JKnesek & associates
www.jknesek.com | main (713) 775-6490
3418 Hwy 6 South Suite B 336 | Houston, Texas 77082

October 28, 2016

Mr. Sean Landis
Director of Community Development
City of Seabrook
1700 First Street
Seabrook, Texas 77586

RE: Seaside RV Resort and Cabanas
Preliminary Traffic Analysis

Mr. Landis,

JKnesek & Associates, Inc. was contracted by Stonemarc One, LLC to determine the potential traffic impact of the planned site rezoning from R-2 to PUD for the Seaside RV Resort and Cabanas on Red Bluff Road in the City of Seabrook, Texas.

The following documents the findings of the preliminary analysis.

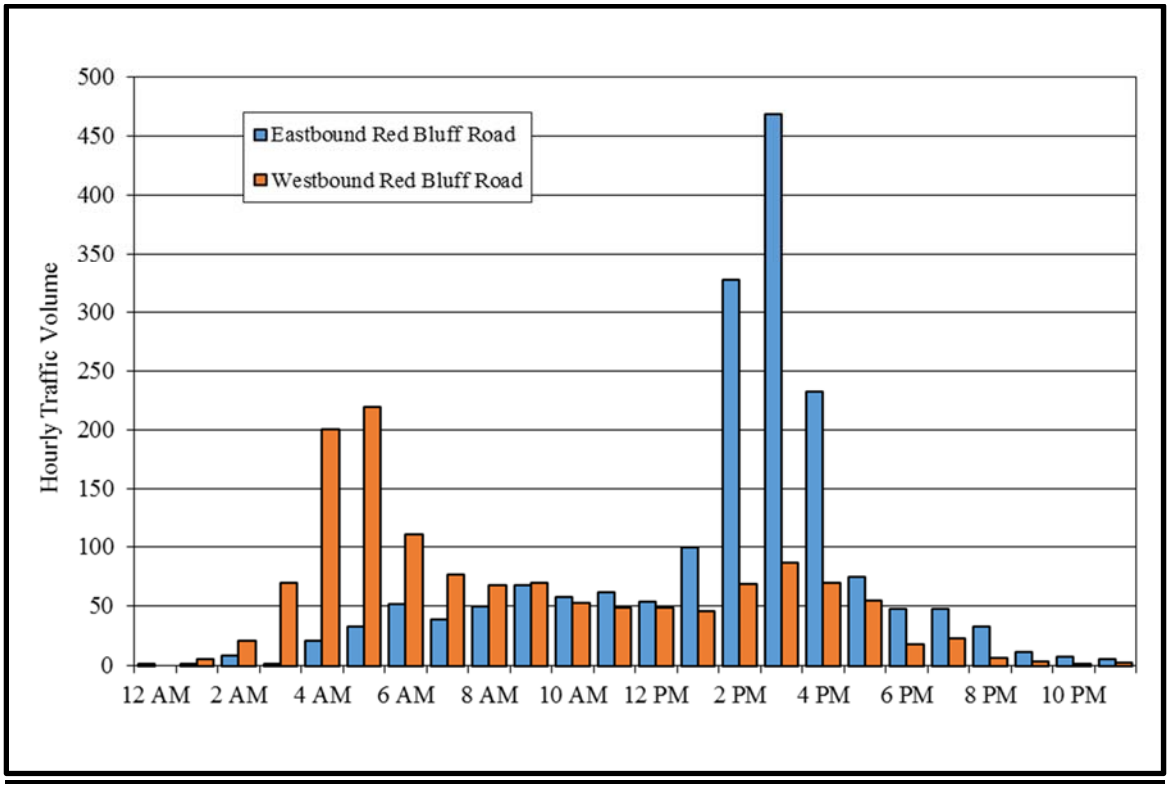
Traffic Volume Counts

24-hour vehicular traffic counts were recorded on Red Bluff Road just east of Old State Highway 146 adjacent to the proposed development on October 6, 2015. The traffic counts indicate that approximately 3,200 vehicles pass the location on the typical weekday and that the majority of vehicular traffic at the location is travelling westbound in the AM Peak period and eastbound in the PM Peak period.

