JOINT PUBLIC NOTICE

June 24, 2019

United States Army
Corps of Engineers
New Orleans District
Regulatory Branch
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New Orleans, La. 70118

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Permit Application Number
MVN-2017-01474-MR

State of Louisiana
Department of Environmental Quality
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Baton Rouge, La. 70821-4313
Attn: Water Quality Certifications

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Project Manager
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WQC Application Number
WQC # 190618-02

Interested parties are hereby notified that a permit application has been received by the New Orleans District of the U.S. Army Corps of Engineers pursuant to: [ ] Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403); and/or [X] Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344).

Application has also been made to the Louisiana Department of Environmental Quality, for a Water Quality Certification (WQC) in accordance with statutory authority contained in Louisiana Revised Statutes of 1950, Title 30, Chapter 11, Part IV, Section 2074 A(3) and provisions of Section 401 of the Clean Water Act (P.L.95-17).

KILLIAN BAYOU MITIGATION BANK IN LIVINGSTON PARISH

NAME OF APPLICANT: Fifth Louisiana Resource, LLC, Attn: Tiffany Hammond, 412 N. Fourth Street, Baton Rouge, Louisiana 70802.

LOCATION OF WORK: The 542.3 acre site is located approximately 1.5 miles west of Killian, , Louisiana, in Livingston Parish, as shown on attached drawings (Latitude: 30.343245° N, Longitude:–90.607755° W). The Project is located within the Lake Pontchartrain Basin, Hydrologic Unit 08090202.

CHARACTER OF WORK: Clear timber, degrade bedding and ditches and distribute in-situ material on the site to restore historical surface hydrology, as well as prepare the site for planting an appropriate assemblage of bottomland hardwood species all for the purpose of constructing a mitigation bank.

The comment period for the Department of the Army Permit and the Louisiana Department of Environmental Quality WQC will close **30 days** from the date of this joint public notice. Written comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this permit and/or this WQC request and must be mailed so as to be received before or by the last day of the comment period. Letters concerning the Corps of Engineers permit application must reference the applicant's name and the Permit Application Number, and be mailed to the Corps of Engineers at the address above, ATTENTION: REGULATORY BRANCH. Similar letters concerning the

Water Quality Certification must reference the applicant's name and the WQC Application number and be mailed to the Louisiana Department of Environmental Quality at the address above.

The application for this proposed project is on file with the Louisiana Department of Environmental Quality and may be examined during weekdays between 8:00 a.m. and 4:30 p.m. Copies may be obtained upon payment of costs of reproduction.

Corps of Engineers Permit Criteria

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers is soliciting comments from the public, federal, state, and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the U.S. Army Corps of Engineers to determine whether to make, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The New Orleans District is unaware of properties listed on the National Register of Historic Places near the proposed work. The possibility exists that the proposed work may damage or destroy presently unknown archeological, scientific, prehistorical, historical sites, or data. Issuance of this public notice solicits input from the State Archeologist and State Historic Preservation Officer regarding potential impacts to cultural resources. After receipt of comments from this public notice the Corps will evaluate potential impacts and consult with the State Historic Preservation Officer and Native American Tribes in accordance with Section 106 of the national Historic Preservation Act, as appropriate.

Our initial finding is that the proposed work would neither affect any species listed as endangered, nor affect any habitat designated as critical to the survival and recovery of any endangered species listed by the U.S. Department of Commerce,

Utilizing Standard Local Operating Procedure for Endangered Species in Louisiana (SLOPES), dated October 22, 2014, between the U.S. Army Corps of Engineers, New Orleans and U.S. Fish and Wildlife Service, Ecological Services Office, the Corps has determined that the proposed activity would have no effect on any species listed as endangered by the U.S. Department of the Interior.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The applicant's proposal would result in the destruction or alteration of N/A acre(s) of EFH utilized by various life stages of red drum and penaeid shrimp. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or federally managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

If the proposed work involves deposits of dredged or fill material into navigable waters, the evaluation of the probable impacts will include the application of guidelines established by the Administrator of the Environmental Protection Agency. Also, a certification that the proposed activity will not violate applicable water quality standards will be required from the Department of Environmental Quality, before a permit is issued.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

The applicant has certified that the proposed activity described in the application complies with and will be conducted in a manner that is consistent with the Louisiana Coastal Resources Program. The Department of the Army permit will not be issued unless the applicant received approval or waiver of the Coastal Use Permit by the Department of Natural Resources.

You are requested to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

For

Martin S. Mayer
Chief, Regulatory Branch

Enclosure

Prospectus for the Killian Bayou Mitigation Bank

Located in:
Livingston Parish, Louisiana

Submittal Date: March 27, 2019

Sponsor: Fifth Louisiana Resource, LLC
c/o Resource Environmental Solutions, LLC
Attn: David Hill
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Agent: Resource Environmental Solutions, LLC
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1. Introduction

Fifth Louisiana Resource, LLC (hereinafter the Sponsor) has prepared this prospectus for submittal to the U.S. Army Corps of Engineers – New Orleans District (USACE) and Interagency Review Team (IRT) to provide an overview of the establishment and operation of the proposed Killian Bayou Mitigation Bank (Mitigation Site). The details pertaining to the use of this site as a mitigation bank shall be specified in the subsequent Mitigation Banking Instrument (MBI).

The Mitigation Site is identified as having the potential to help meet the compensatory mitigation requirements for bottomland hardwood (BLH) impacts in the Louisiana Wetland Rapid Assessment Method (LRAM) Basin identified as Lake Ponchartrain (Exhibit 1). The Mitigation Site is located in Livingston Parish, Louisiana.

The cumulative enhancement, preservation, re-establishment and rehabilitation of BLH is 536.4 acres with 5.9 acres of non-mitigation features, composed of utility roads, which equates to a 542.3-acre Mitigation Site. There is a proposed Permittee-Responsible Mitigation Sites adjoining the Mitigation Site in the north-east corner and along the eastern boundary (Exhibit 2). Specifically, the Mitigation Site shall provide enhance 112.3 acres, preserve 32.1 acres, re-establish 0.5 acres and rehabilitate 391.5 acres of BLH forest.

1.1 Mitigation Site Location

The Mitigation Site is located at latitude 30.343245 North and longitude –90.607755 West (approximate center point) in Livingston Parish, Louisiana (Exhibit 1), which is located within the Lake Ponchartrain LRAM Basin. This location includes all or portion of Sections 16, 21, and 22 Township 8 South and Range 6 East. The Mitigation Site is located approximately 1.5 miles west of Killian, Louisiana.

To reach the Mitigation Site, from the intersection of LA 22 and LA 444 in Killian, Louisiana, turn left on Sharp Road and travel approximately 1.2 miles, then turn left on Sharp Road (existing dirt and gravel road) and travel south approximately 0.3 miles to the entrance of the site.

2. Project Goals and Objectives

The Mitigation Site is proposed to enhance, preserve, re-establish and rehabilitate BLH within the Lake Ponchartrain LRAM Basin. Access roads shall be maintained as non-mitigation acreage and shall be at grade. The purpose of these features is to provide access points and facilitate monitoring and maintenance activities associated with Mitigation Site establishment and long-term management. The Mitigation Site shall provide additional BLH functions and values not currently recognized under existing conditions and land use, as well as enhance these values in portions of the Mitigation Site where these habitats currently exist.

As defined by *The Natural Communities of Louisiana* published in 2009 by the Louisiana Department of Wildlife and Fisheries (LDWF) and the Louisiana Natural Heritage program (LNHP), BLH forests are forested, alluvial wetlands occupying broad floodplain areas that flank large river systems. BLH forests may be called fluctuating water level ecosystems characterized and maintained by a natural hydrologic regime of alternating wet and dry periods. These forests support distinct assemblages of plants and animals associated with particular landforms, soils, and hydrologic regimes. They are important natural communities for maintenance of water quality,

providing a very productive habitat for a variety of fish and wildlife, and are important in regulation of flooding and stream recharge.

2.1 Goals

The goals of the Mitigation Site are to: enhance and rejuvenate the native vegetative community, restore the topography and natural hydrology, enhance various biogeochemical cycles, improve sediment retention, reduce non-point source pollution and provide habitat and refuge to wildlife. With the holistic goal of establishing a self-sustaining BLH habitat resistant and resilient to disturbance events that shall maintain, preserve or rehabilitate aquatic ecosystem function and water quality within the catchment.

The proposed mitigation site habitats were based on the historical land use, land cover, soils data, elevation data, MLRA designation and current vegetation within the Mitigation Site. The Mitigation Site is proposed to enhance, preserve, re-establish and rehabilitate 536.4 acres of BLH with 5.9 acres of non-mitigation features composed of utility roads, equating to a 542.3-acre Mitigation Site. (Table 1 and Exhibit 2).

Table 1: Proposed Mitigation Site Habitats

BLH	
Mitigation Type	**Acreage**
Enhancement	112.3
Preservation	32.1
Re-Establishment	0.5
Rehabilitation	391.5
Total BLH	**536.4**
Non-Mitigation Features	5.9
Total Bank Size	**542.3**

2.2 Objectives

The goals of the Mitigation Site shall be accomplished through the following objectives:

1) Create a self-sustainable 542.3-acre BLH wetland forested area through selective planting of native species in rehabilitation, enhancement and re-establishment areas, hydrological restoration in rehabilitation, enhancement and re-establishment areas and management of invasive species across the entire Mitigation Site;
2) Rehabilitation of the vegetative community structure through selective planting of native species and forest management strategies;
    a. Soil preparation shall alleviate compaction, increase soil pore water space, and increase the efficiency of various biogeochemical cycles;
    b. Vegetative plantings shall be used to restore natural vegetation across the property, increase species diversity, increase nutrient and contaminant uptake, and create a hard-to-soft mast ratio indicative of sustainable wetland forested areas;
    c. Long-term maintenance shall prevent colonization by noxious plants, erosion along interfaces of drainageways, and trespass vandalism; and

   d. Restoration of the historic hydroperiod across the property, shall create improved wildlife habitat, as well as benefit water quality and various biogeochemical cycles.
3) Elimination and control of invasive species, which shall reduce the negative impacts to and within the vegetative community;
4) The cessation of silvicultural practices shall aid in reducing nonpoint source pollution, and allow the microtopographic sinuosity patterns to re-emerge restoring a more natural flow across the Mitigation Site;
5) Degradation of the bedding shall restore natural sheetflow across the Mitigation Site and create/restore flow through natural sloughs;
   a. Water currently routed through bedding, in a semi-channelized fashion will sheetflow across the Mitigation Site and flow through natural sloughs, thereby retaining surface water and upper soil saturation.
6) Ensure system stability and continuity by protecting the Mitigation Site in perpetuity with a conservation easement; and
7) Ensure the long-term viability and sustainability of the Mitigation Site through active and adaptive management activities including, but not limited to, invasive species control, appropriate monitoring and long-term maintenance.

3. Ecological Suitability of the Site/Baseline Conditions

This section describes the ecological suitability of the Mitigation Site to achieve the objectives of the proposed mitigation site, including the physical, chemical, and biological characteristics of the Mitigation Site and how that site will support the planned types of aquatic resources and function, as stated in 33 CFR 332.8(d)(2)(vii)(B). This section provides the baseline/current site conditions on and adjacent to the proposed Mitigation Site.

3.1 Land Use

3.1.1 Historical Land Use

3.1.1.1. Review of USGS Topographical Quadrangles

USGS quadrangle maps were reviewed as a supplement to the historical aerial photographs and to determine the prior use or occupancy of the subject properties. Copies of these USGS quadrangle excerpts are presented in Exhibit 3 along with a written observation in Table 2.

Table 2 Historic Topographic Map Review

Quadrangle Date	Observations
1934	Shown to be an undeveloped area north of the Golden Street with portions of open marsh or swamp and wooded marsh or swamp
1939	Shown to be unchanged from 1934
1963	Shown to lack swamp or marsh land and a road along the western border exists
1965	Shown to be relatively unchanged from 1963
1972	Shown to be relatively unchanged from 1965
1980	Shown to have road appear in north central area of site
2005	Shown to have a road in the north central portion of the site extending to the north boundary of site
2018	Extension of road identified in 2005 not shown

Note: While the intervals between historical topographic maps span several years, the land use did not change significantly. Therefore, this discontinuous information is not considered a data gap.

3.1.1.2. Review of Aerial Photographs

Aerial photographs were reviewed to investigate historical properties, adjacent land uses and to observe potential impacts to the subject properties. Copies of these aerial photographs are included in Exhibit 4. Table 3 provides written observations made.

Table 3 Historical Aerial Photograph Review

Quadrangle Date	Observations
1952	Shown to be an undeveloped forested area with one undeveloped and light duty access road running along the western boundary
1962	Forest is more developed, and the light duty road is no longer visible
1985	Forest remains more developed, but a light duty road appears in the north central area of the site and on the western border
1998	Shown to be mostly unchanged since 1985
2004	Timber appears to have been harvested since the 1998 aerial
2005	Shown to be mostly unchanged since 2004
2008	Shown to be mostly unchanged since 2005, trees appear more developed
2010	Southern portion of the site appears to have been harvested or thinned
2015	Southern portion of the site appears to have been harvested

Note: While the intervals between aerial photographs span several years, the land use did not change significantly. Therefore, this discontinuous information is not considered a data gap.

3.1.2 Existing/Current Land Use

The Mitigation Site was purchased in 1999 by the previous owner for timber use. The current land use is silviculture. The Mitigation Site is also used as a hunting lease. Based on aerials, the Mitigation Site was last harvested for timber sometime between 2010 and 2014.

The U.S. Department of Agriculture and Forestry 2017 crop data layer identifies the existing land cover as forest (89.0%) and the land uses as grassland/pasture (9.4%), developed/open space (1.6%) (Exhibit 5).

The adjacent land is as follows: the northern, eastern, western and southern boundaries of the Mitigation Site are bordered by planted pine for silviculture and undeveloped forestland. There is generally minimal development within one (1) mile of the Mitigation Site, though there are residences to the northeast and southern boundary along Golden Street and Music Lane. The U.S. Department of Agriculture and Forestry 2017 crop data layer identifies the predominant land cover within one (1) of the Mitigation site as forest, which covers 68.3 percent and the predominant land use as grassland/pasture, which covers 24.8percent (Exhibit 6).

3.2 Soils

The U.S. Department of Agriculture and Forestry National Resources Conservation Service (NRCS) soil survey for Livingston Parish identified four (4) soil map units for the Mitigation Site (Table 4 and Exhibit 7).

Table 4 Site Soils

MUN Symbol	MUN Name	% Hydric	% Cover
Co	Colyell Silt Loam, 1 to 3 % slopes	10	19
Sp	Springfield Silt Loam	90	49
En	Encrow Silt Loam, Occasionally Flooded	85	31
Na	Natalbany Silty Clay Loam, Frequently Flooded	85	1

Co, Sp and En soils are gently sloping and level, somewhat poorly drained and poorly drained soils that have a loamy surface layer and a loamy and clayey subsoil. **Co, Na** and **Sp** soils are frequently flooded are generally not suited to urban and intensive recreational uses due to flooding and inaccessibility of the individual tracts of land. **En** soils are occasionally flooded and thus are not generally suited for home site development. Flooding, wetness, low strength on sites for roads, slow permeability and high shrink-swell potential are the main limitations.

Co soils are somewhat poorly drained and are level or gently sloping. They are on broad, slightly convex ridges and on sides sloped along drainage ways.

Sp soils are level to poorly drained. They are in swales and depressional areas and on broad ridges.

En soils are level and poorly drained. They are in depressions and along small drainageways.

Na soils are nearly level, with slopes 0 to 1 percent and poorly drained. They are in flood plains

The Mitigation Site has been logged in the past. Some of the impacts of logging on the soil are reduced productivity within the soil, a loss of organic matter, and compaction from logging equipment, which in turn leads to a reduction in water availability and increases runoff. Additionally, being used as pine plantation makes the soil more acidic, nearly eliminates sheetflow from the landscape and create a non-native monotypic unsustainable vegetative community.

3.3 Hydrology

3.3.1 Contributing Watershed

The contributing watershed, was identified using the U.S.G.S National Hydrography Dataset (NHD). Then, NHD flow lines were added to the figure to identify the directional flow of those water features. Those water features that flow into the Mitigation Site were identified and the resulting contributing watershed was determined to be 4.0 square miles (Exhibit 8).

3.3.2 Historical Hydrology and Drainage Patterns

Historical drainage patterns were derived from the USGS 1934 Quadrangle Map for Killian, Louisiana. The surface elevation data (Exhibit 9) suggests the historical drainage would have been generally north to south with a large portion of the site draining into the unnamed water feature that runs through the center of the Mitigation Site. On the west side of this feature the topography becomes fairly homogenous and water could have flowed in multiple directions. As you move further west the site topography reduces and the overland flow would be towards the south-west quadrant of the Mitigation Site where the currently designated Killian Bayou resides. Please note the historical hydrology is anticipated to be returned to the site post-construction (refer to section 3.3.4 below).

Description of Impacts:
A topographic (Exhibit 3) and aerial review (Exhibit 4) of the Mitigation Site was conducted during the historical review. Changes to the landscape were recorded as well as a chronology of events were detailed in in Sections 3.1.1.1 and 3.1.1.2 above, along with visual exhibits.

3.3.3 Existing/Current Hydrology and Drainage Patterns

Hydrology on site has been altered through the existing land use, which is silviculture. Silvicultural practices disturb the topography of the land and inhibits the natural sinuous drainage pattern that typically inhibits the landscape when sheetflow is present. Specifically, the rows and bedding of the pine forest, which covers approximately 459.6 acres of the 542.3-acre site reduces sheet flow and facilitates channelized flow during precipitation events (Exhibits 10 and 11). The ditches along the roads and pine areas also channelize flow on the Mitigation Site.

It is suspected that the water feature in the center of the Bank may have at one time connected to Church Branch and due to the silvicultural practices, the shallow area was allowed to silt in. Church Branch flows northwesterly (NHD layer) and not south through the Mitigation Site further explaining why the northern portion of the unknown tributary named water feature could silt in. The north portion of the unknown unnamed water feature is approximately 325 feet wide and ranges from 0 to six (6) in depth (Exhibit 10 cross-section E-E'). As you move southward along that water feature it narrows and eventually exits off the Mitigation Site in the southwest corner (Exhibit 10 cross-section B-B'). During the time of the survey water was present. Church Branch begins on the northern boundary of the property and flows northwesterly and not into the Mitigation Site. As such, cross-sections of the waterway were not taken.

3.3.4 Anticipated Post-Construction Hydrology

It is anticipated that post-construction hydrology will primarily sheetflow across the site towards to dominant water features, an unknown unnamed waterbody and Killian Bayou, as it did historically (Exhibit 13). Historical hydrological details were described in Section 3.3.2 above.

Exhibit 10 provides a plan view for the hydrological work and cross-sections of the major features. Section 4 below describes the Mitigation Site Establishment plan.

3.3.5 Jurisdictional Wetlands

A PJD was supplied to RES on June 4, 2018 (Exhibit 12). The permit number is MVN-2017-01474-SQ.

3.4 Vegetation

3.4.1 Historical Plant Community

The 1934 topographic map shows the Mitigation Site as undeveloped north of Golden Street with portions of open marsh or swamp and wooded marsh or swamp. The 1952 aerial shows signs that development began to emerge as the aerial photograph shows the Mitigation Site as an undeveloped forested area with one (1) undeveloped or light duty access road running along the southern and western boundary. Somewhere between 1998 and 2004, silviculture appeared on the Mitigation Site. Taken the above information into account and reviewing soils and elevation data the site was most likely historically a BLH wetland.

3.4.2 Existing Plant Community

Per the wetland delineation report submitted November 3, 2017 and approved June 4, 2018 (MVN-2017-01474-SQ) the following habitat were observed on site. Note: wetland delineation data was gathered September 27-29, 2017.

Within the pine plantation habitat, the dominant species in the tree stratum were loblolly pine *(Pinus taeda)*, water oak (*Quercus nigra*), and Chinese tallow-tree (*Triadica sebifera*). Yaupon (*Ilex vomitoria*), southern bayberry (*Morella cerifera*), spruce pine (*Pinus glabra*), sweet-gum (*Liquidambar styraciflua*), and cherry-bark oak (*Quercus pagoda*) dominated the sapling/shrub stratum. The herbaceous stratum was dominated by American beauty-berry (*Callicarpa americana*), slender woodoats (*Chasmanthium laxum*), eastern poison-ivy (*Toxicodendron radicans*), and dwarf palmetto (*Sabal minor*).

Areas of pine plantation with recruiting hardwoods were dominated by loblolly pine, Chinese tallow-tree, water oak, and willow oak (*Quercus phellos*) in the tree stratum. The dominant sapling/shrub species were yaupon, southern bayberry, spruce pine, sweet-gum, red maple (*Acer rubrum*), cow oak (*Quercus michauxii*), Laurel oak (*Quercus laurifolia*), and cherry-bark oak. Slender wood-oats, eastern poison-ivy, and dwarf palmetto dominated the herbaceous stratum.

Within the mature hardwood habitat, cherry-bark oak, water oak, cow oak, loblolly pine, and Chinese tallow-tree dominated the tree stratum. The sapling/shrub stratum was dominated by yaupon, willow oak, water oak, southern bayberry, Chinese tallow-tree, and sweet-gum. Slender wood-oats, dwarf palmetto, and southern waxy sedge (*Carex glaucescens*) dominated the herbaceous stratum.

The immature pine habitat was dominated by loblolly pine and Chinese tallow-tree in the tree stratum. Loblolly pine, water oak, Chinese tallow-tree, sweet gum, eastern groundseltree (*Baccharis halimifolia*), and southern bayberry dominated the sapling/shrub stratum. The herbaceous stratum was dominated by giant plume grass (*Saccharum giganteum*), climbing hempvine (*Mikania scandens*), hairy primrose-willow (*Ludwigia pilosa*), lax-leaf yellow-eyed-grass (*Xyris laxifolia*), blunt spike-rush (*Eleocharis obtusa*), and variable rosette grass (*Dichanthelium commutatum*).

To further characterize the conditions of the existing pine plantation the absolute cover of pine, BLH, and Chinese tallow-tree was converted to relative percent cover using the wetland delineation data sheets. Relative percent cover was averaged for all wetland data points located within a stand/area to estimate the composition of the overstory (Table 5). Then, using the wetland delineation report (data points (DP) noted on Exhibit), observations made on multiple field reconnaissance visits and a professional survey to map bedding on site the proposed mitigation habitat designations were derived (Exhibit 11 and Table 5).

Table key: The area corresponds to the areas designated on Exhibit 11. Pine, Tallow and BLH represent the average relative percent cover, by area, by pine, BLH or the invasive Chinese tallow-tree. Pine/Tallow is the summation of the average relative percent cover by pine and tallow for its associated area. Habitat type is the proposed mitigation habitat type and details for the proposed mitigation habitats are provided below:

Rehabilitation areas are where the relative percent cover is predominantly pine (>50%) with a dominant presence of pine bedding rows. The exception is Area 7 that contains a seven (7) year old planted pine stand with pronounced bedding rows. Additionally, the wetland delineation data point 29 (DP29) along the boundary of Areas 7 and 8 over represents the BLH within the area due to the proximity of a mature seed

source. Removing DP29 the calculation yields a 70 percent cover by pine and Chinese tallow-tree, which is abundant in an early successional forest; therefore, rehabilitation is proposed in Area 7. The cessation of silvicultural practices along with the degradation of pine rows and bedding and ditches repairs the historic functions resulting in a net gain in aquatic resource functionality (i.e. sheetflow) and the planting of native BLH species shall improve multiple aquatic resource functions (i.e organic matter, wildlife habitat and refuge, removal of the non-historical monotypic habitat).

Enhancement areas are those with pine and Chinese tallow-tree accounting for greater than 50 percent average relative percent cover and with minimal pine rows and bedding. Removal of the invasive species and planting of native BLH species shall improve multiple aquatic resource functions and alter the composition of the vegetation present to a more natural and sustainable habitat.

Preservation is proposed in the areas where BLH currently exists and the Sponsor can minimize, with an attempt to eradicate, the invasive Chinese tallow-tree from the Mitigation Site and prevent the further decline of the existing BLH habitat by thinning the pine species and controlling invasive and noxious species.

Re-establishment is proposed in areas designated as non-wet per the PJD. Therefore, the proposed activities shall return the necessary hydrological components to the Mitigation Site to restore the historic functions to the former wetland.

Table 5 Average relative percent cover by Area for Bank acreage

Area	Pine	Tallow	BLH	Pine/Tallow Sum	Habitat Type
1	78%	0%	22%	78%	Rehabilitation
2	66%	14%	20%	80%	Rehabilitation
3	75%	0%	25%	75%	Rehabilitation
4	64%	0%	36%	64%	Rehabilitation
7	33%	23%	44%	56%	Rehabilitation
8	50%	10%	40%	60%	Enhancement
9	35%	38%	27%	73%	Enhancement
10	72%	17%	11%	89%	Rehabilitation
11	11%	65%	24%	76%	Enhancement
12	78%	11%	11%	89%	Rehabilitation
13	27%	7%	66%	34%	Preservation
14	100%	0%	0%	100%	Rehabilitation
15	75%	0%	25%	75%	Rehabilitation
17	No DP - Similar to Area 11				Enhancement
18	78%	22%	0%	100%	Re-establishment

Information pulled directly from wetland delineation report

3.5 General Need for the Project in this Area

3.5.1 Watershed Plans the Project Would Potentially Accommodate

1) Louisiana's Nutrient Management Strategy (LNMS) the May 2014 Edition, was developed as a concerted effort between numerous state and federal agencies and through engagement with stakeholders within Louisiana, for the purpose of managing nutrients (nitrogen and phosphorus) to protect, improve and restore water quality in Louisiana's inland and coastal waters. The vision is to manage nutrient levels in Louisiana to ensure the support of healthy aquatic communities, clean water for public, agricultural and industrial use, to engage stakeholders at the local level and to actively support water quality protection, improvement and restoration. Additionally, it is stated these protection, improvement and restoration strategies at the local level may have a cumulative and positive impact on the health of the receiving waterbodies both within the State and Gulf of Mexico.

