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1. PROJECT AREA DESCRIPTION AND PLANS FOR REVITALIZATION a. Target Area and

Brownfields i. Overview of Brownfield Challenges and Description of Target Area

The City of Houston (City) (pop. **2,920,003**),¹ located in Harris County (HC), Texas, was founded in 1836 on the banks of the Buffalo Bayou, fifty (50) miles west of the Gulf of Mexico. Houston was originally established as a port city with an early economy built on shipping cotton, lumber, and other manufactured goods produced on nearby plantations, or made domestically by enslaved African Americans and Mexican immigrants. In 1901, oil was discovered in Texas, propelling Houston on its path to becoming the petrochemical capital of the United States—based on its extensive oil and gas infrastructure comprised of several thousand miles of pipeline connecting chemical manufacturers, refineries, and fractionation plants along the Gulf Coast—and ultimately becoming energy capital of the world. With a rapidly growing economy tied to petrochemicals and goods movement, Houston's East End (*target area for this grant*) was established along the banks of the Buffalo Bayou and Houston Ship Channel, which fed the Port of Houston (Port Houston today). By the 1890s, Houston had become known as "Where Seventeen Railroads Meet the Sea", and the East End became a community bounded by commercial junctions.

The **East End (pop.² 36,365)** is bound by downtown to the west, Buffalo Bayou to the north, Harrisburg light rail to the south, and Port Houston to the east. At its inception, the East End had a large concentration of working-class Germans, Italians, Irish, and Asian immigrants. As opportunities grew in the early 1900s, an influx of Hispanic immigrants settled in East End, establishing what is now two of Houston's oldest Hispanic neighborhoods, 2nd Ward and Magnolia Park. Today, the East End is one of Houston's most culturally vibrant neighborhoods, with public art, colorful murals, Tex-Mex cuisine, street festivals, and pop-up vendor markets reflective of its diverse past. However, the East End has experienced significant economic challenges and environmental burdens for over a century, which has impacted generations of East End residents to this day.

Houston's growing freight economy and an oil boom in the early-mid 1900s coincided with the now-illegal Jim Crow laws restricting where African Americans and Hispanics could live and work. Furthermore, Houston has **no zoning regulations or land use restrictions, which allowed for incompatible development patterns in the East End, where industry intertwined with residential homes and community spaces.** Railyards, processing plants, manufacturing and industrial facilities, concrete crushers, and city incinerators infiltrated residential spaces, leaving limited options or access to green space, parks, recreational facilities, and other community amenities. By the mid-1900s, the East End was fragmented by incompatible development and likely as a result, experienced a sharp decline exacerbated by a variety of factors including public disinvestment, environmental degradation, interstate expansion projects, redlining, and the boom-and-bust cycle of the oil and gas industry. The economic downside that followed resulted in decades of persistent poverty and concentrated brownfields in low-income, minority-majority neighborhoods. Many industries and manufacturing operations abandoned their facilities, leaving behind shells of warehouse buildings, vacant lots, and decaying infrastructure. One of those sites is the former City of Houston (COH) Velasco Street Incinerator (Velasco Incinerator), an environmental injustice in the East End that has been the subject of community concern for over forty years. Dating back to Dr. Robert Bullard's 1979 research findings demonstrating that one hundred percent (100%) of the city-owned landfills and seventy-five percent (75%) of city-owned incinerators were in neighborhoods of color;³ the Velasco Incinerator clean-up project is an opportunity to rectify an environmental hazard and transform a blighted area into a community asset. **With this funding, we can progress toward a cleaner, safer, and more prosperous future for the East End and the entire City of Houston.**

¹ American Community Survey (2017-2021).

² American Community Survey (2017-2021).

³ <https://drrobertbullard.com/wp-content/uploads/2014/07/Final-2014-Bullard-Cite-Article.pdf>

ii. Description of the Proposed Brownfield Site: The Velasco Incinerator site is 4.56 acres of vacant land located at the 800 Block of Velasco Street in Houston's East End, located just north of Navigation Boulevard and south of Buffalo Bayou. The site was formerly operated as a municipal incinerator facility by the COH from the 1930s through the late 1960s. Municipal waste from across the city was brought to the project site for incineration. The byproduct of incineration is ash and remnants that does not burn, such as glass, brick, and metals. This ash and fill material was spread out on the property during the over forty (40) years of operations, resulting in the deposit of up to thirty-five (35) feet of incinerator waste on the property, covering approximately two-thirds of the site.

Site buildings were removed by 1995, except for incinerator stacks, a concrete building foundation, and a sanitary sewer lift station. The site is currently heavily covered in native grasses and trees and is bound on all sides by chain-link fencing. Due to the cost (between \$5M to approx. \$22M) of cleaning up environmental contamination at the Velasco Incinerator site, it has been **vacant for nearly sixty (60) years**, since the City abandoned the site in the late 1960s. Environmental testing since 2006 has demonstrated that this waste contains elevated levels of arsenic, lead, mercury, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (sVOCs), dioxins, and furans, therefore the site is considered hazardous.

b. Revitalization of the Target Area i. Reuse Strategy and Alignment with Revitalization Plans

The clean-up and reuse of the Velasco Incinerator will advance goals and objectives identified in various community revitalization plans, including the *Greater East End Livable Center Master Plan* (2011), *ULI Redeveloping the East End Study* (2019), *Complete Communities Action Plans* for 2nd Ward (2018) and Magnolia Park/Manchester (2020), *Buffalo Bayou East Master Plan* (2022), *Bayou Greenways Initiative* (2020), *Resilient Houston* (2020), and *Climate Action Plan* (2020). *Complete Communities*, a community-led initiative launched in 2017 by the COH, documents East End residents' priority to improve parks and open spaces, infrastructure, industrial properties along Buffalo Bayou, preserving and enhancing the neighborhood character, and housing, while *Resilient Houston* reinforces that the bayous are one of Houston's greatest assets. The *Buffalo Bayou East Master Plan* aligns with the goals and objectives of the *Bayou Greenways Initiative*, *Resilient Houston*, *Climate Action*, and *Complete Communities*, bringing the community's vision to life to transform the industrial waterfront into a true community asset and destination. **The Velasco Incinerator project site will significantly contribute to realizing these plans' goals to mitigate historic inequities and coalescing various initiatives around a healthy resilient community in the East End.**

With this clean-up grant, HLB will leverage recent plans and studies and enhance the community's connection to the *Buffalo Bayou East Master Plan*, as well as incorporate resilient infrastructure, climate action, and other environmental improvements to restore the site to benefit the health of the community. **With an unwavering commitment to the principles of environmental justice, the final reuse plan details will be co-designed with the community through an equity and justice approach to community engagement, reuse visioning, and site design. The clean-up plan readies the site for these opportunities, by constructing a simple earthen cap on which the community can build future amenities, which could include parks and recreational facilities, bike/hike paths, public art, urban gardens, small-scale hydroponic farming, or more.**

ii. Outcomes and Benefits of Reuse Strategy

Through extensive community engagement conducted by recent plans and studies, such as the *Complete Communities Action Plan*, *Resilient Houston*, and the *Buffalo Bayou East Master Plan*, the public has expressed overwhelming support for parks, recreation, urban farms, and innovative design strategies to create greater access to the Buffalo Bayou waterfront and repurpose industrial properties as key community assets. The final site plan will not be finalized without continued and significant input from residents directly impacted by this site. However, the construction of the earthen cap (engineered barrier) will immediately **add 4.56 acres of green space** to the City's park system and create up to ten

(10) quality jobs in park maintenance, environmental services, and administrative support. HLB ensures tangible outcomes for equitable economic opportunities, climate resilience, and energy efficiency by supporting local innovative businesses, technologies, sustainable materials, and energy-efficient design improvements, like pavilions, restrooms, solar lighting, etc.

Examples of potential reuse beyond creating green space include the installation of solar panel shade structures, botanic gardens, hike-bike trail extensions, and/or urban farming. Opportunities for local urban farmers, for example, could establish a green technology hydroponic farm that could leverage up to five (5) million dollars for site build-out and create over thirty (30) well-paid jobs (livable wages and benefits) in green technology, provide community space for events, education, and business incubation. Based on lessons learned from a nearby hydroponics demonstration project at the Black United Fund of Texas (funded by FY21 Environmental Protection Agency (EPA) Environmental Justice Collaborative Problem Solving Grant), retrofitted forty by eight-foot (40x8-ft) shipping containers—equipped with solar panels, battery storage, a solar-powered back-up generator, and rainwater harvesting—can create a self-sustaining and resilient solution to food production. Food growth onsite could directly serve low-income residents by supplying sustainable food to community centers, after-school programs, local restaurants, farmers markets, and food banks in East End, advancing community goals to reduce residents living in food deserts by up to eighty-seven percent (87%).⁴

The Velasco Incinerator project will also support existing connections and access to Buffalo Bayou's waterfront, over forty (40) miles of hike/bike trails, and two hundred (200) acres of new parks and greenspace. The bayou's trails and park system contribute to the physical and mental health of residents in East End by promoting outdoor recreation and active lifestyles, as well as restoring natural ecosystems to improve air, soil, and water quality through ecological restoration, riverbank clean-up and slope stabilization, and installation of native plants and trees. Expansions and enhancements of the trail and park system will further these benefits to residents.

