituents are greater than the Industrial RSL.
9. "J" denotes ISTD response or retention time is outside of acceptable limits
10. "****" denotes m-cresol RSL

TABLE 4
DETECTED VOLATILE & SEMI-VOLATILE ORGANICS, SUBSURFACE SOIL
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Sample ID	SB-23		SB-24		SB-25		SB-26	SB-27	SB-28	SB-29	SB-30	SB-31		Screening Criteria
Sample Date	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/19/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	3/20/2024	
Sample Depth	1'-2'	2'-3'	1'-2'	2'-3'	1'-2'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'	1'-2'	2'-3'	Residential
Acetophenone	<0.055	<0.052	<0.042	0.065 J	<0.045	<0.21	<0.23	<0.063	0.087 J	<0.076		<0.20	<0.20	780
Acenaphthene	0.41 J	<0.052	<0.053	0.060 J	0.21 J	<0.21	<0.23	0.19 J	0.14 J	0.29 J		<0.20	<0.20	360.0
Acenaphthylene	0.60	<0.052	<0.042	0.084 J	0.091 J	<0.091 J	<0.23	0.10 J	<0.078	<0.076		<0.20	<0.20	4500
Anthracene	1.3	0.085 J	<0.042	0.23 J	0.92	0.21 J	<0.23	0.87	0.28 J	<0.076		0.52 J		1800
Benzaldehyde	<0.055	<0.052	<0.042	0.057 J	<0.045	<0.21	<0.23	0.20 J	<0.078	<0.076		0.28		23000
Benzofuran	5.2	0.32	0.046 J	1.4	2.7	1.4 J	2.1 J	2.8	0.55 J			0.92 J		820
Benzofluoranthene	5.70	0.61	<0.050	1.3	2.5	1.7 J	1.7 J	2.8	0.49 J	1.3		1.1		21
Benzofluoranthene	7.6	0.80	<0.013	2.1	4.4	2.3	3.4	3.4	0.85 J	1.9		1.5 J		21
Benzofluoranthene	3.6	0.50 J	<0.014	0.75	1.3	1.0 J	0.83 J	1.5	0.30 J	0.71 J		0.71 J		210
Benzofluoranthene	3.8	0.33 J	<0.10	1.0	1.8	1.0 J	1.0 J	1.6	0.29 J	0.78		0.62 J		210
Benzofluoranthene	4.0	<0.13	<0.10	0.58	0.20 J	<0.52	<0.57	<0.16	<0.19	<0.19		<0.49		39
Bis(2-ethylhexyl) phthalate	<0.12	<0.11	<0.091	<0.058	<0.097	<0.46	<0.50	<0.14	<0.17	<0.16		<0.43		1200
Benzyl phthalate	1.1	0.062 J	<0.042	0.21 J	0.37 J	<0.21	<0.23	0.16 J	<0.18	<0.16		<0.20		290
Carbazole	5.3	0.58	<0.042	1.5	2.7	1.9 J	2.4	3.0	0.70 J	1.7		0.86 J		2100
Chrysene	1.2	<0.052	<0.073	0.23 J	0.42 J	0.46 J	0.53 J	0.47 J	0.16 J	0.30 J		0.35 J		2.1
Dibenz(a,h)anthracene	0.63	0.062 J	<0.042	0.14 J	0.16 J	<0.21	<0.23	0.54 J	0.31 J	0.24 J		<0.20		7.8
Dibenzofuran	<0.055	<0.052	<0.042	0.17	<0.045	<0.21	<0.23	<0.063	<0.078	<0.076		<0.20		120
Diethyl phthalate	<0.055	<0.052	<0.042	0.26	<0.045	<0.21	<0.23	<0.063	<0.078	<0.076		<0.20		5100
Dimethyl phthalate	0.25 J	0.066 J	<0.042	1.6	0.14 J	<0.21	<0.23	<0.063	<0.078	<0.076		<0.20		8200
Din-butyl phthalate	14	1.2	0.071 J	3.0	7.6	3.7	5.2	6.8	1.6	3.9		2.0		240
Fluoranthene	0.88	<0.052	<0.052	0.10 J	0.21 J	<0.21	<0.23	0.20 J	0.15 J	0.37 J		0.44 J		240.0
Fluorene	3.1	0.35 J	<0.085	0.58	1.2	0.90 J	0.87 J	1.1	0.27 J	0.62 J		0.70 J		1.1
Indeno(1,2,3-cd)pyrene	0.42 J	0.13 J	<0.042	0.21 J	0.13 J	0.21 J	0.26 J	1.6	0.70 J	0.25 J		2.4		7.3
