

FILE: COVER.dwg

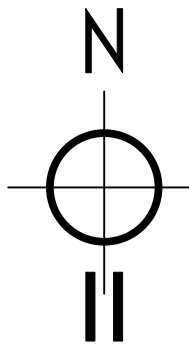
PLOT DATE: 12/15/23

DEVELOPMENT PLANS
FOR
SANDALWOOD ESTATES
CITY OF LUCAS
COLLIN COUNTY, TEXAS



VICINITY MAP

NOT TO SCALE



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ADVANCED NOTICE: MINIMUM OF 2 WORKING DAYS BUT
NOT MORE THAN 14 DAYS.

MARKS VALID: UP TO 14 DAYS

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DESIGN HISTORY	
REV	DATE DESCRIPTION
-	8/18/23 CITY OF LUCAS - CIVIL PLANS (PRELIMINARY)
-	10/16/23 CITY OF LUCAS - CIVIL PLANS (APPROVED TADOT PERMIT)
-	12/15/23 CITY OF LUCAS - CIVIL PLANS (COL COMMENTS 11/3/23)

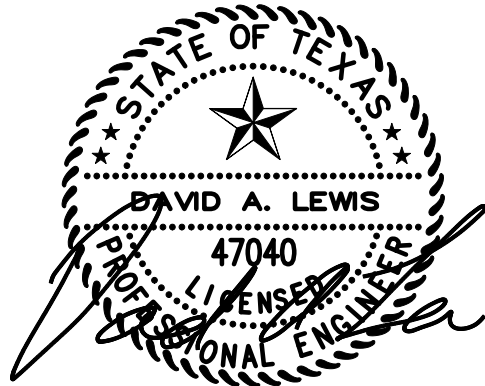
LR

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STRUCTURAL DESIGN & INSPECTION

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ENGINEERING@LRTEXAS.COM
FIRM # F-16662



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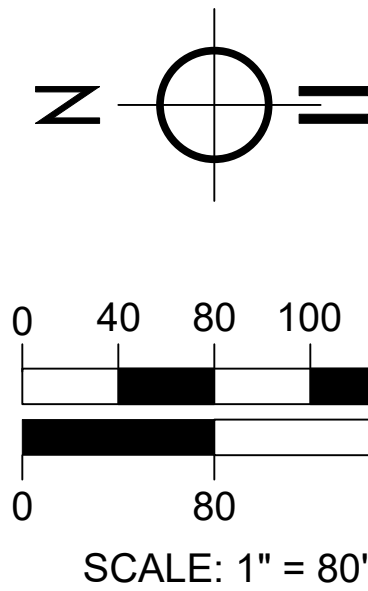
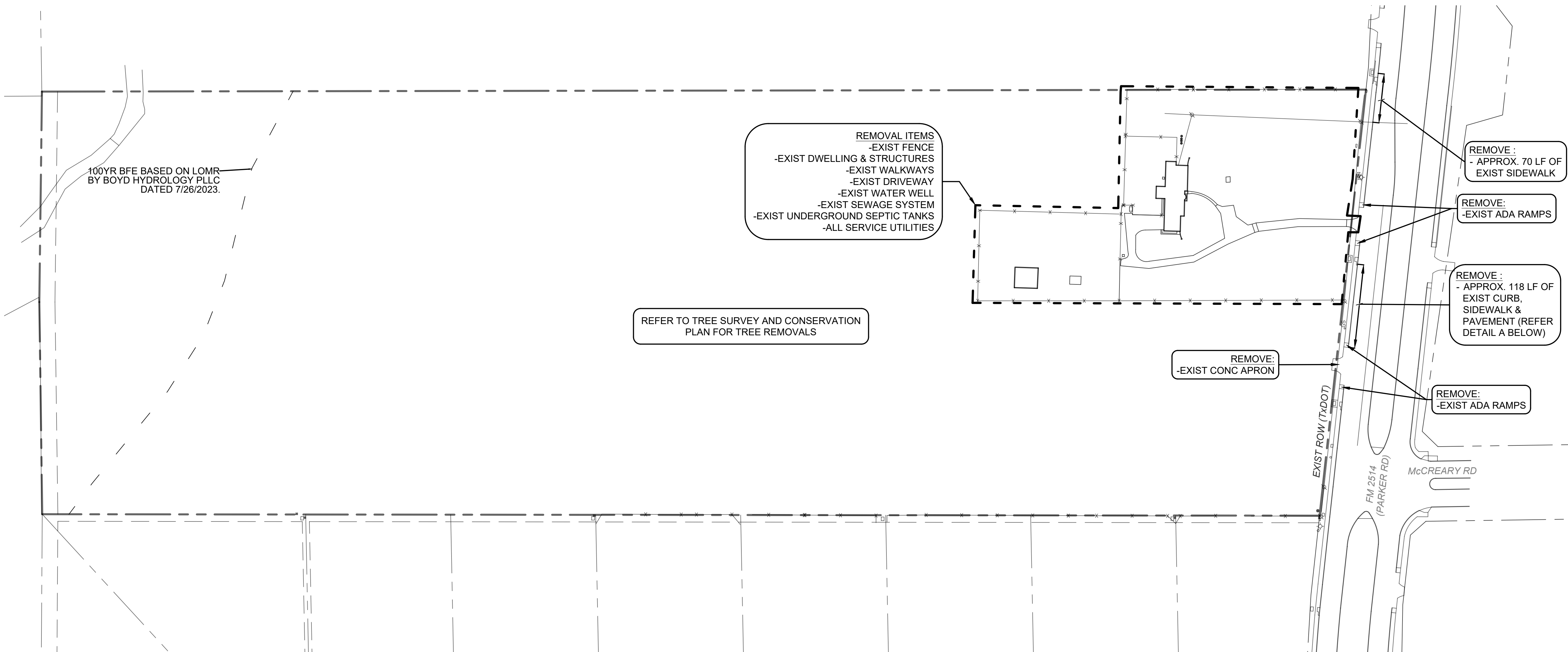
SANDALWOOD ESTATES DEVELOPMENT
COVER SHEET

FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

2022-0535B
SHEET
1

FILE: DEMOLITION_Plan.dwg

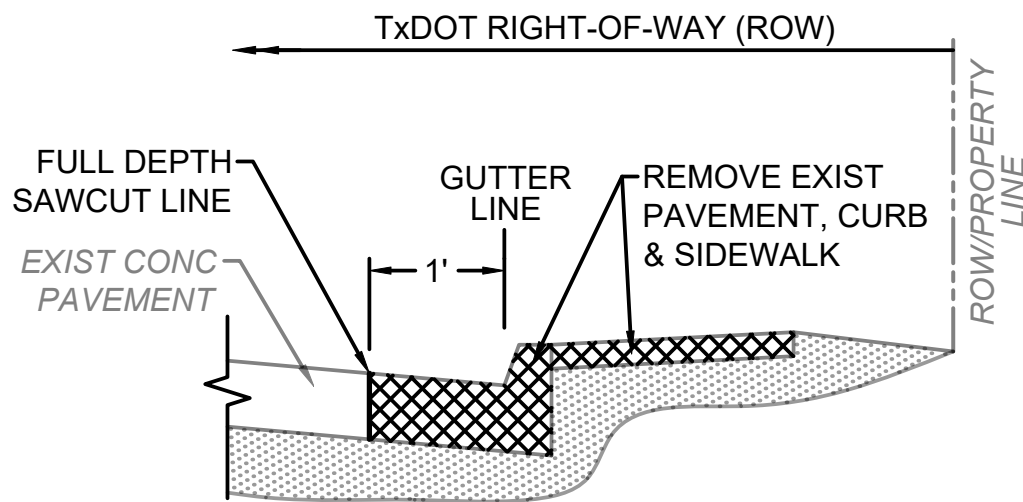
PLOT DATE: 12/15/23



DEMOLITION PLAN

DEMOLITION NOTES

1. CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITIES PRIOR TO ANY DEMOLITIONS OR REMOVALS. ANY DISCREPANCIES OR CONFLICT SHOULD BE INFORMED TO
2. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER(S) FOR REMOVAL OF EXISTING SERVICE LINES. REMOVAL AND DEMOLITION WORK OF UTILITIES SHALL COMPLY WITH THEIR RESPECTIVE GUIDELINES AND POLICIES.
3. THE CONTRACTOR SHALL NOTIFY THE UTILITY OWNER REGARDING OF ANY DISCREPANCIES OR CONFLICTS. CONTRACTOR SHALL NOT PROCEED WITH WORK UNTIL A RESOLUTION PLAN FOR THE CONCERNING ITEM IS DISCUSSED WITH THE UTILITY OWNER.
4. BUILDING/DWELLING DEMOLITION AND REMOVAL MAY REQUIRE A PERMIT FROM CITY OF LUCAS. CONTRACTOR SHALL SECURE ALL NECESSARY PERMIT REQUIRED PRIOR TO BUILDING DEMOLITION.
5. THE CONTRACTOR SHALL DISPOSE ALL REMOVAL AND DEMOLITION MATERIAL IN ACCORDANCE WITH THE LOCAL CITY, COUNTY AND STATE REGULATIONS AND LAWS.
6. ALL WORK WITHIN THE TxDOT RIGHT-OF-WAY (ROW) SHALL ADHERE TO TxDOT STANDARDS AS APPLICABLE.



DETAIL A - PAVEMENT REMOVAL WITHIN TxDOT ROW

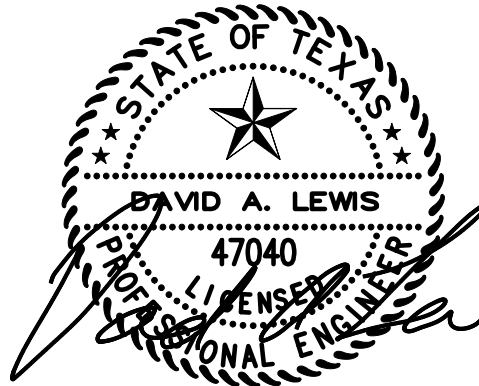
(NOT TO SCALE)

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SANDALWOOD ESTATES DEVELOPMENT DEMOLITION PLAN

FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

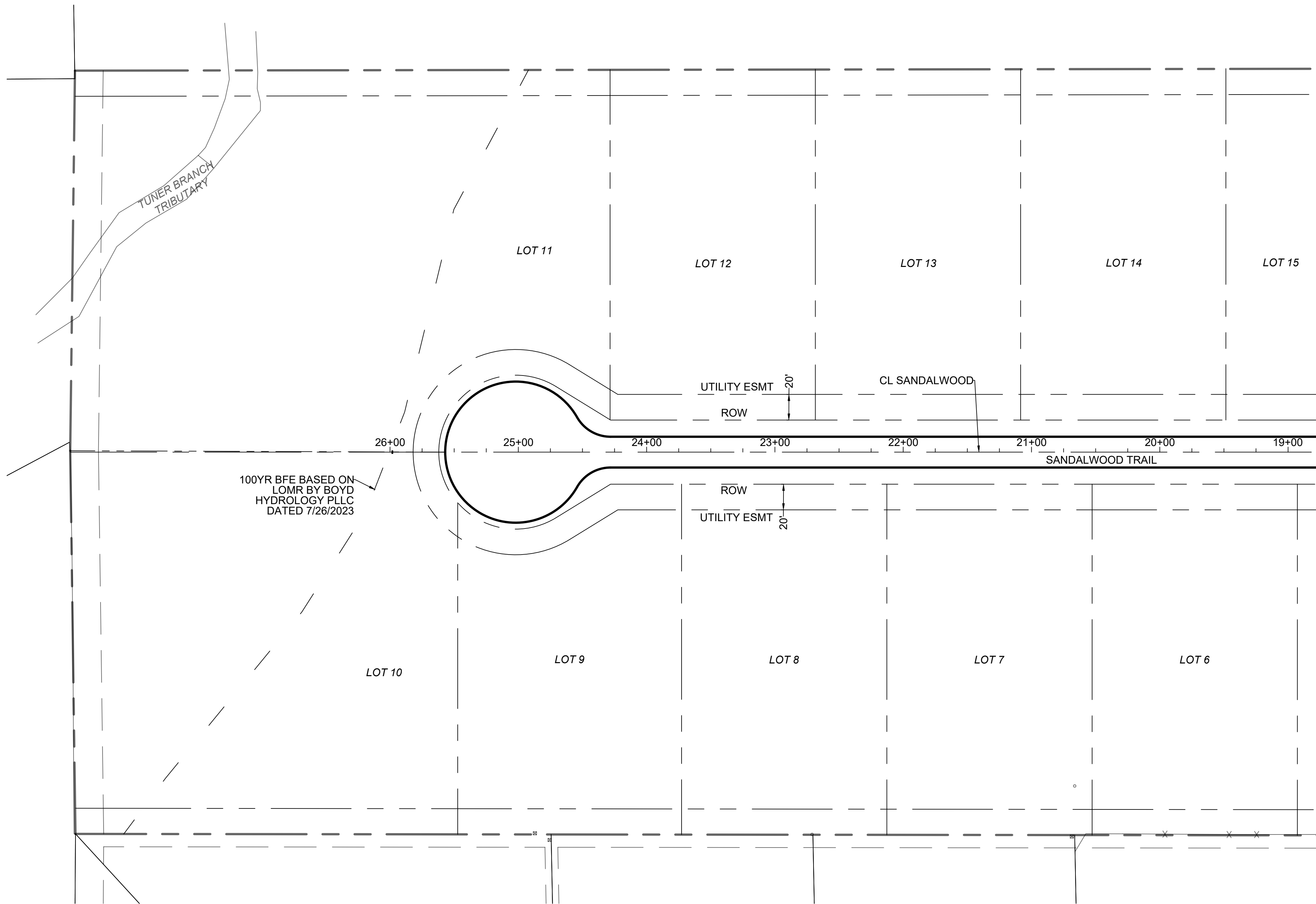
2022-0535B

SHEET

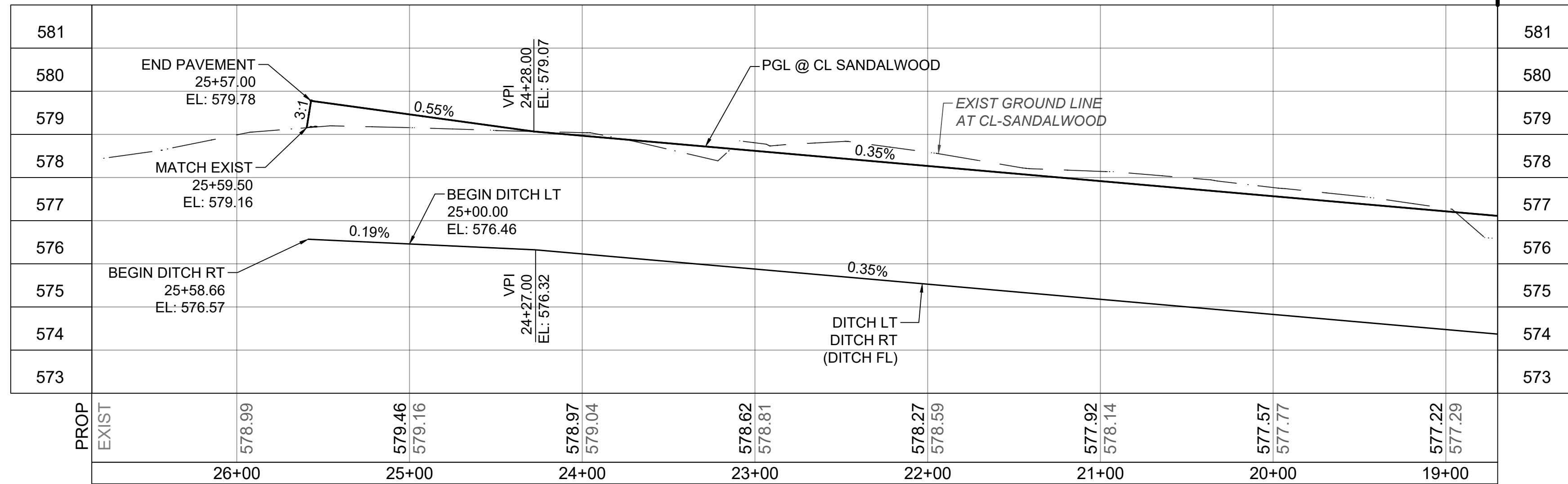
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FILE: PAVE_PlanProfile.dwg