c. Strategy for Leveraging Resources i. Resources Needed for Site Characterization: The Voluntary Cleanup Agreement (VCP) with the Texas Commission on Environmental Quality (TCEQ) has committed HLB to completing an Affected Property Assessment Report (APAR) by June 15, 2024. Although no further assessment is anticipated after June 15, 2024, should TCEQ require additional characterization to support remediation decisions, HLB has several options to fund further site characterization activities, such as a six hundred thousand dollar (\$600,000) Community-Wide Assessment grant with a one hundred and seventy-five thousand dollar (\$175,000) remaining balance. Additionally, HLB has applied a five hundred thousand dollar (\$500,000) EPA Community-Wide Assessment grant for FY24, which includes the East End as a target area and names the Velasco Incinerator as a priority site.

ii. Resources Needed for Site Remediation: The Analysis of Brownfield Cleanup Alternative (ABCA) cost estimates indicate that the EPA request will be sufficient to complete the remediation of the Velasco Incinerator brownfield site. No additional resources are needed.

iii. Resources Needed for Site Reuse: **The reuse plan immediately following clean-up is simply green space and additional reuse funding is not required.** However, if the community desires modifications to this simple design, the additional funding sources are available to transform the green space into something more. HLB has the ability to take advantage of unprecedented levels of funding made available through the Biden Administration's Infrastructure Reinvestment Act (IRA), including opportunities with the US Economic Development Agency, US Department of Agriculture, National Parks Service, US Department of Energy, and EPA Environmental Justice grants.

⁴ Reference Kashmere Garden's Complete Communities Plan

[HLB is currently prospecting public and philanthropic funding sources to support reuse options for this project. We welcome comments and collective efforts to raise capital that aligns with the community's vision for redevelopment.]

iv. Use of Existing Infrastructure: The vacant property is not served by municipal utilities. The existing site improvements (concrete pads) will be removed during clean-up; however, the historic smokestacks of the former incinerator will be preserved and incorporated into the final reuse design. Improvements to stormwater and drainage infrastructure are a priority of the COH Mayor's Office to alleviate flooding and reduce contaminated stormwater runoff into Buffalo Bayou. Velasco Street provides site access and will require repaving and drainage improvements to support future reuse plans. The adjacent property to the west is currently under construction for a four hundred (400) affordable-unit multifamily development by the Houston Housing Authority (HHA). HHA's site access point from Ball Street has an easement that can extend to and bisect the Velasco Incinerator roughly from northwest to southeast. **Although clean-up plans do not include the construction of Ball Street on the Velasco Incinerator at this time, the clean-up and cap design will prepare the site to allow for this future road construction if the community agrees the Ball Street extension is needed for better access and to reduce traffic congestion in this neighborhood.** Necessary public infrastructure updates are included in the city's annual capital improvement budgets for East End through TIRZ-23. Funding for infrastructure improvements can be supported by TIRZ-23, which has a goal of supporting the construction of key streets and utility systems to improve functionality and replace aged facilities.

2. COMMUNITY NEED AND COMMUNITY ENGAGEMENT **a. Community Need** **i. The Community's Need for Funding:** Over the past seven (7) years, Houston has suffered unprecedented economic impacts caused by catastrophic climate events from the Memorial Day Flood (2015; damages of \$460M), Tax Day Flood (2016; damages of \$65M), Hurricane Harvey (2017; damages of \$125B), Tropical Storm Imelda (2019; damages of \$5B), and Winter Storm Uri (\$295B state-wide). Additionally, in 2020, Houston suffered the worst economic loss from the COVID-19 pandemic compared to any other major US metropolitan area and is significantly lagging in recovery compared to other major Texas cities.⁵ Since March 2020, Houston has lost 367,000 jobs to the initial lockdown period and **only 57.4 percent of jobs have returned by July 2021** (compared to 98.9% in Dallas, 74.9% state-wide). HLB's operating, program, and project funding relies heavily on restricted funding granted to the organization through the COH, HC, philanthropy, and other resources. In recent years, philanthropic resources have been scarce and, when available, restricted for use to address the City's affordable housing crisis, disaster recovery, critical infrastructure, and other urgent needs. As a result of this demand on private funds, **HLB is limited in its ability to raise private funds specifically for the environmental remediation of the Velasco Incinerator without EPA assistance.**

B. Threats to Sensitive Populations *(1) Health/Welfare* - Incinerator waste covers approximately two-thirds of the site, including ash and fill material containing glass, brick, and other debris. Soil and groundwater samples collected since 2006 demonstrate that there are elevated levels of environmental contaminants in soil and groundwater, including heavy metals (arsenic, barium, cadmium, lead, and silver), polychlorinated biphenyl (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), dioxins, and furans. If exposed, identified contaminants could pose health concerns to sensitive populations, as well as ecological receptors in the nearby Buffalo Bayou.

Rates of children in poverty are nearly double in East End CTs (40-61% in CTs 2123, 2105, and 3101) as compared to thirty-two percent (32%) in Houston, twenty-three percent (23%) in TX, and seventeen percent (17%) nationally). Poverty rates in homes with children are strongly associated with

⁵ <https://www.bauer.uh.edu/centers/irf/houston-updates.php>

environmental and social determinants of health. Children are at higher risk of exposure to hazardous chemicals, as evidenced by Houston's high rates of childhood lead poisoning and asthma.⁶ Another sensitive population is homeless individuals, who are known to take shelter in the overgrown area of the Velasco Incinerator. In 2023, the Coalition for the Homeless counted 1,242 people living unsheltered in Houston, forty-two percent (42%) of whom were unsheltered for the first time, nine percent (9%) homeless due to COVID, thirty-three percent (33%) cited economic impact caused their homelessness, and fifty-five percent (55%) identified as Black or African American (compared to 20% that identified as Hispanic).⁷ The unhoused individuals occupying the Velasco Incinerator project site are potentially at risk to various site hazards (including overgrowth and illegal dumping) and HLB is actively engaging with homeless advocates to prevent exposure to this sensitive population.

2) Greater Than Normal Incidence of Disease and Adverse Health Conditions:

[Currently in progress and confirming health statistics]

The Velasco Incinerator cleanup is directly aligned with the national and local **Brownfields to Healthfields (B2H) initiative, which promotes reuse options that enhance community health with parks, recreation centers, access to fresh food, and other health amenities.**

3) Environmental Justice: (a) Identification of Environmental Justice Issues

Data downloaded from EPA's EJ Screen tool confirms that the CT 3101.02 (Velasco Site) and the East End TA are above the ninetieth (90th) percentile of most of EPA's Environmental Justice Indexes. Climate vulnerability and social inequities further exacerbate environmental justice problems, impacting residents who are concerned about the distribution of hazardous chemicals to their properties from nearby EPA facilities and brownfields, including the Velasco Incinerator. In addition to EJ Screen Data, the CEJST Tool shows that CT 3101.02, which contains the Velasco Incinerator, is disadvantaged in the categories of **climate change** (96th percentile for expected building loss/71st percentile low-income), **energy** (90th for PM/71st low-income), **housing** (96th for lack of greenspace/71st low-income) **legacy pollution** (>90th for proximity to RMP (91st) & Superfund (97th)/71st low-income) and **workforce development** (92nd poverty/15% high school education). Moreover, the East End is considered "low income and low access" with a significant number of residents living >1 mile from the nearest food store.⁸

Table: EJ Indexes (percentile in US)

| EJ Index | CT3101.02 | East End |
|---------------------------|-----------|----------|
| Particulate Matter | 97 | 97 |
| Ozone | 97 | 97 |
| Diesel PM | 96 | 96 |
| Air Toxics Cancer Risk | 91 | 97 |
| Air Toxics Respiratory | 93 | 93 |
| Toxic Releases to Air | 98 | 98 |
| Traffic Proximity | 97 | 89 |
| Lead Paint Indicator | 87 | 94 |
| Superfund Proximity | 98 | 97 |
| RMP Proximity | 93 | 93 |
| Hazardous Waste Proximity | 93 | 95 |
| Underground Storage Tanks | 84 | 93 |
| Wastewater Discharge | 96 | 95 |

Downloaded from EJ Screen 10.21.23. Percentile comparison in TX is similar to US.

As a result of destructive urban planning (segregation, redlining, and lack of local restrictions to separate incompatible uses) and disinvestment from the 1950s to today, East End residents have suffered many decades of persistent poverty, environmental degradation, and poor public health conditions. Today, East End neighborhoods have become a focus of public investment to improve the quality of life for current residents. However, Houston's population is steadily increasing, which is inflating real estate markets and increasing the cost of living at a faster rate than experienced nationally. A 2016 study by the Rice Kinder Institute for Urban Research predicted CTs in the East End have a sixty-three percent (63%) chance of gentrifying based on a variety of factors, including income, race, job access, housing

⁶ Interview with HHD 11/18/2021

⁷ <https://www.homelesshouston.org/2023-pit-results>

⁸ USDA Food Atlas. Current version 2019: <https://www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data/>

stock, and climate disasters.⁹ With close proximity to downtown, the East End is currently undergoing rapid gentrification and many long-time residents can no longer afford housing.

