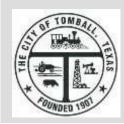
Community Development Department



Conditional Use Permit (CUP) Staff Report

Planning & Zoning Commission Public Hearing Date: May 8, 2023 City Council Public Hearing Date: May 15, 2023

Rezoning Case: CUP23-04

Property Owner(s): Michael Kirtley

Applicant(s): Black Mountain Energy Storage II LLC.

Legal Description: Lot 265 of Tomball Townsite

Location: 900-1000 blocks (west side) of S. Pitchford Road (Exhibit "A")

Area: 5.00 acres

Comp Plan Designation: Business Park and Industrial (Exhibit "B")

Present Zoning and Use: Agricultural (AG) (Exhibit "C") /Vacant (Exhibit "D")

Proposed Use(s): Electric Storage System

Request: Conditional Use Permit (CUP) to permit Electric Storage

System in Light Industrial (LI) zoning

Adjacent Zoning & Land Uses:

North: Agricultural (AG)/ Vacant/Electric Utility Infrastructure

South: Agricultural (AG)/ Single Family residence

West: Agricultural (AG) / Single-family residence

East: Agricultural (AG) / Agricultural Accessory Structures

BACKGROUND

The subject property has been within the City Limits of Tomball since at least 1907. The property has remained vacant since that time. The applicants are requesting a Conditional Use Permit (CUP) in conjunction with a separate request to rezone the property to Light Industrial (LI). The requested CUP is to allow an "Electric Storage System" land use. There has been a lot of interest in the development of an "Electric Storage System" within the City of Tomball, particularly the development of such a facility near the existing CenterPoint Energy substation located in the 900 block of S. Pitchford Road. This interest has led to the City Council adopting amendments to the City of Tomball Code of Ordinance earlier this year (Ordinance No. 2023-03). This ordinance created the "Electric Storage System" land use, which also provided a definition to the land use and specified that such uses shall only be permitted within the Light Industrial zoning district with the approval of a Conditional Use Permit. Electric storage systems are defined as "one or more devices assembled together capable of storing energy that allows power system operators and utilities to collect and store energy from the grid and discharge it at a future time to provide electricity when needed, such as to ensure adequate peaking generation capacity and grid resiliency." City staff met with the applicants on several

occasions over the past several months to discuss the potential for their development. During these meetings staff expressed the concerns discussed by the City Council which were brought up during separate meetings with a different company interested in a similar development located in the same general vicinity. Specifically, staff shared City Councils concerns regarding the safety of locating such facilities in proximity to Old Town Tomball and the nearby existing residences.

ANALYSIS

According to Section 50-81 (f) of the Chapter 50 (Zoning), when considering applications for a CUP, the City shall, on the basis of the concept plan and other information submitted, evaluate the impact of the conditional use on and the compatibility of the use with surrounding properties and neighborhoods to ensure the appropriateness of the use at a particular location. Specific considerations shall include the extent to which:

1. The proposed use at the specified location is consistent with the goals, objectives, and policies contained in the adopted Comprehensive Plan;

The property is designated as Business Park & Industrial by the Comprehensive Plan Future Land Use Map. This category is intended to create opportunities for employment and according to the Comprehensive Plan the uses promoted within this land use category should benefit from convenient access to major thoroughfares for vehicles to include freight. These areas may require intensive screening and buffering from surrounding developments. Based on the concept plan provided by the applicant, the proposed use does not appear to provide screening/buffering from existing nearby residences.

2. The proposed use is consistent with the general purpose and intent of the applicable zoning district regulations;

According to the Zoning Ordinance, "a conditional use is a land use which, because of its unique nature, is compatible with the permitted land uses in a given zoning district only upon a determination that the external effects of the use in relation to the existing and planned uses of adjoining property and the neighborhood can be mitigated through the imposition of certain standards and conditions."

The intended use of this property is consistent with the purpose and intent of the applicable zoning district, only if the concurrent zone change request is to be approved to rezone the property to Light Industrial (LI) zoning. This light industrial zoning designation is intended to allow the most intensive land use permitted within the City of Tomball.

3. The proposed use meets all supplemental standards specifically applicable to the use as set forth in the Zoning Ordinance;

Yes, the proposed use will be required to meet all supplemental standards outlined in Chapter 50 of the Code of Ordinance. Further, prior to operation, an official site plan shall be submitted to the City of Tomball Community Development Office identifying the planned arrangement of the electric storage system to ensure all standards required by the code of ordinance are met.

