CITY OF TEXAS CITY
SPECIAL CALLED CITY COMMISSION MEETING

AGENDA

WEDNESDAY, JANUARY 22, 2025 - 5:00 P.M.
KENNETH T. NUNN COUNCIL ROOM - CITY HALL
1801 9th Ave. N.
Texas City, TX 77590

PLEASE NOTE: Public comments and matters from the floor are generally limited to 3 minutes in length. If you would like to request to speak, please do so in advance of the meeting by filling out a Request To Address Commission form. All in attendance are required to remove hats and/or sunglasses (dark glasses) during meetings and to also silence all cell phones and electronic devices.

(1) ROLL CALL

(2) INVOCATION

(3) PLEDGE OF ALLEGIANCE

(4) PROCLAMATIONS AND PRESENTATIONS

(a) Service Awards

Aubrey Wilson	Library	01/20/2015	10 years
Andra Crussell	Public Works	01/20/2015	10 years
Louis Sendejas	Water Distribution	01/06/2015	10 years
Robert Hext	Sanitation	01/27/2010	15 years
George Fuller	Administration	01/08/1990	35 years

(b) EMS Excellence Award for Outstanding Service 2024

(5) REPORTS

(a) Parks Division (Recreation and Tourism)

(6) PUBLIC HEARING

(a) Public Hearing to receive comments regarding the zoning change request from CastleRock Communities

(7) PRELIMINARY ZONING APPROVAL

(a) Consider and take action on the preliminary zoning approval of the request from CastleRock Communities to rezone from District A Single Family Residential to District I – Planned Unit Development. (City Engineer)

(8) CONSENT AGENDA

(a) Approve City Commission Minutes for January 6, 2025 meeting. (City Secretary)

(b) Consider and take action on Resolution No. 2025-005, authorizing the City of Texas City to enter into an agreement with Stripe Lines LLC to re-strip the streets and roads in the Lago Mar Subdivision. (Public Works)

(c) Consider and take action on Resolution No. 2025-006, approval of the subdivision Master Plan and requested zoning change from District A - Single Family Residential to District I- Planned Unit Development for Willow Wood Subdivision. (City Engineer)

(d) Consider and take action on Resolution No. 2025-007, authorizing the Director of Library Services to remove delinquent fees and fines that are attached to library patron accounts that expired prior to January 1, 2018. (Library)

(e) Consider and take action on Resolution No. 2025-008, authorizing the execution of an Engineering Agreement with ARKK Engineers, LLC., from Houston, Texas, for the Water Transmission Main Replacement at 14th Street Water Plant and Installation of Water Well Discharge Piping at Orchid Water Plant Project. (Public Works)

(9) REGULAR ITEMS

(a) Consider and take action on Ordinance No. 2025-01, authorizing a budget amendment to accept and appropriate funds from College of the Mainland (COM) as part of the Public Private Partnership MOU agreement. (Fire)

(b) Consider and take action on Ordinance No. 2025-02, amending the Code of Ordinances, City of Texas City, Texas, Title III "Administration", Chapter 32 "Law Enforcement and Fire Department", Section 32.009 "Fire Department; Classes of Positions", by increasing the number of positions allocated to the classification of Firefighter from 49 to 50 and increasing the total number of authorized “Classified Service” positions by (1) one, from 93 total positions to 94 total positions, In order to facilitate the College of the Mainland Public Private Partnership MOU agreement between the City of Texas City and COM, the number of firefighter positions must increase by one. (Fire)

(c) Consider and take action on Resolution No. 2025-009: authorizing the purchase of a 5-year annual subscription and implementation for a Financial Disclosure Management and Budgeting & Planning software system provided by Gravity Technology Corp. (Finance)

(d) Consider and take action on Resolution No. 2025-010, ratifying approval of the City of Texas City's payment to the Texas Municipal League (TML) Intergovernmental Risk Pool. (Finance)

(e) Consider and take action on Resolution No. 2025-011, authorizing the payment of water purchases and Operation and Maintenance (O&M) commitments to the Gulf Coast Water Authority for Budget Year 2024-2025. (Public Works)

(10) COMMISSIONERS' COMMENTS

(11) PUBLIC COMMENTS

(12) MAYOR'S COMMENTS

(13) ADJOURNMENT

NOTICE OF ANY SUBJECT APPEARING ON THIS AGENDA REGARDLESS OF HOW THE MATTER IS STATED MAY BE ACTED UPON BY THE CITY COMMISSION.

NOTICE: The City of Texas City will furnish free transportation to handicapped individuals via a 4-door sedan for anyone wishing to attend the City Commission meetings. Call 948-3111, City Secretary's Office before noon on Monday preceding the meeting to make arrangements.

I, THE UNDERSIGNED AUTHORITY, DO HEREBY CERTIFY THAT THIS NOTICE OF MEETING WAS POSTED ON THE BULLETIN BOARDS AT CITY HALL, 1801 9TH AVENUE NORTH, TEXAS CITY, TEXAS, AT A PLACE CONVENIENT AND READILY ACCESSIBLE TO THE GENERAL PUBLIC AND ON THE CITY'S WEBSITE ON JANUARY 17, 2025, PRIOR TO 5:00 P.M. AND REMAINED SO POSTED CONTINUOUSLY FOR AT LEAST 72 HOURS PRECEDING THE SCHEDULED TIME OF SAID MEETING.

_____

RHOMARI LEIGH
CITY SECRETARY

CITY COMMISSION REGULAR MTG **(4) (a)**

Meeting Date: 01/22/2025

January 2025 Service Awards

Submitted For: Jennifer Price, Human Resources

Submitted By: Susan Sensat, Human Resources

Department: Human Resources

Information

ACTION REQUEST

Service Awards

Aubrey Wilson	Library	01/20/2015	10 years
Andra Crussell	Public Works	01/20/2015	10 years
Louis Sendejas	Water Distribution	01/06/2015	10 years
Robert Hext	Sanitation	01/27/2010	15 years
George Fuller	Administration	01/08/1990	35 years

BACKGROUND (Brief Summary)

Service Award(s) for the following individual(s) for the month of January is based on their years of service with the City.

RECOMMENDATION

Human Resources recommend approval of the January service awards.

Fiscal Impact

CITY COMMISSION REGULAR MTG **(4) (b)**

Meeting Date: 01/22/2025

EMS Excellence Award for Outstanding Service 2024

Submitted For: Mathew Wyatt, Fire Department

Submitted By: Mathew Wyatt, Fire Department

Department: Fire Department

Information

ACTION REQUEST

The Fire Department would like to present the EMS Excellence Award for Outstanding Service 2024 to the Medic with the most EMS calls for 2024.

BACKGROUND (Brief Summary)

Sean Harper of the Texas City Fire Department ran a total of 611 EMS calls for the TCFD in 2024, with a total of 420 transports.

RECOMMENDATION

We recommend being allowed to present this award at the meeting.

Fiscal Impact

Funds Available Y/N: Y

Amount Requested: 0

Source of Funds: N/A

Account #: N/A

Fiscal Impact:

This agenda item will not have any financial impact.

CITY COMMISSION REGULAR MTG **(5) (a)**

Meeting Date: 01/22/2025

Submitted By: Rhomari Leigh, City Secretary

Department: City Secretary

Information

ACTION REQUEST

Parks Division (Recreation and Tourism)

BACKGROUND (Brief Summary)

RECOMMENDATION

Fiscal Impact

Attachments

Staff Report

CITY OF TEXAS CITY
DEPARTMENT OF PARKS, RECREATION & TOURISM

PARKS DEPARTMENT DIVISION
COMPLETED CAPITAL PROJECTS

COMMISSION MEETING
January 22, 2024

ROBINSON STADIUM OUTFIELD FENCE REPLACEMENT

- 583FT OF OUTFIELD WOODEN FENCE REPLACED WITH TREATED PINE

GODARD PARK JUNIOR FIELD PRESS BOX & CONCESSION REPAIRS

- REPLACEMENT OF DAMAGED EAVES
- REPLACEMENT OF SHINGLE ROOF
- ALL 8 BUILDINGS AND BATTING CAGE WERE PRESSURE-WASHED AND PAINTED TO MATCH

Texas City
EST. 1911

BAY STREET PARK, RAINBOW PAVILION

- REPLACE ALL ROTTED OR DAMAGED WOOD COMPONENTS.
- REMOVE/GRIND ALL RUST FROM STEEL RAILINGS, PAINTED
- ROOF REPLACED
- LED LIGHT FIXTURES INSTALLED

LOWRY FITNESS CENTER TENNIS COURTS RESURFACING

- COURTS WERE POWER WASHED, DEPRESSIONS WERE PATCHED, RIDGES WERE GROUND DOWN AND EXISTING CRACKS WERE FILLED IN

- COATINGS OF RESURFACER WERE APPLIED AND THEN COATS OF SPORTCOLOR WERE APPLIED TO PROVIDE DEPTH COLOR OVER ENTIRE SURFACE

Texas City
EST. 1911

PLAZA OF AMERICAS, CITY HALL & LIBRARY FOUNTAIN REPAIRS

- LEAKS REPAIRED, NEW PLASTER AND TILE INSTALLED
- CRACKS TREATED WITH EPOXY AND EXPANSION JOINTS RESEALED
- ALL PLUMBING LINES TROUBLESHOOT AND FLOAT SYSTEMS REPAIRED

BAY STREET PARK SOCCER PAVILION

- ALL STEEL RAILS SURFACES WERE GRIND AND RUST REMOVED, TREATMENT OF RUST INHIBITOR AND PAINTED

- NEW HARDIE PANEL INSTALLED AND ENTIRE BUILDING PAINTED

- WINDOW TRIM AND FASCIA TRIM REPLACED

Texas City
EST. 1911

BAY STREET PARK BRIDGE REPAIRS

- ALL WOOD AND HANDRAILS HAS BEEN REPLACED ON FOUR BRIDGES AT BAY STREET PARK

- THIS COMPLETES ALL WOODEN BRIDGES AND WOODEN PIER PROJECTS OVER A 2 BUDGET YEAR PROCESS

CARVER PARK OUTDOOR FITNESS STATION

- NEW ADDITION TO CARVER PARK A 30’ X 30’ OUTDOOR COVERED FITNESS STATION WITH 10 WORKOUT STATIONS WITH RUBBER FALL SURFACING AND SIDEWALK ADDITION

Texas City
EST. 1911

BAY STREET PARK, RAINBOW AMPHITHEATER HANDRAILS

- 680ft OF EXISTING HANDRAIL WITH WOODEN 4 X 4 POSTS WERE REPLACED WITH SQUARE STEEL POSTS AND THE ROUND STEEL HANDRAIL WAS REUSED AND PRIMED AND PAINTED WITH OIL BASE PAINT

CALPINE VOLUNTEER GROUP

- APRIL 26, 2024, CALPINE VOLUNTEER GROUP CAME DOWN FOR EARTH DAY AND PLANTED NEW PLANTS AT FLOWERBEDS AT SALVATION ARMY PARK

Texas City
EST. 1911

SERVOLUTION VOLUNTEER GROUP

- MAY 4, 2024, SERVOLUTION VOLUNTEERS WHICH INCLUDES SEVERAL CHURCHES IN THE AREA CAME OUT TO GODARD PARK AND PAINTED THE MAJOR OUTFIELD FENCE AND THE PARK PERIMETER WHITE FENCES

KID FISH EVENT

- PROMOTING FAMILIES,PARENTS AND KIDS TO SPEND TIME IN THE OUTDOORS TOGETHER
- ANNUAL EVENT HELD AT CARVER PARK POND EVERY JUNE
- AVERAGES ABOUT 150-165 PARTICIPANTS EVERY YEAR
- NEXT EVENT DATE JUNE 7, 2025

Texas City
EST. 1911

RAINBOW TROUT KID FISH EVENT

- ANNUAL EVENT HELD AT CARVER PARK POND EVERY JANUARY
- AVERAGES ABOUT 250+ PARTICIPANTS EVERY YEAR
- NEXT EVENT JANUARY 25, 2025

CITY COMMISSION REGULAR MTG **(6) (a)**

Meeting Date: 01/22/2025

Public Hearing to receive comments regarding the zoning change request from CastleRock Communities

Submitted For: Kim Golden, Transportation and Planning

Submitted By: Curt Kelly, Transportation and Planning

Department: Transportation and Planning

Information

ACTION REQUEST

Conduct a public hearing to receive public comments regarding the zoning change request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision - a Master Planned Community within the City of Texas City. Located southeast of SH3 and south of FM 1764.

BACKGROUND (Brief Summary)

Applicant, Castlerock Communities, Inc, proposes to develop an **80-acre tract of lan**d, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop **213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft**, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1 acre park/green space with a playground, seating areas, and landscaped entry reserves.

The subject tract is included in GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The PUD rezoning application is presented to satisfy the requirements of the Development Agreement.

RECOMMENDATION

Staff recommend approval of the subdivision master plan and the requested zoning change from District A - Single Family Residential to District I - Planned Unit Development.

The Planning Board recommended approval of the master plan and PUD at its regular meeting on October 7, 2024.

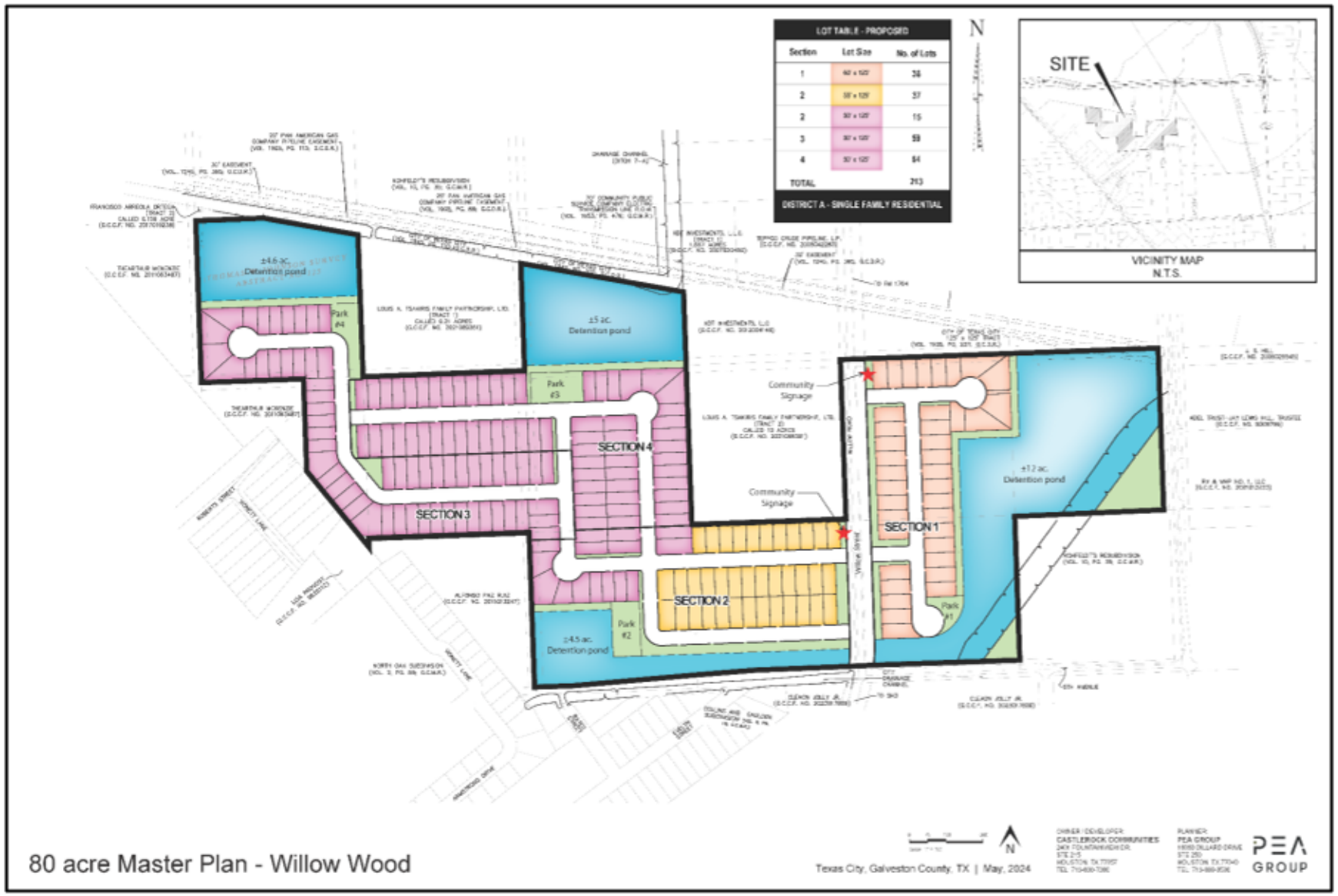
The Zoning Commission held a public hearing at its regular meeting on November 19, 2024. A total of 87 notices were mailed to adjacent property owners within 200ft of the area being rezoned. The Zoning Commission recommended approval (5-0) of the requested zoning change at its meeting on December 17, 2024.

Fiscal Impact

Attachments

01 - Willow Wood Conceptual Master Plan
02 - Willow Wood PUD 8-30-24
03 - Planning Board Staff Report 10.7.24
04 - Planning Board Minutes 10.7.24
05 - Zoning Commission Staff Report 11.19.24
06 - Zoning Commission Minutes 11.19.24
07 - Don Carroll - 1st Response to ZC re Willow Wood
08 - Zoning Commission Staff Report 12.17.24
09 - Zoning Commission Minutes 12.17.24
10 - Willowood Subdivision Drainage Impact Analysis
11 - Drainage Study of Ditch 7 Watershed (Ditch 7, 7A, & 7B)
12 - Don Caroll's 2nd Response

Exhibit 'B' Conceptual Master Plan



Planned Unit District For

Willow Wood Development

Prepared For

Castlerock Communities Inc.

CASTLEROCK COMMUNITIES

Planner:

PEA Group

PEA GROUP

August 29, 2024

TABLE OF CONTENTS

I. INTRODUCTION

II. SITE INVENTORY ANALYSIS

A. Opportunities and Constraints

B. Surrounding Land Use

III. PROJECT DESCRIPTION

A. Land Use

B. Phasing

C. Street Circulation Concept

D. Open Space Amenities Plan

E. School District Zoning

IV. ZONING

A. Existing Zoning

B. Proposed / Future Zoning

V. UTILITIES

EXHIBITS

A. Exhibit A-1 – Project Survey

B. Exhibit A-2 – Legal Description

C. Exhibit B – Conceptual Master Plan

D. Exhibit C – Phasing Plan

E. Exhibit D-1 – Park and Trail Plan

F. Exhibit D-2 – Community Park Image Board

G. Exhibit E – Zoning Map

H. Exhibit F – Development Timeline

I. Exhibit G – Development Agreement

I. INTRODUCTION

The following application is submitted under Section 160.050 “District I (PUD), Planned Unit Development”.

This planned development document was created in accordance with City of Texas City (City) ordinances related to the “(PUD) Planned Unit Development”. The purpose of this document is to encourage the development of the subject property and to promote the most compatible land use within the community.

The Willow Wood project is an 80-acre tract of land, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764. Castlerock Communities Inc. (Developer) is the owner of Subject Tract, and it intends to develop the property as a single-family residential community, complete with stormwater detention facilities, parks, and open space.

The Subject Tract is party to a Development Agreement approved by the City in 2023 (Exhibit G – Development Agreement). This PUD application is presented to satisfy the zoning requirements of the Development Agreement.

II. SITE INVENTORY ANALYSIS

A. Opportunities and Constraints

Similar to surrounding properties, the Subject Tract is mostly flat with elevations ranging from approximately 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. Existing physical constraints affecting development of the property include the following:

- The eastern portion of the Subject Tract (Parcel ID.186006) falls within 100-year Flood Zone

- The Subject Tract drains to 55’ Galveston County Drainage District No. 2 Easement (G.C.C.F. No. 2000037094)

B. Surrounding Land Use

Land uses in proximity to the Subject Tract include single-family residential tracts, public use property and undeveloped property. Willow Street, an existing local roadway, runs through the Subject Tract, providing connections to state highway FM1764 to the north and Phillips Street to the south. The entrances on Willow Street offer access to both the western and eastern sections of the project. The adjacent parcels to the north of this area predominantly consist of undeveloped land. Southwest of the Subject Tract, neighboring parcels consist of residential family properties situated along State Highway 3. To the southeast lies a creek.

III. PROJECT DESCRIPTION

A. Land Use

Exhibit B – "Conceptual Master Plan" depicts the conceptual lotting plan with the proposed land uses for the tract. The 213 single family detached lots are designed at various dimensions, ranging from 6,000 to 13,000 square feet, with homes that are expected to range in sales price from $275,000 to $375,000. The community will incorporate walking/jogging trails as well as +/- 7.1 acres of park/greenspace with a playground, seating areas, and landscaped entry reserves as displayed on Exhibit D-1 – "Park and Trail Plan".

The density of the project will be approximately 2.7 units per acre, and there will be no non-residential uses. Homes in the project will be a mix of one or two stories.

The property drains into four dual amenity/detention ponds located to the north, south, and east of the project. The east portion of this tract lies within the 100-year flood zone.

Land Use Table

Land Use Category	Acreage	% of Gross Acreage
Single Family	+/- 46.9	58.1%
Detention Pond	+/- 26	33%
Greenbelt and Parkland	+/- 7.1	8.9%
Total	**+/- 80**	**100%**

B. Phasing

The project comprises four distinct sections of single-family lots with varying dimensions. Section 1 and Section 2 constitute Phase 1, while Section 3 and Section 4 comprise Phase 2, as displayed on Exhibit C – "Phasing Plan".

C. Street Circulation Concept

The main point of access to the project will be known as Willow Street. It is an existing 30' roadway that connects to state highway FM 1764. The four entrances on Willow Street offer access to both the western and eastern sections of the project.

D. Park and Trail Plan

According to the Texas City code of ordinances, a minimum of one-half acre of land must be dedicated for public neighborhood park use for every 100 proposed dwelling units. Based upon the proposed number of dwelling units illustrated on Exhibit – B "Conceptual Master Plan" the developer is required to dedicate +/- 1.07 acres of parkland. In accordance with the parks and open space requirements, the community will incorporate walking/jogging trails as well as +/- 7.1 acres of parkland/green belt with a playground, seating areas, and landscaped entry reserves as displayed on Exhibit D-1 – "Park and Trail Plan" and Exhibit D-2 – "Community Park Image Board".

The Developer will create a homeowner's association ("HOA") for the community. The HOA will be responsible for all subdivision and common area maintenance including the dual amenity/detention pond maintenance .

E. School District Zoning

The tract is zoned for Texas City ISD.

II. ZONING

A. Existing Zoning

As illustrated on the current Texas City Zoning Map on the City's website, the project is zoned as "District A Single Family Residential", permitting a minimum 50' lot width and a minimum 120' lot depth with a minimum square footage of 6,000. The existing zoning classifications for the subject property and surrounding properties are further illustrated on Exhibit E – "Zoning Map".

B. Proposed / Future Zoning

The purpose of this document is to redefine the zoning to comply with the approved Master Plan by the Planning and Zoning Department, refer to Exhibit B "Conceptual Master Plan". The lot dimensions to be permitted within this PUD shall be a minimum 50' lot width and a minimum 120' lot depth with a minimum square footage of 6,000. The minimum lot depth shall not apply to lots that front cul-de-sacs or knuckles, but the minimum lot width and square footage

requirements shall still apply. The Developer will abide by rules and regulations of the Texas City Code of Ordinances other than those being modified herein.

III. UTILITIES

All utilities including the water distribution system, sanitary sewer collection system, storm water drainage system, and dual amenity/detention facilities will be financed by the Developer with possible future reimbursement by Galveston County Municipal Utility District No. 66. Ultimately all utilities will be owned and maintained by the City of Texas City except the dual amenity/detention facilities, which will be owned by the MUD and maintained by the HOA.

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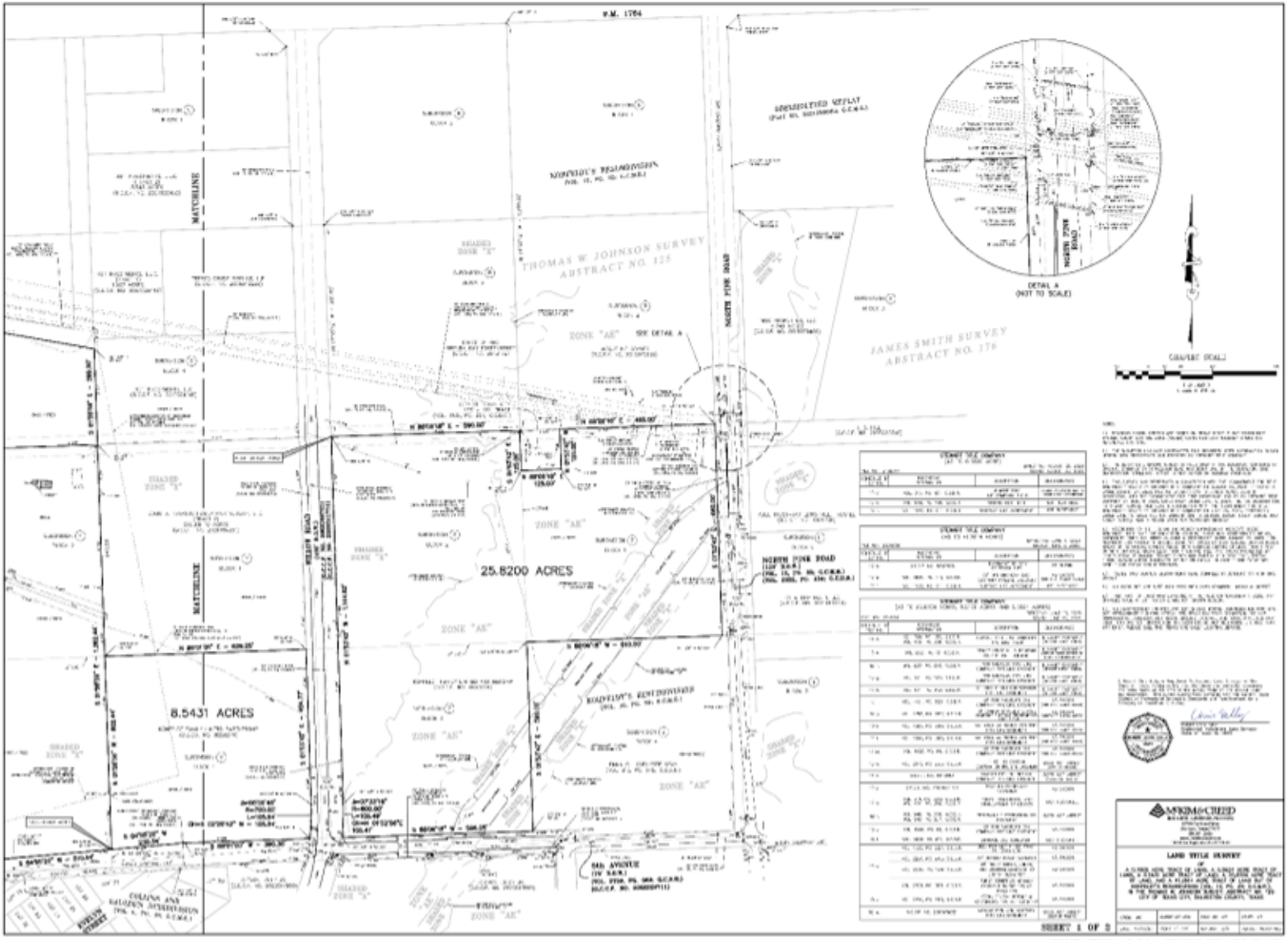
Exhibit 'A-1' Project Survey



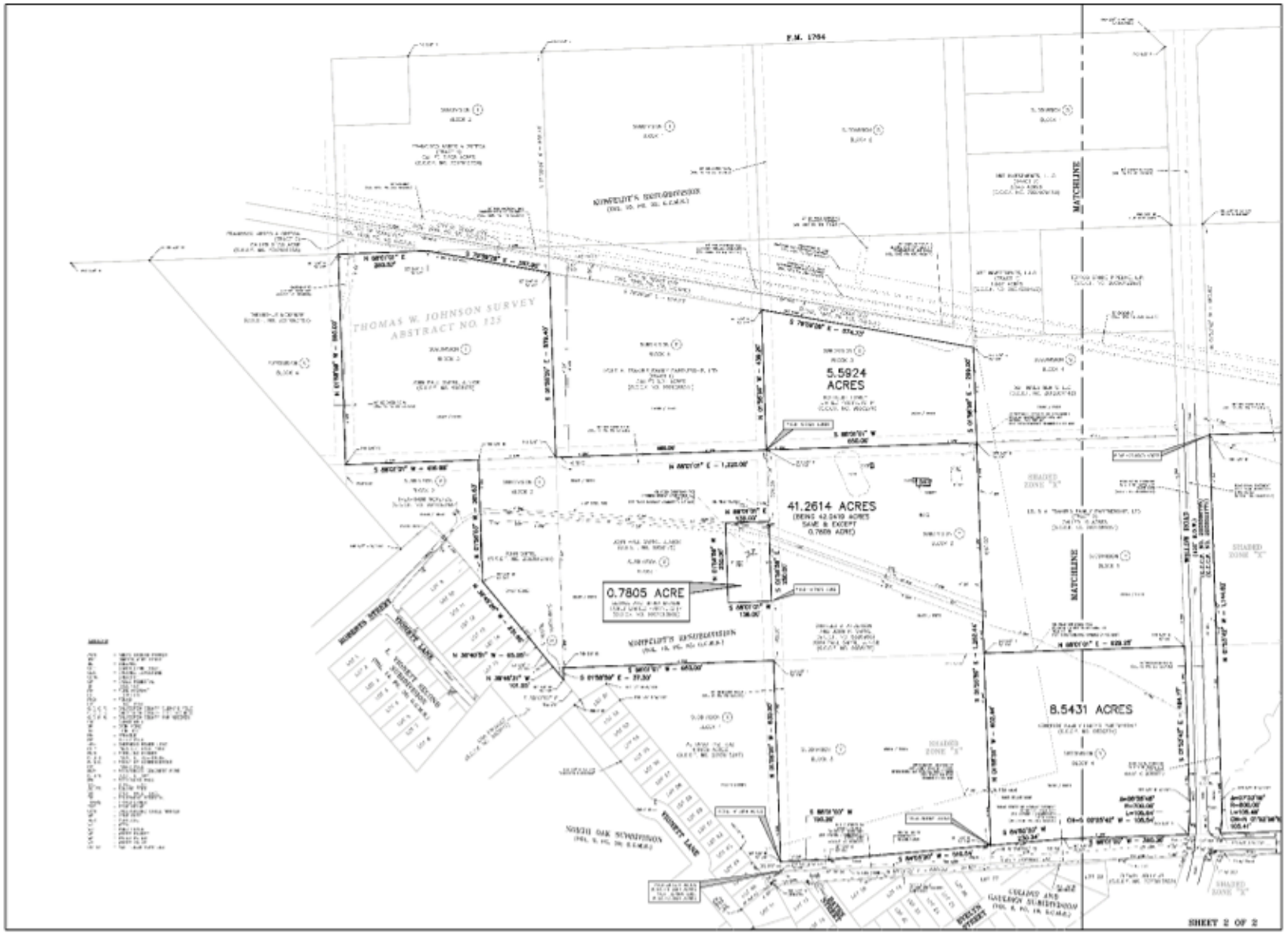

F.M. 1764
MATCHLINE
THOMAS W. JOHNSON SURVEY
ABSTRACT NO. 125
5.5924
ACRES
41.2614 ACRES
(BEING 42.0419 ACRES
SAVE & EXCEPT
0.7805 ACRE)
0.7805 ACRE
8.5431 ACRES
MATCHLINE
SHADED
ZONE "X"
SHEET 2 OF 2

Exhibit 'A-2' Legal Description

November 7, 2023

25.8200 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 25.8200 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 25.8200 acre tract being all of Blocks 1, 2 and 3, Subdivision Z, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; save and except a 125-foot by 125-foot tract of land conveyed to the City of Texas City, as recorded in Volume 1935, Page 227 of the Galveston County Deed Records; save and except a 2.416 acre road right-of-way easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 2003011771; save and except a 1.0606 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records; save and except a 0.3030 acre public street, utility and drainage easement to the City of Texas City, as recorded in Volume 2335, Page 134 of the Galveston County Deed Records; and save and except a 30-foot wide portion of North Pine Road dedicated by said Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

BEGINNING at a 5/8-inch iron rod found in the east line of Willow Road (100 feet wide), as recorded in Galveston County Clerk's File Nos. 2002066705 and 2003011771, in the north line of said Block 2 of Subdivision Z and in the south line of Block 3, Subdivision R of said Kofeldt's Resubdivision for a northwest corner of this tract; from which a 5/8-inch iron rod with cap stamped "Walsh Surveying" found bears North 01° 53' 42" East - 660.00 feet;

THENCE, North 88° 06' 18" East - 590.00 feet with the north line of said Block 2 of Subdivision Z and with the south line of said Block 3 of Subdivision R to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 and 2 of Subdivision Z and Block 3 and 4 of Subdivision R, for the northwest corner of said 125-foot by 125-foot tract conveyed to the City of Texas City, and for a northeast corner of this tract; from which a 1/2-inch iron pipe found in the south right-of-way line of F.M. 1764 bears North 01° 53' 42" West – 1,270.00 feet;

THENCE, South 01° 53' 42" East - 125.00 feet with the east line of said Block 2 of Subdivision Z, with the west line of said Block 1 of Subdivision Z, and with the west line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southwest corner of said 125-foot by 125-foot tract and for an interior corner of this tract;

THENCE, North 88° 06' 18" East - 125.00 feet with the south line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southeast corner of said 125-foot by 125-foot tract and for an interior corner of this tract;

THENCE, North 01° 53' 42" West - 125.00 feet with the east line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the north line of said Block 1 of Subdivision Z and in the south line of said Block 4 of Subdivision R for the northeast corner of said 125-foot by 125-foot tract and for a northwest corner of this tract;

THENCE, North 88° 06' 18" East - 485.00 feet with the north line of said Block 1 of Subdivision Z and with the south line of said Block 4 of Subdivision R to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in west right-of-way line of North Pine Road (100 feet wide at this point), according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records and as recorded in Volume 2335, Page 134 of the Galveston County Deed Records for a northeast corner of this tract;

THENCE, South 01° 53' 42" East - 660.00 feet with the west right-of-way line of said North Pine Road to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the south line of said Block 1 of Subdivision Z and in the north line of Block 4 of said Subdivision Z for a southeast corner of this tract;

THENCE, South 88° 06' 18" West - 610.00 feet with the south line of said Block 1 of Subdivision Z and with the north line of said Block 4 of Subdivision Z to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 1-4 of Subdivision Z and for an interior corner of this tract;

THENCE, South 01° 53' 42" East - 590.00 feet with the east line of said Block 3 of Subdivision Z and with the west line of said Block 4 of Subdivision Z to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the north right-of-way line of 5th Avenue (70 feet wide), as recorded in Volume 2759, Page 363 of the Galveston County Deed Records and in Galveston County Clerk's File No. 2002029711 for a southeast corner of this tract;

THENCE, South 88° 06' 18" West - 596.95 feet with the north right-of-way line of said 5th Avenue to a 5/8-inch iron rod with cap stamped "McKim & Creed" set at the intersection of the north right-of-way line of said 5th Avenue with the east right-of-way line of said Willow Road for the southwest corner of this tract;

THENCE, in a northerly direction with the east right-of-way line of said Willow Road and with a curve to the left having a radius of 800.00 feet, a central angle of 07° 33' 18", a length of 105.49 feet, and a chord bearing North 01° 52' 56" East - 105.41 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for a point-of-tangency;

THENCE, North 01° 53' 42" West – 1,144.82 feet with the east right-of-way line of said Willow Road to the POINT OF BEGINNING and containing 25.8200 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 1.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

8.5431 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of an 8.5431 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 8.5431 acre tract being all of Block 4, Subdivision Y, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; save and except a 2.416 acre road right-of-way easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 2003011771; and save and except a 1.0110 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 88° 01' 01" East - 660.00 feet with the south line of said Block 3 of Subdivision Y to a point for the southeast corner of said Block 3 of Subdivision Y, for the southwest corner of said Block 4 of Subdivision Y, for the southeast corner of said 0.7772 acre public street or highway easement, and for the southwest corner of said 1.0110 acre public street or highway easement (5th Avenue – unimproved right-of-way);

THENCE, North 01° 58' 59" West - 57.56 feet with the east line of said Block 3 of Subdivision Y and with the west line of said Block 4 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northeast corner of said 0.7772 acre public street or highway easement, for the northwest corner of said 1.0110 acre public street or highway easement, and for the southwest corner and POINT OF BEGINNING of this tract;

THENCE, North 01° 58' 59" West - 602.44 feet with the east line of said Block 3 of Subdivision Y and with the west line of said Block 4 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1-4 of said Subdivision Y and for the northwest corner of this tract;

THENCE, North 88° 01' 01" East - 629.25 feet with the north line of said Block 4 of Subdivision Y and with the south line of said Block 1 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the west right-of-way line of Willow Road (100 feet wide), as recorded in Galveston County Clerk's File Nos. 2002066705 and 2003011771 for the northeast corner of this tract;

THENCE, South 01° 53' 42" East - 484.77 feet with the west right-of-way line of said Willow Road to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the point-of-curvature of a curve to the right;

THENCE, in a southerly direction with the west right-of-way line of said Willow Road and with said curve to the right having a radius of 700.00 feet, a central angle of 08° 38' 48", a length of 105.64 feet, and a chord bearing South 02° 25' 42" West - 105.54 feet to a to a 5/8-inch iron rod found at the intersection of the west right-of-way line of said Willow Road with the north line of said 1.0110 acre public street or highway easement (5th Avenue) for the southeast corner of this tract;

THENCE, South 88° 01' 00" West - 390.38 feet with the north line of said 1.0110 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point of said 1.0110 acre public street or highway easement and for an angle point of this tract;

THENCE, South 84° 55' 20" West - 230.34 feet with the north line of said 1.0110 acre public street or highway easement to the POINT OF BEGINNING and containing 8.5431 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 2.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

5.5924 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 5.5924 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 5.5924 acre tract being a portion of Block 3, Subdivision S, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X, Blocks 2 and 3 of Subdivision Y of said Kofeldt's Resubdivision, and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 1,320.00 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X, said Block 2 of Subdivision Y, Block 3 of said Subdivision S, Block 4 of Subdivision T of said Kofeldt's Resubdivision, and for the southwest corner and POINT OF BEGINNING of this tract; from which a 5/8-inch iron rod found for the common corner of said Blocks 3 and 4 of Subdivision T and Blocks 1 and 2 of Subdivision X of said Kofeldt's Resubdivision bears South 88° 01' 01" West - 660.00 feet;

THENCE, North 01° 58' 59" West - 439.20 feet with the west line of said Block 3 of Subdivision S and with the east line of said Block 4 of Subdivision T to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southwest corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 102 of the Galveston County Deed Records, for the southeast corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 110 of the Galveston County Deed Records and for the northwest corner of this tract;

THENCE, South 79° 59' 26" East - 674.73 feet with the southwest line of said 50-foot wide strip to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the east line of said Block 3 of Subdivision S and in the west line of Block 4 of said Subdivision S for the northeast corner of this tract;

THENCE, South 01° 58' 59" East - 299.00 feet with the east line of said Block 3 of Subdivision S and with the west line of said Block 4 of Subdivision S to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 3 and 4 of Subdivision S, Blocks 1 and 2 of Subdivision Y and for the southeast corner of this tract;

THENCE, South 88° 01' 01" West - 660.00 feet with the south line of said Block 3 of Subdivision S and with the north line of said Block 2 of Subdivision Y to the POINT OF BEGINNING and containing 5.5924 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 5.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

41.2614 acres of land being a 42.0419 acre tract save and except a 0.7805 acre tract in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 42.0419 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 42.0419 acre tract being a portion of Blocks 2 and 3 of Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to John Smyrl, as recorded in Galveston County Clerk's File No. 2003012161, being all of Block 1, Subdivision X and a portion of Block 3, Subdivision T of said Kofeldt's Resubdivision, conveyed to John Paul Smyrl, Junior, as recorded in Galveston County Clerk's File No. 9958175, and being all of Blocks 2 and 3, Subdivision Y of said Kofeldt's Resubdivision, conveyed to John Paul Smyrl, Junior, as recorded in Galveston County Clerk's File No. 9958175 and also conveyed to Charles J. Anderson and John P Smyrl, as recorded in Galveston County Clerk's File No. 8326966; save and except a 0.7772 acre public street or highway easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 8326967; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of said Block 3 of Subdivision Y, for the southeast corner of Block 4 of said Subdivision X, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of said 0.7772 acre public street or highway easement (5th Avenue – unimproved right-of-way);

THENCE, North 01° 58' 59" West - 30.00 feet with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, with the east line of said 4.9905 acre tract, and with the west line of said 0.7772 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northwest corner of said 0.7772 acre public street or highway easement and for a southwest corner and POINT OF BEGINNING of this tract;

THENCE, North 01° 58' 59" West - 630.00 feet with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Block 1 and 4 of said Subdivision X and Block 2 and 3 of said Subdivision Y, for the northeast corner of said 4.9905 acre tract, and for an interior corner of this tract;

THENCE, South 88° 01' 01" West - 660.00 feet with the common line of said Blocks 1 and 4 of Subdivision X and with the north line of said 4.9905 acre tract to a 5/8-inch iron rod found for the common corner of Blocks 1-4 of said Subdivision X, for the northwest corner of said 4.9905 acre tract, and for an interior corner of this tract;

THENCE, South 01° 58' 59" East - 37.30 feet with the common line of Blocks 3 and 4 of said Subdivision X and with the west line of said 4.9905 acre tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the northeast line of a tract of land conveyed to Lisa Provost, as recorded in Galveston County Clerk's File No. 9625112 for an angle point of said 4.9905 acre tract and for a south corner of this tract; from which a 1-inch iron pipe found for an angle point of Lot 51, North Oak Subdivision, according to the map or plat recorded in Volume 2, Page 59 of the Galveston County Map Records bears South 39° 12' 52" East - 82.29 feet;

THENCE, North 39° 46' 31" West - 101.55 feet with the northeast line of said Provost tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point;

THENCE, North 38° 40' 51" West - 65.05 feet with the northeast line of said Provost tract to a point for the east corner of Lot 15, L. Vionett Second Subdivision, according to the map or plat recorded in Volume 14, Page 36 of the Galveston County Map Records, for the north corner of said Provost tract and for an angle point of this tract;

THENCE, North 39° 45' 26" West - 231.85 feet with the northeast line of said L. Vionett Second Subdivision to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the south corner of a tract of land conveyed to Thearthur McKenzie, as recorded in Galveston County Clerk's File No. 2011063487 and for a southwest corner of this tract;

THENCE, North 01° 58' 03" West - 381.63 feet with the east line of said McKenzie tract to a 3/8-inch iron rod found in the north line of said Block 2 of Subdivision X and in the south line of said Block 3 of Subdivision T for a northeast corner of said McKenzie tract and for an interior corner of this tract;

THENCE, South 88° 01' 01" West - 416.98 feet with the north line of said Block 2 of Subdivision X, with the south line of said Block 3 of Subdivision T, and with the north line of said McKenzie tract to a 5/8-inch iron rod found for the common corner of said Block 2 of Subdivision X, Block 3 of Subdivision T, Block 4 of Subdivision U, and Block 1 of Subdivision W of said Kofeldt's Resubdivision, for an interior corner of said McKenzie tract and for an interior corner of this tract;

THENCE, North 01° 58' 59" West - 660.00 feet with the west line of said Block 3 of Subdivision T, with the east line of said Block 4 of Subdivision U, and with the east line of said McKenzie tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 2 and 3 of said Subdivision T and Blocks 1 and 4 of said Subdivision U, for a northeast corner of said McKenzie tract and for a northwest corner of this tract;

THENCE, North 88° 01' 01" East - 280.57 feet with the common line of said Blocks 2 and 3 of Subdivision T to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the west corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 98 of the Galveston County Deed Records, for the south corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1979, Page 47 of the Galveston County Deed Records, and for an angle point of this tract;

THENCE, South 79° 59' 26" East - 387.90 feet with the southwest line of said 50-foot wide strip to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the common line of Block 3 and 4 of said Subdivision T for the southeast corner of said 50-foot wide strip and for the southwest corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 110 of the Galveston County Deed Records for a northeast corner of this tract; from which a 5/8-inch iron rod found in the south right-of-way line of F.M. 1764 bears North 01° 58' 59" West - 692.44 feet;

THENCE, South 01° 58' 59" East - 579.40 feet with the common line of said Blocks 3 and 4 of Subdivision T to a 5/8-inch iron rod found for the common corner of said Blocks 3 and 4 of Subdivision T and said Blocks 1 and 2 of Subdivision X for an interior corner of this tract;

THENCE, North 88° 01' 01" East with north line of said Block 1 of Subdivision X and with the south line of said Block 4 of Subdivision T, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Block 1 of Subdivsion X, Block 2 of Subdivision Y, Block 3 of Subdivision S, and Block 4 of Subdivision T and continuing with the north line of said Block 2 of Subdivision Y and with the south line of said Block 3 of Subdivision S for a total distance of 1,320.00 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner Blocks 1 and 2 of said Subdivision Y, Blocks 3 and 4 of said Subdivision S, and for a northeast corner of this tract;

THENCE, South 01° 58' 59" East with the common line of Blocks 1 and 2 of said Subdivision Y, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 1-4 of Subdivision Y and continuing with the common line of Blocks 3 and 4 of said Subdivision Y for a total distance of 1,262.44 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northeast corner of said 0.7772 acre public street or highway easement to the City of Texas City, for the northwest corner of a 1.0110 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records, and for a southeast corner of this tract;

THENCE, South 84° 55' 20" West - 510.54 feet with the north line of said 0.7772 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point 0.7772 acre public street or highway easement and for an angle point of this tract;

THENCE, South 88° 01' 00" West - 150.20 feet with the north line of said 0.7772 acre public street or highway easement to the POINT OF BEGINNING and containing 42.0419 acres of land, save and except 0.7805 acre of land leaving a net area of 41.2614 acres; said 0.7805 acre tract described as follows:

0.7805 acre of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 0.7805 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 0.7805 acre tract being out of Block 1, Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to George and Minna Braun Family Limited Partnership, as recorded in Galveston County Clerk's File No. 2004013806; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X and Blocks 2 and 3 of Subdivision Y and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 846.00 feet to a point for the southeast corner and POINT OF BEGINNING of this tract;

THENCE, South 88° 01' 01" West - 136.00 feet to a point for the southwest corner of this tract;

THENCE, North 01° 58' 59" West - 250.00 feet to a point for the northeast corner of this tract;

THENCE, North 88° 01' 01" East - 136.00 feet to a point in the west line of said Block 2 of Subdivision Y and in the east line of said Block 1 of Subdivision X for the northeast corner of this tract; from which a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X and Block 2 of Subdivision Y bears North 01° 58' 59" West - 224.00 feet;

THENCE, South 01° 58' 59" East - 250.00 feet with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X to the POINT OF BEGINNING and containing 0.7805 acre of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 3.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

0.7805 acre of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 0.7805 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 0.7805 acre tract being out of Block 1, Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to George and Minna Braun Family Limited Partnership, as recorded in Galveston County Clerk's File No. 2004013806; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X, Blocks 2 and 3 of Subdivision Y and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 846.00 feet to a point for the southeast corner and POINT OF BEGINNING of this tract;

THENCE, South 88° 01' 01" West - 136.00 feet to a point for the southwest corner of this tract;

THENCE, North 01° 58' 59" West - 250.00 feet to a point for the northeast corner of this tract;

THENCE, North 88° 01' 01" East - 136.00 feet to a point in the west line of said Block 2 of Subdivision Y and in the east line of said Block 1 of Subdivision X for the northeast corner of this tract; from which a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X and Block 2 of Subdivision Y bears North 01° 58' 59" West - 224.00 feet;

THENCE, South 01° 58' 59" East - 250.00 feet with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X to the POINT OF BEGINNING and containing 0.7805 acre of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 4.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

Exhibit 'B' Conceptual Master Plan

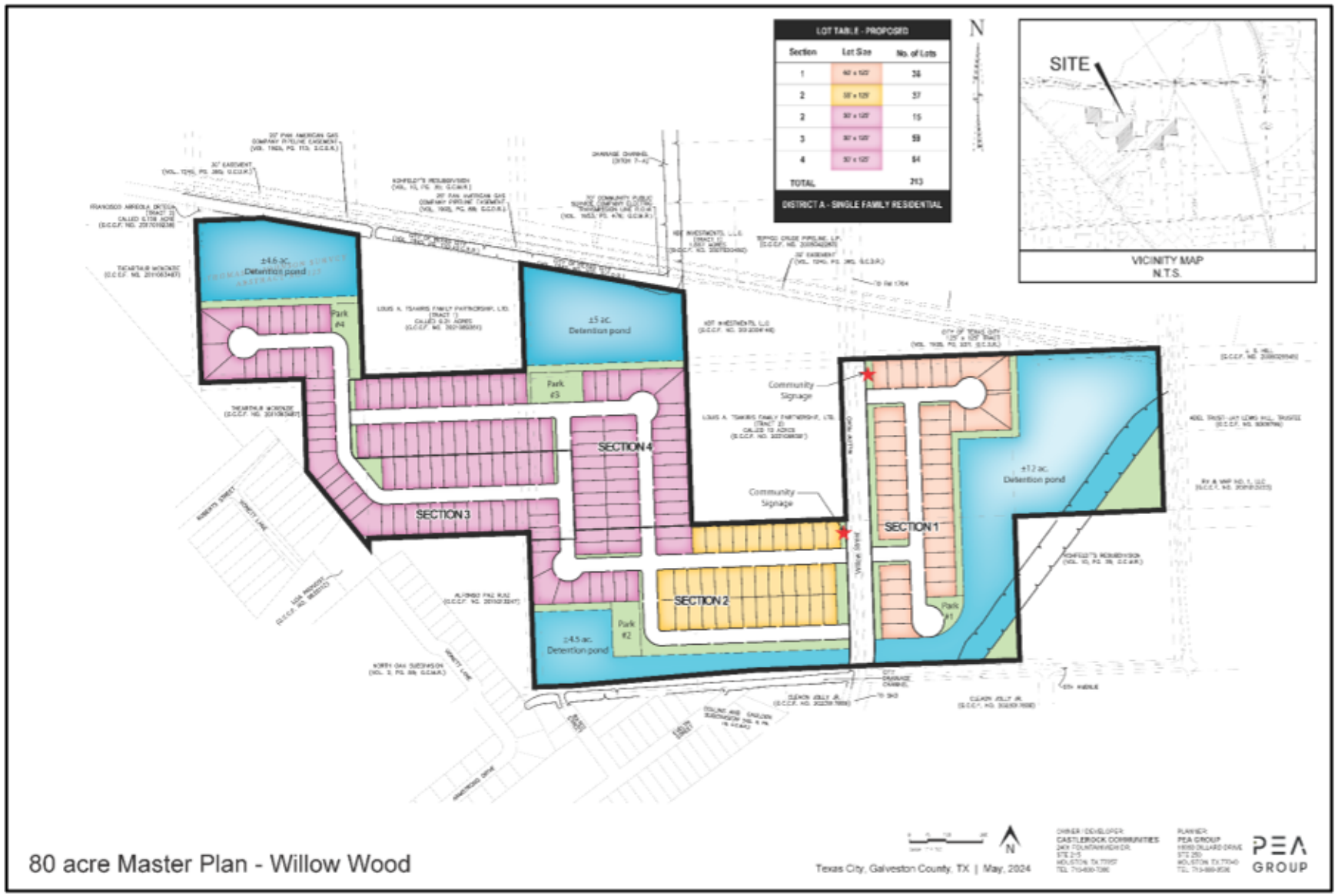


Exhibit 'C' Phasing Plan

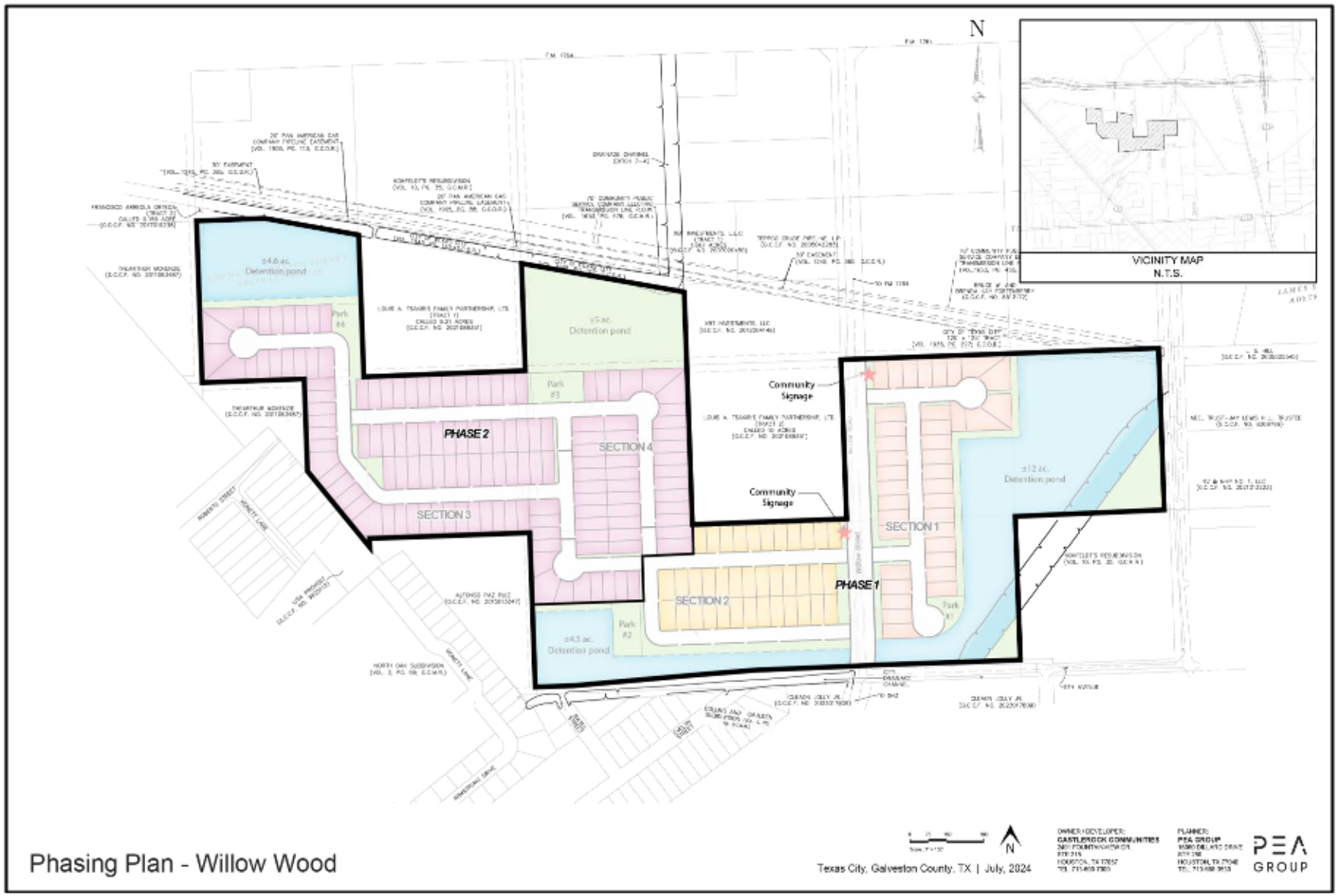


Exhibit 'D-1' Park and Trail Plan

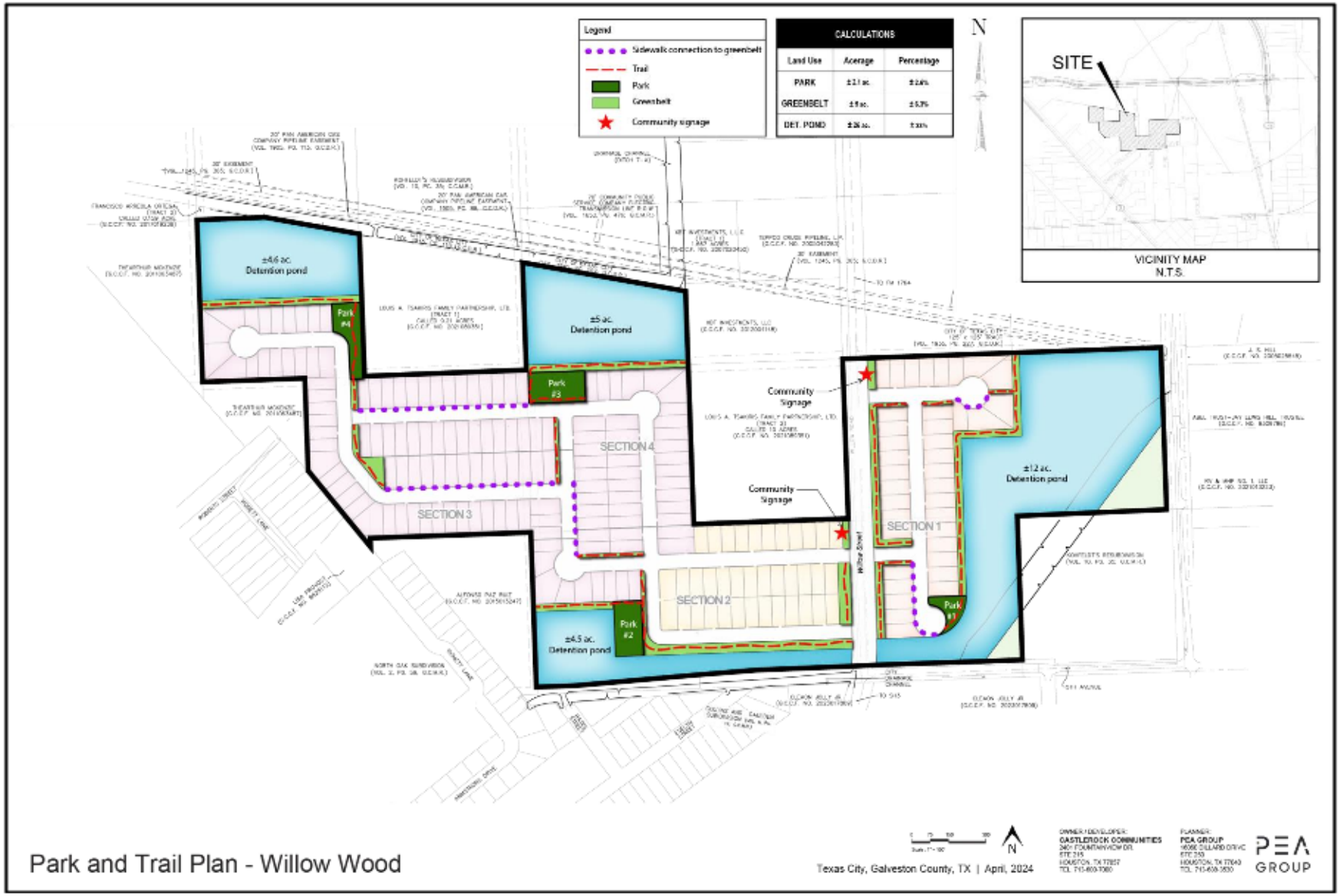


Exhibit 'D-2' Community Park Image Board

Site Furnishing

Bench

Trash receptacle

Aluminum pet station

Pavillion

Open timber truss with column

Square steel pavillion

Free Standing Play Equipment

2 Arch

Apollo spinner and tree fort

Swing set

Spring rider

Playground Equipment

Playground equipment: 2 to 5 years

Playground equipment: 5 to 12 years

Community Park Image Board - Willow Wood

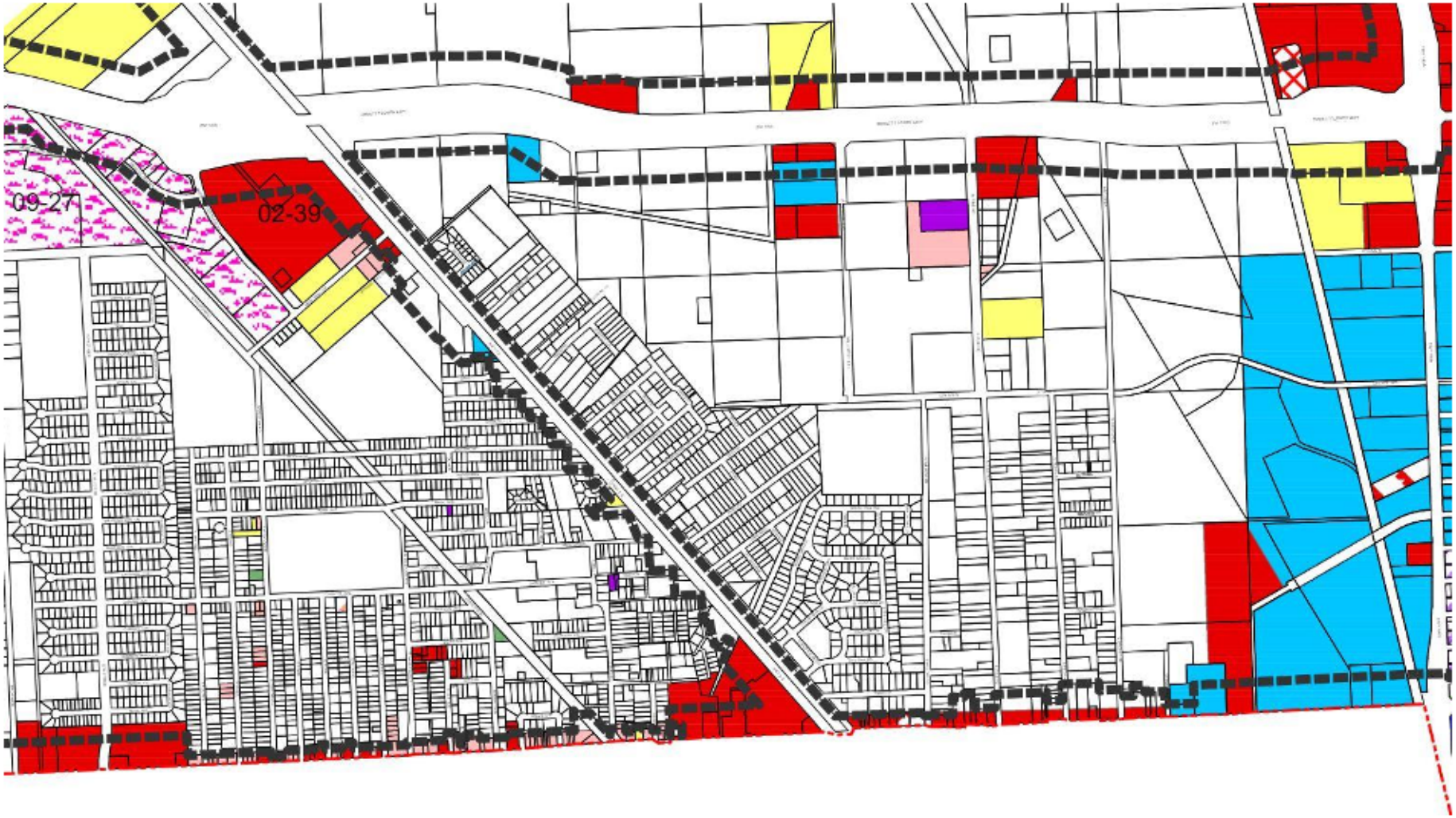
Texas City, Galveston County, TX | May, 2024

OWNER / DEVELOPER
GARTLEROCK COMMUNITIES

PLANNER
PEA GROUP

PEA GROUP

Exhibit 'E' Zoning Exhibit



CITY OF TEXAS CITY ZONING

Legend

ZONING DISTRICT

CENTRAL BUSINESS OVERLAY DISTRICT

ENVIRONMENTAL OVERLAY DISTRICT

GATEWAY CORRIDOR OVERLAY DISTRICT

CITY LIMITS (LAND ONLY)

Texas City EST. 1911

Exhibit F

Development Timeline

Plan to begin development improvements during 3rd and 4th quarter of 2025 with homebuilding to start in 2026.

**The anticipated dates are subject to change due to fluctuating market conditions*

Exhibit 'G' Development Agreement

RESOLUTION NO. 07-101

A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE A DEVELOPMENT AGREEMENT WITH HIGHWAY 66 PARTNERS, LTD. IN CONNECTION WITH THE DEVELOPMENT OF APPROXIMATELY 310 ACRES OF LAND; PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, on November 2, 2005, the City Commission adopted Resolution No. 05-130 consenting to the inclusion of 248 acres in a municipal utility district; and

WHEREAS, subsequent to the adoption of Resolution No. 05-130, the owners and developers acquired additional land that they wish to be included in the municipal utility district, making the total 310 acres; and

WHEREAS, City staff and consultants recommend the Developer (Highway 66 Partners, Ltd.) and City enter into a development agreement to provide the terms and conditions that will govern the development of the Property.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission of the City of Texas City, Texas, authorizes the Mayor to negotiate and execute a Development Agreement with Highway 66 Partners, Ltd. in substantially the same form as Exhibit "A," attached hereto and made a part hereof for all purposes.

SECTION 2: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 15th day of August, 2007.

Matthew T. Doyle, Mayor
City of Texas City, Texas

ATTEST:

Pamela A. Lawrence
City Secretary

APPROVED AS TO FORM:

Robert Gervais
City Attorney

L:Resolution 07-101 Approve Dev Agmt-Hwy66

DEVELOPMENT AGREEMENT

This **DEVELOPMENT AGREEMENT** (this "Agreement"), is made and entered into as of _____, 2007, by and between the **CITY OF TEXAS CITY, TEXAS,** a home rule municipality located in Galveston County, Texas (the "City"), and **HIGHWAY 66 PARTNERS, LTD.**, a Texas limited partnership (the "Developer").

RECITALS

The Developer owns or has under contract approximately 318 acres of land more fully described in Exhibit A, attached hereto (the "Property"). The Property shall also include any additional land annexed into the District (as defined below) with the City's consent. The Developer proposes to develop the Property as a residential community (the "Project"). The Property is currently located within the corporate limits of the City of Texas City, Texas (the "City").

The Developer determined that the creation of Galveston County Municipal Utility District No. 66 (the "District") over the Property was necessary for the provision of water, sewer, and drainage facilities, canals, and certain road and street improvements necessary to develop the Property.

The City has consented to the creation of the District.

The City and the Developer have determined that they are authorized by the Constitution and laws of the State of Texas to enter into this Agreement and have further determined that the terms, provisions, and conditions hereof are mutually fair and advantageous to each.

AGREEMENT

For and in consideration of these premises and of the mutual promises, obligations, covenants, and benefits contained herein, the City and the Developer contract and agree as follows:

ARTICLE 1
DEFINITIONS

The terms "*City*," "*Developer*," "*District*," "*Project*," and "*Property*" shall have the meanings provided for them in the Recitals, above. Except as may be otherwise defined, or the context clearly requires otherwise, capitalized terms and phrases used in this Agreement shall have the meanings as follows:

PUD means the Planned Unit Development for the Property to be adopted pursuant to the City's Zoning Code, Section 40-48 in effect as of the effective date of this Agreement.

Utility Services Agreement means the utility services agreement entered into between the City, the Developer, and the District.

Zoning Code means the City's Revised Zoning Ordinance in effect as of the date of this Agreement.

ARTICLE 2
OBLIGATIONS OF THE CITY

2.01. Acquisition of Easements for Off-Site Utilities. The City will acquire all off-site water and wastewater easements and sites needed to serve the Property using capital recovery fees paid by the Developer and other developers. The City will cooperate with the Developer to insure than all such easements and sites are acquired in timely manner that supports the completion of the off-site water and sewer facilities in a manner that meets the Developers plan for developing the Property, subject to the requirements of section 4.6 and 4.7 of this Agreement and the terms and conditions of the Utility Services Agreement to be entered into between the City, the District, and the Developer.

ARTICLE 3
OBLIGATIONS OF THE DEVELOPER

3.01. Municipal Use Sites. The Developer agrees to contribute $500 per lot to the City for the construction of the municipal use facilities (including but not limited to police, fire and EMS, library, satellite office or utility dispatch uses) to be constructed to serve the area of the City in which the Property is located, with such contribution to be paid at the time the final plat for a phase of development on the Property is filed for recordation.

3.02. Property owners' association. The Developer agrees to create one or more property owners' association to serve the Property and to include all of the Property in at least one of such property owners' association. The Developer further agrees to submit to the Mayor of the City or his designee for review and comment prior to recordation all rules of the property owners' association(s) created to serve the Property and all deed restrictions proposed for the Property. The Developer will provide copies of its commercial deed restrictions and commercial development covenants, if any, to the City for review and approval by the Mayor or his designee at least 60 days prior to filing same.

3.03. Maintenance of certain improvements. The Developer agrees to form one or more property owners association, which shall have as one of their stated purposes to permanently maintain through assessments all lakes, ponds, and other detention facilities and open ditches, open drainage channels, canals, and other open stormwater drainage improvements, parks and recreation facilities, landscaping, and monumentation developed as part of the Project (the "Non-City Improvements") to the extent that the District is not responsible for maintaining such Non-City Improvements. The Developer acknowledges and agrees that the Non-City Improvements will be maintained by the District or by the property owners' association or associations serving the Property, as appropriate, and that the City shall never have the responsibility to own, operate or maintain the Non-City Improvements.

3.04. Cost reimbursement. The Developer shall reimburse the City for professional consulting fees, including legal and engineering, reasonably incurred by the City in connection with the creation and organization of the District, including the review and approval of this Agreement, the Utility Services Agreement, Planned Unit Development, and any other agreements between the City, the Developer and the District. To aid in review and evaluation of the proposed development, the City shall engage the services of consultants and legal counsel. The City will enter into engagement letters and/or service agreements with its consultants and legal counsel. The City will be the client for purposes of these consulting and legal engagements. However, the Developer agrees to be responsible, on behalf of the City, for all fees, expenses, and other costs associated with the City's consulting and legal engagements.

The Developer further agrees to counter-sign the engagement letters between the City and its consultants and legal counsel to acknowledge the Developer's financial responsibility thereunder. The City's consultants and legal counsel shall submit invoices for fees, expenses, and other costs incurred on behalf of the City to the Developer (with a copy to the City) on a monthly basis and such invoices will be payable within thirty days of receipt. The Developer agrees that it will provide payment to the City's consultants and legal counsel accordingly on behalf of the City. The Developer's obligation under this section is cumulative with any other cost reimbursement arrangements previously or subsequently entered into between the City and the Developer.

3.06. Dry Utilities. The Developer agrees that all dry utilities, such as electric, gas, telephone and cable, shall be placed underground throughout the Property; provided, however, that "three-phase" power lines may be elevated and may be placed in easements along the perimeter of the Property and within the interior of the Property as may be required by the power provider to serve the Property. Unless otherwise approved by the City and the Developer and unless no reasonable alternative is available to the power provider for the location of said poles, no elevated three-phase power or larger poles may be placed along any major roads or highways. The Developer agrees that public street light poles throughout the Project shall be

galvanized metal or concrete; provided, however, the Developer may use light poles made out of a material that is of a higher quality than concrete, as determined by the Mayor or his designee. Decorative and specialty light poles are acceptable on private property and along private streets; provided, however, that the City shall never be responsible for maintenance of such light poles.

3.06. 25th Avenue Improvements. The Developer will pay for the cost of extending the northern two lanes of 25th Avenue for approximately 300 feet to the southwest side of Highway 3 and installing related storm drainage facilities (the "25th Avenue Paving Project"); provided, however, that (a) the Developer is not responsible for any paving or other road work on the north side of Highway 3, (b) such costs do not include the relocation of any utilities or pipelines, and (c) such costs do not exceed $150,000.

3.07 Property Values. The Developer recognizes that a significant portion of the City's consideration for entering into this Agreement and consenting to the creation of the District is the Developer's representations that it would achieve an average home value in the District of $160,000 (the "Target Value"). The Developer agrees to make to the City a payment in lieu of taxes (the "PILOT") to compensate the City for any loss of tax revenue attributable to the Developer's failure to achieve the Target Value on the dwelling units that are used to support the financial feasibility of the District's first bond issue, over the life of the first bond issue. The PILOT shall be calculated by first multiplying the City's then current total tax rate by the difference between the Target Value and the certified appraised value, as determined by the Galveston County Appraisal District, of the average completed home in the District on January 1 of the year in which the District sells its first series of bonds, divided by 100 (the "Estimated Annual Revenue Loss Calculation"). The Estimated Annual Revenue Loss Calculation shall be multiplied by a timing factor (the greater of 20 years or the term of the District's first bond issue) to arrive at the PILOT due from the Developer to the City. A table demonstrating the calculation of the PILOT is shown on Exhibit "B" attached hereto and incorporated herein for all purposes. The PILOT shall be paid within 30 days of the Developer's receipt from the District of its share of proceeds from the District's first bond issue.

ARTICLE 4
LAND AND DEVELOPMENT COVENANTS

4.01. Land Use. Developer shall submit to the City, for its review and approval, the plan for the development of the Property (the "General Plan") in accordance with Section 40-48 of the Zoning Code in effect as of the effective date of this Agreement. Developer shall develop or cause any undeveloped Property to be developed in accordance with the latest General Plan approved by the City.

4.02 Planned Unit Development. (a) Developer agrees that development of the Property shall be in accordance with the Zoning Code and the General Plan, as the General Plan may be amended in accordance with the provisions of the Zoning Code and the terms of the PUD.

(b) The Developer and City recognize that it is in the interest of the Developer and the City that part of the Property be used to further the economic development interests of both the Developer and the citizens of the City, including attracting desirable businesses and industry to provide highly skilled jobs and to maintain an appropriate balance between the City's residential and non-residential tax base. Therefore, the Project shall be developed as a PUD in accordance with the Zoning Code. The Developer agrees to comply with all of the procedures provided for a PUD in the Zoning Code. The PUD shall include but not be limited to: (1) proposed land uses; (2) maximum number of housing units; (3) number of lots; (4) sizes of the lots; (5) housing types; (6) prospective commercial uses; (7) street and circulation system/arterial plan; (8) development schedule; (9) request for variance to the development code; (10) typical street cross section with proposed landscape standards; (11) bulk head material; (12) estimated construction value of housing by lot size; (13) proposed amenities plan; (14) utility (water and sewer) plant and sites and trunk line locations; (15) storm water plan; (16) Municipal Utility District boundaries; (17) any likely alternative development scenario; and (18) if a municipal services site is dedicated, it must be shown in the PUD Conceptual Plan.

4.03 Development Covenants. The Developer agrees to adopt deed restrictions and other restrictive covenants, and promulgate the Developer's guidelines regarding development standards, consistent with the PUD, the Zoning Code and any relevant City ordinances and regulations. The Developer will provide copies of its residential deed restrictions and residential development covenants to the City for review and comment by the Mayor or his designee no later than prior to the approval of the first residential development covenants for review and comment no later than prior to the approval of the PUD. The Developer agrees to require Sub-developers to abide by the Developer's development standards and provide for enforcement mechanisms for restrictive covenants.

4.04. Marketing Cooperation. The Developer will share non-confidential marketing information with the City relating to the marketing of the Project, and will solicit recommendations to assist the marketing of the Project from the City. The City will designate a contact person for this purpose.

4.05 Notice. Developer agrees to provide notice to the Mayor or his designee of any material proposed changes, amendments or revisions to the PUD, the Property, or the Project prior to taking any action on such change.

ARTICLE 5
TERM AND DEFAULT

5.01. Term. This Agreement shall be in effect as of the date set forth on the first page hereof, and shall terminate 50 years thereafter, unless terminated earlier as specifically provided herein.

5.02. Default.

a. A party shall be deemed in default under this Agreement (which shall be deemed a breach hereunder) if such party fails to materially perform, observe or comply with any of its covenants, agreements or obligations hereunder or breaches or violates any of its representations contained in this Agreement.

b. Before any failure of any party to perform its obligations under this Agreement shall be deemed to be a breach of this Agreement, the party claiming such failure shall notify, in writing, the party alleged to have failed to perform of the alleged failure and shall demand performance. No breach of this Agreement may be found to have occurred if performance has commenced to the reasonable satisfaction of the complaining party within 30 days of the receipt of such notice. Upon a breach of this Agreement, the non-defaulting Party shall be entitled to specific performance. Regardless of any other provision, neither Party shall be entitled to recover money damages for breach of this Agreement or a tort related to this Agreement. Except as otherwise set forth herein, no action taken by a party pursuant to the provisions of this Section pursuant to the provisions of any other section of this Agreement shall be deemed to constitute an election of remedies and all remedies set forth in this Agreement shall be cumulative and non-exclusive of any other remedy either set forth herein or available to any Party at law or in equity. Each of the parties shall have the affirmative obligation to mitigate its damages in the event of a default by the other party.

ARTICLE 6
MISCELLANEOUS PROVISIONS

6.01. Approvals and consents. Approvals or consents required or permitted to be given under this Agreement shall be evidenced by an ordinance, resolution or order adopted by the governing body of the appropriate party or by a certificate executed by a person, firm or entity previously authorized to give such approval or consent on behalf of the party. Approvals and consents shall be effective without regard to whether given before or after the time required for giving such approvals or consents.

6.02. Address and notice. Any notice to be given under this Agreement shall be given in writing, addressed to the party to be notified as set forth below, and may be

given either by depositing the notice in the United States mail postage prepaid, registered or certified mail, with return receipt requested; by messenger delivery; or by telecopy. Notice deposited by mail shall be effective three days after posting. Notice given in any other manner shall be effective upon receipt by the party to be notified. For purposes of notice, the addresses of the parties shall be as follows:

If to the City, to:
Mayor
City of Texas City, Texas
P.O. Box 2608
Texas City, Texas 77592

If to Developer, to:
Hwy 66 Partners, Ltd.
Attn: Phil Newton
1514 3rd Street
Seabrook, Texas, 77586

cc to the District to:
Galveston County Municipal Utility
District No. 66
c/o: McDonald & Sechrist LLP
770 South Post Oak Lane, Suite 410
Houston, Texas 77056
Attn: Terrie L. Sechrist

The parties shall have the right from time to time to change their respective addressees by giving written notice of such change to the other party at least 15 days prior to the effective date of the change.

6.03. Assignability; successors and assigns. All covenants and agreements contained by or on behalf of a party in this Agreement shall bind its successors and assigns and shall inure to the benefit of the other parties, their successors and assigns. The parties may assign their rights and obligations under this Agreement or any interest herein, only with the prior written consent of the other party, which consent shall not be unreasonably withheld, and any assignment without such prior written consent, including an assignment by operation of law, is void and of no effect; provided that, the Developer may make a collateral assignment in favor of a lender without consent. This Section shall not be construed to prevent the Developer from selling lots, parcels or other portions of the Land in the normal course of business. If such assignment of the obligations by the Developer hereunder is effective, the Developer shall be deemed released from such obligations. If any assignment of the obligations by the Developer hereunder is deemed ineffective or invalid, the Developer shall remain liable hereunder.

6.04. No additional waiver implied. The failure of either party to insist upon performance of any provision of this Agreement shall not be construed as a waiver of the future performance of such provision by the other party.

6.05. Reservation of rights. All rights, powers, privileges and authority of the parties hereto not restricted or affected by the express terms and provisions hereof are reserved by the parties and, from time to time, may be exercised and enforced by the parties.

6.06. Parties in interest. This Agreement shall be for the sole and exclusive benefit of the parties hereto and shall not be construed to confer any rights upon any third parties.

6.07. Merger. This Agreement embodies the entire understanding between the parties and there are no representations, warranties, or agreements between the parties covering the subject matter of this Agreement.

6.08. Modification; Exhibits. This Agreement shall be subject to change or modification only with the mutual written consent of the City and the Developer. The exhibits attached to this Agreement are incorporated by this reference for all purposes.

6.09. Captions. The captions of each section of this Agreement are inserted solely for convenience and shall never be given effect in construing the duties, obligations or liabilities of the parties hereto or any provisions hereof, or in ascertaining the intent of either party, with respect to the provisions hereof.

6.10. Interpretations. This Agreement and the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein and to sustain the validity of this Agreement. This agreement, although drafted by the City, shall be construed fairly and reasonably and not more strictly against the City than the Developer because both parties were represented by legal counsel in the negotiation and review of this Agreement.

6.11. Severability. If any provision of this Agreement or the application thereof to any person or circumstances is ever judicially declared invalid, such provision shall be deemed severed from this Agreement and the remaining portions of this Agreement shall remain in effect.

6.12. Authority within City limits. Regardless of any other provision, nothing herein shall impair or restrict any authority, powers or rights of the City within the incorporated limits of the City.

[EXECUTION PAGES FOLLOW]

AGREED AND ACCEPTED as of the date first above written.

HWY 66 PARTNERS, LTD.,
a Texas limited partnership

By: Jabaz Development Co., Inc.,
a Texas corporation,
its general partner

By: _____
Phil Newton, President

152773

AGREED AND ACCEPTED as of the date first above written.

CITY OF TEXAS CITY, TEXAS

Mayor

ATTEST:

City Secretary

(SEAL)

APPROVED AS TO FORM:

City Attorney

152773

City of Texas City
Highway 66 Partners
Payment in Lieu of Taxes Calculation

I. Estimated Annual AV Value Loss Calculation

A.	$	160,000	Target Value per Dwelling Unit
B.	$	-	(-) Average value per dwelling unit (calculated as the total number of A1 properties at the time of the bond sale / total value of all A1 properties as of the time of the bond sale, to be provided by MUD TAC per GCAD records)
C.	$	160,000	(=) Variance between target value per dwelling unit and average value per dwelling unit
D.	$	160,000	Variance between target value per dwelling unit and average value per dwelling unit
E.		0	(*) Total A1 properties at the time of the bond sale to be provided by MUD TAC per GCAD records
F.	$	-	(=) Estimated AV Loss

II. Estimated Annual Revenue Loss Calculation

G.	$	-	Estimated AV Loss
H.	$	-	(/) 100
I.	$	0.45624	(*) Texas City Tax Rate (at time of bond sale)
J.	$	-	(=) Estimated Annual Taxes Lost

III. Payment in Lieu of Taxes Calculation

K.	$	-	Estimated Annual Taxes Lost
L.		20	(*) Timing factor (20, or the term of the bonds, whichever is greater)
M.	$	-	(=) Total Payment at time of sale

I. Estimated Annual AV Value Loss Calculation

A.	$160,000	Target Value per Dwelling Unit
B.	$130,000	(-) Average value per dwelling unit (calculated as the total number of A1 properties at the time of the bond sale/total value of all A1 Properties as of the time of the bond sale, to be provided by MUD TAC per GCAD records)
C.	$30,000	(=) Variance between target value per dwelling unit and average value per dw
D.	$30,000	Variance between target value per dwelling unit and average value per dwellir
E.	84	(*) Total A1 properties at the time of the bond sale to be provided by MUD TAC per GCAD records
F.	$2,520,000	(=) estimated AV loss

II. Estimated Annual Revenue Loss Calculation

G.	$2,520,000	Estimated AV Loss
H.	$25,200	(/) 100
I.	$0.4562	(*) Texas city Tax Rate (at time of bond sale)
J.	$11,497	(=) Estimated Annual Taxes Lost
K.	$11,497	Estimated Annual Taxes Lost
L.	20	(*) Timing Factor (20 or the term of the bonds, whichever is greater)
M.	$229,945	(=) Total Payment at time of sale

Texas City
EST. 1911
ENGINEERING & PLANNING

STAFF REPORT

To: Planning Board - October 7, 2024

From: Kim Golden, P.E., Engineering & Planning

CC: Doug Kneupper, P.E.

Date: October 4, 2024

Re: Willow Wood Subdivision – Master Plan and request to rezone from District A – Single Family Residential to District I – Planned Unit Development

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Background: Willow Wood Subdivision - Applicant, Castlerock Communities, Inc, proposes to develop and **80-acre tract of land**, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop **213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft**, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1-acre park/green space with a playground, seating areas, and landscaped entry reserves.

The subject tract is included in GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The application is presented to satisfy the requirements of the Development Agreement.

Existing Conditions: The subject tract is mostly flat with elevations ranging from 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. The eastern portion of the site falls within the 100-year flood plain. Land uses near the tract include single family residential tracts, public use property and undeveloped property.

The adjacent properties to the north of this area are mostly undeveloped. Southwest of the site parcels consist of residential properties along State Highway 3, with a creek along the southeast boundary.

Staff analysis: The total lot yield of 213 lots is a proposed density of 2.7 units per acre. An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

Willow Street, an existing local roadway runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project, but developer intends to add additional property for a future second entrance to the west.

Water and sewer facilities are readily available to this project and can be extended from existing mains.

As noted, some of the site is located in the 100-year flood plain and much of the site provided storage. A thorough drainage impact analysis was provided with review and approval from the GCDD # 2.

Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

RECOMMENDATION: City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and have no objection to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

1801 9th Avenue North * P.O. Drawer 2608 * Texas City, TX 77592-2608
(409) 948-3111 * www.texascitytx.gov

PLANNING BOARD MINUTES
OCTOBER 7, 2024

The Planning Board of the City of Texas City met in a regular meeting on Monday, October 7, 2024, at 5:00 p.m. Planning Board members present: Co-Chairman Perry O'Brien, Commissioner Thelma Bowie, Commissioner Jami Clark, Aric Owens, Alternate Member Jose Boix and Alternate Member Andrew Thomas. Staff members present: Kimberly Golden (Secretary), David Kinchen (Deputy Building Official), Kip Urps and Veronica Carreon. Guests were: Jewel Chadd (Langan Engineering), Sherri McElwee (Quiddity Engineering), Bryan Smith (CastleRock Communities), Andy Zepeda (CastleRock Communities), Laura Boyd, Ronny Boyd, Stephanie Tabor (A&S Engineers), Kenneth Clark, and Jerry LeBlanc (Binnacle).

Co-Chairman Perry O'Brien indicated a quorum was present and called the meeting to order.

1) **APPROVAL OF MINUTES**

A motion to approve the minutes of the August 19, 2024 meeting was made by Commissioner Jami Clark/Aric Owens. All other members present voted aye.

2) **PUBLIC COMMENTS**

Jerry LeBlanc addressed the Board and distributed a copy of an email he sent to Ms. Kimberly Golden. He stated he was working last week on some forward projections and his lenders like for him to project out sections at a time.

He emailed Santa Fe Engineering and Ms. Golden regarding expectations and planning. He works with a lot of municipalities and lives in Texas City. All of those municipalities adhere strictly to their ordinance, which is always reviewed and presented to the Planning Board in 30 days.

He has seen situations where there is not a quorum and then the plans are automatically approved. Municipalities experience this because they reference to a new state law and the city ordinances. He asked the Planning Board if they could help him on insight for future submittals because there hasn't been a quorum in a while.

He has quite a bit of stuff that is pending and wants to know where Texas City stands on this 30-day time period. If all of these other municipalities are wrong, how does Texas City interpret it?

Co-Chairman Perry O'Brien replied that he personally does not have the knowledge, but he has been called via phone and made himself available to make a quorum. He knows other board members have as well.

Co-Chairman O'Brien added that he understands public comments are heard and there is a timely response to those comments. They are endeavored to do that, but he cannot give an answer today because he does not know the information.

Mr. LeBlanc replied that he understood. He just wanted to make a public comment, but just wants to know what Texas City expects so that he knows what to put on the performance. He stated he has loans expiring and has to renew them, which puts a bind on everybody involved.

Co-Chairman stated that he understood.

3) **REGULAR AGENDA**

a. **Consider and take action on the Final Plat for Crystal View Blvd Extension. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number 2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located south of Lago Mar Blvd entrance road and west of the I-45 south bound frontage road.**

Ms. Golden indicated that Crystal View Blvd is already built and in place. This plat is for the dedication of the rest of Crystal View Blvd from where it stops now to reach the I-45 southbound frontage road. The second agenda item is the plat for the 14.3 acres that City Commission has approved a Development Agreement with the developer for a way to record this as a final plat before Crystal View Blvd is actually constructed.

The action that is before the Board now is to approve as a final plat the plat for the extension of Crystal View Blvd. This plat is not going to be any different from what's provided for an ordinance. This means the Planning Board will approve it and then it will be recorded after it has been built.

There are a couple of conditions that Ms. Golden included on her staff memo that specifically the approval be conditioned upon final approval of the Traffic Impact Analysis (TIA) and issuance of the necessary access permits by TxDOT.

Staff are moving this a little fast to accommodate the developer and the pending sale there. Those are the last two things that are in the process of being worked out.

The TIA has been under review. There are some final tweaks that need to be worked out among the engineers and they do have their application pending for the permit to make the connection of Crystal View Blvd to the frontage road, but they don't have it yet.

Typically, these items would be in place before bringing forward for final approval.

Co-Chairman Perry O'Brien asked what the typical timeframe for TxDOT is to approve. Ms. Golden replied that Ms. Sherri McElwee has stated this has been pending for about four months. They have been exchanging comments and they are in the process of trying to set up a meeting with TxDOT to go over the final comments.

Ms. McElwee added that typical time is about six months to a year. TxDOT has been accommodating with the amount of development going on right now in the I-45 corridor right now. She believes they have a little more accessibility and waiting on that meeting to go over final comments.

Co-Chairman O'Brien confirmed that six months to a year is typical because he has been asked this question before. Ms. McElwee replied that is correct if everything is in order.

Mr. Jose Boix about the turn into the street. Ms. McElwee replied that the exit for Lago Mar Blvd is a little bit further back but there is some denied access a little south of the driveway where you cannot make a connection because there is another exit planned.

A motion was made by Alternate Member Jose Boix/Commissioner Thelma Bowie to approve the Final Plat for Crystal View Blvd Extension conditioned upon final approval of the TIA by the City of Texas City and issuance of the necessary access permits by TxDOT. All other members present voted aye.

b. **Consider and take action on the Preliminary Plat for Lago Mar Commercial Replat No. 3. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number**

2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located at the southwest corner of Lago Mar Blvd and west of the I-45 south bound frontage road.

Ms. Golden stated this is the Preliminary Plat for 14.3 acres replat which includes the reserves and the property for the grocery store tract. It is referred to as the Lago Mar Commercial Replat No. 3.

It is unusual for both a Preliminary Plat and Final Plat to be brought before the Planning Board at the same meeting, but due to Labor Day Holiday and unfortunately, the lack of a quorum for the second regular meeting in September or a special-called meeting, these two items are being presented.

Staff have reviewed and all comments have been addressed. There are no conditions for this Preliminary Plat approval.

Mr. Boix asked if the TIA would affect this project, to which Ms. Golden replied there would not be any affect.

A motion was made by Mr. Jose Boix/Commissioner Thelma Bowie to approve the Preliminary Plat for Lago Mar Commercial Replat No. 3. All other members present voted aye.

c. **Consider and take action on the Final Plat for Lago Mar Commercial Replat No. 3. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number 2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located at the southwest corner of Lago Mar Blvd and west of the I-45 south bound frontage road.**

Ms. Golden stated that Final Plat for Lago Mar Commercial Replat No. 3 has been reviewed and the developer has addressed all comments made by staff regarding the reserves and the way things outside should be labeled.

This developer put the Final Plat together quickly and staff then reviewed it quickly

This project is where the City Commission has approved a change in the platting procedure that is in the Ordinances. City Commission approved a Development Agreement that specifically sets forth a separate process for this particular lot for this particular condition, which is included in the agenda packet.

Staff have no objection to approval but are recommending the following conditions.

i) Developer's commitment to implement the recommended improvements of the final approved Traffic Impact Analysis (TIA),

ii) The approval of a final TIA, and

iii) The issuance of final permits from TxDOT for the connection of Crystal View Blvd to the I-45 southbound frontage road.

What is not a condition is that it actually be constructed because again, City Commission, through the Development Agreement has already provided for it to be recorded upon bond.

The Developer will post a security bond in a sufficient amount to cover their construction of Crystal View Blvd and the other infrastructure in case they don't actually do the work themselves. It is fully anticipated that the Developer will build the infrastructure. They have three years to complete the work.

A motion was made by Mr. Jose Boix/Commissioner Thelma Bowie to approve the Final Plat for Lago Mar Commercial Replat No. 3 upon with conditions as stated, i.e., the Developer's commitment to implement the recommended improvements, the final approval of the TIA, and the issuance of final permits from TxDOT for the connection of Crystal View Blvd to the I-45 southbound frontage road. All other members present voted aye.

d. **Consider and take action on the Final Plat for Brookwater Sections 1A, Being a replat of a 12.16-acre tract of land out of Lots 9 through 12 of Waterman's Subdivision of the W.K. Wilson Survey, Abstract No. 208, Texas City. Containing 3 blocks, 48 lots and 4 reserves. Located to the east of FM 2004 and north of Mainland City Centre.**

Ms. Golden asked Co-Chairman O'Brien if this item and the next could be read together, to which Co-Chairman O'Brien stated that would be good.

Ms. Golden stated that Brookwater Subdivision was originally presented to the Board and approved as Section 1 in total as a Preliminary Plat. Before presenting a final plat for Section 1 to the Board, the Developer decided to break Section 1 into two sections – Section 1A and Section 1B.

Everything is basically the same. The construction drawings have been broken into the two sections as well so that they will be able to record Section 1A before Section 1B is constructed.

There is one recommendation condition to approval of the Final Plats for Sections 1A and 1B. There is a small section of property owned by the TCEDC between the subdivision and the GCDD#2 drainage canal. It is recommended that acquisition of a drainage easement across the TCEDC property should be a condition for the final plat approval. There has been an arrangement worked out which the TCEDC Board has approved that. Ms. Golden believes they are in the process of executing the necessary documents.

Mr. Jerry LeBlanc stated that the easement agreement with TCEDC has been negotiated. The process started back in May 2024. Mr. LeBlanc stated that it took a while because "The City" stated that they weren't going to give him the 1,500' unless he stopped the condemnation suits on other items pertaining to the city. He stated that his lender told him he had to fold to keep this going. He couldn't fight the other stuff and so he folded.

He added that they have advertised this job and awarded it to a contractor. The paperwork is executed for the easement from TCEDC. His payment in the amount of $3,400.00 for the easement is at the condemnation attorney's office.

He stated he does not have a problem with the condition, but he would like to issue a notice to proceed and schedule a pre-construction meeting and get started. Drainage easements are the last thing constructed. Obviously, they cannot trespass on someone else's property. He is okay with waiting on the drainage easement, but he would like to start the rest of the construction.

Co-Chairman O'Brien asked what the timeline would be with the condition. Ms. Golden replied that the documents are at the lawyer's per Mr. LeBlanc and staff are recommending the condition that the document be fully executed and recorded.

Co-Chairman O'Brien asked if there is no anticipated delay to which Ms. Golden replied that is correct.

A motion was made by Commissioner Jami Clark/Jose Boix to approve the Final Plats for Brookwater Section 1A and Section 1B conditioned upon the execution of a drainage

easement connecting the drainage outfall to the GCDD 2 Ditch 6 system. All other members present voted aye.

e. **Consider and take action on the Final Plat for Brookwater Sections 1B. Being a replat of a 7.19-acre tract of land out of Lots 9 through 12 of Waterman's Subdivision of the W.K. Wilson Survey, Abstract No. 208, Texas City. Containing 2 blocks, 19 lots and 3 reserves. Located to the east of FM 2004 and north of Mainland City Centre.**

This agenda item was discussed and voted on with Agenda Item 3d.

f. **Consider and take action on the Preliminary Plat for Heron's Landing Section 5. Being a tract of land situated in the Daniel Richardson Survey, Abstract No. 167, and the T.G. Western Survey, Abstract No. 204, both in Galveston County. Located to the west of Heron's Landing Section 4 and north of The Island's Subdivision.**

Ms. Golden stated this is the Preliminary Plat for Heron's Landing Section 5. The final plat for Heron's Landing Section 4 has been approved.

Section 5 is the section that will have the reserve for the detention pond. There are a mix of lot sizes – 50's, 60's and 70's. There will be a total of 44 lots.

Sections 1 and 2 have been built out with 76 homes. Eighteen are under construction in Section 3. They have had some delays with TNMP as far as getting some power.

Staff have reviewed the Preliminary Plat for Heron's Landing Section 5 and offer no objection to approval. No conditions are being suggested.

A motion was made by Commissioner Thelma Bowie/Commissioner Jami Clark to approve the Preliminary Plat for Heron's Landing Section 5. All other members present voted aye.

g. **Consider and take action on the Master Plan and PUD for Willow Wood Subdivision – an 80-acre tract of land, comprising of nine individual parcels. Located southeast of SH 3 and south of FM 1764.**

Ms. Golden stated this is a Master Plan for Willow Wood Subdivision. A zoning change request will also be reviewed for changing the 80-acre tract in a District I Planned Unit Development (PUD).

The Applicant is CastleRock Communities, and they have several projects currently underway in Texas City. They are in good standing with the city.

This is 80 acres. They are proposing to develop 213 single family detached lots at various dimensions ranging from the 6,000 sq. ft. minimum to 13,000 sq. ft.

They are going to add a 7.1-acre park/green space with a playground, seating areas and landscaped entry reserves.

This subdivision will only have one way in, which will be via Willow Street. It will serve both the east and west, but the developer anticipates acquiring some additional property for a future second entrance to the west.

Due to their constraints, as Ms. Golden understands, they can't acquire more property until they receive an approval on this Master Plan. Developer and staff fully anticipate that they come forward with an amendment to have another entrance.

Commissioner Thelma Bowie asked if the Developer is aware that some of the plots that are outside of their construction outline have farm animals.

Mr. Bryan Smith (CastleRock Communities) replied that on parcels that where they have closed the purchases the grazing leases have been terminated or have been given their notice of termination. There will not be any livestock on the tracts that the developer will own. Those leases were with the original landowners and that was in their contract to have the leases terminated.

Commissioner Bowie replied that she happens to know some of the landowners, and she doesn't think they have any plans to sell.

Mr. Smith replied that the names she mentioned aren't part of the ownerships they bought from.

Ms. Golden believes that what Commissioner Bowie is asking is whether the Developer is aware that on some of the properties that the developer is not acquiring people are running livestock on those parcels. The developer acknowledged being aware of that information.

Ms. Golden noted that part of the property is in the flood zone and that is why there is the extensive detention pond. They did a thorough drainage impact analysis which the Drainage District thoroughly reviewed. They seem to have figured out what nobody else has been able to figure out which is a solution for the drainage in this area.

Mr. Smith added that they paid to have the entire watershed included in the drainage done first and then they did a drainage study for this property (indicated on the exhibit), and they included the portions that are not within the boundaries for the fact that if they wanted to come back and get the other properties, the drainage would already be included. This causes you to lose more land, but the drainage in not only worked out for this project but other properties that are in the watershed will have a baseline drainage study they will work from.

Mr. Aric Owens asked about Phillips Street and stated he could not find it on Google Maps. Ms. Golden showed how Willow Street turned into Phillips Street on Google Maps.

Mr. Smith added if you are on the freeway there are two large Willow Street exit signs. There is no street sign at all that indicates Philips Street from the frontage road. What they understand is Phillips Street turns south and then becomes Willow Street. He remembers speaking with Doug Kneupper and he thought that Willow Street would continue to the north. This is why on both sides, east or west, are large Willow Street freeway signs.

Ms. Golden asked Mr. Smith to tell the Board what the housing product would look like.

Mr. Smith replied that it would look very similar to Pearlbrook Subdivision. In Sections 1 and 2 they are looking at having some 3 car garages, but they are not to that point yet.

Mr. Boix asked about the zoning change request, to which Ms. Golden replied if the Master Plan is approved then the zoning change request would be presented to the Zoning Commission for an action on the rezoning request. The Zoning Commission will want to know that the Planning Board looked at the Master Plan and have given final approval.

A motion was made by Commissioner Jami Clark/Commissioner Thelma Bowie to approve the Master Plan and the Zoning Change Request and that a provision be made in the PUD to allow the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the Master Plan. All other members present voted aye.

4) GENERAL UPDATES

Ms. Golden then introduced the Planning Board's newest member, Alternate Andrew Thomas.

5) **OTHER BUSINESS (Any conceptual development proposal requesting to come before the Planning Board)**

6) **ADJOURNMENT**

Chairman Dickey Campbell asked if there was any other business to which there was none. **A motion was made by Commissioner Jami Clark/Commissioner Thelma Bowie to adjourn. All members present voted aye.**

Kimberly Golden, Secretary — Date 11/4/2024

Minutes approved by the Planning Board at its meeting on 11/4/2024.

Texas City
EST. 1911
ENGINEERING & PLANNING

STAFF REPORT

To: Zoning Commission - Regular Meeting – November 19, 2024

From: Kim Golden, P.E., City Engineer

CC: Doug Kneupper, P.E.

Date: November 15, 2024

RE: Willow Wood Subdivision - Master Plan and request to rezone from District A-1 Single Family Residential to District I – Planned Unit Development

Background: Willow Wood Subdivision - Applicant, Castlerock Communities, Inc, proposes to develop **80-acre tract of land**, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop **213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft**, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1 acre park/green space with a playground, seating areas, and landscaped entry reserves.

The subject tract is included GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The application is presented to satisfy the requirements of the Development Agreement.

Planning Board recommended approval of the master plan and PUD at its regular meeting on October 7, 2024.

Existing Conditions: The subject tract is mostly flat with elevations ranging from 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. The eastern portion of the site falls within the 100-year flood plain. Land uses near the tract include single family residential tracts, public use property and undeveloped property.

The adjacent properties to the north of this area are mostly undeveloped. Southwest of the site parcels consist of residential properties along State Highway 3, with a creek along the southeast boundary.

Staff analysis: The total lot yield of 213 lots is a proposed density of 2.7 units per acre.

An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit

D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

Willow Street, identified as N. Pine St. on Google Maps, is an existing local street which runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project, but developer intends to add additional property for a future second entrance to the west.

Water and sewer facilities are readily available to this project and can be extended from existing mains.

As noted, some of the site is located in the 100-year flood plain and much of the site provided additional natural detention storage capacity. A thorough drainage impact analysis was provided with review and approval from the GCDD # 2.

Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

RECOMMENDATION: The Planning Board considered and unanimously recommended approval of the Master Plan and PUD at its regular meeting on October 7, 2024. City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and has no objections to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow amendment of the PUD to incorporate the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

ZONING COMMISSION
November 19, 2024

The Zoning Commission of the City of Texas City met in a regular meeting on Tuesday, November 19, 2024, at 5:00 p.m. Zoning Commission members present were: Chairman Perry O'Brien, Commissioner Thelma Bowie, Member Bruce Clawson, and Alternate Member Lisa Salinas. Staff members present were: Kimberly Golden, (Secretary), Casey Bennett (Chief Building Official), David Kinchen (Deputy Building Official), Curt Kelly (Engineering & Planning Administrator), Veronica Carreon (Planning & Zoning Technician), and Brianna Galicia (Engineering & Planning Administrative Assistant). Guests were: Donald Carroll, Willie Carroll, Vernesta Jackson, Nancy Tamez, Jorge Suarez, Warren Jackson, Reggie Jackson, Alice Porter, Willie Fuller, Jon Willhoite, Bryan Smith (CastleRock Communities), Andy Zepeda (CastleRock Communities), and Isai Yanez.

Chairman Perry O'Brien indicated a quorum was present and he informed all he would like to reiterate what he stated about Public Comments.

Chairman O'Brien stated public input will be taken into consideration, but board members cannot respond back unless it is on the agenda. There will be an opportunity for all to give comments during Public Hearing.

Chairman O'Brien then called the meeting to order.

1) APPROVAL OF MINUTES

A motion to approve the minutes of August 6, 2024 was made by Member Bruce Clawson/Commissioner Thelma Bowie. All other members present voted aye.

2) PUBLIC COMMENTS

Chairman O'Brien noted two attendees had completed forms for public comments, both of which were regarding the agenda items. He asked whether there were any objections to taking those comments during the public hearing. There were no objections.

3) Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision- a Master Planned Community within Texas City. Located at SH3 and South FM 1764.

a. STAFF REPORT

Ms. Kim Golden presented the Master Plan for a proposed new subdivision addition to Texas City that sits on 80 acres of land. The Master Plan for Willow Wood Subdivision will develop 213 Single Family Homes on detached lots with developer CastleRock Communities. The city has experience with CastleRock Communities as the developer of the Pearlbrook Subdivision, and as a homebuilder in Lago Mar.

This proposed Willow Wood Subdivision is located just south of Emmett F. Lowry Expy

and east of SH 3 on vacant property which is mostly flat with the northern tract at 11 feet above sea level and southern tract at 14 feet above sea level. The eastern portion of the site is located within the 100-yard flood plain, so the development will be "over detaining" and also will establish finished floor elevations above the base flood elevation for the new homes.

The property surrounding the development is mostly vacant and undeveloped but there are some existing residences south of the site. This site is coming forward for a zoning change to the Planned Unit Development (PUD) because it is located within the existing MUD 99 which is subject to a Development Agreement. The Development Agreement requires the PUD because the city's policy for the use of the special financing district (the MUD) requires some enhancements in the subdivision. These enhancements will include parks and walking trails. Homes will also not use aluminum wire or aluminum clad copper wire and will be built with 60% masonry content.

Water and sewer facilities are available to the site and will be extended within the project. The developer has provided a comprehensive flood plain and drainage model for the watershed which includes more than the 80 acres proposed for development. The modeling and drainage impact analysis was required by the city and Galveston County Drainage District No. 2.

Ms. Golden stated a concern raised by staff is the single point of access to the subdivision, which is located on Willow Street. The developer advises it is intending to acquire more property for a second access once the master plan is approved for the 80 acres.

The subdivision Master Plan has been reviewed and was considered by Planning Board which voted to recommend approval of the master plan. The PUD has been reviewed and comments addressed by the developer. Staff have no objection to approval of the zoning change upon condition that until a second entrance is provided there may be caps placed on the number of permits issued for construction. The Fire Marshal and building officials would work together to set a cap on the number of permits.

Ms. Golden advise the developer's representative, Bryan Smith, was present and could answer any questions.

Commissioner Thelma Bowie asked Ms. Golden if this subdivision would bring in more students to Texas City ISD and Commissioner Bowie was provided an answer of yes.

Commissioner Bowie also raised a concern and asked Mr. Smith if he was aware of the property owners that have livestock in that area and asked if the livestock would butt up again the subdivision property line.

Mr. Smith informed the Commission this had been addressed during the Planning Board meeting, too. The developer has given notice to the three families they purchased land from that the livestock leases would be terminated. The developer acknowledged more livestock being kept near the site and stated a standard solid wooden picket fence will be installed to surround the subdivision.

Mr. Clawson asked Mr. Smith about the drainage studies and wanted to know the purpose of a detention pond next to the Bayou Pierre. Mr. Smith replied that it will serve

two purposes being both detention and on-site mitigation, which means it creates volume in the 100-yard flood plain. Mr. Clawson has concern as to why it would be next to the Bayou Pierre as it has flooded multiple times, and that Moses Lake subject to tidal influence, too. Mr. Clawson said he believes this is a silly idea being that there aren't many banks anyways and cannot grasp the concept.

Mr. Smith informed all that some very smart hydrologists were hired, and he was very confident in what was put into place. Mr. Smith stated the detention ponds will not be directly connected with the Bayou Pierre but there will still be the outfalls of it and the bank will not be removed. Mr. Clawson still didn't understand how it will help owners in a flood. Mr. Smith informed all that the hydrologist did a drainage study.

Ms. Golden then was asked for her input by Mr. Clawson, and she stated the hydrologist modeled when both the tide was up and at a pool stage. Ms. Golden stated it was thoroughly modeled and confirmed the detention would provide for no adverse impact. The developer will not be making any improvements to reduce the flooding or make the condition better, because that is not required. The requirement is to show through the modeling and drainage impact study that the development will not make the flooding any worse. That is the standard required in the city's ordinance. Ms. Golden stated the 100-yard flood was modeled in the study.

Chairman O'Brien wanted to circle back to the fencing surrounding the new subdivision. Mr. Smith stated it is a standard 6' solid picket fence. Chairman O'Brien is concerned that will not hold up well with the livestock as they like to rub on it. Mr. Smith said he will bring that to the home builders' attention to make sure it is substantial enough, so it does not get knocked down due to livestock.

Ms. Golden asked Mr. Smith whether the HOA would be responsible for the fences if knocked down or damaged, and if fences needed to be more robust would that be acceptable to the developer. Mr. Smith said the entry fences along Willow Street would belong to HOA and if he understood what was wanted, he could bring up whether the other perimeter fences would be maintained as to livestock damage.

Commissioner Bowie asked what type of fencing it would be, and Mr. Smith informed all it would be wooden fencing. Commissioner Bowie then raised concern that she would be unhappy and is not an idea situation for both parties, new and existing residents, if she bought a $200,000+ house and the fencing was damaged by livestock.

Chairman O'Brien stated it would be ideal if builder can build a wooden fence as well as barbwire in front of the wooden fence, so livestock isn't tempted to rub up against wooden fence. Mr. Smith replied that he will bring that idea up so it can be considered to install.

Chairman O'Brien asked if there any additional questions. There were none.

b. PUBLIC HEARING

A motion was made by Alternate Member Lisa Salinas/Commissioner Thelma Bowie to open the Public Hearing. All other members voted aye.

Ms. Golden reminded Chairman O'Brien about the written requests to give public

comments which had been deferred without objection. Chairman O'Brien then called the citizens who had requested public comments.

Chairman O'Brien then called Mr. Don Carroll to address the commission.

- Don & Willie Carroll (7305 Blue Jay Drive, Texas City 77591)

  Mr. Don Carroll spoke on behalf of himself and his father Willie Carroll. The two wrote a letter of concerns in response to the letter they received via certified mail informing them of the rezoning request for CastleRock Communities. Together they have six questions.

  1. We would like to see conceptual illustrations of the proposed development intent (all phases).
  2. What are all the intended land uses being proposed for the Master Planned Development?
  3. Will this development intent conform with the City's LUP?
  4. Have the Developer and Staff conducted a Decision Criteria Analysis of the Proposal Intent and is this proposal to the highest and best use for this site? Would an alternative site be more appropriate?
  5. Is the Decision Criteria Analysis available for the concerned citizens and adjacent property owners to review and see to determine how this development may impact them?
  6. Does the Development Company have an established and verifiable record and the corporate capability needed to develop this Master Planned Development intent successfully?

  Mr. Carroll stated to date they don't have enough data to make an intelligent decision and are not opposed to the new development as long as it is done appropriately and will not harm the adjacent property owners. Mr. Carroll in fact wants to see a development that advances economic development and will allow the city to grow in an orderly manner. He then asked for all the concerns from his letter to be addressed and be fair to all parties involved.

Ms. Golden addressed all that there will be another public hearing if this goes forward to the City Commission.

The PUD application that includes all the maps and information will be available on the City's website through Agenda Quick if it is moved forward. Don asked if a hard copy could be provided, and Ms. Golden said it is on the website, but Ms. Veronica Carreon could provide one as well. [Ms. Golden provided Mr. Carroll with a complete hard copy of the agenda packet including all attachments and enclosures at the conclusion of the meeting].

- Alice Porter (15842 Rosebriar, Missouri City 77489)

  Ms. Porter addressed all with the concern of why her property was within the red line [a graphic from the GIS showing the parcels within 200ft of the proposed

rezoning].

Ms. Golden informed her that nothing is going to be done with her property it is just state law of Texas that she receives a letter as her lot fell within 200' of the rezoning request.

- Vernesta, Warren, and Reggie Jackson (5205 Everlyn Street, Texas City 77591)

  All three addressed their concerns of their property falling in line with the 200' redline that surrounds the new subdivision. They would like to know what happens next for their property.

Ms. Golden informed all that the state law of Texas requires the city to send out a letter via certified mail to those who have property located within 200' from property which is being considered for rezoning. The red line does not mean anything will happen to any of the properties that fall within it. It simply means you are getting a letter that tells you that you are welcome to come and join the meetings to find out what is being built in your surrounding area and ask questions or provide comments about the proposed changes. Ms. Jackson then asked if a copy of Mr. Carroll's letter could be given to all as he had great questions. Staff gave her a copy of Mr. Carroll's letter.

Developer Mr. Smith stated that this area was already zoned for single family homes and no changes are being made to reduce the zoning requirements. The rezoning request is so CastleRock Communities can improve the area with bigger lots and more amenities to those that would be required in a new subdivision without the rezoning.

- Nancy Tamez (702 Oak Street, Texas City 77591)

  Ms. Tamez addressed the board with a question regarding property tax increase to the surrounding neighborhoods now that new homes are being built.

Ms. Golden stated that they generally do see an increase of property value when there is a new development around. Ms. Tamez had no other statements.

There were no questions or further discussion, to which a motion was made by Commissioner Thelma Bowie/ Member Bruce Clawson to close the Public Hearing. All other members voted aye.

c. PRELIMINARY ZONING APPROVAL – Consider and take action on the recommendation regarding the zoning change request from CastleRock Communities.

Chairman O'Brien explained the Zoning Commission is only asked to make a recommendation about the rezoning request. The Zoning Commission does not change the zoning. The Planning Board and City Staff have recommended approval because the request for rezoning seems valid.

Chairman O'Brien stated the Zoning Commission is not elected. The members of the Zoning Commission are appointed by elected officials and asked to serve and volunteer their time to be present at the meetings. They all reside in Texas City and serve because they care about Texas City and because they have questions too. After this meeting the recommendation of the Zoning Commission will go to another public

hearing which will be with the elected City Commissioners. It's the elected City Commissioners who will decide and vote on whether the zoning change is approved or not.

Chairman O'Brien asked the Zoning Commissioners if there were any other questions or comments and there were none.

A motion was made by Commissioner Thelma Bowie/Member Bruce Clawson to table the Zoning Change Request to allow staff time to address and prepare a response to the concerns in Mr. Carroll's letter. All other members voted aye.

4. **GENERAL UPDATES**

There were no updates.

5. **OTHER BUSINESS** (Any conceptual development proposal requesting to come before the Zoning Commission)

Ms. Golden introduced Curt Kelly, Engineering & Planning Administrator, and Brianna Galicia, Engineering & Planning Administrative Assistant, as new staff and announced Veronica Carreon's promotion to the new position of Planning and Zoning Technician.

A motion was made by Alternate Lisa Salinas/Member Bruce Clawson to adjourn. All members present voted aye.

_____

Kimberly Golden, Secretary Date

Minutes approved by the Zoning Commission at its meeting on _____.

Ms. Kimberly Golden, Planning Director for

The City of Texas City & The Zoning Commission of Texas City

7800 Emmett F. Lowry Expressway

Texas City, Texas 77591

November 15, 2024

Re: Notice of Public Hearing Our Observations & Questions Regarding the Proposed Rezoning Request for Castle Rock Communities. From A- Single Family to District I- PUD Being 80 Acres.

Ms. Golden: Greetings and best regards, Please find our written response to the rezoning intent for the referenced property. With the Public Hearing Notice, there was no property map/survey map of the proposed site for Rezoning.

1. We would like to see conceptual illustrations of the proposed development intent (all phases).
2. What are all of the intended land uses being proposed for the Master Planned Development?
3. Will this development intent conform with the City's LUP?
4. Have the Developer and Staff conducted a Decision Criteria Analysis of the Proposal Intent?
   & is this proposal the highest and best use for this site? Would an alternative site be more appropriate?

5. Is the Decision Criteria Analysis available for the concerned citizens and adjacent property owners to review and see to determine how this development may impact them?
6. Does the Development Company have an established and verifiable record,
   and the corporate capability needed to develop this Master Planned Development Intent successfully?

To date, we do not have enough data to make an intelligent decision; and for the record, we are not opposed to new development (as long as it is done appropriately, and it can with reason be affirmed that it will not harm the adjacent property owners). In fact, we want to see development that advances sustainability-resilience- economic development and will allow us to grow in an orderly manner. We therefore ask that the Public Hearing be continued to adequately address all

of the concerns cited in our response letter to be fair to all parties involved. I respectfully recommend that more workshops be scheduled to address this need for more data and intel to convey the intent properly. This is respectfully submitted by Mr. Willie Carroll's Living Trust.

Sincerely,

Donald Carroll, ESP, CCR,

Willie Carroll

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STAFF REPORT

To: Zoning Commission - Regular Meeting – December 17, 2024

From: Kim Golden, P.E., City Engineer

CC: Doug Kneupper, P.E.

Date: December 11, 2024

RE: Willow Wood Subdivision - Master Plan and request to rezone from District A - Single Family Residential to District I – Planned Unit Development

Background: At its regular meeting on November 19, 2024, the Zoning Commission held a public hearing on the request from Castlerock Communities to rezone 80 acres located southeast of SH3 and south of FM 1764 from District A - Single Family to District I – Planned Unit Development. After receiving comments from the public and concluding the public hearing the Zoning Commission tabled consideration of the request to allow additional time for the applicant to provide additional information.

Response to comments received at public hearing:

1) Drainage Issue: Concerns were expressed regarding existing drainage issues in the area and a suggestion that the City undertake a comprehensive approach to mitigate and improve the area for economic development.

Response: Galveston County Drainage District No. 2 has jurisdiction over the watershed at issue and has approved the detention improvements proposed by the developer based upon a comprehensive study of the entire watershed. At the request of the District, the Developer engaged Burton L. Johnson, P.E. to study and provide a Floodplain Mapping and Modeling Report for the Ditch 7 Watershed (Ditch 7, Ditch 7A, Ditch7B). The watershed encompassed the entirety of the watershed which was more than the 80 acres of Developer's site being considered by the Zoning Commission. The study computed flood flows and flood inundation in the Ditch 7 watershed for the 5-year, 10-year, 25-year, 50-year, 100-year and 500-year event using HEC-HMS and a coupled 1d/2d HEC-RAS model. The models were developed in consideration of the guidance by the U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) and the Harris County Flood Control District's *Two- Dimensional Modeling Guidelines*. The District also required the Developer to provide a Drainage Impact Analysis (DIA) specific for the detention proposed for the subdivision. The DIA used the floodplain mapping and modeling to **conclude the proposed development, including full development and Phase I development, could be constructed as proposed by the Developer without adversely impacting the drainage and flood risk upstream, adjacent to, and downstream of the project.** The GCDD#2 Engineer recommended, and the Board approved the DIA at its meeting on June 13, 2024.

Transparency: Copies of the District Engineer's recommendation and the Minutes of the GCDD#2 Board meeting are enclosed in the Zoning Commission agenda packet and will be posted on the City's website for general availability to the public. The entirety of the two reports provided to and reviewed by the GCDD#2 will also be posted on the City's website for general availability. Hard copies can be obtained via Public Information Requests.

2) Ingress Egress into Subdivision: Concerns were expressed regarding the single entrance via Phillips Street into the subdivision. **Response:** Willow Street, identified as N. Pine St. on Google Maps, is an existing local street which runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project. As noted in the previous staff report, the Developer has expressed an intent to obtain additional property to provide a second point of ingress egress upon approval of the Phase I Master Plan and PUD. Developer has been advised that the number of building permits issued may be limited by the Fire Marshal and Building Officials until a second entrance is provided.

3) Look, feel and vision of the finished product: Concerns were expressed regarding the look, feel and vision of the finished product which is understood to refer to the housing product. **Response:** Castlerock Communities is a well-known developer in Texas City having developed the Pearlbrook and Steed Landing subdivisions in Texas City and producing many houses in the Lago Mar planned community. Developer will present examples of its housing products to the Zoning Commission and provide example renderings of the proposed amenities and landscaping enhancements which will be required by the terms of the PUD. Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

4) Adjacent existing livestock uses: Concerns were expressed about the uses of adjacent undeveloped property as pasturage for livestock by existing owners. **Response:** It should be noted that pasturage for livestock is not an allowed principal use in the existing District A – Single Family Residential district. It is an allowed principal use only in the District O-Open Space which is reserved for undeveloped acreage. It is understood that actual land uses transition within a zoning district as development occurs over time, with higher value uses replacing lower value uses in response to market trends and forces. Even so, as an added measure of safety the Developer is proposing to add new barbed wire fencing adjacent to the development's perimeter fencing as needed.

5) Future Land Use Plan: Concerns were expressed regarding whether the proposed use was the highest and best use for the area and consistent with the City's comprehensive plans and goals. **Response:** The Planning Board considered the master plan and re-zoning application at its regular meeting on October 7, 2024 and

unanimously recommended approval of the proposed Master Plan. The site is one of the few remaining large open spaces served by existing utilities which is also situated within the Texas City ISD boundaries. The TCISD is challenged with declining enrollment. The development of new conventional subdivisions likely to serve growing families aligns with the City's vision to support a thriving school district. At full buildout the 213 new homes could be estimated to provide additional annual revenue of $1,171,500 to the school district based upon projected student enrollment of 0.5 students per household. In addition, the property is south of the area designated as an activity corridor which the future land use plan describes as "parallel too freeway and highways with higher intensity land uses. These uses are primarily region serving and include malls, commercial, and open display retailing, wholesale, distributing and warehousing operations, restricted light industry, business offices, hotels and motels, and higher density residential development." The proposed master plan will not detract from the purpose of the activity corridor and therefore serves the city's long-term goal to diversify the tax base with commercial, retail and other non-residential uses along the Emmett F. Lowry Expressway.

6) Community Benefits/Amenities: Concerns were noted regarding proposed benefits for the community such as parks and recreational facilities. **Response:** An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

7) Infrastructure: Concerns were noted regarding adequate infrastructure such as roads, schools and utilities. **Response:** Water and sewer facilities are readily available to this project and can be extended from existing mains. Detailed engineering for the extension of services within the subdivision are part of the platting process and are not required with the master plan.

8) Impact on Property Value - Concerns were noted regarding the impact of the development on existing property values. **Response:** Property values are increasing in Texas City as a result of the balanced residential and non-residential growth in the area. This is likely to continue whether the Willow Wood or other developments move forward at the particular site.

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RECOMMENDATION: The Planning Board considered and unanimously recommended approval of the Master Plan and PUD at its regular meeting on October 7, 2024. City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and has no objections to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow amendment of the PUD to incorporate the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

ZONING COMMISSION
December 17, 2024

The Zoning Commission of the City of Texas City met in a regular meeting on Tuesday, December 17, 2024, at 5:00 p.m. Zoning Commission members present were: Chairman Perry O'Brien, Commissioner Thelma Bowie, Member Bruce Clawson, Member Aric Owens, and Member Fernando Tello. Staff members present were: Kimberly Golden, (Secretary), David Kinchen (Deputy Building Official), Curt Kelly (Engineering & Planning Administrator), Veronica Carreon (Planning & Zoning Technician), Brianna Galicia (Engineering & Planning Administrative Assistant), and Jason Brown (Fire Marshal). Guests were: Donald Carroll, Willie Carroll, Jon Willhoite, Bryan Smith (Castlerock Communities), and Sean Humble (Engineer).

Chairman Perry O'Brien indicated a quorum was present.

Chairman O'Brien then called the meeting to order.

1) ROLL CALL

The following members answered roll call: Aric Owens, Bruce Clawson, Thelma Bowie, Perry O'Brien, and Fernando Tello.

2) APPROVAL OF MINUTES

A motion to approve the minutes of November 19, 2024 was made by Commissioner Thelma Bowie/Member Bruce Clawson. All other members present voted aye.

3) PUBLIC COMMENTS

Chairman O'Brien noted two attendees had completed a form for public comments, the comments were regarding the agenda item. He informed Mr. Willie & Don Carroll they had three minutes to speak and allowed Mr. Don Carroll to begin.

a. Willie & Don Carroll- (7305 Blue Jay Drive, Texas City)

Mr. Don stated from the last public hearing (November 19, 2024) him and his father Mr. Willie Carroll had some discussion on the planning analysis. November 25, 2024 Mr. Don wrote a letter to Ms. Kimberly Golden with two attachments in regards to them wanting to have those attachments incorporated into the minutes for both Zoning Commission and City Commission. The two attachments included information for further discussion about the Drainage issue and Ingress/Egress into the subdivision. Mr. Don stated if these concerns could be addressed there was nothing wanted further from him and Mr. Willie Carroll.

4) PRELIMINARY ZONING APPROVAL – Consider and take action on a Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision – a Master Planned Community within the City of Texas City. Located southeast of SH 3 and south of FM 1764. (Tabled from the November 19, 2024 meeting)

Commissioner Thelma Bowie/Fernando Tello motioned to remove the matter of the rezoning request by Castlerock Communities from the table to receive additional information and reporting from staff. All other members voted aye.

Ms. Golden informed the commission that since the previous meeting and public hearing all written comments that were received have been reviewed together with the concerns that were expressed during the public hearing. The developer has provided additional information as requested.

Ms. Golden addressed the drainage concern. She stated we have spoken to the Galveston County Drainage District No. 2 and confirmed that they had a presentation from both developer and his engineer reviewed by their engineer and the analysis went to their board June 2024 and was approved by that district's board. The detention plans were also sent to the districts engineer and were approved as no adverse impact.

Mr. Humble stated they put these models together and ran then through a simulation of the 100-year floodplain event at the existing ground conditions. They then ran the model again with a scenario of all the houses being built out. They then sized the detention ponds based upon the difference between those two scenarios. There are a total of four detention ponds to be constructed. Two on the north side and two on the south side of the subdivision.

Ms. Golden addressed the Ingress/Egress concern. She stated it is known that Willow Street also referred to as Phillips Street currently only has one entrance that leads into the Willow Wood subdivision. The developer indicated the company intends to develop a second entrance. Ms. Golden said it has been discussed with developer that until that second entrance is provided there will be limitations placed on the number of building permits to be issued by the Fire Marshal and building officials.

Fire Marshal Jason Brown begun to speak about the safety hazards there could be with only one entrance. He stated a big concern could be that one got into an accident right at the entrance and now no one could get into or leave out of the subdivision and if there happen to be another emergency within that neighborhood at the same time no emergency personnel could enter either. Member Aric Owens stated that his community has only one entrance and from his knowledge a second one is not being built. Mr. Brown informed all that if the neighborhood happened to be older that it was built under a different code as building and fire codes change often and at that time of construction of Mr. Owens's neighborhood a second entrance might not have been a requirement.

Next concern was the vision of the finished product. Ms. Golden said Castlerock Communities brought in some examples of what the five different models of homes would look like within the Willow Wood subdivision. The examples included examples of the community benefits which includes the entrance monuments and park amenities.

Another issue was the concern of livestock in the surrounding areas of the new development. Ms. Golden pointed out that use of the pastures for livestock is not an allowed use in a 'District A' zone, but since nothing is developed the area is currently being used as an open space, and people are holding their livestock there. Mr. Bryan Smith then spoke and informed all that after last meeting it was taken into consideration of what could happen with livestock present. He said barbwire will be placed on the

outside of the wooden fences and if livestock were to knock or pull it down Castlerock Communities would be responsible for fixing it.

Next question was consistency with the future land use plan. Ms. Golden stated that the commercial retail strip along Emmett F. Lowry is not being impacted by this new development and that this is one of the few large tracts remaining in Texas City School District. She said it is known that the number of homes being built will bring in more children which will have a very positive impact on the school district.

A motion was made by Commissioner Thelma Bowie/Member Bruce Clawson to recommend approval of the Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision – a Master Planned Community within the City of Texas City. Located southeast of SH 3 and south of FM 1764. (Tabled from the November 19, 2024 meeting)

5) **GENERAL UPDATES**

There were no updates.

6) **OTHER BUSINESS** (Any conceptual development proposal requesting to come before the Zoning Commission)

7) **ADJOURNMENT**

A motion was made by Member Aric Owens/Member Bruce Clawson to adjourn. All members present voted aye.

Kimberly Golden, Secretary Date

Minutes approved by the Zoning Commission at its meeting on _____.

Willowood Subdivision

Drainage Impact Analysis

Galveston County Drainage District Number Two
City of Texas City, Texas

April 2, 2024

BURTON JOHNSON ENGINEERING, INC
WATER RESOURCES ENGINEERING & PLANNING

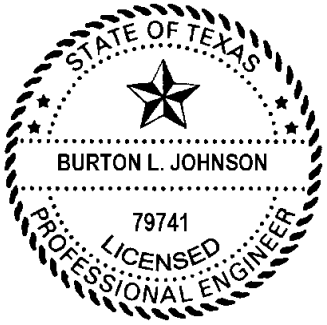
Drainage Impact Analysis

Willowood Subdivision

Drainage Impact Analysis

Galveston County Drainage District Number Two

City of Texas City, Texas



April 2, 2024

Burton Johnson Engineering, Inc.
4611 Waterbeck St
Fulshear, TX 77441
281-773-7184
TPBE No. 10781

TABLE OF CONTENTS

1.0 Introduction 1

1.1 Description of Project Area 1

1.2 FEMA Special Flood Hazard Areas 1

1.3 Elevation Data 2

1.4 Galveston County Drainage District Number Two 2

1.5 Proposed Project 3

1.6 Criteria 3

2.0 Hydrology and Detention – Full Development 4

2.1 Site Runoff Curves and Small Watershed Method 4

2.2 Pre-Project Hydrology 4

2.3 Post-Project Hydrology 5

2.4 Detention Routing 5

2.4.1 Detention Stage vs. Storage 5

2.4.2 Detention Basin Control Structures 6

2.4.3 Detention Routing Results 6

2.4 Floodplain Fill and Detention Rate 7

2.4.1 Minimum Slab Elevations 8

2.4.2 Floodplain Fill 8

3.0 Offsite Flow Considerations – Full Development 10

3.1 Swale West of Pond 1 (Area A) 10

3.2 Swale South and West of Pond 4 (Area B) 10

3.3 Area South of Pond 4 (Area C) 10

3.4 Area North of Site along Willow Street (Area D) 10

4.0 Hydrology and Detention – Phase 1 Development 11

4.1 Pre-Project Hydrology 11

4.2 Post-Project Hydrology 11

4.3 Detention Routing 12

4.3.1 Detention Stage vs. Storage 12

4.3.2 Detention Basin Control Structures 13

4.3.3 Detention Routing Results 13

4.4 Floodplain Fill and Detention Rate 14

4.4.1 Minimum Slab Elevations 14

4.4.2 Floodplain Fill 15
5.0 Results 16

EXHIBITS

ATTACHMENT 1 – Galveston County Drainage District Number Two Map

Note: Survey data and computer models may be downloaded at the following link within 90 days of date of report:

https://www.dropbox.com/s/ovz48f69zd7lch3/Ditch%207%20Models.zip?dl=0

1.0 Introduction

Willowood Subdivision is a proposed 116-acre single-family subdivision located within the City of Texas City and within the boundary of Galveston County Drainage District Number Two (District). This report summarizes and describes a drainage impact analysis for the proposed subdivision. This analysis has been conducted in consideration of the District's *Design Criteria Guidance*. This report considers the ultimate configuration of the proposed development in Section 2.0 and an initial phase of development referred to in this report as Phase One and is described in Section 4.0 (This initial phase consists of approximately 82.5 acres.