1-Methylnaphthalene	0.44 J	0.12 J	<0.042	0.31 J	0.16 J	0.23 J	0.40 J	1.8	0.26 J	0.26 J		2.5		300
2-Methylnaphthalene	3 & 4	Methyphenol	<0.12	<0.096	<0.11	<0.50	<0.54	<0.15	<0.18	<0.18		<0.47		1300**
3 & 4	Methyphenol	0.85	0.086 J	<0.042	0.27 J	0.16 J	0.58	1.1	0.35 J	0.18 J		0.81 J		2
Naphthalene	10	0.68	<0.042	1.6	3.7	1.5 J	2.8	4.3	1.5	2.4		1.8 J		8.6
Phenanthrene	10	0.84	<0.10	2.9	5.1	3.1	6.9	7.2	1.1	2.7		1.3 J		180
Pyrene	<0.0098	<0.062	<0.042	<0.041	<0.045	<0.21	<0.23	<0.063	<0.078	1.2		<0.20		2300
1,2-Dichlorobenzene	0.055	<0.052	<0.042	0.11	<0.045	<0.21	<0.23	<0.063	<0.078	<0.076		<0.20		5.8
1,2,4-Trichlorobenzene	0.19	<0.15	<0.12	<0.12	<0.13	<0.21	<0.66	<0.18	<0.22	<0.22		<0.37		130
2,4-Dimethylphenol	0.12 J	<0.052	<0.052	0.046 J	<0.045	<0.21	<0.23	0.11 J	<0.078	<0.076		<0.20		4.7
1,1-Biphenyl	0.039	0.035 J	0.038	0.053	0.040	0.041	0.030	0.061 J	0.034	0.046		0.047		7000
Acetone	<0.0062	<0.012	<0.012	0.00063 J	0.0073 J	<0.0077	<0.0073	<0.0019	0.00094 J	0.046		0.00093 J		5.1
Bromomethane	<0.0034	<0.0034	<0.0029	0.024	<0.037	<0.0029	<0.0048	<0.0069	<0.0028	<0.0027		<0.0032		3
Carbon Disulfide	0.0016 J	0.0015 J	<0.0077	0.0011 J	0.0013 J	0.0015 J	0.0059 J	0.0033 J	0.0016 J	0.0022 J		<0.00079		77
Chlorobenzene	<0.00071	<0.00071	<0.00061	<0.00061	<0.00076	<0.00059	<0.00099	<0.0014	<0.00059	0.0052 J		<0.00066		28
Chloromethane	<0.0014	<0.0014	<0.0012	0.018	<0.0015	<0.0011	<0.0019	<0.0028	<0.0011	<0.0011		<0.0013		11
Cymene	<0.0014	<0.0018	<0.0018	<0.0012	<0.0015	<0.0011	<0.0019	<0.0028	<0.0011	<0.0011		<0.0013		46
Methyl Ethyl Ketone	<0.0082	<0.011	<0.0070	<0.0070	<0.0088	<0.0069	0.013 J	<0.017	<0.0058	0.0069 J		<0.0077		17
Toluene	<0.0014	<0.0018	<0.0018	<0.0012	<0.0015	<0.0011	<0.0019	<0.0028	0.0012 J	<0.0011		<0.0013		2700
Xylenes	<0.0026	<0.0035	<0.0022	<0.0022	<0.0028	<0.0022	<0.0036	<0.0053	<0.0022	<0.0020		<0.0024		490
1,2,4-Trimethylbenzene	<0.0014	<0.0018	<0.0011	<0.0011	<0.0015	<0.0011	0.0033 J	<0.0028	<0.0011	<0.0011		<0.0013		58
1,3,5-Trimethylbenzene	<0.0011	<0.0015	<0.00097	<0.00097	<0.0012	<0.00095	0.0021 J	<0.0023	<0.00095	<0.00088		<0.0011		30
1,2-Dichlorobenzene	<0.00098	<0.0013	<0.0013	<0.00063	<0.001	<0.00081	<0.0014	<0.0020	<0.0015 J	<0.0015 J		<0.00091		27
1,3-Dichlorobenzene	<0.055	<0.052	<0.052	<0.041	<0.045	<0.21	<0.23	<0.063	<0.078	<0.0011		<0.00085		180
1,4-Dichlorobenzene	<0.22	<0.20	<0.20	<0.16	<0.18	<0.84	<0.91	<0.25	<0.31	<0.0092		<0.0010		930
1-Propylbenzene	<0.0012	<0.0017	<0.0017	<0.0010	<0.0013	<0.0010	<0.0017	<0.0025	<0.0010	<0.00096		<0.0011		2.6
sec-Butylbenzene	<0.0013	<0.0017	<0.0017	<0.0011	<0.0014	<0.0011	<0.0018	<0.0026	<0.0011	<0.0012		<0.0012		380