4. The proposed use is compatible with and preserves the character and integrity of adjacent development and neighborhoods and as required by the particular circumstances, includes improvements or modifications either on-site or within the public rights-of-way to mitigate development-related adverse impacts.

The proposed use appears compatible with the existing nearby substation; however, it does not preserve the character and integrity of the adjacent residential land uses. Ultimately, the Future Land Use plan calls for Business Park & Industrial for this location so the requested use and similar types of uses are to be expected and the preservation of existing nearby residential uses will become challenging. The concept plan provided does not currently identify any planned means of land use buffering between the project site and existing neighboring residential uses. The code of ordinance will require (at the time of site plan submission) a minimum 6-foot-tall opaque fence and 10-foot-wide landscape buffer vard along the southern and western property boundaries as prescribed in Section 50-115 - Screening, buffering and fencing requirements. By code, no such screening is required along the street side (east) property boundary between the project site and existing residential land use east of S. Pitchford Rd, however city staff believe this to be a reasonable condition to be added if the CUP is to be approved. In addition to this minimum screening & buffering standard, city staff is also recommending additional preservation of mature vegetative growth along the west, south, and east property boundaries to further address the need to screen the planned use from adjacent residential properties. Lastly, the subject property does not presently have direct access to a water main, nor convenient access to a fire hydrant. Given the nature of this proposed land use and the potential fire hazard it presents, city staff is recommending an additional condition for approval for a suitable water main to be extended "to-and-through" the frontage of this subject property and a fire hydrant must be supplied to provide opportunity for fire protection.

5. The proposed use is not materially detrimental to the public health, safety, convenience and welfare, or results in material damage or prejudice to other property in the vicinity.

There are concerns regarding the potential hazards that this proposed land use presents to the public health and safety of other properties and their respective owners in the vicinity. Energy Storage Systems, specifically Battery Energy Storage Systems (BESS) utilizing lithium-ion batteries provide a great opportunity for creating energy resiliency, however these systems present significant safety hazards. Battery Energy Storage Systems and the use of lithium-ion batteries risk the phenomenon referred to as thermal runaway, this occurs when heat builds up in a battery faster than it can be dissipated, such buildup of heat may result from a battery being overcharged, overheated, or damaged. Thermal runaway is a process in which the battery cell enters an uncontrollable, self-heating state. Thermal runaway of the system often causes fire and the release of toxic materials and gases. In extreme circumstances thermal runaway may result in an explosion. According to an article published by the National Fire Sprinkler Association (NFSA) in 2023, these fires are extremely difficult to extinguish and fires resulting from thermal runaway can burn for hours or even days.

PUBLIC COMMENT

A Notice of Public Hearing was published in the paper and property owners within 300 feet of the project site were mailed a notification of this proposal. As a courtesy, and at the request of City

Council, City staff sent additional notice letters to owners of properties within 2,000 feet of the subject site. These notice letters were sent on April 18, 2023. Any public comment forms will be provided in the Planning & Zoning Commission and City Council packets or during the public hearing.

RECOMMENDATION

Based on the findings outlined in the analysis section of this staff report, City staff recommends denial of CUP23-04:

If the CUP is approved city staff recommends the following conditions:

- An opaque fence/wall with a minimum height of 6-feet must be provided along the entire extent of the eastern property boundary.
- To provide additional screening from nearby residential uses a 20-foot-wide buffer yard with mature vegetation must remain undisturbed along the west, south, and eastern property boundaries. This mature vegetation must be sufficiently preserved/protected during and after construction. EXCEPTION: Mature vegetation may be removed to accommodate required fencing, driveway approaches, required sidewalks, and necessary utilities.
- To provide opportunity for fire prevention/protection adequate water main and fire hydrant(s) must be installed prior to the approval of site plan(s) and subsequent development

EXHIBITS

- A. Location Map
- B. Current Zoning Map
- C. Future Land Use Plan Map
- D. Notification Maps
- E. Site Photo(s)
- F. CUP Application
- G. Concept Plan