1.1 Description of Project Area

The Willowood Subdivision project is located on currently undeveloped properties generally south of the Emmett F. Lowry Expressway (FM 1764) and east of Highway 3. The location of the site is depicted in Exhibit 1. The project is entirely within the District's Ditch 7 system and is between Ditch 7A and Ditch 7B. These two ditches join to create Ditch 7 north of FM 1764. This confluence is approximately one mile downstream of the project. Ditch 7 then extends a short distance into Moses Lake.

Exhibit 2 provides an aerial photograph of the proposed development area. The project area is mostly undeveloped grassed areas with some intermittent wooded areas. The project is bisected by Willow Street (some maps label it as Phillips Street) a City of Texas City roadway that runs north-south through the site. The western portion of the north perimeter of the site is adjacent to the alignment of Ditch 7A, and the southeast perimeter of the site is along Ditch 7B. Small areas of the property are on the opposite (east) side of Ditch 7B. No development activity is proposed for these small tracts. A portion of the property east of Willow Street is bounded on the south by 5th Street. The remainder of the project to the south is bounded by older residential subdivisions, and portions to the north are adjacent to undeveloped property and an oil and gas facility.

There is a gravel farm road through the property. This road is labeled on maps as Roberts Road, as it is an extension of Roberts Road in the adjacent subdivision. This road is private and now owned or maintained by the City of Texas City.

1.2 FEMA Special Flood Hazard Areas

According to FEMA Flood Insurance Rate Map (FIRM) Panel No. 48167C0265G, dated August 15, 2019, the watershed is entirely in the Shaded Zone "X", which represents areas subject to flooding from a 0.2% annual probability event (also known as the 500-year event). A portion of the area is also in the Zone AE floodplain, which represents areas subject to inundation from the 1% annual probability event (also known as the 100-year event) that have computed Base Flood Elevations. Exhibit 3 depicts these Special Flood Hazard Areas.

Based on a review of the FIRM Panel and FEMA's *Flood Insurance Study, Galveston County and Incorporated Areas,* dated August 15, 2019, the inundation depicted on the FIRM is from coastal surge flooding and does not represent riverine flooding from rainfall in the watershed. The coastal elevations are computed along transect lines which are shown on the exhibit. The 100-year coastal surge elevation

is shown as a Base Flood Elevation on the FIRM Panel and is also shown, as elevation 5.0, on Exhibit 2. Transect Line 86 runs through the project area. The 100-year coastal surge elevation is 5.0. Based on a profile presented in the *Flood Insurance Study* and the 500-year coastal surge elevation is between elevation 15.0 and 17.0 within the Ditch 7 watershed.

The information provided on the FIRM panels and within the *Flood Insurance Study* confirms that Ditch 7 and its tributaries Ditch 7A and Ditch 7B are not FEMA studied streams.

1.3 Elevation Data

All source elevation data and all elevations cited in this report are in feet above Mean Sea Level based on the 1988 North American Vertical Datum (NAVD 88). Elevation data for this analysis is a blend of the Upper Coastal Lidar data acquired by a partnership between the Texas Water Development Board, Houston-Galveston Area Council, and United States Geologic Survey in 2018; and survey data acquired by Costello, Inc. (now part of Pape Dawson) in the fall of 2023. The lidar data was utilized for most of the elevation data, including overland areas and portions of the channel cross sections. The survey data was used to augment the lidar data in consideration of the limitations of the lidar data – specifically the capture of specific details and elevations associated with bridge and culvert crossings and the capture of bathymetry in areas where the lidar was unable to penetrate a water surface. For this study, the survey data in the channel was utilized to determine the outfall depth from the detention basins. All other calculations are based upon the lidar data.

Topographic contours utilized in the analysis are shown in Exhibit 4. Natural ground elevations generally range between elevation 10 (at the western perimeter) and elevation 5 near the eastern perimeter near Ditch 7B. There are some filled areas with elevations as high as elevation 14. The fill areas are spoil piles along the banks of Ditch 7A and Ditch 7B. There are also some fill areas related to the connection of the private road with Roberts Road in the adjacent subdivision. The drainage pattern is generally from west to east.

1.4 Galveston County Drainage District Number Two

The District has not completed a study of the Ditch 7 Watershed. A floodplain study of the Ditch watershed, including the computation of water surface elevations and flowrates for Ditch 7, Ditch 7A, and Ditch 7B has been prepared by Burton Johnson Engineering, Inc. under separate cover. This report, entitled *Ditch 7 Watershed (Ditch 7, Ditch 7A, Ditch 7B), Floodplain Mapping and Modeling* is dated April 3, 2024 and establishes 100-year water surface elevations in the vicinity of this project. The findings described in the report are based upon a combined 1d/2d HEC-RAS model using Atlas 14 rainfall.

The study described in this analysis considers the Willowood Subdivision and its supporting detention and floodplain fill mitigation, as described herein, as part of the existing watershed condition. As part of this Willowood Subdivision analysis, a pre-project 100-year floodplain was computed to determine the amount of floodplain fill to be mitigated. The resultant floodplain map is presented in Exhibit 5.

As part of the Ditch 7 analysis, it was recognized that Ditch 7A is not a natural drainage channel. It apparently was constructed to provide drainage to the State Highway 3 and/or other development in the area and does not have a “valley” section common to natural stream. When floodwaters exceed the

channel banks of Ditch 7A, they spill into the site and overflow toward Ditch 7B. The combined 1d/2d provided an opportunity to properly consider this overflow.

1.5 Proposed Project

The proposed project is illustrated in Exhibit 6. The area will be subdivided into residential lots with a minimum size of 6,000 square feet and an average lot size of about 1/6 acre. Four detention basins are proposed. Pond 1 and Pond 2 will outfall into Ditch 7A. Pond 4 will drain under Willow Street to Pond 3, and Pond 3 will outfall into Ditch 7B. The land will be elevated as required to ensure that it is above the 100-year flood elevation of Ditch 7A and Ditch 7B. The detention ponds will provide detention to offset runoff from the development and from the placement of fill in the computed 100-year floodplain.

1.6 Criteria

This analysis was conducted in consideration of the District's *Design Criteria Guidance*. This guidance defers to the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM)* for hydrologic methodologies and detention analyses. In addition, the District requires a minimum detention rate of 0.75 acre-feet per acre of development if using HCFCD Method 1 or 2, although this rate can be lowered to as low as 0.50 acre-feet per acre if a detailed study is performed (HCFCD Method 3). HCFCD recommends Method 2 for projects between 50 acres and 640 acres, therefore Method 2 was utilized in this study. This approach is discussed in greater detail in subsequent sections of this report.

2.0 Hydrology and Detention – Full Development

Hydrographs were developed for each of the subareas in accordance with the methodology described in the Harris County Flood Control District's *PCPM* as described in the following sections.

2.1 Site Runoff Curves and Small Watershed Method

For Detention Method 2, The *PCPM* requires the use of the Harris County Site Runoff Curves to compute peak flowrates for watersheds up to one square mile. In 2019, these curves were updated to consider Atlas 14 rainfall. The curves compute the peak flowrates for the 10-year event and 100-year event based upon the size of the drainage area and the computed impervious cover.

The *PCPM* recommends the utilization of the Small Watershed Method developed by H.R. Malcom to develop runoff hydrographs. Also known as the "Malcolm Method", this approach considers the computed peak flowrate, watershed area, and total runoff volume to develop a hydrograph shape.

Peak flowrates were developed for the pre-project and post-project 10-year and 100-year method using the Site Runoff Curves. The peak flowrate for the 25-year event was developed by interpolation using the relationship between 10-year, 25-year, and 100-year peak flowrates determined as part of the Ditch 7 watershed study. Runoff hydrographs for the post-project condition were developed using the Small Watershed Method. The runoff volume was determined from curves in the *PCPM* for Region 3, which includes the most southern Harris County watersheds.

2.2 Pre-Project Hydrology

There are four proposed detention basins and three outfall points. Ponds 1 and 2 drain to Ditch 7A, while Pond 3 drains to Ditch 7B and Pond 4 drains into Pond 3. For pre-project conditions, the drainage areas were determined for the areas to Ditch 7A (Area 12 recognizing post-project flows to Pond 1 and Pond 2) and Ditch 7B (Area 34 recognizing post-project flows to Pond 3 and Pond 4). These drainage areas and the assumed land use is presented in Exhibit 7. The determination of peak flowrates for the pre-project condition are summarized in Table 1. These peak flowrates establish the allowable post-project flowrate for the developed condition.

Table 1: Pre-Project Peak Flowrates

Drainage Subarea	P12	P34
Area (Ac)	32.6	65.1
Impervious (%)	0.1%	1.3%
Site Runoff Curve: 10-Year		
m	0.786	0.786
b	2.41	2.48
Peak Flowrate (cfs)	37.2	66.1
Interpolate: 25-Year		
Peak Flowrate (cfs)	49.5	87.6
Site Runoff Curve: 100-Year		
m	0.786	0.786
b	4.61	4.72
Peak Flowrate (cfs)	71.3	125.7

2.3 Post-Project Hydrology

Exhibit 6 also depicts the post-project land use assumption and drainage subareas for the development. Drainage subareas were assigned for each of the four detention basins as all developed condition runoff will be directed into one of the four basins. Table 2 summarizes the determination of the Post-Project peak flowrates and runoff volume for the 10-year, 25-year, and 100-year events.

Table 2: Post-Project Peak Flowrates and Runoff Volume

Drainage Subarea	P1	P2	P3	P4
Area (Ac)	26.4	26.3	21.6	38.7
Impervious (%)	49.9%	49.1%	64.7%	43.8%
Site Runoff Curve: 10-Year				
m	0.786	0.786	0.786	0.786
b	5.51	5.48	5.97	5.32
Peak Flowrate (cfs)	72.1	71.6	66.8	94.1
Interpolate: 25-Year				
Peak Flowrate (cfs)	90.2	89.6	83.0	118.0
Site Runoff Curve: 100-Year				
m	0.786	0.786	0.786	0.786
b	9.34	9.31	10.00	9.07
Peak Flowrate (cfs)	122.3	121.6	111.9	160.5
Runoff Volume (inches)				
10-Year	7.86	7.84	8.22	7.71
25-Year	10.92	10.90	11.25	10.79
100-Year	16.58	16.56	16.84	16.47

2.4 Detention Routing

The detention basins were initially sized and evaluated to ensure that the peak allowable flowrates from Table 1 and the minimum detention volumes (based on 0.75 acre-feet per acre) were provided for the 100-year event. These evaluations were performed in HEC-RAS. For Method 2, the *PCPM* requires a constant tailwater elevation at the top of the outfall pipe. As part of the analysis, the size of the basin and the configuration of the outfall structure was manipulated until a satisfactory result was obtained.

2.4.1 Detention Stage vs. Storage

The detention basins will be wet bottom basins with a permanent water surface. In this report, any references to the "bottom" of the basin refers to the permanent pool elevation, as all storage below the permanent pool does not contribute to the attenuation of runoff. The basins will all have 4:1 (h:v) side slopes and 30-foot maintenance berms.

Table 3 provides the stage vs. storage relationship for the four proposed detention basins.

Table 3: Detention Basin Stage vs. Storage

Pond 1		Pond 2		Pond 3		Pond 4	
Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)
2.0	0.0	0.5	0.0	0.5	0.0	0.5	0.0
3.0	3.7	1.0	1.6	1.0	3.8	1.0	1.0
4.0	7.7	2.0	5.0	2.0	11.8	2.0	3.3
5.0	11.8	3.0	8.6	3.0	20.1	3.0	5.8
6.0	16.2	4.0	12.4	4.0	28.7	4.0	8.5
7.0	20.7	5.0	16.4	5.0	37.7	5.0	11.5
8.0	25.5	6.0	20.7	6.0	47.1	6.0	14.8
9.0	30.5	7.0	25.1				
10.0	35.7	8.0	29.8				
		9.0	34.7				

Note that the storage volumes for Ponds 3 and Ponds 4 were increased by 100 acre-feet in the HEC-RAS model to facilitate the Pond 4 outfall pipe, which is below sea level. The resultant output was then decreased by 100 acre-feet.

2.4.2 Detention Basin Control Structures

The control structures of each basin were modified to optimize the performance of the basin and to ensure no downstream impact. The control structure for Pond 1 and Pond 2 will include an orifice restrictor in front of an outfall pipe. This orifice may be constructed over the inlet to the outfall or in a manhole. No restrictor is required for Pond 3 and Pond 4. The outfall structures are described in Table 4 and in Exhibit 8.

Pond 1, Pond 2, and Pond 3 will have earthen overflow weirs to allow ponds to safely drain to the receiving channel if design elevations are exceeded. Willow Street is between Pond 4 and Pond 3 and will act as the overflow into Pond 3. Willow Street overtops at an elevation of 7.18 between Pond 3 and Pond 4. Prior to this overflow, flows will potentially flow south along Willow Steet and adjacent areas. However, this phenomenon exists today behind the existing 42-inch culverts that drain this area, and the additional storage will decrease this relative to current conditions.

2.4.3 Detention Routing Results

The detention routing results are summarized in Table 4. The cumulative peak flow from Pond 1 and 2 was determined by adding the hydrographs for the basin outflow. This combined flow was compared to the pre-project peak flow for Area 12, as the ponds both outfall to Ditch 7A and they are in close proximity to each other. The peak outflow from Pond 3 was compared to the pre-project peak flowrate from Area 34, as Pond 4 drains into Pond 3 and does not have a separate outfall into Ditch 7B.

The detention configuration is shown in Exhibit 8.

Table 4: Detention Basin Routing Results

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Drainage Area (Ac)	26.4	26.3	52.7	21.6	38.7	60.3
Development Area (Ac)	26.4	26.3	52.7	21.6	36.2	57.8
Elev - Bottom of Storage Pool	2.0	0.5		0.5	0.5	
Elev -Top of Basin	10.0	9.0		5.8	6.0	
Control Structure Orifice Dia (in)	15	21		None	None	
Control Structure Orifice Invert Elev	2.0	0.5		n/a	n/a	
No. Outfall Pipes	1	1		3	2	
Outfall Pipe Diameter (in)	24	30		30	54	
Outfall Pipe Length (ft)	90	90		90	215	
Outfall Location	Ditch 7A	Ditch 7A	Ditch 7A	Ditch 7B	Pond 3	Ditch 7B
Outfall Pipe Elev US (Pond)	2.0	0.5		0.5	-4.0	
Outfall Pipe Elev DS	1.9	0.4		0.4	-4.00	
10-Year Event						
Stage Elevation	5.47	3.92		3.25	3.29	
Storage Volume (ac-ft)	13.9	12.1		22.2	6.6	
Allowable Peak Flowrate (cfs)			37.2			66.1
Proposed Peak Flowrate (cfs)	8.8	15.8	24.5	44.9	57.4	44.9
25-Year Event						
Stage Elevation	6.60	4.96		3.78	3.88	
Storage Volume (ac-ft)	18.9	16.3		26.8	8.2	
Allowable Peak Flowrate (cfs)			49.5			87.6
Proposed Peak Flowrate (cfs)	11.6	20.8	32.2	71.4	77.3	71.4
100-Year Event						
Stage Elevation	8.62	6.82		4.80	5.05	
Storage Volume Required* (Ac-Ft)	19.8	19.7	39.5	16.2	27.2	43.4
Storage Volume (ac-ft)	28.6	24.3	52.9	35.9	11.7	47.6
Allowable Peak Flowrate (cfs)			71.3			125.7
Proposed Peak Flowrate (cfs)	14.8	27.4	42.0	105.2	111.6	105.2

**Based on 0.75 acre-feet per acre*

2.4 Floodplain Fill and Detention Rate

The Ditch 7 model without the project was utilized to determine the 100-year elevations, floodplain fill volumes, and required slab elevations. The portion of the detention storage not required for floodplain fill mitigation was assigned as runoff mitigation, and the resultant detention rate was determined from the cumulative detention volume and development area. This rate was determined separately for areas to Ditch 7A (Pond 1 and 2) and Ditch 7B (Pond 3 and 4). This section summarizes these computations and presents the results.

2.4.1 Minimum Slab Elevations

The City of Texas City Floodplain Ordinance requires the lowest slab elevation to be 18 inches above the Base Flood Elevation as depicted on the Flood Insurance Rate Maps. As noted previously, a portion of the development is within the coastal flood zone and there is not a FEMA Base Flood Elevation representative of riverine flooding. However, it is recommended that new construction it the proposed development have slab elevations 18 inches above the 100-year flood elevation computed as part of the Ditch 7 analysis provided for the District. Exhibit 14 shows the 100-year floodplain and 100-year elevations from the Ditch 7 analysis along with the specification of minimum slab elevations for the proposed development.

2.4.2 Floodplain Fill

Floodplain fill volume was determined for the 100-year flood inundation associated with Ditch 7A and Ditch 7B. This includes the overflow area from Ditch 7A to 7B. This volume was determined from a HEC-RAS analysis of Ditch 7A without flow in Ditch 7B. The resultant inundation and corresponding floodplain fill was assigned to Ditch 7A and the reminder was assigned to Ditch 7B. Table 5 summarizes the floodplain fill and the resultant mitigation. Mitigation is provided by excess capacity (all capacity in addition to the 0.75 acre-feet per acre) in the detention basins below the 100-year flood elevation in the adjacent stream.

For Pond 3, the 100-year elevation of Ditch 7B will exceed the elevation of the pond high banks. During a riverine 100-year event, the pond will be inundated in a fashion similar to today. The adjacent development will be elevated above the 100-year elevation. The top of Pond 4 is also below the 100-year water surface of Ditch 7B. If the basin were to be elevated above the 100-year elevation it would potentially block sheet flow from the neighborhoods to the south. Most of Pond 4 is in areas with natural ground above the elevation of the top of the basin, and the excavation of the portion between the top of the basin (elevation 6.0) and the 100-year flood elevation will provide 8.4 acre-feet of additional floodplain excavation.

Floodplain fill and mitigation volumes were determined separately for Ditch 7A and Ditch 7B by combined calculations for Pond 1 and Pond 2 (Ditch 7A) and Pond 3 and Pond 4 (Ditch 7B). As the table indicates, there is adequate fill mitigation provided by the ponds and the excavation of the area “above” Pond 4 to offset the placement of fill in the floodplain of Ditch 7A and Ditch 7B.

The computed 100-year floodplain and floodplain mitigation table is provided as Exhibit 9.

Table 5: Floodplain Fill Mitigation and Detention Rate

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Floodplain Fill (Ac-Ft)	0.0	13.4	**13.4**	20.2	4.7	**24.9**
Fill Mitigation Available in Pond (Ac-Ft)	13.6	9.6	23.2	29.0	-12.4	16.7
Additional FP Excavation (Ac-Ft)	0.0	0.0	0.0	0.0	8.4	8.4
Total FP Fill Mitigation Available (Ac-Ft)	13.6	9.6	23.2	29.0	-4.0	25.0
Total FP Fill Mitigation Utilized (Ac-Ft)			**13.4**			**24.9**
Excess FP Fill Mitigation (Ac-Ft)			9.8			0.1
Required Detention (Ac-Ft)	19.8	19.7	39.5	16.2	27.2	43.4
Provided Detention (Ac-Ft)			49.3			43.5
Detention Rate (Ac-Ft/Ac)			**0.94**			**0.75**

The detention volume not required for floodplain mitigation is assigned to traditional stormwater detention in the determination of the total detention volume. This detention volume is then compared to the contributing development area to derive an effective detention rate. The resultant volumes and detention rates for Ponds 1 and 2 (Ditch 7A) and Ponds 3 and 4 (Ditch 7B) are also summarized in Table 5. For Ditch 7A, the project is providing detention at a rate of 0.94 acre-feet per acre; and for Ditch 7B, the project is providing detention at a rate of 0.75 acre-feet per acre.

3.0 Offsite Flow Considerations – Full Development

This section considers the management of offsite flow that the development may impact. These are illustrated in Exhibit 15.

3.1 Swale West of Pond 1 (Area A)

There is an offsite area from the south that drains the west portion of the site toward Ditch 7A. The swale runs up against the location of Pond 1. The development must accommodate these offsite flows. A total of 41.5 acres flows from offsite areas, most developed, through the site. The computed peak 100-year flowrate of the full acreage is 121.5 cfs. The project must accommodate this flow, either through a pipe system through the neighborhood, a perimeter swale system, or both. Exhibit 15 depicts a swale around the perimeter of the site. The specific method of managing offsite flow and the design and computations related to it will be provided with any future construction plans. The calculates for the offsite flow at the nodes depicted on Exhibit 15 are provided in Table 6.

3.2 Swale South and West of Pond 4 (Area B)

Area B consists of a small area at the rear of existing residential lots that currently drain toward the subject property. The total area is 1.7 acres. A perimeter swale will intercept this runoff and convey it to Pond 4.

Table 6: Offsite Flow

Swale	Area (ac)	Impervious	m	B	100 Yr Flowrate (cfs)
A1-A2	14.0	20%	1.000	3.4	47.6
A2-A3	30.0	20%	0.786	6.5	94.2
A3-A4	41.5	20%	0.786	6.5	121.5
B1-B2	1.7	20%	1.000	3.4	5.8

3.3 Area South of Pond 4 (Area C)

Area C consists of approximately 51 acres that drain to the existing swale that fees dual 42-inch pipes that convey flow under Willow Street and all the way to Ditch 7B. A portion of the existing swale is on the subject property. No additional infrastructure is required to accommodate this flow. The construction of the proposed project and Pond 4 will decrease the drainage are to this swale and the culverts considerably and should improve drainage associated with the undersized culverts.

3.4 Area North of Site along Willow Street (Area D)

Willow Street north of and adjacent to the project drains toward the south, and the area west of Willow Street drains to the existing swale behind the dual 42-inch culvert under Willow Street. This drainage pattern will be maintained. As noted in the preceding paragraph, the drainage area to these culverts will be reduced with the proposed project. The design plans will include the sizing of roadside culverts at the subdivision entrance and potentially improvements to the roadside ditch.

4.0 Hydrology and Detention – Phase 1 Development

Phase 1 represents the initial development of the site. The total area of the Phase 1 development is approximately 82.5 acres, and It includes most of the area described as full development. Exhibit 10 shows the Phase 1 concept. The Phase 1 development includes all four detention basins, however Pond 1 and Pond 2 have a smaller configuration. Pond 3 also has a slightly smaller configuration, as it does not include a small portion of a tract along Ditch 7B.

The methodology utilized to analyze Phase 1 is the same as that described for the full project in Section 3.0.

4.1 Pre-Project Hydrology

There are four proposed detention basins and three outfall points. Ponds 1 and 2 drain to Ditch 7A, while Pond 3 drains to Ditch 7B and Pond 4 drains into Pond 3. For pre-project conditions, the drainage areas were determined for the areas to Ditch 7A (Area 12 recognizing post-project flows to Pond 1 and Pond 2) and Ditch 7B (Area 34 recognizing post-project flows to Pond 3 and Pond 4). These drainage areas and the assumed land use is presented in Exhibit 7. The determination of peak flowrates for the pre-project condition are summarized in Table 1. These peak flowrates establish the allowable post-project flowrate for the developed condition.

Table 7: Pre-Project Peak Flowrates

Drainage Subarea	P12	P34
Area (Ac)	18.7	64.6
Impervious (%)	0.0%	1.3%
Site Runoff Curve: 10-Year		
m	0.786	0.786
b	2.40	2.48
Peak Flowrate (cfs)	24.0	65.7
Interpolate: 25-Year		
Peak Flowrate (cfs)	31.9	87.0
Site Runoff Curve: 100-Year		
m	0.786	0.786
b	4.60	4.72
Peak Flowrate (cfs)	45.9	125.0

4.2 Post-Project Hydrology

Exhibit 11 also depicts the post-project land use assumption and drainage subareas for the development. Drainage subareas were assigned for each of the four detention basins as all developed condition runoff will be directed into one of the four basins. Table 2 summarizes the determination of the Post-Project peak flowrates and runoff volume for the 10-year, 25-year, and 100-year events.

Table 8: Post-Project Peak Flowrates and Runoff Volume

Drainage Subarea	P1	P2	P3	P4
Area (Ac)	15.1	12.8	21.0	34.1
Impervious (%)	51.8%	56.0%	63.7%	38.8%
Site Runoff Curve: 10-Year				
m	1.00	1.00	0.79	0.79
b	5.57	5.70	5.94	5.10
Peak Flowrate (cfs)	84.0	72.7	65.0	81.8
Interpolate: 25-Year				
Peak Flowrate (cfs)	104.9	90.7	80.9	102.8
Site Runoff Curve: 100-Year				
m	1.00	1.00	0.79	0.79
b	9.42	9.61	9.95	8.75
Peak Flowrate (cfs)	142.2	122.6	109.0	140.3
Runoff Volume (inches)				
10-Year	7.91	8.01	8.20	7.59
25-Year	10.96	11.06	11.23	10.68
100-Year	16.61	16.68	16.82	16.38

4.3 Detention Routing

The detention basins were initially sized and evaluated to ensure that the peak allowable flowrates from Table 1 and the minimum detention volumes (based on 0.75 acre-feet per acre) were provided for the 100-year event. These evaluations were performed in HEC-RAS. For Method 2, the *PCPM* requires a constant tailwater elevation at the top of the outfall pipe. As part of the analysis, the size of the basin and the configuration of the outfall structure was manipulated until a satisfactory result was obtained.

4.3.1 Detention Stage vs. Storage

The detention basins will be wet bottom basins with a permanent water surface. In this report, any references to the "bottom" of the basin refers to the permanent pool elevation, as all storage below the permanent pool does not contribute to the attenuation of runoff. The basins will all have 4:1 (h:v) side slopes and 30-foot maintenance berms.

Table 3 provides the stage vs. storage relationship for the four proposed detention basins. Note that the storage volumes for Ponds 3 and Ponds 4 were increased by 100 acre-feet in the HEC-RAS model to facilitate the Pond 4 outfall pipe, which is below sea level. The resultant output was then decreased by 100 acre-feet.

Table 9: Detention Basin Stage vs. Storage

Pond 1		Pond 2		Pond 3		Pond 4	
Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)
2.0	0.0	0.5	0.0	0.5	0.0	0.5	0.0
3.0	2.6	1.0	1.5	1.0	3.5	1.0	1.0
4.0	5.3	2.0	4.6	2.0	10.8	2.0	3.3
5.0	8.2	3.0	7.8	3.0	18.5	3.0	5.8
6.0	11.2	4.0	11.2	4.0	26.5	4.0	8.5
7.0	14.4	5.0	14.7	5.0	34.9	5.0	11.5
8.0	17.7	6.0	18.4	6.0	43.7	6.0	14.8
9.0	21.2	7.0	22.2				
10.0	24.8	8.0	26.2				
		9.0	30.4				

4.3.2 Detention Basin Control Structures

The control structures of each basin were modified to optimize the performance of the basin and to ensure no downstream impact. The control structure for Pond 1 and Pond 2 will include an orifice restrictor in front of an outfall pipe. This orifice may be constructed over the inlet to the outfall or in a manhole. No restrictor is required for Pond 3 and Pond 4. The outfall structures are described in Table 4 and in Exhibit 12.

Pond 1, Pond 2, and Pond 3 will have earthen overflow weirs to allow ponds to safely drain to the receiving channel if design elevations are exceeded. Willow Street is between Pond 4 and Pond 3 and will act as the overflow into Pond 3. Willow Street overtops at an elevation of 7.18 between Pond 3 and Pond 4. Prior to this overflow, flows will potentially flow south along Willow Steet and adjacent areas. However, this phenomenon exists today behind the existing 42-inch culverts that drain this area, and the additional storage will decrease this relative to current conditions.

Note that the control structures for the basin are unchanged from the full development scenario described in Section 3.0.

4.3.3 Detention Routing Results

The detention routing results are summarized in Table 4. The cumulative peak flow from Pond 1 and 2 was determined by adding the hydrographs for the basin outflow. This combined flow was compared to the pre-project peak flow for Area 12, as the ponds both outfall to Ditch 7A and they are in close proximity to each other. The peak outflow from Pond 3 was compared to the pre-project peak flowrate from Area 34, as Pond 4 drains into Pond 3 and does not have a separate outfall into Ditch 7B.

The detention configuration is shown in Exhibit 12.

Table 10: Detention Basin Routing Results

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Drainage Area (Ac)	15.1	12.8	27.8	21.0	34.1	55.1
Development Area (Ac)	15.1	12.7	27.8	20.8	26.8	47.6
Elev - Bottom of Storage Pool	2.0	0.5		0.5	0.5	
Elev -Top of Basin	10.0	9.0		5.8	6.0	
Control Structure Orifice Dia (in)	15	21		None	None	
Control Structure Orifice Invert Elev	2.0	0.5		n/a	n/a	
No. Outfall Pipes	1	1		3	2	
Outfall Pipe Diameter (in)	24	30		30	54	
Outfall Pipe Length (ft)	90	90		90	215	
Outfall Location	Ditch 7A	Ditch 7A	Ditch 7A	Ditch 7B	Pond 3	Ditch 7B
Outfall Pipe Elev US (Pond)	2.0	0.5		0.5	-4.0	
Outfall Pipe Elev DS	1.9	0.4		0.4	-4.00	
10-Year Event						
Stage Elevation	5.09	2.83		3.2	3.24	
Storage Volume (ac-ft)	8.5	2.8		120.1	6.2	
Allowable Peak Flowrate (cfs)			24.0			65.7
Proposed Peak Flowrate (cfs)	7.6	8.3	15.9	42.0	47.6	42.0
25-Year Event						
Stage Elevation	6.07	3.46		3.68	3.77	
Storage Volume (ac-ft)	11.5	9.4		123.9	7.9	
Allowable Peak Flowrate (cfs)			31.9			87.0
Proposed Peak Flowrate (cfs)	10.4	13.1	23.5	67.4	66.1	67.4
100-Year Event						
Stage Elevation	7.85	4.67		4.65	4.85	
Storage Volume Required* (Ac-Ft)	11.3	9.6	20.9	15.6	20.1	43.4
Storage Volume (ac-ft)	17.2	13.5	30.8	32.0	11.1	47.6
Allowable Peak Flowrate (cfs)			45.9			125.7
Proposed Peak Flowrate (cfs)	13.8	19.5	33.2	100.8	97.3	105.2

**Based on 0.75 acre-feet per acre*

4.4 Floodplain Fill and Detention Rate

The Ditch 7 model without the project was utilized to determine the 100-year elevations, floodplain fill volumes, and required slab elevations. The portion of the detention storage not required for floodplain fill mitigation was assigned as runoff mitigation, and the resultant detention rate was determined from the cumulative detention volume and development area. This rate was determined separately for areas to Ditch 7A (Pond 1 and 2) and Ditch 7B (Pond 3 and 4). This section summarizes these computations and presents the results.

4.4.1 Minimum Slab Elevations

See Section 3.4.1. The minimum slab elevations are applicable for the Phase 1 development.

4.4.2 Floodplain Fill

Floodplain fill volume was determined for the 100-year flood inundation associated with Ditch 7A and Ditch 7B. This includes the overflow area from Ditch 7A to 7B. This volume was determined from a HEC-RAS analysis of Ditch 7A without flow in Ditch 7B. The resultant inundation and corresponding floodplain fill was assigned to Ditch 7A and the reminder was assigned to Ditch 7B. Table 5 summarizes the floodplain fill and the resultant mitigation. Mitigation is provided by excess capacity (all capacity in addition to the 0.75 acre-feet per acre) in the detention basins below the 100-year flood elevation in the adjacent stream.

For Pond 3, the 100-year elevation of Ditch 7B will exceed the elevation of the pond high banks. During a riverine 100-year event, the pond will be inundated in a fashion like today. The adjacent development will be elevated above the 100-year elevation. The top of Pond 4 is also below the 100-year water surface of Ditch 7B. If the basin were to be elevated above the 100-year elevation it would potentially block sheet flow from the neighborhoods to the south. Most of Pond 4 is in areas with natural ground above the elevation of the top of the basin, and the excavation of the portion between the top of the basin (elevation 6.0) and the 100-year flood elevation will provide 8.4 acre-feet of additional floodplain excavation.

Floodplain fill and mitigation volumes were determined separately for Ditch 7A and Ditch 7B by combined calculations for Pond 1 and Pond 2 (Ditch 7A) and Pond 3 and Pond 4 (Ditch 7B). As the table indicates, there is adequate fill mitigation provided by the ponds and the excavation of the area "above" Pond 4 to offset the placement of fill in the floodplain of Ditch 7A and Ditch 7B.

The computed 100-year floodplain and floodplain mitigation table is provided as Exhibit 13.

Table 11: Floodplain Fill Mitigation and Detention Rate

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Floodplain Fill (Ac-Ft)	0.0	12.7	**12.7**	20.2	1.1	**21.3**
Fill Mitigation Available in Pond (Ac-Ft)	11.9	20.3	32.1	29.7	-5.3	24.4
Additional FP Excavation (Ac-Ft)	0.0	0.0	0.0	0.0	8.4	8.4
Total FP Fill Mitigation Available (Ac-Ft)	11.9	20.3	32.1	29.7	3.1	32.7
Total FP Fill Mitigation Utilized (Ac-Ft)			**12.7**			**21.3**
Excess FP Fill Mitigation (Ac-Ft)			19.5			11.4
Required Detention (Ac-Ft)	11.3	9.6	20.9	15.6	20.1	35.7
Provided Detention (Ac-Ft)			40.3			47.1
Detention Rate (Ac-Ft/Ac)			**1.45**			**0.99**

The detention volume not required for floodplain mitigation is assigned to traditional stormwater detention in the determination of the total detention volume. This detention volume is then compared to the contributing development area to derive an effective detention rate. The resultant volumes and detention rates for Ponds 1 and 2 (Ditch 7A) and Ponds 3 and 4 (Ditch 7B) are also summarized in Table 5. For Ditch 7A, the project is providing detention at a rate of 1.45 acre-feet per acre; and for Ditch 7B, the project is providing detention at a rate of 0.99 acre-feet per acre.

5.0 Results

Based on the analysis presented herein, the proposed development, including the full development scenario and the Phase 1 scenario, can be constructed as described without adversely impacting drainage and flood risk upstream, adjacent to, and downstream of the project.

For the full development, the project provides 0.94 acre-feet of detention per acre of development in two detention basins for the portion of the project draining to Ditch 7A; and provides 0.75 acre-feet of detention per acre of development in two detention basins for the portion of the project drainage to Ditch 7B. The detention basins also have additional capacity to adequately mitigate the placement of fill in the computed 100-year floodplain of Ditch 7A and Ditch 7B.

For the Phase 1 development, the project provides 1.45 acre-feet of detention per acre of development in two detention basins for the portion of the project draining to Ditch 7A; and provides 0.99 acre-feet of detention per acre of development in two detention basins for the portion of the project drainage to Ditch 7B. The detention basins also have additional capacity to adequately mitigate the placement of fill in the computed 100-year floodplain of Ditch 7A and Ditch 7B.

As a result of the analysis I hereby certify the project will have no adverse impact to flood risk along Ditch 7, Ditch 7A, Ditch 7B and other drainage infrastructure in adjacent areas.

Exhibits

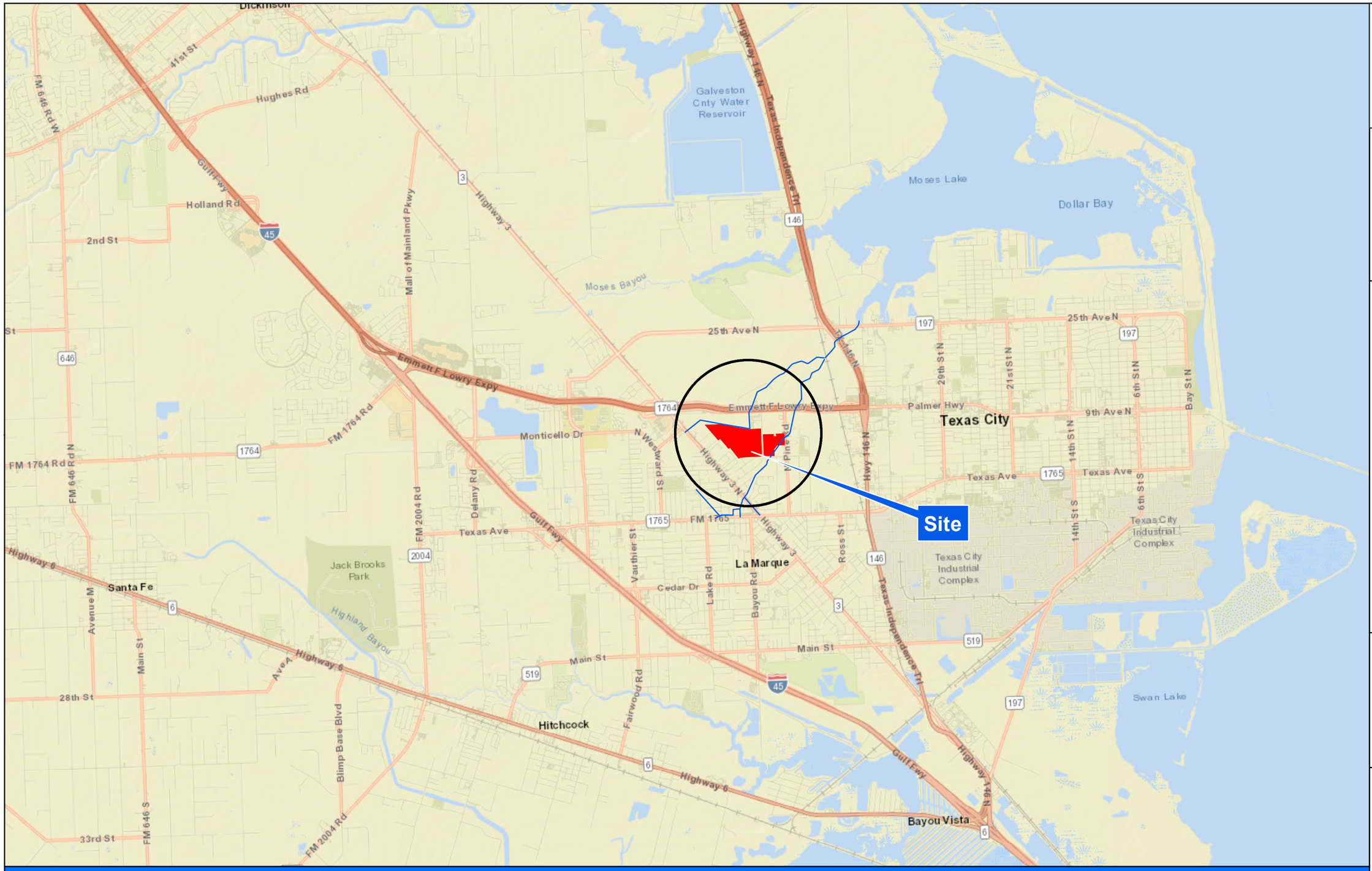
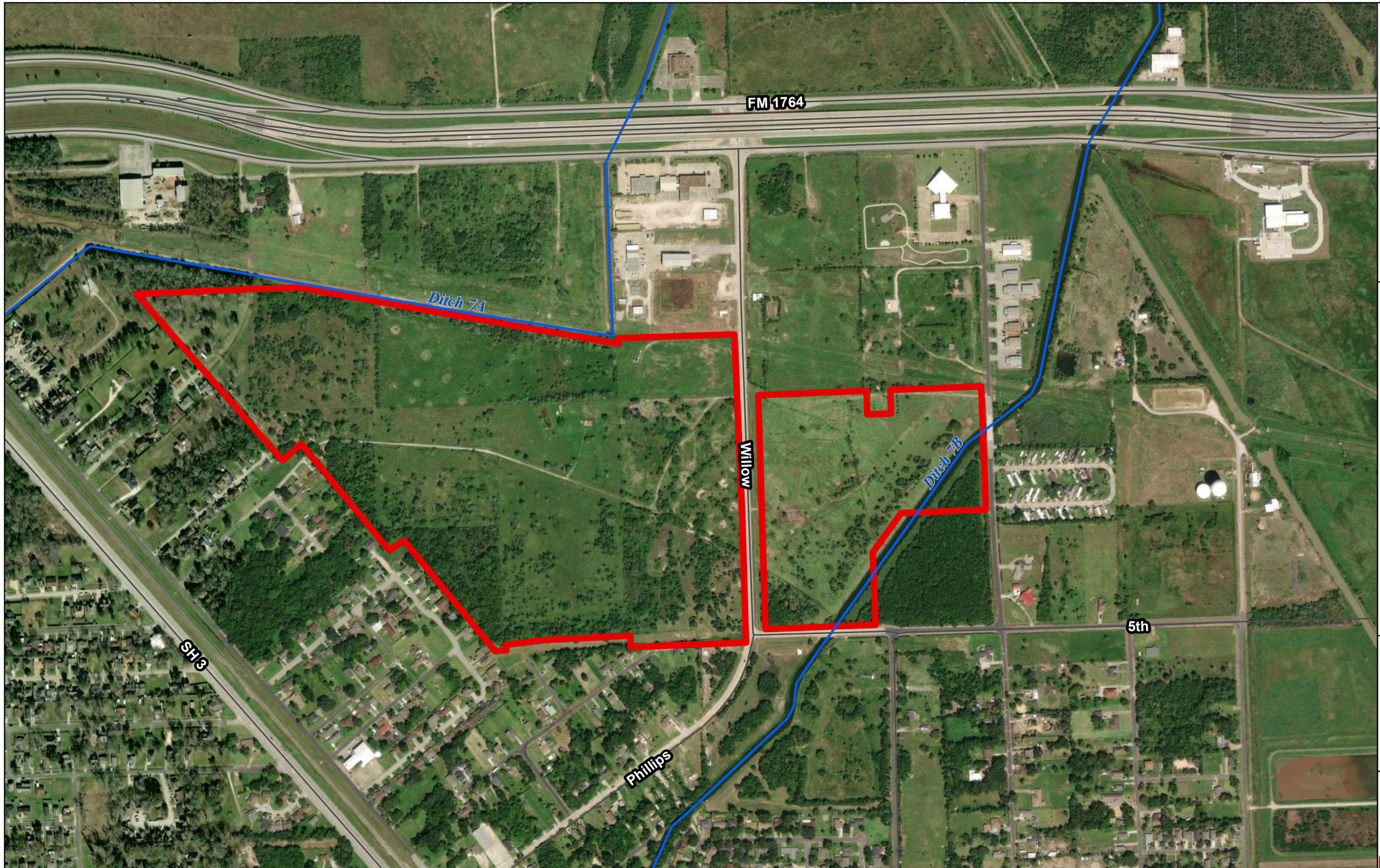


Exhibit 1 - Location Map

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Site



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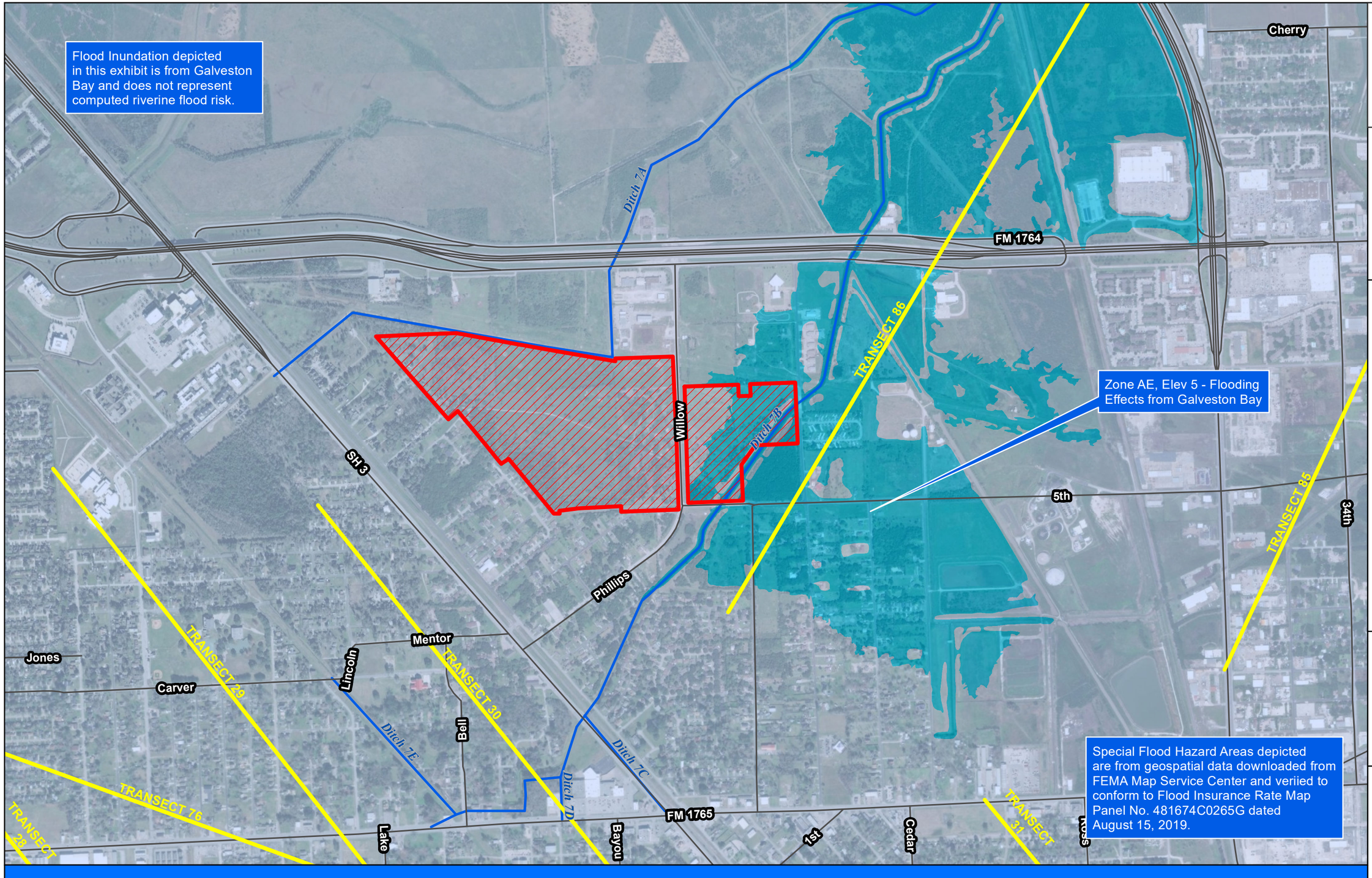
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Roads
Ditch 7 Channels
Willowood Subdivision

Exhibit 2 - Aerial Photo



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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Transect Line
- Site
- Roads
- Ditch 7 Channels
- Zone AE (1%)
- Shaded Zone X (0.2%)

Exhibit 3 - FEMA Speical Flood Hazard Areas

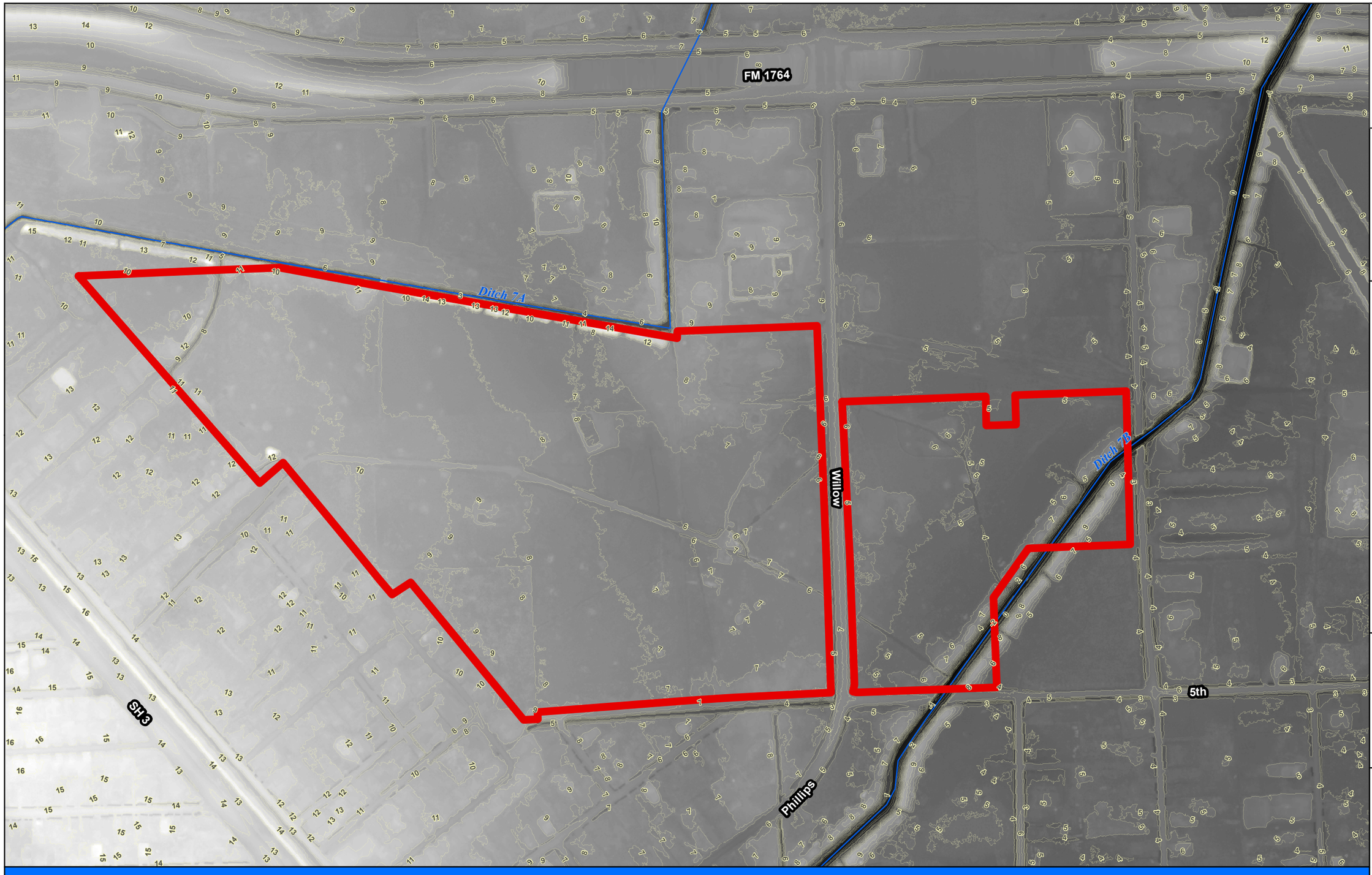

Exhibit 4 - Topography and Digital Elevation Model

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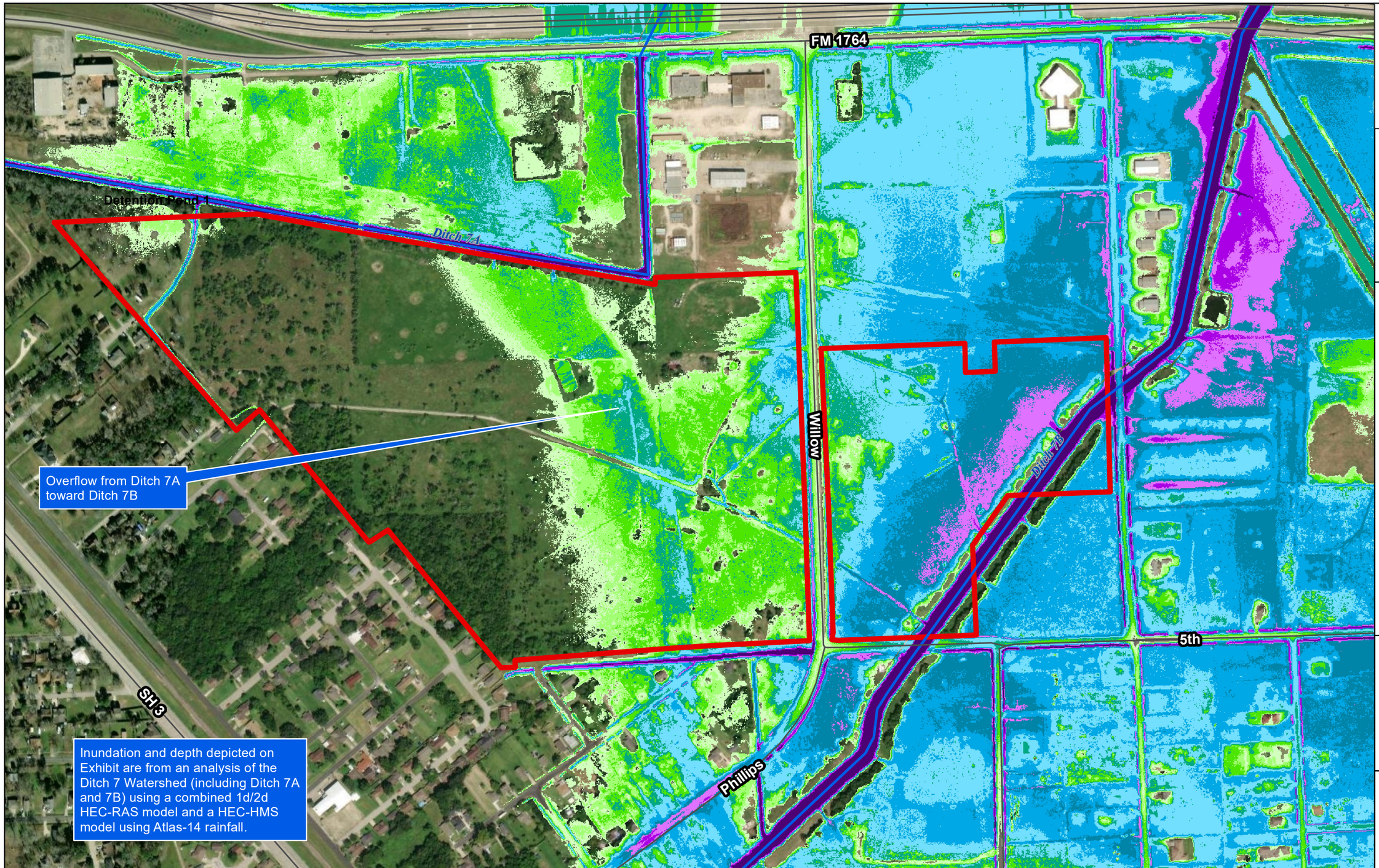
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Site
Study Channels
Elevation Contour
Roads

DEM Elevation
High : 40'
Low : -10'



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0 200 400 Feet

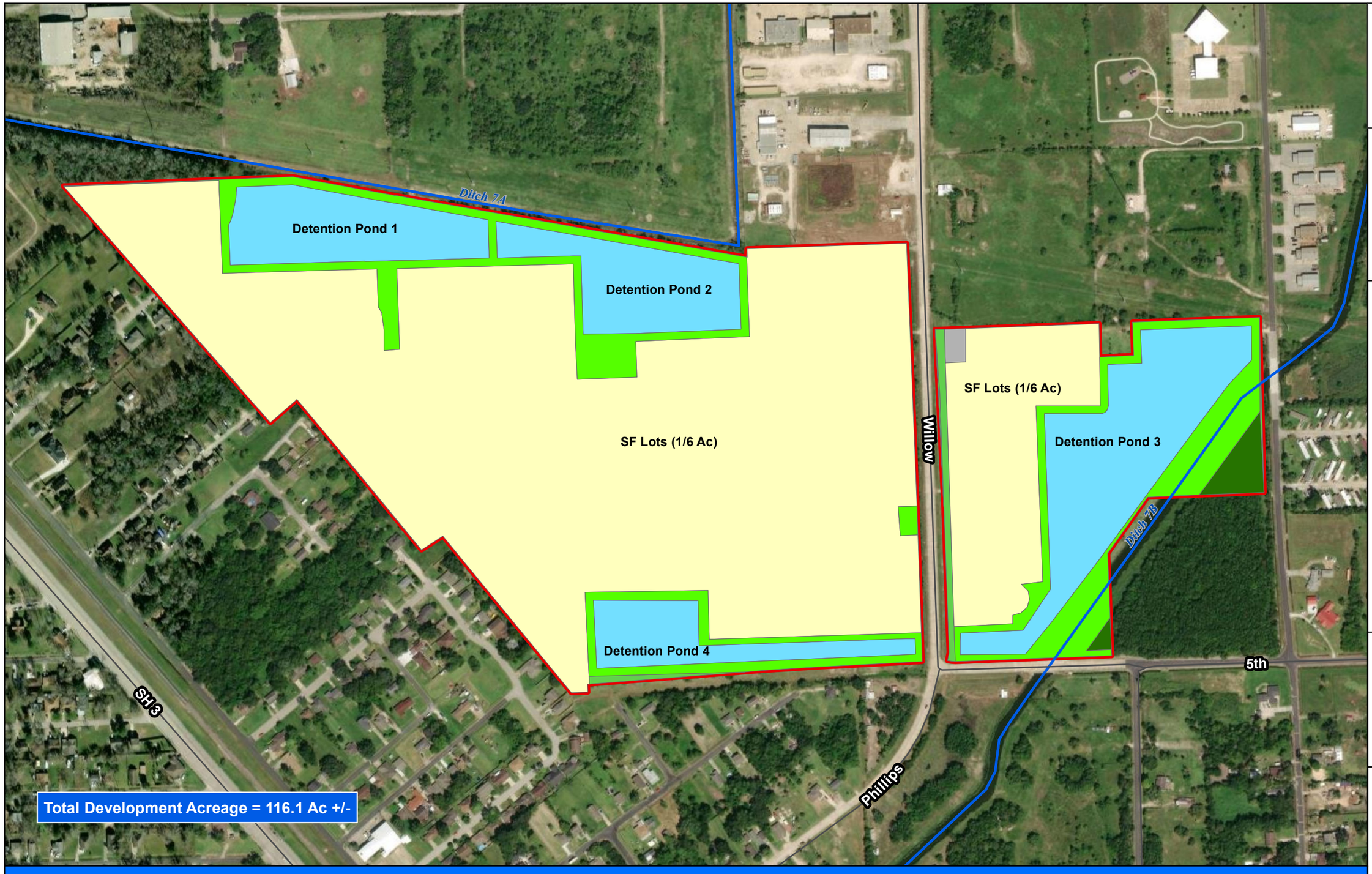
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

100-Yr Inundation Depth

- 0.0' - 0.25'
- 0.25' - 0.5'
- 0.5' - 0.75'
- 0.75' - 1.0'
- 1.0' - 1.5'
- 1.5' - 2.0'
- 2.0' - 2.5'
- 2.5' - 3.0'
- 3.0' - 4.0'
- >4.0'

Exhibit 5 - Computed 100-Yr Inundation



BJE

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W E
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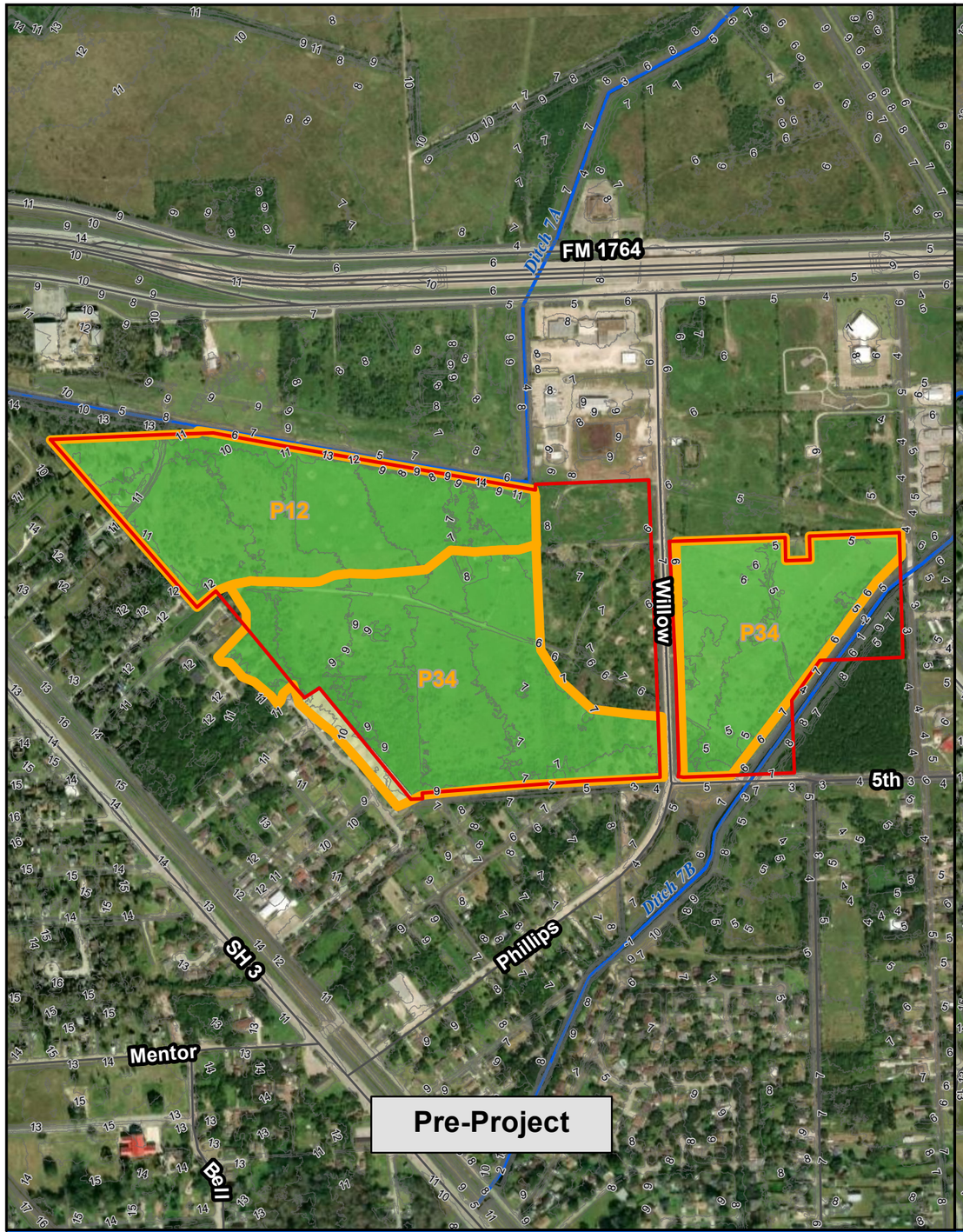
0 200 400 Feet

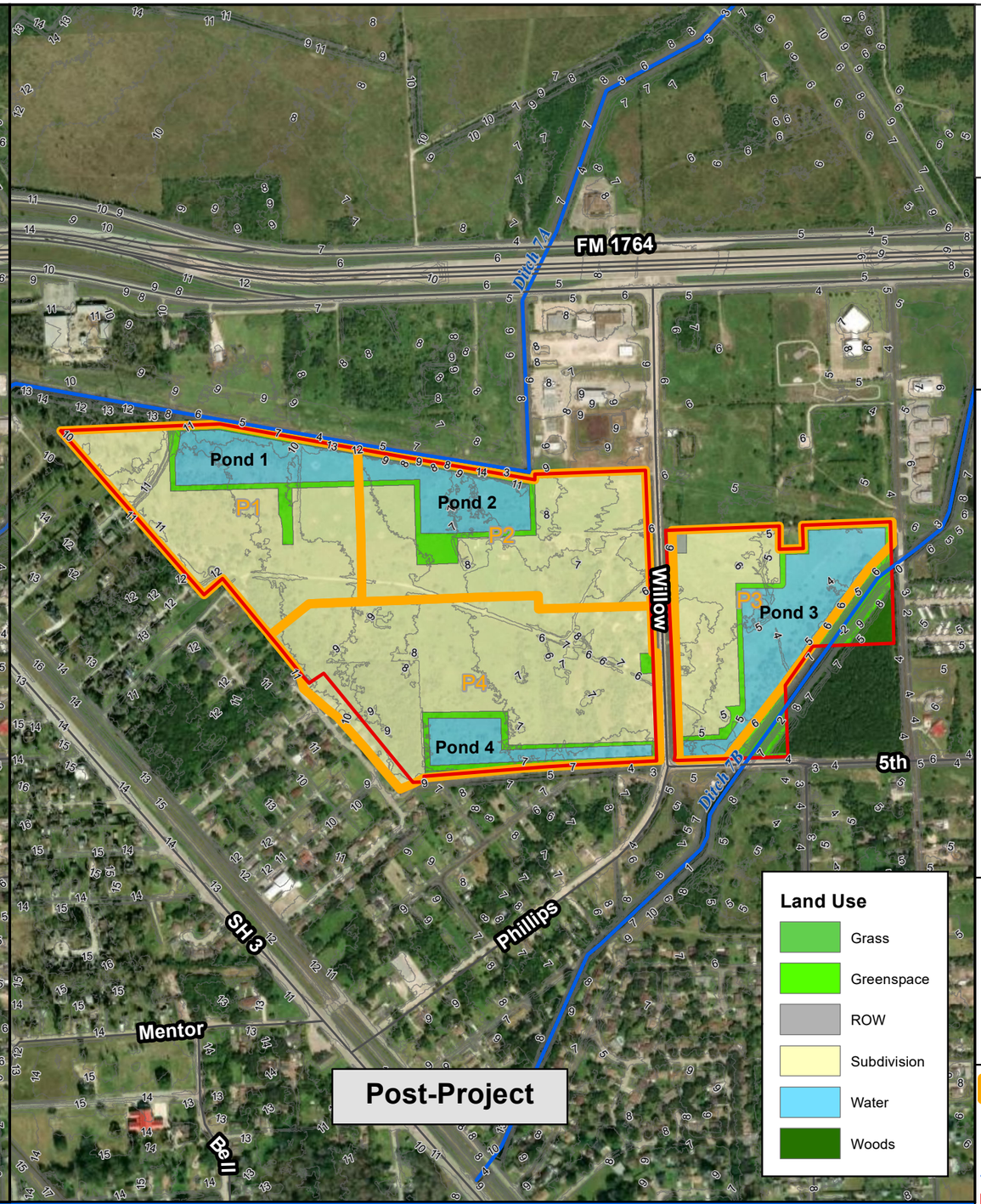
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Land Use
- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods

Exhibit 6 - Proposed Development





BJE

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0 400 800

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Drainage Subarea
- Elev Contour
- Road
- Channels
- Site

Exhibit 7 - Drainage Subarea Map

Exhibit 8 - Proposed Detention

BJE

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W E
S

0 200 400 Feet

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Site

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods

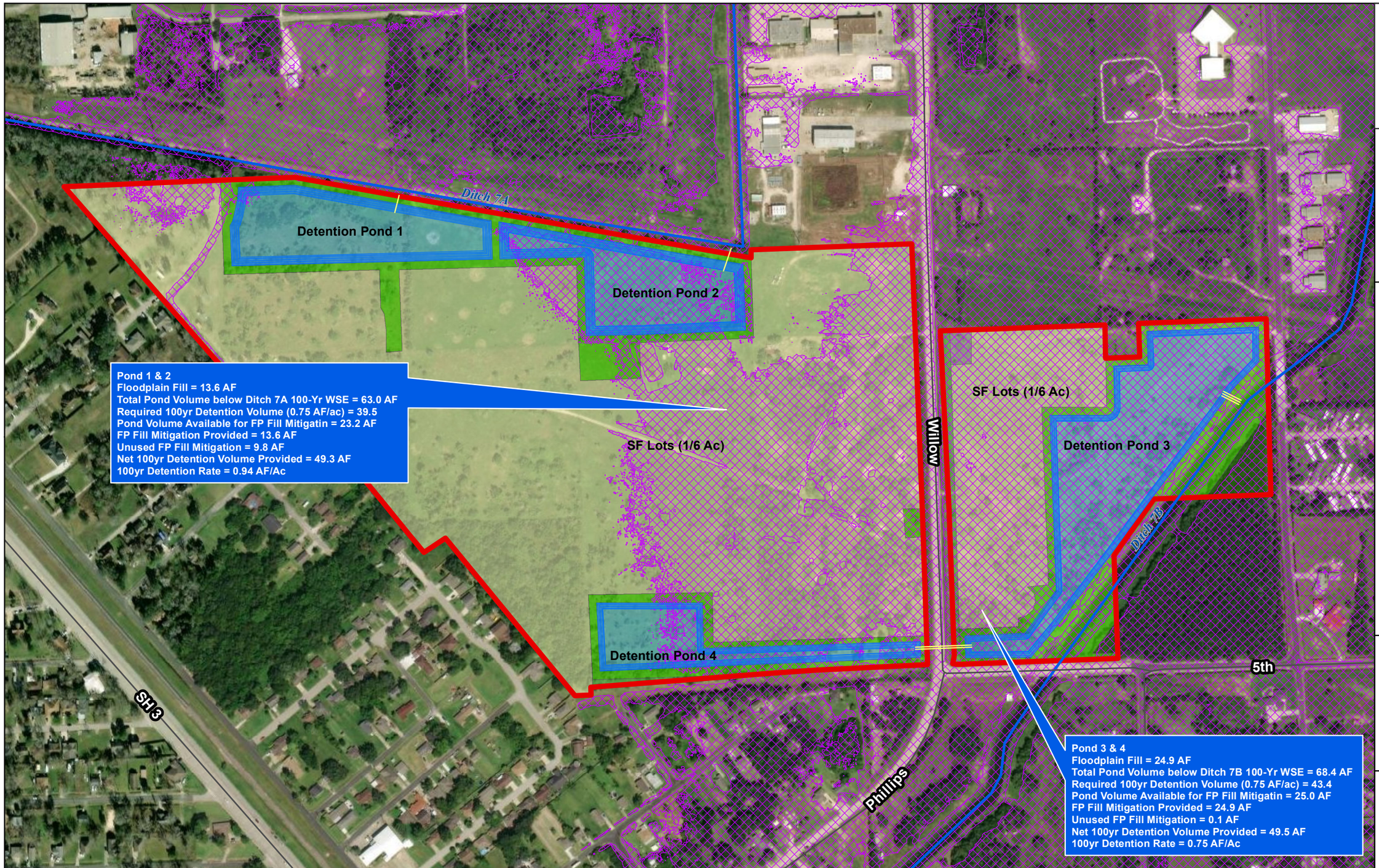

Exhibit 9 - FP Fill Mitigation & Detention Rate

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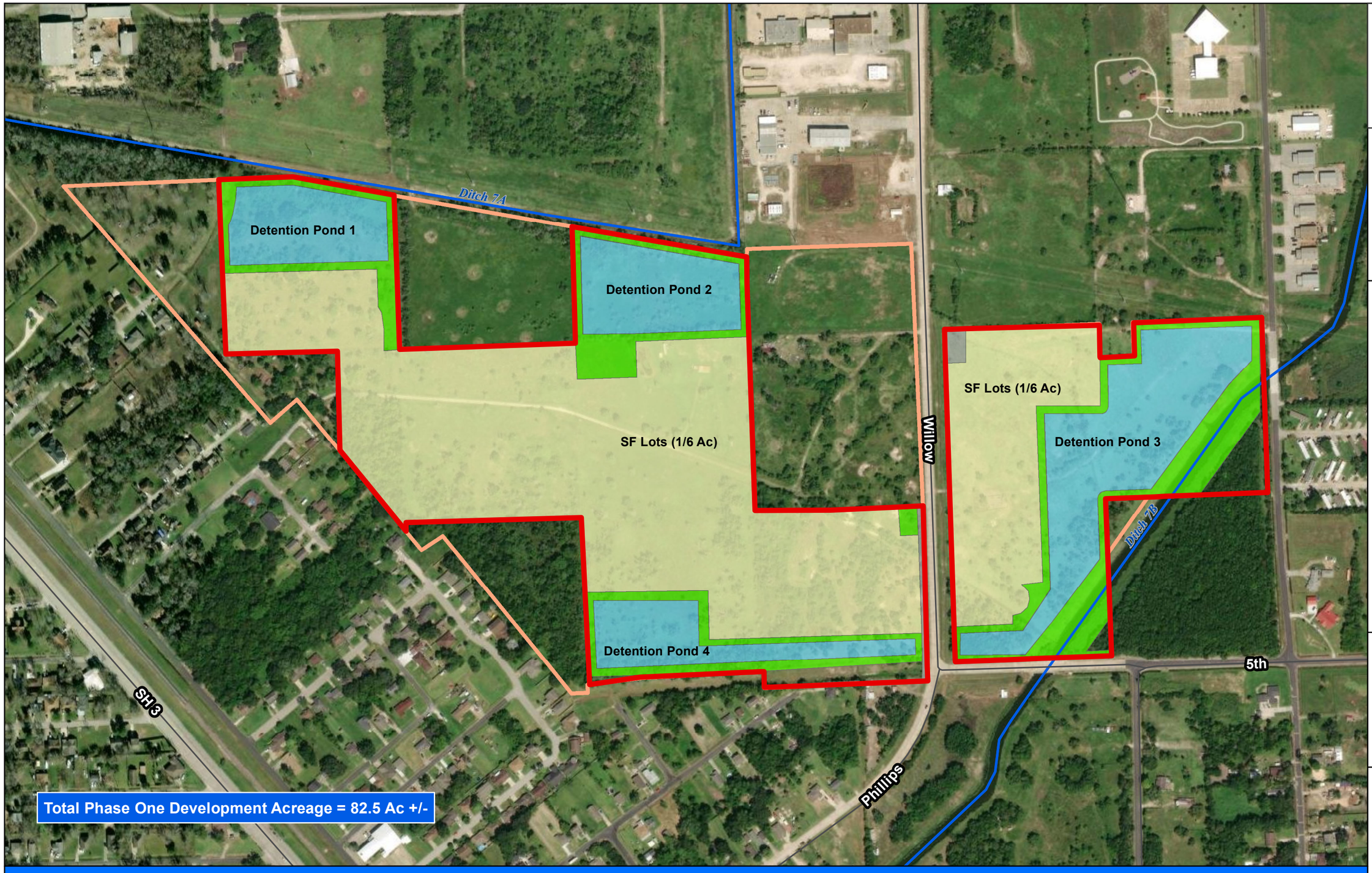
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Site
- Computed 100-Yr FP

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods



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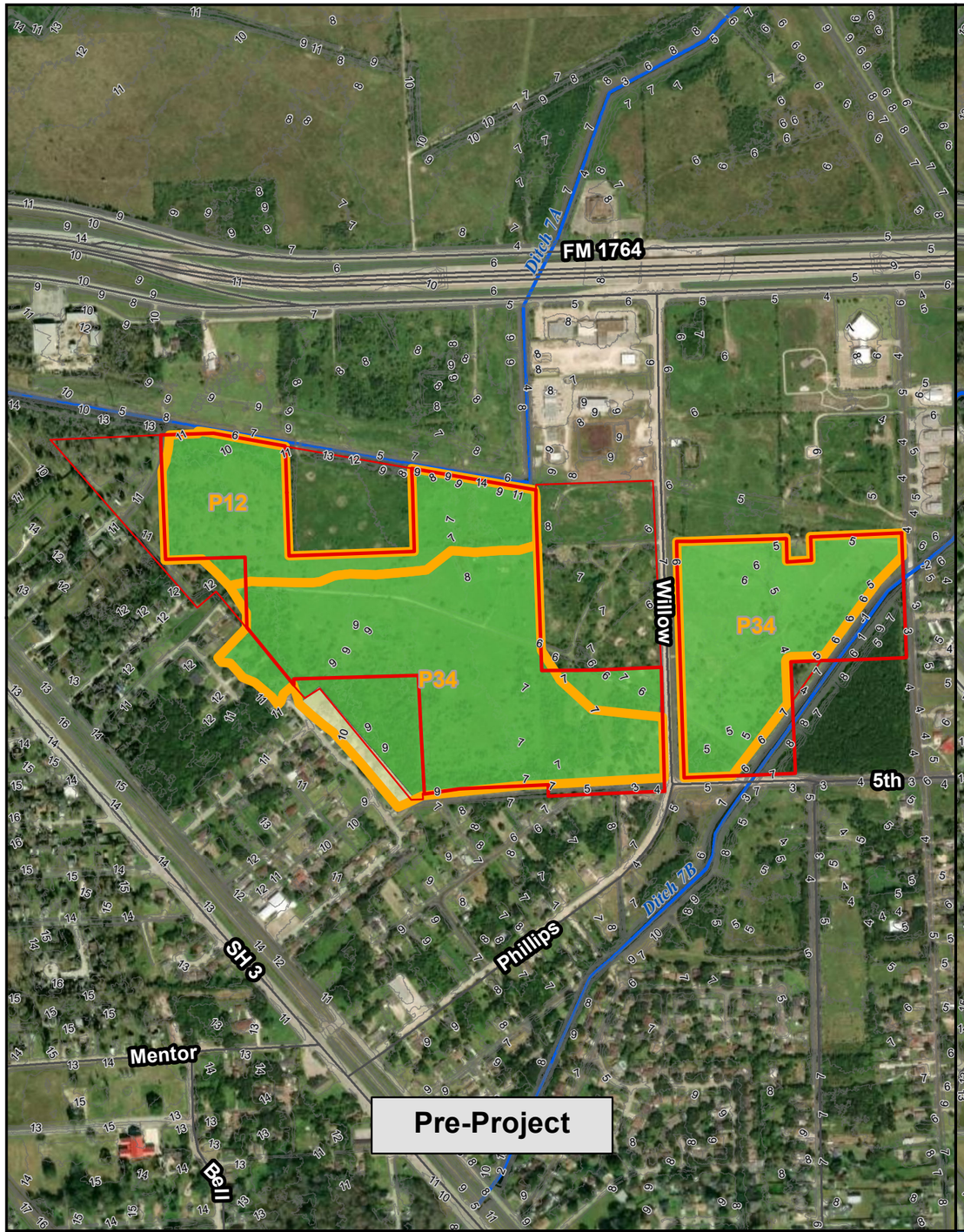
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

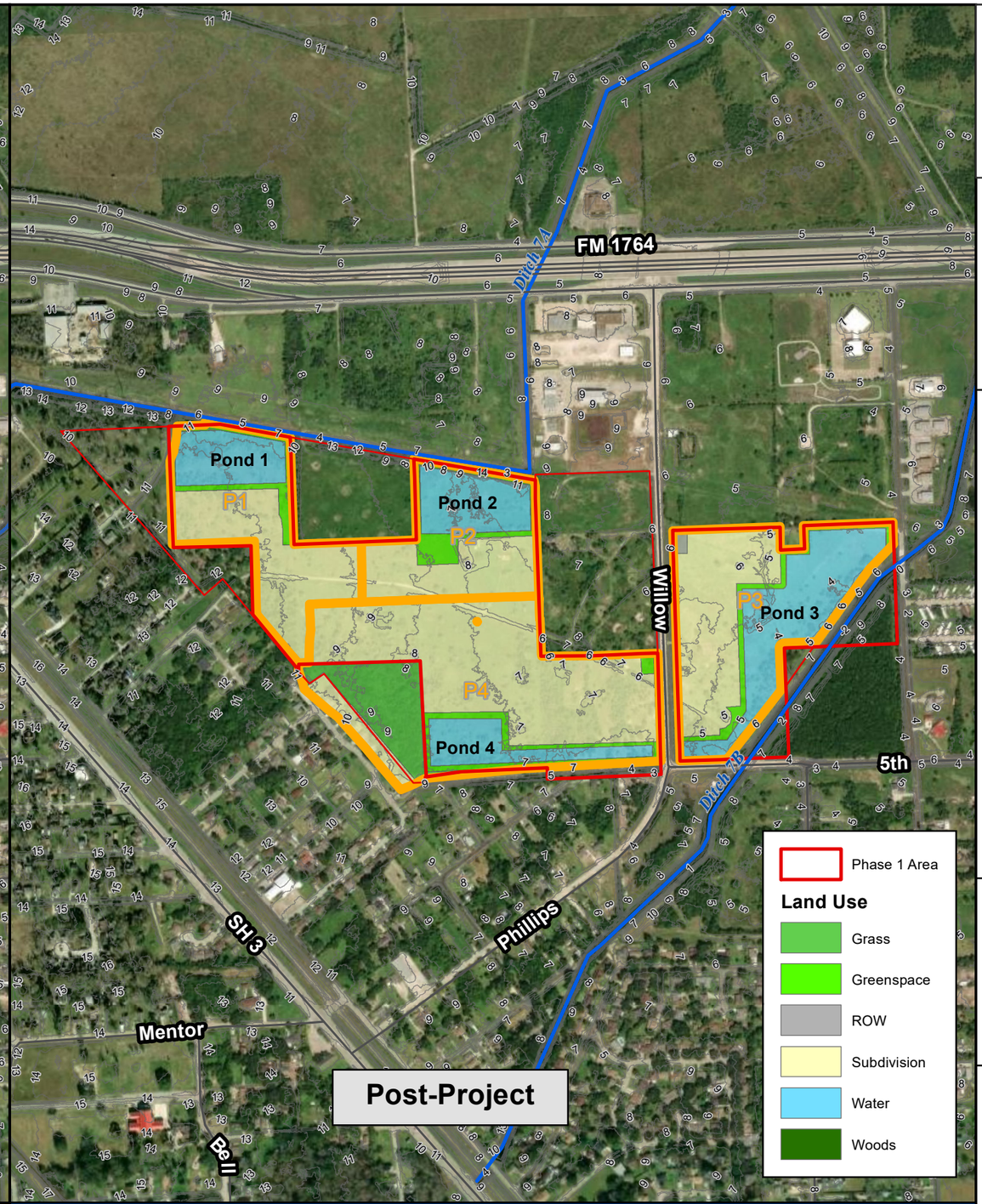
Drainage Impact Analysis

Land Use
- Greenspace
- ROW
- Subdivision
- Water
- Site

Exhibit 10 - Phase 1 Development



Pre-Project



Post-Project

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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Drainage Subarea
- Elev Contour
- Phase 1 Area
- Road
- Channels
- Site

Exhibit 11 - Phase 1 Drainage Subarea Map

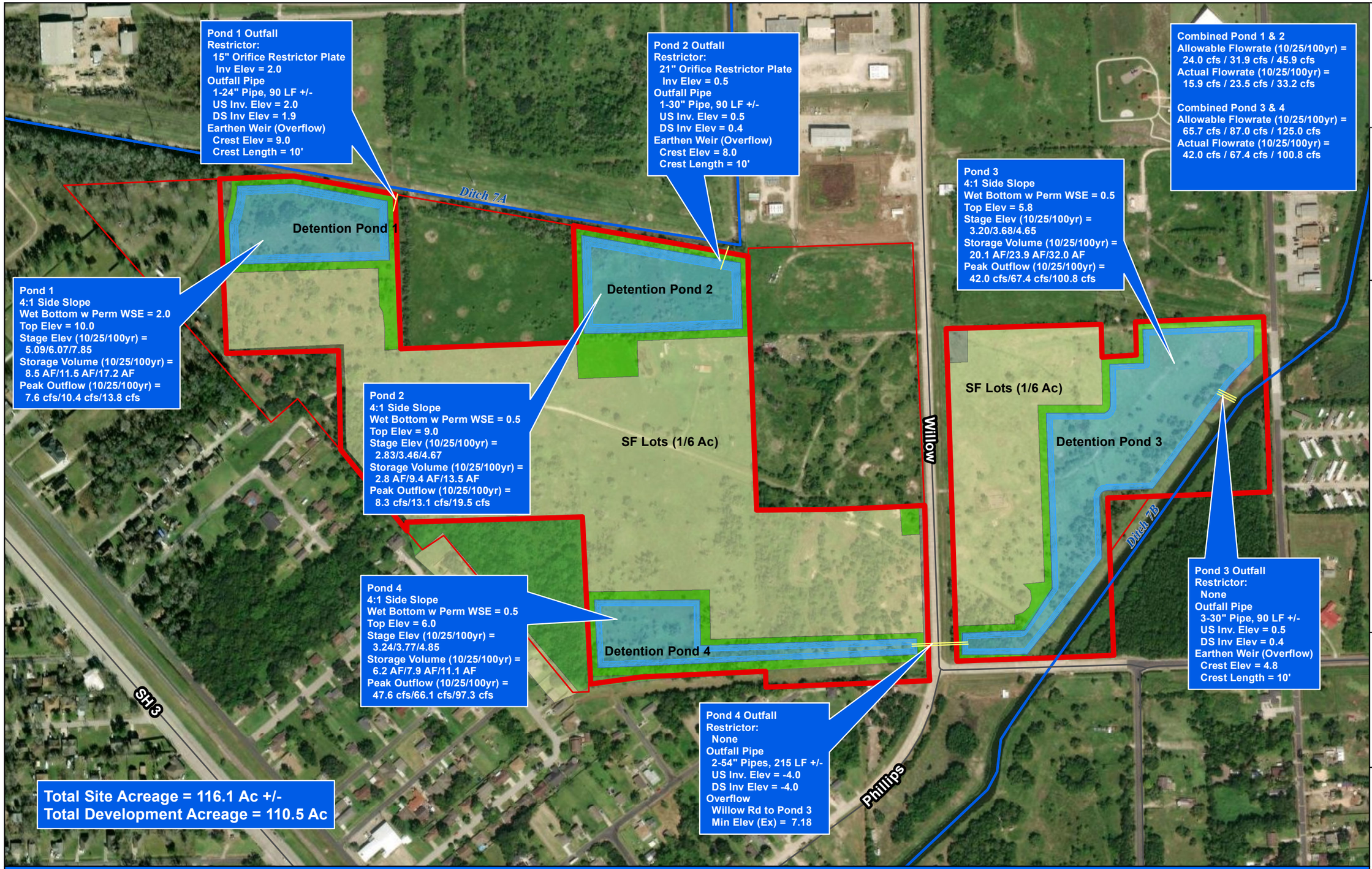

Exhibit 12- Phase 1 Detention

BJE

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0 200 400 Feet

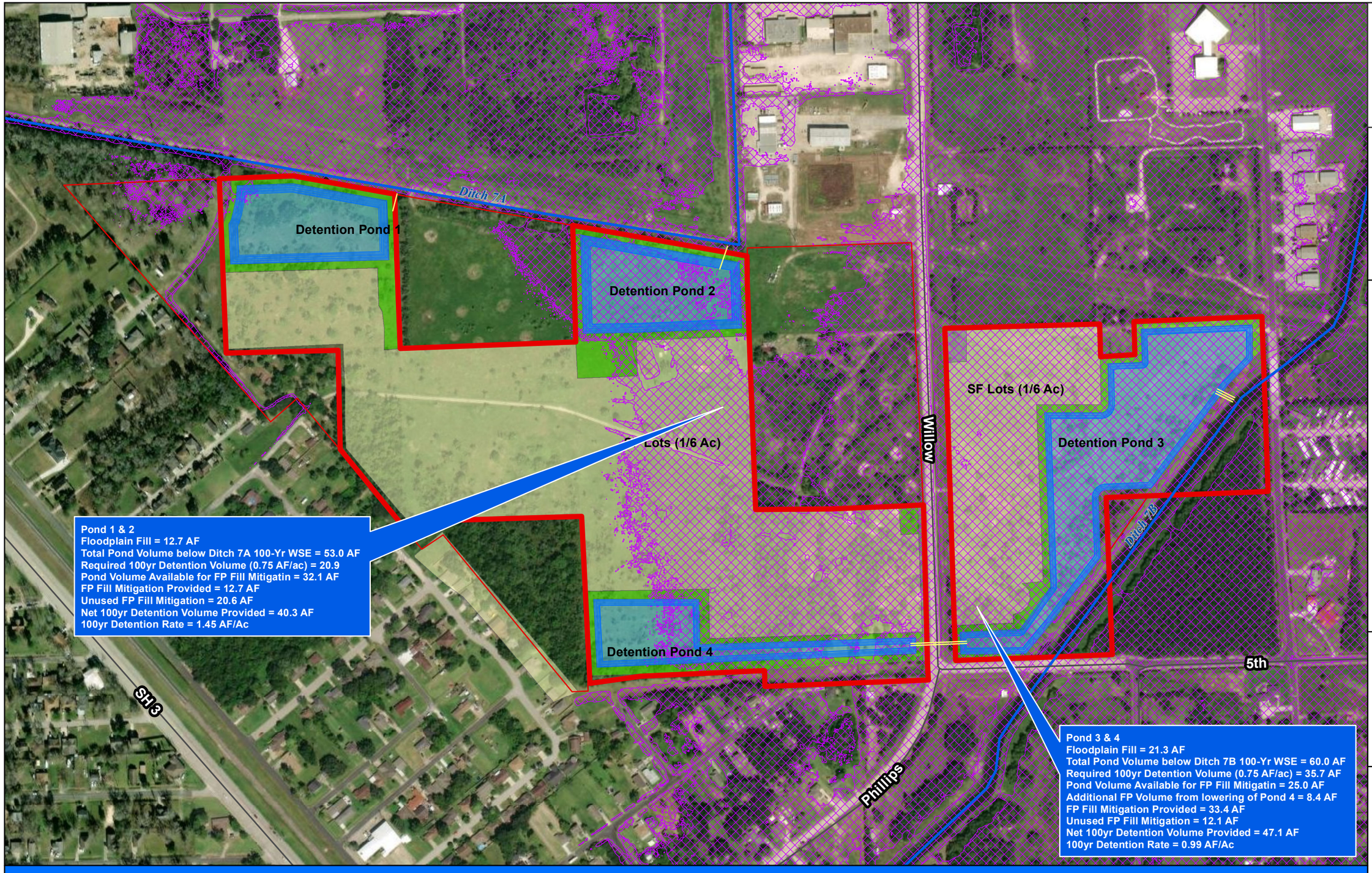
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Phase 1 Area
- Full Development

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods
- Detention Contour



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0 195 390 Feet

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

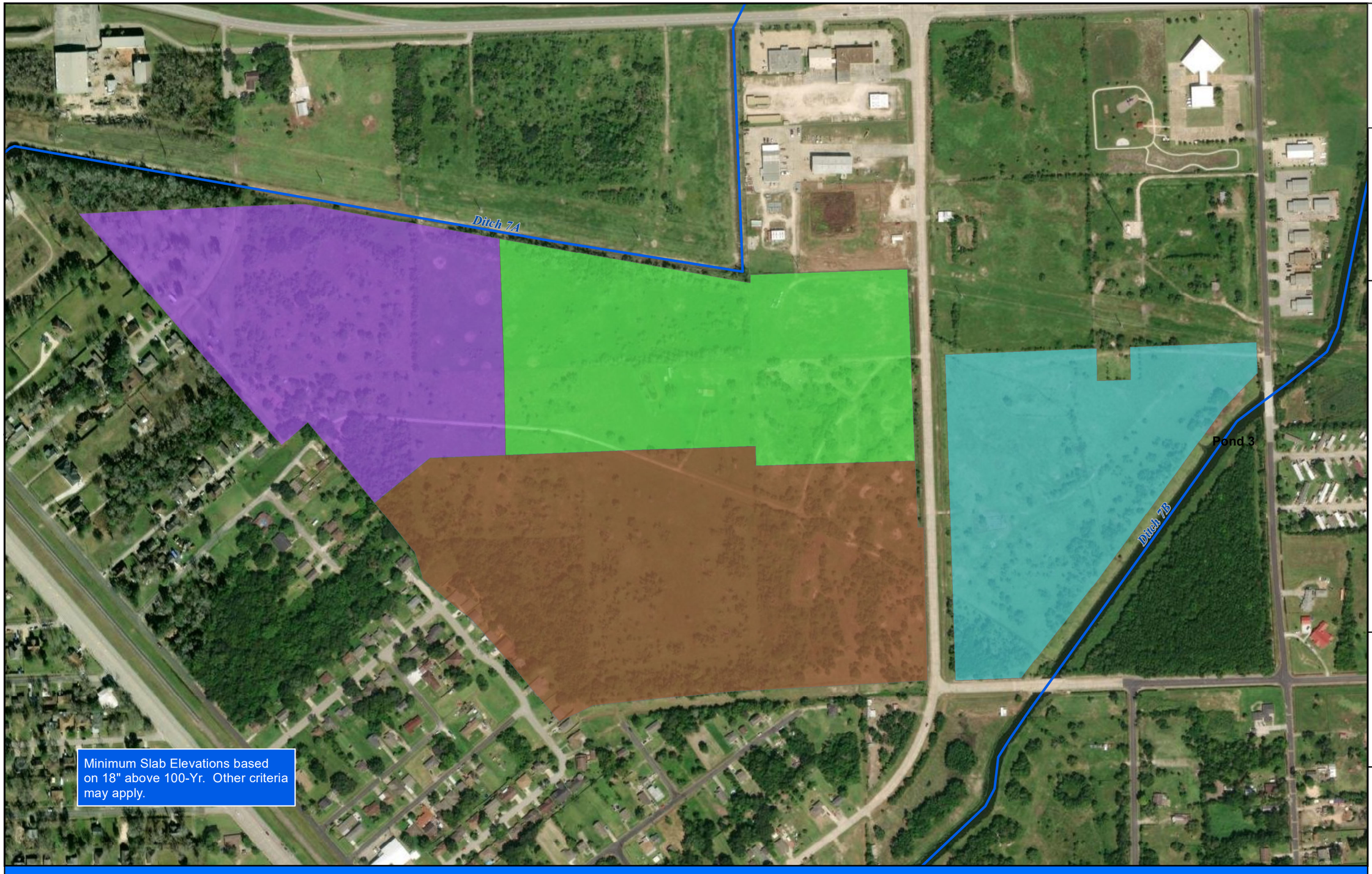
Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Phase 1 Area
- Site
- Computed 100-Yr FP

Land Use

- Greenspace
- ROW
- Subdivision
- Water

Exhibit 13 - Ph 1 FP Fill Mitigation & Detention Rate



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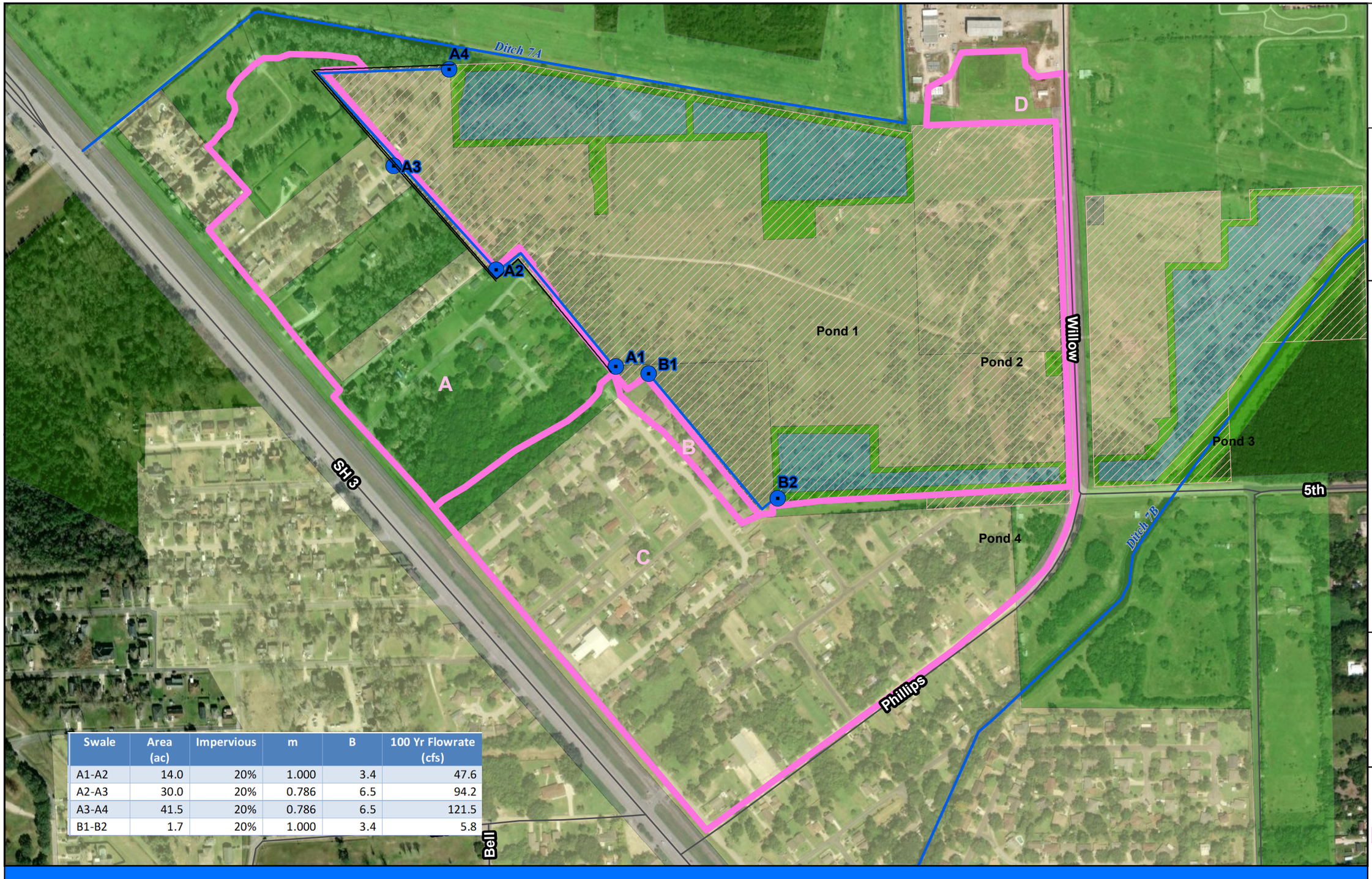
0 200 400 Feet

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Minimum Slab Elev
- 10.5
- 11.5
- 8.7
- 9.0

Exhibit 14 - Minimum Slab Elevations



Swale	Area (ac)	Impervious	m	B	100 Yr Flowrate (cfs)
A1-A2	14.0	20%	1.000	3.4	47.6
A2-A3	30.0	20%	0.786	6.5	94.2
A3-A4	41.5	20%	0.786	6.5	121.5
B1-B2	1.7	20%	1.000	3.4	5.8

BJE

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W E
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Feet
0 200 400

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX Galveston County DD No. 2

Drainage Impact Analysis

- Reference Nodes
- Perimeter Swale
- Offsite Areas
- Road
- Channels
- Site

Exhibit 15 - Offsite Flow Management

Ditch 7 Watershed
(Ditch 7, Ditch 7A, Ditch 7B)

Floodplain Mapping and Modeling

Galveston County Drainage District Number Two

April 6, 2024

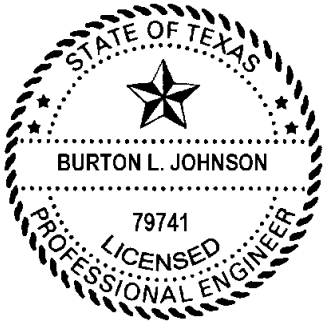
BURTON JOHNSON ENGINEERING, INC
WATER RESOURCES ENGINEERING & PLANNING

Floodplain Mapping and Modeling Report

Ditch 7 Watershed

(Ditch 7, Ditch 7A, Ditch 7B)

Galveston County Drainage District Number Two



April 6, 2024

Burton Johnson Engineering, Inc.
4611 Waterbeck St
Fulshear, TX 77441
281-773-7184
TPBE No. 10781

TABLE OF CONTENTS

1.0 Executive Summary 3

2.0 Introduction 4

2.1 Description of Project Area 4

2.2 FEMA Special Flood Hazard Areas 4

2.3 Elevation Data 5

3.0 Hydrology 6

3.1 Watershed Boundary and Drainage Sub-watersheds 6

3.2 Hydrologic Methodology 6

3.2.1 Land Use and Peak Flowrates (Site Runoff Curves) 7

3.2.2 Precipitation 8

3.2.3 Loss Parameters 8

3.2.3 Clark Unit Hydrograph Parameters and Peak Sub-WatershedFlowrates 9

4.0 Hydraulic Analysis (Combined 1D/2D HEC-RAS) 11

4.1 Geometry Data 11

4.1.1 Channel Cross Sections 11

4.1.2 Bridges and Culverts 11

4.1.3 Two-Dimensional Flow Areas 12

4.1.4 Lateral Weirs 13

4.1.5 Willowood Subdivision and Detention Basins 13

4.1.6 Boundary Conditions 13

5.0 Results 16

5.1 Inundation 16

5.2 Computed Water Surface Elevations 16

5.3 Peak Flowrates and Hydrographs 18

EXHIBITS

ATTACHMENT 1 – Galveston County Drainage District Number Two Map

Note: Survey data and computer models may be downloaded at the following link within 90 days of date of report:

https://www.dropbox.com/s/vv570wu2n86gdz3/Ditch%207%20Study%20-%20Models.zip?dl=0

1.0 Executive Summary

This report describes and summarizes the computation of flood flows and flood inundation in the Ditch 7 watershed in Galveston County. Specifically, flood flows and inundation were computed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events using HEC-HMS and a coupled 1d/2d HEC-RAS model. The resultant inundations are presented in Exhibits 9, 10, and 11 of the report.

The analysis and supporting hydrologic and hydraulic modeling were performed in consideration of the Galveston County Drainage District Number Two (District) criteria, which currently defers to the methodology described in the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM)*, dated July 2019. This version of the PCPM includes updates to consider ATLAS 14 rainfall, and as such the study includes recognition of ATLAS 14 rainfall.

The hydraulic modeling includes a coupled 1d/2d model. The models were developed in consideration of guidance by the U.S. Army Corps of Engineers Hydrologic Engineering Center (HEC) and the Harris County Flood Control District's *Two-Dimensional Modeling Guidelines.*

The study is based on current land use and channel conditions, and also considers currently planned and imminent developments. Specifically, the proposed Willowood Subdivision, a 118-acre proposed single family residential development adjacent to and between Ditch 7A and Ditch 7B that includes four detention basins, is included in the evaluation. The floodplain modeling and mapping of Ditch 7A and Ditch 7B described herein have been prepared for the District as part of the development evaluation. The Drainage Impact Analysis for Willowood Subdivision is prepared under a separate report.

This report and supporting models will be submitted to Galveston County Drainage District Number Two (District) for their consideration and potential adoption.

2.0 Introduction

The Ditch 7 watershed is one of the nine watersheds within the boundaries and jurisdiction of Galveston County Drainage District Number Two (District). The Ditch 7 system consists of several ditches, with the main ditches being two major forks of Ditch 7 known as Ditch 7A and Ditch 7B along with Ditch 7 as it drains to Moses Lake. To date, there are no known hydrologic and hydraulic studies of Ditch 7, Ditch 7A, and Ditch 7B. This report describes and summarizes a study conducted using HEC-HMS and HEC-RAS to determine peak flowrates and inundations along these ditches. The HEC-RAS model utilized a combined one-dimensional/two-dimensional (1d/2d) model, with the channels modeled using the 1d regime and the overbank and overflow areas modeled using a 2d regime.

2.1 Description of Project Area

The Ditch 7 watershed is mostly within the City of Texas City, however a southern portion of the watershed is within the City of La Marque. Ditch 7, Ditch 7A, and Ditch 7B are all located within the City of Texas City. Exhibit 1 depicts the location of the Ditch 7 watershed and the primary ditches. The District's Watershed Map is provided as Attachment 1. The hydrologic study considers the portion of the watershed upstream of Loop 197 North (25th Avenue). There is a small portion of the watershed downstream of Loop 197 North, however this area is dominated by the tidal influence of Moses Lake and has a negligible influence on flood flows and flood elevations.

Exhibit 2 provides an aerial photograph of the Ditch 7 watershed from the District Map. The upper half of the watershed is developed, with the development consisting primarily of residential neighborhoods along with some multi-family and commercial areas along the main corridors. The lower half is mostly undeveloped, with the development consisting of the major transportation corridors along with intermittent industrial, commercial, and residential development. According to the District map, the watershed drains an area of 2.91 square miles at Loop 197 North.

There major roadways in the watershed are Loop 197 North, State Highway 146, FM 1764, State Highway 3, and FM 1765. FM 1765 forms the boundary between the Cities of Texas City and La Marque. There is a Union Pacific Rail Line that runs generally parallel and west of State Highway 146.

Exhibit 2 also depicts the limit of the channel study. Ditch 7A and Ditch 7B are both studied from State Highway 3 downstream to their confluence with Ditch 7. Ditch 7 is studied downstream to Loop 197 North. Although the hydrologic calculations for Ditch 7 terminate at Loop 197 North, the HEC-RAS study was continued a short distance downstream into Moses Lake to capture the influence of the Loop 197 North crossing.

2.2 FEMA Special Flood Hazard Areas

According to FEMA Flood Insurance Rate Map (FIRM) Panel No. 48167C0265G, dated August 15, 2019, the watershed is entirely in the Shaded Zone "X", which represents areas subject to flooding from a 0.2% annual probability event (also known as the 500-year event). A portion of the area is also in the Zone AE floodplain, which represents areas subject to inundation from the 1% annual probability event (also

known as the 100-year event) that have computed Base Flood Elevations. Exhibit 3 depicts these Special Flood Hazard Areas.

Based on a review of the FIRM Panel and FEMA's *Flood Insurance Study, Galveston County and Incorporated Areas,* dated August 15, 2019, the inundation depicted on the FIRM is from coastal surge flooding and does not represent riverine flooding from rainfall in the watershed. The coastal elevations are computed along transect lines which are shown on the exhibit. The 100-year coastal surge elevation is shown as a Base Flood Elevation on the FIRM Panel and is also shown, as elevation 5.0, on Exhibit 2. Transect Line 86 runs through the project area. The 100-year coastal surge elevation is 5.0. Based on a profile presented in the *Flood Insurance Study* and the 500-year coastal surge elevation is between elevation 15.0 and 17.0 within the Ditch 7 watershed.

The information provided on the FIRM panels and within the *Flood Insurance Study* confirms that Ditch 7 and its tributaries are not FEMA studied streams.

2.3 Elevation Data

All source elevation data and all elevations cited in this report are in feet above Mean Sea Level based on the 1988 North American Vertical Datum (NAVD 88).

Elevation data for this analysis is a blend of the Upper Coastal Lidar data acquired by a partnership between the Texas Water Development Board, Houston-Galveston Area Council, and United States Geologic Survey in 2018; and survey data acquired by Costello, Inc. (now part of Pape Dawson) in the fall of 2023.

The lidar data was utilized for most of the elevation data, including overland areas and portions of the channel cross sections. The survey data was used to augment the lidar data in consideration of the limitations of the lidar data – specifically the capture of specific details and elevations associated with bridge and culvert crossings and the capture of bathymetry in areas where the lidar was unable to penetrate a water surface.

The survey included incremental channel cross sections along Ditch 7, Ditch 7A, and Ditch 7B, including elevations below the water surface. The locations of these sections are shown on Exhibit 4. These cross sections were utilized to develop a TIN and subsequent digital elevation model using ArcGIS software. There are software limitations to this method, however the resultant digital elevation model (DEM) was accurate at the location of the cross sections – and was used to develop a one-dimensional HEC-RAS geometry for the surveyed channel. Within HEC-RAS, RAS Mapper was utilized to convert the one-dimensional geometry into a DEM for the surveyed channel. This channel DEM was then merged with the lidar DEM to develop an integrated surface that considers the bathymetry along the channels.

Exhibit 5 depicts the resultant blended DEM. This elevation data was incorporated into the HEC-RAS model and was also used in the verification and determination of drainage boundaries and in the computation of hydrologic parameters (see Section 3.0).

3.0 Hydrology

Hydrographs were developed for each of the subareas in accordance with the methodology described in the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM),* dated July 2019, as the Galveston County Drainage District Number Two criteria defers to the Harris County Flood Control District Criteria until Galveston County releases an updated Drainage Criteria Manual.

3.1 Watershed Boundary and Drainage Sub-watersheds

The watershed boundary from the District map was reviewed in consideration of the Lidar topography and drainage infrastructure, and portions of the boundary were amended to reflect ground conditions. Based on the revised drainage determination, the total drainage area is computed to be 3.22 square miles, which is 0.31 square miles greater than the watershed area depicted on the District map (of this approximately 0.10 square miles is due to extending the downstream boundary slightly downstream). The District and updated drainage area boundaries are depicted in Exhibit 6.

The watershed was further subdivided into six sub-watershed areas to facilitate the hydrologic analysis. This includes three sub-watersheds that drain to Ditch 7A (sub-watersheds 7A1, 7A2, and 7A3), four sub-watersheds to Ditch 7B (sub-watersheds 7B1, 7B2, 7B3, and 7B4) and a single sub-watershed to Ditch 7 (Sub-watershed 7). These sub-watersheds are also depicted on Exhibit 6. The Ditch 7 watershed drains a total of 3.22 square miles. Ditch 7A drains 0.84 square miles, and Ditch 7B drains 1.88 square miles.

3.2 Hydrologic Methodology

The Harris County Flood Control District legacy hydrology uses the Clark Unit Hydrograph methodology and the Green and Ampt loss method to compute runoff hydrographs for a 24-hour ATLAS 14 based hypothetical event. The Clark Unit Hydrograph utilizes two parameters, Time of Concentration (TC) and Storage (R) to define the shape of the hydrograph. Historically, the Flood Control District's empirically developed Clark Unit Hydrograph equations were utilized to develop the Clark TC and R parameters. Recently, the Flood Control District has shifted to a different method, the Basin Development Factor, to develop Clark Unit Hydrograph parameters. Both of these methods were developed from the evaluation of gauge data, and the Flood Control District notes that neither method is appropriate for sub-watersheds less than one square mile in area.

For drainage areas between 50 acres and 640 acres (one square mile), the PCPM recommends the use of the Flood Control District's Site Runoff Curves. These curves compute the peak flowrate based on the drainage area and percentage of impervious cover and have been updated in consideration of ATLAS 14 rainfall. The curves are described in Section 3.3 of the PCPM and presented graphically for the 2-year, 10-year, 100-year, and 500-year events in Exhibits 3-1, 3-2, 3-3, and 3-4 of the PCPM. They can also be developed using the following equation:

$$Q = bA^m$$

Where Q = peak flowrates (cfs)
A = drainage area (acres)
m = 1.0 for A = 1-20, 0.786 for A = 20-640
b = variable dependent on impervious cover, see Table 1

Table 1: Harris County Flood Control District Site Runoff Curves
Determination of "b" Parameter

Impervious Cover	2-Year		10-Year		100-Year		500-Year	
	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac
0%	0.7	1.4	1.3	2.4	2.4	4.6	3.6	6.8
10%	0.9	1.8	1.6	3.0	2.9	5.5	4.3	8.1
20%	1.2	2.2	1.9	3.6	3.4	6.5	5.0	9.5
30%	1.4	2.7	2.3	4.4	4.1	7.7	5.8	11.0
40%	1.7	3.3	2.8	5.2	4.7	8.9	6.6	12.6
85%	2.3	4.3	3.5	6.6	5.7	10.9	8.0	15.1

Note: Apply linear interpolation between b value with the 85% impervious cover value the maximum

Runoff hydrographs were computed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events using the software package HEC-HMS version 4.11. The primary inputs for the HEC-HMS model are the precipitation, runoff losses, and unit hydrograph parameters. The following sub-sections describe the determination of the input parameters and the HEC-HMS hydrologic modeling.

3.2.1 Land Use and Peak Flowrates (Site Runoff Curves)

Exhibit 7 shows the sub-watershed delineations along with the land use and longest flowpath for each sub-watershed. The sub-watersheds determined for the Ditch 7 watershed are all less than one square mile in size, therefore the Site Runoff Curves were utilized to determine the peak flowrates. The land use was determined from aerial photographs and the proposed development plans for the Willowood Subdivision. The land use was used to determine the percentage impervious for each of the sub-watersheds using the assumed impervious cover values presented in Table 2.

Table 2: Land Use vs. Impervious Cover

Land Use	Impervious
Woods	0%
Grass/Range	0%
Road Right-of-Way	80%
Greenspace	15%
Water	100%
Subdivision - 1 Ac Lots	25%
Subdivision - 1/6 Ac Lots	40%
Multi-Family	85%
Commerical	85%
Industrial	65%

3.2.2 Precipitation

The *Criteria Manual* provides precipitation data based on the NOAA TP-40 report from 1961, however this has been superseded and replaced by the NOAA ATLAS-14 rainfall data published in 2018. Table 3 summarizes the NOAA ATLAS 14 point rainfall precipitation estimate, which was obtained from the National Weather Service ATLAS 14 online Precipitation Frequency Data Server for a location (Latitude: 29.3907°, Longitude: -94.9717°) at the center of the Ditch 7 watershed.

Table 3: NOAA ATLAS 14 Precipitation

Duration	Point Rainfall (inches)					
	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
5 min	0.755	0.866	1.07	1.22	1.37	1.75
10 min	1.20	1.41	1.70	1.94	2.18	2.76
15 min	1.52	1.78	2.14	2.42	2.72	3.58
30 min	2.17	2.53	3.03	3.42	3.83	4.95
1 hr	2.91	3.42	4.13	4.68	5.27	6.98
2 hr	3.77	4.54	5.68	6.6	7.64	10.6
3 hr	4.32	5.30	6.76	7.99	9.39	13.3
6 hr	5.28	6.60	8.62	10.4	12.4	18.1
12 hr	6.27	7.89	10.4	12.5	15.0	22.5
24 hr	7.31	9.22	12.2	14.7	17.7	26.9

3.2.3 Loss Parameters

The Green and Ampt method was utilized to determine rainfall losses due to ground infiltration, evaporation, depression storage, and other mechanisms. While the PCPM is silent on the selection of the loss methodology, the Flood Control District has utilized the Green and Ampt method since the Tropical Storm Allison Recovery Project in the early 2000's. Green and Ampt loss function is an empirical method that determines an initial loss (or initial abstraction) and then a cumulative loss over time.

The input parameters utilized in this study are taken from the methodology described in the *Dickinson Bayou Watershed, Regional Drainage Plan, Drainage Criteria Manua,* dated August 1992. The parameters are described below:

Initial Deficit (DTHETA): Also known as the "soil moisture deficit", the difference between the maximum amount of moisture which a soil can hold and the given amount of moisture present in the soil at any given time. Expressed as a ratio. *Dickinson Bayou Value: DTHETA = 0.36*

Suction (PSIF): Also known as "wetting front suction" and represents the capillary suction which draws water into the soil, measured at the wetting front, or the limit of penetration of water into the soil. The wetting front separates wet soil from the dry soil. Expressed in inches. *Dickinson Bayou Value: PSIF = 11.20 in*

Conductivity (XKSAT): hydraulic conductivity of saturated soil, the ratio of the rate of flow of water through a soil to the energy gradient causing that flow. Hydraulic conductivity is a measure of soil permeability. Expressed in inches per hour. *Dickinson Bayou Value: XKSAT = 0.02 in/hr*

Impervious Cover: The percentage of impervious cover in the sub-watershed, see Table 5.

3.2.3 Clark Unit Hydrograph Parameters and Peak Sub-WatershedFlowrates

Clark Unit Hydrograph parameters TC and R are used to determine the shape of hydrographs given the contributing drainage area and excess runoff (precipitation less rainfall infiltration and other losses). These parameters are defined as follows:

Time of Concentration (TC): The time required for storm runoff to flow from the most remote point in a subarea to the outlet point, in hours.

Watershed Storage Coefficient (R): Indicator of the available stormwater storage volume within a watershed, in hours. This storage volume may be provided in depressions or low areas, ponds, or in the channel and flood plain of the stream under consideration. The relative amount of storage volume within a watershed varies directly with the storage coefficient, i.e., the higher the storage coefficient, the greater the storage volume.

For this study, the time of concentration (TC) was determined based on the travel time along the longest flowpath in the sub-watershed. The NRCS TR-55 methodology was applied, which calls for the determination of travel time associated with sheet flow, shallow concentrated flow, pipe flow, and channel flow. Table 4 summarizes the TC for each of the sub-watersheds.

Table 4: Time of Concentration (Clark Parameter TC)

Subarea	**7A1**	7A2	7A3	7B1	7B2	7B3	7B4	70
Sheet Flow								
Length (ft)	300	130	190	300	300	250	300	300
Surface	Woods	Range	Woods	Range	Range	Range	Range	Range
N	0.40	0.13	0.40	0.13	0.13	0.13	0.27	0.40
Slope (ft/ft)	0.0020	0.0050	0.0074	0.0033	0.0020	0.0020	0.0020	0.0067
2-Yr 24-Hr Precip (in)	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32
Travel Time (min)	100.7	14.6	41.5	33.4	41.0	28.0	73.6	62.2
Shallow Concentrated Flow								
Length (ft)	1920	1190	4010	4490	1360	1250	4060	920
Surface	Unpaved	Paved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved
Slope (ft/ft)	0.0032	0.0050	0.0020	0.0021	0.0020	0.0020	0.0020	0.0024
Velocity (fps)	0.92	1.44	0.72	0.75	0.72	0.72	0.72	0.79
Travel Time (min)	34.9	13.8	92.6	100.3	31.4	28.9	93.8	19.4
Ditch Flow								
Length	1690		5740	1430	2580		3750	5850
Slope (ft/ft)	0.0012		0.0003	0.0028	0.0004		0.0001	0.0009
Velocity (fps)	2		2	2	2		2	2
Travel Time (min)	14.1		47.8	11.9	21.5		31.3	48.8
Time of Concentration (TC)								
Tc (min)	149.7	28.4	182.0	145.6	93.9	56.9	198.6	130.4
TC (hr)	2.50	0.47	3.03	2.43	1.57	0.95	3.31	2.17

The value for TC, along with the drainage area, Green and Ampt parameters, and ATLAS 14 precipitation were input in HEC-HMS. initial values for the Clark Unit Hydrograph value R were assumed for each sub-

watershed. A 100-year even was executed, and the R value was then adjusted until the HEC-HMS simulation returned 100-year peak flowrates that matched the peak flowrates computed using the Site Runoff Curves. The resultant TC and R values were applied for all frequencies.

Table 5 summarizes the TC and R values and supporting parameters. Table 6 presents the computed peak flowrates for each sub-watershed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events, and also presents a comparison of the 10-year and 100-year events using the Site Runoff Curves.

Table 5: HCFCD Site Runoff Curves and Clark Unit Hydrograph Parameters

Subarea				HCFCD Site Runoff Curves					Clark Unit Hydrograph	
Name	Area (acres)	Area (sm)	% Impervious	b10	b100	m	10-Yr (cfs)	100-Yr (cfs)	TC (hr)	R (hr)
7A1	139.4	0.2178	25.4%	4.03	7.14	0.786	195.2	346.1	2.50	2.186
7A2	69.7	0.1089	37.0%	4.96	8.54	0.786	139.3	239.9	0.47	1.416
7A3	330.8	0.5169	15.2%	3.31	6.02	0.786	316.3	575.0	3.03	4.240
7B1	514.2	0.8034	42.6%	5.28	9.01	0.786	713.8	1218.7	2.43	2.476
7B2	243.0	0.3797	31.6%	4.53	7.90	0.786	339.9	592.4	1.57	2.514
7B3	75.4	0.1178	42.1%	5.27	8.99	0.786	157.4	268.9	0.95	1.240
7B4	368.3	0.5755	13.2%	3.19	5.82	0.786	332.2	605.7	3.31	4.600
70	319.3	0.4989	26.3%	4.11	7.26	0.786	381.6	674.7	2.17	3.153

Table 6: Computed Subarea Peak Flowrates

Subarea	Peak Flowrate (cfs)						Difference from Site Runoff Curves (cfs)	
	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr	10-Yr	100-Yr
7A1	155.1	192.3	247.6	293.8	346.1	495.1	-2.9	0.0
7A2	119.0	143.6	179.2	208.0	239.9	330.9	4.3	0.0
7A3	242.2	305.8	401.8	482.6	575.0	842.1	-10.5	0.0
7B1	547.3	677.5	871.9	1034.4	1218.8	1745.6	-36.3	0.1
7B2	270.9	333.9	427.5	504.7	592.4	844.3	-6.0	0.0
7B3	133.3	160.9	200.7	233.1	268.9	371.3	3.5	0.0
7B4	252.2	319.5	421.3	507.3	605.7	890.7	-12.7	0.0
70	297.5	370.6	479.9	571.0	674.7	973.2	-11.0	0.0

4.0 Hydraulic Analysis (Combined 1D/2D HEC-RAS)

A coupled 1d/2d unsteady flow HEC-RAS model was utilized to compute peak flowrates and inundations for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events. The hydrographs described in Section 3.0 were introduced into HEC-RAS as boundary conditions. The physical channel network, bridges and culverts, and overland flow areas are described in the geometry. This section describes the HEC-RAS model development.

4.1 Geometry Data

Exhibit 8 presents a schematic of the HEC-RAS model. The model uses a one-dimensional flow regime to model flow within the channels, including areas within the channel banks and the near overbank extents. The two-dimensional regime was utilized to model the overbank areas away from the channel. The two-dimensional model component was selected because of potential overflows between Ditch 7A and Ditch 7B.

4.1.1 Channel Cross Sections

Channel cross sections were developed for HEC-RAS along Ditch 7, Ditch 7A, and Ditch 7B from RAS Mapper using the terrain model from the hybrid lidar and surveyed bathymetery. RAS Mapper was used to compute reach lengths along the main channel. The main overbank areas were modeled in the two-dimensional regime, although there are some small overbank areas within the one-dimensional regime that are reflected in the cross sections. The overbank areas are near to the main channel section, and therefore the channel reach length was also used for the right overbank and left overbank reach lengths.

The channels modeled in this study are all subject to maintenance and in good condition. For Ditch 7A, a Manning's "n" value of 0.04 was used to reflect the maintained condition of the trapezoidal channel. Ditch 7 and Ditch 7B have larger tidal areas that lack vegetation, and therefore the Manning's "n" value was decreased slightly relative to Ditch 7A. For these channels, an "n" value of 0.035 was assigned for the main channel. For all channels, an overbank "n" value of 0.05 was used. These values were only applied in locations proximate to the channel cross section that are typically well maintained as most of the overbank areas are modeled in the two-dimensional regime.

The confluence of Ditch 7A and Ditch 7B was modeled as a storage area. This is a more stable method than the HEC-RAS junction and returns similar results. A small storage area was determined and a stage vs. storage relationship was developed from the hybrid terrain data.

4.1.2 Bridges and Culverts

The roadway, railroad, and canal crossings were modeled using survey data obtained from the Costello survey with some augmentation with lidar data (to confirm top of road elevations). Table 3 lists the bridges and culverts in the model. The survey data did not capture information for the box culverts at Loop 197 North along Ditch 7 or at Oak Street (the very upstream portion of Ditch 7A and 7B). The crossings are generally at the modeling boundaries and were estimated from field visits, online imagery, and lidar data. Any inaccuracies from this are negligible to model results.

There are a few small pipeline crossings along Ditch 7B and one along Ditch 7. These were not introduced into the model, as their overall impact is negligible.

Table 4: Bridge and Culvert Crossing

Channel	Station	Crossing	Description	Data Source*
Ditch 7	1585	Loop 197 North (25th St N)	3 – 10' x 9' Concrete Box Culverts	1,3,4
Ditch 7	2827	SH 146 NB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7	2975	SH 147 Mainlanes	3-Span Bridge	1,2,3,4
Ditch 7	3122	SH 146 SB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7	4279	Union Pacific RR	3-Span RR Bridge	1,2,3,4
Ditch 7A	3258	GCWA Canal	2 - 60" Reinforced Concrete Pipes	1,2,3,4
Ditch 7A	3773	Unnamed Crossing	1 - 72" Steel Culvert	1,2,3,4
Ditch 7A	5565	FM 1764 Emmett Lowry Expwy	3 – 5' x 6' Concrete Box Culverts	1,2,3,4
Ditch 7A	7941	Unnamed Crossing	2 – 48" Corrugated Metal Pipes	1,2,3,4
Ditch 7A	10376	Oak St	1 – 60" Steel Culvert	
Ditch 7B	3400	FM 1764 Emmett Lowry Expwy WB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7B	3550	FM 1764 Emmett Lowry Expwy Mainlanes	3-Span Bridge	1,2,3,4
Ditch 7B	3700	FM 1764 Emmet Lowry Expwy EB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7B	5406	N. Pine Rd	3-Span Bridge	1,2,3,4
Ditch 7B	6801	5th Ave North	2-Span Bridge	1,2,3,4
Ditch 7B	9434	Oak St	3 – 10' x 10' Concrete Box Culverts	1,3,4

**1-Lidar 2-Costello Survey 3-Online Imagery 4-Field Observation*

4.1.3 Two-Dimensional Flow Areas

The overbank areas were modeled in the two-dimensional regime. HEC-RAS 2D Areas were delineated and a mesh was defined on 80-foot spacings. Breaklines were established and enforced at high points in the terrain to prevent flow from "leaking" between cells. Table 5 lists the three 2D Areas.

Table 5: HEC-RAS 2D Areas

2D Area	Description
East_2d	Area in the east overbank area of Ditch 7 and Ditch 7B
West_2d	Area in the west overbank area of Ditch 7 and Ditch 7A
Middle_2d	Area between Ditch 7A and Ditch 7B

A shapefile representing land use was developed and imported into the HEC-RAS model to establish Manning's "n" values for the two-dimensional regime. Exhibit 8 displays the land use assignments and the Manning's "n" values. Table 6 summarizes the Manning's "n" values used for the two-dimensional area.

Table 6: Manning's "n" Values – 2D Areas

Land Use	Manning's "n"	HCFCD 2d Modeling Guidelines (Range/Recommended)
Commercial	0.03	0.02-0.06/0.03[1]
Grass	0.22	0.15-0.30/0.22[2]
Industrial	0.03	0.02-0.06/0.03[1]
Multi-Family	0.06	0.02-0.06/0.03[1]
Right-of-Way	0.02	0.02-0.06/0.03[1]
Subdivision	0.16	0.06-0.20/0.16[3]
Subdivision – Large Lot	0.18	0.06-0.20/0.18[4]
Woods	0.25	0.18-0.30/0.25[5]

HCFCD 2d Modeling Guidelines Land Categories: 1 – Developed High Intensity, 2 – Pasture/ Grasslands, 3 – Developed Medium Intensity, 4 – Developed Low Intensity, 5 – Forest/Shrubs

4.1.4 Lateral Weirs

Lateral weirs were utilized to connect the one-dimensional and two-dimensional regimes. There are spoil areas adjacent to the channel banks along much of the channel network, and the lateral weirs were generally aligned with the top of these spoil banks. A weir coefficient of 0.50 was applied for the lateral weirs.

There are two 48" storm pipes that collect runoff in a swale west of Willow Street just south of its intersection with 5th Avenue N. These pipes run along the south side of 5th Avenue N to Ditch 7B and have been included in the modeling of the lateral weir along the west side of this portion of Ditch 7B.

4.1.5 Willowood Subdivision and Detention Basins

Willowood Subdivision is an ongoing 116-acre development in the center of the watershed located along and between Ditch 7A and Ditch 7B. Four detention basins are proposed – two located along Ditch 7A (Pond 1 and Pond 2), one located along Ditch 7B (Pond 3), and a fourth located west of Willow Street (Pond 4) that will drain under Willow Street into Pond 3. The land use in the hydrology includes the proposed development. Additionally, fill will be placed in the developed areas to raise the lot areas above the 100-year flood levels (the high banks of the detention areas will also be elevated, however the high banks for the two basins in the Ditch 7B will be elevated but not above the 100-year flood elevation.

Details of the Willowood Subdivision and its drainage features are descried in a separate report prepared by Burton Johnson Engineering, Inc. entitled *Willowood Subdivision Drainage Impact Analysis, Galveston County Drainage District No. Two, City of Texas City, Texas.* The detention basins were modeled as storage areas. Ponds 1, 2, and 3 were connected to the adjacent streams with lateral structures, while Pond 4 was connected to Pond 3 using a storage area connection. The stage vs. storage relationships for each basin along with the outfall structure are the same as those utilized in the Drainage Impact Analysis.

4.1.6 Boundary Conditions

Boundary Conditions utilized in the HEC-RAS model consist of the hydrographs computed in HEC-HMS and described in Section 3.0 as well as an internal 2D boundary condition upstream of a culvert that drains

areas east of Willow Street to Ditch 7B. In addition, external 2D boundary conditions are defined at the perimeters of portions of the 2D Areas. These external 2D boundary conditions are necessary to manage flow at the perimeter of the 2D flow areas. Without a boundary condition, flow will consider the perimeter of the 2D area as a wall.

The downstream boundary condition for the model is based on normal depth flow. As noted in Section 2.2 of this report, the project area is influenced by coastal elevations in Moses Lake and Galveston Bay. This analysis and subsequent mapping only considers the impact and inundation from riverine flooding resulting from a rainfall event over the area. The analysis and mapping does not consider coastal flooding or a combined probability analysis. While a combined analysis will provide a more accurate depiction fo flood risk, the riverine model prepared for this project is more appropriate for evaluating potential impacts from development and formulating riverine floor risk mitigation measures.

The sub-watershed hydrographs were assigned to locations within the HEC-RAS model. Most hydrograph assignments were prorated portions of the sub-watershed. The prorations were determined by identifying subareas of each sub-watershed that define a smaller area to a channel reach or detention basin, and then developing a HEC-HMS model recognizing these subareas. These prorate areas are illustrated in Exhibit 8. The parent sub-watershed TC and R values were applied, however the actual impervious cover was computed for each subarea. The HEC-HMS output includes the total runoff volume for each subarea. The subarea volume was compared to the parent sub-watershed volume to develop the prorate percentage of flow. Table 7 summarizes the determination of the pro-rate percentages for each sub-watershed subarea.

Table 7: Sub-Watershed Hydrograph Prorata Calculation

Subwatershed (Parent)			Subwatershed Subarea (Child)					Prorata Volume %
Name	Area (sm)	Volume (ac-ft)	Name	Area (ac)	Area (sm)	% IMP	Volume (ac-ft)	
7A1	0.2178	186.3	7A1_1	69.1	0.1079	42.1%	94.4	50.7%
7A1	0.2178	186.3	7A1_2	33.3	0.0521	7.8%	43.5	23.3%
7A1	0.2178	186.3	7A1_3	37.0	0.0578	9.8%	48.4	26.0%
7A2	0.1089	94.6	7A2_1	18.4	0.0288	1.3%	23.8	25.2%
7A2	0.1089	94.6	7A2_P1	24.9	0.0389	50.6%	34.4	36.4%
7A2	0.1089	94.6	7A2_P2	26.3	0.0412	49.1%	36.4	38.5%
7A3	0.5169	435.8	7A3_1	64.0	0.1000	47.3%	88.1	20.2%
7A3	0.5169	435.8	7A3_2	266.8	0.4169	7.4%	347.7	79.8%
7B1	0.8034	703.6	7B1	514.2	0.8034	42.6%	703.6	100.0%
7B2	0.3797	323.6	7B2_1	177.9	0.2779	29.6%	239.1	73.9%
7B2	0.3797	323.6	7B2_C	62.2	0.0972	37.0%	84.5	26.1%
7B3	0.1178	107.2	7B3_1	13.4	0.0210	6.2%	17.5	16.3%
7B3	0.1178	107.2	7B3_P3	24.7	0.0386	61.8%	34.7	32.4%
7B3	0.1178	107.2	7B3_P4	40.2	0.0628	42.2%	55.0	51.3%
7B4	0.5755	483.9	7B4_1	187.9	0.2936	16.4%	248.0	51.3%
7B4	0.5755	483.9	7B4_2	180.4	0.2819	9.9%	235.9	48.7%
70	0.4989	427.3	70_1	257.3	0.4021	31.2%	346.7	81.1%
70	0.4989	427.3	70_2	62.0	0.0968	6.2%	80.6	18.9%

Table 8 summarizes the internal boundary conditions, which consist of the inflow hydrographs; and Table 9 summarizes the external boundary conditions, which consists of normal depth flow.

