CROSBY EASTGATE MITIGATION BANK PROSPECTUS

HARRIS COUNTY, TEXAS

HCFCD Project ID Q700-01-00-Y001

Prepared for:

Harris County Flood Control District
9900 Northwest Freeway
Houston, Texas 77092

Authored by:

Andy Newman
Ecologist/Banking Manager
HCFCD

Michael F, Bloom, P.E.
Project Manager
R.G. Miller Engineers, Inc.

Courtney Gerken, WPIT
Environmental Scientist
R.G. Miller Engineers, Inc.

Jim Herrington, PWS
Senior Wetland Scientist
R.G. Miller Engineers, Inc.

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TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Bank Name and Sponsorship

The proposed mitigation bank will be known as the Crosby Eastgate Mitigation Bank (CEMB). Harris County Flood Control District (HCFCD) is the bank's Sponsor. R.G. Miller Engineers, Inc. (R.G. Miller) will act as the Sponsor's authorized agent.

Contact information for the Sponsor and their Authorized Agent is as follows:

Sponsor:
Harris County Flood Control District
9900 Northwest Freeway
Houston, Texas 77092

Contact: Andy Newman
Main: 713-684-4000
Fax: 713-316-4802
Email: Andrew.Newman@hcfcd.org

Authorized Agent:
R.G. Miller Engineers, Inc.
16340 Park Ten Place, Suite 350
Houston, Texas 77084

Contact: Michael Bloom
Main: 713-461-9600
Fax: 713-461-8455
Email: MBloom@rgmiller.com

1.2 Sponsor Qualifications

The proposed CEMB will follow Greens Bayou Wetlands Mitigation Bank (GBWMB) and Harris County Umbrella Mitigation Bank (HCUMB) as the third wetlands mitigation bank proposed for development by the Sponsor. Approved by the U.S. Army Corps of Engineers (USACE) in 1995, GBWMB is a 1,400-acre tract containing a mosaic of riparian forest, forested wetlands, sloughs, and native herbaceous wetlands. To date, HCFCD has created or restored approximately 880 acres of the tract as productive wetland and upland buffers. For over 20 years, HCFCD has provided developers, state and local governments, and utility providers the opportunity to purchase credits from GBWMB, thereby satisfying statutory wetland mitigation requirements. Currently, HCFCD has submitted the final umbrella mitigation banking instrument (UMBI) instituting the HCUMB. The HCUMB is an umbrella mitigation bank consisting of multiple sites located on publicly owned lands throughout and adjacent to Harris County.

R.G. Miller Engineers Inc., is a civil and environmental engineering firm founded in 1966 and located in Houston, TX. RGME has over 50 years of experience working with unique and complex environmental analysis and engineering projects. The Environmental and Sustainability Practice within RGME has collectively over 35 years of wetland permitting and mitigation planning experience. The team has experience working for and with the USACE Galveston District and the EPA on many projects including private sector wetland consulting, public sector wetland mitigation planning, wetland delineation, and stream and wetland functional assessment.

2 ASSESSMENT OF NEED

Mitigation banks are considered preferable to other mitigation mechanisms, such as in-lieu fee and permittee-responsible mitigation. According to 33 CFR 332.3(b)(2):

> *Since an approved instrument (including an approved mitigation plan and appropriate real estate and financial assurances) for a mitigation bank is required to be in place before its credits can begin to be used to compensate for authorized impacts, use of a mitigation bank can help reduce risk and uncertainty, as well as temporal loss of resource functions and services. Mitigation bank credits are not released for debiting until specific milestones associated with the mitigation bank site's protection and development are achieved, thus use of mitigation bank credits can also help reduce risk that mitigation will not be fully successful. Mitigation banks typically involve larger, more ecologically valuable parcels, and more rigorous scientific and technical analysis, planning and implementation than permittee-responsible mitigation. Also, development of a mitigation bank requires site identification in advance, project-specific planning, and significant investment of financial resources that is often not practicable for many in-lieu fee programs. For these reasons, the district engineer should give preference to the use of mitigation bank credits when these considerations are applicable.*

The Harris County area is in need of additional mitigation banks to provide credits for future development projects for the rapidly growing region. Currently, there are three approved mitigation banks with credits available for private or county projects that share portions of the same service area as that proposed for the CEMB (USACE 2017).

GBWMB, which is located within Harris County and owned by HCFCD, currently has credits, but all are reserved for pending projects (SUB C) (Jonathan Holley, pers. comm.). The Northern Galveston Bay watershed, Hydrologic Unit Code (HUC) 12040203, lies outside of GBWMB's primary and secondary service area and is only able to offset impacts on a case-by-case basis. Gin City Mitigation Bank (Harris County) has a primary service area that covers Northern Galveston Bay HUC and according to RIBITS (accessed September 2017) currently has 126.30 Temporary Storage of Water/Physical (TSSW) (FCUs), 146.00 Maintain Plant and Animal Communities/Biological (MPAC) FCUs, and 150.70 Removal and Sequestration of Elements/Chemical (RSEC) FCUs for palustrine forested (PFO) credits available. The Gulf Coastal Plains Wetland Mitigation Bank (Chambers County) has a secondary service area that covers Northern Galveston Bay HUC and according to RIBITS has palustrine emergent (PEM) and estuarine emergent (EEM) credits available.

The Sponsor is aware of two other pending mitigation banks in the region that could serve portions of the North Galveston Bayou HUC. Cedar Bayou Mitigation Bank and Spindletop Bayou Mitigation Bank both propose forested wetland and stream restoration.

The eastern portion of Harris County is expected to experience extensive development in the next several decades, driven by the expansion of the Grand Parkway (Highway 99) in the area, which is likely to lead to significant wetland impacts. Given predicted population increases and infrastructure development in Harris, Liberty, and Chambers counties, the Sponsor believes that there is a clear need to develop additional mitigation credits within the North Galveston Bayou watershed and that the existing and proposed banks will not be sufficient to provide enough credits to offset these needs.

3 GOALS AND OBJECTIVES

The goal of the CEMB is to re-establish and enhance self-sustaining, functional forested wetland resources sufficient to replace the function and values lost due to unavoidable adverse impacts to other PFO wetlands within the service area through the sale of mitigation credits. Approved mitigation banks are the preferred option to mitigate for permitted, unavoidable aquatic resource impacts under the *Compensatory Mitigation for Losses to Aquatic Resources* rule (33 CFR Parts 325 and 332).

The primary objectives of creating the CEMB are to protect the water quality of the downstream Cedar Bayou watershed and North Galveston Bay; provide diverse habitat for fauna; protect genetic diversity of uncommon regional flora; establish stable forested communities resistant to invasive plant species; and protect the forested wetland community via long-term conservation measures.