Exhibit "A" Location Map



Exhibit "B" Zoning Map

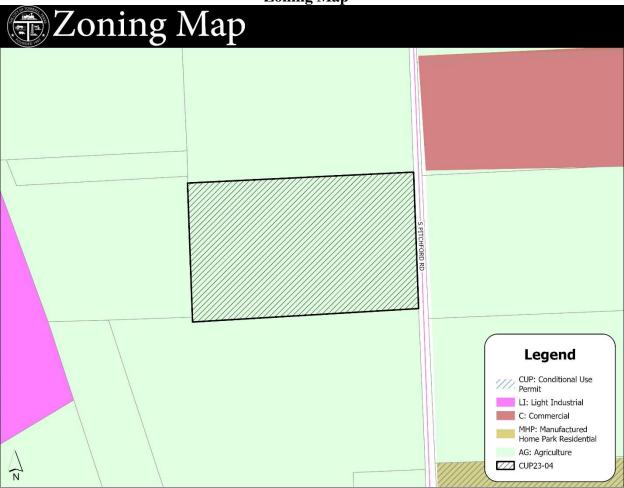


Exhibit "C"

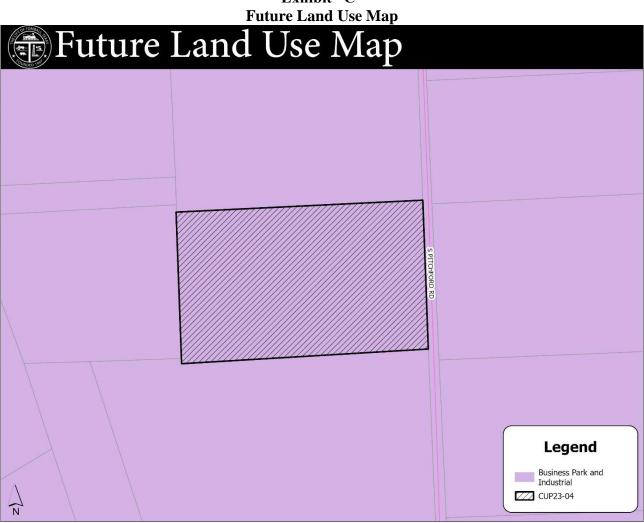
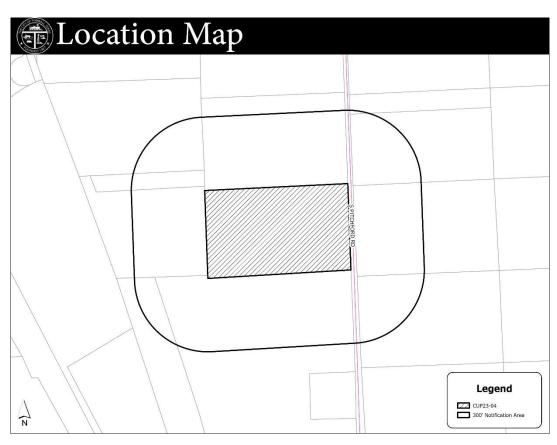


Exhibit "D" Notification Map(s)



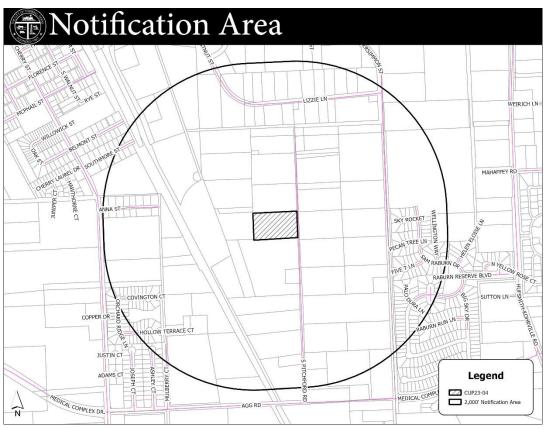


Exhibit "E"
Site Photo

Subject Site



Neighbor (East)



Neighbor (South)



Neighbor (North)



Exhibit "F" CUP Application



Revised: 10/1/2022

APPLICATION FOR CONDITIONAL USE PERMIT Planning Division

A conditional use is a land use which, because of its unique nature, is compatible with the permitted land uses in a given zoning district only upon a determination that the external effects of the use in relation to the existing and planned uses of adjoining property and the neighborhood can be mitigated through imposition of certain standards and conditions. This Section sets forth the standards used to evaluate proposed conditional uses and the procedures for approving conditional use permit (CUP) applications.

APPLICATION SUBMITTAL: Applications will be *conditionally* accepted on the presumption that the information, materials and signatures are complete and accurate. If the application is incomplete or inaccurate, your project may be delayed until corrections or additions are received.

There is a \$1,000.00 application fee that must be paid at time of submission or the application will not be processed.