Also, the traffic counts indicate that the eastbound volume is approximately 32% higher than the westbound volume over the 24-hour period. This may indicate some abnormalities in the surrounding roadway system and/or that Red Bluff Road is utilized as a cut-through to avoid traffic congestion in the PM Peak period.

A graphical depiction of the Red Bluff Road 24-hour traffic volume counts is illustrated in **Figure 1**. A detailed account of the 24-hour count is attached.

Figure 1: *24-Hour Traffic Count – Red Bluff Road*



According to TxDOT available traffic data, Year 2013 24-hour traffic counts on State Highway 146 ranged from approximately 31,000 to 43,000 vehicles. Available TxDOT traffic data is attached.

Development

Currently, the proposed project area is zoned as C-2. If developed, the tract could include an approximate 75,000 square foot office building.

The proposed development is a recreational vehicle park with 89 recreational vehicle lots and 37 cabins. An exhibit of the proposed development is attached.

Trip Generation

Based on trip generation rates published in the ITE Trip Generation manual (9th edition), a 75,000 square foot office building is projected to generate approximately 117 trips in the AM Peak period and 112 trips in the PM Peak period.

Based on trip generation rates published in the ITE Trip Generation manual (9th edition), 126 occupied camp sites at a campground / recreational vehicle park is projected to generate approximately 32 trips in the AM Peak period and 52 trips in the PM Peak period.

Comparison of the existing zoning and proposed zoning reveals that proposed zoning is projected to produce 86 less trips in the AM Peak period and 60 less trips in the PM Peak period when compared to the existing zoning.

Table 1 provides a summary of the trip generation for the existing and proposed zoning. Additional trip generation data is attached.

Table 1: *Trip Generation for the Existing/Proposed Zoning*

Zoning	Weekday AM Peak Period		Weekday PM Peak Period	
	Entering	Exiting	Entering	Entering
Existing Zoning	103	14	19	93
Proposed Zoning	11	20	32	20

Sight Distance

According to Table 9-8 in "A Policy on Geometric Design of Highways and Streets" (6th edition) published by the American Association of State Highway and Transportation Officials (AASHTO), the design intersection sight distance for passenger cars performing right turns from a stop to a 20 mph design speed roadway is 195 feet. Table 9-8 is attached.

Preliminary analysis reveals that the estimated sight distance of vehicles performing right turns from the development to Red Bluff Road exceeds the industry standard sight distance described above.

Summary

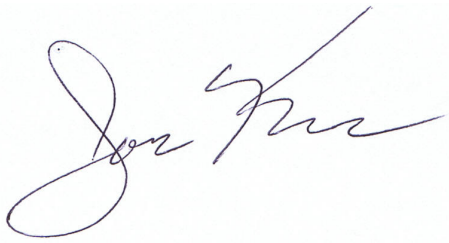
Traffic counts on Red Bluff Road at the proposed development indicate that approximately 3,200 vehicles utilize the road on a typical weekday. State Highway 146 in the Seabrook – Kemah area is a successful commercial area that carries approximately 10 times the traffic volume of Red Bluff Road in the vicinity of the Red Bluff Tract.

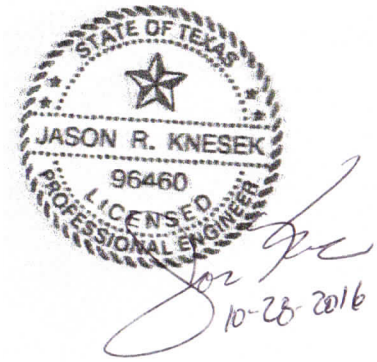
The proposed re-zoning of the project area is projected to reduce the potential generated traffic in the area by 86 vehicles in the AM Peak period and 60 vehicles in the PM Peak period.