2) Louisiana's Nonpoint Source Management Plan (NPSMP) is prepared by Louisiana Department of Environmental Quality (LDEQ) and numerous state and federal partners. The NPSMP has a plan for the Lake Ponchartrain River Basin, which encompasses the project area. The goal of NPSMP is to reduce nonpoint source pollution in urban and rural areas.

3) BLH habitats are important for a variety of fauna, maintenance of water quality and important in regulating flooding and stream recharge. BLH forest loss is estimated to be 50 to 75 percent of the original pre-settlement acreage (LNHP, 2009).

4) The Mitigation Site is needed to allow for mitigation to offset industrial and population growth.

3.5.2 Watershed Benefits

The watershed benefits this project will provide based on watershed needs identified above are as follows:

1) This Mitigation Site accomplishes all aspects of the vision for the Louisiana Nutrient Management Strategy (LNMS) by reducing silvicultural impacts and enhancing, preserving, re-establishing and rehabilitating BLH, which shall increase the efficiency of biogeochemical cycling within the Mitigation Site, reducing nutrients in the receiving watersheds and transition the anthropogenically impacted area back to its native state.

2) The Mitigation Site shall return the anthropogenically impacted site back into its native state of BLH, reducing nonpoint source pollution from silvicultural practices within the Mitigation Site and receiving basins, thus improving water quality and aiding in achieving the NPSMP goal for the Lake Ponchartrain basin.

3) The Mitigation Site can improve total dissolved solids through restoring the natural functioning of the land by returning it to its native state.

4) This Mitigation Site may aid in leading to the potential delisting of this subsegment off Louisiana's Integrated Report.

5) The Mitigation Site shall protect BLH habitats by adding to its diminishing acreage, reintroducing the natural hydrologic regime, and native vegetation in perpetuity.

6) The Mitigation Site may offer some potential to improve or create suitable habitat for species of concern. Habitat may be improved or created for species that require wetland habitat by improving water quality, in- and near-stream forage, and providing stable conditions not subject to regular maintenance.

3.5.3 Site Selection

The following is a description of the site selection criteria used to determine the appropriateness of the Mitigation Site for use as compensatory mitigation:

1) The mitigation habitats needed to be compatible with the surrounding habitats, adjacent land uses, existing watershed plans and not adversely impact the surrounding lands;

2) The Mitigation Site had to facilitate habitat connectivity in that it needed to increase the acreages of existing wetland habitats or have the potential to do so in the future and not act as a stand-alone feature in the landscape;

3) Soil characteristics of the Mitigation Site had to be conducive to the establishment of the desired vegetative community;

4) Hydrology had to be such as to allow for hydrological restoration described in the USACE Wetland Delineation Manual, 1987 Manual;

5) The Mitigation Site had to be ecologically important to the watershed and aid in increasing the chemical, physical and biological functionalities important to the ecosystem; and

6) The Mitigation Site had to aid in achieving the goals of various State and local management plans, such as the State's non-point source management plan.

4. Establishment of a Mitigation Site

This section describes how the Mitigation Site will be established, as stated in 33 CFR 332.8(d)(2)(ii); the technical feasibility of the proposed Mitigation Site, as stated in 33 CFR 332.8(d)(2) (iv); and the assurance of sufficient water rights to support the long-term sustainability of the mitigation site, as stated in 33 CFR 332.8(d)(2)(vii)(A).

4.1 Site Restoration Plan

This section provides information on the proposed soils/hydrologic and vegetative work that was determined to be necessary for preservation, re-establishment, rehabilitation and/or enhancement of the proposed Mitigation Site. All accompanying site restoration figures/maps are included as Exhibits 9, 10, 11, and 12.

The Mitigation Site shall enhance 112.3 acres, preserve 32.1 acres, re-establish 0.5 acres and rehabilitate 391.5 acres of BLH and include 5.9 acres of non-mitigation features to compensate for unavoidable wetland impacts in the Lake Ponchartrain Basin (Exhibits 1 and 2). To accomplish this task, the Sponsor shall complete the following soils, hydrologic and habitat work:

4.1.1 Construction Work Plan

Construction will consist of the removal of undesirable species, select degradation of bedding in pine areas, replanting of native vegetation and the mechanical/chemical control of invasive species. Details for each of these methods are described in the subsections below.

4.1.1.1. Timber Cutting and/or Mulching

To facilitate restoration of the BLH within the Mitigation Site, commercial logging of pine will be needed. All logging will be governed by a comprehensive timber deed that provides extensive direction and guidance to the logging contractor on how the timbering will be conducted to be as ecologically sensitive as possible. In addition, all logging events will be carefully monitored, on a daily basis, to ensure all requirements are being followed. After initial logging events for restoration purposes, commercial logging will cease on the Mitigation Site, including salvage logging, unless deemed essential for habitat restoration and only following a timber management plan approved by the USACE.

4.1.1.2. Hydrology Assessment and Remediation

Assessment of altered hydrology will occur after timber cutting and degradation of the raised beds. As timber harvesting activities often degrade the bedding to or near grade (see section 4.1.1.5 for details on pine bedding degradation). The Mitigation Site shall satisfy the wetland criteria as described in the USACE 1987 Wetlands Delineation Manual and be capable of performing the important functions lost as a result of the project for which it is mitigating.

Proposed Hydrological Modifications

During the process of converting the native habitat to silvicultural land, certain hydrological modifications were put in place to control site hydrology using anthropogenic methods. To restore the Bank Site to a natural hydrologic state and meet the objectives of the Bank Site, those modifications shall be removed to restore sheet flow. Impediments to be removed are as follows:

a. A comprehensive timber harvest will be conducted on site in order to remove the monoculture of pine timber and begin the degrading of the pine beddings

b. Mechanical degradation will take place on the remaining raised beds after timber harvest is conducted.

c. Two (2) interior ditch totaling (5,012 linear feet) will be filled and degraded to natural grade.

d. The ditches running along the pine plantation areas and along the road in the north portion of the Mitigation Site shall be degraded to maximum extent practical.

After hydrological restoration, the Bank Site's hydrology shall be primarily driven by precipitation, run off, high-water tables and overbank flooding of Church Branch and Killian Bayou. Bank Site objectives achieved by removal of hydrological impediments will restore sheetflow across the property. Water currently routed through raised bedding and interior man-made ditches will be filled to promote sheetflow, thereby retaining surface water and upper soil saturation as it did historically.

Sheetflow will be restored in all directions across the landscape and water will be transported off the Bank Site via natural drainages such as Church Branch and Killian Bayou. Hydrologic restoration achieves many objectives by improving water quality, biogeochemical cycling and the hydrologic cycling, which shall inundate soils and restore them to their native historic hydric processes.

4.1.1.3. Mechanical / Chemical Control of Invasive Species

Areas in need of treatment through mechanical and/or chemical control will be determined, following the removal of pines, which due to silviculture practices has created a monoculture site.

4.1.1.4. Degradation of Ditches

The ditches running along the pine plantation areas and along the road in the north portion of the Mitigation Site (Exhibit 10) shall be degraded to maximum extent practical. Post-construction cross-sections will be provided as detailed in the MBI.

4.1.1.5. Grading Plans

Activities involved in harvesting timber typically breakdown the majority of the bedding on site. Timber harvest typically reduces the bedding to near grade and any remaining bedding would be allowed to naturally degrade. However, if any large areas of bedding remain following logging, they will be degraded and returned to normal grade. Cross-sections shall of existing bedding is in Exhibit 10 and post-construction cross-sections shall be provided in the As-Built Report.

4.1.1.6. Soil Management

The only anticipated intentional soil movement will be during bedding degradation activities. The tree cutting and mulching will likely disturb soil in some areas, however it will be required that those practices adhere to the most current edition of the *Recommended Forestry/Restoration Best Management Practices for Louisiana.*

4.1.1.7. Erosion Control Measures

All roads (which are currently near grade, Exhibit 10 cross-sections C-C' and DD') that are currently experiencing erosion will be regraded and appropriate erosion control measures will be used to prevent continued erosion. The roads based on survey data are currently at grade and the roads are not proposed to be removed as they are to remain to facilitate maintenance and monitoring activities.

4.1.2 Vegetative Work Plan

Tree plantings shall consist of one (1) or two (2) year old bare-root seedlings composed of a mixture of the hard and soft mast species listed in Table 7, obtained from a Louisiana registered, licensed nursery grower. If seedlings listed in Table 7 are not available, then substitutions may be made as approved by the CEMVN. The Sponsor will mix species in such a manner to ensure adequate species diversity and that monotypic tree rows will not be established. Adequate time will be allowed for reserving seedlings from nurseries. Seedlings will be hand planted on a 9' by 9' spacing to achieve an initial stand density of 538 seedlings per acre. Planting will occur between December 15 through March 15.

Following soil preparation, planting will occur. Hard and soft mast species will be planted to achieve an overall Mitigation Site composition, on average, of 60-70 percent hard mast species. The species mix for BLH habitat may include any mixture of the native hard mast species listed in Table 7. The specific list of planted species, which is dependent upon availability, shall be provided in the As-Built Report. Please note that due to the existing diverse soft mast seed bank present (based on wetland delineation report), soft mast species are anticipated to naturally regenerate; therefore, the soft mast species diversity, over time, shall exceed that noted in Table 7.

Table 7 Proposed Planting List

Scientific Name	Common Name	Mast
Quercus pagoda	Cherry-Bark Oak	Hard
Quercus nigra	Water Oak	Hard
Liquidambar styraciflua	Sweet-Gum	Soft
Quercus phellos	Willow Oak	Hard
Acer rubrum	Red Maple	Soft
Quercus michauxii	Cow Oak	Hard
Quercus laurifolia	Laurel Oak	Hard
Carya illininoinensis	Sweet Pecan	Hard
Carya aquatic	Water Hickory	Hard
Quercus lyrata	Overcup Oak	Hard

Ulmus americana	American Elm	Soft

Invasive and undesirable species control will be conducted throughout the entire project area over the life of the Mitigation Site. Control measures may consist of any combination of mechanical, manual of chemical means as deemed appropriate based on-site conditions.

4.1.3 Chemical Control of Invasive / Non-Native Plants

Chemical control of existing problematic invasive non-native species will occur on an as needed basis throughout the life of the Mitigation Site, post-planting.

4.1.4 Sources of Water

Source of water to the Mitigation Ste include: overbank flow, precipitation and groundwater.

4.2 Technical Feasibility

Construction work required to develop the Mitigation Site is routine, technically feasible and based on currently-accepted restoration methods. The mitigation activities are 1) site preparation, 2) vegetation planting and 3) monitoring. The presence of hydric soils and relatively low relief of the Mitigation Site indicate that minimal soil work shall be required for the successful restoration of BLH habitat. Existence of BLH adjacent to the Mitigation Site indicate a high potential for successful restoration. Drainage modifications shall provide for a natural and historic water regime creating a more self-sustaining Mitigation Site. Furthermore, the Mitigation Site's conservation objective shall be achieved through preservation of the Mitigation Site from future development activities through legal documentation (e.g. conservation easements). There are no temporary or long-term structural management requirements.

4.3 Current Site Risks

The Sponsor does not foresee any adverse impacts to the Mitigation Site resulting from continued existence and operation of neighboring land uses. There are no existing hydrologic disturbances on or adjacent to the site at the present time.

The Mitigation Site has a cumulative 8.6 acres of non-mitigation features. Specifically, the non-mitigation features are roads; the Mitigation Site is otherwise free of encumbrances. The Mitigation Site and adjacent property is within unincorporated land and absent of zoning regulations.

Threats within the Mitigation Site location site itself are continued silvicultural practices that reduce the functionality of the land and alter its natural topography creating a non-self-

sustaining habitat. Silvicultural practices increase non-point source pollution to the watershed and degrade habitat for local fauna.

4.4 Long-Term Sustainability of the Mitigation Site

The Mitigation Site Sponsor shall be the responsible agent for the long-term management of the Mitigation Site, unless a third-party entity is established and given authority to maintain the Mitigation Site in perpetuity through approval by the IRT.

The primary long-term strategy of the Mitigation Site is self-sustaining with relatively low maintenance. This management strategy is linked to the development stage of the mitigation banking process, particularly in the design and establishment of the Mitigation Site. Native planting plans and increased natural flood attenuation shall provide these ecological benefits with minimal routine maintenance or attention after establishment. However, if the Mitigation Site is underperforming and not meeting the proposed performance standards, the Mitigation Site Sponsor shall provide additional management designs to address the ecological benefit. These methodologies may include exotic/invasive management or easement enforcement actions. The strategies shall be tailored to specific disturbances in order to achieve optimal results. Therefore, Adaptive Management Plans shall be derived at the time of the disturbance and based on the analysis of the data collected at the time. Work plans shall be submitted to the IRT for commentary and guidance before implementation.

Prior to final release and in accordance with the timelines established in the final MBI, the Mitigation Site Sponsor shall establish a non-wasting endowment supporting the Mitigation Site's long-term maintenance plan. As previously stated, the Mitigation Site Sponsor shall be the long-term manager of the Mitigation site property. Any expenditure must be related to the maintenance of the Mitigation Site and be approved by the USACE.

4.5 Assurance of Water Rights

Louisiana Civil Code, Article 490, treats water resources under the theory of absolute ownership and rule of capture, provided capture does not result in harm to neighbors. The Mitigation Site shall depend primarily on precipitation, runoff from surroundings areas and high-water tables. Therefore, long-term hydrology maintenance shall not be dependent upon the utilization of water captured from irrigation wells. As a result, sufficient water rights are ensured. The Sponsor does not foresee any adverse impacts on neighboring properties due to this project.

5. Proposed Service Area

This section identifies the proposed services areas as stated in 33 CFR § 332.8(d) (2) and the general need for the proposed mitigation site in this area as stated in 33 CFR § 332.8(d)(2)(iv).

The proposed service area was determined by identifying which watershed basin the Mitigation Site is in according to the watersheds identified in the USACE created LRAM document.

The proposed Mitigation Site was derived based on needs within the LRAM watershed by examining the following variables:

1) Shall provide mitigation for activities associated with the continued urban growth;
2) Shall provide mitigation for the area, which has a history of anthropogenic development;
3) Shall improve water quality in the local and downstream watershed;
4) Shall increase habitat for and support native flora and fauna;
5) Shall provide compensatory mitigation for the USACE New Orleans district approved projects within the Lake Ponchartrain LRAM Basin.
6) Shall increase the hydrological connection with the surrounding wetlands; and
7) Shall support the goals for various statewide approved management plans.

6. Operation of the Mitigation Site

This section describes how the proposed Mitigation Site will be operated, as stated in 33 CFR 332.8(d)(2) (ii) and provides details on the proposed ownership arrangements and long-term management strategy for the Mitigation Site, as stated in 33 CFR 332.8(d)(2) (v.)

6.1 Project Representatives

Sponsor/Landowner/Operations Manager:
Fifth Louisiana Resource, LLC
c/o Resource Environmental Solutions, LLC
412 N. Fourth Street, Suite 300
Baton Rouge, Louisiana 70802

Point of Contact: David Hill
Email: david@res.us
Phone Number: (225) 372-6114

Agent:
Resource Environmental Solutions
412 N. Fourth Street, Suite 300
Baton Rouge, Louisiana 70802

Point of Contact: Tiffany Hammond
Email: thammond@res.us
Phone Number: (337) 443-6925

6.2 Qualifications of the Sponsor

Fifth Louisiana Resource, LLC is managed by Resource Environmental Solutions, LLC (RES), which shall be the entity responsible for Mitigation Site land management and administration. RES has restored and protected over 58,024 acres land and restored and conserved over 294 miles of streams across multiple states and has 350 mitigation sites completed or in-process. RES has rehabilitated and/or preserved over 9,100 acres of endangered species habitats, as well as planted over 14 million trees across all operating regions. RES has had zero site failures. RES has received more than 2,843 federal and state permits, worked with multiple U.S. Army Corps of Engineer districts and regulatory agencies across the country. A company profile may be viewed at www.res.us.

6.3 Proposed Long-Term Ownership and Management Representatives

The Sponsor shall establish a Conservation Easement. The MBI will provide detailed information regarding the Mitigation Site's operation, including long-term management and annual monitoring activities, for review and approval by the IRT. Upon approval of the sites long-term success by IRT, the site shall be transferred to a long-term land steward (to be determined by the Mitigation Plan). The long-term steward shall be responsible for periodic inspection of the site to ensure that restrictions required in the Conservation Easement of

the deed restriction document(s) are upheld. Endowment funds required to uphold easement and deed restrictions shall be negotiated prior to site transfer to the responsible party.

The Sponsor shall ensure the Conservation Easement allows for the implementation of an initial monitoring phase, which shall be developed during the design phase and conducted by the Sponsor. The Conservation Easement shall allow for annual monitoring and, if necessary, maintenance of the Mitigation Site during the initial monitoring phase. These activities shall be conducted in accordance with the terms and conditions of the Killian Bayou Mitigation Bank made and entered in to by Fifth Louisiana Resource, USACE and other IRT agencies.

Long-Term Ownership and Management:

Fifth Louisiana Resource, LLC
c/o Resource Environmental Solutions, LLC
412 N. Fourth Street, Suite 300
Baton Rouge, Louisiana 70802

Point of Contact: Tiffany Hammond
Email: thammond@res.us
Phone Number: (337) 443-6925

6.4 Site Protection

The Owner of the proposed Mitigation Site shall burden the Mitigation Site with perpetual conservation servitude in accordance the Louisiana Conservation Servitude Act, R.S. 9:1271 et seq. The conservation servitude shall be signed and filed in the Livingston parish office with the MBI and Department of Army (DA) permits attached. The conservation servitude shall be filed prior to performing any work authorized by DA permit MVN-2017-01474-SQ. After filing, a copy of the recorded conservation servitude, clearly showing the book, page and date of filing, will be provided to CEMVN. Upon receipt of a copy of the recorded conservation servitude, CEMVN will advise the Sponsor in writing that work may proceed.

Prior to execution of the conservation servitude, the Sponsor that the entity proposed to hold the conservation servitude must be a CEMVN approved Holder by virtue of being either a governmental body empowered to hold an interest in immovable property under the laws of the State of Louisiana or the United States of America; or a non-profit corporation organized pursuant to Louisiana's Non-Profit Corporation Law, Title 12, Sections 201-269 of the Louisiana Revised Statues, the purposes or powers of which include retaining or protecting the natural, scenic, or open–space values of immovable property; assuring the availability of immovable property for agricultural, forest, recreational of open-space use; protecting natural resources; maintaining or enhancing air or water quality; or preserving the historical, archaeological or cultural aspects of unimproved immovable property. Upon execution of the conservation servitude previously described, the Holder shall hold and enforce the conservation servitude placed on the Mitigation Site and the Mitigation Site shall be protected in perpetuity.

Modification of the conservation servitude is not permissible without prior written authorization from CEMVN. Any request to modify the conservation servitude, or to the rights and obligations created under it, shall be mad in writing and forwarded to CEMVN for review and approval. All requests must describe existing language and the requested modification.

The Owner acknowledges and agrees that the conservation servitude applies to all of the Mitigation Site within the boundary of the mitigation site and not just those portions of the Mitigation Site identified as wetlands.

6.5 Long-Term Strategy

To ensure the long-term sustainability of the resource, the Sponsor will perform all necessary work to maintain the Mitigation Site consistent with the performance standards established in the MBI. Maintenance includes all monitoring, long-term management, reporting, adaptive management, if needed, and all work required and identified in the MBI, to be developed pending approval of the Prospectus.

Specific long-term needs include:

1) Monitoring as established in the MBI;
2) Wetland delineations as established in the MBI;
3) Thinning, as needed;
4) Eradication of noxious or invasive species, as needed; and
5) Supplemental planting events, as needed.

These issues will be identified, evaluated, and mapped during such site visits. Monitoring notes will be recorded as to the type, location and any other details that would be beneficial in dealing with such issues. Once details are recorded the long-term Steward will implement a recommendation on how to remediate such conditions as well as avoid and/or minimize such situations in the future. Monitoring will be conducted to identify any issues that arise, and corrective actions as determined to be appropriate by the USACE and the Adaptive Management Plan will be implemented. The long-term Steward will, during annual site examinations, note any land use changes on adjacent lands and modify management activities accordingly (i.e., assure that fencing is present between the Mitigation Site and any adjacent grazed lands).

7. References

Louisiana Wildlife and Fisheries Louisiana Natural Heritage Program. Updated 2009. *The Natural Communities of Louisiana.* Accessed February 21, 2018. http://www.wlf.louisiana.gov/sites/default/files/pdf/page_wildlife/6776-Rare%20Natural%20Communities/LA_NAT_COM.pdf

APPENDIX

EXHIBIT 1

Service Map

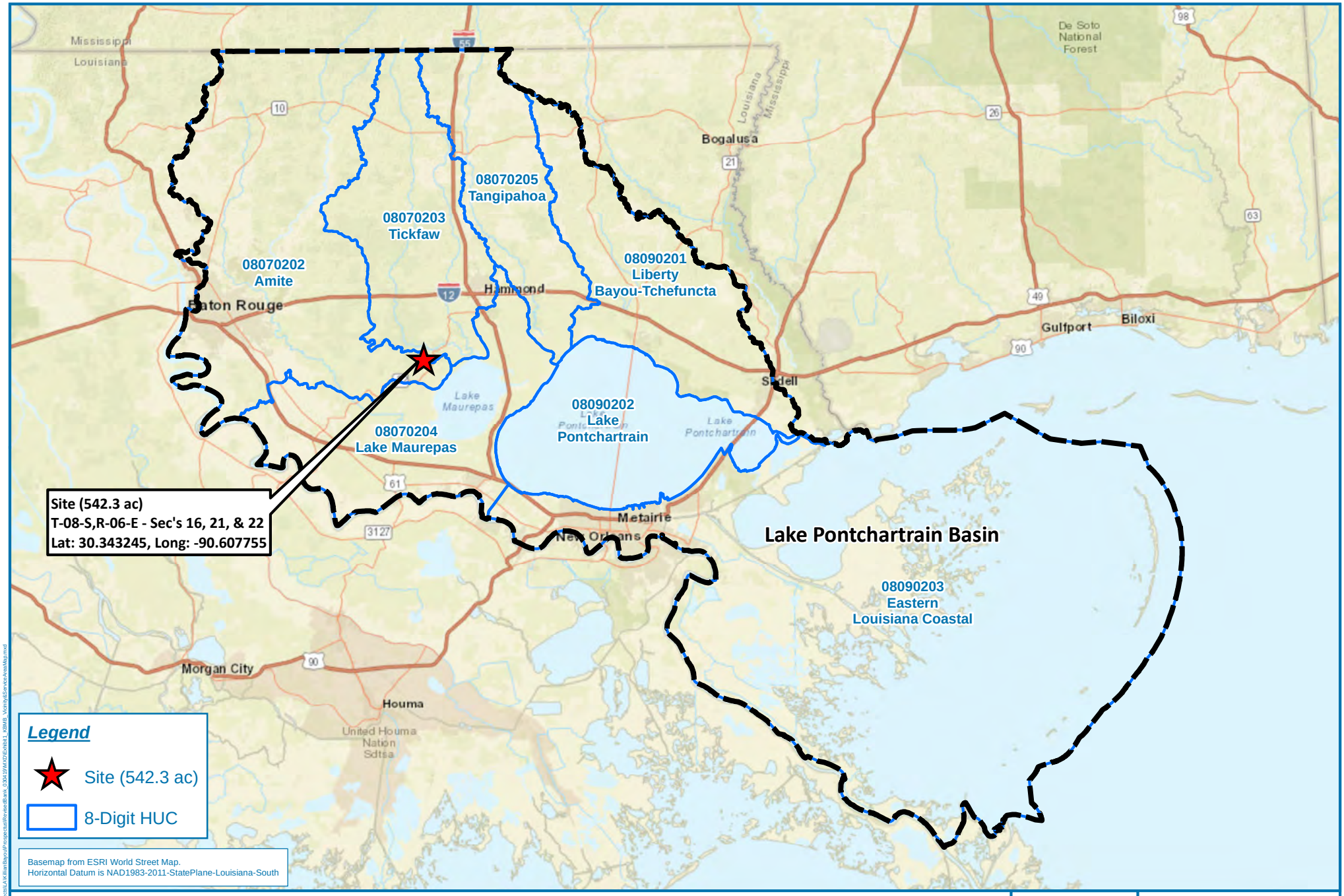

EXHIBIT 1

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
VICINITY AND SERVICE AREA MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/27/2019
Drawn by: BL
Checked by: TH