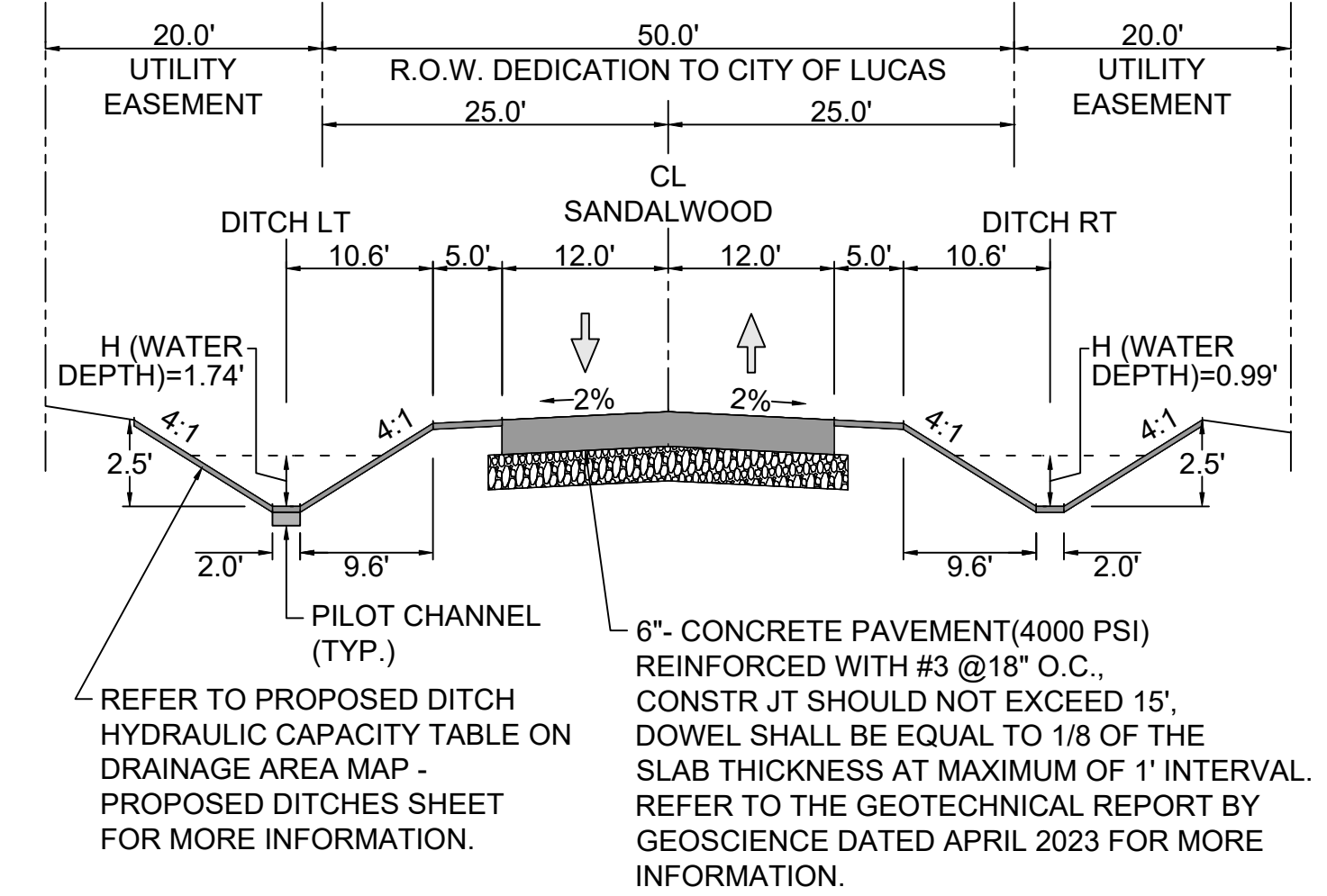
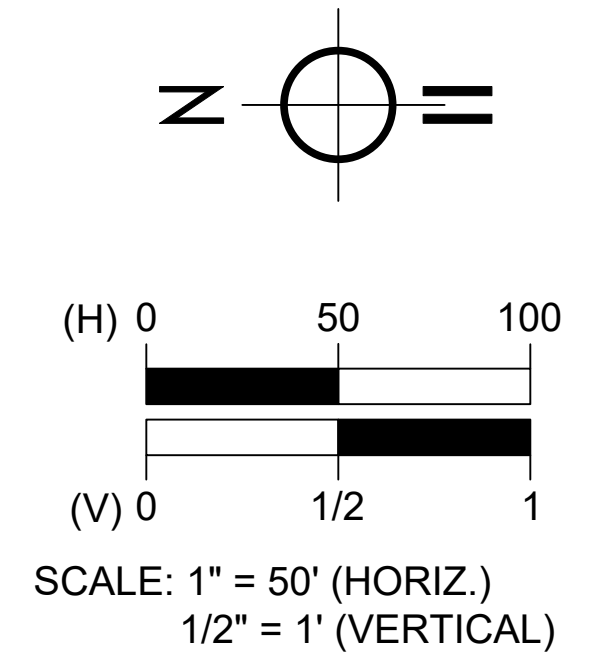
PLOT DATE: 12/15/23



SANDALWOOD TRAIL - LAYOUT PLAN



SANDALWOOD TRAIL - PROFILE

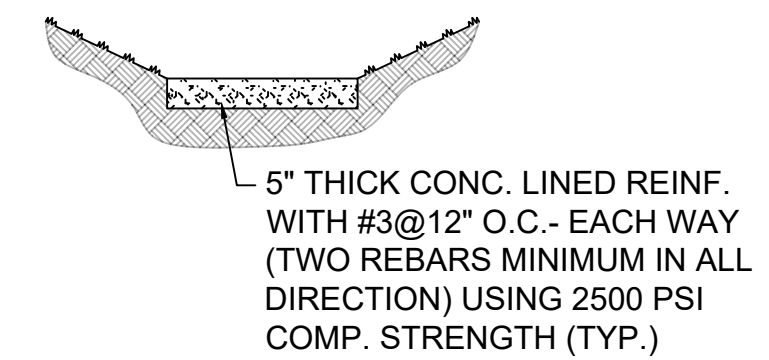


TYPICAL PAVEMENT SECTION - SANDALWOOD TRAIL
(NOT TO SCALE)

HORIZONTAL DATA

ALIGNMENT: CL SANDALWOOD

BEGIN STA	END STA	DISTANCE	BEARINGS	BEGIN NORTHING	BEGIN EASTING	END NORTHING	END EASTING
10+00.00	25+57.00	1557.00 FT	N 00°17'51" W 1557.00'	7073265.4066	2552909.7924	7074822.3855	2552901.7067



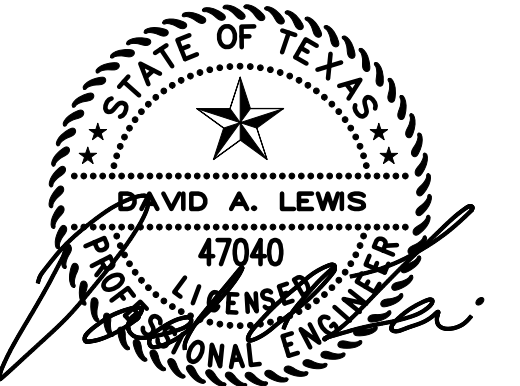
PILOT CHANNEL DETAIL
(NOT TO SCALE)

DESIGN HISTORY

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FIRM # F-16652



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SANDALWOOD ESTATES DEVELOPMENT
PAVING PLAN 1 OF 2

FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

2022-0535B

SHEET

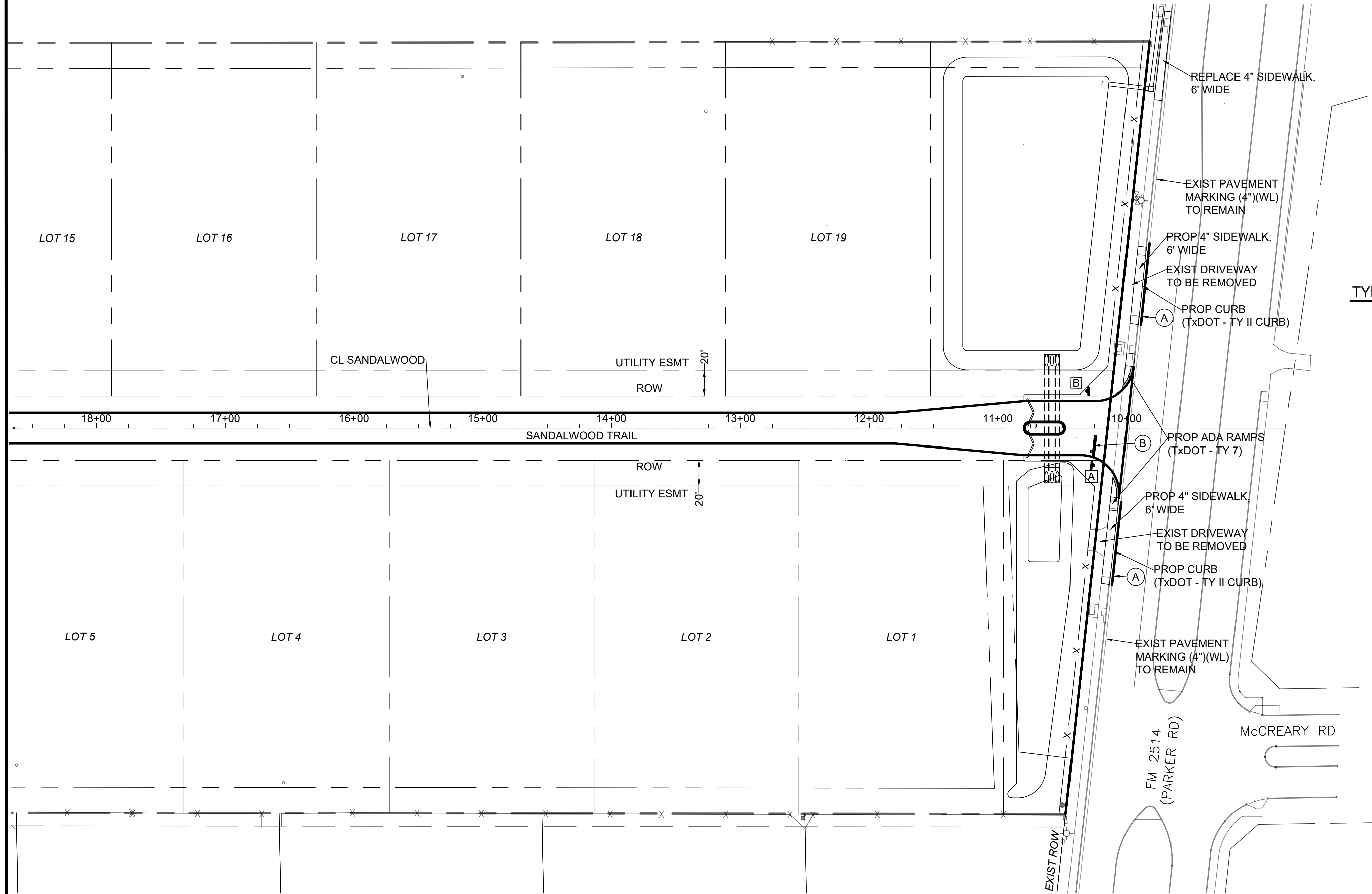
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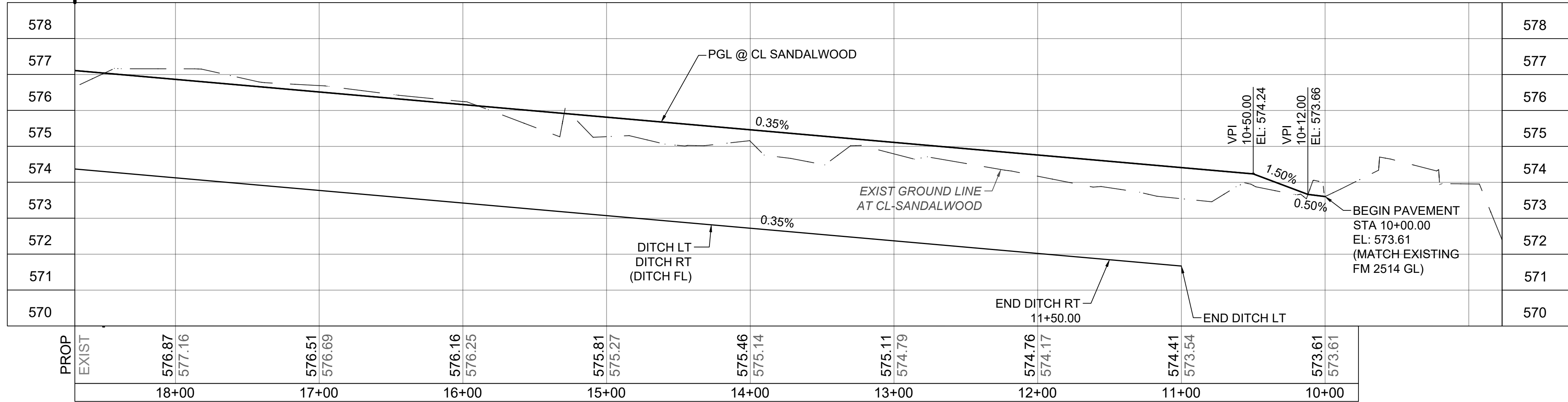
FILE: PAVE_PlanProfile.dwg

PLOT DATE: 12/15/23

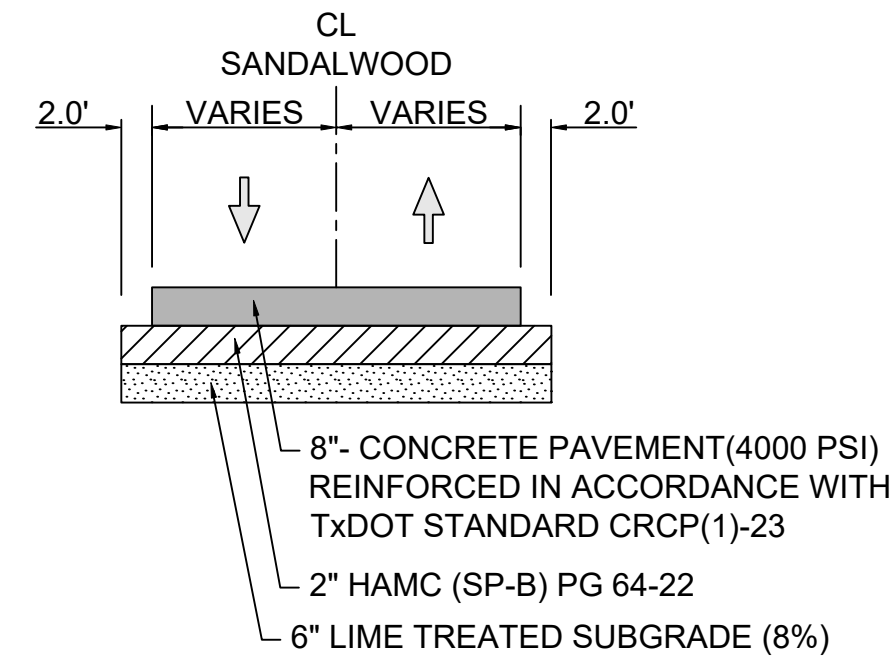
MATCHLINE STA 18+70



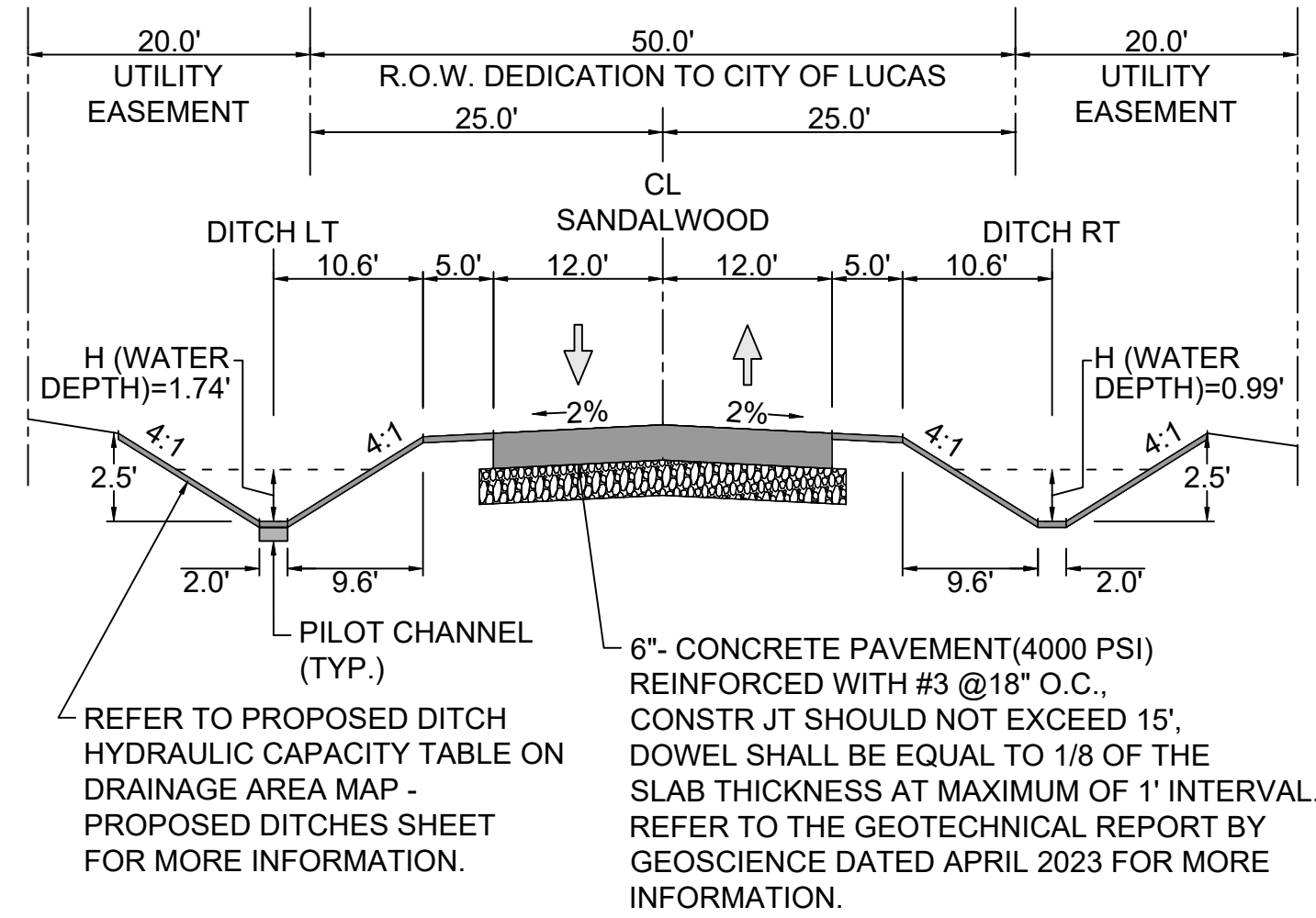
SANDALWOOD TRAIL - LAYOUT PLAN



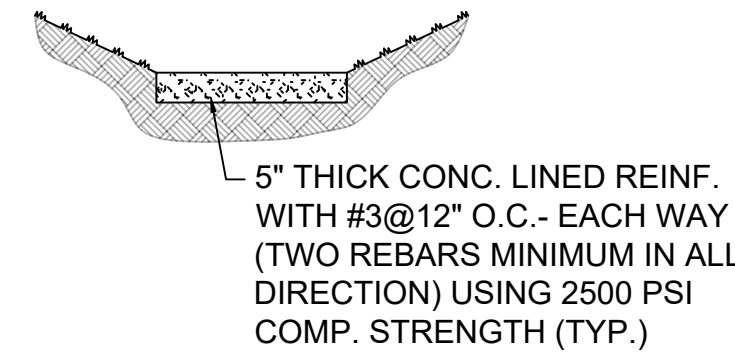
SANDALWOOD TRAIL - PROFILE



TYPICAL PAVEMENT SECTION WITHIN TxDOT ROW
(NOT TO SCALE)