These objectives will be achieved via the following measures:

- Restoration, re-establishment, and enhancement of forested wetlands and uplands across the 240 acre property;
- Re-establish site hydrology to allow for physical retention and chemical sequestration of local site runoff and Cedar Bayou floodwaters;
- Promote stand diversity via selective plantings and forest management techniques to increase site flora and fauna biodiversity.

4 SITE DETAILS

4.1 Location

The site of the proposed CEMB is in rural eastern Harris County, Texas approximately 4.5 miles southwest of Huffman, Texas and 6.1 miles northeast of Crosby, Texas. Specifically, it is an approximately 240-acre tract located immediately north of the intersection of Crosby Eastgate Road and Louis Road. The approximate center of the site is located within the geographic limits of the Crosby, Texas U.S. Geological Survey (USGS) 7.5-minute quadrangle at approximately 29.993619 degrees latitude and -95.016515 degrees longitude (1983 North American Datum). See Exhibit 1 for a location map.

The proposed site is located within the Western Gulf Coastal Plains Level III Environmental Protection Agency (EPA) Ecoregion (Griffith et al. 2004). The broader landscape context of the site is dominated primarily by agricultural lands (pastureland, row-cropping, and sod farming), bottomland forest within the Cedar Bayou floodplain, scattered low-density residences (i.e., residential homes not part of a planned development), and light industry. The prevalence of above-ground reservoirs within the site vicinity attests to rice production in the area that was common until the 1980s.

4.2 Historical Setting

Cedar Bayou is situated between the San Jacinto and Trinity River systems with headwaters arising in Liberty County. This portion of the Gulf Coastal plain is associated with cyclical patterns of sediment deposition, repeated sea-level changes, and basin subsidence (Chowdhury and Turco 2006). As a result, the landscape was shaped by a series of meandering channels and large floodplains creating inland deltas transporting and depositing sediments from northern geologic formations onto the relatively flat Lissie and Beaumont Geological formations (Moulton and Jacob 2000). During the formation of the Texas Coastal plain, Cedar Bayou likely served as the primary discharge point for flows now contained within the San Jacinto and Trinity Rivers.

Prior to European colonization, the headwaters and interstitial areas between the Cedar Bayou, San Jacinto, and Trinity Rivers was predominately coastal prairies typified by vegetation communities consisting of brownseed Paspalum (*Paspalum plicatulum*), bluestems (*Andropogon* spp.), little bluestem (*Schizachyrium scoparium*), indiangrass (*Sorghastrum nutans*), and rosette grass (*Dichanthelium* spp.) interspersed with depressional wetlands (Smeins et al. 1991). The diversity of soil types, elevations, and hydroperiods supports diverse flora assemblages hypothesized to be an outlier of tallgrass prairie (Noss 2013). Tree dominated communities were largely contained to perennial streams and floodplains where moisture levels prohibited frequent lightening ignited fires. Reviewing aerial imagery from the 1930s and 1940s suggest the CEMB site supported sufficient hydrological regimes to inhibit pyric regimes and support diverse bottomland hardwoods. These forest types were traditionally called gallery forest that

framed prairies within the interior of the landscape. NatureServe (2017) classified these vegetation communities as West Gulf Coastal Plain Small Stream and River Forest (CES203.487). Typical tree species associated with floodplains on the upper Texas coast include willow oak (*Quercus phellos*), water oak (*Q. nigra*), overcup oak (*Q. lyrata*), cherrybark oak (*Q. pagoda*), bottomland post oak (*Q. similis*), green ash (*Fraxinus pennsylvanica*), sweetgum (*Liquidambar styraciflua*), cedar elm (*Ulmus crassifolia*), American elm (*U. americana*), black gum (*Nyssa sylvatica*), and American sycamore (*Platanus occidentalis*). Understories of these communities are largely dominated by dwarf palmetto (*Sabal minor*) but also consist of hollies (*Ilex* spp.), hawthorns (*Crataegus*), white fringetree (*Chionanthus virginicus*), swamp privet (*Forestiera* spp.), and cherry (*Prunus* spp.).

Review of aerial imagery from the 1940-1950's reveal a conversion of the prairies surrounding Cedar Bayou riparian forests to agriculture with a significant increase of rice production. See Exhibit 2 for a historical aerial imagery map. Subsequently, the watershed has seen an increase of low-density residential development, industry, and conversion of rice fields to pastureland, improved hayfields, and sod farming. The riparian bottomland forests bordering Cedar Bayou have also been reduced in size in the areas south of US-90 to I-10, with almost complete conversion from forested habitats to residential/industrial south of I-10. With the anticipated future construction of Highway 99 and expansion of development eastward in the vicinity of the proposed site, projects that preserve, restore, or creative native upland and wetland habitats along Cedar Bayou will assist in maintaining ecological functions within the watershed.

4.3 Existing Conditions

Historically, the 240-acre CEMB site was presumably forested bottomland hardwoods located entirely within the active floodplain of Cedar Bayou. Based on the size of existing trees within the eastern portion of the site, it is presumed that the entire area was timbered approximately 100 years ago. A review of historic aerial photography indicates that the western third of the site was utilized as row crops and pastureland after being cleared. The western portion of the site has reverted from agriculture back to a mixture of pine and hardwood forest since the mid-1980s. The remaining portion of the site has not been cleared since the advent of aerial imagery, with 1930's imagery showing a completely closed canopy. This is further supported by the scarcity of non-native tree species and the prevalence of uncommon native subcanopy species such as upland swamp privet *(Forestiera ligustrina*), farkleberry *(Vaccinium arboreum*), and swamp dogwood *(Cornus foemina*).

Surrounding land use is primarily agricultural and low density housing. Since the channelization of Cedar Bayou in the 1950's, a majority of riparian bottomland hardwood forest associated with the Cedar Bayou floodplain has been timbered. A large proportion of this cleared land was converted to rice production and several above ground water storage reservoirs were constructed immediately adjacent to the channelized Cedar Bayou alignment. Starting in the

1980s, rice production in the area has diminished reverting to sod grass production and cattle grazing. A single private land owner controls the entire eastern, western and a majority of the southern boundary with the CEMB site. See Exhibit 3 for a current aerial map. Harris County Precinct 2 has ownership of the eastern portion of the southern boundary and this property is anticipated to be used as a public cemetery.