Table 8: Internal Boundary Conditions

1D/2D	HEC-RAS Location	Type	Sub-watershed	Subarea	% of Subwatershed Hydrograph
Ditch 7A					
1D	10400	Flow Hydrograph	7A1	7A1_1	50.7%
1D	10297 - 8696	Uniform Lateral Inflow	7A1	7A1_2	23.3%
1D	8597	Lateral Inflow	7A1	7A1_3	26.0%
1D	8384 - 6917	Lateral Inflow	7A2	7A2_1	25.2%
1D	Pond 1	Lateral Inflow	7A2	7A2_P1	36.4%
1D	Pond 2	Lateral Inflow	7A2	7A2_P2	38.5%
1D	8531 - 6241	Uniform Lateral Inflow	7A3	7A3_1	20.2%
1D	5317 - 667	Uniform Lateral Inflow	7A3	7A3_2	79.8%
Ditch 7B					
1D	9477	Flow Hydrograph	7B1	7B1	100%
1D	9225 – 7101	Uniform Lateral Inflow	7B2	7B2_1	73.9%
2D	Middle_L1: B20	Lateral Inflow	7B2	7B2_C	26.1%
1D	6446 - 5771	Uniform Lateral Inflow	7B3	7B3_1	16.3%
1D	Pond 3	Lateral Inflow	7B3	7B3_P3	32.4%
1D	Pond 4	Lateral Inflow	7B3	7B3_P4	51.3%
1D	5074 - 3832	Uniform Lateral Inflow	7B4	7B4_1	51.3%
1D	3194 - 499	Uniform Lateral Inflow	7B4	7B4_1	48.7%
Ditch 7					
1D	4313 - 1728	Uniform Lateral Inflow	70	70_1	81.1%
1D	1419 - 528	Uniform Lateral Inflow	70	70-_2	18.9%

Table 8: 2D Boundary Conditions (External)

1D/2D	HEC-RAS Location	Type	Descriptive Location	Slope (ft/ft)
2D	West_2d: West1	Normal Depth	Northwest Perimeter	0.0005
2D	West_2d: DS_Left	Normal Depth	Left Overbank at Mouth	0.0005
2D	East_2d: East 1	Normal Depth	Southeast Perimeter	0.0005
2D	East_2d: East 2	Normal Depth	East Perimeter	0.0005
2D	East_2d: DS_Right	Normal Depth	Right Overbank	0.0005
1D	Ditch 7: XS 328	Normal Depth	Mouth of Ditch 7	0.0005

5.0 Results

The resultant coupled 1d/2d HEC-RAS model was executed using HEC-RAS version 6.3.1. The results are presented in this section.

5.1 Inundation

Exhibit 9 depicts the inundation for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events. As the exhibit indicates, the inundation results in large floodplains. There are overflows and out of bank flooding even during the 5-year event. This inundation mapping, as well as the inundations presented in Exhibits 10 and 11 only reflect riverine flood risk and do not incorporate coastal flooding.

Exhibit 10 shows the 100-year inundation shaded by the computed 100-year water surface elevation. The map also includes 100-year elevation lines (similar to Base Flood Elevation lines on a FEMA Flood Insurance Rate Map). Exhibit 11 shows a 100-year depth grid based on the 100-year riverine model.

5.2 Computed Water Surface Elevations

Table 9 presents the computed water surface elevations along Ditch 7, Ditch 7A, and Ditch 7B. These elevations are based on a normal depth downstream boundary condition and do not consider the influence of Galveston Bay, which has a 100-year elevation of 5.0.

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	328	1.69	2.03	2.37	2.60	2.82	3.33	Moses Lake
Ditch 7	528	1.79	2.12	2.47	2.70	2.92	3.42	
Ditch 7	766	1.97	2.31	2.66	2.89	3.11	3.63	
Ditch 7	1030	2.03	2.36	2.71	2.95	3.17	3.68	
Ditch 7	1272	2.04	2.37	2.71	2.95	3.16	3.66	
Ditch 7	1419	2.18	2.50	2.84	3.07	3.29	3.80	
Ditch 7	1543	2.14	2.46	2.79	3.01	3.21	3.72	
Ditch 7	1639	2.60	3.00	3.46	3.81	4.18	4.99	Loop 197 North
Ditch 7	1728	2.66	3.08	3.54	3.91	4.30	5.11	
Ditch 7	1985	2.83	3.24	3.71	4.07	4.45	5.23	
Ditch 7	2269	3.01	3.41	3.86	4.22	4.59	5.36	
Ditch 7	2578	3.25	3.63	4.06	4.40	4.76	5.51	
Ditch 7	2795	3.43	3.82	4.25	4.58	4.93	5.66	
Ditch 7	2861	3.45	3.84	4.27	4.61	4.95	5.69	SH 146 NB Access Rd
Ditch 7	2913	3.46	3.85	4.28	4.61	4.96	5.70	
Ditch 7	3041	3.49	3.88	4.31	4.64	4.99	5.72	SH 146 Mainlanes
Ditch 7	3090	3.50	3.89	4.31	4.65	5.00	5.73	
Ditch 7	3163	3.51	3.90	4.32	4.66	5.01	5.74	SH 146 SB Access Rd
Ditch 7	3247	3.51	3.90	4.32	4.66	5.01	5.74	
Ditch 7	3834	3.64	4.03	4.45	4.79	5.13	5.86	
Ditch 7	4025	3.73	4.11	4.53	4.87	5.20	5.92	
Ditch 7	4219	3.79	4.17	4.59	4.92	5.25	5.94	
Ditch 7	4232	3.80	4.17	4.59	4.92	5.25	5.94	
Ditch 7	4313	3.88	4.28	4.74	5.11	5.47	6.21	Union Pacific RR
Ditch 7	4328	3.89	4.29	4.76	5.13	5.49	6.23	
Ditch 7A	10	3.89	4.29	4.76	5.13	5.49	6.23	Confluence Ditch 7
Ditch 7A	667	4.11	4.49	4.89	5.23	5.56	6.28	

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7A	1397	4.31	4.67	5.06	5.36	5.68	6.37	
Ditch 7A	2061	4.48	4.82	5.19	5.47	5.77	6.44	
Ditch 7A	2858	4.71	5.03	5.38	5.63	5.89	6.54	
Ditch 7A	3161	4.81	5.12	5.45	5.69	5.94	6.57	
Ditch 7A	3360	5.81	6.15	6.51	6.75	6.96	7.59	GCWA Canal
Ditch 7A	3428	5.84	6.17	6.53	6.76	6.97	7.59	
Ditch 7A	3645	5.87	6.20	6.55	6.78	6.99	7.60	
Ditch 7A	3746	5.88	6.21	6.56	6.79	6.99	7.61	
Ditch 7A	3801	6.56	6.75	6.94	7.07	7.20	7.68	Unnamed Crossing
Ditch 7A	3879	6.56	6.75	6.93	7.07	7.20	7.68	
Ditch 7A	4523	6.60	6.79	6.97	7.10	7.23	7.72	
Ditch 7A	5245	6.64	6.82	7.01	7.15	7.28	7.79	
Ditch 7A	5313	6.64	6.83	7.01	7.15	7.29	7.79	
Ditch 7A	5351	6.64	6.83	7.01	7.15	7.29	7.80	
Ditch 7A	5765	6.77	6.97	7.15	7.27	7.40	7.86	FM 1764
Ditch 7A	5994	6.79	6.99	7.18	7.31	7.44	7.88	
Ditch 7A	6241	6.84	7.06	7.27	7.41	7.56	8.01	
Ditch 7A	6531	6.88	7.13	7.38	7.53	7.71	8.19	
Ditch 7A	6917	6.92	7.18	7.46	7.62	7.80	8.30	
Ditch 7A	7417	7.09	7.40	7.70	7.88	8.06	8.56	
Ditch 7A	7879	7.17	7.50	7.81	7.99	8.17	8.66	
Ditch 7A	7920	7.19	7.52	7.84	8.01	8.19	8.68	
Ditch 7A	7968	8.14	8.75	9.13	9.31	9.45	9.77	Unnamed Crossing
Ditch 7A	8024	8.15	8.76	9.13	9.30	9.44	9.77	
Ditch 7A	8187	8.16	8.78	9.15	9.32	9.45	9.76	
Ditch 7A	8384	8.20	8.82	9.22	9.40	9.54	9.87	
Ditch 7A	8597	8.24	8.87	9.28	9.47	9.63	9.97	
Ditch 7A	8696	8.25	8.88	9.29	9.48	9.64	9.98	
Ditch 7A	8878	8.27	8.90	9.31	9.51	9.67	10.01	
Ditch 7A	9071	8.29	8.92	9.35	9.55	9.71	10.07	
Ditch 7A	9304	8.33	8.96	9.39	9.60	9.78	10.16	
Ditch 7A	9540	8.54	9.18	9.66	9.91	10.15	10.66	
Ditch 7A	9731	8.56	9.20	9.68	9.95	10.19	10.71	
Ditch 7A	10029	8.62	9.25	9.75	10.02	10.27	10.82	
Ditch 7A	10297	8.71	9.33	9.83	10.12	10.38	10.95	
Ditch 7A	10332	8.71	9.33	9.83	10.10	10.37	10.93	
Ditch 7A	10396	9.88	10.48	11.34	12.05	13.00	118.95	Oak St
Ditch 7A	10400	9.88	10.48	11.34	12.05	13.00	118.95	Study Limit
Ditch 7B	109	3.89	4.29	4.76	5.13	5.49	6.23	Confluence Ditch 7
Ditch 7B	499	4.05	4.45	4.92	5.29	5.65	6.35	
Ditch 7B	1230	4.22	4.61	5.09	5.45	5.81	6.48	
Ditch 7B	1784	4.31	4.71	5.19	5.55	5.90	6.56	
Ditch 7B	2517	4.46	4.86	5.36	5.72	6.06	6.71	
Ditch 7B	3194	4.58	4.97	5.48	5.84	6.16	6.79	
Ditch 7B	3354	4.60	4.99	5.51	5.88	6.20	6.83	
Ditch 7B	3441	4.63	5.04	5.58	5.97	6.31	7.01	FM 1764 WB Access Rd
Ditch 7B	3494	4.64	5.04	5.59	5.97	6.32	7.03	
Ditch 7B	3638	4.66	5.07	5.62	6.02	6.37	7.09	FM 1764 Mainlanes
Ditch 7B	3671	4.66	5.07	5.62	6.02	6.37	7.09	
Ditch 7B	3760	4.69	5.11	5.68	6.10	6.47	7.26	FM 1764 EB Access Rd
Ditch 7B	3832	4.70	5.11	5.68	6.10	6.47	7.25	
Ditch 7B	4292	4.74	5.15	5.75	6.19	6.58	7.42	

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7B	4354	4.74	5.16	5.75	6.19	6.58	7.42	
Ditch 7B	4426	4.75	5.16	5.75	6.19	6.59	7.42	
Ditch 7B	4555	4.76	5.18	5.77	6.20	6.60	7.44	
Ditch 7B	4729	4.79	5.21	5.79	6.23	6.63	7.46	
Ditch 7B	4932	4.83	5.25	5.82	6.25	6.64	7.47	
Ditch 7B	5074	4.84	5.26	5.82	6.25	6.64	7.47	
Ditch 7B	5292	4.89	5.31	5.85	6.26	6.65	7.46	
Ditch 7B	5468	5.12	5.59	6.12	6.47	6.81	7.57	N. Pine Rd
Ditch 7B	5771	5.13	5.61	6.15	6.49	6.84	7.58	
Ditch 7B	6446	5.25	5.72	6.26	6.55	6.87	7.59	
Ditch 7B	6730	5.31	5.77	6.27	6.53	6.85	7.58	
Ditch 7B	6867	5.54	6.07	6.59	6.85	7.15	7.83	5th Ave North
Ditch 7B	7101	5.60	6.13	6.65	6.91	7.22	7.91	
Ditch 7B	7892	5.81	6.33	6.86	7.15	7.48	8.14	
Ditch 7B	8213	5.89	6.40	6.92	7.21	7.53	8.17	
Ditch 7B	8699	6.15	6.68	7.23	7.56	7.88	8.55	
Ditch 7B	9084	6.53	7.12	7.75	8.14	8.49	9.21	
Ditch 7B	9225	6.57	7.17	7.80	8.20	8.54	9.24	
Ditch 7B	9346	6.62	7.22	7.87	8.28	8.63	9.35	
Ditch 7B	9469	6.58	7.22	7.95	8.45	8.93	10.13	Oak St
Ditch 7B	9477	6.57	7.20	7.92	8.41	8.88	10.06	Study Limit

5.3 Peak Flowrates and Hydrographs

Table 10 presents the computed peak flowrates along the one-dimensional reaches. These flowrates only consider the flow in the one-dimensional regime. Flow in the floodplain that is modeled in the two-dimensional regime are not considered.

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	1,189	1,248	1,409	1,594	1,728	1,856	2,180	Moses Lake
Ditch 7	1,198	1,250	1,412	1,594	1,731	1,864	2,195	
Ditch 7	1,183	1,233	1,390	1,567	1,698	1,826	2,146	
Ditch 7	1,168	1,223	1,378	1,551	1,693	1,820	2,146	
Ditch 7	1,154	1,213	1,361	1,524	1,656	1,793	2,074	
Ditch 7	1,144	1,206	1,355	1,526	1,665	1,809	2,075	
Ditch 7	1,139	1,204	1,353	1,526	1,662	1,811	2,026	
Ditch 7	1,139	1,204	1,353	1,527	1,662	1,813	2,026	Loop 197 North
Ditch 7	1,133	1,203	1,348	1,514	1,638	1,772	1,978	
Ditch 7	1,124	1,184	1,320	1,461	1,577	1,684	1,944	
Ditch 7	1,114	1,162	1,293	1,427	1,538	1,636	1,876	
Ditch 7	1,102	1,137	1,263	1,396	1,508	1,608	1,838	
Ditch 7	1,094	1,119	1,244	1,388	1,514	1,638	1,923	
Ditch 7	1,094	1,119	1,244	1,388	1,514	1,641	1,923	SH 146 NB Access Rd
Ditch 7	1,096	1,116	1,240	1,385	1,515	1,636	1,909	
Ditch 7	1,096	1,116	1,240	1,385	1,515	1,636	1,909	SH 146 Mainlanes
Ditch 7	1,094	1,109	1,231	1,373	1,502	1,625	1,905	
Ditch 7	1,094	1,109	1,231	1,373	1,502	1,625	1,905	SH 146 SB Access Rd
Ditch 7	1,090	1,104	1,226	1,366	1,495	1,612	1,870	

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	1,067	1,056	1,163	1,287	1,394	1,489	1,581	
Ditch 7	1,059	1,040	1,146	1,266	1,377	1,473	1,575	
Ditch 7	1,074	1,024	1,127	1,246	1,371	1,495	1,661	
Ditch 7	1,073	1,023	1,126	1,242	1,365	1,487	1,649	
Ditch 7	1,073	1,023	1,127	1,244	1,370	1,487	1,651	Union Pacific RR
Ditch 7	1,074	1,023	1,128	1,248	1,376	1,493	1,664	
Ditch 7A	263	271	298	304	309	301	370	Confluence Ditch 7
Ditch 7A	262	271	300	327	319	336	385	
Ditch 7A	240	241	265	287	285	290	299	
Ditch 7A	220	214	231	246	253	255	295	
Ditch 7A	197	182	190	197	200	195	210	
Ditch 7A	188	170	174	177	177	172	168	
Ditch 7A	188	170	175	177	178	175	177	GCWA Canal
Ditch 7A	185	167	171	175	178	180	212	
Ditch 7A	177	155	154	153	153	157	196	
Ditch 7A	161	132	120	109	107	114	170	
Ditch 7A	161	132	121	109	108	115	171	Unnamed Crossing
Ditch 7A	188	160	158	155	159	169	226	
Ditch 7A	170	143	153	170	192	219	325	
Ditch 7A	167	131	162	190	224	252	292	
Ditch 7A	170	134	168	201	240	273	322	
Ditch 7A	181	148	191	225	266	304	357	
Ditch 7A	181	149	191	242	269	308	364	FM 1764
Ditch 7A	191	158	212	283	317	370	468	
Ditch 7A	186	158	213	285	323	372	480	
Ditch 7A	180	112	153	208	233	265	341	
Ditch 7A	172	128	164	201	220	236	281	
Ditch 7A	151	124	159	181	195	206	240	
Ditch 7A	142	123	161	192	210	223	268	
Ditch 7A	142	123	158	185	201	214	249	
Ditch 7A	142	126	162	190	206	219	251	Unnamed Crossing
Ditch 7A	148	127	177	221	247	265	292	
Ditch 7A	138	131	174	232	265	293	353	
Ditch 7A	130	132	174	231	268	302	363	
Ditch 7A	149	98	129	172	200	228	275	
Ditch 7A	147	97	130	172	200	229	294	
Ditch 7A	118	95	128	171	203	238	318	
Ditch 7A	110	94	125	168	201	238	327	
Ditch 7A	105	91	122	164	198	233	323	
Ditch 7A	80	76	102	139	165	196	272	
Ditch 7A	76	75	99	135	161	190	269	
Ditch 7A	70	72	95	129	154	182	258	
Ditch 7A	64	70	92	124	148	174	247	
Ditch 7A	64	70	92	124	148	174	247	
Ditch 7A	64	79	97	126	149	175	247	Oak St
Ditch 7A	64	79	97	126	149	175	247	Study Limit
Ditch 7B	927	700	774	898	980	1,068	1,140	Confluence Ditch 7
Ditch 7B	924	700	775	901	967	1,043	1,092	
Ditch 7B	896	670	742	873	931	982	1,098	
Ditch 7B	881	646	721	873	958	999	1,130	
Ditch 7B	836	614	682	814	901	942	1,062	
Ditch 7B	863	595	674	862	1,027	1,144	1,521	

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7B	862	596	675	862	1,031	1,167	1,541	
Ditch 7B	862	596	675	863	1,038	1,206	1,586	FM 1764 WB Access Rd
Ditch 7B	864	597	676	863	1,039	1,208	1,587	
Ditch 7B	864	597	676	864	1,042	1,213	1,596	FM 1764 Mainlanes
Ditch 7B	866	598	676	864	1,043	1,214	1,613	
Ditch 7B	866	598	676	864	1,045	1,222	1,636	FM 1764 EB Access Rd
Ditch 7B	906	613	703	872	1,068	1,256	1,675	
Ditch 7B	864	562	639	664	713	773	843	
Ditch 7B	844	558	647	662	710	761	818	
Ditch 7B	868	570	664	689	740	800	868	
Ditch 7B	853	562	663	649	678	724	765	
Ditch 7B	837	546	644	612	605	620	619	
Ditch 7B	816	524	619	589	553	529	475	
Ditch 7B	826	526	627	610	578	554	523	
Ditch 7B	827	536	648	682	660	659	718	
Ditch 7B	827	544	651	783	732	705	740	N. Pine Rd
Ditch 7B	1,011	639	692	785	637	583	633	
Ditch 7B	987	657	729	744	726	795	1,033	
Ditch 7B	975	663	731	913	957	1,053	1,267	
Ditch 7B	975	685	783	932	1,050	1,168	1,334	5th Ave North
Ditch 7B	962	690	783	939	1,065	1,181	1,361	
Ditch 7B	924	669	771	926	1,055	1,174	1,427	
Ditch 7B	977	613	753	924	1,054	1,172	1,466	
Ditch 7B	975	601	744	922	1,065	1,187	1,494	
Ditch 7B	904	550	684	876	1,038	1,186	1,582	
Ditch 7B	891	542	673	864	1,026	1,202	1,676	
Ditch 7B	891	543	674	866	1,030	1,208	1,735	
Ditch 7B	891	542	674	869	1,032	1,214	1,744	Oak St
Ditch 7B	891	542	674	868	1,032	1,215	1,744	Study Limit

Exhibit 11 shows Hydrograph Computation lines that represent hydrographs computed across Profile Lines in RAS Mapper. Four Hydrograph Computation Lines are identified along both Ditch 7A and Ditch 7B, and three Hydrograph Computation Lines are identified along Ditch 7. Exhibit 12 shows the hydrographs computed across the Hydrograph Computation Lines for the 5-year, 10-year, 25-year, 100-year, and 500-year events.

Exhibits

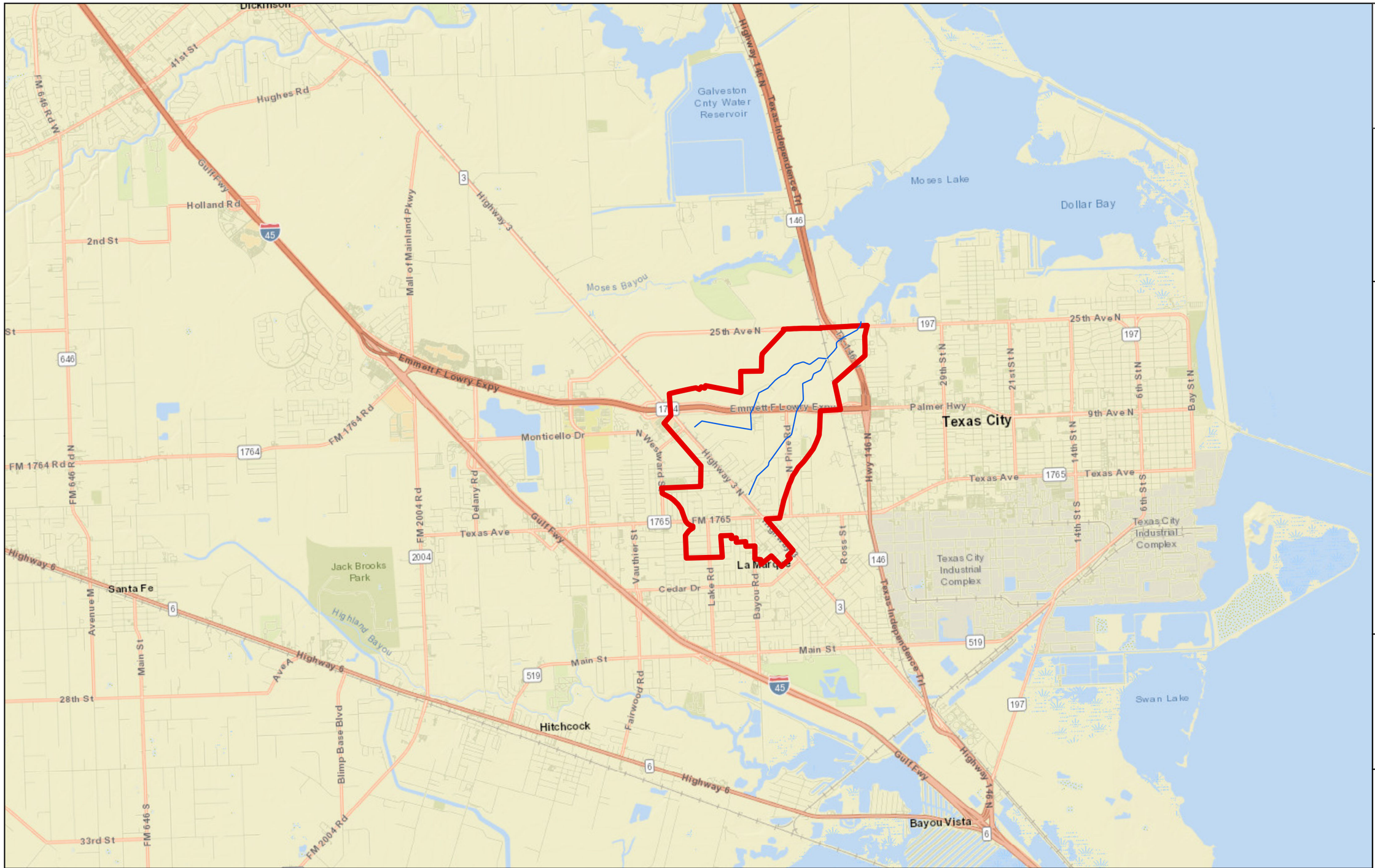


Exhibit 1 - Location Map

BJE

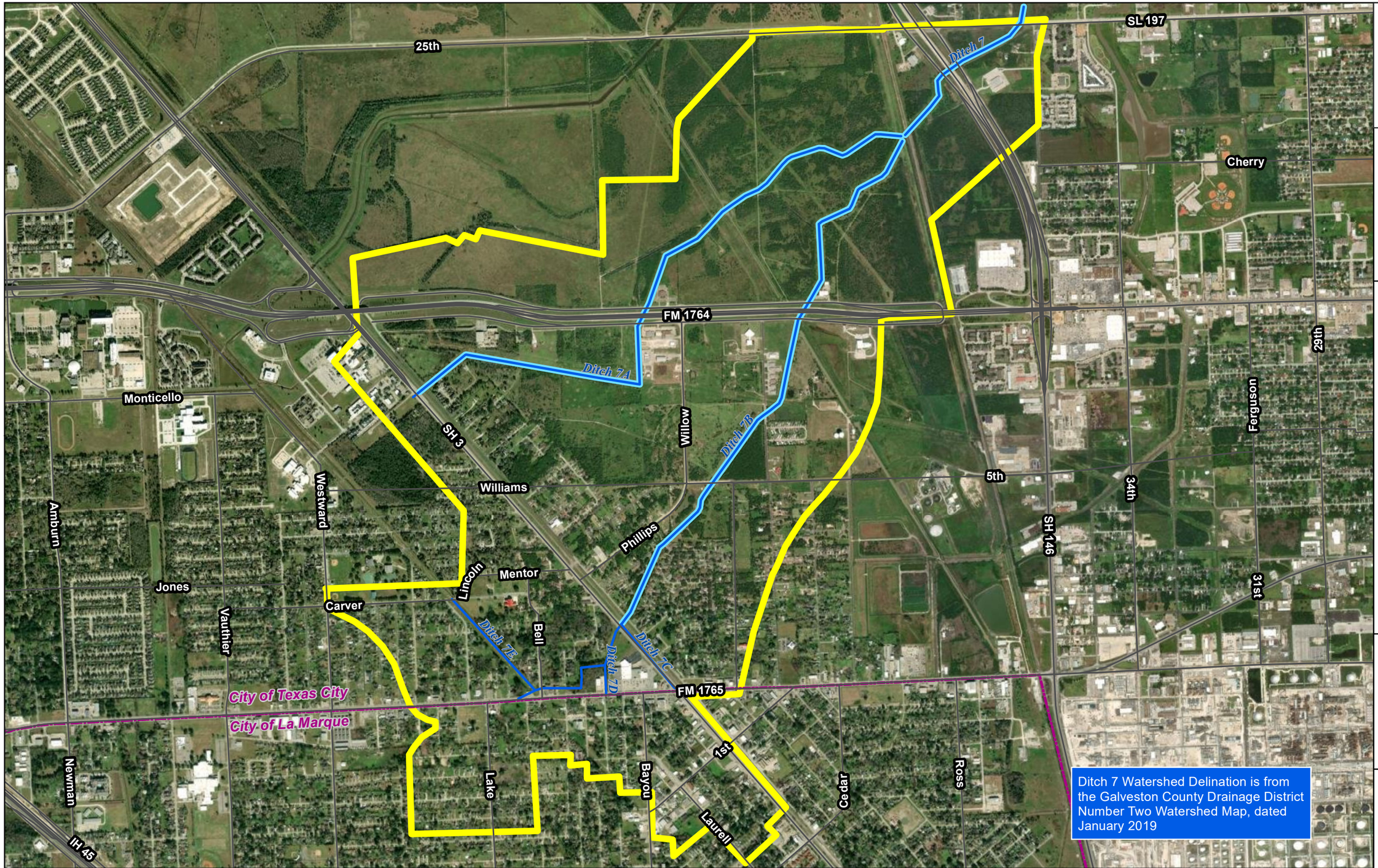
N
W E
S

0 0.5 1 Miles

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Ditch 7 Channels
Ditch 7 Watershed



BJE

N
W E
S

Feet
0 750 1,500

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- Roads
- Ditch 7 Channels
- Studied Channels
- City Limits
- Ditch 7 Watershed

Exhibit 2 - Ditch 7 Watershed

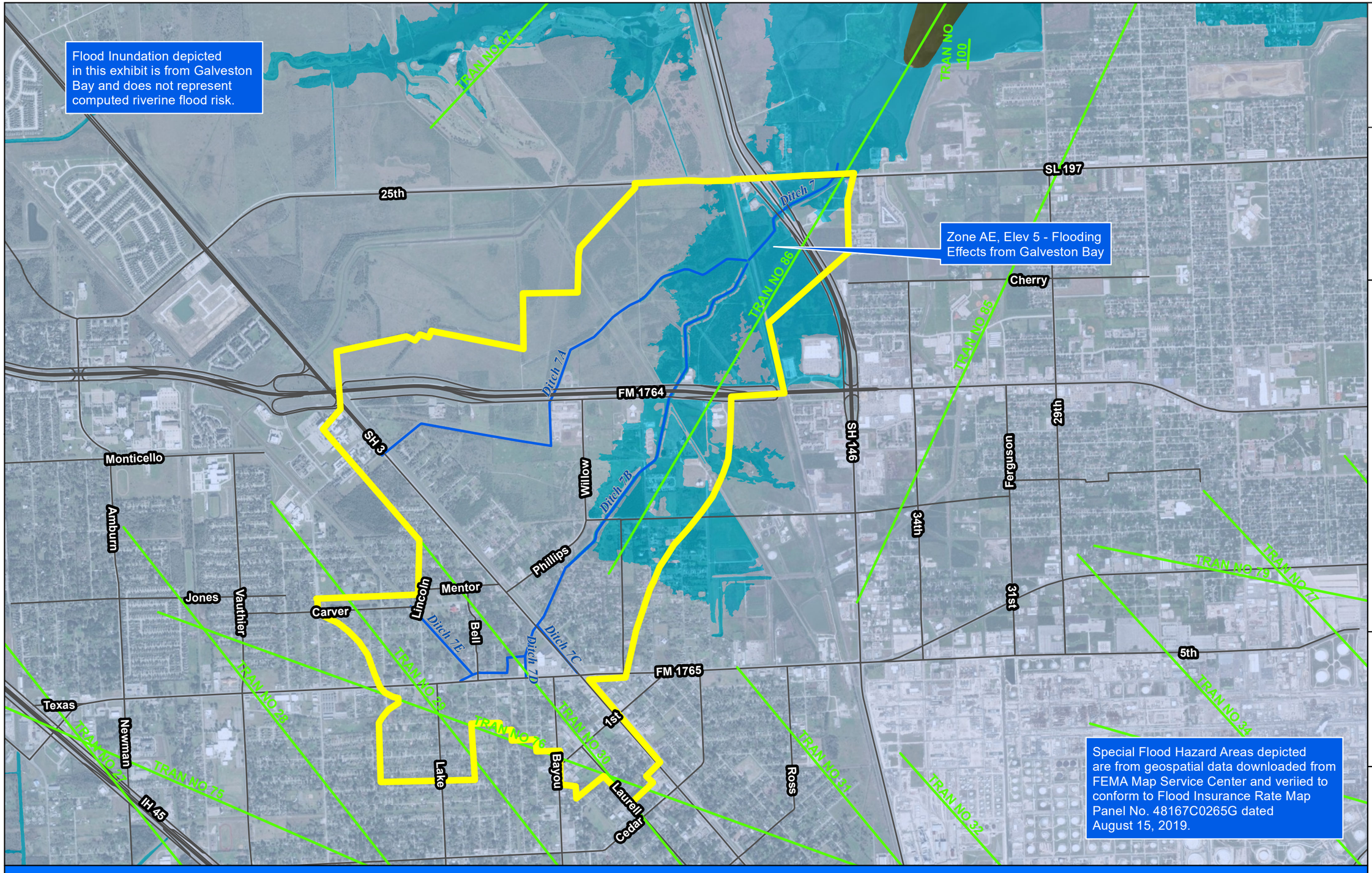


Exhibit 3 - FEMA Speical Flood Hazard Areas

BJE

N
W E
S

0 1,000 2,000 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- Ditch 7 Watershed
- S_CST_TSCT_LN
- Roads
- Ditch 7 Channels
- Zone AE (1%)
- Shaded Zone X (0.2%)

Exhibit 4 - Bathymetry and Survey

BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Survey Sections
Survey Points
Roads
Study Channels

Exhibit 5 - Topography and Digital Elevation Model

BJE

N
W
E
S

0 500 1,000 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, DITCH 7A, DITCH 7B)
Galveston County DD No. 2

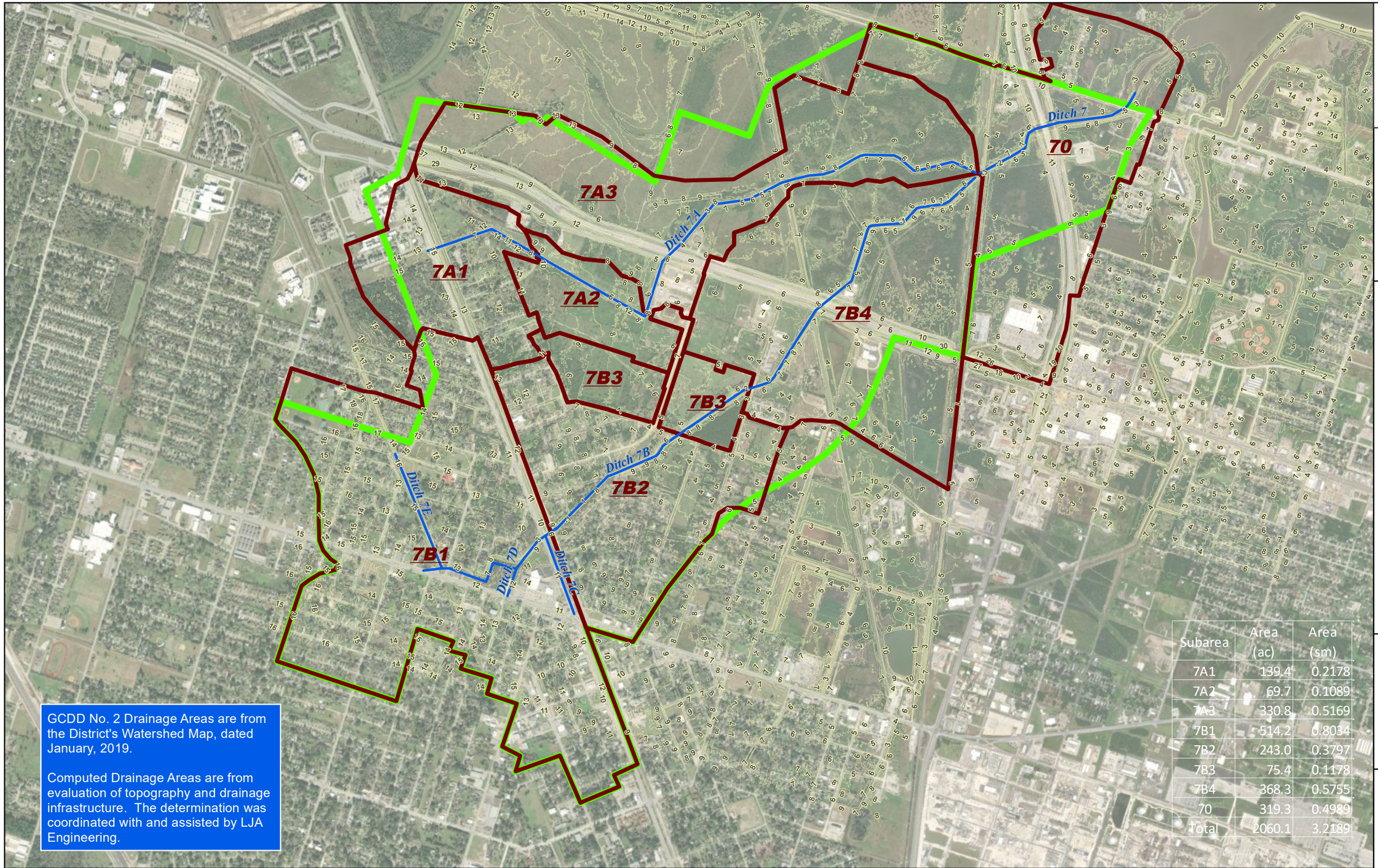
Floodplain Modeling & Mapping

- Study Channels
- Elevation Contour
- Ditch 7 Watershed
- Roads

DEM Elevation

High : 40

Low : -10



GCDD No. 2 Drainage Areas are from the District's Watershed Map, dated January, 2019.

Computed Drainage Areas are from evaluation of topography and drainage infrastructure. The determination was coordinated with and assisted by LJA Engineering.

Subarea	Area (ac)	Area (sm)
7A1	139.4	0.2178
7A2	69.7	0.1089
7A3	330.8	0.5169
7B1	514.2	0.8034
7B2	243.0	0.3797
7B3	75.4	0.1178
7B4	368.3	0.5755
70	319.3	0.4989
Total	2060.1	3.2189

Exhibit 6 - Subarea Map

BJE

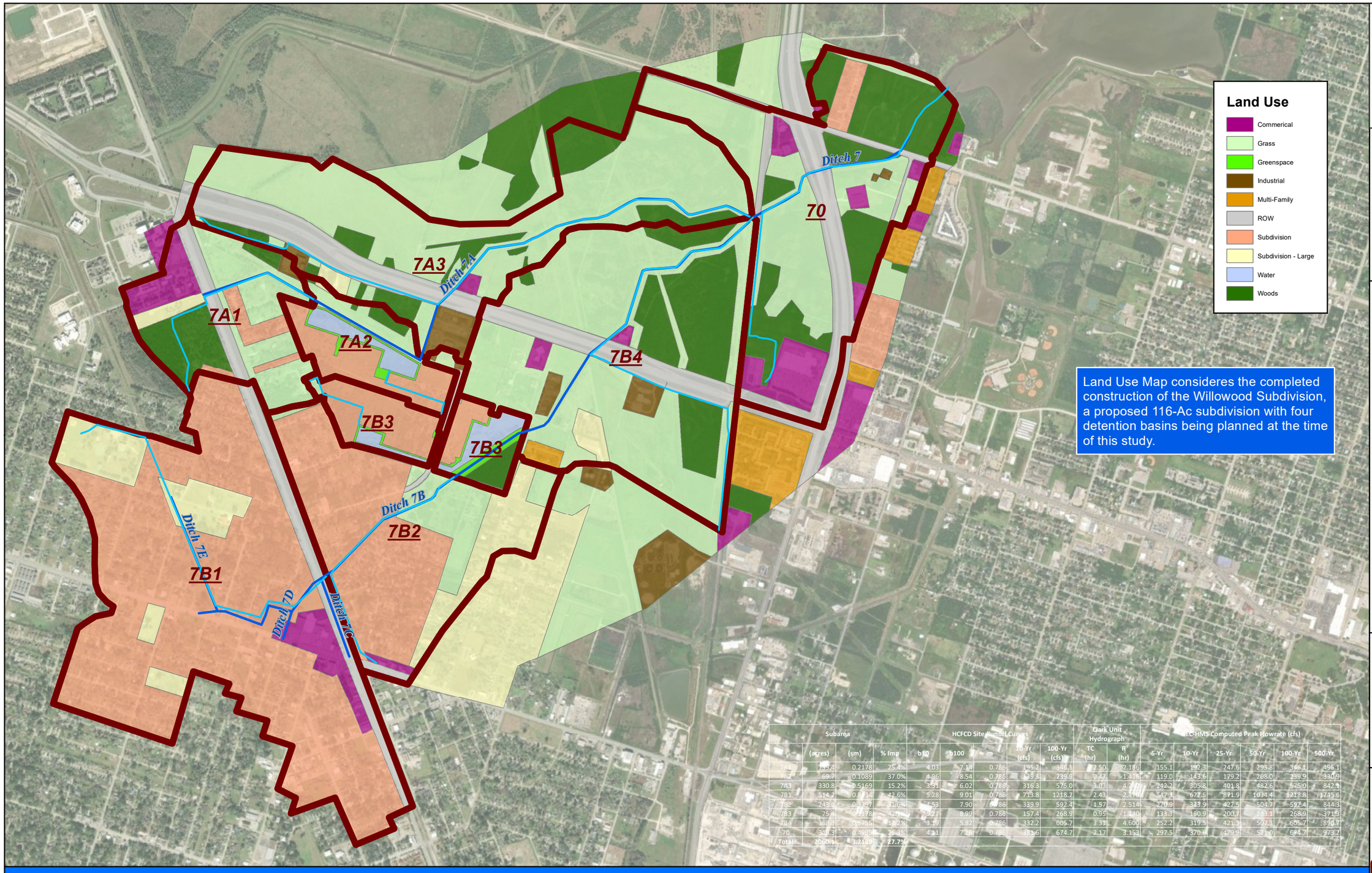
N W E S

0 750 1,500 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Ditch 7 Channels
Computed Drainage Area
GCDD No. 2 Drainage Area
Elevation Contour



Subarea				HCFCD Site Runoff Curves					Clark Unit Hydrograph		HEC-HMS Computed Peak Flowrate (cfs)					
	(acres)	(sm)	% Imp	b10	b100	m	10-Yr (cfs)	100-Yr (cfs)	TC (hr)	R (hr)	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
7A1	138.4	0.2178	25.4%	4.03	7.14	0.786	195.2	346.1	2.50	2.186	155.1	192.3	247.6	293.8	346.1	495.1
7A2	69.7	0.1089	37.0%	4.96	8.54	0.786	139.5	239.9	0.47	1.416	119.0	143.6	179.2	208.0	239.9	330.9
7A3	330.8	0.5169	15.2%	3.51	6.02	0.786	316.3	575.0	3.03	4.2	242.2	305.8	401.8	482.6	575.0	842.1
7B1	514.2	0.8034	42.6%	5.28	9.01	0.786	713.8	1218.7	2.43	2.470	547.3	677.5	871.9	1034.4	1218.8	1745.6
7B2	243.0	0.3797	31.6%	4.53	7.90	0.786	339.9	592.4	1.57	2.514	270.9	333.9	427.5	504.7	592.4	844.3
7B3	75.4	0.1178	42%	5.27	8.99	0.786	157.4	268.9	0.95	1.240	133.3	160.9	200.7	233.1	268.9	371.3
7B4	368.8	0.5763	13.2%	3.19	5.82	0.786	332.2	605.7	3.31	4.600	252.2	319.5	421.3	507.3	605.7	890.7
70	318.3	0.4973	29.3%	4.11	7.28	0.786	383.6	674.7	2.17	3.153	297.5	370.6	479.9	571.0	674.7	973.2
Total	2060.1	3.2183	27.7%													

Exhibit 7 - Hydrology

BJE

N
W
E
S

Feet
0 750 1,500

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Longest Flowpath
Ditch 7 Channels
Subwatershed Areas

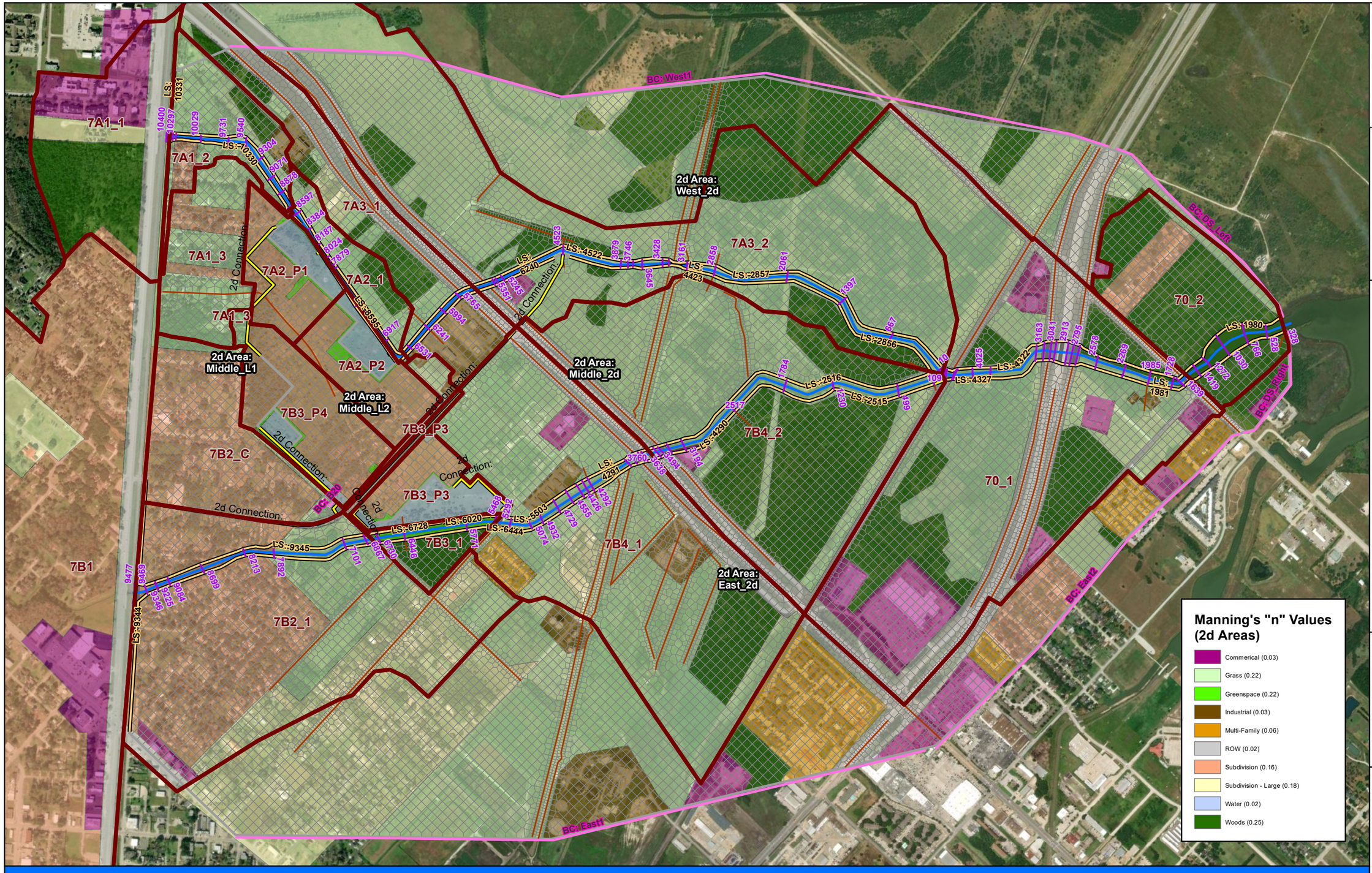


Exhibit 8 - 1d/2d HEC-RAS Model

BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Manning's "n" Values (2d Areas)

- Commerical (0.03)
- Grass (0.22)
- Greenspace (0.22)
- Industrial (0.03)
- Multi-Family (0.06)
- ROW (0.02)
- Subdivision (0.16)
- Subdivision - Large (0.18)
- Water (0.02)
- Woods (0.25)

- Subwatershed Subarea
- XS
- Lateral Structure
- Channel
- Bridge/Culvert
- 2d Boundary Condition
- 2d Connection
- Breaklines
- 2d Area Boundary
- 2d Cells

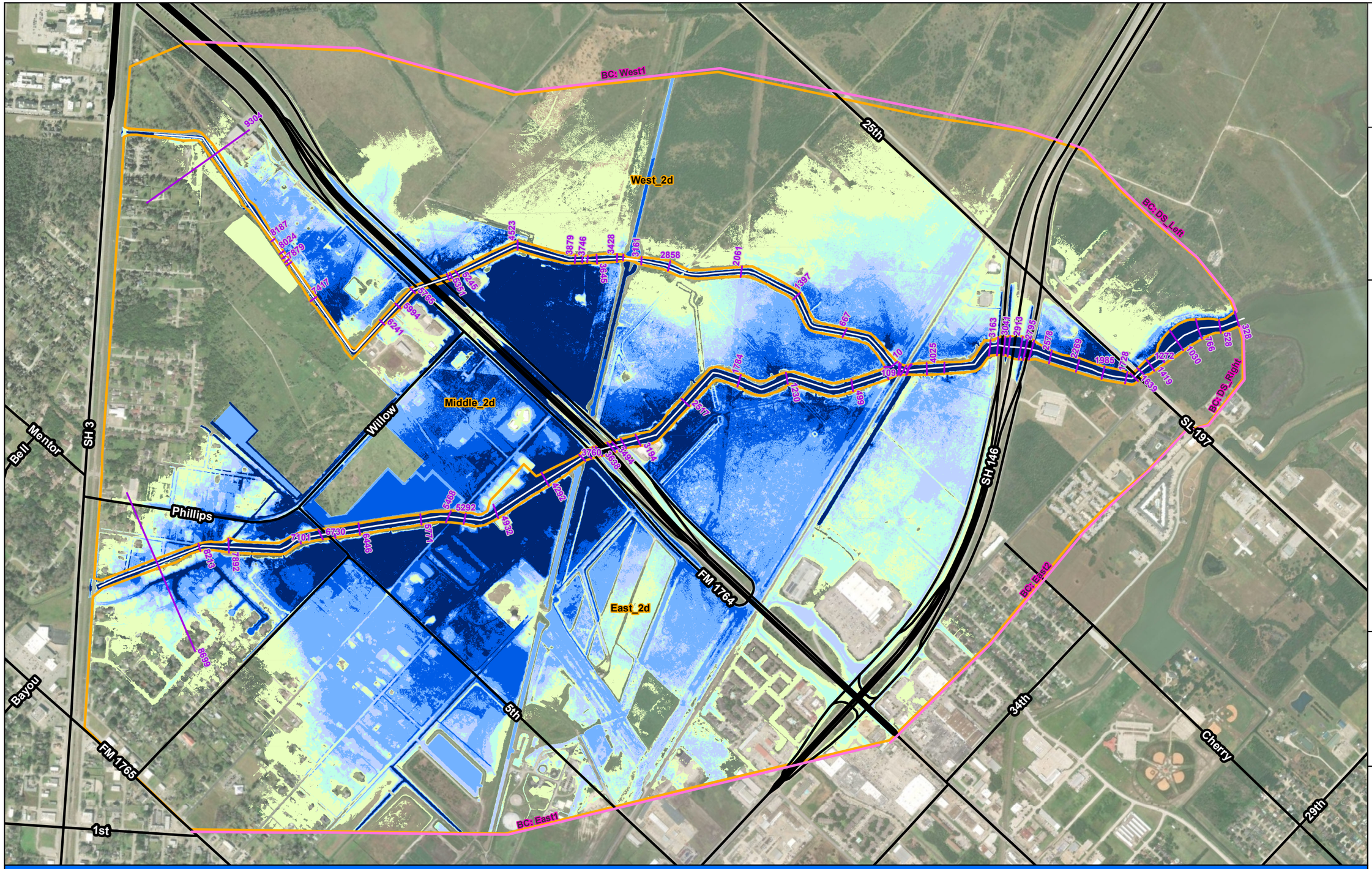


Exhibit 9 - Inundation Map

BJE

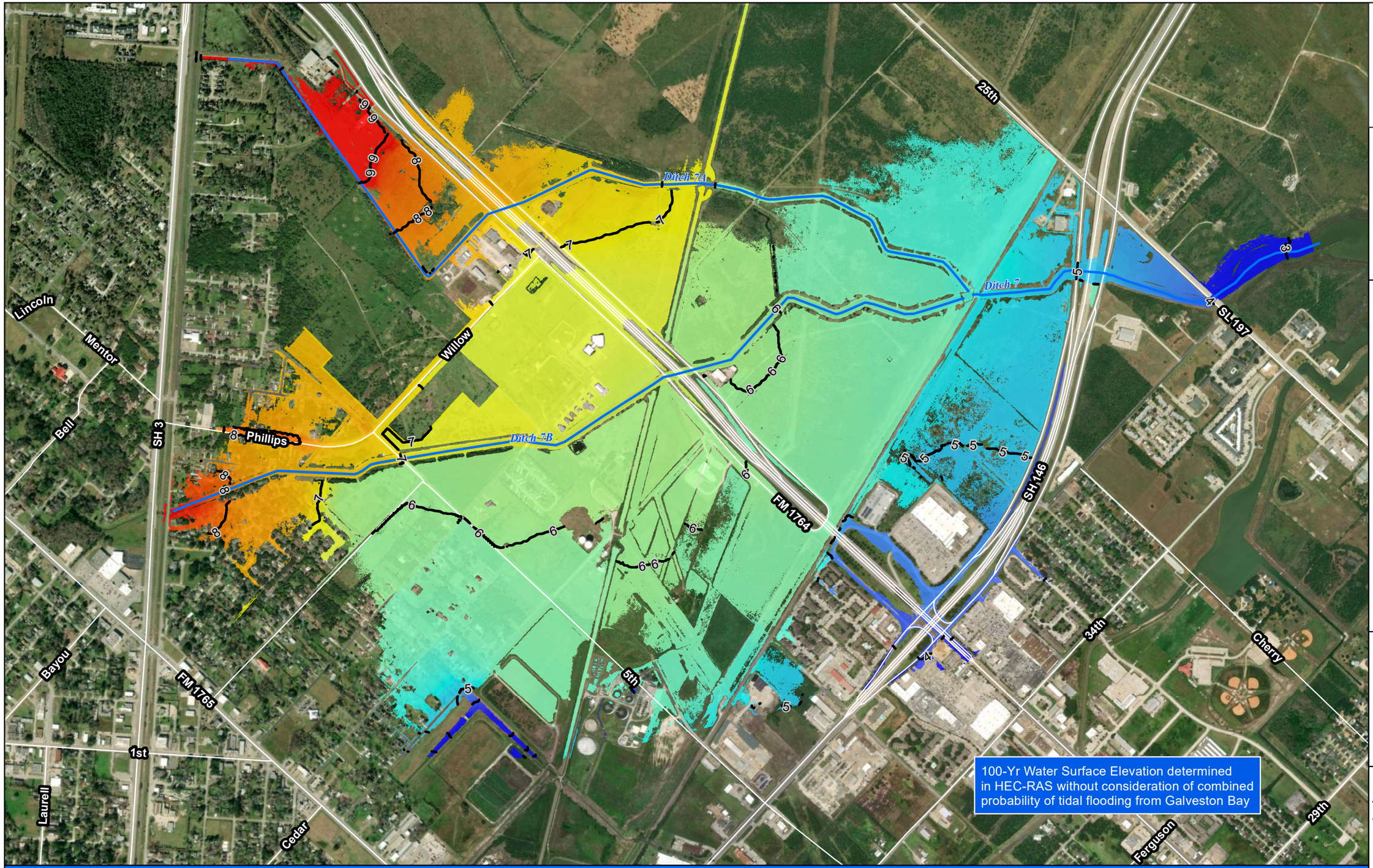
N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- XS
- Channel
- 2d Boundary Condition
- Roads
- 2d_Area
- 5-Yr Inundation
- 10-Yr Inundation
- 25-Yr Inundation
- 50-Yr Inundation
- 100-Yr Inundation
- 500-Yr Inundation



BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

100-Yr Flood Elev Line
Channel
100-Yr Flood Elev (ft)
High : 13.0
Low : 0.0

Exhibit 10 - 100-Yr Water Surface Elevations

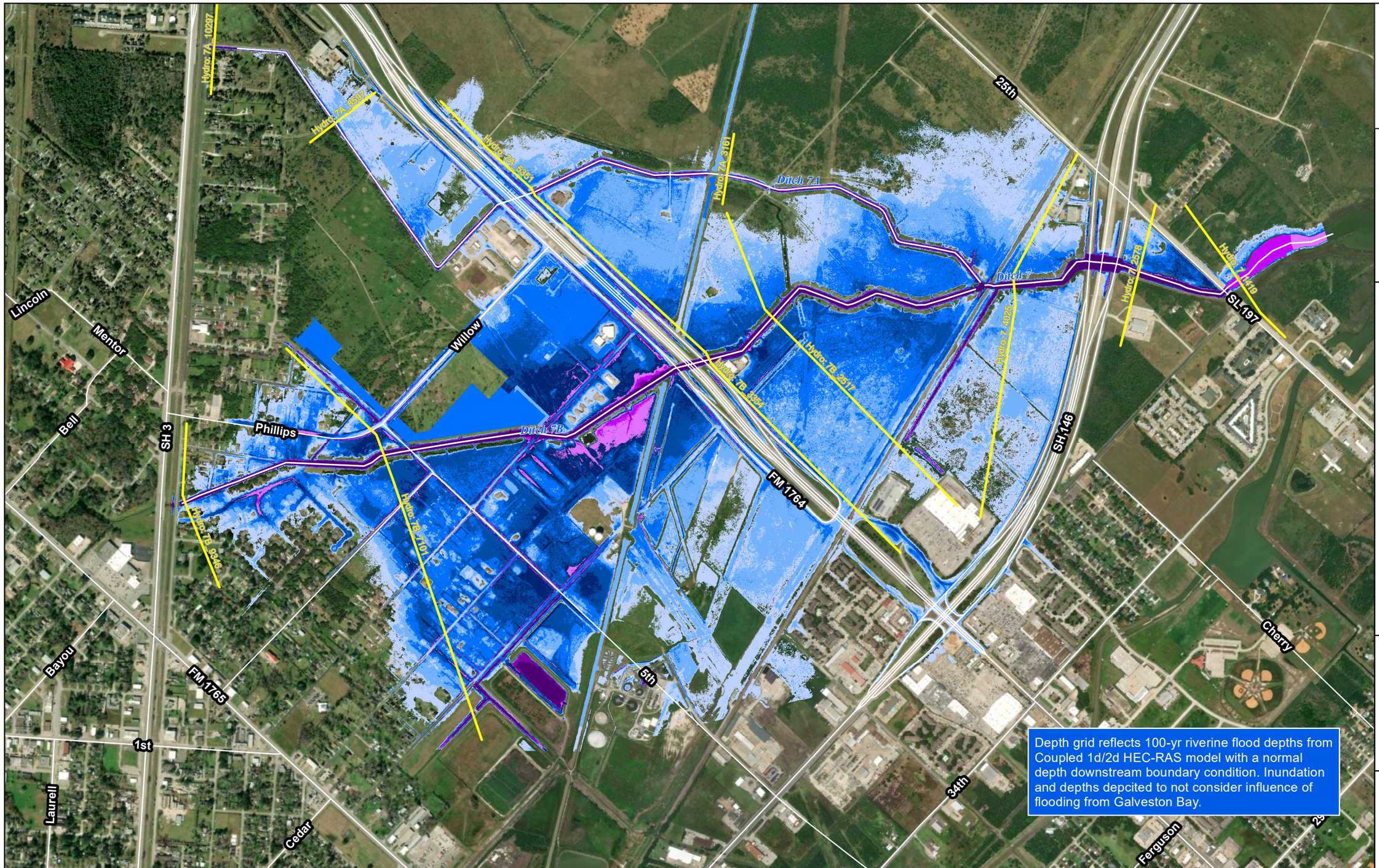


Exhibit 11 - 100-Yr Depth & Hydograph Lines

BJE

Feet
0 500 1,000

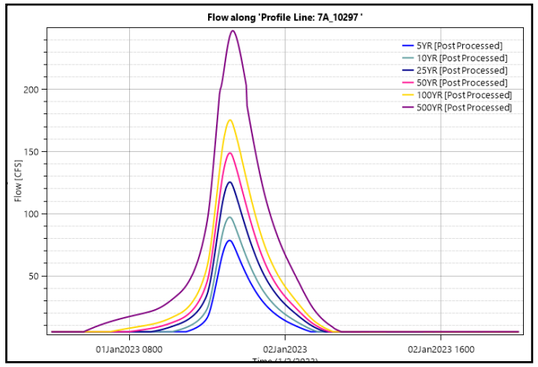
DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

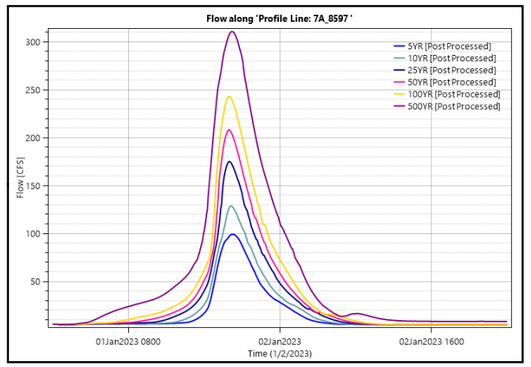
Floodplain Mapping & Modeling

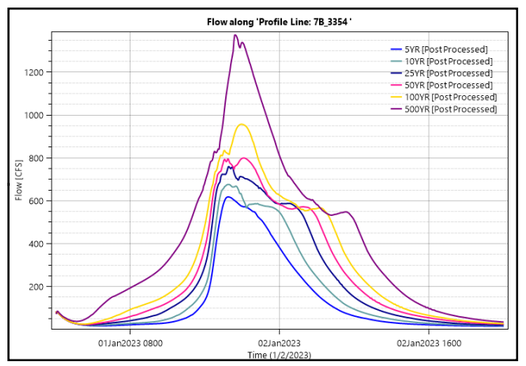
Hydrograph Lines
Channel

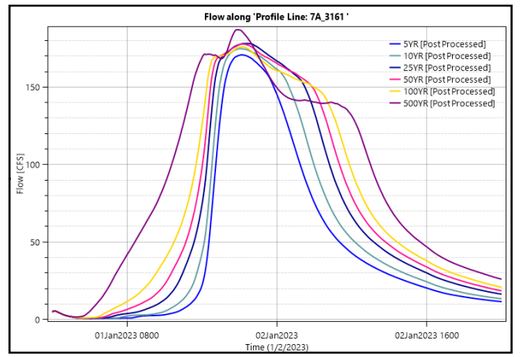
100-Yr Depth

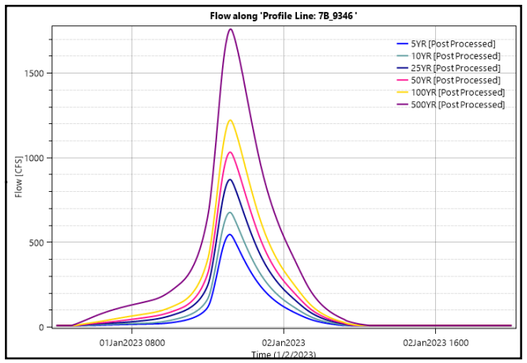
- 0.0' - 0.5'
- 0.5' - 1.0'
- 1.0' - 1.5'
- 1.5' - 2.0'
- 2.0' - 2.5'
- 2.5' - 3.0'
- 3.0' 3.5'
- 3.5' - 4.0'
- >4.0'

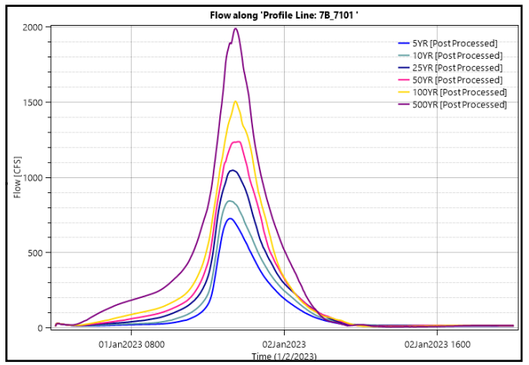


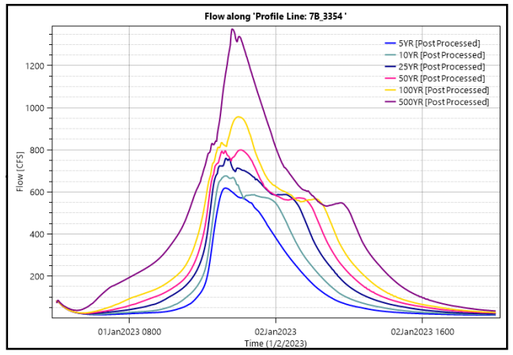


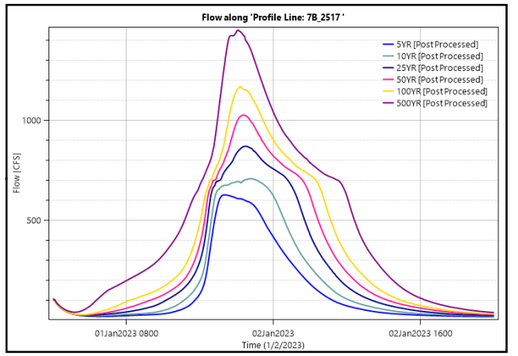


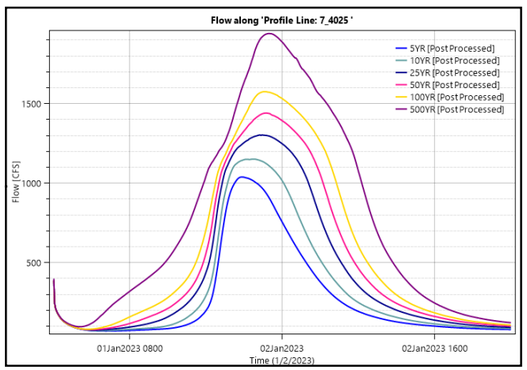


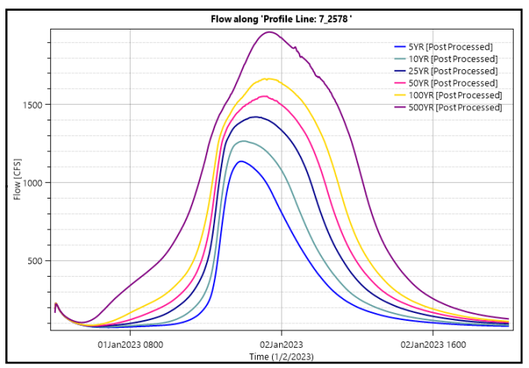












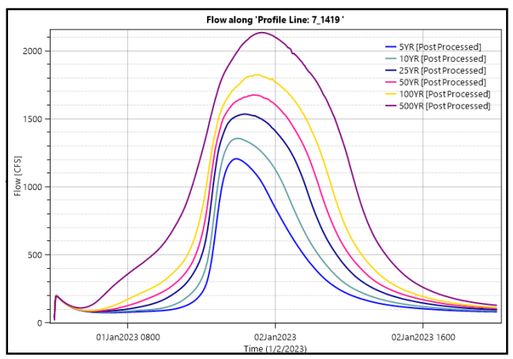


Exhibit 12: Hydrographs at Profile Lines

BJ ET

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Attachment 1

Galveston County Drainage District No. 2 Watershed Map

N

0 500 1,000 2,000 Feet

DETENTION REQUIRED
(NO SET RATE - SEE DISTRICT ENGINEER)
(SEE NOTE 2)

DETENTION REQUIRED
(NO IMPACT FEE)
1.0 AC-FT/AC.
(SEE NOTE 2)

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$2,200/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.5 AC-FT/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.70 AC-FT/AC.

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$3,000/AC.

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$1,750/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.50 AC-FT/AC.
(SEE NOTE 2)

DETENTION REQUIRED
(NO IMPACT FEE)
1.0 AC-FT/AC.
(SEE NOTE 1)

WATERSHED OUTSIDE DISTRICT BOUNDARY
(SEE TEXAS CITY FOR
DETENTION REQUIREMENTS)

DICKINSON
TEXAS CITY
TEXAS CITY
LAMARQUE
TEXAS CITY
SANTA FE
LAMARQUE
SANTA FE
LAMARQUE
HITCHCOCK
SANTA FE
HITCHCOCK
BAYOU VISTA
HITCHCOCK
HITCHCOCK
TIKI ISLAND

NOTE 1: MITIGATION FOR FILL WITHIN DEDICATED STORAGE AREA OF THE PUMP STATION WILL BE REQUIRED IN ADDITION TO THE DETENTION REQUIREMENT.

NOTE 2: FLOODPLAIN MITIGATION VOLUME REQUIRED ON A 1:1 BASIS FOR ANY FILL PLACED BELOW THE 100-YR WATER SURFACE ELEVATION.

Costello, Inc.
Engineering and Surveying

GALVESTON COUNTY DRAINAGE DISTRICT NUMBER TWO

WATERSHED MAP

Document Path: W:\1991\91007\01\GIS\District Development Map\MXD\20190403_GCDD2 District Map.mxd

JOB NO: 1991007-001	DATE: JAN 2019	EXHIBIT: 1

Ms. Kimberly Golden Planning Director -

Mr. Perry O'Brien Chairman, Texas City Zoning Commission & Zoning Commission Members

City of Texas City Engineering-Planning-Building & Inspection Department

7800 Emmett F Lowry Expressway

Texas City, Texas 77591

Mr. Willie Carroll, Living Trust

7305 Blue Jay Drive

Texas City, Texas 77591

November 25, 2024

Re: ***Willie Carroll's Living Trust Formal Response (To the Rezoning Proposal for Castlewood Development Company)***

80 Acres PUD Master Planned Residential Subdivision (213 Lots).

Ms. Kim Golden Planning Director

Ms. Golden, please find our formal response and summary of the planning issues that we would like to see addressed by the developer and City Commission. We offer no objection provided that the planning issues cited can be addressed. We will be in attendance for the workshops and subsequent Public hearings. We asked that our written response be reviewed by the Zoning and City Commission. Thank you.

Sincerely,

Mr. Willie Carroll &

Willie Carroll
11/25/24

Donald Carroll

Donald Carroll

Encls: 2-attachments

RECEIVED
DEC 02 2024
By

WC
D.C.

Site Development Issues & Recommendations to be Considered

from

Willie Carroll's Living Trust

a) ***Drainage Issue with GCDD No 55 aka Bayou Pierre*** **(Raised by Zoning Commissioner Bruce Clawson during the PH). This has been an issue before and even since the formulation of the City's Comprehensive Plan G2k (Land Use Plan Analysis). With this development synergy and interests, this is an opportunity to effectively work on mitigating and improving this area for economic development (addressing an affordable housing need). The City may want to establish a Public Private Partnership with the developer(s) and the property owners in the area to help revitalize and repurpose the area for meaningful development opportunities. This could be a very good economic development opportunity with a strategic plan (the creation of a superior design opportunity that will advance sustainability and resilience, and this approach is a win-win opportunity for all parties). This area has a draining issue and a development challenge that will not go away until it is addressed incrementally with the start of the development process or as recommended by (the City's Drainage Plan)?**

b) ***Ingress Egress into the subdivision:*** **The one entrance into the subdivision is not sufficient and whatever the incremental plan is as to how this will be addressed between Staff and developer should be declared now before approval for transparency, good faith and so the interested parties adjacent property owners will have all of the development intel needed to make an intelligent decision to be in favor of the development or to oppose the plan.** ***Additionally, concerning the look, feel, and vision concept of the finished product I believe most adjacent property owners want to know what the finished product will look like. This is a part of the full disclosure and established site planning process for Texas City.***

These are the remaining concerns after we reviewed the PUD Application Packet provided during this Rezoning PH held on November 19, 2024. I have discussed this with Willie Carroll and siblings (Sisters Beth and Dianna). We will offer no objections once we can get assurances that the developer adheres to all development agreements provided in the packet and that we are provided the illustrations and elevation details concerning how the finished product will look. Lastly, if we could suggest we do believe that with enhanced code enforcement this is a good development intent.

WC
DC

Remaining Research Question & Planning Notes For Willie Carroll's Living Trust Rezoning Request PUD 80 Acres Subdivision

1. Background and Overview

Good morning. Last Tuesday I attended a Rezoning Public Hearing at the request of my Dad I am a part of the Willie Carroll Living Trust and Will. The Developer is proposing to develop 80 acres totaling 213 residential lots. Lot size range from 6000 sf to 1300 sf. The price range is $ 275K to $375K.

2. AI Response:

Good morning! That sounds like a significant development project. Attending the hearing must have been quite insightful. Here are a few things to consider regarding the proposed development:

a) Impact on Property Value: New residential developments can potentially increase the value of surrounding properties, including those in the Willie Carroll Living Trust.

b) Community and Infrastructure: Ensure that the developer has plans to support the new housing with adequate infrastructure, such as roads, schools, and utilities.

c) Environmental Concerns: Check if there are any environmental assessments or impact studies. Large developments can affect local ecosystems.

d) Zoning and Planning: Make sure that zoning changes align with the community's long-term planning goals and that the development is in accordance with local zoning laws.

e) Community Benefits: Look into whether the developer has proposed any benefits for the community, such as parks, recreational facilities, or affordable housing options.

3. Would you like more specific information or assistance with any aspect of the development project?

Bravo and yes! All of the issues raised /cited are spot on. The Developer application is not bad, but it lacks documentation that would help their approval cause and address legitimate questions that the property owners have, and it seems somewhat elusive without this missing information.

4. It is because of this **that I have one research question remaining.** ***It is because of the concerns raised by one of the Zoning Commissioner in attendance presiding over the Public Hearing. it deals with drainage on-site /offsite this area is relatively flat and historically has some significant drainage issues. There is a statement that the***

Drainage Regulating Authority has blessed the Planned Unit Proposal but the property owners within 200 feet of the site have not seen this. To add to the confusion the developer asserts that with their development of 80 acres as proposed there will be No-Net Drainage Impact. The development intent is not a bad proposal. It is an opportunity to Repurpose an area needing some enhancements. That aside, the drainage issue needs to be better explained and clarified for the Rezoning Request to move forward with transparency. Do you agree with this assessment and is there anything that I am missing for reasonableness and fairness to my Dad's interests?

5. *AI Response: I agree with your assessment. Ensuring transparency and clarity in addressing drainage issues is crucial for the rezoning request to move forward smoothly. Here are a few additional points to consider:*

a) *Detailed Drainage Plan: Request a comprehensive drainage plan from the developer, including both on-site and off-site drainage solutions. This should include maps, technical specifications, and mitigation measures.*

b) *Third-Party Review: Suggest that an independent third party review the drainage plan to ensure it meets all regulatory standards and addresses community concerns.*

c) *Public Disclosure: Advocate for the developer to share the drainage plan with property owners within 200 feet of the site, as well as the broader community, to ensure transparency and build trust.*

d) *No-Net Drainage Impact: Ask the developer to provide a clear explanation of what "No-Net Drainage Impact" means in the context of this project and how it will be achieved.*

e) *Community Feedback: Encourage the developer to hold additional public meetings or forums to gather feedback from residents and address any remaining concerns.*

CITY COMMISSION REGULAR MTG **(7) (a)**

Meeting Date: 01/22/2025

Consider and take action on Preliminary Zoning Approval of the zoning change request from CastleRock Communities

Submitted For: Kim Golden, Transportation and Planning

Submitted By: Curt Kelly, Transportation and Planning

Department: Transportation and Planning

Information

ACTION REQUEST

Consider and take action on the preliminary zoning approval of the request from CastleRock Communities to rezone from District A Single Family Residential to District I – Planned Unit Development an 80-acre tract of land, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 for the development of a planned residential community consisting of approximately 213 single family detached residential lots.

BACKGROUND (Brief Summary)

Applicant, Castlerock Communities, Inc, proposes to develop an 80-acre tract of land, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop 213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1 acre park/green space with a playground, seating areas, and landscaped entry reserves. The subject tract is included in GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The PUD rezoning application is presented to satisfy the requirements of the Development Agreement.

RECOMMENDATION

Staff recommend approval of the subdivision master plan and the requested zoning change from District A - Single Family Residential to District I - Planned Unit Development.

The Planning Board recommended approval (5-0) of the master plan and PUD at its regular meeting on October 7, 2024.

The Zoning Commission held a public hearing at its regular meeting on November 19, 2024. A total of 87 letters were mailed to adjacent property owners within 200ft. One letter, one email and one phone call were received in response to the mailed notice. Thirteen residents attended the public hearing on November 19, 2024 and four attendees addressed the Zoning Commission. The Zoning Commission voted 4-0 to table the request. The Zoning Commission then considered and took action on the rezoning request at its regularly scheduled meeting on December 17, 2024. Five residents attended the meeting on December 17, 2024. The Zoning Commission voted to recommend approval of the request

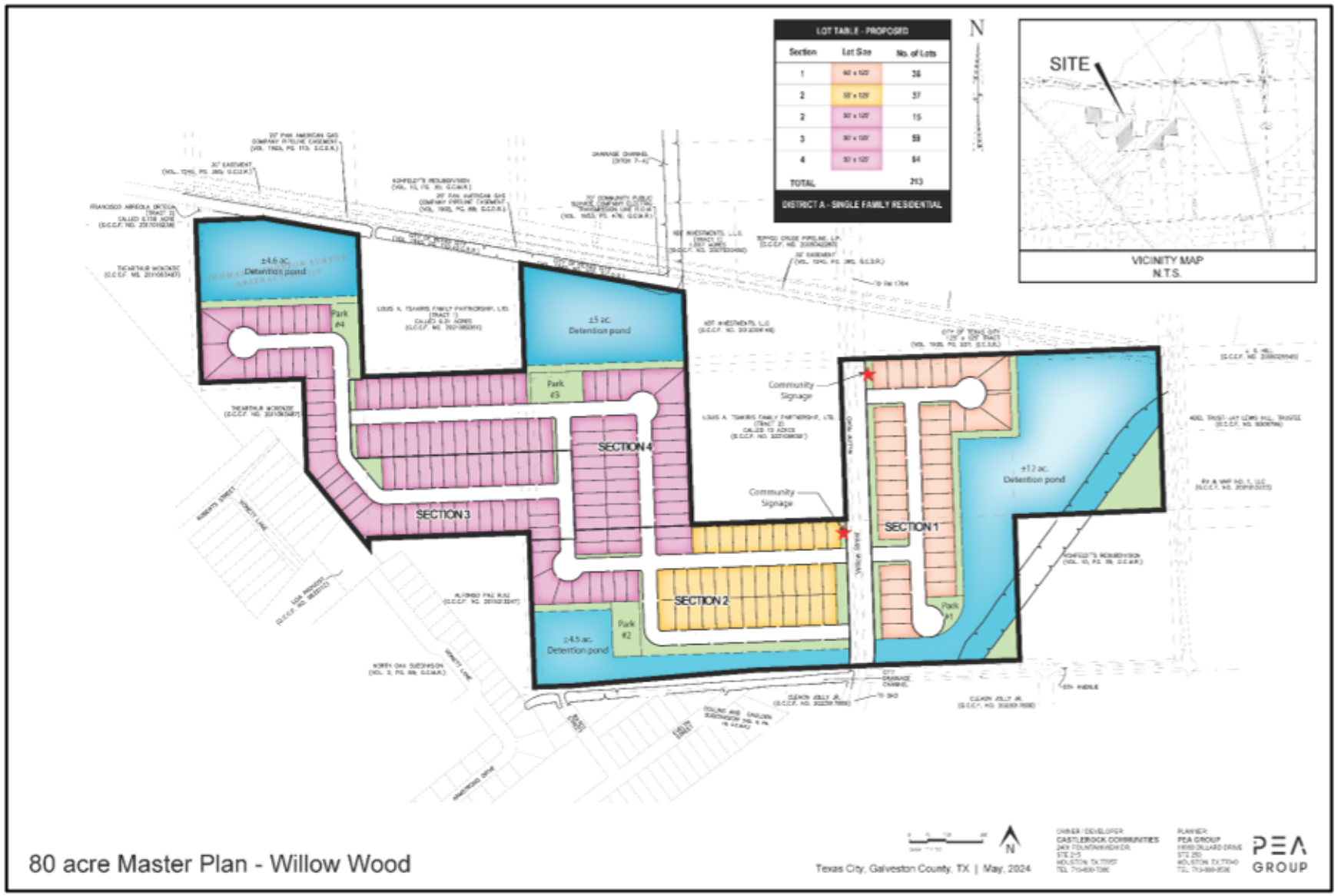
(5-0) at the December 17, 2024 meeting.

Fiscal Impact

Attachments

01 - Willow Wood Conceptual Master Plan
02 - Willow Wood PUD 8-30-24
03 - Planning Board Staff Report 10.7.24
04 - Planning Board Minutes 10.7.24
05 - Zoning Commission Staff Report 11.19.24
06 - Zoning Commission Minutes 11.19.24
07 - Don Carroll - 1st Response to ZC re Willow Wood
08 - Zoning Commission Staff Report 12.17.24
09 - Zoning Commission Minutes 12.17.24
10 - Willowood Subdivision Drainage Impact Analysis
11 - Drainage Study of Ditch 7 Watershed (Ditch 7, 7A, & 7B)
12 - Don Caroll's 2nd Response

Exhibit 'B' Conceptual Master Plan



Planned Unit District For

Willow Wood Development

Prepared For

Castlerock Communities Inc.

CASTLEROCK COMMUNITIES

Planner:

PEA Group

PEA GROUP

August 29, 2024

TABLE OF CONTENTS

I. INTRODUCTION

II. SITE INVENTORY ANALYSIS

A. Opportunities and Constraints

B. Surrounding Land Use

III. PROJECT DESCRIPTION

A. Land Use

B. Phasing

C. Street Circulation Concept

D. Open Space Amenities Plan

E. School District Zoning

IV. ZONING

A. Existing Zoning

B. Proposed / Future Zoning

V. UTILITIES

EXHIBITS

A. Exhibit A-1 – Project Survey

B. Exhibit A-2 – Legal Description

C. Exhibit B – Conceptual Master Plan

D. Exhibit C – Phasing Plan

E. Exhibit D-1 – Park and Trail Plan

F. Exhibit D-2 – Community Park Image Board

G. Exhibit E – Zoning Map

H. Exhibit F – Development Timeline

I. Exhibit G – Development Agreement

I. INTRODUCTION

The following application is submitted under Section 160.050 “District I (PUD), Planned Unit Development”.

This planned development document was created in accordance with City of Texas City (City) ordinances related to the “(PUD) Planned Unit Development”. The purpose of this document is to encourage the development of the subject property and to promote the most compatible land use within the community.

The Willow Wood project is an 80-acre tract of land, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764. Castlerock Communities Inc. (Developer) is the owner of Subject Tract, and it intends to develop the property as a single-family residential community, complete with stormwater detention facilities, parks, and open space.

The Subject Tract is party to a Development Agreement approved by the City in 2023 (Exhibit G – Development Agreement). This PUD application is presented to satisfy the zoning requirements of the Development Agreement.

II. SITE INVENTORY ANALYSIS

A. Opportunities and Constraints

Similar to surrounding properties, the Subject Tract is mostly flat with elevations ranging from approximately 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. Existing physical constraints affecting development of the property include the following:

- The eastern portion of the Subject Tract (Parcel ID.186006) falls within 100-year Flood Zone

- The Subject Tract drains to 55’ Galveston County Drainage District No. 2 Easement (G.C.C.F. No. 2000037094)

B. Surrounding Land Use

Land uses in proximity to the Subject Tract include single-family residential tracts, public use property and undeveloped property. Willow Street, an existing local roadway, runs through the Subject Tract, providing connections to state highway FM1764 to the north and Phillips Street to the south. The entrances on Willow Street offer access to both the western and eastern sections of the project. The adjacent parcels to the north of this area predominantly consist of undeveloped land. Southwest of the Subject Tract, neighboring parcels consist of residential family properties situated along State Highway 3. To the southeast lies a creek.

III. PROJECT DESCRIPTION

A. Land Use

Exhibit B – "Conceptual Master Plan" depicts the conceptual lotting plan with the proposed land uses for the tract. The 213 single family detached lots are designed at various dimensions, ranging from 6,000 to 13,000 square feet, with homes that are expected to range in sales price from $275,000 to $375,000. The community will incorporate walking/jogging trails as well as +/- 7.1 acres of park/greenspace with a playground, seating areas, and landscaped entry reserves as displayed on Exhibit D-1 – "Park and Trail Plan".

The density of the project will be approximately 2.7 units per acre, and there will be no non-residential uses. Homes in the project will be a mix of one or two stories.

The property drains into four dual amenity/detention ponds located to the north, south, and east of the project. The east portion of this tract lies within the 100-year flood zone.

Land Use Table

Land Use Category	Acreage	% of Gross Acreage
Single Family	+/- 46.9	58.1%
Detention Pond	+/- 26	33%
Greenbelt and Parkland	+/- 7.1	8.9%
Total	**+/- 80**	**100%**

B. Phasing

The project comprises four distinct sections of single-family lots with varying dimensions. Section 1 and Section 2 constitute Phase 1, while Section 3 and Section 4 comprise Phase 2, as displayed on Exhibit C – "Phasing Plan".

C. Street Circulation Concept

The main point of access to the project will be known as Willow Street. It is an existing 30' roadway that connects to state highway FM 1764. The four entrances on Willow Street offer access to both the western and eastern sections of the project.

D. Park and Trail Plan

According to the Texas City code of ordinances, a minimum of one-half acre of land must be dedicated for public neighborhood park use for every 100 proposed dwelling units. Based upon the proposed number of dwelling units illustrated on Exhibit – B "Conceptual Master Plan" the developer is required to dedicate +/- 1.07 acres of parkland. In accordance with the parks and open space requirements, the community will incorporate walking/jogging trails as well as +/- 7.1 acres of parkland/green belt with a playground, seating areas, and landscaped entry reserves as displayed on Exhibit D-1 – "Park and Trail Plan" and Exhibit D-2 – "Community Park Image Board".

The Developer will create a homeowner's association ("HOA") for the community. The HOA will be responsible for all subdivision and common area maintenance including the dual amenity/detention pond maintenance .

E. School District Zoning

The tract is zoned for Texas City ISD.

II. ZONING

A. Existing Zoning

As illustrated on the current Texas City Zoning Map on the City's website, the project is zoned as "District A Single Family Residential", permitting a minimum 50' lot width and a minimum 120' lot depth with a minimum square footage of 6,000. The existing zoning classifications for the subject property and surrounding properties are further illustrated on Exhibit E – "Zoning Map".

B. Proposed / Future Zoning

The purpose of this document is to redefine the zoning to comply with the approved Master Plan by the Planning and Zoning Department, refer to Exhibit B "Conceptual Master Plan". The lot dimensions to be permitted within this PUD shall be a minimum 50' lot width and a minimum 120' lot depth with a minimum square footage of 6,000. The minimum lot depth shall not apply to lots that front cul-de-sacs or knuckles, but the minimum lot width and square footage

requirements shall still apply. The Developer will abide by rules and regulations of the Texas City Code of Ordinances other than those being modified herein.

III. UTILITIES

All utilities including the water distribution system, sanitary sewer collection system, storm water drainage system, and dual amenity/detention facilities will be financed by the Developer with possible future reimbursement by Galveston County Municipal Utility District No. 66. Ultimately all utilities will be owned and maintained by the City of Texas City except the dual amenity/detention facilities, which will be owned by the MUD and maintained by the HOA.

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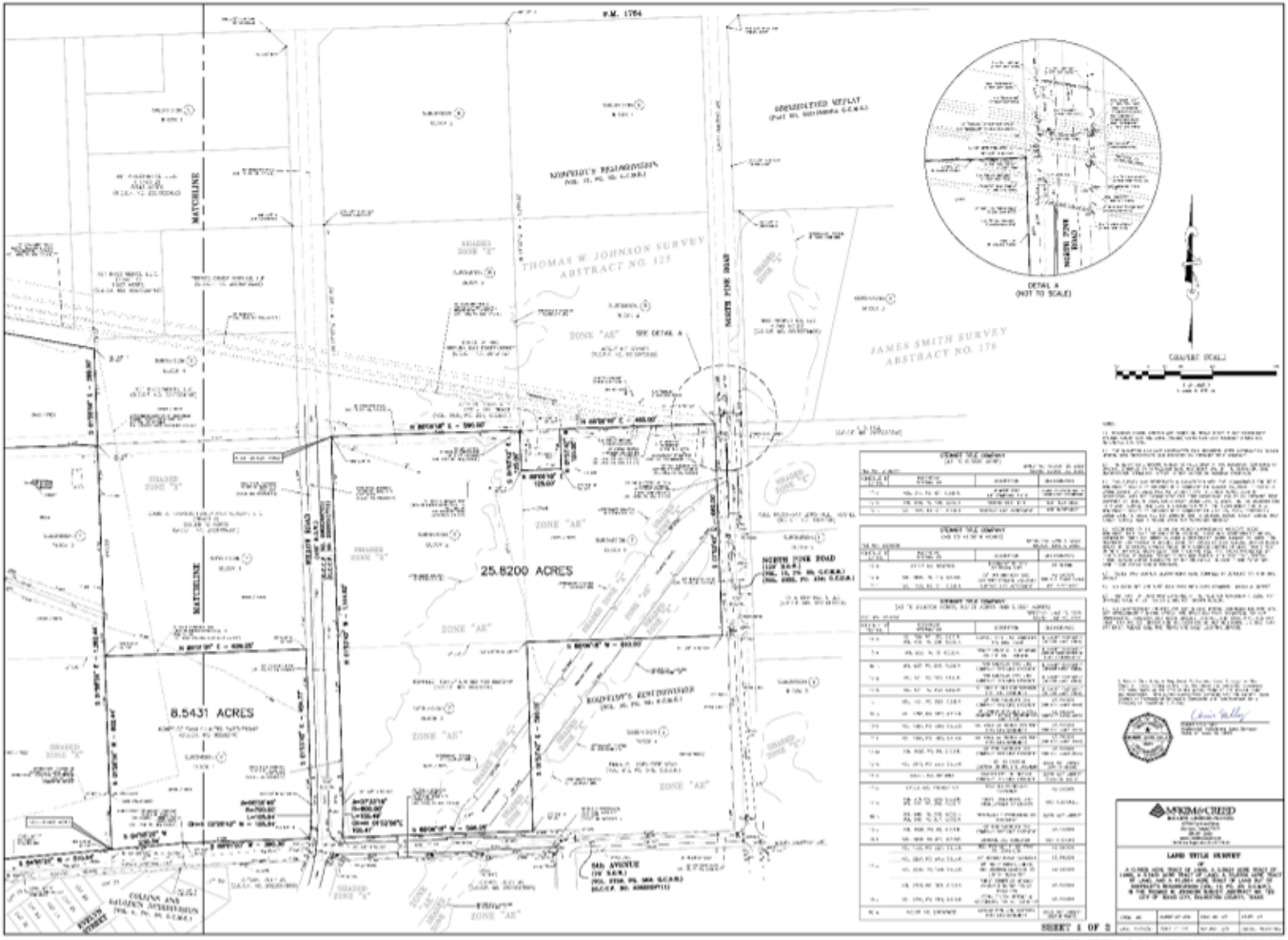
Exhibit ‘A-1’ Project Survey



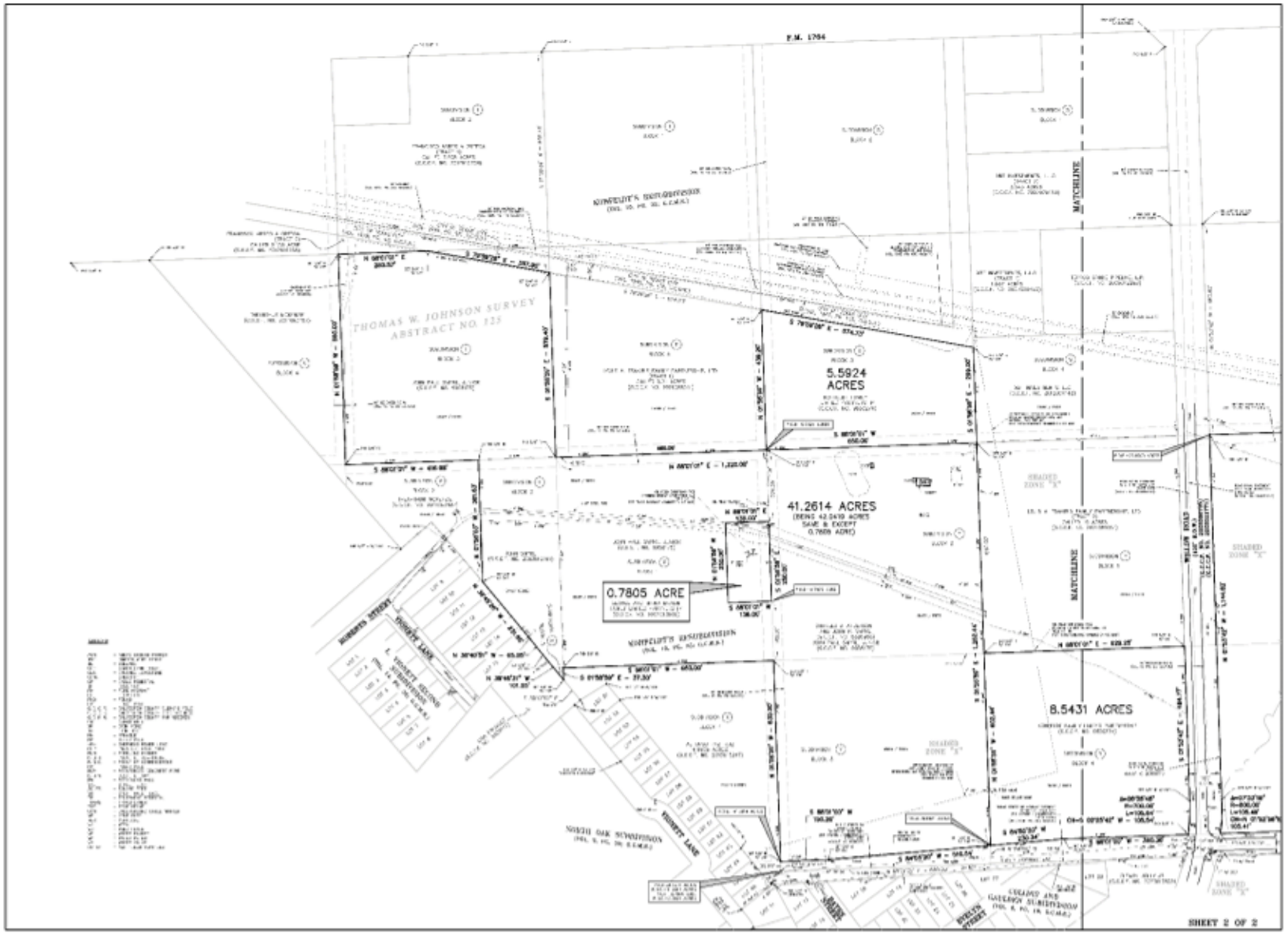

F.M. 1764
MATCHLINE
THOMAS W. JOHNSON SURVEY
ABSTRACT NO. 125
5.5924
ACRES
41.2614 ACRES
(BEING 42.0419 ACRES
SAVE & EXCEPT
0.7805 ACRE)
0.7805 ACRE
8.5431 ACRES
MATCHLINE
SHADED
ZONE "X"
SHEET 2 OF 2

Exhibit 'A-2' Legal Description

November 7, 2023

25.8200 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 25.8200 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 25.8200 acre tract being all of Blocks 1, 2 and 3, Subdivision Z, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; save and except a 125-foot by 125-foot tract of land conveyed to the City of Texas City, as recorded in Volume 1935, Page 227 of the Galveston County Deed Records; save and except a 2.416 acre road right-of-way easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 2003011771; save and except a 1.0606 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records; save and except a 0.3030 acre public street, utility and drainage easement to the City of Texas City, as recorded in Volume 2335, Page 134 of the Galveston County Deed Records; and save and except a 30-foot wide portion of North Pine Road dedicated by said Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

BEGINNING at a 5/8-inch iron rod found in the east line of Willow Road (100 feet wide), as recorded in Galveston County Clerk's File Nos. 2002066705 and 2003011771, in the north line of said Block 2 of Subdivision Z and in the south line of Block 3, Subdivision R of said Kofeldt's Resubdivision for a northwest corner of this tract; from which a 5/8-inch iron rod with cap stamped "Walsh Surveying" found bears North 01° 53' 42" East - 660.00 feet;

THENCE, North 88° 06' 18" East - 590.00 feet with the north line of said Block 2 of Subdivision Z and with the south line of said Block 3 of Subdivision R to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 and 2 of Subdivision Z and Block 3 and 4 of Subdivision R, for the northwest corner of said 125-foot by 125-foot tract conveyed to the City of Texas City, and for a northeast corner of this tract; from which a 1/2-inch iron pipe found in the south right-of-way line of F.M. 1764 bears North 01° 53' 42" West – 1,270.00 feet;

THENCE, South 01° 53' 42" East - 125.00 feet with the east line of said Block 2 of Subdivision Z, with the west line of said Block 1 of Subdivision Z, and with the west line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southwest corner of said 125-foot by 125-foot tract and for an interior corner of this tract;

THENCE, North 88° 06' 18" East - 125.00 feet with the south line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southeast corner of said 125-foot by 125-foot tract and for an interior corner of this tract;

THENCE, North 01° 53' 42" West - 125.00 feet with the east line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the north line of said Block 1 of Subdivision Z and in the south line of said Block 4 of Subdivision R for the northeast corner of said 125-foot by 125-foot tract and for a northwest corner of this tract;

THENCE, North 88° 06' 18" East - 485.00 feet with the north line of said Block 1 of Subdivision Z and with the south line of said Block 4 of Subdivision R to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in west right-of-way line of North Pine Road (100 feet wide at this point), according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records and as recorded in Volume 2335, Page 134 of the Galveston County Deed Records for a northeast corner of this tract;

THENCE, South 01° 53' 42" East - 660.00 feet with the west right-of-way line of said North Pine Road to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the south line of said Block 1 of Subdivision Z and in the north line of Block 4 of said Subdivision Z for a southeast corner of this tract;

THENCE, South 88° 06' 18" West - 610.00 feet with the south line of said Block 1 of Subdivision Z and with the north line of said Block 4 of Subdivision Z to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 1-4 of Subdivision Z and for an interior corner of this tract;

THENCE, South 01° 53' 42" East - 590.00 feet with the east line of said Block 3 of Subdivision Z and with the west line of said Block 4 of Subdivision Z to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the north right-of-way line of 5th Avenue (70 feet wide), as recorded in Volume 2759, Page 363 of the Galveston County Deed Records and in Galveston County Clerk's File No. 2002029711 for a southeast corner of this tract;

THENCE, South 88° 06' 18" West - 596.95 feet with the north right-of-way line of said 5th Avenue to a 5/8-inch iron rod with cap stamped "McKim & Creed" set at the intersection of the north right-of-way line of said 5th Avenue with the east right-of-way line of said Willow Road for the southwest corner of this tract;

THENCE, in a northerly direction with the east right-of-way line of said Willow Road and with a curve to the left having a radius of 800.00 feet, a central angle of 07° 33' 18", a length of 105.49 feet, and a chord bearing North 01° 52' 56" East - 105.41 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for a point-of-tangency;

THENCE, North 01° 53' 42" West – 1,144.82 feet with the east right-of-way line of said Willow Road to the POINT OF BEGINNING and containing 25.8200 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 1.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

8.5431 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of an 8.5431 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 8.5431 acre tract being all of Block 4, Subdivision Y, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; save and except a 2.416 acre road right-of-way easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 2003011771; and save and except a 1.0110 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 88° 01' 01" East - 660.00 feet with the south line of said Block 3 of Subdivision Y to a point for the southeast corner of said Block 3 of Subdivision Y, for the southwest corner of said Block 4 of Subdivision Y, for the southeast corner of said 0.7772 acre public street or highway easement, and for the southwest corner of said 1.0110 acre public street or highway easement (5th Avenue – unimproved right-of-way);

THENCE, North 01° 58' 59" West - 57.56 feet with the east line of said Block 3 of Subdivision Y and with the west line of said Block 4 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northeast corner of said 0.7772 acre public street or highway easement, for the northwest corner of said 1.0110 acre public street or highway easement, and for the southwest corner and POINT OF BEGINNING of this tract;

THENCE, North 01° 58' 59" West - 602.44 feet with the east line of said Block 3 of Subdivision Y and with the west line of said Block 4 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1-4 of said Subdivision Y and for the northwest corner of this tract;

THENCE, North 88° 01' 01" East - 629.25 feet with the north line of said Block 4 of Subdivision Y and with the south line of said Block 1 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the west right-of-way line of Willow Road (100 feet wide), as recorded in Galveston County Clerk's File Nos. 2002066705 and 2003011771 for the northeast corner of this tract;

THENCE, South 01° 53' 42" East - 484.77 feet with the west right-of-way line of said Willow Road to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the point-of-curvature of a curve to the right;

THENCE, in a southerly direction with the west right-of-way line of said Willow Road and with said curve to the right having a radius of 700.00 feet, a central angle of 08° 38' 48", a length of 105.64 feet, and a chord bearing South 02° 25' 42" West - 105.54 feet to a to a 5/8-inch iron rod found at the intersection of the west right-of-way line of said Willow Road with the north line of said 1.0110 acre public street or highway easement (5th Avenue) for the southeast corner of this tract;

THENCE, South 88° 01' 00" West - 390.38 feet with the north line of said 1.0110 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point of said 1.0110 acre public street or highway easement and for an angle point of this tract;

THENCE, South 84° 55' 20" West - 230.34 feet with the north line of said 1.0110 acre public street or highway easement to the POINT OF BEGINNING and containing 8.5431 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 2.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

5.5924 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 5.5924 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 5.5924 acre tract being a portion of Block 3, Subdivision S, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X, Blocks 2 and 3 of Subdivision Y of said Kofeldt's Resubdivision, and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 1,320.00 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X, said Block 2 of Subdivision Y, Block 3 of said Subdivision S, Block 4 of Subdivision T of said Kofeldt's Resubdivision, and for the southwest corner and POINT OF BEGINNING of this tract; from which a 5/8-inch iron rod found for the common corner of said Blocks 3 and 4 of Subdivision T and Blocks 1 and 2 of Subdivision X of said Kofeldt's Resubdivision bears South 88° 01' 01" West - 660.00 feet;

THENCE, North 01° 58' 59" West - 439.20 feet with the west line of said Block 3 of Subdivision S and with the east line of said Block 4 of Subdivision T to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southwest corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 102 of the Galveston County Deed Records, for the southeast corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 110 of the Galveston County Deed Records and for the northwest corner of this tract;

THENCE, South 79° 59' 26" East - 674.73 feet with the southwest line of said 50-foot wide strip to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the east line of said Block 3 of Subdivision S and in the west line of Block 4 of said Subdivision S for the northeast corner of this tract;

THENCE, South 01° 58' 59" East - 299.00 feet with the east line of said Block 3 of Subdivision S and with the west line of said Block 4 of Subdivision S to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 3 and 4 of Subdivision S, Blocks 1 and 2 of Subdivision Y and for the southeast corner of this tract;

THENCE, South 88° 01' 01" West - 660.00 feet with the south line of said Block 3 of Subdivision S and with the north line of said Block 2 of Subdivision Y to the POINT OF BEGINNING and containing 5.5924 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 5.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

41.2614 acres of land being a 42.0419 acre tract save and except a 0.7805 acre tract in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 42.0419 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 42.0419 acre tract being a portion of Blocks 2 and 3 of Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to John Smyrl, as recorded in Galveston County Clerk's File No. 2003012161, being all of Block 1, Subdivision X and a portion of Block 3, Subdivision T of said Kofeldt's Resubdivision, conveyed to John Paul Smyrl, Junior, as recorded in Galveston County Clerk's File No. 9958175, and being all of Blocks 2 and 3, Subdivision Y of said Kofeldt's Resubdivision, conveyed to John Paul Smyrl, Junior, as recorded in Galveston County Clerk's File No. 9958175 and also conveyed to Charles J. Anderson and John P Smyrl, as recorded in Galveston County Clerk's File No. 8326966; save and except a 0.7772 acre public street or highway easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 8326967; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of said Block 3 of Subdivision Y, for the southeast corner of Block 4 of said Subdivision X, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of said 0.7772 acre public street or highway easement (5th Avenue – unimproved right-of-way);

THENCE, North 01° 58' 59" West - 30.00 feet with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, with the east line of said 4.9905 acre tract, and with the west line of said 0.7772 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northwest corner of said 0.7772 acre public street or highway easement and for a southwest corner and POINT OF BEGINNING of this tract;

THENCE, North 01° 58' 59" West - 630.00 feet with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Block 1 and 4 of said Subdivision X and Block 2 and 3 of said Subdivision Y, for the northeast corner of said 4.9905 acre tract, and for an interior corner of this tract;

THENCE, South 88° 01' 01" West - 660.00 feet with the common line of said Blocks 1 and 4 of Subdivision X and with the north line of said 4.9905 acre tract to a 5/8-inch iron rod found for the common corner of Blocks 1-4 of said Subdivision X, for the northwest corner of said 4.9905 acre tract, and for an interior corner of this tract;

THENCE, South 01° 58' 59" East - 37.30 feet with the common line of Blocks 3 and 4 of said Subdivision X and with the west line of said 4.9905 acre tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the northeast line of a tract of land conveyed to Lisa Provost, as recorded in Galveston County Clerk's File No. 9625112 for an angle point of said 4.9905 acre tract and for a south corner of this tract; from which a 1-inch iron pipe found for an angle point of Lot 51, North Oak Subdivision, according to the map or plat recorded in Volume 2, Page 59 of the Galveston County Map Records bears South 39° 12' 52" East - 82.29 feet;

THENCE, North 39° 46' 31" West - 101.55 feet with the northeast line of said Provost tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point;

THENCE, North 38° 40' 51" West - 65.05 feet with the northeast line of said Provost tract to a point for the east corner of Lot 15, L. Vionett Second Subdivision, according to the map or plat recorded in Volume 14, Page 36 of the Galveston County Map Records, for the north corner of said Provost tract and for an angle point of this tract;

THENCE, North 39° 45' 26" West - 231.85 feet with the northeast line of said L. Vionett Second Subdivision to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the south corner of a tract of land conveyed to Thearthur McKenzie, as recorded in Galveston County Clerk's File No. 2011063487 and for a southwest corner of this tract;

THENCE, North 01° 58' 03" West - 381.63 feet with the east line of said McKenzie tract to a 3/8-inch iron rod found in the north line of said Block 2 of Subdivision X and in the south line of said Block 3 of Subdivision T for a northeast corner of said McKenzie tract and for an interior corner of this tract;

THENCE, South 88° 01' 01" West - 416.98 feet with the north line of said Block 2 of Subdivision X, with the south line of said Block 3 of Subdivision T, and with the north line of said McKenzie tract to a 5/8-inch iron rod found for the common corner of said Block 2 of Subdivision X, Block 3 of Subdivision T, Block 4 of Subdivision U, and Block 1 of Subdivision W of said Kofeldt's Resubdivision, for an interior corner of said McKenzie tract and for an interior corner of this tract;

THENCE, North 01° 58' 59" West - 660.00 feet with the west line of said Block 3 of Subdivision T, with the east line of said Block 4 of Subdivision U, and with the east line of said McKenzie tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 2 and 3 of said Subdivision T and Blocks 1 and 4 of said Subdivision U, for a northeast corner of said McKenzie tract and for a northwest corner of this tract;

THENCE, North 88° 01' 01" East - 280.57 feet with the common line of said Blocks 2 and 3 of Subdivision T to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the west corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 98 of the Galveston County Deed Records, for the south corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1979, Page 47 of the Galveston County Deed Records, and for an angle point of this tract;

THENCE, South 79° 59' 26" East - 387.90 feet with the southwest line of said 50-foot wide strip to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the common line of Block 3 and 4 of said Subdivision T for the southeast corner of said 50-foot wide strip and for the southwest corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 110 of the Galveston County Deed Records for a northeast corner of this tract; from which a 5/8-inch iron rod found in the south right-of-way line of F.M. 1764 bears North 01° 58' 59" West - 692.44 feet;

THENCE, South 01° 58' 59" East - 579.40 feet with the common line of said Blocks 3 and 4 of Subdivision T to a 5/8-inch iron rod found for the common corner of said Blocks 3 and 4 of Subdivision T and said Blocks 1 and 2 of Subdivision X for an interior corner of this tract;

THENCE, North 88° 01' 01" East with north line of said Block 1 of Subdivision X and with the south line of said Block 4 of Subdivision T, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Block 1 of Subdivsion X, Block 2 of Subdivision Y, Block 3 of Subdivision S, and Block 4 of Subdivision T and continuing with the north line of said Block 2 of Subdivision Y and with the south line of said Block 3 of Subdivision S for a total distance of 1,320.00 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner Blocks 1 and 2 of said Subdivision Y, Blocks 3 and 4 of said Subdivision S, and for a northeast corner of this tract;

THENCE, South 01° 58' 59" East with the common line of Blocks 1 and 2 of said Subdivision Y, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 1-4 of Subdivision Y and continuing with the common line of Blocks 3 and 4 of said Subdivision Y for a total distance of 1,262.44 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northeast corner of said 0.7772 acre public street or highway easement to the City of Texas City, for the northwest corner of a 1.0110 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records, and for a southeast corner of this tract;

THENCE, South 84° 55' 20" West - 510.54 feet with the north line of said 0.7772 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point 0.7772 acre public street or highway easement and for an angle point of this tract;

THENCE, South 88° 01' 00" West - 150.20 feet with the north line of said 0.7772 acre public street or highway easement to the POINT OF BEGINNING and containing 42.0419 acres of land, save and except 0.7805 acre of land leaving a net area of 41.2614 acres; said 0.7805 acre tract described as follows:

0.7805 acre of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 0.7805 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 0.7805 acre tract being out of Block 1, Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to George and Minna Braun Family Limited Partnership, as recorded in Galveston County Clerk's File No. 2004013806; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X and Blocks 2 and 3 of Subdivision Y and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 846.00 feet to a point for the southeast corner and POINT OF BEGINNING of this tract;

THENCE, South 88° 01' 01" West - 136.00 feet to a point for the southwest corner of this tract;

THENCE, North 01° 58' 59" West - 250.00 feet to a point for the northeast corner of this tract;

THENCE, North 88° 01' 01" East - 136.00 feet to a point in the west line of said Block 2 of Subdivision Y and in the east line of said Block 1 of Subdivision X for the northeast corner of this tract; from which a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X and Block 2 of Subdivision Y bears North 01° 58' 59" West - 224.00 feet;

THENCE, South 01° 58' 59" East - 250.00 feet with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X to the POINT OF BEGINNING and containing 0.7805 acre of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 3.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

0.7805 acre of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 0.7805 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 0.7805 acre tract being out of Block 1, Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to George and Minna Braun Family Limited Partnership, as recorded in Galveston County Clerk's File No. 2004013806; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X, Blocks 2 and 3 of Subdivision Y and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 846.00 feet to a point for the southeast corner and POINT OF BEGINNING of this tract;

THENCE, South 88° 01' 01" West - 136.00 feet to a point for the southwest corner of this tract;

THENCE, North 01° 58' 59" West - 250.00 feet to a point for the northeast corner of this tract;

THENCE, North 88° 01' 01" East - 136.00 feet to a point in the west line of said Block 2 of Subdivision Y and in the east line of said Block 1 of Subdivision X for the northeast corner of this tract; from which a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X and Block 2 of Subdivision Y bears North 01° 58' 59" West - 224.00 feet;

THENCE, South 01° 58' 59" East - 250.00 feet with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X to the POINT OF BEGINNING and containing 0.7805 acre of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 4.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

Exhibit 'B' Conceptual Master Plan

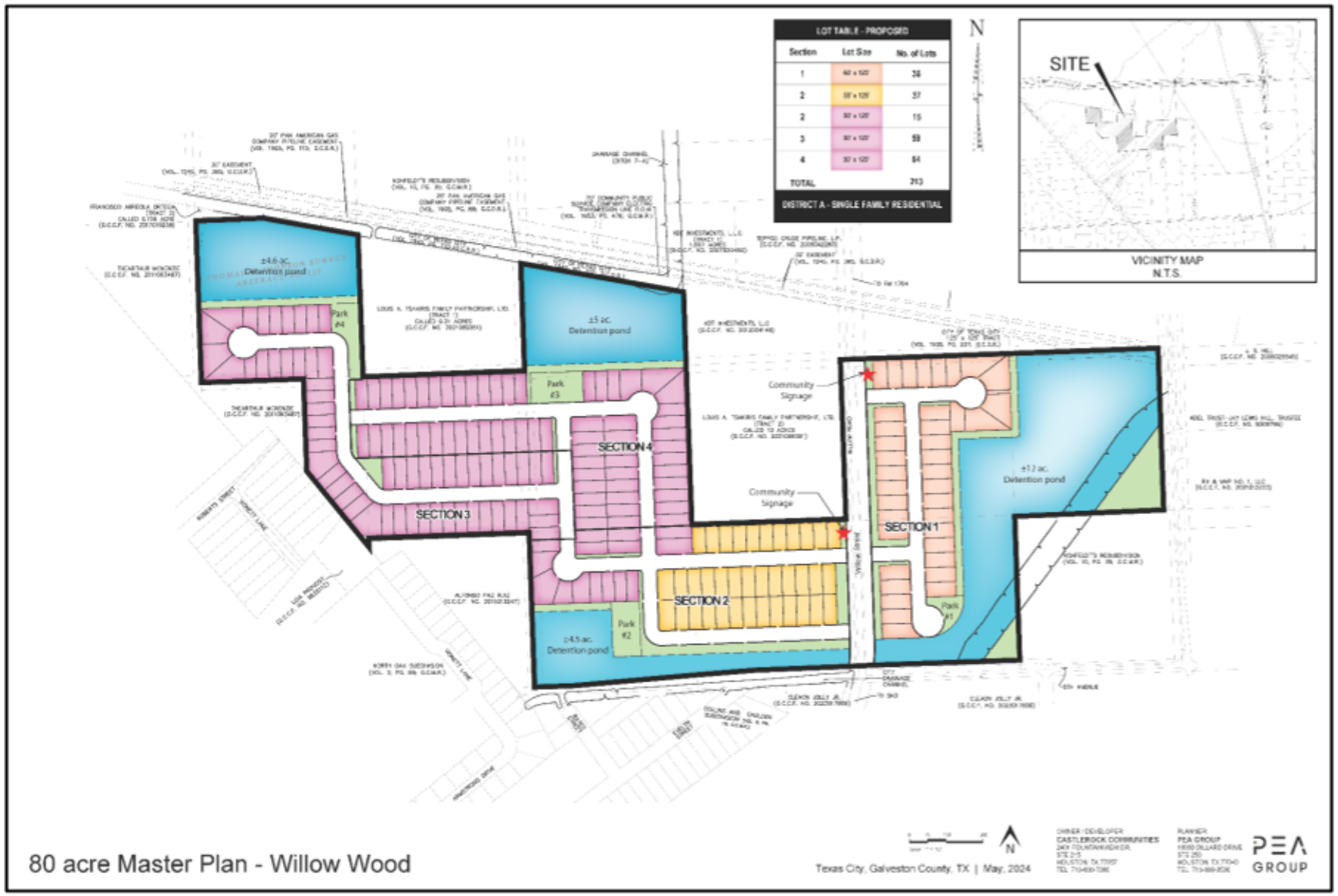


Exhibit 'C' Phasing Plan

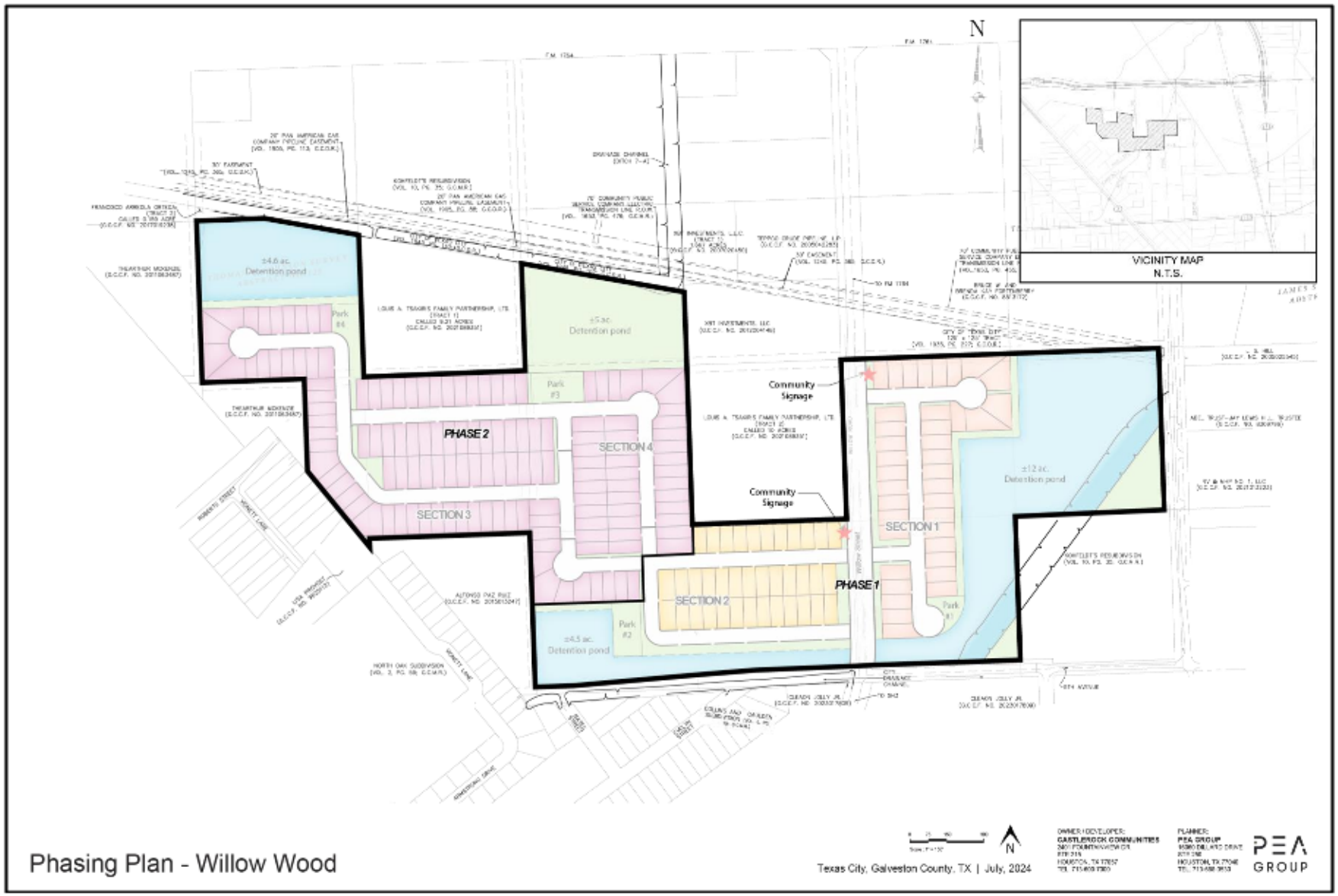


Exhibit 'D-1' Park and Trail Plan

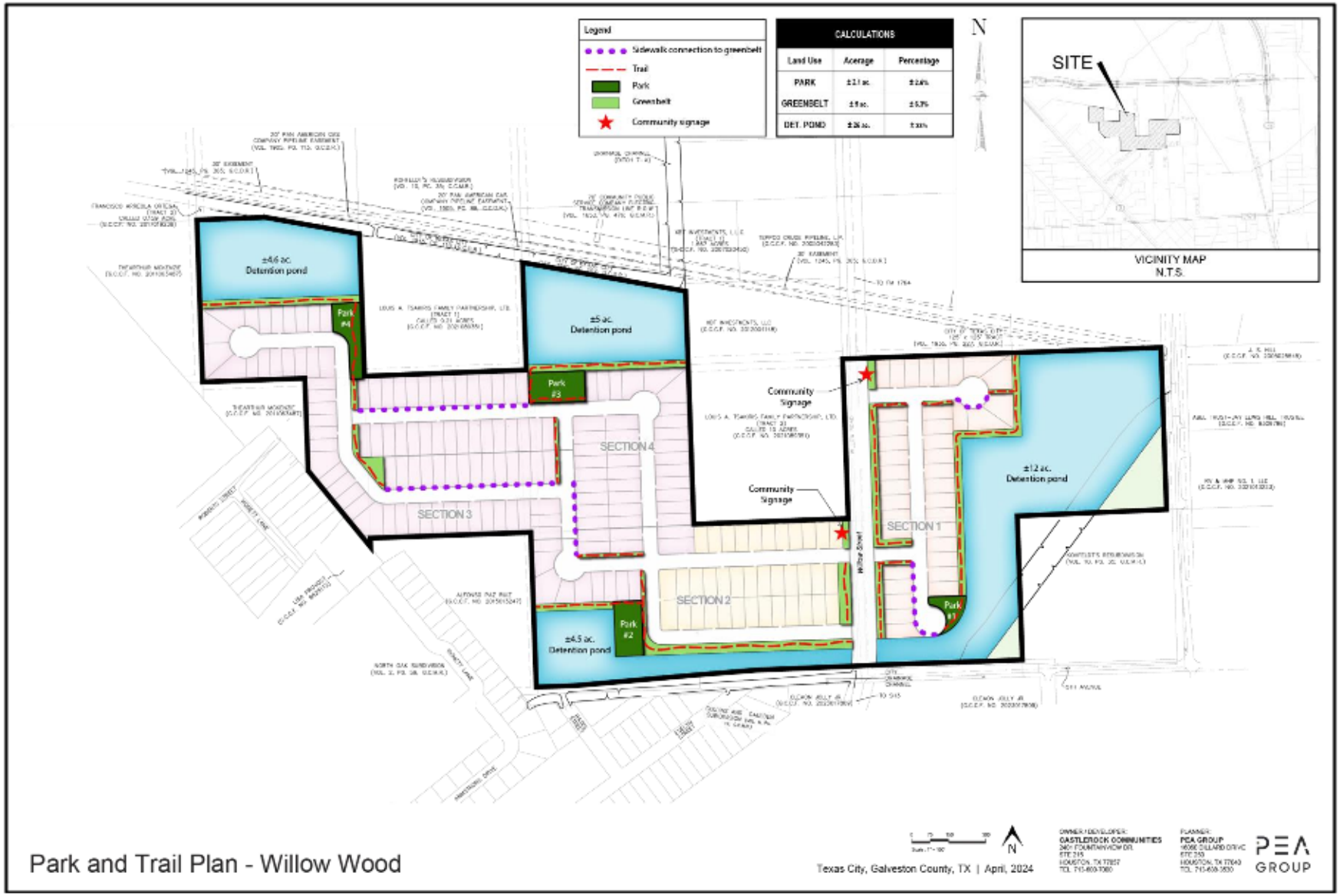


Exhibit 'D-2' Community Park Image Board

Site Furnishing

Bench

Trash receptacle

Aluminum pet station

Pavillion

Open timber truss with column

Square steel pavillion

Free Standing Play Equipment

2 Arch

Apollo spinner and tree fort

Swing set

Spring rider

Playground Equipment

Playground equipment: 2 to 5 years

Playground equipment: 5 to 12 years

Community Park Image Board - Willow Wood

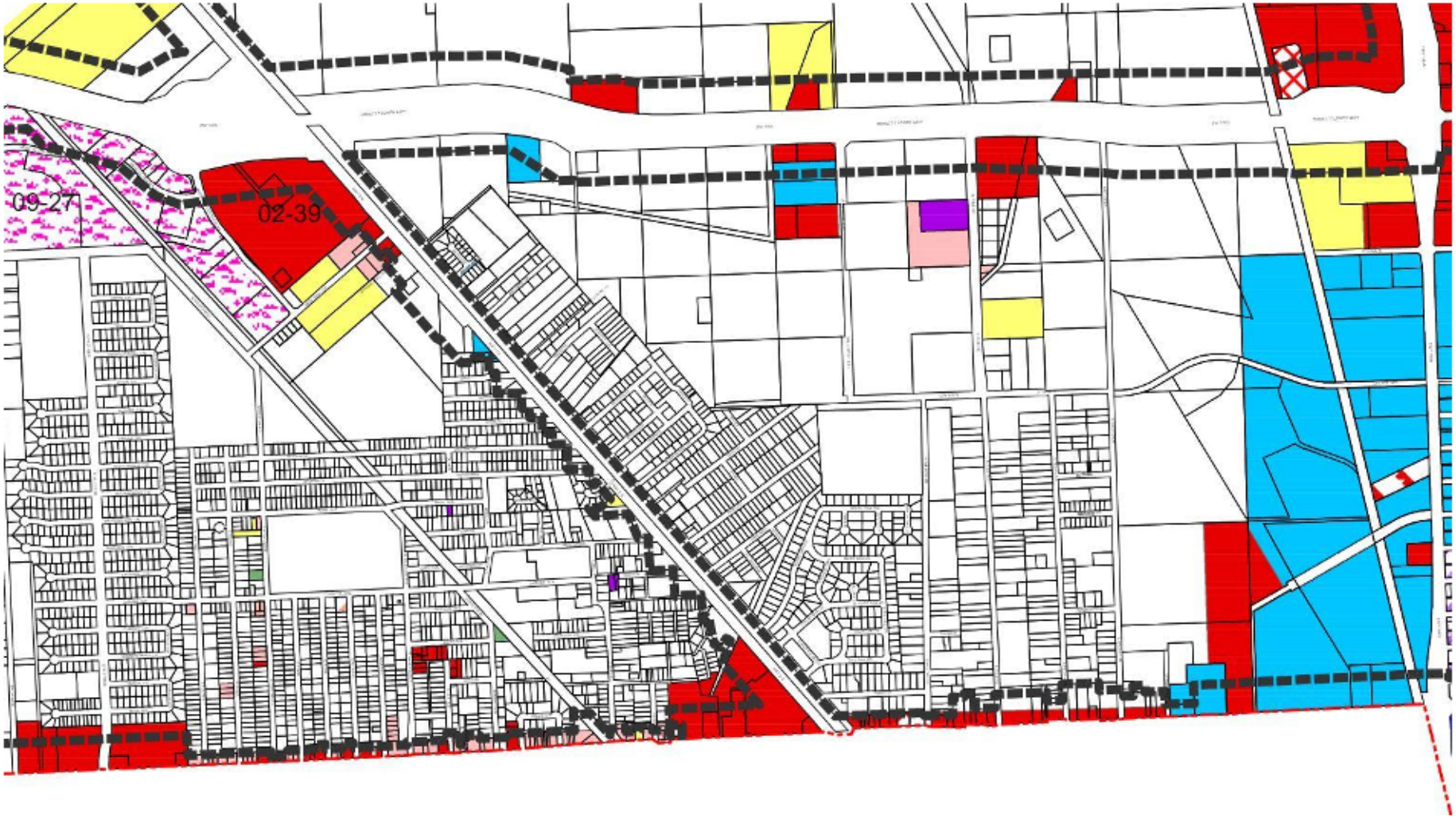
Texas City, Galveston County, TX | May, 2024

OWNER / DEVELOPER
GARTLEROCK COMMUNITIES

PLANNER
PEA GROUP

PEA GROUP

Exhibit 'E' Zoning Exhibit



CITY OF TEXAS CITY ZONING

Legend

ZONING DISTRICT

CENTRAL BUSINESS OVERLAY DISTRICT

ENVIRONMENTAL OVERLAY DISTRICT

GATEWAY CORRIDOR OVERLAY DISTRICT

CITY LIMITS (LAND ONLY)

Texas City EST. 1911

Exhibit F

Development Timeline

Plan to begin development improvements during 3rd and 4th quarter of 2025 with homebuilding to start in 2026.

**The anticipated dates are subject to change due to fluctuating market conditions*

Exhibit 'G' Development Agreement

RESOLUTION NO. 07-101

A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE A DEVELOPMENT AGREEMENT WITH HIGHWAY 66 PARTNERS, LTD. IN CONNECTION WITH THE DEVELOPMENT OF APPROXIMATELY 310 ACRES OF LAND; PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, on November 2, 2005, the City Commission adopted Resolution No. 05-130 consenting to the inclusion of 248 acres in a municipal utility district; and

WHEREAS, subsequent to the adoption of Resolution No. 05-130, the owners and developers acquired additional land that they wish to be included in the municipal utility district, making the total 310 acres; and

WHEREAS, City staff and consultants recommend the Developer (Highway 66 Partners, Ltd.) and City enter into a development agreement to provide the terms and conditions that will govern the development of the Property.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission of the City of Texas City, Texas, authorizes the Mayor to negotiate and execute a Development Agreement with Highway 66 Partners, Ltd. in substantially the same form as Exhibit "A," attached hereto and made a part hereof for all purposes.

SECTION 2: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 15th day of August, 2007.

Matthew T. Doyle, Mayor
City of Texas City, Texas

ATTEST:

Pamela A. Lawrence
City Secretary

APPROVED AS TO FORM:

Robert Gervais
City Attorney

L:Resolution 07-101 Approve Dev Agmt-Hwy66

DEVELOPMENT AGREEMENT

This **DEVELOPMENT AGREEMENT** (this "Agreement"), is made and entered into as of _____, 2007, by and between the **CITY OF TEXAS CITY, TEXAS,** a home rule municipality located in Galveston County, Texas (the "City"), and **HIGHWAY 66 PARTNERS, LTD.**, a Texas limited partnership (the "Developer").

RECITALS

The Developer owns or has under contract approximately 318 acres of land more fully described in Exhibit A, attached hereto (the "Property"). The Property shall also include any additional land annexed into the District (as defined below) with the City's consent. The Developer proposes to develop the Property as a residential community (the "Project"). The Property is currently located within the corporate limits of the City of Texas City, Texas (the "City").

The Developer determined that the creation of Galveston County Municipal Utility District No. 66 (the "District") over the Property was necessary for the provision of water, sewer, and drainage facilities, canals, and certain road and street improvements necessary to develop the Property.

The City has consented to the creation of the District.

The City and the Developer have determined that they are authorized by the Constitution and laws of the State of Texas to enter into this Agreement and have further determined that the terms, provisions, and conditions hereof are mutually fair and advantageous to each.

AGREEMENT

For and in consideration of these premises and of the mutual promises, obligations, covenants, and benefits contained herein, the City and the Developer contract and agree as follows:

ARTICLE 1
DEFINITIONS

The terms "*City*," "*Developer*," "*District*," "*Project*," and "*Property*" shall have the meanings provided for them in the Recitals, above. Except as may be otherwise defined, or the context clearly requires otherwise, capitalized terms and phrases used in this Agreement shall have the meanings as follows:

PUD means the Planned Unit Development for the Property to be adopted pursuant to the City's Zoning Code, Section 40-48 in effect as of the effective date of this Agreement.

Utility Services Agreement means the utility services agreement entered into between the City, the Developer, and the District.

Zoning Code means the City's Revised Zoning Ordinance in effect as of the date of this Agreement.

ARTICLE 2
OBLIGATIONS OF THE CITY

2.01. Acquisition of Easements for Off-Site Utilities. The City will acquire all off-site water and wastewater easements and sites needed to serve the Property using capital recovery fees paid by the Developer and other developers. The City will cooperate with the Developer to insure than all such easements and sites are acquired in timely manner that supports the completion of the off-site water and sewer facilities in a manner that meets the Developers plan for developing the Property, subject to the requirements of section 4.6 and 4.7 of this Agreement and the terms and conditions of the Utility Services Agreement to be entered into between the City, the District, and the Developer.

ARTICLE 3
OBLIGATIONS OF THE DEVELOPER

3.01. Municipal Use Sites. The Developer agrees to contribute $500 per lot to the City for the construction of the municipal use facilities (including but not limited to police, fire and EMS, library, satellite office or utility dispatch uses) to be constructed to serve the area of the City in which the Property is located, with such contribution to be paid at the time the final plat for a phase of development on the Property is filed for recordation.