Based on the preliminary analysis, right-turning vehicles exiting the proposed development will have ample sight distance.

If you have any questions or comments regarding the traffic impact of the planned re-zoning of the project area, please feel free to contact me at 713-775-6490 or jason@jknesek.com.

Thank you.





Jason Knesek, P.E., PTOE
President

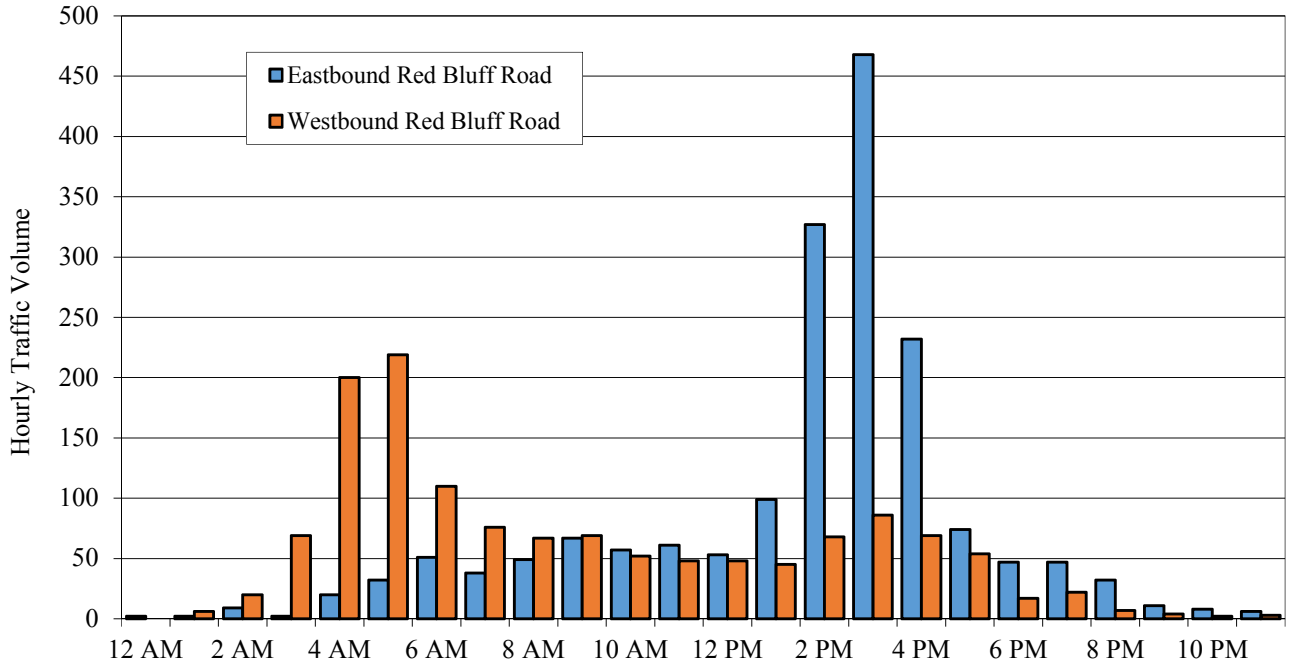
Attachments

RED BLUFF ROAD - EAST OF OLD STATE HIGHWAY 146

24-Hour Traffic Counts - October 6, 2015

Time	Eastbound Red Bluff Road					Westbound Red Bluff Road				
Start	:00	:15	:30	:45	Ttl.	:00	:15	:30	:45	Ttl.
12 AM	0	0	1	1	2	0	0	0	0	0
1 AM	0	1	0	1	2	1	2	2	1	6
2 AM	3	2	1	3	9	3	6	5	6	20
3 AM	0	0	2	0	2	15	7	18	29	69
4 AM	2	6	4	8	20	30	44	65	61	200
5 AM	9	3	11	9	32	62	48	68	41	219
6 AM	22	9	8	12	51	36	26	27	21	110
7 AM	13	10	8	7	38	22	18	23	13	76
8 AM	9	16	11	13	49	17	17	17	16	67
9 AM	16	22	15	14	67	23	11	17	18	69
10 AM	15	14	9	19	57	12	13	12	15	52
11 AM	16	15	13	17	61	17	12	13	6	48
12 PM	15	9	10	19	53	18	6	14	10	48
1 PM	17	26	23	33	99	13	9	11	12	45
2 PM	54	75	87	111	327	16	16	23	13	68
3 PM	124	104	128	112	468	25	23	19	19	86
4 PM	95	68	38	31	232	23	24	6	16	69
5 PM	15	20	18	21	74	14	16	10	14	54
6 PM	10	17	10	10	47	2	7	5	3	17
7 PM	10	15	8	14	47	4	8	5	5	22
8 PM	10	11	5	6	32	2	1	2	2	7
9 PM	2	3	3	3	11	2	0	1	1	4
10 PM	2	0	1	5	8	1	1	0	0	2
11 PM	2	2	0	2	6	0	3	0	0	3
24 Hour	1,794					1,361				

AM Peak Hour: 270 4:45 AM to 5:45 AM
PM Peak Hour: 554 3:00 PM to 4:00 PM



AADT
Towns
Rds & Streets
Toll
Toll
IH
Bi
US
BU RE
UP RM
UA RR
BF RS District
BS SH County
FM SL
FS SS
PR Cities

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NOTICE: This map has been prepared for internal use by the Texas Department of Transportation. Accuracy is limited to the validity of available data.

NOTICE: Volumes set apart with an asterisk (*) include service road volumes only.