An environmental site assessment was conducted in accord with ASTM E1527-13 by InControl Technologies, Inc., under subcontract with RGME, in July 2017. The final report, dated August 1, 2017, (InControl, 2017) indicated the following:

> *This assessment has revealed no evidence of Recognized Environmental Conditions in connection with the subject property. A low area approximately 12-feet wide by 45-feet long was noted at the southwest corner of the southern extension at the east end of the subject property. It did not have any petroleum or chemical odor, or any visible sheen at the time of the site inspection. However, others have noted what was believed to be petroleum-like odors in this location. Due to the isolated nature of this area near the dead end of Felscher Lane, open access to this area for many years and the location of this low area in the vicinity of an abandoned oil pipeline, collection of a sample from the water and from the bottom soils is recommended to confirm that this area was not used for illicit dumping or other purposes involving petroleum related chemicals.*
>
> *This assessment has revealed no evidence of Historical Recognized Environmental Conditions in connection with the subject property.*
>
> *This assessment has revealed no evidence of Conditional Recognized Environmental Conditions in connection with the subject property.*
>
> *Based on the results of this assessment, InControl Technologies recommends no further assessment for the subject property other than collection of a bottom soil sample and a water sample from the low area identified near the southeast corner* of the subject property.

The Sponsor will collected recommended samples identified by InControl Technologies to identify any potential site contamination and provide appropriate remediation pending results.

4.3.1 Vegetation

A wetland delineation was completed in July 2016, which identified seven palustrine forested wetlands (PFO) totaling 46.82 acres and three open waters (historic Cedar Bayou oxbows) totaling 2.73 acres. All wetlands and open waters are considered jurisdictional and verified by an Approved Jurisdictional Determination (SWG-2016-00356), dated July 2016. There is a single

HCFCD ditch (Unit ID Q137-00-00) that is entirely man-made and is not considered jurisdictional.

The site contains three distinctive vegetation zones: loblolly pine (*Pinus taeda*) plantation; previously disturbed hardwoods with canopy species consisting of oaks (*Quercus* sp.), Chinese tallow (*Triadica sebifera*), green ash, sweetgum, and elm (*Ulmus* spp.); and older growth bottomland hardwoods typified by water oak, willow oak, cherrybark oak, overcup oak, southern red oak (*Quercus falcata*), red maple (*Acer rubrum*), cedar elm, and water hickory (*Carya aquatic*a*)*. The midstory vegetation throughout the site contains dwarf palmetto and yaupon (*Ilex vomitoria*). Older growth areas contains several uncommon shrubs more typical of deep East Texas including sparkleberry, white fringetree, upland swamp privet, black cherry (*Prunus serotina*), and flatwoods plum (*Prunus umbellata*).

4.3.2 Soils

According to the NRCS Soil Survey for the site (NRCS 1988), the site crosses two mapped soil units, Beaumont clay, 0 to 1 percent slopes (BeaA) and Labelle clay loam, 0 to 1 percent slopes (LabA). BeaA are very deep, poorly drained soils with slow permeability and runoff (USDA NCSS, 2016). LabA are very deep, somewhat poorly drained soils resultant from fluviomarine deposition on the Beaumont Formation. Based on the national hydric soils list (NRCS, 2015), these soils are considered hydric in Harris County, Texas. HCFCD contracted with Geotech Engineering and Testing, under subcontract with RGME, to perform a detailed soil boring study of the property. The study identified the site as being dominated by fat clay with low rates of infiltration. Upland soils contain relic redoximorphic features located in matrix and historic pore linings. These soil types are conducive for the establishment of wetlands.

4.3.3 Hydrology

Historically, Cedar Bayou was a meandering channel with an approximate width of 25 feet. The historic channel exhibited an active bankfull bench with subsequent terracing away from the channel. In the 1950s, Cedar Bayou was channelized and excavation spoils were sidecast, creating berms parallel to the new channel. The southern berm forms the northern property boundary for the CEMB. The channelization of Cedar Bayou has resulted in a disjunction of the surrounding area from pulsed hydrology derived from smaller precipitation and associated floodwaters. Based on analysis of historic Cedar Bayou on the project location, the surrounding riparian forest would likely have received inundation with smaller storm events.

The current Cedar Bayou channel has an elevation of approximately 43 feet while the CEMB slopes from 50 feet in the north to 60 feet in the south. The site is still hydrologically connected to Cedar Bayou with the southern portion of the site receiving flood flows during 25-year precipitation events. The entirety of the site receives flood flows during 100-year events. Based on the FEMA Flood Hazard Map (FEMA 2007), nearly the entirety of the site is located within the

100-year floodplain. See Exhibit 4 for a map depicting vegetation communities, soils, and floodplains.

4.3.4 Threatened and Endangered Species

Review of TPWD NDD and USFWS data does not indicate any state or federally-listed threatened and endangered species will be negatively affected by restoration activities at the site. The site will enhance diverse bottomland habitats with close proximity to remaining similar habitats associated with Cedar Bayou, San Jacinto River, and Trinity River. Wildlife observations were made concurrent with baseline wetland delineations and functional assessment. Several large mixed foraging flocks of passerines were observed during spring and fall migratory periods. While nesting was not confirmed, a pair of Swainson's warblers (*Limnothlypis swainsonii*) was observed during the summer of 2017.

4.3.5 Cultural Resources

The Sponsor is in the final stages of cultural resources surveys, being conducted by Moore Archeological Consulting, Houston, TX, under subcontract with RGME. Portions of the site were likely historically utilized by Native American settlements and early colonial settlements as implied by the proximity to Cedar Bayou and natural topography of the area. The southern portions of the site contain pimple-mounds where artifacts are likely to be located. Earthwork activities will be limited to manipulation of previously disturbed areas; therefore no impacts to cultural resources are anticipated. Review and approval by the Texas Historical Commission (THC) for proposed alterations at the site will be documented prior to any earth-disturbing activities are begun.

5 MITIGATION PLAN

5.1 Ecological Suitability

The CEMB contains floristically bottomland forest that provide suitable foraging habitat for migrating neotropical migrants (Barrow et al. 2000). Close proximity to the Texas coastline and additional bottomland tracts located within the San Jacinto and Trinity River watersheds can aid in providing necessary refueling opportunities that can aid increasing fitness of northern bound spring migrants (Gautreaux and Moore 2013). The CEMB is dominated by oaks that support the highest Lepidoptera richness of native tree species, which are primary prey items of numerous neotropical migrants (Tallamy and Shropshire 2009). The Partners in Flight Research Working Group (2002) identified promoting high-quality habitats along migratory routes as a conservation priority. Additionally the site could also provide foraging and roosting habitat for the state-listed southeastern myotis bat (*Myotis austroriparius*) and Rafinesque's big-eared bat (*Corynorhinus rafinesquii*).

The eastern portion of the site contains several older stands of bottomland hardwoods that contain few non-native species. These areas support several uncommon native species for Harris County including white fringetree, flatwoods plum, black cherry, swamp chestnut oak, and upland swamp privet. The first Harris County records of riverbank grape (*Vitis riparia*) and Texas pinkroot (*Spigelia texana*) were collected along the historic Cedar Bayou channel. To date, the Sponsor has identified 308 species of plants on the site.