3.02. Property owners' association. The Developer agrees to create one or more property owners' association to serve the Property and to include all of the Property in at least one of such property owners' association. The Developer further agrees to submit to the Mayor of the City or his designee for review and comment prior to recordation all rules of the property owners' association(s) created to serve the Property and all deed restrictions proposed for the Property. The Developer will provide copies of its commercial deed restrictions and commercial development covenants, if any, to the City for review and approval by the Mayor or his designee at least 60 days prior to filing same.

3.03. Maintenance of certain improvements. The Developer agrees to form one or more property owners association, which shall have as one of their stated purposes to permanently maintain through assessments all lakes, ponds, and other detention facilities and open ditches, open drainage channels, canals, and other open stormwater drainage improvements, parks and recreation facilities, landscaping, and monumentation developed as part of the Project (the "Non-City Improvements") to the extent that the District is not responsible for maintaining such Non-City Improvements. The Developer acknowledges and agrees that the Non-City Improvements will be maintained by the District or by the property owners' association or associations serving the Property, as appropriate, and that the City shall never have the responsibility to own, operate or maintain the Non-City Improvements.

3.04. Cost reimbursement. The Developer shall reimburse the City for professional consulting fees, including legal and engineering, reasonably incurred by the City in connection with the creation and organization of the District, including the review and approval of this Agreement, the Utility Services Agreement, Planned Unit Development, and any other agreements between the City, the Developer and the District. To aid in review and evaluation of the proposed development, the City shall engage the services of consultants and legal counsel. The City will enter into engagement letters and/or service agreements with its consultants and legal counsel. The City will be the client for purposes of these consulting and legal engagements. However, the Developer agrees to be responsible, on behalf of the City, for all fees, expenses, and other costs associated with the City's consulting and legal engagements.

The Developer further agrees to counter-sign the engagement letters between the City and its consultants and legal counsel to acknowledge the Developer's financial responsibility thereunder. The City's consultants and legal counsel shall submit invoices for fees, expenses, and other costs incurred on behalf of the City to the Developer (with a copy to the City) on a monthly basis and such invoices will be payable within thirty days of receipt. The Developer agrees that it will provide payment to the City's consultants and legal counsel accordingly on behalf of the City. The Developer's obligation under this section is cumulative with any other cost reimbursement arrangements previously or subsequently entered into between the City and the Developer.

3.06. Dry Utilities. The Developer agrees that all dry utilities, such as electric, gas, telephone and cable, shall be placed underground throughout the Property; provided, however, that "three-phase" power lines may be elevated and may be placed in easements along the perimeter of the Property and within the interior of the Property as may be required by the power provider to serve the Property. Unless otherwise approved by the City and the Developer and unless no reasonable alternative is available to the power provider for the location of said poles, no elevated three-phase power or larger poles may be placed along any major roads or highways. The Developer agrees that public street light poles throughout the Project shall be

galvanized metal or concrete; provided, however, the Developer may use light poles made out of a material that is of a higher quality than concrete, as determined by the Mayor or his designee. Decorative and specialty light poles are acceptable on private property and along private streets; provided, however, that the City shall never be responsible for maintenance of such light poles.

3.06. 25th Avenue Improvements. The Developer will pay for the cost of extending the northern two lanes of 25th Avenue for approximately 300 feet to the southwest side of Highway 3 and installing related storm drainage facilities (the "25th Avenue Paving Project"); provided, however, that (a) the Developer is not responsible for any paving or other road work on the north side of Highway 3, (b) such costs do not include the relocation of any utilities or pipelines, and (c) such costs do not exceed $150,000.

3.07 Property Values. The Developer recognizes that a significant portion of the City's consideration for entering into this Agreement and consenting to the creation of the District is the Developer's representations that it would achieve an average home value in the District of $160,000 (the "Target Value"). The Developer agrees to make to the City a payment in lieu of taxes (the "PILOT") to compensate the City for any loss of tax revenue attributable to the Developer's failure to achieve the Target Value on the dwelling units that are used to support the financial feasibility of the District's first bond issue, over the life of the first bond issue. The PILOT shall be calculated by first multiplying the City's then current total tax rate by the difference between the Target Value and the certified appraised value, as determined by the Galveston County Appraisal District, of the average completed home in the District on January 1 of the year in which the District sells its first series of bonds, divided by 100 (the "Estimated Annual Revenue Loss Calculation"). The Estimated Annual Revenue Loss Calculation shall be multiplied by a timing factor (the greater of 20 years or the term of the District's first bond issue) to arrive at the PILOT due from the Developer to the City. A table demonstrating the calculation of the PILOT is shown on Exhibit "B" attached hereto and incorporated herein for all purposes. The PILOT shall be paid within 30 days of the Developer's receipt from the District of its share of proceeds from the District's first bond issue.

ARTICLE 4
LAND AND DEVELOPMENT COVENANTS

4.01. Land Use. Developer shall submit to the City, for its review and approval, the plan for the development of the Property (the "General Plan") in accordance with Section 40-48 of the Zoning Code in effect as of the effective date of this Agreement. Developer shall develop or cause any undeveloped Property to be developed in accordance with the latest General Plan approved by the City.

4.02 Planned Unit Development. (a) Developer agrees that development of the Property shall be in accordance with the Zoning Code and the General Plan, as the General Plan may be amended in accordance with the provisions of the Zoning Code and the terms of the PUD.

(b) The Developer and City recognize that it is in the interest of the Developer and the City that part of the Property be used to further the economic development interests of both the Developer and the citizens of the City, including attracting desirable businesses and industry to provide highly skilled jobs and to maintain an appropriate balance between the City's residential and non-residential tax base. Therefore, the Project shall be developed as a PUD in accordance with the Zoning Code. The Developer agrees to comply with all of the procedures provided for a PUD in the Zoning Code. The PUD shall include but not be limited to: (1) proposed land uses; (2) maximum number of housing units; (3) number of lots; (4) sizes of the lots; (5) housing types; (6) prospective commercial uses; (7) street and circulation system/arterial plan; (8) development schedule; (9) request for variance to the development code; (10) typical street cross section with proposed landscape standards; (11) bulk head material; (12) estimated construction value of housing by lot size; (13) proposed amenities plan; (14) utility (water and sewer) plant and sites and trunk line locations; (15) storm water plan; (16) Municipal Utility District boundaries; (17) any likely alternative development scenario; and (18) if a municipal services site is dedicated, it must be shown in the PUD Conceptual Plan.

4.03 Development Covenants. The Developer agrees to adopt deed restrictions and other restrictive covenants, and promulgate the Developer's guidelines regarding development standards, consistent with the PUD, the Zoning Code and any relevant City ordinances and regulations. The Developer will provide copies of its residential deed restrictions and residential development covenants to the City for review and comment by the Mayor or his designee no later than prior to the approval of the first residential development covenants for review and comment no later than prior to the approval of the PUD. The Developer agrees to require Sub-developers to abide by the Developer's development standards and provide for enforcement mechanisms for restrictive covenants.

4.04. Marketing Cooperation. The Developer will share non-confidential marketing information with the City relating to the marketing of the Project, and will solicit recommendations to assist the marketing of the Project from the City. The City will designate a contact person for this purpose.

4.05 Notice. Developer agrees to provide notice to the Mayor or his designee of any material proposed changes, amendments or revisions to the PUD, the Property, or the Project prior to taking any action on such change.

ARTICLE 5
TERM AND DEFAULT

5.01. Term. This Agreement shall be in effect as of the date set forth on the first page hereof, and shall terminate 50 years thereafter, unless terminated earlier as specifically provided herein.

5.02. Default.

a. A party shall be deemed in default under this Agreement (which shall be deemed a breach hereunder) if such party fails to materially perform, observe or comply with any of its covenants, agreements or obligations hereunder or breaches or violates any of its representations contained in this Agreement.

b. Before any failure of any party to perform its obligations under this Agreement shall be deemed to be a breach of this Agreement, the party claiming such failure shall notify, in writing, the party alleged to have failed to perform of the alleged failure and shall demand performance. No breach of this Agreement may be found to have occurred if performance has commenced to the reasonable satisfaction of the complaining party within 30 days of the receipt of such notice. Upon a breach of this Agreement, the non-defaulting Party shall be entitled to specific performance. Regardless of any other provision, neither Party shall be entitled to recover money damages for breach of this Agreement or a tort related to this Agreement. Except as otherwise set forth herein, no action taken by a party pursuant to the provisions of this Section pursuant to the provisions of any other section of this Agreement shall be deemed to constitute an election of remedies and all remedies set forth in this Agreement shall be cumulative and non-exclusive of any other remedy either set forth herein or available to any Party at law or in equity. Each of the parties shall have the affirmative obligation to mitigate its damages in the event of a default by the other party.

ARTICLE 6
MISCELLANEOUS PROVISIONS

6.01. Approvals and consents. Approvals or consents required or permitted to be given under this Agreement shall be evidenced by an ordinance, resolution or order adopted by the governing body of the appropriate party or by a certificate executed by a person, firm or entity previously authorized to give such approval or consent on behalf of the party. Approvals and consents shall be effective without regard to whether given before or after the time required for giving such approvals or consents.

6.02. Address and notice. Any notice to be given under this Agreement shall be given in writing, addressed to the party to be notified as set forth below, and may be

given either by depositing the notice in the United States mail postage prepaid, registered or certified mail, with return receipt requested; by messenger delivery; or by telecopy. Notice deposited by mail shall be effective three days after posting. Notice given in any other manner shall be effective upon receipt by the party to be notified. For purposes of notice, the addresses of the parties shall be as follows:

If to the City, to:
Mayor
City of Texas City, Texas
P.O. Box 2608
Texas City, Texas 77592

If to Developer, to:
Hwy 66 Partners, Ltd.
Attn: Phil Newton
1514 3rd Street
Seabrook, Texas, 77586

cc to the District to:
Galveston County Municipal Utility
District No. 66
c/o: McDonald & Sechrist LLP
770 South Post Oak Lane, Suite 410
Houston, Texas 77056
Attn: Terrie L. Sechrist

The parties shall have the right from time to time to change their respective addressees by giving written notice of such change to the other party at least 15 days prior to the effective date of the change.

6.03. Assignability; successors and assigns. All covenants and agreements contained by or on behalf of a party in this Agreement shall bind its successors and assigns and shall inure to the benefit of the other parties, their successors and assigns. The parties may assign their rights and obligations under this Agreement or any interest herein, only with the prior written consent of the other party, which consent shall not be unreasonably withheld, and any assignment without such prior written consent, including an assignment by operation of law, is void and of no effect; provided that, the Developer may make a collateral assignment in favor of a lender without consent. This Section shall not be construed to prevent the Developer from selling lots, parcels or other portions of the Land in the normal course of business. If such assignment of the obligations by the Developer hereunder is effective, the Developer shall be deemed released from such obligations. If any assignment of the obligations by the Developer hereunder is deemed ineffective or invalid, the Developer shall remain liable hereunder.

6.04. No additional waiver implied. The failure of either party to insist upon performance of any provision of this Agreement shall not be construed as a waiver of the future performance of such provision by the other party.

6.05. Reservation of rights. All rights, powers, privileges and authority of the parties hereto not restricted or affected by the express terms and provisions hereof are reserved by the parties and, from time to time, may be exercised and enforced by the parties.

6.06. Parties in interest. This Agreement shall be for the sole and exclusive benefit of the parties hereto and shall not be construed to confer any rights upon any third parties.

6.07. Merger. This Agreement embodies the entire understanding between the parties and there are no representations, warranties, or agreements between the parties covering the subject matter of this Agreement.

6.08. Modification; Exhibits. This Agreement shall be subject to change or modification only with the mutual written consent of the City and the Developer. The exhibits attached to this Agreement are incorporated by this reference for all purposes.

6.09. Captions. The captions of each section of this Agreement are inserted solely for convenience and shall never be given effect in construing the duties, obligations or liabilities of the parties hereto or any provisions hereof, or in ascertaining the intent of either party, with respect to the provisions hereof.

6.10. Interpretations. This Agreement and the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein and to sustain the validity of this Agreement. This agreement, although drafted by the City, shall be construed fairly and reasonably and not more strictly against the City than the Developer because both parties were represented by legal counsel in the negotiation and review of this Agreement.

6.11. Severability. If any provision of this Agreement or the application thereof to any person or circumstances is ever judicially declared invalid, such provision shall be deemed severed from this Agreement and the remaining portions of this Agreement shall remain in effect.

6.12. Authority within City limits. Regardless of any other provision, nothing herein shall impair or restrict any authority, powers or rights of the City within the incorporated limits of the City.

[EXECUTION PAGES FOLLOW]

AGREED AND ACCEPTED as of the date first above written.

HWY 66 PARTNERS, LTD.,
a Texas limited partnership

By: Jabaz Development Co., Inc.,
a Texas corporation,
its general partner

By: _____
Phil Newton, President

152773

AGREED AND ACCEPTED as of the date first above written.

CITY OF TEXAS CITY, TEXAS

Mayor

ATTEST:

City Secretary

(SEAL)

APPROVED AS TO FORM:

City Attorney

152773

City of Texas City
Highway 66 Partners
Payment in Lieu of Taxes Calculation

I. Estimated Annual AV Value Loss Calculation

A.	$	160,000	Target Value per Dwelling Unit
B.	$	-	(-) Average value per dwelling unit (calculated as the total number of A1 properties at the time of the bond sale / total value of all A1 properties as of the time of the bond sale, to be provided by MUD TAC per GCAD records)
C.	$	160,000	(=) Variance between target value per dwelling unit and average value per dwelling unit
D.	$	160,000	Variance between target value per dwelling unit and average value per dwelling unit
E.		0	(*) Total A1 properties at the time of the bond sale to be provided by MUD TAC per GCAD records
F.	$	-	(=) Estimated AV Loss

II. Estimated Annual Revenue Loss Calculation

G.	$	-	Estimated AV Loss
H.	$	-	(/) 100
I.	$	0.45624	(*) Texas City Tax Rate (at time of bond sale)
J.	$	-	(=) Estimated Annual Taxes Lost

III. Payment in Lieu of Taxes Calculation

K.	$	-	Estimated Annual Taxes Lost
L.		20	(*) Timing factor (20, or the term of the bonds, whichever is greater)
M.	$	-	(=) Total Payment at time of sale

I. Estimated Annual AV Value Loss Calculation

A.	$160,000	Target Value per Dwelling Unit
B.	$130,000	(-) Average value per dwelling unit (calculated as the total number of A1 properties at the time of the bond sale/total value of all A1 Properties as of the time of the bond sale, to be provided by MUD TAC per GCAD records)
C.	$30,000	(=) Variance between target value per dwelling unit and average value per dw
D.	$30,000	Variance between target value per dwelling unit and average value per dwellir
E.	84	(*) Total A1 properties at the time of the bond sale to be provided by MUD TAC per GCAD records
F.	$2,520,000	(=) estimated AV loss

II. Estimated Annual Revenue Loss Calculation

G.	$2,520,000	Estimated AV Loss
H.	$25,200	(/) 100
I.	$0.4562	(*) Texas city Tax Rate (at time of bond sale)
J.	$11,497	(=) Estimated Annual Taxes Lost
K.	$11,497	Estimated Annual Taxes Lost
L.	20	(*) Timing Factor (20 or the term of the bonds, whichever is greater)
M.	$229,945	(=) Total Payment at time of sale

Texas City
EST. 1911
ENGINEERING & PLANNING

STAFF REPORT

To: Planning Board - October 7, 2024

From: Kim Golden, P.E., Engineering & Planning

CC: Doug Kneupper, P.E.

Date: October 4, 2024

Re: Willow Wood Subdivision – Master Plan and request to rezone from District A – Single Family Residential to District I – Planned Unit Development

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Background: Willow Wood Subdivision - Applicant, Castlerock Communities, Inc, proposes to develop and **80-acre tract of land**, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop **213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft**, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1-acre park/green space with a playground, seating areas, and landscaped entry reserves.

The subject tract is included in GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The application is presented to satisfy the requirements of the Development Agreement.

Existing Conditions: The subject tract is mostly flat with elevations ranging from 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. The eastern portion of the site falls within the 100-year flood plain. Land uses near the tract include single family residential tracts, public use property and undeveloped property.

The adjacent properties to the north of this area are mostly undeveloped. Southwest of the site parcels consist of residential properties along State Highway 3, with a creek along the southeast boundary.

Staff analysis: The total lot yield of 213 lots is a proposed density of 2.7 units per acre. An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

Willow Street, an existing local roadway runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project, but developer intends to add additional property for a future second entrance to the west.

Water and sewer facilities are readily available to this project and can be extended from existing mains.

As noted, some of the site is located in the 100-year flood plain and much of the site provided storage. A thorough drainage impact analysis was provided with review and approval from the GCDD # 2.

Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

RECOMMENDATION: City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and have no objection to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

1801 9th Avenue North * P.O. Drawer 2608 * Texas City, TX 77592-2608
(409) 948-3111 * www.texascitytx.gov

PLANNING BOARD MINUTES
OCTOBER 7, 2024

The Planning Board of the City of Texas City met in a regular meeting on Monday, October 7, 2024, at 5:00 p.m. Planning Board members present: Co-Chairman Perry O'Brien, Commissioner Thelma Bowie, Commissioner Jami Clark, Aric Owens, Alternate Member Jose Boix and Alternate Member Andrew Thomas. Staff members present: Kimberly Golden (Secretary), David Kinchen (Deputy Building Official), Kip Urps and Veronica Carreon. Guests were: Jewel Chadd (Langan Engineering), Sherri McElwee (Quiddity Engineering), Bryan Smith (CastleRock Communities), Andy Zepeda (CastleRock Communities), Laura Boyd, Ronny Boyd, Stephanie Tabor (A&S Engineers), Kenneth Clark, and Jerry LeBlanc (Binnacle).

Co-Chairman Perry O'Brien indicated a quorum was present and called the meeting to order.

1) **APPROVAL OF MINUTES**

A motion to approve the minutes of the August 19, 2024 meeting was made by Commissioner Jami Clark/Aric Owens. All other members present voted aye.

2) **PUBLIC COMMENTS**

Jerry LeBlanc addressed the Board and distributed a copy of an email he sent to Ms. Kimberly Golden. He stated he was working last week on some forward projections and his lenders like for him to project out sections at a time.

He emailed Santa Fe Engineering and Ms. Golden regarding expectations and planning. He works with a lot of municipalities and lives in Texas City. All of those municipalities adhere strictly to their ordinance, which is always reviewed and presented to the Planning Board in 30 days.

He has seen situations where there is not a quorum and then the plans are automatically approved. Municipalities experience this because they reference to a new state law and the city ordinances. He asked the Planning Board if they could help him on insight for future submittals because there hasn't been a quorum in a while.

He has quite a bit of stuff that is pending and wants to know where Texas City stands on this 30-day time period. If all of these other municipalities are wrong, how does Texas City interpret it?

Co-Chairman Perry O'Brien replied that he personally does not have the knowledge, but he has been called via phone and made himself available to make a quorum. He knows other board members have as well.

Co-Chairman O'Brien added that he understands public comments are heard and there is a timely response to those comments. They are endeavored to do that, but he cannot give an answer today because he does not know the information.

Mr. LeBlanc replied that he understood. He just wanted to make a public comment, but just wants to know what Texas City expects so that he knows what to put on the performance. He stated he has loans expiring and has to renew them, which puts a bind on everybody involved.

Co-Chairman stated that he understood.

3) **REGULAR AGENDA**

a. **Consider and take action on the Final Plat for Crystal View Blvd Extension. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number 2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located south of Lago Mar Blvd entrance road and west of the I-45 south bound frontage road.**

Ms. Golden indicated that Crystal View Blvd is already built and in place. This plat is for the dedication of the rest of Crystal View Blvd from where it stops now to reach the I-45 southbound frontage road. The second agenda item is the plat for the 14.3 acres that City Commission has approved a Development Agreement with the developer for a way to record this as a final plat before Crystal View Blvd is actually constructed.

The action that is before the Board now is to approve as a final plat the plat for the extension of Crystal View Blvd. This plat is not going to be any different from what's provided for an ordinance. This means the Planning Board will approve it and then it will be recorded after it has been built.

There are a couple of conditions that Ms. Golden included on her staff memo that specifically the approval be conditioned upon final approval of the Traffic Impact Analysis (TIA) and issuance of the necessary access permits by TxDOT.

Staff are moving this a little fast to accommodate the developer and the pending sale there. Those are the last two things that are in the process of being worked out.

The TIA has been under review. There are some final tweaks that need to be worked out among the engineers and they do have their application pending for the permit to make the connection of Crystal View Blvd to the frontage road, but they don't have it yet.

Typically, these items would be in place before bringing forward for final approval.

Co-Chairman Perry O'Brien asked what the typical timeframe for TxDOT is to approve. Ms. Golden replied that Ms. Sherri McElwee has stated this has been pending for about four months. They have been exchanging comments and they are in the process of trying to set up a meeting with TxDOT to go over the final comments.

Ms. McElwee added that typical time is about six months to a year. TxDOT has been accommodating with the amount of development going on right now in the I-45 corridor right now. She believes they have a little more accessibility and waiting on that meeting to go over final comments.

Co-Chairman O'Brien confirmed that six months to a year is typical because he has been asked this question before. Ms. McElwee replied that is correct if everything is in order.

Mr. Jose Boix about the turn into the street. Ms. McElwee replied that the exit for Lago Mar Blvd is a little bit further back but there is some denied access a little south of the driveway where you cannot make a connection because there is another exit planned.

A motion was made by Alternate Member Jose Boix/Commissioner Thelma Bowie to approve the Final Plat for Crystal View Blvd Extension conditioned upon final approval of the TIA by the City of Texas City and issuance of the necessary access permits by TxDOT. All other members present voted aye.

b. **Consider and take action on the Preliminary Plat for Lago Mar Commercial Replat No. 3. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number**

2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located at the southwest corner of Lago Mar Blvd and west of the I-45 south bound frontage road.

Ms. Golden stated this is the Preliminary Plat for 14.3 acres replat which includes the reserves and the property for the grocery store tract. It is referred to as the Lago Mar Commercial Replat No. 3.

It is unusual for both a Preliminary Plat and Final Plat to be brought before the Planning Board at the same meeting, but due to Labor Day Holiday and unfortunately, the lack of a quorum for the second regular meeting in September or a special-called meeting, these two items are being presented.

Staff have reviewed and all comments have been addressed. There are no conditions for this Preliminary Plat approval.

Mr. Boix asked if the TIA would affect this project, to which Ms. Golden replied there would not be any affect.

A motion was made by Mr. Jose Boix/Commissioner Thelma Bowie to approve the Preliminary Plat for Lago Mar Commercial Replat No. 3. All other members present voted aye.

c. **Consider and take action on the Final Plat for Lago Mar Commercial Replat No. 3. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number 2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located at the southwest corner of Lago Mar Blvd and west of the I-45 south bound frontage road.**

Ms. Golden stated that Final Plat for Lago Mar Commercial Replat No. 3 has been reviewed and the developer has addressed all comments made by staff regarding the reserves and the way things outside should be labeled.

This developer put the Final Plat together quickly and staff then reviewed it quickly

This project is where the City Commission has approved a change in the platting procedure that is in the Ordinances. City Commission approved a Development Agreement that specifically sets forth a separate process for this particular lot for this particular condition, which is included in the agenda packet.

Staff have no objection to approval but are recommending the following conditions.

i) Developer's commitment to implement the recommended improvements of the final approved Traffic Impact Analysis (TIA),

ii) The approval of a final TIA, and

iii) The issuance of final permits from TxDOT for the connection of Crystal View Blvd to the I-45 southbound frontage road.

What is not a condition is that it actually be constructed because again, City Commission, through the Development Agreement has already provided for it to be recorded upon bond.

The Developer will post a security bond in a sufficient amount to cover their construction of Crystal View Blvd and the other infrastructure in case they don't actually do the work themselves. It is fully anticipated that the Developer will build the infrastructure. They have three years to complete the work.

A motion was made by Mr. Jose Boix/Commissioner Thelma Bowie to approve the Final Plat for Lago Mar Commercial Replat No. 3 upon with conditions as stated, i.e., the Developer's commitment to implement the recommended improvements, the final approval of the TIA, and the issuance of final permits from TxDOT for the connection of Crystal View Blvd to the I-45 southbound frontage road. All other members present voted aye.

d. **Consider and take action on the Final Plat for Brookwater Sections 1A, Being a replat of a 12.16-acre tract of land out of Lots 9 through 12 of Waterman's Subdivision of the W.K. Wilson Survey, Abstract No. 208, Texas City. Containing 3 blocks, 48 lots and 4 reserves. Located to the east of FM 2004 and north of Mainland City Centre.**

Ms. Golden asked Co-Chairman O'Brien if this item and the next could be read together, to which Co-Chairman O'Brien stated that would be good.

Ms. Golden stated that Brookwater Subdivision was originally presented to the Board and approved as Section 1 in total as a Preliminary Plat. Before presenting a final plat for Section 1 to the Board, the Developer decided to break Section 1 into two sections – Section 1A and Section 1B.

Everything is basically the same. The construction drawings have been broken into the two sections as well so that they will be able to record Section 1A before Section 1B is constructed.

There is one recommendation condition to approval of the Final Plats for Sections 1A and 1B. There is a small section of property owned by the TCEDC between the subdivision and the GCDD#2 drainage canal. It is recommended that acquisition of a drainage easement across the TCEDC property should be a condition for the final plat approval. There has been an arrangement worked out which the TCEDC Board has approved that. Ms. Golden believes they are in the process of executing the necessary documents.

Mr. Jerry LeBlanc stated that the easement agreement with TCEDC has been negotiated. The process started back in May 2024. Mr. LeBlanc stated that it took a while because "The City" stated that they weren't going to give him the 1,500' unless he stopped the condemnation suits on other items pertaining to the city. He stated that his lender told him he had to fold to keep this going. He couldn't fight the other stuff and so he folded.

He added that they have advertised this job and awarded it to a contractor. The paperwork is executed for the easement from TCEDC. His payment in the amount of $3,400.00 for the easement is at the condemnation attorney's office.

He stated he does not have a problem with the condition, but he would like to issue a notice to proceed and schedule a pre-construction meeting and get started. Drainage easements are the last thing constructed. Obviously, they cannot trespass on someone else's property. He is okay with waiting on the drainage easement, but he would like to start the rest of the construction.

Co-Chairman O'Brien asked what the timeline would be with the condition. Ms. Golden replied that the documents are at the lawyer's per Mr. LeBlanc and staff are recommending the condition that the document be fully executed and recorded.

Co-Chairman O'Brien asked if there is no anticipated delay to which Ms. Golden replied that is correct.

A motion was made by Commissioner Jami Clark/Jose Boix to approve the Final Plats for Brookwater Section 1A and Section 1B conditioned upon the execution of a drainage

easement connecting the drainage outfall to the GCDD 2 Ditch 6 system. All other members present voted aye.

e. **Consider and take action on the Final Plat for Brookwater Sections 1B. Being a replat of a 7.19-acre tract of land out of Lots 9 through 12 of Waterman's Subdivision of the W.K. Wilson Survey, Abstract No. 208, Texas City. Containing 2 blocks, 19 lots and 3 reserves. Located to the east of FM 2004 and north of Mainland City Centre.**

This agenda item was discussed and voted on with Agenda Item 3d.

f. **Consider and take action on the Preliminary Plat for Heron's Landing Section 5. Being a tract of land situated in the Daniel Richardson Survey, Abstract No. 167, and the T.G. Western Survey, Abstract No. 204, both in Galveston County. Located to the west of Heron's Landing Section 4 and north of The Island's Subdivision.**

Ms. Golden stated this is the Preliminary Plat for Heron's Landing Section 5. The final plat for Heron's Landing Section 4 has been approved.

Section 5 is the section that will have the reserve for the detention pond. There are a mix of lot sizes – 50's, 60's and 70's. There will be a total of 44 lots.

Sections 1 and 2 have been built out with 76 homes. Eighteen are under construction in Section 3. They have had some delays with TNMP as far as getting some power.

Staff have reviewed the Preliminary Plat for Heron's Landing Section 5 and offer no objection to approval. No conditions are being suggested.

A motion was made by Commissioner Thelma Bowie/Commissioner Jami Clark to approve the Preliminary Plat for Heron's Landing Section 5. All other members present voted aye.

g. **Consider and take action on the Master Plan and PUD for Willow Wood Subdivision – an 80-acre tract of land, comprising of nine individual parcels. Located southeast of SH 3 and south of FM 1764.**

Ms. Golden stated this is a Master Plan for Willow Wood Subdivision. A zoning change request will also be reviewed for changing the 80-acre tract in a District I Planned Unit Development (PUD).

The Applicant is CastleRock Communities, and they have several projects currently underway in Texas City. They are in good standing with the city.

This is 80 acres. They are proposing to develop 213 single family detached lots at various dimensions ranging from the 6,000 sq. ft. minimum to 13,000 sq. ft.

They are going to add a 7.1-acre park/green space with a playground, seating areas and landscaped entry reserves.

This subdivision will only have one way in, which will be via Willow Street. It will serve both the east and west, but the developer anticipates acquiring some additional property for a future second entrance to the west.

Due to their constraints, as Ms. Golden understands, they can't acquire more property until they receive an approval on this Master Plan. Developer and staff fully anticipate that they come forward with an amendment to have another entrance.

Commissioner Thelma Bowie asked if the Developer is aware that some of the plots that are outside of their construction outline have farm animals.

Mr. Bryan Smith (CastleRock Communities) replied that on parcels that where they have closed the purchases the grazing leases have been terminated or have been given their notice of termination. There will not be any livestock on the tracts that the developer will own. Those leases were with the original landowners and that was in their contract to have the leases terminated.

Commissioner Bowie replied that she happens to know some of the landowners, and she doesn't think they have any plans to sell.

Mr. Smith replied that the names she mentioned aren't part of the ownerships they bought from.

Ms. Golden believes that what Commissioner Bowie is asking is whether the Developer is aware that on some of the properties that the developer is not acquiring people are running livestock on those parcels. The developer acknowledged being aware of that information.

Ms. Golden noted that part of the property is in the flood zone and that is why there is the extensive detention pond. They did a thorough drainage impact analysis which the Drainage District thoroughly reviewed. They seem to have figured out what nobody else has been able to figure out which is a solution for the drainage in this area.

Mr. Smith added that they paid to have the entire watershed included in the drainage done first and then they did a drainage study for this property (indicated on the exhibit), and they included the portions that are not within the boundaries for the fact that if they wanted to come back and get the other properties, the drainage would already be included. This causes you to lose more land, but the drainage in not only worked out for this project but other properties that are in the watershed will have a baseline drainage study they will work from.

Mr. Aric Owens asked about Phillips Street and stated he could not find it on Google Maps. Ms. Golden showed how Willow Street turned into Phillips Street on Google Maps.

Mr. Smith added if you are on the freeway there are two large Willow Street exit signs. There is no street sign at all that indicates Philips Street from the frontage road. What they understand is Phillips Street turns south and then becomes Willow Street. He remembers speaking with Doug Kneupper and he thought that Willow Street would continue to the north. This is why on both sides, east or west, are large Willow Street freeway signs.

Ms. Golden asked Mr. Smith to tell the Board what the housing product would look like.

Mr. Smith replied that it would look very similar to Pearlbrook Subdivision. In Sections 1 and 2 they are looking at having some 3 car garages, but they are not to that point yet.

Mr. Boix asked about the zoning change request, to which Ms. Golden replied if the Master Plan is approved then the zoning change request would be presented to the Zoning Commission for an action on the rezoning request. The Zoning Commission will want to know that the Planning Board looked at the Master Plan and have given final approval.

A motion was made by Commissioner Jami Clark/Commissioner Thelma Bowie to approve the Master Plan and the Zoning Change Request and that a provision be made in the PUD to allow the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the Master Plan. All other members present voted aye.

4) GENERAL UPDATES

Ms. Golden then introduced the Planning Board's newest member, Alternate Andrew Thomas.

5) **OTHER BUSINESS (Any conceptual development proposal requesting to come before the Planning Board)**

6) **ADJOURNMENT**

Chairman Dickey Campbell asked if there was any other business to which there was none. **A motion was made by Commissioner Jami Clark/Commissioner Thelma Bowie to adjourn. All members present voted aye.**

Kimberly Golden, Secretary — Date 11/4/2024

Minutes approved by the Planning Board at its meeting on 11/4/2024.

Texas City
EST. 1911
ENGINEERING & PLANNING

STAFF REPORT

To: Zoning Commission - Regular Meeting – November 19, 2024

From: Kim Golden, P.E., City Engineer

CC: Doug Kneupper, P.E.

Date: November 15, 2024

RE: Willow Wood Subdivision - Master Plan and request to rezone from District A-1 Single Family Residential to District I – Planned Unit Development

Background: Willow Wood Subdivision - Applicant, Castlerock Communities, Inc, proposes to develop **80-acre tract of land**, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop **213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft**, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1 acre park/green space with a playground, seating areas, and landscaped entry reserves.

The subject tract is included GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The application is presented to satisfy the requirements of the Development Agreement.

Planning Board recommended approval of the master plan and PUD at its regular meeting on October 7, 2024.

Existing Conditions: The subject tract is mostly flat with elevations ranging from 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. The eastern portion of the site falls within the 100-year flood plain. Land uses near the tract include single family residential tracts, public use property and undeveloped property.

The adjacent properties to the north of this area are mostly undeveloped. Southwest of the site parcels consist of residential properties along State Highway 3, with a creek along the southeast boundary.

Staff analysis: The total lot yield of 213 lots is a proposed density of 2.7 units per acre.

An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit

D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

Willow Street, identified as N. Pine St. on Google Maps, is an existing local street which runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project, but developer intends to add additional property for a future second entrance to the west.

Water and sewer facilities are readily available to this project and can be extended from existing mains.

As noted, some of the site is located in the 100-year flood plain and much of the site provided additional natural detention storage capacity. A thorough drainage impact analysis was provided with review and approval from the GCDD # 2.

Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

RECOMMENDATION: The Planning Board considered and unanimously recommended approval of the Master Plan and PUD at its regular meeting on October 7, 2024. City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and has no objections to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow amendment of the PUD to incorporate the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

ZONING COMMISSION
November 19, 2024

The Zoning Commission of the City of Texas City met in a regular meeting on Tuesday, November 19, 2024, at 5:00 p.m. Zoning Commission members present were: Chairman Perry O'Brien, Commissioner Thelma Bowie, Member Bruce Clawson, and Alternate Member Lisa Salinas. Staff members present were: Kimberly Golden, (Secretary), Casey Bennett (Chief Building Official), David Kinchen (Deputy Building Official), Curt Kelly (Engineering & Planning Administrator), Veronica Carreon (Planning & Zoning Technician), and Brianna Galicia (Engineering & Planning Administrative Assistant). Guests were: Donald Carroll, Willie Carroll, Vernesta Jackson, Nancy Tamez, Jorge Suarez, Warren Jackson, Reggie Jackson, Alice Porter, Willie Fuller, Jon Willhoite, Bryan Smith (CastleRock Communities), Andy Zepeda (CastleRock Communities), and Isai Yanez.

Chairman Perry O'Brien indicated a quorum was present and he informed all he would like to reiterate what he stated about Public Comments.

Chairman O'Brien stated public input will be taken into consideration, but board members cannot respond back unless it is on the agenda. There will be an opportunity for all to give comments during Public Hearing.

Chairman O'Brien then called the meeting to order.

1) APPROVAL OF MINUTES

A motion to approve the minutes of August 6, 2024 was made by Member Bruce Clawson/Commissioner Thelma Bowie. All other members present voted aye.

2) PUBLIC COMMENTS

Chairman O'Brien noted two attendees had completed forms for public comments, both of which were regarding the agenda items. He asked whether there were any objections to taking those comments during the public hearing. There were no objections.

3) Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision- a Master Planned Community within Texas City. Located at SH3 and South FM 1764.

a. STAFF REPORT

Ms. Kim Golden presented the Master Plan for a proposed new subdivision addition to Texas City that sits on 80 acres of land. The Master Plan for Willow Wood Subdivision will develop 213 Single Family Homes on detached lots with developer CastleRock Communities. The city has experience with CastleRock Communities as the developer of the Pearlbrook Subdivision, and as a homebuilder in Lago Mar.

This proposed Willow Wood Subdivision is located just south of Emmett F. Lowry Expy

and east of SH 3 on vacant property which is mostly flat with the northern tract at 11 feet above sea level and southern tract at 14 feet above sea level. The eastern portion of the site is located within the 100-yard flood plain, so the development will be "over detaining" and also will establish finished floor elevations above the base flood elevation for the new homes.

The property surrounding the development is mostly vacant and undeveloped but there are some existing residences south of the site. This site is coming forward for a zoning change to the Planned Unit Development (PUD) because it is located within the existing MUD 99 which is subject to a Development Agreement. The Development Agreement requires the PUD because the city's policy for the use of the special financing district (the MUD) requires some enhancements in the subdivision. These enhancements will include parks and walking trails. Homes will also not use aluminum wire or aluminum clad copper wire and will be built with 60% masonry content.

Water and sewer facilities are available to the site and will be extended within the project. The developer has provided a comprehensive flood plain and drainage model for the watershed which includes more than the 80 acres proposed for development. The modeling and drainage impact analysis was required by the city and Galveston County Drainage District No. 2.

Ms. Golden stated a concern raised by staff is the single point of access to the subdivision, which is located on Willow Street. The developer advises it is intending to acquire more property for a second access once the master plan is approved for the 80 acres.

The subdivision Master Plan has been reviewed and was considered by Planning Board which voted to recommend approval of the master plan. The PUD has been reviewed and comments addressed by the developer. Staff have no objection to approval of the zoning change upon condition that until a second entrance is provided there may be caps placed on the number of permits issued for construction. The Fire Marshal and building officials would work together to set a cap on the number of permits.

Ms. Golden advise the developer's representative, Bryan Smith, was present and could answer any questions.

Commissioner Thelma Bowie asked Ms. Golden if this subdivision would bring in more students to Texas City ISD and Commissioner Bowie was provided an answer of yes.

Commissioner Bowie also raised a concern and asked Mr. Smith if he was aware of the property owners that have livestock in that area and asked if the livestock would butt up again the subdivision property line.

Mr. Smith informed the Commission this had been addressed during the Planning Board meeting, too. The developer has given notice to the three families they purchased land from that the livestock leases would be terminated. The developer acknowledged more livestock being kept near the site and stated a standard solid wooden picket fence will be installed to surround the subdivision.

Mr. Clawson asked Mr. Smith about the drainage studies and wanted to know the purpose of a detention pond next to the Bayou Pierre. Mr. Smith replied that it will serve

two purposes being both detention and on-site mitigation, which means it creates volume in the 100-yard flood plain. Mr. Clawson has concern as to why it would be next to the Bayou Pierre as it has flooded multiple times, and that Moses Lake subject to tidal influence, too. Mr. Clawson said he believes this is a silly idea being that there aren't many banks anyways and cannot grasp the concept.

Mr. Smith informed all that some very smart hydrologists were hired, and he was very confident in what was put into place. Mr. Smith stated the detention ponds will not be directly connected with the Bayou Pierre but there will still be the outfalls of it and the bank will not be removed. Mr. Clawson still didn't understand how it will help owners in a flood. Mr. Smith informed all that the hydrologist did a drainage study.

Ms. Golden then was asked for her input by Mr. Clawson, and she stated the hydrologist modeled when both the tide was up and at a pool stage. Ms. Golden stated it was thoroughly modeled and confirmed the detention would provide for no adverse impact. The developer will not be making any improvements to reduce the flooding or make the condition better, because that is not required. The requirement is to show through the modeling and drainage impact study that the development will not make the flooding any worse. That is the standard required in the city's ordinance. Ms. Golden stated the 100-yard flood was modeled in the study.

Chairman O'Brien wanted to circle back to the fencing surrounding the new subdivision. Mr. Smith stated it is a standard 6' solid picket fence. Chairman O'Brien is concerned that will not hold up well with the livestock as they like to rub on it. Mr. Smith said he will bring that to the home builders' attention to make sure it is substantial enough, so it does not get knocked down due to livestock.

Ms. Golden asked Mr. Smith whether the HOA would be responsible for the fences if knocked down or damaged, and if fences needed to be more robust would that be acceptable to the developer. Mr. Smith said the entry fences along Willow Street would belong to HOA and if he understood what was wanted, he could bring up whether the other perimeter fences would be maintained as to livestock damage.

Commissioner Bowie asked what type of fencing it would be, and Mr. Smith informed all it would be wooden fencing. Commissioner Bowie then raised concern that she would be unhappy and is not an idea situation for both parties, new and existing residents, if she bought a $200,000+ house and the fencing was damaged by livestock.

Chairman O'Brien stated it would be ideal if builder can build a wooden fence as well as barbwire in front of the wooden fence, so livestock isn't tempted to rub up against wooden fence. Mr. Smith replied that he will bring that idea up so it can be considered to install.

Chairman O'Brien asked if there any additional questions. There were none.

b. PUBLIC HEARING

A motion was made by Alternate Member Lisa Salinas/Commissioner Thelma Bowie to open the Public Hearing. All other members voted aye.

Ms. Golden reminded Chairman O'Brien about the written requests to give public

comments which had been deferred without objection. Chairman O'Brien then called the citizens who had requested public comments.

Chairman O'Brien then called Mr. Don Carroll to address the commission.

- Don & Willie Carroll (7305 Blue Jay Drive, Texas City 77591)

  Mr. Don Carroll spoke on behalf of himself and his father Willie Carroll. The two wrote a letter of concerns in response to the letter they received via certified mail informing them of the rezoning request for CastleRock Communities. Together they have six questions.

  1. We would like to see conceptual illustrations of the proposed development intent (all phases).
  2. What are all the intended land uses being proposed for the Master Planned Development?
  3. Will this development intent conform with the City's LUP?
  4. Have the Developer and Staff conducted a Decision Criteria Analysis of the Proposal Intent and is this proposal to the highest and best use for this site? Would an alternative site be more appropriate?
  5. Is the Decision Criteria Analysis available for the concerned citizens and adjacent property owners to review and see to determine how this development may impact them?
  6. Does the Development Company have an established and verifiable record and the corporate capability needed to develop this Master Planned Development intent successfully?

  Mr. Carroll stated to date they don't have enough data to make an intelligent decision and are not opposed to the new development as long as it is done appropriately and will not harm the adjacent property owners. Mr. Carroll in fact wants to see a development that advances economic development and will allow the city to grow in an orderly manner. He then asked for all the concerns from his letter to be addressed and be fair to all parties involved.

Ms. Golden addressed all that there will be another public hearing if this goes forward to the City Commission.

The PUD application that includes all the maps and information will be available on the City's website through Agenda Quick if it is moved forward. Don asked if a hard copy could be provided, and Ms. Golden said it is on the website, but Ms. Veronica Carreon could provide one as well. [Ms. Golden provided Mr. Carroll with a complete hard copy of the agenda packet including all attachments and enclosures at the conclusion of the meeting].

- Alice Porter (15842 Rosebriar, Missouri City 77489)

  Ms. Porter addressed all with the concern of why her property was within the red line [a graphic from the GIS showing the parcels within 200ft of the proposed

rezoning].

Ms. Golden informed her that nothing is going to be done with her property it is just state law of Texas that she receives a letter as her lot fell within 200' of the rezoning request.

- Vernesta, Warren, and Reggie Jackson (5205 Everlyn Street, Texas City 77591)

  All three addressed their concerns of their property falling in line with the 200' redline that surrounds the new subdivision. They would like to know what happens next for their property.

Ms. Golden informed all that the state law of Texas requires the city to send out a letter via certified mail to those who have property located within 200' from property which is being considered for rezoning. The red line does not mean anything will happen to any of the properties that fall within it. It simply means you are getting a letter that tells you that you are welcome to come and join the meetings to find out what is being built in your surrounding area and ask questions or provide comments about the proposed changes. Ms. Jackson then asked if a copy of Mr. Carroll's letter could be given to all as he had great questions. Staff gave her a copy of Mr. Carroll's letter.

Developer Mr. Smith stated that this area was already zoned for single family homes and no changes are being made to reduce the zoning requirements. The rezoning request is so CastleRock Communities can improve the area with bigger lots and more amenities to those that would be required in a new subdivision without the rezoning.

- Nancy Tamez (702 Oak Street, Texas City 77591)

  Ms. Tamez addressed the board with a question regarding property tax increase to the surrounding neighborhoods now that new homes are being built.

Ms. Golden stated that they generally do see an increase of property value when there is a new development around. Ms. Tamez had no other statements.

There were no questions or further discussion, to which a motion was made by Commissioner Thelma Bowie/ Member Bruce Clawson to close the Public Hearing. All other members voted aye.

c. PRELIMINARY ZONING APPROVAL – Consider and take action on the recommendation regarding the zoning change request from CastleRock Communities.

Chairman O'Brien explained the Zoning Commission is only asked to make a recommendation about the rezoning request. The Zoning Commission does not change the zoning. The Planning Board and City Staff have recommended approval because the request for rezoning seems valid.

Chairman O'Brien stated the Zoning Commission is not elected. The members of the Zoning Commission are appointed by elected officials and asked to serve and volunteer their time to be present at the meetings. They all reside in Texas City and serve because they care about Texas City and because they have questions too. After this meeting the recommendation of the Zoning Commission will go to another public

hearing which will be with the elected City Commissioners. It's the elected City Commissioners who will decide and vote on whether the zoning change is approved or not.

Chairman O'Brien asked the Zoning Commissioners if there were any other questions or comments and there were none.

A motion was made by Commissioner Thelma Bowie/Member Bruce Clawson to table the Zoning Change Request to allow staff time to address and prepare a response to the concerns in Mr. Carroll's letter. All other members voted aye.

4. **GENERAL UPDATES**

There were no updates.

5. **OTHER BUSINESS** (Any conceptual development proposal requesting to come before the Zoning Commission)

Ms. Golden introduced Curt Kelly, Engineering & Planning Administrator, and Brianna Galicia, Engineering & Planning Administrative Assistant, as new staff and announced Veronica Carreon's promotion to the new position of Planning and Zoning Technician.

A motion was made by Alternate Lisa Salinas/Member Bruce Clawson to adjourn. All members present voted aye.

_____

Kimberly Golden, Secretary Date

Minutes approved by the Zoning Commission at its meeting on _____.

Ms. Kimberly Golden, Planning Director for

The City of Texas City & The Zoning Commission of Texas City

7800 Emmett F. Lowry Expressway

Texas City, Texas 77591

November 15, 2024

Re: Notice of Public Hearing Our Observations & Questions Regarding the Proposed Rezoning Request for Castle Rock Communities. From A- Single Family to District I- PUD Being 80 Acres.

Ms. Golden: Greetings and best regards, Please find our written response to the rezoning intent for the referenced property. With the Public Hearing Notice, there was no property map/survey map of the proposed site for Rezoning.

1. We would like to see conceptual illustrations of the proposed development intent (all phases).
2. What are all of the intended land uses being proposed for the Master Planned Development?
3. Will this development intent conform with the City's LUP?
4. Have the Developer and Staff conducted a Decision Criteria Analysis of the Proposal Intent?
   & is this proposal the highest and best use for this site? Would an alternative site be more appropriate?

5. Is the Decision Criteria Analysis available for the concerned citizens and adjacent property owners to review and see to determine how this development may impact them?
6. Does the Development Company have an established and verifiable record,
   and the corporate capability needed to develop this Master Planned Development Intent successfully?

To date, we do not have enough data to make an intelligent decision; and for the record, we are not opposed to new development (as long as it is done appropriately, and it can with reason be affirmed that it will not harm the adjacent property owners). In fact, we want to see development that advances sustainability-resilience- economic development and will allow us to grow in an orderly manner. We therefore ask that the Public Hearing be continued to adequately address all

of the concerns cited in our response letter to be fair to all parties involved. I respectfully recommend that more workshops be scheduled to address this need for more data and intel to convey the intent properly. This is respectfully submitted by Mr. Willie Carroll's Living Trust.

Sincerely,

Donald Carroll, ESP, CCR,

Willie Carroll

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STAFF REPORT

To: Zoning Commission - Regular Meeting – December 17, 2024

From: Kim Golden, P.E., City Engineer

CC: Doug Kneupper, P.E.

Date: December 11, 2024

RE: Willow Wood Subdivision - Master Plan and request to rezone from District A - Single Family Residential to District I – Planned Unit Development

Background: At its regular meeting on November 19, 2024, the Zoning Commission held a public hearing on the request from Castlerock Communities to rezone 80 acres located southeast of SH3 and south of FM 1764 from District A - Single Family to District I – Planned Unit Development. After receiving comments from the public and concluding the public hearing the Zoning Commission tabled consideration of the request to allow additional time for the applicant to provide additional information.

Response to comments received at public hearing:

1) Drainage Issue: Concerns were expressed regarding existing drainage issues in the area and a suggestion that the City undertake a comprehensive approach to mitigate and improve the area for economic development.

Response: Galveston County Drainage District No. 2 has jurisdiction over the watershed at issue and has approved the detention improvements proposed by the developer based upon a comprehensive study of the entire watershed. At the request of the District, the Developer engaged Burton L. Johnson, P.E. to study and provide a Floodplain Mapping and Modeling Report for the Ditch 7 Watershed (Ditch 7, Ditch 7A, Ditch7B). The watershed encompassed the entirety of the watershed which was more than the 80 acres of Developer's site being considered by the Zoning Commission. The study computed flood flows and flood inundation in the Ditch 7 watershed for the 5-year, 10-year, 25-year, 50-year, 100-year and 500-year event using HEC-HMS and a coupled 1d/2d HEC-RAS model. The models were developed in consideration of the guidance by the U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) and the Harris County Flood Control District's *Two- Dimensional Modeling Guidelines*. The District also required the Developer to provide a Drainage Impact Analysis (DIA) specific for the detention proposed for the subdivision. The DIA used the floodplain mapping and modeling to **conclude the proposed development, including full development and Phase I development, could be constructed as proposed by the Developer without adversely impacting the drainage and flood risk upstream, adjacent to, and downstream of the project.** The GCDD#2 Engineer recommended, and the Board approved the DIA at its meeting on June 13, 2024.

Transparency: Copies of the District Engineer's recommendation and the Minutes of the GCDD#2 Board meeting are enclosed in the Zoning Commission agenda packet and will be posted on the City's website for general availability to the public. The entirety of the two reports provided to and reviewed by the GCDD#2 will also be posted on the City's website for general availability. Hard copies can be obtained via Public Information Requests.

2) Ingress Egress into Subdivision: Concerns were expressed regarding the single entrance via Phillips Street into the subdivision. **Response:** Willow Street, identified as N. Pine St. on Google Maps, is an existing local street which runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project. As noted in the previous staff report, the Developer has expressed an intent to obtain additional property to provide a second point of ingress egress upon approval of the Phase I Master Plan and PUD. Developer has been advised that the number of building permits issued may be limited by the Fire Marshal and Building Officials until a second entrance is provided.

3) Look, feel and vision of the finished product: Concerns were expressed regarding the look, feel and vision of the finished product which is understood to refer to the housing product. **Response:** Castlerock Communities is a well-known developer in Texas City having developed the Pearlbrook and Steed Landing subdivisions in Texas City and producing many houses in the Lago Mar planned community. Developer will present examples of its housing products to the Zoning Commission and provide example renderings of the proposed amenities and landscaping enhancements which will be required by the terms of the PUD. Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

4) Adjacent existing livestock uses: Concerns were expressed about the uses of adjacent undeveloped property as pasturage for livestock by existing owners. **Response:** It should be noted that pasturage for livestock is not an allowed principal use in the existing District A – Single Family Residential district. It is an allowed principal use only in the District O-Open Space which is reserved for undeveloped acreage. It is understood that actual land uses transition within a zoning district as development occurs over time, with higher value uses replacing lower value uses in response to market trends and forces. Even so, as an added measure of safety the Developer is proposing to add new barbed wire fencing adjacent to the development's perimeter fencing as needed.

5) Future Land Use Plan: Concerns were expressed regarding whether the proposed use was the highest and best use for the area and consistent with the City's comprehensive plans and goals. **Response:** The Planning Board considered the master plan and re-zoning application at its regular meeting on October 7, 2024 and

unanimously recommended approval of the proposed Master Plan. The site is one of the few remaining large open spaces served by existing utilities which is also situated within the Texas City ISD boundaries. The TCISD is challenged with declining enrollment. The development of new conventional subdivisions likely to serve growing families aligns with the City's vision to support a thriving school district. At full buildout the 213 new homes could be estimated to provide additional annual revenue of $1,171,500 to the school district based upon projected student enrollment of 0.5 students per household. In addition, the property is south of the area designated as an activity corridor which the future land use plan describes as "parallel too freeway and highways with higher intensity land uses. These uses are primarily region serving and include malls, commercial, and open display retailing, wholesale, distributing and warehousing operations, restricted light industry, business offices, hotels and motels, and higher density residential development." The proposed master plan will not detract from the purpose of the activity corridor and therefore serves the city's long-term goal to diversify the tax base with commercial, retail and other non-residential uses along the Emmett F. Lowry Expressway.

6) Community Benefits/Amenities: Concerns were noted regarding proposed benefits for the community such as parks and recreational facilities. **Response:** An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

7) Infrastructure: Concerns were noted regarding adequate infrastructure such as roads, schools and utilities. **Response:** Water and sewer facilities are readily available to this project and can be extended from existing mains. Detailed engineering for the extension of services within the subdivision are part of the platting process and are not required with the master plan.

8) Impact on Property Value - Concerns were noted regarding the impact of the development on existing property values. **Response:** Property values are increasing in Texas City as a result of the balanced residential and non-residential growth in the area. This is likely to continue whether the Willow Wood or other developments move forward at the particular site.

1801 9th Avenue North * P.O. Drawer 2608 * Texas City, TX 77592-2608
(409) 948-3111 * www.texascitytx.gov

RECOMMENDATION: The Planning Board considered and unanimously recommended approval of the Master Plan and PUD at its regular meeting on October 7, 2024. City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and has no objections to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow amendment of the PUD to incorporate the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

ZONING COMMISSION
December 17, 2024

The Zoning Commission of the City of Texas City met in a regular meeting on Tuesday, December 17, 2024, at 5:00 p.m. Zoning Commission members present were: Chairman Perry O'Brien, Commissioner Thelma Bowie, Member Bruce Clawson, Member Aric Owens, and Member Fernando Tello. Staff members present were: Kimberly Golden, (Secretary), David Kinchen (Deputy Building Official), Curt Kelly (Engineering & Planning Administrator), Veronica Carreon (Planning & Zoning Technician), Brianna Galicia (Engineering & Planning Administrative Assistant), and Jason Brown (Fire Marshal). Guests were: Donald Carroll, Willie Carroll, Jon Willhoite, Bryan Smith (Castlerock Communities), and Sean Humble (Engineer).

Chairman Perry O'Brien indicated a quorum was present.

Chairman O'Brien then called the meeting to order.

1) ROLL CALL

The following members answered roll call: Aric Owens, Bruce Clawson, Thelma Bowie, Perry O'Brien, and Fernando Tello.

2) APPROVAL OF MINUTES

A motion to approve the minutes of November 19, 2024 was made by Commissioner Thelma Bowie/Member Bruce Clawson. All other members present voted aye.

3) PUBLIC COMMENTS

Chairman O'Brien noted two attendees had completed a form for public comments, the comments were regarding the agenda item. He informed Mr. Willie & Don Carroll they had three minutes to speak and allowed Mr. Don Carroll to begin.

a. Willie & Don Carroll- (7305 Blue Jay Drive, Texas City)

Mr. Don stated from the last public hearing (November 19, 2024) him and his father Mr. Willie Carroll had some discussion on the planning analysis. November 25, 2024 Mr. Don wrote a letter to Ms. Kimberly Golden with two attachments in regards to them wanting to have those attachments incorporated into the minutes for both Zoning Commission and City Commission. The two attachments included information for further discussion about the Drainage issue and Ingress/Egress into the subdivision. Mr. Don stated if these concerns could be addressed there was nothing wanted further from him and Mr. Willie Carroll.

4) PRELIMINARY ZONING APPROVAL – Consider and take action on a Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision – a Master Planned Community within the City of Texas City. Located southeast of SH 3 and south of FM 1764. (Tabled from the November 19, 2024 meeting)

Commissioner Thelma Bowie/Fernando Tello motioned to remove the matter of the rezoning request by Castlerock Communities from the table to receive additional information and reporting from staff. All other members voted aye.

Ms. Golden informed the commission that since the previous meeting and public hearing all written comments that were received have been reviewed together with the concerns that were expressed during the public hearing. The developer has provided additional information as requested.

Ms. Golden addressed the drainage concern. She stated we have spoken to the Galveston County Drainage District No. 2 and confirmed that they had a presentation from both developer and his engineer reviewed by their engineer and the analysis went to their board June 2024 and was approved by that district's board. The detention plans were also sent to the districts engineer and were approved as no adverse impact.

Mr. Humble stated they put these models together and ran then through a simulation of the 100-year floodplain event at the existing ground conditions. They then ran the model again with a scenario of all the houses being built out. They then sized the detention ponds based upon the difference between those two scenarios. There are a total of four detention ponds to be constructed. Two on the north side and two on the south side of the subdivision.

Ms. Golden addressed the Ingress/Egress concern. She stated it is known that Willow Street also referred to as Phillips Street currently only has one entrance that leads into the Willow Wood subdivision. The developer indicated the company intends to develop a second entrance. Ms. Golden said it has been discussed with developer that until that second entrance is provided there will be limitations placed on the number of building permits to be issued by the Fire Marshal and building officials.

Fire Marshal Jason Brown begun to speak about the safety hazards there could be with only one entrance. He stated a big concern could be that one got into an accident right at the entrance and now no one could get into or leave out of the subdivision and if there happen to be another emergency within that neighborhood at the same time no emergency personnel could enter either. Member Aric Owens stated that his community has only one entrance and from his knowledge a second one is not being built. Mr. Brown informed all that if the neighborhood happened to be older that it was built under a different code as building and fire codes change often and at that time of construction of Mr. Owens's neighborhood a second entrance might not have been a requirement.

Next concern was the vision of the finished product. Ms. Golden said Castlerock Communities brought in some examples of what the five different models of homes would look like within the Willow Wood subdivision. The examples included examples of the community benefits which includes the entrance monuments and park amenities.

Another issue was the concern of livestock in the surrounding areas of the new development. Ms. Golden pointed out that use of the pastures for livestock is not an allowed use in a 'District A' zone, but since nothing is developed the area is currently being used as an open space, and people are holding their livestock there. Mr. Bryan Smith then spoke and informed all that after last meeting it was taken into consideration of what could happen with livestock present. He said barbwire will be placed on the

outside of the wooden fences and if livestock were to knock or pull it down Castlerock Communities would be responsible for fixing it.

Next question was consistency with the future land use plan. Ms. Golden stated that the commercial retail strip along Emmett F. Lowry is not being impacted by this new development and that this is one of the few large tracts remaining in Texas City School District. She said it is known that the number of homes being built will bring in more children which will have a very positive impact on the school district.

A motion was made by Commissioner Thelma Bowie/Member Bruce Clawson to recommend approval of the Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision – a Master Planned Community within the City of Texas City. Located southeast of SH 3 and south of FM 1764. (Tabled from the November 19, 2024 meeting)

5) **GENERAL UPDATES**

There were no updates.

6) **OTHER BUSINESS** (Any conceptual development proposal requesting to come before the Zoning Commission)

7) **ADJOURNMENT**

A motion was made by Member Aric Owens/Member Bruce Clawson to adjourn. All members present voted aye.

Kimberly Golden, Secretary Date

Minutes approved by the Zoning Commission at its meeting on _____.

Willowood Subdivision

Drainage Impact Analysis

Galveston County Drainage District Number Two
City of Texas City, Texas

April 2, 2024

BURTON JOHNSON ENGINEERING, INC
WATER RESOURCES ENGINEERING & PLANNING

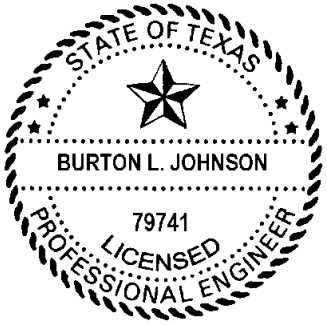
Drainage Impact Analysis

Willowood Subdivision

Drainage Impact Analysis

Galveston County Drainage District Number Two

City of Texas City, Texas



April 2, 2024

Burton Johnson Engineering, Inc.
4611 Waterbeck St
Fulshear, TX 77441
281-773-7184
TPBE No. 10781

TABLE OF CONTENTS

1.0 Introduction 1

1.1 Description of Project Area 1

1.2 FEMA Special Flood Hazard Areas 1

1.3 Elevation Data 2

1.4 Galveston County Drainage District Number Two 2

1.5 Proposed Project 3

1.6 Criteria 3

2.0 Hydrology and Detention – Full Development 4

2.1 Site Runoff Curves and Small Watershed Method 4

2.2 Pre-Project Hydrology 4

2.3 Post-Project Hydrology 5

2.4 Detention Routing 5

2.4.1 Detention Stage vs. Storage 5

2.4.2 Detention Basin Control Structures 6

2.4.3 Detention Routing Results 6

2.4 Floodplain Fill and Detention Rate 7

2.4.1 Minimum Slab Elevations 8

2.4.2 Floodplain Fill 8

3.0 Offsite Flow Considerations – Full Development 10

3.1 Swale West of Pond 1 (Area A) 10

3.2 Swale South and West of Pond 4 (Area B) 10

3.3 Area South of Pond 4 (Area C) 10

3.4 Area North of Site along Willow Street (Area D) 10

4.0 Hydrology and Detention – Phase 1 Development 11

4.1 Pre-Project Hydrology 11

4.2 Post-Project Hydrology 11

4.3 Detention Routing 12

4.3.1 Detention Stage vs. Storage 12

4.3.2 Detention Basin Control Structures 13

4.3.3 Detention Routing Results 13

4.4 Floodplain Fill and Detention Rate 14

4.4.1 Minimum Slab Elevations 14

4.4.2 Floodplain Fill 15
5.0 Results 16

EXHIBITS

ATTACHMENT 1 – Galveston County Drainage District Number Two Map

Note: Survey data and computer models may be downloaded at the following link within 90 days of date of report:

https://www.dropbox.com/s/ovz48f69zd7lch3/Ditch%207%20Models.zip?dl=0

1.0 Introduction

Willowood Subdivision is a proposed 116-acre single-family subdivision located within the City of Texas City and within the boundary of Galveston County Drainage District Number Two (District). This report summarizes and describes a drainage impact analysis for the proposed subdivision. This analysis has been conducted in consideration of the District's *Design Criteria Guidance*. This report considers the ultimate configuration of the proposed development in Section 2.0 and an initial phase of development referred to in this report as Phase One and is described in Section 4.0 (This initial phase consists of approximately 82.5 acres.

1.1 Description of Project Area

The Willowood Subdivision project is located on currently undeveloped properties generally south of the Emmett F. Lowry Expressway (FM 1764) and east of Highway 3. The location of the site is depicted in Exhibit 1. The project is entirely within the District's Ditch 7 system and is between Ditch 7A and Ditch 7B. These two ditches join to create Ditch 7 north of FM 1764. This confluence is approximately one mile downstream of the project. Ditch 7 then extends a short distance into Moses Lake.

Exhibit 2 provides an aerial photograph of the proposed development area. The project area is mostly undeveloped grassed areas with some intermittent wooded areas. The project is bisected by Willow Street (some maps label it as Phillips Street) a City of Texas City roadway that runs north-south through the site. The western portion of the north perimeter of the site is adjacent to the alignment of Ditch 7A, and the southeast perimeter of the site is along Ditch 7B. Small areas of the property are on the opposite (east) side of Ditch 7B. No development activity is proposed for these small tracts. A portion of the property east of Willow Street is bounded on the south by 5th Street. The remainder of the project to the south is bounded by older residential subdivisions, and portions to the north are adjacent to undeveloped property and an oil and gas facility.

There is a gravel farm road through the property. This road is labeled on maps as Roberts Road, as it is an extension of Roberts Road in the adjacent subdivision. This road is private and now owned or maintained by the City of Texas City.

1.2 FEMA Special Flood Hazard Areas

According to FEMA Flood Insurance Rate Map (FIRM) Panel No. 48167C0265G, dated August 15, 2019, the watershed is entirely in the Shaded Zone "X", which represents areas subject to flooding from a 0.2% annual probability event (also known as the 500-year event). A portion of the area is also in the Zone AE floodplain, which represents areas subject to inundation from the 1% annual probability event (also known as the 100-year event) that have computed Base Flood Elevations. Exhibit 3 depicts these Special Flood Hazard Areas.

Based on a review of the FIRM Panel and FEMA's *Flood Insurance Study, Galveston County and Incorporated Areas,* dated August 15, 2019, the inundation depicted on the FIRM is from coastal surge flooding and does not represent riverine flooding from rainfall in the watershed. The coastal elevations are computed along transect lines which are shown on the exhibit. The 100-year coastal surge elevation

is shown as a Base Flood Elevation on the FIRM Panel and is also shown, as elevation 5.0, on Exhibit 2. Transect Line 86 runs through the project area. The 100-year coastal surge elevation is 5.0. Based on a profile presented in the *Flood Insurance Study* and the 500-year coastal surge elevation is between elevation 15.0 and 17.0 within the Ditch 7 watershed.

The information provided on the FIRM panels and within the *Flood Insurance Study* confirms that Ditch 7 and its tributaries Ditch 7A and Ditch 7B are not FEMA studied streams.

1.3 Elevation Data

All source elevation data and all elevations cited in this report are in feet above Mean Sea Level based on the 1988 North American Vertical Datum (NAVD 88). Elevation data for this analysis is a blend of the Upper Coastal Lidar data acquired by a partnership between the Texas Water Development Board, Houston-Galveston Area Council, and United States Geologic Survey in 2018; and survey data acquired by Costello, Inc. (now part of Pape Dawson) in the fall of 2023. The lidar data was utilized for most of the elevation data, including overland areas and portions of the channel cross sections. The survey data was used to augment the lidar data in consideration of the limitations of the lidar data – specifically the capture of specific details and elevations associated with bridge and culvert crossings and the capture of bathymetry in areas where the lidar was unable to penetrate a water surface. For this study, the survey data in the channel was utilized to determine the outfall depth from the detention basins. All other calculations are based upon the lidar data.

Topographic contours utilized in the analysis are shown in Exhibit 4. Natural ground elevations generally range between elevation 10 (at the western perimeter) and elevation 5 near the eastern perimeter near Ditch 7B. There are some filled areas with elevations as high as elevation 14. The fill areas are spoil piles along the banks of Ditch 7A and Ditch 7B. There are also some fill areas related to the connection of the private road with Roberts Road in the adjacent subdivision. The drainage pattern is generally from west to east.

1.4 Galveston County Drainage District Number Two

The District has not completed a study of the Ditch 7 Watershed. A floodplain study of the Ditch watershed, including the computation of water surface elevations and flowrates for Ditch 7, Ditch 7A, and Ditch 7B has been prepared by Burton Johnson Engineering, Inc. under separate cover. This report, entitled *Ditch 7 Watershed (Ditch 7, Ditch 7A, Ditch 7B), Floodplain Mapping and Modeling* is dated April 3, 2024 and establishes 100-year water surface elevations in the vicinity of this project. The findings described in the report are based upon a combined 1d/2d HEC-RAS model using Atlas 14 rainfall.

The study described in this analysis considers the Willowood Subdivision and its supporting detention and floodplain fill mitigation, as described herein, as part of the existing watershed condition. As part of this Willowood Subdivision analysis, a pre-project 100-year floodplain was computed to determine the amount of floodplain fill to be mitigated. The resultant floodplain map is presented in Exhibit 5.

As part of the Ditch 7 analysis, it was recognized that Ditch 7A is not a natural drainage channel. It apparently was constructed to provide drainage to the State Highway 3 and/or other development in the area and does not have a “valley” section common to natural stream. When floodwaters exceed the

channel banks of Ditch 7A, they spill into the site and overflow toward Ditch 7B. The combined 1d/2d provided an opportunity to properly consider this overflow.

1.5 Proposed Project

The proposed project is illustrated in Exhibit 6. The area will be subdivided into residential lots with a minimum size of 6,000 square feet and an average lot size of about 1/6 acre. Four detention basins are proposed. Pond 1 and Pond 2 will outfall into Ditch 7A. Pond 4 will drain under Willow Street to Pond 3, and Pond 3 will outfall into Ditch 7B. The land will be elevated as required to ensure that it is above the 100-year flood elevation of Ditch 7A and Ditch 7B. The detention ponds will provide detention to offset runoff from the development and from the placement of fill in the computed 100-year floodplain.

1.6 Criteria

This analysis was conducted in consideration of the District's *Design Criteria Guidance*. This guidance defers to the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM)* for hydrologic methodologies and detention analyses. In addition, the District requires a minimum detention rate of 0.75 acre-feet per acre of development if using HCFCD Method 1 or 2, although this rate can be lowered to as low as 0.50 acre-feet per acre if a detailed study is performed (HCFCD Method 3). HCFCD recommends Method 2 for projects between 50 acres and 640 acres, therefore Method 2 was utilized in this study. This approach is discussed in greater detail in subsequent sections of this report.

2.0 Hydrology and Detention – Full Development

Hydrographs were developed for each of the subareas in accordance with the methodology described in the Harris County Flood Control District's *PCPM* as described in the following sections.

2.1 Site Runoff Curves and Small Watershed Method

For Detention Method 2, The *PCPM* requires the use of the Harris County Site Runoff Curves to compute peak flowrates for watersheds up to one square mile. In 2019, these curves were updated to consider Atlas 14 rainfall. The curves compute the peak flowrates for the 10-year event and 100-year event based upon the size of the drainage area and the computed impervious cover.

The *PCPM* recommends the utilization of the Small Watershed Method developed by H.R. Malcom to develop runoff hydrographs. Also known as the "Malcolm Method", this approach considers the computed peak flowrate, watershed area, and total runoff volume to develop a hydrograph shape.

Peak flowrates were developed for the pre-project and post-project 10-year and 100-year method using the Site Runoff Curves. The peak flowrate for the 25-year event was developed by interpolation using the relationship between 10-year, 25-year, and 100-year peak flowrates determined as part of the Ditch 7 watershed study. Runoff hydrographs for the post-project condition were developed using the Small Watershed Method. The runoff volume was determined from curves in the *PCPM* for Region 3, which includes the most southern Harris County watersheds.

2.2 Pre-Project Hydrology

There are four proposed detention basins and three outfall points. Ponds 1 and 2 drain to Ditch 7A, while Pond 3 drains to Ditch 7B and Pond 4 drains into Pond 3. For pre-project conditions, the drainage areas were determined for the areas to Ditch 7A (Area 12 recognizing post-project flows to Pond 1 and Pond 2) and Ditch 7B (Area 34 recognizing post-project flows to Pond 3 and Pond 4). These drainage areas and the assumed land use is presented in Exhibit 7. The determination of peak flowrates for the pre-project condition are summarized in Table 1. These peak flowrates establish the allowable post-project flowrate for the developed condition.

Table 1: Pre-Project Peak Flowrates

Drainage Subarea	P12	P34
Area (Ac)	32.6	65.1
Impervious (%)	0.1%	1.3%
Site Runoff Curve: 10-Year		
m	0.786	0.786
b	2.41	2.48
Peak Flowrate (cfs)	37.2	66.1
Interpolate: 25-Year		
Peak Flowrate (cfs)	49.5	87.6
Site Runoff Curve: 100-Year		
m	0.786	0.786
b	4.61	4.72
Peak Flowrate (cfs)	71.3	125.7

2.3 Post-Project Hydrology

Exhibit 6 also depicts the post-project land use assumption and drainage subareas for the development. Drainage subareas were assigned for each of the four detention basins as all developed condition runoff will be directed into one of the four basins. Table 2 summarizes the determination of the Post-Project peak flowrates and runoff volume for the 10-year, 25-year, and 100-year events.

Table 2: Post-Project Peak Flowrates and Runoff Volume

Drainage Subarea	P1	P2	P3	P4
Area (Ac)	26.4	26.3	21.6	38.7
Impervious (%)	49.9%	49.1%	64.7%	43.8%
Site Runoff Curve: 10-Year				
m	0.786	0.786	0.786	0.786
b	5.51	5.48	5.97	5.32
Peak Flowrate (cfs)	72.1	71.6	66.8	94.1
Interpolate: 25-Year				
Peak Flowrate (cfs)	90.2	89.6	83.0	118.0
Site Runoff Curve: 100-Year				
m	0.786	0.786	0.786	0.786
b	9.34	9.31	10.00	9.07
Peak Flowrate (cfs)	122.3	121.6	111.9	160.5
Runoff Volume (inches)				
10-Year	7.86	7.84	8.22	7.71
25-Year	10.92	10.90	11.25	10.79
100-Year	16.58	16.56	16.84	16.47

2.4 Detention Routing

The detention basins were initially sized and evaluated to ensure that the peak allowable flowrates from Table 1 and the minimum detention volumes (based on 0.75 acre-feet per acre) were provided for the 100-year event. These evaluations were performed in HEC-RAS. For Method 2, the *PCPM* requires a constant tailwater elevation at the top of the outfall pipe. As part of the analysis, the size of the basin and the configuration of the outfall structure was manipulated until a satisfactory result was obtained.

2.4.1 Detention Stage vs. Storage

The detention basins will be wet bottom basins with a permanent water surface. In this report, any references to the "bottom" of the basin refers to the permanent pool elevation, as all storage below the permanent pool does not contribute to the attenuation of runoff. The basins will all have 4:1 (h:v) side slopes and 30-foot maintenance berms.

Table 3 provides the stage vs. storage relationship for the four proposed detention basins.

Table 3: Detention Basin Stage vs. Storage

Pond 1		Pond 2		Pond 3		Pond 4	
Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)
2.0	0.0	0.5	0.0	0.5	0.0	0.5	0.0
3.0	3.7	1.0	1.6	1.0	3.8	1.0	1.0
4.0	7.7	2.0	5.0	2.0	11.8	2.0	3.3
5.0	11.8	3.0	8.6	3.0	20.1	3.0	5.8
6.0	16.2	4.0	12.4	4.0	28.7	4.0	8.5
7.0	20.7	5.0	16.4	5.0	37.7	5.0	11.5
8.0	25.5	6.0	20.7	6.0	47.1	6.0	14.8
9.0	30.5	7.0	25.1				
10.0	35.7	8.0	29.8				
		9.0	34.7				

Note that the storage volumes for Ponds 3 and Ponds 4 were increased by 100 acre-feet in the HEC-RAS model to facilitate the Pond 4 outfall pipe, which is below sea level. The resultant output was then decreased by 100 acre-feet.

2.4.2 Detention Basin Control Structures

The control structures of each basin were modified to optimize the performance of the basin and to ensure no downstream impact. The control structure for Pond 1 and Pond 2 will include an orifice restrictor in front of an outfall pipe. This orifice may be constructed over the inlet to the outfall or in a manhole. No restrictor is required for Pond 3 and Pond 4. The outfall structures are described in Table 4 and in Exhibit 8.

Pond 1, Pond 2, and Pond 3 will have earthen overflow weirs to allow ponds to safely drain to the receiving channel if design elevations are exceeded. Willow Street is between Pond 4 and Pond 3 and will act as the overflow into Pond 3. Willow Street overtops at an elevation of 7.18 between Pond 3 and Pond 4. Prior to this overflow, flows will potentially flow south along Willow Steet and adjacent areas. However, this phenomenon exists today behind the existing 42-inch culverts that drain this area, and the additional storage will decrease this relative to current conditions.

2.4.3 Detention Routing Results

The detention routing results are summarized in Table 4. The cumulative peak flow from Pond 1 and 2 was determined by adding the hydrographs for the basin outflow. This combined flow was compared to the pre-project peak flow for Area 12, as the ponds both outfall to Ditch 7A and they are in close proximity to each other. The peak outflow from Pond 3 was compared to the pre-project peak flowrate from Area 34, as Pond 4 drains into Pond 3 and does not have a separate outfall into Ditch 7B.

The detention configuration is shown in Exhibit 8.

Table 4: Detention Basin Routing Results

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Drainage Area (Ac)	26.4	26.3	52.7	21.6	38.7	60.3
Development Area (Ac)	26.4	26.3	52.7	21.6	36.2	57.8
Elev - Bottom of Storage Pool	2.0	0.5		0.5	0.5	
Elev -Top of Basin	10.0	9.0		5.8	6.0	
Control Structure Orifice Dia (in)	15	21		None	None	
Control Structure Orifice Invert Elev	2.0	0.5		n/a	n/a	
No. Outfall Pipes	1	1		3	2	
Outfall Pipe Diameter (in)	24	30		30	54	
Outfall Pipe Length (ft)	90	90		90	215	
Outfall Location	Ditch 7A	Ditch 7A	Ditch 7A	Ditch 7B	Pond 3	Ditch 7B
Outfall Pipe Elev US (Pond)	2.0	0.5		0.5	-4.0	
Outfall Pipe Elev DS	1.9	0.4		0.4	-4.00	
10-Year Event						
Stage Elevation	5.47	3.92		3.25	3.29	
Storage Volume (ac-ft)	13.9	12.1		22.2	6.6	
Allowable Peak Flowrate (cfs)			37.2			66.1
Proposed Peak Flowrate (cfs)	8.8	15.8	24.5	44.9	57.4	44.9
25-Year Event						
Stage Elevation	6.60	4.96		3.78	3.88	
Storage Volume (ac-ft)	18.9	16.3		26.8	8.2	
Allowable Peak Flowrate (cfs)			49.5			87.6
Proposed Peak Flowrate (cfs)	11.6	20.8	32.2	71.4	77.3	71.4
100-Year Event						
Stage Elevation	8.62	6.82		4.80	5.05	
Storage Volume Required* (Ac-Ft)	19.8	19.7	39.5	16.2	27.2	43.4
Storage Volume (ac-ft)	28.6	24.3	52.9	35.9	11.7	47.6
Allowable Peak Flowrate (cfs)			71.3			125.7
Proposed Peak Flowrate (cfs)	14.8	27.4	42.0	105.2	111.6	105.2

**Based on 0.75 acre-feet per acre*

2.4 Floodplain Fill and Detention Rate

The Ditch 7 model without the project was utilized to determine the 100-year elevations, floodplain fill volumes, and required slab elevations. The portion of the detention storage not required for floodplain fill mitigation was assigned as runoff mitigation, and the resultant detention rate was determined from the cumulative detention volume and development area. This rate was determined separately for areas to Ditch 7A (Pond 1 and 2) and Ditch 7B (Pond 3 and 4). This section summarizes these computations and presents the results.

2.4.1 Minimum Slab Elevations

The City of Texas City Floodplain Ordinance requires the lowest slab elevation to be 18 inches above the Base Flood Elevation as depicted on the Flood Insurance Rate Maps. As noted previously, a portion of the development is within the coastal flood zone and there is not a FEMA Base Flood Elevation representative of riverine flooding. However, it is recommended that new construction it the proposed development have slab elevations 18 inches above the 100-year flood elevation computed as part of the Ditch 7 analysis provided for the District. Exhibit 14 shows the 100-year floodplain and 100-year elevations from the Ditch 7 analysis along with the specification of minimum slab elevations for the proposed development.

2.4.2 Floodplain Fill

Floodplain fill volume was determined for the 100-year flood inundation associated with Ditch 7A and Ditch 7B. This includes the overflow area from Ditch 7A to 7B. This volume was determined from a HEC-RAS analysis of Ditch 7A without flow in Ditch 7B. The resultant inundation and corresponding floodplain fill was assigned to Ditch 7A and the reminder was assigned to Ditch 7B. Table 5 summarizes the floodplain fill and the resultant mitigation. Mitigation is provided by excess capacity (all capacity in addition to the 0.75 acre-feet per acre) in the detention basins below the 100-year flood elevation in the adjacent stream.

For Pond 3, the 100-year elevation of Ditch 7B will exceed the elevation of the pond high banks. During a riverine 100-year event, the pond will be inundated in a fashion similar to today. The adjacent development will be elevated above the 100-year elevation. The top of Pond 4 is also below the 100-year water surface of Ditch 7B. If the basin were to be elevated above the 100-year elevation it would potentially block sheet flow from the neighborhoods to the south. Most of Pond 4 is in areas with natural ground above the elevation of the top of the basin, and the excavation of the portion between the top of the basin (elevation 6.0) and the 100-year flood elevation will provide 8.4 acre-feet of additional floodplain excavation.

Floodplain fill and mitigation volumes were determined separately for Ditch 7A and Ditch 7B by combined calculations for Pond 1 and Pond 2 (Ditch 7A) and Pond 3 and Pond 4 (Ditch 7B). As the table indicates, there is adequate fill mitigation provided by the ponds and the excavation of the area “above” Pond 4 to offset the placement of fill in the floodplain of Ditch 7A and Ditch 7B.

The computed 100-year floodplain and floodplain mitigation table is provided as Exhibit 9.

Table 5: Floodplain Fill Mitigation and Detention Rate

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Floodplain Fill (Ac-Ft)	0.0	13.4	**13.4**	20.2	4.7	**24.9**
Fill Mitigation Available in Pond (Ac-Ft)	13.6	9.6	23.2	29.0	-12.4	16.7
Additional FP Excavation (Ac-Ft)	0.0	0.0	0.0	0.0	8.4	8.4
Total FP Fill Mitigation Available (Ac-Ft)	13.6	9.6	23.2	29.0	-4.0	25.0
Total FP Fill Mitigation Utilized (Ac-Ft)			**13.4**			**24.9**
Excess FP Fill Mitigation (Ac-Ft)			9.8			0.1
Required Detention (Ac-Ft)	19.8	19.7	39.5	16.2	27.2	43.4
Provided Detention (Ac-Ft)			49.3			43.5
Detention Rate (Ac-Ft/Ac)			**0.94**			**0.75**

The detention volume not required for floodplain mitigation is assigned to traditional stormwater detention in the determination of the total detention volume. This detention volume is then compared to the contributing development area to derive an effective detention rate. The resultant volumes and detention rates for Ponds 1 and 2 (Ditch 7A) and Ponds 3 and 4 (Ditch 7B) are also summarized in Table 5. For Ditch 7A, the project is providing detention at a rate of 0.94 acre-feet per acre; and for Ditch 7B, the project is providing detention at a rate of 0.75 acre-feet per acre.

3.0 Offsite Flow Considerations – Full Development

This section considers the management of offsite flow that the development may impact. These are illustrated in Exhibit 15.

3.1 Swale West of Pond 1 (Area A)

There is an offsite area from the south that drains the west portion of the site toward Ditch 7A. The swale runs up against the location of Pond 1. The development must accommodate these offsite flows. A total of 41.5 acres flows from offsite areas, most developed, through the site. The computed peak 100-year flowrate of the full acreage is 121.5 cfs. The project must accommodate this flow, either through a pipe system through the neighborhood, a perimeter swale system, or both. Exhibit 15 depicts a swale around the perimeter of the site. The specific method of managing offsite flow and the design and computations related to it will be provided with any future construction plans. The calculates for the offsite flow at the nodes depicted on Exhibit 15 are provided in Table 6.

3.2 Swale South and West of Pond 4 (Area B)

Area B consists of a small area at the rear of existing residential lots that currently drain toward the subject property. The total area is 1.7 acres. A perimeter swale will intercept this runoff and convey it to Pond 4.

Table 6: Offsite Flow

Swale	Area (ac)	Impervious	m	B	100 Yr Flowrate (cfs)
A1-A2	14.0	20%	1.000	3.4	47.6
A2-A3	30.0	20%	0.786	6.5	94.2
A3-A4	41.5	20%	0.786	6.5	121.5
B1-B2	1.7	20%	1.000	3.4	5.8

3.3 Area South of Pond 4 (Area C)

Area C consists of approximately 51 acres that drain to the existing swale that fees dual 42-inch pipes that convey flow under Willow Street and all the way to Ditch 7B. A portion of the existing swale is on the subject property. No additional infrastructure is required to accommodate this flow. The construction of the proposed project and Pond 4 will decrease the drainage are to this swale and the culverts considerably and should improve drainage associated with the undersized culverts.

3.4 Area North of Site along Willow Street (Area D)

Willow Street north of and adjacent to the project drains toward the south, and the area west of Willow Street drains to the existing swale behind the dual 42-inch culvert under Willow Street. This drainage pattern will be maintained. As noted in the preceding paragraph, the drainage area to these culverts will be reduced with the proposed project. The design plans will include the sizing of roadside culverts at the subdivision entrance and potentially improvements to the roadside ditch.

4.0 Hydrology and Detention – Phase 1 Development

Phase 1 represents the initial development of the site. The total area of the Phase 1 development is approximately 82.5 acres, and It includes most of the area described as full development. Exhibit 10 shows the Phase 1 concept. The Phase 1 development includes all four detention basins, however Pond 1 and Pond 2 have a smaller configuration. Pond 3 also has a slightly smaller configuration, as it does not include a small portion of a tract along Ditch 7B.

The methodology utilized to analyze Phase 1 is the same as that described for the full project in Section 3.0.

4.1 Pre-Project Hydrology

There are four proposed detention basins and three outfall points. Ponds 1 and 2 drain to Ditch 7A, while Pond 3 drains to Ditch 7B and Pond 4 drains into Pond 3. For pre-project conditions, the drainage areas were determined for the areas to Ditch 7A (Area 12 recognizing post-project flows to Pond 1 and Pond 2) and Ditch 7B (Area 34 recognizing post-project flows to Pond 3 and Pond 4). These drainage areas and the assumed land use is presented in Exhibit 7. The determination of peak flowrates for the pre-project condition are summarized in Table 1. These peak flowrates establish the allowable post-project flowrate for the developed condition.

Table 7: Pre-Project Peak Flowrates

Drainage Subarea	P12	P34
Area (Ac)	18.7	64.6
Impervious (%)	0.0%	1.3%
Site Runoff Curve: 10-Year		
m	0.786	0.786
b	2.40	2.48
Peak Flowrate (cfs)	24.0	65.7
Interpolate: 25-Year		
Peak Flowrate (cfs)	31.9	87.0
Site Runoff Curve: 100-Year		
m	0.786	0.786
b	4.60	4.72
Peak Flowrate (cfs)	45.9	125.0

4.2 Post-Project Hydrology

Exhibit 11 also depicts the post-project land use assumption and drainage subareas for the development. Drainage subareas were assigned for each of the four detention basins as all developed condition runoff will be directed into one of the four basins. Table 2 summarizes the determination of the Post-Project peak flowrates and runoff volume for the 10-year, 25-year, and 100-year events.

Table 8: Post-Project Peak Flowrates and Runoff Volume

Drainage Subarea	P1	P2	P3	P4
Area (Ac)	15.1	12.8	21.0	34.1
Impervious (%)	51.8%	56.0%	63.7%	38.8%
Site Runoff Curve: 10-Year				
m	1.00	1.00	0.79	0.79
b	5.57	5.70	5.94	5.10
Peak Flowrate (cfs)	84.0	72.7	65.0	81.8
Interpolate: 25-Year				
Peak Flowrate (cfs)	104.9	90.7	80.9	102.8
Site Runoff Curve: 100-Year				
m	1.00	1.00	0.79	0.79
b	9.42	9.61	9.95	8.75
Peak Flowrate (cfs)	142.2	122.6	109.0	140.3
Runoff Volume (inches)				
10-Year	7.91	8.01	8.20	7.59
25-Year	10.96	11.06	11.23	10.68
100-Year	16.61	16.68	16.82	16.38

4.3 Detention Routing

The detention basins were initially sized and evaluated to ensure that the peak allowable flowrates from Table 1 and the minimum detention volumes (based on 0.75 acre-feet per acre) were provided for the 100-year event. These evaluations were performed in HEC-RAS. For Method 2, the *PCPM* requires a constant tailwater elevation at the top of the outfall pipe. As part of the analysis, the size of the basin and the configuration of the outfall structure was manipulated until a satisfactory result was obtained.

4.3.1 Detention Stage vs. Storage

The detention basins will be wet bottom basins with a permanent water surface. In this report, any references to the "bottom" of the basin refers to the permanent pool elevation, as all storage below the permanent pool does not contribute to the attenuation of runoff. The basins will all have 4:1 (h:v) side slopes and 30-foot maintenance berms.

Table 3 provides the stage vs. storage relationship for the four proposed detention basins. Note that the storage volumes for Ponds 3 and Ponds 4 were increased by 100 acre-feet in the HEC-RAS model to facilitate the Pond 4 outfall pipe, which is below sea level. The resultant output was then decreased by 100 acre-feet.

Table 9: Detention Basin Stage vs. Storage

Pond 1		Pond 2		Pond 3		Pond 4	
Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)
2.0	0.0	0.5	0.0	0.5	0.0	0.5	0.0
3.0	2.6	1.0	1.5	1.0	3.5	1.0	1.0
4.0	5.3	2.0	4.6	2.0	10.8	2.0	3.3
5.0	8.2	3.0	7.8	3.0	18.5	3.0	5.8
6.0	11.2	4.0	11.2	4.0	26.5	4.0	8.5
7.0	14.4	5.0	14.7	5.0	34.9	5.0	11.5
8.0	17.7	6.0	18.4	6.0	43.7	6.0	14.8
9.0	21.2	7.0	22.2				
10.0	24.8	8.0	26.2				
		9.0	30.4				

4.3.2 Detention Basin Control Structures

The control structures of each basin were modified to optimize the performance of the basin and to ensure no downstream impact. The control structure for Pond 1 and Pond 2 will include an orifice restrictor in front of an outfall pipe. This orifice may be constructed over the inlet to the outfall or in a manhole. No restrictor is required for Pond 3 and Pond 4. The outfall structures are described in Table 4 and in Exhibit 12.

Pond 1, Pond 2, and Pond 3 will have earthen overflow weirs to allow ponds to safely drain to the receiving channel if design elevations are exceeded. Willow Street is between Pond 4 and Pond 3 and will act as the overflow into Pond 3. Willow Street overtops at an elevation of 7.18 between Pond 3 and Pond 4. Prior to this overflow, flows will potentially flow south along Willow Steet and adjacent areas. However, this phenomenon exists today behind the existing 42-inch culverts that drain this area, and the additional storage will decrease this relative to current conditions.

Note that the control structures for the basin are unchanged from the full development scenario described in Section 3.0.

4.3.3 Detention Routing Results

The detention routing results are summarized in Table 4. The cumulative peak flow from Pond 1 and 2 was determined by adding the hydrographs for the basin outflow. This combined flow was compared to the pre-project peak flow for Area 12, as the ponds both outfall to Ditch 7A and they are in close proximity to each other. The peak outflow from Pond 3 was compared to the pre-project peak flowrate from Area 34, as Pond 4 drains into Pond 3 and does not have a separate outfall into Ditch 7B.

The detention configuration is shown in Exhibit 12.

Table 10: Detention Basin Routing Results

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Drainage Area (Ac)	15.1	12.8	27.8	21.0	34.1	55.1
Development Area (Ac)	15.1	12.7	27.8	20.8	26.8	47.6
Elev - Bottom of Storage Pool	2.0	0.5		0.5	0.5	
Elev -Top of Basin	10.0	9.0		5.8	6.0	
Control Structure Orifice Dia (in)	15	21		None	None	
Control Structure Orifice Invert Elev	2.0	0.5		n/a	n/a	
No. Outfall Pipes	1	1		3	2	
Outfall Pipe Diameter (in)	24	30		30	54	
Outfall Pipe Length (ft)	90	90		90	215	
Outfall Location	Ditch 7A	Ditch 7A	Ditch 7A	Ditch 7B	Pond 3	Ditch 7B
Outfall Pipe Elev US (Pond)	2.0	0.5		0.5	-4.0	
Outfall Pipe Elev DS	1.9	0.4		0.4	-4.00	
10-Year Event						
Stage Elevation	5.09	2.83		3.2	3.24	
Storage Volume (ac-ft)	8.5	2.8		120.1	6.2	
Allowable Peak Flowrate (cfs)			24.0			65.7
Proposed Peak Flowrate (cfs)	7.6	8.3	15.9	42.0	47.6	42.0
25-Year Event						
Stage Elevation	6.07	3.46		3.68	3.77	
Storage Volume (ac-ft)	11.5	9.4		123.9	7.9	
Allowable Peak Flowrate (cfs)			31.9			87.0
Proposed Peak Flowrate (cfs)	10.4	13.1	23.5	67.4	66.1	67.4
100-Year Event						
Stage Elevation	7.85	4.67		4.65	4.85	
Storage Volume Required* (Ac-Ft)	11.3	9.6	20.9	15.6	20.1	43.4
Storage Volume (ac-ft)	17.2	13.5	30.8	32.0	11.1	47.6
Allowable Peak Flowrate (cfs)			45.9			125.7
Proposed Peak Flowrate (cfs)	13.8	19.5	33.2	100.8	97.3	105.2

**Based on 0.75 acre-feet per acre*

4.4 Floodplain Fill and Detention Rate

The Ditch 7 model without the project was utilized to determine the 100-year elevations, floodplain fill volumes, and required slab elevations. The portion of the detention storage not required for floodplain fill mitigation was assigned as runoff mitigation, and the resultant detention rate was determined from the cumulative detention volume and development area. This rate was determined separately for areas to Ditch 7A (Pond 1 and 2) and Ditch 7B (Pond 3 and 4). This section summarizes these computations and presents the results.

4.4.1 Minimum Slab Elevations

See Section 3.4.1. The minimum slab elevations are applicable for the Phase 1 development.

4.4.2 Floodplain Fill

Floodplain fill volume was determined for the 100-year flood inundation associated with Ditch 7A and Ditch 7B. This includes the overflow area from Ditch 7A to 7B. This volume was determined from a HEC-RAS analysis of Ditch 7A without flow in Ditch 7B. The resultant inundation and corresponding floodplain fill was assigned to Ditch 7A and the reminder was assigned to Ditch 7B. Table 5 summarizes the floodplain fill and the resultant mitigation. Mitigation is provided by excess capacity (all capacity in addition to the 0.75 acre-feet per acre) in the detention basins below the 100-year flood elevation in the adjacent stream.

For Pond 3, the 100-year elevation of Ditch 7B will exceed the elevation of the pond high banks. During a riverine 100-year event, the pond will be inundated in a fashion like today. The adjacent development will be elevated above the 100-year elevation. The top of Pond 4 is also below the 100-year water surface of Ditch 7B. If the basin were to be elevated above the 100-year elevation it would potentially block sheet flow from the neighborhoods to the south. Most of Pond 4 is in areas with natural ground above the elevation of the top of the basin, and the excavation of the portion between the top of the basin (elevation 6.0) and the 100-year flood elevation will provide 8.4 acre-feet of additional floodplain excavation.

Floodplain fill and mitigation volumes were determined separately for Ditch 7A and Ditch 7B by combined calculations for Pond 1 and Pond 2 (Ditch 7A) and Pond 3 and Pond 4 (Ditch 7B). As the table indicates, there is adequate fill mitigation provided by the ponds and the excavation of the area "above" Pond 4 to offset the placement of fill in the floodplain of Ditch 7A and Ditch 7B.

The computed 100-year floodplain and floodplain mitigation table is provided as Exhibit 13.

Table 11: Floodplain Fill Mitigation and Detention Rate

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Floodplain Fill (Ac-Ft)	0.0	12.7	**12.7**	20.2	1.1	**21.3**
Fill Mitigation Available in Pond (Ac-Ft)	11.9	20.3	32.1	29.7	-5.3	24.4
Additional FP Excavation (Ac-Ft)	0.0	0.0	0.0	0.0	8.4	8.4
Total FP Fill Mitigation Available (Ac-Ft)	11.9	20.3	32.1	29.7	3.1	32.7
Total FP Fill Mitigation Utilized (Ac-Ft)			**12.7**			**21.3**
Excess FP Fill Mitigation (Ac-Ft)			19.5			11.4
Required Detention (Ac-Ft)	11.3	9.6	20.9	15.6	20.1	35.7
Provided Detention (Ac-Ft)			40.3			47.1
Detention Rate (Ac-Ft/Ac)			**1.45**			**0.99**

The detention volume not required for floodplain mitigation is assigned to traditional stormwater detention in the determination of the total detention volume. This detention volume is then compared to the contributing development area to derive an effective detention rate. The resultant volumes and detention rates for Ponds 1 and 2 (Ditch 7A) and Ponds 3 and 4 (Ditch 7B) are also summarized in Table 5. For Ditch 7A, the project is providing detention at a rate of 1.45 acre-feet per acre; and for Ditch 7B, the project is providing detention at a rate of 0.99 acre-feet per acre.

5.0 Results

Based on the analysis presented herein, the proposed development, including the full development scenario and the Phase 1 scenario, can be constructed as described without adversely impacting drainage and flood risk upstream, adjacent to, and downstream of the project.

For the full development, the project provides 0.94 acre-feet of detention per acre of development in two detention basins for the portion of the project draining to Ditch 7A; and provides 0.75 acre-feet of detention per acre of development in two detention basins for the portion of the project drainage to Ditch 7B. The detention basins also have additional capacity to adequately mitigate the placement of fill in the computed 100-year floodplain of Ditch 7A and Ditch 7B.

For the Phase 1 development, the project provides 1.45 acre-feet of detention per acre of development in two detention basins for the portion of the project draining to Ditch 7A; and provides 0.99 acre-feet of detention per acre of development in two detention basins for the portion of the project drainage to Ditch 7B. The detention basins also have additional capacity to adequately mitigate the placement of fill in the computed 100-year floodplain of Ditch 7A and Ditch 7B.

As a result of the analysis I hereby certify the project will have no adverse impact to flood risk along Ditch 7, Ditch 7A, Ditch 7B and other drainage infrastructure in adjacent areas.

Exhibits

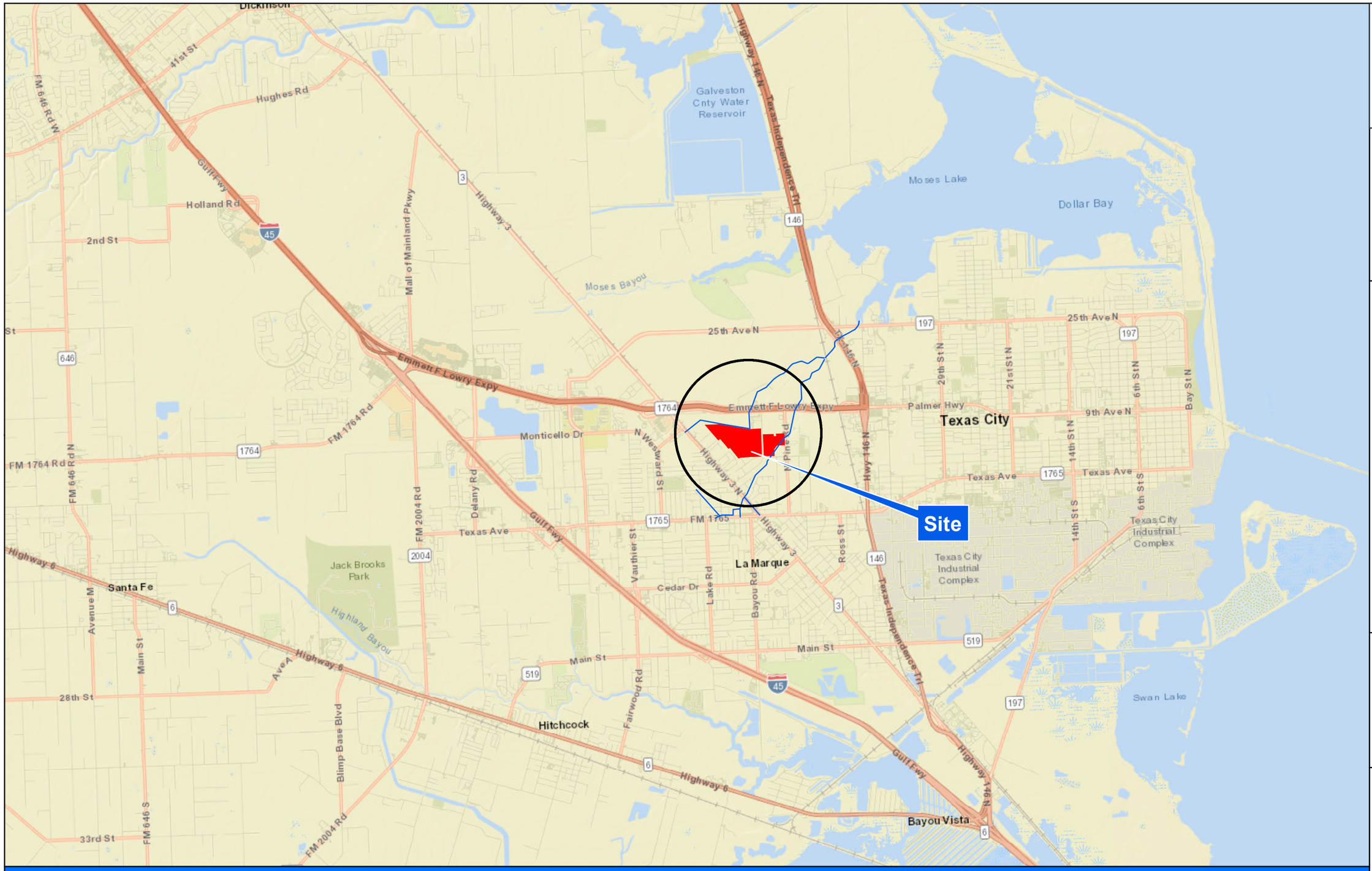
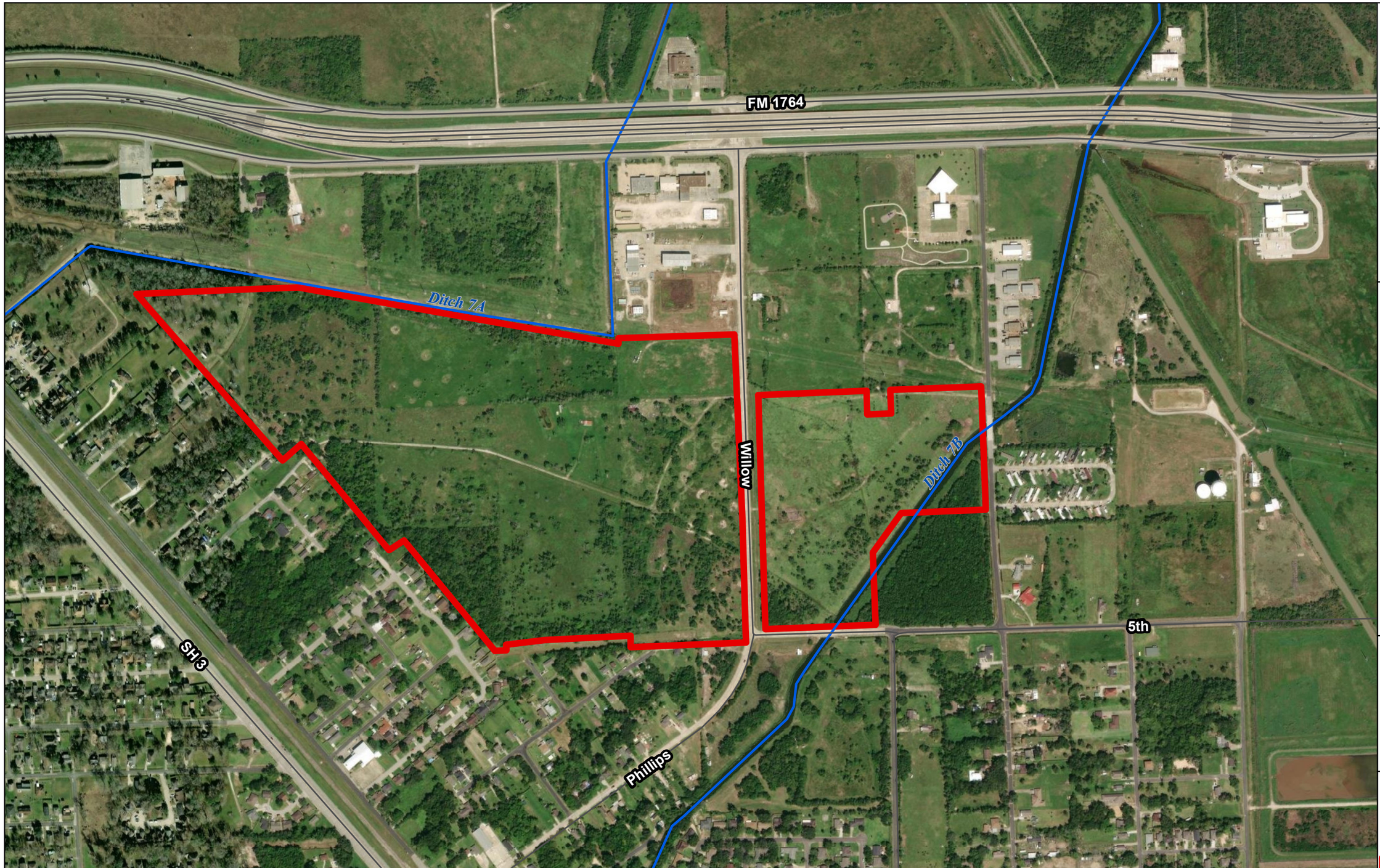


Exhibit 1 - Location Map

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Site



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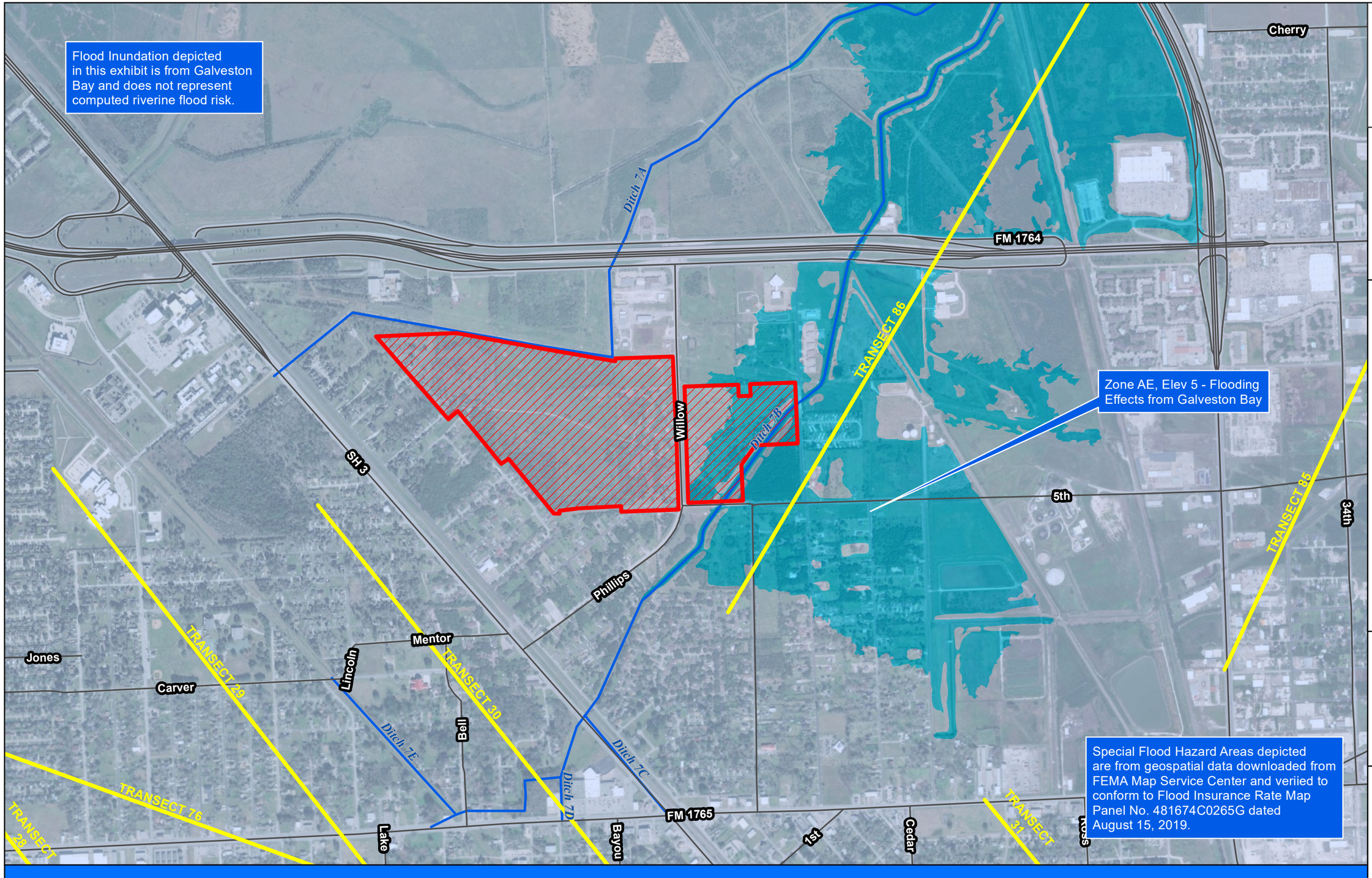
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Roads
Ditch 7 Channels
Willowood Subdivision

Exhibit 2 - Aerial Photo



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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Transect Line
- Site
- Roads
- Ditch 7 Channels
- Zone AE (1%)
- Shaded Zone X (0.2%)

Exhibit 3 - FEMA Speical Flood Hazard Areas

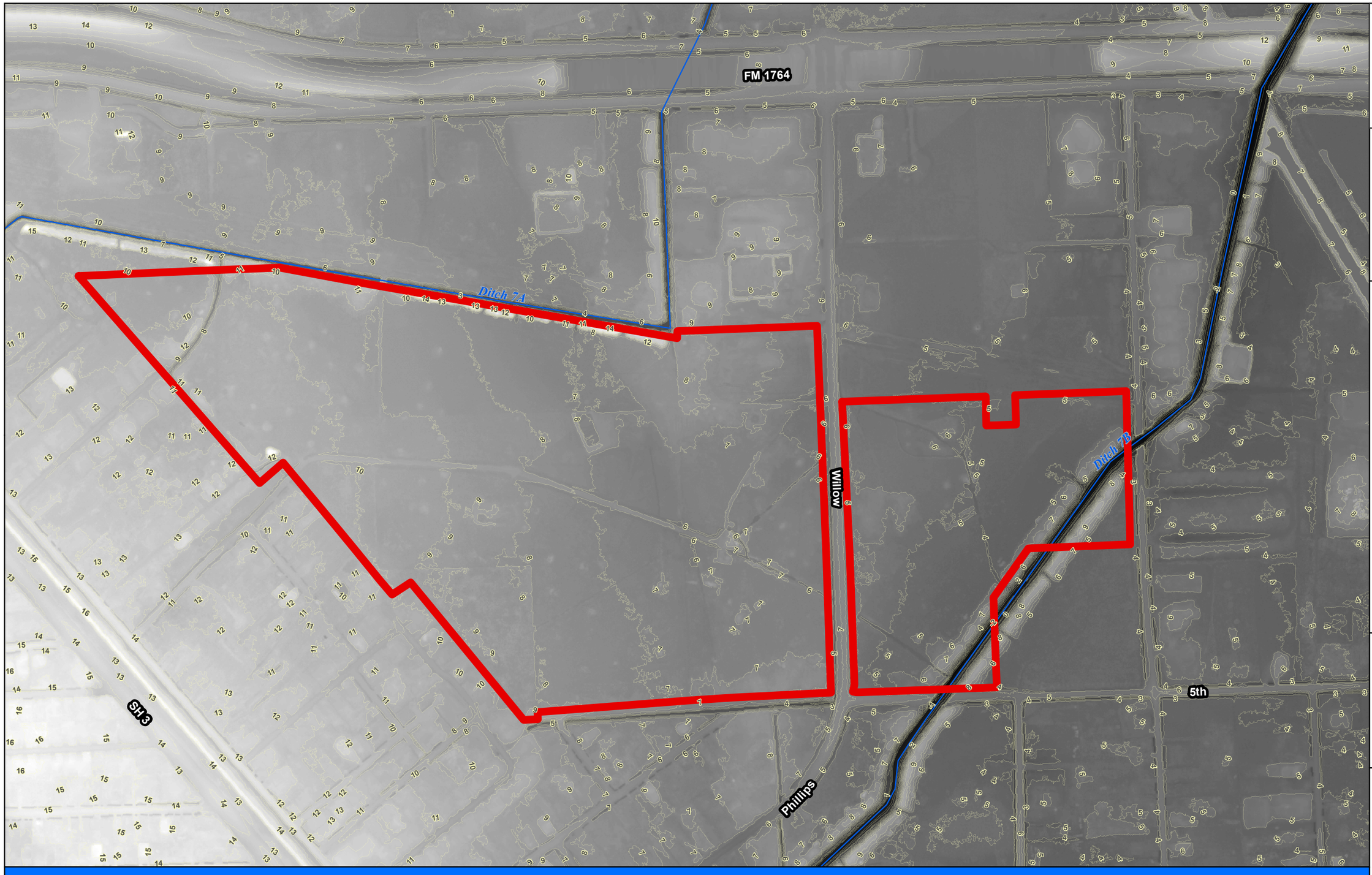

Exhibit 4 - Topography and Digital Elevation Model

BJE

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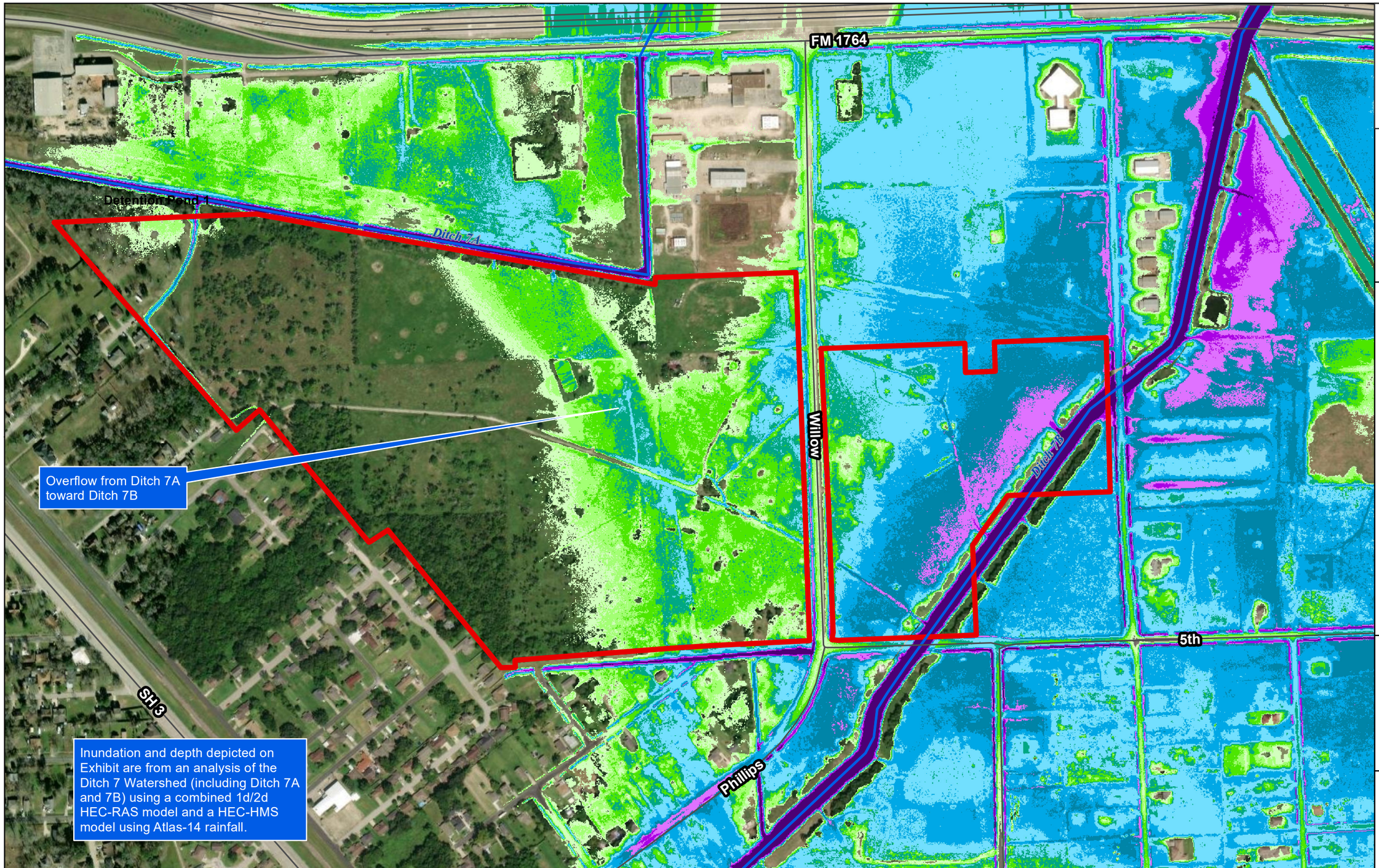
0 200 400 Feet

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Site
Study Channels
Elevation Contour
Roads

DEM Elevation
High : 40'
Low : -10'



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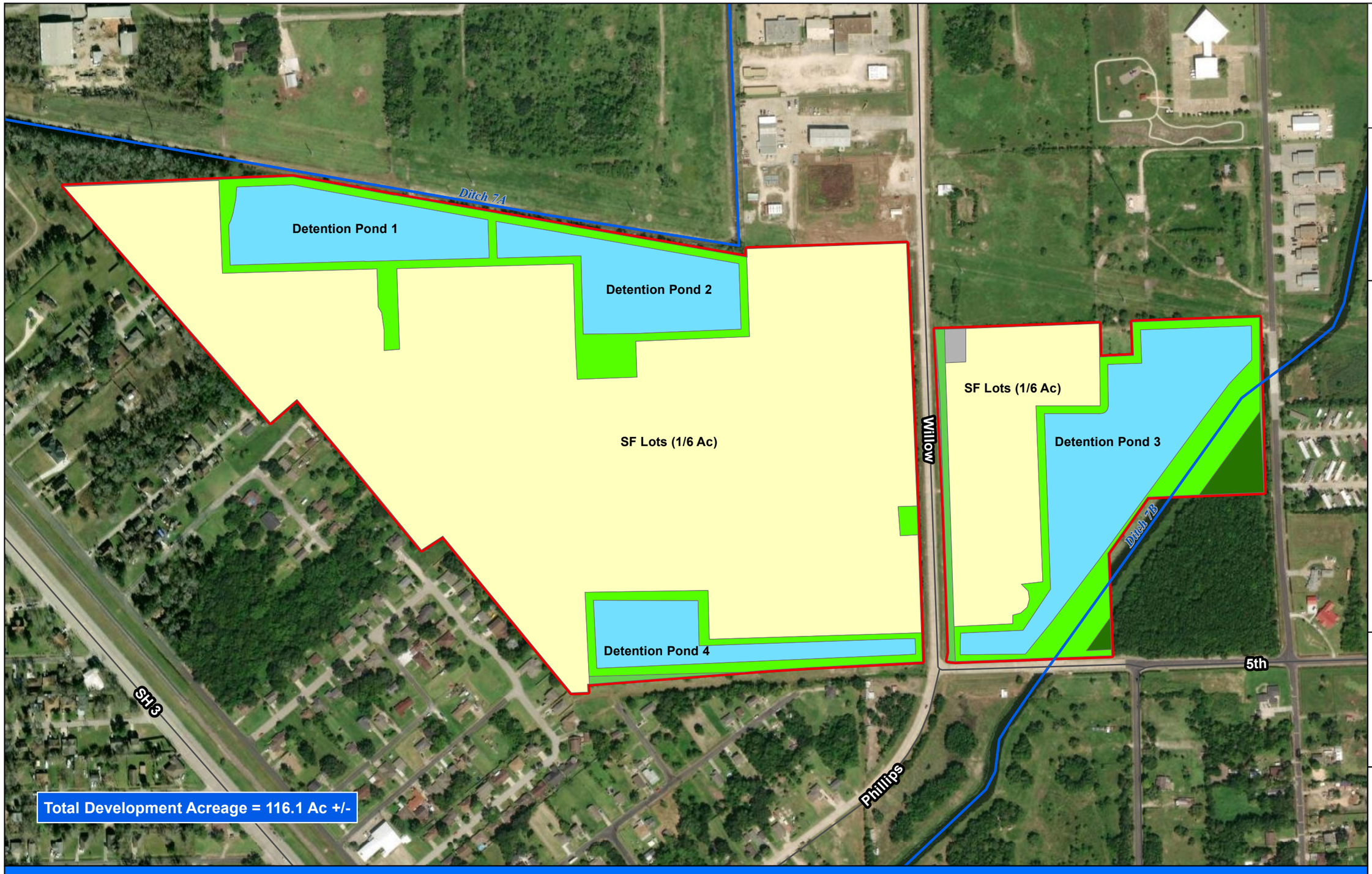
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

100-Yr Inundation Depth

- 0.0' - 0.25'
- 0.25' - 0.5'
- 0.5' - 0.75'
- 0.75' - 1.0'
- 1.0' - 1.5'
- 1.5' - 2.0'
- 2.0' - 2.5'
- 2.5' - 3.0'
- 3.0' - 4.0'
- >4.0'

Exhibit 5 - Computed 100-Yr Inundation



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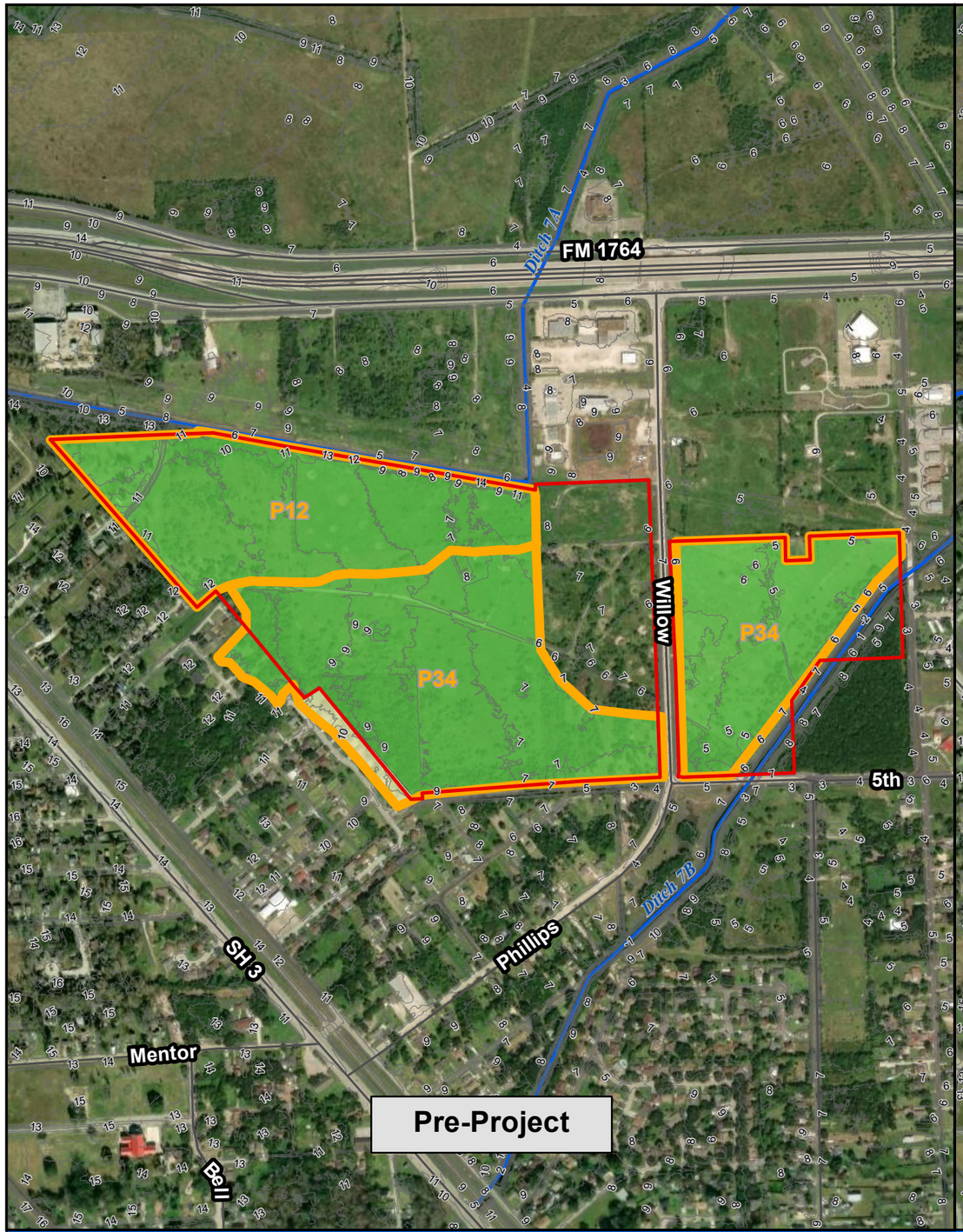
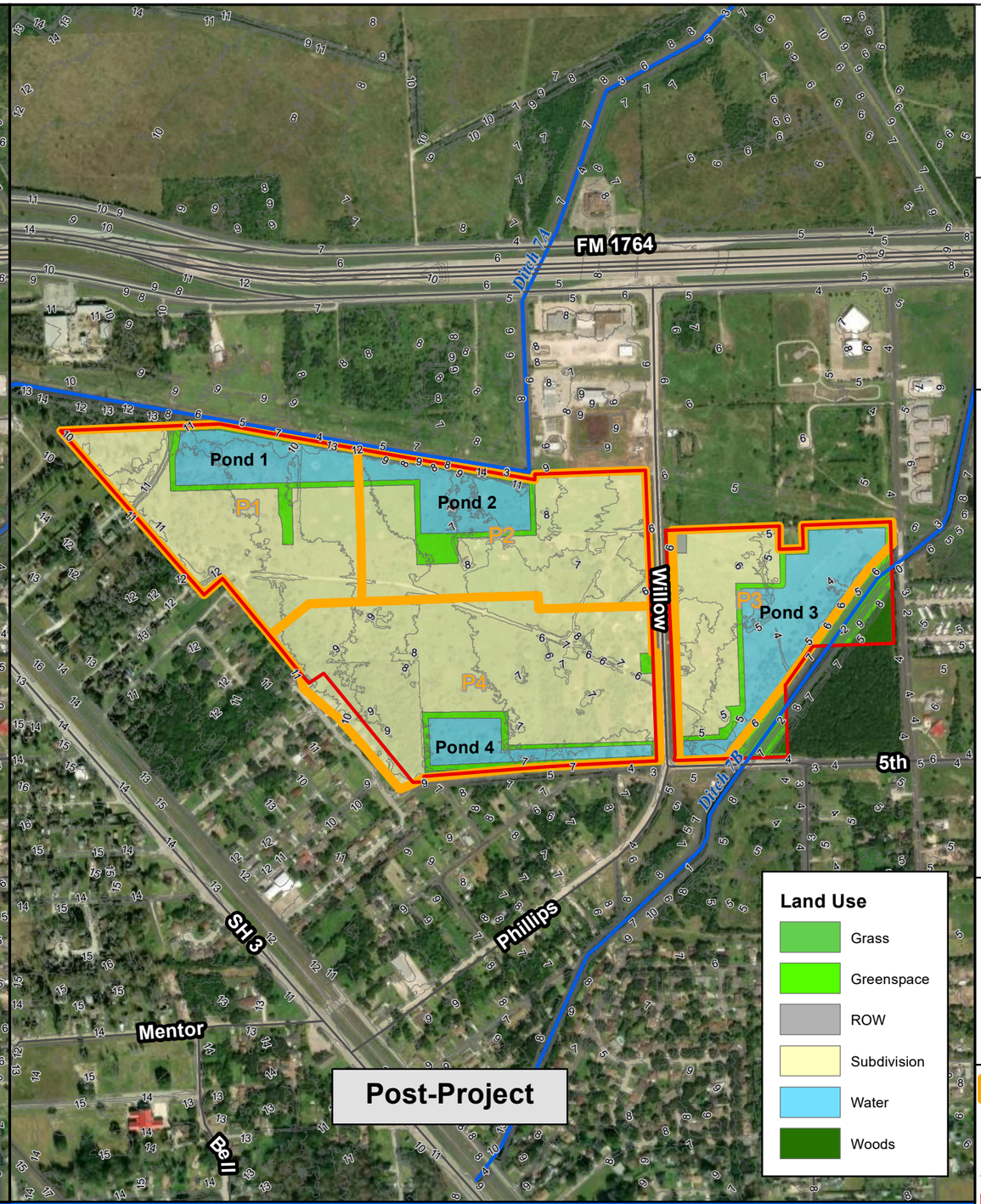
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Land Use
- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods

Exhibit 6 - Proposed Development





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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Drainage Subarea
- Elev Contour
- Road
- Channels
- Site