DIGITAL PLAN SUBMITTALS:

PLEASE SUBMIT YOUR APPLICATIONS AND PLANS DIGITALLY IN A SINGLE PDF BY FOLLOWING THE WEBSITE BELOW:

WEBSITE: tomballtx.gov/securesend

USERNAME: tomballcdd PASSWORD: Tomball1

Name: Sam Jackson		Title: Director of Developmen		
Mailing Address: 425 Houston Street, Suite 400		City: Fort Worth	State: Texas	
Zip: 76012	Contact:			
Phone: (215) 622-0210	Email: sam.jackson@blackmtn.com			
Owner		1	lauras	
Name: Michael W. Kirtley		Title: Landowner		
Mailing Address: 15714 Oxenford	d Dr.	City: Tomball	State: Texas	
Zip: 77377	_ Contact:			
Phone: (201) 932-4964	Email: MKNH	tous rone yahoo.com		
Engineer/Surveyor (if application Name: Justin W. Cantwell, RF	cable)	Title: Surv	ey Division Manager	
Mailing Address: 8312 Upland Avenue			State: Texas	
Zip: 79424				
7in: 19424	Contact:			

City of Tomball, Texas 501 James Street, Tomball, Texas 77375 Phone: 281-290-1405

www.tomballtx.gov

	Revised: 10/1/2022
Description of Proposed Project: Utility-scale	e battery energy storage system (BESS) facility
Physical Location of Property: Property on the	ne southwest corner of S. Live Oak St. and Pitchford Rd.
[General Local	tion - approximate distance to nearest existing street corner]
Legal Description of Property: All of lot 265 of	of Tomball Townsite - Volume 2, Page 265, Deed Records of Harris County
[Sur	vey/Abstract No. and Tracts; or platted Subdivision Name with Lots/Block]
HCAD Identification Number: 03528800002	Acreage: 4.8
Current Use of Property: Unoccupied vegitati	on. Zoned Agriculture
Proposed Use of Property:_Battery Energy Sto	orage System (BESS), Zoned Light Industrial
Please note: A courtesy notification sig public hearing process and will be rem	gn will be placed on the subject property during the oved when the case has been processed.
and the under signed is authorized to	on this form is COMPLETE, TRUE, and CORRECT make this application. I understand that submitting pproval, and incomplete applications will result in
X Samuel Qackson	3/15/2023
X Samuel Jackson Signature of Applicant	Date
X Michael Latley Signapure of Owner	3/31 / 2023 Date

BC Global LP

Alberto P. Cardenas, Jr. <u>beto@bcglobal.law</u>
Office +1.713.731.1050 Mobile +1.713.818.2497

March 16, 2023

Mr. Jared Smith, City Planner City of Tomball 401 Market Street Tomball, Texas 77375

Dear Mr. Smith:

Please accept this letter together with the attached, completed applications for Re-Zoning and a Conditional Use Permit on behalf of our client GridStor, and the applicant company Black Mountain Energy Storage II, LLC (BMES), for consideration by the City of Tomball, Texas.

BMES and its development partner GridStor are proposing to develop and construct a 200 MW Battery Energy Storage System (BESS) within the City. The proposed project, with a targeted commercial operations date of June 2025, is being considered on a single, contiguous, five-acre parcel located at the corner of Pitchford Road and South Live Oak Street (Harris County Appraisal District Account No. 0352880000265). This land, secured by BMES via a Lease Agreement, had been previously used for energy related purposes and is currently zoned by the City for agricultural use. Should the project proceed, it would be adjacent to CenterPoint Energy's substation and provide connectivity to the Electric Reliability Council of Texas (ERCOT) transmission grid via the City's substation, providing ERCOT more flexibility to respond to extreme events and thereby helping reduce energy power prices for consumers.

We understand that the City recently amended its Code of Ordinances to define and allow "Energy Storage Systems" within Light Industrial Zones. Accordingly, our client is therefore requesting Re-Zoning of the property from Agricultural to Light Industrial. Further, we recognize that a Conditional Use Permit would be required and have therefore paired and provided both applications for the City's consideration.

Included with this letter is additional information we believe will be helpful to the City as they review these applications. We look forward to working with you in the coming weeks to continue the discussions for this proposed project and its economic development opportunities.

Respectfully Submitted,

Alberto P. Cardenas, Jr.

BC Global LP Law Offices of Alberto P. Cardenas, Jr., PLLC Texas New York Washington The Niels Esperson Building 808 Travis Street, Suite 1424 Houston, TX 77002 www.bcglobal.law

Proposed Project Background and Value Proposition

BMES filed an Interconnection Application with CenterPoint and ERCOT on March 22, 2022, to initiate the electrical study process required to support the interconnection of the proposed project to the existing CenterPoint Tomball substation. BMES and its employees have over 6 years of experience working with CenterPoint in scoping and interconnecting Battery Energy Storage Systems within Texas.