(b) *Advancing Environmental Justice*: HLB is committed to promoting environmental justice and ensuring that the Velasco Incinerator project outcomes benefit marginalized and sensitive populations. Through partnerships with environmental justice advocacy organizations, community groups, and research institutions, HLB has a disciplined focus on aligning EPA resources with community-supported projects and anti-displacement efforts to preserve cultural heritage and community assets, create inclusive economic opportunities, and expand safe, affordable housing. Brownfields clean-up and reuse will also eliminate hazardous substances and petroleum from these communities, reducing the cumulative impacts of environmental contamination on vulnerable populations.

b. Community Engagement

i. Project Involvement/ii. Project Roles: The HLB is committed to the principles of environmental justice. Expressly, HLB affirms EJ principle seven, which demands the right of communities to participate as equal partners at every level of decision-making. The following table identifies local organizations/entities/groups and their roles in grounding this project in meaningful community engagement and local stakeholder support.

[FOR DRAFT INPUT – IF YOU WOULD LIKE TO BE CONSIDERED AS A PARTNER, PLEASE SUBMIT A COMMENT WITH YOUR NAME, ORGANIZATION, CONTACT INFORMATION, AND YOUR REQUESTED ROLE TO SUPPORT THE SUCCESS OF THIS PROJECT.]

| Name | Point of Contact | Specific Involvement |
|--------------------|------------------|---|
| Super Neighborhood | (example) | Community engagement: invitations to Super Neighborhood meetings, sharing of project updates, and solicitation of community input |
| TBD | | |
| TBD | | |

iii. Incorporating Community Input: Community engagement, integrity of ethics and transparency, and meaningful partnerships with community stakeholders will be paramount to the success of this clean-up and reuse project. Upon acquiring the property in November 2023, HLB launched www.bankingvelasco.org to communicate project status updates, reports, and other critical information. HLB will also create a Community Engagement Plan detailing opportunities to inform the community, engage stakeholders, and give and receive feedback regarding project decisions. HLB will also (1) host in-person public meetings at least once a quarter to give project updates and receive critical community feedback, (2) engage with the community "where they are," accepting invitations to speak at civic club and grassroots events to actively listen and provide project information, and (3) hire a dedicated community liaison representative of the East End who can offer deeper insights into community feedback on the project. HLB will respond to community feedback on www.bankingvelasco.org and shared through various communication channels, including social media, newsletters, public media and news outlets, and City Hall communications. Communication will be offered in both English and Spanish with virtual options for participation via Microsoft Teams, Zoom, Facebook Live, or other similar platforms.

3. TASK DESCRIPTIONS, COST ESTIMATES, AND MEASURING PROGRESS

a. **Proposed Clean-up Plan**: As described in the ABCA, Remedial Alternative (RA) #2 is the selected clean-up plan for the Velasco Site. The soil response actions proposed under RA#2 are twofold. First, the entire site will be cleared and grubbed of all vegetation, and the concrete foundation will be removed. A sufficient volume of buried fill/waste material and overburden soil (about 10,500 CY loose volume)

⁹ https://kinder.rice.edu/sites/default/files/documents/Neighborhood%20Gentrification%20Across%20Harris%20County%201990%20to%202016_0.pdf

will then be removed from the site's southwest portion to support the future construction of an extension of Ball Street (approximately 14,000 SF). Second, an additional fourteen thousand square foot (14,000 SF) area will be excavated to support future amenities or other improvements at the site. The approximately ten thousand five hundred cubic yards (10,500 CY) of buried fill/waste material and overburden soil from this area will be redistributed across the site in a manner intended to practically and topographically support the construction of future recreational amenities. The onsite areas outside the Ball Street right-of-way (ROW) and the additional excavation area where buried waste/fill materials are suspected will then be capped with a two-foot-thick compacted engineered clay cap constructed over the underlying fill/waste materials to prevent human exposure to the affected media and assure long-term waste containment with minimum post-closure maintenance. The post-closure care will include operation and management (O&M) of the engineered clay cap for up to thirty years. The groundwater exposure pathways at the site will be controlled by obtaining a Municipal Setting Designation (MSD) ordinance from the COH for the site and an MSD Certificate from the TCEQ. The combined MSD ordinance and certificate will prohibit the withdrawal and use of groundwater at the site for potable purposes, thus controlling the human groundwater contact and ingestion exposure pathways at the site. This control is enforced by the COH ordinance and the TCEQ rules that is a legally binding record tied by deed of restriction to the site parcel(s). Specific task details are outlined in the ABCA and below.

b. Description of Task/Activities and Outputs

| |
|--|
| Task 1 – Community Engagement |
| <i>i. Project Implementation:</i> HLB is deeply committed to meaningful community engagement to ensure that the decisions for clean-up and reuse of the site are influenced by those who have been and will be most impacted by the site. Community engagement will include project communications and updates through www.bankingvelasco.org , social media, Councilmember newsletters, HLB newsletters, and East End civic organizations; public meetings; invited speaking engagements at other community meetings and events; community visioning workshops; educational materials; Spanish translation and interpretation; and hiring of a dedicated community liaison from East End. |
| <i>ii. Schedule:</i> Continuous project updates on various communication channels (website, social media, etc.); once-a-month outreach activities within the community as identified by the Community Liaison and project team (e.g. participation in a local event); quarterly public meetings; and reuse visioning workshops in Q4 2024 (pre-grant visioning will also be conducted in 2023). |
| <i>iii. Task Lead:</i> HLB |
| <i>iv. Output(s):</i> 1) Outreach meetings (at least 16 total) with notices, agendas, presentations, sign-in sheets, and meeting notes; 2) Outreach materials (fact sheets; results summary sheets; website updates with all materials prepared in both Spanish and English); 3) Report and summary of community feedback and response to comments; 4) Notes and summary of activities from the project's community liaison. |
| Task 2 – Clean-up Planning |
| <i>i. Project Implementation:</i> HLB will engage a qualified Environmental Professional (via a competitive procurement process per 2 CFR Part 200) to complete final specifications for clean-up in a Response Action Plan (RAP), which will incorporate feedback from community visioning sessions. Clean-up planning will also include finalizing and seeking EPA approval on the ABCA, Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HSP). A contingency budget for remedial investigation has also been included if necessary to close data gaps required to finalize the remedial design specs, including ongoing groundwater monitoring, as required by TCEQ before, during, and after clean-up. Bid documents and procurement of construction contractors per 2 CFR Part 200 and Davis Bacon. TCEQ reporting, correspondence, and project plan approval will also be included in this task. |
| <i>ii. Schedule:</i> Oct. 2024 – Sept. 2025 |
| <i>iii. Task Lead:</i> HLB & Environmental Professional |

iv. *Output(s)*: 1) Final ABCA; 2) QAPP; 3) HASP; 4) RAP; 5) Quarterly status & groundwater monitoring reports (est. 3); 5) Bid documents and procurement results

Task 3 – Clean-up & Post-Closure Activities

i. *Project Implementation*: HLB will manage the selected environmental professional and construction contractor to implement clean-up activities, which include 1) site clearing; 2) excavation; 3) site grading; 4) construction of grass and clay cap; 5) preparation for Ball Street extension; 6) air and runoff monitoring and mitigation; 7) confirmation sampling; 8) continued groundwater monitoring; 9) documentation and reporting; and, 10) installation of additional monitoring wells for post-closure monitoring. Upon TCEQ approval that the response action is complete, post-closure activities will include closure of unnecessary groundwater monitoring wells, operation and maintenance (O&M) of the cap, post-closure groundwater monitoring, and reporting.

ii. *Schedule*: Oct 2025-Dec 2026, Jan 2027-Oct 2028 (post-closure)

iii. *Task Lead*: HLB, Environmental Professional, & Construction Contractor

iv. *Output(s)*: 1) Quarterly status reports (including groundwater analysis, construction monitoring, daily logs, laboratory reporting, and waste manifests); and 2) Response Action Completion Report (including final construction details, quality assurance confirmations, laboratory results, etc.); 5) MSD Ordinance and Certification ; 4) TCEQ VCP Conditional Certificate of Completion

Task 4 – Cooperative Agreement (CA) Compliance & Project Management (PM)

i. *Project Implementation*: HLB will dedicate staff to managing grant requirements established in the EPA's CA, including ACRES reporting, contractor procurement, quality assurance, budget, and schedule. Grant funds will also be used to pay for additional support from contractors and fund travel costs for two HLB staff member to attend two regional or two national brownfield conferences.

ii. *Schedule*: Oct 2024 – Sept. 2028

iii. *Task Lead*: HLB

iv. *Output(s)*: 1) Quarterly progress reports; 2) annual DBE and Davis Bacon reports; 3) final closeout report; 4) ACRES updates (as needed); 5) All associated documentation and reporting to be provided to EPA.