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EXHIBIT 2

Habitat Restoration Plan

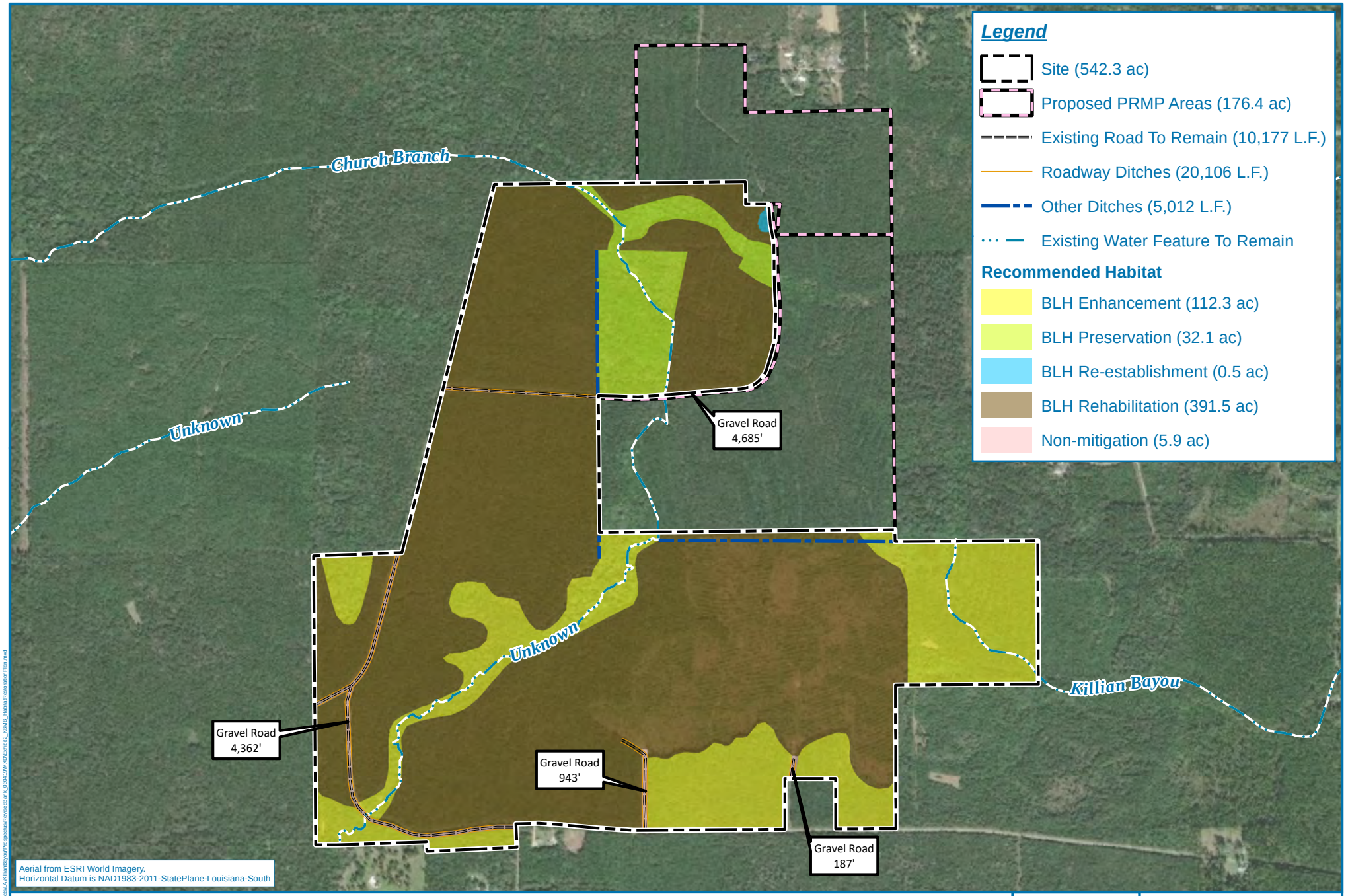

EXHIBIT 2

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
HABITAT RESTORATION PLAN

LIVINGSTON PARISH, LOUISIANA

Date:	3/8/2019
Drawn by:	BL
Checked by:	TH

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EXHIBIT 3

Topographic Package

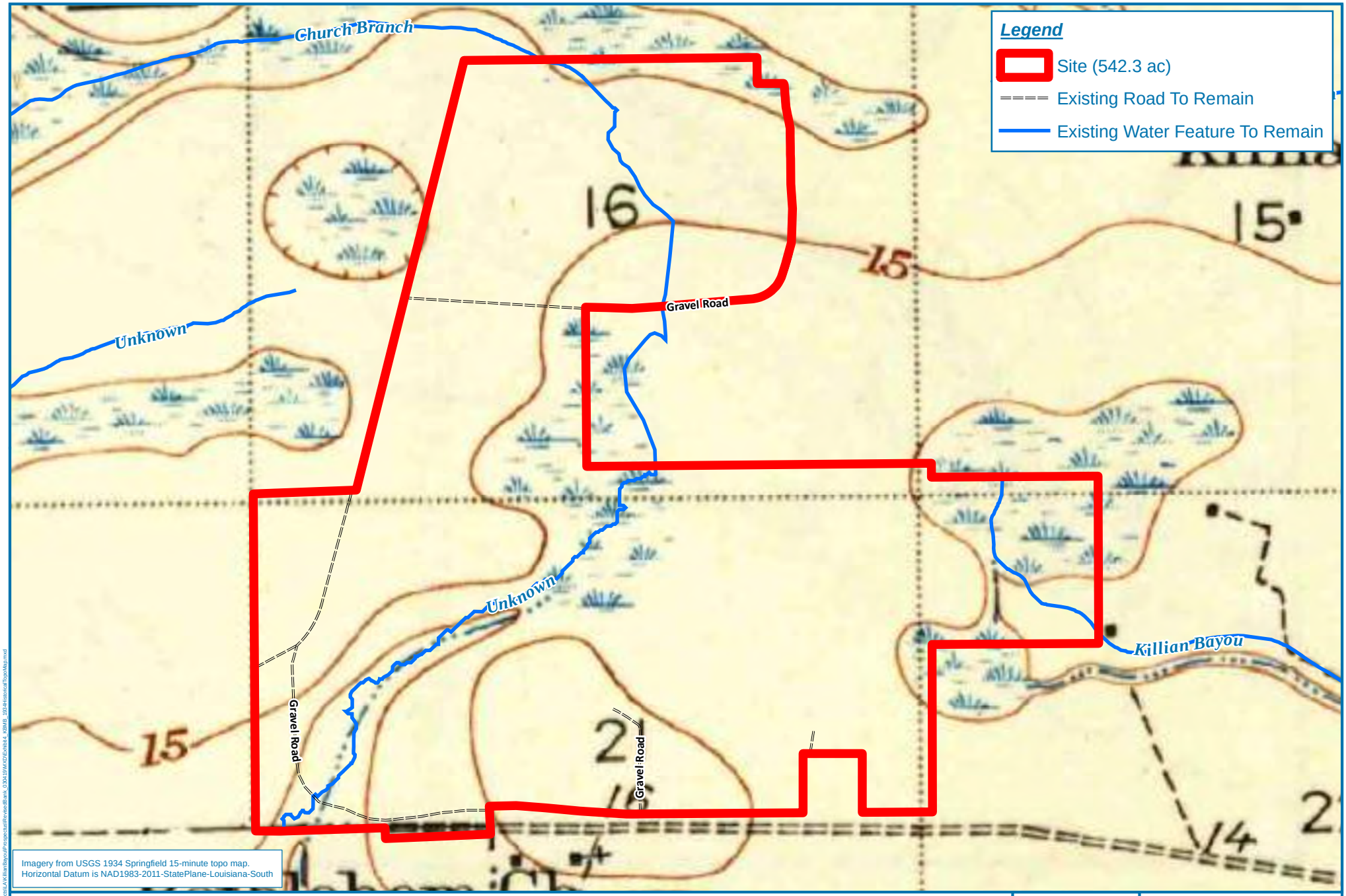

EXHIBIT 3

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1934 USGS 15-MINUTE TOPO MAP

LIVINGSTON PARISH, LOUISIANA

Date:	3/11/2019
Drawn by:	BL
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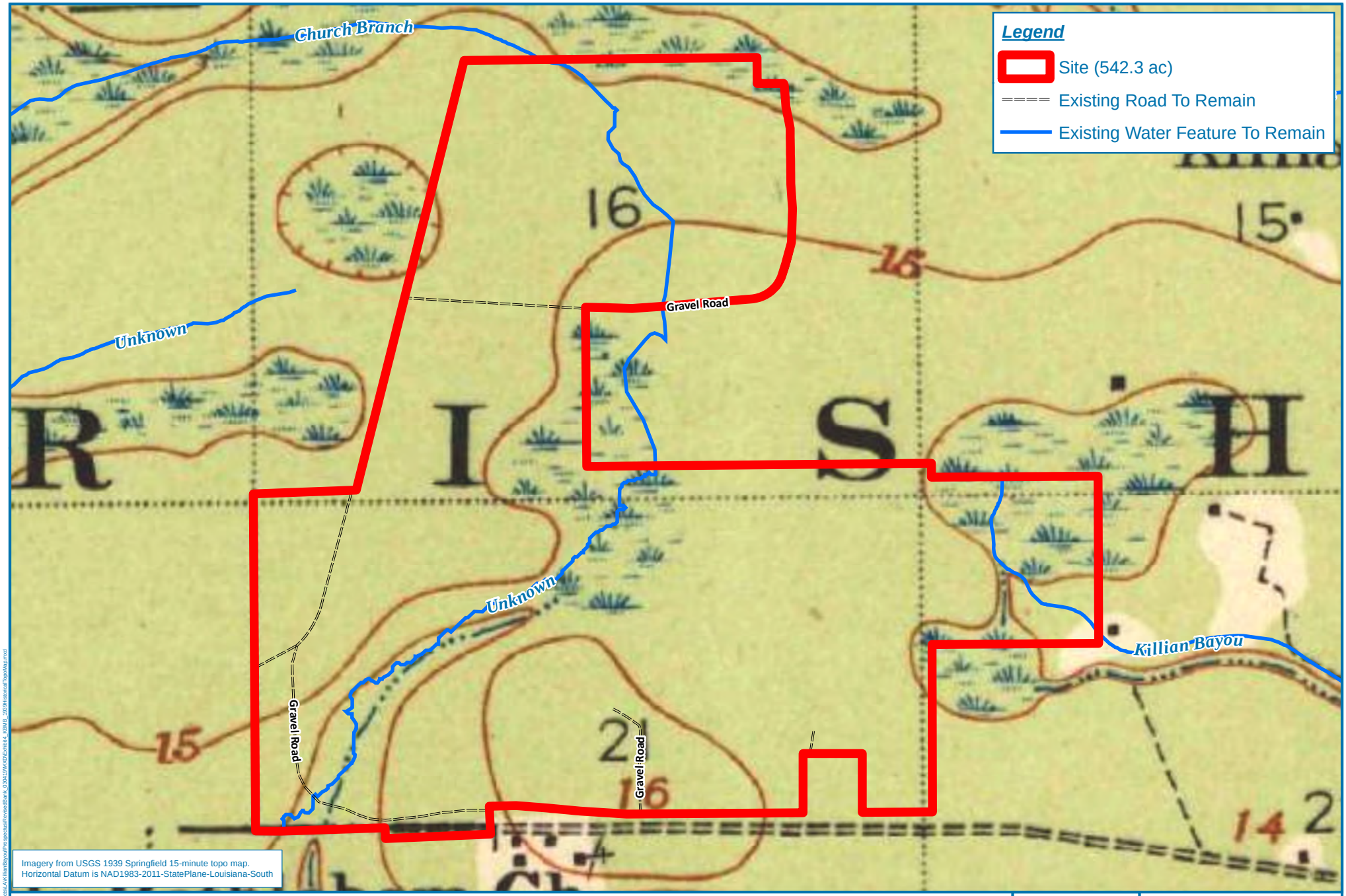

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EXHIBIT 3

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1939 USGS 15-MINUTE TOPO MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

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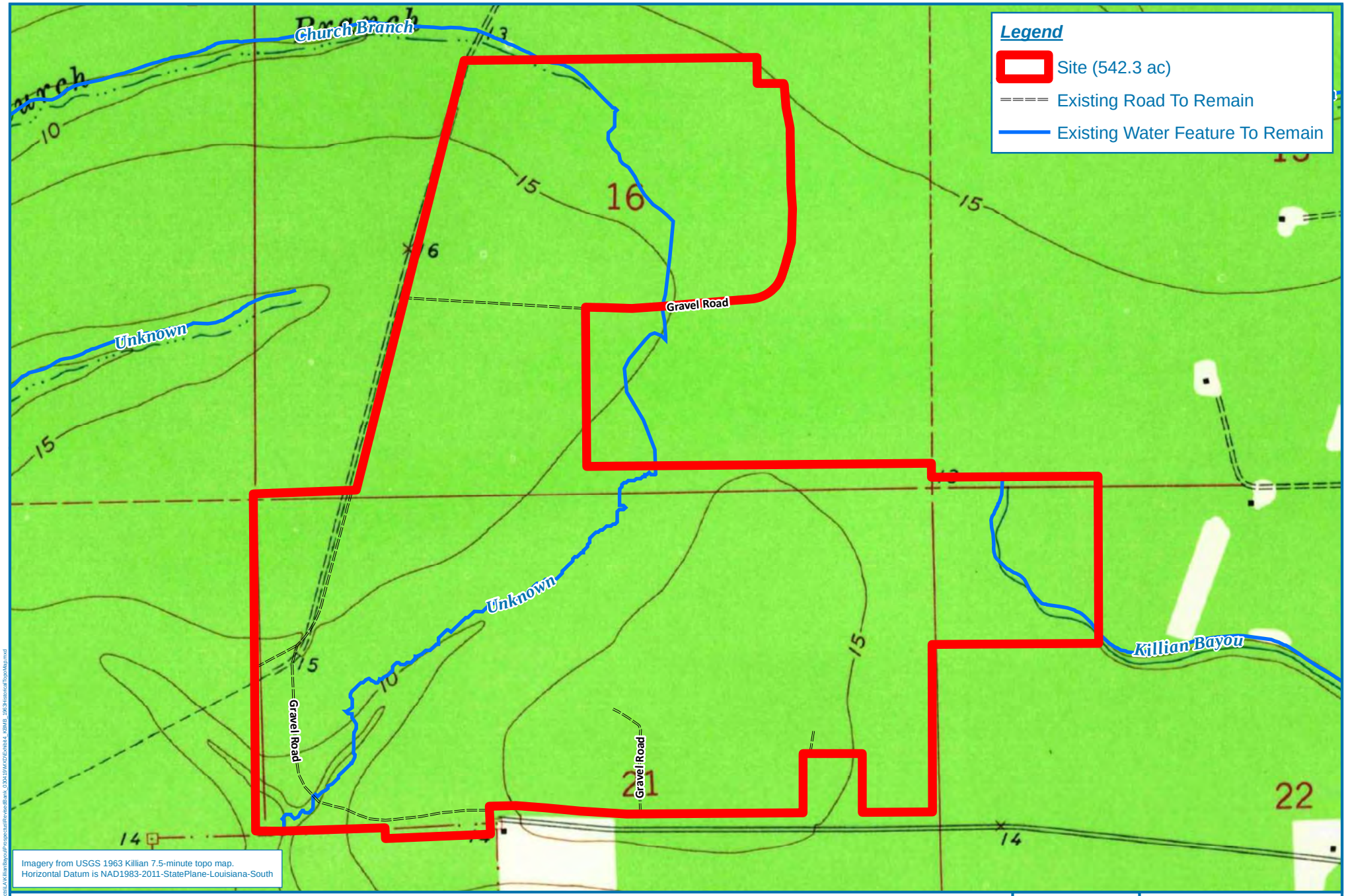

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EXHIBIT 3

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1963 USGS 7.5-MINUTE TOPO MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

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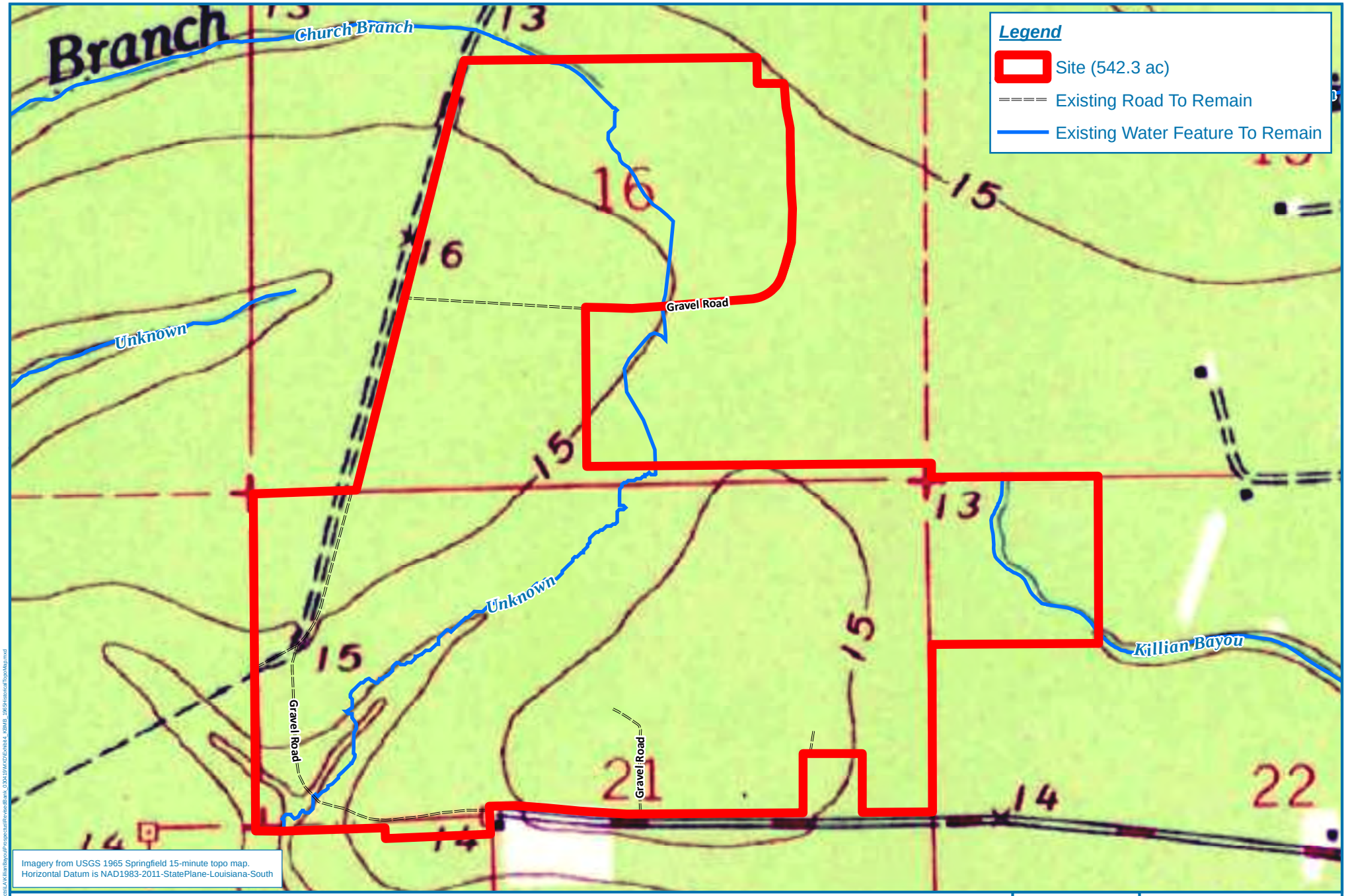

EXHIBIT 3

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1965 USGS 15-MINUTE TOPO MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

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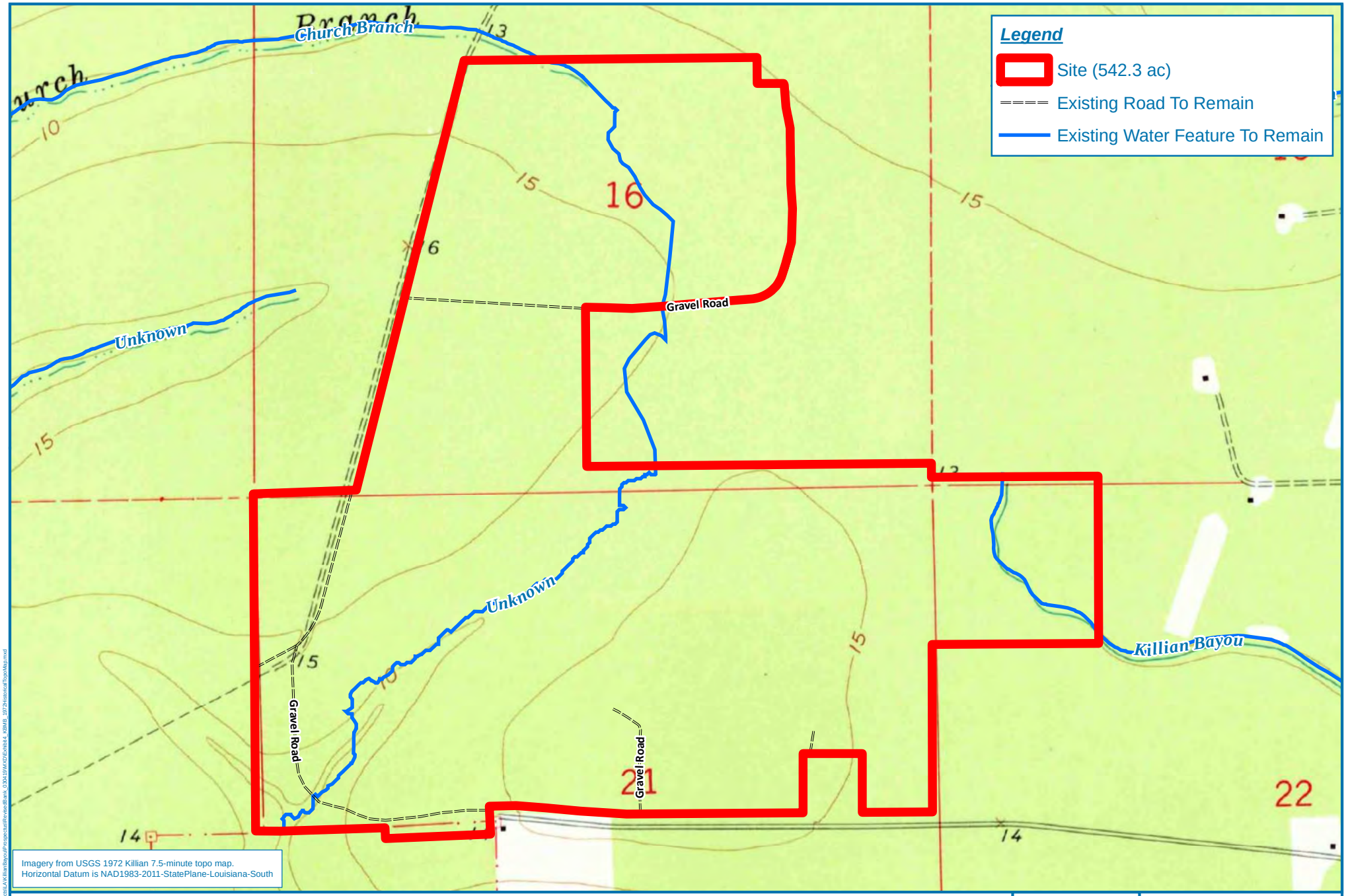

EXHIBIT 3

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1972 USGS 7.5-MINUTE TOPO MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
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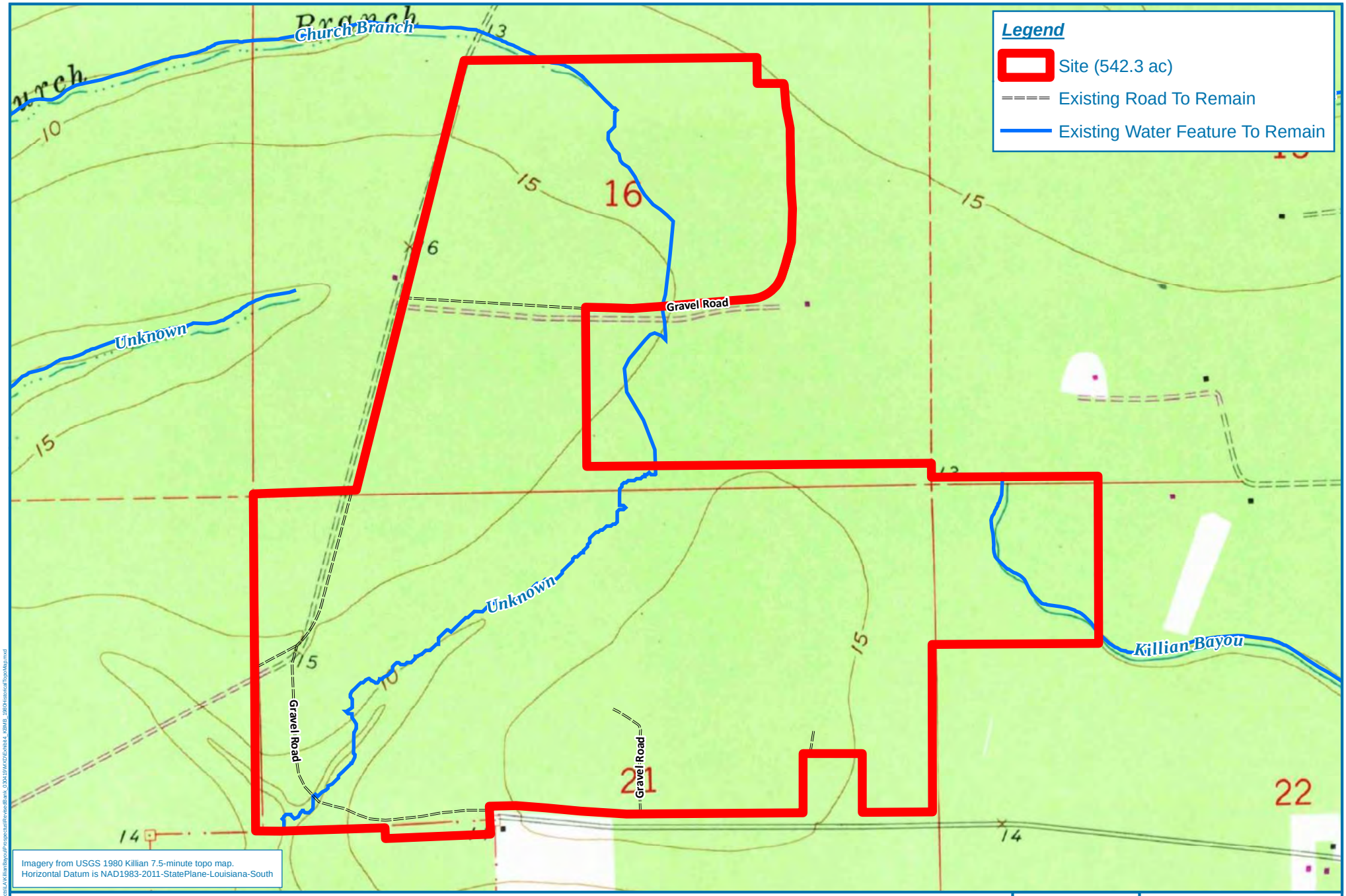