The project company has commissioned the following environmental studies to further de-risk the project site and ensure all environmental concerns are addressed: Phase 1 Environmental Site Assessment, Critical Issues Analysis, Wetland Delineation & Determination Report, Threatened & Endangered Species Report, and a Cultural & Historical Resources Report. All environmental studies have come back favorable, with no adverse environmental impacts anticipated as a result of development.

BESS provide significant benefits to Texans and the electric grid they depend upon, including:

Firm, dispatchable power to enhance grid reliability and balance the system. BESS delivers instantaneous power at times of peak energy demand, improving grid reliability and helping keep the lights on for homes, business owners, commercial and governmental facilities, and industrial users alike.

Energy to support Texas' economic development. Houston is forecasted to see a 10-15% increase in regional energy demand in the next 10 years, with a decline in firm power as older and uneconomic coal and gas plants retire and go offline. BESS will play a key role in replacing aging plants and supporting Texas' continued growth and economic development.

Energy bill savings by storing energy when power prices are low and discharging during high demand events, providing more power supply when needed the most.

Battery energy storage provides significant local investment opportunities in Texas communities, supports local landowners via land leases or acquisitions, and broadens local tax bases. This project is expected to provide tens of millions of dollars of property tax benefit to the City of Tomball and Harris County over two decades.

Technical Summary: Battery Energy Storage Systems

Battery Energy Storage Systems are the leading technology for the storage of electricity to provide resiliency to the electric grid. The main battery technology is lithium-ion and within that the two main chemistries are Nickel Magnesium Cobalt (NMC) and lithium iron phosphate (LFP). For this project, LFP is the intended chemistry to be used due to its safer properties.

The most basic block of a battery is the battery cell. Each cell is combined with other cells into a battery module which provides a more usable form factor for energy systems. These modules are

installed in racks inside a metal enclosure. These metal enclosures typically are 20 to 40 ft in length, 6-8 ft wide and 8 ft tall. An enclosure typically provides around 3-5 Megawatt Hours of energy.

A proposed project consists of many number of enclosures to create the required energy capacity. Since the batteries provide direct current (DC) power, an inverter is needed to convert the DC power into alternating current (AC) power. Inverters typically range from 1 to 5MW in size and may have one or several enclosures connected to each. Given the project is tied to the utility grid, the AC power is stepped up from ~600-690VAC from the inverter to 34.5kV or higher to tie into the grid. This step up is performed by the power transformers and may go through two sets (medium voltage transformer and a main power transformer). The main power transformer is located in a substation on site which provides high voltage control and protection.

The proposed project will have a site controller that will safely operate the batteries and all associated equipment. Market signals are sent to the site controller for the project to follow. Additionally, there will be a robust fire safety system for the site.

Fire Safety Considerations

National Safety Standards: One of the top considerations for battery energy storage systems is safety. The National Fire Protection Association and Underwriters Laboratory have established robust safety standards specific to lithium-ion battery energy storage systems. The most relevant standards are overviewed below:

Standard	Description (Project Context)	Scope
UL 9540	Safety standard for energy storage systems and equipment. Aggregation of 1973, 1741, and fire safety at a system level, not just stand-alone equipment.	System
UL 9540A	Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, prescribes procedure to perform cells –large scale fire testing.	DC Block
UL 1973	Safety standard for batteries used in stationary applications. Includes mechanical, electrical, and fire tests at cell level.	Inverter
UL 1741	Complement to IEEE 1547 –Interconnection of DR, functional, performance, and safety requirements for inverters.	Cells, Modules
NFPA 855	Standard for the installation of energy storage systems and references UL9540A test method	System/Facility

The Proposed Project will meet or exceed all applicable national safety standards.

Fire Safety Features: The industry has developed a multi-layered approach for monitoring and mitigating any fire safety event. As part of our approach to the project design, the safety features will be designed into an integrated system that is specific to the project needs.