c. Cost Estimates:

| Budget Categories | | Project Tasks (\$) | | | | |
|---------------------------------|---------------------------|----------------------|------------------|--------------------|--------------------|-------------|
| | | Community Engagement | Cleanup Planning | Cleanup Activities | CA Compliance & PM | Total |
| Direct Costs | Personnel | \$ - | \$ - | \$ - | \$ 160,000 | \$ 160,000 |
| | Fringe Benefits | \$ - | \$ - | \$ - | \$ 56,000 | \$ 56,000 |
| | Travel ¹ | \$ - | \$ - | \$ - | \$ 20,000 | \$ 20,000 |
| | Equipment ² | \$ - | \$ - | \$ - | \$ - | \$ - |
| | Supplies | \$ 12,000 | \$ - | \$ - | \$ - | \$ 12,000 |
| | Contractual | \$ 432,000 | \$ 306,000 | \$ 452,000 | \$ 360,000 | \$1,550,000 |
| | Construction ³ | \$ - | \$ - | \$ 2,880,000 | \$ - | \$2,880,000 |
| | Other | \$ 72,000 | \$ - | \$ - | \$ - | \$ 72,000 |
| Total Direct Costs ⁴ | | \$ 516,000 | \$ 306,000 | \$ 3,332,000 | \$ 596,000 | \$4,750,000 |
| Indirect Costs ⁴ | | | | | \$ 250,000 | \$ 250,000 |
| Total Budget | | \$ 516,000 | \$ 306,000 | \$ 3,332,000 | \$ 846,000 | \$5,000,000 |

| |
|---|
| <p>Task 1 – Community Engagement [Total Budget = \$516,000] Supplies [\$8,000]: Estimate of \$2,000/year (x4yrs) for public meeting supplies, like pens, markers, ink for printing, name tags, and poster board. Contractual [\$432,000]: Average quarterly cost of \$27,000 (\$150/hr @ 60 hrs/quarter) for an outreach, engagement, and communications consultant. Other [\$72,000]: Community Liaison hired at \$50/hour @ 90 hr/quarter for 16 quarters.</p> |
| <p>Task 2 – Clean-up Planning [Total Budget = \$306,000] Contractual [\$306,000]: Includes 8 quarters of groundwater sampling [\$20,500/quarter x 8 = \$164,000] which assumes a 3-day sampling event, 14 monitoring wells, and 112 groundwater samples; \$80,000 of regulatory reporting, including updates to the Affected Property Assessment Report (100 hrs @ \$150/hr = \$15,000), Response Action Plan (200 hrs @ \$150/hr = \$30,000), QAPP/HSP (100 hrs @ \$150/hr = \$15,000), and status or misc. reports/regulatory correspondence (133 hrs @ \$150/hr = \$20,000); \$40,000 remedial investigation with 4 mobilizations to collect soil data at \$10,000/event (based on small, similar Phase II scopes); and \$22,000 reuse planning (147 hours @ \$150/hr).</p> |
| <p>Task 3 – Clean-up Activities [Total Budget = \$3,332,000] Contractual [\$452,000]: Includes 8 quarters of groundwater sampling [\$20,500/quarter x 8 = \$164,000] which assumes a 3-day sampling event, 14 monitoring wells, and 112 groundwater samples during remedy action and into closure; Regulatory reporting, including Response Action Closure Report (200 hrs @ \$150/hr = \$30,000), 2 annual reports (2 x 100 hrs @ \$150/hr = \$30,000), and status or misc. reports/regulatory correspondence (133 hrs @ \$150/hr = \$20,000); and, \$40,000 for 1 year of post-closure O&M and reporting (\$10,000/quarter for 67 hrs @ 150/hr). Also includes Groundwater Response Action (\$302,000) for the preparation and submittal of a COH and TCEQ Municipal Setting Designation to restrict the use of groundwater for drinking, and continued groundwater, as well as permanent plugging and abandonment of up to 11 monitoring wells. Construction [\$2,880,000]: costs based on environmental professional estimates for Soil Response Action, which assumes limited excavation of 14,000 SF area or 300 CY contaminated soil, waste characterization sampling, disposal of Class 2 non-hazardous waste, 40 confirmation soil samples, site grading, construction of 106,568 SF clay cap at 2-foot thick with 6 inches of top soil and hydro-mulch grass installation, and 105 days onsite. Deed restriction, construction management, stormwater pollution prevention plan, and Davis Bacon rates are included.</p> |
| <p>Task 4 – CA Compliance & PM [Total Budget = \$846,000] Personnel [\$160,000]: HLB project manager dedicated 50% of time to project (4 x 50% of \$80,000/year). Fringe [\$56,000]: 35% fringe benefits. Travel [\$20,000]: Travel Costs of \$5,000/year for up to two HLB members to attend EPA/state brownfield conferences; Costs are estimated at \$2,500/person/ conference based on recent conference costs of approximately \$750 airfare, \$1000 hotel, \$250 ground transportation, and \$500 incidentals per 5-day event. Contractor [\$350,000]: Contractor support to HLB staff for quarterly reporting, project management, quality assurance third-party reviews, meeting facilitation, and documentation of progress towards project goals and objectives. Assumes 150 hrs/quarter @ \$150/hr for 16 quarters. Indirect [\$250,000]: 5% administrative fee for HLB to cover overhead expenses.</p> |

d. Plan to Measure and Evaluate Environmental Progress and Results

HLB Brownfields Program staff have dedicated weekly management meetings to track and monitor the progress and results of projects. These meetings are typically internal, but often HLB will invite contractors, EPA staff, project partners, and other stakeholders to report on or work through project plans. HLB uses the software Asana to track project milestones and ensure both internal and external project team members are well informed of expected tasks, actions, and outcomes. HLB has a dedicated finance department, which will track project financing, invoicing, and compliance with the CA. HLB will establish regular monthly project meetings with EPA staff and ensure compliance with EPA reporting requirements, including ACRES updates. Metrics on project progress will also be shared with the public during regular community engagement events and on the www.bankingvelasco.org website. Progress metrics include schedule updates, # meeting participants, # public comments received, funding

spent, #tons of soil removed, amount of funding leveraged, acres of parks created, and results of any public surveys conducted during the process.

4. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE a. **Programmatic**

Capability **i. Organizational Structure:** HLB has the systems, processes, procedures, and staff in place to effectively manage this grant. HLB is a state nonprofit and local government corporation or a "general purpose unit of local government" as defined in 2 CFR 200.64 and is therefore eligible to receive EPA funds for assessment of brownfields. A copy of HLB's current bylaws and equivalent articles of incorporation are provided in Attachment A. The HLB has a 13-member board of directors and dedicated, full-time staff, including a president, legal counsel, directors, real estate professionals, construction managers, and administrative staff.

ii. Description of Key Staff: The HLB will oversee all aspects of the project to ensure the timely completion of key milestones. **Christa Stoneham**, CEO/President (*Role: Project Director*) will oversee the overall management of the project. Christa was appointed as the CEO and President of HLB in 2021 to facilitate and fundraise equitable transformational developments in Houston's most vulnerable and underestimated communities. Prior to her appointment at HLB, Christa directed and fundraised over thirty million dollars (\$30M), six hundred (600) community development projects and programs, and impacted over twenty thousand (20,000) residents in Houston's most vulnerable and underestimated communities. **Lindsey Williams**, Director of Community Development (*Role: Community Engagement Manager*) will manage efforts to ensure meaningful community engagement and incorporation of community feedback into clean-up and reuse plans. Lindsey has a diverse project management background with over a decade of experience in architecture and construction, including her experience as a Senior Planner for Mayor Sylvester Turner's Complete Communities Initiative. **Donald Hughes**, Director of Acquisition & Development (*Role: Project Manager/QAQC Officer*) has over fifteen (15) years of real estate development experience and is currently the Project Manager and Quality Control Officer for HLB's current EPA grant. Donald will continue to manage project contractors and ensure compliance with quality control objectives and expectations. **Isai Mendez**, Director of Finance (*Role: Grant Finance Manager*) is a Certified Accounting Professional and has direct experience managing HLB's current EPA grant and will be responsible for approving and tracking financial transactions through the life of the grant, as well as annual financial reports and quarterly budget updates. **LaTosha Okoiron**, Counsel (*Role: Compliance Manager*) will ensure compliance with EPA's CA, HLB bylaws, Texas state statutes, and any other applicable regulations governing the administration of this grant and the Velasco Incinerator project.

iii. Acquiring Additional Resources: The HLB has significant resources available to ensure project success, including technical and support staff to assist with implementation activities. The HLB has proactive succession plans if staff changes are required to eliminate project delays and ensure staff who are reassigned to the project have appropriate qualifications and experience. The HLB routinely contracts with consultants and has established equal opportunity procedures to ensure a fair bidding process. Utilizing the HLB's procurement policy, and in conformance with 2 CFR 200.317-200.326, the HLB has procured multiple consultants to assist with EPA funding under multi-year contracts. Advanced procurement positions HLB for expedited grant activities upon execution of the CA. HLB has also engaged with Kansas State University's Technical Assistance to Brownfields (TAB) program to support the Velasco Incinerator project. Specifically, KSU TAB will support community engagement efforts, resource road-mapping, community visioning, and general program advisory services to support grant administration and management.

b. Past Performance and Accomplishments: **i. Currently Has or Previously Received an EPA Brownfields Grant:** HLB will draw upon its experience in successfully managing an **FY21 Community-Wide Coalition Assessment grant (Active):** *1. Accomplishments:* Although still active, just over

seventy percent (70%) of this grant has been spent on community engagement, brownfields inventory activities, Phase I and Phase II Environmental Site Assessments, site reuse planning, and cleanup planning. Accomplishments include (a) creating a GIS-based brownfields inventory to collect information about community-identified brownfields (20 sites identified to date), (b) 1 Infrastructure Evaluation/Plan (c) 1 reuse vision and rendering, (d) 6 Phase I ESAs, (e) small Phase II ESAs, (f) 1 large Phase II ESA, (g) 33 PEDs submitted, (h) 4 QAPPs approved (17 pending), (i) 2 National Brownfields Conferences (with speaker session in Detroit 2023), and over 100 of community members and stakeholders engaged. 2. *Compliance with Grant Requirements:* All ongoing, quarterly, and annual reporting requirements for past and current funding agreements have been submitted to the EPA per the CA in a timely manner. Each project has met or exceeded the programmatic goals stated in the work plans. Outputs and outcomes associated with all EPA-funded projects have been, and will continue to be, entered into the ACRES database upon project completion.