Exhibit 7 - Drainage Subarea Map

Exhibit 8 - Proposed Detention

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0 200 400 Feet

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Site

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods

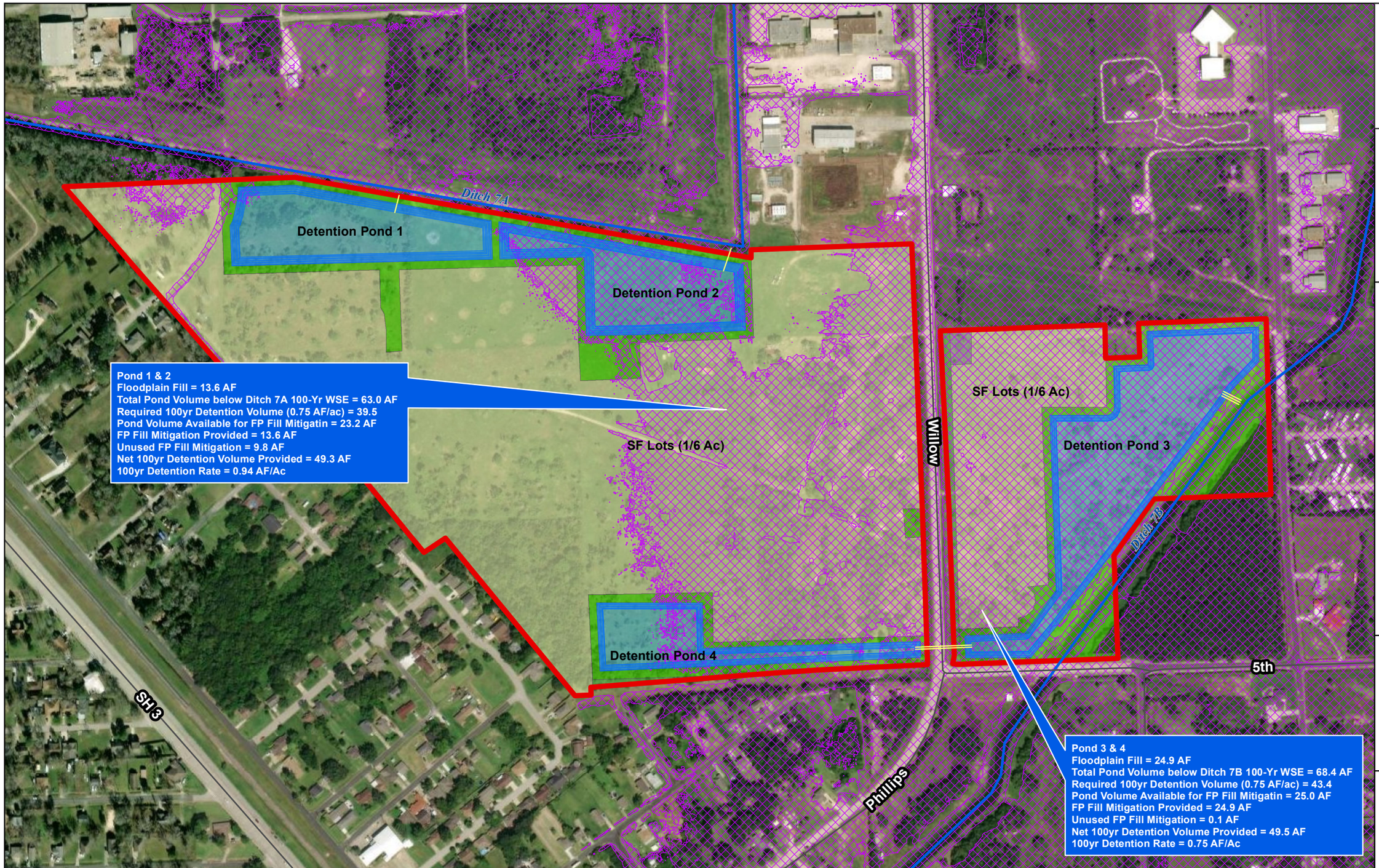

Exhibit 9 - FP Fill Mitigation & Detention Rate

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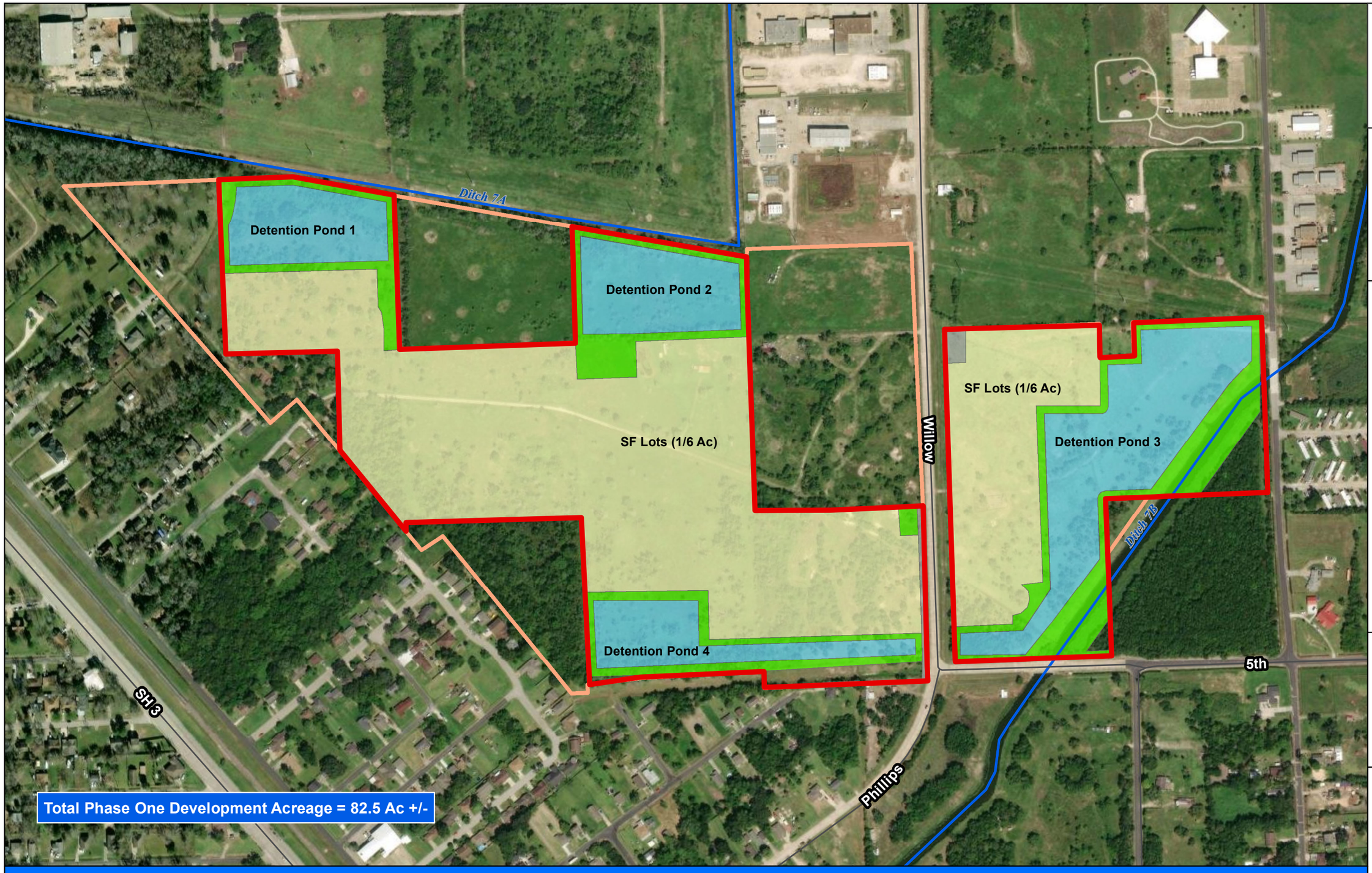
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Site
- Computed 100-Yr FP

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods



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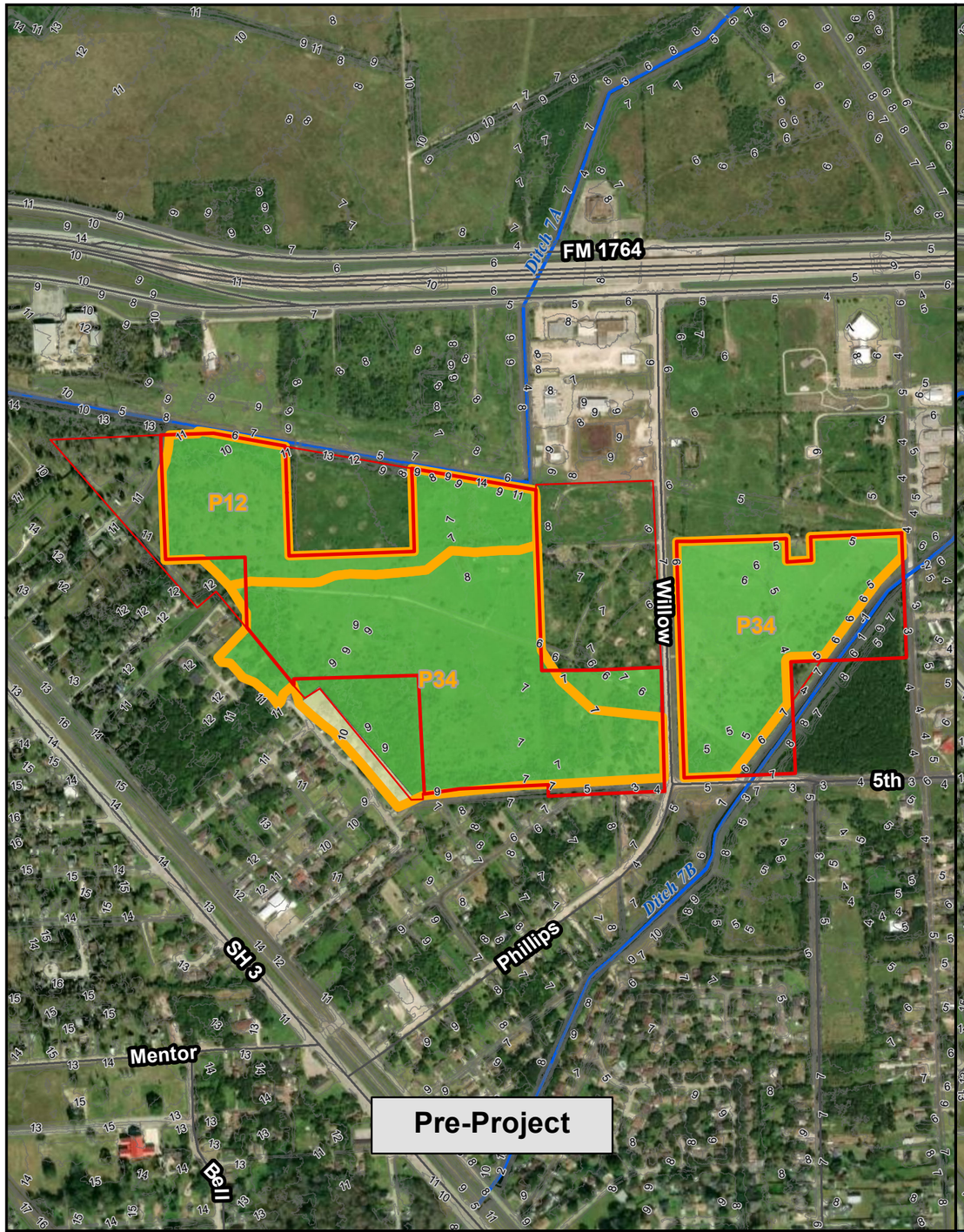
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

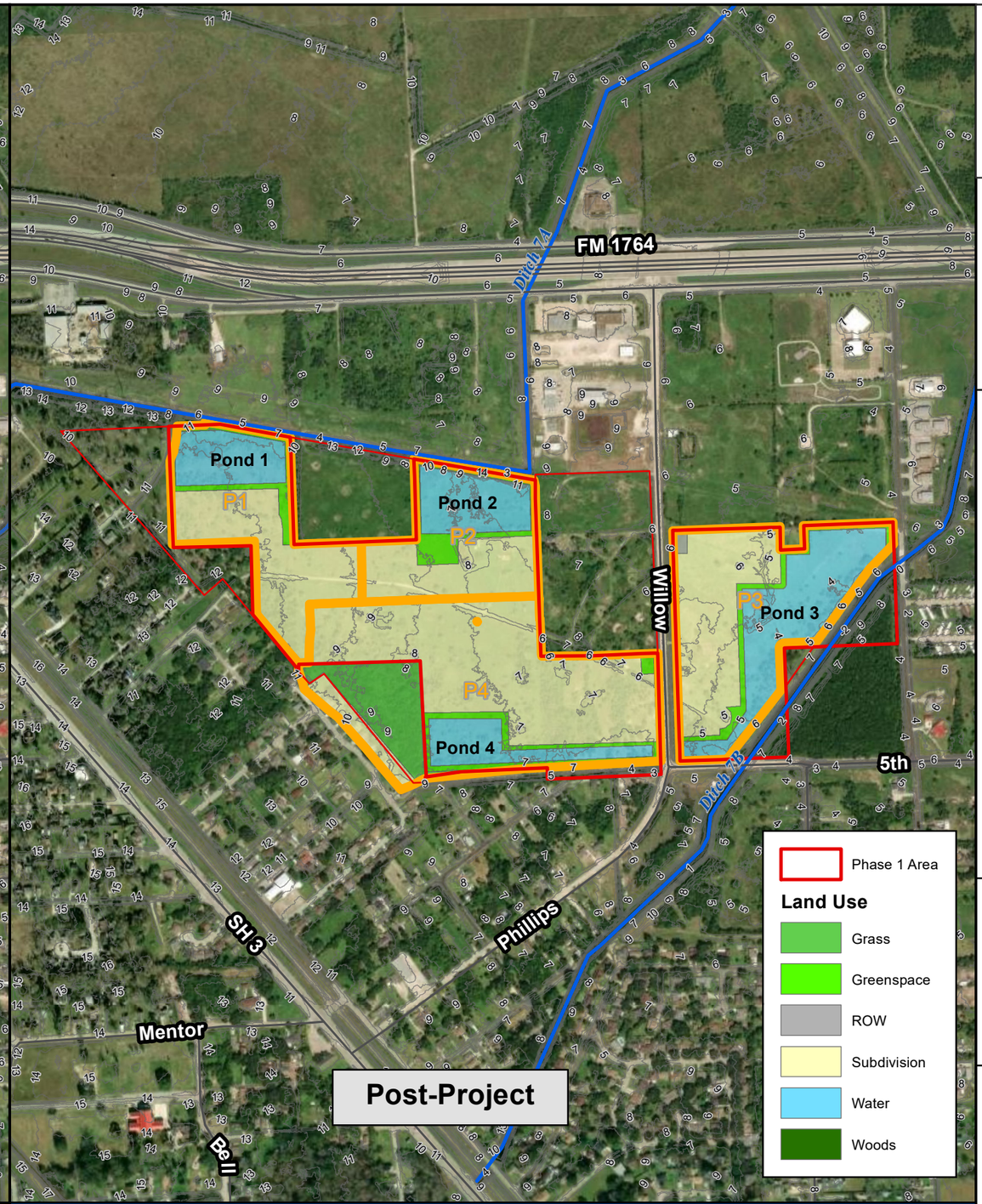
Drainage Impact Analysis

Land Use
- Greenspace
- ROW
- Subdivision
- Water
- Site

Exhibit 10 - Phase 1 Development



Pre-Project



Post-Project

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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Drainage Subarea
- Elev Contour
- Phase 1 Area
- Road
- Channels
- Site

Exhibit 11 - Phase 1 Drainage Subarea Map

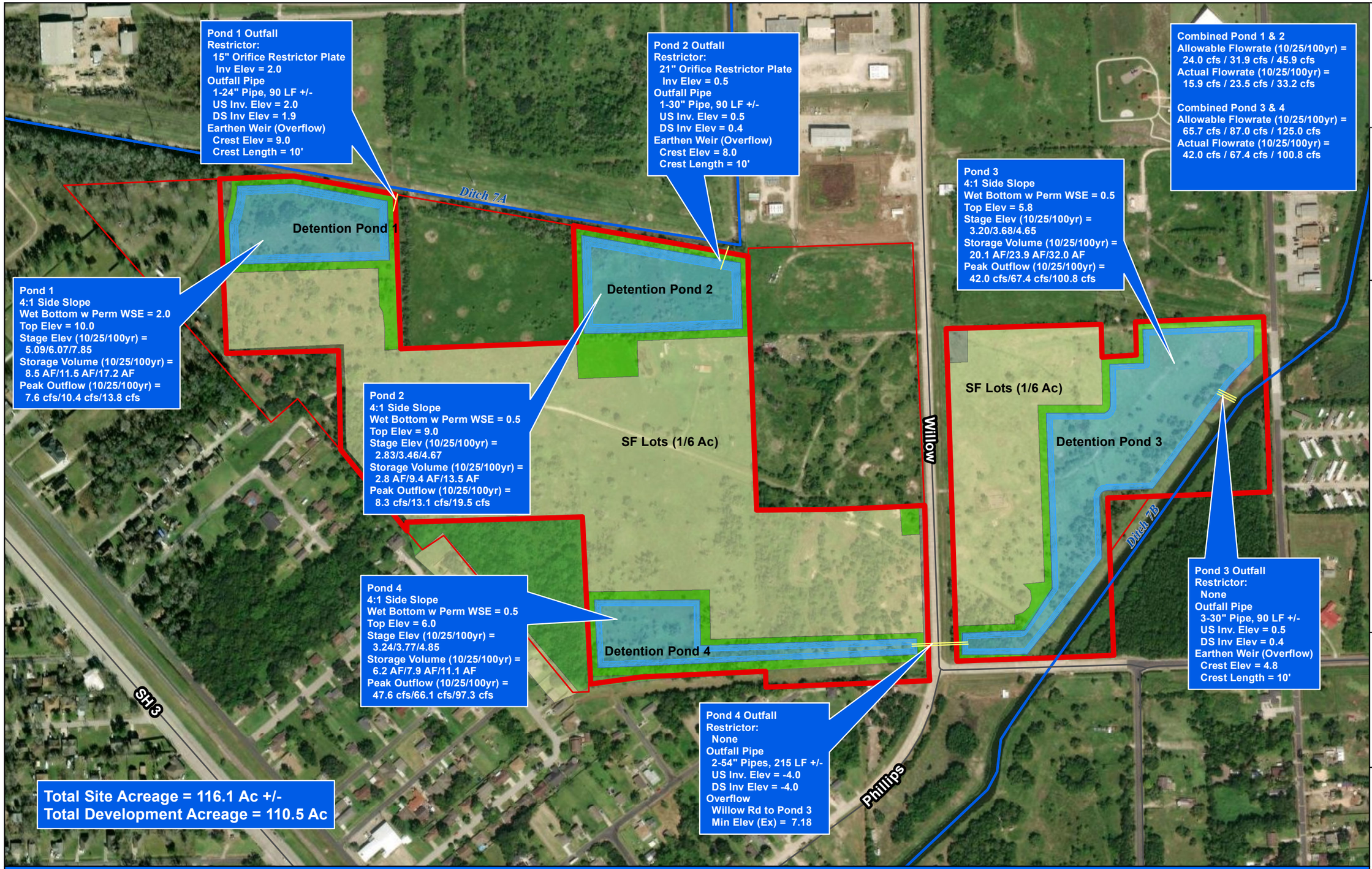

Exhibit 12- Phase 1 Detention

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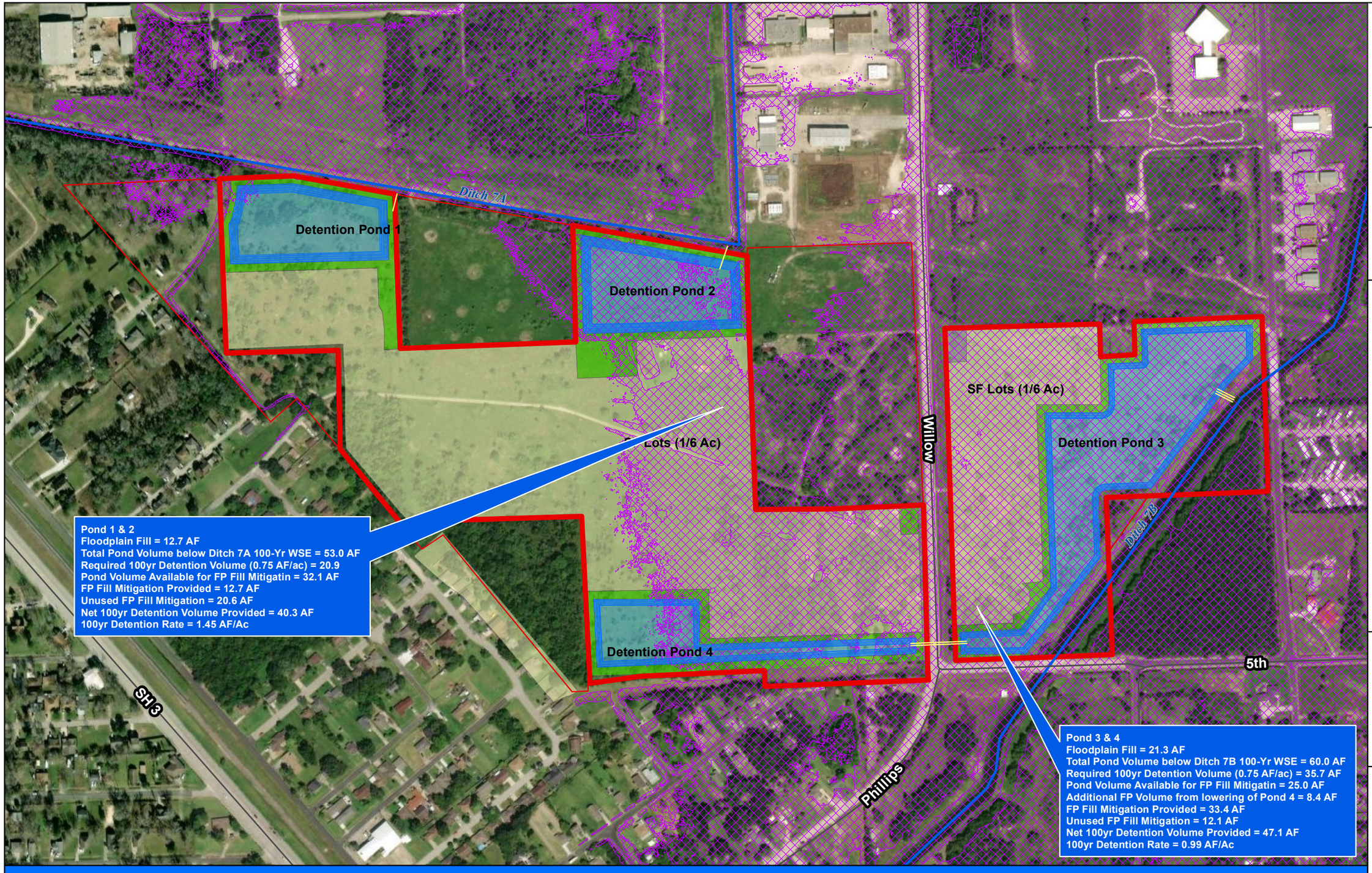
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Phase 1 Area
- Full Development

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods
- Detention Contour



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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

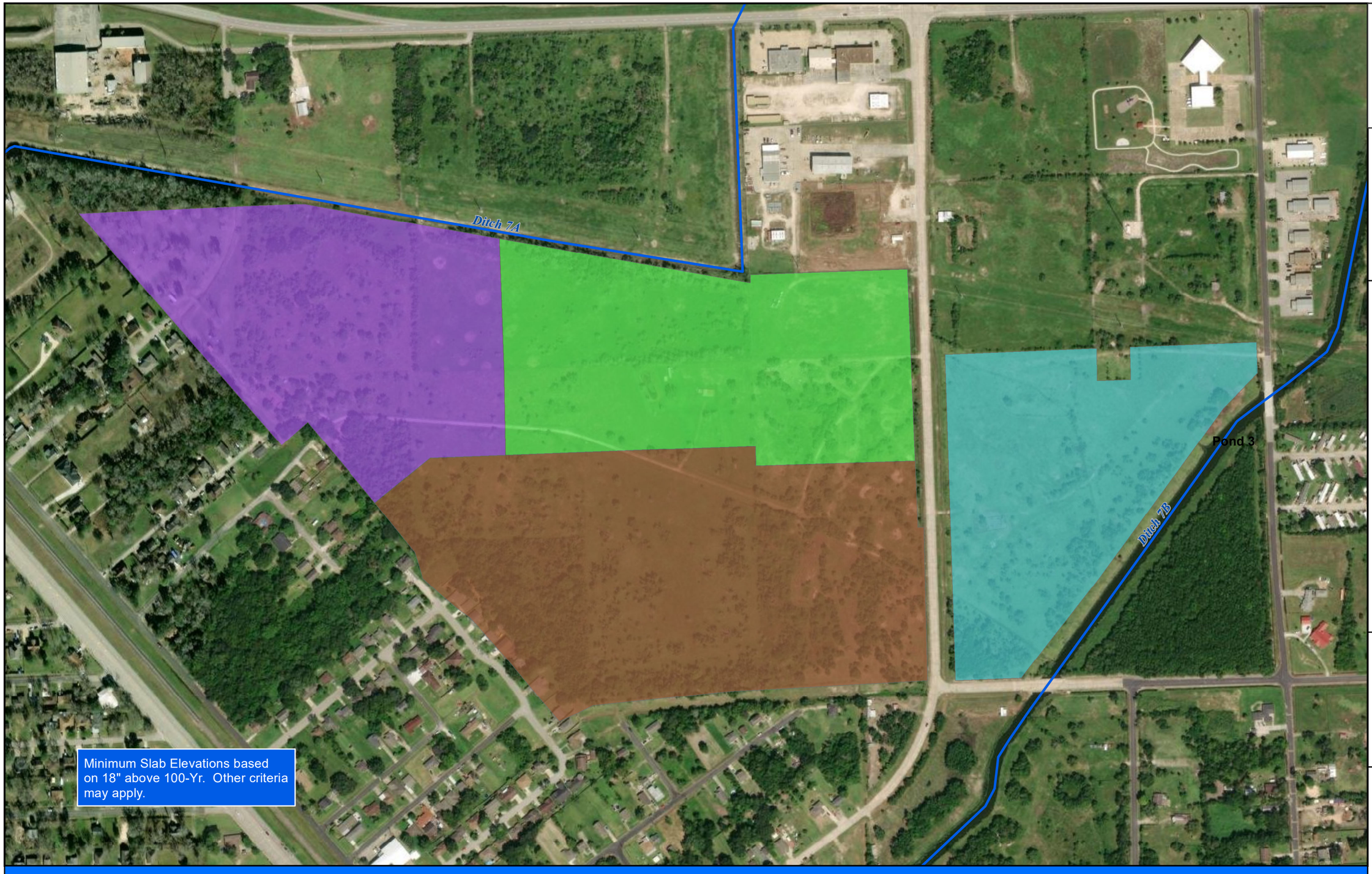
Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Phase 1 Area
- Site
- Computed 100-Yr FP

Land Use

- Greenspace
- ROW
- Subdivision
- Water

Exhibit 13 - Ph 1 FP Fill Mitigation & Detention Rate



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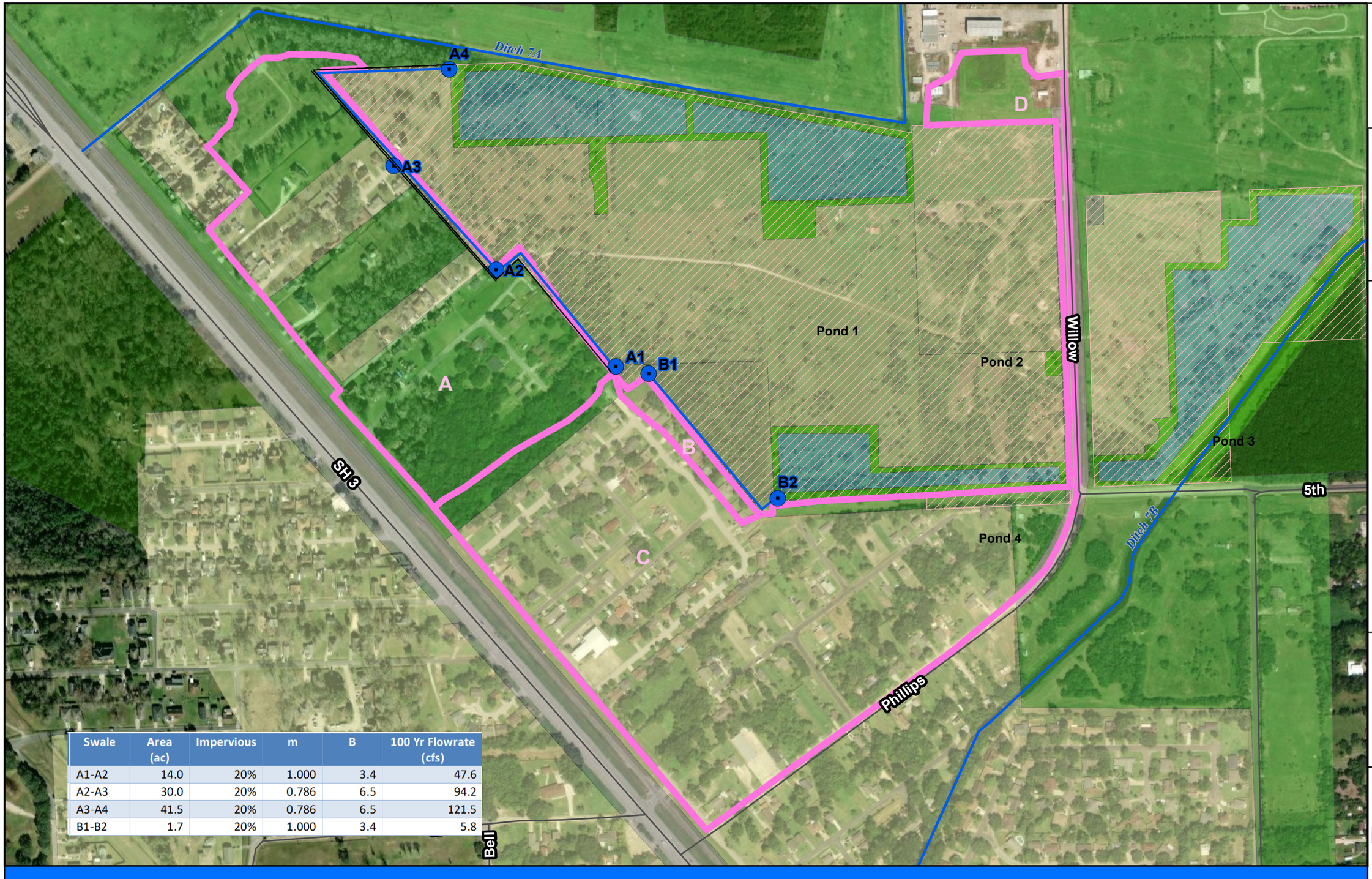
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Minimum Slab Elev
- 10.5
- 11.5
- 8.7
- 9.0

Exhibit 14 - Minimum Slab Elevations



Swale	Area (ac)	Impervious	m	B	100 Yr Flowrate (cfs)
A1-A2	14.0	20%	1.000	3.4	47.6
A2-A3	30.0	20%	0.786	6.5	94.2
A3-A4	41.5	20%	0.786	6.5	121.5
B1-B2	1.7	20%	1.000	3.4	5.8

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Feet
0 200 400

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX Galveston County DD No. 2

Drainage Impact Analysis

- Reference Nodes
- Perimeter Swale
- Offsite Areas
- Road
- Channels
- Site

Exhibit 15 - Offsite Flow Management

Ditch 7 Watershed
(Ditch 7, Ditch 7A, Ditch 7B)

Floodplain Mapping and Modeling

Galveston County Drainage District Number Two

April 6, 2024

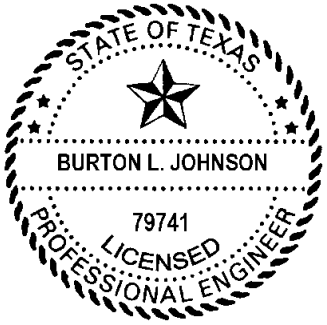
BURTON JOHNSON ENGINEERING, INC
WATER RESOURCES ENGINEERING & PLANNING

Floodplain Mapping and Modeling Report

Ditch 7 Watershed

(Ditch 7, Ditch 7A, Ditch 7B)

Galveston County Drainage District Number Two



April 6, 2024

Burton Johnson Engineering, Inc.
4611 Waterbeck St
Fulshear, TX 77441
281-773-7184
TPBE No. 10781

TABLE OF CONTENTS

1.0 Executive Summary 3

2.0 Introduction 4

2.1 Description of Project Area 4

2.2 FEMA Special Flood Hazard Areas 4

2.3 Elevation Data 5

3.0 Hydrology 6

3.1 Watershed Boundary and Drainage Sub-watersheds 6

3.2 Hydrologic Methodology 6

3.2.1 Land Use and Peak Flowrates (Site Runoff Curves) 7

3.2.2 Precipitation 8

3.2.3 Loss Parameters 8

3.2.3 Clark Unit Hydrograph Parameters and Peak Sub-WatershedFlowrates 9

4.0 Hydraulic Analysis (Combined 1D/2D HEC-RAS) 11

4.1 Geometry Data 11

4.1.1 Channel Cross Sections 11

4.1.2 Bridges and Culverts 11

4.1.3 Two-Dimensional Flow Areas 12

4.1.4 Lateral Weirs 13

4.1.5 Willowood Subdivision and Detention Basins 13

4.1.6 Boundary Conditions 13

5.0 Results 16

5.1 Inundation 16

5.2 Computed Water Surface Elevations 16

5.3 Peak Flowrates and Hydrographs 18

EXHIBITS

ATTACHMENT 1 – Galveston County Drainage District Number Two Map

Note: Survey data and computer models may be downloaded at the following link within 90 days of date of report:

https://www.dropbox.com/s/vv570wu2n86gdz3/Ditch%207%20Study%20-%20Models.zip?dl=0

1.0 Executive Summary

This report describes and summarizes the computation of flood flows and flood inundation in the Ditch 7 watershed in Galveston County. Specifically, flood flows and inundation were computed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events using HEC-HMS and a coupled 1d/2d HEC-RAS model. The resultant inundations are presented in Exhibits 9, 10, and 11 of the report.

The analysis and supporting hydrologic and hydraulic modeling were performed in consideration of the Galveston County Drainage District Number Two (District) criteria, which currently defers to the methodology described in the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM)*, dated July 2019. This version of the PCPM includes updates to consider ATLAS 14 rainfall, and as such the study includes recognition of ATLAS 14 rainfall.

The hydraulic modeling includes a coupled 1d/2d model. The models were developed in consideration of guidance by the U.S. Army Corps of Engineers Hydrologic Engineering Center (HEC) and the Harris County Flood Control District's *Two-Dimensional Modeling Guidelines.*

The study is based on current land use and channel conditions, and also considers currently planned and imminent developments. Specifically, the proposed Willowood Subdivision, a 118-acre proposed single family residential development adjacent to and between Ditch 7A and Ditch 7B that includes four detention basins, is included in the evaluation. The floodplain modeling and mapping of Ditch 7A and Ditch 7B described herein have been prepared for the District as part of the development evaluation. The Drainage Impact Analysis for Willowood Subdivision is prepared under a separate report.

This report and supporting models will be submitted to Galveston County Drainage District Number Two (District) for their consideration and potential adoption.

2.0 Introduction

The Ditch 7 watershed is one of the nine watersheds within the boundaries and jurisdiction of Galveston County Drainage District Number Two (District). The Ditch 7 system consists of several ditches, with the main ditches being two major forks of Ditch 7 known as Ditch 7A and Ditch 7B along with Ditch 7 as it drains to Moses Lake. To date, there are no known hydrologic and hydraulic studies of Ditch 7, Ditch 7A, and Ditch 7B. This report describes and summarizes a study conducted using HEC-HMS and HEC-RAS to determine peak flowrates and inundations along these ditches. The HEC-RAS model utilized a combined one-dimensional/two-dimensional (1d/2d) model, with the channels modeled using the 1d regime and the overbank and overflow areas modeled using a 2d regime.

2.1 Description of Project Area

The Ditch 7 watershed is mostly within the City of Texas City, however a southern portion of the watershed is within the City of La Marque. Ditch 7, Ditch 7A, and Ditch 7B are all located within the City of Texas City. Exhibit 1 depicts the location of the Ditch 7 watershed and the primary ditches. The District's Watershed Map is provided as Attachment 1. The hydrologic study considers the portion of the watershed upstream of Loop 197 North (25th Avenue). There is a small portion of the watershed downstream of Loop 197 North, however this area is dominated by the tidal influence of Moses Lake and has a negligible influence on flood flows and flood elevations.

Exhibit 2 provides an aerial photograph of the Ditch 7 watershed from the District Map. The upper half of the watershed is developed, with the development consisting primarily of residential neighborhoods along with some multi-family and commercial areas along the main corridors. The lower half is mostly undeveloped, with the development consisting of the major transportation corridors along with intermittent industrial, commercial, and residential development. According to the District map, the watershed drains an area of 2.91 square miles at Loop 197 North.

There major roadways in the watershed are Loop 197 North, State Highway 146, FM 1764, State Highway 3, and FM 1765. FM 1765 forms the boundary between the Cities of Texas City and La Marque. There is a Union Pacific Rail Line that runs generally parallel and west of State Highway 146.

Exhibit 2 also depicts the limit of the channel study. Ditch 7A and Ditch 7B are both studied from State Highway 3 downstream to their confluence with Ditch 7. Ditch 7 is studied downstream to Loop 197 North. Although the hydrologic calculations for Ditch 7 terminate at Loop 197 North, the HEC-RAS study was continued a short distance downstream into Moses Lake to capture the influence of the Loop 197 North crossing.

2.2 FEMA Special Flood Hazard Areas

According to FEMA Flood Insurance Rate Map (FIRM) Panel No. 48167C0265G, dated August 15, 2019, the watershed is entirely in the Shaded Zone "X", which represents areas subject to flooding from a 0.2% annual probability event (also known as the 500-year event). A portion of the area is also in the Zone AE floodplain, which represents areas subject to inundation from the 1% annual probability event (also

known as the 100-year event) that have computed Base Flood Elevations. Exhibit 3 depicts these Special Flood Hazard Areas.

Based on a review of the FIRM Panel and FEMA's *Flood Insurance Study, Galveston County and Incorporated Areas,* dated August 15, 2019, the inundation depicted on the FIRM is from coastal surge flooding and does not represent riverine flooding from rainfall in the watershed. The coastal elevations are computed along transect lines which are shown on the exhibit. The 100-year coastal surge elevation is shown as a Base Flood Elevation on the FIRM Panel and is also shown, as elevation 5.0, on Exhibit 2. Transect Line 86 runs through the project area. The 100-year coastal surge elevation is 5.0. Based on a profile presented in the *Flood Insurance Study* and the 500-year coastal surge elevation is between elevation 15.0 and 17.0 within the Ditch 7 watershed.

The information provided on the FIRM panels and within the *Flood Insurance Study* confirms that Ditch 7 and its tributaries are not FEMA studied streams.

2.3 Elevation Data

All source elevation data and all elevations cited in this report are in feet above Mean Sea Level based on the 1988 North American Vertical Datum (NAVD 88).

Elevation data for this analysis is a blend of the Upper Coastal Lidar data acquired by a partnership between the Texas Water Development Board, Houston-Galveston Area Council, and United States Geologic Survey in 2018; and survey data acquired by Costello, Inc. (now part of Pape Dawson) in the fall of 2023.

The lidar data was utilized for most of the elevation data, including overland areas and portions of the channel cross sections. The survey data was used to augment the lidar data in consideration of the limitations of the lidar data – specifically the capture of specific details and elevations associated with bridge and culvert crossings and the capture of bathymetry in areas where the lidar was unable to penetrate a water surface.

The survey included incremental channel cross sections along Ditch 7, Ditch 7A, and Ditch 7B, including elevations below the water surface. The locations of these sections are shown on Exhibit 4. These cross sections were utilized to develop a TIN and subsequent digital elevation model using ArcGIS software. There are software limitations to this method, however the resultant digital elevation model (DEM) was accurate at the location of the cross sections – and was used to develop a one-dimensional HEC-RAS geometry for the surveyed channel. Within HEC-RAS, RAS Mapper was utilized to convert the one-dimensional geometry into a DEM for the surveyed channel. This channel DEM was then merged with the lidar DEM to develop an integrated surface that considers the bathymetry along the channels.

Exhibit 5 depicts the resultant blended DEM. This elevation data was incorporated into the HEC-RAS model and was also used in the verification and determination of drainage boundaries and in the computation of hydrologic parameters (see Section 3.0).

3.0 Hydrology

Hydrographs were developed for each of the subareas in accordance with the methodology described in the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM),* dated July 2019, as the Galveston County Drainage District Number Two criteria defers to the Harris County Flood Control District Criteria until Galveston County releases an updated Drainage Criteria Manual.

3.1 Watershed Boundary and Drainage Sub-watersheds

The watershed boundary from the District map was reviewed in consideration of the Lidar topography and drainage infrastructure, and portions of the boundary were amended to reflect ground conditions. Based on the revised drainage determination, the total drainage area is computed to be 3.22 square miles, which is 0.31 square miles greater than the watershed area depicted on the District map (of this approximately 0.10 square miles is due to extending the downstream boundary slightly downstream). The District and updated drainage area boundaries are depicted in Exhibit 6.

The watershed was further subdivided into six sub-watershed areas to facilitate the hydrologic analysis. This includes three sub-watersheds that drain to Ditch 7A (sub-watersheds 7A1, 7A2, and 7A3), four sub-watersheds to Ditch 7B (sub-watersheds 7B1, 7B2, 7B3, and 7B4) and a single sub-watershed to Ditch 7 (Sub-watershed 7). These sub-watersheds are also depicted on Exhibit 6. The Ditch 7 watershed drains a total of 3.22 square miles. Ditch 7A drains 0.84 square miles, and Ditch 7B drains 1.88 square miles.

3.2 Hydrologic Methodology

The Harris County Flood Control District legacy hydrology uses the Clark Unit Hydrograph methodology and the Green and Ampt loss method to compute runoff hydrographs for a 24-hour ATLAS 14 based hypothetical event. The Clark Unit Hydrograph utilizes two parameters, Time of Concentration (TC) and Storage (R) to define the shape of the hydrograph. Historically, the Flood Control District's empirically developed Clark Unit Hydrograph equations were utilized to develop the Clark TC and R parameters. Recently, the Flood Control District has shifted to a different method, the Basin Development Factor, to develop Clark Unit Hydrograph parameters. Both of these methods were developed from the evaluation of gauge data, and the Flood Control District notes that neither method is appropriate for sub-watersheds less than one square mile in area.

For drainage areas between 50 acres and 640 acres (one square mile), the PCPM recommends the use of the Flood Control District's Site Runoff Curves. These curves compute the peak flowrate based on the drainage area and percentage of impervious cover and have been updated in consideration of ATLAS 14 rainfall. The curves are described in Section 3.3 of the PCPM and presented graphically for the 2-year, 10-year, 100-year, and 500-year events in Exhibits 3-1, 3-2, 3-3, and 3-4 of the PCPM. They can also be developed using the following equation:

$$Q = bA^m$$

Where Q = peak flowrates (cfs)
A = drainage area (acres)
m = 1.0 for A = 1-20, 0.786 for A = 20-640
b = variable dependent on impervious cover, see Table 1

Table 1: Harris County Flood Control District Site Runoff Curves
Determination of "b" Parameter

Impervious Cover	2-Year		10-Year		100-Year		500-Year	
	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac
0%	0.7	1.4	1.3	2.4	2.4	4.6	3.6	6.8
10%	0.9	1.8	1.6	3.0	2.9	5.5	4.3	8.1
20%	1.2	2.2	1.9	3.6	3.4	6.5	5.0	9.5
30%	1.4	2.7	2.3	4.4	4.1	7.7	5.8	11.0
40%	1.7	3.3	2.8	5.2	4.7	8.9	6.6	12.6
85%	2.3	4.3	3.5	6.6	5.7	10.9	8.0	15.1

Note: Apply linear interpolation between b value with the 85% impervious cover value the maximum

Runoff hydrographs were computed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events using the software package HEC-HMS version 4.11. The primary inputs for the HEC-HMS model are the precipitation, runoff losses, and unit hydrograph parameters. The following sub-sections describe the determination of the input parameters and the HEC-HMS hydrologic modeling.

3.2.1 Land Use and Peak Flowrates (Site Runoff Curves)

Exhibit 7 shows the sub-watershed delineations along with the land use and longest flowpath for each sub-watershed. The sub-watersheds determined for the Ditch 7 watershed are all less than one square mile in size, therefore the Site Runoff Curves were utilized to determine the peak flowrates. The land use was determined from aerial photographs and the proposed development plans for the Willowood Subdivision. The land use was used to determine the percentage impervious for each of the sub-watersheds using the assumed impervious cover values presented in Table 2.

Table 2: Land Use vs. Impervious Cover

Land Use	Impervious
Woods	0%
Grass/Range	0%
Road Right-of-Way	80%
Greenspace	15%
Water	100%
Subdivision - 1 Ac Lots	25%
Subdivision - 1/6 Ac Lots	40%
Multi-Family	85%
Commerical	85%
Industrial	65%

3.2.2 Precipitation

The *Criteria Manual* provides precipitation data based on the NOAA TP-40 report from 1961, however this has been superseded and replaced by the NOAA ATLAS-14 rainfall data published in 2018. Table 3 summarizes the NOAA ATLAS 14 point rainfall precipitation estimate, which was obtained from the National Weather Service ATLAS 14 online Precipitation Frequency Data Server for a location (Latitude: 29.3907°, Longitude: -94.9717°) at the center of the Ditch 7 watershed.

Table 3: NOAA ATLAS 14 Precipitation

Duration	Point Rainfall (inches)					
	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
5 min	0.755	0.866	1.07	1.22	1.37	1.75
10 min	1.20	1.41	1.70	1.94	2.18	2.76
15 min	1.52	1.78	2.14	2.42	2.72	3.58
30 min	2.17	2.53	3.03	3.42	3.83	4.95
1 hr	2.91	3.42	4.13	4.68	5.27	6.98
2 hr	3.77	4.54	5.68	6.6	7.64	10.6
3 hr	4.32	5.30	6.76	7.99	9.39	13.3
6 hr	5.28	6.60	8.62	10.4	12.4	18.1
12 hr	6.27	7.89	10.4	12.5	15.0	22.5
24 hr	7.31	9.22	12.2	14.7	17.7	26.9

3.2.3 Loss Parameters

The Green and Ampt method was utilized to determine rainfall losses due to ground infiltration, evaporation, depression storage, and other mechanisms. While the PCPM is silent on the selection of the loss methodology, the Flood Control District has utilized the Green and Ampt method since the Tropical Storm Allison Recovery Project in the early 2000's. Green and Ampt loss function is an empirical method that determines an initial loss (or initial abstraction) and then a cumulative loss over time.

The input parameters utilized in this study are taken from the methodology described in the *Dickinson Bayou Watershed, Regional Drainage Plan, Drainage Criteria Manua,* dated August 1992. The parameters are described below:

Initial Deficit (DTHETA): Also known as the "soil moisture deficit", the difference between the maximum amount of moisture which a soil can hold and the given amount of moisture present in the soil at any given time. Expressed as a ratio. *Dickinson Bayou Value: DTHETA = 0.36*

Suction (PSIF): Also known as "wetting front suction" and represents the capillary suction which draws water into the soil, measured at the wetting front, or the limit of penetration of water into the soil. The wetting front separates wet soil from the dry soil. Expressed in inches. *Dickinson Bayou Value: PSIF = 11.20 in*

Conductivity (XKSAT): hydraulic conductivity of saturated soil, the ratio of the rate of flow of water through a soil to the energy gradient causing that flow. Hydraulic conductivity is a measure of soil permeability. Expressed in inches per hour. *Dickinson Bayou Value: XKSAT = 0.02 in/hr*

Impervious Cover: The percentage of impervious cover in the sub-watershed, see Table 5.

3.2.3 Clark Unit Hydrograph Parameters and Peak Sub-WatershedFlowrates

Clark Unit Hydrograph parameters TC and R are used to determine the shape of hydrographs given the contributing drainage area and excess runoff (precipitation less rainfall infiltration and other losses). These parameters are defined as follows:

Time of Concentration (TC): The time required for storm runoff to flow from the most remote point in a subarea to the outlet point, in hours.

Watershed Storage Coefficient (R): Indicator of the available stormwater storage volume within a watershed, in hours. This storage volume may be provided in depressions or low areas, ponds, or in the channel and flood plain of the stream under consideration. The relative amount of storage volume within a watershed varies directly with the storage coefficient, i.e., the higher the storage coefficient, the greater the storage volume.

For this study, the time of concentration (TC) was determined based on the travel time along the longest flowpath in the sub-watershed. The NRCS TR-55 methodology was applied, which calls for the determination of travel time associated with sheet flow, shallow concentrated flow, pipe flow, and channel flow. Table 4 summarizes the TC for each of the sub-watersheds.

Table 4: Time of Concentration (Clark Parameter TC)

Subarea	**7A1**	7A2	7A3	7B1	7B2	7B3	7B4	70
Sheet Flow								
Length (ft)	300	130	190	300	300	250	300	300
Surface	Woods	Range	Woods	Range	Range	Range	Range	Range
N	0.40	0.13	0.40	0.13	0.13	0.13	0.27	0.40
Slope (ft/ft)	0.0020	0.0050	0.0074	0.0033	0.0020	0.0020	0.0020	0.0067
2-Yr 24-Hr Precip (in)	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32
Travel Time (min)	100.7	14.6	41.5	33.4	41.0	28.0	73.6	62.2
Shallow Concentrated Flow								
Length (ft)	1920	1190	4010	4490	1360	1250	4060	920
Surface	Unpaved	Paved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved
Slope (ft/ft)	0.0032	0.0050	0.0020	0.0021	0.0020	0.0020	0.0020	0.0024
Velocity (fps)	0.92	1.44	0.72	0.75	0.72	0.72	0.72	0.79
Travel Time (min)	34.9	13.8	92.6	100.3	31.4	28.9	93.8	19.4
Ditch Flow								
Length	1690		5740	1430	2580		3750	5850
Slope (ft/ft)	0.0012		0.0003	0.0028	0.0004		0.0001	0.0009
Velocity (fps)	2		2	2	2		2	2
Travel Time (min)	14.1		47.8	11.9	21.5		31.3	48.8
Time of Concentration (TC)								
Tc (min)	149.7	28.4	182.0	145.6	93.9	56.9	198.6	130.4
TC (hr)	2.50	0.47	3.03	2.43	1.57	0.95	3.31	2.17

The value for TC, along with the drainage area, Green and Ampt parameters, and ATLAS 14 precipitation were input in HEC-HMS. initial values for the Clark Unit Hydrograph value R were assumed for each sub-

watershed. A 100-year even was executed, and the R value was then adjusted until the HEC-HMS simulation returned 100-year peak flowrates that matched the peak flowrates computed using the Site Runoff Curves. The resultant TC and R values were applied for all frequencies.

Table 5 summarizes the TC and R values and supporting parameters. Table 6 presents the computed peak flowrates for each sub-watershed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events, and also presents a comparison of the 10-year and 100-year events using the Site Runoff Curves.

Table 5: HCFCD Site Runoff Curves and Clark Unit Hydrograph Parameters

Subarea				HCFCD Site Runoff Curves					Clark Unit Hydrograph	
Name	Area (acres)	Area (sm)	% Impervious	b10	b100	m	10-Yr (cfs)	100-Yr (cfs)	TC (hr)	R (hr)
7A1	139.4	0.2178	25.4%	4.03	7.14	0.786	195.2	346.1	2.50	2.186
7A2	69.7	0.1089	37.0%	4.96	8.54	0.786	139.3	239.9	0.47	1.416
7A3	330.8	0.5169	15.2%	3.31	6.02	0.786	316.3	575.0	3.03	4.240
7B1	514.2	0.8034	42.6%	5.28	9.01	0.786	713.8	1218.7	2.43	2.476
7B2	243.0	0.3797	31.6%	4.53	7.90	0.786	339.9	592.4	1.57	2.514
7B3	75.4	0.1178	42.1%	5.27	8.99	0.786	157.4	268.9	0.95	1.240
7B4	368.3	0.5755	13.2%	3.19	5.82	0.786	332.2	605.7	3.31	4.600
70	319.3	0.4989	26.3%	4.11	7.26	0.786	381.6	674.7	2.17	3.153

Table 6: Computed Subarea Peak Flowrates

Subarea	Peak Flowrate (cfs)						Difference from Site Runoff Curves (cfs)	
	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr	10-Yr	100-Yr
7A1	155.1	192.3	247.6	293.8	346.1	495.1	-2.9	0.0
7A2	119.0	143.6	179.2	208.0	239.9	330.9	4.3	0.0
7A3	242.2	305.8	401.8	482.6	575.0	842.1	-10.5	0.0
7B1	547.3	677.5	871.9	1034.4	1218.8	1745.6	-36.3	0.1
7B2	270.9	333.9	427.5	504.7	592.4	844.3	-6.0	0.0
7B3	133.3	160.9	200.7	233.1	268.9	371.3	3.5	0.0
7B4	252.2	319.5	421.3	507.3	605.7	890.7	-12.7	0.0
70	297.5	370.6	479.9	571.0	674.7	973.2	-11.0	0.0

4.0 Hydraulic Analysis (Combined 1D/2D HEC-RAS)

A coupled 1d/2d unsteady flow HEC-RAS model was utilized to compute peak flowrates and inundations for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events. The hydrographs described in Section 3.0 were introduced into HEC-RAS as boundary conditions. The physical channel network, bridges and culverts, and overland flow areas are described in the geometry. This section describes the HEC-RAS model development.

4.1 Geometry Data

Exhibit 8 presents a schematic of the HEC-RAS model. The model uses a one-dimensional flow regime to model flow within the channels, including areas within the channel banks and the near overbank extents. The two-dimensional regime was utilized to model the overbank areas away from the channel. The two-dimensional model component was selected because of potential overflows between Ditch 7A and Ditch 7B.

4.1.1 Channel Cross Sections

Channel cross sections were developed for HEC-RAS along Ditch 7, Ditch 7A, and Ditch 7B from RAS Mapper using the terrain model from the hybrid lidar and surveyed bathymetery. RAS Mapper was used to compute reach lengths along the main channel. The main overbank areas were modeled in the two-dimensional regime, although there are some small overbank areas within the one-dimensional regime that are reflected in the cross sections. The overbank areas are near to the main channel section, and therefore the channel reach length was also used for the right overbank and left overbank reach lengths.

The channels modeled in this study are all subject to maintenance and in good condition. For Ditch 7A, a Manning's "n" value of 0.04 was used to reflect the maintained condition of the trapezoidal channel. Ditch 7 and Ditch 7B have larger tidal areas that lack vegetation, and therefore the Manning's "n" value was decreased slightly relative to Ditch 7A. For these channels, an "n" value of 0.035 was assigned for the main channel. For all channels, an overbank "n" value of 0.05 was used. These values were only applied in locations proximate to the channel cross section that are typically well maintained as most of the overbank areas are modeled in the two-dimensional regime.

The confluence of Ditch 7A and Ditch 7B was modeled as a storage area. This is a more stable method than the HEC-RAS junction and returns similar results. A small storage area was determined and a stage vs. storage relationship was developed from the hybrid terrain data.

4.1.2 Bridges and Culverts

The roadway, railroad, and canal crossings were modeled using survey data obtained from the Costello survey with some augmentation with lidar data (to confirm top of road elevations). Table 3 lists the bridges and culverts in the model. The survey data did not capture information for the box culverts at Loop 197 North along Ditch 7 or at Oak Street (the very upstream portion of Ditch 7A and 7B). The crossings are generally at the modeling boundaries and were estimated from field visits, online imagery, and lidar data. Any inaccuracies from this are negligible to model results.

There are a few small pipeline crossings along Ditch 7B and one along Ditch 7. These were not introduced into the model, as their overall impact is negligible.

Table 4: Bridge and Culvert Crossing

Channel	Station	Crossing	Description	Data Source*
Ditch 7	1585	Loop 197 North (25th St N)	3 – 10' x 9' Concrete Box Culverts	1,3,4
Ditch 7	2827	SH 146 NB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7	2975	SH 147 Mainlanes	3-Span Bridge	1,2,3,4
Ditch 7	3122	SH 146 SB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7	4279	Union Pacific RR	3-Span RR Bridge	1,2,3,4
Ditch 7A	3258	GCWA Canal	2 - 60" Reinforced Concrete Pipes	1,2,3,4
Ditch 7A	3773	Unnamed Crossing	1 - 72" Steel Culvert	1,2,3,4
Ditch 7A	5565	FM 1764 Emmett Lowry Expwy	3 – 5' x 6' Concrete Box Culverts	1,2,3,4
Ditch 7A	7941	Unnamed Crossing	2 – 48" Corrugated Metal Pipes	1,2,3,4
Ditch 7A	10376	Oak St	1 – 60" Steel Culvert	
Ditch 7B	3400	FM 1764 Emmett Lowry Expwy WB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7B	3550	FM 1764 Emmett Lowry Expwy Mainlanes	3-Span Bridge	1,2,3,4
Ditch 7B	3700	FM 1764 Emmet Lowry Expwy EB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7B	5406	N. Pine Rd	3-Span Bridge	1,2,3,4
Ditch 7B	6801	5th Ave North	2-Span Bridge	1,2,3,4
Ditch 7B	9434	Oak St	3 – 10' x 10' Concrete Box Culverts	1,3,4

**1-Lidar 2-Costello Survey 3-Online Imagery 4-Field Observation*

4.1.3 Two-Dimensional Flow Areas

The overbank areas were modeled in the two-dimensional regime. HEC-RAS 2D Areas were delineated and a mesh was defined on 80-foot spacings. Breaklines were established and enforced at high points in the terrain to prevent flow from "leaking" between cells. Table 5 lists the three 2D Areas.

Table 5: HEC-RAS 2D Areas

2D Area	Description
East_2d	Area in the east overbank area of Ditch 7 and Ditch 7B
West_2d	Area in the west overbank area of Ditch 7 and Ditch 7A
Middle_2d	Area between Ditch 7A and Ditch 7B

A shapefile representing land use was developed and imported into the HEC-RAS model to establish Manning's "n" values for the two-dimensional regime. Exhibit 8 displays the land use assignments and the Manning's "n" values. Table 6 summarizes the Manning's "n" values used for the two-dimensional area.

Table 6: Manning's "n" Values – 2D Areas

Land Use	Manning's "n"	HCFCD 2d Modeling Guidelines (Range/Recommended)
Commercial	0.03	0.02-0.06/0.03[1]
Grass	0.22	0.15-0.30/0.22[2]
Industrial	0.03	0.02-0.06/0.03[1]
Multi-Family	0.06	0.02-0.06/0.03[1]
Right-of-Way	0.02	0.02-0.06/0.03[1]
Subdivision	0.16	0.06-0.20/0.16[3]
Subdivision – Large Lot	0.18	0.06-0.20/0.18[4]
Woods	0.25	0.18-0.30/0.25[5]

HCFCD 2d Modeling Guidelines Land Categories: 1 – Developed High Intensity, 2 – Pasture/ Grasslands, 3 – Developed Medium Intensity, 4 – Developed Low Intensity, 5 – Forest/Shrubs

4.1.4 Lateral Weirs

Lateral weirs were utilized to connect the one-dimensional and two-dimensional regimes. There are spoil areas adjacent to the channel banks along much of the channel network, and the lateral weirs were generally aligned with the top of these spoil banks. A weir coefficient of 0.50 was applied for the lateral weirs.

There are two 48" storm pipes that collect runoff in a swale west of Willow Street just south of its intersection with 5th Avenue N. These pipes run along the south side of 5th Avenue N to Ditch 7B and have been included in the modeling of the lateral weir along the west side of this portion of Ditch 7B.

4.1.5 Willowood Subdivision and Detention Basins

Willowood Subdivision is an ongoing 116-acre development in the center of the watershed located along and between Ditch 7A and Ditch 7B. Four detention basins are proposed – two located along Ditch 7A (Pond 1 and Pond 2), one located along Ditch 7B (Pond 3), and a fourth located west of Willow Street (Pond 4) that will drain under Willow Street into Pond 3. The land use in the hydrology includes the proposed development. Additionally, fill will be placed in the developed areas to raise the lot areas above the 100-year flood levels (the high banks of the detention areas will also be elevated, however the high banks for the two basins in the Ditch 7B will be elevated but not above the 100-year flood elevation.

Details of the Willowood Subdivision and its drainage features are descried in a separate report prepared by Burton Johnson Engineering, Inc. entitled *Willowood Subdivision Drainage Impact Analysis, Galveston County Drainage District No. Two, City of Texas City, Texas.* The detention basins were modeled as storage areas. Ponds 1, 2, and 3 were connected to the adjacent streams with lateral structures, while Pond 4 was connected to Pond 3 using a storage area connection. The stage vs. storage relationships for each basin along with the outfall structure are the same as those utilized in the Drainage Impact Analysis.

4.1.6 Boundary Conditions

Boundary Conditions utilized in the HEC-RAS model consist of the hydrographs computed in HEC-HMS and described in Section 3.0 as well as an internal 2D boundary condition upstream of a culvert that drains

areas east of Willow Street to Ditch 7B. In addition, external 2D boundary conditions are defined at the perimeters of portions of the 2D Areas. These external 2D boundary conditions are necessary to manage flow at the perimeter of the 2D flow areas. Without a boundary condition, flow will consider the perimeter of the 2D area as a wall.

The downstream boundary condition for the model is based on normal depth flow. As noted in Section 2.2 of this report, the project area is influenced by coastal elevations in Moses Lake and Galveston Bay. This analysis and subsequent mapping only considers the impact and inundation from riverine flooding resulting from a rainfall event over the area. The analysis and mapping does not consider coastal flooding or a combined probability analysis. While a combined analysis will provide a more accurate depiction fo flood risk, the riverine model prepared for this project is more appropriate for evaluating potential impacts from development and formulating riverine floor risk mitigation measures.

The sub-watershed hydrographs were assigned to locations within the HEC-RAS model. Most hydrograph assignments were prorated portions of the sub-watershed. The prorations were determined by identifying subareas of each sub-watershed that define a smaller area to a channel reach or detention basin, and then developing a HEC-HMS model recognizing these subareas. These prorate areas are illustrated in Exhibit 8. The parent sub-watershed TC and R values were applied, however the actual impervious cover was computed for each subarea. The HEC-HMS output includes the total runoff volume for each subarea. The subarea volume was compared to the parent sub-watershed volume to develop the prorate percentage of flow. Table 7 summarizes the determination of the pro-rate percentages for each sub-watershed subarea.

Table 7: Sub-Watershed Hydrograph Prorata Calculation

Subwatershed (Parent)			Subwatershed Subarea (Child)					Prorata Volume %
Name	Area (sm)	Volume (ac-ft)	Name	Area (ac)	Area (sm)	% IMP	Volume (ac-ft)	
7A1	0.2178	186.3	7A1_1	69.1	0.1079	42.1%	94.4	50.7%
7A1	0.2178	186.3	7A1_2	33.3	0.0521	7.8%	43.5	23.3%
7A1	0.2178	186.3	7A1_3	37.0	0.0578	9.8%	48.4	26.0%
7A2	0.1089	94.6	7A2_1	18.4	0.0288	1.3%	23.8	25.2%
7A2	0.1089	94.6	7A2_P1	24.9	0.0389	50.6%	34.4	36.4%
7A2	0.1089	94.6	7A2_P2	26.3	0.0412	49.1%	36.4	38.5%
7A3	0.5169	435.8	7A3_1	64.0	0.1000	47.3%	88.1	20.2%
7A3	0.5169	435.8	7A3_2	266.8	0.4169	7.4%	347.7	79.8%
7B1	0.8034	703.6	7B1	514.2	0.8034	42.6%	703.6	100.0%
7B2	0.3797	323.6	7B2_1	177.9	0.2779	29.6%	239.1	73.9%
7B2	0.3797	323.6	7B2_C	62.2	0.0972	37.0%	84.5	26.1%
7B3	0.1178	107.2	7B3_1	13.4	0.0210	6.2%	17.5	16.3%
7B3	0.1178	107.2	7B3_P3	24.7	0.0386	61.8%	34.7	32.4%
7B3	0.1178	107.2	7B3_P4	40.2	0.0628	42.2%	55.0	51.3%
7B4	0.5755	483.9	7B4_1	187.9	0.2936	16.4%	248.0	51.3%
7B4	0.5755	483.9	7B4_2	180.4	0.2819	9.9%	235.9	48.7%
70	0.4989	427.3	70_1	257.3	0.4021	31.2%	346.7	81.1%
70	0.4989	427.3	70_2	62.0	0.0968	6.2%	80.6	18.9%

Table 8 summarizes the internal boundary conditions, which consist of the inflow hydrographs; and Table 9 summarizes the external boundary conditions, which consists of normal depth flow.

Table 8: Internal Boundary Conditions

1D/2D	HEC-RAS Location	Type	Sub-watershed	Subarea	% of Subwatershed Hydrograph
Ditch 7A					
1D	10400	Flow Hydrograph	7A1	7A1_1	50.7%
1D	10297 - 8696	Uniform Lateral Inflow	7A1	7A1_2	23.3%
1D	8597	Lateral Inflow	7A1	7A1_3	26.0%
1D	8384 - 6917	Lateral Inflow	7A2	7A2_1	25.2%
1D	Pond 1	Lateral Inflow	7A2	7A2_P1	36.4%
1D	Pond 2	Lateral Inflow	7A2	7A2_P2	38.5%
1D	8531 - 6241	Uniform Lateral Inflow	7A3	7A3_1	20.2%
1D	5317 - 667	Uniform Lateral Inflow	7A3	7A3_2	79.8%
Ditch 7B					
1D	9477	Flow Hydrograph	7B1	7B1	100%
1D	9225 – 7101	Uniform Lateral Inflow	7B2	7B2_1	73.9%
2D	Middle_L1: B20	Lateral Inflow	7B2	7B2_C	26.1%
1D	6446 - 5771	Uniform Lateral Inflow	7B3	7B3_1	16.3%
1D	Pond 3	Lateral Inflow	7B3	7B3_P3	32.4%
1D	Pond 4	Lateral Inflow	7B3	7B3_P4	51.3%
1D	5074 - 3832	Uniform Lateral Inflow	7B4	7B4_1	51.3%
1D	3194 - 499	Uniform Lateral Inflow	7B4	7B4_1	48.7%
Ditch 7					
1D	4313 - 1728	Uniform Lateral Inflow	70	70_1	81.1%
1D	1419 - 528	Uniform Lateral Inflow	70	70-_2	18.9%

Table 8: 2D Boundary Conditions (External)

1D/2D	HEC-RAS Location	Type	Descriptive Location	Slope (ft/ft)
2D	West_2d: West1	Normal Depth	Northwest Perimeter	0.0005
2D	West_2d: DS_Left	Normal Depth	Left Overbank at Mouth	0.0005
2D	East_2d: East 1	Normal Depth	Southeast Perimeter	0.0005
2D	East_2d: East 2	Normal Depth	East Perimeter	0.0005
2D	East_2d: DS_Right	Normal Depth	Right Overbank	0.0005
1D	Ditch 7: XS 328	Normal Depth	Mouth of Ditch 7	0.0005

5.0 Results

The resultant coupled 1d/2d HEC-RAS model was executed using HEC-RAS version 6.3.1. The results are presented in this section.

5.1 Inundation

Exhibit 9 depicts the inundation for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events. As the exhibit indicates, the inundation results in large floodplains. There are overflows and out of bank flooding even during the 5-year event. This inundation mapping, as well as the inundations presented in Exhibits 10 and 11 only reflect riverine flood risk and do not incorporate coastal flooding.

Exhibit 10 shows the 100-year inundation shaded by the computed 100-year water surface elevation. The map also includes 100-year elevation lines (similar to Base Flood Elevation lines on a FEMA Flood Insurance Rate Map). Exhibit 11 shows a 100-year depth grid based on the 100-year riverine model.

5.2 Computed Water Surface Elevations

Table 9 presents the computed water surface elevations along Ditch 7, Ditch 7A, and Ditch 7B. These elevations are based on a normal depth downstream boundary condition and do not consider the influence of Galveston Bay, which has a 100-year elevation of 5.0.

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	328	1.69	2.03	2.37	2.60	2.82	3.33	Moses Lake
Ditch 7	528	1.79	2.12	2.47	2.70	2.92	3.42	
Ditch 7	766	1.97	2.31	2.66	2.89	3.11	3.63	
Ditch 7	1030	2.03	2.36	2.71	2.95	3.17	3.68	
Ditch 7	1272	2.04	2.37	2.71	2.95	3.16	3.66	
Ditch 7	1419	2.18	2.50	2.84	3.07	3.29	3.80	
Ditch 7	1543	2.14	2.46	2.79	3.01	3.21	3.72	
Ditch 7	1639	2.60	3.00	3.46	3.81	4.18	4.99	Loop 197 North
Ditch 7	1728	2.66	3.08	3.54	3.91	4.30	5.11	
Ditch 7	1985	2.83	3.24	3.71	4.07	4.45	5.23	
Ditch 7	2269	3.01	3.41	3.86	4.22	4.59	5.36	
Ditch 7	2578	3.25	3.63	4.06	4.40	4.76	5.51	
Ditch 7	2795	3.43	3.82	4.25	4.58	4.93	5.66	
Ditch 7	2861	3.45	3.84	4.27	4.61	4.95	5.69	SH 146 NB Access Rd
Ditch 7	2913	3.46	3.85	4.28	4.61	4.96	5.70	
Ditch 7	3041	3.49	3.88	4.31	4.64	4.99	5.72	SH 146 Mainlanes
Ditch 7	3090	3.50	3.89	4.31	4.65	5.00	5.73	
Ditch 7	3163	3.51	3.90	4.32	4.66	5.01	5.74	SH 146 SB Access Rd
Ditch 7	3247	3.51	3.90	4.32	4.66	5.01	5.74	
Ditch 7	3834	3.64	4.03	4.45	4.79	5.13	5.86	
Ditch 7	4025	3.73	4.11	4.53	4.87	5.20	5.92	
Ditch 7	4219	3.79	4.17	4.59	4.92	5.25	5.94	
Ditch 7	4232	3.80	4.17	4.59	4.92	5.25	5.94	
Ditch 7	4313	3.88	4.28	4.74	5.11	5.47	6.21	Union Pacific RR
Ditch 7	4328	3.89	4.29	4.76	5.13	5.49	6.23	
Ditch 7A	10	3.89	4.29	4.76	5.13	5.49	6.23	Confluence Ditch 7
Ditch 7A	667	4.11	4.49	4.89	5.23	5.56	6.28	

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7A	1397	4.31	4.67	5.06	5.36	5.68	6.37	
Ditch 7A	2061	4.48	4.82	5.19	5.47	5.77	6.44	
Ditch 7A	2858	4.71	5.03	5.38	5.63	5.89	6.54	
Ditch 7A	3161	4.81	5.12	5.45	5.69	5.94	6.57	
Ditch 7A	3360	5.81	6.15	6.51	6.75	6.96	7.59	GCWA Canal
Ditch 7A	3428	5.84	6.17	6.53	6.76	6.97	7.59	
Ditch 7A	3645	5.87	6.20	6.55	6.78	6.99	7.60	
Ditch 7A	3746	5.88	6.21	6.56	6.79	6.99	7.61	
Ditch 7A	3801	6.56	6.75	6.94	7.07	7.20	7.68	Unnamed Crossing
Ditch 7A	3879	6.56	6.75	6.93	7.07	7.20	7.68	
Ditch 7A	4523	6.60	6.79	6.97	7.10	7.23	7.72	
Ditch 7A	5245	6.64	6.82	7.01	7.15	7.28	7.79	
Ditch 7A	5313	6.64	6.83	7.01	7.15	7.29	7.79	
Ditch 7A	5351	6.64	6.83	7.01	7.15	7.29	7.80	
Ditch 7A	5765	6.77	6.97	7.15	7.27	7.40	7.86	FM 1764
Ditch 7A	5994	6.79	6.99	7.18	7.31	7.44	7.88	
Ditch 7A	6241	6.84	7.06	7.27	7.41	7.56	8.01	
Ditch 7A	6531	6.88	7.13	7.38	7.53	7.71	8.19	
Ditch 7A	6917	6.92	7.18	7.46	7.62	7.80	8.30	
Ditch 7A	7417	7.09	7.40	7.70	7.88	8.06	8.56	
Ditch 7A	7879	7.17	7.50	7.81	7.99	8.17	8.66	
Ditch 7A	7920	7.19	7.52	7.84	8.01	8.19	8.68	
Ditch 7A	7968	8.14	8.75	9.13	9.31	9.45	9.77	Unnamed Crossing
Ditch 7A	8024	8.15	8.76	9.13	9.30	9.44	9.77	
Ditch 7A	8187	8.16	8.78	9.15	9.32	9.45	9.76	
Ditch 7A	8384	8.20	8.82	9.22	9.40	9.54	9.87	
Ditch 7A	8597	8.24	8.87	9.28	9.47	9.63	9.97	
Ditch 7A	8696	8.25	8.88	9.29	9.48	9.64	9.98	
Ditch 7A	8878	8.27	8.90	9.31	9.51	9.67	10.01	
Ditch 7A	9071	8.29	8.92	9.35	9.55	9.71	10.07	
Ditch 7A	9304	8.33	8.96	9.39	9.60	9.78	10.16	
Ditch 7A	9540	8.54	9.18	9.66	9.91	10.15	10.66	
Ditch 7A	9731	8.56	9.20	9.68	9.95	10.19	10.71	
Ditch 7A	10029	8.62	9.25	9.75	10.02	10.27	10.82	
Ditch 7A	10297	8.71	9.33	9.83	10.12	10.38	10.95	
Ditch 7A	10332	8.71	9.33	9.83	10.10	10.37	10.93	
Ditch 7A	10396	9.88	10.48	11.34	12.05	13.00	118.95	Oak St
Ditch 7A	10400	9.88	10.48	11.34	12.05	13.00	118.95	Study Limit
Ditch 7B	109	3.89	4.29	4.76	5.13	5.49	6.23	Confluence Ditch 7
Ditch 7B	499	4.05	4.45	4.92	5.29	5.65	6.35	
Ditch 7B	1230	4.22	4.61	5.09	5.45	5.81	6.48	
Ditch 7B	1784	4.31	4.71	5.19	5.55	5.90	6.56	
Ditch 7B	2517	4.46	4.86	5.36	5.72	6.06	6.71	
Ditch 7B	3194	4.58	4.97	5.48	5.84	6.16	6.79	
Ditch 7B	3354	4.60	4.99	5.51	5.88	6.20	6.83	
Ditch 7B	3441	4.63	5.04	5.58	5.97	6.31	7.01	FM 1764 WB Access Rd
Ditch 7B	3494	4.64	5.04	5.59	5.97	6.32	7.03	
Ditch 7B	3638	4.66	5.07	5.62	6.02	6.37	7.09	FM 1764 Mainlanes
Ditch 7B	3671	4.66	5.07	5.62	6.02	6.37	7.09	
Ditch 7B	3760	4.69	5.11	5.68	6.10	6.47	7.26	FM 1764 EB Access Rd
Ditch 7B	3832	4.70	5.11	5.68	6.10	6.47	7.25	
Ditch 7B	4292	4.74	5.15	5.75	6.19	6.58	7.42	

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7B	4354	4.74	5.16	5.75	6.19	6.58	7.42	
Ditch 7B	4426	4.75	5.16	5.75	6.19	6.59	7.42	
Ditch 7B	4555	4.76	5.18	5.77	6.20	6.60	7.44	
Ditch 7B	4729	4.79	5.21	5.79	6.23	6.63	7.46	
Ditch 7B	4932	4.83	5.25	5.82	6.25	6.64	7.47	
Ditch 7B	5074	4.84	5.26	5.82	6.25	6.64	7.47	
Ditch 7B	5292	4.89	5.31	5.85	6.26	6.65	7.46	
Ditch 7B	5468	5.12	5.59	6.12	6.47	6.81	7.57	N. Pine Rd
Ditch 7B	5771	5.13	5.61	6.15	6.49	6.84	7.58	
Ditch 7B	6446	5.25	5.72	6.26	6.55	6.87	7.59	
Ditch 7B	6730	5.31	5.77	6.27	6.53	6.85	7.58	
Ditch 7B	6867	5.54	6.07	6.59	6.85	7.15	7.83	5th Ave North
Ditch 7B	7101	5.60	6.13	6.65	6.91	7.22	7.91	
Ditch 7B	7892	5.81	6.33	6.86	7.15	7.48	8.14	
Ditch 7B	8213	5.89	6.40	6.92	7.21	7.53	8.17	
Ditch 7B	8699	6.15	6.68	7.23	7.56	7.88	8.55	
Ditch 7B	9084	6.53	7.12	7.75	8.14	8.49	9.21	
Ditch 7B	9225	6.57	7.17	7.80	8.20	8.54	9.24	
Ditch 7B	9346	6.62	7.22	7.87	8.28	8.63	9.35	
Ditch 7B	9469	6.58	7.22	7.95	8.45	8.93	10.13	Oak St
Ditch 7B	9477	6.57	7.20	7.92	8.41	8.88	10.06	Study Limit

5.3 Peak Flowrates and Hydrographs

Table 10 presents the computed peak flowrates along the one-dimensional reaches. These flowrates only consider the flow in the one-dimensional regime. Flow in the floodplain that is modeled in the two-dimensional regime are not considered.

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	1,189	1,248	1,409	1,594	1,728	1,856	2,180	Moses Lake
Ditch 7	1,198	1,250	1,412	1,594	1,731	1,864	2,195	
Ditch 7	1,183	1,233	1,390	1,567	1,698	1,826	2,146	
Ditch 7	1,168	1,223	1,378	1,551	1,693	1,820	2,146	
Ditch 7	1,154	1,213	1,361	1,524	1,656	1,793	2,074	
Ditch 7	1,144	1,206	1,355	1,526	1,665	1,809	2,075	
Ditch 7	1,139	1,204	1,353	1,526	1,662	1,811	2,026	
Ditch 7	1,139	1,204	1,353	1,527	1,662	1,813	2,026	Loop 197 North
Ditch 7	1,133	1,203	1,348	1,514	1,638	1,772	1,978	
Ditch 7	1,124	1,184	1,320	1,461	1,577	1,684	1,944	
Ditch 7	1,114	1,162	1,293	1,427	1,538	1,636	1,876	
Ditch 7	1,102	1,137	1,263	1,396	1,508	1,608	1,838	
Ditch 7	1,094	1,119	1,244	1,388	1,514	1,638	1,923	
Ditch 7	1,094	1,119	1,244	1,388	1,514	1,641	1,923	SH 146 NB Access Rd
Ditch 7	1,096	1,116	1,240	1,385	1,515	1,636	1,909	
Ditch 7	1,096	1,116	1,240	1,385	1,515	1,636	1,909	SH 146 Mainlanes
Ditch 7	1,094	1,109	1,231	1,373	1,502	1,625	1,905	
Ditch 7	1,094	1,109	1,231	1,373	1,502	1,625	1,905	SH 146 SB Access Rd
Ditch 7	1,090	1,104	1,226	1,366	1,495	1,612	1,870	

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	1,067	1,056	1,163	1,287	1,394	1,489	1,581	
Ditch 7	1,059	1,040	1,146	1,266	1,377	1,473	1,575	
Ditch 7	1,074	1,024	1,127	1,246	1,371	1,495	1,661	
Ditch 7	1,073	1,023	1,126	1,242	1,365	1,487	1,649	
Ditch 7	1,073	1,023	1,127	1,244	1,370	1,487	1,651	Union Pacific RR
Ditch 7	1,074	1,023	1,128	1,248	1,376	1,493	1,664	
Ditch 7A	263	271	298	304	309	301	370	Confluence Ditch 7
Ditch 7A	262	271	300	327	319	336	385	
Ditch 7A	240	241	265	287	285	290	299	
Ditch 7A	220	214	231	246	253	255	295	
Ditch 7A	197	182	190	197	200	195	210	
Ditch 7A	188	170	174	177	177	172	168	
Ditch 7A	188	170	175	177	178	175	177	GCWA Canal
Ditch 7A	185	167	171	175	178	180	212	
Ditch 7A	177	155	154	153	153	157	196	
Ditch 7A	161	132	120	109	107	114	170	
Ditch 7A	161	132	121	109	108	115	171	Unnamed Crossing
Ditch 7A	188	160	158	155	159	169	226	
Ditch 7A	170	143	153	170	192	219	325	
Ditch 7A	167	131	162	190	224	252	292	
Ditch 7A	170	134	168	201	240	273	322	
Ditch 7A	181	148	191	225	266	304	357	
Ditch 7A	181	149	191	242	269	308	364	FM 1764
Ditch 7A	191	158	212	283	317	370	468	
Ditch 7A	186	158	213	285	323	372	480	
Ditch 7A	180	112	153	208	233	265	341	
Ditch 7A	172	128	164	201	220	236	281	
Ditch 7A	151	124	159	181	195	206	240	
Ditch 7A	142	123	161	192	210	223	268	
Ditch 7A	142	123	158	185	201	214	249	
Ditch 7A	142	126	162	190	206	219	251	Unnamed Crossing
Ditch 7A	148	127	177	221	247	265	292	
Ditch 7A	138	131	174	232	265	293	353	
Ditch 7A	130	132	174	231	268	302	363	
Ditch 7A	149	98	129	172	200	228	275	
Ditch 7A	147	97	130	172	200	229	294	
Ditch 7A	118	95	128	171	203	238	318	
Ditch 7A	110	94	125	168	201	238	327	
Ditch 7A	105	91	122	164	198	233	323	
Ditch 7A	80	76	102	139	165	196	272	
Ditch 7A	76	75	99	135	161	190	269	
Ditch 7A	70	72	95	129	154	182	258	
Ditch 7A	64	70	92	124	148	174	247	
Ditch 7A	64	70	92	124	148	174	247	
Ditch 7A	64	79	97	126	149	175	247	Oak St
Ditch 7A	64	79	97	126	149	175	247	Study Limit
Ditch 7B	927	700	774	898	980	1,068	1,140	Confluence Ditch 7
Ditch 7B	924	700	775	901	967	1,043	1,092	
Ditch 7B	896	670	742	873	931	982	1,098	
Ditch 7B	881	646	721	873	958	999	1,130	
Ditch 7B	836	614	682	814	901	942	1,062	
Ditch 7B	863	595	674	862	1,027	1,144	1,521	

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7B	862	596	675	862	1,031	1,167	1,541	
Ditch 7B	862	596	675	863	1,038	1,206	1,586	FM 1764 WB Access Rd
Ditch 7B	864	597	676	863	1,039	1,208	1,587	
Ditch 7B	864	597	676	864	1,042	1,213	1,596	FM 1764 Mainlanes
Ditch 7B	866	598	676	864	1,043	1,214	1,613	
Ditch 7B	866	598	676	864	1,045	1,222	1,636	FM 1764 EB Access Rd
Ditch 7B	906	613	703	872	1,068	1,256	1,675	
Ditch 7B	864	562	639	664	713	773	843	
Ditch 7B	844	558	647	662	710	761	818	
Ditch 7B	868	570	664	689	740	800	868	
Ditch 7B	853	562	663	649	678	724	765	
Ditch 7B	837	546	644	612	605	620	619	
Ditch 7B	816	524	619	589	553	529	475	
Ditch 7B	826	526	627	610	578	554	523	
Ditch 7B	827	536	648	682	660	659	718	
Ditch 7B	827	544	651	783	732	705	740	N. Pine Rd
Ditch 7B	1,011	639	692	785	637	583	633	
Ditch 7B	987	657	729	744	726	795	1,033	
Ditch 7B	975	663	731	913	957	1,053	1,267	
Ditch 7B	975	685	783	932	1,050	1,168	1,334	5th Ave North
Ditch 7B	962	690	783	939	1,065	1,181	1,361	
Ditch 7B	924	669	771	926	1,055	1,174	1,427	
Ditch 7B	977	613	753	924	1,054	1,172	1,466	
Ditch 7B	975	601	744	922	1,065	1,187	1,494	
Ditch 7B	904	550	684	876	1,038	1,186	1,582	
Ditch 7B	891	542	673	864	1,026	1,202	1,676	
Ditch 7B	891	543	674	866	1,030	1,208	1,735	
Ditch 7B	891	542	674	869	1,032	1,214	1,744	Oak St
Ditch 7B	891	542	674	868	1,032	1,215	1,744	Study Limit

Exhibit 11 shows Hydrograph Computation lines that represent hydrographs computed across Profile Lines in RAS Mapper. Four Hydrograph Computation Lines are identified along both Ditch 7A and Ditch 7B, and three Hydrograph Computation Lines are identified along Ditch 7. Exhibit 12 shows the hydrographs computed across the Hydrograph Computation Lines for the 5-year, 10-year, 25-year, 100-year, and 500-year events.

Exhibits

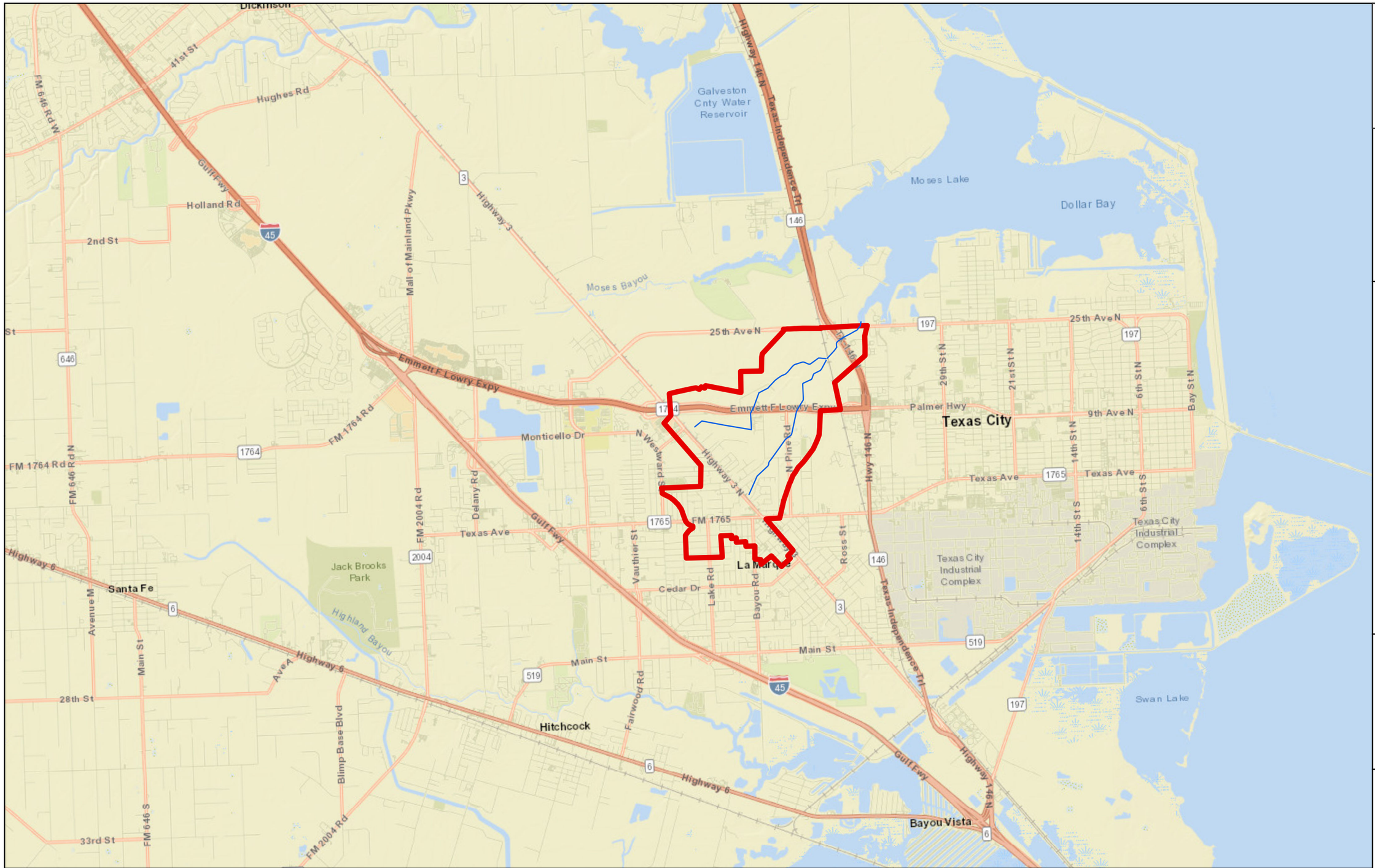


Exhibit 1 - Location Map

BJE

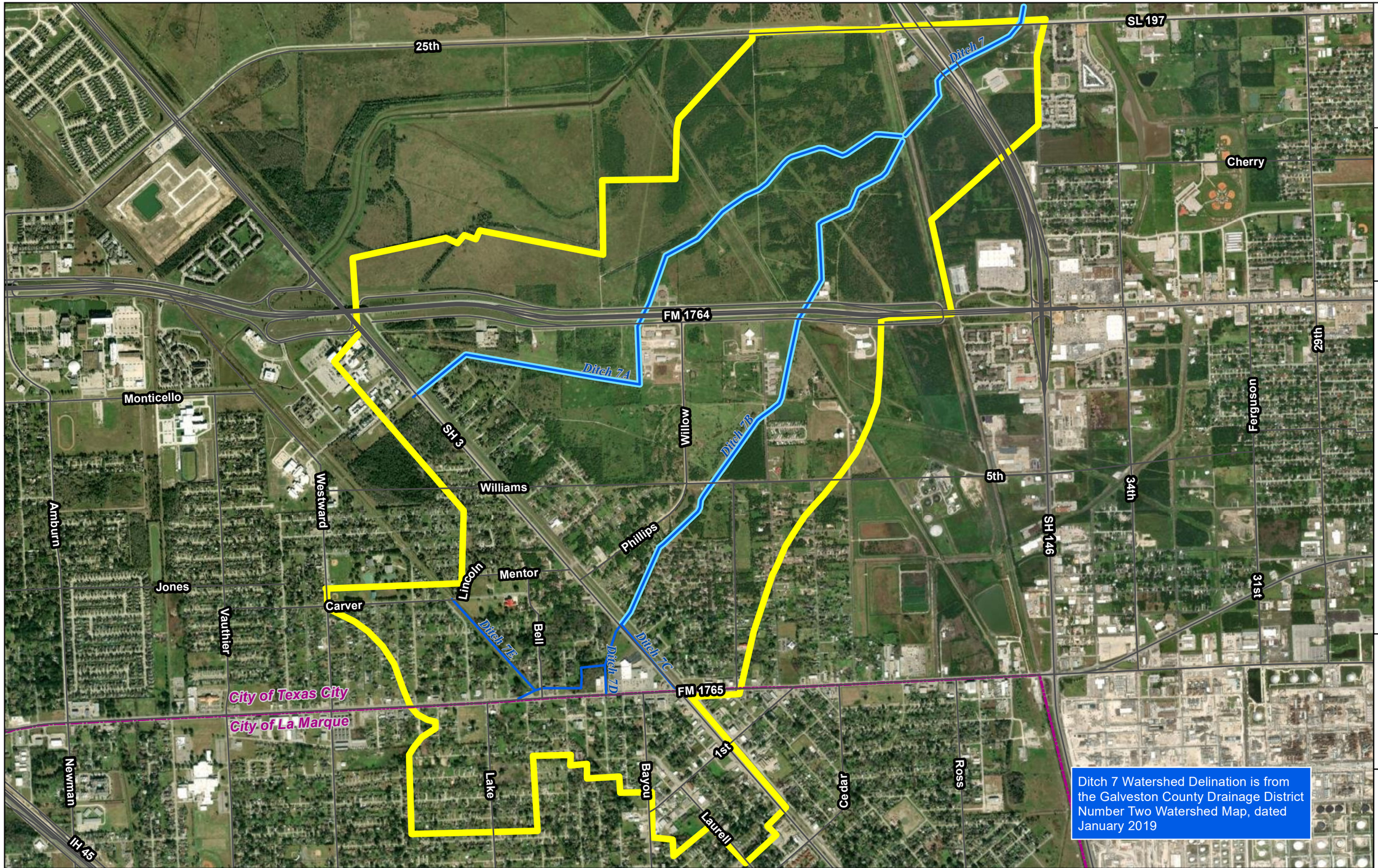
N
W E
S

0 0.5 1 Miles

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Ditch 7 Channels
Ditch 7 Watershed



BJE

N
W E
S

Feet
0 750 1,500

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- Roads
- Ditch 7 Channels
- Studied Channels
- City Limits
- Ditch 7 Watershed

Exhibit 2 - Ditch 7 Watershed

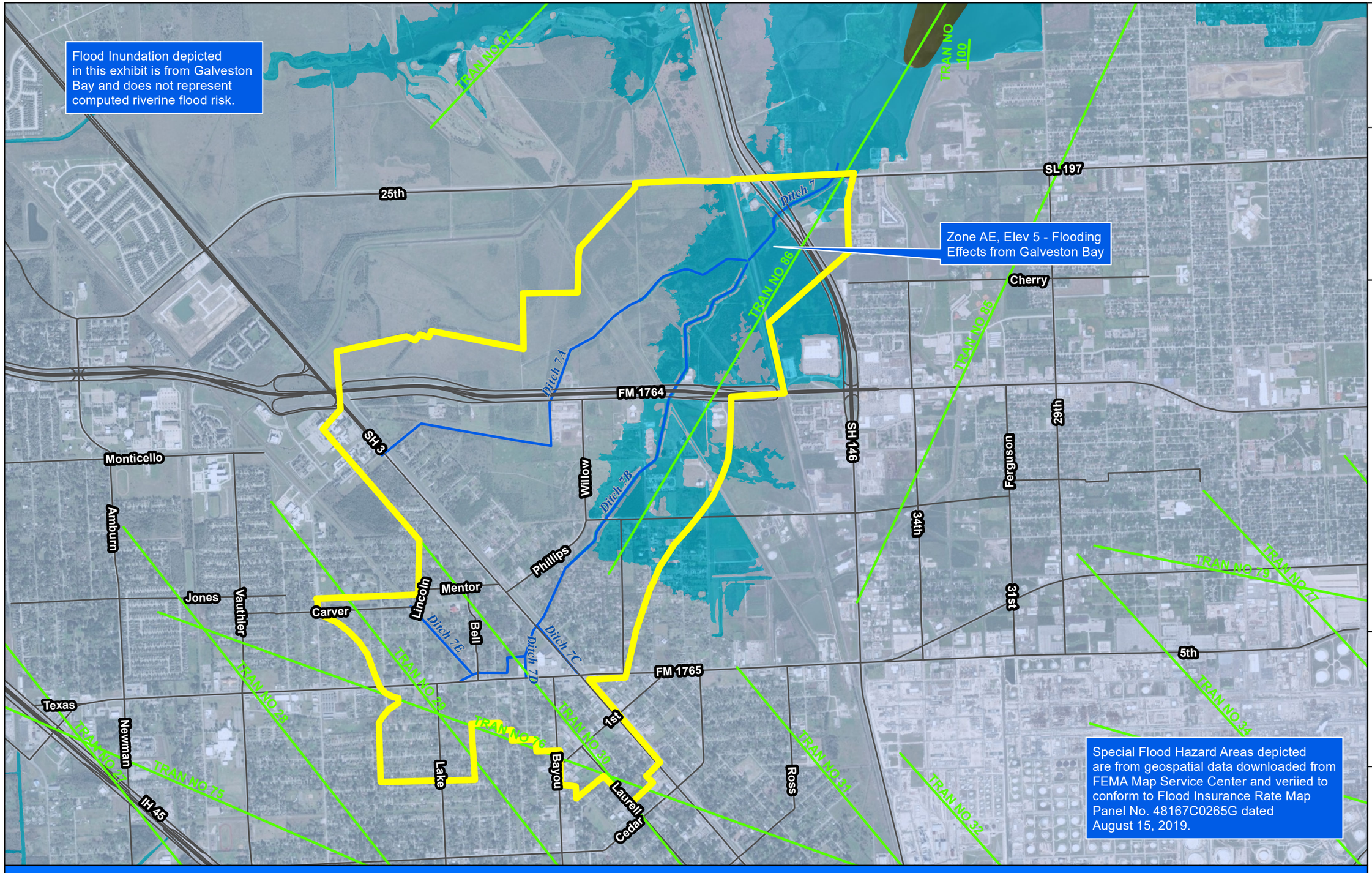


Exhibit 3 - FEMA Speical Flood Hazard Areas

BJE

N
W E
S

0 1,000 2,000 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- Ditch 7 Watershed
- S_CST_TSCT_LN
- Roads
- Ditch 7 Channels
- Zone AE (1%)
- Shaded Zone X (0.2%)

Exhibit 4 - Bathymetry and Survey

BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Survey Sections
Survey Points
Roads
Study Channels

Exhibit 5 - Topography and Digital Elevation Model

BJE

N
W
E
S

0 500 1,000 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, DITCH 7A, DITCH 7B)
Galveston County DD No. 2

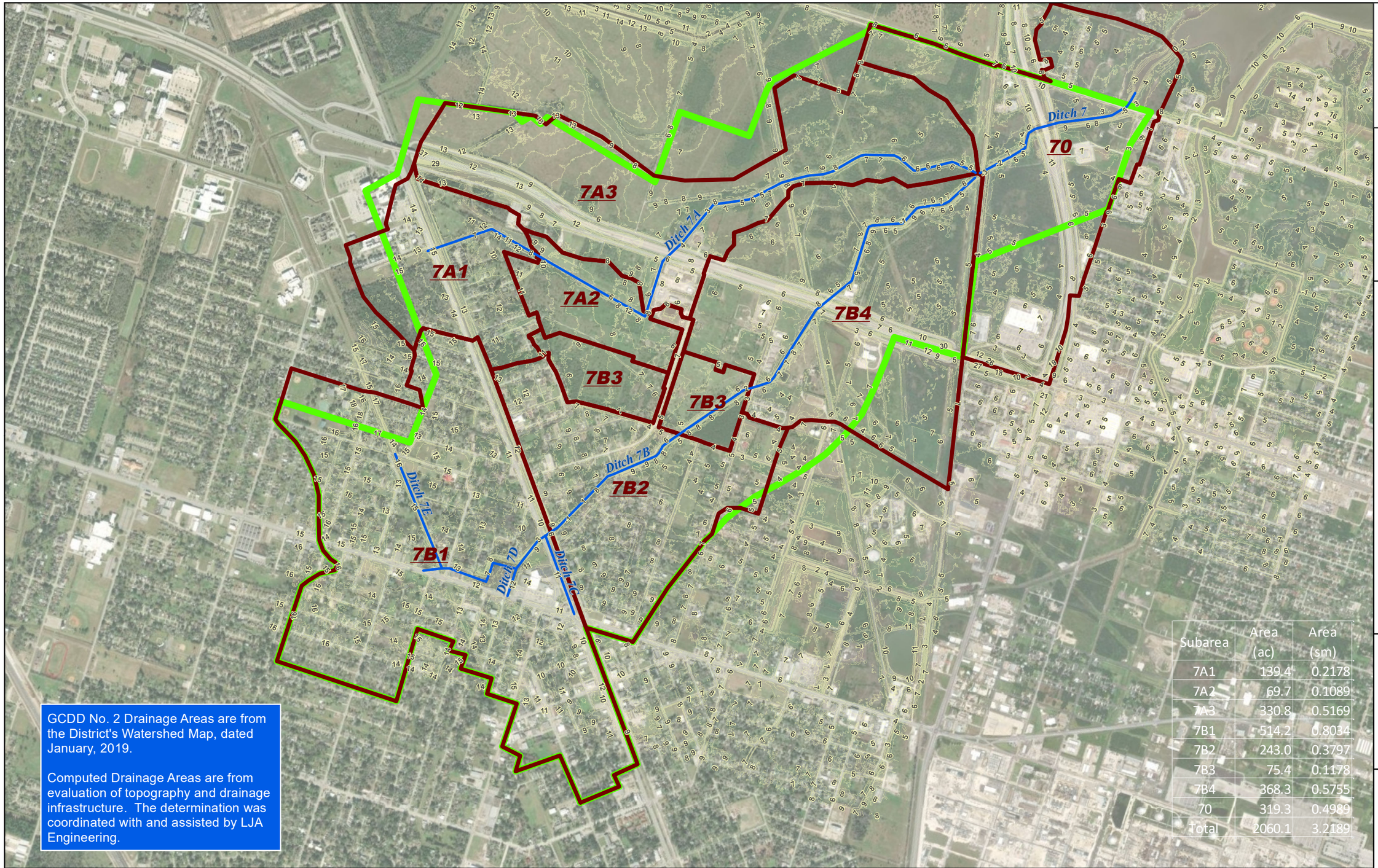
Floodplain Modeling & Mapping

- Study Channels
- Elevation Contour
- Ditch 7 Watershed
- Roads

DEM Elevation

High : 40

Low : -10



GCDD No. 2 Drainage Areas are from the District's Watershed Map, dated January, 2019.

Computed Drainage Areas are from evaluation of topography and drainage infrastructure. The determination was coordinated with and assisted by LJA Engineering.

Subarea	Area (ac)	Area (sm)
7A1	139.4	0.2178
7A2	69.7	0.1089
7A3	330.8	0.5169
7B1	514.2	0.8034
7B2	243.0	0.3797
7B3	75.4	0.1178
7B4	368.3	0.5755
70	319.3	0.4989
Total	2060.1	3.2189

Exhibit 6 - Subarea Map

BJE

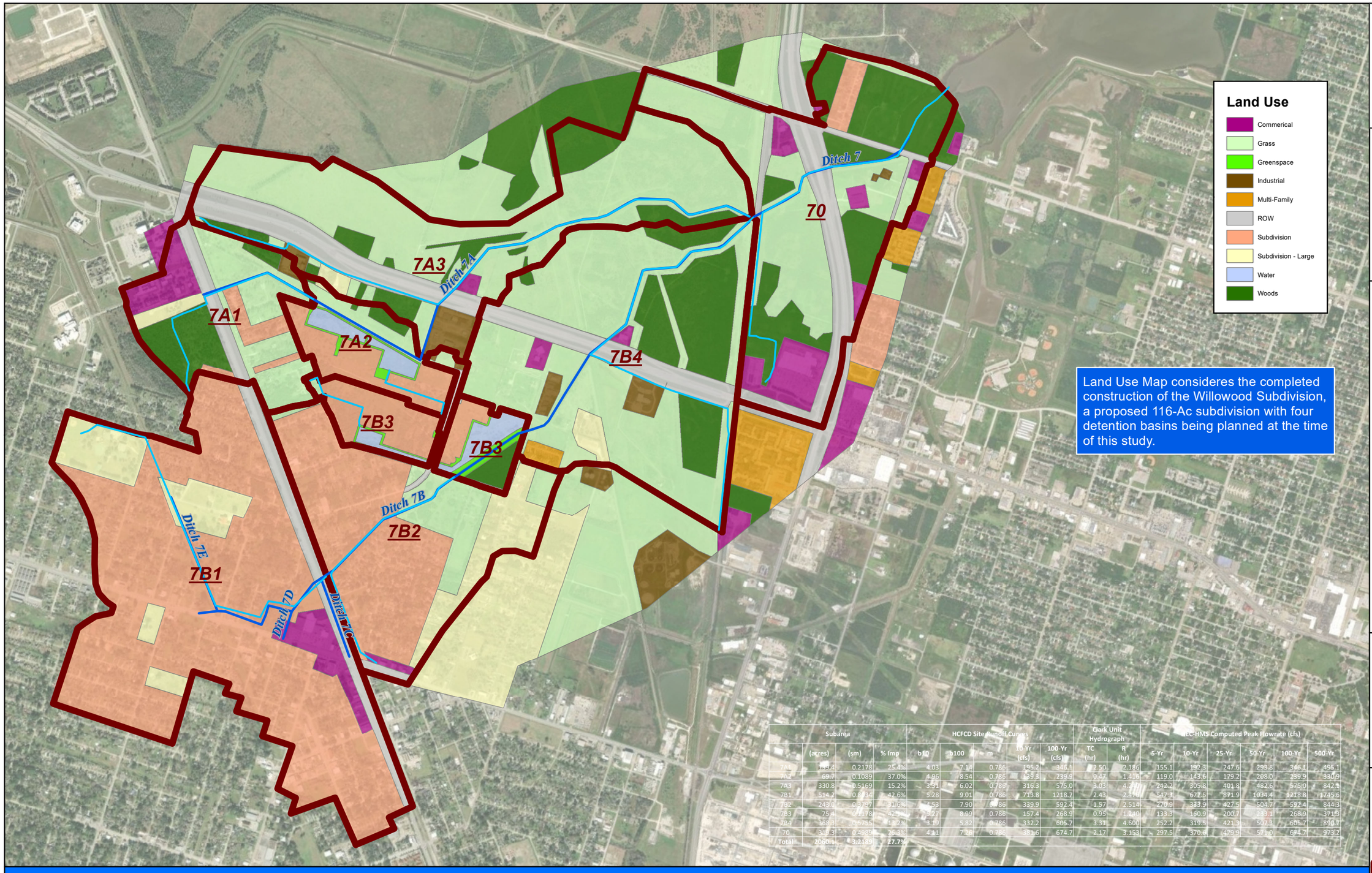
N W E S

0 750 1,500 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Ditch 7 Channels
Computed Drainage Area
GCDD No. 2 Drainage Area
Elevation Contour



Subarea				HCFCD Site Runoff Curves					Clark Unit Hydrograph		HEC-HMS Computed Peak Flowrate (cfs)					
	(acres)	(sm)	% Imp	b10	b100	m	10-Yr (cfs)	100-Yr (cfs)	TC (hr)	R (hr)	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
7A1	138.4	0.2178	25.4%	4.03	7.14	0.786	195.2	346.1	2.50	2.186	155.1	192.3	247.6	293.8	346.1	495.1
7A2	69.7	0.1089	37.0%	4.96	8.54	0.786	139.5	239.9	0.47	1.416	119.0	143.6	179.2	208.0	239.9	330.9
7A3	330.8	0.5169	15.2%	3.51	6.02	0.786	316.3	575.0	3.03	4.2	242.2	305.8	401.8	482.6	575.0	842.1
7B1	514.2	0.8034	42.6%	5.28	9.01	0.786	713.8	1218.7	2.43	2.470	547.3	677.5	871.9	1034.4	1218.8	1745.6
7B2	243.0	0.3797	31.6%	4.53	7.90	0.786	339.9	592.4	1.57	2.514	270.9	333.9	427.5	504.7	592.4	844.3
7B3	75.4	0.1178	42%	5.27	8.99	0.786	157.4	268.9	0.95	1.240	133.3	160.9	200.7	233.1	268.9	371.3
7B4	368.8	0.5763	13.2%	3.19	5.82	0.786	332.2	605.7	3.31	4.600	252.2	319.5	421.3	507.3	605.7	890.7
70	318.3	0.4973	29.3%	4.11	7.28	0.786	383.6	674.7	2.17	3.153	297.5	370.6	479.9	571.0	674.7	973.2
Total	2060.1	3.2183	27.7%													

Exhibit 7 - Hydrology

BJE

N
W
E
S

Feet
0 750 1,500

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Longest Flowpath
Ditch 7 Channels
Subwatershed Areas

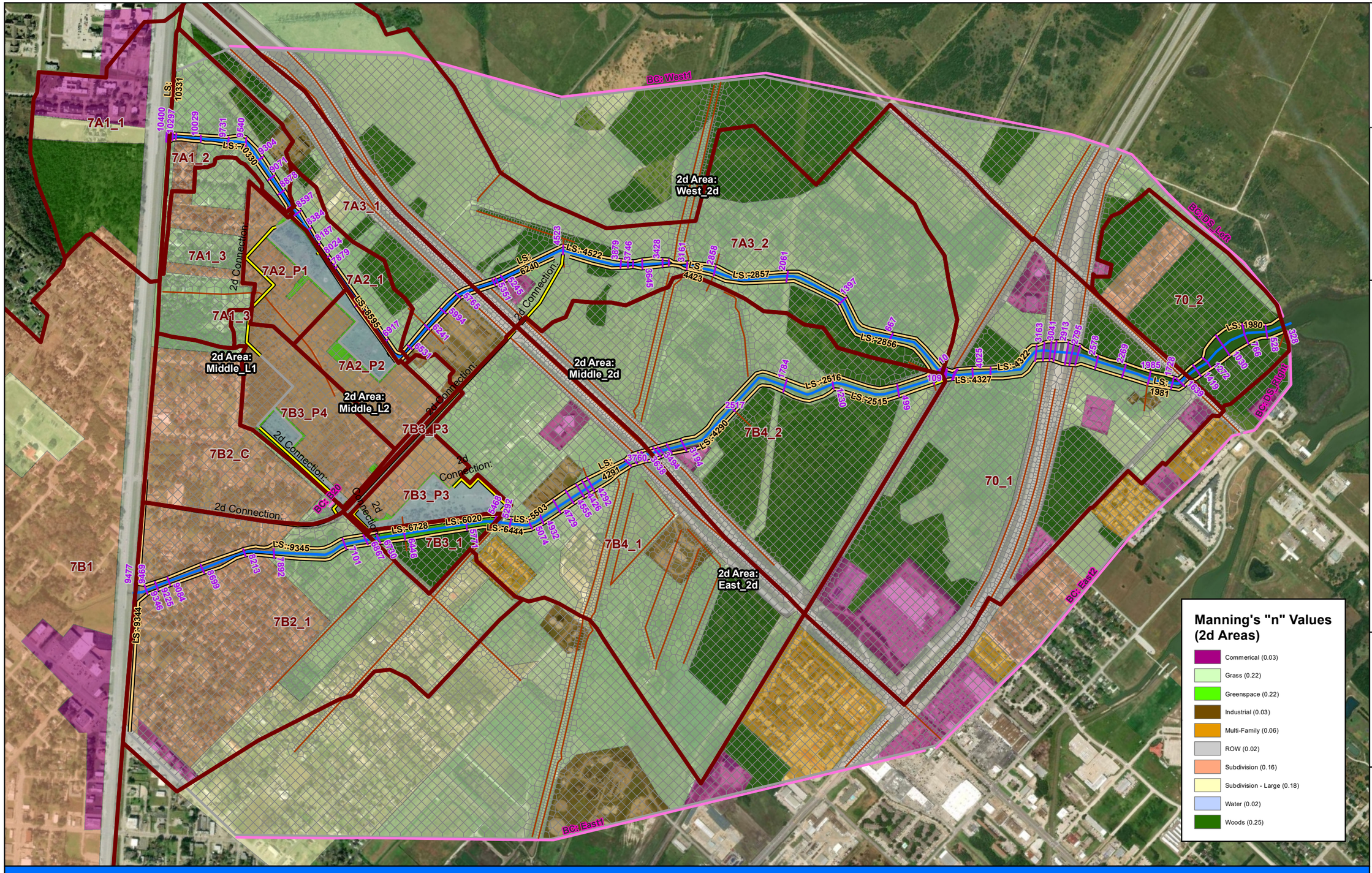


Exhibit 8 - 1d/2d HEC-RAS Model

BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Manning's "n" Values (2d Areas)

- Commerical (0.03)
- Grass (0.22)
- Greenspace (0.22)
- Industrial (0.03)
- Multi-Family (0.06)
- ROW (0.02)
- Subdivision (0.16)
- Subdivision - Large (0.18)
- Water (0.02)
- Woods (0.25)

- Subwatershed Subarea
- XS
- Lateral Structure
- Channel
- Bridge/Culvert
- 2d Boundary Condition
- 2d Connection
- Breaklines
- 2d Area Boundary
- 2d Cells

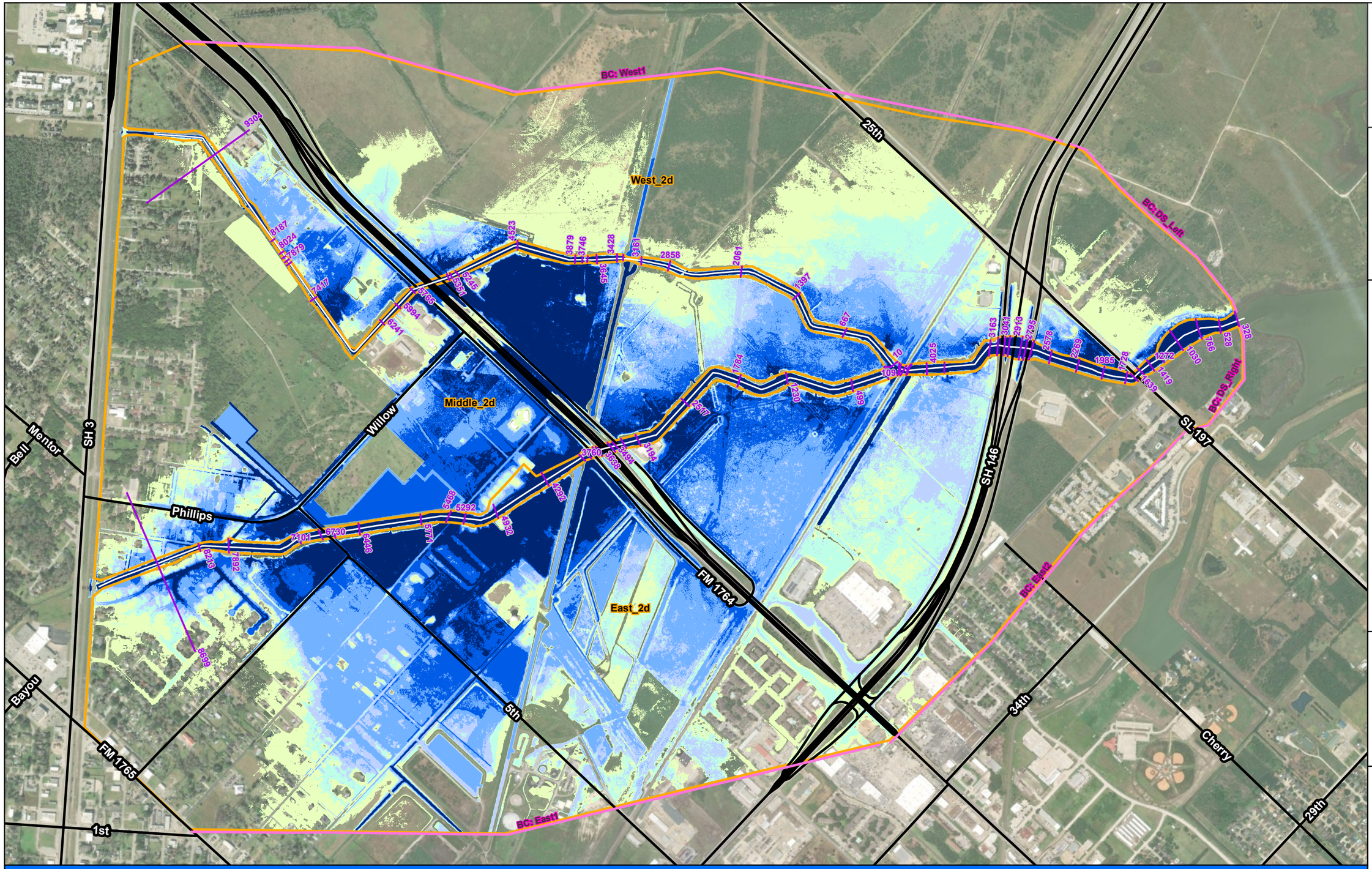


Exhibit 9 - Inundation Map

BJE

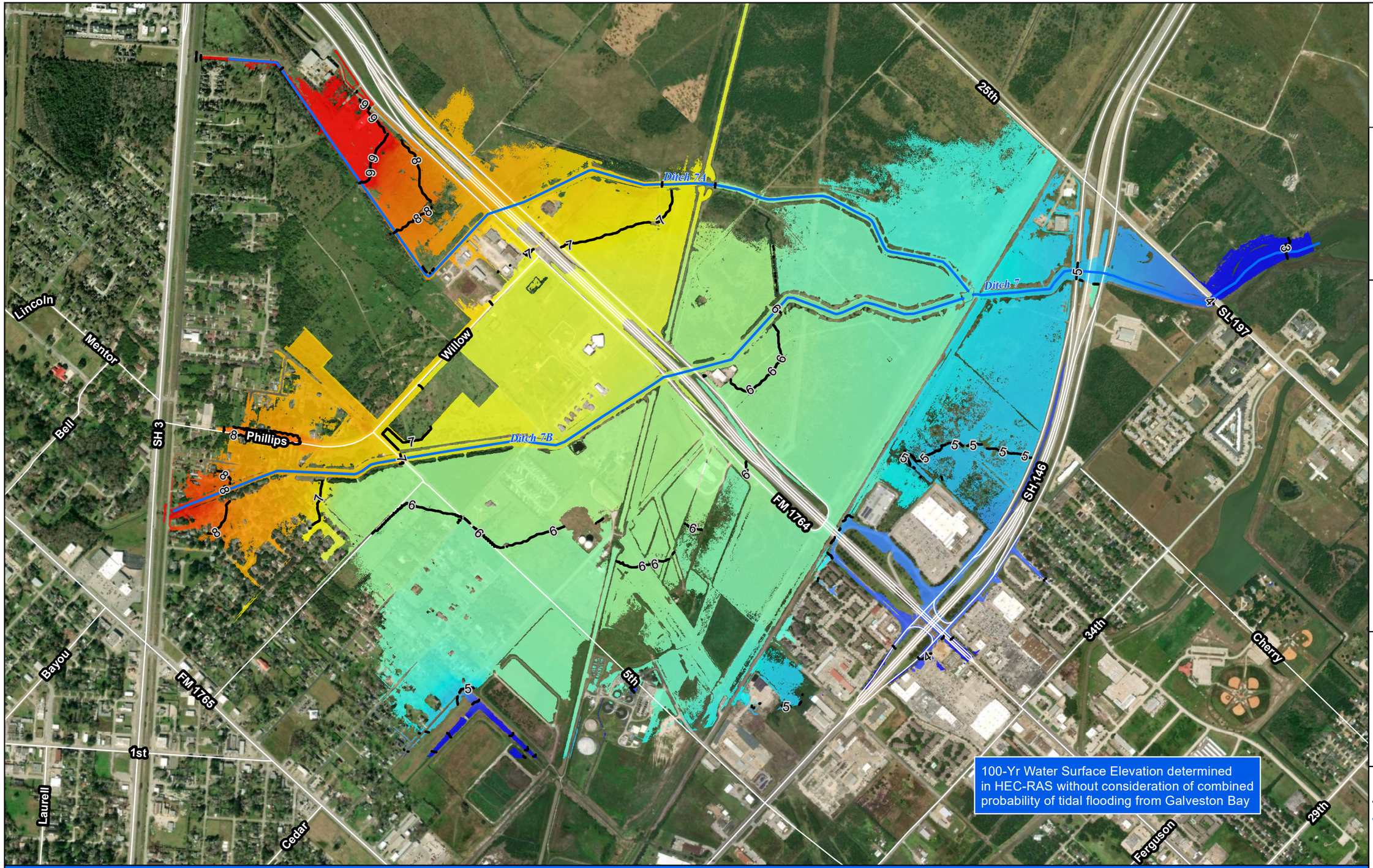
N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- XS
- Channel
- 2d Boundary Condition
- Roads
- 2d_Area
- 5-Yr Inundation
- 10-Yr Inundation
- 25-Yr Inundation
- 50-Yr Inundation
- 100-Yr Inundation
- 500-Yr Inundation



BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

100-Yr Flood Elev Line
Channel
100-Yr Flood Elev (ft)
High : 13.0
Low : 0.0

Exhibit 10 - 100-Yr Water Surface Elevations

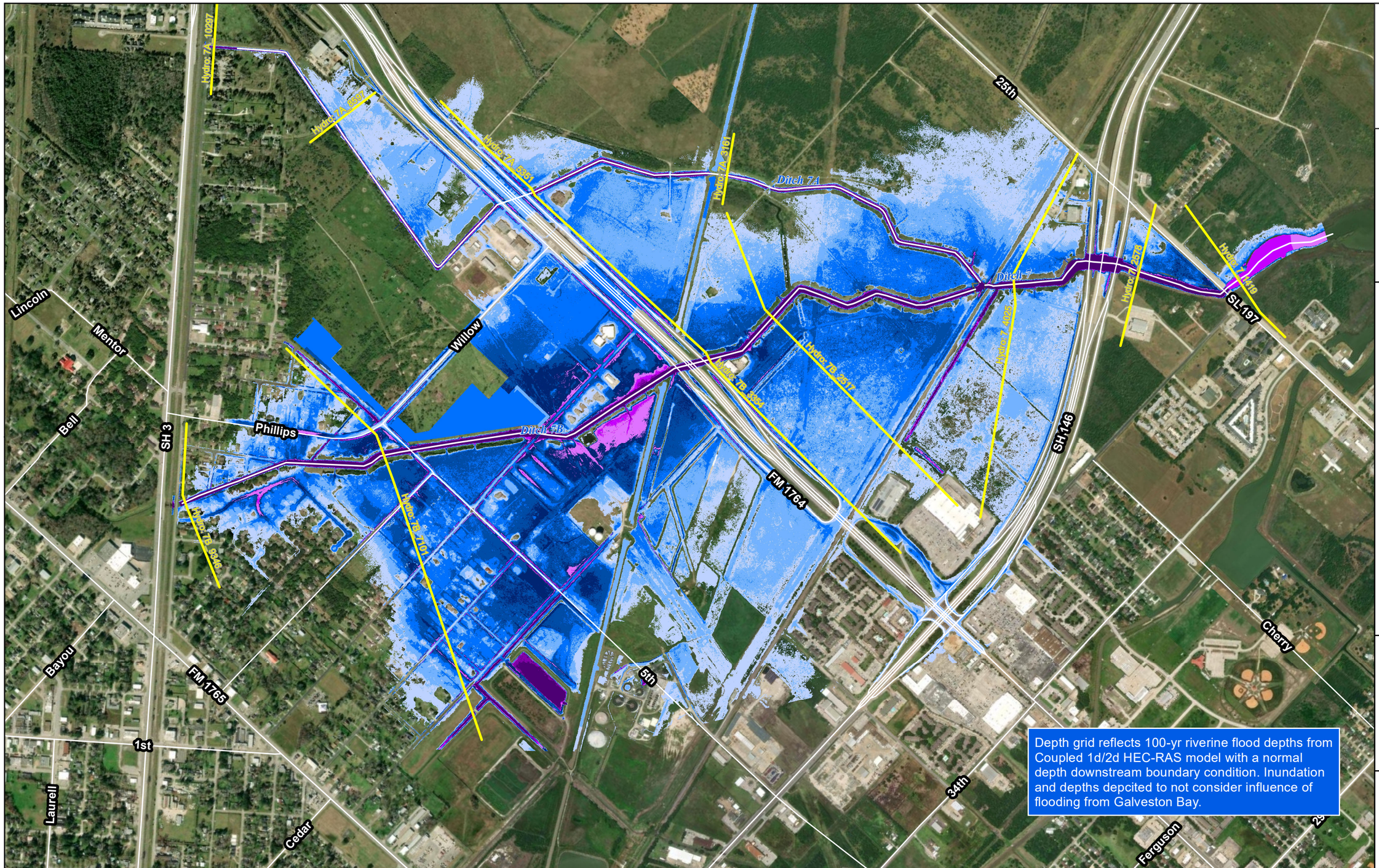


Exhibit 11 - 100-Yr Depth & Hydograph Lines

BJE

Feet
0 500 1,000

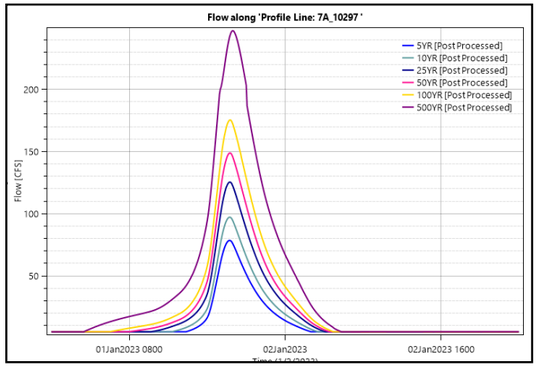
DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

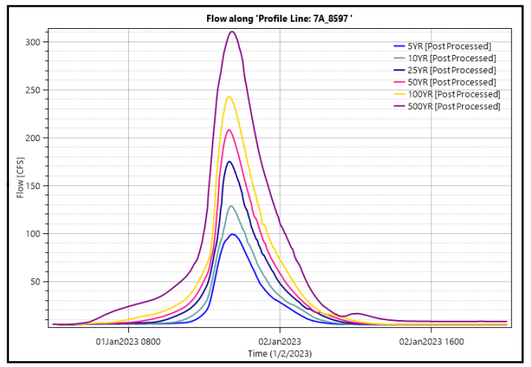
Floodplain Mapping & Modeling

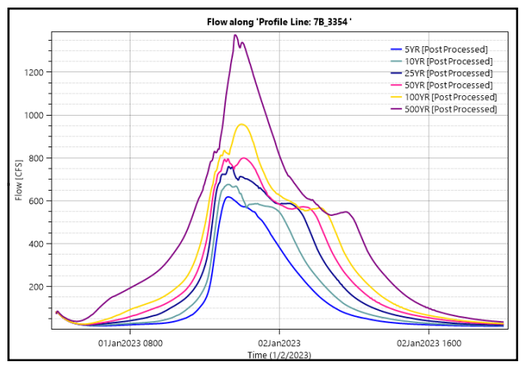
Hydrograph Lines
Channel

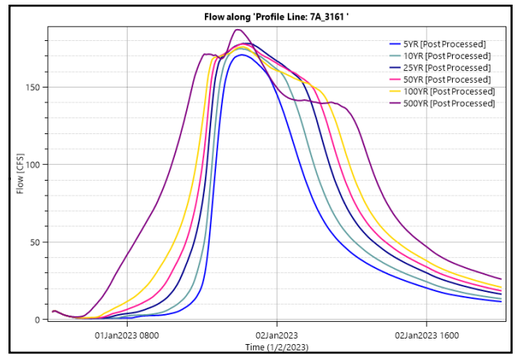
100-Yr Depth

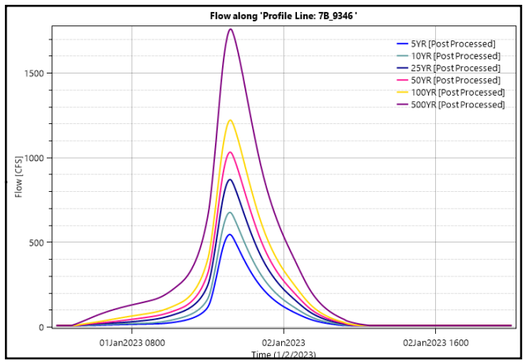
- 0.0' - 0.5'
- 0.5' - 1.0'
- 1.0' - 1.5'
- 1.5' - 2.0'
- 2.0' - 2.5'
- 2.5' - 3.0'
- 3.0' 3.5'
- 3.5' - 4.0'
- >4.0'

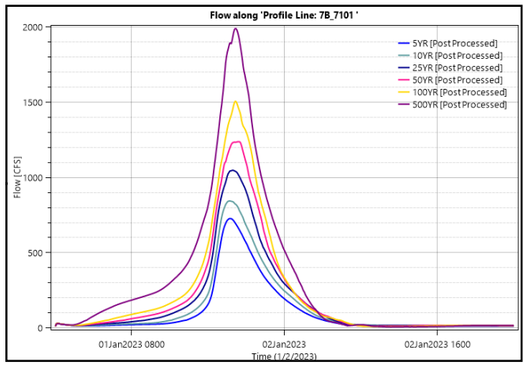


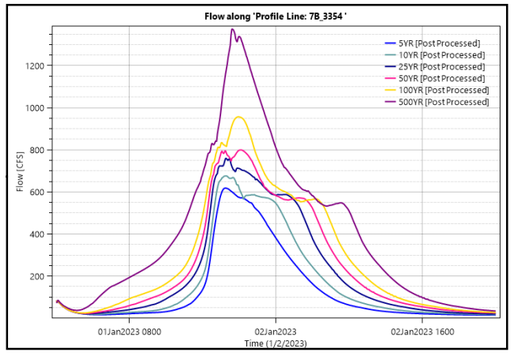


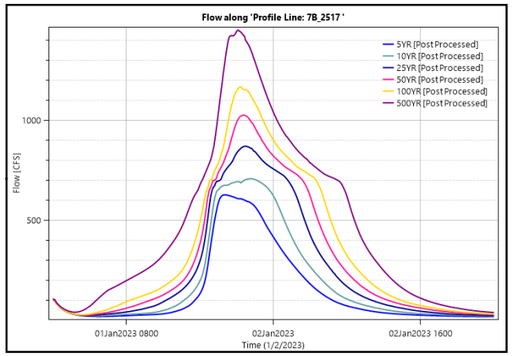


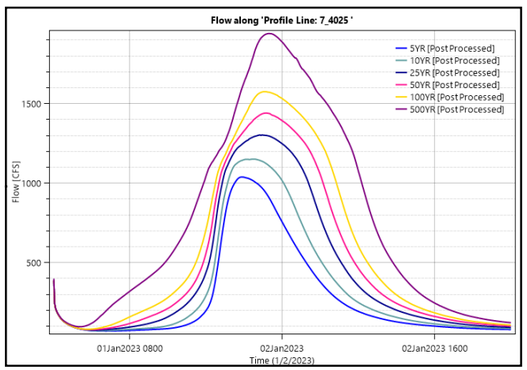


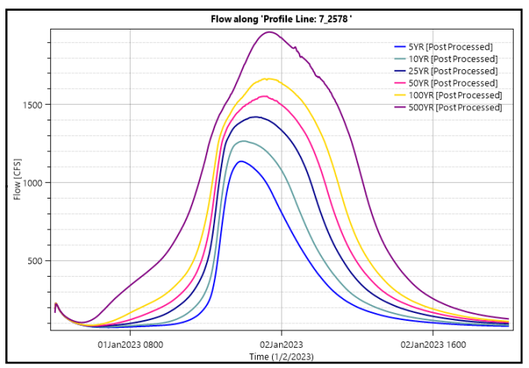












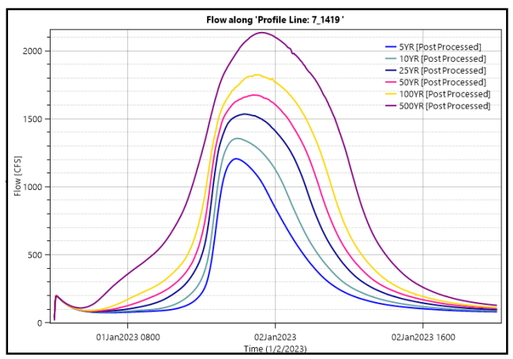


Exhibit 12: Hydrographs at Profile Lines

BJ ET

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Attachment 1

Galveston County Drainage District No. 2 Watershed Map

N

0 500 1,000 2,000 Feet

DETENTION REQUIRED
(NO SET RATE - SEE DISTRICT ENGINEER)
(SEE NOTE 2)

DETENTION REQUIRED
(NO IMPACT FEE)
1.0 AC-FT/AC.
(SEE NOTE 2)

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$2,200/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.5 AC-FT/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.70 AC-FT/AC.

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$3,000/AC.

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$1,750/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.50 AC-FT/AC.
(SEE NOTE 2)

DETENTION REQUIRED
(NO IMPACT FEE)
1.0 AC-FT/AC.
(SEE NOTE 1)

WATERSHED OUTSIDE DISTRICT BOUNDARY
(SEE TEXAS CITY FOR
DETENTION REQUIREMENTS)

DICKINSON
TEXAS CITY
TEXAS CITY
LAMARQUE
TEXAS CITY
SANTA FE
LAMARQUE
SANTA FE
LAMARQUE
HITCHCOCK
SANTA FE
HITCHCOCK
BAYOU VISTA
HITCHCOCK
HITCHCOCK
TIKI ISLAND

NOTE 1: MITIGATION FOR FILL WITHIN DEDICATED STORAGE AREA OF THE PUMP STATION WILL BE REQUIRED IN ADDITION TO THE DETENTION REQUIREMENT.

NOTE 2: FLOODPLAIN MITIGATION VOLUME REQUIRED ON A 1:1 BASIS FOR ANY FILL PLACED BELOW THE 100-YR WATER SURFACE ELEVATION.

Costello, Inc.
Engineering and Surveying

GALVESTON COUNTY DRAINAGE DISTRICT NUMBER TWO

WATERSHED MAP

Document Path: W:\1991\91007\01\GIS\District Development Map\MXD\20190403_GCDD2 District Map.mxd

JOB NO: 1991007-001	DATE: JAN 2019	EXHIBIT: 1

Ms. Kimberly Golden Planning Director -

Mr. Perry O'Brien Chairman, Texas City Zoning Commission & Zoning Commission Members

City of Texas City Engineering-Planning-Building & Inspection Department

7800 Emmett F Lowry Expressway

Texas City, Texas 77591

Mr. Willie Carroll, Living Trust

7305 Blue Jay Drive

Texas City, Texas 77591

November 25, 2024

Re: ***Willie Carroll's Living Trust Formal Response (To the Rezoning Proposal for Castlewood Development Company)***

80 Acres PUD Master Planned Residential Subdivision (213 Lots).

Ms. Kim Golden Planning Director

Ms. Golden, please find our formal response and summary of the planning issues that we would like to see addressed by the developer and City Commission. We offer no objection provided that the planning issues cited can be addressed. We will be in attendance for the workshops and subsequent Public hearings. We asked that our written response be reviewed by the Zoning and City Commission. Thank you.