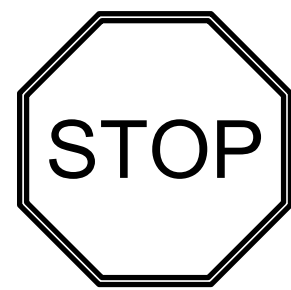
TYPICAL PAVEMENT SECTION - SANDALWOOD TRAIL
(NOT TO SCALE)



PILOT CHANNEL DETAIL
(NOT TO SCALE)

PAVEMENT MARKINGS AND SIGNING

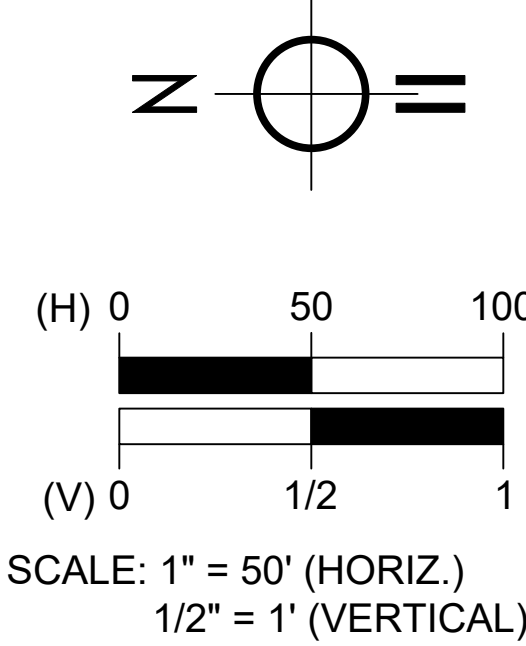
- (A) REFL PAV MRK (W) 4" (SLD)
(B) REFL PAV MRK (W) 24" (SLD)



R1-1
30"x30"



W14-1
30"x30"



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LR ENGINEERING

STRUCTURAL DESIGN & INSPECTION

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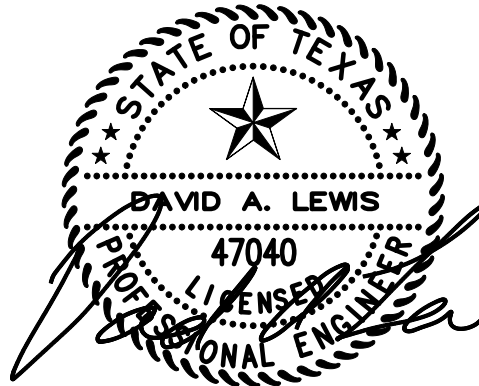
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FIRM # F-15652



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SANDALWOOD ESTATES DEVELOPMENT

PAVING PLAN 2 OF 2

FM 2514 (PARKER RD)

LUCAS, TEXAS 75002

ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7

OWNER(S): 3R LAND PROPERTIES

2022-0535B

SHEET

4

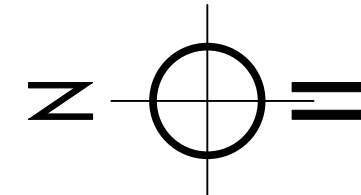
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NOTES

1. THE CONTRACTOR SHALL INFORM TxDOT REPRESENTATIVE PRIOR TO PERFORMING ANY WORK WITHIN THE FM 2514 (PARKER RD) RIGHT-OF-WAY (TxDOT ROW). WORK WITHIN THE TxDOT ROW INCLUDES BUT NOT LIMITED TO REMOVAL OF CURB, SIDEWALK, ADA RAMPS, CONSTRUCTING DRAINAGE PIPES & INLETS, INSTALLING EROSION CONTROL MEASURES, AND GRADING.
2. THE CONTRACTOR SHALL SET UP TRAFFIC CONTROL PLAN IN ACCORDANCE WITH TxDOT STANDARD.
3. TRAFFIC LANES CLOSURES ARE NOT PERMITTED UNLESS APPROVED BY TxDOT. AT MINIMUM, ONE LANE IN EACH DIRECTION SHALL BE OPEN TO TRAFFIC.

LEGEND

- PROPOSED ROW DEDICATION
- - - EXISTING PROPERTY LINE/ROW
- ← DIRECTION OF TRAFFIC



0 10 20
0 10 20
SCALE: 1" = 10'

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LR ENGINEERING

STRUCTURAL DESIGN & INSPECTION

2115 TEAKWOOD LANE

SUITE #450

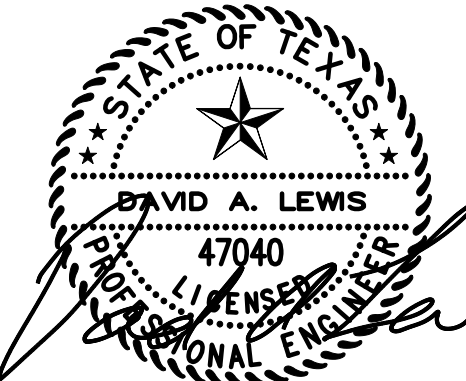
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SANDALWOOD ESTATES DEVELOPMENT

INGRESS & EGRESS LAYOUT PLAN

FM 2514 (PARKER RD)

LUCAS, TEXAS 75002

ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7

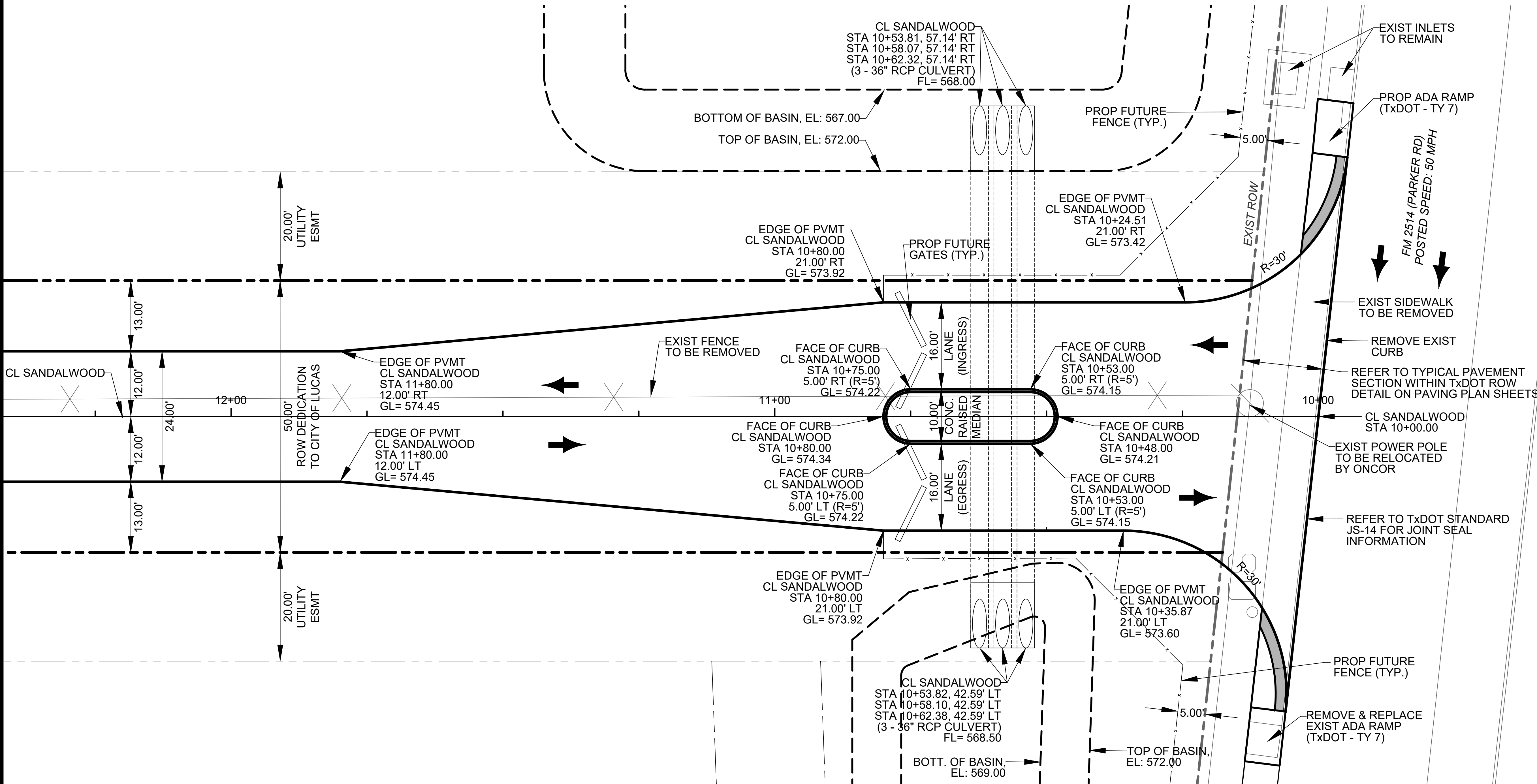
OWNER(S): 3R LAND PROPERTIES

2022-0535B

SHEET

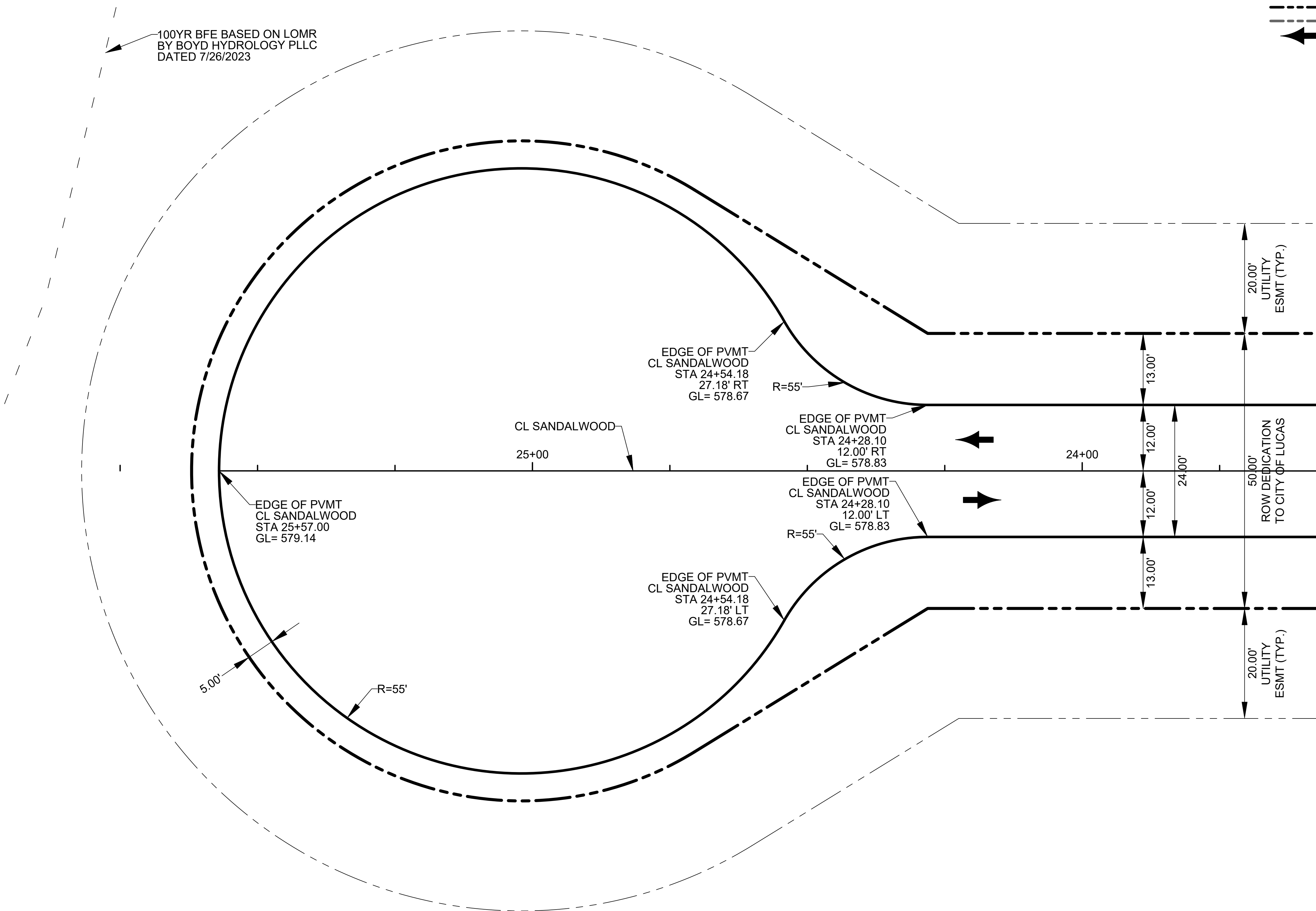
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INGRESS & EGRESS LAYOUT PLAN DETAIL



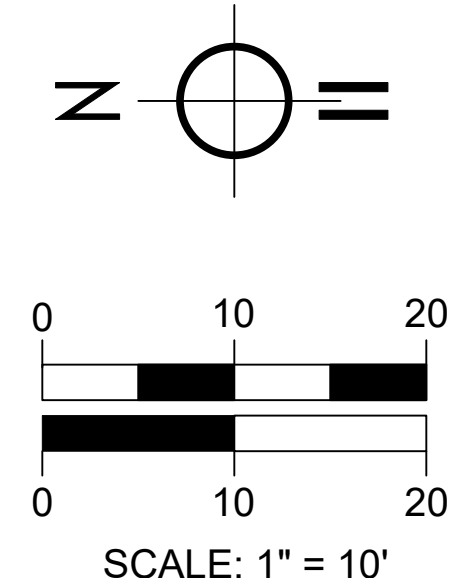
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PLOT DATE: 12/15/23



LEGEND

- PROPOSED ROW DEDICATION
- EXISTING PROPERTY LINE/ROW
- DIRECTION OF TRAFFIC

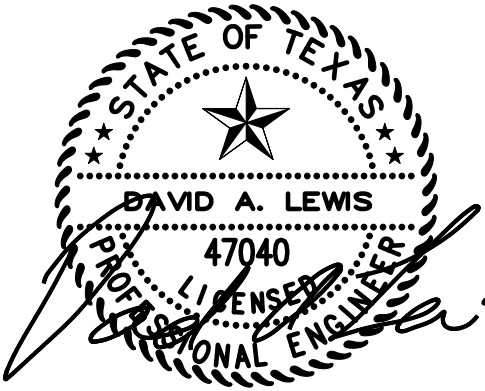


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REV	DATE
-	6/18/23
-	10/16/23
-	12/15/23
DESCRIPTION	
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LR ENGINEERING
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SANDALWOOD ESTATES DEVELOPMENT
CUL-DE-SAC LAYOUT PLAN

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LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