Miles
0 1 2 3 4

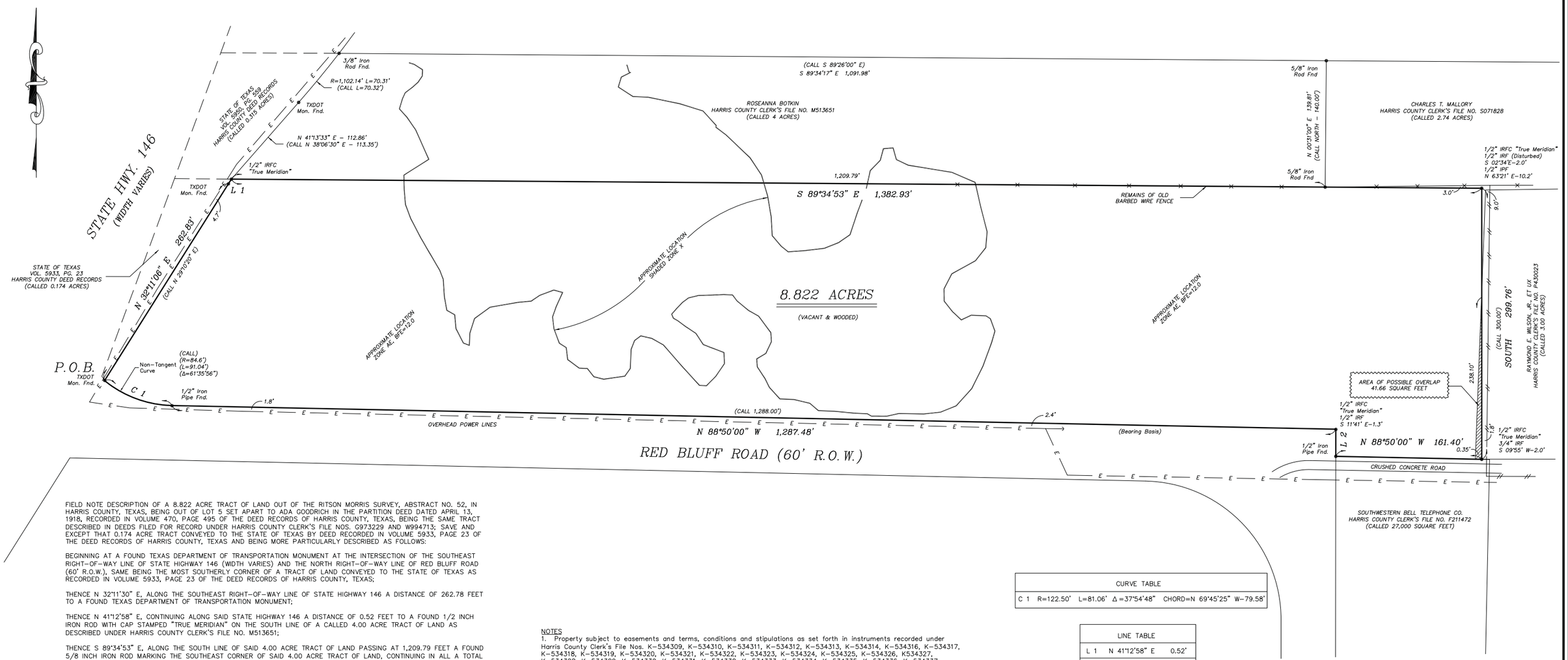
2013 HOUSTON DISTRICT TRAFFIC MAP

PREPARED BY THE
Texas Department of Transportation
Transportation Planning and Programming Division
IN COOPERATION WITH THE
U.S. Department of Transportation

N

Texas Department of Transportation

Sheet 8 of 10 Base Sheets



FIELD NOTE DESCRIPTION OF A 8.822 ACRE TRACT OF LAND OUT OF THE RITSON MORRIS SURVEY, ABSTRACT NO. 52, IN HARRIS COUNTY, TEXAS, BEING OUT OF LOT 5 SET APART TO ADA GOODRICH IN THE PARTITION DEED DATED APRIL 13, 1918, RECORDED IN VOLUME 470, PAGE 495 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS, BEING THE SAME TRACT DESCRIBED IN DEEDS FILED FOR RECORD UNDER HARRIS COUNTY CLERK'S FILE NOS. G973229 AND W994713; SAVE AND EXCEPT THAT 0.174 ACRE TRACT CONVEYED TO THE STATE OF TEXAS BY DEED RECORDED IN VOLUME 5933, PAGE 23 