DRAFT



ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES
FORMER CITY OF HOUSTON VELASCO INCINERATOR SITE
0 NORTH VELASCO STREET
(BALL STREET RIGHT-OF-WAY AND BLOCKS 6, 7, 8, AND 9,
WEISENBACH SS, HARRIS COUNTY)
HOUSTON, HARRIS COUNTY, TEXAS 77003

SKA PROJECT NO. 12022-0001

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Reviewed by:

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EXECUTIVE VICE PRESIDENT/PARTNER

Signature

OCTOBER 12, 2023

TEXAS REGISTERED ENGINEERING FIRM NO. F-005009
TEXAS REGISTERED GEOSCIENCE FIRM NO. 50011

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Figure 1 Site Location Map

Figure 2 Site Plan

List of Acronyms

| | |
|----------|--|
| ABCA | Analysis of Brownfields Cleanup Alternatives |
| ASTM | ASTM International, Inc. |
| BBEM | Buffalo Bayou East Masterplan |
| BBP | Buffalo Bayou Partnership |
| BMP | Best Management Practices |
| cm/sec | Centimeters per second |
| COC | Chemical of Concern |
| COH | City of Houston |
| CY | Cubic yards |
| DBRA | Davis-Bacon and Related Acts |
| DBSA | Daniel B. Stephens & Associates, Inc. |
| ESA | Environmental Site Assessment |
| FEMA | Federal Emergency Management Agency |
| ft-bgs | Feet below ground surface |
| JESCO | JESCO Environmental and Geotechnical Services, Inc. |
| Leaaf | Leaaf Environmental, LLC |
| LSI | Limited Subsurface Investigation |
| LPCI | Lead Products Company, Inc. |
| MSD | Municipal Setting Designation |
| MW | Monitoring well |
| O&M | Operation and Maintenance |
| PCBs | Polychlorinated Biphenyls |
| PCL | Protective Concentration Level |
| PRACR | Post-Response Action Care Report |
| RACR | Response Action Completion Report |
| RAO | Remedial Action Objectives |
| ROW | Right-of-way |
| SBLRBRA | Small Business Liability Relief and Brownfields Revitalization Act |
| SKA | SKA Consulting, L.P. |
| SQ-FT | Square-feet |
| SVOC | Semi-volatile organic compound |
| SWR | Solid Waste Registration |
| TAC | Texas Administrative Code |
| TBA | Targeted Brownfields Assessment |
| TCE | Trichloroethene |
| TCEQ | Texas Commission on Environmental Quality |
| Terracon | Terracon Consultants, Inc. |
| THSC | Texas Health and Safety Code |
| TRRP | Texas Risk Reduction Program |
| USEPA | United States Environmental Protection Agency |
| VCP | Voluntary Cleanup Program |
| VEC | Vapor Encroachment Condition |
| Weston | Weston Solutions, Inc. |

1.0 Introduction and Background

The following subsections introduce the project location and background.

1.1 Site Location

The Former City of Houston Velasco Incinerator Site is located at 0 North Velasco Street in Houston, Harris County, Texas (the Site). The Site is south of Buffalo Bayou, about a mile east of Houston's downtown core and the Central Business District (see **Figure 1**). It is adjacent west to North Velasco Street and lies just north of the major Navigation Boulevard east-west thoroughfare. The approximately 4.7-acre Site comprises the unimproved Ball Street ROW and Blocks 6 through 9 of the Weisenbach SS survey (see **Figure 2**).

1.2 Forecasted Climate Conditions

The Houston, Texas, area receives approximately 51.84 inches of precipitation per year, and the average annual temperature ranges from 60°F to 80°F, with maximum temperatures during the summer often reaching 100°F or higher. Harris County has experienced periodic extreme weather events over the last 50 years, including hurricanes, tropical storms, and significant flooding. For instance, in August 2017 and September 2019, the Houston area was affected by Hurricane Harvey and Tropical Storm Imelda. Increased precipitation that may affect stormwater runoff is most applicable to Site cleanup.

According to the FEMA Federal Insurance Rate Map No. 48201C0690N (dated January 6, 2017), the Site is classified as Zone X (unshaded), consisting of areas determined by FEMA to be of minimal flood hazard. Changing climate conditions and increased precipitation may result in changes to the flood zone and increased flooding risks at the Site.

1.3 Previous Site Use(s)

The Site was formerly operated as a municipal incinerator facility from the 1930s through the late 1960s. All Site buildings were removed by 1995, except for two incinerator stacks, a 100-foot by 250-foot concrete building foundation, and a COH sanitary sewer lift station. The Site is heavily covered in native grasses and trees and is bounded on all sides by chain-link fencing recently installed by the COH.

1.4 Site Assessment Findings

Environmental investigations began at the Site in early 2006 that comprised a Phase I ESA by Weston on a portion of the Site (Block 6 or the southernmost 1.6 acres) and an LSI by Terracon for the entire Site. Weston identified the Site's historical use as a municipal incinerator and concluded that regulated lead was often found at such facilities. In addition, an LPCI facility adjoining the Site to the south had recycled lead-acid batteries for many years. Weston concluded that such business activities could have resulted in surface water runoff of lead-

impacted stormwater onto the Site.¹ Based on these findings, Terracon performed an LSI to assess possible adverse impacts on the Site from the onsite historical municipal incinerator and nearby battery recycling activities.

The results of Terracon's LSI revealed the presence of buried fill material throughout the northern approximately two-thirds of the Site. The buried fill material reportedly consisted of dark brown to black ash with silt/sand and broken glass fragments. Terracon observed the fill material from about 4 to 10 ft-bgs on the Site's southern portion and progressively increasing in thickness to 35 ft-bgs on the north-central part of the Site.²

The LSI sampling results identified elevated arsenic, barium, cadmium, lead, and silver concentrations in surface (≤ 15 ft-bgs) and subsurface (>15 ft-bgs) soil/fill at the Site exceeding the TCEQ TRRP critical residential soil PCLs. In addition, a low-level total petroleum hydrocarbon concentration was identified in subsurface soil in the northeast part of the Site. No other COC concentrations exceeding their TCEQ TRRP critical residential soil PCLs were found in Site soils.³

Terracon also collected groundwater samples from seven permanent monitoring wells (MW-1, MW-1A, and MW-2 through MW-6) installed across the Site. The groundwater sampling results identified a lead concentration above the critical TCEQ TRRP residential groundwater PCL in the northeast portion of the Site (MW-5). In addition, a low-level chlorinated solvent (TCE) concentration was noted near the Site's southeast corner in MW-1A. Further, a low-level SVOC [i.e., bis (2-ethylhexyl) phthalate] was identified along the west-central boundary of the Site in MW-4. No other COC concentrations exceeding their TCEQ TRRP residential groundwater PCLs were reported in shallow groundwater beneath the Site. Finally, Terracon determined that the shallow groundwater flow direction was north toward Buffalo Bayou.⁴

A Phase I ESA was performed for the entire Site in August 2017 by DBSA. The results of the Phase I ESA affirmed the past Site use as an incinerator and characterized the presence of buried fill material as a landfill. Moreover, DBSA acknowledged the metals impacts to soil and TCE and bis (2-ethylhexyl) phthalate impacts to shallow groundwater at the Site. Further, DBSA identified the adjacent south LPCI facility as a concern for the Site.⁵ Finally, DBSA concluded that the presence of buried incinerator waste at the Site and the adjoining LPCI facility represented a possible indoor VEC for the Site.⁶

¹ *Limited Site Investigation, City of Houston - Vacant Land, 800 Block North Velasco Street, Houston, Harris County, Texas* (Houston, TX: Terracon Consultants, Inc., November 20, 2006), 1.

² *Ibid.*, 9.

³ *Ibid.*, 16.

⁴ *Ibid.*

⁵ *Phase I Environmental Site Assessment - City of Houston Incinerator Site - BSA G181, 0 North Velasco Street, Texarkana [sic], Texas* (Austin, TX: Daniel B. Stephens & Associates, Inc., August 31, 2017), viii.

⁶ *Ibid.*, 38.