Sincerely,

Mr. Willie Carroll &

Willie Carroll
11/25/24

Donald Carroll

Donald Carroll

Encls: 2-attachments

RECEIVED
DEC 02 2024
By

WC
D.C.

Site Development Issues & Recommendations to be Considered

from

Willie Carroll's Living Trust

a) ***Drainage Issue with GCDD No 55 aka Bayou Pierre*** **(Raised by Zoning Commissioner Bruce Clawson during the PH). This has been an issue before and even since the formulation of the City's Comprehensive Plan G2k (Land Use Plan Analysis). With this development synergy and interests, this is an opportunity to effectively work on mitigating and improving this area for economic development (addressing an affordable housing need). The City may want to establish a Public Private Partnership with the developer(s) and the property owners in the area to help revitalize and repurpose the area for meaningful development opportunities. This could be a very good economic development opportunity with a strategic plan (the creation of a superior design opportunity that will advance sustainability and resilience, and this approach is a win-win opportunity for all parties). This area has a draining issue and a development challenge that will not go away until it is addressed incrementally with the start of the development process or as recommended by (the City's Drainage Plan)?**

b) ***Ingress Egress into the subdivision:*** **The one entrance into the subdivision is not sufficient and whatever the incremental plan is as to how this will be addressed between Staff and developer should be declared now before approval for transparency, good faith and so the interested parties adjacent property owners will have all of the development intel needed to make an intelligent decision to be in favor of the development or to oppose the plan.** ***Additionally, concerning the look, feel, and vision concept of the finished product I believe most adjacent property owners want to know what the finished product will look like. This is a part of the full disclosure and established site planning process for Texas City.***

These are the remaining concerns after we reviewed the PUD Application Packet provided during this Rezoning PH held on November 19, 2024. I have discussed this with Willie Carroll and siblings (Sisters Beth and Dianna). We will offer no objections once we can get assurances that the developer adheres to all development agreements provided in the packet and that we are provided the illustrations and elevation details concerning how the finished product will look. Lastly, if we could suggest we do believe that with enhanced code enforcement this is a good development intent.

WC
DC

Remaining Research Question & Planning Notes For Willie Carroll's Living Trust Rezoning Request PUD 80 Acres Subdivision

1. Background and Overview

Good morning. Last Tuesday I attended a Rezoning Public Hearing at the request of my Dad I am a part of the Willie Carroll Living Trust and Will. The Developer is proposing to develop 80 acres totaling 213 residential lots. Lot size range from 6000 sf to 1300 sf. The price range is $ 275K to $375K.

2. AI Response:

Good morning! That sounds like a significant development project. Attending the hearing must have been quite insightful. Here are a few things to consider regarding the proposed development:

a) Impact on Property Value: New residential developments can potentially increase the value of surrounding properties, including those in the Willie Carroll Living Trust.

b) Community and Infrastructure: Ensure that the developer has plans to support the new housing with adequate infrastructure, such as roads, schools, and utilities.

c) Environmental Concerns: Check if there are any environmental assessments or impact studies. Large developments can affect local ecosystems.

d) Zoning and Planning: Make sure that zoning changes align with the community's long-term planning goals and that the development is in accordance with local zoning laws.

e) Community Benefits: Look into whether the developer has proposed any benefits for the community, such as parks, recreational facilities, or affordable housing options.

3. Would you like more specific information or assistance with any aspect of the development project?

Bravo and yes! All of the issues raised /cited are spot on. The Developer application is not bad, but it lacks documentation that would help their approval cause and address legitimate questions that the property owners have, and it seems somewhat elusive without this missing information.

4. It is because of this **that I have one research question remaining.** ***It is because of the concerns raised by one of the Zoning Commissioner in attendance presiding over the Public Hearing. it deals with drainage on-site /offsite this area is relatively flat and historically has some significant drainage issues. There is a statement that the***

Drainage Regulating Authority has blessed the Planned Unit Proposal but the property owners within 200 feet of the site have not seen this. To add to the confusion the developer asserts that with their development of 80 acres as proposed there will be No-Net Drainage Impact. The development intent is not a bad proposal. It is an opportunity to Repurpose an area needing some enhancements. That aside, the drainage issue needs to be better explained and clarified for the Rezoning Request to move forward with transparency. Do you agree with this assessment and is there anything that I am missing for reasonableness and fairness to my Dad's interests?

5. *AI Response: I agree with your assessment. Ensuring transparency and clarity in addressing drainage issues is crucial for the rezoning request to move forward smoothly. Here are a few additional points to consider:*

a) *Detailed Drainage Plan: Request a comprehensive drainage plan from the developer, including both on-site and off-site drainage solutions. This should include maps, technical specifications, and mitigation measures.*

b) *Third-Party Review: Suggest that an independent third party review the drainage plan to ensure it meets all regulatory standards and addresses community concerns.*

c) *Public Disclosure: Advocate for the developer to share the drainage plan with property owners within 200 feet of the site, as well as the broader community, to ensure transparency and build trust.*

d) *No-Net Drainage Impact: Ask the developer to provide a clear explanation of what "No-Net Drainage Impact" means in the context of this project and how it will be achieved.*

e) *Community Feedback: Encourage the developer to hold additional public meetings or forums to gather feedback from residents and address any remaining concerns.*

CITY COMMISSION REGULAR MTG **(8) (a)**

Meeting Date: 01/22/2025

Minutes

Submitted For: Rhomari Leigh, City Secretary **Submitted By:** Renee Edgar, City Secretary

Department: City Secretary

Information

ACTION REQUEST

Approve City Commission Minutes for January 6, 2025 meeting. (City Secretary)

BACKGROUND (Brief Summary)

RECOMMENDATION

Fiscal Impact

Attachments

Minutes

SPECIAL CALLED CITY COMMISSION MEETING

M I N U T E S

WEDNESDAY, JANUARY 8, 2025 – 5:00 P.M.
KENNETH T. NUNN COUNCIL ROOM – CITY HALL

A Special Called Meeting of the City Commission was held on Wednesday, JANUARY 8, 2025, at 5:00 P.M. in the Kenneth T. Nunn Council Room in City Hall, Texas City, Texas. A quorum having been met, the meeting was called to order at 5:01 p.m. by Mayor Dedrick D. Johnson.

1. ROLL CALL

Present: Dedrick D. Johnson, Mayor
Thelma Bowie, Commissioner At-Large, Mayor Pro Tem
Abel Garza, Jr. , Commissioner At-Large
DeAndre' Knoxson, Commissioner District 1
Keith Love, Commissioner District 2
Chris Sharp, Commissioner District 3
Jami Clark, Commissioner District 4

2. INVOCATION

Led by Diangol Mahoney, Pastor of Mt. Zion Baptist Church.

3. PLEDGE OF ALLEGIANCE

Led by Commissioner District 1, DeAndre' Knoxson.

4. REPORTS

a. Human Resources Annual Report

Jennifer Price, Human Resources Director, gave a PowerPoint presentation.

b. City Secretary's Annual Report

Rhomari Leigh, City Secretary, gave a PowerPoint presentation.

5. CONSENT AGENDA

Commissioner At-Large, Mayor Pro Tem Thelma Bowie, made a motion to approve Consent Agenda items 5a, c, and d. The motion was seconded by Commissioner District 4 Jami Clark.

a. Approve City Commission Minutes for the December 18, 2024 meeting. (City Secretary)

Vote: 7 - 0 CARRIED

b. Consider and take action on Resolution No. 2025-001, appointment of alternate member to the Zoning Commission. (City Secretary)

Motion by Mayor Dedrick D. Johnson, Seconded by Commissioner District 4 Jami Clark, for consent agenda item 5b.

Vote: 7 - 0 CARRIED

c. Consider and take action on Resolution No. 2025-002, authorizing the City of Texas City to execute a General and No Litigation Certificate and stating our non-objection to such from the Southeast Texas Housing Finance Corporation (SETH) for Piedmont Apartments-Baytown ($30,000,000) located in Baytown, Texas. (Legal)

Vote: 7 - 0 CARRIED

d. Consider and take action on Resolution No. 2025-003, authorizing a payment for the City's annual ERP System subscription- Munis. (Finance)

Vote: 7 - 0 CARRIED

6. REGULAR ITEMS

a. Consider and take action on Resolution No. 2025-004, authorizing the Publication of Notice of Intention to Issue City of Texas City, Texas Certificates of Obligation, Series 2025. (Finance)

Cynthia Rushing, Chief Financial Officer, recommends that approval furthers the City's position as a strong steward of public dollars through reinvestment in facilities and infrastructure. At the same time, the bond issues will be structured with an aggressive repayment schedule that will minimize costs to taxpayers and distribute the burden throughout the useful lives of the improvements. A representative of Masterson Advisors LLC gave a presentation.

Motion by Commissioner At-Large, Mayor Pro Tem Thelma Bowie, Seconded by Commissioner District 1 DeAndre' Knoxson

Vote: 7 - 0 CARRIED

7. PUBLIC COMMENTS

The following members of the public requested to address the City Commission: Barbara White, Reva Rodriguez, and Brian Goetschius.

8. COMMISSIONERS' COMMENTS

9. MAYOR'S COMMENTS

An audiovisual recording of this meeting is available on the City's website and retained by the CSO for two years after the date of the adaption of the minutes to which the meeting corresponds.

10. ADJOURNMENT

Having no further business, Abel Garza, Jr., Commissioner At-Large ade a MOTION to ADJOURN at 6:04 p.m.; the motion was SECONDED by Commissioner District 3 Chris Sharp. All present voted AYE. MOTION CARRIED.

_____

DEDRICK D. JOHNSON, MAYOR

ATTEST:

_____

Rhomari Leigh, City Secretary
Date Approved:

CITY COMMISSION REGULAR MTG **(8) (b)**

Meeting Date: 01/22/2025

2024 Pavement Striping at Lago Mar

Submitted For: Dj Hutchinson, Public Works **Submitted By:** Dj Hutchinson, Public Works

Department: Public Works

Information

ACTION REQUEST

The Public Works Department is seeking approval for the COTC to enter into a contract with Stripe Lines LLC for the re-striping of the streets and roads in the Lago Mar Subdivision for the amount of: **$103,211.60** out of **Account Number 101301-52230**

BACKGROUND (Brief Summary)

The pavement striping and markings on the main thoroughfares in Lago Mar were originally done by the Developer and have deteriorated over the years and are desperately in need of renewal. A public bid was advertised in accordance with the COTC Purchasing Requirements and on December 17th, bids were opened publicly. Only one company responded (Stripe Lines LLC) with a bid totaling $103,211.60.... See Bid Tab in Exhibit A

RECOMMENDATION

It is the recommendation of the Public Works Department having worked with Stripe Lines LLC on numerous City striping projects over the last ten years with positive results in quality, responsiveness, and performing their duties in a matter that minimized traffic disruptions, we ask that the Mayor and City approve the Contract with Striplines LLC for the 2024 Striping at Lago Mar project.

Fiscal Impact

Attachments

Resolution

Exhibit A

RESOLUTION NO. 2025-005

A RESOLUTION AUTHORIZING A CONTRACT WITH STRIPE LINES LLC FOR THE RE-STRIPING OF THE STREETS AND ROADS IN THE LAGO MAR SUBDIVISION; AND PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, the developer originally did the pavement striping and markings on the main thoroughfares in Lago Mar which have deteriorated over the years and are in need of renewal; and

WHEREAS, a public bid was advertised in accordance with the City purchasing requirements and on December 17, 2024, bids were opened publicly. Only one company responded which was Stripe Lines LLC with a bid totaling $103,211.60.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission hereby accepts the contract by Stripe Lines LLC., for the re-striping of the streets and roads in the Lago Mar Subdivision.

SECTION 2: That the Mayor is hereby authorized to enter into a contract Stripe Lines LLC., for the price bid in **Exhibit "A",** as attached hereto an incorporated herein for all intents and purposes.

SECTION 3: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 22nd day of January 2025.

_____
Dedrick D. Johnson, Sr., Mayor
City of Texas City, Texas

ATTEST:

_____
Rhomari D. Leigh
City Secretary

APPROVED AS TO FORM:

_____
Kyle L. Dickson
City Attorney

Texas City
EST. 1911

2025-467

Striping At Lago Mar

Bid Tabulation

Bid Opening Tuesday, December 17, 2024 at 2:00 P.M.

BIDDER	Crystal View Blvd. from Lago Mar to Lago Mar	Lago Mar Blvd. from Holland Rd. to I-45	Lago Crossing Blvd. to Hughes Rd. to Lago Mar Blvd.	Lago Mar Dr. from Lago Mar Blvd. to Starboard Dr.	Ted Dudley Dr. from 25th Ave. N.	TOTAL
Semper Striping	NO BID	NO BID	NO BID	NO BID	NO BID	NO BID
Stripe Lines, Inc.	$6,230.26	$60,867.12	$10,342.54	$19,797.74	$5,973.94	$103,211.60
Traffic Signs & Lines, LLC.	NO BID	NO BID	NO BID	NO BID	NO BID	NO BID

CITY COMMISSION REGULAR MTG **(8) (c)**

Meeting Date: 01/22/2025

Consider and take action on the Subdivision Master Plan for the Willow Wood Subdivision.

Submitted For: Kim Golden, Transportation and Planning

Submitted By: Curt Kelly, Transportation and Planning

Department: Transportation and Planning

Information

ACTION REQUEST

Consider and take action on the Subdivision Master Plan for the Willow Wood Subdivision.

BACKGROUND (Brief Summary)

Applicant, Castlerock Communities, Inc, proposes to develop an 80-acre tract of land, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop 213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1 acre park/green space with a playground, seating areas, and landscaped entry reserves. The subject tract is included in GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The PUD rezoning application was presented to satisfy the requirements of the Development Agreement.

RECOMMENDATION

Staff recommend approval of the subdivision master plan and requested zoning change from District A - Single Family Residential to District I - Planned Unit Development.
The Planning Board recommended approval of the master plan and PUD at its regular meeting on October 7, 2024.

The Zoning Commission held a public hearing at its regular meeting on November 19, 2024. A total of 87 notices were mailed to adjacent property owners. The Zoning Commission recommended approval of the requested zoning change at its meeting on December 17, 2024.

Fiscal Impact

Attachments

01 - Willow Wood Conceptual Master Plan

02 - Willow Wood PUD 8-30-24

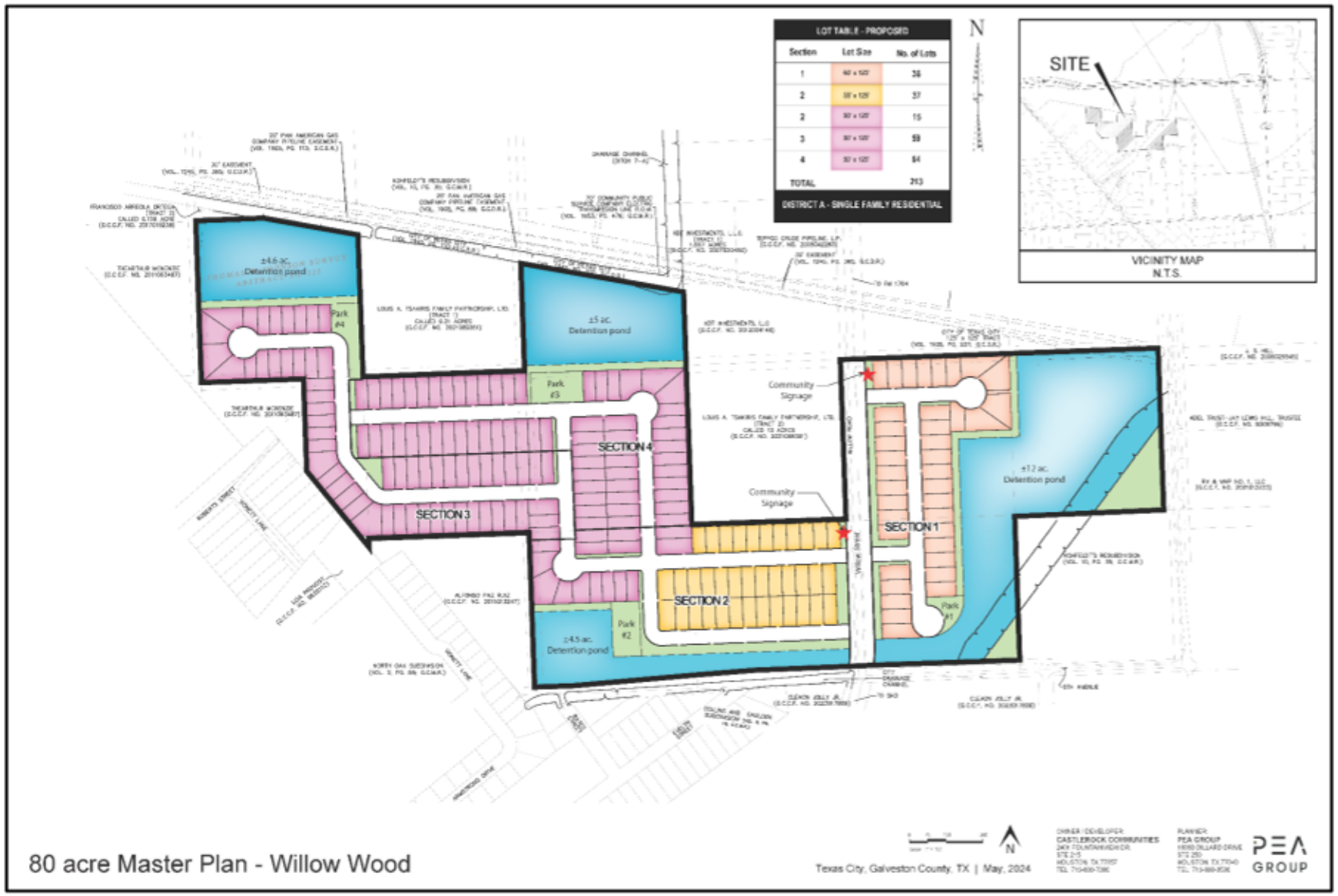
03 - Planning Board Staff Report 10.7.24

04 - Planning Board Minutes 10.7.24

05 - Zoning Commission Staff Report 11.19.24

06 - Zoning Commission Minutes 11.19.24
07 - Don Carroll - 1st Response to ZC re Willow Wood
08 - Zoning Commission Staff Report 12.17.24
09 - Zoning Commission Minutes 12.17.24
10 - Willowood Subdivision Drainage Impact Analysis
11 - Drainage Study of Ditch 7 Watershed (Ditch 7, 7A, & 7B)
12 - Don Caroll's 2nd Response
Resolution

Exhibit 'B' Conceptual Master Plan



Planned Unit District For

Willow Wood Development

Prepared For

Castlerock Communities Inc.

CASTLEROCK COMMUNITIES

Planner:

PEA Group

PEA GROUP

August 29, 2024

TABLE OF CONTENTS

I. INTRODUCTION

II. SITE INVENTORY ANALYSIS

A. Opportunities and Constraints

B. Surrounding Land Use

III. PROJECT DESCRIPTION

A. Land Use

B. Phasing

C. Street Circulation Concept

D. Open Space Amenities Plan

E. School District Zoning

IV. ZONING

A. Existing Zoning

B. Proposed / Future Zoning

V. UTILITIES

EXHIBITS

A. Exhibit A-1 – Project Survey

B. Exhibit A-2 – Legal Description

C. Exhibit B – Conceptual Master Plan

D. Exhibit C – Phasing Plan

E. Exhibit D-1 – Park and Trail Plan

F. Exhibit D-2 – Community Park Image Board

G. Exhibit E – Zoning Map

H. Exhibit F – Development Timeline

I. Exhibit G – Development Agreement

I. INTRODUCTION

The following application is submitted under Section 160.050 “District I (PUD), Planned Unit Development”.

This planned development document was created in accordance with City of Texas City (City) ordinances related to the “(PUD) Planned Unit Development”. The purpose of this document is to encourage the development of the subject property and to promote the most compatible land use within the community.

The Willow Wood project is an 80-acre tract of land, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764. Castlerock Communities Inc. (Developer) is the owner of Subject Tract, and it intends to develop the property as a single-family residential community, complete with stormwater detention facilities, parks, and open space.

The Subject Tract is party to a Development Agreement approved by the City in 2023 (Exhibit G – Development Agreement). This PUD application is presented to satisfy the zoning requirements of the Development Agreement.

II. SITE INVENTORY ANALYSIS

A. Opportunities and Constraints

Similar to surrounding properties, the Subject Tract is mostly flat with elevations ranging from approximately 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. Existing physical constraints affecting development of the property include the following:

- The eastern portion of the Subject Tract (Parcel ID.186006) falls within 100-year Flood Zone

- The Subject Tract drains to 55’ Galveston County Drainage District No. 2 Easement (G.C.C.F. No. 2000037094)

B. Surrounding Land Use

Land uses in proximity to the Subject Tract include single-family residential tracts, public use property and undeveloped property. Willow Street, an existing local roadway, runs through the Subject Tract, providing connections to state highway FM1764 to the north and Phillips Street to the south. The entrances on Willow Street offer access to both the western and eastern sections of the project. The adjacent parcels to the north of this area predominantly consist of undeveloped land. Southwest of the Subject Tract, neighboring parcels consist of residential family properties situated along State Highway 3. To the southeast lies a creek.

III. PROJECT DESCRIPTION

A. Land Use

Exhibit B – "Conceptual Master Plan" depicts the conceptual lotting plan with the proposed land uses for the tract. The 213 single family detached lots are designed at various dimensions, ranging from 6,000 to 13,000 square feet, with homes that are expected to range in sales price from $275,000 to $375,000. The community will incorporate walking/jogging trails as well as +/- 7.1 acres of park/greenspace with a playground, seating areas, and landscaped entry reserves as displayed on Exhibit D-1 – "Park and Trail Plan".

The density of the project will be approximately 2.7 units per acre, and there will be no non-residential uses. Homes in the project will be a mix of one or two stories.

The property drains into four dual amenity/detention ponds located to the north, south, and east of the project. The east portion of this tract lies within the 100-year flood zone.

Land Use Table

Land Use Category	Acreage	% of Gross Acreage
Single Family	+/- 46.9	58.1%
Detention Pond	+/- 26	33%
Greenbelt and Parkland	+/- 7.1	8.9%
Total	**+/- 80**	**100%**

B. Phasing

The project comprises four distinct sections of single-family lots with varying dimensions. Section 1 and Section 2 constitute Phase 1, while Section 3 and Section 4 comprise Phase 2, as displayed on Exhibit C – "Phasing Plan".

C. Street Circulation Concept

The main point of access to the project will be known as Willow Street. It is an existing 30' roadway that connects to state highway FM 1764. The four entrances on Willow Street offer access to both the western and eastern sections of the project.

D. Park and Trail Plan

According to the Texas City code of ordinances, a minimum of one-half acre of land must be dedicated for public neighborhood park use for every 100 proposed dwelling units. Based upon the proposed number of dwelling units illustrated on Exhibit – B "Conceptual Master Plan" the developer is required to dedicate +/- 1.07 acres of parkland. In accordance with the parks and open space requirements, the community will incorporate walking/jogging trails as well as +/- 7.1 acres of parkland/green belt with a playground, seating areas, and landscaped entry reserves as displayed on Exhibit D-1 – "Park and Trail Plan" and Exhibit D-2 – "Community Park Image Board".

The Developer will create a homeowner's association ("HOA") for the community. The HOA will be responsible for all subdivision and common area maintenance including the dual amenity/detention pond maintenance .

E. School District Zoning

The tract is zoned for Texas City ISD.

II. ZONING

A. Existing Zoning

As illustrated on the current Texas City Zoning Map on the City's website, the project is zoned as "District A Single Family Residential", permitting a minimum 50' lot width and a minimum 120' lot depth with a minimum square footage of 6,000. The existing zoning classifications for the subject property and surrounding properties are further illustrated on Exhibit E – "Zoning Map".

B. Proposed / Future Zoning

The purpose of this document is to redefine the zoning to comply with the approved Master Plan by the Planning and Zoning Department, refer to Exhibit B "Conceptual Master Plan". The lot dimensions to be permitted within this PUD shall be a minimum 50' lot width and a minimum 120' lot depth with a minimum square footage of 6,000. The minimum lot depth shall not apply to lots that front cul-de-sacs or knuckles, but the minimum lot width and square footage

requirements shall still apply. The Developer will abide by rules and regulations of the Texas City Code of Ordinances other than those being modified herein.

III. UTILITIES

All utilities including the water distribution system, sanitary sewer collection system, storm water drainage system, and dual amenity/detention facilities will be financed by the Developer with possible future reimbursement by Galveston County Municipal Utility District No. 66. Ultimately all utilities will be owned and maintained by the City of Texas City except the dual amenity/detention facilities, which will be owned by the MUD and maintained by the HOA.

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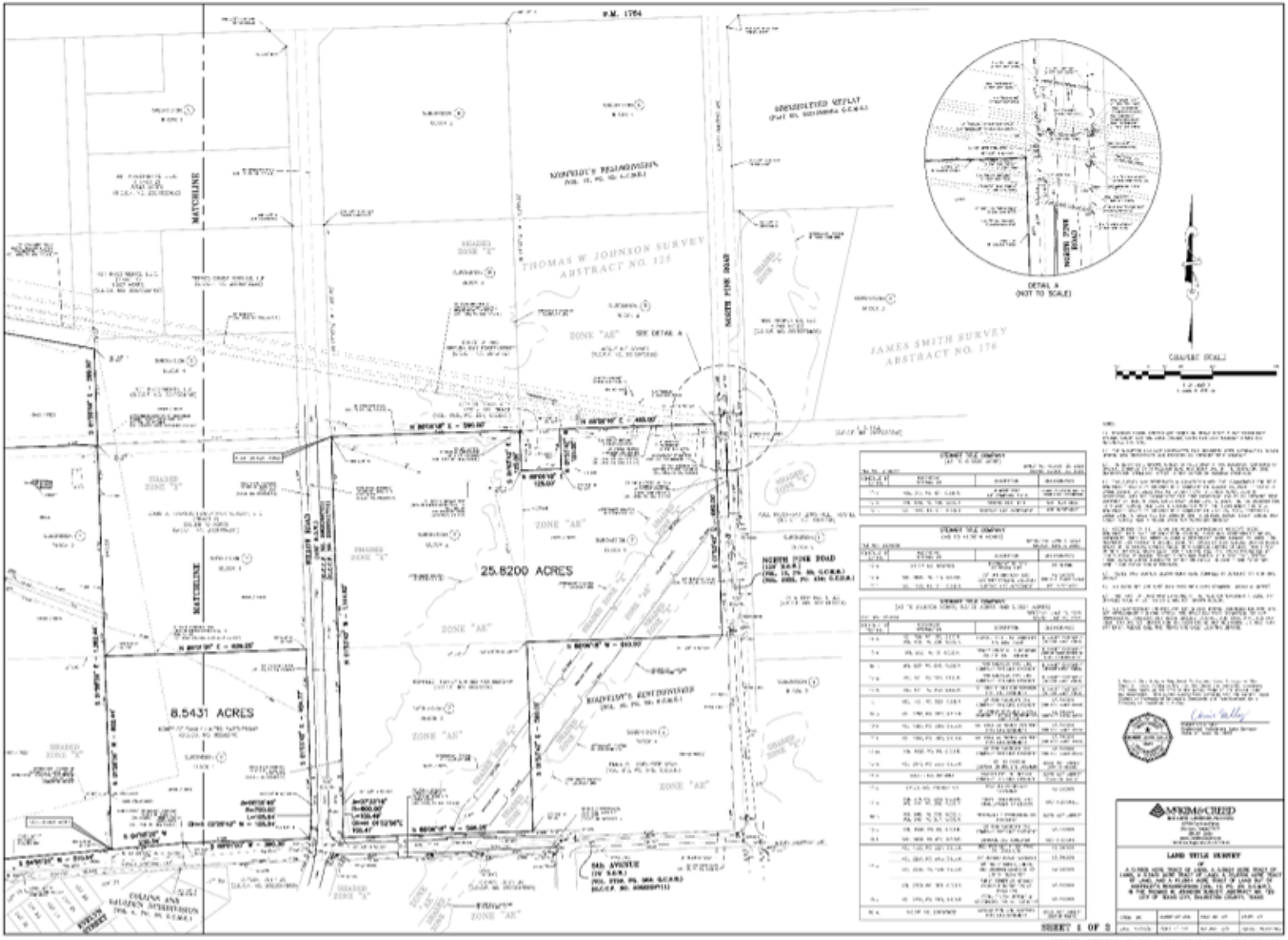
Exhibit ‘A-1’ Project Survey



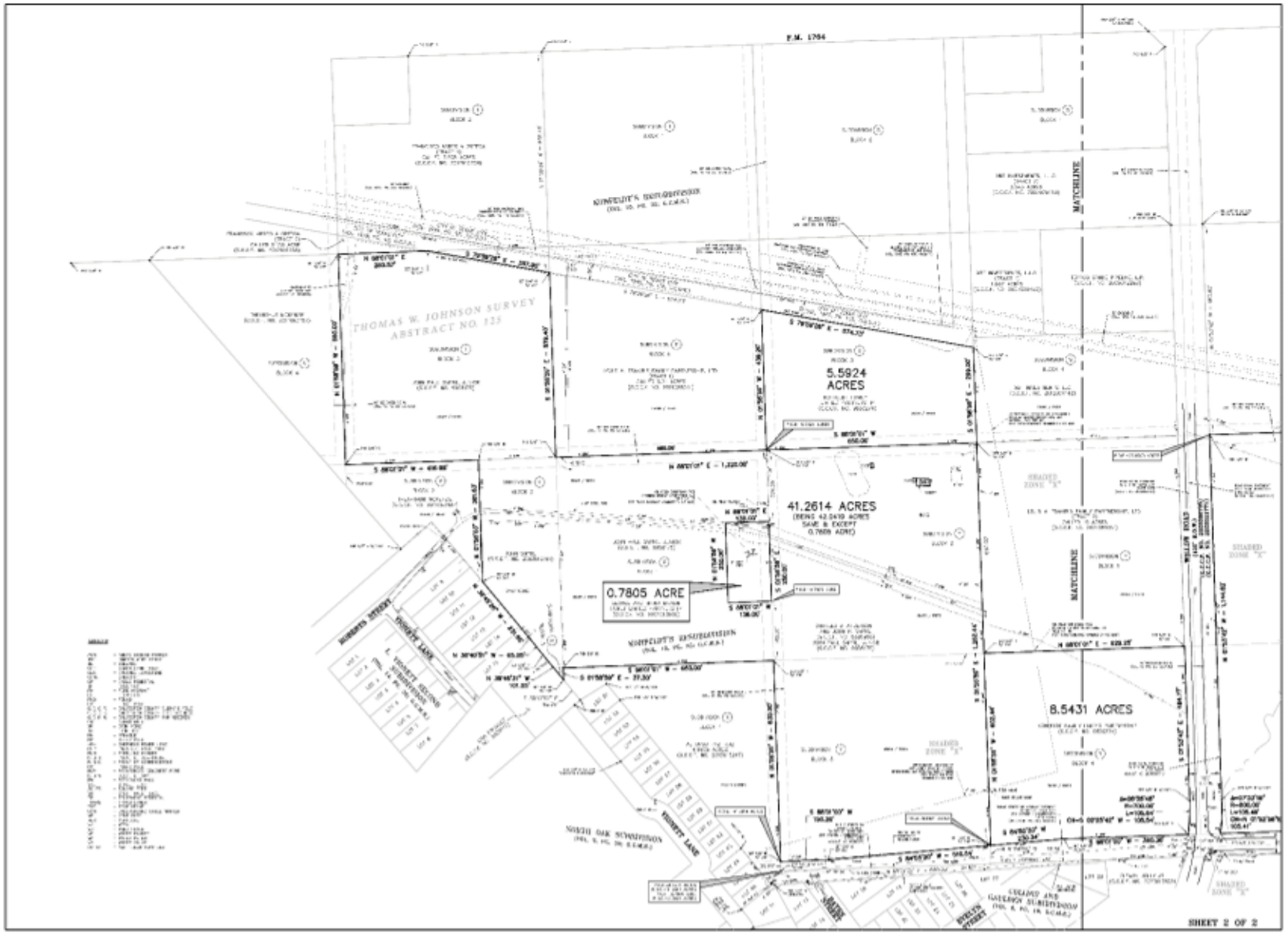

F.M. 1764
MATCHLINE
THOMAS W. JOHNSON SURVEY
ABSTRACT NO. 125
5.5924
ACRES
41.2614 ACRES
(BEING 42.0419 ACRES
SAVE & EXCEPT
0.7805 ACRE)
0.7805 ACRE
8.5431 ACRES
MATCHLINE
SHADED
ZONE "X"
SHEET 2 OF 2

Exhibit 'A-2' Legal Description

November 7, 2023

25.8200 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 25.8200 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 25.8200 acre tract being all of Blocks 1, 2 and 3, Subdivision Z, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; save and except a 125-foot by 125-foot tract of land conveyed to the City of Texas City, as recorded in Volume 1935, Page 227 of the Galveston County Deed Records; save and except a 2.416 acre road right-of-way easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 2003011771; save and except a 1.0606 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records; save and except a 0.3030 acre public street, utility and drainage easement to the City of Texas City, as recorded in Volume 2335, Page 134 of the Galveston County Deed Records; and save and except a 30-foot wide portion of North Pine Road dedicated by said Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

BEGINNING at a 5/8-inch iron rod found in the east line of Willow Road (100 feet wide), as recorded in Galveston County Clerk's File Nos. 2002066705 and 2003011771, in the north line of said Block 2 of Subdivision Z and in the south line of Block 3, Subdivision R of said Kofeldt's Resubdivision for a northwest corner of this tract; from which a 5/8-inch iron rod with cap stamped "Walsh Surveying" found bears North 01° 53' 42" East - 660.00 feet;

THENCE, North 88° 06' 18" East - 590.00 feet with the north line of said Block 2 of Subdivision Z and with the south line of said Block 3 of Subdivision R to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 and 2 of Subdivision Z and Block 3 and 4 of Subdivision R, for the northwest corner of said 125-foot by 125-foot tract conveyed to the City of Texas City, and for a northeast corner of this tract; from which a 1/2-inch iron pipe found in the south right-of-way line of F.M. 1764 bears North 01° 53' 42" West – 1,270.00 feet;

THENCE, South 01° 53' 42" East - 125.00 feet with the east line of said Block 2 of Subdivision Z, with the west line of said Block 1 of Subdivision Z, and with the west line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southwest corner of said 125-foot by 125-foot tract and for an interior corner of this tract;

THENCE, North 88° 06' 18" East - 125.00 feet with the south line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southeast corner of said 125-foot by 125-foot tract and for an interior corner of this tract;

THENCE, North 01° 53' 42" West - 125.00 feet with the east line of said 125-foot by 125-foot tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the north line of said Block 1 of Subdivision Z and in the south line of said Block 4 of Subdivision R for the northeast corner of said 125-foot by 125-foot tract and for a northwest corner of this tract;

THENCE, North 88° 06' 18" East - 485.00 feet with the north line of said Block 1 of Subdivision Z and with the south line of said Block 4 of Subdivision R to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in west right-of-way line of North Pine Road (100 feet wide at this point), according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records and as recorded in Volume 2335, Page 134 of the Galveston County Deed Records for a northeast corner of this tract;

THENCE, South 01° 53' 42" East - 660.00 feet with the west right-of-way line of said North Pine Road to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the south line of said Block 1 of Subdivision Z and in the north line of Block 4 of said Subdivision Z for a southeast corner of this tract;

THENCE, South 88° 06' 18" West - 610.00 feet with the south line of said Block 1 of Subdivision Z and with the north line of said Block 4 of Subdivision Z to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 1-4 of Subdivision Z and for an interior corner of this tract;

THENCE, South 01° 53' 42" East - 590.00 feet with the east line of said Block 3 of Subdivision Z and with the west line of said Block 4 of Subdivision Z to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the north right-of-way line of 5th Avenue (70 feet wide), as recorded in Volume 2759, Page 363 of the Galveston County Deed Records and in Galveston County Clerk's File No. 2002029711 for a southeast corner of this tract;

THENCE, South 88° 06' 18" West - 596.95 feet with the north right-of-way line of said 5th Avenue to a 5/8-inch iron rod with cap stamped "McKim & Creed" set at the intersection of the north right-of-way line of said 5th Avenue with the east right-of-way line of said Willow Road for the southwest corner of this tract;

THENCE, in a northerly direction with the east right-of-way line of said Willow Road and with a curve to the left having a radius of 800.00 feet, a central angle of 07° 33' 18", a length of 105.49 feet, and a chord bearing North 01° 52' 56" East - 105.41 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for a point-of-tangency;

THENCE, North 01° 53' 42" West – 1,144.82 feet with the east right-of-way line of said Willow Road to the POINT OF BEGINNING and containing 25.8200 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 1.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

8.5431 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of an 8.5431 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 8.5431 acre tract being all of Block 4, Subdivision Y, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; save and except a 2.416 acre road right-of-way easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 2003011771; and save and except a 1.0110 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 88° 01' 01" East - 660.00 feet with the south line of said Block 3 of Subdivision Y to a point for the southeast corner of said Block 3 of Subdivision Y, for the southwest corner of said Block 4 of Subdivision Y, for the southeast corner of said 0.7772 acre public street or highway easement, and for the southwest corner of said 1.0110 acre public street or highway easement (5th Avenue – unimproved right-of-way);

THENCE, North 01° 58' 59" West - 57.56 feet with the east line of said Block 3 of Subdivision Y and with the west line of said Block 4 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northeast corner of said 0.7772 acre public street or highway easement, for the northwest corner of said 1.0110 acre public street or highway easement, and for the southwest corner and POINT OF BEGINNING of this tract;

THENCE, North 01° 58' 59" West - 602.44 feet with the east line of said Block 3 of Subdivision Y and with the west line of said Block 4 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1-4 of said Subdivision Y and for the northwest corner of this tract;

THENCE, North 88° 01' 01" East - 629.25 feet with the north line of said Block 4 of Subdivision Y and with the south line of said Block 1 of Subdivision Y to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the west right-of-way line of Willow Road (100 feet wide), as recorded in Galveston County Clerk's File Nos. 2002066705 and 2003011771 for the northeast corner of this tract;

THENCE, South 01° 53' 42" East - 484.77 feet with the west right-of-way line of said Willow Road to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the point-of-curvature of a curve to the right;

THENCE, in a southerly direction with the west right-of-way line of said Willow Road and with said curve to the right having a radius of 700.00 feet, a central angle of 08° 38' 48", a length of 105.64 feet, and a chord bearing South 02° 25' 42" West - 105.54 feet to a to a 5/8-inch iron rod found at the intersection of the west right-of-way line of said Willow Road with the north line of said 1.0110 acre public street or highway easement (5th Avenue) for the southeast corner of this tract;

THENCE, South 88° 01' 00" West - 390.38 feet with the north line of said 1.0110 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point of said 1.0110 acre public street or highway easement and for an angle point of this tract;

THENCE, South 84° 55' 20" West - 230.34 feet with the north line of said 1.0110 acre public street or highway easement to the POINT OF BEGINNING and containing 8.5431 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 2.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

5.5924 acres of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 5.5924 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 5.5924 acre tract being a portion of Block 3, Subdivision S, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to Kohfeldt Family Limited Partnership, as recorded in Galveston County Clerk's File No. 9850274; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X, Blocks 2 and 3 of Subdivision Y of said Kofeldt's Resubdivision, and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 1,320.00 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X, said Block 2 of Subdivision Y, Block 3 of said Subdivision S, Block 4 of Subdivision T of said Kofeldt's Resubdivision, and for the southwest corner and POINT OF BEGINNING of this tract; from which a 5/8-inch iron rod found for the common corner of said Blocks 3 and 4 of Subdivision T and Blocks 1 and 2 of Subdivision X of said Kofeldt's Resubdivision bears South 88° 01' 01" West - 660.00 feet;

THENCE, North 01° 58' 59" West - 439.20 feet with the west line of said Block 3 of Subdivision S and with the east line of said Block 4 of Subdivision T to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the southwest corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 102 of the Galveston County Deed Records, for the southeast corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 110 of the Galveston County Deed Records and for the northwest corner of this tract;

THENCE, South 79° 59' 26" East - 674.73 feet with the southwest line of said 50-foot wide strip to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the east line of said Block 3 of Subdivision S and in the west line of Block 4 of said Subdivision S for the northeast corner of this tract;

THENCE, South 01° 58' 59" East - 299.00 feet with the east line of said Block 3 of Subdivision S and with the west line of said Block 4 of Subdivision S to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 3 and 4 of Subdivision S, Blocks 1 and 2 of Subdivision Y and for the southeast corner of this tract;

THENCE, South 88° 01' 01" West - 660.00 feet with the south line of said Block 3 of Subdivision S and with the north line of said Block 2 of Subdivision Y to the POINT OF BEGINNING and containing 5.5924 acres of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 5.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

41.2614 acres of land being a 42.0419 acre tract save and except a 0.7805 acre tract in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 42.0419 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 42.0419 acre tract being a portion of Blocks 2 and 3 of Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to John Smyrl, as recorded in Galveston County Clerk's File No. 2003012161, being all of Block 1, Subdivision X and a portion of Block 3, Subdivision T of said Kofeldt's Resubdivision, conveyed to John Paul Smyrl, Junior, as recorded in Galveston County Clerk's File No. 9958175, and being all of Blocks 2 and 3, Subdivision Y of said Kofeldt's Resubdivision, conveyed to John Paul Smyrl, Junior, as recorded in Galveston County Clerk's File No. 9958175 and also conveyed to Charles J. Anderson and John P Smyrl, as recorded in Galveston County Clerk's File No. 8326966; save and except a 0.7772 acre public street or highway easement to the City of Texas City, as recorded in Galveston County Clerk's File No. 8326967; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of said Block 3 of Subdivision Y, for the southeast corner of Block 4 of said Subdivision X, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of said 0.7772 acre public street or highway easement (5th Avenue – unimproved right-of-way);

THENCE, North 01° 58' 59" West - 30.00 feet with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, with the east line of said 4.9905 acre tract, and with the west line of said 0.7772 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northwest corner of said 0.7772 acre public street or highway easement and for a southwest corner and POINT OF BEGINNING of this tract;

THENCE, North 01° 58' 59" West - 630.00 feet with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Block 1 and 4 of said Subdivision X and Block 2 and 3 of said Subdivision Y, for the northeast corner of said 4.9905 acre tract, and for an interior corner of this tract;

THENCE, South 88° 01' 01" West - 660.00 feet with the common line of said Blocks 1 and 4 of Subdivision X and with the north line of said 4.9905 acre tract to a 5/8-inch iron rod found for the common corner of Blocks 1-4 of said Subdivision X, for the northwest corner of said 4.9905 acre tract, and for an interior corner of this tract;

THENCE, South 01° 58' 59" East - 37.30 feet with the common line of Blocks 3 and 4 of said Subdivision X and with the west line of said 4.9905 acre tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the northeast line of a tract of land conveyed to Lisa Provost, as recorded in Galveston County Clerk's File No. 9625112 for an angle point of said 4.9905 acre tract and for a south corner of this tract; from which a 1-inch iron pipe found for an angle point of Lot 51, North Oak Subdivision, according to the map or plat recorded in Volume 2, Page 59 of the Galveston County Map Records bears South 39° 12' 52" East - 82.29 feet;

THENCE, North 39° 46' 31" West - 101.55 feet with the northeast line of said Provost tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point;

THENCE, North 38° 40' 51" West - 65.05 feet with the northeast line of said Provost tract to a point for the east corner of Lot 15, L. Vionett Second Subdivision, according to the map or plat recorded in Volume 14, Page 36 of the Galveston County Map Records, for the north corner of said Provost tract and for an angle point of this tract;

THENCE, North 39° 45' 26" West - 231.85 feet with the northeast line of said L. Vionett Second Subdivision to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the south corner of a tract of land conveyed to Thearthur McKenzie, as recorded in Galveston County Clerk's File No. 2011063487 and for a southwest corner of this tract;

THENCE, North 01° 58' 03" West - 381.63 feet with the east line of said McKenzie tract to a 3/8-inch iron rod found in the north line of said Block 2 of Subdivision X and in the south line of said Block 3 of Subdivision T for a northeast corner of said McKenzie tract and for an interior corner of this tract;

THENCE, South 88° 01' 01" West - 416.98 feet with the north line of said Block 2 of Subdivision X, with the south line of said Block 3 of Subdivision T, and with the north line of said McKenzie tract to a 5/8-inch iron rod found for the common corner of said Block 2 of Subdivision X, Block 3 of Subdivision T, Block 4 of Subdivision U, and Block 1 of Subdivision W of said Kofeldt's Resubdivision, for an interior corner of said McKenzie tract and for an interior corner of this tract;

THENCE, North 01° 58' 59" West - 660.00 feet with the west line of said Block 3 of Subdivision T, with the east line of said Block 4 of Subdivision U, and with the east line of said McKenzie tract to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 2 and 3 of said Subdivision T and Blocks 1 and 4 of said Subdivision U, for a northeast corner of said McKenzie tract and for a northwest corner of this tract;

THENCE, North 88° 01' 01" East - 280.57 feet with the common line of said Blocks 2 and 3 of Subdivision T to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the west corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 98 of the Galveston County Deed Records, for the south corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1979, Page 47 of the Galveston County Deed Records, and for an angle point of this tract;

THENCE, South 79° 59' 26" East - 387.90 feet with the southwest line of said 50-foot wide strip to a 5/8-inch iron rod with cap stamped "McKim & Creed" set in the common line of Block 3 and 4 of said Subdivision T for the southeast corner of said 50-foot wide strip and for the southwest corner of a 50-foot wide strip of land conveyed to the City of Texas City, as recorded in Volume 1945, Page 110 of the Galveston County Deed Records for a northeast corner of this tract; from which a 5/8-inch iron rod found in the south right-of-way line of F.M. 1764 bears North 01° 58' 59" West - 692.44 feet;

THENCE, South 01° 58' 59" East - 579.40 feet with the common line of said Blocks 3 and 4 of Subdivision T to a 5/8-inch iron rod found for the common corner of said Blocks 3 and 4 of Subdivision T and said Blocks 1 and 2 of Subdivision X for an interior corner of this tract;

THENCE, North 88° 01' 01" East with north line of said Block 1 of Subdivision X and with the south line of said Block 4 of Subdivision T, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Block 1 of Subdivsion X, Block 2 of Subdivision Y, Block 3 of Subdivision S, and Block 4 of Subdivision T and continuing with the north line of said Block 2 of Subdivision Y and with the south line of said Block 3 of Subdivision S for a total distance of 1,320.00 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner Blocks 1 and 2 of said Subdivision Y, Blocks 3 and 4 of said Subdivision S, and for a northeast corner of this tract;

THENCE, South 01° 58' 59" East with the common line of Blocks 1 and 2 of said Subdivision Y, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Blocks 1-4 of Subdivision Y and continuing with the common line of Blocks 3 and 4 of said Subdivision Y for a total distance of 1,262.44 feet to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the northeast corner of said 0.7772 acre public street or highway easement to the City of Texas City, for the northwest corner of a 1.0110 acre public street or highway easement to the City of Texas City, as recorded in Volume 2759, Page 363 of the Galveston County Deed Records, and for a southeast corner of this tract;

THENCE, South 84° 55' 20" West - 510.54 feet with the north line of said 0.7772 acre public street or highway easement to a 5/8-inch iron rod with cap stamped "McKim & Creed" set for an angle point 0.7772 acre public street or highway easement and for an angle point of this tract;

THENCE, South 88° 01' 00" West - 150.20 feet with the north line of said 0.7772 acre public street or highway easement to the POINT OF BEGINNING and containing 42.0419 acres of land, save and except 0.7805 acre of land leaving a net area of 41.2614 acres; said 0.7805 acre tract described as follows:

0.7805 acre of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 0.7805 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 0.7805 acre tract being out of Block 1, Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to George and Minna Braun Family Limited Partnership, as recorded in Galveston County Clerk's File No. 2004013806; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X and Blocks 2 and 3 of Subdivision Y and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 846.00 feet to a point for the southeast corner and POINT OF BEGINNING of this tract;

THENCE, South 88° 01' 01" West - 136.00 feet to a point for the southwest corner of this tract;

THENCE, North 01° 58' 59" West - 250.00 feet to a point for the northeast corner of this tract;

THENCE, North 88° 01' 01" East - 136.00 feet to a point in the west line of said Block 2 of Subdivision Y and in the east line of said Block 1 of Subdivision X for the northeast corner of this tract; from which a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X and Block 2 of Subdivision Y bears North 01° 58' 59" West - 224.00 feet;

THENCE, South 01° 58' 59" East - 250.00 feet with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X to the POINT OF BEGINNING and containing 0.7805 acre of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 3.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

November 7, 2023

0.7805 acre of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas

A FIELD NOTE DESCRIPTION of a 0.7805 acre tract of land in the Thomas W. Johnson Survey, Abstract No. 125, City of Texas City, Galveston County, Texas; said 0.7805 acre tract being out of Block 1, Subdivision X, Kofeldt's Resubdivision, according to the map or plat recorded in Volume 10, Page 35 of the Galveston County Map Records, conveyed to George and Minna Braun Family Limited Partnership, as recorded in Galveston County Clerk's File No. 2004013806; said tract being more particularly described by metes-and-bounds as follows with the bearings being based on Texas State Plane Coordinate System, South Central Zone (NAD83) per GPS Observations using National Geodetic Survey Continuously Operating Reference Stations:

COMMENCING FOR REFERENCE at a 5/8-inch iron rod with cap stamped "Survey 1" found for the southwest corner of Block 3, Subdivision Y of said Kofeldt's Resubdivision, for the southeast corner of Block 4, Subdivision X of said Kofeldt's Resubdivision, for the southeast corner of a 4.9905 acre tract of land conveyed to Alfonso Paz Ruiz, as recorded in Galveston County Clerk's File No. 2015013247, and for the southwest corner of a 0.7772 acre public street or highway easement to the City of Texas City (5th Avenue – unimproved right-of-way), as recorded in Galveston County Clerk's File No. 8326967;

THENCE, North 01° 58' 59" West with the west line of said Block 3 of Subdivision Y, with the east line of said Block 4 of Subdivision X, and with the east line of said 4.9905 acre tract, at a distance of 660.00 feet pass a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of Blocks 1 and 4 of Subdivision X, Blocks 2 and 3 of Subdivision Y and for the northeast corner of said 4.9905 acre tract and continuing with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X for a total distance of 846.00 feet to a point for the southeast corner and POINT OF BEGINNING of this tract;

THENCE, South 88° 01' 01" West - 136.00 feet to a point for the southwest corner of this tract;

THENCE, North 01° 58' 59" West - 250.00 feet to a point for the northeast corner of this tract;

THENCE, North 88° 01' 01" East - 136.00 feet to a point in the west line of said Block 2 of Subdivision Y and in the east line of said Block 1 of Subdivision X for the northeast corner of this tract; from which a 5/8-inch iron rod with cap stamped "McKim & Creed" set for the common corner of said Block 1 of Subdivision X and Block 2 of Subdivision Y bears North 01° 58' 59" West - 224.00 feet;

THENCE, South 01° 58' 59" East - 250.00 feet with the west line of said Block 2 of Subdivision Y and with the east line of said Block 1 of Subdivision X to the POINT OF BEGINNING and containing 0.7805 acre of land.

Note: This metes-and-bounds description was compiled in conjunction with a survey performed on even date.

COMPILED BY:
MCKIM & CREED
Engineers, Surveyors, Planners
Stafford, Texas
Firm Registration No. 10177600
Job No. 08780-0005
Y:\legals\08780-0005_tract 4.docx

Robert Chris Kelly
Registered Professional Land Surveyor
State of Texas No. 6833

Exhibit 'B' Conceptual Master Plan

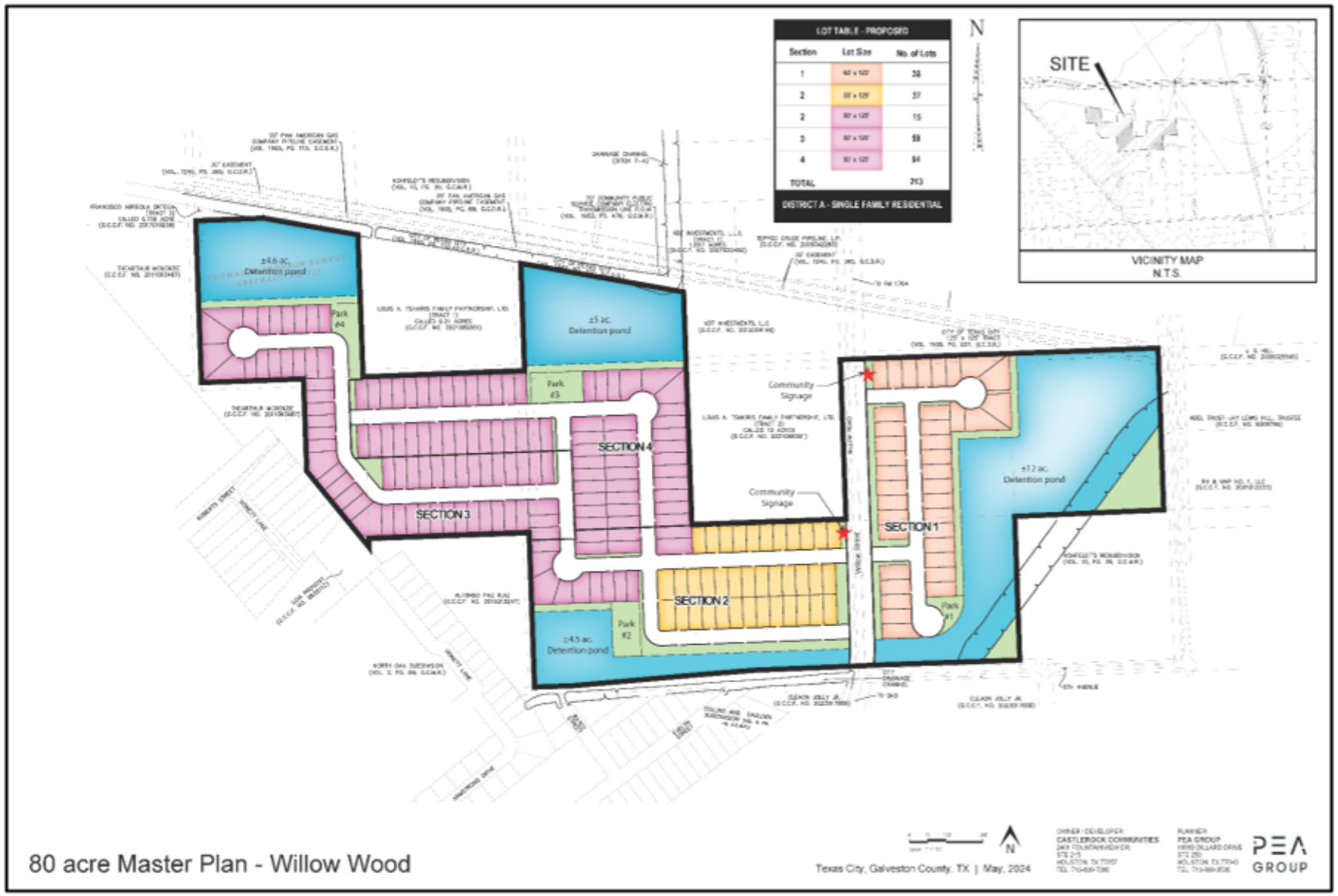


Exhibit 'C' Phasing Plan

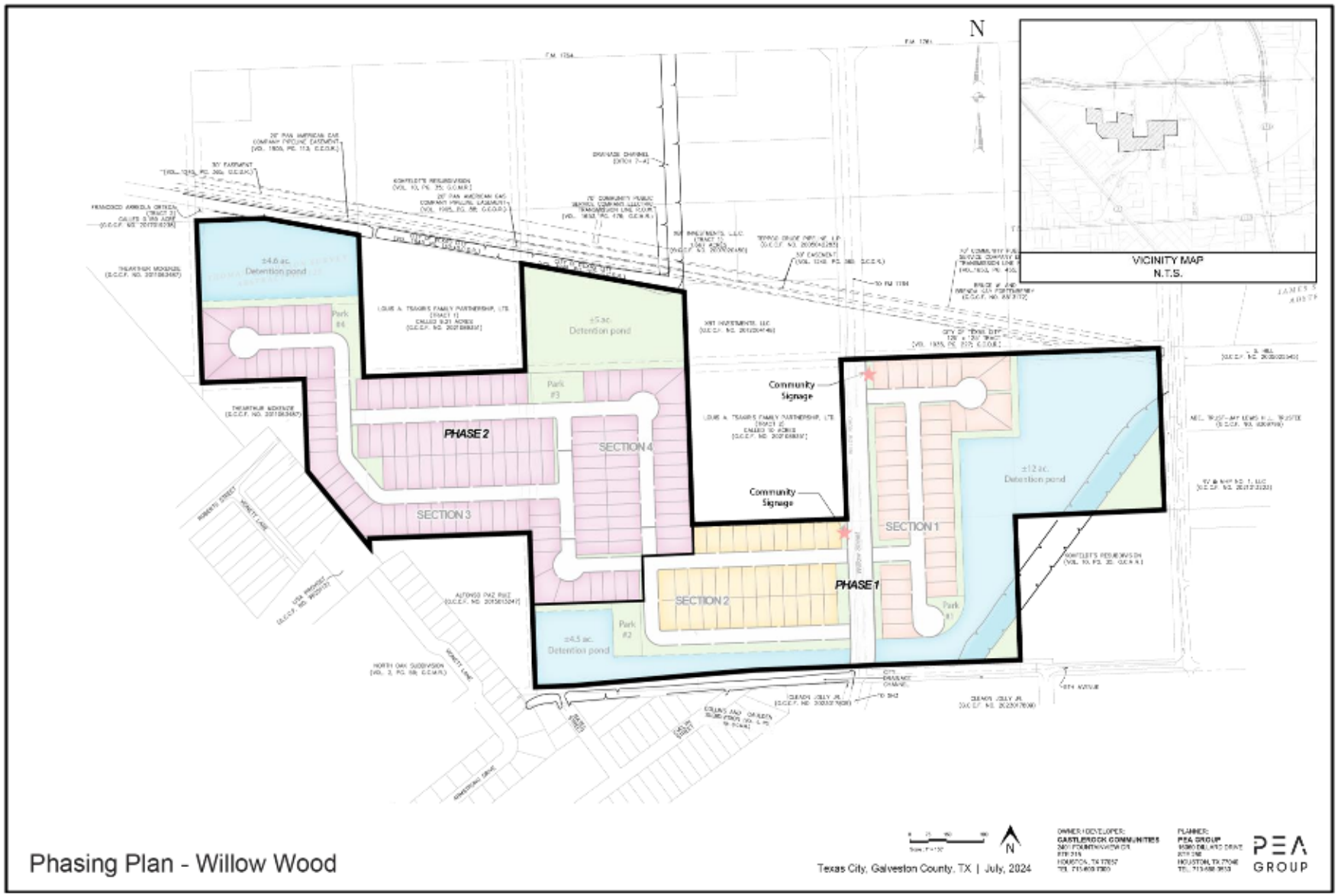


Exhibit 'D-1' Park and Trail Plan

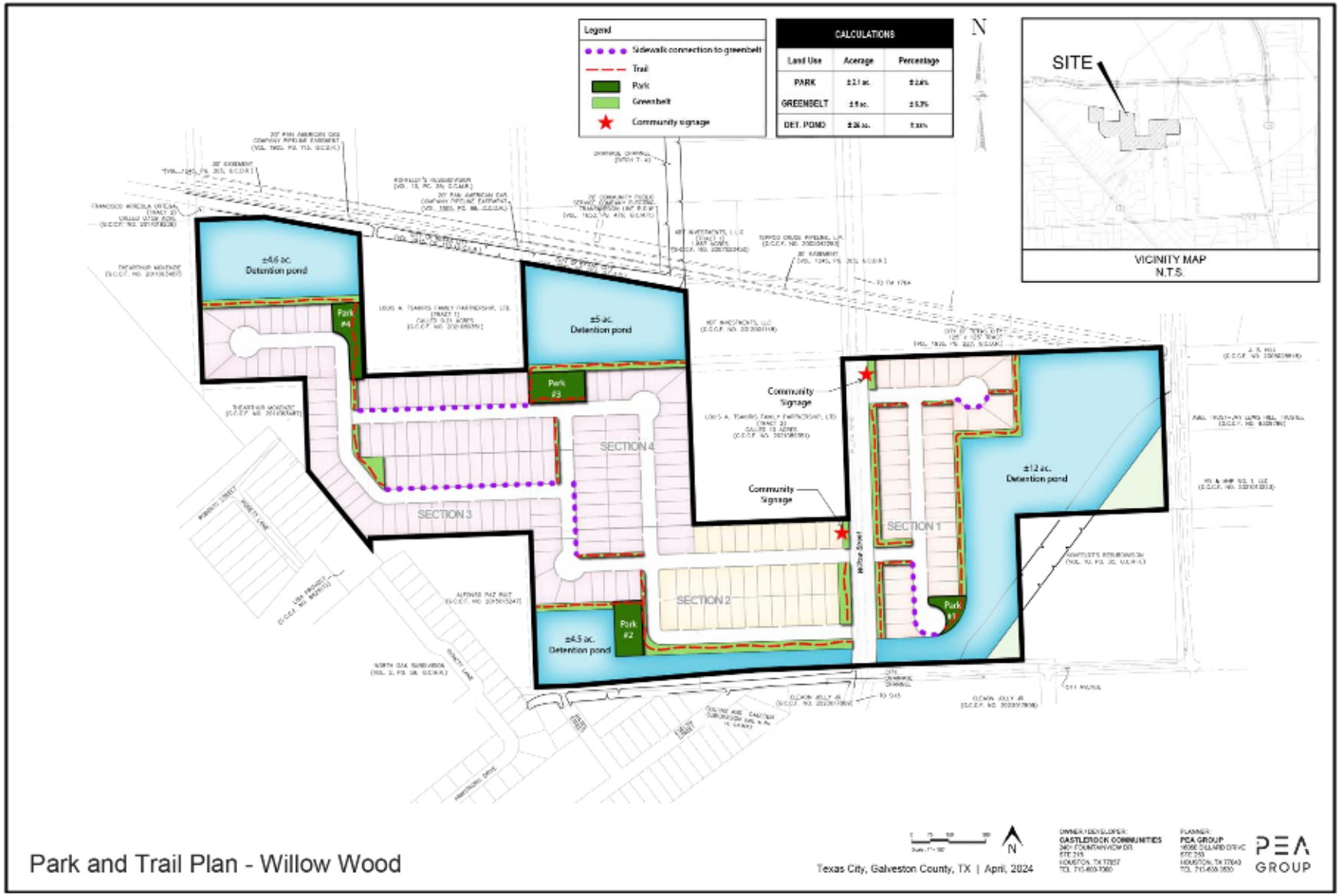


Exhibit 'D-2' Community Park Image Board

Site Furnishing

Bench

Trash receptacle

Aluminum pet station

Pavillion

Open timber truss with column

Square steel pavillion

Free Standing Play Equipment

2 Arch

Apollo spinner and tree fort

Swing set

Spring rider

Playground Equipment

Playground equipment: 2 to 5 years

Playground equipment: 5 to 12 years

Community Park Image Board - Willow Wood

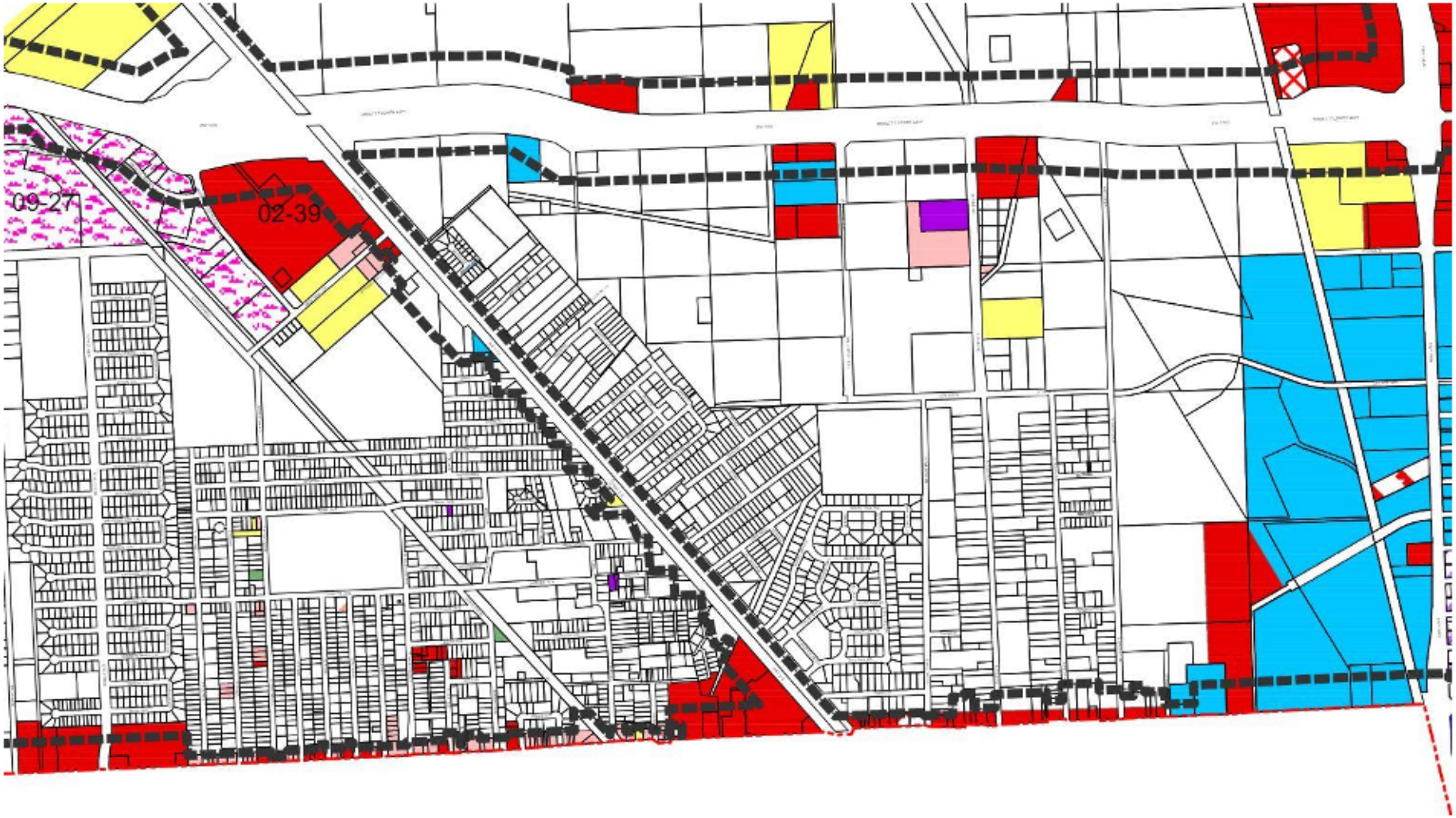
Texas City, Galveston County, TX | May, 2024

OWNER / DEVELOPER
GARTLEROCK COMMUNITIES

PLANNER
PEA GROUP

PEA GROUP

Exhibit 'E' Zoning Exhibit



CITY OF TEXAS CITY ZONING

Legend

ZONING DISTRICT

CENTRAL BUSINESS OVERLAY DISTRICT

ENVIRONMENTAL OVERLAY DISTRICT

GATEWAY CORRIDOR OVERLAY DISTRICT

CITY LIMITS (LAND ONLY)

Texas City EST. 1911

Exhibit F

Development Timeline

Plan to begin development improvements during 3rd and 4th quarter of 2025 with homebuilding to start in 2026.

**The anticipated dates are subject to change due to fluctuating market conditions*

Exhibit 'G' Development Agreement

RESOLUTION NO. 07-101

A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE A DEVELOPMENT AGREEMENT WITH HIGHWAY 66 PARTNERS, LTD. IN CONNECTION WITH THE DEVELOPMENT OF APPROXIMATELY 310 ACRES OF LAND; PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, on November 2, 2005, the City Commission adopted Resolution No. 05-130 consenting to the inclusion of 248 acres in a municipal utility district; and

WHEREAS, subsequent to the adoption of Resolution No. 05-130, the owners and developers acquired additional land that they wish to be included in the municipal utility district, making the total 310 acres; and

WHEREAS, City staff and consultants recommend the Developer (Highway 66 Partners, Ltd.) and City enter into a development agreement to provide the terms and conditions that will govern the development of the Property.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission of the City of Texas City, Texas, authorizes the Mayor to negotiate and execute a Development Agreement with Highway 66 Partners, Ltd. in substantially the same form as Exhibit "A," attached hereto and made a part hereof for all purposes.

SECTION 2: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 15th day of August, 2007.

Matthew T. Doyle, Mayor
City of Texas City, Texas

ATTEST:

Pamela A. Lawrence
City Secretary

APPROVED AS TO FORM:

Robert Gervais
City Attorney

L:Resolution 07-101 Approve Dev Agmt-Hwy66

DEVELOPMENT AGREEMENT

This **DEVELOPMENT AGREEMENT** (this "Agreement"), is made and entered into as of _____, 2007, by and between the **CITY OF TEXAS CITY, TEXAS,** a home rule municipality located in Galveston County, Texas (the "City"), and **HIGHWAY 66 PARTNERS, LTD.**, a Texas limited partnership (the "Developer").

RECITALS

The Developer owns or has under contract approximately 318 acres of land more fully described in Exhibit A, attached hereto (the "Property"). The Property shall also include any additional land annexed into the District (as defined below) with the City's consent. The Developer proposes to develop the Property as a residential community (the "Project"). The Property is currently located within the corporate limits of the City of Texas City, Texas (the "City").

The Developer determined that the creation of Galveston County Municipal Utility District No. 66 (the "District") over the Property was necessary for the provision of water, sewer, and drainage facilities, canals, and certain road and street improvements necessary to develop the Property.

The City has consented to the creation of the District.

The City and the Developer have determined that they are authorized by the Constitution and laws of the State of Texas to enter into this Agreement and have further determined that the terms, provisions, and conditions hereof are mutually fair and advantageous to each.

AGREEMENT

For and in consideration of these premises and of the mutual promises, obligations, covenants, and benefits contained herein, the City and the Developer contract and agree as follows:

ARTICLE 1
DEFINITIONS

The terms "*City*," "*Developer*," "*District*," "*Project*," and "*Property*" shall have the meanings provided for them in the Recitals, above. Except as may be otherwise defined, or the context clearly requires otherwise, capitalized terms and phrases used in this Agreement shall have the meanings as follows:

PUD means the Planned Unit Development for the Property to be adopted pursuant to the City's Zoning Code, Section 40-48 in effect as of the effective date of this Agreement.

Utility Services Agreement means the utility services agreement entered into between the City, the Developer, and the District.

Zoning Code means the City's Revised Zoning Ordinance in effect as of the date of this Agreement.

ARTICLE 2
OBLIGATIONS OF THE CITY

2.01. Acquisition of Easements for Off-Site Utilities. The City will acquire all off-site water and wastewater easements and sites needed to serve the Property using capital recovery fees paid by the Developer and other developers. The City will cooperate with the Developer to insure than all such easements and sites are acquired in timely manner that supports the completion of the off-site water and sewer facilities in a manner that meets the Developers plan for developing the Property, subject to the requirements of section 4.6 and 4.7 of this Agreement and the terms and conditions of the Utility Services Agreement to be entered into between the City, the District, and the Developer.

ARTICLE 3
OBLIGATIONS OF THE DEVELOPER

3.01. Municipal Use Sites. The Developer agrees to contribute $500 per lot to the City for the construction of the municipal use facilities (including but not limited to police, fire and EMS, library, satellite office or utility dispatch uses) to be constructed to serve the area of the City in which the Property is located, with such contribution to be paid at the time the final plat for a phase of development on the Property is filed for recordation.

3.02. Property owners' association. The Developer agrees to create one or more property owners' association to serve the Property and to include all of the Property in at least one of such property owners' association. The Developer further agrees to submit to the Mayor of the City or his designee for review and comment prior to recordation all rules of the property owners' association(s) created to serve the Property and all deed restrictions proposed for the Property. The Developer will provide copies of its commercial deed restrictions and commercial development covenants, if any, to the City for review and approval by the Mayor or his designee at least 60 days prior to filing same.

3.03. Maintenance of certain improvements. The Developer agrees to form one or more property owners association, which shall have as one of their stated purposes to permanently maintain through assessments all lakes, ponds, and other detention facilities and open ditches, open drainage channels, canals, and other open stormwater drainage improvements, parks and recreation facilities, landscaping, and monumentation developed as part of the Project (the "Non-City Improvements") to the extent that the District is not responsible for maintaining such Non-City Improvements. The Developer acknowledges and agrees that the Non-City Improvements will be maintained by the District or by the property owners' association or associations serving the Property, as appropriate, and that the City shall never have the responsibility to own, operate or maintain the Non-City Improvements.

3.04. Cost reimbursement. The Developer shall reimburse the City for professional consulting fees, including legal and engineering, reasonably incurred by the City in connection with the creation and organization of the District, including the review and approval of this Agreement, the Utility Services Agreement, Planned Unit Development, and any other agreements between the City, the Developer and the District. To aid in review and evaluation of the proposed development, the City shall engage the services of consultants and legal counsel. The City will enter into engagement letters and/or service agreements with its consultants and legal counsel. The City will be the client for purposes of these consulting and legal engagements. However, the Developer agrees to be responsible, on behalf of the City, for all fees, expenses, and other costs associated with the City's consulting and legal engagements.

The Developer further agrees to counter-sign the engagement letters between the City and its consultants and legal counsel to acknowledge the Developer's financial responsibility thereunder. The City's consultants and legal counsel shall submit invoices for fees, expenses, and other costs incurred on behalf of the City to the Developer (with a copy to the City) on a monthly basis and such invoices will be payable within thirty days of receipt. The Developer agrees that it will provide payment to the City's consultants and legal counsel accordingly on behalf of the City. The Developer's obligation under this section is cumulative with any other cost reimbursement arrangements previously or subsequently entered into between the City and the Developer.

3.06. Dry Utilities. The Developer agrees that all dry utilities, such as electric, gas, telephone and cable, shall be placed underground throughout the Property; provided, however, that "three-phase" power lines may be elevated and may be placed in easements along the perimeter of the Property and within the interior of the Property as may be required by the power provider to serve the Property. Unless otherwise approved by the City and the Developer and unless no reasonable alternative is available to the power provider for the location of said poles, no elevated three-phase power or larger poles may be placed along any major roads or highways. The Developer agrees that public street light poles throughout the Project shall be

galvanized metal or concrete; provided, however, the Developer may use light poles made out of a material that is of a higher quality than concrete, as determined by the Mayor or his designee. Decorative and specialty light poles are acceptable on private property and along private streets; provided, however, that the City shall never be responsible for maintenance of such light poles.

3.06. 25th Avenue Improvements. The Developer will pay for the cost of extending the northern two lanes of 25th Avenue for approximately 300 feet to the southwest side of Highway 3 and installing related storm drainage facilities (the "25th Avenue Paving Project"); provided, however, that (a) the Developer is not responsible for any paving or other road work on the north side of Highway 3, (b) such costs do not include the relocation of any utilities or pipelines, and (c) such costs do not exceed $150,000.

3.07 Property Values. The Developer recognizes that a significant portion of the City's consideration for entering into this Agreement and consenting to the creation of the District is the Developer's representations that it would achieve an average home value in the District of $160,000 (the "Target Value"). The Developer agrees to make to the City a payment in lieu of taxes (the "PILOT") to compensate the City for any loss of tax revenue attributable to the Developer's failure to achieve the Target Value on the dwelling units that are used to support the financial feasibility of the District's first bond issue, over the life of the first bond issue. The PILOT shall be calculated by first multiplying the City's then current total tax rate by the difference between the Target Value and the certified appraised value, as determined by the Galveston County Appraisal District, of the average completed home in the District on January 1 of the year in which the District sells its first series of bonds, divided by 100 (the "Estimated Annual Revenue Loss Calculation"). The Estimated Annual Revenue Loss Calculation shall be multiplied by a timing factor (the greater of 20 years or the term of the District's first bond issue) to arrive at the PILOT due from the Developer to the City. A table demonstrating the calculation of the PILOT is shown on Exhibit "B" attached hereto and incorporated herein for all purposes. The PILOT shall be paid within 30 days of the Developer's receipt from the District of its share of proceeds from the District's first bond issue.

ARTICLE 4
LAND AND DEVELOPMENT COVENANTS

4.01. Land Use. Developer shall submit to the City, for its review and approval, the plan for the development of the Property (the "General Plan") in accordance with Section 40-48 of the Zoning Code in effect as of the effective date of this Agreement. Developer shall develop or cause any undeveloped Property to be developed in accordance with the latest General Plan approved by the City.

4.02 Planned Unit Development. (a) Developer agrees that development of the Property shall be in accordance with the Zoning Code and the General Plan, as the General Plan may be amended in accordance with the provisions of the Zoning Code and the terms of the PUD.

(b) The Developer and City recognize that it is in the interest of the Developer and the City that part of the Property be used to further the economic development interests of both the Developer and the citizens of the City, including attracting desirable businesses and industry to provide highly skilled jobs and to maintain an appropriate balance between the City's residential and non-residential tax base. Therefore, the Project shall be developed as a PUD in accordance with the Zoning Code. The Developer agrees to comply with all of the procedures provided for a PUD in the Zoning Code. The PUD shall include but not be limited to: (1) proposed land uses; (2) maximum number of housing units; (3) number of lots; (4) sizes of the lots; (5) housing types; (6) prospective commercial uses; (7) street and circulation system/arterial plan; (8) development schedule; (9) request for variance to the development code; (10) typical street cross section with proposed landscape standards; (11) bulk head material; (12) estimated construction value of housing by lot size; (13) proposed amenities plan; (14) utility (water and sewer) plant and sites and trunk line locations; (15) storm water plan; (16) Municipal Utility District boundaries; (17) any likely alternative development scenario; and (18) if a municipal services site is dedicated, it must be shown in the PUD Conceptual Plan.

4.03 Development Covenants. The Developer agrees to adopt deed restrictions and other restrictive covenants, and promulgate the Developer's guidelines regarding development standards, consistent with the PUD, the Zoning Code and any relevant City ordinances and regulations. The Developer will provide copies of its residential deed restrictions and residential development covenants to the City for review and comment by the Mayor or his designee no later than prior to the approval of the first residential development covenants for review and comment no later than prior to the approval of the PUD. The Developer agrees to require Sub-developers to abide by the Developer's development standards and provide for enforcement mechanisms for restrictive covenants.

4.04. Marketing Cooperation. The Developer will share non-confidential marketing information with the City relating to the marketing of the Project, and will solicit recommendations to assist the marketing of the Project from the City. The City will designate a contact person for this purpose.

4.05 Notice. Developer agrees to provide notice to the Mayor or his designee of any material proposed changes, amendments or revisions to the PUD, the Property, or the Project prior to taking any action on such change.

ARTICLE 5
TERM AND DEFAULT

5.01. Term. This Agreement shall be in effect as of the date set forth on the first page hereof, and shall terminate 50 years thereafter, unless terminated earlier as specifically provided herein.

5.02. Default.

a. A party shall be deemed in default under this Agreement (which shall be deemed a breach hereunder) if such party fails to materially perform, observe or comply with any of its covenants, agreements or obligations hereunder or breaches or violates any of its representations contained in this Agreement.

b. Before any failure of any party to perform its obligations under this Agreement shall be deemed to be a breach of this Agreement, the party claiming such failure shall notify, in writing, the party alleged to have failed to perform of the alleged failure and shall demand performance. No breach of this Agreement may be found to have occurred if performance has commenced to the reasonable satisfaction of the complaining party within 30 days of the receipt of such notice. Upon a breach of this Agreement, the non-defaulting Party shall be entitled to specific performance. Regardless of any other provision, neither Party shall be entitled to recover money damages for breach of this Agreement or a tort related to this Agreement. Except as otherwise set forth herein, no action taken by a party pursuant to the provisions of this Section pursuant to the provisions of any other section of this Agreement shall be deemed to constitute an election of remedies and all remedies set forth in this Agreement shall be cumulative and non-exclusive of any other remedy either set forth herein or available to any Party at law or in equity. Each of the parties shall have the affirmative obligation to mitigate its damages in the event of a default by the other party.

ARTICLE 6
MISCELLANEOUS PROVISIONS

6.01. Approvals and consents. Approvals or consents required or permitted to be given under this Agreement shall be evidenced by an ordinance, resolution or order adopted by the governing body of the appropriate party or by a certificate executed by a person, firm or entity previously authorized to give such approval or consent on behalf of the party. Approvals and consents shall be effective without regard to whether given before or after the time required for giving such approvals or consents.

6.02. Address and notice. Any notice to be given under this Agreement shall be given in writing, addressed to the party to be notified as set forth below, and may be

given either by depositing the notice in the United States mail postage prepaid, registered or certified mail, with return receipt requested; by messenger delivery; or by telecopy. Notice deposited by mail shall be effective three days after posting. Notice given in any other manner shall be effective upon receipt by the party to be notified. For purposes of notice, the addresses of the parties shall be as follows:

If to the City, to:
Mayor
City of Texas City, Texas
P.O. Box 2608
Texas City, Texas 77592

If to Developer, to:
Hwy 66 Partners, Ltd.
Attn: Phil Newton
1514 3rd Street
Seabrook, Texas, 77586

cc to the District to:
Galveston County Municipal Utility
District No. 66
c/o: McDonald & Sechrist LLP
770 South Post Oak Lane, Suite 410
Houston, Texas 77056
Attn: Terrie L. Sechrist

The parties shall have the right from time to time to change their respective addressees by giving written notice of such change to the other party at least 15 days prior to the effective date of the change.

6.03. Assignability; successors and assigns. All covenants and agreements contained by or on behalf of a party in this Agreement shall bind its successors and assigns and shall inure to the benefit of the other parties, their successors and assigns. The parties may assign their rights and obligations under this Agreement or any interest herein, only with the prior written consent of the other party, which consent shall not be unreasonably withheld, and any assignment without such prior written consent, including an assignment by operation of law, is void and of no effect; provided that, the Developer may make a collateral assignment in favor of a lender without consent. This Section shall not be construed to prevent the Developer from selling lots, parcels or other portions of the Land in the normal course of business. If such assignment of the obligations by the Developer hereunder is effective, the Developer shall be deemed released from such obligations. If any assignment of the obligations by the Developer hereunder is deemed ineffective or invalid, the Developer shall remain liable hereunder.

6.04. No additional waiver implied. The failure of either party to insist upon performance of any provision of this Agreement shall not be construed as a waiver of the future performance of such provision by the other party.

6.05. Reservation of rights. All rights, powers, privileges and authority of the parties hereto not restricted or affected by the express terms and provisions hereof are reserved by the parties and, from time to time, may be exercised and enforced by the parties.

6.06. Parties in interest. This Agreement shall be for the sole and exclusive benefit of the parties hereto and shall not be construed to confer any rights upon any third parties.

6.07. Merger. This Agreement embodies the entire understanding between the parties and there are no representations, warranties, or agreements between the parties covering the subject matter of this Agreement.

6.08. Modification; Exhibits. This Agreement shall be subject to change or modification only with the mutual written consent of the City and the Developer. The exhibits attached to this Agreement are incorporated by this reference for all purposes.

6.09. Captions. The captions of each section of this Agreement are inserted solely for convenience and shall never be given effect in construing the duties, obligations or liabilities of the parties hereto or any provisions hereof, or in ascertaining the intent of either party, with respect to the provisions hereof.

6.10. Interpretations. This Agreement and the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein and to sustain the validity of this Agreement. This agreement, although drafted by the City, shall be construed fairly and reasonably and not more strictly against the City than the Developer because both parties were represented by legal counsel in the negotiation and review of this Agreement.

6.11. Severability. If any provision of this Agreement or the application thereof to any person or circumstances is ever judicially declared invalid, such provision shall be deemed severed from this Agreement and the remaining portions of this Agreement shall remain in effect.

6.12. Authority within City limits. Regardless of any other provision, nothing herein shall impair or restrict any authority, powers or rights of the City within the incorporated limits of the City.

[EXECUTION PAGES FOLLOW]

AGREED AND ACCEPTED as of the date first above written.

HWY 66 PARTNERS, LTD.,
a Texas limited partnership

By: Jabaz Development Co., Inc.,
a Texas corporation,
its general partner

By: _____
Phil Newton, President

152773

AGREED AND ACCEPTED as of the date first above written.

CITY OF TEXAS CITY, TEXAS

Mayor

ATTEST:

City Secretary

(SEAL)

APPROVED AS TO FORM:

City Attorney

152773

City of Texas City
Highway 66 Partners
Payment in Lieu of Taxes Calculation

I. Estimated Annual AV Value Loss Calculation

A.	$	160,000	Target Value per Dwelling Unit
B.	$	-	(-) Average value per dwelling unit (calculated as the total number of A1 properties at the time of the bond sale / total value of all A1 properties as of the time of the bond sale, to be provided by MUD TAC per GCAD records)
C.	$	160,000	(=) Variance between target value per dwelling unit and average value per dwelling unit
D.	$	160,000	Variance between target value per dwelling unit and average value per dwelling unit
E.		0	(*) Total A1 properties at the time of the bond sale to be provided by MUD TAC per GCAD records
F.	$	-	(=) Estimated AV Loss

II. Estimated Annual Revenue Loss Calculation

G.	$	-	Estimated AV Loss
H.	$	-	(/) 100
I.	$	0.45624	(*) Texas City Tax Rate (at time of bond sale)
J.	$	-	(=) Estimated Annual Taxes Lost

III. Payment in Lieu of Taxes Calculation

K.	$	-	Estimated Annual Taxes Lost
L.		20	(*) Timing factor (20, or the term of the bonds, whichever is greater)
M.	$	-	(=) Total Payment at time of sale

I. Estimated Annual AV Value Loss Calculation

A.	$160,000	Target Value per Dwelling Unit
B.	$130,000	(-) Average value per dwelling unit (calculated as the total number of A1 properties at the time of the bond sale/total value of all A1 Properties as of the time of the bond sale, to be provided by MUD TAC per GCAD records)
C.	$30,000	(=) Variance between target value per dwelling unit and average value per dw
D.	$30,000	Variance between target value per dwelling unit and average value per dwellir
E.	84	(*) Total A1 properties at the time of the bond sale to be provided by MUD TAC per GCAD records
F.	$2,520,000	(=) estimated AV loss

II. Estimated Annual Revenue Loss Calculation

G.	$2,520,000	Estimated AV Loss
H.	$25,200	(/) 100
I.	$0.4562	(*) Texas city Tax Rate (at time of bond sale)
J.	$11,497	(=) Estimated Annual Taxes Lost
K.	$11,497	Estimated Annual Taxes Lost
L.	20	(*) Timing Factor (20 or the term of the bonds, whichever is greater)
M.	$229,945	(=) Total Payment at time of sale

Texas City
EST. 1911
ENGINEERING & PLANNING

STAFF REPORT

To: Planning Board - October 7, 2024

From: Kim Golden, P.E., Engineering & Planning

CC: Doug Kneupper, P.E.

Date: October 4, 2024

Re: Willow Wood Subdivision – Master Plan and request to rezone from District A – Single Family Residential to District I – Planned Unit Development

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Background: Willow Wood Subdivision - Applicant, Castlerock Communities, Inc, proposes to develop and **80-acre tract of land**, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop **213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft**, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1-acre park/green space with a playground, seating areas, and landscaped entry reserves.

The subject tract is included in GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The application is presented to satisfy the requirements of the Development Agreement.

Existing Conditions: The subject tract is mostly flat with elevations ranging from 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. The eastern portion of the site falls within the 100-year flood plain. Land uses near the tract include single family residential tracts, public use property and undeveloped property.

The adjacent properties to the north of this area are mostly undeveloped. Southwest of the site parcels consist of residential properties along State Highway 3, with a creek along the southeast boundary.

Staff analysis: The total lot yield of 213 lots is a proposed density of 2.7 units per acre. An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

Willow Street, an existing local roadway runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project, but developer intends to add additional property for a future second entrance to the west.

Water and sewer facilities are readily available to this project and can be extended from existing mains.

As noted, some of the site is located in the 100-year flood plain and much of the site provided storage. A thorough drainage impact analysis was provided with review and approval from the GCDD # 2.

Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

RECOMMENDATION: City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and have no objection to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

1801 9th Avenue North * P.O. Drawer 2608 * Texas City, TX 77592-2608
(409) 948-3111 * www.texascitytx.gov

PLANNING BOARD MINUTES
OCTOBER 7, 2024

The Planning Board of the City of Texas City met in a regular meeting on Monday, October 7, 2024, at 5:00 p.m. Planning Board members present: Co-Chairman Perry O'Brien, Commissioner Thelma Bowie, Commissioner Jami Clark, Aric Owens, Alternate Member Jose Boix and Alternate Member Andrew Thomas. Staff members present: Kimberly Golden (Secretary), David Kinchen (Deputy Building Official), Kip Urps and Veronica Carreon. Guests were: Jewel Chadd (Langan Engineering), Sherri McElwee (Quiddity Engineering), Bryan Smith (CastleRock Communities), Andy Zepeda (CastleRock Communities), Laura Boyd, Ronny Boyd, Stephanie Tabor (A&S Engineers), Kenneth Clark, and Jerry LeBlanc (Binnacle).

Co-Chairman Perry O'Brien indicated a quorum was present and called the meeting to order.

1) **APPROVAL OF MINUTES**

A motion to approve the minutes of the August 19, 2024 meeting was made by Commissioner Jami Clark/Aric Owens. All other members present voted aye.

2) **PUBLIC COMMENTS**

Jerry LeBlanc addressed the Board and distributed a copy of an email he sent to Ms. Kimberly Golden. He stated he was working last week on some forward projections and his lenders like for him to project out sections at a time.

He emailed Santa Fe Engineering and Ms. Golden regarding expectations and planning. He works with a lot of municipalities and lives in Texas City. All of those municipalities adhere strictly to their ordinance, which is always reviewed and presented to the Planning Board in 30 days.

He has seen situations where there is not a quorum and then the plans are automatically approved. Municipalities experience this because they reference to a new state law and the city ordinances. He asked the Planning Board if they could help him on insight for future submittals because there hasn't been a quorum in a while.

He has quite a bit of stuff that is pending and wants to know where Texas City stands on this 30-day time period. If all of these other municipalities are wrong, how does Texas City interpret it?

Co-Chairman Perry O'Brien replied that he personally does not have the knowledge, but he has been called via phone and made himself available to make a quorum. He knows other board members have as well.

Co-Chairman O'Brien added that he understands public comments are heard and there is a timely response to those comments. They are endeavored to do that, but he cannot give an answer today because he does not know the information.

Mr. LeBlanc replied that he understood. He just wanted to make a public comment, but just wants to know what Texas City expects so that he knows what to put on the performance. He stated he has loans expiring and has to renew them, which puts a bind on everybody involved.

Co-Chairman stated that he understood.

3) **REGULAR AGENDA**

a. **Consider and take action on the Final Plat for Crystal View Blvd Extension. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number 2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located south of Lago Mar Blvd entrance road and west of the I-45 south bound frontage road.**

Ms. Golden indicated that Crystal View Blvd is already built and in place. This plat is for the dedication of the rest of Crystal View Blvd from where it stops now to reach the I-45 southbound frontage road. The second agenda item is the plat for the 14.3 acres that City Commission has approved a Development Agreement with the developer for a way to record this as a final plat before Crystal View Blvd is actually constructed.

The action that is before the Board now is to approve as a final plat the plat for the extension of Crystal View Blvd. This plat is not going to be any different from what's provided for an ordinance. This means the Planning Board will approve it and then it will be recorded after it has been built.

There are a couple of conditions that Ms. Golden included on her staff memo that specifically the approval be conditioned upon final approval of the Traffic Impact Analysis (TIA) and issuance of the necessary access permits by TxDOT.

Staff are moving this a little fast to accommodate the developer and the pending sale there. Those are the last two things that are in the process of being worked out.

The TIA has been under review. There are some final tweaks that need to be worked out among the engineers and they do have their application pending for the permit to make the connection of Crystal View Blvd to the frontage road, but they don't have it yet.

Typically, these items would be in place before bringing forward for final approval.

Co-Chairman Perry O'Brien asked what the typical timeframe for TxDOT is to approve. Ms. Golden replied that Ms. Sherri McElwee has stated this has been pending for about four months. They have been exchanging comments and they are in the process of trying to set up a meeting with TxDOT to go over the final comments.

Ms. McElwee added that typical time is about six months to a year. TxDOT has been accommodating with the amount of development going on right now in the I-45 corridor right now. She believes they have a little more accessibility and waiting on that meeting to go over final comments.

Co-Chairman O'Brien confirmed that six months to a year is typical because he has been asked this question before. Ms. McElwee replied that is correct if everything is in order.

Mr. Jose Boix about the turn into the street. Ms. McElwee replied that the exit for Lago Mar Blvd is a little bit further back but there is some denied access a little south of the driveway where you cannot make a connection because there is another exit planned.

A motion was made by Alternate Member Jose Boix/Commissioner Thelma Bowie to approve the Final Plat for Crystal View Blvd Extension conditioned upon final approval of the TIA by the City of Texas City and issuance of the necessary access permits by TxDOT. All other members present voted aye.

b. **Consider and take action on the Preliminary Plat for Lago Mar Commercial Replat No. 3. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number**

2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located at the southwest corner of Lago Mar Blvd and west of the I-45 south bound frontage road.

Ms. Golden stated this is the Preliminary Plat for 14.3 acres replat which includes the reserves and the property for the grocery store tract. It is referred to as the Lago Mar Commercial Replat No. 3.

It is unusual for both a Preliminary Plat and Final Plat to be brought before the Planning Board at the same meeting, but due to Labor Day Holiday and unfortunately, the lack of a quorum for the second regular meeting in September or a special-called meeting, these two items are being presented.

Staff have reviewed and all comments have been addressed. There are no conditions for this Preliminary Plat approval.

Mr. Boix asked if the TIA would affect this project, to which Ms. Golden replied there would not be any affect.

A motion was made by Mr. Jose Boix/Commissioner Thelma Bowie to approve the Preliminary Plat for Lago Mar Commercial Replat No. 3. All other members present voted aye.

c. **Consider and take action on the Final Plat for Lago Mar Commercial Replat No. 3. A portion of unrestricted Reserve "B", Block 2, Lago Mar Commercial, according to the map or plat thereof recorded under Instrument Number 2016044734, map records of Galveston County, Texas. Situated in the Alexander Farmer League, Abstract No. 11, Texas City. Located at the southwest corner of Lago Mar Blvd and west of the I-45 south bound frontage road.**

Ms. Golden stated that Final Plat for Lago Mar Commercial Replat No. 3 has been reviewed and the developer has addressed all comments made by staff regarding the reserves and the way things outside should be labeled.

This developer put the Final Plat together quickly and staff then reviewed it quickly

This project is where the City Commission has approved a change in the platting procedure that is in the Ordinances. City Commission approved a Development Agreement that specifically sets forth a separate process for this particular lot for this particular condition, which is included in the agenda packet.

Staff have no objection to approval but are recommending the following conditions.

i) Developer's commitment to implement the recommended improvements of the final approved Traffic Impact Analysis (TIA),

ii) The approval of a final TIA, and

iii) The issuance of final permits from TxDOT for the connection of Crystal View Blvd to the I-45 southbound frontage road.

What is not a condition is that it actually be constructed because again, City Commission, through the Development Agreement has already provided for it to be recorded upon bond.

The Developer will post a security bond in a sufficient amount to cover their construction of Crystal View Blvd and the other infrastructure in case they don't actually do the work themselves. It is fully anticipated that the Developer will build the infrastructure. They have three years to complete the work.

A motion was made by Mr. Jose Boix/Commissioner Thelma Bowie to approve the Final Plat for Lago Mar Commercial Replat No. 3 upon with conditions as stated, i.e., the Developer's commitment to implement the recommended improvements, the final approval of the TIA, and the issuance of final permits from TxDOT for the connection of Crystal View Blvd to the I-45 southbound frontage road. All other members present voted aye.

d. **Consider and take action on the Final Plat for Brookwater Sections 1A, Being a replat of a 12.16-acre tract of land out of Lots 9 through 12 of Waterman's Subdivision of the W.K. Wilson Survey, Abstract No. 208, Texas City. Containing 3 blocks, 48 lots and 4 reserves. Located to the east of FM 2004 and north of Mainland City Centre.**

Ms. Golden asked Co-Chairman O'Brien if this item and the next could be read together, to which Co-Chairman O'Brien stated that would be good.

Ms. Golden stated that Brookwater Subdivision was originally presented to the Board and approved as Section 1 in total as a Preliminary Plat. Before presenting a final plat for Section 1 to the Board, the Developer decided to break Section 1 into two sections – Section 1A and Section 1B.

Everything is basically the same. The construction drawings have been broken into the two sections as well so that they will be able to record Section 1A before Section 1B is constructed.

There is one recommendation condition to approval of the Final Plats for Sections 1A and 1B. There is a small section of property owned by the TCEDC between the subdivision and the GCDD#2 drainage canal. It is recommended that acquisition of a drainage easement across the TCEDC property should be a condition for the final plat approval. There has been an arrangement worked out which the TCEDC Board has approved that. Ms. Golden believes they are in the process of executing the necessary documents.

Mr. Jerry LeBlanc stated that the easement agreement with TCEDC has been negotiated. The process started back in May 2024. Mr. LeBlanc stated that it took a while because "The City" stated that they weren't going to give him the 1,500' unless he stopped the condemnation suits on other items pertaining to the city. He stated that his lender told him he had to fold to keep this going. He couldn't fight the other stuff and so he folded.

He added that they have advertised this job and awarded it to a contractor. The paperwork is executed for the easement from TCEDC. His payment in the amount of $3,400.00 for the easement is at the condemnation attorney's office.

He stated he does not have a problem with the condition, but he would like to issue a notice to proceed and schedule a pre-construction meeting and get started. Drainage easements are the last thing constructed. Obviously, they cannot trespass on someone else's property. He is okay with waiting on the drainage easement, but he would like to start the rest of the construction.

Co-Chairman O'Brien asked what the timeline would be with the condition. Ms. Golden replied that the documents are at the lawyer's per Mr. LeBlanc and staff are recommending the condition that the document be fully executed and recorded.

Co-Chairman O'Brien asked if there is no anticipated delay to which Ms. Golden replied that is correct.

A motion was made by Commissioner Jami Clark/Jose Boix to approve the Final Plats for Brookwater Section 1A and Section 1B conditioned upon the execution of a drainage

easement connecting the drainage outfall to the GCDD 2 Ditch 6 system. All other members present voted aye.

e. **Consider and take action on the Final Plat for Brookwater Sections 1B. Being a replat of a 7.19-acre tract of land out of Lots 9 through 12 of Waterman's Subdivision of the W.K. Wilson Survey, Abstract No. 208, Texas City. Containing 2 blocks, 19 lots and 3 reserves. Located to the east of FM 2004 and north of Mainland City Centre.**

This agenda item was discussed and voted on with Agenda Item 3d.

f. **Consider and take action on the Preliminary Plat for Heron's Landing Section 5. Being a tract of land situated in the Daniel Richardson Survey, Abstract No. 167, and the T.G. Western Survey, Abstract No. 204, both in Galveston County. Located to the west of Heron's Landing Section 4 and north of The Island's Subdivision.**

Ms. Golden stated this is the Preliminary Plat for Heron's Landing Section 5. The final plat for Heron's Landing Section 4 has been approved.

Section 5 is the section that will have the reserve for the detention pond. There are a mix of lot sizes – 50's, 60's and 70's. There will be a total of 44 lots.

Sections 1 and 2 have been built out with 76 homes. Eighteen are under construction in Section 3. They have had some delays with TNMP as far as getting some power.

Staff have reviewed the Preliminary Plat for Heron's Landing Section 5 and offer no objection to approval. No conditions are being suggested.

A motion was made by Commissioner Thelma Bowie/Commissioner Jami Clark to approve the Preliminary Plat for Heron's Landing Section 5. All other members present voted aye.

g. **Consider and take action on the Master Plan and PUD for Willow Wood Subdivision – an 80-acre tract of land, comprising of nine individual parcels. Located southeast of SH 3 and south of FM 1764.**

Ms. Golden stated this is a Master Plan for Willow Wood Subdivision. A zoning change request will also be reviewed for changing the 80-acre tract in a District I Planned Unit Development (PUD).

The Applicant is CastleRock Communities, and they have several projects currently underway in Texas City. They are in good standing with the city.

This is 80 acres. They are proposing to develop 213 single family detached lots at various dimensions ranging from the 6,000 sq. ft. minimum to 13,000 sq. ft.

They are going to add a 7.1-acre park/green space with a playground, seating areas and landscaped entry reserves.

This subdivision will only have one way in, which will be via Willow Street. It will serve both the east and west, but the developer anticipates acquiring some additional property for a future second entrance to the west.

Due to their constraints, as Ms. Golden understands, they can't acquire more property until they receive an approval on this Master Plan. Developer and staff fully anticipate that they come forward with an amendment to have another entrance.

Commissioner Thelma Bowie asked if the Developer is aware that some of the plots that are outside of their construction outline have farm animals.

Mr. Bryan Smith (CastleRock Communities) replied that on parcels that where they have closed the purchases the grazing leases have been terminated or have been given their notice of termination. There will not be any livestock on the tracts that the developer will own. Those leases were with the original landowners and that was in their contract to have the leases terminated.

Commissioner Bowie replied that she happens to know some of the landowners, and she doesn't think they have any plans to sell.

Mr. Smith replied that the names she mentioned aren't part of the ownerships they bought from.

Ms. Golden believes that what Commissioner Bowie is asking is whether the Developer is aware that on some of the properties that the developer is not acquiring people are running livestock on those parcels. The developer acknowledged being aware of that information.

Ms. Golden noted that part of the property is in the flood zone and that is why there is the extensive detention pond. They did a thorough drainage impact analysis which the Drainage District thoroughly reviewed. They seem to have figured out what nobody else has been able to figure out which is a solution for the drainage in this area.

Mr. Smith added that they paid to have the entire watershed included in the drainage done first and then they did a drainage study for this property (indicated on the exhibit), and they included the portions that are not within the boundaries for the fact that if they wanted to come back and get the other properties, the drainage would already be included. This causes you to lose more land, but the drainage in not only worked out for this project but other properties that are in the watershed will have a baseline drainage study they will work from.

Mr. Aric Owens asked about Phillips Street and stated he could not find it on Google Maps. Ms. Golden showed how Willow Street turned into Phillips Street on Google Maps.

Mr. Smith added if you are on the freeway there are two large Willow Street exit signs. There is no street sign at all that indicates Philips Street from the frontage road. What they understand is Phillips Street turns south and then becomes Willow Street. He remembers speaking with Doug Kneupper and he thought that Willow Street would continue to the north. This is why on both sides, east or west, are large Willow Street freeway signs.

Ms. Golden asked Mr. Smith to tell the Board what the housing product would look like.

Mr. Smith replied that it would look very similar to Pearlbrook Subdivision. In Sections 1 and 2 they are looking at having some 3 car garages, but they are not to that point yet.

Mr. Boix asked about the zoning change request, to which Ms. Golden replied if the Master Plan is approved then the zoning change request would be presented to the Zoning Commission for an action on the rezoning request. The Zoning Commission will want to know that the Planning Board looked at the Master Plan and have given final approval.

A motion was made by Commissioner Jami Clark/Commissioner Thelma Bowie to approve the Master Plan and the Zoning Change Request and that a provision be made in the PUD to allow the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the Master Plan. All other members present voted aye.

4) GENERAL UPDATES

Ms. Golden then introduced the Planning Board's newest member, Alternate Andrew Thomas.

5) **OTHER BUSINESS (Any conceptual development proposal requesting to come before the Planning Board)**

6) **ADJOURNMENT**

Chairman Dickey Campbell asked if there was any other business to which there was none. **A motion was made by Commissioner Jami Clark/Commissioner Thelma Bowie to adjourn. All members present voted aye.**

Kimberly Golden, Secretary — Date 11/4/2024

Minutes approved by the Planning Board at its meeting on 11/4/2024.

Texas City
EST. 1911
ENGINEERING & PLANNING

STAFF REPORT

To: Zoning Commission - Regular Meeting – November 19, 2024

From: Kim Golden, P.E., City Engineer

CC: Doug Kneupper, P.E.

Date: November 15, 2024

RE: Willow Wood Subdivision - Master Plan and request to rezone from District A-1 Single Family Residential to District I – Planned Unit Development

Background: Willow Wood Subdivision - Applicant, Castlerock Communities, Inc, proposes to develop **80-acre tract of land**, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks and open space. The subdivision will develop **213 single family detached lots at various dimensions ranging from 6,000sft to 13,000sft**, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1 acre park/green space with a playground, seating areas, and landscaped entry reserves.

The subject tract is included GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007 which requires development of the subject properties as a Planned Unit Development. The application is presented to satisfy the requirements of the Development Agreement.

Planning Board recommended approval of the master plan and PUD at its regular meeting on October 7, 2024.

Existing Conditions: The subject tract is mostly flat with elevations ranging from 11 feet above sea level on the northern side of the tract to 14 feet above sea level on the southern side of the tract. The eastern portion of the site falls within the 100-year flood plain. Land uses near the tract include single family residential tracts, public use property and undeveloped property.

The adjacent properties to the north of this area are mostly undeveloped. Southwest of the site parcels consist of residential properties along State Highway 3, with a creek along the southeast boundary.

Staff analysis: The total lot yield of 213 lots is a proposed density of 2.7 units per acre.

An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit

D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

Willow Street, identified as N. Pine St. on Google Maps, is an existing local street which runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project, but developer intends to add additional property for a future second entrance to the west.

Water and sewer facilities are readily available to this project and can be extended from existing mains.

As noted, some of the site is located in the 100-year flood plain and much of the site provided additional natural detention storage capacity. A thorough drainage impact analysis was provided with review and approval from the GCDD # 2.

Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

RECOMMENDATION: The Planning Board considered and unanimously recommended approval of the Master Plan and PUD at its regular meeting on October 7, 2024. City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and has no objections to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow amendment of the PUD to incorporate the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

ZONING COMMISSION
November 19, 2024

The Zoning Commission of the City of Texas City met in a regular meeting on Tuesday, November 19, 2024, at 5:00 p.m. Zoning Commission members present were: Chairman Perry O'Brien, Commissioner Thelma Bowie, Member Bruce Clawson, and Alternate Member Lisa Salinas. Staff members present were: Kimberly Golden, (Secretary), Casey Bennett (Chief Building Official), David Kinchen (Deputy Building Official), Curt Kelly (Engineering & Planning Administrator), Veronica Carreon (Planning & Zoning Technician), and Brianna Galicia (Engineering & Planning Administrative Assistant). Guests were: Donald Carroll, Willie Carroll, Vernesta Jackson, Nancy Tamez, Jorge Suarez, Warren Jackson, Reggie Jackson, Alice Porter, Willie Fuller, Jon Willhoite, Bryan Smith (CastleRock Communities), Andy Zepeda (CastleRock Communities), and Isai Yanez.

Chairman Perry O'Brien indicated a quorum was present and he informed all he would like to reiterate what he stated about Public Comments.

Chairman O'Brien stated public input will be taken into consideration, but board members cannot respond back unless it is on the agenda. There will be an opportunity for all to give comments during Public Hearing.

Chairman O'Brien then called the meeting to order.

1) APPROVAL OF MINUTES

A motion to approve the minutes of August 6, 2024 was made by Member Bruce Clawson/Commissioner Thelma Bowie. All other members present voted aye.

2) PUBLIC COMMENTS

Chairman O'Brien noted two attendees had completed forms for public comments, both of which were regarding the agenda items. He asked whether there were any objections to taking those comments during the public hearing. There were no objections.

3) Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision- a Master Planned Community within Texas City. Located at SH3 and South FM 1764.

a. STAFF REPORT

Ms. Kim Golden presented the Master Plan for a proposed new subdivision addition to Texas City that sits on 80 acres of land. The Master Plan for Willow Wood Subdivision will develop 213 Single Family Homes on detached lots with developer CastleRock Communities. The city has experience with CastleRock Communities as the developer of the Pearlbrook Subdivision, and as a homebuilder in Lago Mar.

This proposed Willow Wood Subdivision is located just south of Emmett F. Lowry Expy

and east of SH 3 on vacant property which is mostly flat with the northern tract at 11 feet above sea level and southern tract at 14 feet above sea level. The eastern portion of the site is located within the 100-yard flood plain, so the development will be "over detaining" and also will establish finished floor elevations above the base flood elevation for the new homes.

The property surrounding the development is mostly vacant and undeveloped but there are some existing residences south of the site. This site is coming forward for a zoning change to the Planned Unit Development (PUD) because it is located within the existing MUD 99 which is subject to a Development Agreement. The Development Agreement requires the PUD because the city's policy for the use of the special financing district (the MUD) requires some enhancements in the subdivision. These enhancements will include parks and walking trails. Homes will also not use aluminum wire or aluminum clad copper wire and will be built with 60% masonry content.

Water and sewer facilities are available to the site and will be extended within the project. The developer has provided a comprehensive flood plain and drainage model for the watershed which includes more than the 80 acres proposed for development. The modeling and drainage impact analysis was required by the city and Galveston County Drainage District No. 2.

Ms. Golden stated a concern raised by staff is the single point of access to the subdivision, which is located on Willow Street. The developer advises it is intending to acquire more property for a second access once the master plan is approved for the 80 acres.

The subdivision Master Plan has been reviewed and was considered by Planning Board which voted to recommend approval of the master plan. The PUD has been reviewed and comments addressed by the developer. Staff have no objection to approval of the zoning change upon condition that until a second entrance is provided there may be caps placed on the number of permits issued for construction. The Fire Marshal and building officials would work together to set a cap on the number of permits.

Ms. Golden advise the developer's representative, Bryan Smith, was present and could answer any questions.

Commissioner Thelma Bowie asked Ms. Golden if this subdivision would bring in more students to Texas City ISD and Commissioner Bowie was provided an answer of yes.

Commissioner Bowie also raised a concern and asked Mr. Smith if he was aware of the property owners that have livestock in that area and asked if the livestock would butt up again the subdivision property line.

Mr. Smith informed the Commission this had been addressed during the Planning Board meeting, too. The developer has given notice to the three families they purchased land from that the livestock leases would be terminated. The developer acknowledged more livestock being kept near the site and stated a standard solid wooden picket fence will be installed to surround the subdivision.

Mr. Clawson asked Mr. Smith about the drainage studies and wanted to know the purpose of a detention pond next to the Bayou Pierre. Mr. Smith replied that it will serve

two purposes being both detention and on-site mitigation, which means it creates volume in the 100-yard flood plain. Mr. Clawson has concern as to why it would be next to the Bayou Pierre as it has flooded multiple times, and that Moses Lake subject to tidal influence, too. Mr. Clawson said he believes this is a silly idea being that there aren't many banks anyways and cannot grasp the concept.

Mr. Smith informed all that some very smart hydrologists were hired, and he was very confident in what was put into place. Mr. Smith stated the detention ponds will not be directly connected with the Bayou Pierre but there will still be the outfalls of it and the bank will not be removed. Mr. Clawson still didn't understand how it will help owners in a flood. Mr. Smith informed all that the hydrologist did a drainage study.

Ms. Golden then was asked for her input by Mr. Clawson, and she stated the hydrologist modeled when both the tide was up and at a pool stage. Ms. Golden stated it was thoroughly modeled and confirmed the detention would provide for no adverse impact. The developer will not be making any improvements to reduce the flooding or make the condition better, because that is not required. The requirement is to show through the modeling and drainage impact study that the development will not make the flooding any worse. That is the standard required in the city's ordinance. Ms. Golden stated the 100-yard flood was modeled in the study.

Chairman O'Brien wanted to circle back to the fencing surrounding the new subdivision. Mr. Smith stated it is a standard 6' solid picket fence. Chairman O'Brien is concerned that will not hold up well with the livestock as they like to rub on it. Mr. Smith said he will bring that to the home builders' attention to make sure it is substantial enough, so it does not get knocked down due to livestock.

Ms. Golden asked Mr. Smith whether the HOA would be responsible for the fences if knocked down or damaged, and if fences needed to be more robust would that be acceptable to the developer. Mr. Smith said the entry fences along Willow Street would belong to HOA and if he understood what was wanted, he could bring up whether the other perimeter fences would be maintained as to livestock damage.

Commissioner Bowie asked what type of fencing it would be, and Mr. Smith informed all it would be wooden fencing. Commissioner Bowie then raised concern that she would be unhappy and is not an idea situation for both parties, new and existing residents, if she bought a $200,000+ house and the fencing was damaged by livestock.

Chairman O'Brien stated it would be ideal if builder can build a wooden fence as well as barbwire in front of the wooden fence, so livestock isn't tempted to rub up against wooden fence. Mr. Smith replied that he will bring that idea up so it can be considered to install.

Chairman O'Brien asked if there any additional questions. There were none.

b. PUBLIC HEARING

A motion was made by Alternate Member Lisa Salinas/Commissioner Thelma Bowie to open the Public Hearing. All other members voted aye.

Ms. Golden reminded Chairman O'Brien about the written requests to give public

comments which had been deferred without objection. Chairman O'Brien then called the citizens who had requested public comments.

Chairman O'Brien then called Mr. Don Carroll to address the commission.

- Don & Willie Carroll (7305 Blue Jay Drive, Texas City 77591)

  Mr. Don Carroll spoke on behalf of himself and his father Willie Carroll. The two wrote a letter of concerns in response to the letter they received via certified mail informing them of the rezoning request for CastleRock Communities. Together they have six questions.

  1. We would like to see conceptual illustrations of the proposed development intent (all phases).
  2. What are all the intended land uses being proposed for the Master Planned Development?
  3. Will this development intent conform with the City's LUP?
  4. Have the Developer and Staff conducted a Decision Criteria Analysis of the Proposal Intent and is this proposal to the highest and best use for this site? Would an alternative site be more appropriate?
  5. Is the Decision Criteria Analysis available for the concerned citizens and adjacent property owners to review and see to determine how this development may impact them?
  6. Does the Development Company have an established and verifiable record and the corporate capability needed to develop this Master Planned Development intent successfully?

  Mr. Carroll stated to date they don't have enough data to make an intelligent decision and are not opposed to the new development as long as it is done appropriately and will not harm the adjacent property owners. Mr. Carroll in fact wants to see a development that advances economic development and will allow the city to grow in an orderly manner. He then asked for all the concerns from his letter to be addressed and be fair to all parties involved.

Ms. Golden addressed all that there will be another public hearing if this goes forward to the City Commission.

The PUD application that includes all the maps and information will be available on the City's website through Agenda Quick if it is moved forward. Don asked if a hard copy could be provided, and Ms. Golden said it is on the website, but Ms. Veronica Carreon could provide one as well. [Ms. Golden provided Mr. Carroll with a complete hard copy of the agenda packet including all attachments and enclosures at the conclusion of the meeting].

- Alice Porter (15842 Rosebriar, Missouri City 77489)

  Ms. Porter addressed all with the concern of why her property was within the red line [a graphic from the GIS showing the parcels within 200ft of the proposed

rezoning].

Ms. Golden informed her that nothing is going to be done with her property it is just state law of Texas that she receives a letter as her lot fell within 200' of the rezoning request.

- Vernesta, Warren, and Reggie Jackson (5205 Everlyn Street, Texas City 77591)

  All three addressed their concerns of their property falling in line with the 200' redline that surrounds the new subdivision. They would like to know what happens next for their property.

Ms. Golden informed all that the state law of Texas requires the city to send out a letter via certified mail to those who have property located within 200' from property which is being considered for rezoning. The red line does not mean anything will happen to any of the properties that fall within it. It simply means you are getting a letter that tells you that you are welcome to come and join the meetings to find out what is being built in your surrounding area and ask questions or provide comments about the proposed changes. Ms. Jackson then asked if a copy of Mr. Carroll's letter could be given to all as he had great questions. Staff gave her a copy of Mr. Carroll's letter.

Developer Mr. Smith stated that this area was already zoned for single family homes and no changes are being made to reduce the zoning requirements. The rezoning request is so CastleRock Communities can improve the area with bigger lots and more amenities to those that would be required in a new subdivision without the rezoning.

- Nancy Tamez (702 Oak Street, Texas City 77591)

  Ms. Tamez addressed the board with a question regarding property tax increase to the surrounding neighborhoods now that new homes are being built.

Ms. Golden stated that they generally do see an increase of property value when there is a new development around. Ms. Tamez had no other statements.

There were no questions or further discussion, to which a motion was made by Commissioner Thelma Bowie/ Member Bruce Clawson to close the Public Hearing. All other members voted aye.

c. PRELIMINARY ZONING APPROVAL – Consider and take action on the recommendation regarding the zoning change request from CastleRock Communities.

Chairman O'Brien explained the Zoning Commission is only asked to make a recommendation about the rezoning request. The Zoning Commission does not change the zoning. The Planning Board and City Staff have recommended approval because the request for rezoning seems valid.

Chairman O'Brien stated the Zoning Commission is not elected. The members of the Zoning Commission are appointed by elected officials and asked to serve and volunteer their time to be present at the meetings. They all reside in Texas City and serve because they care about Texas City and because they have questions too. After this meeting the recommendation of the Zoning Commission will go to another public

hearing which will be with the elected City Commissioners. It's the elected City Commissioners who will decide and vote on whether the zoning change is approved or not.

Chairman O'Brien asked the Zoning Commissioners if there were any other questions or comments and there were none.

A motion was made by Commissioner Thelma Bowie/Member Bruce Clawson to table the Zoning Change Request to allow staff time to address and prepare a response to the concerns in Mr. Carroll's letter. All other members voted aye.

4. **GENERAL UPDATES**

There were no updates.

5. **OTHER BUSINESS** (Any conceptual development proposal requesting to come before the Zoning Commission)

Ms. Golden introduced Curt Kelly, Engineering & Planning Administrator, and Brianna Galicia, Engineering & Planning Administrative Assistant, as new staff and announced Veronica Carreon's promotion to the new position of Planning and Zoning Technician.

A motion was made by Alternate Lisa Salinas/Member Bruce Clawson to adjourn. All members present voted aye.

_____

Kimberly Golden, Secretary Date

Minutes approved by the Zoning Commission at its meeting on _____.

Ms. Kimberly Golden, Planning Director for

The City of Texas City & The Zoning Commission of Texas City

7800 Emmett F. Lowry Expressway

Texas City, Texas 77591

November 15, 2024

Re: Notice of Public Hearing Our Observations & Questions Regarding the Proposed Rezoning Request for Castle Rock Communities. From A- Single Family to District I- PUD Being 80 Acres.

Ms. Golden: Greetings and best regards, Please find our written response to the rezoning intent for the referenced property. With the Public Hearing Notice, there was no property map/survey map of the proposed site for Rezoning.

1. We would like to see conceptual illustrations of the proposed development intent (all phases).
2. What are all of the intended land uses being proposed for the Master Planned Development?
3. Will this development intent conform with the City's LUP?
4. Have the Developer and Staff conducted a Decision Criteria Analysis of the Proposal Intent?
   & is this proposal the highest and best use for this site? Would an alternative site be more appropriate?

5. Is the Decision Criteria Analysis available for the concerned citizens and adjacent property owners to review and see to determine how this development may impact them?
6. Does the Development Company have an established and verifiable record,
   and the corporate capability needed to develop this Master Planned Development Intent successfully?

To date, we do not have enough data to make an intelligent decision; and for the record, we are not opposed to new development (as long as it is done appropriately, and it can with reason be affirmed that it will not harm the adjacent property owners). In fact, we want to see development that advances sustainability-resilience- economic development and will allow us to grow in an orderly manner. We therefore ask that the Public Hearing be continued to adequately address all

of the concerns cited in our response letter to be fair to all parties involved. I respectfully recommend that more workshops be scheduled to address this need for more data and intel to convey the intent properly. This is respectfully submitted by Mr. Willie Carroll's Living Trust.

Sincerely,

Donald Carroll, ESP, CCR,

Willie Carroll

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STAFF REPORT

To: Zoning Commission - Regular Meeting – December 17, 2024

From: Kim Golden, P.E., City Engineer

CC: Doug Kneupper, P.E.

Date: December 11, 2024

RE: Willow Wood Subdivision - Master Plan and request to rezone from District A - Single Family Residential to District I – Planned Unit Development

Background: At its regular meeting on November 19, 2024, the Zoning Commission held a public hearing on the request from Castlerock Communities to rezone 80 acres located southeast of SH3 and south of FM 1764 from District A - Single Family to District I – Planned Unit Development. After receiving comments from the public and concluding the public hearing the Zoning Commission tabled consideration of the request to allow additional time for the applicant to provide additional information.

Response to comments received at public hearing:

1) Drainage Issue: Concerns were expressed regarding existing drainage issues in the area and a suggestion that the City undertake a comprehensive approach to mitigate and improve the area for economic development.

Response: Galveston County Drainage District No. 2 has jurisdiction over the watershed at issue and has approved the detention improvements proposed by the developer based upon a comprehensive study of the entire watershed. At the request of the District, the Developer engaged Burton L. Johnson, P.E. to study and provide a Floodplain Mapping and Modeling Report for the Ditch 7 Watershed (Ditch 7, Ditch 7A, Ditch7B). The watershed encompassed the entirety of the watershed which was more than the 80 acres of Developer's site being considered by the Zoning Commission. The study computed flood flows and flood inundation in the Ditch 7 watershed for the 5-year, 10-year, 25-year, 50-year, 100-year and 500-year event using HEC-HMS and a coupled 1d/2d HEC-RAS model. The models were developed in consideration of the guidance by the U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) and the Harris County Flood Control District's *Two- Dimensional Modeling Guidelines*. The District also required the Developer to provide a Drainage Impact Analysis (DIA) specific for the detention proposed for the subdivision. The DIA used the floodplain mapping and modeling to **conclude the proposed development, including full development and Phase I development, could be constructed as proposed by the Developer without adversely impacting the drainage and flood risk upstream, adjacent to, and downstream of the project.** The GCDD#2 Engineer recommended, and the Board approved the DIA at its meeting on June 13, 2024.

Transparency: Copies of the District Engineer's recommendation and the Minutes of the GCDD#2 Board meeting are enclosed in the Zoning Commission agenda packet and will be posted on the City's website for general availability to the public. The entirety of the two reports provided to and reviewed by the GCDD#2 will also be posted on the City's website for general availability. Hard copies can be obtained via Public Information Requests.

2) Ingress Egress into Subdivision: Concerns were expressed regarding the single entrance via Phillips Street into the subdivision. **Response:** Willow Street, identified as N. Pine St. on Google Maps, is an existing local street which runs through the site providing connections to FM 1764 to the north and Phillips Street to the south. Willow Street will be the access for both east and west sections of the project. As noted in the previous staff report, the Developer has expressed an intent to obtain additional property to provide a second point of ingress egress upon approval of the Phase I Master Plan and PUD. Developer has been advised that the number of building permits issued may be limited by the Fire Marshal and Building Officials until a second entrance is provided.

3) Look, feel and vision of the finished product: Concerns were expressed regarding the look, feel and vision of the finished product which is understood to refer to the housing product. **Response:** Castlerock Communities is a well-known developer in Texas City having developed the Pearlbrook and Steed Landing subdivisions in Texas City and producing many houses in the Lago Mar planned community. Developer will present examples of its housing products to the Zoning Commission and provide example renderings of the proposed amenities and landscaping enhancements which will be required by the terms of the PUD. Developer indicates a willingness to adhere to the 60% masonry content reflected in the Development Agreement when approved in 2007. Developer also indicates it does not allow copper clad aluminum wire in the construction of homes and has no objection to such requirement in the Development Agreement.

4) Adjacent existing livestock uses: Concerns were expressed about the uses of adjacent undeveloped property as pasturage for livestock by existing owners. **Response:** It should be noted that pasturage for livestock is not an allowed principal use in the existing District A – Single Family Residential district. It is an allowed principal use only in the District O-Open Space which is reserved for undeveloped acreage. It is understood that actual land uses transition within a zoning district as development occurs over time, with higher value uses replacing lower value uses in response to market trends and forces. Even so, as an added measure of safety the Developer is proposing to add new barbed wire fencing adjacent to the development's perimeter fencing as needed.

5) Future Land Use Plan: Concerns were expressed regarding whether the proposed use was the highest and best use for the area and consistent with the City's comprehensive plans and goals. **Response:** The Planning Board considered the master plan and re-zoning application at its regular meeting on October 7, 2024 and

unanimously recommended approval of the proposed Master Plan. The site is one of the few remaining large open spaces served by existing utilities which is also situated within the Texas City ISD boundaries. The TCISD is challenged with declining enrollment. The development of new conventional subdivisions likely to serve growing families aligns with the City's vision to support a thriving school district. At full buildout the 213 new homes could be estimated to provide additional annual revenue of $1,171,500 to the school district based upon projected student enrollment of 0.5 students per household. In addition, the property is south of the area designated as an activity corridor which the future land use plan describes as "parallel too freeway and highways with higher intensity land uses. These uses are primarily region serving and include malls, commercial, and open display retailing, wholesale, distributing and warehousing operations, restricted light industry, business offices, hotels and motels, and higher density residential development." The proposed master plan will not detract from the purpose of the activity corridor and therefore serves the city's long-term goal to diversify the tax base with commercial, retail and other non-residential uses along the Emmett F. Lowry Expressway.

6) Community Benefits/Amenities: Concerns were noted regarding proposed benefits for the community such as parks and recreational facilities. **Response:** An important component of a viable residential development is providing parks and meaningful open spaces. The PUD Application and Exhibit B Conceptual Master Plan incorporates walking/jogging trails as well as 7.1 acres in parks in greenspace. Four dual amenity/detention ponds located to the north, south and east exceeds the requirements of the Subdivision Ordinance of one-half acre per 100 homes. Exhibit D-1 illustrates the Park and Trail Plan with Exhibit D-2 providing examples of the representative amenities.

The PUD Application and Development Agreement require the creation of a Homeowner's Association that will be responsible for maintenance of parks and common areas. The HOA document should include strong language regarding the HOA's ability to keep the subdivision clean, attractive, and sustainable by abating nuisance and property maintenance type issues.

7) Infrastructure: Concerns were noted regarding adequate infrastructure such as roads, schools and utilities. **Response:** Water and sewer facilities are readily available to this project and can be extended from existing mains. Detailed engineering for the extension of services within the subdivision are part of the platting process and are not required with the master plan.

8) Impact on Property Value - Concerns were noted regarding the impact of the development on existing property values. **Response:** Property values are increasing in Texas City as a result of the balanced residential and non-residential growth in the area. This is likely to continue whether the Willow Wood or other developments move forward at the particular site.

1801 9th Avenue North * P.O. Drawer 2608 * Texas City, TX 77592-2608
(409) 948-3111 * www.texascitytx.gov

RECOMMENDATION: The Planning Board considered and unanimously recommended approval of the Master Plan and PUD at its regular meeting on October 7, 2024. City staff have reviewed this Subdivision Masterplan, Development Agreement and PUD Application and has no objections to approval of the masterplan or to the zoning change request. Staff recommends provision be made in the PUD to allow amendment of the PUD to incorporate the additional property when acquired by the developer to provide for the construction of a second entrance. A limit should be determined for the number of permits which will issue until a second entrance is added to the master plan.

ZONING COMMISSION
December 17, 2024

The Zoning Commission of the City of Texas City met in a regular meeting on Tuesday, December 17, 2024, at 5:00 p.m. Zoning Commission members present were: Chairman Perry O'Brien, Commissioner Thelma Bowie, Member Bruce Clawson, Member Aric Owens, and Member Fernando Tello. Staff members present were: Kimberly Golden, (Secretary), David Kinchen (Deputy Building Official), Curt Kelly (Engineering & Planning Administrator), Veronica Carreon (Planning & Zoning Technician), Brianna Galicia (Engineering & Planning Administrative Assistant), and Jason Brown (Fire Marshal). Guests were: Donald Carroll, Willie Carroll, Jon Willhoite, Bryan Smith (Castlerock Communities), and Sean Humble (Engineer).

Chairman Perry O'Brien indicated a quorum was present.

Chairman O'Brien then called the meeting to order.

1) ROLL CALL

The following members answered roll call: Aric Owens, Bruce Clawson, Thelma Bowie, Perry O'Brien, and Fernando Tello.

2) APPROVAL OF MINUTES

A motion to approve the minutes of November 19, 2024 was made by Commissioner Thelma Bowie/Member Bruce Clawson. All other members present voted aye.

3) PUBLIC COMMENTS

Chairman O'Brien noted two attendees had completed a form for public comments, the comments were regarding the agenda item. He informed Mr. Willie & Don Carroll they had three minutes to speak and allowed Mr. Don Carroll to begin.

a. Willie & Don Carroll- (7305 Blue Jay Drive, Texas City)

Mr. Don stated from the last public hearing (November 19, 2024) him and his father Mr. Willie Carroll had some discussion on the planning analysis. November 25, 2024 Mr. Don wrote a letter to Ms. Kimberly Golden with two attachments in regards to them wanting to have those attachments incorporated into the minutes for both Zoning Commission and City Commission. The two attachments included information for further discussion about the Drainage issue and Ingress/Egress into the subdivision. Mr. Don stated if these concerns could be addressed there was nothing wanted further from him and Mr. Willie Carroll.

4) PRELIMINARY ZONING APPROVAL – Consider and take action on a Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision – a Master Planned Community within the City of Texas City. Located southeast of SH 3 and south of FM 1764. (Tabled from the November 19, 2024 meeting)

Commissioner Thelma Bowie/Fernando Tello motioned to remove the matter of the rezoning request by Castlerock Communities from the table to receive additional information and reporting from staff. All other members voted aye.

Ms. Golden informed the commission that since the previous meeting and public hearing all written comments that were received have been reviewed together with the concerns that were expressed during the public hearing. The developer has provided additional information as requested.

Ms. Golden addressed the drainage concern. She stated we have spoken to the Galveston County Drainage District No. 2 and confirmed that they had a presentation from both developer and his engineer reviewed by their engineer and the analysis went to their board June 2024 and was approved by that district's board. The detention plans were also sent to the districts engineer and were approved as no adverse impact.

Mr. Humble stated they put these models together and ran then through a simulation of the 100-year floodplain event at the existing ground conditions. They then ran the model again with a scenario of all the houses being built out. They then sized the detention ponds based upon the difference between those two scenarios. There are a total of four detention ponds to be constructed. Two on the north side and two on the south side of the subdivision.