The site is largely located within the Cedar Bayou floodway and has direct hydrological connection to Cedar Bayou during larger precipitation events. Forested wetlands dissipate floodwaters and provide flood storage. Additionally, forested wetlands remove particulates, solubles, organic compounds, inorganic elements, nutrients, and toxins from floodwaters. Typically, these processes that remove chemicals include sedimentation of colloidal/suspended matter, metabolism of organics, and microbial conversion to gases (Neary et al. 1989).

5.2 Resource Type and Amount

CEMB will re-establish an anticipated 127 acres of previously inundated bottomland hardwood PFO wetlands by restoring pre-channelization site hydrology. Primary site alterations include adjusting the elevation of existing outflow pipes in the Cedar Bayou berm, raising the berm elevation in select locations to retain water, and adding small internal vegetated berm features to increase site hydroperiods. These activities will result in the hydrological reconnection of diverse forested communities. In addition, 52 acres of existing forested wetlands will be enhanced via Chinese tallow eradication, forestry management techniques, and supplemental plantings. See Exhibit 5 for a map of proposed wetland re-establishment and enhancement areas.

5.3 Wetland Vegetation Re-establishment/Enhancement

Several factors including pipeline construction, previous farming practices, and the channelization of Cedar Bayou have resulted in altered site hydrology. As a result of manipulated and increased site drainage, a majority of the site does not exhibit the historic prolonged hydroperiods indicated by observance of relic iron concretions in site soils and prevalence of hydrophyte dominance in a mature site forest. The Sponsor anticipates increasing site hydrology by adjusting the elevation of existing outflow pipes and berms to retain water captured from overland runoff, onsite precipitation, and overbank flooding from Cedar Bayou and adjacent ditches. Inundation and saturation depths and durations will be controlled through the alteration of outfall structure elevations and restrictor orifices. Outfall structures of various sizes will be located at multiple elevations to mimic historic flooding on a naturally terraced floodplain prior to the channelization of Cedar Bayou.

Wetland vegetation re-establishment activities will include the removal of invasive species, predominately Chinese tallow, in the western portion of the project area, and re-establishment of vegetation communities associated with the target hydrological conditions. The Sponsor anticipates utilizing locally sourced bare root seedlings to augment existing canopy species. In prolonged hydroperiod areas the Sponsor will utilize swamp tupelo (*Nyssa biflora*), bald cypress (*Taxodium distichum*), green ash, overcup oak, and water elm (*Planera aquatic*a). In areas with shorter hydroperiods, the Sponsor anticipates mimicking forested communities on the eastern portion of the site that are dominated by swamp chestnut oak, willow oak, water oak, cedar elm, green ash, American elm, sweetgum, and black gum (*Nyssa sylvatica*).

The CEMB Mitigation Banking Instrument (MBI), which will follow this prospectus, will outline performance standards, monitoring provisions, and reporting protocols to gauge the success of the mitigation site.

5.4 Mesic Forest Vegetation Re-establishment/Enhancement

Mesic bottomland hardwood, areas with temperate hydrology as compared to the PFO areas, restoration activities for the site will largely be accomplished through the preservation of existing communities and removal of Chinese tallow and privets (*Ligustrum* spp.). Western portions of the site may require additional management techniques to promote tree diversity such as selective clearing and supplemental planting. While not all-encompassing, the following species will be the focus for mesic forest enhancement: water oak, willow oak, southern red oak, bottomland post oak, swamp chestnut oak, American elm, cedar elm, loblolly pine, bitternut hickory (*Carya cordiformis*), sweetgum, green ash, and black gum. Understory diversity may be promoted by thinning or supplement plantings of deciduous holly (*Ilex decidua*), dogwoods (*Cornus* spp.), hawthorns, cherries, southern arrowwood (*Viburnum dentatum*), and upland swamp privet. Upland habitats adjacent to wetlands provide several life history requirements for numerous species of fauna including feeding, overwintering, and nesting (Semlitsch and Bodie

2003). Enhancement of the mesic bottomland hardwood areas will benefit the overall functional capacity of the re-established wetland areas. Increased habitat heterogeneity will benefit species that are ecologically interdependent on wetland-upland ecotones and a vegetative buffer for pretreatment of overland runoff water will increase the wetland areas functional efficacy for storage of water and chemical treatment.

5.5 Potential Functional Lift

The greatest functional lift for CEMB will be reconnection of hydrology to 127 acres of presumed historically wet bottomland hardwoods (based on presence of relic redoximorphic features in soils). Based on the preliminary hydrological analysis, the Sponsor anticipates these areas to meet the USACE requirement for wetland hydrology after implementation of the wetland mitigation work plan (to be described in detail in the MBI document.) Additionally, the Sponsor anticipates functional uplift of 52 acres of existing wetland areas, by removal and control of invasive species and increased frequency and duration of saturation. HCFCD will provide functional lift projection calculations for the project as part of the Mitigation Banking Instrument.

5.6 Service Area

The service area for CEMB is based on connectivity to the Cedar Bayou floodway, ecoregion setting, and floristically diverse remnant bottomland hardwood communities. Based on the size of the property and its location within the watershed, HCFCD proposes a primary service of North Galveston Bay (HUC #12040203). The Service Area is encompassed entirely within the Western Gulf Coastal Plain Level III EPA Ecoregion. Impacts within the service area will be debited on a 1:1 basis. At this time, HCFCD is not requesting a secondary service area. See Exhibit 6 for a map of the proposed service area.

On a case-by-case basis, the USACE, after coordination with the IRT, may authorize use of the site outside the service area, when unique circumstances make use of the site appropriate, practicable, and environmentally preferable. Alternate debiting ratios may be required on a case-by-case basis by the USACE for a project located outside of the service area.

All U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department (TPWD) properties, as well as wetlands and waterbodies located on Texas barrier islands and peninsulas, are excluded from the service area. In addition, the service area excludes all National Wildlife Refuges, National Forests, State Parks, and Wildlife Management Areas.

6 ESTABLISHMENT AND OPERATION

6.1 Bank Establishment

The Sponsor will procure the financial resources, planning, and scientific professional services required to successfully re-establish wetlands for CEMB. The Sponsor will perform all restoration, provide for financial assurances (per 33 CFR 332.3 (n)) and long-term protection mechanisms (per 33 CFR 332.7 (a)), administer the sale and accounting of credits, and complete all record-keeping and reporting requirements for the CEMB.

As part of the review process, the Sponsor will draft an MBI for review and approval by the USACE and the Interagency Review Team (IRT) in accordance with 33 CFR 332.8(d)(6-8). The MBI shall establish and outline the operating agreement for CEMB. The MBI will detail CEMB's service area, accounting procedures, provisions stating the Sponsor's legal responsibility for providing compensatory mitigation upon secured credits, default and closure provisions, reporting protocols, mitigation plans, credit release schedules, as well as other information required for inclusion by the USACE.