Based on the Phase I ESA findings, DBSA recommended, among other things, that further sampling be performed at the Site to assess the magnitude and extent of the soil and groundwater impacts identified by Terracon in 2006. Moreover, DBSE recommended that further assessments include other COCs, such as dioxins, PCBs, and tetrahydrofurans. Finally, DBSA recommended additional evaluations for possible indoor vapor intrusion concerns at the Site.⁷

JESCO and Leaaf conducted a TBA at the Site based on the DBSA Phase I ESA recommendations. The TBA comprised the installation and sampling of eight soil borings advanced to terminal depths of 8 ft-bgs, primarily in the northern two-thirds of the Site (i.e., where Terracon had previously demonstrated the most significant presence of buried fill material/ash). Selected soil samples were tested in a laboratory for arsenic, lead, mercury, dioxins and furans, PCBs, TCE, and bis (2-ethylhexyl) phthalate.⁸ The sampling results revealed elevated arsenic, lead, mercury, PCBs, and dioxins and furans in surface soils at the Site at concentrations exceeding critical TCEQ TRRP residential soil PCLs. Consequently, JESCO/Leaaf recommended a site-specific risk evaluation to “refine the areas of impacted soil that may pose a risk to human health or the environment.”⁹

From the previous assessment information prepared by others, SKA has estimated the area of buried waste/fill materials is about 134,568 square feet (sq-ft) and encompasses about the northern two-thirds (roughly 68%) of the Site. Therefore, where statements are made in the subsequent remedial alternatives discussions regarding areas of suspected buried waste/fill, those suspected areas would be within the northern two-thirds of the Site only for purposes of this ABCA.

1.5 Project Goal

The planned reuse for the Site is a recreational park that can be incorporated into the BBEM, a waterfront revitalization plan comprised of multimodal connections, small-scale parks, and open spaces tying the more prominent destinations together to create a cohesive network of green spaces and attractions reinvigorating Buffalo Bayou East. The Site has the potential to be aligned and well-integrated with the BBEM as an integral part of creating a safe, sustainable, and resilient waterfront.

⁷ Ibid., 53-54.

⁸ *Targeted Brownfields Assessment, Phase II Environmental Site Assessment, Vacant Land, 800 Block of North Velasco Street, Houston, Harris County, Texas 77003* (Jennings, LA; Gretna, LA: JESCO Environmental and Geotechnical Services, Inc.; Leaaf Environmental, LLC, October 31, 2019), 3-4.

⁹ Ibid., 5.

2.0 Applicable Regulations and Cleanup Standards

2.1 Cleanup Oversight Responsibility

The TCEQ VCP will oversee the cleanup for the Site under a to-be-assigned VCP number. A VCP Application and Agreement for the Site were submitted to the TCEQ on October 9, 2023.

2.2 Cleanup Standards for Major Contaminants

Based on the cumulative historical media sampling and testing results for the Site, the RAOs for the Site will be the TRRP rules. The TCEQ TRRP residential land use standards will require the removal of all identified human health exposure pathways through remediation of the affected media, control of the affected media, or a combination of remediation and controls.

2.3 Laws and Regulations Applicable to the Cleanup

The laws and regulations applicable to this cleanup include the federal SBLRBRA (Public Law 107-118); the federal DBRA (Public Law 107-217-AUG. 21, 2002, as amended); THSC, Chapter 361, Subchapter S, as amended; 30 TAC §333, Subchapter A, as amended (relating to the VCP Section); 30 TAC §350 (TRRP; effective September 23, 1999, as amended); and COH ordinances and by-laws. Federal, state, and local laws regarding the procurement of contractors to conduct the cleanup will be followed. In addition, all appropriate permits (e.g., notify before you dig) will be obtained before the work commences.

3.0 Cleanup Alternatives

3.1 Cleanup Alternatives Considered

The following sub-sections describe selected remedial action options for the Site based on the preliminary Site redevelopment scenario extrapolated from likely BBEM improvements on nearby properties along Buffalo Bayou.

3.1.1 Remedial Alternative #1 – Capping the Entire Site

Under this alternative and all remaining alternatives, the Site will be enrolled in the TCEQ VCP, through which a VCP Certificate of Completion for residential land use will be pursued. As described below, the VCP Certificate of Completion is expected to be conditional; the regulatory closure will be based on maintaining an engineered cap over the entire Site. Remedial Alternative #1 meets the RAO of remediating and/or controlling human health exposure to affected media at the Site.

Under this alternative, the entire Site will be cleared and grubbed of all vegetation, and the concrete foundation will be removed. The incinerator stacks will be retained for historical preservation purposes. Next, the Site will be graded practically and topographically to support the construction of future recreational amenities. Any buried fill/waste material and overburden soil encountered during the Site grading will be redistributed across the Site.¹⁰ The remaining portions of the Site where buried waste/fill is suspected will then be capped with a 2-foot-thick compacted engineered clay cap constructed over the underlying fill/waste materials to prevent human exposure to the affected media and assure long-term waste containment with minimum post-closure maintenance.

The engineered clay cap (i.e., compacted heavy clay) will be placed in lifts not less than 6 inches nor greater than 9 inches and machine compacted to 95% proctor with low permeability of 1×10^{-7} cm/sec or less. Upon completion, 6 inches of topsoil will be placed over the engineered clay cap and hydro-mulched with suitable grass. The grass maintenance (i.e., periodic watering) will continue for three months.

The post-closure care will include O&M of the engineered clay cap for up to 30 years. During the O&M period, regular onsite inspections and maintenance events of the engineered clay cap would be performed. The engineering maintenance can include adding soil to the engineered cap due to settling or erosion, reseeding grass/surface cover over the cap, and selective re-compaction of the capped soils, among other things. The approximate maintenance costs are included for the 30-year post-closure care monitoring period. In addition, after each onsite inspection, a PRACR will be prepared and submitted to the TCEQ. Accordingly, 12 PRACRs are proposed during the 30-year post-closure care monitoring period.

¹⁰ The TCEQ typically allows such soil redistribution at regulated Sites pursuant to: Michael Shapiro, *Letter - Scope and Applicability of the Area of Concern (AOC) Concept* (Washington, DC: U. S. Environmental Protection Agency, Office of Solid Waste, March 25, 1996).

With the soil exposure pathways addressed by the engineered cap, the groundwater exposure pathways at the Site will be controlled by obtaining an MSD ordinance from the COH for the Site and an MSD Certificate from the TCEQ. The combined MSD Ordinance/Certificate will prohibit the withdrawal and use of groundwater at the Site for potable purposes, thus controlling the human groundwater contact and ingestion exposure pathways at the Site. This control is enforced by the COH Ordinance and the TCEQ rules and is formally recorded in the Deed Records for the Site.

3.1.2 Remedial Alternative #2 – Partial Soil Remediation to Support Ball Street Extension and Redistribution to Support Recreational Amenities

Remedial Alternative #2 also contemplates enrolling the Site in the TCEQ VCP, through which a VCP Certificate of Completion for residential land use will be pursued. As previously described and reiterated below, the VCP Certificate of Completion is expected to be conditional; the regulatory closure will be based on maintaining an engineered cap over most of the Site. Remedial Alternative #2 meets the RAO of remediating and/or controlling human health exposure to affected media at the Site.

The soil response actions proposed under Remedial Alternative #2 are two-fold. First, the entire Site will be cleared and grubbed of all vegetation, and the concrete foundation will be removed. The incinerator stacks will be retained for historical preservation purposes. A sufficient volume of buried fill/waste material and overburden soil (about 10,500 CY loose volume) will then be removed from the Site's southern portion to support the construction of an extension of Ball Street (about 14,000 sq-ft) from the west to North Velasco Street. This street extension is necessary to relieve traffic congestion in the west adjoining residential areas to the Site. The excavated fill/waste materials will be characterized for disposal, transported offsite, and disposed of at a TCEQ-permitted facility.

Second, an additional 14,000 sq-ft area will be excavated to support future amenities or other improvements at the Site. The approximately 10,500 CY of buried fill/waste material and overburden soil from this area will be redistributed across the Site in a manner intended to practically and topographically support the construction of future recreational amenities. The onsite areas outside the Ball Street ROW and the additional excavation area where buried waste/fill materials are suspected will then be capped with a 2-foot-thick compacted engineered clay cap constructed over the underlying fill/waste materials to prevent human exposure to the affected media and assure long-term waste containment with minimum post-closure maintenance.

The engineered clay cap (i.e., compacted heavy clay) will be placed in lifts not less than 6 inches nor greater than 9 inches and machine compacted to 95% proctor with low permeability of 1×10^{-7} cm/sec or less. Upon completion, 6 inches of topsoil will be placed over the engineered clay cap and hydro-mulched with suitable grass. The grass maintenance (i.e., periodic watering) will continue for three months.

The post-closure care will include O&M of the engineered clay cap for up to 30 years. During the O&M period, regular onsite inspections and maintenance events of the engineered clay cap would be performed. The engineering maintenance can include adding soil to the engineered cap due to settling or erosion, reseeding grass/surface cover over the cap, and selective re-

compaction of the capped soils, among other things. The approximate maintenance costs are included for the 30-year post-closure care monitoring period. In addition, after each onsite inspection, a PRACR will be prepared and submitted to the TCEQ. Accordingly, 12 PRACRs are proposed during the 30-year post-closure care monitoring period.

As with Remedial Alternative #1, since the engineered cap will address the soil exposure pathways, the groundwater exposure pathways at the Site will be controlled by obtaining an MSD ordinance from the COH for the Site and an MSD Certificate from the TCEQ. The combined MSD Ordinance/Certificate will prohibit the withdrawal and use of groundwater at the Site for potable purposes, thus controlling the human groundwater contact and ingestion exposure pathways at the Site. Again, this control is enforced by the COH Ordinance and the TCEQ rules and is formally recorded in the Deed Records for the Site.