Notes:
1. Refer to the attached analytical data report for a complete report of results.
2. Regulatory Comparison Criteria are included for reference purposes only.
3. Regional Screening Levels (RSLs) are established from the United States Environmental Protection Agency
4. RSL = Regional Screening Level
5. All units listed are in mg/kg or parts per million (ppm) equivalent.
6. NA = Not Analyzed
7. J = Result is less than the MDL and the concentration is an approximate value.
8. BOLD constituents are greater than the Residential RSL, while RED constituents are greater than the Industrial RSL
9. "3" denotes ISTD response or retention time is outside of acceptable limits
10. "****" denotes m-cresol RSL

TABLE 5
GROUNDWATER ELEVATION
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE , ALABAMA
SESI PROJECT NO.: M23-359

Well No.	TW-1			TW-2			TW-3			TW-4		
Diameter	2"			2"			2"			2"		
Well Depth	10.00'			11.71'			10.00'			10.03'		
TOC Elevation	8.00			8.27			6.80			6.53		
Date	DTW	ELEV	FP	DTW	ELEV	FP	DTW	ELEV	FP	DTW	ELEV	FP
10/14-17/2024	7.65	0.35	N/A	7.23	1.04	N/A	3.56	3.24	N/A	5.05	1.48	N/A

Well No.	TW-5			TW-6			TW-7			TW-8		
Diameter	2"			2"			2"			2"		
Well Depth	10.06'			10.00'			10.08'			10.03'		
TOC Elevation	5.97			6.21			7.69			6.90		
Date	DTW	ELEV	FP	DTW	ELEV	FP	DTW	ELEV	FP	DTW	ELEV	FP
10/14-17/2024	4.52	1.45	N/A	4.68	1.53	N/A	4.62	3.07	N/A	5.39	1.51	N/A

Well No.	TW-9			TW-10			TW-11		
Diameter	2"			2"			2"		
Well Depth	10.02'			10.00'			10.00'		
TOC Elevation	5.49			6.15			6.90		
Date	DTW	ELEV	FP	DTW	ELEV	FP	DTW	ELEV	FP
10/14-17/2024	4.93	0.56	N/A	5.93	0.22	N/A	5.41	1.49	N/A

Notes:
DTW = Depth to groundwater
ELEV = Groundwater elevation

TABLE 6
DETECTED INORGANICS - GROUNDWATER
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE , ALABAMA
SESI PROJECT NO.: M23-359