6.2 Credit Determination

Credits will be determined using the Interim Hydrogeomorphic Model (HGMi) for Riverine Forested wetlands for proposed restoration activities. The HGMi functional assessment will evaluate the existing conditions of the site (baseline condition), and then evaluate the proposed PFO re-establishment areas based on conditions expected to occur following site restoration (post-activity). The calculated difference between the baseline condition and post-activity HGMi scores will determine the functional capacity index (FCI) of each wetland area and subsequently the number of functional capacity units (FCUs) that may be generated for sale through the bank. In addition, the Sponsor anticipates developing a credit release schedule based on predefined milestones in the operation, construction, and maintenance of the CEMB during the review process with the USACE and the IRT. The credit release schedule and defined monitoring benchmark schedule will be defined in the bank's MBI.

7 EASEMENTS AND ENCUMBRANCES

According to oil and gas well records reported by the Railroad Commission of Texas, there are no wells located on the CEMB site. Furthermore, a title review of the site indicates that two pipeline easements and one transmission line easement, each of 30 feet in width, occur within existing site berms. A 3.5 acre cleared area located adjacent to Crosby Eastgate, utilized for storage of county maintenance equipment. This area and the identified easements will be excluded from the boundaries of the mitigation bank and will not be included in the calculation of functional credits.

8 OWNERSHIP AND LONG-TERM MANAGEMENT

The CEMB is owned in fee simple by Harris County Precinct 2. HCFCD will execute an inter-local agreement between Harris County Precinct 2 and HCFCD. Both entities are controlled by the elected members of the Harris County Commissioners Court. Both agencies will work cooperatively to maintain compliance with all restrictions set by the CEMB MBI. HCFCD will manage CEMB directly and will be responsible for day-to-day operations of the bank. It is anticipated that the Bayou Land Conservancy, accredited by the Land Trust Accreditation Commission, will serve as the Conservation Easement holder for the CEMB. The Conservation Easement will act as a real estate instrument to ensure the land would remain in a state of conservation in perpetuity. A copy of the draft Conservation Easement will be provided with the submittal of the Draft Mitigation Banking Instrument.

The Sponsor will manage CEMB to be self-sustaining with long-term management activities limited primarily to items such as inspections, annual monitoring, promotion of site biodiversity, controlling invasive species, and boundary maintenance. The Sponsor will ensure that the long-term management and monitoring plan, to be outlined in the bank's MBI, will be implemented and will ensure that the adaptive management plan, to be outlined in the bank's MBI, will be enacted if necessary.

9 WATER RIGHTS

A water rights permit from TCEQ is not required because the project will not involve placing structures within any watercourse to obtain waters of the state for use in the site. The hydrology of the proposed bank will be driven by on site rainfall and runoff from adjacent contributing drainage areas. In accordance with Texas Civil Statutes, Article 5414a (Small Bill), the Sponsor has not planned changes to, will not derive credits from, or place a conservation easement on any public streambed.

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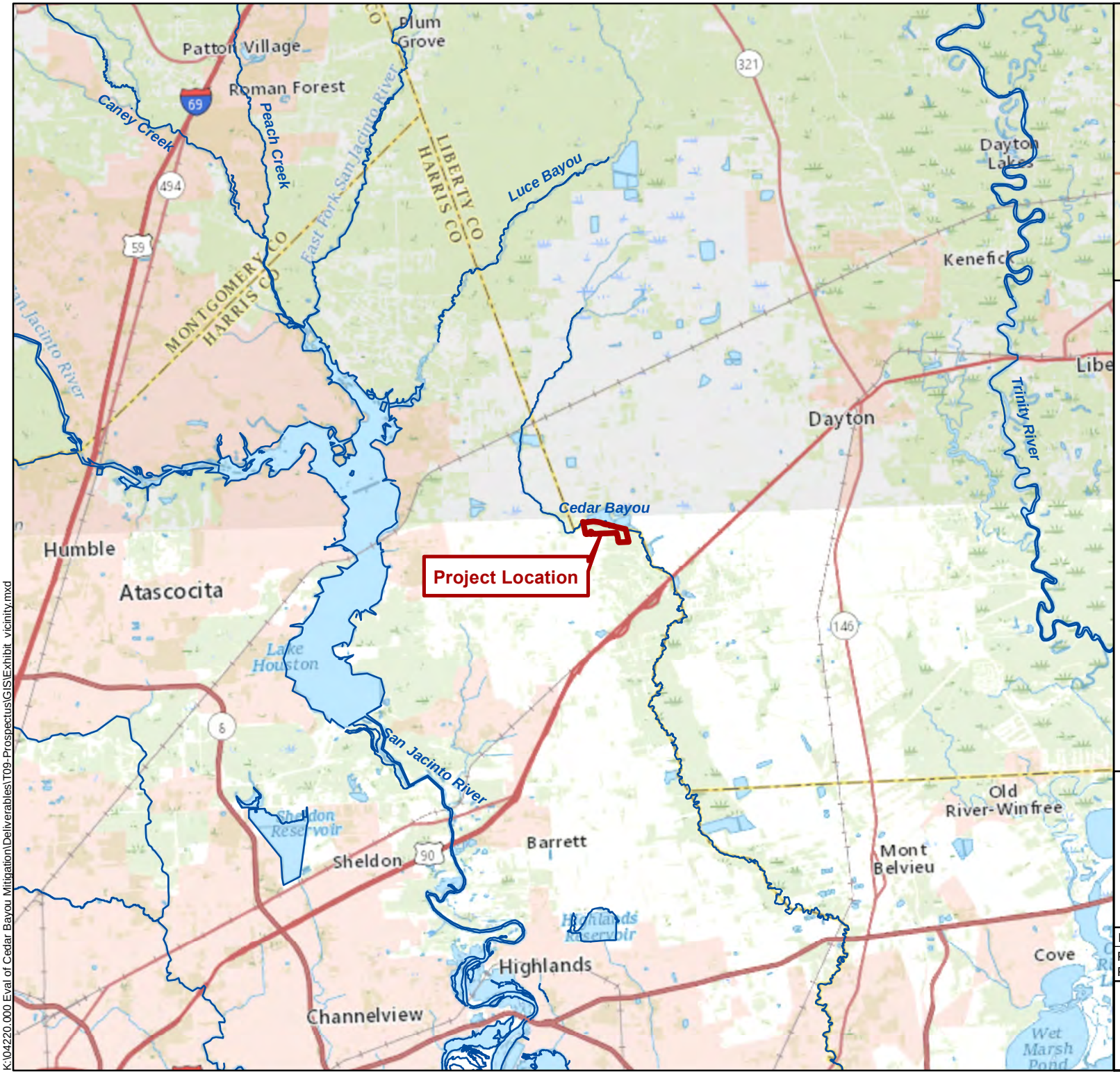
Appendix A