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A FOUND TEXAS DEPARTMENT OF TRANSPORTATION MONUMENT AT THE INTERSECTION OF THE SOUTHEAST RIGHT–OF–WAY LINE OF STATE HIGHWAY 146 (WIDTH VARIES) AND THE NORTH RIGHT–OF–WAY LINE OF RED BLUFF ROAD (60' R.O.W.), SAME BEING THE MOST SOUTHERLY CORNER OF A TRACT OF LAND CONVEYED TO THE STATE OF TEXAS AS RECORDED IN VOLUME 5933, PAGE 23 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS;

THENCE N 32°11'30" E, ALONG THE SOUTHEAST RIGHT–OF–WAY LINE OF STATE HIGHWAY 146 A DISTANCE OF 262.78 FEET TO A FOUND TEXAS DEPARTMENT OF TRANSPORTATION MONUMENT;

THENCE N 41°12'58" E, CONTINUING ALONG SAID STATE HIGHWAY 146 A DISTANCE OF 0.52 FEET TO A FOUND 1/2 INCH IRON ROD WITH CAP STAMPED "TRUE MERIDIAN" ON THE SOUTH LINE OF A CALLED 4.00 ACRE TRACT OF LAND AS DESCRIBED UNDER HARRIS COUNTY CLERK'S FILE NO. M513651;