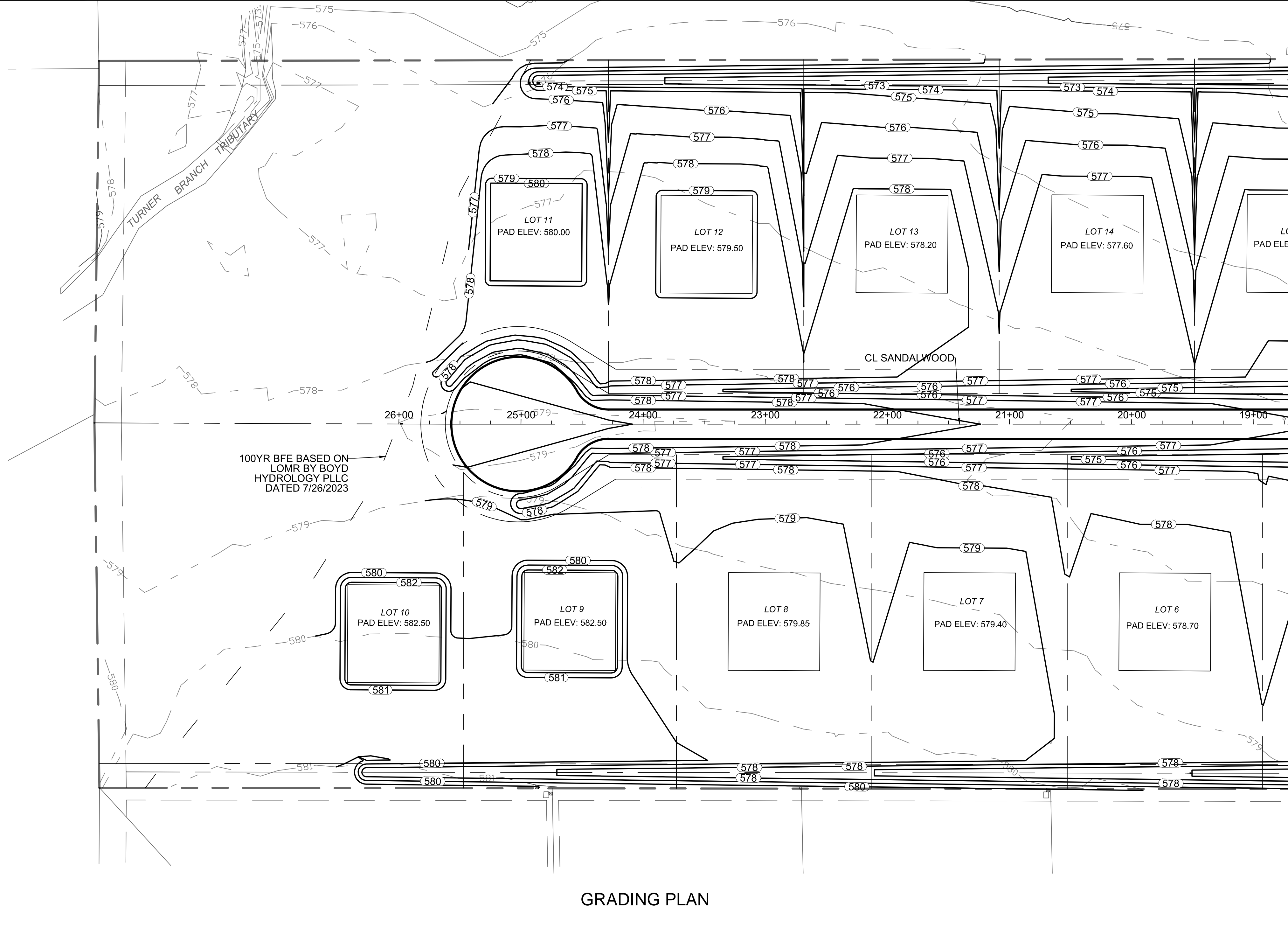
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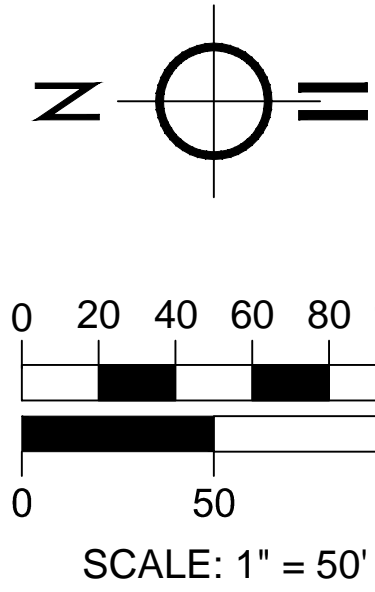
CUL-DE-SAC LAYOUT PLAN DETAIL

FILE: GRADING_Plan.dwg

PLOT DATE: 12/15/23

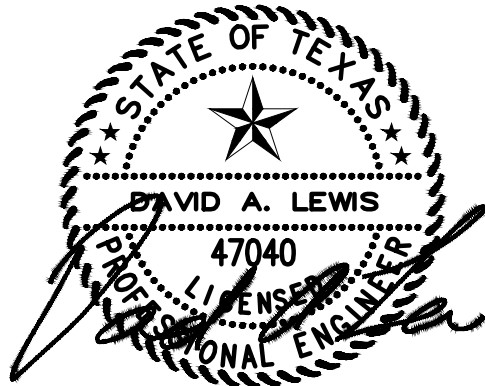


GRADING PLAN



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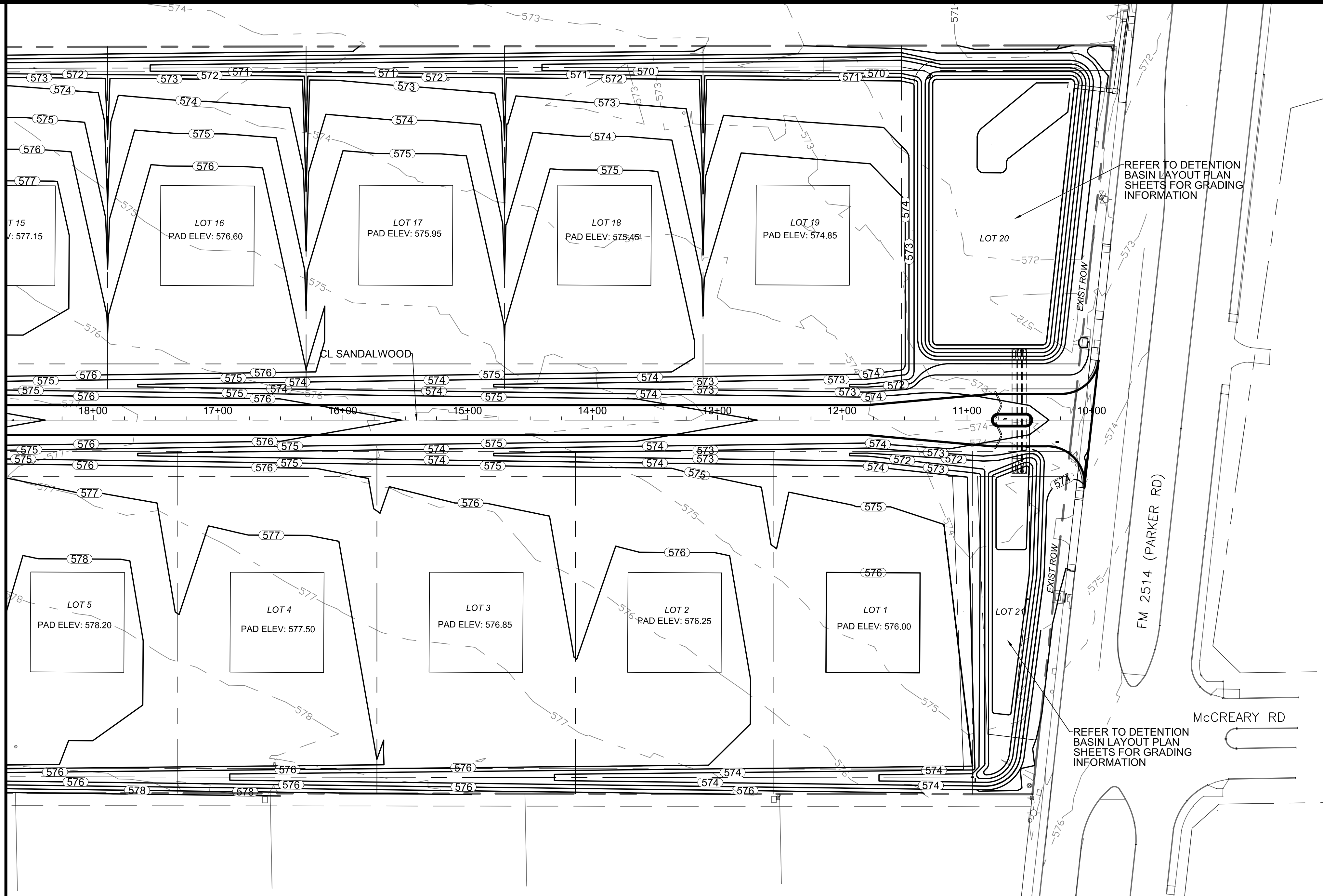
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GRADING PLAN 1 OF 2
FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

2022-0535B
SHEET
7

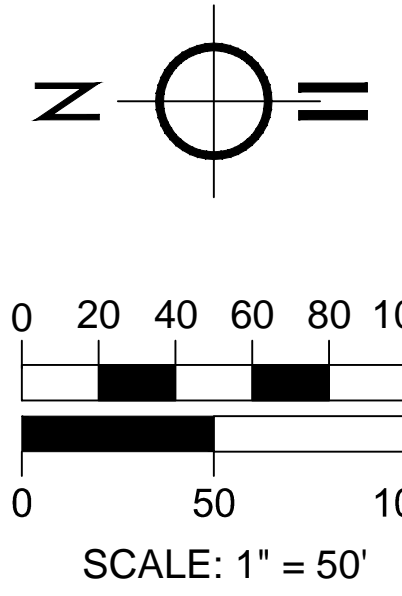
FILE: GRADING_Plan.dwg

PLOT DATE: 12/15/23

MATCHLINE STA 18+70



GRADING PLAN



REFER TO DETENTION
BASIN LAYOUT PLAN
SHEETS FOR GRADING
INFORMATION

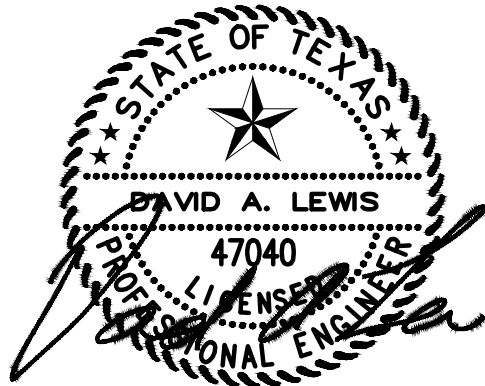
REFER TO DETENTION
BASIN LAYOUT PLAN
SHEETS FOR GRADING
INFORMATION

McCREARY RD

FM 2514 (PARKER RD)

DESIGN HISTORY	
REV	DATE DESCRIPTION
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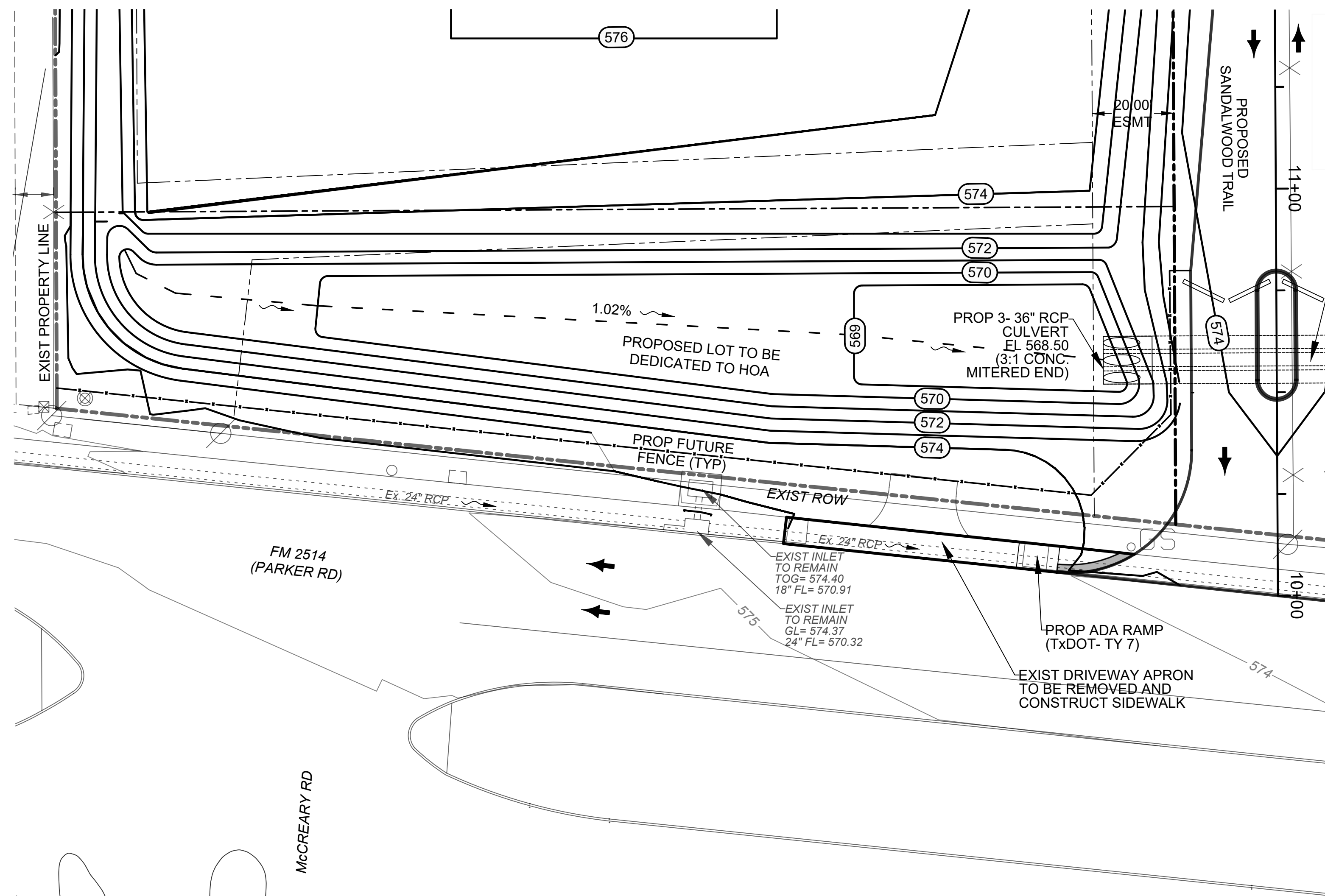


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SANDALWOOD ESTATES DEVELOPMENT GRADING PLAN 2 OF 2 FM 2514 (PARKER RD) LUCAS, TEXAS 75002 ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7 OWNER(S): 3R LAND PROPERTIES

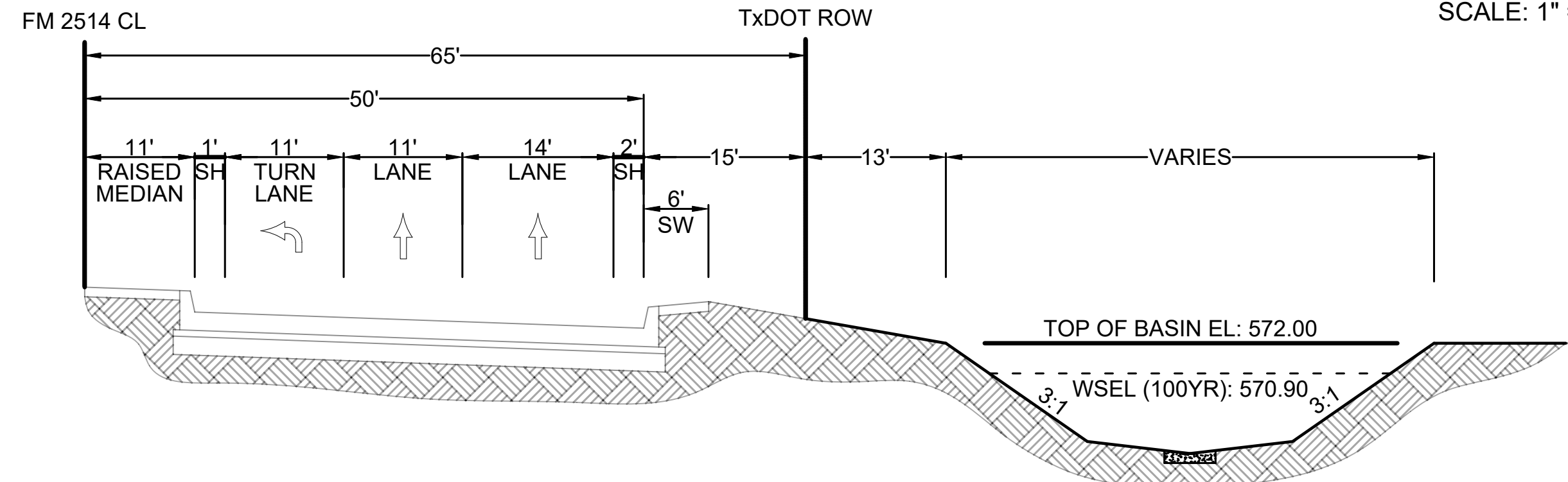
FILE: BASINPlan.dwg

PLOT DATE: 12/15/23



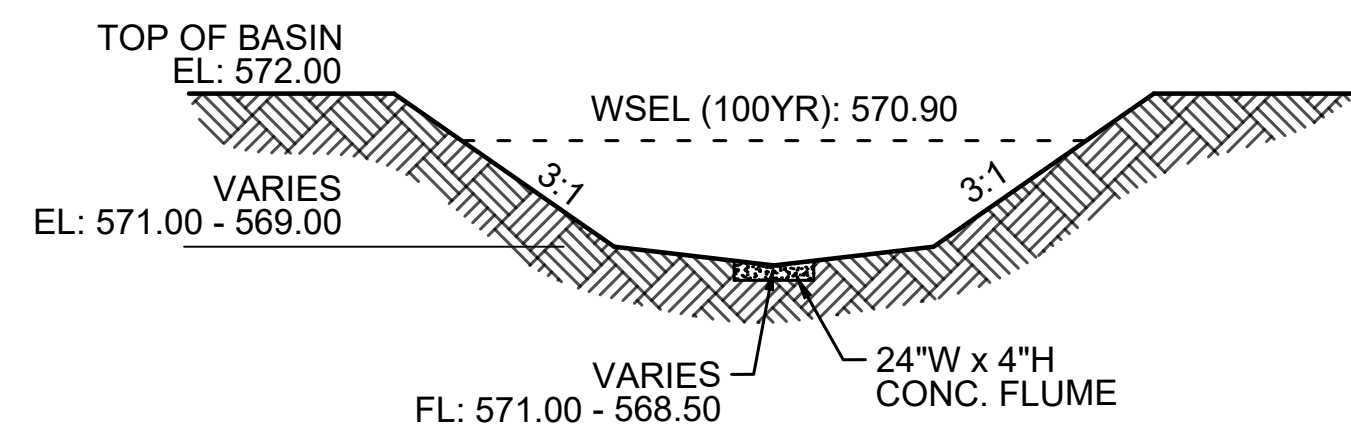
DETENTION BASIN LAYOUT PLAN (PARTIAL - 1 OF 2)