Well ID	TMW-1	TMW-2	TMW-3	TMW-4	TMW-5	TMW-6	TMW-7	TMW-8	TMW-9	TMW-10	TMW-11	Screening Criteria	
Sample Date	10/17/24	10/15/24	10/17/24	10/14/24	10/14/24	10/17/24	10/14/24	10/14/24	10/14/24	10/17/24	10/17/24	Tapwater (mg/L)	MCL (mg/L)
Aluminum	0.48	<0.054	<0.054	0.089 J	<0.054	<0.054	0.085 J	<0.054	<0.054	<0.054	<0.054	2.0	0.2*
Arsenic	<0.0064	<0.0064	<0.0064	<0.0064	<0.0064	<0.0064	<0.0064	<0.0064	0.0082 J	<0.0064	0.0069 J	0.000052	0.01
Barium	0.2	0.42	0.25	0.17	0.16	0.33	0.52	0.47	0.57	0.25	1.6	0.038	2
Cadmium	0.00064 J	<0.00044	<0.00044	<0.00044	<0.00044	<0.00044	<0.00044	<0.00044	<0.00044	<0.00044	<0.00044	0.00092	0.005
Calcium	140	120	180	150	130	140	140	180	130	130	120		
Chromium	0.0014 J	<0.0011	0.0013 J	0.0012 J	0.0012 J	<0.0011	0.0014 J	<0.0011	<0.0011	<0.0011	<0.0011		0.1
Copper	0.033	<0.0032	<0.0032	<0.0032	<0.0032	<0.0032	<0.0032	<0.0032	<0.0032	<0.0032	<0.0032	0.08	1*/1.3
Iron	11	4.3	5.4	18	18	16	10	34	24	13	13	1.4	0.3*
Lead	0.047	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	0.0092 J	<0.0066	<0.0066	<0.0066	0.015	0.015
Magnesium	27	13	46	28	29	12	8.4	8.7	12	6.7	26		
Manganese	0.87	0.95	1.4	1	0.82	0.58	0.29	1.2	0.5	0.68	0.25	0.043	0.05*
Nickel	0.008 J	<0.0033	0.018 J	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	0.039	
Potassium	12	13	29	12	13	11	6.4	9.5	8.5	8.1	15		
Sodium	15	12	70	20	27	18	11	21	16	5.3	35	600	1000
Vanadium	0.0016 J	<0.001	0.0017 J	<0.001	<0.001	0.0017 J	0.0013 J	<0.001	<0.001	<0.001	0.0012 J	0.0086	
Zinc	0.31	<0.0087	<0.0087	<0.0087	<0.0087	<0.0087	<0.0087	<0.0087	<0.0087	<0.0087	<0.0087	0.6	5*

Notes:

- Levels represented for comparison purposes only.
- Regulatory Screening Criteria is the EPA Regional Screening Level (RSL) published in November 2024.
- All Concentrations are reported in milligrams per liter (mg/L) or parts per million (ppm) equivalent.
- Please see Laboratory Analytical Report for a complete report.
- Blanks indicate no data available
- The tapwater RSLs are for the concentration in the water at the tap regardless of how the water gets there or is sampled.
- "MCL" refers to the Maximum Contaminant Level or the Primary Drinking Water Standard.
- "**" indicates a Secondary Drinking Water Standard.
- BOLD** indicates exceedence of MCL or Secondary MCL

TABLE 7
DETECTED VOLATILE & SEMI-VOLATILE ORGANICS - GROUNDWATER
BENDER RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Well ID	TW-1	TW-2	TW-3	TW-4	TW-5	TW-6	TW-7	TW-8	TW-9	TW-10	TW-11	Screening Criteria	
Sample Date	10/17/2024	10/15/2024	10/17/2024	10/14/2024	10/14/2024	10/17/2024	10/14/2024	10/14/2024	10/14/2024	10/17/2024	10/17/2024	Tapwater (mg/L)	MCL (mg/L)
Benzene	<0.00024	<0.00024	<0.00024	<0.00024	<0.00024	<0.00024	<0.00024	<0.00024	0.00024 J	<0.00024	<0.00024	0.460	0.005
Acenaphthene	<0.000084	0.00016 J	0.0052	<0.000084	<0.000084	<0.000083	<0.00084	0.00011 J	<0.000084	<0.000084	<0.000084	0.053	
Anthracene	<0.000072	<0.000072	0.000086 J	<0.000072	<0.000073	<0.000072	<0.000072	0.000074 J	<0.000073	<0.000073	<0.000072	0.180	
Benz(a)anthracene	<0.00039	<0.00004	<0.00004	<0.00004	<0.00004	<0.000039	<0.000039	0.000043 J	<0.00004	<0.00004	<0.00004	0.00003	
Chrysene	<0.000038	<0.00039	<0.000039	<0.000039	<0.000039	<0.000038	<0.000038	0.000048 J	<0.000039	<0.000039	<0.000039	0.025	
Fluoranthene	<0.000031	<0.000032	<0.000032	<0.000032	<0.000032	<0.000031	<0.000031	0.0001 J	<0.000032	<0.000032	0.000038 J	0.080	
1-Methylnaphthalene	<0.000065	<0.000065	0.00014 J	<0.000065	0.00016 J	<0.00065	<0.000065	<0.000065	<0.000066	<0.000066	<0.000065	0.00063	
2-Methylnaphthalene	0.000083 J	<0.000076	0.00021	<0.000076	0.00023	<0.000075	>0.000076	<0.000075	<0.000076	<0.000076	<0.000076	0.0036	
Naphthalene	0.000088 J	<0.000063	0.0001 J	<0.000063	0.00023	<0.000063	<0.000063	<0.000063	<0.000064	<0.000064	<0.000063	0.00012	
Phenanthrene	<0.000043	<0.000044	<0.000044	<0.000044	<0.000044	<0.000043	<0.000043	0.00032	<0.000044	<0.000044	<0.000044		
Pyrene	<0.000039	<0.00004	<0.00004	<0.00004	<0.000040	<0.000039	<0.000039	0.00016 J	<0.00004	<0.00004	0.000063 J	0.012	