THENCE S 89°34'53" E, ALONG THE SOUTH LINE OF SAID 4.00 ACRE TRACT OF LAND PASSING AT 1,209.79 FEET A FOUND 5/8 INCH IRON ROD MARKING THE SOUTHEAST CORNER OF SAID 4.00 ACRE TRACT OF LAND, CONTINUING IN ALL A TOTAL DISTANCE OF 1,382.93 FEET TO A FOUND 1/2 INCH IRON ROD WITH CAP STAMPED "TRUE MERIDIAN" MARKING THE NORTHEAST CORNER OF THIS HEREIN DESCRIBED TRACT OF LAND, FROM WHICH BEARS A FOUND 1/2 INCH IRON ROD (DISTURBED) S 02°34' E – 2.0 FEET AND A FOUND 1/2 INCH IRON PIPE N 63°21' E – 10.2 FEET;

THENCE SOUTH A DISTANCE OF 299.76 FEET TO A FOUND 1/2 INCH IRON ROD WITH CAP STAMPED "TRUE MERIDIAN" MARKING THE SOUTHEAST CORNER OF THIS HEREIN DESCRIBED TRACT OF LAND, FROM WHICH BEARS A FOUND 3/4 INCH IRON ROD S 09°55' W – 2.0 FEET;

THENCE N 88°50'00" W, A DISTANCE OF 161.39 FEET TO A FOUND 1/2 INCH IRON PIPE ON THE EAST RIGHT–OF–WAY LINE OF RED BLUFF ROAD;

THENCE NORTH, A DISTANCE OF 30.00 FEET TO A 1/2 INCH IRON ROD FOUND WITH A CAP STAMPED "TRUE MERIDIAN" FOR CORNER, FROM WHICH BEARS A FOUND 1/2 INCH IRON ROD S 11°41' E – 1.3 FEET;

THENCE N 88°50'00" W, ALONG THE NORTH RIGHT–OF–WAY LINE OF RED BLUFF ROAD A DISTANCE OF 1,287.48 FEET TO A FOUND 1/2 INCH IRON PIPE MARKING THE BEGINNING OF A CURVE;

THENCE IN A NORTHWESTERLY DIRECTION WITH A NONTANGENT CURVE THE RIGHT, HAVING A RADIUS OF 122.50 FEET, AN ARC LENGTH OF 81.06 FEET, A DELTA ANGLE OF 37°54'48", A CHORD BEARING AND DISTANCE OF N 69°45'25" W – 79.58 FEET TO THE PLACE OF BEGINNING AND CONTAINING 8.822 ACRES OF LAND, MORE OR LESS.

CURVE TABLE				
C 1	R=122.50'	L=81.06'	Δ=37°54'48"	CHORD=N 69°45'25" W–79.58'

LINE TABLE		
L 1	N 41°12'58" E	0.52'
L 2	NORTH	30.00'

NOTES
1. Property subject to easements and terms, conditions and stipulations as set forth in instruments recorded under Harris County Clerk's File Nos. K–534309, K–534310, K–534311, K–534312, K–534313, K–534314, K–534316, K–534317, K–534318, K–534319, K–534320, K–534321, K–534322, K–534323, K–534324, K–534325, K–534326, K534327, K–534328, K–534329, K–534330, K–534331, K–534332, K–534333, K–534334, K–534335, K–534336, K–534337, K–534338, K–534339, K–534340, K–545092, K–545093, K–545094, K–545095, K–545096, K–545097, K–545098, K–559860, K–59861, K–559862, K–559863, K–624342, M–917398 and M–917399.
2. Property subject to the Zoning Ordinances or proposed ordinances inforced in the City of Seabrook, Texas.

LEGEND
IRFC=Iron Rod Found with Cap
L=Arc Length
R=Radius
R.O.W.=Right Of Way
A=Delta Angle

STANDARD LAND SURVEY
OF
8.822 ACRES
OUT OF
THE RITSON MORRIS SURVEY
ABSTRACT NO. 52
IN
HARRIS COUNTY, TEXAS

FLOOD STAMP
IT APPEARS THROUGH VISUAL INTERPOLATION THAT ACCORDING TO THE FLOOD INSURANCE RATE MAPS, COMMUNITY–PANEL NO. 485507 1085 L, MAP REVISED JUNE 18, 2007. THIS PROPERTY LIES IN SHADED ZONE X AND FLOOD ZONE AE, BFE = 12.0 FEET.