EXHIBIT 3

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1980 USGS 7.5-MINUTE TOPO MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
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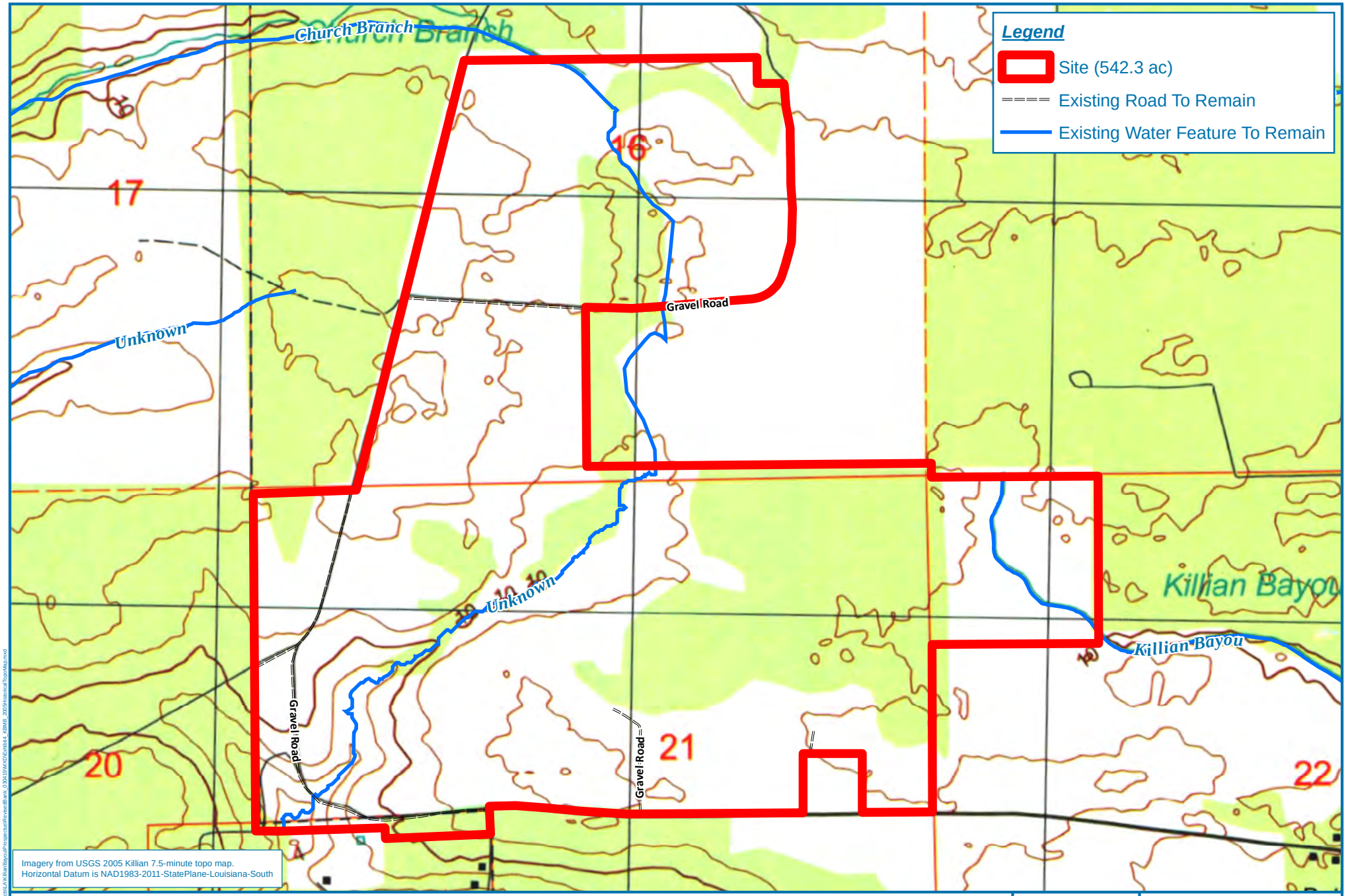

EXHIBIT 3

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
2005 USGS 7.5-MINUTE TOPO MAP

LIVINGSTON PARISH, LOUISIANA

Date:	3/11/2019
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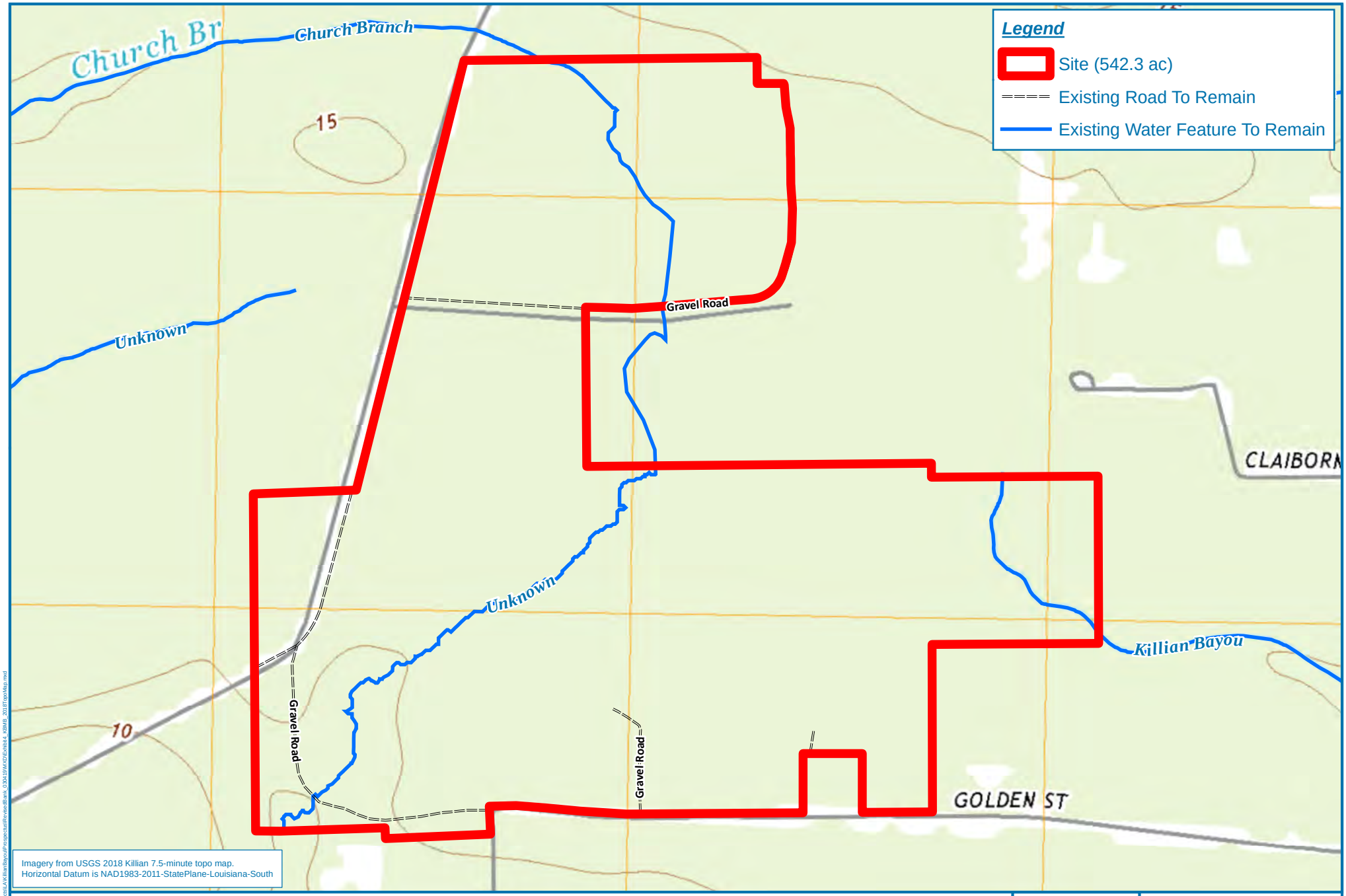

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EXHIBIT 3

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
2018 USGS 7.5-MINUTE TOPO MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019

Drawn by: BL

Checked by: TH

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EXHIBIT 4

Aerial Package

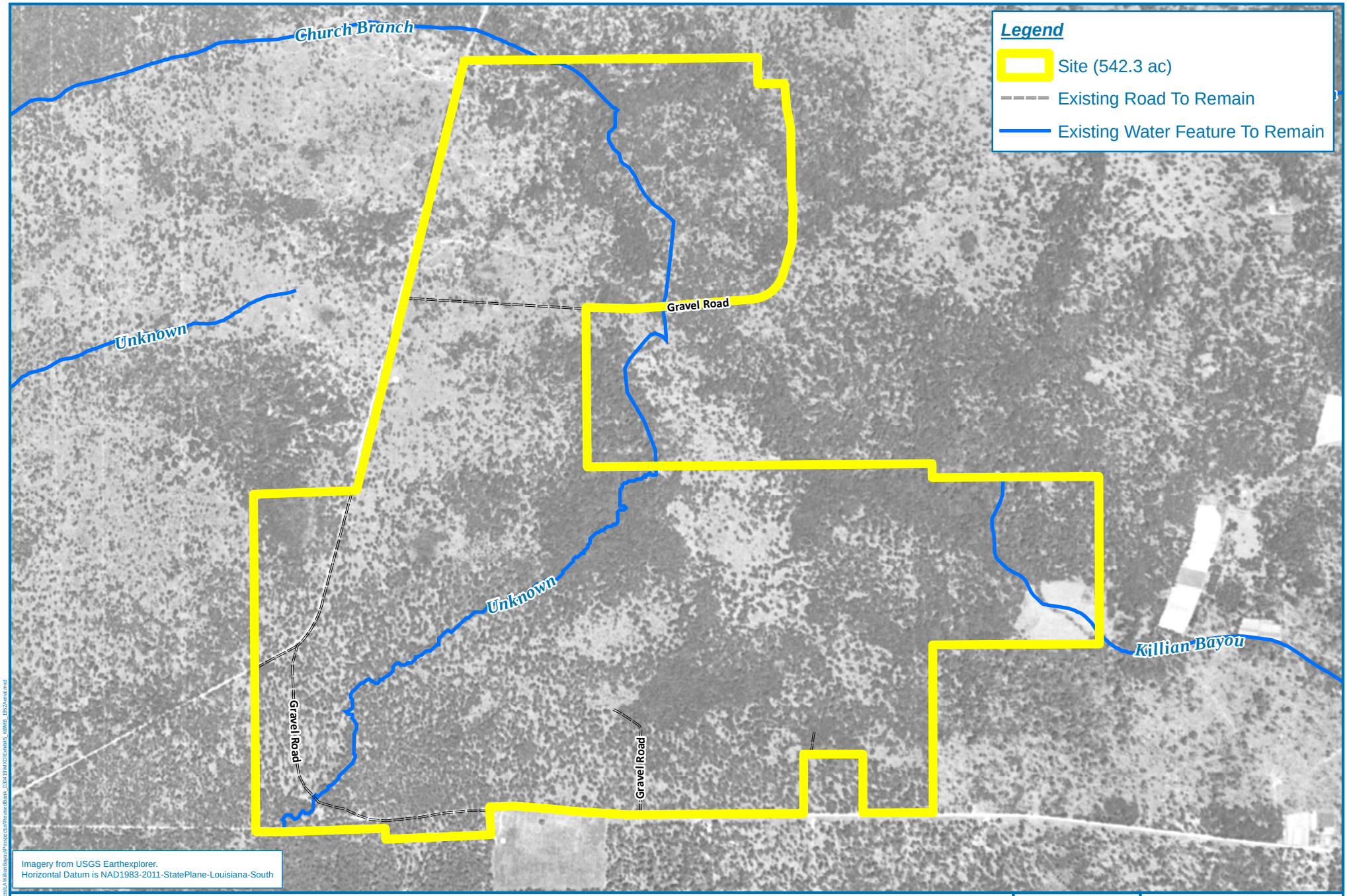

EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1952 AERIAL

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
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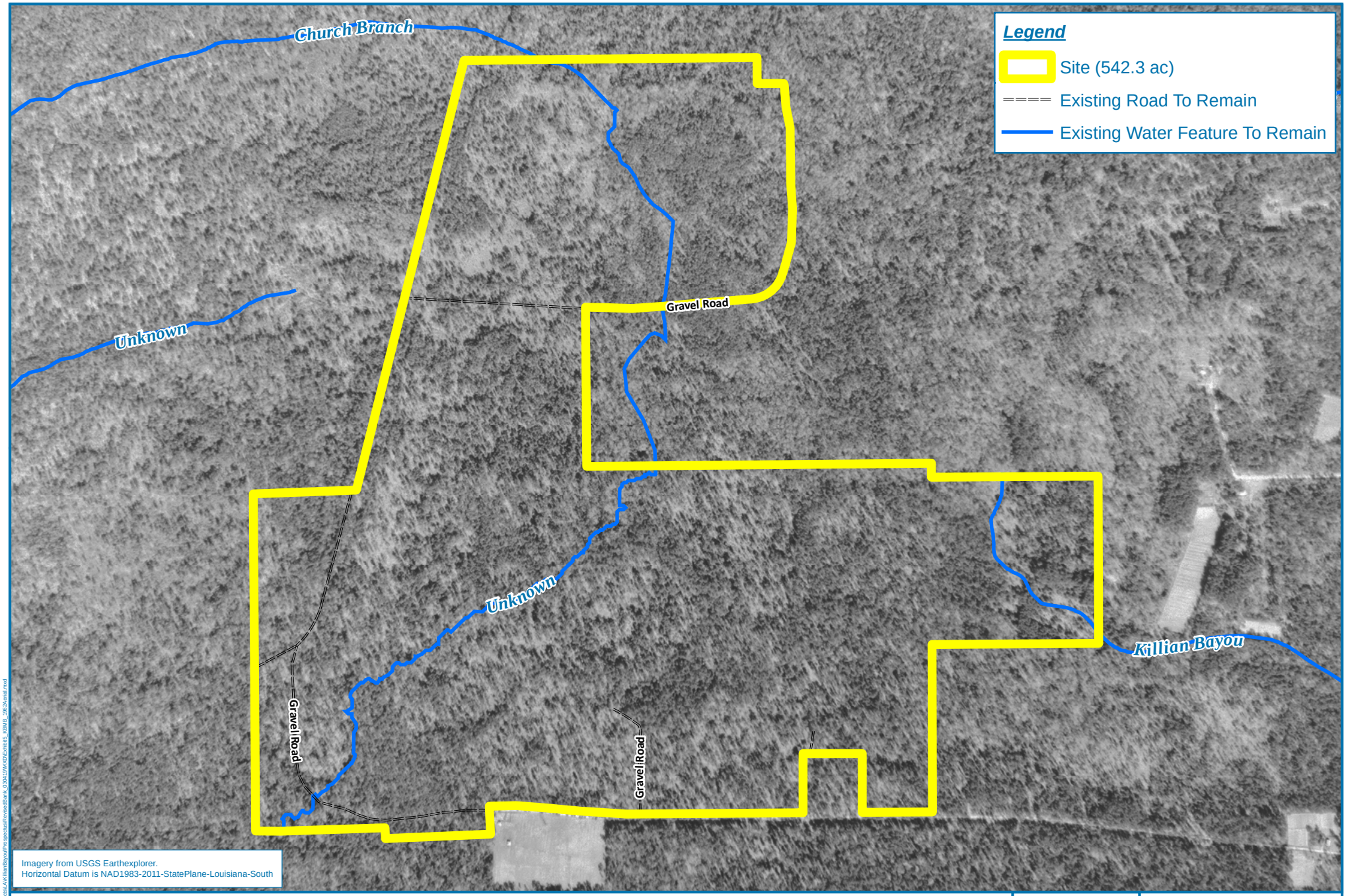

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EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1962 AERIAL

LIVINGSTON PARISH, LOUISIANA

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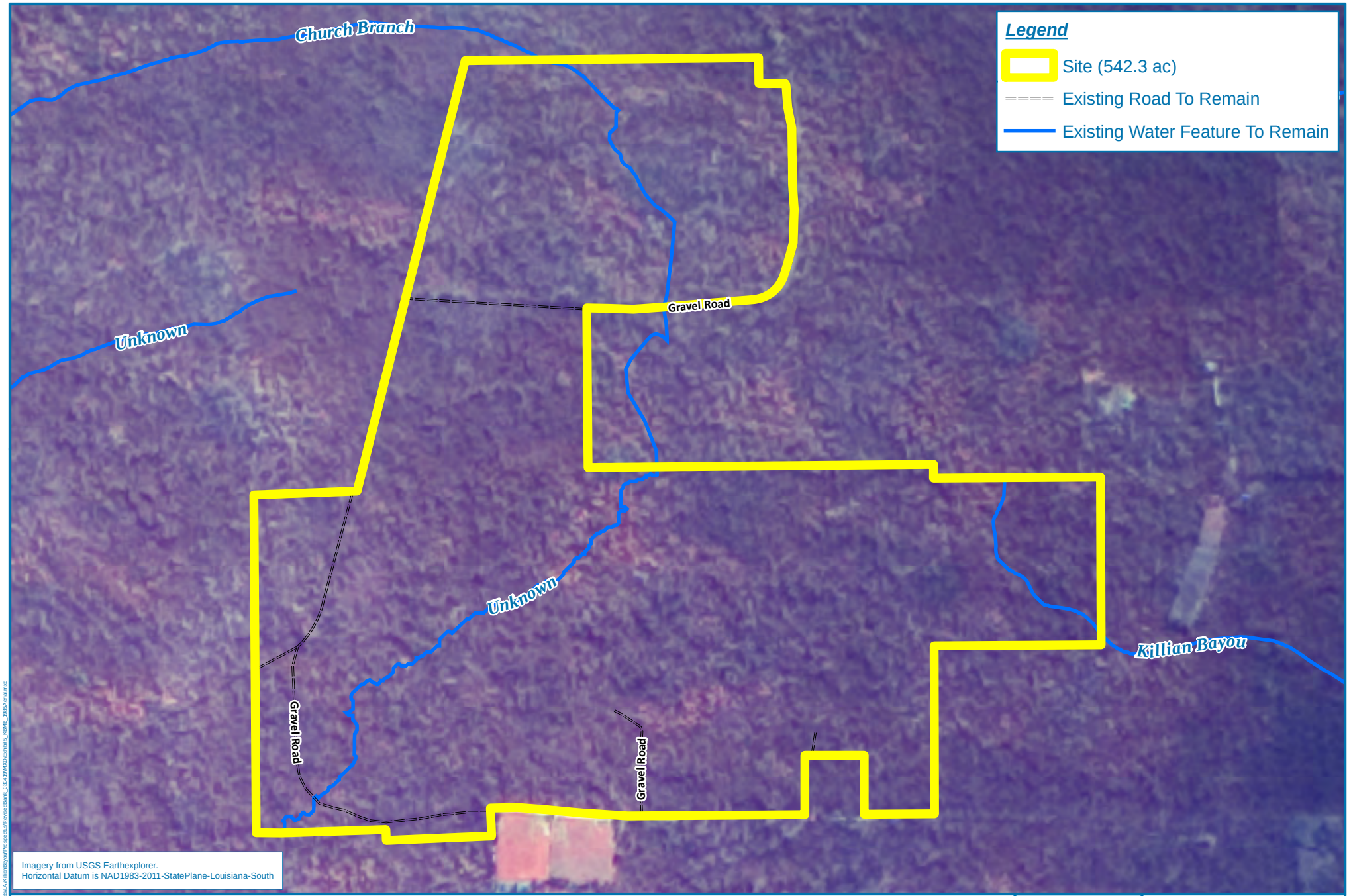

EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1985 AERIAL

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

res

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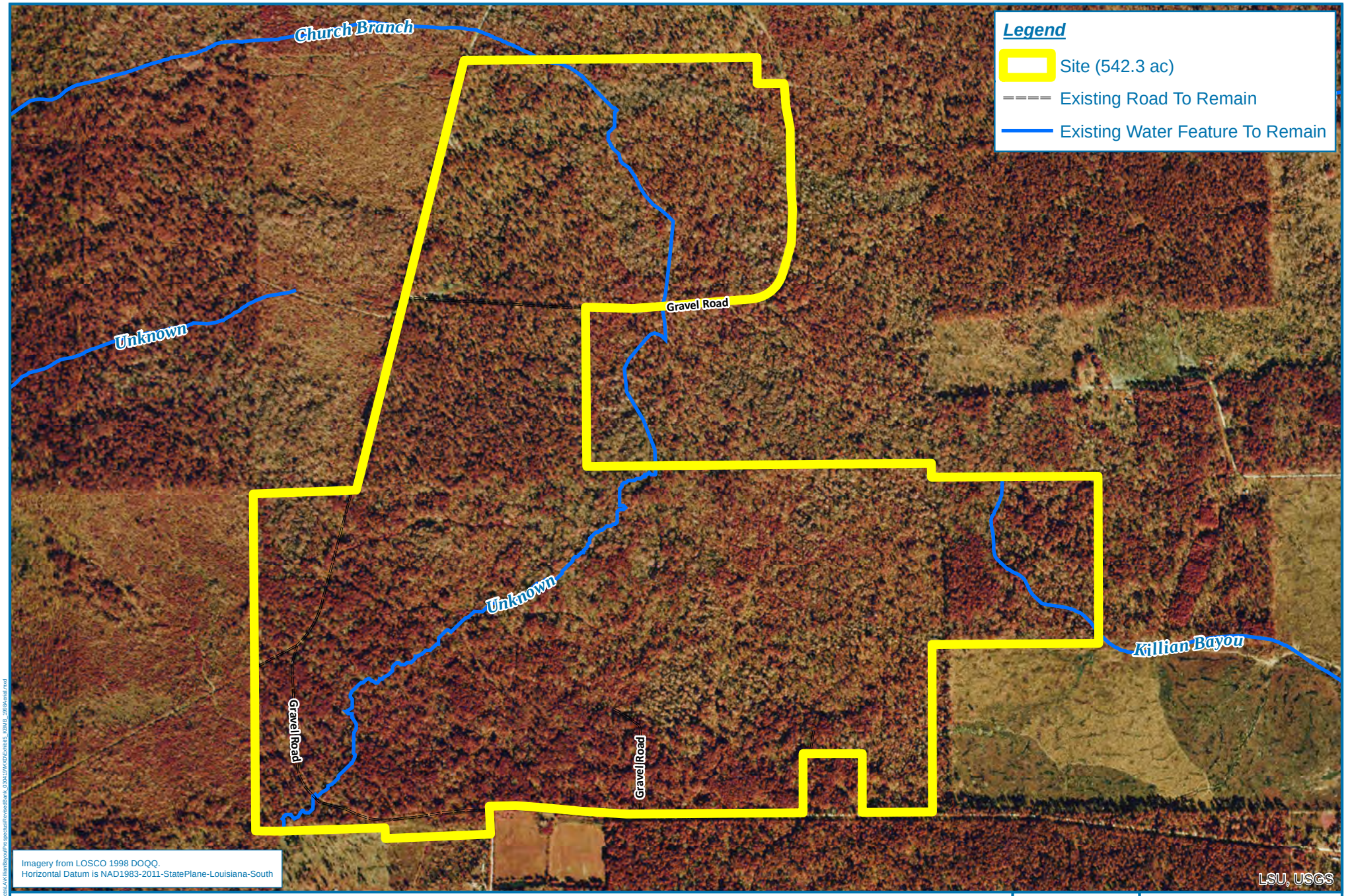