Ms. Golden addressed the Ingress/Egress concern. She stated it is known that Willow Street also referred to as Phillips Street currently only has one entrance that leads into the Willow Wood subdivision. The developer indicated the company intends to develop a second entrance. Ms. Golden said it has been discussed with developer that until that second entrance is provided there will be limitations placed on the number of building permits to be issued by the Fire Marshal and building officials.

Fire Marshal Jason Brown begun to speak about the safety hazards there could be with only one entrance. He stated a big concern could be that one got into an accident right at the entrance and now no one could get into or leave out of the subdivision and if there happen to be another emergency within that neighborhood at the same time no emergency personnel could enter either. Member Aric Owens stated that his community has only one entrance and from his knowledge a second one is not being built. Mr. Brown informed all that if the neighborhood happened to be older that it was built under a different code as building and fire codes change often and at that time of construction of Mr. Owens's neighborhood a second entrance might not have been a requirement.

Next concern was the vision of the finished product. Ms. Golden said Castlerock Communities brought in some examples of what the five different models of homes would look like within the Willow Wood subdivision. The examples included examples of the community benefits which includes the entrance monuments and park amenities.

Another issue was the concern of livestock in the surrounding areas of the new development. Ms. Golden pointed out that use of the pastures for livestock is not an allowed use in a 'District A' zone, but since nothing is developed the area is currently being used as an open space, and people are holding their livestock there. Mr. Bryan Smith then spoke and informed all that after last meeting it was taken into consideration of what could happen with livestock present. He said barbwire will be placed on the

outside of the wooden fences and if livestock were to knock or pull it down Castlerock Communities would be responsible for fixing it.

Next question was consistency with the future land use plan. Ms. Golden stated that the commercial retail strip along Emmett F. Lowry is not being impacted by this new development and that this is one of the few large tracts remaining in Texas City School District. She said it is known that the number of homes being built will bring in more children which will have a very positive impact on the school district.

A motion was made by Commissioner Thelma Bowie/Member Bruce Clawson to recommend approval of the Zoning Change Request from CastleRock Communities to rezone from District "A" (Single Family Residential) to District "I" (Planned Unit Development) to construct Willow Wood Subdivision – a Master Planned Community within the City of Texas City. Located southeast of SH 3 and south of FM 1764. (Tabled from the November 19, 2024 meeting)

5) **GENERAL UPDATES**

There were no updates.

6) **OTHER BUSINESS** (Any conceptual development proposal requesting to come before the Zoning Commission)

7) **ADJOURNMENT**

A motion was made by Member Aric Owens/Member Bruce Clawson to adjourn. All members present voted aye.

Kimberly Golden, Secretary Date

Minutes approved by the Zoning Commission at its meeting on _____.

Willowood Subdivision

Drainage Impact Analysis

Galveston County Drainage District Number Two
City of Texas City, Texas

April 2, 2024

BURTON JOHNSON ENGINEERING, INC
WATER RESOURCES ENGINEERING & PLANNING

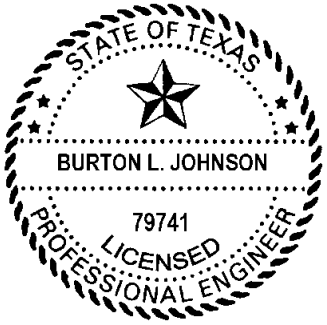
Drainage Impact Analysis

Willowood Subdivision

Drainage Impact Analysis

Galveston County Drainage District Number Two

City of Texas City, Texas



April 2, 2024

Burton Johnson Engineering, Inc.
4611 Waterbeck St
Fulshear, TX 77441
281-773-7184
TPBE No. 10781

TABLE OF CONTENTS

1.0 Introduction 1

1.1 Description of Project Area 1

1.2 FEMA Special Flood Hazard Areas 1

1.3 Elevation Data 2

1.4 Galveston County Drainage District Number Two 2

1.5 Proposed Project 3

1.6 Criteria 3

2.0 Hydrology and Detention – Full Development 4

2.1 Site Runoff Curves and Small Watershed Method 4

2.2 Pre-Project Hydrology 4

2.3 Post-Project Hydrology 5

2.4 Detention Routing 5

2.4.1 Detention Stage vs. Storage 5

2.4.2 Detention Basin Control Structures 6

2.4.3 Detention Routing Results 6

2.4 Floodplain Fill and Detention Rate 7

2.4.1 Minimum Slab Elevations 8

2.4.2 Floodplain Fill 8

3.0 Offsite Flow Considerations – Full Development 10

3.1 Swale West of Pond 1 (Area A) 10

3.2 Swale South and West of Pond 4 (Area B) 10

3.3 Area South of Pond 4 (Area C) 10

3.4 Area North of Site along Willow Street (Area D) 10

4.0 Hydrology and Detention – Phase 1 Development 11

4.1 Pre-Project Hydrology 11

4.2 Post-Project Hydrology 11

4.3 Detention Routing 12

4.3.1 Detention Stage vs. Storage 12

4.3.2 Detention Basin Control Structures 13

4.3.3 Detention Routing Results 13

4.4 Floodplain Fill and Detention Rate 14

4.4.1 Minimum Slab Elevations 14

4.4.2 Floodplain Fill 15
5.0 Results 16

EXHIBITS

ATTACHMENT 1 – Galveston County Drainage District Number Two Map

Note: Survey data and computer models may be downloaded at the following link within 90 days of date of report:

https://www.dropbox.com/s/ovz48f69zd7lch3/Ditch%207%20Models.zip?dl=0

1.0 Introduction

Willowood Subdivision is a proposed 116-acre single-family subdivision located within the City of Texas City and within the boundary of Galveston County Drainage District Number Two (District). This report summarizes and describes a drainage impact analysis for the proposed subdivision. This analysis has been conducted in consideration of the District's *Design Criteria Guidance*. This report considers the ultimate configuration of the proposed development in Section 2.0 and an initial phase of development referred to in this report as Phase One and is described in Section 4.0 (This initial phase consists of approximately 82.5 acres.

1.1 Description of Project Area

The Willowood Subdivision project is located on currently undeveloped properties generally south of the Emmett F. Lowry Expressway (FM 1764) and east of Highway 3. The location of the site is depicted in Exhibit 1. The project is entirely within the District's Ditch 7 system and is between Ditch 7A and Ditch 7B. These two ditches join to create Ditch 7 north of FM 1764. This confluence is approximately one mile downstream of the project. Ditch 7 then extends a short distance into Moses Lake.

Exhibit 2 provides an aerial photograph of the proposed development area. The project area is mostly undeveloped grassed areas with some intermittent wooded areas. The project is bisected by Willow Street (some maps label it as Phillips Street) a City of Texas City roadway that runs north-south through the site. The western portion of the north perimeter of the site is adjacent to the alignment of Ditch 7A, and the southeast perimeter of the site is along Ditch 7B. Small areas of the property are on the opposite (east) side of Ditch 7B. No development activity is proposed for these small tracts. A portion of the property east of Willow Street is bounded on the south by 5th Street. The remainder of the project to the south is bounded by older residential subdivisions, and portions to the north are adjacent to undeveloped property and an oil and gas facility.

There is a gravel farm road through the property. This road is labeled on maps as Roberts Road, as it is an extension of Roberts Road in the adjacent subdivision. This road is private and now owned or maintained by the City of Texas City.

1.2 FEMA Special Flood Hazard Areas

According to FEMA Flood Insurance Rate Map (FIRM) Panel No. 48167C0265G, dated August 15, 2019, the watershed is entirely in the Shaded Zone "X", which represents areas subject to flooding from a 0.2% annual probability event (also known as the 500-year event). A portion of the area is also in the Zone AE floodplain, which represents areas subject to inundation from the 1% annual probability event (also known as the 100-year event) that have computed Base Flood Elevations. Exhibit 3 depicts these Special Flood Hazard Areas.

Based on a review of the FIRM Panel and FEMA's *Flood Insurance Study, Galveston County and Incorporated Areas,* dated August 15, 2019, the inundation depicted on the FIRM is from coastal surge flooding and does not represent riverine flooding from rainfall in the watershed. The coastal elevations are computed along transect lines which are shown on the exhibit. The 100-year coastal surge elevation

is shown as a Base Flood Elevation on the FIRM Panel and is also shown, as elevation 5.0, on Exhibit 2. Transect Line 86 runs through the project area. The 100-year coastal surge elevation is 5.0. Based on a profile presented in the *Flood Insurance Study* and the 500-year coastal surge elevation is between elevation 15.0 and 17.0 within the Ditch 7 watershed.

The information provided on the FIRM panels and within the *Flood Insurance Study* confirms that Ditch 7 and its tributaries Ditch 7A and Ditch 7B are not FEMA studied streams.

1.3 Elevation Data

All source elevation data and all elevations cited in this report are in feet above Mean Sea Level based on the 1988 North American Vertical Datum (NAVD 88). Elevation data for this analysis is a blend of the Upper Coastal Lidar data acquired by a partnership between the Texas Water Development Board, Houston-Galveston Area Council, and United States Geologic Survey in 2018; and survey data acquired by Costello, Inc. (now part of Pape Dawson) in the fall of 2023. The lidar data was utilized for most of the elevation data, including overland areas and portions of the channel cross sections. The survey data was used to augment the lidar data in consideration of the limitations of the lidar data – specifically the capture of specific details and elevations associated with bridge and culvert crossings and the capture of bathymetry in areas where the lidar was unable to penetrate a water surface. For this study, the survey data in the channel was utilized to determine the outfall depth from the detention basins. All other calculations are based upon the lidar data.

Topographic contours utilized in the analysis are shown in Exhibit 4. Natural ground elevations generally range between elevation 10 (at the western perimeter) and elevation 5 near the eastern perimeter near Ditch 7B. There are some filled areas with elevations as high as elevation 14. The fill areas are spoil piles along the banks of Ditch 7A and Ditch 7B. There are also some fill areas related to the connection of the private road with Roberts Road in the adjacent subdivision. The drainage pattern is generally from west to east.

1.4 Galveston County Drainage District Number Two

The District has not completed a study of the Ditch 7 Watershed. A floodplain study of the Ditch watershed, including the computation of water surface elevations and flowrates for Ditch 7, Ditch 7A, and Ditch 7B has been prepared by Burton Johnson Engineering, Inc. under separate cover. This report, entitled *Ditch 7 Watershed (Ditch 7, Ditch 7A, Ditch 7B), Floodplain Mapping and Modeling* is dated April 3, 2024 and establishes 100-year water surface elevations in the vicinity of this project. The findings described in the report are based upon a combined 1d/2d HEC-RAS model using Atlas 14 rainfall.

The study described in this analysis considers the Willowood Subdivision and its supporting detention and floodplain fill mitigation, as described herein, as part of the existing watershed condition. As part of this Willowood Subdivision analysis, a pre-project 100-year floodplain was computed to determine the amount of floodplain fill to be mitigated. The resultant floodplain map is presented in Exhibit 5.

As part of the Ditch 7 analysis, it was recognized that Ditch 7A is not a natural drainage channel. It apparently was constructed to provide drainage to the State Highway 3 and/or other development in the area and does not have a “valley” section common to natural stream. When floodwaters exceed the

channel banks of Ditch 7A, they spill into the site and overflow toward Ditch 7B. The combined 1d/2d provided an opportunity to properly consider this overflow.

1.5 Proposed Project

The proposed project is illustrated in Exhibit 6. The area will be subdivided into residential lots with a minimum size of 6,000 square feet and an average lot size of about 1/6 acre. Four detention basins are proposed. Pond 1 and Pond 2 will outfall into Ditch 7A. Pond 4 will drain under Willow Street to Pond 3, and Pond 3 will outfall into Ditch 7B. The land will be elevated as required to ensure that it is above the 100-year flood elevation of Ditch 7A and Ditch 7B. The detention ponds will provide detention to offset runoff from the development and from the placement of fill in the computed 100-year floodplain.

1.6 Criteria

This analysis was conducted in consideration of the District's *Design Criteria Guidance*. This guidance defers to the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM)* for hydrologic methodologies and detention analyses. In addition, the District requires a minimum detention rate of 0.75 acre-feet per acre of development if using HCFCD Method 1 or 2, although this rate can be lowered to as low as 0.50 acre-feet per acre if a detailed study is performed (HCFCD Method 3). HCFCD recommends Method 2 for projects between 50 acres and 640 acres, therefore Method 2 was utilized in this study. This approach is discussed in greater detail in subsequent sections of this report.

2.0 Hydrology and Detention – Full Development

Hydrographs were developed for each of the subareas in accordance with the methodology described in the Harris County Flood Control District's *PCPM* as described in the following sections.

2.1 Site Runoff Curves and Small Watershed Method

For Detention Method 2, The *PCPM* requires the use of the Harris County Site Runoff Curves to compute peak flowrates for watersheds up to one square mile. In 2019, these curves were updated to consider Atlas 14 rainfall. The curves compute the peak flowrates for the 10-year event and 100-year event based upon the size of the drainage area and the computed impervious cover.

The *PCPM* recommends the utilization of the Small Watershed Method developed by H.R. Malcom to develop runoff hydrographs. Also known as the "Malcolm Method", this approach considers the computed peak flowrate, watershed area, and total runoff volume to develop a hydrograph shape.

Peak flowrates were developed for the pre-project and post-project 10-year and 100-year method using the Site Runoff Curves. The peak flowrate for the 25-year event was developed by interpolation using the relationship between 10-year, 25-year, and 100-year peak flowrates determined as part of the Ditch 7 watershed study. Runoff hydrographs for the post-project condition were developed using the Small Watershed Method. The runoff volume was determined from curves in the *PCPM* for Region 3, which includes the most southern Harris County watersheds.

2.2 Pre-Project Hydrology

There are four proposed detention basins and three outfall points. Ponds 1 and 2 drain to Ditch 7A, while Pond 3 drains to Ditch 7B and Pond 4 drains into Pond 3. For pre-project conditions, the drainage areas were determined for the areas to Ditch 7A (Area 12 recognizing post-project flows to Pond 1 and Pond 2) and Ditch 7B (Area 34 recognizing post-project flows to Pond 3 and Pond 4). These drainage areas and the assumed land use is presented in Exhibit 7. The determination of peak flowrates for the pre-project condition are summarized in Table 1. These peak flowrates establish the allowable post-project flowrate for the developed condition.

Table 1: Pre-Project Peak Flowrates

Drainage Subarea	P12	P34
Area (Ac)	32.6	65.1
Impervious (%)	0.1%	1.3%
Site Runoff Curve: 10-Year		
m	0.786	0.786
b	2.41	2.48
Peak Flowrate (cfs)	37.2	66.1
Interpolate: 25-Year		
Peak Flowrate (cfs)	49.5	87.6
Site Runoff Curve: 100-Year		
m	0.786	0.786
b	4.61	4.72
Peak Flowrate (cfs)	71.3	125.7

2.3 Post-Project Hydrology

Exhibit 6 also depicts the post-project land use assumption and drainage subareas for the development. Drainage subareas were assigned for each of the four detention basins as all developed condition runoff will be directed into one of the four basins. Table 2 summarizes the determination of the Post-Project peak flowrates and runoff volume for the 10-year, 25-year, and 100-year events.

Table 2: Post-Project Peak Flowrates and Runoff Volume

Drainage Subarea	P1	P2	P3	P4
Area (Ac)	26.4	26.3	21.6	38.7
Impervious (%)	49.9%	49.1%	64.7%	43.8%
Site Runoff Curve: 10-Year				
m	0.786	0.786	0.786	0.786
b	5.51	5.48	5.97	5.32
Peak Flowrate (cfs)	72.1	71.6	66.8	94.1
Interpolate: 25-Year				
Peak Flowrate (cfs)	90.2	89.6	83.0	118.0
Site Runoff Curve: 100-Year				
m	0.786	0.786	0.786	0.786
b	9.34	9.31	10.00	9.07
Peak Flowrate (cfs)	122.3	121.6	111.9	160.5
Runoff Volume (inches)				
10-Year	7.86	7.84	8.22	7.71
25-Year	10.92	10.90	11.25	10.79
100-Year	16.58	16.56	16.84	16.47

2.4 Detention Routing

The detention basins were initially sized and evaluated to ensure that the peak allowable flowrates from Table 1 and the minimum detention volumes (based on 0.75 acre-feet per acre) were provided for the 100-year event. These evaluations were performed in HEC-RAS. For Method 2, the *PCPM* requires a constant tailwater elevation at the top of the outfall pipe. As part of the analysis, the size of the basin and the configuration of the outfall structure was manipulated until a satisfactory result was obtained.

2.4.1 Detention Stage vs. Storage

The detention basins will be wet bottom basins with a permanent water surface. In this report, any references to the "bottom" of the basin refers to the permanent pool elevation, as all storage below the permanent pool does not contribute to the attenuation of runoff. The basins will all have 4:1 (h:v) side slopes and 30-foot maintenance berms.

Table 3 provides the stage vs. storage relationship for the four proposed detention basins.

Table 3: Detention Basin Stage vs. Storage

Pond 1		Pond 2		Pond 3		Pond 4	
Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)
2.0	0.0	0.5	0.0	0.5	0.0	0.5	0.0
3.0	3.7	1.0	1.6	1.0	3.8	1.0	1.0
4.0	7.7	2.0	5.0	2.0	11.8	2.0	3.3
5.0	11.8	3.0	8.6	3.0	20.1	3.0	5.8
6.0	16.2	4.0	12.4	4.0	28.7	4.0	8.5
7.0	20.7	5.0	16.4	5.0	37.7	5.0	11.5
8.0	25.5	6.0	20.7	6.0	47.1	6.0	14.8
9.0	30.5	7.0	25.1				
10.0	35.7	8.0	29.8				
		9.0	34.7				

Note that the storage volumes for Ponds 3 and Ponds 4 were increased by 100 acre-feet in the HEC-RAS model to facilitate the Pond 4 outfall pipe, which is below sea level. The resultant output was then decreased by 100 acre-feet.

2.4.2 Detention Basin Control Structures

The control structures of each basin were modified to optimize the performance of the basin and to ensure no downstream impact. The control structure for Pond 1 and Pond 2 will include an orifice restrictor in front of an outfall pipe. This orifice may be constructed over the inlet to the outfall or in a manhole. No restrictor is required for Pond 3 and Pond 4. The outfall structures are described in Table 4 and in Exhibit 8.

Pond 1, Pond 2, and Pond 3 will have earthen overflow weirs to allow ponds to safely drain to the receiving channel if design elevations are exceeded. Willow Street is between Pond 4 and Pond 3 and will act as the overflow into Pond 3. Willow Street overtops at an elevation of 7.18 between Pond 3 and Pond 4. Prior to this overflow, flows will potentially flow south along Willow Steet and adjacent areas. However, this phenomenon exists today behind the existing 42-inch culverts that drain this area, and the additional storage will decrease this relative to current conditions.

2.4.3 Detention Routing Results

The detention routing results are summarized in Table 4. The cumulative peak flow from Pond 1 and 2 was determined by adding the hydrographs for the basin outflow. This combined flow was compared to the pre-project peak flow for Area 12, as the ponds both outfall to Ditch 7A and they are in close proximity to each other. The peak outflow from Pond 3 was compared to the pre-project peak flowrate from Area 34, as Pond 4 drains into Pond 3 and does not have a separate outfall into Ditch 7B.

The detention configuration is shown in Exhibit 8.

Table 4: Detention Basin Routing Results

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Drainage Area (Ac)	26.4	26.3	52.7	21.6	38.7	60.3
Development Area (Ac)	26.4	26.3	52.7	21.6	36.2	57.8
Elev - Bottom of Storage Pool	2.0	0.5		0.5	0.5	
Elev -Top of Basin	10.0	9.0		5.8	6.0	
Control Structure Orifice Dia (in)	15	21		None	None	
Control Structure Orifice Invert Elev	2.0	0.5		n/a	n/a	
No. Outfall Pipes	1	1		3	2	
Outfall Pipe Diameter (in)	24	30		30	54	
Outfall Pipe Length (ft)	90	90		90	215	
Outfall Location	Ditch 7A	Ditch 7A	Ditch 7A	Ditch 7B	Pond 3	Ditch 7B
Outfall Pipe Elev US (Pond)	2.0	0.5		0.5	-4.0	
Outfall Pipe Elev DS	1.9	0.4		0.4	-4.00	
10-Year Event						
Stage Elevation	5.47	3.92		3.25	3.29	
Storage Volume (ac-ft)	13.9	12.1		22.2	6.6	
Allowable Peak Flowrate (cfs)			37.2			66.1
Proposed Peak Flowrate (cfs)	8.8	15.8	24.5	44.9	57.4	44.9
25-Year Event						
Stage Elevation	6.60	4.96		3.78	3.88	
Storage Volume (ac-ft)	18.9	16.3		26.8	8.2	
Allowable Peak Flowrate (cfs)			49.5			87.6
Proposed Peak Flowrate (cfs)	11.6	20.8	32.2	71.4	77.3	71.4
100-Year Event						
Stage Elevation	8.62	6.82		4.80	5.05	
Storage Volume Required* (Ac-Ft)	19.8	19.7	39.5	16.2	27.2	43.4
Storage Volume (ac-ft)	28.6	24.3	52.9	35.9	11.7	47.6
Allowable Peak Flowrate (cfs)			71.3			125.7
Proposed Peak Flowrate (cfs)	14.8	27.4	42.0	105.2	111.6	105.2

**Based on 0.75 acre-feet per acre*

2.4 Floodplain Fill and Detention Rate

The Ditch 7 model without the project was utilized to determine the 100-year elevations, floodplain fill volumes, and required slab elevations. The portion of the detention storage not required for floodplain fill mitigation was assigned as runoff mitigation, and the resultant detention rate was determined from the cumulative detention volume and development area. This rate was determined separately for areas to Ditch 7A (Pond 1 and 2) and Ditch 7B (Pond 3 and 4). This section summarizes these computations and presents the results.

2.4.1 Minimum Slab Elevations

The City of Texas City Floodplain Ordinance requires the lowest slab elevation to be 18 inches above the Base Flood Elevation as depicted on the Flood Insurance Rate Maps. As noted previously, a portion of the development is within the coastal flood zone and there is not a FEMA Base Flood Elevation representative of riverine flooding. However, it is recommended that new construction it the proposed development have slab elevations 18 inches above the 100-year flood elevation computed as part of the Ditch 7 analysis provided for the District. Exhibit 14 shows the 100-year floodplain and 100-year elevations from the Ditch 7 analysis along with the specification of minimum slab elevations for the proposed development.

2.4.2 Floodplain Fill

Floodplain fill volume was determined for the 100-year flood inundation associated with Ditch 7A and Ditch 7B. This includes the overflow area from Ditch 7A to 7B. This volume was determined from a HEC-RAS analysis of Ditch 7A without flow in Ditch 7B. The resultant inundation and corresponding floodplain fill was assigned to Ditch 7A and the reminder was assigned to Ditch 7B. Table 5 summarizes the floodplain fill and the resultant mitigation. Mitigation is provided by excess capacity (all capacity in addition to the 0.75 acre-feet per acre) in the detention basins below the 100-year flood elevation in the adjacent stream.

For Pond 3, the 100-year elevation of Ditch 7B will exceed the elevation of the pond high banks. During a riverine 100-year event, the pond will be inundated in a fashion similar to today. The adjacent development will be elevated above the 100-year elevation. The top of Pond 4 is also below the 100-year water surface of Ditch 7B. If the basin were to be elevated above the 100-year elevation it would potentially block sheet flow from the neighborhoods to the south. Most of Pond 4 is in areas with natural ground above the elevation of the top of the basin, and the excavation of the portion between the top of the basin (elevation 6.0) and the 100-year flood elevation will provide 8.4 acre-feet of additional floodplain excavation.

Floodplain fill and mitigation volumes were determined separately for Ditch 7A and Ditch 7B by combined calculations for Pond 1 and Pond 2 (Ditch 7A) and Pond 3 and Pond 4 (Ditch 7B). As the table indicates, there is adequate fill mitigation provided by the ponds and the excavation of the area “above” Pond 4 to offset the placement of fill in the floodplain of Ditch 7A and Ditch 7B.

The computed 100-year floodplain and floodplain mitigation table is provided as Exhibit 9.

Table 5: Floodplain Fill Mitigation and Detention Rate

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Floodplain Fill (Ac-Ft)	0.0	13.4	**13.4**	20.2	4.7	**24.9**
Fill Mitigation Available in Pond (Ac-Ft)	13.6	9.6	23.2	29.0	-12.4	16.7
Additional FP Excavation (Ac-Ft)	0.0	0.0	0.0	0.0	8.4	8.4
Total FP Fill Mitigation Available (Ac-Ft)	13.6	9.6	23.2	29.0	-4.0	25.0
Total FP Fill Mitigation Utilized (Ac-Ft)			**13.4**			**24.9**
Excess FP Fill Mitigation (Ac-Ft)			9.8			0.1
Required Detention (Ac-Ft)	19.8	19.7	39.5	16.2	27.2	43.4
Provided Detention (Ac-Ft)			49.3			43.5
Detention Rate (Ac-Ft/Ac)			**0.94**			**0.75**

The detention volume not required for floodplain mitigation is assigned to traditional stormwater detention in the determination of the total detention volume. This detention volume is then compared to the contributing development area to derive an effective detention rate. The resultant volumes and detention rates for Ponds 1 and 2 (Ditch 7A) and Ponds 3 and 4 (Ditch 7B) are also summarized in Table 5. For Ditch 7A, the project is providing detention at a rate of 0.94 acre-feet per acre; and for Ditch 7B, the project is providing detention at a rate of 0.75 acre-feet per acre.

3.0 Offsite Flow Considerations – Full Development

This section considers the management of offsite flow that the development may impact. These are illustrated in Exhibit 15.

3.1 Swale West of Pond 1 (Area A)

There is an offsite area from the south that drains the west portion of the site toward Ditch 7A. The swale runs up against the location of Pond 1. The development must accommodate these offsite flows. A total of 41.5 acres flows from offsite areas, most developed, through the site. The computed peak 100-year flowrate of the full acreage is 121.5 cfs. The project must accommodate this flow, either through a pipe system through the neighborhood, a perimeter swale system, or both. Exhibit 15 depicts a swale around the perimeter of the site. The specific method of managing offsite flow and the design and computations related to it will be provided with any future construction plans. The calculates for the offsite flow at the nodes depicted on Exhibit 15 are provided in Table 6.

3.2 Swale South and West of Pond 4 (Area B)

Area B consists of a small area at the rear of existing residential lots that currently drain toward the subject property. The total area is 1.7 acres. A perimeter swale will intercept this runoff and convey it to Pond 4.

Table 6: Offsite Flow

Swale	Area (ac)	Impervious	m	B	100 Yr Flowrate (cfs)
A1-A2	14.0	20%	1.000	3.4	47.6
A2-A3	30.0	20%	0.786	6.5	94.2
A3-A4	41.5	20%	0.786	6.5	121.5
B1-B2	1.7	20%	1.000	3.4	5.8

3.3 Area South of Pond 4 (Area C)

Area C consists of approximately 51 acres that drain to the existing swale that fees dual 42-inch pipes that convey flow under Willow Street and all the way to Ditch 7B. A portion of the existing swale is on the subject property. No additional infrastructure is required to accommodate this flow. The construction of the proposed project and Pond 4 will decrease the drainage are to this swale and the culverts considerably and should improve drainage associated with the undersized culverts.

3.4 Area North of Site along Willow Street (Area D)

Willow Street north of and adjacent to the project drains toward the south, and the area west of Willow Street drains to the existing swale behind the dual 42-inch culvert under Willow Street. This drainage pattern will be maintained. As noted in the preceding paragraph, the drainage area to these culverts will be reduced with the proposed project. The design plans will include the sizing of roadside culverts at the subdivision entrance and potentially improvements to the roadside ditch.

4.0 Hydrology and Detention – Phase 1 Development

Phase 1 represents the initial development of the site. The total area of the Phase 1 development is approximately 82.5 acres, and It includes most of the area described as full development. Exhibit 10 shows the Phase 1 concept. The Phase 1 development includes all four detention basins, however Pond 1 and Pond 2 have a smaller configuration. Pond 3 also has a slightly smaller configuration, as it does not include a small portion of a tract along Ditch 7B.

The methodology utilized to analyze Phase 1 is the same as that described for the full project in Section 3.0.

4.1 Pre-Project Hydrology

There are four proposed detention basins and three outfall points. Ponds 1 and 2 drain to Ditch 7A, while Pond 3 drains to Ditch 7B and Pond 4 drains into Pond 3. For pre-project conditions, the drainage areas were determined for the areas to Ditch 7A (Area 12 recognizing post-project flows to Pond 1 and Pond 2) and Ditch 7B (Area 34 recognizing post-project flows to Pond 3 and Pond 4). These drainage areas and the assumed land use is presented in Exhibit 7. The determination of peak flowrates for the pre-project condition are summarized in Table 1. These peak flowrates establish the allowable post-project flowrate for the developed condition.

Table 7: Pre-Project Peak Flowrates

Drainage Subarea	P12	P34
Area (Ac)	18.7	64.6
Impervious (%)	0.0%	1.3%
Site Runoff Curve: 10-Year		
m	0.786	0.786
b	2.40	2.48
Peak Flowrate (cfs)	24.0	65.7
Interpolate: 25-Year		
Peak Flowrate (cfs)	31.9	87.0
Site Runoff Curve: 100-Year		
m	0.786	0.786
b	4.60	4.72
Peak Flowrate (cfs)	45.9	125.0

4.2 Post-Project Hydrology

Exhibit 11 also depicts the post-project land use assumption and drainage subareas for the development. Drainage subareas were assigned for each of the four detention basins as all developed condition runoff will be directed into one of the four basins. Table 2 summarizes the determination of the Post-Project peak flowrates and runoff volume for the 10-year, 25-year, and 100-year events.

Table 8: Post-Project Peak Flowrates and Runoff Volume

Drainage Subarea	P1	P2	P3	P4
Area (Ac)	15.1	12.8	21.0	34.1
Impervious (%)	51.8%	56.0%	63.7%	38.8%
Site Runoff Curve: 10-Year				
m	1.00	1.00	0.79	0.79
b	5.57	5.70	5.94	5.10
Peak Flowrate (cfs)	84.0	72.7	65.0	81.8
Interpolate: 25-Year				
Peak Flowrate (cfs)	104.9	90.7	80.9	102.8
Site Runoff Curve: 100-Year				
m	1.00	1.00	0.79	0.79
b	9.42	9.61	9.95	8.75
Peak Flowrate (cfs)	142.2	122.6	109.0	140.3
Runoff Volume (inches)				
10-Year	7.91	8.01	8.20	7.59
25-Year	10.96	11.06	11.23	10.68
100-Year	16.61	16.68	16.82	16.38

4.3 Detention Routing

The detention basins were initially sized and evaluated to ensure that the peak allowable flowrates from Table 1 and the minimum detention volumes (based on 0.75 acre-feet per acre) were provided for the 100-year event. These evaluations were performed in HEC-RAS. For Method 2, the *PCPM* requires a constant tailwater elevation at the top of the outfall pipe. As part of the analysis, the size of the basin and the configuration of the outfall structure was manipulated until a satisfactory result was obtained.

4.3.1 Detention Stage vs. Storage

The detention basins will be wet bottom basins with a permanent water surface. In this report, any references to the "bottom" of the basin refers to the permanent pool elevation, as all storage below the permanent pool does not contribute to the attenuation of runoff. The basins will all have 4:1 (h:v) side slopes and 30-foot maintenance berms.

Table 3 provides the stage vs. storage relationship for the four proposed detention basins. Note that the storage volumes for Ponds 3 and Ponds 4 were increased by 100 acre-feet in the HEC-RAS model to facilitate the Pond 4 outfall pipe, which is below sea level. The resultant output was then decreased by 100 acre-feet.

Table 9: Detention Basin Stage vs. Storage

Pond 1		Pond 2		Pond 3		Pond 4	
Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)	Stage (elev)	Storage (ac-ft)
2.0	0.0	0.5	0.0	0.5	0.0	0.5	0.0
3.0	2.6	1.0	1.5	1.0	3.5	1.0	1.0
4.0	5.3	2.0	4.6	2.0	10.8	2.0	3.3
5.0	8.2	3.0	7.8	3.0	18.5	3.0	5.8
6.0	11.2	4.0	11.2	4.0	26.5	4.0	8.5
7.0	14.4	5.0	14.7	5.0	34.9	5.0	11.5
8.0	17.7	6.0	18.4	6.0	43.7	6.0	14.8
9.0	21.2	7.0	22.2				
10.0	24.8	8.0	26.2				
		9.0	30.4				

4.3.2 Detention Basin Control Structures

The control structures of each basin were modified to optimize the performance of the basin and to ensure no downstream impact. The control structure for Pond 1 and Pond 2 will include an orifice restrictor in front of an outfall pipe. This orifice may be constructed over the inlet to the outfall or in a manhole. No restrictor is required for Pond 3 and Pond 4. The outfall structures are described in Table 4 and in Exhibit 12.

Pond 1, Pond 2, and Pond 3 will have earthen overflow weirs to allow ponds to safely drain to the receiving channel if design elevations are exceeded. Willow Street is between Pond 4 and Pond 3 and will act as the overflow into Pond 3. Willow Street overtops at an elevation of 7.18 between Pond 3 and Pond 4. Prior to this overflow, flows will potentially flow south along Willow Steet and adjacent areas. However, this phenomenon exists today behind the existing 42-inch culverts that drain this area, and the additional storage will decrease this relative to current conditions.

Note that the control structures for the basin are unchanged from the full development scenario described in Section 3.0.

4.3.3 Detention Routing Results

The detention routing results are summarized in Table 4. The cumulative peak flow from Pond 1 and 2 was determined by adding the hydrographs for the basin outflow. This combined flow was compared to the pre-project peak flow for Area 12, as the ponds both outfall to Ditch 7A and they are in close proximity to each other. The peak outflow from Pond 3 was compared to the pre-project peak flowrate from Area 34, as Pond 4 drains into Pond 3 and does not have a separate outfall into Ditch 7B.

The detention configuration is shown in Exhibit 12.

Table 10: Detention Basin Routing Results

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Drainage Area (Ac)	15.1	12.8	27.8	21.0	34.1	55.1
Development Area (Ac)	15.1	12.7	27.8	20.8	26.8	47.6
Elev - Bottom of Storage Pool	2.0	0.5		0.5	0.5	
Elev -Top of Basin	10.0	9.0		5.8	6.0	
Control Structure Orifice Dia (in)	15	21		None	None	
Control Structure Orifice Invert Elev	2.0	0.5		n/a	n/a	
No. Outfall Pipes	1	1		3	2	
Outfall Pipe Diameter (in)	24	30		30	54	
Outfall Pipe Length (ft)	90	90		90	215	
Outfall Location	Ditch 7A	Ditch 7A	Ditch 7A	Ditch 7B	Pond 3	Ditch 7B
Outfall Pipe Elev US (Pond)	2.0	0.5		0.5	-4.0	
Outfall Pipe Elev DS	1.9	0.4		0.4	-4.00	
10-Year Event						
Stage Elevation	5.09	2.83		3.2	3.24	
Storage Volume (ac-ft)	8.5	2.8		120.1	6.2	
Allowable Peak Flowrate (cfs)			24.0			65.7
Proposed Peak Flowrate (cfs)	7.6	8.3	15.9	42.0	47.6	42.0
25-Year Event						
Stage Elevation	6.07	3.46		3.68	3.77	
Storage Volume (ac-ft)	11.5	9.4		123.9	7.9	
Allowable Peak Flowrate (cfs)			31.9			87.0
Proposed Peak Flowrate (cfs)	10.4	13.1	23.5	67.4	66.1	67.4
100-Year Event						
Stage Elevation	7.85	4.67		4.65	4.85	
Storage Volume Required* (Ac-Ft)	11.3	9.6	20.9	15.6	20.1	43.4
Storage Volume (ac-ft)	17.2	13.5	30.8	32.0	11.1	47.6
Allowable Peak Flowrate (cfs)			45.9			125.7
Proposed Peak Flowrate (cfs)	13.8	19.5	33.2	100.8	97.3	105.2

**Based on 0.75 acre-feet per acre*

4.4 Floodplain Fill and Detention Rate

The Ditch 7 model without the project was utilized to determine the 100-year elevations, floodplain fill volumes, and required slab elevations. The portion of the detention storage not required for floodplain fill mitigation was assigned as runoff mitigation, and the resultant detention rate was determined from the cumulative detention volume and development area. This rate was determined separately for areas to Ditch 7A (Pond 1 and 2) and Ditch 7B (Pond 3 and 4). This section summarizes these computations and presents the results.

4.4.1 Minimum Slab Elevations

See Section 3.4.1. The minimum slab elevations are applicable for the Phase 1 development.

4.4.2 Floodplain Fill

Floodplain fill volume was determined for the 100-year flood inundation associated with Ditch 7A and Ditch 7B. This includes the overflow area from Ditch 7A to 7B. This volume was determined from a HEC-RAS analysis of Ditch 7A without flow in Ditch 7B. The resultant inundation and corresponding floodplain fill was assigned to Ditch 7A and the reminder was assigned to Ditch 7B. Table 5 summarizes the floodplain fill and the resultant mitigation. Mitigation is provided by excess capacity (all capacity in addition to the 0.75 acre-feet per acre) in the detention basins below the 100-year flood elevation in the adjacent stream.

For Pond 3, the 100-year elevation of Ditch 7B will exceed the elevation of the pond high banks. During a riverine 100-year event, the pond will be inundated in a fashion like today. The adjacent development will be elevated above the 100-year elevation. The top of Pond 4 is also below the 100-year water surface of Ditch 7B. If the basin were to be elevated above the 100-year elevation it would potentially block sheet flow from the neighborhoods to the south. Most of Pond 4 is in areas with natural ground above the elevation of the top of the basin, and the excavation of the portion between the top of the basin (elevation 6.0) and the 100-year flood elevation will provide 8.4 acre-feet of additional floodplain excavation.

Floodplain fill and mitigation volumes were determined separately for Ditch 7A and Ditch 7B by combined calculations for Pond 1 and Pond 2 (Ditch 7A) and Pond 3 and Pond 4 (Ditch 7B). As the table indicates, there is adequate fill mitigation provided by the ponds and the excavation of the area "above" Pond 4 to offset the placement of fill in the floodplain of Ditch 7A and Ditch 7B.

The computed 100-year floodplain and floodplain mitigation table is provided as Exhibit 13.

Table 11: Floodplain Fill Mitigation and Detention Rate

	Pond 1	Pond 2	Combined 1&2	Pond 3	Pond 4	Combined 3&4
Floodplain Fill (Ac-Ft)	0.0	12.7	**12.7**	20.2	1.1	**21.3**
Fill Mitigation Available in Pond (Ac-Ft)	11.9	20.3	32.1	29.7	-5.3	24.4
Additional FP Excavation (Ac-Ft)	0.0	0.0	0.0	0.0	8.4	8.4
Total FP Fill Mitigation Available (Ac-Ft)	11.9	20.3	32.1	29.7	3.1	32.7
Total FP Fill Mitigation Utilized (Ac-Ft)			**12.7**			**21.3**
Excess FP Fill Mitigation (Ac-Ft)			19.5			11.4
Required Detention (Ac-Ft)	11.3	9.6	20.9	15.6	20.1	35.7
Provided Detention (Ac-Ft)			40.3			47.1
Detention Rate (Ac-Ft/Ac)			**1.45**			**0.99**

The detention volume not required for floodplain mitigation is assigned to traditional stormwater detention in the determination of the total detention volume. This detention volume is then compared to the contributing development area to derive an effective detention rate. The resultant volumes and detention rates for Ponds 1 and 2 (Ditch 7A) and Ponds 3 and 4 (Ditch 7B) are also summarized in Table 5. For Ditch 7A, the project is providing detention at a rate of 1.45 acre-feet per acre; and for Ditch 7B, the project is providing detention at a rate of 0.99 acre-feet per acre.

5.0 Results

Based on the analysis presented herein, the proposed development, including the full development scenario and the Phase 1 scenario, can be constructed as described without adversely impacting drainage and flood risk upstream, adjacent to, and downstream of the project.

For the full development, the project provides 0.94 acre-feet of detention per acre of development in two detention basins for the portion of the project draining to Ditch 7A; and provides 0.75 acre-feet of detention per acre of development in two detention basins for the portion of the project drainage to Ditch 7B. The detention basins also have additional capacity to adequately mitigate the placement of fill in the computed 100-year floodplain of Ditch 7A and Ditch 7B.

For the Phase 1 development, the project provides 1.45 acre-feet of detention per acre of development in two detention basins for the portion of the project draining to Ditch 7A; and provides 0.99 acre-feet of detention per acre of development in two detention basins for the portion of the project drainage to Ditch 7B. The detention basins also have additional capacity to adequately mitigate the placement of fill in the computed 100-year floodplain of Ditch 7A and Ditch 7B.

As a result of the analysis I hereby certify the project will have no adverse impact to flood risk along Ditch 7, Ditch 7A, Ditch 7B and other drainage infrastructure in adjacent areas.

Exhibits

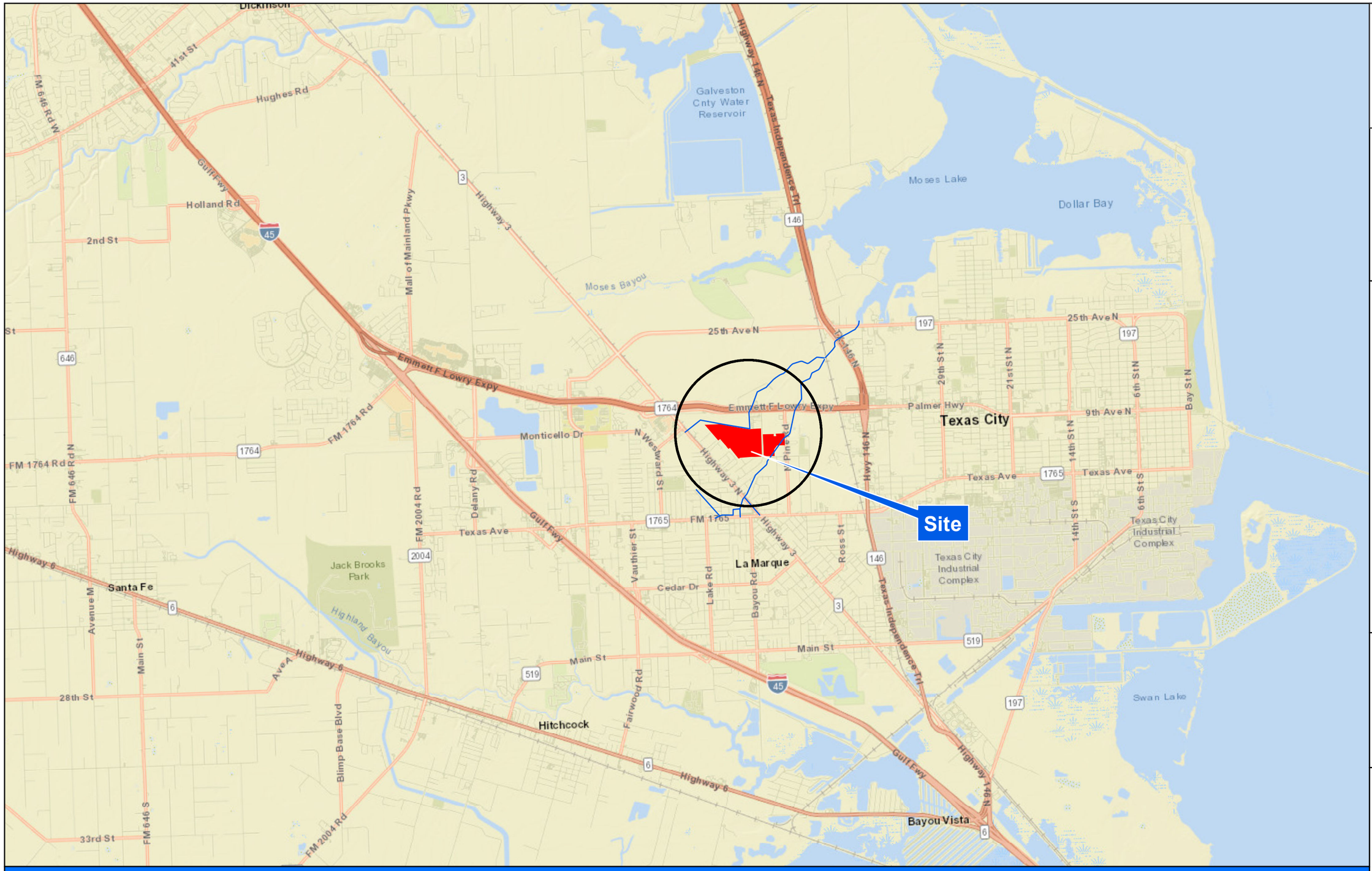
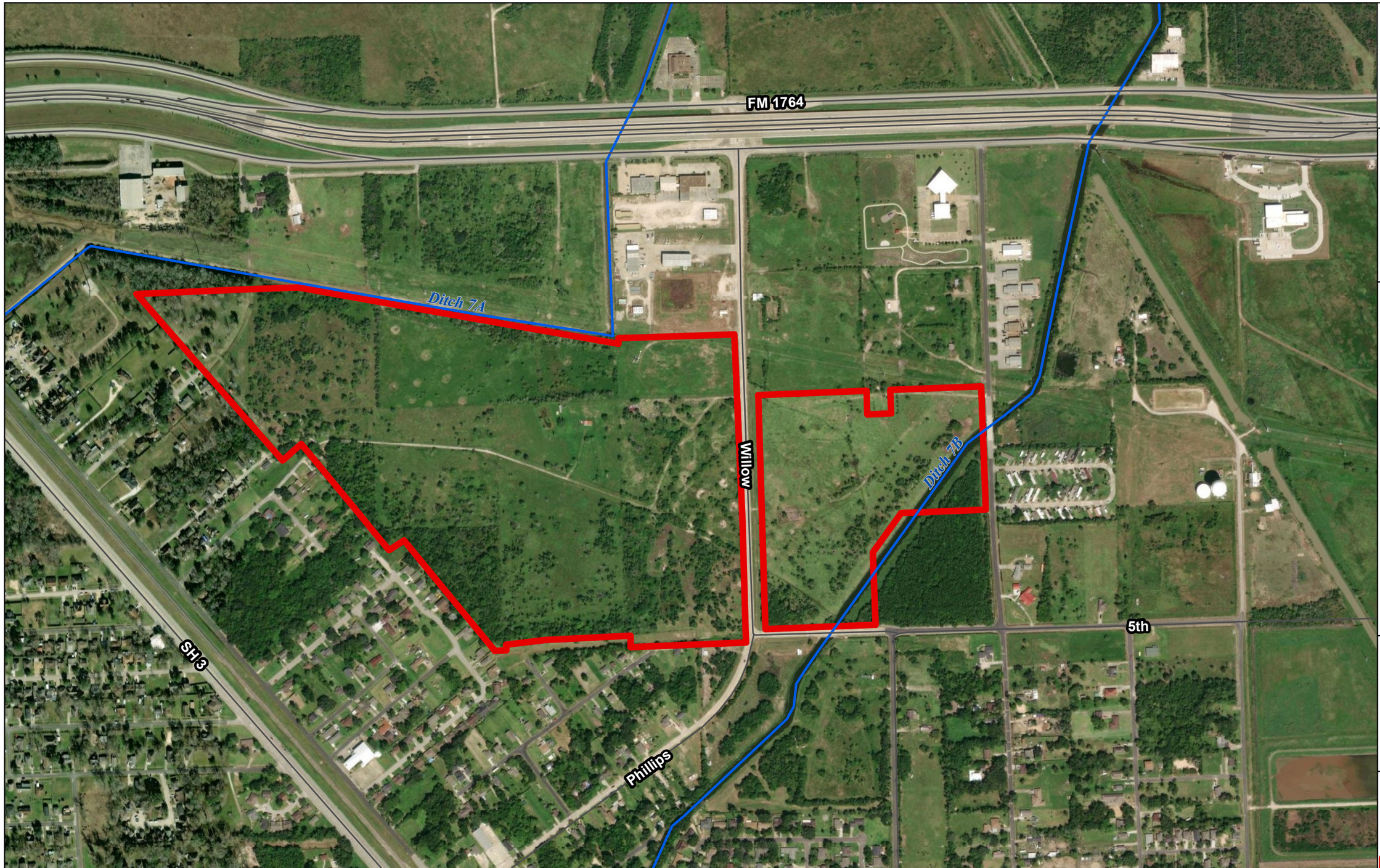


Exhibit 1 - Location Map

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Site



BJE

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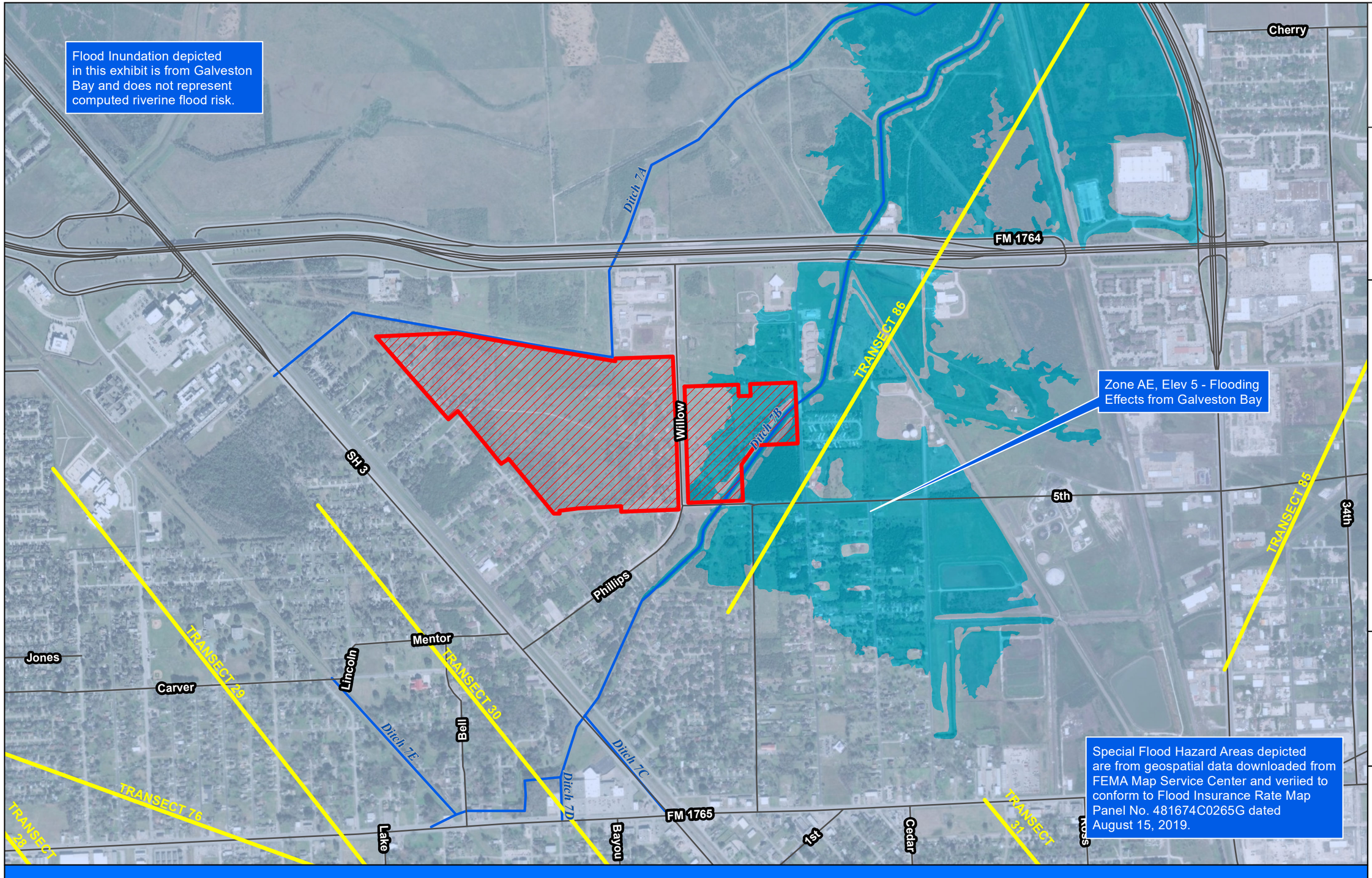
0 250 500 Feet

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Roads
Ditch 7 Channels
Willowood Subdivision

Exhibit 2 - Aerial Photo



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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Transect Line
- Site
- Roads
- Ditch 7 Channels
- Zone AE (1%)
- Shaded Zone X (0.2%)

Exhibit 3 - FEMA Speical Flood Hazard Areas

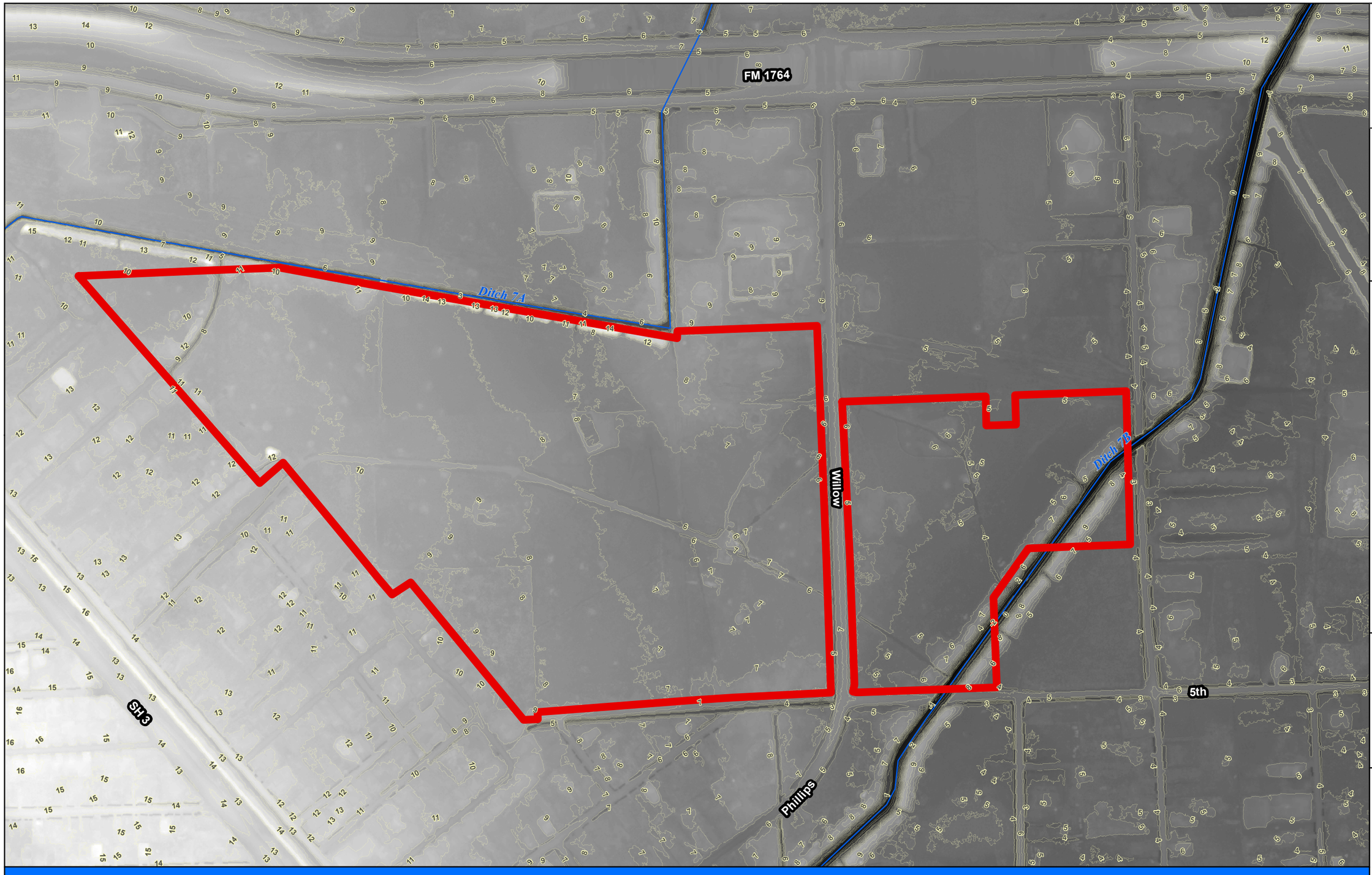

Exhibit 4 - Topography and Digital Elevation Model

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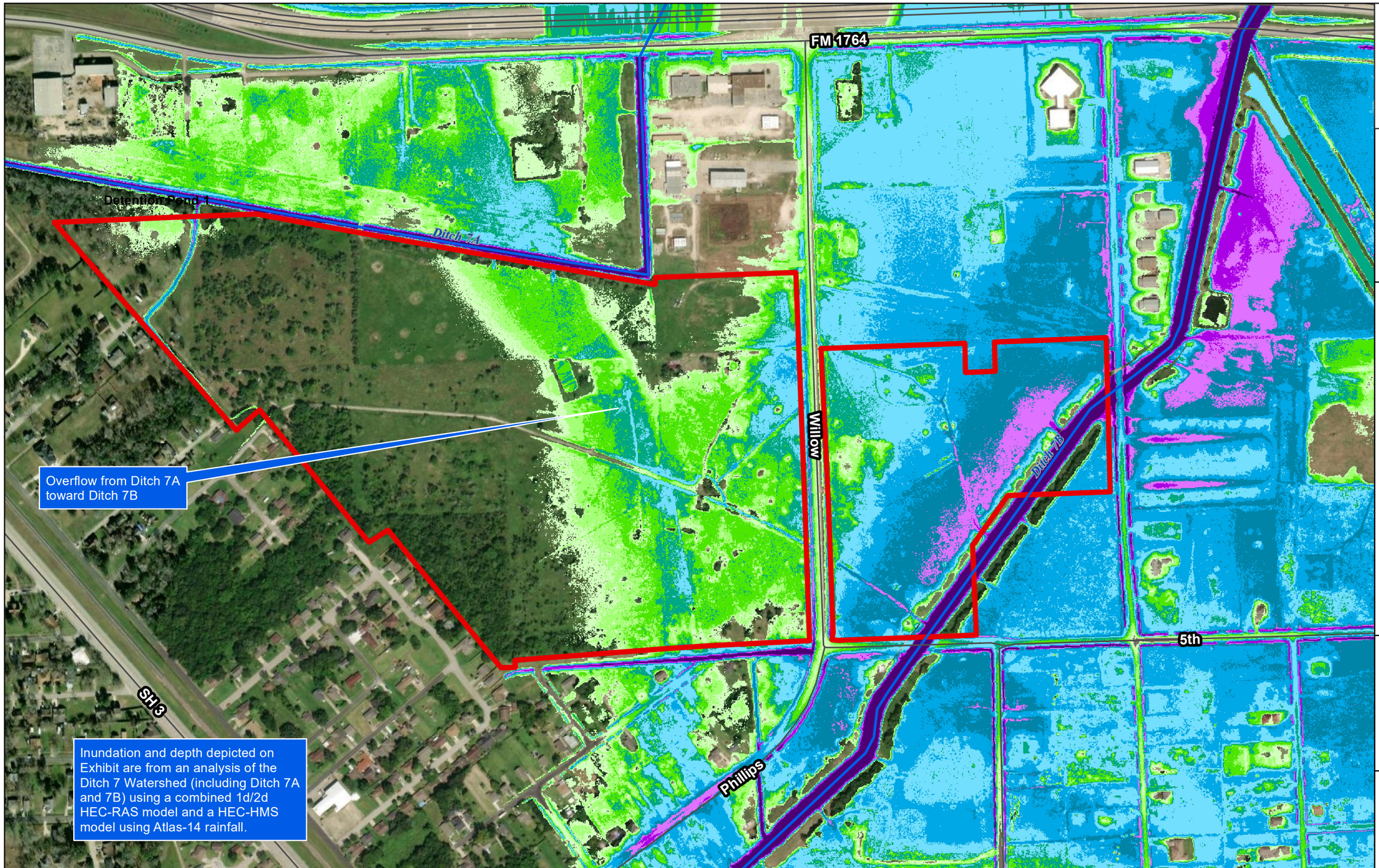
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Site
Study Channels
Elevation Contour
Roads

DEM Elevation
High : 40'
Low : -10'



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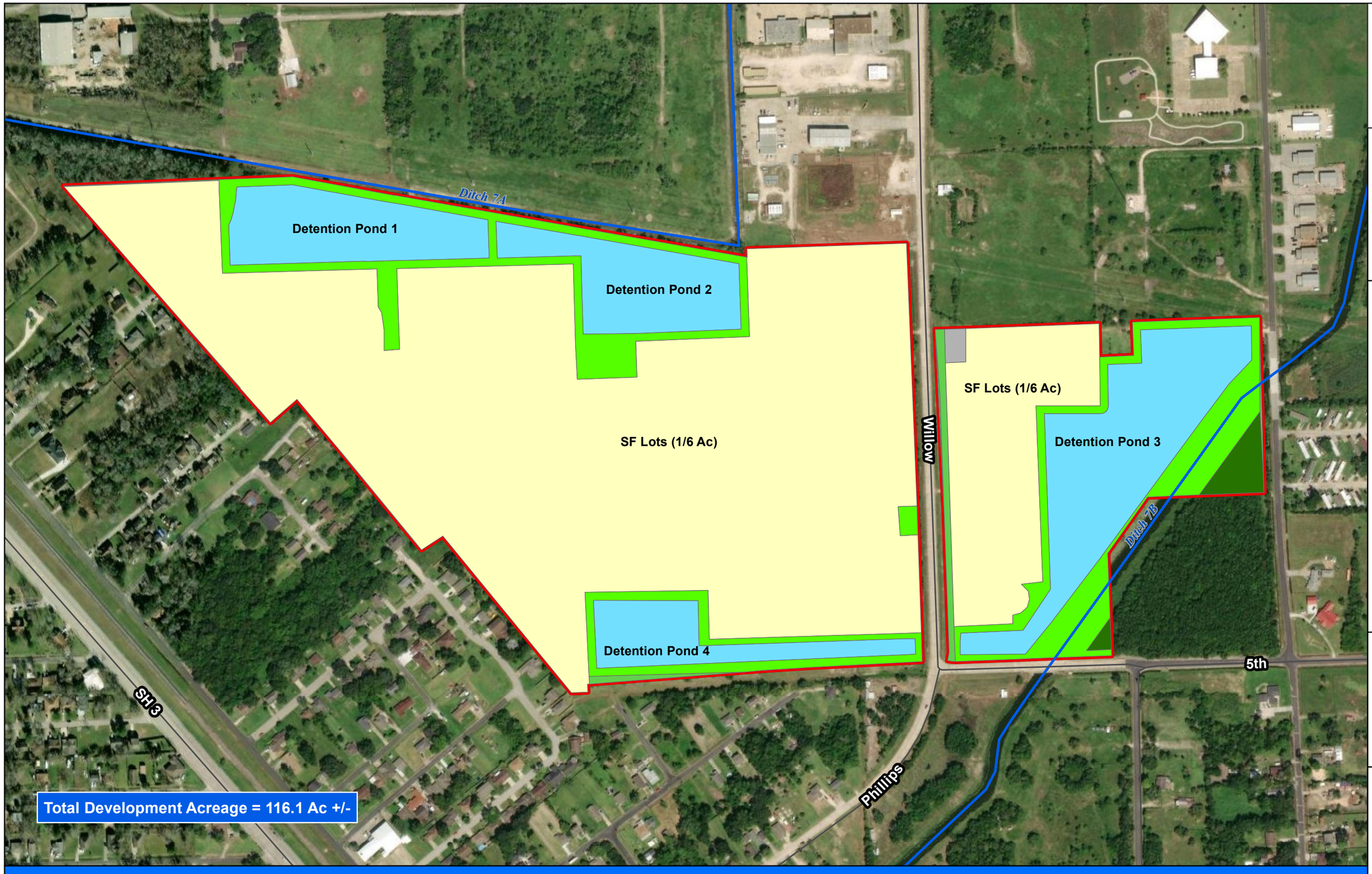
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

100-Yr Inundation Depth

- 0.0' - 0.25'
- 0.25' - 0.5'
- 0.5' - 0.75'
- 0.75' - 1.0'
- 1.0' - 1.5'
- 1.5' - 2.0'
- 2.0' - 2.5'
- 2.5' - 3.0'
- 3.0' - 4.0'
- >4.0'

Exhibit 5 - Computed 100-Yr Inundation



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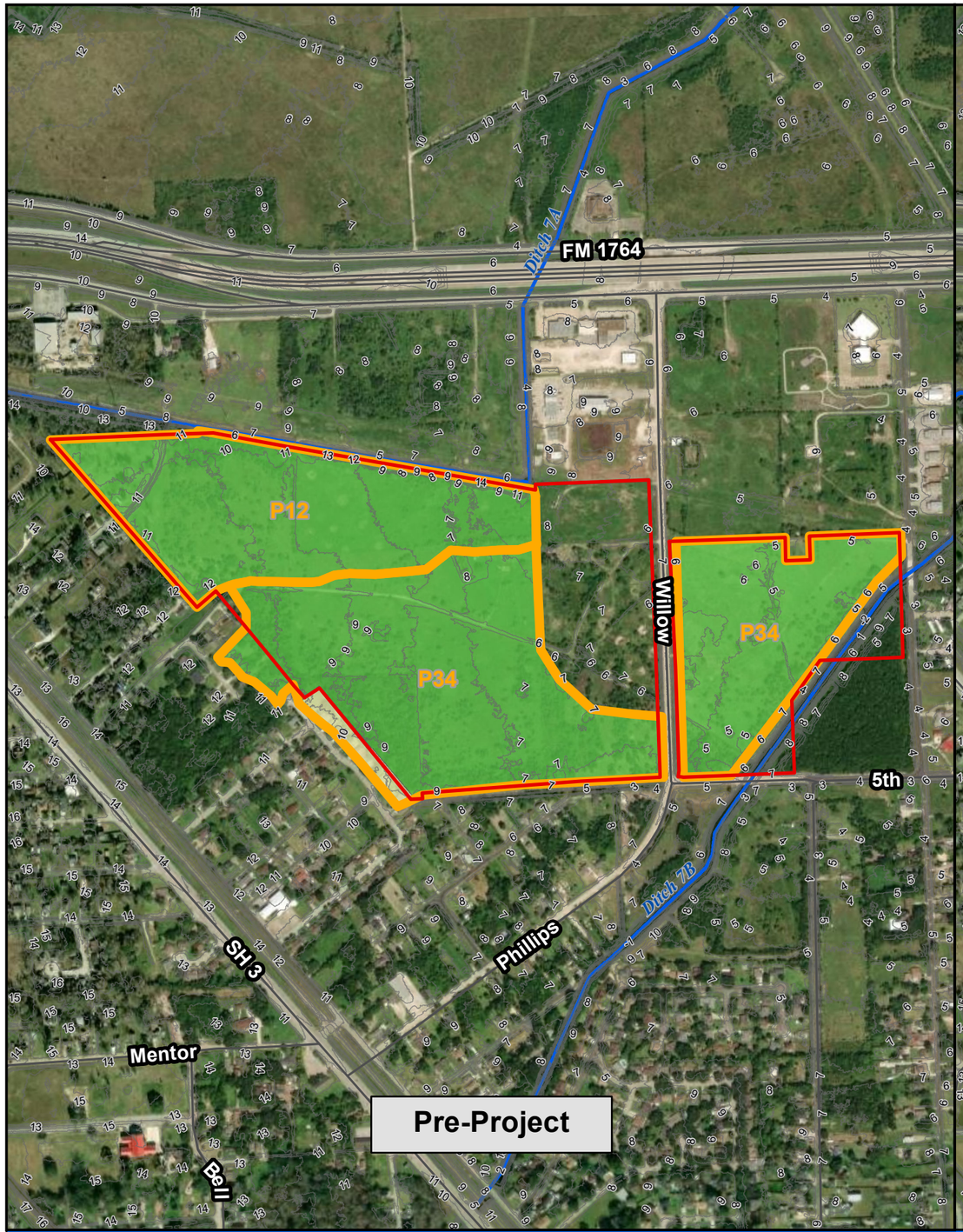
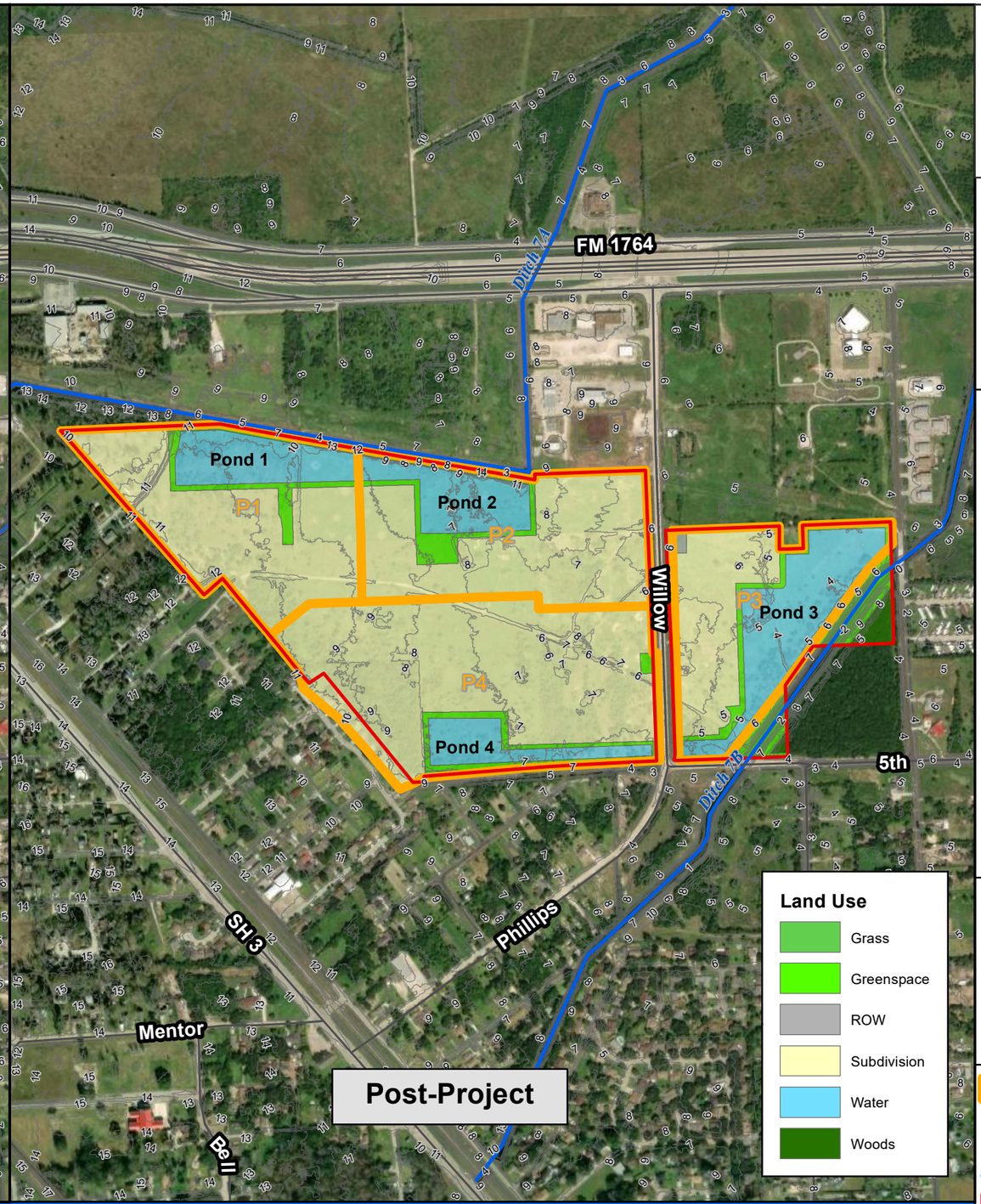
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Land Use
- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods

Exhibit 6 - Proposed Development





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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Drainage Subarea
- Elev Contour
- Road
- Channels
- Site

Exhibit 7 - Drainage Subarea Map

Exhibit 8 - Proposed Detention

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0 200 400 Feet

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Site

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods

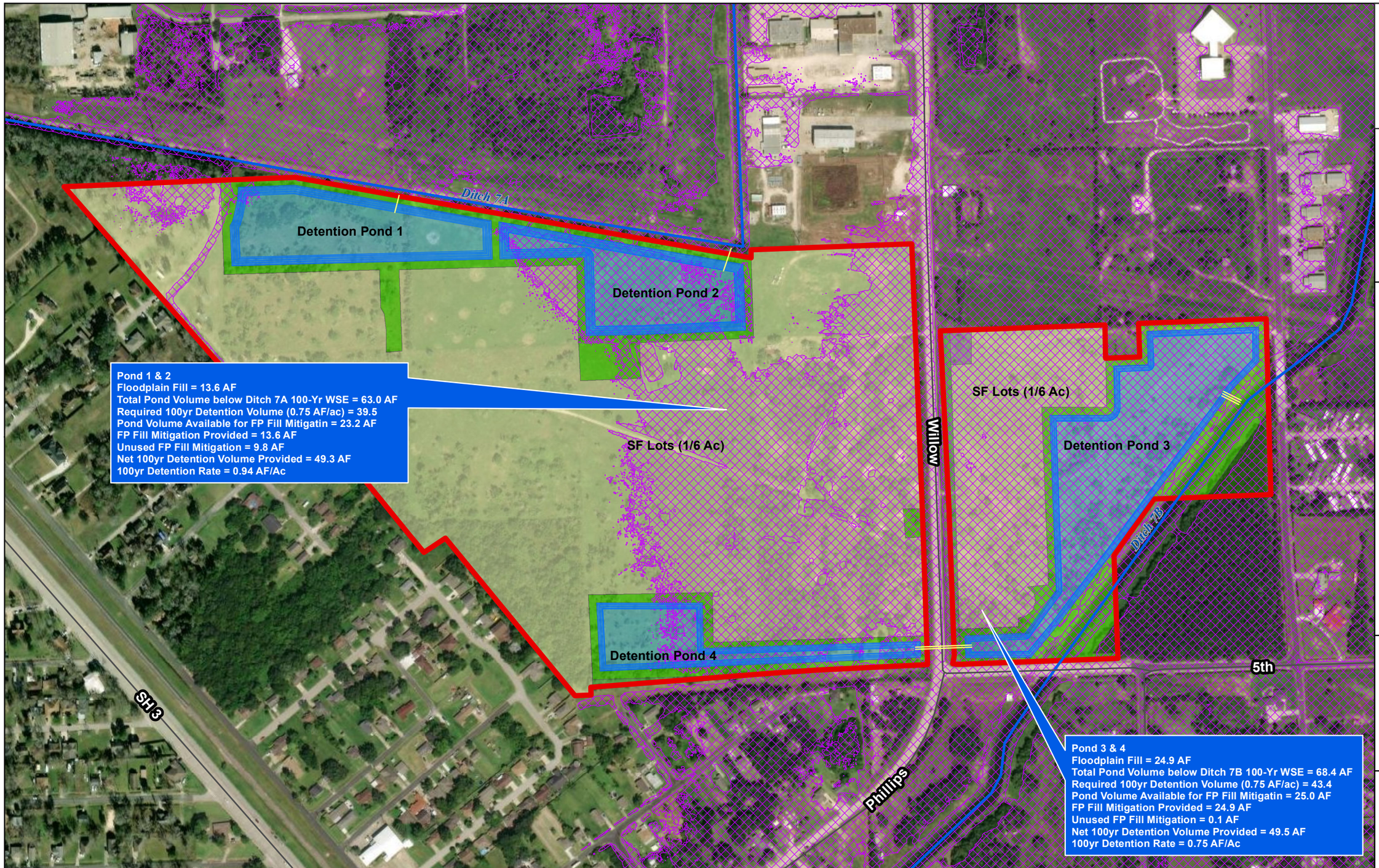

Exhibit 9 - FP Fill Mitigation & Detention Rate

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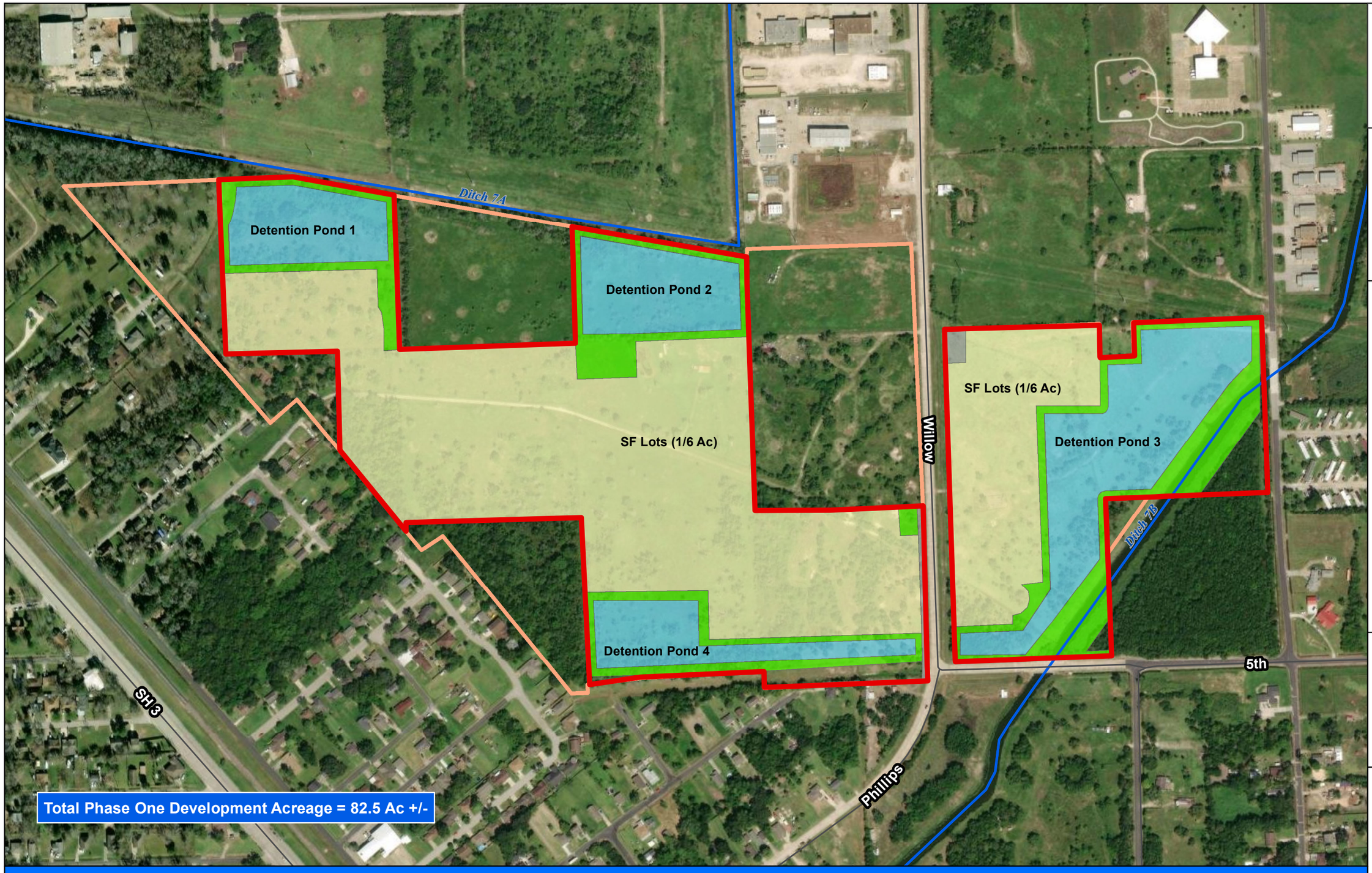
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Site
- Computed 100-Yr FP

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods



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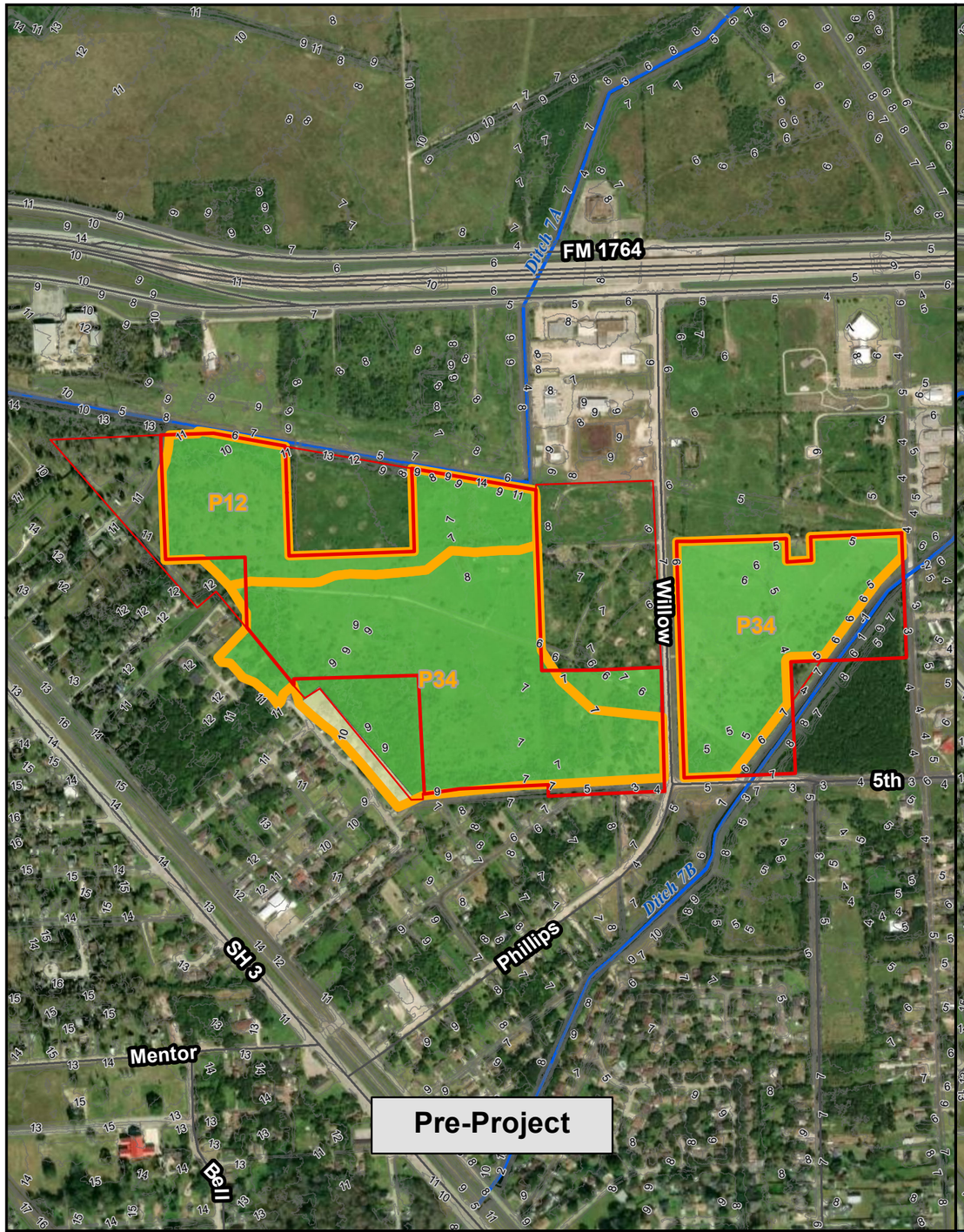
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

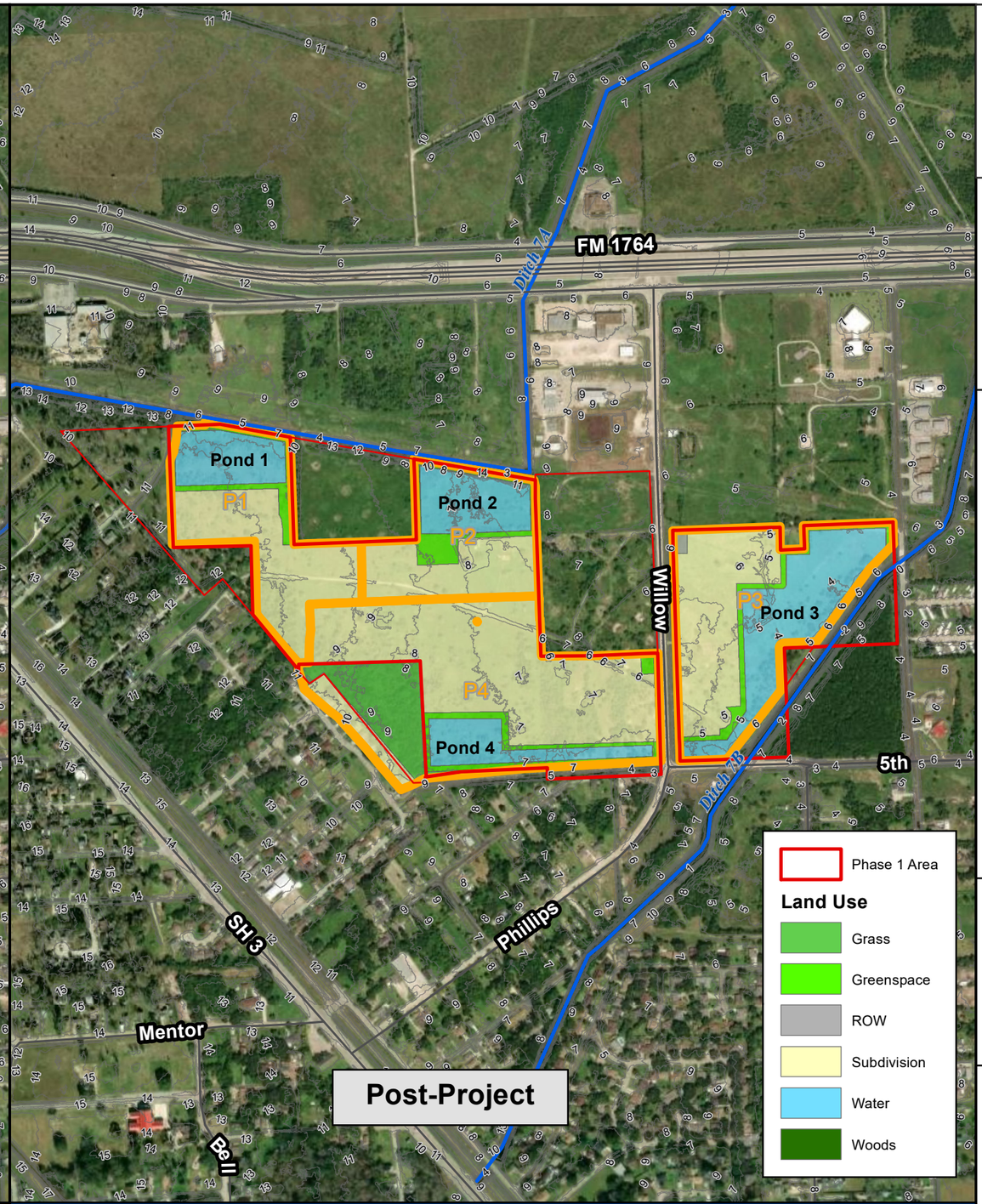
Drainage Impact Analysis

Land Use
- Greenspace
- ROW
- Subdivision
- Water
- Site

Exhibit 10 - Phase 1 Development



Pre-Project



Post-Project

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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Drainage Subarea
- Elev Contour
- Phase 1 Area
- Road
- Channels
- Site

Exhibit 11 - Phase 1 Drainage Subarea Map

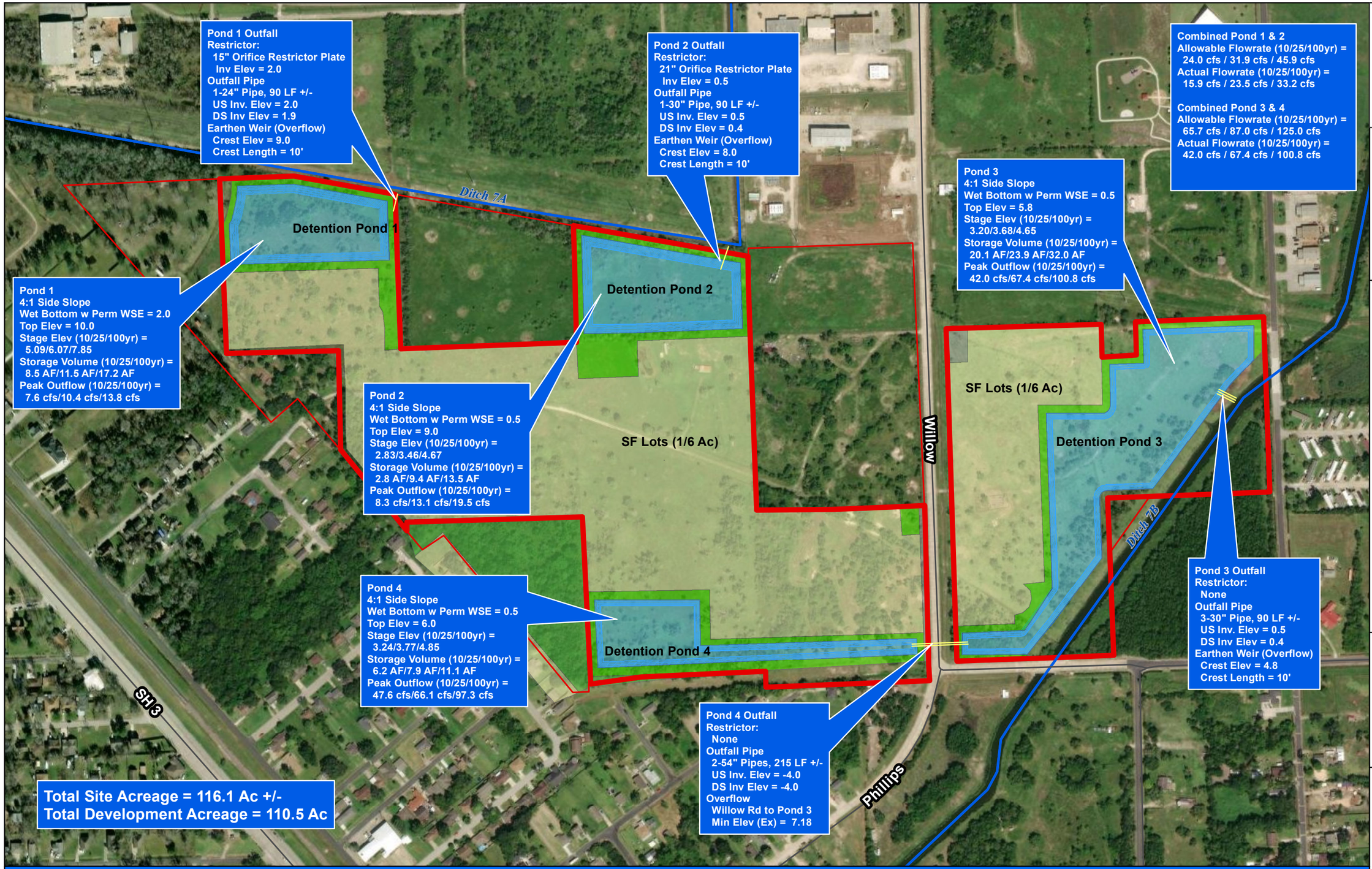

Exhibit 12- Phase 1 Detention

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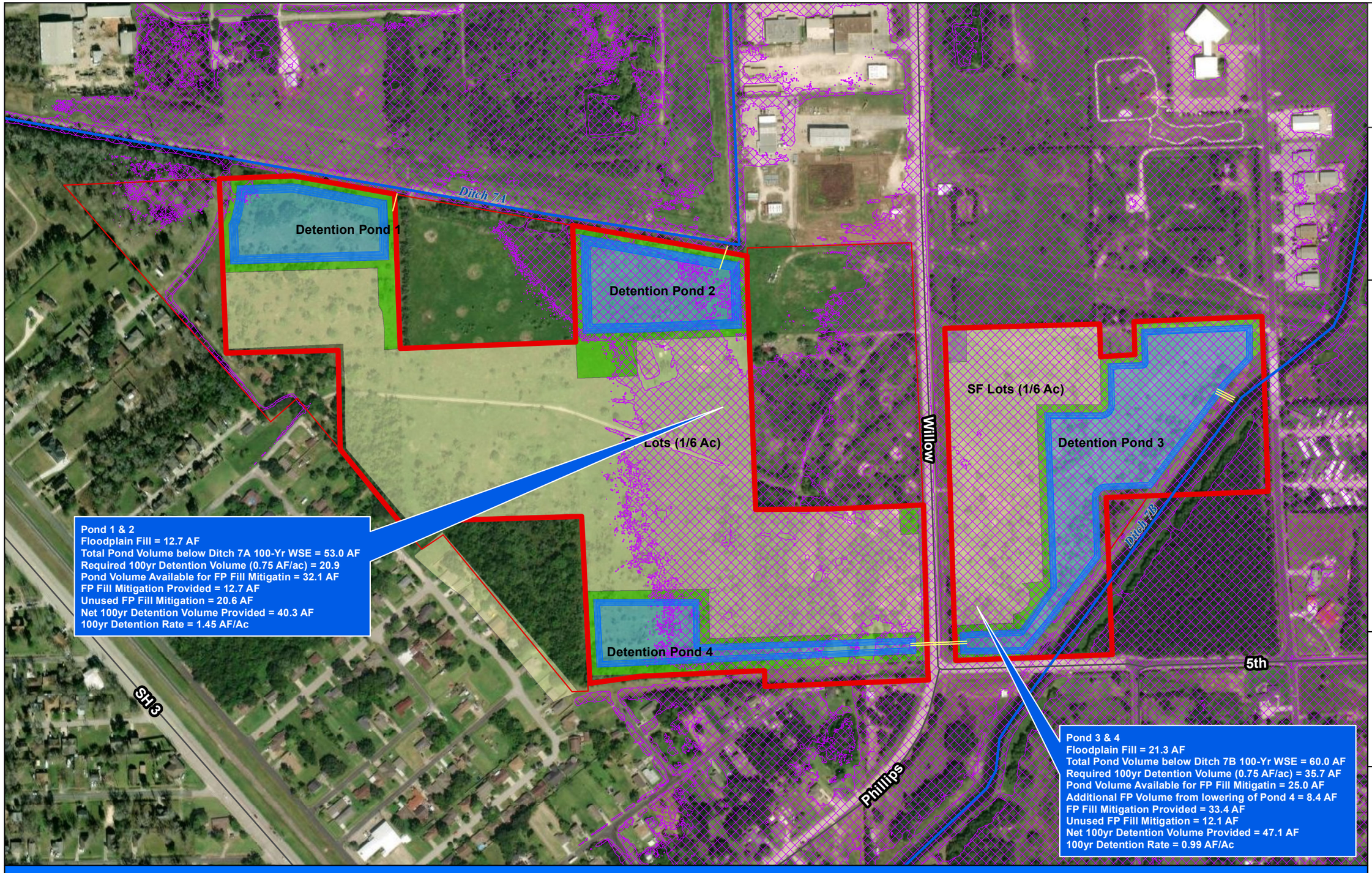
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

- Detention Outfall
- Phase 1 Area
- Full Development

Land Use

- Grass
- Greenspace
- ROW
- Subdivision
- Water
- Woods
- Detention Contour



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WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

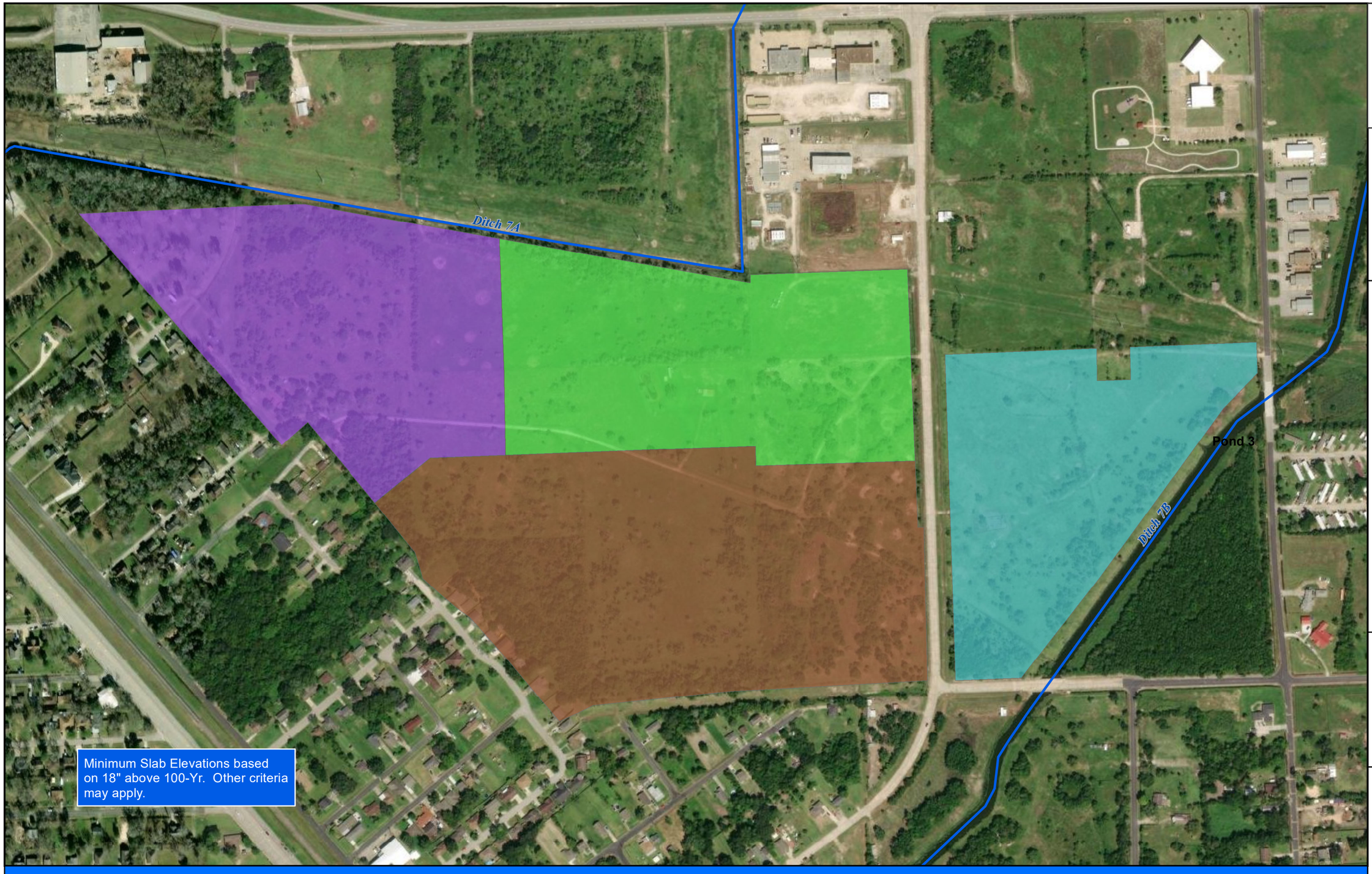
Drainage Impact Analysis

- Detention Outfall
- Detention Contour
- Phase 1 Area
- Site
- Computed 100-Yr FP

Land Use

- Greenspace
- ROW
- Subdivision
- Water

Exhibit 13 - Ph 1 FP Fill Mitigation & Detention Rate



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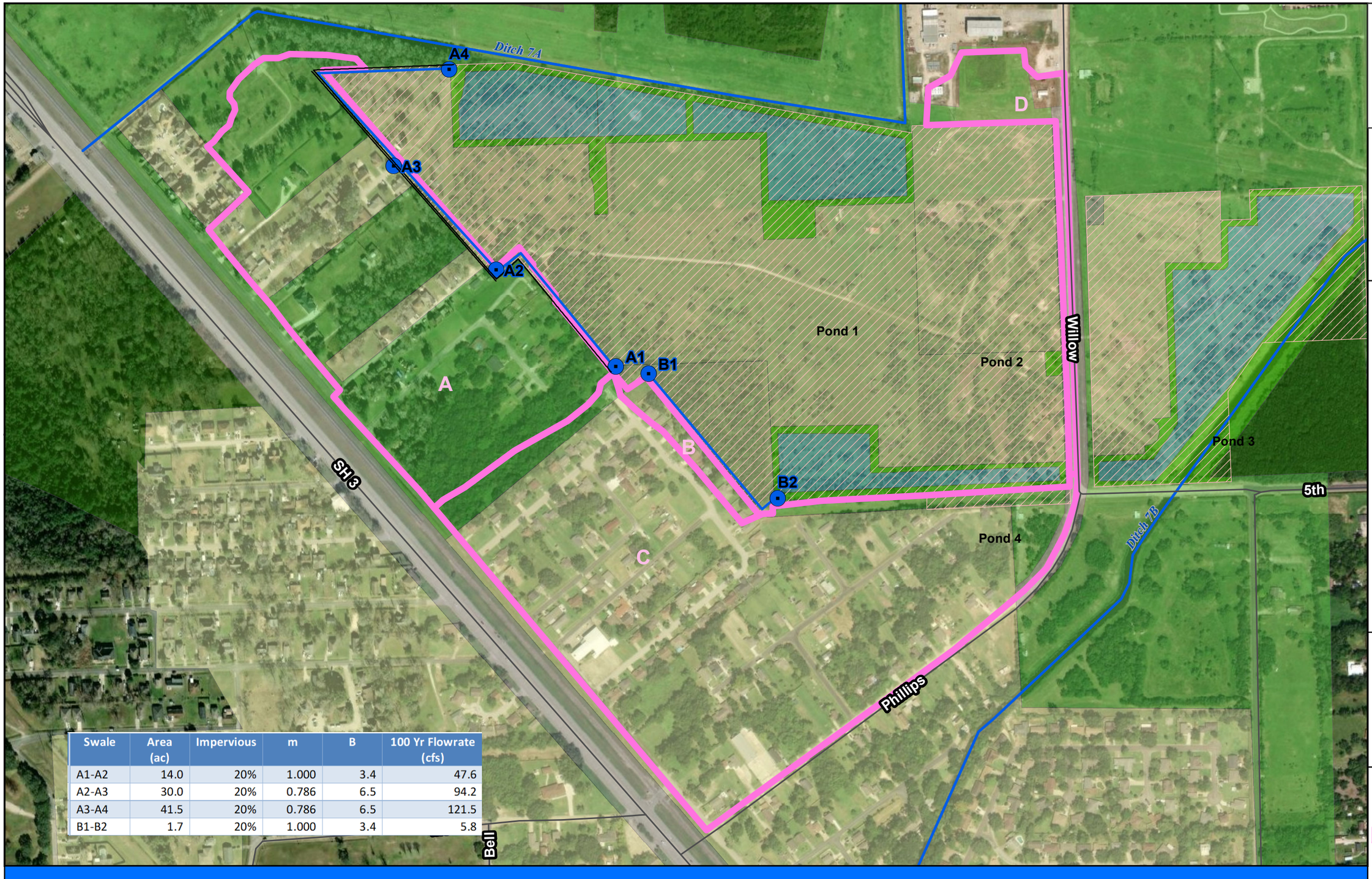
WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX
Galveston County DD No. 2

Drainage Impact Analysis

Minimum Slab Elev
- 10.5
- 11.5
- 8.7
- 9.0

Exhibit 14 - Minimum Slab Elevations



Swale	Area (ac)	Impervious	m	B	100 Yr Flowrate (cfs)
A1-A2	14.0	20%	1.000	3.4	47.6
A2-A3	30.0	20%	0.786	6.5	94.2
A3-A4	41.5	20%	0.786	6.5	121.5
B1-B2	1.7	20%	1.000	3.4	5.8

BJE

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Feet
0 200 400

WILLOWOOD DEVELOPMENT
Proposed Single Family Subdivision in Texas City, TX Galveston County DD No. 2

Drainage Impact Analysis

- Reference Nodes
- Perimeter Swale
- Offsite Areas
- Road
- Channels
- Site

Exhibit 15 - Offsite Flow Management

Ditch 7 Watershed
(Ditch 7, Ditch 7A, Ditch 7B)

Floodplain Mapping and Modeling

Galveston County Drainage District Number Two

April 6, 2024

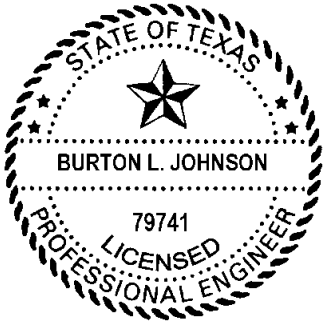
BURTON JOHNSON ENGINEERING, INC
WATER RESOURCES ENGINEERING & PLANNING

Floodplain Mapping and Modeling Report

Ditch 7 Watershed

(Ditch 7, Ditch 7A, Ditch 7B)

Galveston County Drainage District Number Two



April 6, 2024

Burton Johnson Engineering, Inc.
4611 Waterbeck St
Fulshear, TX 77441
281-773-7184
TPBE No. 10781

TABLE OF CONTENTS

1.0 Executive Summary 3

2.0 Introduction 4

2.1 Description of Project Area 4

2.2 FEMA Special Flood Hazard Areas 4

2.3 Elevation Data 5

3.0 Hydrology 6

3.1 Watershed Boundary and Drainage Sub-watersheds 6

3.2 Hydrologic Methodology 6

3.2.1 Land Use and Peak Flowrates (Site Runoff Curves) 7

3.2.2 Precipitation 8

3.2.3 Loss Parameters 8

3.2.3 Clark Unit Hydrograph Parameters and Peak Sub-WatershedFlowrates 9

4.0 Hydraulic Analysis (Combined 1D/2D HEC-RAS) 11

4.1 Geometry Data 11

4.1.1 Channel Cross Sections 11

4.1.2 Bridges and Culverts 11

4.1.3 Two-Dimensional Flow Areas 12

4.1.4 Lateral Weirs 13

4.1.5 Willowood Subdivision and Detention Basins 13

4.1.6 Boundary Conditions 13

5.0 Results 16

5.1 Inundation 16

5.2 Computed Water Surface Elevations 16

5.3 Peak Flowrates and Hydrographs 18

EXHIBITS

ATTACHMENT 1 – Galveston County Drainage District Number Two Map

Note: Survey data and computer models may be downloaded at the following link within 90 days of date of report:

https://www.dropbox.com/s/vv570wu2n86gdz3/Ditch%207%20Study%20-%20Models.zip?dl=0

1.0 Executive Summary

This report describes and summarizes the computation of flood flows and flood inundation in the Ditch 7 watershed in Galveston County. Specifically, flood flows and inundation were computed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events using HEC-HMS and a coupled 1d/2d HEC-RAS model. The resultant inundations are presented in Exhibits 9, 10, and 11 of the report.

The analysis and supporting hydrologic and hydraulic modeling were performed in consideration of the Galveston County Drainage District Number Two (District) criteria, which currently defers to the methodology described in the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM)*, dated July 2019. This version of the PCPM includes updates to consider ATLAS 14 rainfall, and as such the study includes recognition of ATLAS 14 rainfall.

The hydraulic modeling includes a coupled 1d/2d model. The models were developed in consideration of guidance by the U.S. Army Corps of Engineers Hydrologic Engineering Center (HEC) and the Harris County Flood Control District's *Two-Dimensional Modeling Guidelines.*

The study is based on current land use and channel conditions, and also considers currently planned and imminent developments. Specifically, the proposed Willowood Subdivision, a 118-acre proposed single family residential development adjacent to and between Ditch 7A and Ditch 7B that includes four detention basins, is included in the evaluation. The floodplain modeling and mapping of Ditch 7A and Ditch 7B described herein have been prepared for the District as part of the development evaluation. The Drainage Impact Analysis for Willowood Subdivision is prepared under a separate report.

This report and supporting models will be submitted to Galveston County Drainage District Number Two (District) for their consideration and potential adoption.

2.0 Introduction

The Ditch 7 watershed is one of the nine watersheds within the boundaries and jurisdiction of Galveston County Drainage District Number Two (District). The Ditch 7 system consists of several ditches, with the main ditches being two major forks of Ditch 7 known as Ditch 7A and Ditch 7B along with Ditch 7 as it drains to Moses Lake. To date, there are no known hydrologic and hydraulic studies of Ditch 7, Ditch 7A, and Ditch 7B. This report describes and summarizes a study conducted using HEC-HMS and HEC-RAS to determine peak flowrates and inundations along these ditches. The HEC-RAS model utilized a combined one-dimensional/two-dimensional (1d/2d) model, with the channels modeled using the 1d regime and the overbank and overflow areas modeled using a 2d regime.

2.1 Description of Project Area

The Ditch 7 watershed is mostly within the City of Texas City, however a southern portion of the watershed is within the City of La Marque. Ditch 7, Ditch 7A, and Ditch 7B are all located within the City of Texas City. Exhibit 1 depicts the location of the Ditch 7 watershed and the primary ditches. The District's Watershed Map is provided as Attachment 1. The hydrologic study considers the portion of the watershed upstream of Loop 197 North (25th Avenue). There is a small portion of the watershed downstream of Loop 197 North, however this area is dominated by the tidal influence of Moses Lake and has a negligible influence on flood flows and flood elevations.

Exhibit 2 provides an aerial photograph of the Ditch 7 watershed from the District Map. The upper half of the watershed is developed, with the development consisting primarily of residential neighborhoods along with some multi-family and commercial areas along the main corridors. The lower half is mostly undeveloped, with the development consisting of the major transportation corridors along with intermittent industrial, commercial, and residential development. According to the District map, the watershed drains an area of 2.91 square miles at Loop 197 North.

There major roadways in the watershed are Loop 197 North, State Highway 146, FM 1764, State Highway 3, and FM 1765. FM 1765 forms the boundary between the Cities of Texas City and La Marque. There is a Union Pacific Rail Line that runs generally parallel and west of State Highway 146.

Exhibit 2 also depicts the limit of the channel study. Ditch 7A and Ditch 7B are both studied from State Highway 3 downstream to their confluence with Ditch 7. Ditch 7 is studied downstream to Loop 197 North. Although the hydrologic calculations for Ditch 7 terminate at Loop 197 North, the HEC-RAS study was continued a short distance downstream into Moses Lake to capture the influence of the Loop 197 North crossing.

2.2 FEMA Special Flood Hazard Areas

According to FEMA Flood Insurance Rate Map (FIRM) Panel No. 48167C0265G, dated August 15, 2019, the watershed is entirely in the Shaded Zone "X", which represents areas subject to flooding from a 0.2% annual probability event (also known as the 500-year event). A portion of the area is also in the Zone AE floodplain, which represents areas subject to inundation from the 1% annual probability event (also

known as the 100-year event) that have computed Base Flood Elevations. Exhibit 3 depicts these Special Flood Hazard Areas.

Based on a review of the FIRM Panel and FEMA's *Flood Insurance Study, Galveston County and Incorporated Areas,* dated August 15, 2019, the inundation depicted on the FIRM is from coastal surge flooding and does not represent riverine flooding from rainfall in the watershed. The coastal elevations are computed along transect lines which are shown on the exhibit. The 100-year coastal surge elevation is shown as a Base Flood Elevation on the FIRM Panel and is also shown, as elevation 5.0, on Exhibit 2. Transect Line 86 runs through the project area. The 100-year coastal surge elevation is 5.0. Based on a profile presented in the *Flood Insurance Study* and the 500-year coastal surge elevation is between elevation 15.0 and 17.0 within the Ditch 7 watershed.

The information provided on the FIRM panels and within the *Flood Insurance Study* confirms that Ditch 7 and its tributaries are not FEMA studied streams.

2.3 Elevation Data

All source elevation data and all elevations cited in this report are in feet above Mean Sea Level based on the 1988 North American Vertical Datum (NAVD 88).

Elevation data for this analysis is a blend of the Upper Coastal Lidar data acquired by a partnership between the Texas Water Development Board, Houston-Galveston Area Council, and United States Geologic Survey in 2018; and survey data acquired by Costello, Inc. (now part of Pape Dawson) in the fall of 2023.

The lidar data was utilized for most of the elevation data, including overland areas and portions of the channel cross sections. The survey data was used to augment the lidar data in consideration of the limitations of the lidar data – specifically the capture of specific details and elevations associated with bridge and culvert crossings and the capture of bathymetry in areas where the lidar was unable to penetrate a water surface.

The survey included incremental channel cross sections along Ditch 7, Ditch 7A, and Ditch 7B, including elevations below the water surface. The locations of these sections are shown on Exhibit 4. These cross sections were utilized to develop a TIN and subsequent digital elevation model using ArcGIS software. There are software limitations to this method, however the resultant digital elevation model (DEM) was accurate at the location of the cross sections – and was used to develop a one-dimensional HEC-RAS geometry for the surveyed channel. Within HEC-RAS, RAS Mapper was utilized to convert the one-dimensional geometry into a DEM for the surveyed channel. This channel DEM was then merged with the lidar DEM to develop an integrated surface that considers the bathymetry along the channels.

Exhibit 5 depicts the resultant blended DEM. This elevation data was incorporated into the HEC-RAS model and was also used in the verification and determination of drainage boundaries and in the computation of hydrologic parameters (see Section 3.0).

3.0 Hydrology

Hydrographs were developed for each of the subareas in accordance with the methodology described in the Harris County Flood Control District's *Policy Criteria & Procedure Manual (PCPM),* dated July 2019, as the Galveston County Drainage District Number Two criteria defers to the Harris County Flood Control District Criteria until Galveston County releases an updated Drainage Criteria Manual.

3.1 Watershed Boundary and Drainage Sub-watersheds

The watershed boundary from the District map was reviewed in consideration of the Lidar topography and drainage infrastructure, and portions of the boundary were amended to reflect ground conditions. Based on the revised drainage determination, the total drainage area is computed to be 3.22 square miles, which is 0.31 square miles greater than the watershed area depicted on the District map (of this approximately 0.10 square miles is due to extending the downstream boundary slightly downstream). The District and updated drainage area boundaries are depicted in Exhibit 6.

The watershed was further subdivided into six sub-watershed areas to facilitate the hydrologic analysis. This includes three sub-watersheds that drain to Ditch 7A (sub-watersheds 7A1, 7A2, and 7A3), four sub-watersheds to Ditch 7B (sub-watersheds 7B1, 7B2, 7B3, and 7B4) and a single sub-watershed to Ditch 7 (Sub-watershed 7). These sub-watersheds are also depicted on Exhibit 6. The Ditch 7 watershed drains a total of 3.22 square miles. Ditch 7A drains 0.84 square miles, and Ditch 7B drains 1.88 square miles.

3.2 Hydrologic Methodology

The Harris County Flood Control District legacy hydrology uses the Clark Unit Hydrograph methodology and the Green and Ampt loss method to compute runoff hydrographs for a 24-hour ATLAS 14 based hypothetical event. The Clark Unit Hydrograph utilizes two parameters, Time of Concentration (TC) and Storage (R) to define the shape of the hydrograph. Historically, the Flood Control District's empirically developed Clark Unit Hydrograph equations were utilized to develop the Clark TC and R parameters. Recently, the Flood Control District has shifted to a different method, the Basin Development Factor, to develop Clark Unit Hydrograph parameters. Both of these methods were developed from the evaluation of gauge data, and the Flood Control District notes that neither method is appropriate for sub-watersheds less than one square mile in area.

For drainage areas between 50 acres and 640 acres (one square mile), the PCPM recommends the use of the Flood Control District's Site Runoff Curves. These curves compute the peak flowrate based on the drainage area and percentage of impervious cover and have been updated in consideration of ATLAS 14 rainfall. The curves are described in Section 3.3 of the PCPM and presented graphically for the 2-year, 10-year, 100-year, and 500-year events in Exhibits 3-1, 3-2, 3-3, and 3-4 of the PCPM. They can also be developed using the following equation:

$$Q = bA^m$$

Where Q = peak flowrates (cfs)
A = drainage area (acres)
m = 1.0 for A = 1-20, 0.786 for A = 20-640
b = variable dependent on impervious cover, see Table 1

Table 1: Harris County Flood Control District Site Runoff Curves
Determination of "b" Parameter

Impervious Cover	2-Year		10-Year		100-Year		500-Year	
	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac	≤ 20 Ac	> 20 Ac
0%	0.7	1.4	1.3	2.4	2.4	4.6	3.6	6.8
10%	0.9	1.8	1.6	3.0	2.9	5.5	4.3	8.1
20%	1.2	2.2	1.9	3.6	3.4	6.5	5.0	9.5
30%	1.4	2.7	2.3	4.4	4.1	7.7	5.8	11.0
40%	1.7	3.3	2.8	5.2	4.7	8.9	6.6	12.6
85%	2.3	4.3	3.5	6.6	5.7	10.9	8.0	15.1

Note: Apply linear interpolation between b value with the 85% impervious cover value the maximum

Runoff hydrographs were computed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events using the software package HEC-HMS version 4.11. The primary inputs for the HEC-HMS model are the precipitation, runoff losses, and unit hydrograph parameters. The following sub-sections describe the determination of the input parameters and the HEC-HMS hydrologic modeling.

3.2.1 Land Use and Peak Flowrates (Site Runoff Curves)

Exhibit 7 shows the sub-watershed delineations along with the land use and longest flowpath for each sub-watershed. The sub-watersheds determined for the Ditch 7 watershed are all less than one square mile in size, therefore the Site Runoff Curves were utilized to determine the peak flowrates. The land use was determined from aerial photographs and the proposed development plans for the Willowood Subdivision. The land use was used to determine the percentage impervious for each of the sub-watersheds using the assumed impervious cover values presented in Table 2.

Table 2: Land Use vs. Impervious Cover

Land Use	Impervious
Woods	0%
Grass/Range	0%
Road Right-of-Way	80%
Greenspace	15%
Water	100%
Subdivision - 1 Ac Lots	25%
Subdivision - 1/6 Ac Lots	40%
Multi-Family	85%
Commerical	85%
Industrial	65%

3.2.2 Precipitation

The *Criteria Manual* provides precipitation data based on the NOAA TP-40 report from 1961, however this has been superseded and replaced by the NOAA ATLAS-14 rainfall data published in 2018. Table 3 summarizes the NOAA ATLAS 14 point rainfall precipitation estimate, which was obtained from the National Weather Service ATLAS 14 online Precipitation Frequency Data Server for a location (Latitude: 29.3907°, Longitude: -94.9717°) at the center of the Ditch 7 watershed.

Table 3: NOAA ATLAS 14 Precipitation

Duration	Point Rainfall (inches)					
	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
5 min	0.755	0.866	1.07	1.22	1.37	1.75
10 min	1.20	1.41	1.70	1.94	2.18	2.76
15 min	1.52	1.78	2.14	2.42	2.72	3.58
30 min	2.17	2.53	3.03	3.42	3.83	4.95
1 hr	2.91	3.42	4.13	4.68	5.27	6.98
2 hr	3.77	4.54	5.68	6.6	7.64	10.6
3 hr	4.32	5.30	6.76	7.99	9.39	13.3
6 hr	5.28	6.60	8.62	10.4	12.4	18.1
12 hr	6.27	7.89	10.4	12.5	15.0	22.5
24 hr	7.31	9.22	12.2	14.7	17.7	26.9

3.2.3 Loss Parameters

The Green and Ampt method was utilized to determine rainfall losses due to ground infiltration, evaporation, depression storage, and other mechanisms. While the PCPM is silent on the selection of the loss methodology, the Flood Control District has utilized the Green and Ampt method since the Tropical Storm Allison Recovery Project in the early 2000's. Green and Ampt loss function is an empirical method that determines an initial loss (or initial abstraction) and then a cumulative loss over time.

The input parameters utilized in this study are taken from the methodology described in the *Dickinson Bayou Watershed, Regional Drainage Plan, Drainage Criteria Manua,* dated August 1992. The parameters are described below:

Initial Deficit (DTHETA): Also known as the "soil moisture deficit", the difference between the maximum amount of moisture which a soil can hold and the given amount of moisture present in the soil at any given time. Expressed as a ratio. *Dickinson Bayou Value: DTHETA = 0.36*

Suction (PSIF): Also known as "wetting front suction" and represents the capillary suction which draws water into the soil, measured at the wetting front, or the limit of penetration of water into the soil. The wetting front separates wet soil from the dry soil. Expressed in inches. *Dickinson Bayou Value: PSIF = 11.20 in*

Conductivity (XKSAT): hydraulic conductivity of saturated soil, the ratio of the rate of flow of water through a soil to the energy gradient causing that flow. Hydraulic conductivity is a measure of soil permeability. Expressed in inches per hour. *Dickinson Bayou Value: XKSAT = 0.02 in/hr*

Impervious Cover: The percentage of impervious cover in the sub-watershed, see Table 5.

3.2.3 Clark Unit Hydrograph Parameters and Peak Sub-WatershedFlowrates

Clark Unit Hydrograph parameters TC and R are used to determine the shape of hydrographs given the contributing drainage area and excess runoff (precipitation less rainfall infiltration and other losses). These parameters are defined as follows:

Time of Concentration (TC): The time required for storm runoff to flow from the most remote point in a subarea to the outlet point, in hours.

Watershed Storage Coefficient (R): Indicator of the available stormwater storage volume within a watershed, in hours. This storage volume may be provided in depressions or low areas, ponds, or in the channel and flood plain of the stream under consideration. The relative amount of storage volume within a watershed varies directly with the storage coefficient, i.e., the higher the storage coefficient, the greater the storage volume.

For this study, the time of concentration (TC) was determined based on the travel time along the longest flowpath in the sub-watershed. The NRCS TR-55 methodology was applied, which calls for the determination of travel time associated with sheet flow, shallow concentrated flow, pipe flow, and channel flow. Table 4 summarizes the TC for each of the sub-watersheds.

Table 4: Time of Concentration (Clark Parameter TC)

Subarea	**7A1**	7A2	7A3	7B1	7B2	7B3	7B4	70
Sheet Flow								
Length (ft)	300	130	190	300	300	250	300	300
Surface	Woods	Range	Woods	Range	Range	Range	Range	Range
N	0.40	0.13	0.40	0.13	0.13	0.13	0.27	0.40
Slope (ft/ft)	0.0020	0.0050	0.0074	0.0033	0.0020	0.0020	0.0020	0.0067
2-Yr 24-Hr Precip (in)	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32
Travel Time (min)	100.7	14.6	41.5	33.4	41.0	28.0	73.6	62.2
Shallow Concentrated Flow								
Length (ft)	1920	1190	4010	4490	1360	1250	4060	920
Surface	Unpaved	Paved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved
Slope (ft/ft)	0.0032	0.0050	0.0020	0.0021	0.0020	0.0020	0.0020	0.0024
Velocity (fps)	0.92	1.44	0.72	0.75	0.72	0.72	0.72	0.79
Travel Time (min)	34.9	13.8	92.6	100.3	31.4	28.9	93.8	19.4
Ditch Flow								
Length	1690		5740	1430	2580		3750	5850
Slope (ft/ft)	0.0012		0.0003	0.0028	0.0004		0.0001	0.0009
Velocity (fps)	2		2	2	2		2	2
Travel Time (min)	14.1		47.8	11.9	21.5		31.3	48.8
Time of Concentration (TC)								
Tc (min)	149.7	28.4	182.0	145.6	93.9	56.9	198.6	130.4
TC (hr)	2.50	0.47	3.03	2.43	1.57	0.95	3.31	2.17

The value for TC, along with the drainage area, Green and Ampt parameters, and ATLAS 14 precipitation were input in HEC-HMS. initial values for the Clark Unit Hydrograph value R were assumed for each sub-

watershed. A 100-year even was executed, and the R value was then adjusted until the HEC-HMS simulation returned 100-year peak flowrates that matched the peak flowrates computed using the Site Runoff Curves. The resultant TC and R values were applied for all frequencies.

Table 5 summarizes the TC and R values and supporting parameters. Table 6 presents the computed peak flowrates for each sub-watershed for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events, and also presents a comparison of the 10-year and 100-year events using the Site Runoff Curves.

Table 5: HCFCD Site Runoff Curves and Clark Unit Hydrograph Parameters

Subarea				HCFCD Site Runoff Curves					Clark Unit Hydrograph	
Name	Area (acres)	Area (sm)	% Impervious	b10	b100	m	10-Yr (cfs)	100-Yr (cfs)	TC (hr)	R (hr)
7A1	139.4	0.2178	25.4%	4.03	7.14	0.786	195.2	346.1	2.50	2.186
7A2	69.7	0.1089	37.0%	4.96	8.54	0.786	139.3	239.9	0.47	1.416
7A3	330.8	0.5169	15.2%	3.31	6.02	0.786	316.3	575.0	3.03	4.240
7B1	514.2	0.8034	42.6%	5.28	9.01	0.786	713.8	1218.7	2.43	2.476
7B2	243.0	0.3797	31.6%	4.53	7.90	0.786	339.9	592.4	1.57	2.514
7B3	75.4	0.1178	42.1%	5.27	8.99	0.786	157.4	268.9	0.95	1.240
7B4	368.3	0.5755	13.2%	3.19	5.82	0.786	332.2	605.7	3.31	4.600
70	319.3	0.4989	26.3%	4.11	7.26	0.786	381.6	674.7	2.17	3.153

Table 6: Computed Subarea Peak Flowrates

Subarea	Peak Flowrate (cfs)						Difference from Site Runoff Curves (cfs)	
	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr	10-Yr	100-Yr
7A1	155.1	192.3	247.6	293.8	346.1	495.1	-2.9	0.0
7A2	119.0	143.6	179.2	208.0	239.9	330.9	4.3	0.0
7A3	242.2	305.8	401.8	482.6	575.0	842.1	-10.5	0.0
7B1	547.3	677.5	871.9	1034.4	1218.8	1745.6	-36.3	0.1
7B2	270.9	333.9	427.5	504.7	592.4	844.3	-6.0	0.0
7B3	133.3	160.9	200.7	233.1	268.9	371.3	3.5	0.0
7B4	252.2	319.5	421.3	507.3	605.7	890.7	-12.7	0.0
70	297.5	370.6	479.9	571.0	674.7	973.2	-11.0	0.0

4.0 Hydraulic Analysis (Combined 1D/2D HEC-RAS)

A coupled 1d/2d unsteady flow HEC-RAS model was utilized to compute peak flowrates and inundations for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events. The hydrographs described in Section 3.0 were introduced into HEC-RAS as boundary conditions. The physical channel network, bridges and culverts, and overland flow areas are described in the geometry. This section describes the HEC-RAS model development.

4.1 Geometry Data

Exhibit 8 presents a schematic of the HEC-RAS model. The model uses a one-dimensional flow regime to model flow within the channels, including areas within the channel banks and the near overbank extents. The two-dimensional regime was utilized to model the overbank areas away from the channel. The two-dimensional model component was selected because of potential overflows between Ditch 7A and Ditch 7B.

4.1.1 Channel Cross Sections

Channel cross sections were developed for HEC-RAS along Ditch 7, Ditch 7A, and Ditch 7B from RAS Mapper using the terrain model from the hybrid lidar and surveyed bathymetery. RAS Mapper was used to compute reach lengths along the main channel. The main overbank areas were modeled in the two-dimensional regime, although there are some small overbank areas within the one-dimensional regime that are reflected in the cross sections. The overbank areas are near to the main channel section, and therefore the channel reach length was also used for the right overbank and left overbank reach lengths.

The channels modeled in this study are all subject to maintenance and in good condition. For Ditch 7A, a Manning's "n" value of 0.04 was used to reflect the maintained condition of the trapezoidal channel. Ditch 7 and Ditch 7B have larger tidal areas that lack vegetation, and therefore the Manning's "n" value was decreased slightly relative to Ditch 7A. For these channels, an "n" value of 0.035 was assigned for the main channel. For all channels, an overbank "n" value of 0.05 was used. These values were only applied in locations proximate to the channel cross section that are typically well maintained as most of the overbank areas are modeled in the two-dimensional regime.

The confluence of Ditch 7A and Ditch 7B was modeled as a storage area. This is a more stable method than the HEC-RAS junction and returns similar results. A small storage area was determined and a stage vs. storage relationship was developed from the hybrid terrain data.

4.1.2 Bridges and Culverts

The roadway, railroad, and canal crossings were modeled using survey data obtained from the Costello survey with some augmentation with lidar data (to confirm top of road elevations). Table 3 lists the bridges and culverts in the model. The survey data did not capture information for the box culverts at Loop 197 North along Ditch 7 or at Oak Street (the very upstream portion of Ditch 7A and 7B). The crossings are generally at the modeling boundaries and were estimated from field visits, online imagery, and lidar data. Any inaccuracies from this are negligible to model results.

There are a few small pipeline crossings along Ditch 7B and one along Ditch 7. These were not introduced into the model, as their overall impact is negligible.

Table 4: Bridge and Culvert Crossing

Channel	Station	Crossing	Description	Data Source*
Ditch 7	1585	Loop 197 North (25th St N)	3 – 10' x 9' Concrete Box Culverts	1,3,4
Ditch 7	2827	SH 146 NB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7	2975	SH 147 Mainlanes	3-Span Bridge	1,2,3,4
Ditch 7	3122	SH 146 SB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7	4279	Union Pacific RR	3-Span RR Bridge	1,2,3,4
Ditch 7A	3258	GCWA Canal	2 - 60" Reinforced Concrete Pipes	1,2,3,4
Ditch 7A	3773	Unnamed Crossing	1 - 72" Steel Culvert	1,2,3,4
Ditch 7A	5565	FM 1764 Emmett Lowry Expwy	3 – 5' x 6' Concrete Box Culverts	1,2,3,4
Ditch 7A	7941	Unnamed Crossing	2 – 48" Corrugated Metal Pipes	1,2,3,4
Ditch 7A	10376	Oak St	1 – 60" Steel Culvert	
Ditch 7B	3400	FM 1764 Emmett Lowry Expwy WB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7B	3550	FM 1764 Emmett Lowry Expwy Mainlanes	3-Span Bridge	1,2,3,4
Ditch 7B	3700	FM 1764 Emmet Lowry Expwy EB Access Rd	3-Span Bridge	1,2,3,4
Ditch 7B	5406	N. Pine Rd	3-Span Bridge	1,2,3,4
Ditch 7B	6801	5th Ave North	2-Span Bridge	1,2,3,4
Ditch 7B	9434	Oak St	3 – 10' x 10' Concrete Box Culverts	1,3,4

**1-Lidar 2-Costello Survey 3-Online Imagery 4-Field Observation*

4.1.3 Two-Dimensional Flow Areas

The overbank areas were modeled in the two-dimensional regime. HEC-RAS 2D Areas were delineated and a mesh was defined on 80-foot spacings. Breaklines were established and enforced at high points in the terrain to prevent flow from "leaking" between cells. Table 5 lists the three 2D Areas.

Table 5: HEC-RAS 2D Areas

2D Area	Description
East_2d	Area in the east overbank area of Ditch 7 and Ditch 7B
West_2d	Area in the west overbank area of Ditch 7 and Ditch 7A
Middle_2d	Area between Ditch 7A and Ditch 7B

A shapefile representing land use was developed and imported into the HEC-RAS model to establish Manning's "n" values for the two-dimensional regime. Exhibit 8 displays the land use assignments and the Manning's "n" values. Table 6 summarizes the Manning's "n" values used for the two-dimensional area.