3.1.3 Remedial Alternative #3 – Comprehensive Soil Remediation to Support Ball Street Extension, Site Improvements, and Recreational Amenities

Remedial Alternative #3 also contemplates obtaining a TCEQ VCP Certificate of Completion for residential land use. However, under this remedial alternative, the VCP Certificate of Completion for residential land use is expected to be final, with no post-closure actions required. Remedial Alternative #3 meets the RAO of remediating and/or controlling human health exposure to affected media at the Site.

First, the entire Site will be cleared and grubbed of all vegetation, and the concrete foundation will be removed. The incinerator stacks will be retained for historical preservation purposes. Next, an estimated 187,677 CY of buried fill/waste material and overburdened soil will be excavated from the Site (based on prior investigations by others at the Site, the suspected area of buried waste/fill materials measures approximately 134,568 sq-ft and comprises nearly 68% of the Site). Post-excavation confirmation soil sampling will confirm that the remaining soils meet TCEQ residential land use standards. The excavated fill/waste materials will then be characterized for disposal, transported offsite, and disposed of at a TCEQ-permitted facility. Clean fill soil will be imported and placed in lifts not less than 6 inches nor greater than 9 inches and machine compacted to 95% proctor. While future redevelopment plans will determine the final Site elevation and slopes, this ABCA has assumed restoring the Site to the existing grade. Therefore, about 187,700 CY of clean fill material is expected to be placed at the Site. Since no waste materials will remain at the Site, a RACR will be prepared and submitted to the TCEQ for these soil remediation activities.

Despite the soil remediation efforts described above, the groundwater exposure pathways must still be addressed under the TRRP rules. Again, as with Remedial Alternatives 1 and 2, the groundwater exposure pathways at the Site will be controlled by obtaining an MSD ordinance from the COH for the Site and an MSD Certificate from the TCEQ. The combined MSD Ordinance/Certificate will prohibit the withdrawal and use of groundwater at the Site for potable purposes, thus controlling the human groundwater contact and ingestion exposure pathways at the Site. Again, this control is enforced by the COH Ordinance and the TCEQ rules and is formally recorded in the Deed Records for the Site.

3.2 Evaluation of Cleanup Alternatives

To satisfy USEPA requirements, the effectiveness, implementability, and cost of each remedial alternative have been considered before selecting a recommended cleanup alternative.

3.2.1 Effectiveness – Including Climate Change Considerations

- Remedial Alternative #1: Capping effectively prevents recreational receptors from directly contacting contaminated soils and buried wastes at the Site if the cap is maintained. In addition, institutional controls (a land use restriction and an MSD Ordinance and Certificate) would need to be recorded on the deed to prohibit penetrating the cap and/or contact with groundwater to eliminate the direct contact pathway for recreational receptors.
- Remedial Alternative #2: Excavation with offsite disposal of the Ball Street ROW effectively eliminates the risk of contacting contaminated soils and buried wastes in this Site area during the construction and long-term maintenance of the Ball Street ROW and street extension. Again, capping is an effective way to prevent recreational receptors from coming into direct contact with contaminated soils and/or buried waste in the remaining portions of the Site if the cap is maintained. Finally, institutional controls (a land use restriction and an MSD Ordinance and Certificate) would be recorded on the deed to prohibit penetrating the capped areas of the Site and/or contact with groundwater to eliminate the direct contact pathway for recreational receptors.
- Remedial Alternative #3: Excavation with offsite disposal effectively eliminates risk at the Site since all soil contamination and buried waste will be removed, and the soil exposure pathways will no longer exist. However, an institutional control (MSD Ordinance and Certificate) would still be recorded on the deed to prohibit contacting Site groundwater to eliminate the direct contact pathway for recreational receptors.

General Climate Considerations

Part of the design planning is to divert stormwater runoff at the Site into earthen drainage ditches along the east and west Site boundaries, which discharge into Buffalo Bayou to the north-northeast. Increased stormwater discharge is not expected to impact the Site with proper engineering, which is planned.

3.2.2 Implementability

- Remedial Alternative #1: The anticipated schedule to obtain a VCP Conditional Certificate of Completion for residential land use under Remedial Alternative #1 is 3.5 to 4 years, with up to 30 years of post-closure maintenance.
- Remedial Alternative #2: The anticipated schedule to obtain a VCP Conditional Certificate of Completion for residential land use under Remedial Alternative #2 is about 3.5 to 4 years, with up to 30 years of post-closure maintenance.

- Remedial Alternative #3: The anticipated schedule to obtain a final VCP Certificate of Completion for residential land use under Remedial Alternative #3 is about 3.5 years with no post-closure maintenance.

3.2.3 Cost

- Remedial Alternative #1: The expected cost to complete Remedial Alternative #1 is \$2,422,000.
- Remedial Alternative #2: The expected cost to complete Remedial Alternative #2 is \$3,502,000.
- Remedial Alternative #3: The expected cost to complete Remedial Alternative #3 is \$21,962,000.

3.3 Recommended Cleanup Alternative

The recommended cleanup alternative is *Remedial Alternative #2: Partial Soil Remediation to Support Ball Street Extension and Redistribution to Support Recreational Amenities*. While *Remedial Alternative #1: Capping the Entire Site* is less expensive, this cleanup alternative is not recommended since it does not include soil remediation needed to extend Ball Street from the adjoining residential area to the west through the site's southern portion to North Velasco Street. This street extension is vital as it will relieve traffic congestion in the neighboring residential community to the west. Finally, while *Remedial Alternative #3: Comprehensive Soil Remediation to Support Ball Street Extension, Site Improvements, and Recreational Amenities* is a viable cleanup strategy, it is neither a cost-effective nor necessary strategy since Remedial Alternative #2 also prevents the same human exposure pathways and achieves the same end-use results. For these reasons, *Remedial Alternative #2: Partial Soil Remediation to Support Ball Street Extension and Redistribution to Support Recreational Amenities* is the recommended cleanup alternative.

3.4 Green and Sustainable Remediation Measures for Selected Alternative

Several techniques are planned to make the selected Remedial Alternative greener or more sustainable. First, the most recent BMPs issued under ASTM Standard E-2893: *Standard Guide for Greener Cleanups* will be used as a reference in this effort. Second, the cleanup contractors must follow an idle-reduction policy and utilize heavy equipment with advanced emissions controls operated on ultra-low sulfur diesel. Third, when practicable, the excavation work would be conducted during the dry-weather months (summertime) to minimize rainfall and other surface water infiltration into the excavation areas, reducing dewatering needs and the amount of dewatering liquids potentially requiring disposal/treatment. Fourth, the number of mobilizations to the Site would be minimized, and erosion control measures would be used to reduce runoff into environmentally sensitive areas. Finally, the bidding cleanup contractors will be asked to propose additional green remediation techniques in response to the Request for Proposals for the cleanup contract.

4.0 References

Phase I Environmental Site Assessment - City of Houston Incinerator Site - BSA G181, 0 North Velasco Street, Texarkana [sic], Texas. Austin, TX: Daniel B. Stephens & Associates, Inc., August 31, 2017.

Limited Site Investigation, City of Houston - Vacant Land, 800 Block North Velasco Street, Houston, Harris County, Texas. Houston, TX: Terracon Consultants, Inc., November 20, 2006.