Additional highlights and monitoring and mitigation features that may be deployed include:

- Battery Management System continuously monitors health and safety of battery and provides controlled shutdown in abnormal conditions to provide early-fault detection and mitigation
- Smoke and heat detectors may be designed either internally or externally to enclosure, providing detection and annunciation of an abnormal event.
- Gas detectors monitors and detects off-gassing that may indicate early-stage abnormal event
 and provides controlled shutdown and ventilation to mitigate an explosive condition.
- Layout Separation Distance UL 9540a is a large-scale fire test standard that determines the
 minimum separation distance between enclosures to prevent fire propagation. This separation
 distance is then utilized in the site spacing between battery enclosures.
- Module and Enclosure batteries are encased in metal shells and enclosures to reduce propagation.
- Gas Ventilation/Deflagration Panels prohibits the buildup of gases reaching unsafe conditions within an enclosure or allows controlled release of gases.
- Water suppression water may be utilized to control fire propagation.
- Electrical safety design devices such as fuses, circuit breakers, surge protection device, insulation monitoring device and others protect the electrical system from a fault condition.

Emergency Response Plan: An emergency response plan is a project specific document that details the procedure operators, first responders, and other stakeholders must follow during a safety event. For the project, there are 3 phases for the ERP including:

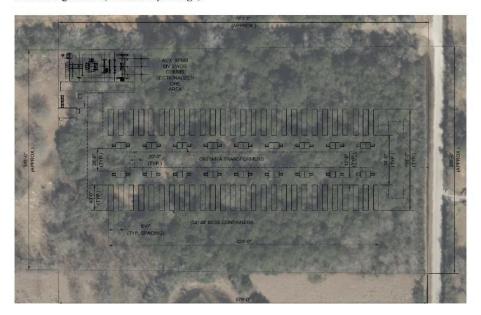
<u>During Construction</u> – City, Fire Department, Developer, equipment manufacturers, and fire safety consultants work together to establish the plan requirements based on land-use and resource protection limitations. This may include proximity to populated area(s), sensitive natural resources, and critical infrastructure. Once the requirements are established, the stakeholders will prepare a site-specific emergency response plan. The Plan will define the roles and responsibilities and covers potential emergency scenarios including fire. It is common to establish an agreed upon fire command center location onsite for first responders. The fire command center will typically include access for first responders to view the operating data of the site including cell temperatures, battery operating status, alarm status, and many other data points to help assess the situation.

<u>Commissioning</u> – During this phase, there will be onsite safety training of fire personnel and onsite project staff and covers all components of the emergency response plan.

<u>Operations</u> – During this phase, the emergency response plan is implemented. There will be ongoing drills, training, and refreshing of the plan as needed.

Hazard Mitigation: A hazard analysis report will be conducted to evaluate the site-specific impacts of a battery installation. The hazard analysis report will account for the expected lithiumion battery technology and its data including temperature and quantity and types of gases generated during a thermal runaway event. This Report will be used to analyze impact to key receptors that have been identified. The goal of the hazard analysis is to provide quantitative analysis to the potential impacts of the project as well as provide for recommended mitigation strategies to minimize those impacts.

Site Configuration (Preliminary Design):



Site Configuration (Digital Renderings):





Note: Renderings are not specific to proposed site and are representative of BESS facilities.



CENTERLINE ENGINEERING & CONSULTING, LLC. 8312 Upland Avenue, Lubbock, Texas 79424 (806) 470–8686 TBPE Reg. No. F-16713 TBPLS Reg. No. 10194378

Metes and Bounds

BEING all of Lot Two Hundred Sixty-five (265) of Tomball Townsite Addition to Harris County, Texas, as recorded in Volume 2, Page 265, Deed Records of Harris County, Texas, ad being further described by metes and bounds as follows:

BEGINNING at a 1/2 Inch Iron Rod Found for the Northeast Corner in the West Right-of-Way line Pitchford Road, same being the Southeast Corner of Lot 261 of said Tomball Townsite;

THENCE South 1°51'45" East - 378.05 feet along the West Right-of-Way line of said Pitchford Road to a 1/2 Inch Iron Rod Found for the Southeast Corner, same being the Northernmost Northeast Corner of Lot 269 of said Tomball Townsite;

THENCE South 88°00'05" West - 575.59 feet along the North line of said Lot 269 to a 1/2 Inch Iron Rod Found for the Southwest Corner, same being the Southeast Corner of Lot 264 of said Tomball Townsite;

THENCE North 2°03'25" West - 377.36 feet along the East line of said Lot 264 to a 1/21Inch Iron Rod Found for the Northwest Corner, same being the Northeast Corner of said Lot 264;

THENCE North 87°56'00" East - 576.87 feet along the South line of said Lot 261 to the POINT OF BEGINNING and containing within these calls a calculated area of 5.00 Acres more or less.

Justin Cantwell, RPLS 6331

Date: March 15, 2023

Figure "G" Concept Plan