3- 36" RCP CULVERT
HYDRAULIC DATA
Q (100YR) = 84.67 CFS
Q (CAPACITY) = 185.96 CFS
V (100YR) = 4.04 FPS
HEADWATER (MAX) = 571.50 FT
ROADWAY CREST = 574.24 FT
CULVERT FLOW TYPE = SUBMERGED FOR 100YR



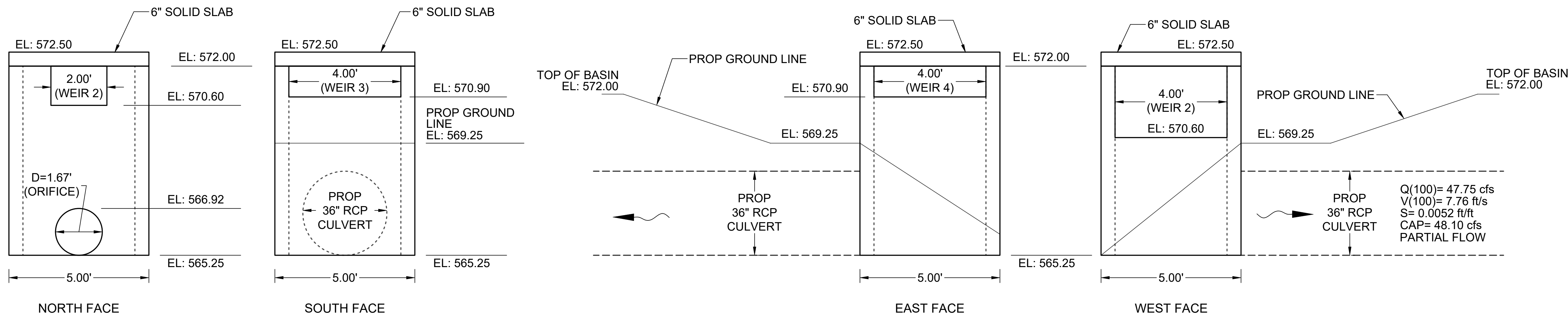
FM 2514 TxDOT RIGHT-OF-WAY - TYPICAL SECTION

(LOOKING WEST)
NOT TO SCALE



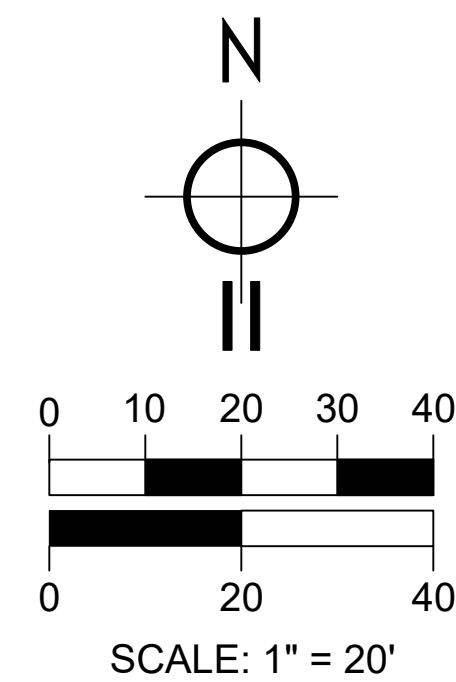
DETENTION BASIN CROSS SECTION (1 OF 2)

NOT TO SCALE



OULET STRUCTURE DETAILS

NOT TO SCALE

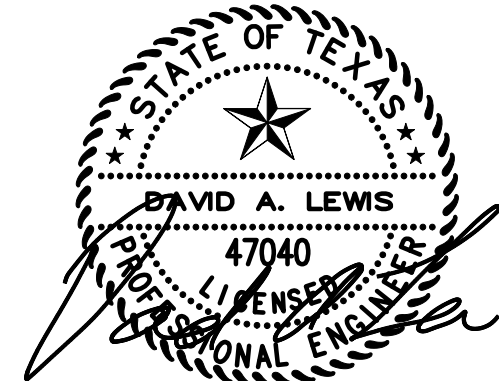


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1	6/18/23	CITY OF LUCAS - CIVIL PLANS (PRELIMINARY)
2	10/18/23	CITY OF LUCAS - CIVIL PLANS (APPROVED TxDOT PERMIT)
3	12/15/23	CITY OF LUCAS - CIVIL PLANS (COL COMMENTS 11/3/23)

LR ENGINEERING
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THE SEAL APPEARING ON THIS
DOCUMENT WAS AUTHORIZED
BY DAVID A. LEWIS, P.E. 47040
ON 12/15/2023.

SANDALWOOD ESTATES DEVELOPMENT
DETENTION BASIN LAYOUT PLAN - 1 OF 2

FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

2022-0535B

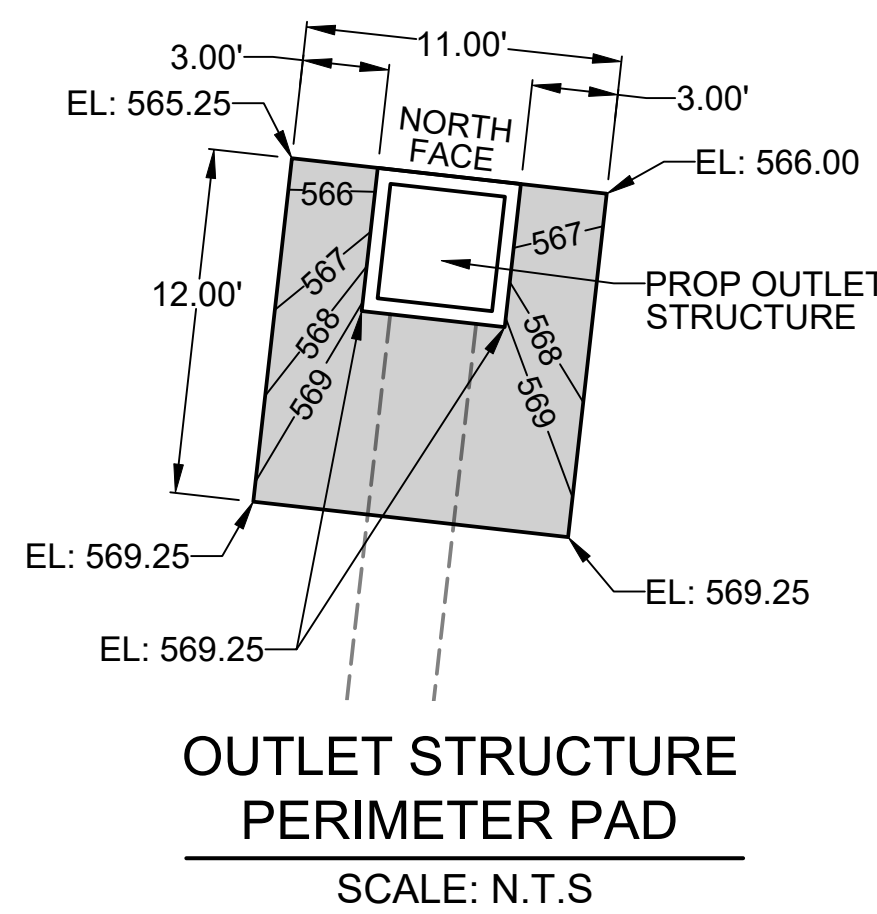
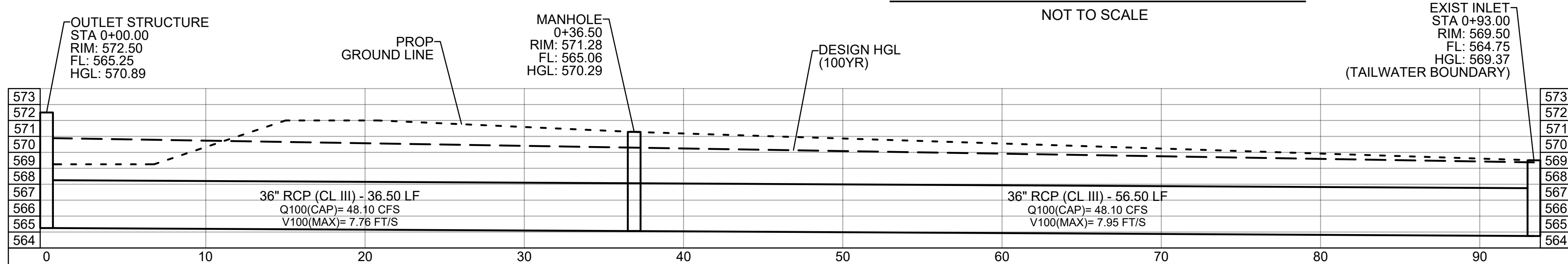
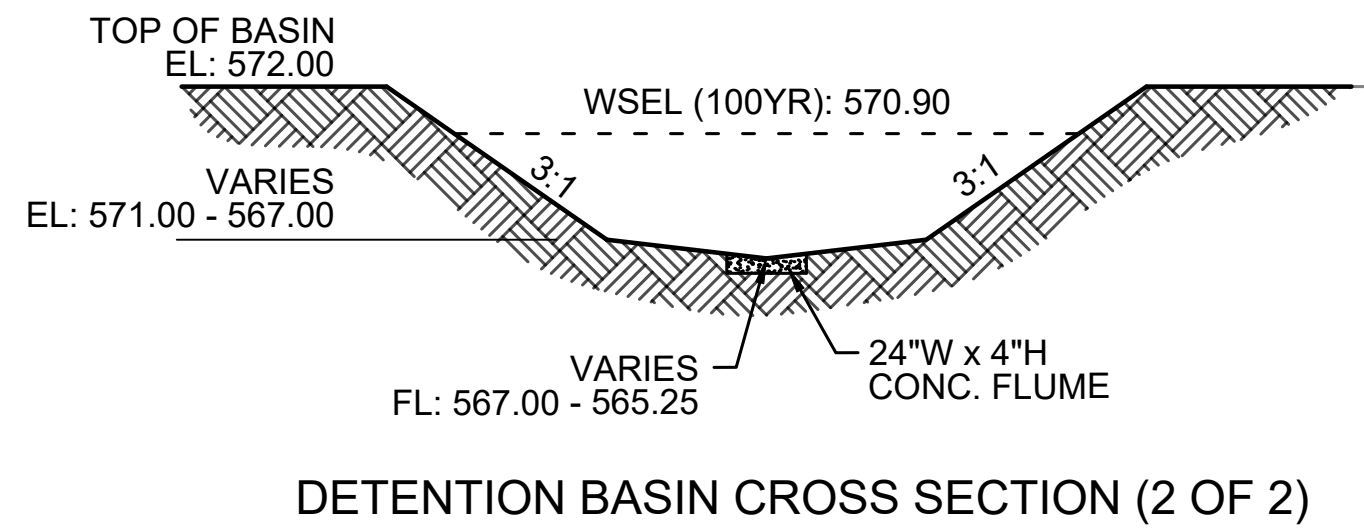
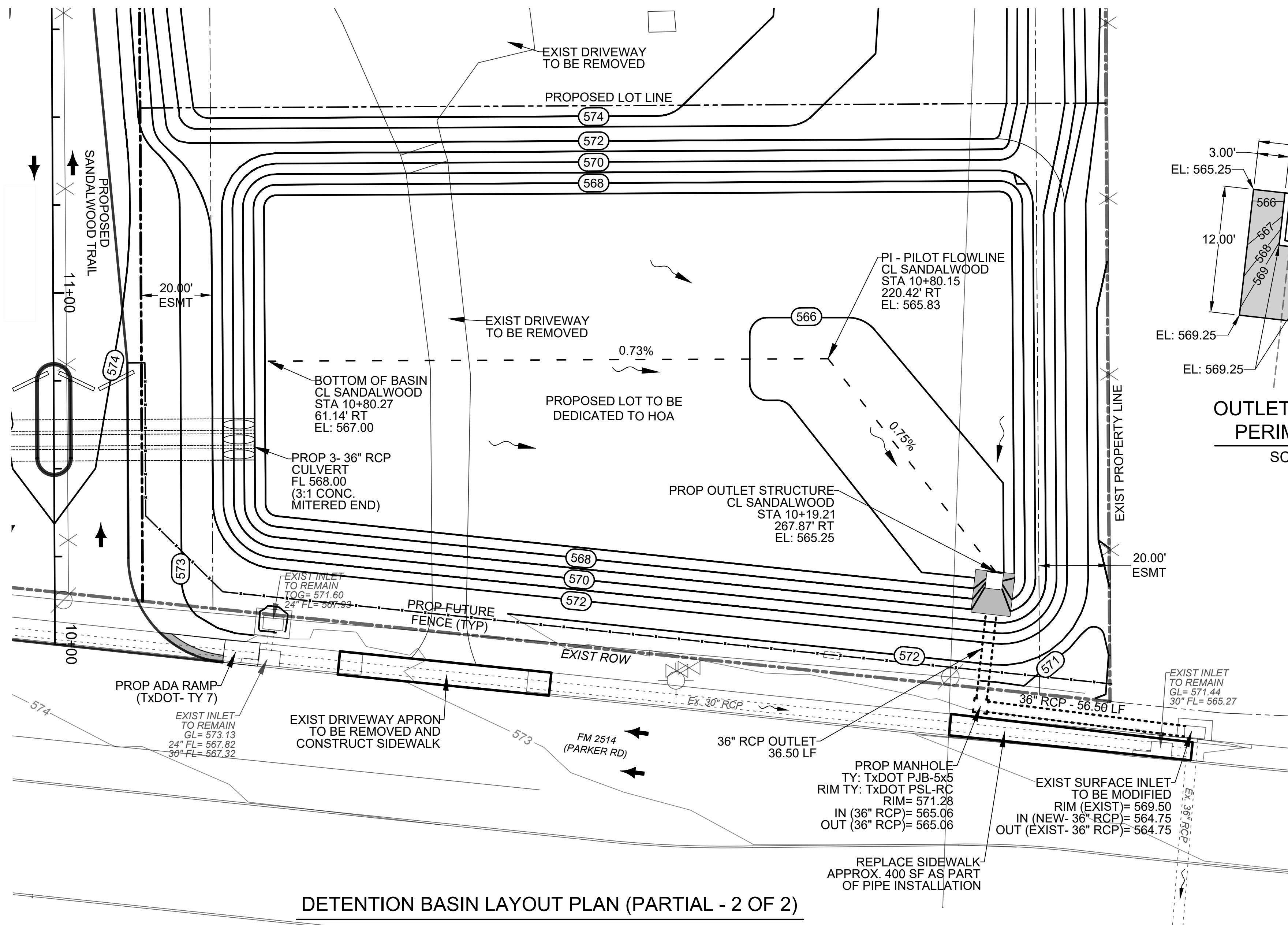
SHEET