NOT FOR CONSTRUCTION

SCALE: 1" = 50'
DATE
SURVEYED: JULY 3, 2015

JOB NO. 08–1490–A

TO: STEWART TITLE, EXCLUSIVELY.

I, Todd J. Slaton, Registered Professional Land Surveyor No. 5082, do hereby certify that the plat shown hereon was prepared from an actual survey made on the ground under my supervision and conforms to the Texas Board of Professional Land Surveying minimum standards adopted September 1, 1992; the size, location and types of improvements are shown with setback dimensions where applicable. There are no apparent visible encroachments, conflicts or protrusions except as shown. All easements shown are per the reference plat unless noted otherwise. This plat was prepared specifically for the transaction referenced below. The undersigned assumes no responsibility for any other use. Certification shown is revoked and this survey is null and void if this document is altered in any manner, or does not bear an original seal and signature of Todd J. Slaton in blue ink.

By: _____ Date: _____
Todd J. Slaton, Registered Professional Land Surveyor No. 5082

PURCHASER: Stonemarc One LLC
STEWART TITLE
G.F. NO.: 15000330495

N
W TRUE MERIDIAN E
S
P.O. BOX 366 PEARLAND, TEXAS 77588-0366
OFFICE (281-412-0149) FAX (281-412-3390)
E-MAIL truemard@sbcglobal.net

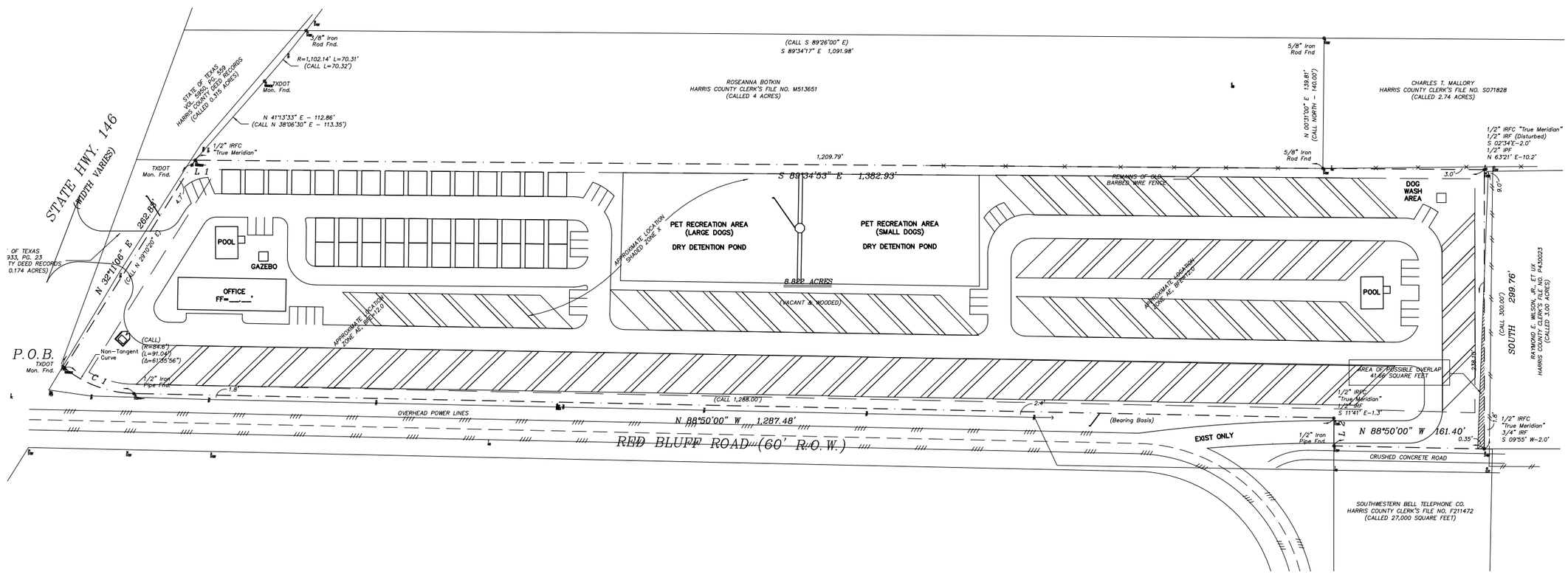
FLOOD STAMP
IT APPEARS THROUGH VISUAL INTERPOLATION THAT ACCORDING TO THE FLOOD INSURANCE RATE MAPS, COMMUNITY–PANEL NO. 485507
1085 L, MAP REVISED JUNE 18, 2007. THIS PROPERTY LIES IN SHADED ZONE X AND FLOOD ZONE AE, BFE = 12.0 FEET.