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0 500 1,000

Feet

EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
1998 AERIAL

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019

Drawn by: BL

Checked by: TH

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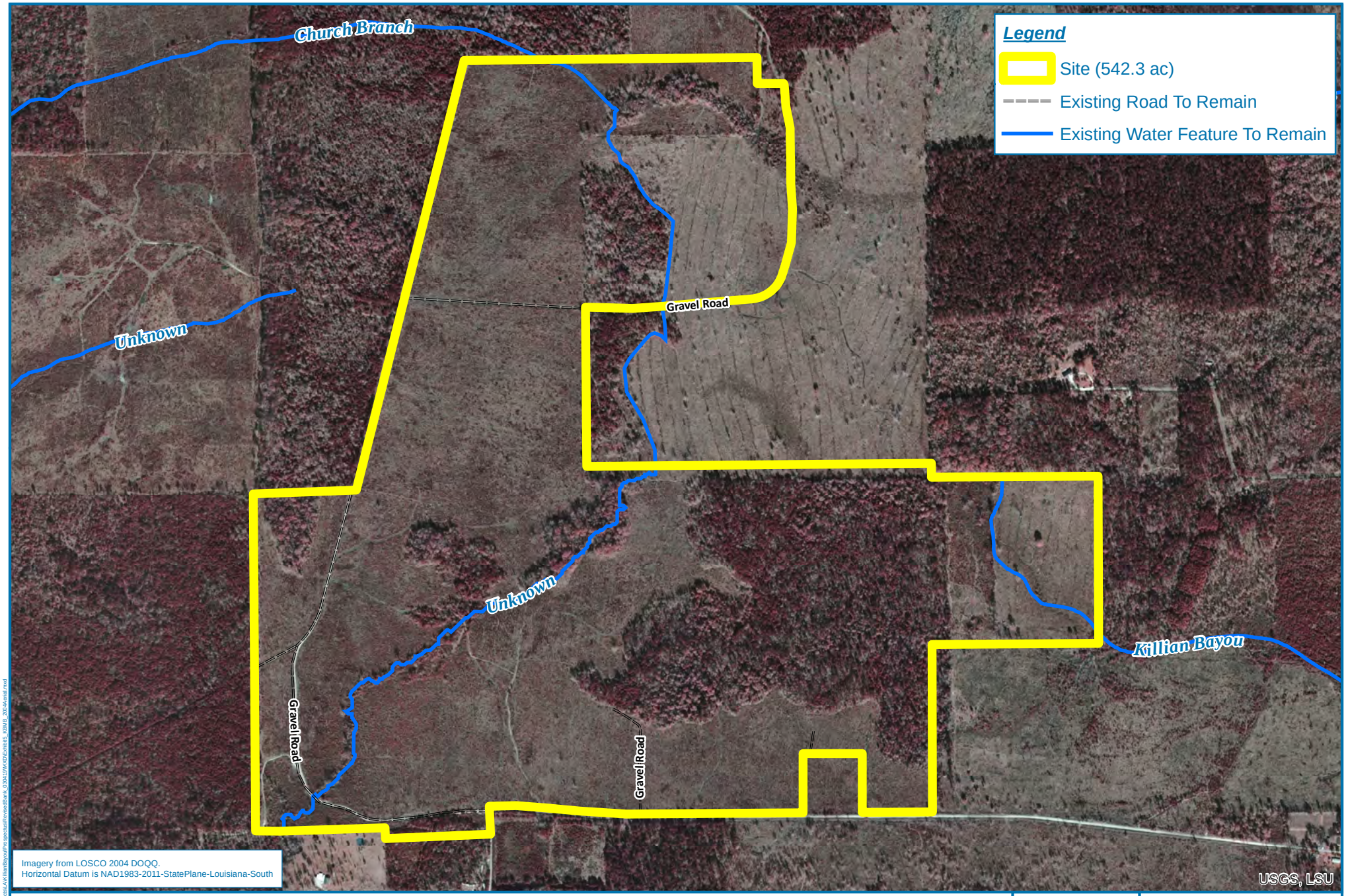
Document Path: E:\Kleinfelter (RES)\MXD\FS GIS\Projects\LA\KillianBayou\Prospectus\Review\Bank_03041914\MXD\Exhibit5_KBMB_1998Aerial.mxd



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Feet

EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
2004 AERIAL

LIVINGSTON PARISH, LOUISIANA

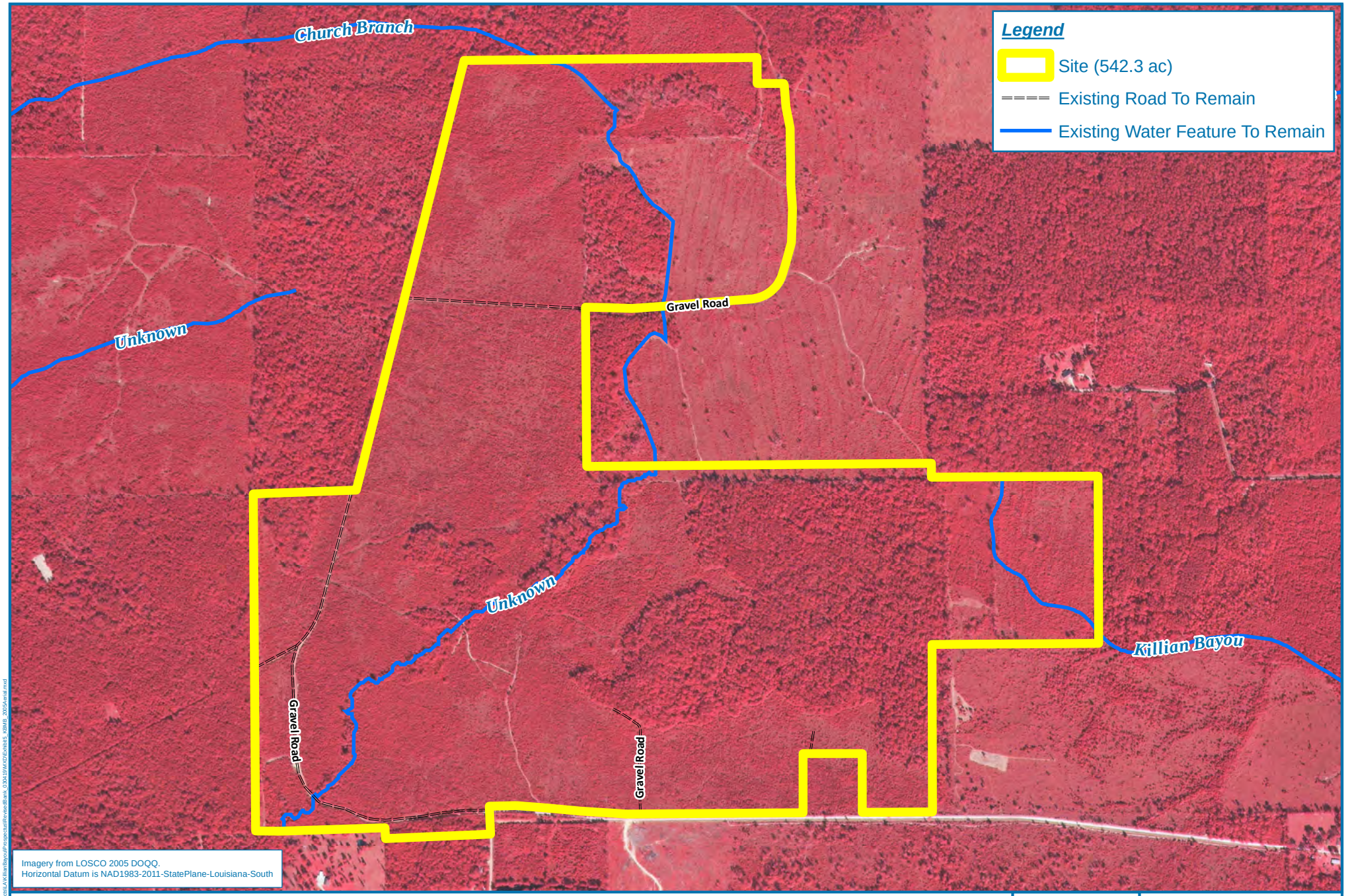
Date: 3/11/2019

Drawn by: BL

Checked by: TH

res

Document Path: E:\Dropbox (RES)\MBRFS GIS\Projects\LA\KillianBayou\Prospectus\Review\Bank_030419\MXD\Exhibit5_KBMB_2004Aerial.mxd



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Feet

EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
2005 AERIAL

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019

Drawn by: BL

Checked by: TH

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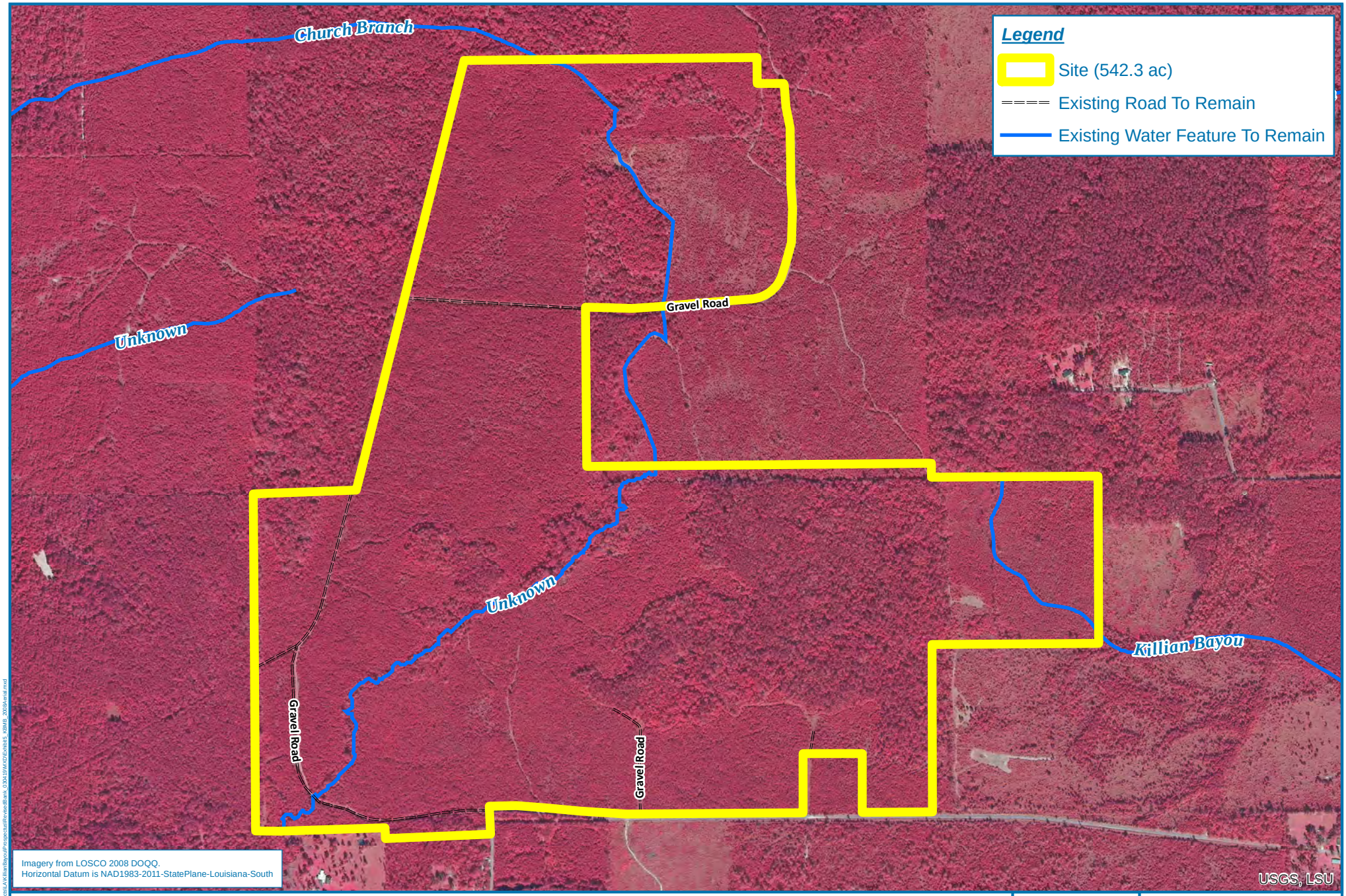
Document Path: E:\Dropbox (RES)\MBRFS GIS\Projects\LA\KillianBayou\Prospectus\Revised\Bank_03041914\MXD\Exhibit5_KBMB_2005Aerial.mxd



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Feet

EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
2008 AERIAL

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019

Drawn by: BL

Checked by: TH

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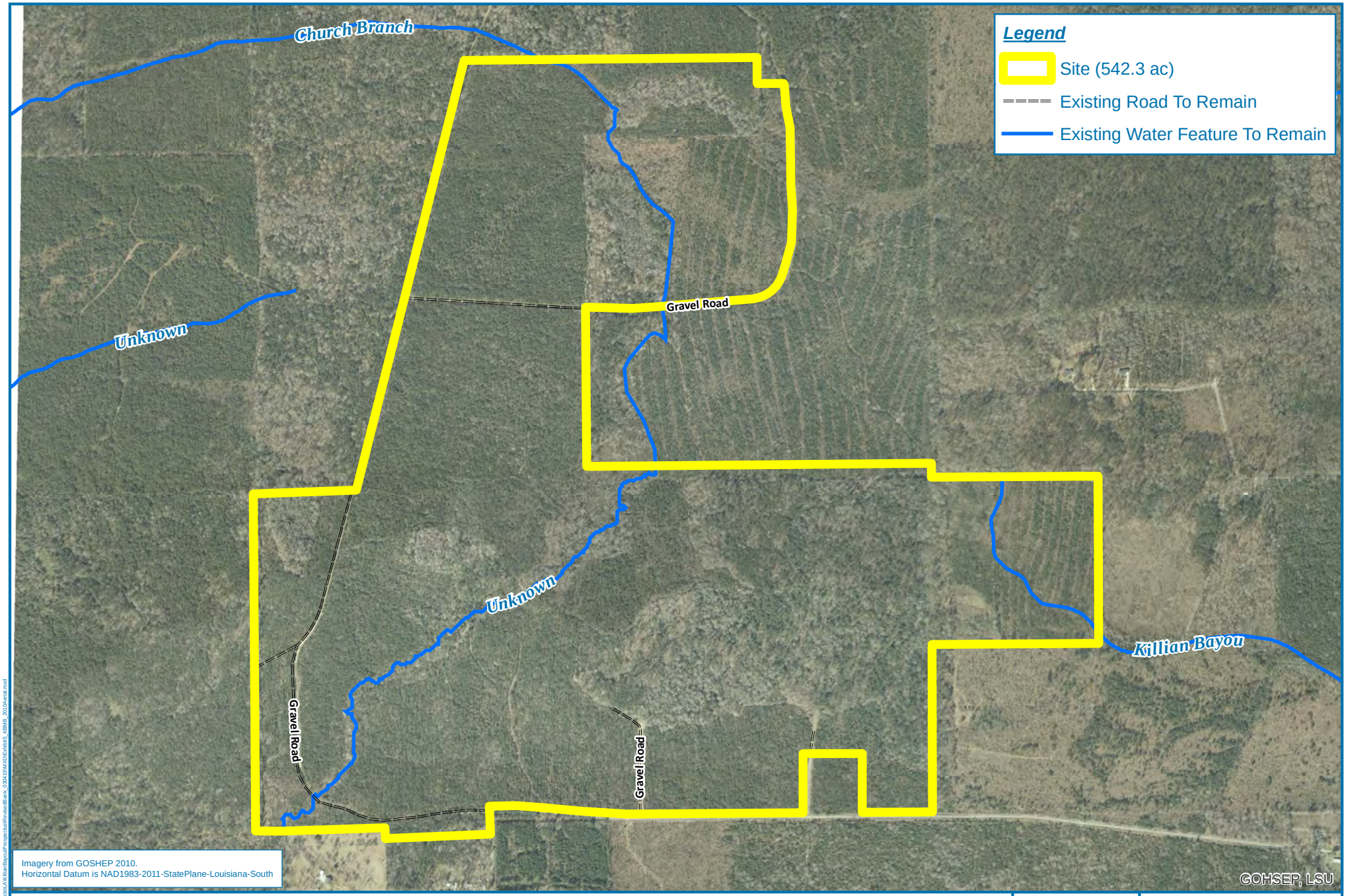
Document Path: E:\Dropbox (RES)\MBRFS GIS\Projects\LA\KillianBayou\Prospectus\Review\Bank_03041914\MXD\Exhibit5_KBMB_2008Aerial.mxd



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0 500 1,000

Feet

EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
2010 AERIAL

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019

Drawn by: BL

Checked by: TH

res

Document Path: E:\Dropbox (RES)\MBRFS GIS\Projects\LA\KillianBayou\Prospectus\Review\Bank_03041914\MXD\Exhibit5_KBMB_2010Aerial.mxd

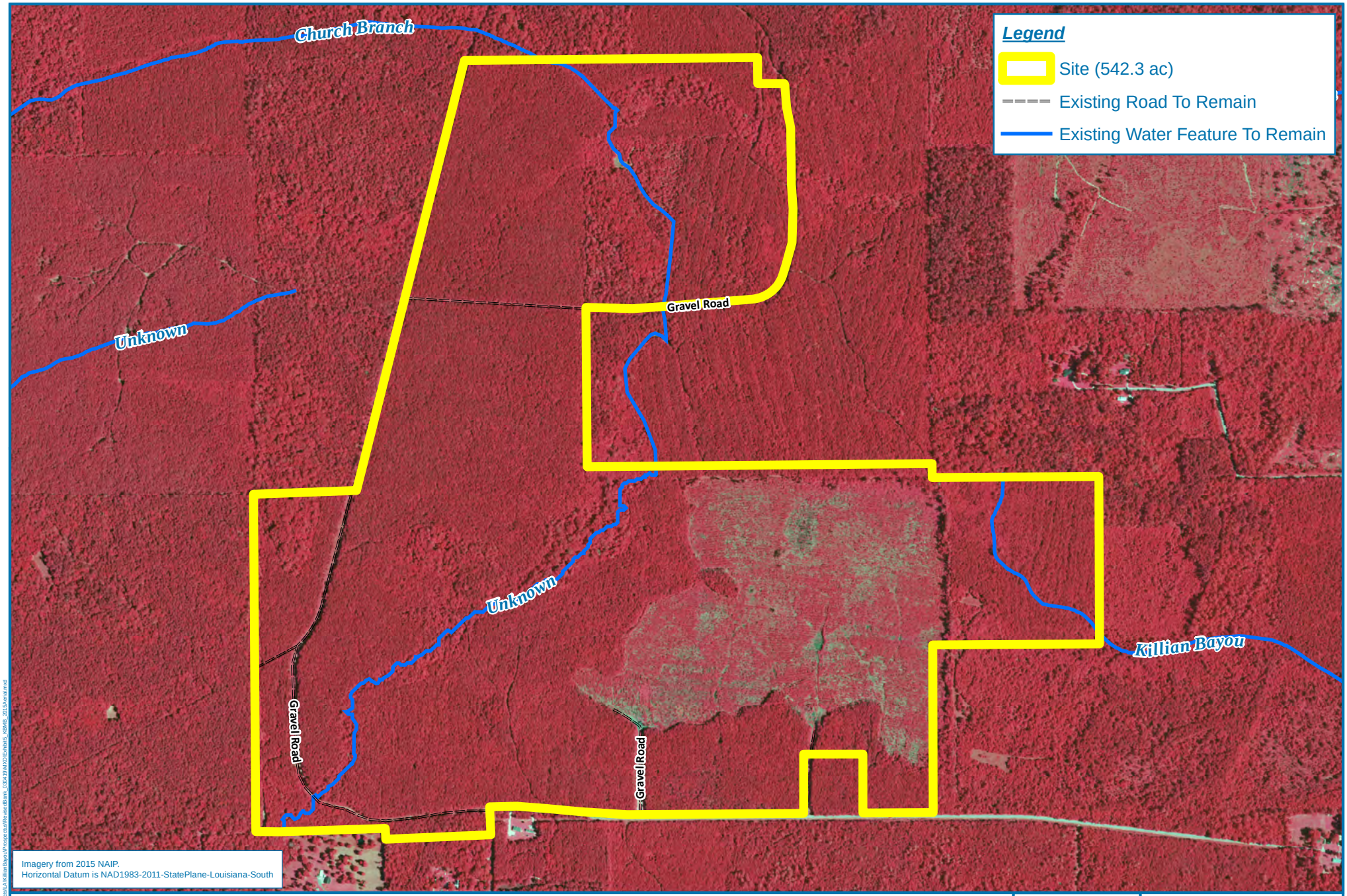


EXHIBIT 4

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
2015 AERIAL

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019

Drawn by: BL

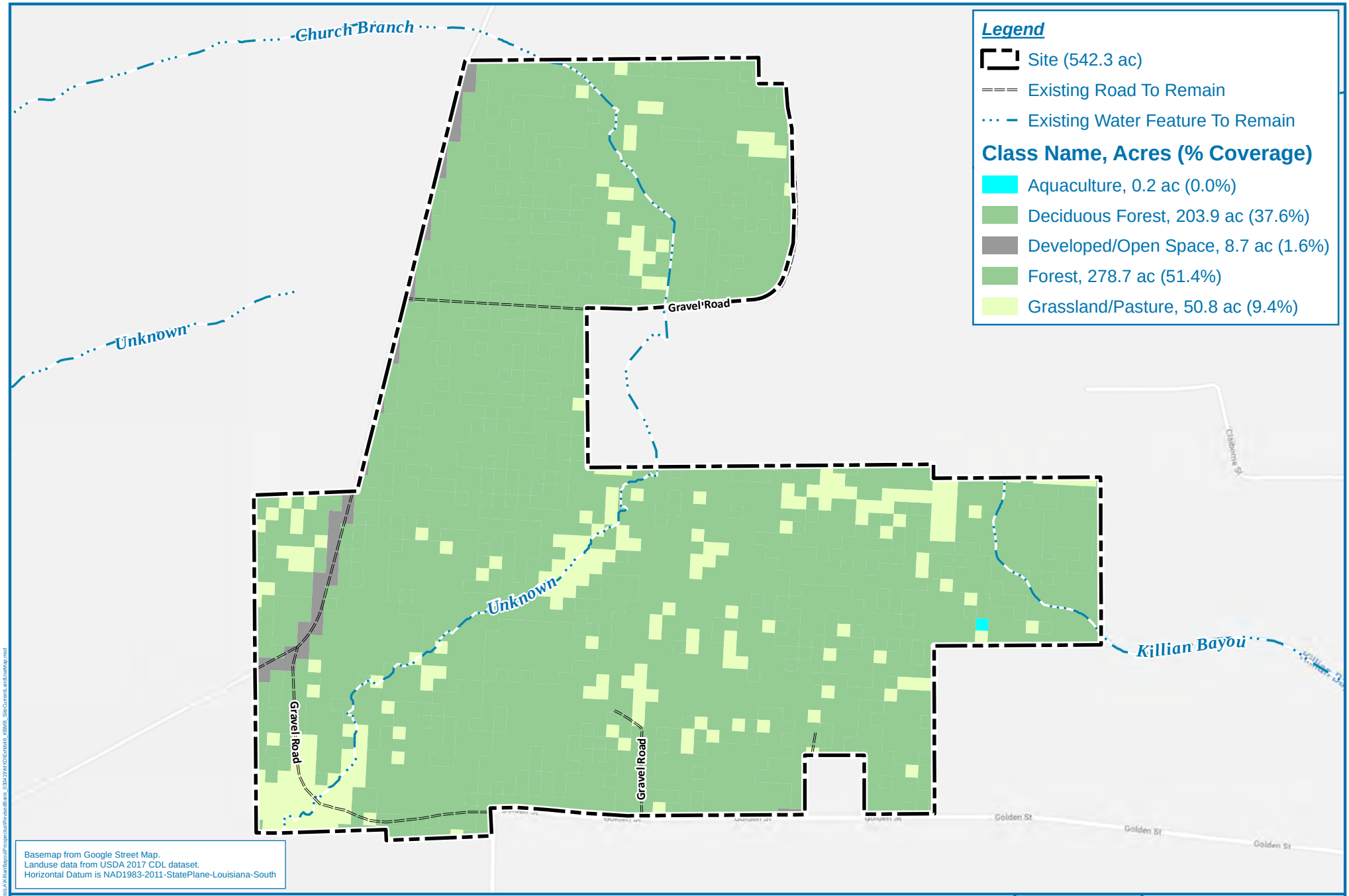
Checked by: TH

res

Document Path: E:\Dropbox (RES)\MBRFS GIS\Projects\LA\KillianBayou\Prospectus\Review\Bank_03041914\MXD\Exhibit5_KBMB_2015Aerial.mxd

EXHIBIT 5

Current Land Use and Land Cover



Basemap from Google Street Map.
Landuse data from USDA 2017 CDL dataset.
Horizontal Datum is NAD1983-2011-StatePlane-Louisiana-South

N
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0 500 1,000
Feet

EXHIBIT 5

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
CURRENT LAND USE MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

res

Document Path: E:\Dropbox (RES)\BRFS GIS\Projects\LA\KillianBayou\Prospectus\ReviseBank_03X19\MXD\Exhibit5_KBMB_SiteCurrentLandUseMap.mxd

EXHIBIT 6

Land Use and Land Cover within 1 Mile of Mitigation Site

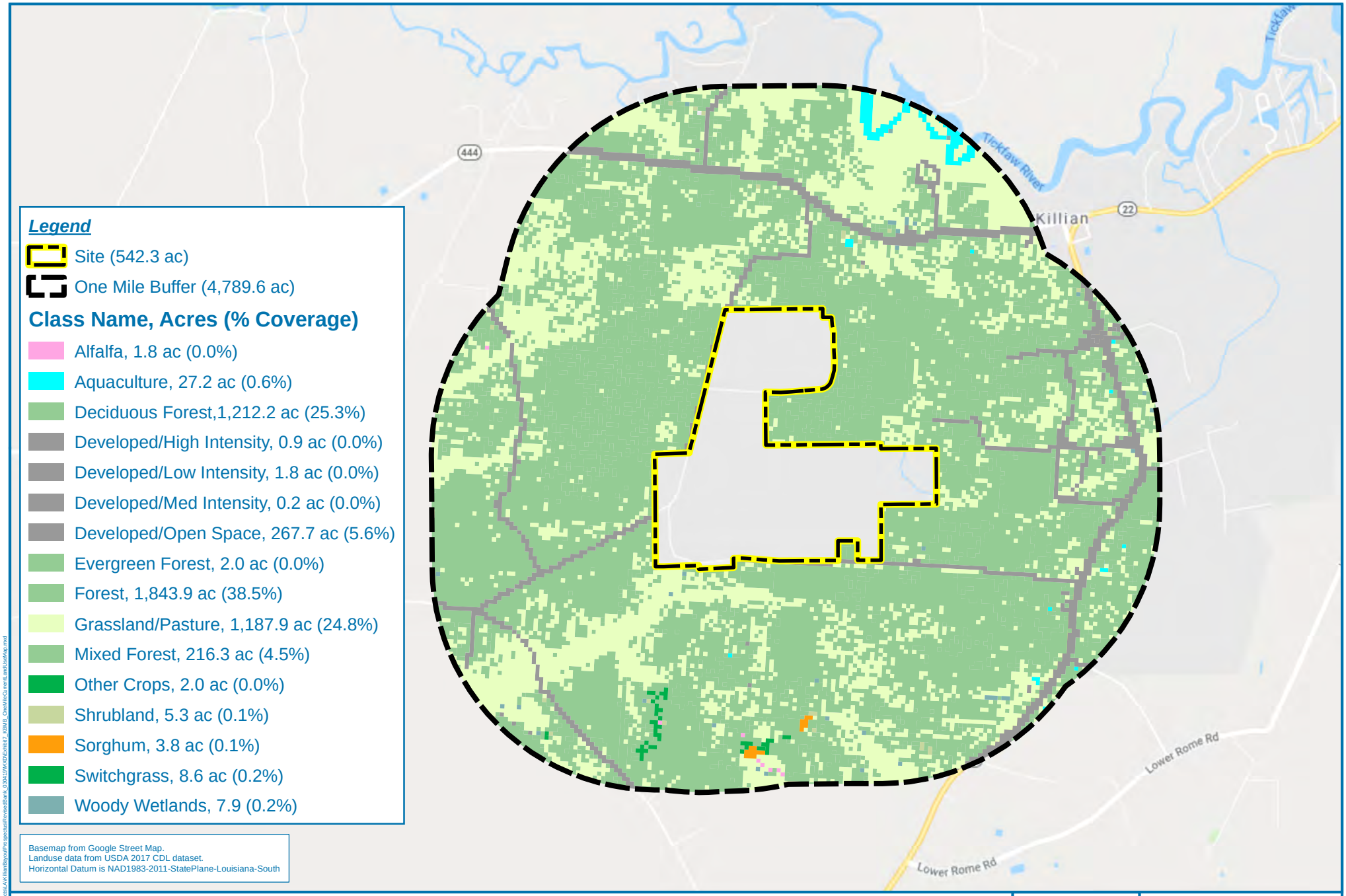


EXHIBIT 6

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
ONE MILE BUFFER - CURRENT LAND USE MAP