9

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FILE: BASINPlan.dwg

PLOT DATE: 12/15/23

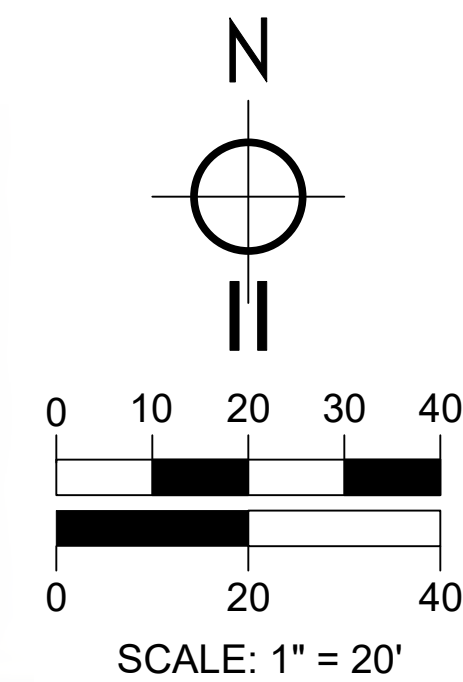


STAGE STORAGE

Elevation (ft)	Depth (ft)	Area (sf)	Vol (Cumulative)	
			(cf)	(ac-ft)
565.25	0	0	0	0.000
566.00	0.75	2,846.65	1,067.49	0.025
567.00	1.75	21,815.08	13,398.36	0.308
568.00	2.75	23,721.39	36,161.93	0.830
569.00	3.75	27,267.61	60,939.25	1.399
569.10	3.85	27,992.63	63,702.26	1.462
569.20	3.95	28,751.90	66,539.49	1.528
569.30	4.05	29,524.97	69,453.33	1.594
569.40	4.15	30,310.12	72,445.09	1.663
569.50	4.25	31,107.37	75,515.96	1.734
569.60	4.35	31,916.71	78,667.17	1.806
569.70	4.45	32,738.12	81,899.91	1.880
569.80	4.55	33,571.61	85,215.39	1.956
569.90	4.65	34,417.19	88,614.83	2.034
570.00	4.75	35,275.74	92,099.48	2.114
570.10	4.85	36,031.18	95,664.83	2.196
570.20	4.95	36,810.29	99,306.90	2.280
570.30	5.05	37,611.24	103,027.98	2.365
570.40	5.15	38,433.99	106,830.24	2.452
570.50	5.25	39,278.58	110,715.87	2.542
570.60	5.35	40,144.97	114,687.04	2.633
570.70	5.45	41,032.22	118,745.90	2.726
570.80	5.55	41,937.99	122,894.41	2.821
570.90	5.65	42,843.91	127,133.51	2.919
571.00	5.75	43,754.27	131,463.42	3.018
571.50	6.25	48,465.28	154,498.89	3.547
572.00	6.75	50,969.44	179,474.09	4.120

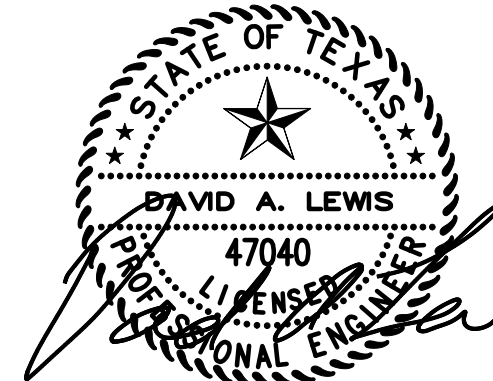
STAGE DISCHARGE

Elevation (ft)	ORIFICE		WEIR 1	WEIR 2	WEIR 3	WEIR 4	Q _{RELEASE} (cfs)
	H1 (ft)	C= 0.6 D= 1.67'	C= 3.32 L= 4'	C= 3.32 L= 2'	C= 3.32 L= 4'	C= 3.32 L= 4'	
565.25	0	0.00	0.00	0.00	0.00	0.00	0.00
566.00	0	0.00	0.00	0.00	0.00	0.00	0.00
567.00	0.915	10.08	0.00	0.00	0.00	0.00	10.08
568.00	1.915	14.59	0.00	0.00	0.00	0.00	14.59
569.00	2.915	18.00	0.00	0.00	0.00	0.00	18.00
569.10	3.015	18.31	0.00	0.00	0.00	0.00	18.31
569.20	3.115	18.61	0.00	0.00	0.00	0.00	18.61
569.30	3.215	18.90	0.00	0.00	0.00	0.00	18.90
569.40	3.315	19.19	0.00	0.00	0.00	0.00	19.19
569.50	3.415	19.48	0.15	0.00	0.00	0.00	19.63
569.60	3.515	19.77	0.77	0.00	0.00	0.00	20.54
569.70	3.615	20.04	1.66	0.00	0.00	0.00	21.70
569.80	3.715	20.32	2.75	0.00	0.00	0.00	23.07
569.90	3.815	20.59	4.01	0.00	0.00	0.00	24.60
570.00	3.915	20.86	5.42	0.00	0.00	0.00	26.28
570.10	4.015	21.12	6.96	0.00	0.00	0.00	28.08
570.20	4.115	21.39	8.63	0.00	0.00	0.00	30.01
570.30	4.215	21.64	10.41	0.00	0.00	0.00	32.05
570.40	4.315	21.90	12.30	0.00	0.00	0.00	34.20
570.50	4.415	22.15	14.29	0.00	0.00	0.00	36.44
570.60	4.515	22.40	16.38	0.00	0.00	0.00	38.78
570.70	4.615	22.65	18.56	0.21	0.00	0.00	41.42
570.80	4.715	22.89	20.83	0.59	0.00	0.00	44.32
570.90	4.815	23.13	23.19	1.09	0.00	0.00	47.41
571.00	4.915	23.37	25.63	1.68	0.42	0.42	51.52
571.50	5.415	24.53	38.98	5.67	6.17	6.17	81.52
572.00	5.915	25.64	54.08	11.00	15.32	15.32	121.36



DESIGN HISTORY		DESCRIPTION
REV	DATE	CITY OF LUCAS - CIVIL PLANS (PRELIMINARY)
-	6/18/23	CITY OF LUCAS - CIVIL PLANS (APPROVED TxDOT PERMIT)
-	10/16/23	CITY OF LUCAS - CIVIL PLANS (APPROVED TxDOT PERMIT)
-	12/15/23	CITY OF LUCAS - CIVIL PLANS (COL COMMENTS 11/3/23)

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FIRM # F-16652



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SANDALWOOD ESTATES DEVELOPMENT
DETENTION BASIN LAYOUT PLAN 2 OF 2
FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

2022-0535B

SHEET

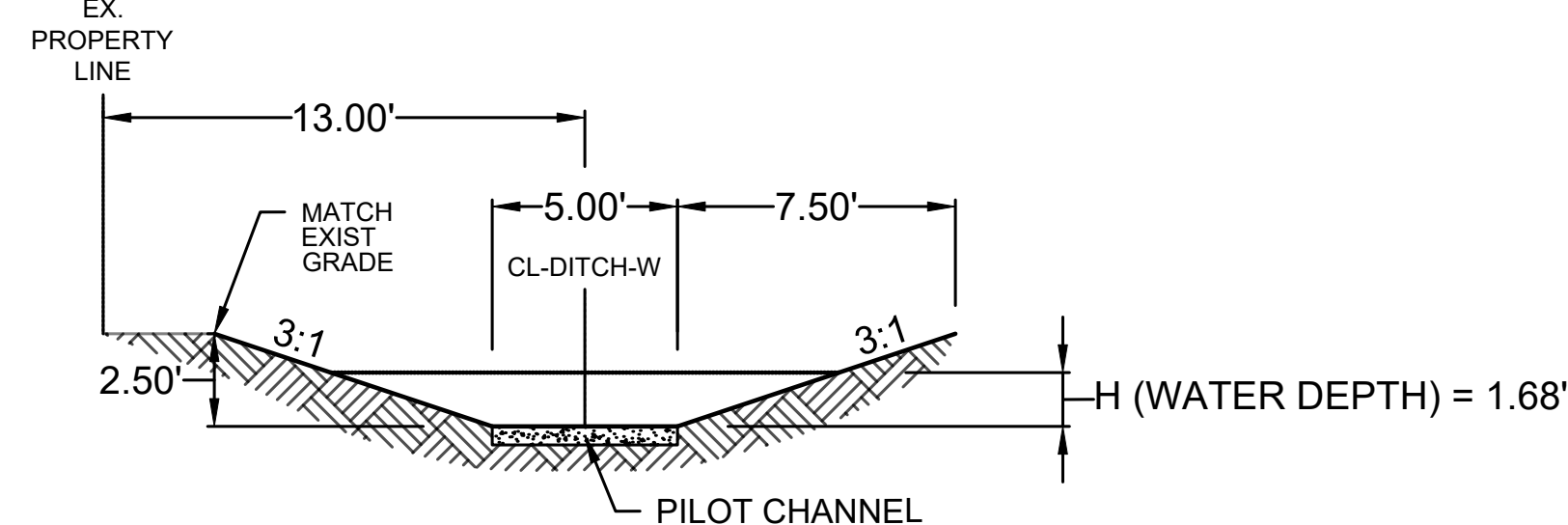
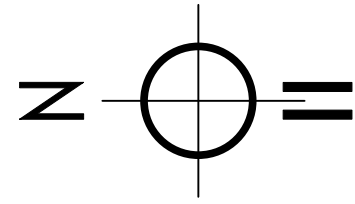
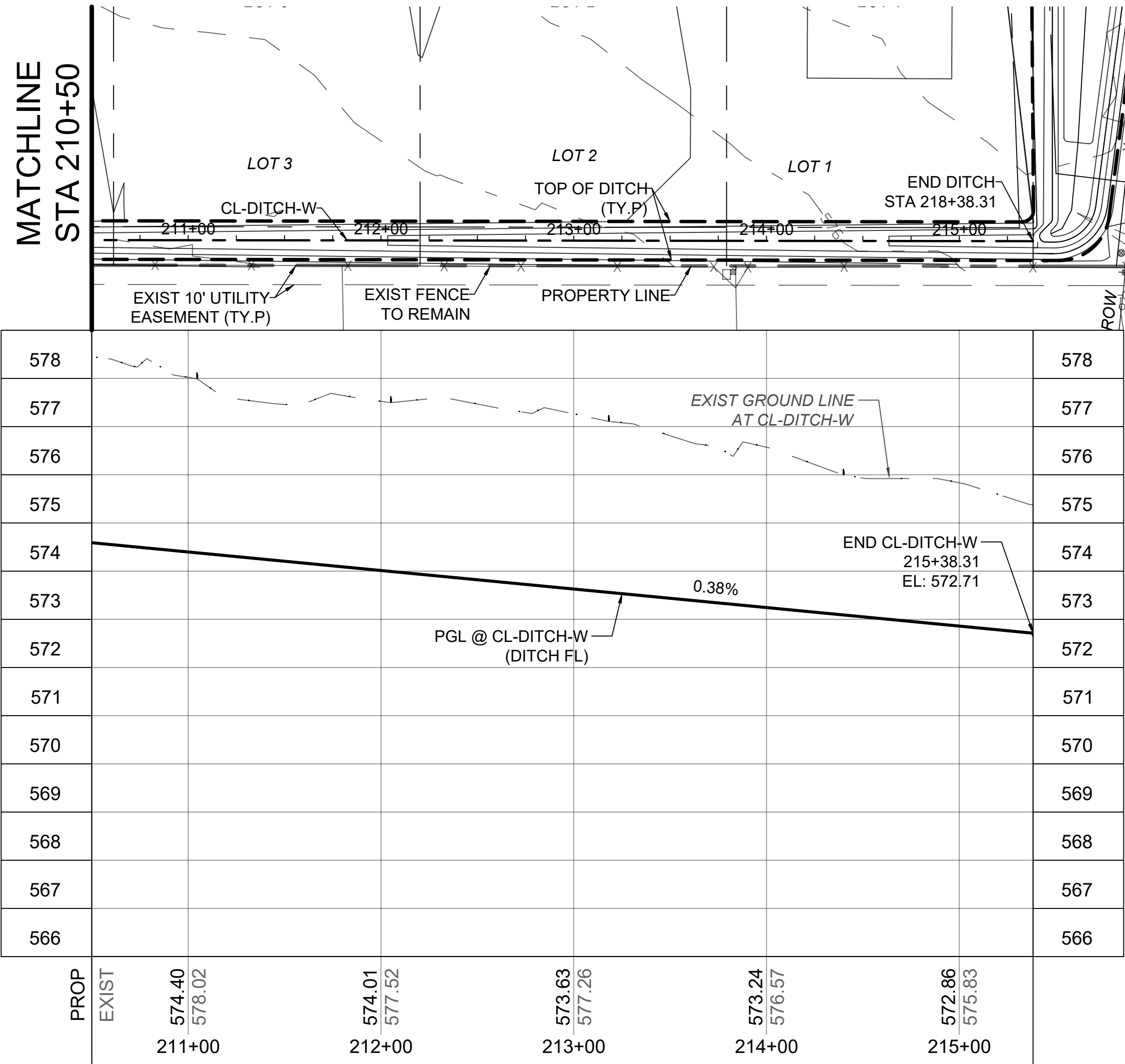
10

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FILE: DITCH_PlanProfile.dwg

PLOT DATE: 12/15/23

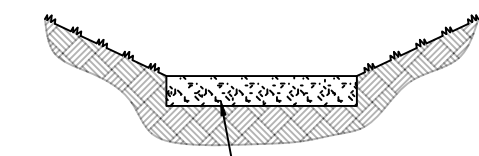
MATCHLINE
STA 210+50



REFER TO PROPOSED DITCH HYDRAULIC CAPACITY TABLE ON DRAINAGE AREA MAP - PROPOSED DITCHES SHEET FOR MORE INFORMATION.

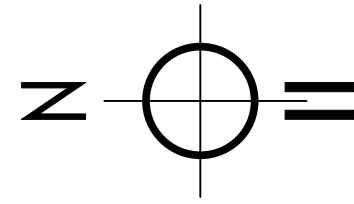
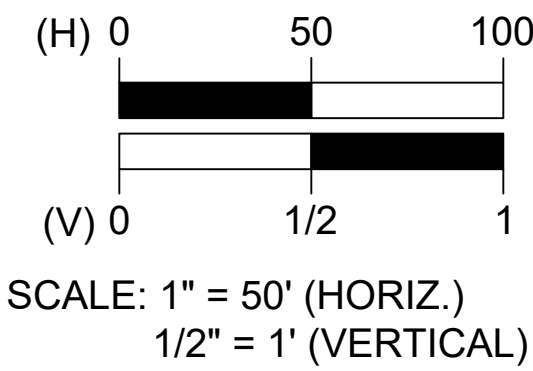
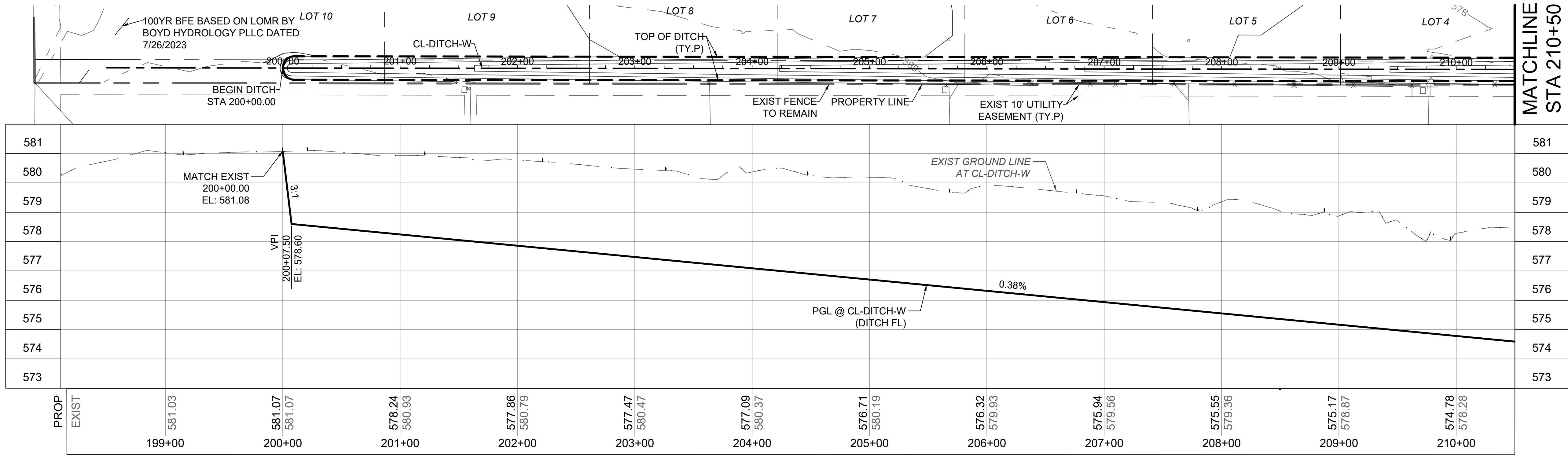
PROPOSED WEST DITCH

CL-DITCH-W
STA 200+00.00 - 218+38.31
(NOT TO SCALE)



5" THICK CONC. LINED REINF.
WITH #3@12" O.C. - EACH WAY
(TWO REBARS MINIMUM IN ALL DIRECTION) USING 2500 PSI COMP. STRENGTH (TYP.)