Notes:

- Levels represented for comparison purposes only.
- Regulatory Screening Criteria is the EPA Regional Screening Level (RSL)
- All Concentrations are reported in milligrams per liter (mg/L) or parts per million (ppm) equivalent.
- Please see Laboratory Analytical Report for a complete report.
- Blanks indicate no data available
- The tapwater RSLs are for the concentration in the water at the tap regardless of how the water gets there or is sampled.
- "MCL" refers to the Maximum Contaminant Level or the Primary Drinking Water Standard.
- "BOLD"** indicates a concentration of detection level that is above the Tapwater criteria. **RED** indicates a concentration of that is above the MCL.
- NS denotes Not Sampled

TABLE 8
RM-2 CLEAN UP LEVEL SUMMARY TABLE
BENDER PROPERTIES RISK ASSESSMENT
MOBILE RIVER BRIDGE-MAIN SPAN & HIGH-LEVEL APPROACHES
MOBILE, ALABAMA
SESI PROJECT NO.: M23-359

Constituent	Lowest RM-2 Calculated Allowable Concentration			Complete Pathway Exposure Scenario Exceedence		
	Resident	Commercial Worker	Construction Worker	Resident	Commercial Worker	Construction Worker
Aluminum	758	36100	7940	Yes	Yes	Yes
Antimony	4.02	191	34.4	Yes	Yes	Yes
Arsenic	1.01	19.6	4.7	Yes	Yes	Yes
Barium (and) compounds	59.5	2830	265	Yes	Yes	Yes
Cadmium (diet)	1.29	25.1	8.6	Yes	Yes	Yes
Chromium III	3.42	163	17.9	Yes	Yes	Yes
Cobalt	0.238	4.62	2.12	Yes	Yes	Yes
Copper (at tap)	84.8	404	728	Yes	Yes	Yes
Iron	2008	99200	17200	Yes	Yes	Yes
Manganese	17.8	850	119	Yes	Yes	Yes
Mercury (elemental)	0.103	4.89	0.457	Yes	Yes	Yes
Nickel	6.10	118	86	Yes	Yes	Yes
Thallium	0.0744	3.54	0.430	Yes-Theoretical at Half Detection Limit		
Vanadium	0.61	19.1	2.91	Yes	Yes	Yes
Zinc	253	12000	7940	Yes	Yes	Yes
PCB-Arochlor 1260	0.0814	0.433	49	Yes	Yes	Yes
Napthalene	0.00253	0.0491	0.0728	Yes	Yes	Yes
Anthracene	0.00520	0.248	0.0860	Yes	Yes	Yes
Benzo (a) anthracene	0.103	0.549	4.25	Yes	Yes	Yes
Benzo (a) pyrene	0.0327	0.635	0.377	Yes	Yes	Yes
Benzo (b) flouranthene	0.184	0.982	6.95	Yes	Yes	Yes
Dibenzo (a,h) anthracene	0.0228	0.121	0.981	Yes	Yes	Yes

Notes:

1. Refer to the attached analytical data report for a complete report of results.
2. Calculated concentrations may be lower than the applicable Regional Screening Level
3. Clean Up Level may not be most representative concentration for the Exposure Pathway.