Exhibits



Legend

- Project Site Boundary
- Major Rivers and Streams

N
W E
S

0 1 2 4 Miles

1 inch = 4 miles

Datum: North American 1983
Projection: Lambert Conformal Conic
Units: Feet
Basemap: USGS National Map

Exhibit 1
Location Map

Prospectus for
Crosby Eastgate Mitigation Bank
Harris County, Texas; Precinct 2

Date: 11/13/2017	Scale: 1:240,000
Project No: 04220.009 For: Q700-01-00-Y001	Prepared By: CG Checked By: MB, AN

r.g. miller engineers
16340 Park Ten Place ■ Suite 350 ■ Houston ■ Texas 77084
Office: 713 461 9600 ■ http://www.rgmiller.com
Texas Registered Engineering Firm F-487

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VICINITY MAP

1 in = 6 miles

N
W E
S

0 175 350 700 Feet

1 inch = 700 feet

Legend

Project Site Boundary

Datum: North American 1983
Projection: Lambert Conformal Conic
Units: Feet
Basemap: 1944 Imagery, Texas General Land Office via Google Earth Pro

Exhibit 2
1944 Historic Aerial Map

Prospectus for
Crosby Eastgate Mitigation Bank
Harris County, Texas; Precinct 2

Date: 11/13/2017	Scale: 1:8,400
Project No: 04220.009 For: Q700-01-00-Y001	Prepared By: CG Checked By: MB, AN

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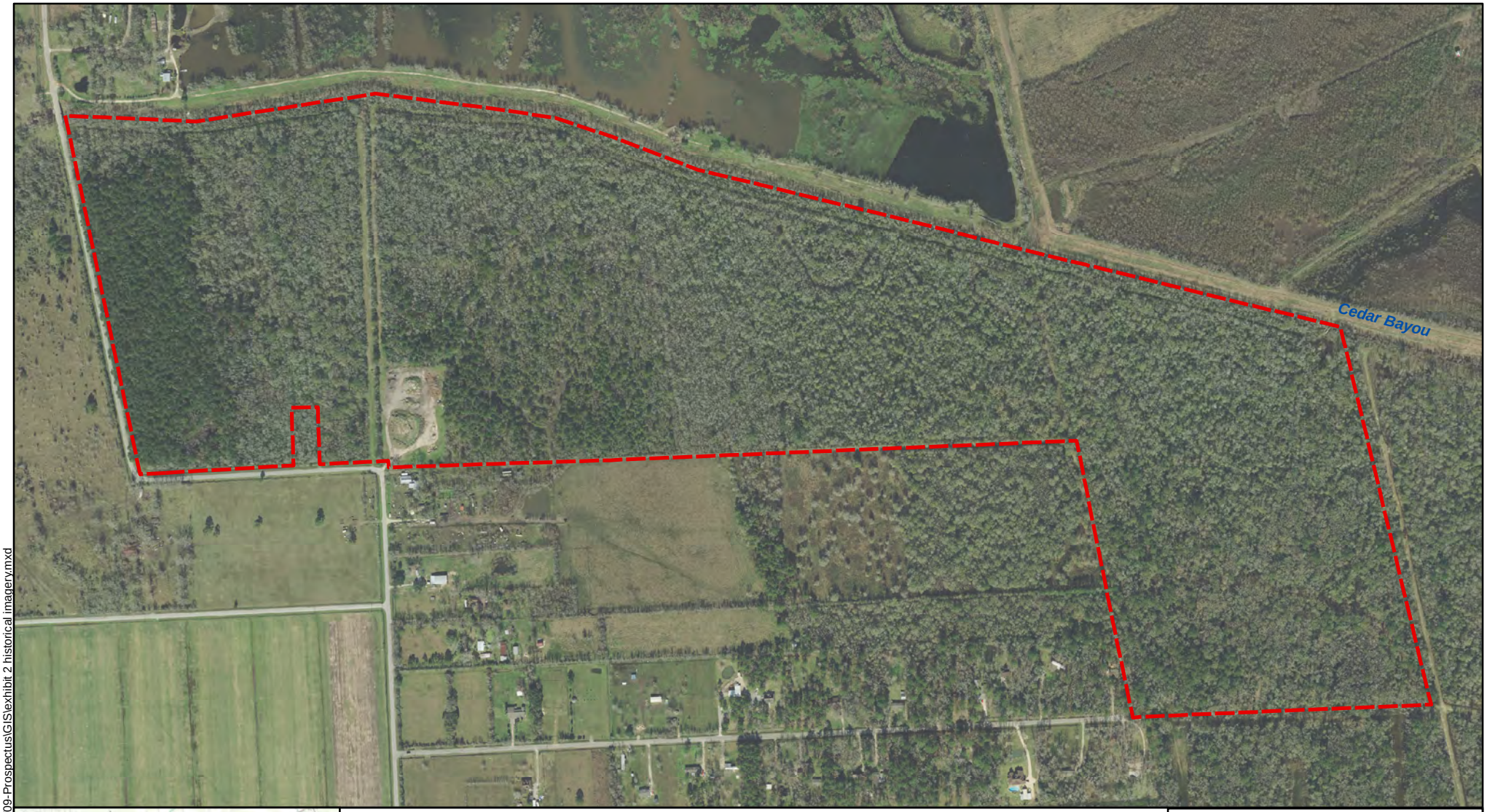

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VICINITY MAP

1 in = 6 miles

N
W E
S

0 175 350 700 Feet

1 inch = 700 feet

Legend

Project Site Boundary

Datum: North American 1983
Projection: Lambert Conformal Conic
Units: Feet
Basemap: 2016 Aerial Imagery, MrSID: HGAC

Exhibit 3
2016 Aerial Map

Prospectus for
Crosby Eastgate Mitigation Bank
Harris County, Texas; Precinct 2

Date: 11/13/2017	Scale: 1:8,400
Project No: 04220.009 For: Q700-01-00-Y001	Prepared By: CG Checked By: MB, AN