LIVINGSTON PARISH, LOUISIANA

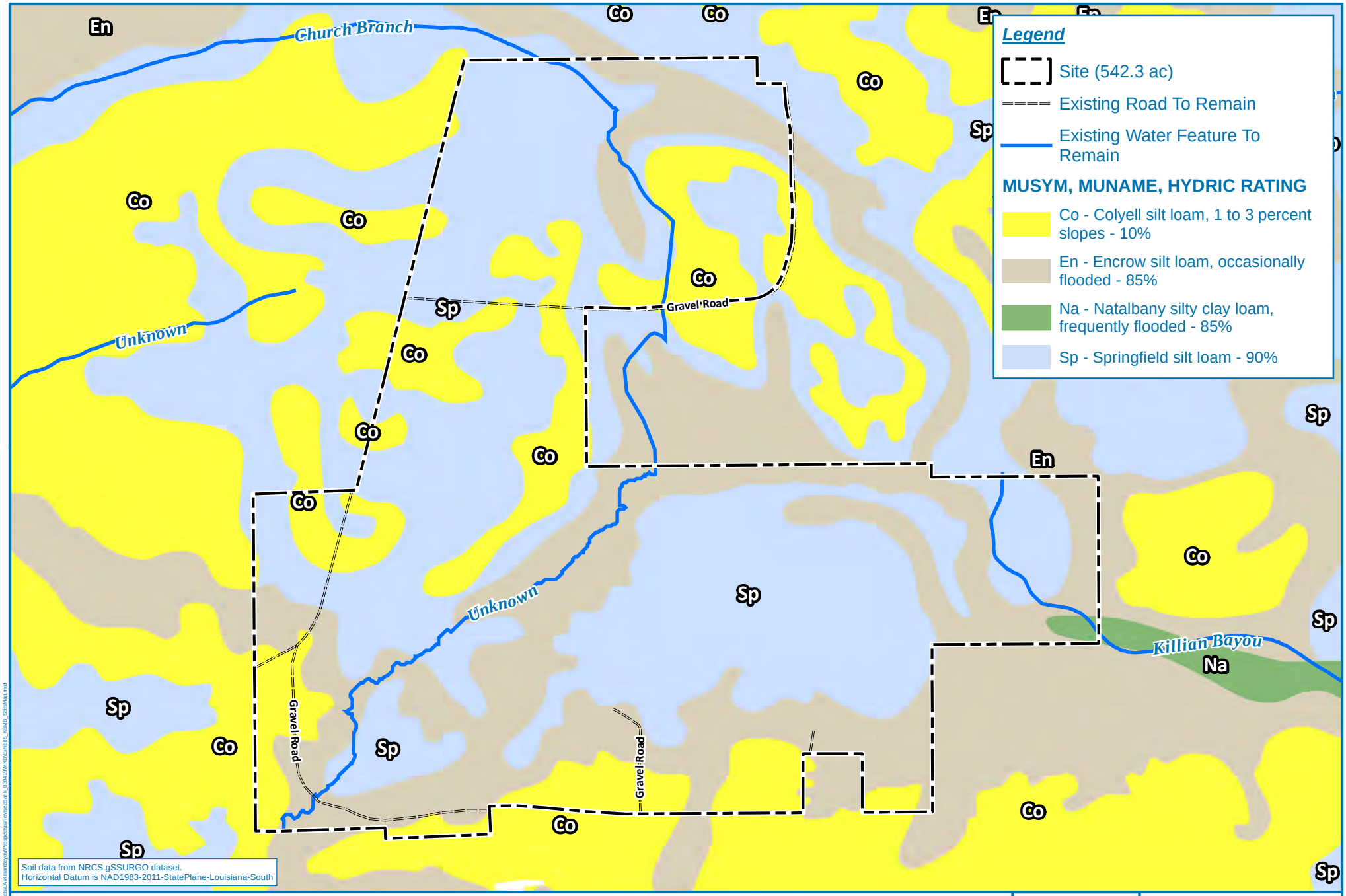
Date:	3/11/2019
Drawn by:	BL
Checked by:	TH

res

Document Path: E:\Projects (RES)\MBFES GIS\Projects\LA\KillianBayou\Prospectus\ReviseBank_03X19\MXD\Exhibit7_KBMB_OneMileCurrentLandUseMap.mxd

EXHIBIT 7

Soils Map



N
W E
S

0 500 1,000

Feet

EXHIBIT 7

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
SOILS MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019

Drawn by: BL

Checked by: TH

res

Document Path: E:\Projects (RES)\MBP\FS G\SProjects\LA\KillianBayou\Prospectus\Review\Basic_03X19\MXD\Exhibit_KBMB_SoilsMap.mxd

EXHIBIT 8

Contributing Watershed Figure

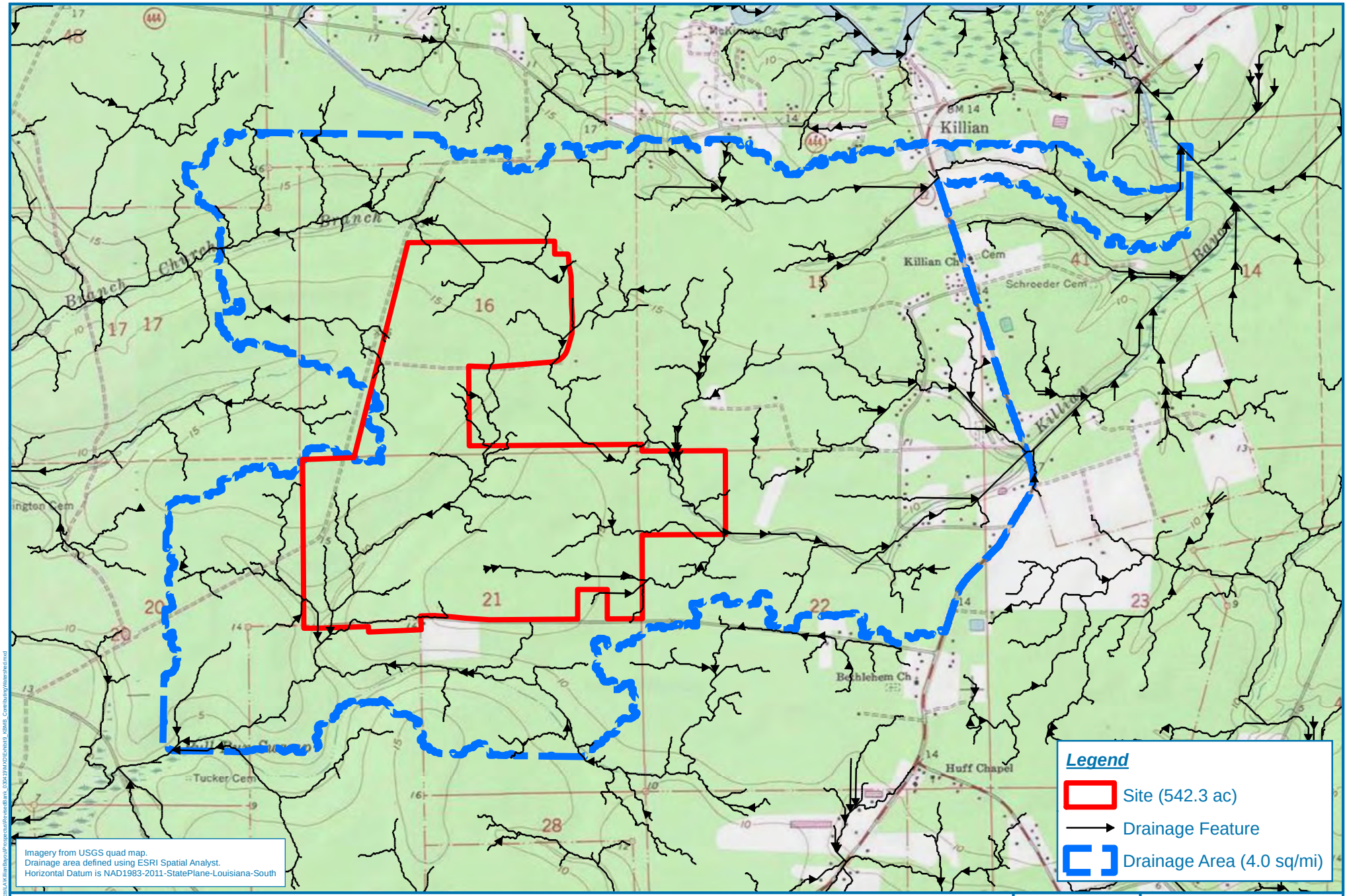


EXHIBIT 8

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
CONTRIBUTING WATERSHED MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

res

Document Path: E:\Dropbox (RES)\RPFS GIS\Projects\LA\KillianBayou\Prospectus\BrokerBank_03X19MXD\Exhibit3_KBMB_ContributingWatershed.mxd

EXHIBIT 9

Elevations Map

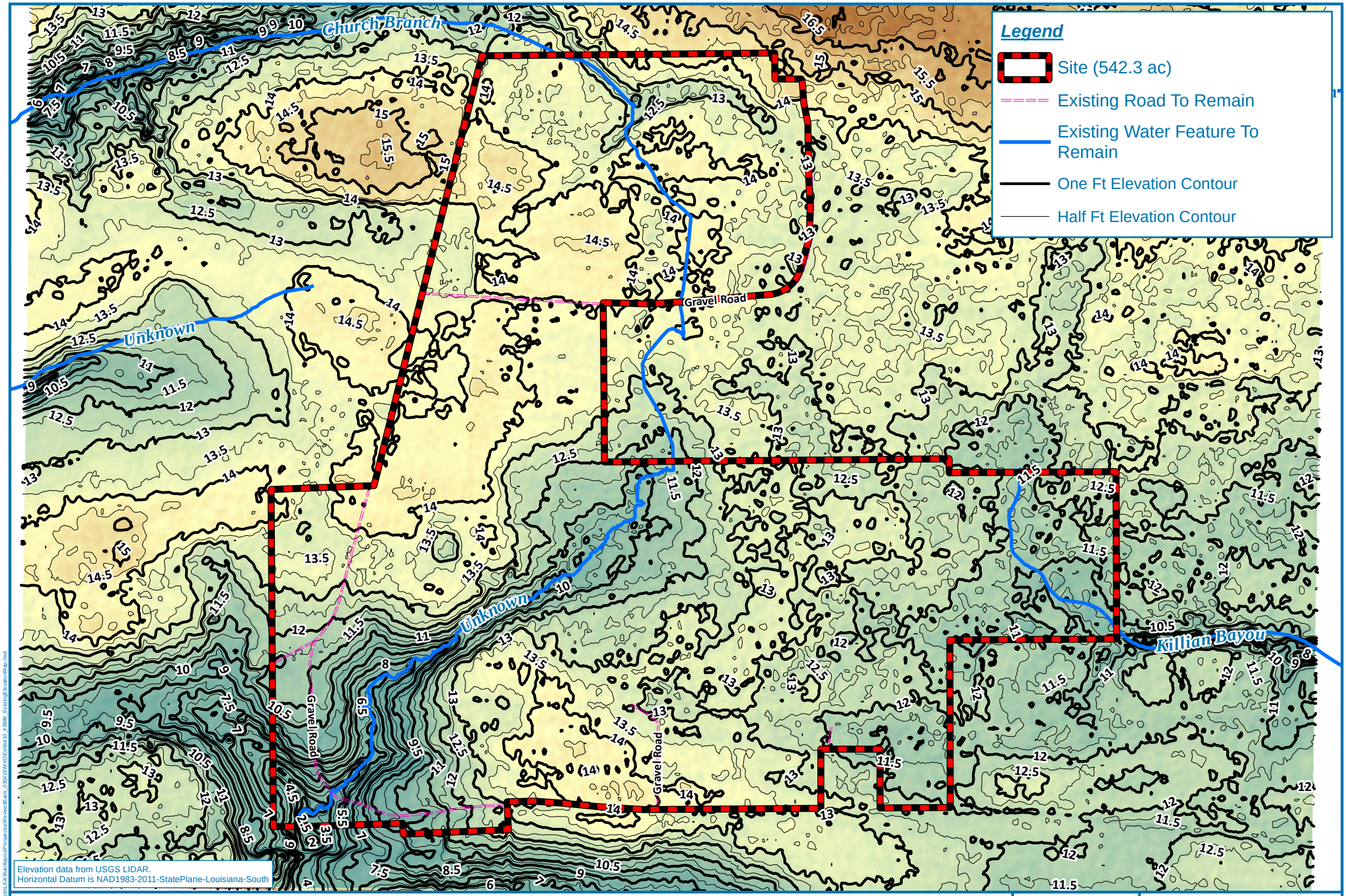


EXHIBIT 9

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
ELEVATION MAP

LIVINGSTON PARISH, LOUISIANA

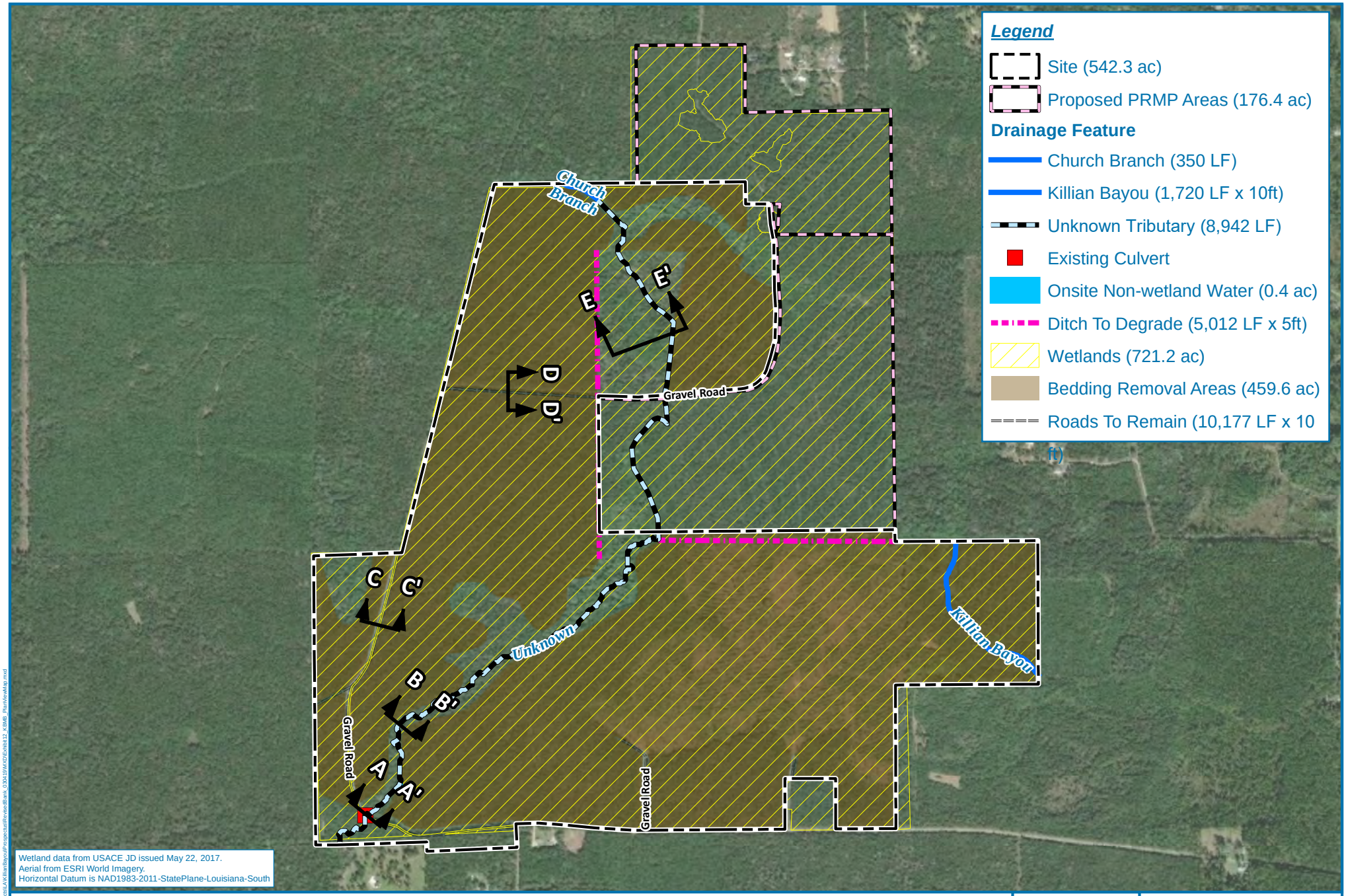
Date: 3/11/2019
Drawn by: BL
Checked by: TH

res

Document Path: E:\Dropbox (RES)\MPRES GIS\Projects\LA\KillianBayou\Prospectus\ReviewBank_03X19\MXD\Exhibit10_KBMB_ExistingElevationMap.mxd

EXHIBIT 10

Existing (Pre-Construction) Conditions



Wetland data from USACE JD issued May 22, 2017.
Aerial from ESRI World Imagery.
Horizontal Datum is NAD1983-2011-StatePlane-Louisiana-South

0 500 1,000
Feet

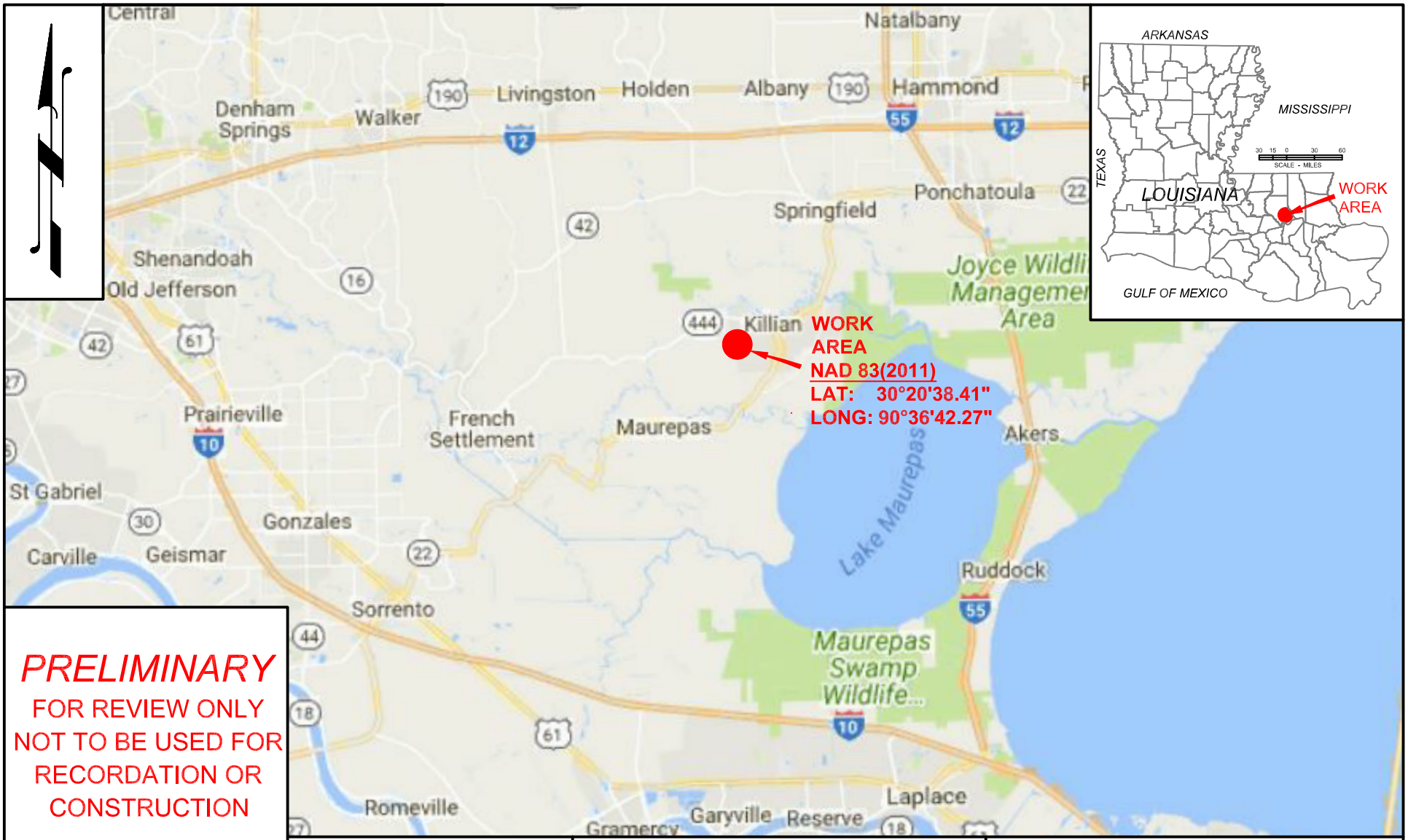
EXHIBIT 10

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
PLAN VIEW MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

Document Path: E:\Dropbox (RES)\MBRFS GIS\Projects\LA\KillianBayou\Prospectus\ReviseBank_03041914\MXD\Exhibit12_KBMB_PlanViewMap.mxd



PRELIMINARY

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NOT TO BE USED FOR RECORDATION OR CONSTRUCTION

JEREMY P. SOIREZ
P.L.S. NO. 5048

THESE PLATS ARE TO BE USED EXCLUSIVELY FOR ACQUISITION OF REGULATORY PERMITS

SCALE 1" = 6 MILES

6 3 0 6

VICINTY MAP

RESOURCE ENVIRONMENTAL SOLUTIONS, LLC

KILLIAN BAYOU MITIGATION BANK
SECTIONS 16, 21 & 22, T8S-R6E,
LIVINGSTON PARISH, LOUISIANA

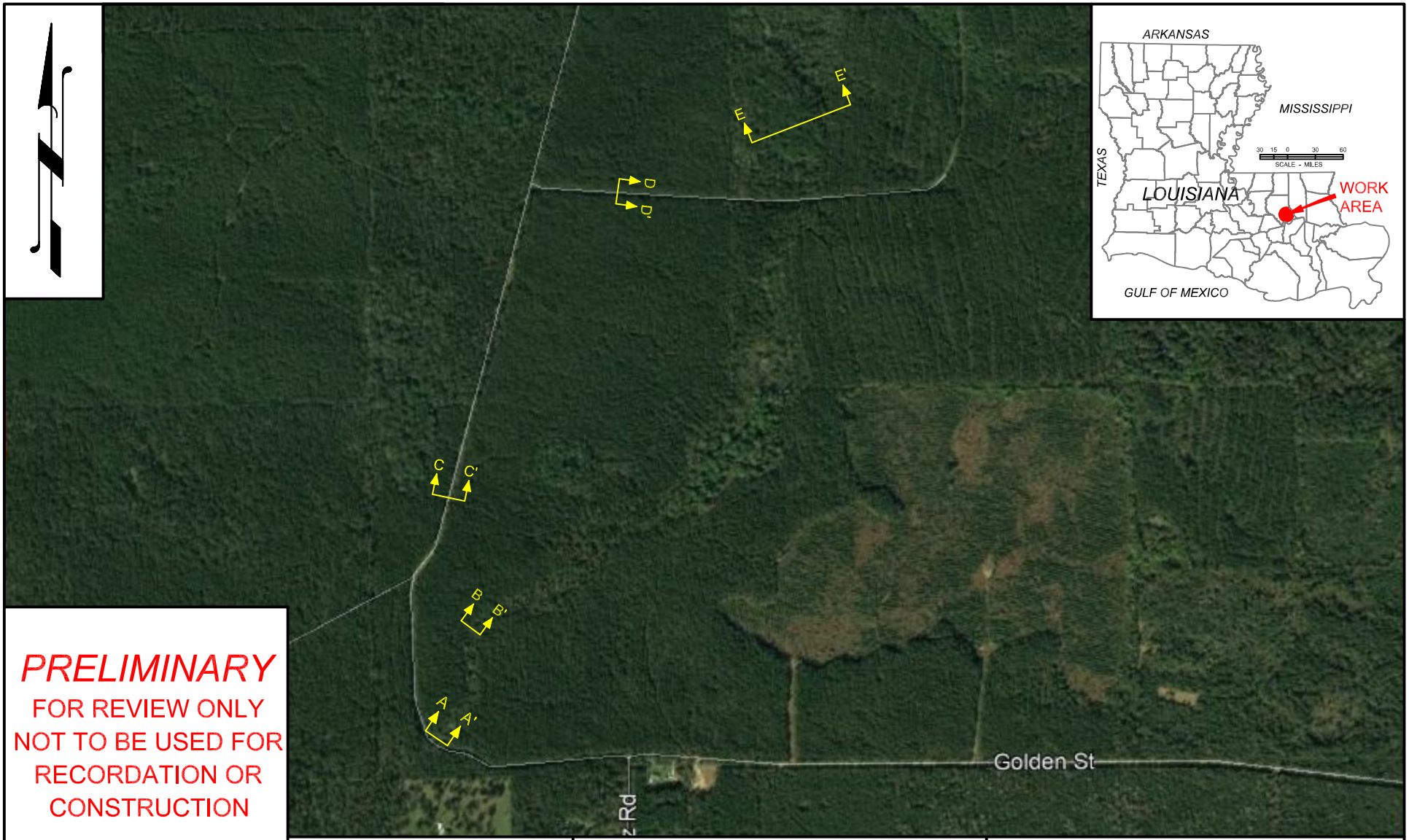
SOIREZ LAND SURVEYING, LLC
2602 GERMAIN RD.
ABBEVILLE, LA 70510
PHONE: (337) 356-7829
www.SoirezLandSurveying.com