OPEN GREEN SPACE

TOTAL AREA: 384,286 SF
OPEN (GREEN) SPACE: 163,851 SF

PERCENTAGE OPEN SPACE: 42.63%

60 0 60 120 180 Feet
SCALE: 1"=60'



PROJECT:

SEASIDE RV RESORT & CABANA
ADDRESS
SEABROOK, TEXAS

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 Road East | Dickinson, Texas 77539
TX FIRM No. F-21175

ISSUED FOR

	DATE	
A		REVIEW

DWG NAME: OPEN SPACE LAYOUT PLAN

DWG: C2.01

SCALE: 1:60

JOB NO: 16-344

REV: A

INFORMATION AND DATA CONTAINED IN THIS DRAWING ARE STRICTLY CONFIDENTIAL AND ARE SUPPLIED ON THE UNDERSTANDING THAT THEY WILL BE HELD CONFIDENTIALLY AND NOT REPRODUCED, COPIED OR DISCLOSED TO THIRD PARTIES WITHOUT THE PRIOR WRITTEN CONSENT OF SHELMARK ENGINEERING, LLC

Trip Generation - ITE 9th Edition

Existing Zoning	ITE Code	Units	Quantity	Weekday											
				A.M. Peak of Generator						P.M. Peak Hour of Generator					
				Rate	Total	Entering		Exiting		Rate	Total	Entering		Exiting	
General Office Building	710	sq. ft.	75,000	0.00156	117	88%	103	12%	14	0.00149	112	17%	19	83%	93

Trip Generation - ITE 9th Edition

Proposed Zoning	ITE Code	Units	Quantity	Weekday											
				A.M. Peak of Generator						P.M. Peak Hour of Generator					
				Rate	Total	Entering		Exiting		Rate	Total	Entering		Exiting	
Campground / Recreational Vehicle Park	416	Occupied Camp Sites	126	0.25	32	36%	11	64%	20	0.41	52	62%	32	38%	20

Reduction from Existing to Proposed Zoning		86						60				

Table 9-8. Design Intersection Sight Distance—Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver

Metric				U.S. Customary			
Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars		Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)			Calculated (ft)	Design (ft)
20	20	36.1	40	15	80	143.3	145
30	35	54.2	55	20	115	191.1	195
40	50	72.3	75	25	155	238.9	240
50	65	90.4	95	30	200	286.7	290
60	85	108.4	110	35	250	334.4	335
70	105	126.5	130	40	305	382.2	385
80	130	144.6	145	45	360	430.0	430
90	160	162.6	165	50	425	477.8	480
100	185	180.7	185	55	495	525.5	530
110	220	198.8	200	60	570	573.3	575
120	250	216.8	220	65	645	621.1	625
130	285	234.9	235	70	730	668.9	670
—	—	—	—	75	820	716.6	720
—	—	—	—	80	910	764.4	765

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane highway with no median and with grades of 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

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