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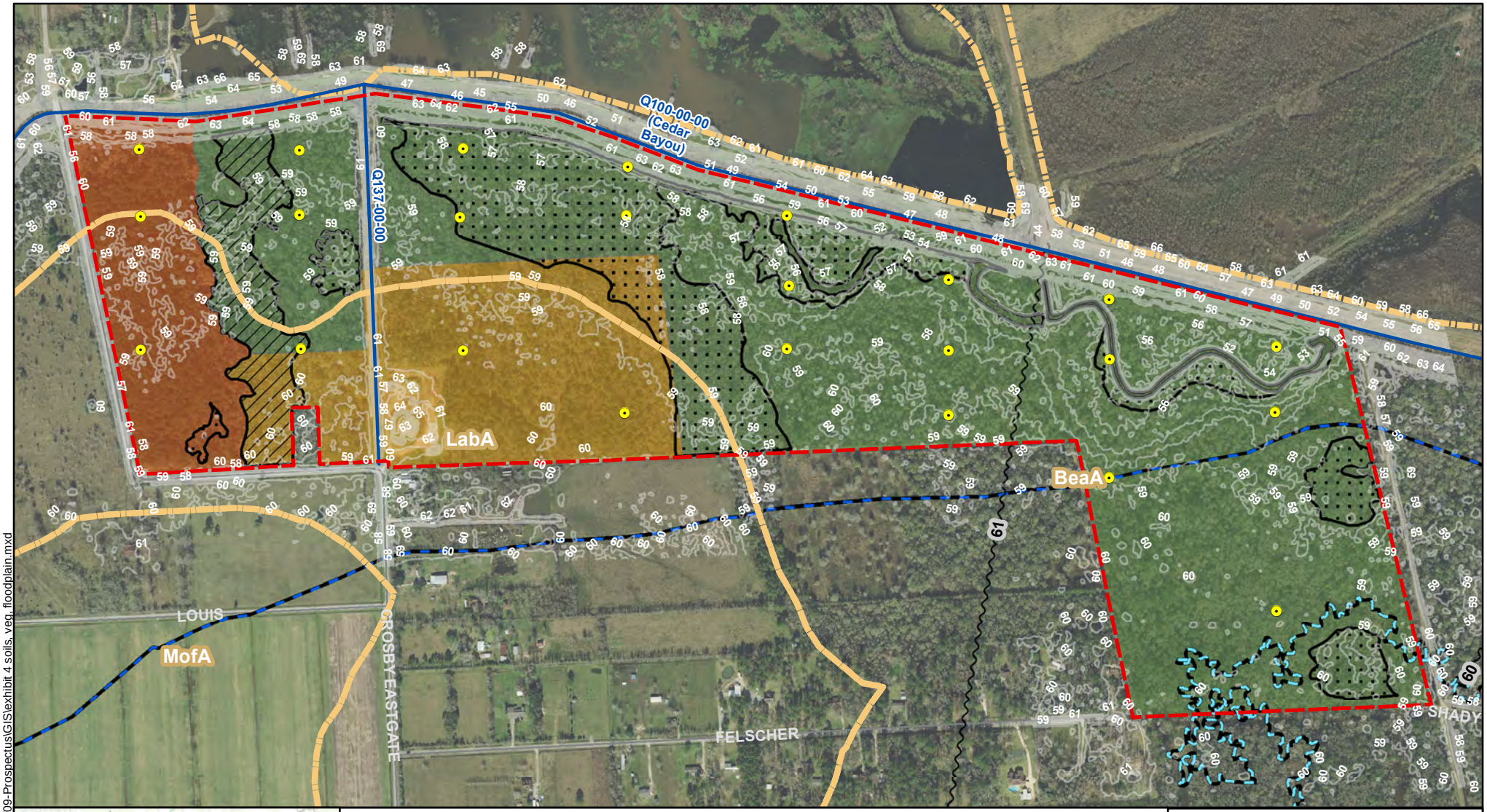

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VICINITY MAP

1 in = 6 miles

N
W E
S

0 175 350 700 Feet

1 inch = 700 feet

Datum: North American 1983
Projection: Lambert Conformal Conic
Units: Feet
Basemap: 2016 Aerial Imagery, MrSID: HGAC

Legend

- Project Site Boundary
- HCFCD Channels
- Soil Boring Point (fat clay)
- Soil Map Unit
- Elevation Contours
- Base Flood Elevation Line
- Floodway
- 100 Yr Floodplain

Existing Wetland Type

- PFO Wetland
- Mosaic PFO Wetland
- Open Water

Vegetation Community

- Former Pine Plantation Forest
- Previously Disturbed Hardwood Forest
- Old-Growth Bottomland Harwood Forest

Exhibit 4
Exisitng Soils, Vegetation, Hydrology Conditions Map

Prospectus for
Crosby Eastgate Mitigation Bank
Harris County, Texas; Precinct 2

Date: 11/14/2017	Scale: 1:8,400
Project No: 04220.009 For: Q700-01-00-Y001	Prepared By: CG Checked By: MB, AN

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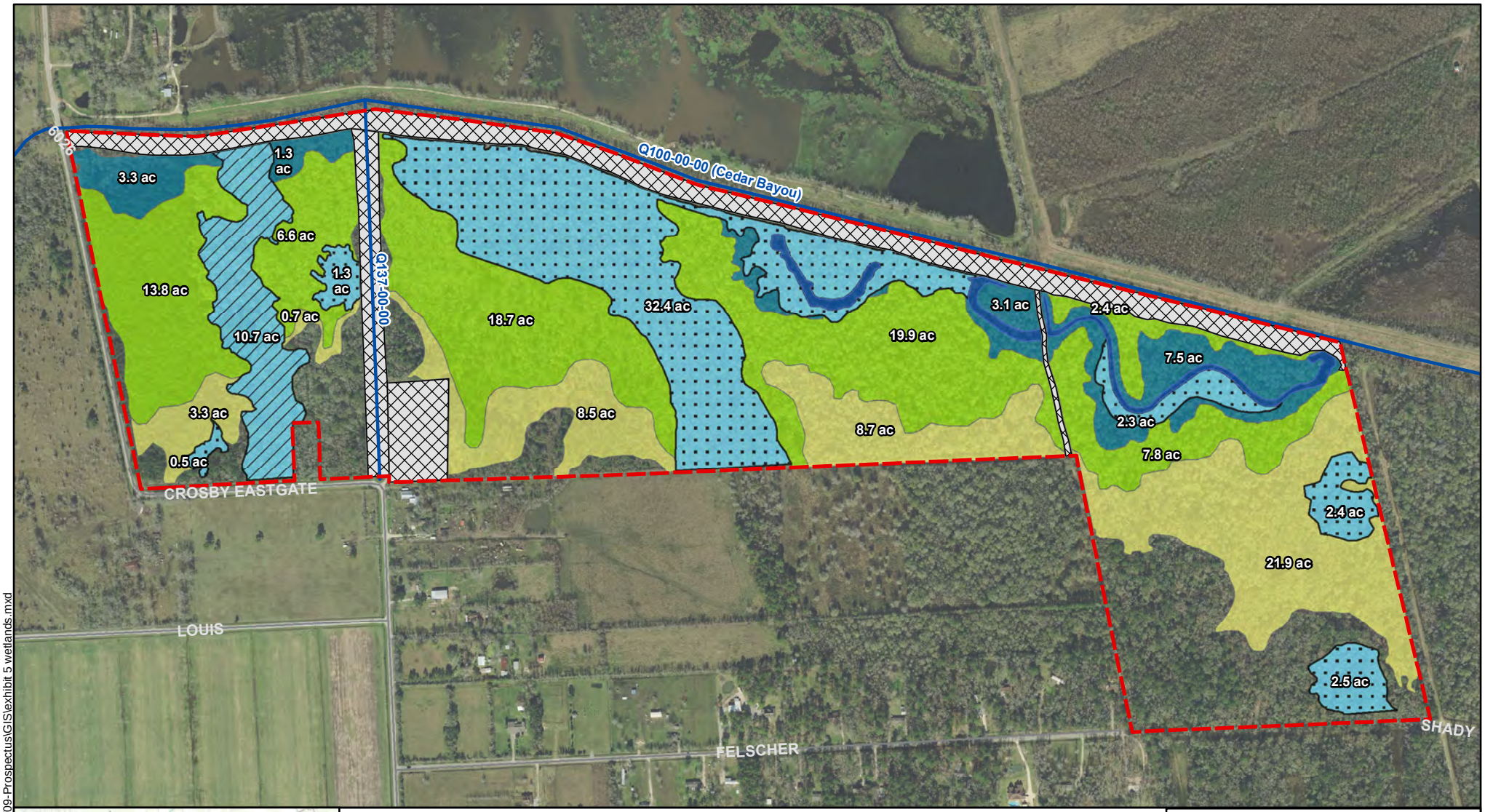