PROJECTION: LA SOUTH || GEO. DATUM: NAD83(2011)
VERT. DATUM: NAVD88 || GRID UNITS: US SURVEY FEET

JOB NO: 2018-017	DATE: 03/19/2018
SHEET 1 OF 5	DRAWING NAME: 2018-017-COE.DWG

REV. NO: -- REV. DATE –

REVISION DESCRIPTION:



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CONSTRUCTION

JEREMY P. SOIREZ
P.L.S. NO. 5048

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SCALE 1" = 1000'

1000' 500' 0' 1000'

AREA MAP

SOIREZ LAND SURVEYING, LLC
2602 GERMAIN RD.
ABBEVILLE, LA 70510
PHONE: (337) 356-7829
www.SoirezLandSurveying.com

PROJECTION: LA SOUTH || GEO. DATUM: NAD83(2011)
VERT. DATUM: NAVD88 || GRID UNITS: US SURVEY FEET

JOB NO: 2018-017 | DATE: 03/19/2018

SHEET 2 OF 5 | DRAWING NAME: 2018-017-COE.DWG

REV. NO: -- REV. DATE –

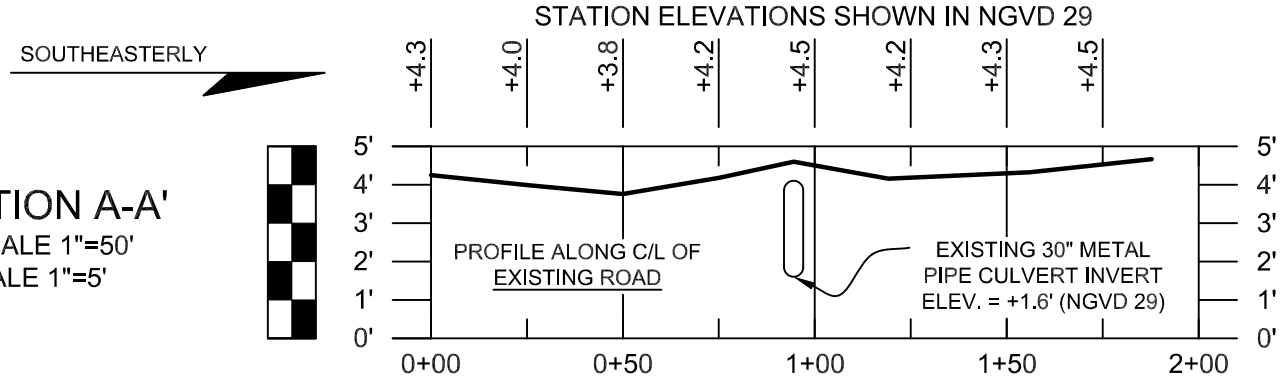
REVISION DESCRIPTION:

RESOURCE ENVIRONMENTAL SOLUTIONS, LLC

KILLIAN BAYOU MITIGATION BANK
SECTIONS 16, 21 & 22, T8S-R6E,
LIVINGSTON PARISH, LOUISIANA

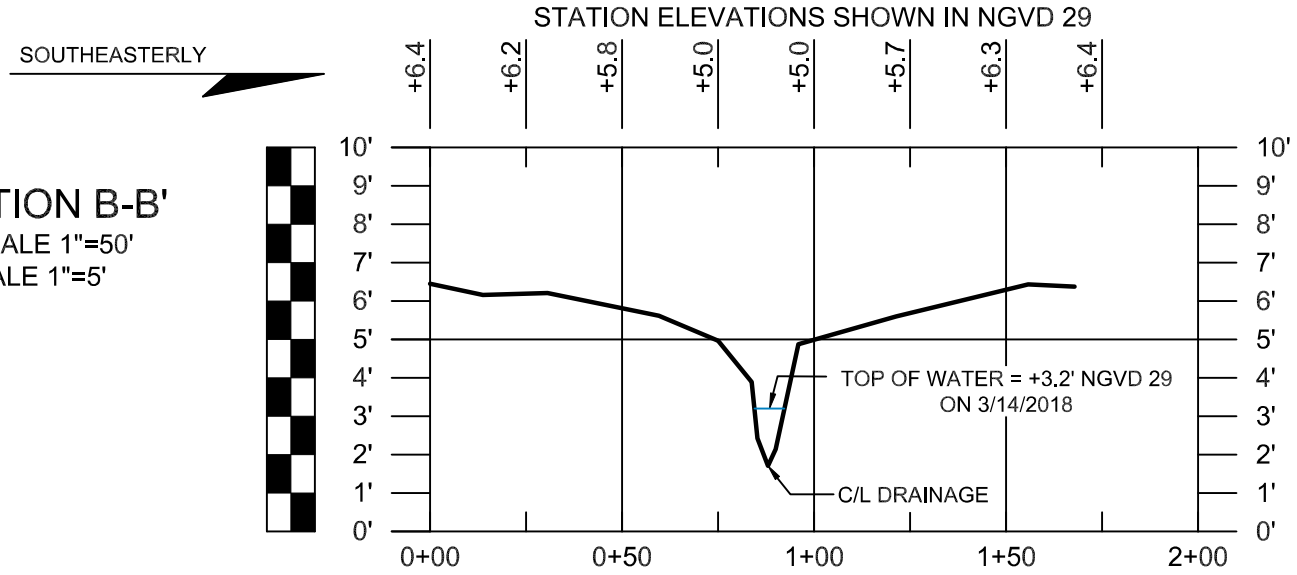
CROSS SECTION A-A'

HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'



CROSS SECTION B-B'

HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'



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JEREMY P. SOIREZ
P.L.S. NO. 5048

THESE PLATS ARE TO BE USED EXCLUSIVELY FOR ACQUISITION OF REGULATORY PERMITS

SCALE NOTE:
SEE HORIZONTAL AND VERTICAL SCALES AS NOTED ON CROSS SECTIONS.

PROFILES

SOIREZ LAND SURVEYING, LLC
2602 GERMAIN RD.
ABBEVILLE, LA 70510
PHONE: (337) 356-7829
www.SoirezLandSurveying.com

PROJECTION: LA SOUTH || GEO. DATUM: NAD83(2011)
VERT. DATUM: NAVD88 || GRID UNITS: US SURVEY FEET

JOB NO: 2018-017
DATE: 03/19/2018
SHEET 3 OF 5
DRAWING NAME: 2018-017-COE.DWG

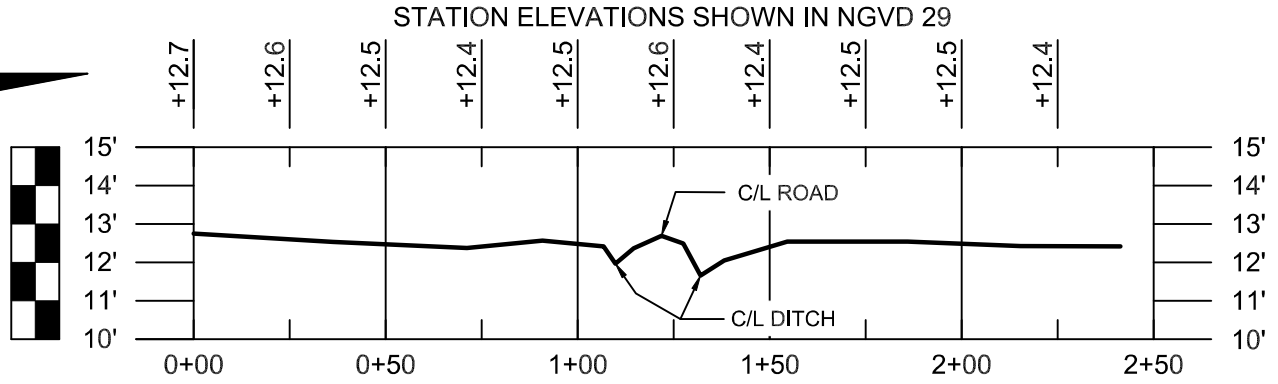
REV. NO: --
REV. DATE –

REVISION DESCRIPTION:

RESOURCE ENVIRONMENTAL SOLUTIONS, LLC
KILLIAN BAYOU MITIGATION BANK
SECTIONS 16, 21 & 22, T8S-R6E,
LIVINGSTON PARISH, LOUISIANA

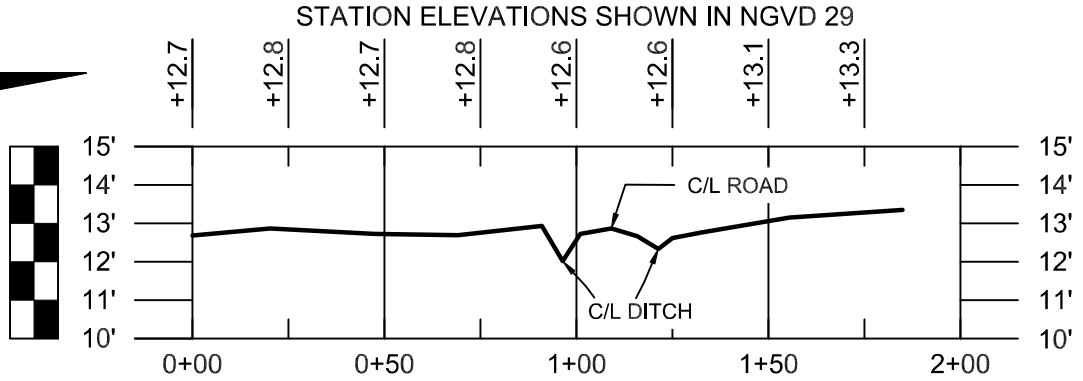
CROSS SECTION C-C'

HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'



CROSS SECTION D-D'

HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'



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P.L.S. NO. 5048

THESE PLATS ARE TO BE USED EXCLUSIVELY FOR ACQUISITION OF REGULATORY PERMITS

SCALE NOTE:
SEE HORIZONTAL AND VERTICAL SCALES AS NOTED ON CROSS SECTIONS.

PROFILES

SOIREZ LAND SURVEYING, LLC
2602 GERMAIN RD.
ABBEVILLE, LA 70510
PHONE: (337) 356-7829
www.SoirezLandSurveying.com

PROJECTION: LA SOUTH || GEO. DATUM: NAD83(2011)
VERT. DATUM: NAVD88 || GRID UNITS: US SURVEY FEET

JOB NO: 2018-017
DATE: 03/19/2018

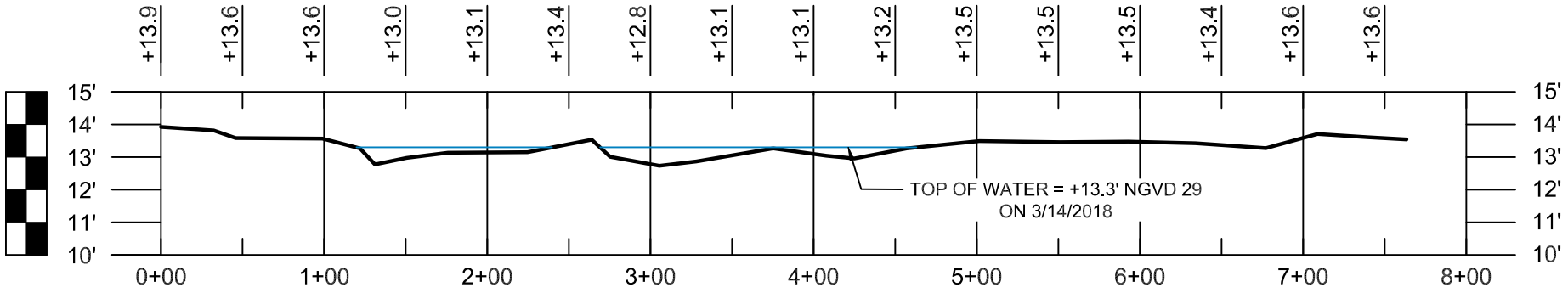
REV. NO: --
REV. DATE –

SHEET 4 OF 5
DRAWING NAME: 2018-017-COE.DWG

REVISION DESCRIPTION:

RESOURCE ENVIRONMENTAL SOLUTIONS, LLC
KILLIAN BAYOU MITIGATION BANK
SECTIONS 16, 21 & 22, T8S-R6E,
LIVINGSTON PARISH, LOUISIANA

STATION ELEVATIONS SHOWN IN NGVD 29



CROSS SECTION E-E'

HORIZONTAL SCALE 1"=100'
VERTICAL SCALE 1"=5'

NOTES

1. THESE PLANS REPRESENT AN ACTUAL GROUND SURVEY, DONE BY ME OR UNDER MY DIRECT SUPERVISION.
2. THIS IS NOT A PROPERTY BOUNDARY SURVEY. THESE PLATS ARE TO BE USED EXCLUSIVELY FOR ACQUISITION OF REGULATORY PERMITS.
3. ELEVATIONS WERE DERIVED FROM REAL-TIME GPS/GNSS POSITIONING, USING LSU C4G REAL TIME NETWORK SERVICE, NAVD 88 (GEOID 12B).
4. ELEVATIONS WERE CONVERTED FROM NAVD 88 TO NGVD 29 USING VERTCON WITH A VERTICAL SHIFT OF +0.06'.

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JEREMY P. SOIREZ
P.L.S. NO. 5048

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SCALE NOTE:
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ABBEVILLE, LA 70510
PHONE: (337) 356-7829
www.SoirezLandSurveying.com

PROJECTION: LA SOUTH || GEO. DATUM: NAD83(2011)
VERT. DATUM: NAVD88 || GRID UNITS: US SURVEY FEET

RESOURCE ENVIRONMENTAL SOLUTIONS, LLC
KILLIAN BAYOU MITIGATION BANK
SECTIONS 16, 21 & 22, T8S-R6E,
LIVINGSTON PARISH, LOUISIANA

JOB NO: 2018-017
DATE: 03/19/2018
SHEET 5 OF 5
DRAWING NAME: 2018-017-COE.DWG

REV. NO: --
REV. DATE –

REVISION DESCRIPTION:

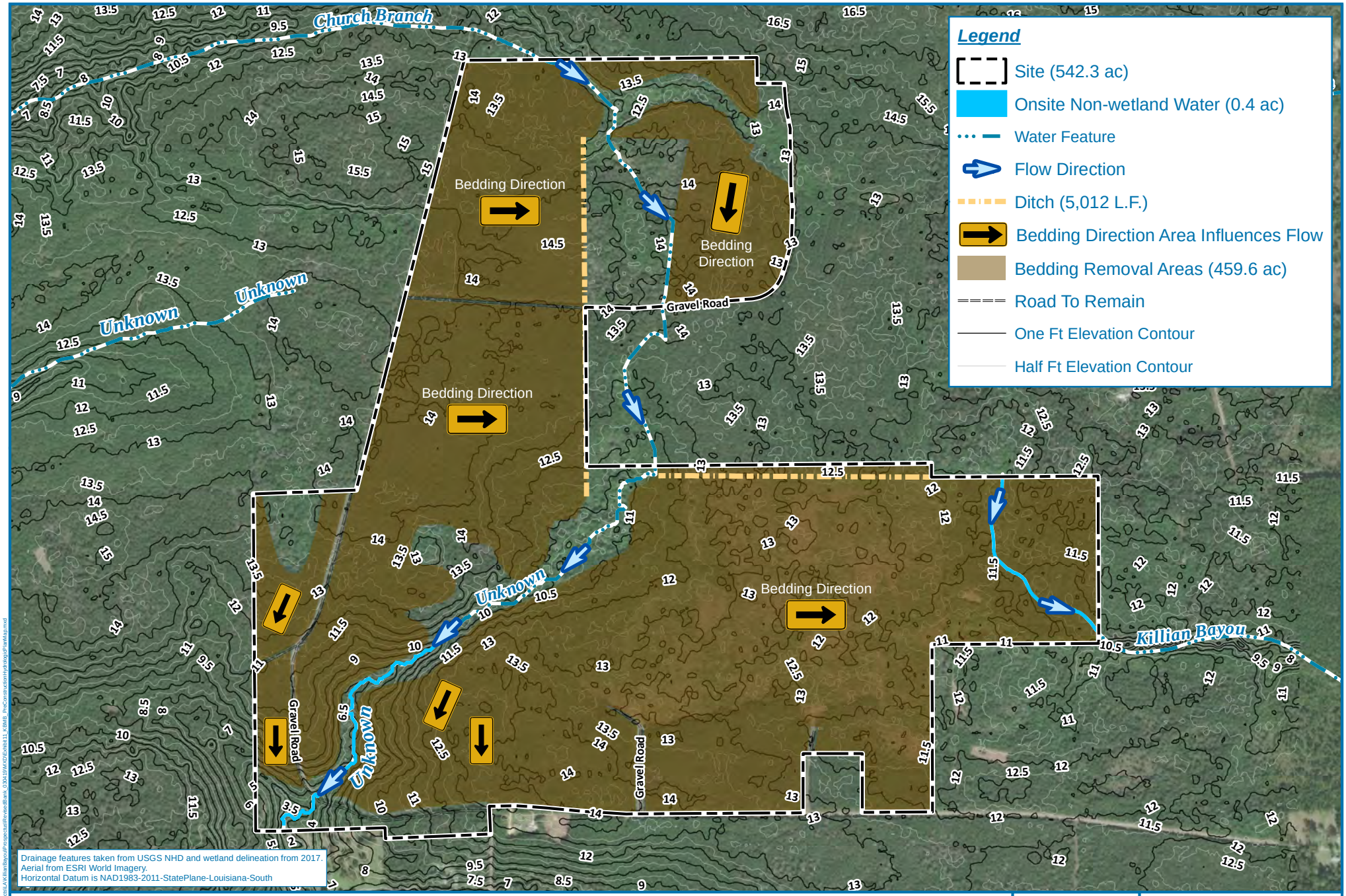


EXHIBIT 11

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
EXISTING HYDROLOGIC PLAN MAP (PRE-CONSTRUCTION)

LIVINGSTON PARISH, LOUISIANA

Date: 3/27/2019
Drawn by: BL
Checked by: TH

res

Document Path: E:\Dropbox (RES)\BRFS GIS\Projects\LA\KillianBayou\Prospectus\ReviewBank_03041904\MXD\Exhibit 11_KBMB_PreConstructionHydrologicPlanMap.mxd

EXHIBIT 11

Pre-Construction Pine Conditions

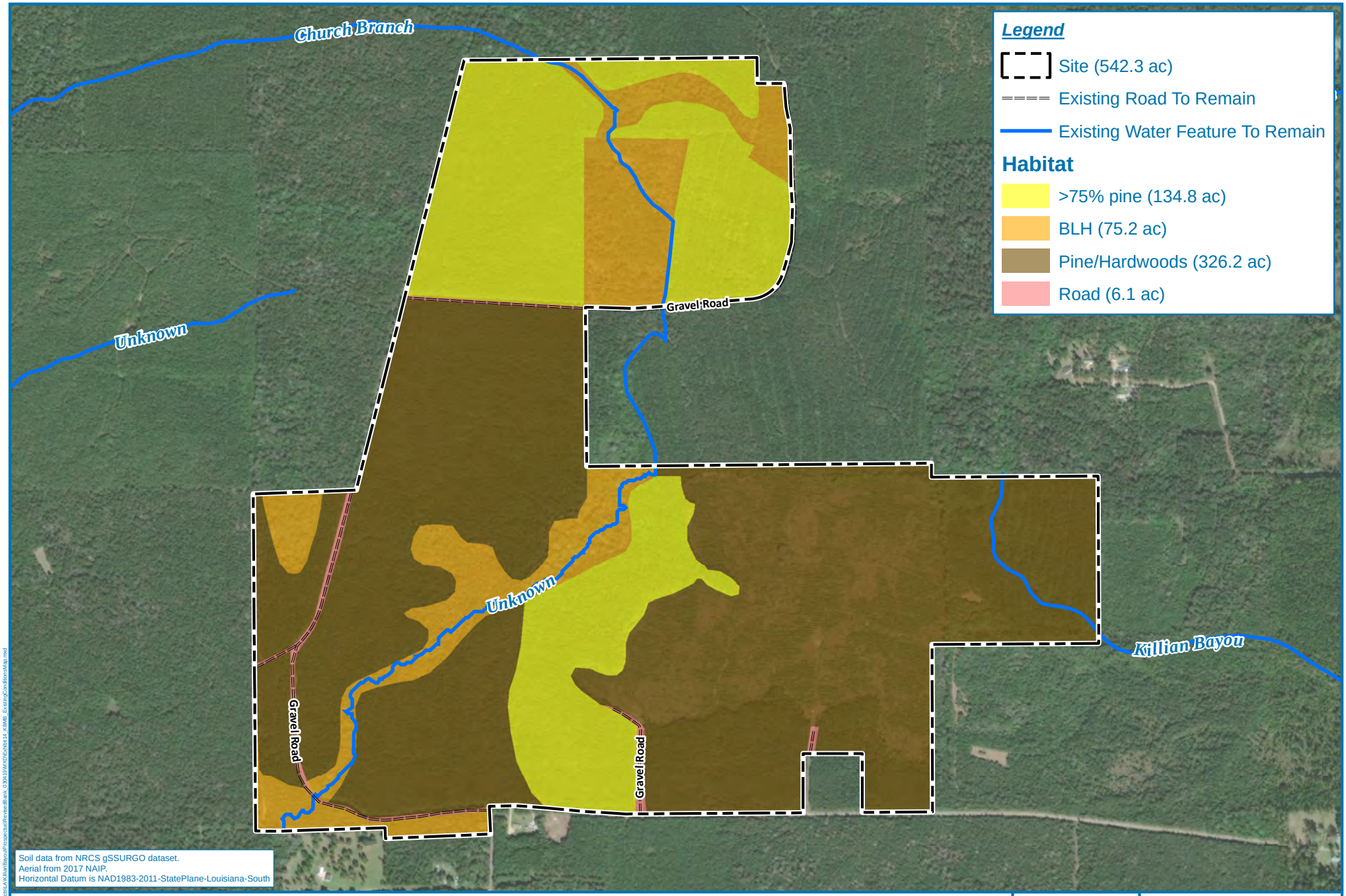


EXHIBIT 14

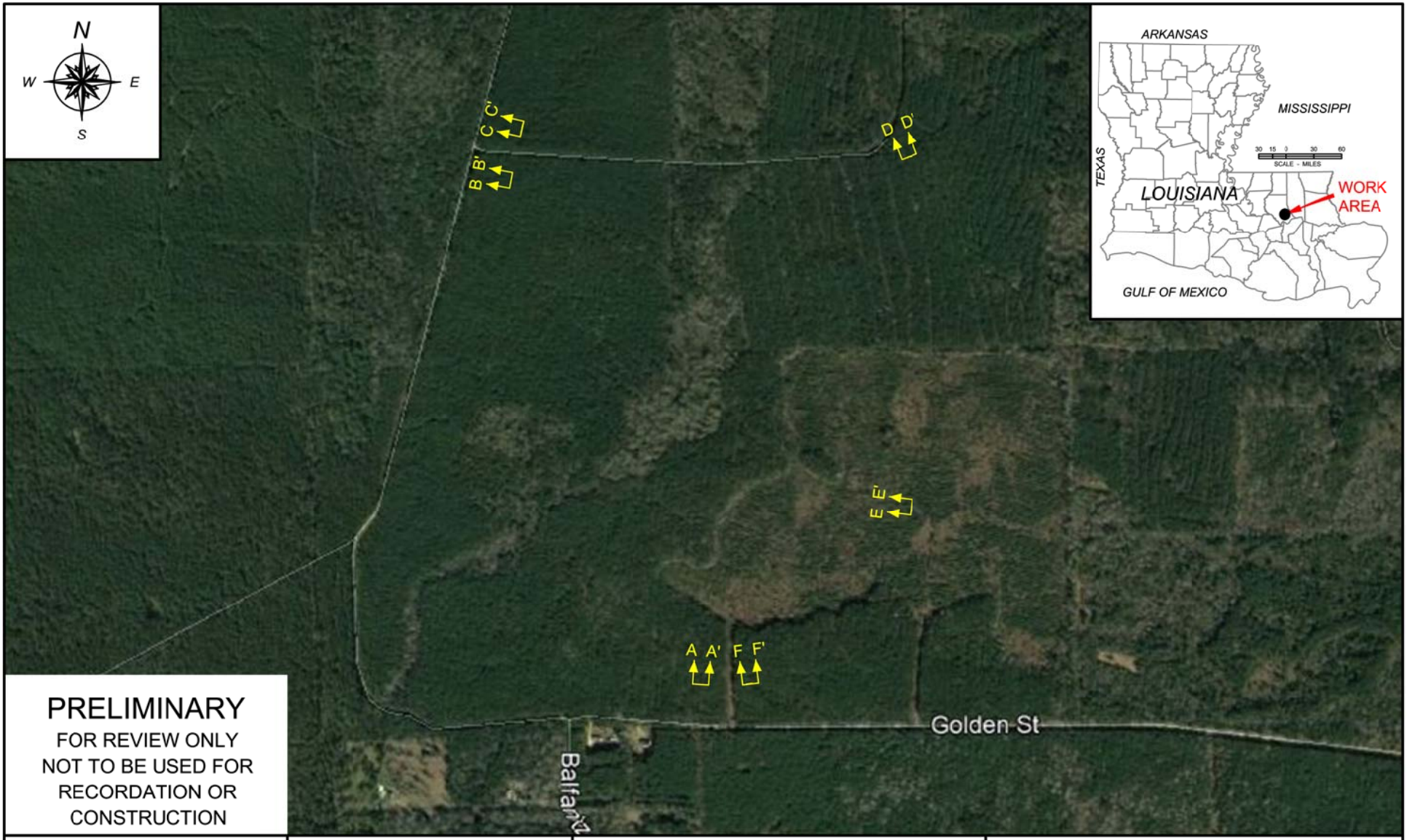
KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
EXISTING CONDITIONS MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

res

Document Path: E:\Dropbox (RES)\RBFES GIS\Projects\LA\KillianBayou\Prospectus\Review\Bank_03041934\MXD\Exhibit14_KBMB_ExistingConditionsMap.mxd