PILOT CHANNEL DETAIL
(NOT TO SCALE)



DESIGN HISTORY

REV	DATE	DESCRIPTION
1	6/18/23	CITY OF LUCAS - CIVIL PLANS (PRELIMINARY)
2	10/16/23	CITY OF LUCAS - CIVIL PLANS (APPROVED FLOOD PERMIT)
3	12/15/23	CITY OF LUCAS - CIVIL PLANS (COL COMMENTS 11/3/23)

LR ENGINEERING

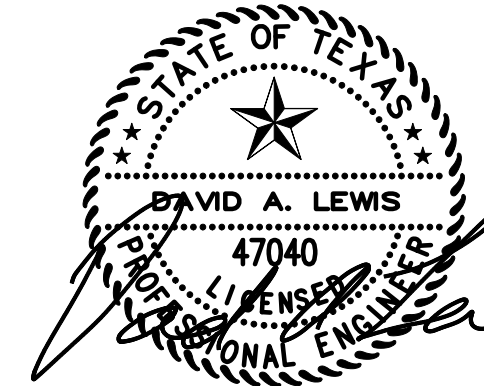
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SANDALWOOD ESTATES DEVELOPMENT
PROPOSED DITCH (WEST) - PLAN & PROFILE

FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

2022-0535B

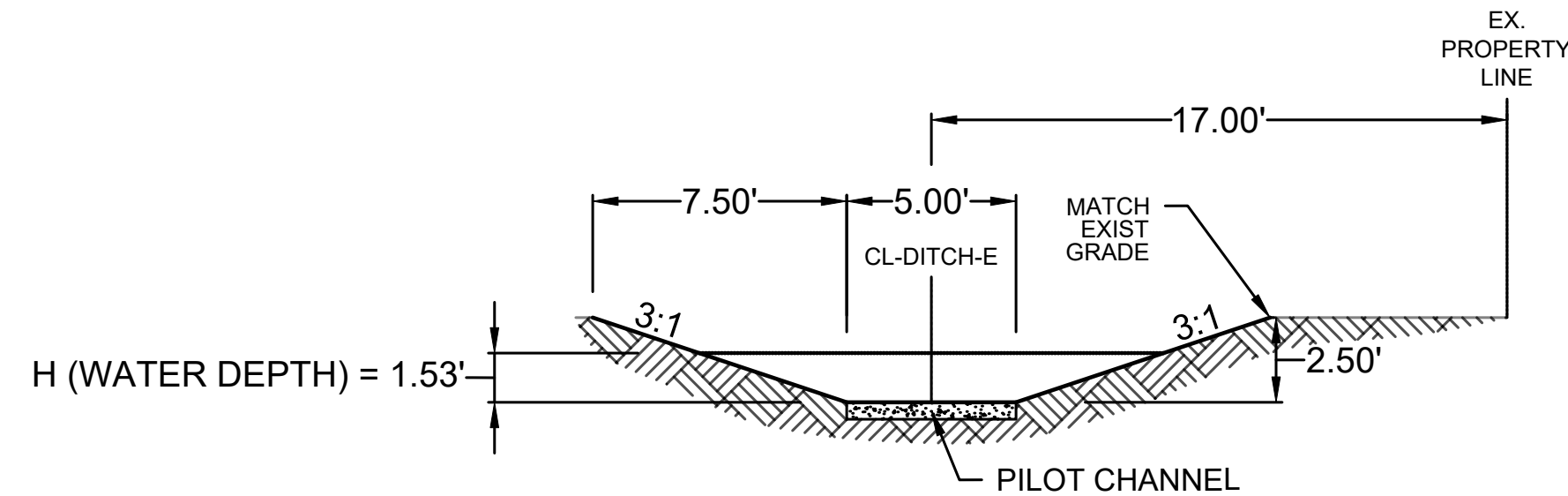
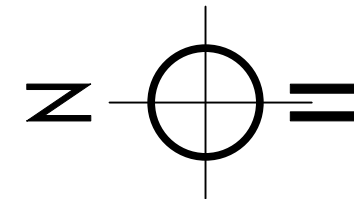
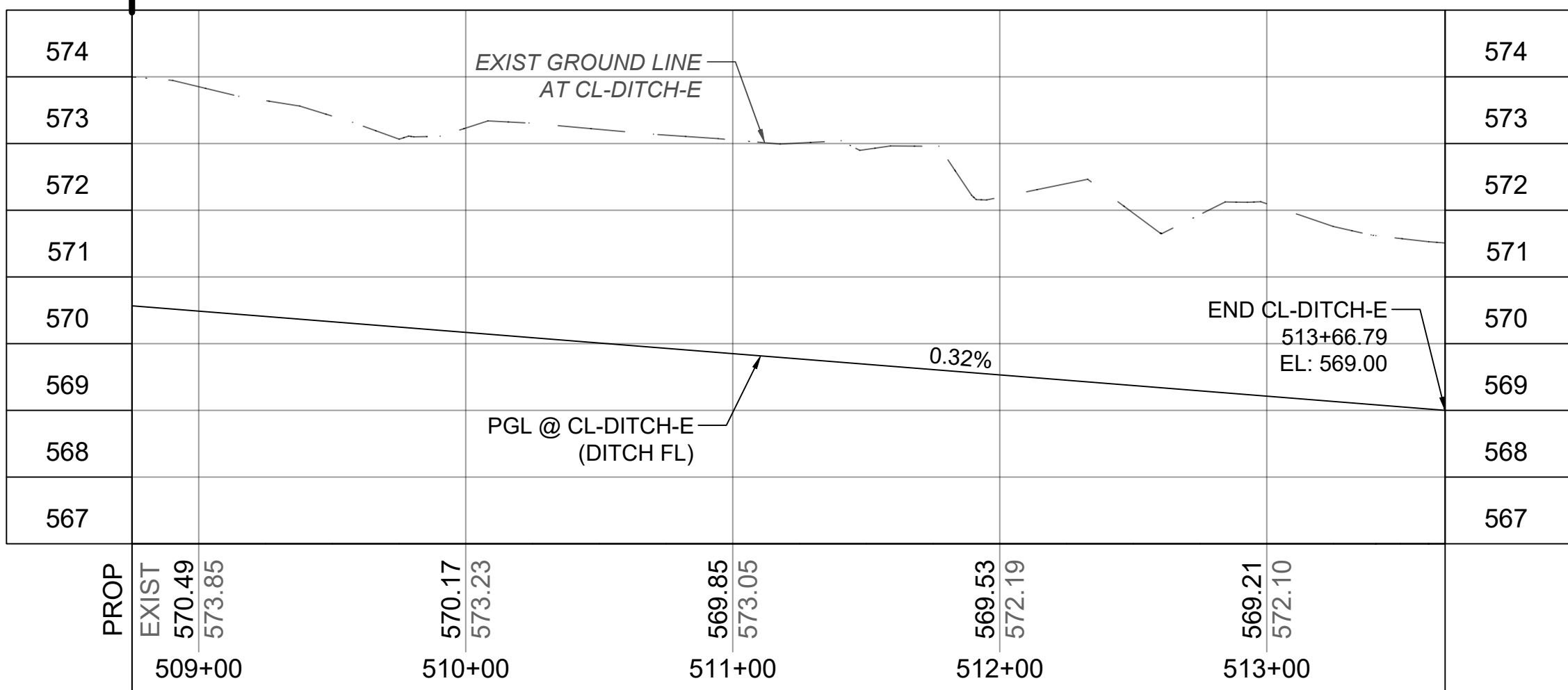
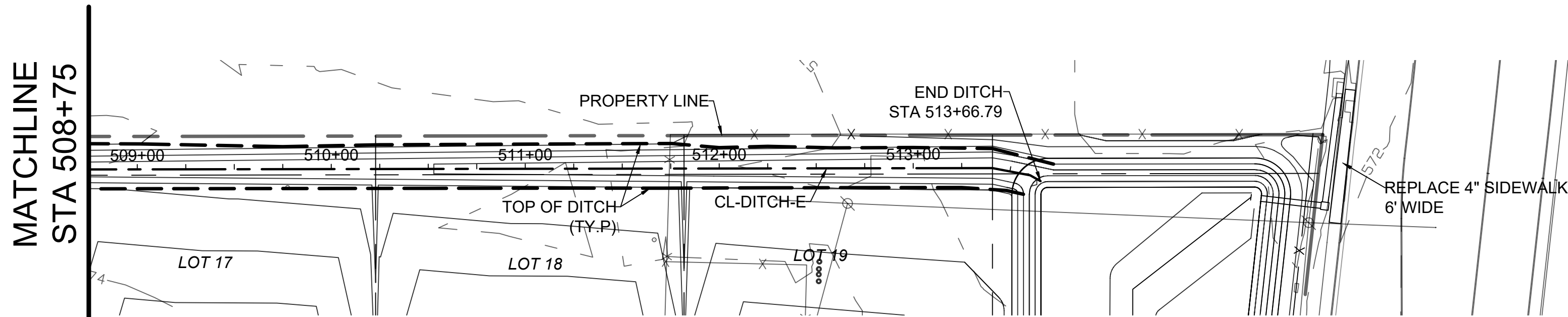
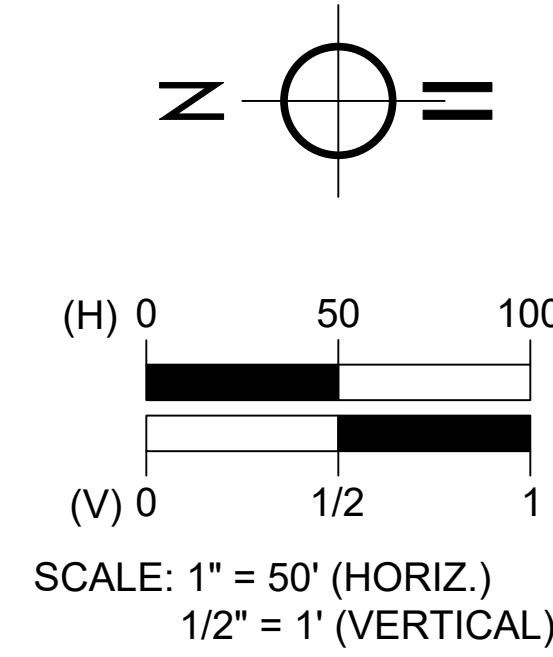
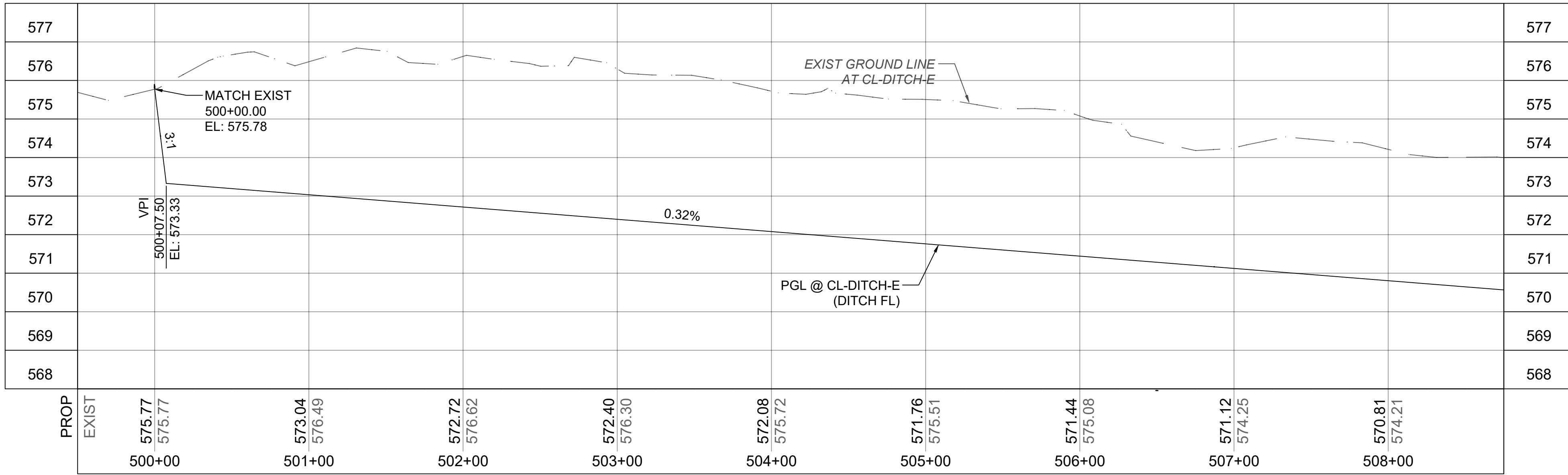
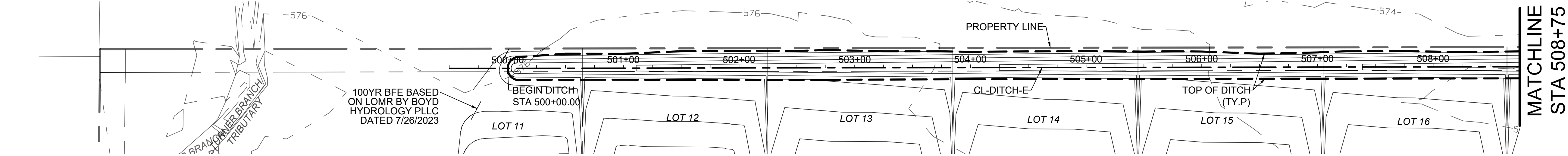
SHEET

11

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FILE: DITCH_PlanProfile.dwg

PLOT DATE: 12/15/23



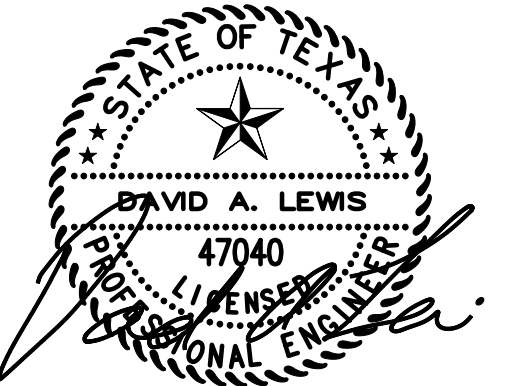
REFER TO PROPOSED DITCH HYDRAULIC CAPACITY TABLE ON DRAINAGE AREA MAP - PROPOSED DITCHES SHEET FOR MORE INFORMATION.

PROPOSED EAST DITCH

CL-DITCH-E
STA 500+00.00 - 513+66.79
(NOT TO SCALE)

5" THICK CONC. LINED REINF.
WITH #3@12" O.C. - EACH WAY
(TWO REBARS MINIMUM IN ALL
DIRECTION) USING 2500 PSI
COMP. STRENGTH (TYP.)

PILOT CHANNEL DETAIL
(NOT TO SCALE)



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SANDALWOOD ESTATES DEVELOPMENT
PROPOSED DITCH (EAST) - PLAN & PROFILE
FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

2022-0535B

SHEET

12

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DESIGN HISTORY

REV	DATE	DESCRIPTION
1	6/18/23	CITY OF LUCAS - CIVIL PLANS (PRELIMINARY)
2	10/18/23	CITY OF LUCAS - CIVIL PLANS (APPROVED FDOT PERMIT)
3	12/15/23	CITY OF LUCAS - CIVIL PLANS (COL COMMENTS 11/13/23)

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FIRM # F-15652

TIME OF CONCENTRATION

DA	Tc	LENGTH (ft)	U.S. ELEV (ft)	D.S. ELEV (ft)	SLOPE (ft/ft)	n_{ol}	P_2 (in.)	SHEET FLOW Tc (min.)	LENGTH (ft)	U.S. ELEV (ft)	D.S. ELEV (ft)	SLOPE (ft/ft)	K 16.13 (UNPAVED) 20.32 (PAVED)	SHALLOW FLOW Tc (min.)	LENGTH (ft)	U.S. ELEV (ft)	D.S. ELEV (ft)	SLOPE (ft/ft)	n	CHANNEL CROSS SECTION PARAMETERS						Channel	COMPUTED (min.)	MINIMUM (min.)	DESIGN (min.)
	LENGTH (ft)																			SIDE SLOPE (X:1)	BASE (ft)	DEPTH (ft)	A (SF)	Pw (ft)	R (ft)	FLOW Tc (min.)			
OS-1	2742	50	591.00	590.50	0.010	0.150	4.10	6.56	1176	590.50	581.10	0.008	16.13	13.59	1516	581.10	574.39	0.004	0.035	5	10	1	15.00	20.2	0.74	10.90	31.05	15.00	31.05
EX-1	1705	50	580.64	580.29	0.007	0.150	4.10	7.57	1655	580.29	572.41	0.005	16.13	24.78	0	-	-	0.000	-	-	-	-	-	-	0.00	32.35	15.00	32.35	
EX-2	1533	50	578.50	577.80	0.014	0.150	4.10	5.73	1483	577.80	569.52	0.006	16.13	20.51	0	-	-	0.000	-	-	-	-	-	-	0.00	26.24	15.00	26.24	
EX-3	100	50	580.10	579.40	0.014	0.150	4.10	5.73	50	579.40	579.32	0.002	16.13	1.29	0	-	-	0.000	-	-	-	-	-	-	0.00	7.02	15.00	15.00	
EX-4	434	50	579.32	579.02	0.006	0.150	4.10	8.05	260	579.02	577.12	0.007	16.13	3.14	124	577.12	575.55	0.013	0.035	4	9	2	34.00	25.49	1.33	0.36	11.55	15.00	15.00

TIME OF CONCENTRATIONS ARE DETERMINED BASED ON AVAILABLE ELEVATION DATA FROM NCTCOG AND FIELD TOPOGRAPHIC SURVEY.