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VICINITY MAP

1 in = 6 miles

N
W E
S

0 175 350 700 Feet

1 inch = 700 feet

Datum: North American 1983
Projection: Lambert Conformal Conic
Units: Feet
Basemap: 2016 Aerial Imagery, MrSID: HGAC

Legend

- Project Site Boundary
- HCFCD Channels
- Bank Exclusion Areas

Proposed Wetland Areas

- Exisiting Open Water Area
- PFO Enhancement
- PFO Mosaic Enhancement
- PFO Re-establishment, long-duration inundation
- PFO Re-establishment, high frequency inundation
- PFO Re-establishment, low-frequency inundation

Exhibit 5
Proposed Wetland Areas

Prospectus for
Crosby Eastgate Mitigation Bank
Harris County, Texas; Precinct 2

Date: 11/14/2017	Scale: 1:8,400
Project No: 04220.009 For: Q700-01-00-Y001	Prepared By: CG Checked By: MB, AN

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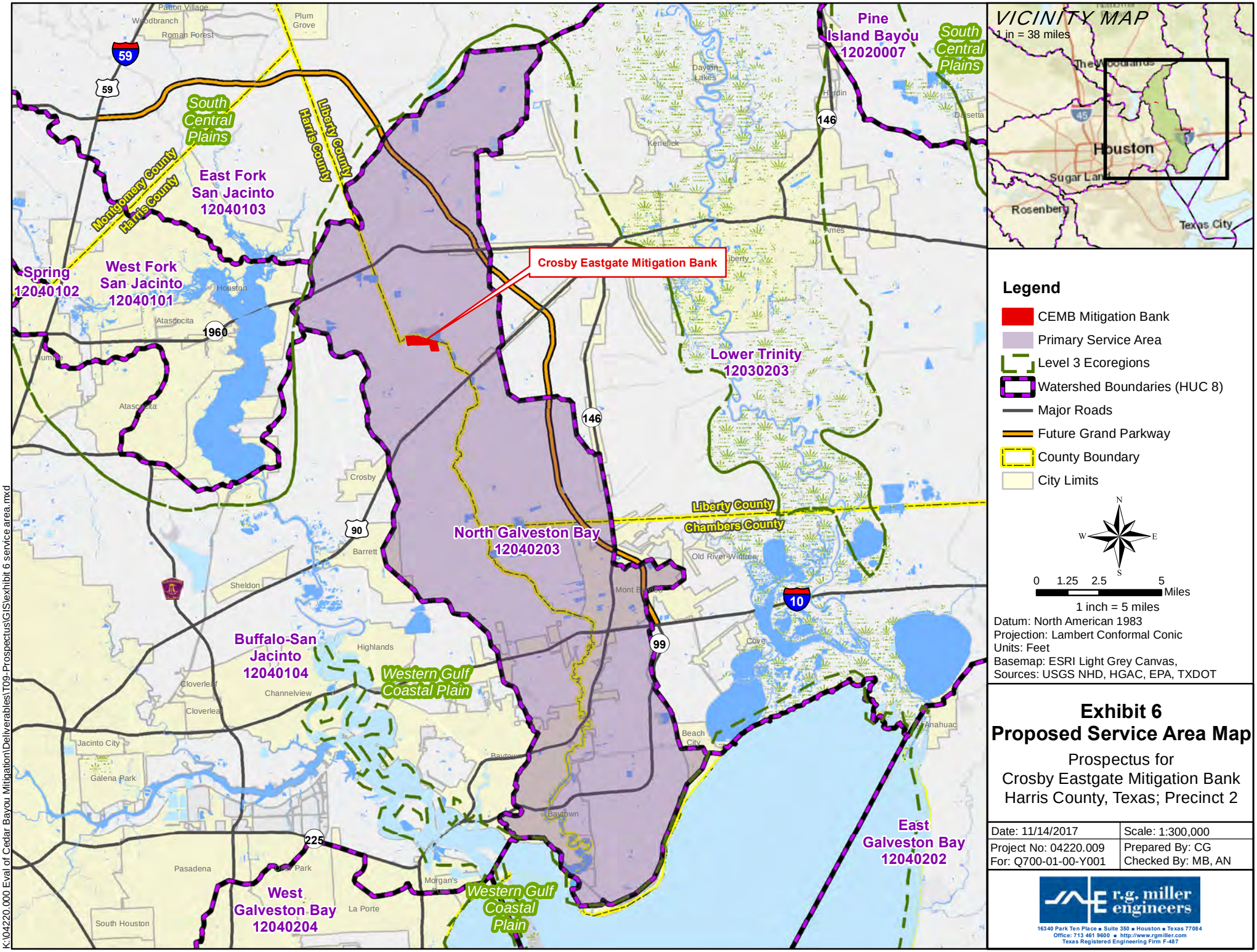

VICINITY MAP
1 in = 38 miles

Legend

- CEMB Mitigation Bank
- Primary Service Area
- Level 3 Ecoregions
- Watershed Boundaries (HUC 8)
- Major Roads
- Future Grand Parkway
- County Boundary
- City Limits

N
W E
S

0 1.25 2.5 5 Miles

1 inch = 5 miles

Datum: North American 1983
Projection: Lambert Conformal Conic
Units: Feet
Basemap: ESRI Light Grey Canvas,
Sources: USGS NHD, HGAC, EPA, TXDOT

Exhibit 6
Proposed Service Area Map

Prospectus for
Crosby Eastgate Mitigation Bank
Harris County, Texas; Precinct 2

Date: 11/14/2017	Scale: 1:300,000
Project No: 04220.009 For: Q700-01-00-Y001	Prepared By: CG Checked By: MB, AN

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