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CONSTRUCTION

JEREMY P. SOIREZ
P.L.S. NO. 5048

THESE PLATS ARE TO BE USED EXCLUSIVELY FOR ACQUISITION OF REGULATORY PERMITS

AREA MAP

SOIREZ
LAND SURVEYING, LLC
2602 GERMAIN RD.
ABBEVILLE, LA 70510
PHONE: (337) 356-7829
www.SoirezLandSurveying.com

SCALE 1" = 1000'

1000' 500' 0' 1000'

JOB NO: 2018-017

DATE: 9/13/2018

SHEET 1 OF 3

DRAWING NAME: 2018-017-BEDDING.DWG

PROJECTION: LA NORTH || GEO. DATUM: NAD83(2011)
VERT. DATUM: NAVD88 || GRID UNITS: US SURVEY FEET

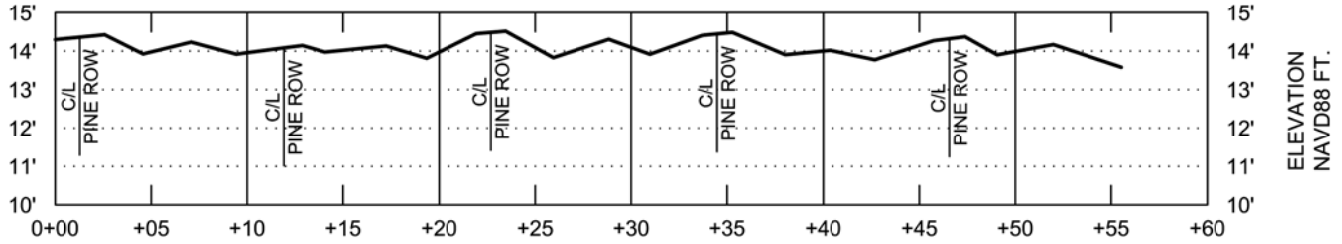
res

KILLIAN BAYOU - BEDDING PROFILES
SECTIONS 16, 21 & 22, T8S-R6E,
LIVINGSTON PARISH, LOUISIANA

EASTERLY

SECTION A-A'

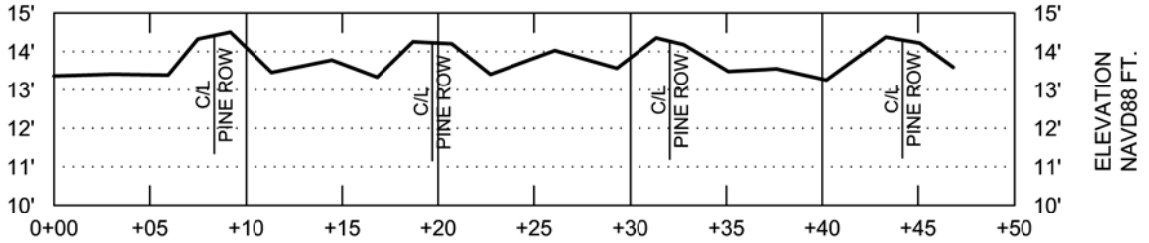
HORIZONTAL SCALE 1"=10'
VERTICAL SCALE 1"=5'



NORTHERLY

SECTION B-B'

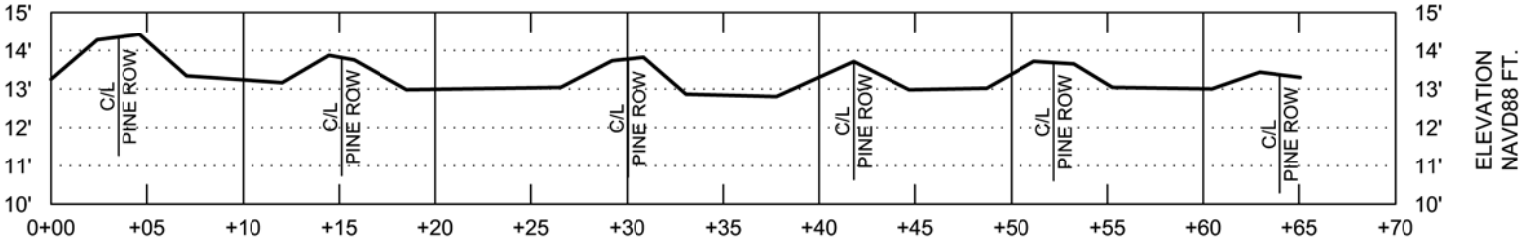
HORIZONTAL SCALE 1"=10'
VERTICAL SCALE 1"=5'



NORTHERLY

SECTION C-C'

HORIZONTAL SCALE 1"=10'
VERTICAL SCALE 1"=5'



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JEREMY P. SOIREZ
P.L.S. NO. 5048

THESE PLATS ARE TO BE USED EXCLUSIVELY FOR ACQUISITION OF REGULATORY PERMITS

PROFILES

SOIREZ LAND SURVEYING, LLC
2602 GERMAIN RD.
ABBEVILLE, LA 70510
PHONE: (337) 356-7829
www.SoirezLandSurveying.com

SCALE NOTE:
SEE HORIZONTAL AND VERTICAL SCALES AS NOTED ON CROSS SECTIONS.

JOB NO: 2018-017
DATE: 9/13/2018
SHEET 2 OF 3
DRAWING NAME: 2018-017-BEDDING.DWG

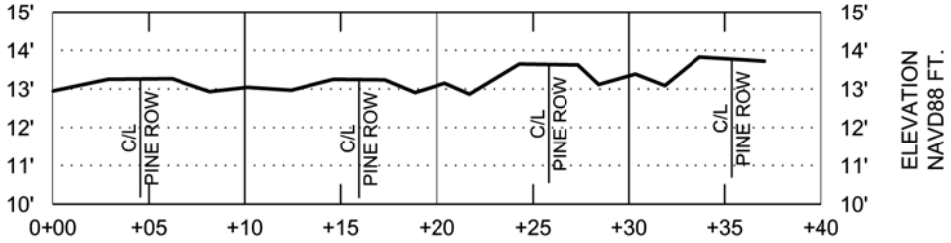
PROJECTION: LA NORTH || GEO. DATUM: NAD83(2011)
VERT. DATUM: NAVD88 || GRID UNITS: US SURVEY FEET

res

KILLIAN BAYOU - BEDDING PROFILES
SECTIONS 16, 21 & 22, T8S-R6E,
LIVINGSTON PARISH, LOUISIANA

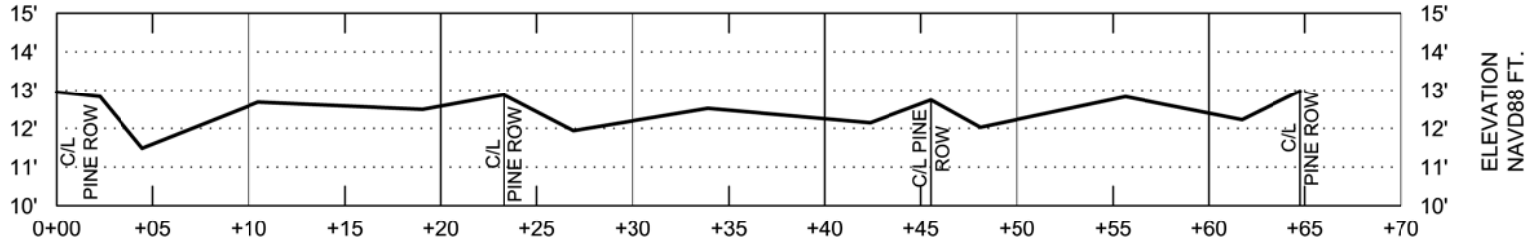
EASTERLY

SECTION D-D'
HORIZONTAL SCALE 1"=10'
VERTICAL SCALE 1"=5'



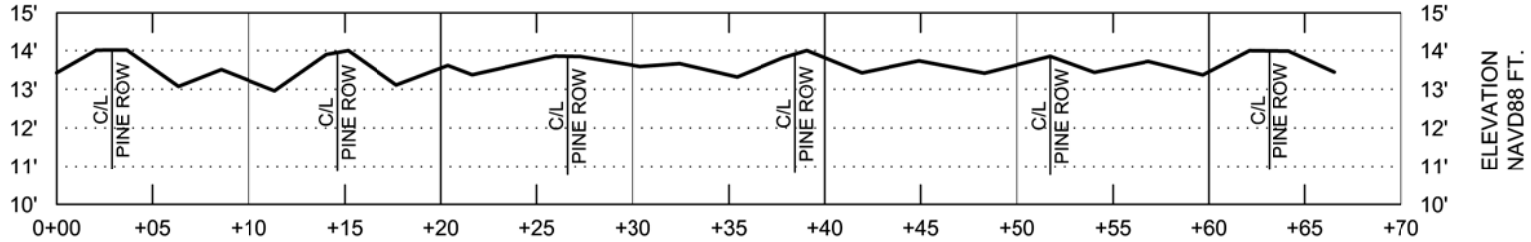
NORTHERLY

SECTION E-E'
HORIZONTAL SCALE 1"=10'
VERTICAL SCALE 1"=5'



EASTERLY

SECTION F-F'
HORIZONTAL SCALE 1"=10'
VERTICAL SCALE 1"=5'



PRELIMINARY

FOR REVIEW ONLY
NOT TO BE USED FOR
RECORDATION OR
CONSTRUCTION

NOTES

1. THESE PLANS REPRESENT AN ACTUAL GROUND SURVEY, DONE BY ME OR UNDER MY DIRECT SUPERVISION.
2. THIS IS NOT A PROPERTY BOUNDARY SURVEY. THESE PLATS ARE TO BE USED EXCLUSIVELY FOR ACQUISITION OF REGULATORY PERMITS.
3. ELEVATIONS WERE DERIVED FROM REAL-TIME GPS/GNSS POSITIONING, USING LSU C4G REAL TIME NETWORK SERVICE, NAVD 88 (GEOID 12B).

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JOB NO: 2018-017
DATE: 9/13/2018
SHEET 3 OF 3
DRAWING NAME: 2018-017-BEDDING.DWG

PROJECTION: LA NORTH || GEO. DATUM: NAD83(2011)
VERT. DATUM: NAVD88 || GRID UNITS: US SURVEY FEET

res

KILLIAN BAYOU - BEDDING PROFILES
SECTIONS 16, 21 & 22, T8S-R6E,
LIVINGSTON PARISH, LOUISIANA

Average Relative % Cover by Area for Bank Acreage					
Area	Pine	Tallow	BLH	Pine/Tallow Sum	Habitat Type
1	78%	0%	22%	78%	Rehabilitation
2	66%	14%	20%	80%	Rehabilitation
3	75%	0%	25%	75%	Rehabilitation
4	64%	0%	36%	64%	Rehabilitation
7	33%	23%	44%	56%	Rehabilitation*
8	50%	10%	40%	60%	Enhancement
9	35%	38%	27%	73%	Enhancement
10	72%	17%	11%	89%	Rehabilitation
11	11%	65%	24%	76%	Enhancement
12	78%	11%	11%	89%	Rehabilitation
13	27%	7%	66%	34%	Preservation
14	100%	0%	0%	100%	Rehabilitation
17	No DP - Similar to Area 11				Enhancement
18	78%	22%	0%	100%	Re-establishment

Information pulled directly from wetland delineation report

* Due to stand age and predominat rows and bedding

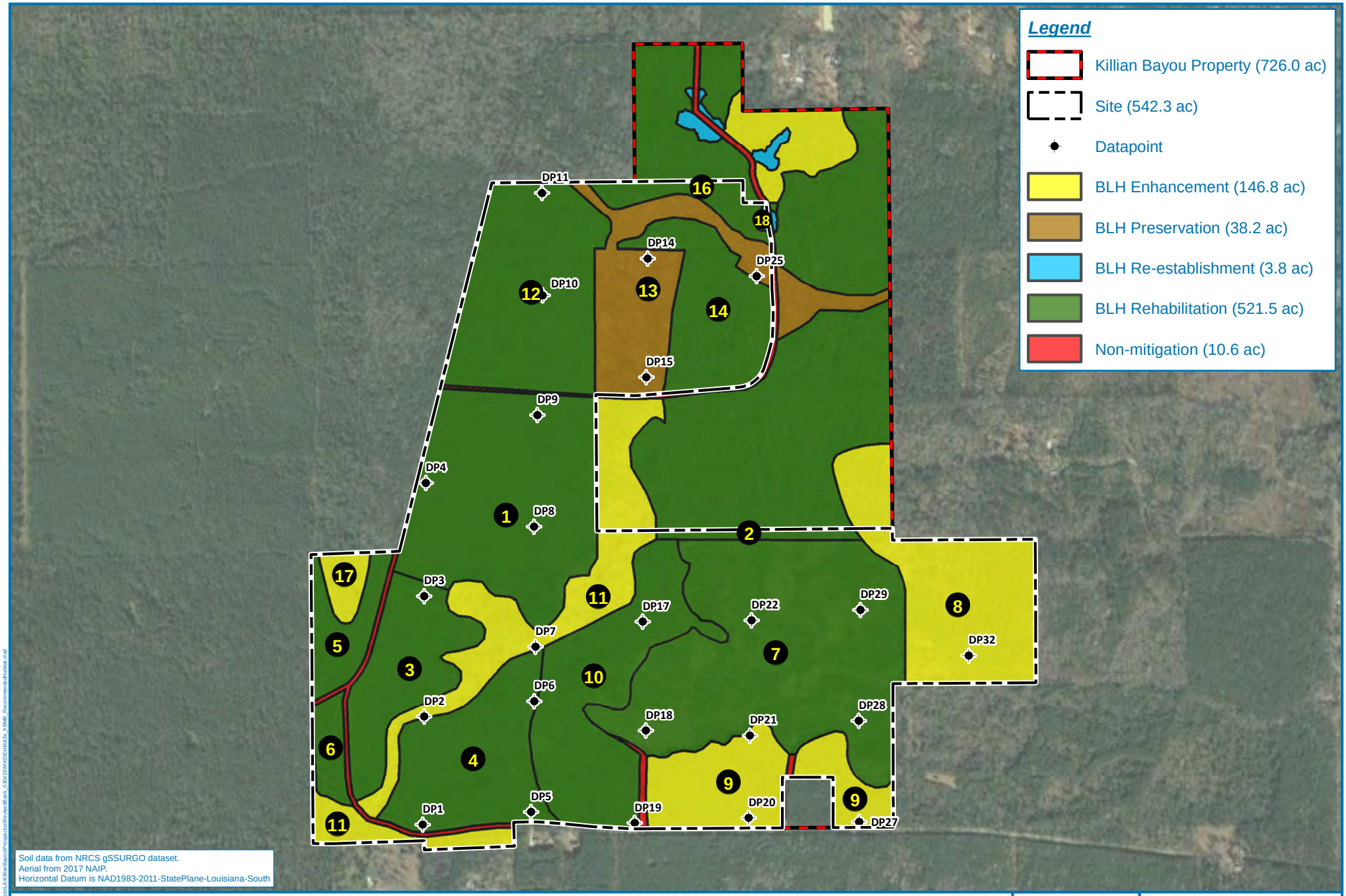


EXHIBIT 2A

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
RECOMMENDED HABITAT

LIVINGSTON PARISH, LOUISIANA

Date: 3/15/2019

Drawn by: BL

Checked by: TH

res

Document Path: E:\Dropbox (RES)\MBRFS GIS\Projects\LA\KillianBayou\Prospectus\ReviseBank_03041914\MXD\Exhibit2a_KBMB_RecommendedHabitat.mxd

EXHIBIT 12

Preliminary Jurisdictional Determination

USACE F.I.

Date: May 22, 2017

By: William Nethery

For: Christina Perez

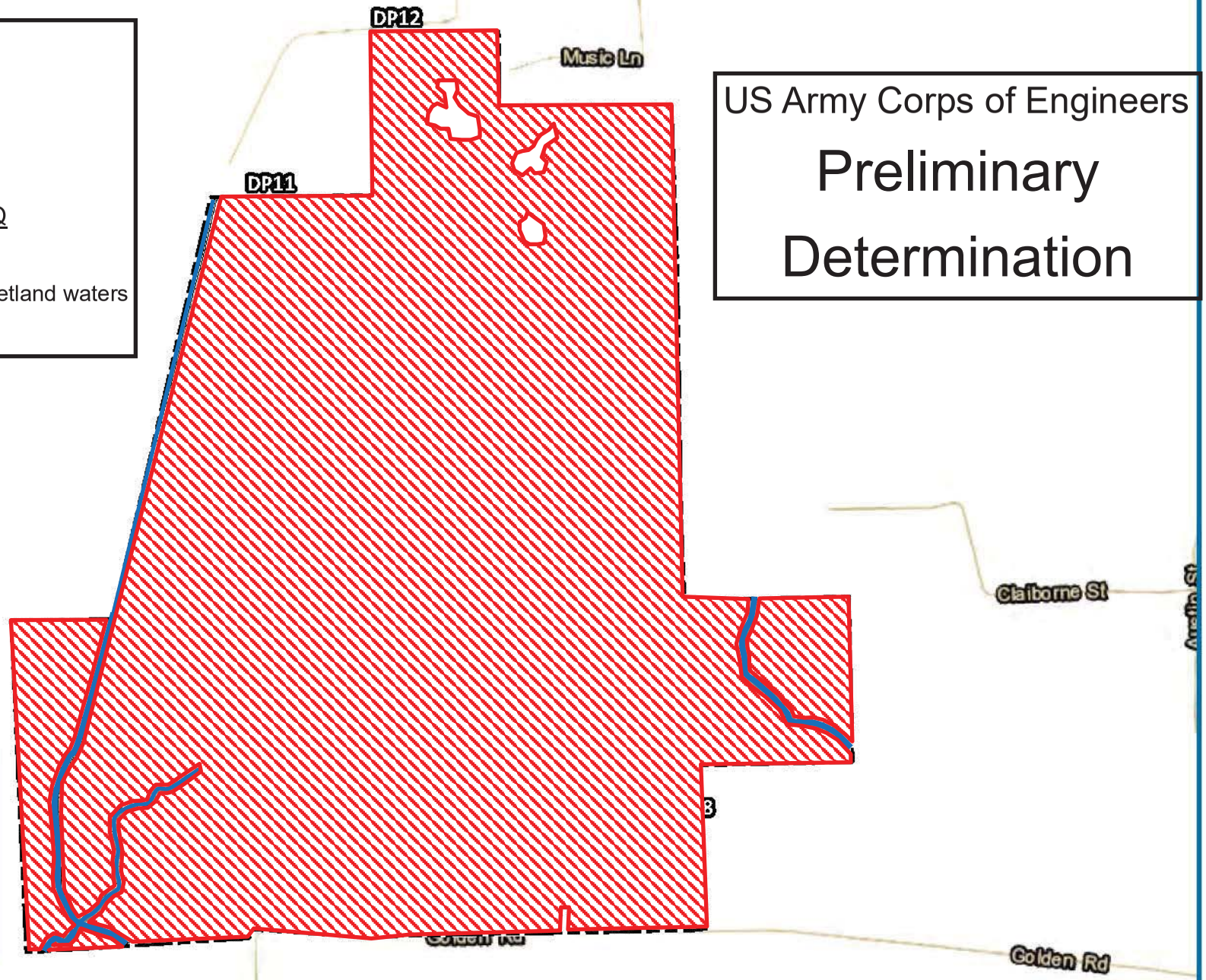
Acct#: MVN 2017-01474-SQ

Wetland

Non-wetland waters

US Army Corps of Engineers

Preliminary Determination



Legend

- Site (728.8 ac)
- Datapoint
- Wetlands (721.2 ac)
- Non-wetland Water (0.4 ac)

Horizontal Datum is NAD83 UTM Zone 15N.

0 750 1,500

Feet

FIGURE 2

KILLIAN BAYOU SITE
WETLAND DELINEATION MAP

LIVINGSTON PARISH - LAKE PONTCHARTRAIN BASIN, STATE OF LOUISIANA

Date: 4/25/2018

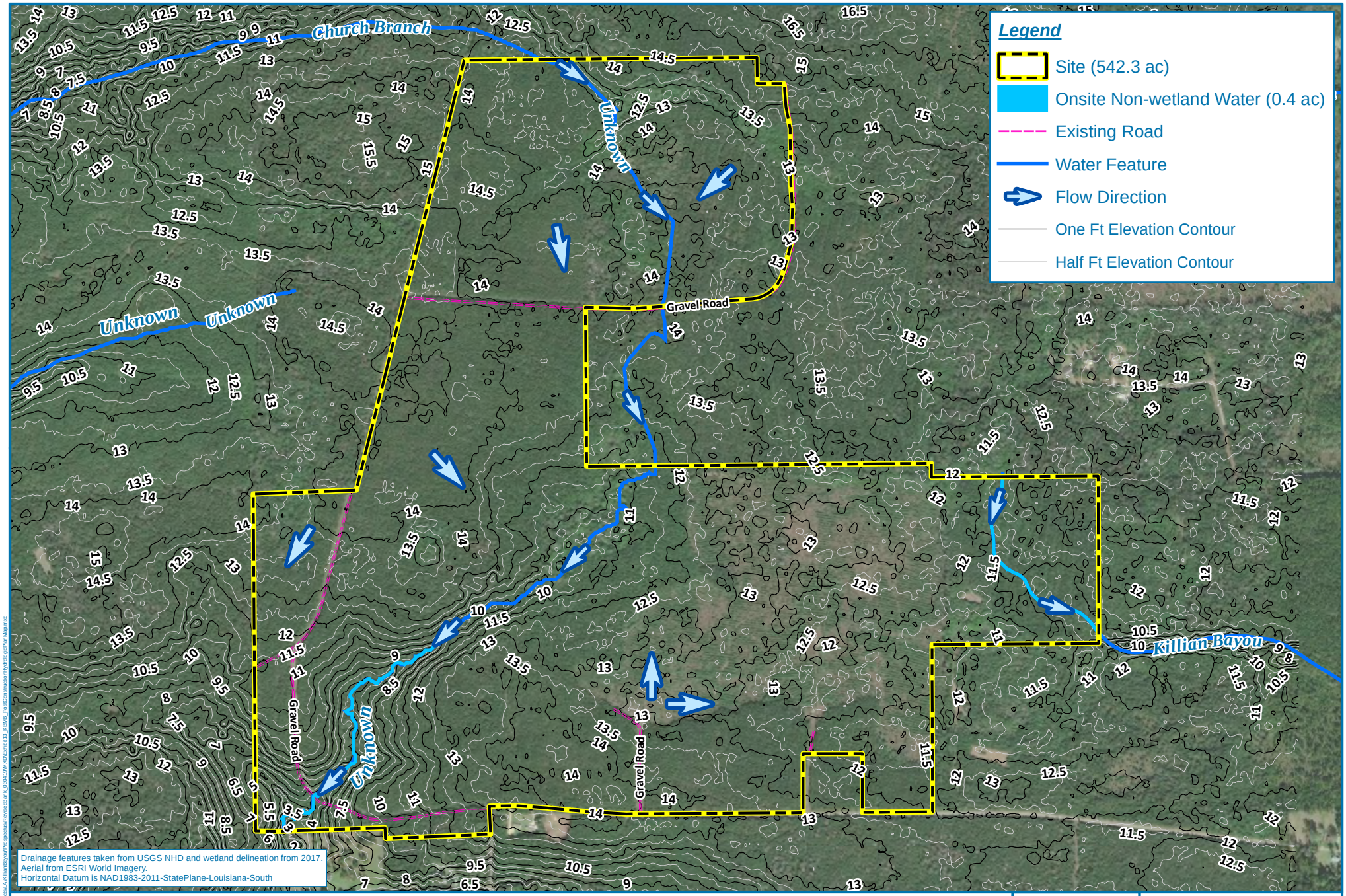
Drawn by: BL

Checked by: BH

res

EXHIBIT 13

Anticipated Post-Construction Site Conditions



N
W E
S

0 500 1,000

Feet

EXHIBIT 13

KILLIAN BAYOU MITIGATION BANK
FIFTH LOUISIANA RESOURCE, L.L.C.
POST-CONSTRUCTION HYDROLOGIC PLAN MAP

LIVINGSTON PARISH, LOUISIANA

Date: 3/11/2019
Drawn by: BL
Checked by: TH

res

Document Path: E:\Dropbox (RES)\RPFS GIS\Projects\LA\KillianBayou\Prospectus\ReviewBank_030419\MXD\Exhibit13_KBMB_PostConstructionHydrologicPlanMap.mxd