FLOW COMPUTATION - (PRE-DEVELOPED, UNDETAINED)

DA ID	DEISGN STORM FREQUENCY	Tc (mins)	INTENSITY "I" (in/hr)	DRIANAGE AREA "A" (acres)	RUNOFF COEFFICIENT "C"	FLOW Q (cfs)
OS-1	2-Yr	31.05	2.72	16.117	0.55	24.11
	10-Yr		3.76			33.33
	25-Yr		4.40			39.00
	100-Yr		5.34			47.34
EX-1	2-Yr	32.35	2.67	9.396	0.35	8.78
	10-Yr		3.71			12.20
	25-Yr		4.33			14.24
	100-Yr		5.26			17.30
EX-2	2-Yr	26.24	3.05	9.140	0.35	9.76
	10-Yr		4.23			13.53
	25-Yr		4.95			15.84
	100-Yr		6.01			19.23
EX-3	2-Yr	15.00	3.95	1.807	0.35	2.50
	10-Yr		5.50			3.48
	25-Yr		6.44			4.07
	100-Yr		7.84			4.96
EX-4	2-Yr	15.00	3.95	3.048	0.35	4.21
	10-Yr		5.50			5.87
	25-Yr		6.44			6.87
	100-Yr		7.84			8.36

COEFFICIENT VALUES ARE BASED ON CITY OF LUCAS ORDINANCE (AMENDED 5/1/21) - ARTICLE 13.07.003.

DRAINAGE AREA EX-3 RUNOFFS TO FLOOD PLAIN (DRAINAGE AREA EX-4)

100-YR EVENT PARAMETER COMPARISON					
DA ID	COLLECTION POINT	DRAINAGE AREA (AC)		Tc (MIN.)	
		A	B	A	B
OS-1	SURFACE INLET DI-C7	16.117	1.98	31.05	18.93
EX-1	SURFACE INLET DI-C8	9.396	3.11	32.35	31.24
EX-2	CULVERT 1A	9.140	9.50	26.24	10

(A) SANDALWOOD TRAIL DEVELOPMENT PROJECT - EXISTING CONDITIONS

(B) TxDOT RECORDS (REFER TO NOTE 1) - ULTIMATE CONDITIONS

RUNOFF FLOWS (DESIGNED CAPACITY) FROM THE RECENTLY COMPLETED TxDOT PROJECT (CSJ: 2679-02-008) WILL BE USED AS EXISTING CONDITIONS (PRE-DEVELOPED) FOR THIS PROJECT.

EXISTING FLOW AT POINT OF INTEREST

DA ID	DEISGN STORM FREQUENCY	Tc (mins)	INTENSITY "I" (in/hr)	DRIANAGE AREA "A" (acres)	RUNOFF COEFFICIENT "C"	FLOW Q (cfs)	NOTES
(1)1A	2-Yr	(1) 10.00	(2) 4.57	(1) 9.500	(1) 0.7	30.4	FLOW COMPUTED FOR ANALYSIS.
	10-Yr		(2) 6.95			46.2	FLOW COMPUTED FOR ANALYSIS.
	25-Yr		(1) 8.04			53.5	REFER TO NOTE #1 BELOW.
	100-Yr		(1) 10.44			69.4	REFER TO NOTE #1 BELOW.

(1) REFER TO OFF-SITE DRAINAGE AREA MAP (SHEET NO. 200) FROM FM 2514 RECORD PLANS (CSJ: 2679-02-008)

(2) INTENSITY IS BASED ON ORIGINAL SOURCE (TxDOT, EBDLUP-2015v2.1.xlsx)

UNDETAINED OFF-SITE FLOWS

DA ID	DEISGN STORM FREQUENCY	Tc (mins)	INTENSITY "I" (in/hr)	DRIANAGE AREA "A" (acres)	RUNOFF COEFFICIENT "C"	FLOW Q (cfs)	NOTES
(1)C1	2-Yr	(2) 10.00	(1) 4.57	(1) 0.360	(2) 0.9	1.48	EXISTING ROAD PAVEMENT AREA OF FM 2514.
	10-Yr		(2) 6.95			2.25	
	25-Yr		(2) 8.04			2.60	
	100-Yr		(2) 10.44			3.38	
(1)C2	2-Yr	(2) 10.00	(1) 4.57	(1) 0.400	(2) 0.90	1.65	EXISTING ROAD PAVEMENT AREA OF FM 2514.
	10-Yr		(2) 6.95			2.50	
	25-Yr		(2) 8.04			2.89	
	100-Yr		(2) 10.44			3.76	
(1)C3	2-Yr	(2) 10.00	(1) 4.57	(1) 0.280	(2) 0.90	1.15	EXISTING ROAD PAVEMENT AREA OF FM 2514.
	10-Yr		(2) 6.95			1.75	
	25-Yr		(2) 8.04			2.03	
	100-Yr		(2) 10.44			2.63	
(1)C4	2-Yr	(2) 10.00	(1) 4.57	(1) 0.350	(2) 0.90	1.44	EXISTING ROAD PAVEMENT AREA OF FM 2514.
	10-Yr		(2) 6.95			2.19	
	25-Yr		(2) 8.04			2.53	
	100-Yr		(2) 10.44			3.29	
(1)C5	2-Yr	(2) 18.14	(1) 3.48	(1) 0.640	(2) 0.60	1.34	OFF-SITE RUNOFF FROM KIRKLAND ESTATE DEVELOPMENT (EXISTING).
	10-Yr		(1) 5.26			2.02	
	25-Yr		(2) 6.10			2.34	
	100-Yr		(2) 7.92			3.04	
(1)C6	2-Yr	(2) 13.57	(1) 4.01	(1) 0.940	(2) 0.60	2.26	OFF-SITE RUNOFF FROM KIRKLAND ESTATE DEVELOPMENT (EXISTING).
	10-Yr		(1) 6.08			3.43	
	25-Yr		(1) 7.04			3.97	
	100-Yr		(1) 9.13			5.15	

(1) REFER TO STORM SEWER DRAINAGE AREA MAP (SHEET NO. 226 - 227) FROM FM 2514 RECORD PLANS (CSJ: 2679-02-008)

(2) REFER TO RUNOFF COMPUTATIONS (SHEET NO. 234) FROM FM 2514 RECORD PLANS (CSJ: 2679-02-008)

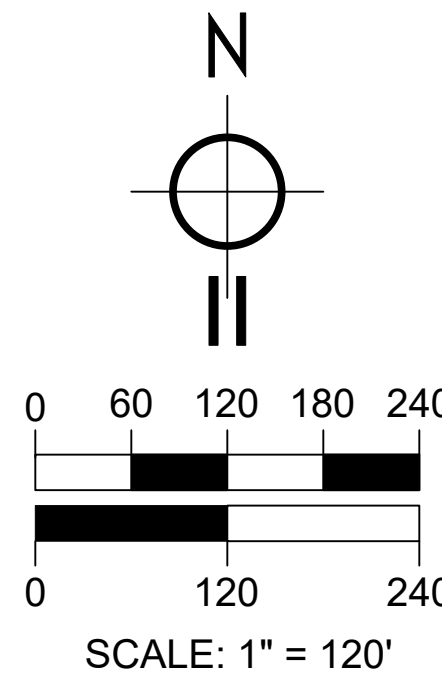
(3) INTENSITY IS BASED ON ORIGINAL SOURCE (TxDOT, EBDLUP-2015v2.1.xlsx)

NOTES

1. INFORMATION IS BASED ON TxDOT RECORD PLANS (CSJ: 2679-02-008) FOR FM 2514 (PARKER ROAD) RECONSTRUCTION IN COLLIN COUNTY.

TOTAL FOR C1 - C6	FLOW Q (cfs)
2-Yr	9.32
10-Yr	14.14
25-Yr	16.37
100-Yr	21.25

DRAINAGE AREA MAP - PRE-DEVELOPED (EXISTING) CONDITIONS

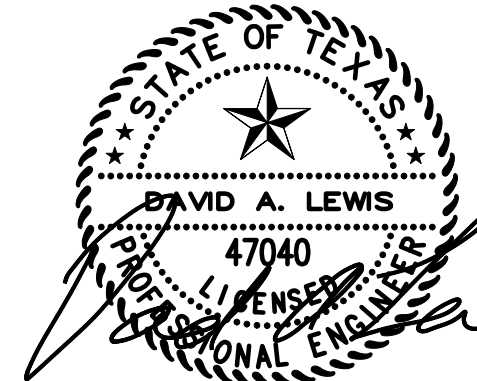


DESIGN HISTORY

REV	DATE	DESCRIPTION
1	6/18/23	CITY OF LUCAS - CIVIL PLANS (PRELIMINARY)
2	10/18/23	CITY OF LUCAS - CIVIL PLANS (APPROVED TxDOT PERMIT)
3	12/15/23	CITY OF LUCAS - CIVIL PLANS (COL COMMENTS 11/3/23)

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THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DAVID A. LEWIS, P.E. 47040 ON 12/15/2023.

SANDALWOOD ESTATES DEVELOPMENT

DRAINAGE AREA MAP - PRE-DEVELOPED
FM 2514 (PARKER RD)
LUCAS, TEXAS 75002
ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7
OWNER(S): 3R LAND PROPERTIES

2022-0535B

SHEET

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TIME OF CONCENTRATION

DA	Tc	LENGTH (ft)	U.S. ELEV (ft)	D.S. ELEV (ft)	SLOPE (ft/ft)	n _{ol}	p ₂ (in.)	SHEET FLOW Tc (min.)	LENGTH (ft)	U.S. ELEV (ft)	D.S. ELEV (ft)	SLOPE (ft/ft)	K 16.13 (UNPAVED) 20.32 (PAVED)	SHALLOW FLOW Tc (min.)	LENGTH (ft)	U.S. ELEV (ft)	D.S. ELEV (ft)	SLOPE (ft/ft)	n	CHANNEL CROSS SECTION PARAMETERS						Channel FLOW Tc (min.)	COMPUTED (min.)	MINIMUM (min.)	DESIGN (min.)
	SIDE SLOPE (X:1)																			BASE (ft)	DEPTH (ft)	A (SF)	Pw (ft)	R (ft)					
A	2930	50	591.00	590.50	0.010	0.150	4.10	6.56	1190	590.50	580.93	0.008	16.13	13.71	1690	580.93	565.25	0.009	0.035	3	5	1.5	14.25	14.49	0.98	6.96	27.23	15.00	27.23
B	100	50	582.50	579.40	0.062	0.150	4.10	3.16	50	579.40	579.32	0.002	20.32	1.03	0	-	-	0.000	-	-	-	-	-	-	-	0.00	4.19	15.00	15.00
EX-4	434	50	579.32	579.02	0.006	0.150	4.10	8.05	260	579.02	577.12	0.007	16.13	3.14	124	577.12	575.55	0.013	0.035	4	9	2	34.00	25.49	1.33	0.36	11.55	15.00	15.00

TIME OF CONCENTRATIONS ARE DETERMINED BASED ON AVAILABLE ELEVATION DATA FROM NCTCOG AND FIELD TOPOGRAPHIC SURVEY.

RUNOFF COEFFICIENT

DA ID	LAND USE	AREA (AC)	% TOTAL	C	C _w
A	SINGLE-FAMILY RESIDENTIAL	35.508	1.00	0.55	0.55
		35.508	1.00		
B	SINGLE-FAMILY RESIDENTIAL	0.924	1.00	0.55	0.55
		0.924	1.00		
EX-4	OPEN SPACE	3.048	1.00	0.35	0.35
		3.048	1.00		

COEFFICIENT VALUES ARE BASED ON CITY OF LUCAS ORDINANCE (AMENDED 5/1/21) - ARTICLE 13.07.003.

FLOW COMPUTATION - (DEVELOPED, UNDETAINED)

DA ID	DEISGN STORM FREQUENCY	Tc (mins)	INTENSITY "I" (in/hr)	DRIANAGE AREA "A" (acres)	RUNOFF COEFFICIENT "C"	FLOW Q (cfs)	NOTES
A	2-Yr	27.23	2.97	35.508	0.55	58.00	DRAINAGE AREA DRAIN TO PROPOSED DETENTION BASIN.
	10-Yr		4.12			80.46	
	25-Yr		4.82			94.13	
	100-Yr		5.85			114.25	
B	2-Yr	15.00	3.95	0.924	0.55	2.01	DRAINAGE AREA B RUNOFFS TO FLOOD PLAIN (DRAINAGE AREA EX-4)
	10-Yr		5.50			2.80	
	25-Yr		6.44			3.27	
	100-Yr		7.84			3.98	
EX-4	2-Yr	15.00	3.95	3.048	0.35	4.21	FLOOD PLAIN DISCHARGE TO TURNER BRANCH TRIBUTARY
	10-Yr		5.50			5.87	
	25-Yr		6.44			6.87	
	100-Yr		7.84			8.36	

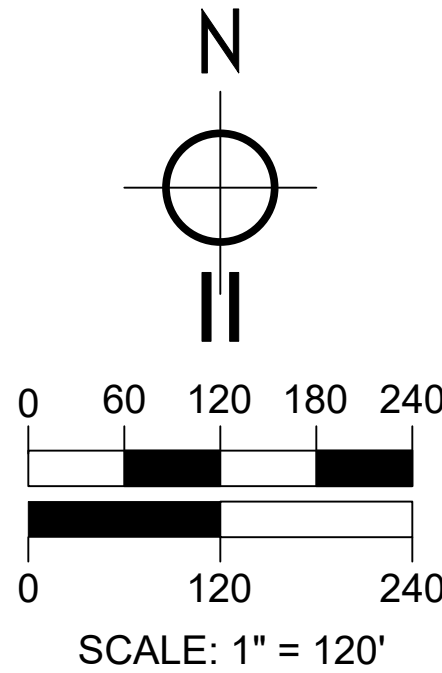
RAINFALL INTENSITY VALUES ARE BASED ON CITY OF LUCAS ORDINANCE 2022-04-00945 (ADOPTED 4/7/22).

UNDETAINED OFF-SITE FLOWS

DA ID	DEISGN STORM FREQUENCY	Tc (mins)	INTENSITY "I" (in/hr)	DRIANAGE AREA "A" (acres)	RUNOFF COEFFICIENT "C"	FLOW Q (cfs)	NOTES
(1)C1	2-Yr	(2) 10.00	(3) 4.44	(1) 0.360	(2) 0.9	1.44	EXISTING ROAD PAVEMENT AREA OF FM 2514.
	10-Yr		(3) 6.53			2.12	
	25-Yr		(3) 7.69			2.49	
	100-Yr		(3) 9.38			3.04	
(1)C2	2-Yr	(2) 10.00	(3) 4.44	(1) 0.400	(2) 0.90	1.60	EXISTING ROAD PAVEMENT AREA OF FM 2514.
	10-Yr		(3) 6.53			2.35	
	25-Yr		(3) 7.69			2.77	
	100-Yr		(3) 9.38			3.38	
(1)C3	2-Yr	(2) 10.00	(3) 4.44	(1) 0.280	(2) 0.90	1.12	EXISTING ROAD PAVEMENT AREA OF FM 2514.
	10-Yr		(3) 6.53			1.65	
	25-Yr		(3) 7.69			1.94	
	100-Yr		(3) 9.38			2.36	
(1)C4	2-Yr	(2) 10.00	(3) 4.44	(1) 0.350	(2) 0.90	1.40	EXISTING ROAD PAVEMENT AREA OF FM 2514.
	10-Yr		(3) 6.53			2.06	
	25-Yr		(3) 7.69			2.42	
	100-Yr		(3) 9.38			2.95	
(1)C5	2-Yr	(2) 18.14	(3) 3.40	(1) 0.640	(2) 0.60	1.31	OFF-SITE RUNOFF FROM KIRKLAND ESTATE DEVELOPMENT (EXISTING).
	10-Yr		(3) 5.05			1.94	
	25-Yr		(3) 5.97			2.29	
	100-Yr		(3) 7.34			2.82	
(1)C6	2-Yr	(2) 13.57	(3) 3.90	(1) 0.940	(2) 0.60	2.20	OFF-SITE RUNOFF FROM KIRKLAND ESTATE DEVELOPMENT (EXISTING).
	10-Yr		(3) 5.77			3.25	
	25-Yr		(3) 6.81			3.84	
	100-Yr		(3) 8.34			4.70	

(1) REFER TO STORM SEWER DRAINAGE AREA MAP (SHEET NO. 226 - 227) FROM FM 2514 RECORD PLANS (CSJ: 2679-02-008)
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(3) INTENSITY IS BASED ON ORIGINAL SOURCE (TxDOT, EBDLUP-2019.xlsx)

TOTAL FOR C1 - C6	FLOW Q (cfs)
2-Yr	9.06
10-Yr	13.36
25-Yr	15.75
100-Yr	19.26



DESIGN HISTORY

REV	DATE	DESCRIPTION
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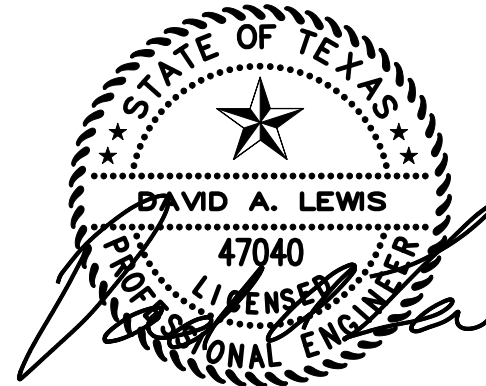
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SANDALWOOD ESTATES DEVELOPMENT DRAINAGE AREA MAP - DEVELOPED

FM 2514 (PARKER RD)

LUCAS, TEXAS 75002

ABS A0901 TRACT 4 & 5; ABS 0349 TRACT 6 & 7

OWNER(S): 3R LAND PROPERTIES

2022-0535B

SHEET

14

DRAINAGE AREA MAP - DEVELOPED (PROPOSED) CONDITIONS

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