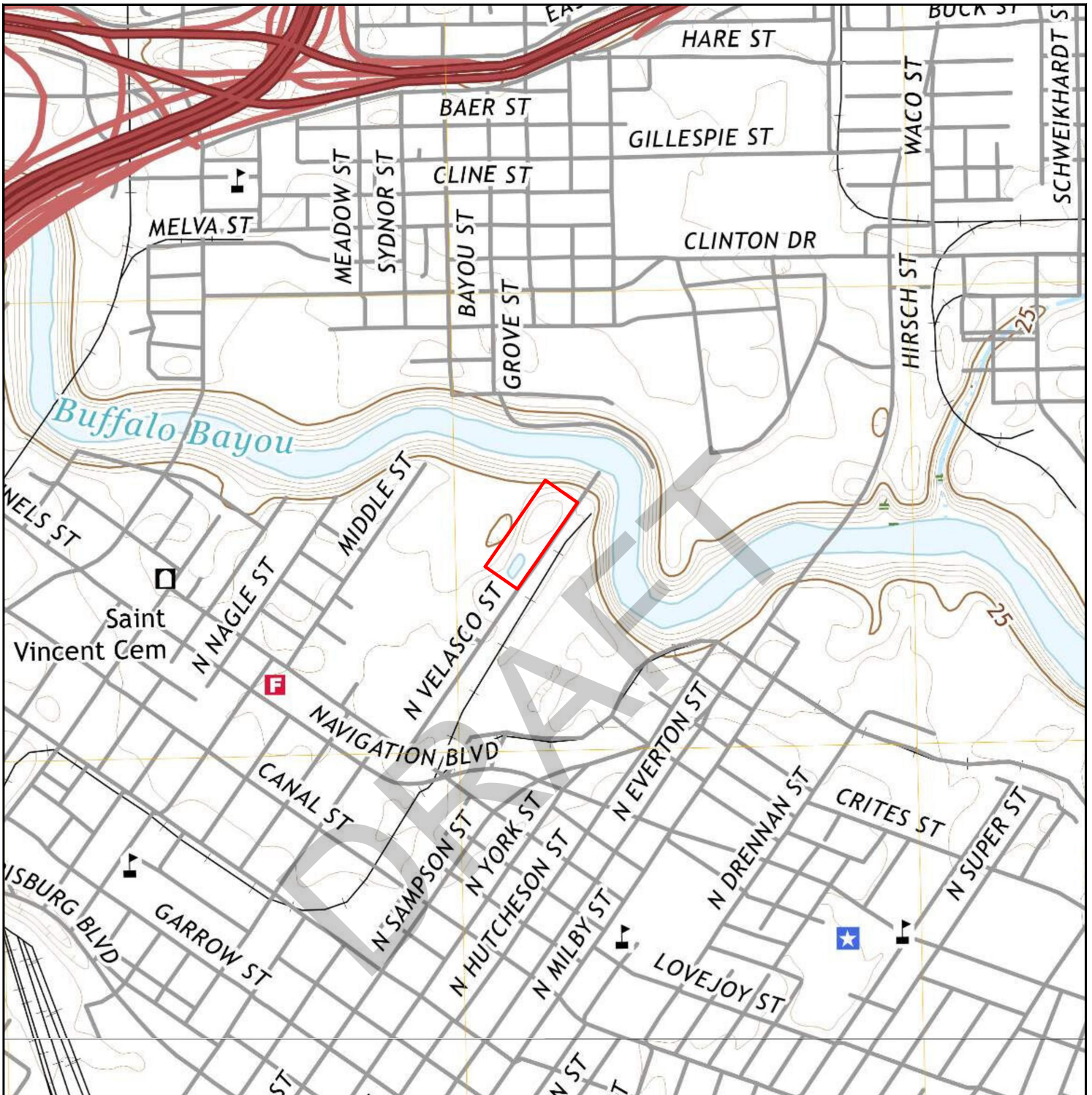
Targeted Brownfields Assessment, Phase II Environmental Site Assessment, Vacant Land, 800 Block of North Velasco Street, Houston, Harris County, Texas 77003. Jennings, LA; Gretna, LA: JESCO Environmental and Geotechnical Services, Inc.; Leaf Environmental, LLC, October 31, 2019.

Shapiro, Michael. *Letter - Scope and Applicability of the Area of Concern (AOC) Concept.* Washington, DC: U. S. Environmental Protection Agency, Office of Solid Waste, March 25, 1996.

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Figures

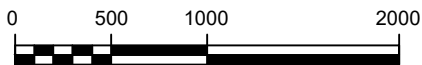
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LEGEND

 SUBJECT PROPERTY BOUNDARY

REFERENCE:
 USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLES
 SETTEGAST, TEXAS 2019
 PARK PLACE, TEXAS 2022



APPROXIMATE SCALE: 1"=1000'

NOTE:
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SKA CONSULTING, L.P.
 1888 STEBBINS DRIVE, SUITE 100
 HOUSTON, TX 77043

Texas Registered Engineering Firm F-005009
 Texas Registered Geoscience Firm 50011

SITE LOCATION MAP

ANALYSIS OF BROWNSFIELD CLEANUP ALTERNATIVES
 FORMER CITY OF HOUSTON VELASCO INCINERATOR SITE
 0 NORTH VELASCO STREET
 (BALL STREET RIGHT-OF-WAY AND BLOCKS 6, 7, 8, AND
 9, WEISENBACH SS, HARRIS COUNTY)
 HOUSTON, HARRIS COUNTY, TEXAS 77003

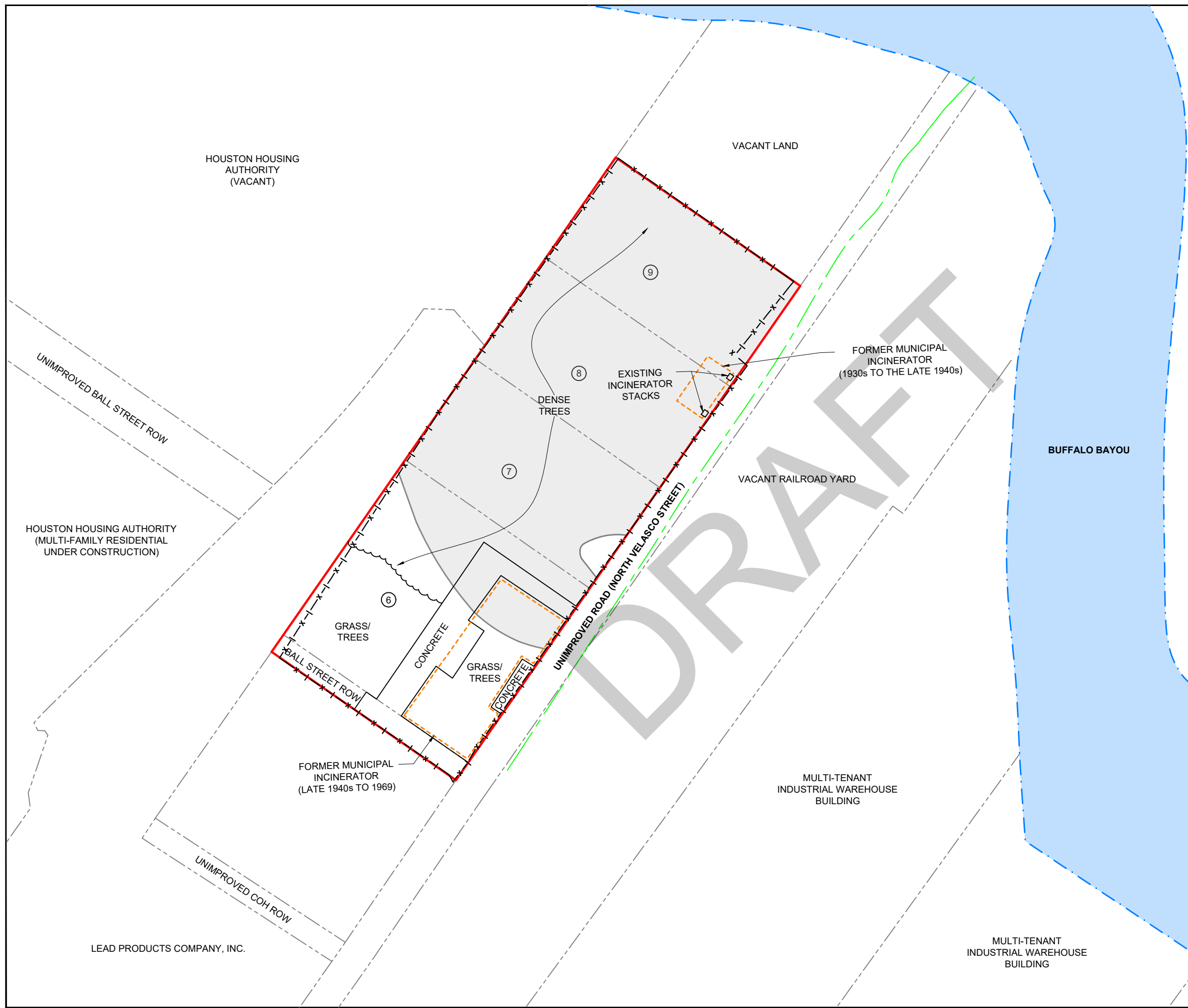
FIGURE

1



DATE: OCTOBER 2023 | JOB NO: 12022-0001 | SCALE: AS SHOWN

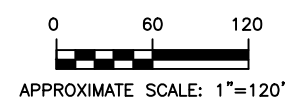
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|---|-----------------|--------------|-----|
| 1 | FIRST REVISION | DRAWN BY: | CLK |
| 2 | SECOND REVISION | CHECKED BY: | TCB |
| 3 | THIRD REVISION | APPROVED BY: | TCB |



LEGEND

| | |
|--|---|
| | SUBJECT PROPERTY BOUNDARY |
| | LOT BOUNDARY |
| | EARTHEN DRAINAGE DITCH |
| | CHAIN-LINK AND BARBED-WIRE FENCE |
| | APPROXIMATE BURIED WASTE/FILL MATERIAL EXTENT (ON-SITE) |
| | BLOCK NUMBER |

ABBREVIATION:
 - "COH" REPRESENTS CITY OF HOUSTON
 - "ROW" REPRESENTS RIGHT-OF-WAY



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| | | |
|---|--------------------|---------------------|
| SITE PLAN | | FIGURE 2 |
| ANALYSIS OF BROWNSFIELD CLEANUP ALTERNATIVES FORMER CITY OF HOUSTON VELASCO INCINERATOR SITE 0 NORTH VELASCO STREET (BALL STREET RIGHT-OF-WAY AND BLOCKS 6, 7, 8, AND 9, WEISENBACH SS, HARRIS COUNTY) HOUSTON, HARRIS COUNTY, TEXAS 77003 | | |
| DATE: OCTOBER 2023 | JOB NO: 12022-0001 | SCALE: AS SHOWN |
| 1 FIRST REVISION | DRAWN BY: CLK | |
| 2 SECOND REVISION | CHECKED BY: TCB | |
| 3 THIRD REVISION | APPROVED BY: TCB | |