Table 6: Manning's "n" Values – 2D Areas

Land Use	Manning's "n"	HCFCD 2d Modeling Guidelines (Range/Recommended)
Commercial	0.03	0.02-0.06/0.03[1]
Grass	0.22	0.15-0.30/0.22[2]
Industrial	0.03	0.02-0.06/0.03[1]
Multi-Family	0.06	0.02-0.06/0.03[1]
Right-of-Way	0.02	0.02-0.06/0.03[1]
Subdivision	0.16	0.06-0.20/0.16[3]
Subdivision – Large Lot	0.18	0.06-0.20/0.18[4]
Woods	0.25	0.18-0.30/0.25[5]

HCFCD 2d Modeling Guidelines Land Categories: 1 – Developed High Intensity, 2 – Pasture/ Grasslands, 3 – Developed Medium Intensity, 4 – Developed Low Intensity, 5 – Forest/Shrubs

4.1.4 Lateral Weirs

Lateral weirs were utilized to connect the one-dimensional and two-dimensional regimes. There are spoil areas adjacent to the channel banks along much of the channel network, and the lateral weirs were generally aligned with the top of these spoil banks. A weir coefficient of 0.50 was applied for the lateral weirs.

There are two 48" storm pipes that collect runoff in a swale west of Willow Street just south of its intersection with 5th Avenue N. These pipes run along the south side of 5th Avenue N to Ditch 7B and have been included in the modeling of the lateral weir along the west side of this portion of Ditch 7B.

4.1.5 Willowood Subdivision and Detention Basins

Willowood Subdivision is an ongoing 116-acre development in the center of the watershed located along and between Ditch 7A and Ditch 7B. Four detention basins are proposed – two located along Ditch 7A (Pond 1 and Pond 2), one located along Ditch 7B (Pond 3), and a fourth located west of Willow Street (Pond 4) that will drain under Willow Street into Pond 3. The land use in the hydrology includes the proposed development. Additionally, fill will be placed in the developed areas to raise the lot areas above the 100-year flood levels (the high banks of the detention areas will also be elevated, however the high banks for the two basins in the Ditch 7B will be elevated but not above the 100-year flood elevation.

Details of the Willowood Subdivision and its drainage features are descried in a separate report prepared by Burton Johnson Engineering, Inc. entitled *Willowood Subdivision Drainage Impact Analysis, Galveston County Drainage District No. Two, City of Texas City, Texas.* The detention basins were modeled as storage areas. Ponds 1, 2, and 3 were connected to the adjacent streams with lateral structures, while Pond 4 was connected to Pond 3 using a storage area connection. The stage vs. storage relationships for each basin along with the outfall structure are the same as those utilized in the Drainage Impact Analysis.

4.1.6 Boundary Conditions

Boundary Conditions utilized in the HEC-RAS model consist of the hydrographs computed in HEC-HMS and described in Section 3.0 as well as an internal 2D boundary condition upstream of a culvert that drains

areas east of Willow Street to Ditch 7B. In addition, external 2D boundary conditions are defined at the perimeters of portions of the 2D Areas. These external 2D boundary conditions are necessary to manage flow at the perimeter of the 2D flow areas. Without a boundary condition, flow will consider the perimeter of the 2D area as a wall.

The downstream boundary condition for the model is based on normal depth flow. As noted in Section 2.2 of this report, the project area is influenced by coastal elevations in Moses Lake and Galveston Bay. This analysis and subsequent mapping only considers the impact and inundation from riverine flooding resulting from a rainfall event over the area. The analysis and mapping does not consider coastal flooding or a combined probability analysis. While a combined analysis will provide a more accurate depiction fo flood risk, the riverine model prepared for this project is more appropriate for evaluating potential impacts from development and formulating riverine floor risk mitigation measures.

The sub-watershed hydrographs were assigned to locations within the HEC-RAS model. Most hydrograph assignments were prorated portions of the sub-watershed. The prorations were determined by identifying subareas of each sub-watershed that define a smaller area to a channel reach or detention basin, and then developing a HEC-HMS model recognizing these subareas. These prorate areas are illustrated in Exhibit 8. The parent sub-watershed TC and R values were applied, however the actual impervious cover was computed for each subarea. The HEC-HMS output includes the total runoff volume for each subarea. The subarea volume was compared to the parent sub-watershed volume to develop the prorate percentage of flow. Table 7 summarizes the determination of the pro-rate percentages for each sub-watershed subarea.

Table 7: Sub-Watershed Hydrograph Prorata Calculation

Subwatershed (Parent)			Subwatershed Subarea (Child)					Prorata Volume %
Name	Area (sm)	Volume (ac-ft)	Name	Area (ac)	Area (sm)	% IMP	Volume (ac-ft)	
7A1	0.2178	186.3	7A1_1	69.1	0.1079	42.1%	94.4	50.7%
7A1	0.2178	186.3	7A1_2	33.3	0.0521	7.8%	43.5	23.3%
7A1	0.2178	186.3	7A1_3	37.0	0.0578	9.8%	48.4	26.0%
7A2	0.1089	94.6	7A2_1	18.4	0.0288	1.3%	23.8	25.2%
7A2	0.1089	94.6	7A2_P1	24.9	0.0389	50.6%	34.4	36.4%
7A2	0.1089	94.6	7A2_P2	26.3	0.0412	49.1%	36.4	38.5%
7A3	0.5169	435.8	7A3_1	64.0	0.1000	47.3%	88.1	20.2%
7A3	0.5169	435.8	7A3_2	266.8	0.4169	7.4%	347.7	79.8%
7B1	0.8034	703.6	7B1	514.2	0.8034	42.6%	703.6	100.0%
7B2	0.3797	323.6	7B2_1	177.9	0.2779	29.6%	239.1	73.9%
7B2	0.3797	323.6	7B2_C	62.2	0.0972	37.0%	84.5	26.1%
7B3	0.1178	107.2	7B3_1	13.4	0.0210	6.2%	17.5	16.3%
7B3	0.1178	107.2	7B3_P3	24.7	0.0386	61.8%	34.7	32.4%
7B3	0.1178	107.2	7B3_P4	40.2	0.0628	42.2%	55.0	51.3%
7B4	0.5755	483.9	7B4_1	187.9	0.2936	16.4%	248.0	51.3%
7B4	0.5755	483.9	7B4_2	180.4	0.2819	9.9%	235.9	48.7%
70	0.4989	427.3	70_1	257.3	0.4021	31.2%	346.7	81.1%
70	0.4989	427.3	70_2	62.0	0.0968	6.2%	80.6	18.9%

Table 8 summarizes the internal boundary conditions, which consist of the inflow hydrographs; and Table 9 summarizes the external boundary conditions, which consists of normal depth flow.

Table 8: Internal Boundary Conditions

1D/2D	HEC-RAS Location	Type	Sub-watershed	Subarea	% of Subwatershed Hydrograph
Ditch 7A					
1D	10400	Flow Hydrograph	7A1	7A1_1	50.7%
1D	10297 - 8696	Uniform Lateral Inflow	7A1	7A1_2	23.3%
1D	8597	Lateral Inflow	7A1	7A1_3	26.0%
1D	8384 - 6917	Lateral Inflow	7A2	7A2_1	25.2%
1D	Pond 1	Lateral Inflow	7A2	7A2_P1	36.4%
1D	Pond 2	Lateral Inflow	7A2	7A2_P2	38.5%
1D	8531 - 6241	Uniform Lateral Inflow	7A3	7A3_1	20.2%
1D	5317 - 667	Uniform Lateral Inflow	7A3	7A3_2	79.8%
Ditch 7B					
1D	9477	Flow Hydrograph	7B1	7B1	100%
1D	9225 – 7101	Uniform Lateral Inflow	7B2	7B2_1	73.9%
2D	Middle_L1: B20	Lateral Inflow	7B2	7B2_C	26.1%
1D	6446 - 5771	Uniform Lateral Inflow	7B3	7B3_1	16.3%
1D	Pond 3	Lateral Inflow	7B3	7B3_P3	32.4%
1D	Pond 4	Lateral Inflow	7B3	7B3_P4	51.3%
1D	5074 - 3832	Uniform Lateral Inflow	7B4	7B4_1	51.3%
1D	3194 - 499	Uniform Lateral Inflow	7B4	7B4_1	48.7%
Ditch 7					
1D	4313 - 1728	Uniform Lateral Inflow	70	70_1	81.1%
1D	1419 - 528	Uniform Lateral Inflow	70	70-_2	18.9%

Table 8: 2D Boundary Conditions (External)

1D/2D	HEC-RAS Location	Type	Descriptive Location	Slope (ft/ft)
2D	West_2d: West1	Normal Depth	Northwest Perimeter	0.0005
2D	West_2d: DS_Left	Normal Depth	Left Overbank at Mouth	0.0005
2D	East_2d: East 1	Normal Depth	Southeast Perimeter	0.0005
2D	East_2d: East 2	Normal Depth	East Perimeter	0.0005
2D	East_2d: DS_Right	Normal Depth	Right Overbank	0.0005
1D	Ditch 7: XS 328	Normal Depth	Mouth of Ditch 7	0.0005

5.0 Results

The resultant coupled 1d/2d HEC-RAS model was executed using HEC-RAS version 6.3.1. The results are presented in this section.

5.1 Inundation

Exhibit 9 depicts the inundation for the 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events. As the exhibit indicates, the inundation results in large floodplains. There are overflows and out of bank flooding even during the 5-year event. This inundation mapping, as well as the inundations presented in Exhibits 10 and 11 only reflect riverine flood risk and do not incorporate coastal flooding.

Exhibit 10 shows the 100-year inundation shaded by the computed 100-year water surface elevation. The map also includes 100-year elevation lines (similar to Base Flood Elevation lines on a FEMA Flood Insurance Rate Map). Exhibit 11 shows a 100-year depth grid based on the 100-year riverine model.

5.2 Computed Water Surface Elevations

Table 9 presents the computed water surface elevations along Ditch 7, Ditch 7A, and Ditch 7B. These elevations are based on a normal depth downstream boundary condition and do not consider the influence of Galveston Bay, which has a 100-year elevation of 5.0.

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	328	1.69	2.03	2.37	2.60	2.82	3.33	Moses Lake
Ditch 7	528	1.79	2.12	2.47	2.70	2.92	3.42	
Ditch 7	766	1.97	2.31	2.66	2.89	3.11	3.63	
Ditch 7	1030	2.03	2.36	2.71	2.95	3.17	3.68	
Ditch 7	1272	2.04	2.37	2.71	2.95	3.16	3.66	
Ditch 7	1419	2.18	2.50	2.84	3.07	3.29	3.80	
Ditch 7	1543	2.14	2.46	2.79	3.01	3.21	3.72	
Ditch 7	1639	2.60	3.00	3.46	3.81	4.18	4.99	Loop 197 North
Ditch 7	1728	2.66	3.08	3.54	3.91	4.30	5.11	
Ditch 7	1985	2.83	3.24	3.71	4.07	4.45	5.23	
Ditch 7	2269	3.01	3.41	3.86	4.22	4.59	5.36	
Ditch 7	2578	3.25	3.63	4.06	4.40	4.76	5.51	
Ditch 7	2795	3.43	3.82	4.25	4.58	4.93	5.66	
Ditch 7	2861	3.45	3.84	4.27	4.61	4.95	5.69	SH 146 NB Access Rd
Ditch 7	2913	3.46	3.85	4.28	4.61	4.96	5.70	
Ditch 7	3041	3.49	3.88	4.31	4.64	4.99	5.72	SH 146 Mainlanes
Ditch 7	3090	3.50	3.89	4.31	4.65	5.00	5.73	
Ditch 7	3163	3.51	3.90	4.32	4.66	5.01	5.74	SH 146 SB Access Rd
Ditch 7	3247	3.51	3.90	4.32	4.66	5.01	5.74	
Ditch 7	3834	3.64	4.03	4.45	4.79	5.13	5.86	
Ditch 7	4025	3.73	4.11	4.53	4.87	5.20	5.92	
Ditch 7	4219	3.79	4.17	4.59	4.92	5.25	5.94	
Ditch 7	4232	3.80	4.17	4.59	4.92	5.25	5.94	
Ditch 7	4313	3.88	4.28	4.74	5.11	5.47	6.21	Union Pacific RR
Ditch 7	4328	3.89	4.29	4.76	5.13	5.49	6.23	
Ditch 7A	10	3.89	4.29	4.76	5.13	5.49	6.23	Confluence Ditch 7
Ditch 7A	667	4.11	4.49	4.89	5.23	5.56	6.28	

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7A	1397	4.31	4.67	5.06	5.36	5.68	6.37	
Ditch 7A	2061	4.48	4.82	5.19	5.47	5.77	6.44	
Ditch 7A	2858	4.71	5.03	5.38	5.63	5.89	6.54	
Ditch 7A	3161	4.81	5.12	5.45	5.69	5.94	6.57	
Ditch 7A	3360	5.81	6.15	6.51	6.75	6.96	7.59	GCWA Canal
Ditch 7A	3428	5.84	6.17	6.53	6.76	6.97	7.59	
Ditch 7A	3645	5.87	6.20	6.55	6.78	6.99	7.60	
Ditch 7A	3746	5.88	6.21	6.56	6.79	6.99	7.61	
Ditch 7A	3801	6.56	6.75	6.94	7.07	7.20	7.68	Unnamed Crossing
Ditch 7A	3879	6.56	6.75	6.93	7.07	7.20	7.68	
Ditch 7A	4523	6.60	6.79	6.97	7.10	7.23	7.72	
Ditch 7A	5245	6.64	6.82	7.01	7.15	7.28	7.79	
Ditch 7A	5313	6.64	6.83	7.01	7.15	7.29	7.79	
Ditch 7A	5351	6.64	6.83	7.01	7.15	7.29	7.80	
Ditch 7A	5765	6.77	6.97	7.15	7.27	7.40	7.86	FM 1764
Ditch 7A	5994	6.79	6.99	7.18	7.31	7.44	7.88	
Ditch 7A	6241	6.84	7.06	7.27	7.41	7.56	8.01	
Ditch 7A	6531	6.88	7.13	7.38	7.53	7.71	8.19	
Ditch 7A	6917	6.92	7.18	7.46	7.62	7.80	8.30	
Ditch 7A	7417	7.09	7.40	7.70	7.88	8.06	8.56	
Ditch 7A	7879	7.17	7.50	7.81	7.99	8.17	8.66	
Ditch 7A	7920	7.19	7.52	7.84	8.01	8.19	8.68	
Ditch 7A	7968	8.14	8.75	9.13	9.31	9.45	9.77	Unnamed Crossing
Ditch 7A	8024	8.15	8.76	9.13	9.30	9.44	9.77	
Ditch 7A	8187	8.16	8.78	9.15	9.32	9.45	9.76	
Ditch 7A	8384	8.20	8.82	9.22	9.40	9.54	9.87	
Ditch 7A	8597	8.24	8.87	9.28	9.47	9.63	9.97	
Ditch 7A	8696	8.25	8.88	9.29	9.48	9.64	9.98	
Ditch 7A	8878	8.27	8.90	9.31	9.51	9.67	10.01	
Ditch 7A	9071	8.29	8.92	9.35	9.55	9.71	10.07	
Ditch 7A	9304	8.33	8.96	9.39	9.60	9.78	10.16	
Ditch 7A	9540	8.54	9.18	9.66	9.91	10.15	10.66	
Ditch 7A	9731	8.56	9.20	9.68	9.95	10.19	10.71	
Ditch 7A	10029	8.62	9.25	9.75	10.02	10.27	10.82	
Ditch 7A	10297	8.71	9.33	9.83	10.12	10.38	10.95	
Ditch 7A	10332	8.71	9.33	9.83	10.10	10.37	10.93	
Ditch 7A	10396	9.88	10.48	11.34	12.05	13.00	118.95	Oak St
Ditch 7A	10400	9.88	10.48	11.34	12.05	13.00	118.95	Study Limit
Ditch 7B	109	3.89	4.29	4.76	5.13	5.49	6.23	Confluence Ditch 7
Ditch 7B	499	4.05	4.45	4.92	5.29	5.65	6.35	
Ditch 7B	1230	4.22	4.61	5.09	5.45	5.81	6.48	
Ditch 7B	1784	4.31	4.71	5.19	5.55	5.90	6.56	
Ditch 7B	2517	4.46	4.86	5.36	5.72	6.06	6.71	
Ditch 7B	3194	4.58	4.97	5.48	5.84	6.16	6.79	
Ditch 7B	3354	4.60	4.99	5.51	5.88	6.20	6.83	
Ditch 7B	3441	4.63	5.04	5.58	5.97	6.31	7.01	FM 1764 WB Access Rd
Ditch 7B	3494	4.64	5.04	5.59	5.97	6.32	7.03	
Ditch 7B	3638	4.66	5.07	5.62	6.02	6.37	7.09	FM 1764 Mainlanes
Ditch 7B	3671	4.66	5.07	5.62	6.02	6.37	7.09	
Ditch 7B	3760	4.69	5.11	5.68	6.10	6.47	7.26	FM 1764 EB Access Rd
Ditch 7B	3832	4.70	5.11	5.68	6.10	6.47	7.25	
Ditch 7B	4292	4.74	5.15	5.75	6.19	6.58	7.42	

Table 9: 1D Computed Water Surface Elevations (Without Galveston Bay Influence)

Stream	RAS XS	Computed Water Surface Elevation (ft, NAVD 88)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7B	4354	4.74	5.16	5.75	6.19	6.58	7.42	
Ditch 7B	4426	4.75	5.16	5.75	6.19	6.59	7.42	
Ditch 7B	4555	4.76	5.18	5.77	6.20	6.60	7.44	
Ditch 7B	4729	4.79	5.21	5.79	6.23	6.63	7.46	
Ditch 7B	4932	4.83	5.25	5.82	6.25	6.64	7.47	
Ditch 7B	5074	4.84	5.26	5.82	6.25	6.64	7.47	
Ditch 7B	5292	4.89	5.31	5.85	6.26	6.65	7.46	
Ditch 7B	5468	5.12	5.59	6.12	6.47	6.81	7.57	N. Pine Rd
Ditch 7B	5771	5.13	5.61	6.15	6.49	6.84	7.58	
Ditch 7B	6446	5.25	5.72	6.26	6.55	6.87	7.59	
Ditch 7B	6730	5.31	5.77	6.27	6.53	6.85	7.58	
Ditch 7B	6867	5.54	6.07	6.59	6.85	7.15	7.83	5th Ave North
Ditch 7B	7101	5.60	6.13	6.65	6.91	7.22	7.91	
Ditch 7B	7892	5.81	6.33	6.86	7.15	7.48	8.14	
Ditch 7B	8213	5.89	6.40	6.92	7.21	7.53	8.17	
Ditch 7B	8699	6.15	6.68	7.23	7.56	7.88	8.55	
Ditch 7B	9084	6.53	7.12	7.75	8.14	8.49	9.21	
Ditch 7B	9225	6.57	7.17	7.80	8.20	8.54	9.24	
Ditch 7B	9346	6.62	7.22	7.87	8.28	8.63	9.35	
Ditch 7B	9469	6.58	7.22	7.95	8.45	8.93	10.13	Oak St
Ditch 7B	9477	6.57	7.20	7.92	8.41	8.88	10.06	Study Limit

5.3 Peak Flowrates and Hydrographs

Table 10 presents the computed peak flowrates along the one-dimensional reaches. These flowrates only consider the flow in the one-dimensional regime. Flow in the floodplain that is modeled in the two-dimensional regime are not considered.

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	1,189	1,248	1,409	1,594	1,728	1,856	2,180	Moses Lake
Ditch 7	1,198	1,250	1,412	1,594	1,731	1,864	2,195	
Ditch 7	1,183	1,233	1,390	1,567	1,698	1,826	2,146	
Ditch 7	1,168	1,223	1,378	1,551	1,693	1,820	2,146	
Ditch 7	1,154	1,213	1,361	1,524	1,656	1,793	2,074	
Ditch 7	1,144	1,206	1,355	1,526	1,665	1,809	2,075	
Ditch 7	1,139	1,204	1,353	1,526	1,662	1,811	2,026	
Ditch 7	1,139	1,204	1,353	1,527	1,662	1,813	2,026	Loop 197 North
Ditch 7	1,133	1,203	1,348	1,514	1,638	1,772	1,978	
Ditch 7	1,124	1,184	1,320	1,461	1,577	1,684	1,944	
Ditch 7	1,114	1,162	1,293	1,427	1,538	1,636	1,876	
Ditch 7	1,102	1,137	1,263	1,396	1,508	1,608	1,838	
Ditch 7	1,094	1,119	1,244	1,388	1,514	1,638	1,923	
Ditch 7	1,094	1,119	1,244	1,388	1,514	1,641	1,923	SH 146 NB Access Rd
Ditch 7	1,096	1,116	1,240	1,385	1,515	1,636	1,909	
Ditch 7	1,096	1,116	1,240	1,385	1,515	1,636	1,909	SH 146 Mainlanes
Ditch 7	1,094	1,109	1,231	1,373	1,502	1,625	1,905	
Ditch 7	1,094	1,109	1,231	1,373	1,502	1,625	1,905	SH 146 SB Access Rd
Ditch 7	1,090	1,104	1,226	1,366	1,495	1,612	1,870	

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7	1,067	1,056	1,163	1,287	1,394	1,489	1,581	
Ditch 7	1,059	1,040	1,146	1,266	1,377	1,473	1,575	
Ditch 7	1,074	1,024	1,127	1,246	1,371	1,495	1,661	
Ditch 7	1,073	1,023	1,126	1,242	1,365	1,487	1,649	
Ditch 7	1,073	1,023	1,127	1,244	1,370	1,487	1,651	Union Pacific RR
Ditch 7	1,074	1,023	1,128	1,248	1,376	1,493	1,664	
Ditch 7A	263	271	298	304	309	301	370	Confluence Ditch 7
Ditch 7A	262	271	300	327	319	336	385	
Ditch 7A	240	241	265	287	285	290	299	
Ditch 7A	220	214	231	246	253	255	295	
Ditch 7A	197	182	190	197	200	195	210	
Ditch 7A	188	170	174	177	177	172	168	
Ditch 7A	188	170	175	177	178	175	177	GCWA Canal
Ditch 7A	185	167	171	175	178	180	212	
Ditch 7A	177	155	154	153	153	157	196	
Ditch 7A	161	132	120	109	107	114	170	
Ditch 7A	161	132	121	109	108	115	171	Unnamed Crossing
Ditch 7A	188	160	158	155	159	169	226	
Ditch 7A	170	143	153	170	192	219	325	
Ditch 7A	167	131	162	190	224	252	292	
Ditch 7A	170	134	168	201	240	273	322	
Ditch 7A	181	148	191	225	266	304	357	
Ditch 7A	181	149	191	242	269	308	364	FM 1764
Ditch 7A	191	158	212	283	317	370	468	
Ditch 7A	186	158	213	285	323	372	480	
Ditch 7A	180	112	153	208	233	265	341	
Ditch 7A	172	128	164	201	220	236	281	
Ditch 7A	151	124	159	181	195	206	240	
Ditch 7A	142	123	161	192	210	223	268	
Ditch 7A	142	123	158	185	201	214	249	
Ditch 7A	142	126	162	190	206	219	251	Unnamed Crossing
Ditch 7A	148	127	177	221	247	265	292	
Ditch 7A	138	131	174	232	265	293	353	
Ditch 7A	130	132	174	231	268	302	363	
Ditch 7A	149	98	129	172	200	228	275	
Ditch 7A	147	97	130	172	200	229	294	
Ditch 7A	118	95	128	171	203	238	318	
Ditch 7A	110	94	125	168	201	238	327	
Ditch 7A	105	91	122	164	198	233	323	
Ditch 7A	80	76	102	139	165	196	272	
Ditch 7A	76	75	99	135	161	190	269	
Ditch 7A	70	72	95	129	154	182	258	
Ditch 7A	64	70	92	124	148	174	247	
Ditch 7A	64	70	92	124	148	174	247	
Ditch 7A	64	79	97	126	149	175	247	Oak St
Ditch 7A	64	79	97	126	149	175	247	Study Limit
Ditch 7B	927	700	774	898	980	1,068	1,140	Confluence Ditch 7
Ditch 7B	924	700	775	901	967	1,043	1,092	
Ditch 7B	896	670	742	873	931	982	1,098	
Ditch 7B	881	646	721	873	958	999	1,130	
Ditch 7B	836	614	682	814	901	942	1,062	
Ditch 7B	863	595	674	862	1,027	1,144	1,521	

Table 10: 1D Peak Flowrates

Stream	RAS XS	Peak Flowrate (cfs)						Note
		5-Yr	10-Yr	25-Yr	50-YR	100-Yr	500-Yr	
Ditch 7B	862	596	675	862	1,031	1,167	1,541	
Ditch 7B	862	596	675	863	1,038	1,206	1,586	FM 1764 WB Access Rd
Ditch 7B	864	597	676	863	1,039	1,208	1,587	
Ditch 7B	864	597	676	864	1,042	1,213	1,596	FM 1764 Mainlanes
Ditch 7B	866	598	676	864	1,043	1,214	1,613	
Ditch 7B	866	598	676	864	1,045	1,222	1,636	FM 1764 EB Access Rd
Ditch 7B	906	613	703	872	1,068	1,256	1,675	
Ditch 7B	864	562	639	664	713	773	843	
Ditch 7B	844	558	647	662	710	761	818	
Ditch 7B	868	570	664	689	740	800	868	
Ditch 7B	853	562	663	649	678	724	765	
Ditch 7B	837	546	644	612	605	620	619	
Ditch 7B	816	524	619	589	553	529	475	
Ditch 7B	826	526	627	610	578	554	523	
Ditch 7B	827	536	648	682	660	659	718	
Ditch 7B	827	544	651	783	732	705	740	N. Pine Rd
Ditch 7B	1,011	639	692	785	637	583	633	
Ditch 7B	987	657	729	744	726	795	1,033	
Ditch 7B	975	663	731	913	957	1,053	1,267	
Ditch 7B	975	685	783	932	1,050	1,168	1,334	5th Ave North
Ditch 7B	962	690	783	939	1,065	1,181	1,361	
Ditch 7B	924	669	771	926	1,055	1,174	1,427	
Ditch 7B	977	613	753	924	1,054	1,172	1,466	
Ditch 7B	975	601	744	922	1,065	1,187	1,494	
Ditch 7B	904	550	684	876	1,038	1,186	1,582	
Ditch 7B	891	542	673	864	1,026	1,202	1,676	
Ditch 7B	891	543	674	866	1,030	1,208	1,735	
Ditch 7B	891	542	674	869	1,032	1,214	1,744	Oak St
Ditch 7B	891	542	674	868	1,032	1,215	1,744	Study Limit

Exhibit 11 shows Hydrograph Computation lines that represent hydrographs computed across Profile Lines in RAS Mapper. Four Hydrograph Computation Lines are identified along both Ditch 7A and Ditch 7B, and three Hydrograph Computation Lines are identified along Ditch 7. Exhibit 12 shows the hydrographs computed across the Hydrograph Computation Lines for the 5-year, 10-year, 25-year, 100-year, and 500-year events.

Exhibits

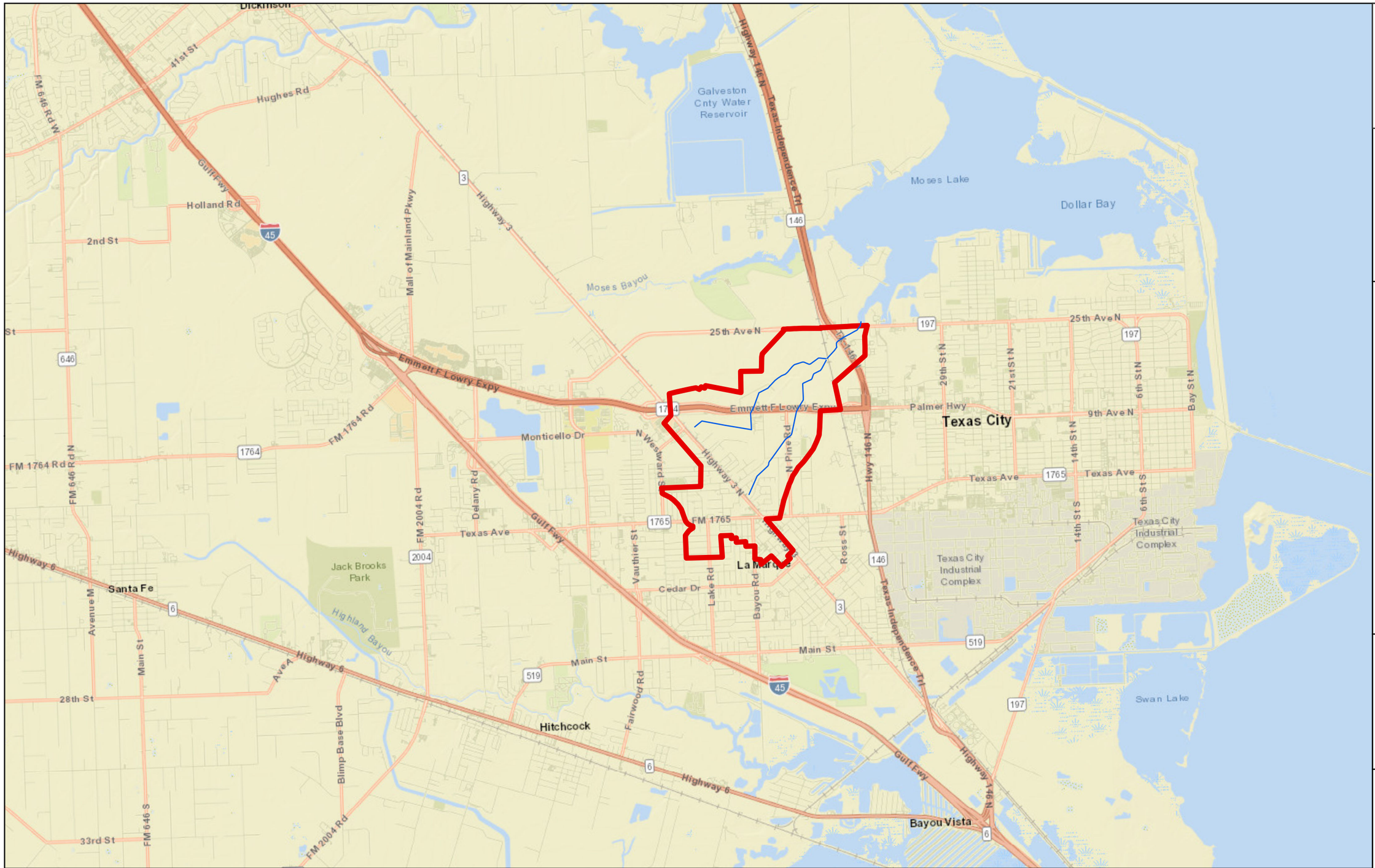


Exhibit 1 - Location Map

BJE

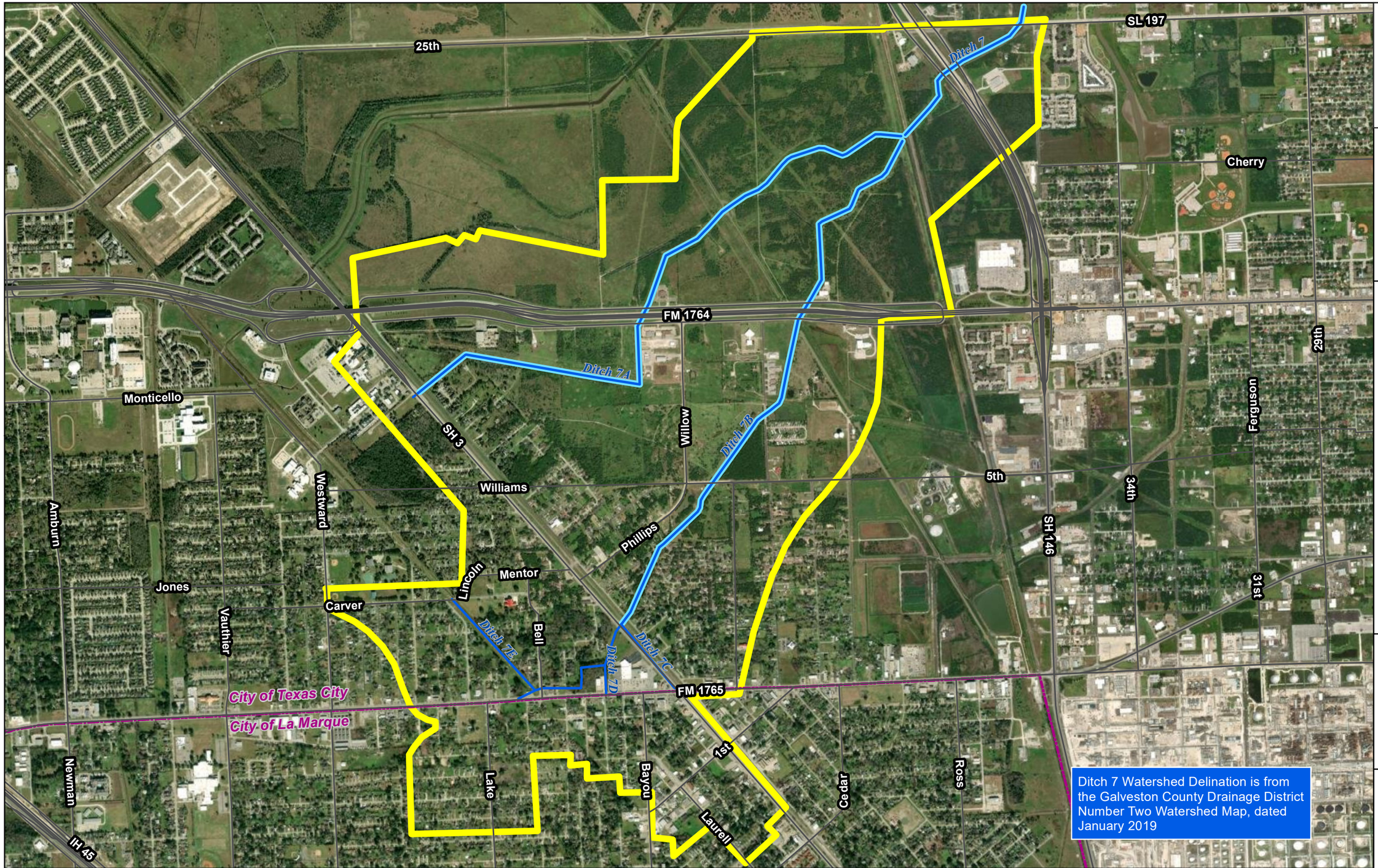
N
W E
S

0 0.5 1 Miles

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Ditch 7 Channels
Ditch 7 Watershed



BJE

N
W E
S

Feet
0 750 1,500

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- Roads
- Ditch 7 Channels
- Studied Channels
- City Limits
- Ditch 7 Watershed

Exhibit 2 - Ditch 7 Watershed

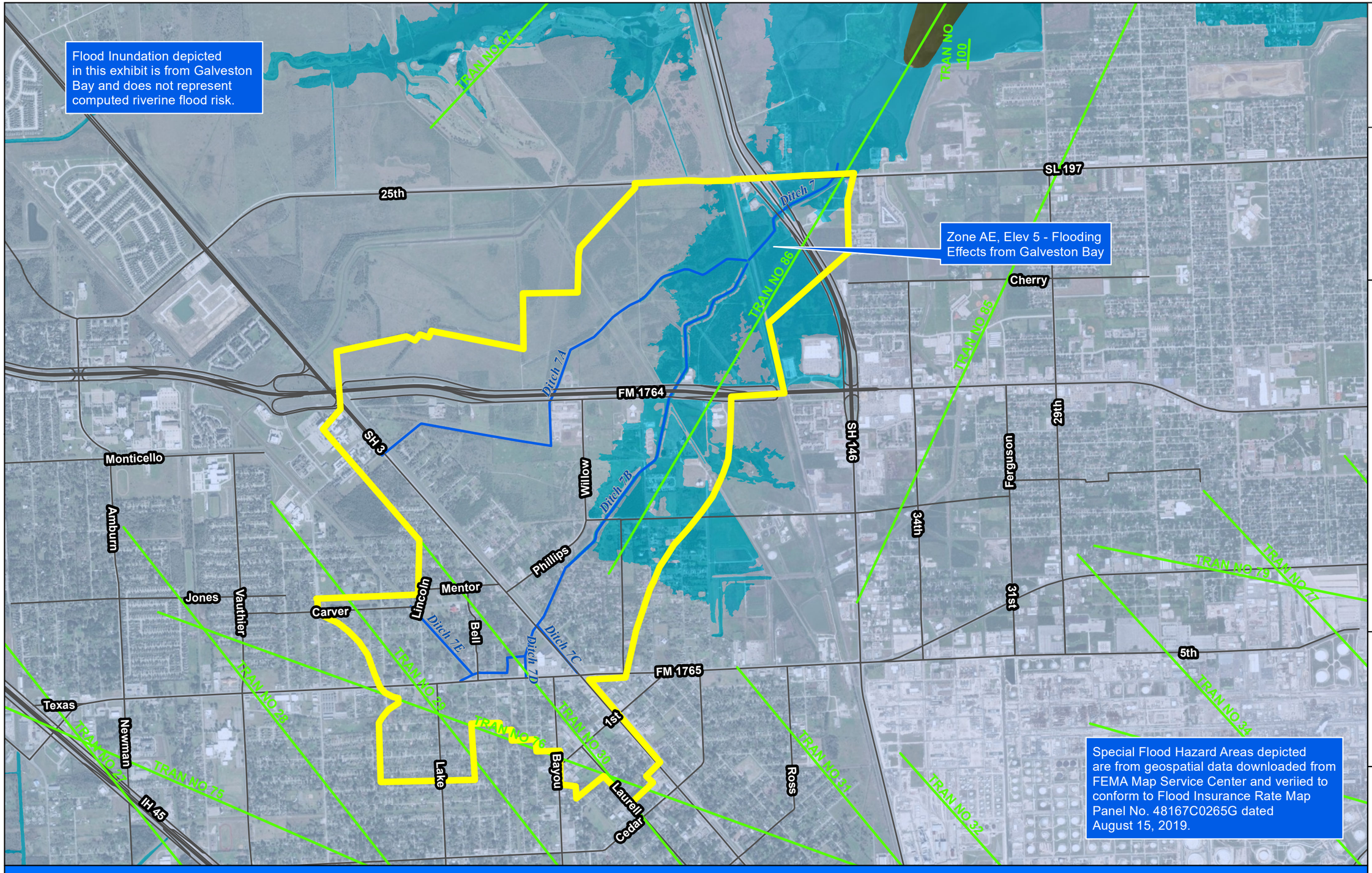


Exhibit 3 - FEMA Speical Flood Hazard Areas

BJE

N
W E
S

0 1,000 2,000 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- Ditch 7 Watershed
- S_CST_TSCT_LN
- Roads
- Ditch 7 Channels
- Zone AE (1%)
- Shaded Zone X (0.2%)

Exhibit 4 - Bathymetry and Survey

BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Survey Sections
Survey Points
Roads
Study Channels

Exhibit 5 - Topography and Digital Elevation Model

BJE

N
W
E
S

0 500 1,000 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, DITCH 7A, DITCH 7B)
Galveston County DD No. 2

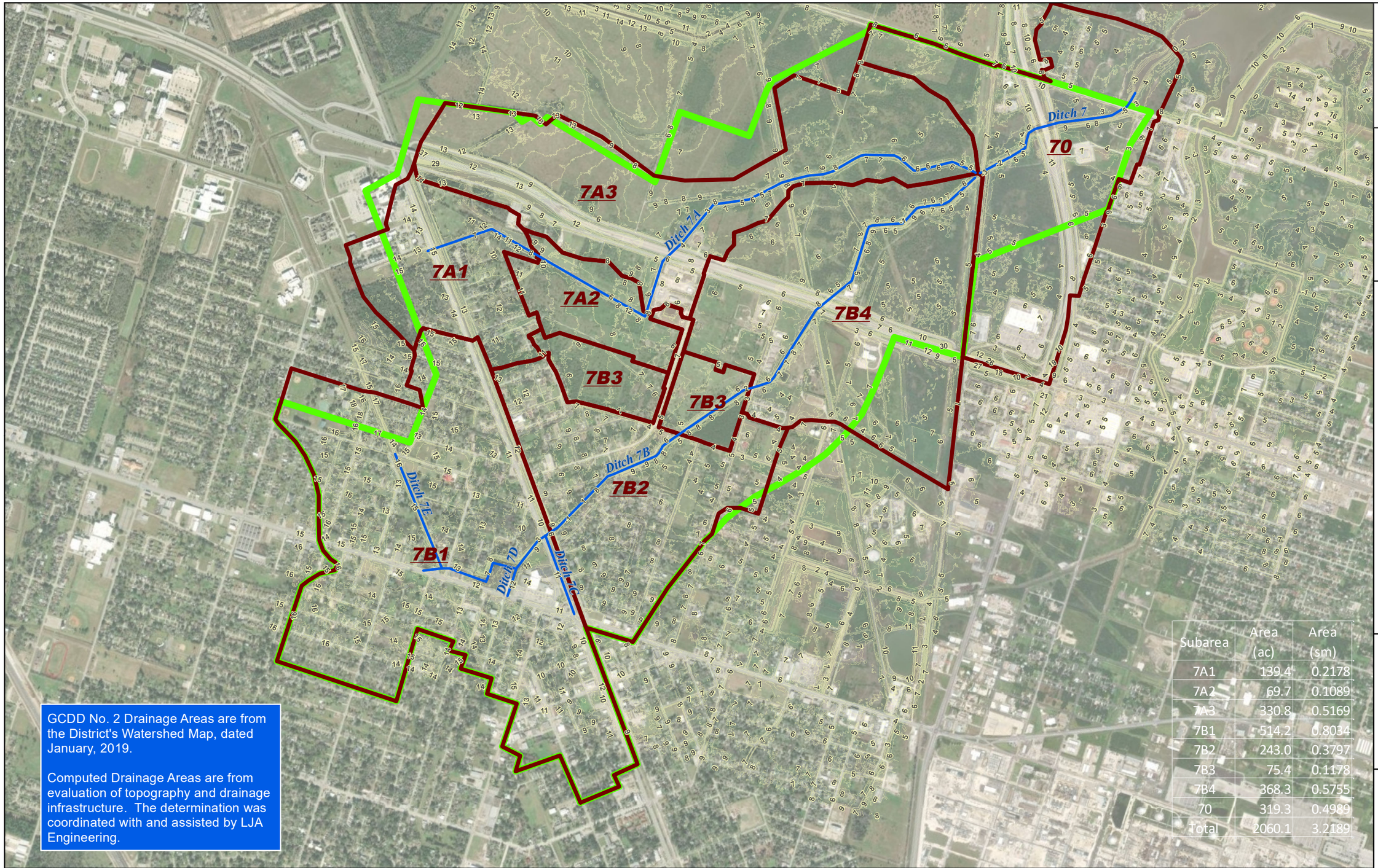
Floodplain Modeling & Mapping

- Study Channels
- Elevation Contour
- Ditch 7 Watershed
- Roads

DEM Elevation

High : 40

Low : -10



GCDD No. 2 Drainage Areas are from the District's Watershed Map, dated January, 2019.

Computed Drainage Areas are from evaluation of topography and drainage infrastructure. The determination was coordinated with and assisted by LJA Engineering.

Subarea	Area (ac)	Area (sm)
7A1	139.4	0.2178
7A2	69.7	0.1089
7A3	330.8	0.5169
7B1	514.2	0.8034
7B2	243.0	0.3797
7B3	75.4	0.1178
7B4	368.3	0.5755
70	319.3	0.4989
Total	2060.1	3.2189

Exhibit 6 - Subarea Map

BJE

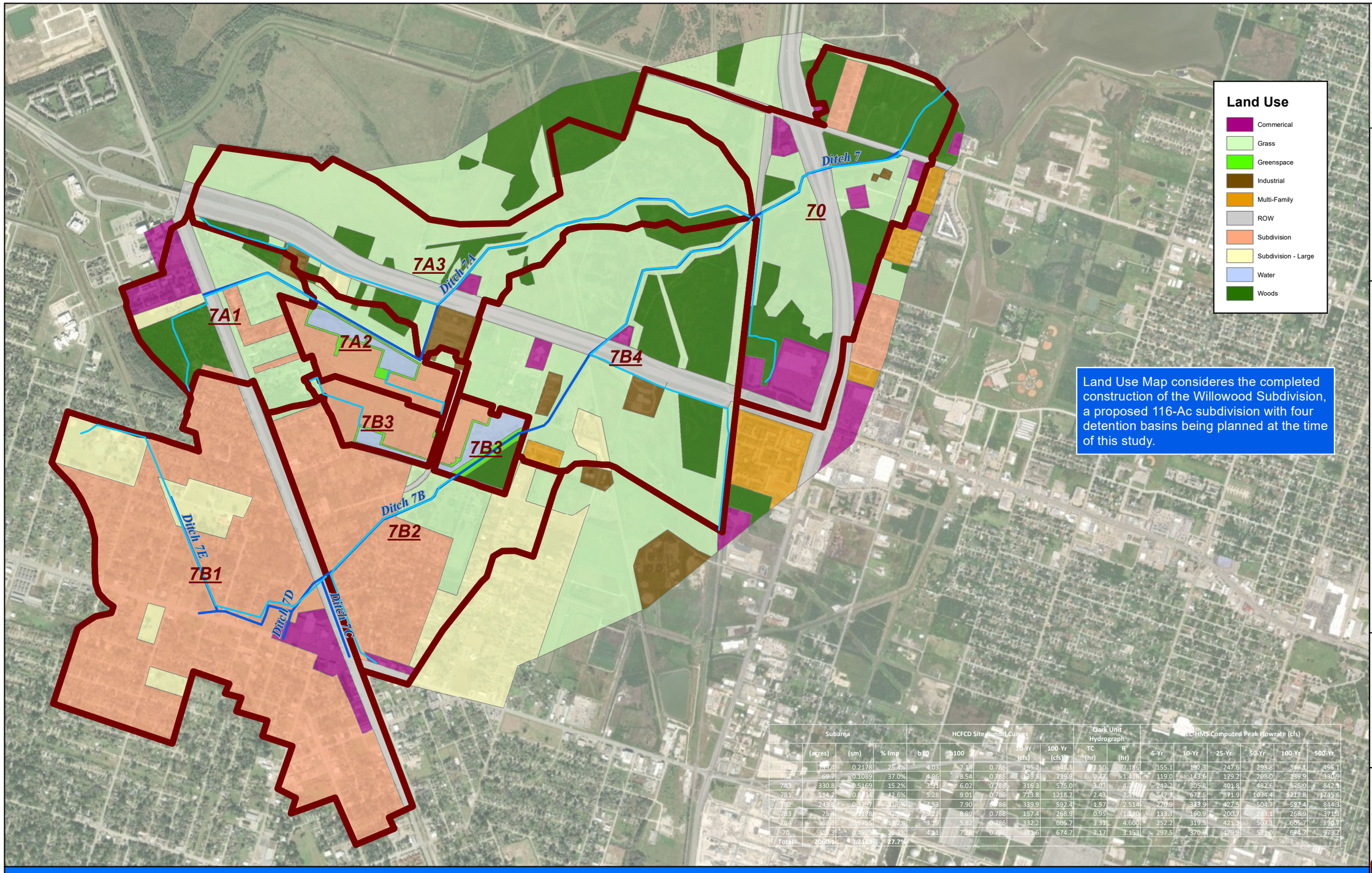
N W E S

0 750 1,500 Feet

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Ditch 7 Channels
Computed Drainage Area
GCDD No. 2 Drainage Area
Elevation Contour



Subarea				HCFCD Site Runoff Curves					Clark Unit Hydrograph		HEC-HMS Computed Peak Flowrate (cfs)					
	(acres)	(sm)	% Imp	b10	b100	m	10-Yr (cfs)	100-Yr (cfs)	TC (hr)	R (hr)	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
7A1	138.4	0.2178	25.4%	4.03	7.14	0.786	195.2	346.1	2.50	2.186	155.1	192.3	247.6	293.8	346.1	495.1
7A2	69.7	0.1089	37.0%	4.96	8.54	0.786	139.5	239.9	0.47	1.416	119.0	143.6	179.2	208.0	239.9	330.9
7A3	330.8	0.5169	15.2%	3.51	6.02	0.786	316.3	575.0	3.03	4.2	242.2	305.8	401.8	482.6	575.0	842.1
7B1	514.2	0.8034	42.6%	5.28	9.01	0.786	713.8	1218.7	2.43	2.470	547.3	677.5	871.9	1034.4	1218.8	1745.6
7B2	243.0	0.3797	31.6%	4.53	7.90	0.786	339.9	592.4	1.57	2.514	270.9	333.9	427.5	504.7	592.4	844.3
7B3	75.4	0.1178	42%	5.27	8.99	0.786	157.4	268.9	0.95	1.240	133.3	160.9	200.7	233.1	268.9	371.3
7B4	368.8	0.5763	13.2%	3.19	5.82	0.786	332.2	605.7	3.31	4.600	252.2	319.5	421.3	507.3	605.7	890.7
70	318.3	0.4973	29.3%	4.11	7.28	0.786	383.6	674.7	2.17	3.153	297.5	370.6	479.9	571.0	674.7	973.2
Total	2060.1	3.2183	27.7%													

Exhibit 7 - Hydrology

BJE

N
W
E
S

Feet
0 750 1,500

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Longest Flowpath
Ditch 7 Channels
Subwatershed Areas

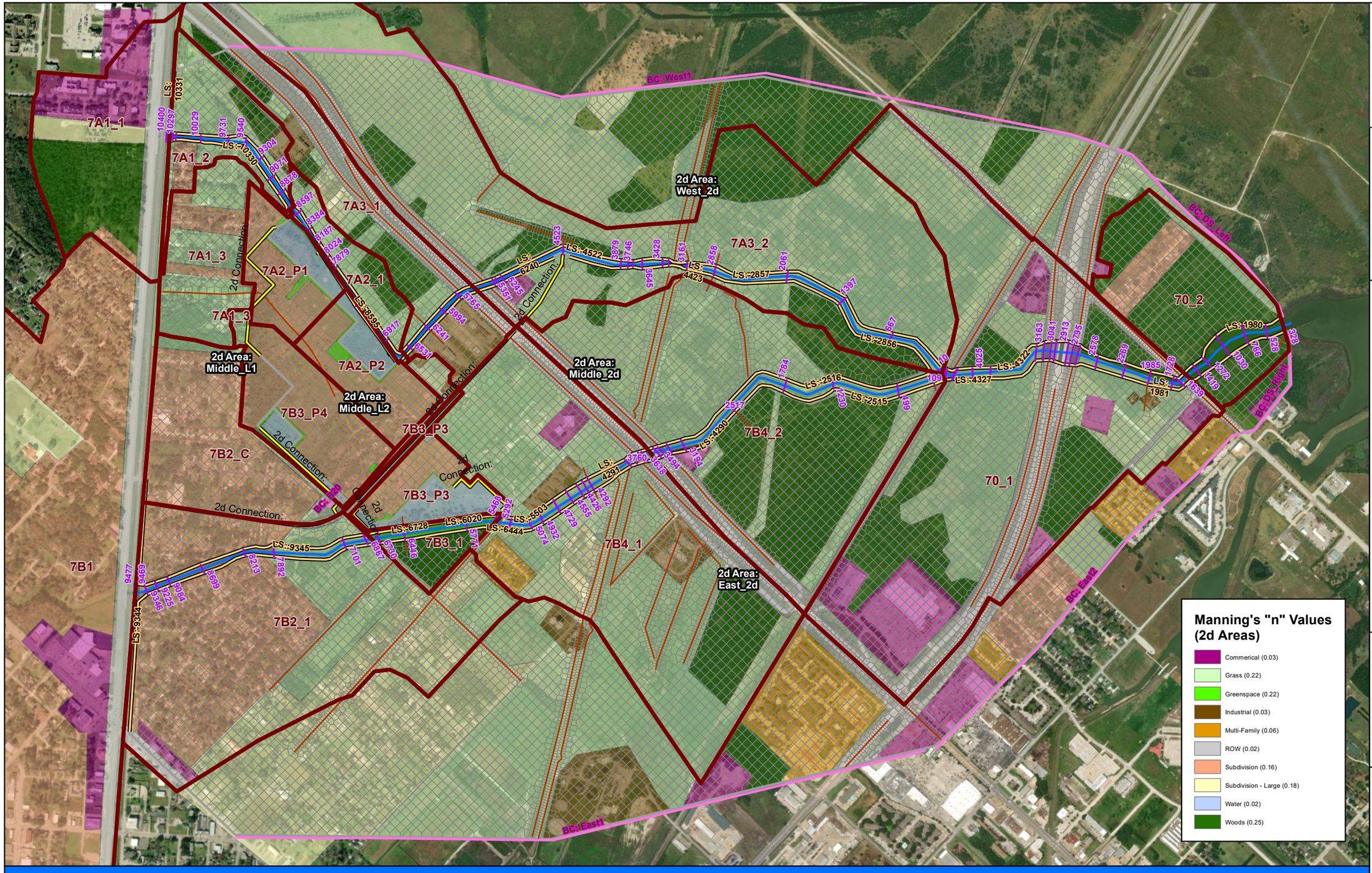


Exhibit 8 - 1d/2d HEC-RAS Model

BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Manning's "n" Values (2d Areas)

- Commerical (0.03)
- Grass (0.22)
- Greenspace (0.22)
- Industrial (0.03)
- Multi-Family (0.06)
- ROW (0.02)
- Subdivision (0.16)
- Subdivision - Large (0.18)
- Water (0.02)
- Woods (0.25)

- Subwatershed Subarea
- XS
- Lateral Structure
- Channel
- Bridge/Culvert
- 2d Boundary Condition
- 2d Connection
- Breaklines
- 2d Area Boundary
- 2d Cells

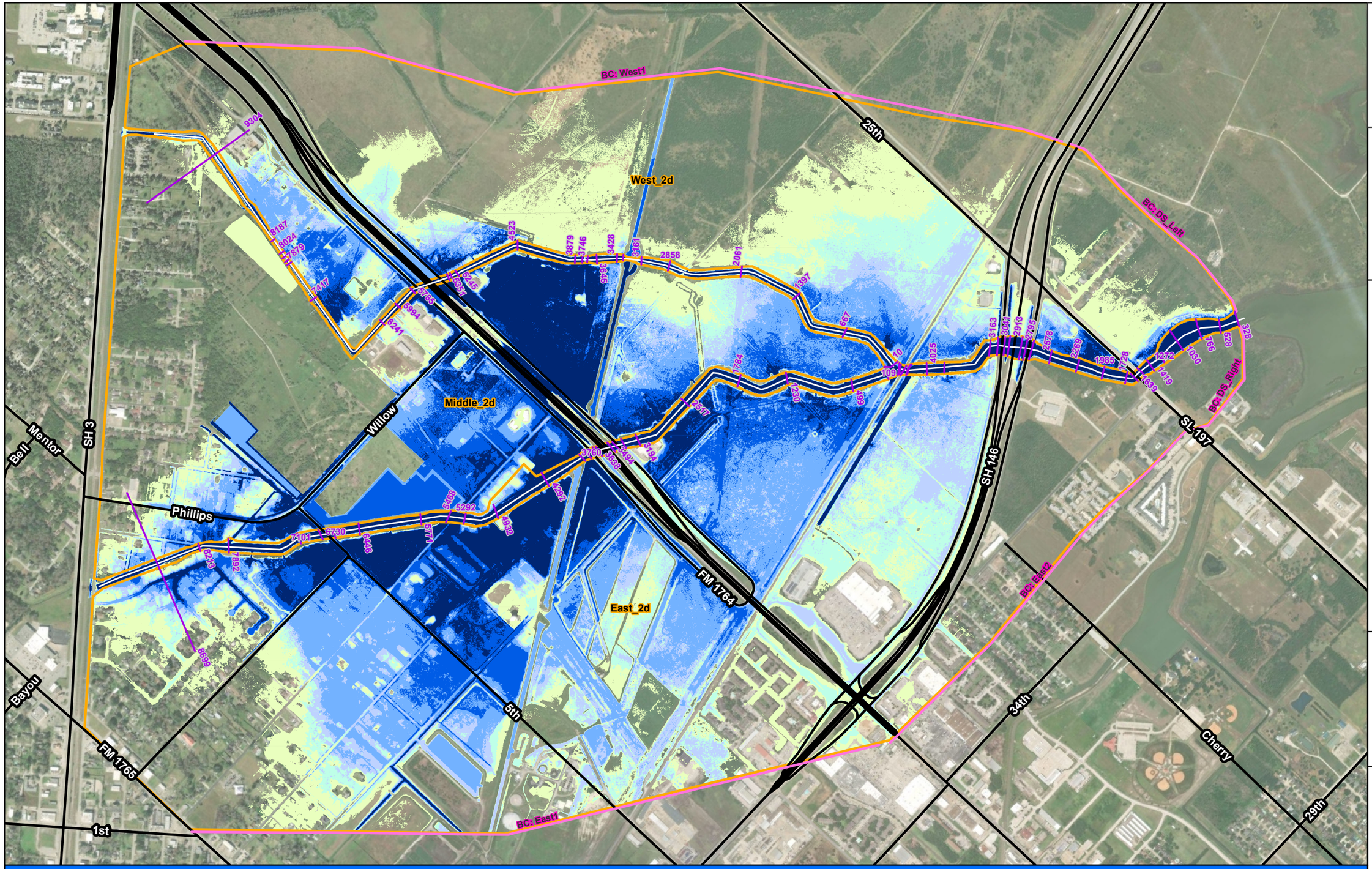


Exhibit 9 - Inundation Map

BJE

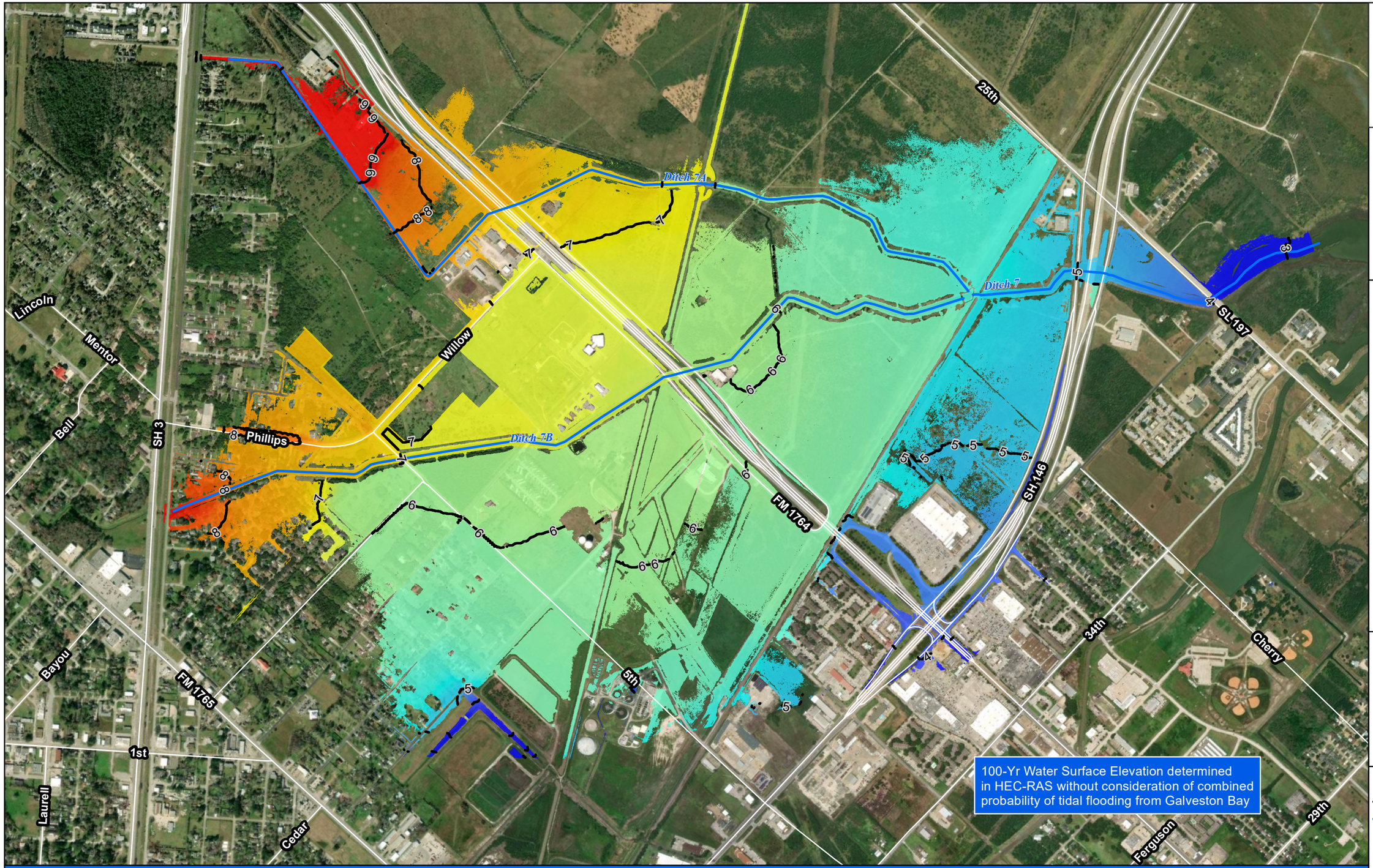
N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

- XS
- Channel
- 2d Boundary Condition
- Roads
- 2d_Area
- 5-Yr Inundation
- 10-Yr Inundation
- 25-Yr Inundation
- 50-Yr Inundation
- 100-Yr Inundation
- 500-Yr Inundation



BJE

N
W
E
S

Feet
0 500 1,000

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

100-Yr Flood Elev Line
Channel
100-Yr Flood Elev (ft)
High : 13.0
Low : 0.0

Exhibit 10 - 100-Yr Water Surface Elevations

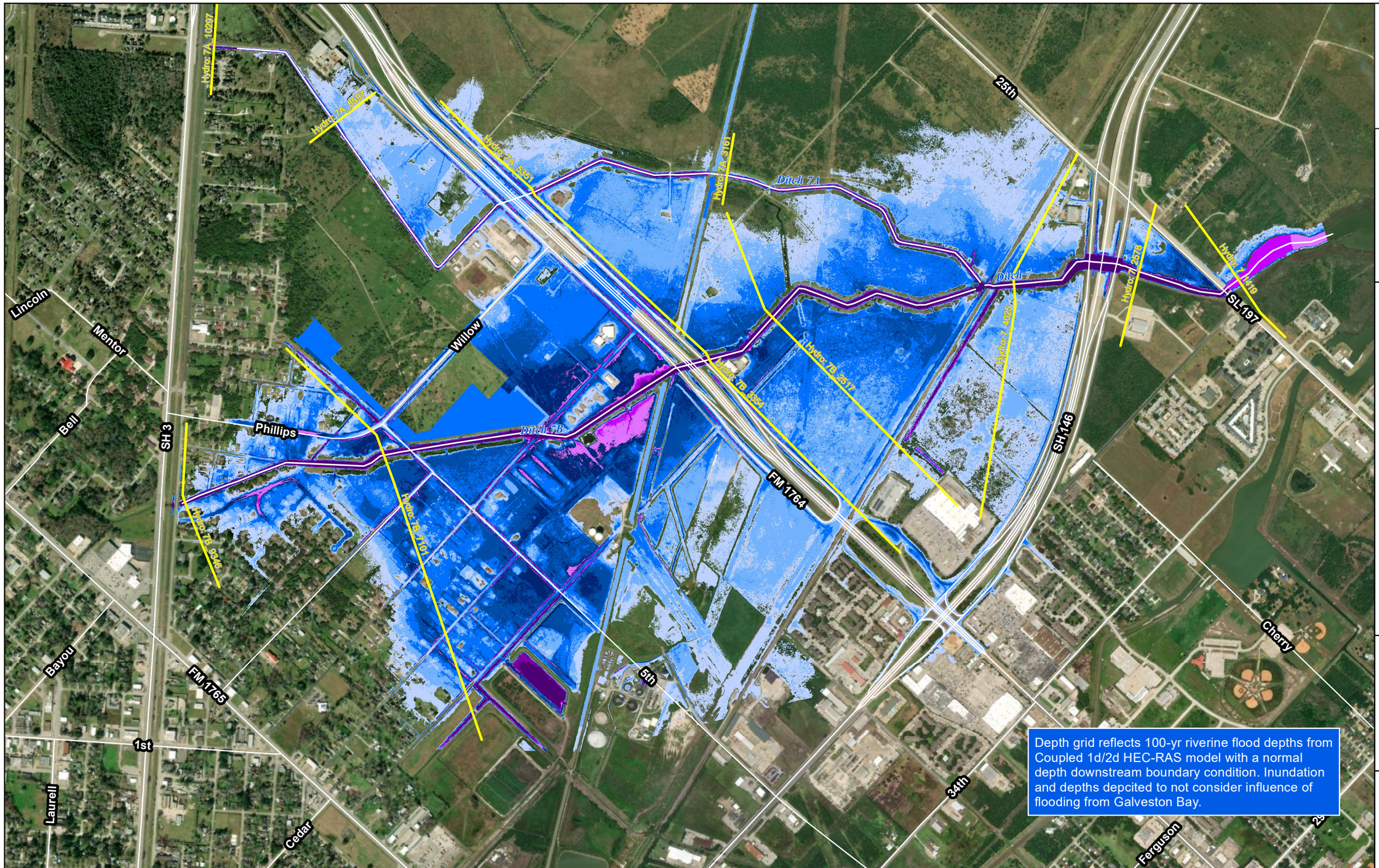


Exhibit 11 - 100-Yr Depth & Hydograph Lines

BJE

Feet
0 500 1,000

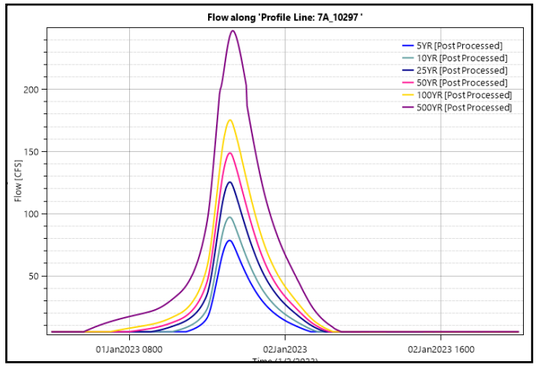
DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

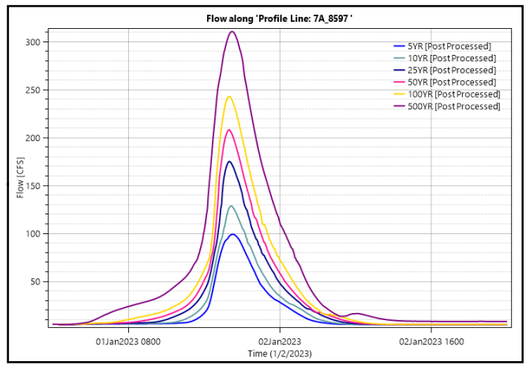
Floodplain Mapping & Modeling

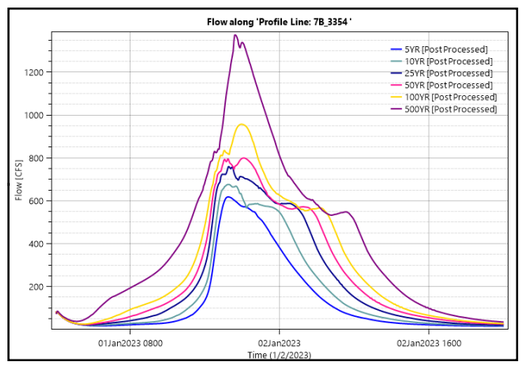
Hydrograph Lines
Channel

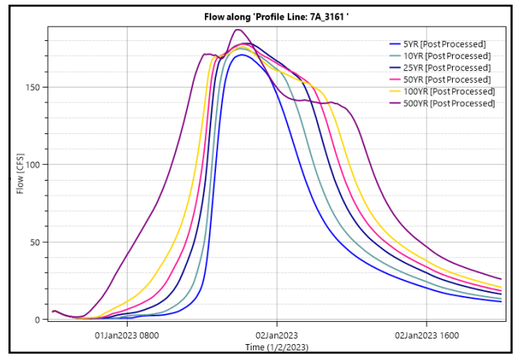
100-Yr Depth

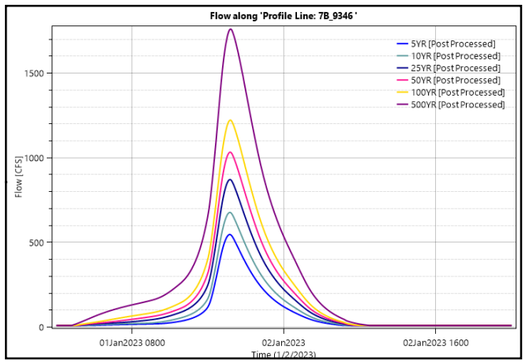
- 0.0' - 0.5'
- 0.5' - 1.0'
- 1.0' - 1.5'
- 1.5' - 2.0'
- 2.0' - 2.5'
- 2.5' - 3.0'
- 3.0' 3.5'
- 3.5' - 4.0'
- >4.0'

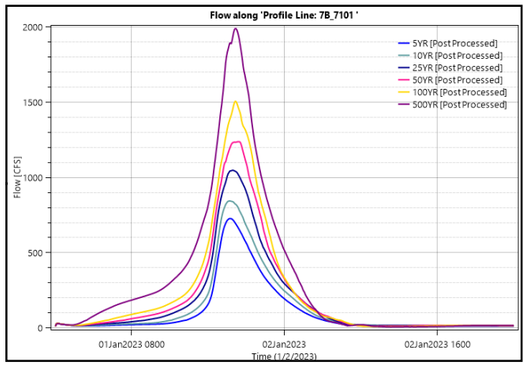


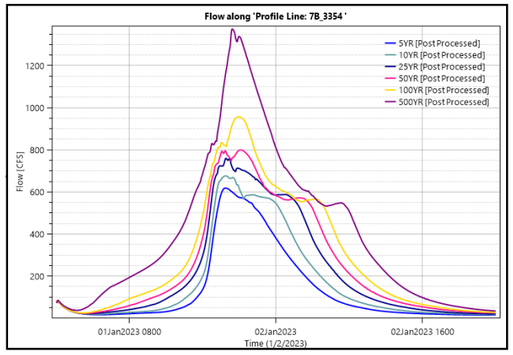


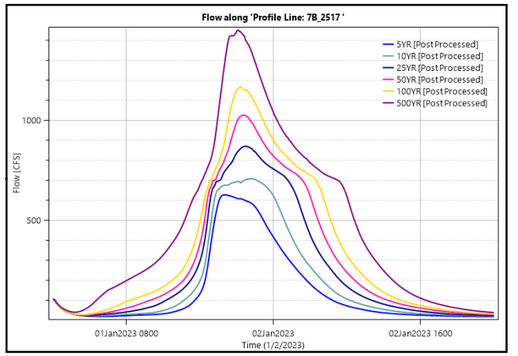


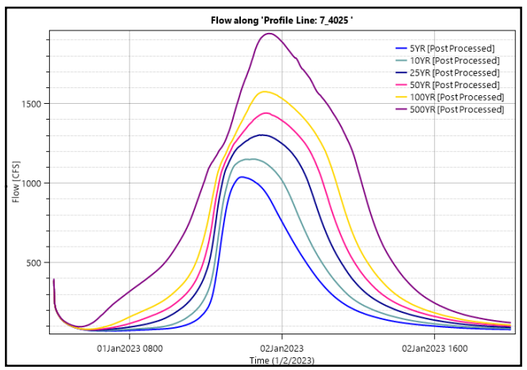


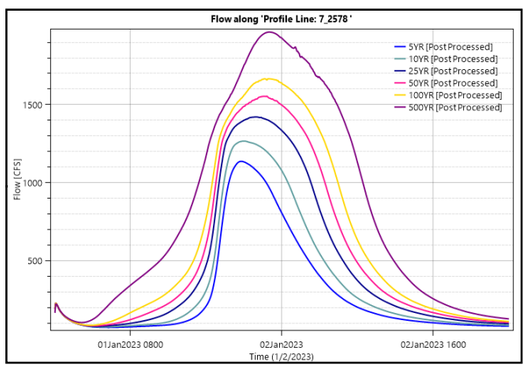












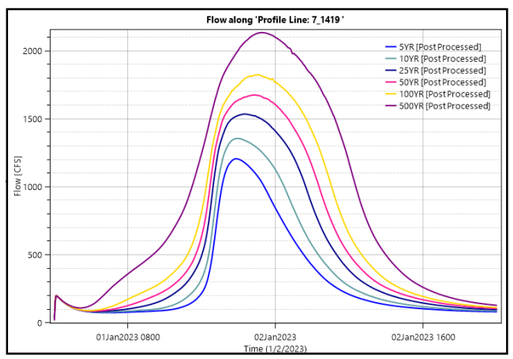


Exhibit 12: Hydrographs at Profile Lines

BJ ET

DITCH 7 WATERSHED STUDY
(DITCH 7, 7A, & 7B)
Galveston County DD No. 2

Floodplain Modeling & Mapping

Attachment 1

Galveston County Drainage District No. 2 Watershed Map

N

0 500 1,000 2,000 Feet

DETENTION REQUIRED
(NO SET RATE - SEE DISTRICT ENGINEER)
(SEE NOTE 2)

DETENTION REQUIRED
(NO IMPACT FEE)
1.0 AC-FT/AC.
(SEE NOTE 2)

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$2,200/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.5 AC-FT/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.70 AC-FT/AC.

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$3,000/AC.

IMPACT FEE WATERSHED
(DETENTION NOT REQUIRED)
$1,750/AC.

DETENTION REQUIRED
(NO IMPACT FEE)
0.50 AC-FT/AC.
(SEE NOTE 2)

DETENTION REQUIRED
(NO IMPACT FEE)
1.0 AC-FT/AC.
(SEE NOTE 1)

WATERSHED OUTSIDE DISTRICT BOUNDARY
(SEE TEXAS CITY FOR
DETENTION REQUIREMENTS)

DICKINSON
TEXAS CITY
TEXAS CITY
LAMARQUE
TEXAS CITY
SANTA FE
LAMARQUE
SANTA FE
LAMARQUE
HITCHCOCK
SANTA FE
HITCHCOCK
BAYOU VISTA
HITCHCOCK
HITCHCOCK
TIKI ISLAND

NOTE 1: MITIGATION FOR FILL WITHIN DEDICATED STORAGE AREA OF THE PUMP STATION WILL BE REQUIRED IN ADDITION TO THE DETENTION REQUIREMENT.

NOTE 2: FLOODPLAIN MITIGATION VOLUME REQUIRED ON A 1:1 BASIS FOR ANY FILL PLACED BELOW THE 100-YR WATER SURFACE ELEVATION.

Costello, Inc.
Engineering and Surveying

GALVESTON COUNTY DRAINAGE DISTRICT NUMBER TWO

WATERSHED MAP

Document Path: W:\1991\91007\01\GIS\District Development Map\MXD\20190403_GCDD2 District Map.mxd

JOB NO: 1991007-001	DATE: JAN 2019	EXHIBIT: 1

Ms. Kimberly Golden Planning Director -

Mr. Perry O'Brien Chairman, Texas City Zoning Commission & Zoning Commission Members

City of Texas City Engineering-Planning-Building & Inspection Department

7800 Emmett F Lowry Expressway

Texas City, Texas 77591

Mr. Willie Carroll, Living Trust

7305 Blue Jay Drive

Texas City, Texas 77591

November 25, 2024

Re: ***Willie Carroll's Living Trust Formal Response (To the Rezoning Proposal for Castlewood Development Company)***

80 Acres PUD Master Planned Residential Subdivision (213 Lots).

Ms. Kim Golden Planning Director

Ms. Golden, please find our formal response and summary of the planning issues that we would like to see addressed by the developer and City Commission. We offer no objection provided that the planning issues cited can be addressed. We will be in attendance for the workshops and subsequent Public hearings. We asked that our written response be reviewed by the Zoning and City Commission. Thank you.

Sincerely,

Mr. Willie Carroll &

Willie Carroll
11/25/24

Donald Carroll

Donald Carroll

Encls: 2-attachments

RECEIVED
DEC 02 2024
By

WC
D.C.

Site Development Issues & Recommendations to be Considered

from

Willie Carroll's Living Trust

a) ***Drainage Issue with GCDD No 55 aka Bayou Pierre*** **(Raised by Zoning Commissioner Bruce Clawson during the PH). This has been an issue before and even since the formulation of the City's Comprehensive Plan G2k (Land Use Plan Analysis). With this development synergy and interests, this is an opportunity to effectively work on mitigating and improving this area for economic development (addressing an affordable housing need). The City may want to establish a Public Private Partnership with the developer(s) and the property owners in the area to help revitalize and repurpose the area for meaningful development opportunities. This could be a very good economic development opportunity with a strategic plan (the creation of a superior design opportunity that will advance sustainability and resilience, and this approach is a win-win opportunity for all parties). This area has a draining issue and a development challenge that will not go away until it is addressed incrementally with the start of the development process or as recommended by (the City's Drainage Plan)?**

b) ***Ingress Egress into the subdivision:*** **The one entrance into the subdivision is not sufficient and whatever the incremental plan is as to how this will be addressed between Staff and developer should be declared now before approval for transparency, good faith and so the interested parties adjacent property owners will have all of the development intel needed to make an intelligent decision to be in favor of the development or to oppose the plan.** ***Additionally, concerning the look, feel, and vision concept of the finished product I believe most adjacent property owners want to know what the finished product will look like. This is a part of the full disclosure and established site planning process for Texas City.***

These are the remaining concerns after we reviewed the PUD Application Packet provided during this Rezoning PH held on November 19, 2024. I have discussed this with Willie Carroll and siblings (Sisters Beth and Dianna). We will offer no objections once we can get assurances that the developer adheres to all development agreements provided in the packet and that we are provided the illustrations and elevation details concerning how the finished product will look. Lastly, if we could suggest we do believe that with enhanced code enforcement this is a good development intent.

WC
DC

Remaining Research Question & Planning Notes For Willie Carroll's Living Trust Rezoning Request PUD 80 Acres Subdivision

1. Background and Overview

Good morning. Last Tuesday I attended a Rezoning Public Hearing at the request of my Dad I am a part of the Willie Carroll Living Trust and Will. The Developer is proposing to develop 80 acres totaling 213 residential lots. Lot size range from 6000 sf to 1300 sf. The price range is $ 275K to $375K.

2. AI Response:

Good morning! That sounds like a significant development project. Attending the hearing must have been quite insightful. Here are a few things to consider regarding the proposed development:

a) Impact on Property Value: New residential developments can potentially increase the value of surrounding properties, including those in the Willie Carroll Living Trust.

b) Community and Infrastructure: Ensure that the developer has plans to support the new housing with adequate infrastructure, such as roads, schools, and utilities.

c) Environmental Concerns: Check if there are any environmental assessments or impact studies. Large developments can affect local ecosystems.

d) Zoning and Planning: Make sure that zoning changes align with the community's long-term planning goals and that the development is in accordance with local zoning laws.

e) Community Benefits: Look into whether the developer has proposed any benefits for the community, such as parks, recreational facilities, or affordable housing options.

3. Would you like more specific information or assistance with any aspect of the development project?

Bravo and yes! All of the issues raised /cited are spot on. The Developer application is not bad, but it lacks documentation that would help their approval cause and address legitimate questions that the property owners have, and it seems somewhat elusive without this missing information.

4. It is because of this **that I have one research question remaining.** ***It is because of the concerns raised by one of the Zoning Commissioner in attendance presiding over the Public Hearing. it deals with drainage on-site /offsite this area is relatively flat and historically has some significant drainage issues. There is a statement that the***

Drainage Regulating Authority has blessed the Planned Unit Proposal but the property owners within 200 feet of the site have not seen this. To add to the confusion the developer asserts that with their development of 80 acres as proposed there will be No-Net Drainage Impact. The development intent is not a bad proposal. It is an opportunity to Repurpose an area needing some enhancements. That aside, the drainage issue needs to be better explained and clarified for the Rezoning Request to move forward with transparency. Do you agree with this assessment and is there anything that I am missing for reasonableness and fairness to my Dad's interests?

5. *AI Response: I agree with your assessment. Ensuring transparency and clarity in addressing drainage issues is crucial for the rezoning request to move forward smoothly. Here are a few additional points to consider:*

a) *Detailed Drainage Plan: Request a comprehensive drainage plan from the developer, including both on-site and off-site drainage solutions. This should include maps, technical specifications, and mitigation measures.*

b) *Third-Party Review: Suggest that an independent third party review the drainage plan to ensure it meets all regulatory standards and addresses community concerns.*

c) *Public Disclosure: Advocate for the developer to share the drainage plan with property owners within 200 feet of the site, as well as the broader community, to ensure transparency and build trust.*

d) *No-Net Drainage Impact: Ask the developer to provide a clear explanation of what "No-Net Drainage Impact" means in the context of this project and how it will be achieved.*

e) *Community Feedback: Encourage the developer to hold additional public meetings or forums to gather feedback from residents and address any remaining concerns.*

`

RESOLUTION NO. 2025-006

A RESOLUTION APPROVING THE SUBDIVISION MASTER PLAN AND REQUESTED ZONING CHANGE FROM DISTRICT A - SINGLE FAMILY RESIDENTIAL TO DISTRICT I- PLANNED UNIT DEVELOPMENT FOR WILLOW WOOD SUBDIVISION; AND PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, Applicant, Castlerock Communities, Inc., proposes to develop an 80-acre tract of land, comprising nine individual parcels, located southeast of State Highway 3 and south of FM 1764 as a single-family residential community, complete with stormwater detention facilities, parks, and open space. The subdivision will develop 213 single-family detached lots at various dimensions ranging from 6,000 sqft to 13,000 sqft, with homes expected to range in price from $275,000 to $375,000. There are no proposed non-residential uses. The community will incorporate walking/jogging trails as well as an approximate 7.1-acre park/green space with a playground, seating areas, and landscaped entry reserves. The subject tract is included in GCMUD 66 and subject to a Development Agreement approved by the City Commission in 2007, which requires the development of the subject properties as a Planned Unit Development; and

WHEREAS, Staff recommend approval of the subdivision master plan and requested zoning change from District A - Single Family Residential to District I - Planned Unit Development. The Planning Board recommended approval of the master plan and PUD at its regular meeting on October 7, 2024; and

WHEREAS, The Zoning Commission held a public hearing at its regular meeting on November 19, 2024. A total of 87 notices were mailed to adjacent property owners. The Zoning Commission recommended approval of the requested zoning change at its meeting on December 17, 2024.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1. That the City Commission of the City of Texas City, Texas, approves the Applicant, Castlerock Communities, Inc. requests to approve the subdivision Master Plan and requested zoning change from District A - Single Family Residential to District I- Planned Unit Development for Willow Wood Subdivision.

SECTION 2: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 22nd day of January 2025.

_____
Dedrick D. Johnson, Sr., Mayor
City of Texas City, Texas

ATTEST:

_____
Rhomari D. Leigh
City Secretary

APPROVED AS TO FORM:

_____
Kyle L. Dickson
City Attorney

CITY COMMISSION REGULAR MTG **(8) (d)**

Meeting Date: 01/22/2025

Write-off of Library fees and fines

Submitted For: Cheryl Loewen, Library **Submitted By:** Cheryl Loewen, Library

Department: Library

Information

ACTION REQUEST

Consider authorizing the Director of Library Services to remove delinquent fees and fines that are attached to library patron accounts that expired prior to January 1, 2018.

BACKGROUND (Brief Summary)

It is the practice of Moore Memorial Public Library to delete patron accounts that have expired for seven years or more. These accounts cannot be deleted until all fees and fines attached to those accounts have been removed. This process is done on an annual basis.

The total amount of the fees and fines to be deleted is $16,652.17.

RECOMMENDATION

I recommend that the Director of Library Services is authorized to remove delinquent fees and fines that are attached to library patron accounts that expired prior to January 1, 2018.

Fiscal Impact

Attachments

Resolution

RESOLUTION NO. 2025-007

A RESOLUTION AUTHORIZING THE WRITE-OFF OF DELINQUENT FEES AND FINES THAT ARE ATTACHED TO PATRON ACCOUNTS THAT EXPIRED PRIOR TO JANUARY 1, 2018; AND PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, there is a need to remove delinquent fees and fines that are attached to patron accounts that expired prior to January 1, 2018; and

WHEREAS, the Director of Library Services is recommending that delinquent fees and fines that are attached to patron accounts that expired prior to January 1, 2018, be written off.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission of the City of Texas City, Texas, approves the write-off of delinquent fees and fines that are attached to patron accounts that expired prior to January 1, 2018, in the amount of $16,652.17, and are deemed to be uncollectible.

SECTION 2: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 22nd day of January 2025.

_____
Dedrick D. Johnson, Sr., Mayor
City of Texas City, Texas

ATTEST:

_____
Rhomari D. Leigh
City Secretary

APPROVED AS TO FORM:

_____
Kyle L. Dickson
City Attorney

CITY COMMISSION REGULAR MTG **(8) (e)**

Meeting Date: 01/22/2025

ARRK ENGINEERS AGREEMENT FOR SERVICES - ARPA GRANT

Submitted For: Mike McKinley, Public Works **Submitted By:** Mike McKinley, Public Works

Department: Public Works

Information

ACTION REQUEST

Approve the execution of an engineering agreement with ARKK Engineers, LLC., from Houston, Texas, for the Water Transmission Main Replacement at 14th Street Water Plant and Installation of Water Well Discharge Piping at Orchid Water Plant Project.

BACKGROUND (Brief Summary)

ARKK Engineers, LLC. has submitted an Agreement For Services, for the engineering services necessary for the Water Transmission Main Replacement at 14th Street Water Plant and Installation of Water Well Discharge Piping at Orchid Water Plant Project. The total amount of these services should not exceed $99,859.00.
Funds are made available for this project via American Rescue Plan Act (ARPA) grant funds account no.243301-55360.

A copy of this agreement is attached for your review.

RECOMMENDATION

It is the recommendation of the Public Works Department that the City Commission approve a resolution authorizing the Mayor to execute the Agreement For Services with ARKK Engineers, LLC. on behalf of the City Commission for the Water Transmission Main Replacement at 14th Street Water Plant and Installation of Water Well Discharge Piping at Orchid Water Plant Project for the total sum of $99,859.00.

Thank you.

Fiscal Impact

Attachments

Exhibit A
Resolution

THE STATE OF TEXAS

COUNTY OF GALVESTON

AGREEMENT FOR SERVICES

This Agreement entered into as of the ____ day of _____, A.D., 2025, by and between ARKK Engineers, LLC ("Consultant"), and the City of Texas City, Texas, ("Client").

WITNESSETH:

WHEREAS, the Client has requested various services of the Consultant with respect to Engineering Services for the City of Texas City's **"Water Transmission Main Replacement at 14th Street Water Plant and Installation of Water Well Discharge Piping at Orchid Water Plant Project** ("Project")".

NOW, THEREFORE, *Client* and *Consultant* hereby agree as follows:

1. Engagement of *Consultant* - *Consultant* hereby agrees to perform the services required under the scope of work related to the *Project*, and to provide *Client* with copies of the information, opinions, and other such documents made the basis of the scope of services, which is set out in Attachment "A" and made a part of this contract. *Consultant* agrees to initiate the following services that are set out in Attachment "A" upon receipt of an executed copy of this Agreement.
2. Availability of Information - *Client* agrees to provide *Consultant* with all available information pertinent to the *Project*. *Client* will also provide copies of reports, drawings, and other data, and will, at *Consultant's* request, provide written authorization to review *Client's* files relative to the *Project* which may be in possession of third parties. *Consultant* agrees to return all original documents to *Client* upon completion of the *Project*, but reserves the right to make and keep reproducible copies of all such material.
3. Access to Facilities - *Client* will provide access for the *Consultant* to enter the property and facilities of *Client*, as necessary for *Consultant* to perform services as required under the *Project*.

4. Instruments of Service - All documents prepared in accordance with this contract including exhibits, field notes, laboratory data, original drawings, and specifications are the property of the *Client*. The *Consultant* is given the right to use any of this data in connection with future engineering projects. The *Consultant* may retain copies of reproducibles of any information prepared for this *Project*.

5. Fee - The *Consultant's* fee for the scope of services as stated in Attachment "A" provided by *Consultant* under this Agreement as set out in Attachment "A" and being the amount of **$99,859** for Design and Construction Phase Services.

6. Payment and Fee Schedule - The *Consultant* will submit a monthly invoice for services rendered.

7. Terms of Payment - Payment of fees as determined under Paragraph 5 herein above shall be due and payable by *Client* within thirty (30) days following receipt of *Consultant's* monthly invoice.

8. Additional Services - Additional services beyond those described in the Scope of Services will be invoiced on the basis of direct labor cost times a factor of 2.99 and direct cost plus 10%.

9. Insurance - *Consultant* shall maintain Worker's Compensation and Liability Insurance in accordance with Attachment "B".

10. Termination - The *Client* may terminate this contract at any time by giving notice in writing to the *Consultant*. In that case, all finished or unfinished documents and other materials produced under this contract shall become the *Client's* property. If the contract is terminated by the *Client* in accordance with this provision, *Consultant* shall be paid for all services performed to the date of termination.

11. Governing Law - This Agreement shall be deemed to have been made under, and shall be construed and interpreted in accordance with the laws of the State of Texas. The venue of any suit for enforcement or construction of this contract shall be in Galveston County, Texas.

12. Indemnification - For consideration received, the undersigned agrees to indemnify, save, defend and hold harmless the City of Texas City, Texas, its employees, officials, and agents from any and all

claims, actions, damages, lawsuits, proceedings, judgments, or liabilities, for personal injury, death or property damage resulting from the negligent acts or omissions of the undersigned or negligent acts or omissions of others under the undersigned's supervision or control arising out of the performance of this agreement.

13. Home Rule Municipality

The City is a municipality incorporated under the laws of the State of Texas, and all laws regulating and concerning Texas municipalities apply, including budgetary laws, The City Charter and The City Code. Consultant acknowledges that the City may only act through its City Commission or a duly authorized representative of City Commission, and that any act of an employee or officer of the City that is not duly authorized is void.

ENTERED INTO AND AGREED by the parties hereto as the day and year first written.

ARKK ENGINEERS, LLC
Consultant

BY: Madhu Kilambi

MADHU KILAMBI, P.E.
Senior Project Manager / Principal

CITY OF TEXAS CITY, TEXAS
Client

BY: _____

MAYOR OF THE CITY OF TEXAS CITY

ATTEST: _____

DIRECTOR OF FINANCE

December 30, 2024

Mr. Corbin Ballast
Director of Utilities
City of Texas City
911 Highway 146 North
Texas City, Texas 77590

Re: Proposal for Engineering Design and Construction Phase Services for City of Texas City's **"Water Transmission Main Replacement at 14th Street Water Plant and Installation of Water Well Discharge Piping at Orchid Water Plant Project"**
City of Texas City, Texas

Dear Mr. Ballast:

ARKK Engineers, LLC (ARKK) is pleased to submit this proposal for performing engineering design and construction phase services for the above referenced project. This proposal is based on our understanding of the project as discussed in our previous meetings and conversations with City staff and information gathered from our site visits. For your convenience, this proposal consists of General Overview, Scope of Services, and Fee.

GENERAL OVERVIEW

The City of Texas City has identified needed drinking water system improvements as described below. The improvements are anticipated to be funded from the Coronavirus Relief Grant obtained by the City of Texas City through the American Rescue Plan Act Funds (ARPA). The proposed improvements involve the following:

- Replacement of approximately 1,000 linear feet of 12-inch water transmission main pipe located in and around the City's 14th Street Water Plant facility. The existing 12-inch water transmission main is shallow in depth and is known to be in a deteriorated condition. The City has performed multiple repairs to this water transmission main. This transmission main is needed to maintain water service to the surrounding area of the City. The proposed new 12-inch water transmission main will be rerouted beginning at the intersection of 9th Avenue and 14th Street; then be redirected southward along 14th Street, then turning east to cross 14th Street at the west side of the 14th St. Water Supply Facility; then travelling eastward through the water plant facility; then turning

north along the asphalt alleyway on the east side of the water plant facility; the new transmission main would then cross 9th Avenue and connect back to the existing transmission main on 9th Avenue.

- The Installation of 555 linear feet of 8-inch diameter water well discharge pipeline between the City's Orchid Water Plant facility and the existing Gulf Coast Water Authority's (GCWA) surface water supply canal. The purpose of this pipeline is to allow for the conservation and recycling of groundwater supplies back into the surface water supply canal operated by the GCWA. This canal delivers raw water supplies to the GCWA's surface water treatment plant facility in Texas City.

The total estimated construction cost for performing the above-described work is $525,000 (includes a 20% construction contingency). The two project areas will be designed and bid as one construction package.

This proposal addresses the engineering services ARKK will provide the City during the Design and Construction Phases, as well as associated Surveying and Geotechnical services necessary to support the project. This proposal does not include performing any environmental studies. Should the City desire ARKK to perform such services, a separate proposal will be submitted to the City for approval. Construction material testing is also not included and will be included as an allowance in the construction package.

During construction of the project, the City of Texas City will provide a project representative to observe the progress of construction. Therefore, construction inspection services by ARKK Engineers personnel are not part of the scope of this project. A budget for increased support to City staff is included in this proposal.

The proposal is separated into Basic Services (expected normal engineering services) and Special Services. The following section details the scope of engineering services proposed for this Project.

SCOPE OF SERVICES

I. DESIGN PHASE SERVICES

A. Basic Services - Design Phase

- Gather existing relevant data on the project such as existing utility information,

pipeline crossings, as available.

- Coordinate with private utility companies, and other entities that may be involved to obtain information on their existing facilities and requirements that may impact this project.

- Coordinate with utility companies on potential conflicts with the proposed improvements.

- Obtain available drawings which show existing utilities in the project area. Obtain available record drawings from the City.

- Coordinate with the surveying firm and authorize the topographic survey for the project.

- Plot survey data of the proposed alignment.

- Coordinate with the geotechnical firm and authorize the geotechnical study for the project.
  1.
- Provide design for the proposed water line improvements.

- Coordinate with the Gulf Coast Water Authority for approval of the well discharge line.

- Prepare project specifications, drawings, bid documents and construction drawings based on anticipated improvements.
  2.
- Coordinate with the City of Texas City during the design phase. Provide two (2) draft sets of plans and specifications for review and comments.

- Incorporate appropriate comments from pertinent entities into the final bid documents.

- Prepare a final cost estimate for the project.

- Furnish two (2) sets of construction documents to the City.

B. Special Services - Design Phase

1. Storm Water Pollution Prevention Plan

- Prepare a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Texas National Pollutant Discharge Elimination System (TPDES) General Permit for Storm Water Discharge from construction for all project areas.

2. Surveying Services

- Conduct a topographic survey of the proposed alignment of the water transmission line and the well discharge line.
- A budget for preparation of one easement document for the water line on 14th Street is included.
- Utilize a survey sub-consultant mutually agreeable to the City and ARKK.

3. Geotechnical Services

- Perform a geotechnical investigation of the project areas. A budget for soil borings is included in this proposal. Cement or asphalt plugs will be used at the surface for borings that are drilled within the pavement.
- Utilize a geotechnical sub-consultant mutually agreeable to the City and ARKK.

4. Reproduction

- Costs for reproduction will be charged under special services for reproduction of plans, specifications and reports.
- Reproduction for review sets, submittals to the City, governmental agencies, and utility companies will be included in the cost for reproduction.
- Costs associated with CIVCAST online plan room will be included in the reproduction costs.

5. Miscellaneous Services

- Due to the nature of work, it is recommended that a budget for miscellaneous services be allocated to be utilized upon approval by the City of Texas City.

II. CONSTRUCTION PHASE SERVICES

A. Basic Services – Construction Phase

1. Bid Phase Services

- Assist the City in obtaining bids for the project. The City of Texas City will advertise the project and will absorb all related advertising costs. ARKK will coordinate with the City and will assist in developing the wording of the advertisement.

- Dispense construction and bidding documents via the CivCast online plan room (by Amtek USA) to prospective bidders.

- During the bidding process, provide information to and answer questions from potential bidders concerning the Project's construction documents and prepare addendums as necessary.

- Prepare an agenda for the pre-construction conference.

- Conduct a pre-bid conference for potential bidders.

- Prepare bid tabulation, evaluate the bids, review the qualifications of the apparent low bidders and advise the City as to the acceptability of the apparent low bidder.

2. Construction Administration Services

- Prepare construction contracts for execution by the Contractor and the City.

- Prepare an agenda for the pre-construction conference.

- Conduct a pre-construction conference for the project.

- Review and respond accordingly to all submittals as required by the contract specifications.

- Prepare change orders necessitated by field conditions.

- Review the contractor's pay estimates, evaluate the completion of work and make payment recommendations to the City.

- Visit the site at intervals appropriate to the various stages of construction to observe the progress and quality of executed work and to determine in general if such work is proceeding in accordance with the Contract Documents.

- ARKK will not be responsible for the means, methods, techniques, sequences or procedures of construction selected by the Contractor(s) or the safety precautions and programs incident to the work of the Contractor(s). ARKK's effort will be directed toward providing a greater degree of confidence for the City that the completed work of Contractor(s) will conform to the Contract Documents, but ARKK will not be responsible for the failure of Contractor(s) to perform the work in accordance with the Contract Documents. During site visits and on the basis of on-site observations ARKK shall keep the City informed of the progress of the work, shall endeavor to guard the City against defects and deficiencies in such work and may disapprove or reject work failing to conform to the Contract Documents.

- Conduct a final inspection of the Project and make a recommendation for Final Payment on the project.

- Engineer shall provide one set of reproducible record plans based on the Contractor's red line marked up as-built drawings.

B. Special Services – Construction Support Services

- Provide support to City's on-site representative to periodically observe the progress of construction activities and to assist in the interpretation of plans and specifications.

3.

- The on-site representative will attend meetings with the Contractor and the City of Texas City such as pre-construction conference, progress meetings, and other project related meetings where his presence is requested by the City of Texas City.

4.

- This support will be provided to aid in the process of observing performance of work of the Contractor(s). Through more extensive on-site observations of the work in progress, ARKK shall endeavor to provide further protection for the City of Texas City against defects and deficiencies in the work of the contractor(s); but the furnishing of such on-site representative will not make ARKK responsible for construction means, methods, techniques, sequences or procedures or safety precautions or programs, or for Contractor(s) failure to perform their work in accordance with the Contract Documents.

FEE

Design Services: Lump Sum Amount of	$49,060.00
Topographic Surveying: Cost plus 10%	$ 18,249.00
Geotechnical Study: Cost plus 10%	$ 4,950.00
SWPPP Plan: Lump Sum Amount of	$1,500.00
Reproduction Budget – Lump Sum Amount of	$ 800.00
Bid Phase Services - Lump Sum Amount of	$3,250.00
Construction Administration Services - Lump Sum Amount of	$ 12,080.00
Construction Support Services Budget: Hourly and cost plus 10%	$ 7,470.00
Miscellaneous Services: Hourly and cost plus 10%	2,500.00
Total Fee	**$99,859.00**

Hourly charges for on-site field representative shall be charged based on a raw labor rate times a multiplier of 2.70 and vehicle charge of $40/day. Reimbursable expenses will be charged at cost plus 10%.

ARKK Engineers, LLC appreciates the opportunity to submit this proposal and we look forward to working with the City of Texas City on this very important project.

Sincerely,
ARKK ENGINEERS, LLC

Madhu Kilambi

Madhu Kilambi, P.E.
Senior Project Manager / Principal

cc: Mr. Jack Haralson – City of Texas City

ATTACHMENT "B"

INSURANCE LIMITS

1.	General Liability	Each Occurrence:	$1,000,000
		Damage to Rented Premises	$1,000,000
		Medical Expenses (any one person)	$10,000
		Personal and Adv. Injury	$1,000,000
		General Aggregate:	$2,000,000
		Products - Comp/Op Agg:	$2,000,000
2.	Automobile Liability	Combined Single Limit:	$1,000,000
3.	Excess Liability Umbrella Form	Each Occurrence:	$1,000,000
		Aggregate:	$1,000,000
4.	Worker's Compensation and Employers Liability	Each Accident:	$500,000
		Disease - Each Employee:	$500,000
		Disease - Policy Limit: $500,000	
5.	Professional Liability	Each Claim	$1,000,000
		Policy Year Aggregate	$1,000,000

RESOLUTION NO. 2025-008

A RESOLUTION AUTHORIZING THE EXECUTION OF AN ENGINEERING AGREEMENT WITH ARKK ENGINEERS, LLC. FOR THE WATER TRANSMISSION MAIN REPLACEMENT AT 14TH STREET WATER PLANT AND INSTALLATION OF WATER WELL DISCHARGE PIPING AT ORCHID WATER PLANT PROJECT; AND PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, ARKK Engineers, LLC. has submitted an Agreement For Services for the engineering services necessary for the Water Transmission Main Replacement at the 14th Street Water Plant and the Installation of Water Well Discharge Piping at the Orchid Water Plant Project. The total amount of these services should not exceed $99,859.00; and

WHEREAS, funds are made available for this project through American Rescue Plan Act (ARPA) grant funds account no. 243301-55360.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission hereby approves the Agreement For Services, for the engineering services necessary for the Water Transmission Main Replacement at 14th Street Water Plant and Installation of Water Well Discharge Piping at Orchid Water Plant Project.

SECTION 2: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 22nd day of January 2025.

_____
Dedrick D. Johnson, Sr., Mayor
City of Texas City, Texas

ATTEST:

_____
Rhomari D. Leigh
City Secretary

APPROVED AS TO FORM:

_____
Kyle L. Dickson
City Attorney

CITY COMMISSION REGULAR MTG **(9) (a)**

Meeting Date: 01/22/2025

COM Public and Private Partnership MOU agreement with the Fire Department

Submitted For: Dennis Harris, Fire Department

Submitted By: Dennis Harris, Fire Department

Department: Fire Department

Information

ACTION REQUEST

Consider approval of a request to amend the fiscal year 2024-2025 budget to accept and appropriate funds from College of the Mainland as part of the Public Private Partnership MOU agreement.

BACKGROUND (Brief Summary)

College of the Mainland is currently undergoing multiple large-scale construction and renovation projects under the voter-approved 2023 Bond program. The COM projects require timely and effective project management in order to meet aggressive deadlines. The City of Texas City will provide a Fire Marshal who will be primarily assigned to COM for the purpose of meeting critical time-saving deadlines for the benefit of the community; and COM understands the added demand on the City's resources and has agreed to reimburse the City the cost of the salary and benefits for a full-time Fire Marshal for the purpose of ensuring timely inspections and other services traditionally performed by the Fire Marshal for the City.

This Agreement will be for a minimum period of two (2) years commencing on January 23rd, 2025. COM shall pay the City a maximum amount of One Hundred and Twenty Thousand ($120,000.00) dollars each year the agreement is in effect. This amount shall be paid in monthly installments invoiced by the City.

RECOMMENDATION

The Finance Department recommends the following Budget amendment to accept and record the College of the Mainland's monthly deposits.

Fiscal Impact

Attachments

MOU

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (" MOU") is made as of December __, 2024, by and between the City of Texas City, Texas ("City"), a Texas home-rule municipality, and College of the Mainland, a political subdivision of the State of Texas ("COM").

WHEREAS, College of the Mainland is currently undergoing multiple large-scale construction and renovation projects under the voter-approved 2023 Bond program, requiring timely and effective project management in order to meet aggressive deadlines and ensure efficient stewardship of the taxpayer funds entrusted to the college; and

WHEREAS, the City desires to support COM's aggressive building schedule, which benefit citizens of the City of Texas City by providing a Fire Marshal who will be primarily assigned to COM for the purpose of meeting critical time-saving deadlines for the benefit of the community; and

WHEREAS, COM understands the added demand on the City's resources and has agreed to reimburse the City the cost of the salary and benefits for a full-time Fire Marshal for the purpose of ensuring timely inspections and other services traditionally performed by the Fire Marshal for the City; and

WHEREAS, this MOU is an acknowledgment of the joint efforts by the City and the COM.

NOW THEREFORE, in consideration of the mutual covenants herein set forth and the mutual benefits to be derived, the parties hereto agree as follows:

1. Responsibilities.

1.1 The City shall provide a Fire Marshal who shall be assigned full-time to perform his/her primary duties on COM projects, including inspecting new and future construction projects and renovations on COM's Texas City campus for a period of no less than two (2) years. The Fire Marshal shall be primarily assigned to COM for five days per week. The City will hire, supervise, and schedule all activities of this Fire Marshal.

1.2 COM shall provide an office on COM's main campus, which shall be equipped with a telephone, file cabinet, internet and/or Wi-Fi services, access to a printer, general office supplies, parking sticker, and office furnishings as may be agreed upon.

1.3 COM will advise the City generally of the construction schedules as they affect the availability of the Fire Marshal to perform other duties as may be assigned from time to time by the City. However, the parties agree that such other duties shall not impair the Fire Marshal's ability to timely respond to COM's construction schedule.

1.4 The Fire Marshal shall schedule leave with the approval of the City. Where possible, notice shall be given to COM. City shall notify COM in advance, when possible, of

training, leaves of absence, or other scheduled activities of the Fire Marshal may necessitate the absence of the Fire Marshal. In the event of any long-term absence of the Fire Marshal for whatever reason, the City will assign other personnel on the same or similar conditions as described herein.

1.5 COM shall pay City the maximum amount of One Hundred and Twenty Thousand ($120,000.00) dollars each year this agreement is in effect. This amount shall be paid in monthly installments invoiced by the City starting on the _____ and ending on _____. The parties agree that this payment for increased costs is based on the average salary of the Fire Marshal. City and COM agree that this sum fairly represents the benefits accruing to each.

2. Employee Status of Fire Marshal. The Fire Marshal shall be an employee of City and not an employee of COM for any purpose. City shall be responsible for hiring, training, compensating, disciplining, and dismissing City personnel. COM shall in no way be responsible for any compensation, benefits, insurance, vacation, sick leave, or any other benefit of full-time employment of the Fire Marshal.

3. Time of Performance. It is anticipated that the Fire Marshal will need to spend at least 2+ years at COM.

4. Assignability of MOU. This MOU shall not be assigned or transferred without the City's prior written consent.

5. Amendments. The Parties may amend this MOU at any time provided that such amendments make specific reference to this MOU, and are executed in writing, signed by a duly authorized representative of each organization, and approved by the City. Such amendments shall not invalidate this MOU, nor relieve or release the Parties from their obligations under this MOU. The City may seek to amend this agreement, only as required, to conform with Federal, state or local governmental guidelines, policies and available funding, or for other non-discretionary reasons. If such amendments result in a change in the funding, the scope of services, or schedule of the activities to be undertaken as part of this MOU, such modifications will be incorporated only by written amendment signed by both Parties.

6. Term and Termination. This Agreement will be for a period of two (2) years commencing on _____ and ending on _____. The Agreement may be terminated at any time, in writing, by mutual consent of both parties. This Agreement may be canceled by either party upon ninety (90) days written notice to the other party, except where the cancellation is for cause (i.e. material and significant breach of any provision of the Agreement). If cancellation is for cause, the Agreement may be canceled upon delivery of written notice to the other party.

7. Renewal Provisions. Within thirty (30) days prior to the end date of this MOU, each party shall review the MOU and negotiate any needed changes to the provisions herein. Each party shall collaboratively evaluate the effectiveness of operations pursuant to this MOU, make any necessary modifications and renew the MOU for a term to be determined at the time of renewal.

8. Severability. If any provision of this MOU is held invalid, the remainder of the MOU shall not be affected thereby, and all other parts of this MOU shall nevertheless be in full force and effect.

9. Dispute Resolution. The Parties shall endeavor to resolve any dispute through cooperation and discussion

Miscellaneous

10. Unless expressly agreed in writing by the applicable party, neither the failure of nor any delay by any party to this MOU to enforce any right hereunder or to demand compliance with its terms is a waiver of any right hereunder. No action taken pursuant to this MOU on one or more occasions is a waiver of any right hereunder or constitutes a course of dealing that modifies this MOU.

11. No amendment or modification of this MOU shall be binding on any party hereto unless it is in writing and is signed by the party to be charged.

12. The terms of this MOU shall be binding upon and inure to the benefit of the parties and their respective personal representatives or corporate successors.

13. Nothing herein expressed or implied is intended or shall be construed to give any person other than the parties hereto any rights or remedies under this MOU.

14. This MOU shall be deemed to have been prepared jointly by the parties hereto. Any ambiguity herein shall not be interpreted against any party hereto and shall be interpreted as if each of the parties hereto had prepared this MOU.

15. This MOU may be executed in any number of counterparts, all of which shall constitute one and the same instrument, and any party hereto may execute this MOU by signing and delivering one or more counterparts.

16. Immunities. Nothing in this Agreement waives or alters any immunities provided to either Party under Texas or federal law.

17. This MOU shall be governed by the laws of the State of Texas.

IN WITNESS WHEREOF, the Parties have executed this contract as of the date indicated below and it is effective as of the date first written above.

Parties:

College of the Mainland

By: _____

Name: _____

Title: _____

City of Texas City, Texas

_____
Dennis Harris-Fire Chief

_____
Kyle Dickson-City Attorney

_____
Dedrick Johnson Sr- Mayor, City of Texas City

CITY COMMISSION REGULAR MTG **(9) (b)**

Meeting Date: 01/22/2025

Increase the total number of authorized “Classified Service” positions by (1) one, from 93 total positions to 94 total positions.

Submitted For: Dennis Harris, Fire Department

Submitted By: Dennis Harris, Fire Department

Department: Fire Department

Information

ACTION REQUEST

Consider approval of Ordinance No., amending the Code of Ordinances, City of Texas City, Texas, Title III "Administration", Chapter 32 "Law Enforcement and Fire Department", Section 32.009 "Fire Department; Classes of Positions", by increasing the number of positions allocated to the classification of Firefighter from 49 to 50 and increasing the total number of authorized “Classified Service” positions by (1) one, from 93 total positions to 94 total positions, In order to facilitate the College of the Mainland Public Private Partnership MOU agreement between the City of Texas City and COM, the number of firefighter positions must increase by one.

BACKGROUND (Brief Summary)

Local Government Code 143: Municipal Civil Service for Firefighters and Police Officers; Section 143.021 (a) requires the City Commission to prescribe the number of positions in each classification. In order to facilitate the College of the Mainland Public Private Partnership MOU agreement between the City of Texas City and the COM, the number of firefighter positions must increase by one.

The City will provide a Fire Marshal who shall be assigned primary duties on COM projects, including inspecting new and future construction projects and renovations on COM’s Texas City campus. The City will hire, supervise, and schedule all the activities of this new position. As part of the agreement, COM will pay the City the maximum amount of One Hundred and Twenty Thousand ($120,000.00) dollars each year, the agreement is in effect.

RECOMMENDATION

I recommend the City Commission approve an ordinance adopting a resolution to increase the Fire Department "Classified Positions" by one (1) in order to facilitate the Public Private Partnership MOU agreement between the City of Texas City and College of the Mainland.

Fiscal Impact

Funds Available Y/N: Y

Amount Requested:

Source of Funds: College of the Mainland

Account #: 1010202-51010

Fiscal Impact:

As part of the agreement, COM will pay City the maximum amount of One Hundred and Twenty Thousand ($120,000.00) dollars each year this agreement is in effect.

Attachments

College of the Mainland Public Private Partnership MOU agreement between the City of Texas City and the COM

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (" MOU") is made as of December __, 2024, by and between the City of Texas City, Texas ("City"), a Texas home-rule municipality, and College of the Mainland, a political subdivision of the State of Texas ("COM").

WHEREAS, College of the Mainland is currently undergoing multiple large-scale construction and renovation projects under the voter-approved 2023 Bond program, requiring timely and effective project management in order to meet aggressive deadlines and ensure efficient stewardship of the taxpayer funds entrusted to the college; and

WHEREAS, the City desires to support COM's aggressive building schedule, which benefit citizens of the City of Texas City by providing a Fire Marshal who will be primarily assigned to COM for the purpose of meeting critical time-saving deadlines for the benefit of the community; and

WHEREAS, COM understands the added demand on the City's resources and has agreed to reimburse the City the cost of the salary and benefits for a full-time Fire Marshal for the purpose of ensuring timely inspections and other services traditionally performed by the Fire Marshal for the City; and

WHEREAS, this MOU is an acknowledgment of the joint efforts by the City and the COM.

NOW THEREFORE, in consideration of the mutual covenants herein set forth and the mutual benefits to be derived, the parties hereto agree as follows:

1. Responsibilities.

1.1 The City shall provide a Fire Marshal who shall be assigned full-time to perform his/her primary duties on COM projects, including inspecting new and future construction projects and renovations on COM's Texas City campus for a period of no less than two (2) years. The Fire Marshal shall be primarily assigned to COM for five days per week. The City will hire, supervise, and schedule all activities of this Fire Marshal.

1.2 COM shall provide an office on COM's main campus, which shall be equipped with a telephone, file cabinet, internet and/or Wi-Fi services, access to a printer, general office supplies, parking sticker, and office furnishings as may be agreed upon.

1.3 COM will advise the City generally of the construction schedules as they affect the availability of the Fire Marshal to perform other duties as may be assigned from time to time by the City. However, the parties agree that such other duties shall not impair the Fire Marshal's ability to timely respond to COM's construction schedule.

1.4 The Fire Marshal shall schedule leave with the approval of the City. Where possible, notice shall be given to COM. City shall notify COM in advance, when possible, of

training, leaves of absence, or other scheduled activities of the Fire Marshal may necessitate the absence of the Fire Marshal. In the event of any long-term absence of the Fire Marshal for whatever reason, the City will assign other personnel on the same or similar conditions as described herein.

1.5 COM shall pay City the maximum amount of One Hundred and Twenty Thousand ($120,000.00) dollars each year this agreement is in effect. This amount shall be paid in monthly installments invoiced by the City starting on the _____ and ending on _____. The parties agree that this payment for increased costs is based on the average salary of the Fire Marshal. City and COM agree that this sum fairly represents the benefits accruing to each.

2. Employee Status of Fire Marshal. The Fire Marshal shall be an employee of City and not an employee of COM for any purpose. City shall be responsible for hiring, training, compensating, disciplining, and dismissing City personnel. COM shall in no way be responsible for any compensation, benefits, insurance, vacation, sick leave, or any other benefit of full-time employment of the Fire Marshal.

3. Time of Performance. It is anticipated that the Fire Marshal will need to spend at least 2+ years at COM.

4. Assignability of MOU. This MOU shall not be assigned or transferred without the City's prior written consent.

5. Amendments. The Parties may amend this MOU at any time provided that such amendments make specific reference to this MOU, and are executed in writing, signed by a duly authorized representative of each organization, and approved by the City. Such amendments shall not invalidate this MOU, nor relieve or release the Parties from their obligations under this MOU. The City may seek to amend this agreement, only as required, to conform with Federal, state or local governmental guidelines, policies and available funding, or for other non-discretionary reasons. If such amendments result in a change in the funding, the scope of services, or schedule of the activities to be undertaken as part of this MOU, such modifications will be incorporated only by written amendment signed by both Parties.

6. Term and Termination. This Agreement will be for a period of two (2) years commencing on _____ and ending on _____. The Agreement may be terminated at any time, in writing, by mutual consent of both parties. This Agreement may be canceled by either party upon ninety (90) days written notice to the other party, except where the cancellation is for cause (i.e. material and significant breach of any provision of the Agreement). If cancellation is for cause, the Agreement may be canceled upon delivery of written notice to the other party.

7. Renewal Provisions. Within thirty (30) days prior to the end date of this MOU, each party shall review the MOU and negotiate any needed changes to the provisions herein. Each party shall collaboratively evaluate the effectiveness of operations pursuant to this MOU, make any necessary modifications and renew the MOU for a term to be determined at the time of renewal.

8. Severability. If any provision of this MOU is held invalid, the remainder of the MOU shall not be affected thereby, and all other parts of this MOU shall nevertheless be in full force and effect.

9. Dispute Resolution. The Parties shall endeavor to resolve any dispute through cooperation and discussion

Miscellaneous

10. Unless expressly agreed in writing by the applicable party, neither the failure of nor any delay by any party to this MOU to enforce any right hereunder or to demand compliance with its terms is a waiver of any right hereunder. No action taken pursuant to this MOU on one or more occasions is a waiver of any right hereunder or constitutes a course of dealing that modifies this MOU.

11. No amendment or modification of this MOU shall be binding on any party hereto unless it is in writing and is signed by the party to be charged.

12. The terms of this MOU shall be binding upon and inure to the benefit of the parties and their respective personal representatives or corporate successors.

13. Nothing herein expressed or implied is intended or shall be construed to give any person other than the parties hereto any rights or remedies under this MOU.

14. This MOU shall be deemed to have been prepared jointly by the parties hereto. Any ambiguity herein shall not be interpreted against any party hereto and shall be interpreted as if each of the parties hereto had prepared this MOU.

15. This MOU may be executed in any number of counterparts, all of which shall constitute one and the same instrument, and any party hereto may execute this MOU by signing and delivering one or more counterparts.

16. Immunities. Nothing in this Agreement waives or alters any immunities provided to either Party under Texas or federal law.

17. This MOU shall be governed by the laws of the State of Texas.

IN WITNESS WHEREOF, the Parties have executed this contract as of the date indicated below and it is effective as of the date first written above.

Parties:

College of the Mainland

By: _____

Name: _____

Title: _____

City of Texas City, Texas

_____
Dennis Harris-Fire Chief

_____
Kyle Dickson-City Attorney

_____
Dedrick Johnson Sr- Mayor, City of Texas City

CITY COMMISSION REGULAR MTG **(9) (c)**

Meeting Date: 01/22/2025

Gravity Technology - Budget and Reporting Software

Submitted For: Cynthia Rushing, Finance **Submitted By:** Cynthia Rushing, Finance

Department: Finance

Information

ACTION REQUEST

Consideration of and action on City of Texas City Resolution No. 2025-009: A Resolution Authorizing the purchase of a 5-year annual subscription and implementation for a Financial Disclosure Management and Budgeting & Planning provided by Gravity Technology Corp for $549,988 and a one-time implementation of $64,378.

BACKGROUND (Brief Summary)

The City does not have a standard budget submission tool that interfaces with the Budget document. The current budget submission process involves several spreadsheets, memos, and emails, and it is challenging to manage version control to ensure that the most up-to-date budget is submitted.

This Budget and Financial Reporting Software will allow us to standardize the process and easily transition from an incremental to a performance-based budget methodology. The tool will step through the various approval phases with ease: Department, Mayor, and Commission.

Gravity Technology creates and maintains an automated Budget Book that is fully integrated with the budget data. The Budget Book can go from Proposed to Adopted at the press of a button. Gravity is compatible with our Financial ERP Munis.

The funding source for this purchase will come from the ARPA Grant Funds.

RECOMMENDATION

The CFO recommends purchasing the Financial Management Reporting and Budgeting & Planning software to automate our budgeting process.

Fiscal Impact

Funds Available Y/N: Y

Amount Requested: 614366

Source of Funds: ARPA GRANT FUNDS

Account #:

Fiscal Impact:

Attachments

RESOLUTION NO. 2025-009

A RESOLUTION AUTHORIZING THE PURCHASE OF A 5-YEAR ANNUAL SUBSCRIPTION AND IMPLEMENTATION FOR A FINANCIAL DISCLOSURE MANAGEMENT AND BUDGETING & PLANNING SOFTWARE SYSTEM PROVIDED BY GRAVITY TECHNOLOGY CORPORATION; AND PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, the City does not have a standard budget submission tool that interfaces with the Budget document. The current budget submission process involves several spreadsheets, memos, and emails, and it is challenging to manage version control to ensure that the most up-to-date budget is submitted; and

WHEREAS, this Budget and Financial Reporting Software will allow us to standardize the process and easily transition from an incremental to a performance-based budget methodology. Gravity Technology creates and maintains an automated Budget Book that is fully integrated with the budget data. Gravity is compatible with our Financial ERP Munis; and

WHEREAS, the purchase of a 5-year annual subscription and implementation for a Financial Disclosure Management and Budgeting & Planning provided by Gravity Technology Corporation is $549,988.00 and a one-time implementation fee of $64,378.00.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission of the City of Texas City, Texas, hereby approves the purchase of a 5-year annual subscription and implementation for a Financial Disclosure Management and Budgeting & Planning provided by Gravity Technology Corp. for $549,988.00 and a one-time implementation fee of $64,378.00.

SECTION 2: That the Mayor or his designee is hereby authorized to execute the documentation to enter into an annual software maintenance agreement with Gravity Technology Corporation.

SECTION 3: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 22nd day of January 2025.

_____

Dedrick D. Johnson, Sr., Mayor
City of Texas City, Texas

ATTEST:

_____
Rhomari D. Leigh
City Secretary

APPROVED AS TO FORM:

_____
Kyle L. Dickson
City Attorney

CITY COMMISSION REGULAR MTG **(9) (d)**

Meeting Date: 01/22/2025

RATIFY TML PAYMENT

Submitted For: Cynthia Rushing, Finance **Submitted By:** Cynthia Rushing, Finance

Department: Finance

Information

ACTION REQUEST

Ratify the payment to the Texas Municipal League (TML) Intergovernmental Risk Pool in the amount of $1,220,56.32.

BACKGROUND (Brief Summary)

The City's property, automobile, and worker's compensation coverage is through Texas Municipal League (TML). Each year we pay an annual premium to TML for insurance coverage.

RECOMMENDATION

Recommend approval to ratify the payment.

Fiscal Impact

Attachments

Resolution

RESOLUTION NO. 2025-010

A RESOLUTION RATIFYING APPROVAL OF THE CITY OF TEXAS CITY'S PAYMENT TO THE TEXAS MUNICIPAL LEAGUE; AND PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, the City's property, automobile, and worker's compensation coverage is through the Texas Municipal League (TML); and

WHEREAS, each year we pay an annual premium to the Texas Municipal League for insurance coverage; and

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission hereby ratifies approval of the City of Texas City's payment to the Texas Municipal League for annual insurance coverage.

SECTION 2: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 22nd day of January 2025.

_____
Dedrick D. Johnson, Sr., Mayor
City of Texas City, Texas

ATTEST:

_____
Rhomari D. Leigh
City Secretary

APPROVED AS TO FORM:

_____
Kyle L. Dickson
City Attorney

CITY COMMISSION REGULAR MTG **(9) (e)**

Meeting Date: 01/22/2025

Funding for payment of COTC's commitments to Gulf Coast Water Authority

Submitted For: Dj Hutchinson, Public Works **Submitted By:** Dj Hutchinson, Public Works

Department: Public Works

Information

ACTION REQUEST

Commission Approval of funding required for payment of water purchases and Operation and Maintenance (O&M) commitments to the Gulf Coast Water Authority in the amount of $5,188,200.00 for Budget Year 2024-2025. (Account No. 501701-52450)

BACKGROUND (Brief Summary)

The fee for water and O&M fees is $437,000 per month for a total of $5,244,000.00 per year plus any TRU-UP Charge (water used over contract amount). The City has already paid GCWA $1,311,000.00 for 2024 and recently received a TRU-UP Charge for $188,000.00 for 2024 overages as well, thus leaving a balance of $5,180,000.00 to be paid in 2025. This balance also includes a $1,058,200.00 final payment for the Shannon Pump Station Re-Build which will satisfy the COTC's required $1.6M commitment to this project. The amount being requested that is higher than the balance may be applied to any additional TRU-UP charges incurred during the 2025 Budget Year.

RECOMMENDATION

It is the recommendation of the Utilities Department and Public Works that the Mayor and City Commission approve this funding.

Fiscal Impact

Attachments

Exhibit A GCWA Invoices

Resolution

#243

12-10

Gulf Coast Water Authority

Monthly Invoices

INVOICE NO: M372412

INVOICE DATE: 12/5/2024

DUE DATE: 1/4/2025

CUSTOMER NO: M37

BILLED TO: **CITY OF TEXAS CITY**
ACCOUNTS PAYABLE
P O DRAWER 2608
TEXAS CITY, TX 77592-2608

ATTENTION: invoices@texascitytx.gov

DESCRIPTION	AMOUNT
RAW WATER	128,364.81
OPERATIONS & MAINTENANCE	230,867.34
CAPITAL IMPROVEMENTS	58,518.99
TMWTP FUND SUBTOTAL	**$ 417,751.14**
BAYSHORE TRANSMISSION SYSTEM	352.50
BAYSHORE FUND SUBTOTAL	**$ 352.50**
NORTH TRANSMISSION SYSTEM	17,437.59
NORTH FUND SUBTOTAL	**$ 17,437.59**
TOTAL DUE FOR DECEMBER 2024	**$ 435,541.23**

Reliably Delivering Water to our Customers

REMIT TO: GULF COAST WATER AUTHORITY
4243 EMMETT F. LOWRY EXPRESSWAY
TEXAS CITY, TX 77591

Questions concerning this invoice can be sent to: accounting@gcwatx.gov

DEC 06 2024

#243 Corbin - PO# Please

3 Invs
12-10-24

Cora 12-17
12-31
01-08

Monthly

Gulf Coast Water Authority

INVOICE NO: N212412
INVOICE DATE: 12/5/2024
DUE DATE: 1/4/2025

CUSTOMER NO: N21

BILLED TO: CITY OF TEXAS CITY
UTILITIES DEPARMENT
PO DRAWER 2608
TEXAS CITY, TX 77592-2608

ATTENTION: bnorwood@texascitytx.gov; rmcclellen@texascitytx.gov

DESCRIPTION		AMOUNT
RAW WATER	Texas City Golf Course	$ 1,006.74

TOTAL DUE FOR DECEMBER 2024 $ 1,006.74

Reliably Delivering Water to our Customers

REMIT TO: GULF COAST WATER AUTHORITY
4243 EMMETT F. LOWRY EXPRESSWAY
TEXAS CITY, TX 77591

uestions concerning this invoice can be sent to: accounting@gcwatx.gov

DEC 06 2024

#243 12-10

Gulf Coast Water Authority

Monthly Inv

INVOICE NO: N242412

INVOICE DATE: 12/5/2024

DUE DATE: 1/4/2025

CUSTOMER NO: N24

BILLED TO: CITY OF TEXAS CITY
UTILITIES DEPARMENT
PO DRAWER 2608
TEXAS CITY, TX 77592-2608

ATTENTION: bnorwood@texascitytx.gov; rmcclellen@texascitytx.gov

DESCRIPTION	AMOUNT
RAW WATER TCI	$ 211.66
OPERATIONS & MAINT TCI	53.76
CAPITAL IMPROVEMENTS TCI	51.82

TOTAL DUE FOR DECEMBER 2024 $ 317.24

Reliably Delivering Water to our Customers

REMIT TO: GULF COAST WATER AUTHORITY
4243 EMMETT F. LOWRY EXPRESSWAY
TEXAS CITY, TX 77591

Questions concerning this invoice can be sent to: accounting@gcwatx.gov

Corbin Ballast

From: Dave Davis <Ddavis@gcwatx.gov>
Sent: Thursday, January 9, 2025 7:47 AM
To: Corbin Ballast
Subject: RE: (EXTERNAL)Pump Station

EXTERNAL EMAIL

Shannon Pump Station

For clarity: TC has two payments.
You have a small participation in the industrial group. That invoice will be for $1,744.20

The participation in the water treatment plant, the invoice will be $1,056,160.34.

Cheers,

From: Dave Davis
Sent: Thursday, January 9, 2025 7:27 AM
To: Corbin Ballast <cballast@texascitytx.gov>
Subject: RE: (EXTERNAL)Pump Station

Corbin, Good Morning,

Please see attached.
We may delay the actual cash call by two months. That decision is still under discussion.

Cheers,

Dave

From: Corbin Ballast <cballast@texascitytx.gov>
Sent: Wednesday, January 8, 2025 4:40 PM
To: Dave Davis <Ddavis@gcwatx.gov>
Subject: (EXTERNAL)Pump Station

CAUTION: This email originated from outside of GCWA Network. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hey Dave,

Have you sent invoice for pump station this year, I don't think I've seen it. Can you tell me how much it will be, and when to expect?

Corbin / Cara - PO# 1-14

#243

True-up for last year

INVOICE NO:
M37TU24
INVOICE DATE:
1/13/2025
DUE DATE:
2/12/2025

CUSTOMER NO: M37

BILLED TO: **CITY OF TEXAS CITY**
ACCOUNTS PAYABLE
P O DRAWER 2608
TEXAS CITY, TX 77592-2608

ATTENTION: invoices@texascitytx.gov

RECEIVED
JAN 14 2025
By

DESCRIPTION	AMOUNT
FY2024 TRUE-UP SURCHARGE	186,399.71
TMWTP FUND SUBTOTAL	**$ 186,399.71**
TOTAL DUE FOR FY2024 TRUE-UP	**$ 186,399.71**

Reliably Delivering Water to our Customers

REMIT TO: GULF COAST WATER AUTHORITY
4243 EMMETT F. LOWRY EXPRESSWAY
TEXAS CITY, TX 77591

Questions concerning this invoice can be sent to: accounting@gcwatx.gov

RESOLUTION NO. 2025-011

A RESOLUTION AUTHORIZING THE PAYMENT OF WATER PURCHASES AND OPERATION AND MAINTENANCE (O&M) COMMITMENTS TO THE GULF COAST WATER AUTHORITY FOR BUDGET YEAR 2024-2025; AND PROVIDING THAT THIS RESOLUTION SHALL BECOME EFFECTIVE FROM AND AFTER ITS PASSAGE AND ADOPTION.

WHEREAS, the fee for water and operation and maintenance fees is $437,000.00 per month for a total of $5,244,000.00 per year plus any TRU-UP Charge (water used over contract amount); and

WHEREAS, the City has already paid Gulf Coast Water Authority $1,311,000.00 for 2024 and recently received a TRU-UP Charge for $188,000.00 for 2024 overages as well, thus leaving an outstanding balance of $5,180,000.00 to be paid in 2025; and

WHEREAS, this outstanding balance also includes a $1,058,200.00 final payment for the Shannon Pump Station Re-Build which will satisfy the City's required $1.6 million commitment to this project. The requested amount that is higher than the outstanding balance may be applied to any additional TRU-UP charges incurred during the 2025 Budget Year.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF TEXAS CITY, TEXAS:

SECTION 1: That the City Commission hereby approves the payment of water purchases and Operation and Maintenance commitments to the Gulf Coast Water Authority in the amount of $5,188,200.00 for Budget Year 2024-2025.

SECTION 2: That this Resolution shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 22nd day of January 2025.

_____
Dedrick D. Johnson, Sr., Mayor
City of Texas City, Texas

ATTEST:

_____
Rhomari D. Leigh
City Secretary

APPROVED AS TO FORM:

_____
Kyle L. Dickson
City Attorney